

2017-2018

Catalogue

release 8.8



CAMOZZI

Welcome to the world of Camozzi

Welcome to the world of Camozzi.
You are looking at the new
“Camozzi Catalogue release 8.8”,
updated with all new products.
We want to dedicate this catalogue,
meant to be an easy-to-use
and practical instrument, to all
the people who work with us and for us.
It represents an important sign of how
your satisfaction guides our choices.
This issue, together with much
more information regarding the world
of Camozzi, can also be found
on the website www.camozzi.com.



www.camozzi.com

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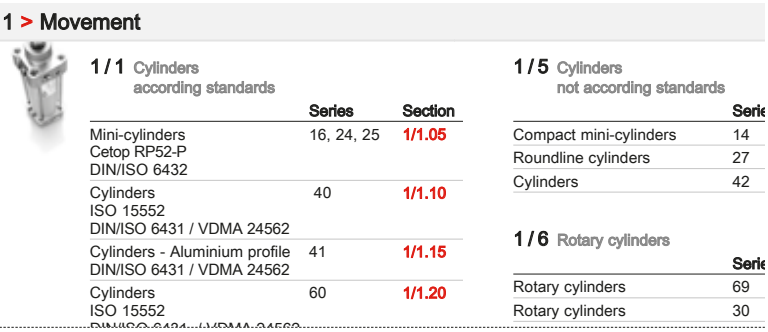
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How to use Camozzi Catalogue

THE GENERAL INDEX

How to have a general overview of our products

The General index contains all products series which are included in chapters 1-5 as well as the Appendix.



1 > Movement

1 / 1 Cylinders according standards

	Series	Section
Mini-cylinders Cetop RP52-P DIN/ISO 6432	16, 24, 25	1/1.05
Cylinders ISO 15552 DIN/ISO 6431 / VDMA 24562	40	1/1.10
Cylinders - Aluminium profile DIN/ISO 6431 / VDMA 24562	41	1/1.15
Cylinders ISO 15552 DIN/ISO 6431 / VDMA 24562	60	1/1.20

1 / 5 Cylinders not according standards

	Serie
Compact mini-cylinders	14
Roundline cylinders	27
Cylinders	42

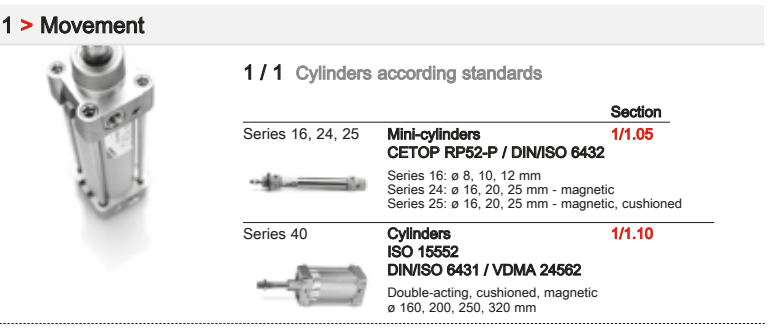
1 / 6 Rotary cylinders

	Serie
Rotary cylinders	69
Rotary cylinders	30

THE CHAPTER INDEX

How to choose the best products for your needs

The chapter index allows you to first select the product series according to the technical features of their products.



1 > Movement

1 / 1 Cylinders according standards

		Section
Series 16, 24, 25	**Mini-cylinders CETOP RP52-P / DIN/ISO 6432** Series 16: ø 8, 10, 12 mm Series 24: ø 16, 20, 25 mm - magnetic Series 25: ø 16, 20, 25 mm - magnetic, cushioned	1/1.05
Series 40	**Cylinders ISO 15552 DIN/ISO 6431 / VDMA 24562** Double-acting, cushioned, magnetic ø 160, 200, 250, 320 mm	1/1.10

THE ALPHANUMERIC INDEX

How to find a product with its part code

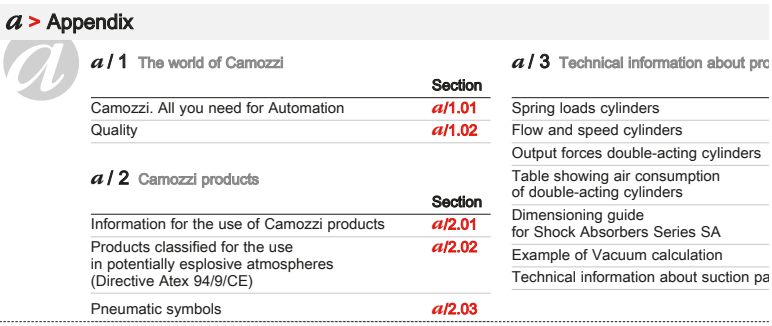
The Alphanumeric index associates the product part code with the related series and specifies both the page section and the corresponding progressive page number.

Model	Series	Section
1000...	1000 (Universal fittings)	4/3.05.04
1...-900	1 (Manually operated valves)	2/4.30.10-11
1...-945	1 (Mechanically operated valves)	2/4.10.04-05-06
1...-955	1 (Mechanically operated valves)	2/4.10.05-06
1010...	1000 (Universal fittings)	4/3.05.04
1020...	1000 (Universal fittings)	4/3.05.03
1050...	1000 (Universal fittings)	4/3.05.02
1063...	1000 (Universal fittings)	4/3.05.02
1093...	1000 (Universal fittings)	4/3.05.03
1170...	1000 (Universal fittings)	4/3.05.05
120-80...	K8 (Connectors)	2/1.03.04
120-J80...	K8 (Connectors)	2/1.03.04
120-J80...	K8B (Connectors)	2/1.04.06
1210...	1000 (Universal fittings)	4/3.05.05
121-8...	K (Connectors)	2/1.05.05
121-8...	KN (Connectors)	2/1.06.03
121-8...	KN High Flow (Connectors)	2/1.07.03
121-8...	VEC (Connectors)	5/2.15.07

Model	Series
2013...	2000 (Pipe fittings)
2020...	2000 (Pipe fittings)
2021 M5-M5	2000 (Pipe fittings)
2023...	2000 (Pipe fittings)
2033...	2000 (Pipe fittings)
2040...	2000 (Pipe fittings)
2043...	2000 (Pipe fittings)
2050...	2000 (Pipe fittings)
2060...	2000 (Pipe fittings)
2070...	2000 (Pipe fittings)
2080...	2000 (Pipe fittings)
2090...	2000 (Pipe fittings)
23...-000	2 (Manually op. console minivalves)
23...-895	2 (Manually op. console minivalves)
23...-904	2 (Manually op. console minivalves)
23...-905	2 (Manually op. console minivalves)
23...-9054	2 (Manually op. console minivalves)
23...-925	2 (Pneumatic pedal)

THE APPENDIX

The Appendix provides useful information about our company, products and other important technical data related to some product groups.



***a* > Appendix**

***a* / 1** The world of Camozzi

	Section
Camozzi. All you need for Automation	*a*/1.01
Quality	*a*/1.02

***a* / 2** Camozzi products

	Section
Information for the use of Camozzi products	*a*/2.01
Products classified for the use in potentially esplosive atmospheres (Directive Atex 94/9/CE)	*a*/2.02
Pneumatic symbols	*a*/2.03

***a* / 3** Technical information about pro

Spring loads cylinders
Flow and speed cylinders
Output forces double-acting cylinders
Table showing air consumption of double-acting cylinders
Dimensioning guide for Shock Absorbers Series SA
Example of Vacuum calculation
Technical information about suction pa

General index

1 > Movement

Includes News



1 / 1 Cylinders according standards

	Series	Section
Mini-cylinders Cetop RP52-P DIN/ISO 6432	16, 24, 25	1/1.05
Cylinders ISO 15552 DIN/ISO 6431 / VDMA 24562	40	1/1.10
Cylinders - Aluminium profile DIN/ISO 6431 / VDMA 24562	41	1/1.15
Cylinders ISO 15552 DIN/ISO 6431 / VDMA 24562	60	1/1.20
Cylinders - Aluminium profile ISO 15552 DIN/ISO 6431 / VDMA 24562	61	1/1.25
Cylinders - Aluminium profile ISO 15552 DIN/ISO 6431 / VDMA 24562	62	1/1.26
Positioning Feedback cylinders ISO 15552 DIN/ISO 6431 / VDMA 24562	6PF	1/1.27
Cylinders - Aluminium tube and profile ISO 15552 DIN/ISO 6431 / VDMA 24562	63	1/1.28
Compact magnetic cylinders ISO 21287	32	1/1.30
Compact cylinders, Tandem and Multi-position versions ISO 21287	32	1/1.31
Anti-rotation guide units	45	1/1.35

1 / 2 Compact cylinders

	Series	Section
Short-stroke cylinders	QN	1/2.05
Short-stroke cylinders	QP, QPR	1/2.10
Compact cylinders	31	1/2.15
Compact cylinders, Tandem and Multi-position versions	31	1/2.20
Stopper cylinders	ST	1/2.25

1 / 3 Stainless steel cylinders

	Series	Section
Stainless steel cylinders ISO 15552 DIN/ISO 6431 / VDMA 24562	90	1/3.05
Stainless steel mini-cylinders Cetop RP52-P / DIN/ISO 6432	94, 95	1/3.15
Stainless steel cylinders	97	1/3.20

1 / 4 Guided cylinders

	Series	Section
Cylinders with integrated guide	QCT, QCB	1/4.05
Cylinders with integrated guide	QCTF, QCBF	1/4.10
Twin cylinders	QX	1/4.15

1 / 5 Cylinders not according standards

	Series	Section
Compact mini-cylinders	14	1/5.05
Roundline cylinders	27	1/5.10
Cylinders	42	1/5.15

1 / 6 Rotary cylinders

	Series	Section
Rotary cylinders	69	1/6.10
Rotary cylinders	30	1/6.15
Rotary actuators	ARP	1/6.20

1 / 7 Grippers

	Series	Section
Angular grippers	CGA	1/7.05
180° angular grippers	CGSN	1/7.12
Parallel grippers	CGP	1/7.15
Self-centering parallel grippers with T-guide	CGPT	1/7.17
Self-centering parallel grippers with double ball bearing guide	CGPS	1/7.18
Wide opening parallel grippers	CGLN	1/7.27
3-Finger centric grippers	CGC	1/7.30
Sprue grippers - Size 20 mm	RPGA	1/7.35
Sprue grippers - Size 8, 12 mm	RPGB	1/7.37

1 / 8 Rodless cylinders

	Series	Section
Rodless cylinders	50	1/8.05
Rodless cylinders	52	1/8.10

1 / 9 Proximity switches

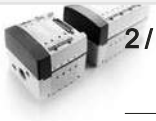
	Series	Section
Magnetic proximity switches	CST-CSV-CSH CSB-CSC-CSD	1/9.05
Proximity switches	CSN	1/9.10
Tables for the use of sensors		1/9.20

1 / 10 Clamping elements and shock absorbers

	Series	Section
Hydrochecks	43	1/10.05
Rod lock ISO 6431/VDMA and ISO 6432	RL	1/10.10
Shock absorbers	SA	1/10.15

General index

2 > Control



2 / 1 Directly and indirectly operated 2/2, 3/2 solenoid valves

	Series	Section
Directly operated solenoid valves - 8 mm	K8	2/1.03
Pilot operated solenoid valves	K8B	2/1.04
Directly operated solenoid valves - 10 mm	K	2/1.05
Directly operated solenoid valves - 10 mm	KN	2/1.06
Directly operated solenoid valves - 10 mm	KN HIGH FLOW	2/1.07
Directly operated solenoid valves - 15 mm	W	2/1.10
Directly operated solenoid valves - 15 mm	P	2/1.15
Directly operated solenoid valves - 15 mm	PL	2/1.16
Directly operated solenoid valves - 15 mm	PN	2/1.17
Directly operated solenoid valves - 15 mm	PD	2/1.18
Directly operated solenoid valves with separating diaphragm	PDV	2/1.19
Directly operated solenoid valves - 22 mm	A	2/1.20
Directly operated solenoid valves - 30 mm	6	2/1.25
Solenoid valves	CFB	2/1.30
Solenoid valves	CFB Stainless steel	2/1.31

2 / 2 Solenoid valves / pneumatic valves

	Series	Section
Pneumatic operated cartridge valves	8	2/2.03
Pneumatically and electropneumatically operated valves	8	2/2.04
Valves and solenoid valves	E	2/2.05
Valves and solenoid valves	EN	2/2.07
Valves and solenoid valves	3	2/2.10
Valves and solenoid valves	4	2/2.15
Valves and solenoid valves ISO 5599/1	9	2/2.20
Valves and solenoid valves VDMA 24563 (ISO 15407-1)	7	2/2.25
Valves and solenoid valves	NA	2/2.30
Solenoids	GP, B, G, U7 A8, H8	2/2.35

2 / 3 Valve islands

	Series	Section
Plug-In valve islands Multipole and Fieldbus	3	2/3.30
Valve islands Multipole and Fieldbus	F	2/3.35
Valve islands Multipole and Fieldbus	HN	2/3.40
Valve islands Individual, Multipole and Fieldbus	Y	2/3.45
Multi-serial module	CX	2/3.50

2 / 4 Mechanical / manual valves

	Series	Section
Mechanically operated minivalves	2	2/4.05
Mechanically operated valves	1, 3	2/4.10
Mechanically operated sensor valves	3, 4	2/4.15
Foot operated pedal Electrical and pneumatic	2, 3	2/4.20
Manually operated console minivalves	2	2/4.25
Manually operated valves	1, 3, 4, VMS	2/4.30
Mini-handle valves	2	2/4.35

2 / 5 Logic valves

	Series	Section
Basic logic valves	2L	2/5.05

Includes News

2 / 6 Automatic valves

	Series	Section
Circuit selector	SCS	2/6.01
Unidirectional valves	VNR	2/6.02
Quick exhaust valves	VSO, VSC	2/6.03
Adjustable overpressure exhaust valve	VMR 1/8-B10	2/6.04
Blocking valves	VBO, VBU	2/6.10

2 / 7 Flow control valves

	Series	Section
Flow control valves	SCU, MCU, SVU, MVU, SCO, MCO	2/7.05
Flow control valves	PSCU, PMCU, PSVU, PMVU, PSCO, PMCO	2/7.07
Flow control valves	TMCU, TMVU, TMCO	2/7.10
Flow control valves	GSCU, GMCU, GSVU, GMVU, GSCO, GMCO	2/7.15
Flow control valves	RFU, RFO	2/7.20
Flow control valves	28	2/7.25

2 / 8 Pressure switches and vacuum switches

	Series	Section
Pressure switches, Transducers, Pressure indicators	PM, TRP, 2950	2/8.05
Electronic vacuum/pressure switches	SWDN	2/8.22
Electronic vacuum/pressure switches	SWCN	2/8.27

2 / 9 Silencers

	Series	Section
Silencers	29...	2/9.05

2 / 15 Proportional technology

	Series	Section
Directly operated proportional valves	AP	2/15.01
Directly operated proportional solenoid valves	CP	2/15.02
Electronic control device for proportional valves	130	2/15.03
Digital proportional servo valves	LRWD2, LRPD2, LRXD2	2/15.32
Electronic proportional micro regulator	K8P	2/15.37
Electronic proportional regulator	MX-PRO	2/15.45
Digital electro-pneumatic regulators	ER100	2/15.50
Digital electro-pneumatic regulators	ER200	2/15.51

General index

3 > Treatment

Includes News



3 / 1 Series MX Modular FRL Units

	Series	Section
Filters	MX	3/1.05
Coalescing filters	MX	3/1.10
Activated carbon filters	MX	3/1.15
Pressure regulators	MX	3/1.20
Lubricators	MX	3/1.25
Filter-regulators	MX	3/1.30
Lockable isolation 3/2-way valves	MX	3/1.35
Soft start valves	MX	3/1.40
Take-off blocks	MX	3/1.45
Accessories	MX	3/1.49
Assembled FRL	MX	3/1.50

3 / 2 Series MC Modular FRL Units

	Series	Section
Filters	MC	3/2.05
Coalescing filters	MC	3/2.10
Pressure regulators	MC	3/2.15
Lubricators	MC	3/2.20
Filter-regulators	MC	3/2.25
Lockable isolation 3/2-way valves	MC	3/2.30
Soft start valves	MC	3/2.35
Take-off blocks	MC	3/2.40
Accessories	MC	3/2.44
Assembled FRL	MC	3/2.45
Manifold pressure regulators	MC	3/2.50

3 / 3 Series MD Modular FRL Units

	Series	Section
Filters	MD	3/3.05
Coalescing filters	MD	3/3.10
Activated carbon filters	MD	3/3.15
Pressure regulators	MD	3/3.20
Lubricators	MD	3/3.25
Filter-regulators	MD	3/3.30
Lockable isolation 3/2-way valves	MD	3/3.35
Soft start valves	MD	3/3.40
Take-off blocks	MD	3/3.45
Accessories	MD	3/3.49
Assembled FRL	MD	3/3.50

3 / 4 FRL Units

	Series	Section
Filters and coalescing filters	N	3/4.05
Pressure regulators	N	3/4.10
Lubricators	N	3/4.15
Filter-regulators	N	3/4.20
Accessories	N	3/4.25

3 / 5 Pressure regulators

	Series	Section
Micro pressure regulators	CLR	3/5.03
Pressure microregulators	TC	3/5.04
Pressure microregulators	M	3/5.05
Pressure microregulators	T	3/5.10
Accessories	M, T	3/5.12
Precision regulators with manual override	PR	3/5.15

3 / 6 Accessories for the air treatment

	Series	Section
Pressure gauges	M043, M053, M063	3/6.05
Digital pressure gauges	PG	3/6.06
Condensate drains Filtering elements	MX, MC, N	3/6.10

4 > Connection

Includes News



4 / 1 Super-rapid fittings

	Series	Section
Super-rapid fittings for plastic tubes	6000	4/1.05
Super-rapid Compact fittings in technopolymer	7000	4/1.10
Dual seal super-rapid fittings	8000	4/1.15
Super-rapid fittings in stainless steel 316L	X6000	4/1.25

4 / 2 Rapid fittings

	Series	Section
Rapid push-in fittings for plastic tubes	1000	4/2.05

4 / 3 Universal fittings

	Series	Section
Universal nose fittings	1000	4/3.05

4 / 4 Fittings accessories

	Series	Section
Pipe fittings Sprint®	S2000	4/4.05
Pipe fittings	2000	4/4.10

4 / 5 Quick-release couplings

	Series	Section
Quick-release couplings	5000	4/5.05
Quick-release couplings for the conditioning of moulds for plastics	5000L, 5000LT	4/5.06

4 / 6 Tubing, spirals and accessories

	Series	Section
Tubing, spirals and accessories	T, MPL, PNZ	4/6.05

5 > Vacuum



5 / 1 Suction pads

	Series	Section
Flat suction pads (round)	VTCF	5/1.05
Flat suction pads (oval)	VTOF	5/1.10
Bellows suction pads (round) 1,5 folds	VTCL	5/1.15
Bellows suction pads (round) 2,5 folds	VTCN	5/1.20

5 / 2 Ejectors based on Venturi principle

	Series	Section
Basic ejectors	VEB	5/2.05
Basic ejectors	VEBL	5/2.07
Inline ejectors	VED	5/2.10
Inline ejectors	VEDL	5/2.12
Compact ejectors	VEC	5/2.15
Compact ejectors	VEM	5/2.20

5 / 3 Accessories

	Series	Section
Flexible suction pad mountings	NPF	5/3.05
Spring plungers	NPM, NPR	5/3.10
Check valves	VNV	5/3.15

5 / 4 Filters

	Series	Section
Inline vacuum filters	FVD	5/4.05
Vacuum cup filters	FVT	5/4.10

Pressure / vacuum switches

	Section
See	2/8...

a > Appendix

a / 1 The world of Camozzi

	Section
Camozzi. All you need for Automation	a/1.01
Quality	a/1.02

a / 2 Camozzi products

	Section
Information for the use of Camozzi products	a/2.01
Products classified for the use in potentially esplosive atmospheres (Directive ATEX 2014/34/EU)	a/2.02
Pneumatic symbols	a/2.03

a / 3 Technical information about products

	Section
Spring loads cylinders	a/3.01
Flow and speed cylinders	a/3.02
Output forces double-acting cylinders	a/3.03
Table showing air consumption of double-acting cylinders	a/3.04
Dimensioning guide for Shock Absorbers Series SA	a/3.05
Example of Vacuum calculation	a/3.06
Technical information about suction pads	a/3.07

Alphanumeric index

Model	Series	Section
1000...	1000 (Universal fittings)	4/3.05.04
1...-900	1 (Manually operated valves)	2/4.30.10-11
1...-945	1 (Mechanically operated valves)	2/4.10.04-05-06
1...-955	1 (Mechanically operated valves)	2/4.10.05-06
1010...	1000 (Universal fittings)	4/3.05.04
1020...	1000 (Universal fittings)	4/3.05.03
1050...	1000 (Universal fittings)	4/3.05.02
1063...	1000 (Universal fittings)	4/3.05.02
1093...	1000 (Universal fittings)	4/3.05.03
1170...	1000 (Universal fittings)	4/3.05.05
120-80...	K8 (Connectors)	2/1.03.04
120-J80…	K8 (Connectors)	2/1.03.04
120-J80…	K8B (Connectors)	2/1.04.06
1210...	1000 (Universal fittings)	4/3.05.05
121-8...	K (Connectors)	2/1.05.05
121-8...	KN (Connectors)	2/1.06.03
121-8...	KN High Flow (Connectors)	2/1.07.03
121-8…	VEC (Connectors)	5/2.15.07
121-8…	VEM (Connectors)	5/2.20.04
121-8…	Y (Valve islands connectors)	2/3.45.24
122-…	AP (Connectors)	2/15.01.11
122-…	G7, U7, B7 (Connectors)	2/2.35.06
1220...	1000 (Universal fittings)	4/3.05.05
122-800	130 (Connector)	2/15.03.03
122-89…C	G9 (Connector)	2/2.35.07
1230...	1000 (Universal fittings)	4/3.05.04
124-…	6 (Connectors)	2/1.25.04
124-…	A8, B8, B9 (Connectors)	2/2.35.07
124-800	AP (Connector)	2/15.01.11
124-830…	Connector for pressure switch PM11-SC	2/8.05.03
125-…	AP (Connectors)	2/15.01.10
125-…	EN (Connectors)	2/2.07.39-40
125-…	P (Connectors)	2/1.15.05-06
125-…	PD (Connectors)	2/1.18.05-06
125-…	PDV (Connectors)	2/1.19.04-05
125-…	PL (Connectors)	2/1.16.05-06
125-…	PN (Connectors)	2/1.17.05-06
1250...	1000 (Universal fittings)	4/3.05.04
125-800	130 (Connector)	2/15.03.03
126-…	EN (Connectors)	2/2.07.39
126-…	PDV (Connectors)	2/1.19.04
126-…	VEC (Connectors)	5/2.15.07
126-…	W (Connectors)	2/1.10.05
13...-935	1 (Manually operated valves)	2/4.30.10-11
130-…	130 (Control device for prop. valves)	2/15.03.02
1303...	1000 (Universal fittings)	4/3.05.06
1310...	1000 (Universal fittings)	4/3.05.06
1320...	1000 (Universal fittings)	4/3.05.06
138-965	1 (Mechanically operated valves)	2/4.10.05
1410...	1000 (Rapid fittings)	4/2.05.06
1420...	1000 (Rapid fittings)	4/2.05.06
1431...	1000 (Rapid fittings)	4/2.05.05
1463...	1000 (Rapid fittings)	4/2.05.03
1470...	1000 (Rapid fittings)	4/2.05.12
1493...	1000 (Rapid fittings)	4/2.05.05
14N1...	14 (Mini-cylinders)	1/5.05.02
1500...	1000 (Rapid fittings)	4/2.05.04
1501 5/3 M5	1000 (Rapid fittings)	4/2.05.05
1510...	1000 (Rapid fittings)	4/2.05.02
1511...	1000 (Rapid fittings)	4/2.05.02
1521...	1000 (Rapid fittings)	4/2.05.07
1525...	1000 (Rapid fittings)	4/2.05.07
1540...	1000 (Rapid fittings)	4/2.05.11
1541...	1000 (Rapid fittings)	4/2.05.04
1550...	1000 (Rapid fittings)	4/2.05.11
1560...	1000 (Rapid fittings)	4/2.05.03
1580...	1000 (Rapid fittings)	4/2.05.10
1590...	1000 (Rapid fittings)	4/2.05.11
1600...	1000 (Rapid fittings)	4/2.05.12
160-39-11/19	MX (O-ring)	3/1.49.05
160-39-11/19	MX PRO (O-ring)	2/15.45.09
1610...	1000 (Rapid fittings)	4/2.05.08
1620...	1000 (Rapid fittings)	4/2.05.08
1631...	1000 (Banjo bolt)	4/2.05.09-10
1631...	6000 (Banjo bolt)	4/1.05.12
1635...	1000 (Banjo bolt)	4/2.05.09-10
16N...	16 (Minicylinders ISO)	1/1.05.02
1703...	1000 (Rapid fittings)	4/2.05.14
1723...	1000 (Rapid fittings)	4/2.05.14
2...0-000	2 (End covers)	2/4.25.06
2...4-88…	2 (Mini-handle valves)	2/4.35.02
2...-945	2 (Mechanically operated minivalves)	2/4.05.02
2...-955	2 (Mechanically operated minivalves)	2/4.05.03
2...-965	2 (Mechanically operated minivalves)	2/4.05.04
2...-985	2 (Mechanically operated minivalves)	2/4.05.03
200-2230	2 (Adaptor)	2/4.25.06
2003...	2000 (Pipe fittings)	4/4.10.10
2010...	2000 (Pipe fittings)	4/4.10.08

Model	Series	Section
2013...	2000 (Pipe fittings)	4/4.10.07
2020...	2000 (Pipe fittings)	4/4.10.08
2021 M5-M5	2000 (Pipe fittings)	4/4.10.08
2023...	2000 (Pipe fittings)	4/4.10.11
2033...	2000 (Pipe fittings)	4/4.10.11
2040...	2000 (Pipe fittings)	4/4.10.10
2043...	2000 (Pipe fittings)	4/4.10.11
2050...	2000 (Pipe fittings)	4/4.10.08
2060...	2000 (Pipe fittings)	4/4.10.09
2070...	2000 (Pipe fittings)	4/4.10.09
2080...	2000 (Pipe fittings)	4/4.10.09
2090...	2000 (Pipe fittings)	4/4.10.10
23...-000	2 (Manually op. console minivalves)	2/4.25.05
23...-895	2 (Manually op. console minivalves)	2/4.25.03
23...-904	2 (Manually op. console minivalves)	2/4.25.04
23...-905	2 (Manually op. console minivalves)	2/4.25.02
23...-9054	2 (Manually op. console minivalves)	2/4.25.05
23...-925	2 (Pneumatic pedal)	2/4.20.02
23...-972	2 (Manually op. console minivalves)	2/4.25.04
23...-975	2 (Manually op. console minivalves)	2/4.25.03
23...-990	2 (Manually op. console minivalves)	2/4.25.03
24N…	24 (ISO minicylinders)	1/1.05.02
2500...	2000 (Pipe fittings)	4/4.10.02
2501...	2000 (Pipe fittings)	4/4.10.02
2510...	2000 (Pipe fittings)	4/4.10.02
2511...	2000 (Pipe fittings)	4/4.10.04
2520...	2000 (Pipe fittings)	4/4.10.03
2521...	2000 (Pipe fittings)	4/4.10.03
2525...	2000 (Pipe fittings)	4/4.10.04
2530...	2000 (Pipe fittings)	4/4.10.04
2531...	2000 (Pipe fittings)	4/4.10.05
2541…	S2000 (Pipe fittings, SPRINT)	4/4.05.03
2543...	2000 (Pipe fittings)	4/4.10.05
2553...	2000 (Pipe fittings)	4/4.10.05
25N...	25 (ISO minicylinders)	1/1.05.02
2601...	2000 (Pipe fittings)	4/4.10.07
2610 3/4…	2000 (Pipe fittings)	4/4.10.06
2611...	2000 (Pipe fittings)	4/4.10.06
2612…	S2000 (Pipe fittings, SPRINT)	4/4.05.05
2613...	2000 (Pipe fittings)	4/4.10.06
2651...	1000 (Washer)	4/2.05.12
2661...	1000 (Washer)	4/2.05.13
2665...	1000 (Washer)	4/2.05.13
2669...	1000 (Washer)	4/2.05.13
27M2A...	27 (Magnetic cylinders)	1/5.10.02
27T2A...	27 (Magnetic cylinders)	1/5.10.02
27U2A...	27 (Magnetic cylinders)	1/5.10.02
28...-000	2 (Manually op. console minivalves)	2/4.25.05
28...-870	2 (Manually op. console minivalves)	2/4.25.04
2810...	28 (Flow control valves)	2/7.25.02
2819...	28 (Flow control valves)	2/7.25.03
2820...	28 (Flow control valves)	2/7.25.02
2829...	28 (Flow control valves)	2/7.25.03
2830...	28 (Flow control valves)	2/7.25.02
2839...	28 (Flow control valves)	2/7.25.03
2901...	2901 (Silenciers)	2/9.05.02
2903...	2903 (Silenciers)	2/9.05.02
2905...	2905 (Silencing bushes)	2/9.05.04
2921...	2921 (Silenciers)	2/9.05.02
2931...	2931 (Silenciers)	2/9.05.03
2938...	2938 (Silenciers)	2/9.05.03
2939...	2939 (Silenciers)	2/9.05.03
2950 M5	2950 (Pressure indicator)	2/8.05.03
2LA-AM	2L (Amplifier valve)	2/5.05.03
2LB-S…	2L (Sender and receiver sensors)	2/5.05.04
2LD-SB4-B	2L (AND logics function)	2/5.05.02
2LM-SB4-B	2L (Memory)	2/5.05.02
2LQ-8A	2L (Right-angled bracket)	2/5.05.03
2LR-SB4-B	2L (OR logics function)	2/5.05.02
2LS-SB4-B	2L (YES logics function)	2/5.05.02
2LT-SB4-B	2L (NOT logics function)	2/5.05.02
3...8-89…	3 (Manually operated valves)	2/4.30.03
3...8-90…	3 (Manually operated valves)	2/4.30.05-06
3...8-91…	3 (Manually operated valves)	2/4.30.04
3...8-945	3 (Mechanically operated valves)	2/4.10.02-03
3...8-955	3 (Mechanically operated valves)	2/4.10.03
3...8-965	3 (Mechanically operated valves)	2/4.10.04
3...8-97…	3 (Manually operated valves)	2/4.30.03-04
3...8-990	3 (Manually operated valves)	2/4.30.02-03
3...8-D15-9A5	3 (Mechanically operated sensor valves)	2/4.15.02-03
3...-925	3 (Pneumatic pedal)	2/4.20.02
30-...	30 (Rotary cylinders)	1/6.15.02
3033...	2000 (Pipe fittings - Collectors)	4/4.10.12
3043…	2000 (Pipe fittings - Collectors)	4/4.10.12
3053…	2000 (Pipe fittings - Collectors)	4/4.10.13
31F...	31 (Magnetic compact cylinders)	1/2.15.02
31M...	31 (Magnetic compact cylinders)	1/2.15.02
31…N	31 (ISO compact cyl. - Multi-position)	1/2.20.02

Model	Series	Section
31…N2	31 (ISO compact cyl. - Tandem)	1/2.20.02
31R...	31 (Magnetic compact cylinders)	1/2.15.02
32…N	32 (ISO compact cyl. - Multi-position)	1/1.31.02
32…N2	32 (ISO compact cyl. - Tandem)	1/1.31.02
32F...	32 (ISO compact cylinders)	1/1.30.02
32M…	32 (ISO compact cylinders)	1/1.30.02
32R...	32 (ISO compact cylinders)	1/1.30.02
334-…-02-…	3 (3/2-way solenoid valves)	2/2.10.06
334-03…	3 (3/2-way valves)	2/2.10.09
334D-...15-02-…	3 (2x3/2-way solenoid valves)	2/2.10.07
33...D-035	3 (2x3/2-way valves)	2/2.10.11
338-01…-02-...	3 (3/2-way solenoid valves)	2/2.10.03
338-03…	3 (3/2-way valves)	2/2.10.09
3...8D-…15-02-…	3 (2x3/2-way solenoid valves)	2/2.10.04
338L-01…-02-…	3 (3/2-way solenoid valves)	2/2.10.03
338L-03…	3 (3/2-way valves)	2/2.10.09
344-…15-02-…	3 (3/2-way solenoid valves)	2/2.10.06
348-015-02-…	3 (3/2-way solenoid valves)	2/2.10.03
344D-...15-02-…	3 (2x3/2-way solenoid valves)	2/2.10.07
34...D-035	3 (2x3/2-way valves)	2/2.10.11
348L-015-02-…	3 (3/2-way solenoid valves)	2/2.10.03
354-…02-…	3 (5/2-way solenoid valves)	2/2.10.07-08
354-03…	3 (5/2-way valves)	2/2.10.10
358-…-02-…	3 (5/2-way solenoid valves)	2/2.10.04-05
358-03…	3 (5/2-way valves)	2/2.10.10
364-...11-02-…	3 (5/3-way solenoid valves)	2/2.10.08
36...-033	3 (5/3-way valves)	2/2.10.11
368-…11-02-…	3 (5/3-way solenoid valves)	2/2.10.05
374-...11-02-…	3 (5/3-way solenoid valves)	2/2.10.08
37...-033	3 (5/3-way valves)	2/2.10.11
378-...11-02-…	3 (5/3-way solenoid valves)	2/2.10.05
384-...11-02-…	3 (5/3-way solenoid valves)	2/2.10.08
38...-033	3 (5/3-way valves)	2/2.10.11
388-…11-02-…	3 (5/3-way solenoid valves)	2/2.10.05
394D-…15-02-…	3 (2x3/2-way solenoid valves)	2/2.10.07
39...D-035	3 (2x3/2-way valves)	2/2.10.11
398D-…15-02-…	3 (2x3/2-way solenoid valves)	2/2.10.04
3P8…	3 Plug-In (Valve islands, Multipole)	2/3.30.02
3PAC-...	3 (Valve islands modules)	2/3.30.10-11
3PBC-N-XS0	3 (Valve islands modules)	2/3.30.10
3S8…	3 Plug-In (Valve islands, Fieldbus)	2/3.30.03
4...4-90…	4 (Manually operated valves)	2/4.30.07-08-09
4...4-91…	4 (Manually operated valves)	2/4.30.07
40M...	40 (ISO cylinders)	1/1.10.02
41M...	41 (ISO cyl. - Aluminium profile)	1/1.15.02
42M...	42 (Magnetic cylinders)	1/5.15.02
43...	43 (Hydrochecks)	1/10.05.02
434-01…-22	4 (3/2-way solenoid valves)	2/2.15.05-06
434-3…	4 (3/2-way valves)	2/2.15.13-14
438-01…-22	4 (3/2-way solenoid valves)	2/2.15.03
438-3…	4 (3/2-way valves)	2/2.15.11-12
43N-40-...	43 (Accessories)	1/10.05.07
43N-PMP	43 (Accessories)	1/10.05.07
444-01…-22	4 (3/2-way solenoid valves)	2/2.15.05
448-01…-22	4 (3/2-way solenoid valves)	2/2.15.03
45...-011-294	4 (Mechanically operated sensor valves)	2/4.15.04
45...-011-295	4 (Mechanically operated sensor valves)	2/4.15.05
45...-015-194	4 (Mechanically operated sensor valves)	2/4.15.04
45...-015-195	4 (Mechanically operated sensor valves)	2/4.15.05
452C-01…	4 (5/2-way solenoid valves)	2/2.15.09
452C-3…	4 (5/2-way valves)	2/2.15.16-17
452N-…-22	4 (5/2-way solenoid valves)	2/2.15.10
452N-3…	4 (5/2-way valves)	2/2.15.17-18
454-…-22	4 (5/2-way solenoid valves)	2/2.15.06-07-08
454-3…	4 (5/2-way valves)	2/2.15.14-15
458-01…-22	4 (5/2-way solenoid valves)	2/2.15.04
458-3…	4 (5/2-way valves)	2/2.15.12-13
458-33/1	MC (O-ring)	3/2.44.05
45N...	45 (Anti-rotation guide units)	1/1.35.02
462N-…11-22	4 (5/3-way solenoid valves)	2/2.15.11
464-011-22	4 (5/3-way solenoid valves)	2/2.15.08
464-33	4 (5/3-way valves)	2/2.15.16
468-011-22	4 (5/3-way solenoid valves)	2/2.15.05
468-33	4 (5/3-way valves)	2/2.15.15
472N-…11-22	4 (5/3-way solenoid valves)	2/2.15.11
474-011-22	4 (5/3-way solenoid valves)	2/2.15.08
474-33	4 (5/3-way valves)	2/2.15.16
478-011-22	4 (5/3-way solenoid valves)	2/2.15.05
5051...	5000 (Quick-release couplings)	4/5.05.03
5052...	5000 (Quick-release couplings)	4/5.05.03
5053...	5000 (Quick-release couplings)	4/5.05.03
5053L…	5000L-5000LT (Quick-release couplings)	4/5.06.03
5054...	5000 (Quick-release couplings)	4/5.05.03
5055...	5000 (Quick-release couplings)	4/5.05.04
5056...	5000 (Quick-release couplings)	4/5.05.04
5057...	5000 (Quick-release couplings)	4/5.05.04
5058...	5000 (Quick-release couplings)	4/5.05.04
5081...	5000 (Quick-release couplings)	4/5.05.03

Model	Series	Section
5082...	5000 (Quick-release couplings)	4/5.05.03
5083...	5000 (Quick-release couplings)	4/5.05.03
5083L…	5000L-5000LT (Quick-release couplings)	4/5.06.03
5084...	5000 (Quick-release couplings)	4/5.05.03
5086...	5000 (Quick-release couplings)	4/5.05.04
5087...	5000 (Quick-release couplings)	4/5.05.04
5088...	5000 (Quick-release couplings)	4/5.05.04
50M2…	50 (Rodless cylinders)	1/8.05.02
5150...	5000 (Quick-release couplings)	4/5.05.05
5150L…	5000L-5000LT (Quick-release couplings)	4/5.06.03
5180...	5000 (Quick-release couplings)	4/5.05.05
5180L…	5000L-5000LT (Quick-release couplings)	4/5.06.03
52G…	52 (Rodless cylinders)	1/8.10.02
52M…	52 (Rodless cylinders)	1/8.10.02
52R…	52 (Rodless cylinders)	1/8.10.02
5350...	5000 (Quick-release couplings)	4/5.05.05
5380...	5000 (Quick-release couplings)	4/5.05.05
5450...	5000 (Quick-release couplings)	4/5.05.05
5480...	5000 (Quick-release couplings)	4/5.05.05
5650...	5000 (Quick-release couplings)	4/5.05.05
5680...	5000 (Quick-release couplings)	4/5.05.05
5750...	5000 (Quick-release couplings)	4/5.05.06
5780...	5000 (Quick-release couplings)	4/5.05.06
5850...	5000 (Quick-release couplings)	4/5.05.06
5880...	5000 (Quick-release couplings)	4/5.05.06
600-…	6 (Directly operated solenoid valves)	2/1.25.04
60L…	60 (ISO cylinders)	1/1.20.02
60M...	60 (ISO cylinders)	1/1.20.02
60N...	60 (ISO cylinders)	1/1.20.02
61L...	61 (ISO cyl. - Aluminium profile)	1/1.25.02
61M...	61 (ISO cyl. - Aluminium profile)	1/1.25.02
623-…	6 (2/2 NC directly operated solenoid valves)	2/1.25.04
62M...	62 (ISO cylinders)	1/1.26.02
63L…	63 (ISO cyl. - Aluminium tube and profile)	1/1.28.02
63M…	63 (ISO cyl. - Aluminium tube and profile)	1/1.28.02
638-…	6 (3/2 NC directly operated solenoid valves)	2/1.25.03
638M-…	6 (3/2 NC directly operated solenoid valves)	2/1.25.03
63CM-…	6 (3/2 NC directly operated solenoid valves)	2/1.25.03
6432...	6000 (Super-rapid fittings)	4/1.05.08-09
6442...	6000 (Super-rapid fittings)	4/1.05.10
6451...	6000 (Super-rapid fittings)	4/1.05.11
6452...	6000 MICRO (Super-rapid fittings)	4/1.05.11
6463...	6000 (Super-rapid fittings)	4/1.05.04
648-…	6 (3/2 NO directly operated solenoid valves)	2/1.25.03
6501 4-M5	6000 (Super-rapid fittings)	4/1.05.07
6512...	6000 (Super-rapid fittings)	4/1.05.03
6522...	6000 (Super-rapid fittings)	4/1.05.05
6525...	6000 (Super-rapid fittings)	4/1.05.06
6540...	6000 (Super-rapid fittings)	4/1.05.17
6550...	6000 (Super-rapid fittings)	4/1.05.16-17
6555...	6000 (Super-rapid fittings)	4/1.05.21
6560...	6000 (Super-rapid fittings)	4/1.05.18
6580...	6000 (Super-rapid fittings)	4/1.05.15-16
6590...	6000 (Super-rapid fittings)	4/1.05.14-15
6593...	6000 (Super-rapid fittings)	4/1.05.16
6600...	6000 (Super-rapid fittings)	4/1.05.18
6610...	6000 (Super-rapid fittings)	4/1.05.13
6620...	6000 (Super-rapid fittings)	4/1.05.12
6621...	6000 (Super-rapid fittings)	4/1.05.07
6622...	6000 (Super-rapid fittings)	4/1.05.11
6632...	6000 (Super-rapid fittings)	4/1.05.12
6700...	6000 (Super-rapid fittings)	4/1.05.19
6700...-F…	F (Interchangeable cartridges)	2/3.35.32
6708...	6000 (Accessories)	4/1.05.21
6750...	6000 (Super-rapid fittings)	4/1.05.19
6800...	6000 (Super-rapid fittings)	4/1.05.20
6811...	6000 (Super-rapid fittings)	4/1.05.13
6850...	6000 (Super-rapid fittings)	4/1.05.19
69-...	69 (Rotary cylinders)	1/6.10.02
6900…	6000 (Accessories)	4/1.05.22
6950...	6000 (Super-rapid fittings)	4/1.05.21
6PF3P…	6PF (Positioning Feedback cylinders)	1/1.27.03
70...C-…	7 (Sub-bases/Accessories)	2/2.25.06-07
70...-TP	7 (Accessories)	2/2.25.08
701C/702C-A	7 (Accessories)	2/2.25.08
7432…	7000 (Super-rapid fittings technopol.)	4/1.10.04
7442…	7000 (Super-rapid fittings technopol.)	4/1.10.03
75…-000-P…	7 (ISO 5/2-way solenoid valves)	2/2.25.02
75…-000-3…	7 (ISO 5/2-way valves)	2/2.25.02
7522…	7000 (Super-rapid fittings technopol.)	4/1.10.02
7526…	7000 (Super-rapid fittings technopol.)	4/1.10.03
7540…	7000 (Super-rapid fittings technopol.)	4/1.10.12
7542…	7000 (Super-rapid fittings technopol.)	4/1.10.04
7545…	7000 (Super-rapid fittings technopol.)	4/1.10.12
7550…	7000 (Super-rapid fittings technopol.)	4/1.10.12
7555…	7000 (Super-rapid fittings technopol.)	4/1.10.11
7560…	7000 (Super-rapid fittings technopol.)	4/1.10.13
7562…	7000 (Super-rapid fittings technopol.)	4/1.10.05

Alphanumeric index

Model	Series	Section
7572...	7000 (Super-rapid fittings technopol.)	4/1.10.05
7575...	7000 (Super-rapid fittings technopol.)	4/1.10.13
7580...	7000 (Super-rapid fittings technopol.)	4/1.10.11
76...-000-P11...	7 (ISO 5/3-way solenoid valves CC)	2/2.25.02
76...-000-33	7 (ISO 5/3-way valves CC)	2/2.25.02
7610...	7000 (Super-rapid fittings technopol.)	4/1.10.07
7612...	7000 (Super-rapid fittings technopol.)	4/1.10.09
7622...	7000 (Super-rapid fittings technopol.)	4/1.10.06
7632...	7000 (Super-rapid fittings technopol.)	4/1.10.08
7640...	7000 (Super-rapid fittings technopol.)	4/1.10.07
7642...	7000 (Super-rapid fittings technopol.)	4/1.10.10
7652...	7000 (Super-rapid fittings technopol.)	4/1.10.06
77...-000-P11...	7 (ISO 5/3-way solenoid valves CO)	2/2.25.02
77...-000-33	7 (ISO 5/3-way valves CO)	2/2.25.02
78...-000-P11...	7 (ISO 5/3-way solenoid valves CP)	2/2.25.02
78...-000-33	7 (ISO 5/3-way valves CP)	2/2.25.02
7800...	7000 (Super-rapid fittings technopol.)	4/1.10.11
7950...	7000 (Super-rapid fittings technopol.)	4/1.10.13
8...C3...	8 (Solenoid v. and pneum. op. valves)	2/2.04.02
8...C5...	8 (Cartridge valves)	2/2.03.02
80-26-11/4T	MC (O-ring)	3/2.44.05
80-62/8C	60 (Accessories)	1/1.20.16
80-62/8C	61 (Accessories)	1/1.25.14
80-62/8C	62 (Accessories)	1/1.26.12
80-62/8C	6PF (Accessories)	1/1.27.14
8432...	8000 (Dual seal super-rapid fittings)	4/1.15.02
8512...	8000 (Dual seal super-rapid fittings)	4/1.15.02
8522...	8000 (Dual seal super-rapid fittings)	4/1.15.02
8540...	8000 (Dual seal super-rapid fittings)	4/1.15.03
8550...	8000 (Dual seal super-rapid fittings)	4/1.15.03
8580...	8000 (Dual seal super-rapid fittings)	4/1.15.03
901-...	9 (Sub-bases/Accessories)	2/2.20.05-06-07
901-TP	9 (Accessories)	2/2.20.08
90...-...A/T...	9 (Accessories)	2/2.20.08
902-...	9 (Sub-bases/Accessories)	2/2.20.05-06-07
903-...	9 (Sub-bases/Accessories)	2/2.20.05-06-07
90M...	90 (Stainless steel cylinders)	1/3.05.02
94N...	94 (Stainless steel mini-cylinders)	1/3.15.02
95...-000-P...	9 (ISO 5/2-way solenoid valves)	2/2.20.02
95...-000-3...	9 (ISO 5/2-way valves)	2/2.20.02
95N...	95 (Stainless steel mini-cylinders)	1/3.15.02
96...-000-P11...	9 (ISO 5/3-way solenoid valves CC)	2/2.20.02
96...-000-33	9 (ISO 5/3-way valves CC)	2/2.20.02
97...-000-P11...	9 (ISO 5/3-way solenoid valves CO)	2/2.20.02
97...-000-33	9 (ISO 5/3-way valves CO)	2/2.20.02
97A...	97 (Stainless steel cylinders)	1/3.20.02
97F...	97 (Stainless steel cylinders)	1/3.20.02
97M...	97 (Stainless steel cylinders)	1/3.20.02
97S...	97 (Stainless steel cylinders)	1/3.20.02
97T...	97 (Stainless steel cylinders)	1/3.20.02
A131-AC2-...	A (3/2 NC directly operated solenoid valves)	2/1.20.07
A231-BC2-...	A (3/2 NC directly operated solenoid valves)	2/1.20.07
A32...	A (2/2 directly operated solenoid valves)	2/1.20.04
A33...	A (3/2 directly operated solenoid valves)	2/1.20.04-05
A43...	A (3/2 NC directly operated solenoid valves)	2/1.20.05
A53...	A (3/2 NC directly operated solenoid valves)	2/1.20.06
A63...	A (3/2 NC directly operated solenoid valves)	2/1.20.06
A8...	A8 (Solenoids)	2/2.35.04
AA3...	A (Directly op. 3/2-way solenoid valves)	2/1.20.04
AP-...21...	AP (Proportional valves)	2/15.01.02
ARP-...	ARP (Rotary cylinders)	1/6.20.02
B-...	16, 24, 25 (Accessories)	1/1.05.06
B-...	31 (Accessories)	1/2.15.10
B-...	32 (Accessories)	1/1.30.10
B...-E52...	E (Mounting feet)	2/2.05.15
B-27-...	27 (Accessories)	1/5.10.05
B-41-...	40 (Accessories)	1/1.10.06
B-41-...	41 (Accessories)	1/1.15.06
B-41-...	60 (Accessories)	1/1.20.08
B-41-...	61 (Accessories)	1/1.25.07
B-41-...	62 (Accessories)	1/1.26.06
B-41-...	63 (Accessories)	1/1.28.11
B-41-...	6PF (Accessories)	1/1.27.07
B-50-...	50 (Accessories)	1/8.05.05
B-52-...	52 (Accessories)	1/8.10.11
B-90-...	90 (Accessories)	1/3.05.05
B-94-...	94, 95 (Accessories)	1/3.15.05
B-97-...	97 (Accessories)	1/3.20.07
B-QP-...	QP (Accessories)	1/2.10.10
B7...	B (Solenoids)	2/2.35.02
B8...	B (Solenoids)	2/2.35.05
B9...	B (Solenoids)	2/2.35.06
BA-52-...	52 (Accessories)	1/8.10.11
BF-...	40 (Accessories)	1/1.10.08
BF-...	41 (Accessories)	1/1.15.08
BF-...	60 (Accessories)	1/1.20.13
BF-...	61 (Accessories)	1/1.25.11
BF-...	63 (Accessories)	1/1.28.17

Model	Series	Section
BF-...	6PF (Accessories)	1/1.27.11
BH-50-...	50 (Accessories)	1/8.05.06
BH-52-...	52 (Accessories)	1/8.10.12
BL-52-32	52 (Accessories)	1/8.10.12
C+L+S	32 (Accessories)	1/1.30.13
C+L+S	40 (Accessories)	1/1.10.08
C+L+S	41 (Accessories)	1/1.15.08
C+L+S	60 (Accessories)	1/1.20.11
C+L+S	61 (Accessories)	1/1.25.10
C+L+S	62 (Accessories)	1/1.26.09
C+L+S	63 (Accessories)	1/1.28.16
C+L+S	6PF (Accessories)	1/1.27.10
C-31-...	31 (Accessories)	1/2.15.11
C-41-...	32 (Accessories)	1/1.30.10
C-41-...	60 (Accessories)	1/1.20.09
C-41-...	61 (Accessories)	1/1.25.08
C-41-...	62 (Accessories)	1/1.26.07
C-41-...	63 (Accessories)	1/1.28.12-13
C-41-50	6PF (Accessories)	1/1.27.08
C-CGP-...	CGA (Accessories)	1/7.05.05
C-CGP-...	CGSN (Accessories)	1/7.12.07
C-CGP-...	CGP (Accessories)	1/7.15.05
C-CGPS-...	CGPS (Accessories)	1/7.18.17
C-H-41-...	32 (Accessories)	1/1.30.10-11
C-H-41-...	40 (Accessories)	1/1.10.06
C-H-41-...	41 (Accessories)	1/1.15.06
C-H-41-...	60 (Accessories)	1/1.20.09-10
C-H-41-...	61 (Accessories)	1/1.25.08
C-H-41...	62 (Accessories)	1/1.26.07
C-H-41-...	63 (Accessories)	1/1.28.12
C-H-41-...	6PF (Accessories)	1/1.27.08
C-H-90-...	90 (Accessories)	1/3.05.06
C-H-90-...	97 (Accessories)	1/3.20.07
CF-50-...	50 (Accessories)	1/8.05.06
CF-52-...	52 (Accessories)	1/8.10.12
CP-C...21-...	CP (Proportional solenoid valves)	2/15.02.02
CS-...	Connectors for proximity switches	1/9.05.14
CS-...	3 (Valve islands connectors/accessories)	2/3.30.19-20..23-25
CS-...	CX (Valve islands connectors/accessories)	2/3.50.11..16
CS-...	F (Valve islands connectors/accessories)	2/3.35-23..27-29
CS-...	HN (Valve islands connectors/accessories)	2/3.40-22..26-27
CS-...	RPGB (Connectors)	1/7.37.07
CS-...	Y (Valve islands connectors/accessories)	2/3.45.21..24-26
CS-AA08EC	LR (Electrical tee box)	2/15.32.08
CS-D...	K8P (Connectors)	2/15.37.05
CS-D...	SWCN (Connectors)	2/8.27.04
CS-D...	SWDN (Connectors)	2/8.22.04
CS-D...	VEC (Connectors)	5/2.15.07
CS-D...	VEM (Connectors)	5/2.20.04
CS-DW...	Connectors for proximity switches	1/9.05.15
CS-DW...	RPGB (Connectors)	1/7.37.07
CS-LF08HC	LR (Connector)	2/15.32.08
CS-L...HB-C...	LR (Cables)	2/15.32.09
CFB-A...	CFB (Indirectly operated olenoid valves)	2/1.30.06-07
CFB-B2...	CFB (Directly operated olenoid valves)	2/1.30.05
CFB-D...	CFB (Directly operated olenoid valves)	2/1.30.04
CFB-D...X...	CFB Stainless steel (Directly op. sol. valves)	2/1.31.02
CGA-...	CGA (Angular grippers)	1/7.05.04
CGC-...	CGC (3-fingers grippers)	1/7.30.04
CGP-...	CGP (Parallel grippers)	1/7.15.04
CLR...	CLR (Micro pressure regulators)	3/5.03.02
CNV-3...	3 (Manifolds)	2/2.10.12
CSB-...	CSB (Proximity switches)	1/9.05.02
CSC-...	CSC (Proximity switches)	1/9.05.02
CSD-...	CSD (Proximity switches)	1/9.05.02
CSD-3...2	CSD (Proximity switches for CGPT grippers)	1/7.17.13
CSD-3...2	CSD (Proximity switches for RPGB grippers)	1/7.37.06
CSH-...	CSH (Proximity switches)	1/9.05.02
CSN-2032-0	CSN (Proximity switches)	1/9.10.03
CST-...	CST (Proximity switches)	1/9.05.02
CSV-...	CSV (Proximity switches)	1/9.05.02
C114-ST...	M, T (Fixing brackets)	3/5.12.02
C114-ST...	MC (Fixing brackets)	3/2.44.02-03
C114-ST...	MD (Fixing brackets)	3/3.49.03-04
C114-ST...	N (Fixing brackets)	3/4.25.02
C238-ST/1	MC (Fixing brackets)	3/2.44.03
CGLN-...	CGLN (Parallel grippers)	1/7.27.02
CGPS-...	CGPS (Self-centering parallel grippers)	1/7.18.02
CGPT-...	CGPT (Self-centering parallel grippers)	1/7.17.02
CGSN-...	CGSN (Angular grippers 180°)	1/7.12.05-06
CNVL-...	3 (Manifolds/Accessories)	2/2.10.13-14-15
CNVL/...	3 (Blanking plate)	2/2.10.15
CNVL/...	4 (Blanking plate)	2/2.15.19
CNV/1L	3 (Valve islands Blanking plate)	2/3.30.12
CNVL-...	4 (Manifolds)	2/2.15.18-19
CNVL-3...	3 (Valve islands manifolds/accessories)	2/3.30.11-12-13
CR-90-...	90 (Accessories)	1/3.05.07
CR-90-...	97 (Accessories)	1/3.20.08

Model	Series	Section
CX…	CX (Multi-serial module)	2/3.50.02
CX…-0-0	3 (Valve islands modules)	2/3.30.14
CX…-0-0	F (Valve islands modules)	2/3.35.18
CX…-0-0	HN (Valve islands modules)	2/3.40.17
CXA-25P	3 (Valve islands modules)	2/3.30.16
CXA-25P	F (Valve islands modules)	2/3.35.20
CXA-25P	Y (Valve islands modules)	2/3.45.21
CXA-...P	CX (Valve islands modules)	2/3.50.05
CXA-...P	HN (Valve islands modules)	2/3.40.19
DC-31-...	31 (Accessories)	1/2.15.11
DC-63…	63 (Accessories)	1/1.28.11
D-E-...	31 (Accessories)	1/2.15.10
D-E-...	32 (Accessories)	1/1.30.11
D-E-41-...	40 (Accessories)	1/1.10.06
D-E-41-...	41 (Accessories)	1/1.15.06
D-E-41-...	60 (Accessories)	1/1.20.09
D-E-41-...	61 (Accessories)	1/1.25.07
D-E-41-...	62 (Accessories)	1/1.26.06
D-E-41-...	63 (Accessories)	1/1.28.12
D-E-41-...	6PF (Accessories)	1/1.27.07
D-E-90-...	90 (Accessories)	1/3.05.05
E-…	16, 24, 25 (Accessories)	1/1.05.06
E-94-...	94, 95 (Accessories)	1/3.15.05
E…20-…	E (Valves/Solenoid valves)	2/2.05.06
E…21-…	E (Valves/Solenoid valves)	2/2.05.02
E52…	E (Manifolds/subbbases)	2/2.05.10
EN…0-…	EN (Valves/Solenoid valves)	2/2.07.20
EN…1-…	EN (Valves/Solenoid valves)	2/2.07.02
EN5…0-21…	EN (Manifolds)	2/2.07.36
EN5…1-10…	EN (Manifolds)	2/2.07.18
ER104-…	ER100 (Proportional regulators)	2/15.50.04
ER1-B…	ER100 (Accessories)	2/15.50.08
ER2…	ER200 (Proportional regulators)	2/15.51.04
ER2-B…	ER200 (Accessories)	2/15.51.08
F-…	40 (Accessories)	1/1.10.07
F-...	60 (Accessories)	1/1.20.11
F-...	63 (Accessories)	1/1.28.15
F-41-...	41 (Accessories)	1/1.15.07
F-61...	61 (Accessories)	1/1.25.09
F-61-...	6PF (Accessories)	1/1.27.09
FA...K…	F (Tie-rods)	2/3.35.31
FN-...	63 (Accessories)	1/1.28.14
FP…	F (Valve islands, Fieldbus)	2/3.35.05
FP…M…	F (Valve islands, Multipole)	2/3.35.03
FVD-…	FVD (In-line filters)	5/4.05.02
FVT-…	FVT (Cup filters)	5/4.10.02
FVT-…B	FVT (Accessories)	5/4.10.04
G-…	16, 24, 25 (Accessories)	1/1.05.07
G-...	27 (Accessories)	1/5.10.06
G-...	31 (Accessories)	1/2.15.14
G-...	32 (Accessories)	1/1.30.15
G-...	40 (Accessories)	1/1.10.08
G-...	42 (Accessories)	1/5.15.06
G-...	60 (Accessories)	1/1.20.14
G-...	61 (Accessories)	1/1.25.13
G-...	62 (Accessories)	1/1.26.11
G-...	63 (Accessories)	1/1.28.19
G-...	6PF (Accessories)	1/1.27.13
G-…	94, 95 (Accessories)	1/3.15.06
G-90...	90 (Accessories)	1/3.05.09
G-90…	97 (Accessories)	1/3.20.09
G-160-200	41 (Accessories)	1/1.15.08
G2X-G2W	CX (Valve islands accessories)	2/3.50.11
G2X-G2W	Y (Valve islands accessories)	2/3.45.21
G3X…	3 (Valve islands cables)	2/3.30.24
G3X…	F (Valve islands cables)	2/3.35.28
G3X…	HN (Valve islands cables)	2/3.40.26-27
G3X…	Y (Valve islands cables)	2/3.45.25
G4X…	3 (Valve islands cables)	2/3.30.24
G4X…	F (Valve islands cables)	2/3.35.28
G4X…	HN (Valve islands cables)	2/3.40.26-27
G4X…	Y (Valve islands cables)	2/3.45.25
G7…	G7 (Solenoids)	2/2.35.03
G8X-…	ER200 (Connectors)	2/15.51.09
G8X3-G8W-1	Y (USB converter)	2/3.45.26
G93	G9 (Solenoids)	2/2.35.02
G9X…	HN (Valve islands cable)	2/3.40.27
G11W-G12W-2	3 (Valve islands cable)	2/3.30.23
G11W-G12W-2	CX (Cable)	2/3.50.16
G11W-G12W-2	F (Valve islands cable)	2/3.35.27
G11W-G12W-2	LR (Cables)	2/15.32.09
GA-…	16, 24, 25 (Accessories)	1/1.05.07
GA-...	27 (Accessories)	1/5.10.07
GA-...	31 (Accessories)	1/2.15.13
GA-...	32 (Accessories)	1/1.30.16
GA-...	40 (Accessories)	1/1.10.09
GA-...	42 (Accessories)	1/5.15.07
GA-...	60 (Accessories)	1/1.20.15

Model	Series	Section
GA-...	61 (Accessories)	1/1.25.13
GA-...	62 (Accessories)	1/1.26.11
GA-...	63 (Accessories)	1/1.28.18
GA-...	6PF (Accessories)	1/1.27.13
GA-...	94, 95 (Accessories)	1/3.15.06
GA-160-200	41 (Accessories)	1/1.15.09
GA-90...	90 (Accessories)	1/3.05.10
GA-90…	97 (Accessories)	1/3.20.09
GK-…	16, 24, 25 (Accessories)	1/1.05.09
GK-…	27 (Accessories)	1/5.10.08
GK-…	31 (Accessories)	1/2.15.15
GK-…	32 (Accessories)	1/1.30.17
GK-…	42 (Accessories)	1/5.15.08
GK-…	60 (Accessories)	1/1.20.15
GK-…	61 (Accessories)	1/1.25.14
GK-…	62 (Accessories)	1/1.26.12
GK-...	63 (Accessories)	1/1.28.19
GK-...	6PF (Accessories)	1/1.27.14
GK-160-200	41 (Accessories)	1/1.15.09
GKF-…	16, 24, 25 (Accessories)	1/1.05.09
GKF-…	27 (Accessories)	1/5.10.08
GKF-…	31 (Accessories)	1/2.15.15
GKF-…	32 (Accessories)	1/1.30.17
GKF-…	42 (Accessories)	1/5.15.08
GKF-…	60 (Accessories)	1/1.20.16
GKF-…	61 (Accessories)	1/1.25.14
GKF-…	62 (Accessories)	1/1.26.12
GKF-...	6PF (Accessories)	1/1.27.14
GKF-160-200	40 (Accessories)	1/1.10.09
GMCO 9...	GMCO (Bidirectional flow controllers)	2/7.15.05
GMCU 9...	GMCU (Unidirectional flow controllers)	2/7.15.04
GMVU 9...	GMVU (Unidirectional flow controllers)	2/7.15.05
GP…	GP (Solenoids)	2/2.35.02
GSCO 8...	GSCO (Bidirectional flow controllers)	2/7.15.05
GSCU 8...	GSCU (Unidirectional flow controllers)	2/7.15.04
GSVU 8...	GSVU (Unidirectional flow controllers)	2/7.15.04
GY-…	16, 24, 25 (Accessories)	1/1.05.08
GY-...	27 (Accessories)	1/5.10.07
GY-...	31 (Accessories)	1/2.15.14
GY-...	32 (Accessories)	1/1.30.15
GY-...	42 (Accessories)	1/5.15.07
GY-...	60 (Accessories)	1/1.20.15
GY-...	61 (Accessories)	1/1.25.13
GY-...	62 (Accessories)	1/1.26.11
GY-...	63 (Accessories)	1/1.28.18
GY-...	6PF (Accessories)	1/1.27.13
H-...	32 (Accessories)	1/1.30.11
H-...	60 (Accessories)	1/1.20.10
H-...	61 (Accessories)	1/1.25.08
H-...	62 (Accessories)	1/1.26.07
H-...	63 (Accessories)	1/1.28.13
H-...	6PF (Accessories)	1/1.27.08
H8…	H8 (Solenoids)	2/2.35.05
HA…	HN (Sub-bases)	2/3.40.30
HA0M-K	HN (Module)	2/3.40.13
HN…	HN (Valve islands)	2/3.40.03-05
HNA0…	HN (Sub-bases/Terminals/Modules)	2/3.40.29
HP...V-…	HN (Single valve)	2/3.40.29
HP1/E	F (Accessories)	2/3.35.32
I-…	16, 24, 25 (Accessories)	1/1.05.07
I-...	31 (Accessories)	1/2.15.12
I-20-25	32 (Accessories)	1/1.30.14
I-27-...	27 (Accessories)	1/5.10.06
I-42-...	42 (Accessories)	1/5.15.05
I-94-…	94, 95 (Accessories)	1/3.15.05
I-97-…	97 (Accessories)	1/3.20.07
K...	K (Directly operated solenoid valves)	2/1.05.02
K000-TP	K (Excluder tap)	2/1.05.05
K001-02	K (Single Sub-base)	2/1.05.04
K1…-02	K (Manifolds)	2/1.05.05
K8000-...	K8 (Directly operated solenoid valves)	2/1.03.02
K8303/14C	K8 (Single body for solenoid valve)	2/1.03.04
K8BC...	K8B (Directly operated solenoid valves)	2/1.04.02
K8P-…	K8P (Proportional electronic regultor)	2/15.37.02
K8P-A…	K8P (Sub-bases)	2/15.37.04
K8P-B1	K8P (Accessories)	2/15.37.05
KN000-30...	KN High Flow (Directly operated solenoid valves)	2/1.07.02
KN000-303-...	KN (Directly operated solenoid valves)	2/1.06.02
KN000-303-KY3N	Y (Spare part)	2/3.45.28
L-...	32 (Accessories)	1/1.30.12
L-31-...	31 (Accessories)	1/2.15.13
L-41-...	40 (Accessories)	1/1.10.07
L-41-...	41 (Accessories)	1/1.15.07
L-41-...	60 (Accessories)	1/1.20.10
L-41-...	61 (Accessories)	1/1.25.09
L-41-...	62 (Accessories)	1/1.26.08
L-41-...	63 (Accessories)	1/1.28.13
L-41-...	6PF (Accessories)	1/1.27.09

Alphanumeric index

Model	Series	Section
L-90...	90 (Accessories)	1/3.05.06
LAMINA-EST-32	F (Accessories)	2/3.35.32
L-CGP-...	CGA (Accessories)	1/7.05.05
L-CGP-...	CGSN (Accessories)	1/7.12.07
L-CGP-...	CGP (Accessories)	1/7.15.05
L-CGPS-...	CGPS (Accessories)	1/7.18.17
L-QP-...	QP (Accessories)	1/2.10.10
LRADB	LR (Fixing foot)	2/15.32.08
LRPD2-3...	LR (Digital proportional servo valves, pressure)	2/15.32.02
LRXD2-3...	LR (Digital proportional servo valves, position)	2/15.32.02
LRWD2-3...	LR (Digital proportional servo valves, flow)	2/15.32.02
M00...R...	M (Pressure microregulators)	3/5.05.02
M0...3-R...	Pressure gauges with radial connection	3/6.05.02
M0...3-P...	Pressure gauges with rear connection	3/6.05.02
M0...3-F...	Pressure gauges for panel mounting	3/6.05.03
MC...	MC (Assembled groups)	3/2.45.04
MC...-AV	MC (Soft start valves)	3/2.35.02
MC...-B...	MC (Take-off blocks)	3/2.40.02
MC...-D...	MC (Pressure filter-regulators)	3/2.25.02
MC...-F...	MC (Filters)	3/2.05.02
MC...-FB...	MC (Coalescing filters)	3/2.10.02
MC...-FL	MC (Flanges)	3/2.44.02
MC...-L...	MC (Lubricators)	3/2.20.02
MC...-R...	MC (Pressure regulators)	3/2.15.02
MC...-TFF	MC (Tie-rods for assembling)	3/2.44.04
MC...-TMF	MC (Tie-rods for assembling)	3/2.44.04
MC...-V...	MC (Lockable isolation valves)	3/2.30.02
MC...-VM...	MC (Screws)	3/2.44.05
MC104-M...	MC (Manifold pressure regulator)	3/2.50.02
MC104-ST	MC (Fixing brackets)	3/2.44.02
MCO 70...	MCO (Bidirectional flow controllers)	2/7.05.05
MCO 71...	MCO (Bidirectional flow controllers)	2/7.05.07
MCU 70...	MCU (Unidirectional flow controllers)	2/7.05.04
MCU 71...	MCU (Unidirectional flow controllers)	2/7.05.06
MD1-...	MD (Assembled groups)	3/3.50.03
MD1-B	MD (Accessory for take-off blocks)	3/3.45.03
MD1-C	MD (Intermediate joining cartridge)	3/3.49.02
MD1-D	MD (Screws for wall mounting)	3/3.49.03
MD1-A-...	MD (Cartridges)	3/3.49.02
MD1-AV	MD (Soft start valves)	3/3.40.02
MD1-B00...	MD (Take-off blocks)	3/3.45.02
MD1-F...	MD (Filters)	3/3.05.02
MD1-FC...	MD (Coalescing filters)	3/3.10.02
MD1-FCA...	MD (Activated carbon filters)	3/3.15.02
MD1-FR...	MD (Pressure filter-regulators)	3/3.30.02
MD1-L...	MD (Lubricators)	3/3.25.02
MD1-M...	MD (Manifold pressure regulators)	3/3.20.02
MD1-R...	MD (Pressure regulators)	3/3.20.02
MD1-ST/1	MD (Fixing brackets)	3/3.49.03
MD1-V...	MD (Lockable isolation valves)	3/3.35.02
ME-1600-DL	Y (Valve islands modules)	2/3.45.14
ME3-...	CX (Valve islands modules)	2/3.50.05-06-07
ME3-0...	3 (Valve islands modules)	2/3.30.16-17-18
ME3-0...	F (Valve islands modules)	2/3.35.20-21-22
ME3-0...	HN (Valve islands modules)	2/3.40.19-20-21
MPL-...	MPL (Tubes clamps)	4/6.05.04
MVU 70...	MVU (Unidirectional flow controllers)	2/7.05.05
MVU 71...	MVU (Unidirectional flow controllers)	2/7.05.07
MX...	MX (Assembled groups)	3/1.50.03
MX...B...	MX (Take-off blocks)	3/1.45.02
MX...S	MX (Fixing brackets)	3/1.49.03
MX...X	MX (Rapid clamp kit)	3/1.49.02
MX...Y	MX (Rapid clamp kit)	3/1.49.02-03
MX...Z	MX (Rapid clamp kit)	3/1.49.02
MX...AV..	MX (Soft start valves)	3/1.40.02
MX...F...	MX (Filters)	3/1.05.02
MX...FC...	MX (Coalescing filters)	3/1.10.02
MX...FCA...	MX (Activated carbon filters)	3/1.15.02
MX...FL	MX (Flanges)	3/1.49.03
MX...FR...	MX (Pressure filter-regulators)	3/1.30.02
MX...HH	MX (Rapid clamp kit)	3/1.49.04
MX...JJ	MX (Rapid clamp kit)	3/1.49.04
MX...KK	MX (Rapid clamp kit)	3/1.49.04
MX...L...	MX (Lubricators)	3/1.25.02
MX...M...	MX (Manifold pressure regulators)	3/1.20.02
MX...R...	MX (Pressure regulators)	3/1.20.02
MX...-R26-P	MX (Block for pressure gauge fixing)	3/1.49.05
MX...V...	MX (Lockable isolation valves)	3/1.35.02
MX2-...-FL	MX PRO (Flanges)	2/15.45.08
MX2-...-HH	MX PRO (Rapid clamp kit)	2/15.45.08
MX2-...-JJ	MX PRO (Rapid clamp kit)	2/15.45.08
MX2-...-KK	MX PRO (Rapid clamp kit)	2/15.45.09
MX2-1/2-M...	MX PRO (Manifold electronic proportional reg.)	2/15.45.02
MX2-1/2-R...	MX PRO (Electronic proportional reg.)	2/15.45.02
MX2-R26-P	MX PRO (Block for pressure gauge fixing)	2/15.45.09
MX2-S	MC (Fixing brackets)	3/2.44.04
MX2-X	MX PRO (Rapid clamp kit)	2/15.45.07
MX2-Y	MX PRO (Rapid clamp kit)	2/15.45.07
MX2-Z	MX PRO (Rapid clamp kit)	2/15.45.07
N...-D...	N (Filters-Pressure regulators)	3/4.20.02
N...-F...	N (Filters)	3/4.05.02
N...-L00...	N (Lubricators)	3/4.15.02
N...-R...	N (Pressure regulators)	3/4.10.02
N204-ST	N (Fixing brackets)	3/4.25.03
NA34N-...	NA (NAMUR 3/2-way solenoid valves NC)	2/2.30.02
NA44N-...	NA (NAMUR 3/2-way solenoid valves NO)	2/2.30.02
NA54N-...	NA (NAMUR 5/2-way valves)	2/2.30.02
NA54-PC	NA (Single base)	2/2.30.06
NA64N-...	NA (NAMUR 5/3-way solenoid valves CC)	2/2.30.02
NA74N-...	NA (NAMUR 5/3-way solenoid valves CO)	2/2.30.02
NA84N-...	NA (NAMUR 5/3-way solenoid valves CP)	2/2.30.02
NPF-FM-1/4...	NPF (Flexible suction pad mountings)	5/3.05.02
NPM-...	NPM (Spring plungers)	5/3.10.02
NPR-...	NPR (Non rotating spring plungers)	5/3.10.02
OR 38X2,8 NBR	MX (O-ring)	3/1.49.05
P...	P (Directly operated solenoid valves)	2/1.15.02
P000-TP	P (Excluder tap)	2/1.15.05
P000-TP	PL (Excluder tap)	2/1.16.04
P000-TP	PN (Excluder tap)	2/1.17.05
P001-02	P (Single base)	2/1.15.03
P001-02	PL (Single base)	2/1.16.03
P001-02	PN (Single base)	2/1.17.03
P10...-0...	P (Manifolds)	2/1.15.03-04
P10...-0...	PL (Manifolds)	2/1.16.03
P10...-0...	PN (Manifolds)	2/1.17.03-04
P10...-0...	W (Manifolds)	2/1.10.04
P2...-0...	P (Manifolds)	2/1.15.04
P2...-0...	PL (Manifolds)	2/1.16.04
P2...-0...	PN (Manifolds)	2/1.17.04
P2...-0...	W (Manifolds)	2/1.10.05
P-42-...	42 (Accessories)	1/5.15.05
PCF-E520	E (Accessories)	2/2.05.15
PCF-E520	3 (Valve islands accessories)	2/3.30.25
PCF-E520	CX (Accessories)	2/3.50.16
PCF-E520	F (Valve islands accessories)	2/3.35.29
PCF-E520	HN (Valve islands accessories)	2/3.40.28
PCF-E520	Y (Valve islands accessories)	2/3.45.30
PCF-EN531	EN (Accessories)	2/2.07.38
PCF-EN531	LR (Accessories)	2/15.32.08
PCF-K8P	K8P (Accessories)	2/15.37.05
PCP-E52...	E (Intermediate plates)	2/2.05.16-17
PCS-E52...	E (Intermediate plates)	2/2.05.17
PCV-...	60 (Accessories)	1/1.20.14
PCV-6...	61 (Accessories)	1/1.25.12
PCV-6...	6PF (Accessories)	1/1.27.12
PCV-62...	62 (Accessories)	1/1.26.10
PCV-62...	63 (Accessories)	1/1.28.17
PD000-2...	PD (Directly operated solenoid valves)	2/1.18.02
PDVC0122-...	PDV (Directly operated solenoid valves)	2/1.19.02
PG0...	PG (Digital pressure gauges)	3/6.06.02
PG-B	PG (Mounting brackets)	3/6.06.04
PG-F	PG (Panel mounting adapter)	3/6.06.04
PL...	PL (Directly operated solenoid valves)	2/1.16.02
PM11-N...	PM (Adjustable-diaphragm pressure switches)	2/8.05.02
PM11-SC	PM (Pressure switch with exchange contacts)	2/8.05.02
PM681-...	PM (Pressure switches with setting visual scale)	2/8.05.02
PMCO 70...	PMCO (Bidirectional flow controllers)	2/7.07.05
PMCU 70...	PMCU (Unidirectional flow controllers)	2/7.07.04
PMVU 70...	PMVU (Unidirectional flow controllers)	2/7.07.05
PN...	PN (Directly operated solenoid valves)	2/1.17.02
PNZ...	PNZ (Tubes cutters)	4/6.05.04
PNZP-12	PNZP (Tubes cutters)	4/6.05.04
PR104-M0...	PR (Precision regulators)	3/5.15.02
PSCO 60...	PSCO (Bidirectional flow controllers)	2/7.07.05
PSCU 60...	PSCU (Unidirectional flow controllers)	2/7.07.04
PSVU 60...	PSVU (Unidirectional flow controllers)	2/7.07.04
PV...	PV (Tubes)	4/6.05.02
QCB2A...	QCB (Cylinders with integrated guide)	1/4.05.02
QCT2A...	QCT (Cylinders with integrated guide)	1/4.05.02
QCBF2A...	QCBF (Slide units)	1/4.10.02
QCTF2A...	QCTF (Slide units)	1/4.10.02
QN1A...	QN (Short-stroke cylinders)	1/2.05.02
QP...	QP (Short-stroke cylinders)	1/2.10.02
QPR...	QPR (Non-rotating short-stroke cylinders)	1/2.10.02
QX...	QX (Twin cylinders)	1/4.15.02
R-41-...	32 (Accessories)	1/1.30.12
R-41-...	60 (Accessories)	1/1.20.12
R-41-...	61 (Accessories)	1/1.25.11
R-41-...	62 (Accessories)	1/1.26.08
R-41-...	63 (Accessories)	1/1.28.14
R-41-...	6PF (Accessories)	1/1.27.11
R-90...	90 (Accessories)	1/3.05.07
R-90...	97 (Accessories)	1/3.20.08
RFO 3...	RFO (Bidirectional flow controllers)	2/7.20.05
RFU 4...	RFU (Unidirectional flow controllers)	2/7.20.05
RL...	RL (Rod lock)	1/10.10.02

Model	Series	Section
RSW...	RSW (Silenced exhaust controllers)	2/7.05.08
RPGA-20-…	RPGA (Sprue grippers)	1/7.35.02
RPGB-…	RPGB (Sprue grippers)	1/7.37.02
S-...	32 (Accessories)	1/1.30.14
S-...	40 (Accessories)	1/1.10.09
S-...	60 (Accessories)	1/1.20.13
S-...	61 (Accessories)	1/1.25.12
S-...	62 (Accessories)	1/1.26.10
S-...	63 (Accessories)	1/1.28.18
S-...	6PF (Accessories)	1/1.27.12
S-160-200	41 (Accessories)	1/1.15.09
S2010...	S2000 (Pipe fittings, SPRINT)	4/4.05.03
S2020...	S2000 (Pipe fittings, SPRINT)	4/4.05.03
S2050...	S2000 (Pipe fittings, SPRINT)	4/4.05.04
S2060...	S2000 (Pipe fittings, SPRINT)	4/4.05.04
S2070...	S2000 (Pipe fittings, SPRINT)	4/4.05.04
S2080...	S2000 (Pipe fittings, SPRINT)	4/4.05.05
S2090...	S2000 (Pipe fittings, SPRINT)	4/4.05.05
S21	CSN (Accessories)	1/9.10.03
S2500...	S2000 (Pipe fittings, SPRINT)	4/4.05.02
S2510...	S2000 (Pipe fittings, SPRINT)	4/4.05.03
S2520...	S2000 (Pipe fittings, SPRINT)	4/4.05.02
S2530...	S2000 (Pipe fittings, SPRINT)	4/4.05.02
S2610...	S2000 (Pipe fittings, SPRINT)	4/4.05.05
S2615...	S2000 (Pipe fittings, SPRINT)	4/4.05.05
S53	CSN (Accessories)	1/9.10.03
S6110...	6000 (Super-rapid fittings)	4/1.05.14
S6430...	6000 (Super-rapid fittings)	4/1.05.08
S6440...	6000 (Super-rapid fittings)	4/1.05.09
S6450	6000 (Super-rapid fittings)	4/1.05.11
S6500...	6000 (Super-rapid fittings)	4/1.05.06
S6510...	6000 (Super-rapid fittings)	4/1.05.02
S6520...	6000 (Super-rapid fittings)	4/1.05.04
S-90...	90 (Accessories)	1/3.05.09
S-90...	97 (Accessories)	1/3.20.10
S-CST-01…21	CST, CSH (Accessories)	1/9.05.15
S-CST-25…28	CST, CSH (Accessories)	1/9.05.16
S-CST-45N…	CST, CSH (Accessories)	1/9.05.16
S-CST-500	CST, CSH (Accessories)	1/9.05.16
SA-…	SA (Shock absorber)	1/10.15.02
SA-…SC	SA (Accessories)	1/10.15.03
SB…	ARP (Accessories)	1/6.20.09
SCO 60...	SCO (Directional flow controllers)	2/7.05.05
SCO 60...+2905…	SCO (Silenced exhaust controllers)	2/7.05.08
SCO 61...	SCO (Directional flow controllers)	2/7.05.07
SCS-668-06	SCS (Circuit selector)	2/6.01.01
SCU 60...	SCU (Unidirectional flow controllers)	2/7.05.04
SCU 61...	SCU (Unidirectional flow controllers)	2/7.05.06
SI…	ARP (Accessories)	1/6.20.09
SP…	6000 (Disconnecting tube set)	4/1.05.22
ST…	ST (Stopper cylinders)	1/2.25.02
SR-90…	90 (Accessories)	1/3.05.10
SR-90…	97 (Accessories)	1/3.20.10
SVU 60...	SVU (Unidirectional flow controllers)	2/7.05.04
SVU 61...	SVU (Unidirectional flow controllers)	2/7.05.06
SWCN-…	SWCN (Vacuum/Pressure switches)	2/8.27.02
SWCN-B	SWCN (Accessories)	2/8.27.04
SWCN-F	SWCN (Accessories)	2/8.27.04
SWCN-FP	SWCN (Accessories)	2/8.27.04
SWDN-…	SWDN (Vacuum/Pressure switches)	2/8.22.02
T10…R…	T (Pressure microregulators)	3/5.10.02
T-27-...	27 (Accessories)	1/5.10.05
T-42-...	42 (Accessories)	1/5.15.06
TP-E52...	E (Manifold plugs)	2/2.05.16
TP-EN5…	EN (Manifold plugs)	2/2.07.38
TR-32-…	32 (Accessories)	1/1.30.16
TR-CG	CGPS (Accessories)	1/7.18.16
TS-32-20	32 (Accessories)	1/1.30.16
TC1-R…	TC (Pressure microregulators)	3/5.04.02
TRP-8	TRP (Transducer)	2/8.05.03
TCNVL/...	3 (Manifold plugs)	2/2.10.15
TCNVL/...	4 (Manifold plugs)	2/2.15.19
TMCO 97...	TMCO (Bidirectional flow controllers)	2/7.10.04
TMCU 97...	TMCU (Unidirectional flow controllers)	2/7.10.04
TMVU 97...	TMVU (Unidirectional flow controllers)	2/7.10.04
TPC…	TPC (Tubes)	4/6.05.03
TPE…	TPE (Tubes)	4/6.05.03
TRH…	TRH (Tubes)	4/6.05.02
TRN…	TRN (Tubes)	4/6.05.02
TSP…	TSP (Tubes)	4/6.05.03
U-…	16, 24, 25 (Accessories)	1/1.05.08
U-...	27 (Accessories)	1/5.10.07
U-...	31 (Accessories)	1/2.15.13
U-...	32 (Accessories)	1/1.30.16
U-...	40 (Accessories)	1/1.10.09
U-...	42 (Accessories)	1/5.15.07
U-...	60 (Accessories)	1/1.20.15
U-...	61 (Accessories)	1/1.25.13

Model	Series	Section
U-...	62 (Accessories)	1/1.26.11
U-...	63 (Accessories)	1/1.28.19
U-...	6PF (Accessories)	1/1.27.13
U-...	94, 95 (Accessories)	1/3.15.06
U-90...	90 (Accessories)	1/3.05.10
U-90...	97 (Accessories)	1/3.20.09
U-160-200	41 (Accessories)	1/1.15.09
U7…	U (Solenoids)	2/2.35.03
V-...	16, 24, 25 (Accessories)	1/1.05.08
V-...	27 (Accessories)	1/5.10.07
V-42-…	42 (Accessories)	1/5.15.06
V-94-20-25	94, 95 (Accessories)	1/3.15.06
V-97...	97 (Accessories)	1/3.20.10
VBO...	VBO (Bidirectional blocking valves)	2/6.10.05
VBU...	VBU (Unidirectional blocking valves)	2/6.10.05
VEB-…	VEB (Basic ejectors)	5/2.05.02
VEBL-…	VEBL (Technopol. basic ejectors)	5/2.07.02
VEBL-PCF	VEBL (Accessories)	5/2.07.05
VEBL-ST	VEBL (Accessories)	5/2.07.05
VEC-…	VEC (Compact ejectors)	5/2.15.02
VED-…	VED (In-line ejectors)	5/2.10.02
VEDL-…	VEDL (Technopol. in-line ejectors)	5/2.12.02
VEM-…	VEM (Compact ejectors)	5/2.20.02
VMR 1/8-B10	VMR (Adjustable valve)	2/6.04.02
VMS-1...	VMS (Slide valves)	2/4.30.09
VNR-...	VNR (Unidirectional valves)	2/6.02.01
VNV-…	VNV (Check valves)	5/3.15.02
VSC 5...	VSC (Quick exhaust valves)	2/6.03.03
VSO 4...	VSO (Quick exhaust valves)	2/6.03.02
VTCF…	VTCF (Flat round suction pad)	5/1.05.02
VTCL…	VTCL (Bellow round suction pad)	5/1.15.02
VTCN…	VTCN (Bellow round suction pad)	5/1.20.02
VTOF…	VTOF (Flat oval suction pad)	5/1.10.02
W…	W (Directly operated solenoid valves)	2/1.10.02
X6430…	X6000 (Super-rapid fittings)	4/1.25.04
X6432…	X6000 (Super-rapid fittings)	4/1.25.05
X6500…	X6000 (Super-rapid fittings)	4/1.25.03
X6510…	X6000 (Super-rapid fittings)	4/1.25.02
X6512…	X6000 (Super-rapid fittings)	4/1.25.02
X6520…	X6000 (Super-rapid fittings)	4/1.25.03
X6522…	X6000 (Super-rapid fittings)	4/1.25.04
X6540…	X6000 (Super-rapid fittings)	4/1.25.06
X6550…	X6000 (Super-rapid fittings)	4/1.25.06
X6580…	X6000 (Super-rapid fittings)	4/1.25.05
X6590…	X6000 (Super-rapid fittings)	4/1.25.06
X6800…	X6000 (Super-rapid fittings)	4/1.25.07
YA1K-B…	Y (Accessories)	2/3.45.27
YA1K-N…	Y (Interface module)	2/3.45.27-28
YP1…	Y (Valve islands)	2/3.45.19
ZC-...	31 (Accessories)	1/2.15.12
ZC-...	32 (Accessories)	1/1.30.13
ZC-...	60 (Accessories)	1/1.20.12
ZC-...	61 (Accessories)	1/1.25.10
ZC-...	62 (Accessories)	1/1.26.09
ZC-...	63 (Accessories)	1/1.28.16
ZC-...	6PF (Accessories)	1/1.27.10
ZC-90...	90 (Accessories)	1/3.05.08
ZCR-90…	90 (Accessories)	1/3.05.08
ZCR-90…	97 (Accessories)	1/3.20.08
ZS-…	40 (Accessories)	1/1.10.07
ZS-…	41 (Accessories)	1/1.15.07



1 / 1 Cylinders according standards

		Section
Series 16, 24, 25	**Mini-cylinders CETOP RP52-P / DIN/ISO 6432** Series 16: ø 8, 10, 12 mm Series 24: ø 16, 20, 25 mm - magnetic Series 25: ø 16, 20, 25 mm - magnetic, cushioned	1/1.05
Series 40	**Cylinders ISO 15552 DIN/ISO 6431 / VDMA 24562** Double-acting, cushioned, magnetic ø 160, 200, 250, 320 mm	1/1.10
Series 41	**Cylinders - Aluminium profile DIN/ISO 6431 / VDMA 24562** Double-acting, cushioned, magnetic ø 160, 200 mm	1/1.15
Series 60	**Cylinders ISO 15552 DIN/ISO 6431 / VDMA 24562** Single and double-acting, magnetic, cushioned Standard, low friction, low temperatures and tandem versions ø 32, 40, 50, 63, 80, 100, 125 mm	1/1.20
Series 61	**Cylinders - Aluminium profile ISO 15552 DIN/ISO 6431 / VDMA 24562** Single and double-acting, magnetic, cushioned Standard, low friction, low temperatures and tandem versions ø 32, 40, 50, 63, 80, 100, 125 mm	1/1.25
Series 62	**Cylinders - Aluminium profile ISO 15552 DIN/ISO 6431 / VDMA 24562** Double-acting, magnetic, cushioned ø 32, 40, 50, 63, 80, 100 mm	1/1.26
Series 6PF	**Positioning Feedback cylinders ISO 15552 DIN/ISO 6431 / VDMA 24562** Double-acting low friction, magnetic ø 50, 63, 80, 100, 125 mm	1/1.27
Series 63	**Cylinders - Aluminium tube and profile ISO 15552 DIN/ISO 6431 / VDMA 24562** Single and double-acting, magnetic, cushioned Versions: standard, low friction, high and low temperatures ø 32, 40, 50, 63, 80, 100, 125 mm	1/1.28
Series 32	**Compact magnetic cylinders ISO 21287** Single and double-acting, non-rotating ø 20, 25, 32, 40, 50, 63, 80, 100 mm	1/1.30
Series 32	**Compact cylinders, Tandem and Multi-position versions ISO 21287** Double-acting, magnetic ø 25, 40, 63, 100 mm	1/1.31
Series 45	**Anti-rotation guide units** For cylinders DIN/ISO 6432 ø 12, 16, 20, 25 mm For cylinders DIN/ISO 6431 ø 32, 40, 50, 63, 80, 100 mm	1/1.35

1 / 2 Compact cylinders

		Section
Series QN	**Short-stroke cylinders** Single-acting, non magnetic ø 8, 12, 20, 32, 50, 63 mm	1/2.05
Series QP, QPR	**Short-stroke cylinders** Series QP: single and double-acting, magnetic Series QPR: double-acting magnetic, non-rotating ø 12, 16, 20, 25, 32, 40, 50, 63, 80, 100 mm	1/2.10
Series 31	**Compact cylinders** Double and single-acting, double-acting non-rotating, magnetic ø 12, 16, 20, 25 mm ø 32, 40, 50, 63, 80, 100 mm UNITOP	1/2.15
Series 31	**Compact cylinders, Tandem and Multi-position versions** Double-acting, magnetic ø 12, 16, 20, 25, 32, 40, 50, 63, 80, 100 mm	1/2.20
Series ST	**Stopper cylinders** Single and double-acting, magnetic, non-rotating Sizes 20, 32, 40, 50 mm	1/2.25

1 / 3 Stainless steel cylinders

		Section
Series 90	**Stainless steel cylinders ISO 15552 DIN/ISO 6431 / VDMA 24562** Single- and double-acting, cushioned, magnetic ø 32, 40, 50, 63, 80, 100, 125 mm	1/3.05
Series 94, 95	**Stainless steel mini-cylinders CETOP RP52-P / DIN/ISO 6432** Single-acting and double-acting, magnetic Series 94: ø 16, 20, 25 mm Series 95: ø 25 mm, cushioned	1/3.15
Series 97	**Stainless steel cylinders** Single- and double-acting, cushioned, magnetic ø 32, 40, 50, 63 mm	1/3.20

1 / 4 Guided cylinders

		Section
Series QCT, QCB	**Cylinders with integrated guide** Double-acting, magnetic piston, guided ø 20, 25, 32, 40, 50, 63 mm	1/4.05
Series QCTF, QCBF	**Cylinders with integrated guide** Double-acting, magnetic, with double bearings and flanges ø 20, 25, 32, 40 mm	1/4.10
Series QX	**Twin cylinders** Double-acting, magnetic, guided ø 10x2, 16x2, 20x2, 25x2, 32x2 mm	1/4.15

1 / 5 Cylinders not according standards

		Section
Series 14	**Compact mini-cylinders** Single-acting Bores ø 6, 10, 16 mm and strokes 5, 10, 15 mm With super-rapid fitting ø 4 and M5 port	1/5.05
Series 27	**Roundline cylinders** Double-acting, magnetic ø 20, 25, 32, 40, 50, 63 mm	1/5.10
Series 42	**Cylinders** Single and double-acting, magnetic, cushioned ø 32, 40, 50, 63 mm	1/5.15

1 / 6 Rotary cylinders

		Section
Series 69	**Rotary cylinders** Magnetic, cushioned ø 32, 40, 50, 63, 80, 100, 125 mm Rotational angles: 90°, 180°, 270° and 360°	1/6.10
Series 30	**Rotary cylinders** Non magnetic, cushioned and not cushioned ø 50, 63, 80, 100 mm Rotational angles: 90° and 180°	1/6.15
Series ARP	**Rotary actuators** Model: "Rack & Pinion" Sizes: 1, 3, 5, 10, 12, 20, 35, 55, 70, 100, 150, 250, 400 Rotational angles: 90°	1/6.20

1 / 7 Grippers

		Section
Series CGA	**Angular grippers** Magnetic Sizes: ø 10, 16, 20, 25, 32 mm	1/7.05
Series CGSN	**180° angular grippers** Magnetic Sizes: ø 16, 20, 25, 32 mm	1/7.12
Series CGP	**Parallel grippers** Magnetic Sizes: ø 10, 16, 20, 25, 32 mm	1/7.15
Series CGPT	**Self-centering parallel grippers** Single and double acting, magnetic, self-centering Bores: ø 16, 20, 25, 32, 40 mm	1/7.17
Series CGPS	**Self-centering parallel grippers with double ball bearing guide** Single and double acting, magnetic, self-centering Bores: ø 10, 16, 20, 25, 32 mm	1/7.18
Series CGLN	**Wide opening parallel grippers** Bores: ø 10, 16, 20, 25, 32 mm	1/7.27
Series CGC	**3-Finger centric grippers** Magnetic Sizes: 50, 64, 80, 100, 125 mm	1/7.30
Series RPGA	**Sprue grippers - Size 20 mm** Angular, not self-centering, single-acting, NO Models: Flat Finger, Curved Finger, Short Finger, Flat Finger with sensor slot, Curved Finger with sensor slot	1/7.35
Series RPGB	**Sprue grippers - Size 8, 12 mm** Angular, not self-centering, single-acting, NO Models: Flat Finger, Short Finger, Flat Finger with sensor	1/7.37

1 / 8 Rodless cylinders

		Section
Series 50	**Rodless cylinders** Double-acting, magnetic, cushioned ø 16, 25, 32, 40, 50, 63, 80 mm	1/8.05
Series 52	**Rodless cylinders** Double-acting, magnetic, cushioned ø 25, 32, 40, 50, 63 mm	1/8.10

1 / 9 Proximity switches

		Section
Series CST - CSV - CSH CSB - CSC - CSD	**Magnetic proximity switches** Reed Magnetoresistive - Hall effect (Series CST, CSV, CSH only)	1/9.05
Series CSN	**Proximity switches** Reed switch	1/9.10
	Tables for the use of sensors	1/9.20

1 / 10 Clamping elements and shock absorbers

		Section
Series 43	**Hydrochecks** Bore ø 40 mm Regulated thrust or return stroke Skip-Stop function	1/10.05
Series RL	**Rod lock** For cylinders ISO 6431/VDMA and ISO 6432 ø 20, 25, 32, 40, 50, 63, 80, 100, 125 mm	1/10.10
Series SA	**Shock absorbers** 7 different sizes Threads: M8x1 - M10x1 - M12x1 M14x1,5 - M20x1,5 - M25x1,5 - M27x1,5	1/10.15

Series 16, 24 and 25 mini-cylinders

Series 16: ø 8, 10, 12 mm
Series 24: ø 16, 20, 25 mm - magnetic
Series 25: ø 16, 20, 25 mm - magnetic, cushioned



- Single-acting and double-acting
- CETOP RP52-P DIN/ISO 6432
- Stainless steel rod and barrel
- Anodized aluminium end-blocks

Series 16, 24 and 25 mini-cylinders are designed according to the European Standard Specifications CETOP RP52-P and DIN/ISO 6432.
The choice of materials and other design features have provided the basis for a complete range of versatile and very reliable cylinders.

The precise method of crimping the barrel at the head and cap ensures that all the parts are perfectly aligned. Since the Series 16 and 24 may operate at very high speeds, bumpers are attached to the piston as standard in order to reduce noice and wear resulting from high impact loads.
Series 24 and 25 are suitable for mounting magnetic proximity switches.
Series 25 has an adjustable pneumatic cushion and a magnetic piston.
Various mounting accessories are available to enable the cylinders to function in a variety of applications.

GENERAL DATA

Type of construction	crimped
Operation	single-acting and double-acting
Materials	anodized aluminium end-caps - stainless steel barrel and rod, aluminium piston - NBR/PU seals, other parts: see the coding example
Brackets	rod end - flange - feet - trunnion
Stroke min - max	Series 16 ø 8 ÷ ø 10: 10 - 250 mm / Series 16: ø 12: 10 - 300 mm / Series 24 & 25 ø 16: 10 - 600 mm; ø 20 - ø 25: 10 - 1000 mm
Bores	Series 16: ø 8, 10, 12 / Series 24 & 25: ø 16, 20, 25
Operating temperature	0°C ÷ 80°C (with dry air -20°C)
Operating pressure	1 ÷ 10 bar (double-acting); 2 ÷ 10 bar (single-acting)
Fluid	filtered air, without lubrication. If lubricated air is used, it is recommended to use oil ISO VG32. Once applied the lubrication should never be interrupted.
Speed	10 ÷ 1000 mm/sec (without load)

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

STANDARD STROKES FOR MINICYLINDERS SERIES 16 - 24 and 25

■ = Double-acting
✖ = Single-acting

STANDARD STROKES

Series	Ø	10	25	40	50	80	100	125	160	200	250	300	320	400	500
16	8	■✖	■✖	■✖	■✖	■	■	■	■	■					
16	10	■✖	■✖	■✖	■✖	■	■	■	■	■					
16	12	■✖	■✖	■✖	■✖	■	■	■	■	■	■	■			
24	16	■✖	■✖	■✖	■✖	■	■	■	■	■	■	■	■	■	■
24	20	■✖	■✖	■✖	■✖	■	■	■	■	■	■	■	■	■	■
24	25	■✖	■✖	■✖	■✖	■	■	■	■	■	■	■	■	■	■
25	16	■	■	■	■	■	■	■	■	■	■	■	■	■	■
25	20	■	■	■	■	■	■	■	■	■	■	■	■	■	■
25	25	■	■	■	■	■	■	■	■	■	■	■	■	■	■

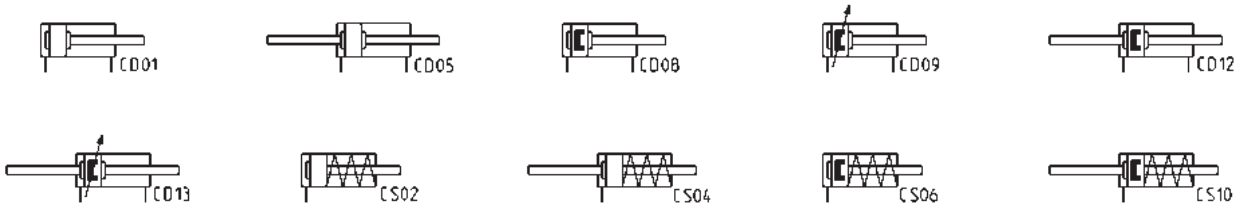
CODING EXAMPLE

24	N	2	A	16	A	100	

24	SERIES 16 = non magnetic 24 = magnetic 25 = magnetic, adjustable cushioning	
N	VERSION N = standard	
2	OPERATION 1 = single-acting, front spring, no cushion 2 = double-acting 3 = double-acting, through-rod 7 = single-acting, through-rod	PNEUMATIC SYMBOLS CS02 (s. 16) - CS06 (s. 24) CD01 (s. 16) - CD08 (s. 24) - CD09 (s. 25) CD05 (s. 16) - CD12 (s. 24) - CD13 (s. 25) CS04 (s. 16) - CS10 (s. 24)
A	MATERIALS A = rolled stainless steel AISI 303 rod, stainless steel AISI 304 tube, anodized AL end-blocks	
16	BORE 08 = 8 mm - 10 = 10 mm - 12 = 12 mm - 16 = 16 mm - 20 = 20 mm - 25 = 25 mm	
A	CONSTRUCTION A = Nose nut Mod. V + Piston rod lock nut Mod. U RL = cylinder with rod lock ø20 - ø25	
100	STROKE (see the table)	
	= standard V = rod seal in FKM W = all seals in FKM, +130°C (for series 25 only)	

PNEUMATIC SYMBOLS

The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.



ACCESSORIES FOR MINICYLINDERS SERIES 16 - 24 - 25



Foot mount Mod. B



Front/rear flange mount Mod. E



Rear trunnion bracket Mod. I



Rod fork end Mod. G



Swivel ball joint Mod. GA



Piston rod socket joint Mod. GY



Piston rod lock nut Mod. U



Nose nut Mod. V



Self aligning rod Mod. GK



Coupling piece Mod. GKF



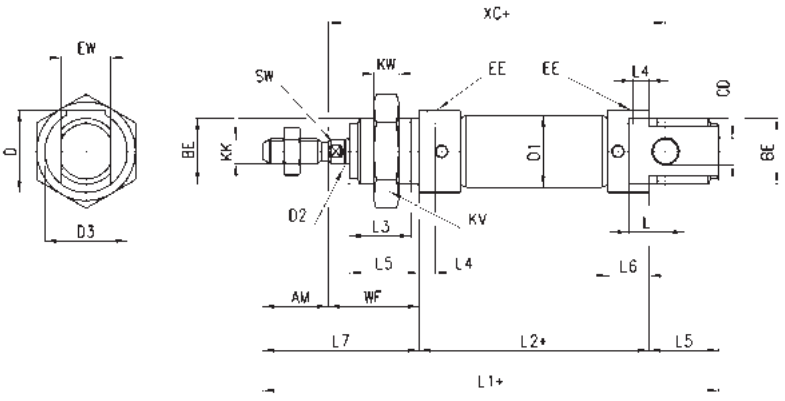
All accessories are supplied separately, except for piston rod lock nut Mod. U and nose nut Mod. V

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Minicylinders Series 16, 24 and 25



+ = add the stroke



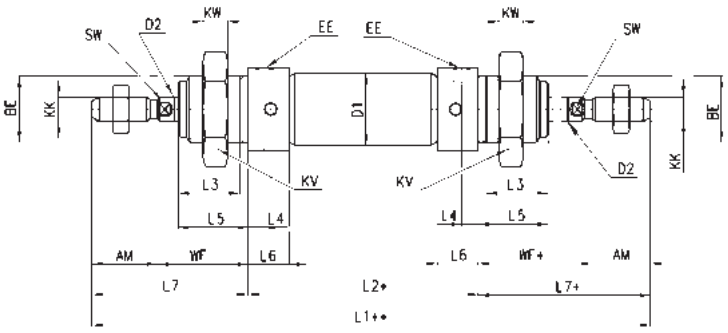
DIMENSIONS

Series	Ø	EW	KW	BE	KK	CD	D1	EE	⌀D2	L1+	XC+	L2+	AM	L3	L4	L5	L	WF	L6	L7	KV	SW	D	D3	front/rear cushion stroke
16	8	8	7	M12x1,25	M4x0,7	4	9,3	M5	4	86	64	46	12	10	4,5	12	6	16	9	28	19	-	15	15	- / -
16	10	8	7	M12x1,25	M4x0,7	4	11,3	M5	4	86	64	46	12	10	4,5	12	6	16	9	28	19	-	15	15	- / -
16	12	12	8	M16x1,5	M6x1	6	13,3	M5	6	105	75	50	16	15	4,5	17	9	22	9	38	24	5	20.5	20	- / -
24-25	16	12	8	M16x1,5	M6x1	6	17,3	M5	6	111	82	56	16	15	5,5	17	9	22	10	38	24	5	20.5	20	10 / 10
24-25	20	16	10	M22x1,5	M8x1,25	8	21,3	G1\8	8	132	95	68	20	18	8	20	12	24	16	44	32	7	27	27	13 / 15
24-25	25	16	10	M22x1,5	M10x1,25	8	26,5	G1\8	10	141,5	104	69,5	22	20	8	22	12	28	16	50	32	9	27	27	16 / 14

Minicylinders Series 16, 24 and 25 - through-rod



+ = add the stroke once
++ = add the stroke twice



DIMENSIONS

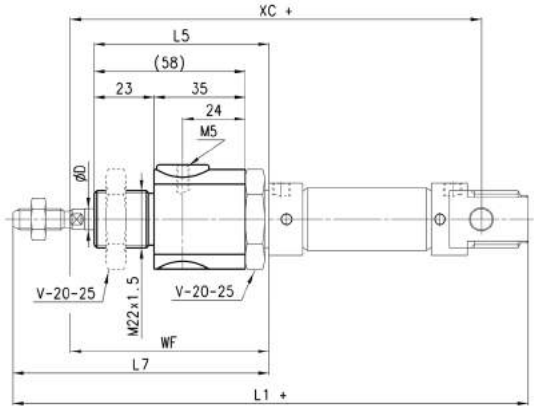
Series	Ø	KW	BE	KK	⌀D1	EE	⌀D2	L1++	L2+	AM	L3	L4	L5	WF+	L6	L7+	KV	SW	front/rear cushion stroke
16	8	7	M12x1,25	M4x0,7	9,3	M5	4	102	46	12	10	4,5	12	16	9	28	19	-	- / -
16	10	7	M12x1,25	M4x0,7	11,3	M5	4	102	46	12	10	4,5	12	16	9	28	19	-	- / -
16	12	8	M16x1,5	M6x1	13,3	M5	6	126	50	16	15	4,5	17	22	9	38	24	5	- / -
24-25	16	8	M16x1,5	M6x1	17,3	M5	6	132	56	16	15	5,5	17	22	10	38	24	5	10 / 10
24-25	20	10	M22x1,5	M8x1,25	21,3	G1\8	8	156	68	20	18	8	20	24	16	44	32	7	13 / 15
24-25	25	10	M22x1,5	M10x1,25	26,5	G1\8	10	169,5	69,5	22	20	8	22	28	16	50	32	9	16 / 14

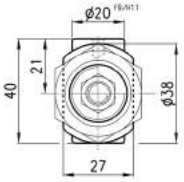
Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series 24 and 25 minicylinders with rod lock (Mod. RLC)



+ = add the stroke





DIMENSIONS

Series	Ø	G7D	WF	L5	L7	XC+	L1+	F (N)
24-25	20	8	74	70	94	145	182	300
24-25	25	10	76	70	98	152	189,5	400

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General terms and conditions for sale are available on www.camozzi.com.

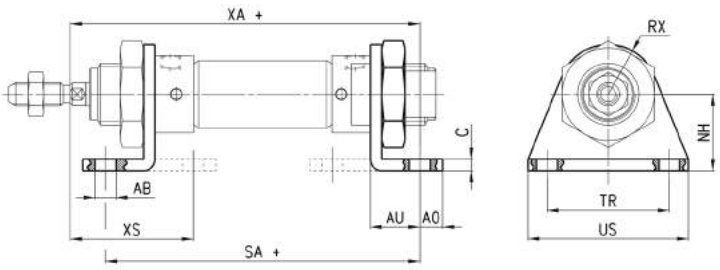
Foot mount Mod. B

Feet and nose nut material: zinc-plated steel.



Supplied with:
2x feet
1x nose nut mod. V

+ = add the stroke



DIMENSIONS

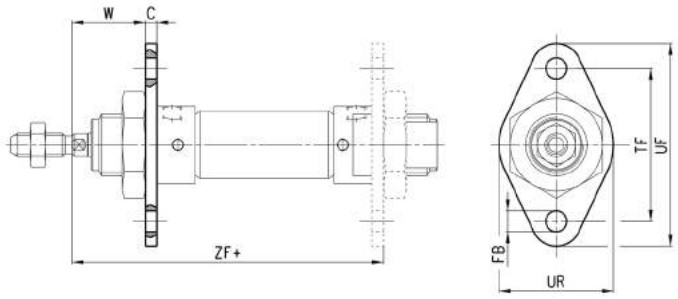
Mod.	Ø	ØAB	XS	XA+	SA+	AO	AU	C	RX	TR	US	NH
B-8-10	8-10	4,5	24	72,5	67	4,5	10,5	2,5	10	25	35	16
B-12-16	12	5,5	32	82,5	71	6	13	3	13	32	42	20
B-12-16	16	5,5	32	91	82	6	13	3	13	32	42	20
B-20-25	20	6,6	36	108	100	8	16	4	20	40	54	25
B-20-25	25	6,6	40	113,5	101,5	8	16	4	20	40	54	25

Front/rear flange mount Mod. E

Material: zinc-plated steel.



+ = add the stroke



DIMENSIONS

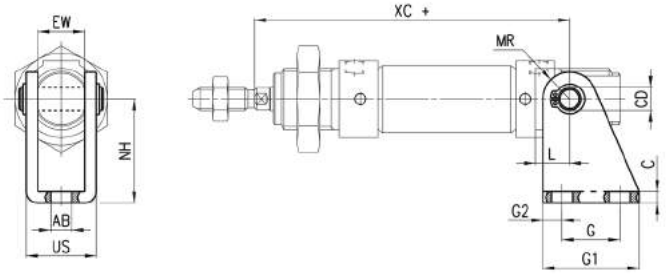
Mod.	Ø	W	C	ZF+	FB	UF	TF	UR
E-8-10	8-10	13,5	2,5	64,5	4,5	40	30	25
E-12-16	12	19	3	75	5,5	53	40	30
E-12-16	16	19	3	81	5,5	53	40	30
E-20-25	20	20	4	96	6,6	66	50	40
E-20-25	25	24	4	101,5	6,6	66	50	40

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Rear trunnion bracket Mod. I



Supplied with:
1x zinc-plated steel rear trunnion
1x stainless steel clevis pin
2x steel Seeger



+ = add the stroke

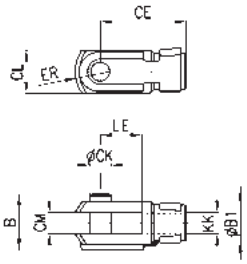
DIMENSIONS

Mod.	Ø	EW	ØAB	US	NH	XC+	MR	L	G2	G	G1	CD	C
I-8-10	8-10	8	4,5	13,1	24	64	5	6	3,5	12,5	20	4	2,5
I-12-16	12	12	5,5	18,1	27	75	7	9	5	15	25	6	3
I-12-16	16	12	5,5	18,1	27	82	7	9	5	15	25	6	3
I-20-25	20	16	6,6	24,1	30	95	10	12	6	20	32	8	4
I-20-25	25	16	6,6	24,1	30	104	10	12	6	20	32	8	4

Rod fork end Mod. G

ISO 8140
Material: zinc-plated steel.





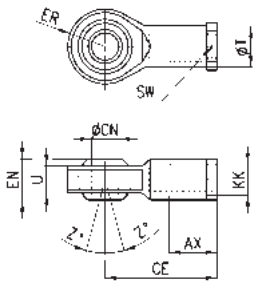
DIMENSIONS

Mod.	Ø	CL	ER	CE	B	CM	ØCK	LE	KK	ØB1
G-8-10	8-10	8	5	16	11	4	4	8	M4x0,7	8
G-12-16	12-16	12	7	24	16	6	6	12	M6x1	10
G-20	20	16	10	32	22	8	8	16	M8x1,25	14
G-25-32	25	20	12	40	26	10	10	20	M10x1,25	18

Swivel ball joint Mod. GA

ISO 8139
Material: zinc-plated steel.





DIMENSIONS

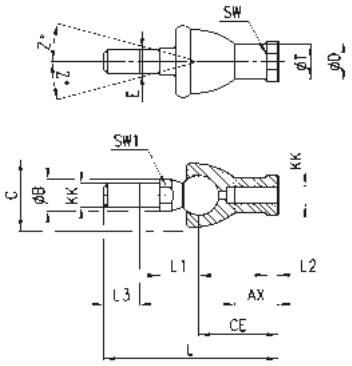
Mod.	Ø	$_{ø}$CN$^{(H7)}$	U	EN	ER	AX	CE	KK	ØT	Z	SW
GA-8-10	8-10	5	6	8	9	10	27	M4x0.7	9	6.5°	9
GA-12-16	12-16	6	7	9	10	12	30	M6X1	10	6.5°	11
GA-20	20	8	9	12	12	16	36	M8X1.25	12.5	6.5°	14
GA-32	25	10	10.5	14	14	20	43	M10X1.25	15	6.5°	17

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Piston rod socket joint Mod. GY

ISO 8139
Material: zama and zinc-plated steel.





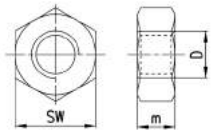
DIMENSIONS

Mod.	Ø	Z	E	SW	øT	øD	øC	øB	KK	L3	SW1	L1	L	CE	AX	L2
GY-12-16	12-16	15	6	11	10	13	20	10	M6X1	11	8	12,2	55	28	15	5
GY-20	20	15	8	14	12,5	16	24	12	M8X1,25	12	10	16	65	32	16	5
GY-32	25	15	10	17	15	19	28	14	M10X1,25	15	11	19,5	74	35	18	6,5

Piston rod lock nut Mod. U

ISO 4035
Material: zinc-plated steel.





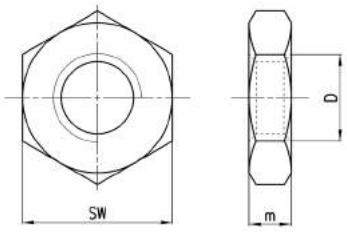
DIMENSIONS

Mod.	Ø	SW	m	D
U-8-10	8-10	7	3	M4X0,7
U-12-16	12-16	10	4	M6X1
U-20	20	13	5	M8X1,25
U-25-32	25	17	6	M10X1,25

Nose nut Mod.V

ISO 4035
Material: zinc-plated steel.





DIMENSIONS

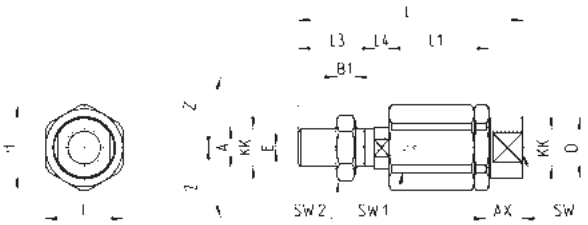
Mod.	Ø	D	m	SW
V-8-10	8-10	M12X1,25	5	19
V-12-16	12-16	M16X1,5	6	24
V-20-25	20-25	M22X1,5	10	32

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Self aligning rod Mod. GK

Material: zinc-plated steel.





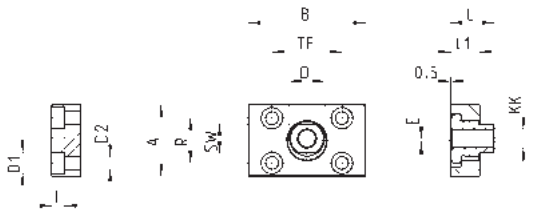
DIMENSIONS

Mod.	Ø	H	I	Z	ØA	KK	E	L	L3	L4	L1	B1	SW2	SW1	AX	SW	ØD
GK-12-16	12-16	14.5	13	3	6	M6x1	1	35	11	2.5	17.5	4	10	5	12.5	7	8.5
GK-20	20	19	17	4	8	M8x1,25	2	57	21	5	26	4	13	7	16	11	12.5
GK-25-32	25-32	32	30	4	14	M10x1,25	2	71.5	20	7.5	35	5	17	12	22	19	22

Coupling piece Mod. GKF

Material: zinc-plated steel.





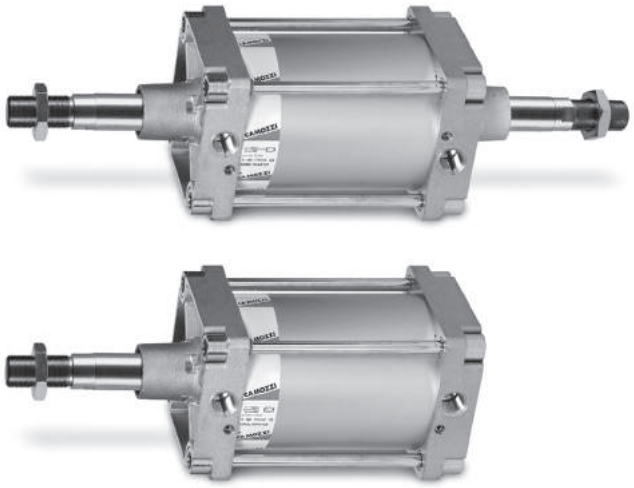
DIMENSIONS

Mod.	Ø	Ø D1	I	Ø D2	A	R	SW	B	TF	Ø D	E	L	L1	KK
GKF-20	20	5,5	-	-	30	20	13	35	25	14	1,5	22,5	10	M8x1,25
GKF-25-32	25	11	6,8	6,6	37	23	15	60	36	18	2	22,5	15	M10x1,25

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series 40 cylinders

Double acting, cushioned, magnetic
Ø 160 - 200 - 250 - 320 mm



- In compliance with ISO 15552 standards and with the previous DIN/ISO 6431 - VDMA 24562 standards
- Adjustable pneumatic cushioning
- Rolled stainless steel rod (Ø 160 - 200 mm)
- Chrome plated steel rod (Ø 250 - 320 mm)
- Rod scraper in brass

Series 40 cylinders have been designed in compliance with ISO 15552 standards and with the previous DIN/ISO 6431 - VDMA 24562 standards.
A permanent magnet on the piston of these cylinders is able to send, through proximity switches mounted on the cylinder sliding axis, electrical signals to indicate its position.

This series is normally equipped with end-stroke cushioning which can be adjusted through a screw on the end block.
In order to quieten the impact of the piston on the end block, these cylinders are also equipped with mechanical cushioning.

GENERAL DATA

Type of construction	with tie-rods
Operation	double-acting
Materials	AL end blocks and piston, rolled stainless steel AISI 420B (Ø 160-200 mm) or chrome plated steel (Ø250-320 mm) piston rod, zinc-plated steel piston rod nut, anodized AL tube, zinc-plated steel tie-rods and tie-rod nuts, NBR-PU rod - piston - cushion seals brass rod scraper
Mounting	with tie-rods, front flange, rear flange, feet, centre trunnion, front and rear trunnion, swivel combination
Strokes min - max	10 ÷ 2500 mm
Operating temperature	0°C ÷ 80°C (with dry air -20°C)
Operating pressure	1 ÷ 10 bar
Speed	10 ÷ 500 mm/sec (without load)
Fluid	filtered air, without lubrication. If lubricated air is used, it is recommended to use oil ISOVG32. Once applied the lubrication should never be interrupted.

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

STANDARD STROKES FOR SERIES 40 CYLINDERS

■ = double-acting

Ø	25	50	75	80	100	125	150	160	200	250	300	320	400	500
160		■		■	■		■		■		■		■	■
200		■			■				■		■			
250		■			■				■		■			
320		■			■				■		■			

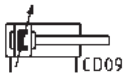
CODING EXAMPLE

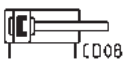
40	M	2	L	160	A	0200	

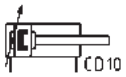
40	SERIES	
M	VERSION M = standard, magnetic	
2	OPERATION 2 = double-acting, front and rear cushions 3 = double-acting, no cushion 4 = double-acting, rear cushions 5 = double-acting, front cushion 6 = double-acting, through-rod, front and rear cushions 8 = double-acting, through-rod, no cushion	PNEUMATIC SYMBOLS CD09 CD08 CD10 CD11 CD13 CD12
L	MATERIALS L = see the general data on page 1/1.10.01 T = stainless steel AISI 420B tie-rods - stainless steel AISI 303 tie-rod nuts C = rolled stainless steel AISI 303 piston rod, stainless steel AISI 304 piston rod nut U = rolled stainless steel AISI 303 piston rod, stainless steel AISI 304 piston-rod nut, stainless steel AISI 420B tie-rods, stainless steel AISI 303 tie-rod nuts W = rolled stainless steel AISI 304 piston rod, stainless steel AISI 304 piston-rod nut, stainless steel AISI 420B tie-rods, stainless steel AISI 303 tie-rod nuts Note: the rod of cylinders with bore of 250 and 320 mm is in C40 chrome plated steel.	
160	BORE 160 = 160 mm - 200 = 200 mm - 250 = 250 mm - 320 = 320 mm	
A	TYPE OF BRACKET A = standard F = cylinder with centre trunnion	
0200	STROKE (see the table)	
	= standard V = FKM rod seals W = all FKM seals +130°C C = PU coated cylinder. Colour: Grey * G = with brass rod scraper (chrome plated stainless steel AISI 420B rod, NBR rod seal) [Ø 250 and 320 excluded] (_ _ _) = extended piston rod _ _ _ mm Notes: the C version is available on request. For further details, contact our technical dept. The W and C versions are available for diameters 160 and 200 only.	

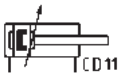
PNEUMATIC SYMBOLS

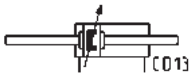
The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.

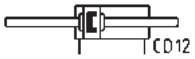












Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

ACCESSORIES FOR SERIES 40 CYLINDERS



Clevis pin Mod. S



90° Swivel combination Mod. ZS



Counter bracket for centre trunnion Mod. BF



Rod fork end Mod. G



Front and rear flange Mod. D-E



Centre trunnion Mod. F



Foot mount Mod. B



Swivel ball joint Mod. GA



Female trunnion Mod. C-H



Piston rod lock nut Mod. U



Rear trunnion, male Mod. L



Self aligning rod Mod. GK

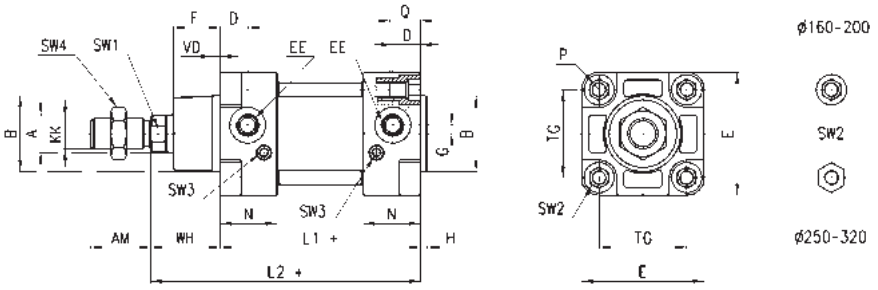


All accessories are supplied separately except for piston rod lock nut Mod. U.
For proximity switches and brackets for sensors see the section 1/9.

Series 40 cylinders



+ = add the stroke



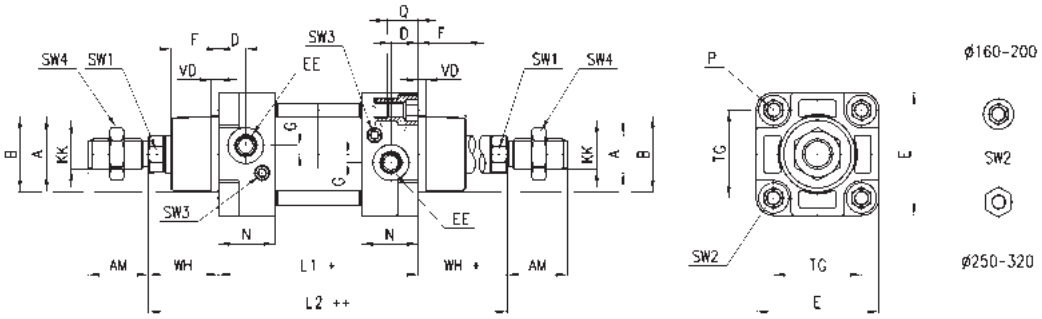
DIMENSIONS

Ø	øA	KK	øB	D	G	F	AM	H	EE	WH	L1+	L2+	VD	N	P	Q	TG	E	SW1	SW2	SW3	SW4	front/rear cushion strokes
160	40	M36x2	65	25	12	53.5	72	6	G3\4	80	180	260	6	45	M16	26	140	176	36	17	4	55	29 / 36
200	40	M36x2	75	25	12	63.5	72	6	G3\4	95	180	275	6	45	M16	26	175	216	36	17	4	55	44 / 42
250	50	M42x2	90	31	12	67	84	10	G1	105	200	305	6	60	M20	30	220	270	46	36	4	65	50 / 50
320	63	M48x2	110	31	12	83	96	10	G1	120	220	340	12	55,5	M24	30	270	340	55	41	-	75	56 / 56

Series 40 cylinders - through-rod



+ = add the stroke once
++ = add the stroke twice



DIMENSIONS

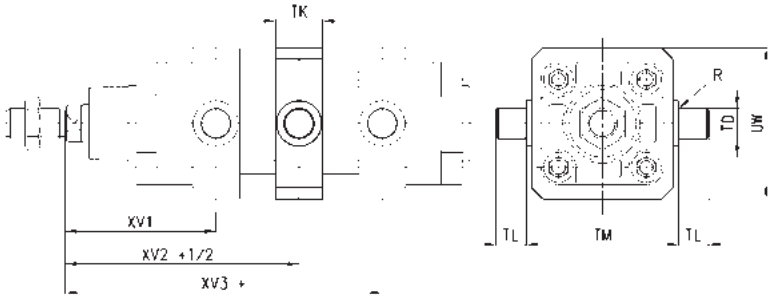
Ø	øA	KK	øB	D	G	F	AM	EE	WH	L1+	L2++	VD	N	P	Q	TG	E	SW1	SW2	SW3	SW4	front/rear cushion strokes
160	40	M36x2	65	25	12	53.5	72	G3\4	80	180	340	6	45	M16	26	140	176	36	17	4	55	29 / 36
200	40	M36x2	75	25	12	63.5	72	G3\4	95	180	370	6	45	M16	26	175	216	36	17	4	55	44 / 42
250	50	M42x2	90	31	12	67	84	G1	105	200	410	6	60	M20	30	220	270	46	36	4	65	50 / 50
320	63	M48x2	110	31	12	83	96	G1	120	200	?	12	55,5	M24	30	270	340	55	41	-	75	56 / 56

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Series 40 cylinders with centre trunnion Mod. F



+ = add the stroke
+ 1/2 = add the stroke half



DIMENSIONS

Ø	XV1	XV2+ 1/2	XV3+	TM	TK	TD	TL	UW	R	NOTE
160	145	170	195	200	40	32	32	190	2	
200	160	185	210	250	40	32	32	240	2	
250	185	205	225	320	50	40	40	300	-	mounting with 4 threaded tie-rods
320	210,5	230	249,5	400	70	50	50	400	-	mounting with 4 threaded tie-rods

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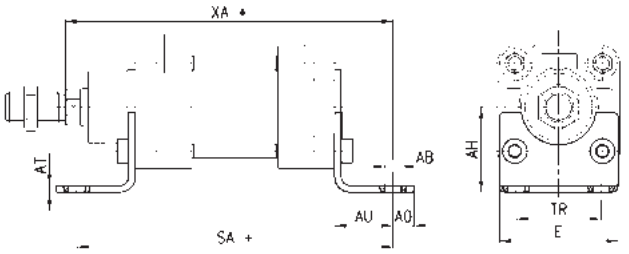
Foot mount Mod. B



Supplied with:
2x feets in black-painted steel (cataphoresis)
4x white zinc plating screws

For diameters 250 and 320 white zinc plating

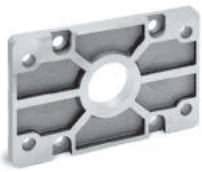
+ = add the stroke



DIMENSIONS

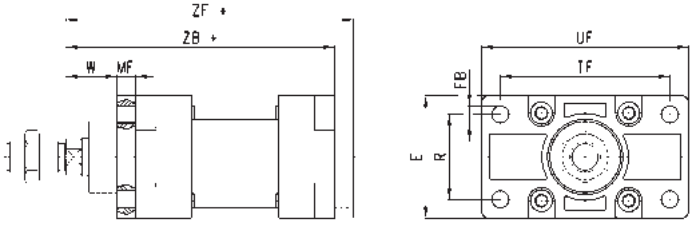
Mod.	Ø	AT	SA+	XA+	TR	E	⌀AB	AH	AO	AU
B-41-160	160	10	300	320	115	175	18.5	115	25	60
B-41-200	200	12	320	345	135	238	24	135	35	70
B-41-250	250	14	350	380	165	270	26	165	25	75
B-41-320	320	20	390	425	200	353	35	200	45	85

Front and rear flange Mod. D-E



Supplied with:
1x flange
4x screws

+ = add the stroke



DIMENSIONS

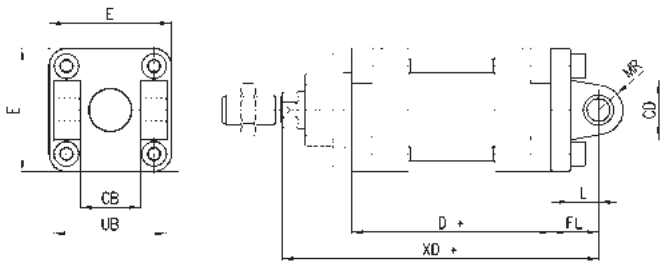
Mod.	Ø	W	MF	ZB+	TF	R	UF	E	ØFB	ZF+	Material
D-E-41-160	160	60	20	260	230	115	276	175	18	280	aluminium
D-E-41-200	200	70	25	275	270	135	312	215	22	300	aluminium
D-E-41-250	250	80	25	305	330	165	400	285	26	330	zinc-plated steel
D-E-41-320	320	90	30	340	400	200	470	334	33	370	stainless steel 304

Front and rear female trunnion Mod. C-H



Supplied with:
1x female trunnion in Aluminium
4x screws

+ = add the stroke



DIMENSIONS

Mod.	Ø	⌀CD	L	FL	D+	XD+	MR	E	CB	UB
C-H-41-160	160	30	35	55	180	315	30	175	90	170
C-H-41-200	200	30	35	60	180	335	30	215	90	170
C-H-41-250	250	40	45	70	200	375	40	270	110	200
C-H-41-320	320	45	50	80	220	420	45	350	120	220

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General terms and conditions for sale are available on www.camozzi.com.

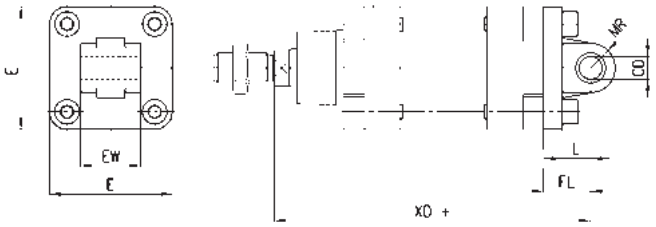
Rear male trunnion Mod. L



Supplied with:
1x male trunnion in Aluminium *
4x screws

* For Ø 320 black-painted steel (cataphoresis)

+ = add the stroke



DIMENSIONS

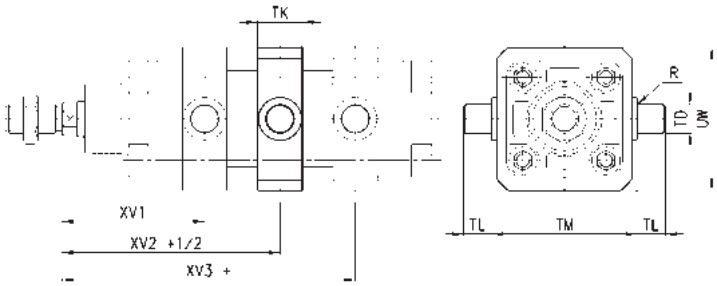
Mod.	Ø	øCD	L	FL	XD+	MR	E	EW
L-41-160	160	30	35	55	315	30	175	90
L-41-200	200	30	35	60	335	30	215	90
L-41-250	250	40	45	70	375	40	270	110
L-41-320	320	45	50	80	420	45	350	110

Centre trunnion Mod. F



Material:
- zinc-plated steel (Ø 160 and 200)
- painted cast iron (Ø 250 and 320)

+ = add the stroke



DIMENSIONS

Mod.	Ø	XV1	XV + 1/2	XV3 +	TM	TK	øTD	TL	UW	R	NOTE
F-160	160	145	170	195	200	40	32	32	190	2	
F-200	200	160	185	210	250	40	32	32	240	2	
F-250	250	185	205	225	320	50	40	40	296	-	mounting with 4 threaded tie-rods
F-320	320	210,5	230	249,5	400	70	50	50	400	-	mounting with 4 threaded tie-rods

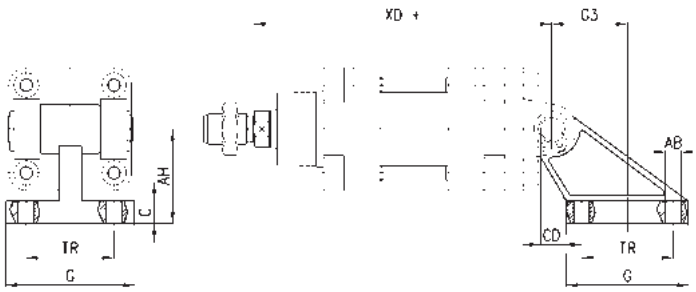
90° Swivel combination Mod. ZS*

* not according to standard



Supplied with:
1x 45° swivel combination in Aluminium

+ = add the stroke



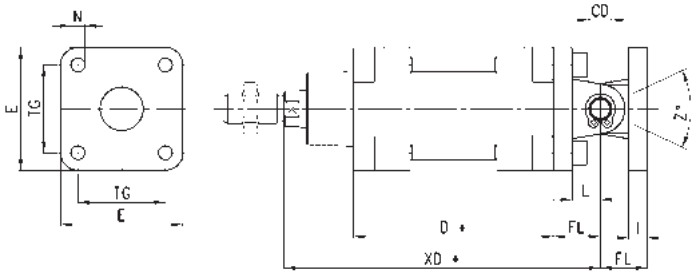
DIMENSIONS

Mod.	Ø	TR	øAB	AH	C	G	øCD	XD +	G3
ZS-160	160	140	18	140	20	180	30	315	105
ZS-200	200	175	18	140	25	220	30	335	125

Swivel combination Mod. C+L+S



+ = add the stroke



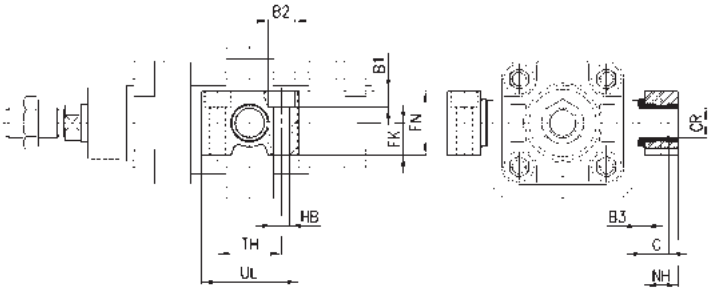
DIMENSIONS

Mod.	Ø	E	TG	⌀N	D+	XD+	⌀CD	L	FL	I	Z° (max)
C+L+S	160	175	140	17	180	315	30	35	55	20	25
C+L+S	200	215	175	17	180	335	30	35	60	25	20
C+L+S	250	270	220	25	200	375	40	45	70	25	33
C+L+S	320	350	270	30	220	420	40	50	80	30	30

Counter bracket for centre trunnion Mod. BF

Supplied with 2 supports
in Aluminium





DIMENSIONS

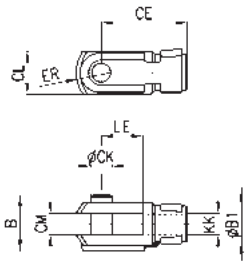
Mod.	Ø	⌀CR	NH	C	B3	TH	UL	FK	FN	B1	⌀B2	⌀HB
BF-160-200	160-200	32	35	17,5	4	60	92	30	60	16	26	18

Rod fork end Mod. G

ISO 8140

Material:
- zinc-plated steel





DIMENSIONS

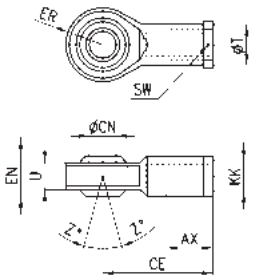
Mod.	Ø	ØCK	LE	CM	CL	ER	CE	KK	B	ØB1
G-160-200	160-200	35	72	35	70	44	144	M36X2	92	60
G-250	250	40	84	40	85	-	168	M42x2	96	70
G-320	320	50	96	50	90	73	192	M48x2	120	80

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Swivel ball joint Mod. GA

ISO 8139





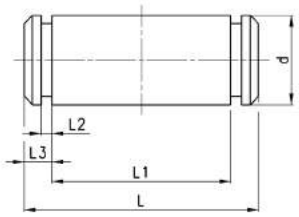
DIMENSIONS

Mod.	Ø	⌀CN	U	EN	ER	AX	CE	KK	ØT	Z	SW
GA-160-200	160-200	35	28	43	40	56	125	M36x2	46	6	50
GA-250	250	40	33	49	-	60	142	M42x2	55	17	55
GA-320	320	50	45	60	58.5	65	160	M48x2	65	12	65

Clevis pin Mod. S

Supplied with:
1x centering pin
2x seeger in steel





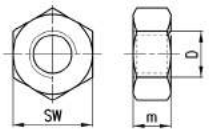
DIMENSIONS

Mod.	Ø	d	L	L1	L2	L3	
S-160-200	160-200	30	180.5	172	1.6	4.25	stainless steel 303
S-250	250	40	210	202	1.85	4.5	zinc-plated steel
S-320	320	45	236	222	1.85	7	zinc-plated steel

Piston rod lock nut Mod. U

ISO 4035
Material: zinc-plated steel





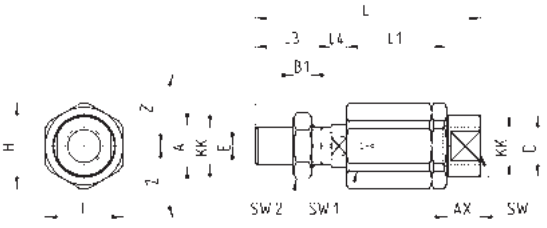
DIMENSIONS

Mod.	Ø	D	m	SW
U-160-200	160-200	M36x2	14	55
U-250	250	M42x2	16	65
U-320	320	M48x2	24	75

Self aligning rod Mod. GK

Material: zama and zinc-plated steel.





DIMENSIONS

Mod.	Ø	KK	L	L1	L3	L4	⌀A	⌀D	H	I	SW	SW1	SW2	B1	AX	Z	E
GK-160-200	160-200	M36x2	190	77	72	15.5	39	57	75	70	54	32	55	14	68	4	2

Series 41 cylinders - Aluminium profile

Double-acting, cushioned, magnetic
ø 160 - 200 mm



- In compliance with DIN/ISO 6431/VDMA 24562 standards
- Rolled stainless steel rod
- Adjustable pneumatic cushioning
- Rod scraper in brass

Series 41 cylinders with bores 160 and 200mm have been designed so as to comply with the dimensions laid down in the DIN/ISO 6431 standards. The extruded aluminium tube in this series is regarded as very aesthetically pleasing.

The mounting brackets used on the end-blocks tube are designed in an extremely secure way, making use of the cylinder tie-rods positioned internally and not visible on the assembled cylinders. This cylinder series is normally equipped with adjustable cushioning.
Moreover, to reduce the noise of the impact of the piston and end-caps, these cylinders are equipped with a mechanical cushioning.

GENERAL DATA

Type of construction	with tie-rods
Operation	double-acting
Materials	AL end blocks and piston - rolled stainless steel AISI 420B piston rod - zinc-plated steel piston rod nut - anodized AL-profile tube zinc-plated steel tie-rods and tie-rod nuts - NBR rod - piston - cushion seals - brass rod scraper
Mounting	with tie-rods, front flange, rear flange, feet, centre trunnion, front and rear trunnion, swivel combination
Strokes min - max	10 ÷ 2500 mm
Operating temperature	0°C ÷ 80°C (with dry air - 20°C)
Operating pressure	1 ÷ 10 bar
Speed	10 ÷ 500 mm/sec (without load)
Fluid	filtered air, without lubrication. If lubricated air is used, it is recommended to use oil ISOVG32. Once applied the lubrication should never be interrupted.

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

STANDARD STROKES FOR DOUBLE-ACTING CYLINDERS SERIES 41

✖ = Double-acting

STANDARD STROKES														
Ø	25	50	75	80	100	125	150	160	200	250	300	320	400	500
160		✖			✖		✖		✖				✖	✖
200		✖			✖				✖					

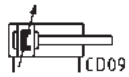
CODING EXAMPLE

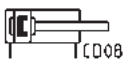
41	M	2	P	160	A	0200	

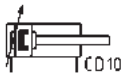
41	SERIES	
M	VERSION M = standard magnetic	
2	OPERATION 2 = double-acting, front and rear cushions 3 = double-acting, no cushion 4 = double-acting, rear cushions 5 = double-acting, front cushion 6 = double-acting, through-rod, front and rear cushions 8 = double-acting, through-rod, no cushion	PNEUMATIC SYMBOLS CD09 CD08 CD10 CD11 CD13 CD12
P	MATERIALS P = see the general data on page 1/1.15.01 R = stainless steel AISI 420B tie-rods, stainless steel AISI 303 tie-rod nuts C = rolled stainless steel AISI 303 piston rod, stainless steel AISI 304 piston rod nut U = rolled stainless steel AISI 303 piston rod, stainless steel AISI 304 piston rod nut, stainless steel AISI 420B tie-rods, stainless steel AISI 303 tie-rod nuts W = rolled stainless steel AISI 304 piston rod, stainless steel AISI 304 piston rod nut, stainless steel AISI 420B tie-rods, stainless steel AISI 303 tie-rod nuts	
160	BORE 160 = 160 mm - 200 = 200 mm	
A	TYPE OF DESIGN A = tie-rods F = cylinder with centre trunnion	
0200	STROKE (see the table)	
	= standard V = FKM rod seals W = all FKM seals +130°C C = PU coated cylinder. Color: Grey * G = with brass rod scraper (chrome plated stainless steel AISI 420B rod, NBR rod seal) (_ _ _) = extended piston rod _ _ _ mm * Version C: available on request. For further information, please contact our technical dept.	

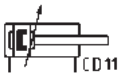
PNEUMATIC SYMBOLS

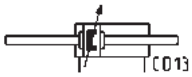
The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.

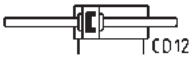












ACCESSORIES FOR CYLINDERS SERIES 41



Clevis pin Mod. S



90° swivel combination Mod. ZS



Rear trunnion, male Mod. L



Front and rear flange Mod. D-E



Counter bracket for centre trunnion Mod. BF



Centre trunnion Mod. F



Foot mount Mod. B



Rod fork end Mod. G



Front and rear female trunnion Mod. C-H



Swivel ball joint Mod. GA



Swivel combination Mod. C+L+S



Piston rod lock nut Mod. U



Self aligning rod Mod. GK



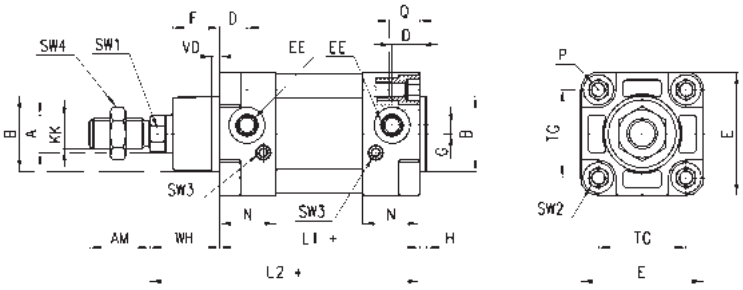
All accessories are supplied separately, except for the piston rod lock nut Mod. U

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Cylinders Series 41



+ = add the stroke



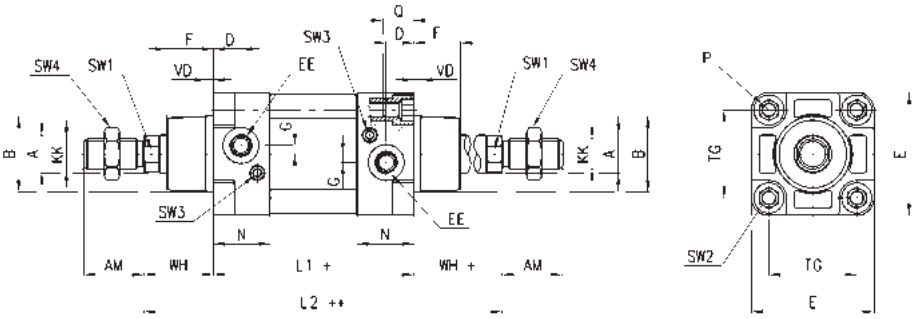
DIMENSIONS

Ø	øA	KK	øB	D	G	F	AM	H	EE	WH	L1+	L2+	VD	N	P	Q	TG	E	SW1	SW2	SW3	SW4	front/rear cushion strokes
160	40	M36x2	65	25	12	53.5	72	6	G3\4	80	180	260	6	45	M16	26	140	176	36	17	4	55	29 / 36
200	40	M36x2	75	25	12	63.5	72	6	G3\4	95	180	275	6	45	M16	26	175	216	36	17	4	55	44 / 42

Cylinders Series 41 - through-rod



+ = add the stroke once
++ = add the stroke twice



DIMENSIONS

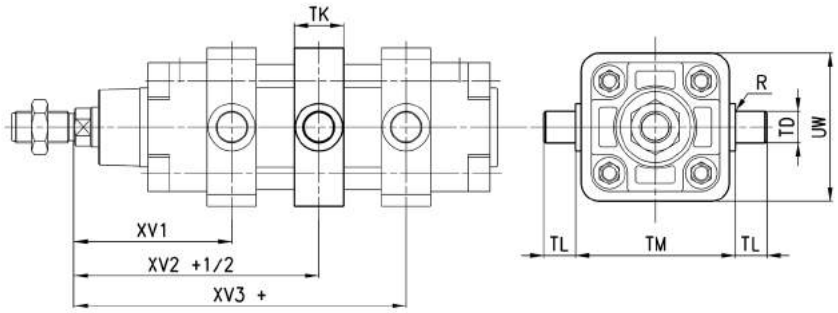
Ø	A	KK	B	D	G	F	AM	EE	WH	L1+	L2++	VD	N	P	Q	TG	E	SW1	SW2	SW3	SW4	front/rear cushion strokes
160	40	M36x2	65	25	12	53.5	72	G3\4	80	180	340	6	45	M16	26	140	176	36	17	4	55	29 / 36
200	40	M36x2	75	25	12	63.5	72	G3\4	95	180	370	6	45	M16	26	175	216	36	17	4	55	44 / 42

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Cylinders Series 41 with centre trunnion Mod. F



+ = add the stroke
+ 1/2 = add the stroke half



DIMENSIONS

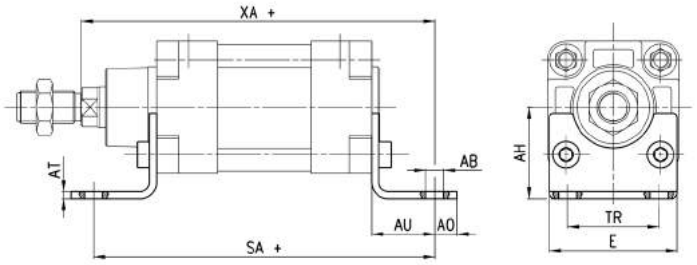
Ø	XV1	XV2	XV3	TM	TK	TD	TL	UW	R
160	145	170	195	200	40	32	32	200	0,2
200	160	185	210	250	40	32	32	250	0,2

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Foot mount Mod. B

Material: black-painted steel (cataphoresis)
Supplied with:
2x feet
4x screws





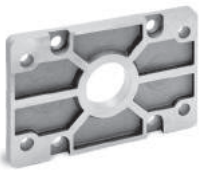
+ = add the stroke

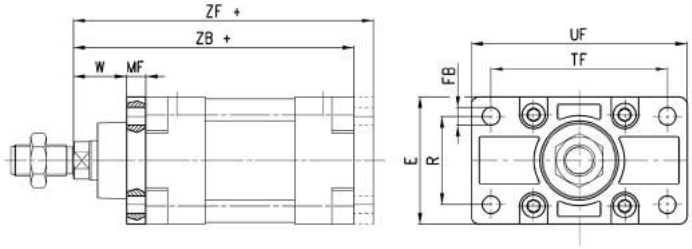
DIMENSIONS

Mod.	Ø	AT	SA+	XA+	TR	E	⌀AB	AH	AO	AU
B-41-160	160	10	300	320	115	175	18.5	115	25	60
B-41-200	200	12	320	345	135	238	24	135	35	70

Front and rear flange Mod. D-E

Material: Aluminium.
Supplied with:
1x flange
4x screws





+ = add the stroke

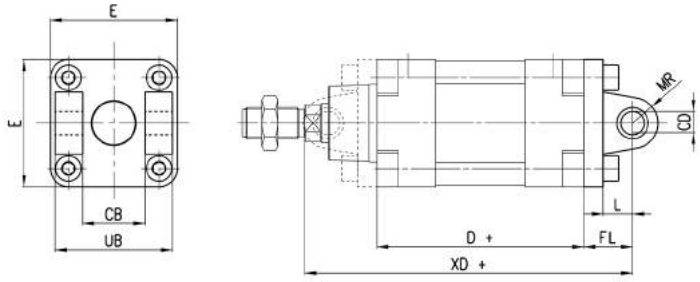
DIMENSIONS

Mod.	Ø	W	MF	ZB+	TF	R	UF	E	⌀FB	ZF+
D-E-41-160	160	60	20	260	230	115	276	175	18	280
D-E-41-200	200	70	25	275	270	135	312	215	22	300

Front and rear female trunnion Mod. C-H

Material: Aluminium.
Supplied with:
1x female trunnion
4x screws





+ = add the stroke

DIMENSIONS

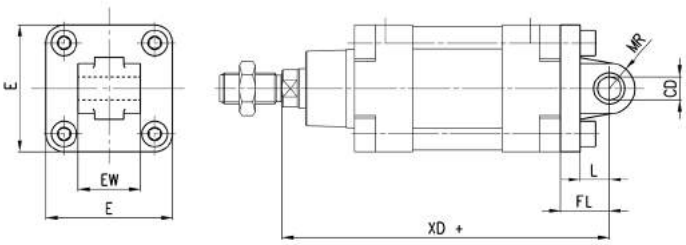
Mod.	Ø	⌀CD	L	FL	D+	XD+	MR	E	CB	UB
C-H-41-160	160	30	35	55	180	315	30	175	90	170
C-H-41-200	200	30	35	60	180	335	30	215	90	170

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Rear male trunnion Mod. L

Material: Aluminium
Supplied with:
1x male trunnion
4x screws





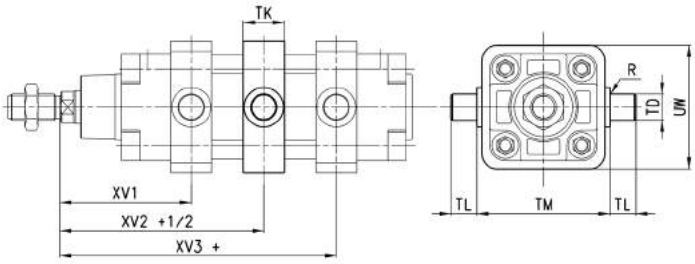
+ = add the stroke

DIMENSIONS								
Mod.	Ø	⌀CD	L	FL	XD+	MR	E	EW -0.5 -1.2
L-41-160	160	30	35	55	315	30	175	90
L-41-200	200	30	35	60	335	30	215	90

Centre trunnion Mod. F

Material: white zinc-plated steel.
Supplied with:
1x centre trunnion
4x clamping elements
4x locking screws





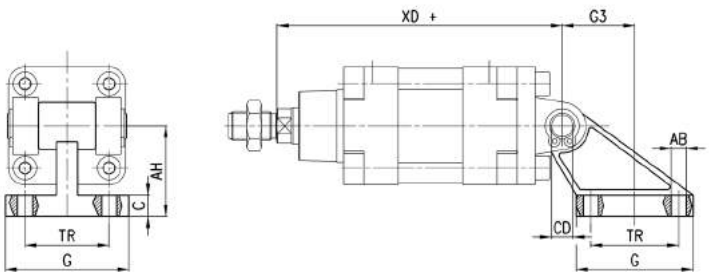
+ = add the stroke

DIMENSIONS										
Mod.	Ø	XV1	XV+1/2	XV3+	TM	h	⌀TD	TL	UW	R
F-41-160	160	145	170	195	200	40	32	32	200	0.2
F-41-200	200	160	185	210	250	40	32	32	250	0.2

90° Swivel combination Mod. ZS*

Material: Aluminium
* not according to standard





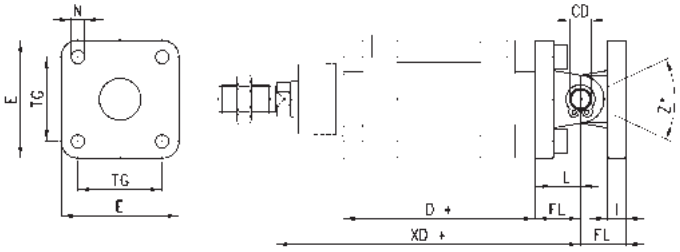
+ = add the stroke

DIMENSIONS									
Mod.	Ø	TR	⌀AB	AH	C	G	⌀CD	XD+	G3
ZS-160	160	140	18	140	20	180	30	315	105
ZS-200	200	175	18	140	25	220	30	335	125

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Swivel combination Mod. C+L+S





+ = add the stroke

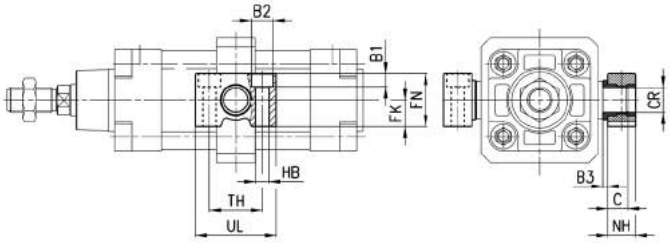
DIMENSIONS

Mod.	Ø	⌀CD	L	FL	D+	XD+	TG	E	⌀N	I	Z° (max)
C+L+S	160	30	35	55	180	315	140	175	17	20	25
C+L+S	200	30	35	60	180	335	175	215	17	25	20

Counter bracket for centre trunnion Mod. BF

Material: Aluminium.
Supplied with:
2x supports





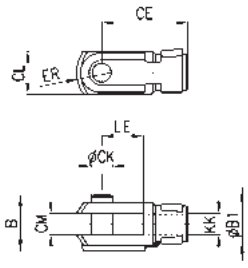
DIMENSIONS

Mod.	Ø	⌀CR	NH	C	B3	TH	UL	FK	FN	B1	⌀B2	⌀HB
BF-160-200	160-200	32	35	17,5	4	60	92	30	60	16	26	18

Rod fork end Mod. G

ISO 8140.
Material: zinc-plated steel.





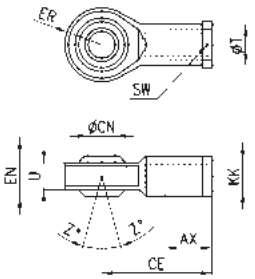
DIMENSIONS

Mod.	Ø	⌀CK	LE	CM	CL	ER	CE	KK	B	⌀B1
G-160-200	160-200	35	72	35	70	44	144	M36X2	92	60

Swivel ball joint Mod. GA



ISO 8139.
Material: zinc-plated steel.



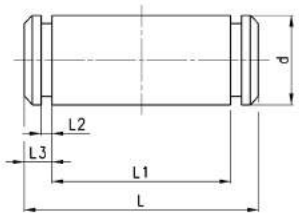
DIMENSIONS

Mod.	Ø	øCN	U	EN	ER	AX	CE	KK	ØT	Z	SW
GA-160-200	160-200	35	28	43	40	56	125	M36x2	46	6	50

Clevis pin Mod. S



Supplied with:
1x centering pin in stainless steel 303
2x seeger in steel



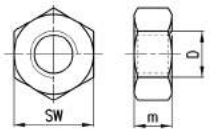
DIMENSIONS

Mod.	Ø	d	L	L1	L2	L3
S-160-200	160-200	30	180.5	172	1.6	4.25

Piston rod lock nut Mod. U



ISO 4035
Material: zinc-plated steel



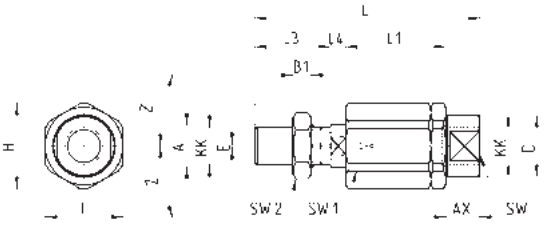
DIMENSIONS

Mod.	Ø	D	m	SW
U-160-200	160-200	M36x2	14	55

Self aligning rod Mod. GK



Material: zama and zinc-plated steel.



DIMENSIONS

Mod.	Ø	KK	L	L1	L3	L4	øA	øD	H	I	SW	SW1	SW2	B1	AX	Z	E
GK-160-200	160-200	M36x2	190	77	72	15.5	39	57	75	70	54	32	55	14	68	4	2

Products designed for industrial applications.
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Series 60 cylinders

Single and double-acting, magnetic, cushioned
Standard, low friction, low temperatures and tandem versions
ø 32, 40, 50, 63, 80, 100, 125mm



The Series 60 cylinders have been designed to comply with the dimensions laid down in the ISO 15552 standards. A permanent magnet, mounted on the piston, enables information to be received regarding the piston position by means of proximity switches positioned along the cylinder tube.

This cylinder series is normally equipped with adjustable end-stroke cushioning. Moreover, these cylinders are equipped with bumpers in order to reduce the impact of the piston as it reaches the end of the stroke.

- In compliance with ISO 15552 standards and with the previous DIN/ISO 6431 - VDMA 24562 standards
- Rolled stainless steel rod
- Adjustable pneumatic cushioning
- Available special versions

TANDEM:

- Double thrust and traction forces

LOW FRICTION:

- Friction force reduced by over 40%

LOW TEMPERATURES:

- Versions for -40°C and for -50°C

G VARIANT FOR DUSTY APPLICATIONS:

- Highly resistant to dust, cement, resin, mud, and wood residue

GENERAL DATA

Type of construction	with tie-rods
Operation	double-acting, single-acting, tandem. Low friction version: double-acting only.
Materials	standard: AL end-blocks and piston, rolled stainless steel AISI 420B rod, anodized AL tube, zinc-plated steel tie-rods and tie-rod nuts, PU seals; low friction: standard materials with NBR piston seals and NBR rod seal (FKM rod seal on request) low temperatures: standard materials with chrome plated stainless steel AISI 420B rod, brass rod scraper ring, stainless steel AISI 303 nuts, stainless steel AISI 420B tie-rods, PU piston seals and NBR rod seal
Type of mounting	with tie-rods, with front / rear flange, foot mounting, with centre / front / rear / swivel trunnion
Strokes min - max	10 ÷ 2500 mm
Operating temperature	standard and low friction: 0°C ÷ 80°C (with dry air - 20°C) low temperatures (-40°C version): -40°C ÷ 60°C (with dry air -40°C) low temperatures (-50°C version): -50°C ÷ 60°C (with dry air -50°C)
Operating pressure	1 ÷ 10 bar (standard and low temperatures); 0,1 ÷ 10 bar (low friction)
Speed	10 ÷ 1000 mm/sec, no load (standard and low temperatures); 5 ÷ 1000 mm/sec, no load (low friction)
Fluid	filtered air, without lubrication. For standard versions only: if lubricated air is used, it is recommended to use oil ISOVG32. Once applied the lubrication should never be interrupted.

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STANDARD STROKES FOR CYLINDERS SERIES 60

■ = Single-acting (standard and low temperatures) ✖ = Double-acting (standard, low friction and low temperatures)
Other strokes up to 2500 mm are available on request.

Ø	25	50	75	100	125	150	160	200	250	300	320	400	500
32	■ ✖	■ ✖	■ ✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
40	■ ✖	■ ✖	■ ✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
50	■ ✖	■ ✖	■ ✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
63	■ ✖	■ ✖	■ ✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
80	■ ✖	■ ✖	■ ✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
100		■ ✖	■ ✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
125		✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖

CODING EXAMPLE

60	M	2	L	050	A	0200	

60 — SERIES

M — VERSIONS
M = magnetic N = non magnetic L = low friction, magnetic

2 — OPERATION
1 = single-acting, front spring
2 = double-acting, front and rear cushioned
3 = double-acting, no cushion
4 = double-acting, rear cushioned
5 = double-acting, front cushioned
6 = double-acting, through-rod, front and rear cushioned
7 = single-acting, through-rod
8 = double-acting, through-rod, no cushion

PNEUMATIC SYMBOLS
CS03 (N) - CS07 (M)
CD02 (N) - CD09 (M)
CD01 (N) - CD08 (M)
CD03 (N) - CD10 (M)
CD04 (N) - CD11 (M)
CD06 (N) - CD13 (M)
CS05 (N) - CS11 (M)
CD12

L — MATERIALS
L = see the general data on page 1/1.20.01
T = stainless steel AISI 420B tie-rods, stainless steel AISI 303 tie-rod nuts, others: see p. 1/1.20.01
C = rolled stainless steel AISI 303 piston rod, stainless steel AISI 304 piston rod nut
U = rolled stainless steel AISI 303 piston rod, AISI 304 piston-rod nut, AISI 420B tie-rods, AISI 303 tie-rod nuts
W = rolled stainless steel AISI 304 piston rod, AISI 304 piston-rod nut, AISI 420B tie-rods, AISI 303 tie-rod nuts
Z = chrome plated stainless steel AISI 420B rod, stainless steel AISI 304 rod nut, stainless steel AISI 420B tie-rods, stainless steel AISI 303 tie-rods nuts, seals for low temperatures (-40°C), brass rod scraper
Y = chrome plated stainless steel AISI 420B rod, stainless steel AISI 304 rod nut, stainless steel AISI 420B tie-rods, stainless steel AISI 303 tie-rods nuts, seals for low temperatures (-50°C), brass rod scraper

050 — BORE
032 = 32 mm
040 = 40 mm
050 = 50 mm
063 = 63 mm
080 = 80 mm
100 = 100 mm
125 = 125 mm

A — CONSTRUCTION
A = standard with lock nut for rod
RL = cylinder with rod lock
F = cylinder with centre trunnion

0200 — STROKE (see the table)

= standard
V = FKM rod seal
N = tandem
R = NBR rod seal
W = all FKM seals + 130°C
C = PU coated cylinder. Colour: Grey *
L = low friction version without rod seal (rear supply only) **
(_ _ _) = extended piston rod _ _ _ mm
G = with brass rod scraper (chrome plated stainless steel AISI 420B rod, NBR rod seal)

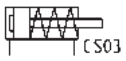
CD8T (M) - CD9T (N)

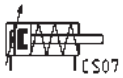
* Version C: available on request. For further information, please contact our technical dept.
** The possibility to order the cylinder without piston rod seal, further reduces the friction force.

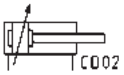
Note: all double-acting cylinders are also available in the low friction version.

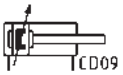
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PNEUMATIC SYMBOLS [Pneumatic symbols in the CODING EXAMPLE are shown below.]

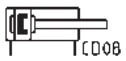


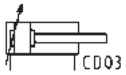


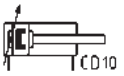


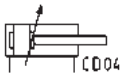


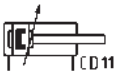


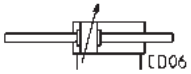


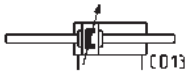


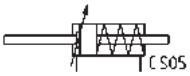




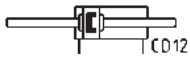


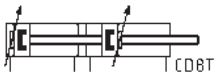


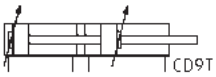






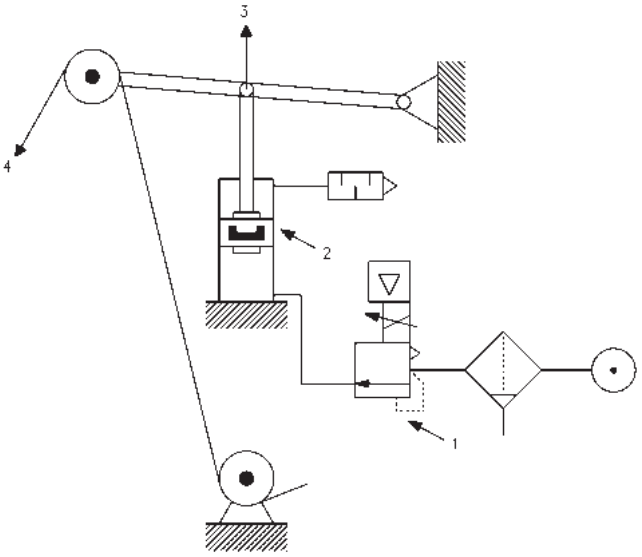






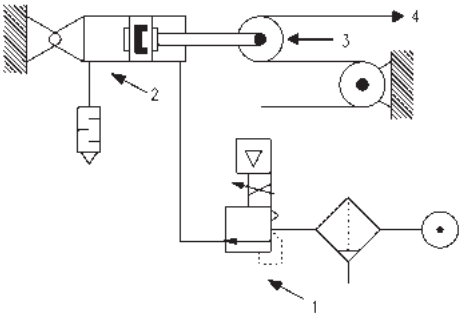
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Series 60 low friction cylinders - APPLICATION EXAMPLES



CYLINDER IN THRUST

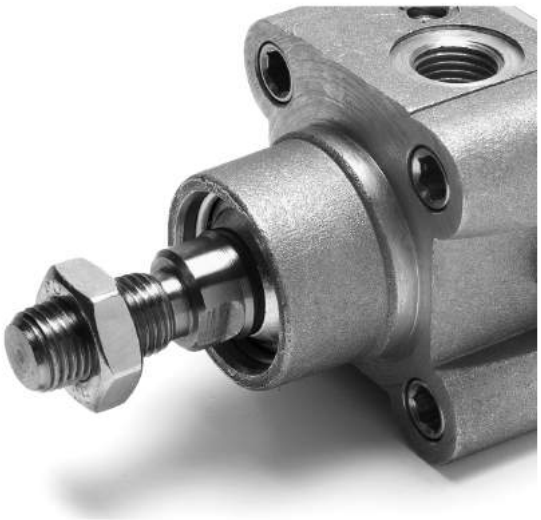
DRAWING NOTES:
1. Precision pressure regulator or proportional regulator
2. Low friction cylinder
3. Force direction
4. Band

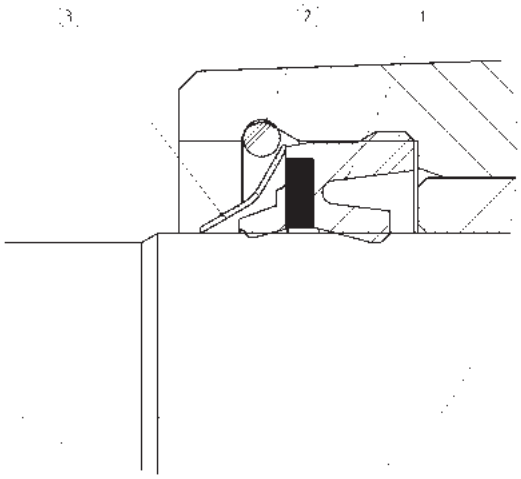


CYLINDER IN TRACTION

Note: in order to reach the highest performance, it is recommended to connect a precision pressure regulator or a proportional regulator with the low friction cylinder as shown in the drawing.

Series 60 low temperatures cylinders - DETAIL





1 = rod seal
2 = flexible ring
3 = metal scraper

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ACCESSORIES FOR CYLINDERS SERIES 60



Piston rod socket joint
Mod. GY



Piston rod lock nut
Mod. U



Clevis pin Mod. S



Rear trunnion ball-joint
Mod. R



Rod fork end Mod. G



Swivel ball joint Mod. GA



90° male trunnion
Mod. ZC



Swivel combination
Mod. C+L+S



Centre trunnion Mod. F



Self aligning rod
Mod. GK



Counter bracket for
centre trunnion Mod. BF



Foot mount Mod. B



Front and rear flange
Mod. D-E



Rear female trunnion
Mod. C and C-H



Front female trunnion
Mod. H and C-H



Rear male trunnion
Mod. L



Coupling piece
Mod. GKF



Key to disassemble
cylinders Ø 80 and 100



All accessories are supplied separately, except for piston rod lock nut Mod. U

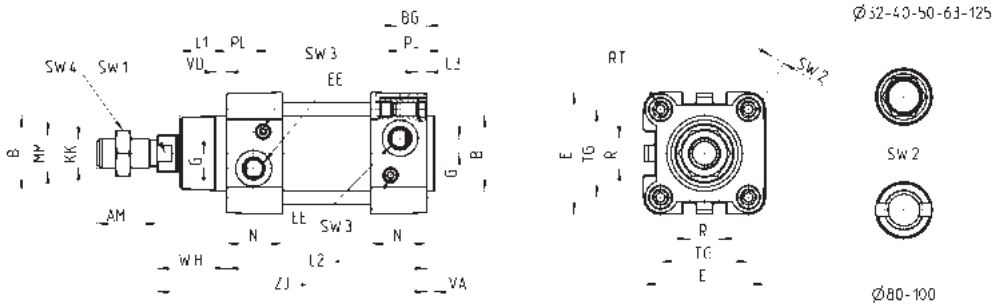
Cylinders Series 60

Note: the single-acting cylinders' sizes ZJ and L2 are increased by 25 mm.



+ = add the stroke

Table note:
* = special key 80-62/8C
(see accessories)



DIMENSIONS

Ø	AM	B	BG	E	EE	G	KK	L1	L2+	L3	MM	N	PL	R	RT	SW1	SW2	SW3	SW4	TG	VA	VD	WH	ZJ+	Front/rear cushion stroke
32	22	30	16	46	G1/8	5	M10x1,25	18	94	5	12	26	14	13	M6	10	6	2	17	32,5	4	5	26	120	17 / 12
40	24	35	16	55	G1/4	5	M12x1,25	21	105	5	16	29	15	13,5	M6	13	6	2	19	38	4	5	30	135	20 / 17
50	32	40	16	64,5	G1/4	8	M16x1,5	25	106	5	20	29,5	15	16	M8	17	8	3	24	46,5	4	6	37	143	15 / 14
63	32	45	16	75	G3/8	8	M16x1,5	26	121	5	20	36,5	21	28	M8	17	8	3	24	56,5	4	6	37	158	17 / 16
80	40	45	19	93	G3/8	8	M20x1,5	30	128	0	25	36	21	30	M10	22	*	5	30	72	4	7	46	174	20 / 20
100	40	55	19,5	110	G1/2	8	M20x1,5	35	138	0	25	38,5	23	40	M10	22	*	5	30	89	4	7	51	189	21 / 19
125	54	60	23	135	G1/2	10,5	M27x2	42	160	0	32	43	23,5	50	M12	27	12	4	41	110	6	8	65	225	26 / 25

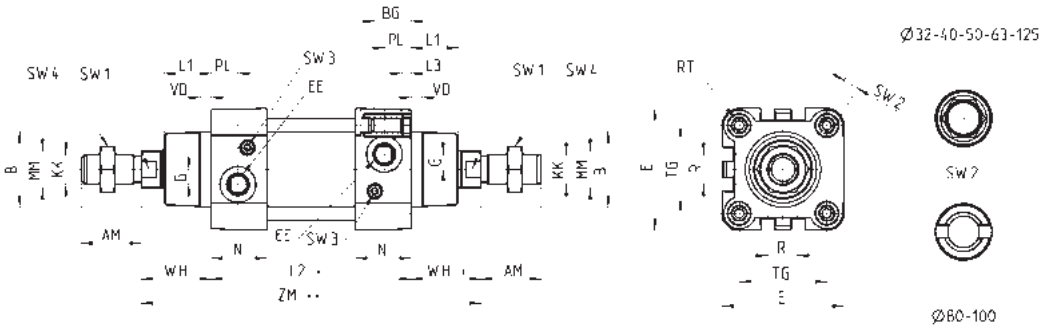
Cylinders Series 60 - through-rod

Note: the single-acting cylinders' sizes ZM and L2 are increased by 25 mm.



+ = add the stroke once
++ = add the stroke twice

Table note:
* = special key 80-62/8C
(see accessories)



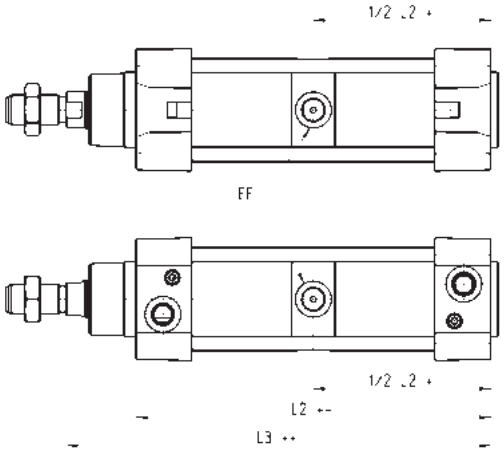
DIMENSIONS

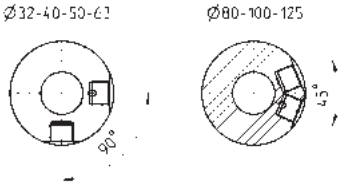
Ø	AM	B	BG	E	EE	G	KK	L1	L2+	L3	MM	N	PL	R	RT	SW1	SW2	SW3	SW4	TG	VD	WH	ZM++	Front/rear cushion stroke
32	22	30	16	46	G1/8	5	M10x1,25	18	94	5	12	26	14	13	M6	10	6	2	17	32,5	5	26	146	17 / 12
40	24	35	16	55	G1/4	5	M12x1,25	21	105	5	16	29	15	13,5	M6	13	6	2	19	38	5	30	165	20 / 17
50	32	40	16	64,5	G1/4	8	M16x1,5	25	106	5	20	29,5	15	16	M8	17	8	3	24	46,5	6	37	180	15 / 14
63	32	45	16	75	G3/8	8	M16x1,5	26	121	5	20	36,5	21	28	M8	17	8	3	24	56,5	6	37	195	17 / 16
80	40	45	19	93	G3/8	8	M20x1,5	30	128	0	25	36	21	30	M10	22	*	5	30	72	7	46	220	20 / 20
100	40	55	19,5	110	G1/2	8	M20x1,5	35	138	0	25	38,5	23	40	M10	22	*	5	30	89	7	51	240	21 / 19
125	54	60	23	135	G1/2	10,5	M27x2	42	160	0	32	43	23,5	50	M12	27	12	4	41	110	8	65	290	26 / 25

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Cylinders Series 60 - tandem version





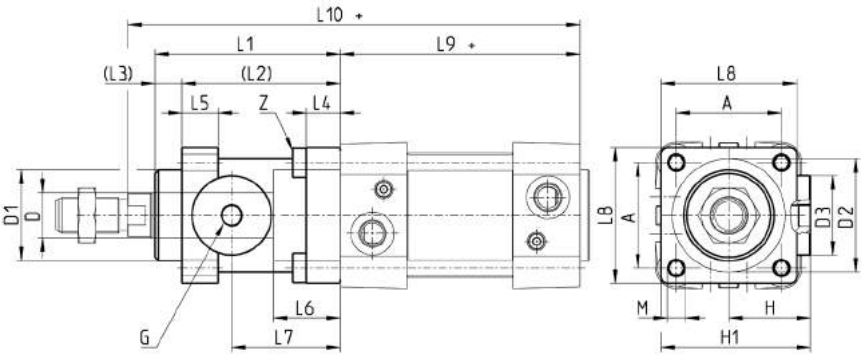


+ = add the stroke once
++ = add the stroke twice

DIMENSIONS			
Ø	EE	L2	L3
32	G1/8	171,5	197,5
40	G1/4	191,5	221,5
50	G1/4	188	225
63	G3/8	204	241
80	G3/8	225,5	271,5
100	G1/2	231	282
125	G1/2	264	329

Cylinders Series 60 with rod lock





+ = add the stroke

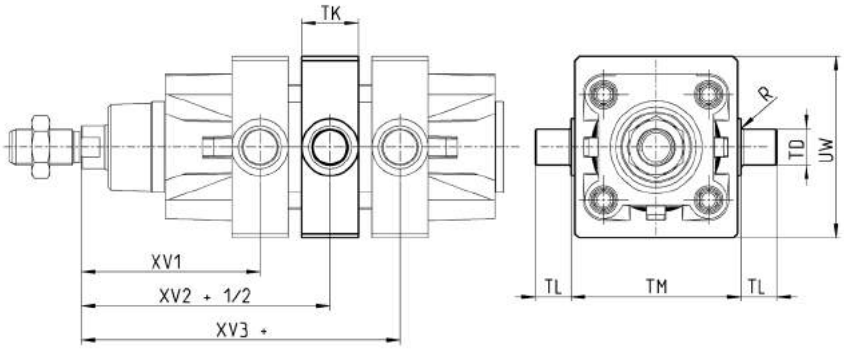
DIMENSIONS																				
Ø	øD	øD1	øD2	øD3	A	G	H	H1	L1	L2	L3	L4	L5	L6	L7	L8	L9+	L10+	M	Z
32	12	30,5	35	25	32,5	M5	25,5	46,5	58	48	10	8	13	20,5	34	45	94	160	M6	M6X20
40	16	35	40	28	38	G1/8	30	53	65	55	10	8	13	22,5	38	50	105	178	M6	M6X20
50	20	40	50	35	46,5	G1/8	36	64	82	70	12	15	16	29,5	48	60	106	200	M8	M8X30
63	20	45	60	38	56,5	G1/8	40	75	82	70	12	15	16	29,5	49,5	70	121	215	M8	M8X30
80	25	45	80	48	72	G1/8	50	95	110	90	20	18	20	35	61	90	128	254	M10	M10X35
100	25	55	100	58	89	G1/8	58	110,5	115	100	15	18	20	39	69	105	138	269	M10	M10X35
125	32	60	130	65	110	G1/8	80	150	167	122	45	22	30	51	86,5	140	160	350	M12	M12X40

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Cylinders Series 60 with centre trunnion Mod. F



+ = add the stroke once
+ 1/2 = add the stroke half



DIMENSIONS									
Ø	XV1	XV2	XV3	TM (h14)	TK	TD (e9)	TL (h14)	UW	R
32	62	73	84	50	20	12	12	50	0.5
40	69	82,5	96	63	20	16	16	60	1
50	79	90	101	75	25	16	16	70	1
63	86	97,5	109	90	25	20	20	85	1
80	97	110	123	110	30	20	20	105	1
100	104,5	120	135,5	132	30	25	25	125	1.5
125	123	145	167	160	30	25	25	155	1.5

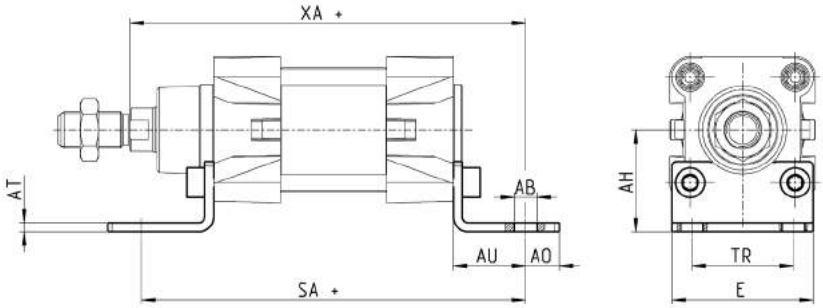
Foot mount Mod. B

Material: zinc-plated steel



Supplied wth:
2x feet
4x screws

+ = add the stroke



DIMENSIONS											
Mod.	Ø	AT	SA+	XA+	TR	E	AB	AH	AO	AU	torque force
B-41-32	32	4	142	144	32	45	7	32	11	24	6 Nm
B-41-40	40	4	161	163	36	53,5	10	36	15	28	6 Nm
B-41-50	50	4	170	175	45	62,5	10	45	15	32	13 Nm
B-41-63	63	5	185	190	50	73	10	50	15	32	13 Nm
B-41-80	80	6	210	216	63	92	12	63	20	41	19 Nm
B-41-100	100	6	220	230	75	108,5	14,5	71	25	41	22 Nm
B-41-125	125	7	250	270	90	132	16,5	90	25	45	26 Nm

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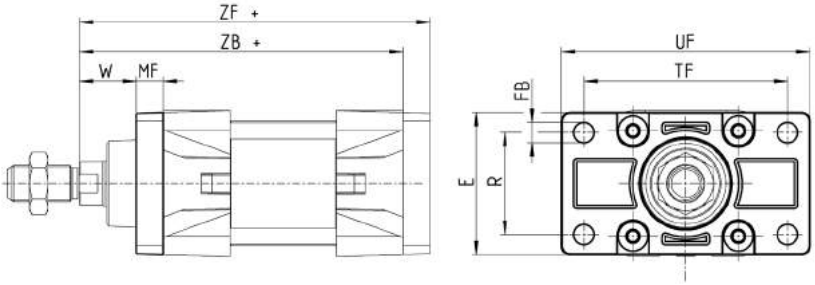
Front and rear flange Mod. D-E

Material: Aluminium



Supplied with:
1x flange
4x screws

+ = add the stroke



DIMENSIONS

Mod.	Ø	W	MF	ZB	TF	R	UF	E	FB	ZF	torque force
D-E-41-32	32	16	10	120	64	32	86	45	7	130	6 Nm
D-E-41-40	40	20	10	135	72	36	88	52	9	145	6 Nm
D-E-41-50	50	25	12	143	90	45	110	63	9	155	13 Nm
D-E-41-63	63	25	12	158	100	50	116	73	9	170	13 Nm
D-E-41-80	80	30	16	174	126	63	148	95	12	190	19 Nm
D-E-41-100	100	35	16	189	150	75	176	115	14	205	22 Nm
D-E-41-125	125	45	20	225	180	90	224	135	16	245	26 Nm

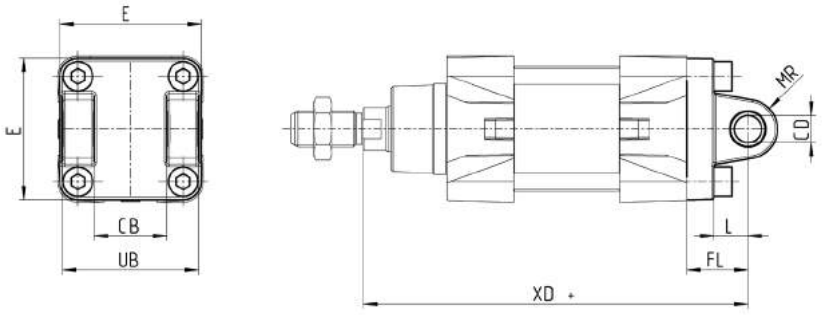
Rear female trunnion Mod. C and C-H

Material: Aluminium



Supplied with:
1x female trunnion
4x screws

+ = add the stroke



DIMENSIONS

Mod.	Ø	CD	L	FL	XD+	MR	E	CB	UB	torque force
C-41-32	32	10	12	22	142	10	45	26	45	6 Nm
C-41-40	40	12	15	25	160	12	53.5	28	52	6 Nm
C-41-50	50	12	15	27	170	13	62.5	32	60	13 Nm
C-H-41-63	63	16	20	32	190	17	73	40	70	13 Nm
C-H-41-80	80	16	24	36	210	17	92	50	90	19 Nm
C-H-41-100	100	20	29	41	230	21	108.5	60	110	22 Nm
C-H-41-125	125	25	30	50	275	26	132	70	130	26 Nm

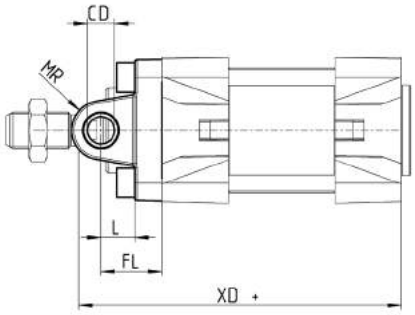
Front female trunnion Mod. H and C-H

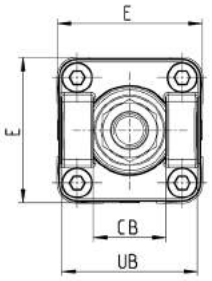
Material: Aluminium



Supplied with:
1x trunnion
4x screws

+ = add the stroke





DIMENSIONS

Mod.	CB	UB	E	XD+	FL	L	CD	MR	torque force
H-41-32	26	45	45	120	22	12	10	10	6 Nm
H-41-40	28	52	53.5	135	25	15	12	12	6 Nm
H-41-50	32	60	62.5	143	27	15	12	13	13 Nm
H-60-63	40	70	73	158	32	20	16	17	13 Nm
C-H-41-80	50	90	92	174	36	24	16	17	19 Nm
C-H-41-100	60	110	108.5	189	41	29	20	21	22 Nm
C-H-41-125	70	130	132	225	50	30	25	26	26 Nm

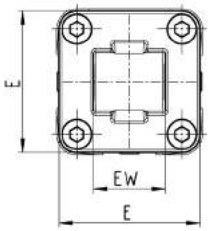
Rear male trunnion Mod. L

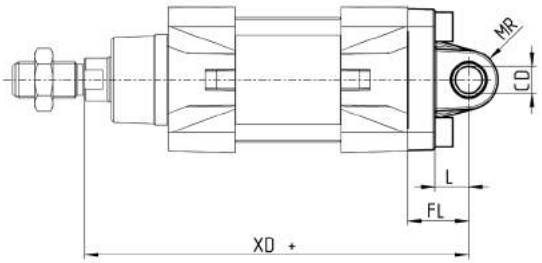
Material: Aluminium



Supplied with:
2x male trunnions
4x screws

+ = add the stroke





DIMENSIONS

Mod.	Ø	CD	L	FL	XD+	MR	E	EW	torque force
L-41-32	32	10	12	22	142	10	45	26	6 Nm
L-41-40	40	12	15	25	160	13	53.5	28	6 Nm
L-41-50	50	12	15	27	170	13	62.5	32	13 Nm
L-41-63	63	16	20	32	190	17	73	40	13 Nm
L-41-80	80	16	24	36	210	17	92	50	19 Nm
L-41-100	100	20	29	41	230	21	108.5	60	22 Nm
L-41-125	125	25	30	50	275	26	132	70	26 Nm

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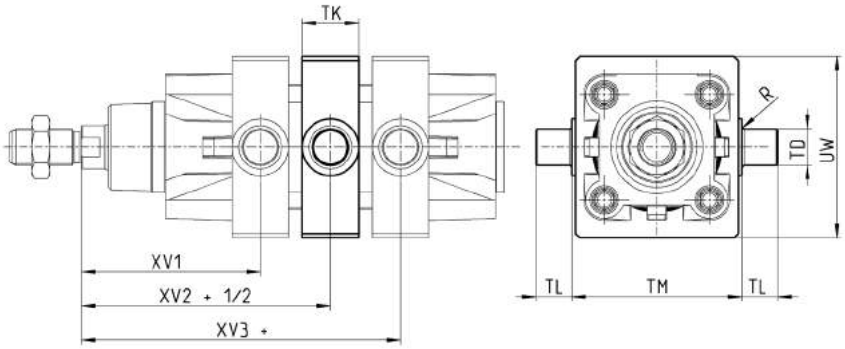
Centre trunnion Mod. F

Material: zinc-plated steel



Supplied with:
1x intermediate trunnion
8x locking screws

+ = add the stroke



DIMENSIONS

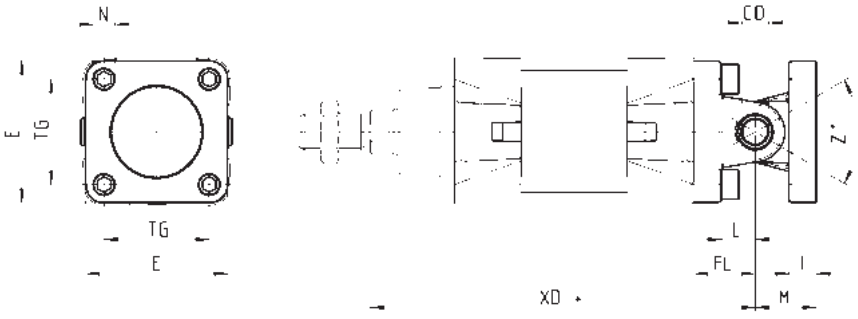
Mod.	Ø	XV1	XV2	XV3	TM (h14)	TK	TD (e9)	TL	UW	R
F-32	32	62	73	84	50	20	12	12	50	0.5
F-40	40	69	82,5	96	63	20	16	16	60	1
F-50	50	79	90	101	75	25	16	16	70	1
F-63	63	86	97,5	109	90	25	20	20	85	1
F-80	80	97	110	123	110	30	20	20	105	1
F-100	100	104,5	120	135,5	132	30	25	25	125	1.5
F-125	125	123	145	167	160	30	25	25	155	1.5

Accessory combination Mod. C+L+S

Material: Aluminium



+ = add the stroke



DIMENSIONS

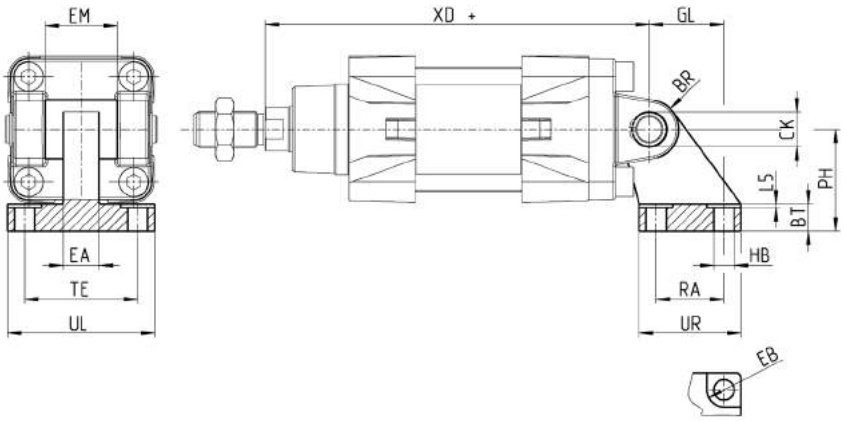
Mod.	Ø	E	TG	⌀N	XD+	⌀CD	L	FL	I	M	Z° (max)	torque force
C+L+S	32	45	32.5	6.5	142	10	12	22	10	22	30	6 Nm
C+L+S	40	53.5	38	6.5	160	12	15	25	10	25	40	6 Nm
C+L+S	50	62.5	46.5	9	170	12	15	27	12	27	25	13 Nm
C+L+S	63	73	56.5	9	190	16	20	32	12	32	36	13 Nm
C+L+S	80	92	72	11	210	16	24	36	12	36	34	19 Nm
C+L+S	100	108.5	89	11	230	20	29	41	12	41	38	22 Nm
C+L+S	125	132	110	13	275	25	30	50	20	50	30	26 Nm

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90° male trunnion Mod. ZC

CETOP RP 107P
Material: aluminium





Supplied with:
1x male trunnion

+ = add the stroke

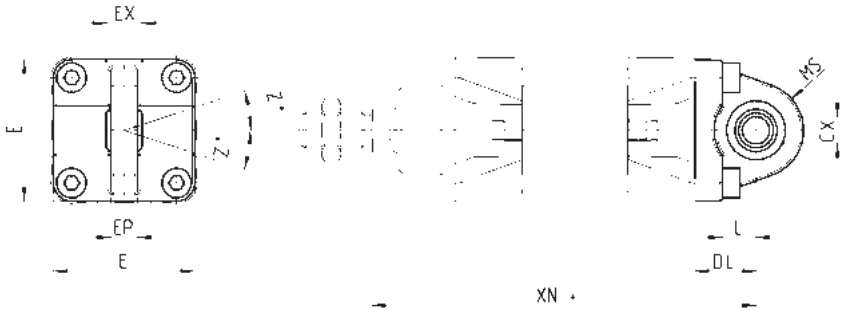
DIMENSIONS

Mod.	Ø	EB	⌀CK	HB	XD+	TE	UL	EA	GL	L5	RA	EM	UR	PH	BT	BR
ZC-32	32	11	10	6,6	142	38	51	10	21	1,6	18	26	31	32	8	10
ZC-40	40	11	12	6,6	160	41	54	15	24	1,6	22	28	35	36	10	11
ZC-50	50	15	12	9	170	50	65	16	33	1,6	30	32	45	45	12	13
ZC-63	63	15	16	9	190	52	67	16	37	1,6	35	40	50	50	14	15
ZC-80	80	18	16	11	210	66	86	20	47	2,5	40	50	60	63	14	15
ZC-100	100	18	20	11	230	76	96	20	55	2,5	50	60	70	71	17	19
ZC-125	125	20	25	14	275	94	124	30	70	3,2	60	70	90	90	20	22,5

Rear trunnion ball-joint Mod. R*

Material: aluminium
* not according to standard





Supplied with:
1x trunnion ball joint
4x screws

+ = add the stroke

DIMENSIONS

Mod.	Ø	⌀CX	L	DL	XN+	MS	E	EX	EP	Z	torque force
R-41-32	32	10	12	22	142	18	45	14	10,5	4	6 Nm
R-41-40	40	12	15	25	160	18	53.5	16	12	4	6 Nm
R-41-50	50	16	15	27	170	21	62.5	16	12	4	13 Nm
R-41-63	63	16	20	32	190	23	73	21	15	4	13 Nm
R-41-80	80	20	24	36	210	28	92	21	15	4	19 Nm
R-41-100	100	20	29	41	230	30	108.5	25	18	4	22 Nm
R-41-125	125	30	30	50	275	40	140	37	25	4	26 Nm

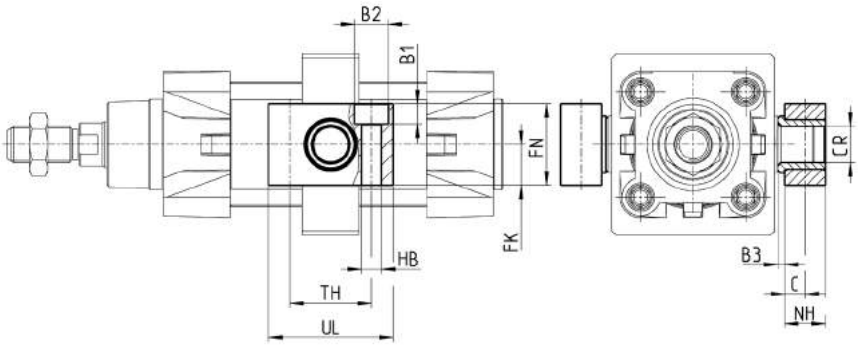
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Counter bracket for centre trunnion Mod. BF

Material: aluminium



Supplied with:
2x supports



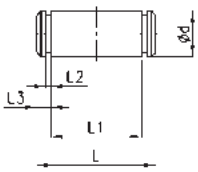
DIMENSIONS

Mod.	CR	NH	C	b3	TH	UL	FK	FN	B1	B2	HB
BF-32	12	15	7,5	3	32	46	15	30	6,8	11	6,6
BF-40-50	16	18	9	3	36	55	18	36	9	15	9
BF-63-80	20	20	10	3	42	65	20	40	11	18	11
BF-100-125	25	25	12,5	3,5	50	75	25	50	13	20	14

Clevis pin Mod. S



Suppied with:
1x clevis pin in
stainless steel 303
2x Seeger in steel



DIMENSIONS

Mod.	Ø	d	L	L1	L2	L3
S-32	32	10	52	46	1,1	3
S-40	40	12	59	53	1,1	3
S-50	50	12	67	61	1,1	3
S-63	63	16	77	71	1,1	3
S-80	80	16	97	91	1,1	3
S-100	100	20	121	111	1,3	5
S-125	125	25	140,5	132	1,3	4,25

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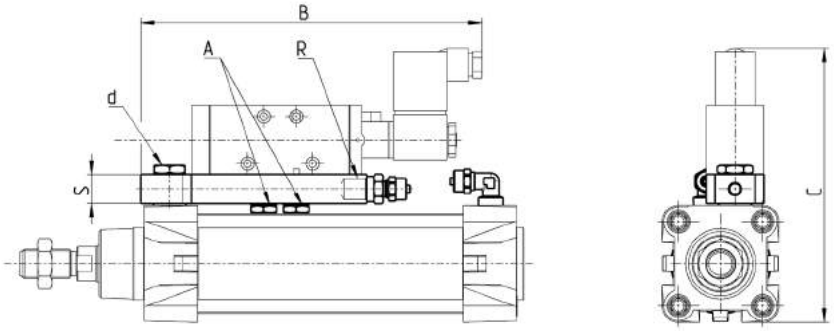
Accessory for mounting valves on the cylinder

The mounting sub-base Mod. PCV enables the valve to be mounted directly on the cylinder and it's fixed on it using screws Mod. 1635 or flow controllers, Mod. SCU. The other end of the plate has a threaded port.



d* = mounting on the cylinder using Mod. 1635 or Mod. SCU.

Note: the minimum possible stroke is 100mm.



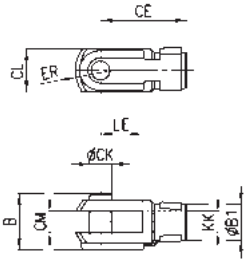
DIMENSIONS

Mod.	Ø	A	B	C	R	S	d*
PCV-32	32	G1/8	185	131,5	G1/8	16	G1/8
PCV-40-50	40	G1/8	188,5	140,5	G1/4	16	G1/4
PCV-40-50	50	G1/8	188,5	150	G1/4	16	G1/4
PCV-63-80	63	G1/4	215	167	G1/4	16	G3/8
PCV-63-80	80	G1/4	215	185	G1/4	16	G3/8

Rod fork end Mod. G

ISO 8140
Material: zinc-plated steel





DIMENSIONS

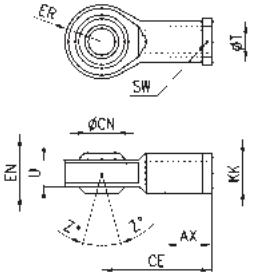
	CK	LE	CM	CL	ER	CE	KK	B	B1
G-25-32	10	20	10	20	12	40	M10X1,25	26	18
G-40	12	24	12	24	14	48	M12X1,25	32	20
G-50-63	16	32	16	32	19	64	M16X1,5	40	26
G-80-100	20	40	20	40	25	80	M20X1,5	48	34
G-41-125	30	54	30	55	38	110	M27X2	74	48

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Swivel ball joint Mod. GA



ISO 8139.
Material: zinc-plated steel.



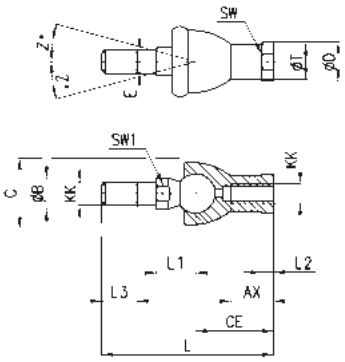
DIMENSIONS

Mod.	Ø	øCN(H7)	U	EN	ER	AX	CE	KK	øT	Z	SW
GA-32	32	10	10,5	14	14	20	43	M10X1,25	15	6,5	17
GA-40	40	12	12	16	16	22	50	M12X1,25	17,5	6,5	19
GA-50-63	50-63	16	15	21	21	28	64	M16X1,5	22	7,5	22
GA-80-100	80-100	20	18	25	25	33	77	M20x1,5	27,5	7	30
GA-41-125	125	30	25	37	35	51	110	M27x2	40	7,5	41

Piston rod socket joint Mod. GY



Material: zama and zinc-plated steel.



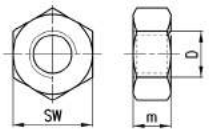
DIMENSIONS

Mod.	Ø	KK	L	CE	L2	AX	SW	SW1	L1	L3	øT	øD	E	øB	øC	Z
GY-32	32	M10X1,25	74	35	6,5	18	17	11	19,5	15	15	19	10	14	28	15
GY-40	40	M12X1,25	84	40	6,5	20	19	17	21	17	17,5	22	12	19	32	15
GY-50-63	50-63	M16X1,5	112	50	8	27	22	19	27,5	23	22	27	16	22	40	11
GY-80-100	80-100	M20x1,5	133	63	10	38	30	24	31,5	25	27,5	34	20	27	45	7,5

Piston rod lock nut Mod. U



ISO 4035
Material: zinc-plated steel



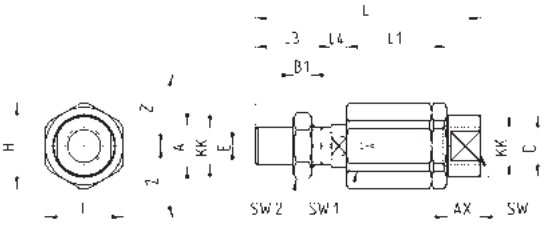
DIMENSIONS

Mod.	Ø	D	m	SW
U-25-32	32	M10X1,25	6	17
U-40	40	M12X1,25	7	19
U-50-63	50-63	M16X1,5	8	24
U-80-100	80-100	M20X1,5	9	30
U-41-125	125	M27X2	12	41

Self aligning rod Mod. GK



Material: zama and zinc-plated steel.



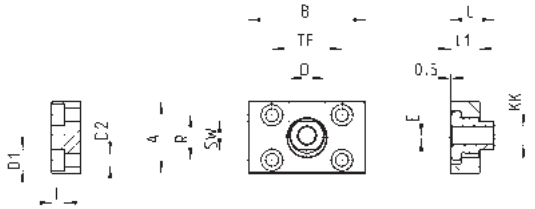
DIMENSIONS

Mod.	Ø	KK	L	L1	L3	L4	øA	øD	H	I	SW	SW1	SW2	B1	AX	Z	E
GK-25-32	32	M10X1,25	71,5	35	20	7,5	14	22	32	30	19	12	17	5	22	4	2
GK-40	40	M12X1,25	75,5	35	24	7,5	14	22	32	30	19	12	19	6	22	4	2
GK-50-63	50-63	M16X1,5	104	53	32	10	22	32	45	41	27	20	24	8	30	3	2
GK-80-100	80-100	M20x1,5	119	53	40	10	22	32	45	41	27	20	30	10	37	3	2
GK-125	125	M27x2	147	60	54	10	32	57	70	65	54	24	41	12	48	4	2

Coupling piece Mod. GKF

Material: zinc-plated steel.





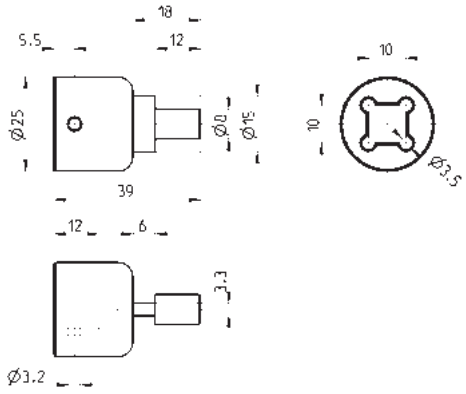
DIMENSIONS

Mod.	Ø	KK	A	B	R	TF	L	L1	I	Ø D	Ø D1	Ø D2	SW	E
GKF-25-32	32	M10x1,25	37	60	23	36	22,5	15	6,8	18	11	6,6	15	2
GKF-40	40	M12x1,25	56	60	38	42	22,5	15	9	20	15	9	15	2,5
GKF-50-63	50-63	M16x1,5	80	80	58	58	26,5	15	10,5	25	18	11	22	2,5
GKF-80-100	80-100	M20x1,5	90	90	65	65	32,5	20	13	30,5	20	14	27	2,5
GKF-125	125	M27x2	90	90	65	65	35,5	20	13	40	20	14	36	4

Special key to disassemble cylinders Ø 80 and 100

Material: hardened steel.





Mod.
80-62/8C

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Series 61 cylinders - Aluminium profile

Single and double-acting, magnetic, cushioned
Standard, low friction, low temperatures and tandem versions
ø 32, 40, 50, 63, 80, 100, 125 mm



Series 61 cylinders have been designed to comply with the dimensions laid down in the ISO 15552 standards. A permanent magnet, mounted on the piston in these cylinders, enables information to be received regarding the piston position by means of proximity switches mounted in grooves along the cylinder profile. These grooves can be covered with a slot cover profile.

This cylinder series is equipped with adjustable end-stroke cushioning. Moreover, they are equipped with a mechanical cushioning in order to reduce the impact of the piston as it reaches the end of the stroke.

- In compliance with ISO 15552 standards and with the previous DIN/ISO 6431 - VDMA 24562 standards
- Rolled stainless steel rod
- Clean design with adjustable pneumatic cushioning
- Available special versions

TANDEM:

- Double thrust and traction forces

LOW FRICTION:

- Friction force reduced by over 40%

LOW TEMPERATURE:

- Versions for -40°C and for -50°C

G VARIANT FOR DUSTY APPLICATIONS:

- Highly resistant to dust, cement, resin, mud and wood residue

GENERAL DATA

Type of construction	with tie-rods (inside the profile)
Operation	double-acting, single-acting, tandem. Low friction version: double-acting only.
Materials	standard: AL end-blocks and piston, rolled stainless steel AISI 420B rod, anodized AL profile tube, zinc-plated steel tie-rods and tie-rod nuts, PU seals; low friction: standard materials with NBR piston seal and NBR rod seal (FKM rod seal on request) low temperature: standard materials with chrome plated stainless steel AISI 420B rod, brass rod scraper ring, stainless steel AISI 303 nuts, stainless steel AISI 420B tie-rods, PU piston seals and NBR rod seal
Type of mounting	with front / rear flange, foot mounting, with front / rear / centre / swivel trunnion
Stroke min - max	10 ÷ 2500 mm
Operating temperature	standard and low friction: 0°C ÷ 80°C (with dry air -20°C) low temperature (-40°C version): -40°C ÷ 60°C (with dry air -40°C) low temperature (-50°C version): -50°C ÷ 60°C (with dry air -50°C)
Operating pressure	1 ÷ 10 bar (standard and low temperature); 0,1 ÷ 10 bar (low friction)
Speed	10 ÷ 1000 mm/sec, no load (standard and low temperature); 5 ÷ 1000 mm/sec, no load (low friction)
Fluid	filtered air, without lubrication. For standard versions only: if lubricated air is used, it is recommended to use oil ISOVG32. Once applied the lubrication should never be interrupted.

STANDARD STROKES FOR CYLINDERS SERIES 61

■ = Single-acting (standard and low temperature) ✖ = Double-acting (standard, low friction and low temperature)
Other strokes up to 2500 mm are available on request.

STANDARD STROKES														
Ø	25	50	75	80	100	125	150	160	200	250	300	320	400	500
32	■ ✖	■ ✖	■ ✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
40	■ ✖	■ ✖	■ ✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
50	■ ✖	■ ✖	■ ✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
63	■ ✖	■ ✖	■ ✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
80	■ ✖	■ ✖	■ ✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
100		■ ✖	■ ✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
125		✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖

CODING EXAMPLE

61	M	2	P	050	A	0200	

61 — SERIES

M — VERSION
M = standard, magnetic L = low friction, magnetic

2 — OPERATION
1 = single-acting, front spring (ø 32 ± ø 100)
2 = double-acting, front and rear cushioned
3 = double-acting, no cushion
4 = double-acting, rear cushioned
5 = double-acting, front cushioned
6 = double-acting, through-rod, front and rear cushioned
7 = single-acting, through-rod
8 = double-acting, through-rod, no cushion

PNEUMATIC SYMBOLS
CS07
CD09
CD08
CD10
CD11
CD13
CS11
CD12

P — MATERIALS
P = see the general data on page 1/1.25.01
R = stainless steel AISI 420B tie-rods, stainless steel AISI 303 tie-rod nuts, others: see p. 1/1.25.01
C = rolled stainless steel AISI 303 piston rod, stainless steel AISI 304 piston rod nut
U = rolled stainless steel AISI 303 piston rod, AISI 304 piston-rod nut, AISI 420B tie-rods, AISI 303 tie-rod nuts
W = rolled stainless steel AISI 304 piston rod, AISI304 piston-rod nut, AISI 420B tie-rods, AISI 303 tie-rod nuts
Z = chrome plated stainless steel AISI 420B rod, stainless steel AISI 304 rod nut, stainless steel AISI 420B tie-rods, stainless steel AISI 303 tie-rods nuts, seals for low temperature (-40°C), brass rod scraper
Y = chrome plated stainless steel AISI 420B rod, stainless steel AISI 304 rod nut, stainless steel AISI 420B tie-rods, stainless steel AISI 303 tie-rods nuts, seals for low temperature (-50°C), brass rod scraper

050 — BORE
032 = 32 mm - 040 = 40 mm - 050 = 50 mm - 063 = 63 mm - 080 = 80 mm - 100 = 100 mm - 125 = 125 mm

A — CONSTRUCTION
A = standard with rod nut - RL = cylinder with rod lock

0200 — STROKE (see the table)

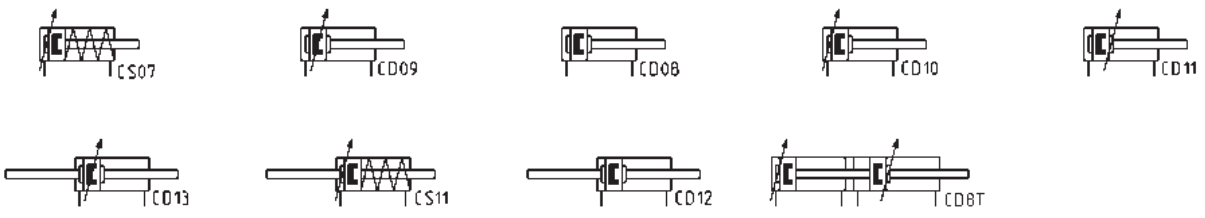
= standard V = FKM rod seal N = tandem (pneumatic symbol: CD8T) R = NBR rod seal
W = all FKM seals +130°C C = PU coated cylinder. Colour: Grey* L = low friction version without rod seal (rear supply only) **
(_ _ _) = extended piston rod _ _ _ mm G = with brass rod scraper (chrome plated stainless steel AISI 420B rod, NBR rod seal)

* Version C: available on request. For further information, please contact our technical dept.
** The possibility to order the cylinder without piston rod seal, further reduces the friction force.

Note: all double-acting cylinders are also available in the low friction version.

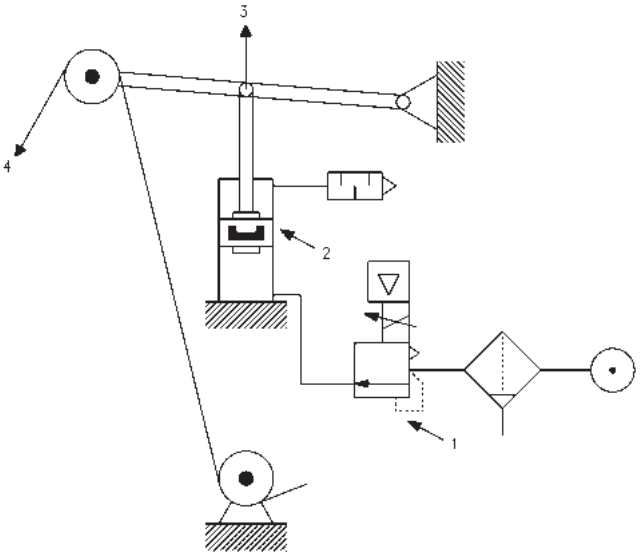
PNEUMATIC SYMBOLS

The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.



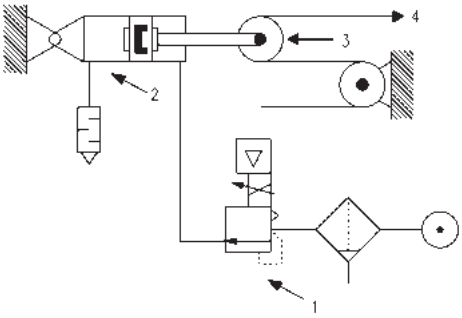
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Series 61 low friction cylinders - APPLICATION EXAMPLES



CYLINDER IN THRUST

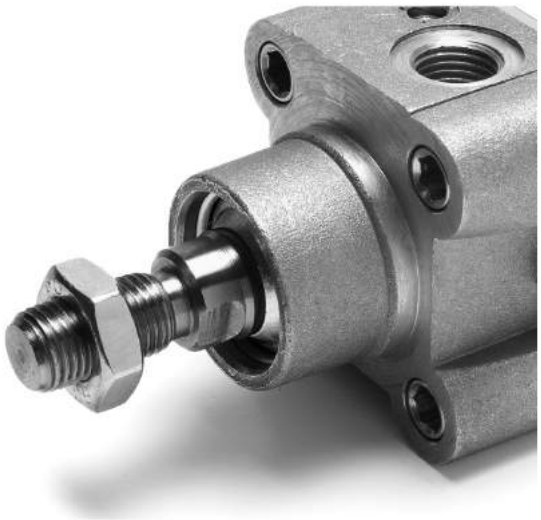
DRAWING NOTES:
1. Precision pressure regulator or proportional regulator
2. Low friction cylinder
3. Force direction
4. Band

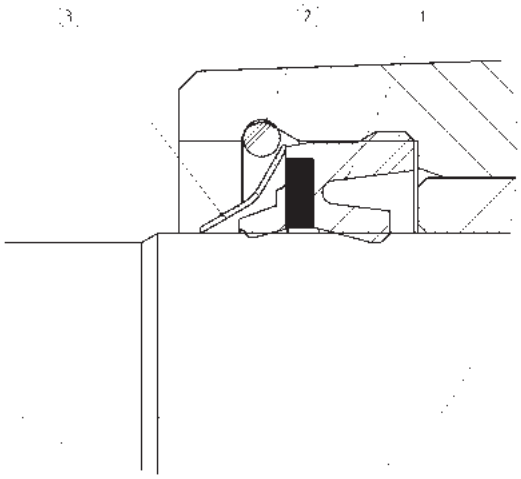


CYLINDER IN TRACTION

Note: in order to reach the highest performance, it is recommended to connect a precision pressure regulator or a proportional regulator with the low friction cylinder as shown in the drawing.

Series 61 low temperatures cylinders - DETAIL





1 = rod seal
2 = flexible ring
3 = metal scraper

CYLINDERS ACCESSORIES SERIES 61



Piston rod socket joint
Mod. GY



Piston rod lock nut
Mod. U



Clevis pin Mod. S



Rear trunnion ball-joint
Mod. R



Coupling piece
Mod. GKF



Swivel ball joint Mod. GA



90° male trunnion
Mod. ZC



Swivel Combination
Mod. C+L+S



Front and rear flange
Mod. D-E



Self aligning rod
Mod. GK



Centre trunnion Mod. F



Foot mount Mod. B



Front female trunnion
Mod. H and C-H



Rear female trunnion
Mod. C and C-H



Rod fork end Mod. G



Rear trunnion male
Mod. L



Key to disassemble
cylinders Ø 80 and 100



Counter bracket for
centre trunnion Mod. BF



All accessories are supplied separately, except for piston rod lock nut Mod. U

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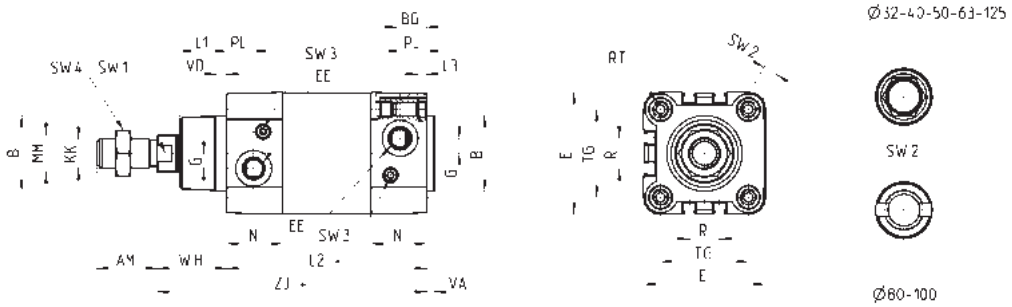
Cylinders Series 61

N.B. : the single-acting cylinders, sizes ZJ and L2 are increased by 25 mm.



+ = add the stroke

Table note:
* = special key 80-62/8C
(see accessories)



DIMENSIONS

Ø	AM	B	BG	E	EE	G	KK	L1	L2+	L3	MM	N	PL	R	RT	SW1	SW2	SW3	SW4	TG	VA	VD	WH	ZJ+	front/rear cushion stroke
32	22	30	16	46	G1/8	5	M10x1,25	18	94	5	12	26	14	13	M6	10	6	2	17	32,5	4	5	26	120	17 / 12
40	24	35	16	55	G1/4	5	M12x1,25	21	105	5	16	29	15	13,5	M6	13	6	2	19	38	4	5	30	135	20 / 17
50	32	40	16	64,5	G1/4	8	M16x1,5	25	106	5	20	29,5	15	16	M8	17	8	3	24	46,5	4	6	37	143	15 / 14
63	32	45	16	75	G3/8	8	M16x1,5	26	121	5	20	36,5	21	28	M8	17	8	3	24	56,5	4	6	37	158	17 / 16
80	40	45	19	93	G3/8	8	M20x1,5	30	128	0	25	36	21	30	M10	22	*	5	30	72	4	7	46	174	20 / 20
100	40	55	19,5	110	G1/2	8	M20x1,5	35	138	0	25	38,5	23	40	M10	22	*	5	30	89	4	7	51	189	21 / 19
125	54	60	23	135	G1/2	10,5	M27x2	42	160	0	32	43	23,5	50	M12	27	12	4	41	110	6	8	65	225	26 / 25

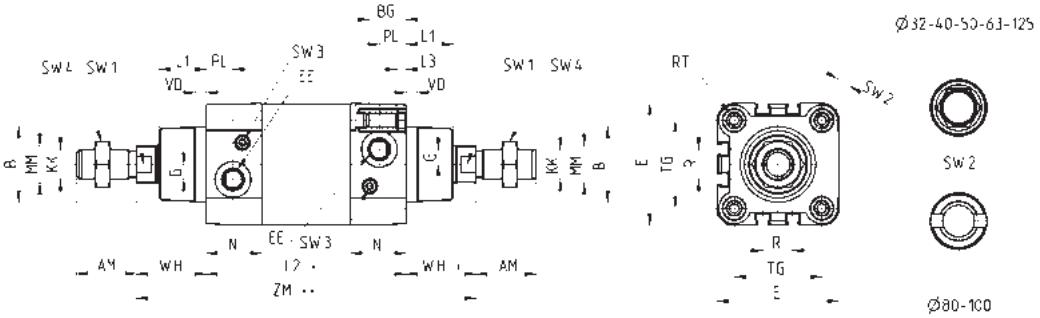
Cylinders Series 61 - through-rod

Note: the single-acting cylinders sizes ZM and L2 are increased by 25 mm.



+ = add the stroke once
++ = add the stroke twice

Table note:
* = special key 80-62/8C
(see accessories)



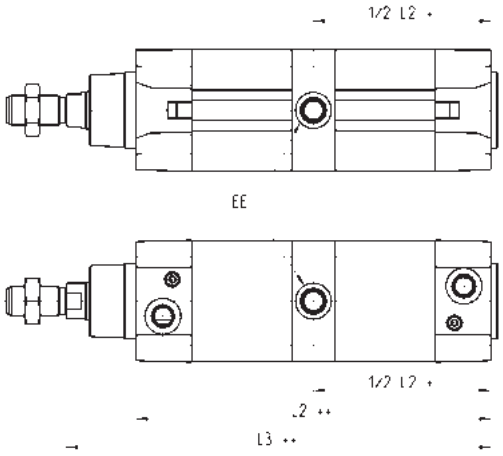
DIMENSIONS

Ø	AM	B	BG	E	EE	G	KK	L1	L2+	L3	MM	N	PL	R	RT	SW1	SW2	SW3	SW4	TG	VD	WH	ZM++	front/rear cushion stroke
32	22	30	16	46	G1/8	5	M10x1,25	18	94	5	12	26	14	13	M6	10	6	2	17	32,5	5	26	146	17 / 12
40	24	35	16	55	G1/4	5	M12x1,25	21	105	5	16	29	15	13,5	M6	13	6	2	19	38	5	30	165	20 / 17
50	32	40	16	64,5	G1/4	8	M16x1,5	25	106	5	20	29,5	15	16	M8	17	8	3	24	46,5	6	37	180	15 / 14
63	32	45	16	75	G3/8	8	M16x1,5	26	121	5	20	36,5	21	28	M8	17	8	3	24	56,5	6	37	195	17 / 16
80	40	45	19	93	G3/8	8	M20x1,5	30	128	0	25	36	21	30	M10	22	*	5	30	72	7	46	220	20 / 20
100	40	55	19,5	110	G1/2	8	M20x1,5	35	138	0	25	38,5	23	40	M10	22	*	5	30	89	7	51	240	21 / 19
125	54	60	23	135	G1/2	10,5	M27x2	42	160	0	32	43	23,5	50	M12	27	12	4	41	110	8	65	290	26 / 25

Cylinders Series 61 - tandem version



+ = add the stroke once
++ = add the stroke twice

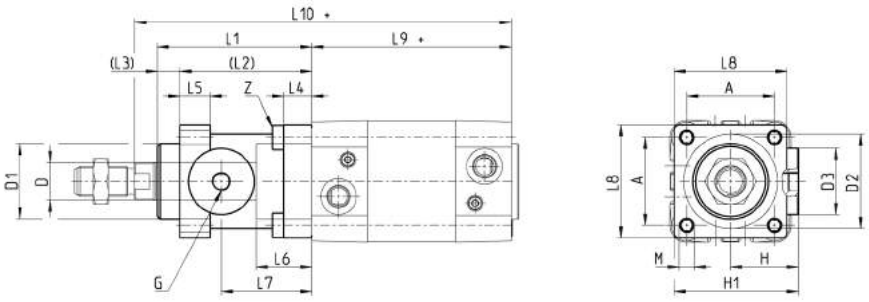


DIMENSIONS			
Ø	EE	L2+	L3+
32	G1/8	172,5	197,5
40	G1/4	191,5	221,5
50	G1/4	188	225
63	G3/8	204	241
80	G3/8	225,5	271,5
100	G1/2	231	282
125	G1/2	264	329

Cylinders Series 61 with rod lock



+ = add the stroke



DIMENSIONS																				
Ø	øD	øD1	øD2	øD3	A	G	H	H1	L1	L2	L3	L4	L5	L6	L7	L8	L9+	L10+	M	Z
32	12	30.5	35	25	32,5	M5	25,5	46,5	58	48	10	8	13	20,5	34	45	94	160	M6	M6x20
40	16	35	40	28	38	G1/8	30	53	65	55	10	8	13	22,5	38	50	105	178	M6	M6x20
50	20	40	50	35	46,5	G1/8	36	64	82	70	12	15	16	29,5	48	60	106	200	M8	M6x20
63	20	45	60	38	56,5	G1/8	40	75	82	70	12	15	16	29,5	49,5	70	121	215	M8	M8x30
80	25	45	80	48	72	G1/8	50	95	110	90	20	18	20	35	61	90	128	254	M10	M10x35
100	25	55	100	58	89	G1/8	58	110,5	115	100	15	18	20	39	69	105	138	269	M10	M10x35
125	32	60	130	65	110	G1/8	80	150	167	122	45	22	30	51	86,5	140	160	350	M12	M12x40

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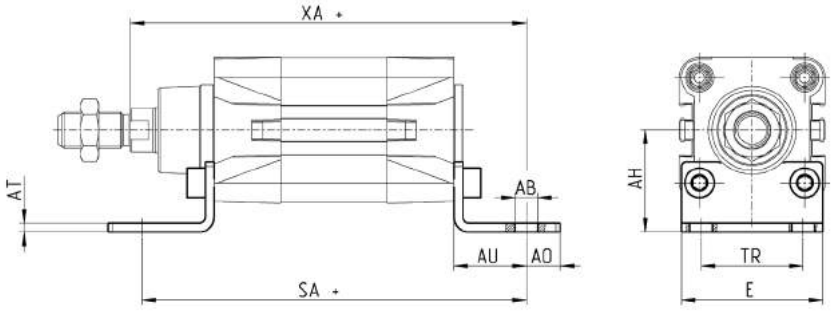
Foot mount Mod. B

Material: zinc-plated steel



Supplied with:
2x feet
4x screws

+ = add the stroke



Mod.	Ø	AT	SA+	XA+	TR	E	AB	AH	AO	AU	torque force
B-41-32	32	4	142	144	32	45	7	32	11	24	6 Nm
B-41-40	40	4	161	163	36	53,5	10	36	15	28	6 Nm
B-41-50	50	4	170	175	45	62,5	10	45	15	32	13 Nm
B-41-63	63	5	185	190	50	73	10	50	15	32	13 Nm
B-41-80	80	6	210	216	63	92	12	63	20	41	19 Nm
B-41-100	100	6	220	230	75	108,5	14,5	71	25	41	22 Nm
B-41-125	125	7	250	270	90	132	16,5	90	25	45	26 Nm

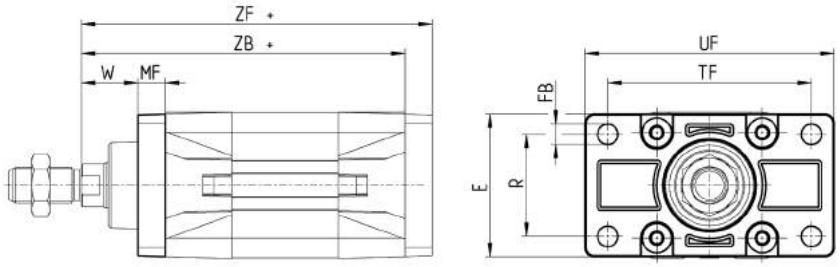
Front and rear flange Mod. D-E

Material: Aluminium



Supplied with:
1x flange
4x screws

+ = add the stroke



Mod.	Ø	W	MF	ZB+	TF	R	UF	E	FB	ZF+	torque force
D-E-41-32	32	16	10	120	64	32	86	45	7	130	6 Nm
D-E-41-40	40	20	10	135	72	36	88	52	9	145	6 Nm
D-E-41-50	50	25	12	143	90	45	110	63	9	155	13 Nm
D-E-41-63	63	25	12	158	100	50	116	73	9	170	13 Nm
D-E-41-80	80	30	16	174	126	63	148	95	12	190	19 Nm
D-E-41-100	100	35	16	189	150	75	176	115	14	205	22 Nm
D-E-41-125	125	45	20	225	180	90	224	135	16	245	26 Nm

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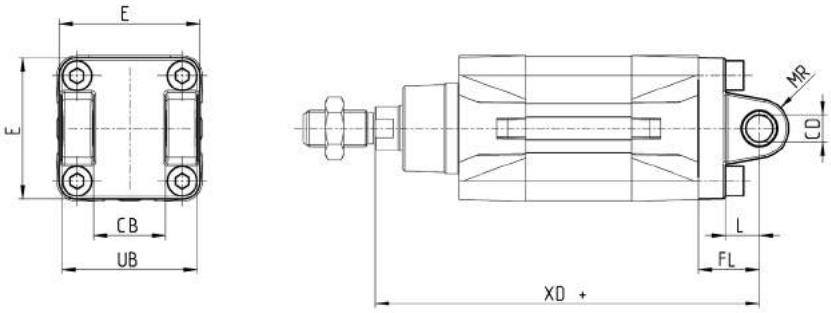
Rear female trunnion Mod. C and C-H

Material: Aluminium



Supplied with:
1x female trunnion
4x screws

+ = add the stroke



Mod.	Ø	CD	L	FL	XD+	MR	E	CB	UB	torque force
C-41-32	32	10	12	22	142	10	45	26	45	6 Nm
C-41-40	40	12	15	25	160	12	53.5	28	52	6 Nm
C-41-50	50	12	15	27	170	13	62.5	32	60	13 Nm
C-H-41-63	63	16	20	32	190	17	73	40	70	13 Nm
C-H-41-80	80	16	24	36	210	17	92	50	90	19 Nm
C-H-41-100	100	20	29	41	230	21	108.5	60	110	22 Nm
C-H-41-125	125	25	30	50	275	26	132	70	130	26 Nm

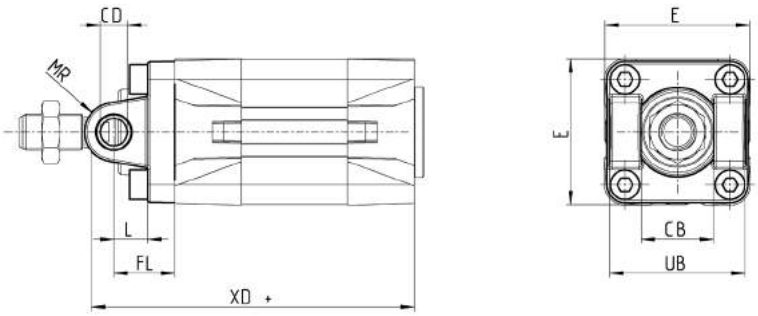
Front female trunnion Mod. H and C-H

Material: Aluminium



Supplied with:
1x female trunnion
4x screws

+ = add the stroke



Mod.	Ø	CB	UB	E	XD	FL	L	CD	MR	torque force
H-41-32	32	26	45	45	120	22	12	10	10	6 Nm
H-41-40	40	28	52	53.5	135	25	15	12	12	6 Nm
H-41-50	50	32	60	62.5	143	27	15	12	13	13 Nm
H-60-63	63	40	70	73	158	32	20	16	17	13 Nm
C-H-41-80	80	50	90	92	174	36	24	16	17	19 Nm
C-H-41-100	100	60	110	108.5	189	41	29	20	21	22 Nm
C-H-41-125	125	70	130	132	225	50	30	25	26	26 Nm

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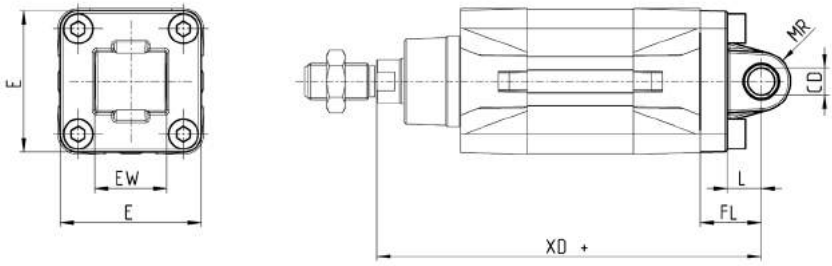
Rear male trunnion Mod. L

Material: Aluminium



Supplied with:
1x male trunnion
4x screws

+ = add the stroke



DIMENSIONS

Mod.	Ø	CD	L	FL	XD+	MR	E	EW	torque force
L-41-32	32	10	12	22	142	10	45	26	6 Nm
L-41-40	40	12	15	25	160	13	53.5	28	6 Nm
L-41-50	50	12	15	27	170	13	62.5	32	13 Nm
L-41-63	63	16	20	32	190	17	73	40	13 Nm
L-41-80	80	16	24	36	210	17	92	50	19 Nm
L-41-100	100	20	29	41	230	21	108.5	60	22 Nm
L-41-125	125	25	30	50	275	26	132	70	26 Nm

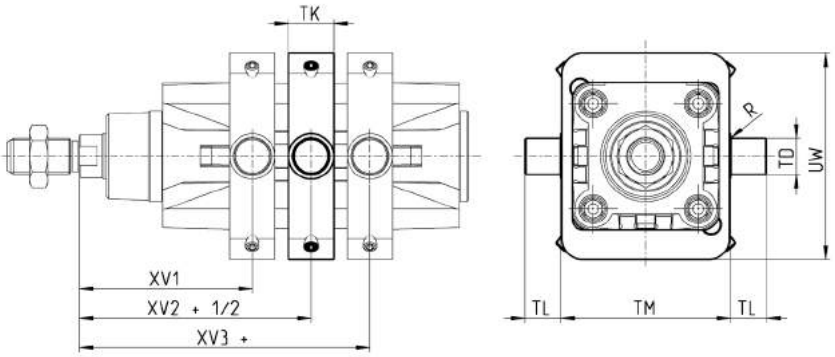
Centre trunnion Mod. F

Material: zinc-plated steel



Supplied with:
1x centre trunnion
4x screws
4x fixing elements

+ = add the stroke



DIMENSIONS

Mod.	Ø	XV1	XV2	XV3	TM	TK	TD	TL	UW	R
F-61-32	32	61	73	85	50	18	12	12	65	0,1
F-61-40	40	69	82,5	96	63	20	16	16	75	0,15
F-61-50	50	76,5	90	103,5	75	20	16	16	91	0,15
F-61-63	63	86	97,5	109	90	25	20	20	94	0,15
F-61-80	80	94,5	110	125,5	110	25	20	20	130	0,15
F-61-100	100	104,5	120	135,5	132	30	25	25	145	0,2
F-61-125	125	123	145	167	160	30	25	25	155	0,2

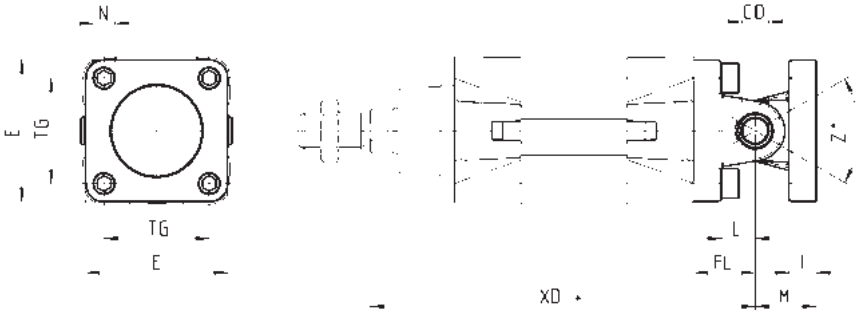
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Accessory combination Mod. C+L+S

Material: aluminium



+ = add the stroke



DIMENSIONS												
Mod.	Ø	E	TG	⌀N	XD+	⌀CD	L	FL	I	M	Z° (max)	torque force
C+L+S	32	45	32.5	6.5	142	10	12	22	10	22	30	6 Nm
C+L+S	40	53.5	38	6.5	160	12	15	25	10	25	40	6 Nm
C+L+S	50	62.5	46.5	9	170	12	15	27	12	27	25	13 Nm
C+L+S	63	73	56.5	9	190	16	20	32	12	32	36	13 Nm
C+L+S	80	92	72	11	210	16	24	36	12	36	34	19 Nm
C+L+S	100	108.5	89	11	230	20	29	41	12	41	38	22 Nm
C+L+S	125	132	110	13	275	25	30	50	25	50	30	26 Nm

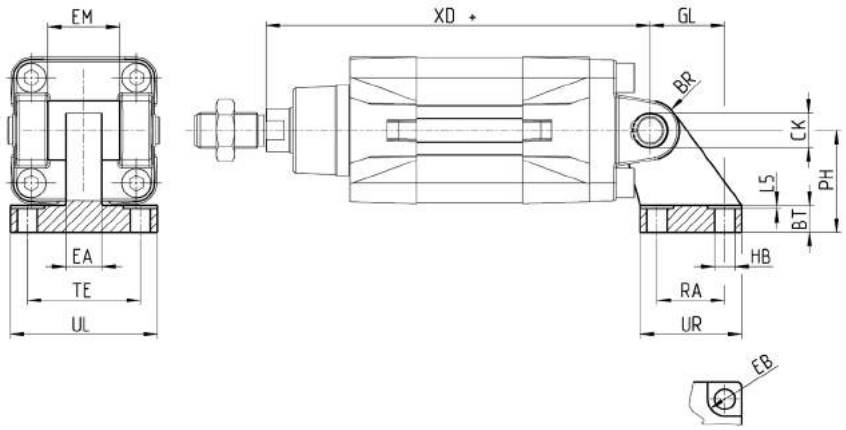
90° male trunnion Mod. ZC

CETOP RP 107P
Material: Aluminium



Supplied with:
1x male support

+ = add the stroke



DIMENSIONS																
Mod.	Ø	EB	CK	HB	XD+	TE	UL	EA	GL	L5	RA	EM	UR	PH	BT	BR
ZC-32	32	11	10	6,6	142	38	51	10	21	1,6	18	26	31	32	8	10
ZC-40	40	11	12	6,6	160	41	54	15	24	1,6	22	28	35	36	10	11
ZC-50	50	15	12	9	170	50	65	16	33	1,6	30	32	45	45	12	13
ZC-63	63	15	16	9	190	52	67	16	37	1,6	35	40	50	50	14	15
ZC-80	80	18	16	11	210	66	86	20	47	2,5	40	50	60	63	14	15
ZC-100	100	18	20	11	230	76	96	20	55	2,5	50	60	70	71	17	19
ZC-125	125	20	25	14	275	94	124	30	70	3,2	60	70	90	90	20	22,5

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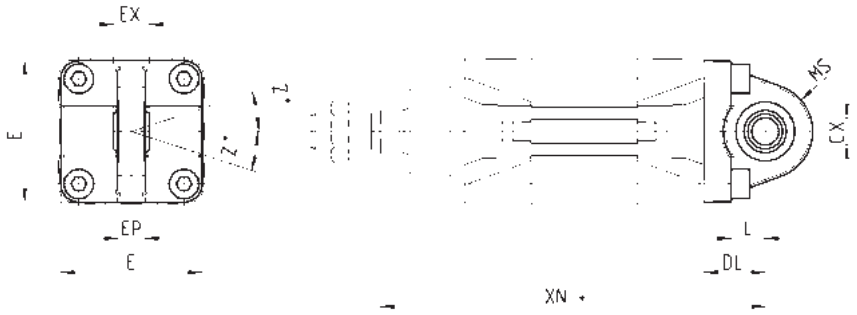
Trunnion ball-joint Mod. R*

* This trunnion doesn't comply with the ISO 15552 standard
Material: Aluminium



Supplied with:
1x trunnion ball joint
4x screws

+ = add the stroke



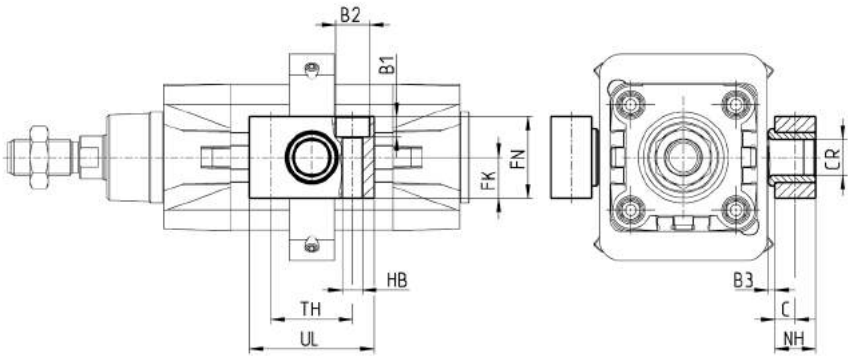
Mod.	Ø	CX	L	DL	XN+	MS	E	EX	EP	Z	torque force
R-41-32	32	10	12	22	142	18	45	14	10.5	4	6 Nm
R-41-40	40	12	15	25	160	18	53.5	16	12	4	6 Nm
R-41-50	50	16	15	27	170	21	62.5	16	12	4	13 Nm
R-41-63	63	16	20	32	190	23	73	21	15	4	13 Nm
R-41-80	80	20	24	36	210	28	92	21	15	4	19 Nm
R-41-100	100	20	29	41	230	30	108.5	25	18	4	22 Nm
R-41-125	125	30	30	50	275	40	140	37	25	4	26 Nm

Counter bracket for centre trunnion Mod. BF

Material: Aluminium



Supplied with:
2x supports



DIMENSIONS

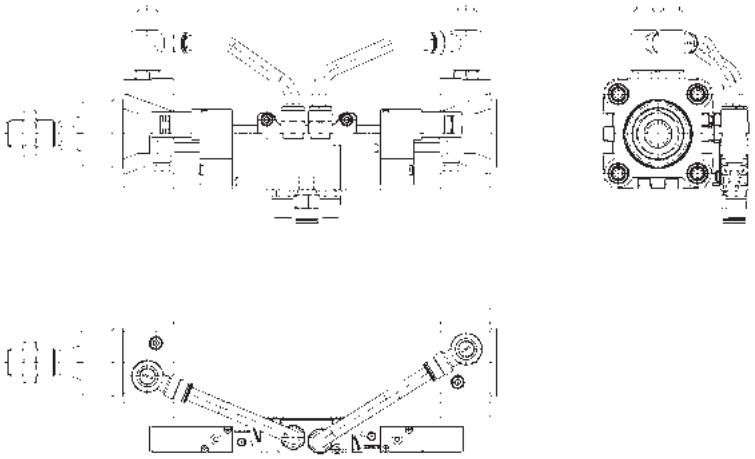
Mod.	Ø	CR	NH	C	B3	TH	UL	FK	FN	B1	B2	HB
BF-32	32	12	15	7,5	3	32	46	15	30	6,8	11	6,6
BF-40-50	40 - 50	16	18	9	3	36	55	18	36	9	15	9
BF-63-80	63 - 80	20	20	10	3	42	65	20	40	11	18	11
BF-100-125	100 - 125	25	25	12,5	3,5	50	75	25	50	13	20	14

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Accessory to mount valves on the cylinder

The mounting sub-base Mod. PCV enables the valve or solenoid valve to be mounted directly on the cylinder.



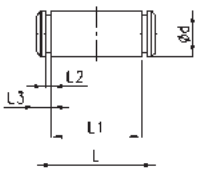


DIMENSIONS	
Mod.	
PCV-61-K3	to connect valves - solenoid valves Series 3
PCV-61-K4	to connect valves - solenoid valves Series 4 port G1/4
PCV-62-KEN	to connect valves - solenoid valves Series EN
PCV-61-K8	to connect valves - solenoid valves Series 4 port G1/8 and Series 3 port G1/4

Clevis pin Mod. S



Supplied with:
1x clevis pin in
stainless steel 303
2x Seeger in steel



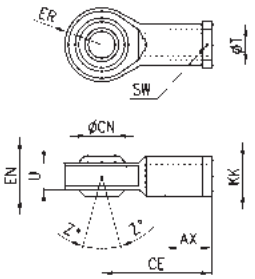
DIMENSIONS						
Mod.	Ø	d	L	L1	L2	L3
S-32	32	10	52	46	1,1	3
S-40	40	12	59	53	1,1	3
S-50	50	12	67	61	1,1	3
S-63	63	16	77	71	1,1	3
S-80	80	16	97	91	1,1	3
S-100	100	20	121	111	1,3	5
S-125	125	25	140,5	132	1,3	4,25

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Swivel ball joint Mod. GA



ISO 8139.
Material: zinc-plated steel.

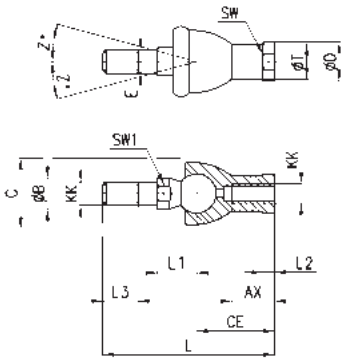


Mod.	øCN	U	EN	ER	AX	CE	KK	T	Z	SW
GA-32	10	10,5	14	14	20	43	M10X1,25	15	6,5	17
GA-40	12	12	16	16	22	50	M12X1,25	17,5	6,5	19
GA-50-63	16	15	21	21	28	64	M16X1,5	22	7,5	22
GA-80-100	20	18	25	25	33	77	M20x1,5	27,5	7	30
GA-41-125	30	25	37	37	51	110	M27x2	40	7,5	41

Piston rod socket joint Mod. GY



Material: zama and zinc-plated steel.



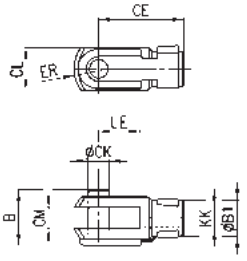
DIMENSIONS

Mod.	Ø	KK	L	CE	L2	AX	SW	SW1	L1	L3	øT	øD	E	øB	øC	Z
GY-32	32	M10X1,25	74	35	6,5	18	17	11	19,5	15	15	19	10	14	28	15
GY-40	40	M12X1,25	84	40	6,5	20	19	17	21	17	17,5	22	12	19	32	15
GY-50-63	50-63	M16X1,5	112	50	8	27	22	19	27,5	23	22	27	16	22	40	11
GY-80-100	80-100	M20x1,5	133	63	10	38	30	24	31,5	25	27,5	34	20	27	45	7,5

Rod fork end Mod. G



ISO 8140
Material: zinc-plated steel

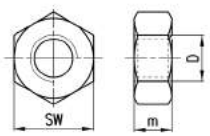


Mod.	øCK	LE	CM	CL	ER	CE	KK	B	B1
G-25-32	10	20	10	20	12	40	M10 X 1,25	26	18
G-40	12	24	12	24	14	48	M12 X 1,25	32	20
G-50-63	16	32	16	32	19	64	M16 X 1,5	40	26
G-80-100	20	40	20	40	25	80	M20 X 1,5	48	34
G-41-125	30	54	30	55	38	110	M27 X 2	74	48

Piston rod lock nut Mod. U



ISO 4035
Material: zinc-plated steel.

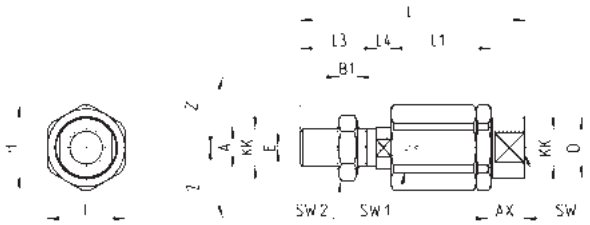


Mod.	D	m	SW
U-25-32	M10X1,25	6	17
U-40	M12X1,25	7	19
U-50-63	M16X1,5	8	24
U-80-100	M20x1,5	9	30
U-41-125	M27x2	12	41

Self aligning rod Mod. GK

Material: zinc-plated steel.





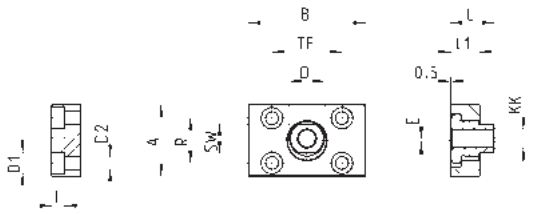
DIMENSIONS

Mod.	Ø	KK	L	L1	L3	L4	øA	øD	H	I	SW	SW1	SW2	B1	AX	Z	E
GK-25-32	25-32	M10x1,25	71,5	35	20	7,5	14	22	32	30	19	12	17	5	22	4	2
GK-40	40	M12x1,25	75,5	35	24	7,5	14	22	32	30	19	12	19	6	22	4	2
GK-50-63	50-63	M16x1,5	104	53	32	10	22	32	45	41	27	20	24	8	30	3	2
GK-80-100	80-100	M20x1,5	119	53	40	10	22	32	45	41	27	20	30	10	37	3	2
GK-125	125	M27x2	147	60	54	10	32	57	70	65	54	24	41	12	48	4	2

Coupling piece Mod. GKF

Material: zinc-plated steel.





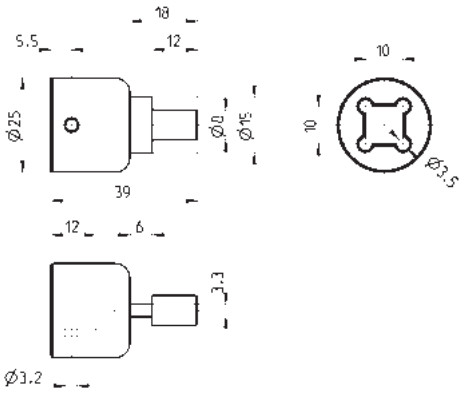
DIMENSIONS

Mod.	Ø	KK	A	B	R	TF	L	L1	I	Ø D	Ø D1	Ø D2	SW	E
GKF-25-32	32	M10x1,25	37	60	23	36	22,5	15	6,8	18	11	6,6	15	2
GKF-40	40	M12x1,25	56	60	38	42	22,5	15	9	20	15	9	15	2,5
GKF-50-63	50-63	M16x1,5	80	80	58	58	26,5	15	10,5	25	18	11	22	2,5
GKF-80-100	80-100	M20x1,5	90	90	65	65	32,5	20	13	30,5	20	14	27	2,5
GKF-125	125	M27x2	90	90	65	65	35,5	20	13	40	20	14	36	4

Special key to disassemble cylinders Ø 80 and 100

Material: hardened steel





Mod.
80-62/8C

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series 62 cylinders - Aluminium profile

Double-acting, magnetic, cushioned
ø 32, 40, 50, 63, 80, 100 mm



- In compliance with ISO 15552 standards and with the previous DIN/ISO 6431/ VDMA 24562 standards
- Rolled stainless steel rod
- Clean and light design
- Adjustable pneumatic cushioning

Cylinders Series 62 have been designed to comply with the dimensions laid down in the ISO 15552 standards. A permanent magnet is integrated in the piston which enables the detection of the piston position by means of proximity switches (Series CSH) mounted in grooves along one side of the cylinder profile. These grooves can be covered with a slot cover profile Mod. S-CST-500.

These cylinders are equipped with adjustable end-stroke cushioning. They are also equipped with a mechanical cushioning in order to reduce the impact of the piston as it reaches the end of the stroke.

GENERAL DATA

Construction	with tie-rods (inside the profile)
Operation	double-acting
Materials	AL end-blocks, technopolymer piston, rolled stainless steel AISI 420B piston rod, zinc-plated steel piston rod nut, anodized AL-profile tube, zinc-plated steel tie-rods and nuts, NBR piston rod and piston seals, PU cushion seals (Ø 80-100: PU piston seal)
Mounting	with tie-rods, front flange, rear flange, feet front and rear trunnion, swivel combination
Stroke min - max	10 ÷ 2500 mm
Operating temperature	0°C ÷ 80°C (with dry air -10°C)
Special designs	see coding example
Operating pressure	1 ÷ 10 bar
Speed	10 ÷ 1000 mm/sec (NO LOAD)
Fluid	filtered air, without lubrication. If lubricated air is used, it is recommended to use oil ISOVG32. Once applied the lubrication should never be interrupted.
Proximity switch to use	CSH

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General terms and conditions for sale are available on www.camozzi.com.

STANDARD STROKES FOR CYLINDERS SERIES 62

Special strokes until 2500 mm available on request
✖ = Double-acting

STANDARD STROKES														
Ø	25	50	75	80	100	125	150	160	200	250	300	320	400	500
32	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
40	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
50	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
63	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
80	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
100		✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖

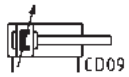
CODING EXAMPLE

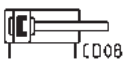
62	M	2	P	050	A	0200	

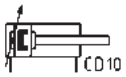
62	SERIES	
M	VERSION M = standard, magnetic	
2	OPERATION 2 = double-acting, front + rear cushion 3 = double-acting, no cushion 4 = double-acting, rear cushion 5 = double-acting, front cushion 6 = double-acting, through-rod, front + rear cushion 8 = double-acting, through-rod, no cushion	PNEUMATIC SYMBOLS CD09 CD08 CD10 CD11 CD13 CD12
P	MATERIALS P = see general data on page 1/1.26.01 R = stainless steel AISI 420B tie-rods, stainless steel AISI 303 tie-rod nuts C = rolled stainless steel AISI 303 piston rod , stainless steel AISI 304 piston rod nut U = rolled stainless steel AISI 303 piston rod, stainless steel AISI 304 piston rod nut, stainless steel AISI 420B tie-rod, stainless steel AISI 303 tie-rod nuts W = rolled stainless steel AISI 304 piston rod, stainless steel AISI304 piston rod nut, stainless steel AISI 420B tie-rods, stainless steel AISI 303 tie-rod nuts	
050	BORE 032 = 32 mm - 040 = 40 mm - 050 = 50 mm - 063 = 63 mm - 080 = 80 mm - 100 = 100 mm	
A	CONSTRUCTION A = standard lock nut for rod RL = cylinder with rod lock	
0200	STROKE: 10 ÷ 2500 mm	
	= standard V = FKM piston rod seal P = PU piston rod seal (_ _ _) = extended piston rod _ _ _ mm	

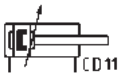
PNEUMATIC SYMBOLS

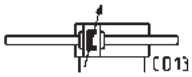
The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.

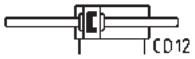












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ACCESSORIES FOR CYLINDERS SERIES 62



Piston rod socket joint
Mod. GY



Piston rod lock nut
Mod. U



Clevis pin Mod. S



Rear trunnion ball-joint
Mod. R



Coupling piece
Mod. GKF



Swivel ball joint Mod. GA



90° male trunnion
Mod. ZC



Swivel Combination
Mod. C+L+S



Front and rear flange
Mod. D-E



Self aligning rod
Mod. GK



Rear trunnion male
Mod. L



Foot mount Mod. B



Front female trunnion
Mod. H and C-H



Rear female trunnion
Mod. C and C-H



Rod fork end Mod. G



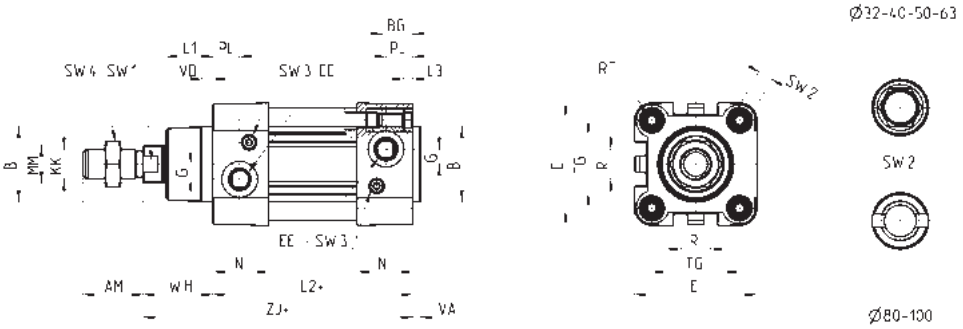
Key to disassemble
cylinders Ø 80 and 100



All accessories are supplied separately, except for piston rod lock nut Mod. U

Cylinders Series 62





+ = add the stroke

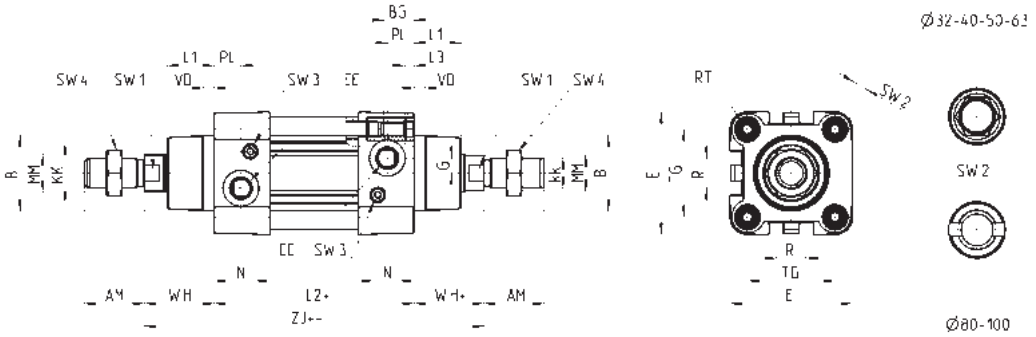
Table note:
* = special key 80-62/8C
(see accessories)

DIMENSIONS

Ø	AM	B	BG	E	EE	G	KK	L1	L2+	L3	MM	N	PL	R	RT	SW1	SW2	SW3	SW4	TG	VA	VD	WH	ZJ+	front/rear cushion stroke
32	22	30	16	46	G1/8	5	M10x1,25	18	94	5	12	26	14	13	M6	10	6	2	17	32,5	4	5	26	120	17
40	24	35	16	55	G1/4	5	M12x1,25	21	105	5	16	29	15	13,5	M6	13	6	2	19	38	4	5	30	135	20
50	32	40	16	64,5	G1/4	8	M16x1,5	25	106	5	20	29,5	15	16	M8	17	8	3	24	46,5	4	6	37	143	15
63	32	45	16	75	G3/8	8	M16x1,5	26	121	5	20	36,5	21	28	M8	17	8	3	24	56,5	4	6	37	158	17
80	40	45	19	93	G3/8	8	M20x1,5	30	128	0	25	36	21	30	M10	22	*	5	30	72	4	7	46	174	20
100	40	55	19,5	110	G1/2	8	M20x1,5	35	138	0	25	38,5	23	40	M10	22	*	5	30	89	4	7	51	189	21

Cylinders Series 62 - through-rod





+ = add the stroke once
++ = add the stroke twice

Table note:
* = special key 80-62/8C
(see accessories)

DIMENSIONS

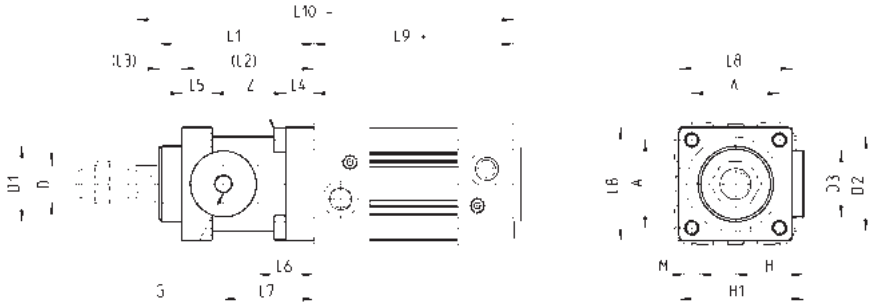
Ø	AM	B	BG	E	EE	G	KK	L1	L2+	L3	MM	N	PL	R	RT	SW1	SW2	SW3	SW4	TG	VD	WH	ZM+	front/rear cushion stroke
32	22	30	16	46	G1/8	5	M10x1,25	18	94	5	12	26	14	13	M6	10	6	2	17	32,5	5	26	146	17
40	24	35	16	55	G1/4	5	M12x1,25	21	105	5	16	29	15	13,5	M6	13	6	2	19	38	5	30	165	20
50	32	40	16	64,5	G1/4	8	M16x1,5	25	106	5	20	29,5	15	16	M8	17	8	3	24	46,5	6	37	180	15
63	32	45	16	75	G3/8	8	M16x1,5	26	121	5	20	36,5	21	28	M8	17	8	3	24	56,5	6	37	195	17
80	40	45	19	93	G3/8	8	M20x1,5	30	128	0	25	36	21	30	M10	22	*	5	30	72	7	46	220	20
100	40	55	19,5	110	G1/2	8	M20x1,5	35	138	0	25	38,5	23	40	M10	22	*	5	30	89	7	51	240	21

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Cylinders Series 62 with rod lock



+ = add the stroke



DIMENSIONS

Ø	øD	øD1	øD2	øD3	A	G	H	H1	L1	L2	L3	L4	L5	L6	L7	L8	L9+	L10+	M	Z
32	12	30,5	35	25	32,5	M5	25,5	46,5	58	48	10	8	13	20,5	34	45	94	160	M6	M6x20
40	16	35	40	28	38	G1/8	30	53	65	55	10	8	13	22,5	38	50	105	178	M6	M6x20
50	20	40	50	35	46,5	G1/8	36	64	82	70	12	15	16	29,5	48	60	106	200	M8	M6x20
63	20	45	60	38	56,5	G1/8	40	75	82	70	12	15	16	29,5	49,5	70	121	215	M8	M8x30
80	25	45	80	48	72	G1/8	50	95	110	90	20	18	20	35	61	90	128	254	M10	M10x35
100	25	55	100	58	89	G1/8	58	110,5	115	100	15	18	20	39	69	105	138	269	M10	M10x35

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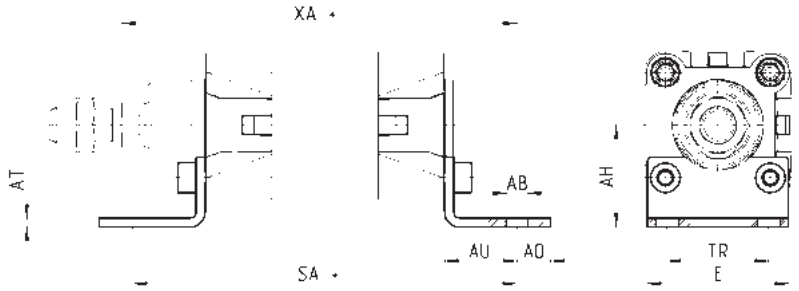
Foot mount Mod. B

Material: zinc-plated steel



Supplied with:
2x feet
4x screws

+ = add the stroke



Mod.	Ø	AT	SA+	XA+	TR	E	AB	AH	AO	AU
B-41-32	32	4	142	144	32	45	7	32	11	24
B-41-40	40	4	161	163	36	53,5	10	36	15	28
B-41-50	50	4	170	175	45	62,5	10	45	15	32
B-41-63	63	5	185	190	50	73	10	50	15	32
B-41-80	80	6	210	216	63	92	12	63	20	41
B-41-100	100	6	220	230	75	108,5	14,5	71	25	41

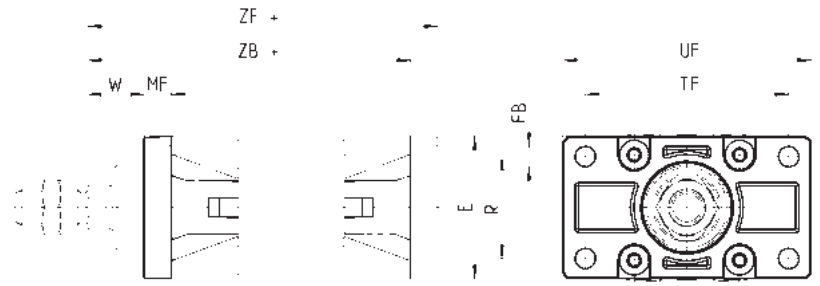
Front and rear flange Mod. D-E

Material: aluminium



Supplied with:
1x flange
4x screws

+ = add the stroke



Mod.	Ø	W	MF	ZB+	TF	R	UF	E	FB	ZF+	torque force
D-E-41-32	32	16	10	120	64	32	86	45	7	130	6 Nm
D-E-41-40	40	20	10	135	72	36	88	52	9	145	6 Nm
D-E-41-50	50	25	12	143	90	45	110	63	9	155	13 Nm
D-E-41-63	63	25	12	158	100	50	116	73	9	170	13 Nm
D-E-41-80	80	30	16	174	126	63	148	95	12	190	19 Nm
D-E-41-100	100	35	16	189	150	75	176	115	14	205	22 Nm

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Rear female trunnion Mod. C and C-H

Material: Aluminium



Supplied with:
1x female trunnion
4x screws

+ = add the stroke



Mod.	Ø	CD	L	FL	XD+	MR	E	CB	UB	torque force
C-41-32	32	10	12	22	142	10	45	26	45	6 Nm
C-41-40	40	12	15	25	160	12	53.5	28	52	6 Nm
C-41-50	50	12	15	27	170	13	62.5	32	60	13 Nm
C-H-41-63	63	16	20	32	190	17	73	40	70	13 Nm
C-H-41-80	80	16	24	36	210	17	92	50	90	19 Nm
C-H-41-100	100	20	29	41	230	21	108.5	60	110	22 Nm

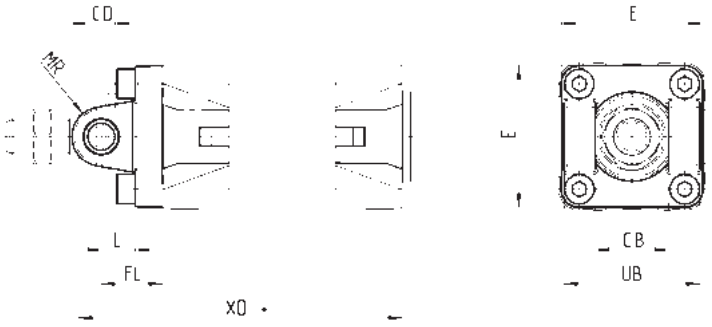
Front female trunnion Mod. H and C-H

Material: Aluminium



Supplied with:
1x female trunnion
4x screws

+ = add the stroke



Mod.	Ø	CB	UB	E	XD	FL	L	CD	MR
H-41-32	32	26	45	45	120	22	12	10	10
H-41-40	40	28	52	53.5	135	25	15	12	12
H-41-50	50	32	60	62.5	143	27	15	12	13
H-60-63	63	40	70	73	158	32	20	16	17
C-H-41-80	80	50	90	92	174	36	24	16	17
C-H-41-100	100	60	110	108.5	189	41	29	20	21

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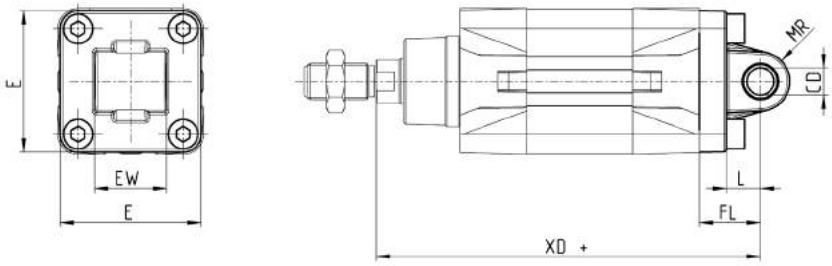
Rear trunnion, male Mod. L

Material: aluminium



Supplied with:
1x male trunnion
4x screws

+ = add the stroke



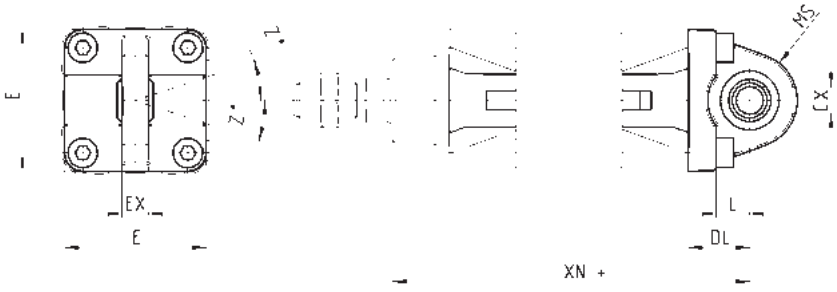
DIMENSIONS									
Mod.	Ø	CD	L	FL	XD+	MR	E	EW	torque force
L-41-32	32	10	12	22	142	10	45	26	6 Nm
L-41-40	40	12	15	25	160	13	53.5	28	6 Nm
L-41-50	50	16	15	27	170	13	62.5	32	13 Nm
L-41-63	63	16	20	32	190	17	73	40	13 Nm
L-41-80	80	20	24	36	210	17	92	50	19 Nm
L-41-100	100	20	29	41	230	21	108.5	60	22 Nm

Trunnion ball-joint Mod. R*

Material: Aluminium
* not according to standard



Supplied with:
1x trunnion ball-joint
4x screws



DIMENSIONS										
Mod.	Ø	CX	L	DL	XN+	MS	E	EX	Z°	torque force
R-41-32	32	10	12	22	142	18	45	10.5	4	6 Nm
R-41-40	40	12	15	25	160	18	53.5	12	4	6 Nm
R-41-50	50	16	15	27	170	21	62.5	12	4	13 Nm
R-41-63	63	16	20	32	190	23	73	15	4	13 Nm
R-41-80	80	20	24	36	210	28	92	15	4	19 Nm
R-41-100	100	20	29	41	230	30	108.5	18	4	22 Nm

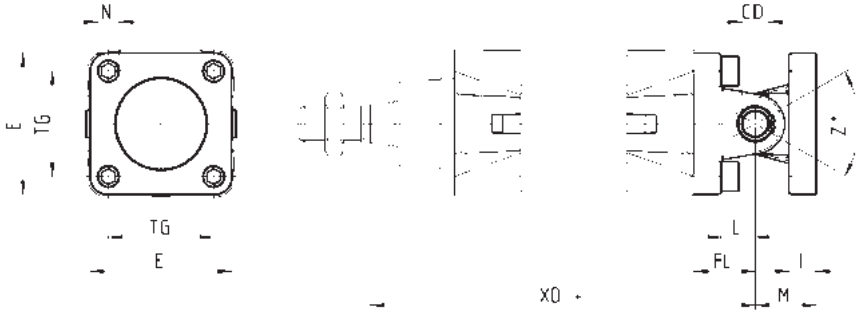
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Accessory combination Mod. C+L+S

Material: Aluminium



+ = add the stroke



DIMENSIONS

Mod.	Ø	E	TG	⌀N	XD+	FL	⌀CD	L	M	I	Z° (max)	torque force
C+L+S	32	45	32.5	6.5	142	22	10	12	22	10	30	6 Nm
C+L+S	40	53.5	38	6.5	160	25	12	15	25	10	40	6 Nm
C+L+S	50	62.5	46.5	9	170	27	12	15	27	12	25	13 Nm
C+L+S	63	73	56.5	9	190	32	16	20	32	12	36	13 Nm
C+L+S	80	92	72	11	210	36	16	24	36	12	34	19 Nm
C+L+S	100	108.5	89	11	230	41	20	29	41	12	38	22 Nm

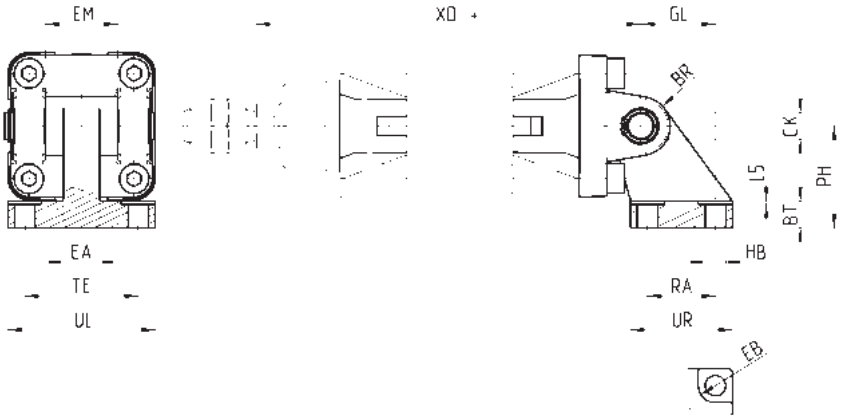
90° male trunnion Mod. ZC

CETOP RP 107P
Material: Aluminium



Supplied with:
1x male support

+ = add the stroke



DIMENSIONS

Mod.	Ø	EB	CK	HB	XD+	TE	UL	EA	GL	L5	RA	EM	UR	PH	BT	BR
ZC-32	32	11	10	6,6	142	38	51	10	21	1,6	18	26	31	32	8	10
ZC-40	40	11	12	6,6	160	41	54	15	24	1,6	22	28	35	36	10	11
ZC-50	50	15	12	9	170	50	65	16	33	1,6	30	32	45	45	12	13
ZC-63	63	15	16	9	190	52	67	16	37	1,6	35	40	50	50	14	15
ZC-80	80	18	16	11	210	66	86	20	47	2,5	40	50	60	63	14	15
ZC-100	100	18	20	11	230	76	96	20	55	3,2	50	60	70	71	17	19

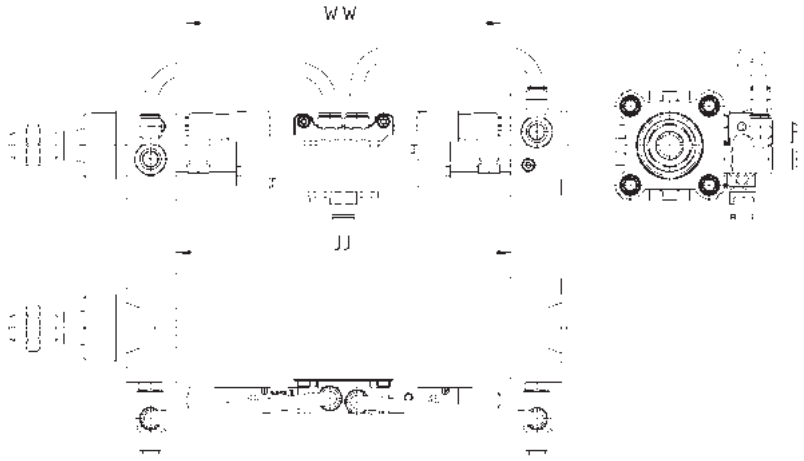
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Accessory to mount valves on the cylinder

The mounting sub-base Mod. PCV enables the valve or solenoid valve to be mounted directly on the cylinder, thus forming a compact unit to apply.



Make sure that the WW dimension of the valve to be mounted is smaller than the JJ cylinder dimension. Further information on http://catalogue.camozzi.com/downloads.

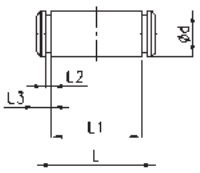


Mod.	
PCV-62-K3	to connect valves - solenoid valves Series 3
PCV-62-K4	to connect valves - solenoid valves Series 4 port G1/4
PCV-62-KEN	to connect valves - solenoid valves Series EN
PCV-62-K8	to connect valves - solenoid valves Series 4 port G1/8 and Series 3 port G1/4

Clevis pin Mod. S



Supplied with:
1x clevis pin in stainless steel 303
2x Seeger in steel



DIMENSIONS

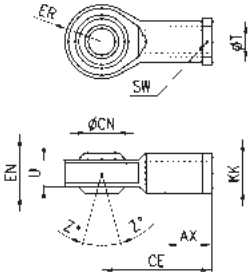
Mod.	Ø	d	L	L1	L2	L3
S-32	32	10	52	46	1,1	3
S-40	40	12	59	53	1,1	3
S-50	50	12	67	61	1,1	3
S-63	63	16	77	71	1,1	3
S-80	80	16	97	91	1,1	3
S-100	100	20	121	111	1,3	5

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Swivel ball joint Mod. GA



Material: zinc-plated steel
ISO 8139



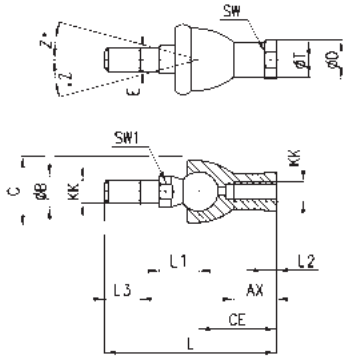
DIMENSIONS

Mod.	øCN	U	EN	ER	AX	CE	KK	T	Z	SW
GA-32	10	10,5	14	14	20	43	M10X1,25	15	6,5	17
GA-40	12	12	16	16	22	50	M12X1,25	17,5	6,5	19
GA-50-63	16	15	21	21	28	64	M16X1,5	22	7,5	22
GA-80-100	20	18	25	25	33	77	M20x1,5	27,5	7	30

Piston rod socket joint Mod. GY



Material: zama and zinc-plated steel



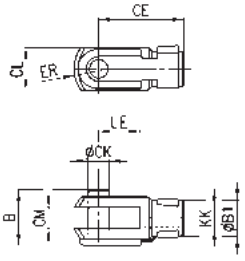
DIMENSIONS

Mod.	Ø	KK	L	CE	L2	AX	SW	SW1	L1	L3	øT	øD	E	øB	øC	Z
GY-32	32	M10X1,25	74	35	6,5	18	17	11	19,5	15	15	19	10	14	28	15
GY-40	40	M12X1,25	84	40	6,5	20	19	17	21	17	17,5	22	12	19	32	15
GY-50-63	50-63	M16X1,5	112	50	8	27	22	19	27,5	23	22	27	16	22	40	11
GY-80-100	80-100	M20x1,5	133	63	10	38	30	24	31,5	25	27,5	34	20	27	45	7,5

Rod fork end Mod. G



Material: zinc-plated steel
ISO 8140



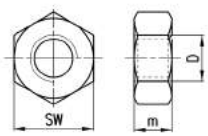
DIMENSIONS

Mod.	øCK	LE	CM	CL	ER	CE	KK	B	B1
G-25-32	10	20	10	20	12	40	M10 X 1,25	26	18
G-40	12	24	12	24	14	48	M12 X 1,25	32	20
G-50-63	16	32	16	32	19	64	M16 X 1,5	40	26
G-80-100	20	40	20	40	25	80	M20 X 1,5	48	34

Piston rod lock nut Mod. U



Material: zinc-plated steel
ISO 4035



DIMENSIONS

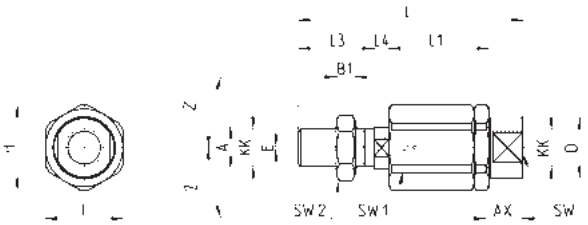
Mod.	D	m	SW
U-25-32	M10X1,25	6	17
U-40	M12X1,25	7	19
U-50-63	M16X1,5	8	24
U-80-100	M20x1,5	9	30

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Self aligning rod Mod. GK

Material: zinc-plated steel





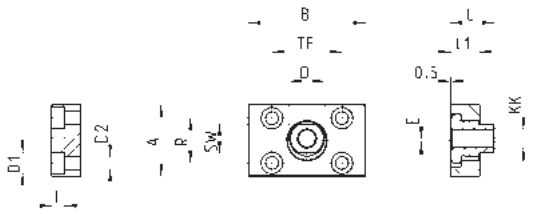
DIMENSIONS

Mod.	Ø	KK	L	L1	L3	L4	øA	øD	H	I	SW	SW1	SW2	B1	AX	Z	E
GK-25-32	25-32	M10x1,25	71,5	35	20	7,5	14	22	32	30	19	12	17	5	22	4	2
GK-40	40	M12x1,25	75,5	35	24	7,5	14	22	32	30	19	12	19	6	22	4	2
GK-50-63	50-63	M16x1,5	104	53	32	10	22	32	45	41	27	20	24	8	30	3	2
GK-80-100	80-100	M20x1,5	119	53	40	10	22	32	45	41	27	20	30	10	37	3	2

Coupling piece Mod. GKF

Material: zinc-plated steel





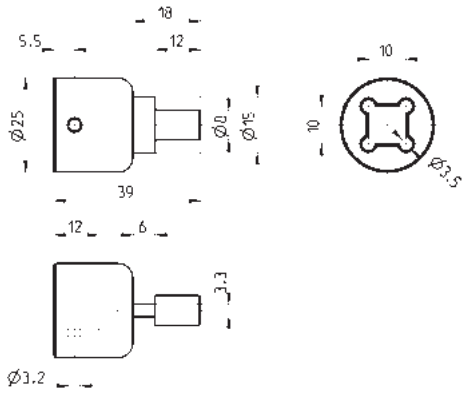
DIMENSIONS

Mod.	Ø	KK	A	B	R	TF	L	L1	I	Ø D	Ø D1	Ø D2	SW	E
GKF-25-32	32	M10x1,25	37	60	23	36	22,5	15	6,8	18	11	6,6	15	2
GKF-40	40	M12x1,25	56	60	38	42	22,5	15	9	20	15	9	15	2,5
GKF-50-63	50-63	M16x1,5	80	80	58	58	26,5	15	10,5	25	18	11	22	2,5
GKF-80-100	80-100	M20x1,5	90	90	65	65	32,5	20	13	30,5	20	14	27	2,5

Special key to disassemble cylinders Ø 80 and 100

Material: hardened steel





Mod.
80-62/8C

Products designed for industrial applications.
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Series 6PF
Positioning Feedback cylinders

Double-acting low friction, magnetic
ø 50, 63, 80, 100, 125 mm



- In compliance with ISO 15552 standards and with the previous DIN/ISO 6431 - VDMA 24562 standards
- Chrome plated steel rod
- Protection class IP67
- Minimal sliding speed of 5 mm/sec
- Minimal sliding pressure < 0,1 bar
- G variant for dusty applications (cement, resin, mud, residues from wood, etc...)

Series 6PF pneumatic actuators are equipped with a potentiometric linear position transducer integrated inside the rod. This type of cylinder allows, along the entire stroke, a constant control of the rod position which is read processing the change of the transducer internal resistance.
The pistons have been equipped with a permanent magnet which enables the use of external end-stroke sensors.
The dynamic seals are specific for low friction.

Thanks to the electrical connection, realized by means of an M12 male electric round connector positioned on the rear head, these cylinders fulfil the standards of IP67 protection class.
Series 6PF cylinders comply with the ISO 15552 standards and can be assembled with the entire range of standard accessories. They are available with bores from 50mm to 125mm with standard strokes from 50mm to 500mm with intervals of 50mm.
The sturdy design, the flexible installation and the high performance make Series 6PF suitable for use in applications with tensioning cylinders, positioning cylinders and filling, cutting and measuring systems.

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

GENERAL AND TECHNICAL DATA

PNEUMATIC SECTION	
Construction	inner tie-rods
Operation	double-acting low friction, not cushioned
Materials	see the table on the following page
Mountings	front and rear flange foot mounts front / rear / swivel / intermediate trunnion
Bores	50, 63, 80, 100, 125 mm
Strokes (min - max)	50 ÷ 500 mm (step 50 mm)
Operating Temperature	0°C ÷ 80°C (with dry air -20°C)
Operating pressure	0.1 ÷ 10 bar
Speed (min - max)	5 ÷ 1000 mm/sec (no load)
Max acceleration	10 m/sec²
Media	filtered air class 5.4.4 according to ISO 8573-1. If lubricated air is used, it is recommended to use oil ISOVG32. Once applied the lubrication should never be interrupted.
Linearity	0.1% of the stroke
Repeatability	0.03% of the stroke
Resolution	Infinite
Hysteresis	< di 0.5 mm
Vibration test according EN 60068-2-6	severity level 3
Shock test according EN 60068-2-27	severity level 2
ELECTRICAL SECTION	
Electrical connection	male connector M12 4 poles IP 67 (EN 60529)
Max input voltage	40 V (stroke 50 mm) 60 V (strokes from 100 to 500 mm)
Max recommended cursor current	< di 0,1 µA
Electrical resistance	5 kohm for strokes from 50 to 300 mm 10 kohm for strokes from 350 to 500 m
Tolerance on resistance	+/- 20%
Max dissipation (40°C)	1 W for stroke 50 mm 2 W for stroke 100 mm 3 W for strokes from 150 to 500 mm
Suitable end-stroke sensors	CST-332 (3 wires) CST-362 (M8)
Suitable M12 connectors	CS-LF04HB (straight female connector 4 poles) CS-LR04HB (right angle female connector 4 poles)

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

STANDARD STROKES FOR SERIES 6PF CYLINDERS

✖ = Double-acting, low friction

STANDARD STROKES										
Ø	50	100	150	200	250	300	350	400	450	500
50	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
63	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
80	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
100	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
125	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖

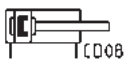
CODING EXAMPLE

6PF	3	P	050	A	0200	

6PF	SERIES	
3	OPERATION 3 = double-acting low friction, no cushion	PNEUMATIC SYMBOLS CD08
P	MATERIALS P = see the table on the following page	
050	BORE 050 = 50 mm 063 = 63 mm 080 = 80 mm 100 = 100 mm 125 = 125 mm	
A	CONSTRUCTION A = standard with rod nut RL = cylinder with rod lock	
0200	STROKE (see the table)	
	VERSIONS = standard P = PU rod seal V = FKM rod seal L = without rod seal (rear supply only) * G = with brass rod scraper (_ _ _) = extended piston rod _ _ _ mm * The possibility to order the cylinder without piston rod seal further reduces the friction force.	

PNEUMATIC SYMBOLS

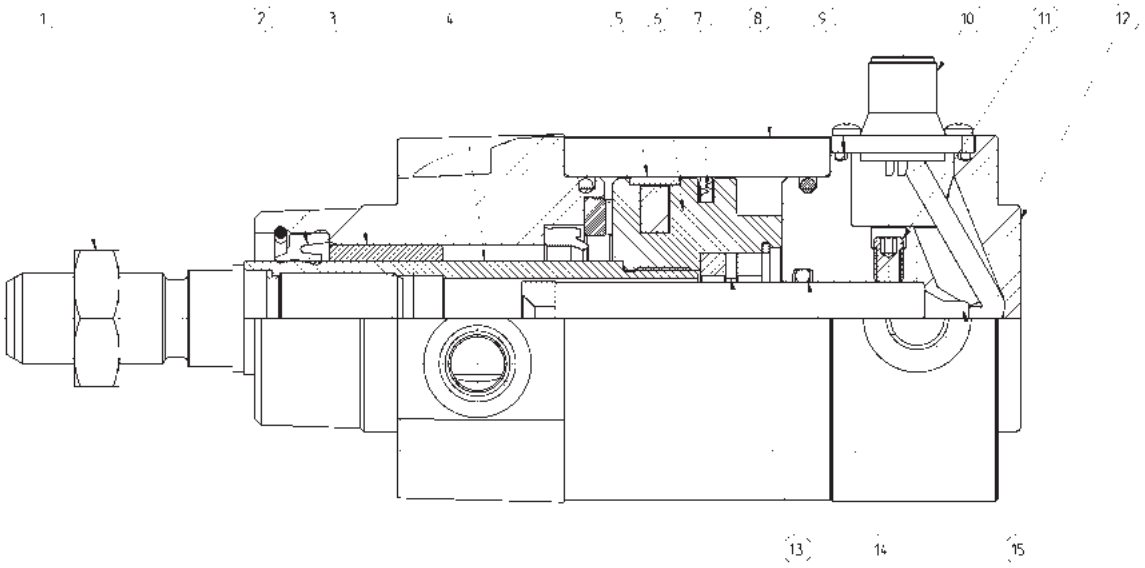
The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.

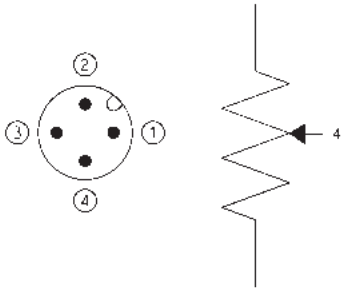


GENERAL INFORMATION

To function properly, the potentiometer must be used as a voltage divider and not as a variable resistor.
The measurement must be carried out detecting the voltage and not the resistance.
The electrical connection must be done at an high impedance inlet.
Information about pinout can be found in the instruction sheet or on the product itself.

NOTE TO THE CONNECTOR DRAWING:
1, 3 = inlet voltage
4 = outlet signal
2 = not used





LIST OF COMPONENTS	
PARTS	MATERIALS
1. Rod nut	Steel
2. Rod seal	NBR
3. Rod guide bush	Sintered bronze
4. Rod	Chrome plated steel
5. Piston guide element	Acetal resin
6. Piston	Aluminium
7. Piston seal	NBR
8. Extrusion profile	Anodized aluminium
9. OR seal	NBR
10. M12 connector	Nickel plated brass
11. Grain	Steel
12. Rear endcap	Aluminium
13. Magnetic actuator	Neodymium
14. OR seal	NBR
15. Positioning sensor	-

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CYLINDERS ACCESSORIES SERIES 6PF



Piston rod socket joint Mod. GY



Piston rod lock nut Mod. U



Clevis pin Mod. S



Rear trunnion ball-joint Mod. R



Coupling piece Mod. GKF



Swivel ball joint Mod. GA



90° male trunnion Mod. ZC



Swivel Combination Mod. C+L+S



Front and rear flange Mod. D-E



Self aligning rod Mod. GK



Centre trunnion Mod. F



Foot mount Mod. B



Front female trunnion Mod. H and C-H



Rear female trunnion Mod. C and C-H



Rod fork end Mod. G



Rear trunnion male Mod. L



Key to disassemble cylinders Ø 80 and 100



Counter bracket for centre trunnion Mod. BF



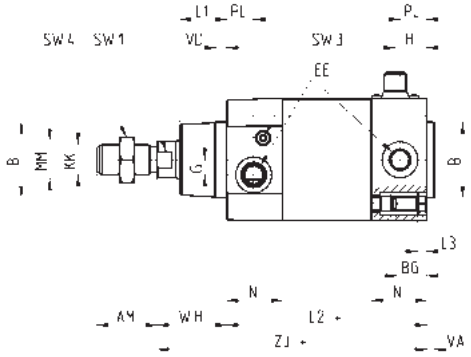
All accessories are supplied separately, except for piston rod lock nut Mod. U

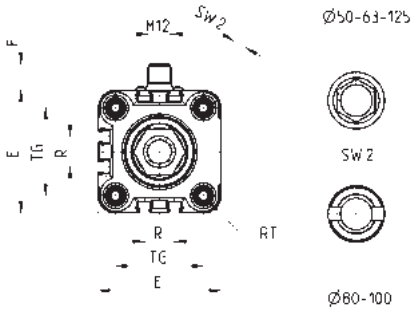
Series 6PF cylinders



+ = add the stroke

Table note:
* = special key 80-62/8C
(see accessories)





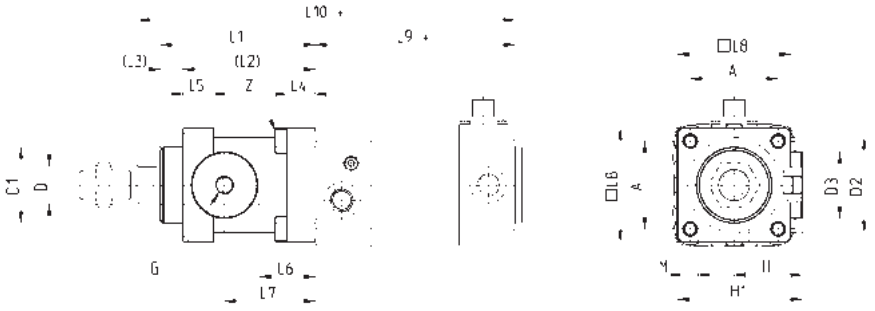
DIMENSIONS

Ø	AM	B	BG	E	EE	F	G	H	KK	L1	L2+	L3	MM	N	PL	R	RT	SW1	SW2	SW3	SW4	TG	VA	VD	WH	ZJ+
50	32	40	16	64.5	G1/4	14	8	17	M16x1.5	25	106	5	20	29.5	15	16	M8	17	8	3	24	46.5	4	6	37	143
63	32	45	16	75	G3/8	14	8	24	M16x1.5	26	121	5	20	36.5	21	28	M8	17	8	3	24	56.5	4	6	37	158
80	40	45	19	93	G3/8	14	8	24	M20x1.5	30	128	0	25	36	21	30	M10	22	*	5	30	72	4	7	46	174
100	40	55	19.5	110	G1/2	14	8	26	M20x1.5	35	138	0	25	38.5	23	40	M10	22	*	5	30	89	4	7	51	189
125	54	60	23	135	G1/2	14	10.5	30	M27x2	42	160	0	32	43	23.5	50	M12	27	12	4	41	110	6	8	65	225

Series 6PF cylinders - with rod lock



+ = add the stroke



DIMENSIONS

Ø	⌀D	⌀D1	⌀D2	⌀D3	A	G	H	H1	L1	L2	L3	L4	L5	L6	L7	L8	L9+	L10+	M	Z
50	20	40	50	35	46,5	G1/8	36	64	82	70	12	15	16	29,5	48	60	106	200	M8	M6x20
63	20	45	60	38	56,5	G1/8	40	75	82	70	12	15	16	29,5	49,5	70	121	215	M8	M8x30
80	25	45	80	48	72	G1/8	50	95	110	90	20	18	20	35	61	90	128	254	M10	M10x35
100	25	55	100	58	89	G1/8	58	110,5	115	100	15	18	20	39	69	105	138	269	M10	M10x35
125	32	60	130	65	110	G1/8	80	150	167	122	45	22	30	51	86,5	140	160	350	M12	M12x40

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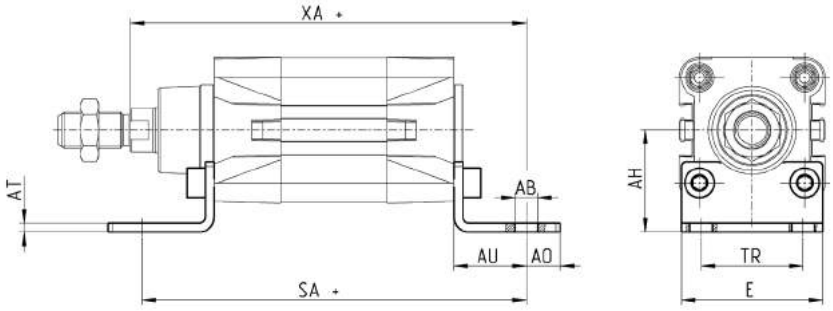
Foot mount Mod. B

Material: zinc-plated steel



Supplied with:
2x feet
4x screws

+ = add the stroke



Mod.	Ø	AT	SA+	XA+	TR	E	AB	AH	AO	AU	torque force
B-41-50	50	4	170	175	45	62,5	10	45	15	32	13 Nm
B-41-63	63	5	185	190	50	73	10	50	15	32	13 Nm
B-41-80	80	6	210	216	63	92	12	63	20	41	19 Nm
B-41-100	100	6	220	230	75	108,5	14,5	71	25	41	22 Nm
B-41-125	125	7	250	270	90	132	16,5	90	25	45	26 Nm

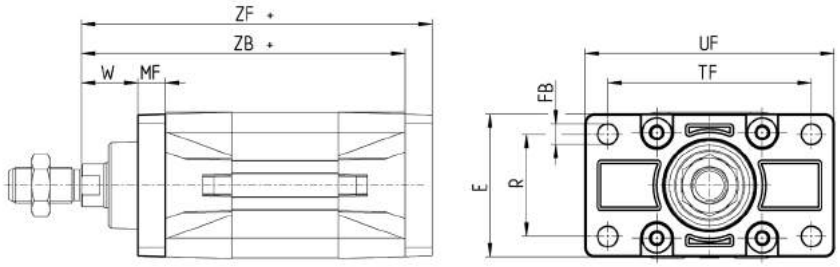
Front and rear flange Mod. D-E

Material: Aluminium



Supplied with:
1x flange
4x screws

+ = add the stroke



Mod.	Ø	W	MF	ZB+	TF	R	UF	E	FB	ZF+	torque force
D-E-41-50	50	25	12	143	90	45	110	63	9	155	13 Nm
D-E-41-63	63	25	12	158	100	50	116	73	9	170	13 Nm
D-E-41-80	80	30	16	174	126	63	148	95	12	190	19 Nm
D-E-41-100	100	35	16	189	150	75	176	115	14	205	22 Nm
D-E-41-125	125	45	20	225	180	90	224	135	16	245	26 Nm

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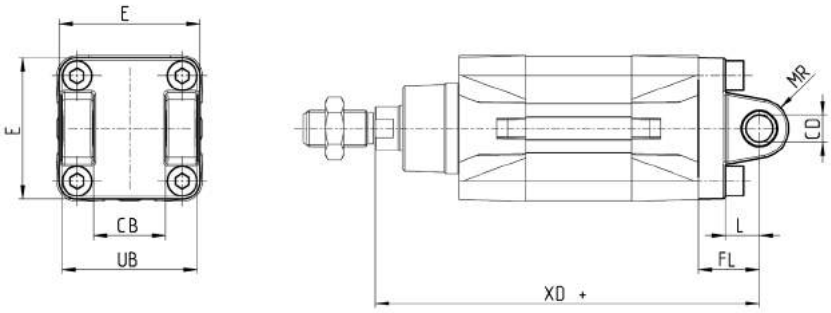
Rear female trunnion Mod. C and C-H

Material: Aluminium



Supplied with:
1x female trunnion
4x screws

+ = add the stroke



Mod.	Ø	CD	L	FL	XD+	MR	E	CB	UB	torque force
C-41-50	50	12	15	27	170	13	63	32	60	13 Nm
C-H-41-63	63	16	20	32	190	15	73	40	70	13 Nm
C-H-41-80	80	16	24	36	210	15	95	50	90	19 Nm
C-H-41-100	100	20	29	41	230	18	115	60	110	22 Nm
C-H-41-125	125	25	30	50	275	25	135	70	130	26 Nm

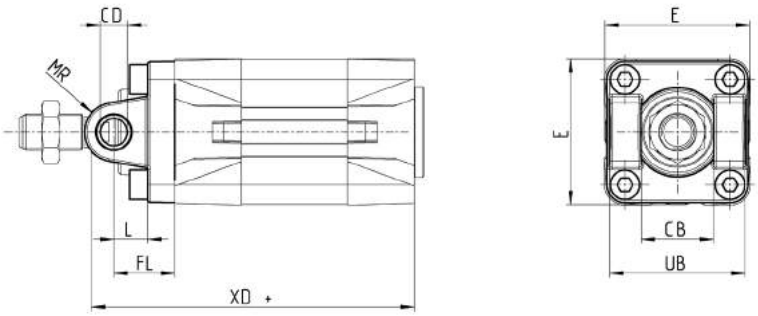
Front female trunnion Mod. H and C-H

Material: Aluminium



Supplied with:
1x female trunnion
4x screws

+ = add the stroke



Mod.	Ø	CB	UB	E	XD	FL	L	CD	MR	torque force
H-41-50	50	32	60	63	143	27	15	12	13	13 Nm
H-60-63	63	40	70	73	158	32	20	16	15	13 Nm
C-H-41-80	80	50	90	95	174	36	24	16	15	19 Nm
C-H-41-100	100	60	110	115	189	41	29	20	18	22 Nm
C-H-41-125	125	70	130	135	225	50	30	25	25	26 Nm

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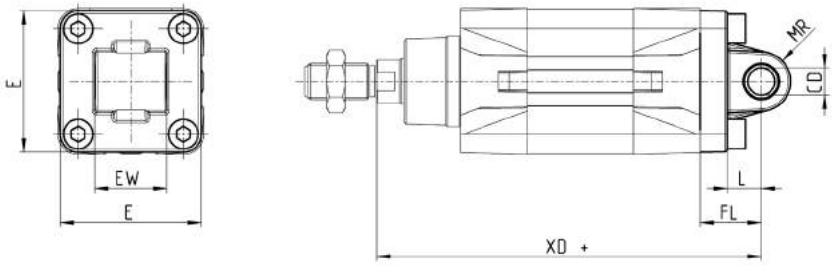
Rear male trunnion Mod. L

Material: Aluminium



Supplied with:
1x male trunnion
4x screws

+ = add the stroke



DIMENSIONS

Mod.	Ø	CD	L	FL	XD+	MR	E	EW	torque force
L-41-50	50	12	15	27	170	13	63	32	13 Nm
L-41-63	63	16	20	32	190	15	73	40	13 Nm
L-41-80	80	16	24	36	210	15	95	50	19 Nm
L-41-100	100	20	29	41	230	18	115	60	22 Nm
L-41-125	125	25	30	50	275	25	135	70	26 Nm

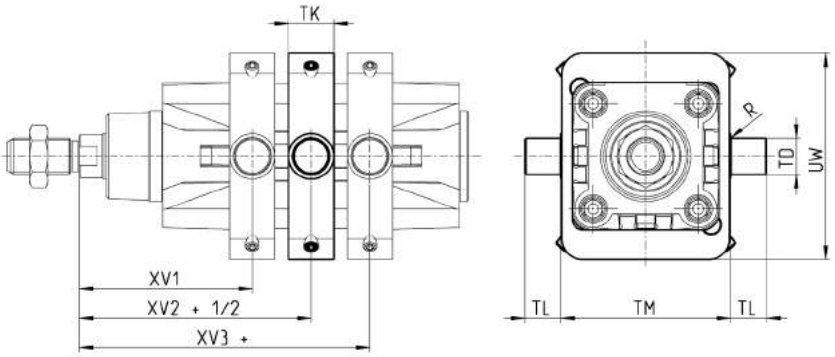
Centre trunnion Mod. F

Material: zinc-plated steel



Supplied with:
1x centre trunnion
4x screws
4x fixing elements

+ = add the stroke



DIMENSIONS

Mod.	Ø	XV1	XV2	XV3	TM	TK	TD	TL	UW	R
F-61-50	50	76,5	90	103,5	75	20	16	16	91	0,15
F-61-63	63	86	97,5	109	90	25	20	20	94	0,15
F-61-80	80	94,5	110	125,5	110	25	20	20	130	0,15
F-61-100	100	104,5	120	135,5	132	30	25	25	145	0,2
F-61-125	125	123	145	167	160	30	25	25	155	0,2

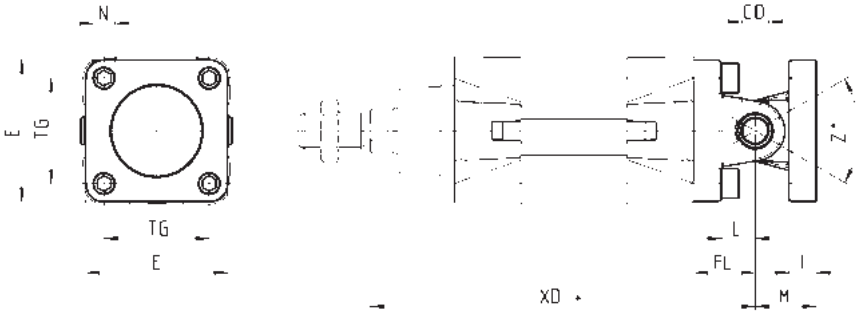
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Accessory combination Mod. C+L+S

Material: aluminium



+ = add the stroke



DIMENSIONS

Mod.	Ø	⌀CD	L	FL	XD+	TG	E	I	M	⌀N	torque force
C+L+S	50	12	15	27	170	46,5	63	13	27	9	13 Nm
C+L+S	63	16	20	32	190	56,5	73	15	32	9	13 Nm
C+L+S	80	16	24	36	210	72	95	15	36	11	19 Nm
C+L+S	100	20	29	41	230	89	115	18	41	11	22 Nm
C+L+S	125	25	30	50	275	110	135	25	50	13	26 Nm

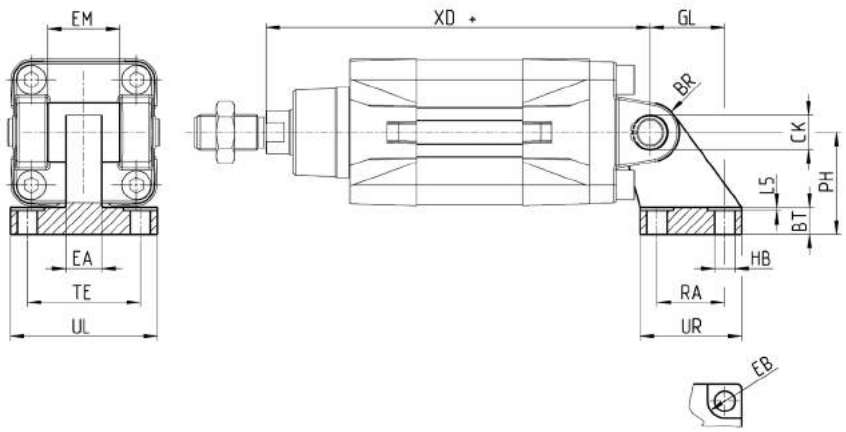
90° male trunnion Mod. ZC

CETOP RP 107P
Material: Aluminium



Supplied with:
1x male support

+ = add the stroke



DIMENSIONS

Mod.	Ø	EB	CK	HB	XD+	TE	UL	EA	GL	L5	RA	EM	UR	PH	BT	BR
ZC-50	50	15	12	9	170	50	65	16	33	1,6	30	32	45	45	12	13
ZC-63	63	15	16	9	190	52	67	16	37	1,6	35	40	50	50	14	15
ZC-80	80	18	16	11	210	66	86	20	47	2,5	40	50	60	63	14	15
ZC-100	100	18	20	11	230	76	96	20	55	2,5	50	60	70	71	17	19
ZC-125	125	20	25	14	275	94	124	30	70	3,2	60	70	90	90	20	22,5

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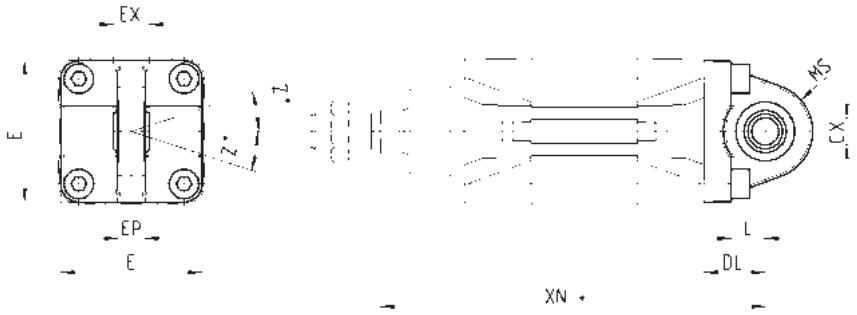
Trunnion ball-joint Mod. R*

Material: Aluminium
* not according to standard



Supplied with:
1x trunnion ball joint
4x screws

+ = add the stroke



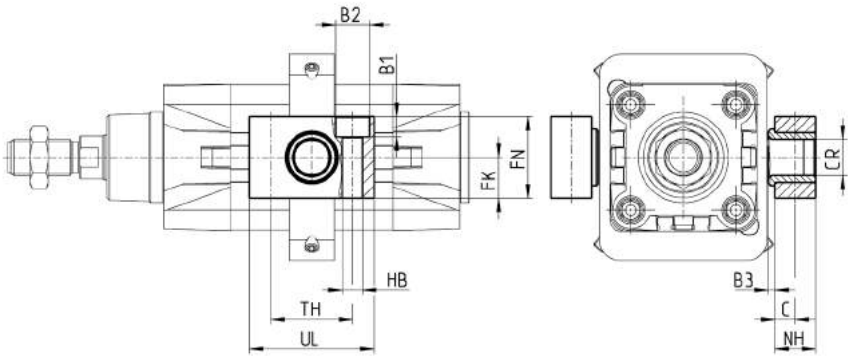
Mod.	Ø	CX	L	DL	XN+	MS	E	EX	EP	Z	torque force
R-41-50	50	16	15	27	170	20	63	16	12	4	13 Nm
R-41-63	63	16	20	32	190	24	73	21	15	4	13 Nm
R-41-80	80	20	24	36	210	24	95	21	15	4	19 Nm
R-41-100	100	20	29	41	230	30	115	25	18	4	22 Nm
R-41-125	125	30	30	50	275	40	140	37	25	4	26 Nm

Counter bracket for centre trunnion Mod. BF

Material: Aluminium



Supplied with:
2x supports



DIMENSIONS

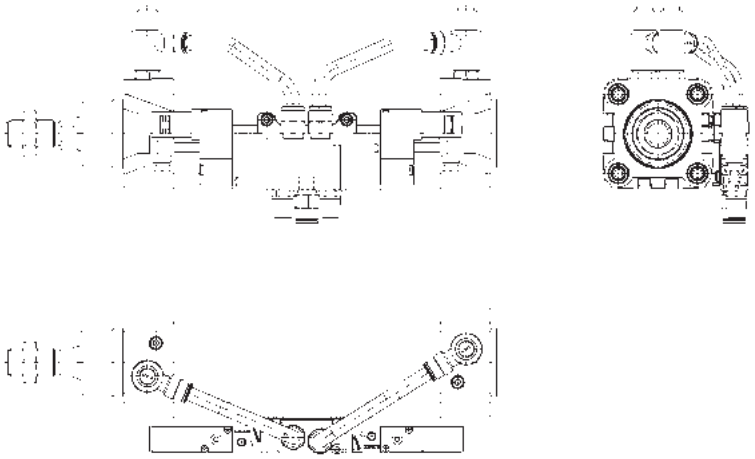
Mod.	Ø	CR	NH	C	B3	TH	UL	FK	FN	B1	B2	HB
BF-40-50	50	16	18	9	3	36	55	18	36	9	15	9
BF-63-80	63 - 80	20	20	10	3	42	65	20	40	11	18	11
BF-100-125	100 - 125	25	25	12,5	3,5	50	75	25	50	13	20	14

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Accessory to mount valves on the cylinder

The mounting sub-base Mod. PCV enables the valve or solenoid valve to be mounted directly on the cylinder.





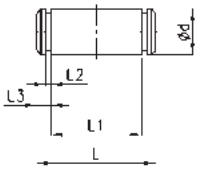
DIMENSIONS	
Mod.	
PCV-61-K3	to connect valves - solenoid valves Series 3
PCV-61-K4	to connect valves - solenoid valves Series 4 port G1/4
PCV-62-KEN	to connect valves - solenoid valves Series EN
PCV-61-K8	to connect valves - solenoid valves Series 4 port G1/8 and Series 3 port G1/4

Clevis pin Mod. S

Materials: Stainless steel 303 (clevis pin) / Steel (Seeger)



Supplied with:
1x clevis pin
2x Seeger



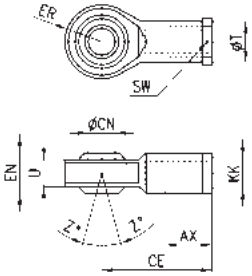
DIMENSIONS						
Mod.	Ø	d	L	L1	L2	L3
S-50	50	12	67	61	1,1	3
S-63	63	16	77	71	1,1	3
S-80	80	16	97	91	1,1	3
S-100	100	20	121	111	1,3	5
S-125	125	25	140,5	132	1,3	4,25

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Swivel ball joint Mod. GA



ISO 8139.
Material: zinc-plated steel.

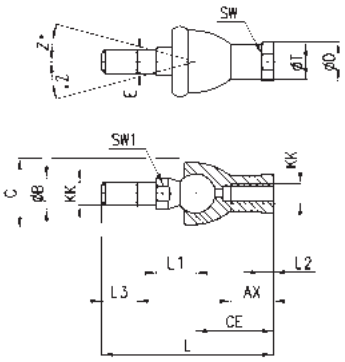


Mod.	øCN	U	EN	ER	AX	CE	KK	T	Z	SW
GA-50-63	16	15	21	21	28	64	M16X1,5	22	7,5	22
GA-80-100	20	18	25	25	33	77	M20x1,5	27,5	7	30
GA-41-125	30	25	37	37	51	110	M27x2	40	7,5	41

Piston rod socket joint Mod. GY



Material: zama and zinc-plated steel.



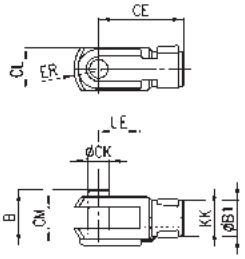
DIMENSIONS

Mod.	Ø	KK	L	CE	L2	AX	SW	SW1	L1	L3	øT	øD	E	øB	øC	Z
GY-50-63	50-63	M16X1,5	112	50	8	27	22	19	27,5	23	22	27	16	22	40	11
GY-80-100	80-100	M20x1,5	133	63	10	38	30	24	31,5	25	27,5	34	20	27	45	7,5

Rod fork end Mod. G



ISO 8140
Material: zinc-plated steel

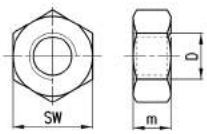


Mod.	øCK	LE	CM	CL	ER	CE	KK	B	B1
G-50-63	16	32	16	32	19	64	M16 X 1,5	40	26
G-80-100	20	40	20	40	25	80	M20 X 1,5	48	34
G-41-125	30	54	30	55	38	110	M27 X 2	74	48

Piston rod lock nut Mod. U



ISO 4035
Material: zinc-plated steel.



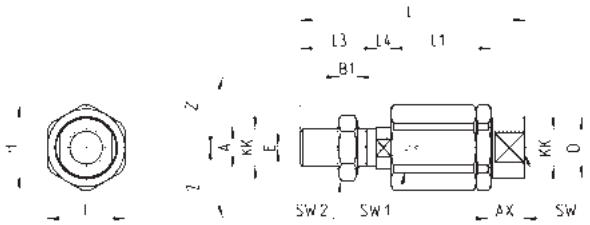
Mod.	D	m	SW
U-50-63	M16X1,5	8	24
U-80-100	M20x1,5	9	30
U-41-125	M27x2	12	41

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Self aligning rod Mod. GK

Material: zinc-plated steel.





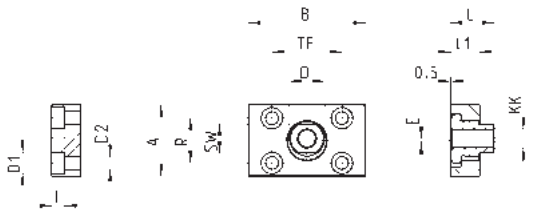
DIMENSIONS

Mod.	Ø	KK	L	L1	L3	L4	⌀A	⌀D	H	I	SW	SW1	SW2	B1	AX	Z	E
GK-50-63	50-63	M16x1,5	104	53	32	10	22	32	45	41	27	20	24	8	30	3	2
GK-80-100	80-100	M20x1,5	119	53	40	10	22	32	45	41	27	20	30	10	37	3	2
GK-125	125	M27x2	147	60	54	10	32	57	70	65	54	24	41	12	48	4	2

Coupling piece Mod. GKF

Material: zinc-plated steel.





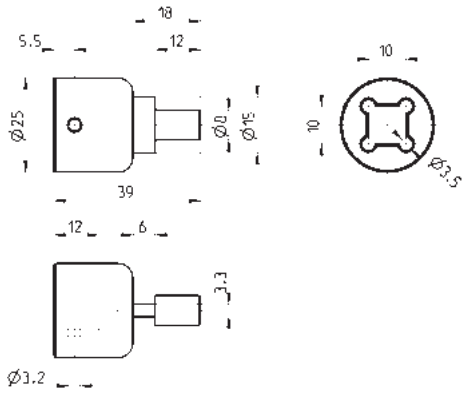
DIMENSIONS

Mod.	Ø	KK	A	B	R	TF	L	L1	I	Ø D	Ø D1	Ø D2	SW	E
GKF-50-63	50-63	M16x1,5	80	80	58	58	26,5	15	10,5	25	18	11	22	2,5
GKF-80-100	80-100	M20x1,5	90	90	65	65	32,5	20	13	30,5	20	14	27	2,5
GKF-125	125	M27x2	90	90	65	65	35,5	20	13	40	20	14	36	4

Special key to disassemble cylinders Ø 80 and 100

Material: hardened steel





Mod.
80-62/8C

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Series 63 cylinders - Aluminium tube and profile

New

Single and double-acting, magnetic, cushioned
Versions: standard, low friction, high and low temperatures
ø 32, 40, 50, 63, 80, 100, 125 mm



The new Series 63 pneumatic cylinders, which comply with the ISO 15552 standard, have been developed to guarantee high performance whilst also offering significant reductions in weight. The new adjustable pneumatic and mechanical cushioning system ensures Series 63 also reduces the noise caused by the impact of the piston on the end block.

On one side of the profile, there are grooves for the positioning of proximity switches (Series CSH) for the detection of the piston's position. These grooves can be covered with the slot cover profile Mod. S-CST-500. A wide range of versions are available which makes these new cylinders suitable for use in many sectors and applications.

- In compliance with ISO 15552 standards and with the previous DIN/ISO 6431 - VDMA 24562 standards
- Clean design
- Weight reduced by 25%
- Adjustable pneumatic and mechanical end-stroke cushioning
- Wide range of installation accessories
- Rolled stainless steel rod

WIDE RANGE OF VERSIONS AVAILABLE:

- Low friction
- High and low temperatures
- Dusty environments
- ATEX

GENERAL DATA

Type of construction	profile (with screws) and round tube (with tie-rods)
Operation	single and double-acting
Materials	see the table of materials on page 1/1.28.03
Type of mounting	with front / rear flange, foot mounting, with front / rear / centre / swivel trunnion
Stroke min - max	10 ÷ 2500 mm
Operating temperature	standard and low friction: 0°C ÷ 80°C (with dry air -20°C) high temperatures (version W): 0°C ÷ 150°C (with dry air -20°C) low temperatures (version Z): -40°C ÷ 60°C (with dry air -40°C) low temperatures (version Y): -50°C ÷ 60°C (with dry air -50°C)
Operating pressure	1 ÷ 10 bar (standard, high and low temperatures) 0.1 ÷ 10 bar (low friction)
Speed	10 ÷ 1000 mm/sec, no load (standard, high and low temperatures) 5 ÷ 1000 mm/sec, no load (low friction)
Fluid	filtered air in class 7.8.4, according to ISO 8573-1. If lubricated air is used, it is recommended to use oil ISOVG32. Once applied the lubrication should never be interrupted.

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STANDARD STROKES FOR CYLINDERS SERIES 63

■ = Single-acting, front spring (standard, high/low temperatures); ▲ = Single-acting, rear spring (standard, high/low temperatures);
✖ = Double-acting (standard, low friction, high/low temperatures) Other strokes up to 2500 mm are available on request.

STANDARD STROKES														
Ø	25	50	75	80	100	125	150	160	200	250	300	320	400	500
32	■ ▲ ✖	■ ▲ ✖	■ ✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
40	■ ▲ ✖	■ ▲ ✖	■ ✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
50	■ ▲ ✖	■ ▲ ✖	■ ✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
63	■ ▲ ✖	■ ▲ ✖	■ ✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
80	■ ▲ ✖	■ ▲ ✖	■ ✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
100		■ ▲ ✖	■ ✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
125		■ ▲ ✖	■ ✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖

CODING EXAMPLE

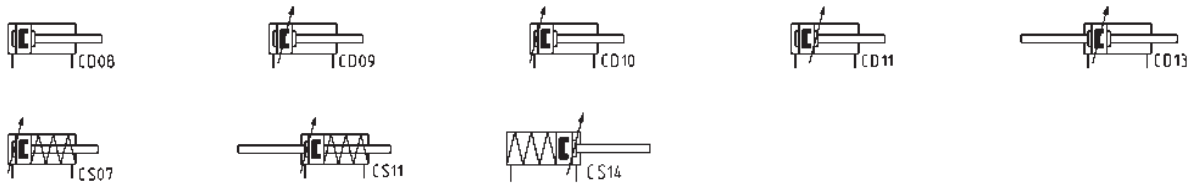
63	M	P	2	C	050	A	0200				

63	SERIES	
M	VERSION: M = standard, magnetic L = low friction, magnetic	
P	CONSTRUCTION: T = round tube P = profile	
2	OPERATION: 1 = single-acting, front spring 2 = double-acting 6 = double-acting, through-rod 7 = single-acting, through-rod 9 = single-acting, rear spring	PNEUMATIC SYMBOLS CS07 CD08 - CD09 - CD10 - CD11 CD13 CS11 CS14
C	CUSHIONING: N = no cushioning C = cushioning on both sides F = front cushioning R = rear cushioning	 CD08 CD09/CD13 CD11 CD10
050	BORE: 032 = 32 mm 040 = 40 mm 050 = 50 mm 063 = 63 mm 080 = 80 mm 100 = 100 mm 125 = 125 mm	
A	CONSTRUCTIVE TYPE: A = standard with rod nut RL = cylinder with rod lock F = cylinder with centre trunnion	
0200	STROKES: 10 ÷ 2500 mm	
	TEMPERATURE RANGE: = standard W = high temperatures (150°C) Z = low temperatures (-40°C) Y = low temperatures (-50°C)	
	RESISTANCE TO CORROSION: = standard (see the table of materials on page 1/1.28.03) C1 = rod nut AISI 304 stainless steel, rod AISI 304 stainless steel (other materials: see the table of materials on page 1/1.28.03)	
	ROD VARIATIONS: = standard (_ _ _) = rod longer than _ _ _ mm L = without rod seal (rear supply only) * R = NBR rod seal V = FKM rod seal G = dry and dusty environments (with brass rod scraper and chrome-plated stainless steel AISI 420B rod) * The possibility to order the cylinder without piston rod seal, further reduces the friction force.	
	Add EX to order the ATEX certified version.	

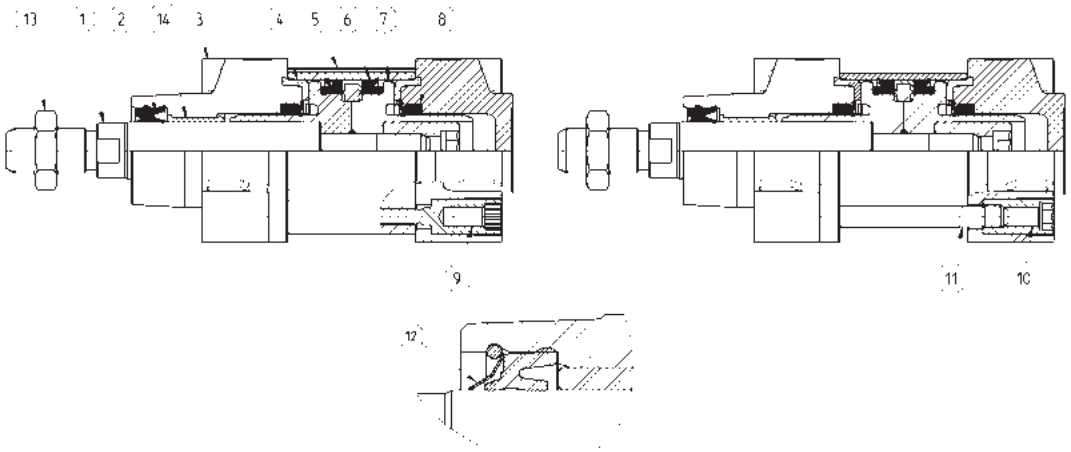
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PNEUMATIC SYMBOLS

The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.



MATERIALS

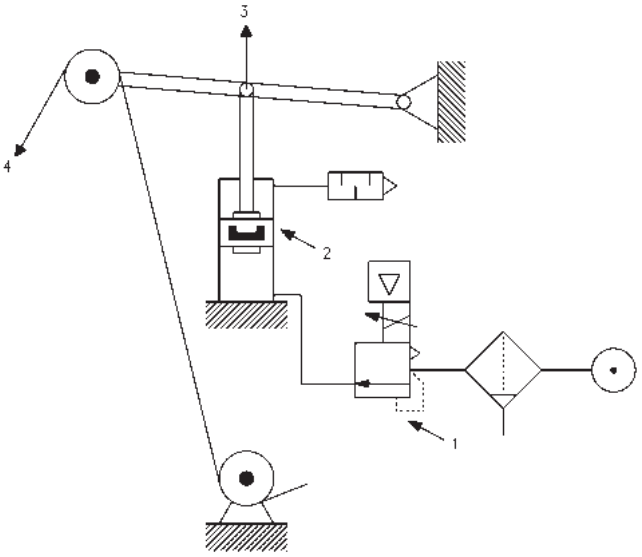


LIST OF COMPONENTS

	Standard, profile	Standard, round tube	Low friction (L)	Rod scraper (G)	Low temperatures (Z/Y)	High temperatures (W)	Resistance to corrosion (C1)
PARTS							
1 - Rod	AISI 420B	AISI 420B	AISI 420B	Chrome-plated AISI 420B	Chrome-plated AISI 420B	AISI 420B	AISI 304
2 - Rod seal	PU	PU	NBR	NBR	PU for -40°C/-50°C	FKM	PU
3 - End-block	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
4 - Counterbore seal	NBR	NBR	NBR	NBR	NBR for -40°C/-50°C	FKM	NBR
5 - Extruded profile	Anodized aluminium	Anodized aluminium	Anodized aluminium	Anodized aluminium	Anodized aluminium	Anodized aluminium	Anodized aluminium
6 - Piston seal	PU	PU	NBR	PU	PU for -40°C/-50°C	FKM	PU
7 - Piston	Technopolymer (ø 32) or Aluminium (ø 40 ÷ 125)	Aluminium (ø 125) or Technopolymer (ø 32 ÷ 100)	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
8 - Cushion seal	PU	PU	PU	PU	PU	FKM	PU
9 - Self-tapping screw	Zinc-plated steel	-	Zinc-plated steel	Zinc-plated steel	Zinc-plated steel	Zinc-plated steel	Zinc-plated steel
10 - Tie-rod nut	-	Zinc-plated steel	Zinc-plated steel	Zinc-plated steel	AISI 303	Zinc-plated steel	Zinc-plated steel
11 - Tie-rod	-	Zinc-plated steel	Zinc-plated steel	Zinc-plated steel	AISI 420B	Zinc-plated steel	Zinc-plated steel
12 - Rod scraper	-	-	-	Brass	Brass	-	-
13 - Rod nut	Zinc-plated steel	Zinc-plated steel	Zinc-plated steel	Zinc-plated steel	AISI 304	Zinc-plated steel	AISI 304
14 - Rod guide bush	Technopolymer	Technopolymer	Technopolymer	Technopolymer	Technopolymer	Steel + PTFE	Technopolymer

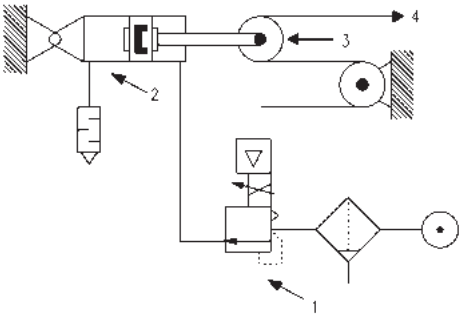
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Series 63 low friction cylinders - APPLICATION EXAMPLES



CYLINDER IN THRUST

DRAWING NOTES:
1. Precision pressure regulator or proportional regulator
2. Low friction cylinder
3. Force direction
4. Band



CYLINDER IN TRACTION

Note: in order to reach the highest performance, it is recommended to connect a precision pressure regulator or a proportional regulator with the low friction cylinder as shown in the drawing.

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SERIES 63 CYLINDERS ACCESSORIES



Piston rod socket joint
Mod. GY



Piston rod lock nut
Mod. U



Clevis pin Mod. S



Rear trunnion ball-joint
Mod. R



Coupling piece
Mod. GKF



Swivel ball joint Mod. GA



90° male trunnion
Mod. ZC



Swivel Combination
Mod. C+L+S



Front and rear flange
Mod. D-E



Self aligning rod
Mod. GK



Centre trunnion
Mod. F-63, profile cyl.



Foot mount
Mod. B-41



Front female trunnion
Mod. H and C-H



Rear female trunnion
Mod. C and C-H



Rod fork end Mod. G



Rear trunnion male
Mod. L



Disassemble cyl. key Ø
80 and 100, round tube



Counter bracket for centre trunnion Mod. BF



Front/rear spot faced
trunnion Mod. FN



Opposed cylinder coupler
Mod. DC-63



Centre trunnion Mod. F,
round tube cyl.





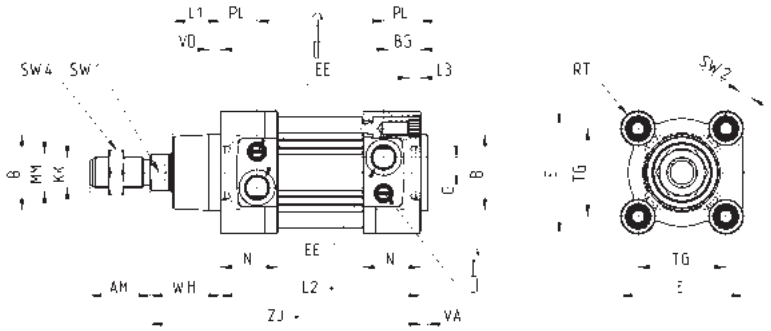
All accessories are supplied separately, except for piston rod lock nut Mod. U

Series 63 cylinders - profile, double-acting

Versions: 63MP2... and 63LP2...



+ = add the stroke



DIMENSIONS

Ø	ØMM	KK	ØB	PL	L1	AM	VA	EE	WH	L2	L3	ZJ	VD	N	BG	RT	G	TG	E	SW1	SW2	SW4	Front/rear cushion stroke
32	12	M10x1.25	30	18.5	18	22	4	G1/8	26	94	5.5	120	5	27	16	M6	5	32.5	47	10	6	17	17
40	16	M12x1.25	35	19	21	24	4	G1/4	30	105	5.5	135	5	30	16	M6	5	38	55	13	6	19	18
50	20	M16x1.5	40	19.5	25	32	4	G1/4	37	106	6	143	6	30.5	16	M8	8	46.5	65	17	8	24	20
63	20	M16x1.5	45	24	26	32	4	G3/8	37	121	6	158	6	37.5	16	M8	8	56.5	75	17	8	24	22
80	25	M20x1.5	45	23.5	30	40	4	G3/8	46	128	0	174	7	37	19	M10	8	72	93	22	6	30	25
100	25	M20x1.5	55	24	35	40	4	G1/2	51	138	0	189	7	39.5	19.5	M10	8	89	110	22	6	30	26
125	32	M27x2	60	28	42	54	6	G1/2	65	160	6	225	8	44	23	M12	10.5	110	135	27	12	41	33

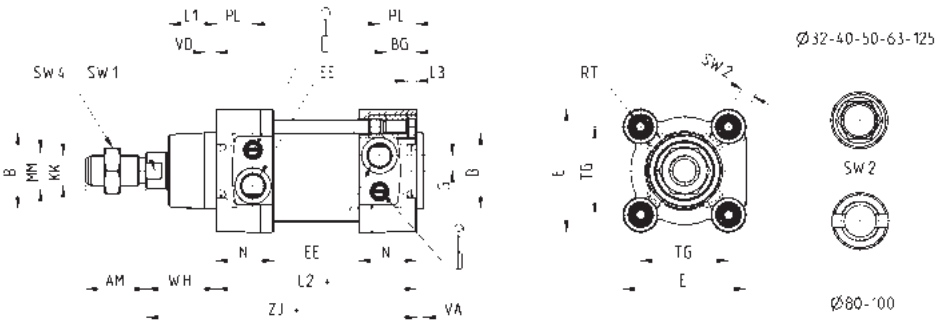
Series 63 cylinders - round tube, double-acting

Versions: 63MT2... and 63LT2...



+ = add the stroke

Table note:
* = special key 80-62/8C
(see accessories)



DIMENSIONS

Ø	ØMM	KK	ØB	PL	L1	AM	VA	EE	WH	L2	L3	ZJ	VD	N	BG	RT	G	TG	E	SW1	SW2	SW4	Front/rear cushion stroke
32	12	M10x1.25	30	18.5	18	22	4	G1/8	26	94	5	120	5	27	16	M6	5	32.5	47	10	6	17	17
40	16	M12x1.25	35	19	21	24	4	G1/4	30	105	5	135	5	30	16	M6	5	38	55	13	6	19	18
50	20	M16x1.5	40	19.5	25	32	4	G1/4	37	106	5	143	6	30.5	16	M8	8	46.5	65	17	8	24	20
63	20	M16x1.5	45	24	26	32	4	G3/8	37	121	5	158	6	37.5	16	M8	8	56.5	75	17	8	24	22
80	25	M20x1.5	45	23.5	30	40	4	G3/8	46	128	0	174	7	37	19	M10	8	72	93	22	*	30	25
100	25	M20x1.5	55	24	35	40	4	G1/2	51	138	0	189	7	39.5	19.5	M10	8	89	110	22	*	30	26
125	32	M27x2	60	28	42	54	6	G1/2	65	160	6	225	8	44	23	M12	10.5	110	135	27	12	41	33

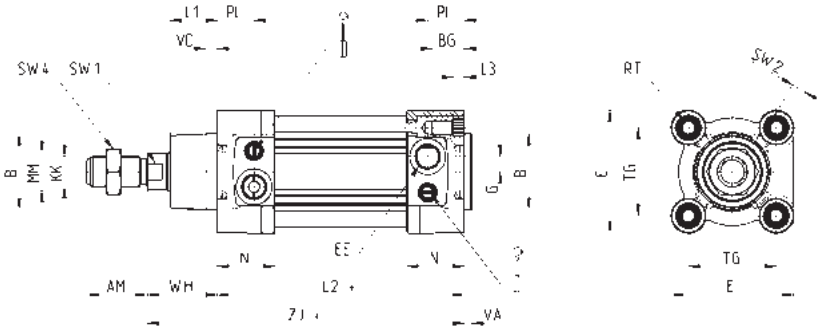
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Series 63 cylinders - profile, single-acting, front spring

Versions: 63MP1... and 63LP1...



+ = add the stroke



DIMENSIONS

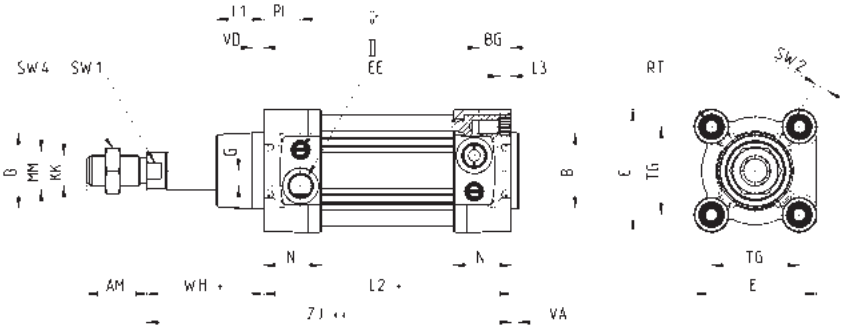
Ø	ØMM	KK	ØB	PL	L1	AM	VA	EE	WH	L2	L3	ZJ	VD	N	BG	RT	G	TG	E	SW1	SW2	SW4	Front/rear cushion stroke
32	12	M10x1.25	30	18.5	18	22	4	G1/8	26	119	5.5	145	5	27	16	M6	5	32.5	47	10	6	17	17
40	16	M12x1.25	35	19	21	24	4	G1/4	30	130	5.5	160	5	30	16	M6	5	38	55	13	6	19	18
50	20	M16x1.5	40	19.5	25	32	4	G1/4	37	131	6	168	6	30.5	16	M8	8	46.5	65	17	8	24	20
63	20	M16x1.5	45	24	26	32	4	G3/8	37	146	6	183	6	37.5	16	M8	8	56.5	75	17	8	24	22
80	25	M20x1.5	45	23.5	30	40	4	G3/8	46	153	0	199	7	37	19	M10	8	72	93	22	6	30	25
100	25	M20x1.5	55	24	35	40	4	G1/2	51	163	0	214	7	39.5	19.5	M10	8	89	110	22	6	30	26
125	32	M27x2	60	28	42	54	6	G1/2	65	185	6	250	8	44	23	M12	10.5	110	135	27	12	41	33

Series 63 cylinders - profile, single-acting, rear spring

Versions: 63MP9... and 63LP9...



+ = add the stroke
++ = add the stroke twice



DIMENSIONS

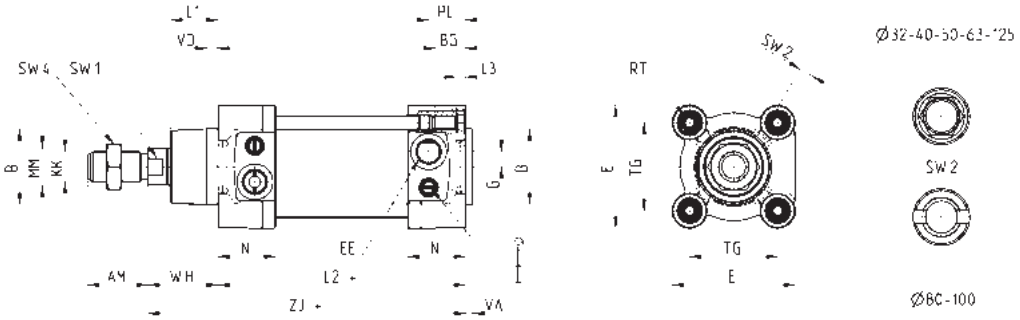
Ø	ØMM	KK	ØB	PL	L1	AM	VA	EE	WH	L2	L3	ZJ	VD	N	BG	RT	G	TG	E	SW1	SW2	SW4	Front/rear cushion stroke
32	12	M10x1.25	30	18.5	18	22	4	G1/8	51	119	5.5	170	5	27	16	M6	5	32.5	47	10	6	17	17
40	16	M12x1.25	35	19	21	24	4	G1/4	55	130	5.5	185	5	30	16	M6	5	38	55	13	6	19	18
50	20	M16x1.5	40	19.5	25	32	4	G1/4	62	131	6	193	6	30.5	16	M8	8	46.5	65	17	8	24	20
63	20	M16x1.5	45	24	26	32	4	G3/8	62	146	6	208	6	37.5	16	M8	8	56.5	75	17	8	24	22
80	25	M20x1.5	45	23.5	30	40	4	G3/8	71	153	0	224	7	37	19	M10	8	72	93	22	6	30	25
100	25	M20x1.5	55	24	35	40	4	G1/2	76	163	0	239	7	39.5	19.5	M10	8	89	110	22	6	30	26
125	32	M27x2	60	28	42	54	6	G1/2	90	185	6	275	8	44	23	M12	10.5	110	135	27	12	41	33

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Series 63 cylinders - round tube, single-acting, front spring

Versions: 63MT1... and 63LT1...





+ = add the stroke

Table note:
* = special key 80-62/8C
(see accessories)

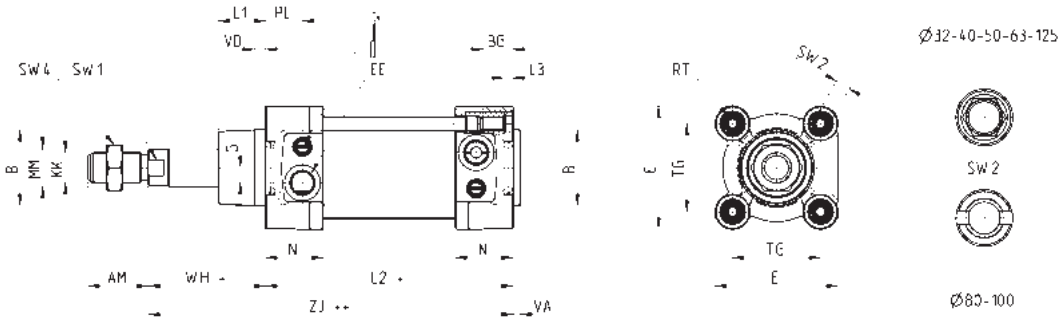
DIMENSIONS

Ø	ØMM	KK	ØB	PL	L1	AM	VA	EE	WH	L2	L3	ZJ	VD	N	BG	RT	G	TG	E	SW1	SW2	SW4	Front/rear cushion stroke
32	12	M10x1.25	30	18.5	18	22	4	G1/8	26	119	5	145	5	27	16	M6	5	32.5	47	10	6	17	17
40	16	M12x1.25	35	19	21	24	4	G1/4	30	130	5	160	5	30	16	M6	5	38	55	13	6	19	18
50	20	M16x1.5	40	19.5	25	32	4	G1/4	37	131	5	168	6	30.5	16	M8	8	46.5	65	17	8	24	20
63	20	M16x1.5	45	24	26	32	4	G3/8	37	146	5	183	6	37.5	16	M8	8	56.5	75	17	8	24	22
80	25	M20x1.5	45	23.5	30	40	4	G3/8	46	153	0	199	7	37	19	M10	8	72	93	22	*	30	25
100	25	M20x1.5	55	24	35	40	4	G1/2	51	163	0	214	7	39.5	19.5	M10	8	89	110	22	*	30	26
125	32	M27x2	60	28	42	54	6	G1/2	65	185	6	250	8	44	23	M12	10.5	110	135	27	12	41	33

Series 63 cylinders - round tube, single-acting, rear spring

Versions: 63MT9... and 63LT9...





+ = add the stroke

Table note:
* = special key 80-62/8C
(see accessories)

DIMENSIONS

Ø	ØMM	KK	ØB	PL	L1	AM	VA	EE	WH	L2	L3	ZJ	VD	N	BG	RT	G	TG	E	SW1	SW2	SW4	Front/rear cushion stroke
32	12	M10x1.25	30	18.5	18	22	4	G1/8	51	119	5	170	5	27	16	M6	5	32.5	47	10	6	17	17
40	16	M12x1.25	35	19	21	24	4	G1/4	55	130	5	185	5	30	16	M6	5	38	55	13	6	19	18
50	20	M16x1.5	40	19.5	25	32	4	G1/4	62	131	5	193	6	30.5	16	M8	8	46.5	65	17	8	24	20
63	20	M16x1.5	45	24	26	32	4	G3/8	62	146	5	208	6	37.5	16	M8	8	56.5	75	17	8	24	22
80	25	M20x1.5	45	23.5	30	40	4	G3/8	71	153	0	224	7	37	19	M10	8	72	93	22	*	30	25
100	25	M20x1.5	55	24	35	40	4	G1/2	76	163	0	239	7	39.5	19.5	M10	8	89	110	22	*	30	26
125	32	M27x2	60	28	42	54	6	G1/2	90	185	6	275	8	44	23	M12	10.5	110	135	27	12	41	33

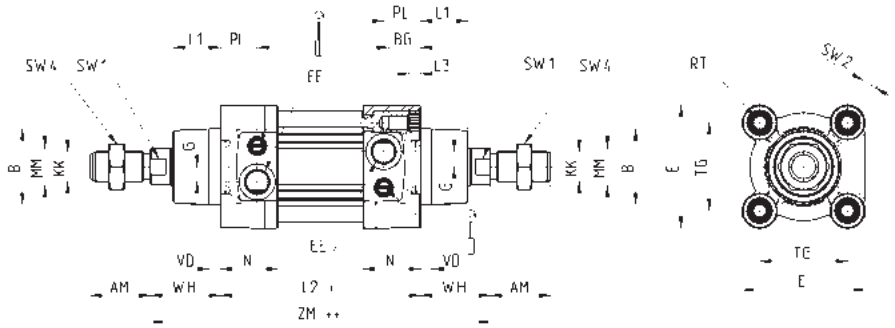
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Series 63 cylinders - profile, through rod

Versions: 63MP6..., 63MP7..., 63LP6... and 63LP7...
For the single-acting cylinders, the dimensions L2 and ZJ have to be increased with 25 mm.



+ = add the stroke
++ = add the stroke twice



DIMENSIONS

Ø	ØMM	KK	ØB	PL	L1	AM	EE	WH	L2	L3	ZM	VD	N	BG	RT	G	TG	E	ØF	SW1	SW2	SW4	Front/rear cushion stroke
32	12	M10x1.25	30	18.5	18	22	G1/8	26	94	5.5	146	5	27	16	M6	5	32.5	47	-	10	6	17	17
40	16	M12x1.25	35	19	21	24	G1/4	30	105	5.5	165	5	30	16	M6	5	38	55	-	13	6	19	18
50	20	M16x1.5	40	19.5	25	32	G1/4	37	106	6	180	6	30.5	16	M8	8	46.5	65	8	17	8	24	20
63	20	M16x1.5	45	24	26	32	G3/8	37	121	6	195	6	37.5	16	M8	8	56.5	75	8	17	8	24	22
80	25	M20x1.5	45	23.5	30	40	G3/8	46	128	0	220	7	37	19	M10	8	72	93	8	22	6	30	25
100	25	M20x1.5	55	24	35	40	G1/2	51	138	0	240	7	39.5	19.5	M10	8	89	110	8	22	6	30	26
125	32	M27x2	60	28	42	54	G1/2	65	160	6	290	8	44	23	M12	10.5	110	135	-	27	12	41	33

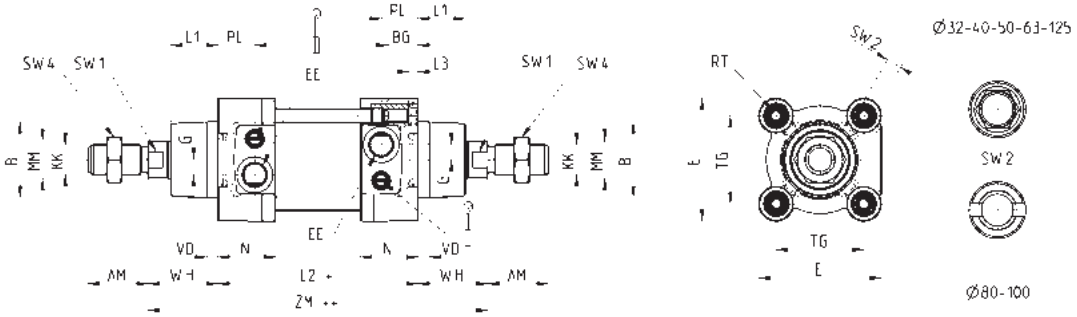
Series 63 cylinders - round tube, through rod

Versions: 63MT6..., 63MT7..., 63LT6... and 63LT7...
For the single-acting cylinders, the dimensions L2 and ZJ have to be increased with 25 mm.



+ = add the stroke
++ = add the stroke twice

Table note:
* = special key 80-62/8C
(see accessories)



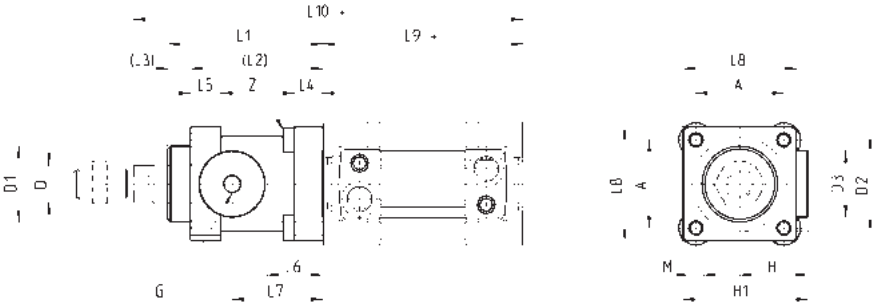
DIMENSIONS

Ø	ØMM	KK	ØB	PL	L1	AM	EE	WH	L2	L3	ZM	VD	N	BG	RT	G	TG	E	ØF	SW1	SW2	SW4	Front/rear cushion stroke
32	12	M10x1.25	30	18.5	18	22	G1/8	26	94	5	146	5	27	16	M6	5	32.5	47	-	10	6	17	17
40	16	M12x1.25	35	19	21	24	G1/4	30	105	5	165	5	30	16	M6	5	38	55	-	13	6	19	18
50	20	M16x1.5	40	19.5	25	32	G1/4	37	106	5	180	6	30.5	16	M8	8	46.5	65	8	17	8	24	20
63	20	M16x1.5	45	24	26	32	G3/8	37	121	5	195	6	37.5	16	M8	8	56.5	75	8	17	8	24	22
80	25	M20x1.5	45	23.5	30	40	G3/8	46	128	0	220	7	37	19	M10	8	72	93	8	22	*	30	25
100	25	M20x1.5	55	24	35	40	G1/2	51	138	0	240	7	39.5	19.5	M10	8	89	110	8	22	*	30	26
125	32	M27x2	60	28	42	54	G1/2	65	160	6	290	8	44	23	M12	10.5	110	135	-	27	12	41	33

Series 63 cylinders with rod lock



+ = add the stroke



DIMENSIONS

Ø	øD	øD1	øD2	øD3	A	G	H	H1	L1	L2	L3	L4	L5	L6	L7	L8	L9+	L10+	M	Z
32	12	30.5	35	25	32.5	M5	25.5	46.5	58	48	10	8	13	20.5	34	45	94	160	M6	M6x20
40	16	35	40	28	38	G1/8	30	53	65	55	10	8	13	22.5	38	50	105	178	M6	M6x20
50	20	40	50	35	46.5	G1/8	36	64	82	70	12	15	16	29.5	48	60	106	200	M8	M6x20
63	20	45	60	38	56.5	G1/8	40	75	82	70	12	15	16	29.5	49.5	70	121	215	M8	M8x30
80	25	45	80	48	72	G1/8	50	95	110	90	20	18	20	35	61	90	128	254	M10	M10x35
100	25	55	100	58	89	G1/8	58	110.5	115	100	15	18	20	39	69	105	138	269	M10	M10x35
125	32	60	130	65	110	G1/8	80	150	167	122	45	22	30	51	86.5	140	160	350	M12	M12x40

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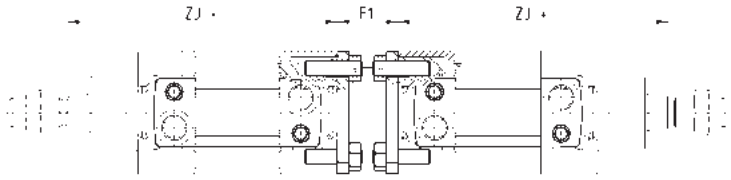
Opposed cylinder coupler Mod. DC-63

Material: Aluminium



Supplied with:
1x flange
8x locking screws
8x nuts

+ = add the stroke



Mod.	Ø	F1	ZJ+	weight (g)	max overall stroke (mm)	torque force
DC-63-32	32	27	120	130	500	5 Nm
DC-63-40	40	27	135	160	800	5 Nm
DC-63-50	50	32	143	285	800	10 Nm
DC-63-63	63	28	158	340	700	10 Nm
DC-63-80	80	38	174	670	1000	15 Nm
DC-63-100	100	38	189	820	900	15 Nm
DC-63-125	125	48	225	1300	1000	20 Nm

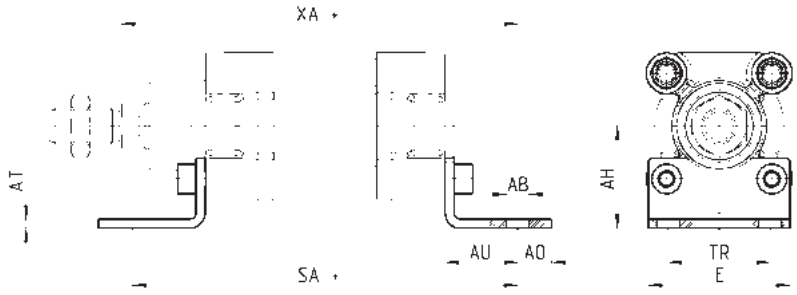
Foot mount Mod. B-41

Material: zinc-plated steel



Supplied with:
2x feet
4x screws

+ = add the stroke



Mod.	Ø	AT	SA+	XA+	TR	E	AB	AH	AO	AU	torque force
B-41-32	32	4	142	144	32	45	7	32	11	24	5 Nm
B-41-40	40	4	161	163	36	53,5	10	36	15	28	5 Nm
B-41-50	50	4	170	175	45	62,5	10	45	15	32	10 Nm
B-41-63	63	5	185	190	50	73	10	50	15	32	10 Nm
B-41-80	80	6	210	216	63	92	12	63	20	41	15 Nm
B-41-100	100	6	220	230	75	108,5	14,5	71	25	41	15 Nm
B-41-125	125	7	250	270	90	132	16,5	90	25	45	20 Nm

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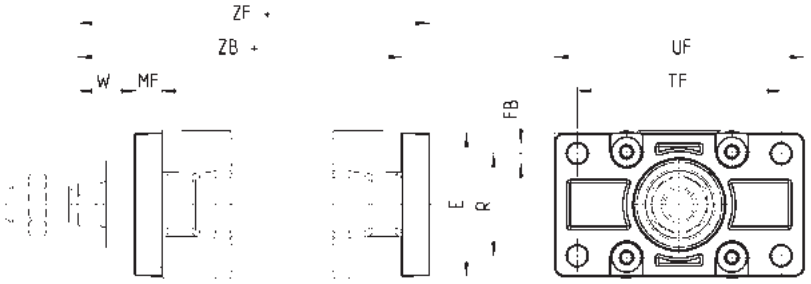
Front and rear flange Mod. D-E

Material: Aluminium



Supplied with:
1x flange
4x screws

+ = add the stroke



Mod.	Ø	W	MF	ZB+	TF	R	UF	E	FB	ZF+	torque force
D-E-41-32	32	16	10	120	64	32	86	45	7	130	5 Nm
D-E-41-40	40	20	10	135	72	36	88	52	9	145	5 Nm
D-E-41-50	50	25	12	143	90	45	110	63	9	155	10 Nm
D-E-41-63	63	25	12	158	100	50	116	73	9	170	10 Nm
D-E-41-80	80	30	16	174	126	63	148	95	12	190	15 Nm
D-E-41-100	100	35	16	189	150	75	176	115	14	205	15 Nm
D-E-41-125	125	45	20	225	180	90	224	135	16	245	20 Nm

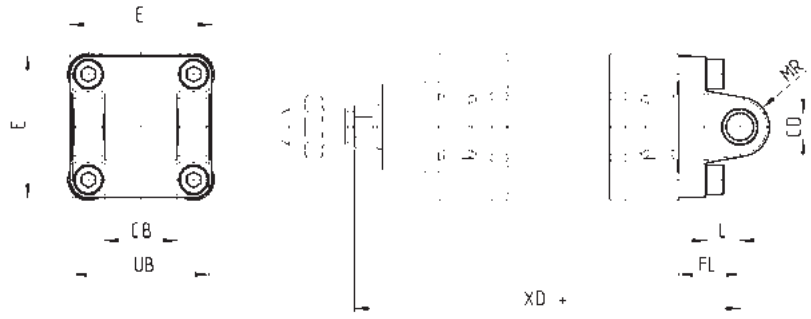
Rear female trunnion Mod. C and C-H

Material: Aluminium



Supplied with:
1x female trunnion
4x screws

+ = add the stroke



Mod.	Ø	CD	L	FL	XD+	MR	E	CB	UB	torque force
C-41-32	32	10	12	22	142	10	45	26	45	5 Nm
C-41-40	40	12	15	25	160	12	53.5	28	52	5 Nm
C-41-50	50	12	15	27	170	13	62.5	32	60	10 Nm
C-H-41-63	63	16	20	32	190	17	73	40	70	10 Nm
C-H-41-80	80	16	24	36	210	17	92	50	90	15 Nm
C-H-41-100	100	20	29	41	230	21	108.5	60	110	15 Nm
C-H-41-125	125	25	30	50	275	26	132	70	130	20 Nm

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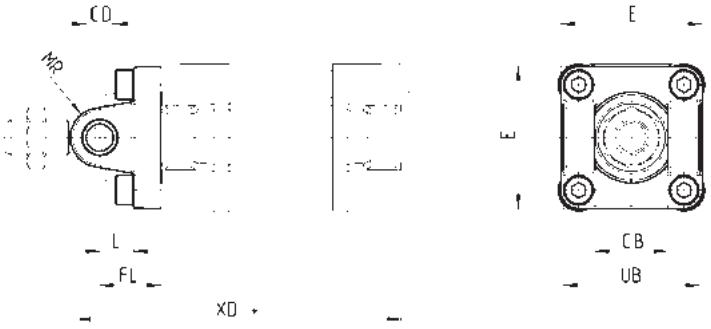
Front female trunnion Mod. H and C-H

Material: Aluminium



Supplied with:
1x female trunnion
4x screws

+ = add the stroke



Mod.	Ø	CB	UB	E	XD	FL	L	CD	MR	torque force
H-41-32	32	26	45	45	120	22	12	10	10	5 Nm
H-41-40	40	28	52	53.5	135	25	15	12	12	5 Nm
H-41-50	50	32	60	62.5	143	27	15	12	13	10 Nm
H-60-63	63	40	70	73	158	32	20	16	17	10 Nm
C-H-41-80	80	50	90	92	174	36	24	16	17	15 Nm
C-H-41-100	100	60	110	108.5	189	41	29	20	21	15 Nm
C-H-41-125	125	70	130	132	225	50	30	25	26	20 Nm

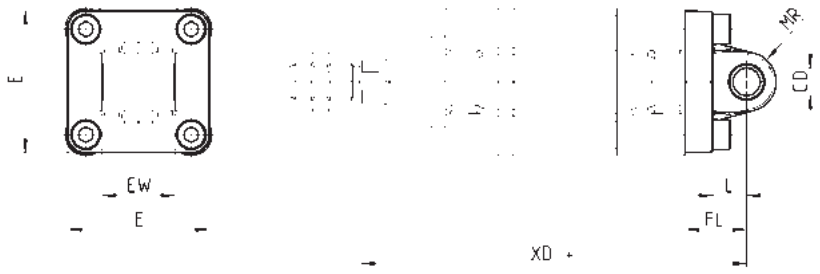
Rear male trunnion Mod. L

Material: Aluminium



Supplied with:
1x male trunnion
4x screws

+ = add the stroke



DIMENSIONS

Mod.	Ø	CD	L	FL	XD+	MR	E	EW	torque force
L-41-32	32	10	12	22	142	10	45	26	5 Nm
L-41-40	40	12	15	25	160	13	53.5	28	5 Nm
L-41-50	50	12	15	27	170	13	62.5	32	10 Nm
L-41-63	63	16	20	32	190	17	73	40	10 Nm
L-41-80	80	16	24	36	210	17	92	50	15 Nm
L-41-100	100	20	29	41	230	21	108.5	60	15 Nm
L-41-125	125	25	30	50	275	26	132	70	20 Nm

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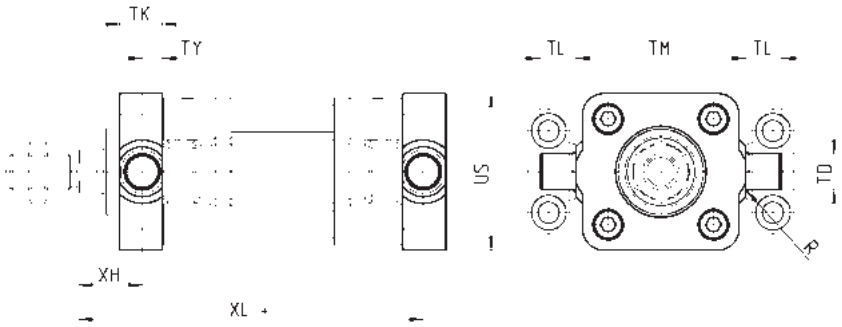
Front/rear spot faced trunnion Mod. FN

Material: zinc-plated steel



Supplied with:
1x centre spot faced trunnion
4x screws

+ = add the stroke



DIMENSIONS

Mod.	Ø	TK	TY	XH	XL	US	TL	TM	TD	R	torque force
FN-32	32	14	6.5	19.5	126.5	46	12	50	12	1	5 Nm
FN-40	40	19	9	21	144	59	16	63	16	1.5	5 Nm
FN-50	50	19	9	28	152	69	16	75	16	1.6	10 Nm
FN-63	63	24	11.5	25.5	169.5	84	20	90	20	1.6	10 Nm
FN-80	80	24	11.5	34.5	185.5	102	20	110	20	1.6	15 Nm
FN-100	100	29	14	37	203	125	25	132	25	2	15 Nm
FN-125	125	30	15	50	240	150	25	160	25	2	20 Nm

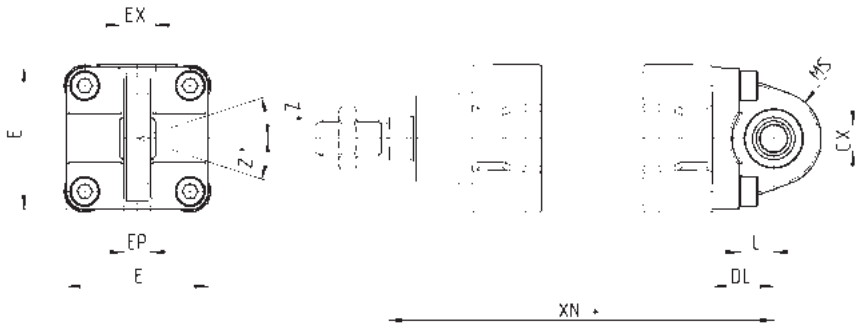
Trunnion ball-joint Mod. R

Material: Aluminium
* quotes not in compliance with ISO 15552 standard



Supplied with:
1x trunnion ball joint
4x screws

+ = add the stroke



Mod.	Ø	CX	L	DL	XN+	MS	E	EX	EP	Z	torque force
R-41-32	32	10	12	22	142	18	45	14	10.5	4	5 Nm
R-41-40	40	12	15	25	160	18	53.5	16	12	4	5 Nm
R-41-50	50	12 *	15	27	170	21	62.5	16 *	12 *	4	10 Nm
R-41-63	63	16	20	32	190	23	73	21	15	4	10 Nm
R-41-80	80	16 *	24	36	210	28	92	21 *	15 *	4	15 Nm
R-41-100	100	20	29	41	230	30	108.5	25	18	4	15 Nm
R-41-125	125	30	30	50	275	40	140	37	25	4	20 Nm

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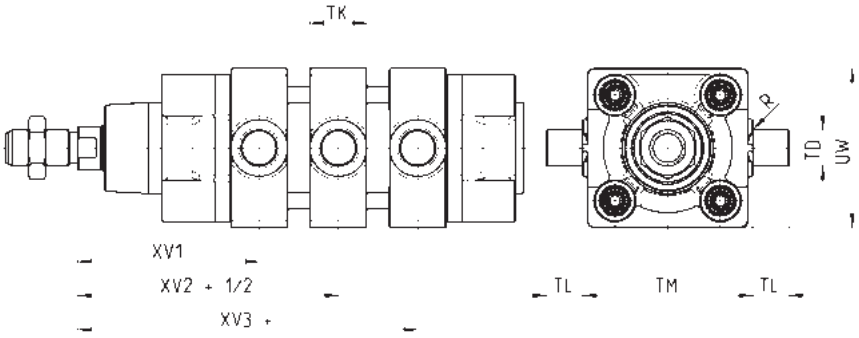
Centre trunnion Mod. F for round tube cylinders

Material: zinc-plated steel



Supplied with:
1x intermediate trunnion
8x locking screws

+ = add the stroke



DIMENSIONS

Mod.	Ø	XV1	XV2	XV3	TM (h14)	TK	TD (e9)	TL	UW	R
F-32	32	62	73	84	50	20	12	12	50	0.5
F-40	40	69	82,5	96	63	20	16	16	60	1
F-50	50	79	90	101	75	25	16	16	70	1
F-63	63	86	97,5	109	90	25	20	20	85	1
F-80	80	97	110	123	110	30	20	20	105	1
F-100	100	104,5	120	135,5	132	30	25	25	125	1.5
F-125	125	123	145	167	160	30	25	25	155	1.5

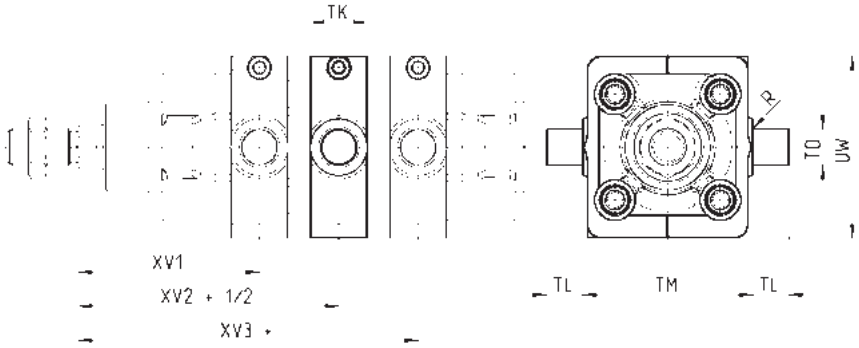
Centre trunnion Mod. F for profile cylinders

Material: zinc-plated steel



Supplied with:
1x centre trunnion
8x locking screws
2x fixing screws

+ = add the stroke



DIMENSIONS

Mod.	Ø	XV1	XV2	XV3	TM	TK	TD	TL	UW	R
F-63-32	32	63	73	83	50	20	12	12	62	0.5
F-63-40	40	70	82.5	95	61	20	16	16	70	1
F-63-50	50	80	90	100	71	25	16	16	91	1
F-63-63	63	87	97.5	108	84	25	20	20	90	1
F-63-80	80	98	110	122	106	30	20	20	115	1
F-63-100	100	105.5	120	134.5	128	30	25	25	135	1.5
F-63-125	125	124	145	166	156	30	25	25	162	1.5

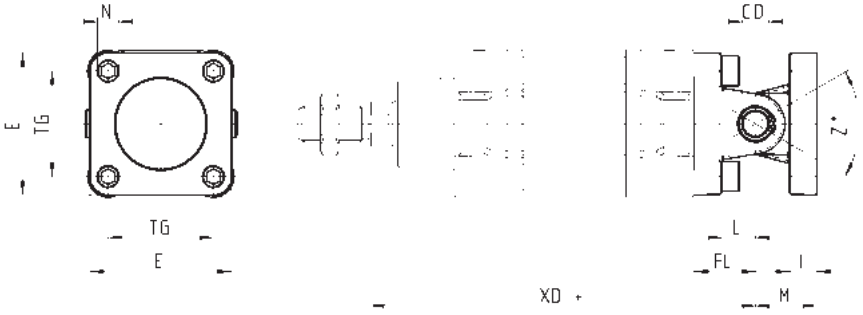
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Accessory combination Mod. C+L+S

Material: Aluminium



+ = add the stroke



DIMENSIONS												
Mod.	Ø	E	TG	⌀N	XD+	⌀CD	L	FL	I	M	Z° (max)	torque force
C+L+S	32	45	32.5	6.5	142	10	12	22	10	22	30	5 Nm
C+L+S	40	53.5	38	6.5	160	12	15	25	10	25	40	5 Nm
C+L+S	50	62.5	46.5	9	170	12	15	27	12	27	25	10 Nm
C+L+S	63	73	56.5	9	190	16	20	32	12	32	36	10 Nm
C+L+S	80	92	72	11	210	16	24	36	12	36	34	15 Nm
C+L+S	100	108.5	89	11	230	20	29	41	12	41	38	15 Nm
C+L+S	125	132	110	13	275	25	30	50	25	50	30	20 Nm

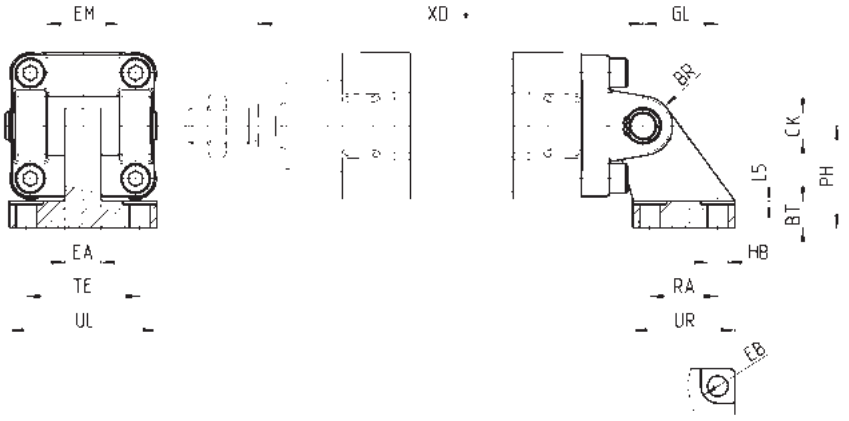
90° male trunnion Mod. ZC

CETOP RP 107P
Material: Aluminium



Supplied with:
1x male support

+ = add the stroke



DIMENSIONS																
Mod.	Ø	EB	CK	HB	XD+	TE	UL	EA	GL	L5	RA	EM	UR	PH	BT	BR
ZC-32	32	11	10	6,6	142	38	51	10	21	1,6	18	26	31	32	8	10
ZC-40	40	11	12	6,6	160	41	54	15	24	1,6	22	28	35	36	10	11
ZC-50	50	15	12	9	170	50	65	16	33	1,6	30	32	45	45	12	13
ZC-63	63	15	16	9	190	52	67	16	37	1,6	35	40	50	50	14	15
ZC-80	80	18	16	11	210	66	86	20	47	2,5	40	50	60	63	14	15
ZC-100	100	18	20	11	230	76	96	20	55	2,5	50	60	70	71	17	19
ZC-125	125	20	25	14	275	94	124	30	70	3,2	60	70	90	90	20	22,5

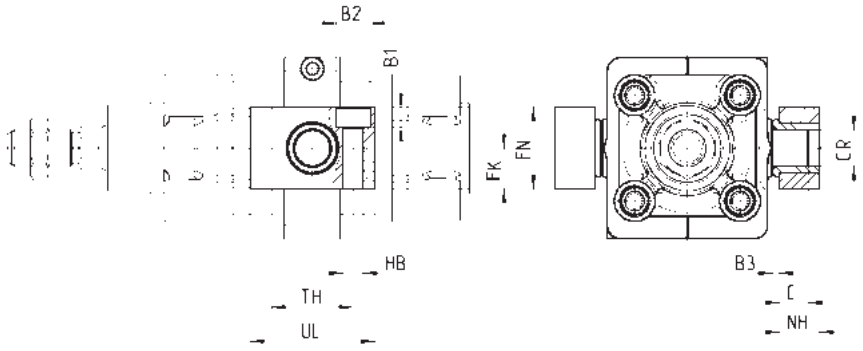
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Counter bracket for centre trunnion Mod. BF

Material: Aluminium



Supplied with:
2x supports



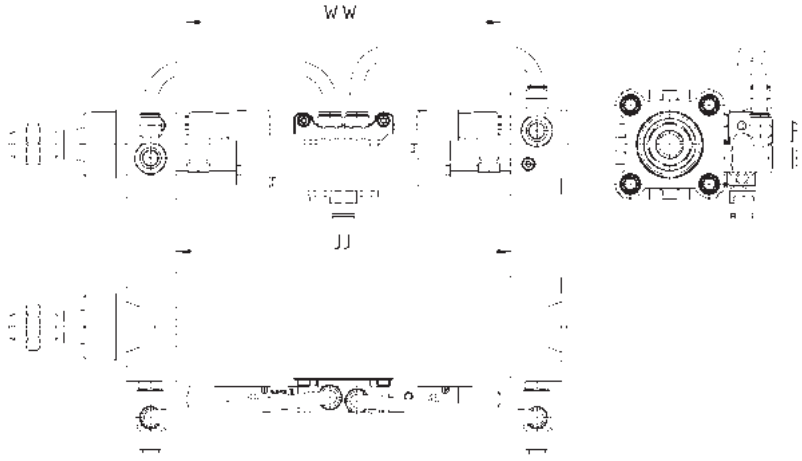
DIMENSIONS												
Mod.	Ø	CR	NH	C	B3	TH	UL	FK	FN	B1	B2	HB
BF-32	32	12	15	7,5	3	32	46	15	30	6,8	11	6,6
BF-40-50	40 - 50	16	18	9	3	36	55	18	36	9	15	9
BF-63-80	63 - 80	20	20	10	3	42	65	20	40	11	18	11
BF-100-125	100 - 125	25	25	12,5	3,5	50	75	25	50	13	20	14

Accessory to mount valves on the cylinder

The mounting sub-base Mod. PCV enables the valve or solenoid valve to be mounted directly on the cylinder, thus forming a compact unit to apply.



Make sure that the WW dimension of the valve to be mounted is smaller than the JJ cylinder dimension. Further information on http://catalogue.camozzi.com/downloads.

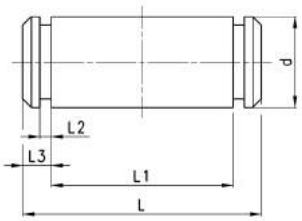


Mod.	
PCV-62-K3	to connect valves - solenoid valves Series 3
PCV-62-K4	to connect valves - solenoid valves Series 4 port G1/4
PCV-62-KEN	to connect valves - solenoid valves Series EN
PCV-62-K8	to connect valves - solenoid valves Series 4 port G1/8 and Series 3 port G1/4

Clevis pin Mod. S



Supplied with:
1x centering pin in stainless steel 303
2x seeger in steel

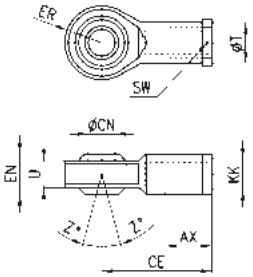


DIMENSIONS						
Mod.	Ø	d	L	L1	L2	L3
S-32	32	10	52	46	1.1	3
S-40	40	12	59	53	1.1	3
S-50	50	12	67	61	1.1	3
S-63	63	16	77	71	1.1	3
S-80	80	16	97	91	1.1	3
S-100	100	20	121	111	1.3	5
S-125	125	25	140.5	132	1.3	4.25

Swivel ball joint Mod. GA



ISO 8139.
Material: zinc-plated steel.

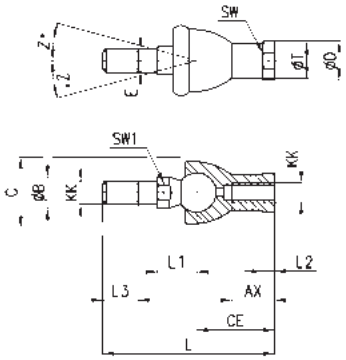


Mod.	øCN	U	EN	ER	AX	CE	KK	T	Z	SW
GA-32	10	10,5	14	14	20	43	M10X1,25	15	6,5	17
GA-40	12	12	16	16	22	50	M12X1,25	17,5	6,5	19
GA-50-63	16	15	21	21	28	64	M16X1,5	22	7,5	22
GA-80-100	20	18	25	25	33	77	M20x1,5	27,5	7	30
GA-41-125	30	25	37	37	51	110	M27x2	40	7,5	41

Piston rod socket joint Mod. GY



Material: zama and zinc-plated steel.



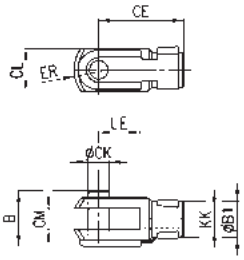
DIMENSIONS															
Mod.	Ø	KK	L	CE	L2	AX	SW	SW1	L1	L3	øT	øD	E	øB	øC	Z
GY-32	32	M10X1,25	74	35	6,5	18	17	11	19,5	15	15	19	10	14	28	15
GY-40	40	M12X1,25	84	40	6,5	20	19	17	21	17	17,5	22	12	19	32	15
GY-50-63	50-63	M16X1,5	112	50	8	27	22	19	27,5	23	22	27	16	22	40	11
GY-80-100	80-100	M20x1,5	133	63	10	38	30	24	31,5	25	27,5	34	20	27	45	7,5

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Rod fork end Mod. G



ISO 8140
Material: zinc-plated steel

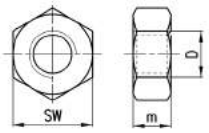


Mod.	øCK	LE	CM	CL	ER	CE	KK	B	B1
G-25-32	10	20	10	20	12	40	M10 X 1,25	26	18
G-40	12	24	12	24	14	48	M12 X 1,25	32	20
G-50-63	16	32	16	32	19	64	M16 X 1,5	40	26
G-80-100	20	40	20	40	25	80	M20 X 1,5	48	34
G-41-125	30	54	30	55	38	110	M27 X 2	74	48

Piston rod lock nut Mod. U



ISO 4035
Material: zinc-plated steel.

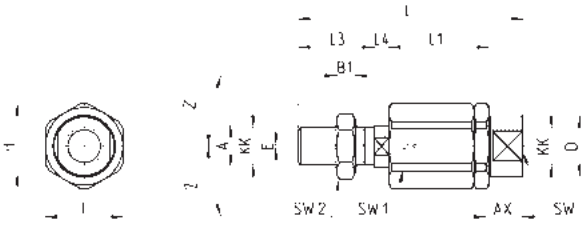


Mod.	D	m	SW
U-25-32	M10X1,25	6	17
U-40	M12X1,25	7	19
U-50-63	M16X1,5	8	24
U-80-100	M20x1,5	9	30
U-41-125	M27x2	12	41

Self aligning rod Mod. GK

Material: zinc-plated steel.





DIMENSIONS

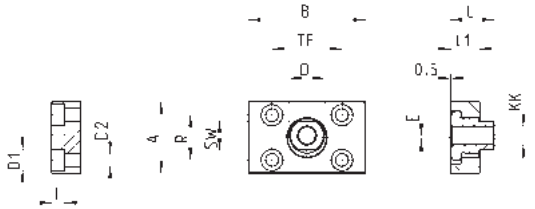
Mod.	Ø	KK	L	L1	L3	L4	øA	øD	H	I	SW	SW1	SW2	B1	AX	Z	E
GK-25-32	25-32	M10x1,25	71,5	35	20	7,5	14	22	32	30	19	12	17	5	22	4	2
GK-40	40	M12x1,25	75,5	35	24	7,5	14	22	32	30	19	12	19	6	22	4	2
GK-50-63	50-63	M16x1,5	104	53	32	10	22	32	45	41	27	20	24	8	30	3	2
GK-80-100	80-100	M20x1,5	119	53	40	10	22	32	45	41	27	20	30	10	37	3	2
GK-125	125	M27x2	147	60	54	10	32	57	70	65	54	24	41	12	48	4	2

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Coupling piece Mod. GKF

Material: zinc-plated steel.





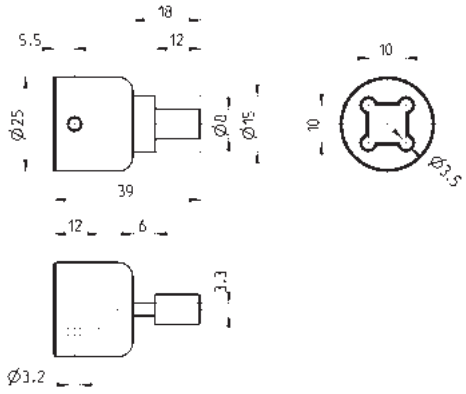
DIMENSIONS

Mod.	Ø	KK	A	B	R	TF	L	L1	I	Ø D	Ø D1	Ø D2	SW	E
GKF-25-32	32	M10x1,25	37	60	23	36	22,5	15	6,8	18	11	6,6	15	2
GKF-40	40	M12x1,25	56	60	38	42	22,5	15	9	20	15	9	15	2,5
GKF-50-63	50-63	M16x1,5	80	80	58	58	26,5	15	10,5	25	18	11	22	2,5
GKF-80-100	80-100	M20x1,5	90	90	65	65	32,5	20	13	30,5	20	14	27	2,5
GKF-125	125	M27x2	90	90	65	65	35,5	20	13	40	20	14	36	4

Special key to disassemble cylinders Ø 80-100, round tube

Material: hardened steel





Mod.
80-62/8C

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Series 32
compact magnetic cylinders

Single and double-acting, non-rotating
ø 20, 25, 32, 40, 50, 63, 80, 100 mm



- In compliance with ISO 21287
- Compact design
- Wide range of models available in different diameters

Series 32 cylinders, thanks to their compactness, are suitable for installation in confined spaces. Being in compliance with the ISO 21287 Standard, the cylinders Series 32 have the advantage that they can be used in conjunction with mountings/accessories suitable for other standard cylinders DIN/ISO 6431 / VDMA 24562 (Series 60/61).

GENERAL DATA

Construction	compact profile
Operation	single and double acting, magnetic
Materials	anodized AL body and end-blocks - rolled stainless steel AISI 303 rod anodized AL piston - rod seal, end-block OR and piston seal in PU high temperatures: rod seal, OR end-block and piston in FKM (140°)
Mounting	with threaded holes on the end blocks flange - feet - trunnion
Stroke min and max (1)	Series 32F, 32M, 32R Ø20-25 = 5-300 mm Series 32F, 32M, 32R Ø32-40-50-63 = 5-400 mm Series 32F, 32M, 32R Ø80-100 = 5-500 mm
Operating temperature	0°C ÷ 80°C (with dry air -20°C)
Operating pressure	1 ÷ 10 bar (double-acting) 2 ÷ 10 bar (single-acting)
Fluid	clean air without lubrication. If lubricated air is used it is recommended to use oil ISOVG32. Once applied the lubrication should never be interrupted.
Operation speed	10 ÷ 1000mm/sec. (without load)

(1) the minimum stroke for the use of the sensors is 10 mm.

STANDARD STROKES FOR CYLINDERS SERIES 32

✖= Non-rotating ●= Double-acting, male/female rod thread;
■= Single-acting, front/rear spring, male/female rod thread.

STANDARD STROKES										
Ø	5	10	15	20	25	30	40	50	60	80
20	✖● ■	✖● ■	✖● ■	✖● ■	✖● ■	✖●	✖●	✖●		
25	✖● ■	✖● ■	✖● ■	✖● ■	✖● ■	✖●	✖●	✖●		
32	✖● ■	✖● ■	✖● ■	✖● ■	✖● ■	✖●	✖●	✖●	✖●	✖●
40	✖● ■	✖● ■	✖● ■	✖● ■	✖● ■	✖●	✖●	✖●	✖●	✖●
50		✖● ■	✖● ■	✖● ■	✖● ■	✖●	✖●	✖●	✖●	✖●
63		✖● ■	✖● ■	✖● ■	✖● ■	✖●	✖●	✖●	✖●	✖●
80		✖● ■	✖● ■	✖● ■	✖● ■	✖●	✖●	✖●	✖●	✖●
100		✖● ■	✖● ■	✖● ■	✖● ■	✖●	✖●	✖●	✖●	✖●

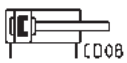
CODING EXAMPLE

32	M	2	A	032	A	050	

32	SERIES	
M	VERSION M = male rod thread, mounted with rod nut Mod. U F = female rod thread R = antirotation with flange (not for single-acting version)	
2	OPERATION 1 = single-acting, front spring 2 = double-acting 3 = double-acting, through-rod 4 = single-acting, rear spring	PNEUMATIC SYMBOLS CS06 CD08 CD12 CS08
A	MATERIALS A = anodized aluminium body, end blocks and piston, PU seals (rod, end-blocks OR and piston)	
032	BORES 020 = 20 mm - 025 = 25 mm - 032 = 32 mm - 040 = 40 mm 050 = 50 mm - 063 = 63 mm - 080 = 80 mm - 100 = 100 mm	
A	CONSTRUCTION A = standard	
050	STROKE (see the table)	
	= standard S = special V = FKM rod seal W = high temperatures (double-acting, non-magnetic with FKM seals for high temperatures up to 140°C)	

PNEUMATIC SYMBOLS

The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.









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ACCESSORIES FOR CYLINDERS SERIES 32



Piston rod socket joint
Mod. GY



Piston rod lock nut
Mod. U



Clevis pin Mod. S



Rear trunnion ball-joint
Mod. R



Coupling piece
Mod. GKF



Swivel ball joint Mod. GA



90° male trunnion
Mod. ZC



Swivel combination
Mod. C+L+S



Front and rear flange
Mod. D-E



Self aligning rod
Mod. GK



90° swivel combination
for trunnion Mod. I



Foot mount Mod. B



Front female trunnion
Mod. H and C-H



Rear female trunnion
Mod. C and C-H



Rod fork end Mod. G

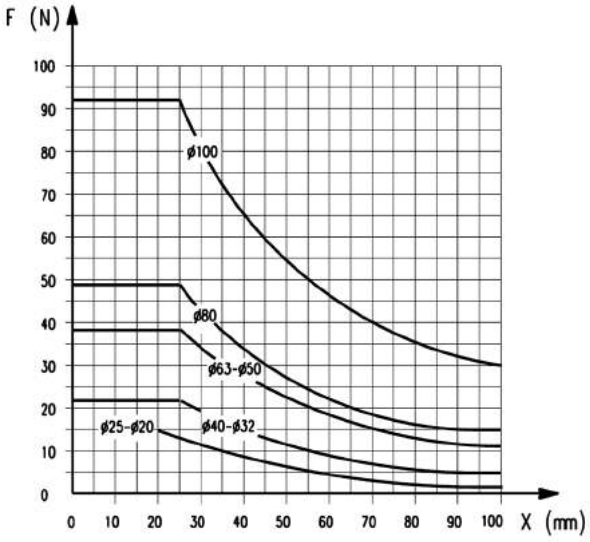


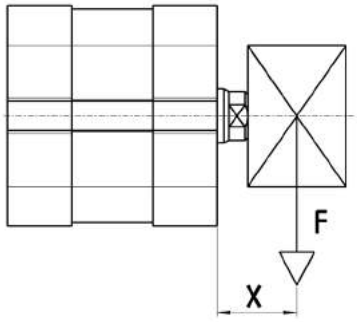
Rear trunnion male
Mod. L



All accessories are supplied separately.

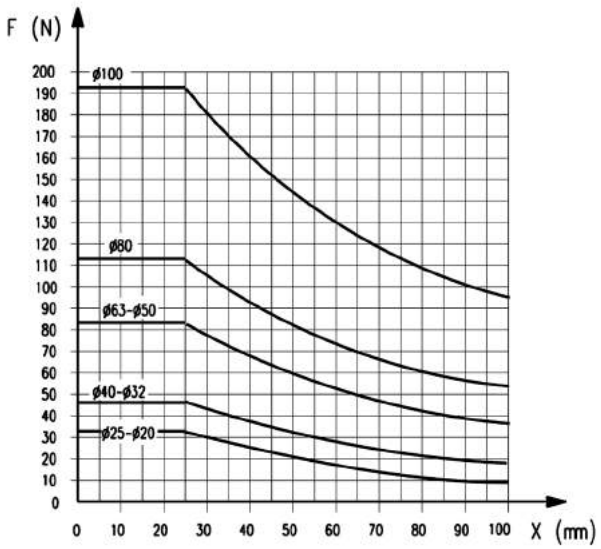
APPLICABLE LOADS

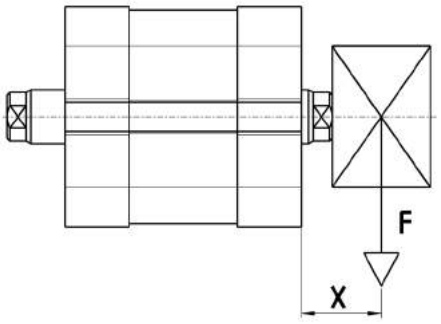




Standard.
Transversal load (F) dependant on stroke (X)

APPLICABLE LOADS

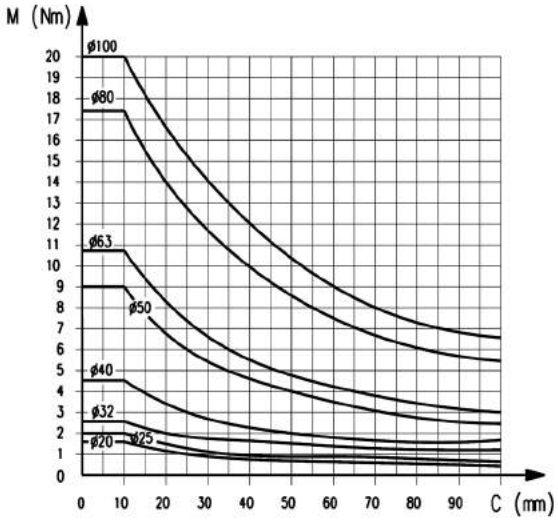




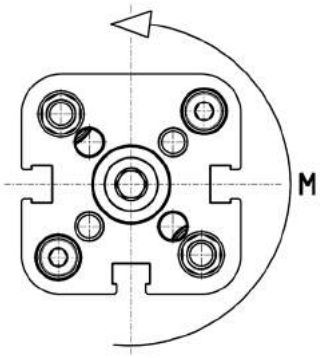
Through-rod.
Transversal load (F) dependant on stroke (X)

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APPLICABLE LOADS

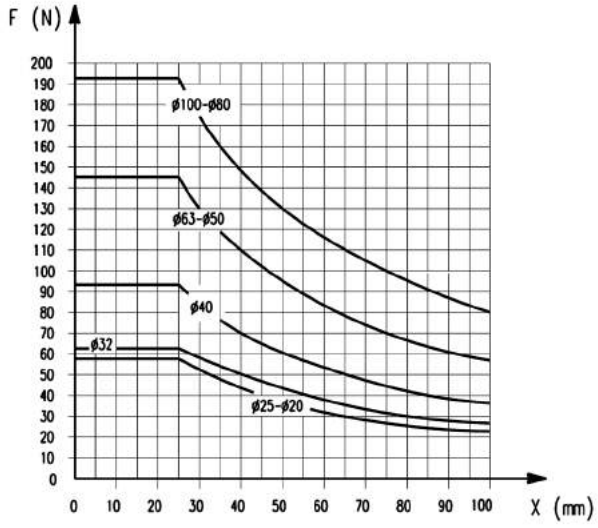


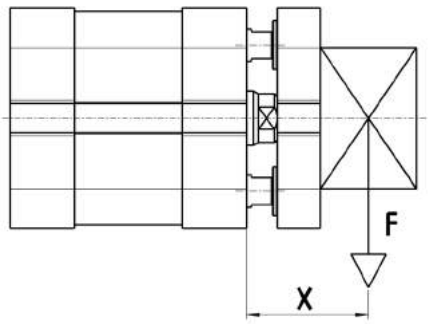
It is possible to use longer strokes as indicated in the general data (excluding radial loads and torque moments). When imposing radial loads on the cylinder it is important to respect the maximum stroke of the centre of gravity. In the presence of torque moments, respect the maximum stroke as shown in the diagrams.



Torque moment (M) dependant on stroke (C).

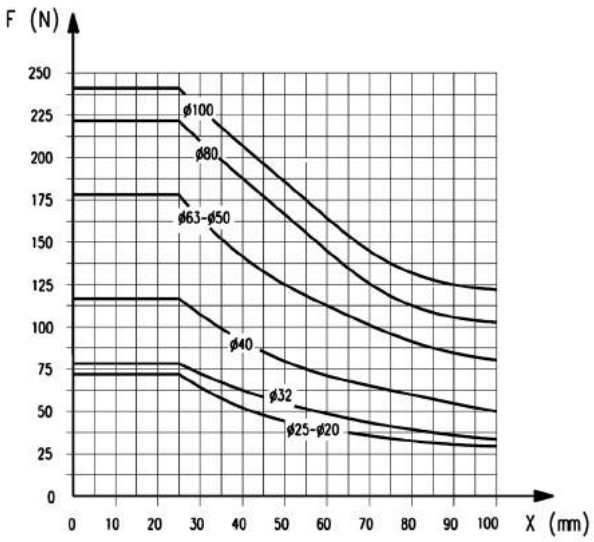
APPLICABLE LOADS

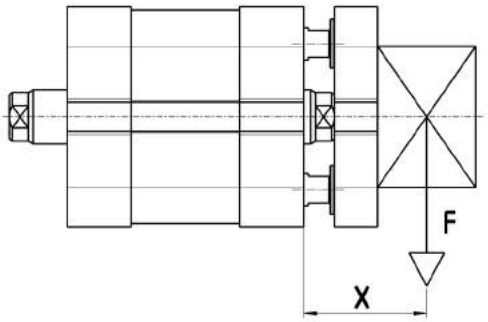




Anti-rotation.
Transversal load (F) dependant on stroke (X).

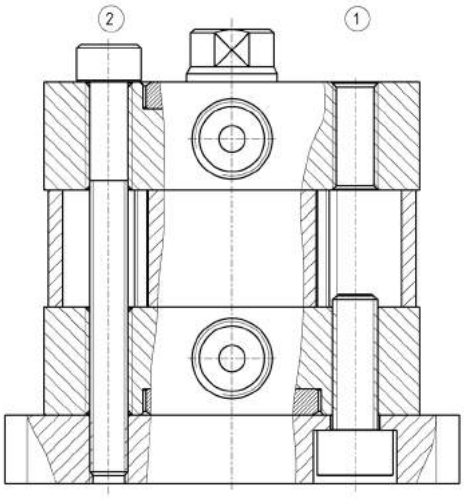
APPLICABLE LOADS





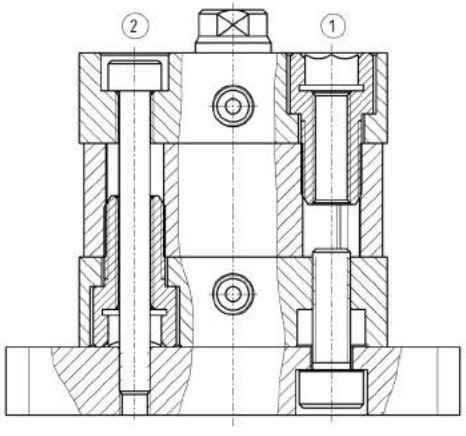
Anti-rotation through-rod.
Transversal load (F) dependant on stroke (X).

MOUNTING EXAMPLE



Mounting example for mounting cylinders Ø 32; 40; 50; 63; 80; 100.
1 = Rear mounting
2 = Through mounting

N.B. For through mounting with screws through the cylinder it is recommended to use non-magnetic screws.



Mounting example for mounting cylinders Ø 20 ÷ 25.
1 = Rear mounting
2 = Through mounting

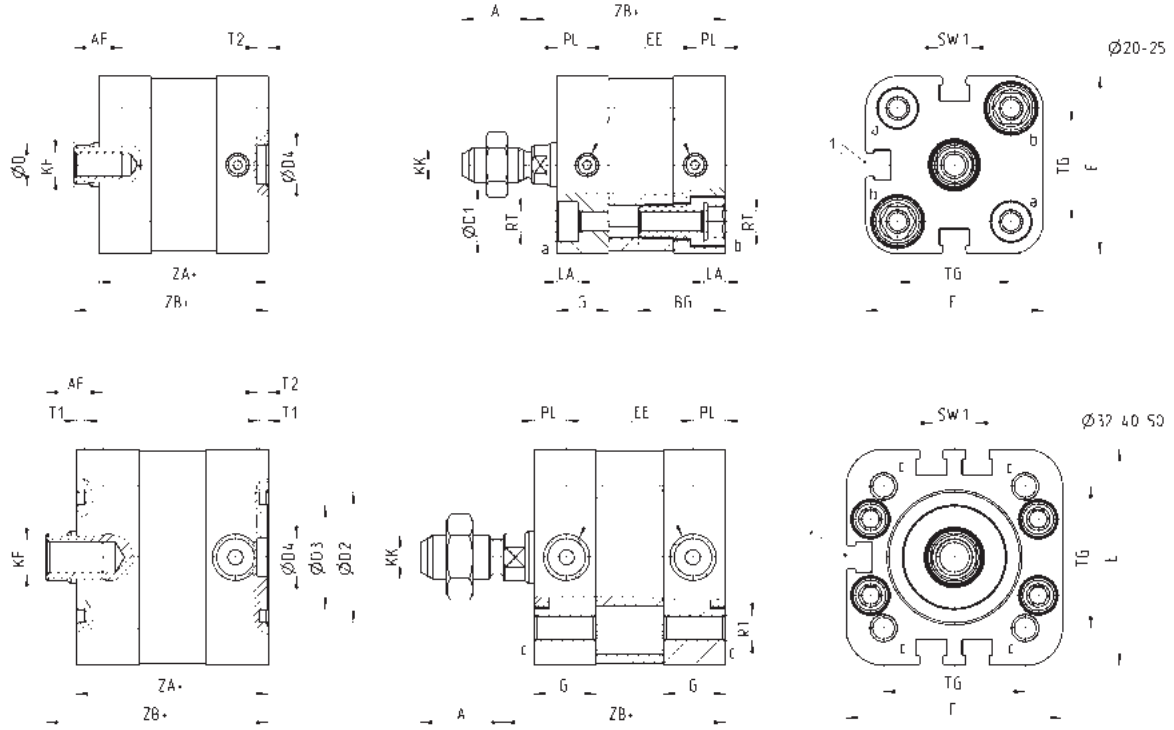
N.B. For through mounting with screws through the cylinder it is recommended to use non-magnetic screws.

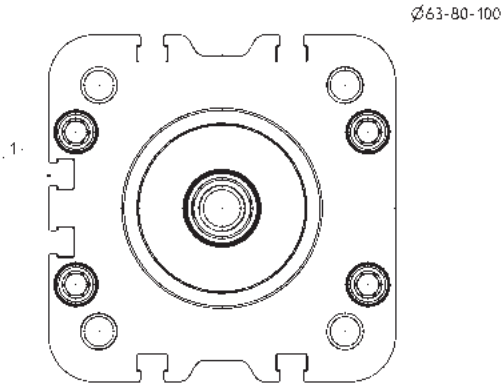
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Compact magnetic cylinders Mod. 32F and 32M



+ = add the stroke
1 = groove for sensor





DIMENSIONS																					
Ø	A	AF	BG	G	ØD	D1	ØD2	ØD3	ØD4	E	EE	KF	KK	LA	PL	RT	SW1	T1	T2	TG	ZA	ZB
20	16	11	20	10,9	10	9	-	-	9	35,8	M5	M6	M8X1,25	5	6,5	M5	8	-	2,5	22	36,8	42,5
25	16	11	20	11,9	10	9	-	-	9	40,7	M5	M6	M8X1,25	5	7	M5	8	-	2,5	26	38,8	44,5
32	19	13	-	14,3	12	-	30	24	9	49,6	G1/8	M8	M10X1,25	-	7,6	M6	10	2	2,5	32,5	44	51
40	19	13	-	14,3	12	-	35	29	9	57	G1/8	M8	M10X1,25	-	7,6	M6	10	2	2,5	38	45	52
50	22	16	-	14,3	16	-	40	34	12	69,6	G1/8	M10	M12X1,25	-	7,6	M8	13	2	3	46,5	45	53
63	22	16	-	14	16	-	45	39	12	79,6	G1/8	M10	M12X1,25	-	7,6	M8	13	2	3	56,5	49	57
80	28	20	-	14,8	20	-	45	39	12	95,6	G1/8	M12	M16X1,5	-	7,7	M10	17	2	3	72	54	63,5
100	28	20	-	17,8	25	-	55	49	12	115,6	G1/8	M12	M16X1,5	-	8	M10	22	2	3	89	66,8	76,5

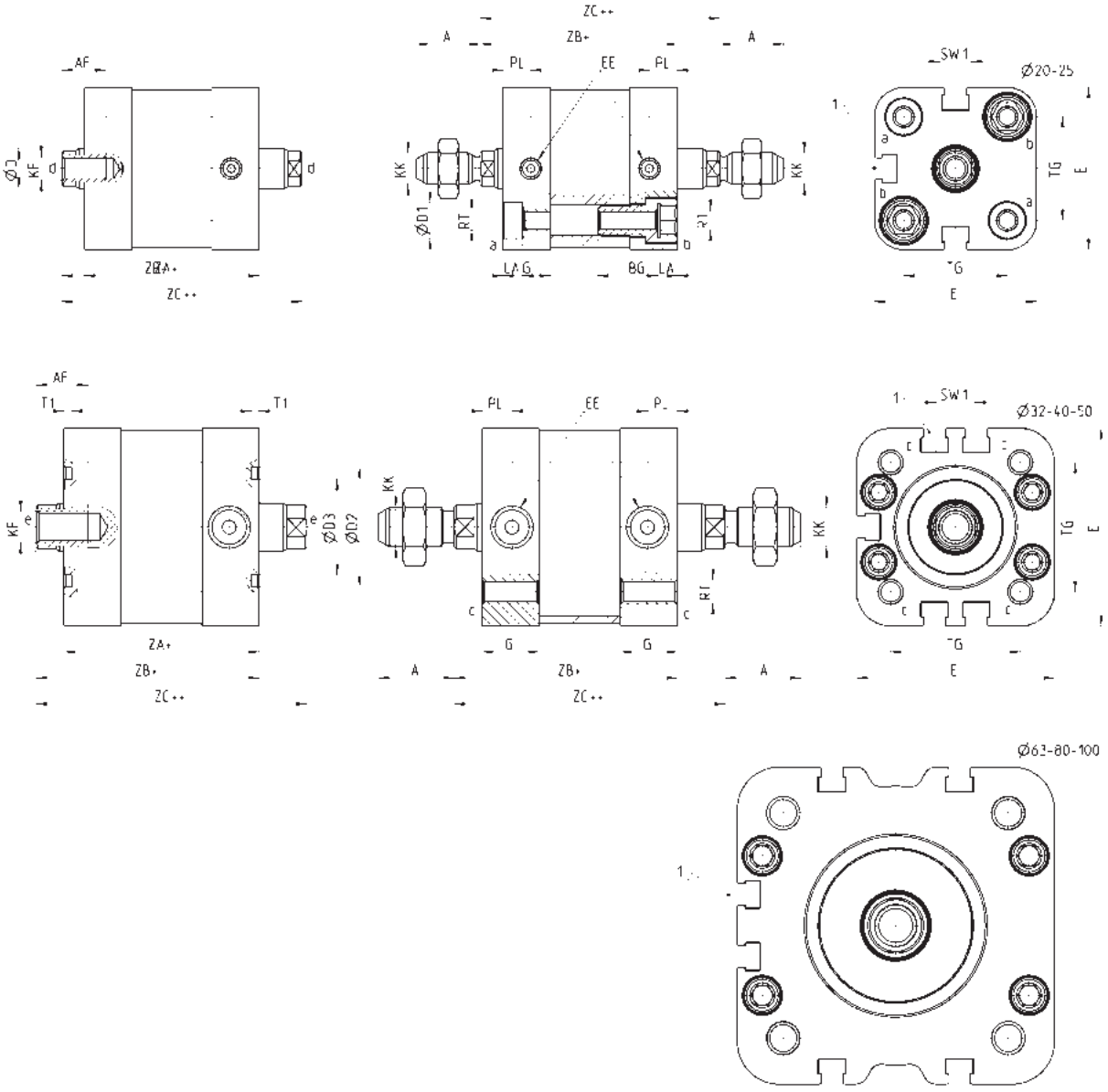
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1 MOVEMENT

Compact magnetic cylinders Mod. 32F3 and 32M3



+ = add the stroke once
++ = add the stroke twice
1 = groove for sensor



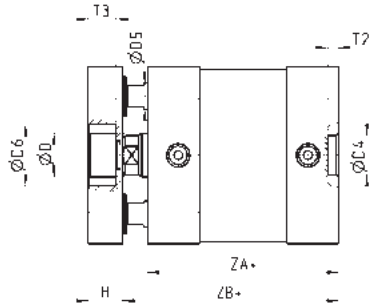
DIMENSIONS																					
Ø	A	AF	BG	G	ØD	ØD1	ØD2	ØD3	E	EE	KF	KK	LA	PL	RT	SW1	T1	TG	ZA	ZB	ZC
20	16	11	20	10,9	10	9	-	-	35,8	M5	M6	M8X1,25	5	6,5	M5	8	-	22	36,8	42,5	48,2
25	16	11	20	11,9	10	9	-	-	40,7	M5	M6	M8X1,25	5	7	M5	8	-	26	38,8	44,5	50,2
32	19	13	-	14,3	12	-	30	24	49,6	G1/8	M8	M10X1,25	-	7,6	M6	10	2	32,5	44	51	58
40	19	13	-	14,3	12	-	35	29	57	G1/8	M8	M10X1,25	-	7,6	M6	10	2	38	45	52	59
50	22	16	-	14,3	16	-	40	34	69,6	G1/8	M10	M12X1,25	-	7,6	M8	13	2	46,5	45	53	61
63	22	16	-	14	16	-	45	39	79,6	G1/8	M10	M12X1,25	-	7,6	M8	13	2	56,5	49	57	65
80	28	20	-	14,8	20	-	45	39	95,6	G1/8	M12	M16X1,5	-	7,7	M10	17	2	72	54	63,5	73
100	28	20	-	17,8	25	-	55	49	115,6	G1/8	M12	M16X1,5	-	8	M10	22	2	89	66,8	76,5	86,2

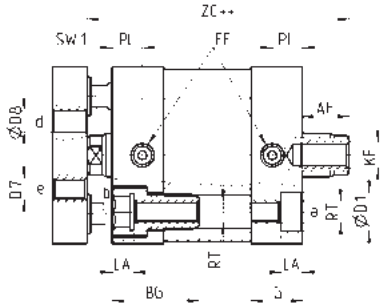
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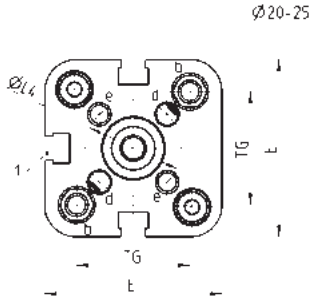
Compact magnetic cylinders Mod. 32R

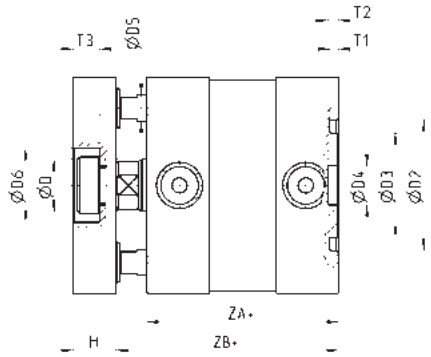


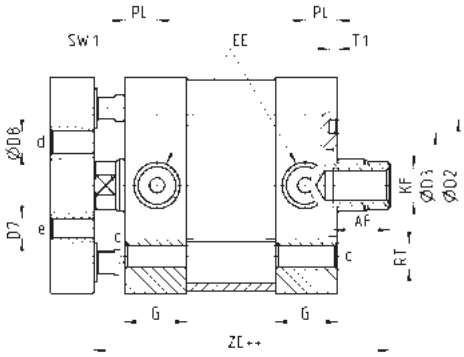
+ = add the stroke once
++ = add the stroke twice
1 = groove for sensor

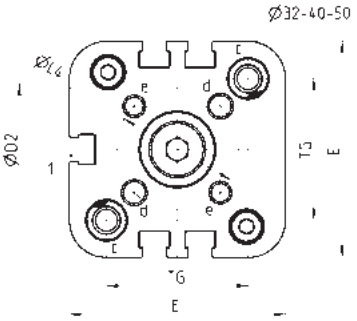


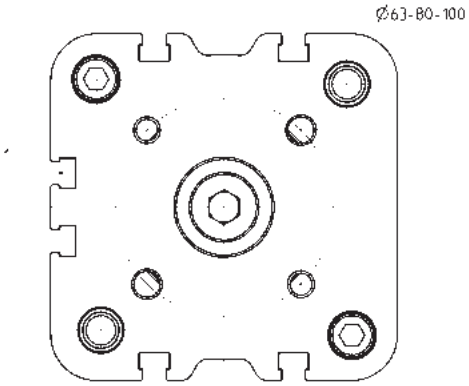












DIMENSIONS

Ø	AF	BG	G	ØD	ØD1	ØD2	ØD3	ØD4	ØD5	ØD6	D7	ØD8	E	EE	H	KF	LA	ØL4	PL	RT	SW1	T1	T2	T3	TG	ZA	ZB	ZC
20	11	20	10.9	10	9	-	-	9	6	-	M4	4	35.8	M5	8	M6	5	17	6.5	M5	8	-	2.5	-	22	36.8	42.5	48.2
25	11	20	11.9	10	9	-	-	9	6	14	M5	5	40.7	M5	8	M6	5	22	7	M5	8	-	2.5	6.5	26	38.8	44.5	50.2
32	13	-	14.3	12	-	30	24	9	6	17	M5	5	49.6	G1/8	10	M8	-	28	7.6	M6	10	2	2.5	6	32.5	44	51	58
40	13	-	14.3	12	-	35	29	9	6	17	M5	5	57	G1/8	10	M8	-	33	7.6	M6	10	2	2.5	6	38	45	52	59
50	16	-	14.3	16	-	40	34	12	10	22	M6	6	69.6	G1/8	12	M10	-	42	7.6	M8	13	2	3	7	46.5	45	53	61
63	16	-	14	16	-	45	39	12	10	22	M6	6	79.6	G1/8	12	M10	-	50	7.6	M8	13	2	3	7	56.5	49	57	65
80	20	-	14.8	20	-	45	39	12	12	24	M8	8	95.6	G1/8	14	M12	-	65	7.7	M10	17	2	3	10.5	72	54	63.5	73
100	20	-	18	25	-	55	49	12	12	24	M10	10	115.6	G1/8	14	M12	-	80	8	M10	22	2	3	10.5	89	67	76.7	86.2

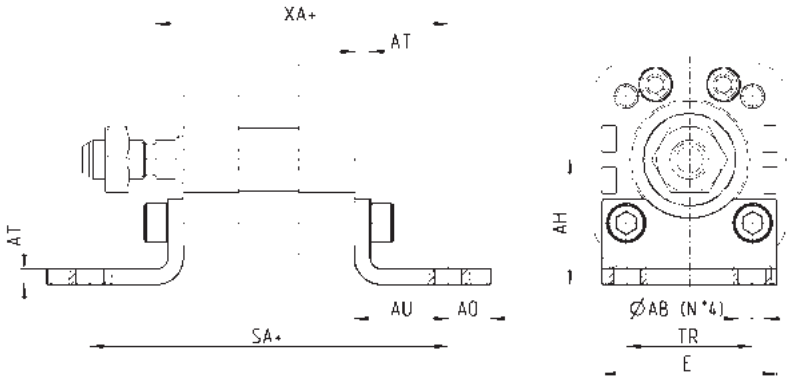
Foot mount Mod. B

Material: zinc-plated steel.



Supplied with:
2x feet
4x screws

+ = add the stroke



DIMENSIONS

Mod.	Ø	ØAB	AH	AO	AU	AT	E	TR	SA	XA
B-32-20	20	6,5	27	9	16	4	35	22	68,8	58,5
B-31-25	25	6,5	29	9	16	4	39	26	70,8	60,5
B-41-32	32	7	32	11	24	4	45	32	92	75
B-41-40	40	10	36	15	28	4	53,5	36	101	80
B-41-50	50	10	45	15	32	4	62,5	45	109	85
B-41-63	63	10	50	15	32	5	73	50	113	89
B-41-80	80	12	63	20	41	6	92	63	136	104,5
B-41-100	100	14,5	71	25	41	6	108,5	71	148,8	117,5

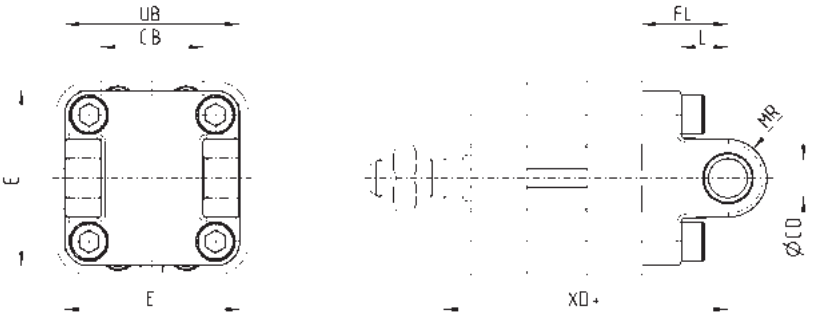
Rear female trunnion Mod. C and C-H

Material: Aluminium.



Supplied with:
1x female trunnion
4x screws

+ = add the stroke



DIMENSIONS

Mod.	Ø	ØCD	E	CB	UB	L	FL	MR	XD
C-41-32	32	10	45	26	45	12	22	10	73
C-41-40	40	12	53,5	28	52	15	25	12	77
C-41-50	50	12	62,5	32	60	15	27	13	80
C-H-41-63	63	16	73	40	70	20	32	17	89
C-H-41-80	80	16	92	50	90	24	36	17	99,5
C-H-41-100	100	20	108,5	60	110	29	41	21	117,5

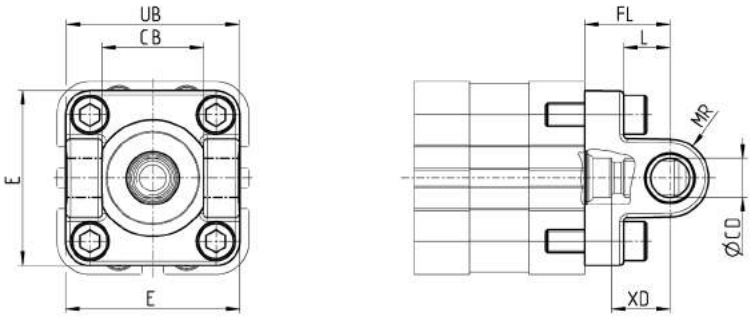
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Front female trunnion Mod. H and C-H

Material: Aluminium.



Supplied with:
1x female trunnion
4x screws



DIMENSIONS

Mod.	Ø	ØCD	E	CB	UB	L	FL	MR	XD
H-41-32	32	10	45	26	45	12	22	10	15
H-41-40	40	12	53,5	28	52	15	25	12	18
H-41-50	50	12	62,5	32	60	15	27	13	19
H-60-63	63	16	73	40	70	20	32	17	24
C-H-41-80	80	16	92	50	90	24	36	17	26,5
C-H-41-100	100	20	108,5	60	110	29	41	21	31,3

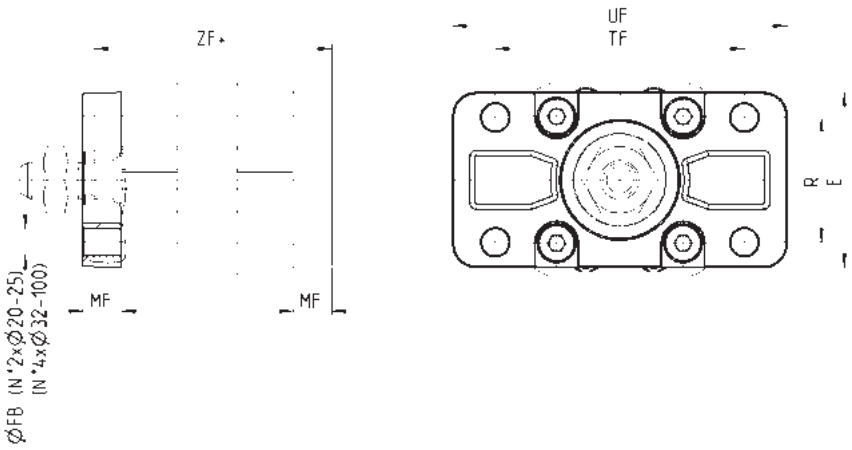
Front and rear flange Mod. D-E

Material: zinc-plated steel for Ø 20 - Ø 25; Aluminium for Ø 32 ÷ Ø 100.



Supplied with:
1x flange
4x screws

+ = add the stroke



DIMENSIONS

Mod.	Ø	ØFB	E	MF	R	TF	UF	ZF
D-E-32-20	20	6,6	36	10	-	55	70	52,5
D-E-32-25	25	6,6	40	10	-	60	76	54,5
D-E-41-32	32	7	45	10	32	64	86	61
D-E-41-40	40	9	52	10	36	72	88	62
D-E-41-50	50	9	63	12	45	90	110	65
D-E-41-63	63	9	73	12	50	100	116	69
D-E-41-80	80	12	95	16	63	126	148	79,5
D-E-41-100	100	14	115	16	75	150	176	92,5

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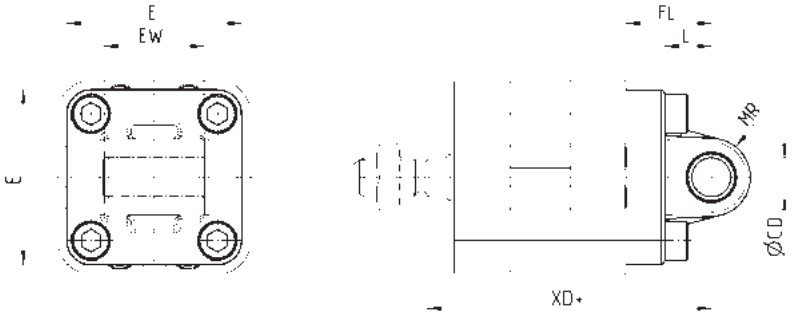
Rear trunnion male Mod. L

Material: Aluminium.



Supplied with:
1x male trunnion
4x screws

+ = add the stroke



DIMENSIONS

Mod.	Ø	⌀CD	E	EW	L	FL	MR	XD
L-32-20	20	8	34	16	14	20	8	62,5
L-32-25	25	8	38	16	14	20	8	64,5
L-41-32	32	10	45	26	12	22	10	73
L-41-40	40	12	53,5	28	15	25	13	77
L-41-50	50	16	62,5	32	15	27	13	80
L-41-63	63	16	73	40	20	32	17	89
L-41-80	80	20	92	50	24	36	17	99,5
L-41-100	100	20	108,5	60	29	41	21	117,5

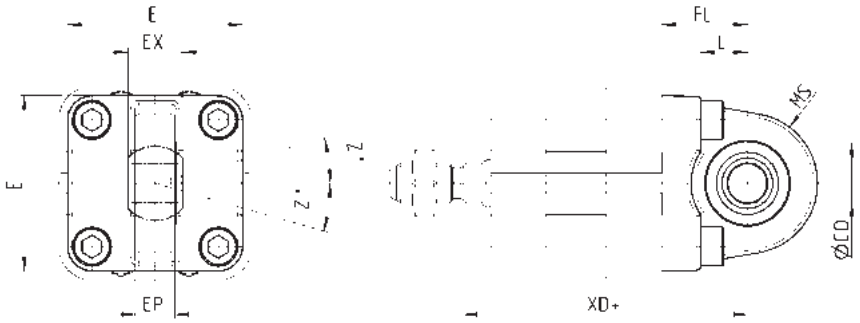
Rear trunnion ball-joint Mod. R*

* This trunnion doesn't comply with the ISO 15552 standard
Material: Aluminium



Supplied with:
1x ball joint
4x screws

+ = add the stroke



DIMENSIONS

Mod.	Ø	⌀CD	E	EX	EP	L	FL	MS	XD	Z°
R-41-32	32	10	45	14	10.5	12	22	18	73	4
R-41-40	40	12	53.5	16	12	15	25	18	77	4
R-41-50	50	16	62.5	16	12	15	27	21	80	4
R-41-63	63	16	73	21	15	20	32	23	89	4
R-41-80	80	20	92	21	15	24	36	28	99.5	4
R-41-100	100	20	108.5	25	18	29	41	30	117.5	4

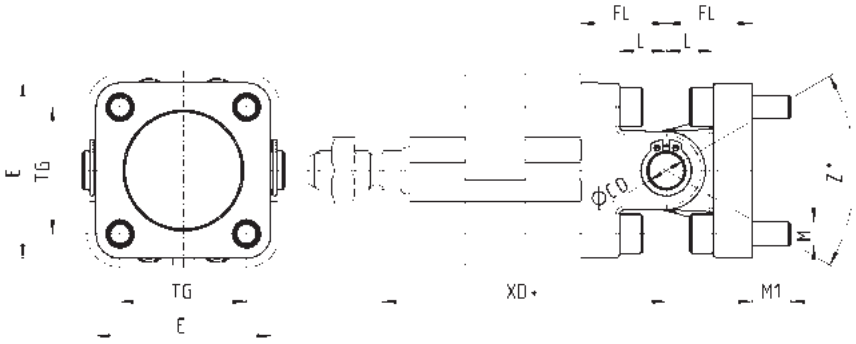
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Accessory combination Mod. C+L+S

Material: Aluminium.



+ = add the stroke



DIMENSIONS

Mod.	Ø	øCD	E	L	FL	M	M1	TG	XD+	Z° (max)
C+L+S	32	10	45	12	22	M6	10	32.5	73	30
C+L+S	40	12	53.5	15	25	M6	10	38	77	40
C+L+S	50	12	62.5	15	27	M8	13	46.5	80	25
C+L+S	63	16	73	20	32	M8	13	56.5	89	36
C+L+S	80	16	92	24	36	M10	16	72	99.5	34
C+L+S	100	20	108.5	29	41	M10	16	89	117.5	38

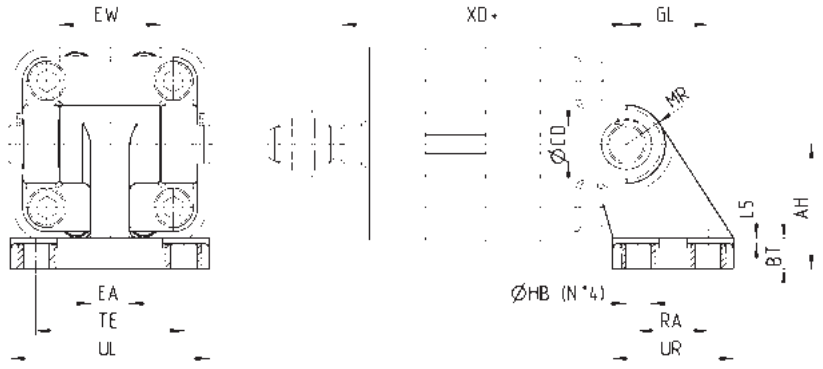
90° male trunnion Mod. ZC

Material: Aluminium.



Supplied with:
1x male support

+ = add the stroke



DIMENSIONS

Mod.	Ø	AH	BT	øCD	EA	EW	GL	øHB	L5	MR	RA	UL	UR	TE	XD
ZC-32	32	32	8	10	10	26	21	6,6	1,6	10	18	51	31	38	73
ZC-40	40	36	10	12	15	28	24	6,6	1,6	11	22	54	35	41	77
ZC-50	50	45	12	12	16	32	33	9	1,6	13	30	65	45	50	80
ZC-63	63	50	14	16	16	40	37	9	1,6	15	35	67	50	52	89
ZC-80	80	63	14	16	20	50	47	11	2,5	15	40	86	60	66	99,5
ZC-100	100	71	17	20	20	60	55	11	2,5	19	50	96	70	76	117,5

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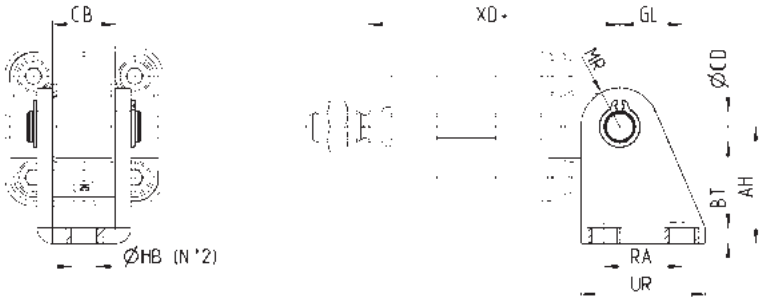
90° swivel combination for trunnion Mod. I

Material: zinc-plated steel.



Supplied with:
1x female support
2x seeger
1x clevis pin

+ = add the stroke



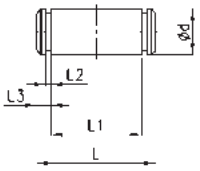
DIMENSIONS

Mod.	Ø	AT	BT	⌀CD	CB	GL	⌀HB	MR	RA	UR	XD
I-20-25	20	30	4	8	16,1	16	6,5	10	20	32	62,5
I-20-25	25	30	4	8	16,1	16	6,5	10	20	32	64,5

Clevis pin Mod. S



Supplied with:
1x clevis pin in
stainless steel
2x Seeger in steel



DIMENSIONS

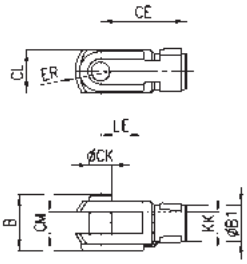
Mod.	Ø	D	L	L1	L2	L3
S-32	32	10	52	46	1,1	3
S-40	40	12	59	53	1,1	3
S-50	50	12	67	61	1,1	3
S-63	63	16	77	71	1,1	3
S-80	80	16	97	91	1,1	3
S-100	100	20	121	111	1,3	5

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Rod fork end Mod. G

ISO 8140
Material: zinc-plated steel.





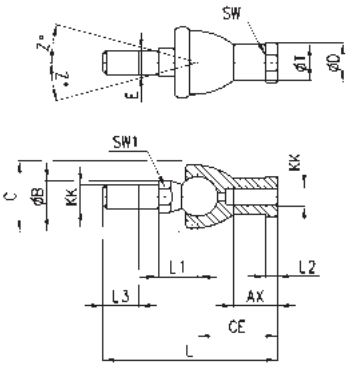
DIMENSIONS

Mod.	Ø	⌀CK	LE	CM	CL	ER	CE	KK	B	⌀B1
G-20	20-25	8	16	8	16	10	32	M8X1,25	22	14
G-25-32	32-40	10	20	10	20	12	40	M10x1,25	26	18
G-40	50-63	12	24	12	24	14	48	M12x1,25	32	20
G-50-63	80-100	16	32	16	32	19	64	M16x1,5	40	26

Piston rod socket joint Mod. GY

Material: zama and zinc-plated steel.





DIMENSIONS

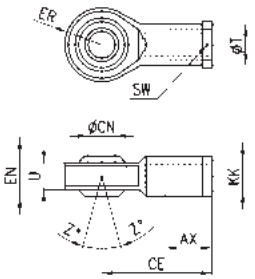
Mod.	Ø	KK	L	CE	L2	AX	SW	SW1	L1	L3	⌀T	⌀D	E	⌀B	⌀C	Z
GY-20	20-25	M8X1,25	65	32	5	16	14	10	16	12	12,5	13	6	10	20	15
GY-32	32-40	M10X1,25	74	35	6,5	18	17	11	19,5	15	15	19	10	14	28	15
GY-40	50-63	M12X1,25	84	40	6,5	20	19	17	21	17	17,5	22	12	19	32	15
GY-50-63	80-100	M16X1,5	112	50	8	27	22	19	27,5	23	22	27	16	22	40	11

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Swivel ball joint Mod. GA



ISO 8139
Material: zinc-plated steel

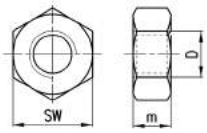


DIMENSIONS											
Mod.	Ø	øCN	U	EN	ER	AX	CE	KK	øT	Z	SW
GA-20	20-25	8	9	12	12	16	36	M8X1,25	12,5	6,5	14
GA-32	32-40	10	10,5	14	14	20	43	M10x1,25	15	6,5	17
GA-40	50-63	12	12	16	16	22	50	M12X1.25	17,5	6,5	19
GA-50-63	80-100	16	15	21	21	28	64	M16x1,5	22	7,5	22

Piston rod lock nut Mod. U



ISO 4035
Materials: zinc-plated steel.



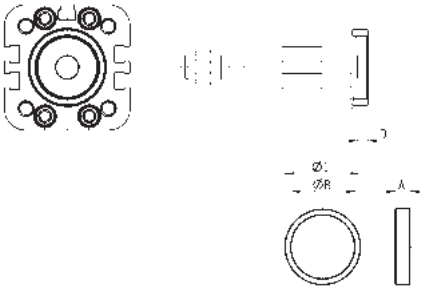
DIMENSIONS				
Mod.	Ø	D	M	SW
U-20	20-25	M8X1.25	5	13
U-25-32	32-40	M10X1,25	6	17
U-40	50-63	M12X1,25	7	19
U-50-63	80-100	M16X1,5	8	24

Centring sleeve Mod. TR



Supplied with:
1x anodized AL centring ring

Designed for the centring of both rear and front end caps with brackets Mod. B/D-E/C/C-H/H/L/R, as for the centring of the cylinder while mounting.

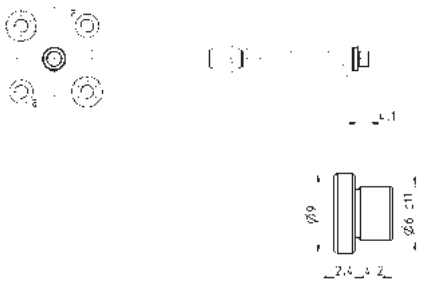


DIMENSIONS					
Mod.	Ø	A	øB	øC	D
TR-32-32	32	6	25	30	4
TR-32-40	40	6	30	35	4
TR-32-50	50	6	35	40	4
TR-32-63	63-80	7	40	45	5
TR-32-100	100	7	50	55	5

Centring pin Mod. TS-32-20

Material: anodized AL

Designed for the centring of rear end caps with brackets L-32-20 / L-32-25 as for cylinder while mounting, it is also suitable in “a” holes of rear/front end caps of cyl. Ø20-25 or in the central hole of rear end caps of cyl. Ø32-40.



Mod.
TS-32-20

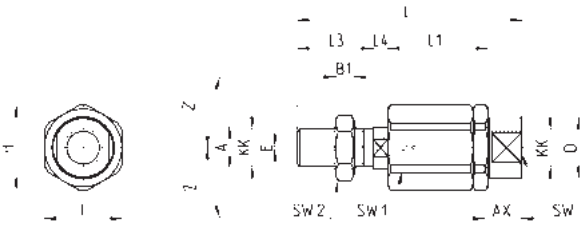
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Self aligning rod Mod. GK

Only for cylinders with male rod.

Material: zinc-plated steel.





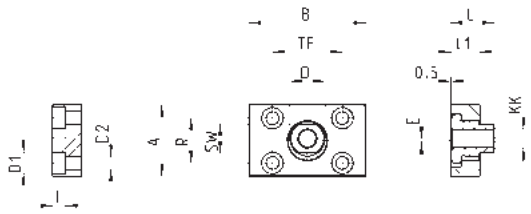
DIMENSIONS

Mod.	Ø	KK	L	L1	L3	L4	ØA	ØD	H	I	SW	SW1	SW2	B1	AX	Z	E
GK-20	20-25	M8x1,25	57	26	21	5	8	12,5	19	17	11	7	13	4	16	4	2
GK-25-32	32-40	M10x1,25	71,5	35	20	7,5	14	22	32	30	19	12	17	5	22	4	2
GK-40	50-63	M12x1,25	75,5	35	24	7,5	14	22	32	30	19	12	19	6	22	4	2
GK-50-63	80-100	M16x1,5	104	53	32	10	22	32	45	41	27	20	24	8	30	3	2

Coupling piece Mod. GKF

Material: zinc-plated steel.





DIMENSIONS

Mod.	Ø	KK	A	B	R	TF	L	L1	I	ØD	ØD1	ØD2	SW	E
GKF-20	20-25	M8x1,25	30	35	20	25	22,5	10	-	14	5,5	-	13	1,5
GKF-25-32	32-40	M10x1,25	37	60	23	36	22,5	15	6,8	18	11	6,6	15	2
GKF-40	50-63	M12x1,25	56	60	38	42	22,5	15	9	20	15	9	15	2,5
GKF-50-63	80-100	M16x1,5	80	80	58	58	26,5	15	10,5	25	18	11	22	2,5

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Series 32 compact cylinders, Tandem and Multi-position versions

Double-acting, magnetic
ø 25, 40, 63, 100 mm



- In compliance with ISO 21287
- Compact design
- Wide range of models available in different diameters

Thanks to their great compactness Series 32 cylinders, Tandem and Multi-position, are suitable to be installed within confined spaces and can be used with the same mounting elements of other standard cylinders DIN/ISO 6431/VDMA 24562 (Series 60/61).
The Tandem version enables to obtain up to 2 times the thrust force of a normal cylinder (standard traction force), while the Multi-position version can obtain up to three positions with one cylinder only.

GENERAL DATA

Construction	compact profile
Operation	double-acting, magnetic
Material	body and end-blocks = anodized AL rod = rolled stainless steel AISI 303 piston = anodized AL rod seal, OR end-block and piston seal = PU
Mounting	with threaded holes on the end blocks flange – feet – trunnion
Strokes min. and max. (1) **Multi-position**	Series 32F, 32M Ø 25 = 5-300 mm (dimension x2) Series 32F, 32M Ø 40 - 63 = 5-400 mm (dimension x2) Series 32F, 32M Ø 100 = 5-500 mm (dimension x2)
Strokes min. and max. (1) **Tandem**	Series 32F, 32M Ø 25 = 5-80 mm Series 32F, 32M Ø 40 - 63 - 100 = 5-100 mm
Operating temperature	0°C ÷ 80°C (with dry air -20°C)
Operating pressure	1 ÷ 10 bar
Fluid	clean air, without lubrication. If lubricated air is used, it is recommended to use oil ISOVG32. Once applied the lubrication should never be interrupted.
Operating speed	10 ÷ 1000 mm\sec (without load)

(1) the minimum stroke for the use of the sensors is 10 mm.

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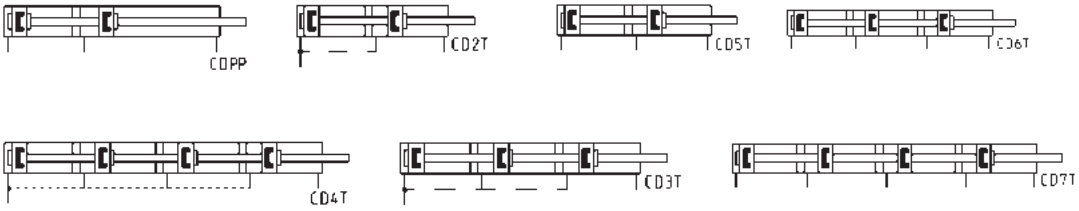
CODING EXAMPLE

32	M	2	A	040	A	050	N	2

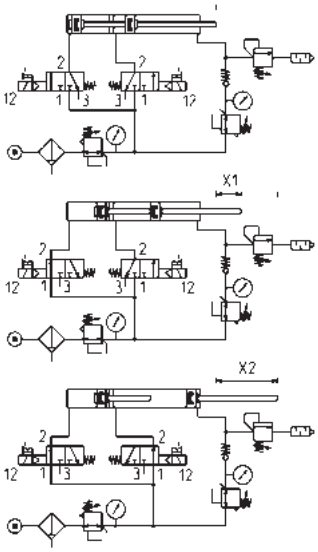
32	SERIES compact magnetic	
M	VERSION M = male rod thread, mounted with rod nut Mod. U F = female rod thread	
2	OPERATION 2 = double-acting	PNEUMATIC SYMBOLS CDPP
A	MATERIALS A = anodized aluminium profile, end blocks and piston PU seals (rod - OR end block and piston)	
040	BORE 025 = 25 mm 040 = 40 mm 063 = 63 mm 100 = 100 mm	 CD5T, CD6T, CD7T CD5T, CD6T, CD7T CD2T, CD3T, CD4T CD5T, CD6T, CD7T
A	CONSTRUCTION A = standard	
050	STROKE - Tandem stroke in mm - Multi-position X1mm/X2mm. Insert the strokes without the initial 0 (see application scheme)	
N	Tandem and Multi-position	
2	STAGES (for Tandem version only) 2 = 2 stages	

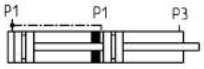
PNEUMATIC SYMBOLS

The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.



Operation scheme





Multi-position
Example: 32M2A040A25/75N
X1 = 25 mm
X2 = 75 mm

Tandem
Example: 32M2A040A050N2
Stroke = 50 mm

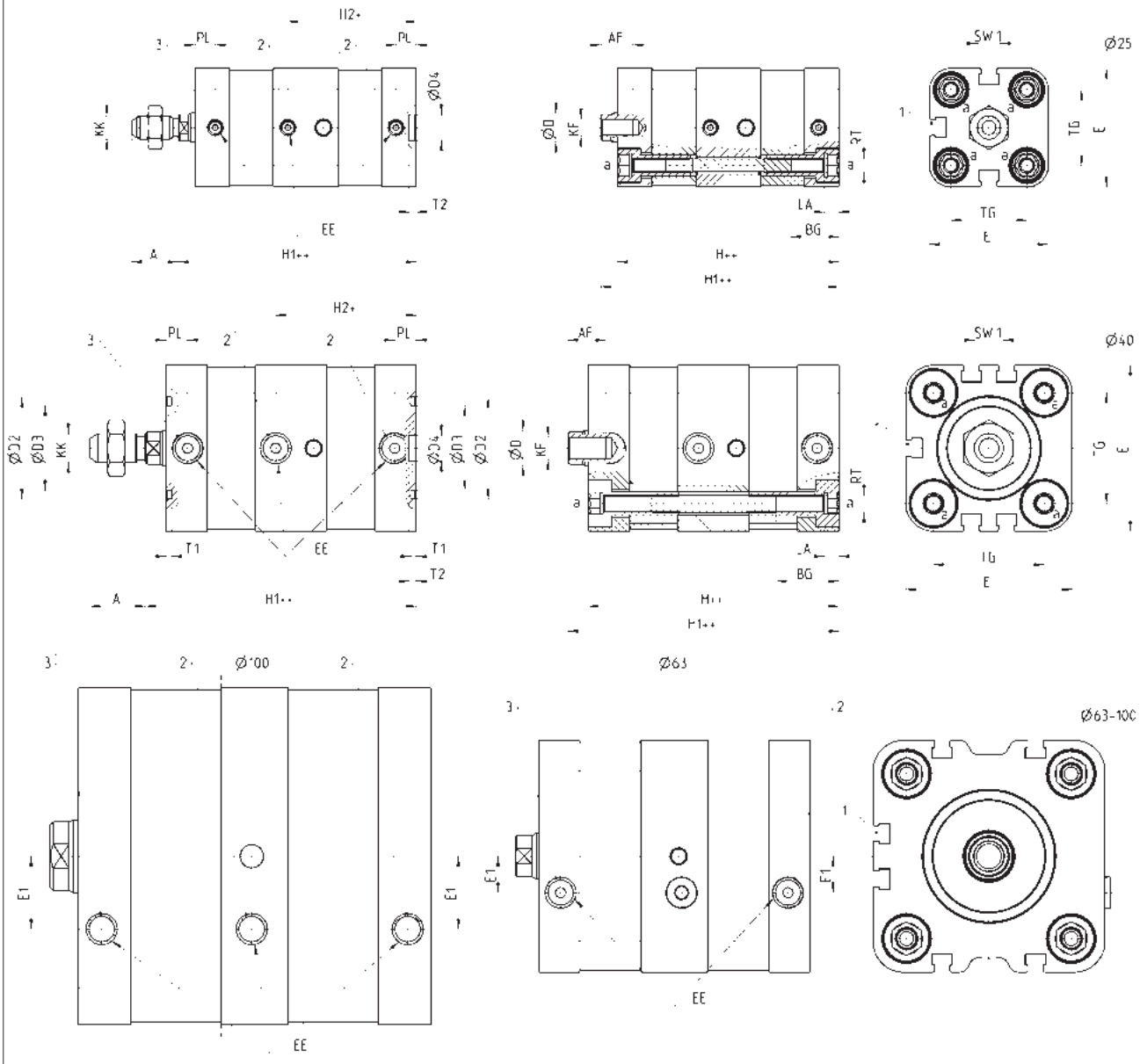
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1
MOVEMENT

Tandem cylinders Mod. 32F2A/32M2A...N2



+ = add the stroke
++ = add the stroke two times
1 = Groove for sensor
2 = Positive stroke
3 = Negative stroke



DIMENSIONS

Ø	A	AF	BG	ØD	ØD2	ØD3	ØD4	E	EE	E1	H	H1	H2	KF	KK	LA	PL	RT	SW1	T1	T2	TG
25	16	11	16,5	10	-	-	9	40,7	M5	-	76	81,7	44	M6	M8X1,25	5	7	M5	8	-	2,5	26
40	19	13	21,5	12	35	29	9	57	G1/8	-	86	93	48,2	M8	M10X1,25	5	7,6	M6	10	2	2,5	38
63	22	16	18,5	16	45	39	12	79,6	G1/8	12'5	93	101	-	M10	M12X1,25	6	7,6	M8	13	2	3	56,5
100	28	20	20	25	55	49	12	115,6	G1/8	25	121	130,7	-	M12	M16X1,5	6	8	M10	22	2	3	89

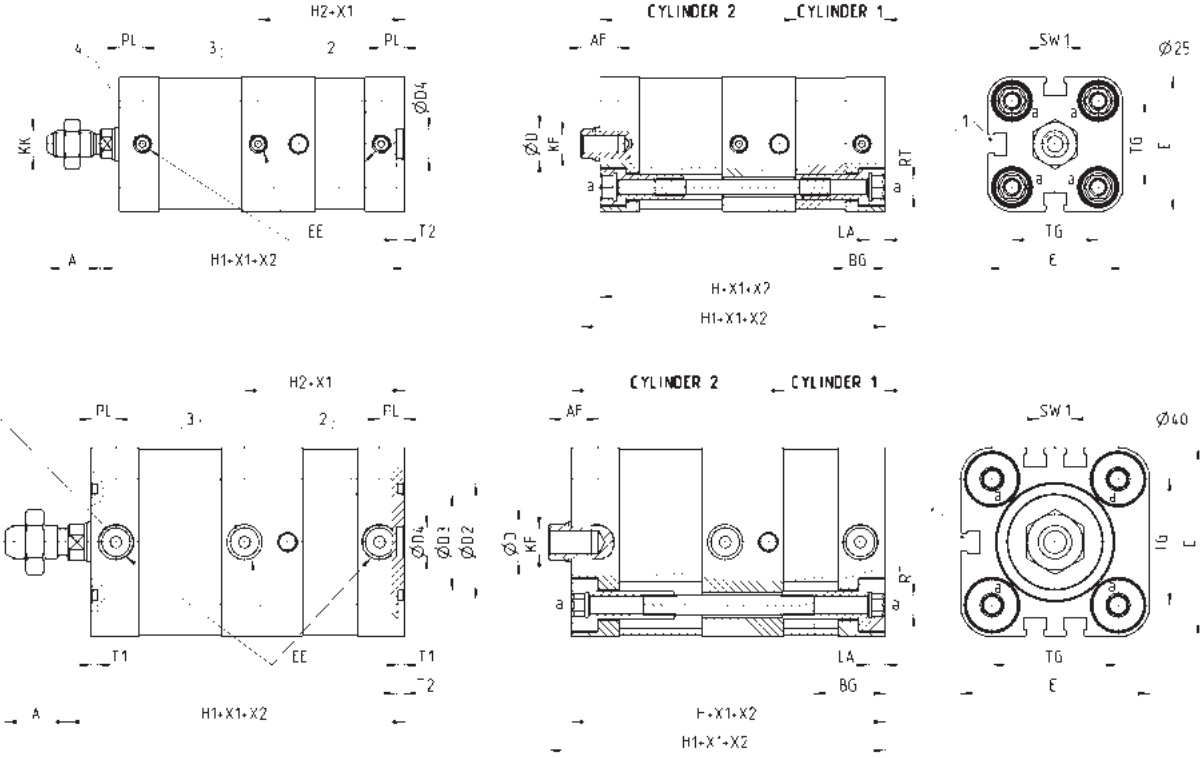
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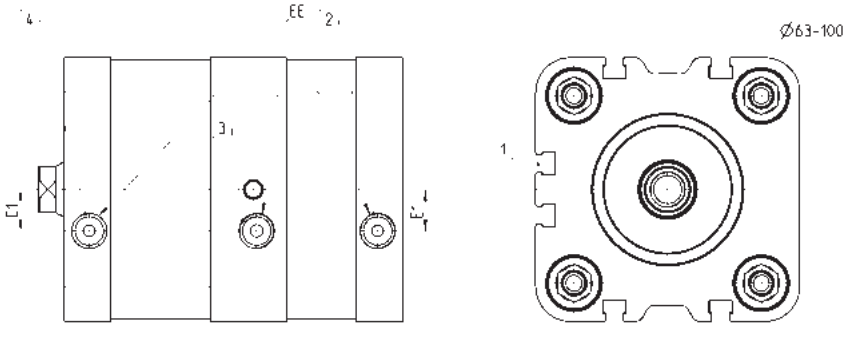
Multi-position cylinders Mod. 32F2A/32M2A...X1/X2N

1 = Groove for sensor
2 = Positive stroke cylinder 1
3 = Positive stroke cylinder 2
4 = Negative stroke for both cylinders



X1 = Partial stroke
X2 = Total stroke as operation scheme pag. 1.1.31.2





DIMENSIONS																					
Ø	A	AF	BG	ØD	ØD2	ØD3	ØD4	E	EE	E1	H	H1	H2	KF	KK	LA	PL	RT	SW1	T1	T2	TG
25	16	11	16,5	10	-	-	9	40,7	M5	-	76	81,7	44	M6	M8X1,25	5	7	M5	8	-	2,5	26
40	19	13	21,5	12	35	29	9	57	G1/8	-	86	93	48,2	M8	M10X1,25	5	7,6	M6	10	2	2,5	38
63	22	16	18,5	16	45	39	12	79,6	G1/8	12,5	93	101	44	M10	M12X1,25	6	7,6	M8	13	2	3	56,5
100	28	20	20	25	55	49	12	115,6	G1/8	25	121	130,7	60,5	M12	M16X1,5	6	8	M10	22	2	3	89

Series 45
anti-rotation guide units

For cylinders DIN/ISO 6432 - ø12, 16, 20, 25mm
For cylinders DIN/ISO 6431 - ø32, 40, 50, 63, 80, 100mm





» To be used with VDMA/ ISO cylinders

» Available as ball bearing guide and self lubricating guide

Series 45 guide units can be used with all cylinders DIN/ISO 6432 of ø12 ÷ ø25 and DIN/ISO 6431 of ø32 ÷ ø100.

They have been developed in order to prevent piston rod rotation and can support possible radial loads.

Series 45 guide units are available in three different models depending on the applicable loads. The UT and HT guides with crawling supports are self lubricating, while HB guides have a ball bush.
To ensure the right choice of the loads in relation to the stroke, please refer to the graphs. The shorter the stroke the higher will be the applicable loads.

GENERAL DATA

Type of construction	U and H
Operation	Mod. 45NUT and 45NHT: without lubrication Mod. 45NHB requires lubrication according to DIN 51825 code KP2G-20
Material	body: anodized aluminium flexible coupling: stainless steel AISI 303 plate: anodized aluminium guided columns: rolled stainless steel AISI 420B (mod. 45NUT and 45NHT) - hardened steel C50 (Mod. 45NHB)
Assembly	by means of threaded holes
Strokes min - max	see diagrams
Installation	in any position

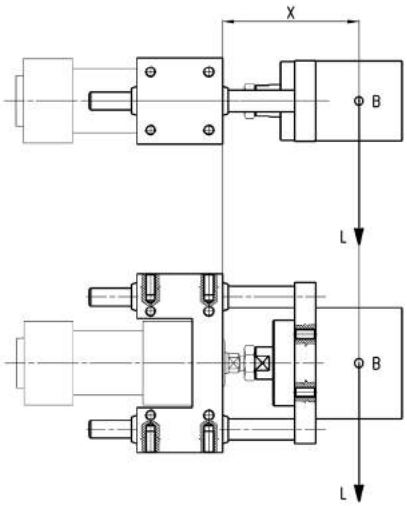
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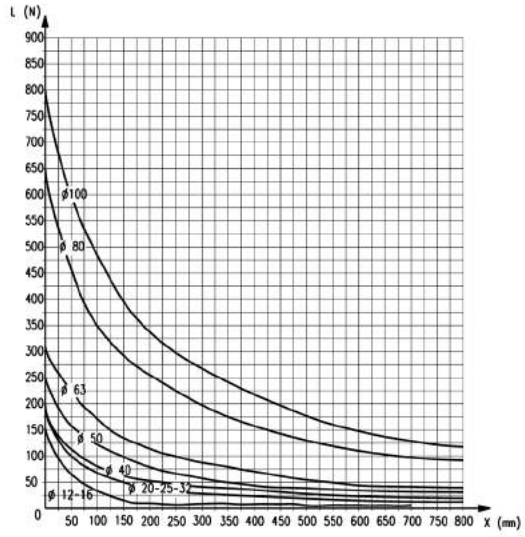
CODING EXAMPLE

45	N	UT	050	A	0100

45	SERIES
N	VERSION N = standard
UT	OPERATION UT = “U” self lubricating guide HT = “H” self lubricating guide HB = “H” ball guide
050	BORE 016 = Ø 12-16 mm (available only in the UT version with “U” self lubricating guide) 020 = 20 mm 025 = 25 mm 032 = 32 mm 040 = 40 mm 050 = 50 mm 063 = 63 mm 080 = 80 mm 100 = 100 mm
A	MATERIALS A = anodized aluminium body - stainless steel AISI 420B columns for 45UT and 45HT - hardened steel C50 columns for 45HB
0100	STROKE in mm

APPLICABLE LOADS DEPENDING ON PROJECTION - GRAPH 1

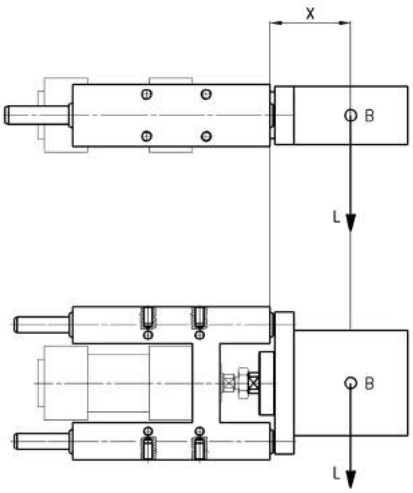


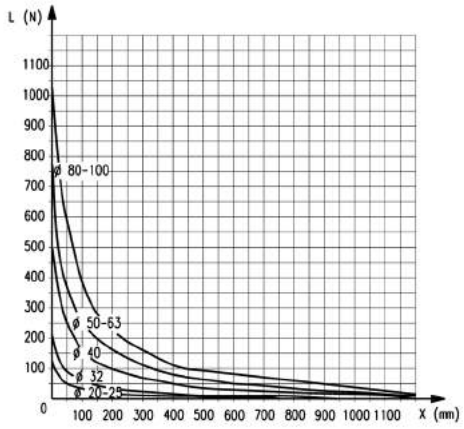


B = centre of gravity for applied load
L = load
X = fixed projection + stroke
fixed projection = distance to the centre of gravity

Guide “U” moving on bush (45NUT)

APPLICABLE LOADS DEPENDING ON PROJECTION - GRAPH 2

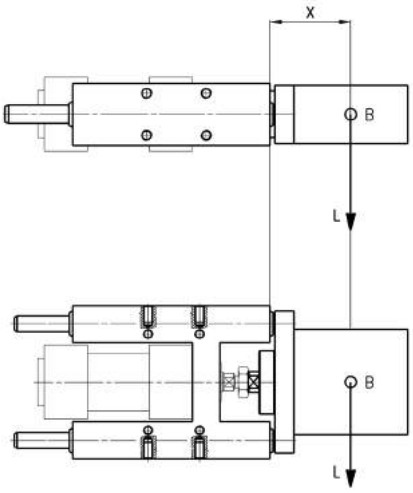


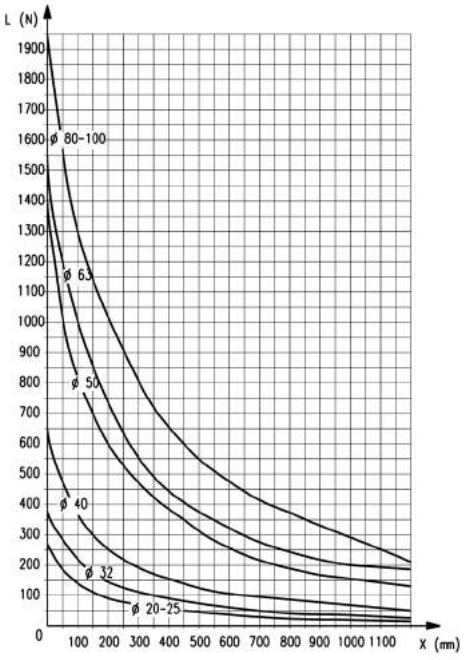


B = centre of gravity for applied load
L = load
X = fixed projection + stroke
fixed projection = distance to the centre of gravity

Guide “HB” with linear ball bearing (45NHB)

APPLICABLE LOADS DEPENDING ON PROJECTION - GRAPH 3





B = centre of gravity for applied load
L = load
X = fixed projection + stroke
fixed projection = distance to the centre of gravity

Guide “HT” moving on bush (45NHT)

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Guides Mod. 45NUT

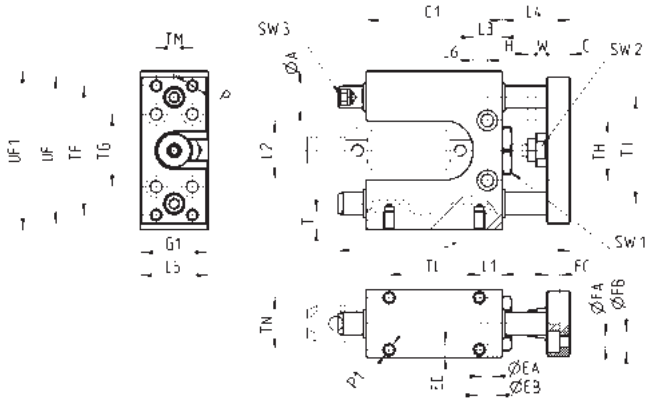


Supplied with:
1x fixing nut.

Draw note:
+ = add the stroke

Suitable for cylinders Series 16, 24 and 25 DIN/ISO 6432, ø 12 and 16.
These guides do not need lubrication.
For applicable loads, see graph 1 on page 1/1.35.02.

Cylinders ø 12 and ø 16 use the same guides.



DIMENSIONS

Ø	TF	TG	TH	TI	TM	TL	TN	UF1	UF	G1	øA	C1	H	W	C	L	L1	L2	L3	L4	L5	L6	P	P1	T	øEA	øEB	EC	øFA	øFB	FC	SW1	SW2	SW3
12	57	32	26,5	47	16	40	23	70	65	29	10	60	4	5	10	102,5	10	26	13	30	30	6,5	M5	M5	8	5,5	9	5,7	5,5	9,5	5,7	21	13	6
16	57	32	26,5	47	16	40	23	70	65	29	10	60	4	5	10	102,5	10	26	13	30	30	6,5	M5	M5	8	5,5	9	5,7	5,5	9,5	5,7	21	13	6

Guides Mod. 45NUT

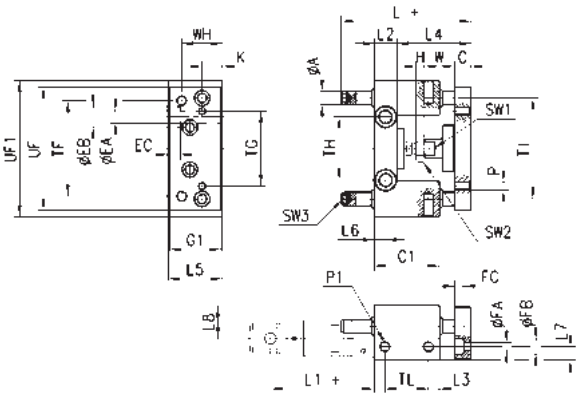


Supplied with:
1x fixing nut.

Draw note:
+ = add the stroke

Suitable for cylinders Series 24 and 25 DIN/ISO 6432, ø 20 and 25.
These guides do not need lubrication.

For applicable loads, see graph 1.



DIMENSIONS

Ø	TF	TG	TH	TI	TL	UFI	UF	G1	øA	WH	C1	H	W	C	K	L	L1	L2	L3	L4	L5	L6	L7	L8	P	P1	øEA	øEB	EC	øFA	øFB	FC	SW1	SW2
20	70	55	46,5	74	32	100	90	38	10	30	48	4	22	12	15	77	71	17	8	48+2	40	8,5	10	24	M6	M8	9	15	9	6,5	11	6,8	13	13
25	70	55	46,5	74	32	100	90	38	10	30	48	6	22	12	15	77	76	17	8	48+2	40	8,5	10	24	M6	M8	9	15	9	6,5	11	6,8	13	17

Guides Mod. 45NHT

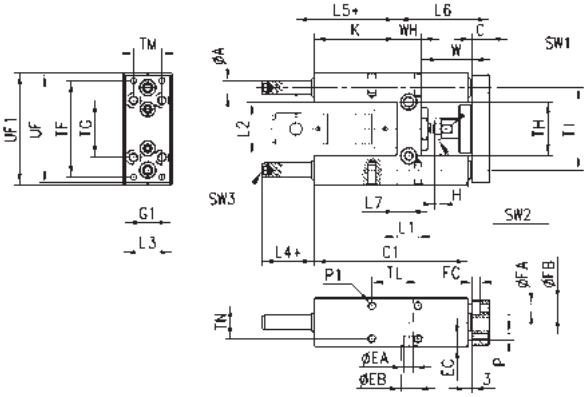


Supplied with:
1x fixing nut.

Draw note:
+ = add the stroke

Suitable for cylinders Series 24 and 25 DIN/ISO 6432, ø 20 and 25.
These guides do not need lubrication.

For applicable loads, see graph 3.



DIMENSIONS

Ø	TF	TG	TH	TI	TL	TM	TN	UF	G1	UF1	øA	WH	C1	H	W	C	K	L	L1	L2	L3	L4	L5	L6	L7	P	P1	T	øEA	øEB	EC	øFA	øFB	FC	SW1	SW2	SW3
20	68	40	38	58	32,5	20	23	76	32	79	10	17	108	4	22	12	58	160	15	37	34	37	71	65	8,5	M5	M6	14	6,5	11	6,8	5,5	10	5,7	13	13	6
25	68	40	38	58	32,5	20	23	76	32	79	10	17	108	6	17	12	58	160	15	37	34	37	76	65	8,5	M5	M6	14	6,5	11	6,8	5,5	10	5,7	13	17	6

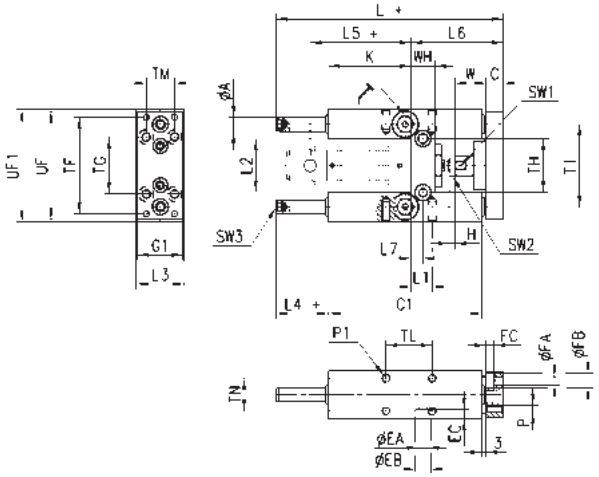
Guides Mod. 45NHB

Suitable for cylinders Series 24 and 25 DIN/ISO 6432, ø 20 and 25.
To lubricate these guides, use the special lubricator. For applicable loads, see graph No. 2.



Supplied with:
1x fixing nut.

Draw note:
+ = add the stroke



DIMENSIONS

Ø	TF	TG	TH	TI	TL	TM	TN	UF	G1	UF1	A	WH	C1	H	W	C	K	L	L1	L2	L3	L4	L5	L6	L7	P	P1	T	øEA	øEB	EC	øFA	øFB	FC	SW1	SW2	SW3
20	68	40	38	58	32,5	20	23	76	32	79	10	17	108	4	22	12	58	160	15	37	34	37	71	65	8,5	M5	M6	14	6,5	11	6,8	5,5	10	5,7	13	13	6
25	68	40	38	58	32,5	20	23	76	32	79	10	17	108	6	17	12	58	160	15	37	34	37	76	65	8,5	M5	M6	14	6,5	11	6,8	5,5	10	5,7	13	17	6

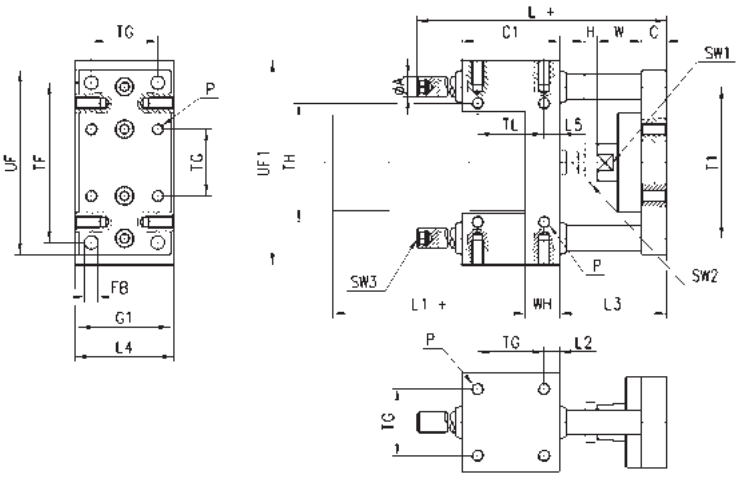
Guides Mod. 45NUT

Suitable for cylinders Series 60, 61 and 62 DIN/ISO 6431, ø 32, 40, 50, 63, 80 and 100.
These guides do not need lubrication. For applicable loads, see graph No. 1.



Supplied with:
4x fixing screws.

Draw note:
+ = add the stroke



DIMENSIONS

Ø	TF	TG	TH	øA	T1	P	FB	UF	G1	UF1	L	C1	H	W	C	L1	WH	L2	L3	L4	L5	TL	SW1	SW2	SW3
32	78	32,5	58	12	74	M6	6,6	90	45	100	106	48	6	22	12	94	17	7,8	52	48	7,8	32,5	15	17	6
40	84	38	64	12	80	M6	6,6	100	50	106	117	58	7	22	12	105	21	10	53	56	10	38	15	19	6
50	100	46,5	80	16	96	M8	9	120	60	125	129	59	8	26	15	106	25	6,2	64	66	6,3	46,5	22	24	6
63	105	56,5	95	16	104	M8	9	125	70	132	146	76	8	26	15	121	25	9,8	64	76	9,8	56,5	22	24	6
80	130	72	130	20	130	M10	11	155	90	165	170	90	9	32	16	128	34	9	72	98	20	50	27	30	6
100	150	89	150	20	150	M10	11	175	110	185	190	110	9	32	16	138	39	10,5	72	118	20	70	27	30	6

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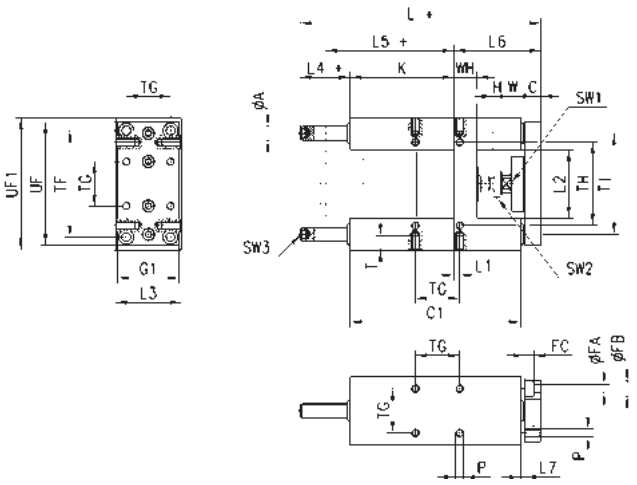
Guides Mod. 45NHT

Suitable for cylinders Series 60, 61 and 62 DIN/ISO 6431, ø 32, 40, 50, 63, 80 and 100.
These guides do not need lubrication. For applicable loads, see graph No. 3.



Supplied with:
4x fixing screws.

Draw note:
+ = add the stroke



DIMENSIONS

Ø	TF	TG	TH	TI	UF	G1	UF1	øA	WH	C1	H	W	C	K	L	L1	L2	L3	L4	L5	L6	L7	P	T	øFA	øFB	FC	SW1	SW2	SW3
32	78	32.5	61	74	90	45	97	12	17	125	6	17	12	76	177	4.3	50.2	50	37	94	64	3	M6	14	6.5	11	6.8	13	17	6
40	84	38	69	87	110	54	115	16	21	140	7	22	12	81	192	11	58.2	58	37	105	74	3	M6	14	6.5	11	6.8	15	19	6
50	100	46.5	85	104	130	63	137	20	26	149	8	26	15	78.5	205	19.8	70.2	70	37.5	106	89	3	M8	16	9	15	9	22	24	6
63	105	56.5	100	119	145	80	152	20	26	178	8	26	15	111	237	15.3	85.2	85	37	121	89	7	M8	16	9	15	9	22	24	6
80	130	72	130	148	180	100	189	25	34	195	9	32	20	128	280	21	105.4	105	42	128	110	23	M10	20	11	18	11	27	30	6
100	150	89	150	172	200	120	213	25	39	220	9	32	20	128	280	24.5	130.4	130	37	138	115	3	M10	20	11	18	11	27	30	6

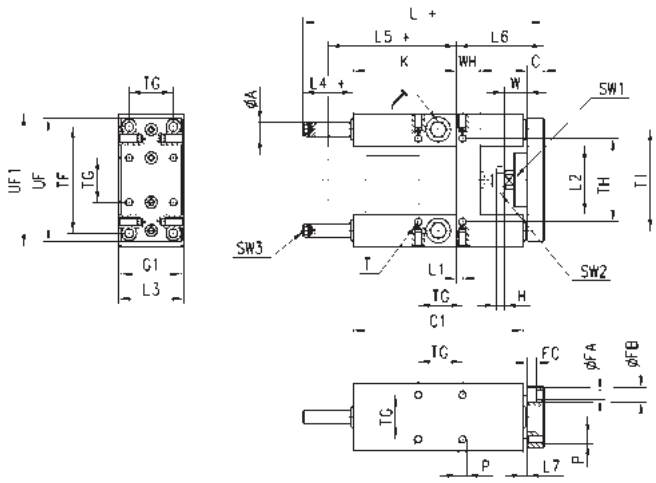
Guides Mod. 45NHB

Suitable for cylinders Series 60, 61 and 62 DIN/ISO 6431, ø 32, 40, 50, 63, 80 and 100.
To lubricate these guides, use the special lubricator. For applicable loads, see graph No. 2.



Supplied with:
4x fixing screws.

Draw note:
+ = add the stroke



DIMENSIONS

Ø	TF	TG	TH	TI	UF	G1	UF1	øA	WH	C1	H	W	C	K	L	L1	L2	L3	L4	L5	L6	L7	P	T	øFA	øFB	FC	SW1	SW2	SW3
32	78	32.5	61	74	90	45	97	12	17	125	6	17	12	76	177	4.3	50.2	50	37	94	64	3	M6	14	6.5	11	6.8	13	17	6
40	84	38	69	87	110	54	115	16	21	140	7	22	12	81	192	11	58.2	58	37	105	74	3	M6	14	6.5	11	6.8	15	19	6
50	100	46.5	85	104	130	63	137	20	26	149	8	26	15	78,5	237	19.8	70.2	70	69.5	106	89	3	M8	16	9	15	9	22	24	6
63	105	56.5	100	119	145	80	152	20	26	178	8	26	15	111	237	15.3	85.2	85	37	121	89	7	M8	16	9	15	9	22	24	6
80	130	72	130	148	180	100	189	25	34	195	9	32	20	128	280	21	105.4	105	42	128	110	23	M10	20	11	18	11	27	30	6
100	150	89	150	172	200	120	213	25	39	220	9	32	20	128	280	24.5	130.4	130	37	138	115	3	M10	20	11	18	11	27	30	6

1
MOVEMENT

Series QN
short-stroke cylinders

Single-acting, non magnetic
ø 8, 12, 20, 32, 50, 63 mm





Series QN single-acting short-stroke cylinders have been designed so that they can be installed in very small spaces.
Due to the compactness and sturdiness of these cylinders, they are mainly suitable for positioning and locking.

The available strokes are indicated in the tables.

GENERAL DATA

Type of construction	compact
Operation	single-acting
Materials	aluminium body - NBR seals - other materials in stainless steel and brass
Operating pressure	P. min 2 bar P. max 10 bar
Operating temperature	0°C ÷ 80°C (with dry air - 20°C)
Fluid	clean air, without lubrication. If lubricated air is used, it is recommended to use oil ISO VG32. Once applied the lubrication should never be interrupted.
Bore	ø 8, 12, 20, 32, 50, 63
Stroke	see table
Type of mounting	by means of screws in the body

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

STANDARD STROKES FOR CYLINDERS SERIES QN

STANDARD STROKES				
Ø	4	5	10	25
8	✖			
12	✖		✖	
20	✖		✖	
32		✖	✖	✖
50			✖	✖
63			✖	✖

CODING EXAMPLE

QN	1	A	50	A	25

QN	SERIES	
1	OPERATING 1 = single-acting	PNEUMATIC SYMBOL CS01
A	MATERIALS A = rolled stainless steel rod - aluminium body	
50	BORE 08 = 8 mm 12 = 12 mm 20 = 20 mm 32 = 32 mm 50 = 50 mm 63 = 63 mm	
A	TYPE OF DESIGN A = standard	
25	STROKE (see the table)	

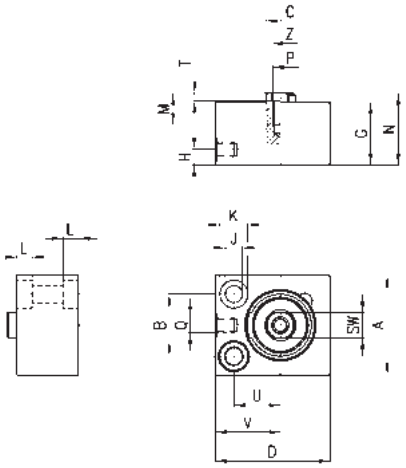
PNEUMATIC SYMBOLS

The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.



Short-stroke cylinders Series QN - bores ø 8, 12 and 20



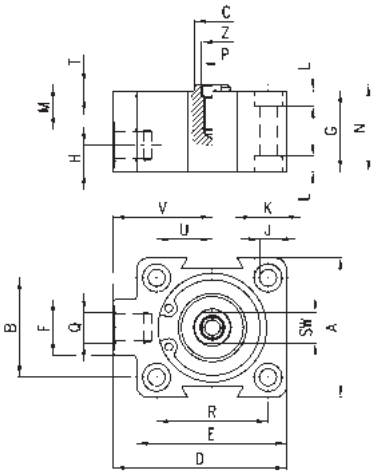


DIMENSIONS

Mod.	Ø	A h8	B	øC	D	G	H	øJ	øK	L	M	N	P	Q H13	SW	T +0,1	U	V	Z +0,10
QN1A08A04	8	18	11	4	20	16	5	3,2	5,8	3	-	17	-	M5	-	-	8	13,5	-
QN1A12A04	12	20	13	5	25	16	5	3,2	5,8	3	-	17	-	M5	-	-	9	16	-
QN1A12A10	12	20	13	5	25	26	5	3,2	5,8	3	-	30	-	M5	-	-	9	16	-
QN1A20A04	20	32	20	10	37	20	5	5,5	9	5	8	21	M5	M5	8	2,5	15	21	5,5
QN1A20A10	20	32	20	10	37	32	5	5,5	9	5	8	33	M5	M5	8	2,5	15	21	5,5

Short-stroke cylinders Series QN - bores ø 32, 50 and 63





DIMENSIONS

Mod.	Ø	A h8	B	øC	D	E	F	G	H	øJ	øK	L	M	N	P	Q H13	R	SW	T +0,1	U	V	Z +0,10
QN1A32A05	32	45	32	12	56	48,5	18	26	8,5	5,5	9	5	14,5	27	M6	G1\8	36	10	2,5	18	32	7
QN1A32A10	32	45	32	12	56	48,5	18	32	8,5	5,5	9	5	14,5	33	M6	G1\8	36	10	2,5	18	32	7
QN1A32A25	32	45	32	12	56	48,5	18	57,5	8,5	5,5	9	5	14,5	58,5	M6	G1\8	36	10	2,5	18	32	7
QN1A50A10	50	64	50	16	72	64	20	30	8,5	6,5	10,5	6,3	15,5	31	M8	G1\8	50	13	3,5	25	40	8,5
QN1A50A25	50	64	50	16	72	64	20	57,5	8,5	6,5	10,5	6,3	15,5	58,5	M8	G1\8	50	13	3,5	25	40	8,5
QN1A63A10	63	80	62	16	88	80	20	35	8,5	8,5	14	8,5	14,5	36	M8	G1\8	62	13	3,5	31	48	8,5
QN1A63A25	63	80	62	16	88	80	20	60,5	8,5	8,5	14	8,5	14,5	62,5	M8	G1\8	62	13	3,5	31	48	8,5

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series QP - QPR short-stroke cylinders

Series QP: single and double-acting, magnetic
Series QPR: double-acting magnetic, non-rotating
ø 12, 16, 20, 25, 32, 40, 50, 63, 80, 100 mm





The guides are manufactured in the external profile parallel to the sliding axis on three sides. These are used to locate the switches that sense the piston position. The non rotating guides make the QPR suitable for supply operations and for handling equipment.

Series QP - QPR cylinders are available in 10 bore sizes, from ø12 to ø100. Their compact dimension allows the installation in small spaces. Because of their particular construction, they can be mounted by means of feet or trunnion.

GENERAL DATA

Type of construction	Series QP: compact profile Series QPR: compact with non rotating guides
Operation	Series QP: single and double-acting Series QPR: double-acting
Materials	body: anodized AL rod: rolled stainless steel piston seals: PU rod seals: PU (Ø 12 ÷ 25 mm) - NBR (Ø 32 ÷ 100 mm)
Operating temperature	0°C ÷ 80°C (with dry air -20°C)
Assembly	by means of screws or brackets
Operating pressure	1 ÷ 10 bar (double-acting) 2 ÷ 10 bar (single-acting)
Fluid	filtered air, without lubrication. If lubricated air is used, it is recommended to use oil ISOVG32. Once applied the lubrication should never be interrupted.
Strokes (min-max)	Series QP: 1 ÷ 150 mm (ø12 ÷ ø 25) - 1 ÷ 200 mm (ø 32 ÷ ø 100) Series QPR: 1 ÷ 50 mm (ø 12) - 1 ÷ 75 mm (ø 16) - 1 ÷ 100 mm (ø 20 ÷ ø 100)
Strokes	the minimum stroke for use of the sensors is 10 mm
Bores	ø 12, 16, 20, 25, 32, 40, 50, 63, 80, 100

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STANDARD STROKES FOR SHORT-STROKE CYLINDERS SERIES QP AND QPR

■ = Double-acting ✖ = Single-acting ● = Non-rotating

STANDARD STROKES														
Ø	5	10	15	20	25	30	35	40	45	50	60	75	80	100
12	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖	■ ✖ ●	■ ●	■	■	■					
16	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■	■
20	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
25	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
32	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
40	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
50	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
63	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
80	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
100	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●

CODING EXAMPLE

QP	2	A	050	A	050	

QP	SERIES QP = standard QPR = standard non-rotating	
2	OPERATION 1 = single-acting, front spring (only QP) 2 = double-acting 3 = double-acting, through-rod	PNEUMATIC SYMBOLS CS09 CD07 CD14
A	MATERIALS A = rolled stainless steel rod - AL tube profile	
050	BORE 012 = 12 mm 016 = 16 mm 020 = 20 mm 025 = 25 mm 032 = 32 mm 040 = 40 mm 050 = 50 mm 063 = 63 mm 080 = 80 mm 100 = 100 mm	
A	TYPE OF MOUNTING A = standard	
050	STROKE (see the table)	
	= standard V = FKM rod seal W = all FKM seals (Ø 12 excepted)	

PNEUMATIC SYMBOLS

The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.







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ACCESSORIES FOR SHORT-STROKE CYLINDERS SERIES QP



Foot mount Mod. B

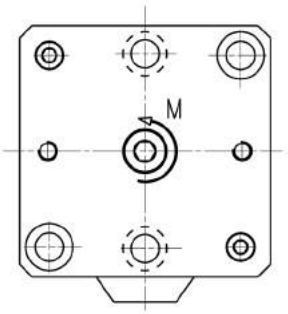


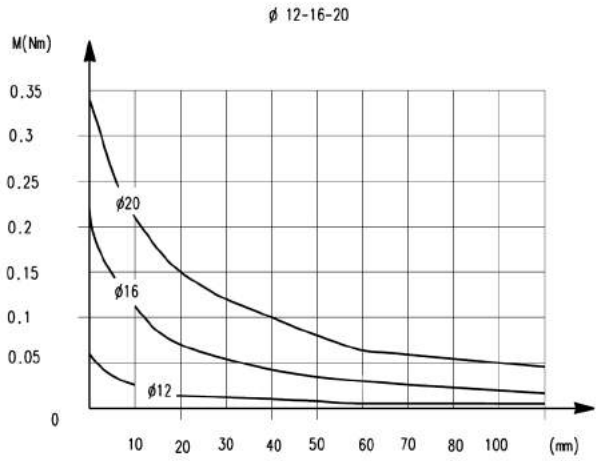
Male trunnion Mod. L



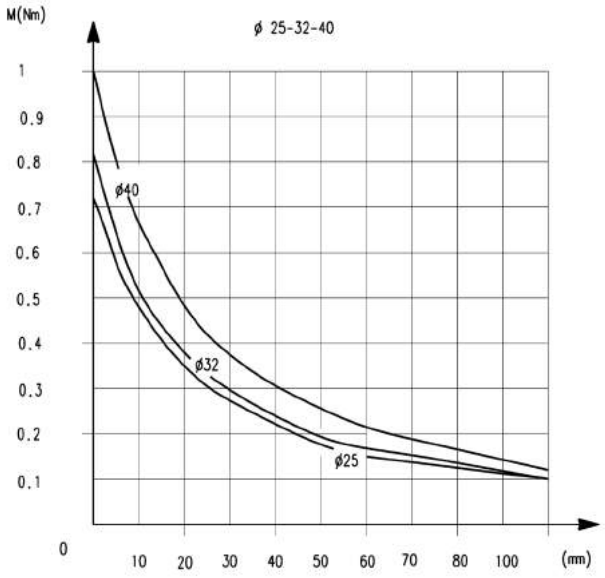
All accessories are supplied separately.

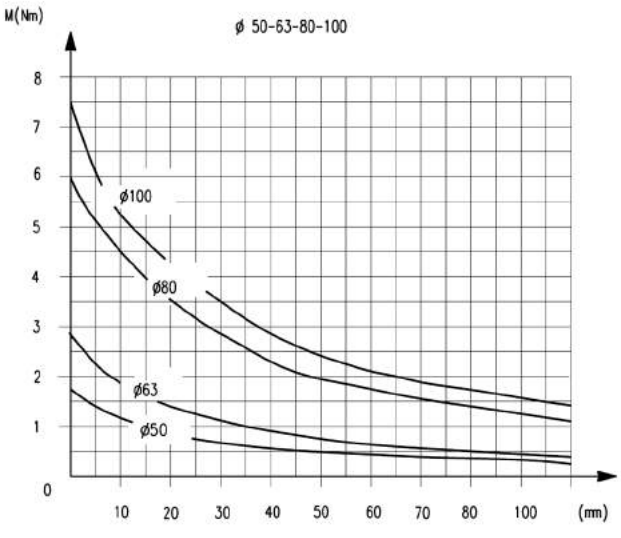
TORQUE MOMENT ACCORDING TO STROKE C





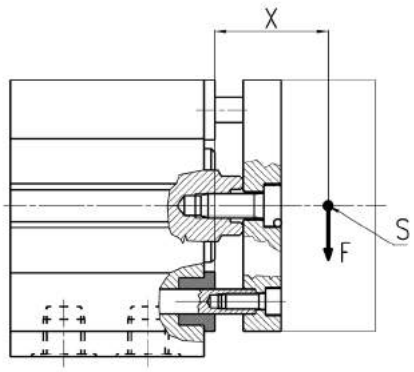
TORQUE MOMENT ACCORDING TO STROKE C

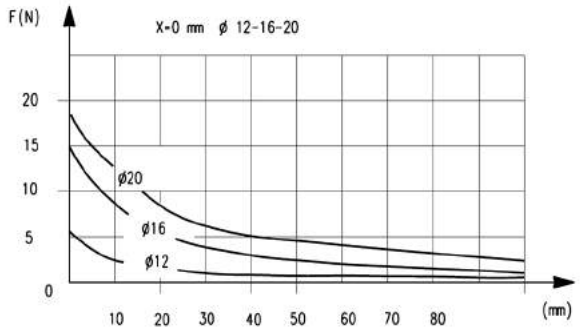




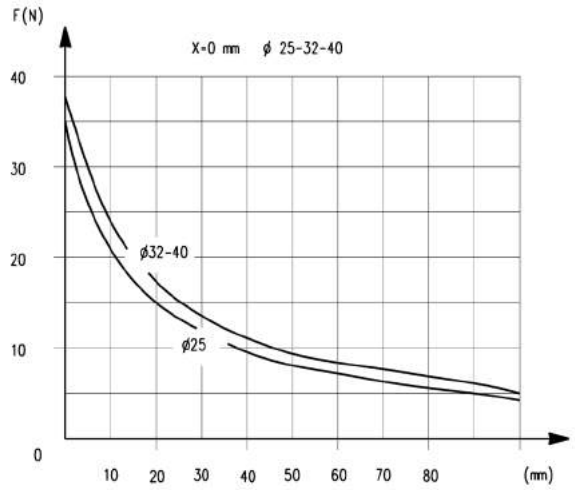
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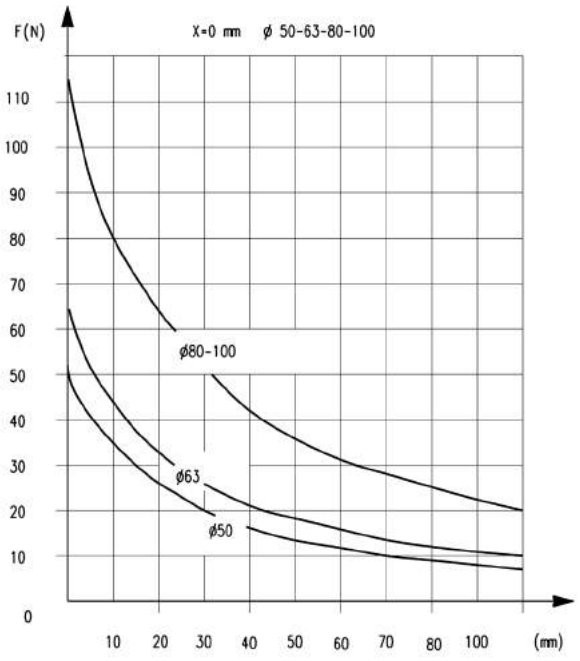
TRANSVERSAL LOAD ACCORDING TO PROJECTION " X "





TRANSVERSAL LOAD ACCORDING TO PROJECTION " X "





F = transversal force

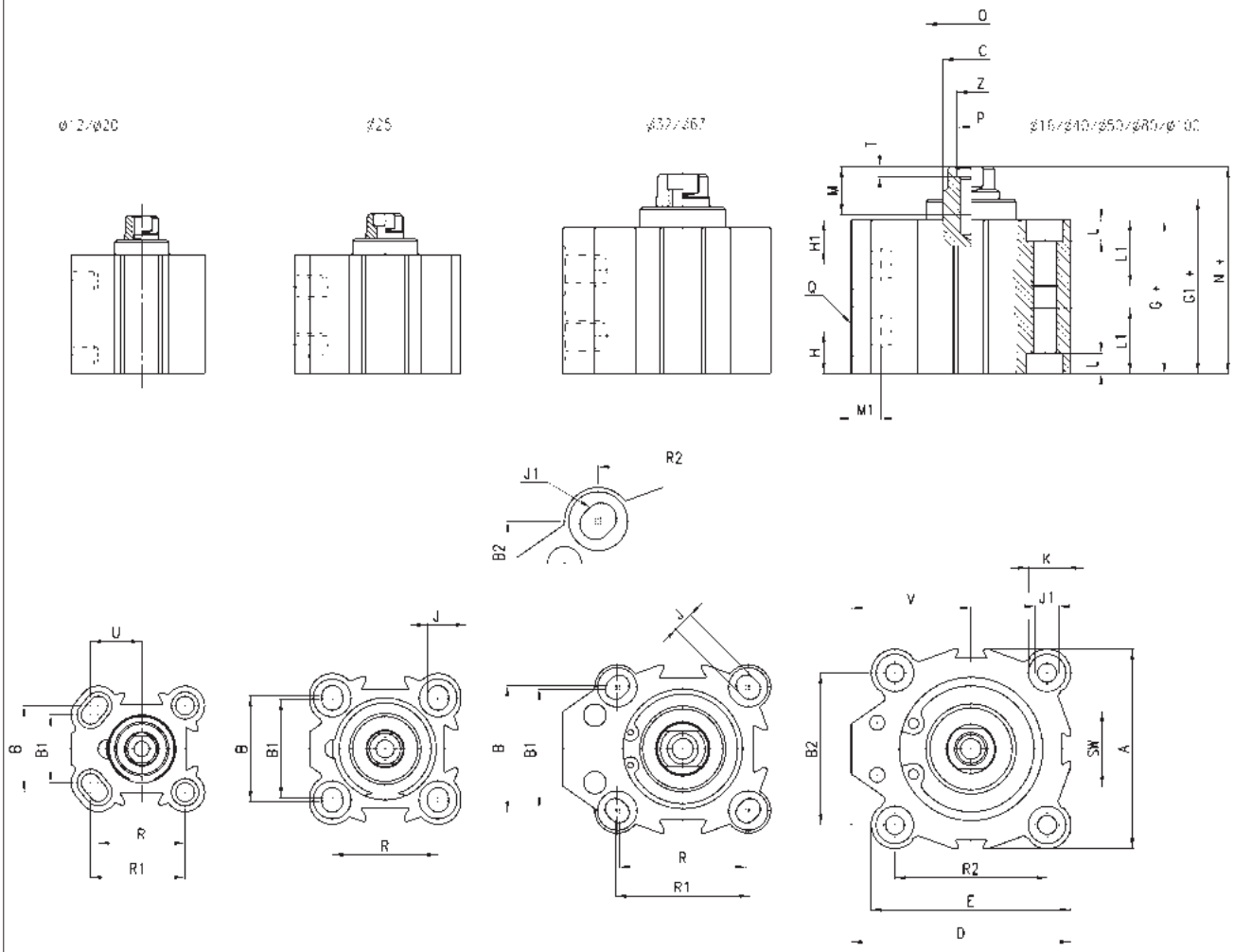
1 MOVEMENT

Short-stroke cylinders Series QP



Note:
The cylinder's end stop must be provided externally.
For single-acting cylinders ø 12, 16, 20 and 25 add 5 mm to G+, G1+ and N+ dimensions.

+ = add the stroke



DIMENSIONS

Ø	A	B	B1	B2	øC	D	E	G +	G1 +	H1	H	J	J1	K	L	L1	M	M1	N +	øO	P	Q	R	R1	R2	SW	T	U	V	Z
12	23.8	15.5	13	-	6	25	25	29.6	29.6	12.3	7.8	3.5	-	5.8	3	-	5.5	4.5	32.9	-	M3	M5	15.5	16.75	-	5	-	9	13.15	-
16	29	20	-	-	8	29	29	32	32.4	10.9	8.7	3.5	-	5.8	3	-	8	4.5	36.4	16.6	M4	M5	20	-	-	6	-	-	14.5	-
20	37	25.5	20	-	10	39.25	39.25	31.2	31.7	9.8	9.8	5.5	-	9	6	-	8	4.5	36	19.5	M6	M5	25.5	27.75	-	8	-	15	20.75	-
25	40	28	26	-	10	40	40	32.1	33.5	8	6.9	5.5	-	10	5.5	-	8	4.5	37.5	22	M6	M5	28	-	-	8	-	-	20	-
32	45	34	32	33	12	55.5	47	39.5	40	9.5	9.5	5.5	M8	10.5	6	21	10	7.5	44	23.5	M6	G1\8	34	36	35	10	2.5	-	32	7
40	52	-	-	40	16	57	52	42.4	43.4	10.7	10.7	5.5	M8	9	6	21	13.5	7.5	47.9	29.6	M8	G1\8	-	-	40	13	3.5	-	31	8.5
50	64	-	-	50	16	72	64	42.2	44	11.2	11.2	6.5	M8	10.5	6	21	13.5	9	48.4	37.5	M8	G1\4	-	-	50	13	3.5	-	40	8.5
63	80	62	60	61	20	88	80	49.5	50.1	13	13	8.5	M12	15	8.5	31.5	13.5	9	54	50	M8	G1\4	60	62	61	17	4	-	48	8.5
80	98	-	-	77	25	104	98	57.5	58.1	16.2	16.2	10.5	M12	17	10.5	31.5	15	10.5	63.5	62	M16	G3\8	-	-	77	22	4	-	55	16.5
100	117	-	-	94	25	123.5	117	68.5	69.1	20.3	20.3	10.5	M12	17	10.5	31.5	15	10.5	74.5	80	M16	G3\8	-	-	94	22	4	-	65	16.5

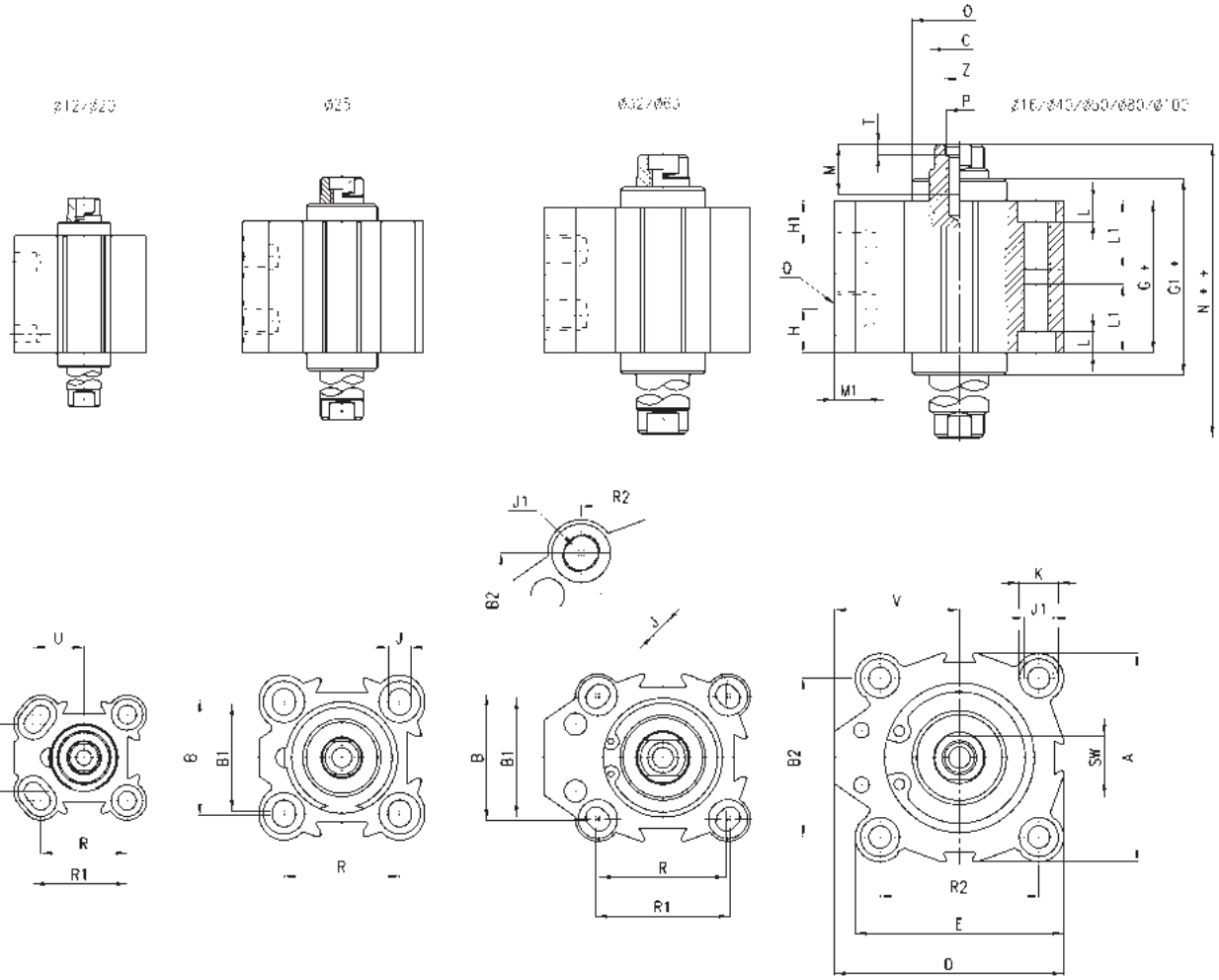
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Short-stroke cylinders Series QP

Note:
The cylinder's end stop must be provided externally.



+ = add the stroke once
+ = add the stroke twice



DIMENSIONS

Ø	A	B	B1	B2	øC h8	D	E	G+	G1+	H1	H	J	J1	K	L	L1	M	M1	N++	øO	P	Q	R	R1	R2	SW	T	U	V	Z
12	23.8	15.5	13	-	6	25	25	34.5	34.5	12.3	12.3	3.5	-	5.8	3	-	5.5	4.5	41	-	M3	M5	15.5	16.75	-	5	-	9	13.15	-
16	29	20	-	-	8	29	29	38	38.8	10.9	10.9	3.5	-	5.8	3	-	8	4.5	46.4	16.6	M4	M5	20	-	-	6	-	-	14.5	-
20	37	25.5	20	-	10	39.25	39.25	38.1	39.1	9.8	9.8	5.5	-	9	6	-	8	4.5	47.7	19.5	M6	M5	25.5	27.75	-	8	-	15	20.75	-
25	40	28	26	-	10	40	40	36.3	39.1	8	8	5.5	-	10	5.5	-	8	4.5	47.1	22	M6	M5	28	-	-	8	-	-	20	-
32	45	34	32	33	12	55.5	47	39.5	40.5	9.5	9.5	5.5	M8	10.5	6	21	10	7.5	48.5	23.5	M6	G1\8	34	36	35	10	2.5	-	32	7
40	52	-	-	40	16	57	52	42.4	44.4	10.7	10.7	5.5	M8	9	6	21	13.5	7.5	53.4	29.6	M8	G1\8	-	-	40	13	3.5	-	31	8.5
50	64	-	-	50	16	72	64	42.2	45.8	11.2	11.2	6.5	M8	10.5	6	21	13.5	9	54,8	37,5	M8	G1\4	-	-	50	13	3,5	-	40	8,5
63	80	62	60	61	20	88	80	49.5	50.7	13	13	8.5	M12	15	8.5	31.5	13.5	9	58.5	50	M8	G1\4	60	62	61	17	4	-	48	8.5
80	98	-	-	77	25	104	98	57.5	58.7	16.2	16.2	10.5	M12	17	10.5	31.5	15	10.5	69.5	62	M16	G3\8	-	-	77	22	4	-	55	16.5
100	117	-	-	94	25	123.5	117	68.5	69.7	20.3	20.3	10.5	M12	17	10.5	31.5	15	10.5	80.5	80	M16	G3\8	-	-	94	22	4	-	65	16.5

1
MOVEMENT

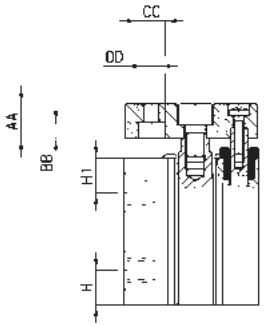
Short-stroke cylinder Series QPR

Note:
The cylinder's end stop must be provided externally.

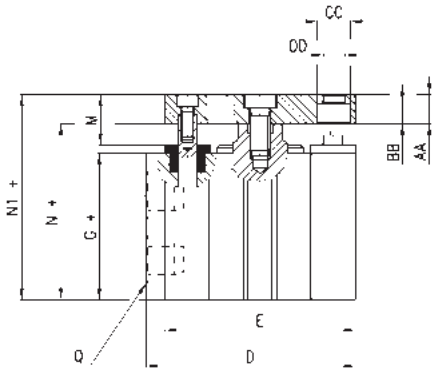


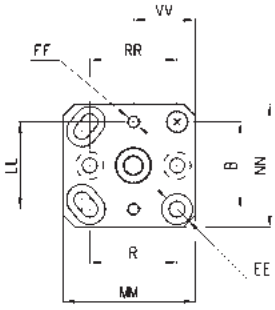
+ = add the stroke

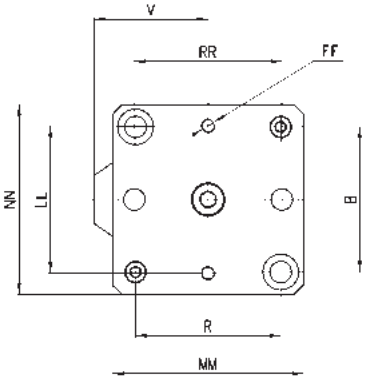
ø12/ø20

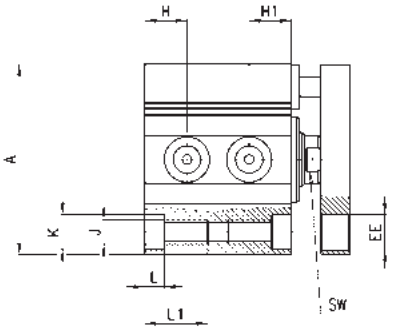


ø16/ø25/ø32/ø40/ø50/ø63/ø80/ø100









DIMENSIONS

Ø	A	B	D	E	G +	H1	H	J	K	L	L1	N +	N1 +	Q	R	SW	V	AA	BB	⌀CC	⌀DD	EE	FF	LL	MM	NN	RR	VV
12	23.8	15.5	25	25	29.6	12.3	7.8	3.5	5.8	3	-	32.9	37.9	M5	15.5	5	13.15	5	3.5	6.2	3.2	5.8	M3	15.5	25	24	15.5	12
16	29	20	29	29	32	10.9	8.7	3.5	5.8	3	-	36.4	41.4	M5	20	6	14.5	5	3.5	6.2	3.2	6.5	M3	20	28	28	20	-
20	37	25.5	39.25	39.25	31.2	9.8	9.8	5.5	9	6	-	36	46	M5	25.5	8	20.75	10	4.6	8	4.2	9	M4	25.5	38.5	36	25.5	18
25	40	28	40	40	32.1	8	6.9	5.5	10	5.5	-	37.5	47.5	M5	28	8	20	10	4.6	8	4.2	10	M4	27	40	40	28	-
32	45	33	55.5	47	39.5	9.5	9.5	M8	10.5	6	21	44	54	G1\8	35	10	32	10	6	9	5.5	9	M5	32	47	45	36	-
40	52	40	57	52	42.4	10.7	10.7	M8	9	6	21	47.9	57.9	G1\8	40	13	31	10	6	9	5.5	9	M5	40	52	50	40	-
50	64	50	72	64	42.2	11.2	11.2	M8	10.5	6	21	48.4	60.4	G1\4	50	13	40	12	6.8	10.5	6.5	10	M6	50	65	65	50	-
63	80	61	88	80	49.5	13	13	M12	15	8.5	31.5	54	66	G1\4	61	17	48	12	8.5	14	9	15	M6	62	80	80	62	-
80	98	77	104	98	57.5	16.2	16.2	M12	17	10.5	31.5	63.5	78.5	G3\8	77	22	55	15	10	16.5	11	17	M8	77	100	100	77	-
100	117	94	123.5	117	68.5	20.3	20.3	M12	17	10.5	31.5	74.5	89.5	G3\8	94	22	65	15	10	16.5	11	17	M8	94	115	115	94	-

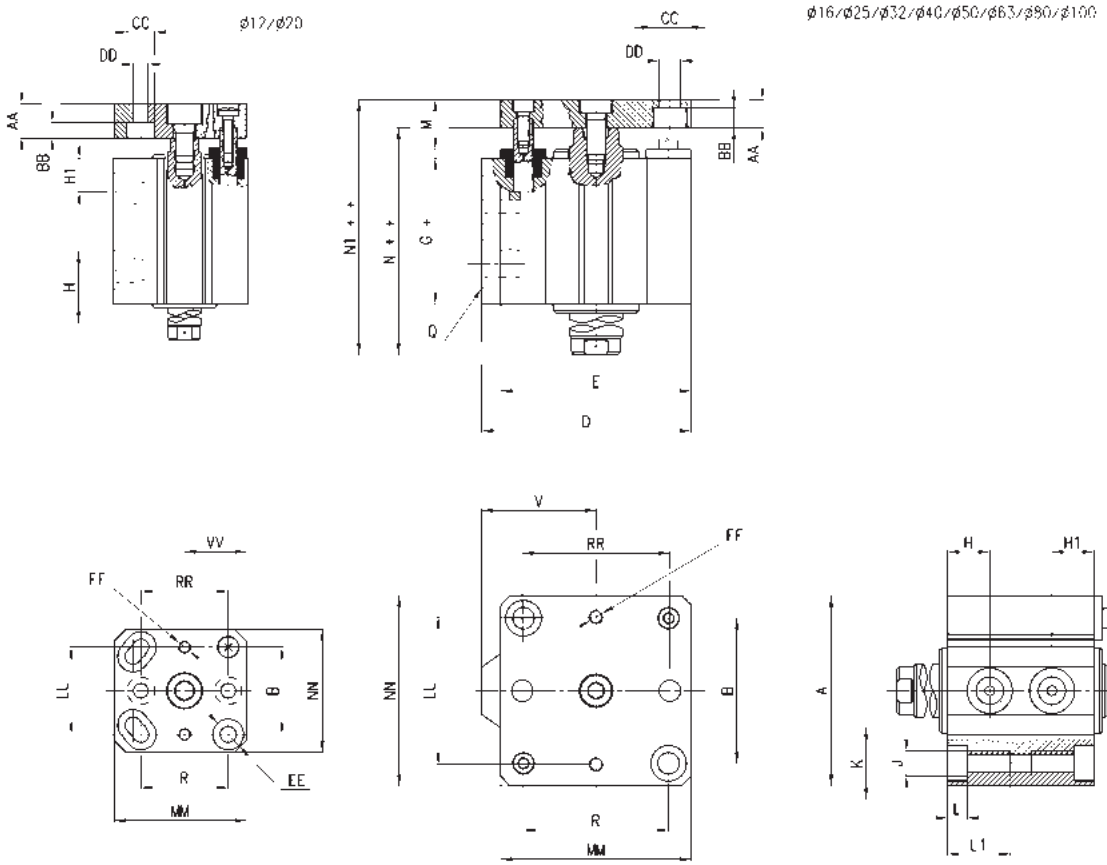
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Short-stroke cylinder Series QPR - through-rod

Note:
The cylinder's end stop must be provided externally.



+ = add the stroke once
++ = add the stroke twice



DIMENSIONS

Ø	A	B	D	E	G +	H1	H	J	K	L	L1	N + +	N1 + +	Q	R	SW	V	AA	BB	⌀CC	⌀DD	EE	FF	LL	MM	NN	RR	VV
12	23.8	15.5	25	25	37.3	12.3	12.3	3.5	5.8	3	-	41	46	M5	15.5	5	13.15	5	3.5	6.2	3.2	5.8	M3	15.5	25	24	15.5	12
16	29	20	29	29	38	10.9	10.9	3.5	5.8	3	-	47	52	M5	20	6	14.5	5	3.5	6.2	3.2	6.5	M3	20	28	28	20	-
20	37	25.5	39.25	39.25	38.1	9.8	9.8	5.5	9	6	-	47.7	57.7	M5	25.5	8	20.75	10	4.6	8	4.2	9	M4	25.5	38.5	36	25.5	18
25	40	28	40	40	36.3	8	8	5.5	10	5.5	-	47.1	57.1	M5	28	8	20	10	4.6	8	4.2	10	M4	27	40	40	28	-
32	45	33	55.5	47	39.5	9.5	9.5	M8	10.5	6	21	48.5	58.5	G1\8	35	10	32	10	6	9	5.5	9	M5	32	47	45	36	-
40	52	40	57	52	42.4	10.7	10.7	M8	9	6	21	53.4	63.4	G1\8	40	13	31	10	6	9	5.5	9	M5	40	52	50	40	-
50	64	50	72	64	42.2	11.2	11.2	M8	10.5	6	21	54.8	66.8	G1\4	50	13	40	12	6.8	10.5	6.5	10	M6	50	65	65	50	-
63	80	61	88	80	49.5	13	13	M12	15	8.5	31.5	58.5	70.5	G1\4	61	17	48	12	8.5	14	9	15	M6	62	80	80	62	-
80	98	77	104	98	57.5	16.2	16.2	M12	17	10.5	31.5	69.5	84.5	G3\8	77	22	55	15	10	16.5	11	17	M8	77	100	100	77	-
100	117	94	123.5	117	68.5	20.3	20.3	M12	17	10.5	31.5	80.5	95.5	G3\8	94	22	65	15	10	16.5	11	17	M8	94	115	115	94	-

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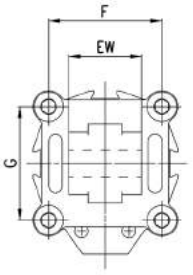
Male trunnion bracket Mod. L

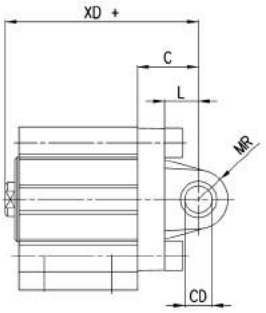
Material: Aluminium



Supplied with:
1x trunnion
4x screws

+ = add the stroke





DIMENSIONS

Mod.	Ø	CD^{H9}	MR	L	C	XD+	F	G	EW
L-QP-32	32	10	9	12	22	66	33	35	26
L-QP-40	40	12	13	15	25	73	40	40	28
L-QP-50	50	12	13	15	27	75,5	50	50	32
L-QP-63	63	16	15	20	32	86	61	61	40
L-QP-80	80	16	15	24	36	99,5	77	77	50
L-QP-100	100	20	18	29	41	115,5	94	94	60

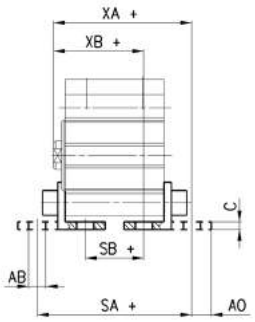
Feet bracket Mod. B

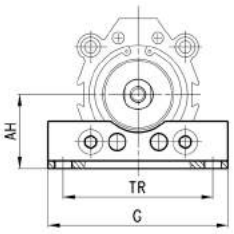
Material: zinc-plated steel.



Supplied with:
2x feet
4x screws

+ = add the stroke





DIMENSIONS

Mod.	Ø	C	SA+	XA+	SB+	XB+	TR	G	AB	AH	AO
B-QP-32	32	3	61.9	55.2	23.1	35.8	57	71	6.6	30	8.8
B-QP-40	40	3	64.8	59.1	26	39.7	64	78	6.6	33	8.8
B-QP-50	50	4	71.6	63.1	20.8	37.7	79	95	9	39	10.3
B-QP-63	63	4	81.9	70.2	25.1	41.8	95	113	11	46	13.8
B-QP-80	80	6	96.5	83	30.5	49	118	140	13	59	10.5
B-QP-100	100	6	114.5	97.5	22.5	51.5	137	162	13	71	17

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Series 31
compact cylinders

Double and single-acting, double-acting non-rotating, magnetic
ø12, 16, 20, 25 mm
ø 32, 40, 50, 63, 80, 100 mm UNITOP





The compact dimensions allow Series 31 single and double-acting magnetic cylinders to be installed within confined spaces. These cylinders are suitable for use with feet, brackets.

These cylinders are available in 10 different bore sizes from ø 12 to ø 100. The guides are inserted in the external profile parallel to the sliding axis on three sides. These guides are used to locate the switches that sense the piston position. The construction design of these cylinders provides excellent axis stability. They are available either with a male or female thread.
These cylinders can be supplied in W version for high temperatures (140°C). This last version is not magnetic.

- Compact design
- Wide range of models available
- Standard magnetic
- High temperature (double-acting and non magnetic)

GENERAL DATA

Type of construction	compact profile
Operation	single and double-acting
Materials	AL body and end-blocks - rolled stainless steel AISI 303 rod - AL piston rod PU seals or FKM seals for high temperatures (140°C)
Brackets	flange, feet, trunnion
Stroke min - max	Series 31R, 31M and 31F: ø12÷25 = 1÷200mm, ø32 ÷ 63 = 1÷300 mm, ø80÷100 = 1÷400mm The min. stroke for the use of sensors is 10 mm. Single-acting = 5÷25 mm (see the table of standard strokes)
Operating temperature	0°C ÷ 80°C (with dry air - 20°C)
Operating pressure	1 ÷ 10 bar (double-acting); 2 ÷ 10 bar (single-acting)
Fluid	filtered air, without lubrication. If lubricated air is used, it is recommended to use oil ISOVG32. Once applied the lubrication should never be interrupted.
Speed	10 ÷ 1000 mm/sec (without load)

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STANDARD STROKES

■ = Double-acting female, male ✖ = Non-rotating ● = Single-acting female, male

STANDARD STROKES										
Ø	5	10	15	20	25	30	40	50	60	80
12	■ ✖ ●	■ ✖ ●	■ ✖	■ ✖	■ ✖	■ ✖	■ ✖			
16	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖	■ ✖			
20	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖	■ ✖	■ ✖		
25	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖	■ ✖	■ ✖		
32	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖	■ ✖	■ ✖		
40	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖	■ ✖	■ ✖	■ ✖	■ ✖
50		■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖	■ ✖	■ ✖	■ ✖	■ ✖
63		■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖	■ ✖	■ ✖	■ ✖	■ ✖
80		■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖	■ ✖	■ ✖	■ ✖	■ ✖
100		■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖ ●	■ ✖	■ ✖	■ ✖	■ ✖	■ ✖

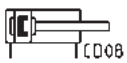
CODING EXAMPLE

31	M	2	A	032	A	050	

31	SERIES 31 = compact magnetic	
M	VERSION M = male rod thread, mounted with rod nut Mod. U F = female rod thread R = non-rotating with flange only double-acting	
2	OPERATION 1 = single-acting, front spring 2 = double-acting 3 = double-acting, through-rod 4 = single-acting, rear spring 7 = single-acting, through-rod	PNEUMATIC SYMBOLS CS06 CD08 CD12 CS08 CS10
A	MATERIALS A = rolled stainless steel AISI 303 rod - AL tube profile	
032	BORE 012 = 12 mm 016 = 16 mm 020 = 20 mm 025 = 25 mm 032 = 32 mm 040 = 40 mm 050 = 50 mm 063 = 63 mm 080 = 80 mm 100 = 100 mm	
A	DESIGN TYPE A = standard	
050	STROKE (see the table)	
	= standard S = special V = rod seal FKM W = seals in FKM for high temperatures (140°C), only available in the double-acting, non magnetic version	

PNEUMATIC SYMBOLS

The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.











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ACCESSORIES FOR COMPACT MAGNETIC CYLINDERS SERIES 31



Swivel ball joint Mod. GA (cyl. Mod. 31M)



90° swivel combination for trunnion Mod. I



Rear trunnion Mod. C



Rod fork end Mod. G (cyl. Mod. 31M)



Piston rod lock nut Mod. U (cyl. Mod. 31M)



90° swivel combin. for fem. trunnion Mod. ZC



Rear trunnion Mod. L



Rear and front flange Mod. D



Foot mount Mod. B



Coupling piece Mod. GKF



Self aligning rod Mod. GK



Piston rod socket joint Mod. GY (cyl. Mod. 31M)

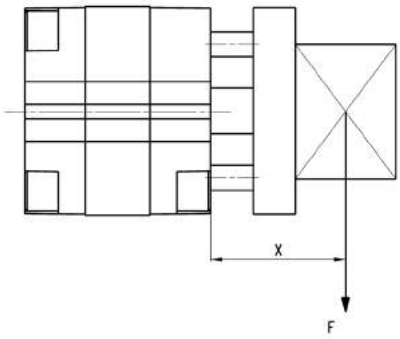


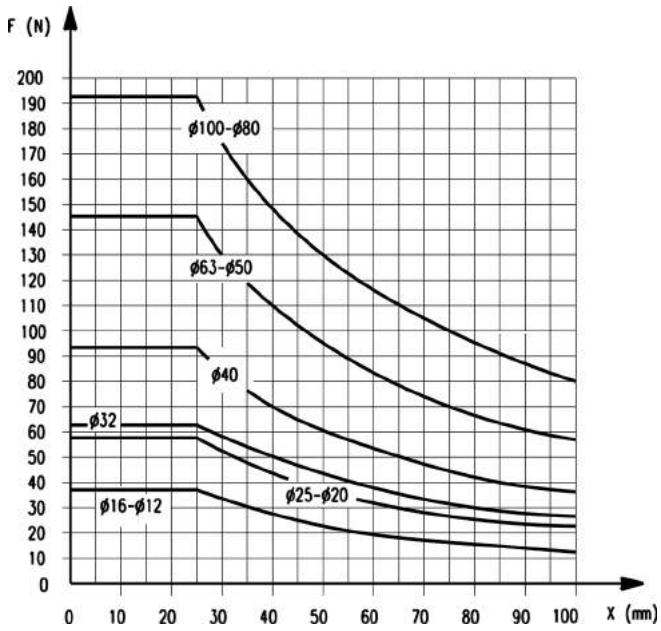




All accessories are supplied separately.

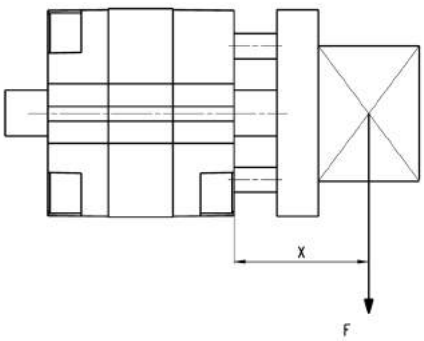
ANTI-ROTATION - Transversal load dependant on projection

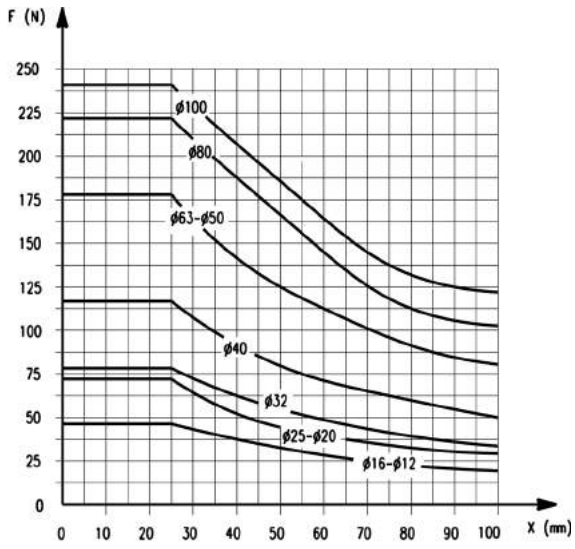




It is possible to determine the strokes required as shown in the general data in the absence of radial loads and torque moments.
When imposing radial loads on the cylinder it is important to respect the maximum projection of the baricenter.
In the presence of torque moments, it is recommended to respect the maximum stroke as shown in the diagrams.

ANTI-ROTATION THROUGH-ROD - Transversal load dependant on projection

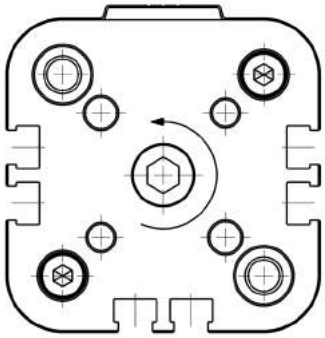


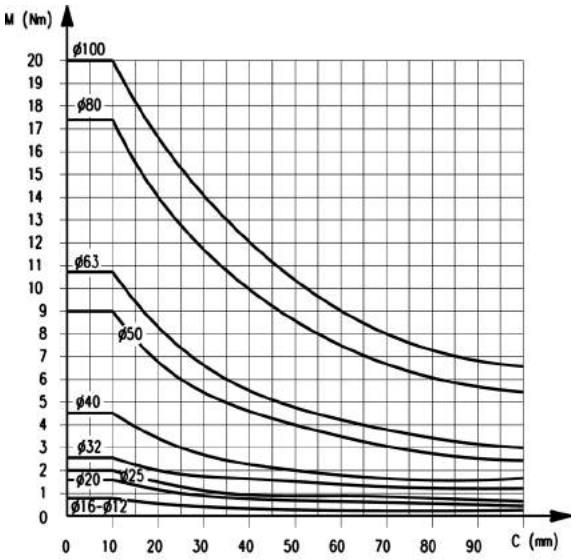


It is possible to determine the strokes required as shown in the general data in the absence of radial loads and torque moments.
When imposing radial loads on the cylinder it is important to respect the maximum projection of the baricenter.
In the presence of torque moments, it is recommended to respect the maximum stroke as shown in the diagrams.

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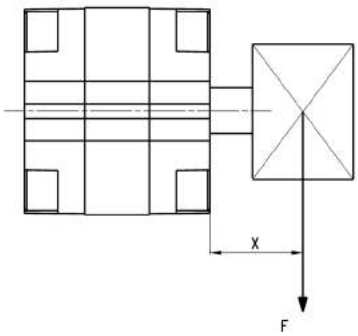
TORQUE MOMENT - dependant on stroke C

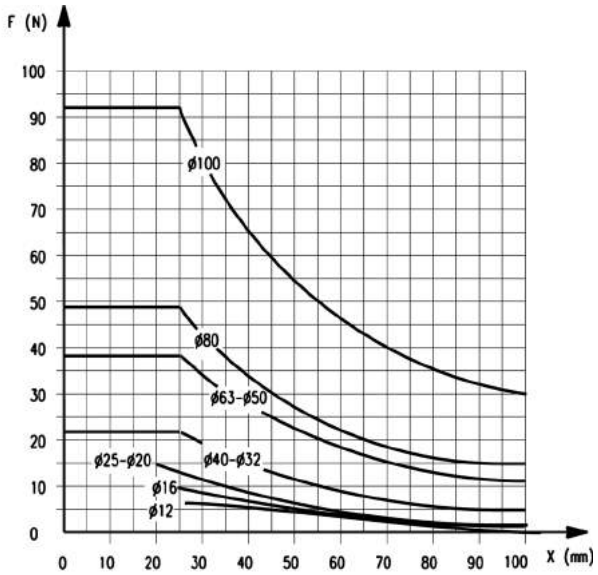




It is possible to determine the strokes required as shown in the general data in the absence of radial loads and torque moments.
When imposing radial loads on the cylinder it is important to respect the maximum projection of the baricenter.
In the presence of torque moments, it is recommended to respect the maximum stroke as shown in the diagrams.

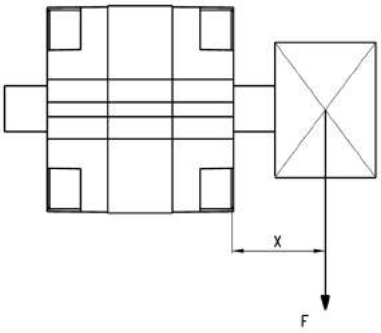
TRANSVERSAL LOAD - dependant on projection

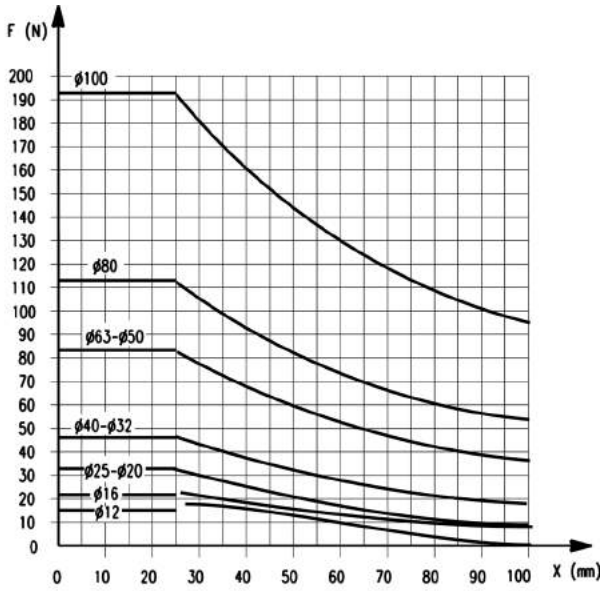




It is possible to determine the strokes required as shown in the general data in the absence of radial loads and torque moments.
When imposing radial loads on the cylinder it is important to respect the maximum projection of the baricenter.
In the presence of torque moments, it is recommended to respect the maximum stroke as shown in the diagrams.

TRANSVERSAL LOAD THROUGH-ROD - dependant on projection





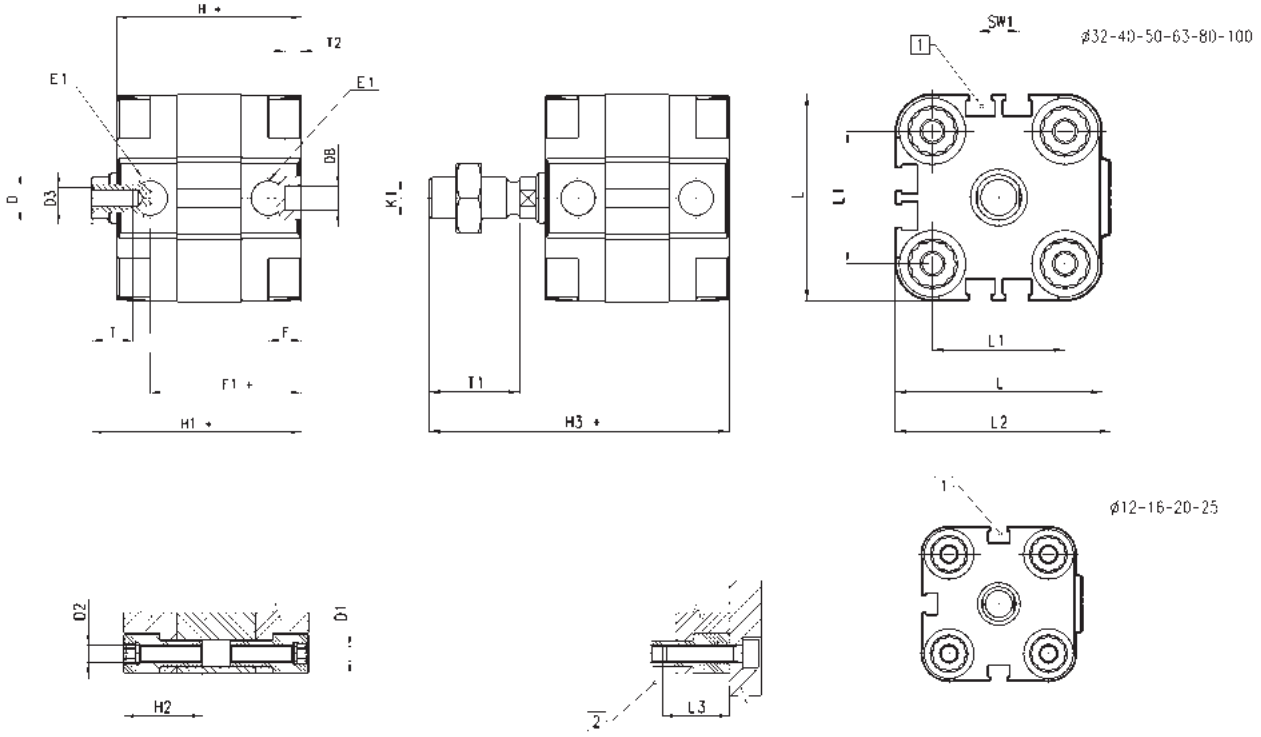
It is possible to determine the strokes required as shown in the general data in the absence of radial loads and torque moments.
When imposing radial loads on the cylinder it is important to respect the maximum projection of the baricenter.
In the presence of torque moments, it is recommended to respect the maximum stroke as shown in the diagrams.

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Compact magnetic cylinders Mod. 31F and 31M



1 = Groove for sensor CST
2 = Keep to the minimum screwing depth.
+ = add the stroke



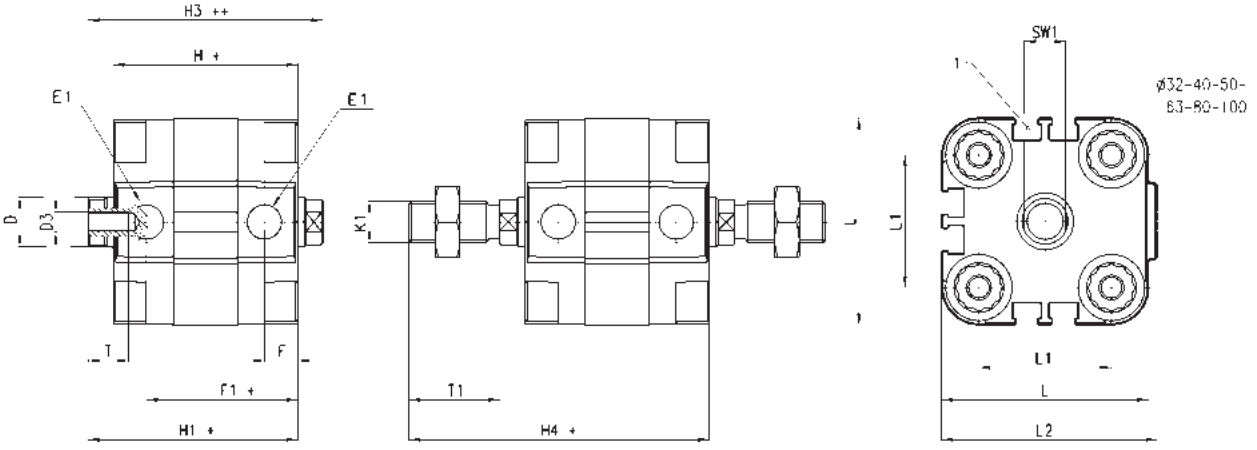
DIMENSIONS

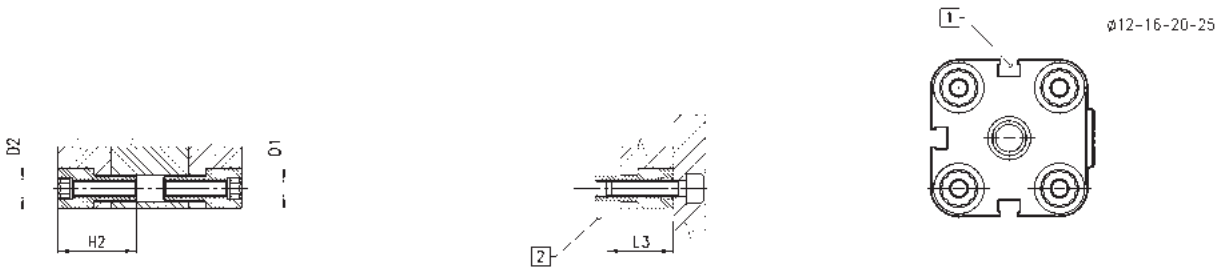
Ø	øD	øD1	D2	D3	øD8 (H9)	E1	F	F1+	H+	H1+	H2	H3+	K1	L	L1	L2	L3	T	T1	T2	SW1
12	6	3,5	M4	M3	6	M5	8	30	38	42,5	18,5	58,5	M6	29	18	30	16	6	16	4	5
16	8	3,5	M4	M4	6	M5	8	30	38	42,5	18,5	62,5	M8	29	18	30	16	8	20	4	7
20	10	4,5	M5	M5	6	M5	8	30	38	42,5	18,5	64,5	M10x1,25	36	22	37,5	18	10	22	4	8
25	10	4,5	M5	M5	6	M5	8	31,5	39,5	45	18,5	67	M10x1,25	40	26	41,5	18	10	22	4	8
32	12	5,5	M6	M6	6	G1\8	8	36,5	44,5	50,5	21,5	72,5	M10x1,25	50	32	52	20	12	22	4	10
40	12	5,5	M6	M6	6	G1\8	8	37,5	45,5	52	21,5	74	M10x1,25	60	42	62,5	20	12	22	4	10
50	16	6,5	M8	M8	6	G1\8	8	37,5	45,5	53	22,5	77	M12x1,25	68	50	71	20	12	24	4	13
63	16	8,5	M10	M8	8	G1\8	8	42	50	57,5	24,5	81,5	M12x1,25	87	62	91	25	12	24	4	13
80	20	8,5	M10	M10	8	G1\8	8,5	47,5	56	64	24,5	96	M16x1,5	107	82	111	25	16	32	4	17
100	25	8,5	M10	M12	8	G1\4	10,5	56	66,5	76,5	31,5	116,5	M20x1,5	128	103	133	25	20	40	4	22

Compact magnetic cylinders Mod. 31F and 31M - through-rod



1 = Groove for sensor CST
2 = Keep to the minimum screwing depth.
+ = add the stroke once
++ = add the stroke twice





DIMENSIONS

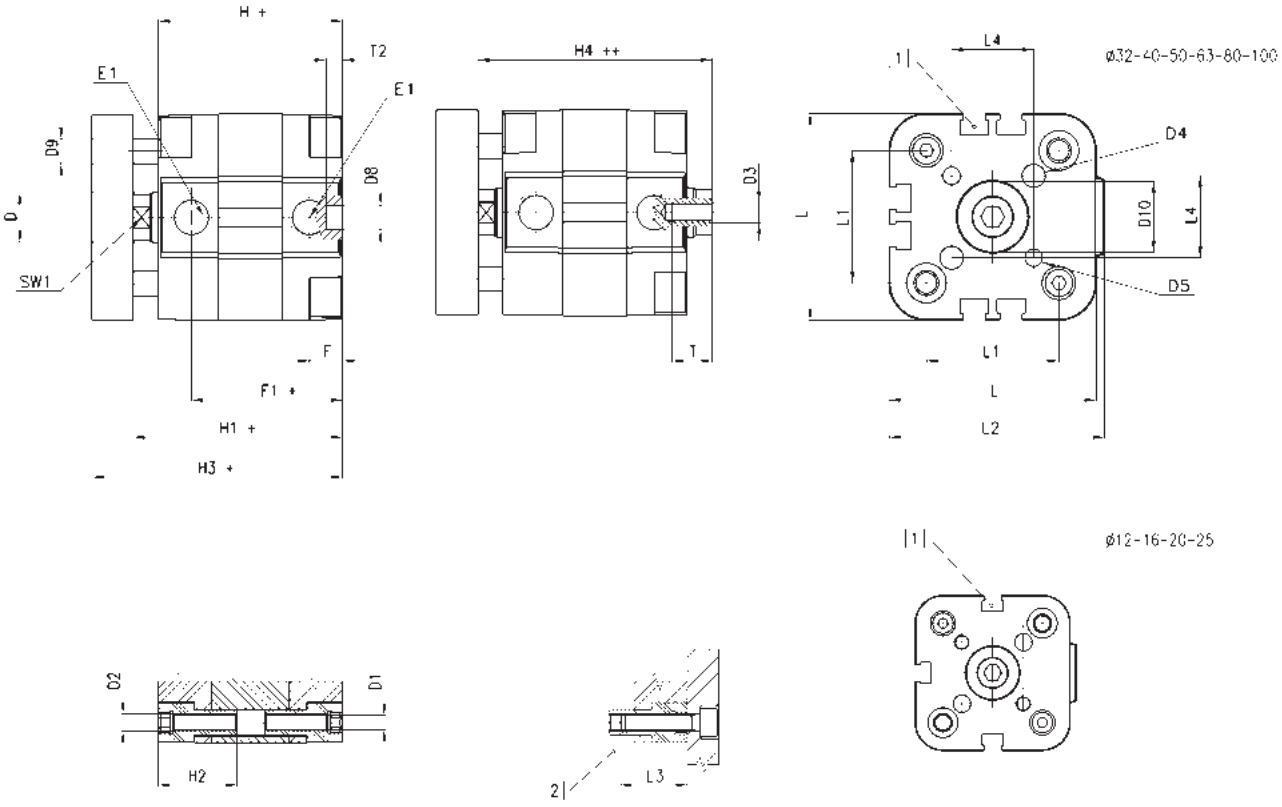
Ø	øD	øD1	D2	D3	E1	F	F1+	H+	H1+	H2	H3++	H4+	K1	L	L1	L2	L3	T	T1	SW1
12	6	3,5	M4	M3	M5	8	30	38	42,5	18,5	47	58,5	M6	29	18	30	16	6	16	5
16	8	3,5	M4	M4	M5	8	30	38	42,5	18,5	47	62,5	M8	29	18	30	16	8	20	7
20	10	4,5	M5	M5	M5	8	30	38	42,5	18,5	47	64,5	M10x1,25	36	22	37,5	18	10	22	8
25	10	4,5	M5	M5	M5	8	31,5	39,5	45	18,5	50,5	67	M10x1,25	40	26	41,5	18	10	22	8
32	12	5,5	M6	M6	G1\8	8	36,5	44,5	50,5	21,5	56,5	72,5	M10x1,25	50	32	52	20	12	22	10
40	12	5,5	M6	M6	G1\8	8	37,5	45,5	52	21,5	58,5	74	M10x1,25	60	42	62,5	20	12	22	10
50	16	6,5	M8	M8	G1\8	8	37,5	45,5	53	22,5	60,5	77	M12x1,25	68	50	71	20	12	24	13
63	16	8,5	M10	M8	G1\8	8	42	50	57,5	24,5	65	81,5	M12x1,25	87	62	91	25	12	24	13
80	20	8,5	M10	M10	G1\8	8,5	47,5	56	64	24,5	72	96	M16x1,5	107	82	111	25	16	32	17
100	25	8,5	M10	M12	G1\4	10,5	56	66,5	76,5	31,5	86,5	116,5	M20x1,5	128	103	133	25	20	40	22

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Compact magnetic cylinders Mod. 31R



1 = Groove for sensor CST
2 = Keep to the minimum screwing depth.
+ = add the stroke once
++ = add the stroke twice



DIMENSIONS

Ø	øD	øD1	D2	D3	øD4(H9)	D5	D8(H9)	øD9	D10	E1	F	F1+	H+	H1+	H2	H3+	H4++	L	L1	L2	L3	L4	T	T2	SW1
12	6	3,5	M4	M3	3	M3	6	5	6	M5	8	30	38	42,5	18,5	48,5	47	29	18	30	16	9,9	6	4	5
16	8	3,5	M4	M4	3	M3	6	5	8	M5	8	30	38	42,5	18,5	48,5	47	29	18	30	16	9,9	8	4	7
20	10	4,5	M5	M5	4	M4	6	6	10	M5	8	30	38	42,5	18,5	50,5	47	36	22	37,5	18	12	10	4	8
25	10	4,5	M5	M5	5	M5	6	6	14	M5	8	31,5	39,5	45	18,5	53	50,5	40	26	41,5	18	15,6	10	4	8
32	12	5,5	M6	M6	5	M5	6	6	17	G1\8	8	36,5	44,5	50,5	21,5	60,5	56,5	50	32	52	20	19,8	12	4	10
40	12	5,5	M6	M6	5	M5	6	6	17	G1\8	8	37,5	45,5	52	21,5	62	58,5	60	42	62,5	20	23,3	12	4	10
50	16	6,5	M8	M8	6	M6	6	10	22	G1\8	8	37,5	45,5	53	22,5	65	60,5	68	50	71	20	29,7	12	4	13
63	16	8,5	M10	M8	6	M6	8	10	22	G1\8	8	42	50	57,5	24,5	69,5	65	87	62	91	25	35,4	12	4	13
80	20	8,5	M10	M10	8	M8	8	12	28	G1\8	8,5	47,5	56	64	24,5	78	72	107	82	111	25	46	16	4	17
100	25	8,5	M10	M12	10	M10	8	12	30	G1\4	10,5	56	66,5	76,5	31,5	90,5	86,5	128	103	133	25	56,6	20	4	22

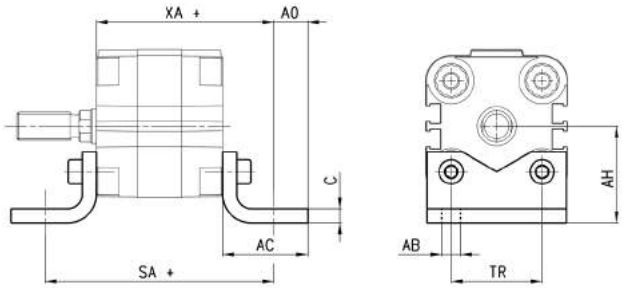
Foot mount Mod. B

Material: zinc-plated steel



Supplied with:
2x feet
4x screws

+ = add the stroke



DIMENSIONS									
Mod.	Ø	C	SA+	XA+	TR	⌀AB	AH	AO	AC
B-31-12-16	12 - 16	3	64	51	18	5,5	22	7	20
B-32-20	20	4	70	54	22	6,6	27	9	25
B-31-25	25	4	71,5	55,5	26	6,6	29	9	25
B-31-32	32	5	80,5	62,5	32	6,6	34	12	30
B-31-40	40	5	85,5	65,5	42	9	40,5	10	30
B-31-50	50	5,5	93,5	69,5	50	9	47	11	35
B-31-63	63	5,5	104	77	62	11	56,5	13	40
B-31-80	80	7,5	116	86	82	11	68,5	15	45
B-31-100	100	7,5	132,5	99,5	103	13,5	81	12	45

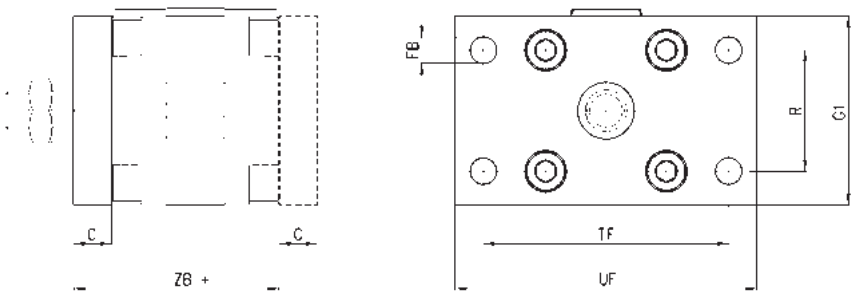
Rear and front flange Mod. D-E

Material: zinc-plated steel



Supplied with:
1x flange
4x screws

+ = add the stroke



DIMENSIONS								
Mod.	Ø	C	ZB+	TF	R	UF	G1	⌀FB
D-E-31-12-16	12 - 16	10	48	43	-	55	29	5,5
D-E-32-20	20	10	48	55	-	70	36	6,6
D-E-32-25	25	10	49,5	60	-	76	40	6,6
D-E-31-32	32	10	54,5	65	32	80	50	7
D-E-31-40	40	10	55,5	82	36	102	60	9
D-E-31-50	50	12	57,5	90	45	110	68	9
D-E-31-63	63	15	65	110	50	130	87	9
D-E-31-80	80	15	71	135	63	160	107	12
D-E-31-100	100	15	81,5	163	75	190	128	14

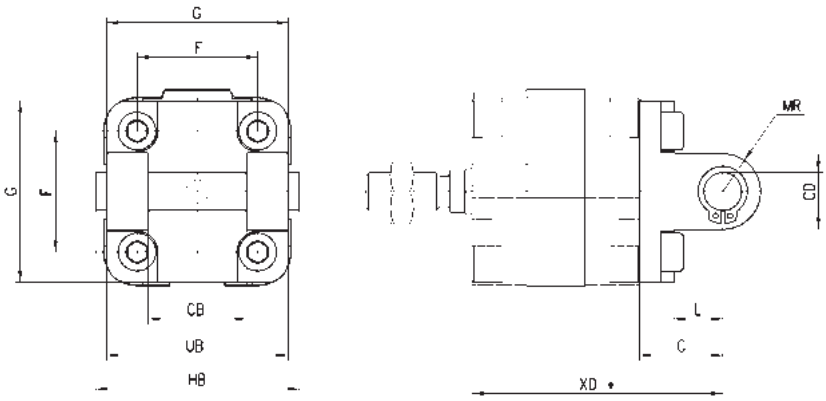
Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Female rear trunnion Mod. C

Material: Aluminium



Supplied with:
4x screws
1x clevis pin
1x centering pin
1x trunnion
+ = add the stroke



DIMENSIONS

Mod.	Ø	⌀CD	L	C	XD+	MR	F	G	CB	UB	HB
C-31-32	32	10	13	21	66,5	11	32	50	26	45	54
C-31-40	40	12	16	25	70,5	13	42	60	28	52	62
C-31-50	50	12	16	27	72,5	13	50	68	32	60	70
C-31-63	63	16	21	32	82	17	62	87	40	70	82
C-31-80	80	16	23	36	92	17	82	102	50	90	102
C-31-100	100	20	26	41	107,5	21	103	128	60	110	126

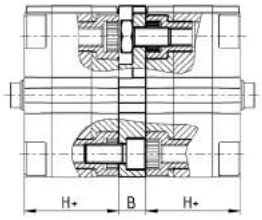
Intermediate bracket Mod. DC

Flange in aluminium



Supplied with:
1x flange
1x centering pin
4x screws

+ = add the stroke



DIMENSIONS

Mod.	Ø	B	H+	
DC-31-12-16	12-16	12,5	38	400
DC-31-20	20	12,5	38	400
DC-31-25	25	13	39,5	400
DC-31-32	32	14,5	44,5	600
DC-31-40	40	14,5	45,5	600
DC-31-50	50	14,5	45,5	600
DC-31-63	63	14,5	50	600
DC-31-80	80	16,5	56	800
DC-31-100	100	19,5	66,5	800

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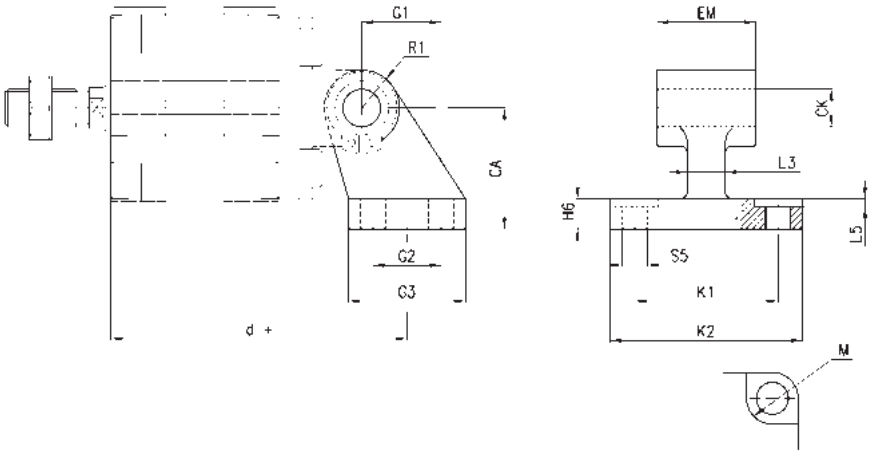
90° Swivel combination for female trunnion Mod. ZC

Male rear
Material: aluminium



Supplied with:
1x male support

+ = add the stroke



DIMENSIONS

Mod.	Ø	M	⌀CK	⌀S5	d+	K1	K2	L3	G1	L5	G2	EM	G3	CA	H6	R1
ZC-32	32	11	10	6,6	78,5	38	51	10	21	1,6	18	26	31	32	8	10
ZC-40	40	11	12	6,6	83,5	41	54	15	24	1,6	22	28	35	36	10	11
ZC-50	50	15	12	9	90,5	50	65	16	33	1,6	30	32	45	45	12	13
ZC-63	63	15	16	9	101,5	52	67	16	37	1,6	35	40	50	50	14	15
ZC-80	80	18	16	11	119	66	86	20	47	2,5	40	50	60	63	14	15
ZC-100	100	18	20	11	137,5	76	96	20	55	3,2	50	60	70	71	17	19

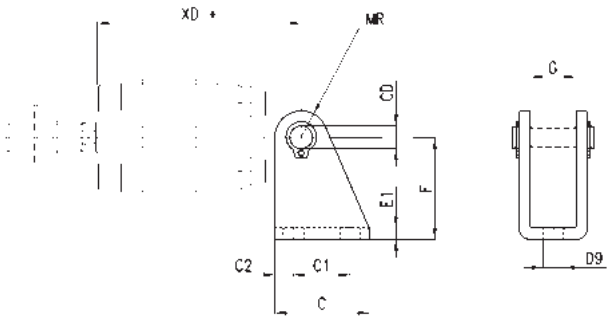
90° swivel combination for trunnion Mod. I

Material: zinc-plated steel



Supplied with:
2x Seeger
1x female support
1x piston pin

+ = add the stroke



DIMENSIONS

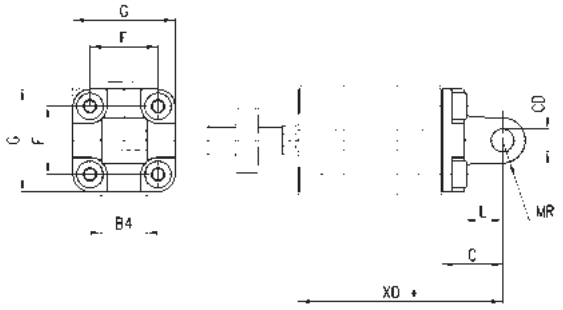
Mod.	Ø	⌀CD	C	C1	⌀C2	XD+	MR	⌀D9	E1	F	G
I-12-16	12	6	25	15	5	54	7	5,5	3	27	12,1
I-12-16	16	6	25	15	5	54	7	5,5	3	27	12,1
I-20-25	20	8	32	20	6	58	10	6	4	30	16,1
I-20-25	25	8	32	20	6	59,5	10	6	4	30	16,1

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Rear male trunnion Mod. L



Material: aluminium
Supplied with:
4x screws
1x male trunnion
1x centering pin



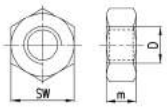
DIMENSIONS									
	Ø	ø CD	L	C	XD+	MR	F	G	B4
L-31-12-16	12	6	10	16	54	6	18	30	12
L-31-12-16	16	6	10	16	54	6	18	30	12
L-31-20	20	8	14	20	58	8	22	37,5	16
L-31-25	25	8	14	20	59,5	8	26	41,5	16

+ = add the stroke

Piston rod lock nut Mod. U



Material: zinc-plated steel
ISO 4035

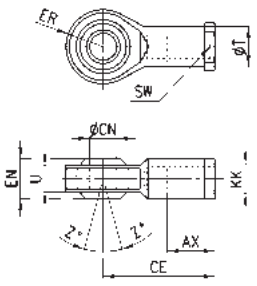


DIMENSIONS				
Mod.	Ø cylinder	D	m	SW
U-12-16	12	M6X1	4	10
U-20	16	M8X1,25	5	13
U-25-32	20-40	M10X1,25	6	17
U-40	50-63	M12X1,25	7	19
U-50-63	80	M16X1,5	8	24
U-80-100	100	M20X1,5	9	30

Swivel ball joint Mod. GA



Material: zinc-plated steel
ISO 8139



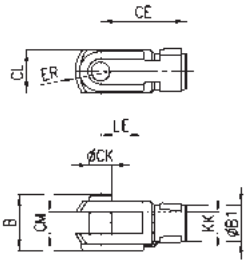
DIMENSIONS											
Mod.	Ø	ø CN	U	EN	ER	AX	CE	KK	T	Z	SW
GA-12-16	12	6	7	9	10	12	30	M6X1	10	6,5	11
GA-20	16	8	9	12	12	16	36	M8X1,25	12,5	6,5	14
GA-32	20÷40	10	10,5	14	14	20	43	M10X1,25	15	6,5	17
GA-40	50÷63	12	12	16	16	22	50	M12X1,25	17,5	6,5	19
GA-50-63	80	16	15	21	21	28	64	M16X1,5	22	7,5	22
GA-80-100	100	20	18	25	25	33	77	M20X1,5	27,5	7	30

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Rod fork end Mod. G

ISO 8140
Material: zinc-plated steel





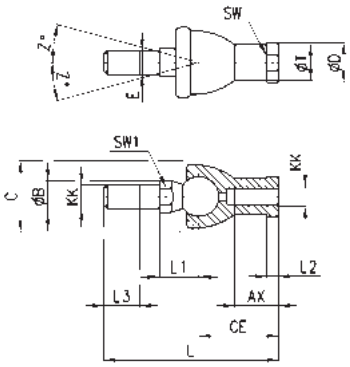
DIMENSIONS

Mod.	Ø	B	⌀B1	⌀CK	LE	CM	CL	ER	CE	KK
G-12-16	12	16	10	6	12	6	12	7	24	M6X1
G-20	16	22	14	8	16	8	16	42	32	M8X1,25
G-25-32	20 ÷ 40	26	18	10	20	10	20	12	40	M10X1,25
G-40	50 ÷ 63	32	20	12	24	12	24	14	48	M12X1,25
G-50-63	80	40	26	16	32	16	32	19	64	M16X1,5
G-80-100	100	48	34	20	40	20	40	25	80	M20X1,5

Piston rod socket joint Mod. GY

Material: zama and zinc-plated steel





DIMENSIONS

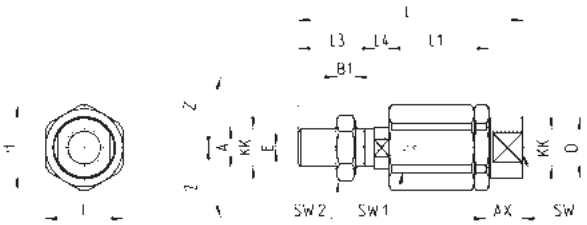
Mod.	Ø	KK	L	CE	L2	AX	E	⌀B	⌀C	⌀T	⌀D	L1	L3	SW1	SW	Z
GY-12-16	12	M6X1	55	28	5	15	6	10	20	10	13	12,2	11	8	11	15
GY-20	16	M8X1,25	65	32	5	16	8	12	24	12,5	16	16	12	10	14	15
GY-32	20÷40	M10X1,25	74	35	6,5	18	10	14	28	15	19	19,5	15	11	17	15
GY-40	50÷63	M12X1,25	84	40	6,5	20	12	19	32	17,5	22	21	17	17	19	15
GY-50-63	80	M16X1,5	112	50	8	27	16	22	40	22	27	27,5	23	19	22	11
GY-80-100	100	M20X1,5	133	63	10	38	20	27	45	27,5	34	31,5	25	24	30	7,5

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Self aligning rod Mod. GK

For cylinders with male rod only.
Material: zinc-plated steel





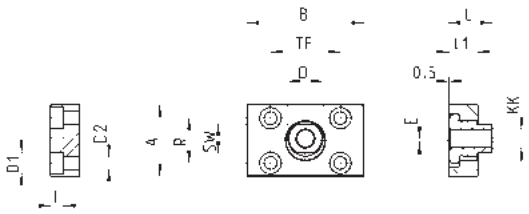
DIMENSIONS

Mod.	Ø	KK	L	L1	L3	L4	Ø A	Ø D	H	I	SW	SW1	SW2	B1	AX	Z	E
GK-20	16	M8x1,25	57	26	21	5	8	12,5	19	17	11	7	13	4	16	4	2
GK-25-32	20-25-32-40	M10x1,25	71,5	35	20	7,5	14	22	32	30	19	12	17	5	22	4	2
GK-40	50-63	M12x1,25	75,5	35	24	7,5	14	22	32	30	19	12	19	6	22	4	2
GK-50-63	80	M16x1,5	104	53	32	10	22	32	45	41	27	20	24	8	30	3	2
GK-80-100	100	M20x1,5	119	53	40	10	22	32	45	41	27	20	30	10	37	3	2

Coupling piece Mod. GKF

Material: zinc-plated steel





DIMENSIONS

Mod.	Ø	KK	A	B	R	TF	L	L1	I	Ø D	Ø D1	Ø D2	SW	E
GKF-20	16	M8x1,25	30	35	20	25	22,5	10	-	14	5,5	-	13	1,5
GKF-25-32	20-25-32-40	M10x1,25	37	60	23	36	22,5	15	6,8	18	11	6,6	15	2
GKF-40	50-63	M12x1,25	56	60	38	42	22,5	15	9	20	15	9	15	2,5
GKF-50-63	80	M16x1,5	80	80	58	58	26,5	15	10,5	25	18	11	22	2,5
GKF-80-100	100	M20x1,5	90	90	65	65	32,5	20	13	30,5	20	14	27	2,5

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Series 31 compact cylinders, Tandem and Multi-position versions

Double-acting, magnetic
ø 12, 16, 20, 25, 32, 40, 50, 63, 80, 100 mm



- Compact design
- Available in different diameters and strokes
- Standard magnetic

The compact dimensions allow Series 31 cylinders to be installed within very small spaces. These cylinders are suitable for use with feet, flange and trunnion mountings.

In order to complete the compact cylinder series, two new versions have been introduced: tandem and multi-position.
The new Tandem version with 2, 3 or 4 stages generates a thrust force which is 2, 3 or 4 times that of the normal cylinder (standard traction force).
The Multi-position version allows a maximum of 3 different positions which are determined by the stroke of the individual actuators.

GENERAL DATA

Type of construction	compact profile
Operation	double-acting
Materials	AL body and end-blocks - rolled stainless steel AISI 303 rod - AL piston - PU rod and piston seals
Mounting	flange - feet - trunnion
Min and max strokes (for tandem 31M and 31F)	ø12÷25 = 1÷80 mm ø32÷100 = 1÷100 mm
Min and max strokes (for multi-position 31M and 31F)	ø12÷25 = dimension for X2 max 200 mm ø32÷63 = dimension for X2 max 300 mm ø80÷100 = dimension for X2 max 400 mm
Operating temperature	0°C ÷ 80°C (with dry air -20°C)

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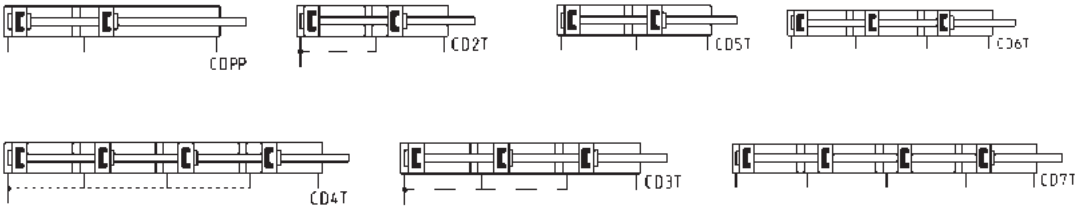
CODING EXAMPLE

31	M	2	A	032	A	050	N	2

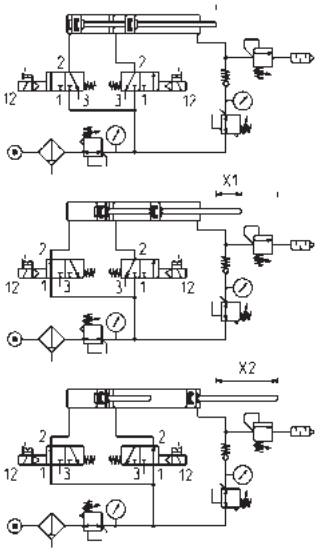
31	SERIES	
M	VERSION M = male rod thread, mounted with rod nut Mod. U F = female rod thread	
2	OPERATION 2 = double-acting	PNEUMATIC SYMBOLS CDPP
A	MATERIALS A = rolled stainless steel rod AISI 303 - AL tube profile	
032	BORE 012 = 12 mm - 016 = 16 mm - 020 = 20 mm - 025 = 25 mm 032 = 32 mm - 040 = 40 mm - 050 = 50 mm - 063 = 63 mm 080 = 80 mm - 100 = 100 mm	CD5T, CD6T, CD7T CD2T, CD3T, CD4T CD2T, CD3T, CD4T
A	CONSTRUCTION TYPE A = standard	
050	STROKE - tandem stroke (mm) - multi-position X1mm/X2mm. Insert stroke without the initial 0 (see application scheme).	
N	TANDEM AND MULTI-POSITION	
2	STAGES (only for tandem) 2 = 2 stages - 3 = 3 stages - 4 = 4 stages	

PNEUMATIC SYMBOLS

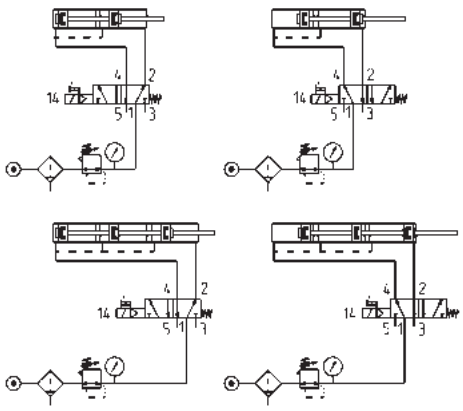
The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.



Application schemes



Multi-position
Example for ordering:
X1 = 25 mm and X2 = 100 mm
31M2A032A25/100N



Tandem
Example for ordering:
stroke 25 mm
31M2A032A025N2 (2 stages)

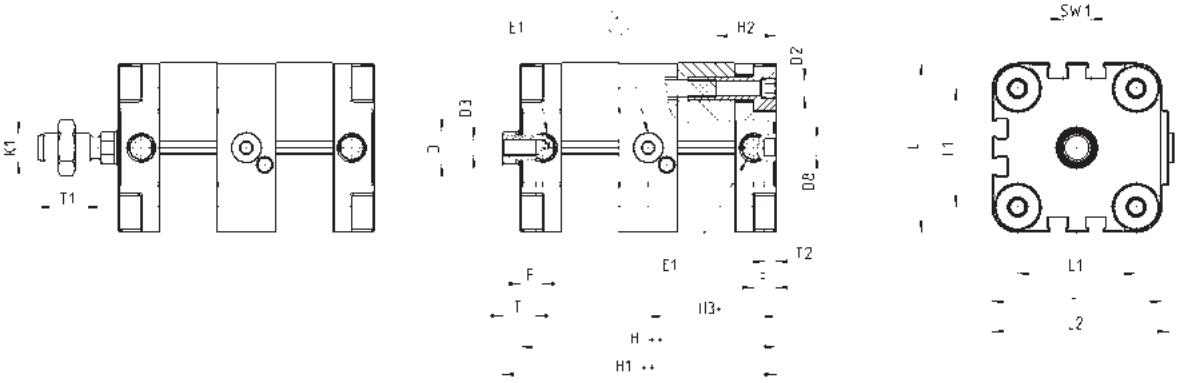
1
MOVEMENT

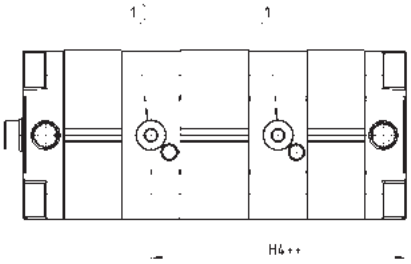
Cylinders Series 31 - Tandem version

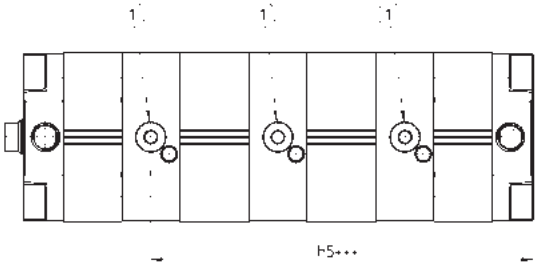
Mod. 31F2A...N...
Mod. 31M2A...N...



+ = add the stroke once
++ = add the stroke twice
+++ = add the stroke three times
++++ = add the stroke four times
① = air inlet cylinders ø12, 16, 20, 25







DIMENSIONS

Ø	øD	D2	D3	øD8	E1	F	H++	H1++	H2	H3+	H4++	H5+++	K1	L	L1	L2	T	T1	T2	SW1	3ST.H+++	3ST.H1+++	4ST.H++++	4ST.H1++++
12	6	M4	M3	6	M5	8	63,5	68	12,5	34,5	60	85,5	M6	29	18	30	6	16	4	5	89	93,5	114,5	119
16	8	M4	M4	6	M5	8	63,5	68	12,5	34,5	60,5	86,5	M8	29	18	30	8	20	4	7	89,5	94	115,5	120
20	10	M5	M5	6	M5	8	78	82.5	17	43,5	83,5	123,5	M10x1,25	36	22	37,5	10	22	4	8	118	122,5	158	162,5
25	10	M5	M5	6	M5	8	78	83,5	17	39,1	78,1	117,1	M10x1,25	40	26	41,5	10	22	4	8	117	122,5	156	161,5
32	12	M6	M6	6	G1/8	8	90,5	96,5	21,5	46,5	92,6	138,7	M10x1,25	50	32	52	12	22	4	10	136,5	142,5	182,5	188,5
40	12	M6	M6	6	G1/8	8	90,5	97	21,5	46,5	90,2	135,2	M10x1,25	60	42	62,5	12	22	4	10	135,5	142	180,5	187
50	16	M8	M8	6	G1/8	8	90,5	98	18	47,5	92,5	137,5	M12x1,25	68	50	71	12	24	4	13	135,5	143	180	188
63	16	M10	M8	8	G1/8	8	100,5	108	26	50,2	100,7	151,2	M12x1,25	87	62	91	12	24	4	13	151	158,5	201,5	209
80	20	M10	M10	8	G1/8	8,5	112	120	26,5	59	115	171	M16x1,5	107	82	111	16	32	4	17	168	176	224	232
100	25	M10	M12	8	G1/4	10,5	135,5	145,5	26,5	71,3	140,4	209,5	M20x1,5	128	103	133	20	40	4	22	204,5	214,5	237,5	283,5

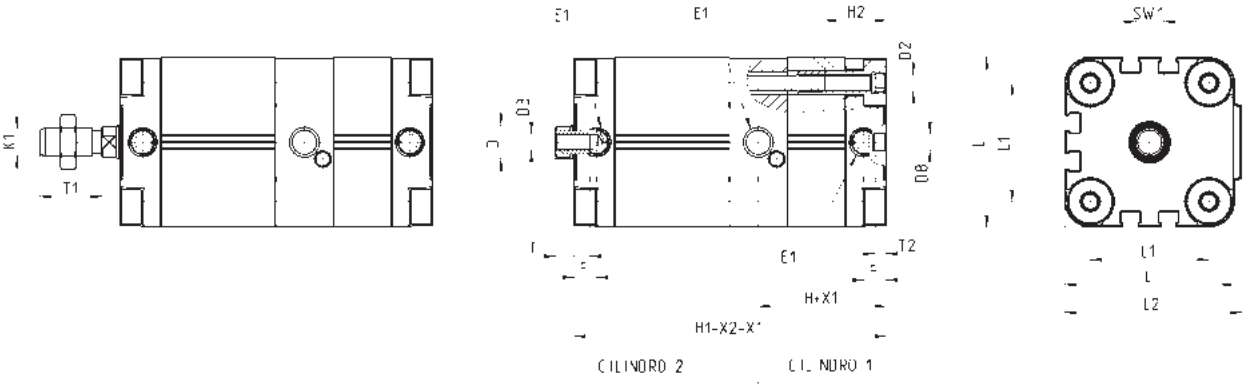
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Cylinders Series 31 - multi-position version

Mod. 31F2A...X1-X2N
Mod. 31M2A...X1-X2N



X1 = stroke of stage 1
X2 = total stroke of application scheme
+ = add the stroke



DIMENSIONS

Ø	øD	D2	D3	øD8	E1	F	H+x1	H1+x2+x1	H2	K1	L	L1	L2	T	T1	T2	SW1
12	6	M4	M3	6	M5	8	34,5	63,5	12,5	M6	29	18	30	6	16	4	5
16	8	M4	M4	6	M5	8	34,5	63,5	12,5	M8	29	18	30	8	20	4	7
20	10	M5	M5	6	M5	8	43,5	78	17	M10x1,25	36	22	37,5	10	22	4	8
25	10	M5	M5	6	M5	8	39,1	78	17	M10x1,25	40	26	41,5	10	22	4	8
32	12	M6	M6	6	G1/8	8	46,5	90,5	21,5	M10x1,25	50	32	52	12	22	4	10
40	12	M6	M6	6	G1/8	8	45	90,5	21,5	M10x1,25	60	42	62,5	12	22	4	10
50	16	M8	M8	6	G1/8	8	47	90,5	18	M12x1,25	68	50	71	12	24	4	13
63	16	M10	M8	8	G1/8	8	50	100,5	26	M12x1,25	87	62	91	12	24	4	13
80	20	M10	M10	8	G1/8	8,5	59	112	26,5	M16x1,5	107	82	111	16	32	4	17
100	25	M10	M12	8	G1/4	10,5	71	135,5	26,5	M20x1,5	128	103	133	20	40	4	22

Products designed for industrial applications.
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Series ST
Stopper cylinders

New

Single and double-acting, magnetic, non-rotating
Sizes 20, 32, 40, 50 mm



- In compliance with UNITOP and ISO 21287 standards
- Compact design
- Can be used with magnetic sensors
- Reliable and silent
- Non-rotating rod version
- Roller rod version
- Female threaded rod version
- High capacity to absorb kinetic energy of workpiece-holder pallets
- Mechanical end-stroke shock absorbers

The Series ST Stopper cylinders are pneumatic actuators with rod, complying with UNITOP and ISO 21287 standards, where rod and bushing have been specifically enlarged to ensure high resistance to radial loads and shocks. These cylinders are available in two versions, double-acting and single-acting, and with rear spring. The non-rotating rod version is also available.

The detection of the piston position is enabled by means of proximity switches (Mod. CST or CSH) which are mounted in slots along three sides of the cylinder profile. It is possible to cover the slots with a proper profile (Mod. S-CST-500). The high resistance to shocks and radial loads and the easy mounting makes Series ST particularly suitable for use in transport/conveyor lines where it is required to stop the transit of workpieces and workpiece-holder pallets.

GENERAL DATA

Construction	profile with self-tapping screws
Cylinder design	compact based on UNITOP and ISO 21287 standards
Operation	double-acting, single-acting rear spring, double-acting rear spring
Sizes	20, 32, 40 (Mod. ST32 only), 50 mm
Strokes (min - max)	5 ÷ 30 mm (see the table of standard strokes)
Rod versions	without thread, with female thread, non-rotating, non-rotating with feemale thread, non-rotating with roller
Non-rotating function	with technopolymer anti-friction ring
Fixing and mounting	direct with holes on the end-caps, in any position
Type of cushioning	mechanical end-stroke shock absorbers in rubber
Max frequency	5 Hz (Ø 20, 32, 40 mm) - 3 Hz (Ø 50 mm)
Working temperature	0°C ÷ 80°C (with dry air -20°C)
Storage temperature	-20°C ÷ 100°C
Working pressure	1 ÷ 10 bar (double-acting) - 2 ÷ 10 bar (single-acting)
Max rotation play	± 4° (Ø 20, 32 e 40 mm) - ± 3° (Ø 50 mm)
Max torque (for non-rotating version)	1.5 Nm (Ø 20 mm) - 2.5 Nm (Ø 32 e 40 mm) - 3.5 Nm (Ø 50 mm)
Medium	filtered air in class 7.8.4 according to ISO 8573-1 standard.
Lubrication	Not required. The cylinder is pre-lubricated. If lubricated air is used, it is recommended to use oil ISOVG32. Once applied the lubrication should never be interrupted.
Use with external sensors	slots on the three sides for proximity switches Mod. CST and CSH

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STANDARD STROKES

✖ = Single-acting and double-acting

STANDARD STROKES						
Mod.	Ø	10	15	20	25	30
ST31	20		✖			
ST31	32			✖		
ST31	50					✖
ST32	20	✖	✖			
ST32	32		✖	✖	✖	
ST32	40			✖	✖	✖
ST32	50			✖	✖	✖

CODING EXAMPLE

ST	31	2	A	050	A	030

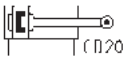
ST	SERIES	
31	CONSTRUCTION STANDARD: 31 = UNITOP 32 = ISO 21287	
2	OPERATION: 2 = double-acting 4 = single-acting, rear spring 9 = double-acting, rear spring	PNEUMATIC SYMBOLS: CD20 CS15 CS16
A	DESIGN: A = standard R = non-rotating (for Mod. ST32 only)	
050	BORE: 020 = 20 mm 032 = 32 mm 040 = 40 mm (for Mod. ST32 only) 050 = 50 mm	
A	CONSTRUCTION: A = standard R = with roller (for non-rotating version only) F = with female thread (for Mod. ST32 only)	
030	STROKE (see the table)	
	VERSION: = standard (_ _ _) = extended piston rod _ _ _ mm	

PNEUMATIC SYMBOLS

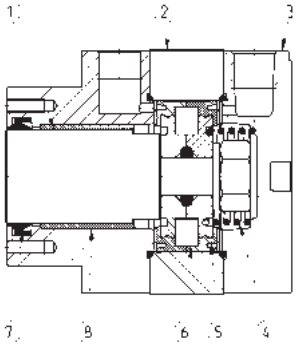
The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.

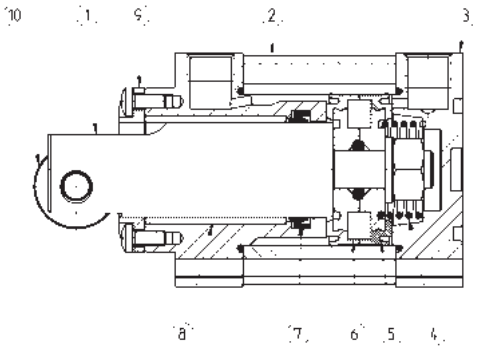






SERIES ST MATERIALS

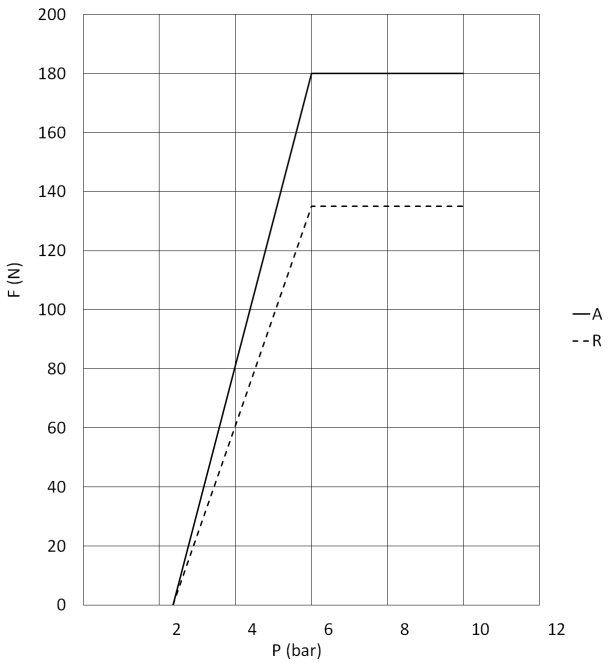




PARTS	MATERIALS
1 - Rod	Stainless steel
2 - Profile	Anodized aluminium
3 - Head	Anodized aluminium
4 - Spring	Steel
5 - Piston seal	PU
6 - Magnet	Plastoferrite
7 - Rod seal	PU
8 - Rod guide bushing	Technopolymer
9 - Non-rotating ring	Technopolymer
10 - Roller	Stainless steel

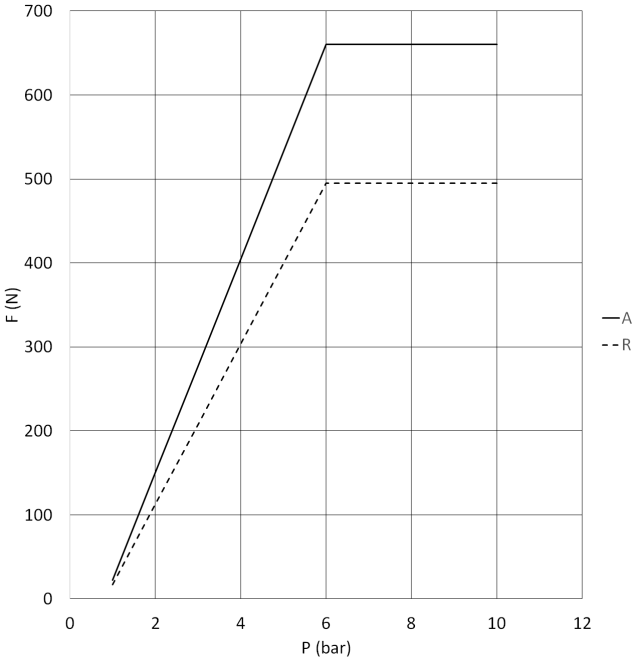
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DIAGRAMS OF APPLICABLE LATERAL FORCES DURING OPERATION



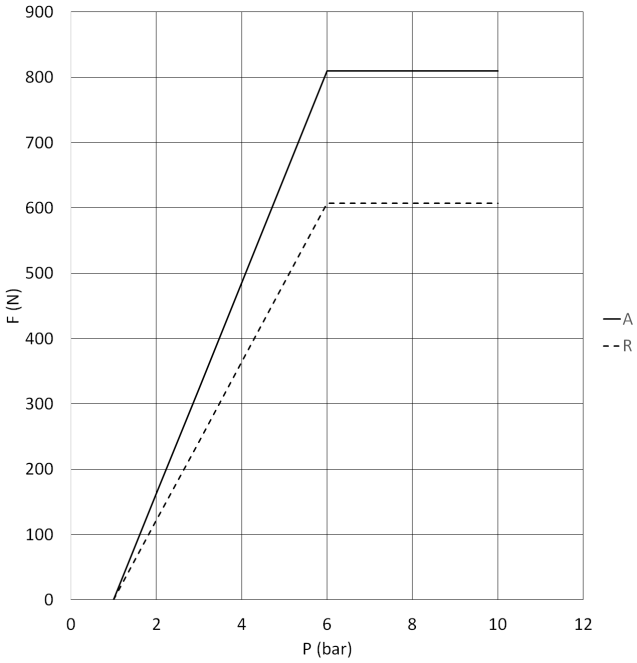
Cylinders ø 20 mm, standard (A) and non-rotating (R) version

P = Pressure (bar)
F = applicable lateral Force (N)



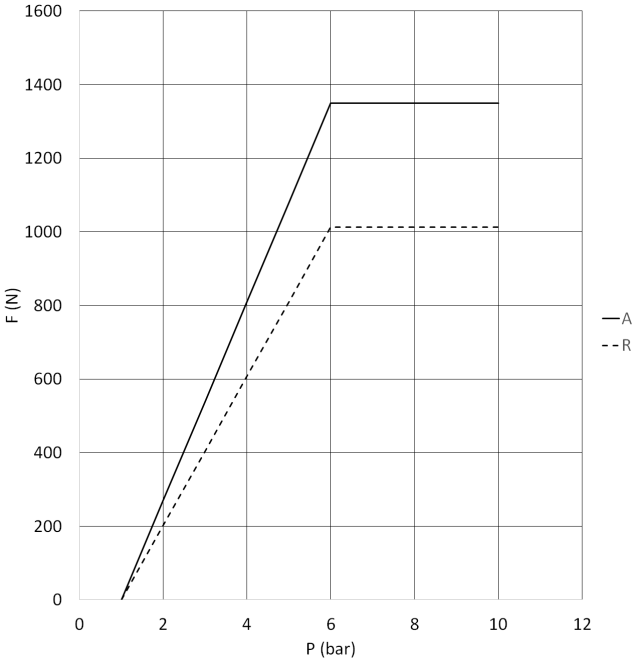
Cylinders ø 32 mm, standard (A) and non-rotating (R) version

P = Pressure (bar)
F = applicable lateral Force (N)



Cylinders ø 40 mm, standard (A) and non-rotating (R) version

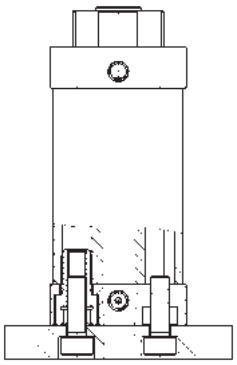
P = Pressure (bar)
F = applicable lateral Force (N)



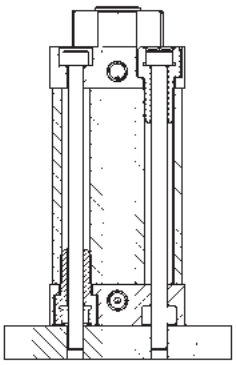
Cylinders ø 50 mm, standard (A) and non-rotating (R) version

P = Pressure (bar)
F = applicable lateral Force (N)

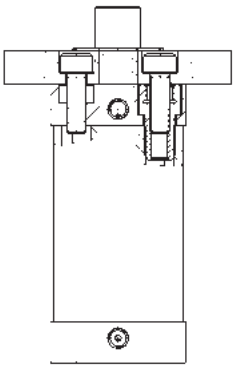
EXAMPLES OF FIXING



Fixing from below

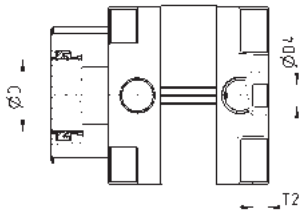


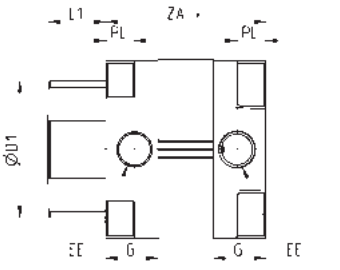
Fixing from above

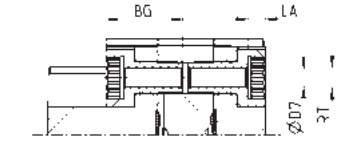


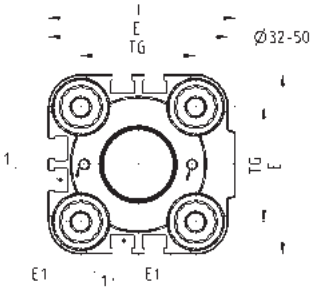
Stopper cylinders Mod. ST31 (UNITOP)

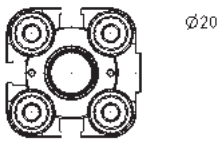










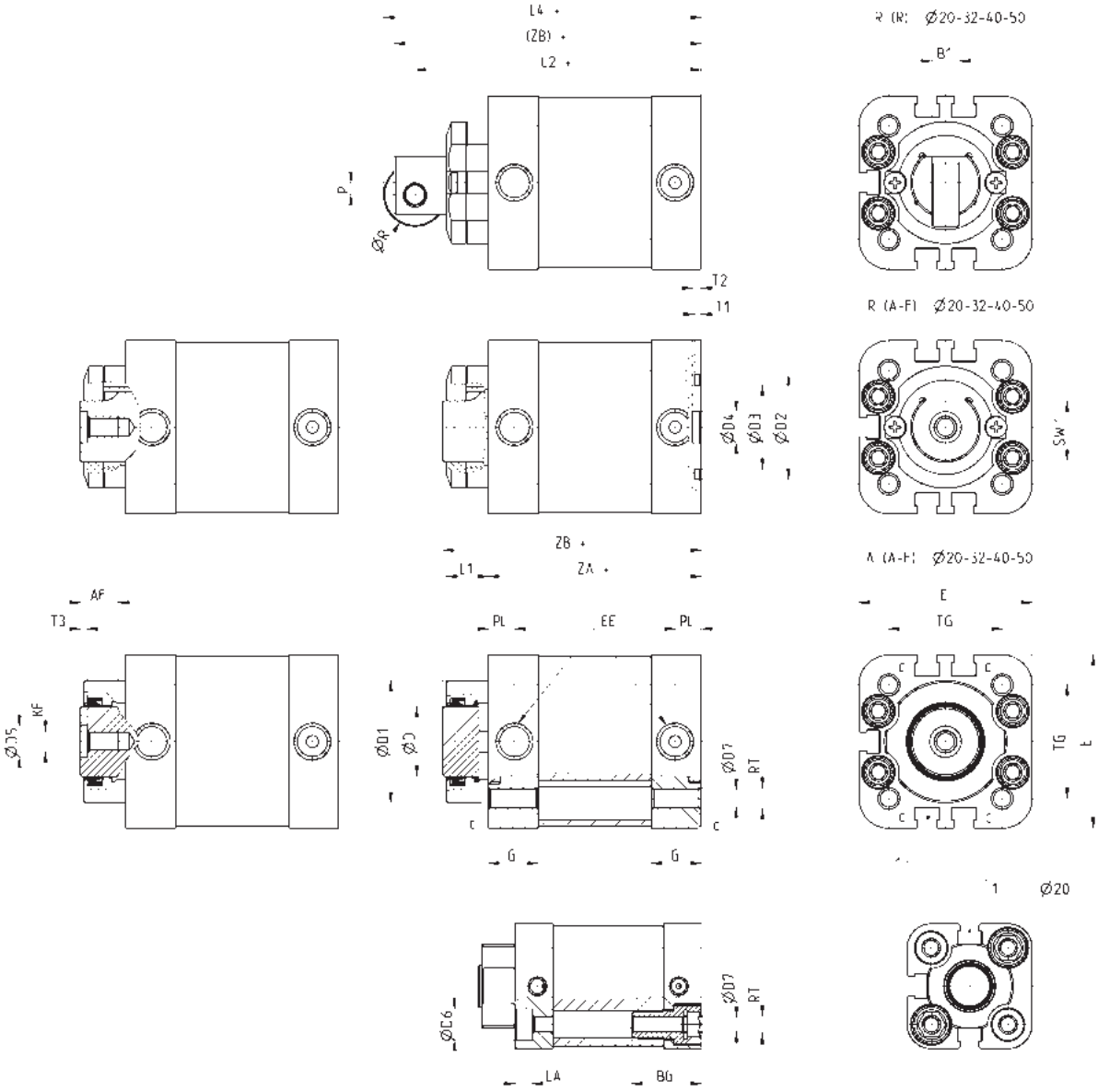


Ø	BG	G	ØD	ØD1	ØD4	ØD7	E	EE	E1	L	LA	L1	PL	RT	T2	TG	ZA	ZB
20	18.5	12	12	26	6	4	35.5	G1/8	M2	38	5	11.5	8	M5	4.5	22	38	49.5
32	21.5	14.5	20	38	6	5	50	G1/8	M3	52	5	16	8	M6	4.5	32	45	60.5
50	20	14.5	32	53	6	6	68	G1/8	M3	71	6	24	8	M8	4.5	50	46	69.5

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Stopper cylinders Mod. ST32 (ISO 21287)





Ø	AF	BG	B1	G	ØD	ØD1	ØD2	ØD3	ØD4	ØD5	ØD6	ØD7	E	EE	KF	LA	L1	L2	L4	P	PL	ØR	RT	SW1	T1	T2	T3	TG	ZA	ZB	(ZB)
20	6	20	4	10.9	12	25	-	-	9	5	9	4	35.8	M5	M3	5	9.5	68	73	2	6.5	10	M5	10	-	2.5	1.2	22	53.5	64	71
32	11	-	8	14.3	20	35	30	24	9	9	-	5	49.6	G1/8	M6	-	12	82	91	3.5	7.6	18	M6	17.5	2	2.5	2	32.5	61	74	88
40	14.5	-	8	14.3	25	35	35	29	12	12	-	5	57	G1/8	M8	-	12.5	90	101	5	7.6	22	M6	22	2	2.5	2.5	38	66.5	80	97
50	14.5	-	10	14.3	32	51	40	34	12	12	-	6	69.6	G1/8	M8	-	14.5	92.5	105	7	7.6	25	M8	28	2	3	2.5	46.5	65.5	81	100

Series 90
stainless steel cylinders

Single- and double-acting, cushioned, magnetic
ø 32, 40, 50, 63, 80, 100 and 125 mm





- In compliance with ISO 15552 standards and with the previous DIN/ISO 6431/ VDMA 24562 standards
- Clean design
- Stainless steel AISI 316
- End-stroke cushioning

Series 90 cylinders are suitable for use in harsh environmental conditions as in the offshore, naval, pharmaceutical, nuclear and food industries.

This series of cylinders is normally equipped with end of stroke buffers with adjustable pneumatic cushioning. Moreover, they are equipped with a mechanical cushioning that makes the impact of the piston less noisy as it reaches the end of the stroke.

GENERAL DATA

Construction	with tie-rods
Operation	single-acting or double-acting
Materials	- end blocks, barrel and rod in stainless steel AISI 316 - seals in NBR - plastic guiding element, NSF H1-certified lubricant
Mountings	several types of cylinders mounting brackets available
Stroke	25 ÷ 800 mm
Operating temperature	0°C ÷ 80°C (with dry air - 20°C)
Operating pressure	1 ÷ 10 bar
Speed	10 ÷ 1000 mm/sec (no load)
Media	Filtered air, without lubrication. If lubricated air is used, it is recommended to use oil ISOVG32. Once applied the lubrication should never be interrupted.

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STANDARD STROKES FOR CYLINDER SERIES 90

✖ = Double-acting
● = Single-acting

STANDARD STROKES													
Ø	25	50	80	100	125	150	160	200	250	300	320	400	500
32	✖●	✖●	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
40	✖●	✖●	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
50	✖●	✖●	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
63	✖●	✖●	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
80	✖●	✖●	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
100	✖●	✖●	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
125		✖●	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖

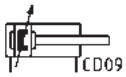
CODING EXAMPLE

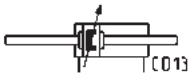
90	M	2	A	050	A	0200	

90	SERIES	
M	VERSION M = standard, magnetic	
2	OPERATION 1 = single-acting, front spring 2 = double-acting, front and rear cushions 6 = double-acting, through-rod, front and rear cushions	PNEUMATIC SYMBOLS CS06 CD09 CD13
A	MATERIALS A = stainless steel AISI 316, seals in NBR V = stainless steel AISI 316, all seals in FKM (150°C)	
050	BORE 032 = 32 mm - 040 = 40 mm - 050 = 50 mm - 063 = 63 mm 080 = 80 mm - 100 = 100 mm - 125 = 125 mm	
A	TYPE OF DESIGN A = standard with piston rod lock nut Mod. U	
0200	STROKE (see the table)	
	= standard V = rod seal in FKM	

PNEUMATIC SYMBOLS

The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.







ACCESSORIES FOR STAINLESS STEEL CYLINDERS SERIES 90



Foot mount Mod. B



Front and rear flange Mod. D-E



Rear trunnion, female Mod. C-H



Rear trunnion, male Mod. L



Tight rear female tr. bracket Mod. CR



Male tr. bracket with swivel ball joint Mod. R



90° male tr. bracket + sw. ball joint Mod. ZCR



90° male trunnion Mod. ZC



Rod fork end Mod. G-90



Clevis pin Mod. S-90



Anti-rotation clevis pin Mod. SR-90



Swivel ball joint Mod. GA-90



Piston rod lock nut Mod. U-90





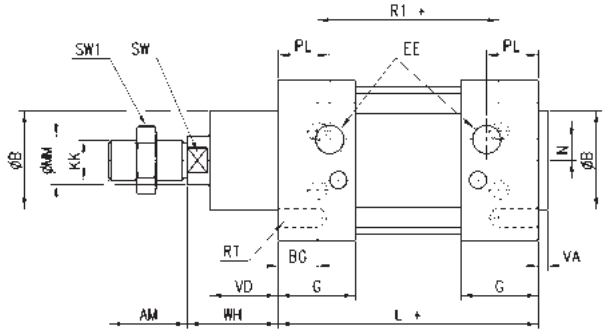
All accessories are supplied separately, except for the piston rod lock nut Mod. U

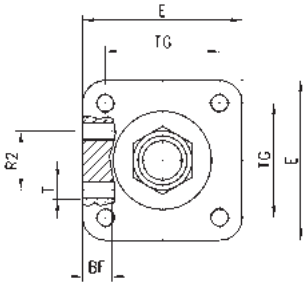
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Cylinders Series 90



+ = add the stroke





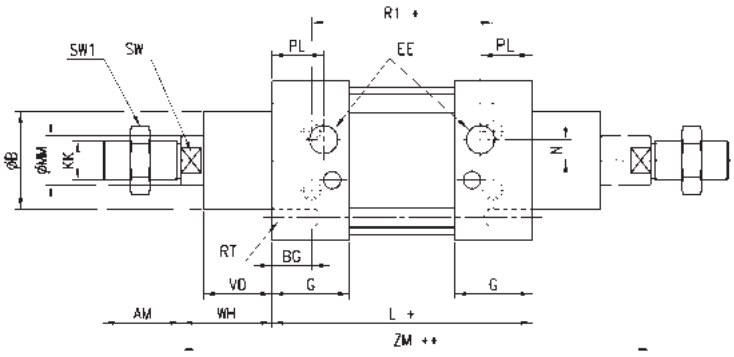
DIMENSIONS

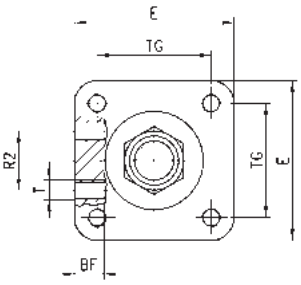
Ø	AM	B	BF	BG	E	EE	G	KK	L	MM	N	PL	RT	R1	R2	SW	SW1	T	TG	VA	VD	WH
32	22	30	10	16	45	G1/8	28	M10x1.25	94	12	4.5	14	M6	64	16	10	17	M5	32.5	4	20	26
40	24	35	10	16	55	G1/4	31.5	M12x1.25	105	16	5.5	16	M6	70	21	13	19	M6	38	4	22	30
50	32	40	12	16	65	G1/4	31.5	M16x1.5	106	20	8.5	21	M8	74	24	17	24	M8	46.5	4	28	37
63	32	45	12	16	80	G3/8	35	M16x1.5	121	20	8.5	22	M8	85	33	17	24	M8	56.5	4	28	37
80	40	45	15	16	95	G3/8	36	M20x1.5	128	25	8.5	23	M10	92	34	21	30	M10	72	4	34	46
100	40	55	15	16	115	G1/2	41	M20x1.5	138	25	10	26	M10	100	58	21	30	M10	89	4	38	51
125	54	60	24	20	140	G1/2	45	M27x2	160	32	12.5	30	M12	110	65	27	41	M12	110	5	50	65

Cylinders Series 90 - through-rod



+ = add the stroke once
++ = add the stroke twice





DIMENSIONS

Ø	AM	B	BF	BG	E	EE	G	KK	L	MM	N	PL	RT	R1	R2	SW	SW1	T	TG	VD	WH	ZM
32	22	30	10	16	45	G1/8	28	M10x1.25	94	12	4.5	14	M6	64	16	10	17	M5	32.5	20	26	146
40	24	35	10	16	55	G1/4	31.5	M12x1.25	105	16	5.5	16	M6	70	21	13	19	M6	38	22	30	165
50	32	40	12	16	65	G1/4	31.5	M16x1.5	106	20	8.5	21	M8	74	24	17	24	M8	46.5	28	37	180
63	32	45	12	16	80	G3/8	35	M16x1.5	121	20	8.5	22	M8	85	33	17	24	M8	56.5	28	37	195
80	40	45	15	16	95	G3/8	36	M20x1.5	128	25	8.5	23	M10	92	34	21	30	M10	72	34	46	220
100	40	55	15	16	115	G1/2	41	M20x1.5	138	25	10	26	M10	100	58	21	30	M10	89	38	51	240
125	54	60	24	20	140	G1/2	45	M27x2	160	32	12.5	30	M12	110	65	27	41	M12	110	50	65	290

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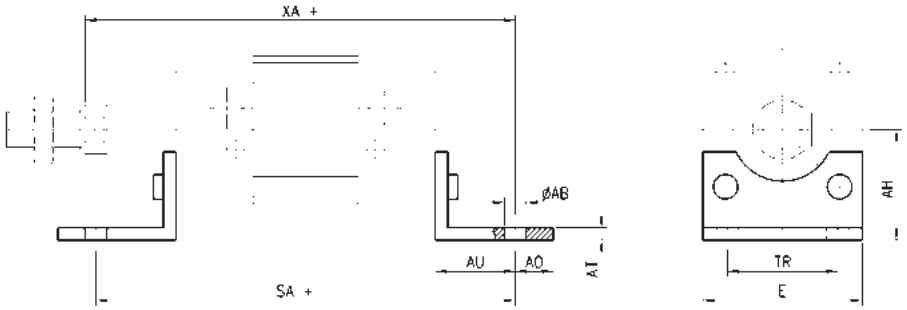
Foot mount Mod. B

Material: stainless steel 316



Supplied with:
2x feet
4x screws

+ = add the stroke



DIMENSIONS

Mod.	Ø	ØAB	AH	AO	AT	AU	E	TR	SA+	XA+
B-90-32	32	7	32	11	4	24	45	32	142	144
B-90-40	40	9	36	8	4	28	52	36	161	163
B-90-50	50	9	45	15	5	32	65	45	170	175
B-90-63	63	9	50	13	5	32	75	50	185	190
B-90-80	80	12	63	14	6	41	95	63	210	215
B-90-100	100	14	75	16	6	41	115	75	220	230
B-90-125	125	16	90	25	8	45	140	90	250	270

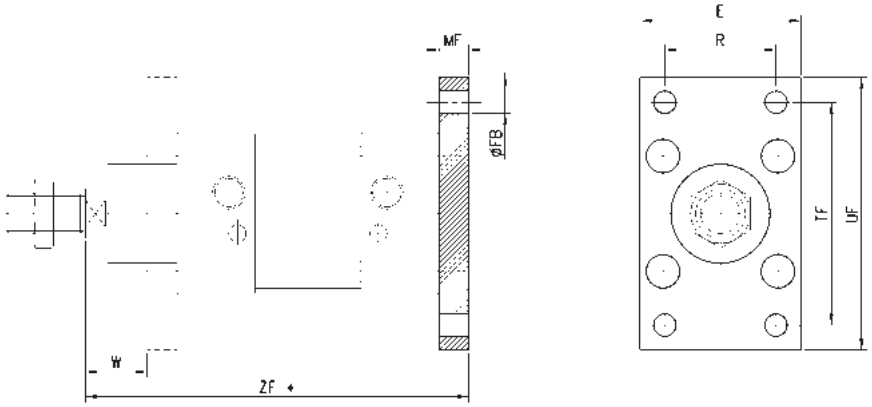
Front and rear flange Mod. D-E

Material: stainless steel 316



Supplied with:
1x flange
4x screws

+ = add the stroke



DIMENSIONS

Mod.	Ø	E	ØFB	MF	TF	UF	W	ZF+	R
D-E-90-32	32	45	7	10	64	80	16	130	32
D-E-90-40	40	52	9	10	72	90	20	145	36
D-E-90-50	50	65	9	12	90	110	25	155	45
D-E-90-63	63	75	9	12	100	120	25	170	50
D-E-90-80	80	95	12	15	126	150	30	190	63
D-E-90-100	100	115	14	15	150	170	35	205	75
D-E-90-125	125	140	16	20	180	205	45	245	90

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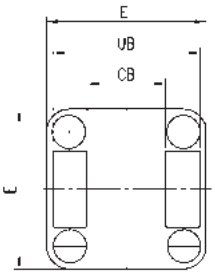
Rear trunnion, female Mod. C-H

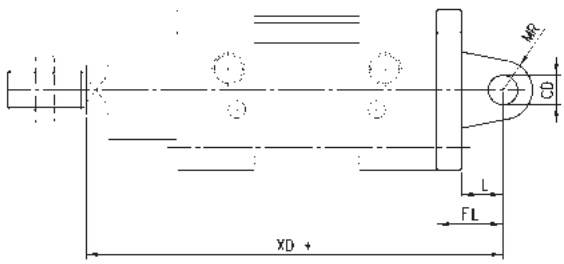
Material: stainless steel 316



Supplied:
1x female trunnion
4x screws

+ = add the stroke





DIMENSIONS

Mod.	Ø	CB	CD	E	FL	L	MR	UB	XD+
C-H-90-32	32	26	10	45	22	12	10	45	142
C-H-90-40	40	28	12	55	25	15	12	52	161
C-H-90-50	50	32	12	65	27	17	12	60	170
C-H-90-63	63	40	16	75	32	20	16	70	185
C-H-90-80	80	50	16	95	36	22	16	90	210
C-H-90-100	100	60	20	115	41	25	20	110	230
C-H-90-125	125	70	25	140	50	30	25	130	275

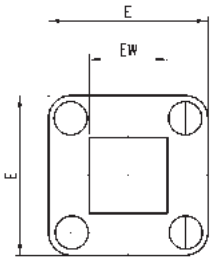
Rear trunnion, male Mod. L

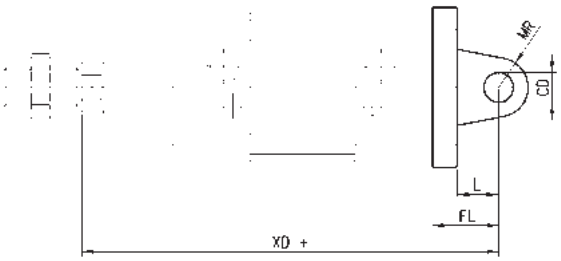
Material: stainless steel 316



Supplied:
1x male trunnion
4x screws

+ = add the stroke





DIMENSIONS

Mod.	Ø	EW	CD	E	FL	L	MR	XD+
L-90-32	32	26	10	45	22	12	10	142
L-90-40	40	28	12	55	25	15	12	161
L-90-50	50	32	12	65	27	17	12	170
L-90-63	63	40	16	75	32	20	16	185
L-90-80	80	50	16	95	36	22	16	210
L-90-100	100	60	20	115	41	25	20	230
L-90-125	125	70	25	140	50	30	25	275

Products designed for industrial applications.
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Tight rear female trunnion bracket Mod. CR

Material: stainless steel 316



Supplied with:
1x female trunnion bracket
4x screws

+ = add the stroke



DIMENSIONS

Mod.	Ø	CB	CD	E	FL	L	UB	XD	D3
CR-90-32	32	14	10	45	22	12	34	142	5.5
CR-90-40	40	16	12	55	25	25	40	161	5.5
CR-90-50	50	21	16	65	27	27	45	170	6.5
CR-90-63	63	21	16	75	32	32	51	185	6.5
CR-90-80	80	25	20	95	36	36	65	210	10
CR-90-100	100	25	20	114	41	41	75	230	10
CR-90-125	125	37	30	140	50	50	97	275	10

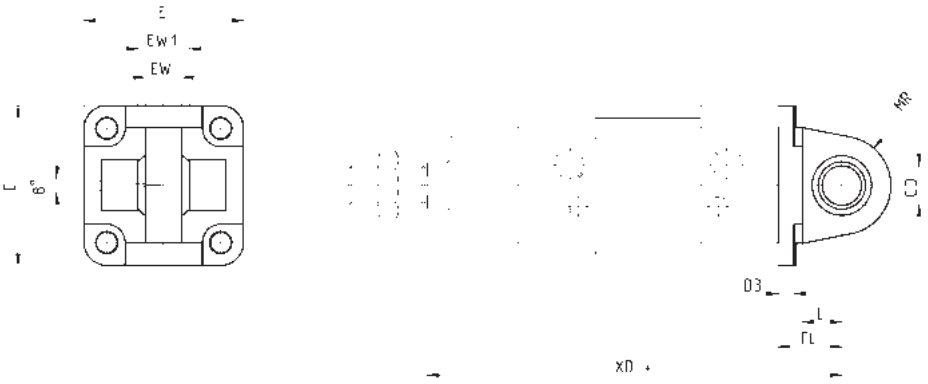
Male trunnion bracket with swivel ball joint Mod. R

Material: stainless steel 316



Supplied with:
1x male trunnion bracket
4x screws

+ = add the stroke



DIMENSIONS

Mod.	Ø	EW	EW1	CD	E	FL	L	MR	XD	D3
R-90-32	32	10.5	14	10	45	22	12	15	142	5.5
R-90-40	40	12	16	12	55	25	15	18	161	5.5
R-90-50	50	15	21	16	65	27	17	20	170	6.5
R-90-63	63	15	21	16	75	32	20	23	185	6.5
R-90-80	80	18	25	20	95	36	22	27	210	10
R-90-100	100	18	25	20	115	41	25	30	230	10
R-90-125	125	25	37	30	140	50	30	40	275	10

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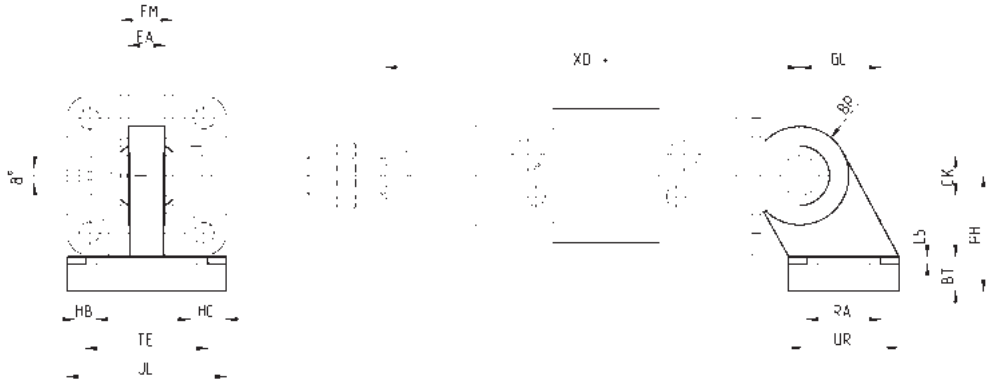
90° male trunnion bracket with swivel ball joint Mod. ZCR

Material: stainless steel 316



Supplied with:
1x male trunnion bracket
4x screws

+ = add the stroke



DIMENSIONS

Mod.	Ø	UL	TE	EA	EM	XD	GL	BR	CK	PH	L5	BT	HB	RA	UR	HC
ZCR-90-32	32	51	38	10.5	14	142	21	15	10	32	1.5	10	6.6	18	31	11
ZCR-90-40	40	54	41	12	16	160	24	18	12	36	1.5	10	6.6	22	35	11
ZCR-90-50	50	65	50	15	21	170	33	20	16	45	1.5	12	9	30	45	15
ZCR-90-63	63	67	52	15	21	190	37	23	16	50	1.5	12	9	35	50	15
ZCR-90-80	80	86	66	18	25	210	47	27	20	63	2.5	14	11	40	60	18
ZCR-90-100	100	96	76	18	25	230	55	30	20	71	2.5	15	11	50	70	18
ZCR-90-125	125	124	94	25	37	275	70	40	30	90	3	20	13.5	60	90	20

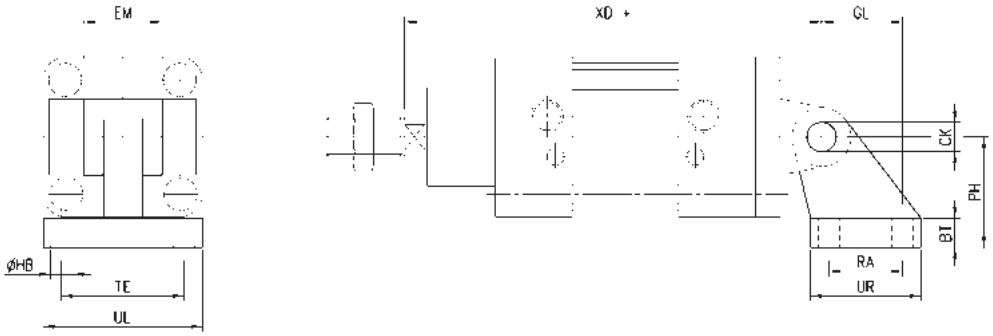
90° male trunnion Mod. ZC

Material: stainless steel 316



Supplied with:
1x male support

+ = add the stroke



DIMENSIONS

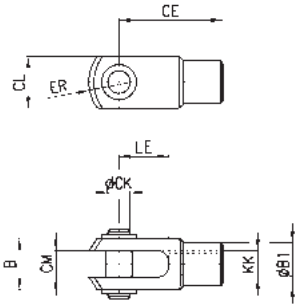
Mod.	Ø	BT	CK	EM	GL	ØHB	PH	RA	TE	UL	UR	XD+
ZC-90-32	32	8	10	26	21	6,6	32	18	38	51	31	142
ZC-90-40	40	10	12	28	24	6,6	36	22	41	54	35	161
ZC-90-50	50	12	12	32	33	9	45	30	50	65	45	170
ZC-90-63	63	12	16	40	37	9	50	35	52	67	50	185
ZC-90-80	80	14	16	50	47	11	63	40	66	86	60	210
ZC-90-100	100	15	20	60	55	11	71	50	76	96	70	230
ZC-90-125	125	20	25	70	70	14	90	60	94	124	90	275

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Rod fork end Mod. G-90

Material: stainless steel 303
ISO 8140





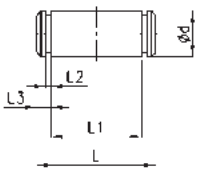
DIMENSIONS

Mod.	Ø	ØCK	LE	CM	CL	ER	CE	KK	B	ØB1
G-90-25-32	32	10	20	10	20	12	40	M10x1,25	26	18
G-90-40	40	12	24	12	24	14	48	M12x1,25	31	20
G-90-50-63	50-63	16	32	16	32	19	64	M16x1,5	39	26
G-90-80-100	80-100	20	40	20	40	25	80	M20x1,5	50	34
G-90-125	125	30	54	30	55	38	110	M27x2	67	48

Clevis pin Mod. S-90

Material: stainless steel 303





DIMENSIONS

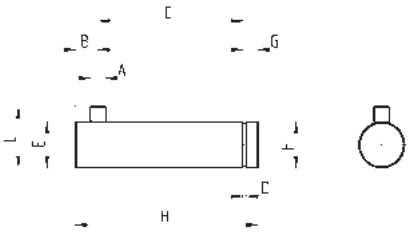
Mod.	Ø	Ød	L	L1	L2	L3
S-90-32	32	10	53	46	1,1	3
S-90-40	40	12	60	53	1,1	3
S-90-50	50	12	68	61	1,1	3
S-90-63	63	16	78	71	1,1	3
S-90-80	80	16	98	91	1,1	3
S-90-100	100	20	118	111	1,3	5
S-90-125	125	25	139	132	1,3	4,2

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Antirotating clevis pin Mod. SR-90

Supplied with:
1x antirotating clevis pin
(stainless steel 316)
1x seeger (steel)





DIMENSIONS

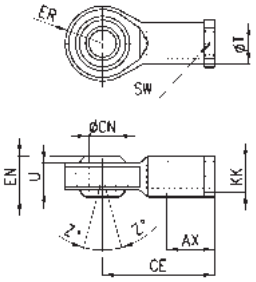
Mod.	Ø	A	B	C	D	E	F	G	H	L
SR-90-32	32	3	4.5	32.5	1.1	10	9.6	4	41	14
SR-90-40	40	4	6	38	1.1	12	11.5	4	48	46
SR-90-50	50	4	6	43	1.1	16	15.2	5	54	20
SR-90-63	63	4	6	49	1.1	16	15.2	5	60	20

Swivel ball joint Mod. GA-90

ISO 8139

Materials:
- stainless steel 304 bracket
- stainless steel 420 spherical ring
- sintered bronze bushing





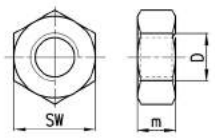
DIMENSIONS

Mod.	Ø	ØCN	U	EN	ER	AX	CE	KK	ØT	Z	SW
GA-90-32	32	10	10,5	14	14	20	43	M10x1,25	15	6,5	17
GA-90-40	40	12	12	16	16	22	50	M12x1,25	17,5	6,5	19
GA-90-50-63	50-63	16	15	21	21	28	64	M16x1,5	22	7,5	22
GA-90-80-100	80-100	20	18	25	21	33	77	M20x1,5	27,5	7	30
GA-90-125	125	30	25	35	35	51	110	M27x2	40	7,5	41

Piston rod lock nut Mod. U-90

ISO 4035
Material: stainless steel 304





DIMENSIONS

Mod.	Ø	D	m	SW
U-90-25-32	32	M10x1,25	6	17
U-90-40	40	M12x1,25	7	19
U-90-50-63	50-63	M16x1,5	8	24
U-90-80-100	80-100	M20x1,5	9	30
U-90-125	125	M27x2	12	41

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1 MOVEMENT

Series 94 and 95 stainless steel mini-cylinders

Single-acting and double-acting, magnetic
Series 94: ø 16, 20, 25 mm
Series 95: ø 25 mm, cushioned





- In compliance with Cetop RP52-P and DIN/ ISO 6432 standards
- Clean design
- Stainless steel AISI 304 and AISI 316

Series 94 and 95 cylinders are suitable for use in the off-shore, naval, pharmaceutical, nuclear and food industries.

Their construction enables the replacement of all seals.
Series 95 is normally equipped with adjustable end-stroke cushioning by means of a screw on the end block.
In addition both Series 94 and 95 are equipped with a mechanical cushioning in order to make the impact of the piston less noisy as it reaches the end of the stroke.

GENERAL DATA

Construction	end blocks secured to the tube
Operation	single-acting and double-acting
Materials	end blocks and rod in stainless steel AISI 316, seals in NBR, plastic guiding element, NSF H1-certified lubricant Series 94: tube in stainless steel AISI 304 Series 95: tube in stainless steel AISI 316
Mounting	several types of cylinders clamps available
Strokes min - max	10 ÷ 500 mm
Operating temperature	0° - 80°C (with dry air -20°C)
Operating pressure	1 ÷ 10 bar
Speed	10 ÷ 1000 mm/sec (without load)
Fluid	clean air, without lubrication. If lubricated air is used, it is recommended to use oil ISOVG32. Once applied the lubrication should never be interrupted.

Products designed for industrial applications.
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STANDARD STROKES FOR MINICYLINDERS SERIES 94 AND 95

● = single-acting
✖ = double-acting

STANDARD STROKES															
	Ø	10	25	40	50	80	100	125	160	200	250	300	320	400	500
94	16	●✖	●✖	●✖	●✖	✖	✖	✖	✖	✖					
94	20	●✖	●✖	●✖	●✖	✖	✖	✖	✖	✖	✖	✖			
94	25	●✖	●✖	●✖	●✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
95	25	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖

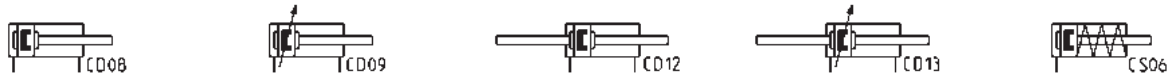
CODING EXAMPLE

94	N	2	A	16	A	100	

94	SERIES 94 = magnetic 95 = magnetic, cushioned	
N	VERSION N = standard	
2	OPERATION 1 = single-acting, front spring 2 = double-acting 3 = double-acting, through-rod	PNEUMATIC SYMBOLS CS06 (S. 94) CD08 (S. 94) - CD09 (S. 95) CD12 (S. 94) - CD13 (S. 95)
A	MATERIALS A = stainless steel, seals in NBR V = stainless steel, all seals in FKM (150°C)	
16	BORE 16 = 16 mm - 20 = 20 mm - 25 = 25 mm	
A	TYPE OF DESIGN A = standard with locking ring for end cap Mod. V and piston rod lock nut Mod. U	
100	STROKE (see the table)	
	= standard V = rod seal in FKM	

PNEUMATIC SYMBOLS

The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.



ACCESSORIES FOR STAINLESS STEEL MINICYLINDERS SERIES 94 AND 95



Foot mount Mod. B



Flange bracket Mod. E



Trunnion bracket Mod. I



Rod fork end
Mod. G-94/90



Swivel ball joint
Mod.GA-94/90



Piston rod lock nut
Mod. U-94/90



Nose nut Mod. V-94 and
Mod. U-90



All accessories are supplied separately, except for piston rod lock nut Mod. U

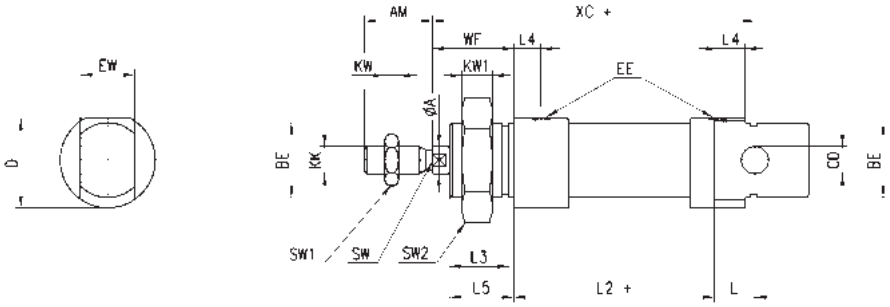
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Cylinders Series 94 and 95

With threaded front and rear end blocks



+ = add the stroke



DIMENSIONS

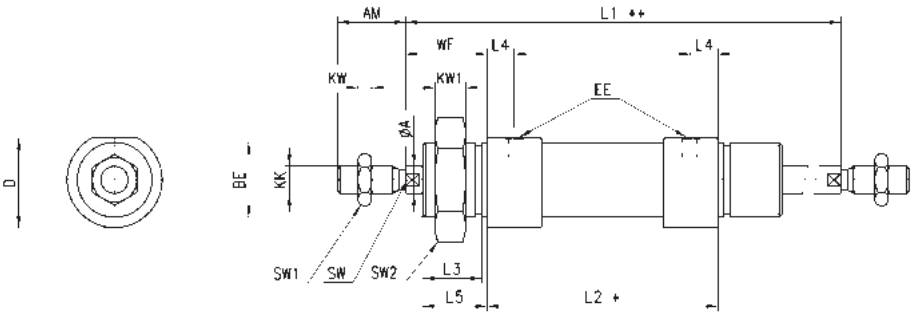
Mod.	Ø	A	AM	BE	CD	D	EE	EW	KK	KW	KW1	L	L2	L3	L4	L5	SW	SW1	SW2	WF	XC
~~94~~	16	6	16	M16x1.5	6	21.2	M5	12	M6	4	5	9	51	14	5.5	15	5	10	24	22	82
~~94~~	20	8	20	M22x1.5	8	26.2	G1/8	16	M8	5	5	12	59	17.5	8	19	7	13	32	24	95
~~94-95~~	25	10	22	M22x1.5	8	32.5	G1/8	16	M10x1.25	6	5	12	64	18.5	7.5	20	8	17	32	28	104

Cylinders Series 94 and 95 - through-rod

With threaded end blocks



+ = add the stroke once
++ = add the stroke twice



DIMENSIONS

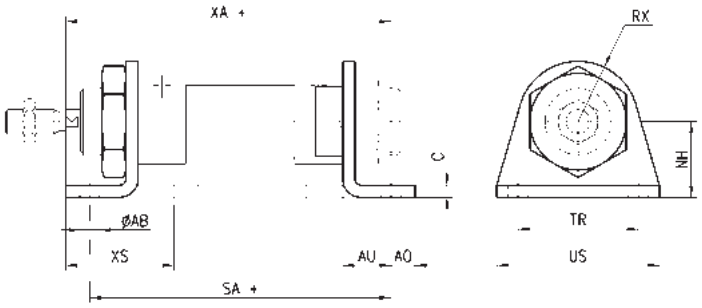
Mod.	Ø	A	AM	BE	D	EE	KK	KW	KW1	L1	L2	L3	L4	L5	SW	SW1	SW2	WF
~~94~~	16	6	16	M16x1.5	21.2	M5	M6	4	5	100	56	14	5.5	15	5	10	24	22
~~94~~	20	8	20	M22x1.5	26.2	G1/8	M8	5	5	116	68	17.5	8	19	7	13	32	24
~~94-95~~	25	10	22	M22x1.5	32.5	G1/8	M10x1.25	6	5	125	69	18.5	7.5	20	8	17	32	28

Foot mount Mod. B

Material: stainless steel 304

Supplied with:
2x feet
1x nut





+ = add the stroke

DIMENSIONS

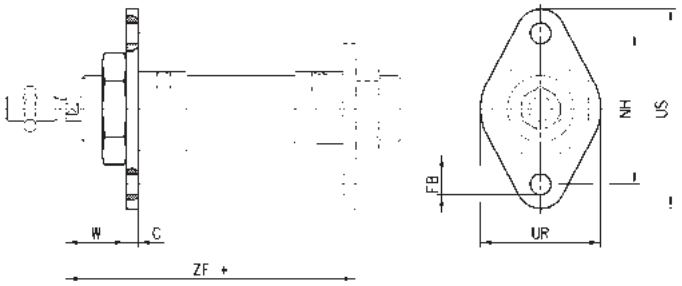
Mod.	Ø	ØAB	XS	XA+	SA+	AO	AU	C	RX	TR	US	NH
B-94-12-16	16	5,5	32	91	82	6	13	3	13	32	42	20
B-94-20-25	20	6,6	36	108	100	8	16	4	20	40	54	25
B-94-20-25	25	6,6	40	113	101	8	16	4	20	40	54	25

Flange bracket Mod. E

Material: stainless steel 304

Supplied with:
1x flange





+ = add the stroke

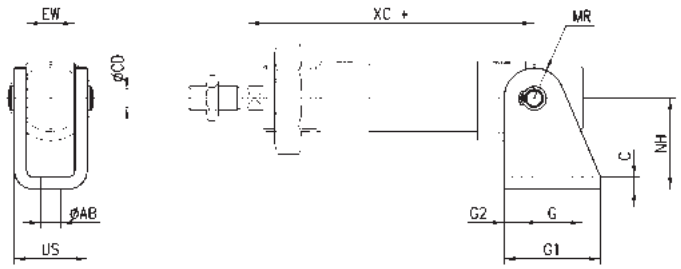
DIMENSIONS

Mod.	Ø	W	C	ZF+	FB	UR	TF	UF
E-94-12-16	16	19	3	81	5,5	30	40	53
E-94-20-25	20	20	4	96	6,6	40	50	66
E-94-20-25	25	24	4	101	6,6	40	50	66

Trunnion Bracket Mod. I

Material: stainless steel 304





DIMENSIONS

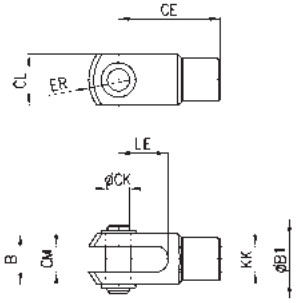
Mod.	Ø	AB	C	CD	EW	G	G1	G2	MR	NH	US	XC+
I-94-12-16	16	5,5	3	6	12	15	25	5	7	27	18,1	82
I-94-20-25	20	6,6	4	8	16	20	32	6	10	30	24,1	95
I-94-20-25	25	6,6	4	8	16	20	32	6	10	30	24,1	104

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Rod Fork End Mod. G-94/90



ISO 8140
Material: stainless steel 303



DIMENSIONS

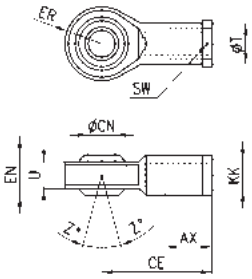
Mod.	Ø	CK	LE	KK	CM	ER	CE	CL	B	B1
G-94-12-16	16	6	12	M6x1	6	7	24	12	16	10
G-94-20	20	8	16	M8x1,25	8	10	32	16	22	14
G-90-25-32	25	10	20	M10x1,25	10	12	40	20	26	18

Swivel Ball Joint Mod. GA-94/90



ISO 8139

Materials:
- stainless steel 304 bracket
- stainless steel 420 spherical ring
- sintered bronze bushing



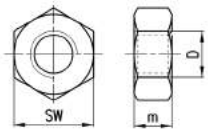
DIMENSIONS

Mod.	Ø	CN	U	EN	ER	AX	CE	KK	T	Z	SW
GA-94-12-16	16	6	7	9	10	12	30	M6x1	10	6,5	11
GA-94-20	20	8	9	12	12	16	36	M8x1,25	12,5	6,5	14
GA-90-32	25	10	10,5	14	14	20	43	M10x1,25	15	6,5	17

Piston Rod Lock Nut Mod. U-94/90



ISO 4035
Material: stainless steel 304



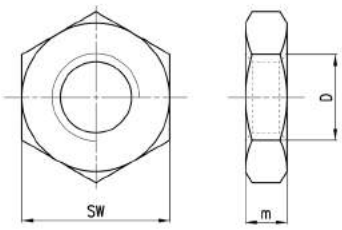
DIMENSIONS

Mod.	Ø	D	m	SW
U-94-12-16	16	M6x1	4	10
U-94-20	20	M8x1,25	5	13
U-90-25-32	25	M10x1,25	6	17

Nose Nut Mod. V-94 and Mod. U-90



ISO 4035
Material: stainless steel 304



DIMENSIONS

Mod.	Ø	D	m	SW
U-90-50-63	16	M16x1,5	8	24
V-94-20-25	20-25	M22x1,5	10	32

Series 97
stainless steel cylinders

Single- and double-acting, cushioned, magnetic.
ø 32, 40, 50, 63 mm





- Clean design
- Stainless steel AISI 304
- Adjustable endstroke cushioning

Series 97 stainless steel cylinders can be used in critical applications where a high level of corrosion resistance is required (for example: off-shore, naval, food industries).

These cylinders are normally equipped with end-stroke cushioning which can be adjusted through a screw on the end block.
In order to quieten the impact of the piston on the end block, these cylinders are also equipped with mechanical cushioning.

GENERAL DATA

Type of construction	the end blocks are screwed to the tube with an intermediate Teflon ring
Operation	single-acting and double-acting
Materials	end blocks, tube, rod in stainless steel AISI 304 rod seals in PU, piston seals in NBR plastic guiding element, NSF H1-certified lubricant
Type of mounting	threaded front and rear locking ring pins on front cap ends rear male hinge articulated rear male hinge rear female hinge
Stroke min-max	25 ÷ 800 mm
Operating temperature	0°C ÷ 80°C (with dry air - 20°C)
Operating pressure	1 ÷ 10 bar
Speed	10 ÷ 1000 mm/sec (without load)
Fluid	Filtered air, without lubrication. If lubricated air is used, it is recommended to use oil ISOVG32. Once applied the lubrication should never be interrupted.

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

STANDARD STROKES FOR CYLINDERS SERIES 97

● = Single-acting
✖ = Double-acting

STANDARD STROKES														
Ø	25	50	75	80	100	125	150	160	200	250	300	320	400	500
32	✖●	✖●	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
40	✖●	✖●	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
50	✖●	✖●	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
63	✖●	✖●	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖

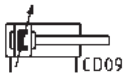
CODING EXAMPLE

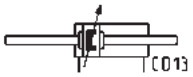
97	M	2	A	050	A	0200	

97	SERIES	
M	VERSIONS: M = rear male hinge S = articulated rear male hinge F = rear female hinge T = front and rear threaded end blocks A = front end block with pin	
2	OPERATION: 1 = single-acting, front spring 2 = double-acting, front and rear cushions 6 = double-acting, through-rod, front and rear cushions (T and A versions only)	PNEUMATIC SYMBOLS: CS06 CD09 CD13
A	MATERIALS: A = stainless steel AISI 304 - PU seals V = stainless steel AISI 304 - FKM seals (150°C)	
050	BORE: 032 = 32 mm - 040 = 40 mm - 050 = 50 mm - 063 = 63 mm	
A	TYPE OF DESIGN: A = standard (locking ring for end cap V + lock nut for rod U)	
0200	STROKE (see the table)	
	= standard V = rod seal in FKM	

PNEUMATIC SYMBOLS

The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.







ACCESSORIES FOR STAINLESS STEEL CYLINDERS SERIES 97



Foot mount Mod. B



Trunnion bracket Mod. I



Rear female trunnion bracket Mod. C-H



Tight rear female tr. bracket Mod. CR



Male tr. bracket with swivel ball joint Mod. R



90° male tr. bracket + sw. ball joint Mod. ZCR



Rod fork end Mod. G-90



Swivel ball joint Mod. GA-90



Piston rod lock nut Mod. U-90



Nose nut Mod. V-97



Clevis pin Mod. S-90



Anti-rotation clevis pin Mod. SR-90





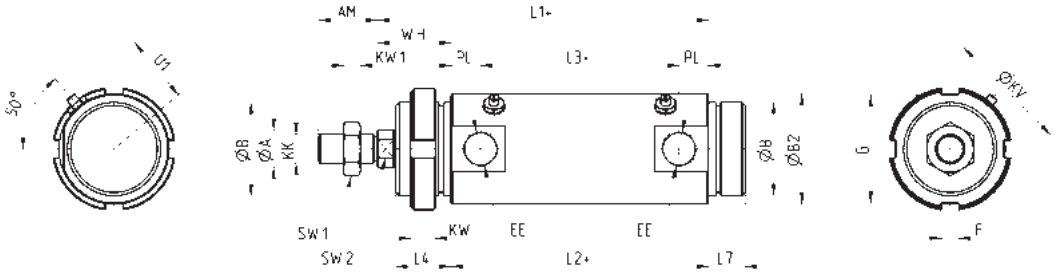
All accessories are supplied separately, except for piston rod lock nut Mod. U and nose nut Mod. V.

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Cylinders Series 97, Mod. T

With threaded front and rear end blocks





+ = add the stroke

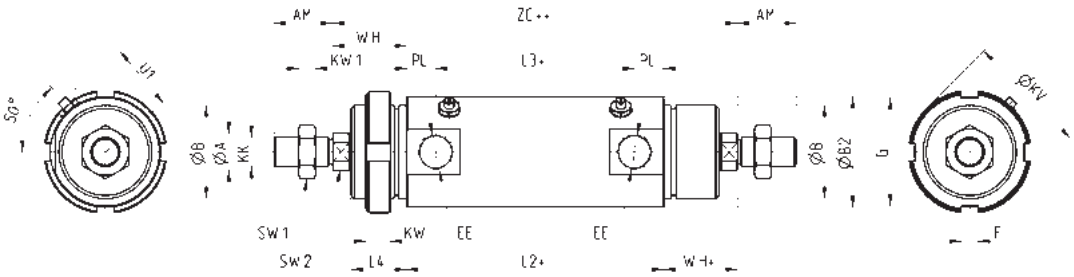
DIMENSIONS

Ø	ØA	AM	ØB	ØB2	EE	F	G	KK	PL	SW1	KW1	SW2	U1	WH	L1+	L2+	L3+	L4	L7	KW	ØKV
32	12	22	M30x1.5	36	G1/8	5	38	M10x1.25	9	17	6	10	23	26	120	94	76	19.5	15	7	42
40	16	24	M38x1.5	45	G1/4	6	50	M12x1.25	12	19	7	13	27	30	135	105	81	22.5	15	8	55
50	20	32	M45x1.5	55	G1/4	6	53	M16x1.5	12	24	8	17	33	37	143	106	82	28	18	10	60
63	20	32	M45x1.5	68	G3/8	6	53	M16x1.5	13	24	8	17	40	37	158	121	95	28	18	10	60

Cylinders Series 97, Mod. T - through-rod

With threaded end blocks





+ = add the stroke once
++ = add the stroke twice

DIMENSIONS

Ø	ØA	AM	ØB	ØB2	EE	F	G	KK	PL	SW1	KW1	SW2	U1	WH+	L2+	L3+	L4	KW	ØKV	ZC++
32	12	22	M30x1.5	36	G1/8	5	38	M10x1.25	9	17	6	10	23	26	94	76	19.5	7	42	146
40	16	24	M38x1.5	45	G1/4	6	50	M12x1.25	12	19	7	13	27	30	105	81	22.5	8	55	165
50	20	32	M45x1.5	55	G1/4	6	53	M16x1.5	12	24	8	17	33	37	106	82	28	10	60	180
63	20	32	M45x1.5	68	G3/8	6	53	M16x1.5	13	24	8	17	40	37	121	95	28	10	60	195

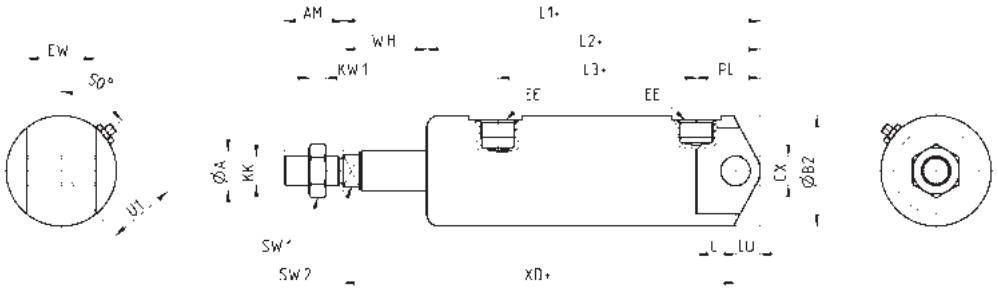
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Cylinders Series 97, Mod. M

With rear male trunnion bracket



+ = add the stroke



DIMENSIONS

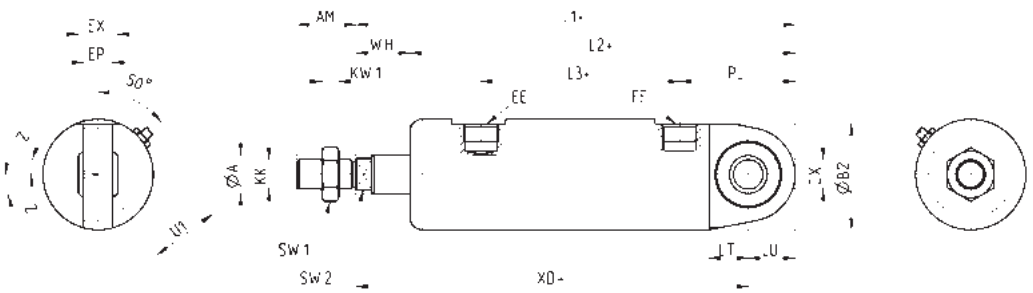
Ø	ØA	AM	ØB2	CX	EE	EW	KK	PL	SW1	KW1	SW2	U1	WH	L1+	L2+	L3+	L	LU	XD+
32	12	22	36	10	G1/8	26	M10x1.25	23	17	6	10	23	26	151	125	76	13	9	142
40	16	24	45	12	G1/4	28	M12x1.25	26	19	7	13	27	34	170	136	81	16	10	160
50	20	32	55	12	G1/4	32	M16x1.5	32	24	8	17	33	37	182	145	82	16.5	12	170
63	20	32	68	16	G3/8	40	M16x1.5	29.5	24	8	17	40	50	202	152	95	21	12	190

Cylinders Series 97, Mod. S

With articulated rear male trunnion bracket



+ = add the stroke



DIMENSIONS

Ø	ØA	AM	ØB2	CX	EE	EP	EX	KK	PL	SW1	KW1	SW2	U1	WH	L1+	L2+	L3+	LT	LU	XD+	Z
32	12	22	36	10	G1/8	10.5	14	M10x1.25	37	17	6	10	23	18	157	139	76	13	15	142	13
40	16	24	45	12	G1/4	12	16	M12x1.25	47	19	7	13	27	22	179	157	81	16	19	160	13
50	20	32	55	16	G1/4	15	21	M16x1.5	49	24	8	17	33	28.5	190.5	162	82	16.5	20.5	170	15
63	20	32	68	16	G3/8	15	21	M16x1.5	60	24	8	17	40	31.5	214	182.5	95	21	24	190	15

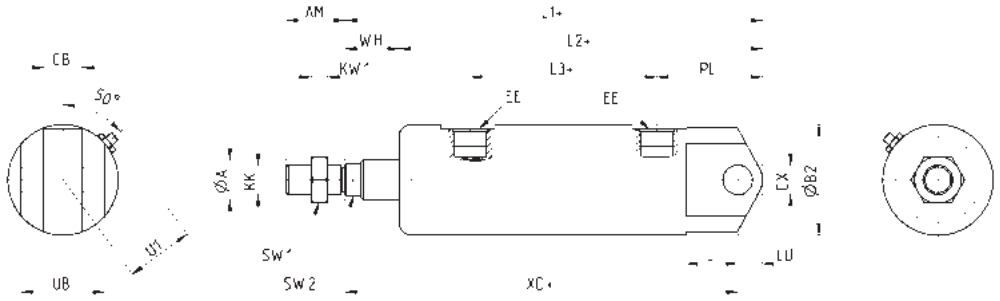
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Cylinders Series 97, Mod. F

With rear female trunnion bracket



+ = add the stroke



DIMENSIONS

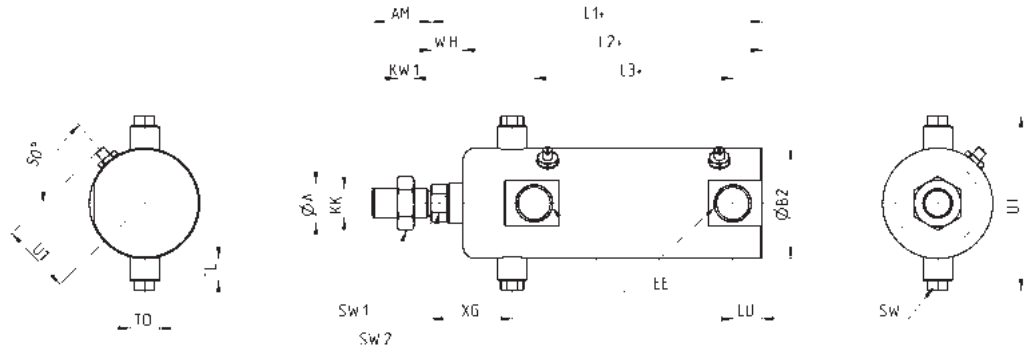
Ø	ØA	AM	ØB2	CB	CX	EE	KK	PL	SW1	KW1	SW2	U1	WH	L1+	L2+	L3+	L	LU	XD+	UB
32	12	22	36	14	10	G1/8	M10x1.25	31	17	6	10	23	18	151	133	76	13	9	142	34
40	16	24	45	16	12	G1/4	M12x1.25	38	19	7	13	27	22	170	148	81	16	10	160	40
50	20	32	55	21	16	G1/4	M16x1.5	45.5	24	8	17	33	28.5	182	153.5	82	21	12	170	45
63	20	32	68	21	16	G3/8	M16x1.5	48	24	8	17	40	31.5	202	170.5	95	21	12	190	51

Cylinders Series 97, Mod. A

With front end block with pins



+ = add the stroke



DIMENSIONS

Ø	ØA	AM	ØB2	EE	KK	SW	SW1	KW1	SW2	U1	WH	L1+	L2+	L3+	LU	XG	TD	TL	UT
32	12	22	36	G1/8	M10x1.25	8	17	6	10	23	9	120	111	76	9	27	10	7	58
40	16	24	45	G1/4	M12x1.25	8	19	7	13	27	13	135	122	81	12	33	12	9	71
50	20	32	55	G1/4	M16x1.5	8	24	8	17	33	18	143	125	82	12	40	14	9	81
63	20	32	68	G3/8	M16x1.5	12	24	8	17	40	22.5	158	135.5	95	13	45	16	12	104

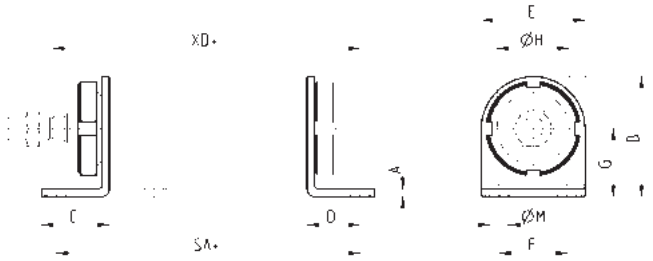
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Foot mount Mod. B

Material: stainless steel 304



Supplied with:
1x nut
2x single feet



+ = add the stroke

DIMENSIONS

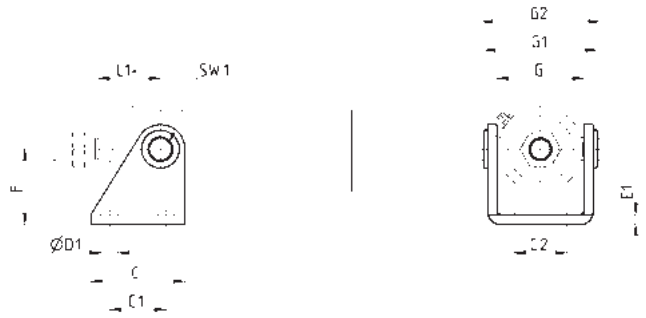
Mod.	Ø	A	B	C	D	E	SA+	F	G	ØH	ØM	XD+
B-97-32	32	4	53	35	24	42	142	32	32	30	7	142
B-97-40	40	4	63.5	36	28	55	161	36	36	38	10	160
B-97-50	50	5	77.5	47	32	65	170	45	45	45	10	170
B-97-63	63	5	82.5	45	32	65	185	50	50	45	10	190

Trunnion bracket Mod. I

Material: stainless steel 304



Supplied with:
1x female trunnion
2x cartridges



+ = add the stroke

DIMENSIONS

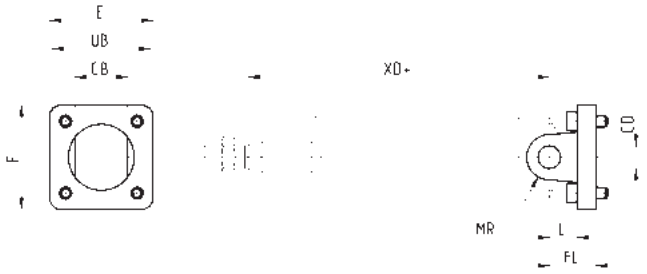
Mod.	Ø	C	C1	C2	ØD1	E1	F	G	G1	G2	L1+	SW1
I-97-32	32	40	24	20	7	4	35	38	50	58	27	8
I-97-40	40	50	30	28	9	5	40	46	60	71	33	8
I-97-50	50	54	34	36	9	6	45	57	74	81	40	8
I-97-63	63	65	35	43	9	6	50	70	88	104	45	12

Rear female trunnion bracket Mod. C-H

Material: stainless steel 316



Supplied with:
1x female trunnion bracket
4x screws



+ = add the stroke

DIMENSIONS

Mod.	Ø	CB	CD	E	FL	L	MR	UB	XD+
C-H-90-32	32	26	10	45	22	12	10	45	142
C-H-90-40	40	28	12	55	25	15	12	52	160
C-H-90-50	50	32	12	65	27	17	12	60	170
C-H-90-63	63	40	16	75	32	20	16	70	190

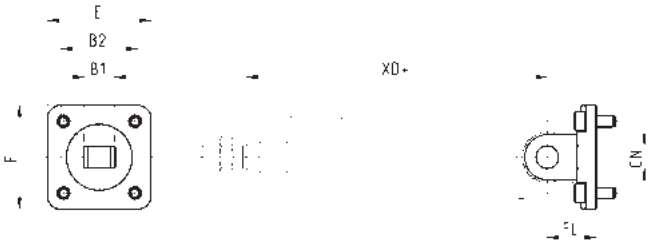
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Tight rear female trunnion bracket Mod. CR

Material: stainless steel 316



Supplied with:
1x female trunnion bracket
4x screws



+ = add the stroke

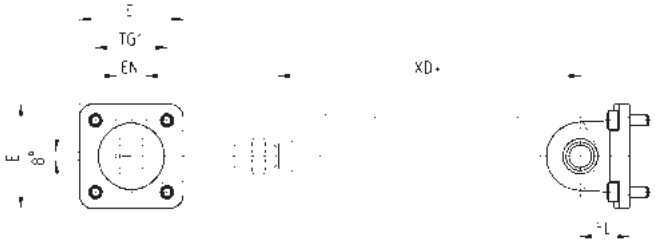
DIMENSIONS							
Mod.	Ø	B1	B2	E	CN	FL	XD+
CR-90-32	32	14	34	45	10	22	142
CR-90-40	40	16	40	55	12	25	160
CR-90-50	50	21	45	65	16	27	170
CR-90-63	63	21	51	75	16	32	190

Male trunnion bracket with swivel ball joint Mod. R

Material: stainless steel 316



Supplied with:
1x male trunnion bracket
4x screws



+ = add the stroke

DIMENSIONS						
Mod.	Ø	E	EN	FL	TG1	XD+
R-90-32	32	45	14	22	32.5	142
R-90-40	40	55	16	25	38	160
R-90-50	50	65	21	27	46.5	170
R-90-63	63	75	21	32	56.5	190

90° male trunnion bracket with swivel ball joint Mod. ZCR

Material: stainless steel 316



Supplied with:
1x male trunnion bracket
4x screws



+ = add the stroke

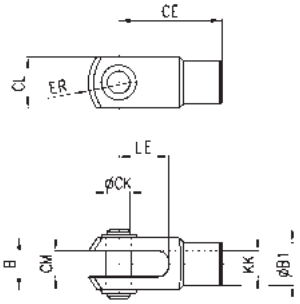
DIMENSIONS											
Mod.	Ø	CH	CN	G1	G2	G3	H6	K1	K2	S5	XD+
ZCR-90-32	32	32	10	21	18	31	10	38	51	6.6	142
ZCR-90-40	40	36	12	24	22	35	10	41	54	6.6	160
ZCR-90-50	50	45	16	33	30	45	12	50	65	9	170
ZCR-90-63	63	50	16	37	35	50	12	52	67	14	190

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Rod fork end Mod. G-90

ISO 8140
Material: stainless steel 303





DIMENSIONS

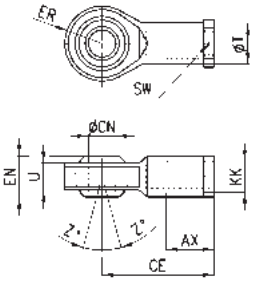
Mod.	Ø	ØCK	LE	CM	CL	ER	CE	KK	B	ØB1
G-90-25-32	32	10	20	10	20	12	40	M10x1.25	26	18
G-90-40	40	12	24	12	24	14	48	M12x1.25	31	20
G-90-50-63	50-63	16	32	16	32	19	64	M16x1.5	39	26

Swivel ball joint Mod. GA-90

ISO 8139

Materials:
- stainless steel 304 bracket
- stainless steel 420 spherical ring
- sintered bronze bushing





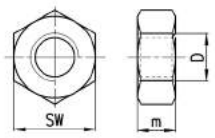
DIMENSIONS

Mod.	Ø	ØCN	U	EN	ER	AX	CE	KK	ØT	Z	SW
GA-90-32	32	10	10.5	14	14	20	43	M10x1.25	15	6.5	17
GA-90-40	40	12	12	16	16	22	50	M12x1.25	17.5	6.5	19
GA-90-50-63	50-63	16	15	21	21	28	64	M16x1.5	22	7.5	22

Piston rod lock nut Mod. U-90

ISO 4035
Material: stainless steel 304





DIMENSIONS

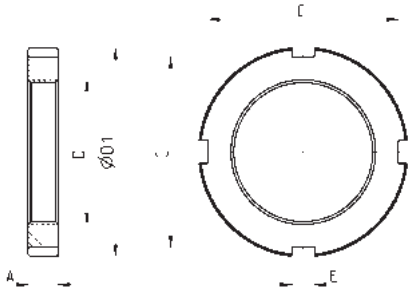
Mod.	Ø	D	m	SW
U-90-25-32	32	M10x1.25	6	17
U-90-40	40	M12x1.25	7	19
U-90-63	50-63	M16x1.5	8	24

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Nose nut Mod. V-97

Material: stainless steel 304





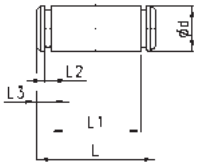
DIMENSIONS

Mod.	Ø	A	D	ØD1	E	C
V-97-32	32	7	M30x1.5	42	5	38
V-97-40	40	8	M38x1.5	55	6	50
V-97-50-63	50-63	10	M45x1.5	60	6	53

Clevis pin Mod. S-90

Supplied with:
1x clevis pin in stainless steel 303
2x seeger in steel





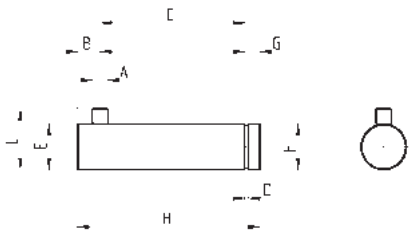
DIMENSIONS

Mod.	Ø	Ød	L	L1	L2	L3
S-90-32	32	10	53	46	1.1	3
S-90-40	40	12	60	53	1.1	3
S-90-50	50	12	68	61	1.1	3
S-90-63	63	16	78	71	1.1	3

Antirotating clevis pin Mod. SR-90

Supplied with:
1x antirotating clevis pin
in stainless steel 316
1x seeger in steel





DIMENSIONS

Mod.	Ø	A	B	C	D	E	F	G	H	L
SR-90-32	32	3	4.5	32.5	1.1	10	9.6	4	41	14
SR-90-40	40	4	6	38	1.1	12	11.5	4	48	16
SR-90-50	50	4	6	43	1.1	16	15.2	5	54	20
SR-90-63	63	4	6	49	1.1	16	15.2	5	60	20

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series QCT and QCB cylinders with integrated guide

Double-acting, magnetic piston, guided
ø 20, 25, 32, 40, 50, 63 mm



- Magnetic sensors can be mounted on both sides
- QCT: bronze bushings version
- QCB: ball bearing guide version
- Movement and guidance in one unit

Both versions are equipped with fixed cushioning to prevent direct impact with the end covers. The design of the cylinder body allows the mounting of the cylinder using either top, bottom or side faces. Several “T” shaped grooves in two faces allow sensors to be fitted in a number of positions.
Out of standard strokes are available on demand only.

These actuators, suitable for use in very limited space, are available in two versions.
QCT version: with sintered bronze bushes, suitable when the side loads applied to the cylinder are high.
QCB version: with linear ball bearings, suitable for high precision and fast cycling applications.

GENERAL DATA

Type of construction	compact guided QCT = sintered bronze bushes QCB = linear ball bearings
Operation	double-acting
Materials	body = anodized AL flange = zinc-plated steel piston rod = rolled stainless steel AISI 303 QCT columns = rolled stainless steel 420B QCB columns = hardened steel C50 seals = PU
Mounting	threaded and non-threaded holes in the body
Strokes min. max	see table
Operating temperature	0°C ÷ 80°C (with dry air - 20°C)
Speed	50 ÷ 500 mm/s
Operating pressure	1 ÷ 10 bar
Fluid	clean air, non lubricated. If lubricated air is used, it is recommended to use oil ISOVG32. Once applied the lubrication should never be interrupted.

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

STANDARD STROKES FOR DOUBLE-ACTING CYLINDERS SERIES QC

■ = Double-acting
Out of standard intermediate strokes available on request (strokes multiple of 5 mm)

STANDARD STROKES											
Ø	20	25	30	40	50	75	100	125	150	175	200
20	■		■	■	■	■	■	■	■	■	■
25	■		■	■	■	■	■	■	■	■	■
32		■			■	■	■	■	■	■	■
40		■			■	■	■	■	■	■	■
50		■			■	■	■	■	■	■	■
63		■			■	■	■	■	■	■	■

CODING EXAMPLE

QC	T	2	A	020	A	050

QC	SERIES	
T	VERSION: T = sintered bronze bushes B = linear ball bearings	
2	OPERATION: 2 = double-acting	PNEUMATIC SYMBOLS CD07
A	MATERIALS: A = anodized aluminium body - rolled stainless steel AISI 303 piston rod rolled stainless steel AISI 420B columns for QCT - hardened steel C50 columns for QCB	
020	BORE: 020 = 20 mm - 025 = 25 mm - 032 = 32 mm - 040 = 40 mm - 050 = 50 mm - 063 = 63 mm	
A	TYPE OF DESIGN: A = standard	
050	STROKE (see the table)	

PNEUMATIC SYMBOLS

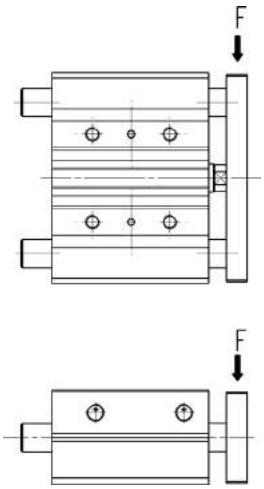
The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.



TABLE OF PERMISSABLE LOADS (F)

For sintered bronze bushes
QCT version
For linear ball bearings
QCB version

F (N) 1N = 0.102 kgf
Ex.: QCT2A025A020 = F = 140N

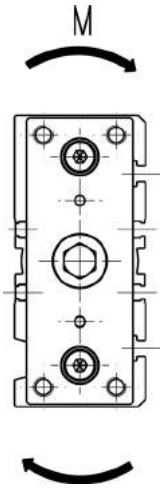


STROKE												
Ø	Mod	20	25	30	40	50	75	100	125	150	175	200
20	QCT	100	-	93	81	73	114	93	98	85	75	67
25	QCT	140	-	120	115	103	165	135	150	131	116	104
32	QCT	-	253	-	-	214	225	208	225	198	176	159
40	QCT	-	251	-	-	197	215	206	224	196	175	157
50	QCT	-	317	-	-	273	267	299	257	225	200	179
63	QCT	-	316	-	-	273	267	299	257	225	200	179
20	QCB	110	-	100	125	121	90	86	69	58	49	43
25	QCB	142	-	85	154	148	106	82	97	81	70	61
32	QCB	-	222	-	-	91	167	129	145	122	104	90
40	QCB	-	221	-	-	93	167	128	145	121	104	90
50	QCB	-	203	-	-	152	161	193	156	130	110	95
63	QCB	-	201	-	-	151	158	195	157	130	110	94

TABLE OF PERMISSABLE MOMENTS (M)

For sintered bronze bushes
QCT version
For linear ball bearings
QCB version

M (N*m) 1N*m = 0,102 kgf *m
Ex.: QCT2A025A020 = M = 3,4 Nm



STROKE												
Ø	Mod	20	25	30	40	50	75	100	125	150	175	200
20	QCT	1,7	-	1,5	1,2	1,0	2,9	2,8	2,6	2,3	2,0	1,8
25	QCT	3,4	-	2,9	3,6	3,3	4,2	4,3	3,8	3,2	2,7	2,3
32	QCT	-	6,7	-	-	6,5	7,2	7,0	6,6	5,6	4,8	4,1
40	QCT	-	8,7	-	-	7,3	9,2	8,8	9,6	8,4	7,5	6,7
50	QCT	-	15,4	-	-	12,9	12,6	13,4	12,1	11,3	10,7	8,8
63	QCT	-	15,1	-	-	14,3	16,6	17	14	11,3	9,7	9,1
20	QCB	3,0	-	2,7	3,4	3,3	2,4	2,3	1,9	1,6	1,3	1,2
25	QCB	3,5	-	2,7	4,9	4,7	3,4	2,6	3,1	2,6	2,2	2,0
32	QCB	-	6,3	-	-	3,6	6,5	5,1	5,7	4,8	4,1	3,5
40	QCB	-	8,5	-	-	4,0	7,2	5,5	6,2	5,2	4,5	3,9
50	QCB	-	11,1	-	-	8,3	8,8	10,6	8,6	7,1	6,0	5,2
63	QCB	-	8,3	-	-	7,2	9,8	12,1	9,7	8,1	6,8	5,8

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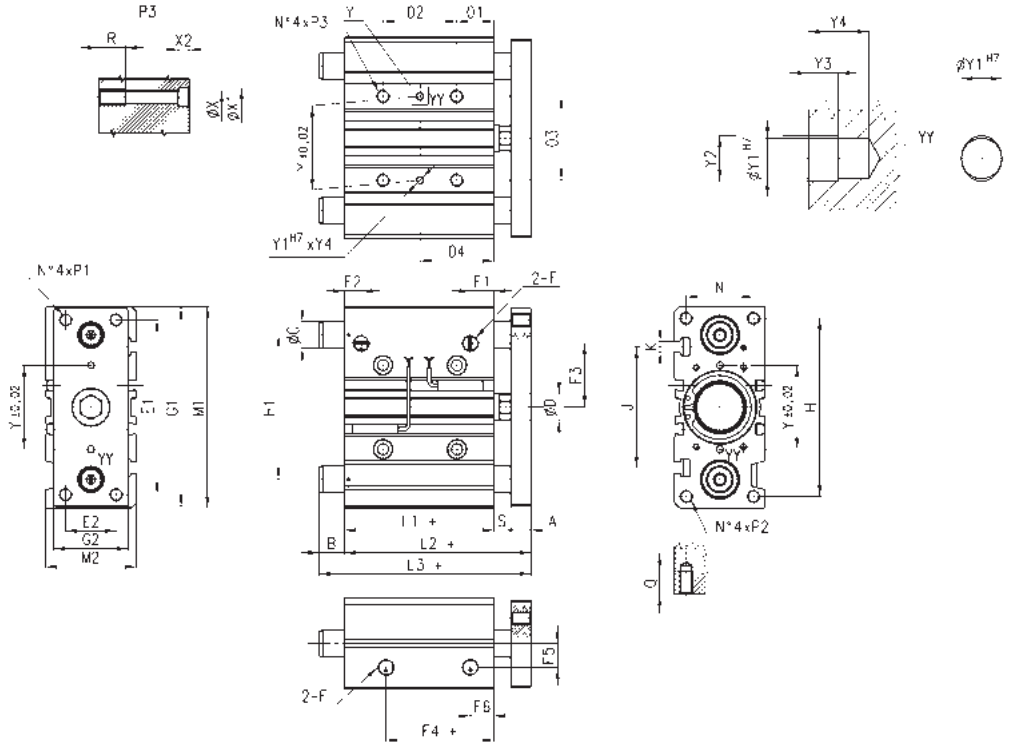
Cylinders Series QC



Note: for out of standard intermediate strokes (ex. stroke 35), consider the immediately higher stroke dimensions (ex. stroke 40).

For ØC, B, L3 dimensions, see the following page.

+ = add the stroke



In case of use of lateral ports, unscrew the related threaded caps, screw them in the front ports and tighten them up to the cylinder surface (not tighter) having care to use a proper sealer.

DIMENSIONS

Dimension 02 (mm)	Ø 20	Ø 25	Ø 32	Ø 40	Ø 50	Ø 63	Dimension 04 (mm)	Ø 20	Ø 25	Ø 32	Ø 40	Ø 50	Ø 63
20 ÷ 30	24	24	24	24	24	28	**20 ÷ 30**	29	29	33	34	36	38
40 ÷ 100	44	44	48	48	48	52	**40 ÷ 100**	39	39	45	46	48	50
125 ÷ 200	120	120	124	124	124	128	**125 ÷ 200**	77	77	83	84	86	88

DIMENSIONS

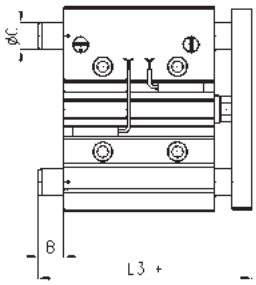
Ø	A	ØD	E1	E2	F	F1	F2	F3	F4	F5	F6	G1	G2	H	H1	L1	L2	M1	M2	N	01	03	P1/P2	P3	Q	R	S	Y	Y1	Y2	Y3	Y4	X	X1	X2	J	K
20	10	10	70	18	G1/8	10.5	10.5	25	12.5	11.5	10.5	81	30	72	54	37	53	83	36	24	17	28	M5X0.8	M6X1	13	12	6	28	3	3.5	3	6	5.5	9	5	44	M5
25	10	12	78	26	G1/8	11.5	8	28.5	12.5	13.5	11.5	91	40	82	64	37.5	53.5	93	42	30	17	34	M6X1	M6X1	15	12	6	34	4	4.5	3	6	5.5	9	5	50	M5
32	12	16	96	30	G1/8	12.5	9.5	34	7	15	12.5	110	45	98	78	37.5	59.5	112	48	34	21	42	M8X1.25	M8X1.25	20	16	10	42	4	4.5	3	6	6.5	11	6.5	63	M6
40	12	16	104	30	G1/8	13	12	38	13	18	13	118	45	106	86	44	66	120	54	40	22	50	M8X1.25	M8X1.25	20	16	10	50	4	4.5	3	6	6.5	11	6.5	72	M6
50	15	20	130	40	G1/4	14	11	47	8	21.5	12	146	60	130	110	44	72	148	64	46	24	66	M10X1.5	M10X1.5	22	20	13	66	5	6	4	8	8.5	14	8.5	92	M8
63	15	20	130	50	G1/4	14.5	11.4	55	12	28	14.5	158	70	142	124	49	77	162	78	58	24	80	M10X1.5	M10X1.5	22	20	13	80	5	6	4	8	8.5	14	8.5	110	M10

QCB: total length (L3), projection (B) and guide columns Ø (ØC)

Note: for out of standard intermediate strokes (ex. stroke 35), consider the immediately higher stroke dimensions (ex. stroke 40). For standard strokes see the table on page 1/4.05.02.



Dimensions L3 and B change according to the different strokes of QCB.



DIMENSIONS

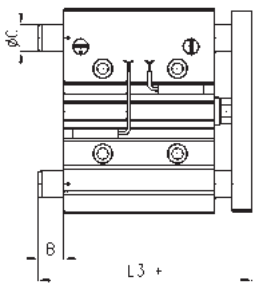
Ø	L3 (strokes 20-30 mm)	L3 (strokes 25-50 mm)	L3 (strokes 25-75 mm)	L3 (strokes 40-100 mm)	L3 (strokes 75-100 mm)	L3 (strokes 100-200 mm)	L3 (strokes 125-200 mm)	B (strokes 20-30 mm)	B (strokes 25-50 mm)	B (strokes 25-75 mm)	B (strokes 40-100 mm)	B (strokes 75-100 mm)	B (strokes 100-200 mm)	B (strokes 125-200 mm)	ØC
20	72	-	-	75	-	-	85	19	-	-	22	-	-	32	10
25	74.5	-	-	85.5	-	-	98	21	-	-	32	-	-	44.5	12
32	-	86	-	-	95	-	110	-	26.5	-	-	35.5	-	50.5	16
40	-	86	-	-	95	-	110	-	20	-	-	29	-	44	16
50	-	-	93	-	-	112	-	-	-	21	-	-	40	-	20
63	-	-	93	-	-	112	-	-	-	16	-	-	35	-	20

QCT: total length (L3), projection (B) and columns Ø (ØC)

Note: for out of standard intermediate strokes (ex. stroke 35), consider the immediately higher stroke dimensions (ex. stroke 40). For standard strokes see the table on page 1/4.05.02.



Dimensions L3 and B change according to the different strokes of QCT.



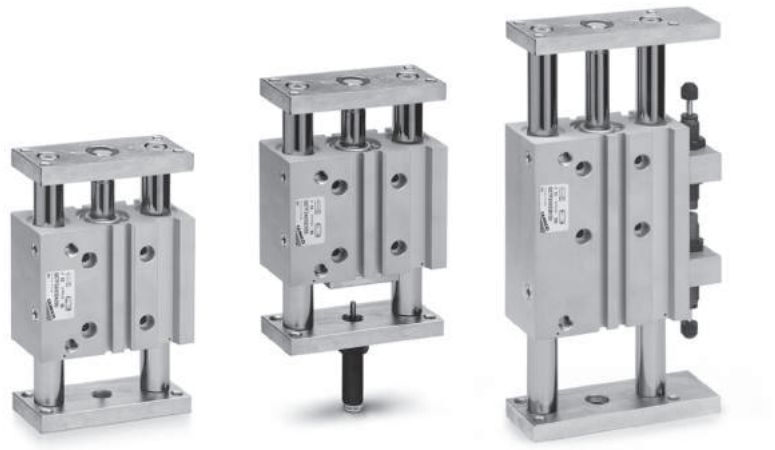
DIMENSIONS

Ø	L3 (strokes 20-50 mm)	L3 (stroke 20 mm)	L3 (stroke 25 mm)	L3 (strokes 30-50 mm)	L3 (strokes 25-200 mm)	L3 (strokes 75-200 mm)	L3 (strokes 50-200 mm)	B (strokes 20-50 mm)	B (stroke 20 mm)	B (stroke 25 mm)	B (strokes 30-50 mm)	B (strokes 25-200 mm)	B (strokes 75-200 mm)	B (strokes 50-200 mm)	ØC
20	74.5	-	-	-	-	79.5	-	21.5	-	-	-	-	26.5	-	12
25	-	74.5	-	80.5	-	85	-	-	21	-	27	-	31.5	-	16
32	-	-	73.5	-	-	-	91.5	-	-	14	-	-	-	32	20
40	-	-	73.5	-	-	-	91.5	-	-	7.5	-	-	-	25.5	20
50	-	-	-	-	98.5	-	-	-	-	-	-	26.5	-	-	25
63	-	-	-	-	98.5	-	-	-	-	-	-	21.5	-	-	25

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General terms and conditions for sale are available on www.camozzi.com.

Series QCTF - QCBF cylinders with integrated guide

Double-acting, magnetic, with double bearings and flanges ø 20, 25, 32, 40 mm



- Magnetic sensors can be mounted on both sides
- QCTF: bronze bushings
- QCBF: ball bearing guide
- Movement and guide in one unit

These cylinders have been designed to be used in applications where space is limited. Regarding the bearings, the Slide Units are available in two versions, one with double sintered bronze bushes (Mod. QCTF) and the other with double linear ball bearings (Mod. QCBF). The QCTF version would normally be selected when the side loads applied to the slide unit are high. Mod. QCBF is suitable for fast cycles (less side load) and higher precision.

The end cushioning is available in three different variants:
A. fixed mechanical cushion (standard)
B. with two shock absorbers located on the body
C. with one shock absorber located central on the rear flange.
The versions B and C are suitable for handling of higher mass forces and / or when it is necessary to adjust the stroke.

GENERAL DATA

Type of construction	guided with double bearings and double flanges QCTF = sintered bronze bushes QCBF = linear ball bearings
Operation	double-acting
Materials	body = anodized AL flanges = zinc-plated steel piston rod = rolled stainless steel AISI QCTF columns = rolled stainless steel 420B QCBF columns = hardened steel C50 seals = PU
Mounting	threaded and non threaded holes in the body
Strokes min. max	(see table)
Operating temperature	0°C ÷ 80°C (with dry air -20°C)
Speed	50 ÷ 500 mm/s
Stroke end cushioning Type A	extended stroke - fixed mechanical cushioning retracted stroke - fixed mechanical cushioning we recommend preventing the piston from striking against the end covers
Stroke end cushioning Type B	extended stroke - shock absorber retracted stroke - shock absorber
Stroke end cushioning Type C	extended stroke - shock absorber retracted stroke - fixed mechanical cushioning we recommend preventing the piston from striking against the end covers
Operating pressure	1 ÷ 10 bar
Fluid	clean air, non lubricated. If lubricated air is used, it is recommended to use oil ISOVG32. Once applied the lubrication should never be interrupted.

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

STANDARD STROKES FOR DOUBLE-ACTING CYLINDERS SERIES QCTF AND QCBF

■ = Type A and C
✖ = Type B

Out of standard intermediate strokes available on request (strokes multiple of 5 mm)

STANDARD STROKES											
Ø	20	25	30	40	50	75	100	125	150	175	200
20	■		■	■	■	■ ✖	■ ✖	■ ✖	■ ✖	■ ✖	■ ✖
25	■		■	■	■	■ ✖	■ ✖	■ ✖	■ ✖	■ ✖	■ ✖
32		■			■	■	■ ✖	■ ✖	■ ✖	■ ✖	■ ✖
40		■			■	■	■ ✖	■ ✖	■ ✖	■ ✖	■ ✖

CODING EXAMPLE

QC	T	F	2	A	020	A	050

QC	SERIES	
T	TYPE OF BEARING: T = sintered bronze bushes B = linear ball bearings	
F	VERSION: F = double flange	
2	OPERATION: 2 = double-acting	PNEUMATIC SYMBOL: CD14
A	MATERIALS: A = anodized aluminium body - rolled stainless steel piston rod AISI 303 rolled stainless steel AISI 420B colums for QCTF - hardened steel C50 colums for QCBF	
020	BORE: 020 = 20 mm - 025 = 25 mm - 032 = 32 mm - 040 = 40 mm	
A	CUSHION: A = fixed mechanical cushion (standard) B = two shock absorbers located on the body C = one shock absorber located on the rear flange	
050	STROKE (see the table)	

PNEUMATIC SYMBOLS

The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.

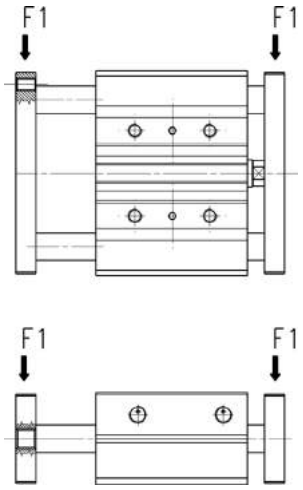


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TABLE OF PERMISSABLE LOADS (F1)

For sintered bronze bushes
QCTF version
For linear ball bearings
QCBF version

F1 (N) 1N = 0.102 kgf

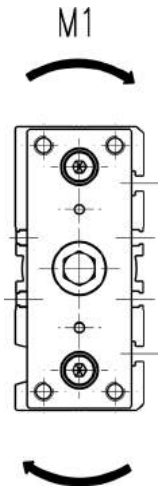


STROKE												
Ø		20	25	30	40	50	75	100	125	150	175	200
20	**QCTF**	136	-	124	124	123	122	122	121	121	120	120
	QCBF	146	-	142	140	139	137	136	134	94	70	53
25	**QCTF**	181	-	167	165	164	163	162	161	160	159	158
	QCBF	171	-	167	165	163	161	160	160	159	142	109
32	**QCTF**	-	174	-	-	166	162	160	158	156	155	153
	QCBF	-	220	-	-	214	211	211	210	210	209	209
40	**QCTF**	-	189	-	-	175	168	164	161	159	157	155
	QCBF	-	228	-	-	219	214	214	212	212	211	210

TABLE OF PERMISSABLE MOMENTS (M1)

For sintered bronze bushes
QCTF version
For linear ball bearings
QCBF version

M1 (N*m) 1N*m = 0,102 kgf *m



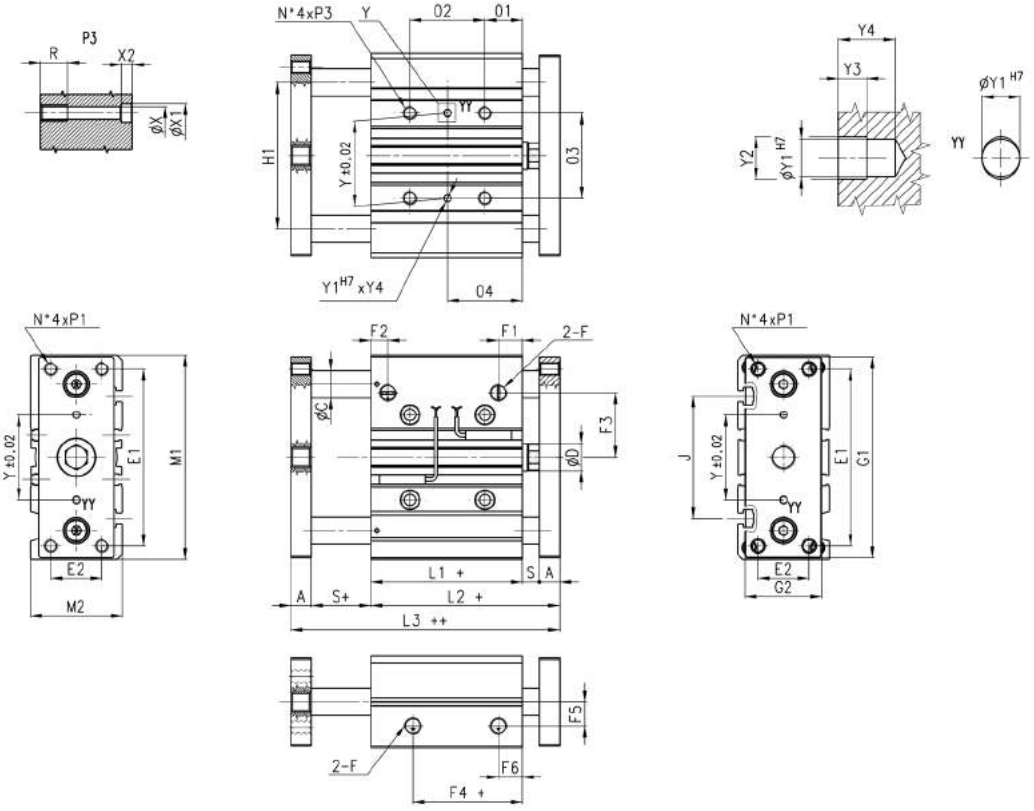
STROKE												
Ø	Mod.	20	25	30	40	50	75	100	125	150	175	200
20	**QCTF**	3,6	-	3,3	3'3	3,3	3,2	3,2	3,2	3,2	3,2	3,2
	QCBF	3,9	-	3,7	3,7	3,7	3,6	3,6	3,6	2,5	1,89	1,4
25	**QCTF**	5,7	-	5,2	5,2	5,2	5,2	5,1	5,1	5,1	5	5
	QCBF	5,4	-	5,2	5,2	5,2	5,1	5,1	5,1	5	4,5	3,4
32	**QCTF**	-	6,7	-	-	6,4	6,3	6,2	6,1	6	6	5,9
	QCBF	-	8,5	-	-	8,3	8,2	8,2	8,1	8,1	8,1	8,1
40	**QCTF**	-	8,1	-	-	7,5	7,2	7	6,9	6,8	6,7	6,6
	QCBF	-	9,8	-	-	9,4	9,2	9,2	9,1	9,1	9	9

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Mod. QCTF and QCBF type “A”



+ = add the stroke once
++ = add the stroke twice
Note: for out of standard intermediate strokes (ex. stroke 35), consider the immediately higher stroke dimensions (ex. stroke 40).



In case of use of lateral ports, unscrew the related threaded caps, screw them in the front ports and tighten them up to the cylinder surface (not tighter) having care to use a proper sealer.

DIMENSIONS

Ø	P1	P3	Y1	Y2	Y3	Y4	X	X1	X2	J	K
20	M5x0,8	M6x1	3	3,5	3	6	5,5	9	5	44	M5
25	M6x1	M6x1	4	4,5	3	6	5,5	9	5	50	M5
32	M8x1,25	M8x1,25	4	4,5	3	6	6,5	11	6,5	63	M6
40	M8x1,25	M8x1,25	4	4,5	3	6	6,5	11	6,5	72	M6

	02 stroke 20-30	02 stroke 40-100	02 stroke 125-200	04 stroke 20-30	04 stroke 40-100	04 stroke 125-200	QCBF ØC	QCTF ØC
20	24	44	120	29	39	77	10	12
25	24	44	120	29	39	77	12	16
32	24	48	124	33	45	83	16	20
40	24	48	124	34	46	84	16	20

DIMENSIONS

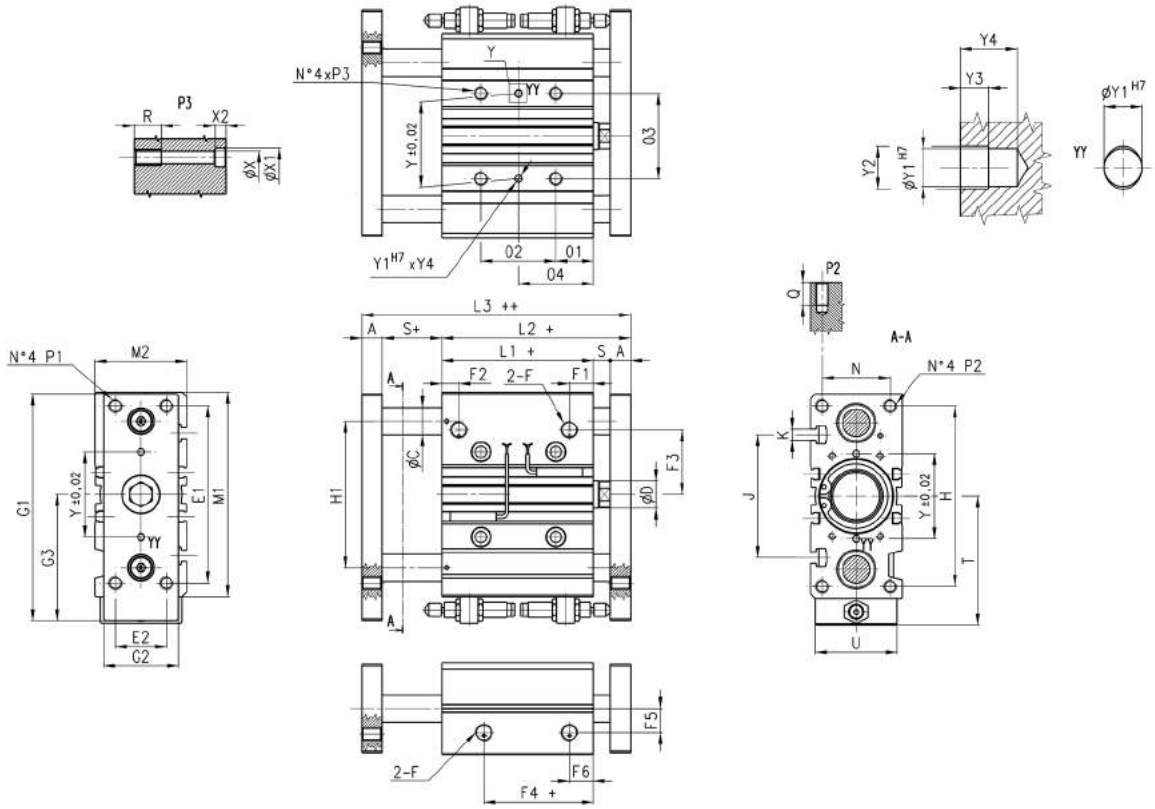
Ø	A	øD	E1	E2	F	F1	F2	F3	F4	F5	F6	G1	G2	H1	L1	L2	L3	M1	M2	01	03	R	S	Y
20	10	10	70	18	1/8	10.5	10.5	25	12.5	11.5	10.5	81	30	54	37	53	69	83	36	17	28	12	6	28
25	10	12	78	26	1/8	11.5	8	28.5	12.5	13.5	11.5	91	40	64	37.5	53.5	69.5	93	42	17	34	12	6	34
32	12	16	96	30	1/8	12.5	9.5	34	7	15	12.5	110	45	78	37.5	59.5	81.5	112	48	21	42	16	10	42
40	12	16	104	30	1/8	13	12	38	13	18	13	118	45	86	44	66	88	120	54	22	50	16	10	50

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Mod. QCTF and QCBF type “B”



+ = add the stroke once
++ = add the stroke twice
Note: for out of standard intermediate strokes (ex. stroke 35), consider the immediately higher stroke dimensions (ex. stroke 40).



In case of use of lateral ports, unscrew the related threaded caps, screw them in the front ports and tighten them up to the cylinder surface (not tighter) having care to use a proper sealer.

DIMENSIONS

Ø	P1	P3	T	U	Y	Y1	Y2	Y3	Y4	X	X1	X2	J	K	Shock absorber	Δ stroke (mm)	adjustment range cyl. stroke mm
20	M5x0,8	M6x1	57,5	32	28	3	3,5	3	6	5,5	9	5	44	M5	SA-1007	0 ÷ 15	0 ÷ +12
25	M6x1	M6x1	62,5	38	34	4	4,5	3	6	5,5	9	5	50	M5	SA-1007	0 ÷ 15	0 ÷ +8
32	M8x1,25	M8x1,25	81	44	42	4	4,5	3	6	6,5	11	6,5	63	M6	SA-1412	0 ÷ 20	0 ÷ +10
40	M8x1,25	M8x1,25	85	44	50	4	4,5	3	6	6,5	11	6,5	72	M6	SA-1412	0 ÷ 20	0 ÷ +11

	02 stroke 75	02 stroke 100	02 stroke 125-200	04 stroke 20-30	04 stroke 40-100	04 stroke 125-200	QCBF ØC	QCTF ØC
20	44	44	120	29	39	77	10	12
25	44	44	120	29	39	77	12	16
32	-	48	124	33	45	83	16	20
40	-	48	124	34	46	84	16	20

DIMENSIONS

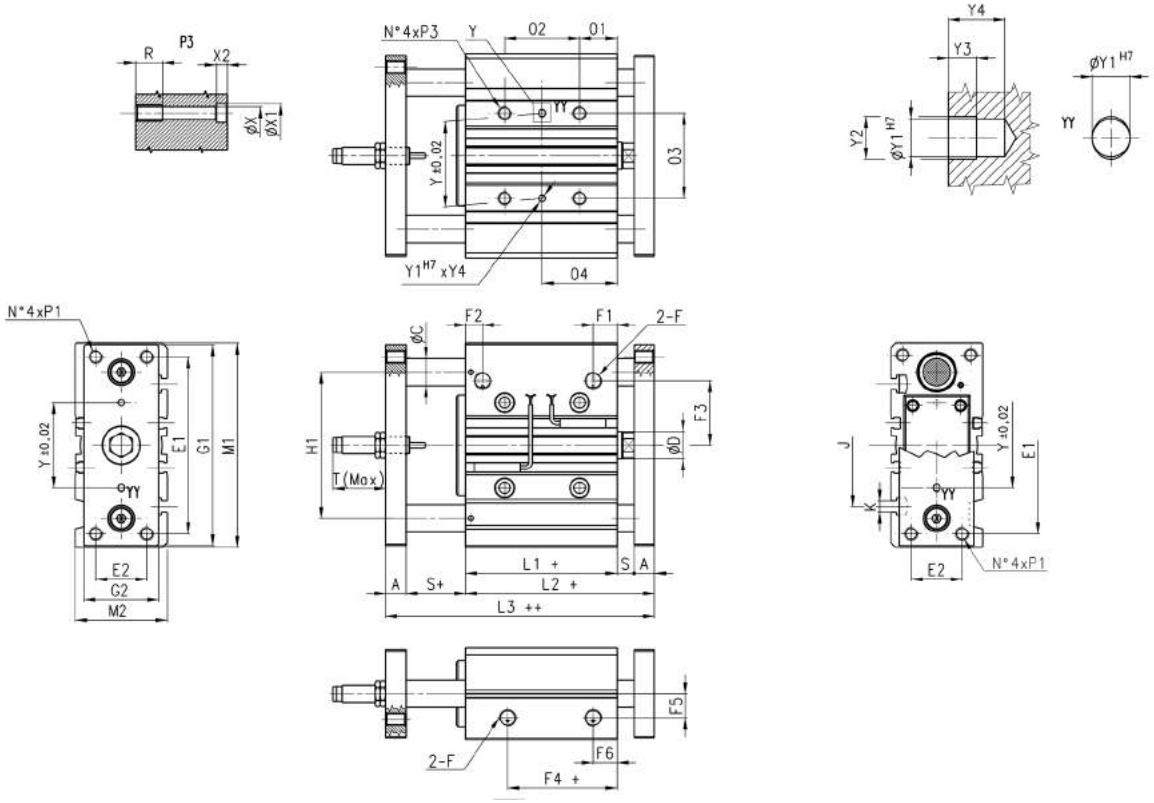
Ø	A	øD	E1	E2	F	F1	F2	F3	F4+	F5	F6	G1	G2	G3	H1	L1+	L2+	L3++	M1	M2	01	03	R	S
20	10	10	70	18	1/8	10,5	10,5	25	12,5	11,5	10,5	97	30	56,5	54	37	53	69	83	36	17	28	12	6
25	10	12	78	26	1/8	11,5	8	28,5	12,5	13,5	11,5	107	40	61,5	64	37,5	53,5	69	93	42	17	34	12	6
32	12	16	96	30	1/8	12,5	9,5	34	7	15	12,5	134	45	79	78	37,5	59,5	81,5	112	48	21	42	16	10
40	12	16	104	30	1/8	13	12	38	13	18	13	141	45	82	86	44	66	88	120	54	22	50	16	10

1
MOVEMENT

Mod. QCTF and QCBF type “C”



+ = add the stroke once
++ = add the stroke twice
Note: for out of standard intermediate strokes (ex. stroke 35), consider the immediately higher stroke dimensions (ex. stroke 40).



In case of use of lateral ports, unscrew the related threaded caps, screw them in the front ports and tighten them up to the cylinder surface (not tighter) having care to use a proper sealer.

DIMENSIONS

Ø	P1	P3	T_{Max}	Y	Y1	Y2	Y3	Y4	X	X1	X2	J	K	Shock absorber	Δ stroke (mm)	adjustment range cyl. stroke (mm)
20	M5x0,8	M6x1	37	28	3	3,5	3	6	5,5	9	5	44	M5	SA-1007 W	0 ÷ 25	-15 ÷ -25
25	M6x1	M6x1	37	34	4	4,5	3	6	5,5	9	5	50	M5	SA-1007 W	0 ÷ 25	-15 ÷ -25
32	M8x1,25	M8x1,25	55	42	4	4,5	3	6	6,5	11	6,5	63	M6	SA-1412 W	0 ÷ 35	-18 ÷ -35
40	M8x1,25	M8x1,25	55	50	4	4,5	3	6	6,5	11	6,5	72	M6	SA-1412 W	0 ÷ 35	-18 ÷ -35

	02 stroke 20-30	02 stroke 40-100	02 stroke 125-200	04 stroke 20-30	04 stroke 40-100	04 stroke 125-200	QCBF ØC	QCTF ØC
20	24	44	120	29	39	77	10	12
25	24	44	120	29	39	77	12	16
32	24	48	124	33	45	83	16	20
40	24	48	124	34	46	84	16	20

DIMENSIONS

Ø	A	øD	E1	E2	F	F1	F2	F3	F4+	F5	F6	G1	G2	H1	L1+	L2+	L3++	M1	M2	01	03	R	S
20	10	10	70	18	1/8	10,5	10,5	25	12,5	11,5	10,5	81	30	54	37	53	69	83	36	17	28	12	6
25	10	12	78	26	1/8	11,5	8	28,5	12,5	13,5	11,5	91	40	64	37,5	53,5	69,5	93	42	17	34	12	6
32	12	16	96	30	1/8	12,5	9,5	34	7	15	12,5	110	45	78	37,5	59,5	81,5	112	48	21	42	16	10
40	12	16	104	30	1/8	13	12	38	13	18	13	118	45	86	44	66	88	120	54	22	50	16	10

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Series QX twin cylinders

Double-acting, magnetic, guided
ø 10x2, 16x2, 20x2, 25x2, 32x2 mm



- » High force
- » Precise movement
- » Integrated guide
- » QXB: linear ball bearings
- » QXT: sintered bronze bushes

Series QX actuators offer a wide range of solutions covering a great number of applications which require a guided linear movement. The design of the double piston, besides assuring a solid and effective guide, offers double force in compact dimensions.
Where a high force with precise movement is required, along with a non-rotation function and integrated guide, the QX cylinders are the ideal solution.

The range includes two guide versions with sintered bronze bushes or with linear ball bearings.

GENERAL DATA

Type of construction	compact, non magnetic QXT = sintered bronze bushes - QXB = linear ball bearings
Operation	double-acting
Materials	body and flange = anodized AL QXT piston rod = stainless steel AISI 303 - QXB piston rod = hardened steel C50 seals = PU
Mounting method	by means of threaded holes
Strokes	from 10 to 100
Operating temperature	0° ÷ 80°C (with dry air - 20°C)
Operating speed	50 ÷ 500 mm/s
Operating pressure	1 ÷ 10 bar
Fluid	clean air, without lubrication. If lubricated air is used, it is recommended to use oil ISOVG32. Once applied the lubrication should never be interrupted.

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STANDARD STROKES FOR TWIN CYLINDERS SERIES QX

■ = Double-acting

STANDARD STROKES							
Ø	10	20	30	40	50	75	100
10	■	■	■	■	■	■	
16	■	■	■	■	■	■	■
20	■	■	■	■	■	■	■
25	■	■	■	■	■	■	■
32	■	■	■	■	■	■	■

CODING EXAMPLE

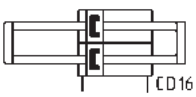
QX	T	2	A	020	A	050

QX	SERIES	
T	VERSION T = sintered bronze bushes B = linear ball bearings	
2	OPERATION 2 = double-acting (1 flange) radial / axial pressure supply 3 = double-acting through-rod (double-flange), radial pressure supply	PNEUMATIC SYMBOLS CD15 CD16
A	MATERIALS A = anodized aluminium body, rolled stainless steel AISI 303 piston rod	
020	BORE 010 = 10 mm - 016 = 16 mm - 020 = 20 mm - 025 = 25 mm - 032 = 32 mm	
A	TYPE OF DESIGN A = standard	
050	STROKE (see the table)	

PNEUMATIC SYMBOLS

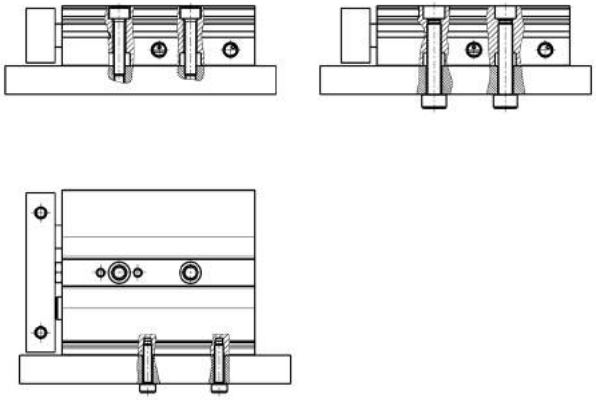
The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.



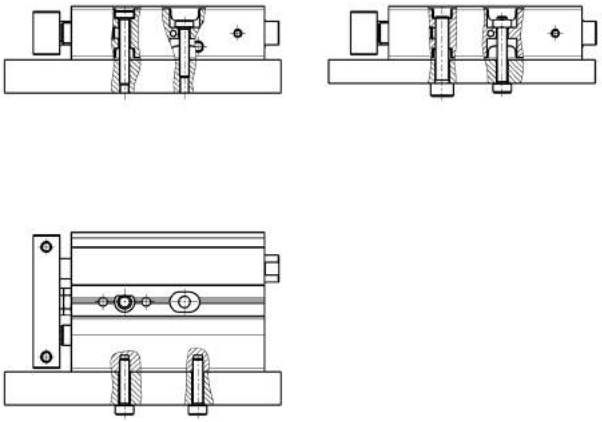


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Fixing examples with flange in motion

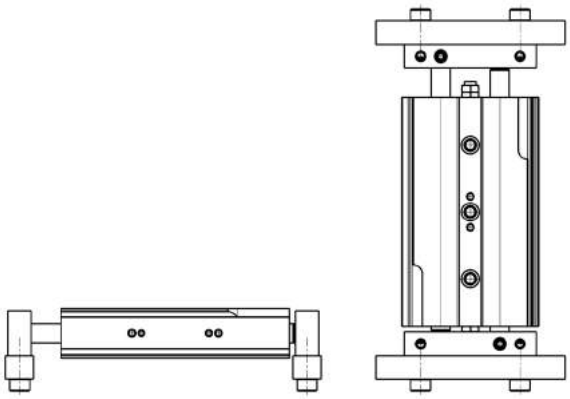


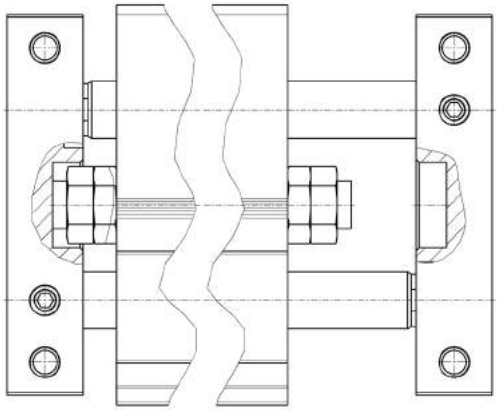
For diameters from 16 to 32



To mount the sensors of QX cylinders ø 10 in the middle grooves, it is advisable to use M3 screws UNI 9327 and nuts M3 UNI 5589.

Fixing examples with cylinder body in motion

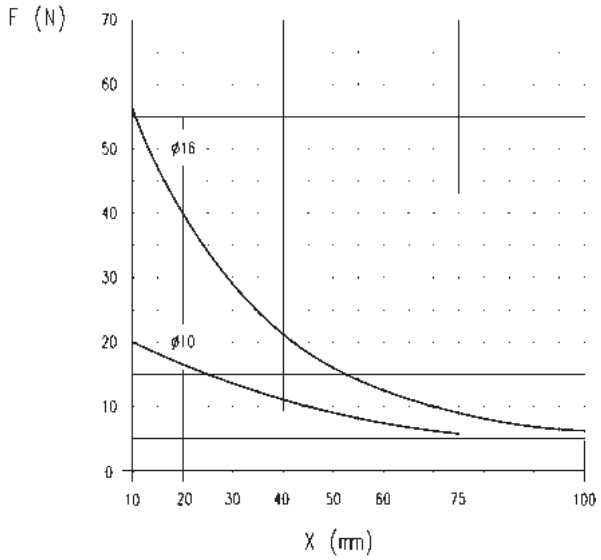


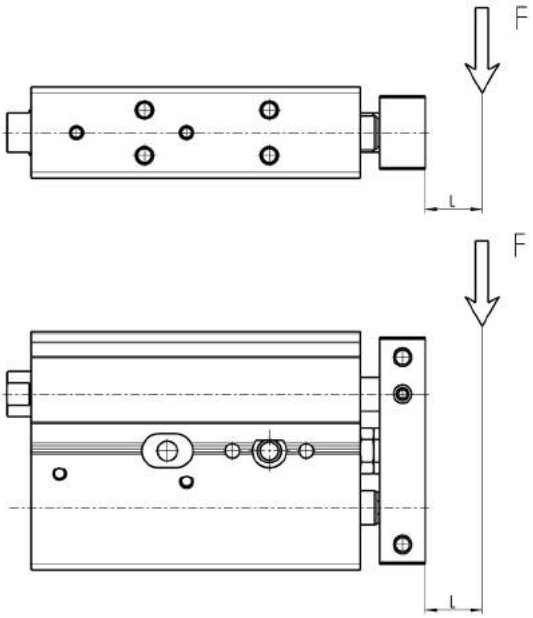


The front and rear regulation screw allows the adjustment of the stroke up to –10mm.

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DIAGRAM OF MAX APPLICABLE LOADS DEPENDING ON THE STROKE (X)

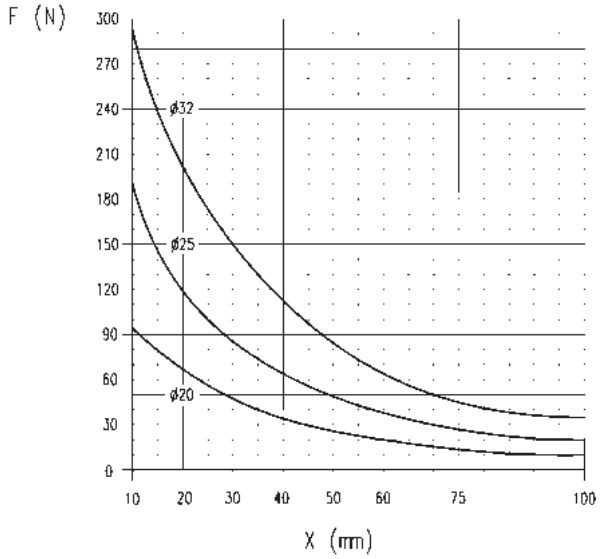


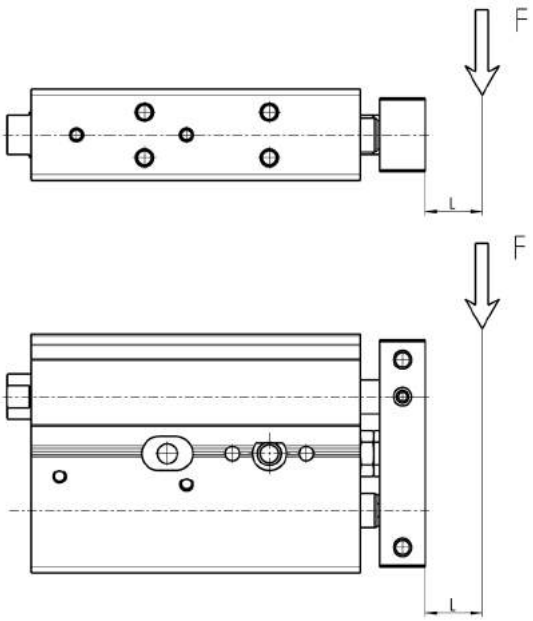


X = cylinder stroke mm.
F = load applied on the flange in N.

Load " F " should be considered fixed on the flange of the cylinder and with a theorical projection of L = 0 mm.

DIAGRAM OF MAX APPLICABLE LOADS DEPENDING ON THE STROKE (X)



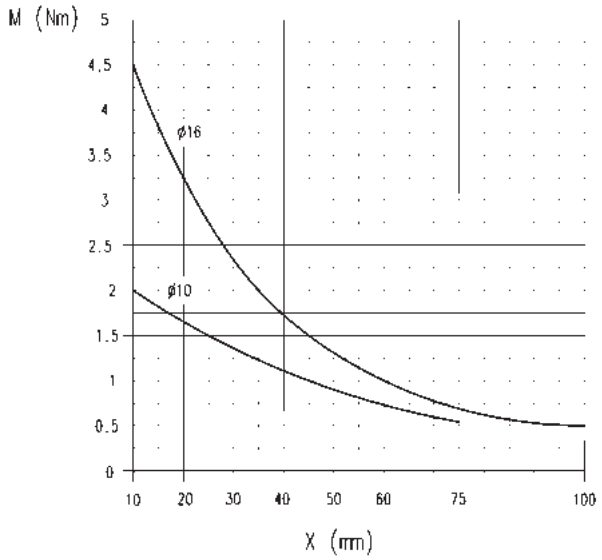


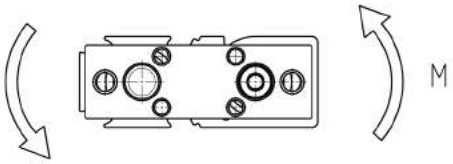
X = cylinder stroke mm.
F = load applied on the flange in N.

Load " F " should be considered fixed on the flange of the cylinder and with a theorical projection of L = 0 mm.

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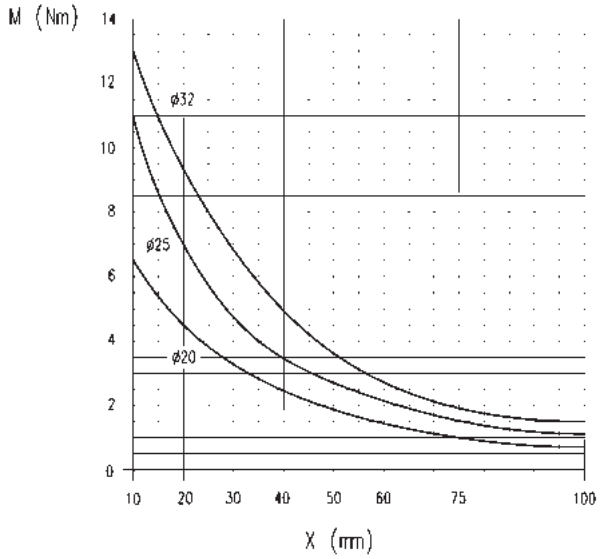
DIAGRAM OF MAX TORQUE MOMENT DEPENDING ON THE STROKE (X)

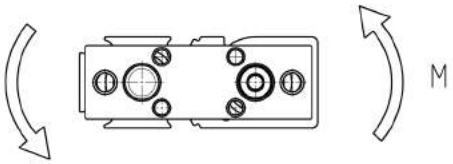




X = cylinder stroke in mm.
M = torque moment applied on the flange in Nm.

DIAGRAM OF MAX TORQUE MOMENT DEPENDING ON THE STROKE (X)





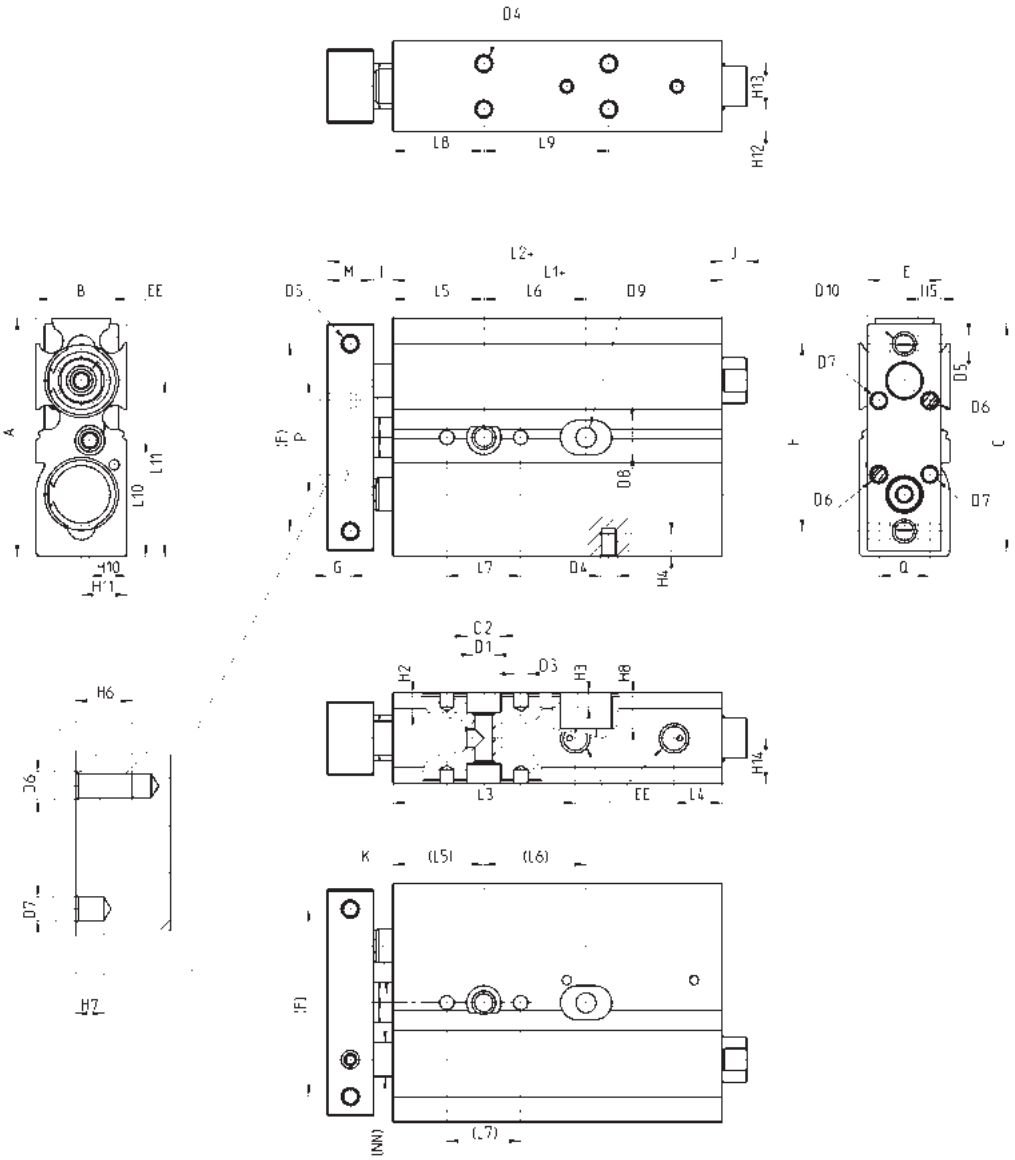
X = cylinder stroke in mm.
M = torque moment applied on the flange in Nm.

Cylinders Series QX (single flange)



NOTE: for out of standard intermediate strokes (ex. stroke 37), you have to consider the dimensions referring to the immediately higher stroke (ex. stroke 40) with a maximum permitted reduction of 10 mm.

+ = add the stroke



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Dimensions for Series QX with single flange

+ = add the stroke

DIMENSIONS						
	Stroke (mm)	Ø 10	Ø 16	Ø 20	Ø 25	Ø 32
A		42	58	62	76	94
B		16	21	25	30	37
C		40	56	60	71	92
E		13	19	22	27	35
F		33	42	50	60	75
G		4	5	6	6	8
I		3,5	2,5	4,5	4,5	4
M		8	10	12	12	16
Q		9	11	16	16	16
R		13	13	18	18	18
L1+		48	57,5	67,5	70,5	80,5
L2+		59,5	70	84	87	100,5
L3		32,1	34	39,5	44,0	46,5
L4		8,5	8,5	9	8,5	12
L5		16	20	25	30	30
L6	10	18	25	30	30	40
L6	20	28	25	30	30	40
L6	30	38	35	40	40	50
L6	40	48	35	40	40	50
L6	50	58	35	40	40	50
L6	75	83	45	60	60	70
L6	100	-	55	60	60	70
L7		13	13	20	20	20
L8		16	30	30	30	30
L9	10	22	25	30	30	40
L9	20	32	25	30	30	40
L9	30	42	35	40	40	50
L9	40	52	35	40	40	50
L9	50	62	35	40	40	50
L9	75	87	45	60	60	70
L9	100	-	55	60	60	70
L10		20,5	29	31	38	47
L11		31	52	57,2	71,5	47
H2		3,5	4,5	5,5	6,5	6,5
H3		2,5	4,0	4,0	4,0	4,0
H4		4,0	5,0	4,5	5,0	7,5
H5		6,5	6,0	6,0	6,0	7,5
H6		8,0	6,0	8,0	8,0	8,0
H7		3,0	3,0	4,0	4,0	4,0
H8		6,3	-	-	-	-
H10		6,5	10,5	10,5	15	8,5
H11		8	16,5	20,2	21,5	28,5
H12		4	10,5	8,00	8,5	8,5
H13		8	-	9,0	13,0	20,0
H14		8	5,5	12,5	15,0	18,5
D1		M4	M5	M6	M8	M8
D2		6	7,5	9,5	10,5	10,5
D3		2,5	2,5	4	4	4
D4		M3	M3	M4	M5	M5
D5		M3	M4	M4	M5	M5
D6		M3	M3	M4	M4	M4
D7		2,5	2,5	4,0	4,0	4,0
D8		6,0	-	-	-	-
D9		3,5	-	-	-	-
D10		M4	M5	M5	M6	M6
NN		6	8	10	12	16
EE		M5	M5	M5	M5	G1/8
J		4,3	-	-	-	-
K		7	7	8	8	10
P		20	25	29	35	45

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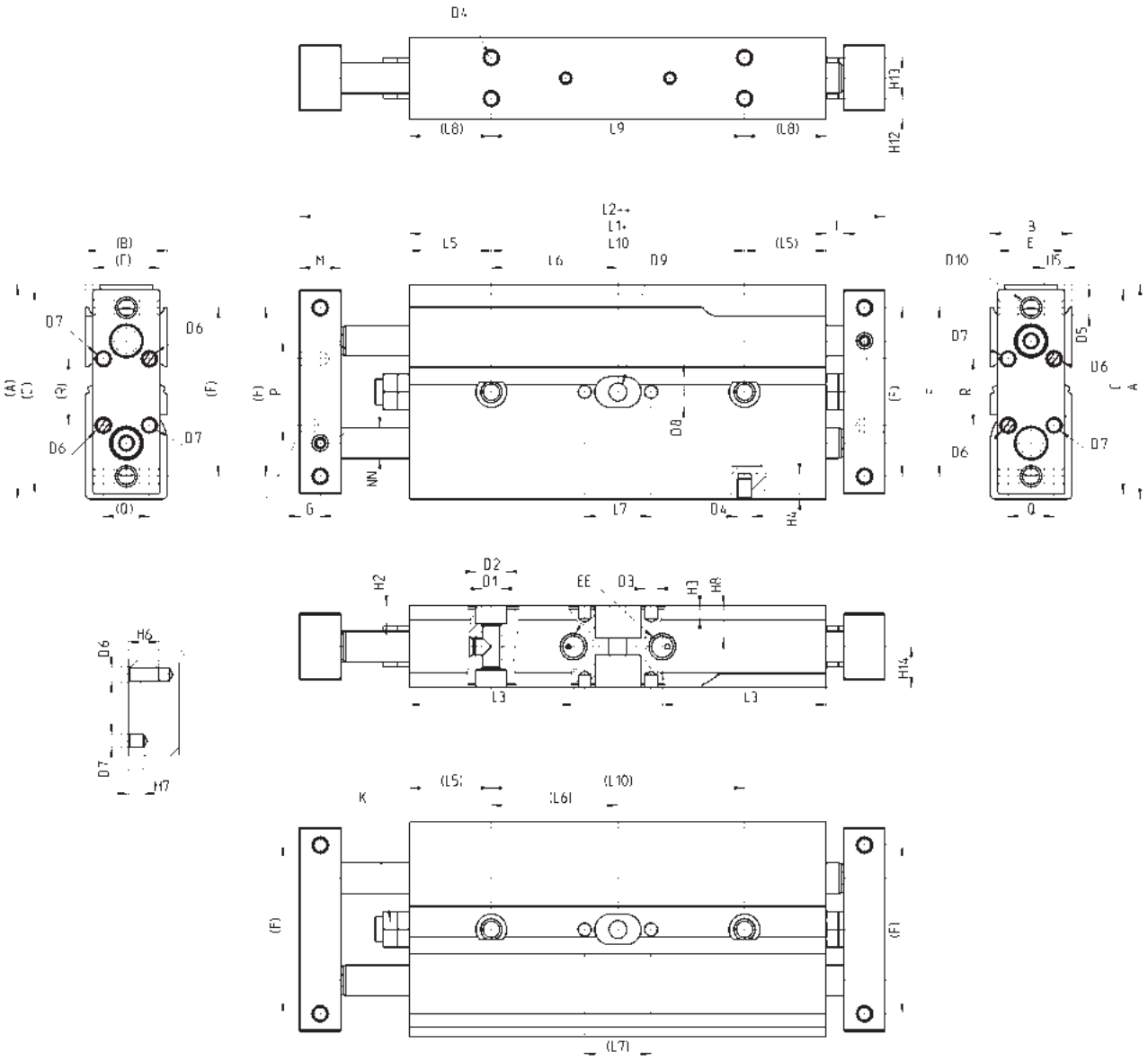
1 MOVEMENT

Cylinders Series QX (double flange)



NOTE: for out of standard intermediate strokes (ex. stroke 37), you have to consider the dimensions referring to the immediately higher stroke (ex. stroke 40) with a maximum permitted reduction of 10 mm.

+ = add the stroke



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General terms and conditions for sale are available on www.camozzi.com.

Dimensions for Series QX with double flange

+ = add the stroke
++ = add the stroke 2 times

DIMENSIONS						
	Stroke (mm)	Ø 10	Ø 16	Ø 20	Ø 25	Ø 32
A		42	58	62	76	94
B		16	21	25	30	37
C		40	56	60	71	92
E		13	19	22	27	35
F		33	42	50	60	45
G		4	5	6	6	6
I		3,5	2,5	4,5	4,5	4
M		8	10	12	12	16
Q		9	11	16	16	16
R		13	13	18	18	18
L1+		72	86,6	98	104,2	115,6
L2++		95	111,6	131	137,2	155,6
L3		32,1	34	39,5	44	46,5
L5		16	20	25	30	30
L6	10	25	28,3	29,0	27,1	32,8
L6	20	30	33,3	34,0	32,1	37,8
L6	30	35	38,3	39,0	37,1	42,8
L6	40	40	43,3	44,0	42,1	47,8
L6	50	45	48,3	49,0	47,1	52,8
L6	75	57,3	60,8	61,5	59,6	65,3
L6	100	-	73,3	74,0	72,1	77,8
L7		13	13	20	20	20
L8		16	30	30	30	30
L9	10	49,6	36,6	48	54,2	65,6
L9	20	59,6	46,6	58	64,2	75,6
L9	30	69,6	56,6	68	74,2	85,6
L9	40	79,6	66,6	78	84,2	95,6
L9	50	89,6	76,6	88	94,2	105,6
L9	75	114,6	101,6	113	119,2	130,6
L9	100	-	126,6	138	144,2	155,6
L10	10	49,6	56,6	58,0	54,2	65,6
L10	20	59,6	66,6	68,0	64,2	75,6
L10	30	69,6	76,6	78,0	74,2	85,6
L10	40	79,6	86,6	88,0	84,2	95,6
L10	50	89,6	96,6	98,0	94,2	105,6
L10	75	114,6	121,6	123,0	119,2	130,6
L10	100	-	146,6	148,0	144,2	155,6
H2		6,3	4,5	5,50	6,5	6,5
H3		2,5	4,0	4,00	4	4
H4		4	5,0	4,50	5	7,5
H5		6,5	6,0	6,00	6	7,5
H6		8	6,0	8,00	8	8
H7		3	3,0	4,00	4	4
H8		6,3	-	-	-	-
D1		M4	M5	M6	M8	M8
D2		6	7,5	9,5	10,5	10,5
D3		2,5	2,5	4	4	4
D4		M3	M3	M4	M5	M5
D5		M3	M4	M4	M5	M5
D6		M3	M3	M4	M4	M4
D7		2,5	2,5	4	4	4
D8		6	-	-	-	-
D9		3,5	-	-	-	-
D10		M4	M5	M5	M6	M6
NN		6	8	10	12	16
EE		M5	M5	M5	M5	G1/8
K		7	7	8	8	10
P		20	25	29	35	40

1
MOVEMENT

Series 14
compact mini-cylinders

Single-acting
Bores ø 6, 10, 16 mm and strokes 5, 10, 15 mm
With super-rapid fitting ø 4 and M5 port



- Compact design
- With threaded or non threaded piston rod
- Threaded body

Series 14 single-acting compact mini-cylinders have been designed for installation in very small spaces. The design allows the cylinders to be inserted into threaded blocks incorporated in the machine.

All the minicylinders are supplied with a super-rapid fitting incorporated in a tube ø 4 or with a M5 thread. They are available in two versions with either a threaded or a non threaded piston rod.

GENERAL DATA

Type of construction	compact, non magnetic
Operation	single-acting
Materials	body = brass seals = NBR other = stainless steel
Operating pressure	P. min 2,5 bar - P. max 8 bar
Operating temperature	0°C ÷ 80°C (with dry air - 20°C)
Fluid	clean air, without lubrication. If lubricated air is used, it is recommended to use oil ISOVG32. Once applied the lubrication should never be interrupted.
Bore	ø 6, 10, 16
Stroke	see table
Mounting method	by means of threaded body

Products designed for industrial applications.
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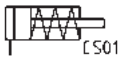
CODING EXAMPLE

14	N	1	A	06	A	05

14	SERIES	
N	VERSION N = non-magnetic	
1	OPERATION 1 = single-acting	PNEUMATIC SYMBOL CS01
A	TYPE OF CONNECTION A = tube Ø 4 M = thread M5	
06	BORE 06 = 6 mm - 10 = 10 mm - 16 = 16 mm	
A	TYPE OF DESIGN A = non-threaded smooth piston rod B = threaded piston rod	
05	STROKE 05 = 5 mm - 10 = 10 mm - 15 = 15 mm	

PNEUMATIC SYMBOLS

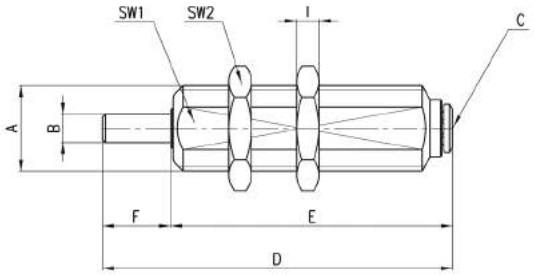
The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.



Compact minicylinders with non threaded piston rod Mod. 14N1A

Super-rapid fitting incorporated





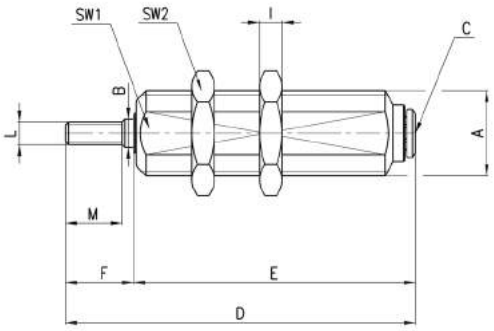
DIMENSIONS

Mod.	Ø	STROKE	A	B	C	D	E	F	SW1	SW2	I
14N1A06A05	6	5	M10x1	3	4\2	34	29	5	9	12	3
14N1A06A10	6	10	M10x1	3	4\2	42	37	5	9	12	3
14N1A06A15	6	15	M10x1	3	4\2	47	42	5	9	12	3
14N1A10A05	10	5	M15x1,5	5	4\2	50	38	12	13	19	4
14N1A10A10	10	10	M15x1,5	5	4\2	57	45	12	13	19	4
14N1A10A15	10	15	M15x1,5	5	4\2	62	50	12	13	19	4
14N1A16A05	16	5	M22x1,5	6	4\2	53,5	39,5	14	20	27	5
14N1A16A10	16	10	M22x1,5	6	4\2	62	48	14	20	27	5
14N1A16A15	16	15	M22x1,5	6	4\2	67	53	14	20	27	5

Compact minicylinders with threaded piston rod Mod. 14N1A

Super-rapid fitting incorporated





DIMENSIONS

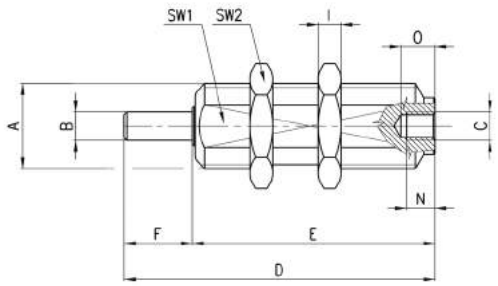
Mod.	Ø	STROKE	A	B	C	D	E	F	SW1	SW2	I	L	M
14N1A06B05	6	5	M10x1	3	4\2	38	29	9	9	12	3	M3x0,5	7
14N1A06B10	6	10	M10x1	3	4\2	46	37	9	9	12	3	M3x0,5	7
14N1A06B15	6	15	M10x1	3	4\2	51	42	9	9	12	3	M3x0,5	7
14N1A10B05	10	5	M15x1,5	5	4\2	50	38	12	13	19	4	M4x0,7	10
14N1A10B10	10	10	M15x1,5	5	4\2	57	45	12	13	19	4	M4x0,7	10
14N1A10B15	10	15	M15x1,5	5	4\2	62	50	12	13	19	4	M4x0,7	10
14N1A16B05	16	5	M22x1,5	6	4\2	53,5	39,5	14	20	27	5	M5x0,8	12
14N1A16B10	16	10	M22x1,5	6	4\2	62	48	14	20	27	5	M5x0,8	12
14N1A16B15	16	15	M22x1,5	6	4\2	67	53	14	20	27	5	M5x0,8	12

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Compact minicylinders with non threaded piston rod Mod. 14N1M

Threaded port





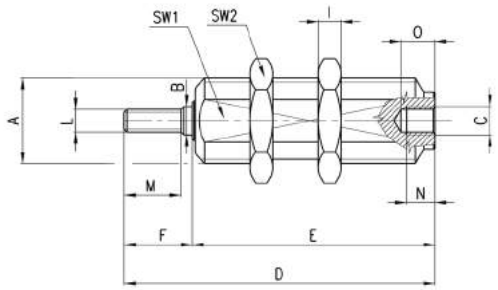
DIMENSIONS

Mod.	Ø	STROKE	A	B	C	D	E	F	SW1	SW2	I	N	O
14N1M06A05	6	5	M10x1	3	M5	28	23	5	9	12	3	5	6
14N1M06A10	6	10	M10x1	3	M5	36	31	5	9	12	3	5	6
14N1M06A15	6	15	M10x1	3	M5	41	36	5	9	12	3	5	6
14N1M10A05	10	5	M15x1,5	5	M5	43	31	12	13	19	4	5	6
14N1M10A10	10	10	M15x1,5	5	M5	50	38	12	13	19	4	5	6
14N1M10A15	10	15	M15x1,5	5	M5	55	43	12	13	19	4	5	6
14N1M16A05	16	5	M22x1,5	6	M5	46,5	32,5	14	20	27	5	5	6
14N1M16A10	16	10	M22x1,5	6	M5	55,5	41,5	14	20	27	5	5	6
14N1M16A15	16	15	M22x1,5	6	M5	60,5	46,5	14	20	27	5	5	6

Compact minicylinders with threaded piston rod Mod. 14N1M

Threaded port





DIMENSIONS

Mod.	Ø	STROKE	A	B	C	D	E	F	SW1	SW2	I	L	M	N	O
14N1M06B05	6	5	M10x1	3	M5	32	23	9	9	12	3	M3x0,5	7	5	6
14N1M06B10	6	10	M10x1	3	M5	40	31	9	9	12	3	M3x0,5	7	5	6
14N1M06B15	6	15	M10x1	3	M5	45	36	9	9	12	3	M3x0,5	7	5	6
14N1M10B05	10	5	M15x1,5	5	M5	43	31	12	13	19	4	M4x0,7	10	5	6
14N1M10B10	10	10	M15x1,5	5	M5	50	38	12	13	19	4	M4x0,7	10	5	6
14N1M10B15	10	15	M15x1,5	5	M5	55	43	12	13	19	4	M4x0,7	10	5	6
14N1M16B05	16	5	M22x1,5	6	M5	46,5	32,5	14	20	27	5	M5x0,8	12	5	6
14N1M16B10	16	10	M22x1,5	6	M5	55,5	41,5	14	20	27	5	M5x0,8	12	5	6
14N1M16B15	16	15	M22x1,5	6	M5	60,5	46,5	14	20	27	5	M5x0,8	12	5	6

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Series 27 roundline cylinders

Double-acting, magnetic
ø 20, 25, 32, 40, 50, 63 mm



- Reduced dimensions
- Different mounting options
- Perfect alignment, perfect linearity

Series 27 has been designed to reduce the cylinders sizes as much as possible. These cylinders have been constructed with clean lines using stainless steel for both the tube and the rod and Aluminium for the end-blocks.

The choice of material and other design features have allowed to create a range of versatile and reliable cylinders.
The precise method of securing the tube to the end block ensures that all the parts are perfectly aligned. Mechanical cushioning has been fitted on these cylinders in order to reduce noise produced by the piston impact on the end-blocks. Cylinders Series 27 are suitable for assembling with magnetic sensors. Various mounting bracket accessories enable the cylinders to be fitted to suit the requirements of a particular application.

GENERAL DATA

Type of construction	flanged
Operation	double acting
Materials	rod: Ø20 - 25 stainless steel AISI 303 - Ø32 ÷ 63 stainless steel AISI 420B tube: INOX AISI 304 piston and rod seals = PU
Mounting	feet - trunnion - steel bar - pins
Strokes min-max	all diameters 10 - 1000 mm
Bores	ø 20, 25, 32, 40, 50, 63
Operating temperature	0°C ÷ 80°C (with dry air - 20°C)
Operating pressure	1 ÷ 10 bar
Speed	10 ÷ 1000 mm/sec (no load)
Fluid	filtered air, without lubrication. If lubricated air is used, it is recommended to use oil ISOVG32. Once applied the lubrication should never be interrupted.

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

STANDARD STROKES FOR DOUBLE-ACTING CYLINDERS SERIES 27

Mod. 27M and 27T (ø 20 ÷ 40) and Mod. 27U (ø 20 ÷ 63)

STANDARD STROKES														
Ø	10	25	40	50	80	100	125	160	200	250	300	320	400	500
20	■	■	■	■	■	■	■	■	■	■	■	■	■	■
25	■	■	■	■	■	■	■	■	■	■	■	■	■	■
32	■	■	■	■	■	■	■	■	■	■	■	■	■	■
40	■	■	■	■	■	■	■	■	■	■	■	■	■	■
50	■	■	■	■	■	■	■	■	■	■	■	■	■	■
63	■	■	■	■	■	■	■	■	■	■	■	■	■	■

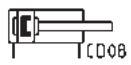
CODING EXAMPLE

27	M	2	A	20	A	0050

27	SERIES	
M	VERSION M = rear endblock with trunnion and upper round port for ø 20-25-32-40 T = rear endblock with rear round port for ø 20-25-32-40 U = rear endblock with upper round port for ø 20-25-32-40-50-63	
2	OPERATION 2 = double-acting	PNEUMATIC SYMBOL CD08
A	MATERIALS A = rolled stainless steel rod - stainless steel tube	
20	BORE 20 = 20 mm - 25 = 25 mm - 32 = 32 mm - 40 = 40 mm - 50 = 50 mm - 63 = 63 mm	
A	TYPE OF DESIGN A = standard	
0050	STROKE (see the table)	

PNEUMATIC SYMBOLS

The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.



ACCESSORIES FOR MAGNETIC CYLINDERS SERIES 27



Coupling piece
Mod. GKF



Self aligning rod
Mod. GK



Threaded trunnion pin
Mod. T



Piston rod socket joint
Mod. GY



Swivel ball joint Mod. GA



Foot mount Mod. B



Foot mount Mod. B



Nose nut Mod. V



Rear trunnion bracket
Mod. I



Piston rod lock nut
Mod. U



Rear trunnion bracket
Mod. I



Rod fork end Mod. G

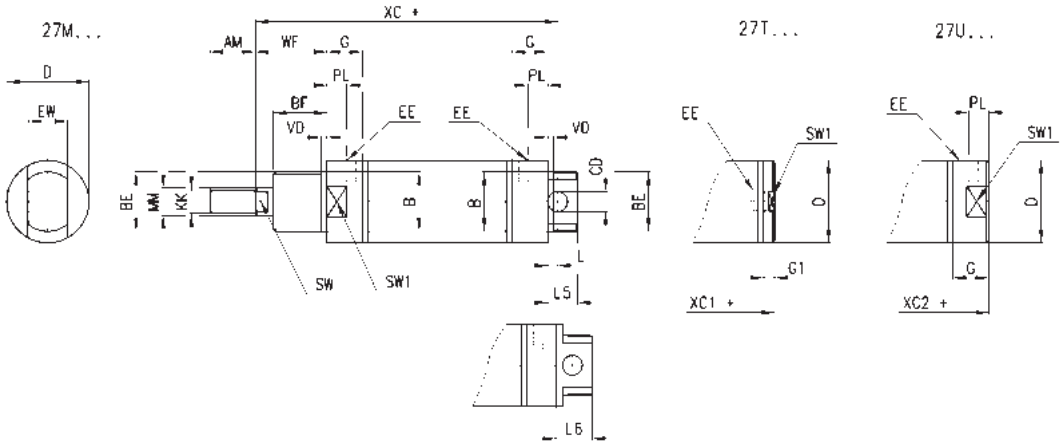


All accessories are supplied separately.

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Cylinders Series 27 (Ø 20, 25, 32, 40)



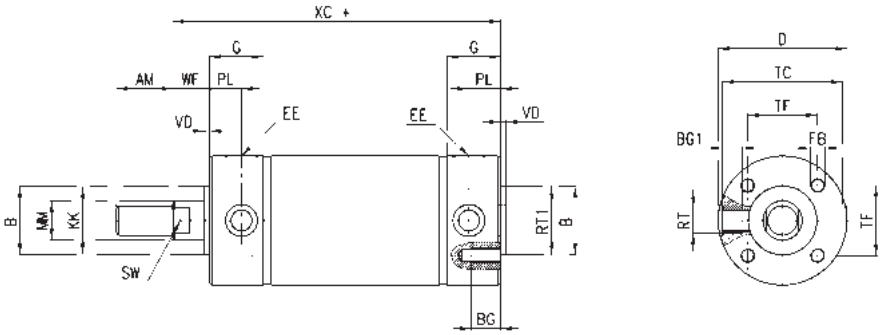


+ = add the stroke

DIMENSIONS																						
Ø	AM	øB	BF	BE	øCD^{H9}	øD	EE	EW	G	G1	KK	L	L6	MM^{h9}	L5	PL	SW	VD	WF	XC+	XC1+	XC2+	SW1
20	14	16	12	M16x1,5	6	21,5	G1\8	12	15,5	8	M8x1,25	7	-	8	13	9	7	3	17	77	62,5	70,8	19
25	16	18	12	M18x1,5	8	26,5	G1\8	14	15,5	8	M10x1,25	9	-	10	17	9	9	3	16,5	78,5	62	69,5	24
32	22	22	15	M22x1,5	8	33,5	G1\8	16	17,5	5,5	M10x1,25	7	20	12	15	9	10	3	23	93	74	86	30
40	23	30	15	M30x1,5	10	41,5	G1\8	20	18	5,5	M12x1,25	5	24	16	15	10	13	3	24	96	78,5	91	38

Cylinders Series 27 (Ø 50, 63)





+ = add the stroke

DIMENSIONS																		
Ø	AM	øB	BG	BG1	øD	EE	FB	G	KK	øMM^{h9}	PL	RT	RT1	SW	TC	TF	VD	WF	XC +
50	23	28	12	8	52,5	G1\4	M6	22	M12x1,25	16	13	M10x1	13	13	49	28,5	2	13	97
63	30	35	12	9,5	65,5	G1\4	M8	22	M16x1,5	20	13	M12x1,5	15	17	62	35,5	2	13	99

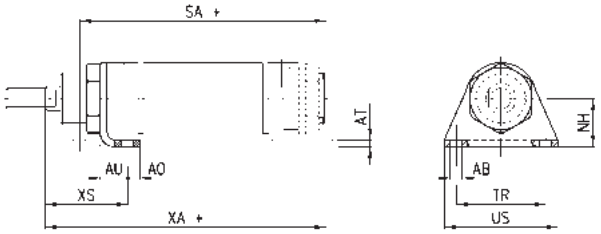
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Foot mount Mod. B

Material: zinc-plated steel

Supplied with:
1x foot
1x front end cap nut mod. V





+ = add the stroke

DIMENSIONS

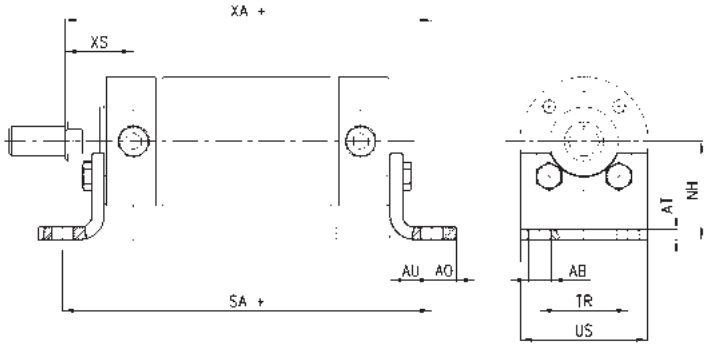
Mod.	Ø	⌀AB	AO	AT	AU	NH	SA+	TR	US	XA+	XS
B-27-20	20	5,5	6	3	13	20	79	32	42	83	27
B-27-25	25	6,6	8	3	12,5	22	78	38	49	82	26
B-27-32	32	6,6	8	4	16	25	95	40	54	102	35
B-27-40	40	7	7	4	16	28	99	52	66	107	36

Foot mount Mod. B

Material: zinc-plated steel

Supplied with:
2x feet
4x screws





+ = add the stroke

DIMENSIONS

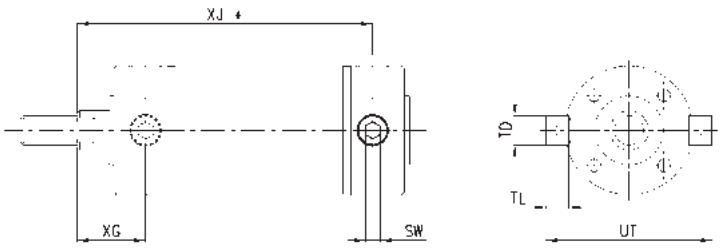
Mod.	Ø	⌀AB	AO	AT	AU	NH	SA+	TR	US	XA+	XS
B-27-50	50	9	10	4	17	40	118	36	52	114	26
B-27-63	63	9	10	5	19	47	124	45	61	118	27

Threaded trunnion pin Mod. T

Material: stainless steel

Supplied with:
2x pins





+ = add the stroke

DIMENSIONS

Mod.	Ø	SW	⌀TD^{h9}	TL	UT	XG	XJ+
T-27-50	50	6	12	9,5	68	26	84
T-27-63	63	6	14	11	84	26	86

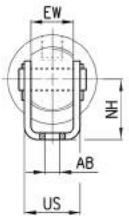
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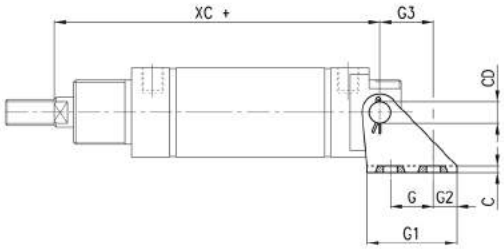
Rear trunnion bracket Mod. I (Ø 20, 25, 32, 40)

Material: zinc-plated steel



Supplied with:
1x female hinge
1x pin
2x Seeger





+ = add the stroke

DIMENSIONS

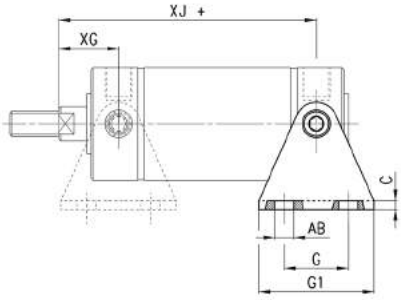
Mod.	Ø	G	G1	G2	G3	C	XC+	⌀AB	US	NH	⌀CD	EW
I-27-20	20	15	30	8	18,5	1,5	77	5,5	15	20	6	12
I-27-25	25	15	33	9	20	2	78,5	6,6	18	22	8	14
I-27-32	32	15	35	10	20	2	93	6,6	20,5	25	8	16
I-27-40	40	20	42	11	25	3	96	7	26	28	10	20

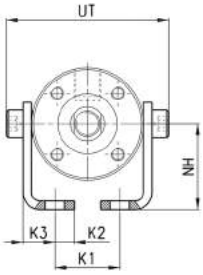
Rear trunnion bracket Mod. I

Material: zinc-plated steel



Supplied with:
2x pins
2x feet





+ = add the stroke

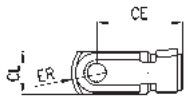
DIMENSIONS

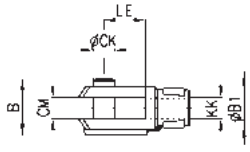
Mod.	Ø	G	G1	C	XJ+	XG	⌀AB	K1	K1	K2	K3	NH	UT
I-27-50	50	30	54	4	84	26	9	9	30,5	9	15	40	68
I-27-63	63	40	64	5	86	26	9	9	40,5	9	17,5	47	84

Rod fork end Mod. G

Material: zinc-plated steel
ISO 8140







DIMENSIONS

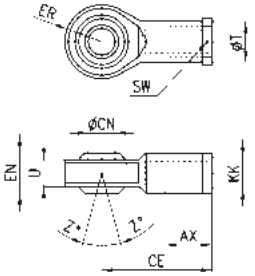
Mod.	Ø	⌀CK	LE	CM	CL	ER	CE	KK	B	⌀B1
G-20	20	8	16	8	16	10	32	M8x1,25	22	14
G-25-32	25-32	10	20	10	20	12	40	M10X1,25	26	18
G-40	40-50	12	24	12	24	14	48	M12X1,25	32	20
G-50-63	63	16	32	16	32	19	64	M16X1,5	40	26

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Swivel ball joint Mod. GA



Material: zinc-plated steel
ISO 8139



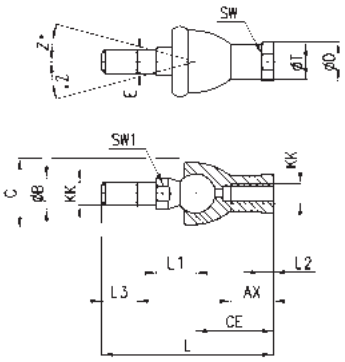
DIMENSIONS

Mod.	Ø	øCN(H7)	U	EN	ER	AX	CE	KK	øT	Z	SW
GA-20	20	8	9	12	12	16	36	M8x1,25	12,5	6,5	14
GA-32	25-32	10	10,5	14	14	20	43	M10X1,25	15	6,5	17
GA-40	40-50	12	12	16	16	22	50	M12X1,25	17,5	6,5	19
GA-50-63	63	16	15	21	21	28	64	M16X1,5	22	7,5	22

Piston rod socket joint Mod. GY



Material: zama and zinc-plated steel



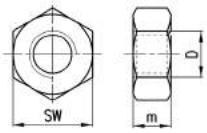
DIMENSIONS

Mod.	Ø	KK	L	CE	L2	AX	E	øB	øC	T	D	L1	L3	SW1	SW	Z
GY-20	20	M8X1,25	65	32	5	16	8	12	24	12,5	16	16	12	10	14	15
GY-32	25-32	M10X1,25	74	35	6,5	18	10	14	28	15	19	19,5	15	11	17	15
GY-40	40-50	M12X1,25	84	40	6,5	20	12	19	32	17,5	22	21	17	17	19	15
GY-50-63	63	M16X1,5	112	50	8	27	16	22	40	22	27	27,5	23	19	22	11

Piston rod lock nut Mod. U



Material: zinc-plated steel
ISO 4035



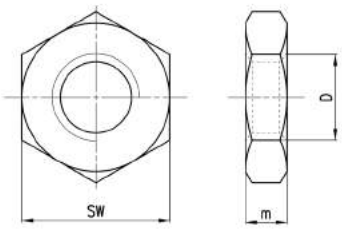
DIMENSIONS

Mod.	Ø	D	m	SW
U-20	20	M8X1,25	5	13
U-25-32	20-32	M10X1,25	6	17
U-40	40-50	M12X1,25	7	19
U-50-63	63	M16X1,5	8	24

Nose nut Mod. V



ISO 4035
V-27-25 / V-42-32 not according standard.
Material: zinc-plated steel



DIMENSIONS

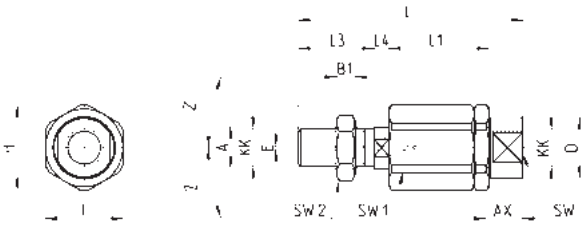
Mod.	Ø	D	m	SW
V-12-16	20	M16X1,5	6	24
V-27-25	25	M18X1,5	5	24
V-20-25	32	M22X1,5	10	32
V-42-32	40	M30x1,5	8	-

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Self aligning rod Mod. GK

Material: zinc-plated steel





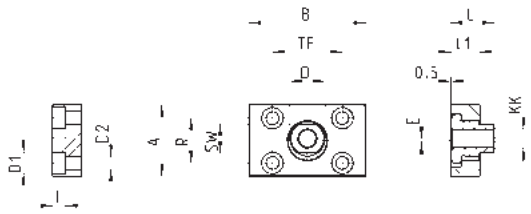
DIMENSIONS

Mod.	Ø	KK	L	L1	L3	L4	Ø A	Ø D	H	I	SW	SW1	SW2	B1	AX	Z	E
GK-20	20	M8x1,25	57	26	21	5	8	12,5	19	17	11	7	13	4	16	4	2
GK-25-32	25-32	M10x1,25	71,5	35	20	7,5	14	22	32	30	19	12	17	5	22	4	2
GK-40	40	M12x1,25	75,5	35	24	7,5	14	22	32	30	19	12	19	6	22	4	2
GK-50-63	50-63	M16x1,5	104	53	32	10	22	32	45	41	27	20	24	8	30	3	2

Coupling piece Mod. GKF

Material: zinc-plated steel





DIMENSIONS

Mod.	Ø	KK	A	B	R	TF	L	L1	I	Ø D	Ø D1	Ø D2	SW	E
GKF-20	20	M8x1,25	30	35	20	25	22,5	10	-	14	5,5	-	13	1,5
GKF-25-32	25-32	M10x1,25	37	60	23	36	22,5	15	6,8	18	11	6,6	15	2
GKF-40	40	M12x1,25	56	60	38	42	22,5	15	9	20	15	9	15	2,5
GKF-50-63	50-63	M16x1,5	80	80	58	58	26,5	15	10,5	25	18	11	22	2,5

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Series 42 cylinders

Single and double-acting, magnetic, cushioned
Ø 32, 40, 50, 63

» Perfect alignment
» Different mounting options



Series 42 cylinders have been designed without tie rods to assure an extremely clean design.
Stainless steel has been used for the tube and the rod, while the end cover is made in anodized Aluminium. These cylinders are normally equipped with adjustable end-stroke cushioning and with a mechanical cushioning in order to make the impact of the piston less noisy as it reaches the end of the stroke.

GENERAL DATA

Type of construction	compact - flanged
Operation	single-acting or double-acting
Materials	end-blocks = AL tube = stainless steel AISI 304 rod = stainless steel AISI 420B other parts (see coding)
Type of mounting	front flange, rear flange, feet, front and rear trunnion, threaded pins
Strokes min - max	10 - 1000 mm
Operating temperature	0 ÷ 80°C (with dry air -20°C)
Operating pressure	1 ÷ 10 bar (double-acting); 2 ÷ 10 bar (single-acting)
Speed	10 ÷ 1000 mm/sec (NO LOAD)
Fluid	clean air, without lubrication. If lubricated air is used, it is recommended to use oil ISOVG32. Once applied the lubrication should never be interrupted.

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

STANDARD STROKES FOR DOUBLE-ACTING CYLINDERS SERIES 42

✖ = Double acting
■ = Single acting

STANDARD STROKES														
Ø	25	50	75	80	100	125	150	160	200	250	300	320	400	500
32	✖ ■	✖ ■	✖ ■	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
40	✖ ■	✖ ■	✖ ■	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
50	✖ ■	✖ ■	✖ ■	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
63	✖ ■	✖ ■	✖ ■	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖

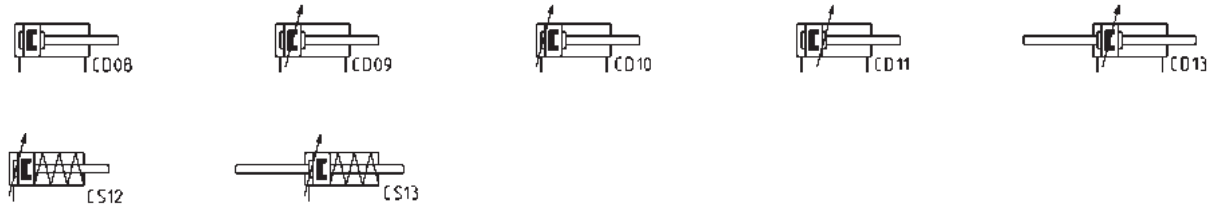
CODING EXAMPLE

42	M	2	N	050	A	0200

42	SERIES	
M	VERSION M= standard magnetic	
2	OPERATION 1 = single-acting (front spring) 2 = double-acting, front and rear cushions 3 = double-acting, no cushion 4 = double-acting, rear cushions 5 = double-acting, front cushion 6 = double-acting, through-rod, front and rear cushions 7 = single-acting, through-rod, no cushions	PNEUMATIC SYMBOLS CS12 CD09 CD08 CD10 CD11 CD13 CS13
N	MATERIALS N = stainless steel AISI 420B rod - stainless steel AISI 304 tube - NBR seals	
050	BORE 032 = 32 mm 040 = 40 mm 050 = 50 mm 063 = 63 mm	
A	TYPE OF DESIGN A = standard with nose nut Mod. V and piston rod lock nut Mod. U	
0200	STROKE (see the table)	

PNEUMATIC SYMBOLS

The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.



ACCESSORIES FOR CYLINDERS SERIES 42



Nose nut Mod. V



Coupling piece
Mod. GKF



Self aligning rod
Mod. GK



Piston rod socket joint
Mod. GY



Rod fork end Mod. G



Foot mount Mod. P



Trunnion Mod. I



Swivel ball joint Mod. GA



Brack threaded pins
Mod. T



Piston rod lock nut
Mod. U



All accessories are supplied separately, except for piston rod lock Mod. U and nose nut Mod. V.

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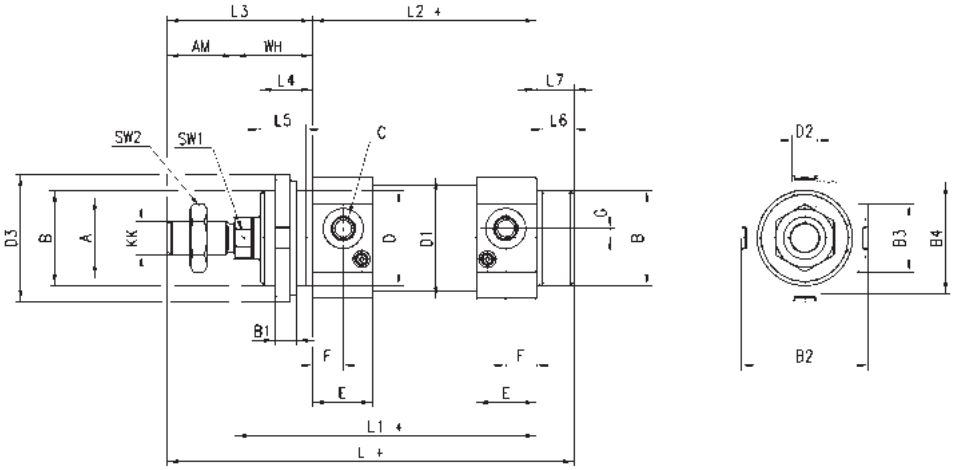
Cylinders Series 42

N.B. : sizes L, L1 and L2 in single-acting cylinders are increased by 25 mm.



+ = add the stroke

* = front/rear cushion stroke



DIMENSIONS

Ø	A	KK	B	B1	B2	B3	B4	C	D^{d11}	D1	D2	D3	E	F	G	SW1	SW2	AM	WH	L+	L1+	L2+	L3	L4	L5	L6	L7	*
32	12	M10x1.25	M30x1.5	8	41.5	28	36	G1\8	30	38	M8x1	42	23.5	10.5	5	10	17	22	26	156	120	94	48	18	15	11	14	17 / 12
40	16	M12x1.25	M38x1.5	10	50	30	43	G1\4	38	46	M10x1	50	29	15	5	13	19	24	30	175	135	105	54	22	19	13	16	20 / 17
50	20	M16x1.5	M45x1.5	10	58.5	32	54	G1\4	40	57	M12x1.5	60	28.5	14.5	4.5	17	24	32	37	193	143	106	69	25	22	15	18	15 / 14
63	20	M16x1.5	M45x1.5	10	70.5	46.5	66	G3\8	45	70	M14x1.5	60	35	15.5	7	17	24	32	37	208	158	121	69	25	22	15	18	17 / 16

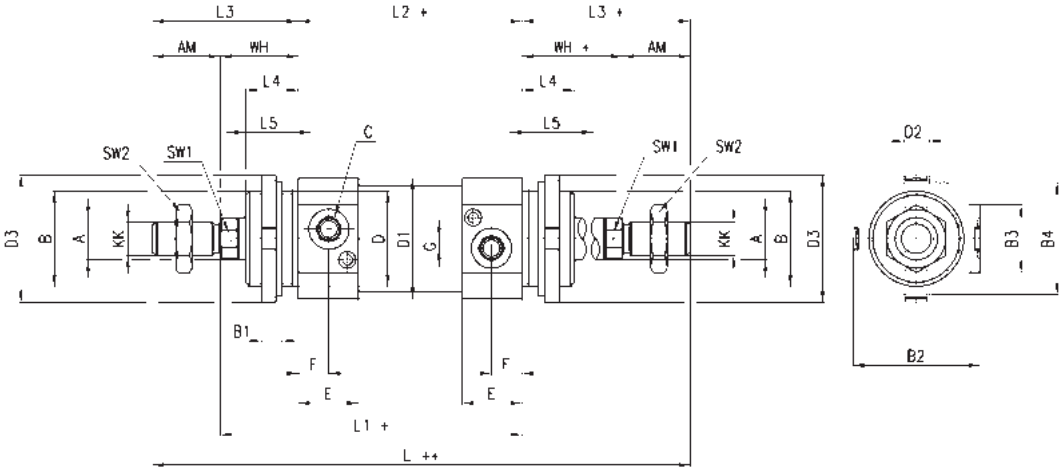
Cylinders Series 42 - through-rod

Note: sizes L, L1 and L2 in single-acting cylinders are increased by 25 mm.



+ = add the stroke once
++ = add the stroke twice

* = front/rear cushion stroke



DIMENSIONS

Ø	A	KK	B	B1	B2	B3	B4	C	D	D1	D2	D3	E	F	G	SW1	AM	SW2	WH+	L++	L1+	L2+	L3+	L4	L5	*
32	12	M10x1.25	M30x1.5	8	41.5	28	36	G1\8	30	38	M8x1	42	23.5	10.5	5	10	22	17	26	190	120	94	48	18	15	17 / 12
40	16	M12x1.25	M38x1.5	10	50	30	43	G1\4	38	46	M10x1	50	29	15	5	13	24	19	30	213	135	105	54	22	19	20 / 17
50	20	M16x1.5	M45x1.5	10	58.5	32	54	G1\4	45	57	M12x1.5	60	28.5	14.5	4.5	17	32	24	37	244	143	106	69	25	22	15 / 14
63	20	M16x1.5	M45x1.5	10	70.5	46.5	66	G3\8	45	70	M14x1.5	60	35	15.5	7	17	32	24	37	259	158	121	69	25	22	17 / 16

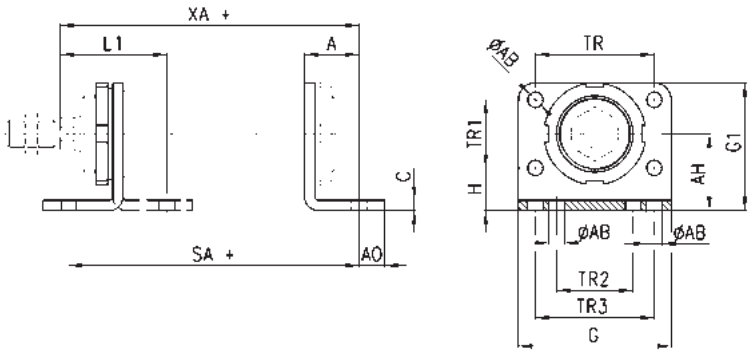
Foot mount Mod. P

Material: zinc-plated steel.



Supplied with:
1x nut
2x single feet

+ = add the stroke



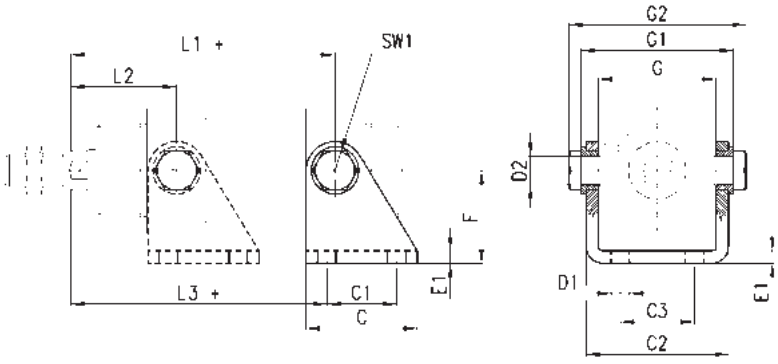
DIMENSIONS																
Mod.	Ø	L1	SA +	XA +	A	AB	AO	AH	C	G	G1	TR	TR1	TR2	TR3	H
P-42-32	32	46	142	144	24	7	11	32	4	66	53	52	28	32	52	18
P-42-40	40	53	161	163	28	9	15	36	5	80	61	60	30	36	60	21
P-42-50	50	63	170	175	32	9	15	45	6	90	75	70	40	45	70	25
P-42-63	63	63	185	190	32	9	10	50	6	96	85	76	50	50	76	25

Trunnion Mod. I

Material: zinc-plated steel.



+ = add the stroke



DIMENSIONS																
Mod.	Ø	L1 +	L2	L3 +	C	C1	C2	C3	D1	D2	E1	F	SW1	G	G1	G2
I-42-32	32	109,5	36,5	105,5	40	24	46,1	20	7	10	4	35	13	38,1	50,1	58,1
I-42-40	40	120	45	117	50	30	56,1	28	9	12	5	40	17	46,1	60,1	70,1
I-42-50	50	128,5	51,5	124,5	54	34	69,1	36	9	14	6	45	19	57,1	74,1	86,1
I-42-63	63	143	52	142	65	35	82,1	42	9	16	6	50	19	70,1	88,1	100,1

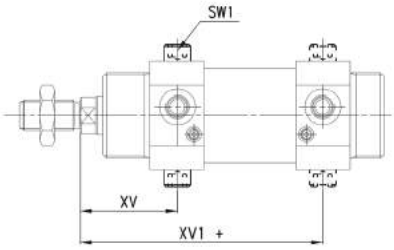
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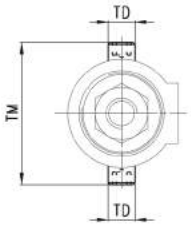
Bracket with threaded pins Mod. T

Material: stainless steel

Supplied with:
2x pins







+ = add the stroke

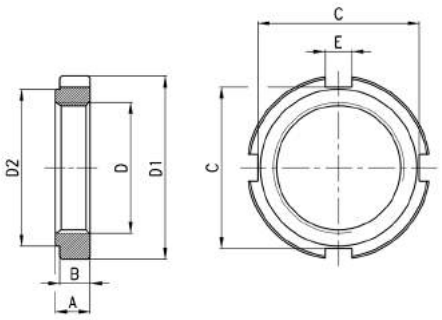
DIMENSIONS

Mod.	Ø	XV	XV1+	TD	TM	SW1
T-42-32	32	36,5	109,5	10	51	5
T-42-40	40	45	120	12	61	6
T-42-50	50	51,5	128,5	14	75	6
T-42-63	63	52	143	16	90	8

Nose nut Mod.V-42

Material: zinc-plated steel





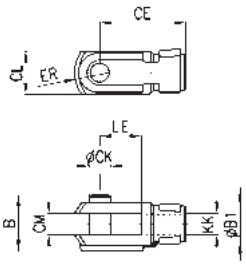
DIMENSIONS

Mod.	Ø	D	D1	D2	A	B	C	E
V-42-32	32	M30X1,5	42	36	8	7	37	6,2
V-42-40	40	M38x1,5	50	48	10	9	44	7,2
V-42-50-63	50-63	M45x1,5	60	56	10	9	53	7,2

Rod fork end Mod. G

Material: stainless steel
ISO 8140





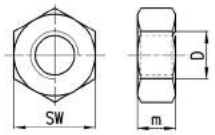
DIMENSIONS

Mod.	Ø	øCK	LE	CM	CL	ER	CE	KK	B	B1
G-25-32	32	10	20	10	20	12	40	M10X1,25	26	18
G-40	40	12	24	12	24	14	48	M12X1,25	32	20
G-50-63	50-63	16	32	16	32	19	64	M16X1,5	40	26

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Piston rod lock Mod. U



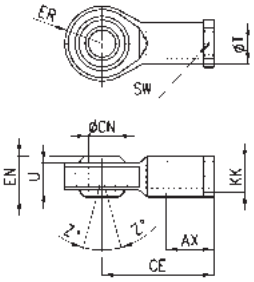


DIMENSIONS				
Mod.	Ø	D	m	SW
U-25-32	32	M10X1,25	6	17
U-40	40	M12X1,25	7	19
U-50-63	50-63	M16X1,5	8	24

Swivel ball joint Mod. GA

Material: zinc-plated steel
ISO 8139



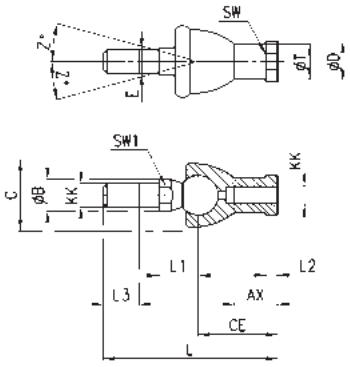


DIMENSIONS											
Mod.	Ø	øCN	U	EN	ER	AX	CE	KK	T	Z	SW
GA-32	32	10	10,5	14	14	20	43	M10X1,25	15	6,5	17
GA-40	40	12	12	16	16	22	50	M12X1,25	17,5	6,5	19
GA-50-63	50-63	16	15	21	21	28	64	M16X1,5	22	7,5	22

Piston rod socket joint Mod. GY

Material: zama and zinc-plated steel





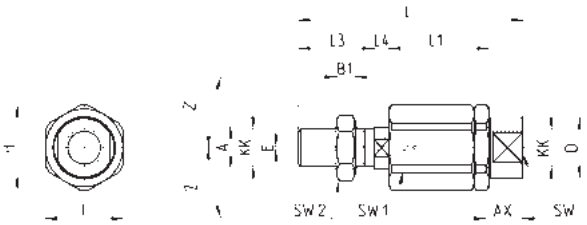
DIMENSIONS															
Mod.	Ø	KK	L	CE	L2	AX	SW	SW1	L1	L3	øT	øD	E	øB	øC	Z
GY-32	32	M10x1,25	74	35	6,5	18	17	11	19,5	15	15	19	10	14	28	15
GY-40	40	M12x1,25	84	40	6,5	20	19	17	22	17	17,5	22	12	19	32	15
GY-50-63	50-63	M16x1,5	112	50	8	27	22	19	27,5	23	22	27	16	22	40	11

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Self aligning rod Mod. GK

Material: zinc plated steel





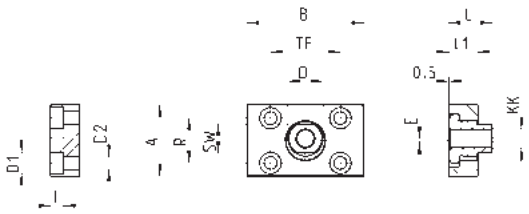
DIMENSIONS

Mod.	Ø	KK	L	L1	L3	L4	Ø A	Ø D	H	I	SW	SW1	SW2	B1	AX	Z	E
GK-25-32	32	M10x1,25	71,5	35	20	7,5	14	22	32	30	19	12	17	5	22	4	2
GK-40	40	M12x1,25	75,5	35	24	7,5	14	22	32	30	19	12	19	6	22	4	2
GK-50-63	50-63	M16x1,5	104	53	32	10	22	32	45	41	27	20	24	8	30	3	2

Coupling piece Mod. GKF

Material: zinc plated steel





DIMENSIONS

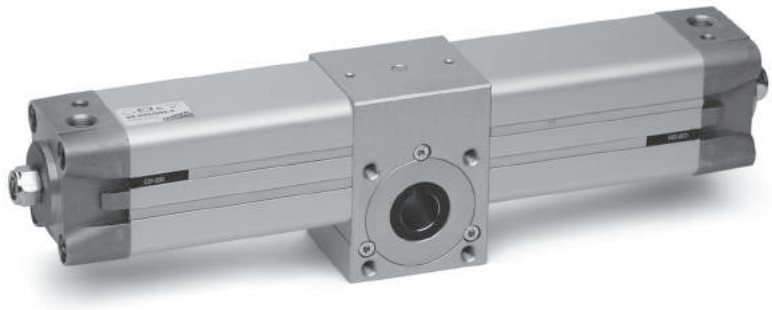
Mod.	Ø	KK	A	B	R	TF	L	L1	I	ØD	ØD1	ØD2	SW	E
GKF-25-32	32	M10x1,25	37	60	23	36	22,5	15	6,8	18	11	6,6	15	2
GKF-40	40	M12x1,25	56	60	38	42	22,5	15	9	20	15	9	15	2,5
GKF-50-63	50-63	M16x1,5	80	80	58	58	26,5	15	10,5	25	18	11	22	2,5

Products designed for industrial applications.
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Series 69
rotary cylinders

Magnetic, cushioned
ø 32, 40, 50, 63, 80, 100, 125 mm
Rotational angles: 90°, 180°, 270° and 360°

» Male or female version
» Clean design



Through an adjustment screw it is possible to recover part of the play between pinion and rack.
On the heads there is a screw which allows rotation to be adjusted by ± 5°.

Series 69 rotary cylinders are available in 7 different bores and can satisfy a large range of operational requirements.

GENERAL DATA

Type of construction	with internal tie-rods
Operation	double-acting
Materials	end blocks / tube / body = AL rack = steel rack guide shoe = acetal resin pinion = hardened steel seals = NBR
Type of mounting	threaded holes in the central body by means of Series 60 brackets
Bore	ø 32, 40, 50, 63, 80, 100, 125
Operating temperature	0°C ÷ 80°C (with dry air - 20°C)
Standard rotation angles	90°, 180°, 270°, 360° (others on request)
Bearings	Ball bearings (ø 32 mm teflon bronze guide)
Operating pressure	1 ÷ 10 bar
Fluid	clean air, without lubrication. If lubricated air is used, it is recommended to use oil ISOVG32. Once applied the lubrication should never be interrupted

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TABLE OF TORQUE FORCE IN Nm (THEORETICAL)

Ø	1 bar	2 bar	3 bar	4 bar	5 bar	6 bar	7 bar	8 bar	9 bar	10 bar
32	1,2	2,4	3,6	4,8	6	7,2	8,4	9,6	10,8	12
40	2,25	4,5	6,75	9	11,25	13,5	15,75	18	20,25	22,5
50	3,9	7,8	11,7	15,6	19,5	23,4	27,3	31,2	35,1	39
63	7,3	14,6	21,9	29,2	36,5	43,8	51,1	58,4	65,7	73
80	15,7	31,4	47,1	62,8	78,5	94,2	109,9	125,6	141,3	157
100	26,35	52,7	79,05	105,4	131,75	158,1	184,45	210,8	237,15	263,5
125	51	102	153	204	255	306	357	408	459	510

CODING EXAMPLE

69	-	050	/	090	-	F	

69	SERIES	PNEUMATIC SYMBOL CD18
050	BORE 032 = 32 mm 040 = 40 mm 050 = 50 mm 063 = 63 mm 080 = 80 mm 100 = 100 mm 125 = 125 mm	
090	ROTATIONAL ANGLES 090 = 90° 180 = 180° 270 = 270° 360 = 360°	
F	PINION F = Female M = Male	
	SEALS MATERIAL: = NBR W = FKM + 130°C	

PNEUMATIC SYMBOLS

The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.

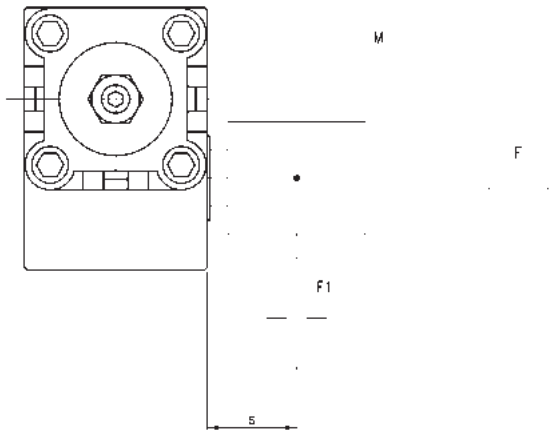


AXIAL LOAD

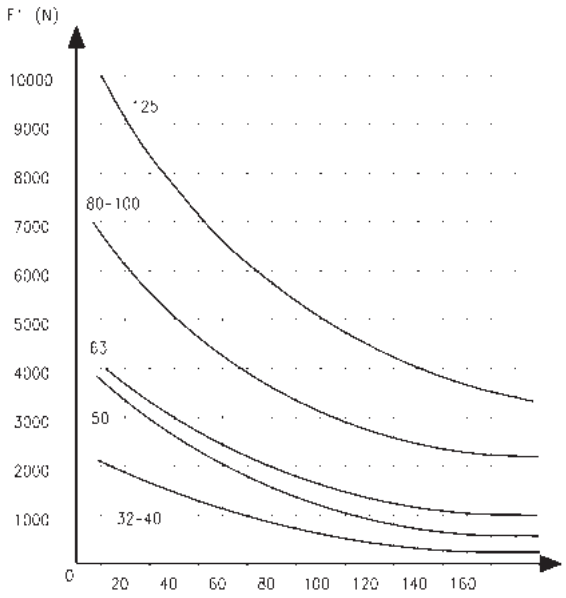
Max. axial load F with F1 = 0

Table of loads							
Ø	32	40	50	63	80	100	125
Force F	100 N	100 N	120 N	120 N	200 N	250 N	300 N

RADIAL LOAD



M = Barycenter of the applied theorical load.



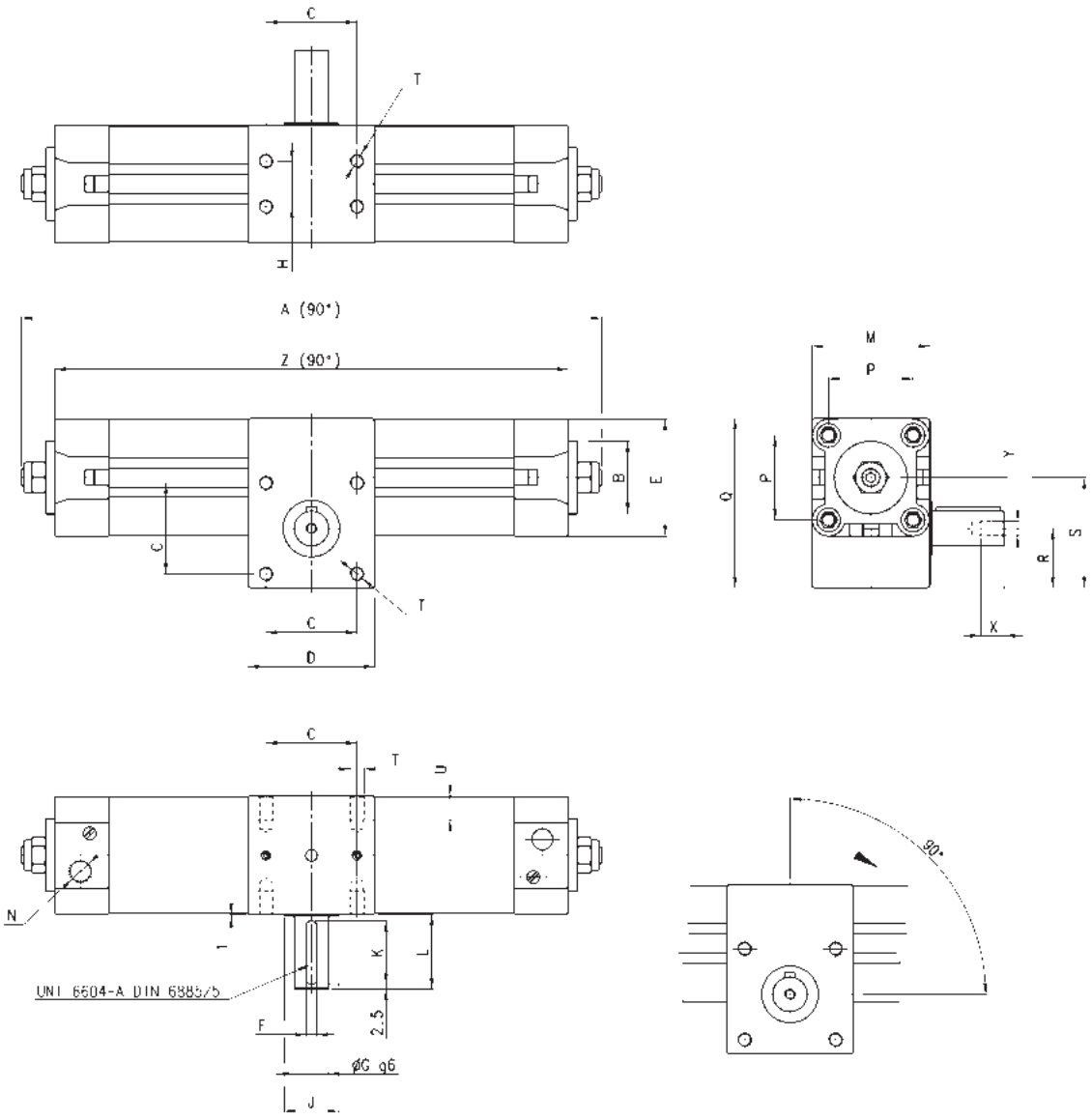
Max. radial load F1 with F = 0

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Series 69 cylinders - male pinion



* increase in “A” and “Z” for each 90° of rotation



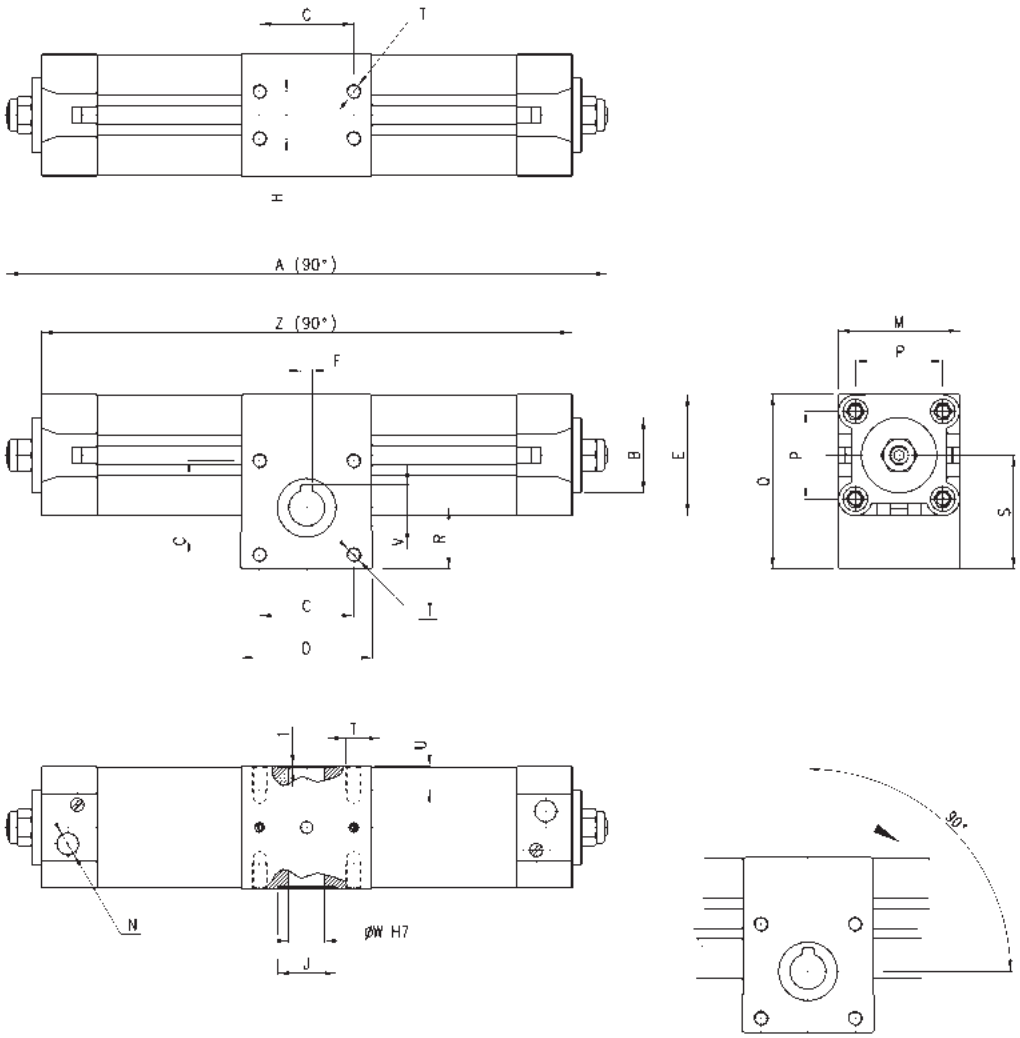
DIMENSIONS

Ø	A	B	*	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	Y	X	Z
32	249	30	47	33	50	46	5	14	18	25	25	31	50	G1/8	32,5	71,5	25	46,5	M6	10	M5	12,5	219
40	295	35	56,5	40	60	55	5	14	22	25	25	31	60	G1/4	38	82	30	54,5	M6	10	M5	12,5	263
50	316	40	63	50	70	64,5	6	19	25	30	35	41	65	G1/4	46,5	94	32,5	60,5	M8	13	M6	16	282
63	357	45	74,5	60	75	75	8	24	35	30	35	41	75	G3/8	56,5	110	37	70,8	M8	13	M8	19	325
80	443	45	99	80	99	93	8	28	50	45	45	51	99	G3/8	72	142	50	93,5	M10	16	M8	19	404
100	472	55	107	80	115	110	10	38	60	50	45	51	115	G1/2	89	156,5	54	99	M10	16	M10	22	434
125	549	60	132	90	125	135	10	38	70	60	45	51	140	G1/2	110	188	60	118	M12	20	M10	22	505

Series 69 cylinders - female pinion



* increase in "A" and "Z" for each 90° of rotation



DIMENSIONS

Ø	A	B	*	C	D	E	F	H	J	M	N	P	Q	R	S	T	U	V	W	Z
32	249	30	47	33	50	46	5	18	25	50	G1/8	32,5	71,5	25	46,5	M6	10	16,3	14	219
40	295	35	56,5	40	60	55	5	22	25	60	G1/4	38	82	30	54,5	M6	10	16,3	14	263
50	316	40	63	50	70	64,5	6	25	30	65	G1/4	46,5	94	32,5	60,5	M8	13	21,8	19	282
63	357	45	74,5	60	75	75	6	35	30	75	G3/8	56,5	110	37	70,8	M8	13	21,8	19	325
80	443	45	99	80	99	93	8	50	45	99	G3/8	72	142	50	93,5	M10	16	27,3	24	404
100	472	55	107	80	115	110	8	60	50	115	G1/2	89	156,5	54	99	M10	16	31,3	28	434
125	549	60	132	90	125	135	8	70	60	140	G1/2	110	188	60	118	M12	16	31,3	28	505

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Series 30
rotary cylinders

Non magnetic, cushioned and not cushioned
ø 50, 63, 80, 100 mm
Rotational angles: 90° and 180°



Series 30 rotary cylinders are made of a special Aluminium profile.
Their compact dimensions and clean lines give a good aesthetic appearance.
A unique wear resistant guide block gives increased service life to the unit.

Positioning gears are provided for the rotations.
On the heads there is a screw which allows rotation to be adjusted by ± 5°.

GENERAL DATA

Type of construction	profile
Operation	double acting
Materials	aluminium profile body & end blocks - NBR seals - other parts - hardened steel
Mounting	by means of holes in body
Bore	ø 50 - 63 - 80 - 100
Installation	in any position
Working temperature	0°C ÷ 50°C (- 20°C on dry air)
Standard rotation	90° - 180°
Operating pressure	0.5 ÷ 10 bar
Fluid	clean air with or without lubrication

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General terms and conditions for sale are available on www.camozzi.com.

TABLE OF TORQUE FORCE IN Nm (THEORETICAL)

Ø	1 bar	2 bar	3 bar	4 bar	5 bar	6 bar	7 bar	8 bar	9 bar	10 bar
50	2,08	4,16	6,24	8,32	10,40	12,48	14,55	16,63	18,71	20,79
63	4,40	8,80	13,20	17,61	22,01	26,41	30,81	35,21	39,61	44,01
80	7,10	14,19	21,29	28,39	35,49	42,58	49,68	56,78	63,87	70,97
100	16,63	33,27	49,90	66,54	83,17	99,80	116,44	133,07	149,07	166,34

CODING EXAMPLE

30	-	050	/	090	-	3

30	SERIES	PNEUMATIC SYMBOL CD17
050	BORE 050 = 50 mm 063 = 63 mm 080 = 80 mm 100 = 100 mm	
090	ROTATIONAL ANGLES 090 = 90° 180 = 180°	
3	VERSION: = cushioned 3 = not cushioned	

PNEUMATIC SYMBOLS

The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.

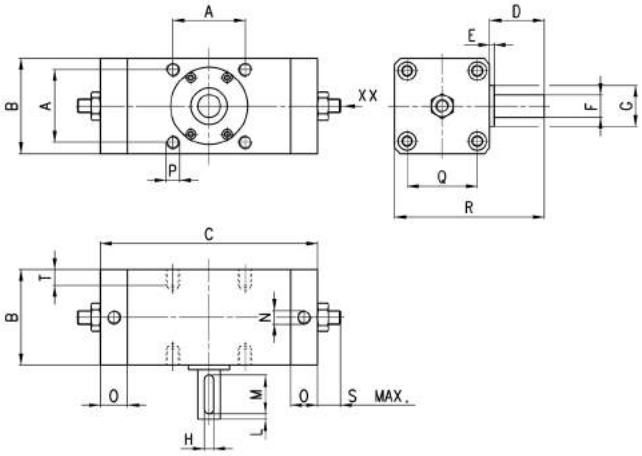


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Series 30 rotary cylinders - cushioned



XX = Screw for stroke regulation



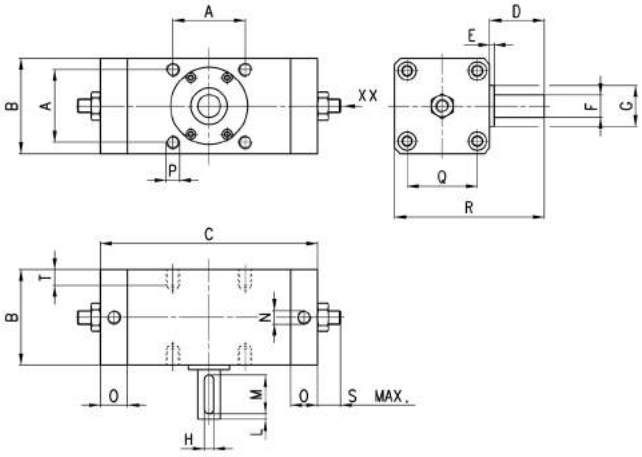
DIMENSIONS

Mod.	A	B	C	D	E	F h7	G	H	L	M	N	O	P	Q	R	S	T
30-050/090	48	62	162	36	2.5	15	25	5	5	25	G1/8	23	M8 x 1.25	46	98	8	8
30-063/090	60	76	186	41	2.5	17	30	6	5	30	G1/8	24	M10 x 1.5	57	117	8	12
30-080/090	72	92	195	50	3	20	35	6	5	35	G1/4	23,5	M12 x 1.75	70	142	9	13
30-100/090	85	112	247	60	4	25	40	8	5	40	G3/8	26	M12 x 1.75	85	172	9	14
30-050/180	48	62	199	36	2.5	15	25	5	5	25	G1/8	26	M8 x 1.25	46	98	8	8
30-063/180	60	76	237	41	2.5	17	30	6	5	30	G1/8	24	M10 x 1.5	57	117	8	12
30-080/180	72	92	245	50	3	20	35	6	5	35	G1/4	23,5	M12 x 1.75	70	142	9	13
30-100/180	85	112	313	60	4	25	40	8	5	40	G3/8	26	M12 x 1.75	85	172	9	14

Series 30 rotary cylinders - not cushioned



XX = Screw for stroke regulation



DIMENSIONS

Mod	A	B	C	D	E	F h7	G	H	L	M	N	O	P	Q	R	S	T
30-050/090-3	48	62	150	36	2.5	15	25	5	5	25	G1\8	17	M8 x 1.25	46	98	8	8
30-063/090-3	60	76	172	41	2.5	17	32	6	5	30	G1\8	17	M10 x 1.5	57	117	8	12
30-080/090-3	72	92	191	50	3	20	35	6	5	35	G1\4	21,5	M12 x 1.75	70	142	9	13
30-100/090-3	85	112	245	60	4	25	40	8	5	40	G3\8	25	M12 x 1.75	85	172	9	14
30-050/180-3	48	62	187	36	2.5	15	25	5	5	25	G1\8	17	M8 x 1.25	46	98	8	8
30-063/180-3	60	76	233	41	2.5	17	32	6	5	30	G1\8	17	M10 x 1.5	57	117	8	12
30-080/180-3	72	92	241	50	3	20	35	6	5	35	G1\4	21,5	M12 x 1.75	70	142	9	13
30-100/180-3	85	112	311	60	4	25	40	8	5	40	G3\8	25	M12 x 1.75	85	172	9	14

Products designed for industrial applications.
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Series ARP rotary actuators

Model: “Rack & Pinion”
Sizes: 1, 3, 5, 10, 12, 20, 35, 55, 70, 100, 150, 250, 400
Rotational angles: 90°



- ATEX certified product
- Wide range of available sizes
- Air connections in accordance with Namur VDI/VDE 3845 drilling
- Interface drilling of the process valve in accordance with ISO 5211 standard

Series ARP rotary actuators have been designed to meet the high demands by the process industry, where they predominantly are used for controlling the opening and closing process valves whereas ball valves and butterfly valves are the most common types.

The actuators exist in thirteen different sizes in order to cover a wide range of applications. Through adjusting screws located on the end caps it is possible to mechanically adjust the opening/closing angle by ±5°.
All Series ARP rotary actuators are ATEX certified, the air connections are realized in accordance with Namur VDI/VDE 3845 drilling, while the interface drilling of the process valve is in accordance with ISO 5211 standard.

GENERAL DATA

Type of construction	Rack and pinion type
Operation	spring return (single-acting), double-acting
Materials	extruded AL-profile body (pressure diecasted anodized AL body for mod. ARP400) pressure diecasted AL end caps and pistons / racks (end caps in technopolymer for mod. ARP001) zinc-plated steel pinion - POM guide parts - NBR seals
Sizes	001, 003, 005, 010, 012, 020, 035, 055, 070, 100, 150, 250, 400
Operating temperature	- 30°C ÷ 100°C
Rotation angle	90°
Type of mounting	direct to the flange of the valve through screws and bolts, or through mounting kits consisting of bracket and adaptor pin*
Operating pressure	2 ÷ 10 bar
Fluid	filtered air without lubrication. If lubricated air is used, it is recommended to use oil ISOVG32. Once applied the lubrication should never be interrupted.
Available spare part kits	- kits which include sliding parts and seals; - kits containing springs for transforming an actuator from double-acting to single-acting with spring return.
Certification	ATEX

* Bracket and adaptor pin is not supplied by Camozzi

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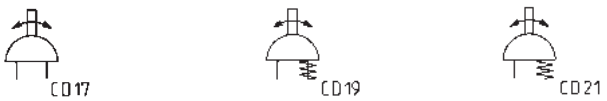
CODING EXAMPLE

ARP	-	001	-	1A	A	-	F0300	-	A	EX

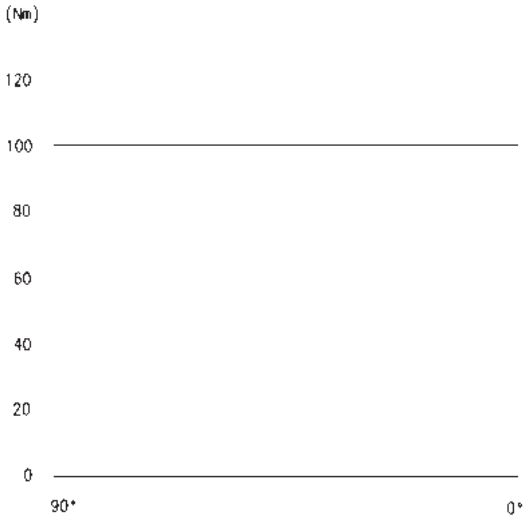
ARP	SERIES	
001	SIZE 001 = torque force 9 Nm 003 = torque force 24 Nm 005 = torque force 50 Nm 010 = torque force 100 Nm 012 = torque force 120 Nm 020 = torque force 200 Nm 035 = torque force 370 Nm 055 = torque force 597 Nm 070 = torque force 825 Nm 100 = torque force 1122 Nm 150 = torque force 1655 Nm 250 = torque force 2648 Nm 400 = torque force 4800 Nm	
1A	OPERATION 1A = single-acting, minimum pressure of 4 bar 1B = single-acting, minimum pressure of 5 bar 1C = single-acting, minimum pressure of 5,5 bar 1D = single-acting, minimum pressure of 6 bar 2A = double-acting	PNEUMATIC SYMBOLS: CD19 / CD21 CD19 / CD21 CD19 / CD21 CD19 / CD21 CD17
A	ROTATION ANGLE A = 90°	
F0300	INTERFACE FOR FLANGE (ISO 5211) F0300 = F03 flange and 9mm square holes F0305 = F03 flange holes + F05 flange and 9mm square holes F0400 = F04 flange and 11mm square holes F0507 = F05 flange holes + F07 flange and 14mm square holes F0705 = F07 flange holes + F05 flange and 17mm square holes F0710 = F07 flange holes + F10 flange and 17mm square holes F1007 = F10 flange holes + F07 flange and 22mm square holes F1210 = F12 flange holes + F10 flange and 27mm square holes F1400 = F14 flange and 36mm square holes F1600 = F16 flange and 46mm square holes F2516 = F25 flange + F16 flange and 55mm square holes	
A	MATERIALS A = standard anodized C = CNI Kanigen type nickel-plating W = all FKM seals (130°C)	
EX	ATEX certified product	

PNEUMATIC SYMBOLS

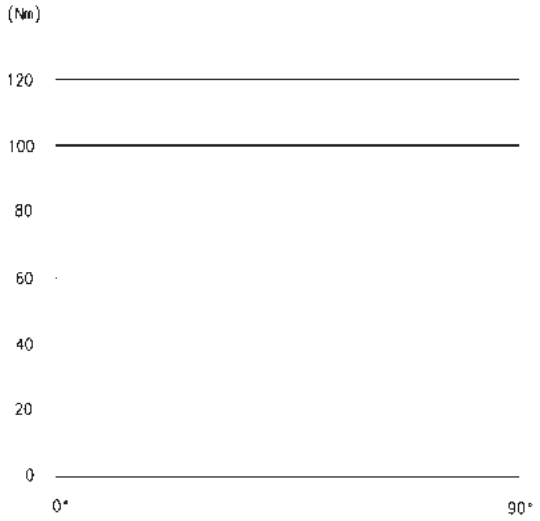
The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.



TORQUE FORCE DIAGRAM GENERATED BY A DOUBLE-ACTING ACTUATOR

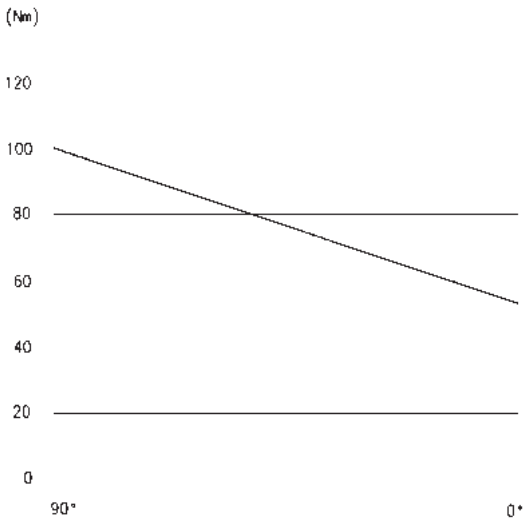


The above graph shows the torque force (in Nm) generated by a double-acting rotary actuator Series ARP during the closing action. The action starts from the 90° position and finishes at 0°. One of the features/advantages with a “rack and pinion” style rotary actuator is that the generated torque force is constant throughout the whole movement.
See also the TORQUE FORCE TABLE on page 1/6.20.04.

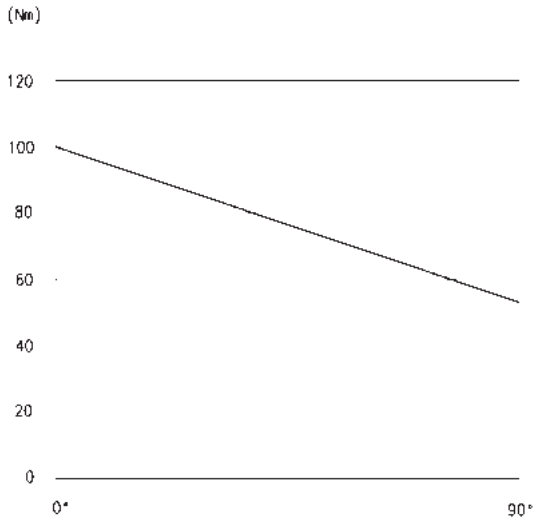


The above graph shows the torque force (in Nm) generated by a double-acting rotary actuator Series ARP during the opening action. The action starts from the 0° position and finishes at 90°. One of the features/advantages with a “rack and pinion” style rotary actuator is that the generated torque force is constant throughout the whole movement.
See also the TORQUE FORCE TABLE on page 1/6.20.04.

TORQUE FORCE DIAGRAM GENERATED BY A SINGLE-ACTING ACTUATOR



The above graph shows the torque force (in Nm) generated by a single-acting rotary actuator Series ARP during the closing action. The action starts from the 90° position and finishes at 0°. The generated torque force is at the highest at 90°, while it decreases along the stroke due to the fact that the springs get less compressed. In this case it is the springs which generates the driving force.
See also the TORQUE FORCE TABLE on page 1/6.20.04.



The above graph shows the torque force (in Nm) generated by a single acting rotary actuator Series ARP during the opening action. The action starts from the 0° position and finishes at 90°. The generated torque force is at the highest at 0°, while it decreases along the stroke due to the fact that the springs get more compressed, (the counter force increases). In this case it is the compressed air which generates the driving force.
See also the TORQUE FORCE TABLE on page 1/6.20.04.

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TORQUE FORCE TABLE (Nm)

DOUBLE-ACTING models	3 bar	4 bar	5 bar	5,5 bar	6 bar	7 bar
ARP-001-2A	4,4	5,8	7,33	8,0	8,8	10,2
ARP-003-2A	11,8	15,8	19,7	21,7	23,7	27,6
ARP-005-2A	25,3	33,8	42,2	46,4	50,7	59,1
ARP-010-2A	50,7	67,6	84,5	92,9	101,4	118,3
ARP-012-2A	61,2	81,6	102,1	112,2	122,5	142,9
ARP-020-2A	100,9	134,6	168,2	185,08	201,9	235,5
ARP-035-2A	187,0	249,3	311,6	342,8	374,0	436,3
ARP-055-2A	298,5	398,0	497,5	547,2	597,0	696,5
ARP-070-2A	412,5	550,0	687,5	756,2	825,0	962,5
ARP-100-2A	561,0	748,0	935,0	1028,5	1122,0	1309,0
ARP-150-2A	827,5	1103,3	1379,1	1517,0	1655,0	1930,8
ARP-250-2A	1324,0	1765,3	2206,6	2427,3	2648,0	3089,3
ARP-400-2A	2401,5	3202,0	4002,5	4402,7	4803,0	5603,5

SINGLE-ACTING models (for rotation angles of 90°)	Quantity of springs External - Internal	Spring torque (Nm) 0° - 90°	Supply pressure of 4 bar 0° - 90°	Supply pressure of 5 bar 0° - 90°	Supply pressure of 5,5 bar 0° - 90°	Supply pressure of 6 bar 0° - 90°
ARP-003-1AA	8 - /	5,36 - 10,48	10,40 - 5,30	11,80 - 7,90	16,40 - 11,20	18,30 - 13,20
ARP-003-1BA	10 - /	6,70 - 13,10		13,10 - 6,70	15,00 - 8,60	17,00 - 10,60
ARP-003-1CA	11 - /	7,37 - 14,41			14,40 - 7,30	16,30 - 9,30
ARP-003-1DA	12 - /	8,04 - 15,72			13,70 - 6,00	15,70 - 8,00
ARP-005-1AA	8 - /	12,00 - 21,76	21,80 - 12,00	30,30 - 20,50	34,50 - 34,70	38,70 - 28,90
ARP-005-1BA	10 - /	15,00 - 27,20		27,30 - 15,10	31,50 - 19,30	35,70 - 23,50
ARP-005-1CA	11 - /	16,50 - 29,92			30,00 - 16,60	34,20 - 20,80
ARP-005-1DA	12 - /	18,00 - 32,64			28,50 - 13,80	32,70 - 18,10
ARP-010-1AA	8 - /	26,72 - 40,96	40,90 - 26,60	57,80 - 43,50	66,20 - 52,00	74,70 - 60,40
ARP-010-1BA	10 - /	33,40 - 51,20		51,10 - 33,30	59,60 - 41,80	68,00 - 50,20
ARP-010-1CA	11 - /	36,74 - 56,32			56,20 - 36,60	64,70 - 45,10
ARP-010-1DA	12 - /	40,08 - 61,44			52,90 - 31,50	61,30 - 40,00
ARP-012-1AA	4 - 0	28,80 - 52,40	52,90 - 29,30	73,30 - 49,70	83,50 - 59,90	93,70 - 70,10
ARP-012-1BA	4 - 2	36,00 - 65,50	54,70 - 16,20	66,10 - 36,60	76,30 - 46,80	86,50 - 57,00
ARP-012-1CA	4 - 3	39,60 - 72,10		62,50 - 30,00	72,70 - 40,30	82,90 - 50,50
ARP-012-1DA	4 - 4	43,20 - 78,60		58,90 - 23,50	69,10 - 33,70	79,30 - 43,90
ARP-020-1AA	4 - 0	47,70 - 86,80	86,90 - 47,80	120,60 - 81,50	137,40 - 98,30	154,20 - 115,10
ARP-020-1BA	4 - 2	53,70 - 108,50	75,00 - 26,10	108,60 - 59,80	125,40 - 76,60	142,30 - 93,40
ARP-020-1CA	4 - 3	65,50 - 119,40		102,60 - 48,90	119,50 - 65,80	136,30 - 82,60
ARP-020-1DA	4 - 4	71,60 - 130,20		96,70 - 38,10	113,50 - 54,90	130,30 - 71,70
ARP-035-1AA	4 - 0	88,40 - 160,80	161,00 - 88,70	223,40 - 151,00	254,60 - 182,20	285,70 - 213,40
ARP-035-1BA	4 - 2	110,50 - 201,00	138,90 - 48,50	201,30 - 110,80	232,50 - 142,00	263,60 - 173,20
ARP-035-1CA	4 - 3	121,60 - 221,10		190,20 - 90,70	221,40 - 121,90	252,60 - 153,10
ARP-035-1DA	4 - 4	132,60 - 241,20		179,20 - 70,60	210,40 - 101,80	241,50 - 133,00
ARP-055-1AA	4 - 0	141,00 - 256,40	256,80 - 141,40	356,30 - 240,90	406,00 - 290,60	455,70 - 340,30
ARP-055-1BA	4 - 2	176,30 - 320,50	221,60 - 77,30	321,00 - 176,80	370,70 - 226,50	420,50 - 279,20
ARP-055-1CA	4 - 3	193,90 - 352,60		303,40 - 144,70	353,10 - 194,50	402,80 - 244,20
ARP-055-1DA	4 - 4	211,50 - 384,60		285,80 - 112,70	335,50 - 162,40	385,20 - 212,10
ARP-070-1AA	4 - 0	195,0 - 354,0	355,0 - 196,0	493,0 - 333,0	561,0 - 402,0	630,0 - 471,0
ARP-070-1BA	4 - 2	243,0 - 443,0	306,0 - 107,0	444,0 - 245,0	513,0 - 314,0	581,0 - 382,0
ARP-070-1CA	4 - 3	268,0 - 487,0		420,0 - 201,0	488,0 - 269,0	557,0 - 338,0
ARP-070-1DA	4 - 4	292,0 - 531,0		395,0 - 156,0	464,0 - 225,0	533,0 - 294,0
ARP-100-1AA	4 - 0	265,0 - 482,0	483,0 - 266,0	670,0 - 453,0	764,0 - 547,0	857,0 - 640,0
ARP-100-1BA	4 - 2	331,0 - 603,0	417,0 - 146,0	604,0 - 333,0	697,0 - 426,0	791,0 - 520,0
ARP-100-1CA	4 - 3	365,0 - 663,0		571,0 - 272,0	664,0 - 366,0	758,0 - 459,0
ARP-100-1DA	4 - 4	398,0 - 723,0		538,0 - 212,0	631,0 - 306,0	725,0 - 399,0
ARP-150-1AA	4 - 0	391,0 - 711,0	712,0 - 392,0	988,0 - 668,0	1126,0 - 806,0	1264,0 - 944,0
ARP-150-1BA	4 - 2	489,0 - 889,0	615,0 - 215,0	890,0 - 491,0	1028,0 - 629,0	1166,0 - 766,0
ARP-150-1CA	4 - 3	538,0 - 977,0		842,0 - 402,0	979,0 - 540,0	1117,0 - 678,0
ARP-150-1DA	4 - 4	586,0 - 1066,0		793,0 - 313,0	931,0 - 451,0	1069,0 - 589,0
ARP-250-1AA	6 - /	606,0 - 936,0	1159,0 - 829,0	1600,0 - 1270,0	1821,0 - 1491,0	2042,0 - 1712,0
ARP-250-1BA	8 - /	808,0 - 1248,0	957,0 - 517,0	1398,0 - 958,0	1619,0 - 1179,0	1840,0 - 1400,0
ARP-250-1CA	9 - /	909,0 - 1404,0		1297,0 - 802,0	1518,0 - 1023,0	1739,0 - 1244,0
ARP-250-1DA	10 - /	1010,0 - 1560,0		1196,0 - 646,0	1417,0 - 867,0	1638,0 - 1088,0
ARP-400-1AA	10 - /	1180,0 - 1820,0	2022,0 - 1382,0	2823,0 - 2183,0	3223,0 - 2583,0	3623,0 - 2983,0
ARP-400-1BA	12 - /	1416,0 - 2184,0	1786,0 - 1018,0	2587,0 - 1819,0	2987,0 - 2219,0	3387,0 - 2619,0
ARP-400-1CA	15 - /	1770,0 - 2730,0		2233,0 - 1273,0	2633,0 - 1673,0	3033,0 - 2073,0
ARP-400-1DA	16 - /	1888,0 - 2912,0			2515,0 - 1491,0	2915,0 - 1891,0

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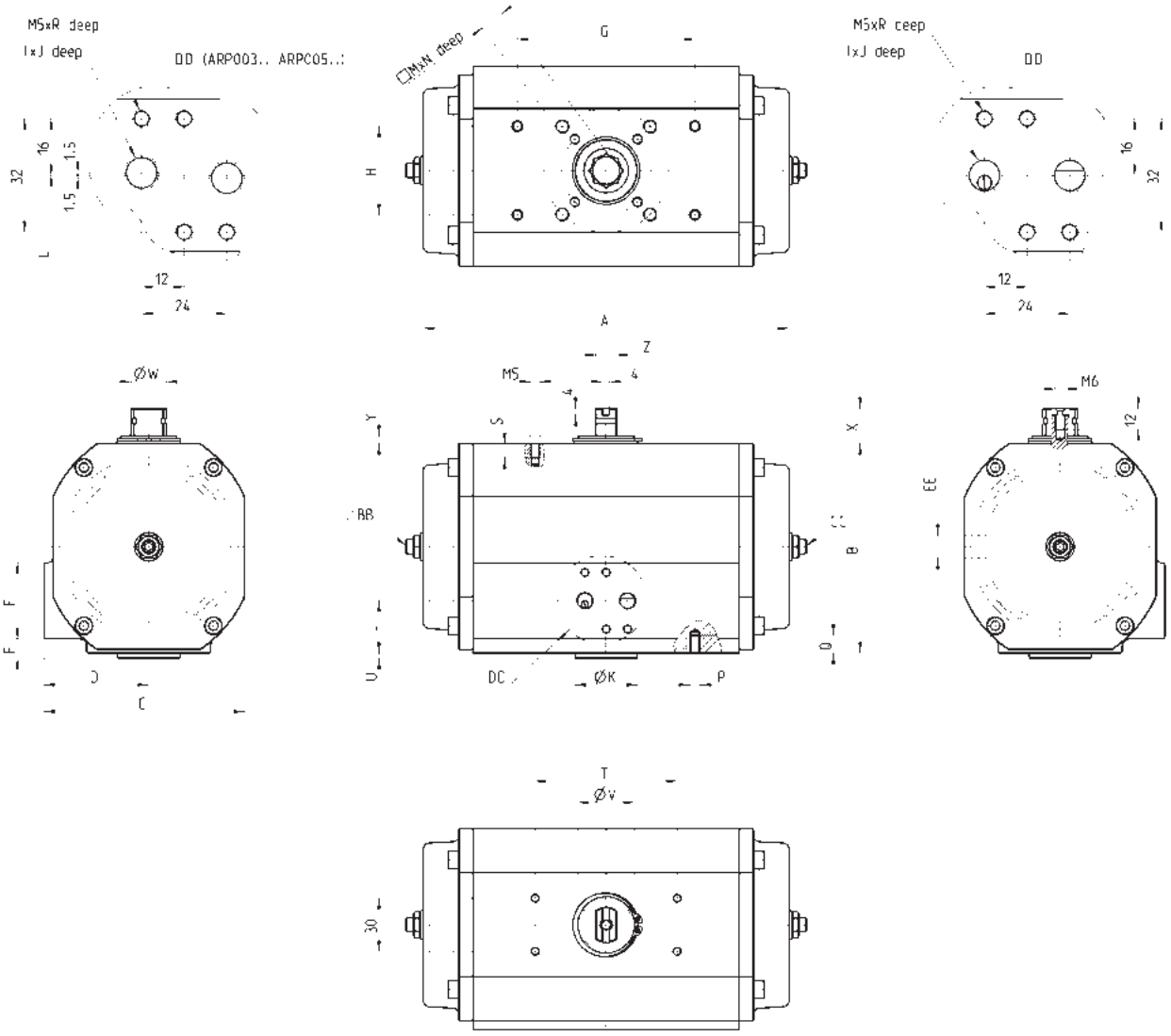
Rotary actuators Series ARP - sizes from 001 to 150



NOTE TO THE TABLE:
* ARP-003-... also available with double drilling ISO F03/F05 with ØK of 25 mm and square key M of 9 mm

** DA = weight of double-acting version
SA = weight of single-acting version

BB = end-stroke regulation on the end cap
CC = end-stroke regulation on the end cap
DD = solenoid mounting/Namur Interface



Mod.	ISO	A	B	C	D	E	F	G	H	I	J	ØK	L	□M	N	P	Q	R	S	T	U	ØV	ØW	X	Y	Z	BB	CC	EE	Weight (Kg) DA/SA**
ARP-001-...	F03	103	45	51	28,5	-	-	-	-	G1/8	10	25	22.5	9	11	-	-	8	5	80	2	22.5	16	20	4.5	11.5	-	-	-	0.6
ARP-003-...	F04*	149.5	70	69.5	38	49	10.5	-	-	G1/8	10	30	32	11	11	-	-	8	8	80	1.5	32	20	20	4.5	11.5	-	4	13	1.0 / 1.1
ARP-005-...	F05, F07	186.5	87	90.5	49	49	22	-	-	G1/8	10	35	48	14	15	-	-	8	8	80	3	32	20	20	4.5	11.5	-	4	13	1.8 / 1.9
ARP-010-...	F05, F07	206	118	113	59	43	8	-	-	G1/8	10	35	29.5	14	19	-	-	8	8	80	3	32	20	20	4.5	11.5	-	6	19	2.8 / 2.9
ARP-012-...	F07, F05	194	118.5	121	67	43	8	107	49	G1/4	12	55	29.5	17	20	M6	10	8	5	80	3	45	20	20	6	11.5	-	6	19	4.1 / 4.7
ARP-020-...	F07, F10	218	140.5	136.5	72	43	8	107	49	G1/4	12	55	29.5	17	20	M6	10	8	5	80	3	50	32	20	6.5	19	-	8	24	6.3 / 7.0
ARP-035-...	F10, F07	266	166.5	156	78	43	8.5	161	73	G1/4	12	70	30	22	24	M6	12	8	5	80	3	61	32	20	7	19	-	8	24	10 / 12
ARP-055-...	F12, F10	312	207.5	191	95.5	43	20.5	161	73	G1/4	12	85	42	27	30	M8	15	8	5	130	3	61	40	30	7.5	25.5	10	10	30	18 /21
ARP-070-...	F12, F10	358	216	198	99	49	19.5	213	102	G1/4	12	85	46	27	30	M8	12	8	6	130	3	72	40	30	7	25.5	10	10	30	20 / 24
ARP-100-...	F14	366	254	227	113.5	43	39.5	213	102	G1/4	12	100	61	36	40	M10	15	8	6	130	3	76	40	30	7	25.5	12	12	36	31 / 35
ARP-150-...	F14	394	304	280	140	48.5	51.5	244	117	G1/4	12	100	76	36	40	M12	22	8	6	130	3	78	40	30	7	25.5	12	12	36	44 / 52

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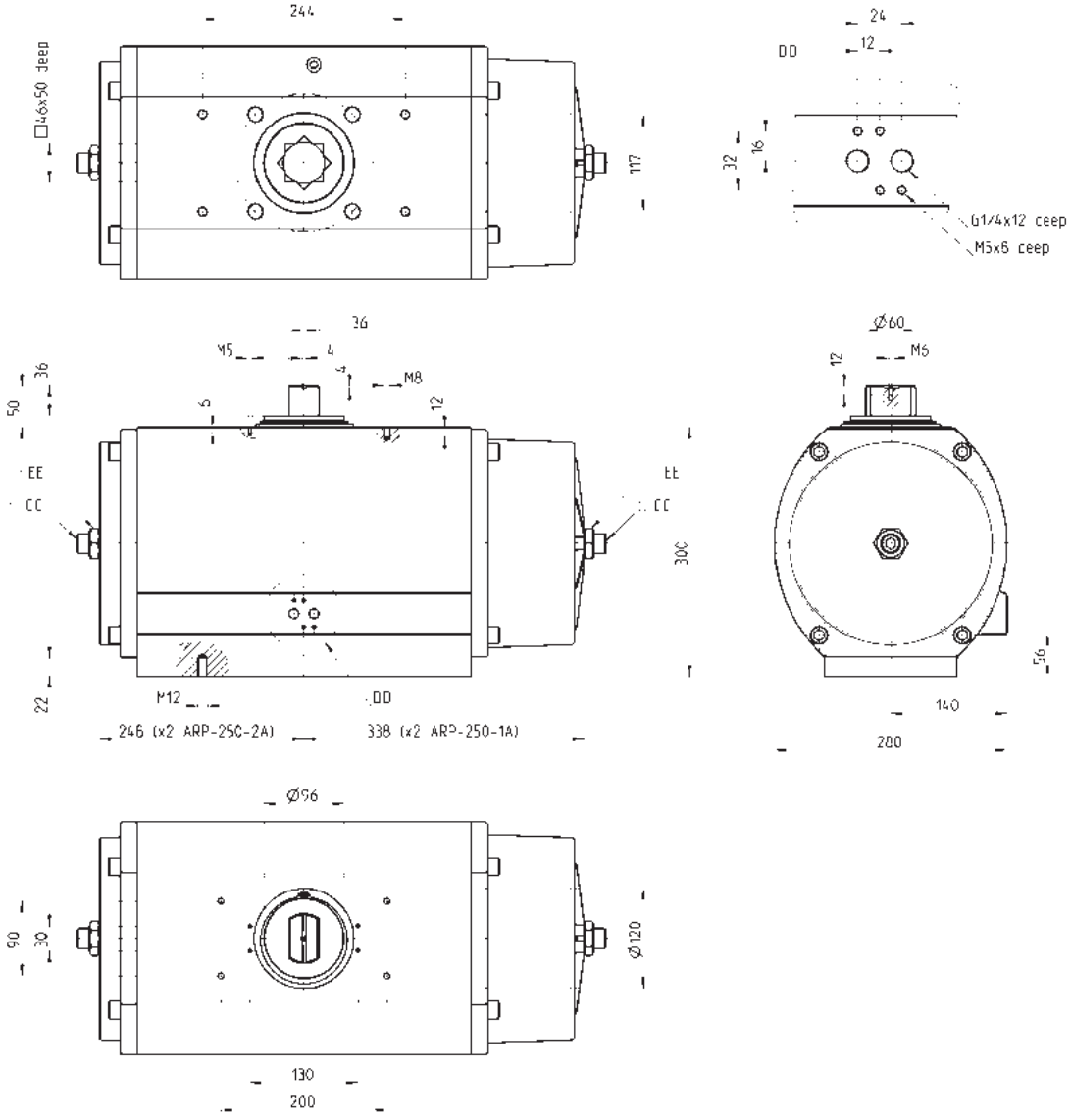
Rotary actuators Series ARP - size 250

NOTE TO THE TABLE:
** DA = double-acting - SA = single-acting



CC = end-stroke regulation on the end cap
DD = solenoid mounting/Namur Interface

Owing to the end caps sizes, dimensions change from the double-acting model to the single-acting one.



Mod.	ISO	CC	EE	Weight (Kg) DA / SA **
ARP-250-...	F16	14	46	59 / 84

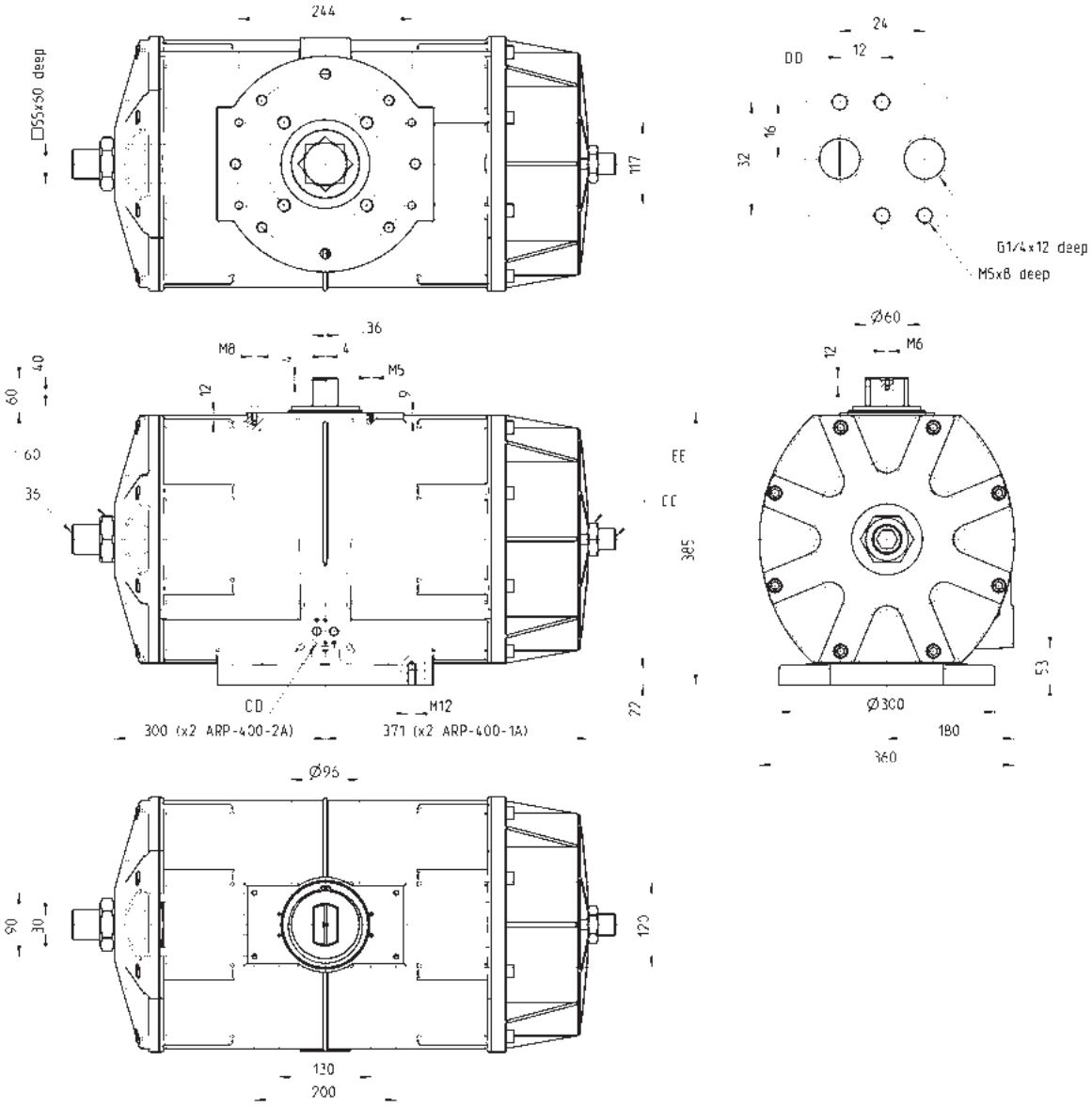
Rotary actuators Series ARP - size 400

NOTE TO THE TABLE:
** DA = double-acting - SA = single-acting



CC = end-stroke regulation on the end cap
DD = solenoid mounting/Namur Interface

Owing to the end caps sizes, dimensions change from the double-acting model to the single-acting one.



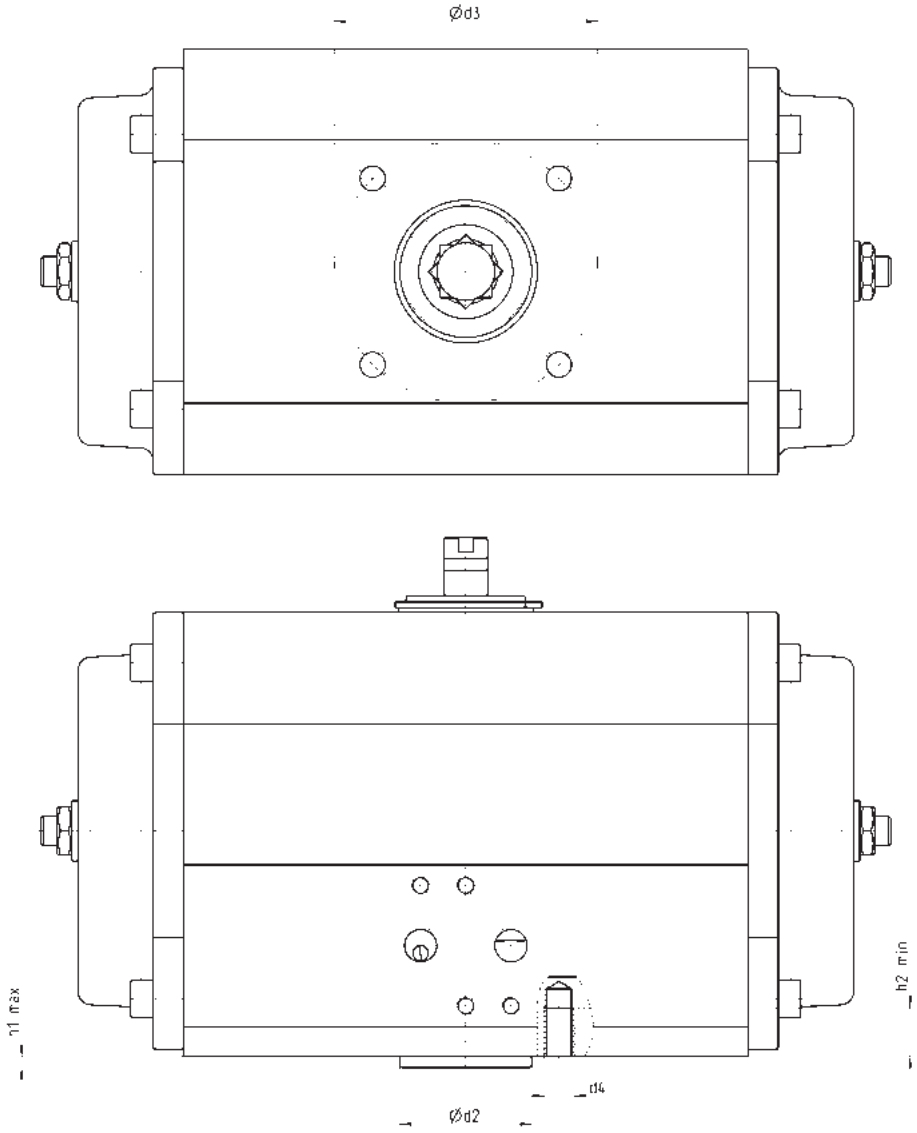
Mod.	ISO	CC	EE	Weight (Kg) DA / SA **
ARP-400-...	F25, F16	14	46	107 / 135

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Rotary actuators Series ARP

Reference standard ISO 5211 concerning the dimensions of flanges connecting actuator and valve.





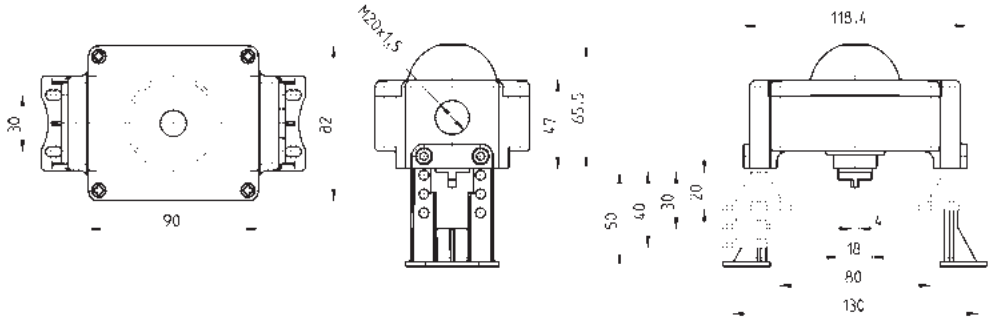
ISO flange	d2 f8	d3	d4	h1 max	h2 min	nr of holes
F03	25	36	M5	3	8	4
F04	30	42	M5	3	8	4
F05	35	50	M6	3	9	4
F07	55	70	M8	3	12	4
F10	70	102	M10	3	15	4
F12	85	125	M12	3	18	4
F14	100	140	M16	4	24	4
F16	130	165	M20	5	30	4
F25	200	254	M16	5	24	8

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Switch box Mod. SBT (standard) e SIP (ATEX version)

Mod. SIP: intrinsic safety Atex version with protection modes Ex II 2 G/D
EEx ia IIC T6 for zones classified as 1, 2, 21 e 22.



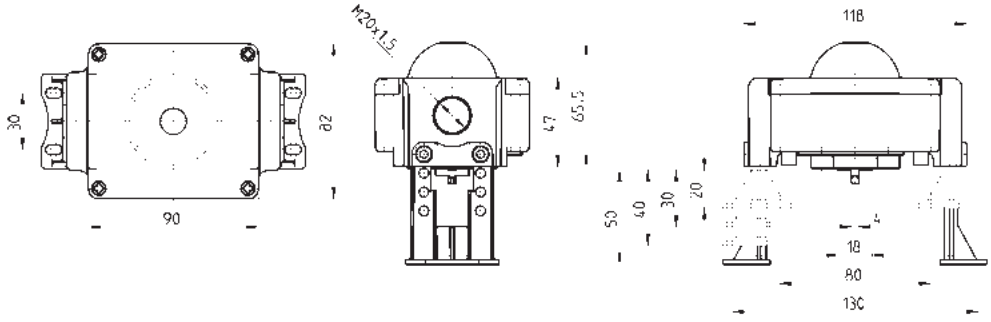


Mod.	Body material	Cover material	Shaft material	Screws	Operating temperature	Protection class	Kind of end stop
SBT-012H0-2H	Technopolymer	Polycarbonate	Technopolymer	Stainless steel	-15°C + 80°C	IP65	2 electromec. end stops SPDT Max 5A 250V AC / 3A 24V DC
SIP702L0-2H	Technopolymer	Polycarbonate	Technopolymer	Stainless steel	-15°C + 80°C	IP65	2 inductive Namur P+F NJ2-V3-N (2 non amplified wires)

Switch box Mod. SBA (standard) e SIM (ATEX version)

Mod. SIP: intrinsic safety Atex version with protection modes Ex II 2 G/D
EEx ia IIC T6 for zones classified as 1, 2, 21 e 22.





Mod.	Body material	Cover material	Shaft material	Screws	Operating temperature	Protection class	Kind of end stop
SBA-0120N-2H	pressure diecasted Aluminium	Polycarbonate	Technopolymer	Stainless steel	-15°C + 80°C	IP65	2 electromec. end stops SPDT Max 5A 250V AC / 3A 24V DC
SIM7022N-2H	pressure diecasted Aluminium	Polycarbonate	Technopolymer	Stainless steel	-15°C + 80°C	IP65	2 Namur induttivi P+F NJ2-V3-N (2 non amplified wires)

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Series CGA angular grippers

Magnetic
Sizes: ø 10, 16, 20, 25, 32 mm



- Compact design
- Flexible mounting
- Optional mounting adaptors

For an easier installation the gripper can also be equipped with an optional installation adaptor mod. C-CGP (female) or L-CGP (male).

Series CGA angular grippers are available in 5 different sizes. The gripper opens and closes at angles between -10° and +30°. The proximity switches can be inserted in the U-shaped grooves on the body.
Grippers Series CGA have mounting holes on three sides which provide flexibility in installation.

GENERAL DATA

Model	CGA-10; CGA-16; CGA-20; CGA-25; CGA-32
Bore sizes	Ø 10; Ø 16; Ø 20; Ø 25; Ø 32
Type of operation	double-acting
Operating pressure	1.5 ÷ 7 bar
Operating temperature	0 ÷ 80°C
Max. operating frequency	180 cycles/min
Lubrication	lever section - lubrication required on sliding section
Grip moment - closed M (Ncm)	1,6xP 8xP 17xP 34xP 61xP P = operating pressure (bar)
Grip moment - open M (Ncm)	2,6xP 11xP 23xP 43xP 81xP
Effective gripping force F (N)	F = M/L x0,85 L = distance of gripping point (cm)
Length of la. gripping point L (cm)	3,0 4,0 6,0 7,0 8,5
Weight (g)	Ø 10 = 40 Ø 16 = 100 Ø 20 = 200 Ø 25 = 330 Ø 32 = 540
Lever open / closed angles	-10°÷ +30°
Port sizes	M5 (CGA-10 M3)
Magnet	magnet for proximity sensors in piston
Fluid	filtered air, without lubrication. If lubricated air is used, it is recommended to use oil ISOVG32. Once applied the lubrication should never be interrupted.

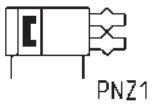
CODING EXAMPLE

CGA	-	20

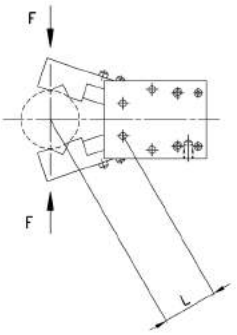
CGA	SERIES	PNEUMATIC SYMBOL PNZ1
20	SIZES 10 = ø 10 mm 16 = ø 16 mm 20 = ø 20 mm 25 = ø 25 mm 32 = ø 32 mm	

PNEUMATIC SYMBOLS

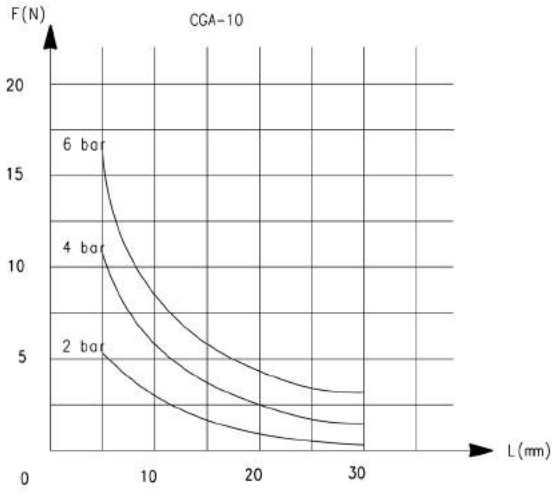
The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.



CLOSING GRIPPING FORCE - CHARACTERISTICS



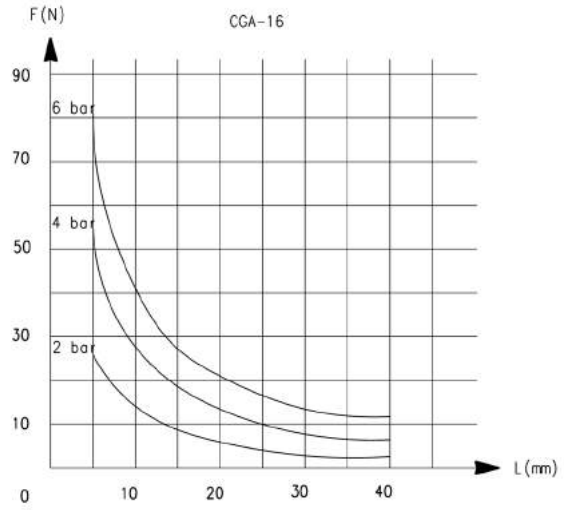
L = Length of gripping point
F = Gripping force



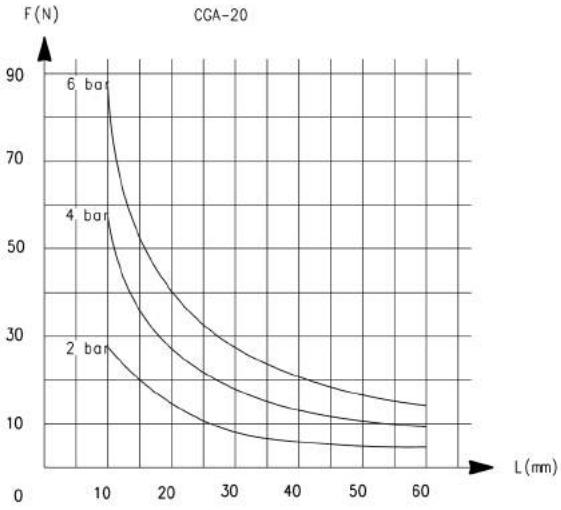
L = Length of gripping point
F = Gripping force

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CLOSING GRIPPING FORCE - CHARACTERISTICS

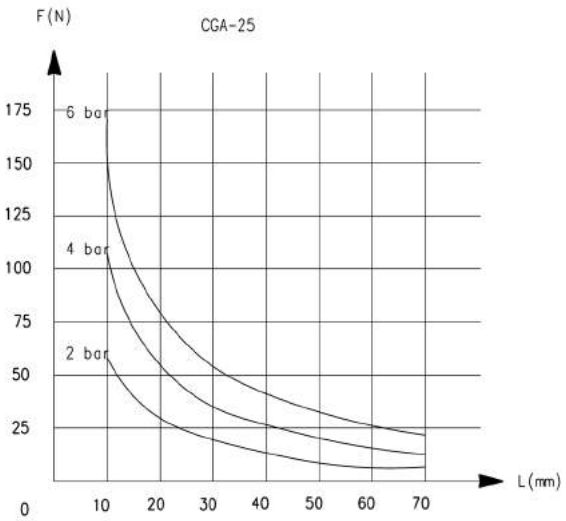


L = Length of gripping point
F = Gripping force

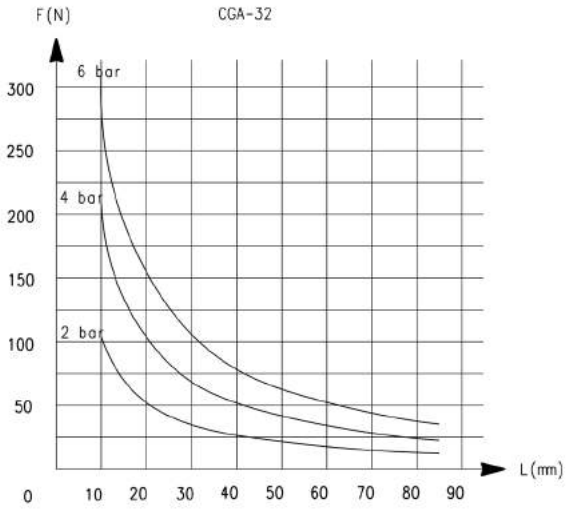


L = Length of gripping point
F = Gripping force

CLOSING GRIPPING FORCE - CHARACTERISTICS



L = Length of gripping point
F = Gripping force

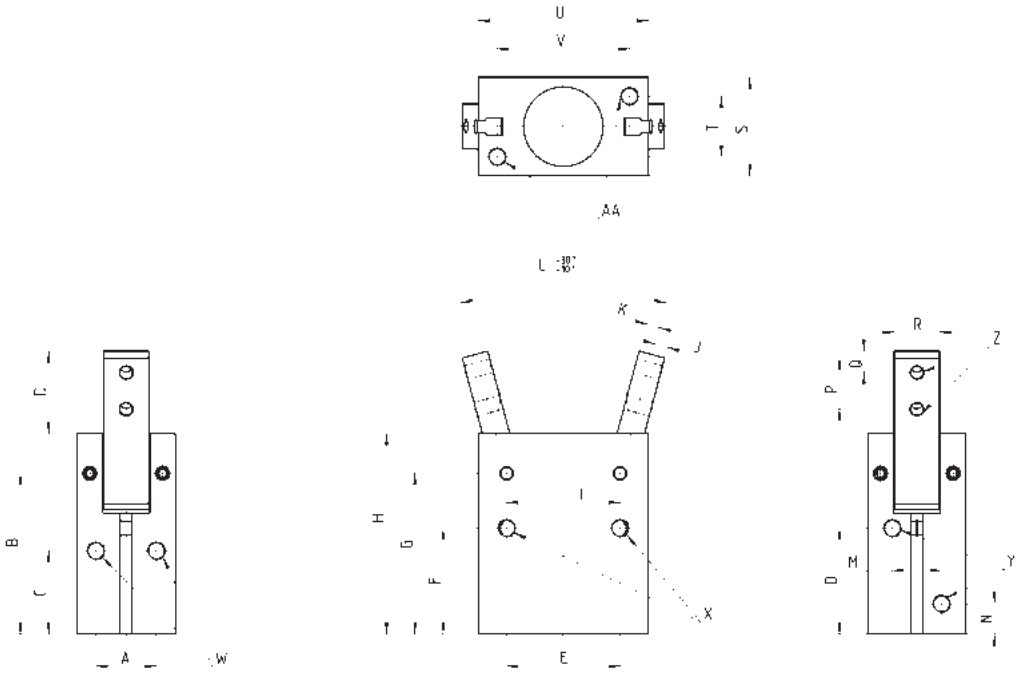


L = Length of gripping point
F = Gripping force

1 MOVEMENT

Angular grippers Series CGA





Y = port connection
Z = finger mounting-holes
X.W.AA = mounting holes

DIMENSIONS

Mod.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
CGA-10	10	30,5	15,5	15,7	18	20	30,5	36,5	14	2,5	1,5	0°	10	7,5	19	6	3	7	16	10	23	17
CGA-16	14	38	21	17,5	24	25,5	38	45,5	24	3	3	0°	12	7,5	25,5	8	3	9	22	14	34	26
CGA-20	16	42,5	22	22	30	28	42,5	53	30	3,5	3,5	0°	13	8	28	10	4	12	26	16	45	35
CGA-25	20	48,5	24,5	26	36	31,5	48,5	61	36	4,5	4,5	0°	18	9	31	12	5	14	32	20	52	40
CGA-32	26	54	30	30	44	37,5	45	68	42	5	5	0°	24	10	33,5	14	6	18	40	26	60	46

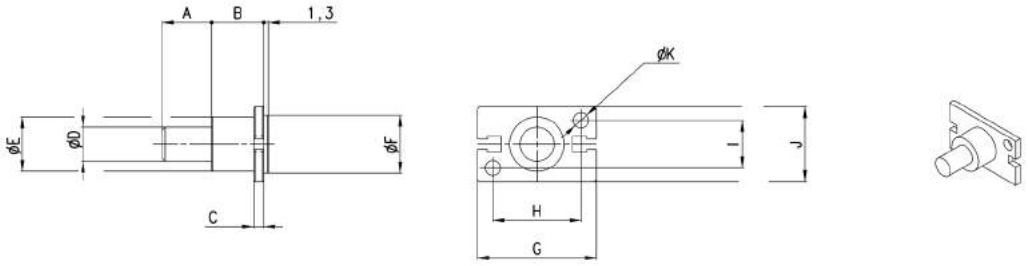
DIMENSIONS

Mod.	X thread	X depth	Y thread	Y depth	W thread	W depth	Z thread	Z depth	AA thread	AA depth
CGA-10	M3	7	M3	-	M3	-	M3	-	M3	5
CGA-16	M4	11	M5	-	M4	-	M3	-	M4	7
CGA-20	M5	13	M5	-	M5	-	M4	-	M5	8
CGA-25	M6	15	M5	-	M6	-	M5	-	M6	10
CGA-32	M6	20	M5	-	M6	-	M6	-	M6	10

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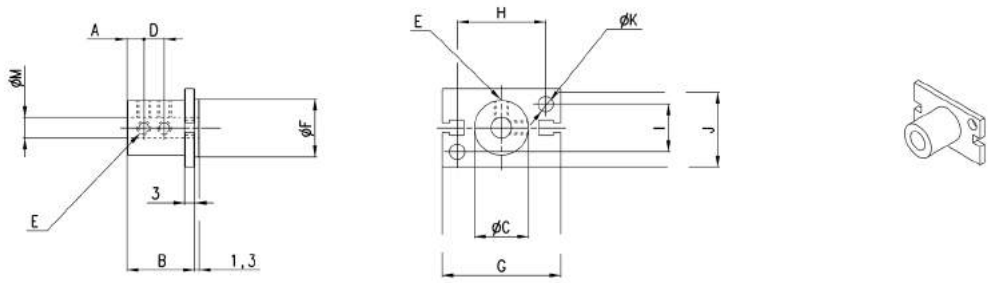
Mounting brackets Mod. L-CGP





Mod.	A	B	C	D	E	F	G	H	I	J	K
L-CGP-16	15	15	3	10	16	17	35	26	14	22	4,5
L-CGP-20	15	15	3	10	18	21	46	35	16	26	5,5
L-CGP-25	25	17	5	14	26	26	53	40	20	32	6,6
L-CGP-32	25	20	6	16	30	34	61	46	26	40	6,6

Mounting brackets Mod. C-CGP



Mod.	A	B	C	D	E	F	G	H	I	J	K	M
C-CGP-16	5	20,5	16	7	M4	17	35	26	14	23	4,5	6
C-CGP-20	7	25,5	20	9	M4	21	46	35	16	27	5,5	8
C-CGP-25	8	30,5	25	10	M4	26	53	40	20	33	6,6	10
C-CGP-32	10	40,5	32	15	M4	34	61	46	26	41	6,6	12

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Series CGSN
180° angular grippers

New version

Magnetic
Sizes: ø 16, 20, 25, 32 mm



- High flexibility during installation
- Steel gripping fingers resistant to corrosion
- Wide working area

Series CGSN grippers guarantee precision and flexibility during installation. Each gripper has calibrated holes on the base and side for very precise positioning. Installation is made even easier due to the availability of male and female mounting brackets (Mod. C-CGP female or L-CGP male).

A permanent magnet within the gripper is able to send, through proximity switches (Series CSC and CSD) inserted in the grooves on the body, electrical signals to indicate the position of the gripping fingers.
The link mechanism used ensures a high gripping force.

GENERAL DATA

Operation	double effect				
Working pressure	2 bar ÷ 8 bar				
Working temperature	5°C ÷ 60°C				
Max operating frequency	100 cylcles/min				
Lubrication	lubrication is required on sliding section only				
Lever open/close angles	-1° / + 180° (tolerance ±3°)				
Repeatability	± 0.2 mm				
Air ports	M5x0.8				
Fluid	Filtered air without lubrication. If lubricated air is used, it is recommended to use oil ISO VG32. Once applied, lubrication should never be interrupted.				
Bore sizes (mm)	16	20	25	32	
Weight(g)	140	255	430	740	
Theoretical gripping moment [M] (N·mm)	1230xP	2350xP	4540xP	9680xP	[P = pressure (MPa)]
Max length of gripping point [L] (mm)	80	100	120	140	
Effective gripping force [F] (N)	F = M/L x 0.9 (value with the fingers in parallel position)				
Example with P = 0.5MPa and L max	F = 7N	F = 10N	F = 17N	F = 30N	

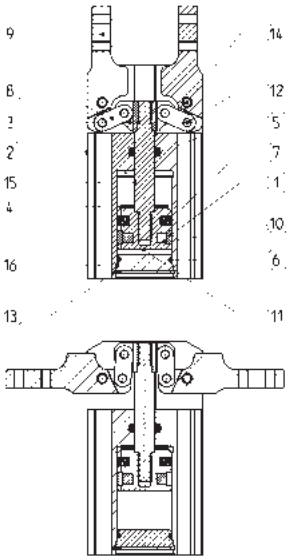
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CODING EXAMPLE

CGSN	-	20

CGSN	SERIES	PNEUMATIC SYMBOL PNZ1 See the following pages
20	SIZES 16 = ø 16 mm 20 = ø 20 mm 25 = ø 25 mm 32 = ø 32 mm	

Series CGSN Gripper - construction



PARTS	MATERIALS
1 = Piston guide ring	Polyacetalic
2 = Body	Aluminium
3 = T-shackle	Stainless steel
4 = Bumper seal	TPU
5 = Rod seal	HNBR
6 = Head seal	NBR
7 = Piston seal	HNBR
8 = Connecting rod lever	Stainless steel
9 = Finger lever	Stainless steel
10 = Magnet	Plastoferrite
11 = Piston	Aluminium
12 = Needle	Steel
13 = Seeger	Steel
14 = Pin	Steel
15 = Rod	Steel
16 = Head	Polyacetal POM

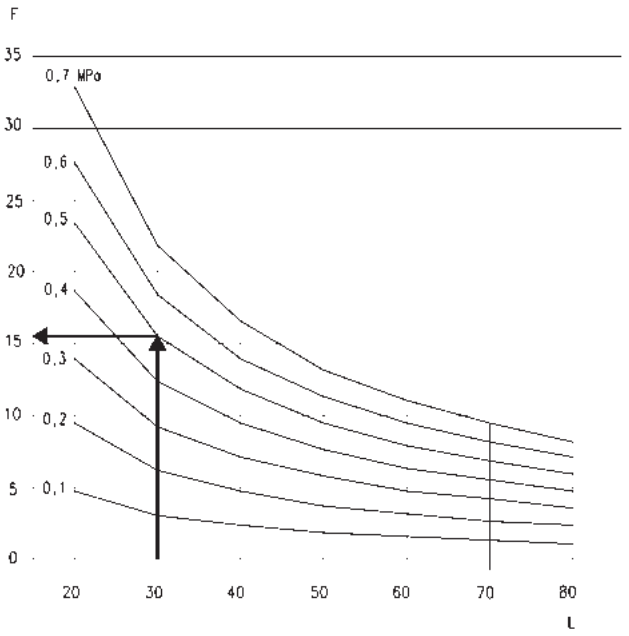
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Criteria to choose the most suitable size: 1) GRIPPING FORCE ANALYSIS

The choice of the most suitable gripper has to be carried out according to the weight of the object that has to be moved. It is suggested that the selected model develops a gripping force at least 20 times higher than the weight of the object. In case of great acceleration or impact during the moving of the object, it is necessary to supply a wider margin.

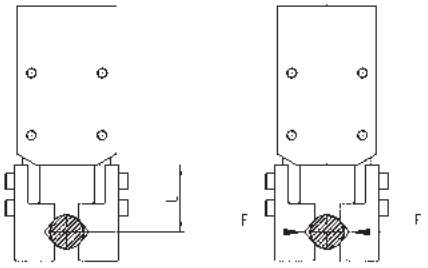
EXAMPLE OF CALCULATION (see the diagram on the right)
Weight of the object to be moved (Kg) = 0.06
Coefficient of safety = 20
Gripping moment L (mm) = 30
Working pressure (MPa) = 0.5
F = gripping force
Fmin [min. required gripping force] = 0,06kg x 20 x 9.8m/s² = 12N (minimum).

Through the diagrams “Effective Gripping force” we deduce from the above mentioned conditions that the gripping force with the mod. CGSN-16 is 16N, that is 26 times the weight of the object.
The condition requiring that grip force is at least 20 times higher than the set gripping force is thus satisfied.



DRAWING LEGEND:
L = Gripping moment (mm)
F = Finger push (N)

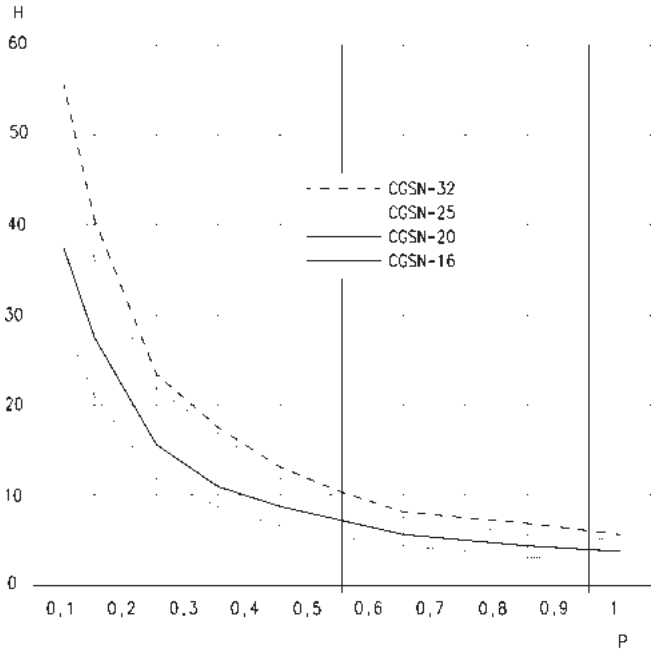
EFFECTIVE GRIPPING FORCE (F)
The shown gripping force corresponds to the gripping force of a finger when all fingers (or accessories) are in contact with the load.

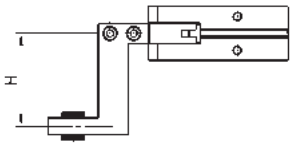


Criteria to choose the most suitable size: 2) GRIPPING MOMENT ANALYSIS

LEGEND:
H = Gripping arm (mm)
P = Pressure (MPa)

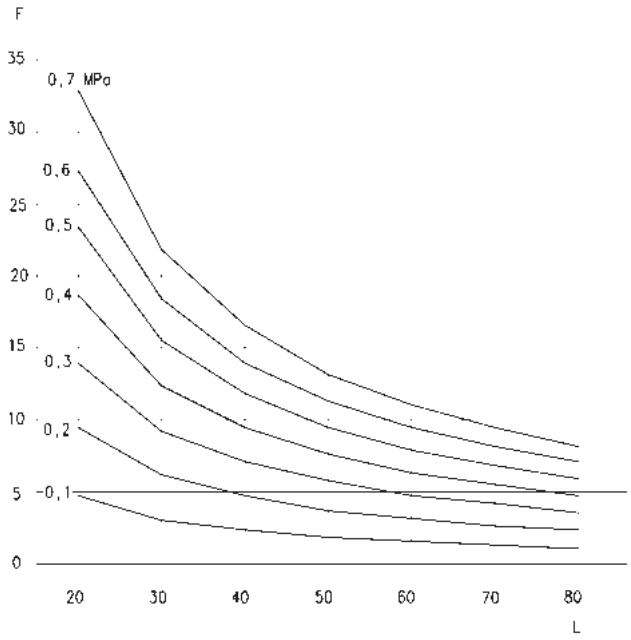
The load has to be maintained within the distance field from the gripper barycentre (H) for a certain set pressure.
If the load is outside the recommended field for a certain pressure, the product durability can be compromised.





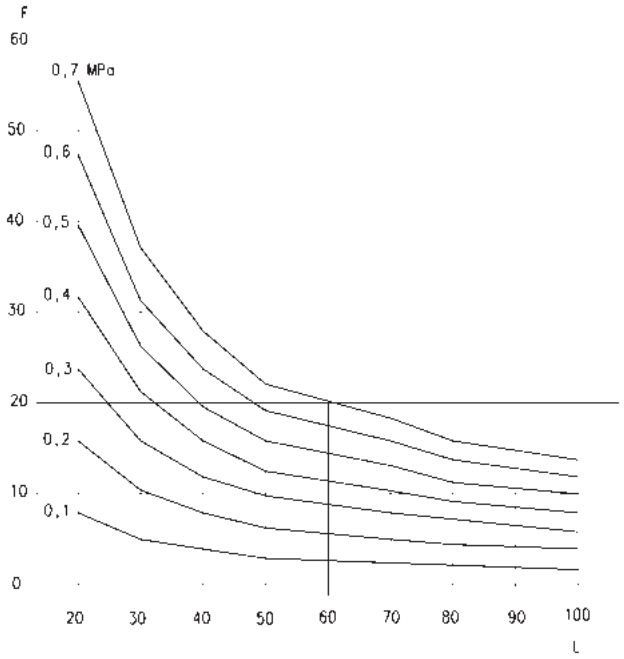
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Diagrams to choose the most suitable gripper size



CGSN-16

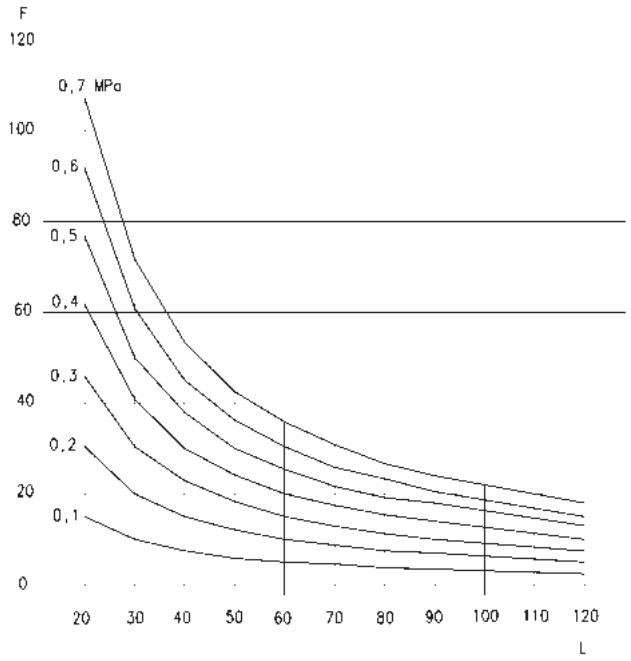
F = Gripping force (N)
L = Gripping moment (mm)



CGSN-20

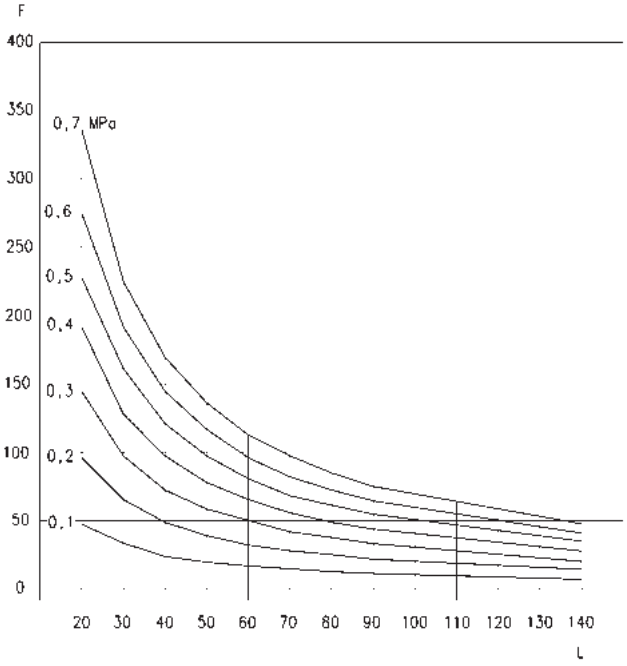
F = Gripping force (N)
L = Gripping moment (mm)

Diagrams to choose the most suitable gripper size



CGSN-25

F = Gripping force (N)
L = Gripping moment (mm)



CGSN-32

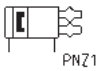
F = Gripping force (N)
L = Gripping moment (mm)

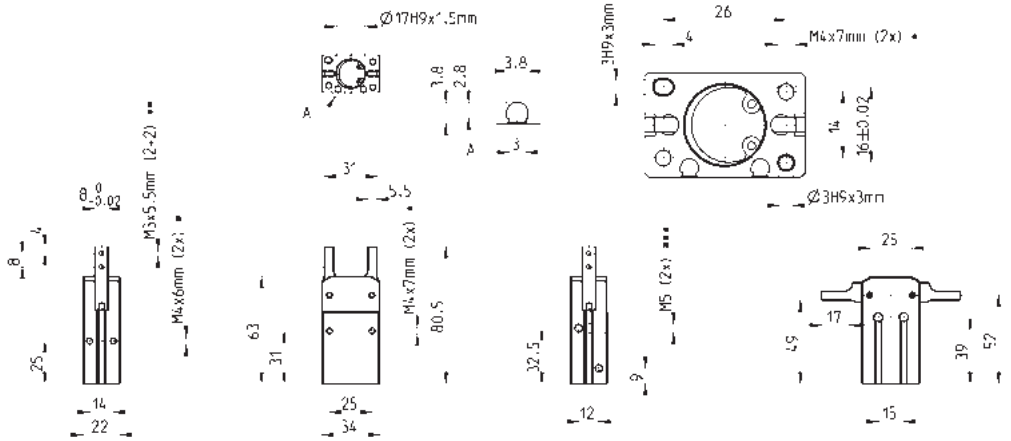
CGSN gripper, bore 16 mm - dimensions

A = groove for Series CSD sensors



* = depth of the mounting threads
** = thread for the accessory mounting
*** = opening/closing for air connections





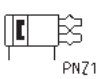
Mod.
CGSN-16

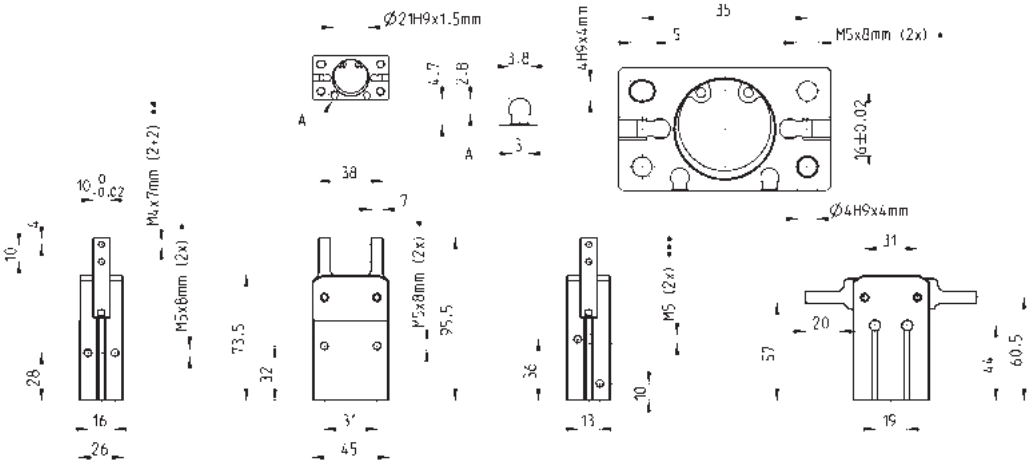
CGSN gripper, bore 20 mm - dimensions

A = groove for Series CSD sensors



* = depth of the mounting threads
** = thread for the accessory mounting
*** = opening/closing for air connections





Mod.
CGSN-20

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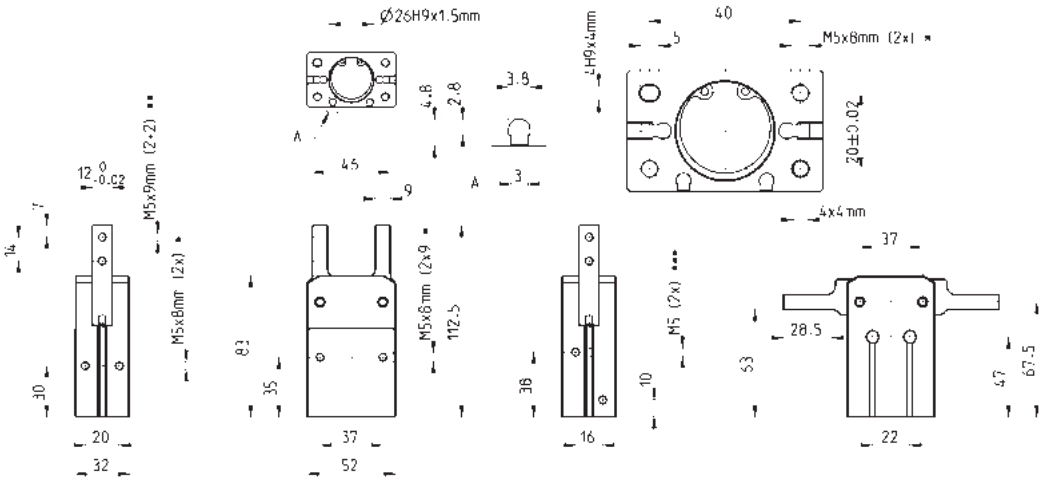
CGSN gripper, bore 25 mm - dimensions

A = groove for Series CSD sensors



* = depth of the mounting threads
** = thread for the accessory mounting
*** = opening/closing for air connections





Mod.
CGSN-25

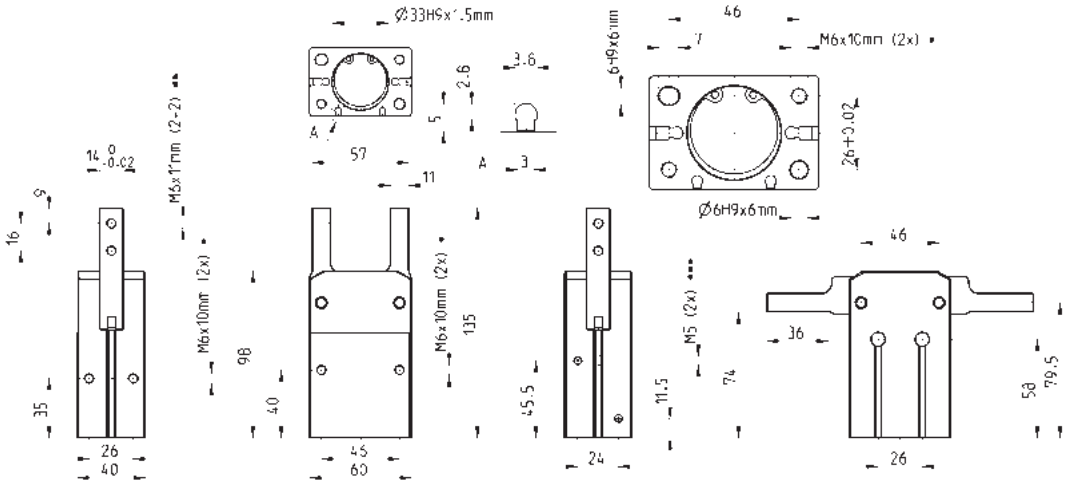
CGSN gripper, bore 32 mm - dimensions

A = groove for Series CSD sensors



* = depth of the mounting threads
** = thread for the accessory mounting
*** = opening/closing for air connections

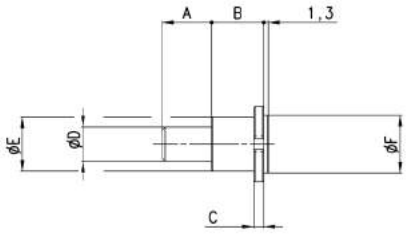


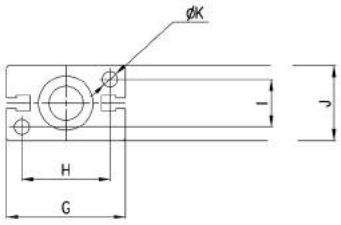


Mod.
CGSN-32

Mounting brackets Mod. L-CGP



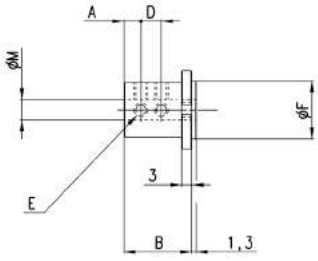


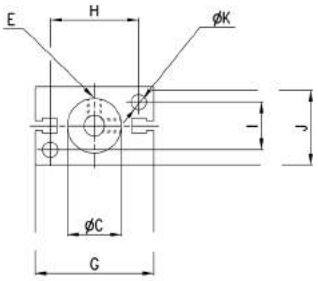




Mod.	A	B	C	D	E	F	G	H	I	J	K
L-CGP-16	15	15	3	10	16	17	35	26	14	22	4,5
L-CGP-20	15	15	3	10	18	21	46	35	16	26	5,5
L-CGP-25	25	17	5	14	26	26	53	40	20	32	6,6
L-CGP-32	25	20	6	16	30	34	61	46	26	40	6,6

Mounting brackets Mod. C-CGP







Mod.	A	B	C	D	E	F	G	H	I	J	K	M
C-CGP-16	5	20,5	16	7	M4	17	35	26	14	23	4,5	6
C-CGP-20	7	25,5	20	9	M4	21	46	35	16	27	5,5	8
C-CGP-25	8	30,5	25	10	M4	26	53	40	20	33	6,6	10
C-CGP-32	10	40,5	32	15	M4	34	61	46	26	41	6,6	12

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Series CGP parallel grippers

Magnetic
Sizes: ø 10, 16, 20, 25, 32 mm



- High durability
- Compact design
- High gripping force

The proximity switches can be inserted in the U-shaped grooves on the body.
For an easier installation the gripper can also be equipped with an optional installation adaptor mod. C-CGP (female) or L-CGP (male).

Series CGP parallel grippers are available in 5 different sizes.
The closing action of the gripper is generated from the cylinder's thrust side, resulting in a higher gripping force. The gripper is equipped with ring bearings in the sliding section for higher durability. Gripper mod. CGP has mounting holes on three sides which provides flexibility in installation.

GENERAL DATA

Model	CGP-10 CGP-16 CGP-20 CGP-25 CGP-32
Bore sizes (mm)	Ø 10 Ø 16 Ø 20 Ø 25 Ø 32
Type of operation	double-acting
Operating pressure	1.5 ÷ 7 bar
Operating temperature	0°C ÷ 80°C
Max. operating frequency	180 cycles/min
Lubrication	lever section - lubrication required on sliding section
Opening stroke (mm)	Ø 10 = 4 Ø 16 = 8 Ø 20 = 12 Ø 25 = 14 Ø 32 =16
Theoritical holding force - opening (N)	Ø 10 = 8 Ø 16 = 24 Ø 20 = 47 Ø 25 = 75 Ø 32 = 100 P = Related to a pressure of 5 bar with gripping point length 3 cm
Theoritical holding force - closing (N)	Ø 10 = 5 Ø 16 = 8 Ø 25 = 35 Ø 25 = 60 Ø 32 = 85 P = Related to a pressure of 5 bar with gripping point length 3 cm
Length of max gripping point L (cm)	3,0 4,0 6,0 7,0 8,5 L = Related to a pressure of 5 bar
Weight(g)	Ø 10 = 50 Ø 16 = 140 Ø 20 = 250 Ø 25 = 410 Ø 32 = 680
Port sizes	M5 (CGP-10 M3)
Fluid	filtered air, without lubrication. In case lubricated air is used, it is recommended to use oil ISO VG32. Once applied, the lubrication should never be interrupted.

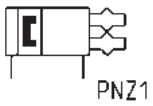
CODING EXAMPLE

CGP	-	20

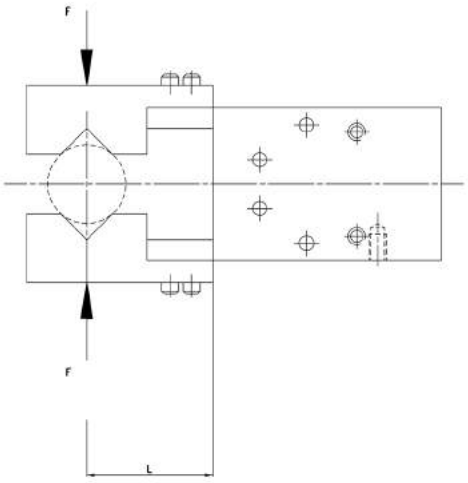
CGP	SERIES	PNEUMATIC SYMBOL PNZ1
20	SIZES 10 = ø 10 mm 16 = ø 16 mm 20 = ø 20 mm 25 = ø 25 mm 32 = ø 32 mm	

PNEUMATIC SYMBOLS

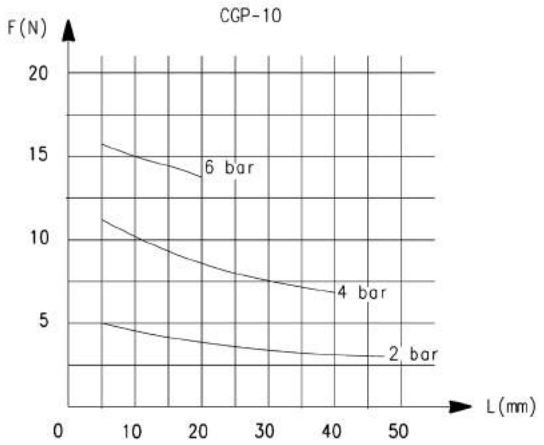
The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.



GRIPPING FORCE CHARACTERISTICS



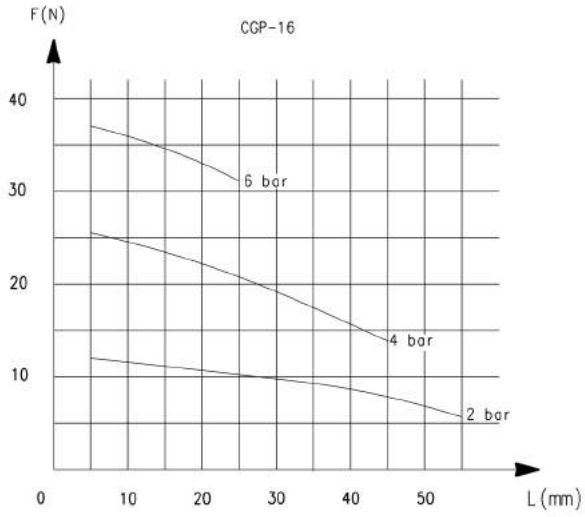
L = Gripping point length
F = Gripping Force



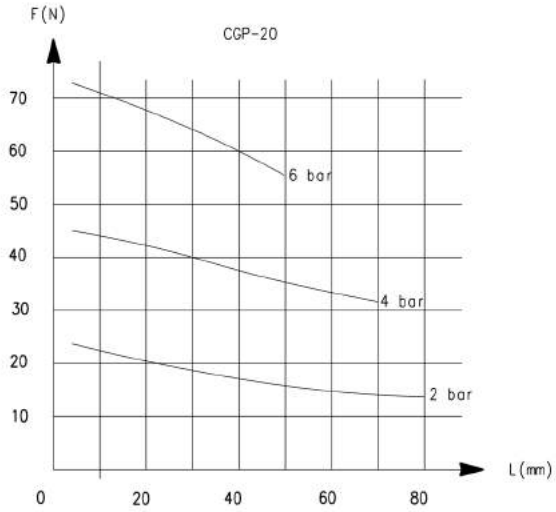
L = Gripping point length
F = Gripping Force

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GRIPPING FORCE CHARACTERISTICS

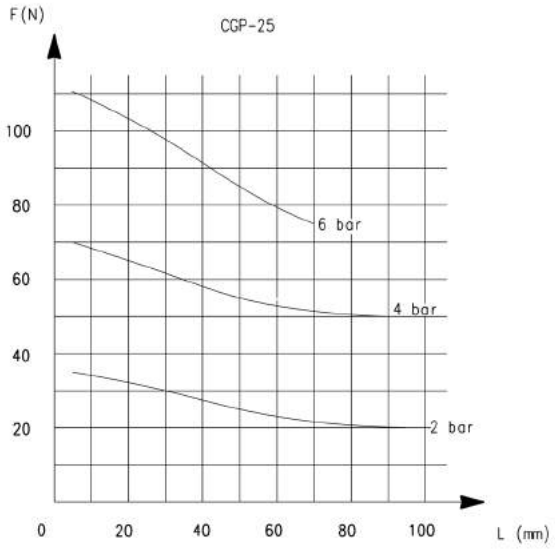


L = Gripping point length
F = Gripping Force

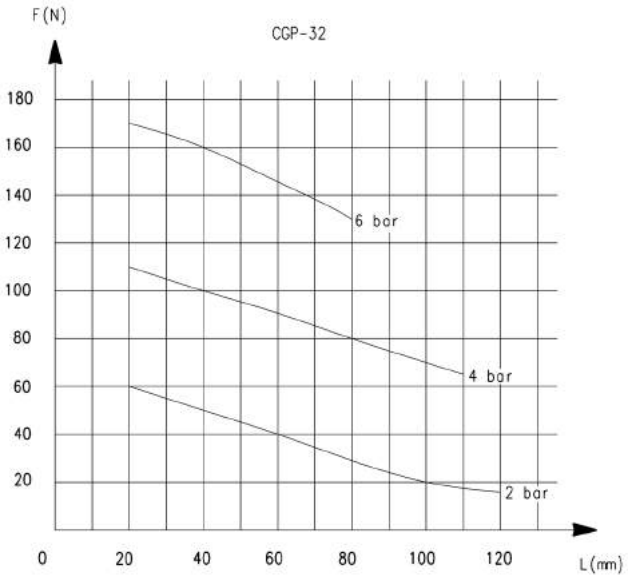


L = Gripping point length
F = Gripping Force

GRIPPING FORCE CHARACTERISTICS



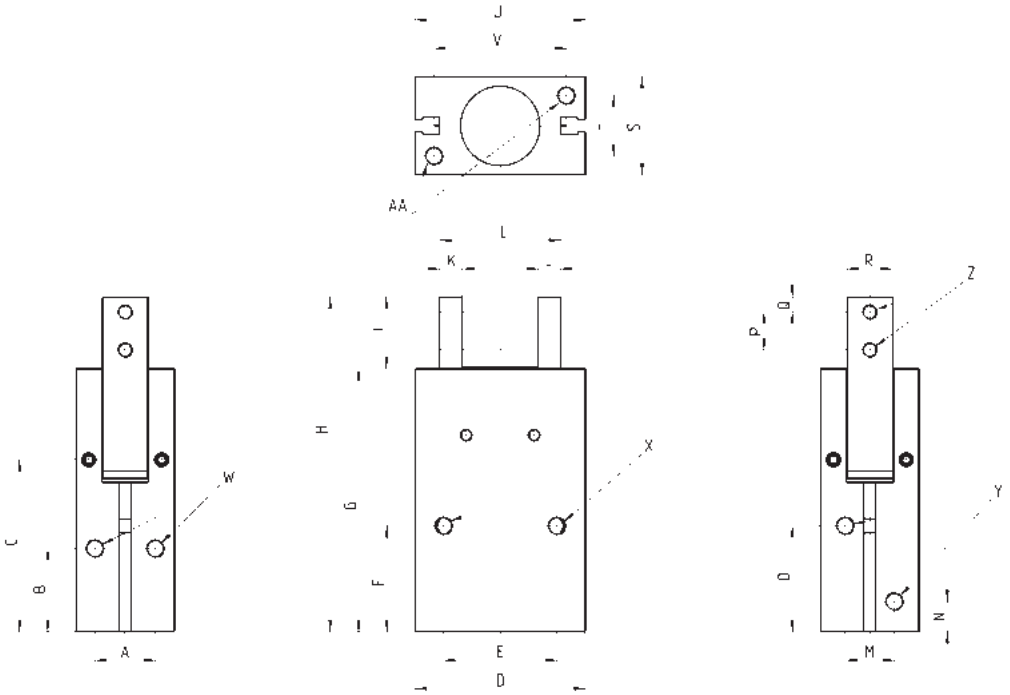
L = Gripping point length
F = Gripping Force



L = Gripping point length
F = Gripping Force

Parallel grippers Series CGP





Y = port connection
Z = finger mounting-holes
X.W.AA = Mounting holes

DIMENSIONS

Mod.	A	B	C	D	E	F	G	H	I	J	K	L closed	L open	M	N	O	P	Q	R	S	T	U	V
CGP-10	10	15,5	31,5	23	18	20	45	58	13	4	4	18	22	10	7,5	19	6	3	7	16	10	23	17
CGP-16	14	21	39,5	34	24	25,5	58,8	73,5	15	5	5	25	33	12	7,5	25,5	8	3	11	22	14	34	26
CGP-20	16	22	45,5	45	30	28	69,5	88,5	19	6	6	32	44	13	8	28	10	4	12	26	16	45	35
CGP-25	20	24,5	51	52	36	31,5	79,5	103,5	24	8	8	37	51	18	9	31	12	5	14	32	20	52	40
CGP-32	26	30	56	60	44	37,5	88	119	31	9	9	44	60	24	10	35	15	7	18	40	26	60	46

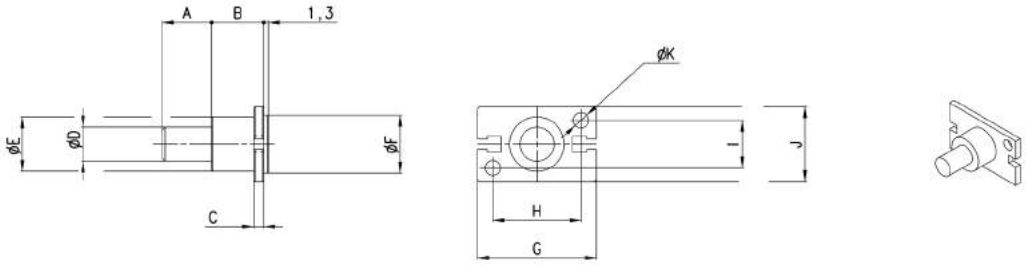
DIMENSIONS

Mod.	X thread	X depth	Y thread	Y depth	W thread	W depth	Z thread	Z depth	AA thread	AA depth
CGP-10	M3	7	M3	-	M3	5	M3	-	M3	5
CGP-16	M4	11	M5	-	M4	7	M3	-	M4	7
CGP-20	M5	13	M5	-	M4	8	M4	-	M5	8
CGP-25	M6	14	M5	-	M6	10	M5	-	M6	10
CGP-32	M6	20	M5	-	M6	10	M6	-	M6	10

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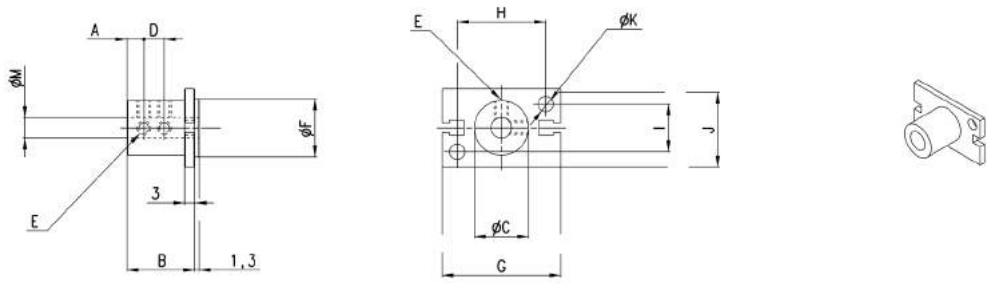
Mounting brackets Mod. L-CGP





Mod.	A	B	C	D	E	F	G	H	I	J	K
L-CGP-16	15	15	3	10	16	17	35	26	14	22	4,5
L-CGP-20	15	15	3	10	18	21	46	35	16	26	5,5
L-CGP-25	25	17	5	14	26	26	53	40	20	32	6,6
L-CGP-32	25	20	6	16	30	34	61	46	26	40	6,6

Mounting brackets Mod. C-CGP



Mod.	A	B	C	D	E	F	G	H	I	J	K	M
C-CGP-16	5	20,5	16	7	M4	17	35	26	14	23	4,5	6
C-CGP-20	7	25,5	20	9	M4	21	46	35	16	27	5,5	8
C-CGP-25	8	30,5	25	10	M4	26	53	40	20	33	6,6	10
C-CGP-32	10	40,5	32	15	M4	34	61	46	26	41	6,6	12

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1 MOVEMENT

Series CGPT self-centering parallel grippers with T-guide

New

Single and double acting, magnetic, self-centering
Bores: ø 16, 20, 25, 32, 40 mm





- Robust, compact and light design
- High closing/opening forces
- Fixing from the top, from below and from the side
- Supply on the side or on the bottom (even without using tubes)
- Self-centering jaws
- High closing and opening repeatability
- High interchangeability (centering bushes)
- Position detection thanks to the use of magnetic proximity switches.
- In compliance with ROHS directive
- PTFE, Silicone and Copper free
- High reliability
- High resistance to external loads thanks to the T-guide
- Variants available for use in ATEX zones and for high temperatures

Thanks to the use of a high performing and precise force transmission system, the Series CGPT grippers are able to provide high gripping forces while guaranteeing a very high repeatability.

The wide range of sizes available allows you to find the best solution for any need of movement. The grippers are supplied with centering bushes (tolerance H8) which, once positioned on the body and/or on the jaws, are able to guarantee, during maintenance, a high interchangeability of the gripper and of the extensions.

GENERAL DATA

Type of construction	Self-centering parallel gripper with T-guide
Operation	Single acting (NO, NC), double acting
Bores	Ø16, 20, 25, 32, 40 mm
Force transmission	Lever
Air connections	M3 (Ø16), M5 (Ø20, 25, 32), G1/8 (Ø40)
Working pressure	2 ÷ 8 bar (double acting), 4 ÷ 8 bar (single acting)
Working temperature	5°C ÷ 60°C (standard) - 5°C ÷ 150°C (high temperature version)
Store temperature	-10°C ÷ 80°C
Maximum use frequency	3 Hz (ø 16, 20, 25, 32), 2 Hz (ø 40)
Repeatability	0.02 mm
Interchangeability	0.1 mm
Medium	Filtered air in class 7.4.4 according to ISO 8573-1. In case lubricated air is used, we recommend ISOVG32 oil and to never interrupt lubrication.
Lubrication	After 10 million cycles, grease the sliding zones using Molykote DX grease.
Protection class	IP 40
Compatibility	ROHS Directive
Certifications	ATEX (II 2GD c IIC 120°C(T4)-20°C≤Ta≤80)
Materials	PTFE, Silicone and Copper free

N.B. Pressurize the pneumatic system gradually in order to avoid uncontrolled movements

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General terms and conditions for sale are available on www.camozzi.com.

CODING EXAMPLE

CGPT	-	16	-	NC	-	W	EX

CGPT	SERIES	
16	BORES: 10 = ø 10 mm 16 = ø 16 mm 20 = ø 20 mm 25 = ø 25 mm 32 = ø 32 mm 40 = ø 40 mm	
NC	FUNCTIONING: = double acting NO = single acting, normally open NC = single acting, normally closed	PNEUMATIC SYMBOLS PNZ1 PNZ3 PNZ2
W	VERSION: = standard W = high temperatures (150 °C) - not magnetic	
EX	Add EX to order the certified ATEX version	

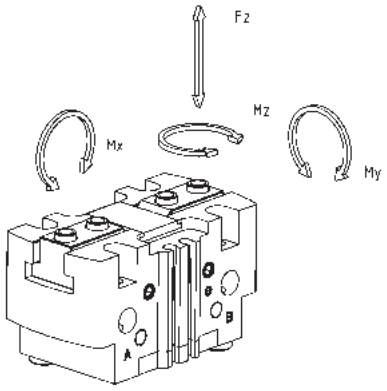
PNEUMATIC SYMBOLS

The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.



Maximum admissible loads and torques

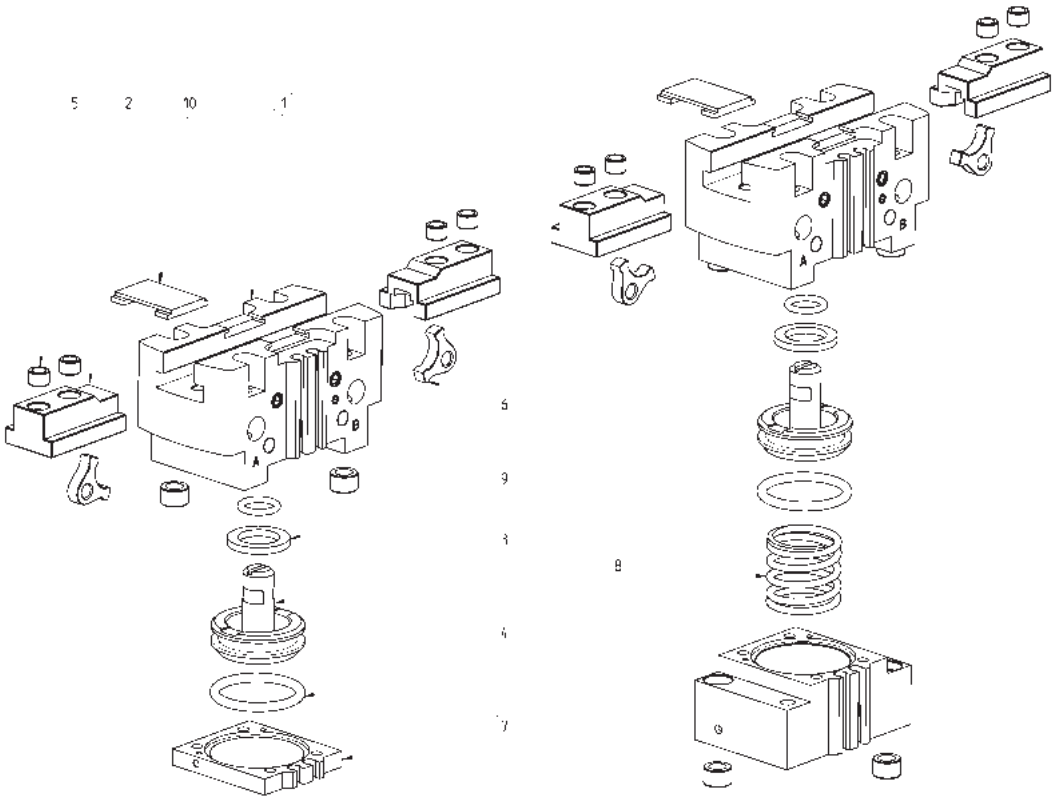
Fz s, Mx s, My s, Mz s = maximum admissible loads and torques in static conditions
Fz d, Mx d, My d, Mz d = maximum admissible loads and torques in dynamic conditions



Mod.	Fz s (N)	Mx s (Nm)	My s (Nm)	Mz s (Nm)	Fz d (N)	Mx d (Nm)	My d (Nm)	Mz d (Nm)
CGPT-16	200	2.5	2.5	2	2	0.06	0.06	0.06
CGPT-20	350	5	7.5	4	4	0.12	0.12	0.12
CGPT-25	600	8	13	6.5	6	0.25	0.25	0.25
CGPT-32	900	18	30	15	9	0.5	0.5	0.5
CGPT-40	1500	40	60	30	15	1	1	1

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General terms and conditions for sale are available on www.camozzi.com.

Series CGPT grippers - construction



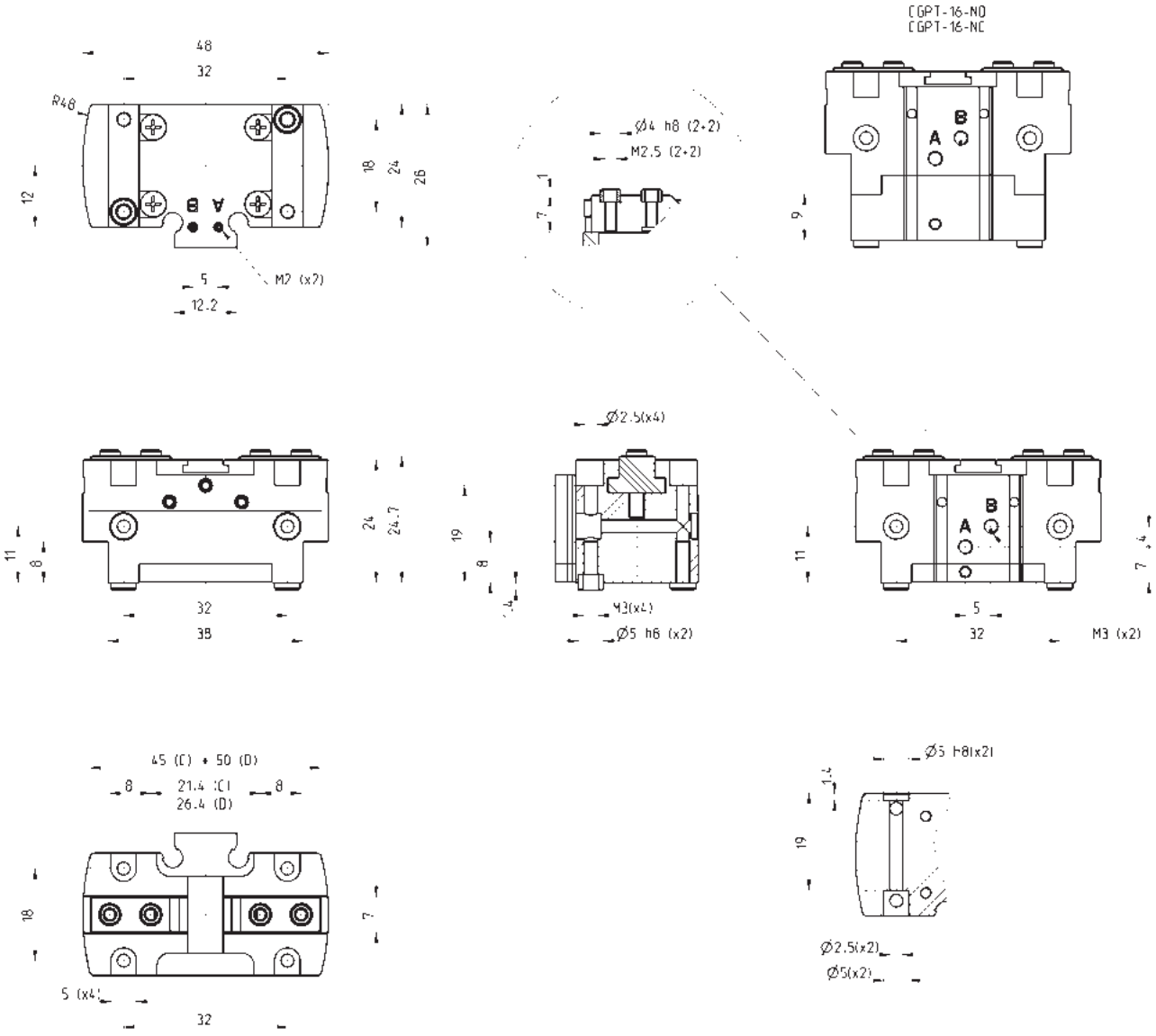
LIST OF COMPONENTS	
PARTS	MATERIALS
1 - Body	Aluminium
2 - Jaw	Stainless steel
3 - Piston	Stainless steel
4 - Seals	HNBR / FKM
5 - Centering bushes	Stainless steel
6 - Levers	Steel
7 - End cover	Aluminium
8 - Spring	Stainless steel
9 - Magnet	Neodymium
10 - Cover	Stainless steel

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CGPT gripper, size 16 mm - dimensions



DRAWING LEGEND:
A = Opening of air connection
B = Closing of air connection
C = Closed gripper
D = Open gripper



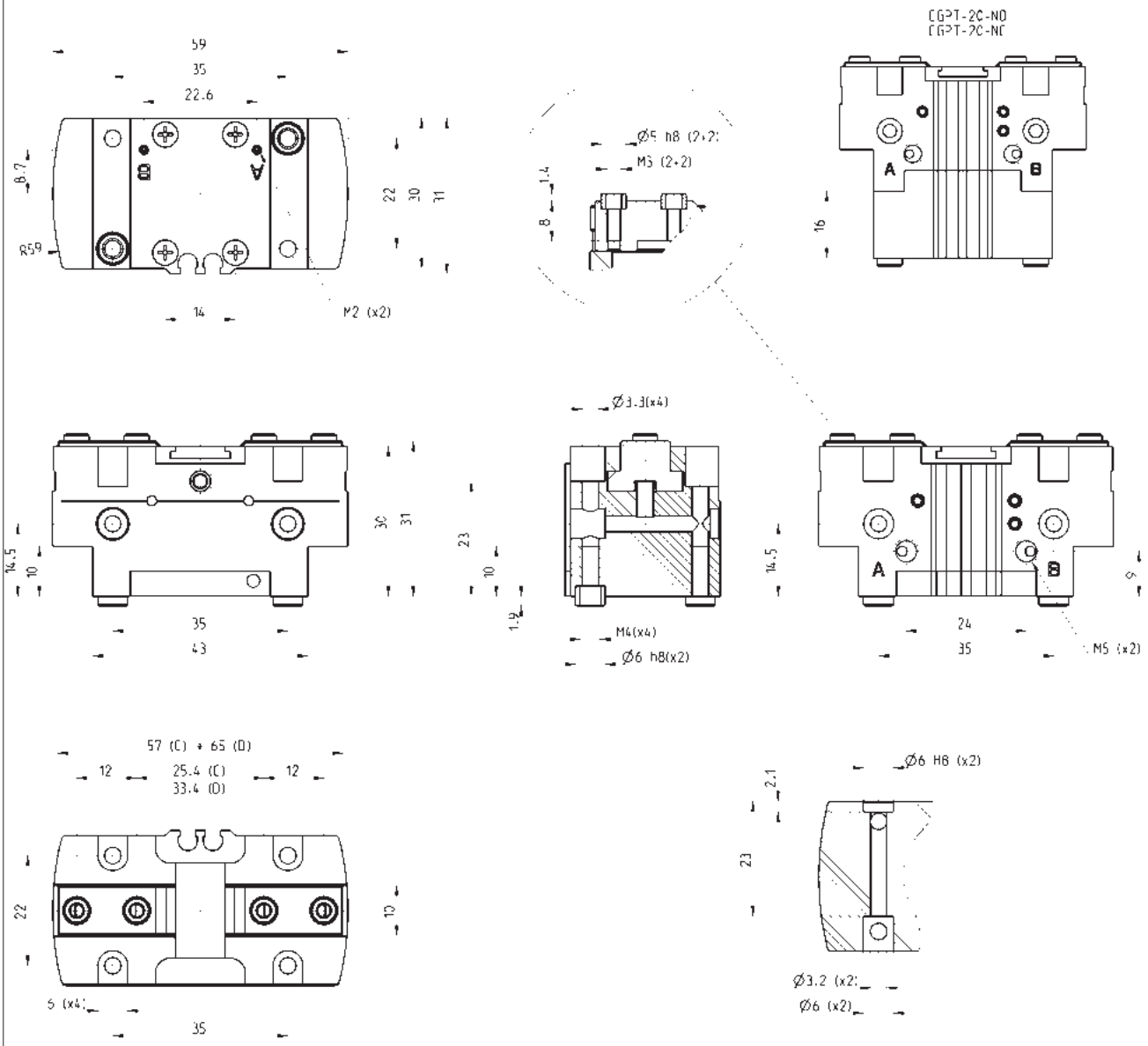
Mod.	Closing gripping force each jaw at 6 bar (N)	Opening gripping force each jaw at 6 bar (N)	Stroke per jaw (mm)	Air consumption per cycle (Ncm³)	Working pressure (bar)	Working temperature (°C)	Repeatability (mm)	Max use frequency (Hz)	Weight (Kg)
CGPT-16	57	65	2.5	9	2 ÷ 8	5 ÷ 60	0.02	3	0.09
CGPT-16-NC	71	45	2.5	5 (single-acting), 9 (double-acting)	4 ÷ 8	5 ÷ 60	0.02	3	0.11
CGPT-16-NO	37	80	2.5	5 (single-acting), 9 (double-acting)	4 ÷ 8	5 ÷ 60	0.02	3	0.1

1
MOVEMENT

CGPT gripper, size 20 mm - dimensions



DRAWING LEGEND:
A = Opening of air connection
B = Closing of air connection
C = Closed gripper
D = Open gripper



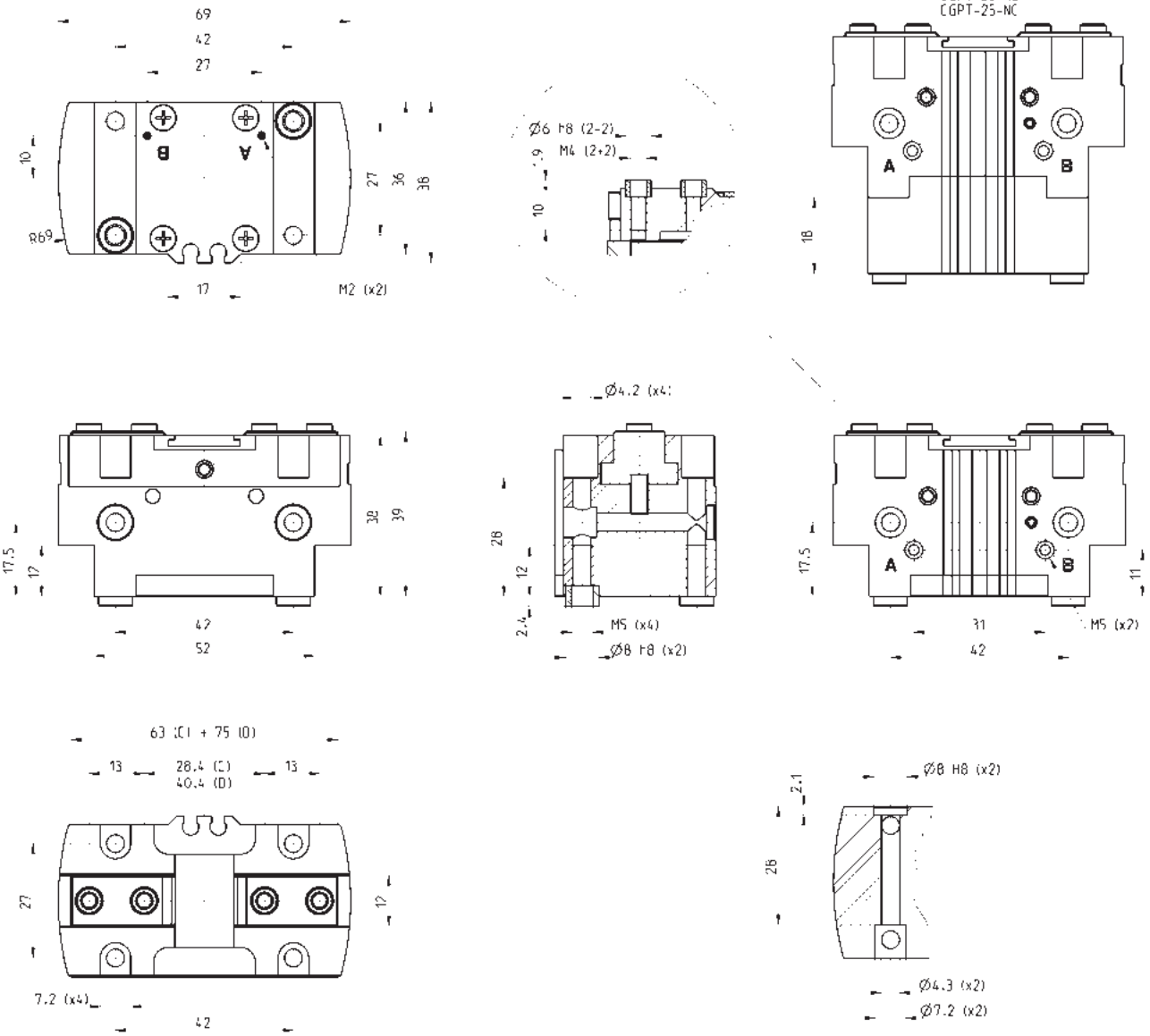
Mod.	Closing gripping force each jaw at 6 bar (N)	Opening gripping force each jaw at 6 bar (N)	Stroke per jaw (mm)	Air consumption per cycle (Ncm³)	Working pressure (bar)	Working temperature (°C)	Repeatability (mm)	Max use frequency (Hz)	Weight (Kg)
CGPT-20	83	94	4	20	2 ÷ 8	5 ÷ 60	0.02	3	0.15
CGPT-20-NC	104	51	4	10 (single-acting), 20 (double-acting)	4 ÷ 8	5 ÷ 60	0.02	3	0.2
CGPT-20-NO	51	123	4	10 (single-acting), 20 (double-acting)	4 ÷ 8	5 ÷ 60	0.02	3	0.18

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CGPT gripper, size 25 mm - dimensions



DRAWING LEGEND:
A = Opening of air connection
B = Closing of air connection
C = Closed gripper
D = Open gripper

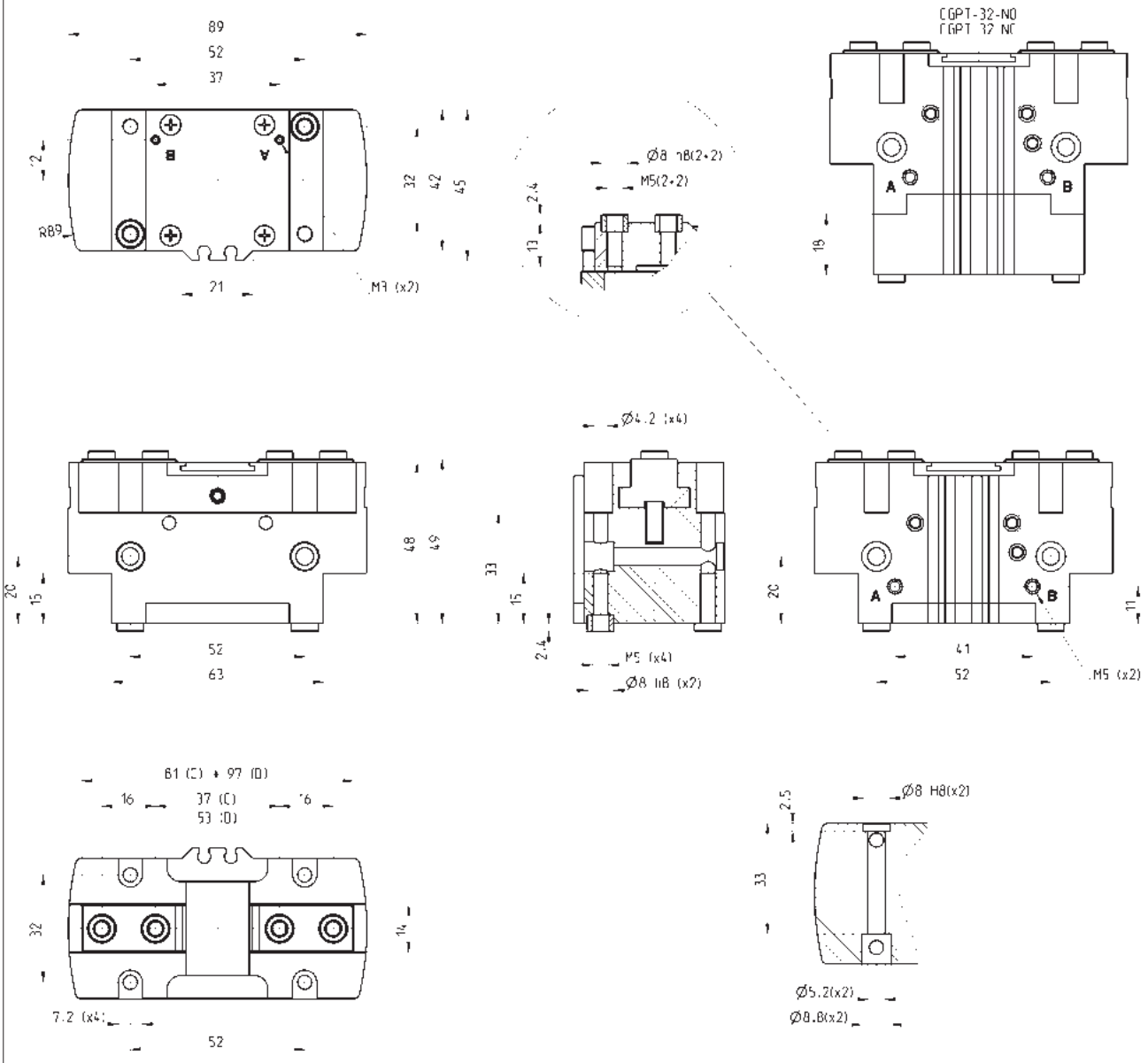


Mod.	Closing gripping force each jaw at 6 bar (N)	Opening gripping force each jaw at 6 bar (N)	Stroke per jaw (mm)	Air consumption per cycle (Ncm³)	Working pressure (bar)	Working temperature (°C)	Repeatability (mm)	Max use frequency (Hz)	Weight (Kg)
CGPT-25	118	140	6	45	2 ÷ 8	5 ÷ 60	0.02	3	0.27
CGPT-25-NC	143	103	6	24 (single-acting), 45 (double-acting)	4 ÷ 8	5 ÷ 60	0.02	3	0.35
CGPT-25-NO	83	165	6	21 (single-acting), 45 (double-acting)	4 ÷ 8	5 ÷ 60	0.02	3	0.33

CGPT gripper, size 32 mm - dimensions



DRAWING LEGEND:
A = Opening of air connection
B = Closing of air connection
C = Closed gripper
D = Open gripper



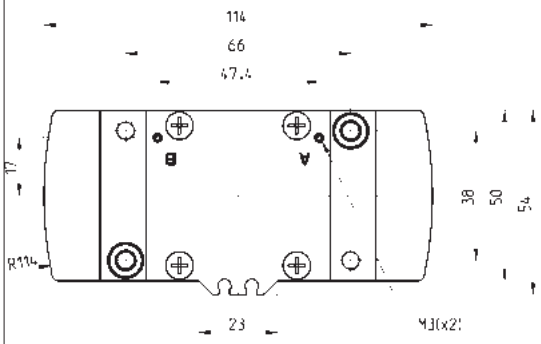
Mod.	Closing gripping force each jaw at 6 bar (N)	Opening gripping force each jaw at 6 bar (N)	Stroke per jaw (mm)	Air consumption per cycle (Ncm³)	Working pressure (bar)	Working temperature (°C)	Repeatability (mm)	Max use frequency (Hz)	Weight (Kg)
CGPT-32	193	225	8	101	2 ÷ 8	5 ÷ 60	0.02	3	0.5
CGPT-32-NC	227	177	8	53 (single-acting), 101 (double-acting)	4 ÷ 8	5 ÷ 60	0.02	3	0.61
CGPT-32-NO	147	260	8	47 (single-acting), 101 (double-acting)	4 ÷ 8	5 ÷ 60	0.02	3	0.59

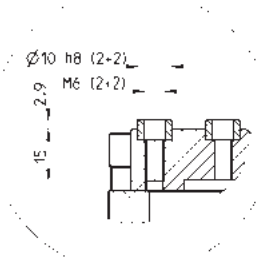
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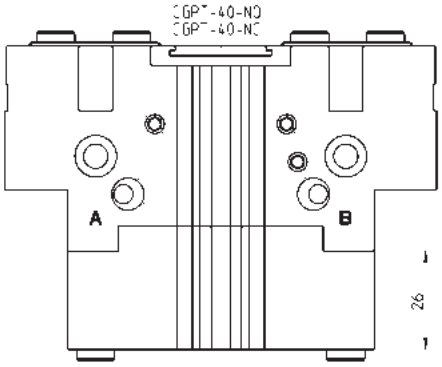
CGPT gripper, size 40 mm - dimensions

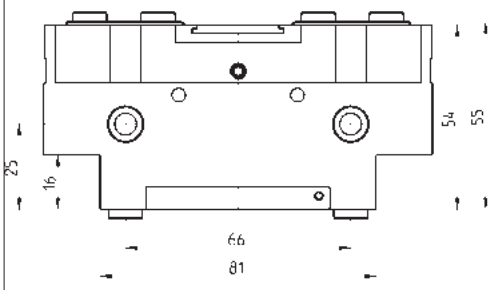


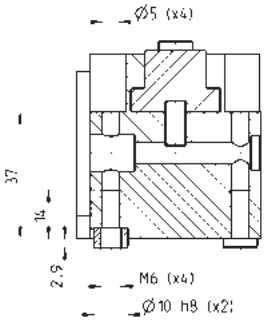
DRAWING LEGEND:
A = Opening of air connection
B = Closing of air connection
C = Closed gripper
D = Open gripper

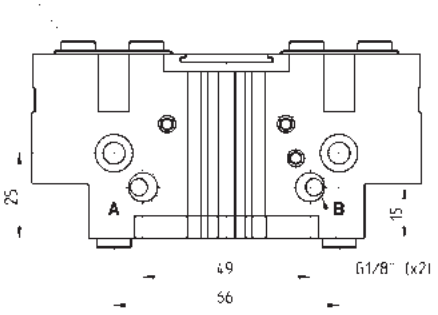


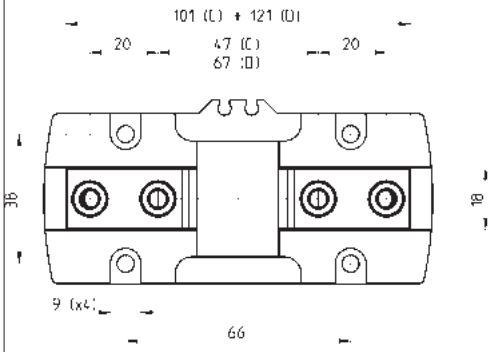


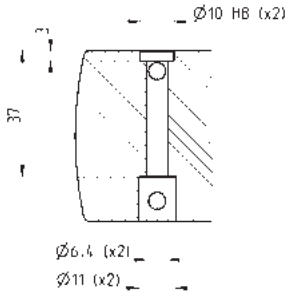








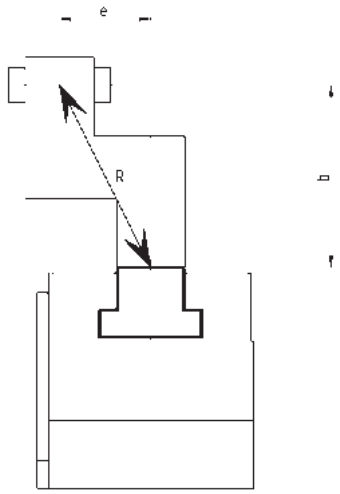


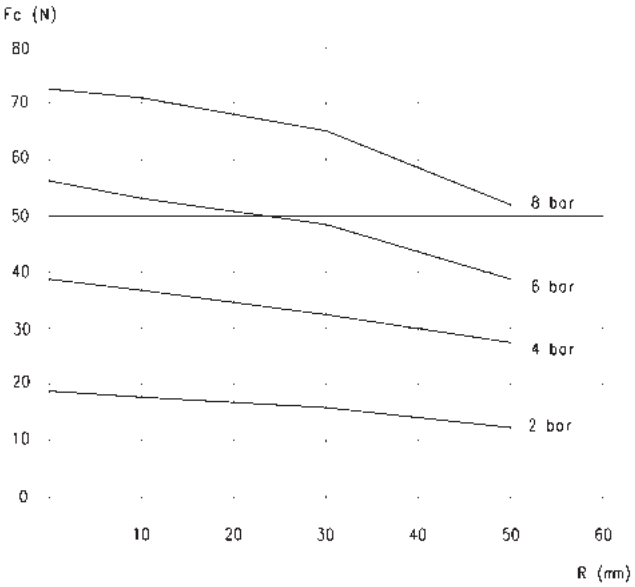


Mod.	Closing gripping force each jaw at 6 bar (N)	Opening gripping force each jaw at 6 bar (N)	Stroke per jaw (mm)	Air consumption per cycle (Ncm³)	Working pressure (bar)	Working temperature (°C)	Repeatability (mm)	Max use frequency (Hz)	Weight (Kg)
CGPT-40	335	360	10	202	2 ÷ 8	5 ÷ 60	0.02	2	0.83
CGPT-40-NC	390	252	10	106 (single-acting), 202 (double-acting)	4 ÷ 8	5 ÷ 60	0.02	2	1.2
CGPT-40-NO	223	413	10	95 (single-acting), 202 (double-acting)	4 ÷ 8	5 ÷ 60	0.02	2	1.1

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GRIPPING FORCE (Fc) PER SINGLE JAW





The total gripping force has to be calculated as follows:
Total Fc = Fc x 2

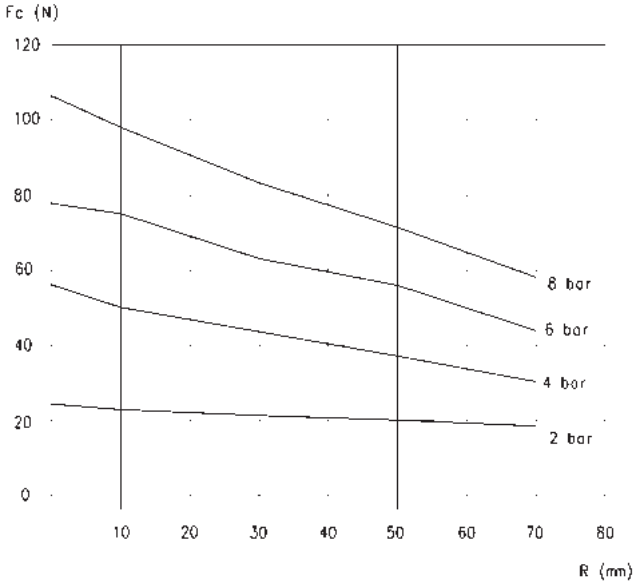
Gripping force in relation to the lever arm (R)
and the eccentricity (b, e)

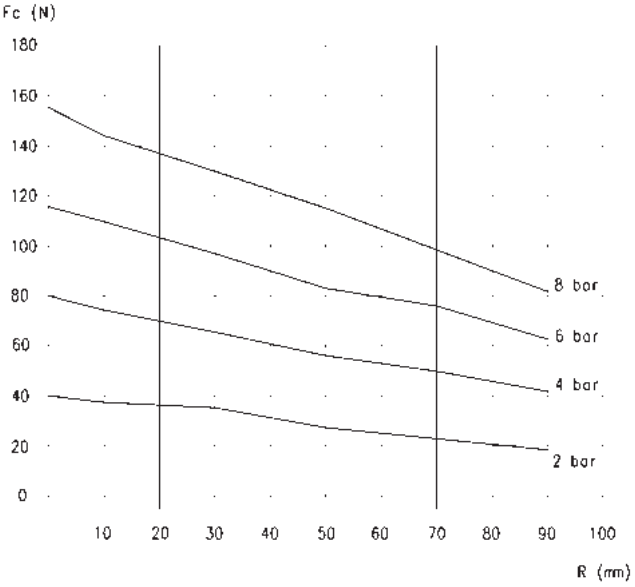
$R = \sqrt{(b^2 + e^2)}$

CGPT-16

R = lever arm
Fc = closing gripping force

Fa (opening gripping force) = Fc + 10%





CGPT-20

R = lever arm
Fc = closing gripping force

Fa (opening gripping force) = Fc + 10%

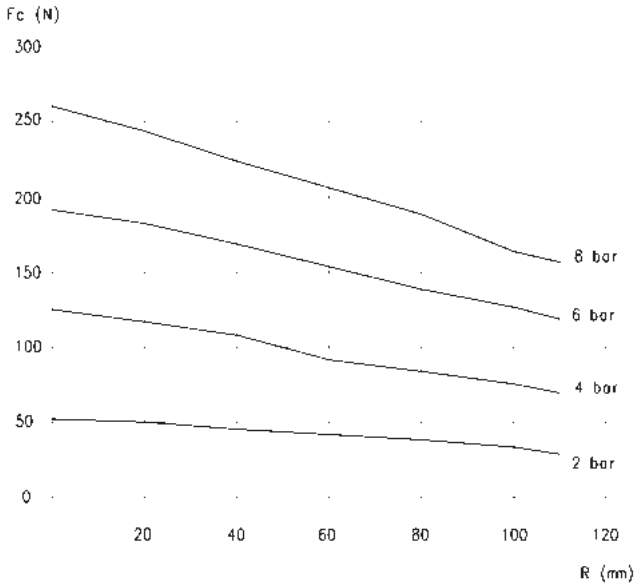
CGPT-25

R = lever arm
Fc = closing gripping force

Fa (opening gripping force) = Fc + 10%

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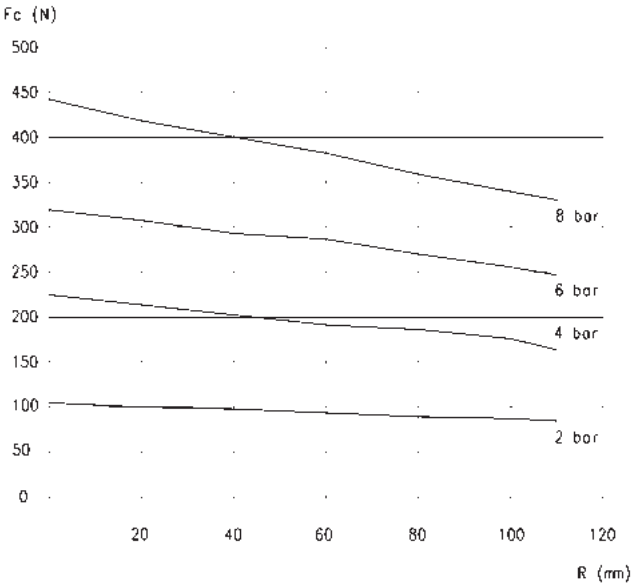
GRIPPING FORCE (Fc) PER SINGLE JAW



CGPT-32

R = lever arm
Fc = closing gripping force

Fa (opening gripping force) = Fc + 10%

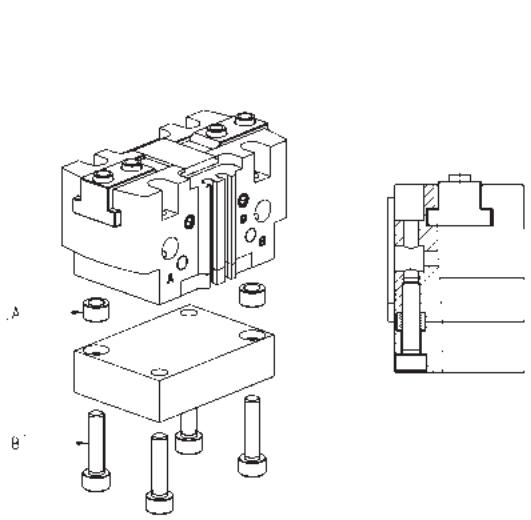


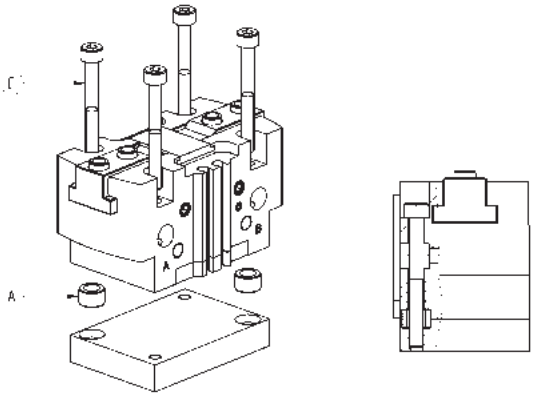
CGPT-40

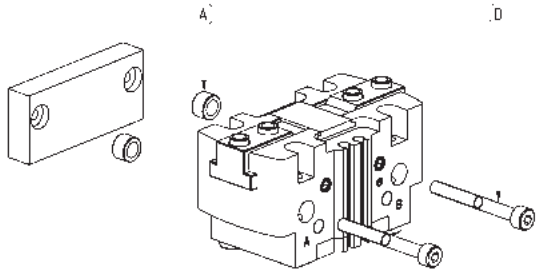
R = lever arm
Fc = closing gripping force

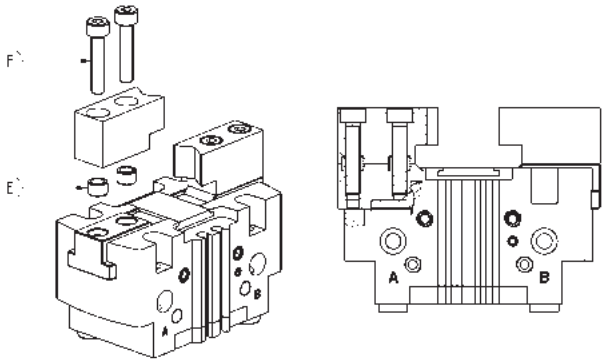
Fa (opening gripping force) = Fc + 10%

Examples of mounting





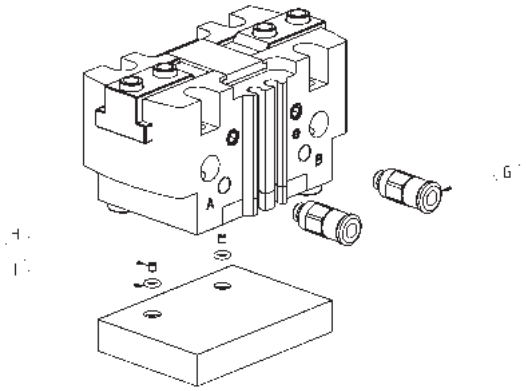




Mod.	A	B	C	D	E	F
CGPT-16	Ø5	M3	M2.5	M2.5	Ø4	M2.5
CGPT-20	Ø6	M4	M3	M3	Ø5	M3
CGPT-25	Ø8	M5	M4	M4	Ø6	M4
CGPT-32	Ø8	M5	M4	M5	Ø8	M5
CGPT-40	Ø10	M6	M5	M6	Ø10	M6

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Air supply ports

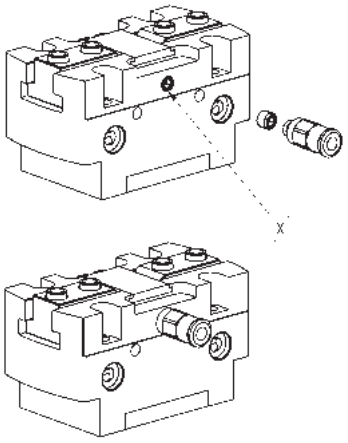


Mod.	G	H	I
CGPT-16	M3	M2	OR 1x2.5
CGPT-20	M5	M2	OR 1x2.5
CGPT-25	M5	M2	OR 1x2.5
CGPT-32	M5	M3	OR 1x3.5
CGPT-40	G1/8	M3	OR 1x3.5

Example of use of the pressurization/lubrication hole

Example of use of the lubrication (greasing) or pressurization hole of the zone with moving items

NOTE 1: grease the sliding zones using Molykote DX grease.
NOTE 2: supply a pressure of max. 3 bar in order to avoid the sudden ejection of grease.

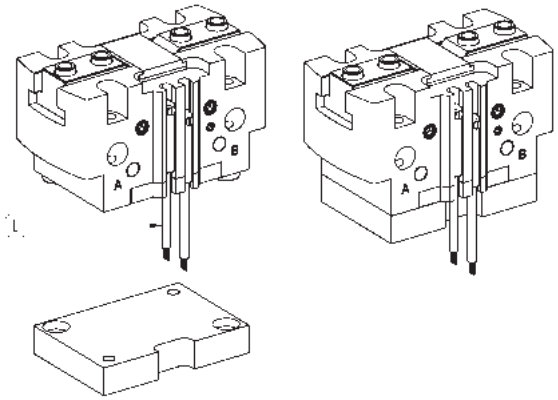


Mod.	X
CGPT-16	M3
CGPT-20	M5
CGPT-25	M5
CGPT-32	M5
CGPT-40	M5

Example of mounting: sensors

L = sensor mod. CSD-332 or mod. CSD-362

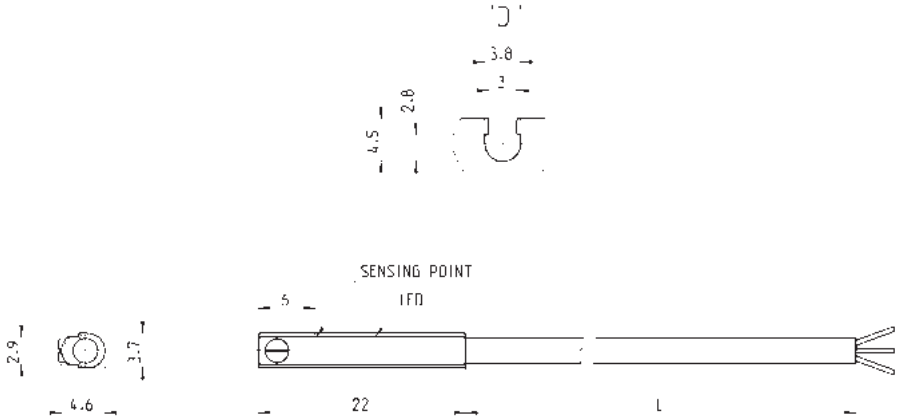
In order to position the sensor correctly, a channel must be created in the base.



Mod.
CGPT-16
CGPT-20
CGPT-25
CGPT-32
CGPT-40

Series CSD magnetic proximity switches with 3-wire cable



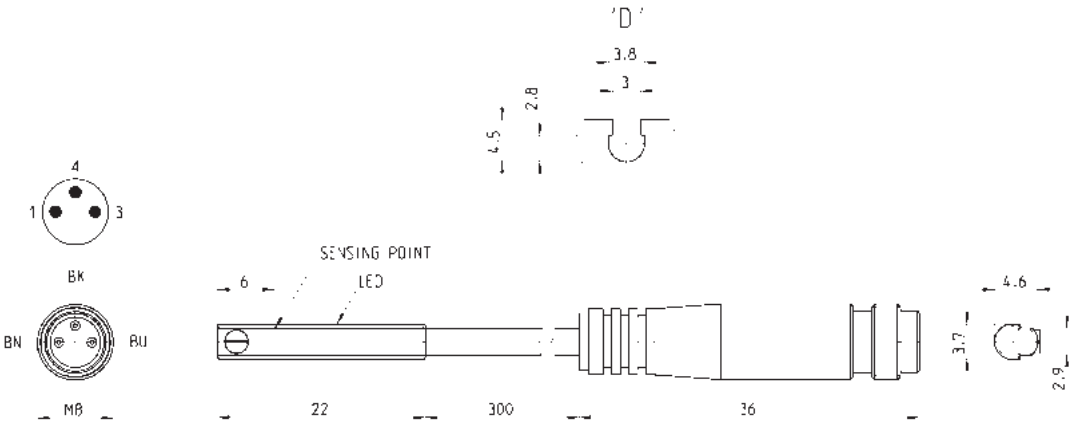


Mod.	Operation	Connections	Voltage	Output	Max. current	Max Load	Protection	L = length cable
CSD-332	Electronic	3 wires	10 ÷ 27 V DC	PNP	200 mA	6W	Against polarity reversing and overvoltage	2 m

Series CSD magnetic proximity switches with male connector M8

Length of cable 0.3 metres





Mod.	Operation	Connection	Voltage	Output	Max. current	Max load	Protection
CSD-362	Electronic	3 wires with M8 connector	10 ÷ 27 V DC	PNP	200 mA	6W	Against polarity reversing and overvoltage

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Series CGPS self-centering parallel grippers with double ball bearing guide

New

Single and double acting, magnetic, self-centering
Bores: Ø 10, 16, 20, 25, 32 mm





Thanks to the use of a high performing and precise force transmission system and to the double ball bearing guide, the Series CGPS grippers are able to provide high gripping forces while guaranteeing a very high repeatability and robustness (resistance to external static and dynamic loads).

The wide range of sizes available allows you to find the best solution for any need of movement. The grippers can be supplied with bushes and centering plugs (tolerance H8) which, once positioned on the body and/or on the jaws, are able to guarantee, during maintenance, a high interchangeability of the gripper and of the extensions.

- Robust, compact and light design
- High closing/opening forces
- Fixing from below and from the side
- Supply on the side
- Self-centering jaws
- High closing and opening repeatability
- High interchangeability (bushes and centering plugs)
- Position detection (front and side) thanks to the use of Series CSD magnetic proximity switches
- In compliance with ROHS directive
- Finger types available: long with through-holes and flat with threaded holes
- High resistance to external loads thanks to the double ball bearing guide
- Variants available: for use in ATEX zones and for high temperatures

GENERAL DATA

Type of construction	Self-centering parallel gripper with double ball bearing guide
Operation	Single acting (NO, NC), double acting
Bores	Ø 10, 16, 20, 25, 32 mm
Force transmission	Lever
Air connections	M3-M5 (M3 for size 10 only)
Working pressure	2 ÷ 8 bar (double acting), 4 ÷ 8 bar (single acting)
Working temperature	5°C ÷ 60°C (standard); 5°C ÷ 150°C (high temperature version)
Store temperature	-10°C ÷ 80°C
Maximum use frequency	3 Hz
Repeatability	0.02 mm
Interchangeability	0.1 mm
Medium	Filtered air in class 7.4.4 according to ISO 8573-1. In case lubricated air is used, we recommend ISOVG32 oil and to never interrupt lubrication.
Compatibility	ROHS Directive
Certifications	ATEX (II 2GD c IIC 120°C(T4)-20°C≤Ta≤80)
Materials	PTFE, Silicone and Copper free
Suitable magnetic switches	Series CSD

NOTE: Pressurize the pneumatic system gradually in order to avoid uncontrolled movements

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General terms and conditions for sale are available on www.camozzi.com.

CODING EXAMPLE

CGPS	-	L	-	16	-	NO	-	W	EX

CGPS	SERIES	
L	DESIGN TYPE: L = Long finger F = Flat finger	
16	BORES: 10 = ø 10 mm 16 = ø 16 mm 20 = ø 20 mm 25 = ø 25 mm 32 = ø 32 mm	
NO	FUNCTIONING: = double acting NO = single acting, normally open NC = single acting, normally closed	PNEUMATIC SYMBOLS PNZ1 PNZ3 PNZ2
W	VERSION: = standard W = high temperatures (150°C)	
EX	Add EX to order the certified ATEX version	

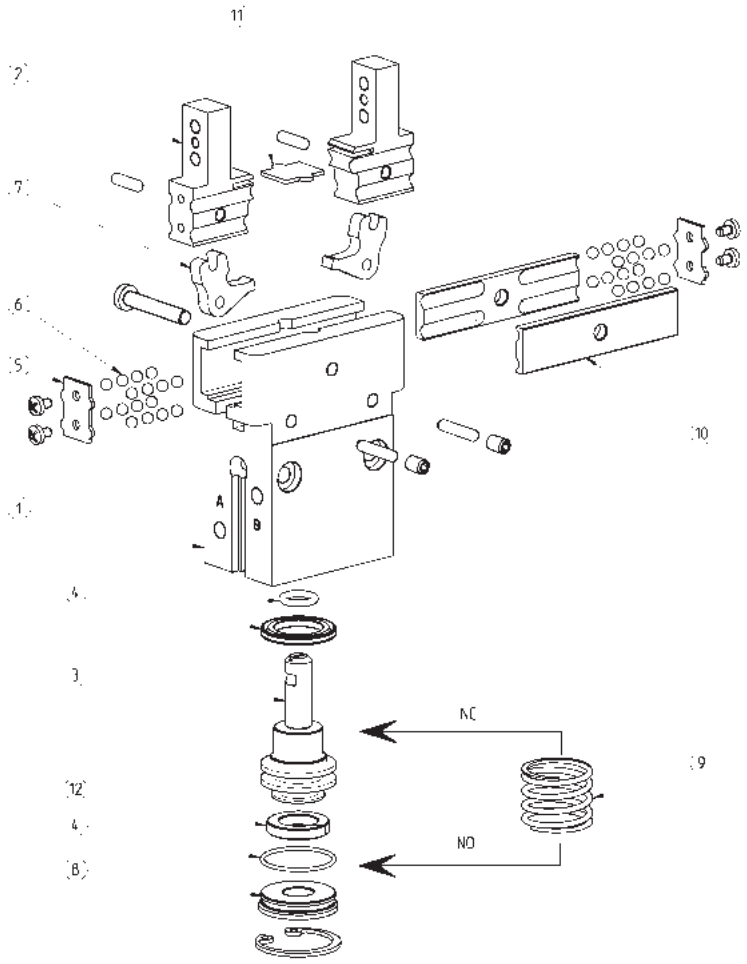
PNEUMATIC SYMBOLS

The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.



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Series CGPS grippers - construction



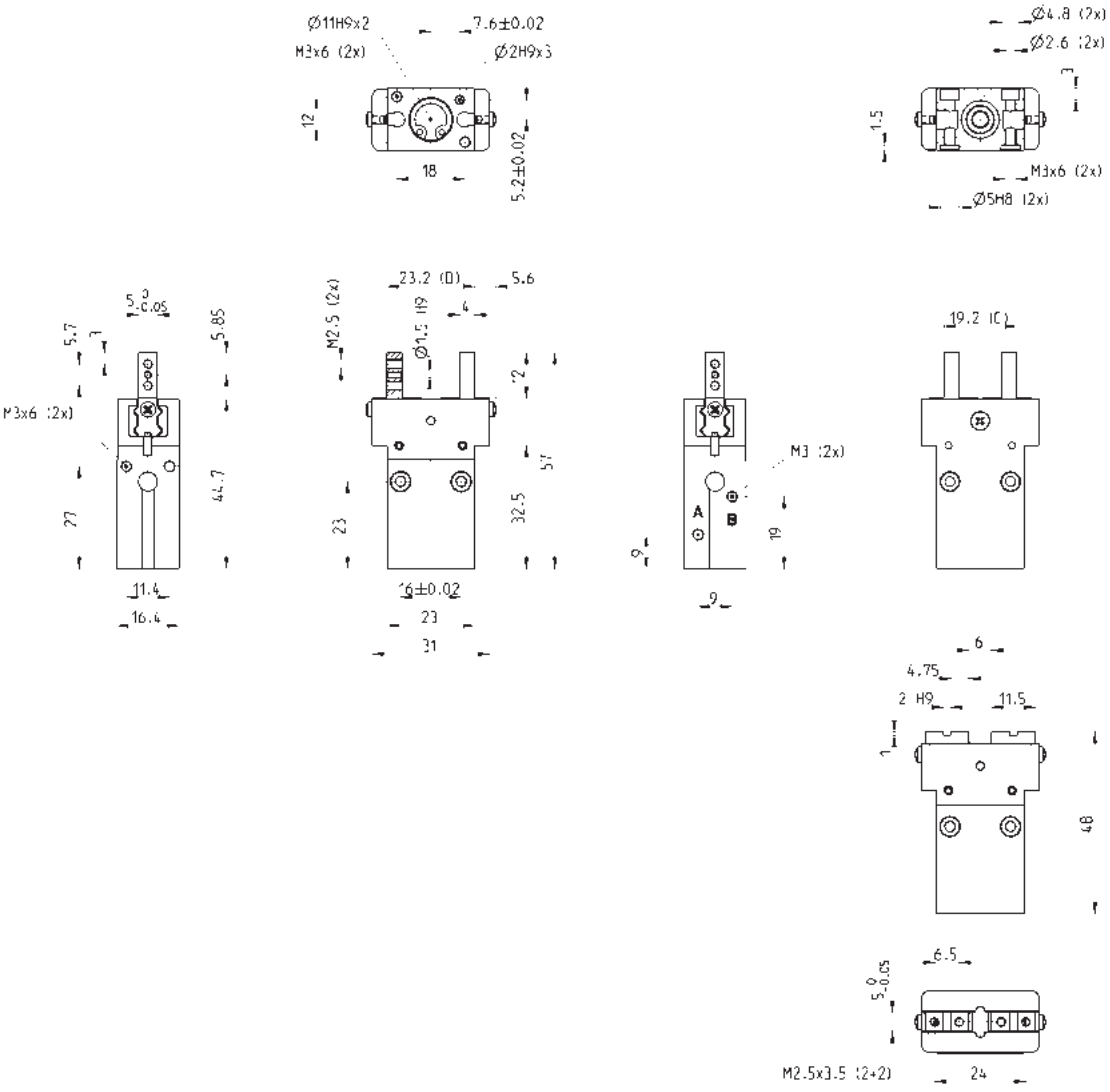
LIST OF COMPONENTS	
PARTS	MATERIALS
1 - Body	Aluminium
2 - Jaw	Stainless steel
3 - Piston	Stainless steel
4 - Seals	HNBR / FKM
5 - Ball bearings end cap	Stainless steel
6 - Slide ball bearings	Steel
7 - Levers	Steel
8 - Rear end-stroke	Pom (Acetal)
9 - Spring	Stainless steel
10 - Ball bearings guide	Stainless steel
11 - Jaws end cap	Steel
12 - Magnet	Plastoferrite

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CGPS gripper, size 10 mm - dimensions



DRAWING LEGEND:
A = Opening of air connection
B = Closing of air connection
C = Closed gripper
D = Open gripper



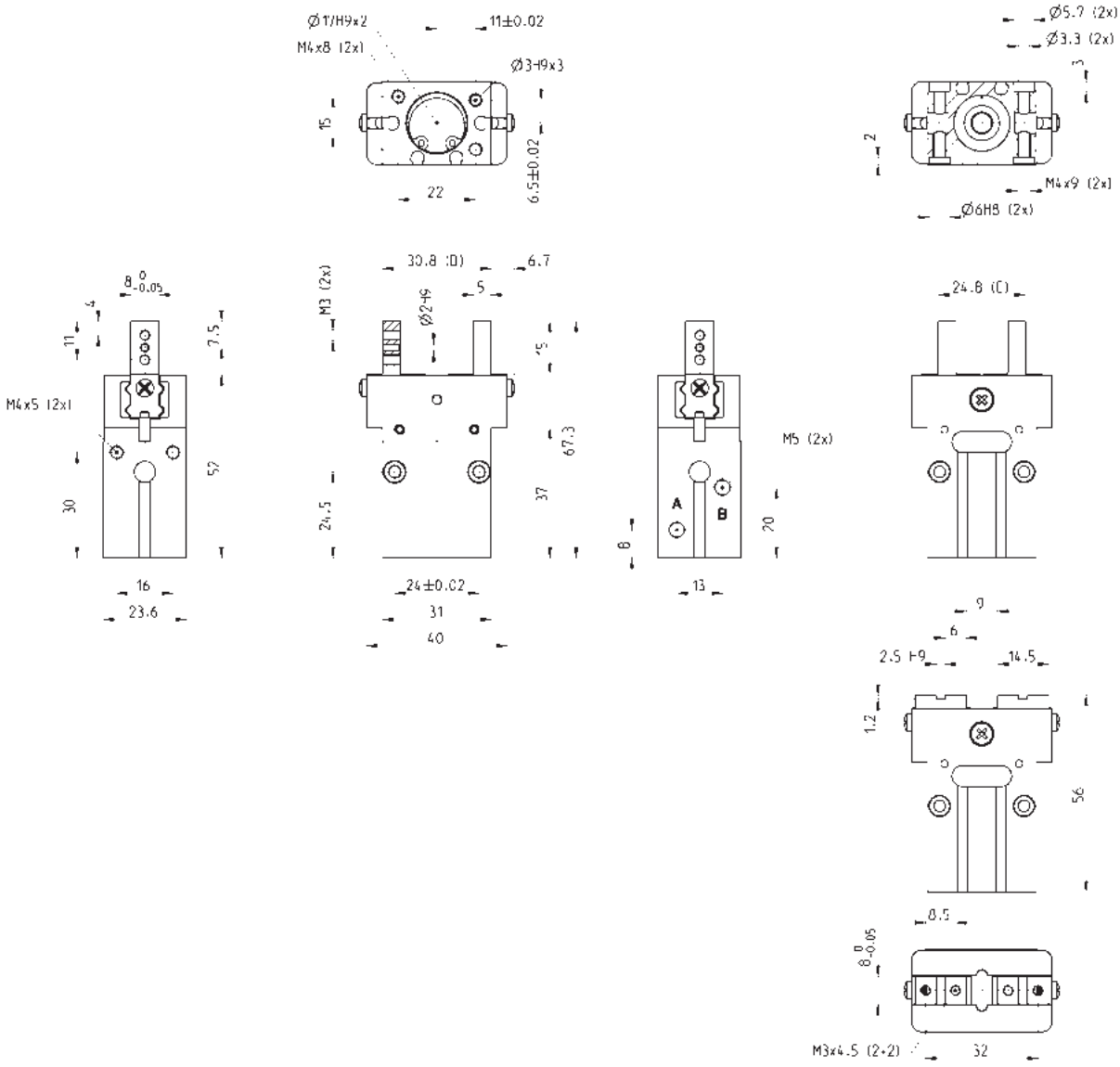
Mod.	Closing gripping force each jaw at 6 bar (N)	Opening gripping force each jaw at 6 bar (N)	Stroke per jaw (mm)	Air consumption per cycle (Ncm³)	Working pressure (bar)	Working temperature (°C)	Repeatability (mm)	Max use frequency (Hz)	Weight (Kg)
CGPS-L-10	17	23	2	1.9	2 ÷ 8	5 ÷ 60	+/- 0.02	3	0.057
CGPS-F-10	17	23	2	1.9	2 ÷ 8	5 ÷ 60	+/- 0.02	3	0.058
CGPS-L-10-NC	21	16	2	1.1	4 ÷ 8	5 ÷ 60	+/- 0.02	3	0.058
CGPS-F-10-NC	21	16	2	1.1	4 ÷ 8	5 ÷ 60	+/- 0.02	3	0.059
CGPS-L-10-NO	10	27.5	2	0.8	4 ÷ 8	5 ÷ 60	+/- 0.02	3	0.058
CGPS-F-10-NO	10	27.5	2	0.8	4 ÷ 8	5 ÷ 60	+/- 0.02	3	0.059

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CGPS gripper, size 16 mm - dimensions



DRAWING LEGEND:
A = Opening of air connection
B = Closing of air connection
C = Closed gripper
D = Open gripper

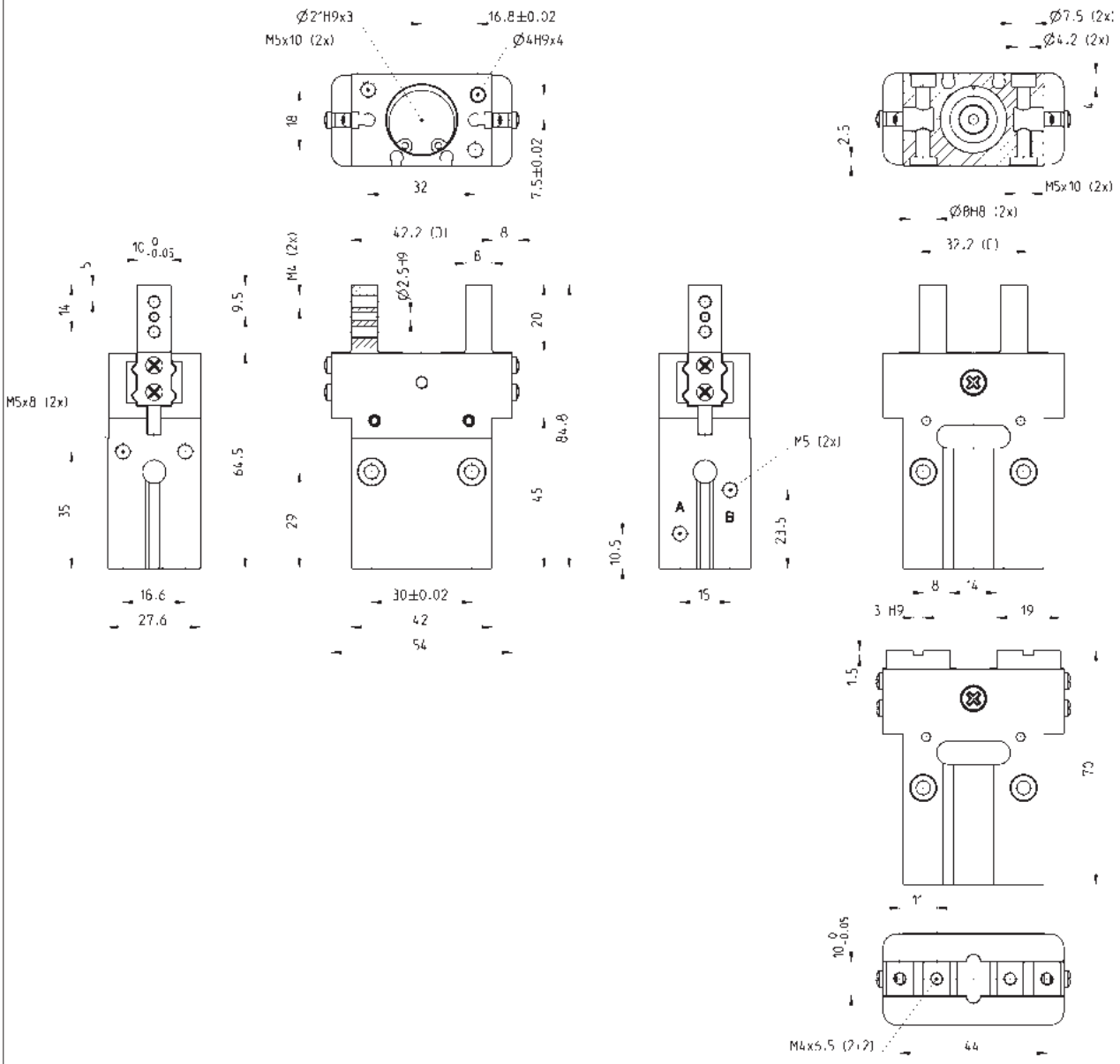


Mod.	Closing gripping force each jaw at 6 bar (N)	Opening gripping force each jaw at 6 bar (N)	Stroke per jaw (mm)	Air consumption per cycle (Ncm³)	Working pressure (bar)	Working temperature (°C)	Repeatability (mm)	Max use frequency (Hz)	Weight (Kg)
CGPS-L-16	49	60	3	7.8	2 ÷ 8	5 ÷ 60	+/- 0.02	3	0.127
CGPS-F-16	49	60	3	7.8	2 ÷ 8	5 ÷ 60	+/- 0.02	3	0.130
CGPS-L-16-NC	57.7	47.5	3	4.2	4 ÷ 8	5 ÷ 60	+/- 0.02	3	0.129
CGPS-F-16-NC	57.7	47.5	3	4.2	4 ÷ 8	5 ÷ 60	+/- 0.02	3	0.133
CGPS-L-16-NO	35.5	68.5	3	3.6	4 ÷ 8	5 ÷ 60	+/- 0.02	3	0.129
CGPS-F-16-NO	35.5	68.5	3	3.6	4 ÷ 8	5 ÷ 60	+/- 0.02	3	0.133

CGPS gripper, size 20 mm - dimensions



DRAWING LEGEND:
A = Opening of air connection
B = Closing of air connection
C = Closed gripper
D = Open gripper



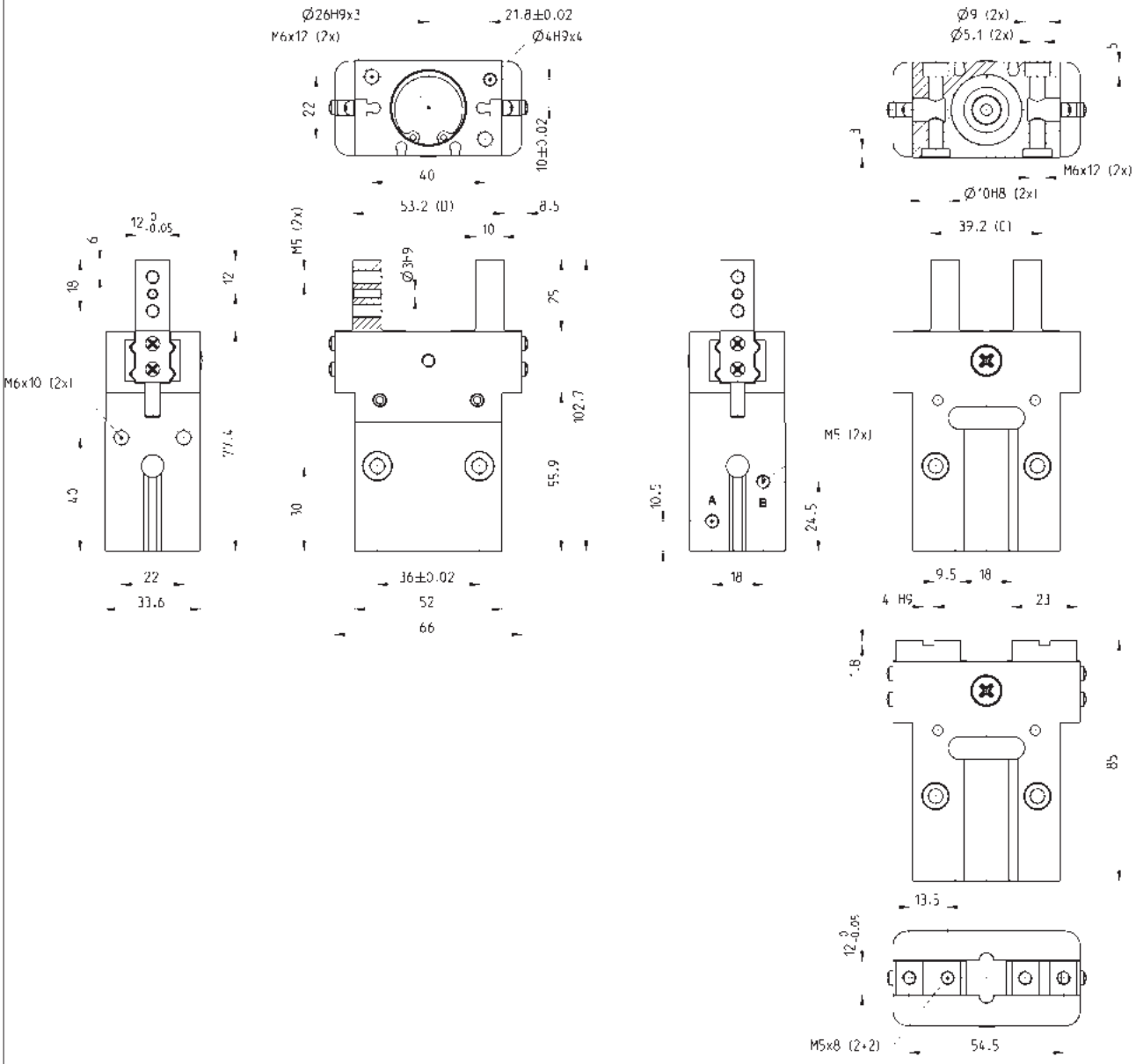
Mod.	Closing gripping force each jaw at 6 bar (N)	Opening gripping force each jaw at 6 bar (N)	Stroke per jaw (mm)	Air consumption per cycle (Ncm³)	Working pressure (bar)	Working temperature (°C)	Repeatability (mm)	Max use frequency (Hz)	Weight (Kg)
CGPS-L-20	71	89	5	20.6	2 ÷ 8	5 ÷ 60	+/- 0.02	3	0.248
CGPS-F-20	71	89	5	20.6	2 ÷ 8	5 ÷ 60	+/- 0.02	3	0.258
CGPS-L-20-NC	84.5	70.5	5	10.9	4 ÷ 8	5 ÷ 60	+/- 0.02	3	0.252
CGPS-F-20-NC	84.5	70.5	5	10.9	4 ÷ 8	5 ÷ 60	+/- 0.02	3	0.262
CGPS-L-20-NO	51.5	102.5	5	9.6	4 ÷ 8	5 ÷ 60	+/- 0.02	3	0.252
CGPS-F-20-NO	51.5	102.5	5	9.6	4 ÷ 8	5 ÷ 60	+/- 0.02	3	0.262

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CGPS gripper, size 25 mm - dimensions



DRAWING LEGEND:
A = Opening of air connection
B = Closing of air connection
C = Closed gripper
D = Open gripper

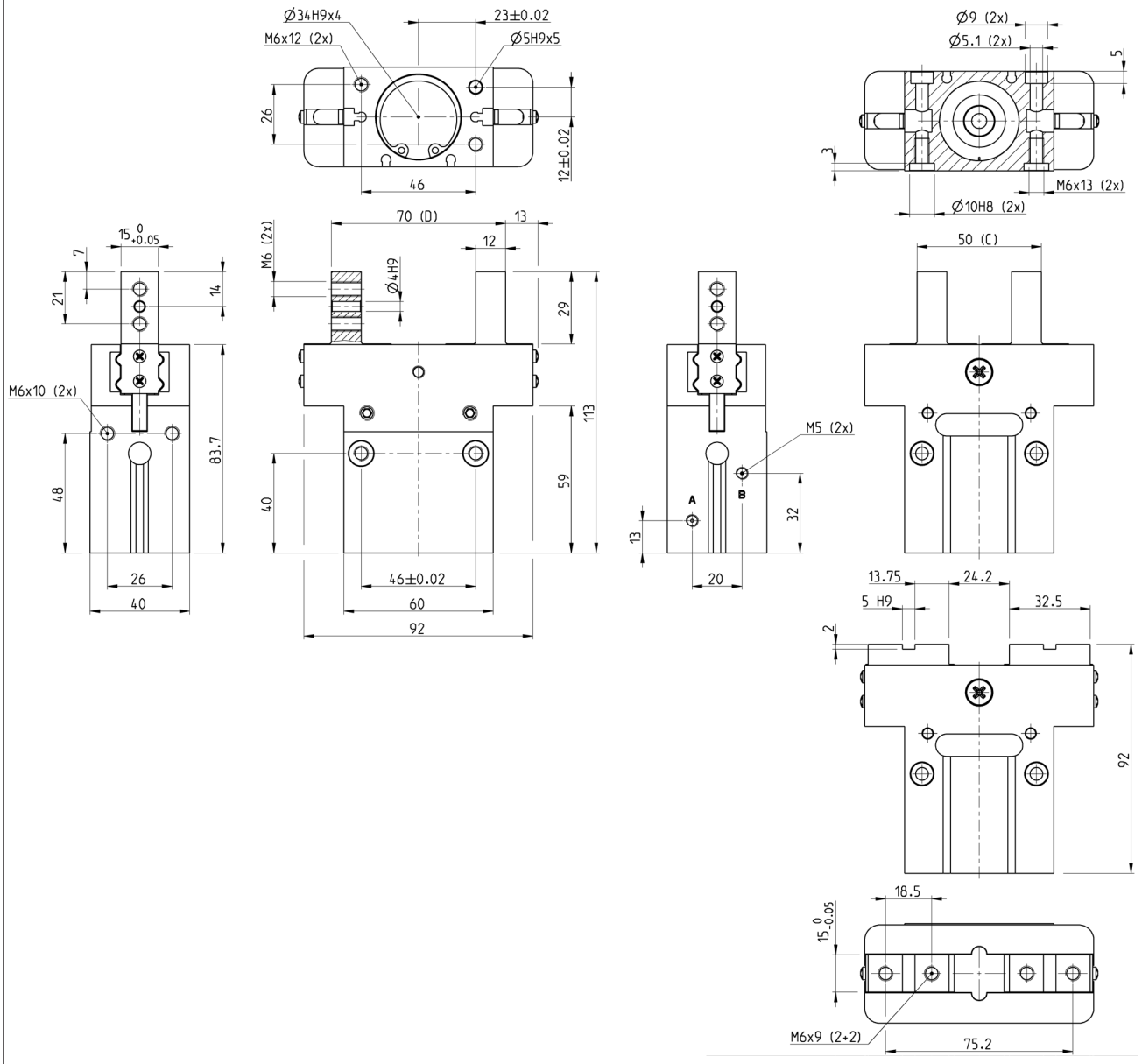


Mod.	Closing gripping force each jaw at 6 bar (N)	Opening gripping force each jaw at 6 bar (N)	Stroke per jaw (mm)	Air consumption per cycle (Ncm³)	Working pressure (bar)	Working temperature (°C)	Repeatability (mm)	Max use frequency (Hz)	Weight (Kg)
CGPS-L-25	125	137	7	44.9	2 ÷ 8	5 ÷ 60	+/- 0.02	3	0.447
CGPS-F-25	125	137	7	44.9	2 ÷ 8	5 ÷ 60	+/- 0.02	3	0.464
CGPS-L-25-NC	143.2	111	7	24.1	4 ÷ 8	5 ÷ 60	+/- 0.02	3	0.456
CGPS-F-25-NC	143.2	111	7	24.1	4 ÷ 8	5 ÷ 60	+/- 0.02	3	0.471
CGPS-L-25-NO	100	152	7	20.9	4 ÷ 8	5 ÷ 60	+/- 0.02	3	0.456
CGPS-F-25-NO	100	152	7	20.9	4 ÷ 8	5 ÷ 60	+/- 0.02	3	0.471

CGPS gripper, size 32 mm - dimensions



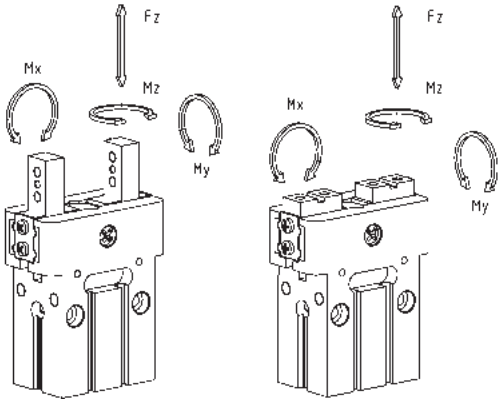
DRAWING LEGEND:
A = Opening of air connection
B = Closing of air connection
C = Closed gripper
D = Open gripper



Mod.	Closing gripping force each jaw at 6 bar (N)	Opening gripping force each jaw at 6 bar (N)	Stroke per jaw (mm)	Air consumption per cycle (Ncm³)	Working pressure (bar)	Working temperature (°C)	Repeatability (mm)	Max use frequency (Hz)	Weight (Kg)
CGPS-L-32	195	237	10	104.6	2 ÷ 8	5 ÷ 60	+/-0 .02	2	0.729
CGPS-F-32	195	237	10	104.6	2 ÷ 8	5 ÷ 60	+/-0 .02	2	0.753
CGPS-L-32-NC	212	210	10	56.2	4 ÷ 8	5 ÷ 60	+/-0 .02	2	0.742
CGPS-F-32-NC	212	210	10	56.2	4 ÷ 8	5 ÷ 60	+/-0 .02	2	0.768
CGPS-L-32-NO	167	256	10	48.3	4 ÷ 8	5 ÷ 60	+/-0 .02	2	0.742
CGPS-F-32-NO	167	256	10	48.3	4 ÷ 8	5 ÷ 60	+/-0 .02	2	0.768

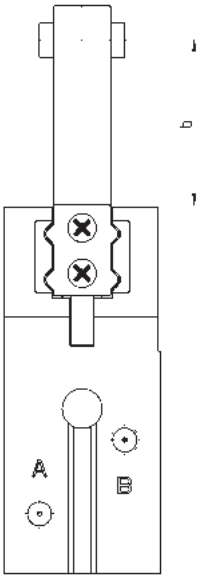
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Maximum admissible loads and torques on the gripper

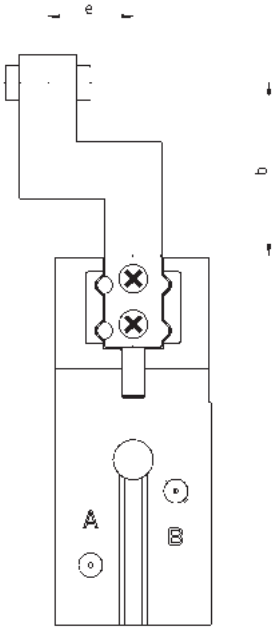


Maximum admissible loads and torques in static conditions				
Mod.	Fz (N)	Mx (Nm)	My (Nm)	Mz (Nm)
CGPS-10	90	0.53	2	0.21
CGPS-16	160	1.2	3	0.6
CGPS-20	170	2.4	3.5	1.0
CGPS-25	190	3.5	4.5	1.4
CGPS-32	360	5.5	6	2.5

GRIPPING POINT POSITION

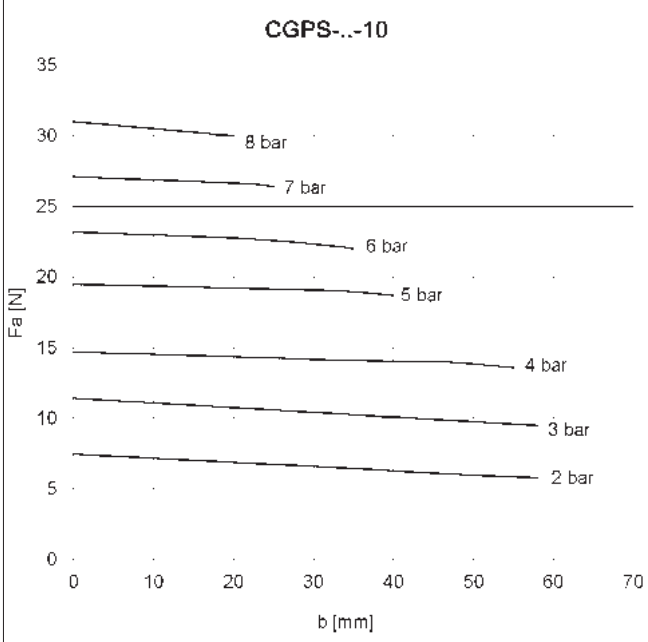


b = gripping point

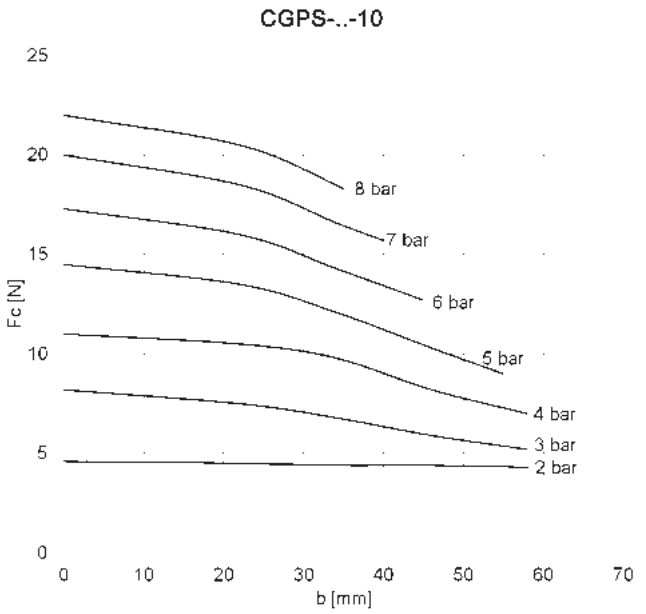


b = gripping point
e = arm

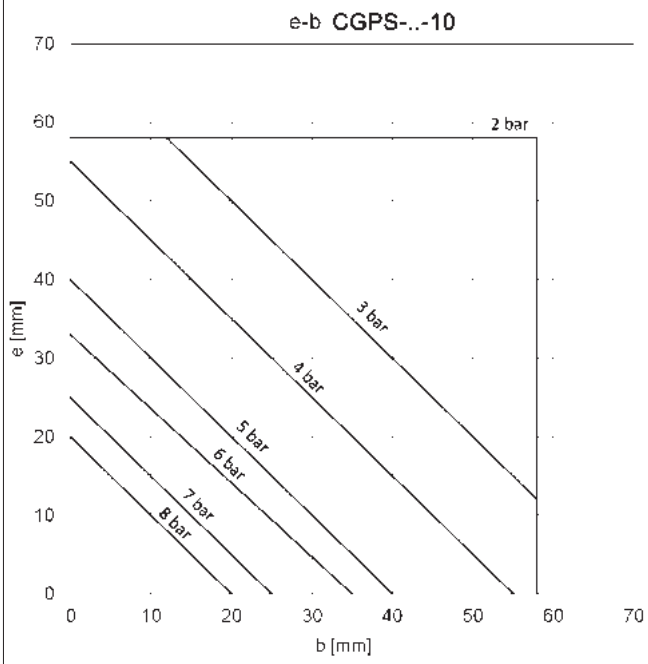
GRIPPING FORCES Mod. CGPS-..-10



b = gripping point (mm)
Fa = opening gripping force (N)

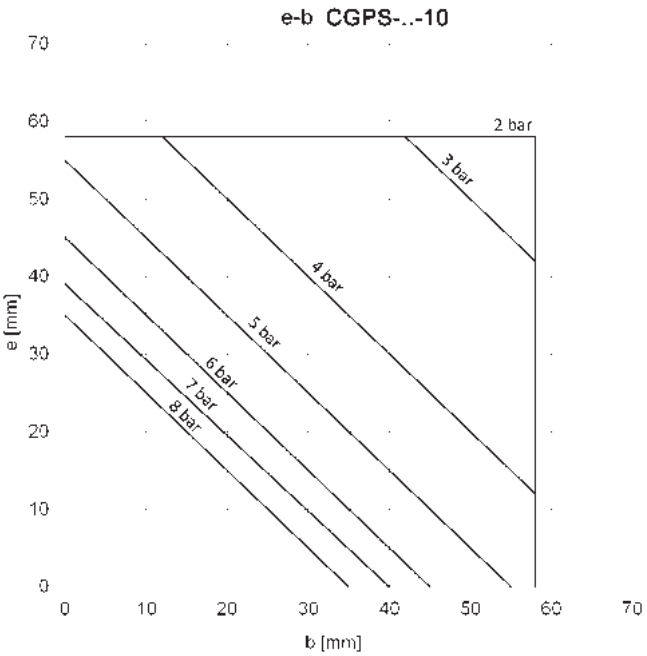


b = gripping point (mm)
Fc = Closing gripping force (N)



Opening gripping force

b = gripping point (mm)
e = arm (mm)

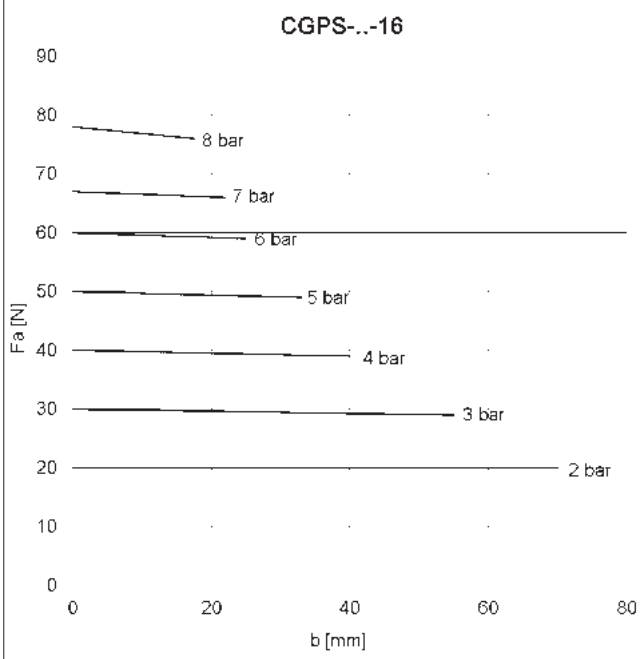


Closing gripping force

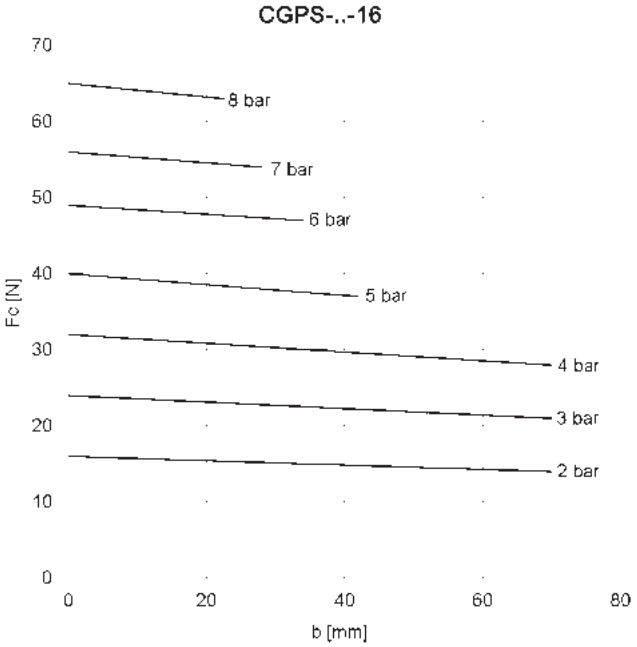
b = gripping point (mm)
e = arm (mm)

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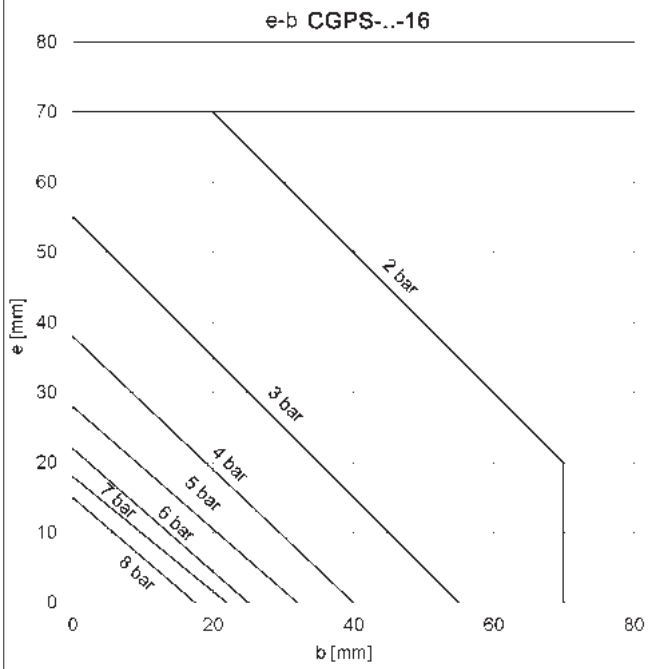
GRIPPING FORCES Mod. CGPS-..-16



b = gripping point (mm)
Fa = opening gripping force (N)

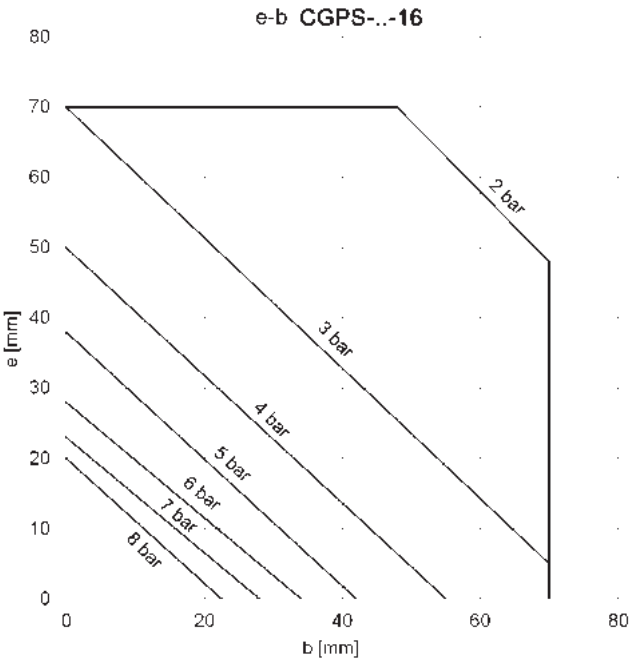


b = gripping point (mm)
Fc = closing gripping force (N)



Opening gripping force

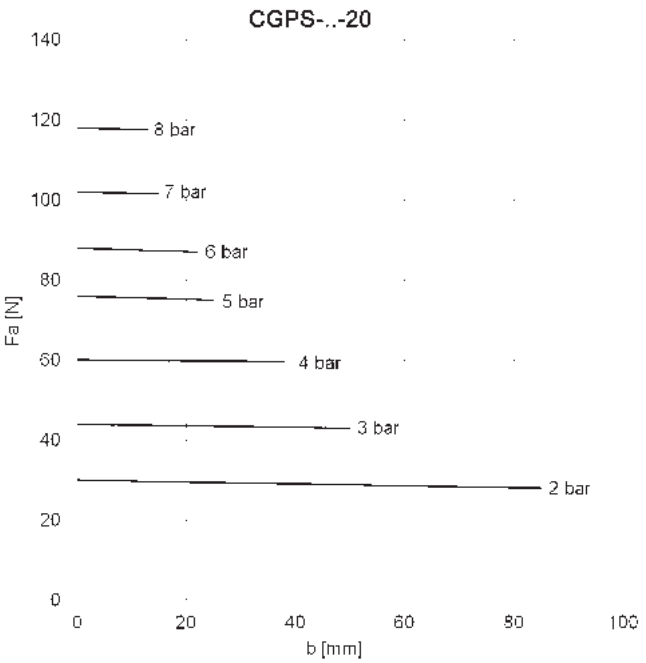
b = gripping point (mm)
e = arm (mm)



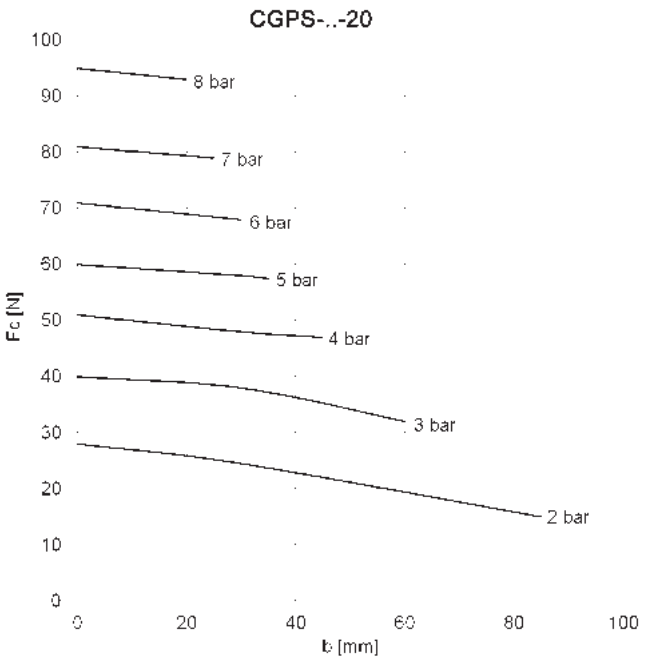
Closing gripping force

b = gripping point (mm)
e = arm (mm)

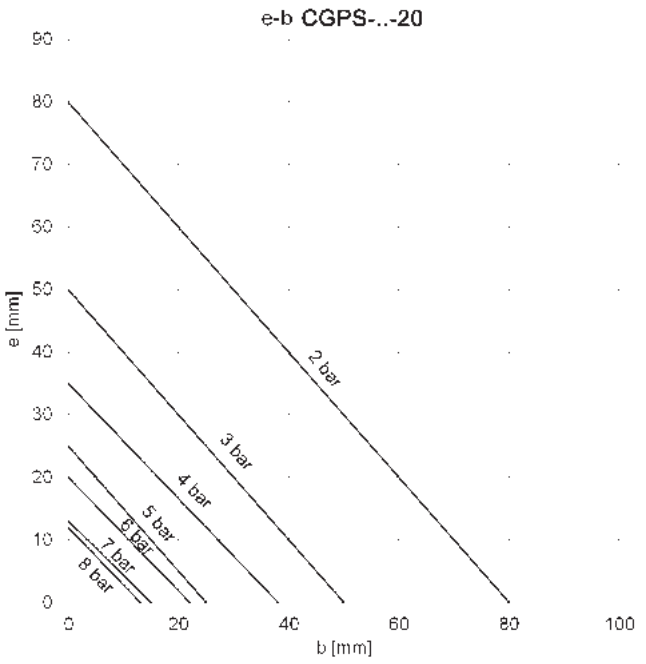
GRIPPING FORCES Mod. CGPS-..-20



b = gripping point (mm)
Fa = opening gripping force (N)

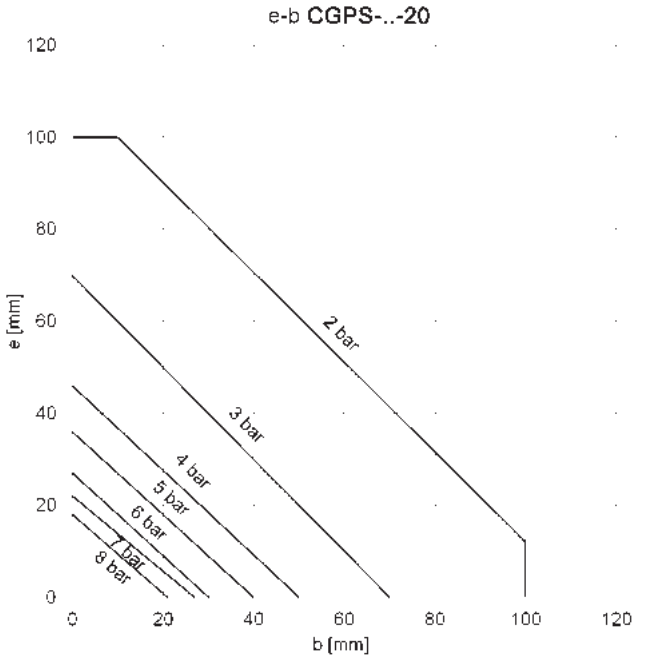


b = gripping point (mm)
Fc = closing gripping force (N)



Opening gripping force

b = gripping point (mm)
e = arm (mm)

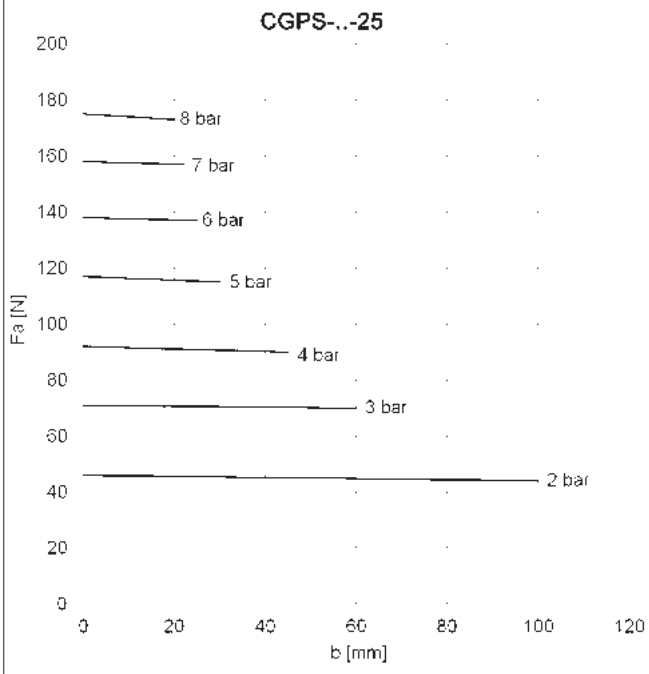


Closing gripping force

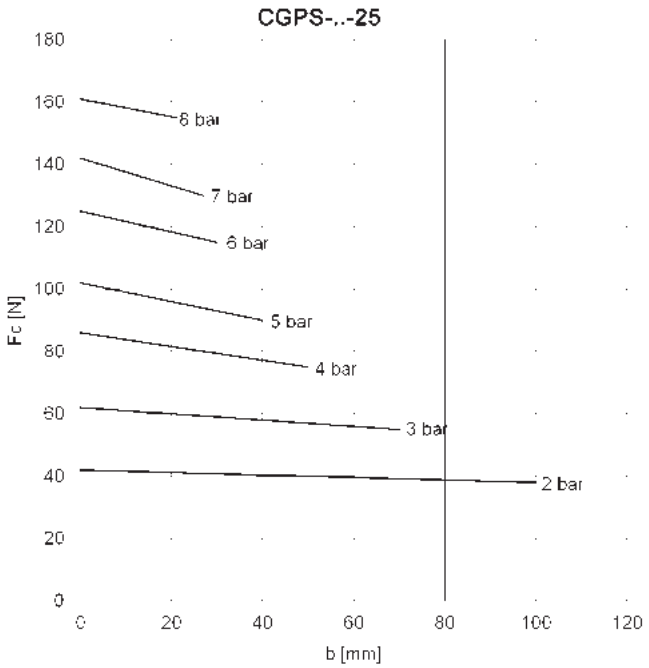
b = gripping point (mm)
e = arm (mm)

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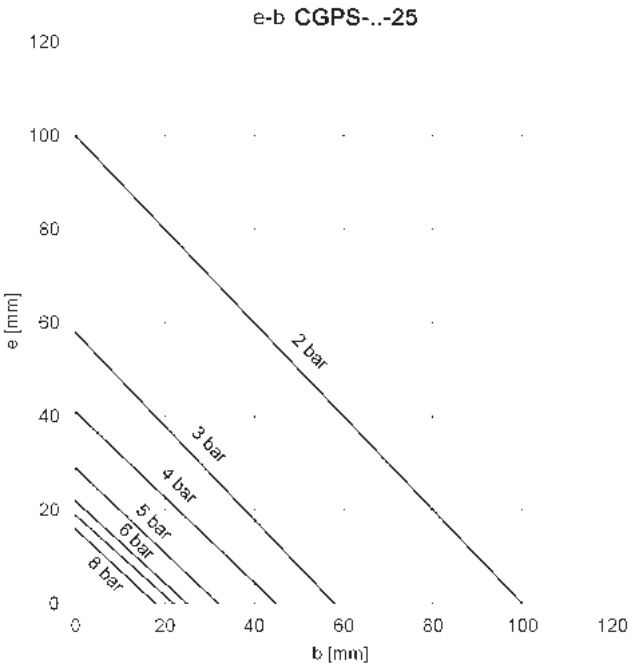
GRIPPING FORCES Mod. CGPS-..-25



b = gripping point (mm)
Fa = opening gripping force (N)

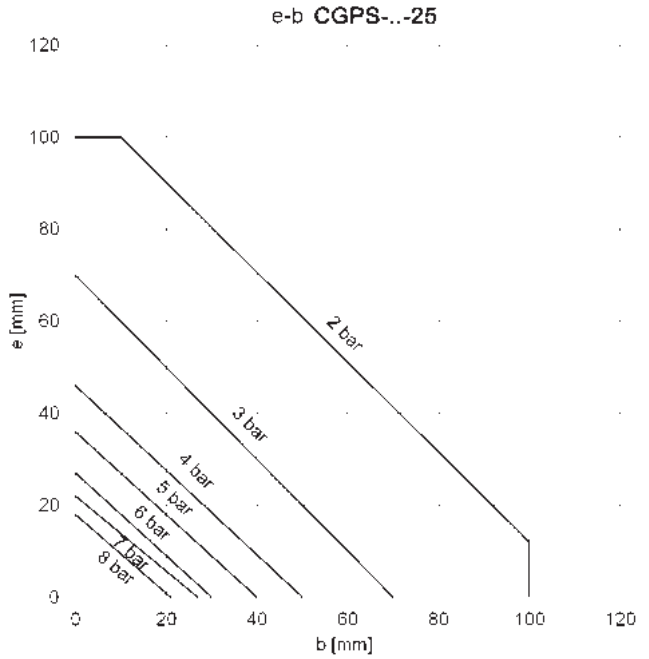


b = gripping point (mm)
Fc = closing gripping force (N)



Opening gripping force

b = gripping point (mm)
e = arm (mm)

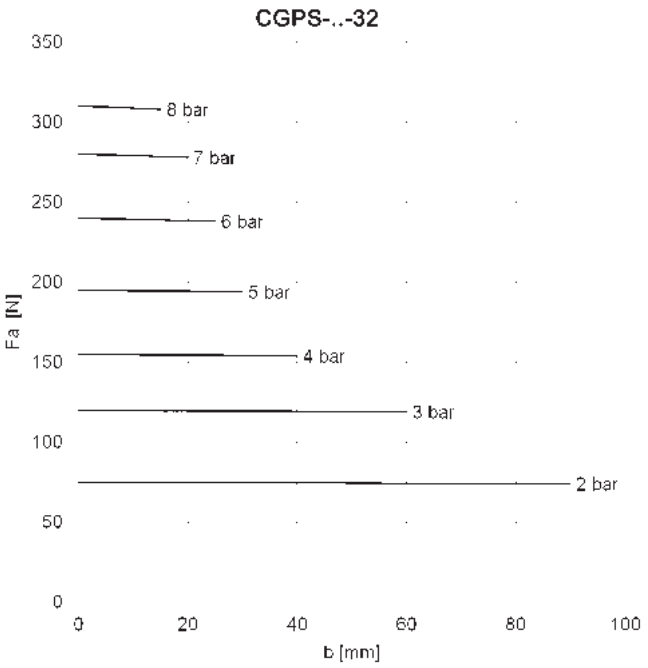


Closing gripping force

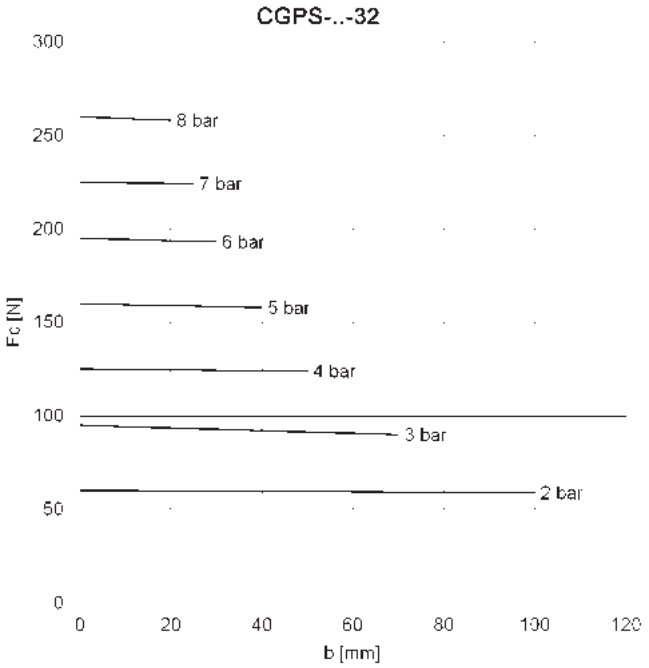
b = gripping point (mm)
e = arm (mm)

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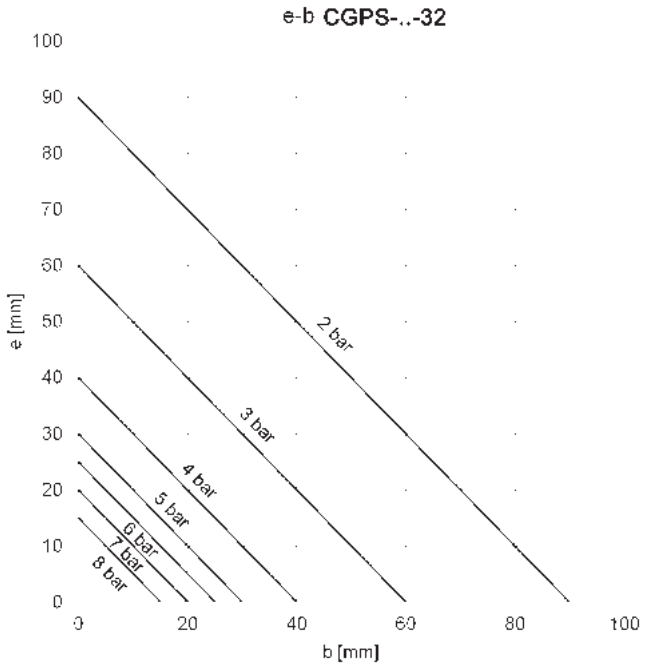
GRIPPING FORCES Mod. CGPS-..-32



b = gripping point (mm)
Fa = opening gripping force (N)

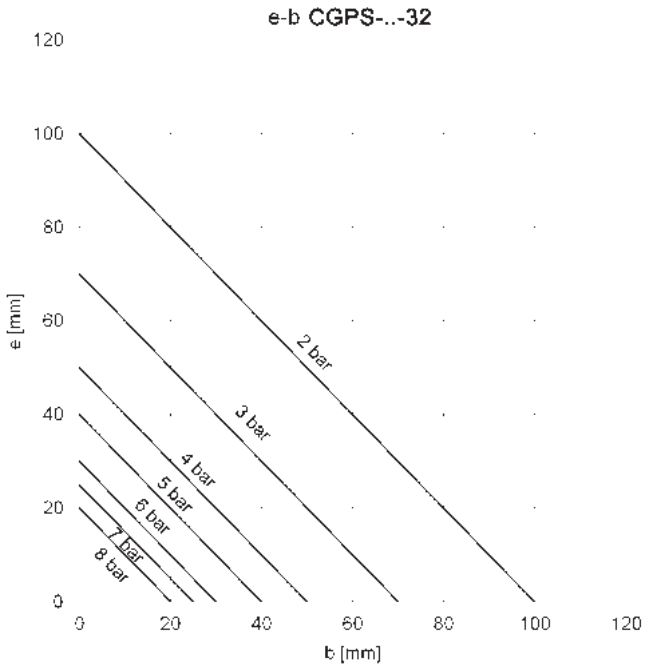


b = gripping point (mm)
Fc = closing gripping force (N)



Opening gripping force

b = gripping point (mm)
e = arm (mm)

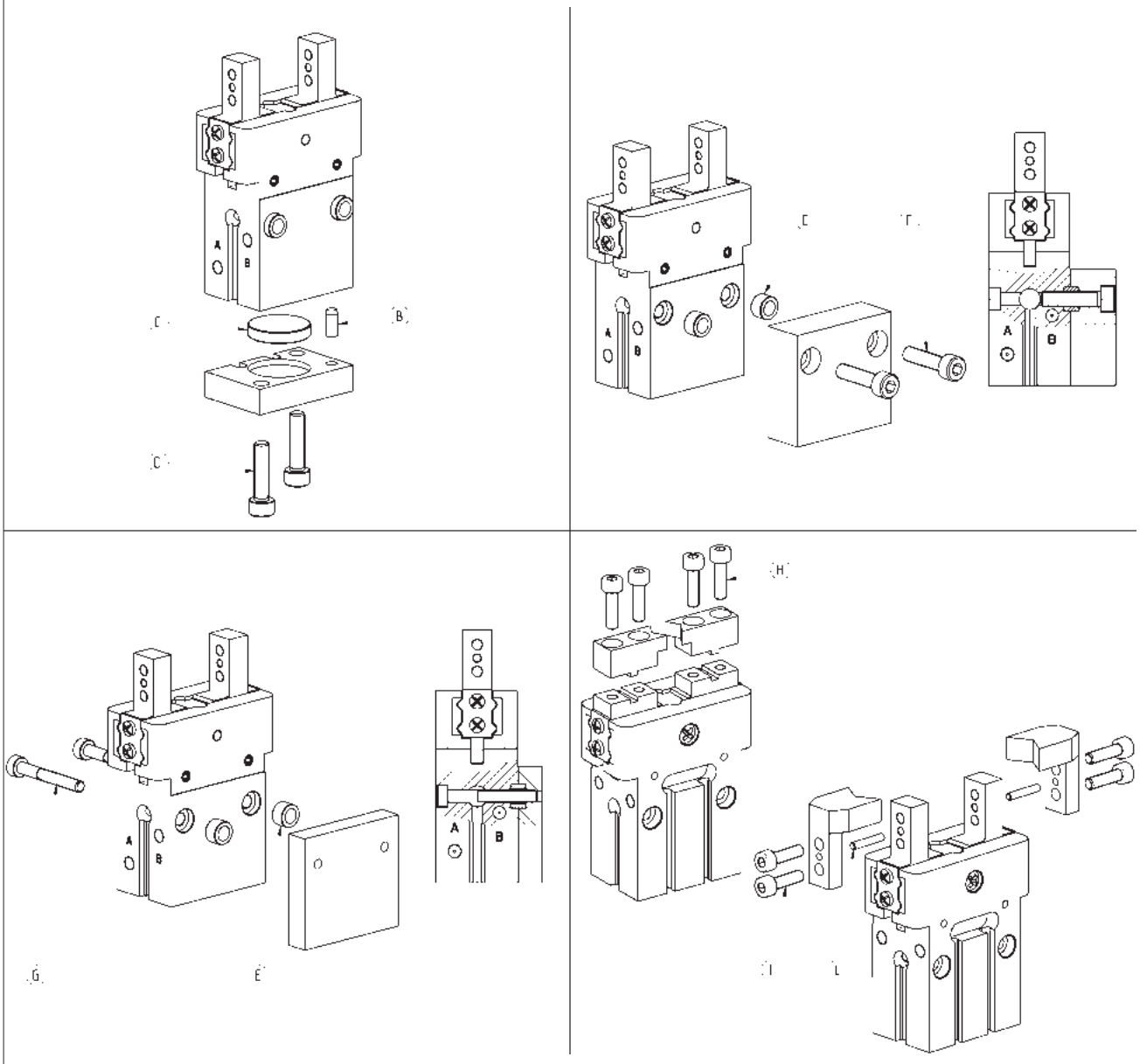


Closing gripping force

b = gripping point (mm)
e = arm (mm)

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Examples of mounting



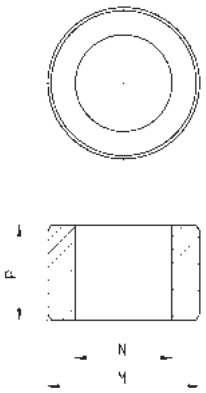
Mod.	B	C	D	E	Centering ring	F	G	H	I	L
CGPS-..-10	Ø2	Ø11	M3	Ø5	TR-CG-05	M3	M2.5	M2.5	M2.5	Ø1.5
CGPS-..-16	Ø3	Ø17	M4	Ø6	TR-CG-06	M4	M3	M3	M3	Ø2
CGPS-..-20	Ø4	Ø21	M5	Ø8	TR-CG-08	M5	M4	M4	M4	Ø2.5
CGPS-..-25	Ø4	Ø26	M6	Ø10	TR-CG-10	M6	M5	M5	M5	Ø3
CGPS-..-32	Ø5	Ø34	M6	Ø10	TR-CG-10	M6	M5	M6	M6	Ø4

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Centering ring Mod. TR-CG

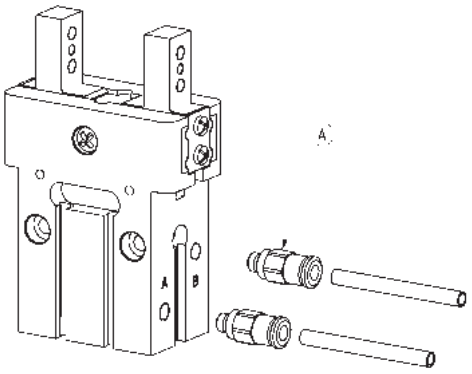
Supplied with:
2x centering rings in steel





Mod.	M (h8)	N	P
TR-CG-04	Ø4	Ø2.6	2.5
TR-CG-05	Ø5	Ø3.1	3
TR-CG-06	Ø6	Ø4.1	4
TR-CG-08	Ø8	Ø5.1	5
TR-CG-10	Ø10	Ø6.1	6

Air supply ports

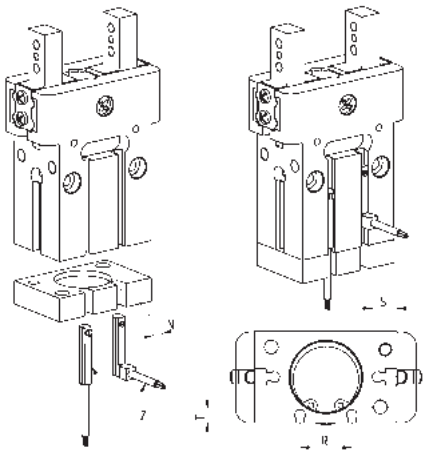


Mod.	A
CGPS-..-10	M3
CGPS-..-16	M5
CGPS-..-20	M5
CGPS-..-25	M5
CGPS-..-32	M5

Example of mounting: sensors

Z = sensor mod. CSD-332 or mod. CSD-362

In order to position the sensor correctly, a channel must be created in the base.

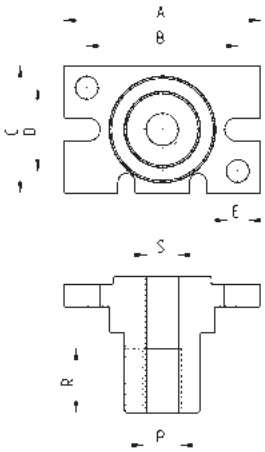


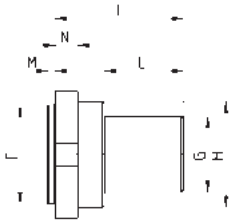
Mod.	R	S	T	V
CGPS-..-10	-	4.6	-	5
CGPS-..-16	11	4.8	3.8	5
CGPS-..-20	15	7	4.6	5
CGPS-..-25	19	9	4.8	5
CGPS-..-32	26	9	4.8	5

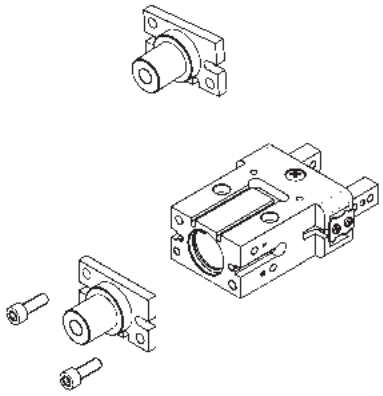
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Mounting accessories Mod. C-CGPS





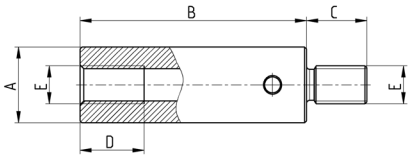


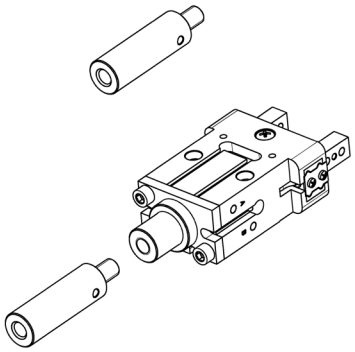


Mod.	A	B	C	D	E	F	G	H	I	L	M	N	P	R	S
C-CGPS-10	23	18	16.4	12	Ø3	Ø11	Ø10	Ø12.8	18.5	11	1.5	3.5	M6	10	Ø5
C-CGPS-16	31	22	23.6	15	Ø4	Ø17	Ø14	Ø17.8	25	16	1.5	4	M8	13	Ø6.8
C-CGPS-20	42	32	27.6	18	Ø5	Ø21	Ø20	Ø22	32	21	2	5	M10	17	Ø8.5
C-CGPS-25	52	40	33.6	22	Ø6	Ø26	Ø20	Ø28	34	21	2	6	M10	17	Ø8.5
C-CGPS-32	60	46	40	26	Ø6	Ø34	Ø30	Ø37	45	31	2	7	M16	25	Ø14

Mounting accessories Mod. L-CGPS







Mod.	A	B	C	D	E
L-CGPS-10	Ø10	40	9	10	M6
L-CGPS-16	Ø14	60	12	13	M8
L-CGPS-20/25	Ø20	60	16	17	M10
L-CGPS-32	Ø30	70	24	25	M16

Series CGLN
wide opening parallel grippers

New version

Bores: ø 10, 16, 20, 25, 32 mm



- High installation versatility
- Rack and pinion synchronized mechanism
- Sturdy and accurate construction

Series CGLN's double piston ensures a high gripping force from within a compact unit.
The body of the gripper is complete of grooves to mount magnetic proximity switches (Series CSC).

The wide range of bores and strokes available allows to meet technical requirements at its best.
Repositioning of the gripper is made easier by the 2 calibrated holes provided in the jaws and by the 2 locating pins in the base.

GENERAL DATA

Operation	double effect
Working pressure	2 ÷ 8 bar (3 ÷ 8 bar for Ø10)
Working temperature	5°C ÷ 60°C
Lubrification	not required
Repeatibility	± 0.1 mm
Effective gripping force with pressure = 0.5MPa and gripping moment R = 40 mm (Ø 10-16-20-25) or = 80 mm (Ø 32)	Ø 10 = 15N Ø 16 = 45N Ø 20 = 75N Ø 25 = 125N Ø 32 = 225N
Air ports	Ø 10 - 16 - 20 - 25 = M5 Ø 32 = G1/8
Fluid	filtered air, without lubrication. If lubricated air is used, it is recommended to use oil ISO VG32. Once applied, the lubrication should never be interrupted.

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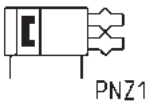
CODING EXAMPLE

CGLN	-	20	-	040

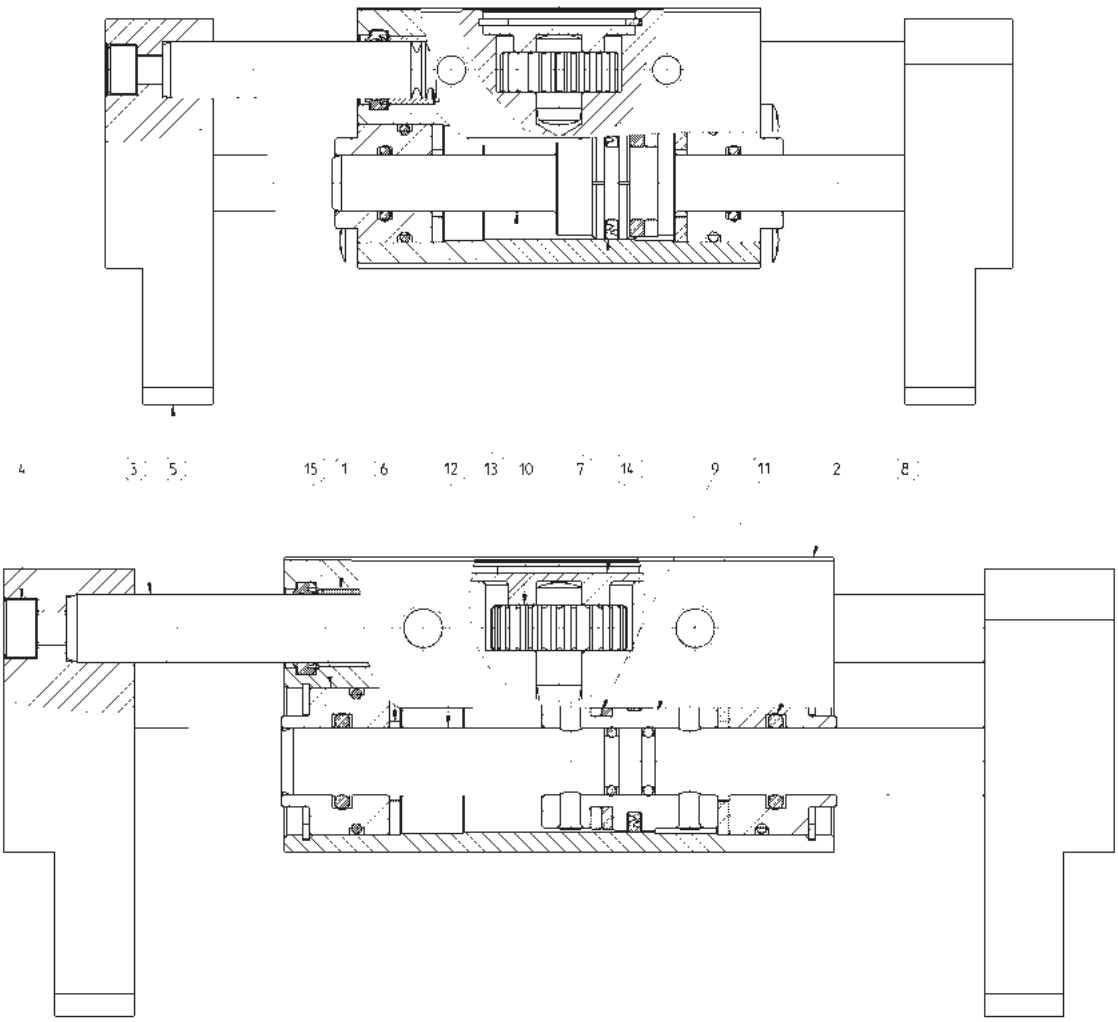
CGLN	SERIES	PNEUMATIC SYMBOL PNZ1
20	SIZES: 10 = ø 10 mm 16 = ø 16 mm 20 = ø 20 mm 25 = ø 25 mm 32 = ø 32 mm	
040	STROKE	

PNEUMATIC SYMBOLS

The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.



Series CGLN Gripper - construction



LIST OF COMPONENTS	
PARTS	MATERIALS
1 - Bushing	Bronce
2 - Body	Aluminium
3 - Rack	Stainless steel
4 - Fixing screw	Steel
5 - Gripping flange	Aluminium
6 - Buffer seal	PU
7 - Piston seal	NBR
8 - Rod seal	NBR
9 - Magnet	Plastoferrite
10 - Pinion	Steel
11 - Piston	Aluminium
12 - Rod	Stainless steel
13 - Rod-piston	Stainless steel
14 - Plug	Aluminium
15 - Header	Steel

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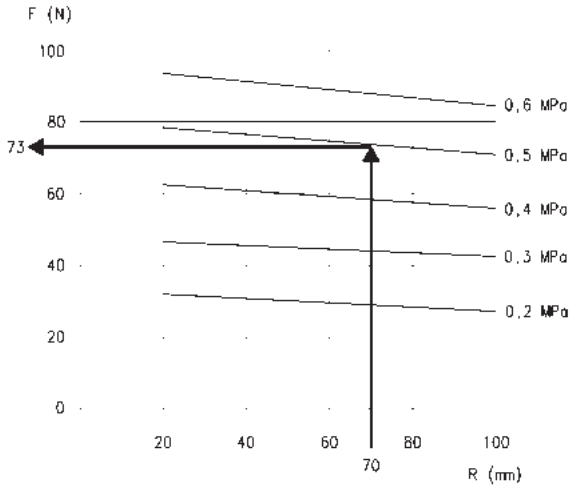
Sizing criteria: 1) GRIPPING FORCE ANALYSIS

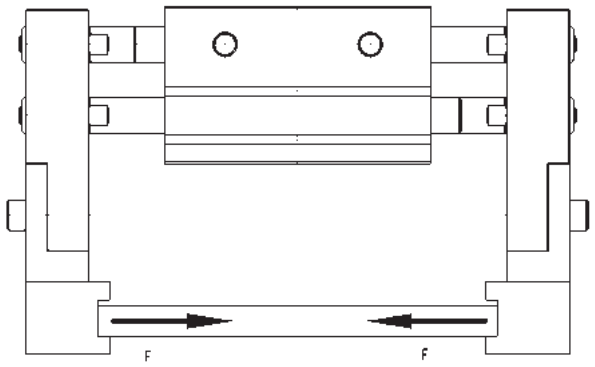
The selection of the size of the gripper has to be carried out according to the weight of the object that has to be moved. It is strongly recommended to select a gripper bore able to develop a gripping force at least 20 times higher than the weight of the object. In case of great acceleration or impact during the moving of the object, it is necessary to increase the factor of safety.

EXAMPLE OF CALCULATION (see the diagram on the right)
Size of the object to be moved (side x side) = 200 m x 20 mm
Weight of the object to be moved (Kg) = 0.3
Factor of safety = 20
Gripping moment R (mm) = 70
Working pressure (MPa) = 0.5
Minimum required gripping force Fmin = 0.3kg x 20 x 9.8m/s² = 60N

Through the diagrams “Effective Gripping force” we deduce from the above mentioned conditions that the gripping force with the mod. CGLN-20 is 73N, that is 24 times the weight of the object.
The condition requiring that gripping force is at least 20 times higher than the set gripping force is thus satisfied.
Once the gripper size is chosen, select a stroke that allows to have a maximum opening which is wider than the size of the object to be moved.
In the case above the gripper CGLN-20-80 is the right choice.
F = 220 mm > 200 mm

ACTUAL GRIPPING FORCE (F)
The shown gripping force corresponds to the gripping force of a finger when all fingers (or accessories) are in contact with the load.
F = Pushing force of 1 finger

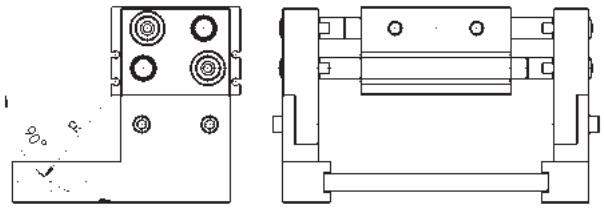




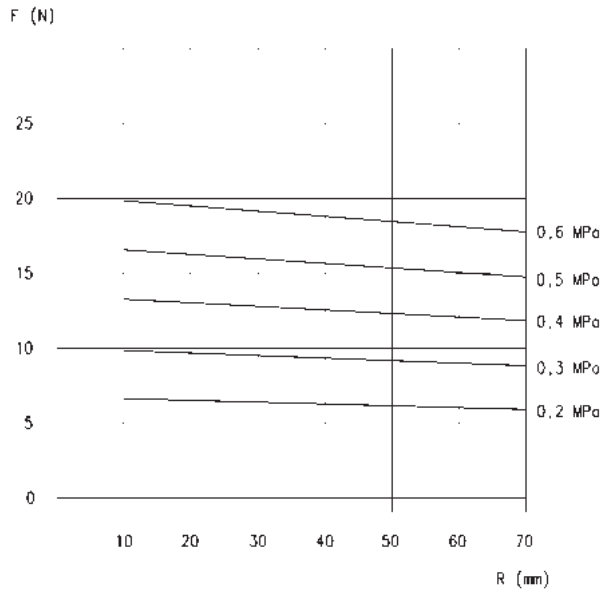
Sizing criteria: 2) GRIPPING DISTANCE ANALYSIS

The R gripping distance of the object has to meet the parameters of the lines of force which are indicated for each pressure in the diagrams “Effective grip force”.
If the R distance is exceeded, the load applied will be too much overhanging, thus causing the screws to loosen as well as a reduced component life.

R = gripping distance (mm)

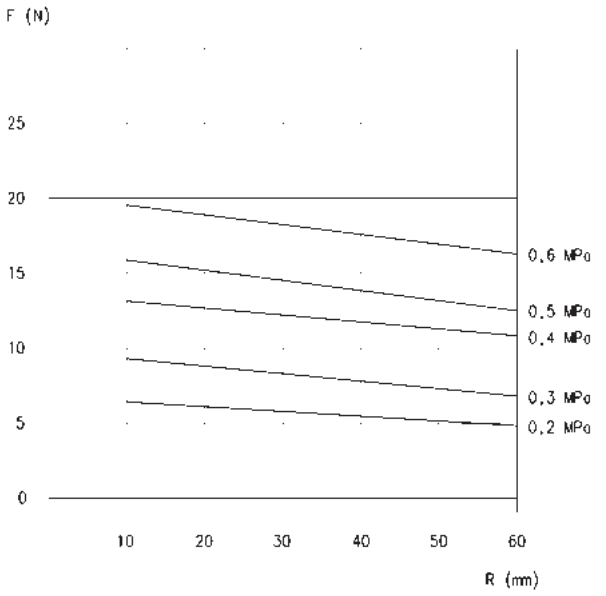


Gripping force for bore 10



CGLN-10-020

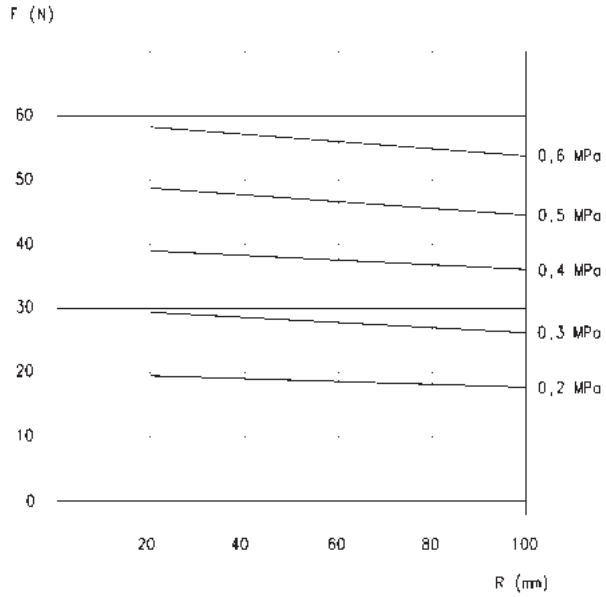
F = Gripping force (N)
R = Gripping moment (mm)



CGLN-10-040 and CGLN-10-060

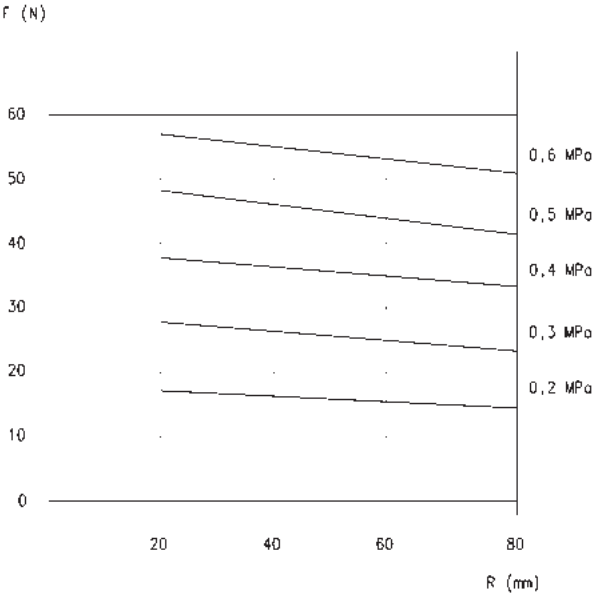
F = Gripping force (N)
R = Gripping moment (mm)

Gripping force for bore 16



CGLN-16-030

F = Gripping force (N)
R = Gripping moment (mm)

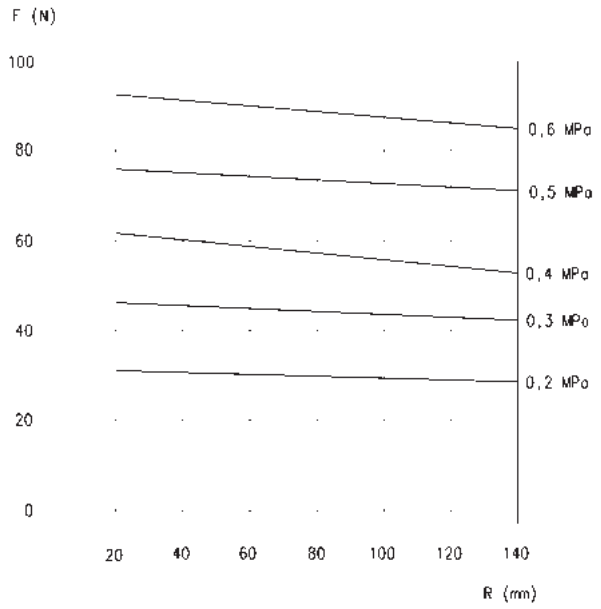


CGLN-16-060 and CGLN-16-080

F = Gripping force (N)
R = Gripping moment (mm)

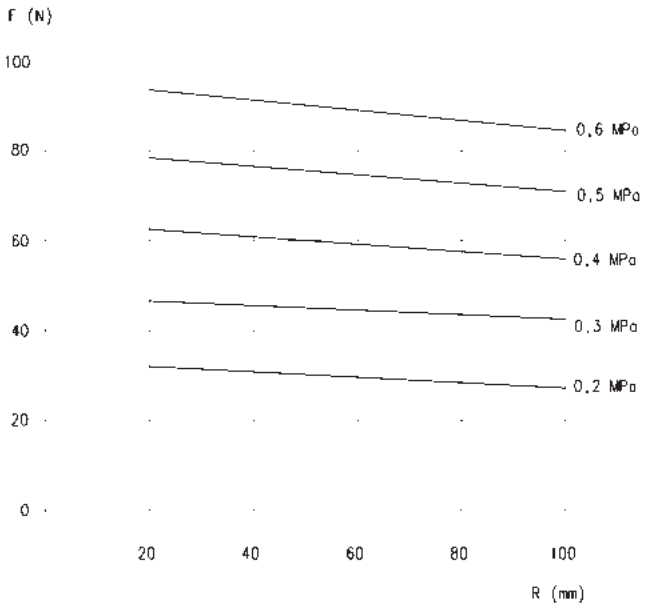
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Gripping force for bore 20



CGLN-20-040

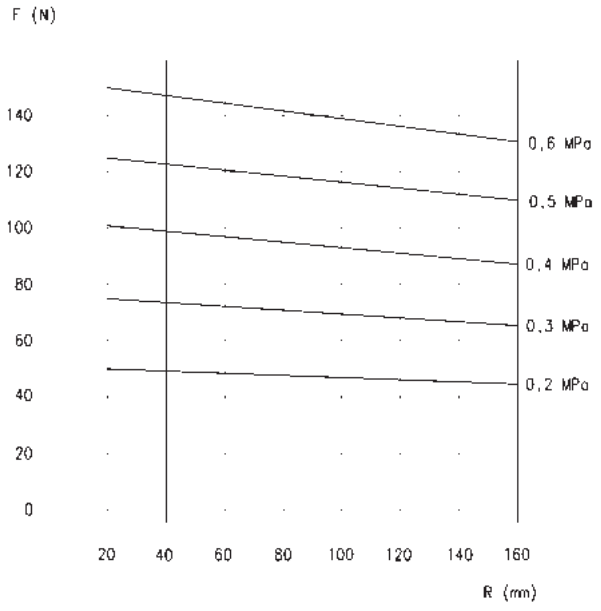
F = Gripping force (N)
R = Gripping moment (mm)



CGLN-20-080 and CGLN-20-100

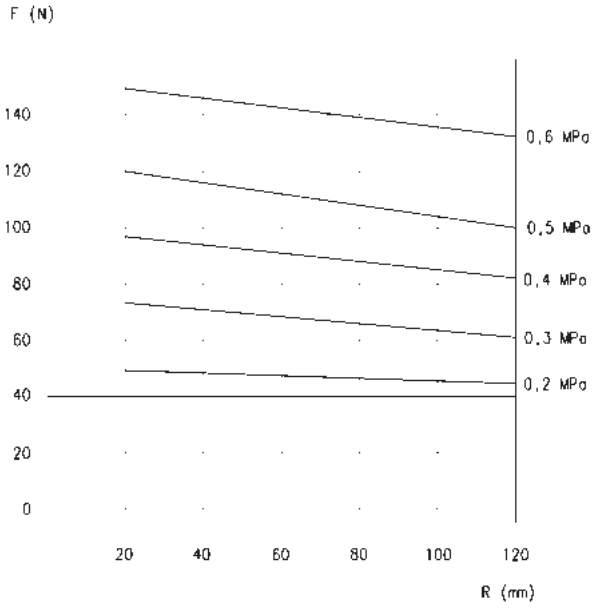
F = Gripping force (N)
R = Gripping moment (mm)

Gripping force for bore 25



CGLN-25-050

F = Gripping force (N)
R = Gripping moment (mm)

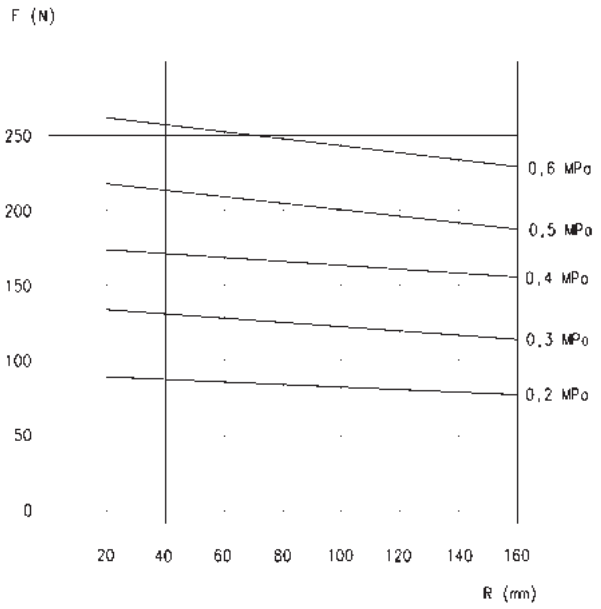


CGLN-25-100 and CGLN-25-120

F = Gripping force (N)
R = Gripping moment (mm)

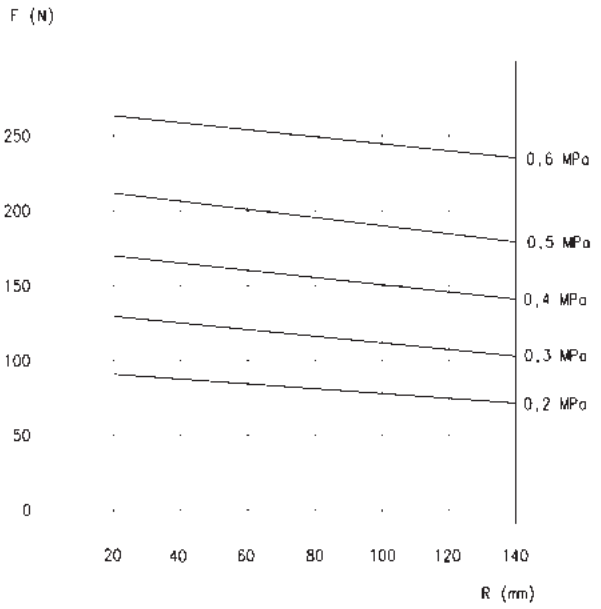
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Gripping force for bore 32



CGLN-32-070

F = Gripping force (N)
R = Gripping moment (mm)



CGLN-32-120 and CGLN-32-170

F = Gripping force (N)
R = Gripping moment (mm)

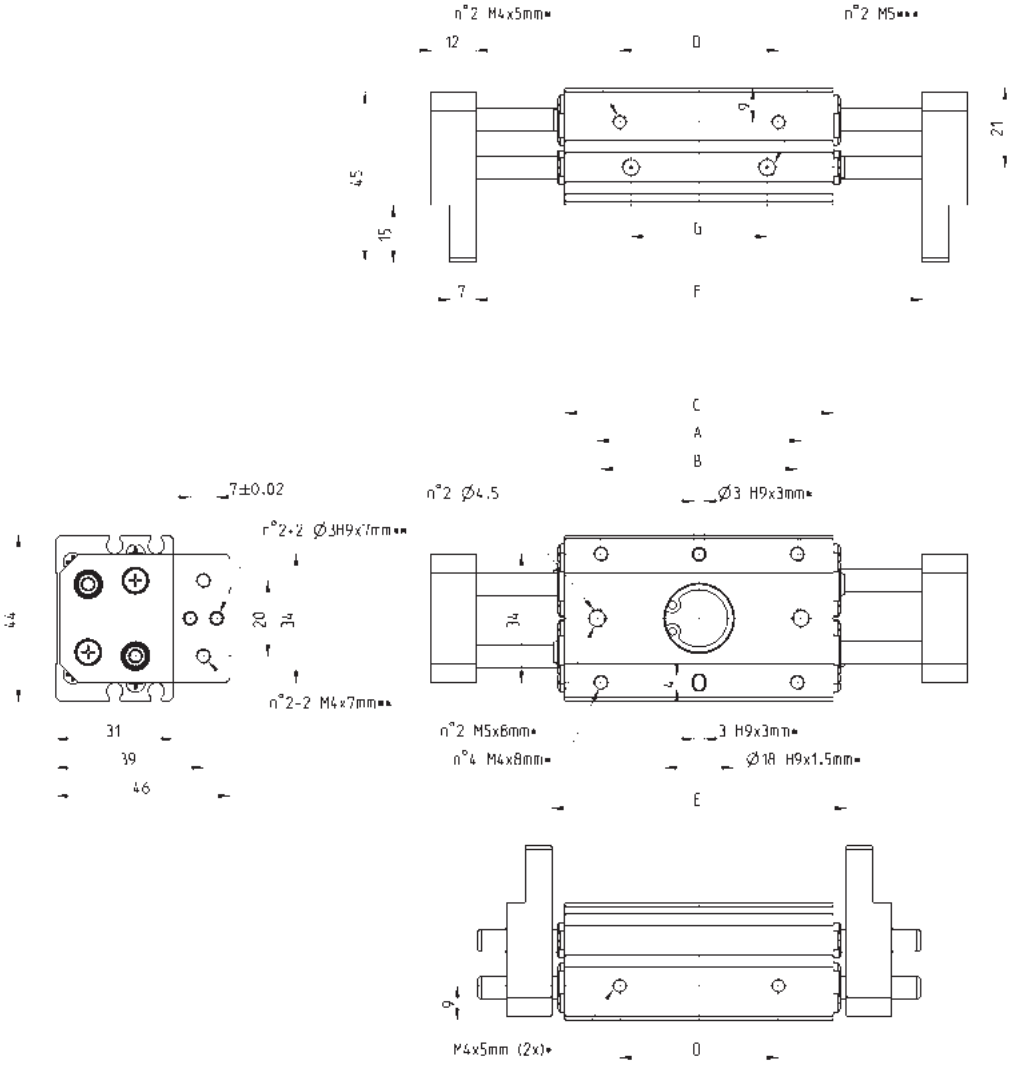
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CGLN gripper, bore 10 mm - dimensions



DRAWING LEGEND:

* = depth of the mounting threads
** = thread for the accessory mounting
*** = opening/closing of air connections



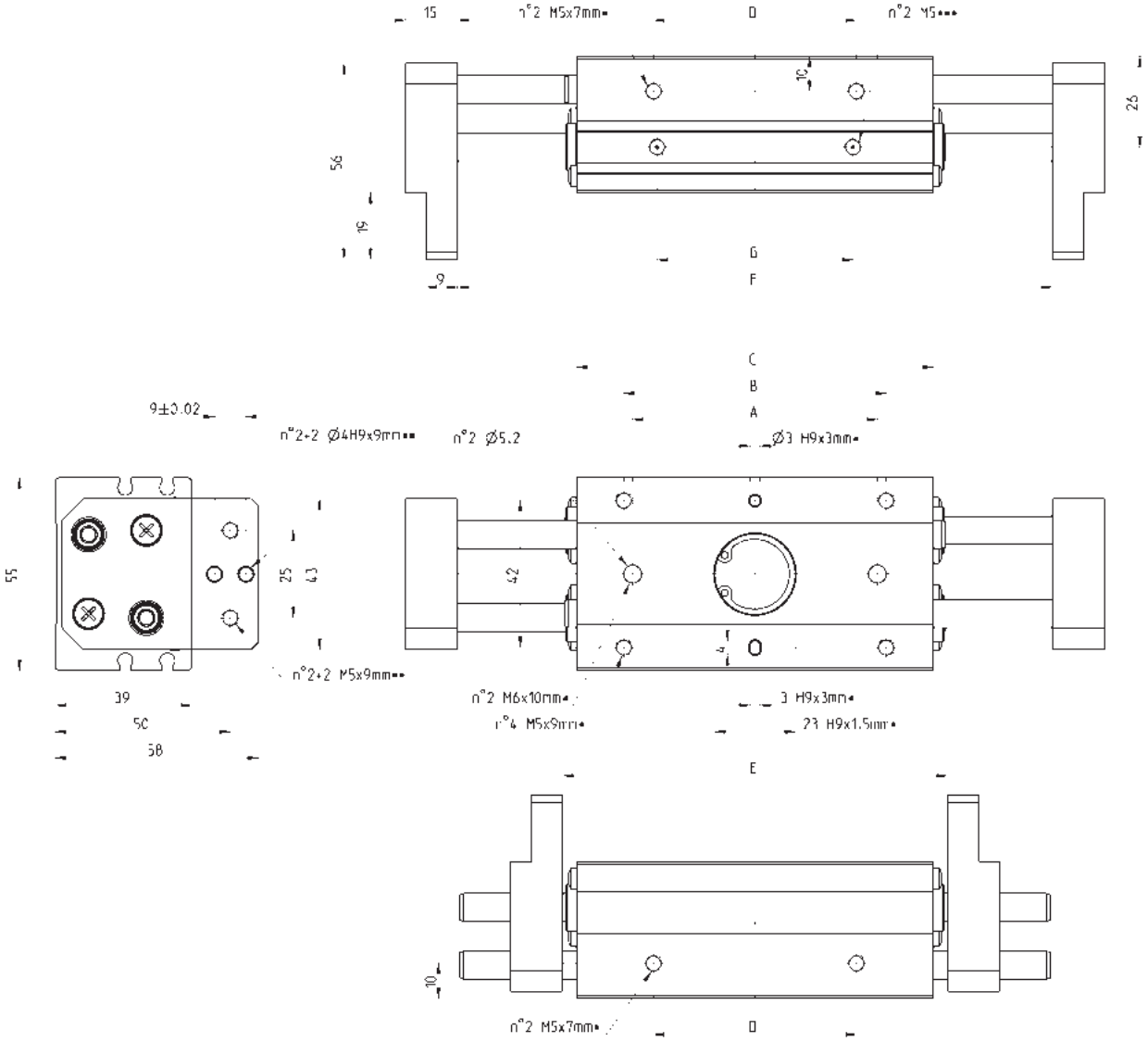
Mod.	Bore	Total stroke	A	B	C	D	E (Closed) Min opening	F (Open) Max opening	G	Max frequency (cycles/min)	Weight (g)
CGLN-10-020	10	20	38	36	51	26	56	76	20	60	310
CGLN-10-040	10	40	54	52	71	42	78	118	36	40	390
CGLN-10-060	10	60	72	70	89	60	96	156	54	40	460

CGLN gripper, bore 16 mm - dimensions



DRAWING LEGEND:

* = depth of the mounting threads
** = thread for the accessory mounting
*** = opening/closing of air connections



Mod.	Bore	Total stroke	A	B	C	D	E (Closed) Min opening	F (Open) Max opening	G	Max frequency (cycles/min)	Weight (g)
CGLN-16-030	16	30	40	45	60	28	68	98	26	60	590
CGLN-16-060	16	60	70	75	102	58	110	170	56	40	890
CGLN-16-080	16	80	90	95	122	78	130	210	76	40	1020

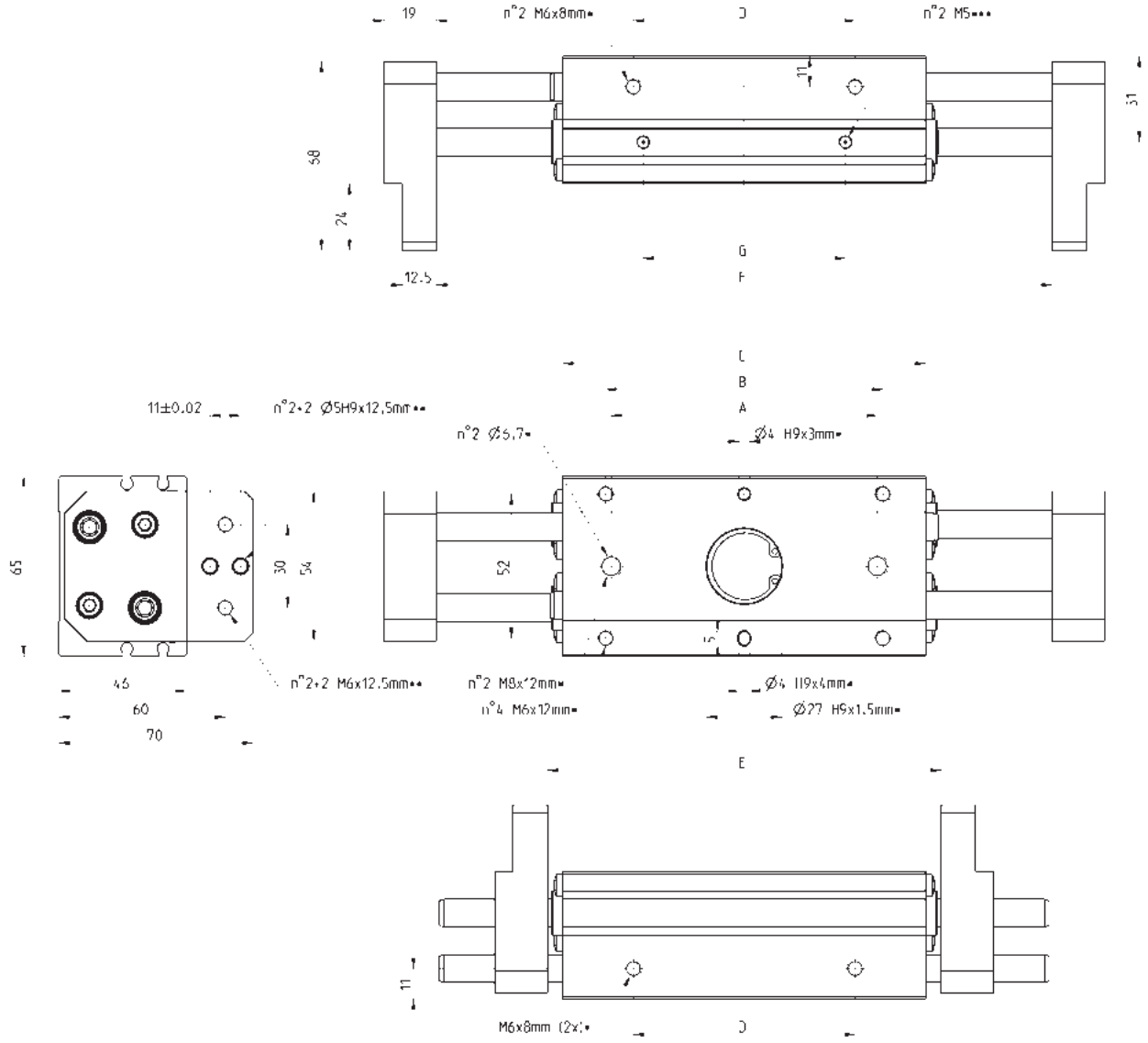
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CGLN gripper, bore 20 mm - dimensions



DRAWING LEGEND:

* = depth of the mounting threads
** = thread for the accessory mounting
*** = opening/closing of air connections



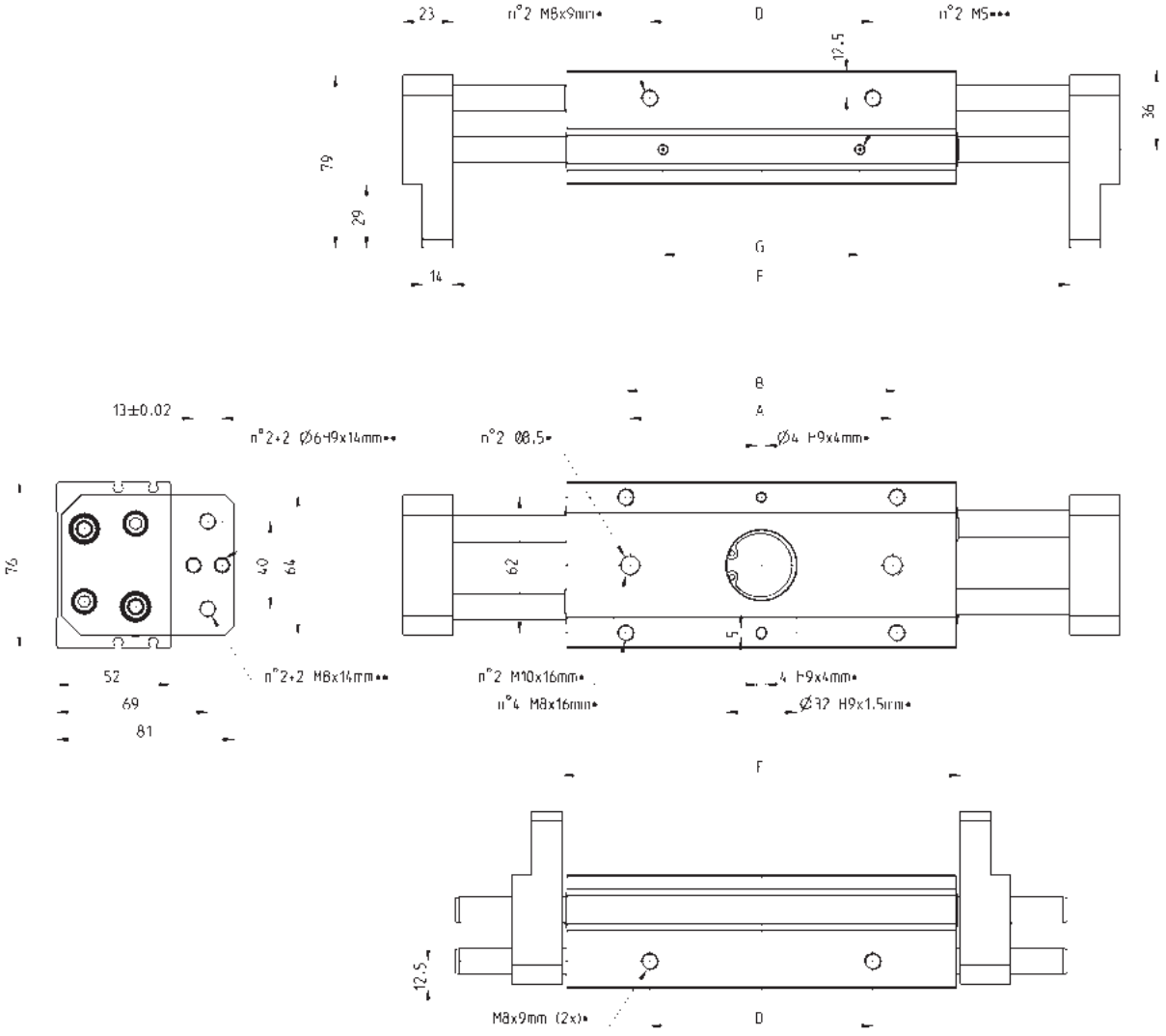
Mod.	Bore	Total stroke	A	B	C	D	E (Closed) Min opening	F (Open) Max opening	G	Max frequency (cycles/min)	Weight (g)
CGLN-20-040	20	40	54	58	71	38	82	122	31	60	1080
CGLN-20-080	20	80	96	100	131	80	142	222	73	40	1670
CGLN-20-100	20	100	116	120	151	100	162	262	93	40	1890

CGLN gripper, bore 25 mm - dimensions



DRAWING LEGEND:

* = depth of the mounting threads
** = thread for the accessory mounting
*** = opening/closing of air connections



Mod.	Bore	Total stroke	A	B	C	D	E (Closed) Min opening	F (Open) Max opening	G	Max frequency (cycles/min)	Weight (g)
CGLN-25-050	25	50	66	70	97	48	100	150	36	60	1780
CGLN-25-100	25	100	120	124	178	102	182	282	90	40	2710
CGLN-25-120	25	120	138	142	195	120	200	320	108	40	2960

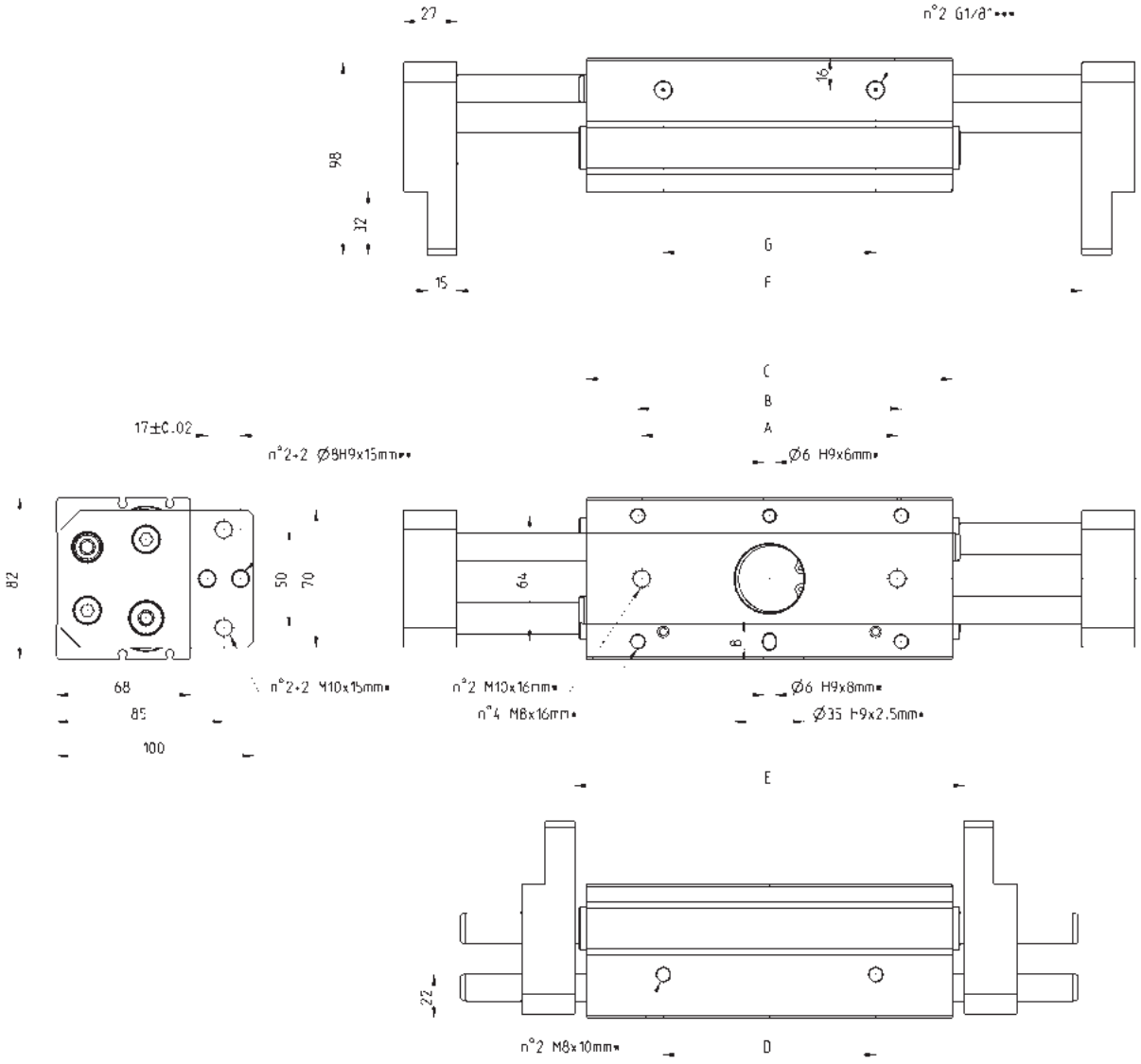
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CGLN gripper, bore 32 mm - dimensions



DRAWING LEGEND:

* = depth of the mounting threads
** = thread for the accessory mounting
*** = opening/closing of air connections



Mod.	Bore	Total stroke	A	B	C	D	E (Closed) Min opening	F (Open) Max opening	G	Max frequency (cycles/min)	Weight (g)
CGLN-32-070	32	70	82	86	138	60	150	220	60	30	3580
CGLN-32-120	32	120	130	134	186	108	198	318	108	20	4470
CGLN-32-160	32	160	174	178	230	152	242	402	152	20	5240

Series CGC
3-Finger centric grippers

Magnetic
Sizes: 50, 64, 80, 100, 125 mm

- Compact design
- High gripping force
- Long stroke



The proximity switches can be inserted in the U-shaped grooves on the body in order to detect whether the gripper is in an open or closed position.

Series CGC 3-finger centric grippers are available in 5 different sizes.
Significant for Series CGC is the compact design that allows the combination of a high gripping force and long stroke.
The piston is equipped with a permanent magnet for the use of magnetic proximity switches.

GENERAL DATA

Model	CGC-50; CGC-64; CGC-80; CGC-100; CGC-125
Bore sizes	Ø 32 Ø 45 Ø 58 Ø 77 Ø 98
Type of operation	double-acting
Materials	housing: high tensile special hard-coated aluminium alloy, Functional parts: hardened steel
Operating pressure (bar)	2 ÷ 7 bar
Operating temperature	5°C ÷ 60°C
Repeatability	+/- 0,05 mm
Max. operating frequency	60 cycles/min
Lubrication	lever section lubrication required on sliding section
Theoretical holding force (N) with gripping point at 30 mm with 5 bar opening	Ø 32 = 78, Ø 45 = 185 Ø 58 = 340, Ø77 = 580 Ø 98 = 940
Theoretical holding force (N) with gripping point at 30 mm with 5 bar closing	Ø 32 = 68, Ø 45 = 160 Ø 58 =290, Ø 77= 510 Ø 98 = 860
Weight (g)	Ø 32 = 230, Ø 45 = 410 Ø 58 = 800, Ø 77= 1400 Ø 98 = 2400
Stroke per finger (mm)	Ø 32 = 4, Ø 45 = 6 Ø 58 = 8, Ø 77 = 10 Ø 98 = 13
Port sizes	Ø 32- 45 -58 - M5 Ø 77 - Ø 98 -G1/8
Fluid	filtered air without lubrication. If lubricated air is used, it is recommended to use oil ISO VG32. Once applied, the lubrication should never be interrupted.

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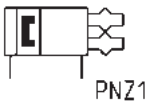
CODING EXAMPLE

CGC	-	050

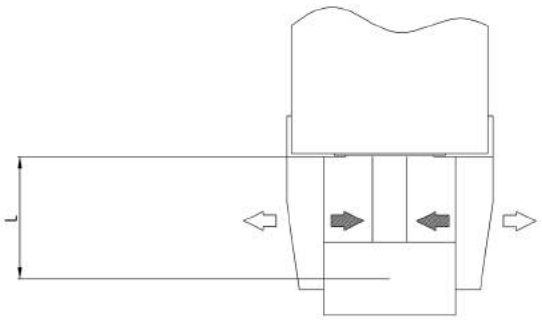
CGC	SERIES	PNEUMATIC SYMBOL PNZ1
050	SIZE 050 = 32 mm 064 = 45 mm 080 = 58 mm 100 = 77 mm 125 = 98 mm	

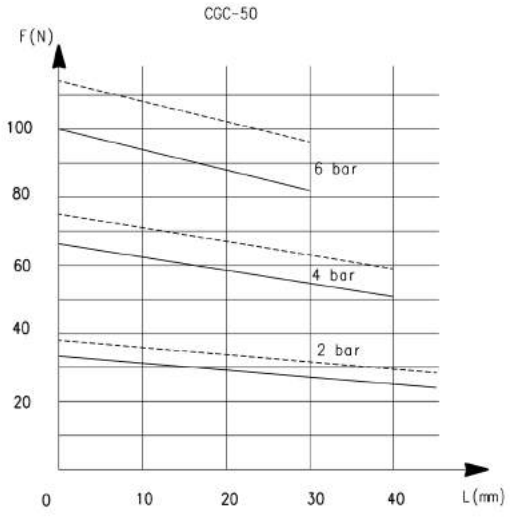
PNEUMATIC SYMBOLS

The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.



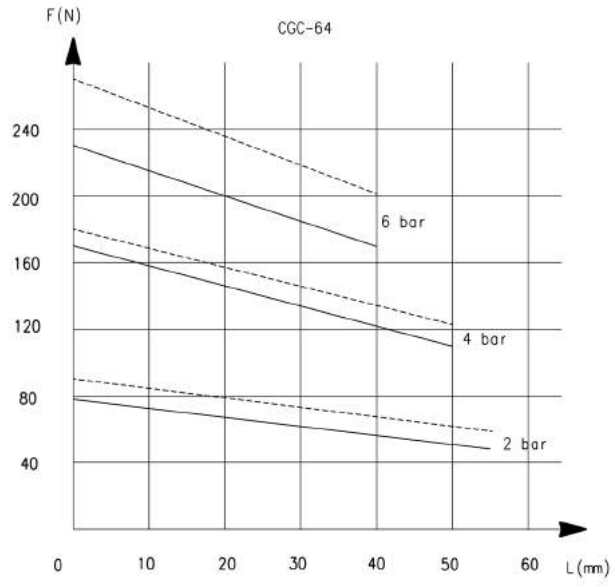
GRIPPING FORCE CHARACTERISTICS



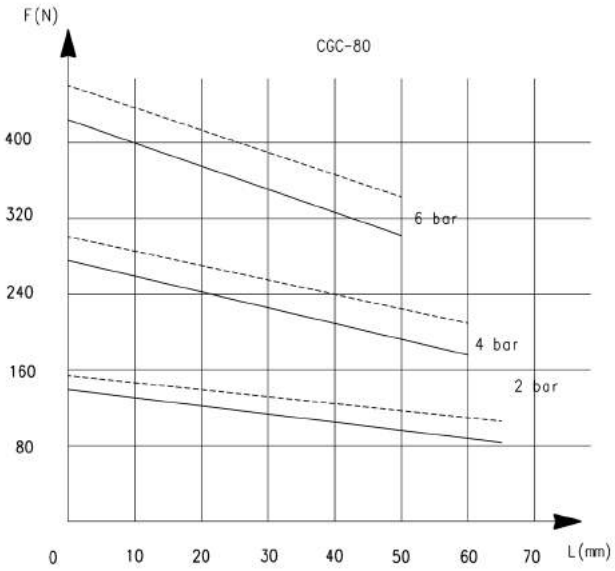


F = Gripping Force
L = Gripping point length

GRIPPING FORCE CHARACTERISTICS

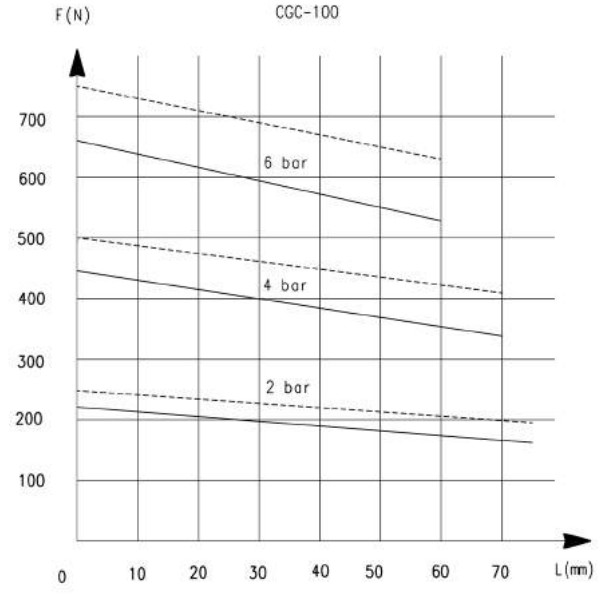


F = Gripping Force
L = Gripping point length

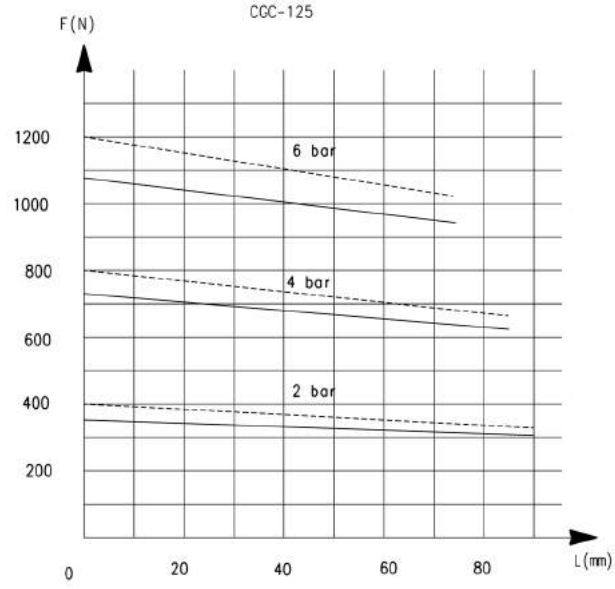


F = Gripping Force
L = Gripping point length

GRIPPING FORCE CHARACTERISTICS



F = Gripping Force
L = Gripping point length



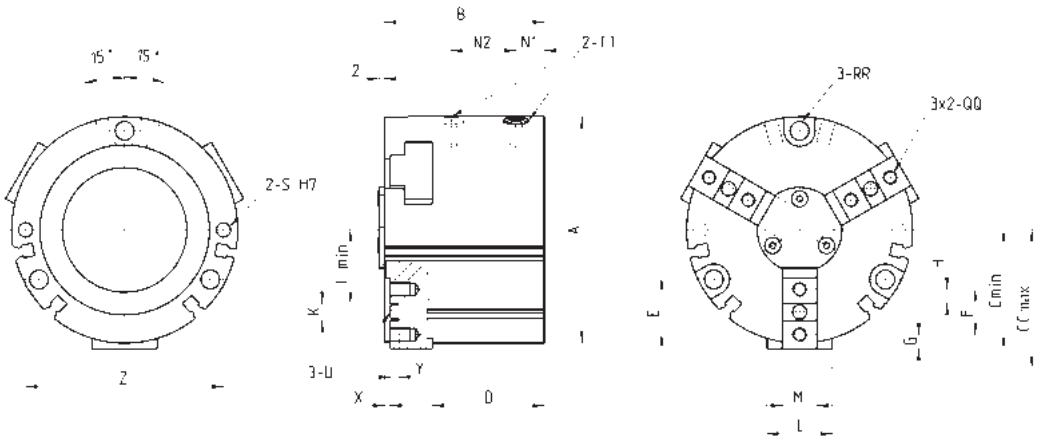
F = Gripping Force
L = Gripping point length

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Grippers Series CGC



TT = port connection
QQ = finger mounting holes
RR = Mounting holes
S = Mounting holes

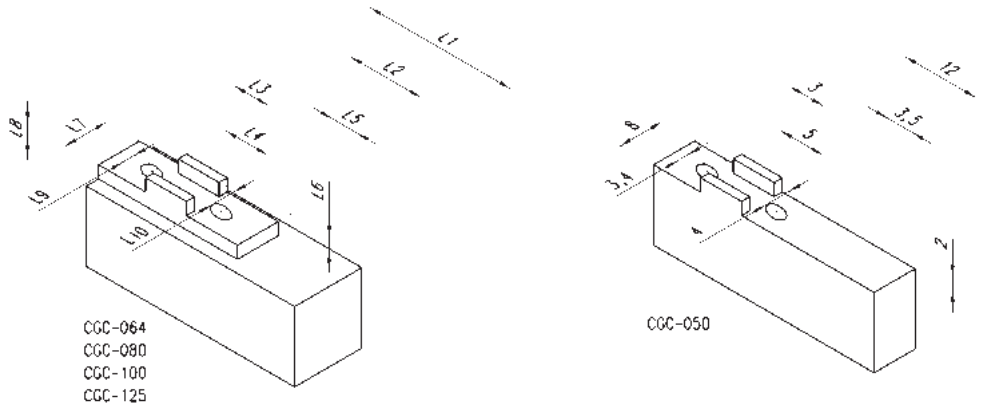


DIMENSIONS

Mod.	A	B	C	CC	D	E	F	G	H	I	K	L	M	N1	N2	RR	QQ	S	TT	U	X	Y	Z	Weight (g)
CGC-050	50	39	26,5	30,5	27	18	12	3	3,5	15	5	14	8	9	13,5	Ø 3,4	M3x0,5	Ø 3	M5	Ø 4	1	2	44	230
CGC-064	64	47,5	32	38	32	20	13	4	4	19	5	18	10,2	10	16	Ø 5,5	M4x0,7	Ø 4	M5	Ø 4	2	2,5	56	410
CGC-080	80	56,5	42	50	39,5	25	16	5	5	26	6	23	12,2	10	23	Ø 6,6	M5x0,8	Ø 5	M5	Ø 5	2	3	70	800
CGC-100	100	65	52	62	45,5	32	20	6	6	32	8	27	14,2	12	25	Ø 6,6	M6x1	Ø 5	PT 1/8	Ø 6	3	3	90	1400
CGC-125	125	76	65,5	78,5	52	40	24	8,5	8	41	8	30	16,2	13,5	27,5	Ø 9	M6x1	Ø 6	PT 1/8	Ø 6	3	3,5	112	2400

Support dimensions for grippers Series CGC

Dimensions of external mounting support of finger - gripping element



Mod.	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10
CGC-064	20	13	4	5	4	2.5	10.2	4.5	4.5	4
CGC-080	25	16	5	6	5	3	12.2	5.5	5.5	5
CGC-100	32	20	6	8	6	3	14.2	5.5	6.6	6
CGC-120	40	24	8.5	8	8	3.5	16.2	5.5	6.6	6

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Series RPGA sprue grippers
Size 20mm

New version

Angular, not self-centering, single-acting, Normally Open
Models: Flat Finger, Curved Finger, Short Finger,
Flat Finger with sensor slot,
Curved Finger with sensor slot



Thanks to a piston with a size of 20mm and to the direct transfer of the force from the piston to the fingers, Series RPGA guarantees a strong and a safe grip.

Their technical features ensure a high gripping force and make these grippers particularly suitable in the removal of injection molded items.
The surface treatments on each metallic part make this series very wear resistant.

D and E models are provided with a finger having a slot for the installation of an inductive sensor.

GENERAL DATA

Operation	single-acting, Normally Open
Materials	anodized aluminium body and fingers, PU seals
Working pressure	2.5 bar ÷ 8 bar
Working temperature	0°C ÷ 60°C
Max frequency	2.5 Hz
Lubrication	Not necessary
Air ports	G1/8
Media	Filtered air, without lubrication
Size	20 mm
Weights	120 g (models A and B); 125 g (models C, D, E)
Gripping torque at 6 bar	310 Ncm
Opening torque at 6 bar	25 Ncm
Gripping force at 6 bar	90 N
Closing time without load	20 ms
Opening time	75 ms

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CODING EXAMPLE

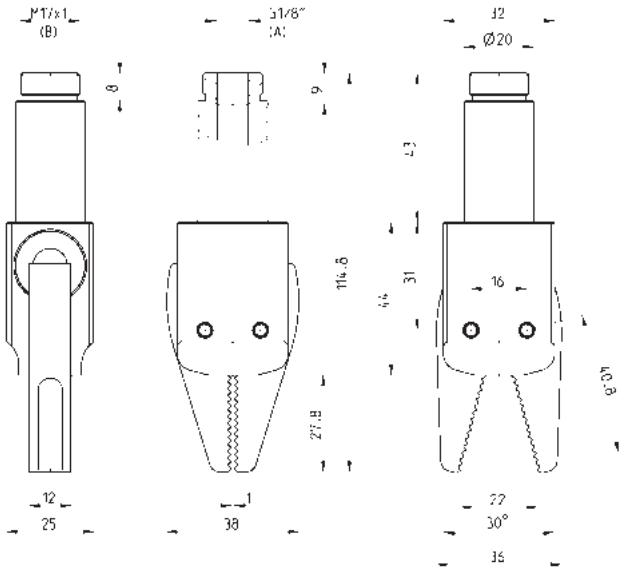
RPGA	-	20	-	A

RPGA	SERIES
20	SIZE: 20 = ø 20 mm
A	TYPE OF CONSTRUCTION: A = Flat finger B = Curved finger C = Short finger with mounting holes for extensions D = Flat finger for sensor E = Curved finger for sensor

Flat finger gripper Mod. RPGA-20-A - dimensions







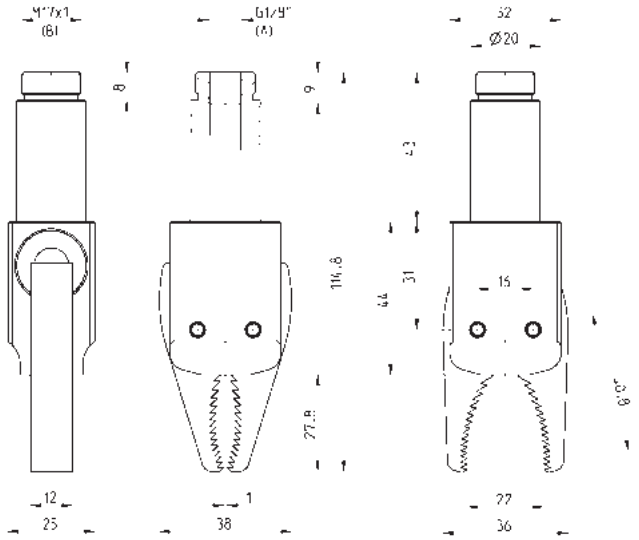
A = connection port
B = fixing thread

Mod.
RPGA-20-A

Curved finger gripper Mod. RPGA-20-B - dimensions







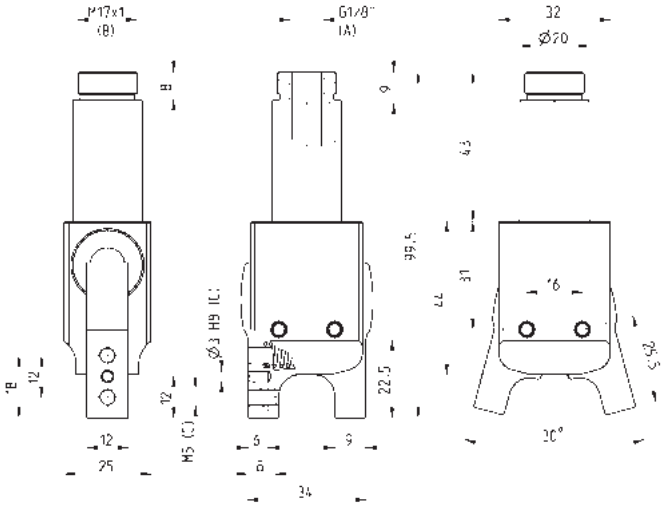
A = connection port
B = fixing thread

Mod.
RPGA-20-B

Short finger gripper Mod. RPGA-20-C - dimensions







A = connection port
B = fixing thread
C = fixing holes

Mod.
RPGA-20-C

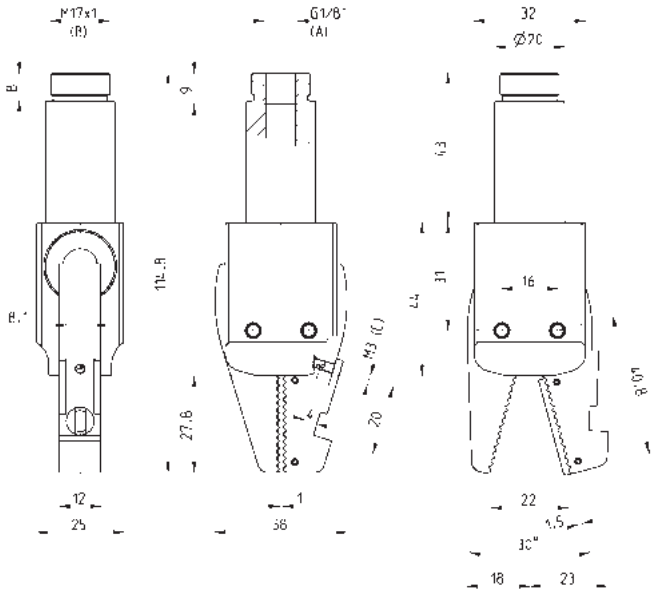
Products designed for industrial applications.
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Flat finger gripper with sensor slot Mod. RPGA-20-D - dimensions



Note: the sensor is not supplied with the gripper





A = connection port
B = fixing thread
C = sensor fixing hole

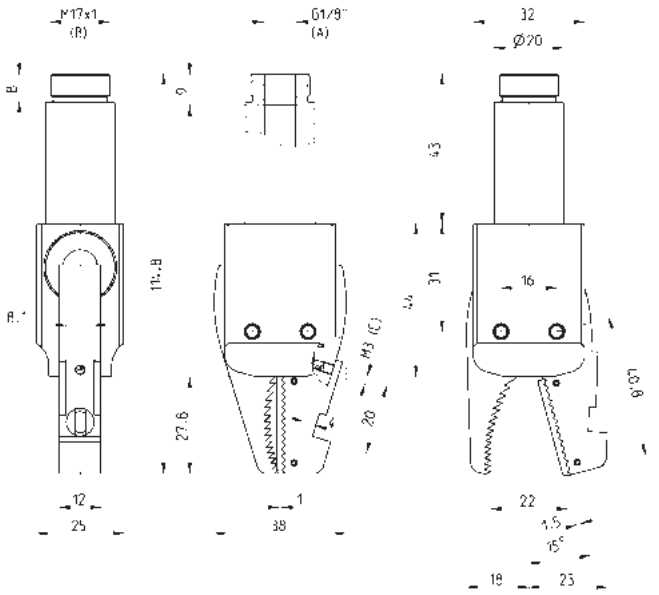
Mod.
RPGA-20-D

Curved finger gripper with sensor slot Mod. RPGA-20-E - dimensions



Note: the sensor is not supplied with the gripper





A = connection port
B = fixing thread
C = sensor fixing hole

Mod.
RPGA-20-E

Series RPGB sprue grippers
Size 8, 12mm

New version

Angular, not self-centering, single-acting, Normally Open
Models: Flat Finger, Short Finger, Flat Finger with sensor



- Suitable for plastic injection molding sector
- Easy to install
- Compact and lightweight
- Wear resistant
- Models RPGB-08-D and RPGB-12-D are supplied with sensor CSD-362 already mounted

The external design, the choice of materials and the search for miniaturization makes Series RPGB a compact and lightweight solution.
The D model is provided with a finger having a slot for the installation of a magnetic sensor which is able to detect the grip of the piece.

Its technical features ensure a high gripping force and make this gripper particularly suitable in the removal of injection molded items.
The surface treatments on each metallic part make this series very wear resistant.

GENERAL DATA

Operation	single-acting, Normally Open
Materials	anodized aluminium body and fingers, HNBR seals
Working pressure	2.5 bar ÷ 8 bar
Working temperature	0°C ÷ 60°C
Max frequency	3 Hz
Lubrication	Not necessary
Air ports	M5
Media	Filtered air, class 6.8.4 according to ISO 8573-1, without lubrication
Size	8, 12 mm
Weights	15 g (size 8) - 50 g (size 12)
Gripping torque at 6 bar **Opening torque at 6 bar** **Gripping force at 6 bar**	25 Ncm (size 8) - 90 Ncm (size 12) 2 Ncm (size 8) - 5 Ncm (size 12) 7 N (size 8) - 30 N (size 12)
Closing time without load	10 ms
Opening time	30 ms

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CODING EXAMPLE

RPGB	-	12	-	A

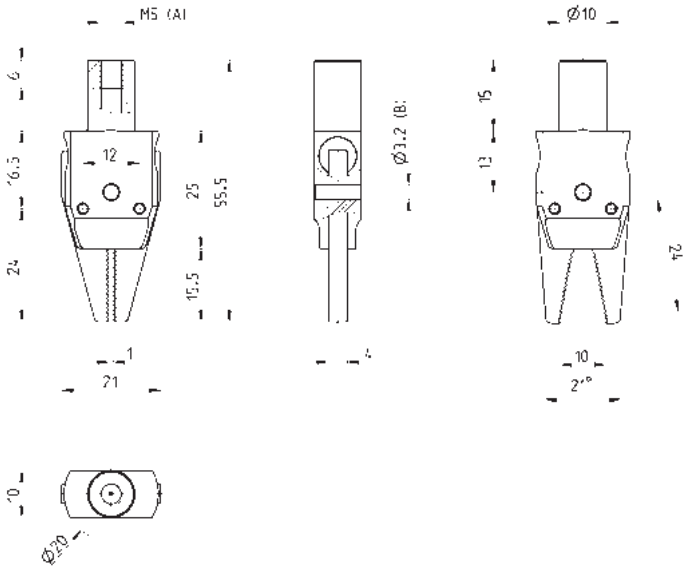
RPGB	SERIES
12	SIZE: 08 = ø 8 mm 12 = ø 12 mm
A	TYPE OF CONSTRUCTION: A = Flat finger C = Short finger with mounting holes for extensions D = Flat finger with sensor mounted (Mod. CSD-362)

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General terms and conditions for sale are available on www.camozzi.com.

Flat finger gripper Mod. RPGB-08-A - dimensions







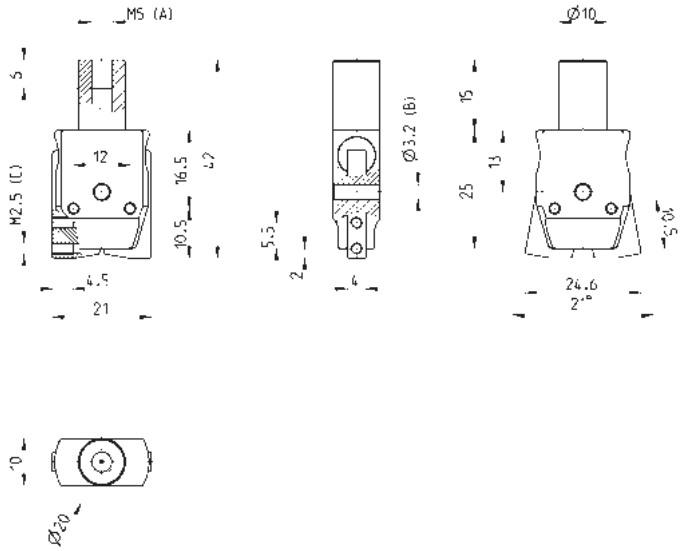
A = port connection
B = mounting hole

Mod.
RPGB-08-A

Short finger gripper Mod. RPGB-08-C - dimensions







A = port connection
B = mounting hole
C = mounting thread

Mod.
RPGB-08-C

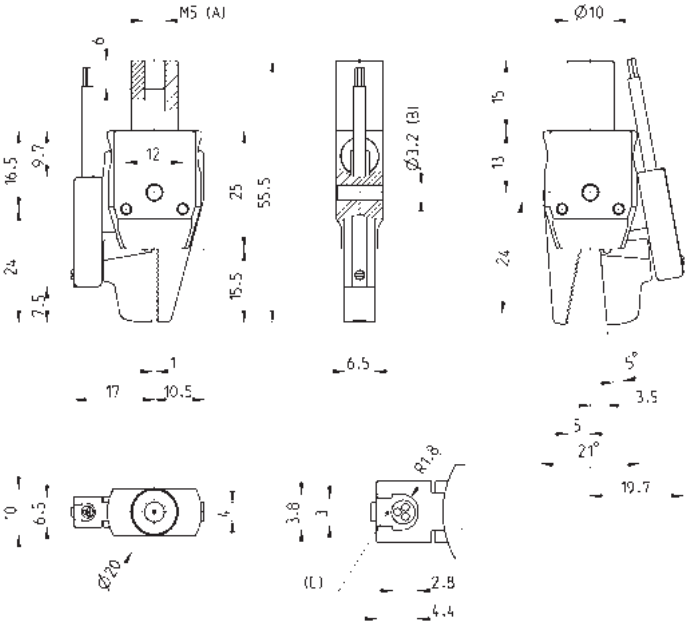
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Flat finger gripper with sensor slot Mod. RPGB-08-D - dimensions

This model is supplied with sensor CSD-362 mounted.



PNZ5



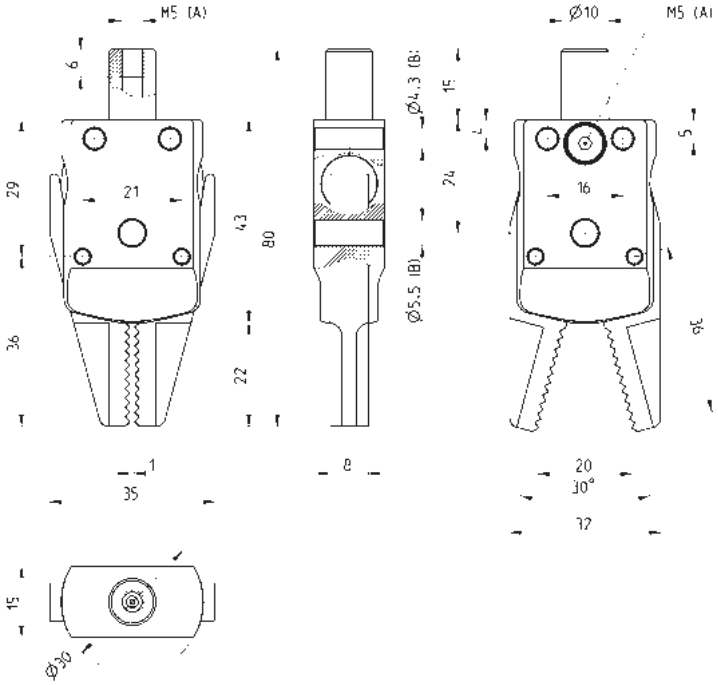
A = connection port
B = mounting hole
C = sensor groove

Mod.
RPGB-08-D

Flat finger gripper Mod. RPGB-12-A - dimensions



PNZ4



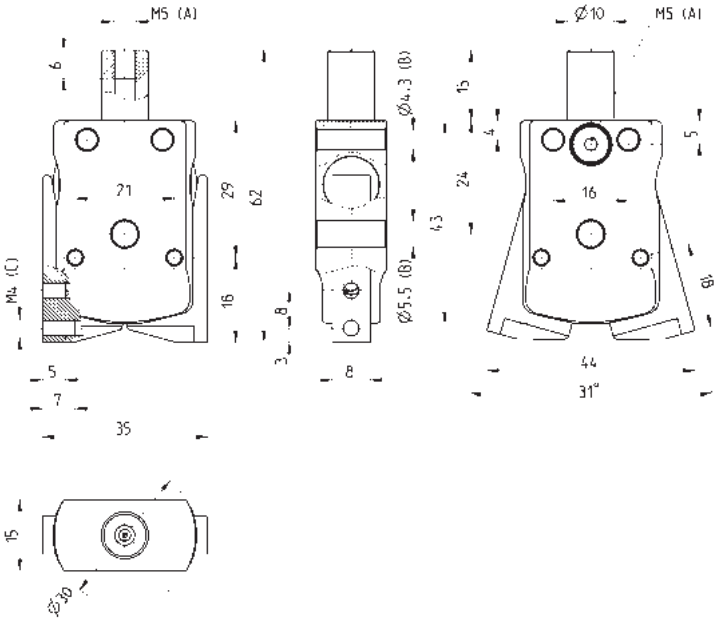
A = port connection
B = mounting holes

Mod.
RPGB-12-A

Short finger gripper Mod. RPGB-12-C - dimensions



PNZ4



A = port connection
B = mounting holes
C = mounting thread

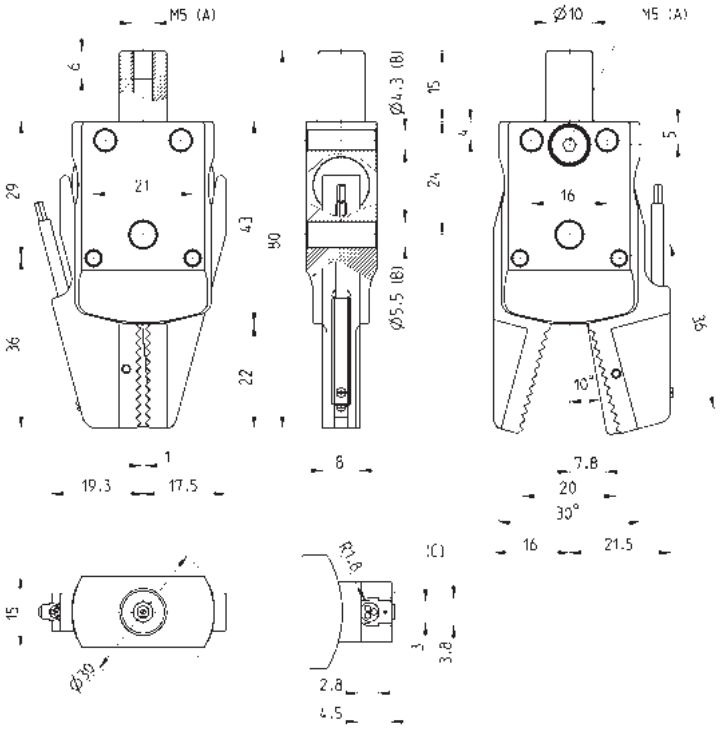
Mod.
RPGB-12-C

Flat finger gripper with sensor slot Mod. RPGB-12-D - dimensions

This model is supplied with sensor CSD-362 mounted.



PNZ5



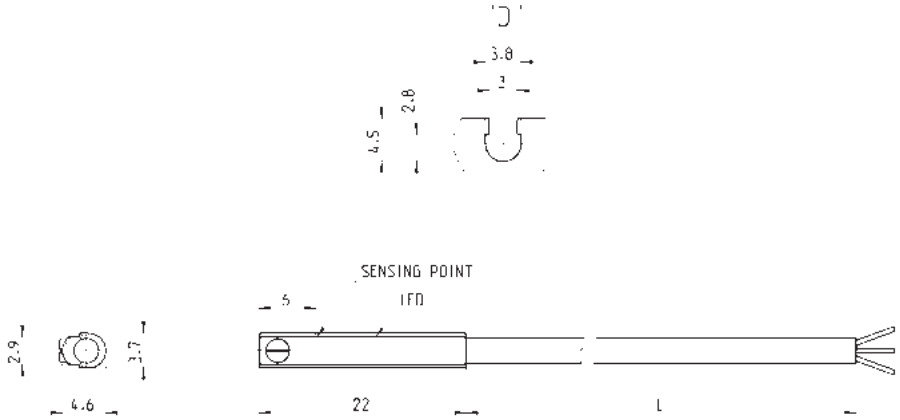
A = port connection
B = mounting hole
C = sensor groove

Mod.
RPGB-12-D

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Series CSD magnetic proximity switches with 3-wire cable



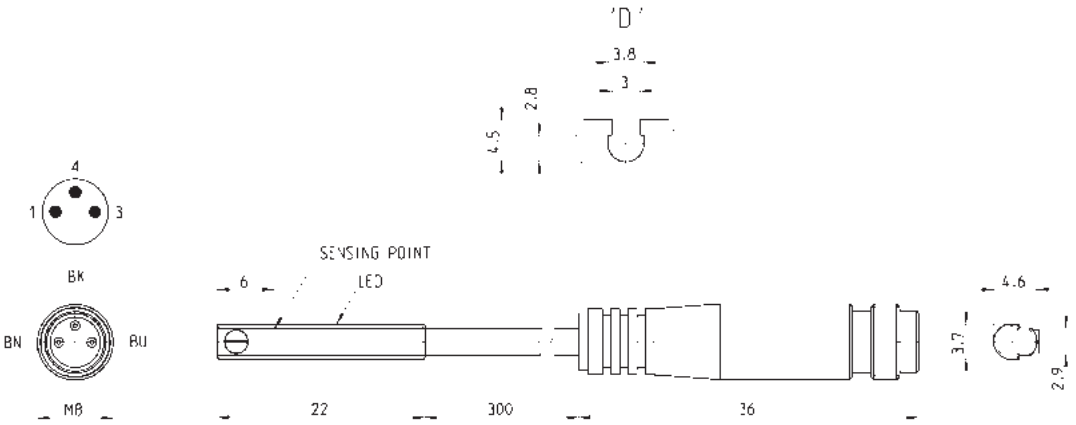


Mod.	Operation	Connections	Voltage	Output	Max. current	Max Load	Protection	L = length cable
CSD-332		3 wires	10 ÷ 27 DC	PNP	200 mA	6W	Against polarity reversing and overvoltage	2 m

Series CSD magnetic proximity switches with male connector M8

Length cable 0,3 mt.



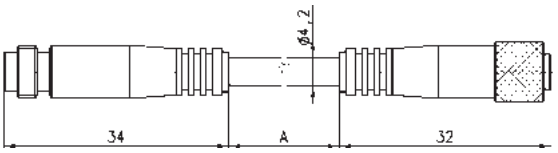


Mod.	Operation	Connection	Voltage	Output	Max. current	Max load	Protection
CSD-362		3 wires with M8 connector	10 ÷ 27 DC	PNP	200 mA	6W	Against polarity reversing and overvoltage

Extension with connector M8, 3 Pin Male / Female

Non shielded





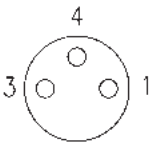
Mod.	cable length "L" (m)
CS-DW03HB-C250	2,5
CS-DW03HB-C500	5

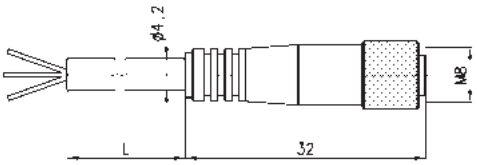
Circular connectors M8, 3 Pin Female

With PU sheathing, non shielded cable.
Protection class: IP65

BN = Brown
BK = Black
BU = Blue





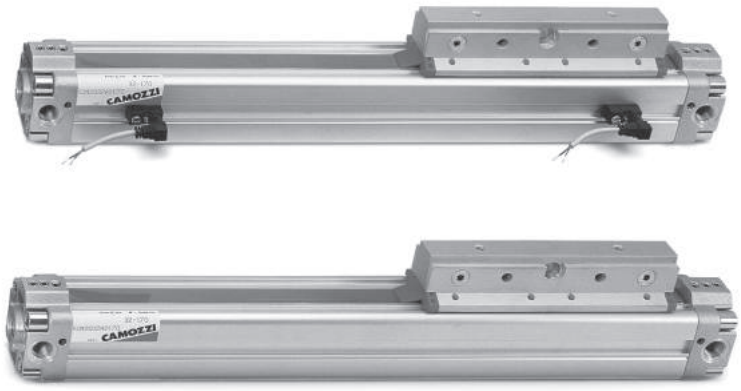


Mod.	L = cable length (m)
CS-2	2
CS-5	5
CS-10	10

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Series 50
rodless cylinders

Double-acting, magnetic, cushioned
ø 16, 25, 32, 40, 50, 63, 80 mm



- Four ports on each chamber
- Possibility to supply both chambers from one side (on request)

Series 50 rodless cylinders are available in 7 different diameters to cover as many applications as possible. A permanent magnet is assembled on the cylinder piston allowing the position to be detected by means of proximity switches positioned on the sliding axis.
This series of cylinder is normally supplied with end-stroke cushioning, that can be regulated by means of a screw located on the end-cover.

The Series 50 cylinders are recommended to be used according to the load values and torque forces detailed in the relative tables.

GENERAL DATA

Type of construction	rodless with integral carriage
Operation	double-acting
Materials	end-covers, piston and barrel = AL seals = PU and NBR
Operating temperature	0°C ÷ 50°C(with dry air - 10°C)
Operating pressure	1 ÷ 8 bar
Speed	10 ÷ 1000 mm/sec (without load)
Fluid	clean air, without lubrication If lubricated air is used, it is recommended to use oil ISOVG32. Once applied the lubrication should never be interrupted.
Strokes min - max	for all bores 100 ÷ 4000 mm
Stroke tolerance	strokes ≤ 1000 mm = 0 / +0,6 mm strokes > 1000 mm = 0 / +3 mm
Type of mounting	foot mounted

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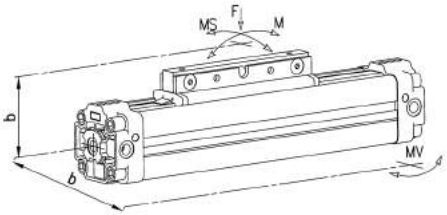
CODING EXAMPLE

50	M	2	P	50	A	0500

50	SERIES	
M	VERSION M = standard magnetic	
2	OPERATION 2 = double-acting cushioned	PNEUMATIC SYMBOL CDSS (see the following pages)
P	MATERIALS P = anodized AL profile tube - PU and NBR seals - standard carriage U = anodized AL profile tube - PU and NBR seals - flanged carriage	
50	BORE 16 = 16 mm 25 = 25 mm 32 = 32 mm 40 = 40 mm 50 = 50 mm 63 = 63 mm 80 = 80 mm	
A	TYPE OF MOUNTING A = standard	
0500	STROKE (see table)	

MAXIMUM PERMITTED LOADS AND TORQUE FORCES

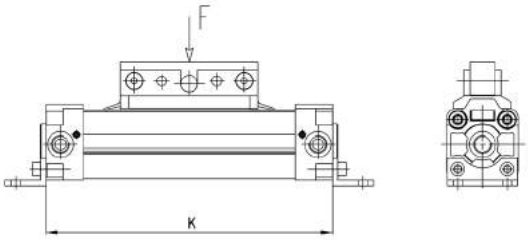
M = F x b
MS = F x b
MV = F x b
Note: Loads and bending torque are valid if applied separately.

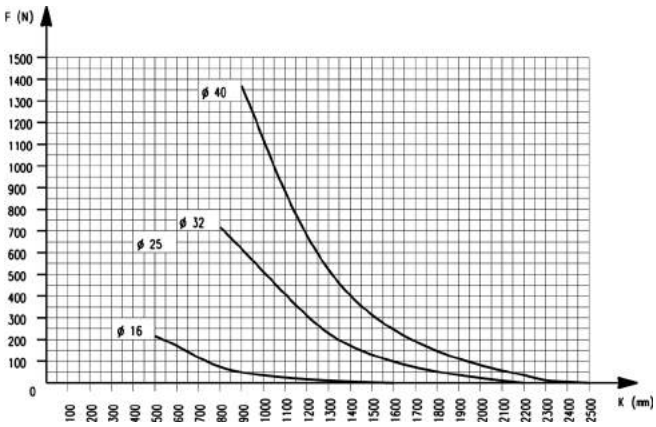


Ø	Max. load permitted (N) F	Max. bending torque force permitted (Nm) M	Max. bending torque force permitted (Nm) Ms	Torsional torque force permitted (Nm) Mv
16	218	3,1	0,5	1
25	660	12,4	1,9	5
32	720	30	4	8
40	1370	39	4	9
50	1600	122	11	16
63	2210	190	19	26
80	3770	305	30	47

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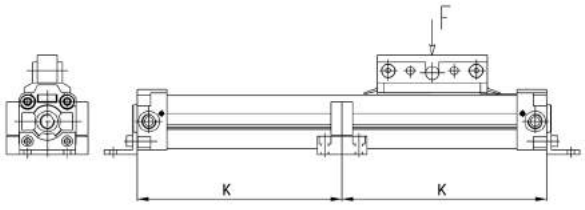
LOADS ACCORDING TO SUPPORTS DISTANCE

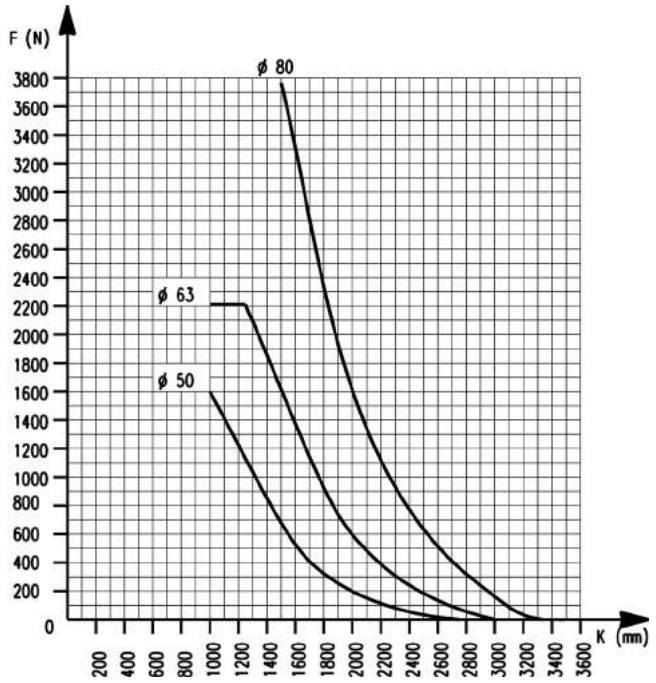




Note: This chart has been made according to a max. distance of 0.5 mm Load (N).
Once the load and the cylinder diameter have been fixed, the chart gives the K values beyond which it is necessary to put an intermediate feet Mod. BH-50.

LOADS ACCORDING TO SUPPORTS DISTANCE



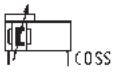


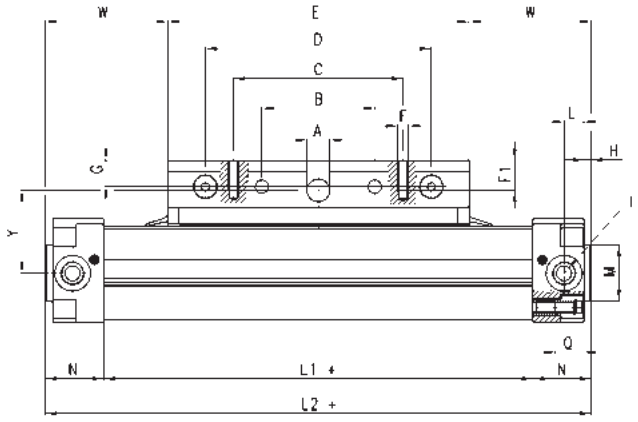
Note: This chart has been made according to a max. distance of 0.5 mm Load (N).
Once the load and the cylinder diameter have been fixed, the chart gives the K values beyond which it is necessary to put an intermediate feet Mod. BH-50.

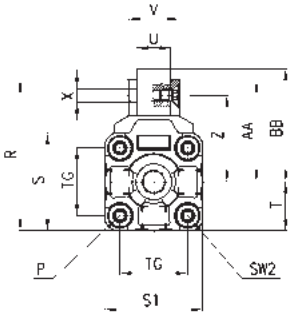
Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Cylinders with standard carriage Mod. 50M2P









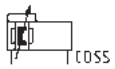
DIMENSIONS

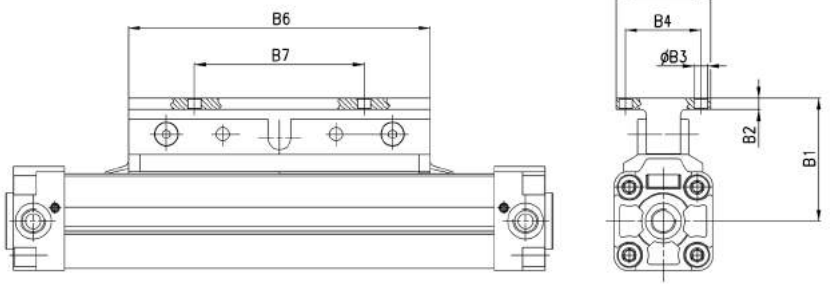
Ø	A	B	C	D	E	F	F1	G	H	I	L	L1+	L2+	M	N	P	Q	R	S	S1	T	U	V	Z	X	Y	W	AA	BB	TG	SW2
16	5	32	48	64	76	M4	8	6	2	M5	5,3	100	130	16	15	M3	8	42,5	28	27	13,5	10	18	24	4,5	24,5	27	29	30	18	4
25	8	50	80	100	120	M5	10	13	2,5	G1/8	9,5	150	200	22	25	M5	13,5	63	40	40	20	15	23	33	5,5	38	40	43	46	27	6
32	12	60	90	120	160	M6	15	14	4	G1/4	10,5	188	250	30	31	M6	15	80	52	52	26	18	27	46	7	48,5	45	54	60	36	6
40	12	55	90	110	150	M6	12	12	4	G1/4	17,5	226	300	35	37	M6	15	88,5	63	63	31,5	18	28	49	7	51	75	57	61	43	6
50	12	70	110	140	180	M6	12	12	4	G1/4	13,5	272	350	40	39	M8	16	103	74,5	76	38	18	28	57	7	59	85	65	69	53	10
63	16	90	140	180	220	M8	15	15	4	G3/8	17,5	342	430	45	44	M8	16	125	92	94	47	19	30	68	9	70	105	78	83	67	10
80	20	120	180	240	280	M10	20	18	4	G1/2	32	408	520	45	56	M10	18,5	153,5	115,5	117	58,5	20	32	83	11	86	120	95	101	83	12

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Cylinders with flanged carriage Mod. 50M2U





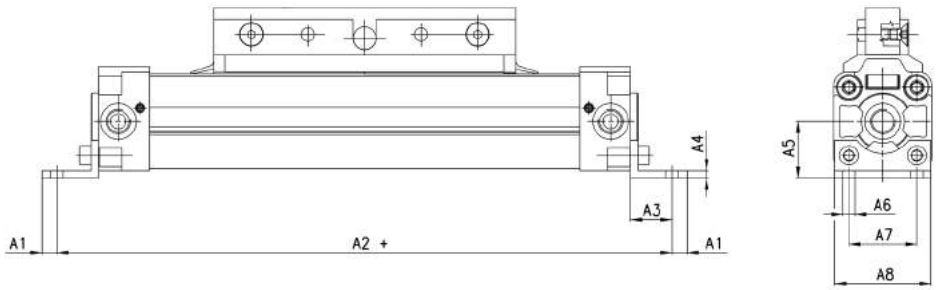


DIMENSIONS							
Ø	B1	B2	B3	B4	B5	B6	B7
16	36	4	4,5	25	40	76	50
25	51	5	5,5	35	50	120	70
32	66	6	7	40	50	160	90
40	66	6	7	45	60	150	80
50	74	6	7	45	60	180	100
63	89	7	9	60	80	220	130
80	108	8	11	75	100	280	180

Foot mount Mod. B-50



+ = add the stroke

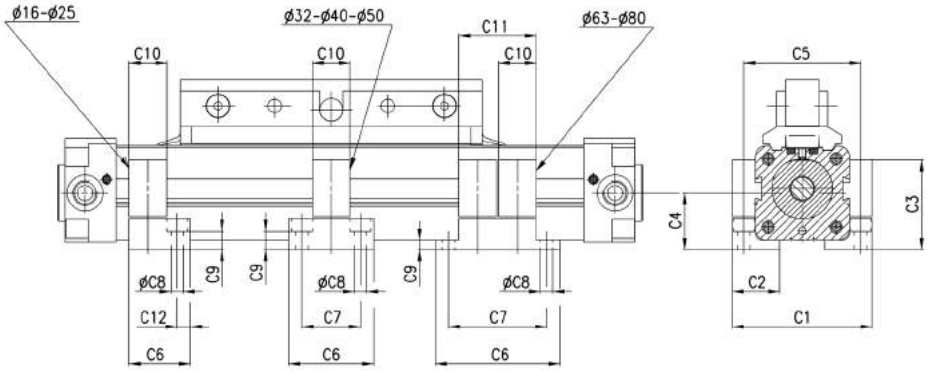


DIMENSIONS								
Mod.	A1	A2+	A3	A4	A5	A6	A7	A8
B-50-16	3	150	12	3	15	3,6	18	26
B-50-25	6,5	232	18,5	3	22	5,5	27	39
B-50-32	8	286	22	4	30	6,6	36	51
B-50-40	13,5	325	16,5	4	38	9	30	62
B-50-50	13,5	375	16,5	6	48	9	40	75
B-50-63	11	460	19	6	57	11	48	93
B-50-80	18,5	555	21,5	6	72	14	60	116

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Brackets Mod. BH-50

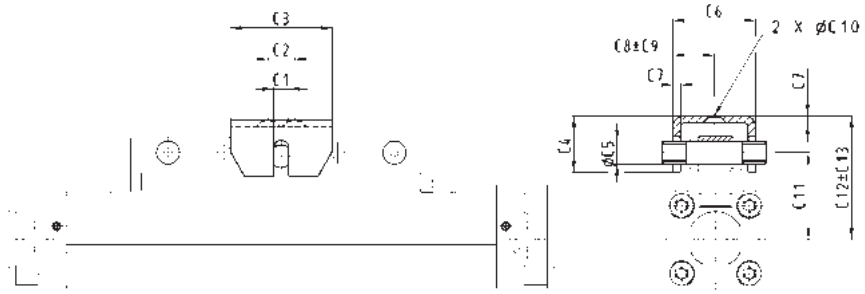




DIMENSIONS												
Mod.	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12
BH-50-16	42	12	25	15	34	20	-	3,4	4,5	12	-	4
BH-50-25	56	21	32,6	22	47	22	-	5,5	10,1	12	-	5
BH-50-32	74	25	47,5	30	62	45	31	6,6	9,7	20	-	-
BH-50-40	85	35	56	38	73	60	45	6,6	18,2	20	-	-
BH-50-50	98	32	67,5	48	86	60	45	6,6	29,7	20	-	-
BH-50-63	126	50	78,5	57	109	74	56	9	11	20	41	-
BH-50-80	155	65	96	72	135	80	60	11	14,5	20	41	-

Self-compensating adaptor Mod. CF-50



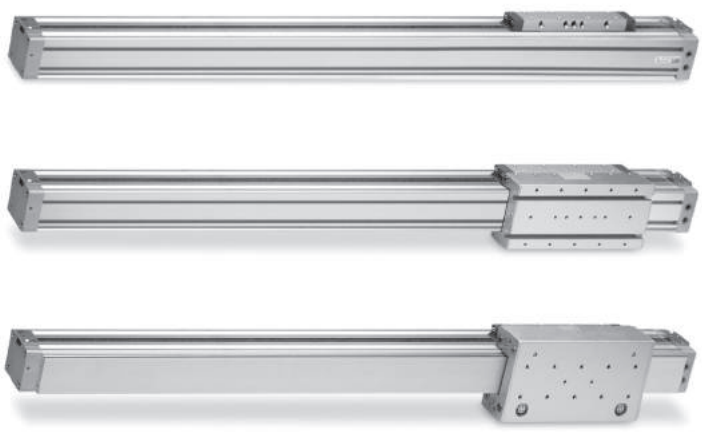


DIMENSIONS													
Mod.	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13
CF-50-25	6	16	40,8	22,9	7,9	31,5	3	15,8	1,2	5,6	38	55,4	4,5
CF-50-32	9,3	50	76,4	27,4	11,9	38,5	4	19	1,7	7,1	48,5	69,4	5,5
CF-50-40	9,3	50	76,4	24,4	11,9	38,5	4	19	1,2	7,1	51	70,9	3,5
CF-50-50	9,3	80	114,6	37,1	11,9	43,9	6	22	1,8	8,6	59	89,2	5,9
CF-50-63	12,7	100	134,6	42,2	15,9	43,9	6	22	0,8	8,6	70	104,7	6,5
CF-50-80	12,7	125	159,5	42,2	19,9	50,3	6	25,1	3	11	86	122,2	5

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Series 52
rodless cylinders

Double-acting, magnetic, cushioned
ø 25, 32, 40, 50, 63 mm



- Three main versions, Basic, Slide bearing and Roller bearing
- Extra short carriage as option for all versions
- Possibility of feeding both chambers from one side only

Series 52 rodless cylinders are available in 5 diameters (25, 32, 40, 50 and 63 mm) and comes in three main versions: Basic (M), with Slide bearing (G) and with Roller bearings (R). Furthermore these three main versions are each available with either standard- or short carriage to cover a wider range of applications.

A permanent magnet is assembled on the piston allowing the position to be detected by means of proximity switches positioned in grooves located on 3 sides on the cylinder profile. The cylinder is equipped with an end stroke cushioning which can be regulated by means of a screw located on each end cover of the cylinder. These cylinders are also available in versions with air supply from one side (end cover) only if needed.

GENERAL DATA

Models	Standard, with slide bearings, with roller bearings, air supply from one or both sides, with standard or short carriage. For sizes 50 - 63 roller bearings version is not available.
Materials	AL (anodized), plastic, hardened steel, seals: NBR, PU
Operating temperature	- 10°C ÷ + 70 °C
Operating pressure	1 ÷ 8 bar 1,5 ÷ 8 bar (Ø 25 for “R” version)
Speed	10 ÷ 1000 mm/sec (without load)
Fluid	filtered air, without lubrication. If lubricated air is used, it is recommended to use ISO VG32 oil. Once applied the lubrication should never be interrupted. If speeds exceed 1 m/s lubricated air is recommended.
Bore size	Ø 25 Ø 32 Ø 40 Ø 50 Ø 63
Cushioning length (mm)	14 mm - Ø 25 20 mm - Ø 32 25 mm - Ø 40 22 mm - Ø 50 32 mm - Ø 63
Strokes with standard carriage (version “P”)	max 6000 mm - Ø25 max 5950 mm - Ø32 max 5900 mm - Ø40, Ø50 max 5880 mm - Ø63
Strokes with short carriage (version “C”)	max 6000 mm
Stroke tolerance	strokes ≤ 1000 mm = 0 / +0,6 mm strokes > 1000 mm = 0 / +3 mm
Connection	G1/8 (Ø 25; 32) G1/4 (Ø 40) G3/8 (Ø 50; 63)

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CODING EXAMPLE

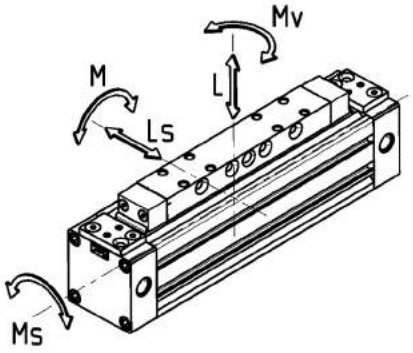
52	M	2	P	40	A	0500

52	SERIES	
M	VERSION M = standard G = with slide bearing R = with roller bearing (only Ø25 - 32 - 40)	
2	OPERATION 2 = double-acting, cushioned, with air supply from both sides 8 = double-acting, cushioned, with air supply from one side only	PNEUMATIC SYMBOLS CDSS (see the following pages) CDSS (see the following pages)
P	MATERIALS P = anodized AL profile tube, NBR and PU seals, standard carriage C = anodized AL profile, NBR and PU seals, short carriage	
40	BORE 25 = 25 mm 32 = 32 mm 40 = 40 mm 50 = 50 mm 63 = 63 mm	
A	TYPE OF MOUNTING A = standard	
0500	STROKE (see table)	

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LOADS AND TORQUE FORCES Ø 25 - 32

COMPLEX LOADS
If more than one force and torque is applied simultaneously, they have to be calculated according to the following formula: L/L (max)+ Ls/Ls (max)+ M/M (max)+ Ms/Ms (max)+ Mv/Mv (max) ≤1.
For models 52M, the load and torque values refer to the center of the tube.
For models 52G/52R the load and torque values refer to the center point of the external guide. It is also necessary for these models to guarantee on the fixing surface a max 0.1 flatness's value.
The load and torque values refer to a velocity of: Models 52M/52G/52M/52G ≤ 0,2 m/s, models 52R ≤ 2 m/s.
For the adjustment coefficients of loads see page 1.8.10.04



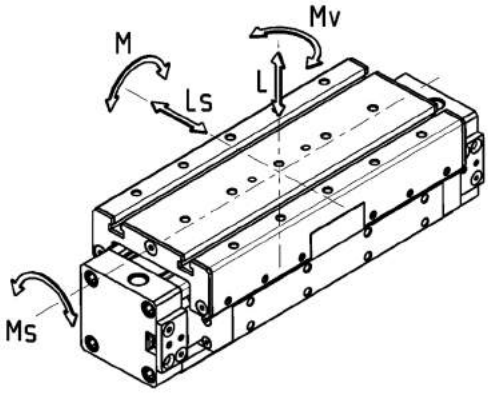
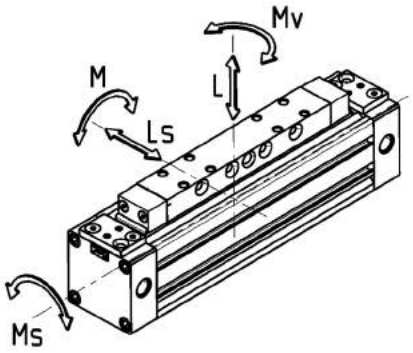


Table showing the maximum permitted loads and torque forces

Mod.	L Max (N)	Ls Max (N)	M Max (Nm)	Ms Max (Nm)	Mv Max (Nm)	Mass at 0 mm stroke (kg)	Additional mass per 100 mm (kg)
52M2P25A - 52M8P25A	270	-	13	2,5	11	0,88	0,30
52M2C25A - 52M8C25A	270	-	8	2	7	0,62	0,30
52G2P25A - 52G8P25A	580	580	23	10	23	1,31	0,30
52G2C25A - 52G8C25A	340	340	9	5	9	0,88	0,30
52R2P25A - 52R8P25A	850	1300	65	35	105	1,97	0,42
52R2C25A - 52R8C25A	850	1300	29	35	64	1,33	0,42
52M2P32A - 52M8P32A	300	-	30	3	24	1,40	0,39
52M2C32A - 52M8C32A	300	-	15	3	12	0,96	0,39
52G2P32A - 52G8P32A	850	850	33	15	33	2,09	0,39
52G2C32A - 52G8C32A	460	460	14	6,5	14	1,35	0,39
52R2P32A - 52R8P32A	900	1500	79	40	125	2,96	0,48
52R2C32A - 52R8C32A	900	1500	36	40	76	1,91	0,48

LOADS AND TORQUE FORCES Ø 40 - 50 - 63

COMPLEX LOADS
If more than one force and torque is applied simultaneously, they have to be calculated according to the following formula: L/L (max)+ Ls/Ls (max)+ M/M (max)+ Ms/Ms (max)+ Mv/Mv (max) ≤1.
For models 52M, the load and torque values refer to the center of the tube.
For models 52G/52R the load and torque values refer to the center point of the guide.
The load and torque values refer to a velocity of: Models 52M/52G ≤0,2 m/s
Models 52R ≤2 m/s
If the velocity exceeds 0.2m/s for the models 52M/52G, the load and torque values have to be multiplied by the coefficients according to the table.
For the adjustment coefficients of loads see page 1.8.10.04



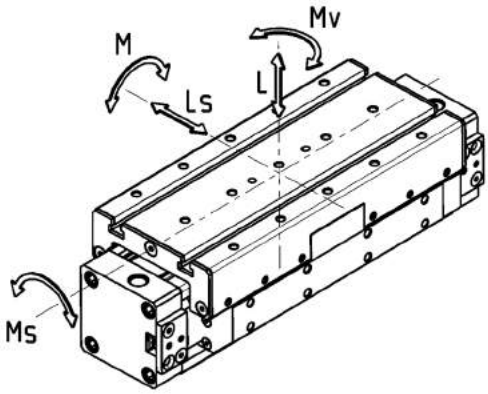
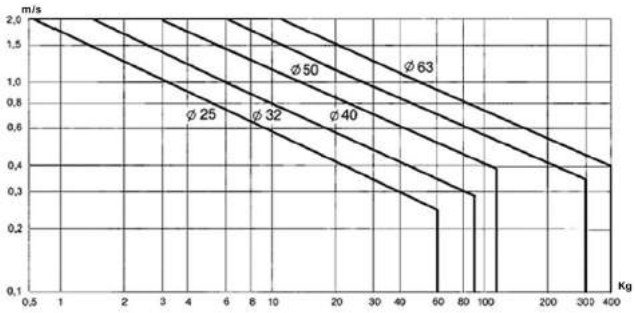


Table showing the maximum permitted loads and torque forces

Mod.	L Max (N)	Ls Max (N)	M Max (Nm)	Ms Max (Nm)	Mv Max (Nm)	Mass at 0 mm stroke (kg)	Additional mass per 100 mm (kg)
52M2P40A - 52M8P40A	650	-	60	4	54	2,41	0,52
52M2C40A - 52M8C40A	650	-	30	4	27	1,65	0,52
52G2P40A - 52G8P40A	1120	1120	60	25	60	3,58	0,52
52G2C40A - 52G8C40A	600	600	25	11	25	2,30	0,52
52R2P40A - 52R8P40A	1200	2000	190	67	118	5,89	0,74
52R2C40A - 52R8C40A	1200	2000	85	67	72	3,84	0,74
52M2P50A - 52M8P50A	800	-	80	17	74	5,30	0,96
52M2C50A - 52M8C50A	800	-	38	17	32	3,50	0,96
52G2P50A - 52G8P50A	1550	1500	200	70	200	7,28	0,96
52G2C50A - 52G8C50A	820	800	60	40	60	4,63	0,96
52M2P63A - 52M8P63A	1400	-	110	17	100	8,10	1,32
52M2C63A - 52M8C63A	1400	-	50	17	48	5,40	1,32
52G2P63A - 52G8P63A	2200	2000	300	102	300	11,02	1,32
52G2C63A - 52G8C63A	1100	1100	105	56	105	7,10	1,32

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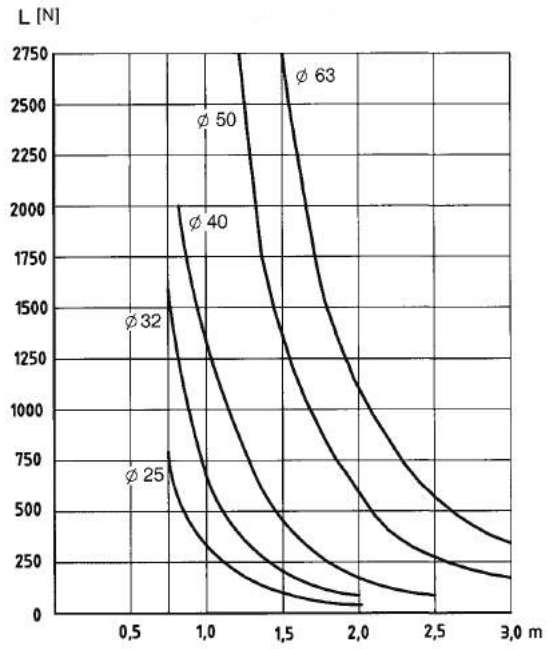
END CUSHION DIAGRAM



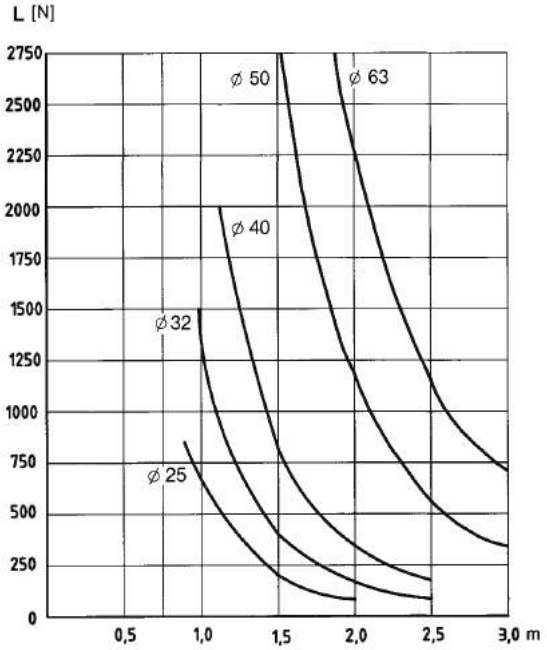
The end cushion regulating screw has to be regulated to obtain a smooth movement at the end of stroke.
In those applications which have different values than the ones stated in the diagram, external shock-absorbers have to be used.
The shock-absorber should be centrally located with respect to the center of the mass.
The diagram applies for horizontal operations.

Correction coefficient, loads see page 1.8.10.03.
speed - coefficient:
0,2 m/s - 1
0,3 m/s - 0,75
0,4 m/s - 0,5
0,5 m/s - 0,4
0,75 m/s - 0,27
1 m/s - 0,2

LOADS ACCORDING TO SUPPORTS DISTANCE



DEFLECTION 0.5 mm
The charts have been made according to a max. deflection of 0.5 mm and 1 mm when a load (N) is applied.
The charts give the max distance between two supports in order to stay within the deflection range given.



DEFLECTION 1 mm
The charts have been made according to a max. deflection of 0.5 mm and 1 mm when a load (N) is applied.
The charts give the max distance between two supports in order to stay within the deflection range given.

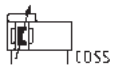
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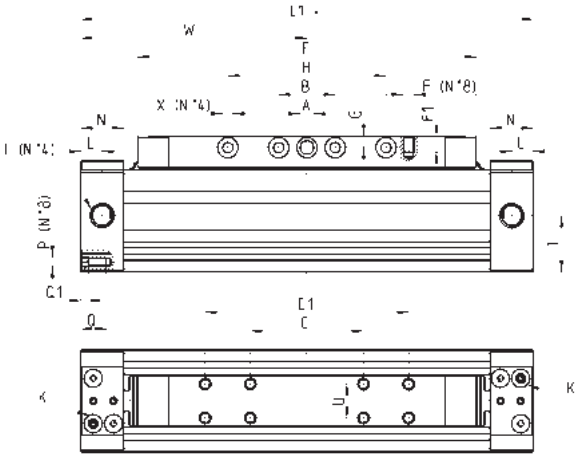
Cylinders with standard carriage Mod. 52M2P

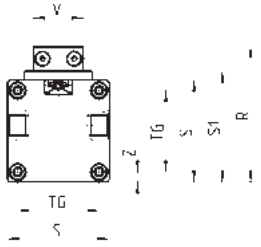
The cylinder has two supply ports “I” for both endcovers. The operator needs to choose which one of the two ports to use on each endcover. The remaining port has to be closed with the supplied tap.



+ = add the stroke
K = cushion regulation screw







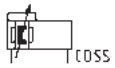
DIMENSIONS																										
Mod.	Ø	W	E	L1	I	B	G	N	L	øA	øX	S1	T	Z	C1	C	U	F	F1	H	V	S	R	P	TG	Q	Q1
52M2P25A	25	100	149,5	200	G1/8	25	5	19	9,5	6	4,5	49	25	4,5	90	50	15	M5	7	70	22	45	60	M4	36	11	3
52M2P32A	32	120	184,5	240	G1/8	25	5,5	19	9,5	6	5,5	58	32	7,5	130	45	15	M5	7	100	22	54	69	M5	41	11	4
52M2P40A	40	150	222,5	300	G1/4	25	7	23	11,5	7	6,5	68	38	7,5	160	90	15	M5	9	130	22	64	82	M6	49	12	4
52M2P50A	50	175	262	350	G3/8	35	9	30	17	10	8,5	94	59	12,5	150	60	34	M8	16	180	46	90	115	M8	65	17	5
52M2P63A	63	200	300	400	G3/8	50	9,5	30	17	10	8,5	110	68,5	14,0	240	80	34	M8	16	180	46	106	131	M8	78	17	5

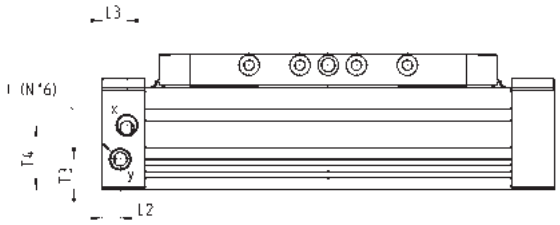
Cylinders with standard carriage Mod. 52M8P

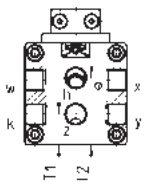
The cylinder has six supply ports (I) , three for one direction (x-h-w) , and the other three (y-z-k) for the opposite direction. With supporting feet (Mod. B-52 / BA-52), ports “h” and “z” have to be closed.



Where no dimensions are presented, refer to dimensions of cylinder model 52M2P.







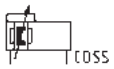
DIMENSIONS							
Mod.	Ø	T1	T2	T3	T4	L2	L3	I
52M8P25A	25	13,5	29,5	13,5	28,5	8	11	G1/8
52M8P32A	32	17,5	34,5	17,5	34,5	9,5	9,5	G1/8
52M8P40A	40	15,5	38	20,5	42,5	11,5	11,5	G1/4
52M8P50A	50	29,5	59	29	59	17	17	G3/8
52M8P63A	63	34	68,5	34	68,5	17	17	G3/8

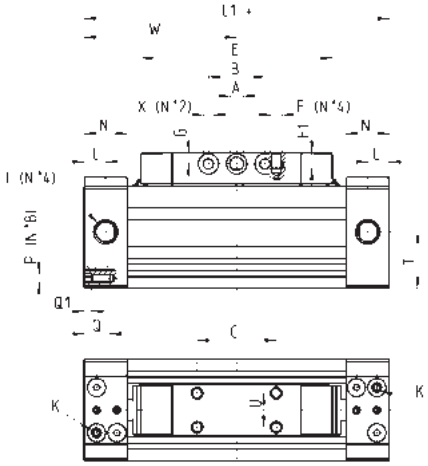
Cylinders with short carriage Mod. 52M2C

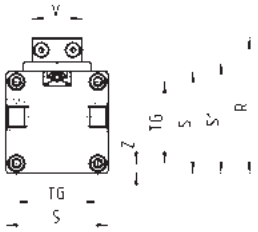
The cylinder has two supply ports “I” for both endcovers. The operator needs to choose which one of the two ports to use on each end cover.The remaining port has to be closed with the supplied tap.



+ = add the stroke
K = cushion regulation screw







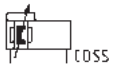
DIMENSIONS																								
Mod.	Ø	W	L	L1	I	B	G	N	E	øA	øX	R	C	F	F1	U	T	V	S	S1	TG	P	Z	Q	Q1
52M2C25A	25	67,5	9,5	135	G1/8	25	5	19	84,5	6	4,5	60	35	M5	7	15	25	22	45	49	36	M4	4,5	11	3
52M2C32A	32	77,5	9,5	155	G1/8	25	5,5	19	99,5	6	5,5	69	45	M5	7	15	32,5	22	54	58	41	M5	7,5	11	4
52M2C40A	40	95	11,5	190	G1/4	25	7	23	112,5	7	6,5	82	50	M5	9	15	38,5	22	64	68	49	M6	7,5	12	4
52M2C50A	50	105	17	210	G3/8	35	9	30	122	10	8,5	115	64	M8	16	34	59	46	90	94	65	M8	12,5	17	5
52M2C63A	63	125	17	250	G3/8	50	9,5	30	150	10	8,5	131	80	M8	16	34	68,5	46	106	110	78	M8	14	17	5

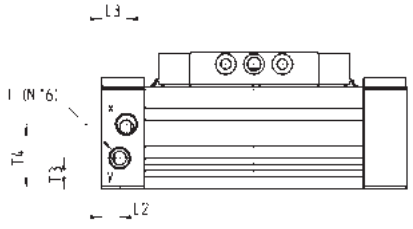
Cylinders with short carriage Mod. 52M8C

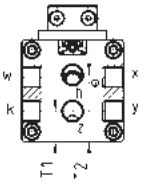
The cylinder has six supply ports (I) , three for one direction (x-h-w) , and the other three (y-z-k) for the opposite direction. With supporting feet (Mod. B-52 / BA-52), ports “h” and “z” have to be closed.



Where no dimensions are presented, refer to dimensions of cylinder model 52M2C.







DIMENSIONS							
Mod.	Ø	T1	T2	T3	T4	L2	L3	I
52M8C25A	25	13,5	29,5	13,5	28,5	8	11	G1/8
52M8C32A	32	17,5	34,5	17,5	34,5	9,5	9,5	G1/8
52M8C40A	40	15,5	38	20,5	42,5	11,5	11,5	G1/4
52M8C50A	50	29,5	59	29	59	17	17	G3/8
52M8C63A	63	34	68,5	34	68,5	17	17	G3/8

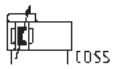
Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

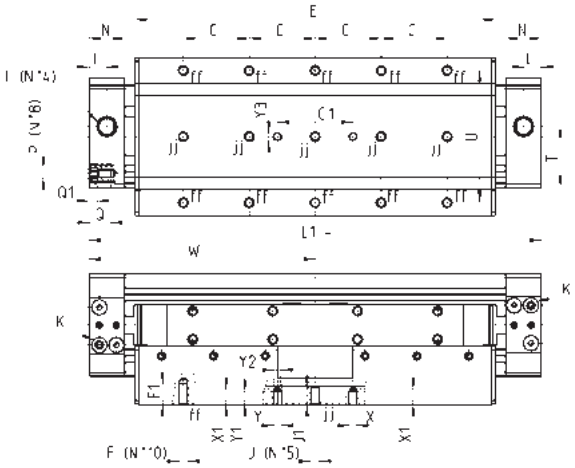
Cylinders with slide bearing Mod. 52G2P

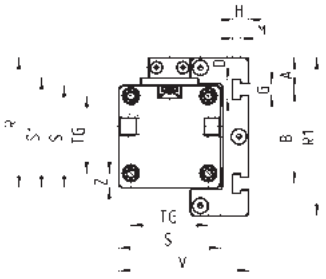
The cylinder has two supply ports “I” for both endcovers. The operator needs to choose which one of the two ports to use on each end cover. The remaining port has to be closed with the supplied tap.



jj = these holes are present in cylinder Ø32 only
+ add the stroke
K = cushion regulation screw







DIMENSIONS

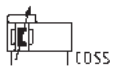
Mod.	Ø	W	E	L1	I	L	T	U	N	C	F	F1	D	B	A	H	G	M	J	J1	TG	Z	S	R1	P	V	Q	Q1	⌀Y2	Y	⌀X	Y1	X1	Y3	C1	S1	R
52G2P25A	25	100	159	200	G1/8	9,5	25	30	19	30	M5	8	10,5	50	12,5	8,5	6,5	4,5	-	-	36	4,5	45	75	M4	59	11	3	4	4,5	4	4,5	5,5	4	40	49	60
52G2P32A	32	120	191	240	G1/8	9,5	32,5	70	19	35	M5	11	10,5	50	17	8,5	6,5	4,5	M5	9	41	7,5	54	84	M5	69	11	4	4	4,5	4	7	8	4	40	58	69
52G2P40A	40	150	246	300	G1/4	11,5	38	55	23	55	M6	12	10,5	80	10	8,5	6,5	4,5	-	-	49	7,5	64	100	M6	79	12	4	6	6,5	6	7	8	6	40	68	82
52G2P50A	50	175	270	350	G3/8	17	59	42	30	50	M8	16	10,5	94	23	8,5	6,5	4,5	-	-	65	12,5	90	133	M8	112,5	17	5	-	6,5	6	3	3	6	40	94	115
52G2P63A	63	200	320	400	G3/8	17	68,5	60	30	60	M8	16	10,5	110	24	8,5	6,5	4,5	-	-	78	14	106	150	M8	134,5	17	5	-	6,5	6	6,5	6,5	6	40	110	132

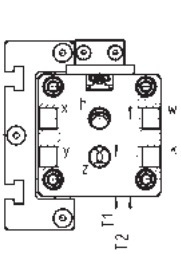
Cylinders with slide bearing Mod. 52G8P

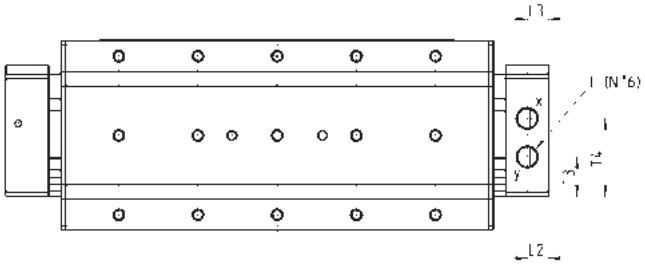
The cylinder has six supply ports (I) , three for one direction (x-h-w) , and the other three (y-z-k) for the opposite direction. With supporting feet (Mod. B-52 / BA-52), ports “h” and “z” have to be closed.



Where no dimensions are presented, refer to dimensions of cyl. mod. 52G2P. The guide can be applied on the right side, if requested.







DIMENSIONS

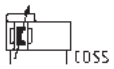
Mod.	Ø	T1	T2	T3	T4	L2	L3	I
52G8P25A	25	13,5	29,5	13,5	28,5	8	11	G1/8
52G8P32A	32	17,5	34,5	17,5	34,5	9,5	9,5	G1/8
52G8P40A	40	15,5	38	20,5	42,5	11,5	11,5	G1/4
52G8P50A	50	29,5	59	29	59	17	17	G3/8
52G8P63A	63	34	68,5	34	68,5	17	17	G3/8

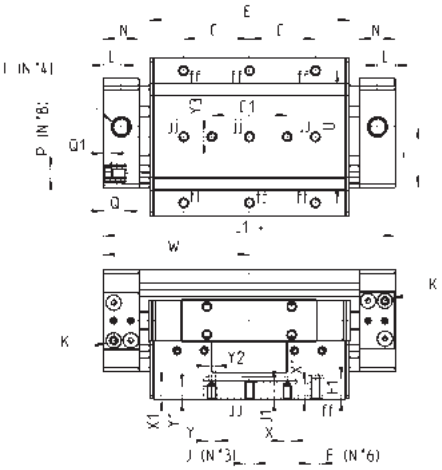
Cylinders with slide bearing Mod. 52G2C

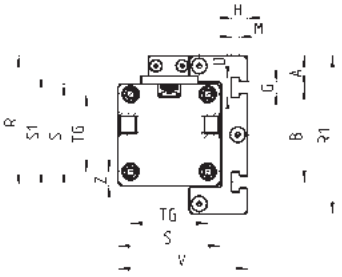
The cylinder has two supply ports “I” for both endcovers. The operator needs to choose which one of the two ports to use on each end cover. The remaining port has to be closed with the supplied tap.



jj = these holes are present in cylinder Ø32 only
+ add the stroke
K = cushion regulation screw







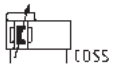
DIMENSIONS																																
Mod.	Ø	W	E	L1	I	L	T	U	N	C	F	F1	D	B	A	H	G	M	J	J1	TG	Z	S	R1	P	V	Q	Q1	⌀Y2	Y	⌀X	Y1	X1	Y3	C1	S1	R
52G2C25A	25	67,5	94	135	G1/8	9,5	25	30	19	30	M5	8	10,5	50	12,5	8,5	6,5	4,5	-	-	36	4,5	45	75	M4	59	11	3	4	4,5	4	4,5	5,5	4	40	49	60
52G2C32A	32	77,5	106	155	G1/8	9,5	32,5	70	19	35	M5	11	10,5	50	17	8,5	6,5	4,5	M5	9	41	7,5	54	84	M5	69	11	4	4	4,5	4	7	8	4	40	58	69
52G2C40A	40	95	136	190	G1/4	11,5	38,5	55	23	55	M6	12	10,5	80	10	8,5	6,5	4,5	-	-	49	7,5	64	100	M6	79	12	4	6	6,5	6	7	8	6	40	68	82
52G2C50A	50	105	148	210	G3/8	17	59	42	30	50	M8	16	10,5	94	23	8,5	6,5	4,5	-	-	65	12,5	90	133	M8	113	17	5	-	6,5	6	3	3	6	40	94	115
52G2C63A	63	125	180	250	G3/8	17	68,5	60	30	60	M8	16	10,5	110	24	8,5	6,5	4,5	-	-	78	14	106	150	M8	134,5	17	5	-	6,5	6	6,5	6,5	6	40	110	132

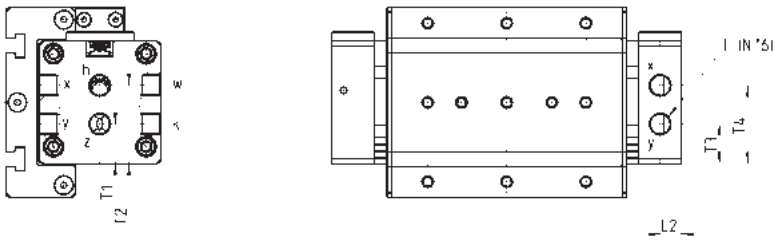
Mod. 52G8C

The cylinder has six supply ports (I) , three for one direction (x-h-w),and the other three for the opposite direction (y-z-k). With supporting feet (mod. B-52 / BA-52), ports “h” and “z” have to be closed .



Where no dimensions are presented, refer to dimensions of cylinder model 52G2C. The guide can be applied on the right side, if requested.





DIMENSIONS							
Mod.	Ø	T1	T2	T3	T4	L2	L3	I
52G8C25A	25	13,5	29,5	13,5	28,5	8	11	G1/8
52G8C32A	32	17,5	34,5	17,5	34,5	9,5	9,5	G1/8
52G8C40A	40	15,5	38	20,5	42,5	11,5	11,5	G1/4
52G8C50A	50	29,5	59	29	59	17	17	G3/8
52G8C63A	63	34	68,5	34	68,5	17	17	G3/8

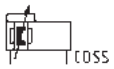
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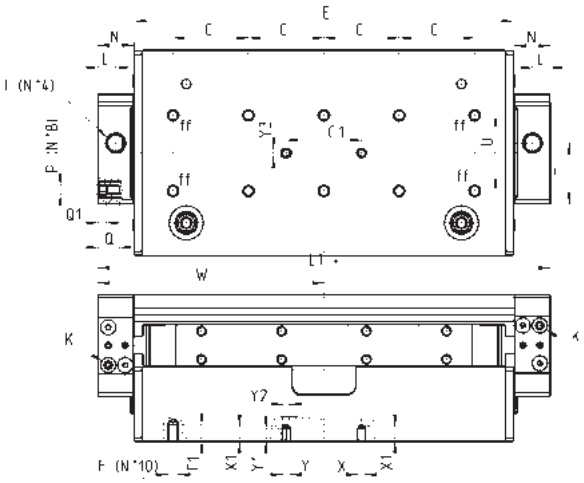
Cylinders with Roller bearings Mod. 52R2P

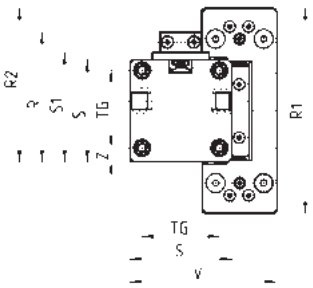
The cylinder has two supply ports “I” for both endcovers. The operator needs to choose which one of the two ports to use on each end cover. The remaining port has to be closed with the supplied tap.



ff = these holes are not present in cylinder Ø 25
+ add the stroke
K = cushion regulation screw







DIMENSIONS

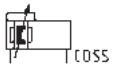
Mod.	Ø	W	E	L1	I	L	T	U	N	C	F	F1	TG	Z	S	R1	P	V	Q	Q1	øY2	Y	øX	Y1	X1	Y3	C1	S1	R2	R
52R2P25A	25	100	160	200	G1/8	9.5	25	40	19	40	M5	7.5	36	4.5	45	97	M4	68	11	3	4	4.5	4	7	8	4	40	49	71	60
52R2P32A	32	120	201	240	G1/8	9.5	32.5	40	19	40	M6	9	41	7.5	54	109	M5	78	11	4	4	4.5	4	7	8	4	40	58	81.5	69
52R2P40A	40	150	252	300	G1/4	11.5	38	55	23	55	M6	12	49	7.5	64	145	M6	90.5	12	4	6	6.5	6	7	8	6	40	68	104.5	82

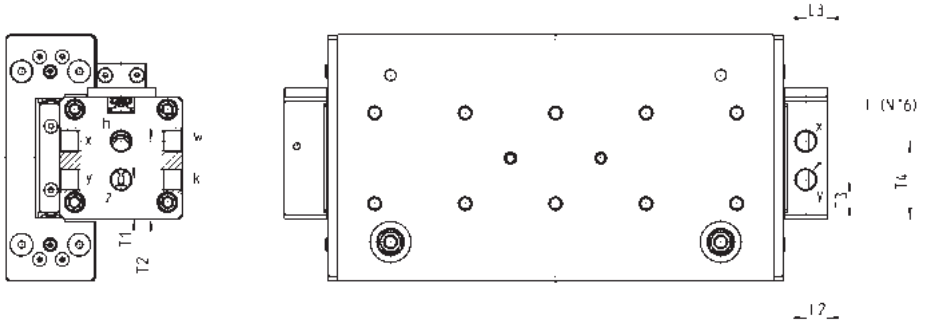
Cylinders with Roller bearings Mod. 52R8P

The cylinder has six ports, three for one direction (x-h-w), and the other three (y-z-k) for the opposite direction. With supporting feet (Mod. B-52 / BA-52), ports “h” and “z” have to be closed.



Where no dimensions are presented, refer to dimensions of cylinder model 52R2P. The guide can be applied on the right side, if requested.





DIMENSIONS

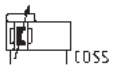
Mod.	Ø	T1	T2	T3	T4	L2	L3	I
52R8P25A	25	13,5	29,5	13,5	28,5	8	11	G1/8
52R8P32A	32	17,5	34,5	17,5	34,5	9,5	9,5	G1/8
52R8P40A	40	15,5	38	20,5	42,5	11,5	11,5	G1/4

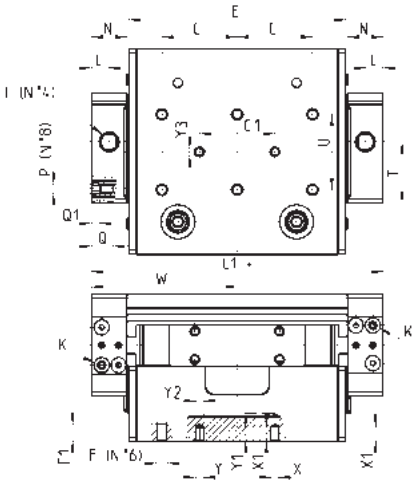
Cylinders with Roller bearings Mod. 52R2C

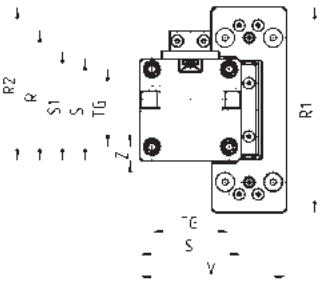
The cylinder has two supply ports “I” for both endcovers. The operator needs to choose which one of the two ports to use on each end cover. The remaining port has to be closed with the supporting tap.



+ = add the stroke
K = cushion regulation screw







DIMENSIONS

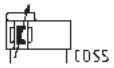
Mod.	Ø	W	E	L1	I	L	T	U	N	C	F	F1	TG	Z	S	R1	P	V	Q	Q1	øY2	Y	øX	Y1	X1	Y3	C1	S1	R2	R
52R2C25A	25	67.5	95	135	G1/8	9.5	25	40	19	20	M5	7.5	36	4.5	45	97	M4	68	11	3	4	4.5	4	7	8	4	40	49	71	60
52R2C32A	32	77.5	115	155	G1/8	9.5	32.5	40	19	40	M6	9	41	7.5	54	109	M5	78	11	4	4	4.5	4	7	8	4	40	58	81.5	69
52R2C40A	40	95	143.5	190	G1/4	11.5	38	55	23	55	M6	12	49	7.5	64	145	M6	90.5	12	4	6	6.5	6	7	8	6	40	68	104.5	82

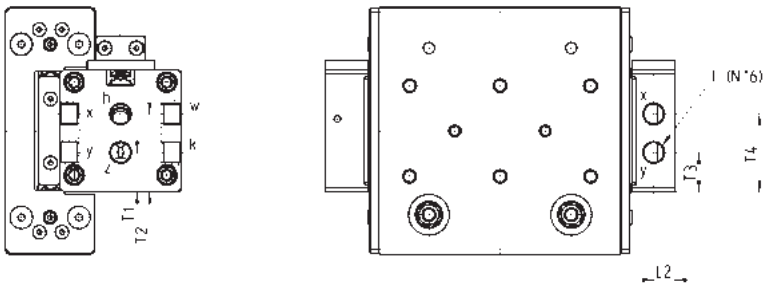
Cylinders with Roller bearings Mod. 52R8C

The cylinder has six supply ports (I) , three for one direction (x-h-w) , and the other three (y-z-k) for the opposite direction. With supporting feet (Mod. B-52 / BA-52), ports “h” and “z” have to be closed.



Where no dimensions are presented, refer to dimensions of cylinder model 52R2C. The guide can be applied on the right side, if requested.





DIMENSIONS

Mod.	Ø	T1	T2	T3	T4	L2	L3	I
52R8C25A	25	13,5	29,5	13,5	28,5	8	11	G1/8
52R8C32A	32	17,5	34,5	17,5	34,5	9,5	9,5	G1/8
52R8C40A	40	15,5	38	20,5	42,5	11,5	11,5	G1/4

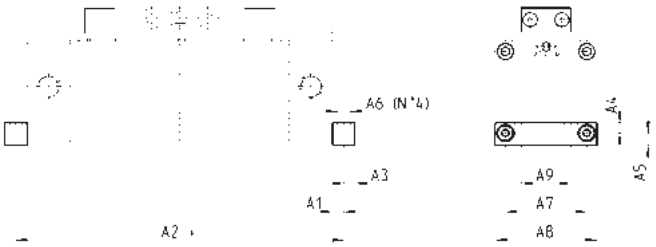
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Foot mount Mod. B-52



The following is supplied:
2x feet
4x screws

+ = add the stroke



DIMENSIONS

Mod.	Ø	A1	A2 Series 52...P...	A2 Series 52...C...	A3	A4	A5	Ø A6	A7	A8	A9
B-52-25	25	5	210	145	5	4,5	5,5	5,5	36	45	22
B-52-32	32	7,5	255	170	7,5	7,5	8,5	7	41	51	25
B-52-40	40	7,5	315	205	7,5	7,5	8,5	9	49	64	25
B-52-50	50	7,5	365	225	7,5	12,5	13,5	8.5	65	89	40
B-52-63	63	7,5	415	265	7,5	14	15	8.5	78	105	50

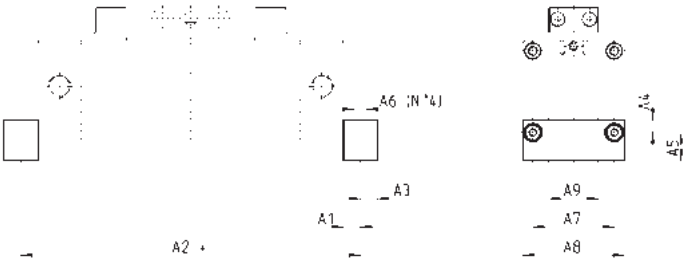
Foot mount Mod. BA-52

These are to be used with intermediate bracket (Mod. BH-52... and BL-52...)



The following is supplied:
2x feet
4x screws

+ = add the stroke



DIMENSIONS

Mod.	Ø	A1	A2 Series 52...P...	A2 Series 52...C...	A3	A4	A5	Ø A6	A7	A8	A9
BA-52-25	25	7,5	215	150	7,5	5,5	12,5	5,5	36	45	22
BA-52-32	32	7,5	255	170	7,5	16,5	17,5	7	41	51	25
BA-52-40	40	7,5	315	205	7,5	8,5	17,5	9	49	64	25
BA-52-50	50	7,5	365	225	7,5	12,5	27,5	8,5	65	89	40
BA-52-63	63	7,5	415	265	7,5	11	29	8,5	78	105	50

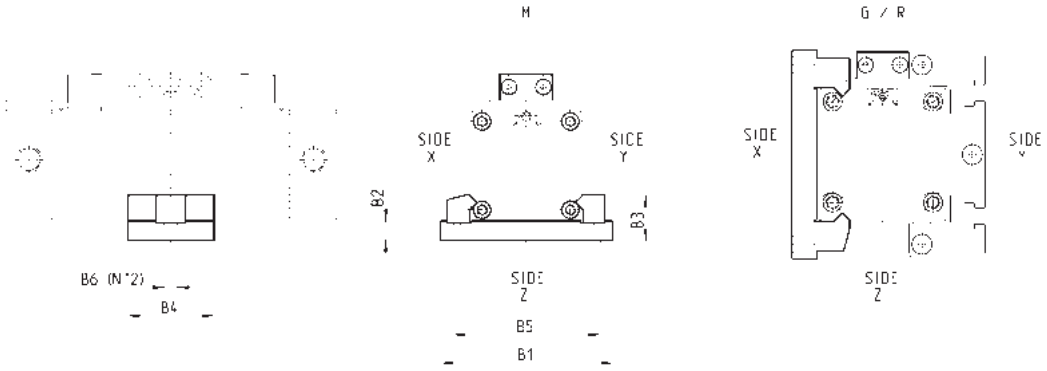
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Intermediate brackets Mod. BH and BL 52-32

Assembling by using two intermediate brackets without using the feet bracket.



The following is supplied:
1x intermediate bracket
4x screws



DIMENSIONS

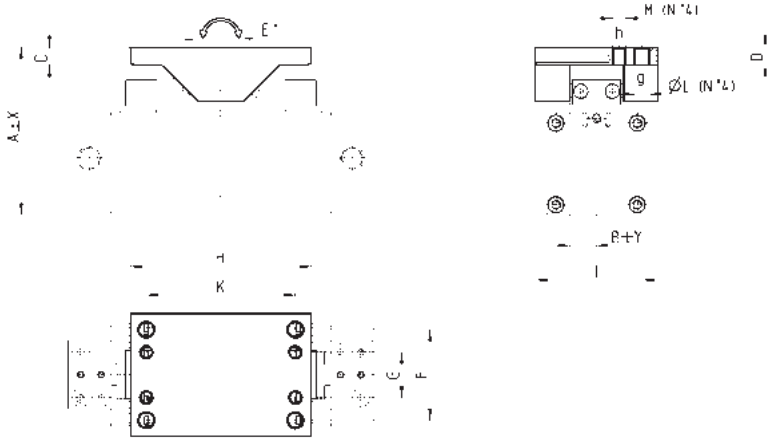
Mod.	Ø	B1	B2	B3	B4	B5	Ø B6	
BH-52-25	25	70	8	18.5	35	60	5.5	for cylinders vers. M mounting on sides X, Y, Z - for cylinders vers. G or R mounting on sides X and Y
BH-52-32	32	85	10	23.5	40	73	6.5	for cylinders vers. M mounting on side Z
BL-52-32	32	85	10	23.5	40	73	6.5	for cylinders vers. M, G or R mounting on sides X and Y
BH-52-40	40	105	10	23.5	40	90.5	9	for cylinders vers. M mounting on sides X, Y, Z - for cylinders vers. G or R mounting on sides X and Y
BH-52-50	50	138	15	30	70	120	11	for cylinders vers. M mounting on sides X, Y, Z - for cylinders vers. G or R mounting on sides X and Y
BH-52-63	63	154	15	36	70	136	11	for cylinders vers. M mounting on sides X, Y, Z - for cylinders vers. G or R mounting on sides X and Y

Self-compensating adaptor Mod. CF-52

The self-compensating adaptor is used to compensate the difference between the rodless cylinder and the external guide system. Suitable for cylinders mod. 52M2P/52M2C/52M8P/52M8C.



The following is supplied:
1x adaptor
1x pin
2x feet
2x seeger



DIMENSIONS

Mod.	Ø	A	X	E°	B	Y	D	I	F	G	H	K	Ø L	M
CF-52-25-32	25	74	1	±8	12	0,8	8	54	40	20	80	66	6,5	M6
CF-52-25-32	32	82	0,5	±6	12	0,8	8	54	40	20	80	66	6,5	M6
CF-52-40	40	94,5	0,5	±6	12	0,8	8	54	40	20	80	66	6,5	M6
CF-52-50-63	50	130,5	0,5	±5	24	0,8	11	80	51	23	122	102	9	M8
CF-52-50-63	63	146	0,5	±4,5	24	0,8	11	80	51	23	122	102	9	M8

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Series CST-CSV-CSH, CSB-CSC-CSD magnetic proximity switches

Reed
Magnetoresistive - Hall effect (Series CST, CSV, CSH only)



- Series CST, CSV, CSH: integrated into actuators profile, with or without M8 connector
- Series CSB: for CGA-CGP-CGC grippers
- Series CSC: for CGLN grippers
- Series CSD: for CGSN-CGPT-CGPS-RPGB grippers

The switches are available in two different versions - Reed with mechanical switching and with electronic switching - and they are subdivided into Hall effect and Magnetoresistive. The electronic versions are suggested for heavy duty with frequent operations and strong vibrations.

The magnetic proximity switches define the position of the cylinder piston. When the internal contact is actuated by a magnetic field, the sensors complete an electrical circuit and provide an output signal to actuate directly a solenoid valve or a PLC. A yellow or led LED diode shows when the internal magnetic contact is closed.

GENERAL DATA

	Series CST, CSV, CSH	Series CSB, CSC, CSD
Operation	Reed contact Magnetoresistive Hall effect	Reed contact (CSB, CSC only) Magnetoresistive (CSD only)
Type of output	Static or electronic PNP	
Type of contact in Reed switches	Normally Open (NO), Normally Closed (NC)	Normally Open (NO)
Voltage	see the characteristics of each model	see the characteristics of each model
Max current	see the characteristics of each model	see the characteristics of each model
Max load	8 W DC and 10 VA AC (Reed) 6 W DC (Magnetoresistive - Hall effect)	8 W DC and 10 VA AC 6 W DC (Magnetoresistive)
Protection class	IP67	IP66
Materials	plastic body encapsulating epoxy resin; cable in PVC, connector in PVR, connector body in PU	plastic body encapsulating epoxy resin
Mounting	directly into the groove or by means of adapters	directly into the groove
Signalling	by means of a yellow diode Led	by means of a red Led
Protections	see the characteristics of each model	see the characteristics of each model
Switching time	<1,8 ms (Reed) <1 ms (Magnetoresistive - Hall effect)	<1 ms
Operating temperature	-10°C ÷ 80°C	-10°C ÷ 60°C
Electrical duration	10000000 cycles (Reed) 1000000000 cycles (Magnetoresistive - Hall effect)	
Electrical connections	with a 2-wire cable, section 2x0.14, 2m (standard), high flexibility; with a 3-wire cable, section 3x0.14, 2m (standard), high flexibility; with a M8 connector and cable of 0.3 m	with a 2-wire cable, section 2x0.14, 2m (standard), high flexibility (CSB, CSC only); with a 3-wire cable, section 3x0.14, 2m (standard), high flexibility (CSD only); with a M8 connector and cable of 0.3 m (CSD only)

SERIES CST, CSV, CSH CODING EXAMPLE

CS	T	-	2	2	0	N	-	5

CS	SERIES
T	TYPE OF SLOT: T = T-slot V = V-slot H = H-slot
2	OPERATION: 2 = Reed NO 3 = Magnetoresistive 4 = Reed NC 5 = Hall effect
2	CONNECTIONS: 2 = 2 wires (Reed only) 3 = 3 wires 5 = 2 wires with M8 connector (Reed only) 6 = 3 wires with M8 connector
0	POWER SUPPLY VOLTAGE: 0 = 10 ÷ 110V DC; 10 ÷ 230V AC (PNP) 1 = 30 ÷ 110V DC; 30 ÷ 230V AC (PNP) 2 = 3 wires cst (PNP) 3 = 10 ÷ 30V AC/DC (PNP) 4 = 10 ÷ 27V DC (PNP)
N	NOTE (CST/CSV-250N only): N = according to norm
5	LENGTH OF THE CABLE: = 2m (CST and CSV only) 2 = 2m (CSH only) 5 = 5m

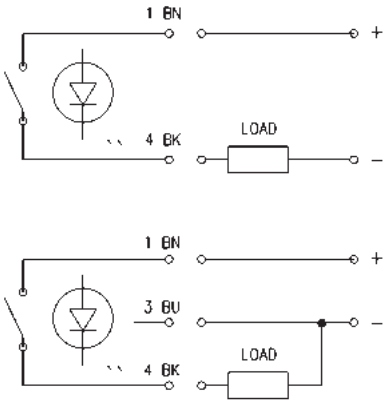
SERIES CSB, CSC, CSD CODING EXAMPLE

CS	B	-	D	-	2	2	0	-	

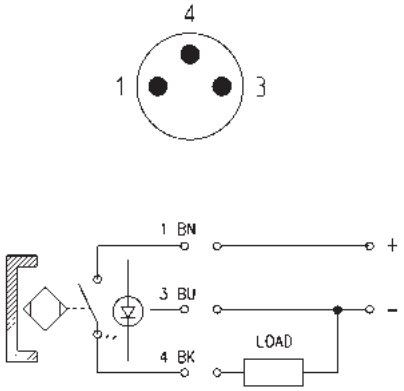
CS	SERIES
B	TYPE OF SLOT: B = B-slot C = C-slot D = D-slot
D	CABLE OUTPUT: D = straight H = 90°
2	OPERATION: 2 = Reed NC (CSB, CSC only) 3 = Magnetoresistive (CSD only)
2	CONNECTIONS: 2 = 2 wires (CSB, CSC only) 3 = 3 wires (CSD only) 6 = 3 wires with M8 connector (CSD only)
0	POWER SUPPLY VOLTAGE: 0 = 10 ÷ 110V DC/AC (CSB, CSC only) 4 = 10 ÷ 27V DC PNP (CSD only)
	LENGTH OF THE CABLE: = 2m (standard) 5 = 5m

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SWITCHES ELECTRICAL CONNECTIONS



Reed switches
BN = brown
BU = blue
BK = black

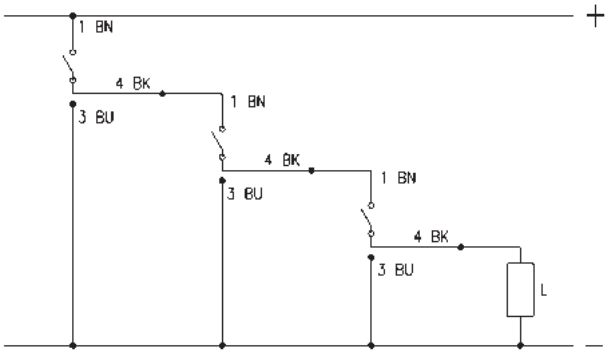


Magnetoresistive and Hall effect switches
BN = brown
BU = blue
BK = black

Connecting schemes in series

The 3-wire version of the Reed sensors has been designed to allow the connection of several sensors in series, as there is no voltage drop between the supply and the load.
See connecting scheme.
The voltage drop is 2.8V for the 2-wire Reed sensors and 1.0V for 3-wire Magnetoresistive and Hall effect sensors.

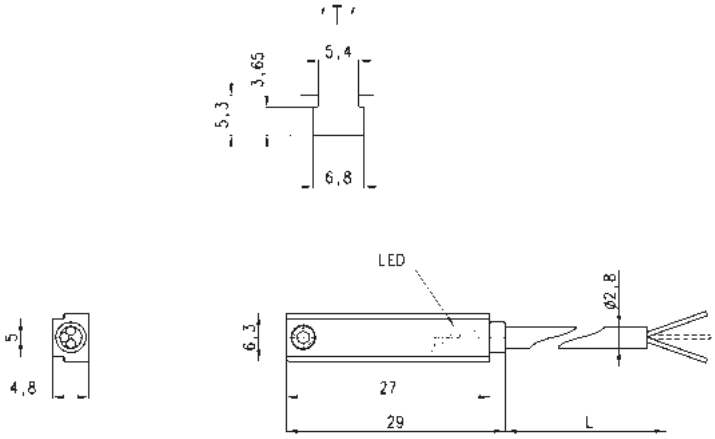
1 BN = Brown
3 BU = Blue
4 BK = Black
L = load



Magnetic proximity switches with 2- or 3-wire cable for T-slot

Note for Mod. CST-220, CST-220-5:
in case of polarity reversing the sensor will still be operating, but the LED diode won't turn on.



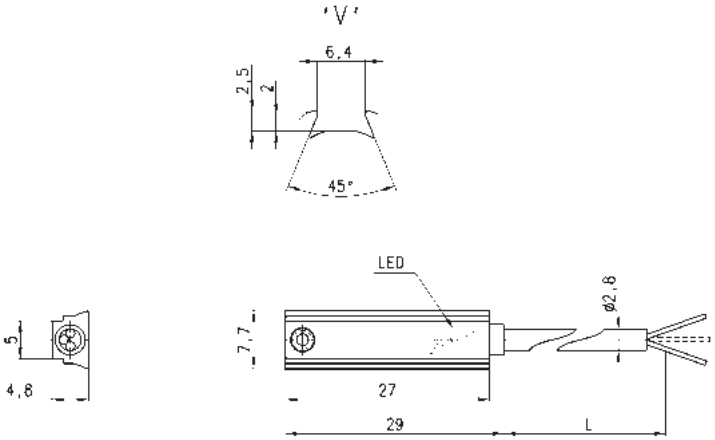


Mod.	Operation	Connections	Voltage	Output	Max. current	Max Load	Protection	L = length cable
CST-220	Reed	2 wires	10 ÷ 110 V AC/DC-230 V AC	-	250 mA	10 VA / 8W	None	2 m
CST-220-5	Reed	2 wires	10 ÷ 110 V AC/DC-230 V AC	-	250 mA	10 VA / 8 W	None	5 m
CST-232	Reed	3 wires	5 ÷ 30 V AC/DC	PNP	250 mA	10 VA / 8 W	Against polarity reversing	2 m
CST-232-5	Reed	3 wires	5 ÷ 30 V AC/DC	PNP	250 mA	10 VA / 8 W	Against polarity reversing	5 m
CST-332	Magnetoresistive	3 wires	10 ÷ 27 V DC	PNP	100 mA	6 W	Against polarity reversing and overvoltage	2 m
CST-332-5	Magnetoresistive	3 wires	10 ÷ 27 V DC	PNP	100 mA	6 W	Against polarity reversing and overvoltage	5 m
CST-532	Hall effect	3 wires	10 ÷ 27 V DC	PNP	100 mA	6 W	Against polarity reversing and overvoltage	2 m
CST-532-5	Hall effect	3 wires	10 ÷ 27 V DC	PNP	100 mA	6 W	Against polarity reversing and overvoltage	5 m

Magnetic proximity switches with 2- or 3-wire cable for V-slot

Note for Mod. CSV-220:
In case of polarity reversing the sensor will still be operating, but the LED diode won't turn on.





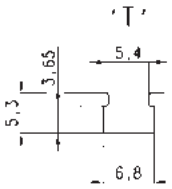
Mod.	Operation	Connections	Voltage	Output	Max. current	Max Load	Protection	L = length cable
CSV-220	Reed	2 wires	10 ÷ 110 V AC/DC-230 V AC	-	250 mA	10 VA / 8 W	None	2 m
CSV-232	Reed	3 wires	5 ÷ 30 V AC/DC	PNP	250 mA	10 VA / 8W	Against polarity reversing	2 m
CSV-332	Magnetoresistive	3 wires	10 ÷ 27 V DC	PNP	100 mA	6 W	Against polarity reversing and overvoltage	2 m

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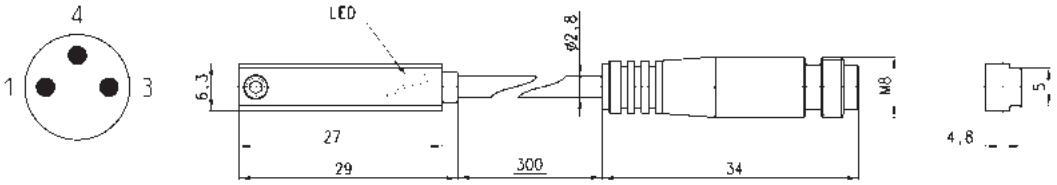
Magnetic proximity switches with M8 3-pin connector for T slot

Note for Mod. CST-250N:
in case of polarity reversing the sensor will still be operating, but the LED diode won't turn on.





Cable length: 0.3 m

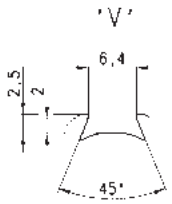


Mod.	Operation	Connection	Voltage	Output	Max. current	Max load	Protection
CST-250N	Reed	2 wires M8 male 3 pin	10 ÷ 110 V AC/DC	-	250 mA	10 VA / 8 W	None
CST-262	Reed	3 wires M8 male 3 pin	5 ÷ 30 V AC/DC	PNP	250 mA	10 VA / 8 W	Against polarity reversing
CST-362	Magnetoresistive	3 wires M8 male 3 pin	10 ÷ 27 V DC	PNP	100 mA	6 W	Against polarity reversing and overvoltage
CST-562	Hall effect	3 wires M8 male 3 pin	10 ÷ 27 V DC	PNP	100 mA	6 W	Against polarity reversing and overvoltage

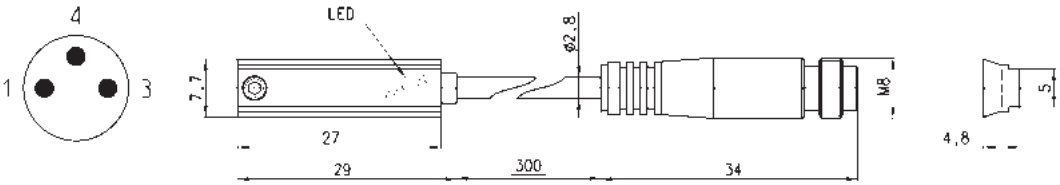
Magnetic proximity switches with M8 3-pin connector for V slot

Note for Mod. CSV-250N:
in case of polarity reversing the sensor will still be operating, but the LED diode won't turn on.





Cable length: 0.3 m



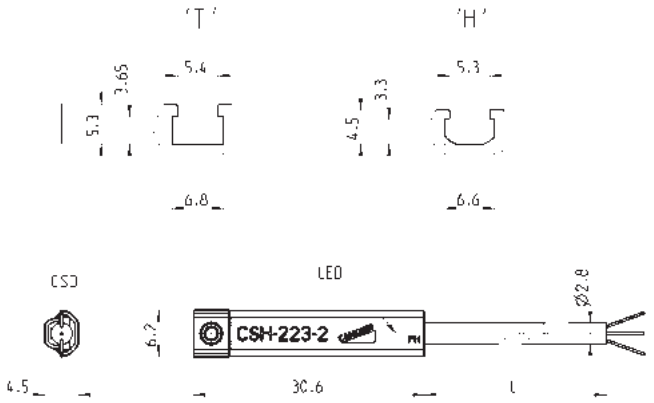
Mod.	Operation	Connection	Voltage	Output	Max. current	Max load	Protection
CSV-250N	Reed	2 wires M8 male 3 pin	10 ÷ 110 V AC/DC	-	250 mA	10 VA / 8 W	None
CSV-262	Reed	3 wires M8 male 3 pin	5 ÷ 30 V AC/DC	PNP	250 mA	10 VA / 8 W	Against polarity reversing
CSV-362	Magnetoresistive	3 wires M8 male 3 pin	10 ÷ 27 V DC	PNP	100 mA	6 W	Against polarity reversing and overvoltage

Magnetic proximity switches with 2- or 3-wire cable for H-slot

Note for Mod. CSH-223-2, CSH-223-5, CSH-221-2, CSH-221-5:
in case of polarity reversing the sensor will still be operating, but the LED diode won't turn on.



Suitable also for T-slots



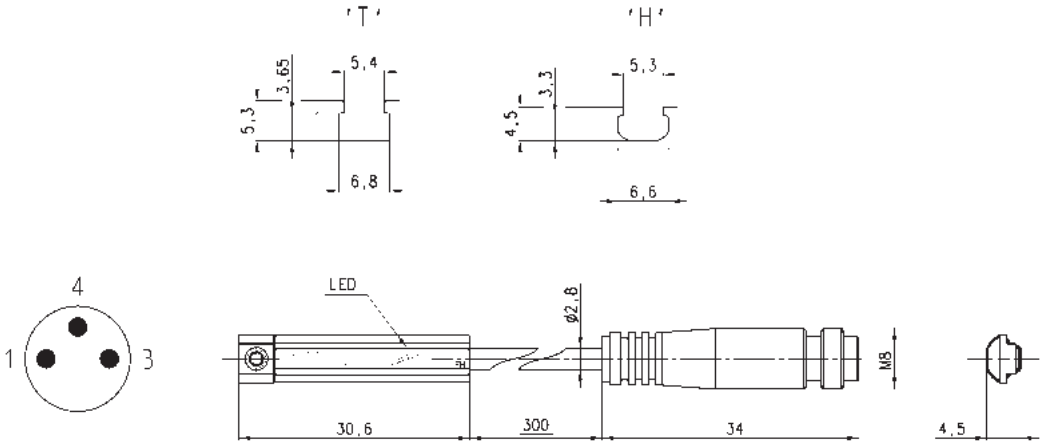
Mod.	Operation	Connection	Voltage	Output	Max current	Max load	Protection	L = cable legth
CSH-223-2	Reed	2 wires	10 ÷ 30 V AC/DC	-	250 mA	10 VA / 8 W	Against polarity reversing	2 m
CSH-223-5	Reed	2 wires	10 ÷ 30 V AC/DC	-	250 mA	10 VA / 8 W	Against polarity reversing	5 m
CSH-221-2	Reed	2 wires	30 ÷ 230 V AC - 30 ÷ 110 V DC	-	250 mA	10 VA / 8 W	Against polarity reversing	2 m
CSH-221-5	Reed	2 wires	30 ÷ 230 V AC - 30 ÷ 110 V DC	-	250 mA	10 VA / 8 W	Against polarity reversing	5 m
CSH-233-2	Reed	3 wires	10 ÷ 30 V AC/DC	PNP	250 mA	10 VA / 8 W	Against polarity reversing	2 m
CSH-233-5	Reed	3 wires	10 ÷ 30 V AC/DC	PNP	250 mA	10 VA / 8 W	Against polarity reversing	5 m
CSH-334-2	Magnetoresistive	3 wires	10 ÷ 27 V DC	PNP	250 mA	6 W	Against polarity reversing and overvoltage	2 m
CSH-334-5	Magnetoresistive	3 wires	10 ÷ 27 V DC	PNP	250 mA	6 W	Against polarity reversing and overvoltage	5 m

Magnetic proximity switches wtih M8 3-pin connector for H-slot

Note for Mod. CSH-253:
in case of polarity reversing the sensor will still be operating, but LED diode won't turn on.



Suitable also for T-slots
Cable length: 0.3 m



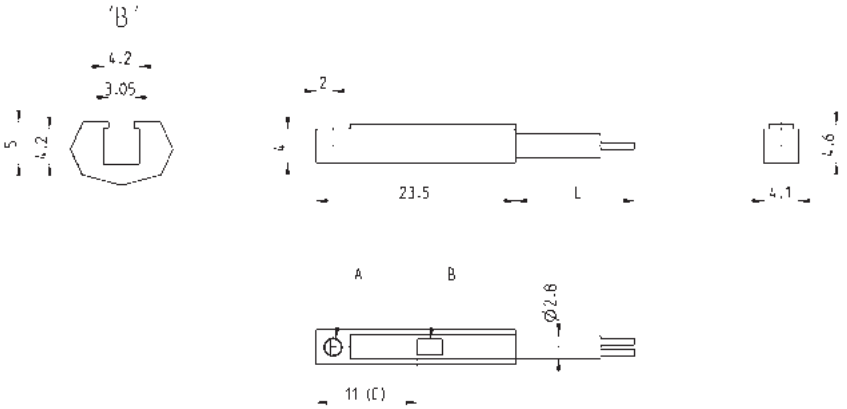
Mod.	Operation	Connection	Voltage	Output	Max current	Max load	Protection
CSH-253	Reed NO	2 wires M8 male 3 pin	10 ÷ 30 V AC/DC	-	250 mA	10 VA / 8 W	Against polarity reversing
CSH-263	Reed NO	3 wires M8 male 3 pin	10 ÷ 30 V AC/DC	PNP	250 mA	10 VA / 8 W	Against polarity reversing
CSH-364	Magnetoresistive	3 wires M8 male 3 pin	10 ÷ 27 V DC	PNP	250 mA	6 W	Against polarity reversing and overvoltage
CSH-463	Reed NC	3 wires M8 male 3 pin	10 ÷ 30 V AC/DC	PNP	250 mA	10 VA / 8 W	Against polarity reversing

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Magnetic proximity switch with 2-wire cable for B-slot

A = fixing screw - B = Led indicator - C = ideal position detection





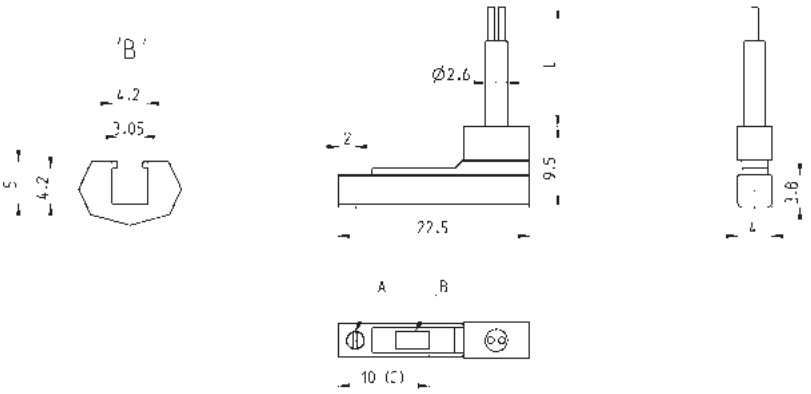
In case of polarity reversing the sensor will still be operating, but the LED diode won't turn on.

Mod.	Operation	Connection	Voltage	Output	Max. current	Max load	Protection
CSB-D-220	Reed	2 wires	10÷110 V AC/DC	PNP	50 mA	8 W / 10 VA	Against polarity reversing and overvoltage

Magnetic proximity switch with 2-wire 90° cable for B-slot

A = fixing screw - B = Led indicator - C = ideal position detection





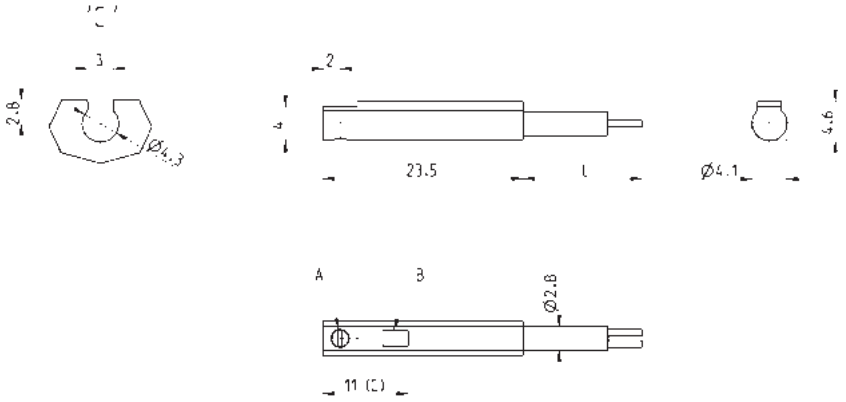
In case of polarity reversing the sensor will still be operating, but the LED diode won't turn on.

Mod.	Operation	Connection	Voltage	Output	Max. current	Max load	Protection
CSB-H-220	Reed	2 wires	10÷110 V AC/DC	PNP	50 mA	8 W / 10 VA	Against polarity reversing and overvoltage

Magnetic proximity switch with 2-wire cable for C-slot

A = fixing screw - B = Led indicator - C = ideal position detection





In case of polarity reversing the sensor will still be operating, but the LED diode won't turn on.

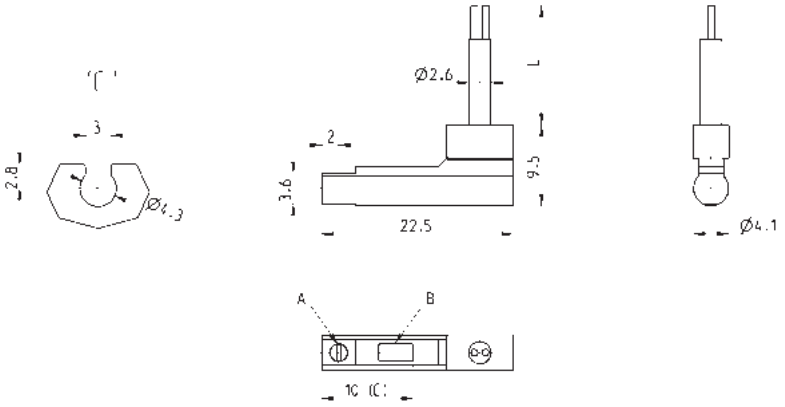
Mod.	Operation	Connection	Voltage	Output	Max. current	Max load	Protection
CSC-D-220	Reed	2 wires	10÷110 V AC/DC	PNP	50 mA	8 W / 10 VA	Against polarity reversing and overvoltage

Magnetic proximity switch with 2-wire 90° cable for C-slot

A = fixing screw - B = Led indicator - C = ideal position detection



In case of polarity reversing the sensor will still be operating, but the LED diode won't turn on.

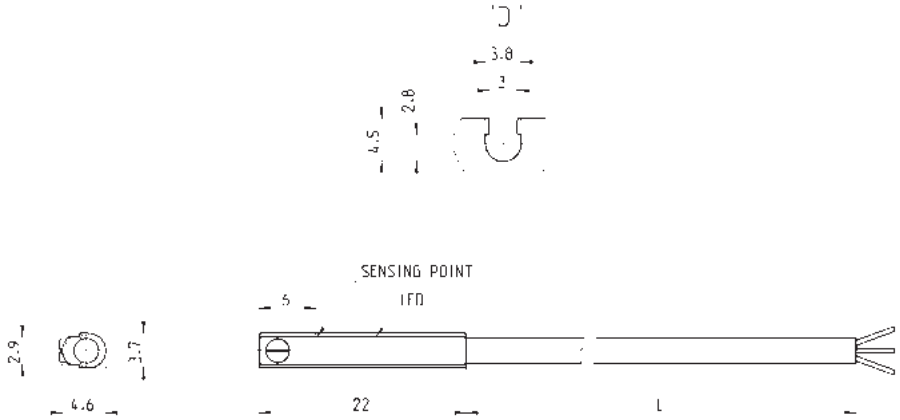


Mod.	Operation	Connection	Voltage	Output	Max. current	Max load	Protection
CSC-H-220	Reed	2 wires	10÷110 V AC/DC	PNP	50 mA	8 W / 10 VA	Against polarity reversing and overvoltage

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Magnetic proximity switches, 3-wire cable, D-slot

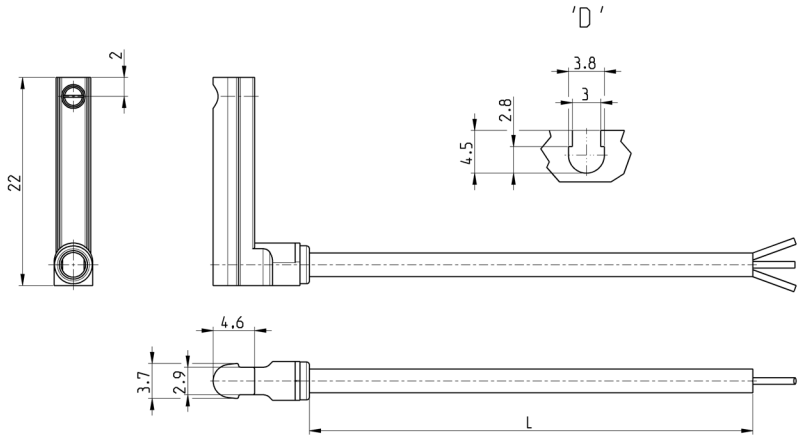




Mod.	Operation	Connections	Voltage	Output	Max. current	Max Load	Protection	L = length cable
CSD-D-334	Magnetoresistive	3 wires	10 ÷ 27 V DC	PNP	200 mA	6W	Against polarity reversing and overvoltage	2 m
CSD-D-334-5	Magnetoresistive	3 wires	10 ÷ 27 V DC	PNP	200 mA	6W	Against polarity reversing and overvoltage	5 m

Magnetic proximity switches, 3-wire cable, D-slot with 90° cable



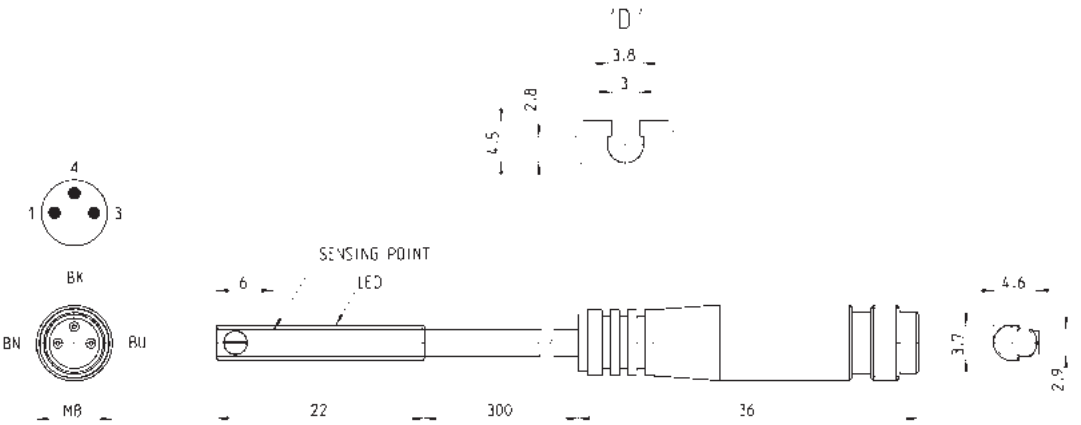


Mod.	Operation	Connections	Voltage	Output	Max. current	Max Load	Protection	L = length cable
CSD-H-334	Magnetoresistive	3 wires	10 ÷ 27 V DC	PNP	200 mA	6 W	Against polarity reversing and overvoltage	2 m
CSD-H-334-5	Magnetoresistive	3 wires	10 ÷ 27 V DC	PNP	200 mA	6 W	Against polarity reversing and overvoltage	5 m

Magnetic proximity switches, male M8 3-pin conn., D-slot, right

Cable length: 0.3 m



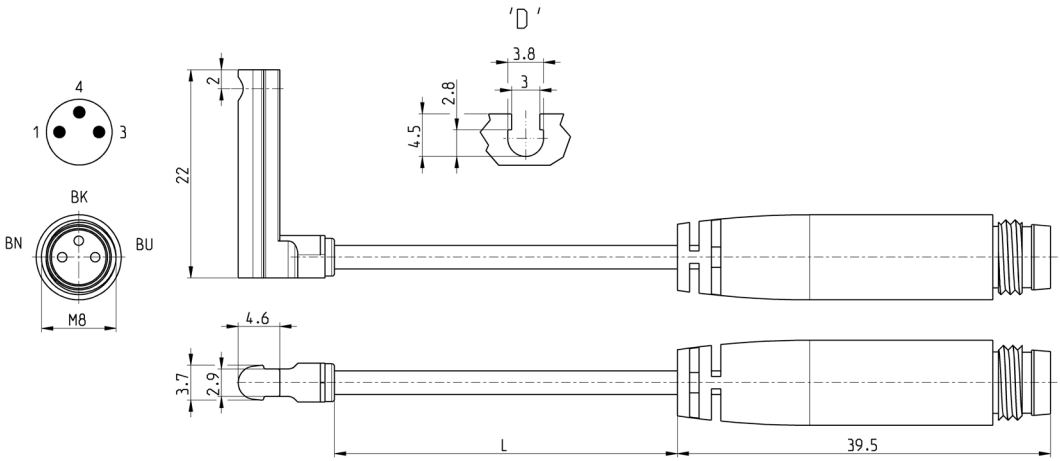


Mod.	Operation	Connection	Voltage	Output	Max current	Max load	Protection
CSD-D-364	Magnetoresistive	3 wires with M8 connector	10 ÷ 27 V DC	PNP	200 mA	6 W	Against polarity reversing and overvoltage

Magnetic proximity switches, male M8 3-pin conn., D-slot, 90°

Cable length: 0.3 m



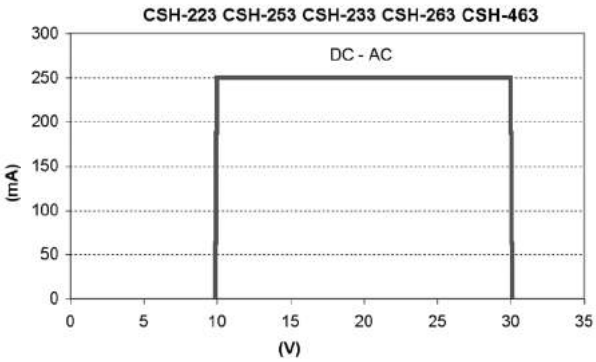


Mod.	Operation	Connection	Voltage	Output	Max current	Max load	Protection
CSD-H-364	Magnetoresistive	3 wires with M8 connector	10 ÷ 27 V DC	PNP	200 mA	6 W	Against polarity reversing and overvoltage

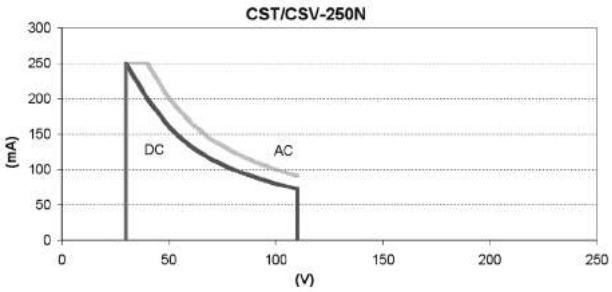
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Load curves CSH, CST/CSV

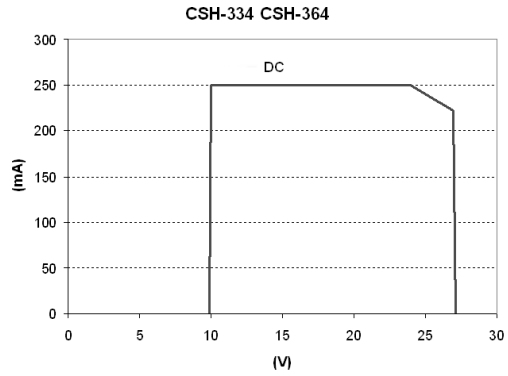
Load curve - CSH



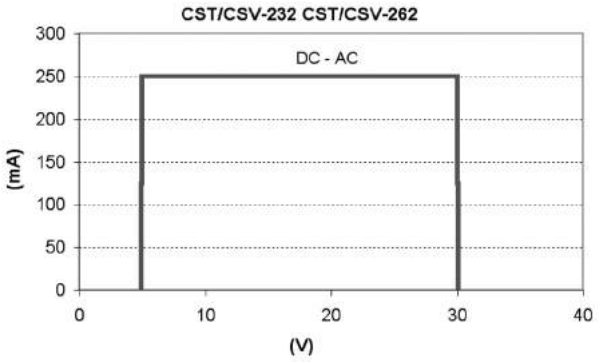
Load curve - CST/CSV



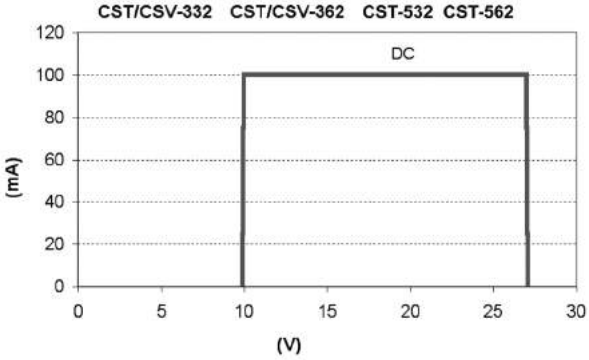
Load curve - CSH



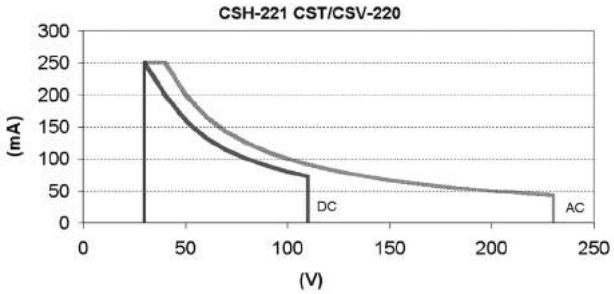
Load curve - CST/CSV



Load curve - CST/CSV

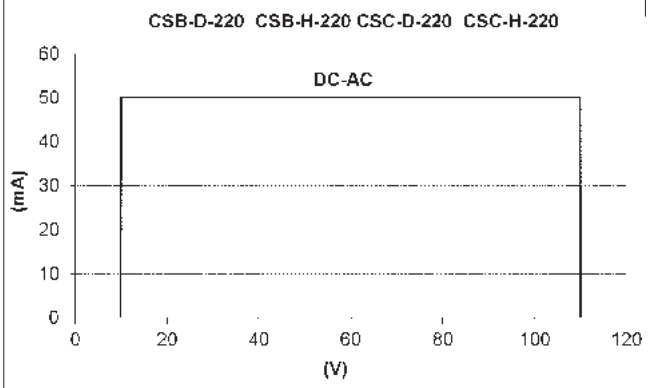


Load curve - CSH, CST/CSV

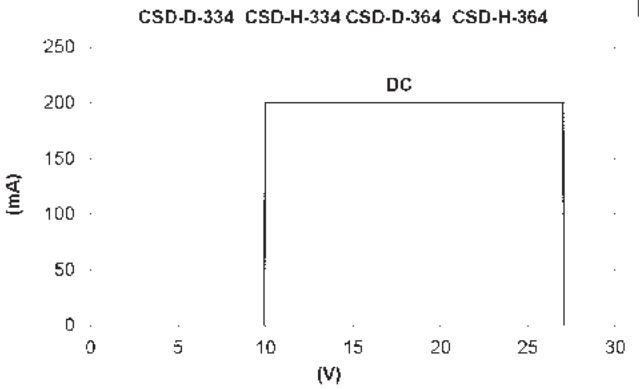


Load curves CSB/CSC, CSD

Load curve - CSB/CSC

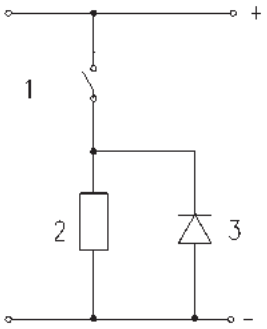


Load curve - CSD



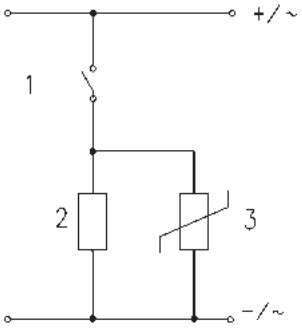
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Electric circuit with protection against voltage spikes

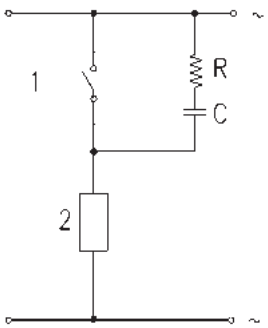


DC applications: there is no protection on the Reed sensors on the inductive load, therefore it is advisable to use an electric ciruit with protection against the voltage spikes.
See picture above for a typical example.
Legend:
1 = Sensor
2 = Load
3 = Protection diode

Electric circuit with protection against voltage spikes



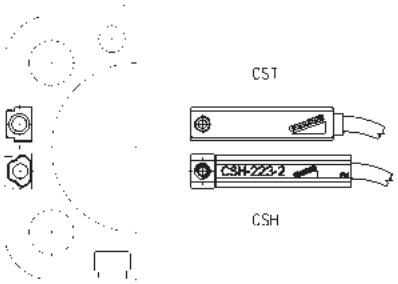
DC and AC applications: there is no protection on the Reed sensors on the inductive load, therefore it is advisable to use an electric ciruit with protection against the voltage spikes.
See picture above for a typical example.
Legend:
1 = Sensor
2 = Load
3 = Protection varistor



AC applications: there is no protection on the Reed sensors on the inductive load, therefore it is advisable to use an electric circuit with protection against the voltage spikes.
See picture above for a typical example.
Legend:
1 = Sensor
2 = Load
C + R = Series of resistor and protection capacitor

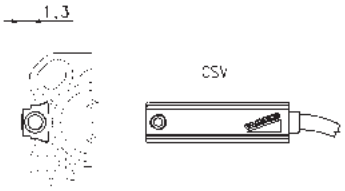
Mounting of Series CST - CSH sensors

CST/CSH sensors can be directly mounted on the following cylinders:
Series 31 - 31R
Series 32 - 32R
Series 52
Series 61
Series 62 (CSH only)
Series 69
Series QC - QCBF - QCTF



Mounting of Series CSV sensors

CSV sensors must be assembled directly into the groove of cylinders:
Series 50 ø 16÷25
Series QP - QPR ø 12÷16

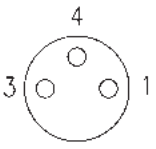


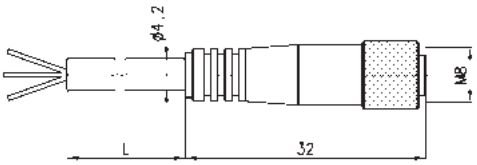
3-wire extension with M8 3-pin female connector



With PU sheathing, non shielded cable.
Protection class: IP65

1 BN = Brown
3 BK = Black
4 BU = Blue





In case 2-wire sensors with M8 connector (Mod. CST-250N, CSV-250N, CSH-253) are used, please connect the brown wire to the supply (+) and the black wire to the load.

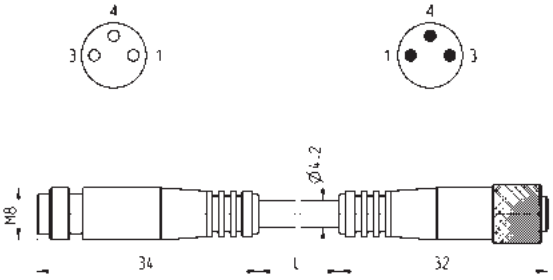
Mod.	L = cable length (m)
CS-2	2
CS-5	5
CS-10	10

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3-wire extension with M8 3-pin male / female connector

Non shielded

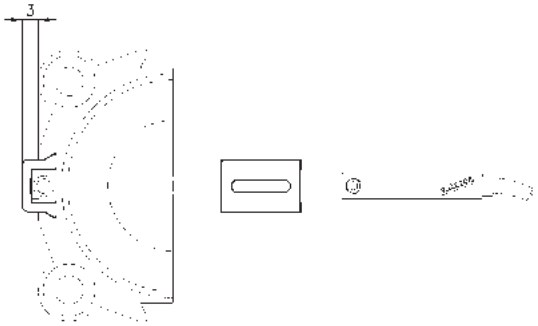




Mod.	cable length "L" (m)
CS-DW03HB-C250	2,5
CS-DW03HB-C500	5

Adapters Mod. S-CST-01 for Series CST-CSH sensors



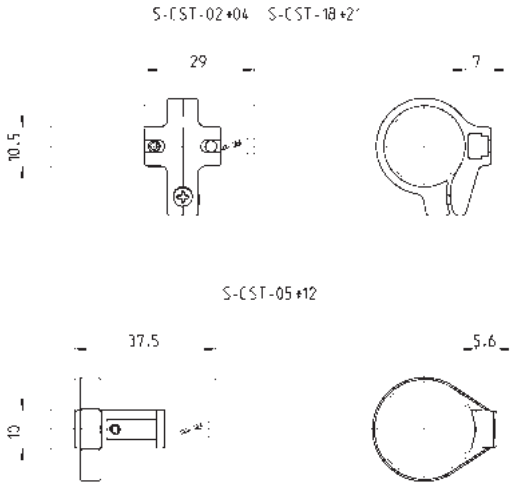


Mod.	Cylinders series	Ø
S-CST-01	QP-QPR	20 ÷ 100
S-CST-01	50	32 ÷ 80

Adapters Mod. S-CST-02..21 for Series CST-CSH sensors

Materials:
- stainless steel and technopolymer (S-CST-05÷12)
- technopolymer (S-CST-02÷04)
- technopolymer (S-CST-18÷21)



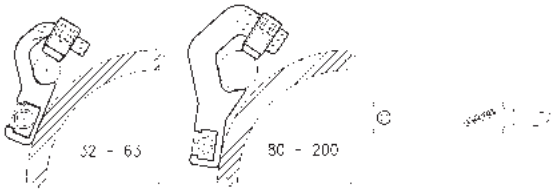


Mod.	Cylinders series	Ø
S-CST-02	24-25-27	16
S-CST-03	24-25-27	20
S-CST-04	24-25-27	25
S-CST-05	94, 95	16-20-25 (94), 16-20 (95)
S-CST-06	90-92-97, 95	32 (90-92-97), 25 (95)
S-CST-07	90-92-97	40
S-CST-08	90-92-97	50
S-CST-09	90-92-97	63
S-CST-10	90	80
S-CST-11	90	100
S-CST-12	90	125
S-CST-18	27-42	32
S-CST-19	27-42	40
S-CST-20	27-42	50
S-CST-21	27-42	63

Adapters Mod. S-CST-25..28 for Series CST-CSH sensors

Material: anodized aluminium



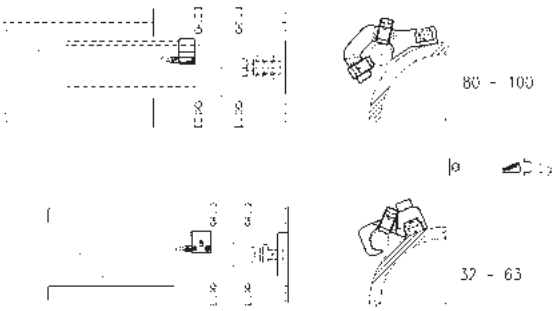


Mod.	Cylinders series	Ø
S-CST-25	60 - 90 - 63MT	32 ÷ 63
S-CST-26	60 - 90 - 63MT	80 ÷ 100
S-CST-27	60 - 90 - 63MT	125
S-CST-28	40	160 - 200

Adapters for Series CST and CSH sensors

For Series 60 cylinders mounted with guides 45NHT or 45NHB



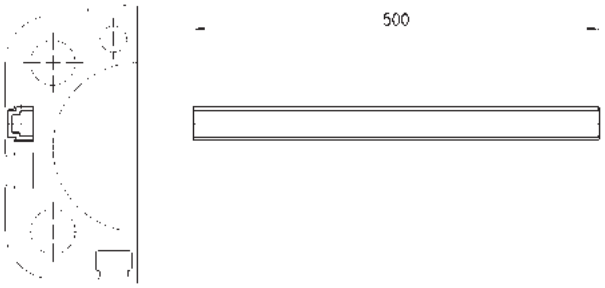


Mod.	Cylinders series	Ø
S-CST-45N1	60 - 90 - 63MT	32 ÷ 63
S-CST-45N2	60 - 90 - 63MT	80 ÷ 100

Slot cover profile suitable for actuators with T- and H-slot

Supplied with 500 mm tube





Mod.	Series of cylinders
S-CST-500	31, 31 Tandem and Multi-position, QCT, QCB, QCBT, QCBF, 61, 62, 63MP, 6E, 5E, 69, 32, 32 Tandem and Multi-position

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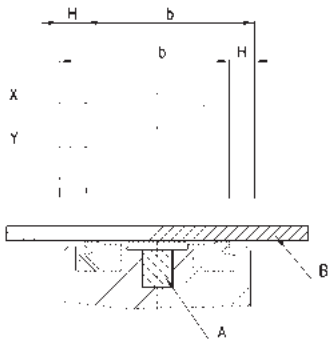
CONTACT STROKE AND HYSTERESIS - correct use of magnetic sensors

The magnetic sensors consist of a reed switch which is contained in a glass bulb filled with a rarefied gas. The switches (or contacts) that are made of magnetic material (nickel-iron) are flexible and are coated, at the contact points, with high quality non-arcing materials. Switching is effected by means of a suitable magnetic field and actuation is achieved by means of the permanent magnet inside the piston.

NOTE: THE PRESENCE OF IRON MASSES NEAR THE CYLINDER OR THE GRIPPERS (LIKE IRON SCREWS AND FIXING PLATES) CAN CHANGE THE DIRECTION AND THE POWER OF THE MAGNETIC FIELD.

The Reed sensors are Normally Open, therefore, when subjected to the effect of the magnetic field, close the circuit.

OPERATING FIELD OF SENSORS
WITH RESPECT TO THE MAGNETIC PISTON (below picture)
The maximum speed (in m/second) for a cylinder guided by magnetic sensors is given by b/t = speed where:
b = contact stroke in mm (see the table) - this value indicates the amplitude of the magnetic field or switching field when the circuit is closed.
t = total reaction time in milliseconds of the electric control components connected downstream of the sensor
H = operational hysteresis of the sensor with respect to the shape and amplitude of the magnetic field.
A = magnet
B = actuator
X =
Y =
The operating field, as a result of hysteresis, is displaced by the value H in the opposite direction to movement of the cylinder. The maximum speed permitted for each cylinder depends on value b and on reaction time of the different components connected downstream of the sensor.



Series	Ø	b (mm)	H (mm)
24-25	16	9.2	1.2
24-25	20	12	1
24-25	25	11.7	1.1
27	20	10.5	1.6
27	25	10.9	1.6
27	32	10.7	1.1
27	40	12.1	1.7
27	50	12.1	1.2
27	63	14.1	1.3
QP	12	10	1.3
QP	16	11.8	1.5
QP	20	11.1	1.6
QP	25	10.6	1.6
QP	32	12.7	1.2
QP	40	12.5	1.1
QP	50	15.4	1.6
QP	63	16.7	1.5
QP	80	13.2	1.7
QP	100	16.8	1.8
31-32-ST	12	9.2	1.4
31-32-ST	16	7.9	1.3
31-32-ST	20	9.1	1.5
31-32-ST	25	10.6	1.5
31-32-ST	32	11.9	1.7
31-32-ST	40	12.9	2.2
31-32-ST	50	14.7	1.2
31-32-ST	63	15.2	1.4
31-32-ST	80	16.6	1.8
31-32-ST	100	16,8	1,7
40	160	24	2
40	200	26	2

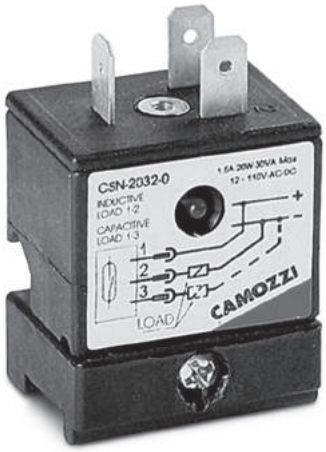
Series	Ø	b (mm)	H (mm)
60	32	9.9	1
60	40	8.9	1.2
60	50	10.7	1
60	63	12.9	1.2
60	80	11.5	1.4
60	100	14.9	1.4
60	125	22	1
61	32	9	1
61	40	9.3	1.3
61	50	11	1.6
61	63	13.4	1.3
61	80	13.2	1.6
61	100	15.2	1.7
61	125	22.1	1.3
42	32	10.8	1.5
42	40	11.2	1.6
42	50	12.6	1.7
42	63	14.1	1.7
QCT	20	10	1.7
QCT	25	11.4	1.8
QCT	32	12.1	1.8
QCT	40	12.4	1.8
QCT	50	13.7	1.9
QCT	63	13.5	1.8
69	32	34.5	3.8
69	40	29.6	4.1
69	50	31.5	4.6
69	63	32.3	3.1
69	80	24	2.9
69	100	25.6	2.9
69	125	30.1	1.7

Series	Ø	b (mm)	H (mm)
62-63-6PF	32	10	1
62-63-6PF	40	11	1
62-63-6PF	50	12	1.2
62-63-6PF	63	13	1
62-63-6PF	80	13	1
62-63-6PF	100	16	1
52	25	19.3	1.8
52	32	27.9	1.6
52	40	26	2.3
52	50	39.9	2.9
52	63	40.7	4.2

1
MOVEMENT

Series CSN proximity switches

Reed switch



It is designed so that it can be fixed directly on the tie-rod by means of two screws which assure the position longitudinal to the cylinder axle; and with a third screw for the anti-rotation positioning. The three terminals are indicated by the numbers 1, 2 and 3 and enable the following connections to be made (see the scheme).

The electrical proximity switch Mod. CSN 2032-0 consists of a Reed switch complete with an electronic protection circuit and a red LED indicator.
The resin inside the casing ensures high protection and insulation.

GENERAL DATA

Mod.	CSN 2032-0
Voltage	from 12 to 220V AC and DC
Protection	IP54 / IP65 with connector DIN 43650
Material	glass-reinforced PA
Mounting	bracket for tie rod ø 6 ÷ ø 10
Signalling	integrated red LED
Electrical connection	DIN 43650 connector, Mod. 122-800
Max. current	1.5 A
Max. load	20 W DC - 30 VA AC
Actuating time	≤ 2 ms
Actuating tolerance	± 1mm
Operating temperature	- 25°C ÷ + 75°C
Type of contact	NO (normally open)

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TECHNICAL DATA

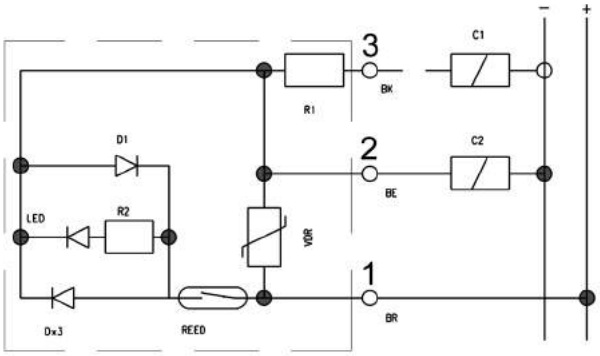
CONNECTION
- For inductive loads = solenoid valves, electrical magnets, relay.
To connectors = terminals 1 - 2
- For capacitive loads = circuit with remaining tension (see PLC controls)
To connectors = 1 - 3

Note: For connections with wires of approximately 10m, the connection shall be made as for a capacitive load.

MAXIMUM LOADS
For maximum loads see relative diagram, those loads are valid only for inductive loads. For capacitive loads, using clamp 3 (or black wire) load must not exceed 80 mA and load must be given by PLC or, for electrical circuits, by microrelay or micro solenoid valves with 2W maximum consumption.

Note: When operating with direct current, clamp 1 must always be connected to the positive outlet (+). In cases where commands are given from the PLC and logic NPN, clamp 1 must be connected to the inlet. In cases where commands are given from the PLC and logic PNP, clamps 2 or 3 must be connected to the inlet.

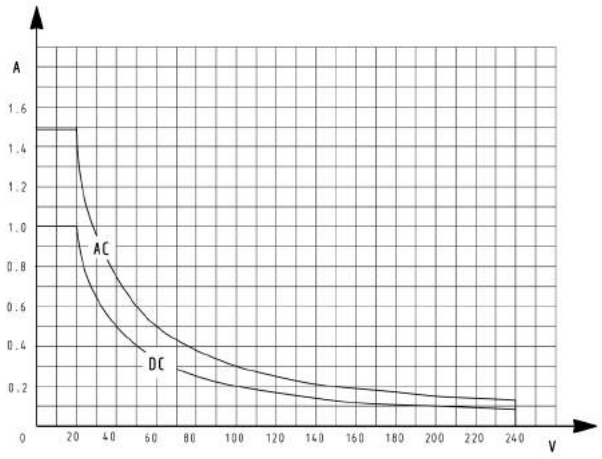
LEGEND:
C1 = capacitive load
C2 = inductive load



Maximum contact load

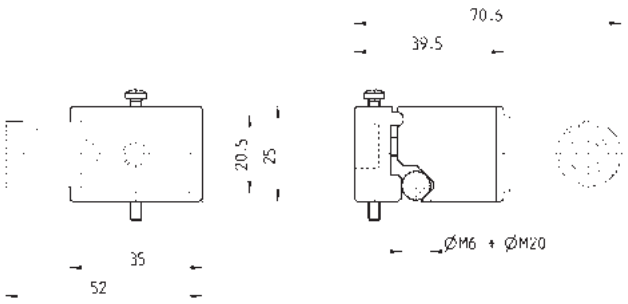
The maximum load (W) which the contacts are able to tolerate is that indicated in the section “General data”, i.e.
- 20 W for direct current (DC)
- 30 VA for alternating current (AC)
The effective load allowed depends on the operating voltage (minimum 12 V, maximum 220 V) as shown in the following graph.

Note: this graph was obtained from practical tests performed using a load consisting of our Series A and 6 solenoid valves, at an operating speed of one stroke per second.
For higher operating speeds, your are advised to contact our technical department.



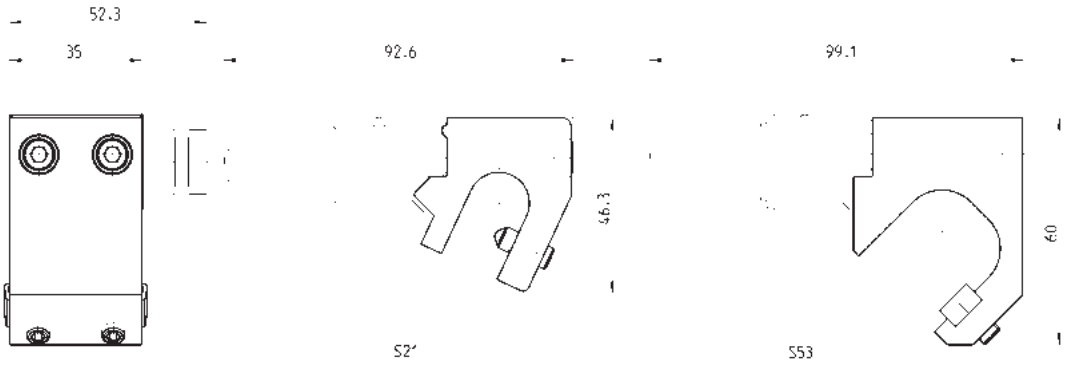
Switches Series CSN





Mod.	for cylinders Series 40 - ø 160 ÷ 200	for cylinders Series 40 - ø 250 ÷ 320	for cylinders Series 41 - ø 160 ÷ 200
CSN 2032-0	mounting band to be ordered separately	direct mounting	mounting band to be ordered separately

Mounting bracket for sensor



Mod.	
S21	for cylinders Series 40 ø 160 and 200
S53	for cylinders Series 41 ø 160 and 200

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Table 1: mounting of sensors on cylinders

Series	Ø	CST - CSH	CSV	CSN
24 - 25	16	S-CST-02		
	20	S-CST-03		
	25	S-CST-04		
27	20	S-CST-03		
	25	S-CST-04		
	32	S-CST-18		
	40	S-CST-19		
	50	S-CST-20		
	63	S-CST-21		
31	12	Direct mounting		
	16	Direct mounting		
	20	Direct mounting		
	25	Direct mounting		
	32	Direct mounting		
	40	Direct mounting		
	50	Direct mounting		
	63	Direct mounting		
	80	Direct mounting		
	100	Direct mounting		
32	20	Direct mounting		
	25	Direct mounting		
	32	Direct mounting		
	40	Direct mounting		
	50	Direct mounting		
	63	Direct mounting		
	80	Direct mounting		
	100	Direct mounting		
40	160	S-CST-28		S21
	200	S-CST-28		S21
	250			Direct mounting
	320			Direct mounting
41	160			S53
	200			S53
42	32	S-CST-18		
	40	S-CST-19		
	50	S-CST-20		
	63	S-CST-21		
50	16		Direct mounting	
	25		Direct mounting	
	32	S-CST-01		
	40	S-CST-01		
	50	S-CST-01		
	63	S-CST-01		
	80	S-CST-01		
52	25	Direct mounting		
	32	Direct mounting		
	40	Direct mounting		
	50	Direct mounting		
	63	Direct mounting		
60	32	S-CST-25		
	40	S-CST-25		
	50	S-CST-25		
	63	S-CST-25		
	80	S-CST-26		
	100	S-CST-26		
	125	S-CST-27		
60 + 45N	32	S-CST-45N1		
	40	S-CST-45N1		
	50	S-CST-45N1		
	63	S-CST-45N1		
	80	S-CST-45N2		
	100	S-CST-45N2		

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Table 2: mounting of sensors on cylinders

Series	Ø	CST - CSH
61	32	Direct mounting
	40	Direct mounting
	50	Direct mounting
	63	Direct mounting
	80	Direct mounting
	100	Direct mounting
	125	Direct mounting
62	32	Direct mounting (CSH only)
	40	Direct mounting (CSH only)
	50	Direct mounting (CSH only)
	63	Direct mounting (CSH only)
	80	Direct mounting (CSH only)
	100	Direct mounting (CSH only)
63...P	32	Direct mounting (CSH only)
	40	Direct mounting (CSH only)
	50	Direct mounting (CSH only)
	63	Direct mounting (CSH only)
	80	Direct mounting (CSH only)
	100	Direct mounting (CSH only)
	125	Direct mounting (CSH only)
63...T	32	S-CST-25
	40	S-CST-25
	50	S-CST-25
	63	S-CST-25
	80	S-CST-26
	100	S-CST-26
	125	S-CST-27
69	32	Direct mounting
	40	Direct mounting
	50	Direct mounting
	63	Direct mounting
	80	Direct mounting
	100	Direct mounting
	125	Direct mounting
6PF	50	Direct mounting
	63	Direct mounting
	80	Direct mounting
	100	Direct mounting
	125	Direct mounting
90	32	S-CST-06
	40	S-CST-07
	50	S-CST-08
	63	S-CST-09
	80	S-CST-10
	100	S-CST-11
	125	S-CST-12
94	16	S-CST-05
	20	S-CST-05
	25	S-CST-05
95	16	S-CST-05
	20	S-CST-05
	25	S-CST-06
97	32	S-CST-06
	40	S-CST-07
	50	S-CST-08
	63	S-CST-09

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Table 3: mounting of sensors on cylinders

Series	Ø	CST - CSH	CSV	CSC-D / CSC-H
QC	20	Direct mounting		
	25	Direct mounting		
	32	Direct mounting		
	40	Direct mounting		
	50	Direct mounting		
	63	Direct mounting		
QCBF	20	Direct mounting		
	25	Direct mounting		
	32	Direct mounting		
	40	Direct mounting		
QCTF	20	Direct mounting		
	25	Direct mounting		
	32	Direct mounting		
	40	Direct mounting		
QP - QPR	12		Direct mounting	
	16		Direct mounting	
	20	S-CST-01		
	25	S-CST-01		
	32	S-CST-01		
	40	S-CST-01		
	50	S-CST-01		
	63	S-CST-01		
	80	S-CST-01		
	100	S-CST-01		
QX	10			Direct mounting
	16			Direct mounting
	20			Direct mounting
	25			Direct mounting
	32			Direct mounting
ST	20	Direct mounting		
	32	Direct mounting		
	40	Direct mounting		
	50	Direct mounting		

Table 4: mounting of sensors on grippers, electromechanical axis and cylinders

* Further details about Series 5E electromechanical axis and Series 6E electromechanical cylinders can be found in the C_Electrics catalogue which is also available on the Camozzi website www.camozzi.com within the section Products & Solutions › C_Electrics.

Series	Ø	CST - CSH	CSB-D / CSB-H	CSC-D / CSC-H	CSD-D / CSD-H
Grippers					
CGA	10		Direct mounting		
	16		Direct mounting		
	20		Direct mounting		
	25		Direct mounting		
	32		Direct mounting		
CGC	50		Direct mounting (CSB-D-220 only)		
	64		Direct mounting (CSB-D-220 only)		
	80		Direct mounting (CSB-D-220 only)		
	100		Direct mounting (CSB-D-220 only)		
	125		Direct mounting (CSB-D-220 only)		
CGLN	10			Direct mounting	
	16			Direct mounting	
	20			Direct mounting	
	25			Direct mounting	
	32			Direct mounting	
CGP	10		Direct mounting		
	16		Direct mounting		
	20		Direct mounting		
	25		Direct mounting		
	32		Direct mounting		
CGPS	10				Direct mounting
	16				Direct mounting
	20				Direct mounting
	25				Direct mounting
	32				Direct mounting
CGPT	16				Direct mounting
	20				Direct mounting
	25				Direct mounting
	32				Direct mounting
	40				Direct mounting
CGSN	16			Direct mounting	Direct mounting
	20			Direct mounting	Direct mounting
	25			Direct mounting	Direct mounting
	32			Direct mounting	Direct mounting
RPGB	8				Direct mounting
	12				Direct mounting
Electromechanical axis *					
5E	50	Direct mounting (CSH only)			
	65	Direct mounting (CSH only)			
	80	Direct mounting (CSH only)			
Electromechanical cylinders *					
6E	32	Direct mounting			
	40	Direct mounting			
	50	Direct mounting			
	63	Direct mounting			

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series 43 hydrochecks

Bore ø 40mm
Regulated thrust or return stroke
Skip-Stop function



Series 43 hydrocheck units are available with two different types of control: regulated outward movement and fast return; or fast outward movement and regulated return. These hydrochecks come complete with an oil surge tank which ensures automatic equalisation. Speed variation is obtained by means of an incorporated flow regulator designed to allow comprehensive and constant use.

Upon request, they can be supplied with an incorporated stop valve or an acceleration valve or both.
To restore oil when the minimum level in the surge tank is reached, use the following oil and pump Mod. 43N-PMP: hydraulic oil, class H, ISO symbol HG 46, viscosity 4.5 E. at 40°C.

GENERAL DATA

Type of construction	with tie-rods
Operation	regulation of the hydrocheck's rod return (thrust) regulation of the hydrocheck's rod thrust (traction)
Controllable load	max. 600 Kgf without valves, max 500 Kgf with valves (including inertia of moving masses)
Operating temperature	-10°C ÷ +60°C
Media	hydraulic oil, class H, ISO symbol HG 46, viscosity 4.5 E. at 40°C
Speed	70 - 10000 mm/min without valves, 0 - 6000 mm/min with valves
Standard stroke	50, 100, 150, 200 (special stroke available on request)
Special designs	with STOP or SKIP and SKIP/STOP valve *
SKIP/STOP valve operating pressure	4 ÷ 8 bar
Type of mounting	feet Mod. B-40 (see B-41-40 for dimensions)

* = minimum stroke 80mm

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CODING EXAMPLE

43	N	-	P	S	0	-	40	-	200

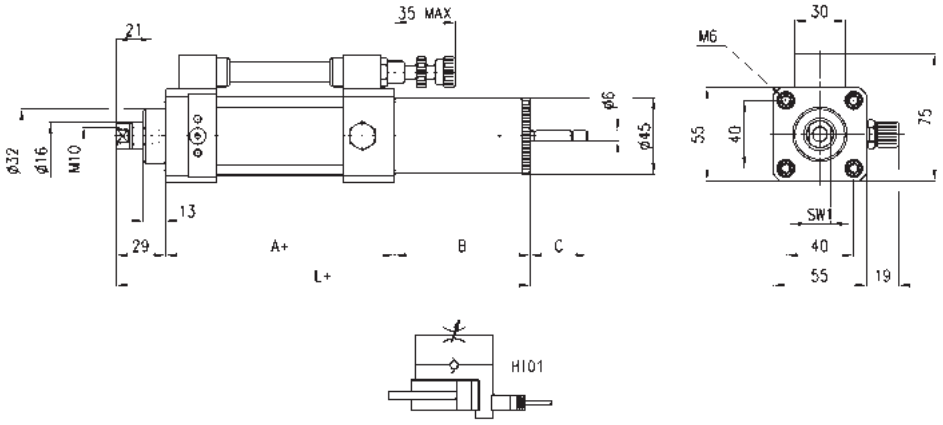
43	SERIES
N	VERSION N = standard S = special
P	TANK POSITION L = tank in series P = tank parallel D = double valve, tank parallel
S	REGULATION S = thrust (hydrocheck's rod return regulated) T = traction (hydrocheck's rod thrust regulated)
0	OPERATION A = SKIP valve B = SKIP + STOP valve * V = STOP valve 0 = standard
40	BORE 40mm
200	STROKE in mm

* = minimum stroke 80mm

Hydrochecks Mod. 43N-LT0-40



+ = add the stroke



DIMENSIONS

Mod.	Stroke (mm)	A+	B	C	L+	SW1
43N-LT0-40-050	50	85	80	32	194	13
43N-LT0-40-100	100	85	80	32	194	13
43N-LT0-40-150	150	85	100	47	214	13
43N-LT0-40-200	200	85	100	47	214	13

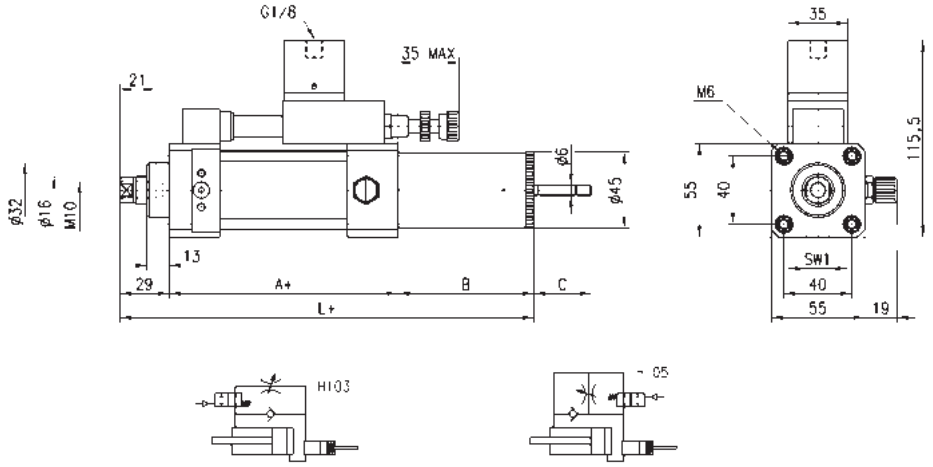
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Hydrochecks Mod. 43N-LTA-40 and 43N-LTV-40

On request



+ = add the stroke



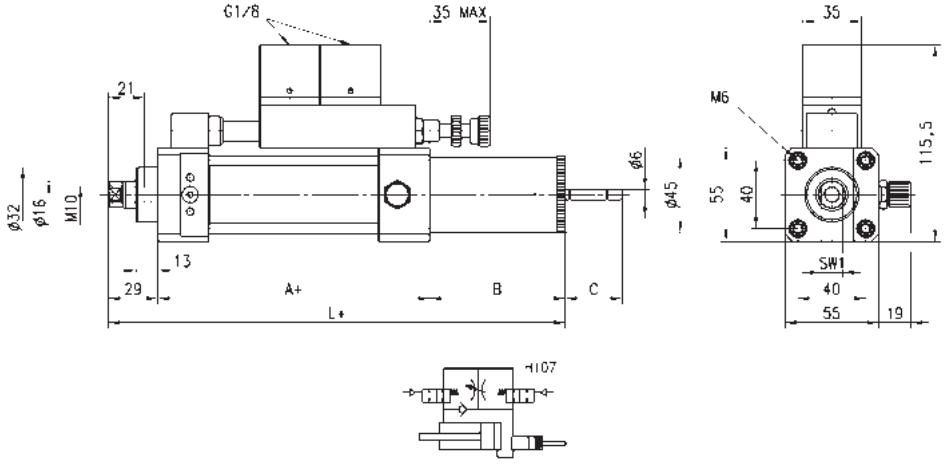
DIMENSIONS							
Mod.	Stroke (mm)	A+	B	C	L+	SW1	Pneumatic symbol
43N-LTA-40-050	50	85	80	32	194	13	HI05
43N-LTA-40-100	100	85	80	32	194	13	HI05
43N-LTA-40-150	150	85	100	47	214	13	HI05
43N-LTA-40-200	200	85	100	47	214	13	HI05
43N-LTV-40-050	50	85	80	32	194	13	HI03
43N-LTV-40-100	100	85	80	32	194	13	HI03
43N-LTV-40-150	150	85	100	47	214	13	HI03
43N-LTV-40-200	200	85	100	47	214	13	HI03

Hydrochecks Mod. 43N-LTB-40

On request



+ = add the stroke



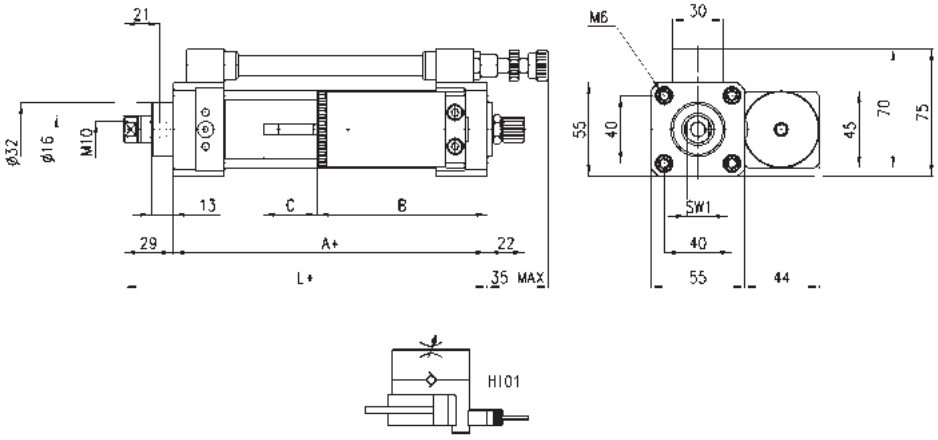
DIMENSIONS						
Mod.	Stroke (mm)	A+	B	C	L+	SW1
43N-LTB-40-050	50	85	80	32	194	13
43N-LTB-40-100	100	85	80	32	194	13
43N-LTB-40-150	150	85	100	47	214	13
43N-LTB-40-200	200	85	100	47	214	13

Hydrochecks Mod. 43N-PT0-40

On request



+ = add the stroke

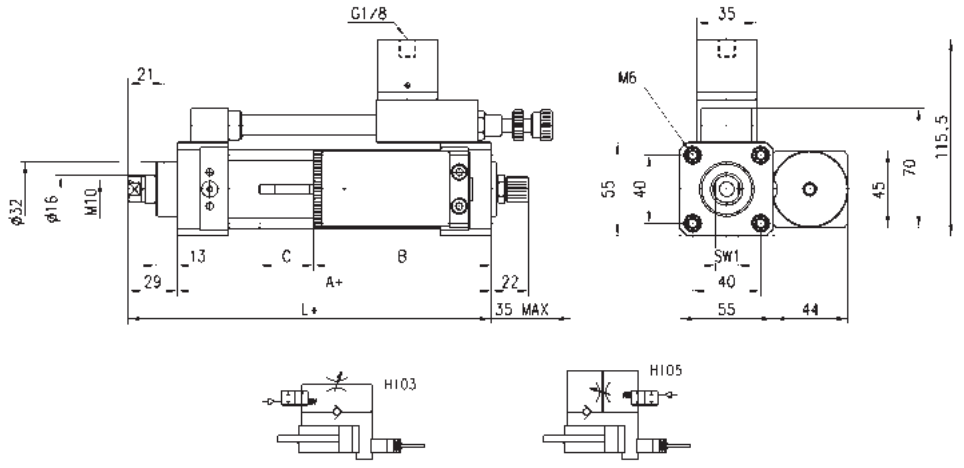


DIMENSIONS						
Mod.	Stroke (mm)	A+	B	C	L+	SW1
43N-PT0-40-050	50	85	100	32	114	13
43N-PT0-40-100	100	85	105	32	114	13
43N-PT0-40-150	150	85	125	47	114	13
43N-PT0-40-200	200	85	125	47	114	13

Hydrochecks Mod. 43N-PTA-40 and 43N-PTV-40



+ = add the stroke



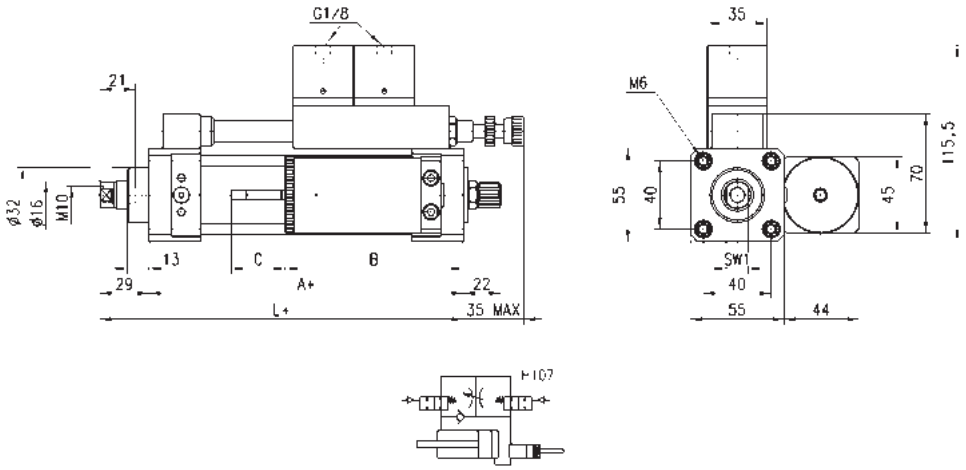
DIMENSIONS							
Mod.	Stroke (mm)	A+	B	C	L+	SW1	Pneumatic symbol
43N-PTA-40-050	50	85	100	32	114	13	HI05
43N-PTA-40-100	100	85	105	32	114	13	HI05
43N-PTA-40-150	150	85	125	47	114	13	HI05
43N-PTA-40-200	200	85	125	47	114	13	HI05
43N-PTV-40-050	50	85	100	32	114	13	HI03
43N-PTV-40-100	100	85	105	32	114	13	HI03
43N-PTV-40-150	150	85	125	47	114	13	HI03
43N-PTV-40-200	200	85	125	47	114	13	HI03

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Hydrochecks Mod. 43N-PTB-40



+ = add the stroke

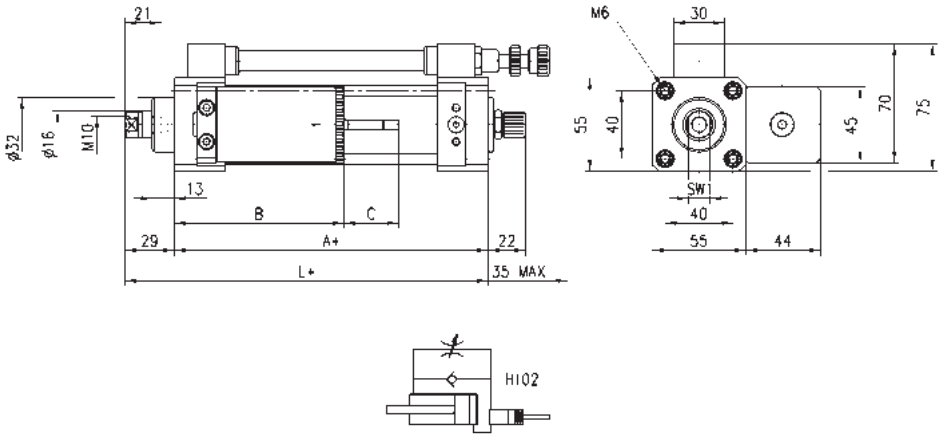


DIMENSIONS						
Mod.	Stroke (mm)	A+	B	C	L+	SW1
43N-PTB-40-050	50	85	100	32	114	13
43N-PTB-40-100	100	85	105	32	114	13
43N-PTB-40-150	150	85	125	47	114	13
43N-PTB-40-200	200	85	125	47	114	13

Hydrochecks Mod. 43N-PS0-40



+ = add the stroke



DIMENSIONS						
Mod.	Stroke (mm)	A+	B	C	L+	SW1
43N-PS0-40-050	50	85	100	32	114	13
43N-PS0-40-100	100	85	105	32	114	13
43N-PS0-40-150	150	85	125	47	114	13
43N-PS0-40-200	200	85	125	47	114	13

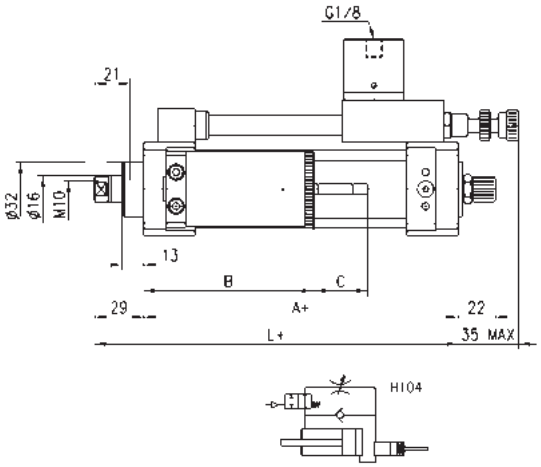
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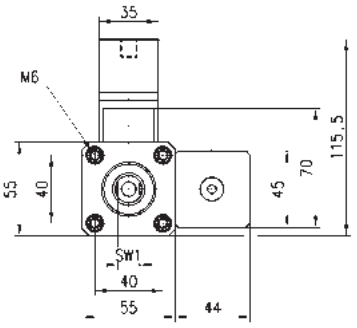
Hydrochecks Mod. 43N-PSA-40 and 43N-PSV-40

On request



+ = add the stroke



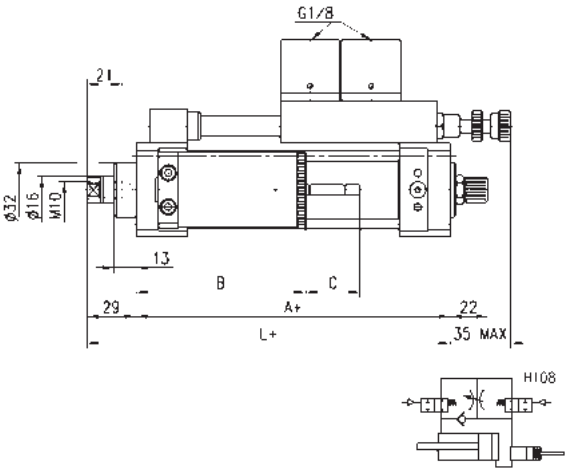


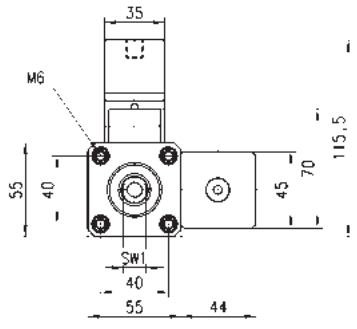
DIMENSIONS							
Mod.	Stroke (mm)	A+	B	C	L+	SW1	Pneumatic symbol
43N-PSA-40-050	50	85	100	32	114	13	HI06
43N-PSV-40-050	50	85	100	32	114	13	HI04
43N-PSA-40-100	100	85	105	32	114	13	HI06
43N-PSV-40-100	100	85	105	32	114	13	HI04
43N-PSA-40-150	150	85	125	47	114	13	HI06
43N-PSV-40-150	150	85	125	47	114	13	HI04
43N-PSA-40-200	200	85	125	47	114	13	HI06
43N-PSV-40-200	200	85	125	47	114	13	HI04

Hydrochecks Mod. 43N-PSB-40



+ = add the stroke





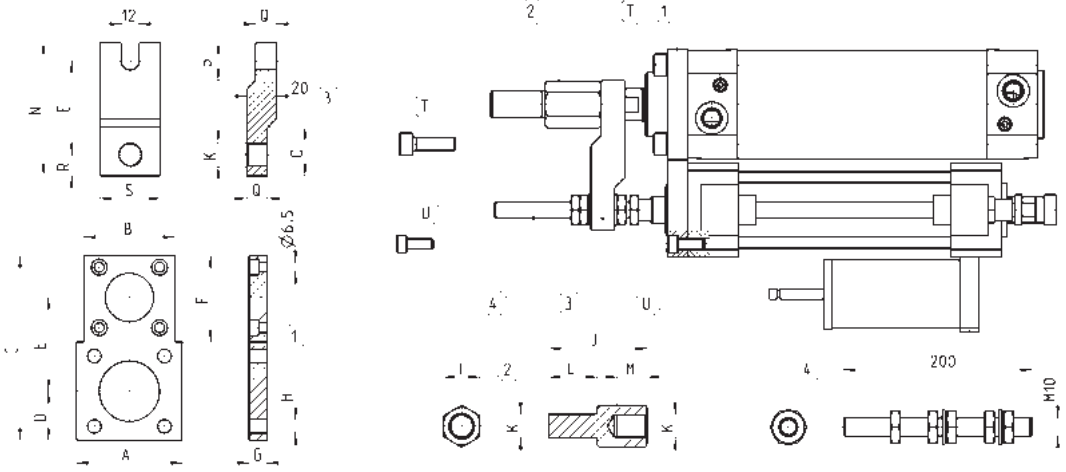
DIMENSIONS						
Mod.	Stroke (mm)	A+	B	C	L+	SW1
43N-PSB-40-100	100	85	105	32	114	13
43N-PSB-40-150	150	85	125	47	114	13
43N-PSB-40-200	200	85	125	47	114	13

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Connecting kit Mod. 43N-40

Hydrocheck connecting kit to suit cylinders Ø 40 - 50 - 63 - 80 mm
Material: phosphated steel





DIMENSIONS

Mod.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T (x4)	U (x4)
43N-40-40	60	-	110	26,5	56	-	12	7	19	47	M12X1,25	24	14	80	25	25	14	12	40	M6x25	M6x16
43N-40-50	70	60	122	32,5	62	57	12	9	24	65	M16X1,5	32	20	88	32	25	14	14	40	M8x25	M6x16
43N-40-63	80	60	132	37,5	67	57	20	9	24	65	M16X1,5	32	20	93	32	25	14	14	40	M8x35	M6x25
43N-40-80	100	60	152	47,5	77	57	20	11	30	78	M20X1,5	40	25	107	-	-	-	18	50	M10x35	M6x25

Hydrocheck refilling pump Mod. 43N-PMP

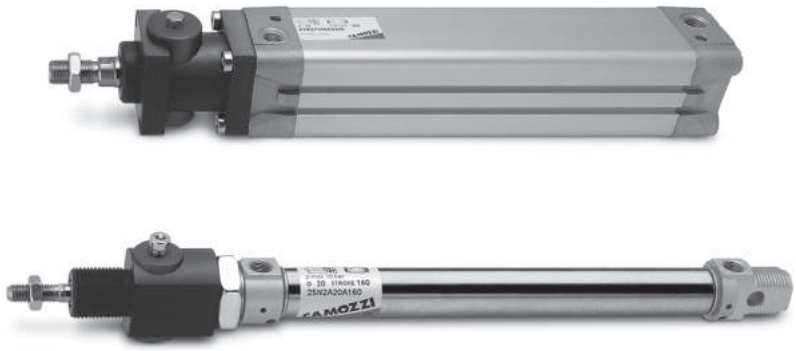
Pump for refilling hydrocheck speed regulator



Mod.
43N-PMP

Series RL rod lock

For cylinders ISO 6431/VDMA and ISO 6432 ø 20, 25, 32, 40, 50, 63, 80, 100, 125 mm



- Compact design
- Functioning in both directions
- Blocks without pressure releases with pressure

Series RL rod locks are available in 9 different sizes (diameters: 20, 25, 32, 40, 50, 63, 80, 100 to 125 mm). The compact dimensions allow units to be fitted on cylinders where space is limited. Rod lock units are often used to hold the load in position during Emergency Stop conditions or when the air supply may be accidently disconnected from the system. The holding forces are measured at 8 bar and apply in both directions.

Caution!
The rod lock should not be used to "brake" the piston rod in dynamic conditions and must only be applied when movement has ceased.

Note:
the cylinder piston rod length must be increased when using a rod lock unit. See the table for the minimum extension lengths for each diameter.

GENERAL DATA

Type of construction	compact
Operation	piston operated clamp
Materials	housing: anodized AL clamp: brass seals: NBR
Cylinder diameter	ø 20 - 25 - 32 - 40 - 50 - 63 - 80 - 100 - 125
Operating temperature	0°C ÷ 80°C (with dry air -20°C)
Configuration	pressure release
Operating pressure	3 ÷ 8 bar
Ports	M5 = ø20, 25, 32 - G1/8 = ø40, 50, 63, 80, 100, 125
Fluid	Filtered air without lubrication. If lubricated air is used, it is recommended to use ISOVG32 oil. Once applied the lubrication should never be interrupted.

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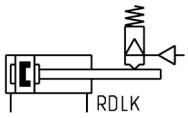
CODING EXAMPLE

RLC	-	41	-	32

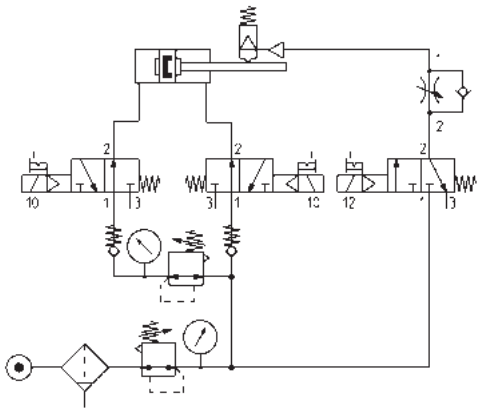
RLC	SERIES RLC = standard, complete with cartridge and housing RLB = cartridge only	
41	CYLINDER SERIES 24 = for Series 24 and 25 41 = for Series 60, 61 and 62	PNEUMATIC SYMBOL RDLK
32	CYLINDER DIAMETER (mm) 20 = 20 mm 25 = 25 mm 32 = 32 mm 40 = 40 mm 50 = 50 mm 63 = 63 mm 80 = 80 mm 100 = 100 mm 125 = 125 mm	

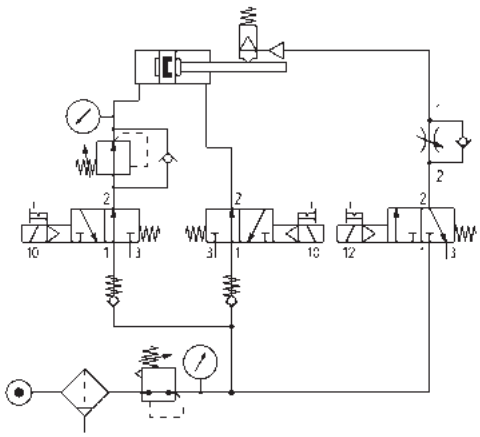
PNEUMATIC SYMBOLS

The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.



CONNECTION EXAMPLES

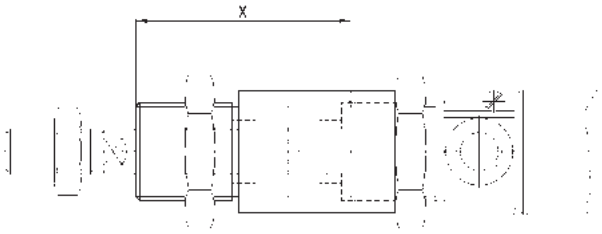




For a correct use of the rod lock Mod. RLC a pneumatic connection is recommended (as shown in the examples).

ROD EXTENSION and HOLDING FORCE

Table showing the rod extensions which are necessary for the rod lock mounting.

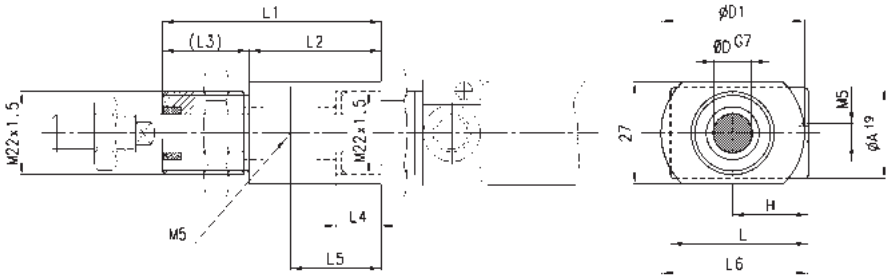


ø	Rod extension [X] (mm)	Holding force [static load] (N)
20	+50	300
25	+48	400
32	+40	650
40	+43	1100
50	+57	1600
63	+57	2500
80	+80	4000
100	+80	6300
125	+125	8800

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Series RL Rod Lock - Ø 20 - 25 mm





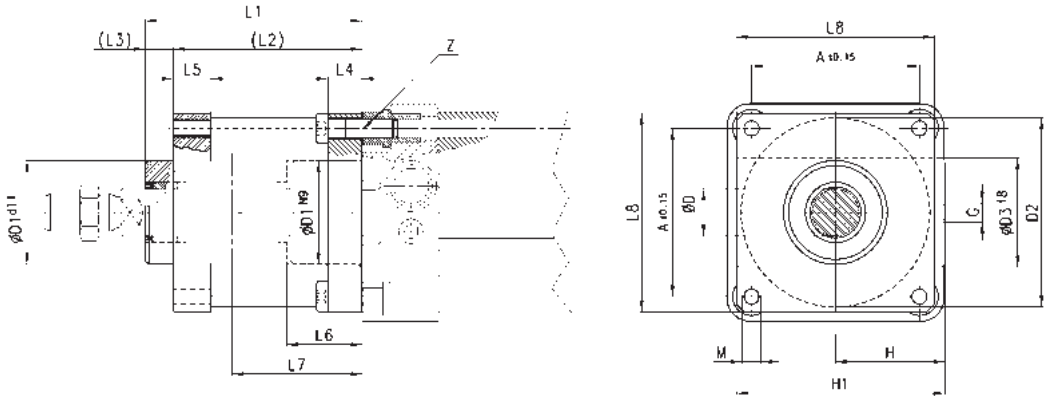
DIMENSIONS

Mod.	Ø	D	A	D1	H	L	L1	L2	L3	L4	L5	L6
RLC-24-20	20	8	20	38	21	40	58	35	23	12	24	40
RLC-24-25	25	10	20	38	21	40	58	35	23	12	24	40

Series RL Rod Lock - Ø 32 ÷ 125 mm

Supplied with:
- 4x screws





DIMENSIONS

Mod.	Ø	D	D1	D2	D3	G	L1	L2	L3	L4	L5	L6	L7	L8	A	M	H	H1	Z
RLC-41-32	32	12	30,5	35	25	M5	58	48	10	8	13	20,5	34	45	32,5	M6	25,5	46,5	M6X20
RLC-41-40	40	16	35	40	28	G1/8	65	55	10	8	13	22,5	38	50	38	M6	30	53	M6X20
RLC-41-50	50	20	40	50	35	G1/8	82	70	12	15	16	29,5	48	60	46,5	M8	36	64	M8X30
RLC-41-63	63	20	45	60	38	G1/8	82	70	12	15	16	29,5	49,5	70	56,5	M8	40	75	M8X30
RLC-41-80	80	25	45	80	48	G1/8	110	90	20	18	20	35	61	90	72	M10	50	95	M10X35
RLC-41-100	100	25	55	100	58	G1/8	115	100	15	18	20	39	69	105	89	M10	58	110,5	M10X35
RLC-41-125	125	32	60	130	65	G1/8	167	122	45	22	30	51	86,5	140	110	M12	80	150	M12X40

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series SA shock absorbers

7 different sizes
Threads: M8x1 - M10x1 - M12x1 - M14x1,5 -
M20x1,5 - M25x1,5 - M27x1,5



- Suitable for different applications
- Usable with or without a stop collar
- Self compensating

Series SA shock absorbers exist in 7 different sizes and are used to provide impact and noise absorbtion when stopping objects in motion. Series SA is of a self compensating type which makes it suitable for different applications such as low load/high speed or high load/low speed applications without requiring any additional adjustments on the shock absorber.
Series SA is designed so it can be used with or without a stop collar.

By using shock absorber Series SA, following advantages would be provided.
- Increased production rate
- Reduced maintenance costs
- Reduce noise and vibration
- Extended life time of the machine.

GENERAL DATA

Model	SA-0806 SA-1007 SA-1210 SA-1412 SA-2015 SA-2525 SA-2725
Type of construction	Hydraulic shock absorber, self compensating
Materials	Body: steel, black coated Piston rod: carbon steel chrome plated Piston: carbon steel Sealings: NBR
Threaded body	M8x 1 M10x 1 M12 x 1 M14x 1,5 M20x 1,5 M25x 1,5 M27x 1,5
Absorption stroke (mm)	6 7 10 12 15 25 25
Max. Energy absorption per cycle, Et (Nm)	3 6 12 20 59 80 147
Max. Energy absorption per hour, ETc, (Nm)	7000 12400 22500 33000 38000 60000 72000
Max. effective mass Me (kg)	6 12 22 40 120 180 270
Max N° cycles per minute	80 70 40 70 45 20 10
Impact speed, v (m/s) **min. - max.**	0,3 - 2,5 0,3 - 3,5 0,3 - 4,0 0,3 - 5,0 0,3 - 5,0 0,3 - 5,0 0,3 - 5,0
Weight (g)	15 25 32 65 150 295 360
Working temperature (°C)	-10°C ÷ +80°C

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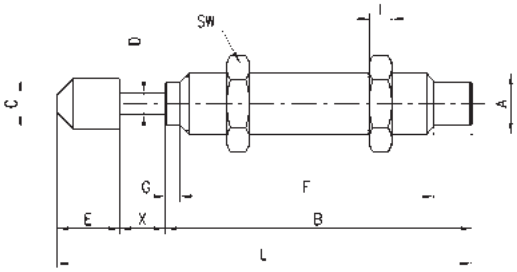
CODING EXAMPLE

SA	-	2015	

SA	SERIES
0806	SIZE/STROKE 0806 = Size M8 x 1 / Stroke 6 mm 1007 = Size M10 x 1 / Stroke 7 mm 1210 = Size M12 x 1 / Stroke 10 mm 1412 = Size M14 x 1,5 / Stroke 12 mm 2015 = Size M20 x 1,5 / Stroke 15 mm 2525 = Size M25x 1,5 / Stroke 25 mm 2725 = Size M27 x 1,5 / Stroke 25 mm
	VERSION = standard, with cap W = Without cap (on request)

Shock Absorbers Series SA





DIMENSIONS

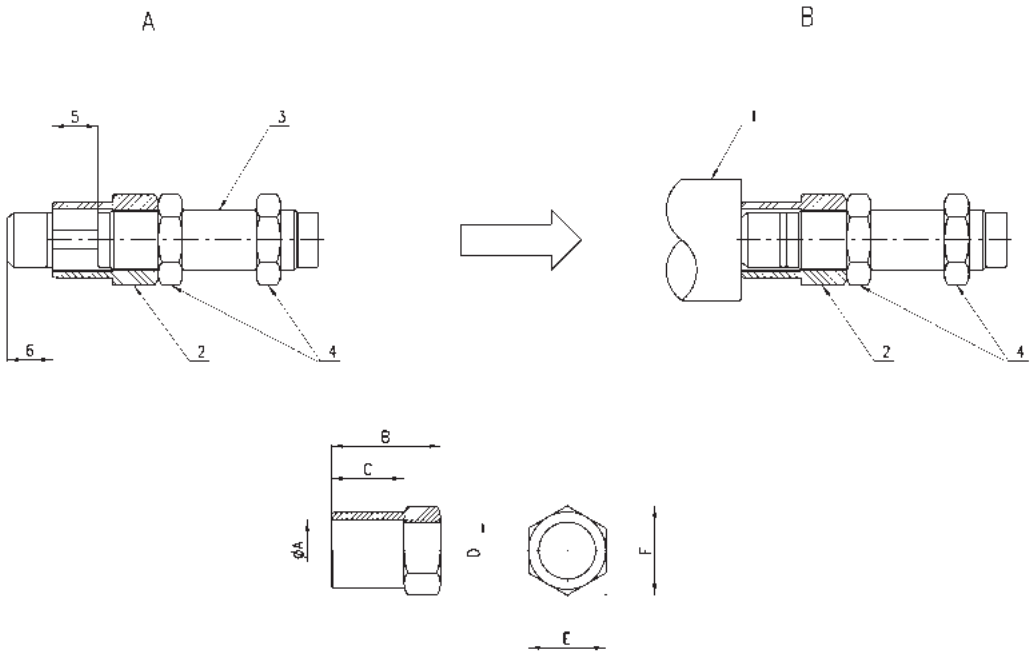
Mod.	A	B	C	D	E	F	G	I	L	SW	X	Weight (g)
SA-0806W	M8X1	40.6	-	2.9	-	33.6	2	3	-	11	6	15
SA-0806	M8X1	40.6	6.6	2.9	8.8	33.6	2	3	55.4	11	6	17
SA-1007W	M10X1	47	-	3	-	39	3	3	-	12.7	7	25
SA-1007	M10X1	47	8.6	3	8.6	39	3	3	62.6	12.7	7	28
SA-1210W	M12X1	52.5	-	3	-	44	3	4	-	14	10	29
SA-1210	M12X1	52.5	10.3	3	8.8	44	3	4	71.3	14	10	32
SA-1412W	M14X1.5	67	-	4	-	58	4	5	-	19	12	65
SA-1412	M14X1.5	67	12	4	10.5	58	4	5	89.5	19	12	70
SA-2015W	M20X1.5	73	-	6	-	62	4	7	-	26	15	150
SA-2015	M20X1.5	73	17.8	6	15.8	62	4	7	103.8	26	15	160
SA-2525W	M25X1.5	92	-	8	-	82	-	9	-	32	25	280
SA-2525	M25X1.5	92	22	8	19	82	-	9	136	32	25	295
SA-2725W	M27X1.5	99	-	8	-	86	5	6.5	-	32	25	360
SA-2725	M27X1.5	99	22	8	19	86	5	6.5	143	32	25	375

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Adjusted stroke nut

A = Initial position
B = Final position

1 = Impact object
2 = Adjusted stroke nut
3 = Shock absorber
4 = Fixing screw
5 = Stroke
6 = Stroke length



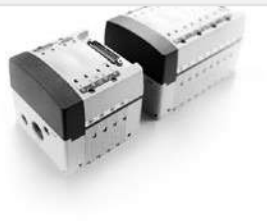
DIMENSIONS

Mod.		Ø A	B	C	D	E	F
SA-08SC	(for SA-0806)	10.5	14	9	M8X1	11	12.7
SA-10SC	(for SA-1007)	12	16	10	M10X1	13	14.7
SA-12SC	(for SA-1210)	14.5	20	13	M12X1	16	18.5
SA-14SC	(for SA-1412)	14.5	27	15	M14X1	19	21.9
SA-20SC	(for SA-2015)	27.8	35	20	M20X1.5	26	30
SA-25SC	(for SA-2525)	5.8	45	30	M25X1.5	32	37
SA-27SC	(for SA-2725)	20.7	65	50	M27X1.5	32	37

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NOTES

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2 / 1 Directly and indirectly operated 2/2, 3/2 solenoid valves

		Section
Series K8	**Directly operated solenoid valves - 8 mm** 2/2-way - Normally Closed (NC) and Normally Open (NO) 3/2-way - Normally Closed (NC) and Normally Open (NO)	2/1.03
Series K8B	**Pilot operated solenoid valves** 2/2-way - Normally Closed (NC) and Normally Open (NO) 3/2-way - Normally Closed (NC) and Normally Open (NO)	2/1.04
Series K	**Directly operated solenoid valves - 10 mm** 3/2-way - Normally Closed (NC) and Normally Open (NO)	2/1.05
Series KN	**Directly operated solenoid valves - 10 mm** 3/2-way - Normally Closed (NC)	2/1.06
Series KN HIGH FLOW	**Directly operated solenoid valves - 10 mm** 3/2-way - Normally Closed (NC)	2/1.07
Series W	**Directly operated solenoid valves - 15 mm** 3/2-way - Normally Closed (NC), Normally Open (NO)	2/1.10

2 / 1 Directly and indirectly operated 2/2, 3/2 solenoid valves

		Section
Series P	**Directly operated solenoid valves - 15 mm** 3/2-way - Normally Closed (NC) and Normally Open (NO)	2/1.15
Series PL	**Directly operated solenoid valves - 15 mm** 3/2-way - Normally Closed (NC)	2/1.16
Series PN	**Directly operated solenoid valves - 15 mm** 3/2-way - Normally Closed (NC)	2/1.17
Series PD	**Directly operated solenoid valves - 15 mm** 2/2-way - Normally Closed (NC)	2/1.18
Series PDV	**Directly operated solenoid valves with separating diaphragm** 2/2-way - Normally Closed (NC)	2/1.19
Series A	**Directly operated solenoid valves - 22 mm** 2/2-way - Normally Closed (NC) and Normally Open (NO) 3/2-way - Normally Closed (NC) and Normally Open (NO)	2/1.20
Series 6	**Directly operated solenoid valves - 30 mm** 2/2-way - Normally Closed (NC) 3/2-way - Normally Closed (NC), Normally Open (NO)	2/1.25
Series CFB	**Solenoid valves** 2/2-way - Normally Closed (NC) and Normally Open (NO) 3/2-way - Normally Closed (NC) and Normally Open (NO)	2/1.30
Series CFB Stainless steel	**Solenoid valves** 2/2-way - Normally Closed (NC) 3/2-way - Normally Closed (NC)	2/1.31

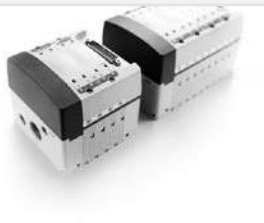
2 / 2 Solenoid valves / pneumatic valves

		Section
Series 8	**Pneumatic operated cartridge valves** 2/2-way - Normally Closed (NC)	2/2.03
Series 8	**Pneumatically and electropneumatically operated valves** 2/2-way - Normally Closed (NC), Normally Open (NO) 3/2-way - Normally Closed (NC), Normally Open (NO)	2/2.04
Series E	**Valves and solenoid valves** 5/2-way monostable/bistable 5/3-way CC, CO, CP With outlets on the body For individual or manifold assembly Size: 10,5 mm	2/2.05
Series EN	**Valves and solenoid valves** 5/2-way - 5/3-way CC, CO, CP With outlets on the body For individual or manifold assembly Size: 16, 19 mm	2/2.07
Series 3	**Valves and solenoid valves** 2x3/2, 3/2, 5/2 and 5/3-way CC, CO, CP Ports: G1/8, G1/4	2/2.10
Series 4	**Valves and solenoid valves** 3/2, 5/2 and 5/3-way CC, CO Ports: G1/8, G1/4, G1/2	2/2.15
Series 9	**Valves and solenoid valves ISO 5599/1** 5/2 and 5/3-way CC, CO Sizes: 1 - 2 - 3	2/2.20
Series 7	**Valves and solenoid valves VDMA 24563 (ISO 15407-1)** 5/2-way - 5/3-way CC, CO, CP	2/2.25
Series NA	**Valves and solenoid valves** 3/2 - 5/2 - 5/3-way CC, CO, CP With holes configured according NAMUR standards	2/2.30
Series GP, B, G, U7, A8, H8	**Solenoids** Version A, B Connections according to industrial standard and to DIN EN 175 301-803 standardsThe	2/2.35

2 / 3 Valve islands

		Section
Series 3	**Plug-In valve islands, Multipole and Fieldbus** Plug-In system for Series 3 solenoid valves, G1/8 port Valve functions: 2x3/2, 5/2 and 5/3-way CO CC CP Multipole with a 25-pin Sub-D connector It can interface with all major serial communication protocols	2/3.30
Series F	**Valve islands, Multipole and Fieldbus** Multipole integrated electrical connection (PNP) Valve functions: 2x2/2; 2x3/2; 5/2; 5/3 CC It can interface with all major serial communication protocols	2/3.35
Series HN	**Valve islands, Multipole and Fieldbus** Multipole connection with 25 or 37 pins Serial connection with the most common communication protocols Valve functions: 2x2/2; 2x3/2; 5/2; 5/3 CC	2/3.40
Series Y	**Valve islands, Individual, Multipole and Fieldbus** Valve Island with Pneumatics and Electronics integrated Available versions: Individual, Multipole, Fieldbus (Profibus-DP, DeviceNet, CANopen) Valve functions: 2x2/2; 2x3/2; 5/2; 5/3 CC	2/3.45
Series CX	**Multi-serial module** Interface with: PROFIBUS, CANopen, DeviceNet, EtherNet/IP, PROFINET, EtherCAT Compatible with all Camozzi valve islands	2/3.50

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2 / 4 Mechanical / manual valves

		Section
Series 2 	**Mechanically operated minivalves** 3/2-way Ports M5, cartridge ø 4	2/4.05
Series 1, 3 	**Mechanically operated valves** Series 1: 3/2-way and 5/2-way, ports G1/8 and G1/4 Series 3: 3/2-way and 5/2-way, ports G1/8	2/4.10
Series 3, 4 	**Mechanically operated sensor valves** 3/2-way and 5/2-way Ports G1/8, G1/4	2/4.15
Series 2, 3 	**Foot operated pedal Electrical and pneumatic** Series 3: G1/4, 5/2-way - NC / NO contacts Series 2: M5; 4/2 tube; 3/2-way NC	2/4.20
Series 2 	**Manually operated console minivalves** 3/2-way and 5/3-way CC, CO, CP Ports M5, Cartridge ø 4	2/4.25
Series 1, 3, 4 VMS 	**Manually operated valves** Series 1, 3 and 4: 3/2-, 5/2- and 5/3-way CC, CO; ports G1/8, G1/4 Series VMS: 3/2-way; ports M5, G1/8, G1/4, G3/8, G1/2 and G3/4	2/4.30
Series 2 	**Mini-handle valves** Handle with incorporated micro valve 3/2 NC and NO Handle with incorporated micro switchManual	2/4.35

2 / 5 Logic valves

		Section
Series 2L 	**Basic logic valves** Cartridge ø 4 mm or - and - yes - not - memory	2/5.05

2 / 6 Automatic valves

		Section
Mod. SCS 	**Circuit selector** Ports: G1/8	2/6.01
Series VNR 	**Unidirectional valves** Ports: M5, G1/8, G1/4, G3/8, G1/2, G3/4, G1	2/6.02
Series VSO, VSC 	**Quick exhaust valves** Series VSO ports: M5, G1/8, cartridge ø4 Series VSC ports: G1/8, G1/4, G1/2	2/6.03
Mod. VMR 1/8-B10 	**Adjustable overpressure exhaust valve** Ports: G1/8	2/6.04
Series VBO, VBU 	**Blocking valves** Unidirectional valves (VBU) and bidirectional valves (VBO) Ports: G1/8, G1/4, G3/8, G1/2	2/6.10

2 / 7 Flow control valves

		Section
Series SCU, MCU, SVU, MVU, SCO, MCO 	**Flow control valves** Unidirectional and bidirectional banjo flow control regulators Ports: M5, G1/8, G1/4, G3/8, G1/2	2/7.05
Series PSCU, PMCU, PSVU, PMVU, PSCO, PMCO 	**Flow control valves** Unidirectional and bidirectional flow regulators with banjo in brass (M5) or in technopolymer (G1/8, G1/4, G3/8) Ports: M5, G1/8, G1/4, G3/8	2/7.07
Series TMCU, TMVU, TMCO 	**Flow control valves** Unidirectional and bidirectional banjo flow controllers with nominal diameter 2 - 3,8 - 5,8 - 8 mm Ports: G1/8, G1/4, G3/8, G1/2	2/7.10
Series GSCU, GMCU, GSVU, GSCO, GMCO 	**Flow control valves** Unidirectional and bidirectional banjo flow controllers with nominal diameter 1,5 - 3,5 - 5 mm Ports: M5, G1/8, G1/4	2/7.15 GMVU,
Series RFU, RFO 	**Flow control valves** Unidirectional and bidirectional Ports: M5, G1/8, G1/4, G3/8, G1/2 Nominal diameters: 1,5 mm (M5), 2 and 3 mm (G1/8), 4 and 6 mm (G1/4), 7 mm (G3/8 and G1/2)	2/7.20
Series 28 	**Flow control valves** Bidirectional Ports: G1/8, G1/4, G3/8, G1/2	2/7.25

2 / 8 Pressure switches and vacuum switches

		Section
Series PM, TRP, 2950 	**Pressure switches, Transducers, Pressure indicators** Series PM: adjustable-diaphragm pressure switches, with setting visual scale, with exchange contacts Series TRP: electro-pneumatic transducers Series 2950: pressure indicators, ports M5	2/8.05
Series SWDN 	**Electronic vacuum/pressure switches** With digital display High precision, easy to use	2/8.22
Series SWCN 	**Electronic vacuum/pressure switches** With digital display High precision, easy to use	2/8.27

2 / 9 Silencers

		Section
Series 29... 	**Silencers** Series: 2901 - 2903 - 2921 - 2931 - 2938 - 2939 - 2905 - RSW Ports: M5, G1/8, G1/4, G3/8, G1/2, G3/4, G1	2/9.05

2 / 15 Proportional technology

		Section
Series AP 	**Directly operated proportional valves** 2/2-way proportional valves, NC Size: 16 - 22 mm	2/15.01
Series CP 	**Directly operated proportional solenoid valves** 2/2-way, NC proportional valves Sizes: 16 and 20 mm	2/15.02
Series 130 	**Electronic control device for proportional valves** PWM control device, with current control system for directly operated proportional valves	2/15.03
Series LRWD2, LRPD2, LRXD2 	**Digital proportional servo valves** 3/3-way directly operated servo valves for the flow (LRWD2), pressure (LRPD2) and position (LRXD2) control	2/15.32
Series K8P 	**Electronic proportional micro regulator** Proportional regulator for the pressure control	2/15.37
Series MX-PRO 	**Electronic proportional regulator** Ports: G1/2. Manifold ports: G1/2 Modular - Available with built-in pressure gauges or ports for gauges	2/15.45
Series ER100 	**Digital electro-pneumatic regulators** Ports: G1/4	2/15.50
Series ER200 	**Digital electro-pneumatic regulators** Ports: G1/4 and G3/8	2/15.51

Series K8 directly operated solenoid valves

2/2-way - Normally Closed (NC) and Normally Open (NO)
3/2-way - Normally Closed (NC) and Normally Open (NO)



- Compact design
- High performances
- Manifold mounting
- Long life

Thanks to their particular design these valves can be used in applications where very compact solutions are required as well as high performances.
Series K8 is used to control actuators or very small devices and it is suitable for portable equipments thanks to low power consumption, reduced weight and dimensions.

Series K8 directly operated solenoid valves are available as 2/2 or 3/2-way either NC or NO versions.

GENERAL DATA

TECHNICAL FEATURES	
Function	2/2 NC - 3/2 NC - 2/2 NO - 3/2 NO
Operation	direct acting poppet type
Pneumatic connections	manifold cartridge
Nominal diameter	0.5 - 0.7 mm
Nominal flow	see kv
Flow efficient kv (l/min)	0.08 - 0.15
Operating pressure	-1 ÷ 3 ... 7 bar
Operating temperature	0°C ÷ 50°C
Media	filtered compressed air, unlubricated, according to ISO 8573-1 class 3.4.3, inert gas
Response time (ISO 12238)	ON <10 msec – OFF <10 msec
Installation	in any position
MATERIALS IN CONTACT WITH THE MEDIUM	
Body	brass - stainless steel - PBT technopolymer
Seals	FKM
Internal parts	stainless steel
ELECTRICAL FEATURES	
Voltage	24 V DC - 12 V DC - 6 V DC - other voltages on demand
Voltage tolerance	±10%
Power consumption	0.6 W
Duty cycle	ED 100%
Electrical connection	2 Pin 0.5 x 0.5 spacing 4 mm
Protection class	IP00
Special versions available on demand	

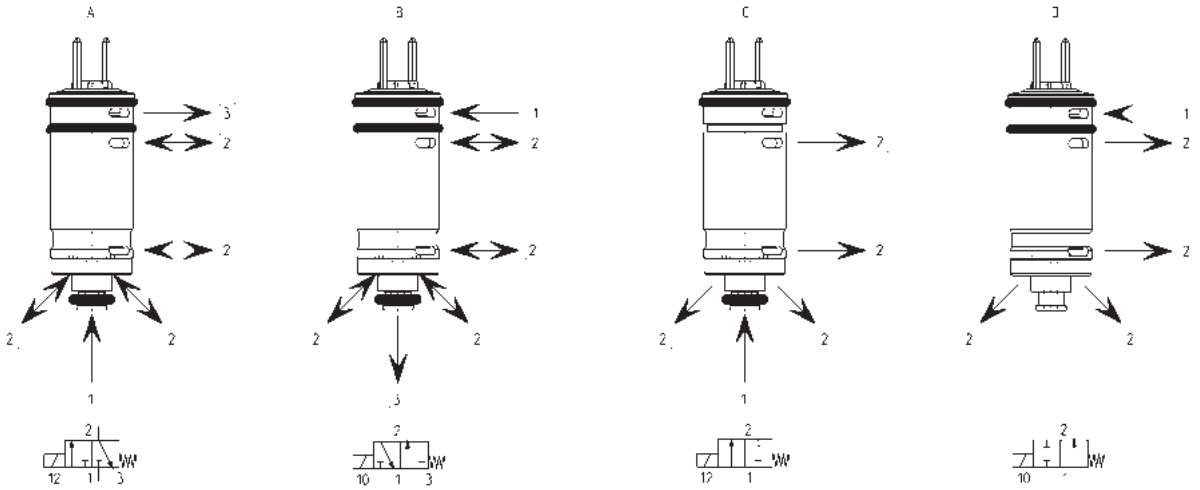
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CODING EXAMPLE

K8	0	00	-	3	0	3	-	K	2	3

K8	SERIES
0	BODY DESIGN: 0 = single valve
00	NUMBER OF POSITIONS: 00 = valve without seat
3	NUMBER OF WAYS - FUNCTIONS: 0 = single base 3 = 3-way NC 4 = 3-way NO 5 = 2-way NC 6 = 2-way NO
0	MATERIALS AND SEALS: 0 = poppet, FKM seals
3	NOMINAL DIAMETER: 3 = Ø 0.5 mm (working pressure 1 ÷ 7 bar) 6 = Ø 0.5 mm (working pressure -1 ÷ 4 bar) 5 = Ø 0.7 mm (working pressure -1 ÷ 3 bar)
K	MATERIALS: K = stainless steel body, brass cage
2	ELECTRICAL CONNECTION: 2 = pin interface size 4 mm
3	VOLTAGE: 1 = 6V DC (0.6 W) 2 = 12V DC (0.6 W) 3 = 24V DC (0.6 W)

AVAILABLE FUNCTIONS



A = 3/2-way valve NC

B = 3/2-way valve NO

C = 2/2-way valve NC

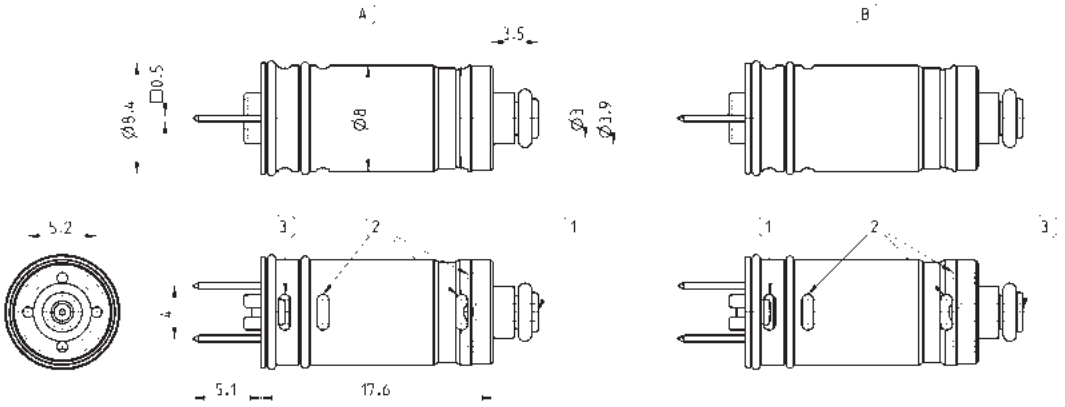
D = 2/2-way valve NO

1 = supply
2 = inlet
3 = exhaust

8 mm solenoid valve, 2/2 and 3/2-way NC (A) and NO (B)

* = put in NUMBER OF WAYS - FUNCTIONS (see CODING EXAMPLE)
** = put in VOLTAGE (see CODING EXAMPLE)



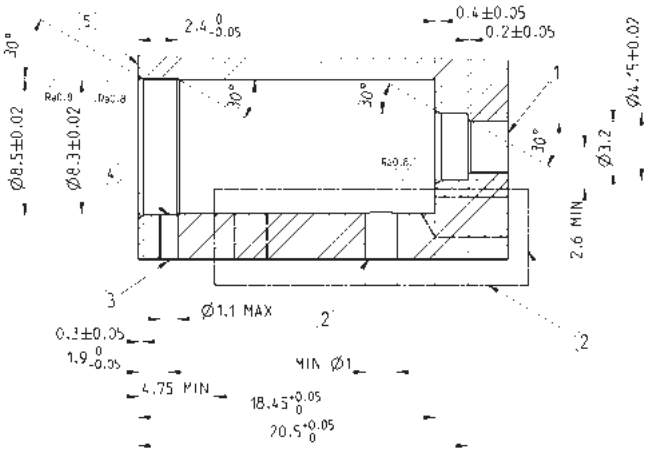


LEGEND:
1 = supply
2 = inlet
3 = exhaust

Mod.	Orifice Ø (mm)	kv (l/min)	Min/max pressure (bar)
K8000-*03-K2**	0.5	0.08	1 ÷ 7
K8000-*06-K2**	0.5	0.08	-1 ÷ 4
K8000-*05-K2**	0.7	0.15	-1 ÷ 3

8 mm solenoid valve seat, 2/2 and 3/2-way NC and NO

Note: better performances can be achieved if the valve seat holes are in line with the respective valve holes.



LEGEND:
1 = Port 1
2 = Port 2
3 = Port 3
4 = Free from burrs
5 = Surface to be aligned with the upper surface of the valve reinforcement

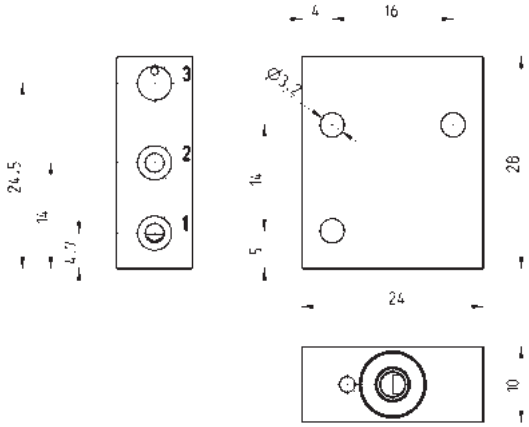
FUNCTION	3/2 NC	2/2 NC	3/2 NO	2/2 NO
PORT 1	Supply	Supply	Exhaust	-
PORT 2	Outlet	Outlet	Outlet	Outlet
PORT 3	Exhaust	-	Supply	Supply

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Single body for Series K8 solenoid valve



Material: anodized aluminium
Pneumatic connections: M5 threads

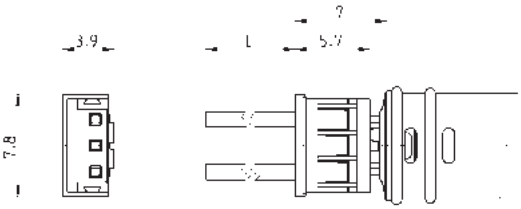


Mod.
K8303/14C

Connector Mod. 120-..



Cable section: 0.25 mm²
Cable external diameter: 1.2 mm
Material for the cable insulation: PVC

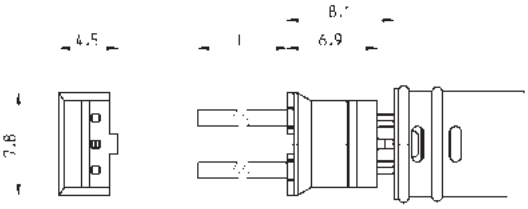


Mod.	description	colour	L = cable length (mm)	cable holding
120-803	crimped cable	white	300	crimping
120-806	crimped cable	white	600	crimping

Connector with flying leads Mod. 120-J...



Flying leads section: 0.25 mm²
Flying lead external diameter: 1.2 mm
Material for the flying leads insulation: PVC



Mod.	description	colour	L = cable length (mm)	cable holding
120-J803	crimped cable connector J	white	300	crimping
120-J806	crimped cable connector J	white	600	crimping

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Series K8B
pilot operated solenoid valves

2/2-way - Normally Closed (NC) and Normally Open (NO)
3/2-way - Normally Closed (NC) and Normally Open (NO)



- Compact design
- High flow
- Manifold mounting
- Long life

Thanks to their low power consumption and light weight Series K8B solenoid valves are particularly suitable for use with portable equipment too.

Series K8B pilot operated solenoid valves represent the evolution of Series K8 which has been equipped with a flow amplifier. Their particular design makes these valves ideal for use in applications requiring very compact solutions and high flow.

GENERAL DATA

TECHNICAL FEATURES	
Function	2/2 NC - 3/2 NC - 2/2 NO - 3/2 NO
Operation	pilot operated poppet type
Pneumatic connections	manifold cartridge - M7 threads - on subbase with M3 screws
Nominal diameter	3.6 mm
Nominal flow	180 Nl/min (air @ 6 bar ΔP 1 bar)
Flow coefficient kv (l/min)	2.8
Operating pressure	1 ÷ 7 bar
Operating temperature	0°C ÷ 50°C
Media	filtered compressed air, unlubricated, according to ISO 8573-1 class 3.4.3, inert gas
Response time (ISO 12238)	ON <15 msec – OFF <15 msec
Installation	in any position
MATERIALS IN CONTACT WITH THE MEDIUM	
Body	brass - stainless steel - PBT technopolymer - aluminium
Seals	FKM
Internal parts	stainless steel
ELECTRICAL FEATURES	
Voltage	24 V DC - 12 V DC - 6 V DC - other voltages on demand
Voltage tolerance	±10%
Power consumption	0.6 W
Duty cycle	ED 100%
Electrical connection	2 Pin 0.5 x 0.5 pitch 4mm - JST connector with flying leads L = 300mm
Protection class	IP00
Special versions available on demand	

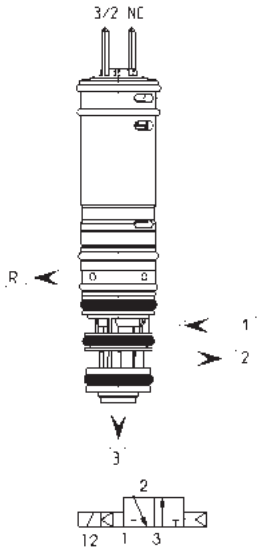
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CODING EXAMPLE

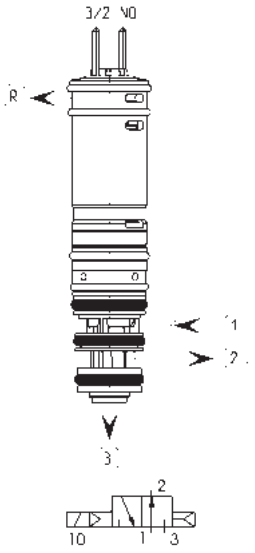
K8B	C5	4	00	-	D4	3	2	N	-	N	00	1A	C003

K8B	SERIES
C5	BODY DESIGN: C0 = body with interface for subbase C3 = threaded body C5 = cartridge
4	NUMBER OF WAYS - FUNCTIONS: 1 = 2/2-way NC 2 = 2/2-way NO 4 = 3/2-way NC 5 = 3/2-way NO
00	PNEUMATIC CONNECTIONS: 00 = cartridge 03 = M7 18 = K8B-type interface, 2-way 19 = K8B-type interface, 3-way
D4	NOMINAL DIAMETER: D4 = Ø 3.6mm
3	SEALS MATERIALS: 3 = FKM
2	BODY MATERIALS: 1 = aluminium 2 = brass
N	MANUAL OVERRIDE: N = not foreseen
N	FIXING ACCESSORIES: N = not foreseen P = screws for plastics M = screws for metal
00	OPTION: 00 = no option
1A	ELECTRICAL CONNECTION: 1A = only pins, pitch 4mm 1B = JST connector, pitch 4mm
C003	VOLTAGE - POWER CONSUMPTION: C001 = 6V DC (0.6 W) C002 = 12V DC (0.6 W) C003 = 24V DC (0.6 W)

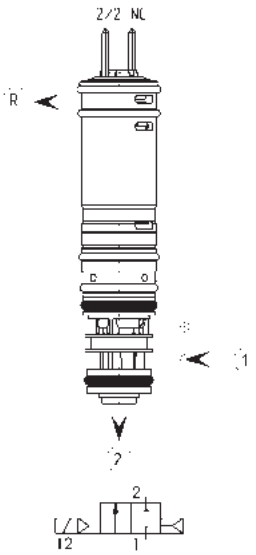
AVAILABLE FUNCTIONS



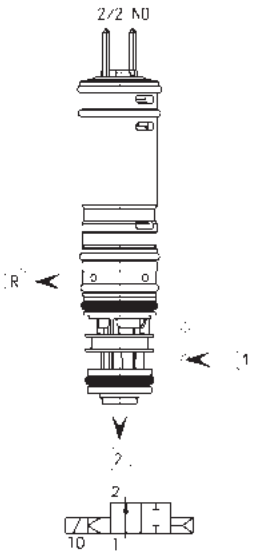
1 = supply
2 = inlet
3 = exhaust
R = K8 exhaust



1 = supply
2 = inlet
3 = exhaust
R = K8 exhaust



1 = supply
2 = inlet
R = K8 exhaust

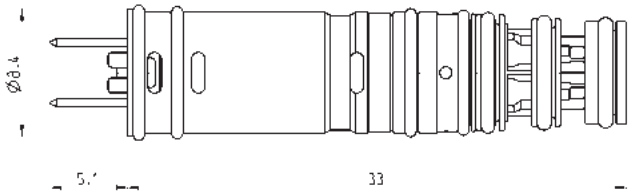


1 = supply
2 = inlet
R = K8 exhaust

Products designed for industrial applications.
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8 mm solenoid valve, 2/2 and 3/2-way NC and NO



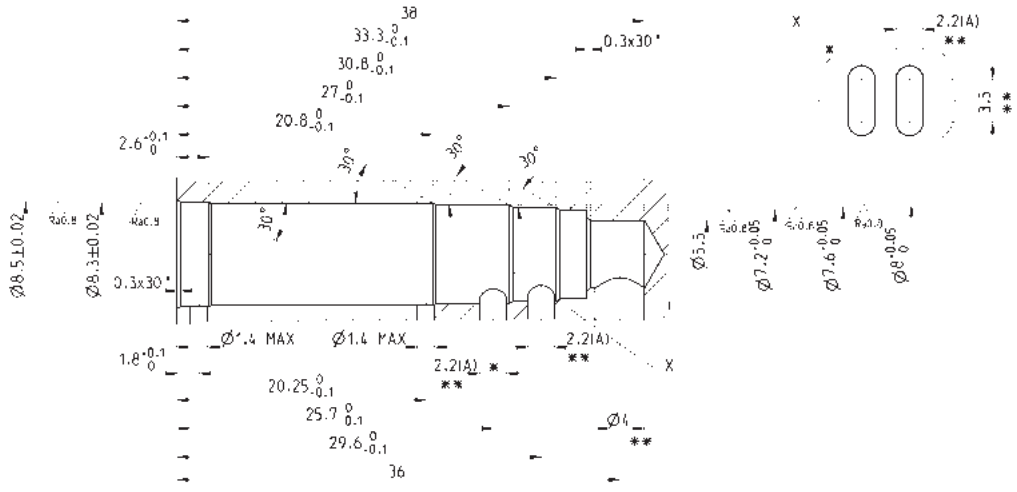


Mod.	Function	NOTE
K8BC5100-D432N-N001A*	2/2 NC	* enter the required voltage (see the coding example)
K8BC5200-D432N-N001A*	2/2 NO	* enter the required voltage (see the coding example)
K8BC5400-D432N-N001A*	3/2 NC	* enter the required voltage (see the coding example)
K8BC5500-D432N-N001A*	3/2 NO	* enter the required voltage (see the coding example)

8 mm solenoid valve seat, 2/2 and 3/2-way NC and NO

* = FOR THE 2/2 VERSION THIS OPERATION HAS NOT TO BE PERFORMED

** = TO ACHIEVE DECLARED PERFORMANCE IT IS NECESSARY TO HAVE
A PASSAGE SECTION FOR THE SUPPLY AND EXHAUST PORTS
OF 12.5 mm², WHICH IS EQUAL TO A Ø4 mm

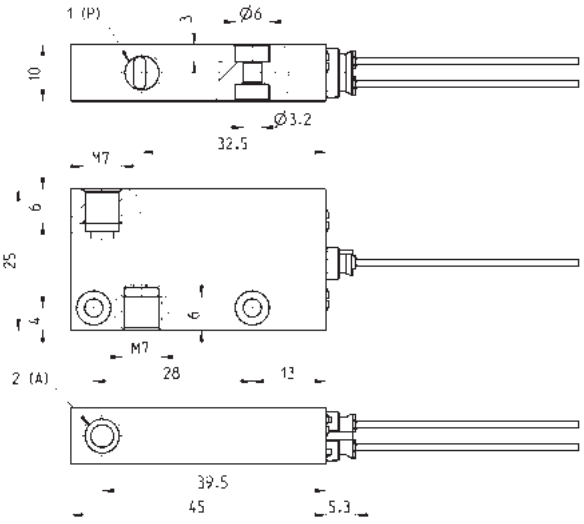


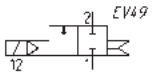
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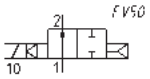
Body with threaded ports, 2/2-way NC and NO



Supplied with:
1x connector with flying leads
Mod. 120-J803 (300mm)





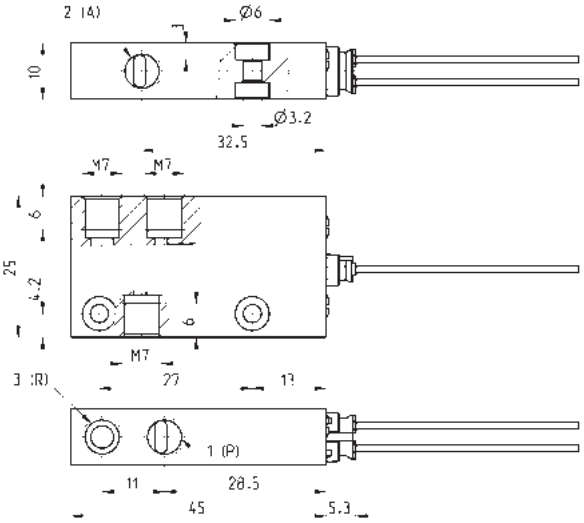


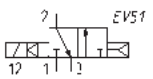
Mod.	Function	Symbol	NOTE
K8BC3103-D431N-N001B*	2/2 NC	EV49	* enter the required voltage (see the coding example)
K8BC3203-D431N-N001B*	2/2 NO	EV50	* enter the required voltage (see the coding example)

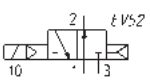
Body with threaded ports, 3/2-way NC and NO



Supplied with:
1x connector with flying leads
Mod. 120-J803 (300mm)





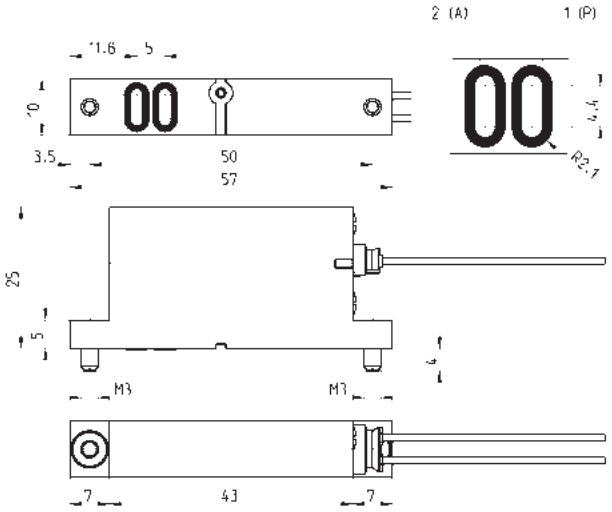


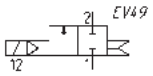
Mod.	Function	Symbol	NOTE
K8BC3403-D431N-N001B*	3/2 NC	EV51	* enter the required voltage (see the coding example)
K8BC3503-D431N-N001B*	3/2 NO	EV52	* enter the required voltage (see the coding example)

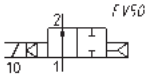
Body for subbase, 2/2-way NC and NO



Supplied with:
1x connector with flying leads
Mod. 120-J803 (300mm)
2x interface seals
2x screws M3x6 UNI 5931
(for M version)
or
2x screws M3x6 UNI 10227
(for P version)





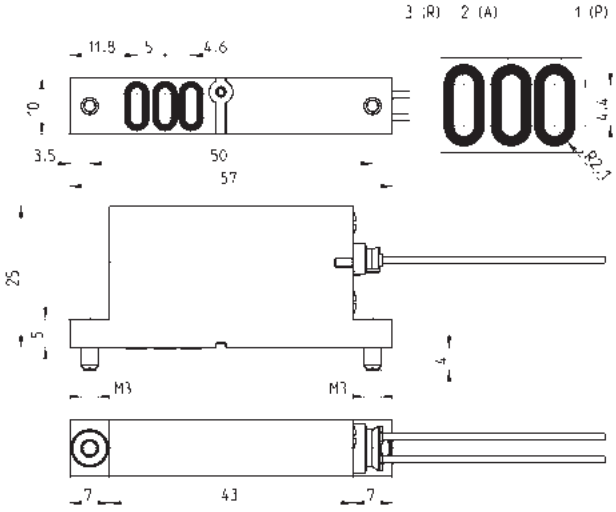


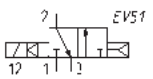
Mod.	Function	Symbol	NOTE
K8BC0118-D431N-*001B**	2/2 NC	EV49	* enter the type of screws - ** enter the required voltage (see the coding example)
K8BC0218-D431N-*001B**	2/2 NO	EV50	* enter the type of screws - ** enter the required voltage (see the coding example)

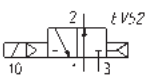
Body for subbase, 3/2-way NC and NO



Supplied with:
1x connector with flying leads
Mod. 120-J803 (300mm)
3x interface seals
2x screws M3x6 UNI 5931
(for M version)
or
2x screws M3x6 UNI 10227
(for P version)







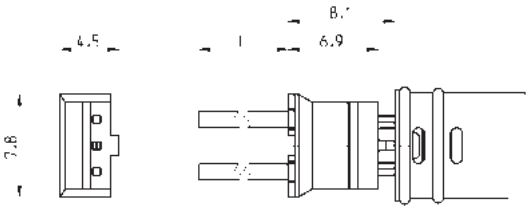
Mod.	Function	Symbol	NOTE
K8BC0419-D431N-*001B**	3/2 NC	EV51	* enter the type of screws - ** enter the required voltage (see the coding example)
K8BC0519-D431N-*001B**	3/2 NO	EV52	* enter the type of screws - ** enter the required voltage (see the coding example)

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Connector with flying leads Mod. 120-J...



Flying leads section: 0.25 mm²
Flying lead external diameter: 1.2 mm
Material for the flying leads insulation: PVC



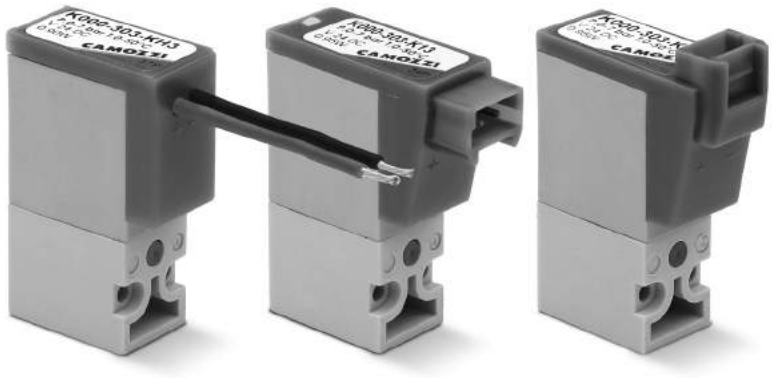
Mod.	description	colour	L = cable length (mm)	cable holding
120-J803	crimped cable connector J	white	300	crimping
120-J806	crimped cable connector J	white	600	crimping

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Series K
directly operated solenoid valves

3/2-way - Normally Closed (NC) and Normally Open (NO)

» Can be mounted on a single base (M5 connections) or on manifold (M5 connections).



Series K directly operated solenoid valves are available as 3/2-way either NC or NO versions. Both versions can be mounted on single sub-bases or manifolds and they are equipped with a manual override which makes the plants setting easier.

GENERAL DATA

TECHNICAL FEATURES	
Function	3/2 NC - 3/2 NO
Operation	direct acting poppet type
Pneumatic connections	on subbase by means of screws
Nominal diameter	0.65 mm
Nominal flow	10 Nl/min (air @ 6 bar ΔP 1 bar)
Flow coefficient kv (l/min)	0.15
Operating pressure	0 ÷ 5 (NO) … 7 bar (NC)
Operating temperature	0°C ÷ 50°C
Media	filtered compressed air, unlubricated, according to ISO 8573-1 class 3.4.3, inert gas
Response time	ON <10 msec – OFF <10 msec
Manual override	monostable button
Installation	in any position
MATERIALS IN CONTACT WITH THE MEDIUM	
Body	PBT technopolymer
Seals	NBR (FKM on demand)
Internal parts	stailess steel
ELECTRICAL FEATURES	
Voltage	24 V DC - 12 V DC - 6 V DC - other voltages on demand
Voltage tolerance	±10%
Power consumption	0.9 W, 0.95 W with LED
Duty cycle	ED 100%
Electrical connection	connector - thin cabels L = 300 mm
Protection class	IP50
Special versions available on demand	

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

CODING EXAMPLE

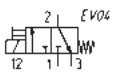
K	0	00	-	3	0	3	-	K	2	3	

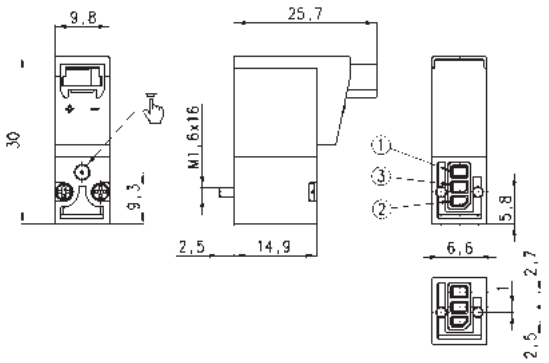
K	SERIES
0	BODY DESIGN: 0 = single sub-base (only M5) or interface 1 = manifold
00	NUMBER OF POSITIONS: 00 = interface 01 = single base (only M5) 02 ÷ 99 = manifold number of positions
3	NUMBER OF WAYS - FUNCTIONS: 0 = manifold or single base 3 = 3-way NC 4 = 3-way NO 5 = 3-way NC electric part revolved by 180° 6 = 3-way NO electric part revolved by 180°
0	PORTS: 0 = interface 2 = M5 side outlets
3	NOMINAL DIAMETER: 3 = ø 0,65
K	MATERIALS: K = PBT body, HNBR poppet F = PBT body, FKM poppet
2	ELECTRICAL CONNECTION: 1 = 90° connection with protection and led 2 = 90° connection with protection 3 = 90° connection B = in-line connection with protection and led C = in-line connection with protection D = in-line connection F = cable (300mm) with protection and led G = cable (300mm) with protection H = cable only (300mm)
3	SOLENOID VOLTAGE: 1 = 6V DC 2 = 12V DC 3 = 24V DC
	FIXING: = standard version for mounting on plastic interface M = with screws for mounting on metal interfaces (on demand).

3/2-way NC solenoid valve - 90° electrical connection



Supplied with:
1x interface seal
2x screws



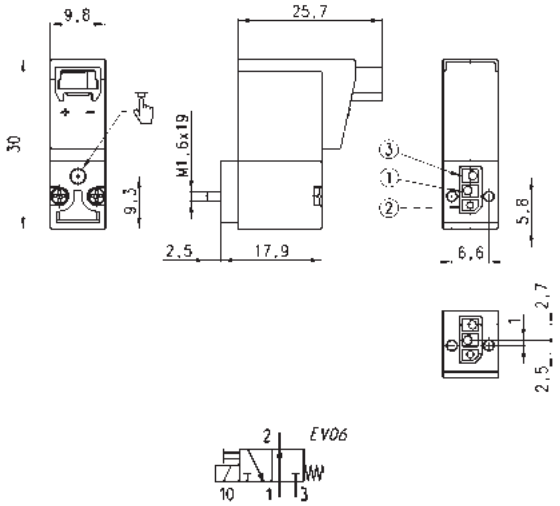


Mod.
K000-303-K13
K000-303-K23
K000-303-K33

3/2-way NO solenoid valve - 90° electrical connection



Supplied with:
1x interface for NO version
(connections 1 and 3 are inverted)
2x interface seals for NO version
2x screws



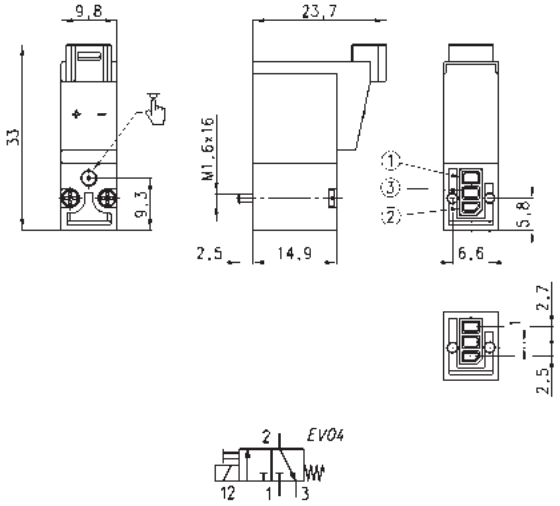
Mod.
K000-403-K13
K000-403-K23
K000-403-K33

The interface for NO version is required if the valve is mounted on a manifold. In case of a single or customised base, on the contrary, it is necessary to use screws M1,6x16 (mod. K303/61).

3/2-way NC solenoid valve - in-line electrical connection



Supplied with:
1x interface seal
2x screws

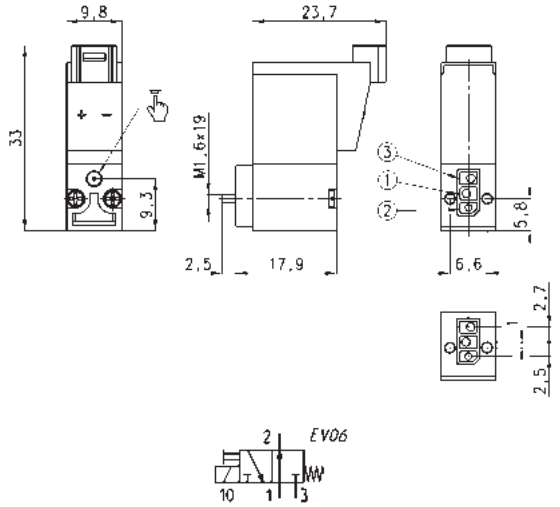


Mod.
K000-303-KB3
K000-303-KC3
K000-303-KD3

3/2-way NO solenoid valve - in-line electrical connection



Supplied with:
1x interface for NO version
(connections 1 and 3 are inverted)
2x interface seals for NO version
2x screws



Mod.
K000-403-KB3
K000-403-KC3
K000-403-KD3

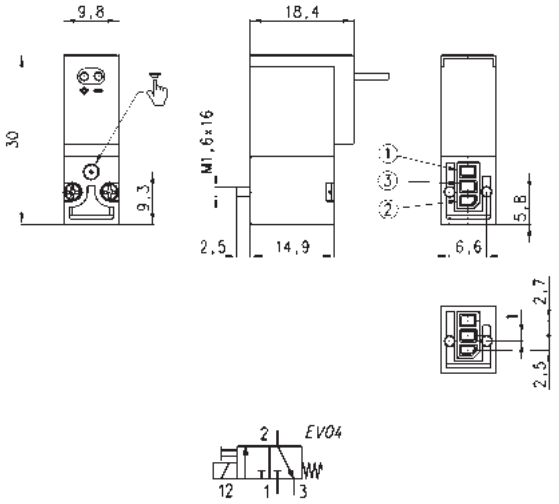
The interface for NO version is required if the valve is mounted on a manifold. In case of a single or customised base, on the contrary, it is necessary to use screws M1,6x16 (mod. K303/61).

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3/2-way NC solenoid valve with cable 300 mm



Supplied with:
1x interface seal
2x screws

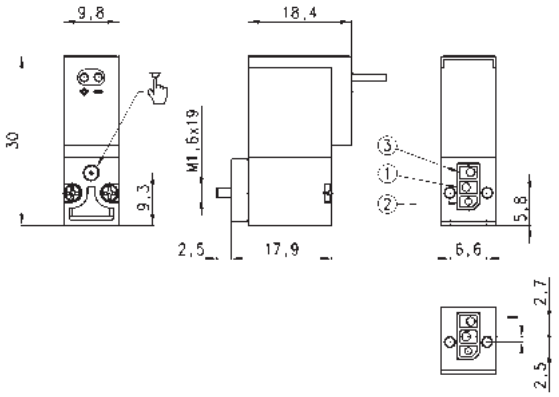


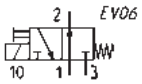
Mod.
K000-303-KF3
K000-303-KG3
K000-303-KH3

3/2-way NO solenoid valve (with cable 300 mm)



Supplied with:
1x interface for NO version
(connections 1 and 3 are inverted)
2x interface seals for NO version
2x screws





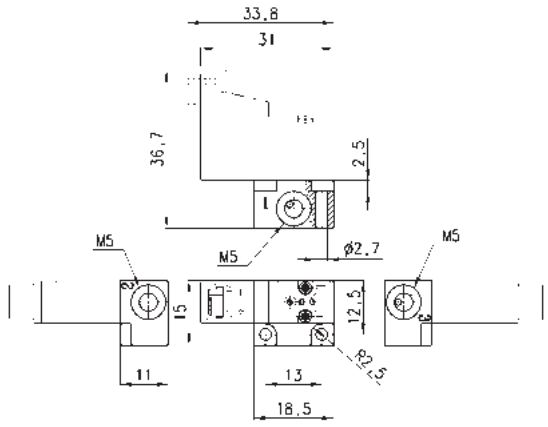
Mod.
K000-403-KF3
K000-403-KG3
K000-403-KH3

The interface for NO version is required if the valve is mounted on a manifold. In case of a single or customised base, on the contrary, it is necessary to use screws M1,6x16 (mod. K303/61).

Single sub-base



Note: use solenoid valves with mounting screws on metal interfaces (see codification).



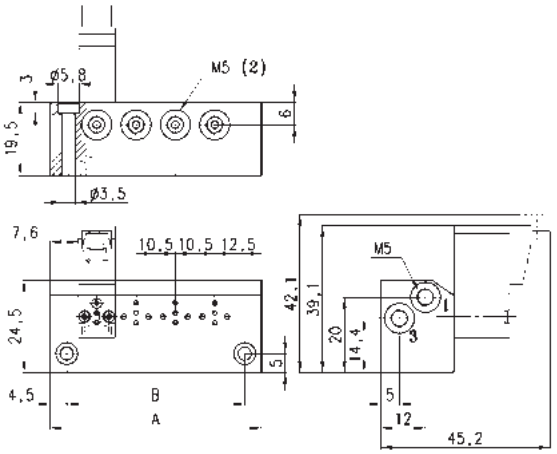
Mod.
K001-02

Manifold Mod. K1**-02



** Number of positions
With side outlets and conveyed inlet and exhaust.

Note: use solenoid valves with mounting screws on metal interfaces (see codification).

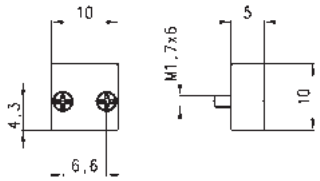


Mod.	A	B	Number of ports
K102-02	35.5	26.5	2
K103-02	46	37	3
K104-02	56.5	47.5	4
K105-02	67	58	5
K106-02	77.5	68.5	6
K107-02	88	79	7
K108-02	98.5	89.5	8
K109-02	109	100	9
K110-02	119.5	110.5	10

Excluder tap



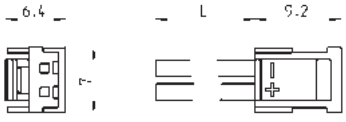
Supplied with:
1x excluder tap
1x interface seal
2x screws



Mod.
K000-TP

Connector Mod. 121-8..





Mod.	description	colour	L = cable length (mm)	cable holding
121-803	crimped cable	black	300	crimping
121-806	crimped cable	black	600	crimping
121-810	crimped cable	black	1000	crimping
121-830	crimped cable	black	3000	crimping

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Series KN
directly operated solenoid valves

3/2-way - Normally Closed (NC)

- Low energy consumption
- Compact design
- ISO 15218 Interface





Thanks to its low energy consumption and to its compact design, the miniaturized KN solenoid valve can be used in industrial and scientific applications.

Series KN directly operated solenoid valves are available as 3/2-way NC version.

GENERAL DATA

TECHNICAL FEATURES	
Function	3/2 NC
Operation	direct acting poppet type
Pneumatic connections	on subbase with ISO 15218 interface by means of screws
Nominal diameter	0.65 mm
Nominal flow	10 Nl/min (air @ 6 bar ΔP 1 bar)
Flow coefficient kv (l/min)	0.15
Operating pressure	0 ÷ 7 bar
Operating temperature	0°C ÷ 50°C
Media	filtered compressed air, unlubricated, according to ISO 8573-1 class 3.4.3, inert gas
Response time	ON <10 msec - OFF <10 msec
Manual override	monostable button
Installation	in any position
MATERIALS IN CONTACT WITH THE MEDIUM	
Body	PBT technopolymer
Seals	HNBR, NBR (FKM on demand)
Internal parts	stainless steel
ELECTRICAL FEATURES	
Voltage	24 V DC - 12 V DC - other voltages on demand
Voltage tolerance	±10%
Power consumption	1.3 W (inrush), 0.25 W (holding)
Duty cycle	ED 100%
Electrical connection	connector
Protection class	IP50
Special versions available on demand	

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CODING EXAMPLE

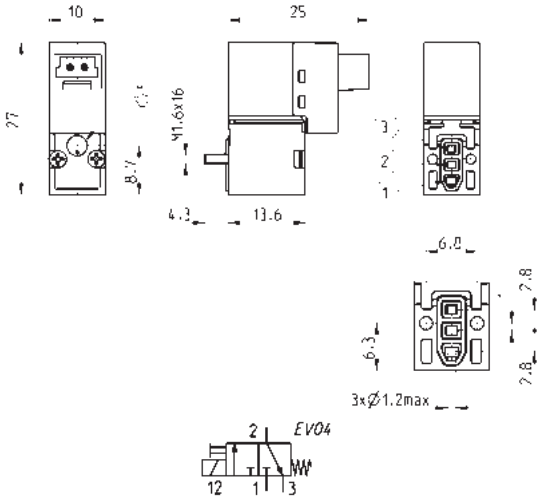
KN	0	00	-	3	0	3	-	K	1	3	

KN	SERIES
0	BODY DESIGN: 0 = single valve
00	NUMBER OF POSITIONS: 00 = interface
3	NUMBER OF WAYS - FUNCTIONS: 3 = 3/2-way NC
0	PORTS: 0 = single valve
3	NOMINAL DIAMETER: 3 = ø 0.65
K	MATERIALS: K = PBT body, HNBR poppet seal, NBR other seals F = PBT body, FKM poppet seal, NBR other seals (FKM upon request)
1	ELECTRICAL CONNECTION: 1 = 90° connection with protection and led B = in-line connection with protection and led
3	SOLENOID VOLTAGE: 2 = 12V DC 3 = 24V DC - 1.3W (inrush), 0.25W (holding) other voltages are available upon request
	FIXING: = with screws for plastics (standard) M = with screws for metal



3/2 way NC solenoid valve - right-angle electrical connection

Supplied with:
1x interface seal
2x screws M1.6x16 UNI 10227
(fixing for plastics, standard)
or
2x screws M1.6x16 UNI 7687
(fixing for metal, M option)



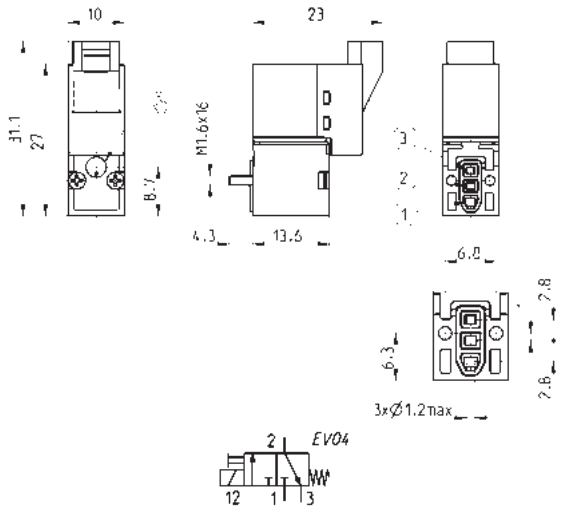
Mod.
KN000-303-K13

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

3/2 way NC solenoid valve - in-line electrical connection



Supplied with:
1x interface seal
2x screws M1.6x16 UNI 10227
(fixing for plastics, standard)
or
2x screws M1.6x16 UNI 7687
(fixing for metal, M option)

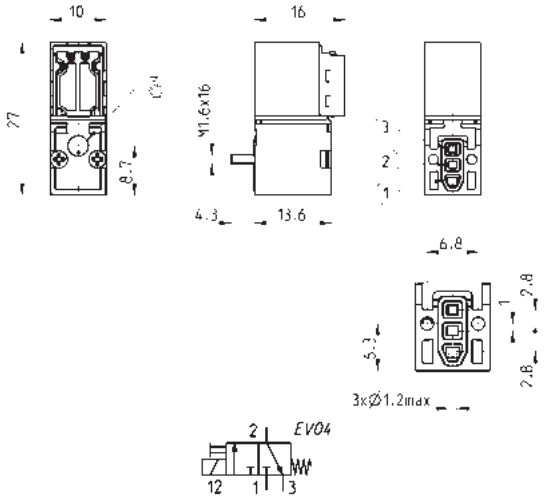


Mod.
KN000-303-KB3

Solenoid valve Mod. KN000-303-KY3N - spare part for Series Y



Supplied with:
1x interface seal
2x screws M1.6x16 UNI 10227

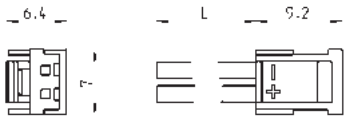


Mod.
KN000-303-KY3N

Connector Mod. 121-8..



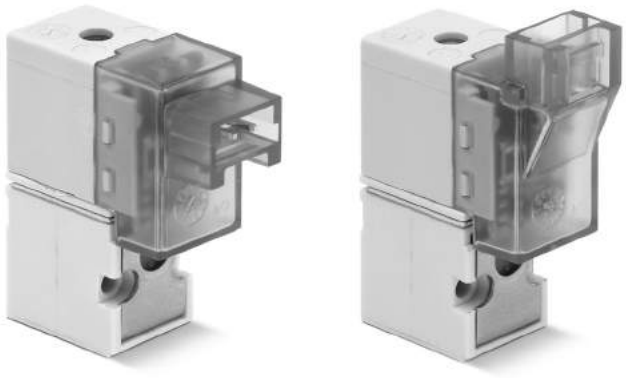
This connector can't be used with the solenoid valve Mod. KN000-303-KY3N.



Mod.	description	colour	L = cable length (mm)	cable holding
121-803	crimped cable	black	300	crimping
121-806	crimped cable	black	600	crimping
121-810	crimped cable	black	1000	crimping
121-830	crimped cable	black	3000	crimping

Series KN High Flow directly operated solenoid valves

3/2-way - Normally Closed (NC)



- Low energy consumption
- Compact design
- High Flow
- ISO 15218 Interface

Thanks to its low energy consumption and to its compact design, Series KN High Flow solenoid valve can be used in industrial and scientific applications.

Series KN High Flow directly operated solenoid valves are available as 3/2-way NC version.

GENERAL DATA

TECHNICAL FEATURES	
Function	3/2 NC
Operation	direct acting poppet type
Pneumatic connections	on subbase with ISO 15218 interface by means of screws
Nominal diameter	1.1 mm
Nominal flow	25 Nl/min (air @ 6 bar ΔP 1 bar)
Flow coefficient kv (l/min)	0.39
Operating pressure	0 ÷ 3 ... 7 bar
Operating temperature	0°C ÷ 50°C
Media	filtered compressed air, unlubricated, according to ISO 8573-1 class 3.4.3, inert gas
Response time	ON <10 msec - OFF <10 msec
Manual override	monostable button
Installation	in any position
MATERIALS IN CONTACT WITH THE MEDIUM	
Body	PBT technopolymer
Seals	FKM, NBR (FKM on demand)
Internal parts	stainless steel
ELECTRICAL FEATURES	
Voltage	24 V DC - 12 V DC - other voltages on demand
Voltage tolerance	4 W (inrush), 1 W (holding)
Power consumption	ED 100%
Duty cycle	connector
Electrical connection	IP50
Protection class	
Special versions available on demand	

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

CODING EXAMPLE

KN	0	00	-	3	0	5	-	F	1	8	

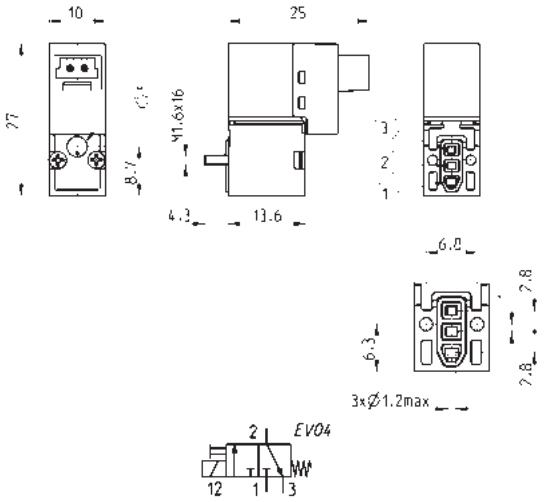
KN	SERIES
0	BODY DESIGN: 0 = single valve
00	NUMBER OF POSITIONS: 00 = interface
3	NUMBER OF WAYS - FUNCTIONS: 3 = 3/2-way NC
0	PORTS: 0 = single valve
5	NOMINAL DIAMETER / MAX PRESSURE: 5 = ø 1.1 7 bar 6 = ø 1.1 3 bar
F	MATERIALS: F = PBT body, FKM poppet seal, NBR other seals (FKM upon request)
1	ELECTRICAL CONNECTION: 1 = 90° connection with protection and led B = in-line connection with protection and led
8	SOLENOID VOLTAGE: 2 = 12V DC 8 = 24V DC (4W) inrush (1W holding)
	FIXING: = with screws for plastics(standard) M = with screws for metal

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

3/2-way NC solenoid valve - 90° electrical connection



Supplied with:
1x interface seal
2x screws M1.6x16 UNI 10227
(fixing for plastics, standard)
or
2x screws M1.6x16 UNI 7687
(fixing for metal, M option)

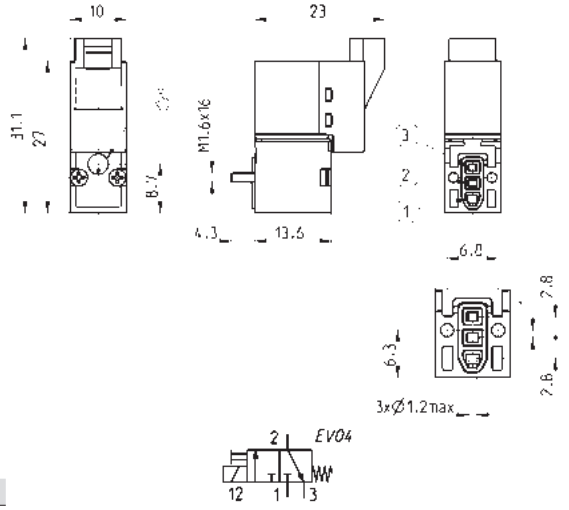


Mod.	Orifice Ø (mm)	kv (l/min)	Qn (Nl/min)	Pressure min-max (bar)
KN000-305-F18	1.1	0.39	25	3 ÷ 7
KN000-306-F18	1.1	0.39	-	0 ÷ 3

3/2-way NC solenoid valve - in-line electrical connection



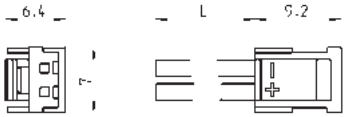
Supplied with:
1x interface seal
2x screws M1.6x16 UNI 10227
(fixing for plastics, standard)
or
2x screws M1.6x16 UNI 7687
(fixing for metal, M option)



Mod.	Orifice Ø (mm)	kv (l/min)	Qn (Nl/min)	Pressure min-max (bar)
KN000-305-FB8	1.1	0.39	25	3 ÷ 7
KN000-306-FB8	1.1	0.39	-	0 ÷ 3

Connector Mod. 121-8..



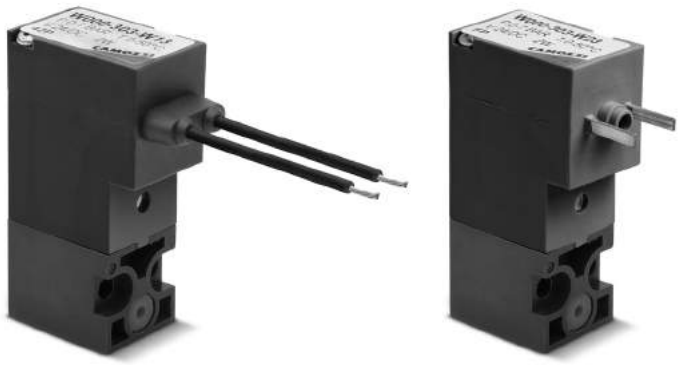


Mod.	description	colour	L = cable length (mm)	cable holding
121-803	crimped cable	black	300	crimping
121-806	crimped cable	black	600	crimping
121-810	crimped cable	black	1000	crimping
121-830	crimped cable	black	3000	crimping

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series W
directly operated solenoid valves

3/2-way - Normally Closed (NC), Normally Open (NO)



- Can be mounted on a single base (M5 connections) or on manifold (M5 connections or cartridge ø 3 and 4).
- Electrical connection with cables or in compliance to DIN EN 175 301-803-C standard

Series W directly operated solenoid valves are available as 3/2-way either NC or NO. Both versions can be mounted on single sub-bases or manifolds and they are equipped with a manual override which make the plants setting easier.

GENERAL DATA

TECHNICAL FEATURES	
Function	3/2 NC - 3/2 NO
Operation	direct acting poppet type
Pneumatic connections	on subbase with ISO 15218 interface by means of screws
Nominal diameter	0.8 … 1.5 mm
Nominal flow	14 … 35 Nl/min (air @ 6 bar ΔP 1 bar)
Flow coefficient kv (l/min)	0.23 … 0.54
Operating pressure	0 ÷ 5 … 10 bar
Operating temperature	0°C ÷ 50°C
Media	filtered air, class 5.4.4 according to ISO 8573-1 (max oil viscosity 32 cSt), inert gas
Response time (ISO 12238)	ON <10 msec - OFF <15 msec
Manual override	monostable button
Installation	in any position
MATERIALS IN CONTACT WITH THE MEDIUM	
Body	PBT technopolymer
Seals	PU, NBR, (FKM on demand)
Internal parts	stainless steel
ELECTRICAL FEATURES	
Voltage	12 V DC - 24 V DC - 48 V DC
Voltage tolerance	±10%
Power consumption	2 W - 1 W (24 V DC only)
Duty cycle	ED 100%
Electrical connection	with connector DIN EN 175 301-803-C (8 mm) - cables L = 300 mm
Protection class	IP65 with connector
Special versions available on demand	

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

CODING EXAMPLE

W	0	00	-	3	0	3	-	W	2	3	

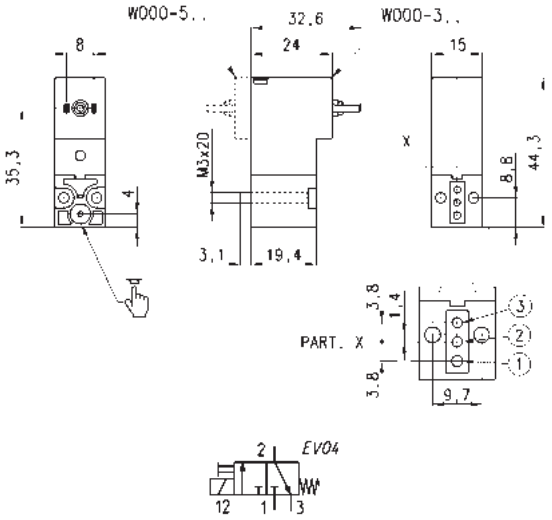
W	SERIES
0	BODY DESIGN: 0 = single sub-base (only M5) or interface 1 = single manifold 2 = double manifold
00	NUMBER OF POSITIONS: 00 = interface 01 = single base (M5 only) 02 ÷ 99 = manifold number of positions
3	NUMBER OF WAYS - FUNCTIONS: 0 = manifold or single sub-base 3 = 3-way NC 4 = 3-way NO 5 = 3-way NC electric part revolved by 180° 6 = 3-way NO electric part revolved by 180°
0	VALVE PORTS: 0 = interface MANIFOLD PORTS (for Series W, P and PN): 2 = M5 side 3 = tube ø 3 side 4 = tube ø 4 side 6 = M5 rear ports 7 = ø 3 tube rear ports 8 = ø 4 tube rear ports
3	NOMINAL DIAMETER - MAX PRESSURE 1 = ø 0,8 (1W) 10 bar (NC) 24V only 3 = ø 1,5 (2W) 7 bar (NC) 5 bar (NO) 5 = ø 1,1 NC (2W) 10 bar (NC) ø 0,9 NO (2W) 10 bar (NO)
W	MATERIALS: W = technopolymer PBT body, FKM poppet seal, other seals in NBR (FKM on demand)
2	ELECTRICAL CONNECTION: 1 = cables (L = 300 mm) 2 = DIN EN 175 301-803-C (8 mm)
3	SOLENOID VOLTAGE: 2 = 12V DC 3 = 24V DC 4 = 48V DC
	FIXING: = with screws for metal (standard) P = with screws for plastics

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

3/2-way NC solenoid valve, DIN EN 175 301-803-C (8 mm)



Supplied with:
1x interface seal
2x screws M3x20 UNI 8112
(fixing for metal, standard)
or
2x screws M3x23 UNI 10227
(fixing for plastics, P option)

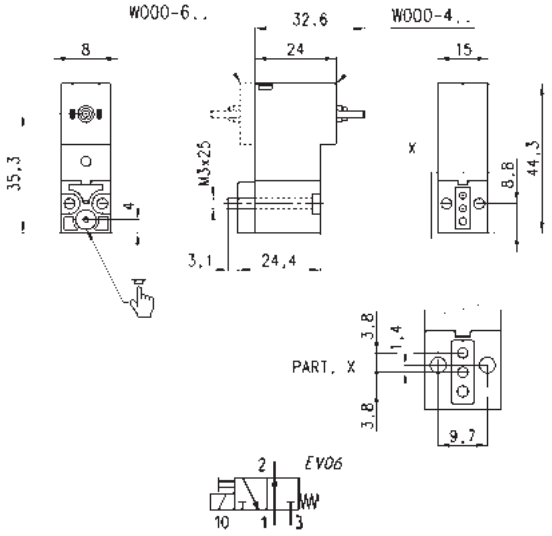


Mod.	Orifice Ø (mm)	kv (l/min)	Qn (Nl/min)	Pressure min-max (bar)
W000-305-W23	1.1	0.39	25	0 ÷ 10
W000-303-W23	1.5	0.54	35	0 ÷ 7
W000-305-W24	1.1	0.39	25	0 ÷ 10
W000-303-W24	1.5	0.54	35	0 ÷ 7

3/2-way NO solenoid valve, DIN EN 175 301-803-C (8 mm)



Supplied with:
1x interface for NO version
(connections 1 and 3 are inverted)
2x interface seals
2x screws M3x25 UNI 8112 (for standard version)

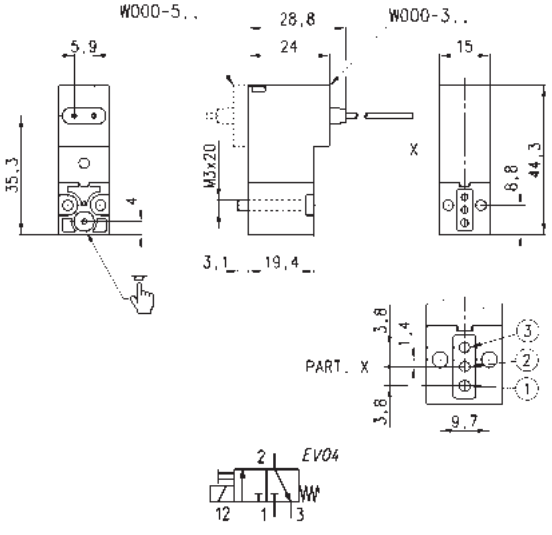


Mod.	Orifice Ø (mm)	kv (l/min)	Qn (Nl/min)	Pressure min-max (bar)
W000-405-W23	0.9	0.23	15	0 ÷ 10
W000-403-W23	1.5	0.39	-	0 ÷ 5
W000-405-W24	0.9	0.23	15	0 ÷ 10
W000-403-W24	1.5	0.39	-	0 ÷ 5

3/2-way NC solenoid valve with cables of 300mm



Supplied with:
1x interface seal
2x screws M3x20 UNI 8112
(fixing for metal, standard)
or
2x screws M3x23 UNI 10227
(fixing for plastics, P option)

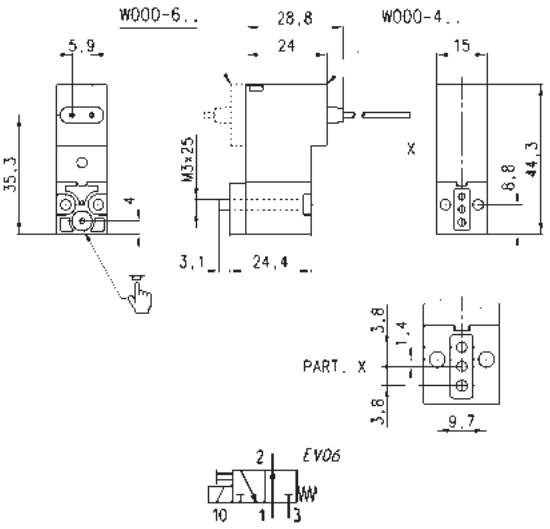


Mod.	Orifice Ø (mm)	kv (l/min)	Qn (Nl/min)	Pressure min-max (bar)
W000-305-W13	1.1	0.39	25	0 ÷ 10
W000-303-W13	1.5	0.54	35	0 ÷ 7

3/2-way NO solenoid valve with cables of 300mm



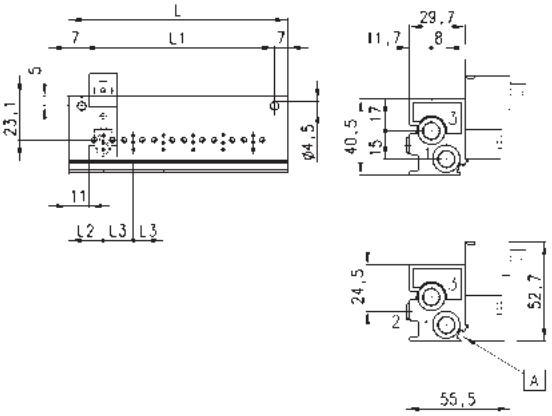
Supplied with:
1x interface for NO version
(connections 1 and 3 are inverted)
2x interface seals
2x screws M3x25 UNI 8112 (for standard version)



Mod.	Orifice Ø (mm)	kv (l/min)	Qn (Nl/min)	Pressure min-max (bar)
W000-405-W13	0.9	0.23	15	0 ÷ 10
W000-403-W13	1.5	0.39	25	0 ÷ 5

Single manifold with rear outlets





DIMENSIONS

Mod.	N° Valves	L	L1	L2	L3	1 (P)	3 (R)
P102-0*	2	53	39	18,5	16	G1/8	G1/8
P103-0*	3	69	55	18,5	16	G1/8	G1/8
P104-0*	4	85	71	18,5	16	G1/8	G1/8
P105-0*	5	101	87	18,5	16	G1/8	G1/8
P106-0*	6	117	103	18,5	16	G1/8	G1/8

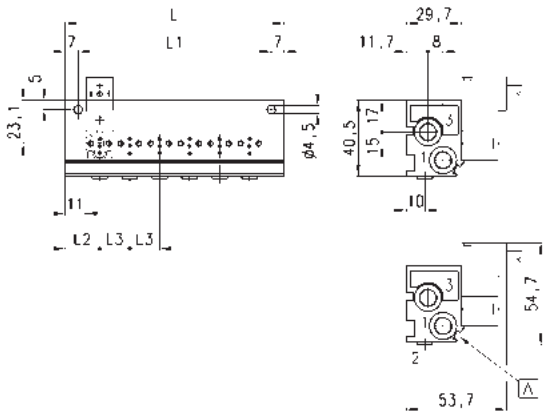
* = see the type of PORTS in the CODING EXAMPLE TABLE.

A = groove for electric connection identification

Single manifold with front outlets



This manifold is arranged to be fixed through DIN 46277/3 guide together with the accessory PCF-E520.



DIMENSIONS

Mod.	Nr valves	L	L1	L2	L3	1 (P)	3 (R)
P102-0*	2	53	39	18,5	16	G1/8	G1/8
P103-0*	3	69	55	18,5	16	G1/8	G1/8
P104-0*	4	85	71	18,5	16	G1/8	G1/8
P105-0*	5	101	87	18,5	16	G1/8	G1/8
P106-0*	6	117	103	18,5	16	G1/8	G1/8

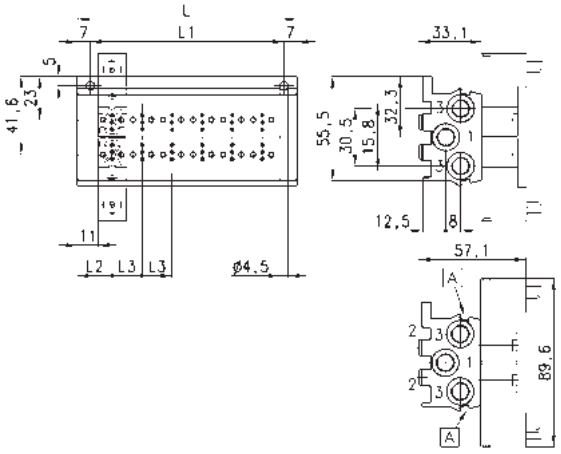
* = see the type of PORTS in the CODING EXAMPLE TABLE.

A = groove for electric connection identification

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Double sided manifold with rear outlets





DIMENSIONS							
Mod.	Nr valves	L	L1	L2	L3	1 (P)	3 (R)
P204-0*	4	53	39	18,5	16	G1/8	G1/8
P206-0*	6	69	55	18,5	16	G1/8	G1/8
P208-0*	8	85	71	18,5	16	G1/8	G1/8
P210-0*	10	101	87	18,5	16	G1/8	G1/8
P212-0*	12	117	103	18,5	16	G1/8	G1/8

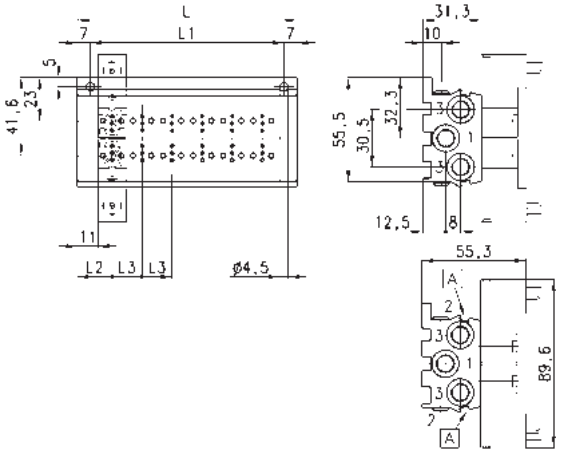
* = see the type of PORTS in the CODING EXAMPLE TABLE.

A = groove for electric connection identification

Double sided manifold with front outlets

This manifold is arranged to be fixed through DIN 46277/3 guide together with the accessory PCF-E520.





DIMENSIONS							
Mod.	Nr valves	L	LI	L2	L3	1 (P)	3 (R)
P204-0*	4	53	39	18,5	16	G1/8	G1/8
P206-0*	6	69	55	18,5	16	G1/8	G1/8
P208-0*	8	85	71	18,5	16	G1/8	G1/8
P210-0*	10	101	87	18,5	16	G1/8	G1/8
P212-0*	12	117	103	18,5	16	G1/8	G1/8

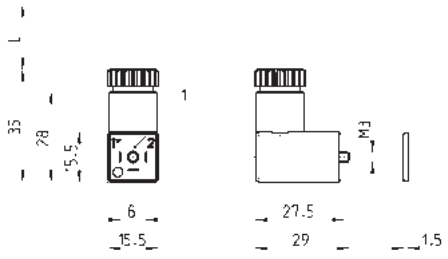
* = see the type of PORTS in the CODING EXAMPLE TABLE.

A = groove for electric connection identification

Connector Mod. 126-... DIN EN 175 301-803-C (8 mm)

To be used in all DC valves with voltages from 6 to 110 V.





Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
126-550-1	moulded cable, without electronics	black	-	1000 mm	-	0.3 Nm
126-800	connector, without electronics	black	-	-	PG7	0.3 Nm
126-701	connector, varistor + Led	transparent	24 V AC/ DC	-	PG7	0.3 Nm

1 = 90° adjustable connector

Series P
directly operated solenoid valves

3/2-way - Normally Closed (NC) and Normally Open (NO)

» Can be mounted on a single base (M5 connections) or on manifold (M5 connections or cartridge ø 3 and 4).



Please note that all Series P solenoid valves are supplied with direct current (DC).
To operate in alternating current (AC), it is necessary to use the connector with bridge rectifier Mod. 125-900.

Series P directly operated mini-solenoid valves are available as 3/2-way, either NC or NO. Both versions can be mounted on single bases or on manifolds and they are equipped with a manual override which makes the plants setting easier.

GENERAL DATA

TECHNICAL FEATURES	
Function	3/2 NC - 3/2 NO
Operation	direct acting poppet type
Pneumatic connections	on subbase with ISO 15218 interface by means of screws
Nominal diameter	0.8 … 1.5 mm
Nominal flow	14 … 35 Nl/min (air @ 6 bar ΔP 1 bar)
Flow coefficient kv (l/min)	0.21 … 0.54
Operating pressure	0 ÷ 3 … 10 bar
Operating temperature	0°C ÷ 50°C
Media	filtered air, class 5.4.4 according to ISO 8573-1 (max oil viscosity 32 cSt), inert gas
Response time (ISO 12238)	ON <10 msec - OFF <15 msec
Manual override	monostable button
Installation	in any position
MATERIALS IN CONTACT WITH THE MEDIUM	
Body	PBT technopolymer
Seals	FKM, NBR (FKM on demand)
Internal parts	stainless steel
ELECTRICAL FEATURES	
Voltage	12 … 110 V DC - 24 … 110 V AC 50/60 Hz
Voltage tolerance	±10%
Power consumption	2 W - 1 W (24 V DC only)
Duty cycle	ED 100%
Electrical connection	with industrial standard connector (9.4 mm)
Protection class	IP65 with connector
Special versions available on demand	

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

CODING EXAMPLE

P	0	00	-	3	0	3	-	P	5	3	

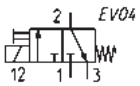
P	SERIES
0	BODY DESIGN: 0 = single sub-base (M5 only) or interface 1 = single manifold 2 = double sided manifold
00	NUMBER OF POSITIONS: 00 = interface 01 = single base (M5 only) 02 ÷ 99 = manifold number of positions
3	NUMBER OF WAYS - FUNCTIONS: 0 = manifold or single base 3 = 3-way NC 4 = 3-way NO 5 = 3-way NC electric part revolved by 180° 6 = 3-way NO electric part revolved by 180°
0	VALVE PORTS: 0 = interface (for single valve only) MANIFOLD PORTS (for Series W, P and PN): 2 = M5 side port 3 = ø 3 tube side port 4 = ø 4 tube side port 6 = M5 rear ports 7 = ø 3 tube rear ports 8 = ø 4 tube rear ports
3	NOMINAL DIAMETER - MAX PRESSURE 1 = ø 0,8 (1W) 10 bar (NC) 24V only 3 = ø 1,5 (2W) 7 bar (NC) 5 bar (NO) 5 = ø 1,1 NC (2W) 10 bar (NC) ø 0,9 NO (2W) 10 bar (NO) 6 = ø 1,5 NC (2W) 3 bar (NC) *
P	MATERIALS: P = technopolymer PBT body, FKM poppet seal, other seals in NBR (FKM on demand)
5	ELECTRICAL CONNECTION: 5 = industrial standard connection (9.4 mm)
3	SOLENOID VOLTAGE: B = 24V 50/60 Hz 2 = 12V DC 6 = 110V DC C = 48V 50/60 Hz 3 = 24V DC D = 110V 50/60 Hz 4 = 48V DC
	FIXING: = with screws for metal (standard) P = with screws for plastics

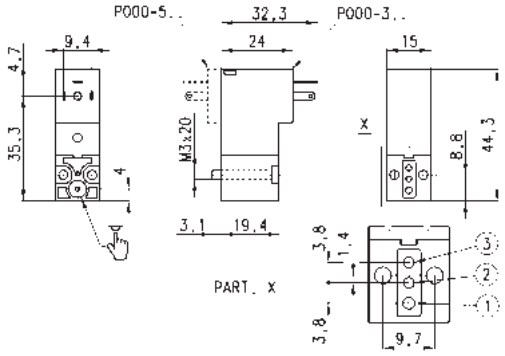
* Voltage tolerance from +10% to -25%

3/2-way NC solenoid valve



Supplied with:
1x interface seal
2x screws M3x20 UNI 8112
(fixing for metal, standard)
or
2x screws M3x23 UNI 10227
(fixing for plastics, P option)





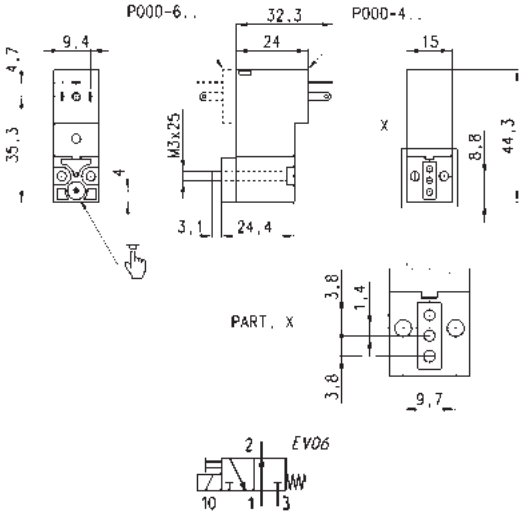
Mod.	Orifice Ø (mm)	kv (l/min)	Qn (Nl/min)	Pressure min-max (bar)
P000-301-P53	0,8	0.21	14	0 ÷ 10
P000-303-P53	1,5	0.54	35	0 ÷ 7
P000-305-P53	1,1	0.39	25	0 ÷ 10
P000-306-P53	1,5	0.54	-	0 ÷ 3

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3/2-way NO solenoid valve



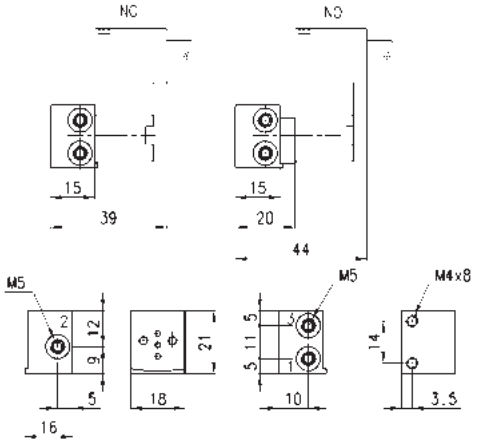
Supplied with:
1x interface for NO version
(connections 1 and 3 are inverted)
2x interface seals
2x screws M3x25 UNI 8112 (for standard version)



Mod.	Orifice Ø (mm)	kv (l/min)	Qn (Nl/min)	Pressure min-max (bar)
P000-405-P53	0.9	0.23	15	0 ÷ 10
P000-403-P53	1.5	0.54	-	0 ÷ 5

Single sub-base

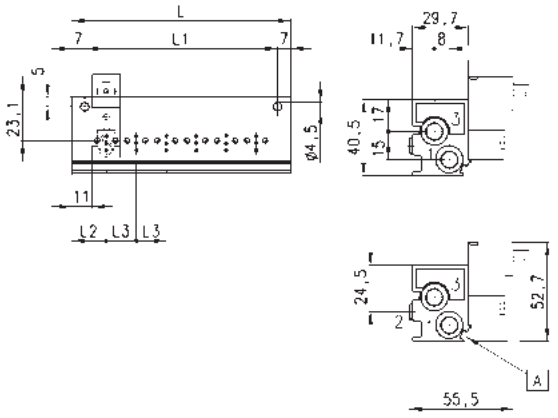




Mod.
P001-02

Single manifold with rear outlets





DIMENSIONS							
Mod.	N° Valves	L	L1	L2	L3	1 (P)	3 (R)
P102-0*	2	53	39	18,5	16	G1/8	G1/8
P103-0*	3	69	55	18,5	16	G1/8	G1/8
P104-0*	4	85	71	18,5	16	G1/8	G1/8
P105-0*	5	101	87	18,5	16	G1/8	G1/8
P106-0*	6	117	103	18,5	16	G1/8	G1/8

* = see the type of PORTS in the CODING EXAMPLE TABLE.

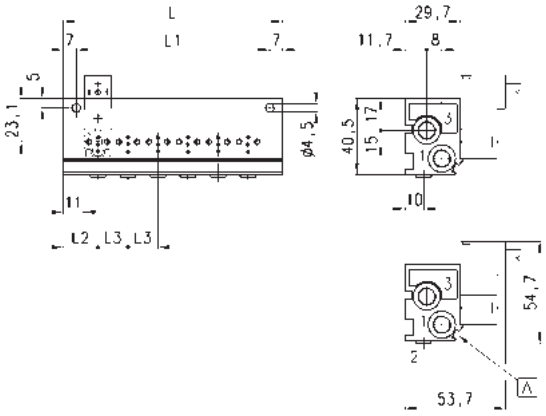
A = groove for electric connection identification

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Single manifold with front outlets



This manifold is arranged to be fixed through DIN 46277/3 guide together with the accessory PCF-E520.



DIMENSIONS

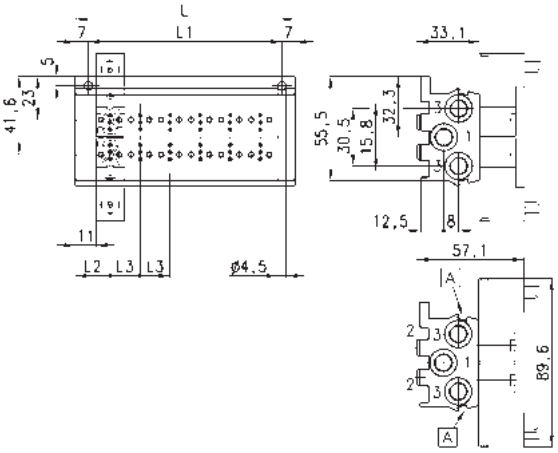
Mod.	Nr valves	L	L1	L2	L3	1 (P)	3 (R)
P102-0*	2	53	39	18,5	16	G1/8	G1/8
P103-0*	3	69	55	18,5	16	G1/8	G1/8
P104-0*	4	85	71	18,5	16	G1/8	G1/8
P105-0*	5	101	87	18,5	16	G1/8	G1/8
P106-0*	6	117	103	18,5	16	G1/8	G1/8

* = see the type of PORTS in the CODING EXAMPLE TABLE.

A = groove for electric connection identification

Double sided manifold with rear outlets





DIMENSIONS

Mod.	Nr valves	L	L1	L2	L3	1 (P)	3 (R)
P204-0*	4	53	39	18,5	16	G1/8	G1/8
P206-0*	6	69	55	18,5	16	G1/8	G1/8
P208-0*	8	85	71	18,5	16	G1/8	G1/8
P210-0*	10	101	87	18,5	16	G1/8	G1/8
P212-0*	12	117	103	18,5	16	G1/8	G1/8

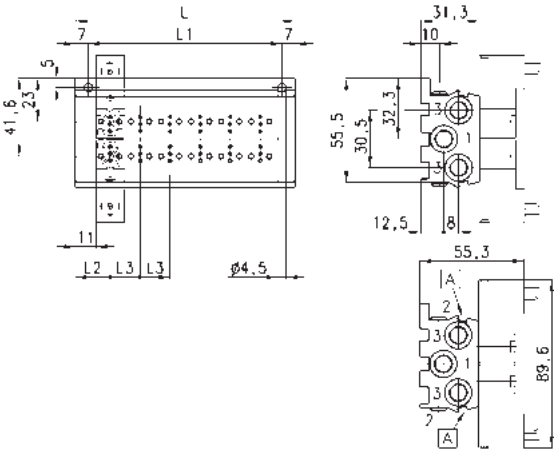
* = see the type of PORTS in the CODING EXAMPLE TABLE.

A = groove for electric connection identification

Double sided manifold with front outlets



This manifold is arranged to be fixed through DIN 46277/3 guide together with the accessory PCF-E520.



DIMENSIONS

Mod.	Nr valves	L	LI	L2	L3	1 (P)	3 (R)
P204-0*	4	53	39	18,5	16	G1/8	G1/8
P206-0*	6	69	55	18,5	16	G1/8	G1/8
P208-0*	8	85	71	18,5	16	G1/8	G1/8
P210-0*	10	101	87	18,5	16	G1/8	G1/8
P212-0*	12	117	103	18,5	16	G1/8	G1/8

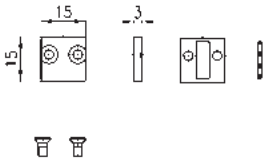
* = see the type of PORTS in the CODING EXAMPLE TABLE.

A = groove for electric connection identification

Excluder tap



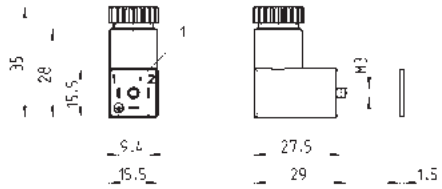
Supplied with:
1x excluder tap
1x interface seal
2x screws



Mod.
P000-TP

Industrial standard (9.4 mm) connector Mod. 125-...





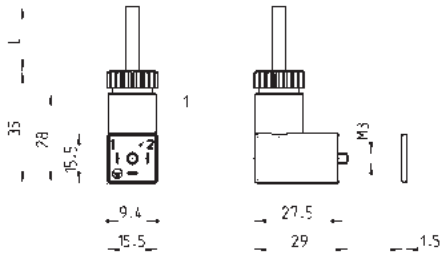
Mod.	description	colour	working voltage	cable holding	tightening torque
125-601	connector, diode + Led	transparent	10/50 V DC	PG7	0.3 Nm
125-701	connector, varistor + Led	transparent	24 V AC/DC	PG7	0.3 Nm
125-800	connector, without electronics	black	-	PG7	0.3 Nm

1 = 90° adjustable connector

Industrial standard (9.4 mm) connector Mod. 125-... with cable

The internal rectifier circuit of the connector Mod. 125-900 allows to use solenoid valves with different AC voltage, even if the voltage indicated on the solenoid valve is DC.





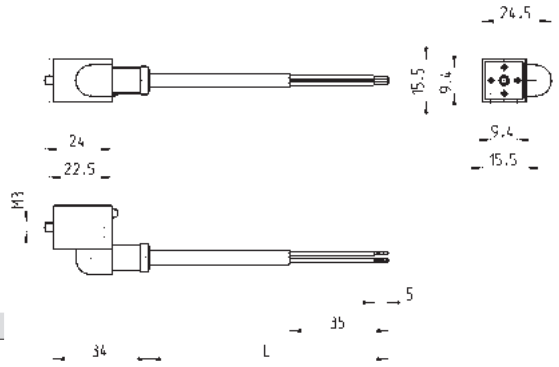
Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
125-501-2	moulded cable with diode + Led	black	10/50 V DC	2000 mm	-	0.3 Nm
125-550-1	moulded cable, without electronics	black	-	1000 mm	-	0.3 Nm
125-601-2	pre-wired cable, diode + Led	transparent	10/50 V DC	2000 mm	PG7	0.3 Nm
125-571-3	moulded cable, varistor + Led	black	24 V AC/DC	3000 mm	-	0.3 Nm
125-900	pre-wired cable with voltage rectifier	black	6 V - 110 V AC/DC	2000 mm	PG7	0.3 Nm

1 = 90° adjustable connector

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Industrial standard (9.4 mm) in-line connectors with cable

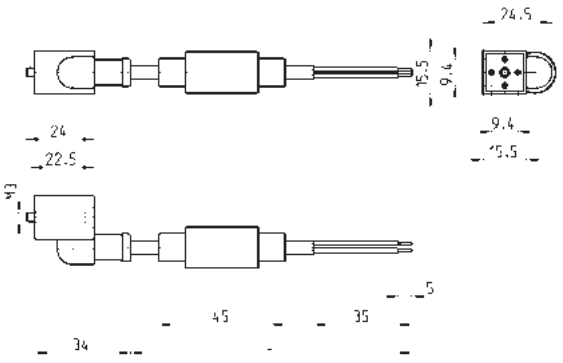




Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
125-503-2	in-line moulded cable, with diode + Led	black	24 V DC	2000 mm	-	0.3 Nm
125-503-5	in-line moulded cable, with diode + Led	black	24 V DC	5000 mm	-	0.3 Nm
125-553-2	in-line moulded cable, without electronics	black	-	2000 mm	-	0.3 Nm
125-553-5	in-line moulded cable, without electronics	black	-	5000 mm	-	0.3 Nm

Industrial standard (9.4 mm) in-line connectors with bridge rectifier





Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
125-903-2	in-line moulded cable with voltage rectifier	black	6 V - 230 V AC/DC	2000 mm	-	0.3 Nm
125-903-5	in-line moulded cable with voltage rectifier	black	6 V - 230 V AC/DC	5000 mm	-	0.3 Nm

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General terms and conditions for sale are available on www.camozzi.com.

Series PL
directly operated solenoid valves

New versions

3/2-way - Normally Closed (NC)



» Can be mounted on a single base (M5 connections) or on manifold (M5 connections or cartridge ø 3 and 4)

Please note that all Series PL solenoid valves are supplied with direct current (DC). To operate in alternating current (AC), it is necessary to use the connector with bridge rectifier Mod. 125-900.

Series PL directly operated mini-solenoid valves are available in the NC version and can be mounted on single bases or on manifolds.

GENERAL DATA

TECHNICAL FEATURES	
Function	3/2 NC
Operation	direct acting poppet type
Pneumatic connections	on subbase with ISO 15218 interface by means of screws
Nominal diameter	1.5 mm
Nominal flow	35 Nl/min (air @ 6 bar ΔP 1 bar)
Flow coefficient kv (l/min)	0.54
Operating pressure	0 ÷ 3.5 or 4 ÷ 8 bar
Operating temperature	0°C ÷ 50°C
Media	filtered air, class 5.4.4 according to ISO 8573-1 (max oil viscosity 32 cSt), inert gas
Response time	ON <10 msec - OFF <15 msec
Manual override	not foreseen
Installation	in any position
MATERIALS IN CONTACT WITH THE MEDIUM	
Body	PBT technopolymer
Seals	FKM, NBR
Internal parts	stainless steel, NBR
ELECTRICAL FEATURES	
Voltage	24 V DC - 12 V DC - other voltages on demand
Voltage tolerance	±10%
Power consumption	2.7 W
Duty cycle	ED 100%
Electrical connection	with industrial standard connector (9.4 mm)
Protection class	IP65 with connector
Special versions available on demand	

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

CODING EXAMPLE

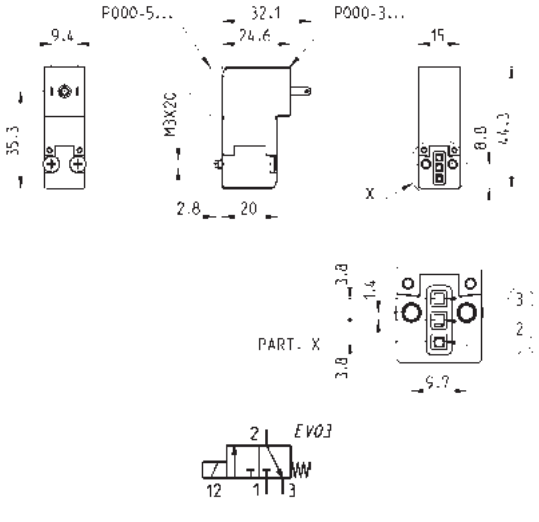
PL	0	00	-	3	0	3	-	PL	2	3	

PL	SERIES
0	BODY DESIGN: 0 = single sub-base (M5 only) or interface 1 = single manifold 2 = double sided manifold
00	NUMBER OF POSITIONS: 00 = interface 01 = single base (M5 only) 02 ÷ 99 = manifold number of positions
3	NUMBER OF WAYS - FUNCTIONS: 0 = manifold or single base 3 = 3-way NC 5 = 3-way NC electric part revolved by 180°
0	VALVE PORTS: 0 = interface (for single valve only) MANIFOLD PORTS: 2 = M5 side port 3 = ø 3 tube side port 4 = ø 4 tube side port 6 = M5 rear ports 7 = ø 3 tube rear ports 8 = ø 4 tube rear ports
3	NOMINAL DIAMETER: 3 = Ø 1.5 mm (Pressure 4 ÷ 8 bar) 6 = Ø 1.5 mm (Pressure 0 ÷ 3.5 bar)
PL	MATERIALS: PL = technopolymer PBT body, FKM poppet seal, other seals in NBR
2	ELECTRICAL CONNECTION: 2 = industrial standard connection (9.4 mm)
3	VOLTAGE - POWER CONSUMPTION: 2 = 12 V DC 2.7W 3 = 24 V DC 2.7W
	FIXING: = with screws for metal (standard) P = with screws for plastics



3/2-way NC solenoid valve

Supplied with:
1x interface seal
2x screws M3x20 UNI 8112
(fixing for metal, standard)
or
2x screws M3x23 UNI 10227
(fixing for plastics. P option)

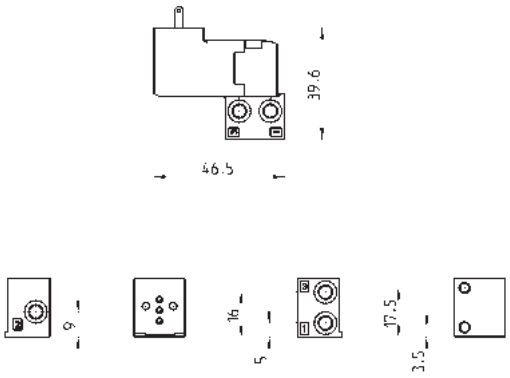


Mod.	Orifice Ø (mm)	kv (l/min)	Qn (Nl/min)	Pressure min-max (bar)
PL000-303-PL23	1.5	0.54	35	4 ÷ 8
PL000-503-PL23	1.5	0.54	35	4 ÷ 8
PL000-306-PL23	1.5	0.54	-	0 ÷ 3.5
PL000-506-PL23	1.5	0.54	-	0 ÷ 3.5

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Single sub-base

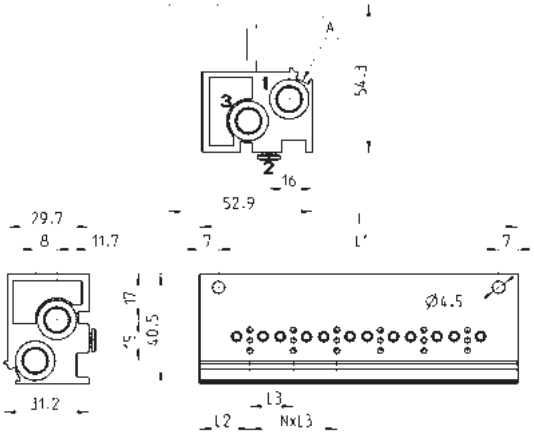




Mod.
P001-02

Single manifold with rear outlets





Mod.	Nr valves	L	L1	L2	L3	1 (P)	3 (R)
P102-0*	2	53	39	18,5	16	G1/8	G1/8
P103-0*	3	69	55	18,5	16	G1/8	G1/8
P104-0*	4	85	71	18,5	16	G1/8	G1/8
P105-0*	5	101	87	18,5	16	G1/8	G1/8
P106-0*	6	117	103	18,5	16	G1/8	G1/8

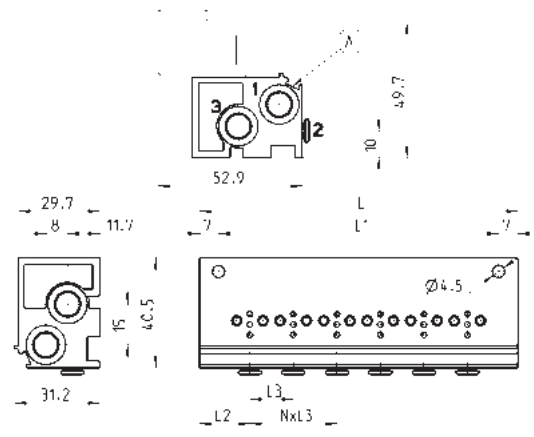
* = see the type of PORTS in the CODING EXAMPLE TABLE.

A = groove for electric connection identification

Single manifold with front outlets

This manifold is arranged to be fixed through DIN 46277/3 guide together with the accessory PCF-E520.





Mod.	Nr valves	L	L1	L2	L3	1 (P)	3 (R)
P102-0*	2	53	39	18,5	16	G1/8	G1/8
P103-0*	3	69	55	18,5	16	G1/8	G1/8
P104-0*	4	85	71	18,5	16	G1/8	G1/8
P105-0*	5	101	87	18,5	16	G1/8	G1/8
P106-0*	6	117	103	18,5	16	G1/8	G1/8

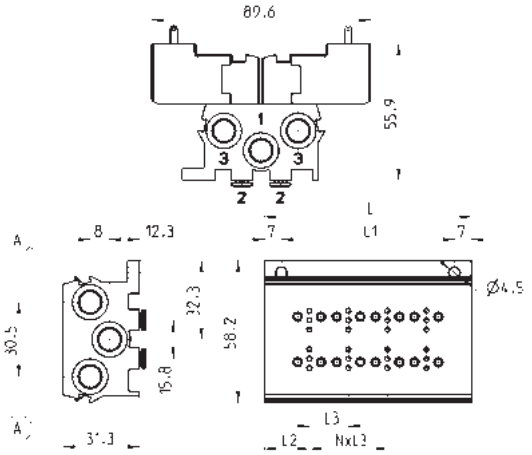
* = see the type of PORTS in the CODING EXAMPLE TABLE.

A = groove for electric connection identification

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Double sided manifold with rear outlets





Mod.	Nr valves	L	L1	L2	L3	1 (P)	3 (R)
P204-0*	4	53	39	18,5	16	G1/8	G1/8
P206-0*	6	69	55	18,5	16	G1/8	G1/8
P208-0*	8	85	71	18,5	16	G1/8	G1/8
P210-0*	10	101	87	18,5	16	G1/8	G1/8
P212-0*	12	117	103	18,5	16	G1/8	G1/8

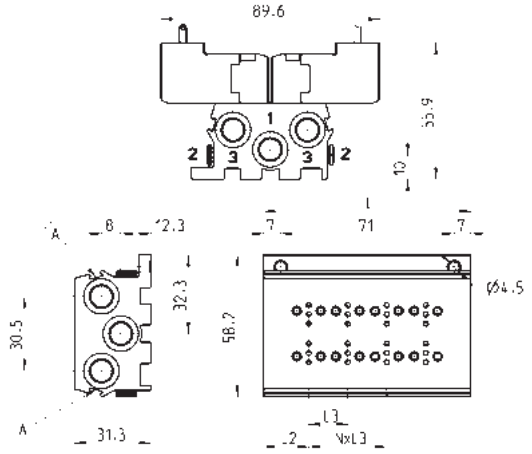
* = see the type of PORTS in the CODING EXAMPLE TABLE.

A = groove for electric connection identification

Double sided manifold with front outlets

This manifold is arranged to be fixed through DIN 46277/3 guide together with the accessory PCF-E520.





Mod.	Nr valves	L	L1	L2	L3	1 (P)	3 (R)
P204-0*	4	53	39	18,5	16	G1/8	G1/8
P206-0*	6	69	55	18,5	16	G1/8	G1/8
P208-0*	8	85	71	18,5	16	G1/8	G1/8
P210-0*	10	101	87	18,5	16	G1/8	G1/8
P212-0*	12	117	103	18,5	16	G1/8	G1/8

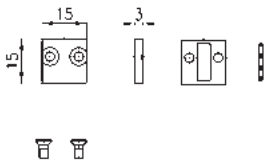
* = see the type of PORTS in the CODING EXAMPLE TABLE.

A = groove for electric connection identification

Excluder tap



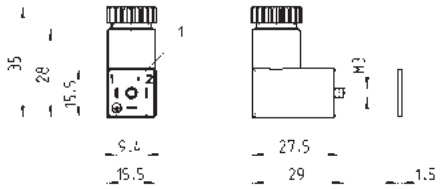
Supplied with:
1x excluder tap
1x interface seal
2x screws



Mod.
P000-TP

Industrial standard (9.4 mm) connector Mod. 125-...





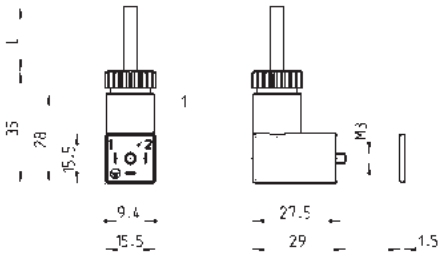
Mod.	description	colour	working voltage	cable holding	tightening torque
125-601	connector, diode + Led	transparent	10/50 V DC	PG7	0.3 Nm
125-701	connector, varistor + Led	transparent	24 V AC/DC	PG7	0.3 Nm
125-800	connector, without electronics	black	-	PG7	0.3 Nm

1 = 90° adjustable connector

Industrial standard (9.4 mm) connector Mod. 125-... with cable

The internal rectifier circuit of the connector Mod. 125-900 allows to use solenoid valves with different AC voltage, even if the voltage indicated on the solenoid valve is DC.





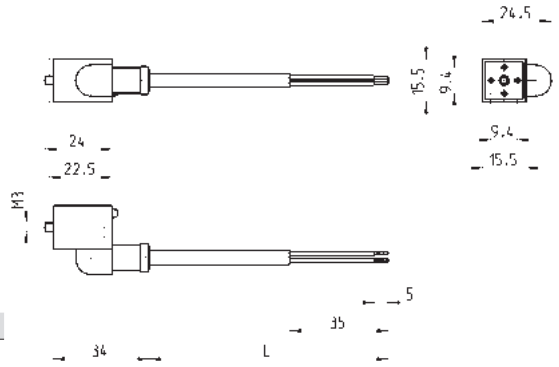
Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
125-501-2	moulded cable with diode + Led	black	10/50 V DC	2000 mm	-	0.3 Nm
125-550-1	moulded cable, without electronics	black	-	1000 mm	-	0.3 Nm
125-601-2	pre-wired cable, diode + Led	transparent	10/50 V DC	2000 mm	PG7	0.3 Nm
125-571-3	moulded cable, varistor + Led	black	24 V AC/DC	3000 mm	-	0.3 Nm
125-900	pre-wired cable with voltage rectifier	black	6 V - 110 V AC/DC	2000 mm	PG7	0.3 Nm

1 = 90° adjustable connector

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Industrial standard (9.4 mm) in-line connectors with cable

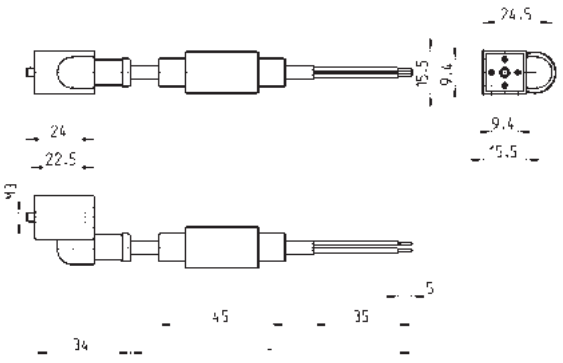




Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
125-503-2	in-line moulded cable, with diode + Led	black	24 V DC	2000 mm	-	0.3 Nm
125-503-5	in-line moulded cable, with diode + Led	black	24 V DC	5000 mm	-	0.3 Nm
125-553-2	in-line moulded cable, without electronics	black	-	2000 mm	-	0.3 Nm
125-553-5	in-line moulded cable, without electronics	black	-	5000 mm	-	0.3 Nm

Industrial standard (9.4 mm) in-line connectors with bridge rectifier





Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
125-903-2	in-line moulded cable with voltage rectifier	black	6 V - 230 V AC/DC	2000 mm	-	0.3 Nm
125-903-5	in-line moulded cable with voltage rectifier	black	6 V - 230 V AC/DC	5000 mm	-	0.3 Nm

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series PN
directly operated solenoid valves

3/2-way - Normally Closed (NC)



- Can be mounted on a single base (M5 connections) or on manifold (M5 connections or cartridge ø 3 and 4)
- Compact design suitable for use in reduced mounting space

Please note that all Series PN solenoid valves are supplied with direct current (DC). To operate in alternating current (AC), it is necessary to use the connector with bridge rectifier Mod. 125-900.

**Series PN directly operated solenoid valves are available as 3/2-way NC.
They are equipped with a manual override which makes the plants setting easier and they can be mounted on single bases or on manifolds.**

GENERAL DATA

TECHNICAL FEATURES	
Function	3/2 NC
Operation	direct acting poppet type
Pneumatic connections	on subbase with ISO 12238 interface by means of screws
Nominal diameter	0.8 mm
Nominal flow	12 Nl/min (air @ 6 bar ΔP 1 bar)
Flow coefficient kv (l/min)	0.19
Operating pressure	0 ÷ 10 bar
Operating temperature	0°C ÷ 50°C
Media	filtered air, class 5.4.4 according to ISO 8573-1 (max oil viscosity 32 cSt), inert gas
Response time (ISO 12238)	ON <10 msec - OFF <15 msec
Installation	in any position
MATERIALS IN CONTACT WITH THE MEDIUM	
Body	PBT technopolymer
Seals	PU, NBR, (FKM on demand)
Internal parts	stainless steel
ELECTRICAL FEATURES	
Voltage	24 … 205 V DC
Voltage tolerance	±10%
Power consumption	2 W - 1 W (24 V DC only)
Duty cycle	ED 100%
Electrical connection	with industrial standard connector (9.4 mm)
Protection class	IP65 with connector
Special versions available on demand	

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CODING EXAMPLE

PN	0	00	-	3	0	1	-	P	5	3	

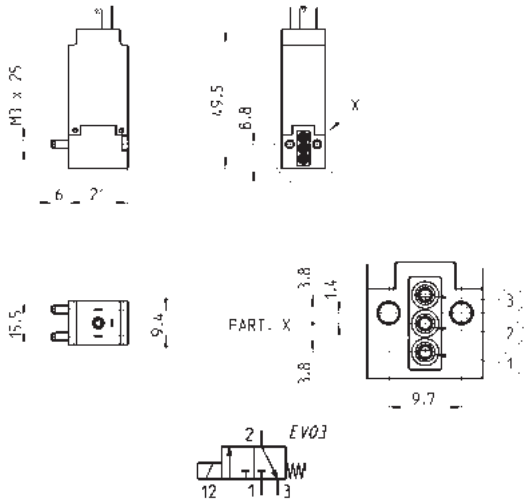
PN	SERIES
0	BODY DESIGN: 0 = single sub-base 1 = single manifold 2 = double sided manifold
00	NUMBER OF POSITIONS: 00 = interface 01 = single base (M5 only) 02 ÷ 99 = manifold number of positions
3	NUMBER OF WAYS - FUNCTIONS: 0 = manifold or single base 3 = 3-way NC
0	VALVE PORTS: 0 = interface (for single valve only) MANIFOLD PORTS (for Series W, P and PN): 2 = M5 side port 3 = ø 3 tube side port 4 = ø 4 tube side port 6 = M5 rear ports 7 = ø 3 tube rear ports 8 = ø 4 tube rear ports
1	NOMINAL DIAMETER - MAX PRESSURE 1 = ø 0,8 (1W) 10 bar (NC) 24V only
P	MATERIALS: P = PBT body, PU poppet seal
5	ELECTRICAL CONNECTION: 5 = industrial standard connection (9.4 mm)
3	SOLENOID VOLTAGE: 3 = 24V DC 4 = 48V DC 6 = 110V DC 7 = 205V DC
	FIXING: = standard for the mounting on plastic interfaces M = with screws for the mounting on metal interface (on demand)

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3/2-way NC solenoid valve



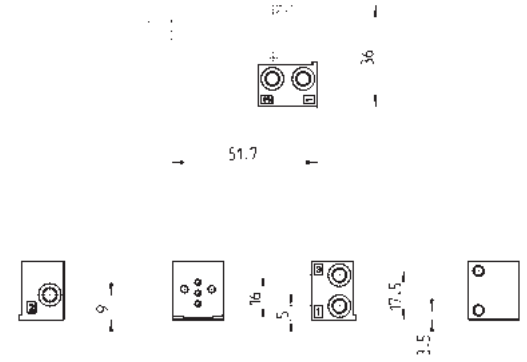
Supplied with:
1x interface seal
2x screws



Mod.	Orifice Ø (mm)	kv (l/min)	Qn (Nl/min)	Pressure min-max (bar)
PN000-301-P53	0.8	0.18	12	0 ÷ 10

Single sub-base

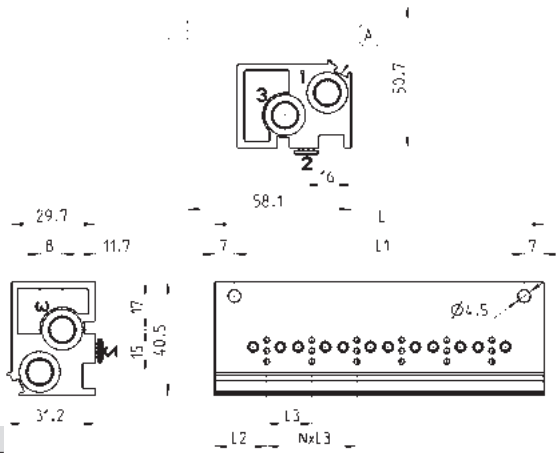




Mod.
P001-02

Single manifold with rear outlets





Mod.	Nr valves	L	L1	L2	L3	1 (P)	3 (R)
P102-0*	2	53	39	18,5	16	G1/8	G1/8
P103-0*	3	69	55	18,5	16	G1/8	G1/8
P104-0*	4	85	71	18,5	16	G1/8	G1/8
P105-0*	5	101	87	18,5	16	G1/8	G1/8
P106-0*	6	117	103	18,5	16	G1/8	G1/8

* = see the type of PORTS in the CODING EXAMPLE TABLE.

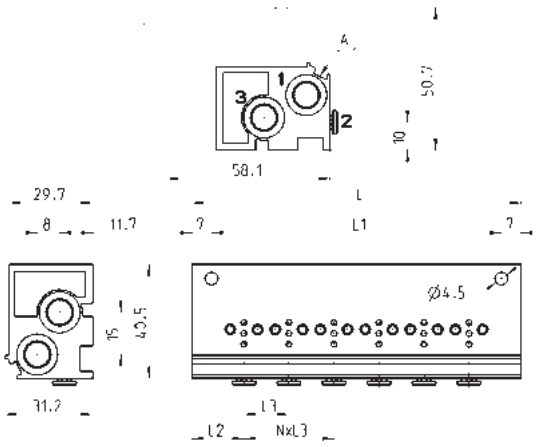
A = groove for electric connection identification

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Single manifold with front outlets



This manifold is arranged to be fixed through DIN 46277/3 guide together with the accessory PCF-E520.



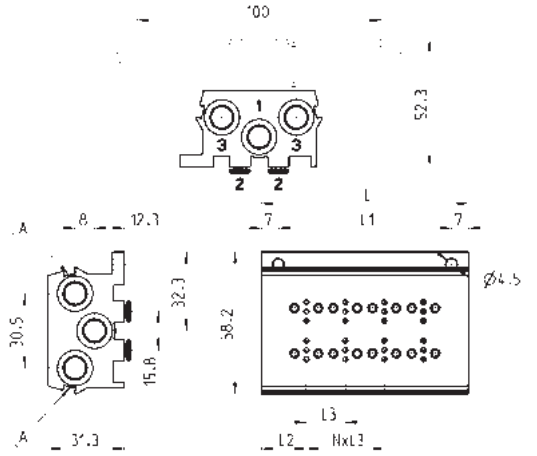
Mod.	Nr valves	L	L1	L2	L3	1 (P)	3 (R)
P102-0*	2	53	39	18,5	16	G1/8	G1/8
P103-0*	3	69	55	18,5	16	G1/8	G1/8
P104-0*	4	85	71	18,5	16	G1/8	G1/8
P105-0*	5	101	87	18,5	16	G1/8	G1/8
P106-0*	6	117	103	18,5	16	G1/8	G1/8

* = see the type of PORTS in the CODING EXAMPLE TABLE.

A = groove for electric connection identification

Double sided manifold with rear outlets





Mod.	Nr valves	L	L1	L2	L3	1 (P)	3 (R)
P204-0*	4	53	39	18,5	16	G1/8	G1/8
P206-0*	6	69	55	18,5	16	G1/8	G1/8
P208-0*	8	85	71	18,5	16	G1/8	G1/8
P210-0*	10	101	87	18,5	16	G1/8	G1/8
P212-0*	12	117	103	18,5	16	G1/8	G1/8

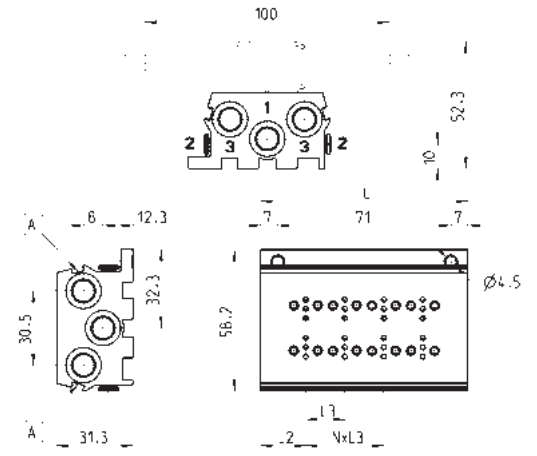
* = see the type of PORTS in the CODING EXAMPLE TABLE.

A = groove for electric connection identification

Double sided manifold with front outlets



This manifold is arranged to be fixed through DIN 46277/3 guide together with the accessory PCF-E520.



Mod.	Nr valves	L	L1	L2	L3	1 (P)	3 (R)
P204-0*	4	53	39	18,5	16	G1/8	G1/8
P206-0*	6	69	55	18,5	16	G1/8	G1/8
P208-0*	8	85	71	18,5	16	G1/8	G1/8
P210-0*	10	101	87	18,5	16	G1/8	G1/8
P212-0*	12	117	103	18,5	16	G1/8	G1/8

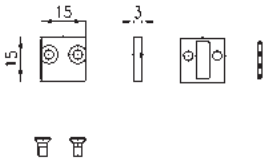
* = see the type of PORTS in the CODING EXAMPLE TABLE.

A = groove for electric connection identification

Excluder tap



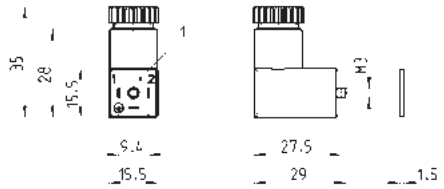
Supplied with:
1x excluder tap
1x interface seal
2x screws



Mod.
P000-TP

Industrial standard (9.4 mm) connector Mod. 125-...





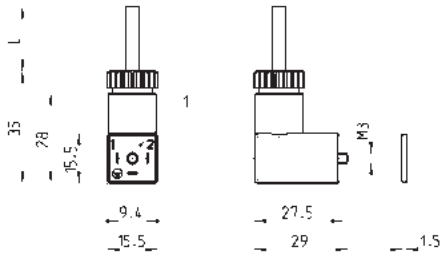
Mod.	description	colour	working voltage	cable holding	tightening torque
125-601	connector, diode + Led	transparent	10/50 V DC	PG7	0.3 Nm
125-701	connector, varistor + Led	transparent	24 V AC/DC	PG7	0.3 Nm
125-800	connector, without electronics	black	-	PG7	0.3 Nm

1 = 90° adjustable connector

Industrial standard (9.4 mm) connector Mod. 125-... with cable

The internal rectifier circuit of the connector Mod. 125-900 allows to use solenoid valves with different AC voltage, even if the voltage indicated on the solenoid valve is DC.





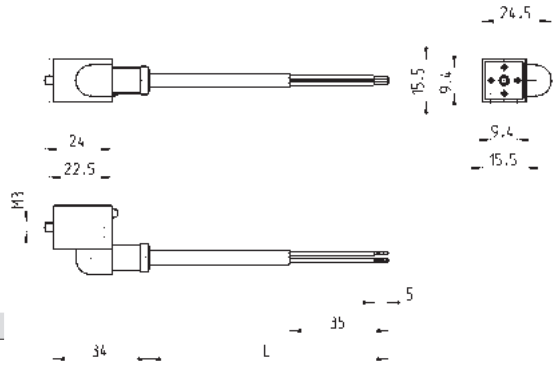
Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
125-501-2	moulded cable with diode + Led	black	10/50 V DC	2000 mm	-	0.3 Nm
125-550-1	moulded cable, without electronics	black	-	1000 mm	-	0.3 Nm
125-601-2	pre-wired cable, diode + Led	transparent	10/50 V DC	2000 mm	PG7	0.3 Nm
125-571-3	moulded cable, varistor + Led	black	24 V AC/DC	3000 mm	-	0.3 Nm
125-900	pre-wired cable with voltage rectifier	black	6 V - 110 V AC/DC	2000 mm	PG7	0.3 Nm

1 = 90° adjustable connector

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Industrial standard (9.4 mm) in-line connectors with cable

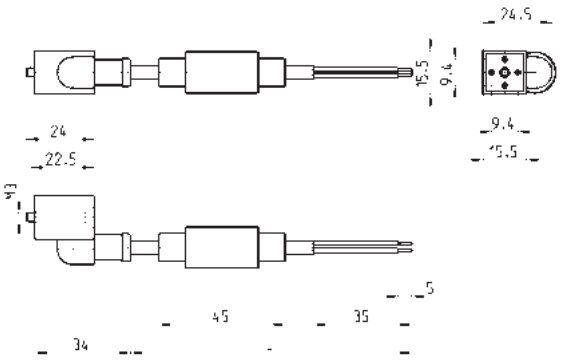




Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
125-503-2	in-line moulded cable, with diode + Led	black	24 V DC	2000 mm	-	0.3 Nm
125-503-5	in-line moulded cable, with diode + Led	black	24 V DC	5000 mm	-	0.3 Nm
125-553-2	in-line moulded cable, without electronics	black	-	2000 mm	-	0.3 Nm
125-553-5	in-line moulded cable, without electronics	black	-	5000 mm	-	0.3 Nm

Industrial standard (9.4 mm) in-line connectors with bridge rectifier





Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
125-903-2	in-line moulded cable with voltage rectifier	black	6 V - 230 V AC/DC	2000 mm	-	0.3 Nm
125-903-5	in-line moulded cable with voltage rectifier	black	6 V - 230 V AC/DC	5000 mm	-	0.3 Nm

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Series PD
directly operated solenoid valves

2/2-way - Normally Closed (NC)



Please note that all Series PD solenoid valves are supplied with direct current (DC). To operate in alternating current (AC), it is necessary to use the connector with bridge rectifier Mod. 125-900.

This directly operated solenoid valve is available as 2/2-way, NC, in several sizes and in three different versions.

GENERAL DATA

TECHNICAL FEATURES	
Function	2/2 NC
Operation	direct acting poppet type
Pneumatic connections	on subbase by means of M3 screws - M5 threads
Nominal diameter	0.8 … 2.5 mm
Nominal flow	25 … 125 Nl/min (air @ 6 bar ΔP 1 bar)
Flow coefficient kv (l/min)	0.39 … 1.93
Operating pressure	-0.9 ÷ 4 … 12 bar
Operating temperature	0°C ÷ 50°C
Media	filtered air, class 5.4.4 according to ISO 8573-1 (max oil viscosity 32 cSt), inert gas
Response time	<15 ms
Installation	in any position
MATERIALS IN CONTACT WITH THE MEDIUM	
Body	brass, anodized aluminium
Seals	NBR, (FKM on demand)
Internal parts	stainless steel
ELECTRICAL FEATURES	
Voltage	24 V DC - 12 V DC - other voltages on demand
Voltage tolerance	1 and 2 W ±10% - 4 W ±5%
Power consumption	1 … 4 W
Duty cycle	ED 100% (1 and 2 W) - ED 50% (4W) see the ED definition diagram
Electrical connection	with industrial standard connector (9.4 mm)
Protection class	IP65 with connector
Special versions available on demand	

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CODING EXAMPLE

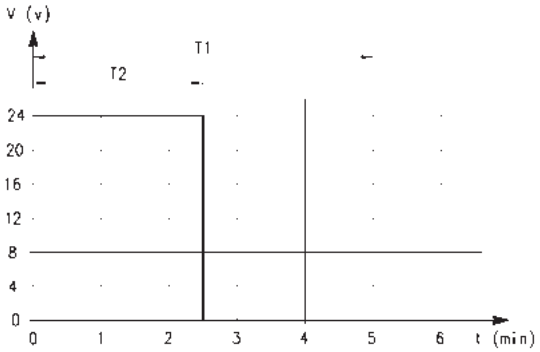
PD	0	00	-	2	A	1	-	R	5	3	

PD	SERIES
0	BODY DESIGN: 0 = single body
00	NUMBER OF POSITIONS: 00 = interface
2	NUMBER OF WAYS - FUNCTIONS: 2 = 2-way NC
A	BODY MATERIALS AND VALVE PORTS: A = aluminium body, rear pneumatic interface C = aluminium body, low pneumatic interface E = brass body, M5 ports (for ø up to 1.6mm)
1	NOMINAL DIAMETER: 1 = ø 0.8 2 = ø 1.2 3 = ø 1.6 4 = ø 2 5 = ø 2.5
R	POPPET SEAL MATERIALS: R = NBR F = FKM (on request)
5	ELECTRICAL CONNECTION: 5 = industrial standard connection (9.4 mm)
3	SOLENOID VOLTAGE: 1 = 12V DC 1W 2 = 12V DC 2W 3 = 24V DC 1W 5 = 24V DC 2W 8 = 24V DC 4W
	FIXING: = with screws for metal (standard) P = with screws for plastics

ED definition diagram

Operating factor lower than 50%

T1 = cycle time (5 minutes max)
T2 = energizing time
t = time (minutes)
V = working voltage (volt)
ED = T2/T1 x 100



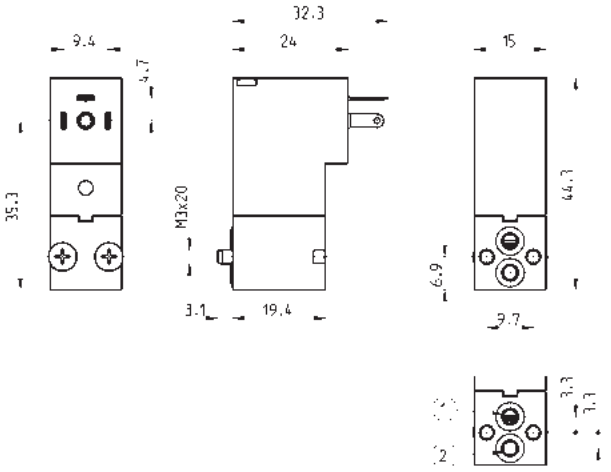
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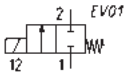
2/2-way NC solenoid valve, rear pneumatic interface



Supplied with:
2x OR seals
2x screws M3x20 UNI 8112
(fixing for metal, standard)
or
2x screws M3x23 UNI 10227
(fixing for plastics, P option)

For use with vacuum invert channel
1 and channel 2.





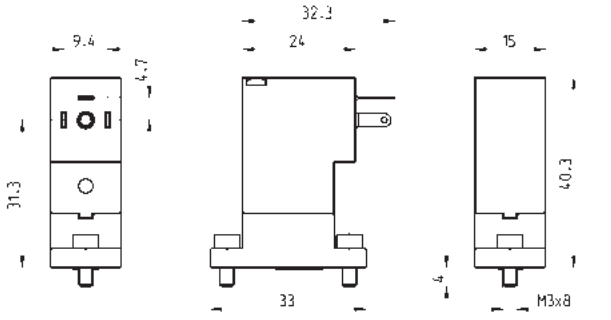
Mod.	Orifice Ø (mm)	kv (l/min)	Qn (Nl/min)	Pressure min-max (bar)	Power consumption (W)	ED (%)
PD000-2A1-R51	0.8	0.39	25	0 ÷ 12	1	100
PD000-2A1-R53	0.8	0.39	25	0 ÷ 12	1	100
PD000-2A2-R52	1.2	0.54	35	0 ÷ 12	2	100
PD000-2A2-R55	1.2	0.54	35	0 ÷ 12	2	100
PD000-2A3-R52	1.6	0.70	45	0 ÷ 7	2	100
PD000-2A3-R55	1.6	0.70	45	0 ÷ 7	2	100
PD000-2A4-R58	2	1.31	85	0 ÷ 6	4	50
PD000-2A5-R58	2.5	1.93	-	0 ÷ 4	4	50

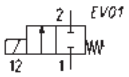
2/2-way NC solenoid valve, low pneumatic interface



Supplied with:
1x seal
2x screws M3x8 UNI 5931

For use with vacuum invert channel
1 and channel 2.





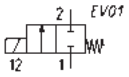
Mod.	Orifice Ø (mm)	kv (l/min)	Qn (Nl/min)	Pressure min-max (bar)	Power consumption (W)	ED (%)
PD000-2C1-R51	0.8	0.39	25	0 ÷ 12	1	100
PD000-2C1-R53	0.8	0.39	25	0 ÷ 12	1	100
PD000-2C2-R52	1.2	0.54	35	0 ÷ 12	2	100
PD000-2C2-R55	1.2	0.54	35	0 ÷ 12	2	100
PD000-2C3-R52	1.6	0.70	45	0 ÷ 7	2	100
PD000-2C3-R55	1.6	0.70	45	0 ÷ 7	2	100
PD000-2C4-R58	2	1.31	85	0 ÷ 6	4	50
PD000-2C5-R58	2.5	1.93	-	0 ÷ 4	4	50

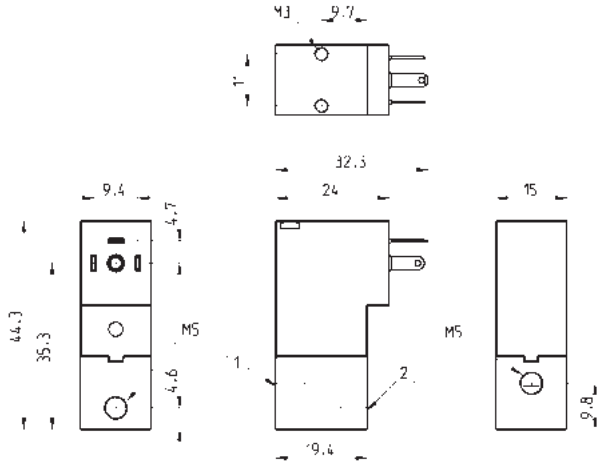
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2/2-way NC solenoid valve, M5 ports

For use with vacuum invert channel 1 and channel 2.





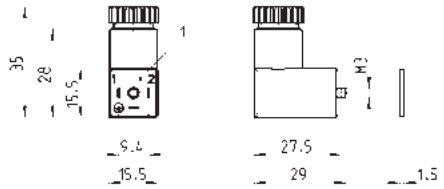


Mod.	Orifice Ø (mm)	kv (l/min)	Qn (Nl/min)	Pressure min-max (bar)	Power consumption (W)	ED (%)
PD000-2E1-R51	0.8	0.39	25	0 ÷ 12	1	100
PD000-2E1-R53	0.8	0.39	25	0 ÷ 12	1	100
PD000-2E2-R52	1.2	0.54	35	0 ÷ 12	2	100
PD000-2E2-R55	1.2	0.54	35	0 ÷ 12	2	100
PD000-2E3-R52	1.6	0.70	45	0 ÷ 7	2	100
PD000-2E3-R55	1.6	0.70	45	0 ÷ 7	2	100

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Industrial standard (9.4 mm) connector Mod. 125-...





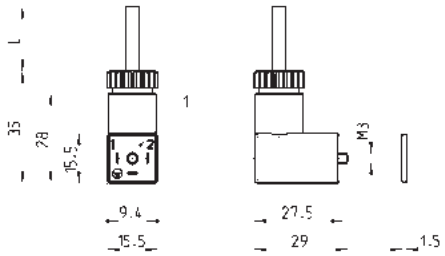
Mod.	description	colour	working voltage	cable holding	tightening torque
125-601	connector, diode + Led	transparent	10/50 V DC	PG7	0.3 Nm
125-701	connector, varistor + Led	transparent	24 V AC/DC	PG7	0.3 Nm
125-800	connector, without electronics	black	-	PG7	0.3 Nm

1 = 90° adjustable connector

Industrial standard (9.4 mm) connector Mod. 125-... with cable

The internal rectifier circuit of the connector Mod. 125-900 allows to use solenoid valves with different AC voltage, even if the voltage indicated on the solenoid valve is DC.





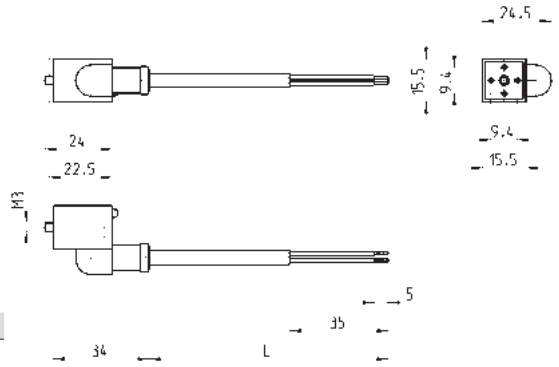
Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
125-501-2	moulded cable with diode + Led	black	10/50 V DC	2000 mm	-	0.3 Nm
125-550-1	moulded cable, without electronics	black	-	1000 mm	-	0.3 Nm
125-601-2	pre-wired cable, diode + Led	transparent	10/50 V DC	2000 mm	PG7	0.3 Nm
125-571-3	moulded cable, varistor + Led	black	24 V AC/DC	3000 mm	-	0.3 Nm
125-900	pre-wired cable with voltage rectifier	black	6 V - 110 V AC/DC	2000 mm	PG7	0.3 Nm

1 = 90° adjustable connector

Products designed for industrial applications.
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Industrial standard (9.4 mm) in-line connectors with cable

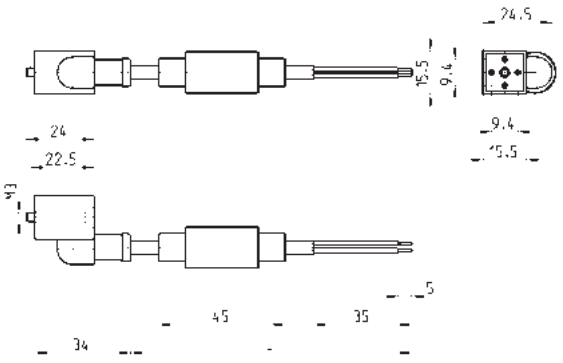




Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
125-503-2	in-line moulded cable, with diode + Led	black	24 V DC	2000 mm	-	0.3 Nm
125-503-5	in-line moulded cable, with diode + Led	black	24 V DC	5000 mm	-	0.3 Nm
125-553-2	in-line moulded cable, without electronics	black	-	2000 mm	-	0.3 Nm
125-553-5	in-line moulded cable, without electronics	black	-	5000 mm	-	0.3 Nm

Industrial standard (9.4 mm) in-line connectors with bridge rectifier





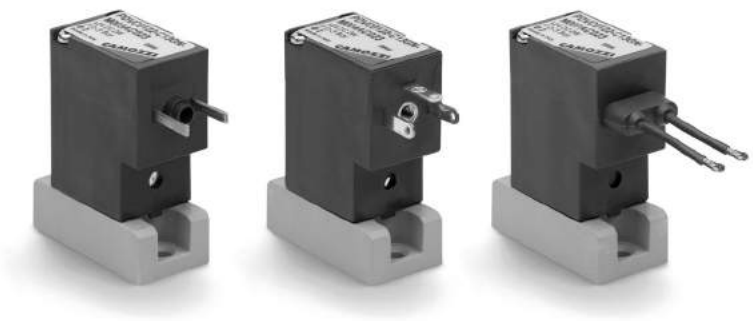
Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
125-903-2	in-line moulded cable with voltage rectifier	black	6 V - 230 V AC/DC	2000 mm	-	0.3 Nm
125-903-5	in-line moulded cable with voltage rectifier	black	6 V - 230 V AC/DC	5000 mm	-	0.3 Nm

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General terms and conditions for sale are available on www.camozzi.com.

Series PDV
directly operated solenoid valves with separating diaphragm

New versions

2/2-way - Normally Closed (NC)



- Suitable to be used with neutral or aggressive fluids
- Suitable for specific applications on medical and analytical equipment or instruments
- Compact design

To choose the most suitable model for a specific application, check the chemical compatibility of the medium to control with the available materials of body and seals.

Series PDV directly operated solenoid valve is available with several nominal diameters and in three different versions according to the electrical connection.
Moreover, the separating diaphragm protects the medium from extreme changes of temperature due to heating of the solenoid.

GENERAL DATA

TECHNICAL FEATURES	
Function	2/2 NC
Operation	directly operated with separating diaphragm
Pneumatic connections	on subbase by means of M3 screws
Nominal diameter	0.8 … 2 mm
Nominal flow	see kv
Flow coefficient kv (l/min)	0.25 ... 0.8
Operating pressure	0 ... 7 bar
Operating temperature	10°C ÷ 50°C
Media	gas and liquids: air, water, reagents, solvents, etc...
Response time (ISO 12238)	≤ 15 ms
Installation	in any position
MATERIALS IN CONTACT WITH THE MEDIUM	
Body	PEEK
Seals	FKM - EPDM
ELECTRICAL FEATURES	
Voltage	24 V DC - 12 V DC - other voltages on request
Voltage tolerance	±10%
Power consumption	2 W
Duty cycle	ED 100%
Electrical connection	industrial standard (9.4 mm), DIN EN 175 301-803-C (8 mm), cable L = 300 mm
Protection class	IP65 with connector
Special versions available on request	

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CODING EXAMPLE

PDV	C0	1	22	-	B7	3	G	N	-	M	00	4A	C023

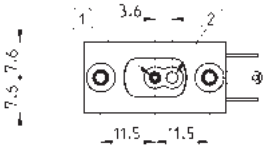
PDV	SERIES
C0	BODY DESIGN: C0 = body with interface for subbase
1	NUMBER OF WAYS - FUNCTIONS: 1 = 2/2-way NC
22	PNEUMATIC CONNECTIONS: 22 = PDV-type interface, 2-way
B7	NOMINAL DIAMETER: A7 = ø 0.8 mm B3 = ø 1.2 mm B7 = ø 1.6 mm C1 = ø 2.0 mm
3	SEAL MATERIAL: 3 = FKM 4 = EPDM
G	BODY MATERIAL: G = PEEK
N	MANUAL OVERRIDE: N = not foreseen
M	FIXING ACCESSORIES: M = screws for metal
00	OPTIONS: 00 = none
4A	ELECTRICAL CONNECTION: 3A = DIN EN 175 301-803-C (8 mm) 4A = industrial standard (9.4 mm) 7A = cables (L = 300 mm) 3C = DIN EN 175 301-803-C (8 mm) with coil rotated 180° 4C = industrial standard (9.4 mm) with coil rotated 180° 7C = cables (L = 300 mm) with coil rotated 180°
C023	VOLTAGE - POWER CONSUMPTION: C017 = 6V DC 2W C020 = 12V DC 2W C023 = 24V DC 2W

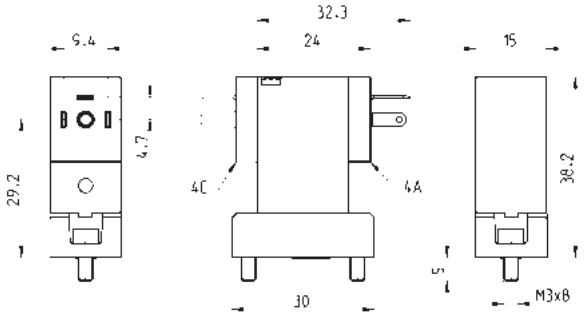


2/2 NC solenoid valve, industrial standard (9.4 mm)

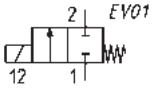
Supplied with:
1x seal
2x M3x8 UNI 5931 screws

NOTE IN THE TABLE BELOW:
* to complete the code, add
ELECTRICAL CONNECTION
(4A or 4C options)
and VOLTAGE
(see CODING EXAMPLE)





NOTE IN THE DRAWING:
1 = INLET PORT
2 = OUTLET PORT



Mod.	Orifice Ø (mm)	kv (l/min)	Min/max pressure (bar)	Max back pressure (bar)	Body material	Seal material
PDVC0122-A73GN-M00*	0.8	0.25	0 ÷ 7.0	1.2	PEEK	FKM
PDVC0122-A74GN-M00*	0.8	0.25	0 ÷ 7.0	1.2	PEEK	EPDM
PDVC0122-B33GN-M00*	1.2	0.55	0 ÷ 4.5	1.2	PEEK	FKM
PDVC0122-B34GN-M00*	1.2	0.55	0 ÷ 4.5	1.2	PEEK	EPDM
PDVC0122-B73GN-M00*	1.6	0.65	0 ÷ 4.0	1.2	PEEK	FKM
PDVC0122-B74GN-M00*	1.6	0.65	0 ÷ 4.0	1.2	PEEK	EPDM
PDVC0122-C13GN-M00*	2.0	0.80	0 ÷ 3.0	1.2	PEEK	FKM
PDVC0122-C14GN-M00*	2.0	0.80	0 ÷ 3.0	1.2	PEEK	EPDM

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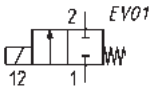
2/2 NC solenoid valve, DIN EN 175 301-803-C (8 mm)

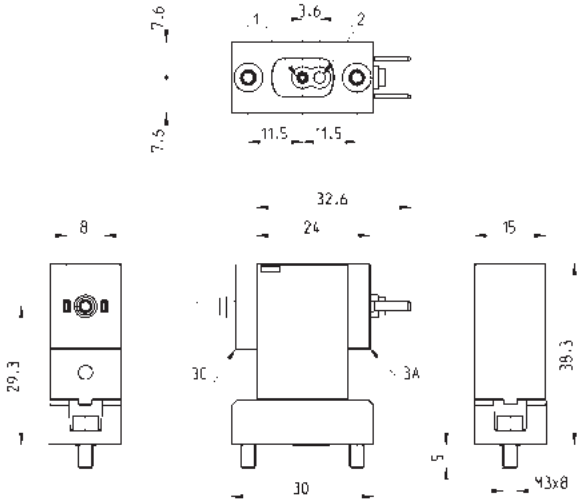


Supplied with:
1x seal
2x M3x8 UNI 5931 screws

NOTE IN THE TABLE BELOW:
* to complete the code, add
ELECTRICAL CONNECTION
(3A or 3C options)
and VOLTAGE
(see CODING EXAMPLE)

NOTE IN THE DRAWING:
1 = INLET PORT
2 = OUTLET PORT





Mod.	Orifice Ø (mm)	kv (l/min)	Min/max pressure (bar)	Max back pressure (bar)	Body material	Seal material
PDVC0122-A73GN-M00*	0.8	0.25	0 ÷ 7.0	1.2	PEEK	FKM
PDVC0122-A74GN-M00*	0.8	0.25	0 ÷ 7.0	1.2	PEEK	EPDM
PDVC0122-B33GN-M00*	1.2	0.55	0 ÷ 4.5	1.2	PEEK	FKM
PDVC0122-B34GN-M00*	1.2	0.55	0 ÷ 4.5	1.2	PEEK	EPDM
PDVC0122-B73GN-M00*	1.6	0.65	0 ÷ 4.0	1.2	PEEK	FKM
PDVC0122-B74GN-M00*	1.6	0.65	0 ÷ 4.0	1.2	PEEK	EPDM
PDVC0122-C13GN-M00*	2.0	0.80	0 ÷ 3.0	1.2	PEEK	FKM
PDVC0122-C14GN-M00*	2.0	0.80	0 ÷ 3.0	1.2	PEEK	EPDM

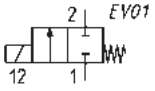
2/2 NC solenoid valve, electrical connection with 300mm cable

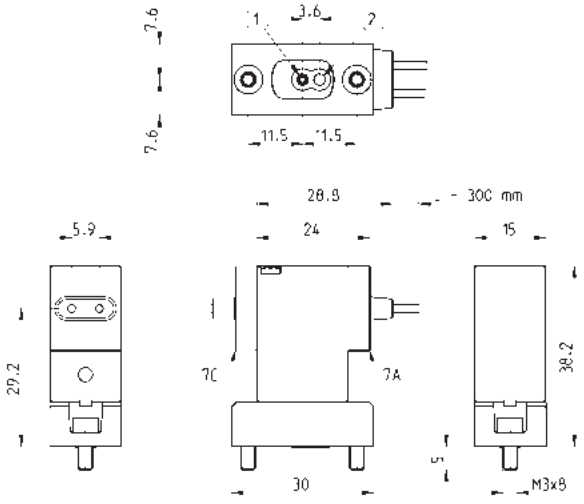


Supplied with:
1x seal
2x M3x8 UNI 5931 screws

NOTE IN THE TABLE BELOW:
* to complete the code, add
ELECTRICAL CONNECTION
(7A or 7C options)
and VOLTAGE
(see CODING EXAMPLE)

NOTE IN THE DRAWING:
1 = INLET PORT
2 = OUTLET PORT



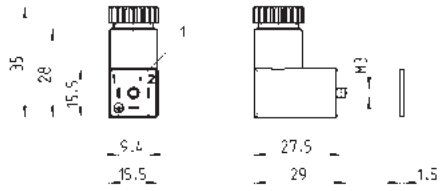


Mod.	Orifice Ø (mm)	kv (l/min)	Min/max pressure (bar)	Max back pressure (bar)	Body material	Seal material
PDVC0122-A73GN-M00*	0.8	0.25	0 ÷ 7.0	1.2	PEEK	FKM
PDVC0122-A74GN-M00*	0.8	0.25	0 ÷ 7.0	1.2	PEEK	EPDM
PDVC0122-B33GN-M00*	1.2	0.55	0 ÷ 4.5	1.2	PEEK	FKM
PDVC0122-B34GN-M00*	1.2	0.55	0 ÷ 4.5	1.2	PEEK	EPDM
PDVC0122-B73GN-M00*	1.6	0.65	0 ÷ 4.0	1.2	PEEK	FKM
PDVC0122-B74GN-M00*	1.6	0.65	0 ÷ 4.0	1.2	PEEK	EPDM
PDVC0122-C13GN-M00*	2.0	0.80	0 ÷ 3.0	1.2	PEEK	FKM
PDVC0122-C14GN-M00*	2.0	0.80	0 ÷ 3.0	1.2	PEEK	EPDM

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Industrial standard (9.4 mm) connector Mod. 125-...





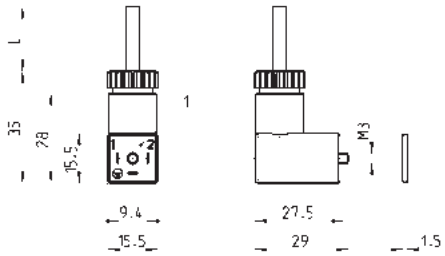
Mod.	description	colour	working voltage	cable holding	tightening torque
125-601	connector, diode + Led	transparent	10/50 V DC	PG7	0.3 Nm
125-701	connector, varistor + Led	transparent	24 V AC/DC	PG7	0.3 Nm
125-800	connector, without electronics	black	-	PG7	0.3 Nm

1 = 90° adjustable connector

Industrial standard (9.4 mm) connector Mod. 125-... with cable

The internal rectifier circuit of the connector Mod. 125-900 allows to use solenoid valves with different AC voltage, even if the voltage indicated on the solenoid valve is DC.



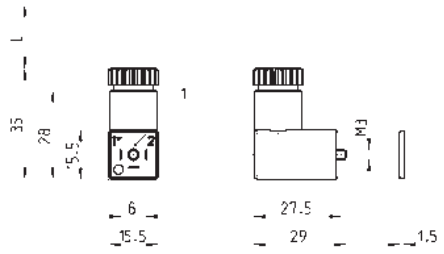


Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
125-501-2	moulded cable with diode + Led	black	10/50 V DC	2000 mm	-	0.3 Nm
125-550-1	moulded cable, without electronics	black	-	1000 mm	-	0.3 Nm
125-601-2	pre-wired cable, diode + Led	transparent	10/50 V DC	2000 mm	PG7	0.3 Nm
125-571-3	moulded cable, varistor + Led	black	24 V AC/DC	3000 mm	-	0.3 Nm
125-900	pre-wired cable with voltage rectifier	black	6 V - 110 V AC/DC	2000 mm	PG7	0.3 Nm

1 = 90° adjustable connector

Connector Mod. 126-... DIN EN 175 301-803-C (8 mm)



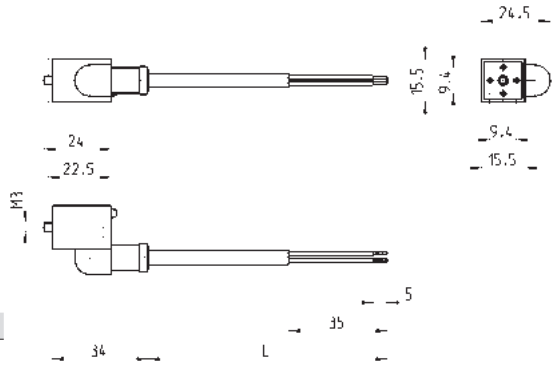


Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
126-550-1	moulded cable, without electronics	black	-	1000 mm	-	0.3 Nm
126-800	connector, without electronics	black	-	-	PG7	0.3 Nm
126-701	connector, varistor + Led	transparent	24 V AC/ DC	-	PG7	0.3 Nm

1 = 90° adjustable connector

Industrial standard (9.4 mm) in-line connectors with cable

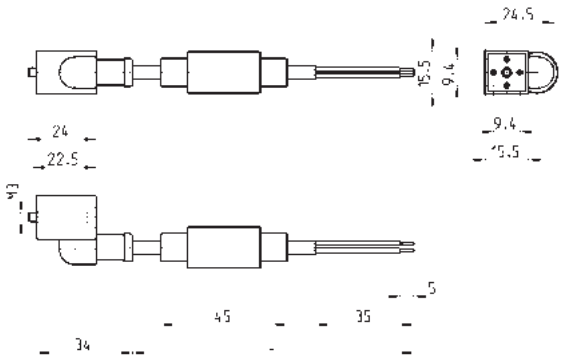




Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
125-503-2	in-line moulded cable, with diode + Led	black	24 V DC	2000 mm	-	0.3 Nm
125-503-5	in-line moulded cable, with diode + Led	black	24 V DC	5000 mm	-	0.3 Nm
125-553-2	in-line moulded cable, without electronics	black	-	2000 mm	-	0.3 Nm
125-553-5	in-line moulded cable, without electronics	black	-	5000 mm	-	0.3 Nm

Industrial standard (9.4 mm) in-line connectors with bridge rectifier





Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
125-903-2	in-line moulded cable with voltage rectifier	black	6 V - 230 V AC/DC	2000 mm	-	0.3 Nm
125-903-5	in-line moulded cable with voltage rectifier	black	6 V - 230 V AC/DC	5000 mm	-	0.3 Nm

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Series A
directly operated solenoid valves

2/2-way - Normally Closed (NC) and Normally Open (NO)
3/2-way - Normally Closed (NC) and Normally Open (NO)



» Ports: M5, G1/8, R1/8, cartridge ø4

» Bistable version also available (with magnetic memory)

The solenoid can be easily and quickly replaced without interfering with the pressurised part of the valve.
On the same mechanical part different types of solenoids can be interchanged.
The choice of solenoids determines the performance of the solenoid valve in terms of consumption and pressure.

Series A solenoid valves are of the directly operated type and can be used with dry or lubricated air. They are available in the 2/2 and 3/2-way versions with normally closed (NC) or normally open (NO) operation.
As shown in the following tables, they are supplied in different versions according to the type of body, threaded ports and orifice. They can thus satisfy various operating and installation requirements.

GENERAL DATA

TECHNICAL FEATURES	
Function	2/2 NC - 3/2 NC - 2/2 NO - 3/2 NO
Operation	direct acting poppet type
Pneumatic connections	M5, G1/8, R1/8 threads - ø4 fitting - CNOMO interface
Nominal diameter	1.5 … 2.5 mm
Nominal flow	40 … 130 Nl/min (air @ 6 bar ΔP 1 bar)
Flow coefficient kv (l/min)	0.62 … 2.0
Operating pressure	-0.9 … 15 bar
Operating temperature	0°C ÷ 60°C (with dry air -20°C)
Media	filtered air, class 5.4.4 according to ISO 8573-1 (max oil viscosity 32 cSt), inert gas
Response time	ON <15 msec - OFF <25 msec
Manual override	see tables
Installation	in any position
MATERIALS IN CONTACT WITH THE MEDIUM	
Body	nickel-plated brass - PBT technopolymer
Seals	HNBR, FKM
Internal parts	stainless steel
ELECTRICAL FEATURES	
Voltage	12 … 110 V DC - 24 … 380 V AC 50/60 Hz
Voltage tolerance	±10% (DC) / -15% ÷ +10% (AC)
Power consumption	3 … 5 W (DC) / 3.5 … 7 VA (AC)
Duty cycle	ED 100%
Electrical connection	F (155°C)
Protection class	DIN 43650 connector, (A, B Shape) IP65 with connector
Special versions available on demand	

CODING EXAMPLE

A	3	3	1	-	0	C	2	-	U7	7

A SERIES

3 BODY DESIGN:
1 = base (24x24 mm) interface rotatable through 360°
2 = base (24x24 mm) fixed interface
3 = threaded body
4 = rapid exhaust body
5 = base with ISO standard interface, fixed body in technopolymer
6 = (16x16 mm) interface rotatable through 360°
A = single manifold
B = 2-part manifold
C = 3-part manifold
D = 4-part manifold
E = 5-part manifold
F = 6-part manifold
G = 7-part manifold
H = 8-part manifold
K = 9-part manifold
L = 10-part manifold
M = 11-part manifold
N = 12-part manifold
P = 13-part manifold
R = 14-part manifold
S = 15-part manifold

3 NUMBER OF PORTS:
2 = 2 way
3 = 3 way

1 FUNCTION:
1 = NC
2 = NO
3 = NO in line

0 PORTS:

	1	2	3
0	M5	M5	M5
1	G1/8	G1/8	M5
3	M5	R1/8	M5
4	M5	R1/8	M5 with manual override
A	swivel O-ring interface		M5
B	fixed O-ring interface		M5
C	cartridge Ø 4		

C NOMINAL DIAMETER:
C = Ø 1,5
D = Ø 2
E = Ø 2,5

2 BODY MATERIAL:
2 = nickel-plated brass
3 = technopolymer

U7 ENCAPSULATING MATERIAL / SOLENOID DIMENSIONS:
A8 = PPS / 30 x 30
G7 = PA / 22 x 22
G8 = PA / 30 x 30 (24 V DC only)
G9 = PA / 22 x 58
H8 = PA 6 V0 / 30 x 30
U7 = PET / 22 x 22

7 SOLENOID VOLTAGE:
See the solenoids section 2/2.35

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TABLE FOR THE COUPLING BETWEEN SOLENOIDS AND VALVES

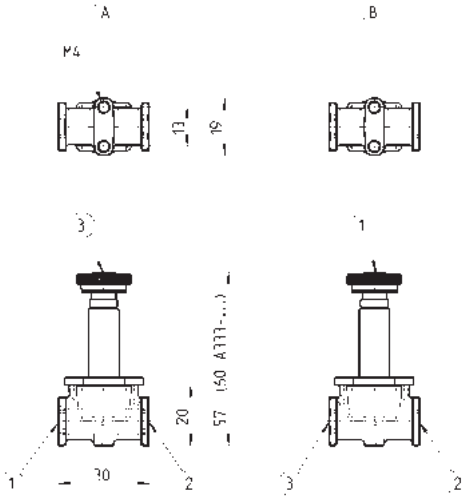
Valve function 2/2: for vacuum application connect the vacuum in “2”
Valve function 3/2: for vacuum application connect the vacuum in “1”
Note: for solenoid Mod. G90 (2/2 NO) contact our technical department

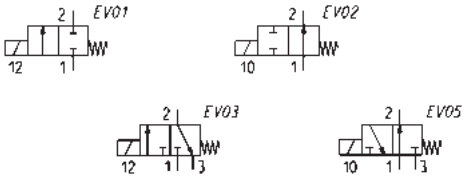
Mod.	Solenoids 3W working pressure (bar)	Solenoids 4-5 W working pressure (bar)	Solenoids 3,5 VA working pressure (bar)
	allowed pressure with solenoids DC - 3 W	allowed pressure with solenoids DC - 4-5 W	allowed pressure with solenoids AC - 3,5 VA
Valve function 2/2 NC			
A321-0C2	- 0,9 ÷ 8	- 0,9 ÷ 15	- 0,9 ÷ 15
A321-1C2	- 0,9 ÷ 8	- 0,9 ÷ 15	- 0,9 ÷ 15
A321-1D2	- 0,9 ÷ 4	- 0,9 ÷ 9	- 0,9 ÷ 9
A321-1E2	- 0,9 ÷ 1	- 0,9 ÷ 6	- 0,9 ÷ 6
Valve function 2/2 NO			
A322-0C2	2 ÷ 10	- 0,9 ÷ 10	- 0,9 ÷ 10
A322-1C2	2 ÷ 10	- 0,9 ÷ 10	- 0,9 ÷ 10
Valve function 3/2 NC			
A331-0C2	2 ÷ 10	- 0,9 ÷ 10	- 0,9 ÷ 10
A331-1C2	2 ÷ 10	- 0,9 ÷ 10	- 0,9 ÷ 10
A331-3C2	2 ÷ 10	- 0,9 ÷ 10	- 0,9 ÷ 10
A331-4C2	2 ÷ 10	- 0,9 ÷ 10	- 0,9 ÷ 10
A431-1C2	2 ÷ 10	2 ÷ 10	2 ÷ 10
A531-BC2	2 ÷ 10	- 0,9 ÷ 10	- 0,9 ÷ 10
A631-AC2	2 ÷ 10	- 0,9 ÷ 10	- 0,9 ÷ 10
AA31-0C2	2 ÷ 10	- 0,9 ÷ 10	- 0,9 ÷ 10
AA31-0C3	2 ÷ 8	- 0,9 ÷ 8	- 0,9 ÷ 8
AA31-CC2	2 ÷ 10	- 0,9 ÷ 10	- 0,9 ÷ 10
AA31-CC3	2 ÷ 8	- 0,9 ÷ 8	- 0,9 ÷ 8
Valve function 3/2 NO			
A332-0C2	- 0,9 ÷ 7	- 0,9 ÷ 7	- 0,9 ÷ 7
A332-1C2	- 0,9 ÷ 7	- 0,9 ÷ 7	- 0,9 ÷ 7
A333-0C2	- 0,9 ÷ 7	-	- 0,9 ÷ 10
A333-1C2	- 0,9 ÷ 7	-	- 0,9 ÷ 10
AA33-0C2	- 0,9 ÷ 7	-	- 0,9 ÷ 10
AA33-0C3	- 0,9 ÷ 7	-	- 0,9 ÷ 8
AA33-CC3	- 0,9 ÷ 7	-	- 0,9 ÷ 8

2/2 and 3/2-way solenoid valves Mod. A32 and Mod. A33



Available in the 2/2-way version, NC or NO, as well as in the 3/2-way version, NC, NO or NO in line.
In the 3/2 NC version connection 1 is on the body (fi. A), whereas in the 3/2 NO version is on the M5 thread of the tube (fig. B).





Mod.	Conn. 1	Conn. 2	Conn. 3	Function	Orifice Ø mm	Qn (Nl/min)	Symbol
A321-0C2-*	M5	M5	-	2/2 NC	1,5	50	EV01
A321-1C2-*	G1/8	G1/8	-	2/2 NC	1,5	55	EV01
A321-1D2-*	G1/8	G1/8	-	2/2 NC	2	100	EV01
A321-1E2-*	G1/8	G1/8	-	2/2 NC	2,5	130	EV01
A322-0C2-*	M5	M5	-	2/2 NO	1,8	70	EV02
A322-1C2-*	G1/8	M5	-	2/2 NO	1,8	80	EV02
A331-0C2-*	M5	M5	M5	3/2 NC	1,5	50	EV03
A331-1C2-*	G1/8	G1/8	M5	3/2 NC	1,5	60	EV03
A332-0C2-*	M5	M5	M5	3/2 NO	1.5	55	EV05
A332-1C2-*	M5	G1/8	G1/8	3/2 NO	1.5	50	EV05
A333-0C2-*	M5	M5	M5	3/2NO in line	1.5	60	EV05
A333-1C2-*	G1/8	G1/8	M5	3/2NO in line	1,5	60	EV05

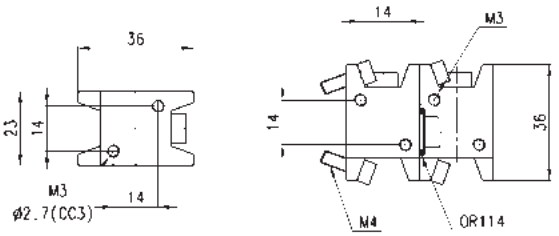
Note. For the use of NO valves in line, use the coil model U771 or U7K1 or G771 or G7K1.

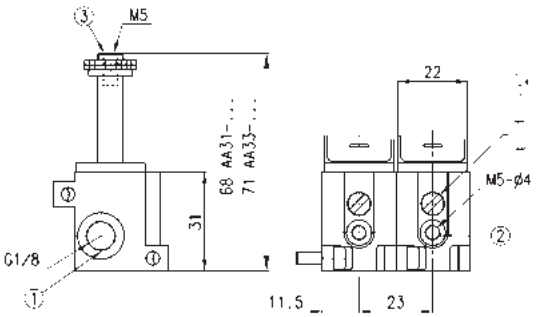
* choose the most suitable solenoid.

3/2-way solenoid valve Mod. AA31... - AA33...



The 3/2-way solenoid valves for manifold assembly are available in the NC and NO in line version, with G1/8 ports at the manifold inlet.
The inlets can be with M5 threading or with a Ø 4 cartridge.
The solenoid valve is supplied complete with O-ring and screws.





Mod.	Inlet / outlet	Function	Orifice Ø mm	Manual override bistable	Qn (Nl/min)	Symbol
AA31-0C2-*	G1/8 M5	3/2 NC	1,5	Yes	55	EV08
AA31-CC2-*	G1/8 04	3/2 NC	1,5	Yes	55	EV08
AA31-0C3-*	G1/8 M5	3/2 NC	1,5	Yes	55	EV08
AA33-0C2-*	G1/8 M5	3/2 NO in line	1,5	No	55	EV05
AA33-CC2-*	G1/8 04	3/2 NO in line	1,5	No	55	EV05
AA33-0C3-*	G1/8 M5	3/2 NO in line	1,5	No	65	EV05
AA31-CC3-*	G1/8 04	3/2 NC	1,5	Yes	55	EV08
AA33-CC3-*	G1/8 04	3/2 NO in line	1,5	No	65	EV05



Note. For the use of NO valves in line, use the coil model U771 or U7K1 or G771 or G7K1.

* choose the most suitable solenoid.

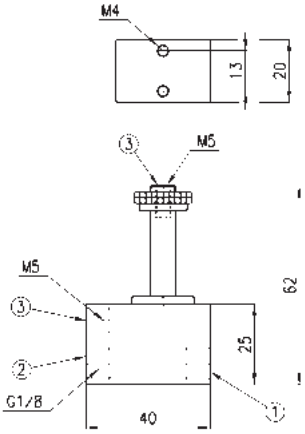
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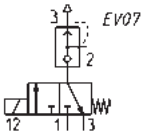
3/2-way solenoid valve Mod. A43

The 3/2-way NC solenoid valve, with G1/8 ports, incorporates a rapid exhaust valve.
It is particularly suitable for operating small single-acting cylinders.



* choose the most suitable solenoid.





Mod.	Ports	Function	Orifice Ø mm	Qn (Nl/min)
A431-1C2-*	G1/8 / M5	3/2 NC	1.5	50

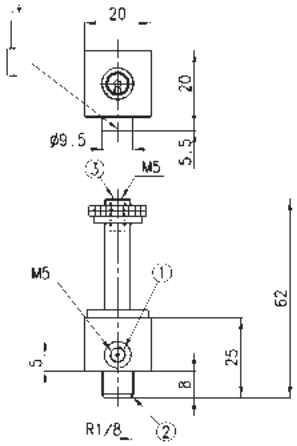
3/2-way solenoid valve Mod. A33

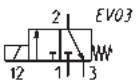
They are particularly suitable for the actuation of small single-acting cylinders and the operation of pneumatic valves with very low operating pressures.

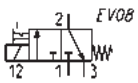


The body has an outlet with a R1/8 male thread which can be screwed directly onto the component to be operated. The inlet port is M5 threaded.

* choose the most suitable solenoid.





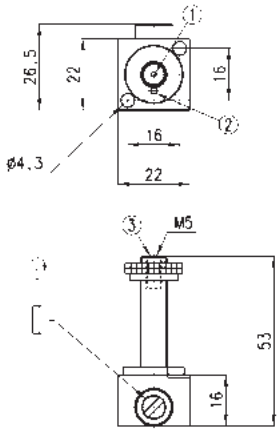


Mod.	Inlet / outlet	Function	Orifice Ø (mm)	Man. override bistable	Qn (Nl/min)	Symbol
A331-3C2-*	M5 / R1/8	3/2 NC	1,5	no	55	EV03
A331-4C2-*	M5 / R1/8	3/2 NC	1,5	yes	55	EV08

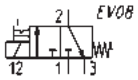
3/2-way solenoid valve Mod. A63



Equipped with a manual override for a steady operation, it is suitable to be mounted directly onto machine parts by two screws. The sealing is ensured by two concentric O-rings allowing the body a 360° adjustment.



* choose the most suitable solenoid.

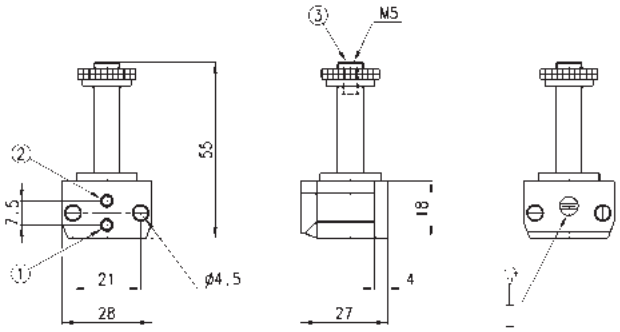


Mod.	Interface	Function	Orifice Ø (mm)	Qn (Nl/min)
A631-AC2-*	OR	3/2 NC	1,5	40

3/2-way solenoid valve Mod. A53

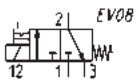


Equipped with a manual override for a steady operation, it is suitable to be mounted on Series 9 valves with an ISO interface. The interface which complies CNOMO norms is interchangeable with all ISO versions.



The body only is in technopolymer.

* choose the most suitable solenoid.



Mod.	Interface	Function	Orifice Ø (mm)	Qn (Nl/min)
A531-BC2-*	OR	3/2 NC	1,5	40

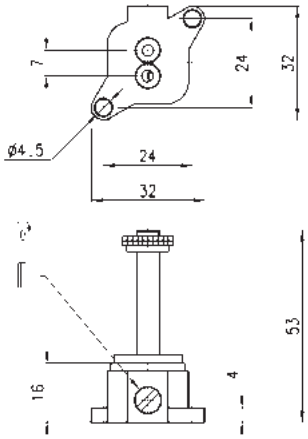
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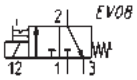
3/2-way solenoid valve Mod. A231 with fixed interface

Equipped with a manual override with the possibility of a bistable actuation.



* choose the most suitable solenoid.





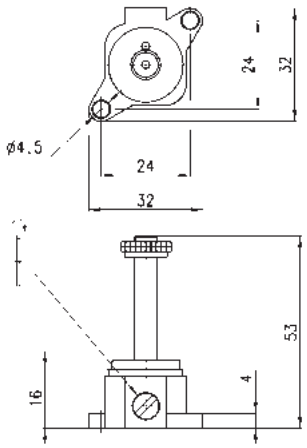
Mod.	Interface	Function	Orifice Ø (mm)	Qn (Nl/min)
A231-BC2-*	OR	3/2 NC	1,5	70

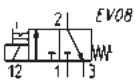
3/2-way solenoid valve Mod. A131 with swivel interface

Equipped with a manual override with the possibility of a bistable actuation.



* choose the most suitable solenoid.





Mod.	Interface	Function	Orifice Ø (mm)	Qn (Nl/min)
A131-AC2-*	OR	3/2 NC	1,5	70

Series 6
directly operated solenoid valves

2/2-way - Normally Closed (NC)
3/2-way - Normally Closed (NC), Normally Open (NO)





- Ports: G1/8, G3/8, cartridge Ø4
- Available also in version for the low temperatures up to -50°C

The bodies of these valves can be used either individually or in manifolds.
The latter are provided with G1/8 threaded ports or an inbuilt diameter 4 cartridge(G3/8 for 2-way only).

Series 6 solenoid valves are available as 2/2 and 3/2-way, either NC or NO.
These directly operated solenoid valves can be used either with or without lubrication.

GENERAL DATA

TECHNICAL FEATURES	
Function	2/2 NC - 3/2 NC - 3/2 NO
Operation	direct acting poppet type
Pneumatic connections	G1/8, G3/8 threads - ø4 fitting - CNOMO interface
Nominal diameter	2 … 4 mm
Nominal flow	80 … 350 Nl/min (air @ 6 bar ΔP 1 bar)
Flow coefficient kv (l/min)	1.2 … 5.4
Operating pressure	0 ÷ 4 … 15 bar
Operating temperature	0°C ÷ 60°C (seals in FKM) / -50°C ÷ +50°C (seals in NBR)
Media	filtered air, class 5.4.4 (5.1.4 for versions -50°C) according to ISO 8573-1 (max oil viscosity 32 cSt), inert gas
Response time	ON <15 msec - OFF <15 msec
Manual override	see tables
Installation	in any position
MATERIALS IN CONTACT WITH THE MEDIUM	
Body	nickel-plated brass - anodized aluminium
Seals	FKM (NBR for versions -50°C)
Internal parts	stainless steel
ELECTRICAL FEATURES	
Voltage	12 … 110 V DC - 24 … 230 V AC 50/60 Hz
Voltage tolerance	±10% (DC) - +10% ÷ -15% (AC)
Power consumption	10 W (DC) - 19 VA (inrush AC), 12 VA (holding AC)
Duty cycle	ED 100%
Electrical connection	H (180°C)
Protection class	with connector DIN EN 175 301-803-A IP65 with connector
Special versions available on demand	

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CODING EXAMPLE

6	3	8	M	-	105	-	A	6	B	

6	SERIES:
3	NUMBER OF PORTS AND FUNCTIONS: 0 = interface 2 = 2-way NC 3 = 3-way NC 4 = 3-way NO
8	CONNECTION: 0 = interface 3 = G3/8 8 = G1/8 C = cartridge Ø 4
M	M = manifold
105	TYPE OF BODY: 150 = threaded body G1/8 - orifice Ø 2 mm 15E = threaded body G3/8 - orifice Ø 2.5 mm 15F = threaded body G3/8 - orifice Ø 3 mm 15G = threaded body G3/8 - orifice Ø 4 mm 450 = base with rotatable interface 457 = base with fixed interface 101 = single manifold 102 = manifold - 2 pieces 103 = manifold - 3 pieces 104 = manifold - 4 pieces 105 = manifold - 5 pieces 106 = manifold - 6 pieces 107 = manifold - 7 pieces 108 = manifold - 8 pieces 109 = manifold - 9 pieces 110 = manifold - 10 pieces 111 = manifold - 11 pieces 112 = manifold - 12 pieces 113 = manifold - 13 pieces 114 = manifold - 14 pieces 115 = manifold - 15 pieces
A	COIL MATERIAL: A = PPS
6	SOLENOID DIMENSIONS: 6 = 32x32
B	SOLENOID VOLTAGE: B = 24V 50/60Hz C = 48V 50/60 Hz D = 110V 50/60 Hz E = 230V 50/60 Hz 2 = 12V DC 3 = 24V DC 4 = 48V DC 6 = 110V DC
	VERSIONS: = standard LT = for low temperatures

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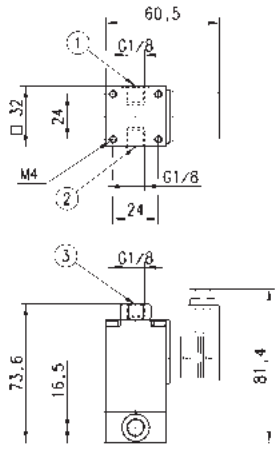
3/2-way NC and NO solenoid valve, G1/8 - Mod. 638 and Mod. 648

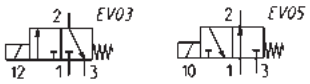
These valves are particularly suitable for operating single-acting cylinders or for use as signal valves.



In the mod. 648-150-A6* (NO) connections 1 and 3 are inverted, while the max operating pressure is 6 bar in case a solenoid A6B, A6C, A6D, A6E is chosen.

* = choose the solenoid voltage according to the CODING EXAMPLE





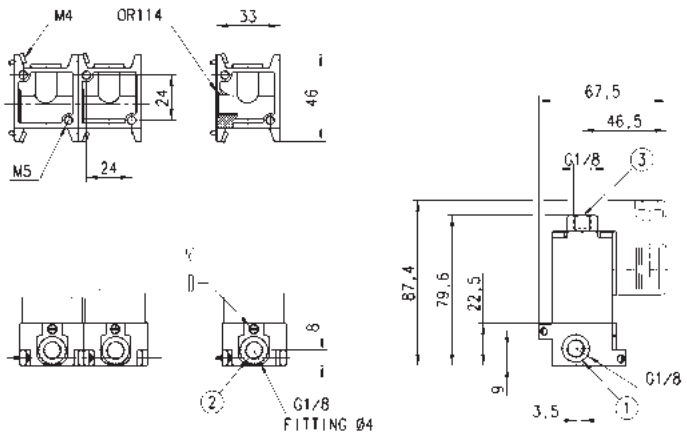
Mod.	Ports	Function	Orifice Ø (mm)	kv (l/min)	Qn (Nl/min)	Pressure min-max (bar)	Symbol
638-150-A6*	G1/8	NC	2	2.0	130	0 ÷ 10 [DC]	EV03
648-150-A6*	G1/8	NO	2	1.2	80	0 ÷ 8 [DC] - 0 ÷ 6 [AC]	EV05

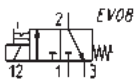
3/2-way NC solenoid valve - Mod. 638M and Mod. 63CM

These solenoid valves are equipped with a manual override and are available with G1/8 inlet ports and with G1/8 outlets or with a diameter 4 cartridge. The body is supplied complete with screws and O-ring.



* = choose the solenoid voltage according to the CODING EXAMPLE





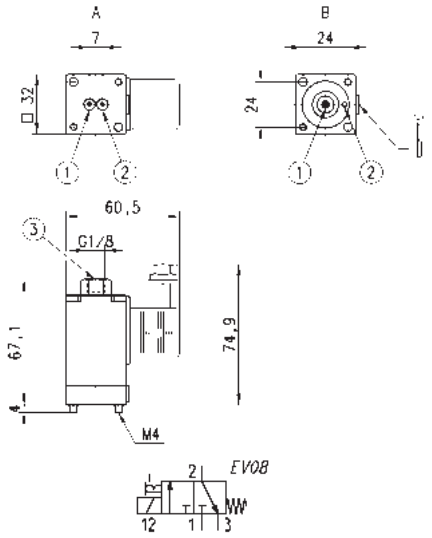
Mod.	Inlet	Outlet	Orifice Ø (mm)	kv (l/min)	Qn (Nl/min)	Pressure min-max (bar)
638M-101-A6*	G1/8	G1/8	2	1.8	120	0 ÷ 10
63CM-101-A6*	G1/8	cartridge Ø 4	2	1.6	108	0 ÷ 10

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3/2-way NC solenoid valve - Mod. 600



These solenoid valves are equipped with an override and are available with two types of interface:
A = fixed interface
B = swivel interface

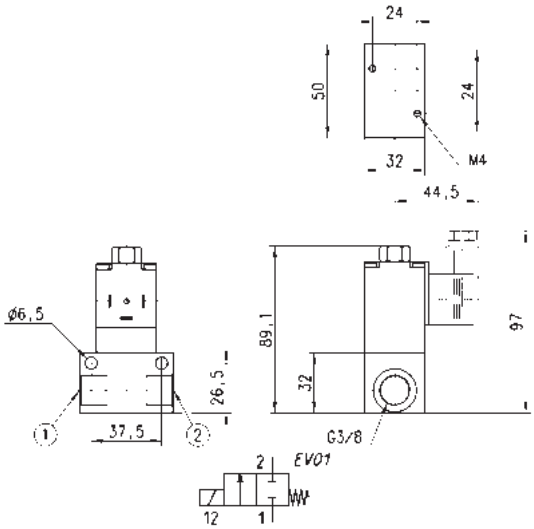


Mod.	Interface	Orifice Ø (mm)	kv (l/min)	Qn (Nl/min)	Pressure min-max (bar)
600-450-A6*	Swivel	2	1.6	106	0 ÷ 10
600-457-A6*	Fixed	2	1.6	106	0 ÷ 10

* = choose the solenoid voltage according to the CODING EXAMPLE

2/2-way solenoid valves NC, G3/8 - Mod. 623





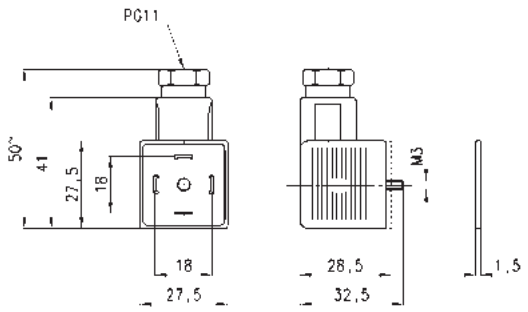
Mod.	Orifice Ø (mm)	kv (l/min)	Qn (Nl/min)	Min-max pressure (bar)
623-15E-A6*	2.5	3.4	220	0 ÷ 12 [AC 50Hz] - 0 ÷ 15 [DC]
623-15F-A6*	3	4.5	290	0 ÷ 10 [AC 50Hz] - 0 ÷ 14 [DC]
623-15G-A6*	4	5.4	350	0 ÷ 4 [AC 50Hz] - 0 ÷ 7 [DC]

* = choose the solenoid voltage according to the CODING EXAMPLE

Connector Mod. 124-... DIN EN 175 301-803-A



Protection class IP65



Mod.	description	colour	working voltage	cable holding	tightening torque
124-800	connector, without electronics	black	-	PG9/PG11	0.5 Nm
124-702	connector, varistor + Led	black	110 V AC/DC	PG9/PG11	0.5 Nm
124-701	connector, varistor + Led	black	24 V AC/DC	PG9/PG11	0.5 Nm
124-703	connector, varistor + Led	black	230 V AC/DC	PG9/PG11	0.5 Nm

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Series CFB solenoid valves

2/2-way - Normally Closed (NC) and Normally Open (NO)
3/2-way - Normally Closed (NC) and Normally Open (NO)



- Solenoid valves for air and water
- Great reliability over time, even in heavy working conditions

The valve function is determined by a poppet or by a diaphragm with operation direct or indirect.
Different versions are available according to the nominal diameter and to the threaded ports, as shown in the following tables. They can thus satisfy various requirements in terms of flow rates and working pressures.

Series CFB solenoid valves for general purpose are available in the NC and NO version, 2/2 and 3/2-way.
Special versions are available on demand for the protection against the water hammer or with specific traitments for the interception of aggressive fluids.

GENERAL DATA

TECHNICAL FEATURES	
Function	2/2 NC - 3/2 NC - 2/2 NO
Operation	direct acting poppet type - servo-assisted with diaphragm
Pneumatic connections	G1/8 … G2 threads
Nominal diameter	1.4 … 50 mm
Nominal flow	See Kv
Flow coefficient Kv (m³/h)	0.14 … 36.0
Operating pressure	0 ÷ 0.8 … 22 bar
Operating temperature	-10°C ÷ +90°C ... 140°C
Media	air, water, liquid and gaseous fluids with max viscosity 37 cSt (5° E)
Response time	ON <15 msec - OFF <25 msec
Installation	in any position
MATERIALS IN CONTACT WITH THE MEDIUM	
Body	brass (alimentary or anti-limestone nickel-platings on demand)
Seals	NBR (CFB-A) - FKM (CFB-B, CFB-D) - EPDM (on demand)
Internal parts	stainless steel - stainless steel and brass (CFB-D1)
ELECTRICAL FEATURES	
Voltage	12 V DC, 24 V DC - 24 V 50 Hz, 110 V 50/60 Hz, 220/230 V 50/60 Hz
Voltage tolerance	±5% (DC) - ±10% (AC)
Power consumption	10 … 30 W (DC) - 9 … 29 VA (AC)
Duty cycle	ED 100%
Electrical connection	H (180°C)
Protection class	DIN 43650 connector, (A shape) IP65 with connector
Special versions available on demand	

It is recommended to use connections with internal diameters bigger than valve orifices, otherwise there may be a performance change.

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CODING EXAMPLE

CFB	-	A	1	3	L	-	R	1	-	B7	E

CFB	SERIES
A	OPERATION: A = indirect B = direct with linked diaphragm D = direct
1	NUMBER OF WAYS - POSITIONS: 1 = 2/2-way NO 2 = 2/2-way NC 3 = 3/2-way NC
3	CONNECTIONS: 1 = G1/8 2 = G1/4 3 = G3/8 4 = G1/2 5 = G3/4 6 = G1 7 = G1 1/4 8 = G1 1/2 9 = G2
L	NOMINAL DIAMETER: A = 1,4 mm B = 2 mm C = 2,5 mm D = 2,8 mm F = 4 mm G = 6 mm J = 8 mm L = 11,5 mm M = 13 mm N = 13,5 mm P = 18 mm R = 26 mm T = 32 mm X = 45 mm Z = 50 mm
R	DIAPHRAGM MATERIAL: R = NBR W = FKM E = EPDM (on demand)
1	BODY MATERIAL: 1 = brass 2 = alimentary anti-limestone nickel-plated brass for high temperatures (on demand) 3 = alimentary nickel-plated brass (on demand)
B7	SOLENOID DIMENSION: B7 = 22 mm B8 = 30 mm B9 = 36 mm
E	SOLENOID VOLTAGE: B = 24V AC 50 Hz D = 110V AC 50/60 Hz E = 230V AC 50/60 Hz 2 = 12V DC 3 = 24V DC
	NOTE: for some directly operated 2/2 NO solenoid valves, the solenoid to be used is the B8*K type (see also the TABLE FOR THE COUPLING BETWEEN SOLENOIDS AND VALVES on page 2/1.30.03).

TABLE FOR THE COUPLING BETWEEN SOLENOIDS AND VALVES

For solenoids and their connectors see the section 2/2.35.
Mod. B8/B9 = mod.124-800
Mod. B7 = mod. 122-800

Mod.	24V AC 50 Hz	110V AC 50/60 Hz	220/230V AC 50/60 Hz	12V DC	24V DC
Directly operated solenoid valve, 2/2 and 3/2 NC, 2/2 NO					
CFB-D21C-W1-	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
CFB-D21F-W1-	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
CFB-D22C-W1-	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
CFB-D22F-W1-	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
CFB-D22G-W1-	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
CFB-D23J-W1-	B9B (29VA)	B9D (29VA)	B9E (29VA) **	not available	B93 (30W)
CFB-D24J-W1-	B9B (29VA)	B9D (29VA)	B9E (29VA) **	not available	B93 (30W)
CFB-D24M-W1-	B9B (29VA)	B9D (29VA)	B9E (29VA) **	not available	not available
CFB-D31A-W1-	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
CFB-D31D-W1-	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
CFB-D32A-W1-	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
CFB-D32D-W1-	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
CFB-D11A-W1-	B8BK (15VA)	B8DK (15VA) **	B8EK (15VA) **	B82K (19W)	B83K (19W)
CFB-D12D-W1-	B8BK (15VA)	B8DK (15VA) **	B8EK (15VA) **	B82K (19W)	B83K (19W)
CFB-D13J-W1-	B9B (29VA)	B9D (29VA) **	B9E (29VA) **	not available	not available
Directly operated solenoid valve with constrained diaphragm, 2/2 NC					
CFB-B23L-W1-	B9B (29VA)	B9D (29VA)	B9E (29VA)	not available	B93 (30W)
CFB-B24N-W1-	B9B (29VA)	B9D (29VA)	B9E (29VA)	not available	B93 (30W)
CFB-B25P-W1-	B9B (29VA)	B9D (29VA)	B9E (29VA)	not available	B93 (30W)
CFB-B26R-W1-	B9B (29VA)	B9D (29VA)	B9E (29VA)	not available	B93 (30W)
Indirectly operated solenoid valve, 2/2 NC					
CFB-A23L-R1-	B7B (9VA) *	B7D (9VA)	B7E (9VA)	B72 (10W)	B73 (10W)
CFB-A24N-R1-	B7B (9VA) *	B7D (9VA)	B7E (9VA)	B72 (10W)	B73 (10W)
CFB-A25P-R1-	B7B (9VA) *	B7D (9VA)	B7E (9VA)	B72 (10W)	B73 (10W)
CFB-A26R-R1-	B7B (9VA) *	B7D (9VA)	B7E (9VA)	B72 (10W)	B73 (10W)
CFB-A27T-R1-	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
CFB-A28X-R1-	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
CFB-A29Z-R1-	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
Indirectly operated solenoid valve, 2/2 NO					
CFB-A13L-R1-	B7B (9VA) *	B7D (9VA)	B7E (9VA)	B72 (10W)	B73 (10W)
CFB-A14N-R1-	B7B (9VA) *	B7D (9VA)	B7E (9VA)	B72 (10W)	B73 (10W)
CFB-A15P-R1-	B7B (9VA) *	B7D (9VA)	B7E (9VA)	B72 (10W)	B73 (10W)
CFB-A16R-R1-	B7B (9VA) *	B7D (9VA)	B7E (9VA)	B72 (10W)	B73 (10W)
CFB-A17T-R1-	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
CFB-A18X-R1-	B9B (29VA)	B9D (29VA)	B9E (29VA)	not available	B93 (30W)
CFB-A19Z-R1-	B9B (29VA)	B9D (29VA)	B9E (29VA)	not available	B93 (30W)
	* B7B solenoid with nominal bifrequency of 50/60 Hz		** only to be used with nominal frequency of 50 Hz		

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Directly operated 2/2 NC - NO and 3/2 NC solenoid valve



The direct control of these solenoid valves enables them to work with operating pressures which are equal to zero. Ports: G1/8 and G1/2.

DRAWING LEGEND:
X = NC valve
Y = NO valve

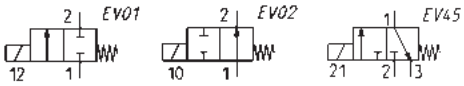
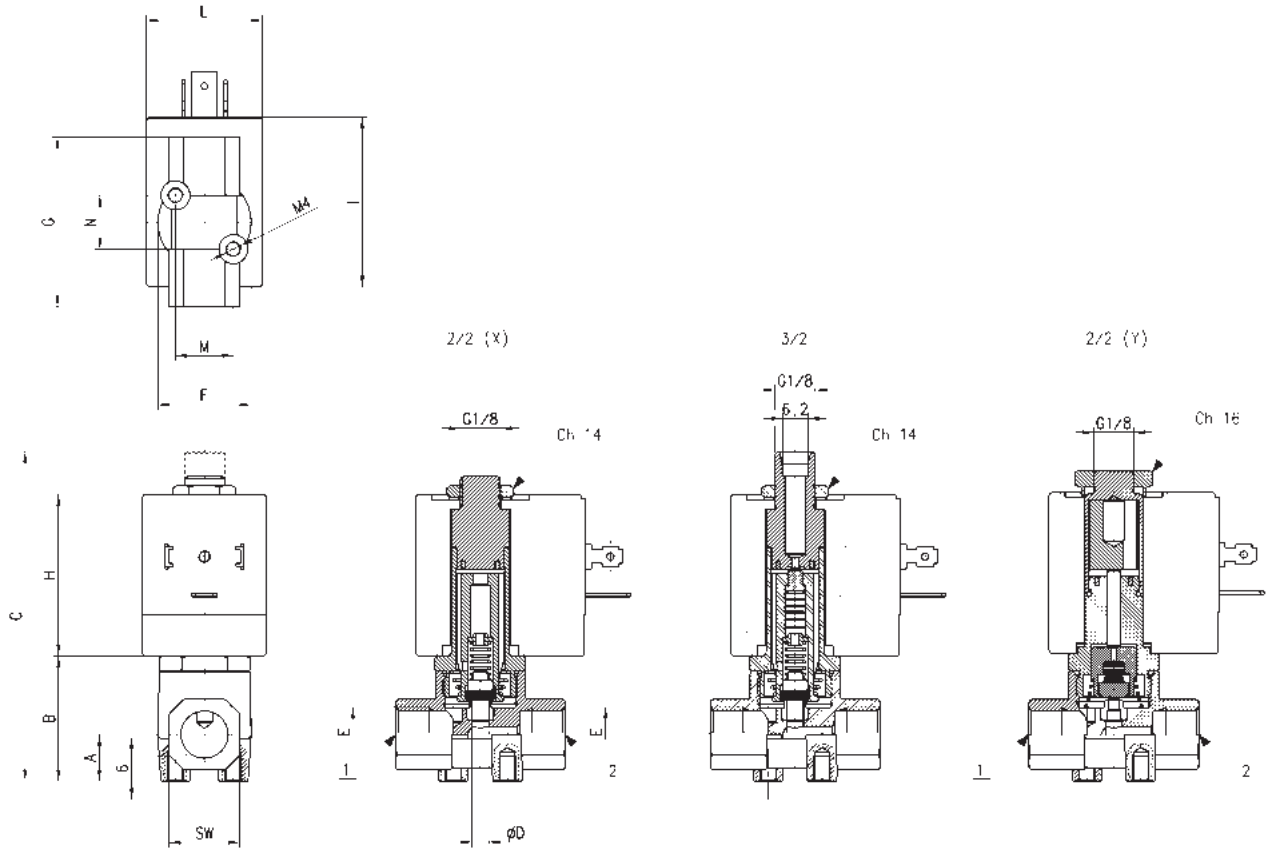


TABLE NOTES:
* = choose the suitable solenoid(see the table on page 2/1.30.03).
** = the performances shown in the table refer to the use with inlet from “2” and outlet from “1”.
*** = 0 ÷ 4 with B9... solenoid



Mod.	Function	Orifice ØD (mm)	Kv (m³/h)	Pressure min-max (bar)	A	B	C	E	F	G	SW	H	I	L	N	M	Symbol
CFB-D21C-W1-*	2/2 NC	2.5	0.14	0 ÷ 15 [AC / DC]	11	30	73.8	G1/8	23	41	17	39	41	30	13	14	EV01
CFB-D21F-W1-*	2/2 NC	4	0.25	0 ÷ 6 [AC / DC]	11	30	73.8	G1/8	23	41	17	39	41	30	13	14	EV01
CFB-D22C-W1-*	2/2 NC	2.5	0.14	0 ÷ 15 [AC / DC]	11	30	73.8	G1/4	23	41	17	39	41	30	13	14	EV01
CFB-D22F-W1-*	2/2 NC	4	0.25	0 ÷ 6 [AC / DC]	12	31.5	75	G1/4	26	41	17	39	41	30	13	14	EV01
CFB-D22G-W1-*	2/2 NC	6	0.6	0 ÷ 2.5 [AC / DC] ***	12	31.5	75	G1/4	26	41	17	39	41	30	13	14	EV01
CFB-D23J-R1-*	2/2 NC	8	1	0 ÷ 2 [AC] - 0 ÷ 0.8 [DC]	15	45	89	G3/8	37	55	27	39	47	36	22	22	EV01
CFB-D24J-R1-*	2/2 NC	8	1	0 ÷ 2 [AC] - 0 ÷ 0.8 [DC]	15	45	89	G1/2	37	55	27	39	47	36	22	22	EV01
CFB-D24M-R1-*	2/2 NC	13	2.4	0 ÷ 1 [AC] - /	15	45	89	G1/2	37	55	27	39	47	36	22	22	EV01
CFB-D31A-W1-*	3/2 NC **	1.4	0.06	0 ÷ 14 [AC / DC]	11	30	79.6	G1/8	23	41	17	39	41	30	13	14	EV45
CFB-D31D-W1-*	3/2 NC **	2.8	0.14	0 ÷ 5 [AC / DC]	11	30	79.6	G1/8	23	41	17	39	41	30	13	14	EV45
CFB-D32A-W1-*	3/2 NC **	1.4	0.06	0 ÷ 14 [AC / DC]	11	30	79.6	G1/4	23	41	17	39	41	30	13	14	EV45
CFB-D32D-W1-*	3/2 NC **	2.8	0.14	0 ÷ 5 [AC / DC]	11	30	79.6	G1/4	23	41	17	39	41	30	13	14	EV45
CFB-D11A-W1-*	2/2 NO	1.4	0.07	0 ÷ 22 [AC 50Hz / DC]	11	30	75	G1/8	23	41	17	39	41	30	13	14	EV02
CFB-D12D-W1-*	2/2 NO	2.8	0.20	0 ÷ 7.5 [AC 50Hz / DC]	11	30	75	G1/4	23	41	17	39	41	30	13	14	EV02
CFB-D13J-W1-*	2/2 NO	8	1	0 ÷ 1.5 [AC 50Hz]	15	45	89	G3/8	37	55	27	39	47	36	22	22	EV02

Directly oper. 2/2 NC solenoid valve with linked diaphragm



The diaphragm which is linked to the mobile plunger is a good arrangement between high fluid flow rates and working pressures (zero pressures as well).
Ports: from G3/8 to G1.
The standard diaphragm is supplied in FKM.

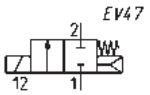
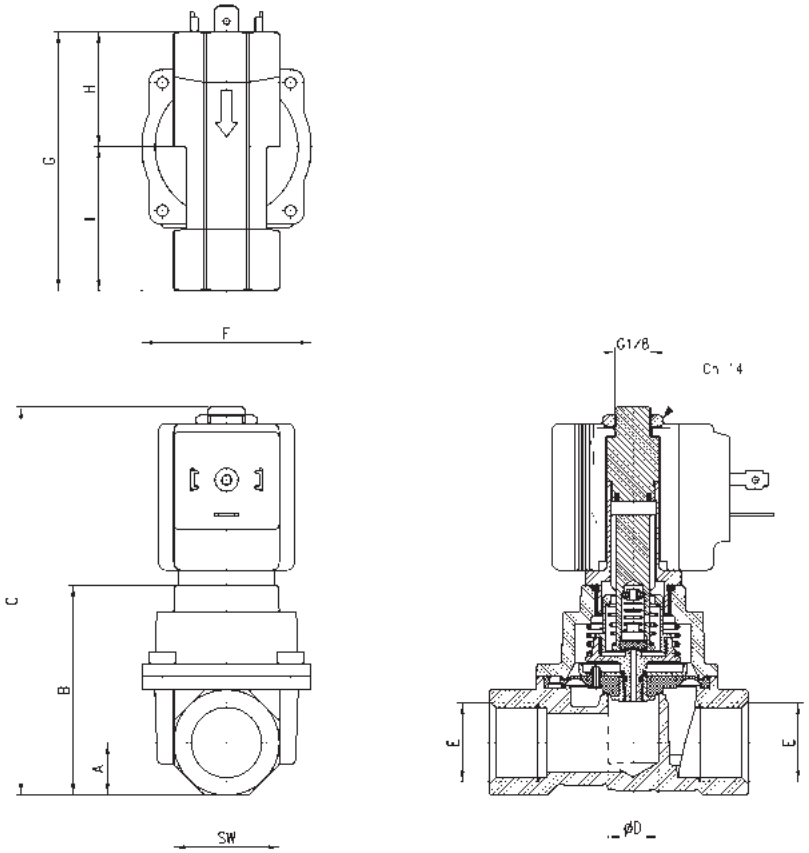


TABLE NOTE:
* = choose the suitable solenoid(see the table on page 2/1.30.03).



Mod.	Function	Orifice ØD (mm)	Kv (m³/h)	Pressure min-max (bar)	A	B	C	E	F	G	H	I	SW
CFB-B23L-W1-*	2/2 NC	11.5	2.1	0 ÷ 15 [AC] - 0 ÷ 8 [DC]	14	55.8	103.2	G3/8	45	64	28.2	35.8	28
CFB-B24N-W1-*	2/2 NC	13.5	2.5	0 ÷ 15 [AC] - 0 ÷ 8 [DC]	14	55.8	103.2	G1/2	45	69	30.7	38.3	28
CFB-B25P-W1-*	2/2 NC	18	5	0 ÷ 15 [AC] - 0 ÷ 5 [DC]	21	72	119.4	G3/4	71	93	43.5	49.5	42
CFB-B26R-W1-*	2/2 NC	26	8	0 ÷ 15 [AC] - 0 ÷ 5 [DC]	21	72	119.4	G1	71	93	43.5	49.5	42

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Indirectly operated 2/2 NC solenoid valve



The pilot of these indirectly operated solenoid valves controls the diaphragm position through a differential pressure. These valves are therefore particularly suitable for controlling high fluid flow rates and require very low working pressures.
Ports: from G3/8 to G2.
The standard diaphragm is supplied in NBR.
On demand it can be supplied in FKM or EPDM.

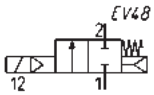
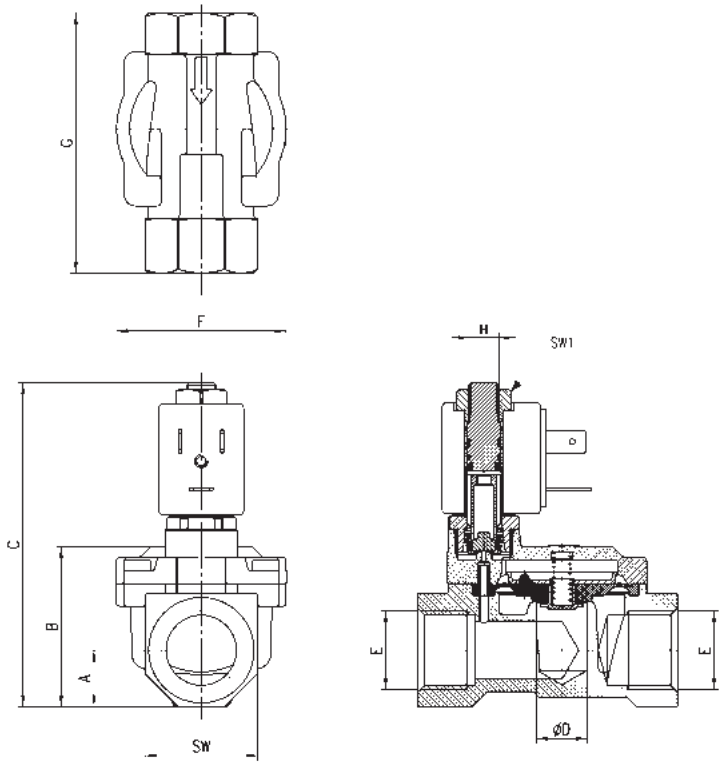


TABLE NOTE:
* = choose the suitable solenoid(see the table on page 2/1.30.03).



Mod.	Function	Orifice ØD (mm)	Kv (m³/h)	Pressure min-max (bar)	A	B	C	E	F	G	H	SW	SW1
CFB-A23L-R1-*	2/2 NC	11.5	1.7	0.1 ÷ 15 [AC / DC]	12	32.5	78.5	G3/8	41.9	57	M8x0.75	24	13
CFB-A24N-R1-*	2/2 NC	13.5	3.8	0.1 ÷ 15 [AC / DC]	15	39.7	85.7	G1/2	45	69	M8x0.75	30	13
CFB-A25P-R1-*	2/2 NC	18	5	0.2 ÷ 15 [AC / DC]	18	46.5	91.5	G3/4	54.4	74	M8x0.75	34	13
CFB-A26R-R1-*	2/2 NC	26	11	0.2 ÷ 12 [AC / DC]	22.5	59.8	104.5	G1	71	93	M8x0.75	45	13
CFB-A27T-R1-*	2/2 NC	32	17	0.4 ÷ 12 [AC / DC]	27.5	73.5	130	G1 1/4	86.6	111	G1/8	55	14
CFB-A28X-R1-*	2/2 NC	45	27	0.4 ÷ 10 [AC / DC]	31	85	138.3	G1 1/2	110	138	G1/8	62	14
CFB-A29Z-R1-*	2/2 NC	50	36	0.4 ÷ 10 [AC / DC]	37.5	98.8	152	G2	110	145	G1/8	75	14

Indirectly operated 2/2 NO solenoid valve



The pilot of these indirectly operated solenoid valves controls the diaphragm position through a differential pressure. These valves are therefore particularly suitable for controlling high fluid flow rates and require very low working pressures.
Ports: from G3/8 to G2.
The standard diaphragm is supplied in NBR.
On demand it can be supplied in FKM or EPDM.

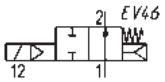
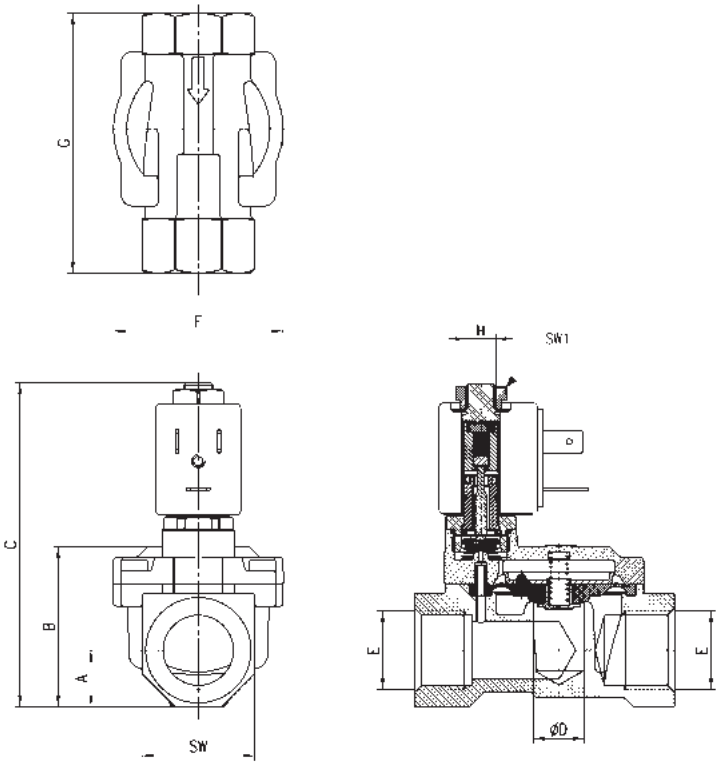


TABLE NOTE:
* = choose the suitable solenoid(see the table on page 2/1.30.03).



Mod.	Function	Orifice ØD (mm)	Kv (m³/h)	Pressure min-max (bar)	A	B	C	E	F	G	H	SW	SW1
CFB-A13L-R1-*	2/2 NO	11.5	1.7	0.1 ÷ 15 [AC / DC]	12	32.5	78.5	G3/8	41.9	57	M8x0.75	24	13.5
CFB-A14N-R1-*	2/2 NO	13.5	3.8	0.1 ÷ 15 [AC / DC]	15	39.7	85.7	G1/2	45	69	M8x0.75	30	13.5
CFB-A15P-R1-*	2/2 NO	18	5	0.2 ÷ 15 [AC / DC]	18	46.5	92.7	G3/4	54.4	74	M8x0.75	36	13.5
CFB-A16R-R1-*	2/2 NO	26	11	0.2 ÷ 12 [AC / DC]	22.5	59.8	104.5	G1	71	93	M8x0.75	45	13.5
CFB-A17T-R1-*	2/2 NO	32	17	0.4 ÷ 12 [AC / DC]	27.5	73.5	130	G1 1/4	86.6	111	G1/8	55	14
CFB-A18X-R1-*	2/2 NO	45	27	0.4 ÷ 10 [AC / DC]	31	85	138.3	G1 1/2	110	138	G1/8	62	14
CFB-A19Z-R1-*	2/2 NO	50	36	0.4 ÷ 10 [AC / DC]	37.5	98.8	152	G2	110	145	G1/8	75	14

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Series CFB stainless steel solenoid valves

2/2-way - Normally Closed (NC)
3/2-way - Normally Closed (NC)



- Stainless steel version for particularly aggressive environment and fluids
- High reliability over time, even in hard working conditions
- Compact dimensions
- Suitable to control inert and medical gases, alimentary fluids and beverages

The valve function is determined by a poppet and the operation is direct. Different versions are available according to the nominal diameter and to the threaded ports, as shown in the following tables. They can thus satisfy various requirements in terms of flow rates and working pressures.

Series CFB Stainless Steel directly operated solenoid valves for general purpose, 2/2-way and 3/2-way NC, are the ideal solution for a wide range of applications whereby the environment and fluids used can be particularly aggressive and contaminating. Special versions are available on demand.

GENERAL DATA

TECHNICAL FEATURES	
Function	2/2 and 3/2 NC
Operation	direct acting poppet type
Pneumatic connections	G1/8 … G1/2 threads
Nominal diameter	1.5 … 4 mm
Nominal flow	See Kv
Flow coefficient Kv (m³/h)	0.08 … 0.28
Operating pressure	0 ÷ 4 … 25 bar
Operating temperature	-10°C ÷ +140°C
Media	air, water, liquid and gaseous fluids with max viscosity 37 cSt (5° E)
Response time	ON <15 msec - OFF <25 msec
Installation	in any position
MATERIALS IN CONTACT WITH THE MEDIUM	
Body	stainless steel 316L
Seals	FKM (EPDM on demand)
Internal parts	stainless steel
ELECTRICAL FEATURES	
Voltage	12 V DC, 24 V DC - 24V AC 50 Hz, 110 V AC 50/60 Hz, 220/230 V AC 50/60 Hz
Voltage tolerance	±5% (DC) - ±10% (AC)
Power consumption	19 W (DC) - 15 VA (AC)
Duty cycle	ED 100%
Electrical connection	H (180°C)
Protection class	DIN 43650 connector, (A Shaped) IP65 with connector
Special versions available on demand	

It is recommended to use connections with internal diameters bigger than valve orifices, otherwise there may be a performance change.

CODING EXAMPLE

CFB	-	D	2	1	A	-	W	X	-	B8	E

CFB	SERIES
D	OPERATION: D = direct
2	NUMBER OF WAYS - POSITIONS: 2 = 2/2-way NC 3 = 3/2-way NC
1	CONNECTIONS: 1 = G1/8 2 = G1/4 3 = G3/8 4 = G1/2
A	NOMINAL DIAMETER: A = 1.5 mm B = 2 mm C = 2.5 mm E = 3 mm F = 4 mm
W	SEALS MATERIAL: W = FKM E = EPDM (on demand)
X	BODY MATERIAL: X = stainless steel
B8	SOLENOID DIMENSION: B8 = 30 mm
E	SOLENOID VOLTAGE: B = 24V AC 50 Hz D = 110V AC 50/60 Hz E = 230V AC 50/60 Hz 2 = 12V DC 3 = 24V DC

TABLE FOR THE COUPLING BETWEEN SOLENOIDS AND VALVES

See solenoids and connectors for solenoids in the section 2/2.35.
Mod. B8 = mod.124-800
* = complete the code according to coding example

Mod.	24V AC 50 Hz	110V AC 50/60 Hz	220/230V AC 50/60 Hz	12V DC	24V DC
CFB-D21A-*	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
CFB-D21B-.*	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
CFB-D21C-*	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
CFB-D22B-*	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
CFB-D22C-*	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
CFB-D22E-*	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
CFB-D23E-*	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
CFB-D23F-*	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
CFB-D24E-*	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
CFB-D24F-*	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
CFB-D32A-*	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
CFB-D32B-*	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
CFB-D32C-*	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)
CFB-D32E-*	B8B (15VA)	B8D (15VA)	B8E (15VA)	B82 (19W)	B83 (19W)

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Directly operated solenoid valve, 2/2 and 3/2 NC



The direct control of these solenoid valves allows to operate with working pressures that are equal to zero.

Ports: from G1/8 to G1/2.

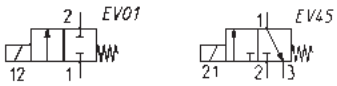
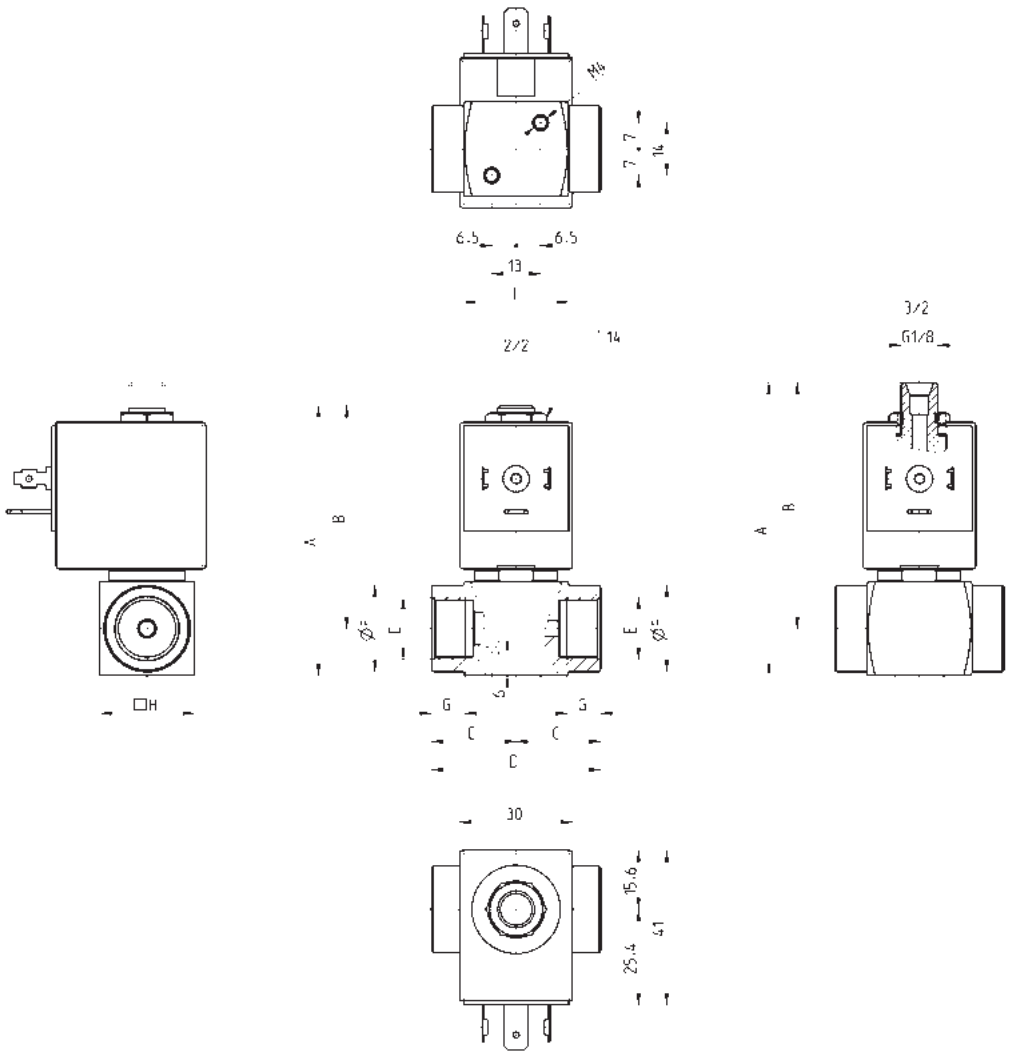


TABLE NOTE:
* = choose the suitable solenoid (see the coupling table).



Mod.	Function	Orifice Ø (mm)	Kv (m³/h)	Pressure min-max (bar)	A	B	C	D	E	F	G	H	I	Pneumatic symbol
CFB-D21A-...X-*	2/2 NC	1.5	0.08	0 ÷ 25	71.7	59.2	21	42	G1/8	15	8	25	29	EV01
CFB-D21B-...X-*	2/2 NC	2	0.10	0 ÷ 22	71.7	59.2	21	42	G1/8	15	8	25	29	EV01
CFB-D21C-...X-*	2/2 NC	2.5	0.14	0 ÷ 15	71.7	59.2	21	42	G1/8	15	8	25	29	EV01
CFB-D22B-...X-*	2/2 NC	2	0.10	0 ÷ 22	71.7	59.2	21	42	G1/4	18	8	25	28	EV01
CFB-D22C-...X-*	2/2 NC	2.5	0.14	0 ÷ 15	71.7	59.2	21	42	G1/4	18	8	25	28	EV01
CFB-D22E-...X-*	2/2 NC	3	0.18	0 ÷ 10	71.7	59.2	21	42	G1/4	18	8	25	28	EV01
CFB-D23E-...X-*	2/2 NC	3	0.18	0 ÷ 10	71.7	59.2	22.5	45	G3/8	23	9.5	25	28	EV01
CFB-D23F-...X-*	2/2 NC	4	0.28	0 ÷ 6	71.7	59.2	22.5	45	G3/8	23	9.5	25	28	EV01
CFB-D24E-...X-*	2/2 NC	3	0.18	0 ÷ 10	76.7	61.7	24.5	49	G1/2	27.5	11	30	31	EV01
CFB-D24F-...X-*	2/2 NC	4	0.28	0 ÷ 6	76.7	61.7	24.5	49	G1/2	27.5	11	30	31	EV01
CFB-D32A-...X-*	3/2 NC	1.5	0.08	0÷13	77.8	65.3	21	42	G1/4	18	8	25	28	EV45
CFB-D32B-...X-*	3/2 NC	2	0.1	0÷9	77.8	65.3	21	42	G1/4	18	8	25	28	EV45
CFB-D32C-...X-*	3/2 NC	2.5	0.14	0÷5.5	77.8	65.3	21	42	G1/4	18	8	25	28	EV45
CFB-D32E-...X-*	3/2 NC	3	0.18	0÷4	77.8	65.3	21	42	G1/4	18	8	25	28	EV45

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Series 8 pneumatic operated cartridge valves

New versions

2/2-way - Normally Closed (NC)



- Use with oxygen
- Suitable also for general purpose
- Compact design
- High flow
- Manifold assembly

Series 8 pneumatic operated valves are particularly suitable for applications requiring high flow combined wtih compact design.
The valve is pneumatic operated by electro-pilots which are dimensioned according to the size.
The cartridge design, which is ideal for manifold assembly, allows to reduce both dimensions and the number of pneumatic connections.

The standard function of the valve is 2/2-way NC.
It can however fulfill the 3/2-way NC function if inserted in a proper seat (see the following pages).

GENERAL DATA

TECHNICAL FEATURES

Function	2/2 NC
Operation	pneumatic operated poppet type
Pneumatic connections	manifold cartridge
Nominal diameter	5 ... 9 mm
Nominal flow	420 ... 1480 Nl/min (air at 6 bar ΔP 1 bar)
Flow coefficient kv (l/min)	6.5 ... 23
Operating pressure	3 ÷ 6 bar (0 ÷ 6 bar with external pilot supply)
Operating temperature	0 ÷ +50°C
Media	filtered air, class 5.4.4 according to ISO 8573-1 (max oil viscosity 32 cSt), inert gas
Response time (ISO 12238)	ON <10 msec - OFF <10 msec
Installation	in any position

MATERIALS IN CONTACT WITH THE MEDIUM

Body	brass
Internal parts	aluminium
Seals	FKM

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CODING EXAMPLE

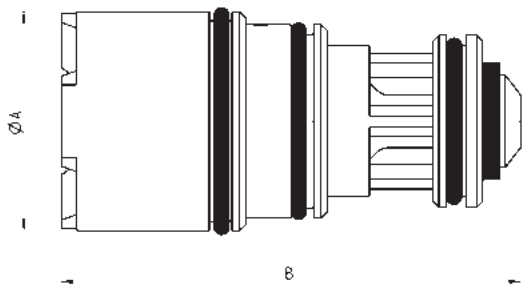
8	10	C5	1	00	-	F1	3	2	-	OX2

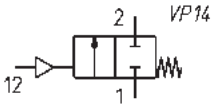
8	SERIES
10	SIZE: 10 = Size 1 20 = Size 2 30 = Size 3
C5	BODY DESIGN: C5 = cartridge
1	NUMBER OF WAYS - FUNCTIONS: 1 = 2/2-way NC or 3/2-way NC NOTE: The function depends on the seat used (for further details see the following pages)
00	PNEUMATIC CONNECTIONS: 00 = cartridge
F1	NOMINAL DIAMETER: F1 = Ø 5.0 mm (size 1 only) G7 = Ø 6.6 mm (size 2 only) K1 = Ø 9.0 mm (size 3 only)
3	SEAL MATERIAL: 3 = FKM
2	BODY MATERIAL: 2 = brass
OX2	OX2 = for use with oxygen (non volatile residual less than 33 mg/m²) NOTE: the OX2 suffix must be added also in case of use with air/gas.

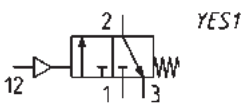
Pneumatic cartridge valve 2/2-way NC

For 2/2-way (pneumatic symbol VP14) or 3/2-way (pneumatic symbol YES1) function, see the seat dimensioning in the next pages.







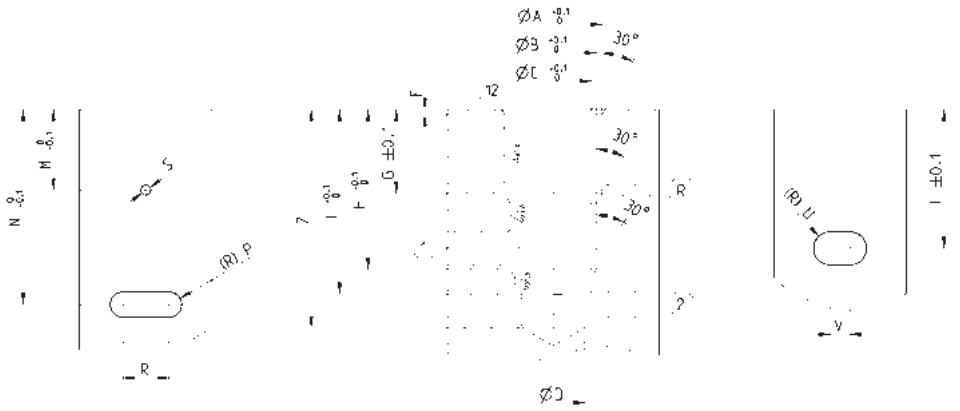


Mod.	ØA	B	Nominal diameter Ø (mm)	kv (l/min)	Qn (Nl/min)	Min/max pressure (bar)	Min/max pilot pressure (bar)
810C5100-F132-OX2	10	26.7	5.0	6.5	420	0 ÷ 6	3 ÷ 6
820C5100-G732-OX2	14.5	30.3	6.6	12.5	800	0 ÷ 6	3 ÷ 6
830C5100-K132-OX2	22	34.8	9.0	23	1480	0 ÷ 6	3 ÷ 6

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Seat for Series 8 pneumatic valve with 2/2-way NC function

NOTE IN THE DRAWING:
1 = inlet
2 = outlet
12 = pilot supply
R = poppet chamber exhaust

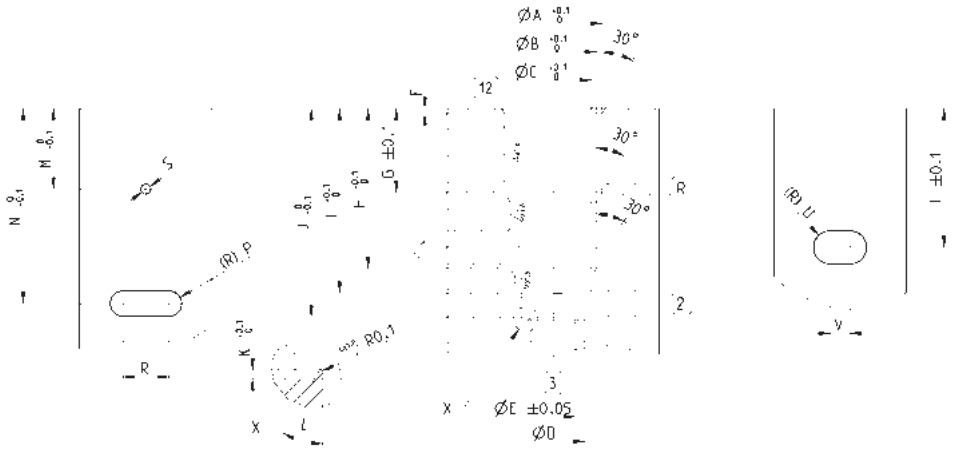


SERIES 8

Size	A	B	C	D	F	G	H	I	M	N	P	R	S	T	U	V	Z
1	10.4	9.7	9	8.2	0.8	14.5	20.7	25	13.2	26.3	1.5	5	1.5	19.1	3	5	30
2	14.65	12.95	11.55	9.5	0.8	12.8	24.2	27.9	12.2	28	1.9	7	1.5	21	2.5	3	33
3	22.1	20.6	19.6	16.2	0.5	15	28.7	33.4	13.5	37.4	4	4.4	2.5	24.8	3.75	5	41

Seat for Series 8 pneumatic valve with 3/2-way NC function

NOTE IN THE DRAWING:
1 = inlet
2 = outlet
3 = exhaust
12 = pilot supply
R = poppet chamber exhaust



SERIES 8

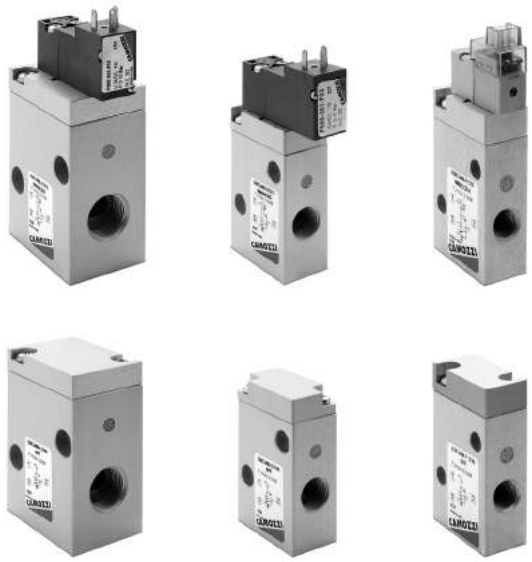
Size	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	R	S	T	U	V
1	10.4	9.7	9	8.2	5	0.8	14.5	20.7	25	28	0.3	45	13.2	26.3	1.5	5	1.5	19.1	3	5
2	14.65	12.95	11.55	9.5	6.6	0.8	12.8	24.2	27.9	31.55	0.5	30	12.2	28	1.9	7	1.5	21	2.5	3
3	22.1	20.6	19.6	16.2	9	0.5	15	28.7	33.4	38.05	1	60	13.5	37.4	4	4.4	2.5	24.8	3.75	5

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Series 8 pneumatically and electropneumatically operated valves

New

2/2-way - Normally Closed (NC), Normally Open (NO)
3/2-way - Normally Closed (NC), Normally Open (NO)



- High flow
- Available in 3 different sizes for general purpose
- Version for use with oxygen available

The Series 8 enlarges the range of versions available with the cartridge valve directly integrated in an anodized aluminium body comprising also the pilot solenoid valve. The new bodies enable to have pneumatically operated versions with external piloting or electropneumatically operated versions with both external and internal piloting.

GENERAL DATA

TECHNICAL SPECIFICATIONS

Function	2/2 NC – 2/2 NO – 3/2 NC - 3/2 NO
Operation	pneumatic or electropneumatic
Pneumatic connections	G1/8 – G1/4 – G3/8
Nominal diameter	5 … 9 mm
Flow coefficient kv (l/min)	6.5 … 23
Nominal flow	420 … 1480 Nl/min (air at 6 bar ΔP 1 bar)
Operating pressure	3 ÷ 6 bar (0 ÷ 6 bar with external pilot supply)
External pilot pressure	3 ÷ 6 bar
Operating temperature	0 ÷ +50°C
Fluid	filtered air class 5.4.4 according to ISO 8573-1 (oil viscosity max. 32 cSt), inert gases
Response times	ON <10 msec - OFF <10 msec
Installation	any position

MATERIALS IN CONTACT WITH FLUID

Body	Aluminium
Seals	FKM
Internal parts	Aluminium – Brass

ELECTRICAL SPECIFICATIONS

Voltage	24 V DC – other voltages upon request
Voltage tolerance	Size 1 = ±10% - Size 2 and 3 = -10% +15%
Power consumption	Size 1 = 1.3 W (inrush) 0.25 W (holding) – Size 2 and 3 = 2 W
Duty cycle	ED 100%
Electrical connection	connectors – wires (length = 300 mm)
Protection class	Size 1 = IP50 – Size 2 and 3 = IP65 (with connector)

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CODING EXAMPLE

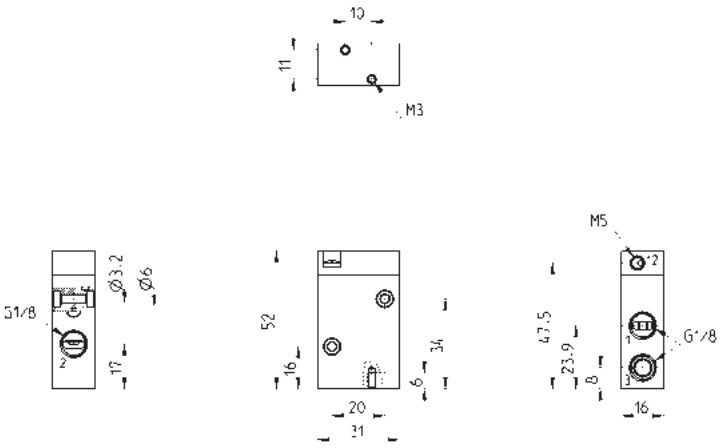
8	10	C3	4	04	-	F1	3	1	Y	-	N	00	2C	C015	

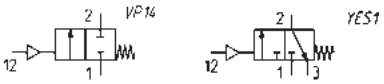
8	SERIES
10	SIZE: 10 = Size 1 20 = Size 2 30 = Size 3
C3	TYPE OF BODY: C3 = threaded body
4	NUMBER OF WAYS - FUNCTIONS: 1 = 2/2-way NC 2 = 2/2-way NO 4 = 3/2-way NC 5 = 3/2-way NO
04	PNEUMATIC CONNECTIONS: 04 = G1/8 (Size 1) 05 = G1/4 (Size 2) 06 = G3/8 (Size 3)
F1	NOMINAL DIAMETER: F1 = 5.0 mm (Size 1) G7 = 6.6 mm (Size 2) K1 = 9.0 mm (Size 3)
3	SEAL MATERIAL: 3 = FKM
1	BODY MATERIAL: 1 = aluminium
Y	MANUAL OVERRIDE: N = not provided Y = provided monostable
N	MOUNTING ACCESSORIES: N = not provided
00	OPTIONS: 00 = no option PP = pneumatic piloting PE = electropilot with external piloting
2C	ELECTRICAL CONNECTION: 2C = connection type KN 90° + protection + led (Size 1) 2F = connection type KN 90° in line + protection + led (Size 1) 3A = connection DIN EN 175 301-803-C (8 mm) 4A = industry standard connection (9.4 mm) 7A = wires - length 300 mm (Size 2 - 3)
C015	VOLTAGE - POWER CONSUMPTION: C012 = 12V DC 1.3/0.25W (Size 1) C014 = 24V DC 1.3/0.25W (Size 1) C020 = 12V DC 2W (Size 2 - 3) C023 = 24V DC 2W (Size 2 - 3) C025 = 48V DC 2W (Size 2 - 3)
	VERSION: = standard OX1 = for use with oxygen (non volatile residual less than 550 mg/m²) OX2 = for use with oxygen (non volatile residual less than 33 mg/m²)

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Pneumatic valve size 1 - 2/2- and 3/2-way, NC and NO





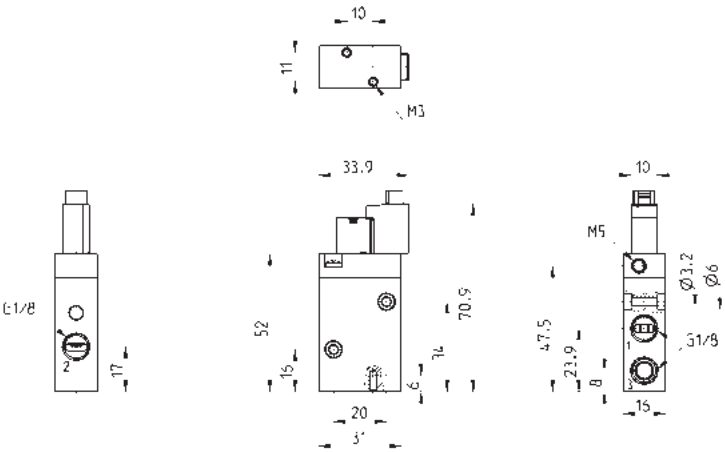


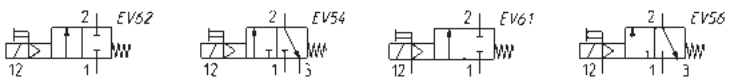
Mod.	Function		Pneumatic connection	Orifice Ø (mm)	kv (l/min)	Qn (Nl/min)	Min÷max pressure (bar)	Min÷max pilot pressure (bar)	Pilot supply	Symbol
810C3104-F131N-NPP	2/2 NC	(for the NO function it is required to maintain a continuos pneumatic pilot supply)	G1/8	5.0	6.5	420	0 ÷ 6	3 ÷ 6	External	VP14
810C3404-F131N-NPP	3/2 NC	(for the NO function it is required to maintain a continuos pneumatic pilot supply)	G1/8	5.0	6.5	420	0 ÷ 6	3 ÷ 6	External	YES1

Solenoid valve size 1, 2/2- and 3/2-way, NC



* please complete the code with ELECTRIC CONNECTION (option 2C or 2F) and VOLTAGE (see the CODING EXAMPLE).



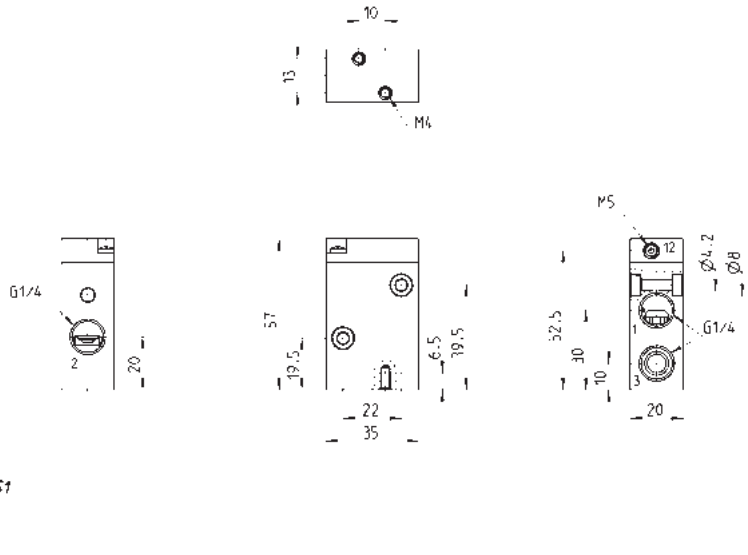


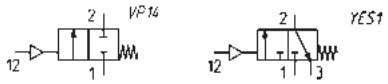
Mod.	Function	Pneumatic connection	Orifice Ø (mm)	kv (l/min)	Qn (Nl/min)	Min÷max pressure (bar)	Min÷max pilot pressure (bar)	Pilot supply	Symbol
810C3104-F131Y-N00*	2/2 NC	G1/8	5.0	6.5	420	3 ÷ 6	-	Internal	EV62
810C3404-F131Y-N00*	3/2 NC	G1/8	5.0	6.5	420	3 ÷ 6	-	Internal	EV54
810C3104-F131Y-NPE*	2/2 NC	G1/8	5.0	6.5	420	0 ÷ 6	3 ÷ 6	External	EV61
810C3404-F131Y-NPE*	3/2 NC	G1/8	5.0	6.5	420	0 ÷ 6	3 ÷ 6	External	EV56

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Pneumatic valve size 2 - 2/2- and 3/2-way, NC and NO





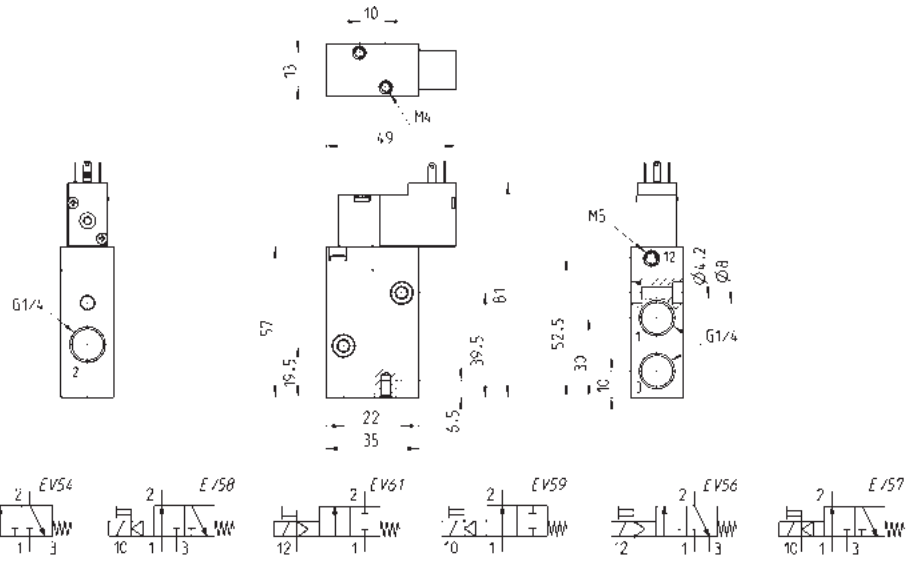


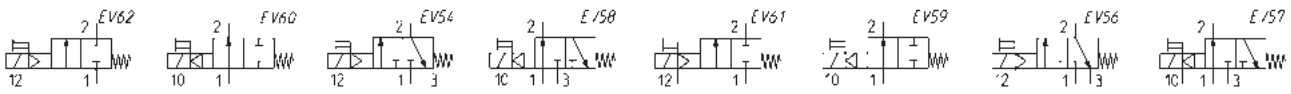
Mod.	Function		Pneumatic connection	Orifice Ø (mm)	kv (l/min)	Qn (Nl/min)	Min÷max pressure (bar)	Min÷max pilot pressure (bar)	Pilot supply	Symbol
820C3105-G731N-NPP	2/2 NC	(for the NO function it is required to maintain a continuos pneumatic pilot supply)	G1/4	6.6	12.5	800	0 ÷ 6	3 ÷ 6	External	VP14
820C3405-G731N-NPP	3/2 NC	(for the NO function it is required to maintain a continuos pneumatic pilot supply)	G1/4	6.6	12.5	800	0 ÷ 6	3 ÷ 6	External	YES1

Solenoid valve size 2, 2/2- and 3/2-way, NC and NO



* please complete the code with ELECTRIC CONNECTION (option 3A, 4A o 7A) and VOLTAGE (see the CODING EXAMPLE).



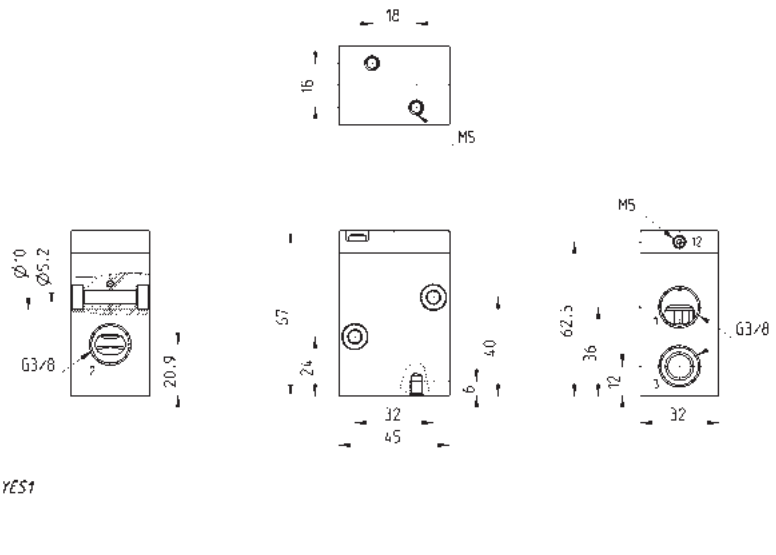


Mod.	Function	Pneumatic connection	Orifice Ø (mm)	kv (l/min)	Qn (Nl/min)	Min÷max pressure (bar)	Min÷max pilot pressure (bar)	Pilot supply	Symbol
820C3105-G731Y-N00*	2/2 NC	G1/4	6.6	12.5	800	3 ÷ 6	-	Internal	EV62
820C3205-G731Y-N00*	2/2 NO	G1/4	6.6	12.5	800	3 ÷ 6	-	Internal	EV60
820C3405-G731Y-N00*	3/2 NC	G1/4	6.6	12.5	800	3 ÷ 6	-	Internal	EV54
820C3505-G731Y-N00*	3/2 NO	G1/4	6.6	12.5	800	3 ÷ 6	-	Internal	EV58
820C3105-G731Y-NPE*	2/2 NC	G1/4	6.6	12.5	800	0 ÷ 6	3 ÷ 6	External	EV61
820C3205-G731Y-NPE*	2/2 NO	G1/4	6.6	12.5	800	0 ÷ 6	3 ÷ 6	External	EV59
820C3405-G731Y-NPE*	3/2 NC	G1/4	6.6	12.5	800	0 ÷ 6	3 ÷ 6	External	EV56
820C3505-G731Y-NPE*	3/2 NO	G1/4	6.6	12.5	800	0 ÷ 6	3 ÷ 6	External	EV57

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Pneumatic valve size 3 - 2/2- and 3/2-way, NC and NO



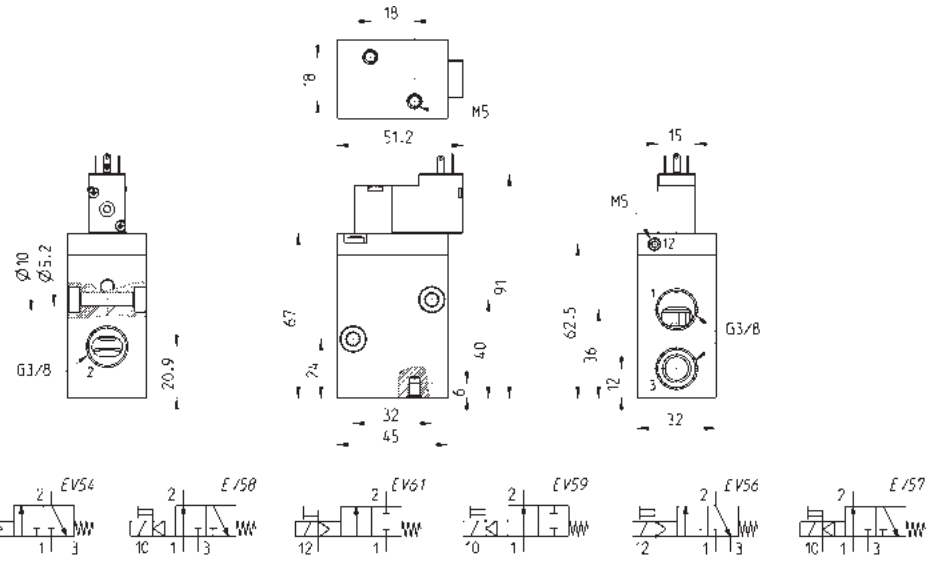


Mod.	Function		Pneumatic connection	Orifice Ø (mm)	kv (l/min)	Qn (Nl/min)	Min÷max pressure (bar)	Min÷max pilot pressure (bar)	Pilot supply	Symbol
830C3106-K131N-NPP	2/2 NC	(for the NO function it is required to maintain a continuos pneumatic pilot supply)	G3/8	9.0	23	1480	0 ÷ 6	3 ÷ 6	External	VP14
830C3406-K131N-NPP	3/2 NC	(for the NO function it is required to maintain a continuos pneumatic pilot supply)	G3/8	9.0	23	1480	0 ÷ 6	3 ÷ 6	External	YES1

Solenoid valve size 3, 2/2- and 3/2-way, NC and NO



* please complete the code with ELECTRIC CONNECTION (option 3A, 4A o 7A) and VOLTAGE (see the CODING EXAMPLE).



Mod.	Function	Pneumatic connection	Orifice Ø (mm)	kv (l/min)	Qn (Nl/min)	Min÷max pressure (bar)	Min÷max pilot pressure (bar)	Pilot supply	Symbol
830C3106-K131Y-N00*	2/2 NC	G3/8	9.0	23	1480	3 ÷ 6	-	Internal	EV62
830C3206-K131Y-N00*	2/2 NO	G3/8	9.0	23	1480	3 ÷ 6	-	Internal	EV60
830C3406-K131Y-N00*	3/2 NC	G3/8	9.0	23	1480	3 ÷ 6	-	Internal	EV54
830C3506-K131Y-N00*	3/2 NO	G3/8	9.0	23	1480	3 ÷ 6	-	Internal	EV58
830C3106-K131Y-NPE*	2/2 NC	G3/8	9.0	23	1480	0 ÷ 6	3 ÷ 6	External	EV61
830C3206-K131Y-NPE*	2/2 NO	G3/8	9.0	23	1480	0 ÷ 6	3 ÷ 6	External	EV59
830C3406-K131Y-NPE*	3/2 NC	G3/8	9.0	23	1480	0 ÷ 6	3 ÷ 6	External	EV56
830C3506-K131Y-NPE*	3/2 NO	G3/8	9.0	23	1480	0 ÷ 6	3 ÷ 6	External	EV57

Series E
valves and solenoid valves

5/2-way monostable/bistable - 5/3 CC, CO, CP
With outlets on the body - For individual or manifold assembly
Size 10,5 mm



Series E valves have been designed to allow high flows with small overall dimensions. These valves are manufactured in three different sizes and are suitable for individual use or for mounting on manifolds.
The manifolds allow a common inlet as well as the two exhausts and the pilot exhaust in common.

GENERAL DATA

Construction	spool-type
Valve functions	5/2, 5/3 CC CO CP
Materials	zamak body, aluminium spool and sub-bases; technopolymer end-covers, joints NBR
Ports	valve = M5; manifold = M5 - tube Ø4; sub-base = G1/8
Temperature	0°C min + 50°C max
Fluid	filtered air (5 µm or lower), without lubricant; if lubricated air is used, it is recommended to use ISOVG32 oil. Once applied the lubrication should never be interrupted.
Solenoid voltage	see coding
Voltage tolerance	± 10%
Power consumption	1W
Class of insulation	class F
Protection class	IP50

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CODING EXAMPLE

E	5	2	1	-	11	-	10	-	K	1	3

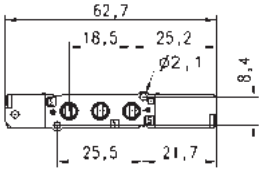
E	SERIES
5	FUNCTION: 5 = 5/2 6 = 5/3 Centres Closed 7 = 5/3 Centres Open 8 = 5/3 Centres in Pressure
2	SIZE: 2 = 10,5 mm
1	BODY TYPE: 1 = body with threaded plate
11	ACTUATION: 11 = electro-pneumatic, bistable 16 = electro-pneumatic, monostable 33 = pneumatic bistable - tube 3 36 = pneumatic monostable - tube 4 C33 = pneumatic bistable - tube 4 C36 = pneumatic monostable - tube 4
10	INTERFACE: 10
K	TYPE OF SOLENOID: K
1	SOLENOID DIMENSION: 1 = 10x10
3	SOLENOID VOLTAGE: 1 = 6V DC 2 = 12V DC 3 = 24V DC

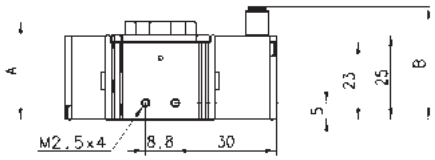
Pneumatically actuated valve, monostable - size 10,5

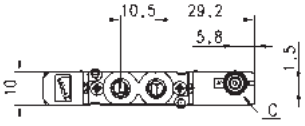
5/2-way

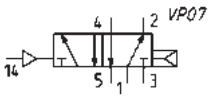
Note: the pilot pressure should never be lower than the operating pressure.











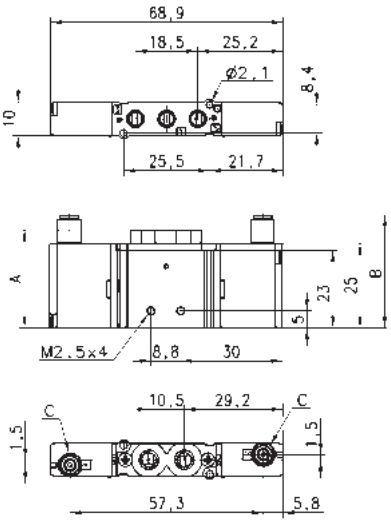
Mod.	A	B	C	Ports 1-3-5	Ports 2-4	Min pilot pressure (bar)	Working pressure (bar)	Flow rate (Nl/min)
E521-36	29	33,4	Ø 3	M5	M5	2,5	2,5 ÷ 7	200
E521-C36	29	39,1	Ø 4	M5	M5	2,5	2,5 ÷ 7	200

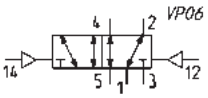
Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Pneumatically actuated valve, bistable - size 10,5

5/2-way





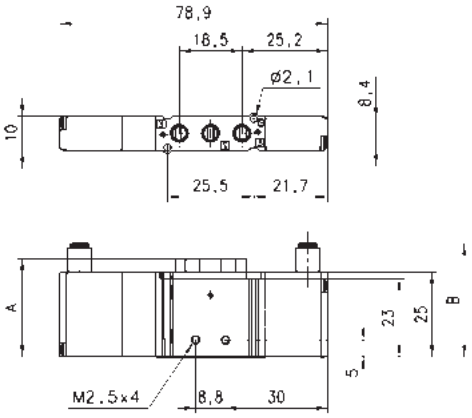


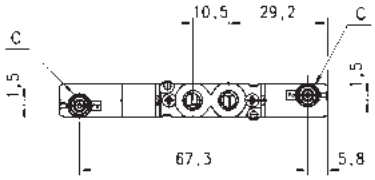
Mod.	A	B	C	Ports 1-3-5	Ports 2-4	Min pilot pressure (bar)	Working pressure (bar)	Flow rate (Nl/min)
E521-33	29	33,4	Ø 3	M5	M5	1	-09 ÷ 7	200
E521-C33	29	39,1	Ø 4	M5	M5	1	-09 ÷ 7	200

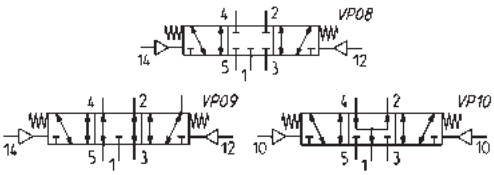
Pneumatically actuated valve - size 10,5

5/3-way
CC = Centres closed
CO = Centres open
CP = Pressure centres









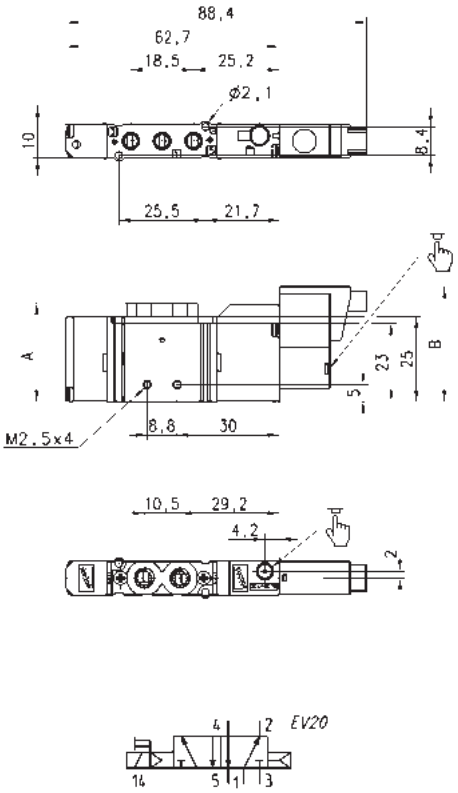
Mod.	A	B	C	Ports 1-3-5	Ports 2-4	Min pilot pressure (bar)	Working pressure (bar)	Flow rate NL/min	Symbol
E621-33	29	33.4	Ø 3	M5	M5	2	-0.9 ÷ 7	200	VP08
E621-C33	29	39.1	Ø 4	M5	M5	2	-0.9 ÷ 7	200	VP08
E721-33	29	33.4	Ø 3	M5	M5	2	-0.9 ÷ 7	200	VP09
E721-C33	29	39.1	Ø 4	M5	M5	2	-0.9 ÷ 7	200	VP09
E821-33	29	33.4	Ø 3	M5	M5	2	-0.9 ÷ 7	200	VP10
E821-C33	29	39.1	Ø 4	M5	M5	2	-0.9 ÷ 7	200	VP10

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Electropneumatically actuated valve, monostable - size 10,5

5/2-way





For solenoid valves with solenoid type K, use connector 121-8...

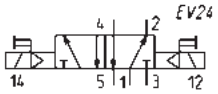
DIMENSIONS					
Mod.	A	Ports 1-3-5	Ports 2-4	working P. (bar)	Flow rate (Nl/min)
E521-16-10-K10	29	M5	M5	2,5 ÷ 7	200

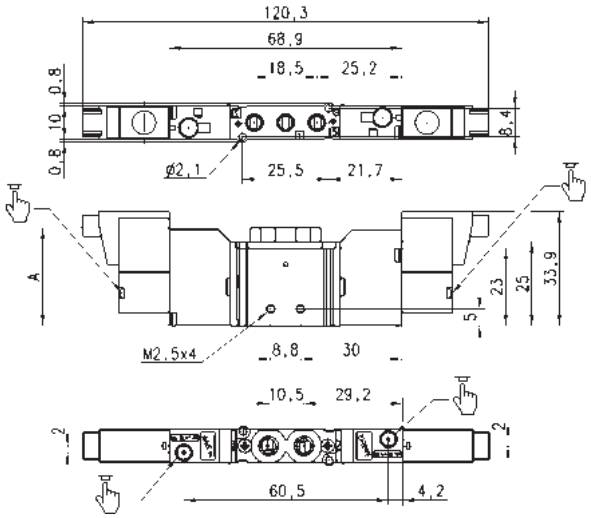
Electropneumatically actuated valve, bistable - size 10,5

5/2-way



Use connector Mod. 121-8... (see page 2/1.05.05).





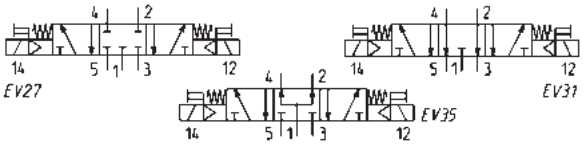
Mod.	A			working P. (bar)	Flow rate (Nl/min)
E521-11-10-K10	29	M5	M5	1 ÷ 7	200

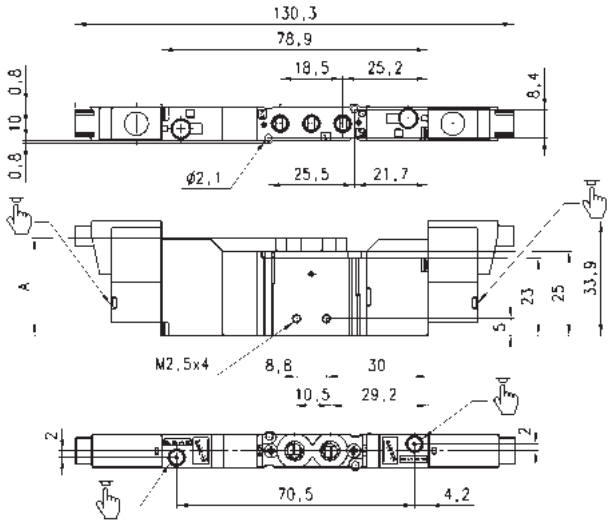
Electropneumatically actuated valve - size 10,5

5/3-way
CC = Centres Closed
CO = Centres Open
CP = Centres in Pressure



Use connector Mod. 121-8... (see page 2/1.05.05).





Mod.	A	Ports 1-3-5	Ports 2-4	working P. (bar)	Flow rate (Nl/min)	Symbol
E621-11-10-K10	29	M5	M5	2 ÷ 7	200	EV27
E721-11-10-K10	29	M5	M5	2 ÷ 7	200	EV31
E821-11-10-k10	29	M5	M5	2 ÷ 7	200	EV35

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CODING EXAMPLE

E	5	2	0	-	11	-	10	-	K	1	3

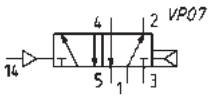
E	SERIES:
5	FUNCTION: 5 = 5/2 6 = 5/3 Centres Closed 7 = 5/3 Centres Open 8 = 5/3 Centres in Pressure
2	SIZE: 2 = 10,5 mm
0	BODY TYPE: 0 = body for sub-base
11	ACTUATION: 11 = electropneumatic bistable 16 = electropneumatic monostable 33 = pneumatic bistable - tube Ø 3 36 = pneumatic monostable - tube Ø 3 C33 = pneumatic bistable - tube Ø 4 C36 = pneumatic monostable - tube Ø 4
10	INTERFACE: 10
K	TYPE OF SOLENOID: K
1	SOLENOID DIMENSIONS: 1 = 10x10
3	SOLENOID VOLTAGE: 1 = 6V DC 2 = 12V DC 3 = 24V DC

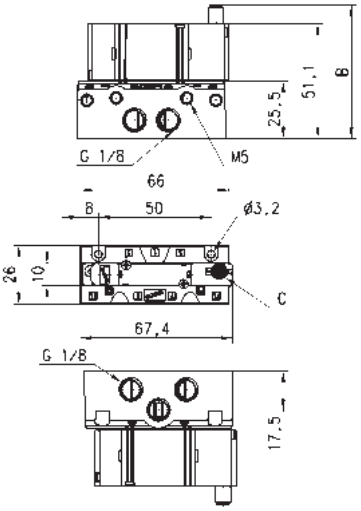
Pneumatically actuated valve, monostable - size 10,5

5/2-way



The single base is ordered separately from the valve. The pilot pressure should never be lower than the operating pressure.





DIMENSIONS

Mod.	B	C	min. pil P. (bar)	working P. bar	Flow rate (Nl/min)
E520-36	59,5	Ø3	2,5	2,5 ÷ 7	280
E520-C36	65,2	Ø4	2,5	2,5 ÷ 7	280

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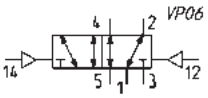
2 CONTROL

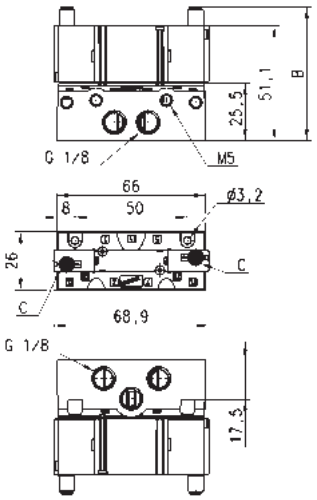
Pneumatically actuated valve, bistable - size 10,5

5/2-way



The single base is ordered separately from the valve.





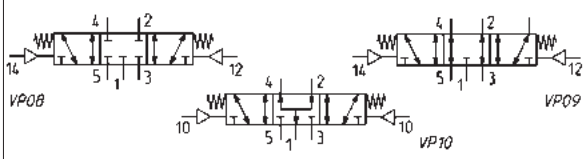
DIMENSIONS					
Mod.	B	C	min. pil P. (bar)	working P. (bar)	Flow rate (Nl/min)
E520-33	59,5	Ø3	1	-0,9 ÷ 7	280
E520-C33	65,2	Ø4	1	-0,9 ÷ 7	280

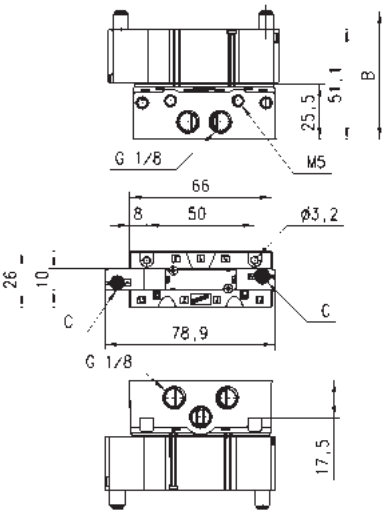
Pneumatically actuated valve - size 10,5

5/3-way
CC = Centres Closed
CO = Centres Open
CP = Centres in Pressure



The single base is ordered separately from the valve.





DIMENSIONS						
Mod.	B	C	min. pil P. (bar)	working P. (bar)	Flow rate (Nl/min)	Symbol
E620-33	59,5	Ø3	2	-0,9 ÷ 7	280	VP08
E620-C33	65,5	Ø4	2	-0,9 ÷ 7	280	VP08
E720-33	59,5	Ø3	2	-0,9 ÷ 7	280	VP09
E720-C33	65,5	Ø4	2	-0,9 ÷ 7	280	VP09
E820-33	59,5	Ø3	2	-0;9 ÷ 7	280	VP10
E820-C33	65,5	Ø4	2	-0,9 ÷ 7	280	VP10

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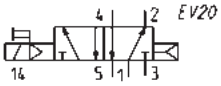
Electropneumatically actuated valve, monostable - size 10,5

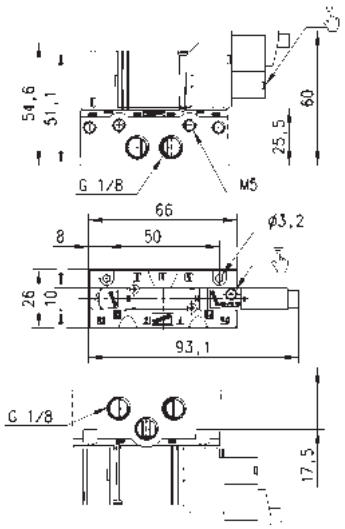
5/2-way



In case of separate pilot supply, the pilot pressure should never be lower than the operating pressure.

The single base is ordered separately from the valve.





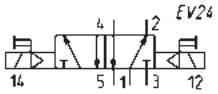
DIMENSIONS		
Mod.	working P. (bar)	Flow rate (Nl/min)
E520-16-10-K10	2 ÷ 7	280

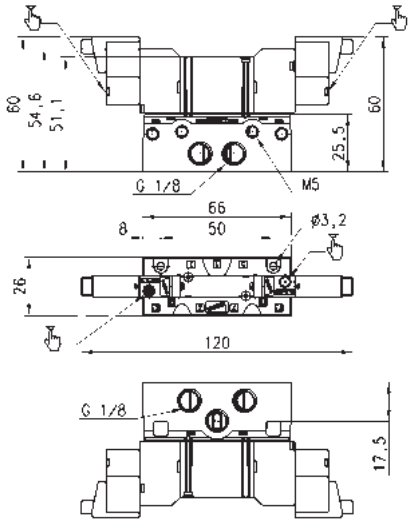
Electropneumatically actuated valve, bistable - size 10,5

5/2-way



The single base is ordered separately from the valve.





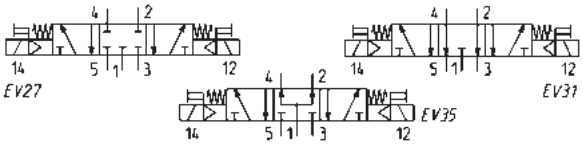
Mod.	working P. bar	Flow rate Nl/min
E520-11-10-K10	2 ÷ 7	280

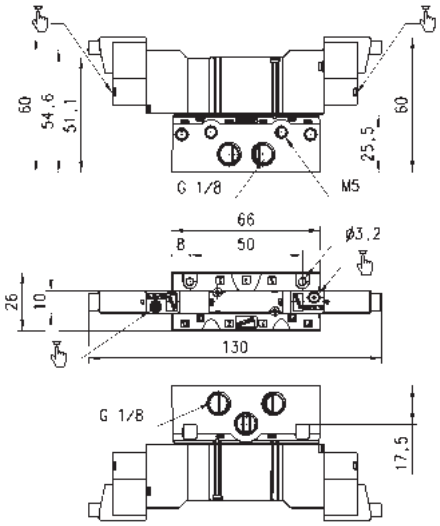
Electropneumatically actuated valve - size 10,5

5/3-way
CC = Centres Closed
CO = Centres Open
CP = Centres in Pressure



The single base is ordered separately from the valve





Mod.	working P. bar	Flow rate Nl/min	Symbol
E620-11-10-K10	2 ÷ 7	280	EV27
E720-11-10-K10	2 ÷ 7	280	EV31
E820-11-10-K10	2 ÷ 7	280	EV35

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Torque for securing screws on manifolds and single sub-base

Mod.	Size (mm)	Torque (Nm)
E52...	10,5	0,3 ÷ 0,35

CODING EXAMPLE

E5	2	1	-	1	0	02

E5	SERIES
2	SIZE: 2 = size 10,5
1	BODY TYPE: 0 = body for sub-base assembly 1 = body with threads or tube port
1	TYPE OF SUB-BASE: 0 = single sub-base with side outlets 1 = manifold for threaded valve 2 = manifold for body mounted valve
0	PORTS: 0 = for valves with outlets on the body 1 = threaded C = tube 4
02	N° OF POSITIONS: 01 = single 03, 04, 06, 08, 10, 12 = multiple

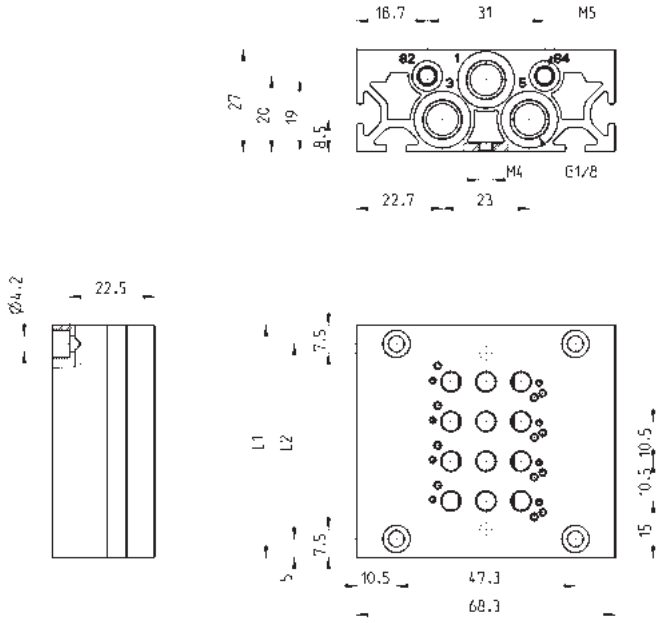
NOTE: When constructing manifolds with 10 or more stations, it is recommended, in order to reduce the risk of pressure drop within the assembly, that pressure is supplied to port 1 at each end of the block. The exhaust ports 3 and 5 at each end should also be utilized (size 10,5 and 16 mm). The same provision should be made for 5 station manifolds of the 19 mm valves.
Manifolds complete with ports for external pilot supply are available on request.

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General terms and conditions for sale are available on www.camozzi.com.

Manifolds for valves with outlets on the body Size 10,5



The manifolds have been manufactured with common inlet and exhausts 3 and 5. There are also common exhausts for pilots 82 and 84.



Note: the manifolds are supplied complete with the seals and the valves, fixing screws.

DIMENSIONS

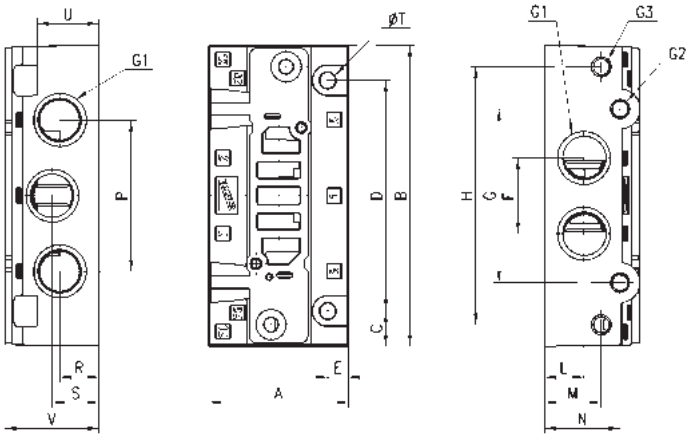
Mod.	Size	Nr positions	02	03	04	05	06	07	08	09	10	11	12
E521-10..	10.5	L1	40.5	51	61.5	72	82.5	93	103.5	114	124.5	135	145.5
E521-10..	10.5	L2	30.5	41	51.5	62	72.5	83	93.5	104	114.5	125	135.5

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General terms and conditions for sale are available on www.camozzi.com.

Single sub-base for base mounted valves - size 10,5



Note: The valve and its single sub-base are available on request.



DIMENSIONS

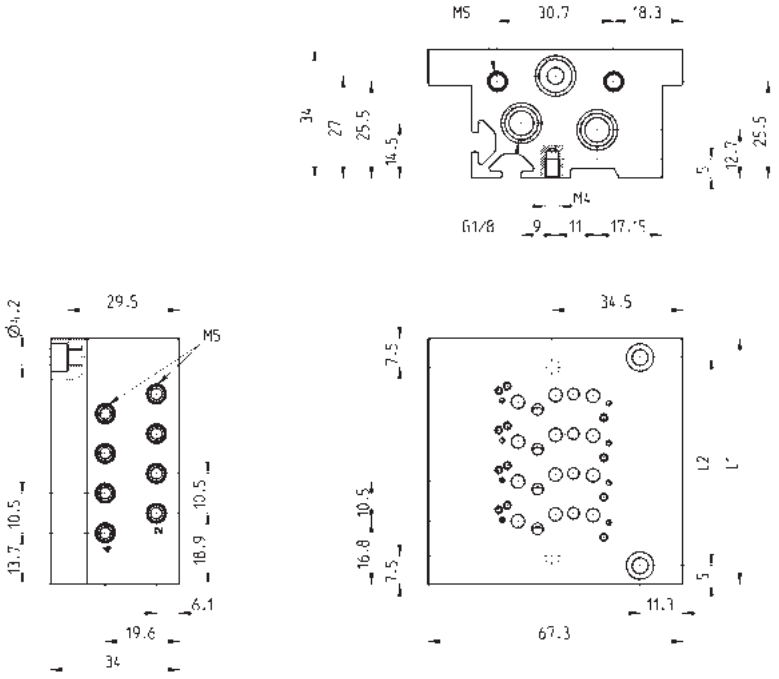
Mod.	Size	G1	G2	G3	A	B	C	D	E	F	G	H	L	M	N	P	R	S	T	U	V
E520-0101	10,5	G1/8	M5	M5	26	66	8	50	4	15	37,3	57,3	8,2	17	18	24,5	8,2	17,2	32	17,5	25,5

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Manifolds for base mounted valves size 10,5



The manifolds have been manufactured with common inlet 1 and exhaust 3 and 5. There are also common exhausts for pilots 82 and 84.



DIMENSIONS

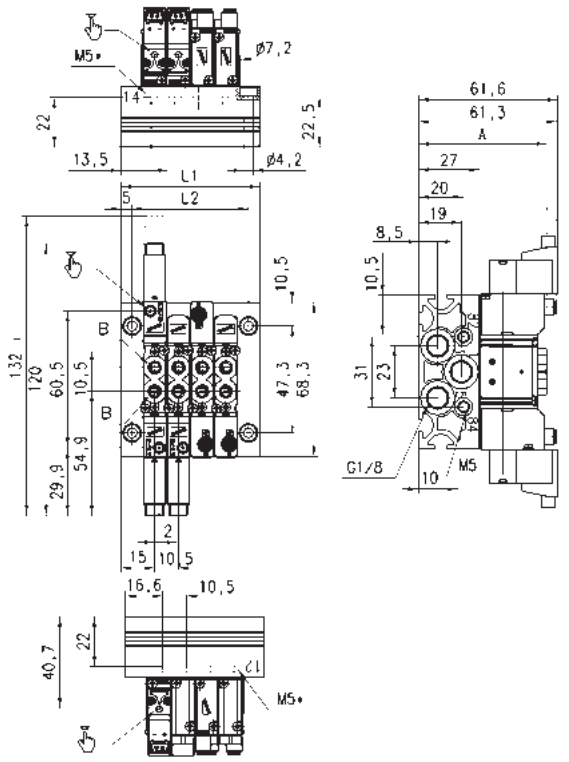
Mod.	Size	Nr positions	02	03	04	05	06	07	08	09	10	11	12
E520-21..	10.5	L1	44	54.5	65	75.5	86	96.5	107	117.5	128	138.5	149
E520-21..	10.5	L2	34	44.5	55	65.5	76	86.5	97	107.5	118	128.5	139
E520-2C..	10.5	L1	44	54.5	65	75.5	86	96.5	107	117.5	128	138.5	149
E520-2C..	10.5	L2	34	44.5	55	65.5	76	86.5	97	107.5	118	128.5	139

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Manifolds with valves with outlets on the body - size 10.5

5/2 and 5/3, ports M5





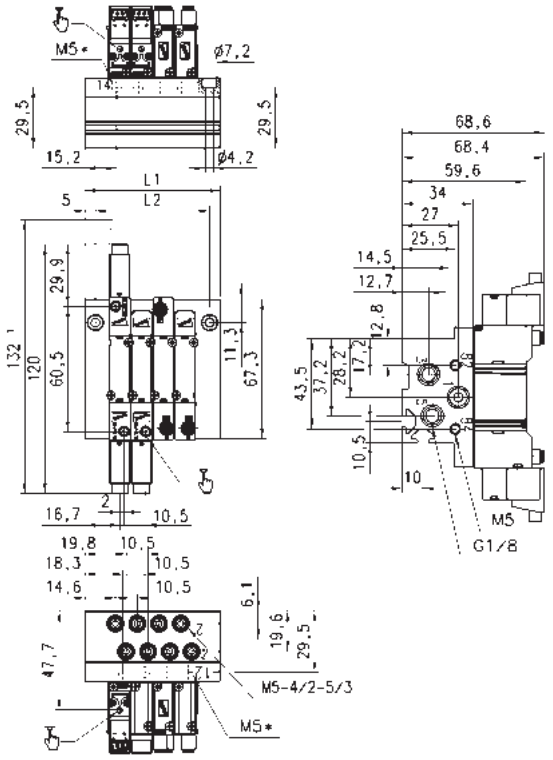
DIMENSIONS					
Mod.	A	B	L1 - L2 N° 1 Position	L1 - L2 N° 2 Positions	Fixed quote for position
E521	56,6	M5	40,5 - 30,5	51 - 41	10,5
E52C	65,1	4/2	40,5 - 30,5	51 - 41	10,5

① Size referred to 5/3 valve M5*
Separate pilot supply on request.

Manifolds with valves for subbase - size 10.5

5/2 and 5/3





DIMENSIONS											
N° Positions	2	3	4	5	6	7	8	9	10	11	12
L1	44	54,5	65	75,5	86	96,5	107	117,5	128	138,5	149
L2	34	44,5	55	65,5	76	86,5	97	107,5	118	128,5	139

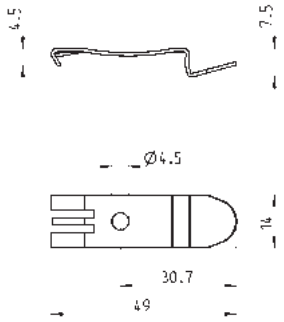
① Size referred to 5/3 valve M5* Separate pilot supply on request.

Mounting brackets for DIN rail



DIN EN 50022 (7,5mm x 35mm - width 1)
Suitable for all manifolds.

Supplied with:
2x plates
2x screws M4x6 UNI 5931

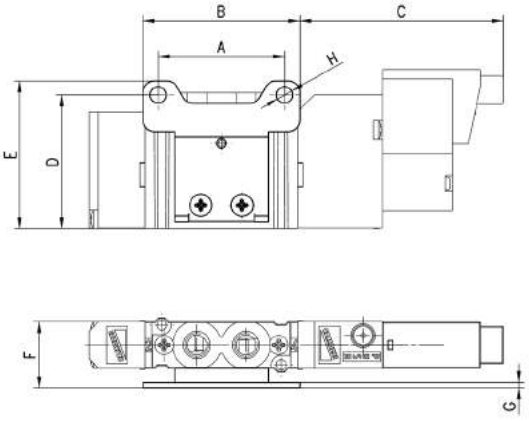


Mod.
PCF-E520

Horizontal mounting foot bracket for valves with outlets on the body



The following is supplied:
1x foot bracket
2x screws.



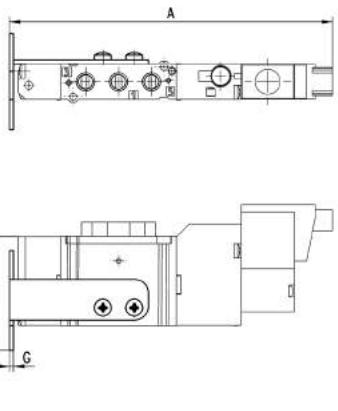
DIMENSIONS

Mod.	Size	A	B	C	D	E	F	G	H
B1-E521	10,5	27	33,5	43,4	28,5	31,5	14,2	1,2	3,5

Vertical mounting foot bracket for valves with outlets on the body



The following is supplied:
1x foot bracket
2x screws
Monostable valves only.



DIMENSIONS

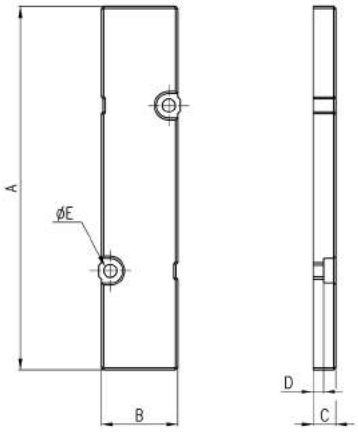
Mod.	Size	A	B	C	D	E	F	G	H
B2-E521	10,5	90,8	21	28	31,9	21	27	1,2	3.5

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Blanking plate for manifolds - valves with outlets on the body



The following is supplied:
1x blanking plate
2x screws
1x seal.



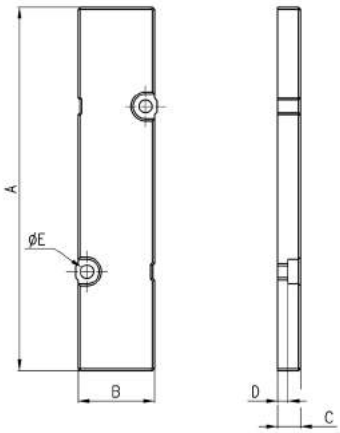
DIMENSIONS

Mod.	Size	A	B	C	D	øE
TP-E521	10,5	66	10	6	3,5	2,1

Blanking plate for manifolds - base mounted valves



The following is supplied:
1x blanking plate
2x screws
1x seal.



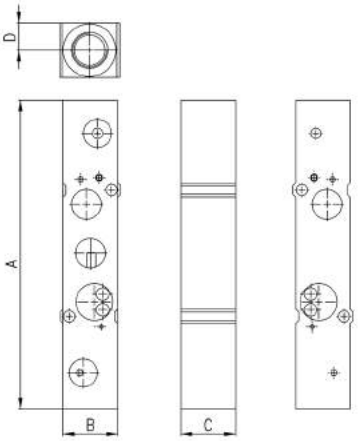
DIMENSIONS

Mod.	Size	A	B	C	D	øE
TP-E520	10,5	66	10	6	3,5	2,1

Intermediate plate for valves to provide a separate supply in 1



Base mounted valves.
The following is supplied:
1x plate
2x screws
1x interface seal
2x O-Ring.



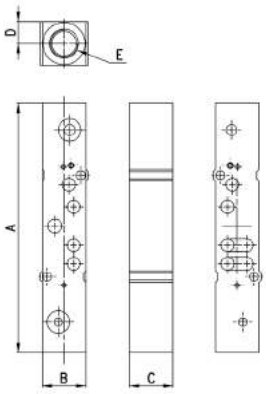
DIMENSIONS

Mod.	Size	A	B	C	D	E
PCP-E521	10,5	72,5	10	10	5	M5

Intermediate plate for valves to provide a separate supply in 1



Base mounted valves.
The following is supplied:
1x plate
2x screws
1x interface seal
2x OR.

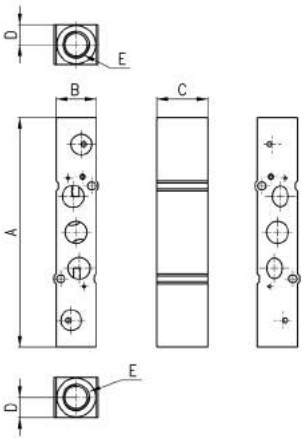


DIMENSIONS						
Mod.	Size	A	B	C	D	E
PCP-E520	10,5	72,5	10	10	5	M5

Intermediate plate for valves to provide separate supply in 3 and 5



Kits for valves with outlets on the body
Mod. E2*1-**.
The following is supplied:
1x plate
2x screws
1x interface seal
2x OR.

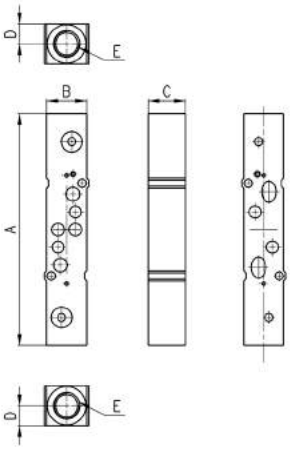


DIMENSIONS						
Mod.	Size	A	B	C	D	E
PCS-E521	10,5	76	10	10	5	M5

Intermediate plate for valves to provide separate supply in 3 and 5



Kits for valves mounted on sub-base
Mod. E2*0-**.
The following is supplied:
1x plate
2x screws
1x interface seal
2x OR.

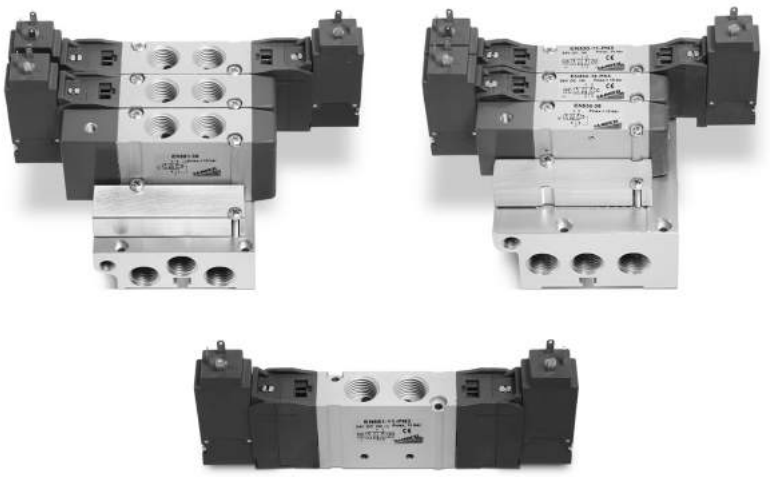


DIMENSIONS						
Mod.	Size	A	B	C	D	E
PCS-E520	10,5	76	10	10	5	M5

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Series EN
valves and solenoid valves

5/2-way - 5/3-way CC, CO, CP
With outlets on the body - For individual or manifold assembly
Size 16 - 19 mm



- Mounting on any flat surface
- Reduced dimensions
- Aluminium body and end-covers in technopolymer
- Space saving

Camozzi has developed a new series of valves to be used in applications requiring a reduced space of installation and in situations where the valves need to be located as near as possible to the operating elements. The single valves can be mounted on any flat surface, allowing compact machine design, which is also enhanced by the reduced dimensions of the valve itself.
Thanks to their robust aluminium bodies, the valves Series EN offer the highest reliability.

This new generation of solenoid valves is the evolution of the previous Series E, size 16 - 19 mm valve with ports threaded into the body. As this valve is completely interchangeable with Series E, part of the code is maintained though the valve has a completely new shape and new components.

GENERAL DATA

Construction	spool-type
Valve functions	5/2 - 5/3 CC - 5/3 CO - 5/3 CP
Materials	body, spool, bases = AL end-covers = tecnnopolymer joints = NBR PU
Ports	G1/8 - G1/4
Temperature	0°C min. + 50° C max
Fluid	filtered air without lubricant. If lubricated air is used, it is recommended to use ISOVG32 oil and to never interrupt lubrication.
Voltage	see coding
Voltage tolerance	± 10%
Power consumption	2W, 1W
Class of insulation	class F
Protection class	IP65 with connector DIN 40050

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CODING EXAMPLE

EN	5	3	1	-	11	-	PN3

EN	SERIES
5	FUNCTION: 5 = 5/2 6 = 5/3 Centre Closed 7 = 5/3 Centre Open 8 = 5/3 Pressure Centre
3	SIZE: 3 = size 16 5 = size 19
1	BODY TYPE: 1 = body with threaded plate
11	ACTUATION: 11 = electro-pneumatic, bistable 16 = electro-pneumatic, monostable 33 = pneumatic bistable 36 = pneumatic monostable E11 = electro-pneumatic, bistable with external servo-pilot supply E16 = electro-pneumatic, monostable with external servo-pilot supply
PN3	TYPE OF SOLENOID: PN3 = 24V DC - 1W PN4 = 48V DC - 2W PN6 = 110V DC - 2W PN7 = 230V - 2W P13 = 24V DC - 1W P54 = 48V DC - 2W P56 = 110V DC - 2W W53 = 24V DC - 2W W54 = 48V DC - 2W In case of applications with alternate current, use a bridge rectifier connector (see pag. 2/2.07.39)

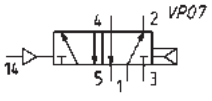
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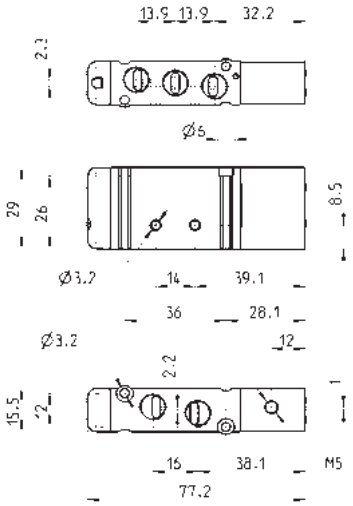
Pneumatically actuated valve, monostable - size 16

5/2-way

Note: the pilot pressure should never be lower than the operating pressure.





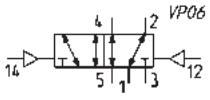


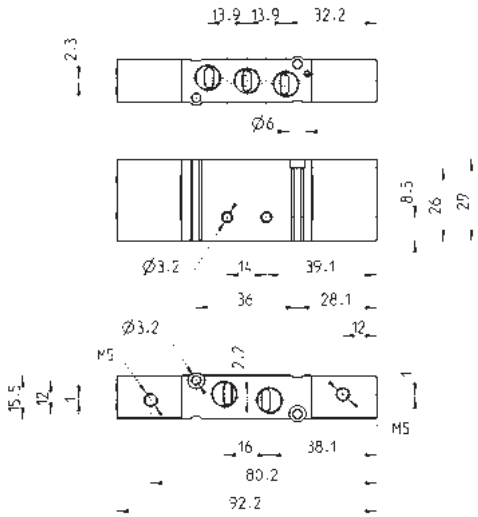
Mod.	Ports	Pilot supply	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)
EN531-36	G1/8	M5	2,5 ÷ 10	-0.9 ÷ 10	550

Pneumatically actuated valve, bistable - size 16

5/2-way





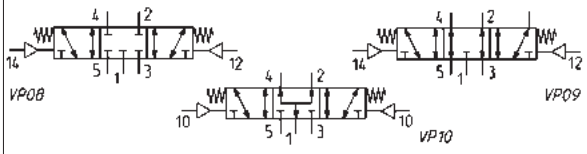


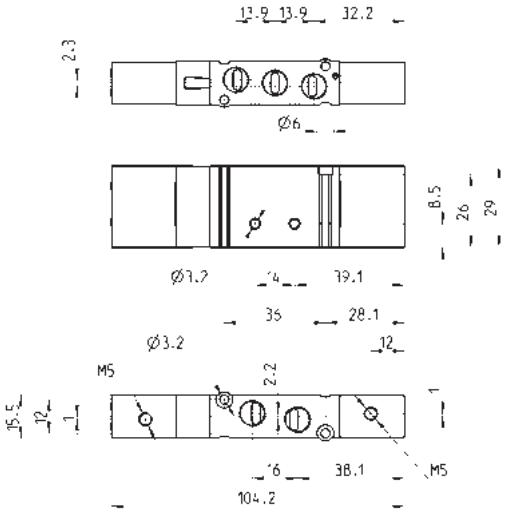
Mod.	Ports	Pilot supply	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)
EN531-33	G1/8	M5	2 ÷ 10	-0.9 ÷ 10	550

Pneumatically actuated valve - size 16

5/3-way
CC = Centres closed
CO = Centres open
CP = Pressure Centres







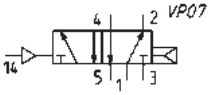
Mod.	Ports	Pilot supply	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)	Symbol
EN631-33	G1/8	M5	3 ÷ 10	-0.9 ÷ 10	550	VP08
EN731-33	G1/8	M5	3 ÷ 10	-0.9 ÷ 10	550	VP09
EN831-33	G1/8	M5	3 ÷ 10	-0,9 ÷ 10	550	VP10

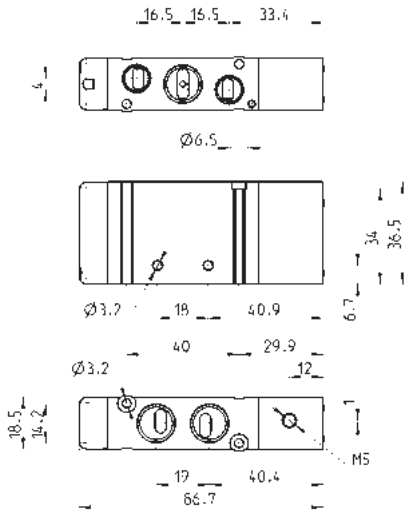
Pneumatically actuated valve, monostable - size 19

5/2-way

Note: the pilot pressure should never be lower than the operating pressure.







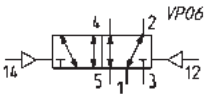
Mod.	Ports 1-2-4	Ports 3-5	Pilot supply	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)
EN551-36	G1/4	G1/8	M5	2.5 ÷ 10	-0.9 ÷ 10	920

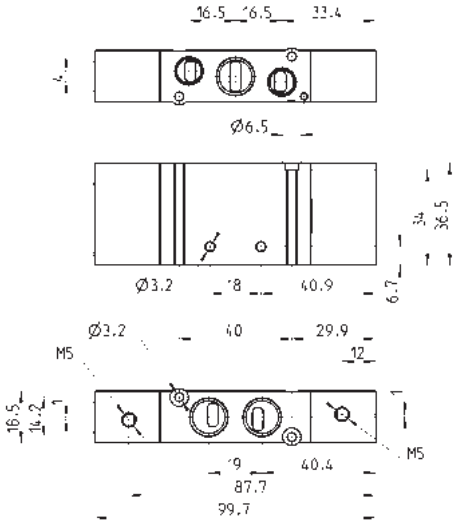
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Pneumatically actuated valve, bistable - size 19

5/2-way





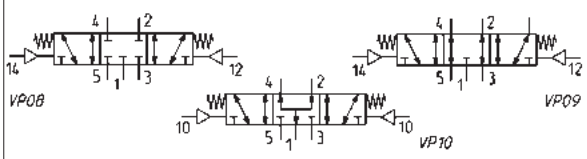


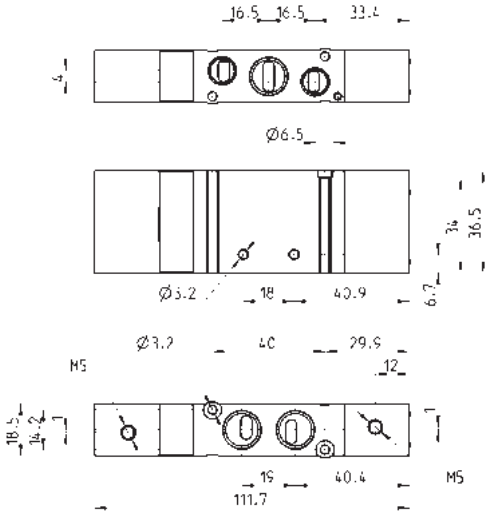
Mod.	Ports 1-2-4	Ports 3-5	Pilot supply	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)
EN551-33	G1/4	G1/8	M5	2 ÷ 10	-0,9 ÷ 10	920

Pneumatically actuated valve - size 19

5/3-way
CC = Centres closed
CO = Centres open
CP = Pressure Centres







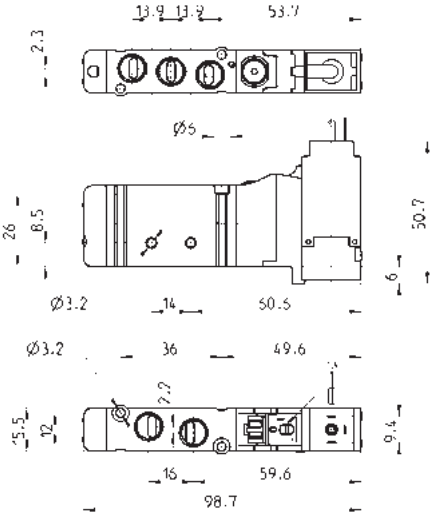
Mod.	Ports 1-2-4	Ports 3-5	Pilot supply	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)	Symbol
EN651-33	G1/4	G1/8	M5	3 ÷ 10	-0,9 ÷ 10	920	VP08
EN751-33	G1/4	G1/8	M5	3 ÷ 10	-0,9 ÷ 10	920	VP09
EN851-33	G1/4	G1/8	M5	3 ÷ 10	-0,9 ÷ 10	920	VP10

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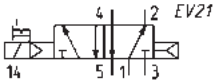
Electro-pneumatically actuated valve, monostable - size 16

5/2-way





Connectors: see pages 2/2.07.39-40

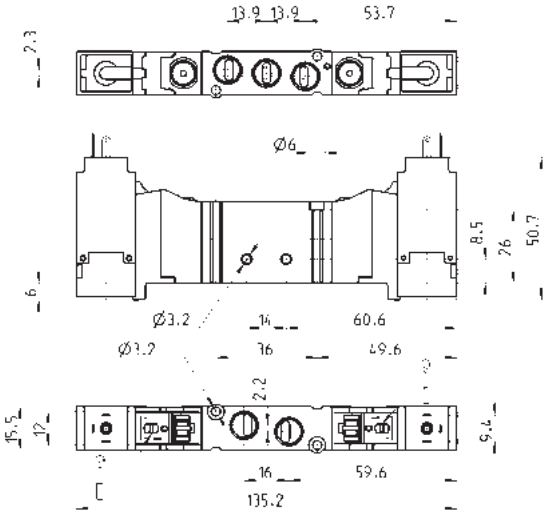


Mod.	Ports	Operating pressure (bar)	Flow (Nl/min)
EN531-16-PN..	G1/8	2,5 ÷ 10	550

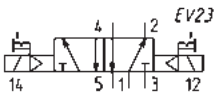
Electro-pneumatically actuated valve, bistable - size 16

5/2-way





Connectors: see pages 2/2.07.39-40.



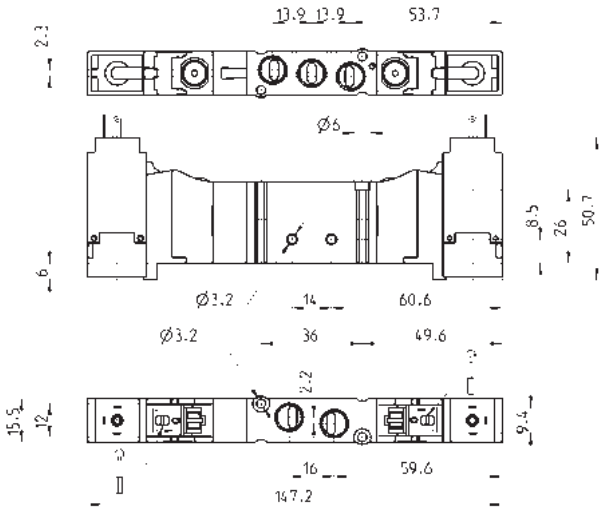
Mod.	Ports	Operating pressure (bar)	Flow (Nl/min)
EN531-11-PN..	G1/8	2 ÷ 10	550

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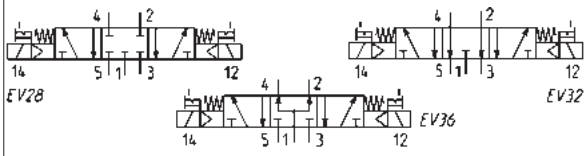
Electro-pneumatically actuated valve - size 16

5/3-way
CC = Centres Closed
CO = Centres Open
CP = Pressure Centres





Connectors: see pages 2/2.07.39-40.

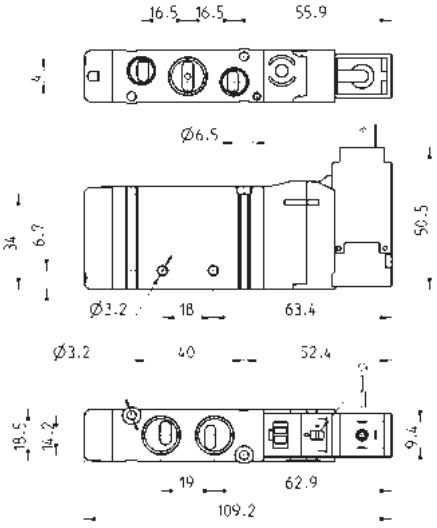


Mod.	Ports	Operating pressure (bar)	Flow (Nl/min)	Symbol
EN631-11-PN..	G1/8	3 ÷ 10	550	EV28
EN731-11-PN..	G1/8	3 ÷ 10	550	EV32
EN831-11-PN..	G1/8	3 ÷ 10	550	EV36

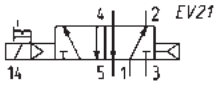
Electro-pneumatically actuated valve, monostable - size 19

5/2-way





Connectors: see pages 2/2.07.39-40.

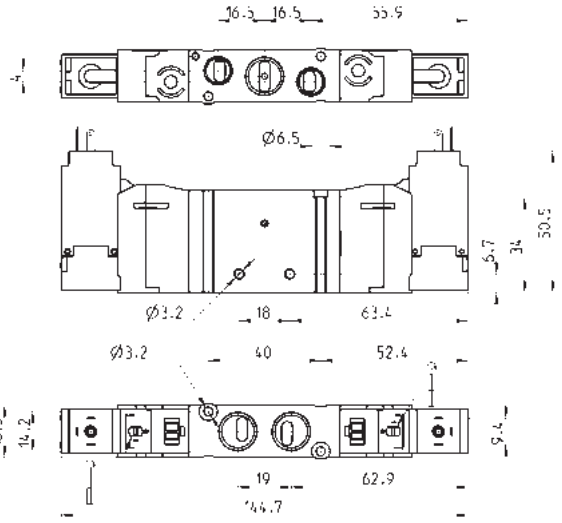


Mod.	Ports 1-2-4	Ports 3-5	Operating pressure (bar)	Flow (Nl/min)
EN551-16-PN..	G1/4	G1/8	2,5 ÷ 10	920

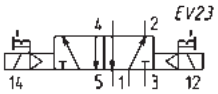
Electro-pneumatically actuated valve, bistable - size 19

5/2-way





Connectors: see pages 2/2.07.39-40.

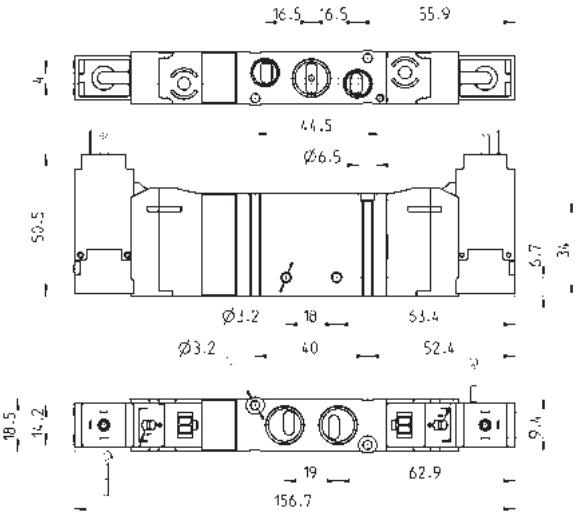


Mod.	Ports 1-2-4	Ports 3-5	Operating pressure (bar)	Flow (Nl/min)
EN551-11-PN..	G1/4	G1/8	2 ÷ 10	920

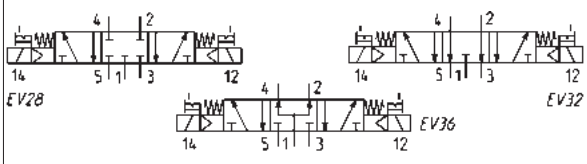
Electro-pneumatically actuated valve - size 19

5/3-way
CC = Centres Closed
CO = Centres Open
CP = Pressure Centres





Connectors: see pages 2/2.07.39-40.



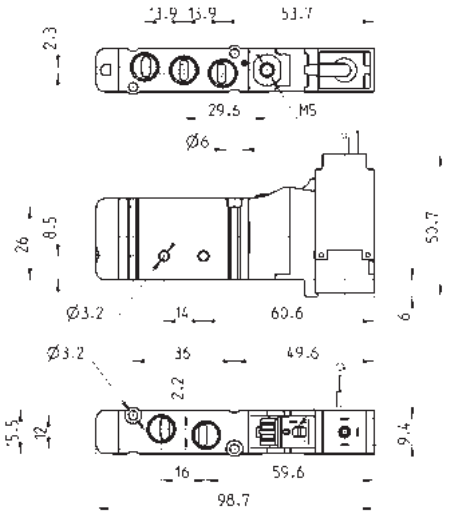
Mod.	Ports 1-2-4	Ports 3-5	Operating pressure (bar)	Flow (Nl/min)	Symbol
EN651-11-PN..	G1/4	G1/8	3 ÷ 10	920	EV28
EN751-11-PN..	G1/4	G1/8	3 ÷ 10	920	EV32
EN851-11-PN..	G1/4	G1/8	3 ÷ 10	920	EV36

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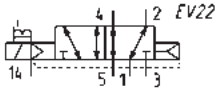
Electro-pneum. valve, monostable - ext. servo-pilot supply - size 16

5/2-way





Connectors: see pages 2/2.07.39-40.

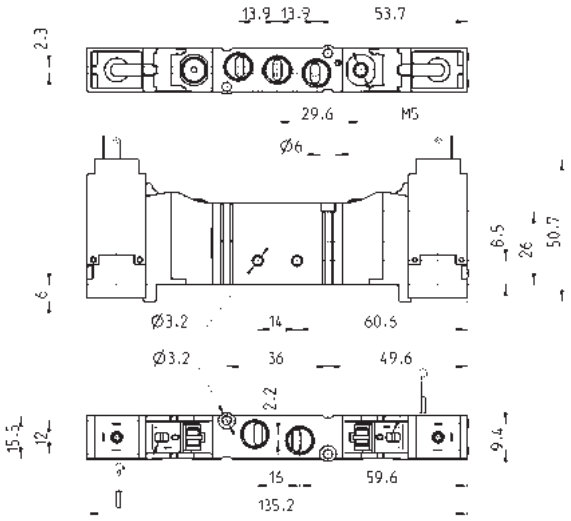


Mod.	Ports	Pilot supply	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)
EN531-E16-PN..	G1/8	M5	2,5 ÷ 10	- 0,9 ÷ 10	550

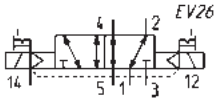
Electro-pneum. valve, bistable - ext. servo-pilot supply - size 16

5/2-way





Connectors: see pages 2/2.07.39-40.

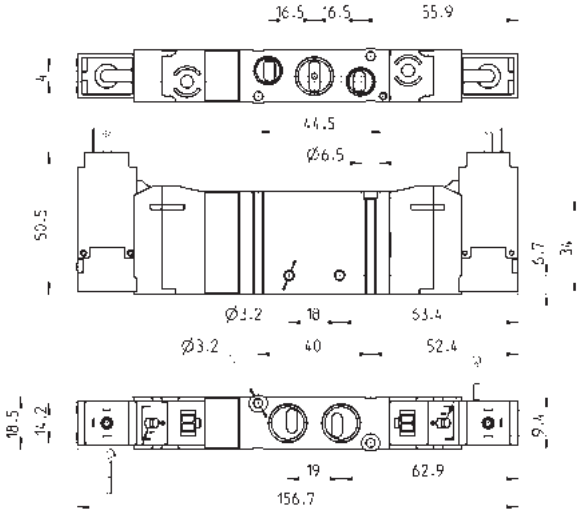


Mod.	Ports	Pilot supply	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)
EN531-E11-PN..	G1/8	M5	2 ÷ 10	-0,9 ÷ 10	550

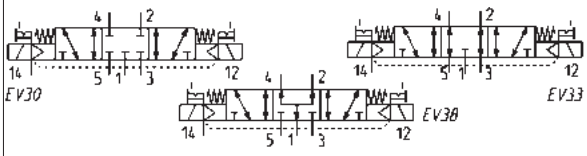
Electro-pneum. valve - ext. servo-pilot supply - size 16

5/3-way
CC = Centres Closed
CO = Centres Open
CP = Pressure Centres





Connectors: see pages 2/2.07.39-40.

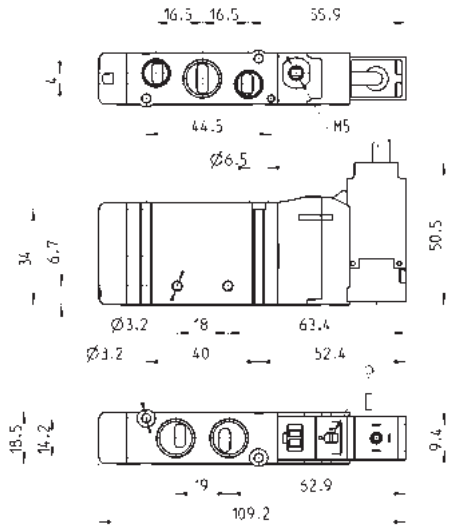


Mod.	Ports	Pilot supply	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)	Symbol
EN631-E11-PN..	G1/8	M5	3 ÷ 10	-0,9 ÷ 10	550	EV30
EN731-E11-PN..	G1/8	M5	3 ÷ 10	-0,9 ÷ 10	550	EV33
EN831-E11-PN..	G1/8	M5	3 ÷ 10	-0,9 ÷ 10	550	EV38

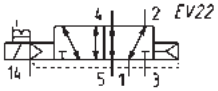
Electro-pneum. valve, monostable - ext. servo-pilot supply - size 19

5/2-way





Connectors see pages 2/2.07.39-40.



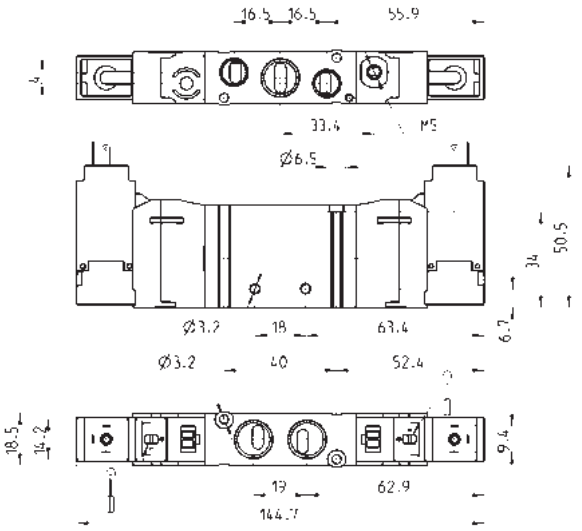
Mod.	Ports 1-2-4	Ports 3-5	Pilot supply	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)
EN551-E16-PN..	G1/4	G1/8	M5	2,5 ÷ 10	- 0,9 ÷ 10	920

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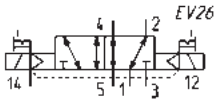
Electro-pneum. valve, bistable - ext. servo-pilot supply - size 19

5/2-way





Connectors: see pages 2/2.07.39-40.

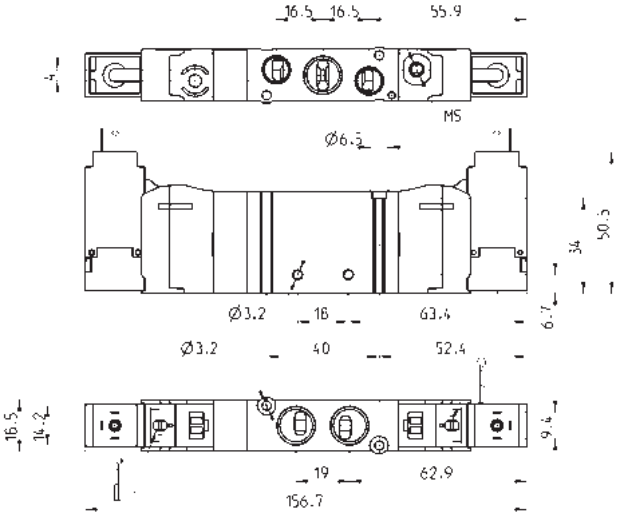


Mod.	Ports 1-2-4	Ports 3-5	Pilot supply	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)
EN551-E11-PN..	G1/4	G1/8	M5	2 ÷ 10	-0,9 ÷ 10	920

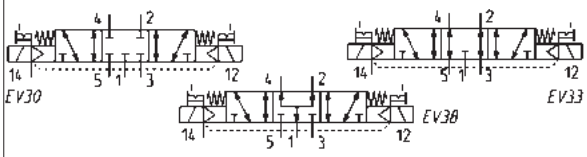
Electro-pneum. valve - ext. servo-pilot supply - size 19

5/3-way
CC = Centres Closed
CO = Centres Open
CP = Pressure Centres





Connectors: see pages 2/2.07.39-40.



Mod.	Ports 1-2-4	Ports 3-5	Pilot supply	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)	Symbol
EN651-E11-PN..	G1/4	G1/8	M5	3 ÷ 10	-0,9 ÷ 10	920	EV30
EN751-E11-PN..	G1/4	G1/8	M5	3 ÷ 10	-0,9 ÷ 10	920	EV33
EN851-E11-PN..	G1/4	G1/8	M5	3 ÷ 10	-0,9 ÷ 10	920	EV38

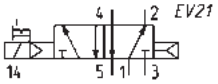
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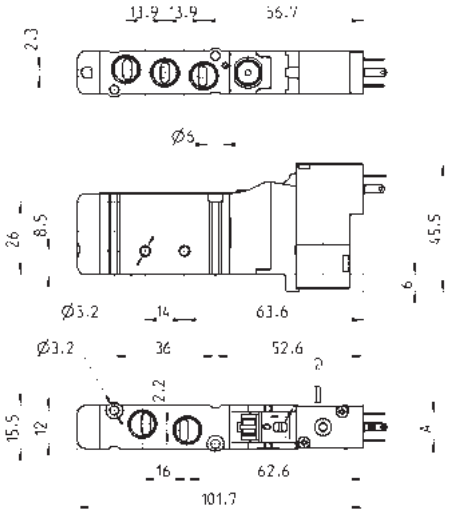
Electro-pneum. valve, monostable, solenoid P, W - size 16

5/2-way



Connectors: see pages 2/2.07.39-40.





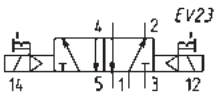
Mod.	Ports	A	Operating pressure (bar)	Flow (Nl/min)
EN531-16-P13	G1/8	9,4	2,5 ÷ 10	550
EN531-16-P54	G1/8	9,4	2,5 ÷ 10	550
EN531-16-P56	G1/8	9,4	2,5 ÷ 10	550
EN531-16-W53	G1/8	8	2,5 ÷ 10	550
EN531-16-W54	G1/8	8	2,5 ÷ 10	550

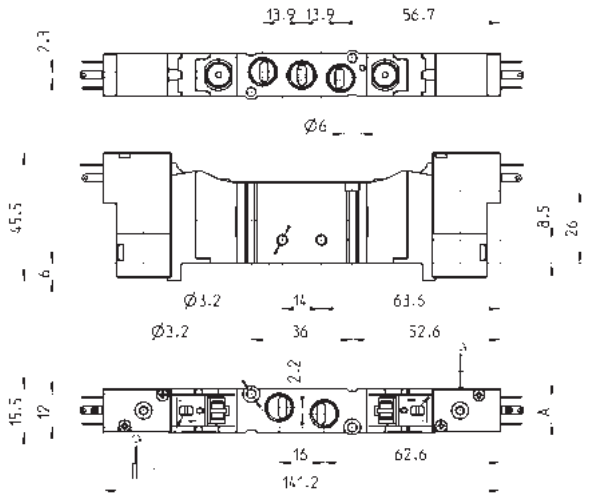
Electro-pneum. valve, bistable, solenoid P, W - size 16

5/2-way



Connectors: see pages 2/2.07.39-40.





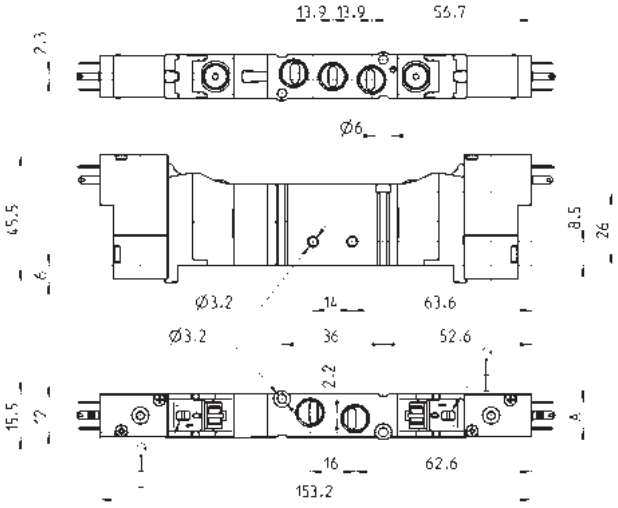
Mod.	Ports	A	Operating pressure (bar)	Flow (Nl/min)
EN531-11-P13	G1/8	9,4	2 ÷ 10	550
EN531-11-P54	G1/8	9,4	2 ÷ 10	550
EN531-11-P56	G1/8	9,4	2 ÷ 10	550
EN531-11-W53	G1/8	8	2 ÷ 10	550
EN531-11-W54	G1/8	8	2 ÷ 10	550

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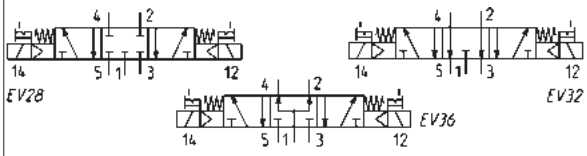
Electro-pneumatic valve, solenoid P, W - size 16

5/3-way
CC = Centres Closed
CO = Centres Open
CP = Pressure Centres





Connectors: see pages 2/2.07.39-40.

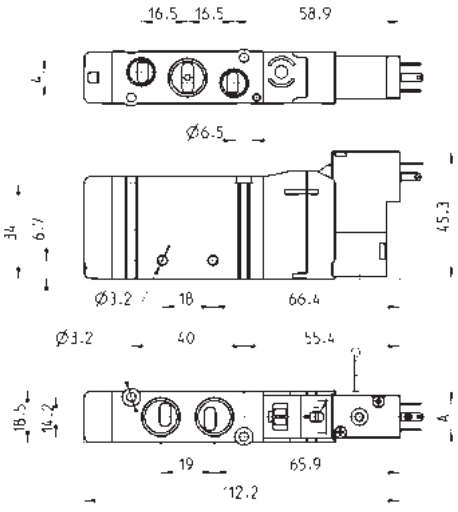


Mod.	Ports	A	Operating pressure (bar)	Flow (Nl/min)	Symbol
EN631-11-P..	G1/8	9,4	3 ÷ 10	550	EV28
EN731-11-P..	G1/8	9,4	3 ÷ 10	550	EV32
EN831-11-P..	G1/8	9,4	3 ÷ 10	550	EV36
EN631-11-W..	G1/8	8	3 ÷ 10	550	EV28
EN731-11-W..	G1/8	8	3 ÷ 10	550	EV32
EN831-11-W..	G1/8	8	3 ÷ 10	550	EV36

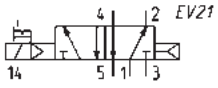
Electro-pneum. valve, monostable, solenoid P, W - size 19

5/2-way





Connectors: see pages 2/2.07.39-40.



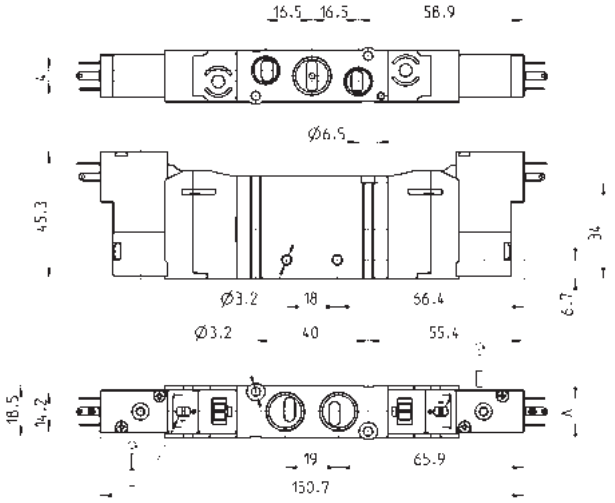
Mod.	Ports 1-2-4	Ports 3-5	A	Operating pressure (bar)	Flow (Nl/min)
EN551-16-P13	G1/4	G1/8	9,4	2,5 ÷ 10	920
EN551-16-P54	G1/4	G1/8	9,4	2,5 ÷ 10	920
EN551-16-P56	G1/4	G1/8	9,4	2,5 ÷ 10	920
EN551-16-W53	G1/4	G1/8	8	2,5 ÷ 10	920
EN551-16-W54	G1/4	G1/8	8	2,5 ÷ 10	920

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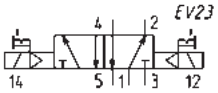
Electro-pneum. valve, bistable, solenoid P, W - size 19

5/2-way





Connectors: see pages 2/2.07.39-40.

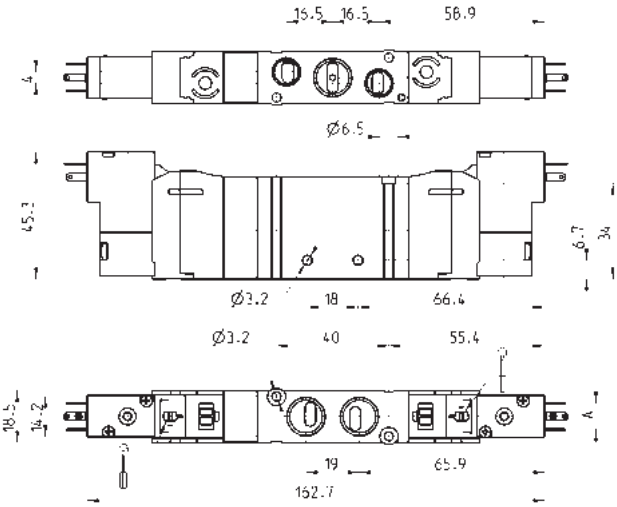


Mod.	Ports 1-2-4	Ports 3-5	A	Operating pressure (bar)	Flow (Nl/min)
EN551-11-P13	G1/4	G1/8	9,4	2 ÷ 10	920
EN551-11-P54	G1/4	G1/8	9,4	2 ÷ 10	920
EN551-11-P56	G1/4	G1/8	9,4	2 ÷ 10	920
EN551-11-W53	G1/4	G1/8	8	2 ÷ 10	920
EN551-11-W54	G1/4	G1/8	8	2 ÷ 10	920

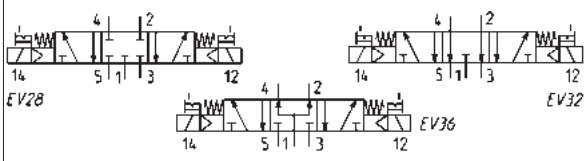
Electro-pneumatic valve, solenoid P, W - size 19

5/3-way
CC = Centres Closed
CO = Centres Open
CP = Pressure Centres





Connectors: see pages 2/2.07.39-40.



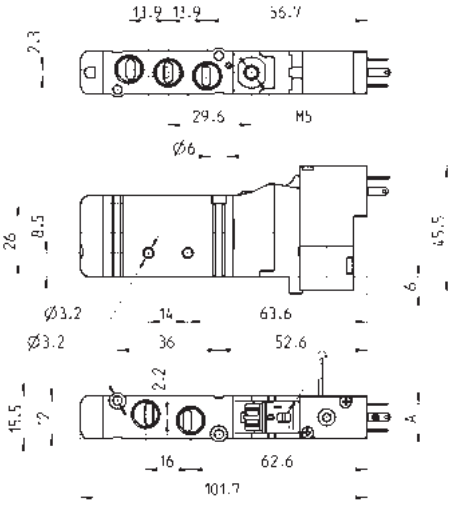
Mod.	Ports 1-2-4	Ports 3-5	A	Operating pressure (bar)	Flow (Nl/min)	Symbol
EN651-11-P..	G1/4	G1/8	9,4	3 ÷ 10	920	EV28
EN751-11-P..	G1/4	G1/8	9,4	3 ÷ 10	920	EV32
EN851-11-P..	G1/4	G1/8	9,4	3 ÷ 10	920	EV36
EN651-11-W..	G1/4	G1/8	8	3 ÷ 10	920	EV28
EN751-11-W..	G1/4	G1/8	8	3 ÷ 10	920	EV32
EN851-11-W..	G1/4	G1/8	8	3 ÷ 10	920	EV36

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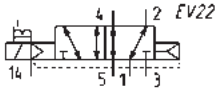
Electro-pneum. valve, monost. ext. servo-pilot sup., sol. P/W - size 16

5/2-way





Connectors: see pages 2/2.07.39-40.

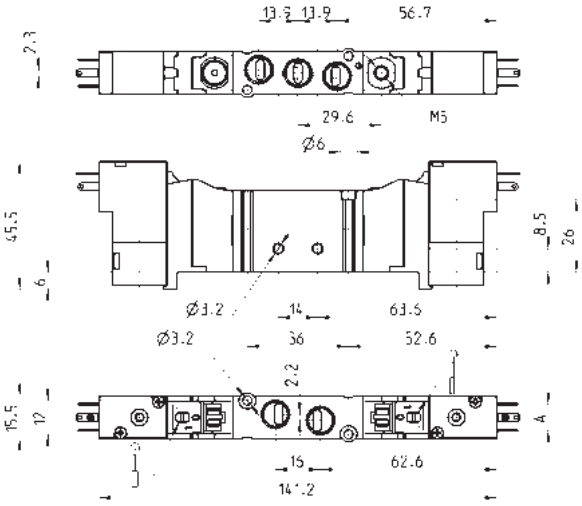


Mod.	Ports	A	Pilot supply	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)
EN531-E16-P..	G1/8	9,4	M5	2,5 ÷ 10	-0,9 ÷ 10	550
EN531-E16-W..	G1/8	8	M5	2,5 ÷ 10	-0,9 ÷ 10	550

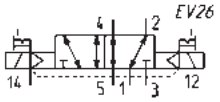
Electro-pneum. valve, bistable ext. servo-pilot sup., sol. P/W - size 16

5/2-way





Connectors: see pages 2/2.07.39-40.

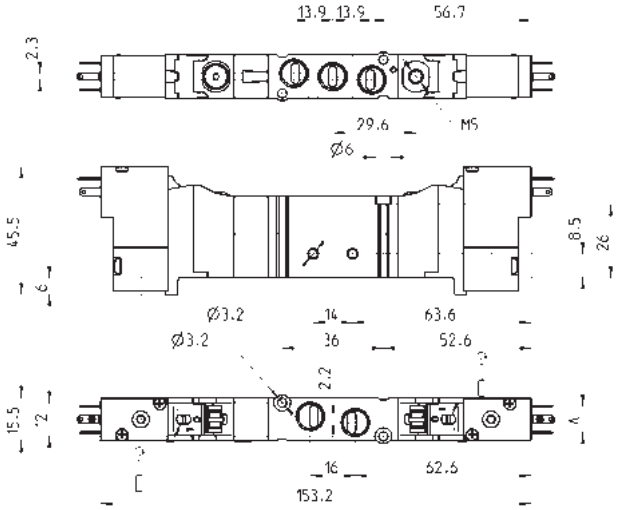


Mod.	Ports	A	Pilot supply	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)
EN531-E11-P..	G1/8	9,4	M5	2 ÷ 10	-0,9 ÷ 10	550
EN531-E11-W..	G1/8	8	M5	2 ÷ 10	-0,9 ÷ 10	550

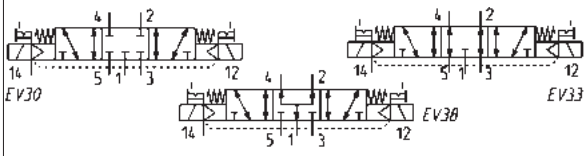
Electro-pneum. valve, ext. servo-pilot supply, solenoid P, W - size 16

5/3-way
CC = Centres Closed
CO = Centres Open
CP = Pressure Centres





Connectors: see pages 2/2.07.39-40.

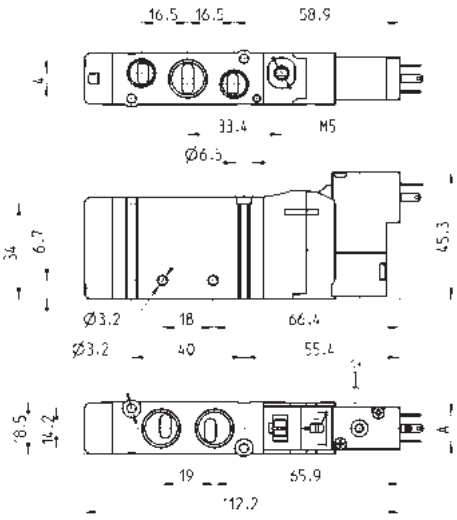


Mod.	Ports	A	Pilot supply	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)	Symbol
EN631-E11-P..	G1/8	9,4	M5	3 ÷ 10	-0,9 ÷ 10	550	EV30
EN731-E11-P..	G1/8	9,4	M5	3 ÷ 10	-0,9 ÷ 10	550	EV33
EN831-E11-P..	G1/8	9,4	M5	3 ÷ 10	-0,9 ÷ 10	550	EV38
EN631-E11-W..	G1/8	8	M5	3 ÷ 10	-0,9 ÷ 10	550	EV30
EN731-E11-W..	G1/8	8	M5	3 ÷ 10	-0,9 ÷ 10	550	EV33
EN831-E11-W..	G1/8	8	M5	3 ÷ 10	-0,9 ÷ 10	550	EV38

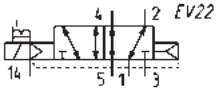
Electro-pneum. valve, monost. ext. servo-pilot sup., sol. P/W - size 19

5/2-way





Connectors: see pages 2/2.07.39-40.



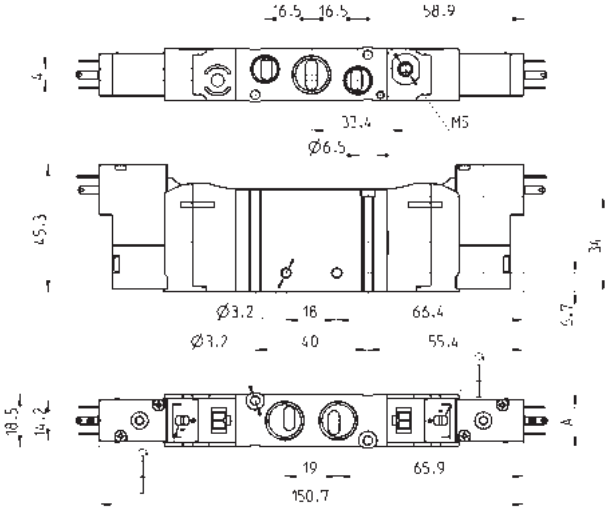
Mod.	Ports 1-2-4	Ports 3-5	A	Pilot supply	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)
EN551-E16-P..	G1/4	G1/8	9,4	M5	2,5 ÷ 10	-0,9 ÷ 10	920
EN551-E16-W..	G1/4	G1/8	8	M5	2,5 ÷ 10	-0,9 ÷ 10	920

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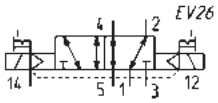
Electro-pneum. valve, bistable ext. servo-pilot sup., sol. P/W - size 19

5/2-way





Connectors: see pages 2/2.07.39-40.

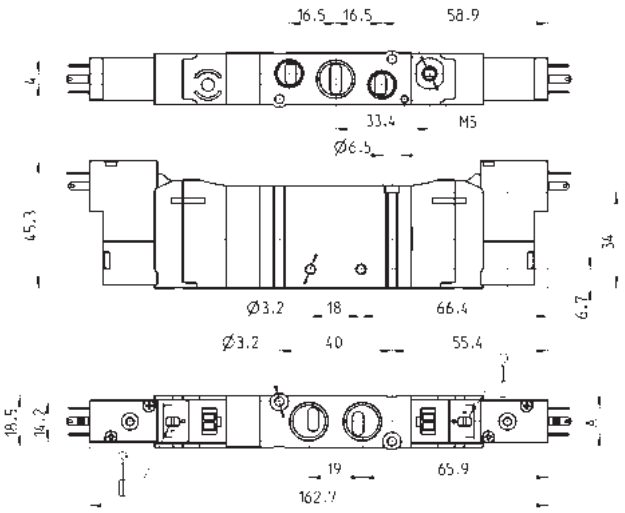


Mod.	Ports 1-2-4	Ports 3-5	A	Pilot supply	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)
EN551-E11-P..	G1/4	G1/8	9,4	M5	2 ÷ 10	-0,9 ÷ 10	920
EN551-E11-W..	G1/4	G1/8	8	M5	2 ÷ 10	-0,9 ÷ 10	920

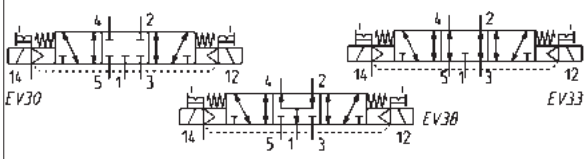
Electro-pneum. valve, ext. servo-pilot supply, solenoid P, W - size 19

5/3-way
CC = Centres Closed
CO = Centres Open
CP = Pressure Centres





Connectors: see pages 2/2.07.39-40.



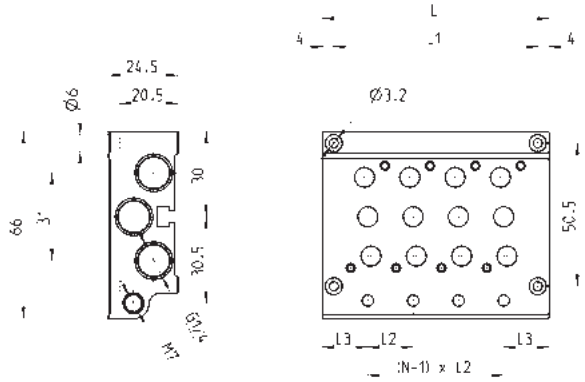
Mod.	Ports 1-2-4	Ports 3-5	A	Pilot supply	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)	Symbol
EN651-E11-P..	G1/4	G1/8	9,4	M5	3 ÷ 10	-0,9 ÷ 10	920	EV30
EN751-E11-P..	G1/4	G1/8	9,4	M5	3 ÷ 10	-0,9 ÷ 10	920	EV33
EN851-E11-P..	G1/4	G1/8	9,4	M5	3 ÷ 10	-0,9 ÷ 10	920	EV38
EN651-E11-W..	G1/4	G1/8	8	M5	3 ÷ 10	-0,9 ÷ 10	920	EV30
EN751-E11-W..	G1/4	G1/8	8	M5	3 ÷ 10	-0,9 ÷ 10	920	EV33
EN851-E11-W..	G1/4	G1/8	8	M5	3 ÷ 10	-0,9 ÷ 10	920	EV38

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2
CONTROL

Manifold for valves size 16 and 19 (outlets on the body valve)





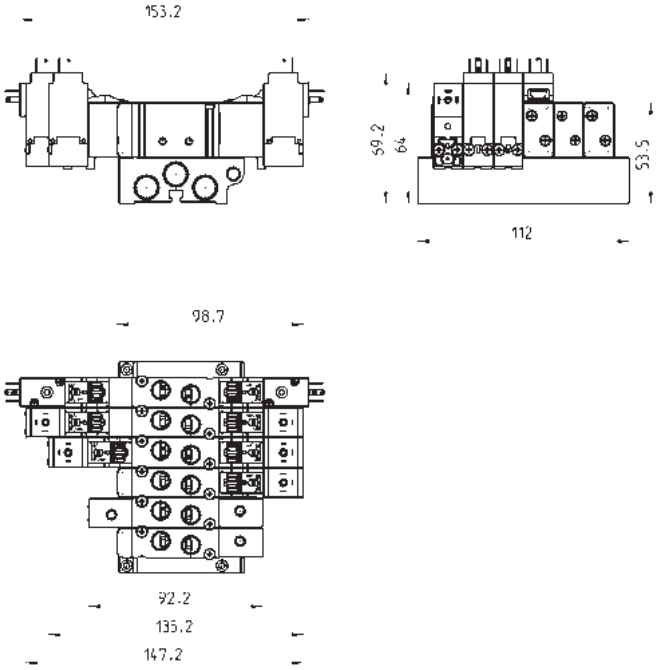
Mod.	Nr of valve positions	L	L1	L2	L3
EN531-1002	2	48	40	16	16
EN531-1003	3	64	56	16	16
EN531-1004	4	80	72	16	16
EN531-1005	5	96	88	16	16
EN531-1006	6	112	104	16	16
EN531-1008	8	144	136	16	16
EN531-1010	10	176	168	16	16
EN531-1012	12	208	200	16	16
EN551-1002	2	53	45	19	17
EN551-1003	3	72	64	19	17
EN551-1004	4	91	83	19	17
EN551-1005	5	110	102	19	17
EN551-1006	6	129	121	19	17
EN551-1008	8	167	159	19	17
EN551-1010	10	205	197	19	17
EN551-1012	12	243	235	19	17

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Manifolds complete with valves with outlets on the body - size 16

ports G1/8

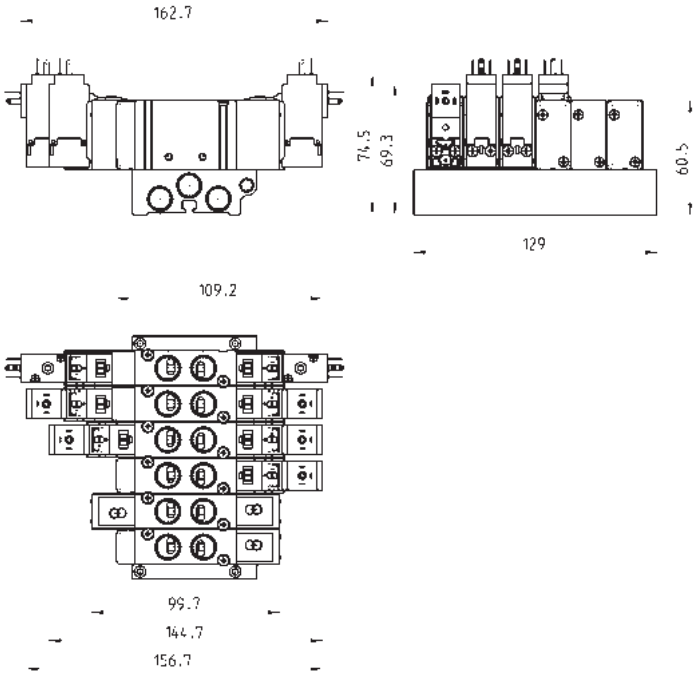




Manifolds complete with valves with outlets on the body - size 19

ports G1/4





CODING EXAMPLE

EN	5	3	0	-	11	-	PN3

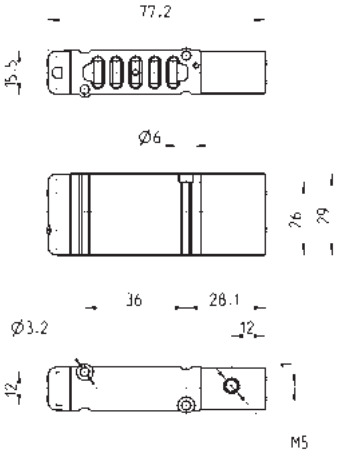
EN	SERIES
5	FUNCTION: 5 = 5/2 6 = 5/3 Centre Closed 7 = 5/3 Centre Open 8 = 5/3 Pressure Centre
3	SIZE: 3 = size 16 5 = size 19
0	BODY TYPE: 0 = body for sub-base
11	ACTUATION: 11 = electro-pneumatic, bistable 16 = electro-pneumatic, monostable 33 = pneumatic bistable 36 = pneumatic monostable E11 = electro-pneumatic, bistable with external servo-pilot supply E16 = electro-pneumatic, monostable with external servo-pilot supply
PN3	TYPE OF SOLENOID: PN3 = 24V DC - 1W PN4 = 48V DC - 2W PN6 = 110V DC - 2W PN7 = 230V - 2W P13 = 24V DC - 1W P54 = 48V DC - 2W P56 = 110V DC - 2W W53 = 24V DC - 2W W54 = 48V DC - 2W In case of applications with alternate current, use a bridge rectifier connector (see pag. 2/2.07.40)

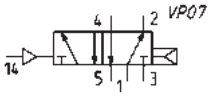
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Monostable pneumatic valve with outlets on sub-base - size 16

5/2-way





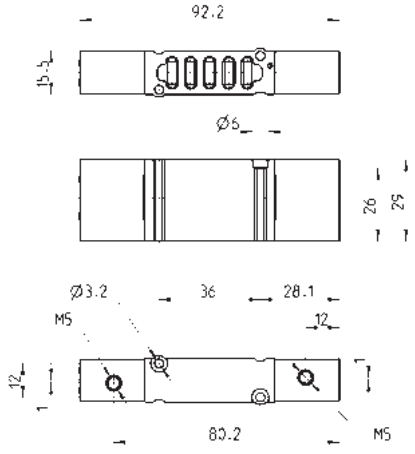


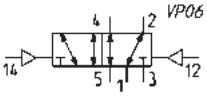
Mod.	Pilot supply	min. pilot Pressure (bar)	Working pressure (bar)	Flow rate (Nl/min)
EN530-36	M5	2,5	2,5 ÷ 10	610

Bistable pneumatic valve with outlets on sub-base - size 16

5/2-way







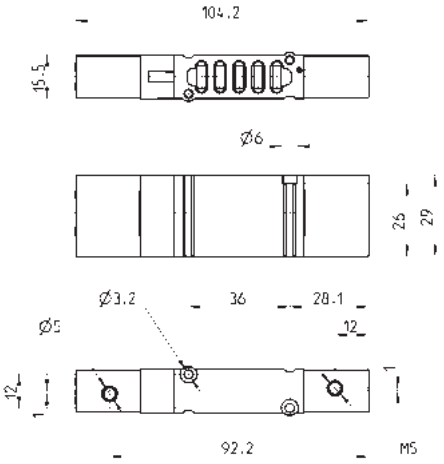
Mod.	Pilot supply	min. pilot pressure (bar)	Working pressure (bar)	Flow rate (Nl/min)
EN530-33	M5	2	-0,9 ÷ 10	610

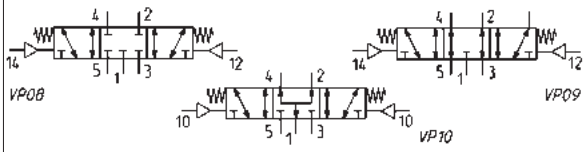
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Pneumatically actuated valve with outlets on sub-base - size 16

5/3-way
CC = Centres Closed
CO = Centres Open
CP = Centres in Pressure





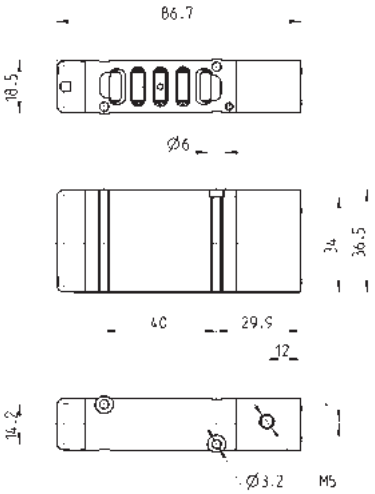


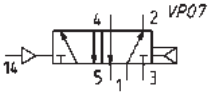
Mod.	Pilot supply	min. pilot pressure (bar)	Working pressure (bar)	Flow rate (Nl/min)	Symbol
EN630-33	M5	3	-0,9 ÷ 10	610	VP08
EN730-33	M5	3	-0,9 ÷ 10	610	VP09
EN830-33	M5	3	-0,9 ÷ 10	610	VP10

Pneumatic valve, monostable with outlets on sub-base - size 19

5/2-way







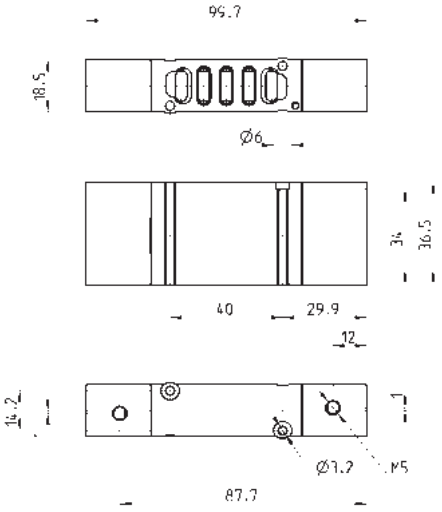
Mod.	Pilot supply	min. pilot pressure (bar)	working P. (bar)	Flow rate (Nl/min)
EN550-36	M5	2,5	2 ÷ 10	1000

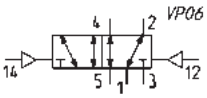
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Pneumatic valve, bistable with outlets on sub-base - size 19

5/2-way





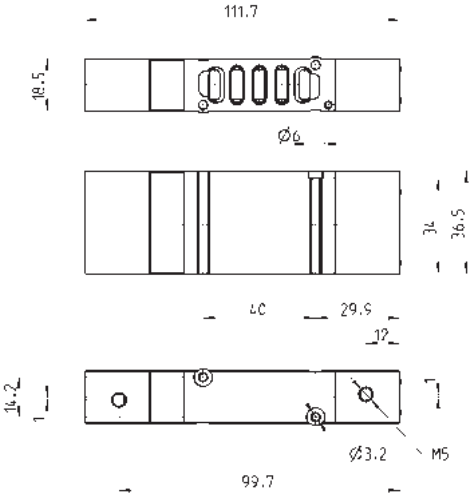


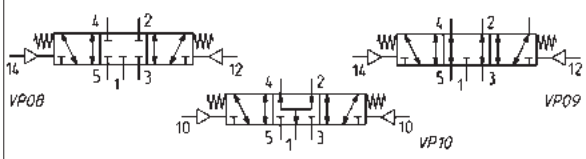
Mod.	Pilot supply	min. pilot pressure (bar)	Working pressure (bar)	Flow rate Nl/min
EN550-33	M5	2	-0,9 ÷ 10	1000

Pneumatically actuated valve with outlets on sub-base - size 19

5/3-way
CC = Centres Closed
CO = Centres Open
CP = Centres in Pressure







Mod.	Pilot supply	min. pilot pressure (bar)	working P. bar	Flow rate Nl/min	Symbol
EN650-33	M5	3	-0,9 ÷ 10	1000	VP08
EN750-33	M5	3	-0,9 ÷ 10	1000	VP09
EN850-33	M5	3	-0,9 ÷ 10	1000	VP10

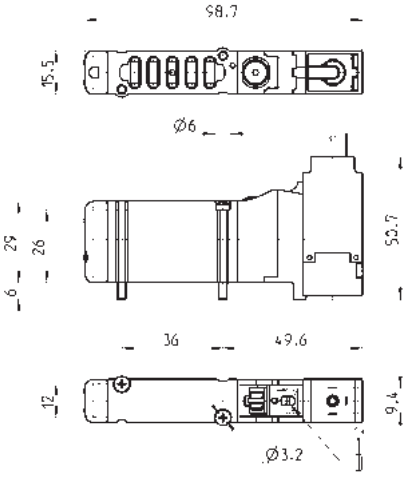
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2
CONTROL

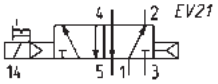
Electropneumatic valve, monostable with outlets on sub-base - s. 16

5/2-way





Connectors: see pages 2/2.07.39-40.

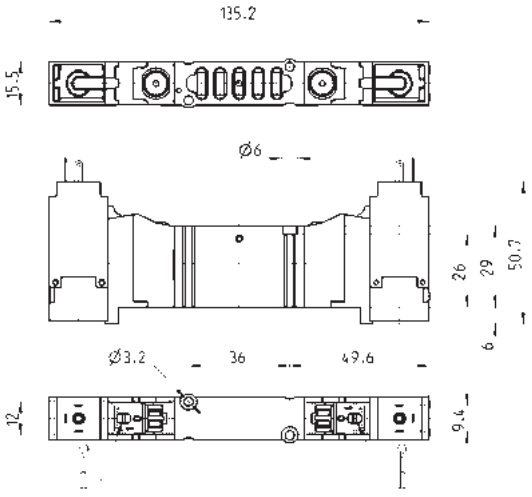


Mod.	Working pressure (bar)	Flow rate (Nl/min)
EN530-16-PN..	2,5 ÷ 10	610

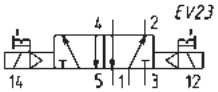
Electropneumatic valve, bistable with outlets on sub-base - size 16

5/2-way





Connectors: see pages 2/2.07.39-40.



Mod.	Working pressure (bar)	Flow rate (Nl/min)
EN530-11-PN..	2 ÷ 10	610

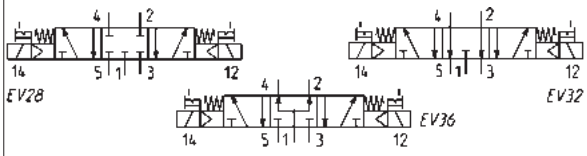
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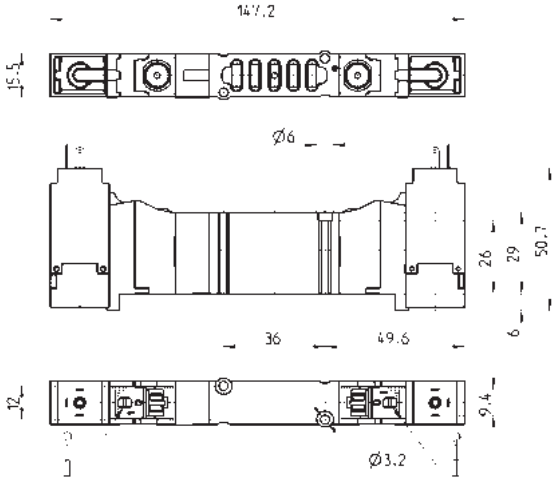
Electropneumatical valve with outlets on sub-base - size 16

5/3-way
CC = Centres Closed
CO = Centres Open
CP = Centres in Pressure



Connectors: see pages 2/2.07.39-40.





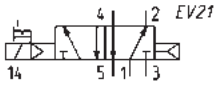
Mod.	Working pressure (bar)	Flow rate (Nl/min)	Symbol
EN630-11-PN..	3 ÷ 10	610	EV28
EN730-11-PN..	3 ÷ 10	610	EV32
EN830-11-PN..	3 ÷ 10	610	EV36

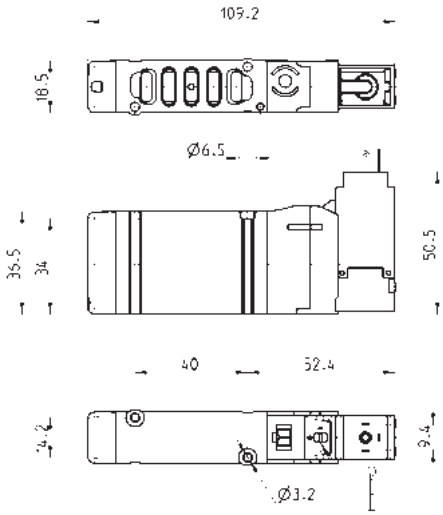
Electropneumatic valve, monostable with outlets on sub-base - s. 19

5/2-way



Connectors: see pages 2/2.07.39-40.



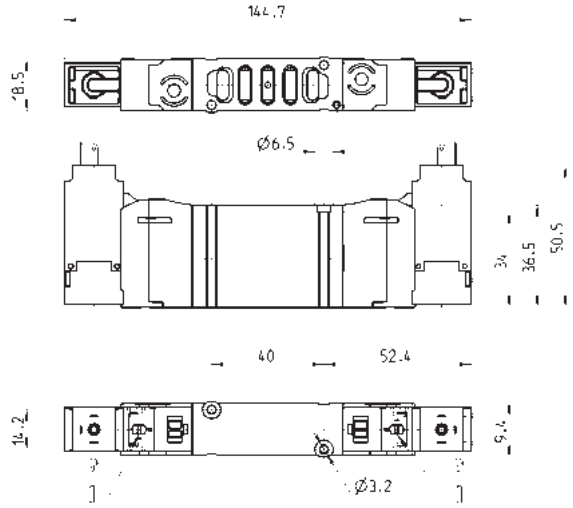


Mod.	Working pressure (bar)	Flow rate (Nl/min)
EN550-16-PN..	2,5 ÷ 10	1000

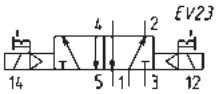
Electropneumatic valve, bistable with outlets on sub-base - size 19

5/2-way





Connectors: see pages 2/2.07.39-40.

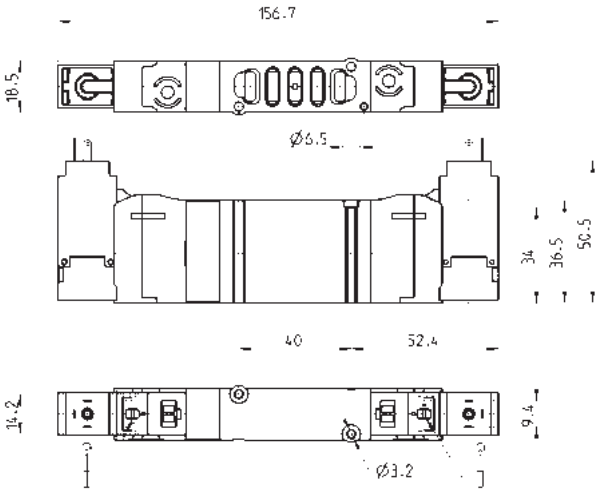


Mod.	Working presure (bar)	Flow rate (Nl/min)
EN550-11-PN..	2 ÷ 10	1000

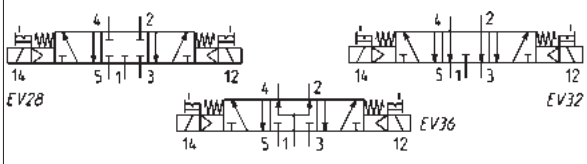
Electropneumatical valve with outlets on sub-base - size 19

5/3-way
CC = Centres Closed
CO = Centres Open
CP = Centres in Pressure





Connectors: see pages 2/2.07.39-40.



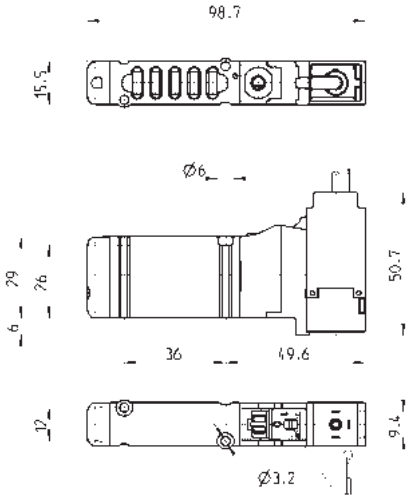
Mod.	Working pressure (bar)	Flow rate (Nl/min)	Symbol
EN650-11-PN..	3 ÷ 10	1000	EV28
EN750-11-PN..	3 ÷ 10	1000	EV32
EN850-11-PN..	3 ÷ 10	1000	EV36

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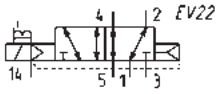
Electro-pn. monost. valve, ext. pilot supply, outlets on sub-base - s. 16

5/2-way





Connectors: see pages 2/2.07.39-40.

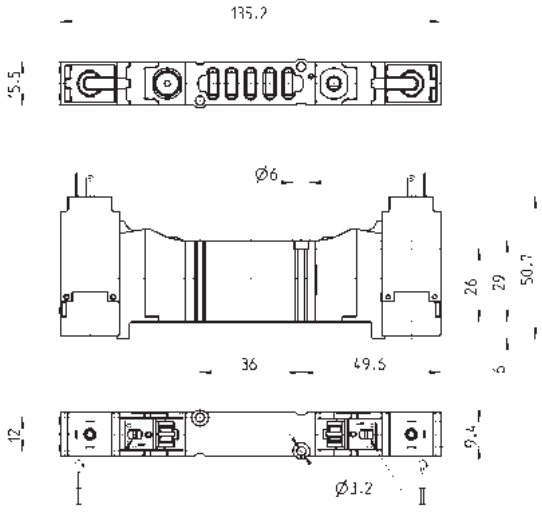


Mod.	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)
EN530-E16-PN..	2,5 ÷ 10	- 0,9 ÷ 10	610

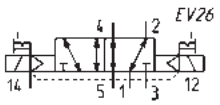
Electro-pn. bistable valve, ext. pilot supply, outlets on sub-base - s. 16

5/2-way





Connectors: see pages 2/2.07.39-40.

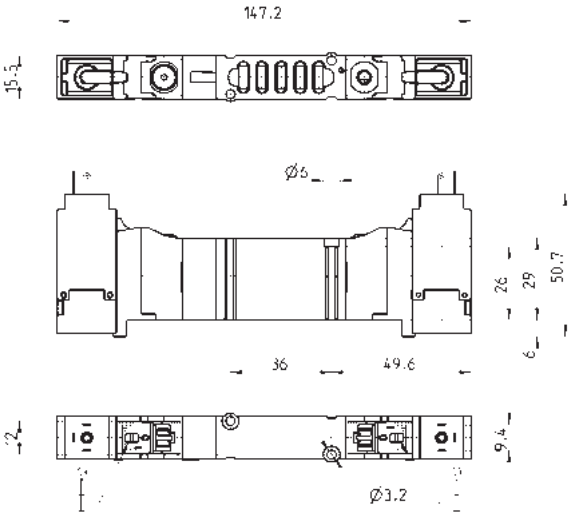


Mod.	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)
EN530-E11-PN..	2 ÷ 10	-0,9 ÷ 10	610

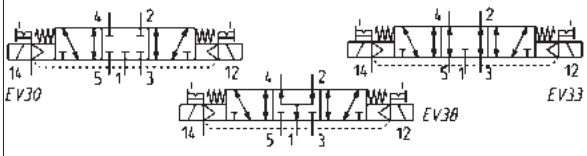
Electro-pneumatic valve, ext. pilot supply, outlets on sub-base - s. 16

5/3-way
CC = Centres Closed
CO = Centres Open
CP = Centres in Pressure





Connectors: see pages 2/2.07.39-40.

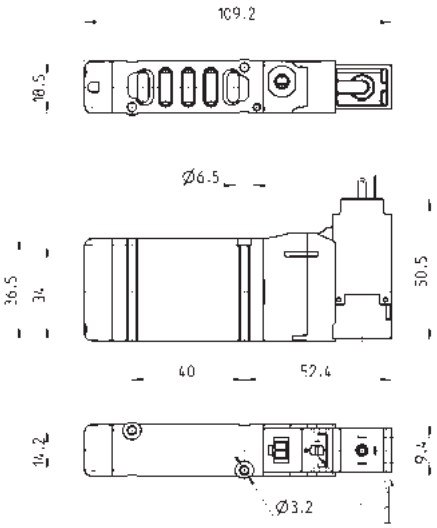


Mod.	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)	Symbol
EN630-E11-PN..	3 ÷ 10	-0,9 ÷ 10	610	EV30
EN730-E11-PN..	3 ÷ 10	-0,9 ÷ 10	610	EV33
EN830-E11-PN..	3 ÷ 10	-0,9 ÷ 10	610	EV38

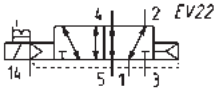
Electro-pn. monost. valve, ext. pilot supply, outlets on sub-base - s. 19

5/2-way





Connectors: see pages 2/2.07.39-40.



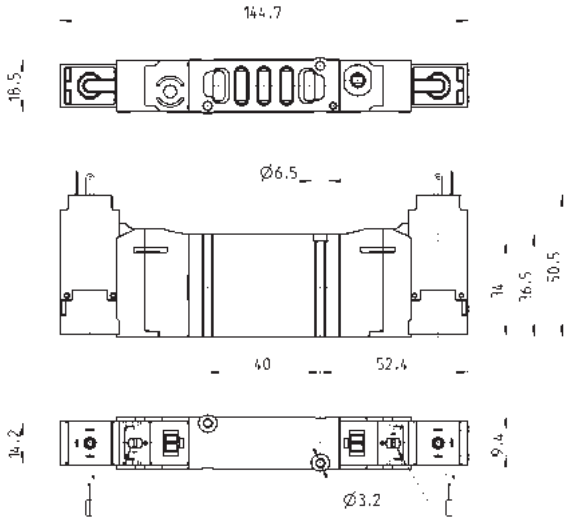
Mod.	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)
EN550-E16-PN..	2,5 ÷ 10	- 0,9 ÷ 10	1000

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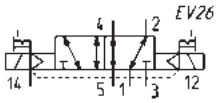
Electro-pn. bistable valve, ext. pilot supply, outlets on sub-base - s. 19

5/2-way





Connectors: see pages 2/2.07.39-40.

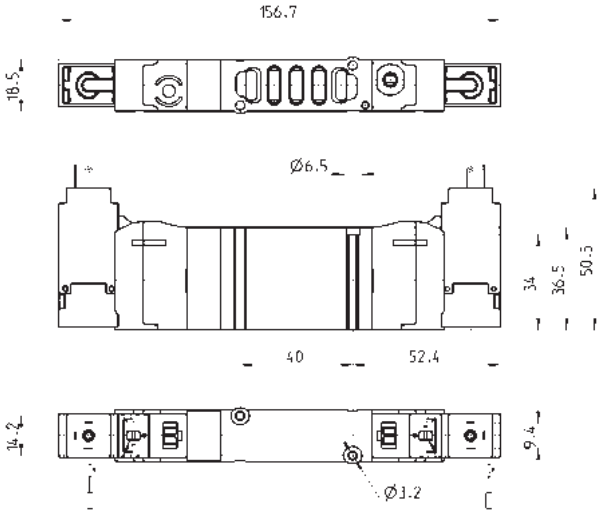


Mod.	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)
EN550-E11-PN..	2 ÷ 10	-0,9 ÷ 10	1000

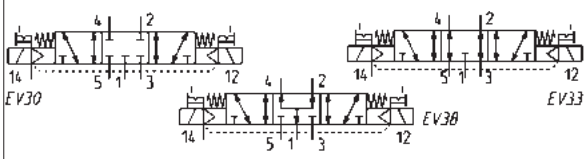
Electro-pneumatic valve, ext. pilot supply, outlets on sub-base - s. 19

5/3-way
CC = Centres Closed
CO = Centres Open
CP = Centres in Pressure





Connectors: see pages 2/2.07.39-40.

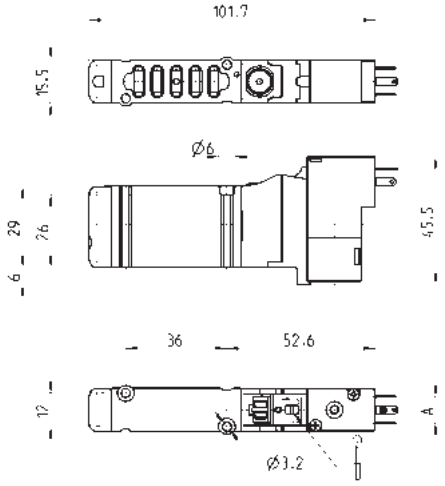


Mod.	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)	Symbol
EN650-E11-PN..	3 ÷ 10	-0,9 ÷ 10	1000	EV30
EN750-E11-PN..	3 ÷ 10	-0,9 ÷ 10	1000	EV33
EN850-E11-PN..	3 ÷ 10	-0,9 ÷ 10	1000	EV38

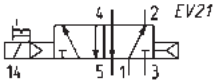
Electro-pn. monostable valve, sol. P / W, outlets on sub-base - s. 16

5/2-way





Connectors: see pages 2/2.07.39-40.

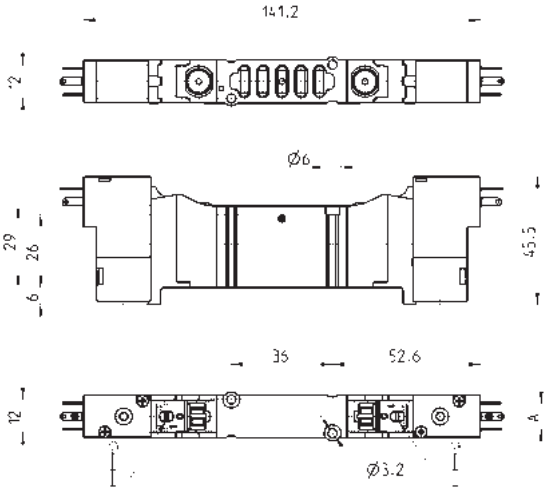


Mod.	A	Operating pressure (bar)	Flow (Nl/min)
EN530-16-P13	9,4	2,5 ÷ 10	610
EN530-16-P54	9,4	2,5 ÷ 10	610
EN530-16-P56	9,4	2,5 ÷ 10	610
EN530-16-W53	8	2,5 ÷ 10	610
EN530-16-W54	8	2,5 ÷ 10	610

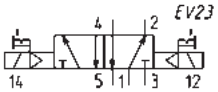
Electro-pn. bistable valve, sol. P / W, outlets on sub-base - size 16

5/2-way





Connectors: see pages 2/2.07.39-40.



Mod.	A	Operating pressure (bar)	Flow (Nl/min)
EN530-11-P13	9,4	2 ÷ 10	610
EN530-11-P54	9,4	2 ÷ 10	610
EN530-11-P56	9,4	2 ÷ 10	610
EN530-11-W53	8	2 ÷ 10	610
EN530-11-W54	8	2 ÷ 10	610

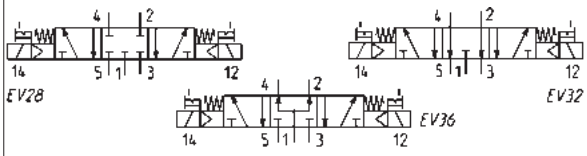
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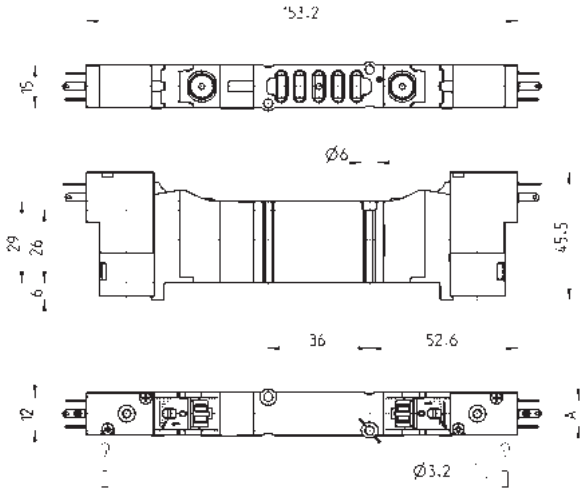
Electro-pneumatic valve, sol. P / W, outlets on sub-base - size 16

5/3-way
CC = Centres Closed
CO = Centres Open
CP = Centres in Pressure



Connectors: see pages 2/2.07.39-40.





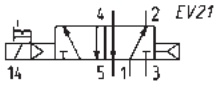
Mod.	A	Operating pressure (bar)	Flow (Nl/min)	Symbol
EN630-11-P..	9,4	3 ÷ 10	610	EV28
EN730-11-P..	9,4	3 ÷ 10	610	EV32
EN830-11-P..	9,4	3 ÷ 10	610	EV36
EN630-11-W..	8	3 ÷ 10	610	EV28
EN730-11-W..	8	3 ÷ 10	610	EV32
EN830-11-W..	8	3 ÷ 10	610	EV36

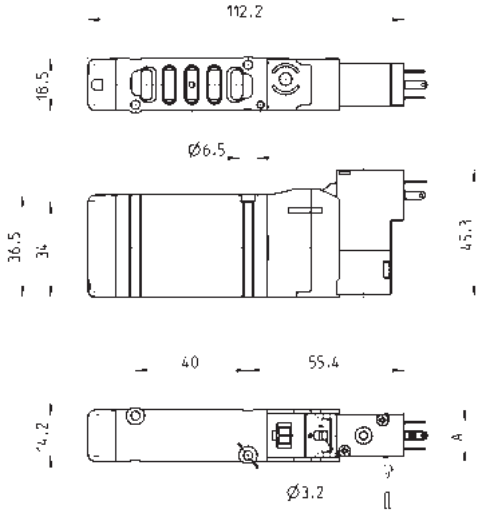
Electro-pn. monostable valve, sol. P / W, outlets on sub-base - s. 19

5/2-way



Connectors: see pages 2/2.07.39-40.





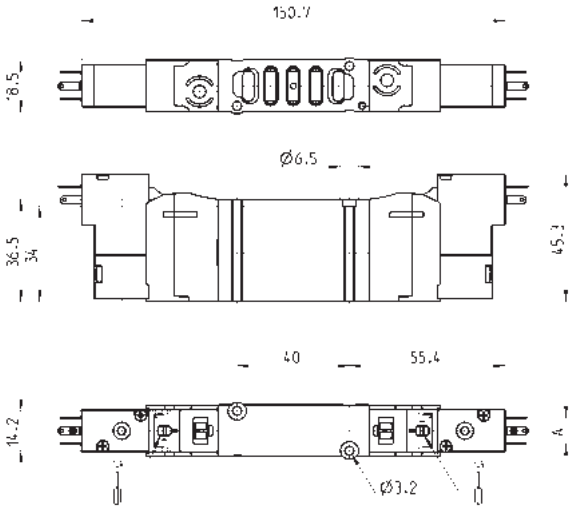
Mod.	Operating pressure (bar)	Flow (Nl/min)
EN550-16-P13	2,5 ÷ 10	1000
EN550-16-P54	2,5 ÷ 10	1000
EN550-16-P56	2,5 ÷ 10	1000
EN550-16-W53	2,5 ÷ 10	1000
EN550-16-W54	2,5 ÷ 10	1000

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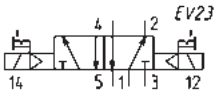
Electro-pn. bistable valve, sol. P / W, outlets on sub-base - size 19

5/2-way





Connectors: see pages 2/2.07.39-40.

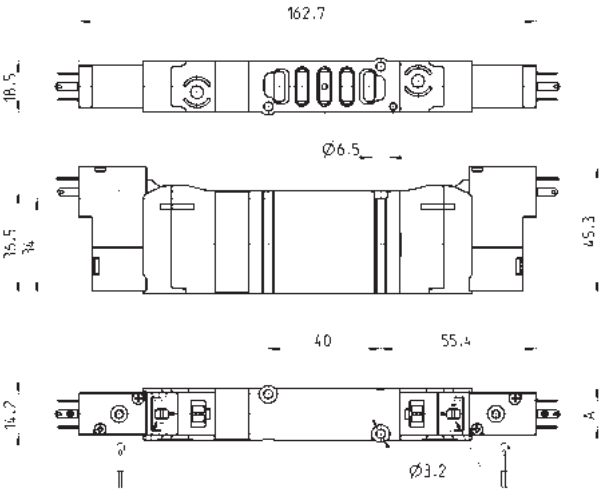


Mod.	A	Operating pressure (bar)	Flow (Nl/min)
EN550-11-P13	9,4	2 ÷ 10	1000
EN550-11-P54	9,4	2 ÷ 10	1000
EN550-11-P56	9,4	2 ÷ 10	1000
EN550-11-W53	8	2 ÷ 10	1000
EN550-11-W54	8	2 ÷ 10	1000

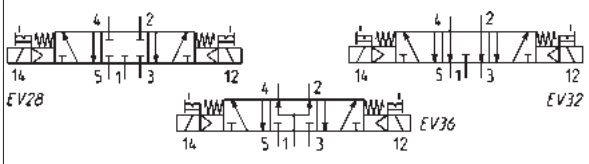
Electro-pneumatic valve, sol. P / W, outlets on sub-base - size 19

5/3-way
CC = Centres Closed
CO = Centres Open
CP = Centres in Pressure





Connectors: see pages 2/2.07.39-40.



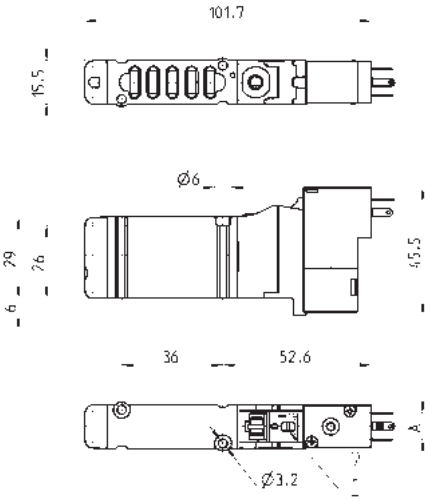
Mod.	A	Operating pressure (bar)	Flow (Nl/min)	Symbol
EN650-11-P..	9,4	3 ÷ 10	1000	EV28
EN750-11-P..	9,4	3 ÷ 10	1000	EV32
EN850-11-P..	9,4	3 ÷ 10	1000	EV36
EN650-11-W..	8	3 ÷ 10	1000	EV28
EN750-11-W..	8	3 ÷ 10	1000	EV32
EN850-11-W..	8	3 ÷ 10	1000	EV36

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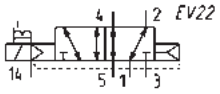
Electro-pn. mono. valve, pilot sup. sol. P / W, outlets on base - s. 16

5/2-way





Connectors: see pages 2/2.07.39-40.

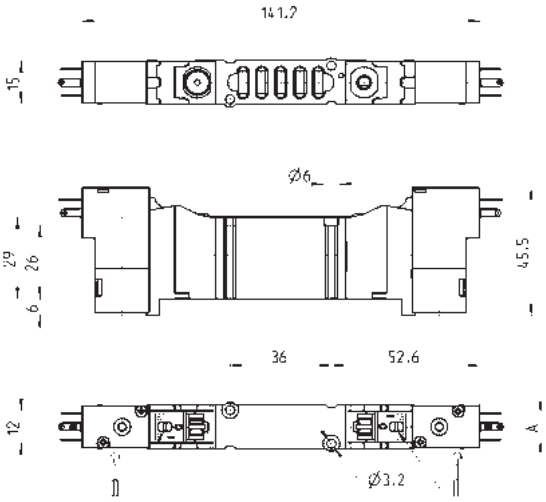


Mod.	A	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)
EN530-E16-P..	9,4	2,5 ÷ 10	-0,9 ÷ 10	610
EN530-E16-W..	8	2,5 ÷ 10	-0,9 ÷ 10	610

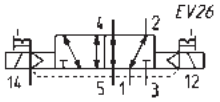
Electro-pn. bistab. valve, pilot sup. sol. P / W, outlets on base - s. 16

5/2-way





Connectors: see pages 2/2.07.39-40.

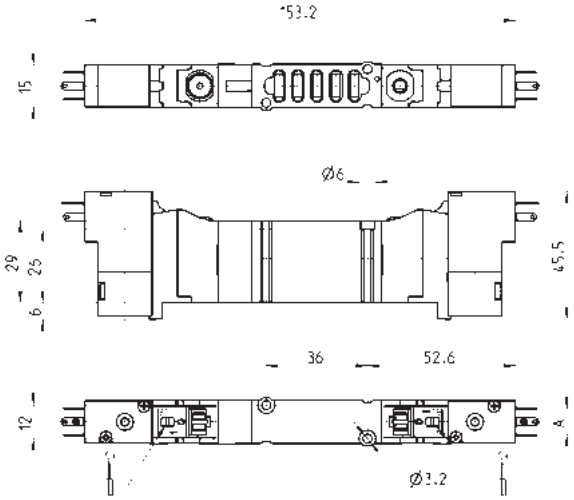


Mod.	A	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)
EN530-E11-P..	9,4	2 ÷ 10	-0,9 ÷ 10	610
EN530-E11-W..	8	2 ÷ 10	-0,9 ÷ 10	610

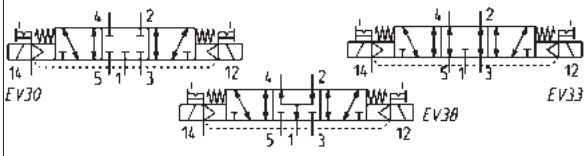
Electro-pneum. valve, pilot sup. sol. P / W, outlets on base - s. 16

5/3-way
CC = Centres Closed
CO = Centres Open
CP = Centres in Pressure





Connectors: see pages 2/2.07.39-40.

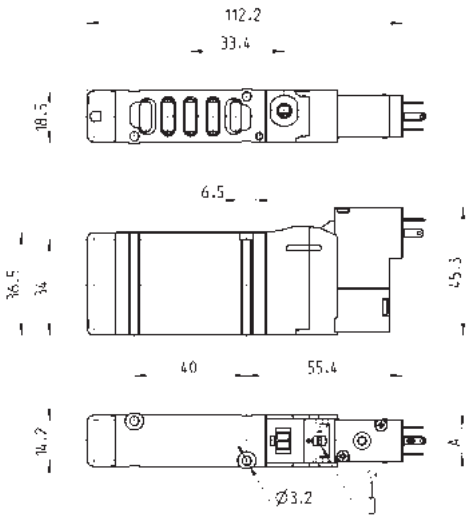


Mod.	A	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)	Symbol
EN630-E11-P..	9,4	3 ÷ 10	-0,9 ÷ 10	610	EV30
EN730-E11-P..	9,4	3 ÷ 10	-0,9 ÷ 10	610	EV33
EN830-E11-P..	9,4	3 ÷ 10	-0,9 ÷ 10	610	EV38
EN630-E11-W..	8	3 ÷ 10	-0,9 ÷ 10	610	EV30
EN730-E11-W..	8	3 ÷ 10	-0,9 ÷ 10	610	EV33
EN830-E11-W..	8	3 ÷ 10	-0,9 ÷ 10	610	EV38

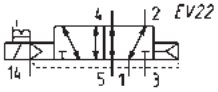
Electro-pn. mono. valve, pilot sup. sol. P / W, outlets on base - s. 19

5/2-way





Connectors: see pages 2/2.07.39-40.



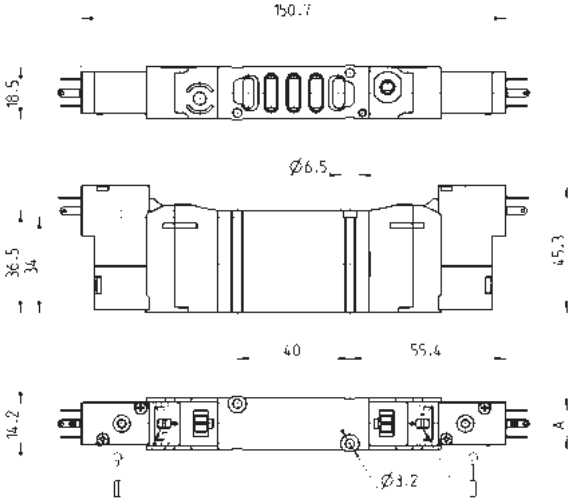
Mod.	A	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)
EN550-E16-P..	9,4	2,5 ÷ 10	-0,9 ÷ 10	1000
EN550-E16-W..	8	2,5 ÷ 10	-0,9 ÷ 10	1000

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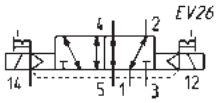
Electro-pn. bistab. valve, pilot sup. sol. P / W, outlets on base - s. 19

5/2-way





Connectors: see pages 2/2.07.39-40.

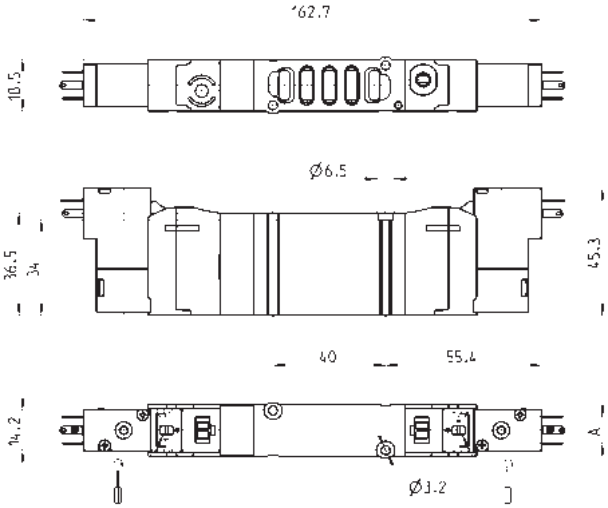


Mod.	A	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)
EN550-E11-P..	9,4	2 ÷ 10	-0,9 ÷ 10	1000
EN550-E11-W..	8	2 ÷ 10	-0,9 ÷ 10	1000

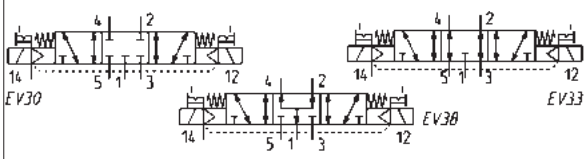
Electro-pneum. valve, pilot sup. sol. P / W, outlets on base - s. 19

5/3-way
CC = Centres Closed
CO = Centres Open
CP = Centres in Pressure





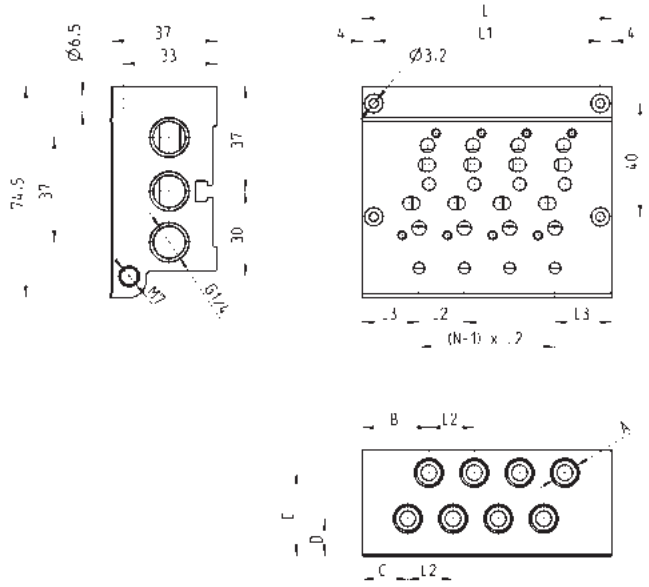
Connectors: see pages 2/2.07.39-40.



Mod.	A	Pilot supply pressure (bar)	Operating pressure (bar)	Flow (Nl/min)	Symbol
EN650-E11-P..	9,4	3 ÷ 10	-0,9 ÷ 10	1000	EV30
EN750-E11-P..	9,4	3 ÷ 10	-0,9 ÷ 10	1000	EV33
EN850-E11-P..	9,4	3 ÷ 10	-0,9 ÷ 10	1000	EV38
EN650-E11-W..	8	3 ÷ 10	-0,9 ÷ 10	1000	EV30
EN750-E11-W..	8	3 ÷ 10	-0,9 ÷ 10	1000	EV33
EN850-E11-W..	8	3 ÷ 10	-0,9 ÷ 10	1000	EV38

Manifold for valves size 16 and 19 (outlets on manifolds)



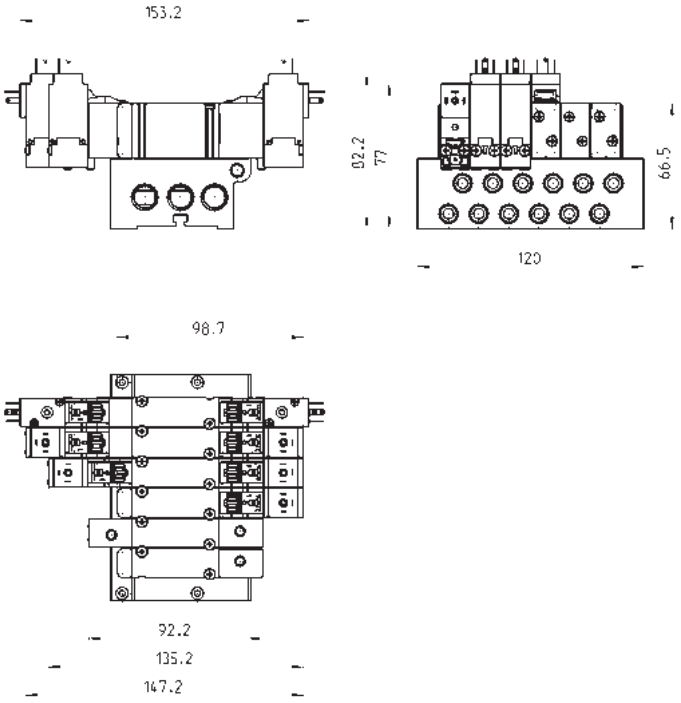


Mod.	Nr of valve positions	A	B	C	D	E	L	L1	L2	L3
EN530-2102	2	G1/8	23,5	16	12,8	29	56	48	16	20
EN530-2103	3	G1/8	23,5	16	12,8	29	72	64	16	20
EN530-2104	4	G1/8	23,5	16	12,8	29	88	80	16	20
EN530-2105	5	G1/8	23,5	16	12,8	29	104	96	16	20
EN530-2106	6	G1/8	23,5	16	12,8	29	120	112	16	20
EN530-2108	8	G1/8	23,5	16	12,8	29	152	144	16	20
EN530-2110	10	G1/8	23,5	16	12,8	29	184	176	16	20
EN530-2112	12	G1/8	23,5	16	12,8	29	216	208	16	20
EN550-2102	2	G1/4	23	15,5	10,5	28,2	59	51	19	20
EN550-2103	3	G1/4	23	15,5	10,5	28,2	78	70	19	20
EN550-2104	4	G1/4	23	15,5	10,5	28,2	97	89	19	20
EN550-2105	5	G1/4	23	15,5	10,5	28,2	116	108	19	20
EN550-2106	6	G1/4	23	15,5	10,5	28,2	135	127	19	20
EN550-2108	8	G1/4	23	15,5	10,5	28,2	173	165	19	20
EN550-2110	10	G1/4	23	15,5	10,5	28,2	211	203	19	20
EN550-2112	12	G1/4	23	15,5	10,5	28,2	249	241	19	20

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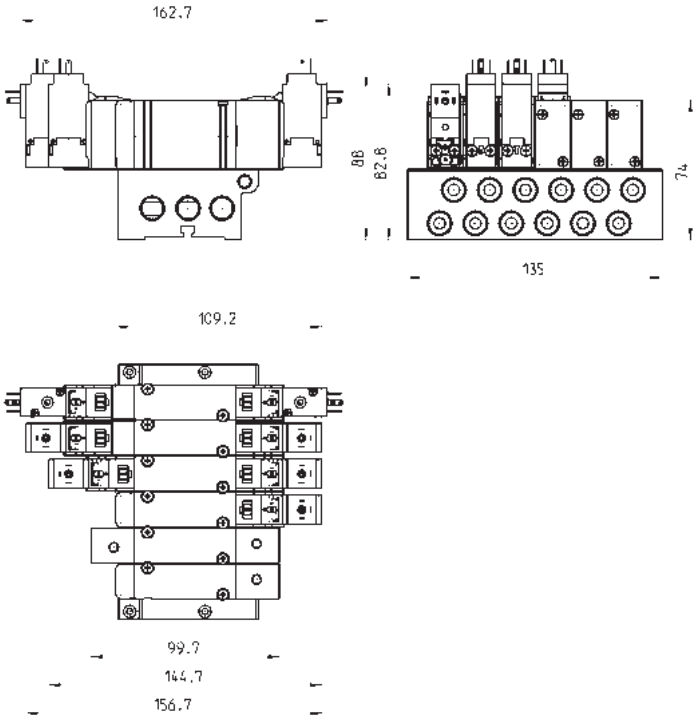
Manifolds complete with base moutend valves - size 16





Manifolds complete with base moutend valves - size 19

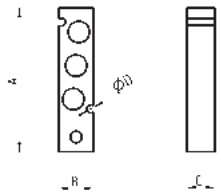




Blanking plate for manifolds - valves with outlets on the body



The following is supplied:
1x blanking plate
2x screws
1x seal

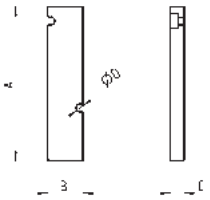


Mod.	Size	A	B	C	ØD
TP-EN531	16	60	14,5	12	3,2
TP-EN551	19	62	17,3	12	3,2

Blanking plate for manifolds - base mounted valves



The following is supplied:
1x blanking plate
2x screws
1x seal



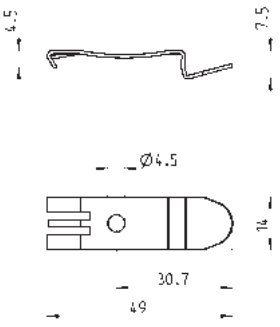
Mod.	Size	A	B	C	ØD
TP-EN530	16	64	14,7	6	3,2
TP-EN550	19	64	17	6	3,2

Mounting brackets for DIN rail



DIN EN 50022 (7,5mm x 35mm - width 1)
Suitable for all manifolds.

Supplied with:
2x plates
2x screws M4x6 UNI 5931
2x nuts

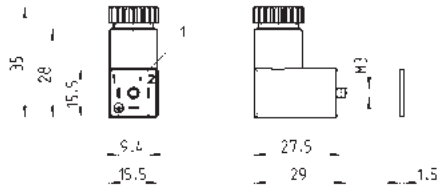


Mod.
PCF-EN531

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Connector Mod. 125-... DIN 43650 pitch 9.4 mm





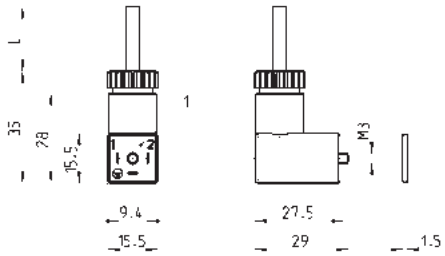
Mod.	description	colour	working voltage	cable holding	tightening torque
125-601	connector, diode + Led	transparent	10/50 V DC	PG7	0.3 Nm
125-701	connector, varistor + Led	transparent	24 V AC/DC	PG7	0.3 Nm
125-800	connector, without electronics	black	-	PG7	0.3 Nm

1 = 90° adjustable connector

Connector Mod. 125-... DIN 43650 pitch 9.4 mm with cable

The internal rectifier circuit of the connector Mod. 125-900 allows to use solenoid valves with different AC voltage, even if the voltage indicated on the solenoid valve is DC.



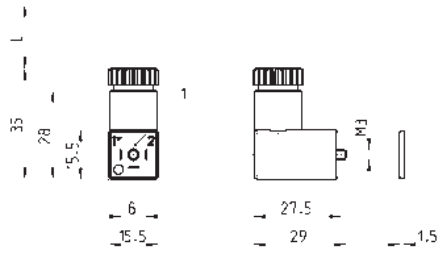


Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
125-501-2	moulded cable with diode + Led	black	10/50 V DC	2000 mm	-	0.3 Nm
125-550-1	moulded cable, without electronics	black	-	1000 mm	-	0.3 Nm
125-601-2	pre-wired cable, diode + Led	transparent	10/50 V DC	2000 mm	PG7	0.3 Nm
125-571-3	moulded cable, varistor + Led	black	24 V AC/DC	3000 mm	-	0.3 Nm
125-900	pre-wired cable with voltage rectifier	black	6 V - 110 V AC/DC	2000 mm	PG7	0.3 Nm

1 = 90° adjustable connector

Connector Mod. 126-... DIN 43650 pitch 8 mm



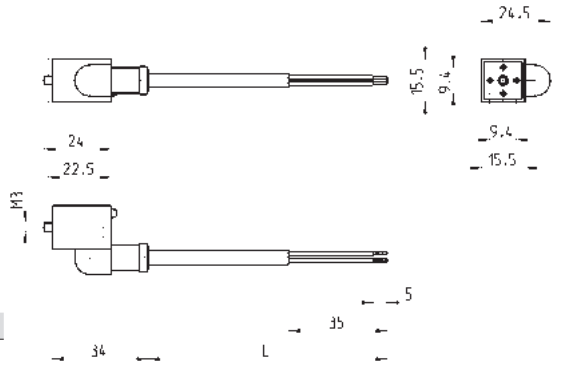


Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
126-550-1	moulded cable, without electronics	black	-	1000 mm	-	0.3 Nm
126-800	connector, without electronics	black	-	-	PG7	0.3 Nm
126-701	connector, varistor + Led	transparent	24 V AC/ DC	-	PG7	0.3 Nm

1 = 90° adjustable connector

In-line connectors with cable

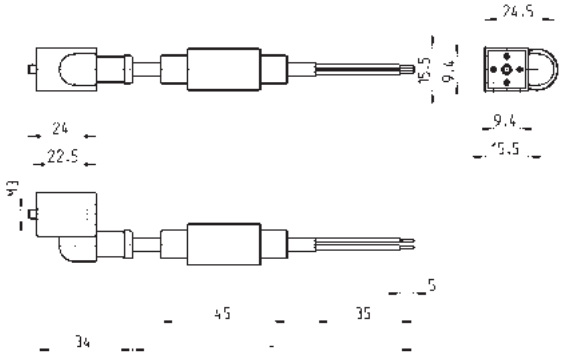




Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
125-503-2	in-line moulded cable, with diode + Led	black	24 V DC	2000 mm	-	0.3 Nm
125-503-5	in-line moulded cable, with diode + Led	black	24 V DC	5000 mm	-	0.3 Nm
125-553-2	in-line moulded cable, without electronics	black	-	2000 mm	-	0.3 Nm
125-553-5	in-line moulded cable, without electronics	black	-	5000 mm	-	0.3 Nm

In-line connectors with bridge rectifier





Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
125-903-2	in-line moulded cable with voltage rectifier	black	6 V - 230 V AC/DC	2000 mm	-	0.3 Nm
125-903-5	in-line moulded cable with voltage rectifier	black	6 V - 230 V AC/DC	5000 mm	-	0.3 Nm

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Series 3
valves and solenoid valves

2x3/2, 3/2, 5/2 and 5/3-way CC CO CP
Ports: G1/8 and G1/4



Series 3 solenoid valves with G1/8 and G1/4 ports have been designed in the 3/2, 2 x 3/2, 5/2, 5/3 versions and with the following two devices of actuation:
- Electropneumatically actuated with mechanical spring return
- Electropneumatically actuated with external and internal air pressure supply

Series 3 valves are equipped with a manual override which allows a stable operation and they can use Series U or G solenoids (22x22).

Pneumatically actuated valves 3/2 NC become NO when the supply is on connection 3.

GENERAL DATA

Construction	spool - type
Valve group	2x3/2 - 3/2 - 5/2 - 5/3-way CC CO CP
Materials	AL body, stainless steel spool, NBR seals
Ports	G1/8 - G1/4
Installation	in any position
Operating temperature	0 ÷ 60°C (with dry air at -20°C)
Operating pressure	see tables
Fluid	filtered air, without lubrication. If lubricated air is used, it is recommended to use ISOVG32 oil. Once applied the lubrication should never be interrupted.

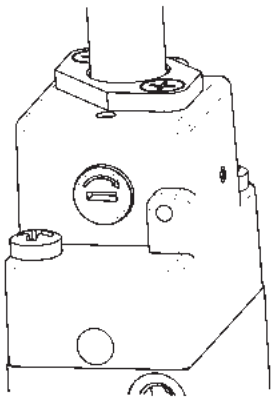
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CODING EXAMPLE

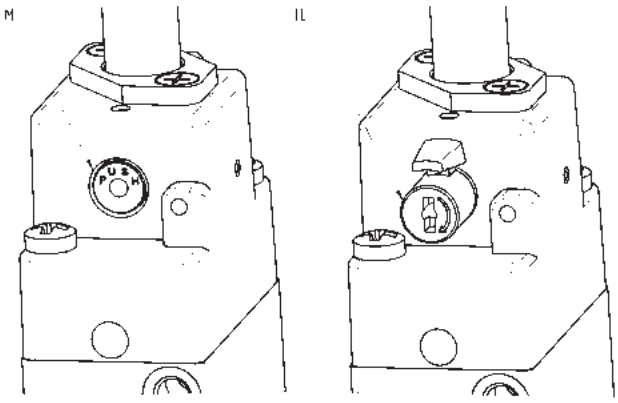
3	3	8	D	-	015	-	02	-	U7	7	

3	SERIES
3	NUMBER OF WAYS - POSITIONS: 3 = 3/2 NC 4 = 3/2 NO 5 = 5/2 6 = 5/3 CC 7 = 5/3 CO 8 = 5/3 CP 9 = 1x3/2 NC + 1x3/2 NO
8	PORTS: 8 = G1/8 4 = G1/4
D	VERSION: = standard D = double valve 2x3/2 L = for manifold assembly (only for solenoid valves 3/2 with G1/8 ports)
015	ACTUATION: 011 = double solenoid 015 = single solenoid, spring return 016 = single solenoid, pneumatic spring return E11 = double solenoid external servo-command E15 = single solenoid, external servo-command 033 = pneumatic pneumatic 035 = pneumatic spring
02	SOLENOID INTERFACE: 02 = mech. sol. 22 x 22
U7	ENCAPSULATING MATERIAL / SOLENOID DIMENSIONS: A8 = PPS / 30 x 30 G7 = PA / 22 x 22 G8 = PA / 30 x 30 (24 V DC only) G9 = PA / 22 x 58 H8 = PA 6 V0 / 30 x 30 U7 = PET / 22 x 22
7	SOLENOID VOLTAGE: see the solenoids section from page 2.2.35.01
	TYPE OF MANUAL OVERRIDE: = bistable, standard IL = bistable, lever type (available on demand) IM = monostable (available on demand)

TYPES OF MANUAL OVERRIDE



Example of solenoid valve with a bistable standard manual override.



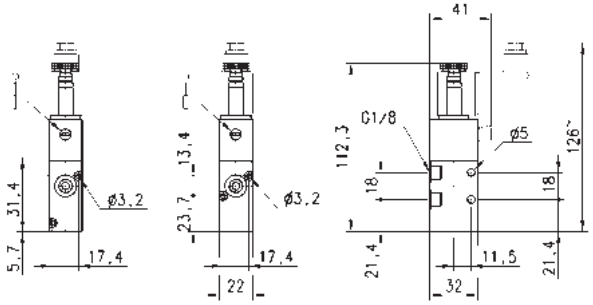
Example of solenoid monostable valve (IM) and bistable valve with a lever type manual override (IL). Both versions are available on demand. To order them it is necessary to add IM or IL at the end of the code. Code ex.: 454-015-22-U77IL.

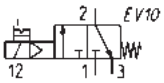
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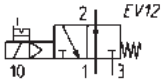
3/2-way solenoid valve, G1/8, monostable - Mod. 338..., Mod 348...



These solenoid valves, which have electropneumatic actuation and spring return, are available in the NC (closed) or NO (open) version.





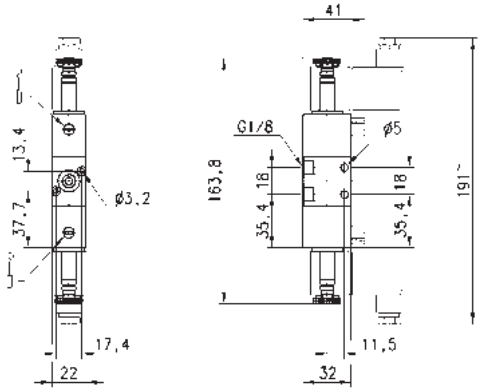


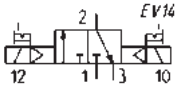
Mod.	Mounting	Function	Flow rate (Nl/min)	Operating pressure (bar)	Symbol
338-015-02	in-line	3/2 NC	700	2,5 ÷ 10	EV10
338L-015-02	on manifold	3/2 NC	700	2,5 ÷ 10	EV10
348-015-02	in-line	3/2 NO	700	2,5 ÷ 10	EV12
348L-015-02	on manifold	3/2 NO	700	2,5 ÷ 10	EV12

3/2-way solenoid valve, G1/8, bistable - Mod. 338...



These solenoid valves, which have electropneumatic actuation and return, assume the NC (closed) or NO (open) position depending on the last pulse received.





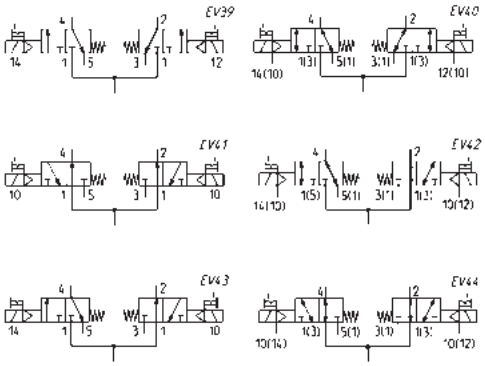
Mod.	Mounting	Function	Flow rate (Nl/min)	Operating pressure (bar)
338-011-02	in-line	3/2	700	1,5 ÷ 10
338L-011-02	on manifold	3/2	700	1,5 ÷ 10

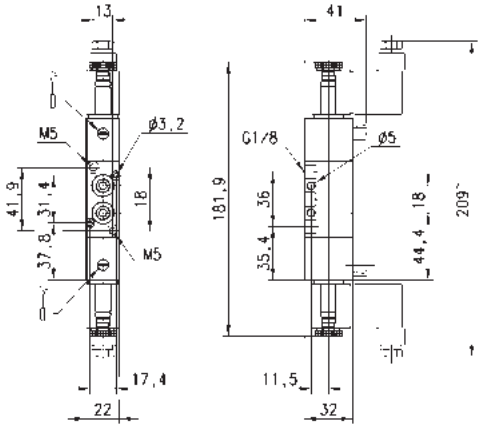
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2 x 3/2-way solenoid valve, G1/8 - Mod. 338D..., 348D... e 398D...

These solenoid valves are available in versions with 2 x 3/2 valves in the same valve.





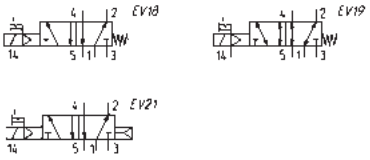


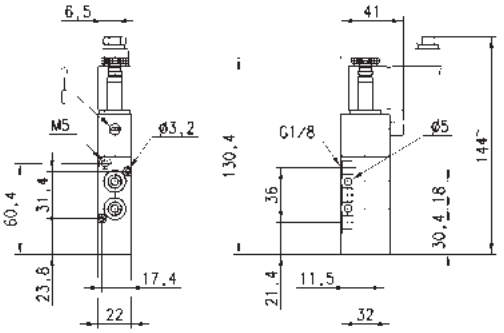
Mod.	Function	Flow rate (Nl/min)	Operating pressure (bar)	Pilot pressure (bar)	Symbol
338D-015-02	2 x 3/2 NC	700	2,5 ÷ 10	-	EV39
348D-015-02	2 x 3/2 NO	700	2,5 ÷ 10	-	EV41
338D-E15-02	2 x 3/2 NC	700	-0,9 ÷ 10	2,5 ÷ 10	EV40
348D-E15-02	2 x 3/2 NO	700	-0,9 ÷ 10	2,5 ÷ 10	EV44
398D-015-02	1 x 3/2 NC + 1 x 3/2 NO	700	2,5 ÷ 10	-	EV43
398D-E15-02	1 x 3/2 NC + 1 x 3/2 NO	700	-0,9 ÷ 10	2,5 ÷ 10	EV42

5/2-way solenoid valve, G1/8, monostable - Mod. 358...

These solenoid valves, which have electropneumatic actuation and spring return, are suitable for operating double-acting cylinders.







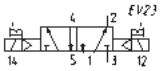
Mod.	Function	Flow rate (Nl/min)	Operating pressure (bar)	Pilot pressure (bar)	Symbol
358-015-02	5/2	700	2,5 ÷ 10	-	EV18
358-E15-02	5/2	700	-0,9 ÷ 10	2,5 ÷ 10	EV19
358-016-02	5/2	700	2,5 ÷ 10	-	EV21

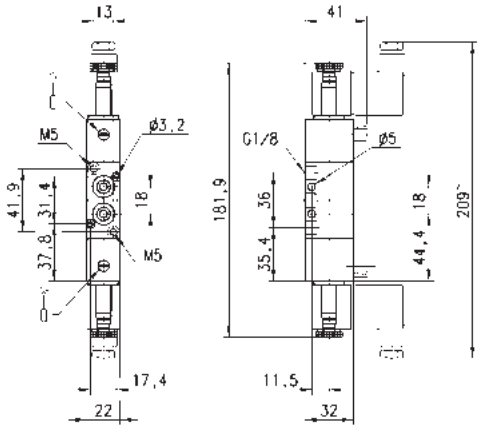
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5/2-way solenoid valve, G1/8, bistable - Mod. 358...

These solenoid valves, which have electropneumatic actuation and spring return, are suitable for operating double-acting cylinders.





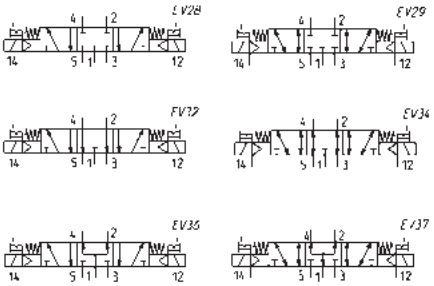


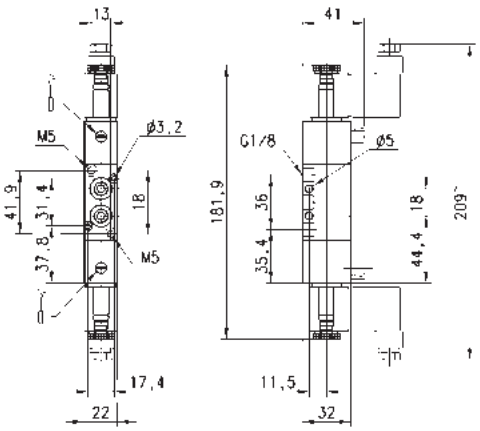
Mod.	Function	Flow rate (Nl/min)	Operating pressure (bar)	Pilot pressure (bar)	Symbol
358-011-02	5/2	700	1,5 ÷ 10	-	EV23
358-E11-02	5/2	700	-0,9 ÷ 10	1,5 ÷ 10	EV25

5/3-way solenoid valve, G1/8, - Mod. 368... Mod. 378... Mod. 388...

CC = Centres Closed CO = Centres Open CP = Pressure Centres







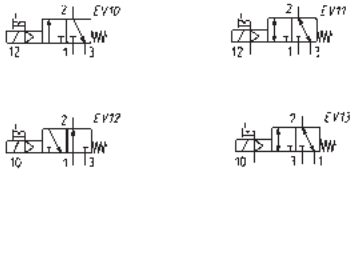
Mod.	Function	Flow rate (Nl/min)	Operating pressure (bar)	Pilot pressure (bar)	Symbol
368-011-02	5/3 CC	700	2 ÷ 10	-	EV28
368-E11-02	5/3 CC	700	-0,9 ÷ 10	2 ÷ 10	EV29
378-011-02	5/3 CO	700	2-10	-	EV32
378-E11-02	5/3 CO	700	-0,9 ÷ 10	2 ÷ 10	EV34
388-011-02	5/3 CP	700	2 ÷ 10	-	EV36
388-E11-02	5/3 CP	700	-0,9 ÷ 10	2 ÷ 10	EV37

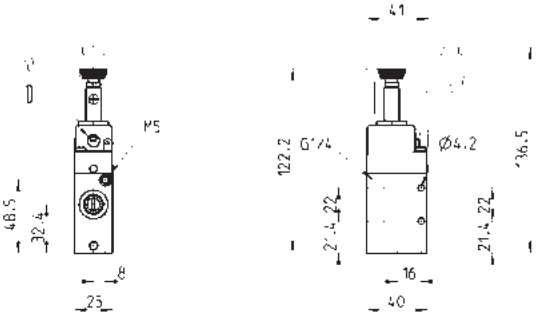
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3/2-way solenoid valve, G1/4, monostable - Mod. 334... Mod 344...



These solenoid valves, which have electropneumatic actuation and spring return, are available in the NC (closed) or NO (open) version.



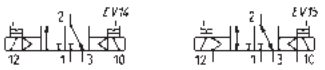


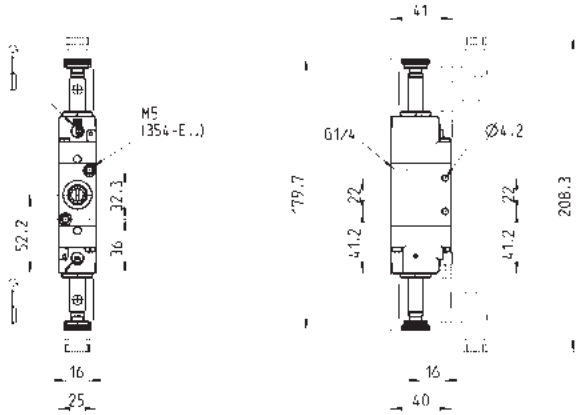
Mod.	Mounting	Function	Flow rate (Nl/min)	Operating pressure (bar)	Pilot pressure (bar)	Symbol
334-015-02	in-line	3/2 NC	1300	2.5 ÷ 10	-	EV10
334-E15-02	in-line	3/2 NC	1300	-0.9 ÷ 10	2.5 ÷ 10	EV11
344-015-02	in-line	3/2 NO	1300	2.5 ÷ 10	-	EV12
344-E15-02	in-line	3/2 NO	1300	-0.9 ÷10	2.5 ÷ 10	EV13

3/2-way solenoid valve, G1/4, bistable - Mod. 334...



These solenoid valves, which have electropneumatic actuation and return assume the NC (closed) or NO (open) position depending on ther last pulse received.





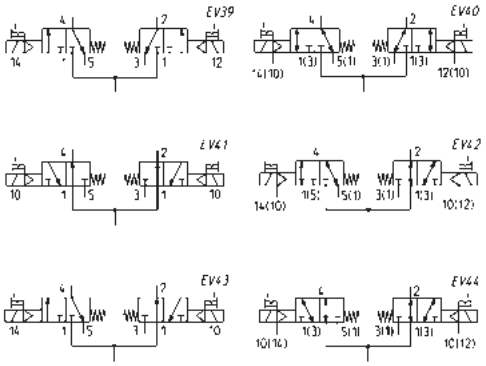
Mod.	Mounting	Function	Flow rate (Nl/min)	Operating pressure (bar)	Pilot pressure (bar)	Symbol
334-011-02	in-line	3/2	1300	1.5 ÷ 10	-	EV14
334-E11-02	in-line	3/2	1300	1.5 ÷ 10	2.5 ÷ 10	EV15

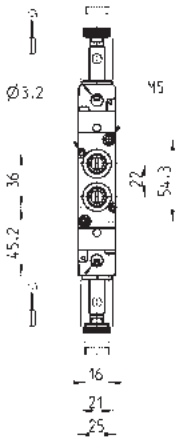
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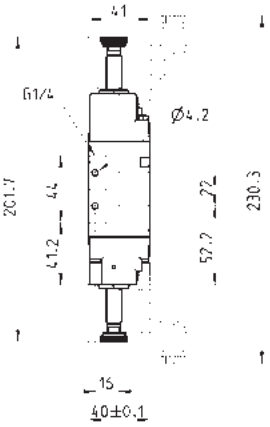
2 x 3/2-way solenoid valve, G1/4 Mod. 334D... 344D... and 394D...

These solenoid valves are available in versions with 2 x 3/2 valves in the same valve.









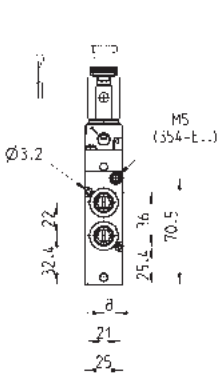
Mod.	Function	Flow rate (Nl/min)	Operating pressure (bar)	Pilot pressure (bar)	Symbol
334D-015-02	2 x 3/2 NC	1200	2,5 ÷ 10	-	EV39
344D-015-02	2 x 3/2 NO	1050	2,5 ÷ 10	-	EV41
334D-E15-02	2 x 3/2 NC	1200	-0,9 ÷ 10	2,5 ÷ 10	EV40
344D-E15-02	2 x 3/2 NO	1050	-0,9 ÷ 10	2,5 ÷ 10	EV44
394D-015-02	1 x 3/2 NC + 1 x 3/2 NO	1050	2 ÷ 10	-	EV43
394D-E15-02	1 x 3/2 NC + 1 x 3/2 NO	1050	-0,9 ÷ 10	2,5 ÷ 10	EV42

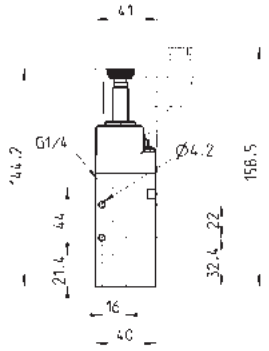
5/2-way solenoid valve, G1/4, monostable - Mod. 354...

These solenoid valves, which have electropneumatic actuation and spring return, are suitable for operating double-acting cylinders.









Mod.	Function	Flow rate (Nl/min)	Operating pressure (bar)	Pilot pressure (bar)	Symbol
354-015-02	5/2	1300	2,5 ÷ 10	-	EV18
354-E15-02	5/2	1300	-0,9 ÷ 10	2,5 ÷ 10	EV19

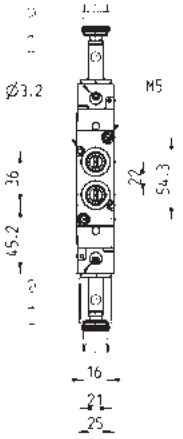
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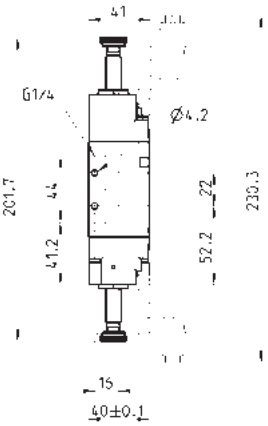
5/2-way solenoid valve, G1/4, bistable - Mod. 354...

These solenoid valves, which have electropneumatic actuation and spring return, are suitable for operating double-acting cylinders.







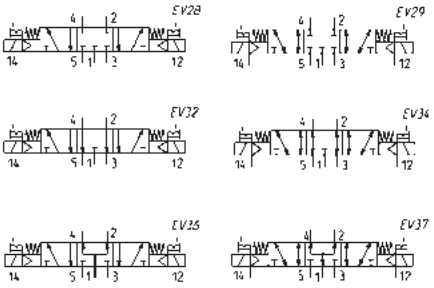


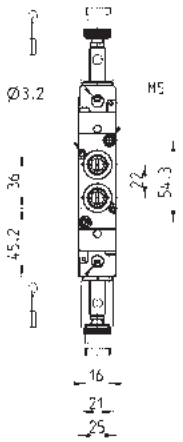
Mod.	Function	Flow rate (Nl/min)	Operating pressure (bar)	Pilot pressure (bar)	Symbol
354-011-02	5/2	1300	1,5 ÷ 10	-	EV23
354-E11-02	5/2	1300	-0,9 ÷ 10	2,5 ÷ 10	EV25

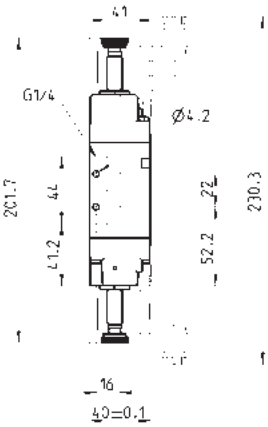
5/3-way solenoid valve, G1/4, - Mod. 364... Mod. 374... Mod. 384...

CC = Centres Closed CO = Centres Open CP = Pressure Centres







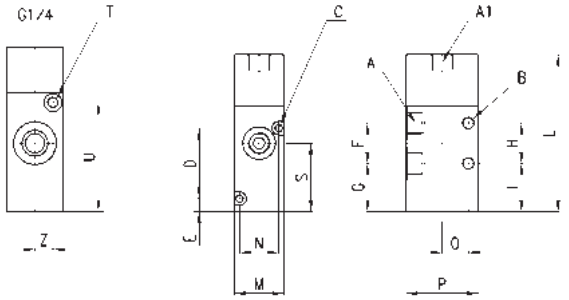


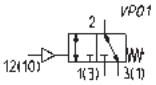
Mod.	Function	Flow rate (Nl/min)	Operating pressure (bar)	Pilot pressure (bar)	Symbol
364-011-02	5/3 CC	1200	2,5 ÷ 10	-	EV28
364-E11-02	5/3 CC	1200	-0,9 ÷ 10	2,5 ÷ 10	EV29
374-011-02	5/3 CO	1200	2,5 ÷ 10	-	EV32
374-E11-02	5/3 CO	1200	-0,9 ÷ 10	2,5 ÷ 10	EV34
384-011-02	5/3 CP	1200	2,5 ÷ 10	-	EV36
384-E11-02	5/3 CP	1200	-0,9 ÷ 10	2,5 ÷ 10	EV37

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3/2-way valve, G1/8 or G1/4, monostable





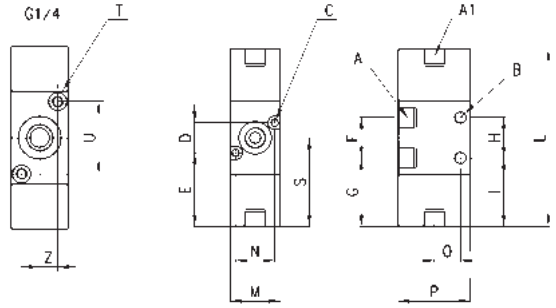


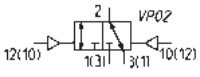
DIMENSIONS

Mod.	Mounting	Function	Flow rate (Nl/min)	Min. pilot press. (bar)	Working press. (bar)	A	A1	B	C	D	E	F	G	H	I	L	M	N	O	P	S	T	U	Z
338-035	in-line	3/2 NC	700	2.5	-0.9 ÷ 10	G1/8	G1/8	5	3.2	-	5.7	18	21.4	18	21.4	69.8	22	-	11.5	32	30.4	-	-	-
338L-035	on manifold	3/2 NC	700	2.5	-0.9 ÷ 10	G1/8	G1/8	-	3.2	31.4	5.7	18	21.4	-	21.4	69.8	22	17.4	11.5	32	30.4	-	-	-
334-035	in-line	3/2 NC	1300	3	-0.9 ÷ 10	G1/4	-	4.1	-	-	-	22	21.4	22	21.4	73	25	-	16	40	32.4	M5	48.5	8

3/2-way valve, G1/8 or G1/4, bistable







DIMENSIONS

Mod.	Mounting	Function	Flow rate (Nl/min)	Min. pilot press. (bar)	Working press. (bar)	A	A1	B	C	D	E	F	G	H	I	L	M	N	O	P	S	T	U	Z
338-033	in-line	3/2	700	1.5	-0.9 ÷ 10	G1/8	G1/8	5	-	-	-	18	30.4	18	30.4	78.8	22	-	11.5	32	41.7	-	-	-
338L-033	on manifold	3/2	700	1.5	-0.9 ÷ 10	G1/8	G1/8	5	3.2	13.4	32.7	18	30.4	-	30.4	78.8	22	17.4	-	32	41.7	-	-	-
334-033	in-line	3/2	1300	2.5	-0.9 ÷ 10	G1/4	-	4.1	-	-	-	22	29.7	22	29.7	81.3	25	-	16	40	40.7	M5	32.3	8

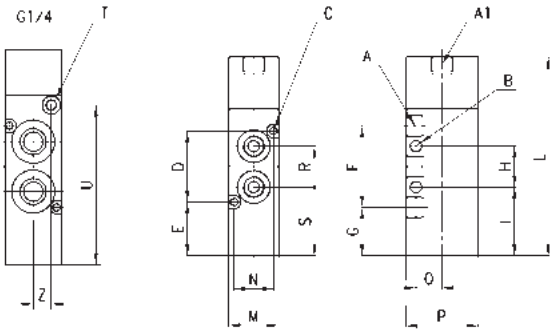
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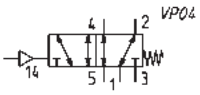
2
CONTROL

5/2-way valve, G1/8 or G1/4, monostable

In-line or manifold mounting







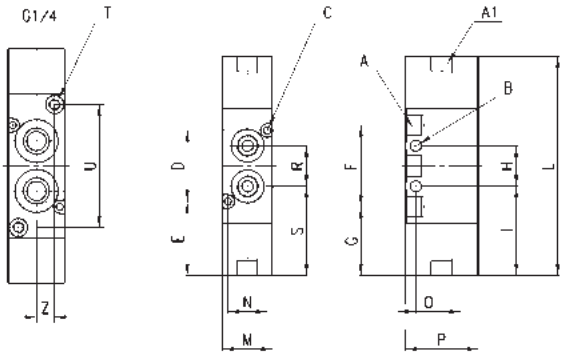
DIMENSIONS

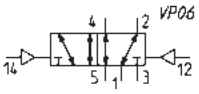
Mod.	Function	Flow rate (Nl/min)	min pilot press. (bar)	Working press. (bar)	A	A1	B	C	D	E	F	G	H	I	L	M	N	O	P	S	T	U	Z
358-035	5/2	700	2,5	-0,9 ÷ 10	G1/8	G1/8	5	3,2	31,4	23,8	36	21,4	18	30,4	87,8	22	17,4	11,5	32	30,4	-	-	-
354-035	5/2	1300	3	-0,9 ÷ 10	G1/4	-	4,1	3,2	36	25,4	44	21,4	22	30,4	95	25	21	16	40	32,4	M5	70,5	8

5/2-way valve, G1/8 or G1/4, bistable

In-line or manifold mounting







DIMENSIONS

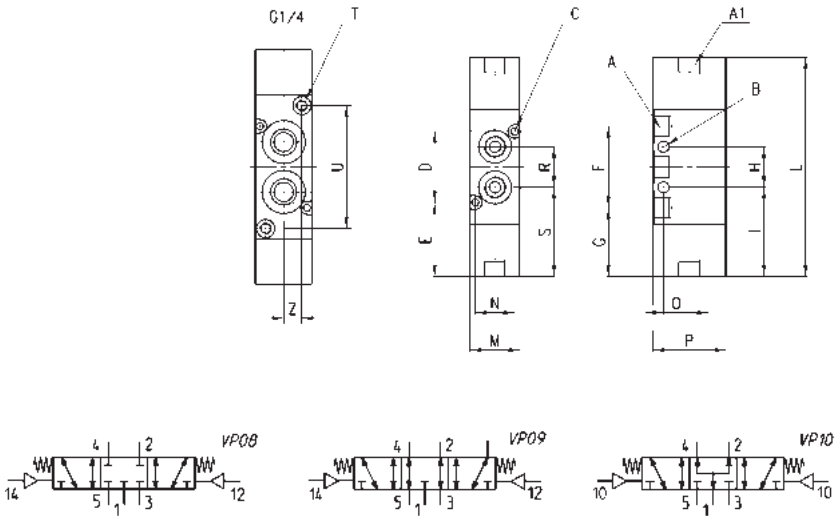
Mod.	Function	Flow rate (Nl/min)	min. pilot pressure (bar)	Working pressure (bar)	A	A1	B	C	D	E	F	G	H	I	L	M	N	O	P	S	T	U	Z
358-033	5/2	700	1,5	-0,9 ÷ 10	G1/8	G1/8	5	3,2	31,4	32,8	36	30,4	18	39,4	96,8	22	17,4	11,5	32	39,4	-	-	-
354-033	5/2	1300	2,5	-0,9 ÷ 10	G1/4		4,1	3,2	36	33,7	44	29,7	22	40,7	103,3	25	21	16	40	40,7	M5	54,3	8

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5/3-way valve, G1/8 or G1/4

In-line or manifold mounting





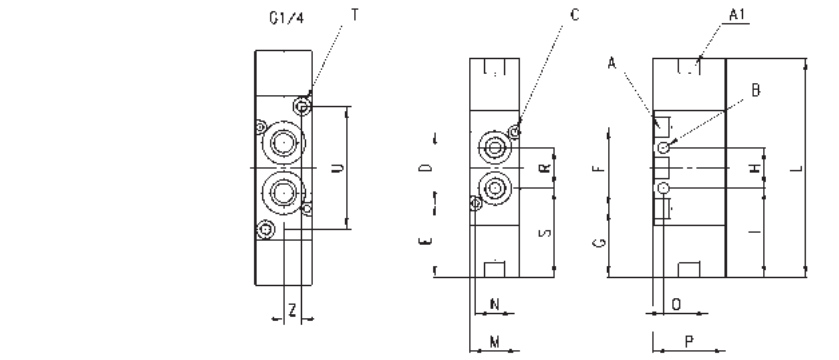
DIMENSIONS

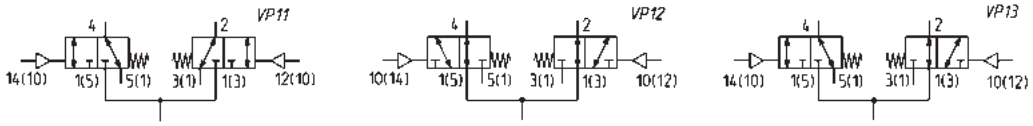
Mod.	Function	Flow rate (Nl/min)	Min. pilot pr. (bar)	Working pr. (bar)	A	A1	B	C	D	E	F	G	H	I	L	M	N	O	P	S	T	U	Z	Symb.
368-033	5/3 CC	700	2,5	-0,9 ÷ 10	G1/8	G1/8	5	3,2	31,4	32,8	36	30,4	18	39,4	96,8	22	17,4	11,5	32	39,4	-	-	-	VP08
364-033	5/3 CC	1200	2,5	-0,9 ÷ 10	G1/4	-	4,1	3,2	36	33,7	44	29,7	22	40,7	103,3	25	21	16	40	40,7	M5	54,3	8	VP08
378-033	5/3 CO	700	2,5	-0,9 ÷ 10	G1/8	G1/8	5	3,2	31,4	32,8	36	30,4	18	39,4	96,8	22	17,4	11,5	32	39,4	-	-	-	VP09
374-033	5/3 CO	1050	2,5	-0,9 ÷ 10	G1/4	-	4,1	3,2	36	33,7	44	29,7	22	40,7	103,3	25	21	16	40	40,7	M5	54,3	8	VP09
388-033	5/3 CP	700	2,5	-0,9 ÷ 10	G1/8	G1/8	5	3,2	31,4	32,8	36	30,4	18	39,4	96,8	22	17,4	11,5	32	39,4	-	-	-	VP10
384-033	5/3 CP	1050	2,5	-0,9 ÷ 10	G1/4	-	4,1	3,2	36	33,7	44	29,7	22	40,7	103,3	25	21	16	40	40,7	M5	54,3	8	VP10

2 x 3/2-way valve, G1/8 or G1/4

In-line or manifold mounting







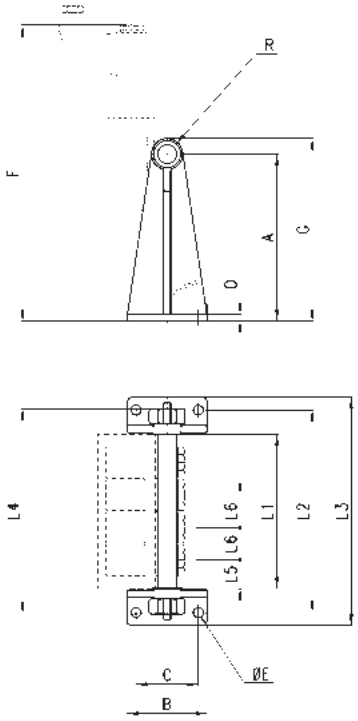
DIMENSIONS

Mod.	Function	Flow rate (Nl/min)	min. pilot pr. (bar)	Working pr. (bar)	A	A1	B	C	D	E	F	G	H	I	L	M	N	O	P	S	T	U	Z	Symb.
338D-035	2x3/2 NC	700	2,5	-0,9 ÷ 10	G1/8	G1/8	5	3,2	31,4	32,8	36	30,4	18	39,4	96,8	22	17,4	11,5	32	39,4	-	-	-	VP11
334D-035	2x3/2 NC	1050	2,5	-0,9 ÷ 10	G1/4	-	4,1	3,2	36	33,7	44	29,7	22	40,7	103,3	25	21	16	40	40,7	M5	54,3	8	VP11
348D-035	2x3/2 NO	700	2,5	-0,9 ÷ 10	G1/8	G1/8	5	3,2	31,4	32,8	36	30,4	18	39,4	96,8	22	17,4	11,5	32	39,4	-	-	-	VP12
344D-035	2x3/2 NO	1050	2,5	-0,9 ÷ 10	G1/4	-	4,1	3,2	36	33,7	44	29,7	22	40,7	103,3	25	21	16	40	40,7	M5	54,3	8	VP12
398D-035	2x3/2 NC/NO	700	2,5	-0,9 ÷ 10	G1/8	G1/8	5	3,2	31,4	32,8	36	30,4	18	39,4	96,8	22	17,4	11,5	32	39,4	-	-	-	VP13
394D-035	2x3/2 NC/NO	1050	2,5	-0,9 ÷ 10	G1/4	-	4,1	3,2	36	33,7	44	29,7	22	40,7	103,3	25	21	16	40	40,7	M5	54,3	8	VP13

Manifold bars with separate exhausts (low version)



The following is supplied:
2x feet
1x manifold
1x inlet fitting
1x plug
4x washers



DIMENSIONS

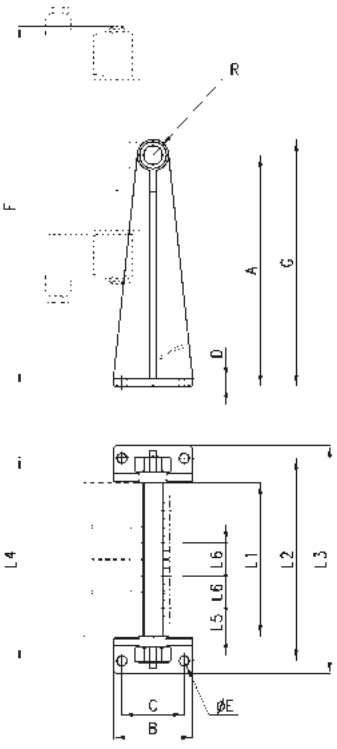
Mod.	Nr of valves	A	B	C	D	ØE	F	G	R	L1	L2	L3	L4	L5	L6	Suitable for Series
CNV-318-2	2	73	56	44	5	7	178	83	G1/4	63	97	115	99	20	23	3 - G1/8
CNV-318-3	3	73	56	44	5	7	178	83	G1/4	86	120	138	119	20	23	3 - G1/8
CNV-318-4	4	73	56	44	5	7	178	83	G1/4	109	143	161	142	20	23	3 - G1/8
CNV-318-5	5	73	56	44	5	7	178	83	G1/4	132	166	184	165	20	23	3 - G1/8
CNV-318-6	6	73	56	44	5	7	178	83	G1/4	155	189	207	188	20	23	3 - G1/8

The fixing screws of the valves Mod. 1631 01-1/8 must be ordered separately.

Manifold bars with separate exhausts (high version)



The following is supplied:
2x feet
1x manifold
1x inlet fitting
1x plug
4x washers



DIMENSIONS

Mod.	Nr of valves	A	B	C	D	ØE	F	G	R	L1	L2	L3	L4	L5	L6	Suitable for Series
CNV-328-2	2	118	56	44	5	7	223	128	G1/4	63	97	115	99	20	23	3 - G1/8
CNV-328-3	3	118	56	44	5	7	223	128	G1/4	86	120	138	119	20	23	3 - G1/8
CNV-328-4	4	118	56	44	5	7	223	128	G1/4	109	143	161	142	20	23	3 - G1/8
CNV-328-5	5	118	56	44	5	7	223	128	G1/4	132	166	184	165	20	23	3 - G1/8
CNV-328-6	6	118	56	44	5	7	223	128	G1/4	155	189	207	188	20	23	3 - G1/8

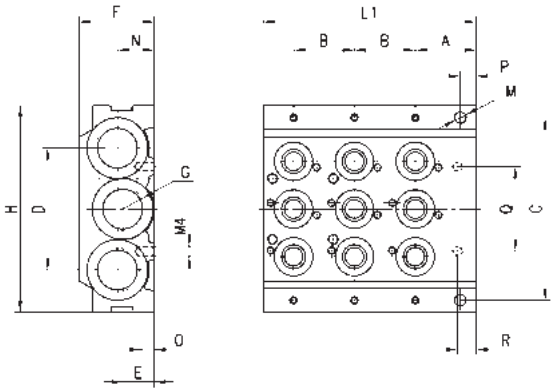
The fixing screws of the valves Mod. 1631 01-1/8 must be ordered separately.

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Initial / final Module with three positions - Mod. CNVL-...



The following is supplied:
3x interface O-Rings manifold/manifold;
2x fixing nuts;
2x junction plugs;
9x interface seals valve/manifold (CNVL-3H3)
or 3x interface seals valve/manif. (CNVL-4H3);
6x fixing screws for valves



DIMENSIONS

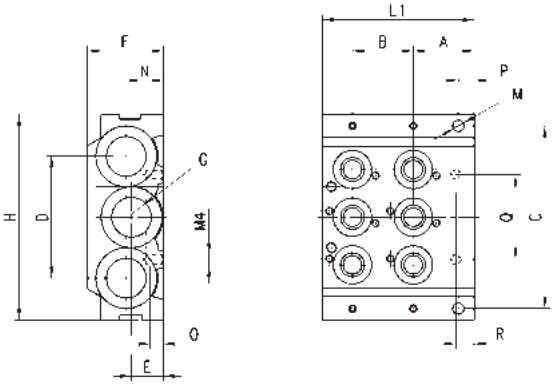
Mod.	A	B	C	D	E	F	H	L1	M	N	O	P	Q	R	G
CNVL-3H3	23	23	69,5	46	12	29	78	80,5	4,3	14	5	6	32	7	3/8
CNVL-4H3	26	26	88	60	14	29	98	91	4,3	-	5	5	38	7	1/2

CNVL-3H3: for Series 3, G1/8
CNVL-4H3: for Series 3, G1/4

Initial / final Module with 2 positions - Mod. CNVL-...



Initial module with 2 positions
The following is supplied:
3x interface O-Rings manifold/manifold;
2x fixing nuts;
2x junction plugs;
6x interface seals valve/manifold (CNVL-3H2)
or 2x interface seals valve/manif. (CNVL-4H2);
4x fixing screws for valves



DIMENSIONS

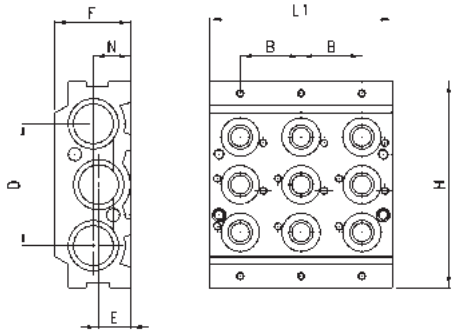
Mod.	A	B	C	D	E	F	H	L1	M	N	O	P	Q	R	G
CNVL-3H2	23	23	69,5	46	12	29	78	57,5	4,3	14	5	6	32	7	3/8
CNVL-4H2	26	26	88	60	14	29	98	65	4,3	-	5	5	38	7	1/2

CNVL-3H2: for Series 3, G1/8
CNVL-4H2: for Series 3, G1/4

Intermediate module with 3 positions - Mod. CNVL-...



The following is supplied:
3x interface O-Rings manifold/manifold;
2x fixing nuts;
2x junction plugs;
9x interface seals valve/manifold (CNVL-3I3)
or 3x interface seals valve/manif. (CNVL-4I3);
6x fixing screws for valves



DIMENSIONS

Mod.	B	D	E	F	H	L1	N
CNVL-3I3	23	46	12	29	78	69	14
CNVL-4I3	26	60	14	29	98	78	-

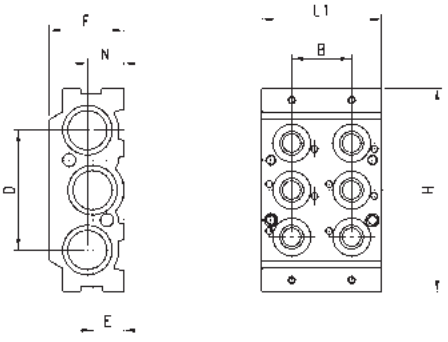
CNVL-3I3: for Series 3, G1/8
CNVL-4I3: for Series 3, G1/4

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Intermediate module with 2 positions - Mod. CNVL-...



The following is supplied:
3x interface O-Rings manifold/manifold;
2x fixing nuts;
2x junction plugs;
6x interface seals valve/manifold (CNVL-3I2)
or 2x interface seals valve/manif. (CNVL-4I2);
4x fixing screws for valves



DIMENSIONS

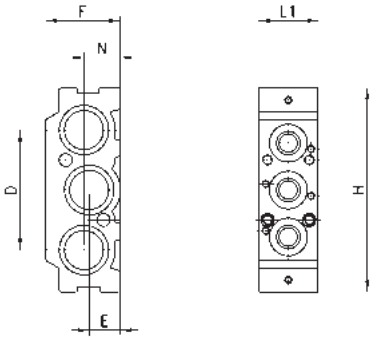
Mod.	B	D	E	F	H	L1	N
CNVL-3I2	23	46	12	29	78	46	14
CNVL-4I2	26	60	14	29	98	52	-

CNVL-3I2: for Series 3, G1/8
CNVL-4I2: for Series 3, G1/4

Intermediate module with 1 position - Mod. CNVL-...



The following is supplied:
3x interface O-Rings manifold/manifold;
2x fixing nuts;
2x junction plugs;
3x interface seals valve/manifold (CNVL-3I1)
or 1x interface seal valve/manif. (CNVL-4I1);
2x fixing screws for valves



DIMENSIONS

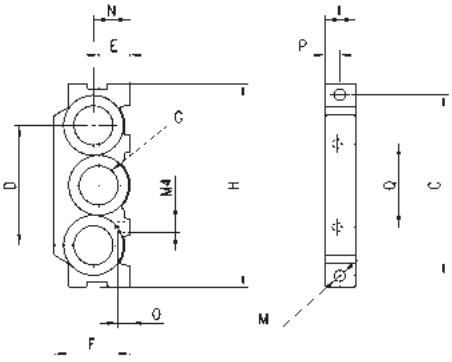
Mod.	D	E	F	H	L1	N
CNVL-3I1	46	12	29	78	23	14
CNVL-4I1	60	14	29	98	26	-

CNVL-3I1: for Series 3, G1/8
CNVL-4I1: for Series 3, G1/4

Terminal module Mod. CNVL-*H



The following is supplied:
2x fixing nuts



DIMENSIONS

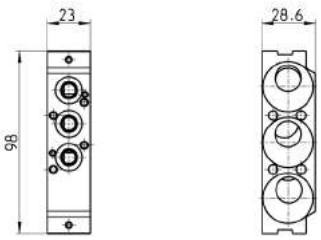
Mod.	C	D	E	F	H	I	M	N	O	P	Q	G
CNVL-3H	69,5	46	12	29	78	11,5	4,3	14	5	6	32	3/8
CNVL-4H	88	60	14	29	98	13	4,3	-	5	8	29	1/2

CNVL-3H: for Series 3, G1/8
CNVL-4H: for Series 3, G1/4

Interface module manifold between Series 3 G1/8 and G1/4



The following is supplied:
3x interface seal
2x screws
2x pins
4x plugs
6x O-Rings



Mod.
CNVL-4H-3H

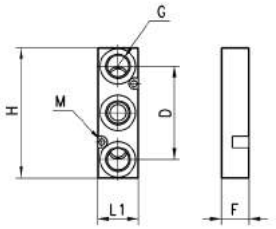
It is possible to seat 1 valve, series 3 with G1/8 port.

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Intermediate plate for additional inlet and exhaust pressure



The following is supplied:
3x O-Rings
2x fixing screws



DIMENSIONS							
Mod.	G	H	M	F	L1	D	F
CNVL-3P	G1/4	70	3.2	29	22	50	15
CNVL-4P	G1/4	73	3.2	29	25	50	20

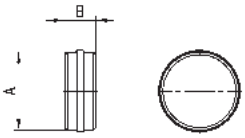
CNVL-3P: for Series 3, G1/8
CNVL-4P: for Series 3, G1/4

Separation diaphragm



For separation of channel: 1 - 3 - 5.

The following is supplied:
1x diaphragm

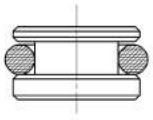


DIMENSIONS			
Mod.	A	B	
CNVL-3H-TP	15.6	6	for Series 3, G1/8
CNVL-4H-TP	23.8	8	for Series 3, G1/4

Blanking plug Mod. TCNVL for manifolds



The following is supplied:
1x blanking plug
1x O-Ring



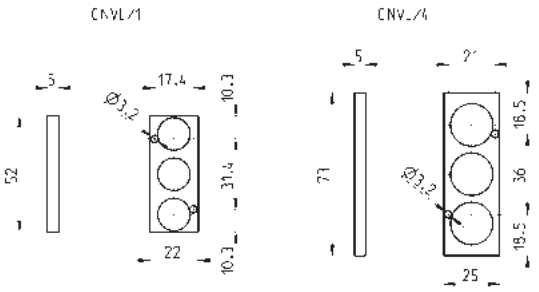
Mod.	
TCNVL/3	for Series 3, G1/8
TCNVL/5	for Series 3, G1/4

Blanking plate Mod. CNVL for manifolds



It is used to blank vacant positions of a manifold.

The following is supplied:
2x fixing screws
3x O-Rings



Mod.	
CNVL/1	for Series 3, G1/8
CNVL/4	for Series 3, G1/4

Series 4
valves and solenoid valves

New models

3/2, 5/2 and 5/3-way CC, CO
Ports: G1/8, G1/4, G1/2



Series 4 solenoid valves have been designed in the 3/2, 5/2, 5/3 versions and with the following two devices of actuation:
- electropneumatically actuated with mechanical spring return
- electropneumatically actuated and return with external and internal air pressure supply

Series 4 valves are equipped with a manual override which allows a stable operation and they are particularly suitable for mounting in arduous conditions.

All these valves can be operated by solenoids Series U, G A8 and H8. Moreover, valves with ports G1/2 only can be supplied with solenoids Series A6 (32x32).

Pneumatically actuated valves 3/2 NC become NO when the supply is on connection 3.

» New models with high flow (3300 and 4000 Nl/min) available

GENERAL DATA

Construction	balanced spool type
Valve functions	3/2 - 5/2 - 5/3-way CC, CO
Materials	AL body and bases, stainless steel spool, technopolymer end cover, NBR PU seals
Ports	G1/8 - G1/4 - G1/2
Installation	in any position
Operating temperature	0 ÷ 60°C (with dry air at -20°C)
Operating pressure	see table
Medium	filtered air, without lubrication. If lubricated air is used, it is recommended to use ISOVG32 oil. Once applied the lubrication should never be interrupted.

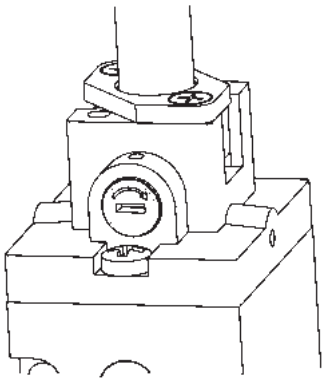
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CODING EXAMPLE

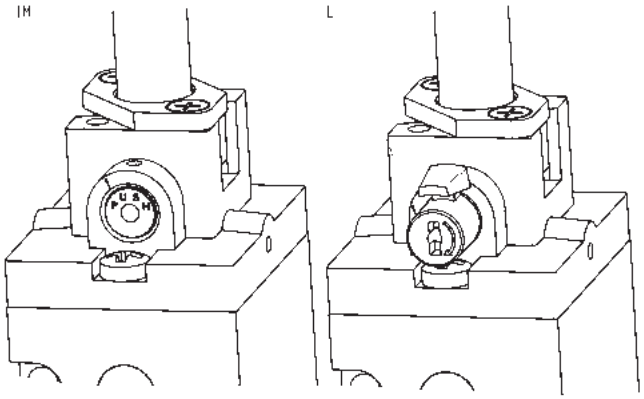
4	5	4	-	015	-	22	-	U7	7	

4	SERIES
5	NUMBER OF WAYS - POSITIONS: 3 = 3/2 NC 4 = 3/2 NO 5 = 5/2 6 = 5/3 CC 7 = 5/3 CO
4	PORTS: 8 = G1/8 4 = G1/4 2C = G1/2 2N = G1/2 (high flow)
015	ACTUATION: 011 = double solenoid (horizontal solenoids) V11 = double solenoid (vertical solenoids) for G1/4 port only E11 = double solenoid external servo-command E15 = single solenoid external servo-command 015 = single solenoid, spring return (horizontal solenoids) V15 = single solenoid, spring return (vertical solenoid) for G1/4 port only 016 = single solenoid, pneumatic spring return (horizontal solenoid) V16 = single solenoid, pneumatic spring return (vertical solenoid) for G1/4 port only 33 = pneumatic pneumatic 34 = pneumatic differential 35 = pneumatic spring
22	SOLENOID INTERFACE:: 22 = mech. sol. 22 x 22 50 = mech. sol. 32 x 32 (G1/2 only)
U7	ENCAPSULATING MATERIAL / SOLENOID DIMENSIONS: A6 = PPS / 32 x 32 (G1/2 only) A8 = PPS / 30 x 30 G7 = PA / 22 x 22 G8 = PA / 30 x 30 (24 V DC only) G9 = PA / 22 x 58 H8 = PA 6 V0 / 30 x 30 U7 = PET / 22 x 22
7	SOLENOID VOLTAGE: see solenoids section on page 2.2.35.01
	TYPE OF MANUAL OVERRIDE: = bistable, standard IL = bistable, lever type (available on demand) IM = monostable (available on demand)

TYPES OF MANUAL OVERRIDE



Example of solenoid valve with a bistable standard manual override.

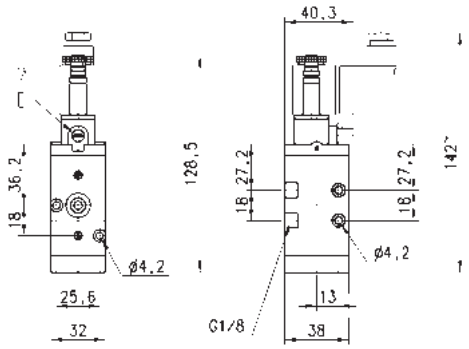


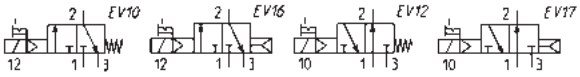
Example of solenoid monostable valve (IM) and bistable valve with a lever type manual override (IL). Both versions are available on demand. To order them it is necessary to add IM or IL at the end of the code. Code ex.: 454-015-22-U77IL.

3/2-way solenoid valve G1/8, monostable - Mod. 438... and 448...



These solenoid valves, which have electropneumatic actuation and spring return, are available in the NC (closed) or NO (open) version.



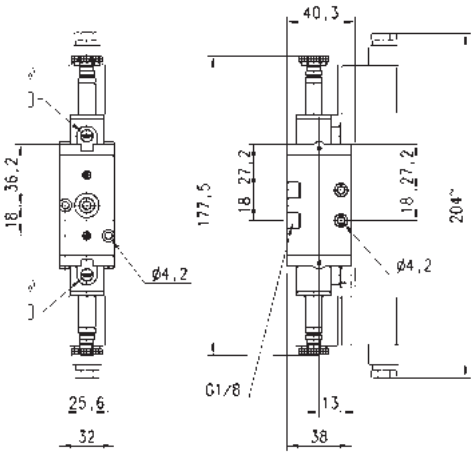


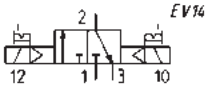
Mod.	Function	Flow rate Qn (Nl/min)	Operating pressure (bar)	Symbol
438-015-22	3/2 NC	650	2,5 ÷ 10	EV10
438-016-22	3/2 NC	650	2,5 ÷ 10	EV16
448-015-22	3/2 NO	650	2,5 ÷ 10	EV12
448-016-22	3/2 NO	650	2,5 ÷ 10	EV17

3/2-way solenoid valve G1/8, bistable - Mod. 438-011...



These solenoid valves, which have electropneumatic actuation and return, assume the NC (closed) or NO (open) operating status depending on the last pulse received.





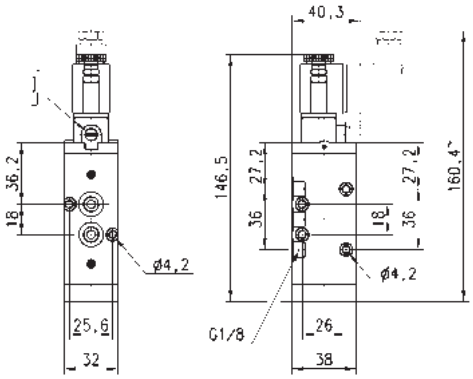
Mod.	Function	Flow rate Qn (Nl/min)	Operating pressure (bar)
438-011-22	3/2	700	2 ÷ 10

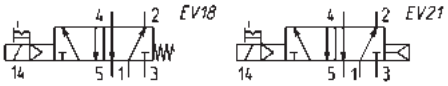
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5/2-way solenoid valves, G1/8, monostable - Mod 458...



These solenoid valves, which have electropneumatic actuation and spring return, are suitable for operating double-acting cylinders.



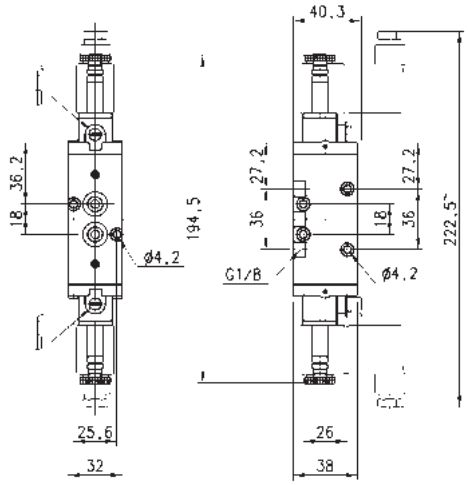


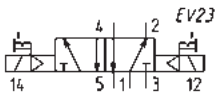
Mod.	Function	Flow rate Qn (Nl/min)	Operating pressure (bar)	Symbol
458-015-22	5/2	650	2,5 ÷ 10	EV18
458-016-22	5/2	650	2,5 ÷ 10	EV21

5/2-way solenoid valves, G1/8, bistable - Mod 458-011...



These solenoid valves, with electropneumatic actuation and return, are suitable for operating double-acting cylinders.





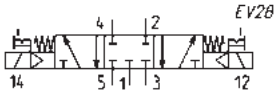
Mod.	Function	Flow rate Qn (Nl/min)	Operating pressure (bar)
458-011-22	5/2	650	2 ÷ 10

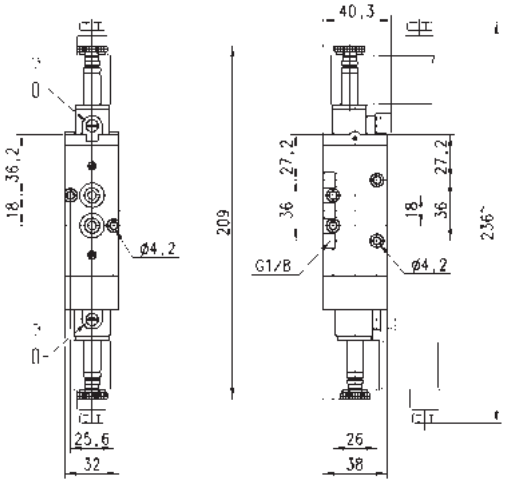
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5/3-way solenoid valve, G1/8 - Mod. 468-011... and 478-011...

CC = Centres Closed
CO = Centres Open





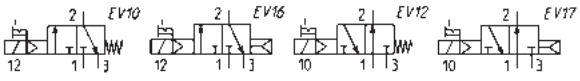


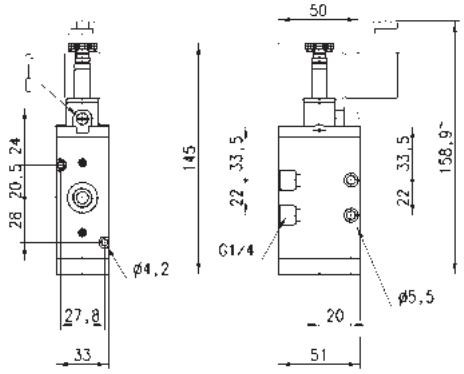
Mod.	Function	Flow rate Qn (Nl/min)	Operating pressure (bar)	Symbol
468-011-22	5/3 CC	600	2 ÷ 10	EV28
478-011-22	5/3 CO	600	2 ÷ 10	EV32

3/2-way solenoid valve, G1/4, monostable Mod. 434 and Mod. 444

These solenoid valves, which have electropneumatic actuation and spring return, are available in the NC (closed) or NO (open) version.







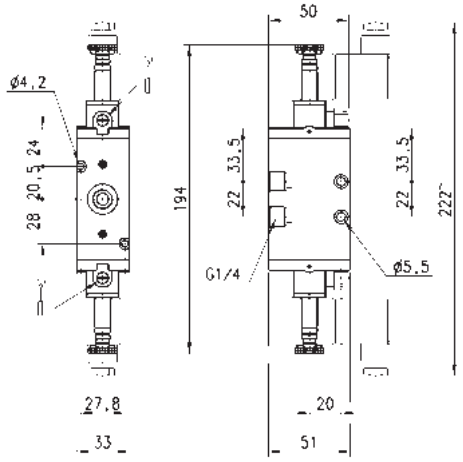
Mod.	Function	Flow rate Qn (Nl/min)	Operating pressure (bar)	Symbol
434-015-22	3/2 NC	1250	2 ÷ 10	EV10
434-016-22	3/2 NC	1250	2 ÷ 10	EV16
444-015-22	3/2 NO	1250	2 ÷ 10	EV12
444-016-22	3/2 NO	1250	2 ÷ 10	EV17

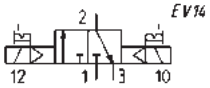
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3/2-way solenoid valve, G1/4, bistable - Mod. 434-011...



These solenoid valves, which have electropneumatic actuation and return, assume the NC (closed) or NO (open) position depending on the last pulse received.



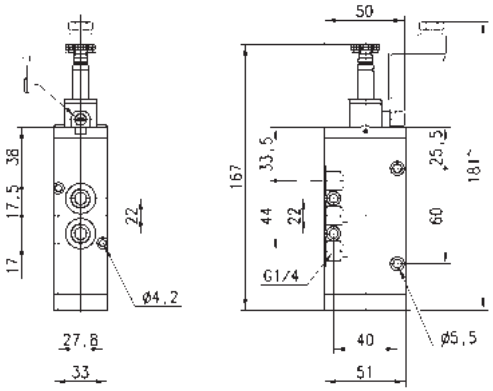


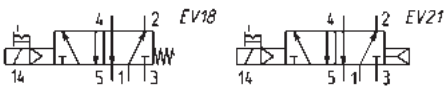
Mod.	Function	Flow rate Qn (Nl/min)	Operating pressure (bar)
434-011-22	3/2	1250	2 ÷ 10

5/2-way solenoid valve, G1/4, monostable - Mod. 454...



These solenoid valves, which have electropneumatic actuation and spring return, are suitable for operating double-acting cylinders.





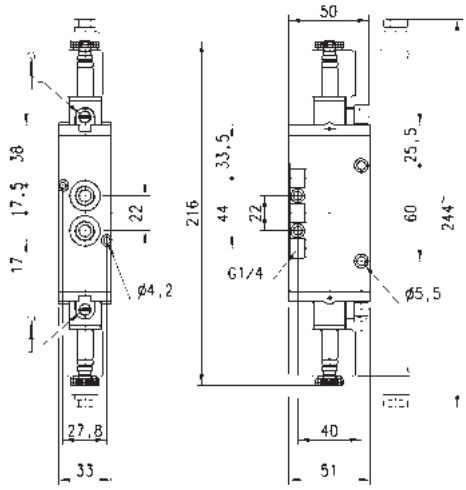
Mod.	Function	Flow rate Qn (Nl/min)	Operating pressure (bar)	Symbol
454-015-22	5/2	1250	2,5 ÷ 10	EV18
454-016-22	5/2	1250	2,5 ÷ 10	EV21

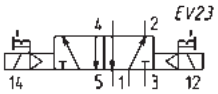
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5/2-way solenoid valve, G1/4, bistable - Mod. 454-011...



These solenoid valves, which have electropneumatic actuation and return, are suitable for operating double-acting cylinders.



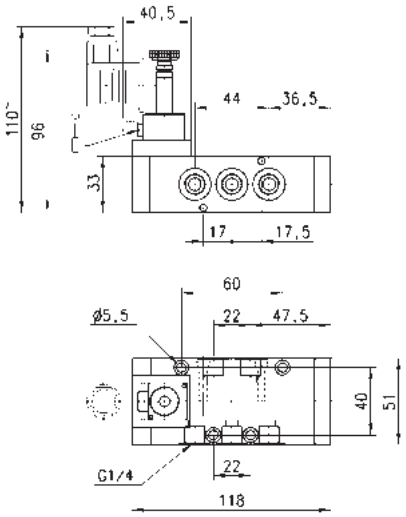


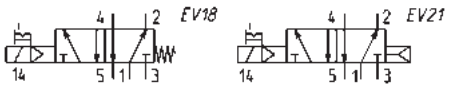
Mod.	Function	Flow rate Qn (Nl/min)	Operating pressure (bar)
454-011-22	5/2	1250	2 ÷ 10

5/2-way solenoid valve, G1/4, monostable - Mod. 454-V...



These solenoid valves, which have electropneumatic actuation and spring or pneumatic spring return are suitable for operating double-acting cylinders.





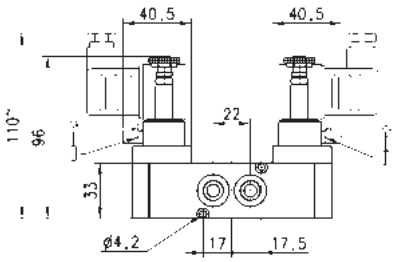
Mod.	Function	Flow rate Qn (Nl/min)	Operating pressure (bar)	Symbol
454-V15-22	5/2	1250	2,5 ÷ 10	EV18
454-V16-22	5/2	1250	2,5 ÷ 10	EV21

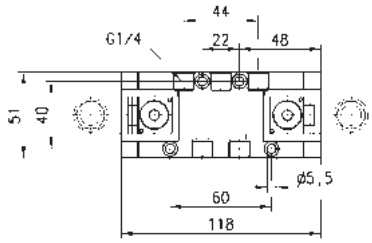
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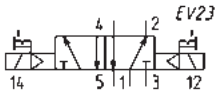
5/2-way solenoid valve, G1/4, bistable - Mod. 454-V11...



These solenoid valves, which have electropneumatic actuation and return, are suitable for operating double-acting cylinders.





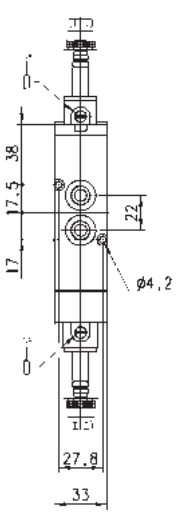


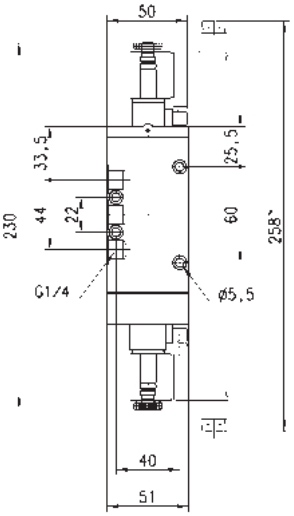
Mod.	Function	Flow rate Qn (Nl/min)	Operating pressure (bar)
454-V11-22	5/2	1250	2 ÷ 10

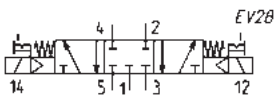
5/3-way solenoid valve, G1/4 - Mod. 464-011... e 474-011...

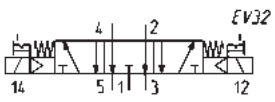
CC = Centres Closed
CO = Centres Open









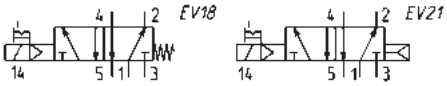


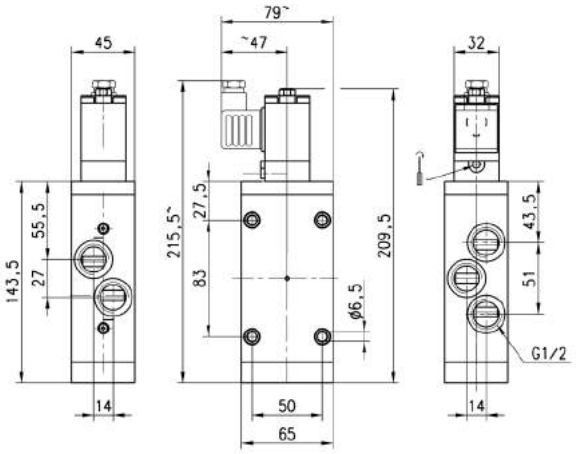
Mod.	Function	Flow rate Qn (Nl/min)	Operating pressure (bar)	Symbol
464-011-22	5/3 CC	1250	3 ÷ 10	EV28
474-011-22	5/3 CO	1250	3 ÷ 10	EV32

5/2-way solenoid valve, G1/2, monostable - Mod. 452C...



These solenoid valves, which have electropneumatic actuation and spring or pneumatic spring return are suitable for operating double-acting cylinders.



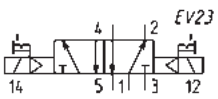


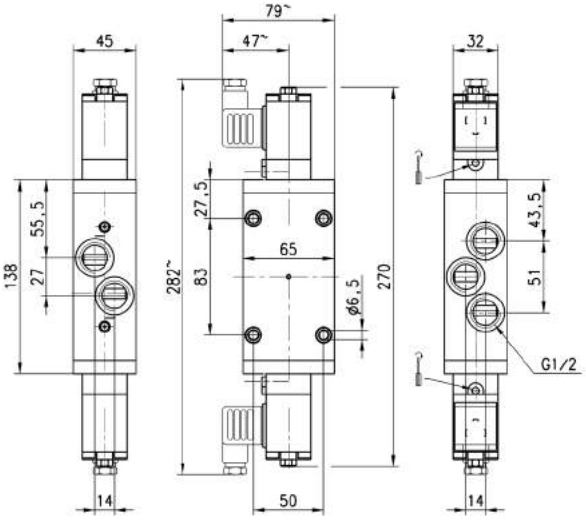
Mod.	Function	Flow rate Qn (Nl/min)	Operating pressure (bar)	Symbol	
452C-015-50-A6*	5/2	2500	2,5 ÷ 10	EV18	* choose the desired voltage
452C-016-50-A6*	5/2	2500	2,5 ÷ 10	EV21	* choose the desired voltage

5/2-way solenoid valve, G1/2, bistable - Mod. 452C-011...



These solenoid valves, which have electropneumatic actuation and return, are suitable for operating double-acting cylinders.





Mod.	Function	Flow rate Qn (Nl/min)	Operating pressure (bar)	
452C-011-50-A6*	5/2	2500	2 ÷ 10	* choose the desired voltage

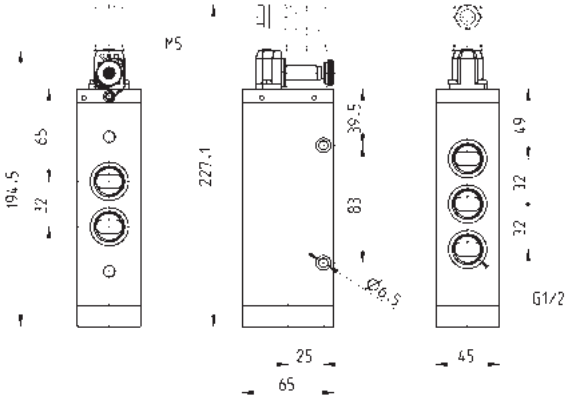
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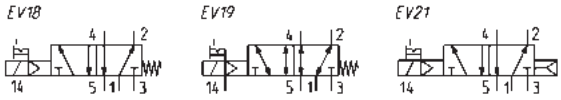
5/2-way solenoid valve, G1/2, monostable - Mod. 452N-...

New models

These solenoid valves, which have electropneumatic actuation and spring or pneumatic spring return are suitable for operating double-acting cylinders.







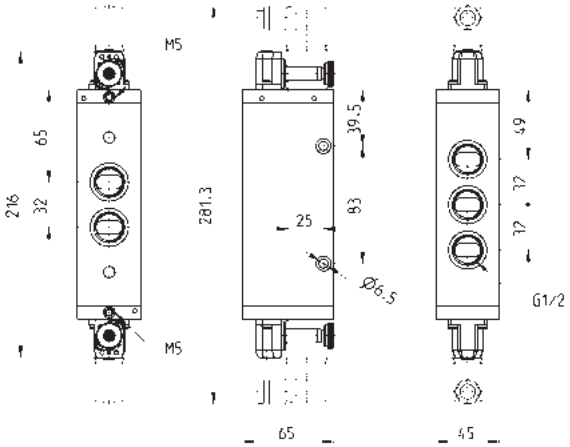
Mod.	Function	Flow rate Qn (Nl/min)	min. pilot Pressure (bar)	Working pressure (bar)	Symbol
452N-015-22	5/2	4000	-	2.5 ÷ 10	EV18
452N-016-22	5/2	4000	-	2 ÷ 10	EV21
452N-E15-22	5/2	4000	2.5	-0.9 ÷ 10	EV19

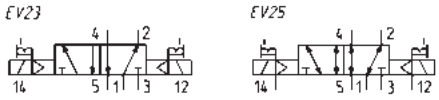
5/2-way solenoid valve, G1/2, bistable - Mod. 452N-...

New models

These solenoid valves, which have electropneumatic actuation and return, are suitable for operating double-acting cylinders.







Mod.	Function	Flow rate Qn (Nl/min)	min. pilot Pressure (bar)	Working pressure (bar)	Symbol
452N-011-22	5/2	4000	-	2 ÷ 10	EV23
452N-E11-22	5/2	4000	2	-0.9 ÷ 10	EV25

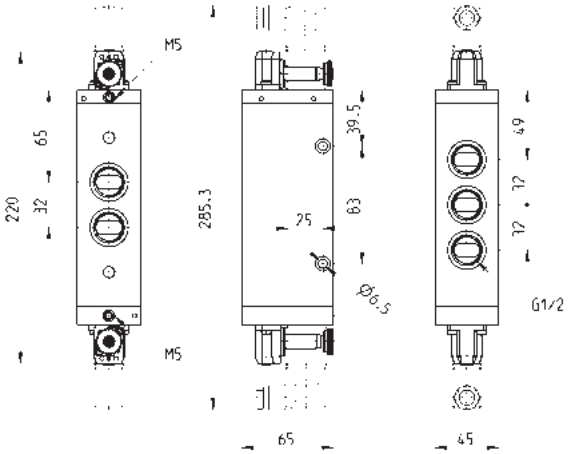
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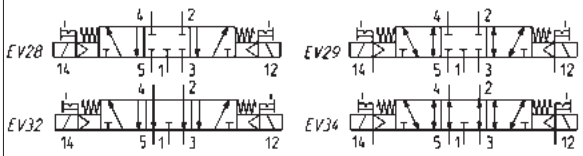
5/3-way solenoid valve, G1/2, bistable - Mod. 462N-..., 472N-...

New models



These solenoid valves, which have electropneumatic actuation and return, are suitable for operating double-acting cylinders.

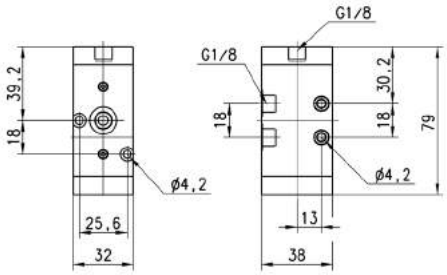


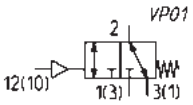


Mod.	Function	Flow rate Qn (Nl/min)	min. pilot Pressure (bar)	Working pressure (bar)	Symbol
462N-011-22	5/3 CC	3300	-	2 ÷ 10	EV28
462N-E11-22	5/3 CC	3300	2	-0.9 ÷ 10	EV29
472N-011-22	5/3 CO	3300	-	2 ÷ 10	EV32
472N-E11-22	5/3 CO	3300	2	-0.9 ÷ 10	EV34

3/2-way valve, G1/8 port, monostable Mod. 438-35





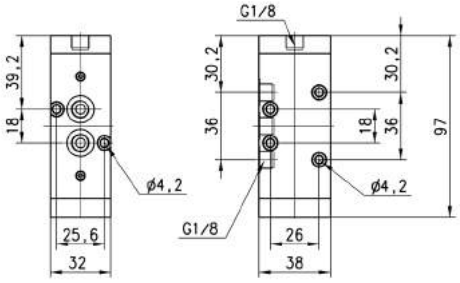


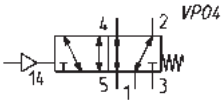
Mod.	Mounting	Function	Flow rate Qn (Nl/min)	min. pilot Pressure (bar)	Working pressure (bar)
438-35	in-line/on manifold	3/2 NC	700	2.5	-0.9 ÷ 10

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5/2-way valve, G1/8 port, monostable Mod. 458-35



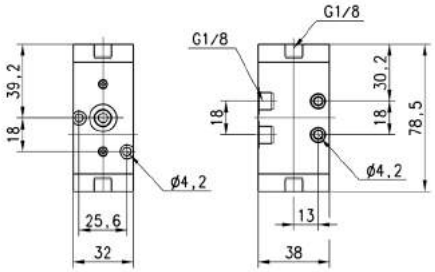


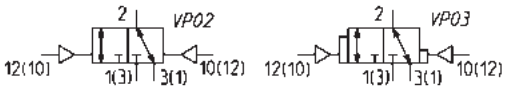


Mod.	Mounting	Function	Flow rate Qn (Nl/min)	min. pilot Pressure (bar)	Working pressure (bar)
458-35	in-line/manifold	5/2	700	2.5	-0.9 ÷ 10

3/2-way valve, G1/8 port, bistable Mod. 438





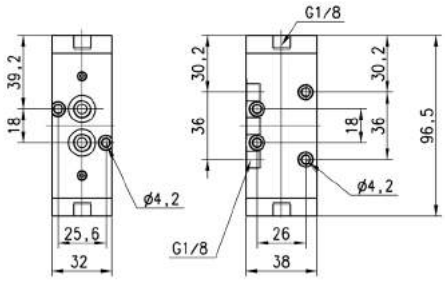


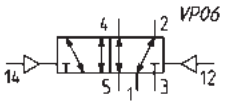
Mod.	Mounting	Function	Flow rate Qn (Nl/min)	min. pilot Pressure (bar)	Working pressure (bar)	Symbol
438-33	in-line/on manifold	3/2	700	2	-0.9 ÷ 10	VP02
438-34	in-line/on manifold	3/2	700	2	-0.9 ÷ 10	VP03

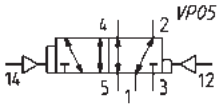
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5/2-way valve, G1/8 port, bistable Mod. 458





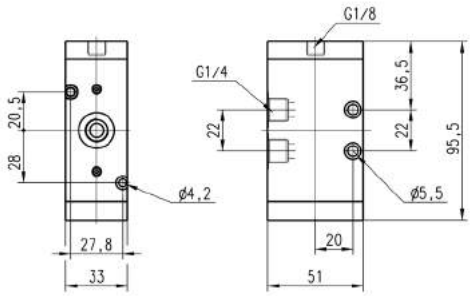


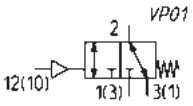


Mod.	Mounting	Function	Flow rate Qn (Nl/min)	min. pilot Pressure (bar)	Working pressure (bar)	Symbol
458-33	in-line/on manifold	5/2	700	2	-0.9 ÷ 10	VP06
458-34	in-line/on manifold	5/2	700	2	-0.9 ÷ 10	VP05

3/2-way valve, G1/4 port, monostable Mod. 434-35





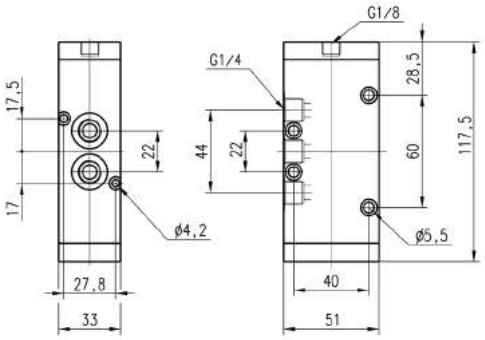


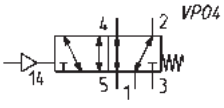
Mod.	Mounting	Function	Flow rate Qn (Nl/min)	min. pilot Pressure (bar)	Working pressure (bar)
434-35	in-line/on manifold	3/2 NC	1250	2.5	-0.9 ÷ 10

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5/2-way valve, G1/4 port, monostable Mod. 454-35



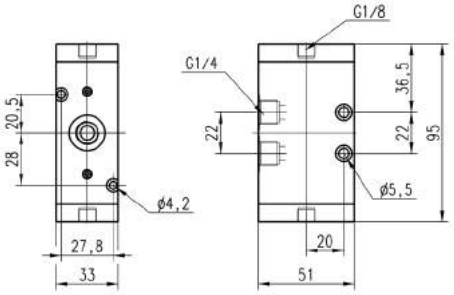


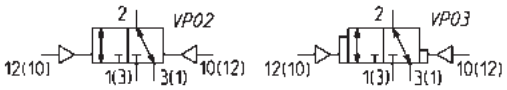


Mod.	Mounting	Function	Flow rate Qn (Nl/min)	min. pilot Pressure (bar)	Working pressure (bar)
454-35	in-line/on manifold	5/2	1250	2.5	-0.9 ÷ 10

3/2-way valve, G1/4 port, bistable Mod. 434





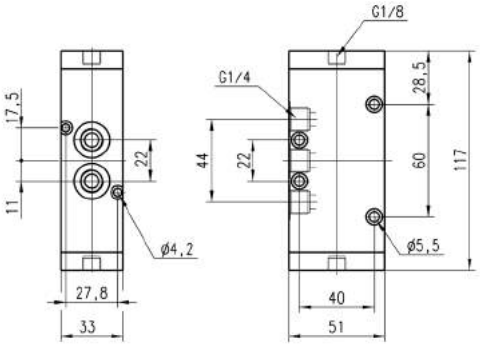


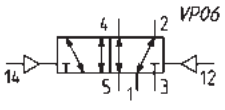
Mod.	Mounting	Function	Flow rate Qn (Nl/min)	min. pilot Pressure (bar)	Working pressure (bar)	Symbol
434-33	in-line/on manifold	3/2 NC	1250	2	-0.9 ÷ 10	VP02
434-34	in-line/on manifold	3/2 NC	1250	2	-0.9 ÷ 10	VP03

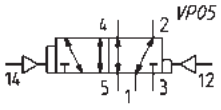
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5/2-way valve, G1/4 port, bistable Mod. 454







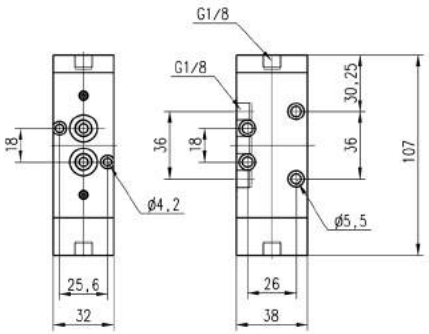


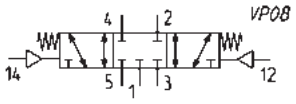
Mod.	Mounting	Function	Flow rate Qn (Nl/min)	min. pilot Pressure (bar)	Working pressure (bar)	Symbol
454-33	in-line/on manifold	5/2	1250	2	-0.9 ÷ 10	VP06
454-34	in-line/on manifold	5/2	1250	2	-0.9 ÷ 10	VP05

5/3-way C.C. valve, G1/8, monostable, with central stable position

CC = Centres Closed







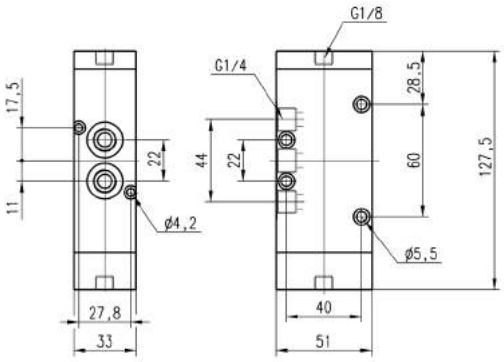
Mod.	Mounting	Function	Flow rate Qn (Nl/min)	min. pilot Pressure (bar)	Working pressure (bar)
468-33	in-line/on manifold	5/3 CC	700	2.5	-0.9 ÷ 10

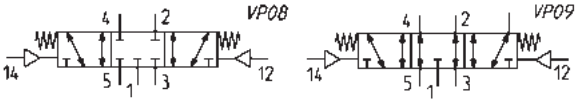
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5/3-way CC CO valve, G1/4, monostable, central stable position

CC = Centres Closed
CO = Centres Open



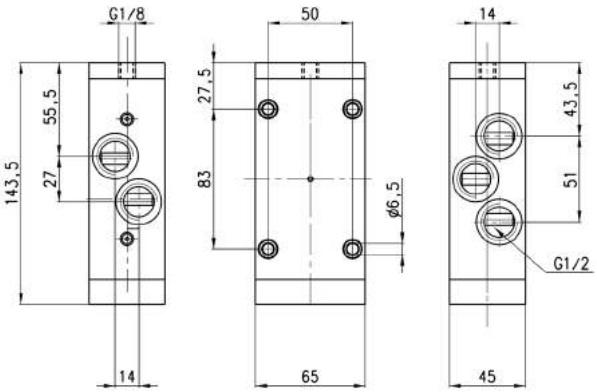


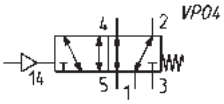


Mod.	Mounting	Function	Flow rate Qn (Nl/min)	min. pilot Pressure (bar)	Working pressure (bar)	Symbol
464-33	in-line/on manifold	5/3 CC	1250	2.5	-0.9 ÷ 10	VP08
474-33	in-line/on manifold	5/3 CO	1200	2.5	-0.9 ÷ 10	VP09

5/2-way valve, G1/2 port, monostable Mod. 452C-35





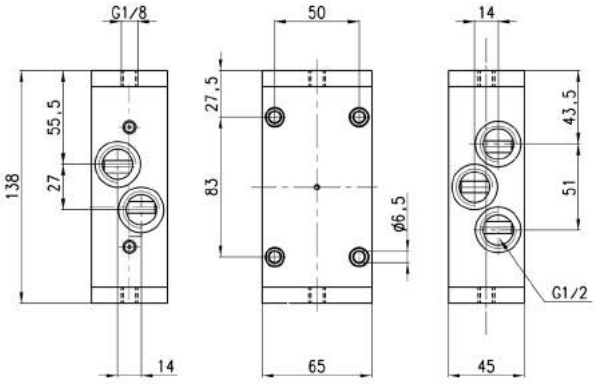


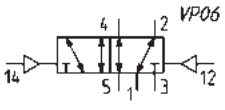
Mod.	Mounting	Function	Flow rate Qn (Nl/min)	min. pilot Pressure (bar)	Working pressure (bar)
452C-35	in-line	5/2	2500	2.5	-0.9 ÷ 10

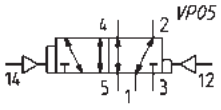
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5/2-way valve, G1/2 port, bistable Mod. 452C







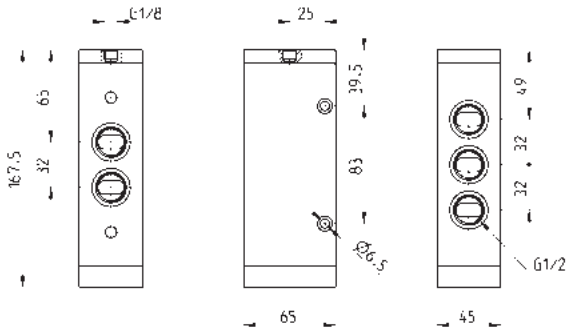


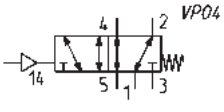
Mod.	Mounting	Function	Flow rate Qn (Nl/min)	min. pilot Pressure (bar)	Working pressure (bar)	Symbol
452C-33	in-line	5/2	2500	2	-0.9 ÷ 10	VP06
452C-34	in-line	5/2	2500	2	-0.9 ÷ 10	VP05

5/2-way valve, G1/2 port, monostable Mod. 452N-35

New model







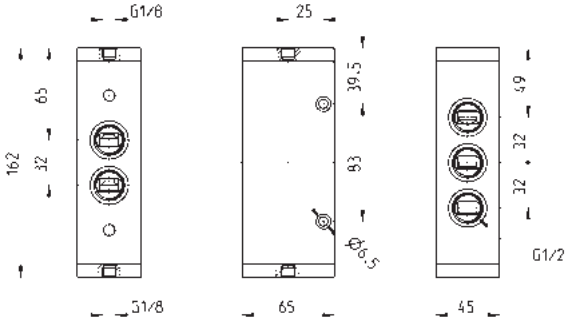
Mod.	Mounting	Function	Flow rate Qn (Nl/min)	min. pilot Pressure (bar)	Working pressure (bar)
452N-35	in-line	5/2	4000	2.5	-0.9 ÷ 10

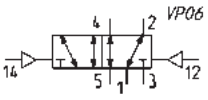
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5/2-way valve, G1/2 port, bistable Mod. 452N-33

New model





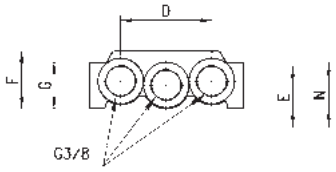


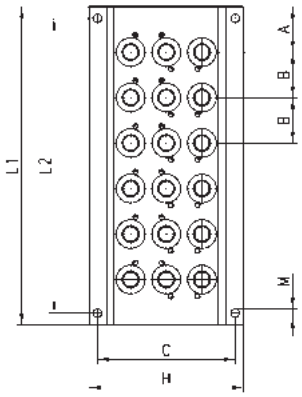
Mod.	Mounting	Function	Flow rate Qn (Nl/min)	min. pilot Pressure (bar)	Working pressure (bar)	Symbol
452N-33	in-line	5/2	4000	2	-0.9 ÷ 10	VP06

Manifold base with common exhausts



For valves Series 4, G1/8 (3/2, 5/2 or 5/3-way)
The following is supplied with:
1x manifold
1x pair of fixing screws for valve position
1x interface seal for valve positions
2x guides for valve position





DIMENSIONS

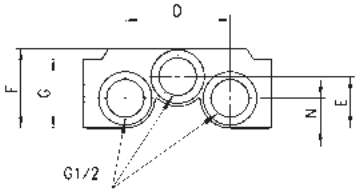
Mod.	A	B	C	D	E	F	G	H	L1	L2	M	N
CNVL-42	28	33	69,5	46	12	29	23,5	78	89	77	4,3	14
CNVL-43	28	33	69,5	46	12	29	23,5	78	122	110	4,3	14
CNVL-44	28	33	69,5	46	12	29	23,5	78	155	143	4,3	14
CNVL-45	28	33	69,5	46	12	29	23,5	78	188	176	4,3	14
CNVL-46	28	33	69,5	46	12	29	23,5	78	221	209	4,3	14

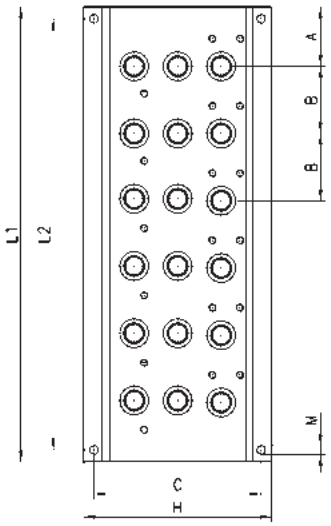
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Manifold base with common exhausts



For valves Series 4, G1/4 (3/2, 5/2 or 5/3-way)
The following is supplied :
1x manifold
1x pair of fixing screws for valve position
1x interface seal for valve positions
2x guides for valve position





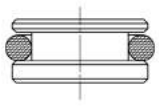
DIMENSIONS

Mod.	A	B	C	D	E	F	G	H	L1	L2	M	N
CNVL-52	30	34	84,5	53	26	40	35	95	94	82	4,3	15
CNVL-53	30	34	84,5	53	26	40	35	95	128	116	4,3	15
CNVL-54	30	34	84,5	53	26	40	35	95	162	150	4,3	15
CNVL-55	30	34	84,5	53	26	40	35	95	196	184	4,3	15
CNVL-56	30	34	84,5	53	26	40	35	95	230	218	4,3	15

Blanking plug Mod. TCNVL for manifolds



The following is supplied:
1x blanking plug
1x O-Ring



Mod.
TCNVL/3
TCNVL/5

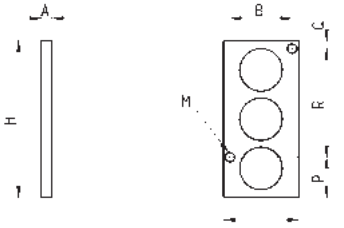
TCNVL/3: for Series 4, G1/8
TCNVL/5: for Series 4, G1/4

Blanking plate Mod. CNVL for manifolds



It is used to blank vacant positions of a manifold.

The following is supplied:
2x fixing screws
3x O-Rings



DIMENSIONS

Mod.	A	B	H	I	M	P	Q	R
CNVL/2	5	25.6	52	32	4.2	17	17	18
CNVL/3	5	27.8	70	33.5	4.2	18	3.5	48.5

CNVL/2: for Series 4, G1/8
CNVL/3: for Series 4, G1/4

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Series 9
valves and solenoid valves

5/2 and 5/3-way CC CO
Sizes 1 - 2 - 3
According to the standard ISO 5599/1



Series 9 electropneumatically or pneumatically operated valves have been designed with sizes 1, 2 and 3, as recommended by the ISO Standards. The ease of pneumatic and electrical wiring makes these valves extremely flexible.

GENERAL DATA

Operating pressure	max. press. 10 bar (for minimum pressures see descriptions)
Nominal pressure	6 bar
Nominal flow	ISO 1 = 900 Nl/min ISO 2 = 1610 Nl/min ISO 3 = 4350 Nl/min
Operating temperature	0 ÷ 60°C (with dry air at -20°C)
Fluid	filtered air, without lubrication. If lubricated air is used, it is recommended to use ISOVG32 oil and to never interrupt the lubrication.
Electropneumatic interface	according CNOMO Standards

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CODING EXAMPLE

9	5	1	-	000	-	P16	-	23	-	U7	7

9	SERIES
5	NUMBER OF WAYS - POSITIONS: 5 = 5/2 6 = 5/3 CC 7 = 5/3 CO
1	SIZE: 1 = size 1 2 = size 2 3 = size 3
000	BODY DESIGN: 000 = valve body
P 16	ACTUATION: 33 = pneumatic, pneumatic return 34 = pneumatic, differential pneumatic return 35 = pneumatic, mechanical spring return P11 = double solenoid (horizontal solenoids) P15 = single solenoid, spring return (horizontal solenoids) P16 = solenoid, pneumatic spring return (horizontal solenoids)
23	SOLENOID INTERFACE: 23 = A531 - BC2 (Cnomo norm)
U7	SOLENOID MATERIAL / SOLENOID DIMENSIONS: A8 = PPS / 30 x 30 G7 = PA / 22 x 22 G8 = PA / 30 x 30 (24 V DC only) G9 = PA / 22 x 58 H8 = PA 6 V0 / 30 x 30 U7 = PET / 22 x 22
7	SOLENOID VOLTAGE: see the solenoids section on page 2.2.35.01

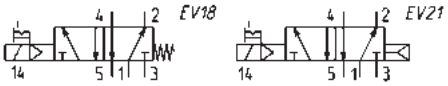
Products designed for industrial applications.
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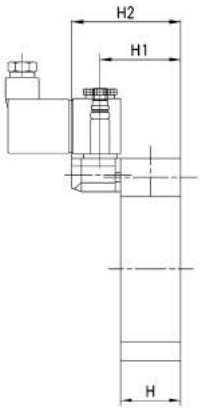
5/2-way solenoid valves, monostable - ISO 1, ISO 2, ISO 3

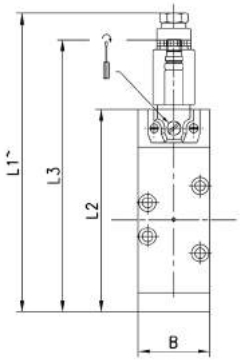
Available with electropneumatic actuation and spring return, they are suitable for mounting on a sub-base.



The following is supplied:
1x interface seal
4x fixing screws







DIMENSIONS

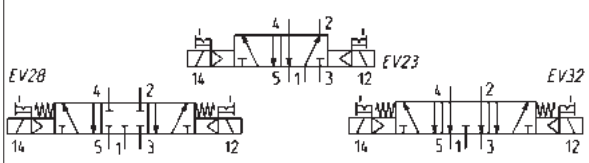
Mod.	Size ISO	B	L1	L2	L3	H	H1	H2	Min. operating pressure	Symbol
951-000-P15-23	1	38	153	108	146	32	43	58	2,5	EV18
952-000-P15-23	2	51	173	128	166	33	44	59	2,5	EV18
953-000-P15-23	3	65	218	173	211	45	56	71	2,5	EV18
951-000-P16-23	1	38	153	108	146	32	43	58	2,5	EV20
952-000-P16-23	2	51	173	128	166	33	44	59	2,5	EV20
953-000-P16-23	3	65	218	173	211	45	56	71	2,5	EV20

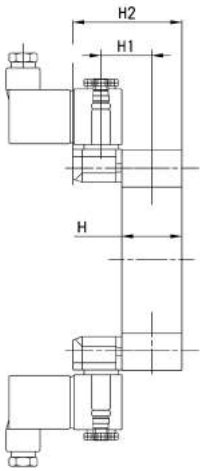
5/2-way, 5/3-way solenoid valves, bistable - ISO 1, ISO 2, ISO 3

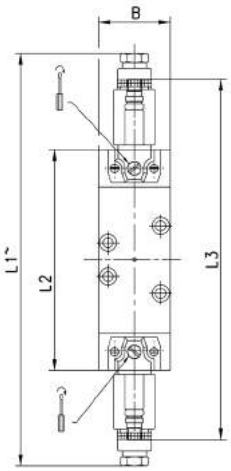
Available with electropneumatic actuation and spring return, they are suitable for mounting on a sub-base.



The following is supplied:
1x interface seal
4x fixing screws







DIMENSIONS

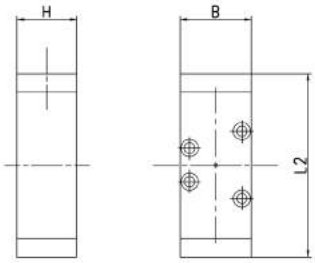
Mod.	Size ISO	B	L1	L2	L3	H	H1	H2	Min. operating pressure	Symbol
951-000-P11-23	1	38	208	118	194	32	43	58	2,5	EV23
952-000-P11-23	2	51	228	138	214	33	44	59	2,5	EV23
953-000-P11-23	3	65	273	183	259	45	56	71	2,5	EV23
961-000-P11-23	1	38	208	118	194	32	43	58	2,5	EV28
962-000-P11-23	2	51	228	138	214	33	44	59	2,5	EV28
963-000-P11-23	3	65	273	183	259	45	56	71	2,5	EV28
971-000-P11-23	1	38	208	118	194	32	43	58	2,5	EV32
972-000-P11-23	2	51	228	138	214	33	44	59	2,5	EV32
973-000-P11-23	3	65	273	183	259	45	56	71	2,5	EV32

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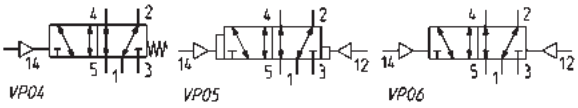
5/2 -way valves, monostable, bistable - ISO 1, ISO 2, ISO 3



The Series 9 valves with ISO interface, size 1, 2 and 3, are available with the following types of actuation:
- pneumatic, with spring return
- pneumatic actuation and differential return
- pneumatic actuation and return



The following is supplied:
1x interface seal
4x fixing screws



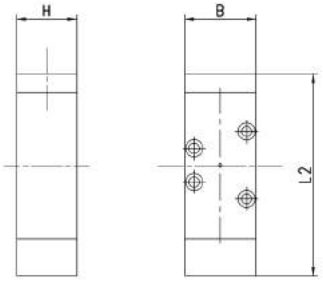
DIMENSIONS

Mod.	Size ISO	B	L2	H	Min. operating pressure	Symbol
951-000-35	1	38	98	32	2,5	VP04
952-000-35	2	51	118	33	2,5	VP04
953-000-35	3	65	163	45	2,5	VP04
951-000-34	1	38	98	32	2	VP05
952-000-34	2	51	118	33	2	VP05
953-000-34	3	65	163	45	2	VP05
951-000-33	1	38	98	32	2	VP06
952-000-33	2	51	118	33	2	VP06
953-000-33	3	65	163	45	2	VP06

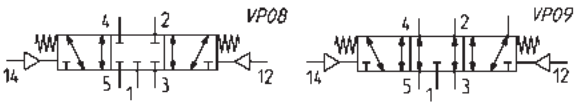
5/3-way valve, monostable, with stable central position - ISO 1, 2, 3



The Series 9 valves with ISO interface, size I, 2 and 3, are available with pneumatic actuation and central resetting by a spring. There are two types of function:
- with closed centres
- with open centres



The following is supplied:
1x interface seal
4x fixing screws



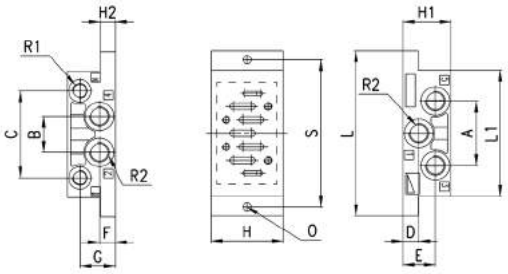
DIMENSIONS

Mod.	Size ISO	B	L2	H	Min. operating pressure	Symbol
961-000-33	1	38	108	32	2,5	VP08
962-000-33	2	51	128	33	2,5	VP08
963-000-33	3	65	173	45	2,5	VP08
971-000-33	1	38	108	32	2,5	VP09
972-000-33	2	51	128	33	2,5	VP09
973-000-33	3	65	173	45	2,5	VP09

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Single sub-base side outlets (VDMA 24345)



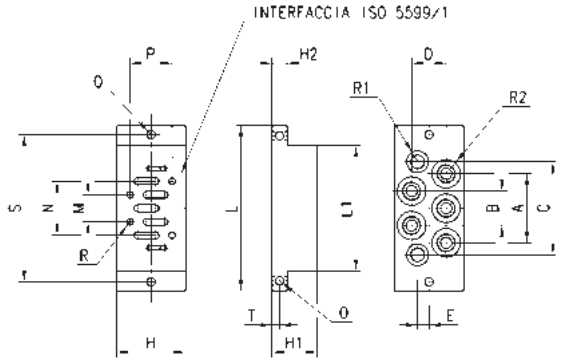


DIMENSIONS

Mod.	Size	A	B	C	D	E	F	G	H	H1	H2	L	L1	O	R1	R2	S
901-F1A	1	43	24	58	10.5	21.5	10.5	23.5	48	32	10	110	84	5.5	G1/8	G1/4	98
902-F2A	2	56	30	74	14	26	14	30	57	40	13	124	95	6.5	G1/8	G3/8	112
903-F3A	3	68	32	90	17	17	17	22	71	32	18	149	119	6.5	G1/8	G1/2	136

Single sub-base with rear outlets (VDMA 24345)





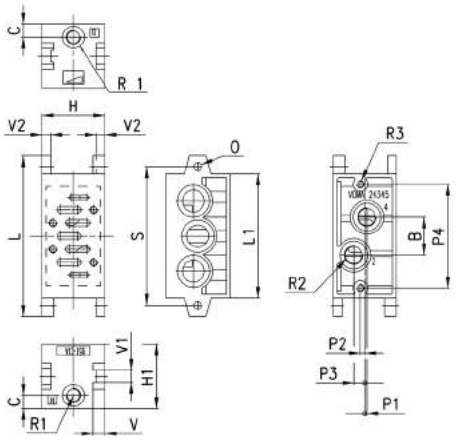
DIMENSIONS

Mod.	Size	A	B	C	D	E	H	H1	H2	L	L1	M	N	O	P	R	R1	R2	S	T
901-G1A	1	46	23	61	23	7.5	46	30	10	110	84	18	36	5.5	28	M5	G1/8	G1/4	98	5
902-G2A	2	56	28	72	28	8	56	35	13	124	95	24	48	6.5	38	M6	G1/8	G3/8	112	6.5
903-G3A	3	68	34	90	34	10	71	32	18	149	119	32	64	6.5	48	M8	G1/8	G1/2	136	9

Manifold sub-base with com. exhausts and inlet (VDMA 24345)



The following is supplied:
2x fixing screws
3x O-ring



DIMENSIONS

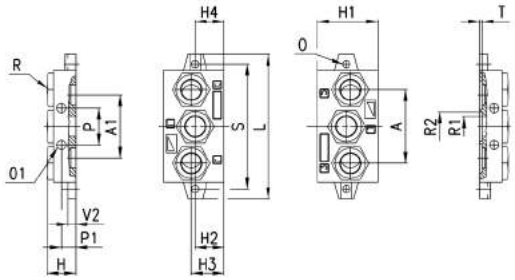
Mod.	Size	B	C	H	H1	L	L1	O	P1	P2	P3	P4	R1	R2	R3	S	V	V1	V2
901-C1A	1	26	8.5	43	44	110	85	5.5	1.5	3	7.5	71	G1/8	G1/4	M5	95	8	8	6
902-C2A	2	30	9	56	45	135	100	6.5	5	3	6	86	G1/8	G3/8	M6	115	11	11	8
903-C3A	3	38	10	71	54	190	140	9	6	3	8	130	G1/8	G1/2	M8	168	13	13	8

Note: complete with fixing screws and O-ring.

End block for manifold sub-base (VDMA 24345)



The following is supplied:
2x end blocks (1 pair)
2x fixing screws
3x OR



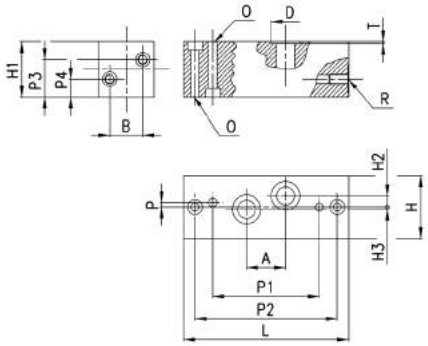
DIMENSIONS

Mod.	Size	A	A1	H	H1	H2	H3	H4	L	O	O1	P	P1	R	ØR1	ØR2	S	T	V2
901-H1	1	56	48	22	46	22	25	22	110	5,5	7	28	11	G3/8	15	22,1	95	2	6
902-H2	2	68	63	26	47	23	25	24	135	6,5	9	35	13	G1/2	18,5	28,7	115	2	8
903-H3	3	104	94	30	56	22	25	25	190	9	12	52	15	G1	28	38	168	2,7	8

Interface with front outlets (VDMA 24345)



The following is supplied:
2x fixing screws
2x OR



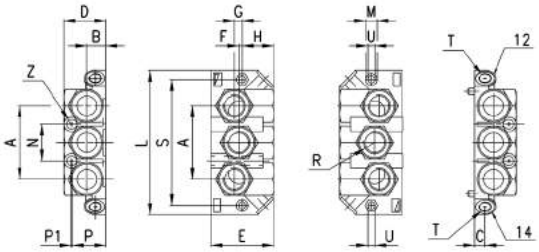
DIMENSIONS

Mod.	Size	A	B	D	H	H1	H2	H3	L	O	P	P1	P2	P3	P4	R	T
901-N1	1	26	22	19	42	37	7.5	1.5	110	5.5	3	71	95	25	12	G1/4	1.4
902-N2	2	30	29	23	55	40	6	5	135	6.5	3	86	115	26	14	G3/8	1.4
903-N3	3	38	36	27	70	45	8	6	190	9	3	130	168	29	17	G1/2	1.4

End blocks for manifold bases with front outlets



The following is supplied:
2x end blocks (1 pair)
2x fixing screws
3x OR



DIMENSIONS

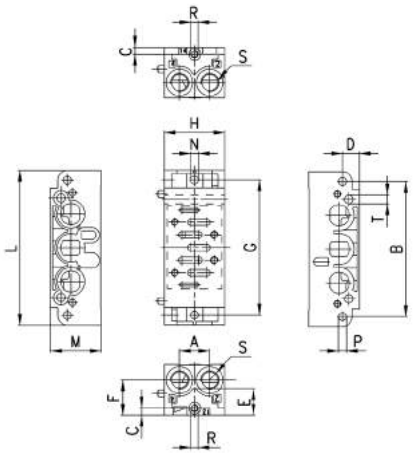
Mod.	Size	A	B	C	D	E	F	G	H	L	M	N	P	P1	R	S	T	U	Z
901-HN1	1	56	14.5	8	32	48	2.5	6	24	110	9	28	25.5	1	3/8"	96	G1/8	5,5	3,5

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General terms and conditions for sale are available on www.camozzi.com.

Manifold bases with comm. inlet and exhaust ports and front outlet



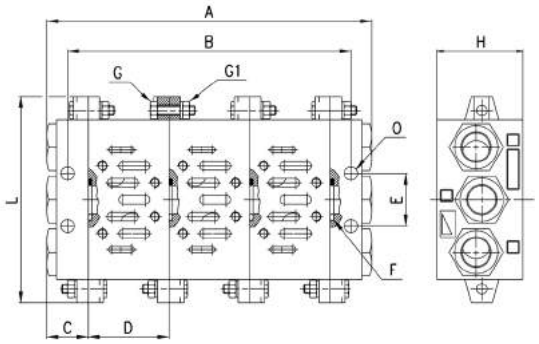
The following is supplied:
2x fixing screws
3x OR



DIMENSIONS

Mod.	Size	A	B	C	D	E	F	G	H	L	M	N	P	R	S	T
901-N1A	1	21.5	96	5	12	19	25	96	43	110	36	5.5	5.5	M5	G1/4	6.2

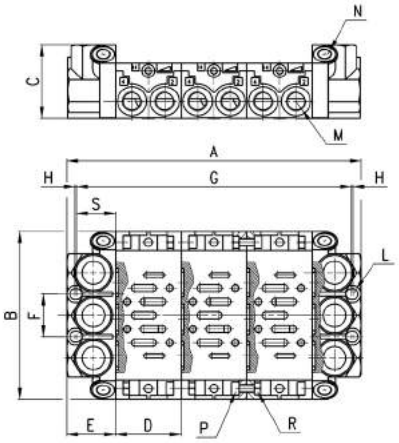
Assembly of manifold sub-base (VDMA 24345)



DIMENSIONS

Size	A	B	C	D	E	F OR	UNI 5739 G	UNI 57588 G1	H	L	O
1	n°D+2C	n°D+C	22	43	28	3068	M5X20	M5	46	110	7
2	n°D+2C	n°D+C	26	56	35	3093	M6X25	M6	47	135	9
3	n°D+2C	n°D+C	30	71	52	4125	M8X25	M8	56	190	12

Assembly for front outlet manifold sub-bases



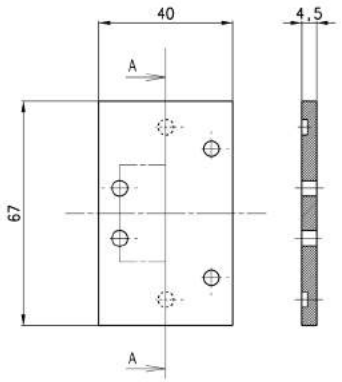
DIMENSIONS

Size	A	B	C	D	E	F	G	H	L	M	N	UNI 5931 P.	UNI 5588 R	S
1	N° D+2E	110	48	43	32	28	n°D+25	1	3,5	G1/4	G1/8	M5X14	M5	25,5

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Cover plate for unused positions

The following is supplied:
1x seal
4x screws

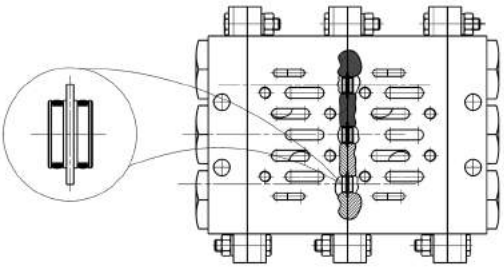


Mod.
901-TP

Mounting example



Separation tap lines 1 - 3 - 5 to be used with manifold type 901-C1A and 902-C2A

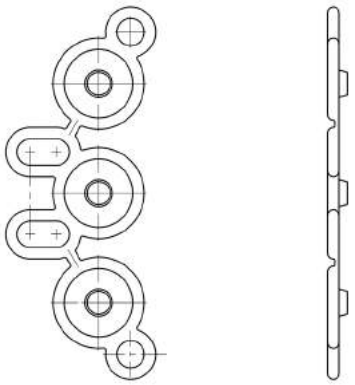


Mod.
901-C1A/TP
902-C2A/TP

Separation joint



Separation joint to be used with manifold type 901N



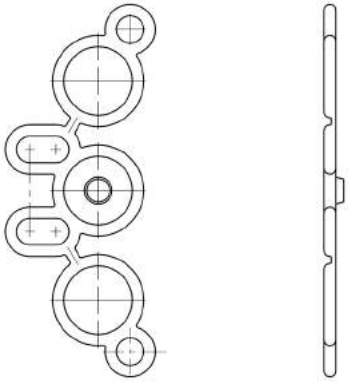
1 - 3 - 5 closed

Mod.
901-N1A/T

Separation joint



Separation joint to be used with manifold type 901N.
P plugged.



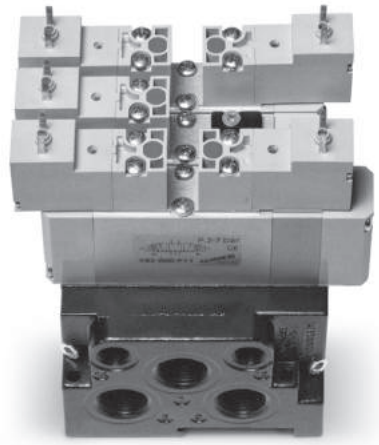
1 closed

Mod.
901-N1A/TP

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series 7
valves and solenoid valves

VDMA 24563 (ISO 15407-1)
5/2 - 5/3-way CC CO CP



Size 26 mm (VDMA 24563-01)
Size 18 mm (VDMA 24563-02)

GENERAL DATA

Construction	balanced spool type
Valve functions	5/2 - 5/3-way CC CO CP
Materials	AL body, spool base, polyamide endcovers, NBR seals
Mounting	by means of screws on the base
Ports	on sub-base
Operating temperature	0° C min. +50° C max
Fluid	filtered air (5 micron or less), without lubrication. If lubricated air is used, it is recommended to use ISOVG32 oil. Once applied the lubrication should never be interrupted.
Size	26 mm 18 mm
Installation	in any position
Operating pressure	P. max 7 bar
Nominal pressure	6 bar
Nominal flow	Qn Size 26 mm = 900 Nl/min Qn Size 18 mm = 450 Nl/min
Voltage	see coding
Voltage tolerance	± 10%
Power consumption	2W
Class of insulation	class F
Protection	IP54 (IP65 with connector DIN 40050)

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

CODING EXAMPLE

7	5	1	-	N	1	A	-	P16	-	15	-	W	2	3

7	SERIES:
5	NUMBER OF WAYS - POSITIONS: 5 = 5/2 6 = 5/3 CC 7 = 5/3 CO 8 = 5/3 CP
1	SIZES: 1 = size 26 mm 2 = size 18 mm
N	SUBBASE: N = sub-base with front outlets
1	PORTS: 1 = G1/4 (Size 26 mm) 2 = G1/8 (Size 18 mm)
A	NUMBER OF SUBBASES: A = 1 * B = 2 * C = 3 * D = 4 * E = 5 * F = 6 * G = 7 * H = 8 * K = 9 * L = 10 * M = 11 * N = 12 * P = 13 * R = 14 * S = 15 *
P16	ACTUATION: 33 = pneumatic, bistable 36 = pneumatic, monostable P11 = electro-pneumatic, bistable P16 = electro-pneumatic, monostable
15	SOLENOID INTERFACE: 15 = 15x15
W	SOLENOID TYPES: W = Series W (24V - 48V DC only) P = Series P **
2	CONNECTION: 1 = wire 300 mm (Series W, 24V DC only) ** 2 = 2 pins (Series W, 24V - 48V DC) 5 = 2 pins+earth (Series P) **
3	SOLENOID VOLTAGE: 3 = 24V DC 4 = 48V DC ** 6 = 110V DC (with Series P solenoids only) ** B = 24V 50/60 Hz (with Series P solenoids only) ** C = 48V 50/60 Hz (with Series P solenoids only) ** D = 110V 50/60 Hz (with Series P solenoids only) **
	NOTES: * complete with the two end blocks ** on request

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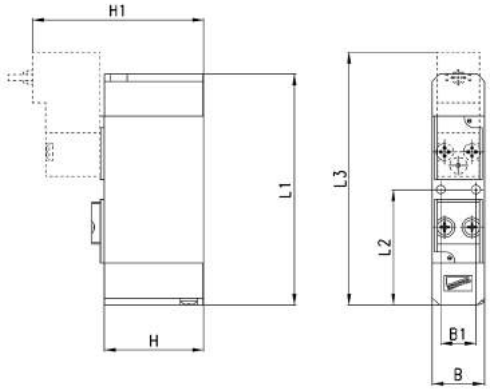
5/2-way solenoid valve, ISO 26 mm - 18 mm monostable

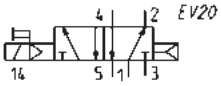


The Series 7 solenoid valves with interface ISO 26 mm and 18 mm which have electropneumatic actuation and spring return are suitable for mounting on a sub-base. For electrical actuation, 2 types of solenoid, Series W and Series P (available with a wide range of voltages, on request).

Connector Mod. 126-800.

The following is supplied:
1x interface seal
2x fixing screws





DIMENSIONS

Mod.	Size ISO	B	B1	L1	L2	L3	H	H1	Min. operating pressure
751-000-P16-15-W20	26 mm	26,5	19	99,7	49,85	98,8	39	64,3	3 bar
752-000-P16-15-W20	18 mm	18,5	12,5	82,2	41,1	90	35,2	60,5	3 bar

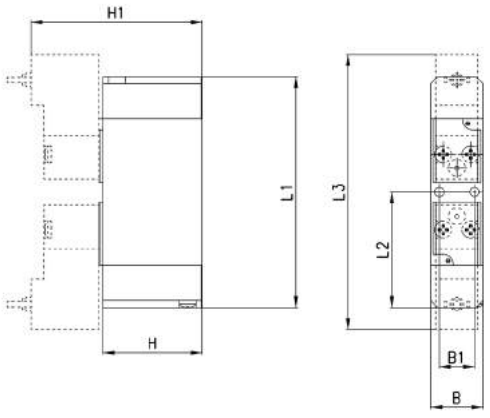
5/2-way solenoid valves, ISO 26 mm - 18 mm, bistable

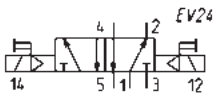


The Series 7 solenoid valves with ISO 26 mm and 18 mm interface which have electropneumatic actuation and return are suitable for mounting on a sub-base. For electrical actuation, 2 types of solenoid Series W and Series P (available with a wide range of voltages, on request).

Connector Mod. 126-800.

The following is supplied:
1x interface seal
2x fixing screws





DIMENSIONS

Mod.	Size ISO	B	B1	L1	L2	L3	H	H1	Min. operating pressure
751-000-P11-15-W20	26 mm	26,5	19	99,7	49,85	98,8	39	64,3	2 bar
752-000-P11-15-W20	18 mm	18,5	12,5	82,2	41,1	97,8	35,2	60,5	2 bar

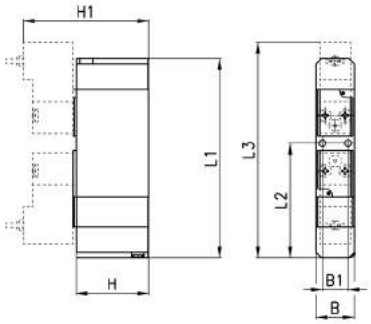
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5/3-way solenoid valves, ISO 26 mm - 18 mm

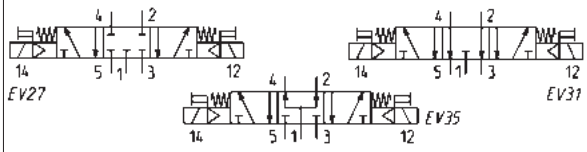


The Series 7 solenoid valves with ISO 26 mm - 18 mm interface which have electropneumatic actuation and spring return are suitable for mounting on a sub-base. For electrical actuation, two types of solenoid Series W and Series P (are available with a large range of voltages, on request).

Connector Mod. 126-800.



The following is supplied:
1x interface seal
2x fixing screws

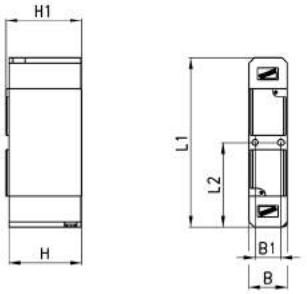


DIMENSIONS										
Mod.	Size ISO	B	B1	L1	L2	L3	H	H1	Min. operating pressure	Symbol
761-000-P11-15-W20	26 mm	26,5	19	111,7	61,85	110,8	39	64,3	3 bar	EV27
762-000-P11-15-W20	18 mm	18,5	12,5	96,7	55,6	104,5	35,2	60,5	3 bar	EV27
771-000-P11-15-W20	26 mm	26,5	19	111,7	61,85	110,8	39	64,3	3 bar	EV31
772-000-P11-15-W20	18 mm	18,5	12,5	96,7	55,6	104,5	35,2	60,5	3 bar	EV31
781-000-P11-15-W20	26 mm	26,5	19	111,7	61,85	110,8	39	64,3	3 bar	EV35
782-000-P11-15-W20	18 mm	18,5	12,5	96,7	55,6	104,5	35,2	60,5	3 bar	EV35

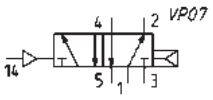
5/2-way solenoid valves ISO 26 mm - 18 mm, monostable



The Series 7 solenoid valves with ISO 26 mm and 18 mm interface which have pneumatic actuation and pneumatic spring return are suitable for mounting on a sub-base.
For the correct use of the valve, the pilot pressure must be the same or higher than the operating pressure.



The following is supplied:
1x interface seal
2x fixing screws



DIMENSIONS								
Mod.	Size ISO	B	B1	L1	L2	H	H1	Min. operating pressure
751-000-36	26 mm	26,5	19	99,7	49,85	39	40,5	3 bar
752-000-36	18 mm	18,5	12,5	82,2	41,1	35,2	36,7	3 bar

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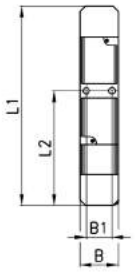
5/2-way solenoid valves ISO 26 mm - 18 mm, bistable

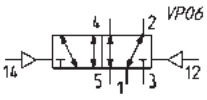
The Series 7 solenoid valves with ISO 26 mm and 18 mm interface which have pneumatic actuation and return are suitable for mounting on a sub-base.



The following is supplied:
1x interface seal
2x fixing screws







DIMENSIONS

Mod.	Size ISO	B	B1	L1	L2	H	H1	Min. operating pressure
751-000-33	26 mm	26,5	19	99,7	49,85	39	40,5	2 bar
752-000-33	18 mm	18,5	12,5	82,2	41,1	35,2	36,7	2 bar

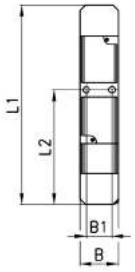
5/3-way solenoid valves, ISO 26 mm - 18 mm

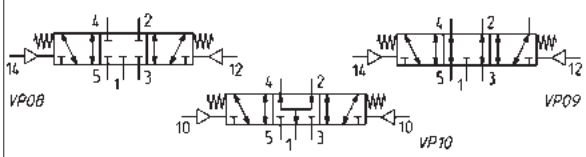
The Series 7 solenoid valves with ISO 26 mm and 18 mm interface which have pneumatic actuation and mechanical spring return are suitable for mounting on a sub-base.



The following is supplied:
1x interface seal
2x fixing screws







DIMENSIONS

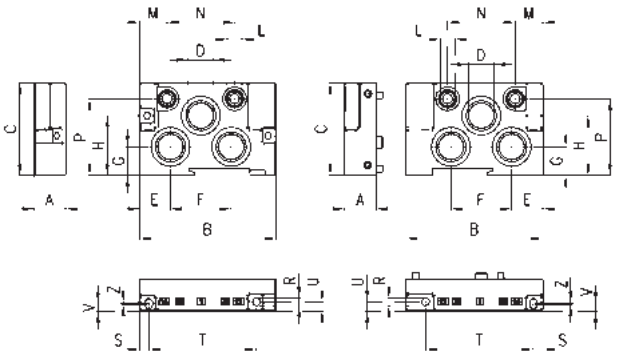
Mod.	Size ISO	B	B1	L1	L2	H	H1	Min. operating pressure	Symbol
761-000-33	26 mm	26,5	19	117,7	61,85	39	40,5	3 bar	VP08
762-000-33	18 mm	18,5	12,5	96,7	55,6	35,2	36,7	3 bar	VP08
771-000-33	26 mm	26,5	19	117,7	61,85	39	40,5	3 bar	VP09
772-000-33	18 mm	18,5	12,5	96,7	55,6	35,2	36,7	3 bar	VP09
781-000-33	26 mm	26,5	19	117,7	61,85	39	40,5	3 bar	VP10
782-000-33	18 mm	18,5	12,5	96,7	55,6	35,2	36,7	3 bar	VP10

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End blocks for subbase

End blocks for subbase with conveyed inlets and exhausts and front outlets.





The following is supplied:
1x seal
2x fixing screws

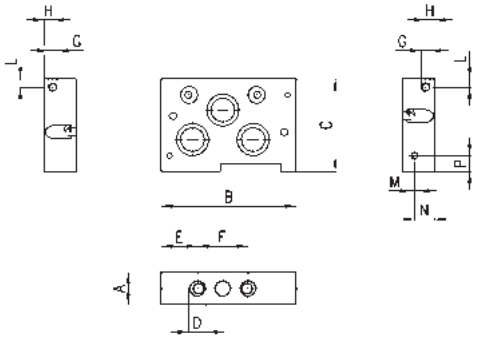
DIMENSIONS

Mod.	Size ISO	A	B	C	D	E	F	G	H	L	M	N	P	R	S	T	U	V	Z
701C-HN1	26 mm	27	107	65	G1/2	23	60	24,5	43	G1/8	21,5	58	55,5	4,5	7,5	61,5	6	6,2	4
702C-HN2	18 mm	19	81	55	G3/8	18,5	36	17	35,5	G1/8	16,5	40	45,5	4,5	4,65	63,85	5,5	4,,35	1,3

Intermediate supply module

Intermediate supply module for manifold bases with conveyed inlets and exhausts and front outlets.





The following is supplied:
1x seal
2x fixing screws

DIMENSIONS

Mod.	Size ISO	A	B	C	D	E	F	G	H	L	M	N	P
701C-N1N	26 mm	27	100	65	G1/4	29	42	M5	6,5	10	M4	10	10
702C-N2N	18 mm	19	81	55	G1/8	22,5	28	M5	5	5	M4	11,5	9,5

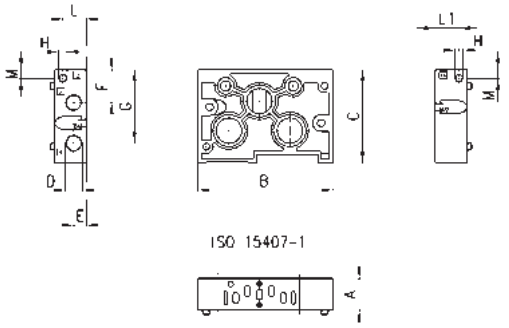
Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Subbase for manifolds

Manifold subbase with conveyed inlets and exhausts and front outlets.



The following is supplied:
1x seal
2x fixing screws



DIMENSIONS

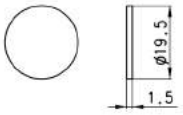
Mod.		Size ISO	A	B	C	D	E	F	G	H	L	L1	M
701C-N1A	for separated pilots	26 mm	27	107	65	G1/4	11	23	53	M5	20,7	20,7	6,5
702C-N2A	for separated pilots	18 mm	19	81	55	G1/8	7,5	19,5	44,5	M5	13	6	7
701C-N1C		26 mm	27	107	65	G1/4	11	23	53	M5	20,7	20,7	6,5
702C-N2C		18 mm	19	81	55	G1/8	7,5	19,5	44,5	M5	13	6	7

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Diaphragm cover for subbase

Diaphragm for subbase with conveyed inlet and exhausts and side outlets.



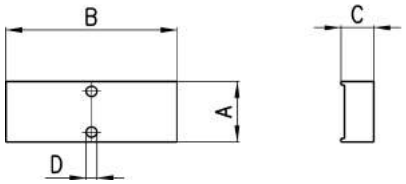


Mod.
701C-N1A-TP
702C-N2A-TP

Excluder tap for subbase

The following is supplied:
1x seal
2x screws



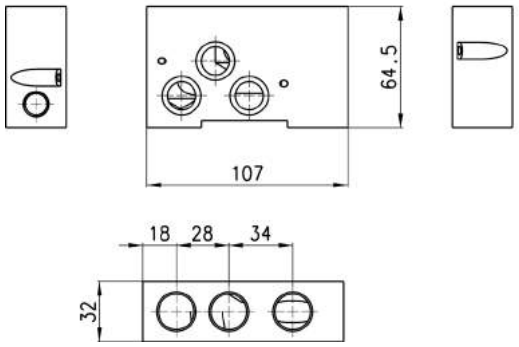


DIMENSIONS					
Mod.	Size ISO	A	B	C	D
701-TP	26 mm	26,5	61,7	10	4,2
702-TP	18 mm	18,5	52,2	10	3,2

Interface between ISO 01 and ISO 02

The following is supplied:
1x tap S2610 3/8
5x OR
2x screws





Mod.
701C-702C-A

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Series NA
valves and solenoid valves

3/2 - 5/2 - 5/3-way CC CO CP
with holes configured according NAMUR standards



The pneumatic interface connection complies with NAMUR standards.
These solenoid valves can be equipped with solenoids that are in compliance with UL or ATEX standards.

GENERAL DATA

Construction	spool type (servo-pilot operated)
Valve functions	3/2-way NC, NO - 5/2-way - 5/3-way CC, CO, CP
Materials	AL body - stainless steel spool - NBR seals
Mounting	through 2 Ø5 holes in the valve body
Ports	2 - 4 = NAMUR 1 - 3 - 5 = G1/4
Installation	directly on a Namur Interface
Operating temperature	0 ÷ 60°C (using dry air -20°C)
Operating pressure	1,5 - 10 bar double solenoid 2,5 - 10 bar single solenoid
Nominal pressure	6 bar
Nominal flow	Qn = 1000 Nl/min
Nominal diameter	8 mm
Fluid	filtered air without lubrication. If lubricated air is used, it is recommended to use ISOVG32 oil, and to never interrupt the lubrication.

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CODING EXAMPLE

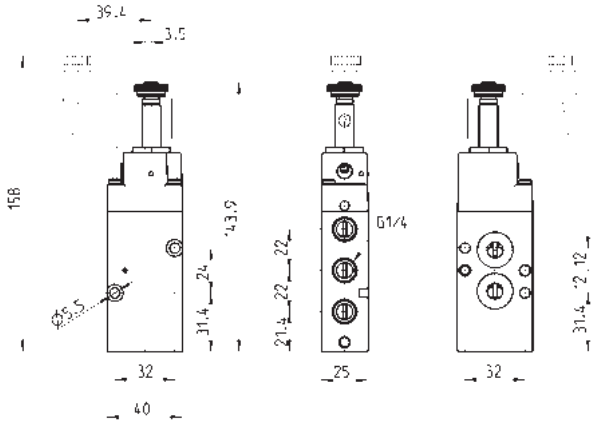
NA	5	4N	-	15	-	02	-	U7	7

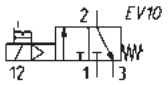
NA	SERIES NAMUR
5	NUMBER OF WAYS - POSITIONS: 3 = 3/2 NC 4 = 3/2 NO 5 = 5/2 6 = 5/3 CC 7 = 5/3 CO 8 = 5/3 CP
4N	PORTS: 4N = G1/4 supply ports according NAMUR standards
15	ACTUATION: 11 = double solenoid 15 = single solenoid, spring return 33 = pneumatic pneumatic 35 = pneumatic, spring
02	SOLENOID INTERFACE: 02 = mech. sol. 22 x 22
U7	SOLENOID MATERIAL / SOLENOID DIMENSIONS: A8 = PPS / 30 x 30 G7 = PA / 22 x 22 G8 = PA / 30 x 30 (24 V DC only) G9 = PA / 22 x 58 H8 = Self-extinguishing PA, Explosion-proof / 30 x 30 U7 = PET / 22 x 22
0	SOLENOID VOLTAGE: see solenoids section on page 2.2.35.01

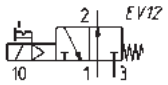
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3/2-way solenoid valve NC and NO





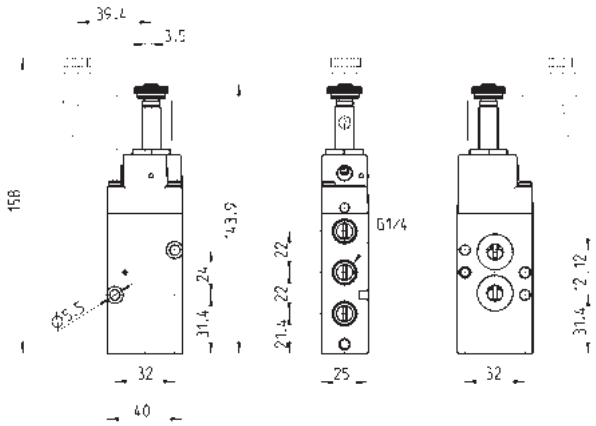


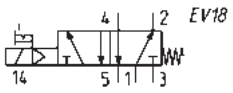


Mod.	Symbol
NA34N-15-02	EV10
NA44N-15-02	EV12

5/2-way solenoid valve, monostable





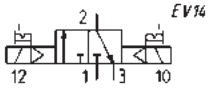


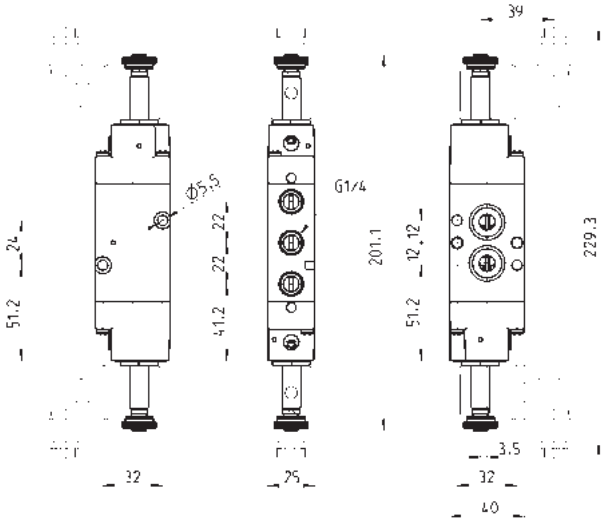
Mod.
NA54N-15-02

2
CONTROL

3/2-way solenoid valve, bistable



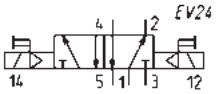


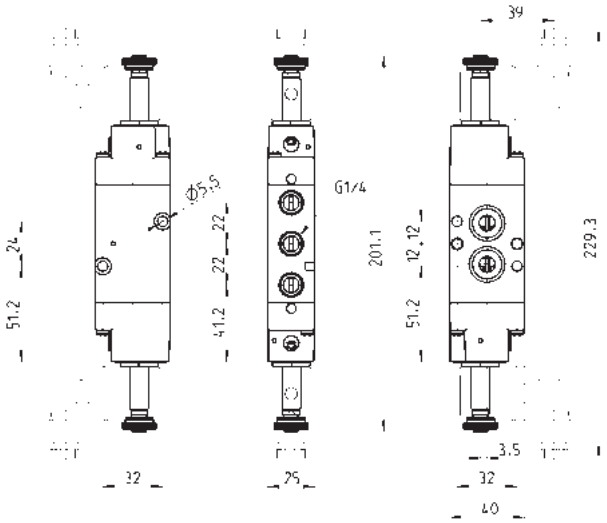


Mod.
NA34N-11-02

5/2-way, solenoid valve, bistable





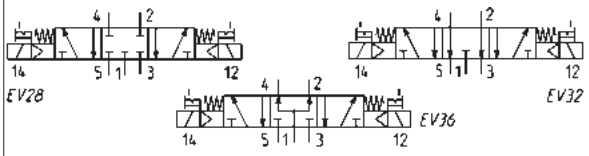


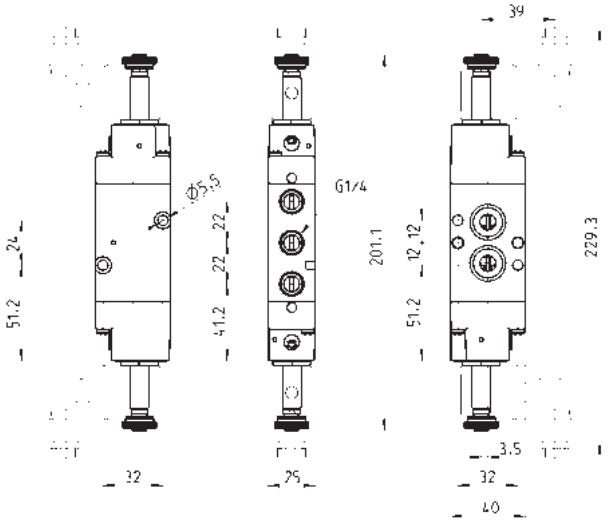
Mod.
NA54N-11-02

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5/3-way solenoid valve CC CO CP



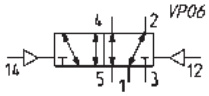


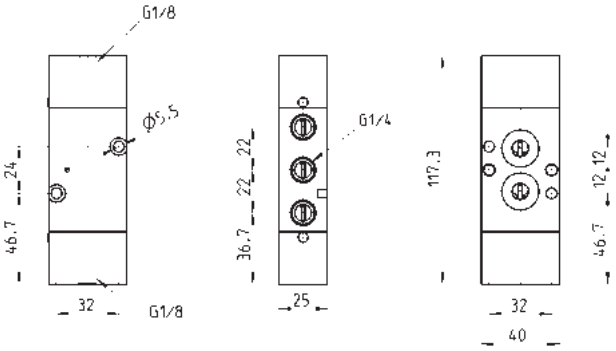


Mod.	Symbol
NA64N-11-02	EV28
NA74N-11-02	EV32
NA84N-11-02	EV36

5/2-way pneumatic valve, bistable





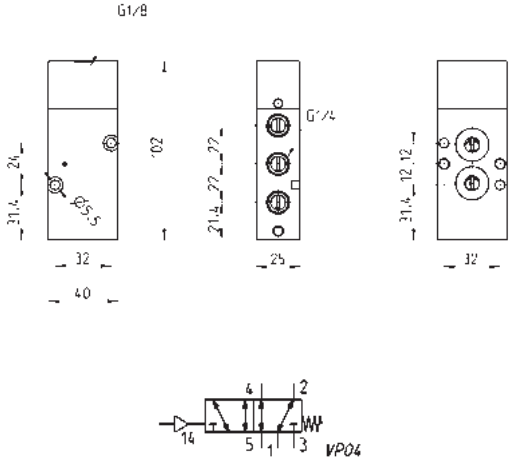


Mod.
NA54N-33

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General terms and conditions for sale are available on www.camozzi.com.

5/2-way pneumatic valve, monostable

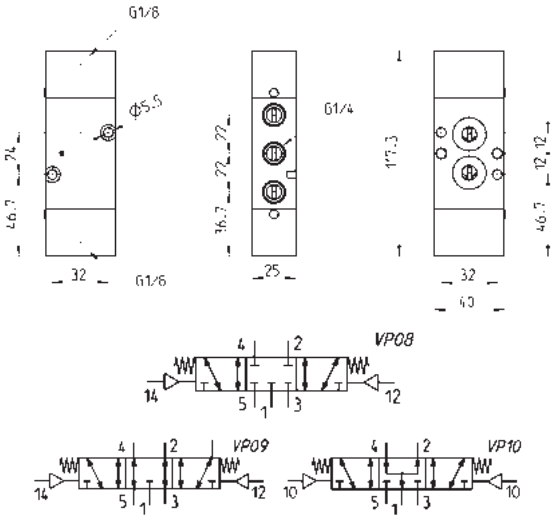




Mod.
NA54N-35

5/3-way pneumatic valve CC CO CP





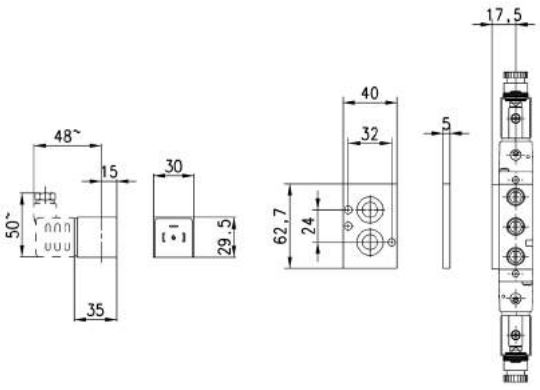
Mod.	
NA64N-33	VP08
NA74N-33	VP09
NA84N-33	VP10

Single subbase Mod. NA54-PC



Distance plate for the mounting of Series H8 solenoids

Supplied with:
2x screws
2x O-rings

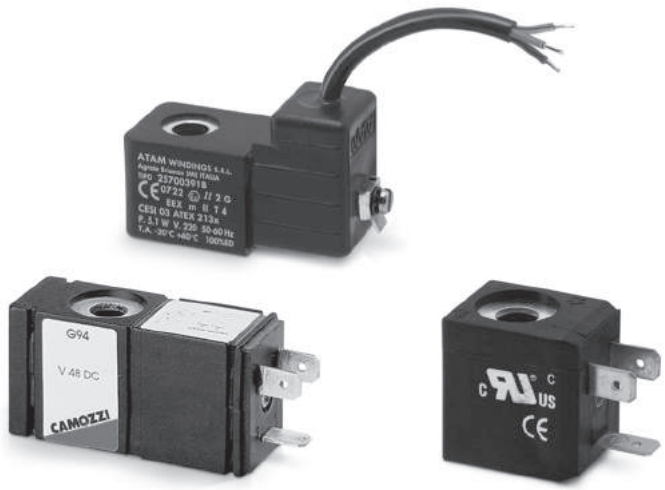


Mod.
NA54-PC

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Solenoids
GP... - B7... - G93 - U7... - U7...EX - G7... - A8... - B8... - H8... - B9...

Version A and B
Connections according to industrial standard and to DIN EN 175 301-803 standards



The mechanical part of the tube in the solenoid valves Series A, 3, 4, 9 and NA allows the mounting of various types of solenoids.

- Mod. GP...: in compliance with industrial standard (9.4mm) and designed to be mounted only on Series AP proportional valves, size 16 mm.
- Mod. B...: to be used only with Series CFB solenoid valves (2/1.30).
- Mod. G93: special solenoids with incorporated memory for pulsed operation.
- Mod. U7...: standard solenoids are certified by UL as Recognized Component for USA and Canada. Solenoids Mod. U7 are available also with ATEX certification.
- Mod. H8...: explosion-proof solenoids suitable for potentially explosive ambients (ATEX, IECEx).

GENERAL DATA

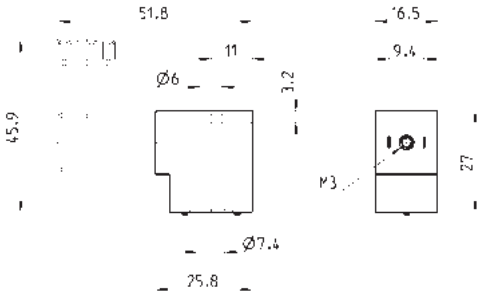
	U7... / G7... / G93	A8...	B...	H8...
Wire insulation	class F (155° C)	class H (180° C)	class H (200° C)	class H (200° C)
Protection class	IP54 - DIN 40050 IP65 (with connector Mod. 122-800 and Mod. 122-800EX)	IP54 - DIN 40050 IP65 (with connector Mod. 124-800)	IP54 - DIN 40050 IP65 (with connector Mod. 124-800)	IP64
Operation	ED 100%	ED 100%	ED 100%	ED 100%
Tolerance V AC	-15% / +10%	-15% / +10%	±10%	-
Tolerance V DC	±10%	±10%	±5%	-

Solenoids Mod. GP...



Electrical connection: bipolar
Norm: industrial standard (9.4 mm)

Solenoid material: PA



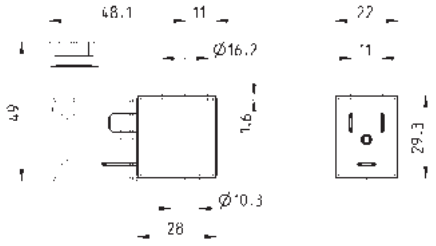
Mod.	Solenoid voltage	Power absorption
GPH	12 V DC	3 W
GP7	24 V DC	3 W

Solenoids Mod. B7...



Electrical connection: bipolar plus earth
Norm: DIN EN 175 301-803-B

Solenoid material: PA-MXD6

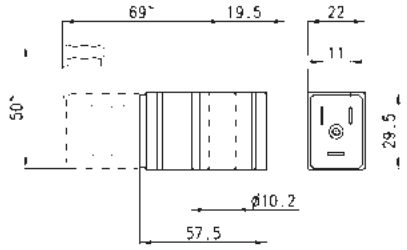


Mod.	Solenoid voltage	Power absorption
B7B	24 V - 50/60 Hz	9 VA
B7D	110 V - 50/60 Hz	9 VA
B7E	230 V - 50/60 Hz	9 VA
B7H	24 V - 50/60 Hz	4 VA
B72	12 V - DC	10 W
B73	24 V - DC	10 W
B74	24 V - DC	7 W

Solenoids Mod. G93 (with memory)



Electrical connection: bipolar plus earth
Norm: DIN EN 175 301-803-B
Voltage tolerance: ±10%
Pulsed operation (see description)



Mod.	Voltage	Minimum inpulse latch/release	Consumption latch/release
G93	24 V DC	18 ms - 10 ms	168 mA - 80 mA

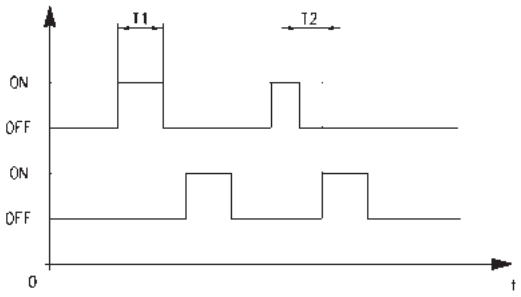
Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

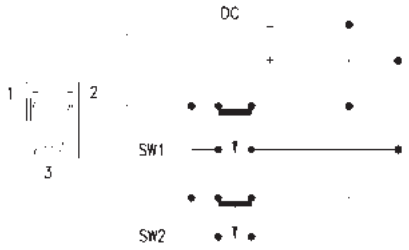
Description of solenoids Mod. G9...

Solenoids Mod. G9... can be replaced on all other Series A solenoid valves or pilots allowing to change the valve functioning from:
- unstable functioning system (spring return)
to:
- stable functioning system (memory)

The stable functioning has the following advantages:
- with an impulse of about 20 ms after which the valve always remains in the controlled position.
- the valve remains in the controlled position (opened or closed) even if there is no power.
- when normally opened valves should be used, it is not necessary to use valves with special mechanical parts as a NC valve becomes a NO valve just by changing the control impulse sequence.
- The impulse control system facilitates the utilization with electronic circuits. The minimum required impulse for the function is 20 ms; if, for circuit reasons, the impulse last for a longer period, there is no danger of heating.
- magnet attraction command = Actuation SW1
- magnet release command = Actuation SW2

If the solenoids are mounted in batteries, a magnetic scheme type G90/L should be used.
To facilitate the cabling a special connector is available, which contains a circuit which realises the inversion of the power supply to the solenoid, indispensable for the PLC command, 122-892 P with common positive or 122-893 N with common negative.

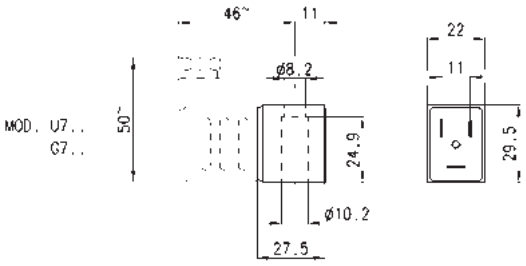


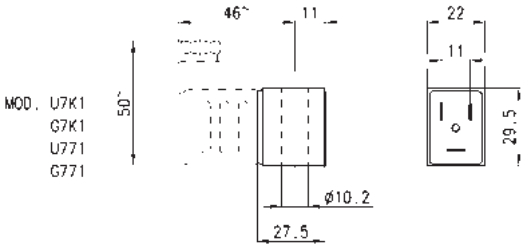


Solenoids Mod. U7... / U7*EX and Mod. G7...



Electrical connection: bipolar plus earth
Norm: DIN EN 175 301-803-B
Solenoid material: U7* = PET: G7* = PA
To order the ATEX version of Mod. U7 (not available for Mod. U7F, U7K1 with voltage 125V 50/60Hz) it is necessary to add EX at the end of the code.
Mod. U7*EX marked:
II 3G Ex nA IIC T4 Gc X IP65
II 3D Ex tc IIIC 130°C Dc X





Mod.	Sol. volt. (1)	Pow. abs. (1)	Sol. volt. (2)	Pow. abs. (2)	Sol. volt. (3)	Pow. abs. (3)
U7H	12 V DC	3.1 W	24V - 50/60 Hz	3.5 VA		
G7H	12 V DC	3.1 W	24V - 50/60Hz	3.5 VA		
U7K	110V - 50/60Hz	3.8 VA	125V - 50/60Hz	5.5 VA	72 V DC	4.8 W
U7K1	110V - 50/60Hz	5.8 VA	125V - 50/60Hz	8.3 VA	72 V DC	5.6 W
G7K	110V - 50/60Hz	3.8 VA	125V - 50/60Hz	5.5 VA	72 V DC	4.8 W
G7K1	110V - 50/60Hz	5.8 VA	125V - 50/60Hz	8.3 VA	72 V DC	5.6 W
U7J	230V - 50/60Hz	3.5 VA	240V - 50/60Hz	4 VA		
G7J	230V - 50/60Hz	3.5 VA	240V - 50/60Hz	4 VA		
U79	48 V DC	3.1 W				
G79	48 V DC	3.1 W				
U710	110 V DC	3.2 W				
G710	110 V DC	3.2 W				
U77	24 V DC	3.1 W	48V - 50/60Hz	3.8 VA		
U771	24 V DC	3.1 W	48V - 50/60Hz	3.8 VA		
G77	24 V DC	3.1 W	48V - 50/60Hz	3.8 VA		
G771	24 V DC	3.1 W	48V - 50/60Hz	3.8 VA		
U7F	380V - 50/60Hz	7 VA				
U72	12 V DC	5 W				
G72	12 V DC	5 W				
U73	24 V DC	5 W				
G73	24 V DC	5 W				

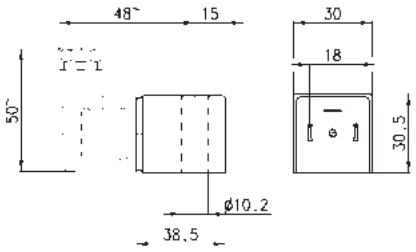
Notes to the table:
Sol. volt. = Solenoid voltage
Pow. abs. = Power absorption

Mod. U7K1, G7K1, U771 and G771 are to be used only with sol. valves series A, NO in line.

Solenoids Mod. A8...



Electrical connection: bipolar plus earth
Norm: DIN EN 175 301-803-A

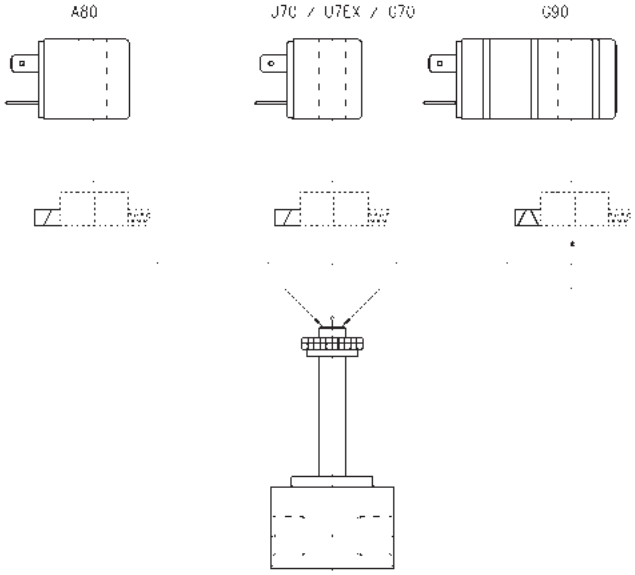


Mod.	Solenoid voltage	Power absorption
A8B	24V - 50/60Hz	5VA
A8D	110V - 50/60Hz	5VA
A8E	220V - 50/60Hz	5VA
A83	24V DC	4W

Solenoids for solenoid valves Series A, 3, 4, 9 and NA

All solenoids presented can be mounted on the following solenoid valves: Series A - 3 - 4 - 9 - NA

NB:
For the tightening of the solenoids' nut we recommend to do it manually, avoiding the use of any equipment.



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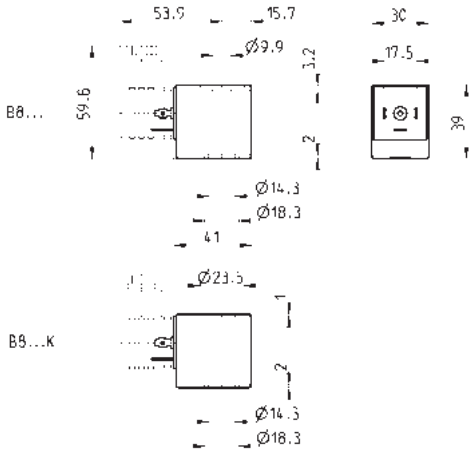
Solenoids Mod. B8...



Electrical connection: bipolar plus earth
Norm: DIN EN 175 301-803-A

Solenoid material: PA-MXD6

The B8*K models can be used only with some solenoid valves Series CFB
(Mod. CFB-D1..., 2/2 NO).
Further details on page 2/1.30.03.



Mod.	Solenoid voltage	Power absorption
B8B	24 V - 50 Hz	15 VA
B8BK	24 V - 50 Hz	15 VA
B8D	110 V - 50/60 Hz	15 VA
B8DK	110 V - 50/60 Hz	15 VA
B8E	220/230 V - 50/60 Hz	15 VA
B8EK	230 V - 50/60 Hz	15 VA
B8F	220/230 V - 50/60 Hz	21 VA
B8FK	220/230 V - 50/60 Hz	21 VA
B82	12 V - DC	19 W
B82K	12 V - DC	19 W
B83	24 V - DC	19 W
B83K	24 V - DC	19 W

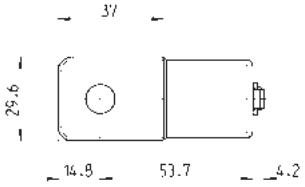
Solenoid Mod. H8.. for potentially explosive ambients

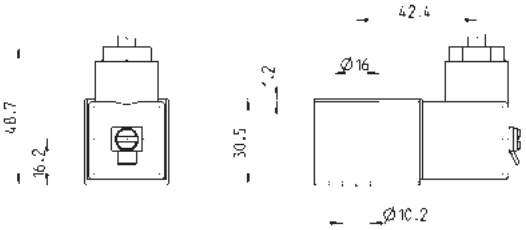


Certification in compliance with
EN 60079-0 EN 60079-18
ATEX :
II 2G Ex mb IIC T4 Gb
II 2D Ex mb IIIC T135°C Db
I M2 Ex mb I Mb
INERIS 06ATEX0002X

IECEx :
Ex mb IIC T4 Gb
Ex mb IIIC T135°C Db
Ex mb I Mb
IECEx INE 15.0053X

For Series NA use plate mod.
NA54-PC.





Mod.	Solenoid voltage	Power absorption
H83I	24 V - DC	5.3 W
H8BI	24 V - 50/60 Hz	5.3 W
H8CI	48 V - 50/60 Hz	5.3 W
H8DI	110 V - 50/60 Hz	5.3 W
H8EI	230 V - 50/60 Hz	5.3 W

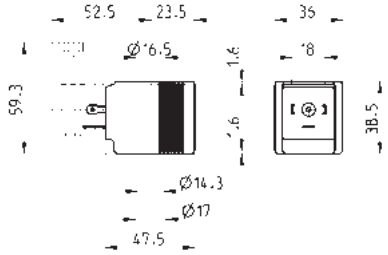
Temperature class/Max surface temperature: T4/135°C
Environment temperature: -20°C + 40°C
Connection: tripolar cable 3 m (other lenghts on request)
Incapsulating material: self-extinguishing PA.

Solenoids Mod. B9...



Electrical connection: bipolar plus earth
Norm: DIN EN 175 301-803-A

Solenoid material: PA-MXD6



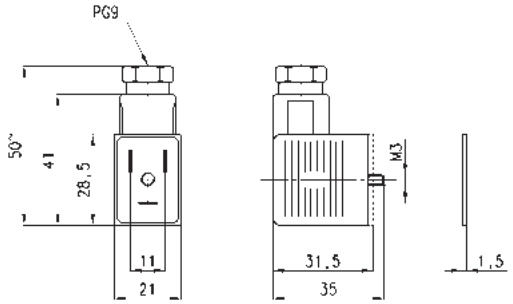
Mod.	Solenoid voltage	Power absorption
B9B	24 V - 50 Hz	29 VA
B9D	110 V - 50/60 Hz	29 VA
B9E	230 V - 50 Hz	29 VA
B92	12 V - DC	30 W
B93	24 V - DC	30 W

Connectors Mod. 122-... DIN EN 175 301-803-B



For solenoids Mod. U7/U7*EX, G7 and B7

Mod. 122-800EX:
for ATEX certified solenoids mod. U7*EX, with anti-screwing off screw mod. TORX.

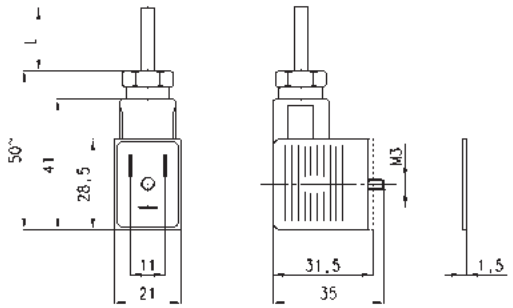


Mod.	description	colour	working voltage	cable holding	tightening torque
122-601	connector, diode + Led	transparent	10/50 V DC	PG9	0.5 Nm
122-701	connector, varistor + Led	transparent	24 V AC/DC	PG9	0.5 Nm
122-702	connector, varistor + Led	transparent	110 V AC/DC	PG9	0.5 Nm
122-703	connector, varistor + Led	transparent	230 V AC/DC	PG9	0.5 Nm
122-800	connector, without electronics	black	-	PG9	0.5 Nm
122-800EX	connector, without electronics	black	-	PG9	0.5 Nm

Connectors Mod. 122-5... DIN EN 175 301-803-B with cable



For solenoids Mod. U7/U7*EX, G7 and B7



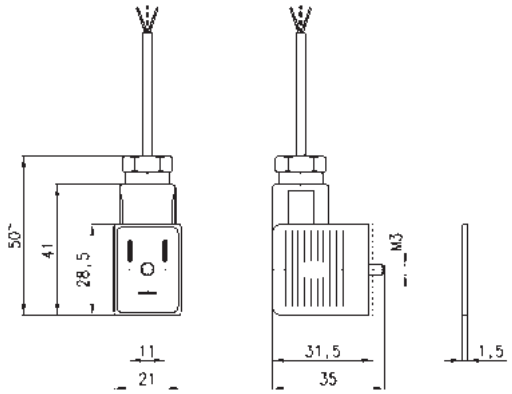
Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
122-550-1	moulded cable, without electronics	black	-	1000 mm	-	0.5 Nm
122-550-5	moulded cable, without electronics	black	-	5000 mm	-	0.5 Nm
122-571-3	moulded cable, varistor + Led	black	-	3000 mm	-	0.5 Nm

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Connectors Mod. 122-89*C DIN EN 175 301-803-B

For solenoids Mod. G9





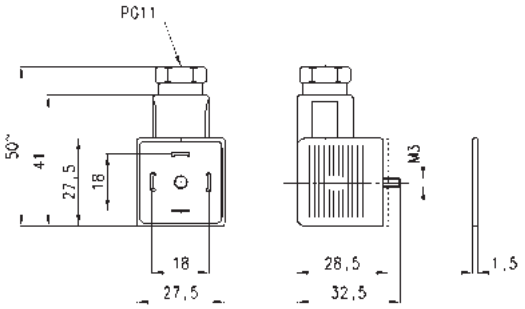
Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
122-892C	pre-wired connector, positive common	transparent	12/24V DC	2000 mm	PG9	0.5 Nm
122-893C	pre-wired connector, negative common	transparent	12/24V DC	2000 mm	PG9	0.5 Nm

Connector Mod. 124-... DIN EN 175 301-803-A

For solenoids Mod. A8 and Mod. B8/B9

Protection class IP65





Mod.	description	colour	working voltage	cable holding	tightening torque
124-800	connector, without electronics	black	-	PG9/PG11	0.5 Nm
124-702	connector, varistor + Led	black	110 V AC/DC	PG9/PG11	0.5 Nm
124-701	connector, varistor + Led	black	24 V AC/DC	PG9/PG11	0.5 Nm
124-703	connector, varistor + Led	black	230 V AC/DC	PG9/PG11	0.5 Nm

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Series 3 Plug-In valve islands, Multipole and Fieldbus

New versions

Plug-In system for Series 3 solenoid valves, G1/8 port.
Valve functions: 2x3/2, 5/2 and 5/3-way CO CC CP.
Multipole with a 25-pin Sub-D connector.
It can interface with all major serial communication protocols.



The Multipole version of Series 3 Plug-In valve island can be easily installed thanks to the front position of the Sub-D connector. The accessories of the new connection system to the Series CX serial nets enable to handle up a multipole valve island by means of a Sub-D connector or through a node integrated in the island.
The modularity of the electric and pneumatic parts allows to install up to a maximum of 22 solenoids on 22 valve positions.

- Flexible assembly through monostable and bistable 2- and 3-position modules
- Electrical connection and front pneumatic outputs
- Available protocols: PROFIBUS-DP, DeviceNet, CANopen, EtherNet/IP, EtherCAT, PROFINET

The electric and pneumatic modules have 2- and 3-position modularity. To optimize the signals distribution, electric modules are available for monostable and bistable valves. The pneumatic modularity enables the creation of zones with differentiated pressure.
Manuals, instruction sheets and configuration files are available on the site http://catalogue.camozzi.com or by means of the QR code indicated on the lable of the product.

GENERAL DATA

PNEUMATIC SECTION	
Valve construction	spool type with seals
Valve functions	5/2 - 5/3 CC - 5/3 CO - 5/3 CP - 2x3/2 NO - 2x3/2 NC - 1 3/2 NO + 1 3/2 NC
Materials	AL body, stainless steel spool, NBR seals, technopolymer
Mounting	through-out holes in the manifold
Ports	valve = G1/8 - manifold = G3/8
Installation	in any position
Operating temperature	from 0°C to 60°C (with dry air at -20°C)
Nominal flow rate	Qn 700 Nl/min
Nominal diameter	7 mm
Fluid	Filtered air, class 7.4.4 according to ISO 8573-1-2010, without lubrication. If lubricated air is used, it is recommended to use ISO VG32 oil, and to never interrupt the lubrication.
ELECTRICAL SECTION - MULTIPOLE VERSION	
Max absorption	3 A
Type of connection	Multipole 25-pin male Sub-D
Supply voltage	24 V DC +/- 10%
Max number of solenoids	22 on 22 valve positions
Signalling	yellow LED
Duty cycle	ED 100%
Protection class	IP65
ELECTRICAL SECTION - FIELDBUS VERSION	
General characteristics	see the section about the Series CX multi-serial module (2.3.50)
Max absorption	digital outputs/analogic inputs and outputs 3A digital/analogic inputs 3 A
Voltage tolerances	logic supply 24 V DC +/- 10% power supply 24 V DC +/- 10%

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CODING EXAMPLE - MULTIPOLE VERSION

3	P	8	-	03A	-	BDACAC	-	2BC3MU2BMXU2B2M	-	G77

3	SERIES
P	TYPE: P = Plug-In
8	SIZE: 8 = 1/8
03A	CONNECTION: 000 = no connector/cable CONNECTOR WITH CABLE AXIAL OUTPUT: 03A = 3 m 05A = 5 m 10A = 10 m 15A = 15 m 20A = 20 m 25A = 25 m CONNECTOR WITH CABLE RADIAL OUTPUT: 03R = 3 m 05R = 5 m 10R = 10 m 15R = 15 m 20R = 20 m 25R = 25 m CONNECTOR WITHOUT CABLE: 4XA = 25-pin axial 4XR = 25-pin radial
BDACAC	CONFIGURATION OF SUBBASE: A = 2 positions with bistable board B = 3 positions with bistable board C = 2 positions with monostable board D = 3 positions with monostable board
2BC3MU2BMXU2B2M	VALVE FUNCTION: E = empty position M = 5/2 Monostable, internal servo-pilot supply B = 5/2 Bistable, internal servo-pilot supply C = 2 x 3/2 NC, internal servo-pilot supply A = 2 x 3/2 NO, internal servo-pilot supply G = 1 x 3/2 NC + 1 x 3/2 NO, internal servo-pilot supply H = 5/3 Closed Centres, internal servo-pilot supply K = 5/3 Exhaust Centres, internal servo-pilot supply N = 5/3 Pressure Centres, internal servo-pilot supply D = 5/2 Monostable, external servo-pilot supply Y = 5/2 Bistable, external servo-pilot supply Q = 2 x 3/2 NC, external servo-pilot supply R = 2 x 3/2 NO, external servo-pilot supply S = 1 x 3/2 NC + 1 x 3/2 NO, external servo-pilot supply V = 5/3 Closed Centres, external servo-pilot supply Z = 5/3 Exhaust Centres, external servo-pilot supply W = 5/3 Pressure Centres, external servo-pilot supply L = plate with closed free position X = supply plate and supplementary exhausts T = diaphragm on channels 1, 3, 5 U = diaphragm in supply 1 J = diaphragm exhausts 3 and 5
G77	SOLENOID MATERIAL: G = PA U = PET

3P8-03R-ADCB-2B3MT2M3V-G77: valve island with 10 positions, radial connector and 3-meter cable.
Bases: the first with 2 bistables positions, the second with 3 monostable pos., the third with 2 monostable pos., the fourth with 3 bistable pos.
Valves: 2 bistable, 3 monostables, diafragm on channels 1,3,5, 2 monostables, 3 Closed Centres, 24 V Solenoids.

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CODING EXAMPLE - FIELDBUS VERSION

3	S	8	-	01	-	2AQRS	-	BDACAC	-	2BC3MU2BMXU2B2M	-	G77

3	SERIES
S	CONNECTION: S = Fieldbus
8	SIZE: 8 = 1/8
01	PROTOCOL: 01 = PROFIBUS-DP 02 = DeviceNet 03 = CANopen 04 = EtherNet/IP 05 = EtherCAT 06 = PROFINET 99 = Expansion Module
2AQRS	INPUT / OUTPUT MODULES: 0 = no module A = 8 digital inputs M8 B = 4 digital inputs M8 C = 2 analog inputs 4-20 mA D = 2 analog inputs 0-10 V E = 1 analog input 4-20 mA + 1 input 0-10 V Q = 4 M12 duo digital outputs R = 2 analog outputs 4-20 mA T = 2 analog outputs 0-10 V U = 1 analog output 4-20 mA + 1 output 0-10 V V = 1 analog output 4-20 mA + 1 input 0-10 V Z = 1 analog output 4-20 mA + 1 input 4-20 mA K = 1 analog output 0-10 V + 1 input 0-10 V Y = 1 analog output 0-10 V + 1 input 4-20 mA S = Initial subnet module
BDACAC	CONFIGURATION OF SUBBASE: A = 2 positions with bistable board B = 3 positions with bistable board C = 2 positions with monostable board D = 3 positions with monostable board
2BC3MU2BMXU2B2M	VALVE FUNCTION: E = empty position M = 5/2 Monostable, internal servo-pilot supply B = 5/2 Bistable, internal servo-pilot supply C = 2 x 3/2 NC, internal servo-pilot supply A = 2 x 3/2 NO, internal servo-pilot supply G = 1 x 3/2 NC + 1 x 3/2 NO, internal servo-pilot supply H = 5/3 Closed Centres, internal servo-pilot supply K = 5/3 Exhaust Centres, internal servo-pilot supply N = 5/3 Pressure Centres, internal servo-pilot supply D = 5/2 Monostable, external servo-pilot supply Y = 5/2 Bistable, external servo-pilot supply Q = 2 x 3/2 NC, external servo-pilot supply R = 2 x 3/2 NO, external servo-pilot supply S = 1 x 3/2 NC + 1 x 3/2 NO, external servo-pilot supply V = 5/3 Closed Centres, external servo-pilot supply Z = 5/3 Exhaust Centres, external servo-pilot supply W = 5/3 Pressure Centres, external servo-pilot supply L = plate with closed free position X = supply plate and supplementary exhausts T = diaphragm on channels 1, 3, 5 U = diaphragm in supply 1 J = diaphragm exhausts 3 and 5
G77	SOLENOID MATERIAL: G = PA U = PET

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MULTIPOLE VERSION AND MULTIPOLE WITH SUB-D ADAPTER





In the Multipole version the front position of the 25 pin Sub-D connector makes the connection easier. The connectors with pre-wired cable, which are available in different lengths and with axial or radial orientation, simplify the electrical connection. The Island can be configured up to a max. of 22 solenoids, using monostable and bistable electrical modules, on 22 valve positions, for example 22 monostable solenoid valves.

Thanks to the 2- or 3-position pneumatic modularity, diaphragms and plates of supplementary supply, it is possible to create zones with differentiated pressure. The Multipole version of Series 3 valve island can be connected by means of a Sub-D adapter. In this way a standard Multipole Island can be inserted as expansion in the subnet of the Fieldbus version.

VERSIONS: FIELDBUS WITH CPU MODULE AND EXPANSION FIELDBUS



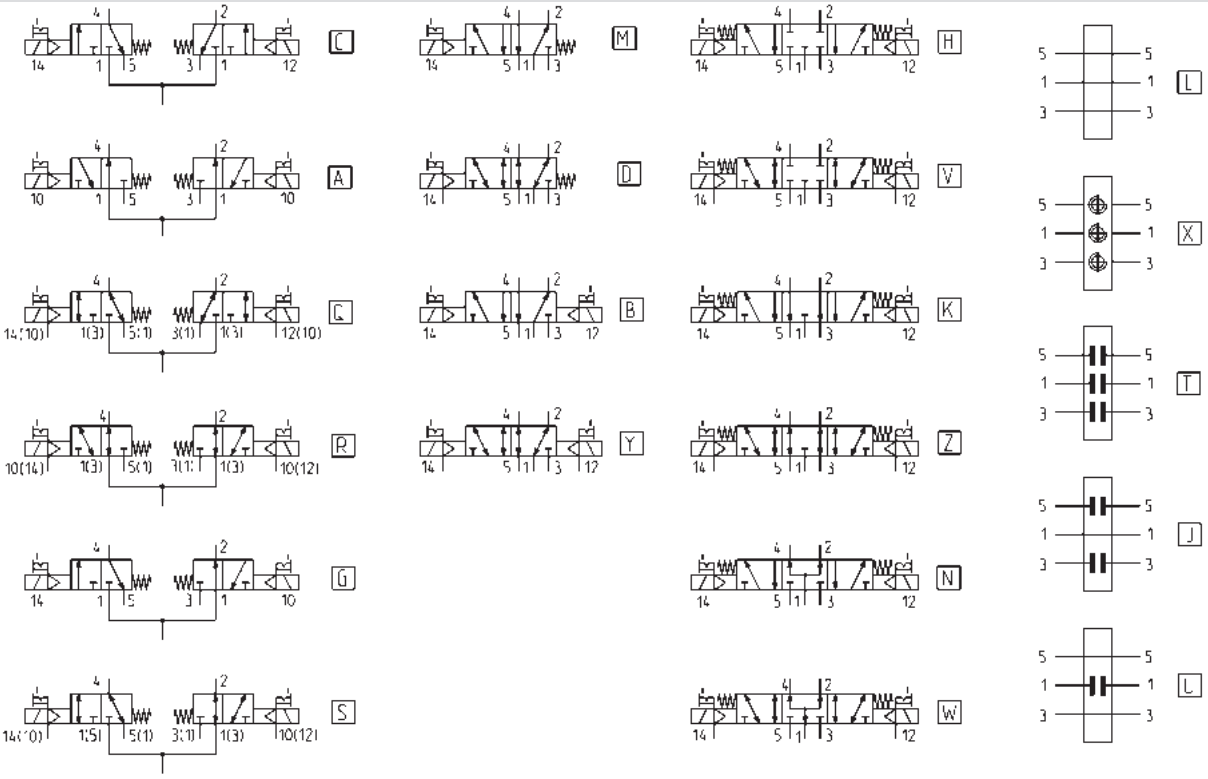


The Individual Fieldbus version of Series 3 can be interfaced through a specific module with the Series CX multi-serial module according to the different communication protocols (PROFIBUS-DP, DeviceNet, CANopen, EtherNet/IP, EtherCAT, PROFINET). Like the Multipole one, the Fieldbus version is able to create islands with 22 coils on 22 valve positions adding a wide range of electrical modules like digital/analog inputs/outputs of 0-10 V and 4-20 mA.

It is possible to insert Initial Subnet Modules in the version with CPU module. These Modules enable to create a subnet with tree structure or in series. On the subnet you can connect Expansion Islands. These expansions have the same possibilities to use the different electric modules, like digital and analog inputs and outputs and further Initial Subnet Modules. Also with this version the same rules as the CPU module and Multipole apply.

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FUNCTIONS OF SOLENOID VALVES SERIES 3



Mod.	Function	Actuation/return	Servo-pilot	Working pressure (bar)	Pilot pressure (bar)	Code
338D-015-02	2 x 3/2 NC	solenoid/spring	internal	2,5 ÷ 10	-	**C**
348D-015-02	2 x 3/2 NO	solenoid/spring	internal	2,5 ÷ 10	-	**A**
398D-015-02	1 x 3/2 NC + 1 x 3/2 NO	solenoid/spring	internal	2,5 ÷ 10	-	**G**
358-015-02	5/2 monostable	solenoid/spring	internal	2,5 ÷ 10	-	**M**
358-011-02	5/2 bistable	solenoid/solenoid	internal	1,5 ÷ 10	-	**B**
368-011-02	5/3 CC	solenoid/solenoid	internal	2 ÷ 10	-	**H**
378-011-02	5/3 CO	solenoid/solenoid	internal	2 ÷ 10	-	**K**
388-011-02	5/3 CP	solenoid/solenoid	internal	2 ÷ 10	-	**N**
338D-E15-02	2 x 3/2 NC	solenoid/spring	external	-0,9 ÷ 10	2,5 ÷ 10	**Q**
348D-E15-02	2 x 3/2 NO	solenoid/spring	external	-0,9 ÷ 10	2,5 ÷ 10	**R**
398D-E15-02	1 x 3/2 NC + 1 x 3/2 NO	solenoid/spring	external	-0,9 ÷ 10	2,5 ÷ 10	**S**
358-E15-02	5/2 monostable	solenoid/spring	external	-0,9 ÷ 10	2,5 ÷ 10	**D**
358-E11-02	5/2 bistable	solenoid/solenoid	external	-0,9 ÷ 10	1,5 ÷ 10	**Y**
368-E11-02	5/3 CC	solenoid/solenoid	external	-0,9 ÷ 10	2 ÷ 10	**V**
378-E11-02	5/3 CO	solenoid/solenoid	external	-0,9 ÷ 10	2 ÷ 10	**Z**
388-E11-02	5/3 CP	solenoid/solenoid	external	-0,9 ÷ 10	2 ÷ 10	**W**
CNVL/1L	free position (electrical and pneumatic cover)	-	-	-	-	**L**
CNVL-3P1	plate for supply and outlets	-	-	-	-	**X**
CNVL-3H-TP (x1)	diaphragm for supply (1)	-	-	-	-	**U**
CNVL-3H-TP (x2)	diaphragm for outlets (3-5)	-	-	-	-	**J**
CNVL-3H-TP (x3)	diaphragm for supply (1) and outlets (3-5)	-	-	-	-	**T**

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MODIFICATION OF A VALVE FUNCTION

In case a solenoid valve type M is inserted in a free position and a monostable or bistable electrical conveyor is already available, the following components must be ordered:

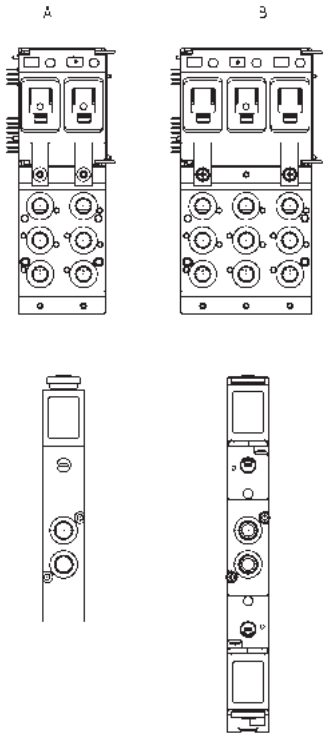
2x screws Cod. CNVL/21
3x interface seals Cod. CNVL-3H/7N
1x solenoid valve 358-015-02-(G77-U77)

In case a solenoid valve type B is inserted in a free position and a bistable electrical conveyor is already available*, the following components must be ordered:

1x electrical module with bistable solenoid valve Cod. 3PAC-R-IF1
1x solenoid valve 358-015-02-(G77-U77)

* In case a monostable conveyor has been already mounted, it must be replaced by a bistable one, provided that the maximum number of 22 signals is not exceeded.

DRAWING NOTE:
A = grey label (monostable)
B = white label (bistable)



AVAILABLE ELECTRICAL MODULES



Serial module 3S8-...



Expansion module 3S8-99-...



Initial subnet module Cod. S



25 pin Sub-D adapter module Mod. CXA-25P



8 digital inputs module Cod. A



4 digital inputs module Cod. B



Mod. Anal. IN/OUT Cod. C/D/E/R//T/U/V/Z/K/Y



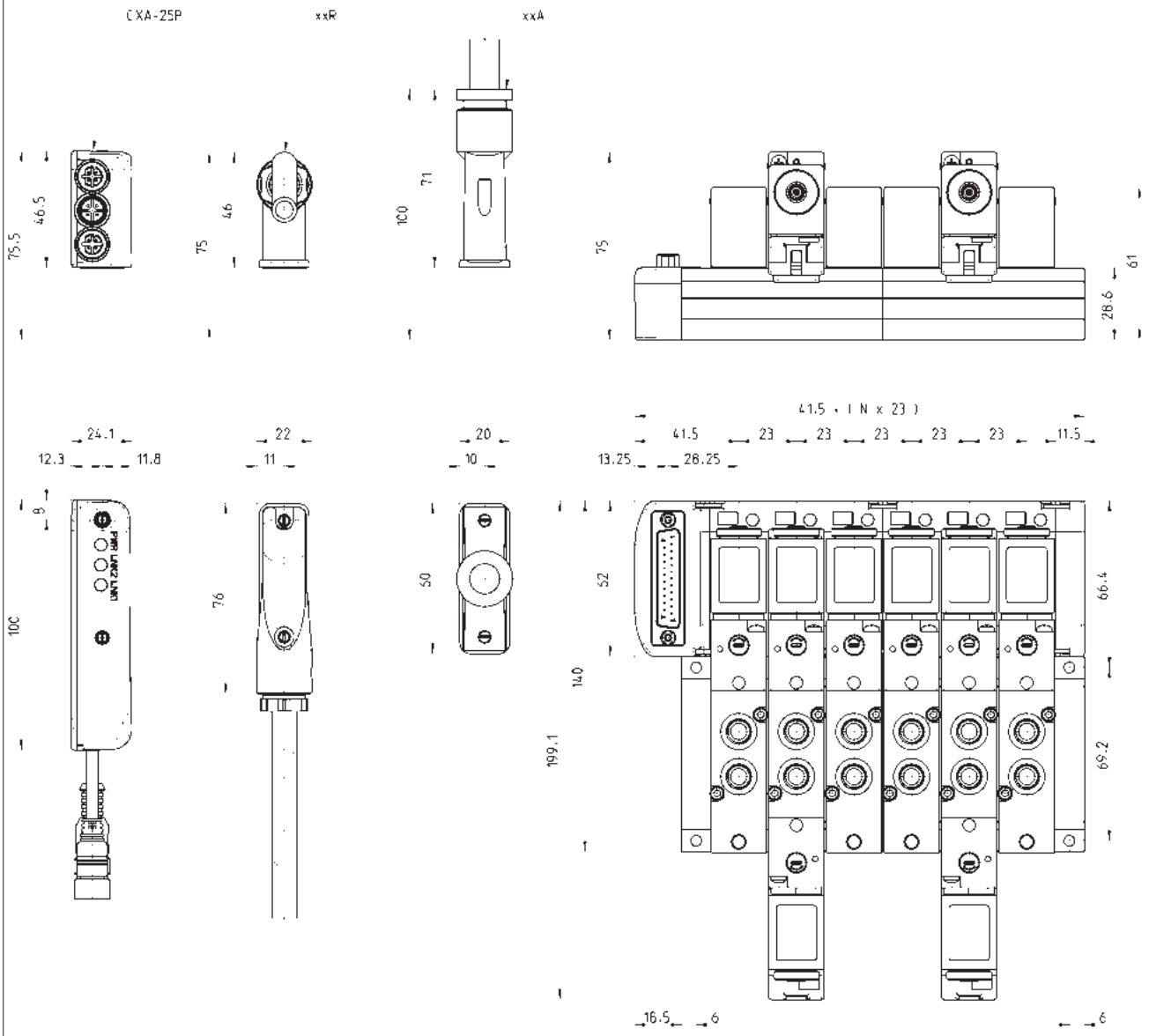
Power digital outputs module Cod. Q





2
CONTROL

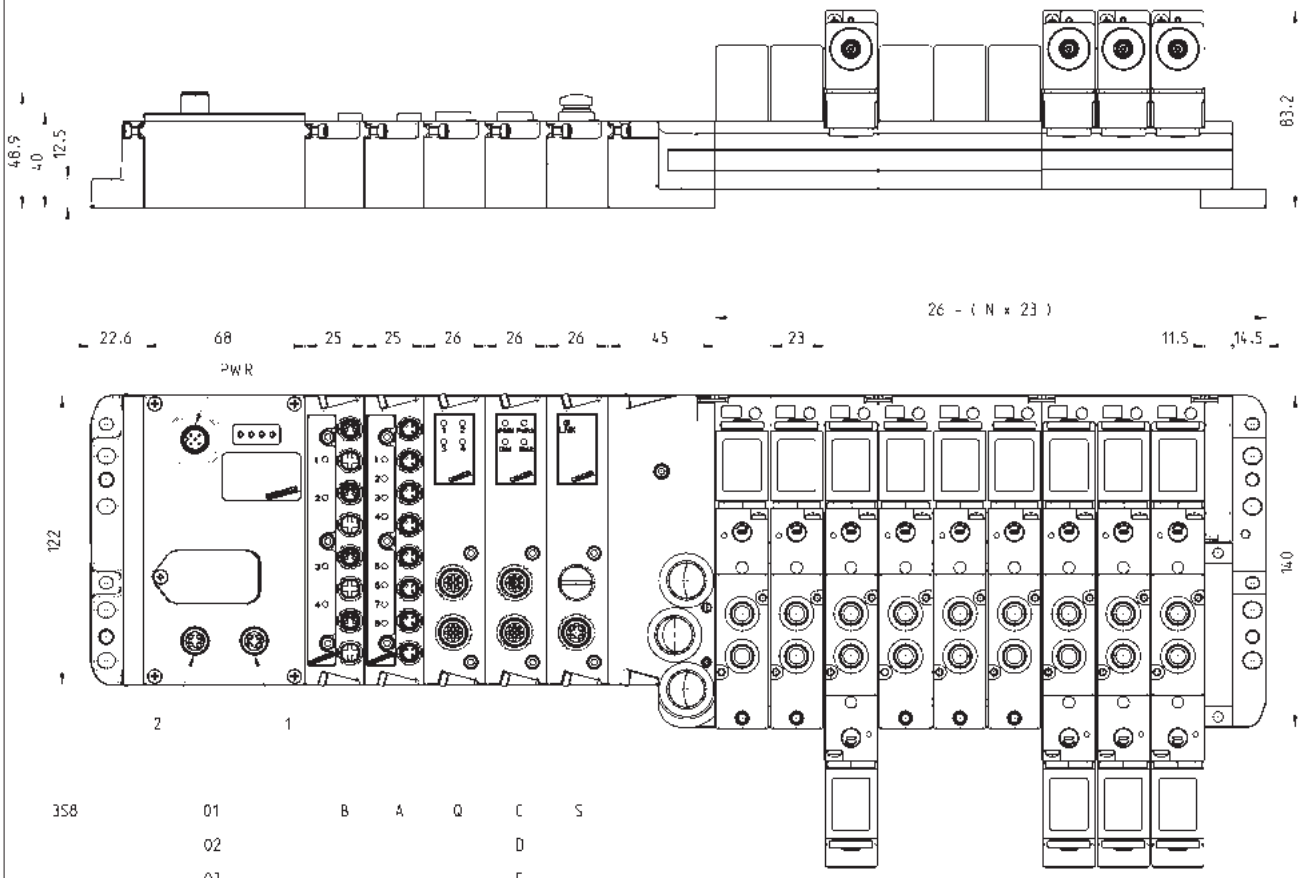
MULTIPOLE version - DIMENSIONS



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FIELDBUS version with CPU MODULE - DIMENSIONS

DRAWING NOTE:
1. letters and numbers refer to the details which are reported in the coding example
2. N = number of valve positions

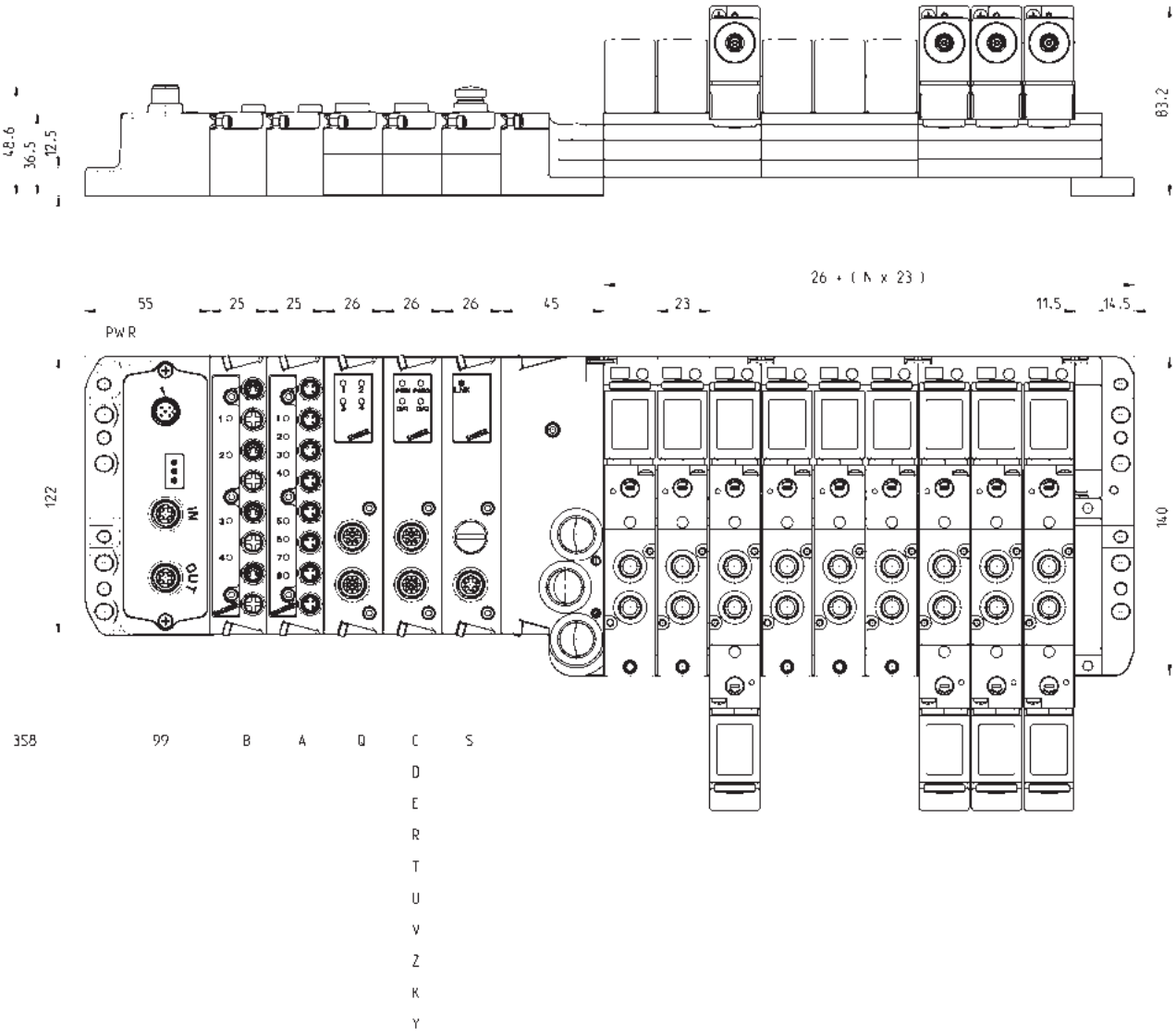


358	01	B	A	Q	C	S
	02				D	
	03				E	
	04				R	
	05				T	
	06				U	
					V	
					Z	
					K	
					Y	

2
CONTROL

FIELDBUS version with EXPANSION MODULE - DIMENSIONS

DRAWING NOTE:
1. letters and numbers refer to the details which are reported in the coding example
2. N = number of valve positions

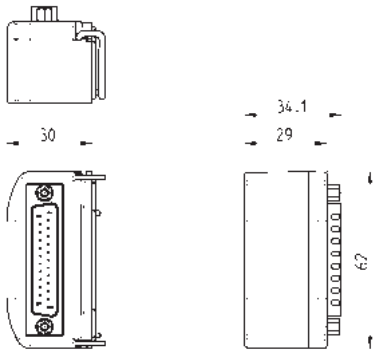


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25-pin Sub-D connector module



Initial module to connect the Intermediate Electrical Modules

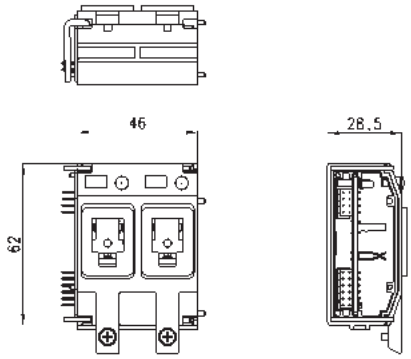


Mod.
3PBC-N-XS0

Intermediate electrical module - 2 positions, mono and bistable



To be mounted with subbases with 2 positions.
The type label in correspondence of LEDs is:
- grey in monostable intermediate modules
- white in bistable intermediate modules

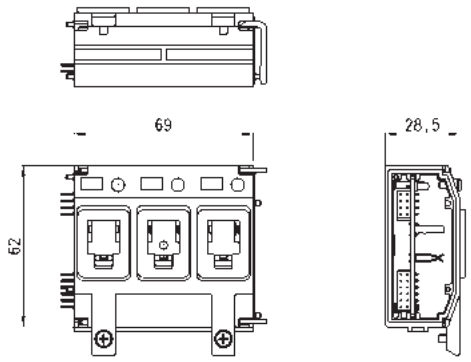


Mod.	
3PAC-M-XI2	Monostable module
3PAC-R-XI2	Bistable module

Intermediate electrical module - 3 positions, mono and bistable



To be mounted with subbases with 3 positions.
The type label in correspondence of LEDs is:
- grey in monostable intermediate modules
- white in bistable intermediate modules

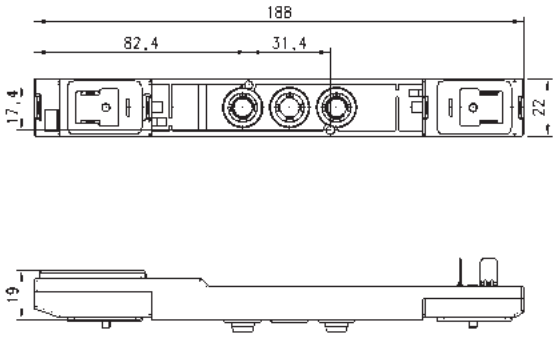


Mod.	
3PAC-M-XI3	Monostable module
3PAC-R-XI3	Bistable module

Electrical Module for a bistable solenoid valve



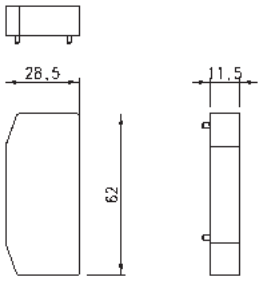
Supplied with:
2x screws for valve mounting
2x screws for solenoid mounting
1x interface seal
2x interface seals for solenoid



Mod.
3PAC-R-IF1

End cap for electric module





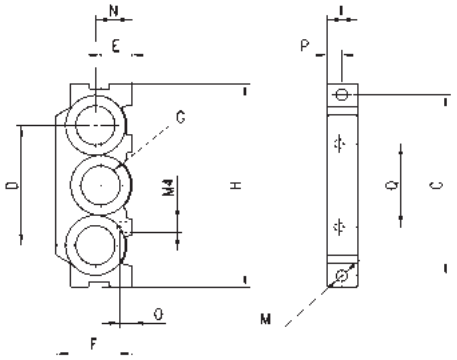
DIMENSIONS

Mod.
3PAC-R-TP1

Terminal module Mod. CNVL-3H



The following is supplied:
2x fixing nuts



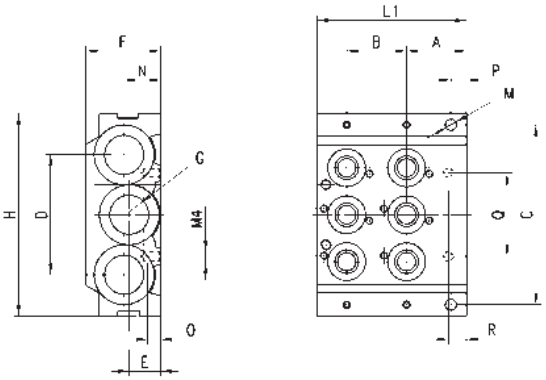
DIMENSIONS

Mod.	C	D	E	F	H	I	M	N	O	P	Q	G
CNVL-3H	69.5	46	12	29	78	11.5	4.3	14	5	6	32	3/8

Initial/terminal pneumatic Module - 2 positions



Supplied with:
3x O-rings
2x fixing screws
2x junction plugs
6x interface seals module/valve



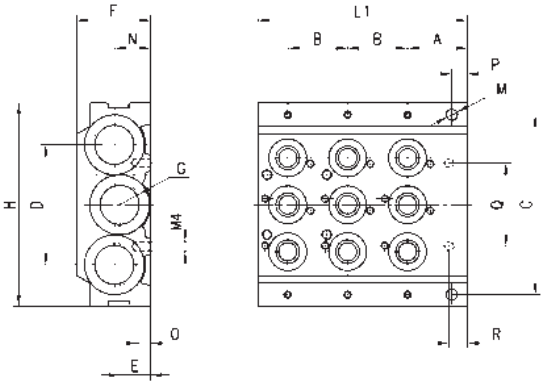
DIMENSIONS

Mod.	A	B	C	D	E	F	G	H	L1	M	N	O	P	Q	R
CNVL-3H2	23	23	69,5	46	12	29	3/8	78	57,5	4,3	14	5	6	32	7

Initial/terminal pneumatic Module - 3 positions



Supplied with:
3x O-rings
2x fixing screws
2x junction plugs
9x interface seals module/valve



DIMENSIONS

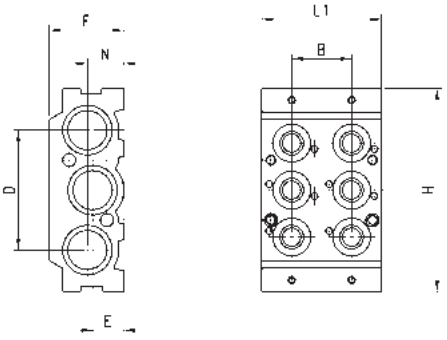
Mod.	A	B	C	D	E	F	G	H	L1	M	N	O	P	Q	R
CNVL-3H3	23	23	69,5	46	12	29	3/8	78	80,5	4,3	14	5	6	32	7

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Intermediate pneumatic Module - 2 positions



Supplied with:
3x O-Rings
2x fixing screws
2x junction plugs
6x interface seals module/valve



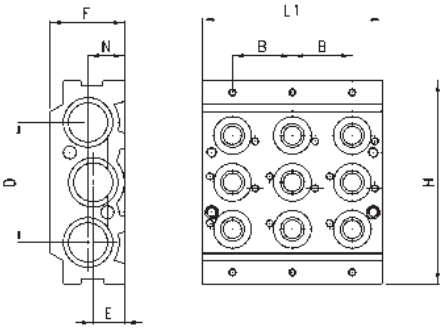
DIMENSIONS

Mod.	B	D	E	F	H	L1	N
CNVL-3I2	23	46	12	29	78	46	14

Intermediate pneumatic Module - 3 positions



Supplied with:
3x O-rings
2x fixing screws
2x junction plugs
9x interface seals module/valve

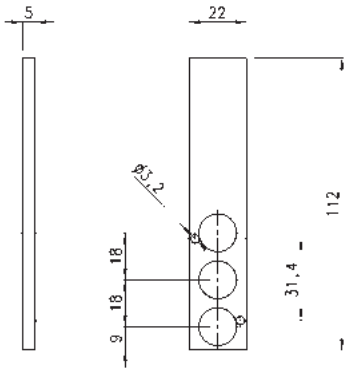


Mod.	B	D	E	F	H	L1	N
CNVL-3I3	23	46	12	29	78	69	14

Excluder tap for free position (cod. L)



Supplied with:
3x O-rings
2x screws

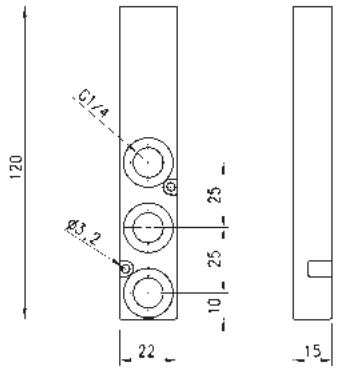


Mod.
CNVL/1L

Intermediate plate for manifolds with outlets (cod. X)



Supplied with:
3x O-rings
2x screws



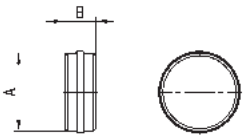
Mod.
CNVL-3P1



Diaphragm for separation channels 1 - 3 - 5

Supplied with:
1x diaphragm.

If you need cod. U, please order N° 1 piece.
If you need cod. J, please order N° 2 pieces.
If you need cod. T, please order N° 3 pieces.

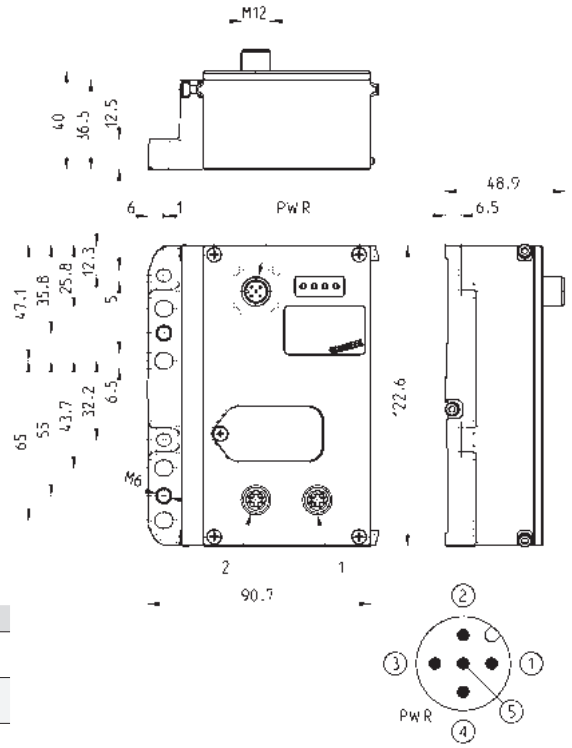


Mod.	A	B
CNVL-3H-TP	15,6	6

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CPU Module - pin configuration



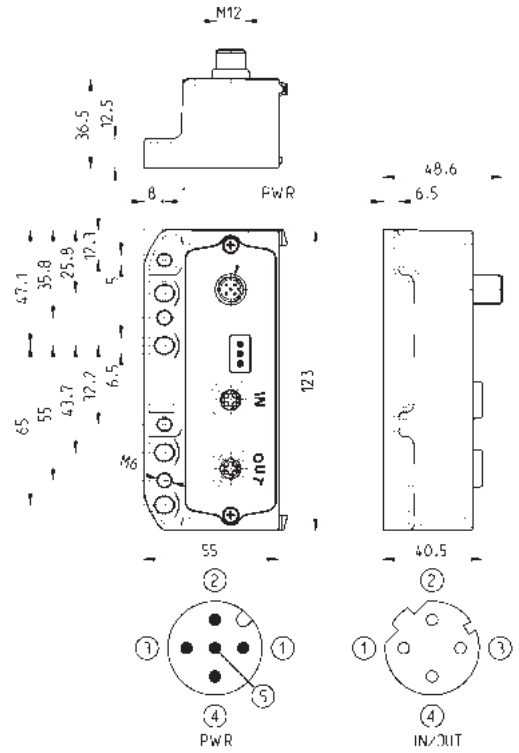


Mod.	Coding reference	Fieldbus Protocol	2	1	Bus-IN connector	Bus-OUT connector
CX01-0-0	01	PROFIBUS	Bus-IN	Bus-OUT	M12 B 5 pin male	M12 B 5 pin female
CX02-0-0	02	DeviceNet	Bus-IN	Bus-OUT	M12 A 5 pin male	M12 A 5 pin female
CX03-0-0	03	CANopen	Bus-IN	Bus-OUT	M12 A 5 pin male	M12 A 5 pin female
CX04-0-0	04	EtherNet/IP	Bus-OUT	Bus-IN	M12 D 5 pin female	M12 D 5 pin female
CX05-0-0	05	EtherCAT	Bus-OUT	Bus-IN	M12 D 5 pin female	M12 D 5 pin female
CX06-0-0	06	PROFINET	Bus-OUT	Bus-IN	M12 D 5 pin female	M12 D 5 pin female

Expansion Module - pin configuration

Note: to connect the Expansion with the subnet, we recommend the use of cables Mod. CS-SB04HB-... or CS-SC04HB-...





Mod.	Coding reference	Fieldbus Protocol	Bus-IN and Bus-OUT connector
CX99-0-0	99	Subnet expansion	M12 D 5 pin female

CPU Module - Characteristics

It is a slave node of the main PROFIBUS, CANopen, DeviceNet, EtherNet/IP, EtherCAT, PROFINET network and the Master module of the subnet. All modules provided can be connected only on the right side of the CPU module, like the digital/analog inputs/outputs, direct interface modules for the valve islands (Series F, HN and 3) and the initial module of the subnet.
It has its own M12A 4 pin Male connection to supply the modules connected, distinguishing both logic supply and power supply.
Two M12 connections for Bus IN and Bus OUT of the main network, which M12 connection will take over the relative specifications according to the choosen protocol.
The addressing is performed by means of the Rotary Switch for the protocols with this feature, while for Ethernet protocols, addressing is performed by means of the protocol itself. Leds indicating the working state. A maximum number of 1024 inputs and 1024 outputs can be managed.



Expansion Module - Characteristics

At its right side, different modules can be connected like the digital/analog inputs/outputs, the direct interface modules for the valve islands (Series F, HN and 3) and the initial module of the subnet to re-amplify it or to create new branches. It has its own M12 A 4 pin male connection to supply the devices connected, distinguishing both logic supply and power supply. It has two M12 D 5 pin female connections for Bus-IN and Bus-OUT connection of the subnet. Leds indicate the working state.
The valve island equipped with the Expansion Module can be used only in presence of a subnet.

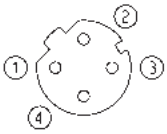


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Initial subnet module Mod. ME3-0000-SL

This module can be connected only in presence of a CPU or Expansion module and can be mixed with other either digital or analog Input and Output devices.
Every subnet can have an extension of maximum 100 metres, with a maximum of 8 interruptions. Up to maximum 5 initial modules can be connected, one aside another or along the subnet in order to create a tree structure, in series or both, in order to optimize the length of the cables and the topology of the subnet in different applications. The module is equipped with the Bus-OUT connection only of subnet type M12 D 5 pin female.



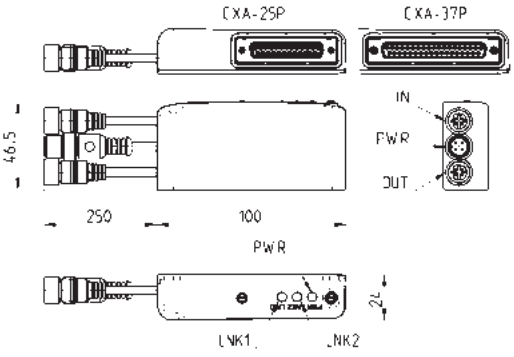


Mod.	Coding reference	Bus-OUT connection	Max number of modules for subnet	Max extension of subnet per module
ME3-0000-SL	S	M12D 5 pin female	5	100 m

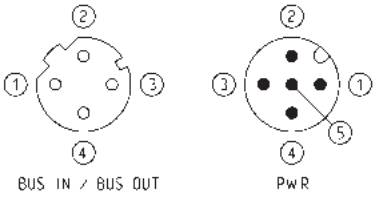
Sub-D adaptor module 25 pin Mod. CXA-25P



It is an Expansion module of the subnet and can be connected to all valve islands with Sub-D 25 pin connection. It can manage up to a maximum of 24 Output. It has its own M12 A 4 pin male connection for the supply of the valves connected, distinguishing both logic supply and power supply and two M12 D 5 pin female connections for the Bus-IN and Bus-OUT of the subnet. The subnet can have a length of maximum 100 metres. The power of a single Output is 3 W to 24 V DC. Thanks to the PWM technique it is possible to set a power reduction to only maintain operation.



Led 1 = Yellow LNK1
Led 2 = Yellow LNK2
Led 3 = Green PWR, supply present and OK



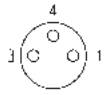
Mod.	Interface	Digital Outs	Bus-IN connection	Bus-OUT connection	PWR connection	Supply	Power for every Output
CXA-25P	Sub-D 25 pin	24	M12D 5 pin female	M12D 5 pin female	M12A 4 pin male	24 V DC	3 W

Digital input Module Mod. ME3-0800-DC and ME3-0400-DC

The Digital input module can be connected only in presence of a CPU or Expansion module and can be mixed with other either digital or analog Input and Output devices and with the initial module of the subnet.
It has 8 or 4 M8 3 pin connections.





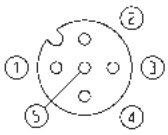


Mod.	Coding reference	Number of digital inputs	Connection	Number of connectors	Dimensions	Signalling	Sensor supply	Overvoltage protection	Absorption	Type of signal	Protection class	Operating temperature	Weight
ME3-0800-DC	A	8	M8 3 pin female	8	122 x 25 mm	1 yellow led for each input	24 V DC	400 mA for 4 sensors	10 mA	PNP	IP65	0 ÷ 50°C	110 g
ME3-0400-DC	B	4	M8 3 pin female	4	122 x 25 mm	1 yellow led for each input	24 V DC	400 mA for 4 sensors	10 mA	PNP	IP65	0 ÷ 50°C	110 g

Analog input/output module Mod. ME3-****-AL

The analog input/output module can be connected only in presence of a CPU or Expansion module and can be mixed with other either digital or analog Input and Output devices and with the initial module of the subnet. It has two M12 A 5 pin female connections and it can be configured as 2 analog Outputs or 2 Inputs or 1 Input + 1 Output. Every analog output or input has a 12 bit resolution for both inputs and outputs available in the versions from 0-10 V DC and from 4-20mA.
The refreshment time of the analog devices is submitted to the delay of the subnet and therefore to its topology. An average delay is less than 6 ms, to which the delay of the main network managed by the PLC has to be added.





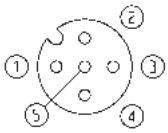
Mod.	Coding reference	Number of analog inputs	Number of analog outputs	Connection
ME3-C000-AL	C	2 inputs 4-20 mA	-	2x M12 A 5 pin female
ME3-D000-AL	D	2 inputs 0-10 V	-	2x M12 A 5 pin female
ME3-E000-AL	E	1 input 4-20 mA + 1 input 0-10 V	-	2x M12 A 5 pin female
ME3-00U0-AL	U	-	1 output 4-20 mA + 1 output 0-10 V	2x M12 A 5 pin female
ME3-00R0-AL	R	-	2 outputs 4-20 mA	2x M12 A 5 pin female
ME3-00T0-AL	T	-	2 outputs 0-10 V	2x M12 A 5 pin female
ME3-00Z0-AL	Z	1 input 4-20 mA	1 output 4-20 mA	2x M12 A 5 pin female
ME3-00K0-AL	K	1 input 0-10 V	1 output 0-10 V	2x M12 A 5 pin female
ME3-00V0-AL	V	1 input 0-10 V	1 output 4-20 mA	2x M12 A 5 pin female
ME3-00Y0-AL	Y	1 input 4-20 mA	1 output 0-10 V	2x M12 A 5 pin female

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Digital power output module Mod. ME3-0004-DL

The digital output module can be connected only in presence of a CPU or Expansion module and can be mixed with other either digital or analog Input and Output devices and with the initial module of the subnet. It has two M12 A 5 pin female connections, each connection can manage 2 digital outputs and can provide a maximum of 10 W to 24 V DC. The device is useful to pilot a bistable valve or two monostable valves for each connector, or to activate the electric coils or other electric devices with maximum absorption of 10 W to 24 V DC. Connecting two outputs to one electric device only and activating them simultaneously, it is possible to provide maximum 20 W to 24 V DC.





Mod.	Coding reference	Number of digital outputs	Connection	Number of connectors	Dimensions	Signalling	Sensor supply	Max power for M12 connector	Max power for digital output	Type of signal	Protection class	Operating temperature	Weight
ME3-0004-DL	Q	4	M12 A 5 pin female	2	122 x 25 mm	1 yellow led for each output	24 V DC	20 W	10 W	NPN	IP65	0 ÷ 50°C	100 g

Pneumatic/electric interface Module for Fieldbus version

Supplied with:
1x module with card
1x foot for manifold

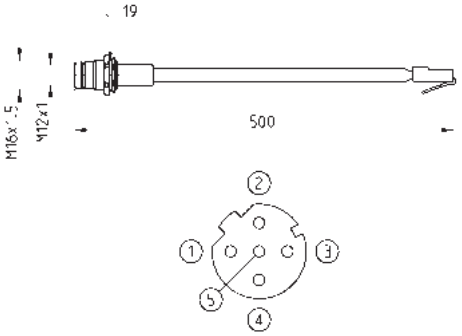


Mod.
ME3-003P-DI

Adaptor and panel mount for Ethernet RJ45 to M12 D networks

For PROFINET, EtherCAT, EtherNet/IP

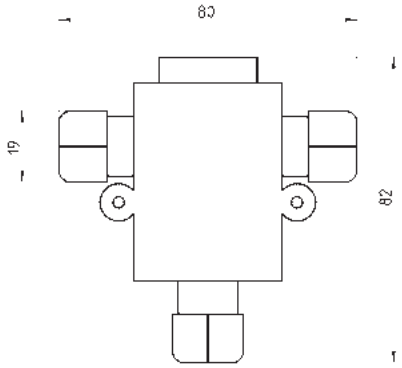




Mod.	description	type of connector	connection	cable length (m)
CS-SE04HB-F050	moulded cable	straight	RJ45 male, M12 D 4 pin female	0.5

Profibus-DP data line tee

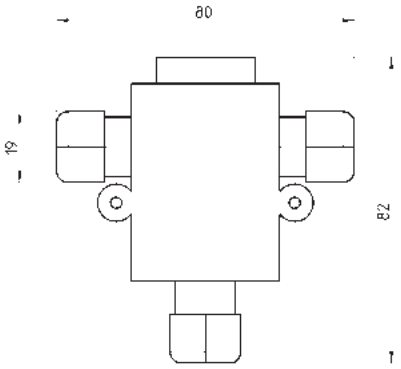




Mod.
CS-AA03EC

CANopen / DeviceNet data line tee



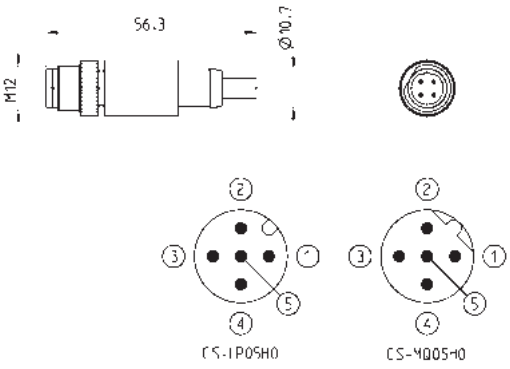


CS-AA05EC

M12 male terminating resistor

For PROFIBUS, CANopen, DeviceNet



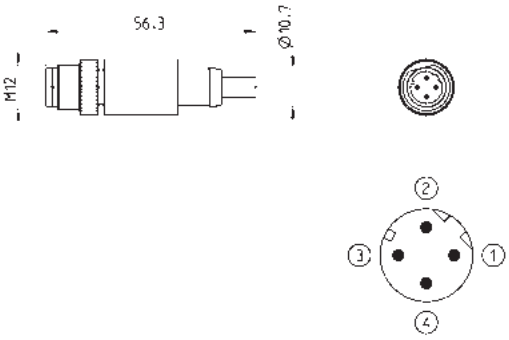


Mod.	description	type of connector	connection	Protocol
CS-MQ05H0	moulded terminating resistor	straight	M12 B 4 pin male	PROFIBUS
CS-LP05H0	moulded terminating resistor	straight	M12 A 5 pin male	CANOpen / DeviceNet

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Subnet terminating resistor

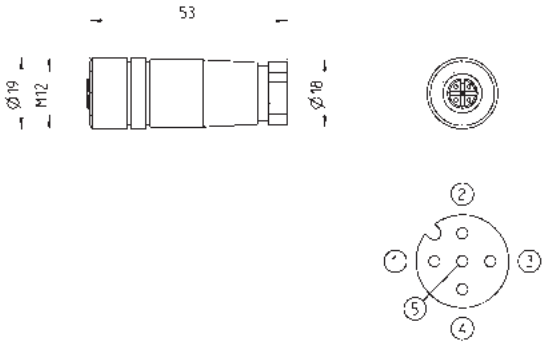




Mod.	description	type of connector	connection	Protocol
CS-SU04H0	moulded terminating resistor	straight	M12 D 4 pin	subnet

Straight connector for power supply

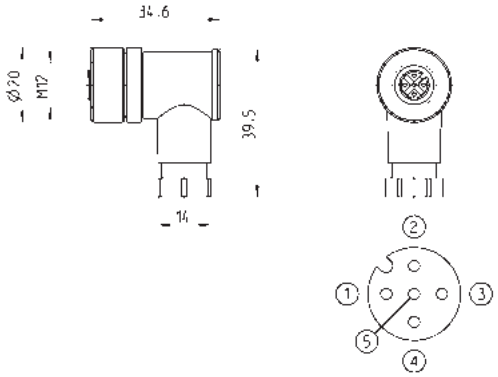




Mod.	description	type of connector	connection	cable length (m)
CS-LF04HB	for wiring	straight	M12 A 4 pin female	-

Angular connector for power supply

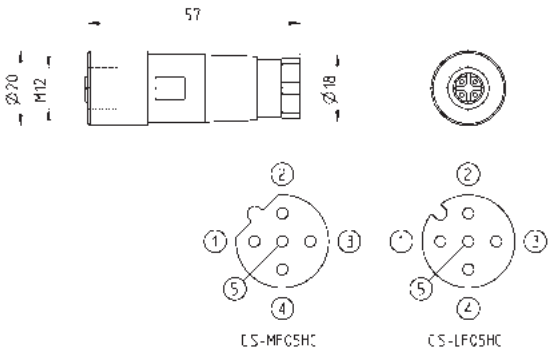




Mod.	description	type of connector	connection	cable length (m)
CS-LR04HB	for wiring	90°	M12 A 4 pin female	-

Straight female M12 connectors for Bus-IN



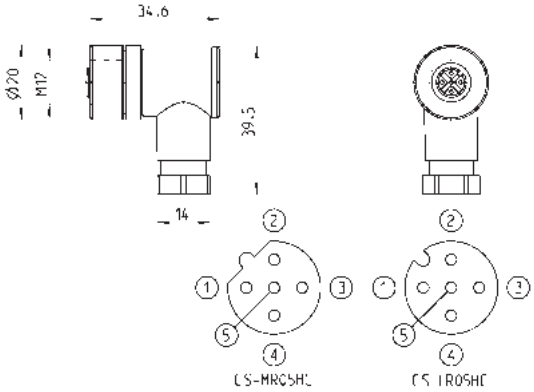


Mod.	description	type of connector	connection	Protocol
CS-LF05HC	for wiring	straight	M12 A 5 pin female	CANopen / DeviceNet
CS-MF05HC	for wiring	straight	M12 B 5 pin female	PROFIBUS

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Angular 90° female M12 connectors for Bus-IN

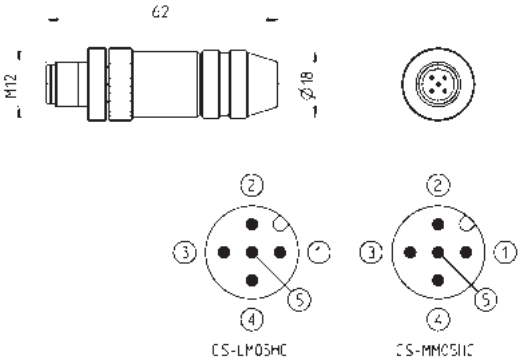




Mod.	description	type of connector	connection	Protocol
CS-LR05HC	for wiring	90°	M12 A 5 pin female	CANopen / DeviceNet
CS-MR05HC	for wiring	90°	M12 B 5 pin female	PROFIBUS

Straight male M12 connectors for Bus-OUT



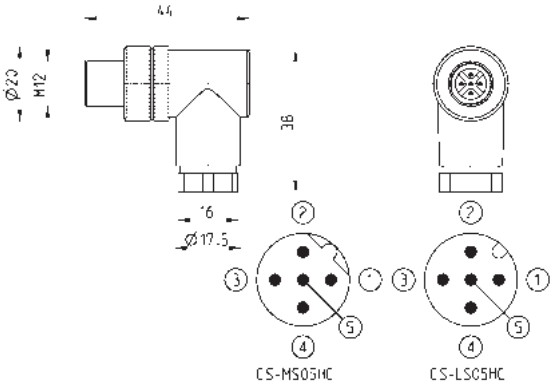


Mod.	description	type of connector	connection	Protocol
CS-LM05HC	for metal wiring	straight	M12 A 5 pin male	CANopen / DeviceNet
CS-MM05HC	for metal wiring	straight	M12 B 5 pin male	PROFIBUS

Angular 90° male M12 connectors for Bus-OUT

The Mod. CS-LS05HC can also be used for the connection of the digital output modules and of the analog input and output modules.



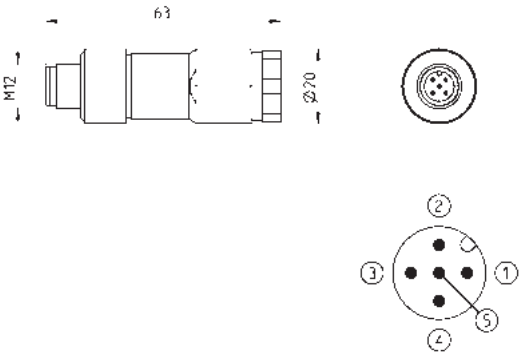


Mod.	description	type of connector	connection	Protocol
CS-LS05HC	for wiring	90°	M12 A 5 pin male	CANopen / DeviceNet
CS-MS05HC	for wiring	90°	M12 B 5 pin male	PROFIBUS

5 pin male straight M12 DUO connector

For the connection of the digital output modules and analog input/output modules.





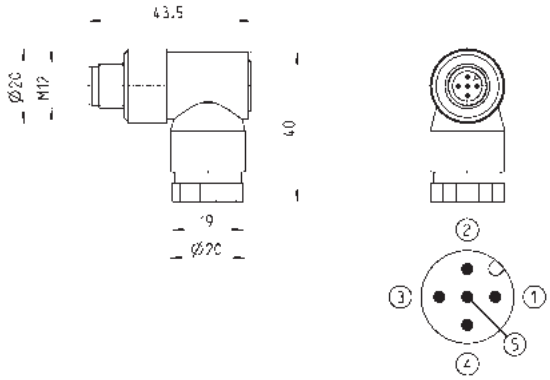
Mod.	description	type of connector	connection	cable length (m)
CS-LD05HF	for wiring	straight	M12 A 5 pin male	-

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5 pin male angular M12 DUO connector



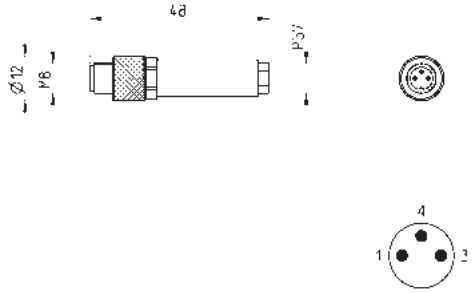
For the connection of the digital output modules ME3-0004-DL



Mod.	description	type of connector	connection	cable length (m)
CS-LH05HF	for wiring	90°	M12 A 5 pin male	-

3 pin male M8 wiring connector for digital input modules



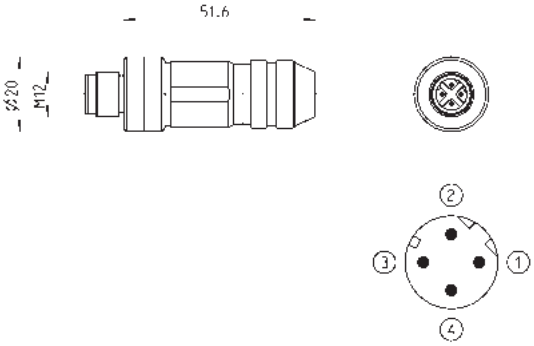


Mod.	description	type of connector	connection	cable length (m)
CS-DM03HB	for wiring	straight	M8 3 pin male	-

Male wiring connector for Bus-IN and Bus-OUT



For PROFINET, EtherCAT, EtherNet/IP and for the subnet



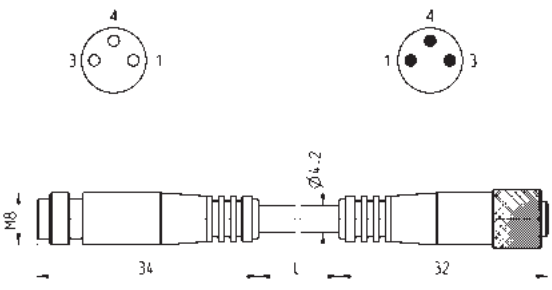
Mod.	description	type of connector	connection	cable length (m)
CS-SM04H0	for metal wiring	straight	M12 D 4 pin	-

Extension with M8 connector, 3 pin male / female



Non shielded

For the connection of the digital input modules ME3-0008 and ME3-0004



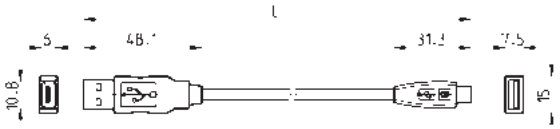
Mod.	description	type of connector	connection	L [cable length] (m)
CS-DW03HB-C250	moulded cable	straight	M8 3 poli male / female	2.5
CS-DW03HB-C500	moulded cable	straight	M8 3 pin male / female	5

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USB to Micro USB cable Mod. G11W-G12W-2



For the hardware configuration
of the Camozzi products

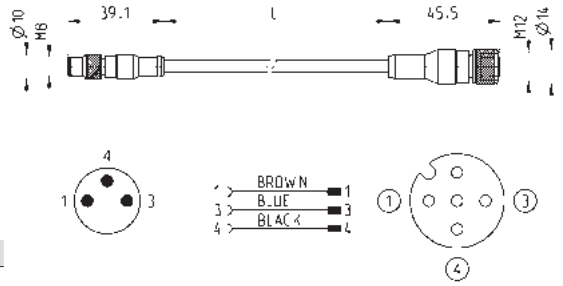


Mod.	description	connections	material for outer sheath	cable length "L" (m)
G11W-G12W-2	black shielded cable 28 AWG	standard USB to Micro USB	PVC	2

Adapter cable, M8 3-pin male - M12 4-pin female



Protection class: IP69K



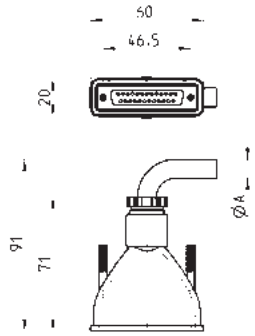
Mod.	description	max voltage	max current	Nr conn. wires	connections	outer sheath	cable "L" (m)
CS-AG03HB-C250	3-pin cable 24 AWG, high flexibility	50V AC / 60V DC	3 A	3	M8 3-pin male - M12 4-pin fem.	PUR black	2.5
CS-AG03HB-C500	3-pin cable 24 AWG, high flexibility	50V AC / 60V DC	3 A	3	M8 3-pin male - M12 4-pin fem.	PUR black	5

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Straight Sub-D 25 pin female connector with axial cable

Protection class IP65



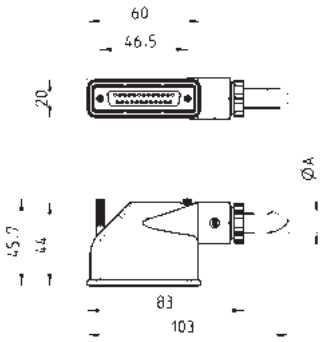


Mod.	⌀A	PIN	cable length (m)
G3X-3	7.7	16	3
G3X-5	7.7	16	5
G3X-10	7.7	16	10
G3X-15	7.7	16	15
G3X-20	7.7	16	20
G3X-25	7.7	16	25
G4X-3	9	25	3
G4X-5	9	25	5
G4X-10	9	25	10
G4X-15	9	25	15
G4X-20	9	25	20
G4X-25	9	25	25

Right angle Sub-D 25 pin female connector with axial cable

Protection class IP65





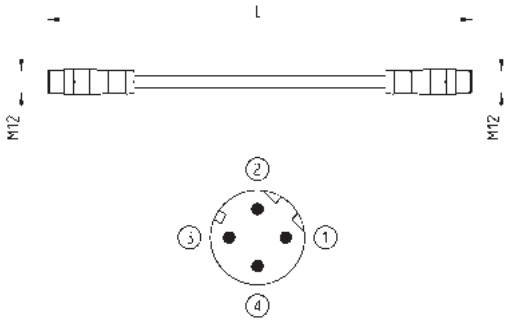
Mod.	⌀A	PIN	cable length (m)
G3X1-3	7.7	16	3
G3X1-5	7.7	16	5
G3X1-10	7.7	16	10
G3X1-15	7.7	16	15
G3X1-20	7.7	16	20
G3X1-25	7.7	16	25
G4X1-3	10	25	3
G4X1-5	10	25	5
G4X1-10	10	25	10
G4X1-15	10	25	15
G4X1-20	10	25	20
G4X1-25	10	25	25

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Cable with straight connectors

For PROFINET, EtherCAT, EtherNet/IP and subnet



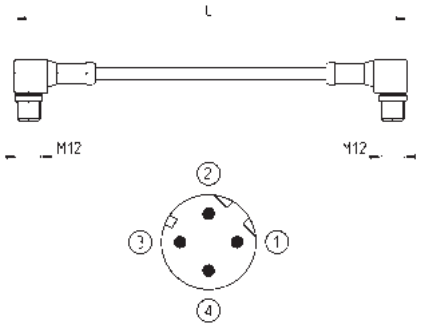


Mod.	description	type of connector	connection	L [cable length] (m)
CS-SB04HB-D100	moulded cable	straight	2x M12 D 4 pin male	1
CS-SB04HB-D500	moulded cable	straight	2x M12 D 4 pin male	5
CS-SB04HB-DA00	moulded cable	straight	2x M12 D 4 pin male	10
CS-SB04HB-DD00	moulded cable	straight	2x M12 D 4 pin male	15
CS-SB04HB-DG00	moulded cable	straight	2x M12 D 4 pin male	20
CS-SB04HB-DJ00	moulded cable	straight	2x M12 D 4 pin male	25

Cable with 90° angular connectors

For PROFINET, EtherCAT, EtherNet/IP and subnet



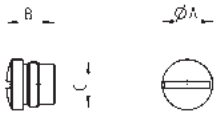


Mod.	description	type of connector	connection	L [cable length] (m)
CS-SC04HB-D100	moulded cable	90°	2x M12 D 4 pin male	1
CS-SC04HB-D500	moulded cable	90°	2x M12 D 4 pin male	5
CS-SC04HB-DA00	moulded cable	90°	2x M12 D 4 pin male	10
CS-SC04HB-DD00	moulded cable	90°	2x M12 D 4 pin male	15
CS-SC04HB-DG00	moulded cable	90°	2x M12 D 4 pin male	20
CS-SC04HB-DJ00	moulded cable	90°	2x M12 D 4 pin male	25

M8 and M12 connector cover caps

For digital and analog input/output modules and subnet





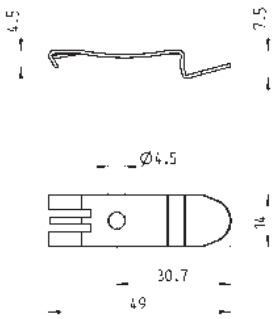
Mod.	A	B	C [Connection]
CS-DFTP	10	11	M8
CS-LFTP	13.5	13	M12

Mounting brackets for DIN rail

DIN EN 50022 (mm 7,5 x 35 - width 1)

Supplied with:
2x plates
2x screws M4x6 UNI 5931





Mod.
PCF-E520

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series F valve islands, Multipole and Fieldbus

New versions

Multipole integrated electrical connection (PNP)
Valve functions: 2x2/2; 2x3/2; 5/2; 5/3 CC
It can interface with all major serial communication protocols.



- Valve size: 12 and 14 mm
- Modularity: single
- Valve positions: from 2 to 24
- Manual override: Push or Push & Turn
- Available Protocols: PROFIBUS-DP, CANopen, DeviceNet, EtherNet/IP, PROFINET, EtherCAT

The Multipole version of Series F valve island can be easily integrated with the accessories of the new Series CX multi-serial module, thus connecting to the different serial nets provided.
It is also possible to manage a standard multipole island by means of a Sub-D adapter or through an integrated node in the island. The typical Series F single modularity allows the installation of up to 24 solenoids on 24 valve positions, even in the Fieldbus version.

The use of technopolymer in this Series has allowed to realize a valve island which is characterized by small dimensions, high flow and reduced weight. The reduced dimensions, its flexibility during the assembly as well as the wide range of valve functions make Series F a highly innovative product which is suitable for several application requirements.
Usable silencers (Mod. 2939): see the section 2/9.05.

Manuals, instruction sheets and configuration files are available on the site http://catalogue.camozzi.com or by means of the QR code indicated on the lable of the product.

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GENERAL CHARACTERISTICS

PNEUMATIC SECTION	
Valve construction	spool with seals
Valve functions	5/2 monostable and bistable 5/3 CC 2x2/2 NO 2x2/2 NC 1x2/2 NC + 1x2/2 NO 2x3/2 NO 2x3/2 NC 1x3/2 NC + 1x3/2 NO
Materials	aluminium spool HNBR seals other seals in NBR brass cartridges technopolymer body and end covers
Connections	Inlets 2 and 4, size 1 (12 mm) = tube ø4; ø6 Inlets 2 and 4, size 2 (14 mm) = tube ø4; ø6; ø8 Supply 1, size 1 and 2 = tube ø8; ø10 Servo pilot 12/14, size 1 and 2 = tube ø6 Exhausts 3/5, size 1 and 2 = tube ø8; ø10 Exhausts 82/84, size 1 and 2 = tube ø6
Temperature	0 ÷ 50°C
Air specifications	Filtered compressed air, non lubricated, class 6.4.4 according to ISO 8573-1:2010 standard. If lubrication is necessary, please use only oils with maximum viscosity of 32 Cst and the version with external servo-pilot supply. The servo-pilot supply air quality class must be 6.4.4 according to ISO 8573-1:2010 standard.
Valve sizes	12 mm 14 mm
Working pressure	- 0,9 ÷ 10 bar
Pilot pressure	3 ÷ 7 bar 4.5 ÷ 7 bar (with working pressure exceeding 6 bar for the versions 2x2/2 and 2x3/2)
Flow rate	250 Nl/min (12 mm) 500 Nl/min (14 mm)
Mounting position	any position
Duty cycle	ED 100%
Protection class (according to EN 60529)	IP40
ELECTRICAL SECTION - MULTIPOLE VERSION	
Supply voltage	24 V DC +/- 10%
Max number of solenoids	24
Max number of valve functions	24 (monostable)
Type of Sub-D connection	Sub-D 25 pin
Max absorption	0.8 A
ELECTRICAL SECTION - FIELDBUS VERSION	
General characteristics	see the section about the Series CX multi-serial module (2.3.50)
Max absorption	digital outputs / analogic outputs and inputs 3 A digital/analogic inputs 3 A
Supply voltage	logic supply 24 V DC +/- 10% power supply 24 V DC +/- 10%
Max number of operable coils	24 on 24 valve functions (monostable)

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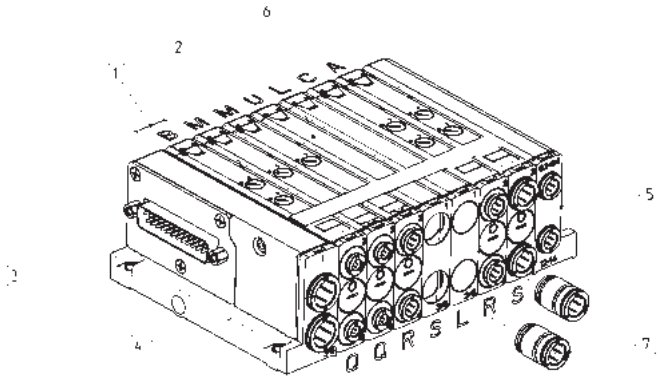
CODING EXAMPLE - MULTIPOLE VERSION

F	P	2	R	M	T	A	-	MB2CMUL2B	-	2QR3SLQR

F	SERIES
P	TYPE: P = pneumatic A = accessories
2	SIZE: 1 = 12 mm 2 = 14 mm
R	MANUAL OVERRIDE: P = pressure actuation control R = actuation control with push & turn device
M	ELECTRICAL CONNECTION: M = multipole
T	CARTRIDGES FOR LEFT TERMINAL: S = tube Ø 8 T = tube Ø 10 Note: the cartdriges for the right terminal are for tube Ø 6.
A	SERVO-PILOT SUPPLY: A = internal B = external
MB2CMUL2B	SOLENOID VALVES AND ADDITIONAL PLATES *: M = 5/2 monostable D = 5/2 monostable with bistable electric board B = 5/2 bistable C = 2x3/2 NC A = 2x3/2 NO G = 3/2 NC + 3/2 NO E = 2x2/2 NC F = 2x2/2 NO I = 2/2 NC + 2/2 NO V = 5/3 CC L = free position with passing electric board W = free position with bistable electric board Z = free position with monostable electric board X = supplementary supply and exhaust T = separated supply and exhaust U = separated supply, supplementary exhaust K = supplementary supply, separated exhaust
2QR3SLQR	CARTRIDGES FOR SOLENOID VALVES AND ADDITIONAL PLATES *: Q = tube Ø 4 R = tube Ø 6 S = tube Ø 8 (not for Size 1) L = free position (no cartridges) W = free position with bistable electric board (no cartridges) Z = free position with monostable electric board (no cartridges)
	* in case of identical and consecutive codes, in the choices “SOLENOID VALVES AND ADDITIONAL PLATES” and “CARTRIDGES FOR SOLENOID VALVES AND ADDITIONAL PLATES”, replace the letters with the number. With the choice “CARTRIDGES FOR SOLENOID VALVES AND ADDITIONAL PLATES” both of the following connections are defined: 2 and 4; 1 and 3/5. Examples: FP2RMTA-MBCCMULMMMBB-QQRSSLRRRQRR FP2RMTA-MB2CMUL3M2B-2QR2SL3RQ2R

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CODING - MULTIPOLE VERSION



1	2	3	4	5	6							7						
F	P	2	R	M	T	A	B	2	M	U	L	C	A	-	2	Q	R	S	L	R	S

FP...

(1)	SIZE	(2)	MANUAL OVERRIDE	(3)	ELECTRICAL CONNECTION	(4)	CARTRIDGES for LEFT TERMINAL	(5)	SERVO-PILOT SUPPLY	(6)	SOLENOID VALVES and ADDITIONAL PLATES	(7)	CARTRIDGES for SOLENOID VALVES and ADDITIONAL PLATES
1	12 mm	**P**	pressure actuation control	**M**	Multipole	**S**	Ø8	**A**	internal	**M**	5/2 monostable	**Q**	Ø4
2	14 mm	**R**	actuation control with push & turn device			**T**	Ø10	**B**	external	**D**	5/2 monostable with bistable electric board	**R**	Ø6
										B	5/2 bistable	**S**	Ø8
										C	2x3/2 NC	**L**	free position (no cartridges)
										A	2x3/2 NO	**W**	free position with bistable electric board (no cartridges)
										G	3/2 NC + 3/2 NO	**Z**	free position with monostable electric board (no cartridges)
										E	2x2/2 NC		
										F	2x2/2 NO		
										I	2/2 NC + 2/2 NO		
										V	5/3 CC		
										L	free position with passing electric board		
										W	free position with bistable electric board		
										Z	free position with monostable electric board		
										X	supplementary supply and exhaust		
										T	separated supply and exhaust		
										U	separated supply, supplementary exhaust		
										K	supplementary supply, separated exhaust		

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CODING EXAMPLE - FIELDBUS VERSION

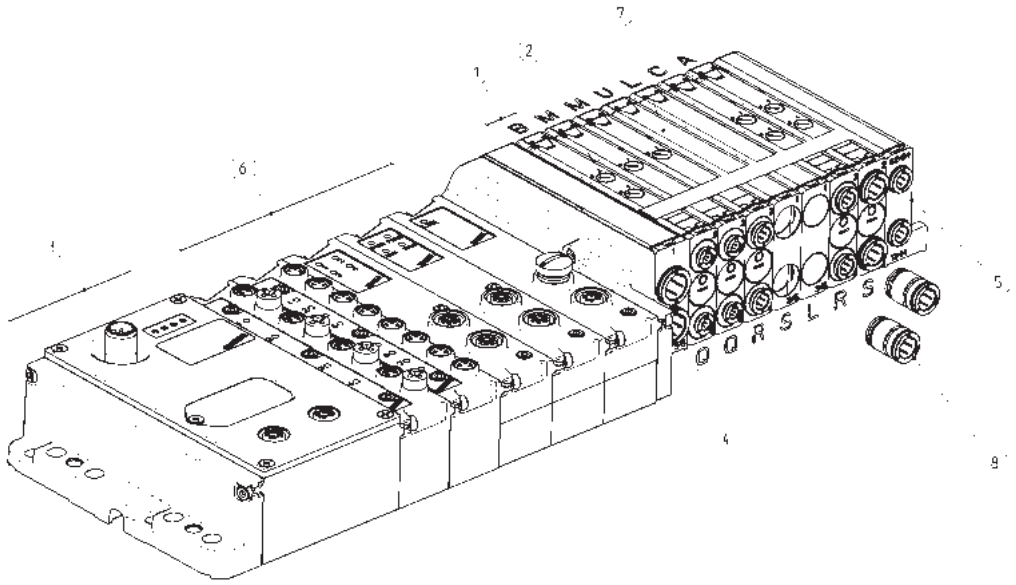
F	P	2	R	01	T	A	-	ABCR	-	MB2CMUL2B	-	2QR3SLQR

F	SERIES
P	TYPE: P = pneumatic A = accessories
2	SIZE: 1 = 12 mm 2 = 14 mm
R	MANUAL OVERRIDE: P = pressure actuation control R = actuation control with push & turn device
01	PROTOCOL: 01 = PROFIBUS-DP 02 = DeviceNet 03 = CANopen 04 = EtherNet/IP 05 = EtherCAT 06 = PROFINET 99 = Expansion Module
T	CARTRIDGES FOR PNEUMATIC/ELECTRICAL TERMINAL: S = tube Ø 8 T = tube Ø 10 Note: the cartdriges for the right terminal are for tube Ø 6.
A	SERVO-PILOT SUPPLY: A = internal B = external
ABCR	INPUT / OUTPUT MODULES: 0 = no module A = 8 digital inputs M8 B = 4 digital inputs M8 C = 2 analog inputs 4-20 mA D = 2 analog inputs 0-10 V E = 1 analog input 4-20 mA + 1 input 0-10 V Q = 4 M12 duo digital outputs R = 2 analog outputs 4-20 mA T = 2 analog outputs 0-10 V U = 1 analog output 4-20 mA + 1 output 0-10 V V = 1 analog output 4-20 mA + 1 input 0-10 V Z = 1 analog output 4-20 mA + 1 input 4-20 mA K = 1 analog output 0-10 V + 1 input 0-10 V Y = 1 analog output 0-10 V + 1 input 4-20 mA S = Initial subnet module
MB2CMUL2B	SOLENOID VALVES AND ADDITIONAL PLATES: M = 5/2 monostable D = 5/2 monostable with bistable electric board B = 5/2 bistable C = 2x3/2 NC A = 2x3/2 NO G = 3/2 NC + 3/2 NO E = 2x2/2 NC F = 2x2/2 NO I = 2/2 NC + 2/2 NO V = 5/3 CC L = free position with passing electric board W = free position with bistable electric board Z = free position with monostable electric board X = supplementary supply and exhaust T = separated supply and exhaust U = separated supply, supplementary exhaust K = supplementary supply, separated exhaust
2QR3SLQR	CARTRIDGES FOR SOLENOID VALVES AND ADDITIONAL PLATES: Q = tube Ø 4 R = tube Ø 6 S = tube Ø 8 (not for Size 1) L = free position (no cartridges) W = free position with bistable electric board (no cartridges) Z = free position with monostable electric board (no cartridges)

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2
CONTROL

CODING - FIELDBUS VERSION



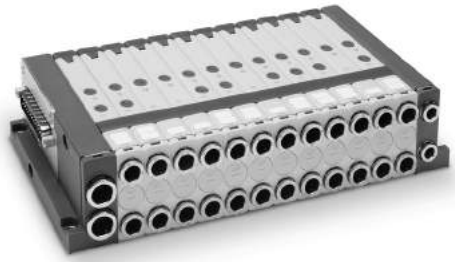
1	2	3	4	5		6		7								8						
F	P	2	R	C1	-	A		A	B	Q	R	-	B	2	M	U	L	C	A	-	2	Q	R	S	L	R	S

FP...

(1)	SIZE	(2)	MANUAL OVERRIDE	(3)	PROTOCOL	(4)	CARTRIDGES for LEFT TERMINAL	(5)	SERVO-PILOT SUPPLY	(6)	INPUT/OUTPUT MODULES	(7)	SOLENOID VALVES and ADDITIONAL PLATES	(8)	CARTRIDGES for SOLENOID VALVES and ADDITIONAL PLATES
1	12 mm	**P**	pressure	**01**	PROFIBUS-DP	**S**	Ø8	**A**	internal	**0**	no module	**M**	5/2 monostable	**Q**	Ø4
2	14 mm	**R**	push & turn device	**02**	DeviceNet	**T**	Ø10	**B**	external	**A**	8 digital inputs M8	**D**	5/2 monostable with bistable electric board	**R**	Ø6
				03	CANopen					**B**	4 digital inputs M8	**B**	5/2 bistable	**S**	Ø8
				04	EtherNet/IP					**C**	2 analog IN 4-20 mA	**C**	2x3/2 NC	**L**	free position with passing electric board (no cartridges)
				05	EtherCAT					**D**	2 analog IN 0-10 V	**A**	2x3/2 NO	**W**	free position with bistable electric board (no cartridges)
				06	PROFINET					**E**	1 analog IN 4-20 mA + 1 IN 0-10 V	**G**	3/2 NC + 3/2 NO	**Z**	free position with monostable electric board (no cartridges)
				99	Expansion Module					**Q**	4 M12 duo digital OUT	**E**	2x2/2 NC		
										R	2 analog OUT 4-20 mA	**F**	2x2/2 NO		
										T	2 analog OUT 0-10 V	**I**	2/2 NC + 2/2 NO		
										U	1 analog OUT 4-20 mA + 1 OUT 0-10 V	**V**	5/3 CC		
										V	1 analog OUT 4-20 mA + 1 IN 0-10 V	**L**	free position with passing electric board		
										Z	1 analog OUT 4-20 mA + 1 IN 4-20 mA	**W**	free position with bistable electric board		
										K	1 analog OUT 0-10 V + 1 IN 0-10 V	**Z**	free position with monostable electric board		
										Y	1 analog OUT 0-10 V + 1 IN 4-20 mA	**X**	supplementary supply and exhaust		
										S	Initial subnet module	**T**	separated supply and exhaust		
												U	separated supply, supplemen. exhaust		
												K	supplemen. supply, separated exhaust		

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MULTIPOLE VERSION AND MULTIPOLE WITH SUB-D ADAPTER





In the Multipole version the front position of the 25 pin Sub-D connector makes the connection easier.
The connectors with pre-wired cable, which are available in different lengths and with axial or radial orientation, simplify the electrical connection. The Island can be configured up to a max. of 24 solenoids on 24 valve positions (24 monostable).

It is possible to create zones with differentiated pressure.
It is available with PNP logic connection, internal electrical connections on boards.
The Multipole Island can be connected by means of a Sub-D adapter.
In this way a Multipole Island can be inserted as expansion in the subnet of the Fieldbus version.

VERSIONS: FIELDBUS WITH CPU MODULE AND EXPANSION FIELDBUS





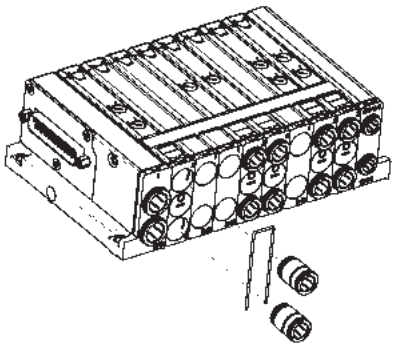
Thanks to the CX multi-serial node and a specific direct interface module with the pneumatic part of the island, Series F can be interfaced with the PROFIBUS-DP, DeviceNet, CANopen, PROFINET, EtherCAT, EtherNet/IP serial protocols. The Fieldbus version with CPU module follows the same configuration rules of the Multipole island and can be equipped with different electrical modules like digital/analog inputs/outputs of 0-10 V and 4-20 mA, as well as with Initial subnet modules.

It is possible to insert Initial Subnet Modules in the version with CPU module. These Modules enable to create a subnet with tree structure or in series. On the subnet you can connect Expansion Islands. These expansions have the same possibilities to use the different electric modules, like digital and analog inputs and outputs and further Initial Subnet Modules. Also with this version the same rules as the CPU module and Multipole apply.

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INTERCHANGEABLE CONNECTIONS

Thanks to a fixing clip the cartridge fittings can be substituted with another one according to the size of the tube that has to be connected: Ø4, Ø6 and Ø8 for solenoid valves and Ø8, Ø10 for supply and exhaust plates.

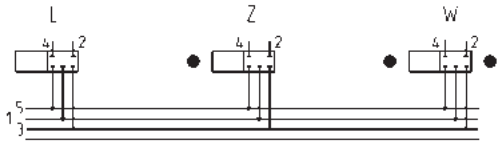


TYPE OF BOARDS ON INTERMEDIATE PLATES

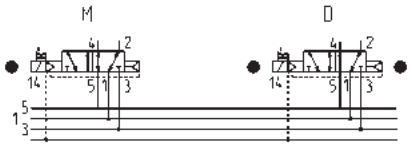
The solenoid valves Mod. M are equipped with an electrical board using a single signal. This enables to take full advantage of the characteristic of the Sub-D connector being able to connect up to 24 monostable valves.
To avoid that, in case of a change in the valve island, the addresses of the electrical coils positioned after the modification would change too, for example by replacing a monostable valve with a bistable one, the version with Cod. D is available and corresponds to a monostable valve equipped with a board that occupies two electrical signals.

The free position Cod. L is also available in the Z and W versions.

Cod. L: free position, no electrical signals are used
Cod. Z: free position with board
with 1 electrical signal (not used)
Cod. W: free position with board
with 2 electrical signals (not used)



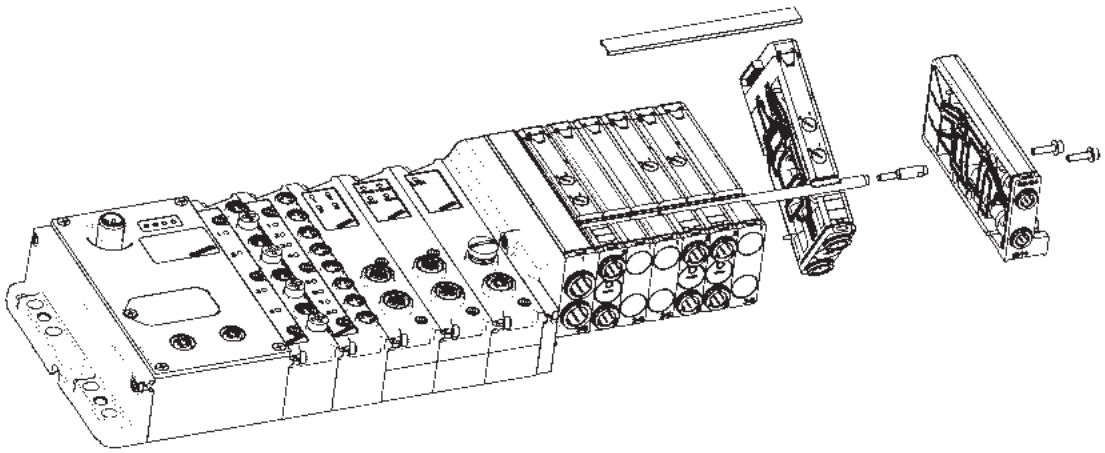
Cod. M: 5/2-way monostable valve with board
with 1 electrical signal
Cod. D: 5/2-way monostable valve with board
with 2 electrical signals (one is not used)



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HOW TO MODIFY THE VALVE ISLAND (example)

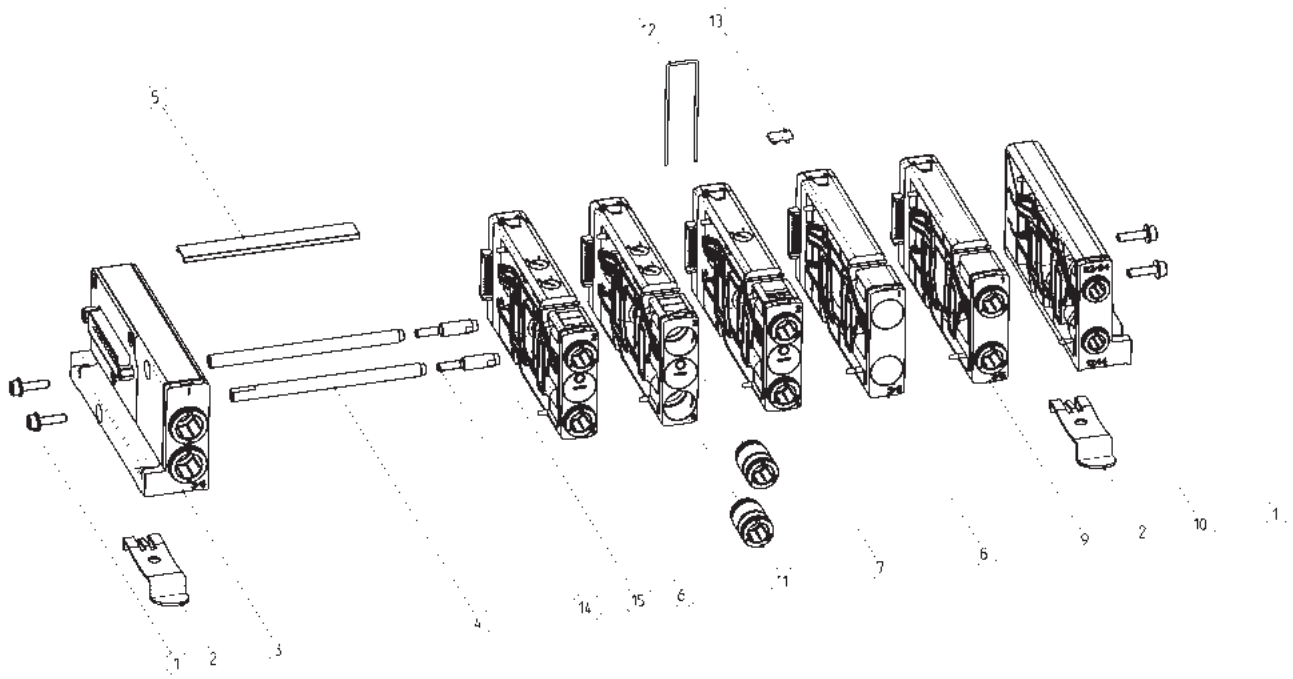
In order to integrate or modify the valve island, it is enough to loosen the tie-rods, separate the valve function that has to be replaced and turn it so that it can be taken off.
Tie-rods can be supplied with even positions from 2 to 24 (see the following pages).
A single position joint bolt is supplied in case of a valve island with odd positions (see the following pages).
This operation can be performed on both versions with integrated serial node or with expansion module.



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2
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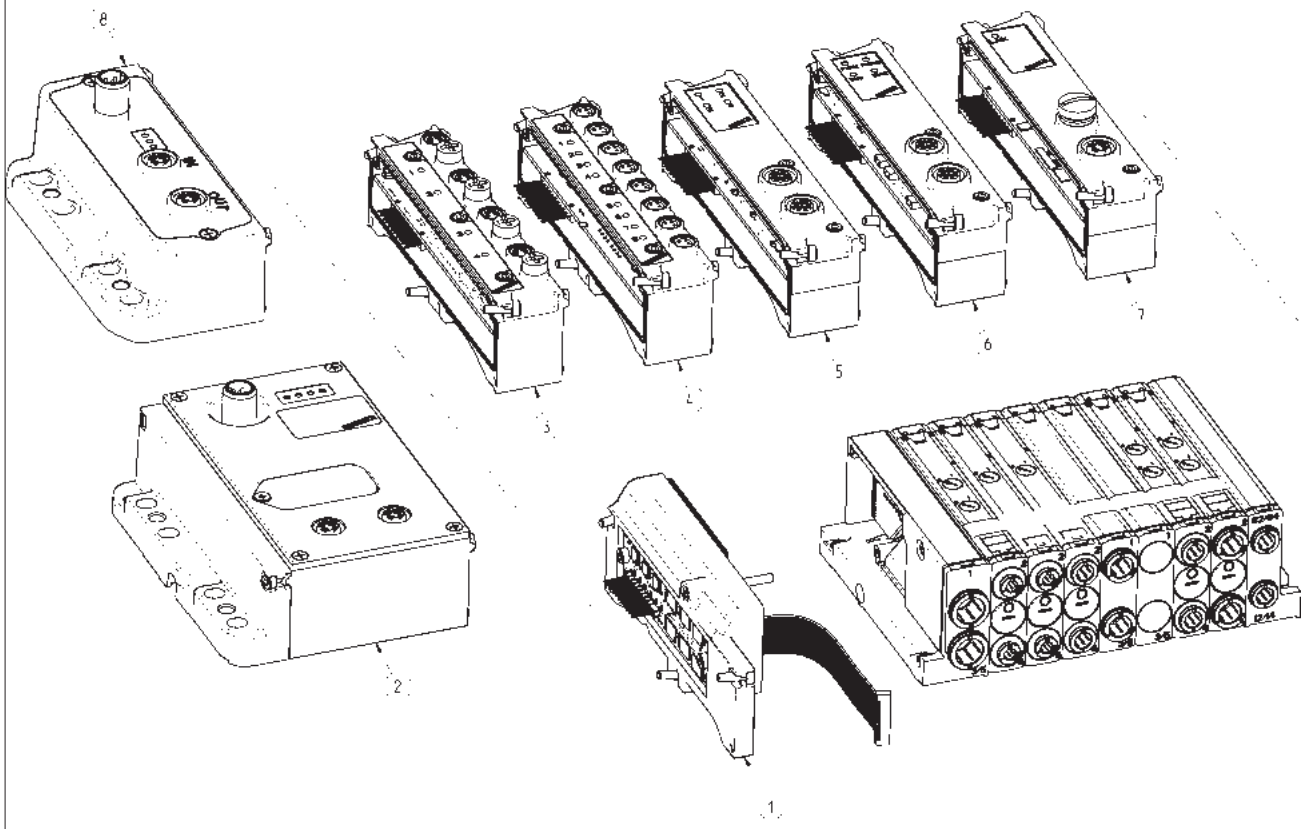
MULTIPOLE version - COMPONENTS



LIST OF COMPONENTS	
1	Grip screws with built-in washer
2	Bracket for the DIN rail connection
3	Left terminal
4	Tie-rods
5	Tie-rod plastic cover
6	Bistable solenoid valve
7	Monostable solenoid valve
8	Intermediate plate for free position
9	Intermediate plate for pressure zones with supplementary inlet and exhaust
10	Right terminal
11	Interchangeable cartdrige fittings
12	Fixing clip for the cartdrige fittings
13	Identification plates
14	Joint bolt for odd positions
15	Interface seal that cannot be lost

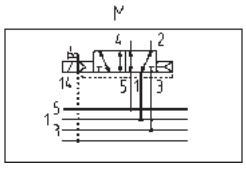
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INDIVIDUAL FIELDBUS version and EXPANSION - COMPONENTS

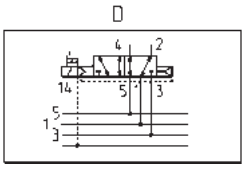


LIST OF COMPONENTS	
1	Direct interface with CX
2	CPU Series CX
3	4 digital Inputs module
4	8 digital Inputs module
5	4 digital Outputs module
6	Analog I/O module
7	Initial subnet module
8	Expansion module

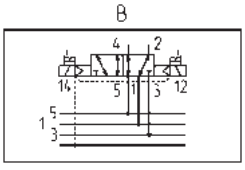
AVAILABLE FUNCTIONS - SOLENOID VALVES SYMBOLS for FP..R - manual override WITH push&turn device



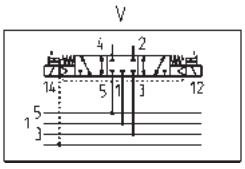
M = 5/2, monostable



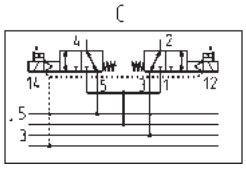
D = 5/2, monostable with bistable board



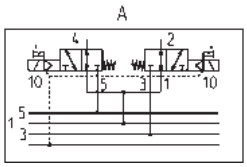
B = 5/2, bistable



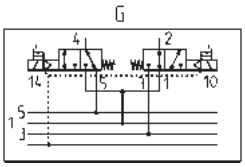
V = 5/3, Centres Closed



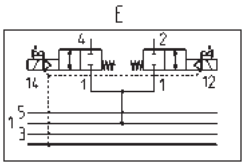
C = 2x3/2 NC



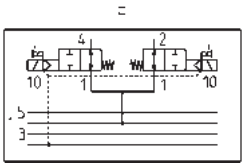
A = 2x3/2 NO



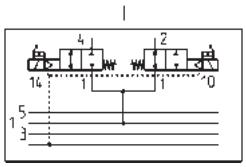
G = 1x3/2 NC +1x3/2 NO



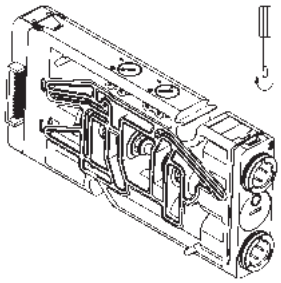
E = 2x2/2 NC



F = 2x2/2 NO

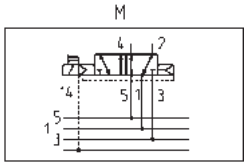


I = 1x2/2 NC + 1x2/2 NO

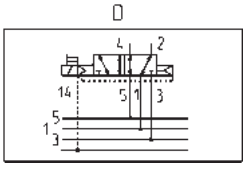


Manual override, version R :
pressure actuation control with PUSH & TURN device.

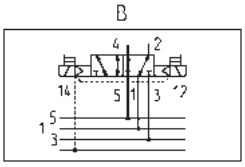
AVAILABLE FUNCTIONS - SOLENOID VALVES SYMBOLS for FP..P - manual override WITHOUT push&turn device



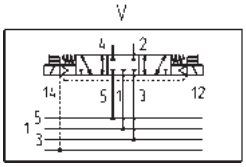
M = 5/2, monostable



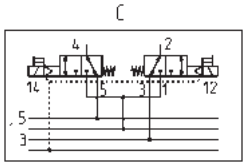
D = 5/2, monostable with bistable board



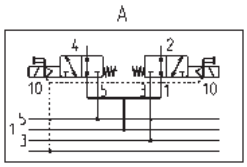
B = 5/2, bistable



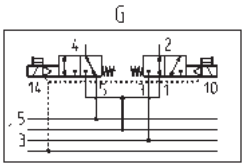
V = 5/3, Centres Closed



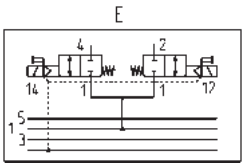
C = 2x3/2 NC



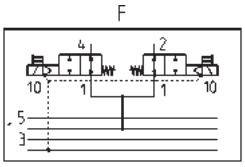
A = 2x3/2 NO



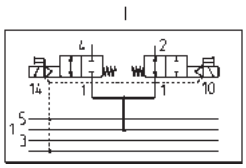
G = 1x3/2 NC +1x3/2 NO



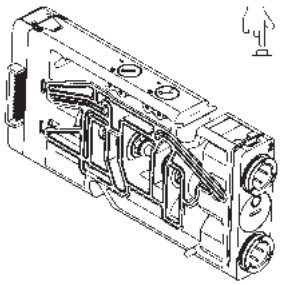
E = 2x2/2 NC



F = 2x2/2 NO



I = 1x2/2 NC + 1x2/2 NO



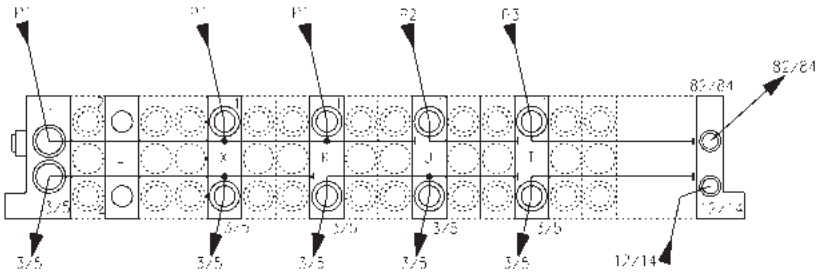
Manual override, version P :
pressure actuation control without PUSH & TURN device (PUSH only).

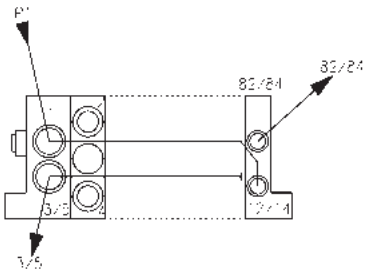
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AVAILABLE FUNCTIONS - INTERMEDIATE AND TERMINAL PLATES

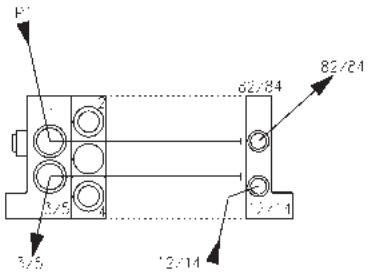
Example of valve island with differentiated pressures and exhausts.

DRAWING LEGEND:
A = internal servo-pilot
B = external servo-pilot
X = supplementary supply and exhaust
K = supplementary supply, separated exhaust
U = separated supply, supplementary exhaust
T = separated supply and exhaust
L = free position

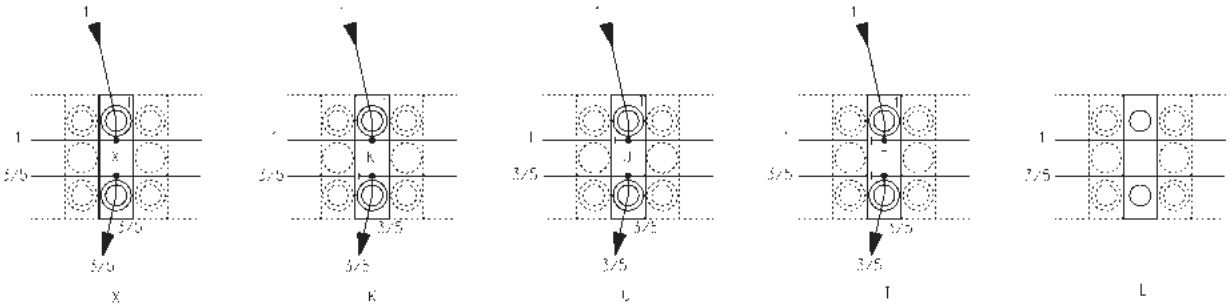




A



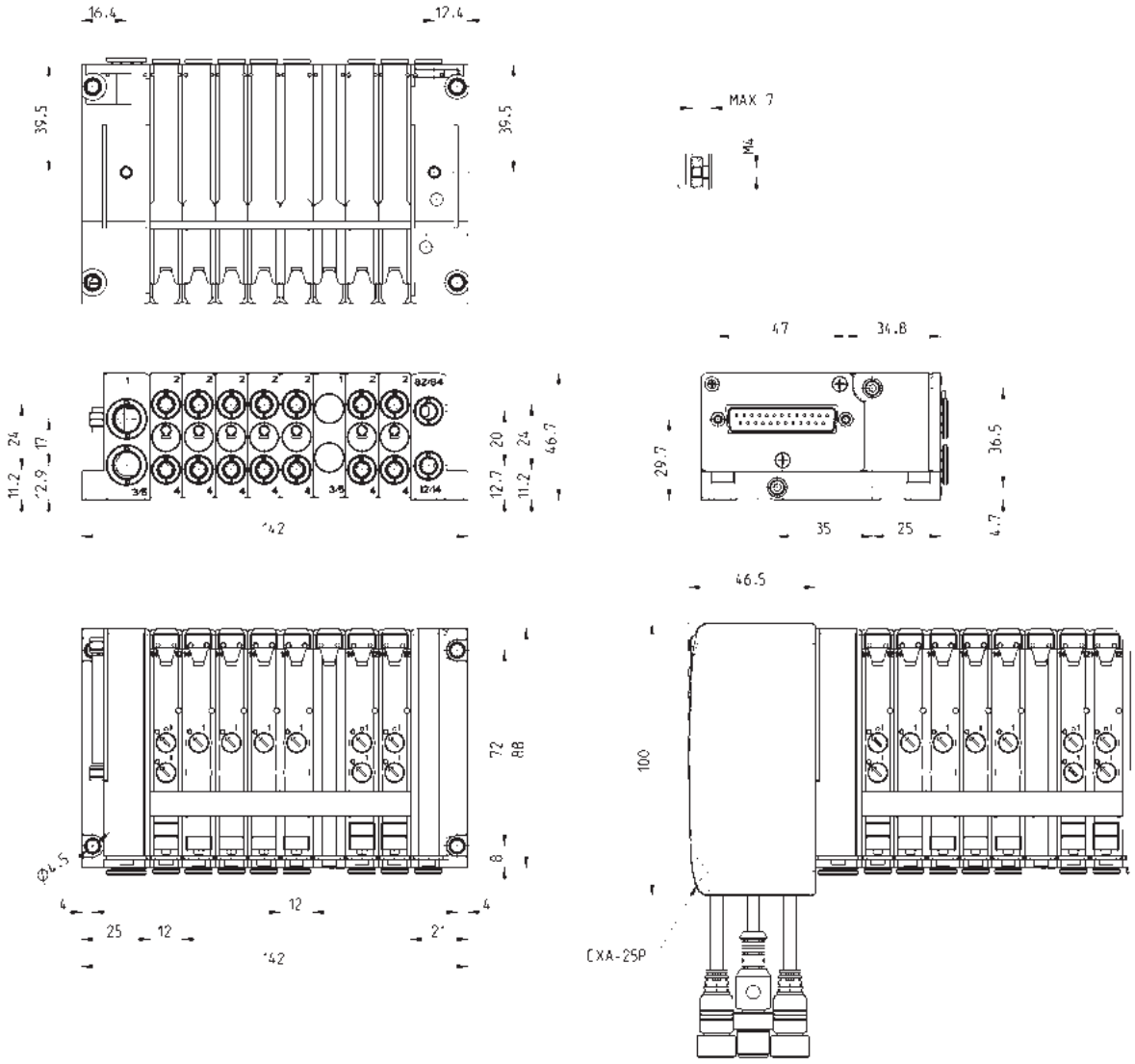
B



X K U T L

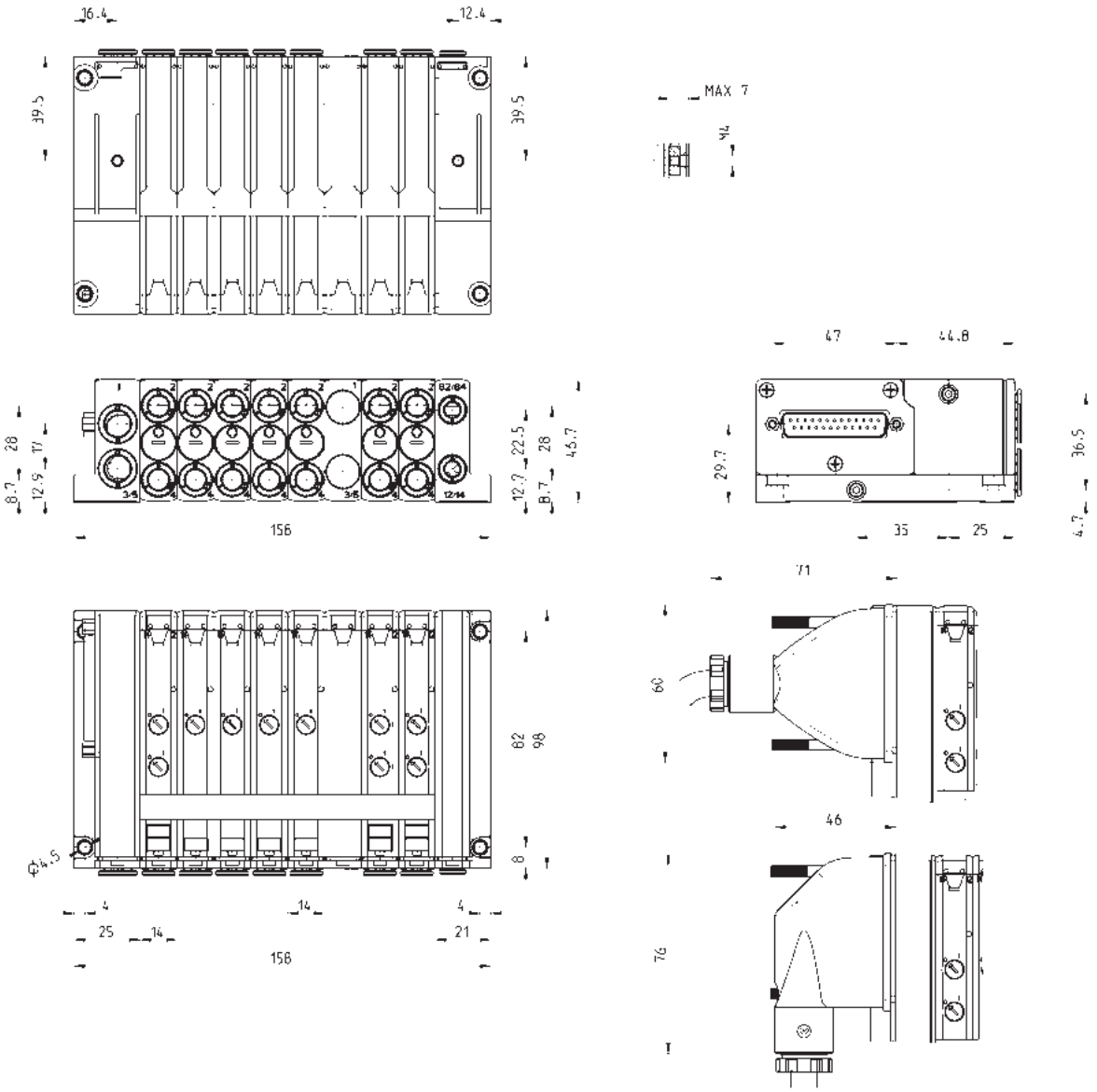
2
CONTROL

MULTIPOLE version - DIMENSIONS of size 12mm



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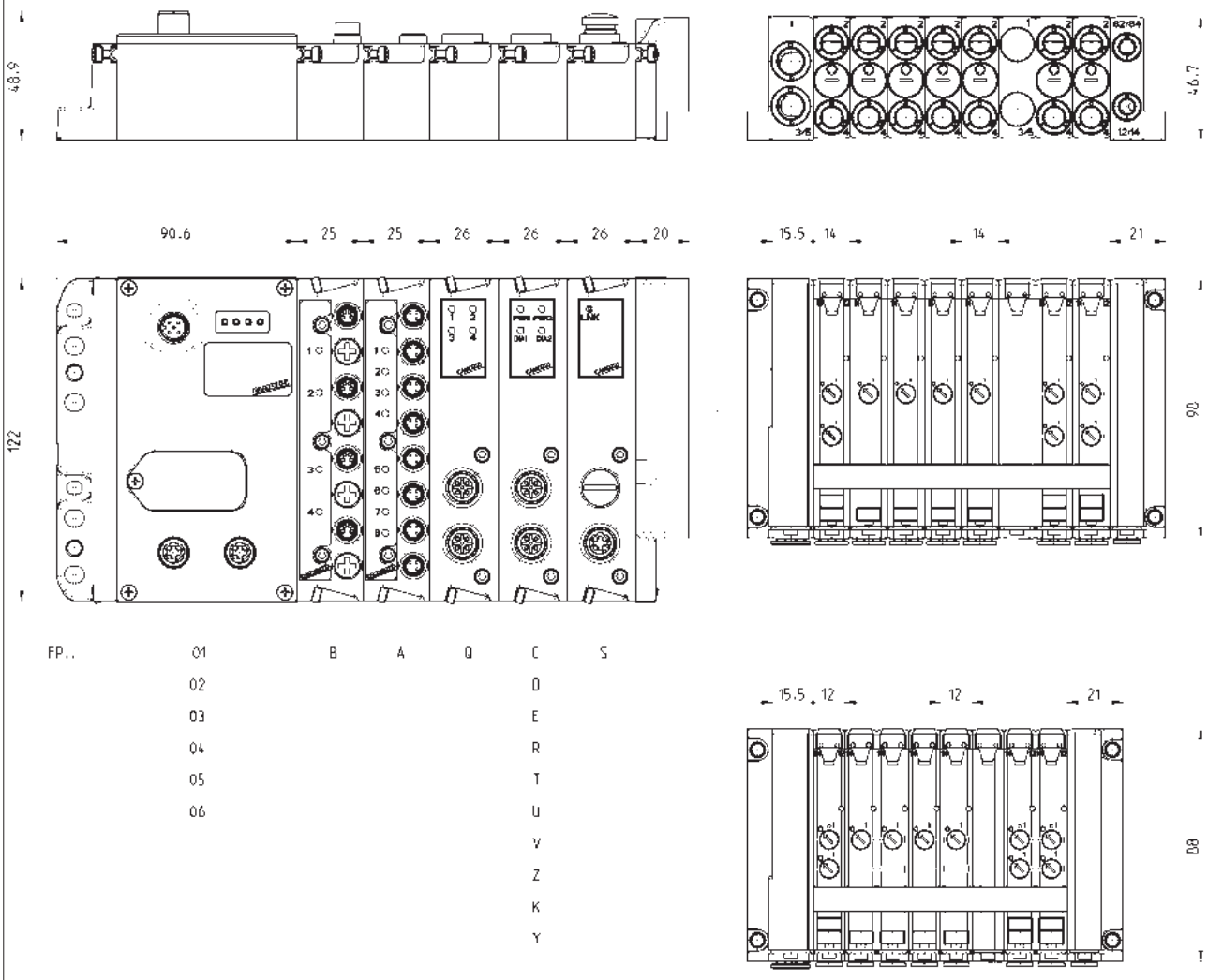
MULTIPOLE version - DIMENSIONS of size 14mm



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2 CONTROL

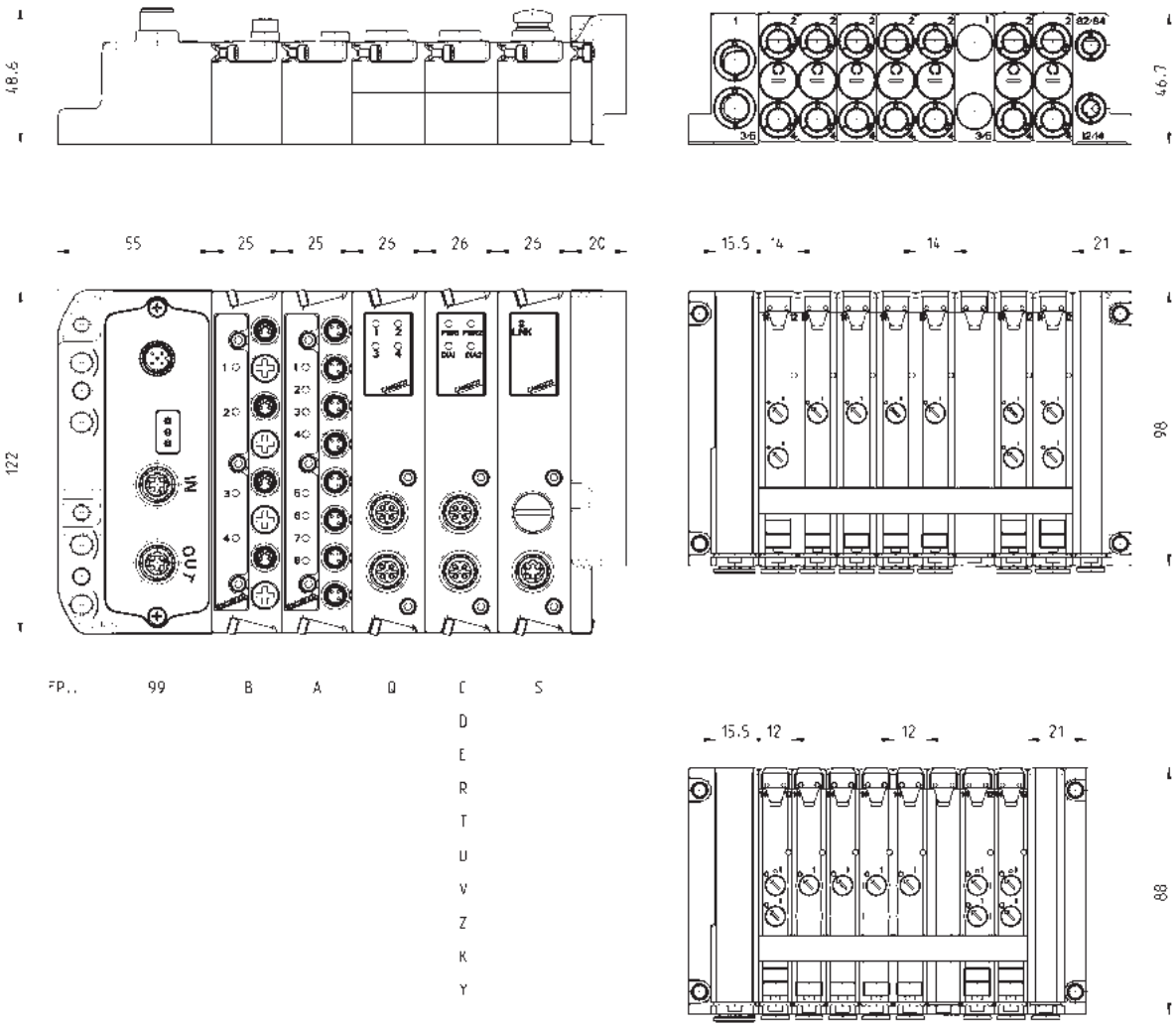
INDIVIDUAL FIELDBUS version - DIMENSIONS



FP..	01	B	A	Q	C	S
	02				D	
	03				E	
	04				R	
	05				T	
	06				U	
					V	
					Z	
					K	
					Y	

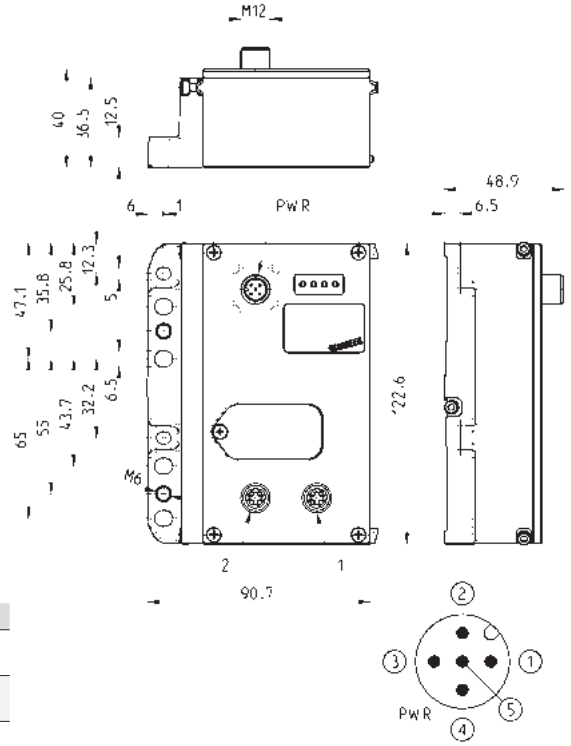
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EXPANSION of the FIELDBUS version - DIMENSIONS



CPU Module - pin configuration



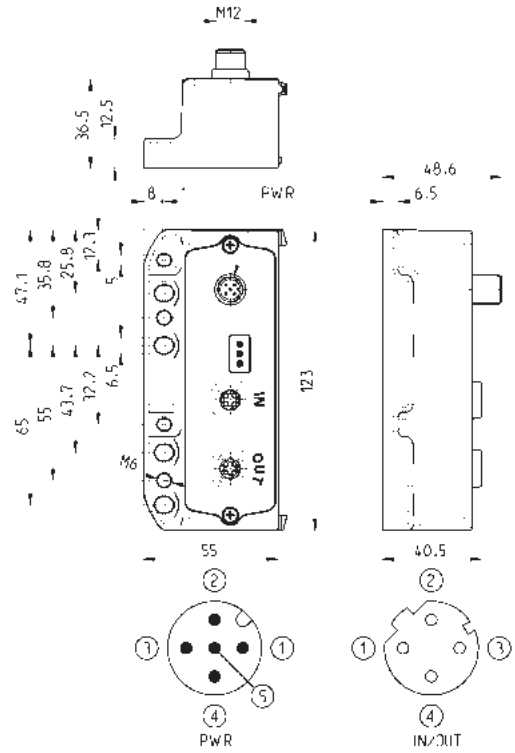


Mod.	Coding reference	Fieldbus Protocol	2	1	Bus-IN connector	Bus-OUT connector
CX01-0-0	01	PROFIBUS	Bus-IN	Bus-OUT	M12 B 5 pin male	M12 B 5 pin female
CX02-0-0	02	DeviceNet	Bus-IN	Bus-OUT	M12 A 5 pin male	M12 A 5 pin female
CX03-0-0	03	CANopen	Bus-IN	Bus-OUT	M12 A 5 pin male	M12 A 5 pin female
CX04-0-0	04	EtherNet/IP	Bus-OUT	Bus-IN	M12 D 5 pin female	M12 D 5 pin female
CX05-0-0	05	EtherCAT	Bus-OUT	Bus-IN	M12 D 5 pin female	M12 D 5 pin female
CX06-0-0	06	PROFINET	Bus-OUT	Bus-IN	M12 D 5 pin female	M12 D 5 pin female

Expansion Module - pin configuration

Note: to connect the Expansion with the subnet, we recommend the use of cables Mod. CS-SB04HB-... or CS-SC04HB-...



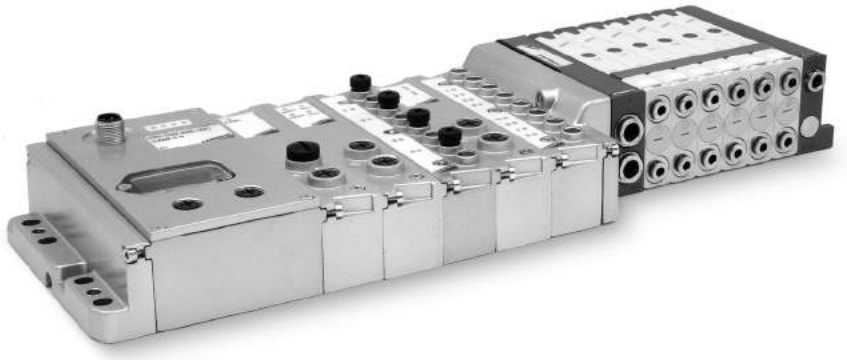


Mod.	Coding reference	Fieldbus Protocol	Bus-IN and Bus-OUT connector
CX99-0-0	99	Subnet expansion	M12 D 5 pin female

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CPU Module - Characteristics

It is a slave node of the main PROFIBUS, CANopen, DeviceNet, EtherNet/IP, EtherCAT, PROFINET network and the Master module of the subnet. All modules provided can be connected only on the right side of the CPU module, like the digital/analog inputs/outputs, direct interface modules for the valve islands (Series F, HN and 3) and the initial module of the subnet. It has its own M12 A 4 pin male connection to supply the modules connected, distinguishing both logic supply and power supply. Two M12 connections for Bus-IN and Bus-OUT of the main network, which M12 connection will take over the relative specifications according to the choosen protocol.
The addressing is performed by means of the Rotary Switch for the protocols with this feature, while for Ethernet protocols addressing is performed by means of the protocol itself. Leds indicate the working state. A maximum number of 1024 inputs and 1024 outputs can be managed.



Expansion Module - Characteristics

At its right side, different modules can be connected like the digital/analog inputs/outputs, the direct interface modules for the valve islands (Series F, HN and 3) and the initial module of the subnet to re-amplify it or to create new branches. It has its own M12 A 4 pin male connection to supply the devices connected, distinguishing both logic supply and power supply. It has two M12 D 5 pin female connections for Bus-IN and Bus-OUT connection of the subnet. Leds indicate the working state. The valve island equipped with the Expansion Module can be used only in presence of a subnet.



Initial subnet module Mod. ME3-0000-SL

This module can be connected only in presence of a CPU or Expansion module and can be mixed with other either digital or analog Input and Output devices.
Every subnet can have an extension of maximum 100 metres, with a maximum of 8 interruptions. Up to maximum 5 initial modules can be connected, one aside another or along the subnet in order to create a tree structure, in series or both, in order to optimize the length of the cables and the topology of the subnet in different applications. The module is equipped with the Bus-OUT connection only of subnet type M12 D 5 pin female.





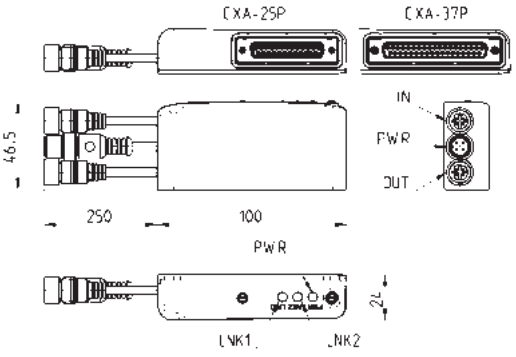
Mod.	Coding reference	Bus-OUT connection	Max number of modules for subnet	Max extension of subnet per module
ME3-0000-SL	S	M12D 5 pin female	5	100 m

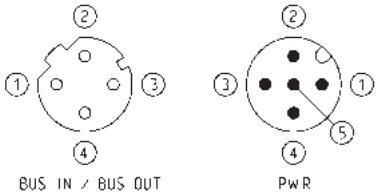
Sub-D adaptor module 25 pin Mod. CXA-25P



Led 1 = Yellow LNK1
Led 2 = Yellow LNK2
Led 3 = Green PWR, supply present and OK

It is an Expansion module of the subnet and can be connected to all valve islands with Sub-D 25 pin connection. It can manage up to a maximum of 24 Output. It has its own M12 A 4 pin male connection for the supply of the valves connected, distinguishing both logic supply and power supply and two M12 D 5 pin female connections for the Bus-IN and Bus-OUT of the subnet. The subnet can have a length of maximum 100 metres. The power of a single Output is 3 W to 24 V DC. Thanks to the PWM technique it is possible to set a power reduction to only maintain operation.





Mod.	Interface	Digital Outs	Bus-IN connection	Bus-OUT connection	PWR connection	Supply	Power for every Output
CXA-25P	Sub-D 25 pin	24	M12D 5 pin female	M12D 5 pin female	M12A 4 pin male	24 V DC	3 W

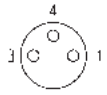
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Digital input Module Mod. ME3-0800-DC and ME3-0400-DC

The Digital input module can be connected only in presence of a CPU or Expansion module and can be mixed with other either digital or analog Input and Output devices and with the initial module of the subnet.
It has 8 or 4 M8 3 pin connections.





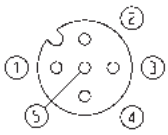


Mod.	Coding reference	Number of digital inputs	Connection	Number of connectors	Dimensions	Signalling	Sensor supply	Overvoltage protection	Absorption	Type of signal	Protection class	Operating temperature	Weight
ME3-0800-DC	A	8	M8 3 pin female	8	122 x 25 mm	1 yellow led for each input	24 V DC	400 mA for 4 sensors	10 mA	PNP	IP65	0 ÷ 50°C	110 g
ME3-0400-DC	B	4	M8 3 pin female	4	122 x 25 mm	1 yellow led for each input	24 V DC	400 mA for 4 sensors	10 mA	PNP	IP65	0 ÷ 50°C	110 g

Analog input/output module Mod. ME3-****-AL

The analog input/output module can be connected only in presence of a CPU or Expansion module and can be mixed with other either digital or analog Input and Output devices and with the initial module of the subnet. It has two M12 A 5 pin female connections and it can be configured as 2 analog Outputs or 2 Inputs or 1 Input + 1 Output. Every analog output or input has a 12 bit resolution for both inputs and outputs available in the versions from 0-10 V DC and from 4-20mA.
The refreshment time of the analog devices is submitted to the delay of the subnet and therefore to its topology. An average delay is less than 6 ms, to which the delay of the main network managed by the PLC has to be added.





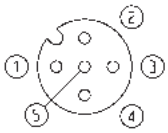
Mod.	Coding reference	Number of analog inputs	Number of analog outputs	Connection
ME3-C000-AL	C	2 inputs 4-20 mA	-	2x M12 A 5 pin female
ME3-D000-AL	D	2 inputs 0-10 V	-	2x M12 A 5 pin female
ME3-E000-AL	E	1 input 4-20 mA + 1 input 0-10 V	-	2x M12 A 5 pin female
ME3-00U0-AL	U	-	1 output 4-20 mA + 1 output 0-10 V	2x M12 A 5 pin female
ME3-00R0-AL	R	-	2 outputs 4-20 mA	2x M12 A 5 pin female
ME3-00T0-AL	T	-	2 outputs 0-10 V	2x M12 A 5 pin female
ME3-00Z0-AL	Z	1 input 4-20 mA	1 output 4-20 mA	2x M12 A 5 pin female
ME3-00K0-AL	K	1 input 0-10 V	1 output 0-10 V	2x M12 A 5 pin female
ME3-00V0-AL	V	1 input 0-10 V	1 output 4-20 mA	2x M12 A 5 pin female
ME3-00Y0-AL	Y	1 input 4-20 mA	1 output 0-10 V	2x M12 A 5 pin female

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Digital power output module Mod. ME3-0004-DL

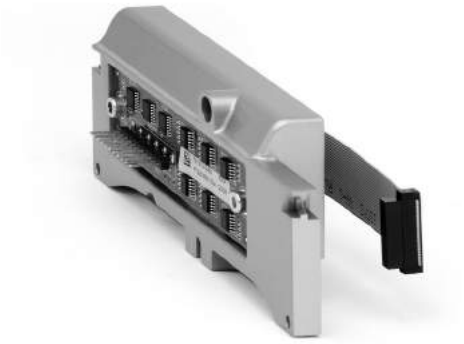
The digital output module can be connected only in presence of a CPU or Expansion module and can be mixed with other either digital or analog Input and Output devices and with the initial module of the subnet. It has two M12 A 5 pin female connections, each connection can manage 2 digital outputs and can provide a maximum of 10 W to 24 V DC. The device is useful to pilot a bistable valve or two monostable valves for each connector, or to activate the electric coils or other electric devices with maximum absorption of 10 W to 24 V DC. Connecting two outputs to one electric device only and activating them simultaneously, it is possible to provide maximum 20 W to 24 V DC.





Mod.	Coding reference	Number of digital outputs	Connection	Number of connectors	Dimensions	Signalling	Sensor supply	Max power for M12 connector	Max power for digital output	Type of signal	Protection class	Operating temperature	Weight
ME3-0004-DL	Q	4	M12 A 5 pin female	2	122 x 25 mm	1 yellow led for each output	24 V DC	20 W	10 W	NPN	IP65	0 ÷ 50°C	100 g

Electric interface module for Fieldbus version



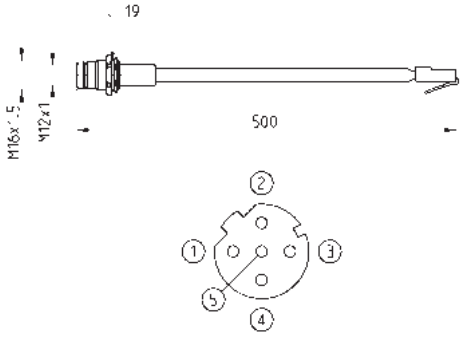
Mod.
ME3-00F0-DI

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Adaptor and panel mount for Ethernet RJ45 to M12 D networks

For PROFINET, EtherCAT, EtherNet/IP

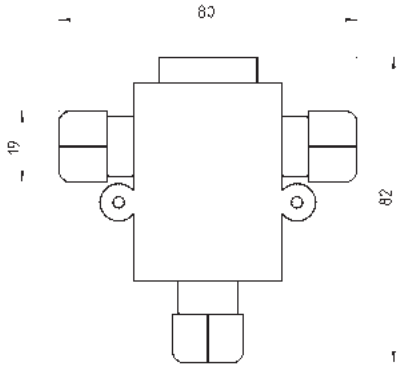




Mod.	description	type of connector	connection	cable length (m)
CS-SE04HB-F050	moulded cable	straight	RJ45 male, M12 D 4 pin female	0.5

Profibus-DP data line tee

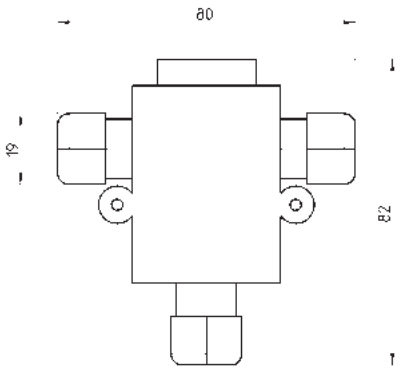




Mod.
CS-AA03EC

CANopen / DeviceNet data line tee



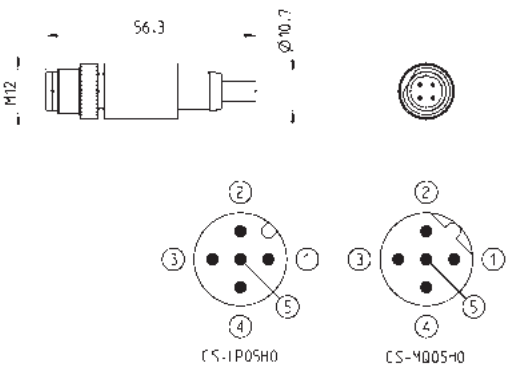


CS-AA05EC

M12 male terminating resistor

For PROFIBUS, CANopen, DeviceNet

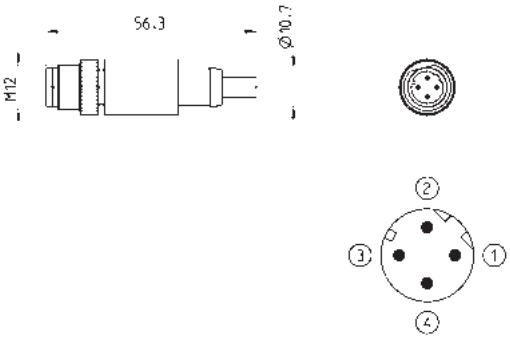




Mod.	description	type of connector	connection	Protocol
CS-MQ05H0	moulded terminating resistor	straight	M12 B 4 pin male	PROFIBUS
CS-LP05H0	moulded terminating resistor	straight	M12 A 5 pin male	CANOpen / DeviceNet

Subnet terminating resistor

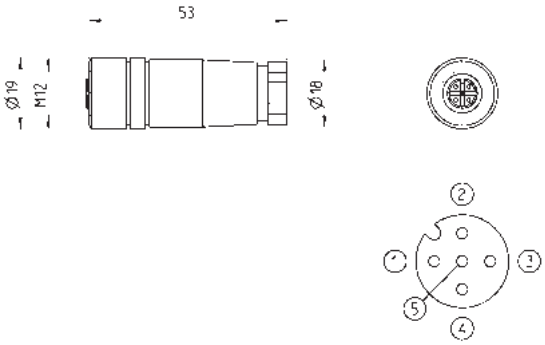




Mod.	description	type of connector	connection	Protocol
CS-SU04H0	moulded terminating resistor	straight	M12 D 4 pin	subnet

Straight connector for power supply

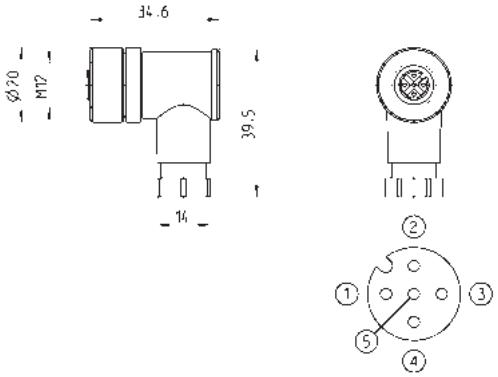




Mod.	description	type of connector	connection	cable length (m)
CS-LF04HB	for wiring	straight	M12 A 4 pin female	-

Angular connector for power supply

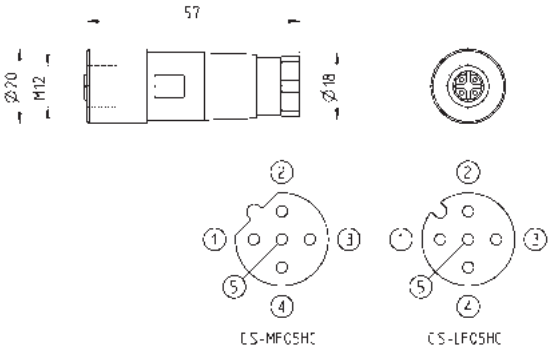




Mod.	description	type of connector	connection	cable length (m)
CS-LR04HB	for wiring	90°	M12 A 4 pin female	-

Straight female M12 connectors for Bus-IN



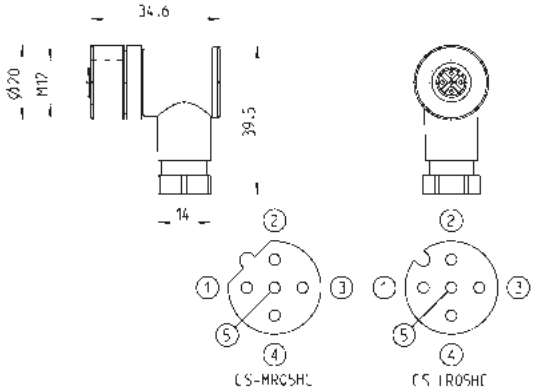


Mod.	description	type of connector	connection	Protocol
CS-LF05HC	for wiring	straight	M12 A 5 pin female	CANopen / DeviceNet
CS-MF05HC	for wiring	straight	M12 B 5 pin female	PROFIBUS

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Angular 90° female M12 connectors for Bus-IN

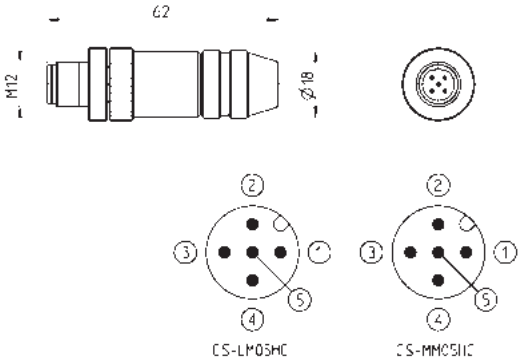




Mod.	description	type of connector	connection	Protocol
CS-LR05HC	for wiring	90°	M12 A 5 pin female	CANopen / DeviceNet
CS-MR05HC	for wiring	90°	M12 B 5 pin female	PROFIBUS

Straight male M12 connectors for Bus-OUT



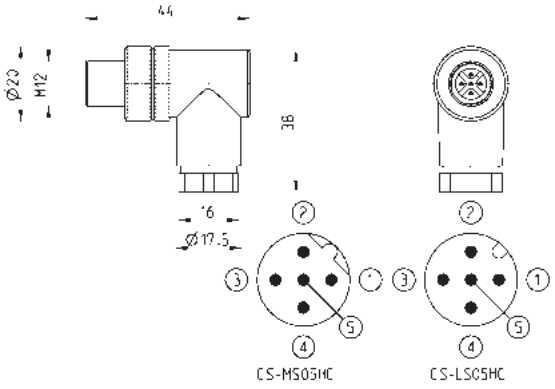


Mod.	description	type of connector	connection	Protocol
CS-LM05HC	for metal wiring	straight	M12 A 5 pin male	CANopen / DeviceNet
CS-MM05HC	for metal wiring	straight	M12 B 5 pin male	PROFIBUS

Angular 90° male M12 connectors for Bus-OUT



The Mod. CS-LS05HC can also be used for the connection of the digital output modules and of the analog input and output modules.

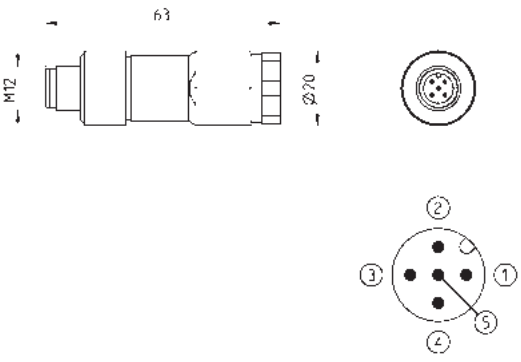


Mod.	description	type of connector	connection	Protocol
CS-LS05HC	for wiring	90°	M12 A 5 pin male	CANopen / DeviceNet
CS-MS05HC	for wiring	90°	M12 B 5 pin male	PROFIBUS

5 pin male straight M12 DUO connector



For the connection of the digital output modules and analog input/output modules.

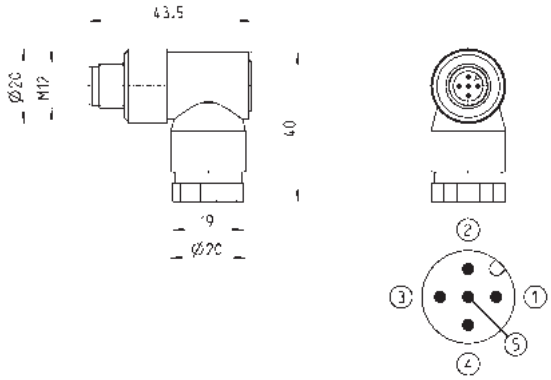


Mod.	description	type of connector	connection	cable length (m)
CS-LD05HF	for wiring	straight	M12 A 5 pin male	-

5 pin male angular M12 DUO connector



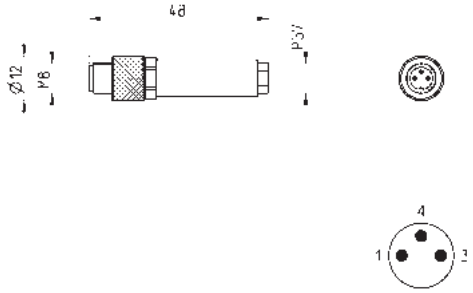
For the connection of the digital output modules ME3-0004-DL



Mod.	description	type of connector	connection	cable length (m)
CS-LH05HF	for wiring	90°	M12 A 5 pin male	-

3 pin male M8 wiring connector for digital input modules



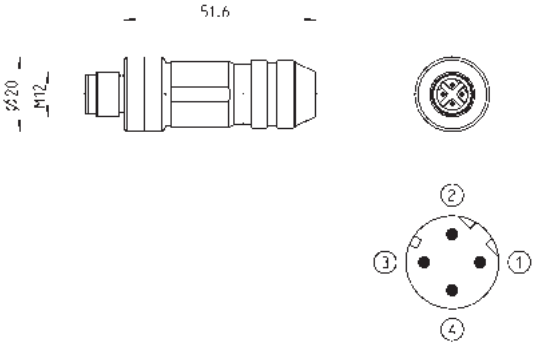


Mod.	description	type of connector	connection	cable length (m)
CS-DM03HB	for wiring	straight	M8 3 pin male	-

Male wiring connector for Bus-IN and Bus-OUT



For PROFINET, EtherCAT, EtherNet/IP and for the subnet



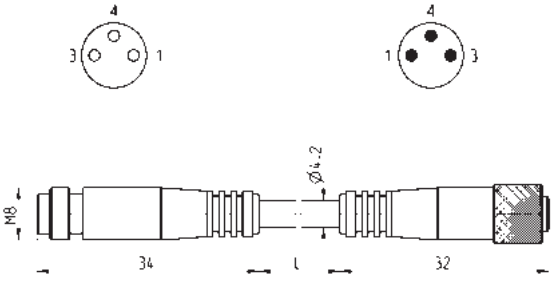
Mod.	description	type of connector	connection	cable length (m)
CS-SM04H0	for metal wiring	straight	M12 D 4 pin	-

Extension with M8 connector, 3 pin male / female



Non shielded

For the connection of the digital input modules ME3-0008 and ME3-0004



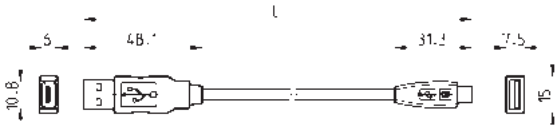
Mod.	description	type of connector	connection	L [cable length] (m)
CS-DW03HB-C250	moulded cable	straight	M8 3 pin male / female	2.5
CS-DW03HB-C500	moulded cable	straight	M8 3 pin male / female	5

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USB to Micro USB cable Mod. G11W-G12W-2



For the hardware configuration
of the Camozzi products

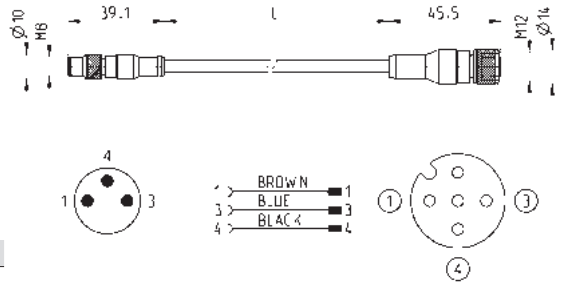


Mod.	description	connections	material for outer sheath	cable length "L" (m)
G11W-G12W-2	black shielded cable 28 AWG	standard USB to Micro USB	PVC	2

Adapter cable, M8 3-pin male - M12 4-pin female



Protection class: IP69K

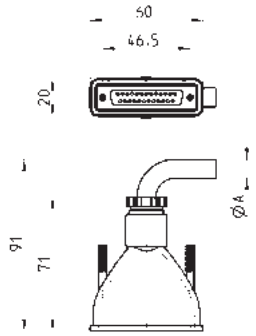


Mod.	description	max voltage	max current	Nr conn. wires	connections	outer sheath	cable "L" (m)
CS-AG03HB-C250	3-pin cable 24 AWG, high flexibility	50V AC / 60V DC	3 A	3	M8 3-pin male - M12 4-pin fem.	PUR black	2.5
CS-AG03HB-C500	3-pin cable 24 AWG, high flexibility	50V AC / 60V DC	3 A	3	M8 3-pin male - M12 4-pin fem.	PUR black	5

Straight Sub-D 25 pin female connector with axial cable

Protection class IP65



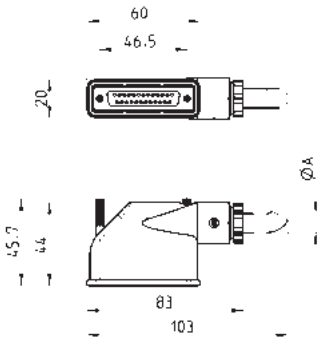


Mod.	ØA	PIN	cable length (m)
G3X-3	7.7	16	3
G3X-5	7.7	16	5
G3X-10	7.7	16	10
G3X-15	7.7	16	15
G3X-20	7.7	16	20
G3X-25	7.7	16	25
G4X-3	9	25	3
G4X-5	9	25	5
G4X-10	9	25	10
G4X-15	9	25	15
G4X-20	9	25	20
G4X-25	9	25	25

Right angle Sub-D 25 pin female connector with axial cable

Protection class IP65





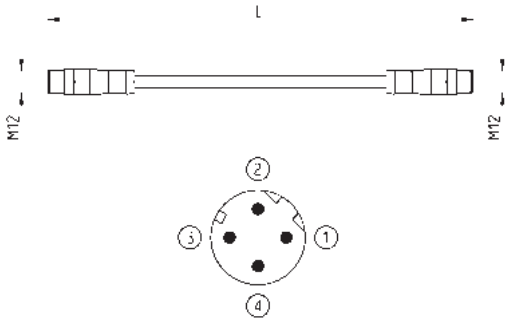
Mod.	ØA	PIN	cable length (m)
G3X1-3	7.7	16	3
G3X1-5	7.7	16	5
G3X1-10	7.7	16	10
G3X1-15	7.7	16	15
G3X1-20	7.7	16	20
G3X1-25	7.7	16	25
G4X1-3	10	25	3
G4X1-5	10	25	5
G4X1-10	10	25	10
G4X1-15	10	25	15
G4X1-20	10	25	20
G4X1-25	10	25	25

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Cables with straight connectors



For PROFINET, EtherCAT, EtherNet/IP and for the subnet

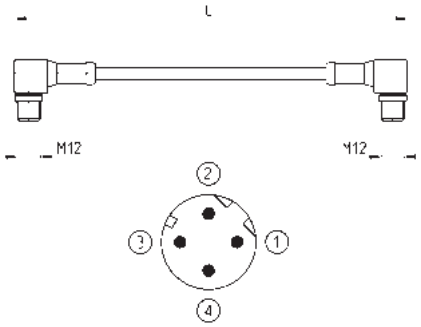


Mod.	description	type of connector	connection	L [cable length] (m)
CS-SB04HB-D100	moulded cable	straight	2x M12 D 4 pin male	1
CS-SB04HB-D500	moulded cable	straight	2x M12 D 4 pin male	5
CS-SB04HB-DA00	moulded cable	straight	2x M12 D 4 pin male	10
CS-SB04HB-DD00	moulded cable	straight	2x M12 D 4 pin male	15
CS-SB04HB-DG00	moulded cable	straight	2x M12 D 4 pin male	20
CS-SB04HB-DJ00	moulded cable	straight	2x M12 D 4 pin male	25

Cables with angular 90° connectors



For PROFINET, EtherCAT, EtherNet/IP and for the subnet

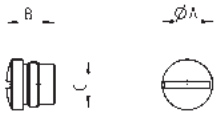


Mod.	description	type of connector	connection	L [cable length] (m)
CS-SC04HB-D100	moulded cable	90°	2x M12 D 4 pin male	1
CS-SC04HB-D500	moulded cable	90°	2x M12 D 4 pin male	5
CS-SC04HB-DA00	moulded cable	90°	2x M12 D 4 pin male	10
CS-SC04HB-DD00	moulded cable	90°	2x M12 D 4 pin male	15
CS-SC04HB-DG00	moulded cable	90°	2x M12 D 4 pin male	20
CS-SC04HB-DJ00	moulded cable	90°	2x M12 D 4 pin male	25

M8 and M12 connector cover caps



For digital and analog input/output modules and subnet



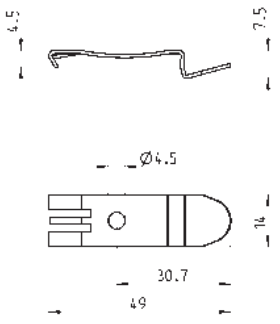
Mod.	A	B	C [Connection]
CS-DFTP	10	11	M8
CS-LFTP	13.5	13	M12

Mounting brackets for DIN rail



DIN EN 50022 (mm 7,5 x 35 - width 1)

Supplied with:
2x plates
2x screws M4x6 UNI 5931



Mod.
PCF-E520

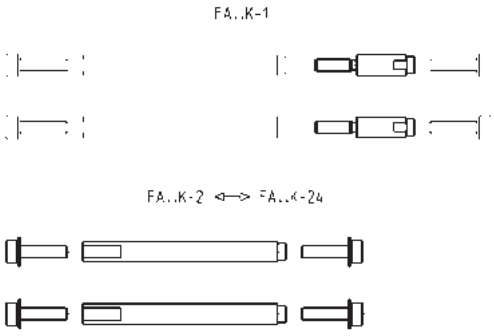
CODING EXAMPLES of SINGLE VALVE (spare part) and TERMINALS (accessories)

CODING EXAMPLE OF A SINGLE SOLENOID VALVE		CODING EXAMPLE OF INTERMEDIATE PLATES	
FP2V-MQR		**FP2V-WQ**	
F	Series	F	Series
P	Type: P = pneumatic	P	Type: P = pneumatic
2	Size: 1 = 12 mm 2 = 14 mm	2	Size: 1 = 12 mm 2 = 14 mm
V	Solenoid valve or additional plate	V	Solenoid valve or additional plate
-		-	
M	Type of function: M = 5/2 monostable D = 5/2 monostable with bistable board B = 5/2 bistable C = 2 x 3/2 NC A = 2 x 3/2 NO G = 3/2 NC + 3/2 NO E = 2 x 2/2 NC F = 2 x 2/2 NO I = 2/2 NC + 2/2 NO V = 5/3 CC	W	Type of function: L = free position W = free position with bistable board Z = free position with monostable board X = supplementary power supply and exhaust T = separated power supply and exhaust U = separated power supply and supplementary exhaust K = supplementary power supply and separated exhaust
Q	Cartridges for solenoid valves: Q = Ø4 R = Ø6 S = Ø8 (not for Size 1)	Q	Cartridges for plates: Q = Ø4 R = Ø6 S = Ø8 (not for Size 1) L = free position (no cartridges) W = free position with bistable board (no cartridges) Z = free position with monostable board (no cartridges)
R	Type of manual override: R = push and turn (bistable) P = pressure (monostable)		
CODING EXAMPLE OF A LEFT TERMINAL		CODING EXAMPLE OF A RIGHT TERMINAL	
FA2T-S		**FA2T-AR**	
F	Series	F	Series
A	Accessory	A	Accessory
2	Size: 1 = 12 mm 2 = 14 mm	2	Size: 1 = 12 mm 2 = 14 mm
T	Type of accessory: T = terminal	T	Type of accessory: T = terminal
-		-	
S	Cartridges: = no cartridge S = Ø8 T = Ø10	A	Type of servo-pilot: A = internal B = external
		R	Cartridges: R = Ø6

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Tie-rods for valves size 1 (12mm)





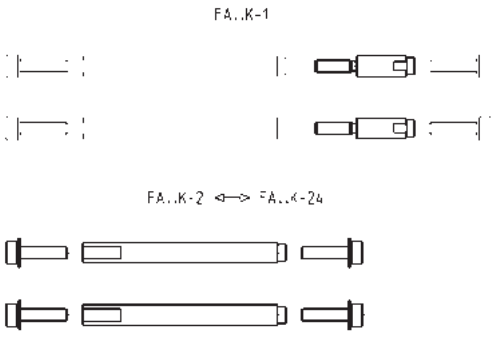
Mod.	Valve positions	NOTE
FA1K-2	2	*
FA1K-4	4	*
FA1K-6	6	*
FA1K-8	8	*
FA1K-10	10	*
FA1K-12	12	*
FA2K-12	14	*
FA1K-16	16	*
FA1K-18	18	*
FA1K-20	20	*
FA1K-22	22	*
FA1K-24	24	*
FA1K-1	-	**

* Tie-rod.
The supply includes
2 tie-rods and 4 screws.

** Joint bolt for odd positions.
The supply includes 2 joint bolts.

Tie-rods for valves size 2 (14mm)





Mod.	Valve positions	NOTE
FA2K-2	2	*
FA2K-4	4	*
FA2K-6	6	*
FA2K-8	8	*
FA2K-10	10	*
FA2K-12	12	*
FA2K-14	14	*
FA2K-16	16	*
FA2K-18	18	*
FA2K-20	20	*
FA2K-22	22	*
FA2K-24	24	*
FA2K-1	-	**

* Tie-rod.
The supply includes
2 tie-rods and 4 screws.

** Joint bolt for odd positions.
The supply includes 2 joint bolts.

Tie-rod plastic cover



When ordering the cover, specify the length, measured in metres.

Mod.
LAMINA-EST-32

Interchangeable cartridges for valves/plates and for terminals



TABLE LEGEND:

✖ = compatible with
V F1 = solenoid valve or additional plate, size 1
Tdx F1 = right terminal, size 1
Tsx F1 = left terminal, size 1
V F2 = solenoid valve or additional plate, size 2
Tdx F2 = right terminal, size 2
Tsx F2 = left terminal, size 2





Mod.	ØA	V F1	Tdx F1	Tsx F1	V F2	Tdx F2	Tsx F2
6700 4-F1	4	✖					
6700 4-F2	4				✖		
6700 6-F1	6	✖	✖			✖	
6700 6-F2	6				✖		
6700 8-F1	8			✖			✖
6700 8-F2	8				✖		
6700 10-F1	10			✖			✖

Identification plates



The packaging contains
45 identification plates 9x5mm

Mod.
HP1/E

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Series HN valve islands, Multipole and Fieldbus

New versions

Multipole connection with 25 or 37 pins
Serial connection with the most common communication protocols
Valve functions: 2x2/2; 2x3/2; 5/2; 5/3 CC



- Valve flow: 400 and 700 Nl/min
- Modular subbases: 2 positions for valve size 10.5mm, single position for valve size 21mm
- Subbases for monostable and bistable valves (size 10.5mm)
- Protocols available: PROFIBUS-DP, CANopen, DeviceNet, EtherNet/IP, PROFINET, EtherCAT

Thanks to the large range of options available, the Series HN valve islands represent an excellent solution for different applications, particularly in automation systems.

Small dimensions, high flow, pneumatic and electric modularity, electric connections on boards, possibility to interface with the multi-serial node Series CX, optimization of the signal distribution thanks to subbases for monostable and bistable solenoid valves are only some of the features that make this series a particularly innovative product.

Manuals, instruction sheets and configuration files are available on the site http://catalogue.camozzi.com or by means of the QR code indicated on the lable of the product.

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GENERAL DATA

PNEUMATIC SECTION	
Valve construction	spool with seals
Valve functions	5/2 monostable and bistable 5/3 CC 2 x 2/2 NO 2 x 2/2 NC 1 x 2/2 NC+ 1 x NO 2 x 3/2 NC 2 x 3/2 NO 1 x 3/2 NC+ 1 x 3/2 NO
Materials	spool in aluminium spool seals in HNBR other seals in NBR cartridges in brass body and end covers in technopolymer subbases in aluminium
Connections	Inlets 2 and 4, size 10,5 mm: M7, tube Ø 4, tube Ø 6 Inlets 2 and 4, size 21 mm: G1/8, tube Ø 6, tube Ø 8 Supply 1: G1/4, tube Ø 8, tube Ø 10 Supply 12/14: M7 Exhausts 3 and 5: G1/4 or with integrated silencer Exhausts 82/84: M7
Temperature	0 ÷ 50°C
Air specifications	Filtered compressed air, non lubricated, class 6.4.4 according to ISO 8573-1:2010. If lubrication is necessary, please only use oils with maximum viscosity of 32 Cst and the version with external servo-pilot supply. The servo-pilot supply air quality class must be 6.4.4 according to ISO 8573-1:2010 (do not lubricate).
Valve sizes	10.5mm (2 valves for each subbase) 21mm (1 valve for each subbase)
Working pressure	- 0,9 ÷ 10 bar
Pilot pressure	3 ÷ 7 bar 4.5 ÷ 7 bar (with working pressure exceeding 6 bar for the versions 2x2/2 and 2x3/2)
Flow rate	400 Nl/min (10.5mm) 700 Nl/min (21mm)
Mounting position	any position
Protection class	IP 65
ELECTRICAL SECTION - MULTIPOLE VERSION	
Type of Sub-D connector	25 or 37 pins
Max. absorption	0.8 A (with Sub-D connector 25 pins) 1 A (with Sub-D connector 37 pins)
Supply voltage	24 V DC +/- 10%
Max. number of coils to operate	24 on 20 valve positions (with Sub-D connector 25 pins) 32 on 28 valve positions (with Sub-D connector 37 pins)
Valve signalling	yellow led
ELECTRICAL SECTION - FIELDBUS VERSION	
General data	see the CX section (2.3.50)
Max. absorption	digital outputs / analog outputs and inputs 3A digital/analog inputs 3A
Supply voltage	logic supply 24 V DC +/- 10% power supply 24 V DC +/- 10%
Max. number of coils to operate	32 on 28 valve positions

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CODING EXAMPLE - MULTIPOLE VERSION

HN	5	M	-	03A	-	2Q4AZ2A	-	2B8M4C	-	A

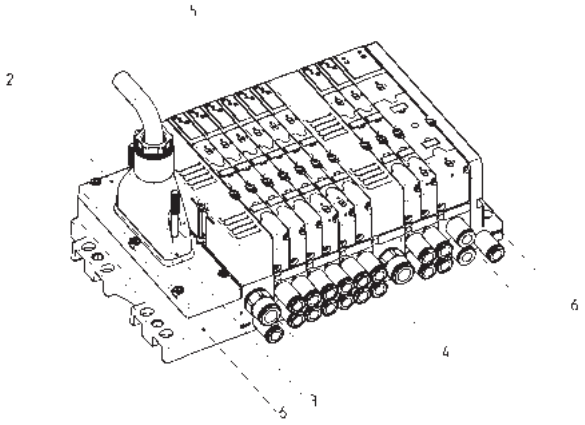
HN	SERIES		
5	SIZE: 1 = 10.5 2 = 21 5 = Mixed		
M	ELECTRICAL CONNECTION: M = Multipole 25 pin PNP N = Multipole 25 pin NPN H = Multipole 37 pin PNP L = Multipole 37 pin NPN		
03A	CONNECTION: 000 = without connector/cable	CONNECTOR WITH CABLE AXIAL OUTPUT: 03A = 3m 05A = 5m 10A = 10m 15A = 15m 20A = 20m 25A = 25m CONNECTOR WITH CABLE RADIAL OUTPUT: 03R = 3m 05R = 5m 10R = 10m 15R = 15m 20R = 20m 25R = 25m	CONNECTOR WITHOUT CABLE: 4XA = 25 pins axial 4XR = 25 pins radial 9XA = 37 pins axial 9XR = 37 pins radial
2Q4AZ2A	SUBBASES FOR 2 SOLENOID VALVES SIZE 1 (*): A (AZ) = M7 threads B (BZ) = 4 fittings for tube Ø4 C (CZ) = 4 fittings for tube Ø6 D (DZ) = channel 1, 3, 5 closed; M7 threads E (EZ) = channel 1, 3, 5 closed; cartridges tube Ø4 F (FZ) = channel 1, 3, 5 closed; cartridges tube Ø6 G (GZ) = channel 3, 5 closed; M7 threads H (HZ) = channel 3, 5 closed; cartridges tube Ø4 I (IZ) = channel 3, 5 closed; cartridges tube Ø6 L (LZ) = channel 1 closed; M7 threads M (MZ) = channel 1 closed; cartridges tube Ø4 N (NZ) = channel 1 closed; cartridges tube Ø6 (*) Subbases with “Z” at the end of their code are used with monostable solenoid valves FOR SOLENOID VALVES SIZE 2: Q = G 1/8 threads R = cartridges for tube Ø6 S = cartridges for tube Ø8	SUBBASES FOR PNEUMATIC SUPPLY: X = supplementary supply and exhaust Y = supplementary supply and exhaust with integrated silencer W = supply from the exhausts FOR ELECTRICAL SUPPLY: K = separation of electrical supply	SEALS: T = diaphragm on channels 1, 3, 5 U = diaphragm on channel 1 V = diaphragm on channels 3, 5
2B8M4C	SOLENOID VALVES Size 1 and 2: 0 = island without solenoid valves M = 5/2 Monostable B = 5/2 Bistable V = 5/3 Centres Closed C = 2 x 3/2 NC A = 2 x 3/2 NO G = 1 x 3/2 NC + 1 x 3/2 NO E = 2 x 2/2 NC F = 2 x 2/2 NO I = 1 x 2/2 NC + 1 x 2/2 NO L = free position	SOLENOID VALVE + PRESSURE REGULATOR on channel 1 (size 2 only): N = 5/2 Monostable P = 5/2 Bistable Q = 5/3 Centres Closed R = 2 x 3/2 NC S = 2 x 3/2 NO T = 1 x 3/2 NC + 1 x 3/2 NO U = 2 x 2/2 NC X = 2 x 2/2 NO Y = 1 x 2/2 NC + 1 x 2/2 NO	
A	THREADED TERMINAL PLATES: A = 1, 12/14 in common 3/5, 82/84 threaded ports B = 1, 12/14 separated 3/5, 82/84 threaded ports C = 1, 12/14 in common 3/5, 82/84 with integrated silencer D = 1, 12/14 separated 3/5, 82/84 with integrated silencer	TERMINAL PLATES with FITTINGS FOR TUBE Ø 8 on PORT 1: E = 1, 12/14 in common 3/5, 82/84 conveyable F = 1, 12/14 separated 3/5, 82/84 conveyable G = 1, 12/14 in common 3/5, 82/84 with integrated silencer H = 1, 12/14 separated 3/5, 82/84 with integrated silencer	TERMINAL PLATES with FITTINGS FOR TUBE Ø 10 on PORT 1: I = 1, 12/14 in common 3/5, 82/84 conveyable L = 1, 12/14 separated 3/5, 82/84 conveyable M = 1, 12/14 in common 3/5, 82/84 with integrated silencer N = 1, 12/14 separated 3/5, 82/84 with integrated silencer

In presence of identical consequent codes both for the subbases as for the valves you need to substitute the letter with the number.
Ex: HN5M-03A-ABCS-MMCCBBB-A is converted to HN5M-03A-ABCS-2M2C3B-A.

2

CONTROL

CODING - MULTIPOLE VERSION



1 2	3	4	5	6
H N 5 M	0 3 A	3 B X B R	- 3 M 2 B M X M V C	- D

HN...

(1)	SIZE	(2)	ELECTRICAL CONNECTION	(3)	CONNECTION	(4)	SUBBASES for 2 SOLENOID VALVES, size 1	(5)	SOLENOID VALVES Size 1 and 2	(6)	THREADED TERMINAL PLATES
1	10.5	M	Multipole 25 pin PNP	000	without connector/cable	A (AZ)	M7 threads	0	island without solenoid valves	A	1, 12/14 in common 3/5, 82/84 with thread
2	21	N	Multipole 25 pin NPN	03A	connector with axial output cable 3 m	B (BZ)	4 fittings tube Ø4	M	5/2 Monostable	B	1, 12/14 separated 3/5, 82/84 with thread
5	Mixed	H	Multipole 37 pin PNP	05A	connector with axial output cable 5 m	C (CZ)	4 fittings tube Ø6	B	5/2 Bistable	C	1, 12/14 in common 3/5, 82/84 with silencer
		L	Multipole 37 pin NPN	10A	connector with axial output cable 10 m	D (DZ)	channel 1, 3, 5 closed M7 threads	V	5/3 Centres Closed	D	1, 12/14 separated 3/5, 82/84 with silencer
				15A	connector with axial output cable 15 m	E (EZ)	channel 1, 3, 5 closed cartridges Ø4	C	2x 3/2 NC		TERMINAL PLATES fittings for tube Ø8, on port 1
				20A	connector with axial output cable 20 m	F (FZ)	channel 1, 3, 5 closed cartridges Ø6	A	2x 3/2 NO	E	1, 12/14 in common 3/5, 82/84 conveyable
				25A	connector with axial output cable 25 m	G (GZ)	channel 3, 5 closed M7 threads	G	1x 3/2 NC + 1x 3/2 NO	F	1, 12/14 separated 3/5, 82/84 conveyable
				03R	connector with radial output cable 3 m	H (HZ)	channel 3, 5 closed cartridges Ø4	E	2x 2/2 NC	G	1, 12/14 in common 3/5, 82/84 with silencer
				05R	connector with radial output cable 5 m	I (IZ)	channel 3, 5 closed cartridges Ø6	F	2x 2/2 NO	H	1, 12/14 separated 3/5, 82/84 with silencer
				10R	connector with radial output cable 10 m	L (LZ)	channel 1 closed M7 threads	I	1x 2/2 NC + 1x 2/2 NO		TERMINAL PLATES fittings for tube Ø10, on port 1
				15R	connector with radial output cable 15 m	M (MZ)	channel 1 closed cartridges Ø4	L	Free position	I	1, 12/14 in common 3/5, 82/84 conveyable
				20R	connector with radial output cable 20 m	N (NZ)	channel 1 closed cartridges Ø6		SOL. VALVE + PRESS. REG. channel 1 - size 2 only	L	1, 12/14 separated 3/5, 82/84 conveyable
				25R	connector with radial output cable 25 m		SUBBASES for SOLENOID VALVES, size 2	N	5/2 Monostable	M	1, 12/14 in common 3/5, 82/84 with silencer
				4XA	25 pin axial connector	Q	G1/8 threads	P	5/2 Bistable	N	1, 12/14 separated 3/5, 82/84 with silencer
				4XR	25 pin radial connector	R	cartridges for tube Ø6	Q	5/3 Centres Closed		
				9XA	37 pin axial connector	S	cartridges for tube Ø8	R	2x 3/2 NC		
				9XR	37 pin radial connector		SUBBASES FOR PNEUMATIC SUPPLY	S	2x 3/2 NO		
						X	supplem. supply and exhaust	T	1x 3/2 NC + 1x 3/2 NO		
						Y	supplem. supply and exhaust with silencer	U	2x 2/2 NC		
						W	supply from exhausts	X	2x 2/2 NO		
							SUBBASES FOR ELECTRICAL SUPPLY	Y	1x 2/2 NC + 1x 2/2 NO		
						K	separation of electrical supply				
							SEALS				
						T	Diaphragm on channels 1, 3, 5				
						U	Diaphragm on channel 1				
						V	Diaphragm on channels 3, 5				

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CODING EXAMPLE - FIELDBUS VERSION

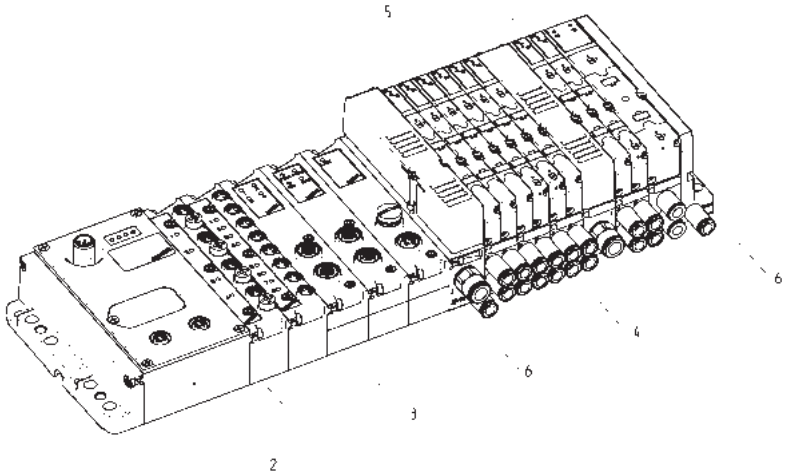
HN	5	01	-	ABCD	-	2Q4AZ2A	-	2B8M4C	-	A

HN	SERIES		
5	SIZE: 1 = 10.5 2 = 21 5 = Mixed		
01	PROTOCOL: 01 = PROFIBUS-DP 02 = DeviceNet 03 = CANopen 04 = EtherNet/IP 05 = EtherCAT 06 = PROFINET 99 = Expansion module		
ABCD	INPUT / OUTPUT MODULES: 0 = no module	INPUT / OUTPUT MODULES: A = 8 Digital Inputs M8 B = 4 Digital Inputs M8 C = 2 Analog Inputs 4-20mA D = 2 Analog Inputs 0-10V E = 1 Analog Input 4-20mA + 1 Input 0-10V Q = 4 Digital Outputs M12 duo R = 2 Analog Outputs 4-20mA T = 2 Analog Outputs 0-10V U = 1 Analog Output 4-20mA + 1 Output 0-10V V = 1 Analog Output 4-20mA + 1 Input 0-10V Z = 1 Analog Output 4-20mA + 1 Input 4-20mA K = 1 Analog Output 0-10V + 1 Input 0-10V Y = 1 Analog Output 0-10V + 1 Input 4-20mA	INPUT / OUTPUT MODULES: S = Initial subnet module
2Q4AZ2A	SUBBASES FOR 2 SOLENOID VALVES SIZE 1 (*): A (AZ) = M7 threads B (BZ) = 4 fittings for tube Ø4 C (CZ) = 4 fittings for tube Ø6 D (DZ) = channel 1, 3, 5 closed; M7 threads E (EZ) = channel 1, 3, 5 closed; cartridges tube Ø4 F (FZ) = channel 1, 3, 5 closed; cartridges tube Ø6 G (GZ) = channel 3, 5 closed; M7 threads H (HZ) = channel 3, 5 closed; cartridges tube Ø4 I (IZ) = channel 3, 5 closed; cartridges tube Ø6 L (LZ) = channel 1 closed; M7 threads M (MZ) = channel 1 closed; cartridges tube Ø4 N (NZ) = channel 1 closed; cartridges tube Ø6 (*) Subbases with “Z” at the end of their code are used with monostable solenoid valves FOR SOLENOID VALVES SIZE 2: Q = G 1/8 threads R = cartridges for tube Ø6 S = cartridges for tube Ø8	SUBBASES FOR PNEUMATIC SUPPLY: X = supplementary supply and exhaust Y = supplementary supply and exhaust with integrated silencer W = supply from the exhausts FOR ELECTRICAL SUPPLY: K = separation of electrical supply	SEALS: T = diaphragm on channels 1, 3, 5 U = diaphragm seal on channel 1 V = diaphragm seal on channels 3, 5
2B8M4C	SOLENOID VALVES Size 1 and 2: 0 = island without solenoid valves M = 5/2 Monostable B = 5/2 Bistable V = 5/3 Centres Closed C = 2 x 3/2 NC A = 2 x 3/2 NO G = 1 x 3/2 NC + 1 x 3/2 NO E = 2 x 2/2 NC F = 2 x 2/2 NO I = 1 x 2/2 NC + 1 x 2/2 NO L = free position	SOLENOID VALVE + PRESSURE REGULATOR on channel 1 (size 2 only): N = 5/2 Monostable P = 5/2 Bistable Q = 5/3 Centres Closed R = 2 x 3/2 NC S = 2 x 3/2 NO T = 1 x 3/2 NC + 1 x 3/2 NO U = 2 x 2/2 NC X = 2 x 2/2 NO Y = 1 x 2/2 NC + 1 x 2/2 NO	
A	THREADED TERMINAL PLATES: A = 1, 12/14 in common 3/5, 82/84 threaded ports B = 1, 12/14 separated 3/5, 82/84 threaded ports C = 1, 12/14 in common 3/5, 82/84 with integrated silencer D = 1, 12/14 separated 3/5, 82/84 with integrated silencer	TERMINAL PLATES with CARTRIDGES Ø 8: E = 1, 12/14 in common 3/5, 82/84 conveyable F = 1, 12/14 separated 3/5, 82/84 conveyable G = 1, 12/14 in common 3/5, 82/84 with integrated silencer H = 1, 12/14 separated 3/5, 82/84 with integrated silencer	TERMINAL PLATES with CARTRIDGES Ø 10: I = 1, 12/14 in common 3/5, 82/84 conveyable L = 1, 12/14 separated 3/5, 82/84 conveyable M = 1, 12/14 in common 3/5, 82/84 with integrated silencer N = 1, 12/14 separated 3/5, 82/84 with integrated silencer

X, Y and K sub-bases will be equipped with threads or cartridges of the same size of port 1, see the choice “Type of terminal plates”. In presence of identical consequent codes both for sub-bases and for valves, you need to substitute the letter with the number.
Ex: HN501-ABCD-ABCS-MMCCBBB-A is converted to HN501- ABCD-ABCS-2M2C3B-A.

2
CONTROL

CODING - FIELDBUS VERSION



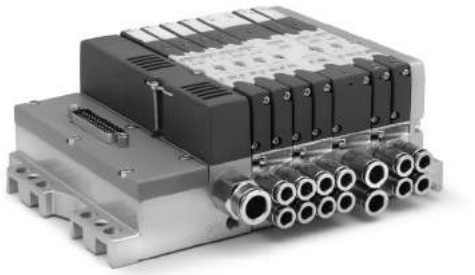
1	2		3		4		5		6
HN	1	0*	A	B	J	R	S	- 3	B	X	B	R	- 3	M	2	B	M	X	M	V	C	- D

HN...

(1)	SIZE	(2)	PROTOCOL	(3)	INPUT / OUTPUT MODULES	(4)	SUBBASES FOR 2 SOLENOID VALVES, size 1	(5)	SOLENOID VALVES Size 1 and 2	(6)	THREADED TERMINAL PLATES
1	10.5	**01**	PROFIBUS-DP	**0**	no module	**A (AZ)**	M7 threads	**0**	island without solenoid valves	**A**	1, 12/14 in common 3/5, 82/84 threaded
2	21	**02**	DeviceNet	**A**	8 Digital IN M8	**B (BZ)**	fittings tube Ø4	**M**	5/2 Monostable	**B**	1, 12/14 separated 3/5, 82/84 threaded
5	Mixed	**03**	CANopen	**B**	4 Digital IN M8	**C (CZ)**	fittings tube Ø6	**B**	5/2 Bistable	**C**	1, 12/14 in common 3/5, 82/84 with silencer
		04	EtherNet/IP	**C**	2 Analog IN 4-20mA	**D (DZ)**	channel 1, 3, 5 closed; M7 threads	**V**	5/3 Centres Closed	**D**	1, 12/14 separated 3/5, 82/84 with silencer
		05	EtherCAT	**D**	2 Analog IN 0-10V	**E (EZ)**	channel 1, 3, 5 closed; cartridges Ø4	**C**	2x 3/2 NC		TERMINAL PLATES cartridges Ø8
		06	PROFINET	**E**	1 Analog IN 4-20mA + 1 IN 0-10V	**F (FZ)**	channel 1, 3, 5 closed; cartridges Ø6	**A**	2x 3/2 NO	**E**	1, 12/14 in common 3/5, 82/84 conveyable
		99	Expansion module	**Q**	4 Digital OUT M12 duo	**G (GZ)**	channel 3, 5 closed; M7 threads	**G**	1x 3/2 NC + 1x 3/2 NO	**F**	1, 12/14 separated 3/5, 82/84 conveyable
				R	2 Analog OUT 4-20mA	**H (HZ)**	channel 3, 5 closed; cartridges Ø4	**E**	2 x 3/2 NC	**G**	1, 12/14 in common 3/5, 82/84 with silencer
				T	2 Analog OUT 0-10V	**I (IZ)**	channel 3, 5 closed; cartridges Ø6	**F**	2x 3/2 NO	**H**	1, 12/14 separated 3/5, 82/84 with silencer
				U	1 Analog OUT 4-20mA + 1 OUT 0-10V	**L (LZ)**	channel 1 closed; M7 threads	**I**	1x 2/2 NC + 1x 2/2 NO		TERMINAL PLATES cartridges Ø10
				V	1 Analog OUT 4-20mA + 1 IN 0-10V	**M (MZ)**	channel 1 closed; cartridges Ø4	**L**	Free position	**I**	1, 12/14 in common 3/5, 82/84 conveyable
				Z	1 Analog OUT 4-20mA + 1 IN 4-20mA	**N (NZ)**	channel 1 closed, cartridges Ø6		SOL. VALVE + PRESS. REG. channel 1 - size 2 only	**L**	1, 12/14 separated 3/5, 82/84 conveyable
				K	1 Analog OUT 0-10V + 1 Input 0-10V		SUBBASES for SOLENOID VALVES, size 2	**N**	5/2 Monostable	**M**	1, 12/14 in common 3/5, 82/84 with silencer
				Y	1 Analog OUT 0-10V + 1 IN 4-20mA	**Q**	G1/8 threads	**P**	5/2 Bistable	**N**	1, 12/14 separated 3/5, 82/84 with silencer
				S	Initial subnet module	**R**	cartridges for tube Ø6	**Q**	5/3 Centres Closed		
						S	cartridges for tube Ø8	**R**	2x 3/2 NC		
							SUBBASES FOR PNEUMATIC SUPPLY	**S**	2x 3/2 NO		
						X	supplem. supply and exhaust	**T**	1x 3/2 NC + 1x 3/2 NO		
						Y	supplem. supply and exhaust with silencer	**U**	2x 2/2 NC		
						W	supply from exhausts	**X**	2x 2/2 NO		
							SUBBASES FOR ELECTRICAL SUPPLY	**Y**	1x 2/2 NC + 1x 2/2 NO		
						K	separation of electrical supply				
							SEALS				
						T	diaphragm on channels 1, 3, 5				
						U	diaphragm on channel 1				
						V	diaphragm on channels 3, 5				

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MULTIPOLE VERSION and MULTIPOLE WITH SUB-D ADAPTOR VERSION

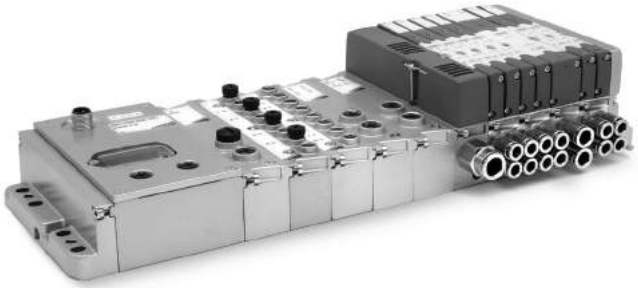


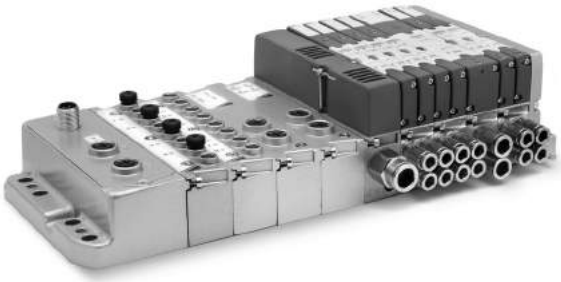


The Multipole version can be connected in a quick and secure way thanks to the electrical connection by means of a pre-wired cable with 25 or 37 pins with in-line or angular connection. It is possible to create zones with differentiated power supply and with separate pressure/exhaust. Thanks to the subbases with monostable board, islands can be realized up to maximum of 24 coils on 20 valve positions with the 25 pin connection and 32 coils on 28 valve positions with the 37 pin connection.

The Multipole Island of both 25 pins and 37 pins can be connected by means of a Sub-D adaptor, also of 25 or 37 pins. In this way a standard Multipole Island can be inserted as expansion in the subnet of the Serial version.

VERSIONS: FIELDBUS WITH CPU MODULE AND EXPANSION FIELDBUS





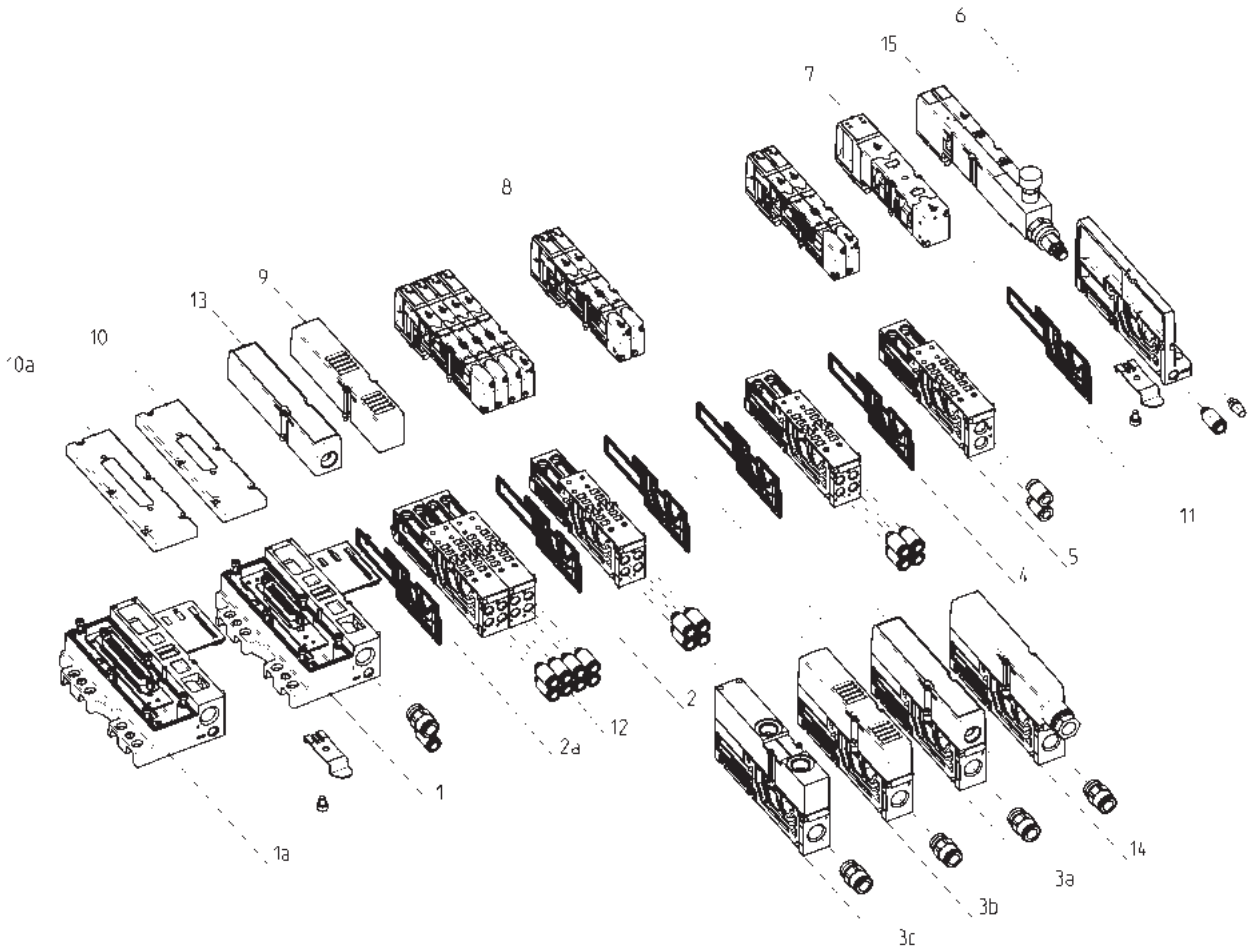
Thanks to the Series CX Multi-serial node and a special direct interface module with the pneumatic part of the island, it is possible to interface the Series HN with the PROFIBUS-DP, DeviceNet, CANopen, PROFINET, EtherCAT and EtherNet/IP serial protocols. The Fieldbus version with CPU has the same configuration rules of a Multipole island and can be equipped with different electric modules like digital/analog inputs/outputs of 0-10V and 4-20mA, as well as initial subnet Modules.

It is possible to insert Initial Subnet Modules in the version with CPU module. These Modules enable to create a subnet with tree structure or in series. On the subnet you can connect Expansion Islands. These expansions have the same possibilities to use the different electric modules, like digital and analog inputs and outputs and further Initial Subnet Modules. Also with this version the same rules as the CPU module and Multipole apply.

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2
CONTROL

MULTIPOLE version - COMPONENTS

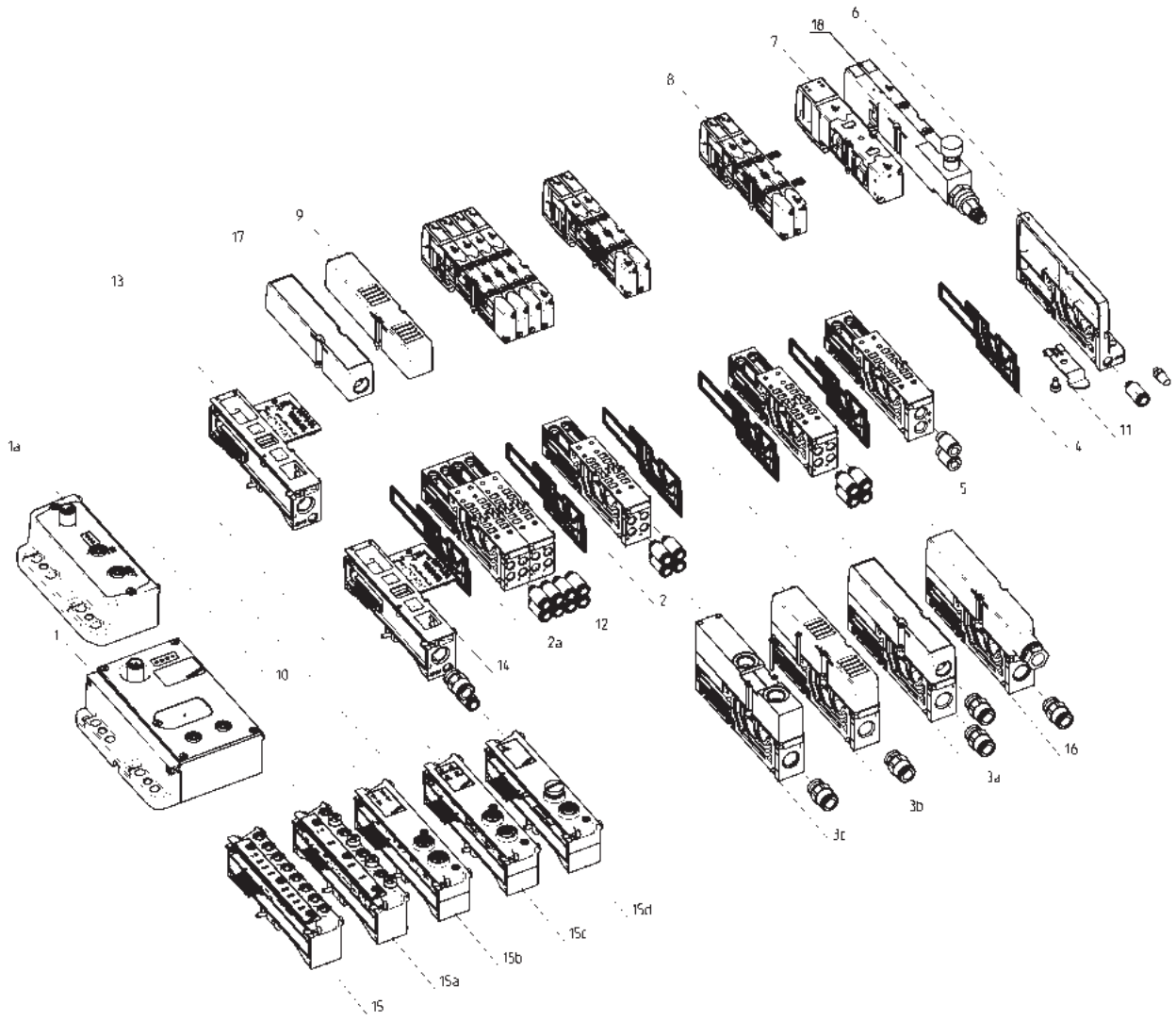


COMPONENTS

1	Electric interface group Multipole 25 pin	**7**	Solenoid valve, size 2
1a	Electric interface group Multipole 37 pin	**8**	Solenoid valve, size 1
2	Threaded subbase, size 10.5 - modularity 2	**9**	Cover with silencer
2a	Subbases without electric board	**10**	Multipole electric cover 25 pins
3a	Conveyable plate for supply and supplementary exhaust	**10a**	Multipole electric cover 37 pins
3b	Plate for supply and exhaust with silencer	**11**	Mounting bracket for DIN rail
3c	Plate for supply from exhausts	**12**	Quick-release fittings
4	Interface seals	**13**	Cover to convey exhausts 3 and 5
5	Threaded subbase, size 21 - modularity 1	**14**	Module to separate electrical supply and supplementary pneumatic supply
6	Right terminal (HA0T-H)	**15**	Valve size 10.5 with incorporated pressure regulator

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INDIVIDUAL FIELDBUS version - COMPONENTS

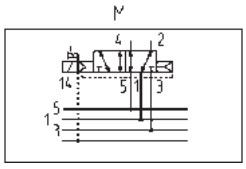


COMPONENTS

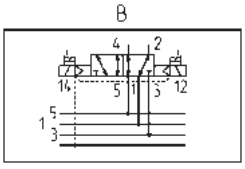
1 **1a**	Multi-serial Module CX Expansion Module	**11**	Mounting bracket for DIN rail
2 **2a**	Threaded subbase, size 10.5 - modularity 2 Subbases without electric board	**12**	Quick-release fittings
3a **3b** **3c**	Conveyable plate for supply and supplementary exhaust Plate for supply and exhaust with silencer Plate for supply from exhausts	**13**	Direct interface module with Series HN with internal pilot supply
4	Interface seals	**14**	Direct interface module with Series HN with external pilot supply
5	Threaded subbase, size 21 - modularity 1	**15** **15a**	8 Digital Inputs module 4 Digital Inputs module
6	Right terminal (HA0T-H)	**15b** **15c** **15d**	4 Digital Outputs module IN/OUT analog module Initial subnet module
7	Solenoid valve size 2	**16**	Cover to convey exhausts 3 and 5
8	Solenoid valve size 1	**17**	Module to separate electrical supply and supplementary pneumatic supply
9	Cover with silencer	**18**	Valve size 10,5 with integrated pressure regulator
10	Cover for the access to rotary switches and for programming		

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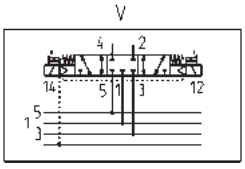
AVAILABLE FUNCTION - SYMBOLS FOR SOLENOID VALVES



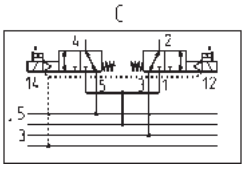
M = 5/2-way, Monostable



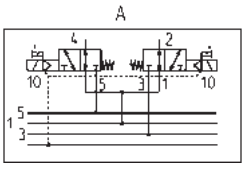
B = 5/2-way, Bistable



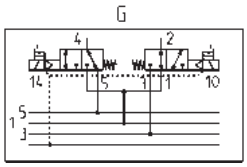
V = 5/3-way Centres Closed



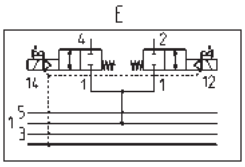
C = 2 x 3/2-way NC



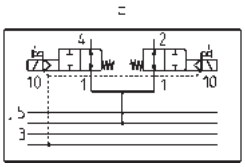
A = 2 x 3/2-way NO



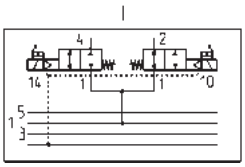
G = 1 x 3/2-way NC + 1 x 3/2-way NO



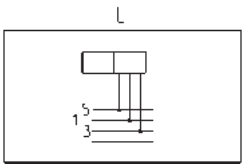
E = 2 x 2/2-way NC



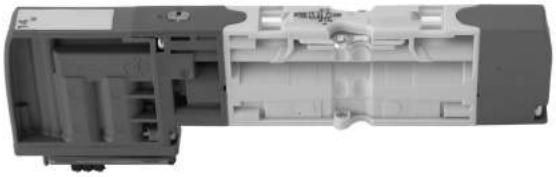
F = 2 x 2/2-way NO



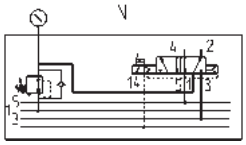
I = 1 x 2/2-way NC + 1 x 2/2-way NO



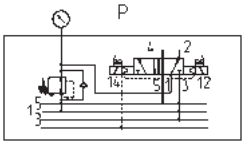
L = free position



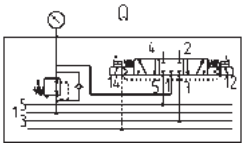
AVAILABLE FUNCTIONS - SYMBOLS FOR SOLENOID VALVES WITH PRESSURE REGULATOR



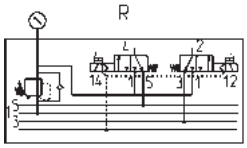
N = 5/2-way, Monostable



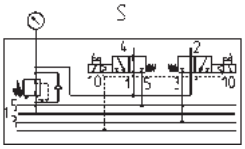
P = 5/2-way, Bistable



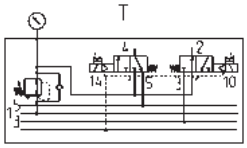
Q = 5/3-way Centres Closed



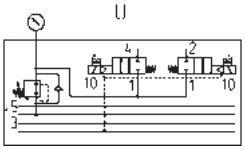
R = 2 x 3/2-way NC



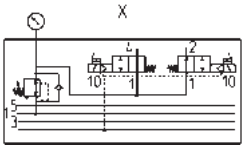
S = 2 x 3/2-way NO



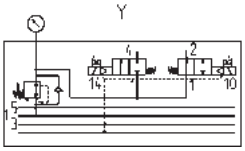
T = 1 x 3/2-way NC + 1 x 3/2-way NO



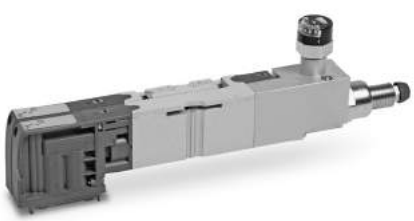
U = 2 x 2/2-way NC



X = 2 x 2/2-way NO



Y = 1 x 2/2-way NC + 1 x 2/2-way NO



It can be assembled on subbase size 21 only.

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AVAILABLE FUNCTIONS - SUBBASE TYPES



Through-subbase s. 10.5
A=M7, B=Ø4, C=Ø6 [*]



Diaphragm lines 1, 3 5
D=M7, E=Ø4, F=Ø6 [*]



Diaphragm line 1
L=M7, M=Ø4, N=Ø6 [*]



Diaphragm lines 3, 5
G=M7, H=Ø4, I=Ø6 [*]



Through-subbase s. 21
Q = 1/8, R = Ø6, S = Ø8



X = supplementary supply and exhaust



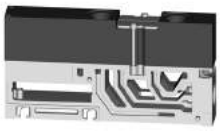
K = interm. plate to sep. elec. and suppl. supply



Y = supplem. supply + exhaust with silencer



Z = electro-pneum. interface for HP...F/G/R



W = plate for supply from exhausts



U = Diaphragm seal - Line 1



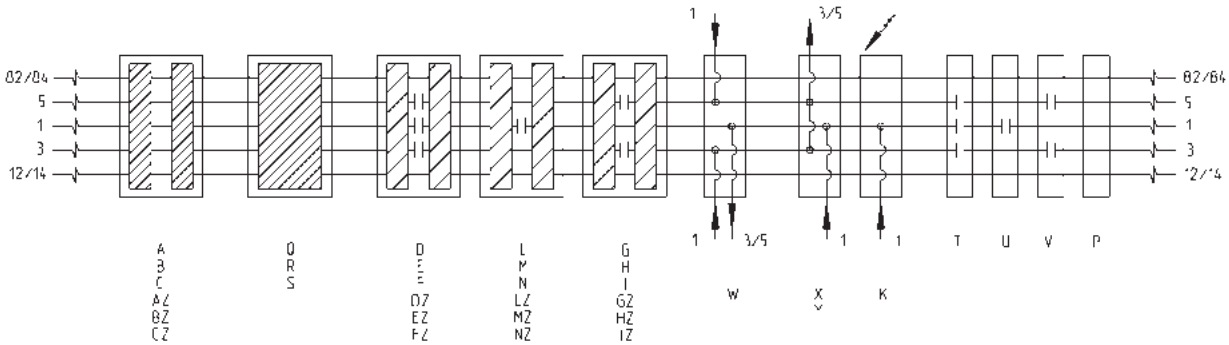
V = Diaphragm seal - Lines 3, 5



P = Through seal



T = Diaphragm seal - Lines 1, 3, 5

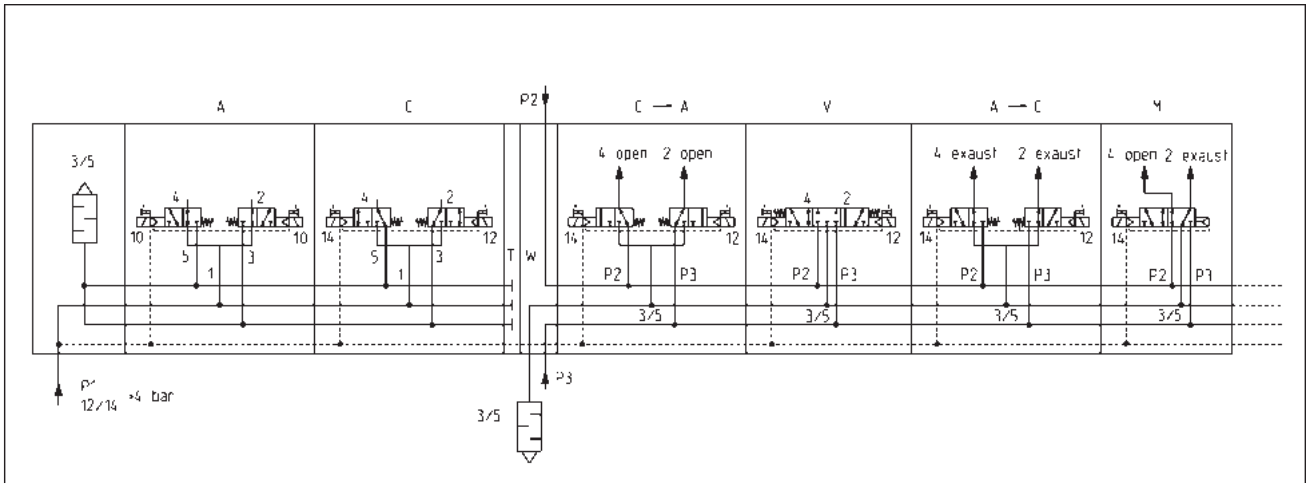


[*] The subbases A, B, C, D, E, F, G, H, I, L, M, N are available also with a board to be used with monostable solenoid valves.
To order this version it is necessary to add Z at the end of the code of the standard subbase. Example: AZ instead of A.
For further details we suggest you to see the coding example.

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PROPER USE OF VALVE FUNCTIONS WITH INTERMEDIATE PLATE TYPE W

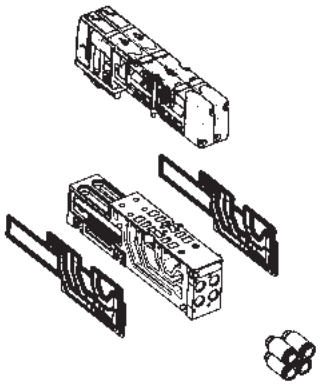
The intermediate plate cod. W is composed by a subbase which is equipped with a upper connection bracket. On this bracket there are two connections on which it is possible to apply two different pressures (ex. P2 and P3). In this configuration, the connection 1 on the subbase represents the exhaust 3/5. With this plate it is possible to supply the valves positioned downstream through the exhausts 3 and 5. When supplied from the exhausts, these valves have a different function compared with the ones supplied in the standard way. Some examples:
Solenoid valve mod. C at rest has outlets 2 and 4 active and corresponds to model “A”, in presence of electrical inputs 12 and 14 outlets 2 (P3) and 4 (P2) close respectively; the configuration of solenoid valve mod. V at rest doesn’t change, in presence of electrical input 12 outlet 4 (P2) is activated, in presence of electrical input 14 outlet 2 (P3) is activated; outlets 2 and 4 are closed in solenoid valve mod. A at rest which corresponds to model “C”, in presence of electrical inputs 12 and 14 outlets 2 (P3) and 4 (P2) open respectively; outlet 4 (P2) is active in solenoid valve mod. M at rest, in presence of electrical input 14 the active outlet becomes outlet 2 (P3). All the valve functions, both 10.5 and 21 sizes, have this different operation. Solenoid valves with an integrated pressure regulator can’t be used after an intermediate plate W. This plate requires in the initial part of the valve island a supply pressure of 4 bar at least. Otherwise, it is necessary to use the version with external servo pilot supply and apply a pressure of at least 4 bar on the connection 12/14. It is necessary to insert a seal type T before plate W.



SUBBASES WITH MONOSTABLE BOARD

The subbases for valves Size 1 (10.5 mm) are set for housing 2 solenoid valves that may be both with double solenoid. Each subbase uses 4 electric signals. Even in case of monostable solenoid valves the subbase uses 4 electrical signals.
To increase the number of valve positions that can be connected with a single Sub-D connector, all the subbases Size 1 can add “Z” at the end of their code thus using 2 electrical signals. They are, therefore, suitable for the connection of monostable solenoid valves.

Examples:
Code A --> AZ with board for monostable solenoid valves
Code N --> NZ with board for monostable solenoid valves



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MODULE TO SEPARATE ELECTRIC AND PNEUMATIC SUPPLY HA0M-K

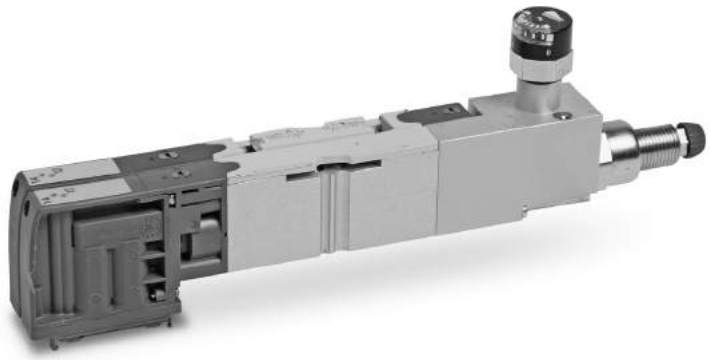


GENERAL DATA

Connection	3 poles terminal block to be wired
Dimensions	130 x 20 mm
Signalling	None
Supply	24 V DC (+/- 10%)
Electrical protection	Fuse 2 A
Protection class	IP 65
Temperature	0°C ÷ 50°C
Material	Plastics - Aluminium
Weight	100 g

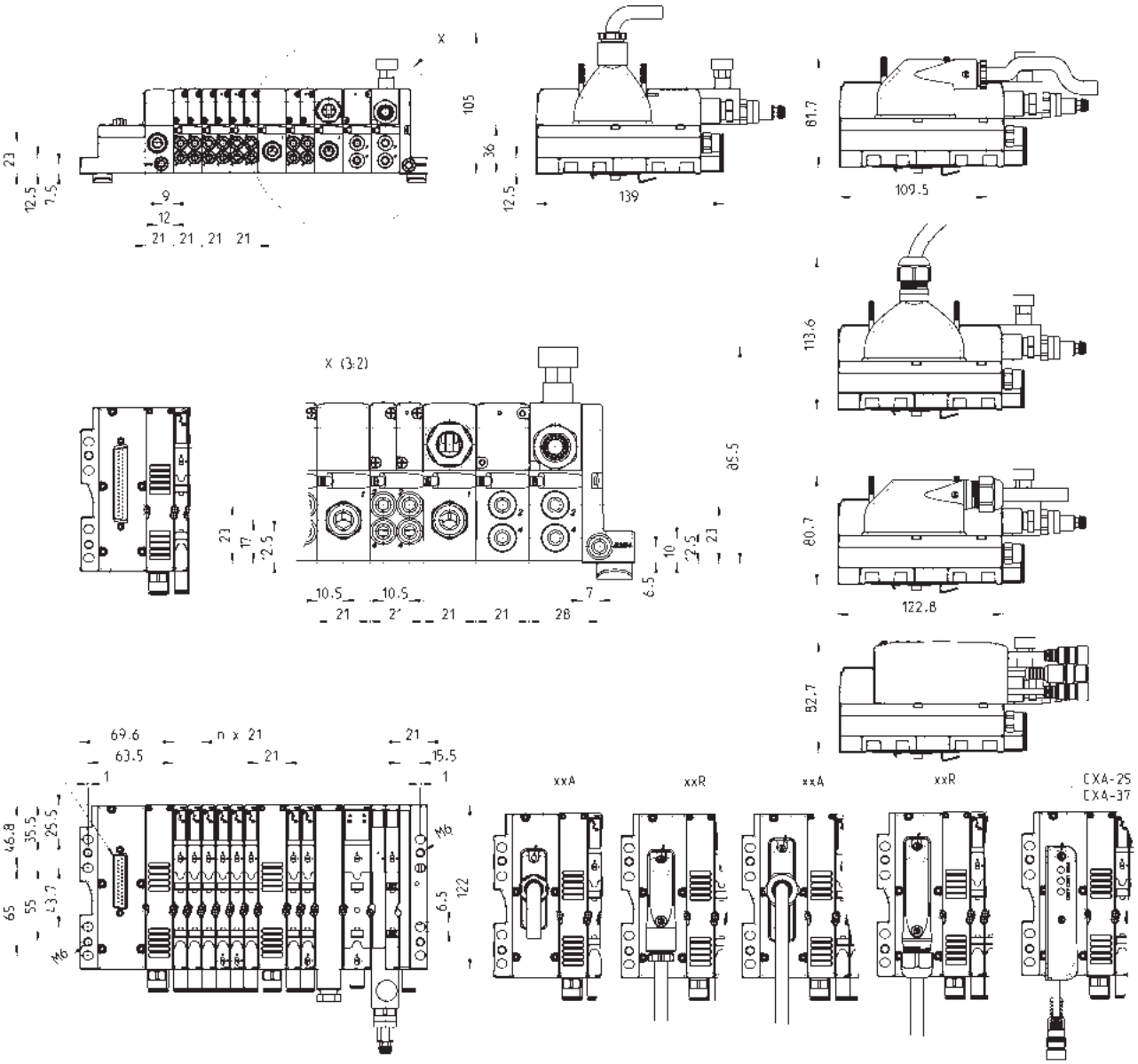
VALVE WITH INTEGRATED PRESSURE REGULATOR HP2V

This solution has the advantage of reducing the valve island's overall height compared to traditional "sandwich" solutions.
The pressure regulator allows to set the supply pressure of the lateral valve.



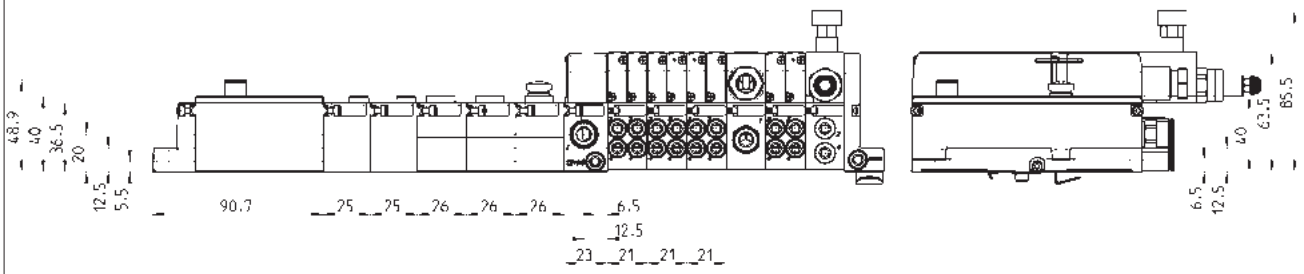
2
CONTROL

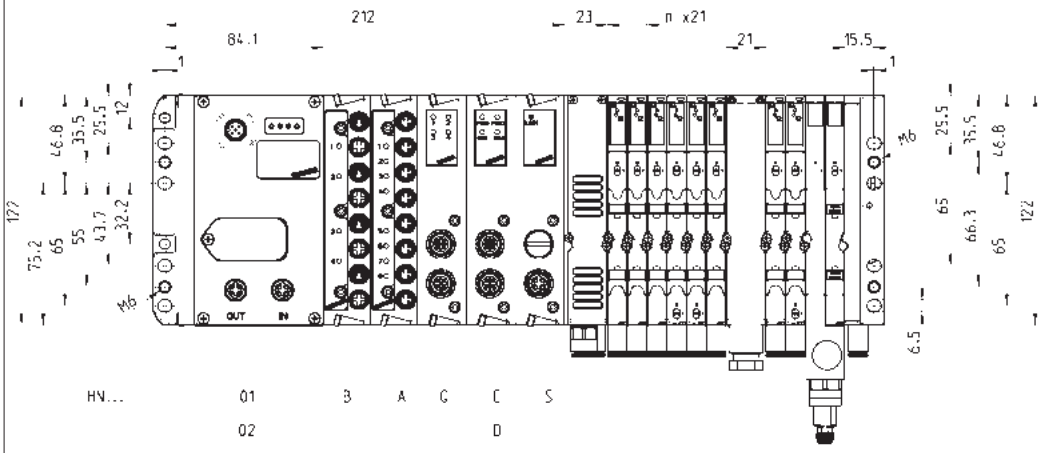
MULTIPOLE version 25 and 37 pin - DIMENSIONS



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INDIVIDUAL FIELDBUS version - DIMENSIONS

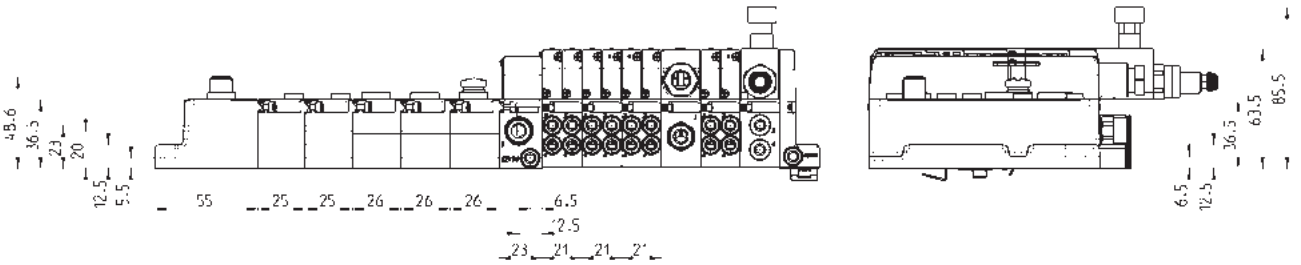


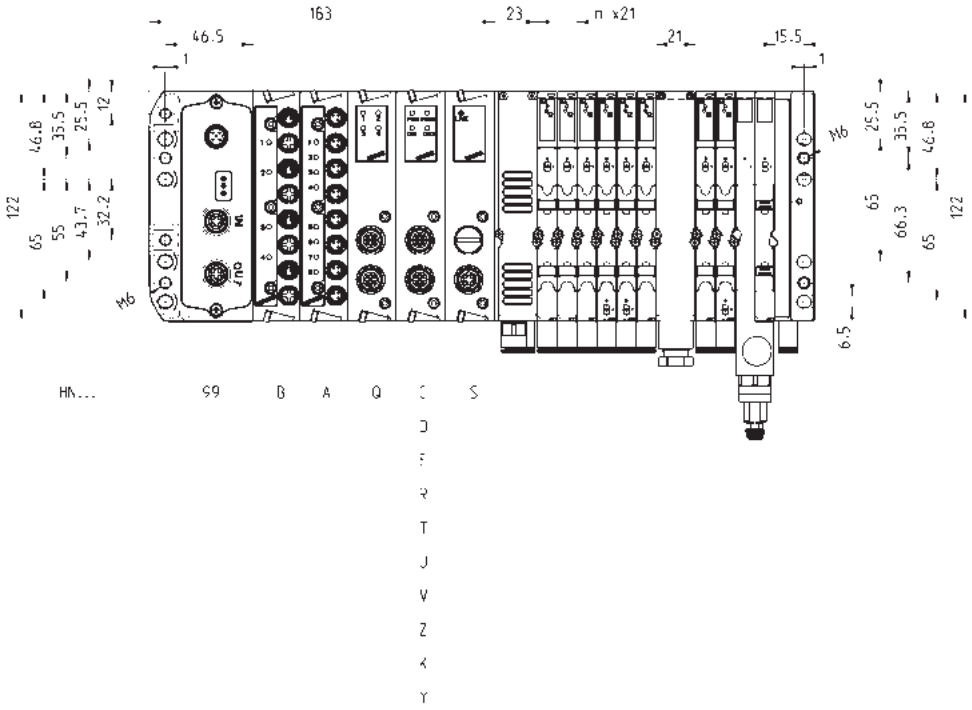


HN...	01	B	A	G	C	S
	02				D	
	03				F	
	04				R	
	05				T	
	06				U	
					V	
					Z	
					K	
					Y	

2
CONTROL

EXPANSION of the FIELDBUS version - DIMENSIONS

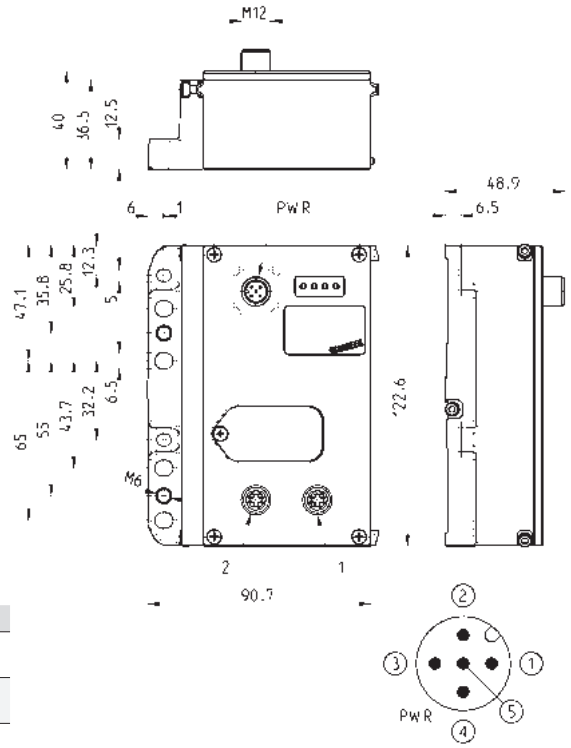




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CPU Module - pin configuration



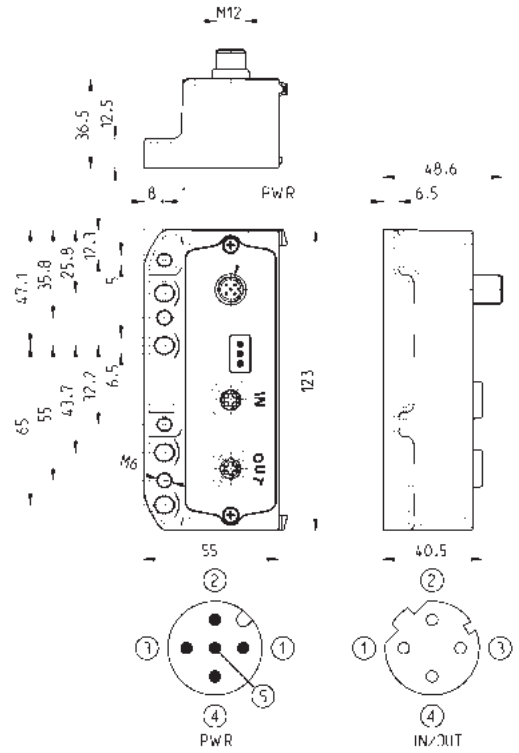


Mod.	Coding reference	Fieldbus Protocol	2	1	Bus-IN connector	Bus-OUT connector
CX01-0-0	01	PROFIBUS	Bus-IN	Bus-OUT	M12 B 5 pin male	M12 B 5 pin female
CX02-0-0	02	DeviceNet	Bus-IN	Bus-OUT	M12 A 5 pin male	M12 A 5 pin female
CX03-0-0	03	CANopen	Bus-IN	Bus-OUT	M12 A 5 pin male	M12 A 5 pin female
CX04-0-0	04	EtherNet/IP	Bus-OUT	Bus-IN	M12 D 5 pin female	M12 D 5 pin female
CX05-0-0	05	EtherCAT	Bus-OUT	Bus-IN	M12 D 5 pin female	M12 D 5 pin female
CX06-0-0	06	PROFINET	Bus-OUT	Bus-IN	M12 D 5 pin female	M12 D 5 pin female

Expansion Module - pin configuration

Note: to connect the Expansion with the subnet, we recommend the use of cables Mod. CS-SB04HB-... or CS-SC04HB-...

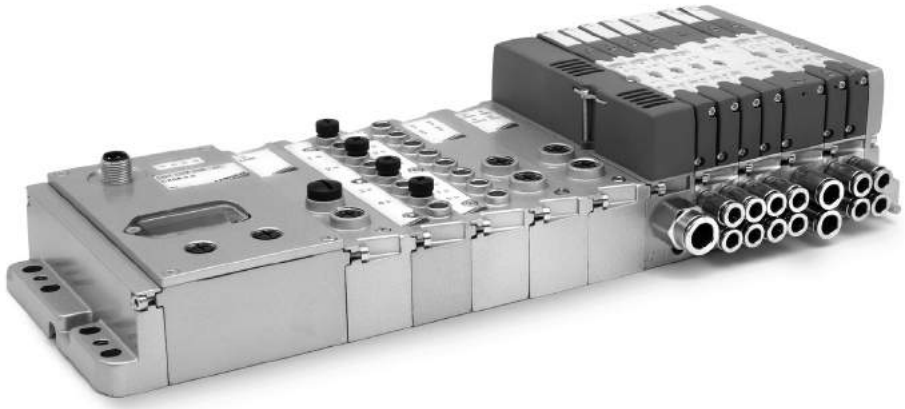




Mod.	Coding reference	Fieldbus Protocol	Bus-IN and Bus-OUT connector
CX99-0-0	99	Subnet expansion	M12 D 5 pin female

CPU Module - Characteristics

It is a slave node of the main PROFIBUS, CANopen, DeviceNet, EtherNet/IP, EtherCAT, PROFINET network and the Master module of the subnet. All modules provided can be connected only on the right side of the CPU module, like the digital/analog inputs/outputs, direct interface modules for the valve islands (Series F, HN and 3) and the initial module of the subnet.
It has its own M12 A 4 pin male connection to supply the modules connected, distinguishing both logic supply and power supply.
Two M12 connections for Bus-IN and Bus-OUT of the main network, which M12 connection will take over the relative specifications according to the choosen protocol.
The addressing is performed by means of the Rotary Switch for the protocols with this feature, while for Ethernet protocols addressing is performed by means of the protocol itself. Leds indicate the working state. A maximum number of 1024 inputs and 1024 outputs can be managed.



Expansion Module - Characteristics

At its right side, different modules can be connected like the digital/analog inputs/outputs, the direct interface modules for the valve islands (Series F, HN and 3) and the initial module of the subnet to re-amplify it or to create new branches. It has its own M12 A 4 pin male connection to supply the devices connected, distinguishing both logic supply and power supply. It has two M12 D 5 pin female connections for Bus-IN and Bus-OUT connection of the subnet. Leds indicate the working state.
The valve island equipped with the Expansion Module can be used only in presence of a subnet.

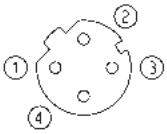


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Initial subnet module Mod. ME3-0000-SL

This module can be connected only in presence of a CPU or Expansion module and can be mixed with other either digital or analog Input and Output devices.
Every subnet can have an extension of maximum 100 metres, with a maximum of 8 interruptions. Up to maximum 5 initial modules can be connected, one aside another or along the subnet in order to create a tree structure, in series or both, in order to optimize the length of the cables and the topology of the subnet in different applications. The module is equipped with the Bus-OUT connection only of subnet type M12 D 5 pin female.





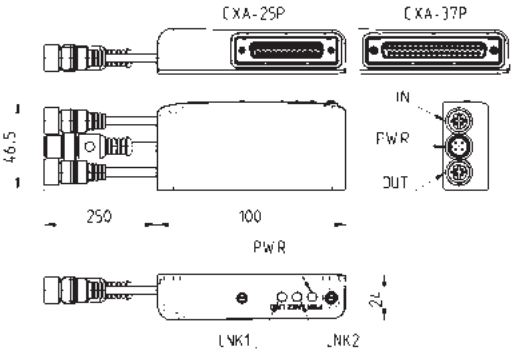
Mod.	Coding reference	Bus-OUT connection	Max number of modules for subnet	Max extension of subnet per module
ME3-0000-SL	S	M12D 5 pin female	5	100 m

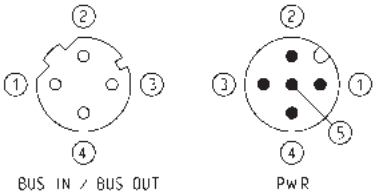
Sub-D adaptor module 25 and 37 pin Mod. CXA-25P and CXA-37P



Led 1 = Yellow LNK1
Led 2 = Yellow LNK2
Led 3 = Green PWR, supply present and OK

It is an Expansion module of the subnet and can be connected to all valve islands with Sub-D connection. In the 25 pin version, it can manage up to a maximum of 24 outputs, while with 37 pin version, the outputs become 32. It has its own M12 A 4 pin male connection for the supply of the valves connected, distinguishing both logic supply and power supply and two M12 D 5 pin female connections for the Bus-IN and Bus-OUT of the subnet. The subnet can have a length of maximum 100 metres. The power of a single Output is 3 W to 24 V DC. Thanks to the PWM technique it is possible to set a power reduction to only maintain operation.





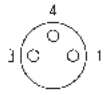
Mod.	Interface	Digital Outs	Bus-IN connection	Bus-OUT connection	PWR connection	Supply	Power for every Output
CXA-25P	Sub-D 25 pin	24	M12D 5 pin female	M12D 5 pin female	M12A 4 pin male	24 V DC	3 W
CXA-37P	Sub-D 37 broches	32	M12D 5 pin female	M12D 5 pin female	M12A 4 pin male	24 V DC	3 W

Digital input Module Mod. ME3-0800-DC and ME3-0400-DC

The Digital input module can be connected only in presence of a CPU or Expansion module and can be mixed with other either digital or analog Input and Output devices and with the initial module of the subnet.
It has 8 or 4 M8 3 pin connections.





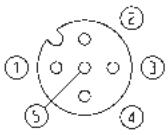


Mod.	Coding reference	Number of digital inputs	Connection	Number of connectors	Dimensions	Signalling	Sensor supply	Overvoltage protection	Absorption	Type of signal	Protection class	Operating temperature	Weight
ME3-0800-DC	A	8	M8 3 pin female	8	122 x 25 mm	1 yellow led for each input	24 V DC	400 mA for 4 sensors	10 mA	PNP	IP65	0 ÷ 50°C	110 g
ME3-0400-DC	B	4	M8 3 pin female	4	122 x 25 mm	1 yellow led for each input	24 V DC	400 mA for 4 sensors	10 mA	PNP	IP65	0 ÷ 50°C	110 g

Analog input/output module Mod. ME3-****-AL

The analog input/output module can be connected only in presence of a CPU or Expansion module and can be mixed with other either digital or analog Input and Output devices and with the initial module of the subnet. It has two M12 A 5 pin female connections and it can be configured as 2 analog Outputs or 2 Inputs or 1 Input + 1 Output. Every analog output has a 12 bit resolution for both inputs and outputs available in the versions from 0-10 V DC and from 4-20mA.
The refreshment time of the analog devices is submitted to the delay of the subnet and therefore to its topology. An average delay is less than 6 ms, to which the delay of the main network managed by the PLC has to be added.





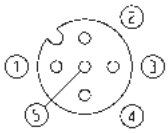
Mod.	Coding reference	Number of analog inputs	Number of analog outputs	Connection
ME3-C000-AL	C	2 inputs 4-20 mA	-	2x M12 A 5 pin female
ME3-D000-AL	D	2 inputs 0-10 V	-	2x M12 A 5 pin female
ME3-E000-AL	E	1 input 4-20 mA + 1 input 0-10 V	-	2x M12 A 5 pin female
ME3-00U0-AL	U	-	1 output 4-20 mA + 1 output 0-10 V	2x M12 A 5 pin female
ME3-00R0-AL	R	-	2 outputs 4-20 mA	2x M12 A 5 pin female
ME3-00T0-AL	T	-	2 outputs 0-10 V	2x M12 A 5 pin female
ME3-00Z0-AL	Z	1 input 4-20 mA	1 output 4-20 mA	2x M12 A 5 pin female
ME3-00K0-AL	K	1 input 0-10 V	1 output 0-10 V	2x M12 A 5 pin female
ME3-00V0-AL	V	1 input 0-10 V	1 output 4-20 mA	2x M12 A 5 pin female
ME3-00Y0-AL	Y	1 input 4-20 mA	1 output 0-10 V	2x M12 A 5 pin female

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Digital power output module Mod. ME3-0004-DL

The digital output module can be connected only in presence of a CPU or Expansion module and can be mixed with other either digital or analog Input and Output devices and with the initial module of the subnet. It has two M12 A 5 pin female connections, each connection can manage 2 digital outputs and can provide a maximum of 10 W to 24 V DC. The device is useful to pilot a bistable valve or two monostable valves for each connector, or to activate the electric coils or other electric devices with maximum absorption of 10 W to 24 V DC. Connecting two outputs to one electric device only and activating them simultaneously, it is possible to provide maximum 20 W to 24 V DC.





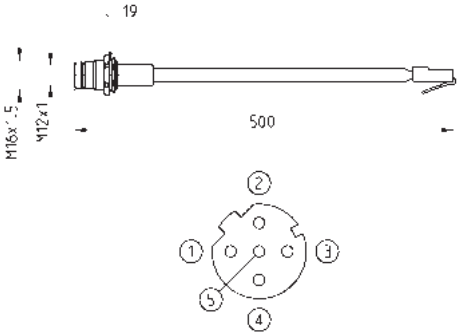
Mod.	Coding reference	Number of digital outputs	Connection	Number of connectors	Dimensions	Signalling	Sensor supply	Max power for M12 connector	Max power for digital output	Type of signal	Protection class	Operating temperature	Weight
ME3-0004-DL	Q	4	M12 A 5 pin female	2	122 x 25 mm	1 yellow led for each output	24 V DC	20 W	10 W	NPN	IP65	0 ÷ 50°C	100 g

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Adaptor and panel mount for Ethernet RJ45 to M12 D networks

For PROFINET, EtherCAT, EtherNet/IP

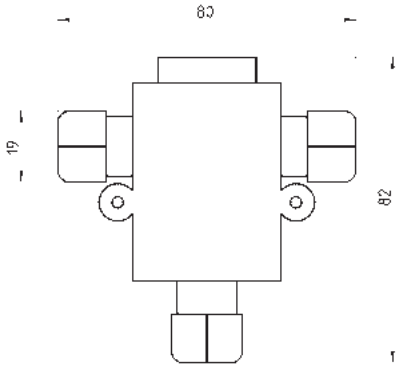




Mod.	description	type of connector	connection	cable length (m)
CS-SE04HB-F050	moulded cable	straight	RJ45 male, M12 D 4 pin female	0.5

Profibus-DP data line tee

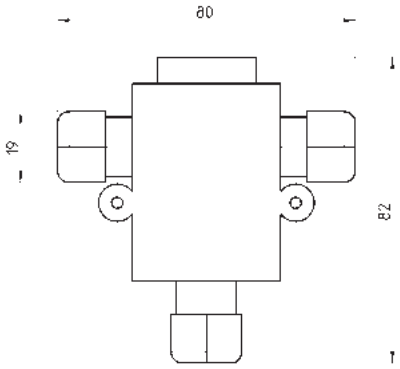




Mod.
CS-AA03EC

CANopen / DeviceNet data line tee



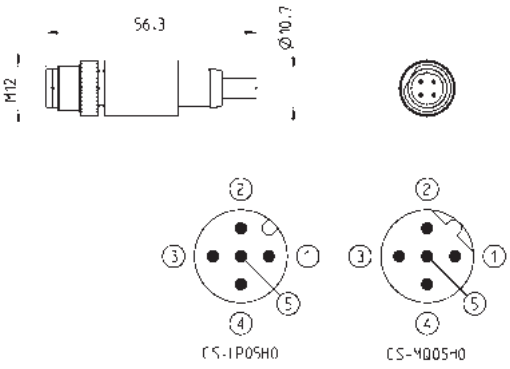


CS-AA05EC

M12 male terminating resistor

For PROFIBUS, CANopen, DeviceNet



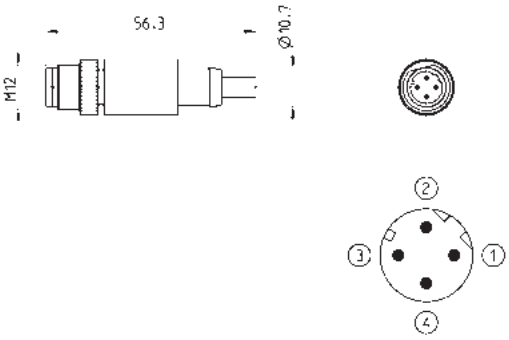


Mod.	description	type of connector	connection	Protocol
CS-MQ05H0	moulded terminating resistor	straight	M12 B 4 pin male	PROFIBUS
CS-LP05H0	moulded terminating resistor	straight	M12 A 5 pin male	CANOpen / DeviceNet

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Subnet terminating resistor

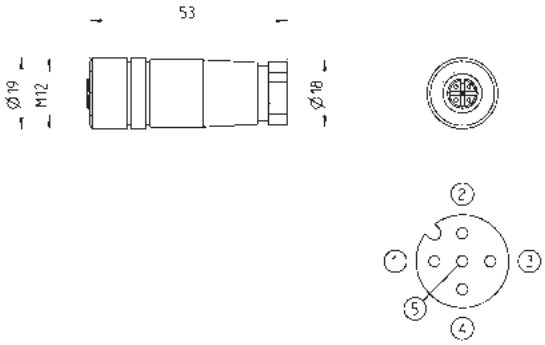




Mod.	description	type of connector	connection	Protocol
CS-SU04H0	moulded terminating resistor	straight	M12 D 4 pin	subnet

Straight connector for power supply

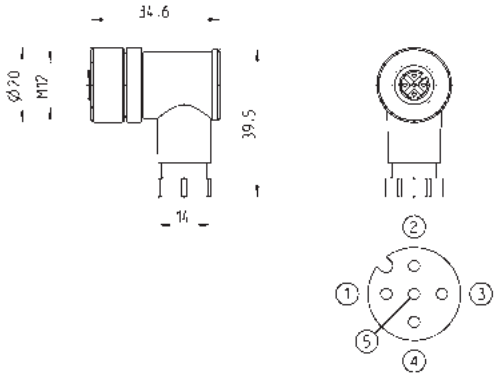




Mod.	description	type of connector	connection	cable length (m)
CS-LF04HB	for wiring	straight	M12 A 4 pin female	-

Angular connector for power supply

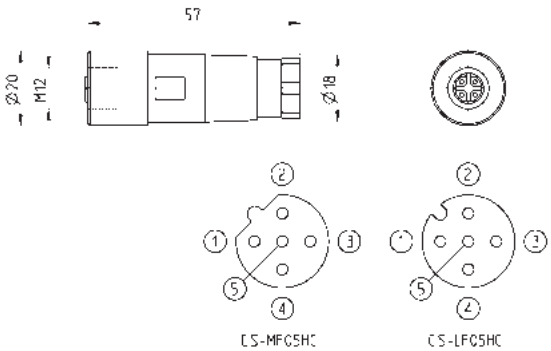




Mod.	description	type of connector	connection	cable length (m)
CS-LR04HB	for wiring	90°	M12 A 4 pin female	-

Straight female M12 connectors for Bus-IN



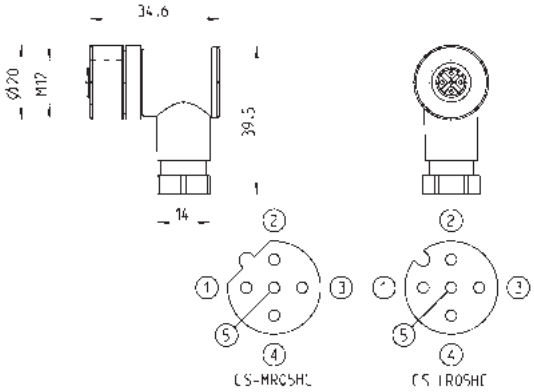


Mod.	description	type of connector	connection	Protocol
CS-LF05HC	for wiring	straight	M12 A 5 pin female	CANopen / DeviceNet
CS-MF05HC	for wiring	straight	M12 B 5 pin female	PROFIBUS

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Angular 90° female M12 connectors for Bus-IN

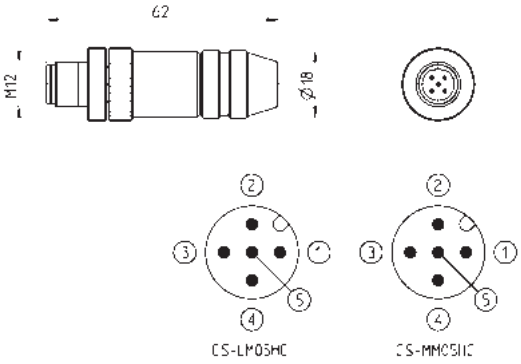




Mod.	description	type of connector	connection	Protocol
CS-LR05HC	for wiring	90°	M12 A 5 pin female	CANopen / DeviceNet
CS-MR05HC	for wiring	90°	M12 B 5 pin female	PROFIBUS

Straight male M12 connectors for Bus-OUT



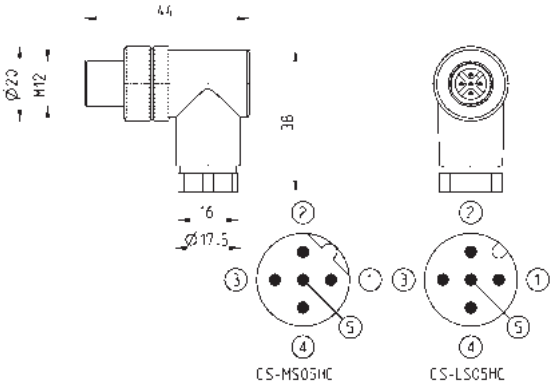


Mod.	description	type of connector	connection	Protocol
CS-LM05HC	for metal wiring	straight	M12 A 5 pin male	CANopen / DeviceNet
CS-MM05HC	for metal wiring	straight	M12 B 5 pin male	PROFIBUS

Angular 90 ° male M12 connectors for Bus-OUT



The Mod. CS-LS05HC can also be used for the connection of the digital output modules and of the analog input and output modules.

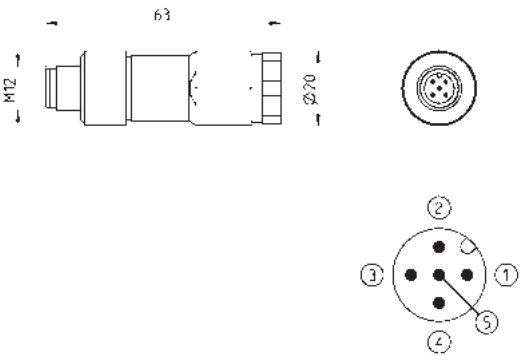


Mod.	description	type of connector	connection	Protocol
CS-LS05HC	for wiring	90°	M12 A 5 pin male	CANopen / DeviceNet
CS-MS05HC	for wiring	90°	M12 B 5 pin male	PROFIBUS

5 pin male straight M12 DUO connector



For the connection of the digital output modules and analog input/output modules.



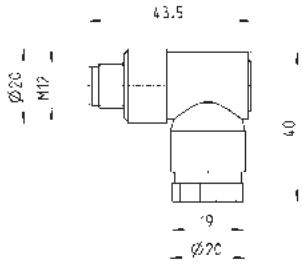
Mod.	description	type of connector	connection	cable length (m)
CS-LD05HF	for wiring	straight	M12 A 5 pin male	-

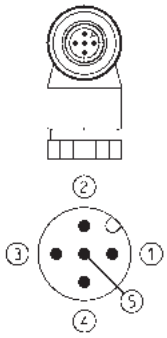
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5 pin male angular M12 DUO connector



For the connection of the digital output modules ME3-0004-DL

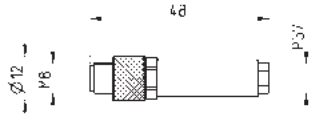




Mod.	description	type of connector	connection	cable length (m)
CS-LH05HF	for wiring	90°	M12 A 5 pin male	-

3 pin male M8 wiring connector for digital input modules





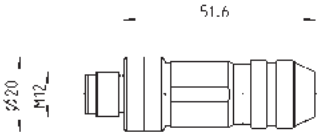


Mod.	description	type of connector	connection	cable length (m)
CS-DM03HB	for wiring	straight	M8 3 pin male	-

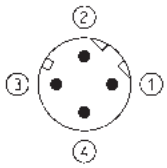
Male wiring connector for Bus-IN and Bus-OUT



For PROFINET, EtherCAT, EtherNet/IP and for the subnet







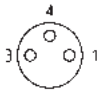
Mod.	description	type of connector	connection	cable length (m)
CS-SM04H0	for metal wiring	straight	M12 D 4 pin	-

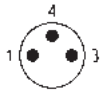
Extension with M8 connector, 3 pin male / female

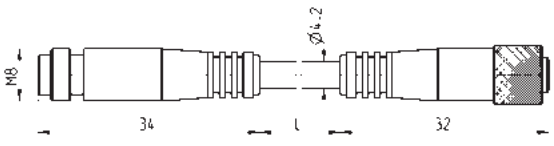
Non shielded



For the connection of the digital input modules ME3-0008 and ME3-0004





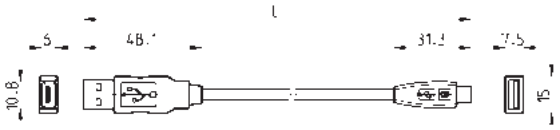


Mod.	description	type of connector	connection	L [cable length] (m)
CS-DW03HB-C250	moulded cable	straight	M8 3 pin male / female	2.5
CS-DW03HB-C500	moulded cable	straight	M8 3 pin male / female	5

USB to Micro USB cable Mod. G11W-G12W-2

For the hardware configuration
of the Camozzi products



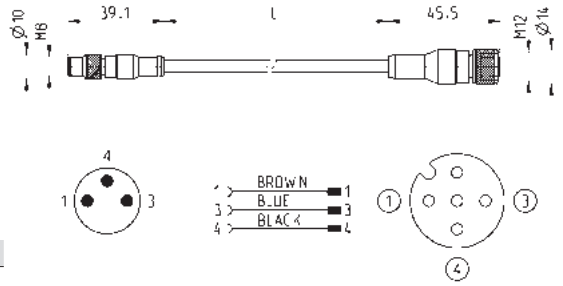


Mod.	description	connections	material for outer sheath	cable length "L" (m)
G11W-G12W-2	black shielded cable 28 AWG	standard USB to Micro USB	PVC	2

Adapter cable, M8 3-pin male - M12 4-pin female

Protection class: IP69K



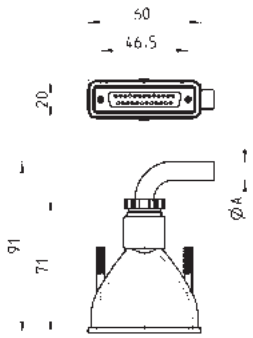


Mod.	description	max voltage	max current	Nr conn. wires	connections	outer sheath	cable "L" (m)
CS-AG03HB-C250	3-pin cable 24 AWG, high flexibility	50V AC / 60V DC	3 A	3	M8 3-pin male - M12 4-pin fem.	PUR black	2.5
CS-AG03HB-C500	3-pin cable 24 AWG, high flexibility	50V AC / 60V DC	3 A	3	M8 3-pin male - M12 4-pin fem.	PUR black	5

Straight Sub-D 25 pin female connector with axial cable

Protection class IP65





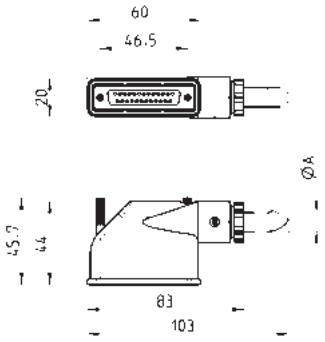
Mod.	⌀A	PIN	cable length (m)
G3X-3	7.7	16	3
G3X-5	7.7	16	5
G3X-10	7.7	16	10
G3X-15	7.7	16	15
G3X-20	7.7	16	20
G3X-25	7.7	16	25
G4X-3	9	25	3
G4X-5	9	25	5
G4X-10	9	25	10
G4X-15	9	25	15
G4X-20	9	25	20
G4X-25	9	25	25

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Right angle Sub-D 25 pin female connector with axial cable

Protection class IP65



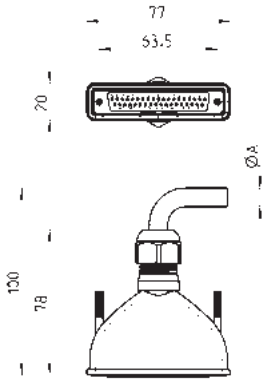


Mod.	⌀A	PIN	cable length (m)
G3X1-3	7.7	16	3
G3X1-5	7.7	16	5
G3X1-10	7.7	16	10
G3X1-15	7.7	16	15
G3X1-20	7.7	16	20
G3X1-25	7.7	16	25
G4X1-3	10	25	3
G4X1-5	10	25	5
G4X1-10	10	25	10
G4X1-15	10	25	15
G4X1-20	10	25	20
G4X1-25	10	25	25

Straight Sub-D 37 pin female connector with axial cable

Protection class IP65



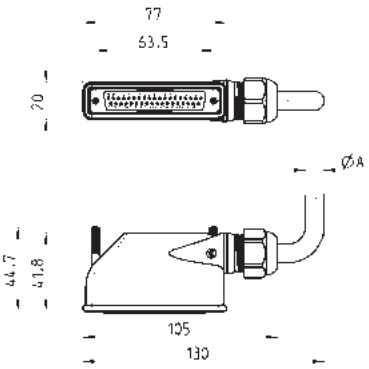


Mod.	⌀A	PIN	cable length (m)
G9X-3	12	37	3
G9X-5	12	37	5
G9X-10	12	37	10
G9X-15	12	37	15
G9X-20	12	37	20
G9X-25	12	37	25

Right angle Sub-D 37 pin female connector with radial cable

Protection class IP65





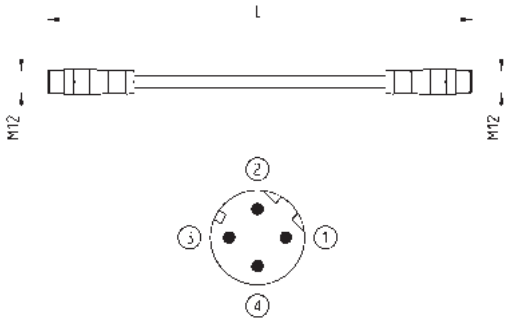
Mod.	⌀A	PIN	cable length (m)
G9X1-3	12	37	3
G9X1-5	12	37	5
G9X1-10	12	37	10
G9X1-15	12	37	15
G9X1-20	12	37	20
G9X1-25	12	37	25

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Cables with straight connectors

For PROFINET, EtherCAT, EtherNet/IP and for the subnet



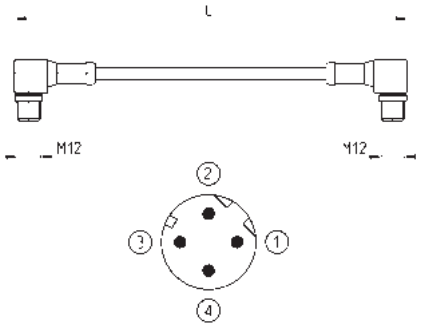


Mod.	description	type of connector	connection	L [cable length] (m)
CS-SB04HB-D100	moulded cable	straight	2x M12 D 4 pin male	1
CS-SB04HB-D500	moulded cable	straight	2x M12 D 4 pin male	5
CS-SB04HB-DA00	moulded cable	straight	2x M12 D 4 pin male	10
CS-SB04HB-DD00	moulded cable	straight	2x M12 D 4 pin male	15
CS-SB04HB-DG00	moulded cable	straight	2x M12 D 4 pin male	20
CS-SB04HB-DJ00	moulded cable	straight	2x M12 D 4 pin male	25

Cables with 90° angular connectors

For PROFINET, EtherCAT, EtherNet/IP and for the subnet



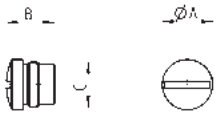


Mod.	description	type of connector	connection	L [cable length] (m)
CS-SC04HB-D100	moulded cable	90°	2x M12 D 4 pin male	1
CS-SC04HB-D500	moulded cable	90°	2x M12 D 4 pin male	5
CS-SC04HB-DA00	moulded cable	90°	2x M12 D 4 pin male	10
CS-SC04HB-DD00	moulded cable	90°	2x M12 D 4 pin male	15
CS-SC04HB-DG00	moulded cable	90°	2x M12 D 4 pin male	20
CS-SC04HB-DJ00	moulded cable	90°	2x M12 D 4 pin male	25

M8 and M12 connector cover caps

For digital and analog input/output modules and subnet





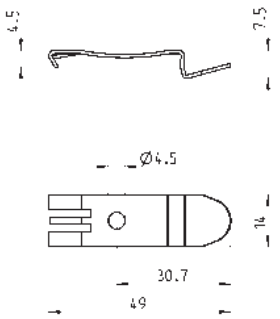
Mod.	A	B	C [Connection]
CS-DFTP	10	11	M8
CS-LFTP	13.5	13	M12

Mounting brackets for DIN rail

DIN EN 50022 (mm 7,5 x 35 - width 1)

Supplied with:
2x plates
2x screws M4x6 UNI 5931





Mod.
PCF-E520

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CODING EXAMPLE OF MULTIPOLE AND FIELDBUS INTERFACES - Accessories

HN	A	0	M	-	A

HN	SERIES
A	TYPE: A = Accessory
0	SIZE: 0 = not defined
M	ELECTRICAL CONNECTION: M = 25 pin PNP Multipole N = 25 pin NPN Multipole H = 37 pin PNP Multipole L = 37 pin NPN Multipole I = HN interface with Series CX
A	TERMINALS: A = 1, 12/14 in common - 3/5, 82/84 with thread B = 1, 12/14 separated - 3/5, 82/84 with thread C = 1, 12/14 in common - 3/5, 82/84 with silencer D = 1, 12/14 separated - 3/5, 82/84 with silencer NOTE: The Right Terminal is supplied with seals and fixing screws and available as accessory with the commercial code HA0T-H

Detailed descriptions of the available accessories can be found in the components list on page 2/3.40.08 (Multipole version) e 2/3.40.09 (Fieldbus version)

CODING EXAMPLE OF SINGLE VALVE (Spare part)

H	P	1	V	-	M

H	SERIES	
P	TYPE: P = pneumatic	
1	SIZE: 1 = 10.5 2 = 21	
V	TYPE OF ACCESSORY: V = Solenoid valve	
M	SOLENOID VALVE: M = 5/2 Monostable B = 5/2 Bistable V = 5/3 Centres Closed C = 2 x 3/2 NC A = 2 x 3/2 NO G = 1 x 3/2 NC + 1 x 3/2 NO E = 2 x 2/2 NC F = 2 x 2/2 NO I = 1 x 2/2 NC + 1 x 2/2 NO L = free position	SOLENOID VALVE + REGULATOR + SUBBASE N = 5/2 Monostable P = 5/2 Bistable Q = 5/3 Centres Closed R = 2 x 3/2 NC S = 2 x 3/2 NO T = 1 x 3/2 NC + 1 x 3/2 NO U = 2 x 2/2 NC X = 2 x 2/2 NO Y = 1 x 2/2 NC + 1 x 2/2 NO

Detailed descriptions of the available accessories can be found in the components list on page 2/3.40.08 (Multipole version) e 2/3.40.09 (Fieldbus version)

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CODING EXAMPLE OF SUBBASES - Accessories

H	A	1	R	-	A

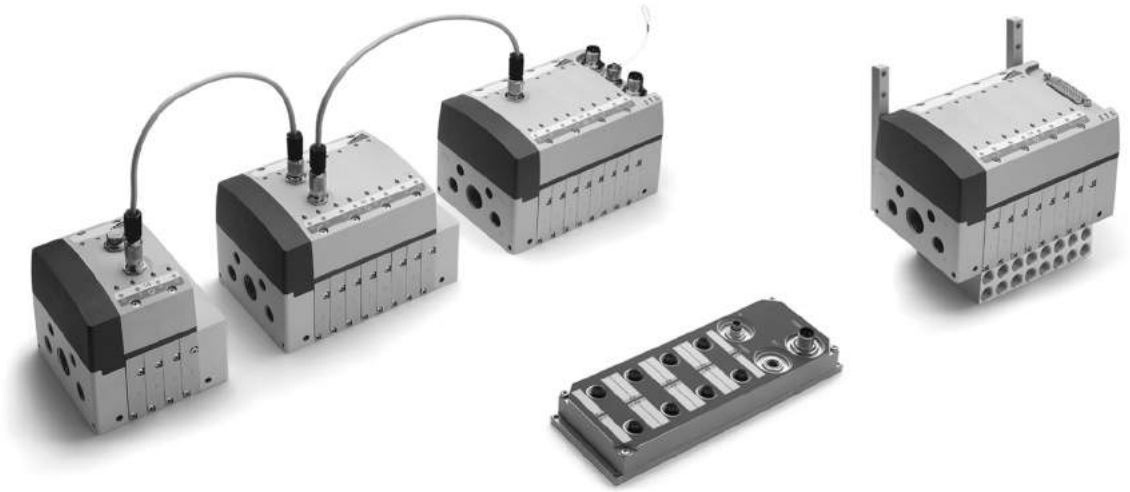
H	SERIES
A	TYPE: A = accessories
1	SIZE: 0 = for X-Y-K-T-U-V-Z 1 = 10.5 2 = 21
S	TYPE OF ACCESSORY: R = subbase for multipole connection G = seal W = subbase without electronic board (option valid only for position 2a. See the components list on page 2/3.40.08 - Multipole version - and 2/3.40.09 - Fieldbus version)
A	SUBBASE: A = through - M7 threads AZ = through - M7 threads, monostable D = channel 1, 3, 5 closed - M7 threads DZ = channel 1, 3, 5 closed - M7 threads, monostable G = channel 3, 5 closed - M7 threads GZ = channel 3, 5 closed - M7 threads, monostable Q = through - G1/8 threads X = supplementary supply and exhaust Y = supplementary supply and exhaust with integrated silencer W = supply from the exhausts K = separation of electrical supply and supplementary pneumatic supply
	SEAL: T = diaphragm seal for the closure of channels 1, 3, 5 U = diaphragm seal for the closure of channel 1 V = diaphragm seal for the closure of channels 3, 5 P = through

Detailed descriptions of the available accessories can be found in the components list on page 2/3.40.08 (Multipole version) e 2/3.40.09 (Fieldbus version)
NOTE: subbases are always supplied without connection fittings.

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Series Y valve islands, Individual, Multipole and Fieldbus

Valve Island with integrated Pneumatics and Electronics. Available versions: Individual, Multipole, Fieldbus (Profibus-DP, DeviceNet, CANopen). Valve functions: 2x2/2; 2x3/2; 5/2; 5/3 CC



Series Y solenoid valves are based on particular solutions regarding both the pneumatic, as well as the electronic part.

Sub-bases and valve bodies are integrated in a sole “module”.
Different kinds of cartridges and spools are inserted in the module to configure the desired valve function.
The valve island can be expanded and modified and its maintenance is easy and safe.
Several solutions are possible for the electric connection through the use of modules for digital electric inputs.

Manuals, instruction sheets and configuration files are available on the site http://catalogue.camozzi.com or by means of the QR code indicated on the lable of the product.

- Pneumatic modularity: 2, 4, 6 and 8 valve positions
- Valve size: 12,5 mm
- Flow rate: 800 Nl/min

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

GENERAL AND ELECTRICAL DATA

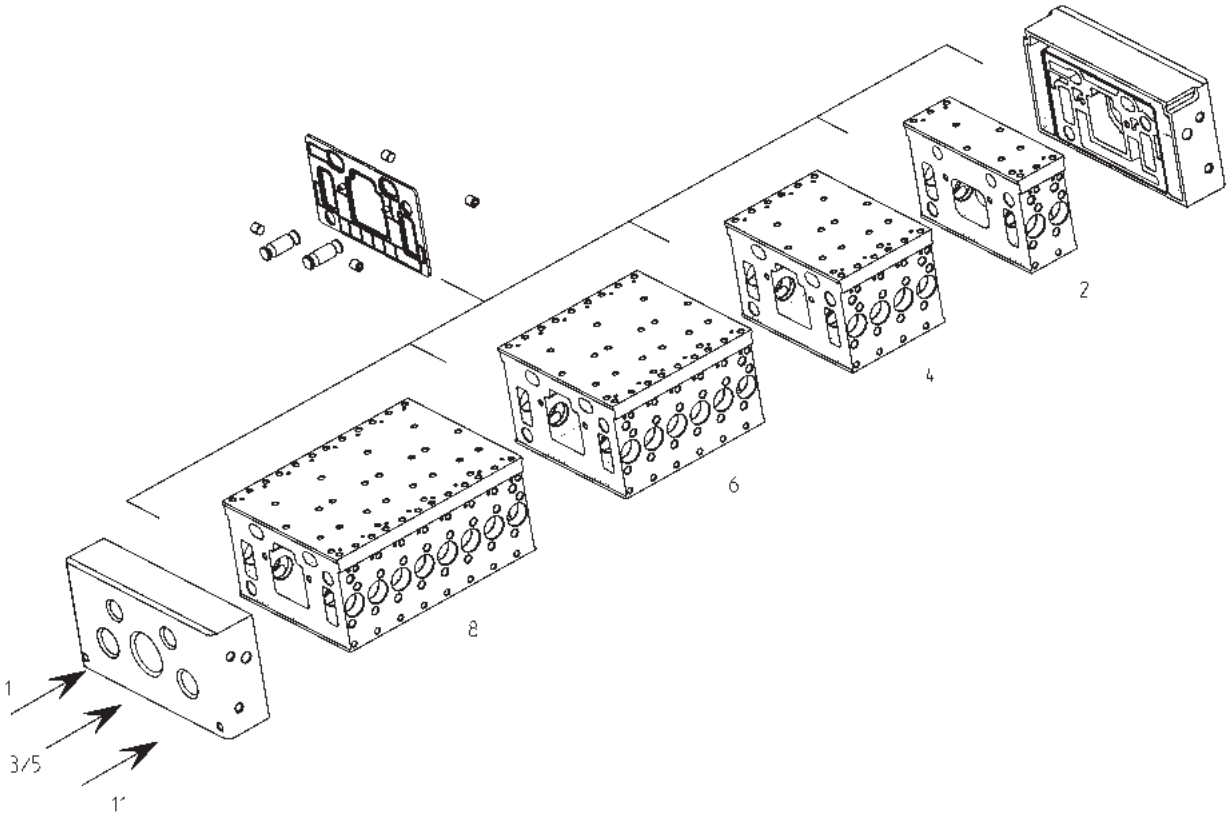
Enclosed in the package there is a label on which it is possible to write each individual coil number.

PNEUMATIC SECTION	
Valve construction	Spool with seals
Valve functions	5/2 monostable and bistable 5/3 CC 2 x 2/2 NC 2 x 2/2 NO 1 x 2/2 NC + 1 x 2/2 NO 2 x 3/2 NC 2 x 3/2 NO 1 x 3/2 NC + 1 x 3/2 NO
Materials	Aluminium spool brass cartridge seals in NBR end covers and covers in technopolymer
Connections	Outlets 2 and 4: G1/8 Inlets 1 and 11: G1/4 Pilot ports: 12/14 and respective exhaust 82/84 G1/8 Exhausts 3/5: G1/2
Temperature	0 ÷ + 50°C
Air specifications	Filtered compressed air, non lubricated, class 3.4.3 according to ISO 8573.1 standard. If lubrication is necessary, please use only oils with maximum viscosity of 32 Cst and the version with external servo-pilot supply. The servo-pilot supply air quality class must be 3.4.3 according to ISO 8573.1 standard.
Dimensions/size	12.5 mm
Working pressure	-0.9 ÷ 10 bar (with external servo pilot supply)
Pilot pressure	3 ÷ 7 bar
Flow rate	800 Nl/min
INLETS SECTION	
Voltage	24 V ±10%
Max current	350 mA
Operating temperature	0°C ÷ +50°C
Relative humidity	30-90% +25°C 30-50% +50°C
Conform with standards	EN 61131-2 EN 61000-6-2 EN 61000-6-4
Protection class	IP65
Max. number of connected inlets	48
Max. number of connected Inlet Modules	3
Max. distance between init. mod. and last input or expansion mod.	50 m
Max. cable length between sensor and input module	30 m
ELECTRICAL SECTION	
Voltage	24V ±10%
Max. absorption	1300mA continuous 1600 mA latch
Operating temperature	0°C ÷ +50°C
Continuous current	ED 100%
Protection class	IP50 Individual version IP65 Multipole version PNP IP65 Fieldbus versions
Baud rate	Profibus-Dp 12 Mbit/s EN 50170 DeviceNet 500 Kbit/s EN 50235 CAN open 500 Kbit/s EN 50235
Maximum number of nodes	Profibus-Dp 32/127 DeviceNet 64 CAN open 127
Maximum number of expansions per node	15
Max. length of internal Fieldbus	50 m
Relative humidity	30-90% +25°C 30-50% +50°C
Conform with standards	EN 61326-1 EN 61010-1
Max. number of solenoids connected/activated at the same time	32

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HOW TO COMPOSE THE VALVE ISLAND (EXAMPLE)

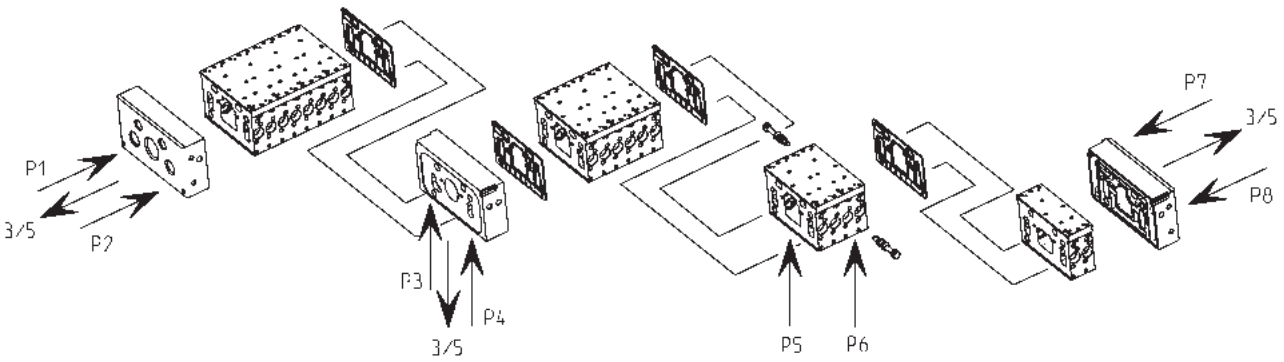
- one or more pneumatic modules with either 2, 4, 6 or 8 valve positions incorporating the sub-base with two separated channels for supply and exhaust, and the seat for the valves. It is possible to join the different modules together with pins and fixing screws, thus increasing the number of valve positions;
- two terminal plates (right and left) on which it is possible to connect pressure inlets and exhausts;
- seals among the various elements;
- cartridges and spools which reproduce the different valve functions (further information on the following pages)
- one or more covers which integrate electronics and pilots distributing signals to valves (further information on the following pages)



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Plate for supplementary supply and exhaust

The two independent supplies allow the same valve to have different pressure values on outlets 2 and 4.
In this way a higher pressure can be used for the working operations and a lower pressure for the repositioning of the actuators, reducing the costs for generating compressed air.
The modularity of 2, 4, 6 or 8 valve positions allows, through the specific seals, to subdivide the island in pressure/exhaust zones without loosing valve positions. Functions W or X can be used to supply the intermediate pressure zones of an island.
To avoid any possible problem during exhaust, the exhaust itself has been increased and it passes through on both sides.



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Air specifications - filtering elements

To guarantee a proper air quality and to not compromise the functioning of the valves, we advise to adopt filtering elements according to class 3 of table DIN ISO 8573-1.



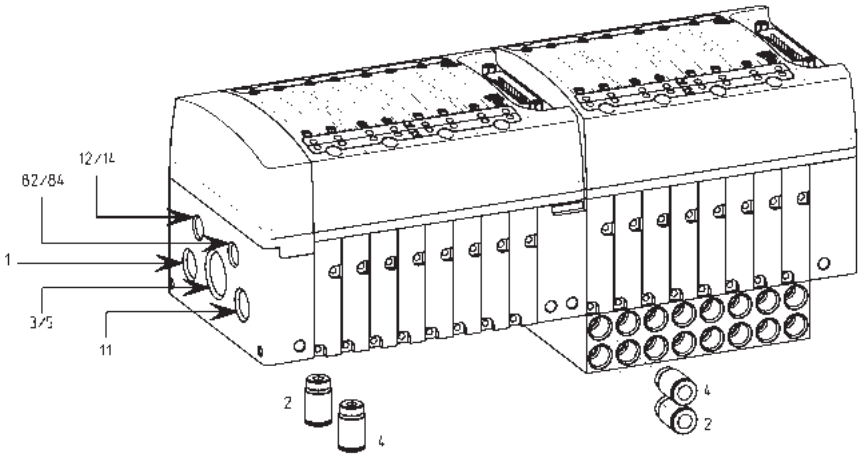


Filter models:
MC104-F10
MC238-F10
MC202-F10
N108-F10
N104-F10

AIR QUALITY CLASS ACCORDING TO STANDARD DIN ISO 8573-1			
Class	Solid bodies Max. dimension of the particles	Water contents dew-point	Oil quantity max. concentration mg/m³
1	0,1 µ	-70°C	0,01
2	1 µ	-40°C	0,1
3	5 µ	-20°C	1
4	15 µ	+3°C	5
5	40 µ	+7°C	25

Connection by means of terminal plates

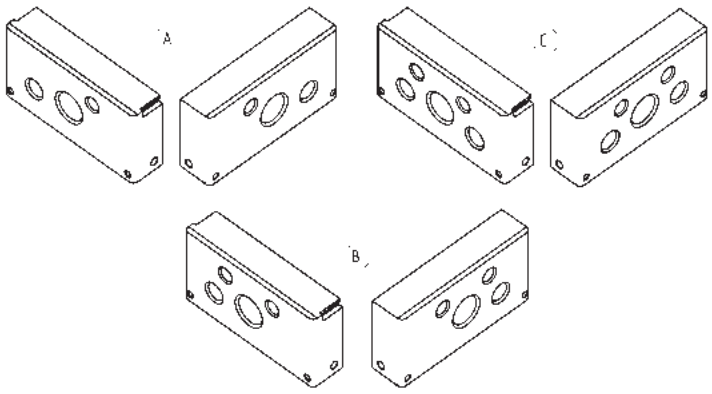
The connection to the compressed air source by means of terminal plates enables different types of connection. The fitting Mod. 6512 * (for dimensions see section 4/1.05) can be connected to inlets 2 and 4.



* It is possible to connect the following fittings, supplied with O-ring:
6512-4-1/8-M
6512-6-1/8-M
6512-8-1/8-M

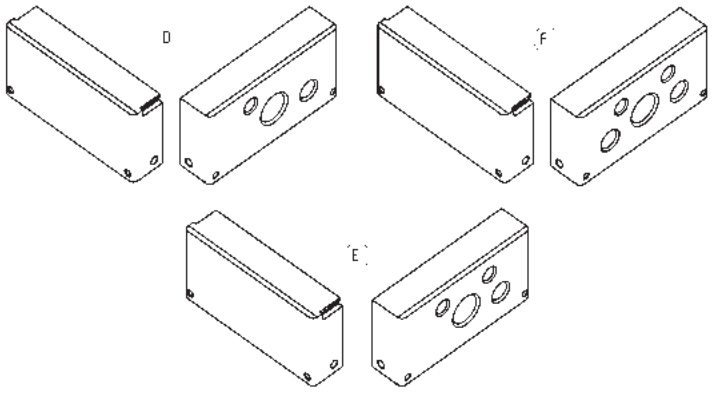
Supply (1-11)	Exhaust (3/5)	Servo-pilot supply (12/14)	Servo-pilot exhaust (82/84)	Inlets (2-4)
G1/4	G1/2	G1/8	G1/8	G1/8

TERMINAL PLATES - pneumatic connections from left and right



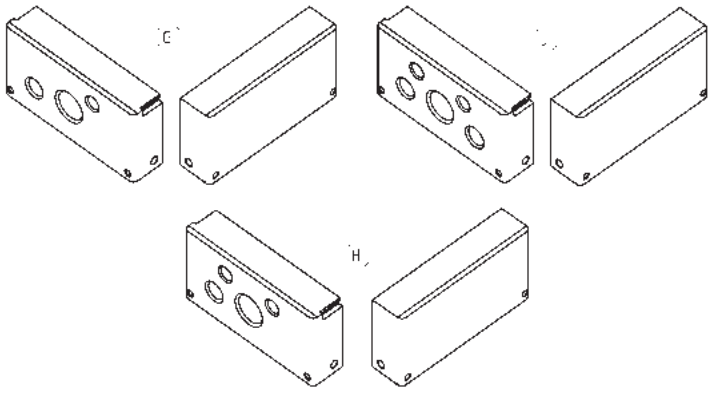
Terminal Plates		
Code	Common connections	Separated connections
A	1 - 11 12/14	82/84 3/5
B	1 - 11	12/14 82/84 3/5
C	-	1 - 11 12/14 82/84 3/5

TERMINAL PLATES - pneumatic connections from the right



Terminal Plates		
Code	Common connections	Separated connections
D	1 - 11 12/14	82/84 3/5
E	1 - 11	12/14 82/84 3/5
F	-	1 - 11 12/14 82/84 3/5

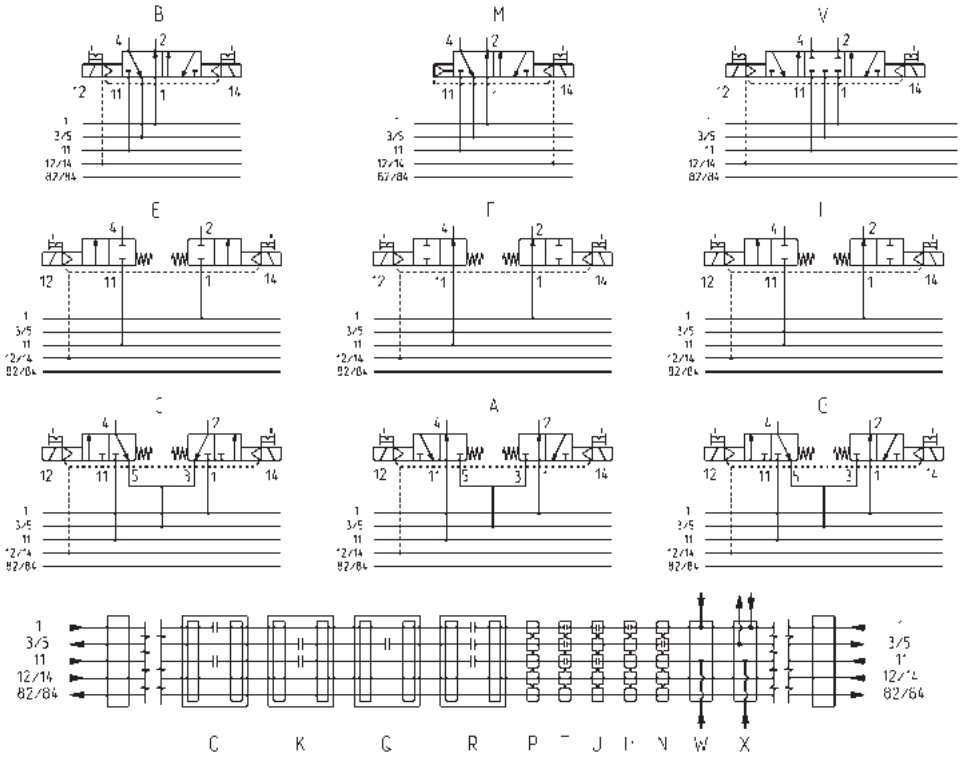
TERMINAL PLATES - pneumatic connections from the left



Terminal Plates		
Code	Common connections	Separated connections
G	1 - 11 12/14	82/84 3/5
H	1 - 11	12/14 82/84 3/5
J	-	1 - 11 12/14 82/84 3/5

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Available functions

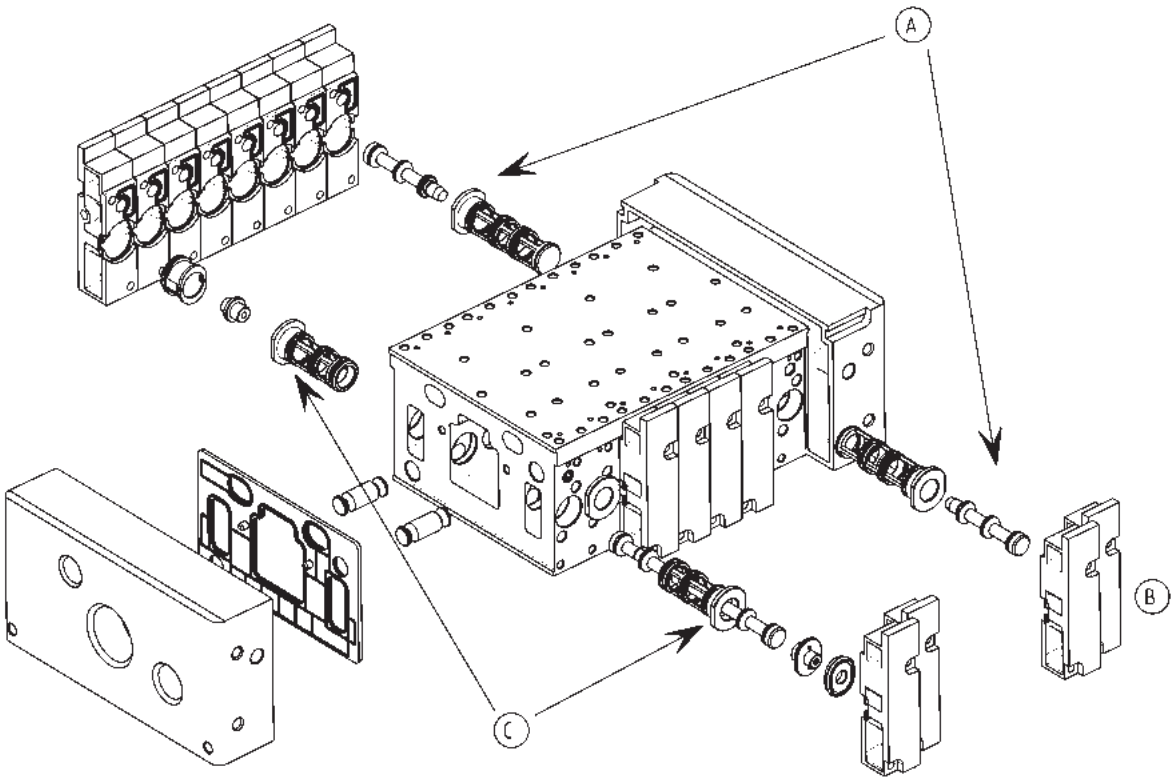


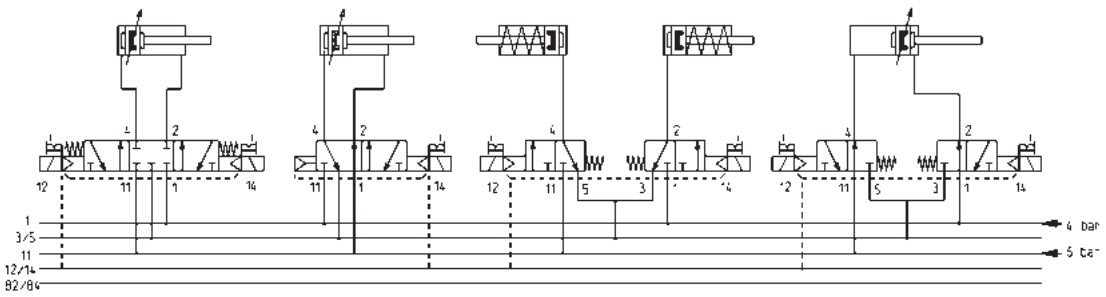
Code	Function	Actuation/return	Working pressure (bar)	Pilot pressure (bar)	Symbol
M	5/2 Monostable	solenoid/pneumatic spring	-0,9 ÷ 10	3 ÷ 7	M
B	5/2 Bistable	solenoid/solenoid	-0,9 ÷ 10	3 ÷ 7	B
V	5/3 Centres Closed	solenoid/solenoid	-0,9 ÷ 10	3 ÷ 7	V
I	2 x 2/2 (1 NO + 1 NC)	solenoid/solenoid	-0,9 ÷ 10	3 ÷ 7	I
E	2 x 2/2 (NC)	solenoid/solenoid	-0,9 ÷ 10	3 ÷ 7	E
F	2 x 2/2 (NO)	solenoid/solenoid	-0,9 ÷ 10	3 ÷ 7	F
G	2 x 3/2 (1 NO + 1 NC)	solenoid/solenoid	-0,9 ÷ 10	3 ÷ 7	G
C	2 x 3/2 (NC)	solenoid/solenoid	-0,9 ÷ 10	3 ÷ 7	C
A	2 x 3/2 (NO)	solenoid/solenoid	-0,9 ÷ 10	3 ÷ 7	A
L	Free position	-	-	-	L
W	Additional supply from 2 and 4	-	-	-	W
T	Diaphragm seal (module's separation)	-	-	-	T
P	Through seal (module's separation)	-	-	-	P
T/	Diaphragm seal (separation of both modules and covers)	-	-	-	T
P/	Through seal (separation of both modules and covers)	-	-	-	P
U	Diaphragm seal 3/5 open	-	-	-	U
H	Diaphragm seal 3/5 - 11 open	-	-	-	H
N	Diaphragm seal 1 - 11 open	-	-	-	N
U/	Diaphragm seal 3/5 open (separation of both modules and covers)	-	-	-	U
K	Expansion module, 2 positions with 3/5 - 11 closed	-	-	-	K
R	Expansion module, 2 positions with 3/5 - 1 - 11 closed	-	-	-	R
O	Expansion module, 2 positions with 1- 11 closed	-	-	-	O
Q	Expansion module, 2 positions with 3 - 5 closed	-	-	-	Q
X	Module for additional supply	-	-	-	X

Cartridges and spools for the creation of valve functions

The different valve functions are obtained by inserting the cartridges and spools in the seats of the pneumatic module. These seats have been designed at right angles with respect to the terminal plates.
The shape of cartridges and spools depends on the valve function required.
Example:
(A) = Cartridge and spool for a 3/2-way function
(B) = End cover
(C) = Cartridge and spool for a 5/2-way function

The modification or maintenance of a valve position is obtained removing the end cover “B” and replacing both the cartridge and the spool. During modification/maintenance, the tubing for the pneumatic connection can stay connected to the island, thus simplifying and optimising the whole operation.



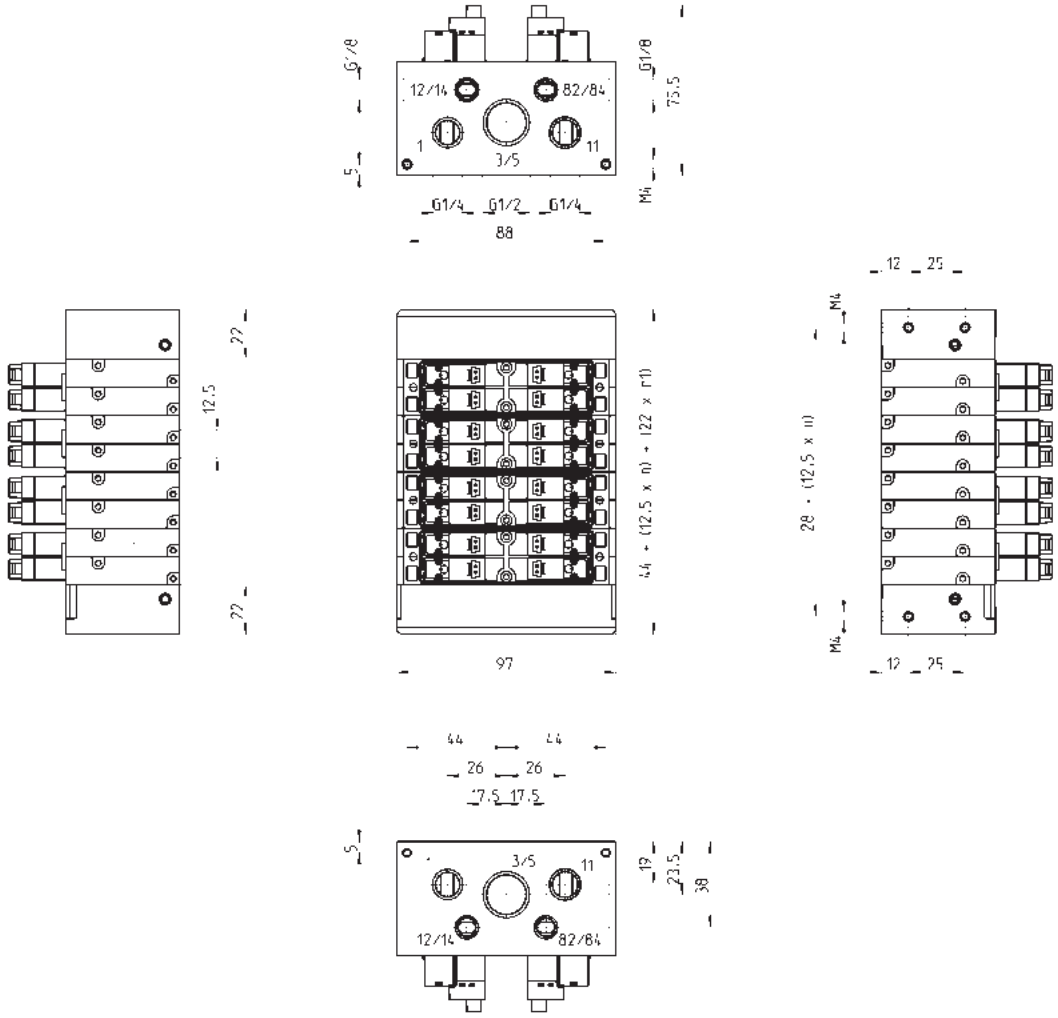


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Individual version - dimensions

n = number of valves
n1 = number of supplementary power supply modules (cod. X)





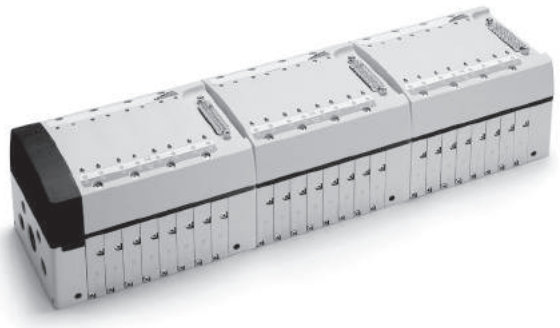
Covers

The Multipole and Fieldbus versions use covers for the pilot valves, which guarantee the IP65 protection class as well as the mechanical protection of internal parts.
The covers combine:
- manual override in the monostable and bistable functions. A simple pressure is enough to obtain a monostable function, whereas the bistable function is obtained coupling a rotation.
- LEDs for the voltage signalling on the coil
- diagnostic LEDs on Fieldbus versions
- ports for the electrical connectors
- integrated electronic boards
- connection interface with the pilot valves
- outlet protection against overvoltage, reversed polarity and short circuit
- connections realized on printed circuit boards



Covers - Multipole version

The Multipole cover is available in three sizes and allows the connection to valve islands with 4, 6 or 8 valve positions. Every position can be freely equipped with either monostable or bistable solenoid.
It is possible to join two or more valve islands placing a plate for intermediate supply, type “X”, under every Sub-D plug.
Pneumatic modules can be composed of 2, 4, 6 or 8 valve positions and separated by various seals.
A module for additional supply type “X” or a function “W” must be always inserted between two seals separating channels 1 and 11.

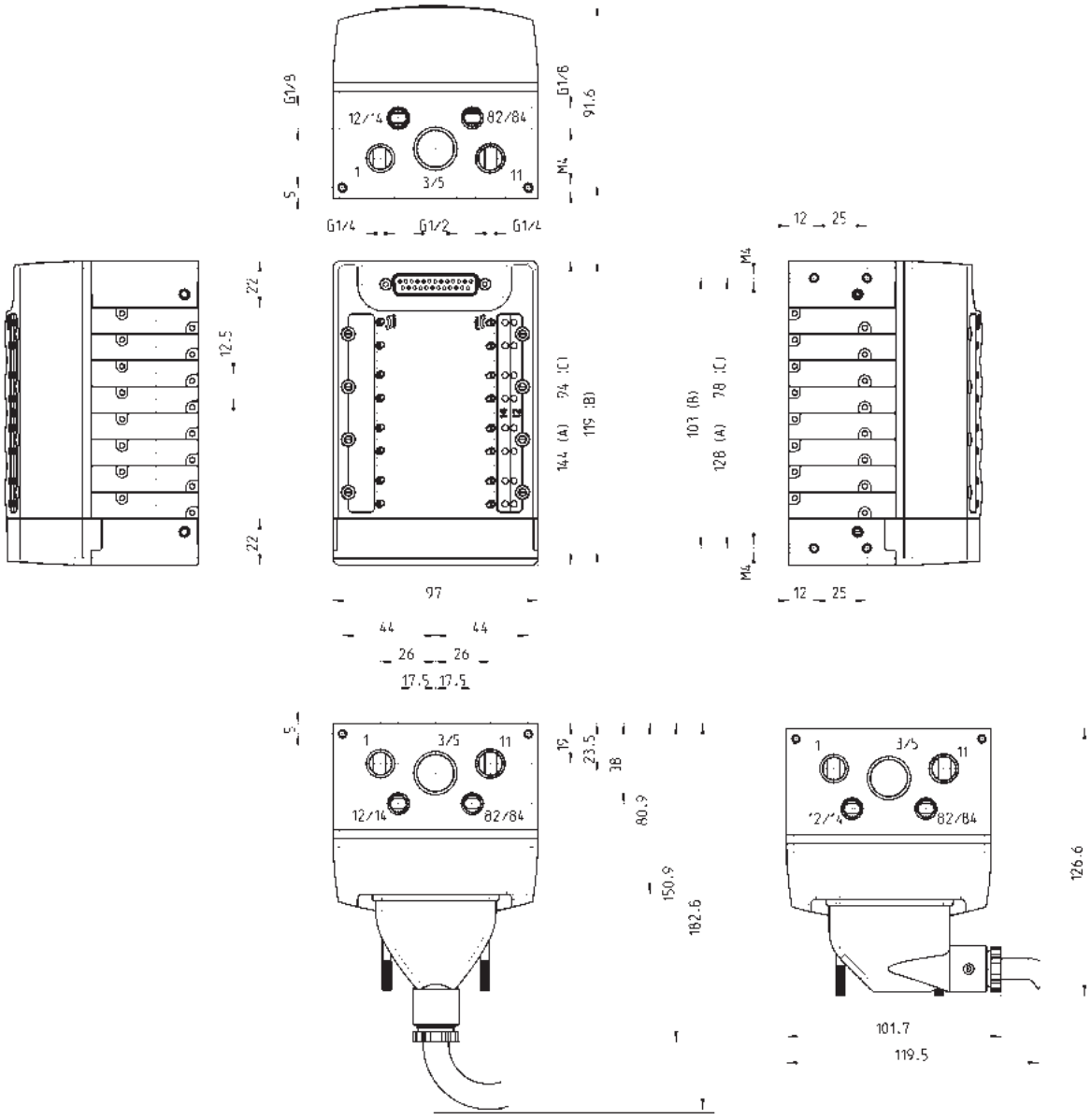


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Multipole version - dimensions

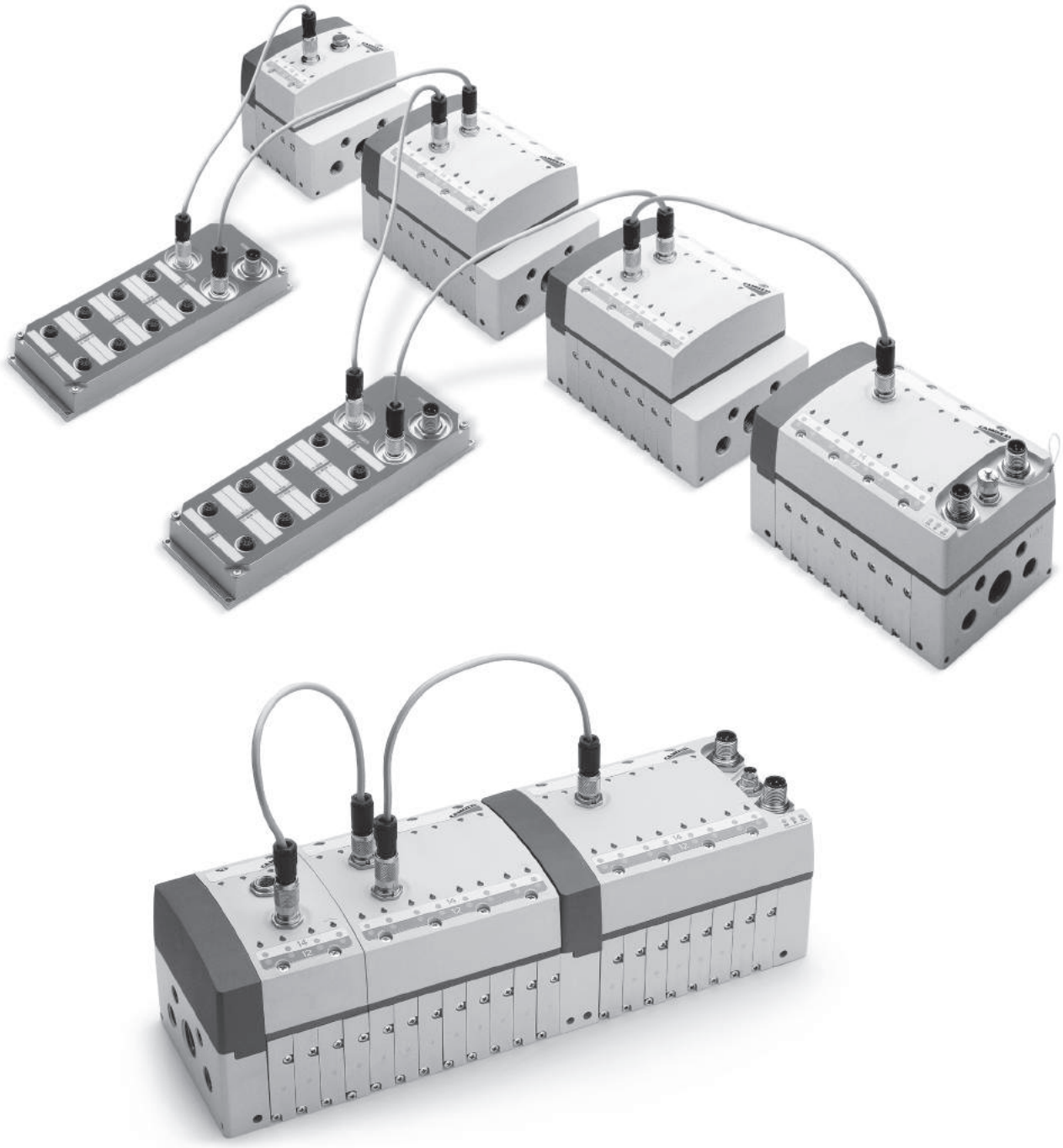
A = 8 positions
B = 6 positions
C = 4 positions





Covers - Fieldbus version

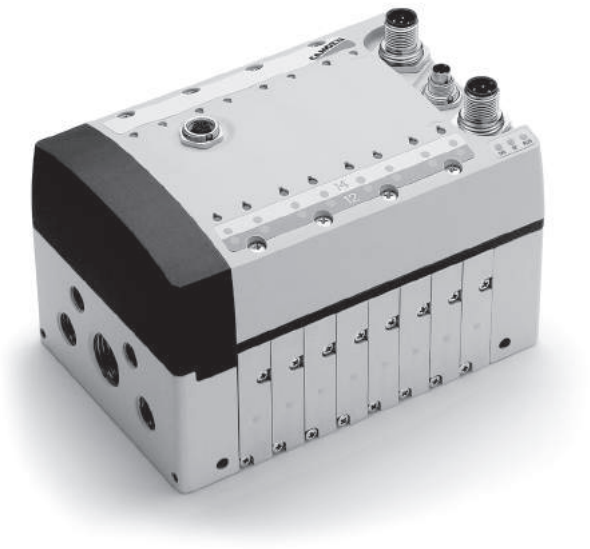
This version allows the direct connection to Profibus-Dp, DeviceNet, CANOpen. The main feature of this version is a starting module called “Initial module” to which the subfieldbus is connected for the management of the expansion modules. The Initial module can arrange up to 32 solenoids (outputs) and 48 inlets. To optimize the electronic part, a proper function allows the remoting of unused outlets on the expansion modules. It is thus possible to pilot 32 solenoids on 32 valve positions without loosing any output signal.
Advantages:
- cost reduction thanks to a reduced number of initial modules that can be replaced by expansion modules;
- simplified code as the type of subbase is the same for bistable or monostable solenoid valves;
- saving of electrical signals that are not consumed by free positions and/or diaphragm seals;
- reduced dimensions, simplified connections and optimization of installation costs thanks to the covers modular structure which allows several islands to be joined together.



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Fieldbus Initial Module - characteristics

The initial module has always 8 positions.
It is only the initial module to which the Fieldbus and electrical supply (24V DC) is connected.
The coils addressing can be sequential or customized by a specific configuration software that can be downloaded from our website http://catalogue.camozzi.com/Downloads, as well as the configuration file.
Pneumatic modules, available with 2, 4, 6, or 8 valve positions, can be separated by proper seals and allow the creation of different pressure/exhaust zones.



Fieldbus Expansion Module - characteristics

Versions available:
2 valve positions
4 valve positions
8 valve positions

The expansion modules:
- communicate among themselves and with the initial module through the Cam.I.Net subfieldbus.
- can be easily added to enlarge the valve island, thus avoiding the use and costs of free positions;
- can be positioned up to 50 metres from initial module and subdivided into up to 15 groups.

The particular construction of the islands allows the in-line mounting of all the Expansion modules.

Pneumatic modules, available with 2, 4, 6, or 8 valve positions, can be separated by proper seals and allow the creation of different pressure/exhaust zones.



Electrical digital inputs module ME-1600-DL* - Characteristics

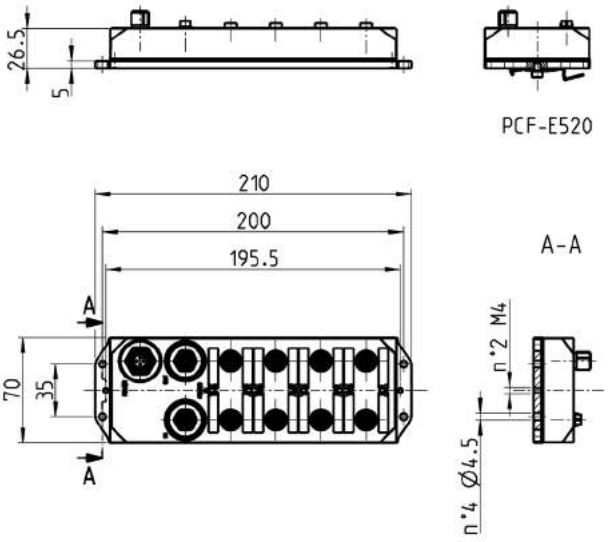
It allows the connection of 16 electrical input signals via 8 M12 DUO 5 poles connections. It is thus possible to connect 2 inputs for each connection.
The input module can be positioned at any point of the Cam.I.Net. sub-fieldbus.
3 input modules at most can be connected to the initial module, for a total of 48 inputs.

* not for the DeviceNet version



Digital Inputs Module ME-1600-DL* - dimensions

* not for the DeviceNet version

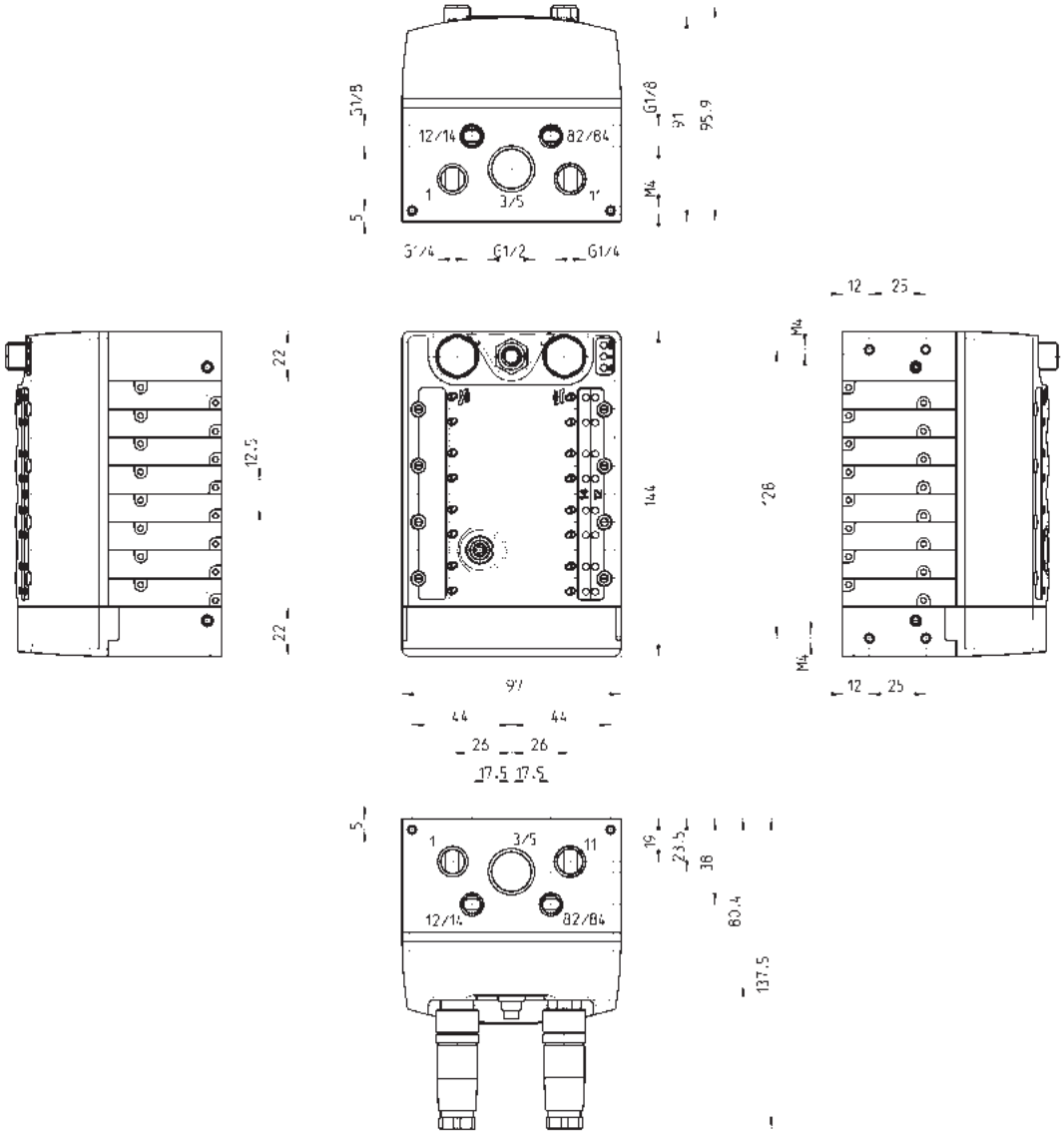


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Fieldbus Initial Module - dimensions

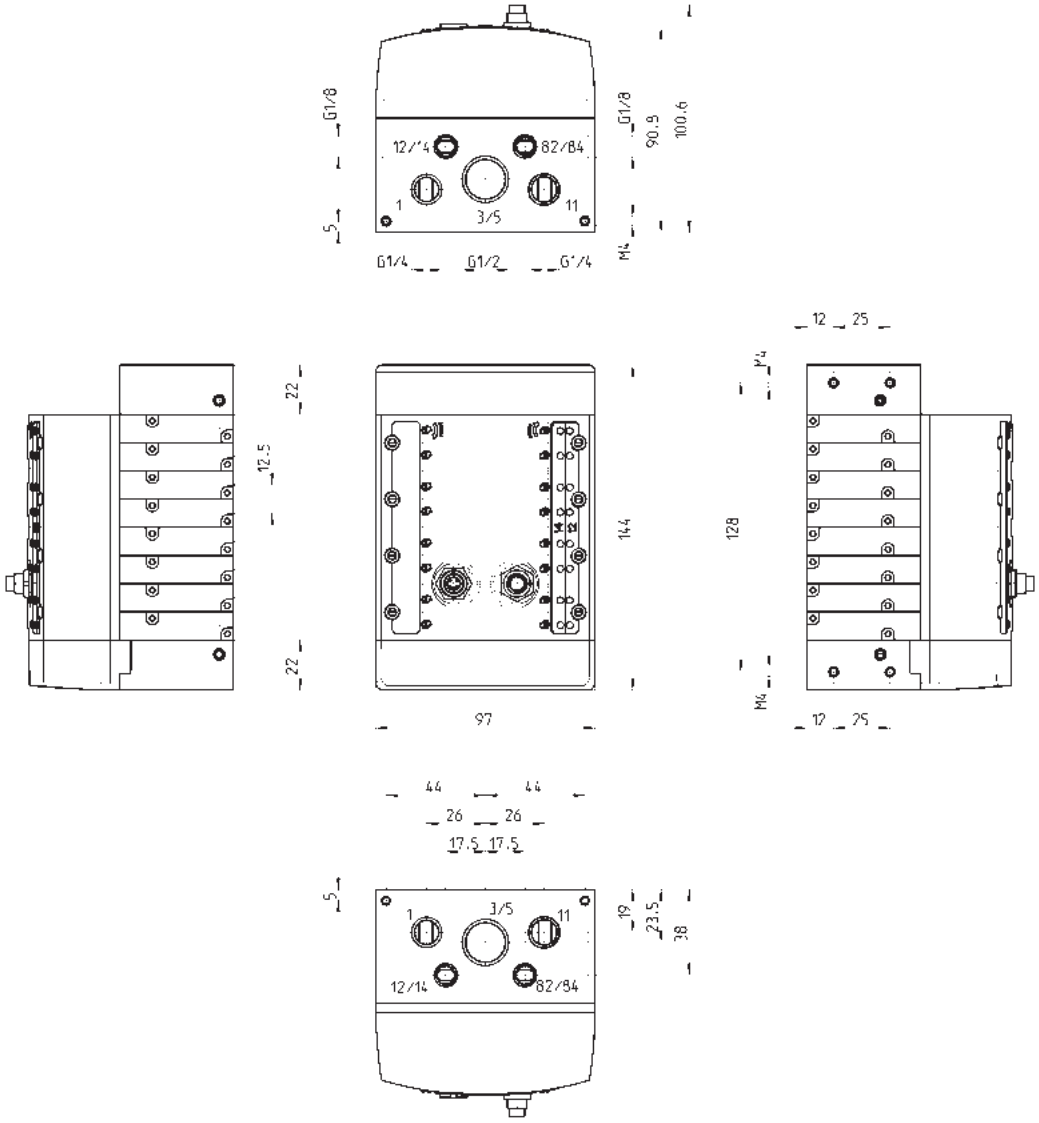
Dimensions don't change according to the different Fieldbus versions
(Profibus-DP, CANopen, DeviceNet).





Fieldbus Expansion Module with 8 valve positions - dimensions

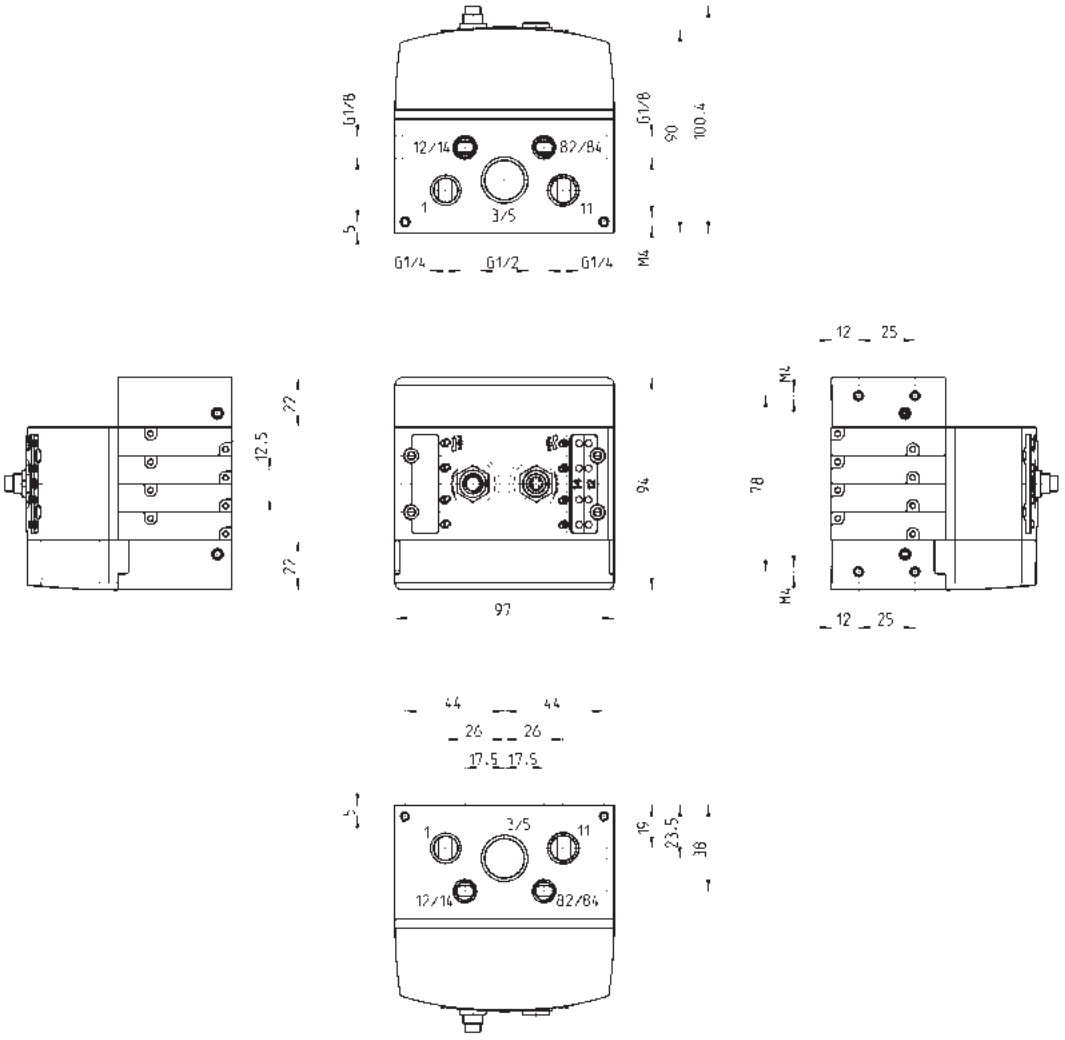




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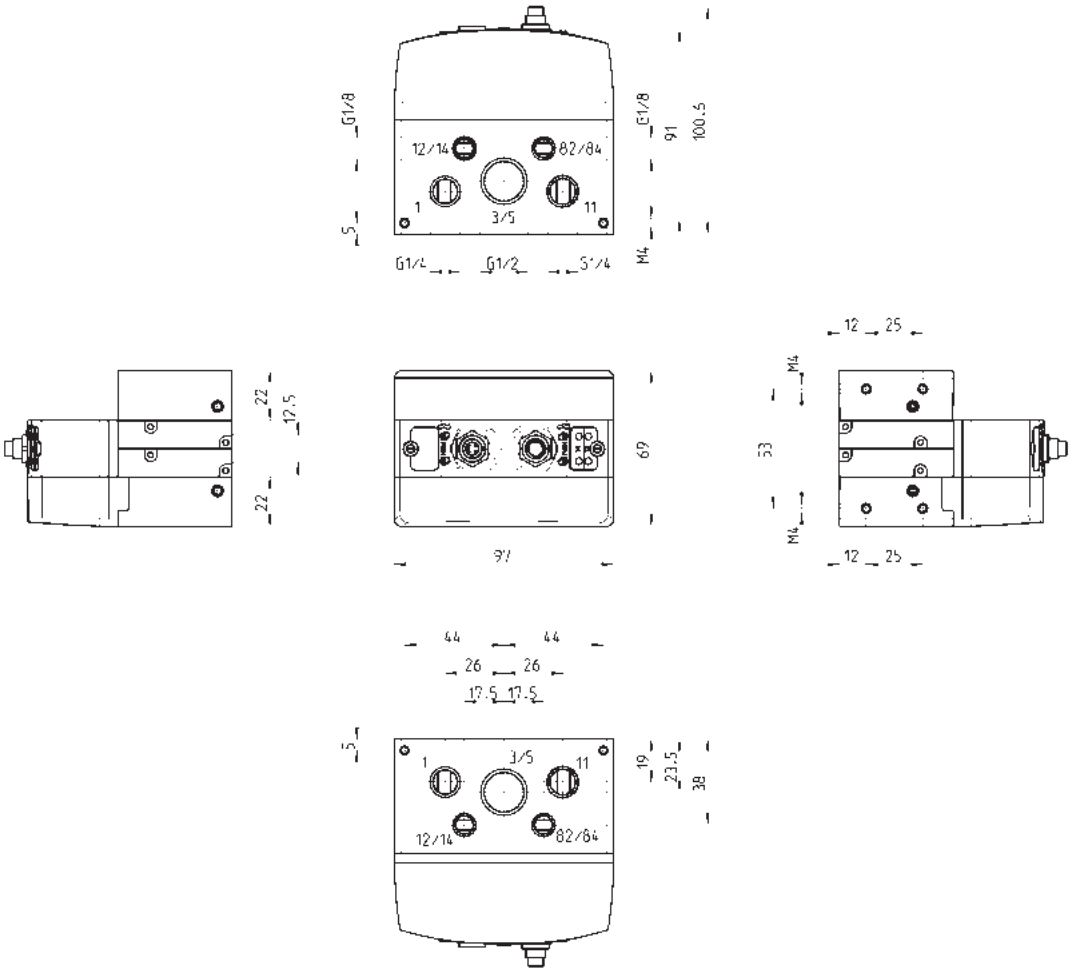
Fieldbus Expansion Module with 4 valve positions - dimensions





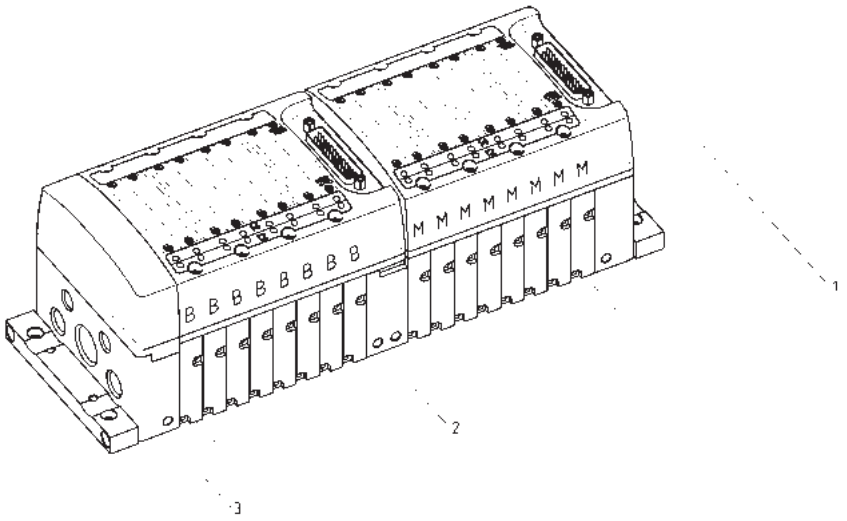
Fieldbus Expansion Module with 2 valve positions - dimensions

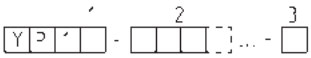




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CODING







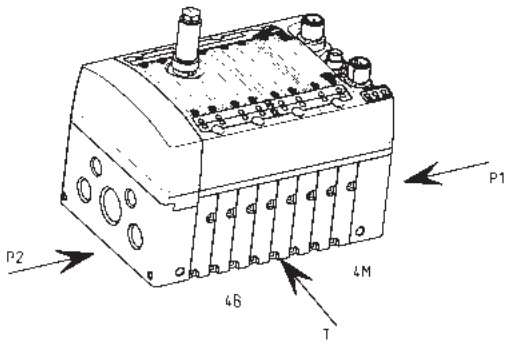
(1)	Code	Type of electrical connection	(2)	Code	Type of valve	(3)	Code	Type of terminal plates
	K	Individual			-			-
	M	Multipole (PNP)			-			-
	P	Profibus-Dp			-			-
	D	DeviceNet			-			-
	C	CANopen			-			-
	E	Expansion			-			-
		-		**M**	5/2 Monostable			-
		-		**B**	5/2 Bistable			-
		-		**V**	5/3 CC			-
		-		**I**	2 x 2/2 1 NO + 1 NC			-
		-		**E**	2 x 2/2 NC			-
		-		**F**	2 x 2/2 NO			-
		-		**G**	2 x 3/2 1 NO + 1 NC			-
		-		**C**	2 x 3/2 NC			-
		-		**A**	2 x 3/2 NO			-
		-		**L**	Free position			-
		-		**W**	Additional supply module from 2 and 4			-
		-		**T**	Diaphragm seal (modules separation)			-
		-		**P**	Through seal (modules separation)			-
		-		**T/**	Diaphragm seal (modules and cover separation)			-
		-		**P/**	Through seal (modules and cover separation)			-
		-		**U**	Diaphragm seal 3/5 opened			-
		-		**H**	Diaphragm seal 3/5-11 opened			-
		-		**N**	Diaphragm seal 1-11 opened			-
		-		**U/**	Diaphragm seal 3/5 opened, modules and cover separ.			-
		-		**K**	Module with 2 positions and 3/5-11 closed			-
		-		**R**	Module with 2 positions and 3/5-1-11 closed			-
		-		**O**	Module with 2 positions and 1-11 closed			-
				Q	Module with 2 positions and 3/5 closed			-
		-		**X**	Additional supply module			-
		-			-		**A**	in common 1/11 - 12/14 individual 82/84 - 3/5
		-			-		**B**	in common 1/11 individual 12/14 - 82/84 - 3/5
		-			-		**C**	individual 1/11 - 12/14 - 82/84 - 3/5
		-			-		**D**	in common 1/11 - 12/14 individual 82/84 - 3/5
		-			-		**E**	in common 1/11 individual 12/14 - 82/84 - 3/5
		-			-		**F**	individual 1/11 - 12/14 - 82/84 - 3/5
		-			-		**G**	in common 1/11 - 12/14 individual 82/84 - 3/5
		-			-		**H**	in common 1/11 individual 12/14 - 82/84 - 3/5
		-			-		**J**	individual 1/11 - 12/14 - 82/84 - 3/5
		-			-		**Z**	modules without terminal plate

Coding example 1

Valve island with Profibus-DP connection made of:
4x solenoid valves type M
1x diaphragm seal Mod. T
4x solenoid valves type B
Terminals with 1 and 11 in common on both sides and 12 /14 separated.

Code:
YP1P-4MT4B-B

For the code composition see the coding table on page 2/3.10.19

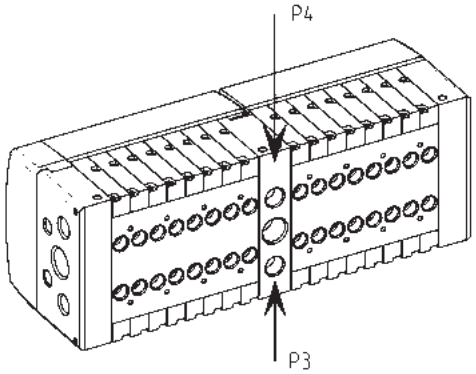


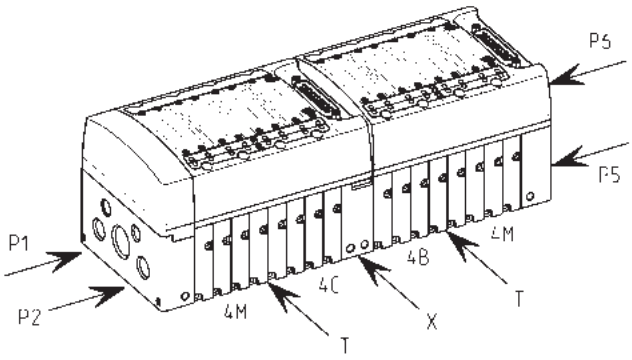
Coding example 2

Valve island with Multipole connection made of:
4x solenoid valves type M
1x diaphragm seal Mod. T for the separation of pressure zones
4x solenoid valves type B
1x through-out seal Mod. P
1x intermediate additional supply module Mod. X
1x through-out seal Mod. P
Terminals with individual connection
4x solenoid valves type C
1x diaphragm seal Mod. T for the separation of pressure zones
4x solenoid valves type M

Code:
YP1M-4MT4BPXP4CT4M-C

For the code composition see the coding table on page 2/3.10.19



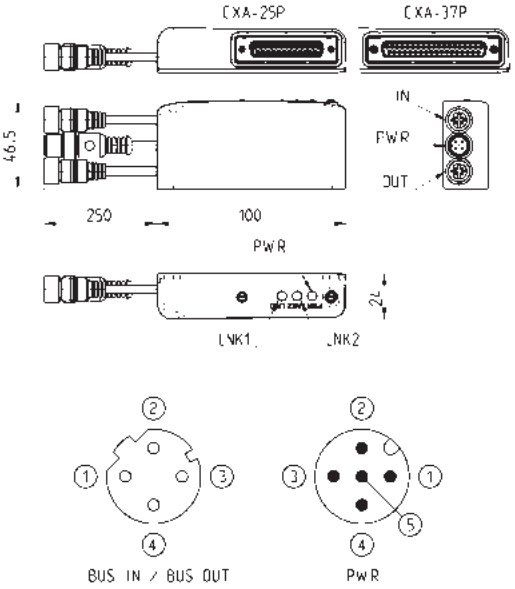


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Sub-D adaptor module 25 pin Mod. CXA-25P



It is an Expansion module of the subnet and can be connected to all valve islands with Sub-D 25 pin connection. It can manage up to a maximum of 24 Output. It has its own M12 A 4 pin male connection for the supply of the valves connected, distinguishing both logic supply and power supply and two M12 D 5 pin female connections for the Bus-IN and Bus-OUT of the subnet. The subnet can have a maximum length of maximum 100 metres. The power of a single Output is 3 W to 24 V DC. Thanks to the PWM technique it is possible to set a power reduction to only maintain operation.

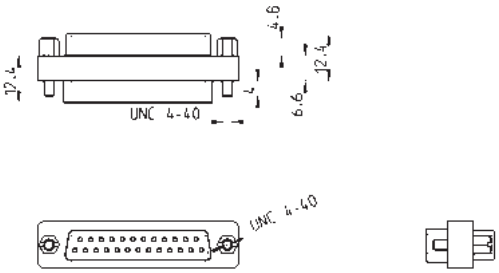


Led 1 = Yellow LNK1
Led 2 = Yellow LNK2
Led 3 = Green PWR,
supply present and OK

Mod.	Interface	Digital Outs	Bus-IN connection	Bus-OUT connection	PWR connection	Supply	Power for every Output
CXA-25P	Sub-D 25 pin	24	M12D 5 pin female	M12D 5 pin female	M12A 4 pin male	24 V DC	3 W

25M-25F Sub-D adaptor

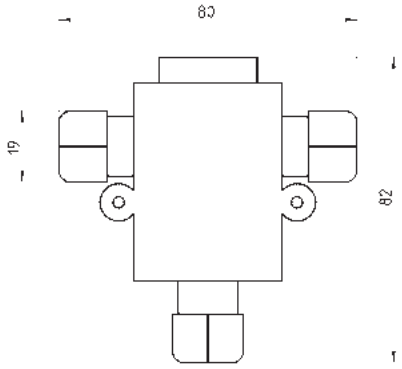




Mod.	description	type of connector	connection	cable length (m)
G2X-G2W	moulded adaptor	in line	Sub-D 25 pin female - Male	-

Profibus-DP data line tee

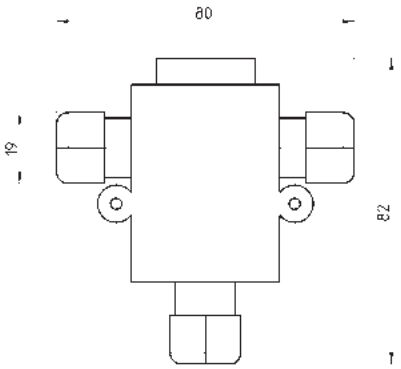




Mod.
CS-AA03EC

CANopen / DeviceNet data line tee



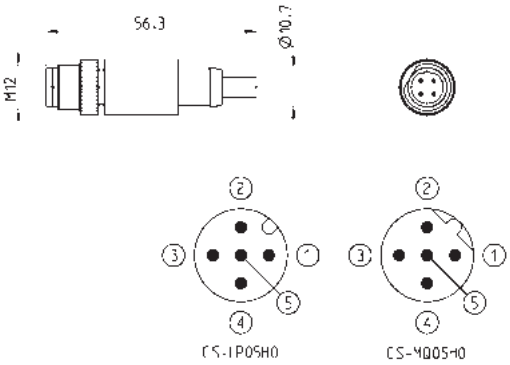


Mod.
CS-AA05EC

M12 male terminating resistor

For PROFIBUS, CANopen, DeviceNet

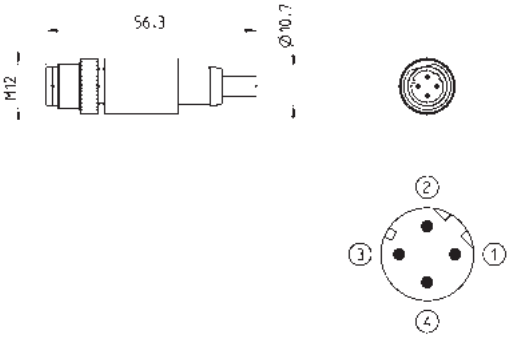




Mod.	description	type of connector	connection	Protocol
CS-MQ05H0	moulded terminating resistor	straight	M12 B 4 pin male	PROFIBUS
CS-LP05H0	moulded terminating resistor	straight	M12 A 5 pin male	CANOpen / DeviceNet

Series CX subnet terminating resistor



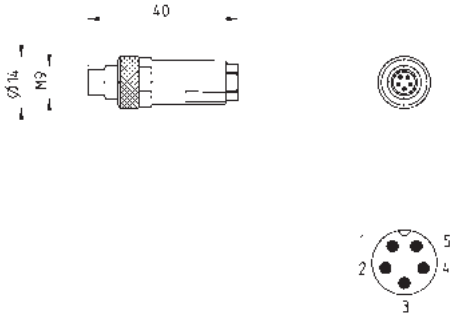


Mod.	description	type of connector	connection	Protocol
CS-SU04H0	moulded terminating resistor	straight	M12 D 4 pin	subnet

Terminal resistance Cam.I.Net

Connector with sub-serial terminal resistance



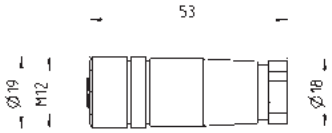


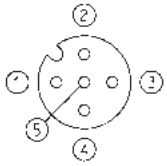
Mod.
CS-FP05H0

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Straight connector for power supply



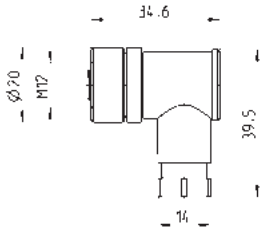


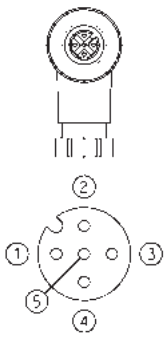


Mod.	description	type of connector	connection	cable length (m)
CS-LF04HB	for wiring	straight	M12 A 4 pin female	-

Angular connector for power supply



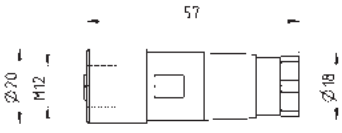


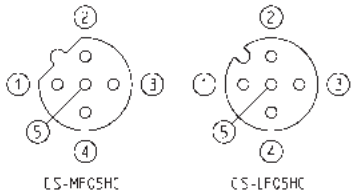


Mod.	description	type of connector	connection	cable length (m)
CS-LR04HB	for wiring	90°	M12 A 4 pin female	-

Straight female M12 connectors for Bus-IN



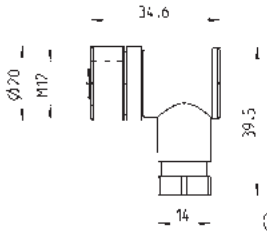


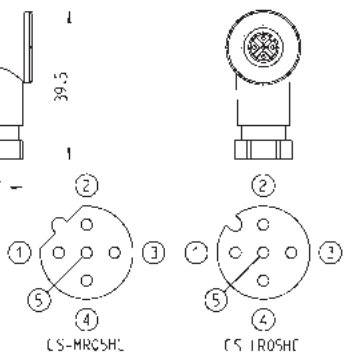


Mod.	description	type of connector	connection	Protocol
CS-LF05HC	for wiring	straight	M12 A 5 pin female	CANopen / DeviceNet
CS-MF05HC	for wiring	straight	M12 B 5 pin female	PROFIBUS

Angular 90° female M12 connectors for Bus-IN





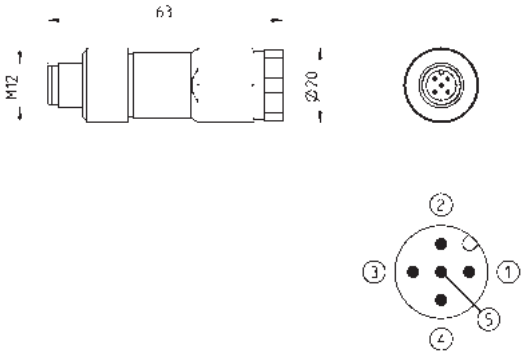


Mod.	description	type of connector	connection	Protocol
CS-LR05HC	for wiring	90°	M12 A 5 pin female	CANopen / DeviceNet
CS-MR05HC	for wiring	90°	M12 B 5 pin female	PROFIBUS

5 pin male straight M12 DUO connector

For the connection of the digital input modules.



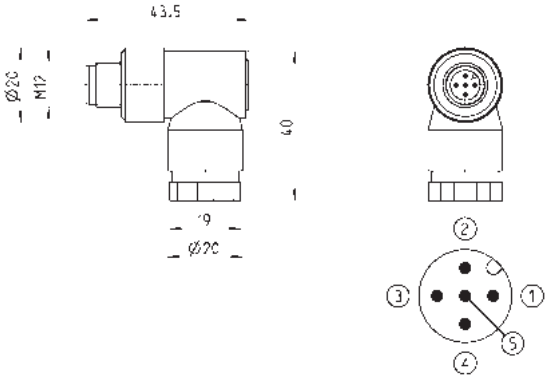


Mod.	description	type of connector	connection	cable length (m)
CS-LD05HF	for wiring	straight	M12 A 5 pin male	-

5 pin male angular M12 DUO connector

For the connection of the digital input modules.



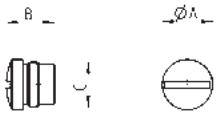


Mod.	description	type of connector	connection	cable length (m)
CS-LH05HF	for wiring	90°	M12 A 5 pin male	-

M8 and M12 connector cover caps

For digital and analog input/output modules and subnet

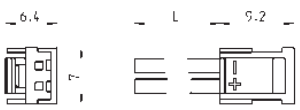




Mod.	A	B	C [Connection]
CS-LFTP	13.5	13	M12

Connector Mod. 121-8.. for Individual version





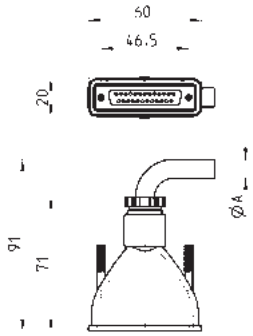
Mod.	description	colour	L = cable length (mm)	cable holding
121-803	crimped cable	black	300	crimping
121-806	crimped cable	black	600	crimping
121-810	crimped cable	black	1000	crimping
121-830	crimped cable	black	3000	crimping

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Straight Sub-D 25 pin female connector with axial cable

Protection class IP65



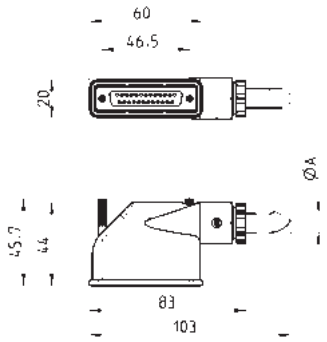


Mod.	⌀A	PIN	cable length (m)
G3X-3	7.7	16	3
G3X-5	7.7	16	5
G3X-10	7.7	16	10
G3X-15	7.7	16	15
G3X-20	7.7	16	20
G3X-25	7.7	16	25
G4X-3	9	25	3
G4X-5	9	25	5
G4X-10	9	25	10
G4X-15	9	25	15
G4X-20	9	25	20
G4X-25	9	25	25

Right angle Sub-D 25 pin female connector with axial cable

Protection class IP65





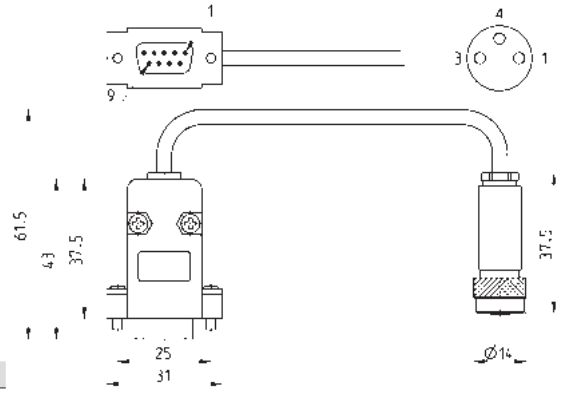
Mod.	⌀A	PIN	cable length (m)
G3X1-3	7.7	16	3
G3X1-5	7.7	16	5
G3X1-10	7.7	16	10
G3X1-15	7.7	16	15
G3X1-20	7.7	16	20
G3X1-25	7.7	16	25
G4X1-3	10	25	3
G4X1-5	10	25	5
G4X1-10	10	25	10
G4X1-15	10	25	15
G4X1-20	10	25	20
G4X1-25	10	25	25

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Programming cable



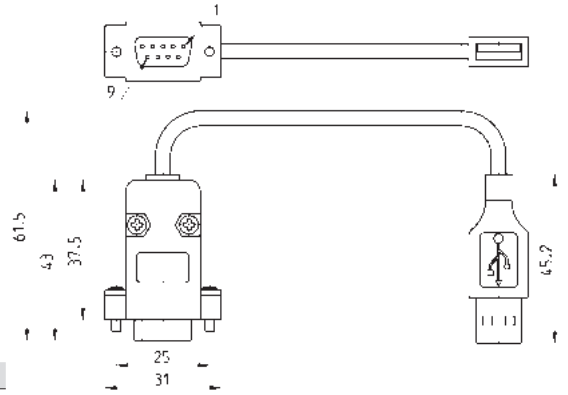
Manuals, configurator and configuration files are available on our website http://catalogue.camozzi.com in the section Downloads.



Mod.	cable length (mt)
CS-FZ03AD-C500	5

USB SERIAL converter for programming cable

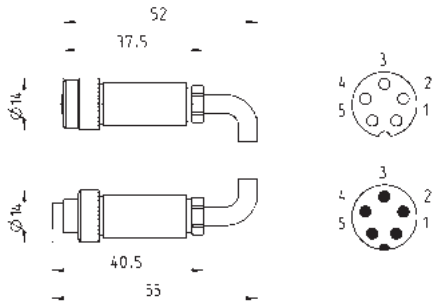




Mod.	cable length (m)
G8X3-G8W-1	1

Expansion cable





Mod.	cable length (mt)
CS-FW05HE-D025	0,25
CS-FW05HE-D100	1
CS-FW05HE-D250	2,5
CS-FW05HE-D500	5
CS-FW05HE-DA00	10

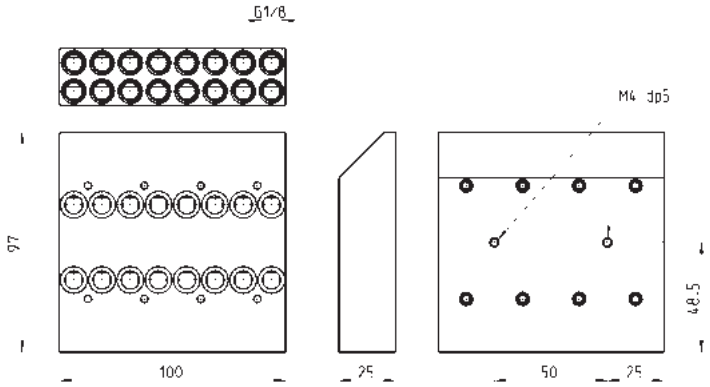
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Interface with 8 valve positions

Outlets 2 and 4 are located in the lower part of the module and can be oriented on end-covers side using this interface sub-base.



Supplied with:
1x interface 8 pos.
8x screws M3x25 UNI 5931
16x interface seals



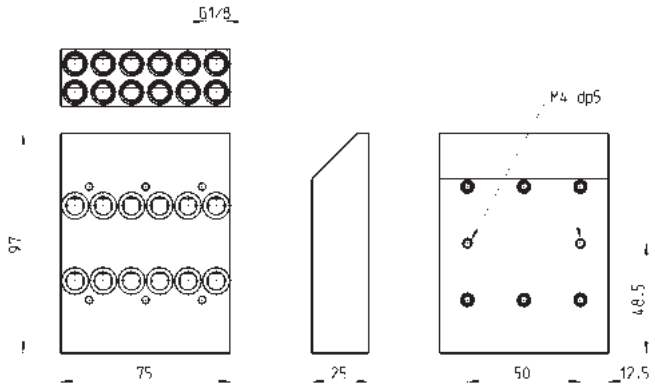
Mod.
YA1K-N8

Interface with 6 valve positions

Outlets 2 and 4 are located in the lower part of the module and can be oriented on end-covers side using this interface sub-base.



Supplied with:
1x interface 6 pos.
6x screws M3x25 UNI 5931
12x interface seals



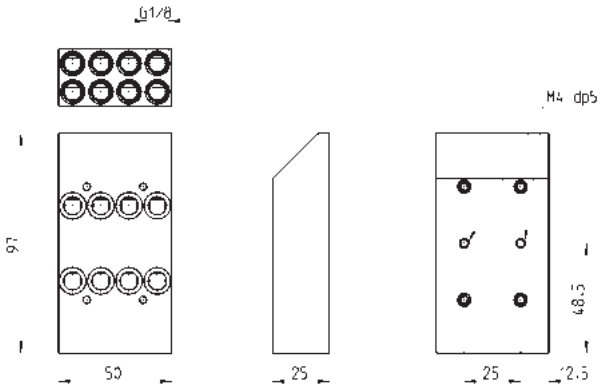
Mod.
YA1K-N6

Interface with 4 valve positions

Outlets 2 and 4 are located in the lower part of the module and can be oriented on end-covers side using this interface sub-base.



Supplied with:
1x interface 4 pos.
4x screws M3x25 UNI 5931
8x interface seals

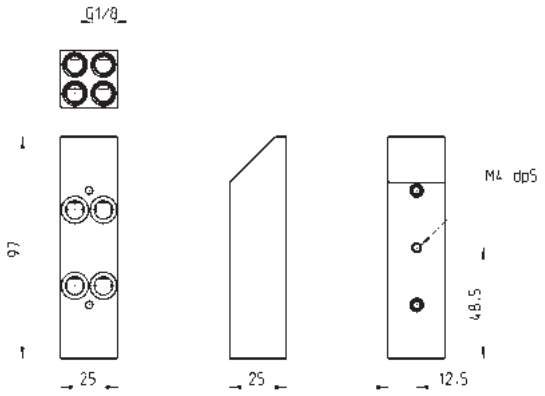


Mod.
YA1K-N4

Interface with 2 valve positions

Outlets 2 and 4 are located in the lower part of the module and can be oriented on end-covers side using this interface sub-base.

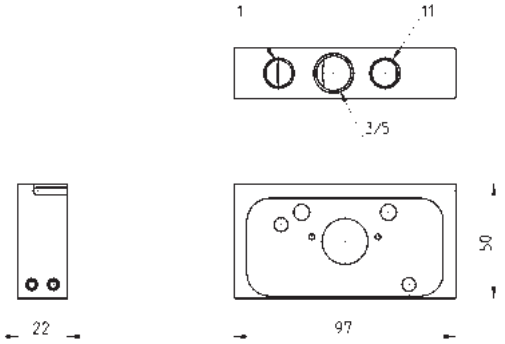




Supplied with:
1x interface 2 pos.
2x screws M3x25 UNI 5931
4x interface seals

Mod.
YA1K-N2

Intermediate plate for supplementary supplies and exhausts cod. X

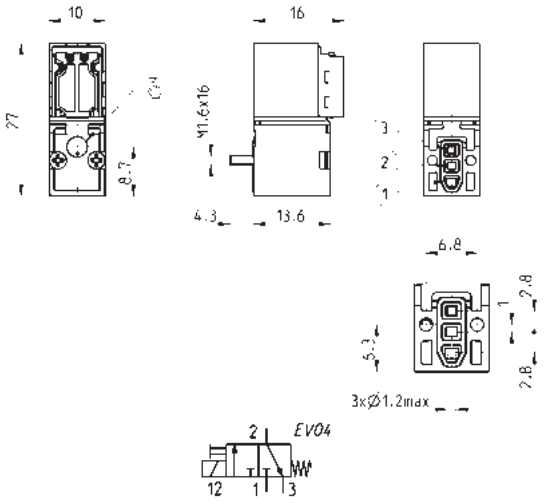


Mod.	1	3/5	11
YA1K-N1X/1	G1/4	G3/8	G1/4

Solenoid valve Mod. KN000-303-KY3N - spare part for Series Y



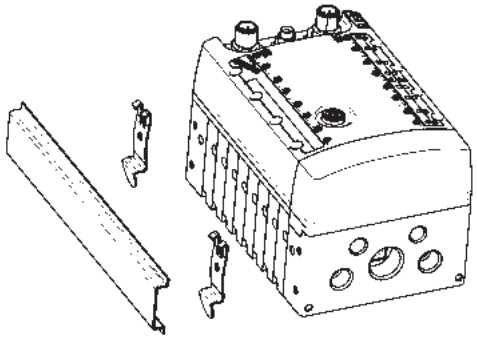
Supplied with:
1x interface seal
2x screws M1.6x16 UNI 10227

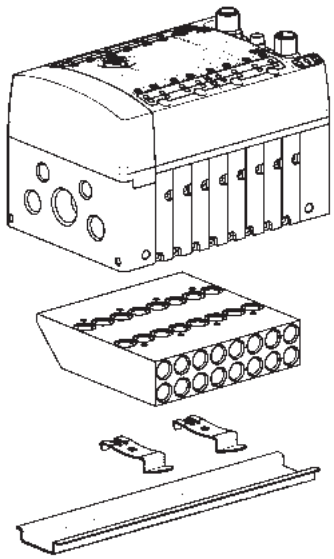


Mod.
KN000-303-KY3N

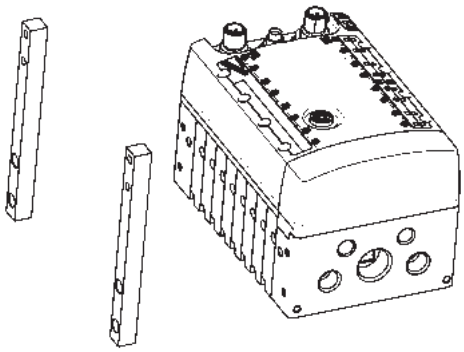
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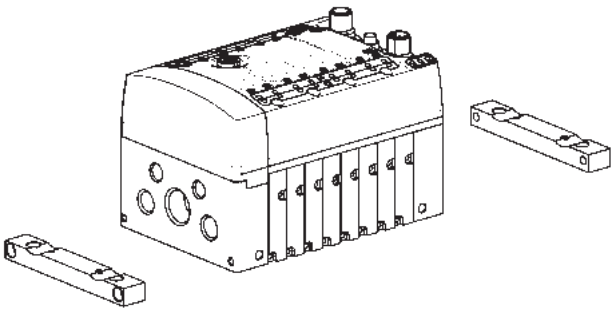
Mounting solutions on DIN EN 50022 rail





Wall mounting solutions

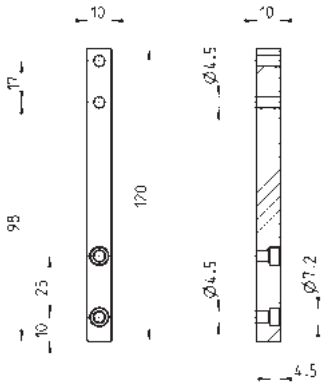




Vertical foot

Supplied with:
2x vertical feet
2x screws M4x10 UNI 5931



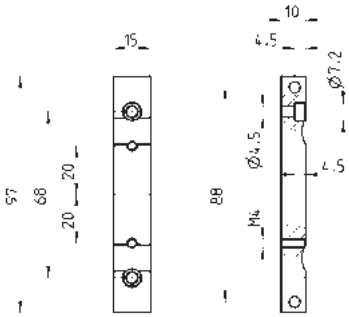


Mod.
YA1K-B2

Horizontal foot

Supplied with:
2x horizontal feet
2x screws M4x14 UNI 5931





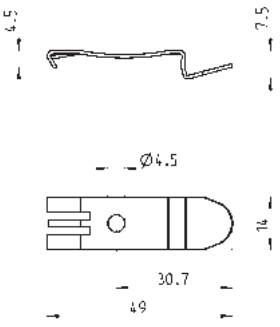
Mod.
YA1K-B1

Mounting brackets for DIN rail

DIN EN 50022 (7,5mm x 35mm - width 1)

Supplied with:
2x plates
2x screws M4x6 UNI 5931





DIMENSIONS
Mod.
PCF-E520

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Series CX multi-serial module

New

Interface with: PROFIBUS, CANopen, DeviceNet, EtherNet/IP, PROFINET, EtherCAT
Compatible with all Camozzi valve islands



- Maximum flexibility in use
- Mounting in hard application conditions
- Easily changeable
- Analog I/O modules
- Digital I/O modules
- Multi-communication protocols

The Series CX serial module, with IP65 protection class, interface with all major serial communication protocols as well as the new generation EtherCAT, EtherNet/IP and PROFINET protocols. The highly resistant aluminium structure makes it suitable for mountings even in hard application conditions.

This serial module can be coupled with electric input and output modules and is able to handle up to a maximum of 1024 I/O. Its interface modules enable direct connection to Series F, HN and 3 valve islands. Through a subnet the connection system can be extended to remote valve islands.

Manuals, instruction sheets and configuration files are available on the site http://catalogue.camozzi.com or by means of the QR code indicated on the lable of the product.

GENERAL DATA

Number of digital outputs	1024
Number of digital inputs	1024
Maximum input absorption	1,5 A
Maximum output absorption	3 A
Logical supply voltage *	24 V DC +/-10%
Power supply voltage *	24 V DC +/-10%
Protection	overload and reverse polarity
Protection class	IP65
Conform with standards	EN-61326-1 EN-61010-1
Operating temperature	0-50°C
Material	Aluminium

* the voltage range can change according to the range required by the external connected elements.

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CODING EXAMPLE

CX	05	-	2AC	-	QT2S

CX	SERIES
05	PROTOCOL: 01 = PROFIBUS 02 = DeviceNet 03 = CANopen 04 = EtherNet/IP 05 = EtherCAT 06 = PROFINET 99 = Expansion Module
2AC	INPUTS: 0 = no module nA = 8 digital inputs M8 nB = 4 digital inputs M8 nC = 2 IN 4-20 mA nD = 2 IN 0-10 V nE = 1 IN 4-20 mA + 1 IN 0-10 V
QT2S	OUTPUTS: 0 = no module nQ = 4 M12 duo digital outputs nR = 2 OUT 4-20 mA nT = 2 OUT 0-10 V nU = 1 OUT 4-20 mA + 1 OUT 0-10 V nV = 1 OUT 4-20 mA + 1 IN 0-10 V nZ = 1 OUT 4-20 mA + 1 IN 4-20 mA nK = 1 OUT 0-10 V + 1 IN 0-10 V nY = 1 OUT 0-10 V + 1 IN 4-20 mA nS = initial subnet module

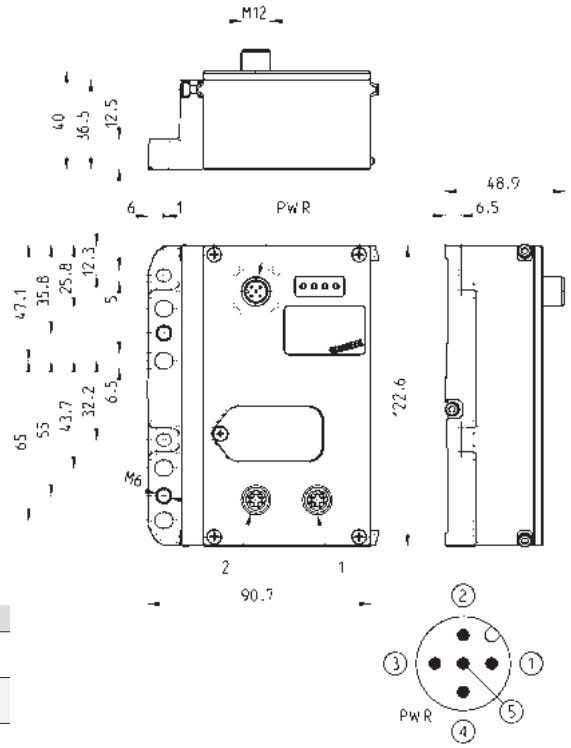
Fieldbus protocols - Technical data

Protocol	Max nr of nodes defined by the protocol	Communication speed defined by the protocol	Max number of I/O	LED 1 Yellow-Green	LED 2 Yellow-Green	LED 3 Red-Green	LED 4 Red
PROFIBUS	32/127	9,6 kBit/s per 1000 m 12 Mbit/s per < 100 m	1024 Input 1024 Output	absent	Green RUN	Red DIA	Red BF
CANopen	127	125 kBit/s 500 m 1 Mbit/s per 4 m	1024 Input 1024 Output	absent	Green IO	Red DIA	Red BF
DeviceNet	64	125 kBit/s 500 m 500 kbit/s per 100 m	1024 Input 1024 Output	absent	Green RUN	Red NS	Red MF
PROFINET	unlimited	100 Mbit/s per 100 m	1024 Input 1024 Output	Yellow LNK1	Yellow LNK2	Green PWR	Red DIA
EtherNet/IP	unlimited	100 Mbit/s per 100 m	1024 Input 1024 Output	Yellow LNK1	Yellow LNK2	Green PWR	Red DIA
EtherCAT	unlimited	100 Mbit/s per 100 m	1024 Input 1024 Output	Yellow LNK1	Yellow LNK2	Green PWR	Red DIA

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CPU Module - pin configuration



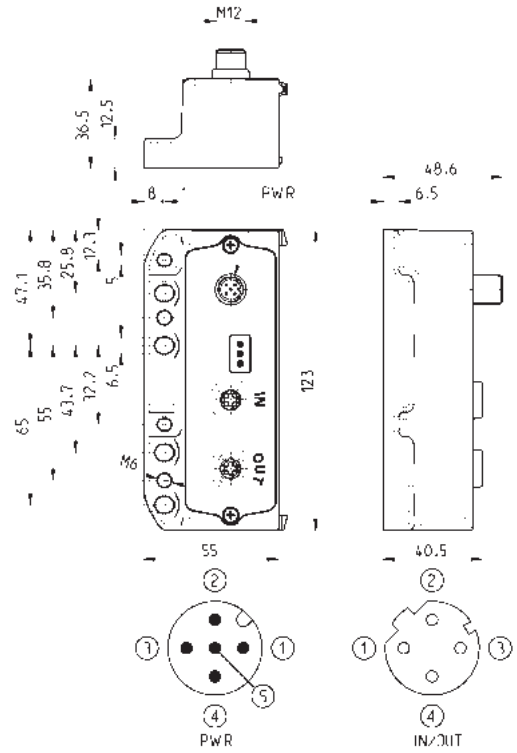


Mod.	Coding reference	Fieldbus Protocol	2	1	Bus-IN connector	Bus-OUT connector
CX01-0-0	01	PROFIBUS	Bus-IN	Bus-OUT	M12 B 5 pin male	M12 B 5 pin female
CX02-0-0	02	DeviceNet	Bus-IN	Bus-OUT	M12 A 5 pin male	M12 A 5 pin female
CX03-0-0	03	CANopen	Bus-IN	Bus-OUT	M12 A 5 pin male	M12 A 5 pin female
CX04-0-0	04	EtherNet/IP	Bus-OUT	Bus-IN	M12 D 5 pin female	M12 D 5 pin female
CX05-0-0	05	EtherCAT	Bus-OUT	Bus-IN	M12 D 5 pin female	M12 D 5 pin female
CX06-0-0	06	PROFINET	Bus-OUT	Bus-IN	M12 D 5 pin female	M12 D 5 pin female

Expansion Module - pin configuration

Note: to connect the Expansion with the subnet, we recommend the use of cables Mod. CS-SB04HB-... or CS-SC04HB-...

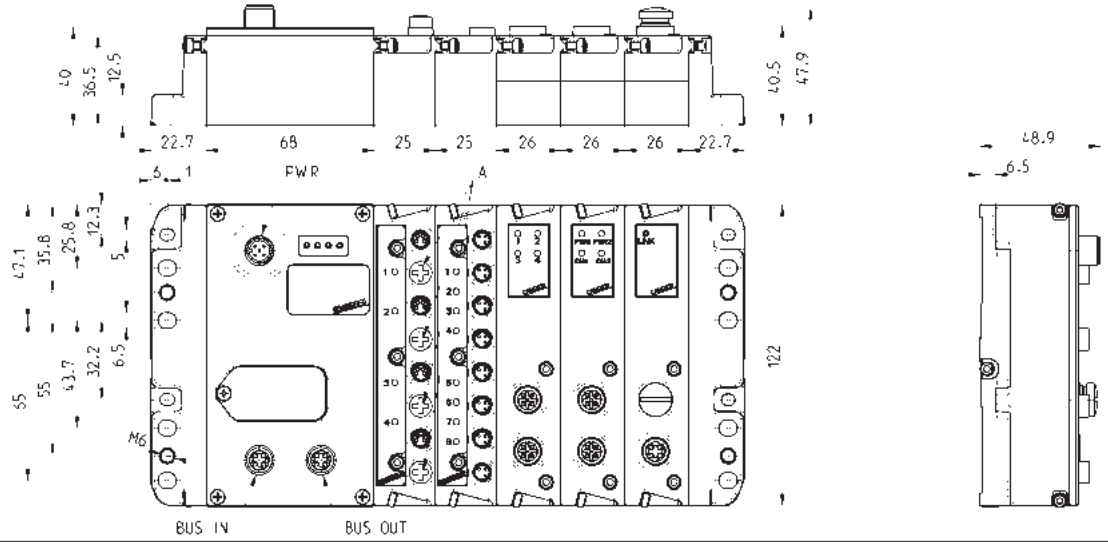




Mod.	Coding reference	Fieldbus Protocol	Bus-IN and Bus-OUT connector
CX99-0-0	99	Subnet expansion	M12 D 5 pin female

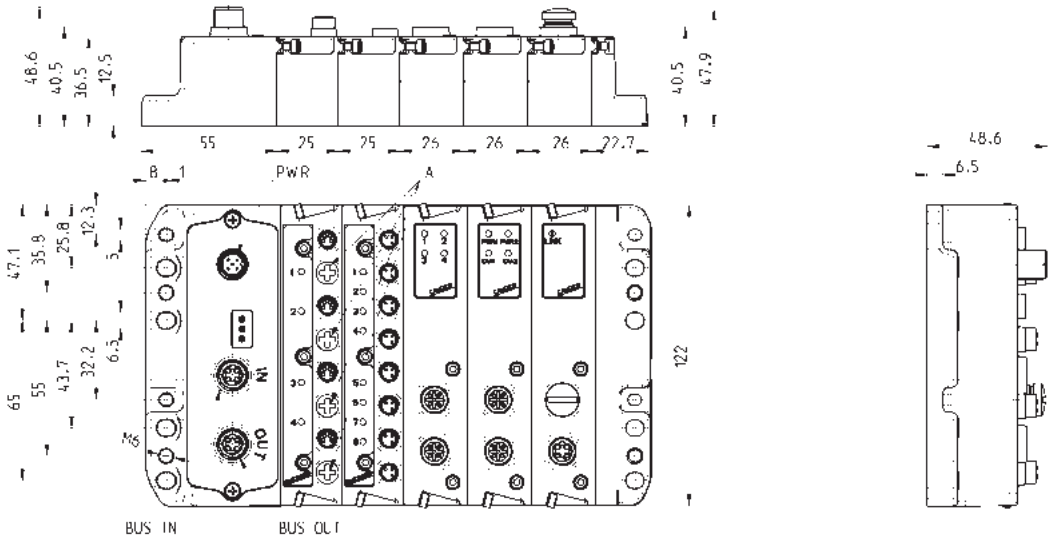
CPU Module - Characteristics

It is a slave node of the main PROFIBUS, CANopen, DeviceNet, EtherNet/IP, EtherCAT, PROFINET network and the Master module of the subnet. All modules provided can be connected only on the right side of the CPU module, like the digital/analog inputs/outputs, direct interface modules for the valve islands (Series F, HN and 3) and the initial module of the subnet.
It has its own M12 A 4 pin male connection to supply the modules connected, distinguishing both logic supply and power supply.
Two M12 connections for Bus-IN and Bus-OUT of the main network, which M12 connection will take over the relative specifications according to the choosen protocol.
The addressing is performed by means of the Rotary Switch for the protocols with this feature, while for Ethernet protocols addressing is performed by means of the protocol itself. Leds indicate the working state. A maximum number of 1024 inputs and 1024 outputs can be managed.



Expansion Module - Characteristics

At its right side, different modules can be connected like the digital/analog inputs/outputs, the direct interface modules for the valve islands (Series F, HN and 3) and the initial module of the subnet to re-amplify it or to create new branches. It has its own M12 A 4 pin male connection to supply the devices connected, distinguishing both logic supply and power supply. It has two M12 D 5 pin female connections for Bus-IN and Bus-OUT connection of the subnet. Leds indicate the working state.
The valve island equipped with Expansion Module can be used only in presence of a subnet.

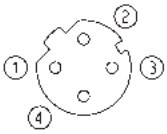


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Initial subnet module Mod. ME3-0000-SL

This module can be connected only in presence of a CPU or Expansion module and can be mixed with other either digital or analog Input and Output devices.
Every subnet can have an extension of maximum 100 metres, with a maximum of 8 interruptions. Up to maximum 5 initial modules can be connected, one aside another or along the subnet in order to create a tree structure, in series or both, in order to optimize the length of the cables and the topology of the subnet in different applications. The module is equipped with the Bus-OUT connection only of subnet type M12 D 5 pin female.





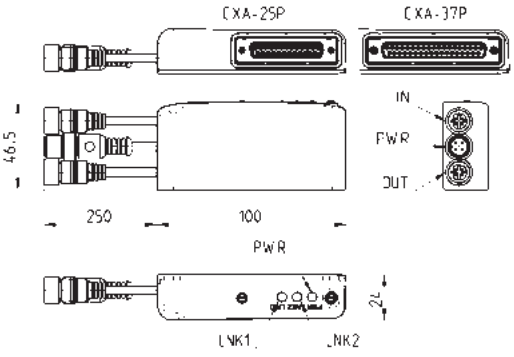
Mod.	Coding reference	Bus-OUT connection	Max number of modules for subnet	Max extension of subnet per module
ME3-0000-SL	S	M12D 5 pin female	5	100 m

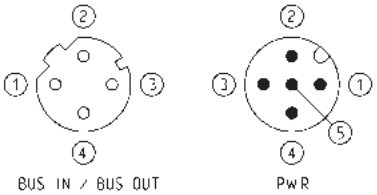
Sub-D adaptor module 25 and 37 pin Mod. CXA-25P and CXA-37P



Led 1 = Yellow LNK1
Led 2 = Yellow LNK2
Led 3 = Green PWR, supply present and OK

It is an Expansion module of the subnet and can be connected to all valve islands with Sub-D 25 pin connection (Series F, HN and 3) or 37 pin connection (Series HN). It has its own M12A 4 pin male connection for the supply of the valves connected, distinguishing both logic supply and power supply and two M12 D 5 pin female connections for the Bus-IN and Bus-OUT of the subnet. The subnet can have a length of maximum 100 metres. The 25 pin adaptor module manages a fixed number of 24 digital outputs, while the 37 pin adaptor module manages a fixed number of 32 digital outputs. In both cases, every output can provide a maximum of 3 W to 24 V DC, with PWM outputs for which it is possible to set the working frequency value.





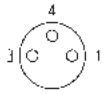
Mod.	Interface	Digital Outs	Bus-IN connection	Bus-OUT connection	PWR connection	Supply	Power for every Output
CXA-25P	Sub-D 25 pin	24	M12D 5 pin female	M12D 5 pin female	M12A 4 pin male	24 V DC	3 W
CXA-37P	Sub-D 37 pin	32	M12D 5 pin female	M12D 5 pin female	M12A 4 pin male	24 V DC	3 W

Digital input Module Mod. ME3-0800-DC and ME3-0400-DC

The Digital input module can be connected only in presence of a CPU or Expansion module and can be mixed with other either digital or analog Input and Output devices and with the initial module of the subnet.
It has 8 or 4 M8 3 pin connections.





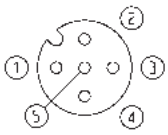


Mod.	Coding reference	Number of digital inputs	Connection	Number of connectors	Dimensions	Signalling	Sensor supply	Overvoltage protection	Absorption	Type of signal	Protection class	Operating temperature	Weight
ME3-0800-DC	A	8	M8 3 pin female	8	122 x 25 mm	1 yellow led for each input	24 V DC	400 mA for 4 sensors	10 mA	PNP	IP65	0 ÷ 50°C	110 g
ME3-0400-DC	B	4	M8 3 pin female	4	122 x 25 mm	1 yellow led for each input	24 V DC	400 mA for 4 sensors	10 mA	PNP	IP65	0 ÷ 50°C	110 g

Analog input/output module Mod. ME3-****-AL

The analog input/output module can be connected only in presence of a CPU or Expansion module and can be mixed with other either digital or analog Input and Output devices and with the initial module of the subnet. It has two M12 A 5 female pin connections and it can be configured as 2 analog Outputs or 2 Inputs or 1 Input + 1 Output. Every output or input occupies 12 digital I/O, in order to create a 12 bit digital/analogic conversion, for both inputs and outputs available in the versions from 0-10 V DC and from 4-20mA.
The refreshment time of the analog devices is submitted to the delay of the subnet and therefore to its topology. An average delay is less than 6 ms, to which the delay of the main network managed by the PLC has to be added.





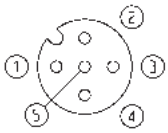
Mod.	Coding reference	Number of analog inputs	Number of analog outputs	Connection
ME3-C000-AL	C	2 inputs 4-20 mA	-	2x M12 A 5 pin female
ME3-D000-AL	D	2 inputs 0-10 V	-	2x M12 A 5 pin female
ME3-E000-AL	E	1 input 4-20 mA + 1 input 0-10 V	-	2x M12 A 5 pin female
ME3-00U0-AL	U	-	1 output 4-20 mA + 1 output 0-10 V	2x M12 A 5 pin female
ME3-00R0-AL	R	-	2 outputs 4-20 mA	2x M12 A 5 pin female
ME3-00T0-AL	T	-	2 outputs 0-10 V	2x M12 A 5 pin female
ME3-00Z0-AL	Z	1 input 4-20 mA	1 output 4-20 mA	2x M12 A 5 pin female
ME3-00K0-AL	K	1 input 0-10 V	1 output 0-10 V	2x M12 A 5 pin female
ME3-00V0-AL	V	1 input 0-10 V	1 output 4-20 mA	2x M12 A 5 pin female
ME3-00Y0-AL	Y	1 input 4-20 mA	1 output 0-10 V	2x M12 A 5 pin female

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Digital power output module Mod. ME3-0004-DL

The digital output module can be connected only in presence of a CPU or Expansion module and can be mixed with other either digital or analog Input and Output devices and with the initial module of the subnet. It has two M12 A 5 pin female connections, each connection can manage 2 digital outputs and can provide a maximum of 10 W to 24 V DC. The device is useful to pilot a bistable valve or two monostable valves for each connector, or to activate the electric coils or other electric devices with maximum absorption of 10 W to 24 V DC. Connecting two outputs to one electric device only and activating them simultaneously, it is possible to provide maximum 20 W to 24 V DC.





Mod.	Coding reference	Number of digital outputs	Connection	Number of connectors	Dimensions	Signalling	Sensor supply	Max power for M12 connector	Max power for digital output	Type of signal	Protection class	Operating temperature	Weight
ME3-0004-DL	Q	4	M12 A 5 pin female	2	122 x 25 mm	1 yellow led for each output	24 V DC	20 W	10 W	NPN	IP65	0 ÷ 50°C	100 g

Direct interface with Series F, Series HN and Series 3 valve islands





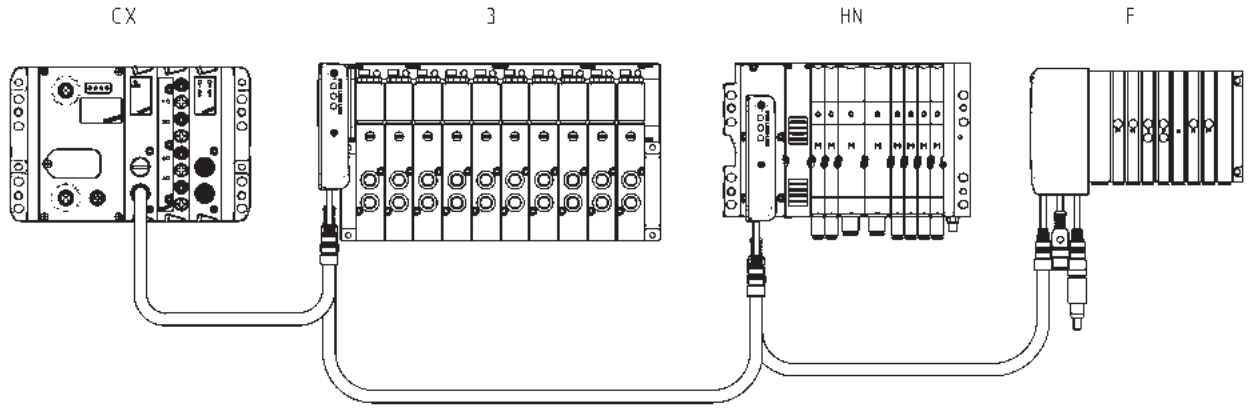
These direct interface modules allow to connect a CPU, CX or an expansion module directly to a valve island of the Series F, HN or 3. Before these interface modules you can only connect different digital or analog electric modules or the initial module of the subnet.

Downstream the interface modules, only the provided valve islands can be connected. The valve islands that can be connected to the interface modules have the same rules as the multipole version of the same Series.

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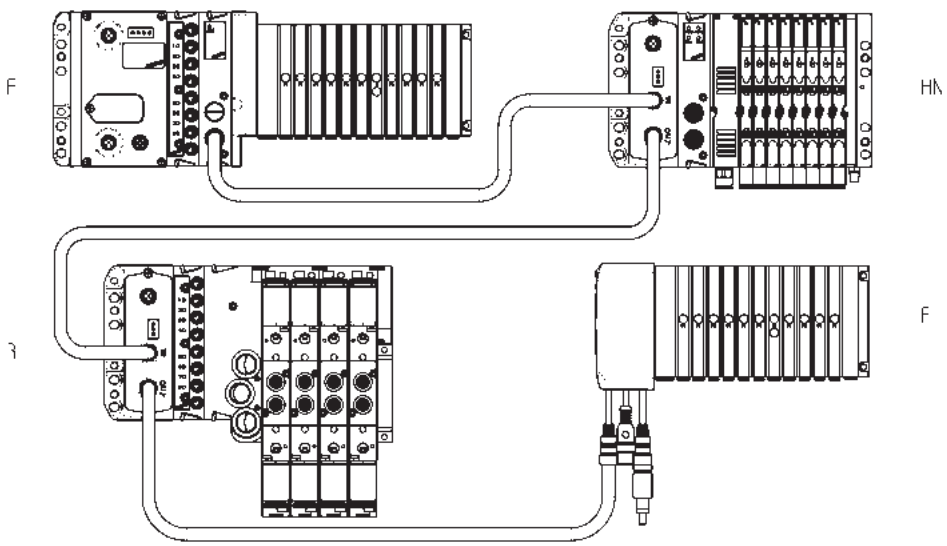
Network topology configuration with the CX solution - Example 1

Multi-serial solution composed of:
- a CX module with initial subnet module
- a Series 3 Multipole valve island with CXA-25P adaptor
- a Series HN Multipole valve island with CXA-25P adaptor
- a Series F Multipole valve island with CXA-25P adaptor



Network topology configuration with the CX solution - Example 2

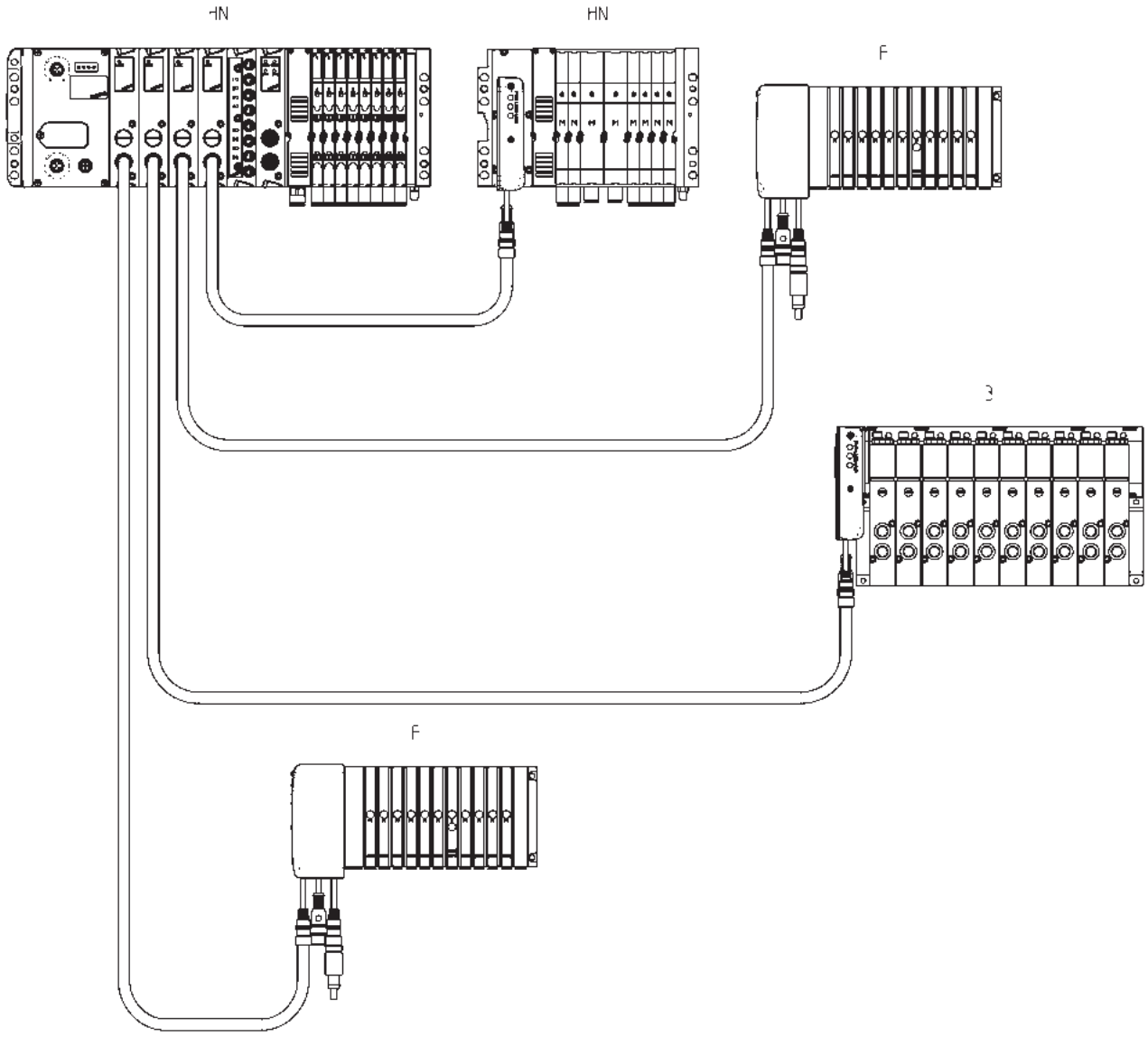
Multi-serial solution composed of:
- a Series F Fieldbus valve island
- a Series HN Fieldbus expansion
- a Series 3 Fieldbus Expansion
- a Series F Multipole valve island with CXA-25P adaptor



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Network topology configuration with the CX solution - Example 3

Multi-serial solution with star connection composed of:
- a Series HN Fieldbus valve island with initial subnet modules
- on the first branch a Series F Multipole valve island with CXA-25P adaptor
- on the second branch a Series 3 Multipole valve island with CXA-25P adaptor
- on the third branch a Series F Multipole valve island with CXA-25P adaptor
- on the fourth branch a Series HN Multipole valve island with CXA-37P adaptor



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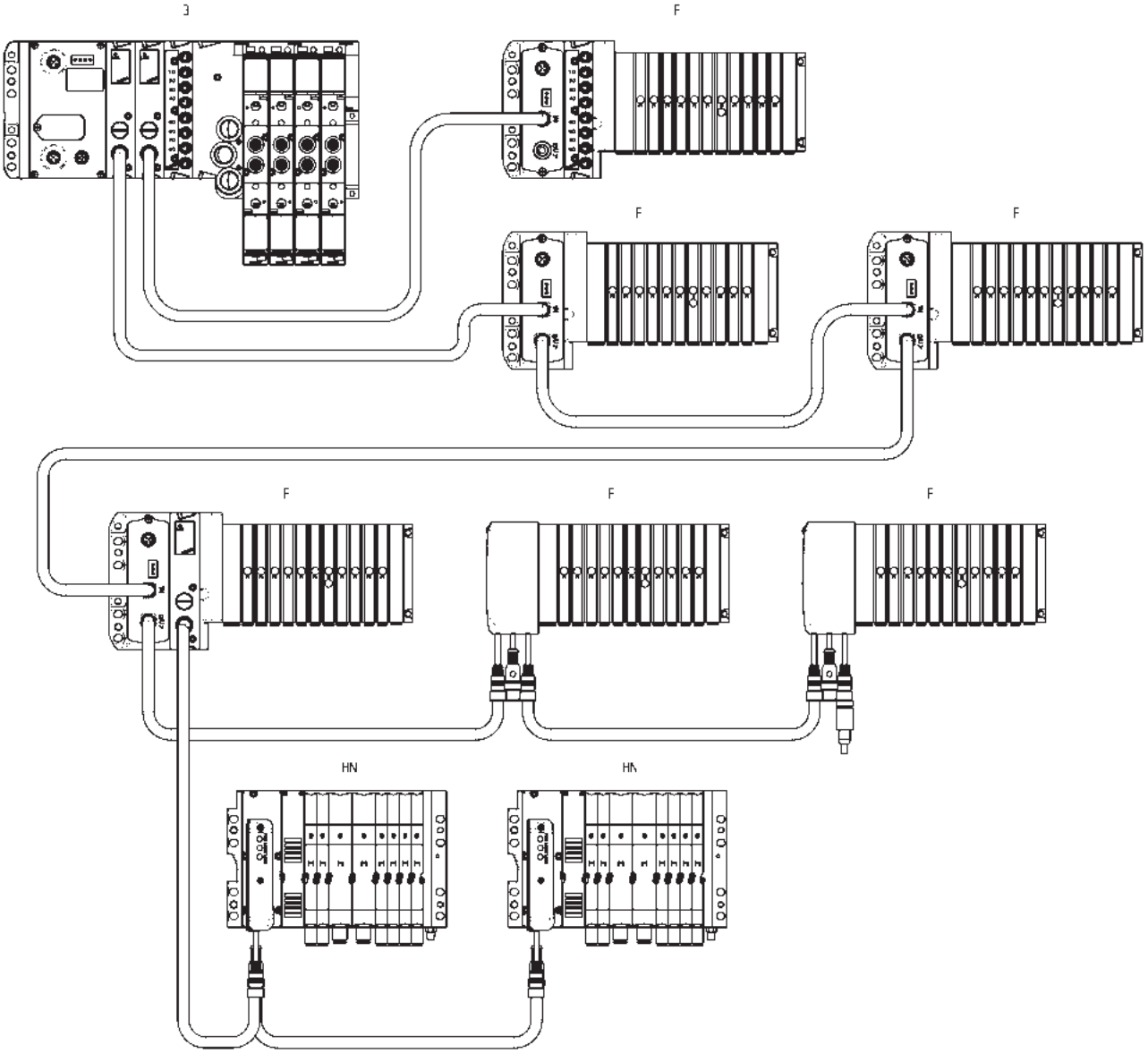
Network topology configuration with the CX solution - Example 4

Multi-serial solution with tree connection composed of an initial module, two branches and a further branch.

Initial module:
- Series 3 Fieldbus valve island with 2 initial subnet modules

First branch of the initial module:
- 5 Series F valve islands of which 3 Fieldbus and 2 Multipole with CXA-25P adaptor
Further branch:
- 2 Series HN Multipole valve islands with CXA-25P and CXA-37P adaptor

Second branch of the initial module:
- a Series F Fieldbus Expansion

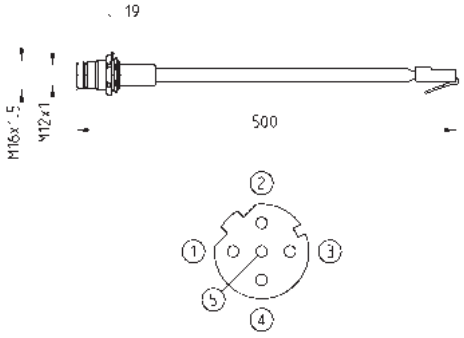


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Adaptor and panel mount for Ethernet RJ45 to M12 D networks

For PROFINET, EtherCAT, EtherNet/IP



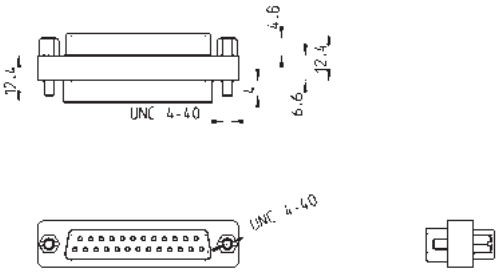


Mod.	description	type of connector	connection	cable length (m)
CS-SE04HB-F050	moulded cable	straight	RJ45 male, M12 D 4 pin female	0.5

25M-25F Sub-D adaptor

For Series Y valve islands with CXA-25P

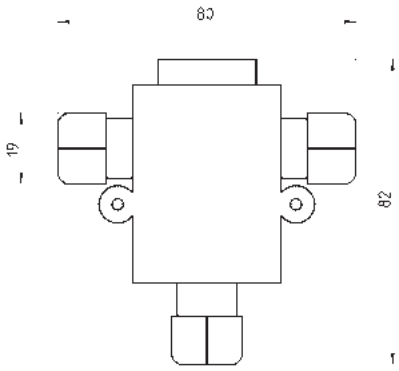




Mod.	description	type of connector	connection	cable length (m)
G2X-G2W	moulded adaptor	in line	Sub-D 25 pin female - male	-

Profibus-DP data line tee

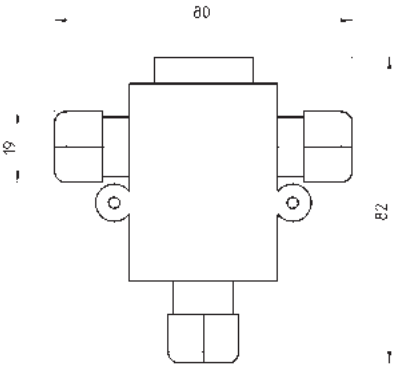




Mod.
CS-AA03EC

CANopen / DeviceNet data line tee



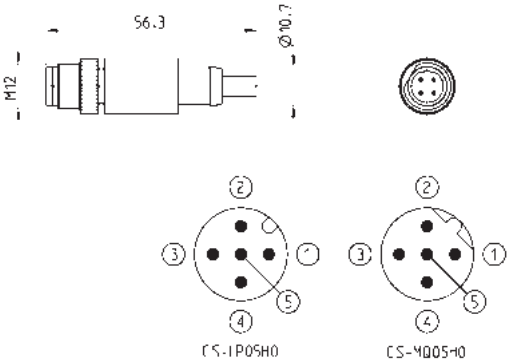


CS-AA05EC

M12 male terminating resistor

For PROFIBUS, CANopen, DeviceNet

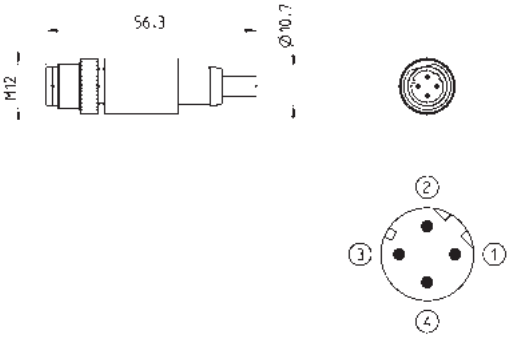




Mod.	description	type of connector	connection	Protocol
CS-MQ05H0	moulded terminating resistor	straight	M12 B 4 pin male	PROFIBUS
CS-LP05H0	moulded terminating resistor	straight	M12 A 5 pin male	CANOpen / DeviceNet

Subnet terminating resistor

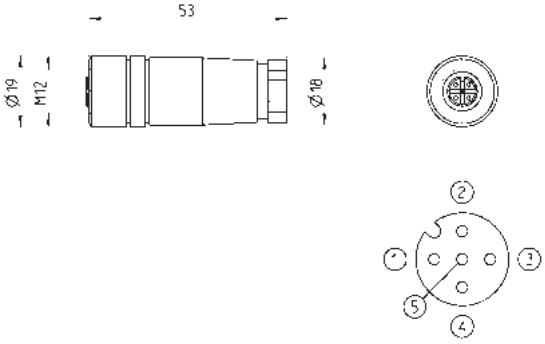




Mod.	description	type of connector	connection	Protocol
CS-SU04H0	moulded terminating resistor	straight	M12 D 4 pin	subnet

Straight connector for power supply

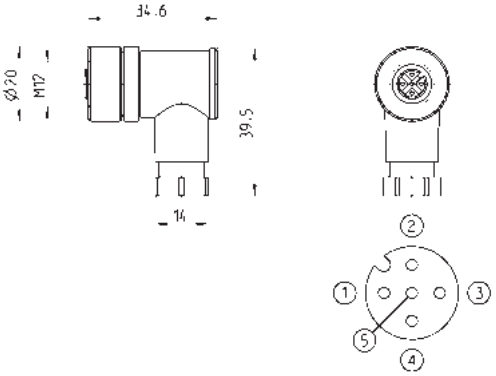




Mod.	description	type of connector	connection	cable length (m)
CS-LF04HB	for wiring	straight	M12 A 4 pin female	-

Angular connector for power supply



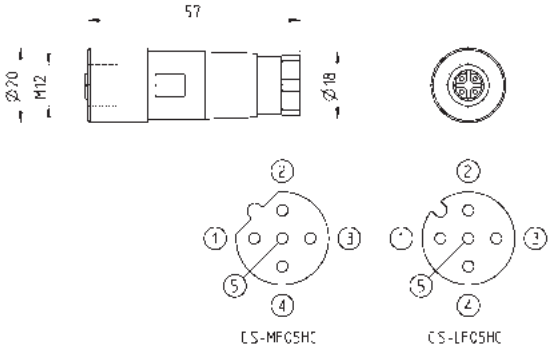


Mod.	description	type of connector	connection	cable length (m)
CS-LR04HB	for wiring	90°	M12 A 4 pin female	-

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Straight female M12 connectors for Bus-IN

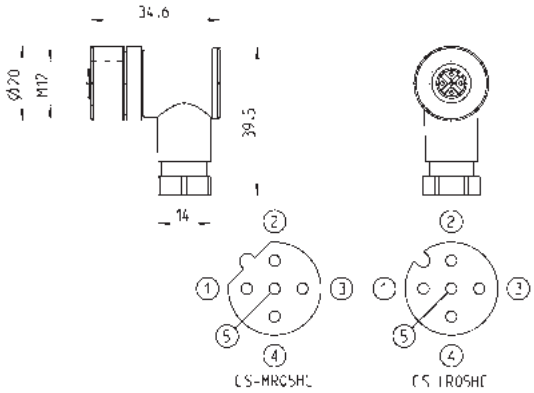




Mod.	description	type of connector	connection	Protocol
CS-LF05HC	for wiring	straight	M12 A 5 pin female	CANopen / DeviceNet
CS-MF05HC	for wiring	straight	M12 B 5 pin female	PROFIBUS

Angular 90° female M12 connectors for Bus-IN

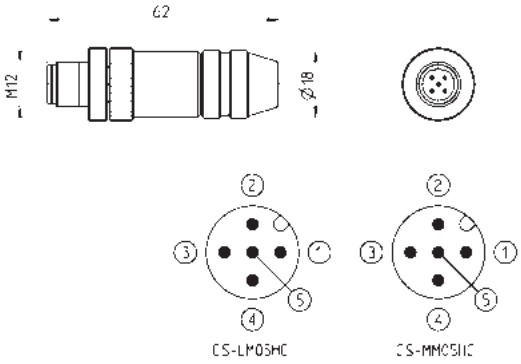




Mod.	description	type of connector	connection	Protocol
CS-LR05HC	for wiring	90°	M12 A 5 pin female	CANopen / DeviceNet
CS-MR05HC	for wiring	90°	M12 B 5 pin female	PROFIBUS

Straight male M12 connectors for Bus-OUT



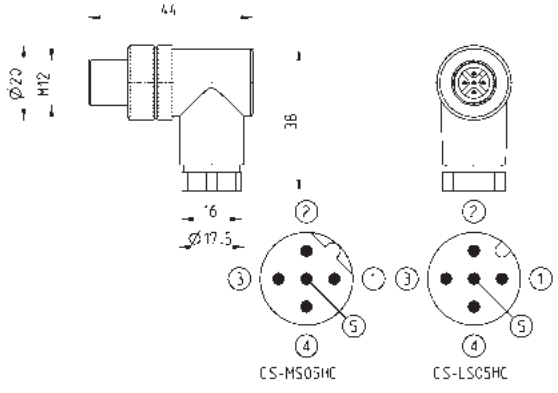


Mod.	description	type of connector	connection	Protocol
CS-LM05HC	for metal wiring	straight	M12 A 5 pin male	CANopen / DeviceNet
CS-MM05HC	for metal wiring	straight	M12 B 5 pin male	PROFIBUS

Angular 90° male M12 connectors for Bus-OUT



The Mod. CS-LS05HC can also be used for the connection of the digital output modules and of the analog input and output modules.



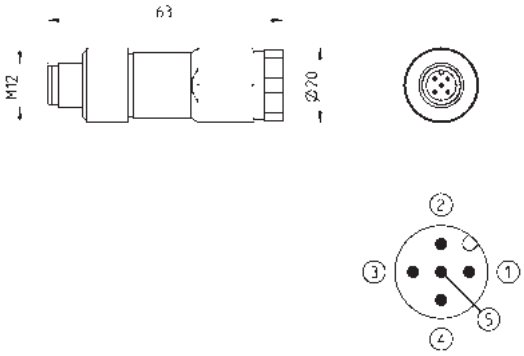
Mod.	description	type of connector	connection	Protocol
CS-LS05HC	for wiring	90°	M12 A 5 pin male	CANopen / DeviceNet
CS-MS05HC	for wiring	90°	M12 B 5 pin male	PROFIBUS

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5 pin male straight M12 DUO connector



For the connection of the digital output modules and analog input/output modules.

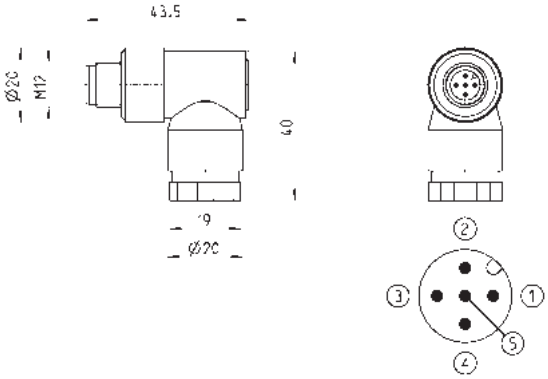


Mod.	description	type of connector	connection	cable length (m)
CS-LD05HF	for wiring	straight	M12 A 5 pin male	-

5 pin male angular M12 DUO connector



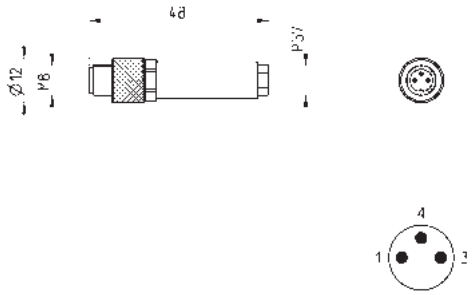
For the connection of the digital output modules ME3-0004-DL



Mod.	description	type of connector	connection	cable length (m)
CS-LH05HF	for wiring	90°	M12 A 5 pin male	-

3 pin male M8 wiring connector for digital input modules



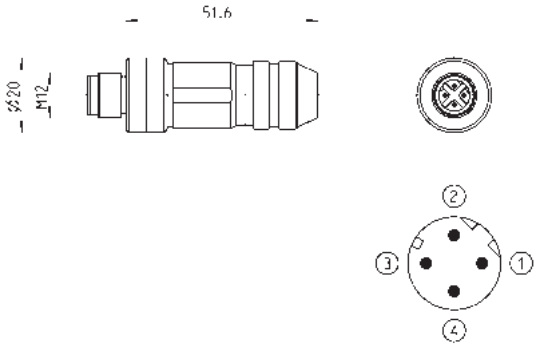


Mod.	description	type of connector	connection	cable length (m)
CS-DM03HB	for wiring	straight	M8 3 pin male	-

Male wiring connector for Bus-IN and Bus-OUT



For PROFINET, EtherCAT, EtherNet/IP and subnet



Mod.	description	type of connector	connection	cable length (m)
CS-SM04H0	for metal wiring	straight	M12 D 4 pin	-

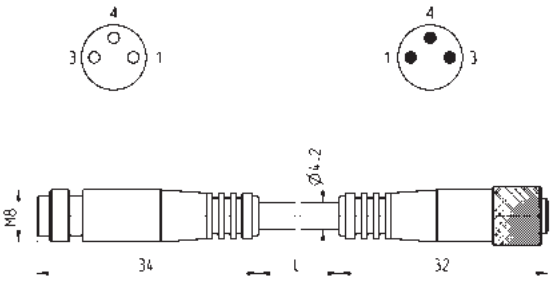
Products designed for industrial applications.
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Extension with M8 connector, 3 pin male / female



Non shielded

For the connection of the digital input modules ME3-0008 and ME3-0004

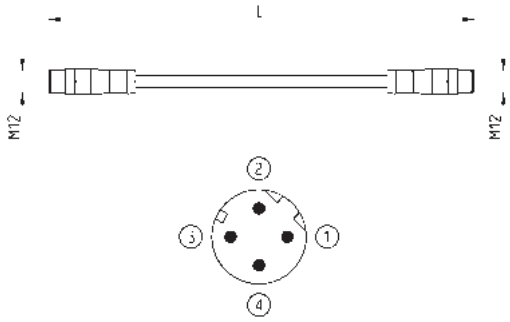


Mod.	description	type of connector	connection	L [cable length] (m)
CS-DW03HB-C250	moulded cable	straight	M8 3 pin male / female	2.5
CS-DW03HB-C500	moulded cable	straight	M8 3 pin male / female	5

Cable with straight connectors



For PROFINET, EtherCAT, EtherNet/IP and subnet

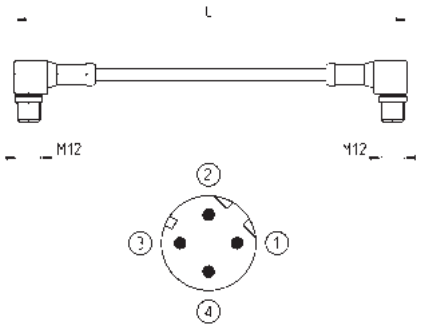


Mod.	description	type of connector	connection	L [cable length] (m)
CS-SB04HB-D100	moulded cable	straight	2x M12 D 4 pin male	1
CS-SB04HB-D500	moulded cable	straight	2x M12 D 4 pin male	5
CS-SB04HB-DA00	moulded cable	straight	2x M12 D 4 pin male	10

Cable with 90° angular connectors



For PROFINET, EtherCAT, EtherNet/IP and subnet

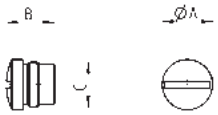


Mod.	description	type of connector	connection	L [cable length] (m)
CS-SC04HB-D100	moulded cable	90°	2x M12 D 4 pin male	1
CS-SC04HB-D500	moulded cable	90°	2x M12 D 4 pin male	5
CS-SC04HB-DA00	moulded cable	90°	2x M12 D 4 pin male	10

M8 and M12 connector cover caps



For digital and analog input/output modules and subnet



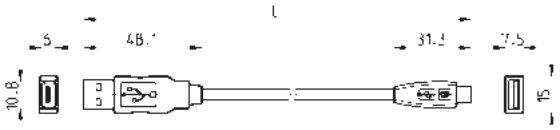
Mod.	A	B	C [Connection]
CS-DFTP	10	11	M8
CS-LFTP	13.5	13	M12

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USB to Micro USB cable Mod. G11W-G12W-2



For the hardware configuration
of the Camozzi products

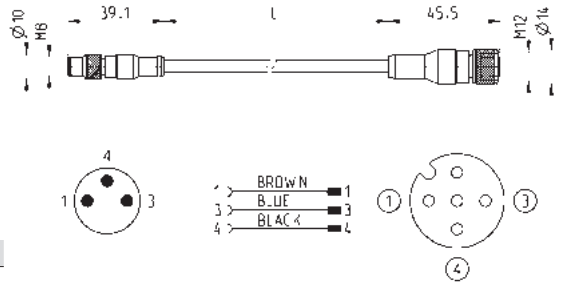


Mod.	description	connections	material for outer sheath	cable length "L" (m)
G11W-G12W-2	black shielded cable 28 AWG	standard USB to Micro USB	PVC	2

Adapter cable, M8 3-pin male - M12 4-pin female



Protection class: IP69K



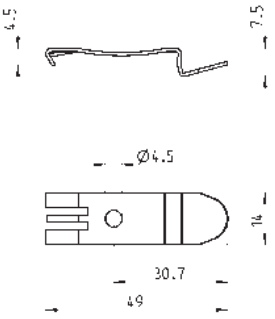
Mod.	description	max voltage	max current	Nr conn. wires	connections	outer sheath	cable "L" (m)
CS-AG03HB-C250	3-pin cable 24 AWG, high flexibility	50V AC / 60V DC	3 A	3	M8 3-pin male - M12 4-pin fem.	PUR black	2.5
CS-AG03HB-C500	3-pin cable 24 AWG, high flexibility	50V AC / 60V DC	3 A	3	M8 3-pin male - M12 4-pin fem.	PUR black	5

Mounting brackets for DIN rail



DIN EN 50022 (mm 7,5 x 35 - width 1)

Supplied with:
2x plates
2x screws M4x6 UNI 5931



Mod.
PCF-E520

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Series 2
mechanically operated minivalves

3/2-way
Ports M5, cartridge ø 4



Series 2 mechanically operated miniature valves, 3/2-way normally closed, are available with M5 threaded ports or with an integrated super-rapid fitting for ø 4mm tubes.
The devices are actuated by a plunger, roller/lever or a unidirectional lever.

GENERAL DATA

Construction	poppet type
Valve group	3-way/2-position
Materials	aluminium body, brass plunger, NBR seals
Mounting	by means of screws in the through-holes of the valve body
Ports	M5, Ø4mm cartridge
Room temperature	0°C ÷ 60°C
Fluid temperature	0°C ÷ 50°C
Operating pressure	0 bar ÷ 10 bar
Fluid	Filtered air, without lubrication. If lubricated air is used, it is recommended to use ISO VG32 oil. Once applied the lubrication should never be interrupted.

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CODING EXAMPLE

2	3	4	-	94	5

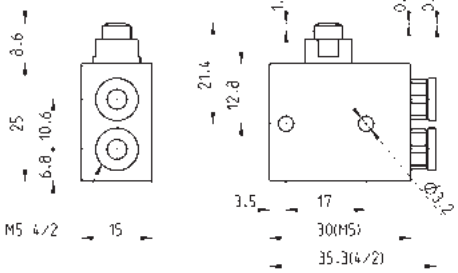
2	SERIES
3	FUNCTION 3 = 3/2-way NC 4 = 3/2-way NO
4	PORTS 4 = cartridge ø 4mm 5 = M5
94	ACTUATION 94 = plunger 95 = lever/roller 96 = unidirectional lever 98 = plunger, panel mounting
5	RESETTING 5= spring return

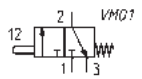
Minivalves with plunger



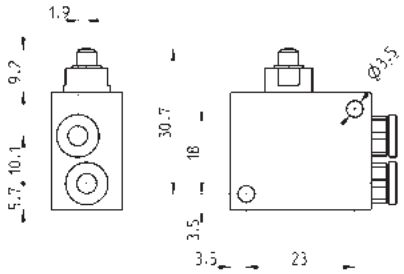
DRAWING LEGEND
A = total stroke
B = pre-stroke
C = effective stroke

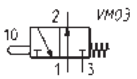
234/235





244/245





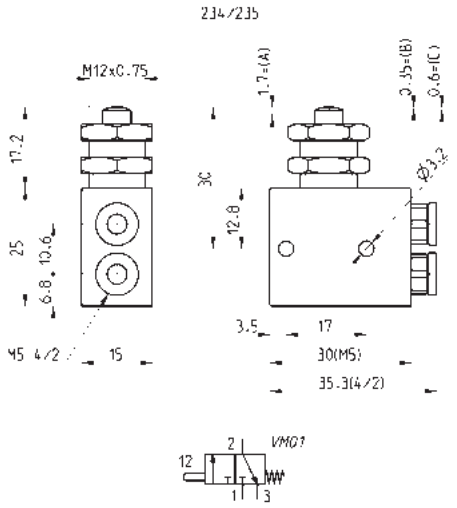
Mod.	Operating pressure (bar)	Flow Qn (Nl/min)	Actuating force at 6 bar (N)	SYMBOL
234-945	2 ÷ 10	60	6	VM01
235-945	2 ÷ 10	60	6	VM01
244-945	2 ÷ 10	60	6	VM03
245-945	2 ÷ 10	60	6	VM03

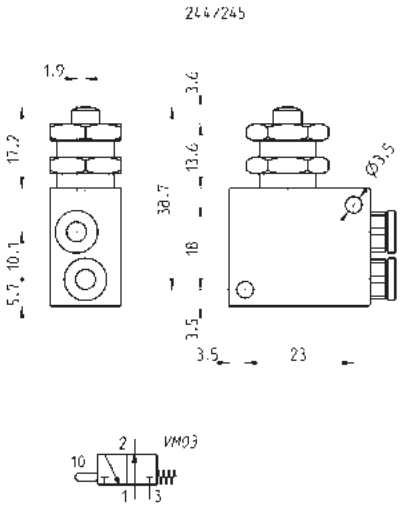
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Minivalves with plunger, panel mounting



DRAWING LEGEND
A = total stroke
B = pre-stroke
C = effective stroke



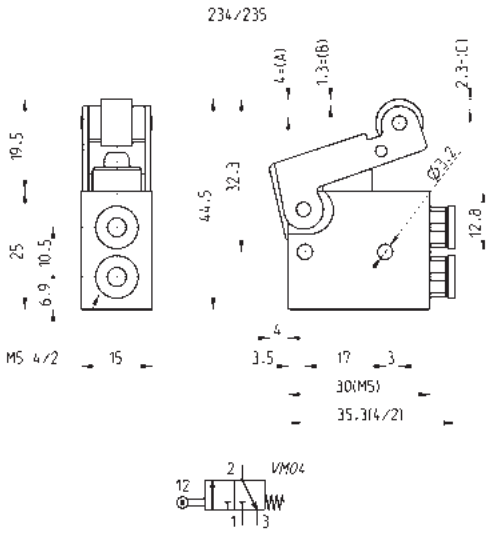


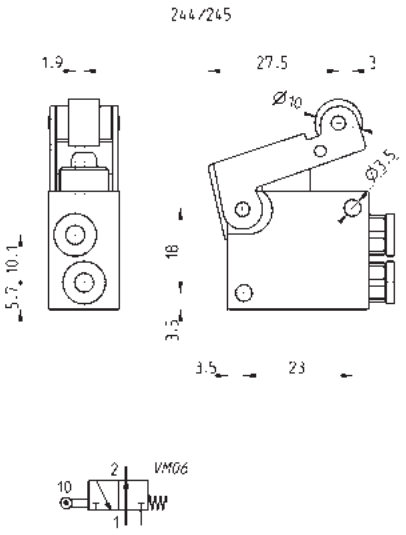
Mod.	Operating pressure (bar)	Flow Qn (Nl/min)	Actuating force at 6 bar (N)	SYMBOL
234-985	2 ÷ 10	60	6	VM01
235-985	2 ÷ 10	60	6	VM01
244-985	2 ÷ 10	60	6	VM03
245-985	2 ÷ 10	60	6	VM03

Minivalves with lever/roller



DRAWING LEGEND
A = total stroke
B = pre-stroke
C = effective stroke





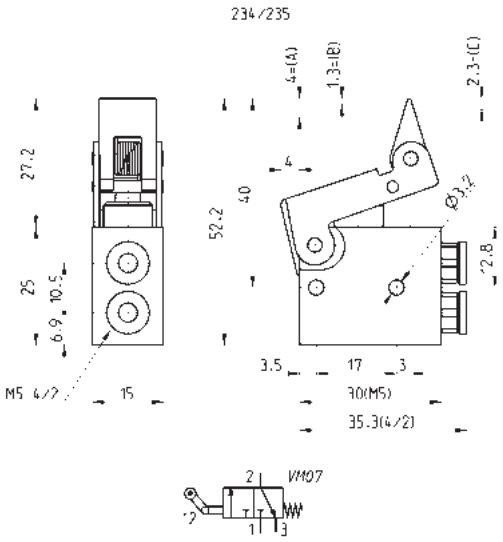
Mod.	Operating pressure (bar)	Flow Qn (Nl/min)	Actuating force at 6 bar (N)	SYMBOL
234-955	2 ÷ 10	60	6	VM04
235-955	2 ÷ 10	60	6	VM04
244-955	2 ÷ 10	60	6	VM06
245-955	2 ÷ 10	60	6	VM06

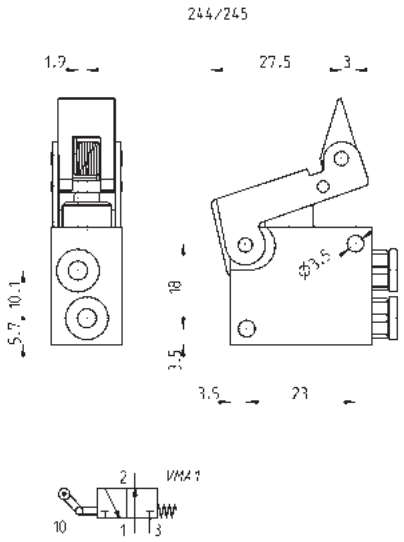
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Minivalves, unidirectional lever



DRAWING LEGEND
A = total stroke
B = pre-stroke
C = effective stroke





Mod.	Operating pressure (bar)	Flow Qn (Nl/min)	Actuating force at 6 bar (N)	SYMBOL
234-965	2 ÷ 10	60	6	VM07
235-965	2 ÷ 10	60	6	VM07
244-965	2 ÷ 10	60	6	VMA1
245-965	2 ÷ 10	60	6	VMA1

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Series 1 and 3 mechanically operated valves

Series 1: 3/2-way and 5/2-way, ports G1/8 and G1/4
Series 3: 3/2-way and 5/2-way, ports G1/8



These mechanically operated valves have been designed with three different types of actuation:
- plunger
- lever/roller
- unidirectional lever/roller
In each case, return is triggered by a mechanical spring.

3/2-way monostable valves Series 3 are normally closed in the rest position when pressure is supplied in 1 and are normally open when pressure is supplied on connection 3, the user port 2 remaining unchanged.
5/2-way valves Series 3 can be supplied via the ports 3 and 5 with two different pressures if a cylinder has to be operated using a delivery pressure which is different from the return pressure.

GENERAL DATA

Construction	spool-type (Series 3), poppet-type (Series 1)
Valve group	3/2, 5/2 way/pos.
Materials	aluminium body, brass poppet, stainless steel spool, NBR seals
Ports	G1/8, G1/4
Ambient temperature	0°C ÷ 60°C
Medium temperature	0°C ÷ 50°C
Operating pressure	see models
Fluid	Filtered air, without lubrication. If lubricated air is used, it is recommended to use ISO VG32 oil. Once applied the lubrication should never be interrupted.

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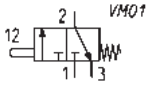
CODING EXAMPLE

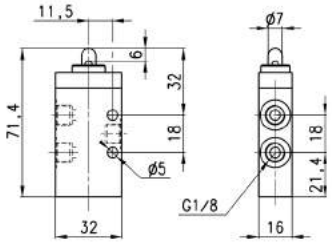
3	3	8	-	94	5

3	SERIES: 1 3
3	FUNCTION: 3 = 3/2 ways NC 4 = 3/2 ways NO (only Series 1) 5 = 5/2 ways
8	PORTS: 8 = G1/8 4 = G1/4 (only Series 1)
94	ACTUATION: 94 = plunger 95 = lever/roller 96 = unidirectional roller
5	RESETTING: 5= spring return

Valve Mod. 338-945





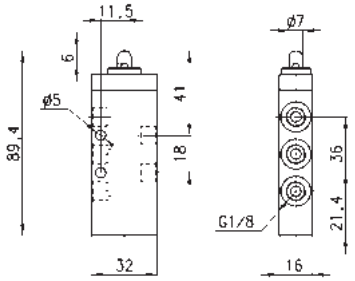


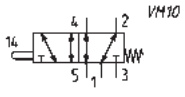
Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)
338-945	-0.9 ÷ 10	700	32

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Valve Mod. 358-945



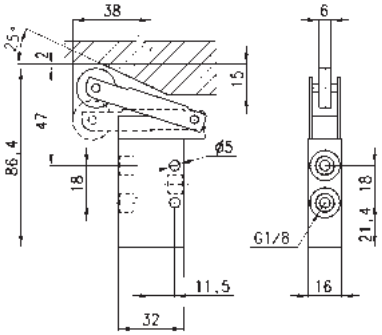


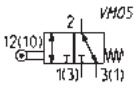


Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)
358-945	-0.9 ÷ 10	700	35

Valve Mod. 338-955



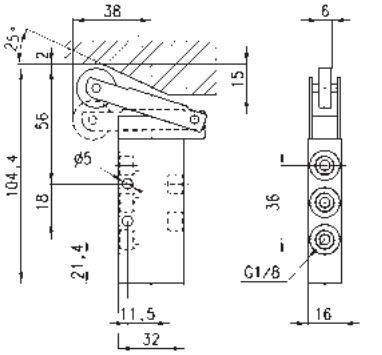


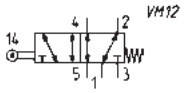


Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)
338-955	-0.9 ÷ 10	700	15

Valve Mod. 358-955





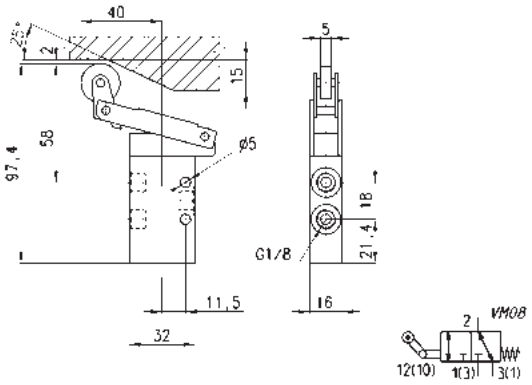


Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)
358-955	-0.9 ÷ 10	700	17

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Valve Mod. 338-965

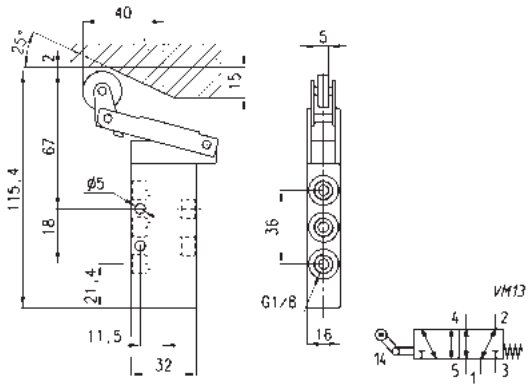




Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)
338-965	-0.9 ÷ 10	700	15

Valve Mod. 358-965

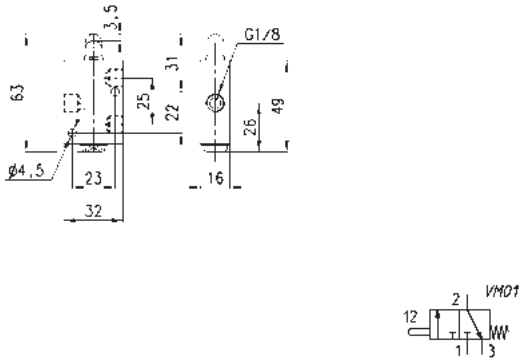




Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)
358-965	-0.9 ÷ 10	700	16

Valve Mod. 138-945

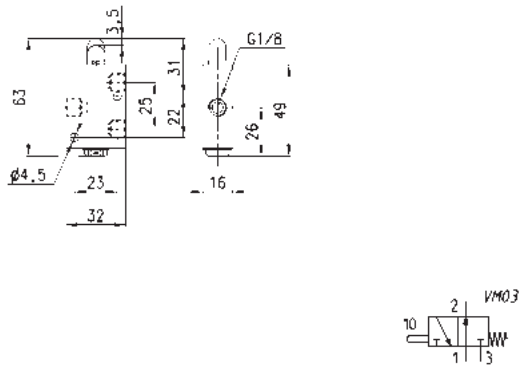




Mod.	Operating pressure (bar)	Flow rate (Nl/min)	Actuating force at 6 bar (N)
138-945	0 ÷ 10	500	70

Valve Mod. 148-945



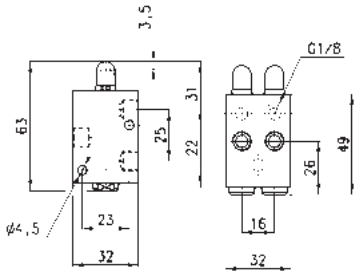


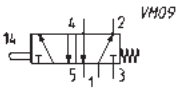
Mod.	Operating pressure (bar)	Flow rate (Nl/min)	Actuating force at 6 bar (N)
148-945	0 ÷ 10	500	70

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Valve Mod. 158-945



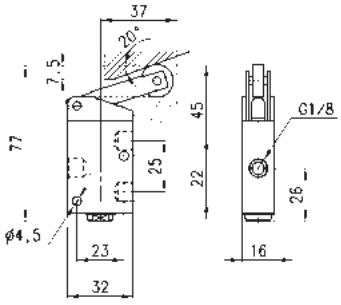


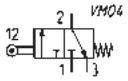


Mod.	Operating pressure (bar)	Flow rate (Nl/min)	Actuating force at 6 bar (N)
158-945	0 ÷ 10	500	120

Valve Mod. 138-955



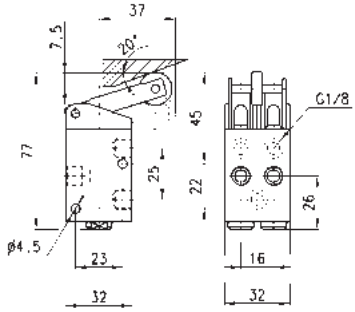


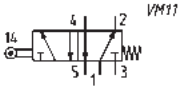


Mod.	Operating pressure (bar)	Flow rate (Nl/min)	Actuating force at 6 bar (N)
138-955	0 ÷ 10	500	36

Valve Mod. 158-955



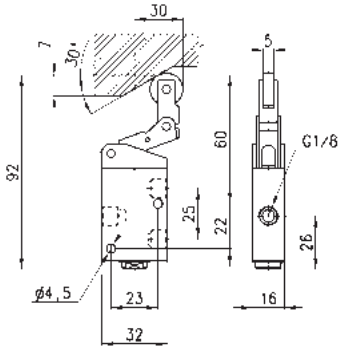


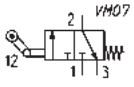


Mod.	Operating pressure (bar)	Flow rate (Nl/min)	Actuating force at 6 bar (N)
158-955	0 ÷ 10	500	92

Valve Mod. 138-965



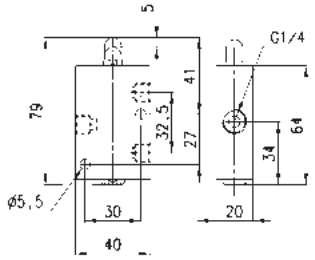


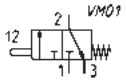


Mod.	Operating pressure (bar)	Flow rate (Nl/min)	Actuating force at 6 bar (N)
138-965	0 ÷ 10	500	41

Valve Mod. 134-945



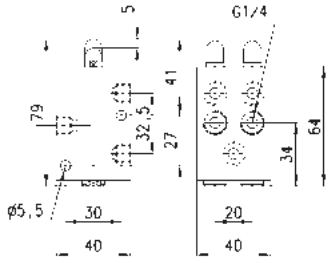


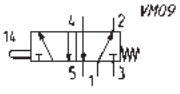


Mod.	Operating pressure (bar)	Flow rate (Nl/min)	Actuating force at 6 bar (N)
134-945	0 ÷ 10	1250	64

Valve Mod. 154-945



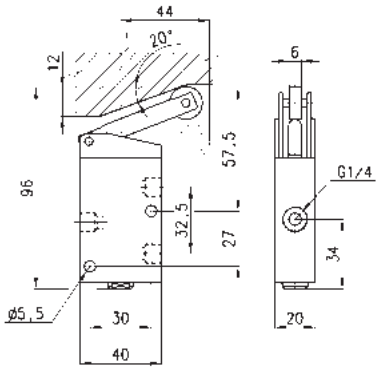


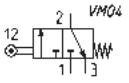


Mod.	Operating pressure (bar)	Flow rate (Nl/min)	Actuating force at 6 bar (N)
154-945	0 ÷ 10	1250	147

Valve Mod. 134-955



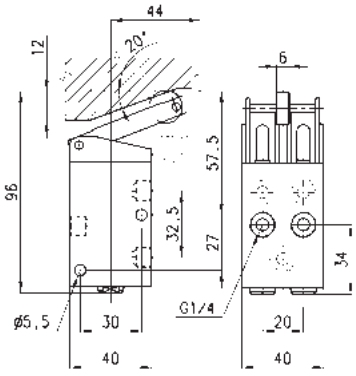


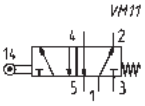


Mod.	Operating pressure (bar)	Flow rate (Nl/min)	Actuating force at 6 bar (N)
134-955	0 ÷ 10	1250	41

Valve Mod. 154-955







Mod.	Operating pressure (bar)	Flow rate (Nl/min)	Actuating force at 6 bar (N)
154-955	0 ÷ 10	1250	110

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General terms and conditions for sale are available on www.camozzi.com.

Series 3 and 4 mechanically operated sensor valves

3/2 and 5/2-way
Ports G1/8, G1/4



The particular mechanical device allows these end-stroke valves to operate with very low actuating forces.
Series 3 has been designed with a mechanical lever device which works in negative pressure. To increase sensitivity it is possible to add to the lever a steel extension with ø 3 mm.

GENERAL DATA

Construction	spool-type (servocontrolled)
Valve group	3/2, 5/2 way/pos.
Materials	aluminium body, stainless steel spool, NBR seals
Ports	G1/8, G1/4
Ambient temperature	0°C ÷ 60°C
Medium temperature	0°C ÷ 50°C
Operating pressure	see models
Fluid	Filtered air, without lubrication. If lubricated air is used, it is recommended to use ISO VG32 oil. Once applied the lubrication should never be interrupted.

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CODING EXAMPLE

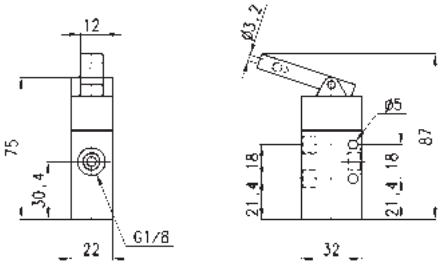
3	3	8	-	D15	-	9A5

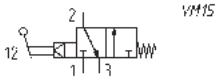
3	SERIES: 3 4
3	FUNCTION: 3 = 3/2-way NC 4 = 3/2-way NO 5 = 5/2-way
8	PORTS: 8 = G1/8 4 = G1/4
D15	ACTUATION: D15 = pressure drop/spring 015 = pressure/spring 011 = pressure/pressure
9A5	DEVICES: 9A5 = lever sensor, spring return 194 = plunger sensor, spring return 294 = plunger sensor, bistable 195 = lever/roller, spring return 295 = lever/roller, bistable



Valve Mod. 338-D15-9A5

The function of the valve is indicated by the symbol when operating between 4 and 10 bar.



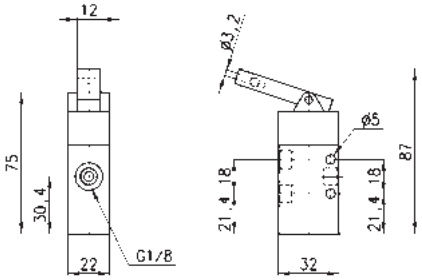


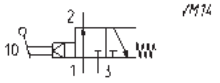
Mod.	Operating pressure (bar)	Flow rate (Nl/min)	Actuating force at 6 bar (N)
338-D15-9A5	4 ÷ 10	700	2



Valve Mod. 348-D15-9A5

The function of the valve is indicated by the symbol when operating between 4 and 10 bar.





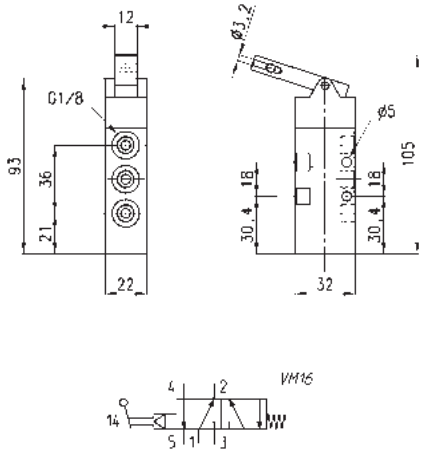
Mod.	Operating pressure (bar)	Flow rate (Nl/min)	Actuating force at 6 bar (N)
348-D15-9A5	4 ÷ 10	700	2

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General terms and conditions for sale are available on www.camozzi.com.

Valve Mod. 358-D15-9A5



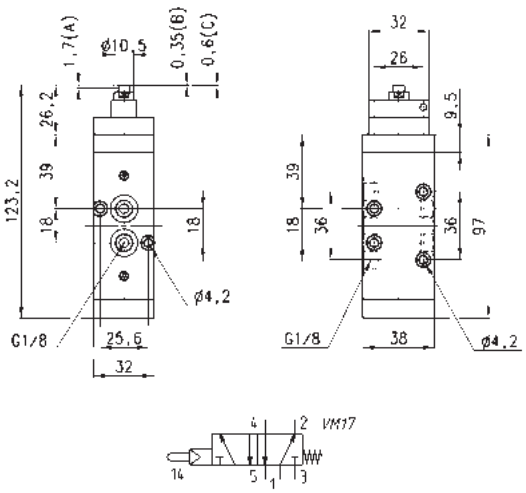
The function of the valve is indicated by the symbol when operating between 4 and 10 bar.



Mod.	Operating pressure (bar)	Flow rate (Nl/min)	Actuating force at 6 bar (N)
358-D15-9A5	4 ÷ 10	700	2

Valve Mod. 458-015-194



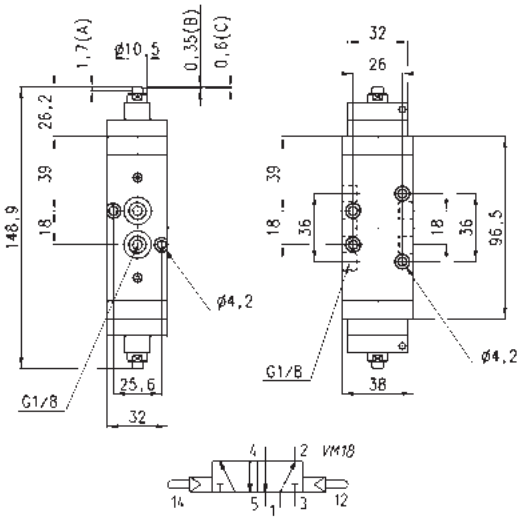


Mod.	Operating pressure (bar)	Flow rate (Nl/min)	Actuating force at 6 bar (N)
458-015-194	2.5 ÷ 8	650	6

(A) = total stroke
(B) = pre-stroke
(C) = useful stroke

Valve Mod. 458-011-294





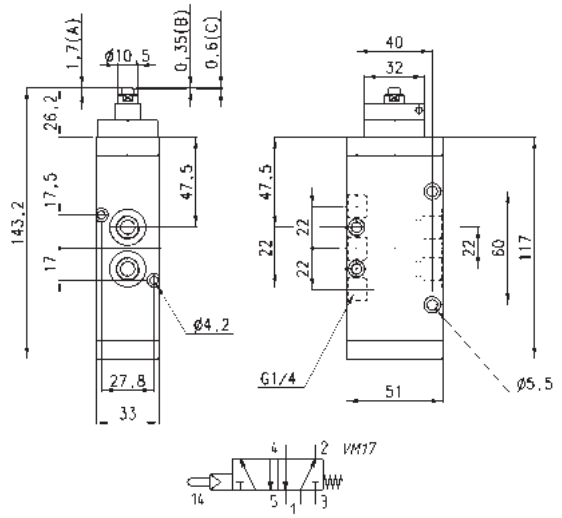
Mod.	Operating pressure (bar)	Flow rate (Nl/min)	Actuating force at 6 bar (N)
458-011-294	2 ÷ 8	650	6

(A) = total stroke
(B) = pre-stroke
(C) = useful stroke

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Valve Mod. 454-015-194



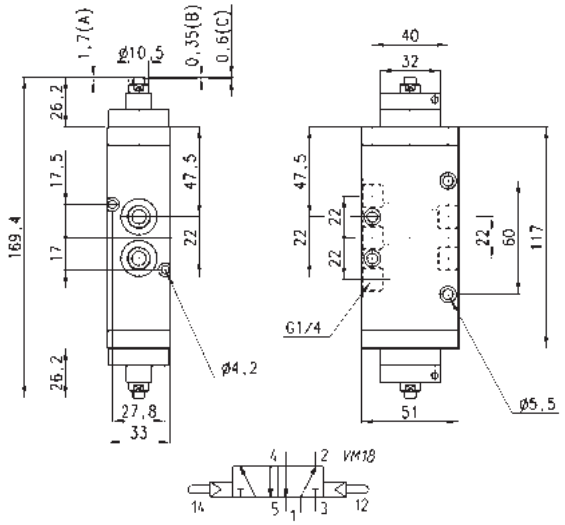


Mod.	Operating pressure (bar)	Flow rate (Nl/min)	Actuating force at 6 bar (N)
454-015-194	2.5 ÷ 8	1250	6

(A) = total stroke
(B) = pre-stroke
(C) = useful stroke

Valve Mod. 454-011-294



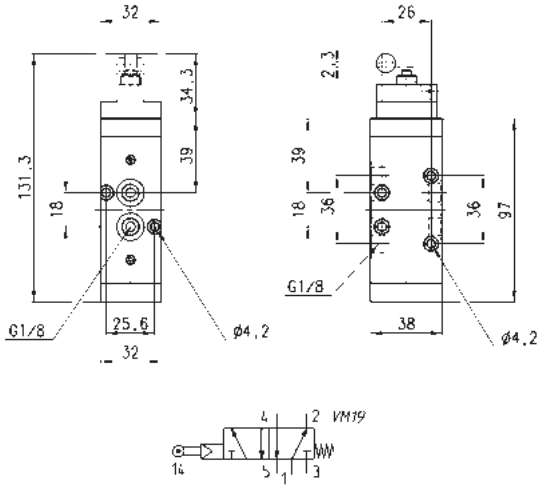


Mod.	Operating pressure (bar)	Flow rate (Nl/min)	Actuating force at 6 bar (N)
454-011-294	2 ÷ 8	1250	6

(A) = total stroke
(B) = pre-stroke
(C) = useful stroke

Valve Mod. 458-015-195





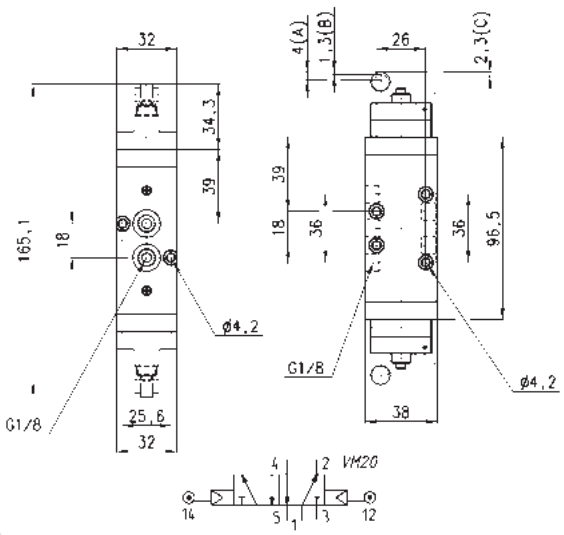
Mod.	Operating pressure (bar)	Flow rate (Nl/min)	Actuating force at 6 bar (N)
458-015-195	2.5 ÷ 8	650	4

(A) = total stroke
(B) = pre-stroke
(C) = useful stroke

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Valve Mod. 458-011-295



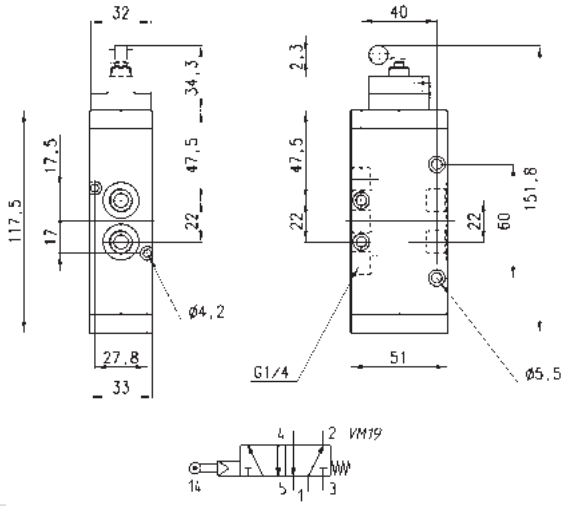


Mod.	Operating pressure (bar)	Flow rate (Nl/min)	Actuating force at 6 bar (N)
458-011-295	2 ÷ 8	650	4

(A) = total stroke
(B) = pre-stroke
(C) = useful stroke

Valve Mod. 454-015-195



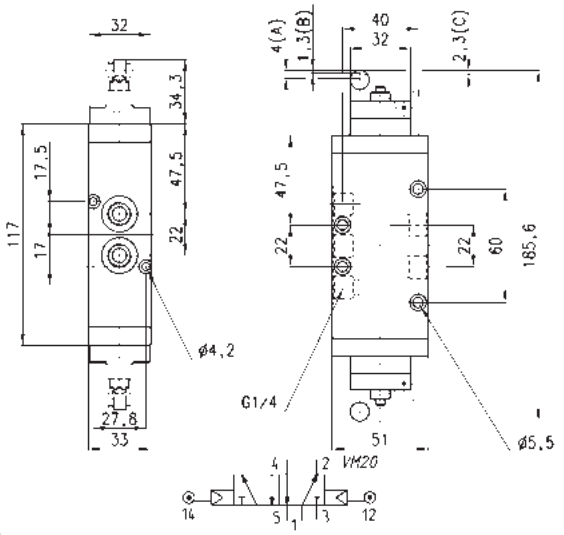


Mod.	Operating pressure (bar)	Flow rate (Nl/min)	Actuating force at 6 bar (N)
454-015-195	2.5 ÷ 8	1250	4

(A) = total stroke
(B) = pre-stroke
(C) = useful stroke

Valve Mod. 454-011-295





Mod.	Operating pressure (bar)	Flow rate (Nl/min)	Actuating force at 6 bar (N)
454-011-295	2 ÷ 8	1250	4

(A) = total stroke
(B) = pre-stroke
(C) = useful stroke

Foot operated pedal
Electrical and pneumatic - Series 3
Pneumatic - Series 2

Series 3: G1/4, 5/2-way - NC / NO contacts
Series 2: M5; 4/2 tube; 3/2-way NC



The pedals can be supplied in either a pneumatic or electrical foot operated version. The pneumatic type is available with a 5/2 valve and G1/4 front ports, which allow the fittings and silencers to be assembled conveniently on the front face. A 3/2 operation can be obtained by closing an outlet port.
The electrical type is available with a single-pole changeover contact microswitch and a front wire outlet (PG9).

The pedal can be operated as bistable or monostable, by switching the selector placed under the small red protection flap, as shown in the drawing.

GENERAL DATA

Construction	spool-type
Valve group	5/2, 3/2 NC way/pos.
Materials	- Series 3: alluminium body - stainless steel spool - NBR seals - plastic casing - Series 2: alluminium body - OT58 poppet - NBR seals.
Ports	- Series 3: G1/4 gas - Series 2: M5; tube 4/2.
Ambient temperature	0°C ÷ 50 °C (with dry air at - 10°C)
Medium temperature	0°C ÷ 50 °C
Construction	single-pole changeover contact microswitch
Cable entry	by means of wire PG9
Protection class	IP20
Fluid	Filtered air, without lubrication.

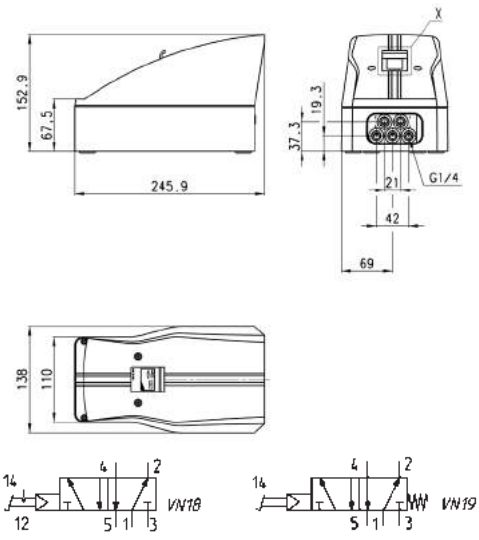
If lubricated air is used, it is recommended to use ISO VG32 oil. Once applied the lubrication should never be interrupted.

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Pneumatic foot operated pedal Series 3



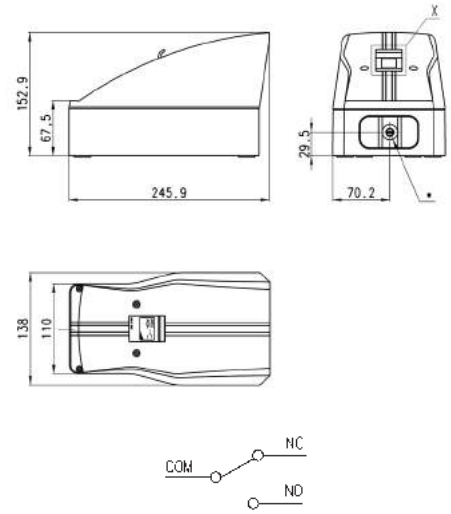
Actuating force at 6 bar = 17N
Operating pressure = 2,5 ÷ 8 bar
Flow rate = 650Nl/min.



Mod.	Symbol
354N-925	VN18 - VN19

Electrical foot operated pedal Series 3



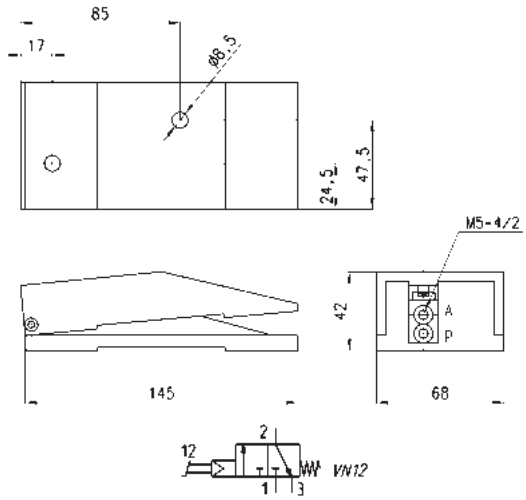


Mod.
3E2-925

Pneumatic foot operated pedal Series 2



Operating pressure = 2 ÷ 8 bar
Flow rate = 60 Nl/min.



Mod.
234-925
235-925

Series 2
manually operated console minivalves

3/2 and 5/3-way CC, CO, CP
Ports M5, Cartridge Ø 4



This series of miniature valves has been especially designed to satisfy all the application requirements of the controls industry with particular attention paid to the operating characteristics required from these components:
- short operational stroke
- small dimensions

GENERAL DATA

Valve group	3/2-way
Construction	poppet-type (closed centres)
Materials	aluminium body, brass plunger, NBR seals
Mounting	panel
Ports	M5 or cartridge dia. 4
Ambient temperature	0°C ÷ 60°C
Medium temperature	0°C ÷ 50°C
Operating pressure	see models

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

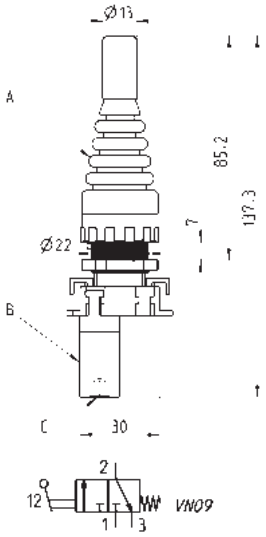
CODING EXAMPLE

2	3	4	-	97	5

2	SERIES
3	FUNCTION: 3 = 3/2-way NC 4 = 3/2-way NO 8 = 5/3-way CO (function realized with 2x 3/2-way NC valves)
4	PORTS: 4 = cartridge ø 4 5 = M5
97	MODE OF OPERATION: 87 = 3 position selector 89 = push button 97 = palm switch 90 = joystick 99 = 2 position selector 92 = pedal 904 = key
5	RESETTING: 5 = spring return 0 = stable 2 = latching-twist to release 54= joystick

Minivalves Mod. 234-905, 235-905

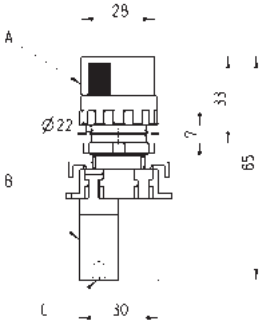


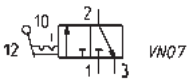


Mod.	Operating pressure (bar)	Flow (Nl/min)	A	B	C (Supply/port)
234-905	2 ÷ 8	60	200-905	234-000	Ø4/2
235-905	2 ÷ 8	60	200-905	235-000	M5

Minivalves Mod. 234-990, 235-990



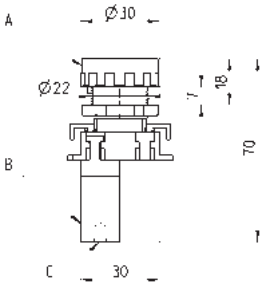


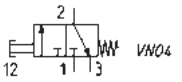


Mod.	Operating pressure (bar)	Flow (Nl/min)	A	B	C (Supply/port)
234-990	2 ÷ 8	60	200-990	234-000	Ø4/2
235-990	2 ÷ 8	60	200-990	235-000	M5

Minivalves Mod. 234-895, 235-895



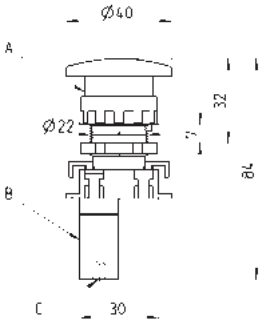


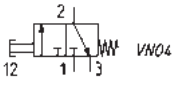


Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force at 6 bar (N)	A	B	C (Supply/port)
234-895	2 ÷ 8	60	7	200-895	234-000	Ø4/2
235-895	2 ÷ 8	60	7	200-895	235-000	M5

Minivalves Mod. 234-975, 235-975





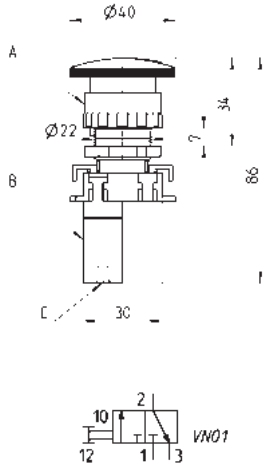


Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force at 6 bar (N)	A	B	C (Supply/port)
234-975	2 ÷ 8	60	7	200-975	234-000	Ø4/2
235-975	2 ÷ 8	60	7	200-975	235-000	M5

Products designed for industrial applications.
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Minivalves Mod. 234-972, 235-972

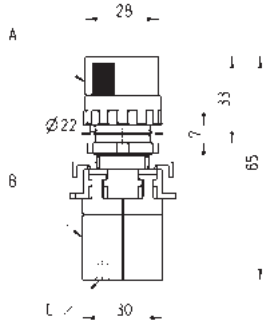


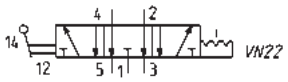


Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force at 6 bar (N)	A	B	C (Supply/port)
234-972	2 ÷ 8	60	7	200-972	234-000	Ø4/2
235-972	2 ÷ 8	60	7	200-972	235-000	M5

Minivalves Mod. 284-870, 285-870



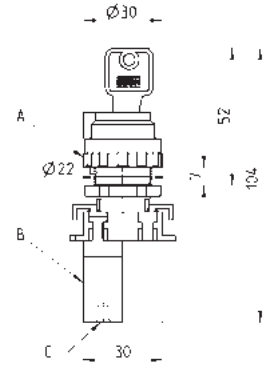


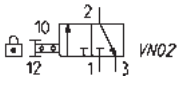


Mod.	Operating pressure (bar)	Flow (Nl/min)	A	B	C (Supply/port)
284-870	2 ÷ 8	60	200-870	234-000	Ø4/2
285-870	2 ÷ 8	60	200-870	235-000	M5

Minivalves Mod. 234-904, 235-904



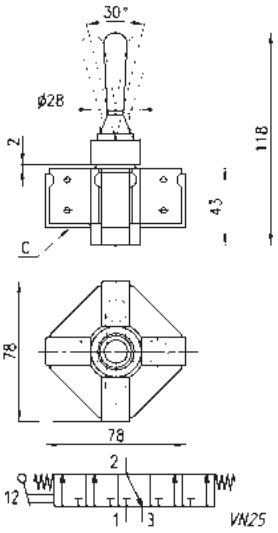




Mod.	Operating pressure (bar)	Flow (Nl/min)	A	B	C (Supply/port)
234-904	2 ÷ 8	60	200-904	234-000	Ø4/2
235-904	2 ÷ 8	60	200-904	235-000	M5

Joystick valves Mod. 234-9054, 235-9054

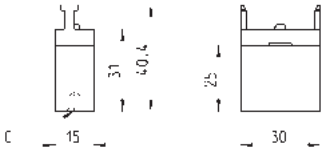


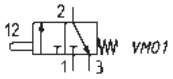


Mod.	Minimum pressure (bar)
234-9054	2
235-9054	2

Minivalves Mod. 234-000, 235-000





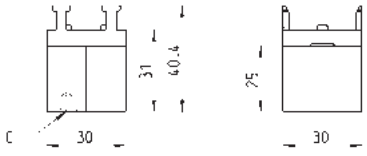


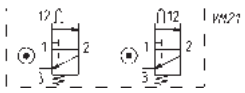
Mod.	Operating pressure (bar)	Flow (Nl/min)
234-000	2 ÷ 8	60
235-000	2 ÷ 8	60

Minivalves Mod. 284-000, 285-000

The codes shown in the table are composed by two 3/2-way valves NC which can be operated with the control device Mod. 200-870 only.



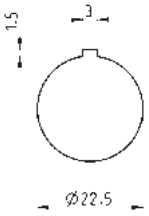




Mod.	Operating pressure (bar)	Flow (Nl/min)
284-000	2 ÷ 8	60
285-000	2 ÷ 8	60

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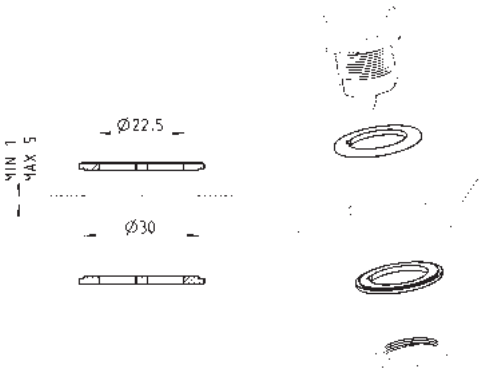
Drilling for mounting



Adaptor



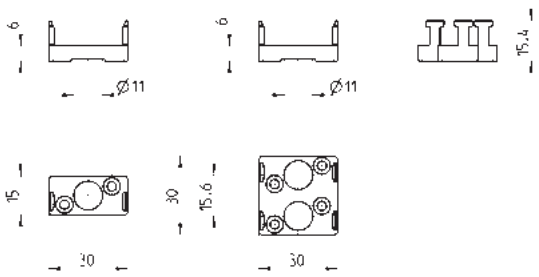
Panel hole adaptor Ø30
Supplied with:
2x reduction rings



Mod.
200-2230

End cover





Mod.
210-000
220-000

Series 1, 3, 4 and VMS manually operated valves

Series 1, 3 and 4: 3/2-, 5/2- and 5/3-way CC, CO; ports G1/8, G1/4
Series VMS: 3/2-way; ports M5, G1/8, G1/4, G3/8, G1/2 and G3/4



Series 3 manual valves (G1/8) and Series 4 (G1/4), 3/2-, 5/2- and 5/3-way, are available with several devices designed to satisfy different needs.
Series 1 is provided with two devices: pushbutton (3/2-way) and lever (3/2 and 5/2-way).
Series VMS valves are 3/2-way slide valves which are available with ports M5, G1/8, G1/4, G3/8, G1/2 and G3/4.

The 3/2-way valves Series 3 and 4 are normally closed when 1 is the inlet and they can also be normally open when 3 is the inlet.
Series 3 and 4 5/2-way valves can be supplied via ports 3 and 5 with two different pressures, if a cylinder has to be operated using a delivery pressure which is different from the return pressure.

GENERAL DATA

Construction	Series 3 and 4: spool-type Series 1: poppet-type Series VMS: slide
Function	Series 1, 3 and 4: 3/2 - 5/2 - 5/3 ways CC CO Series VMS: 3/2-way
Materials	aluminium body, stainless steel spool, brass poppet, NBR seals
Ports	Series 1, 3 and 4: G1/8, G1/4 Series VMS: M5, G1/8, G1/4, G3/8, G1/2, G3/4
Ambient temperature	0°C ÷ 60°C
Medium temperature	0°C ÷ 50°C
Operating pressure	see the single models
Fluid	Filtered air, without lubrication. If lubricated air is used, it is recommended to use ISO VG32 oil. Once applied the lubrication should never be interrupted.

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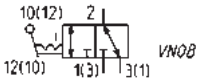
SERIES 1, 3, 4 CODING EXAMPLE

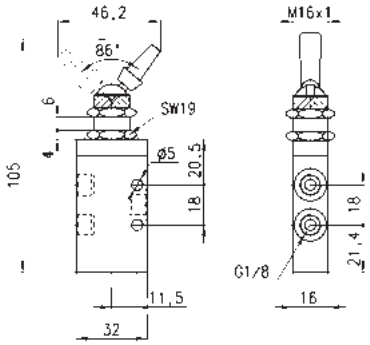
3	3	8	-	900

3	SERIES: 1 3 4
5	FUNCTION: 3 = 3/2-way NC 5 = 5/2-way 6 = 5/3-way CC 7 = 5/3-way CO
8	PORTS: 8 = G1/8 4 = G1/4
900	RESETTING: 895 = pushbutton, monostable, black 896 = pushbutton, monostable, green 897 = pushbutton, monostable, red 900 = lever, bistable 905 = lever, monostable 910 = knob, bistable 915 = knob, monostable 935 = digital monostable 975 = palm-switch, monostable, black 976 = palm-switch, monostable, green 977 = palm-switch, monostable, red 990 = switch, bistable

Valve Mod. 338-990





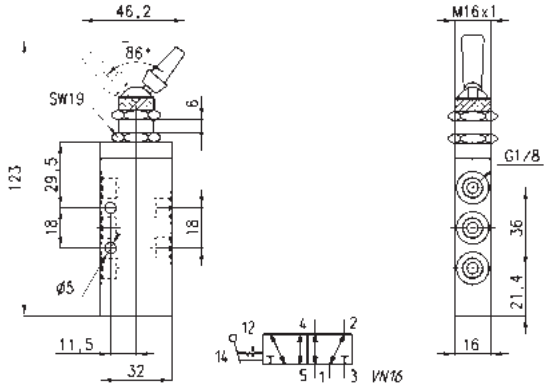


Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)
338-990	-0.9 ÷ 10	700	18

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Valve Mod. 358-990

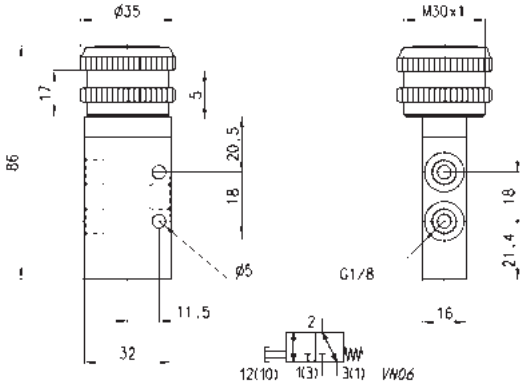




Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)
358-990	-0.9 ÷ 10	700	18

Valves Mod. 338-89...

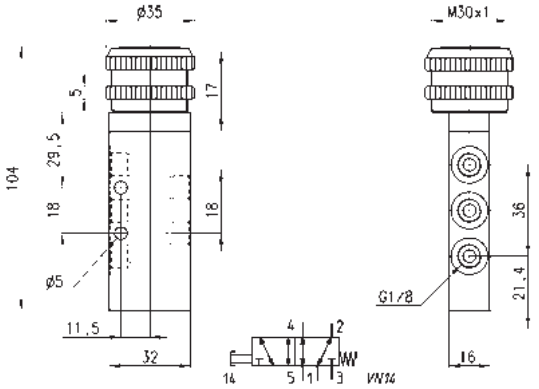




Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)	Colors
338-895	-0.9 ÷ 10	700	35	Black
338-896	-0.9 ÷ 10	700	35	Green
338-897	-0.9 ÷ 10	700	35	Red

Valves Mod. 358-89...

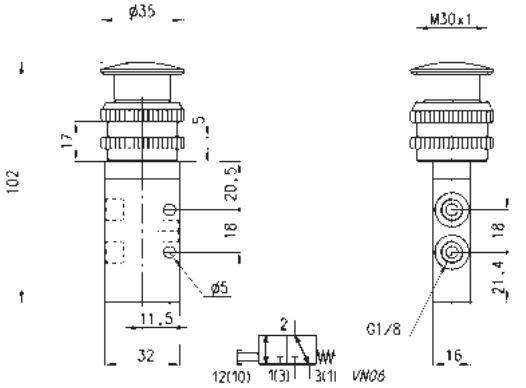




Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)	Colors
358-895	-0.9 ÷ 10	700	35	Black
358-896	-0.9 ÷ 10	700	35	Green
358-897	-0.9 ÷ 10	700	35	Red

Valves Mod. 338-97...



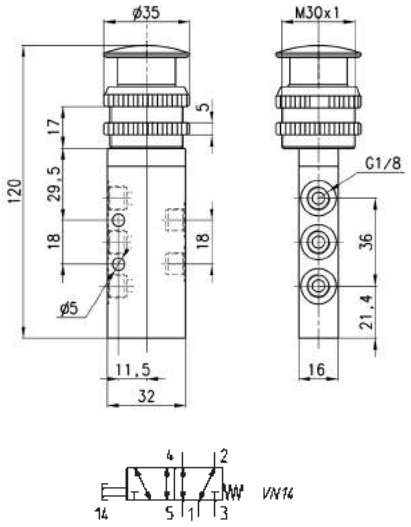


Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)	Colors
338-975	-0.9 ÷ 10	700	35	Black
338-976	-0.9 ÷ 10	700	35	Green
338-977	-0.9 ÷ 10	700	35	Red

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Valves Mod. 358-97...

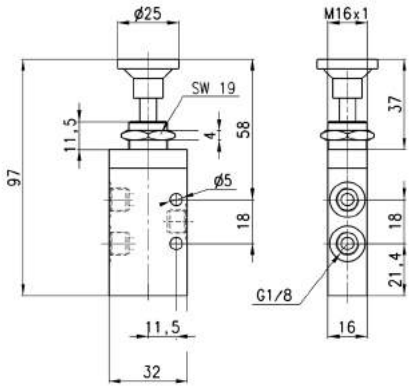


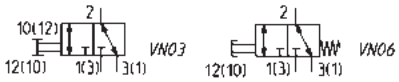


Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)	Colors
358-975	-0.9 ÷ 10	700	35	Black
358-976	-0.9 ÷ 10	700	35	Green
358-977	-0.9 ÷ 10	700	35	Red

Valves Mod. 338-91...



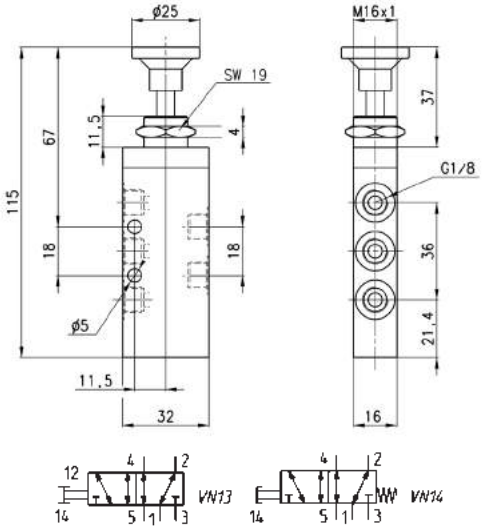




Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)	Symbol
338-910	-0.9 ÷ 10	700	6	VN03
338-915	-0.9 ÷ 10	700	35	VN06

Valves Mod. 358-91...

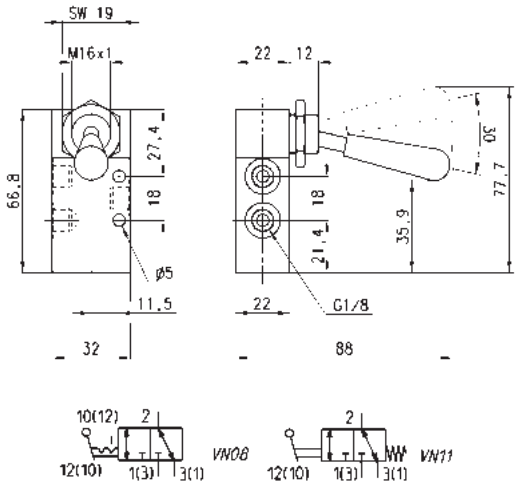




Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)	Symbol
358-910	-0.9 ÷ 10	700	6	VN13
358-915	-0.9 ÷ 10	700	35	VN14

Valves Mod. 338-90...

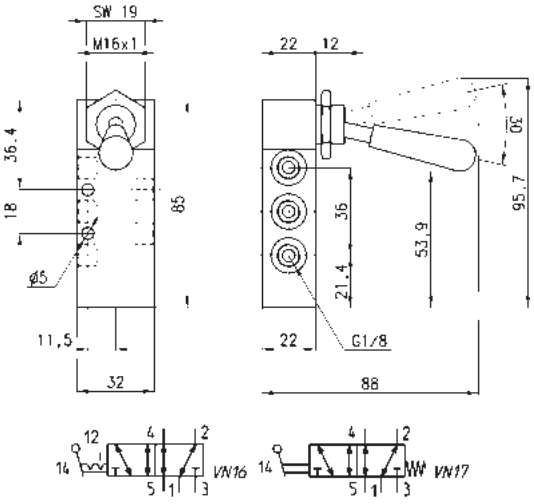




Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)	Symbol
338-900	-0.9 ÷ 10	700	5	VN08
338-905	-0.9 ÷ 10	700	22	VN11

Valves Mod. 358-90...

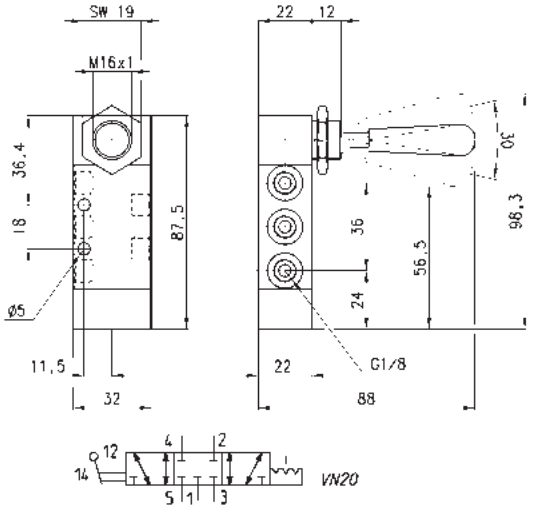




Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)	Symbol
358-900	-0.9 ÷ 10	700	5	VN16
358-905	-0.9 ÷ 10	700	22	VN17

Valve Mod. 368-900



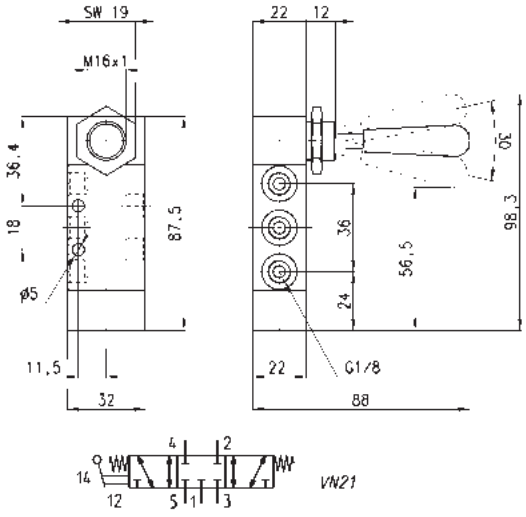


Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)
368-900	-0.9 ÷ 10	500	5

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Valve Mod. 368-905

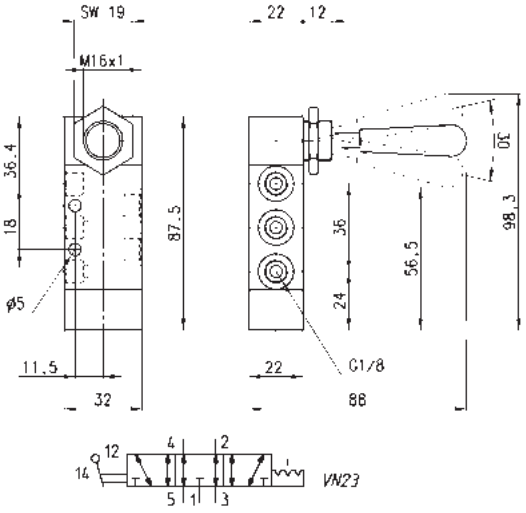




Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)
368-905	-0.9 ÷ 10	500	20

Valve Mod. 378-900

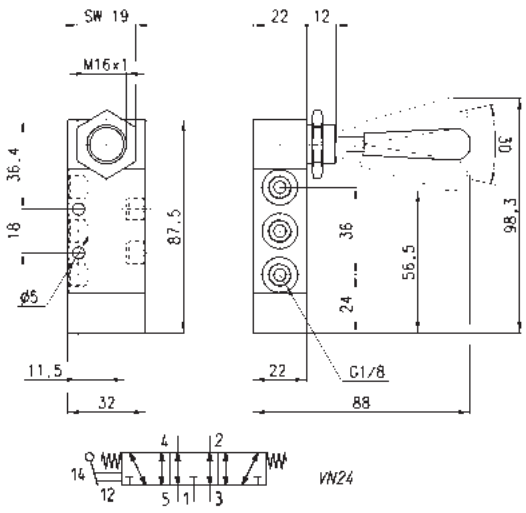




Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)
378-900	-0.9 ÷ 10	500	5

Valve Mod. 378-905



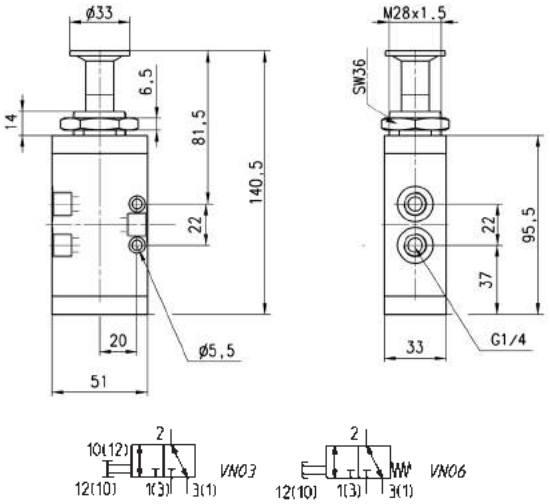


Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)
378-905	-0.9 ÷ 10	500	20

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Valves Mod. 434-91...

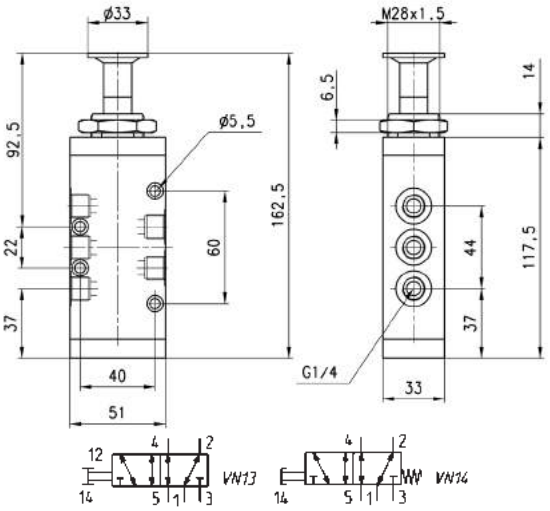




Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)	Symbol
434-910	-0.9 ÷ 10	1250	10	VN03
434-915	-0.9 ÷ 10	1250	37	VN06

Valves Mod. 454-91...

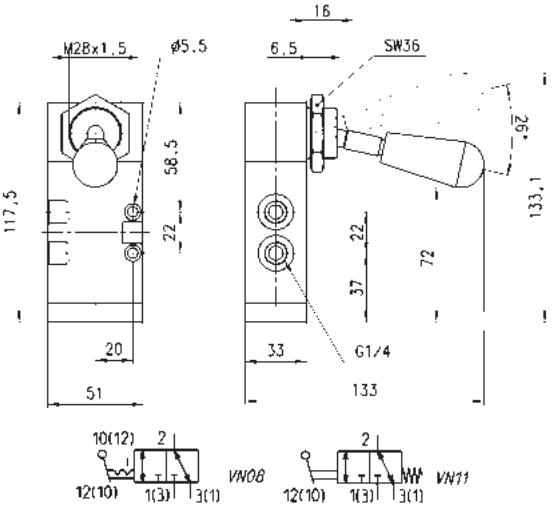




Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)	Symbol
454-910	-0.9 ÷ 10	1250	10	VN13
454-915	-0.9 ÷ 10	1250	37	VN14

Valves Mod. 434-90...



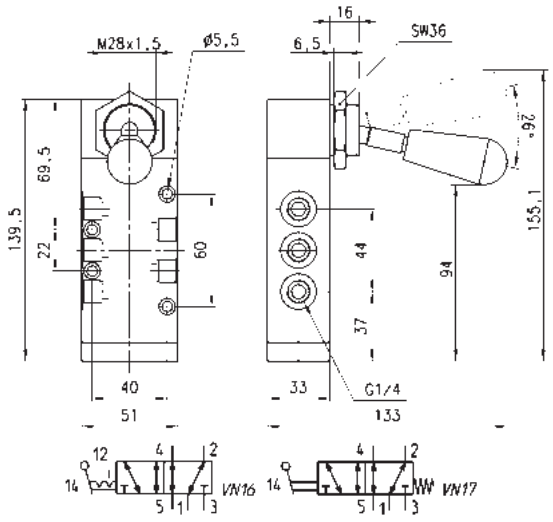


Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)	Symbol
434-900	-0.9 ÷ 10	1250	5	VN08
434-905	-0.9 ÷ 10	1250	37	VN11

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Valves Mod. 454-90...

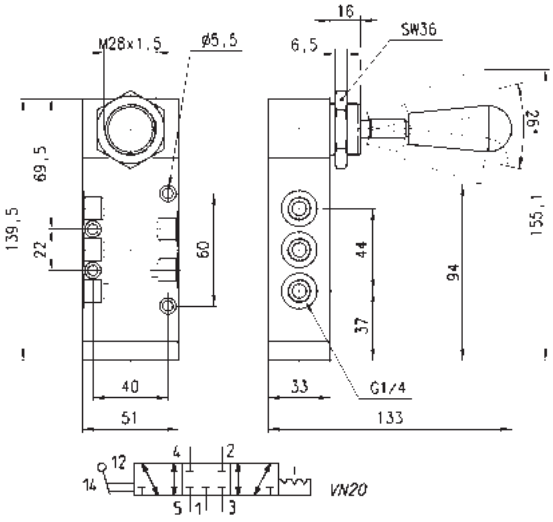




Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)	Symbol
454-900	-0.9 ÷ 10	1250	5	VN16
454-905	-0.9 ÷ 10	1250	37	VN17

Valve Mod. 464-900

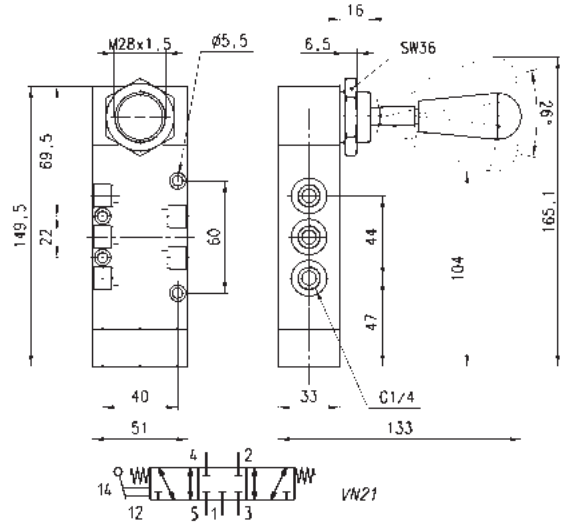




Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)
464-900	-0.9 ÷ 10	1250	5

Valve Mod. 464-905



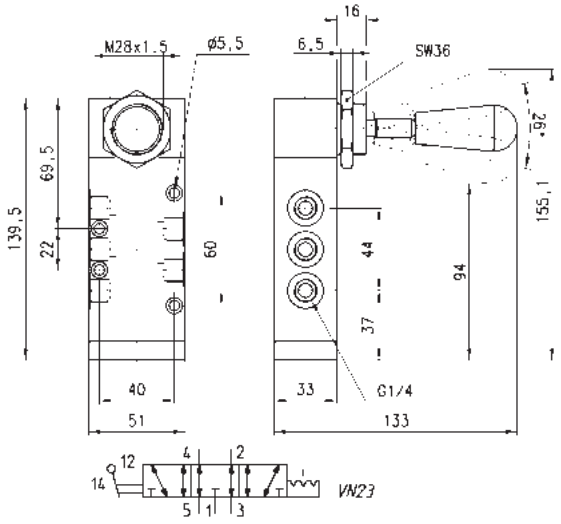


Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)
464-905	-0.9 ÷ 10	1250	10

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Valve Mod. 474-900

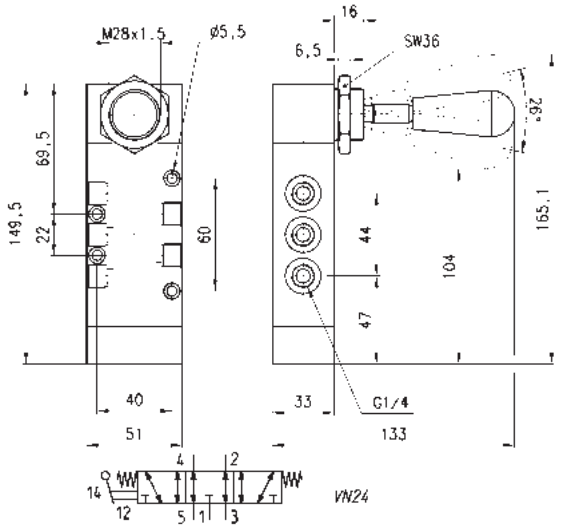




Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)
474-900	-0.9 ÷ 10	1250	5

Valve Mod. 474-905

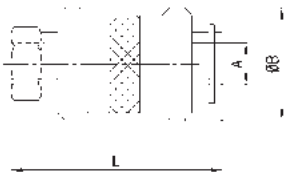




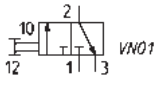
Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)
474-905	-0.9 ÷ 10	1250	10

Series VMS slide valves





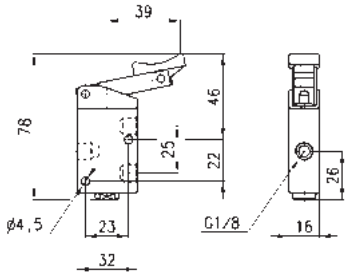
Mod.	A	ØB	L	Flow at 6 bar ΔP 1 (Nl/min) 1-2	Flow at 6 bar ΔP 1 (Nl/min) 2-3	Operating press. (bar)	Operating temp. (°C)
VMS-105-M5	M5	15	33,5	140	145	0 ÷ 15	-10 ÷ 80
VMS-118-1/8	G1/8	25	48	600	740	0 ÷ 15	-10 ÷ 80
VMS-114-1/4	G1/4	30	58	1200	1780	0 ÷ 15	-10 ÷ 80
VMS-138-3/8	G3/8	35	70	2100	1830	0 ÷ 15	-10 ÷ 80
VMS-112-1/2	G1/2	40	80	3350	4030	0 ÷ 15	-10 ÷ 80
VMS-134-3/4	G3/4	49,5	83	5350	5000	0 ÷ 15	-10 ÷ 80

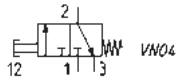


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Valve Mod. 138-935



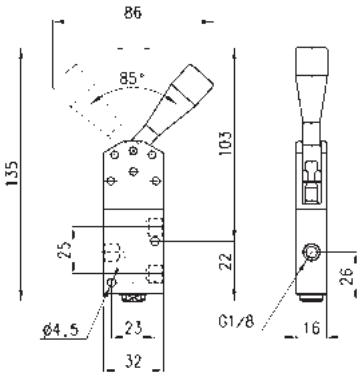


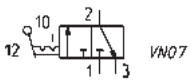


Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)
138-935	0 ÷ 10	500	38

Valve Mod. 138-900



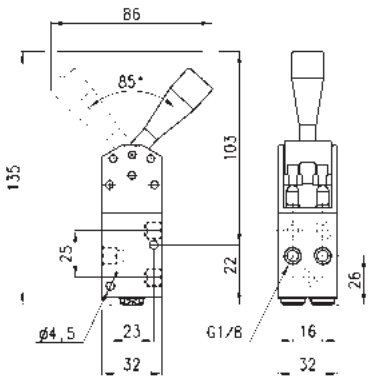


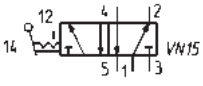


Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)
138-900	0 ÷ 10	500	25

Valve Mod. 158-900



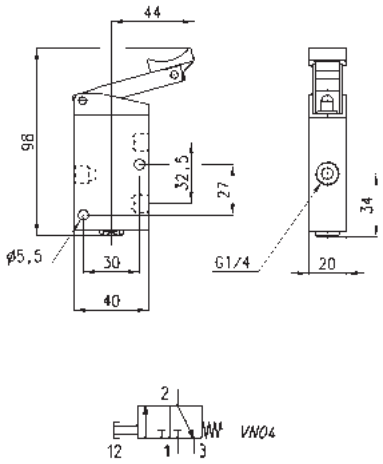




Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)
158-900	0 ÷ 10	500	45

Valve Mod. 134-935

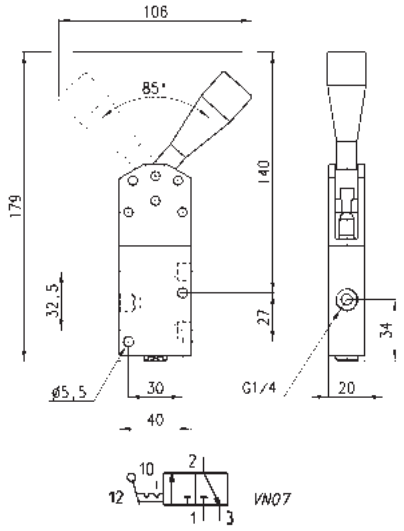




Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)
134-935	0 ÷ 10	1250	40

Valve Mod. 134-900

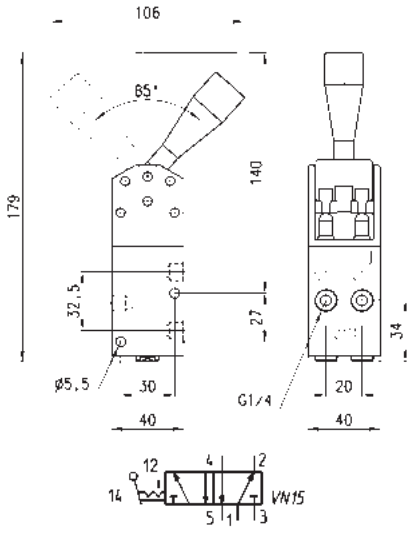




Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)
134-900	0 ÷ 10	1250	30

Valve Mod. 154-900





Mod.	Operating pressure (bar)	Flow (Nl/min)	Actuating force (N)
154-900	0 ÷ 10	1250	55

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Series 2
mini-handle valves

Handle with incorporated micro valve 3/2 NC and NO
Handle with incorporated micro switch



Manual handle with integrated pneumatic micro valve 3/2 or with an electrical micro switch with single pole changeover contacts.
Rugged construction particularly suited to be incorporated in to other equipment.

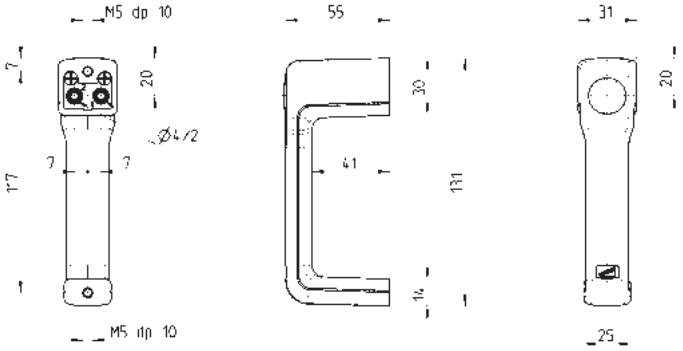
GENERAL DATA

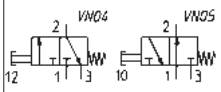
Construction	poppet-type (closed centres)
Valve group	way/pos. 3/2 way NC and NO
Nominal diameter	2,5 mm
Fixing	N°2 holes M5
Ports	push in cartdrige Ø4
Installation	in any position
Operating temperature	0 ÷ +70°C (-20°C with dry air)
Operating pressure	2 ÷ 8 bar
Nominal flow rate	Qn 60 Nl/min. (6 bar Δ p1)
Fluid	Filtered air, without lubrication. If lubricated air is used, it is recommended to use ISO VG32 oil. Once applied the lubrication should never be interrupted.
Actuating force	at 6 bar 13N
Construction	switch device
Electrical connections	3 wires Ø external 2,2 mm internal section 0,5 length 30 cm NC = black wire NO = blue wire
Fixing	N° 2 holes M5
Mounting	in any position
Operating temperature	0 ÷ +70°C
Protection class	IP40
Activation stroke	2 mm
Actuating force	5 N

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Handle 3/2 NC and NO



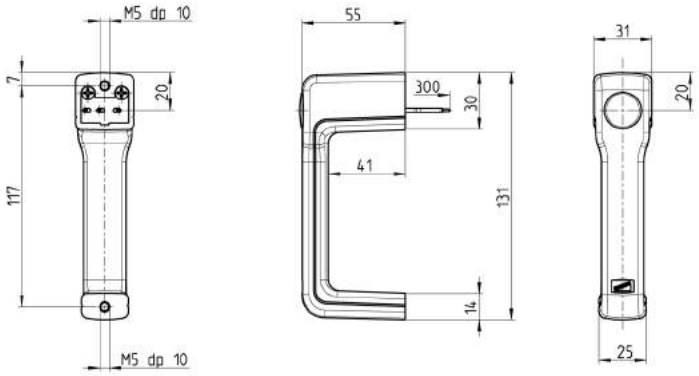


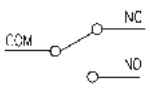


Mod.	Symbol
234-885	VN04
244-885	VN05

Handle







Electrical characteristics

Mod.	Voltage	Non-inductive load Resist. NC / NO	Non-inductive load Lamp NC / NO	Inductive load NC / NO	Inductive load Motor NC/NO
234-88E	125VAC	5A	1,5 A / 0,7 A	3 A	2,5 A / 1,3 A
	250 VAC	3A	1 A / 0,5 A	2 A	1,5 A / 0,8 A
	8 VDC	5A	2 A	5 A / 4 A	3 A
	14 VDC	5A	2 A	4 A	3 A
	30 VDC	4A	2 A	3 A	3 A
	125 VDC	0,4A	0,05 A	0,4 A	0,05 A
	250 VDC	0,2A	0,03 A	0,2 A	0,03 A
234-88E	The above-mentioned values refer to steady-state-current	The inductive load refers to power factor = 0,4 in AC. and a time constant of 7 msec max. in DC.	Lamp load has an inrush current of 10 times the steady-state current.	Motor load has an inrush current of 6 times the steady-state current.	If the switch is used in a DC circuit and is subjected to a surge connect a surge suppressor across the switch.

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Series 2L
basic logic valves

Cartridge Ø 4 mm.
or - and - yes - not - memory



Series 2L basic logic functions are available in 5 different models and can be mounted separately by means of 2 passing holes in the body.
Bracket Mod. 2LQ-8A allows to have the inlets and outlets on the front side, facilitating the mounting of the connection tubes.

All models are constructed with the pressure window incorporated, which allows an easy detection of any problems. Moreover the fittings are incorporated into the valve body and are super-rapid ø4.
The “NOT” element has an actuating pressure of 0,3 bar.

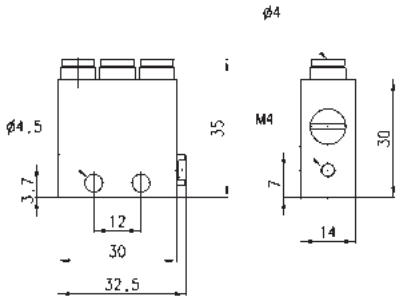
GENERAL DATA

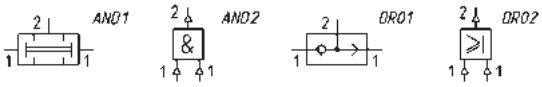
Construction	poppet (spool memory)
Materials	aluminium body; NBR seals; OT58 brass
Valve group	automatic valves (logic units)
Ports	cartridge ø 4
Operating temperature	0°C ÷ 60°C (-20°C with dry air)
Operating pressure	2 bar ÷ 10 bar
Nominal flowrate	100 Nl/min. (6 bar ΔP = 1)
Fluid	filtered air, without lubricant. If lubricated air is used, it is recommended to use oil ISO VG32. Once applied the lubrication should never be interrupted.

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Basic logic valves AND / OR



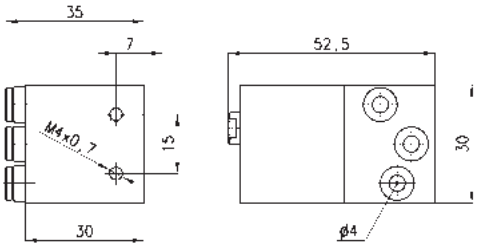


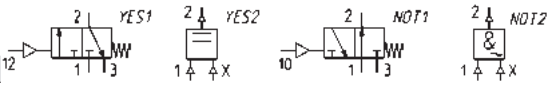


Mod.	Function	Pneumatic symbol	Logic symbol
2LD-SB4-B	AND	AND1	AND2
2LR-SB4-B	OR	OR01	OR02

Basic logic valves YES / NOT



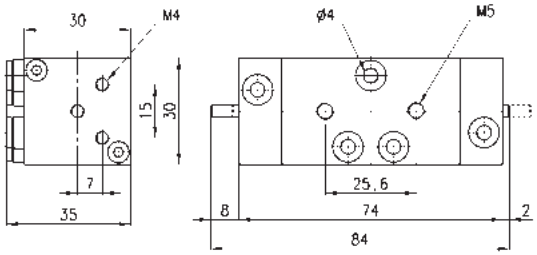


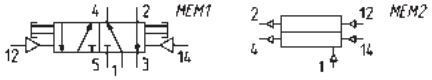


Mod.	Function	Pneumatic symbol	Logic symbol
2LS-SB4-B	YES	YES1	YES2
2LT-SB4-B	NOT	NOT1	NOT2

Basic logic valves “Memory”





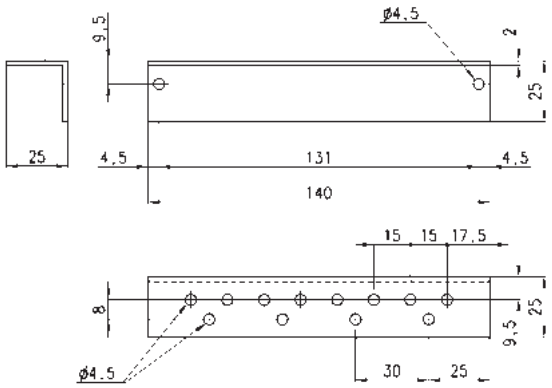


Mod.	Function	Pneumatic symbol	Logic symbol
2LM-SB4-B	Memory	MEM1	MEM2

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Right-angled bracket





Mod.
2LQ-8A

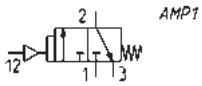
Pneumatically operated 3/2 NC amplifier valve - G1/8 ports

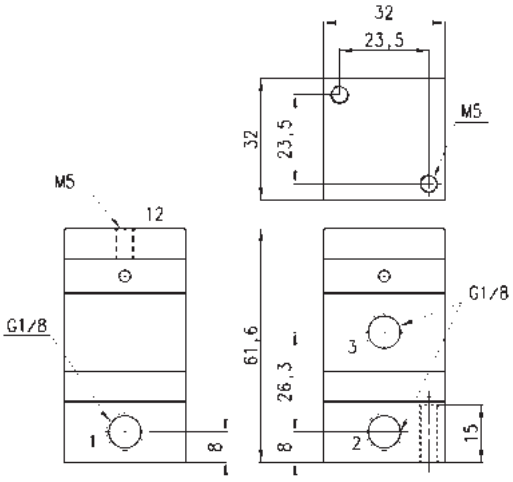
The amplifier valve Mod. 2LA-AM is able to change low pressure signals into signals with pressure from 2 to 8 bar. The poppet type construction shows a minimum permanent air consumption at rest.

Mounting: with M5 screws
Installation: in any position
Fluid: filtered air, without lubricant



Materials:
- AL body
- NBR seals





Mod.	Working pressure (bar)	Min/max operating pressure (bar)	Permanent air consumption at rest (Nl/min)	Nominal flow (Nl/min ΔP 1)
2LA-AM	2 ÷ 8	0.03 / 0.6	3.3	120

2

CONTROL

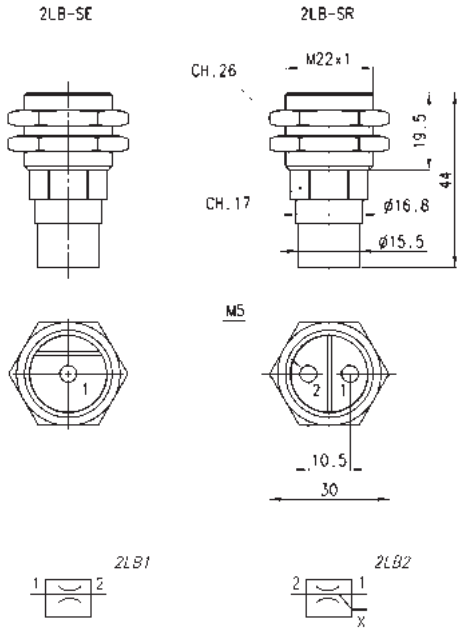
Sender and receiver sensor Series 2L - M5 ports



Materials: aluminium - brass
Construction: nozzle without moving parts
Threading mounting: M22 x 1
Mounting diameter: 22.5 mm
Mounting bracket: B20-25, E20-25
Max air consumption: P 2 bar ≅ 45 Nl/min
Fluid: filtered air, without lubricant

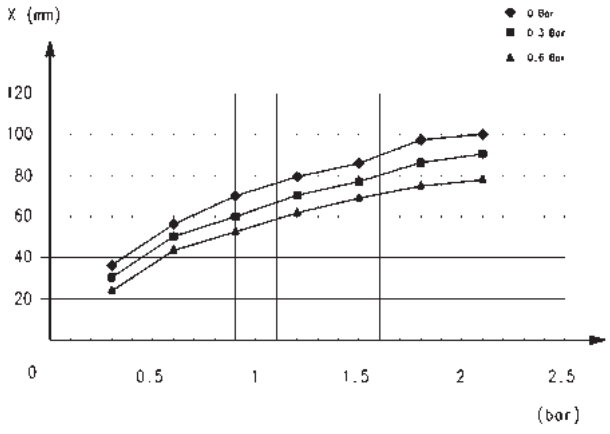
Conditions of functioning: the receiver pressure (2LB-SR) has to be lower or equal compared with the sender pressure (2LB-SE)

The receiver nozzle (2LB-SR) is supplied to ensure the self-cleaning. The air jet of the sender (2LB-SE) avoids the free outflow of the air jet from the receiver. A back pressure is thus produced that generates at outlet A a pilot pressure which is sent to the amplifier drive. When an object interrupts the air jet between the two sensors, this signal becomes zero.

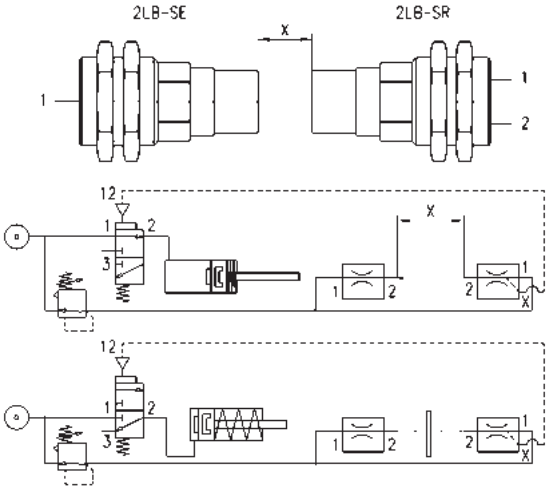


Mod.	Type	Min. pressure	Max pressure	Temperature	Symbol
2LB-SE	Sender	0.3 bar	2 bar	-20°C ÷ +60°C	2LB1
2LB-SR	Receiver	0.3 bar	0.6 bar	-20°C ÷ +60°C	2LB2

SENDER AND RECEIVER SENSORS SERIES 2L



DISTANCE DIAGRAM between
SENDER (2LB-SE) and RECEIVER (2LB-SR)
according to the supply pressures



X = distance between nozzles (30 mm ÷ 80 mm)

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Circuit selector Mod. SCS

Ports: G1/8



» Channelling of two signals coming alternately from two different points towards the same point

The circuit selector Mod. SCS - 668-06 enables two signals coming alternately from two different points to be channelled towards the same point.

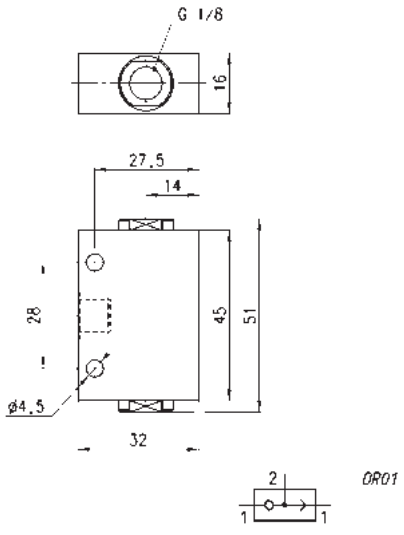
GENERAL DATA

Valve group	automatic valves
Construction	poppet-type
Materials	AL body brass bush Delrin poppet NBR seals
Mounting	in any position
Ports	G1/8
Operating temperature	0°C ÷ 80°C (with dry air -20°C)
Medium	filtered air, without lubrication. If lubricated air is used, it is recommended to use ISO VG32 oil. Once applied the lubrication should never be interrupted.



Circuit selector Mod. SCS

The selector is mounted by through holes in the body.



Mod.	Flow (Nl/min)	Min. operating pressure (bar)	Max working pressure (bar)
SCS-668-06	800	0.2	10

Series VNR unidirectional valves

Ports: M5, G1/8, G1/4, G3/8, G1/2, G3/4, G1

» Operations at low pressures



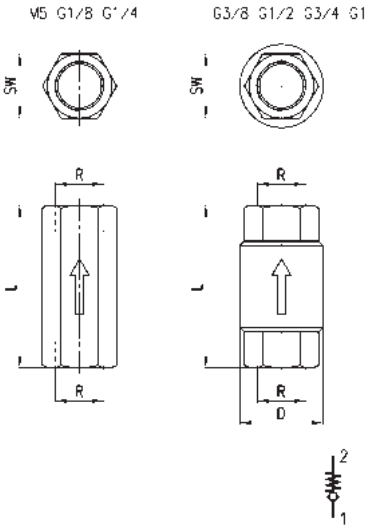
Series VNR unidirectional valves, thanks to their poppet-type construction, can operate at low pressures both when there is a free flow and during retention.

GENERAL DATA

Valve group	automatic valves
Construction	poppet-type
Materials	brass body stainless steel spring NBR seals
Mounting	in any position
Ports	M5, G1/8, G1/4, G3/8, G1/2, G3/4, G1
Operating temperature	0°C ÷ 80°C (with dry air -20°C)
Medium	filtered air, without lubrication. If lubricated air is used, it is recommended to use ISO VG32 oil. Once applied the lubrication should never be interrupted.

Series VNR unidirectional valves





DIMENSIONS

Mod.	R	L	SW	D	Flow (Nl/min)	Min. operating pressure (bar)	Max working pressure (bar)
VNR-205-M5	M5	25	8	9	50	1	10
VNR-210-1/8	G1/8	34	13	15	600	0.2	10
VNR-843-07	G1/4	43	17	20	1400	0.2	10
VNR-238-3/8	G3/8	55	23	34.5	3000	0.02	25
VNR-212-1/2	G1/2	58.5	27	34.5	5800	0.02	25
VNR-234-3/4	G3/4	65	33	41.5	8000	0.06	25
VNR-201-01	G1	74.5	40	48	13000	0.06	25

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Series VSO, VSC quick exhaust valves

Series VSO ports: M5, G1/8, cartridge ø4
Series VSC ports: G1/8, G1/4, G1/2

- Suitable to rapidly discharge air contained in tanks, systems or cylinder chambers.
- Threaded versions and with fitting



Series VSC and VSO quick exhaust valves are commonly used to increase the speed of cylinders or for rapid depressurisation of tanks containing compressed air.

Mod. VSO 425-M5, VSO 426-04: they are particularly suitable to be mounted on solenoid valves and valves incorporating a ø 4 cartridge.

Mod. VSO 4-1/8: it is particularly suitable for direct mounting on the actuator connection. The air coming in from the jointed part (1) is used by the threaded side (2), whilst the exhaust (3) passes through the holes sideways to the valve body.

Mod. VSC: they are particularly suitable to be mounted directly on the cylinder mouth through the use of a nipple. It is recommended to mount a silencer on the outlet.

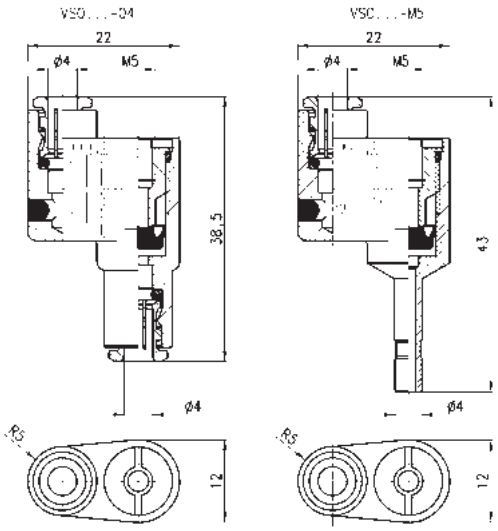
GENERAL DATA

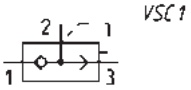
Valve group	automatic valves
Construction	poppet-type
Materials	Series VSO: brass body - NBR seals Series VSC: brass body - Desmopan seal
Mounting	in any position
Ports	Series VSO: M5, G1/8, cartridge ø4 Serie VSC: G1/8, G1/4, G1/2
Operating temperature	0°C ÷ 80°C (with dry air -20°C)
Fluid	filtered air, without lubrication. If lubricated air is used, it is recommended to use ISO VG32 oil. Once applied the lubrication should never be interrupted.

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Quick exhaust valves Mod. VSO 425-M5, VSO 426-04



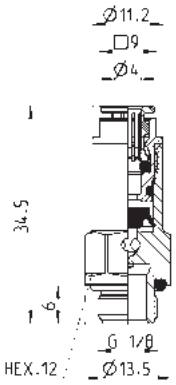


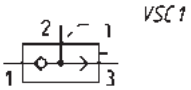


Mod.	Ports	Flow rate at 6 bar 1 > 2 (Nl/min)	Flow rate at 6 bar 2 > 3 (Nl/min)	Min. operating pressure (bar)	Max working pressure (bar)
VSO 425-M5	M5	50 (ΔP = 1 bar)	100 (ΔP = 1 bar)	1	16
VSO 426-04	cartridge ø4	50 (ΔP = 1 bar)	100 (ΔP = 1 bar)	1	16

Quick exhaust valve Mod. VSO 4-1/8





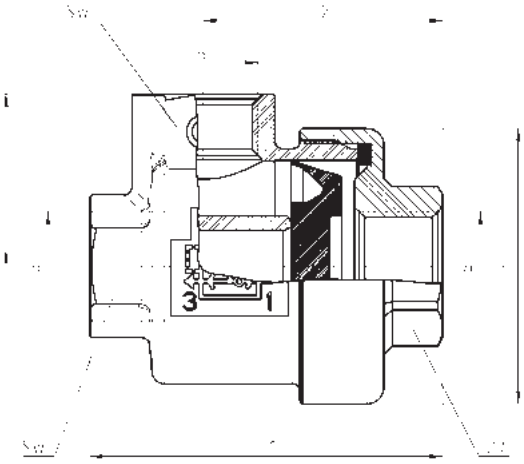


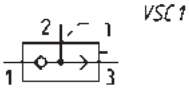
Mod.	Ports	Flow rate at 6 bar 1 > 2 (Nl/min)	Flow rate at 6 bar 2 > 3 (Nl/min)	Min. operating pressure (bar)	Max working pressure (bar)
VSO 4-1/8	G1/8	50 (ΔP = 1 bar)	330 (free flow)	0.5	16

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Series VSC quick exhaust valves







Mod.	B	D	E	L1	L2	SW	Ports	Medium inlet flow rate 1 > 2 [flow at 6 bar, ΔP 1 bar] (Nl/min)	Medium exhaust flow rate 2 > 3 [flow at 6 bar, ΔP 1 bar] (Nl/min)	Min. operating pressure (bar)	Max working pressure (bar)
VSC 588-1/8	1/8	28	17.5	36.5	25	14	G1/8	630	940	0.5	12
VSC 544-1/4	1/4	33	20.5	42	28.5	17	G1/4	860	1600	0.3	12
VSC 522-1/2	1/2	43	27	57.5	39.5	24	G1/2	4700	6250	0.2	12

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Adjustable overpressure exhaust valve Mod. VMR 1/8-B10

Ports: G1/8



» Able to maintain pressure constant at a set value which allows the overpressure to exhaust

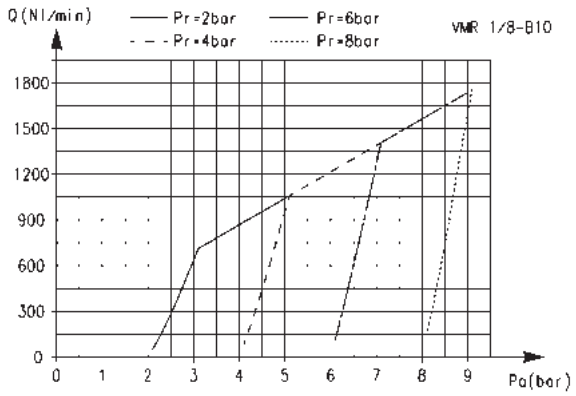
The adjustable valve Mod. VMR 1/8-B10 allows to discharge the overpressure that can be generated in a volume.

GENERAL DATA

Valve group	automatic valves
Construction	diaphragm type
Materials	brass body zinc-plated steel spring NBR seals
Mounting	in any position
Ports	G1/8
Operating temperature	-5°C ÷ 50°C (with the dew point of the fluid lower than 2°C at the min. working temperature)
Medium	filtered air, without lubrication. If lubricated air is used, it is recommended to use ISO VG32 oil. Once applied the lubrication should never be interrupted.

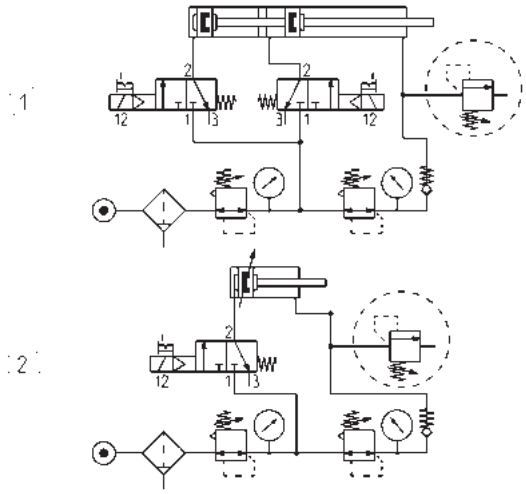
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FLOW DIAGRAM and FUNCTIONING SCHEMES



FLOW DIAGRAM

Pa = Inlet pressure
Pr = Regulated pressure
Q = Flow

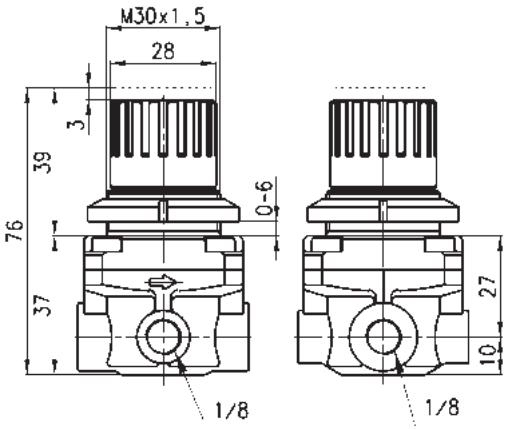


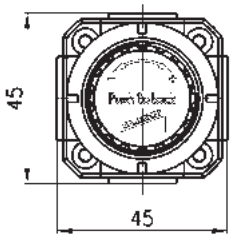
FUNCTIONING SCHEME 1: overpressure exhaust in a cylinder chamber or in a tank when the set value has been exceeded.

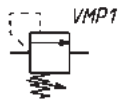
FUNCTIONING SCHEME 2: VMR valve with maximum adjustable pressure allows pressure in a cylinder chamber or in tank to exhaust in the atmosphere every time the set regulation value is exceeded.

Valve with maximum adjustable pressure Mod. VMR 1/8-B10









Mod.	Working pressure (bar)
VMR 1/8-B10	1 ÷ 8

Series VBO - VBU blocking valves

Unidirectional valves (VBU) and bidirectional valves (VBO)
Ports G1/8, G1/4, G3/8 and G1/2





- Series VBU: unidirectional valves with operating pressure from 0.3 to 10 bar
- Series VBO: bidirectional valves with operating pressure from 0 to 10 bar
- Direct mounting on cylinders or on distribution and fluid control blocks

These unidirectional and bidirectional blocking valves have been realised in order to enable mounting directly on cylinders.
They can be used as high flow valves for blows, cleaning of pieces, filling of volumes.
For these applications it is suggested to connect the supply to port 2 (having the mail thread).

These valves can be mounted directly also on distribution and fluid control blocks.

GENERAL DATA

Construction	poppet type
Valve group	unidirectional and bidirectional blocking valve
Materials	Brass - NBR seals - stainless steel springs - PTFE
Mounting	by male thread
Ports	G1/8 - G1/4 - G3/8 - G1/2
Position	in any position
Operating temperature	0°C ÷ 80°C (with dry air -20°C)
Operating pressure	VBU: 0,3 ÷ 10 bar, VBO: 0 ÷ 10 bar
Nominal pressure	6 bar
Nominal flow	see graph
Nominal diam.	G1/8 ø 5,5 mm - G1/4 ø 8 mm - G3/8 ø 11 mm - G1/2 ø 15 mm
Fluid	filtered air, without lubrication. If lubricated air is used, it is recommended to use oil ISO VG32. Once applied, the lubrication should never be interrupted.

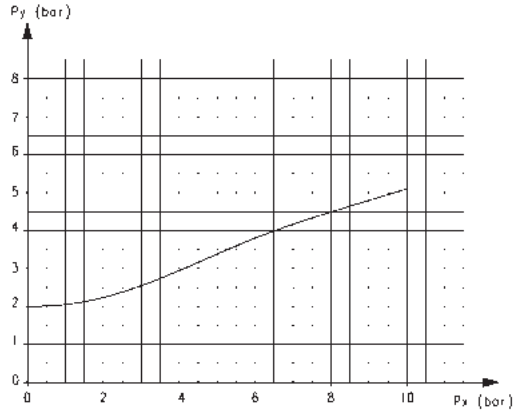
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CODING EXAMPLE

VB	U		1/8

VB	SERIES: VB
U	VERSIONS: U = unidirectional O = bidirectional
1/8	PORTS: G1/8 G1/4 G3/8 G1/2

DIAGRAM OF THE PILOT PRESSURE



This diagram shows the relation between working pressure (Px) and pilot pressure required in order to operate the valve (Py).
The opening pressure of the unidirectional valve is 0,3 bar.

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FLOW DIAGRAMS OF UNIDIRECTIONAL AND BIDIRECTIONAL VALVES

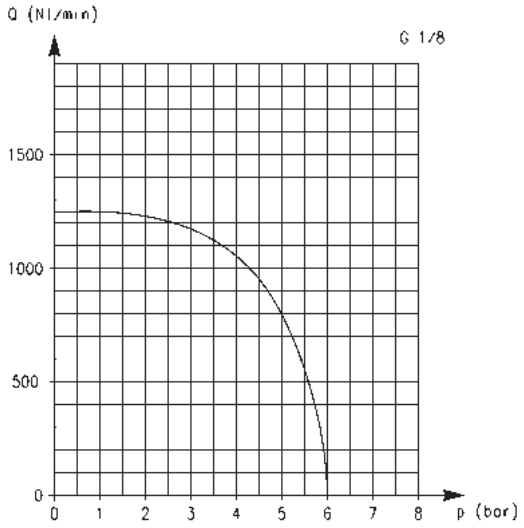


Diagram for valves VBU and VBO with G1/8 ports.

Q is the flow measured in Nl/min and determined with an inlet pressure of 6 bar.

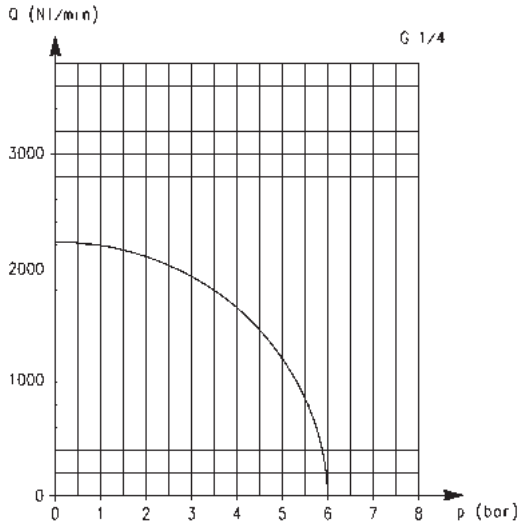


Diagram for valves VBU and VBO with G1/4 ports.

Q is the flow measured in Nl/min and determined with an inlet pressure of 6 bar.

FLOW DIAGRAMS OF UNIDIRECTIONAL AND BIDIRECTIONAL VALVES

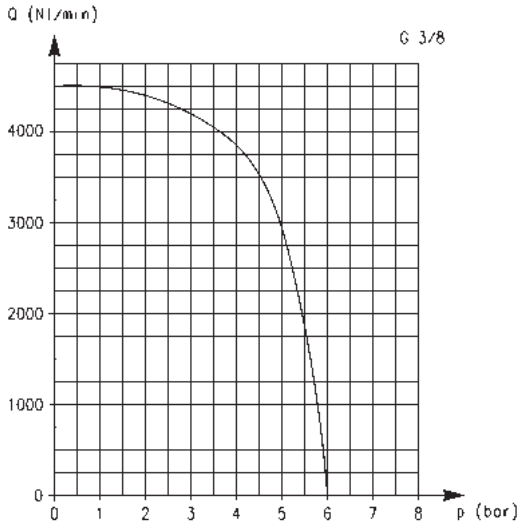


Diagram for valves VBU and VBO with G3/8 ports.

Q is the flow measured in Nl/min and determined with an inlet pressure of 6 bar.

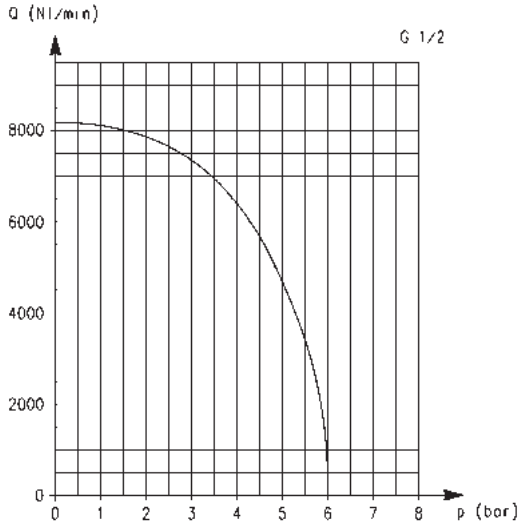


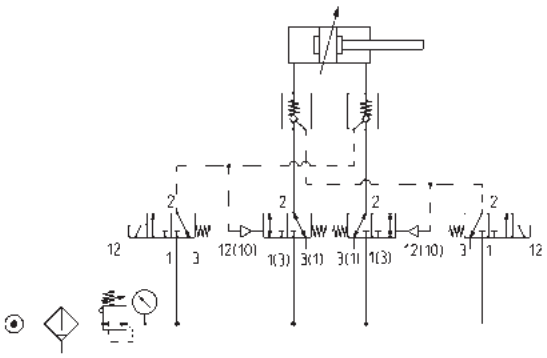
Diagram for valves VBU and VBO with G1/2 ports.

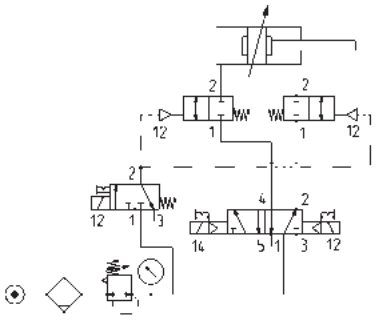
Q is the flow measured in Nl/min and determined with an inlet pressure of 6 bar.

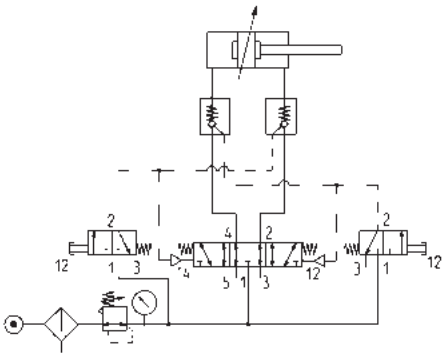
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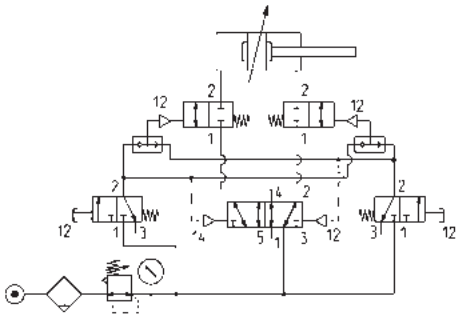
APPLICATION SCHEMES

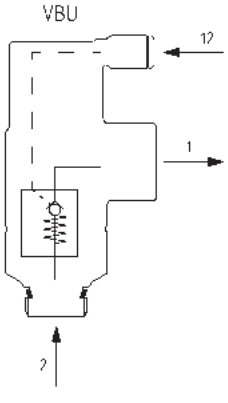
VBU = UNIDIRECTIONAL blocking valve
VBO = BIDIRECTIONAL blocking valve

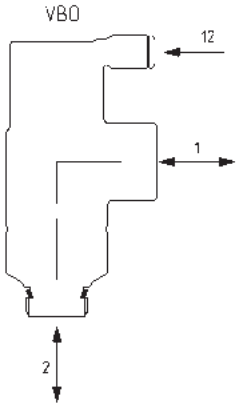






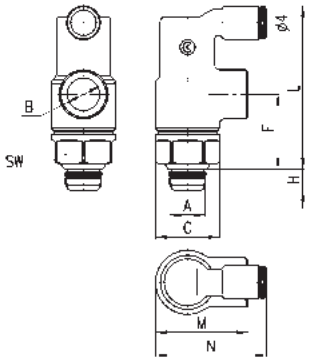






Unidirectional blocking valve



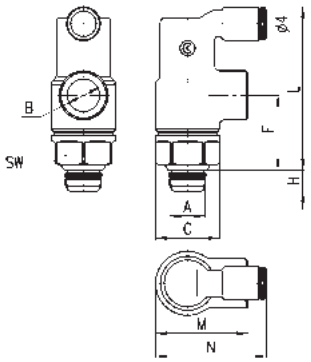


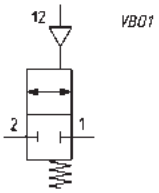


DIMENSIONS									
Mod.	A	B	C	F	H	L	M	N	SW
VBU 1/8	1/8	1/8	16,9	20	5,5	43	24,5	30	15
VBU 1/4	1/4	1/4	20,5	25	7	50	32,2	33,5	19
VBU 3/8	3/8	3/8	26,8	33	8	67	40	39,5	24
VBU 1/2	1/2	1/2	30	45,5	9	85,7	52	48	27

Bidirectional blocking valve







DIMENSIONS									
Mod.	A	B	C	F	H	L	M	N	SW
VBO 1/8	1/8	1/8	16,9	20	5,5	43	24,5	30	15
VBO 1/4	1/4	1/4	20,5	25	7	50	32,2	33,5	19
VBO 3/8	3/8	3/8	26,8	33	8	67	40	39,5	24
VBO 1/2	1/2	1/2	30	45,5	9	85,7	52	48	27

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Series SCU, MCU, SVU, MVU, SCO, MCO flow control valves

Unidirectional and bidirectional banjo flow control regulators
Ports: M5, G1/8, G1/4, G3/8, G1/2



These unidirectional and bidirectional flow controllers have been designed as small as possible so as to be mounted directly on valves or cylinders.
The great variety of adjustable fittings makes it possible to complete the regulator with the most suitable system in relation to the available tube.

Only the G1/2 model is supplied complete with banjo flow controllers.
For the other models the banjo flow controller is to be requested separately.

GENERAL DATA

Construction	needle type
Valve group	unidirectional and bidirectional controller
Materials	body and regulation screw: M5 = stainless steel; 1/8 - 1/4 - 3/8 - 1/2 = OT; seals = NBR
Mounting	by male thread
Ports	M5 - G1/8 - G1/4 - G3/8 - G1/2
Installation	in any position
Operating temperature	0°C ÷ 80°C (with dry air - 20°C)
Operating pressure	1 ÷ 10 bar
Nominal pressure	6 bar
Nominal flow	see graph
Nominal diameter	M5 = 1,5 mm - G1/8 = 2 mm - G1/4 = 4 mm - G3/8 = 7 mm - G1/2 = 12 mm
Fluid	filtered air

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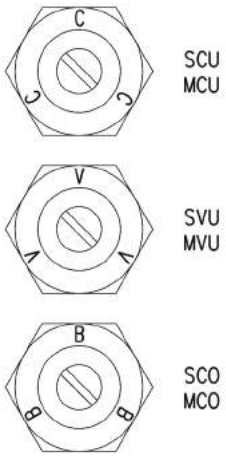
CODING EXAMPLE

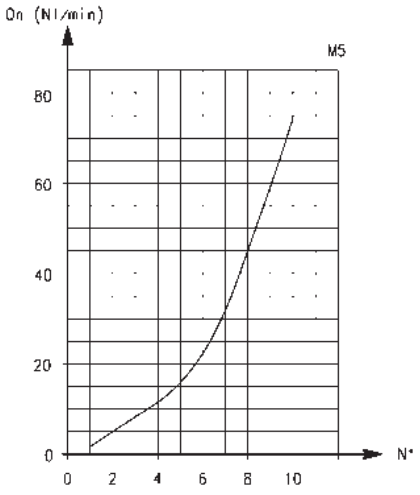
M	CU		7	02	-	M5

M	ACTUATION: M = Manual S = Screwdriver
CU	ASSEMBLY: CU = on cylinders unidirectional VU = on valves unidirectional CO = bidirectional
7	VERSIONS: 6 = needle (screwdriver operated) 7 = needle (manual operated)
02	NOMINAL DIAMETER: 02 = ø 1,5 max 04 = ø 2 max 06 = ø 4 max 08 = ø 7 max 10 = ø 12 max
M5	PORTS: M5 = M5 1/8 = G1/8 1/4 = G1/4 3/8 = G3/8 1/2 = G1/2

To ensure the right choice of unidirectional flow controller, proceed as follows: calculate the quantity of air in Nl/min (see cylinder Table); determine the stroke time of the cylinder; refer to graph to see which controller is the right type.

UNIDIRECTIONAL AND BIDIRECTIONAL FLOW CONTROLLERS



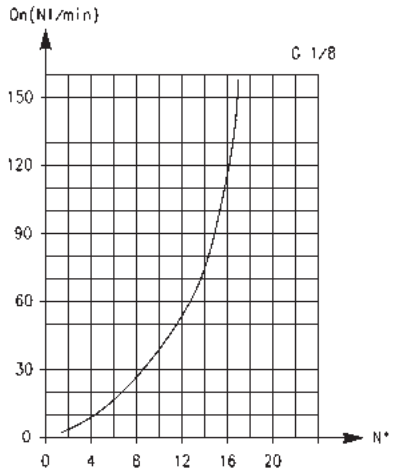


IDENTIFICATION OF DIFFERENT TYPES:
SCU - MCU = assembly directly on the cylinders
SVU - MVU = assembly directly on the valves
SCO - MCO = assembly directly on the cylinders or valves

Flow Qn (Nl/min.) from 2 → 1 with controller OPEN: 70
Flow Qn (Nl/min.) from 2 → 1 with controller CLOSED: 33
Qn = supply pressure of 6 bar and with ΔP = 1 bar at the outlet
N° = number of screw turns.

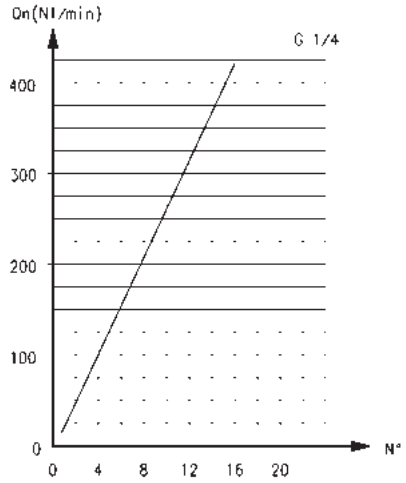
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UNIDIRECTIONAL AND BIDIRECTIONAL FLOW CONTROL REGULATORS



Flow Qn (Nl/min.) from 2 → 1 with controller OPEN: 200
Flow Qn (Nl/min.) from 2 → 1 with controller CLOSED: 70

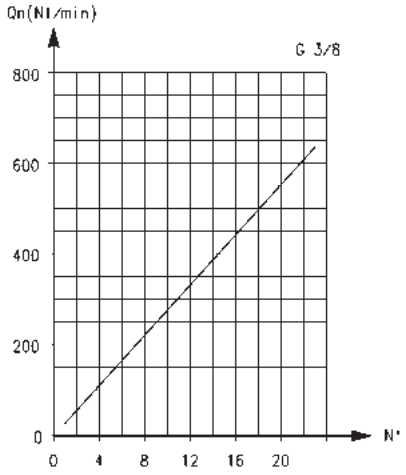
Qn = supply pressure of 6 bar and with ΔP = 1 bar at the outlet
N° = number of screw turns.



Flow Qn (Nl/min.) from 2 → 1 with controller OPEN: 530
Flow Qn (Nl/min.) from 2 → 1 with controller CLOSED: 160

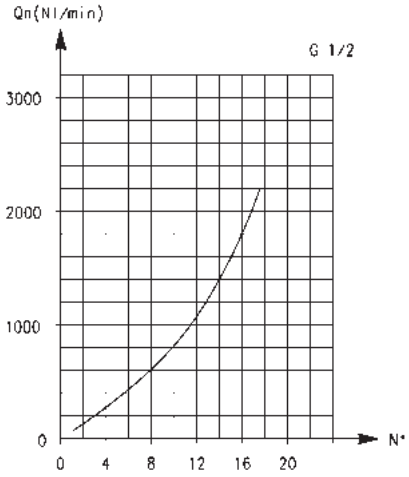
Qn = supply pressure of 6 bar and with ΔP = 1 bar at the outlet
N° = number of screw turns.

UNIDIRECTIONAL AND BIDIRECTIONAL FLOW CONTROL REGULATORS



Flow Qn (Nl/min.) from 2 → 1 with controller OPEN: 710
Flow Qn (Nl/min.) from 2 → 1 with controller CLOSED: 410

Qn = supply pressure of 6 bar and with ΔP = 1 bar at the outlet
N° = number of screw turns.



Flow Qn (Nl/min.) from 2 → 1 with controller OPEN: 2570
Flow Qn (Nl/min.) from 2 → 1 with controller CLOSED: 1330

Qn = supply pressure of 6 bar and with ΔP = 1 bar at the outlet
N° = number of screw turns.

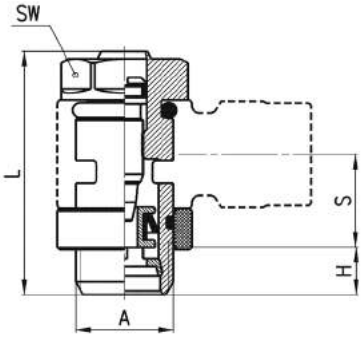
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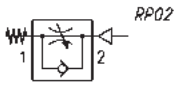
Unidirectional flow controllers Series SCU



For mounting on single-acting or double-acting cylinders.
Adjustment of setting by a screwdriver.
Ports: M5, G1/8, G1/4 and G3/8.

Assembly with fittings Mod. 6610; 6620; 1610; 1620; 2023; 1170.





DIMENSIONS					
Mod.	A	H	L	S	SW
SCU 602-M5	M5	3,5	21,5	5,5	8
SCU 604-1/8	G1/8	5	31,5	12,5	12
SCU 606-1/4	G1/4	6	32,5	12,5	15
SCU 608-3/8	G3/8	7	40,5	12,5	18

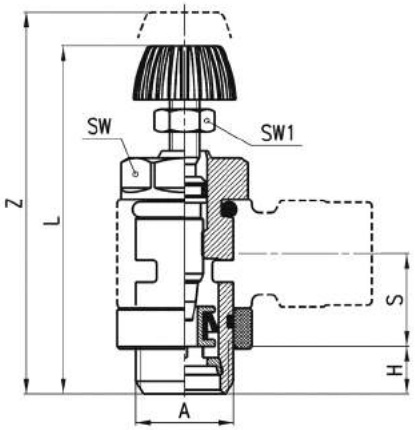
Note: M5 flow controllers must be used together with M6 adjustable fittings.

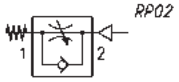
Unidirectional flow controllers Series MCU



For mounting on single-acting or double-acting cylinders.
Adjustment of setting by a manually operated knurled screw.
Ports: M5, G1/8, G1/4, G3/8.

Assembly with fittings Mod. 6610; 6620; 1610; 1620; 2023; 1170.





DIMENSIONS							
Mod.	A	H	L	S	SW	SW1	Z
MCU 702-M5	M5	3,5	31	5,5	8	5,5	35
MCU 704-1/8	G1/8	5	41	12,5	12	7	46
MCU 706-1/4	G1/4	6	43,5	12,5	15	7	49
MCU 708-3/8	G3/8	7	52,5	12,5	18	10	60,5

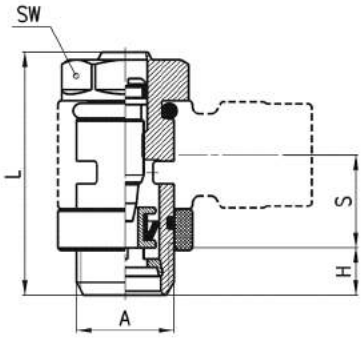
Note: M5 flow controllers must be used together with M6 adjustable fittings.

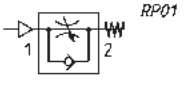
Unidirectional flow controllers Series SVU



For mounting on valves.
Adjustment of setting by a screwdriver.
Ports: M5, G1/8, G1/4.

Assembly with fittings Mod. 6610; 6620; 1610; 1620; 2023; 1170.





DIMENSIONS					
Mod.	A	H	L	S	SW
SVU 602-M5	M5	3,5	21,5	5,5	8
SVU 604-1/8	G1/8	5	31,5	12,5	12
SVU 606-1/4	G1/4	6	32,5	12,5	15

Note: M5 flow controllers must be used together with M6 adjustable fittings.

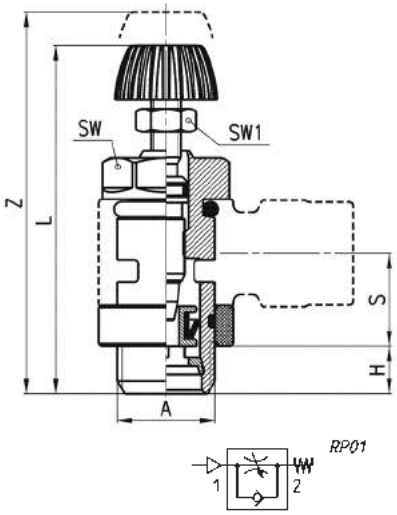
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Unidirectional flow controllers Series MVU



For mounting on valve. Adjustment of setting by a manually operated knurled screw.
Ports: M5, G1/8, G1/4.

Assembly with fittings Mod. 6610; 6620; 1610; 1620; 2023; 1170.



DIMENSIONS							
Mod.	A	H	L	S	SW	SW1	Z
MVU 702-M5	M5	3,5	31	5,5	8	5,5	35
MVU 704-1/8	G1/8	5	41	12,5	12	7	46
MVU 706-1/4	G1/4	6	43,5	12,5	15	7	49

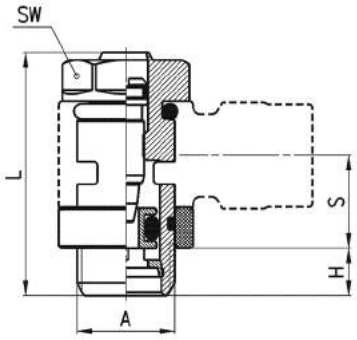
Note: M5 flow controllers must be used together with M6 adjustable fittings.

Bidirectional flow controllers Series SCO



Adjustment of setting by a screwdriver.
Ports: M5, G1/8, G1/4.

Assembly with fittings Mod. 6610; 6620; 1610; 1620; 2023; 1170; 2905.



DIMENSIONS					
Mod.	A	H	L	S	SW
SCO 602-M5	M5	3,5	21,5	5,5	8
SCO 604-1/8	G1/8	5	31,5	12,5	12
SCO 606-1/4	G1/4	6	32,5	12,5	15

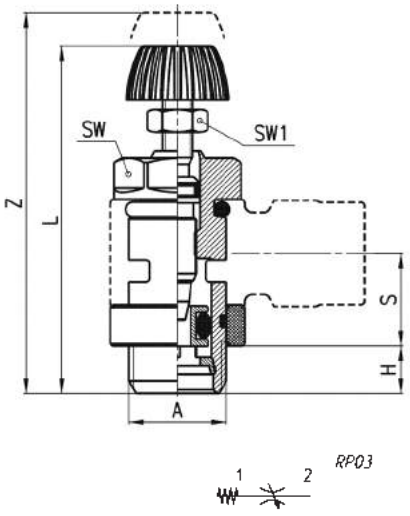
Note: M5 flow controllers must be used together with M6 adjustable fittings.

Bidirectional flow controllers Series MCO



Adjustment of setting by a manually operated knurled screw.
Ports: M5, G1/8, G1/4.

Assembly with fittings Mod. 6610; 6620; 1610; 1620; 2023; 1170; 2905.



DIMENSIONS							
Mod.	A	H	L	S	SW	SW1	Z
MCO 702-M5	M5	3,5	31	5,5	8	5,5	35
MCO 704-1/8	G1/8	5	41	12,5	12	7	46
MCO 706-1/4	G1/4	6	43,5	12,5	15	7	49

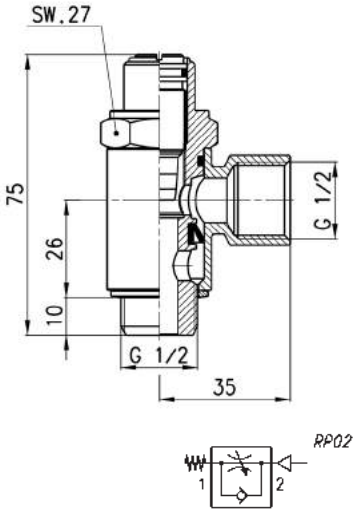
Note: M5 flow controllers must be used together with M6 adjustable fittings.

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Unidirectional flow controllers Series SCU



For mounting on single-acting or double-acting cylinders.
Screwdriver adjustment.

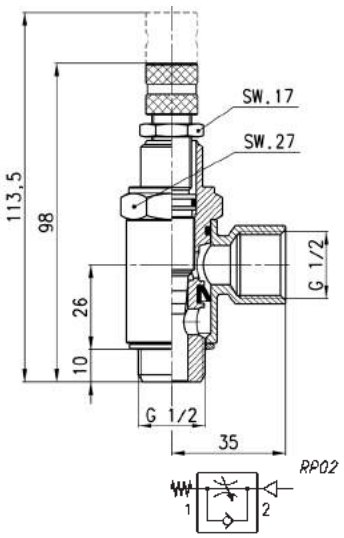


Mod.
SCU 610-1/2

Unidirectional flow controllers Series MCU



For mounting on single-acting or double-acting cylinders.
Adjustment of setting by a manually operated knurled screw.

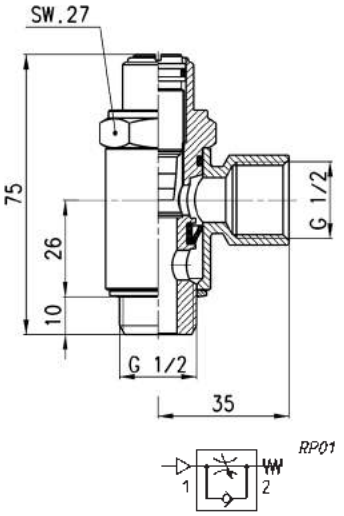


Mod.
MCU 710-1/2

Unidirectional flow controllers Series SVU



For mounting on valves.
Screwdriver adjustment.



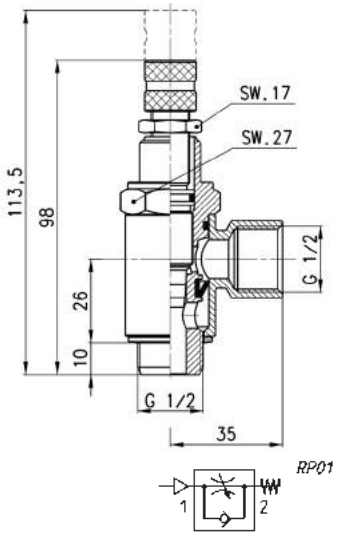
Mod.
SVU 610-1/2

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Unidirectional flow controllers Series MVU



For mounting on valve.
Adjustment of setting by a manually operated knurled screw.

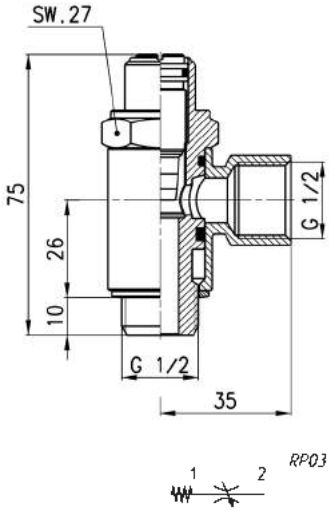


Mod.
MVU 710-1/2

Bidirectional flow controllers Series SCO



Screwdriver adjustment.

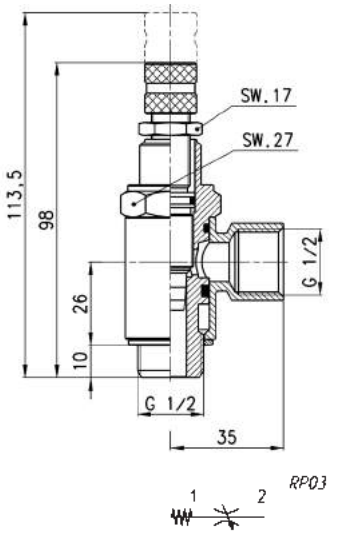


Mod.
SCO 610-1/2

Bidirectional flow controllers Series MCO



Adjustment of setting by a manually operated knurled screw.

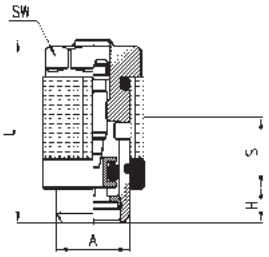


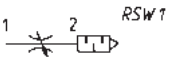
Mod.
MCO 710-1/2

Silenced exhaust controllers Mod. SCO + 2905



The flow control valve Mod. SCO and the silencer Mod. 2905 are supplied separately.
For further information about the silencer see page 2/9.05.04.





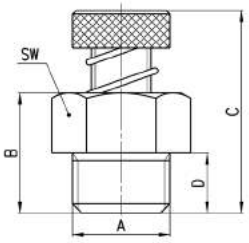
DIMENSIONS

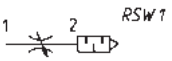
Mod.	A	H	L	S	SW
SCO 602-M5+2905 M5	M5	3.5	21.5	5.5	8
SCO 604-1/8+2905 1/8	G1/8	5	31.5	12.5	12
SCO 606-1/4+2905 1/4	G1/4	6	32.5	12.5	15

Series RSW flow control valves with silencer

Ports: G1/8, G1/4, G1/2.







DIMENSIONS

Mod.	A	B	C	D	SW	Q* (Nl/min)
RSW 1/8	G1/8	10.5	22	6	13	410
RSW 1/4	G1/4	13	27	7.5	16	650
RSW 3/8	G3/8	16	30	9.5	20	1100
RSW 1/2	G1/2	18	40	10.5	26	1700

*determined with supply pressure 6 bar with free flow; ensuring screw is open to maximum output.

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Series PSCU, PMCU, PSVU, PMVU, PSCO, PMCO flow control valves

Unidirectional and bidirectional flow regulators with banjo in brass (M5) or in technopolymer (G1/8, G1/4, G3/8)
Ports: M5, G1/8, G1/4, G3/8



These unidirectional and bidirectional flow controllers have been designed as small as possible so as to be mounted directly on valves or cylinders.
The great variety of adjustable fittings makes it possible to complete the regulator with the most suitable system in relation to the available tube.

All models are supplied complete with banjo flow controllers.

GENERAL DATA

Construction	needle type
Valve group	unidirectional and bidirectional controller
Materials	body, regulation screw: stainless steel (M5), brass (G1/8 - G1/4 - G3/8) collet and insert = brass banjo: brass (M5), technopolymer (G1/8 - G1/4 - G3/8) controller = technopolymer - seals = NBR
Mounting	by male thread
Ports	M5 - G1/8 - G1/4 - G3/8
Installation	in any position
Operating temperature	0°C ÷ 60°C (with dry air -20°C)
Operating pressure	1 ÷ 10 bar
Nominal pressure	6 bar
Nominal flow	see graph
Nominal diameter	M5 = 1.5 mm - G1/8 = 2 mm - G1/4 = 4 mm - G3/8 = 7 mm
Fluid	filtered air

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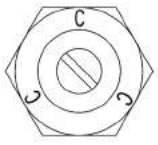
CODING EXAMPLE

P	M	CU		7	04	-	1/8	-	4

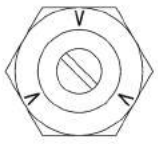
P	SERIES
M	ACTUATION: M = Manual S = Screwdriver
CU	ASSEMBLY: CU = on cylinders unidirectional VU = on valves unidirectional CO = bidirectional
7	VERSIONS: 6 = needle (screwdriver operated) 7 = needle (manual operated)
04	NOMINAL DIAMETER: 02 = Ø1.5 MAX 04 = Ø2 MAX 06 = Ø4 MAX 08 = Ø7 MAX
1/8	PORTS: M5 = M5 1/8 = G1/8 1/4 = G1/4 3/8 = G3/8
4	TUBE: 4 = Ø 4 6 = Ø 6 8 = Ø 8 10 = Ø 10 12 = Ø 12

To ensure the right choice of unidirectional flow controller, proceed as follows:
calculate the quantity of air in Nl/min (see cylinders table); determine the stroke time of the cylinder; refer to graph to see which is the right type of controller.

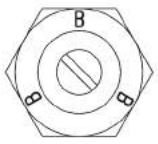
UNIDIRECTIONAL AND BIDIRECTIONAL FLOW CONTROLLERS



PSCU
PMCU



PSVU
PMVU

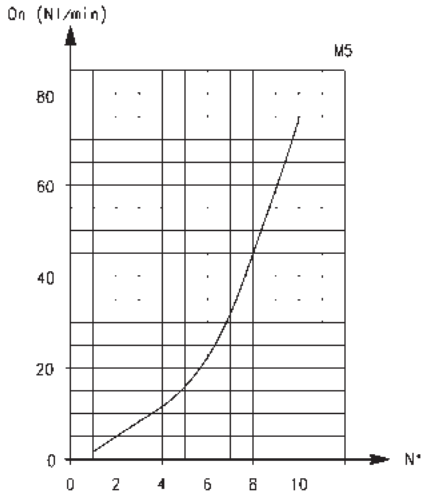


PSCO
PMCO

IDENTIFICATION OF DIFFERENT TYPES:
PSCU - PMCU = assembly directly on the cylinders
PSVU - PMVU = assembly directly on the valves
PSCO - PMCO = assembly directly on the cylinders or valves

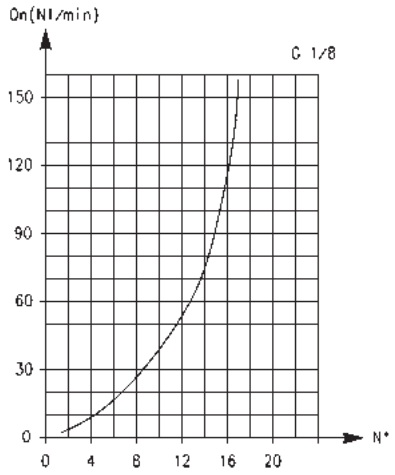
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UNIDIRECTIONAL AND BIDIRECTIONAL FLOW CONTROL REGULATORS



Flow Qn (Nl/min.) from 2 → 1 with controller OPEN: 70
Flow Qn (Nl/min.) from 2 → 1 with controller CLOSED: 33

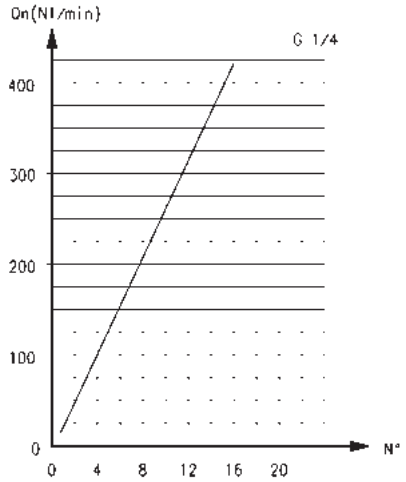
Qn = supply pressure of 6 bar and with ΔP = 1 bar at the outlet
N° = number of screw turns



Flow Qn (Nl/min.) from 2 → 1 with controller OPEN: 200
Flow Qn (Nl/min.) from 2 → 1 with controller CLOSED: 70

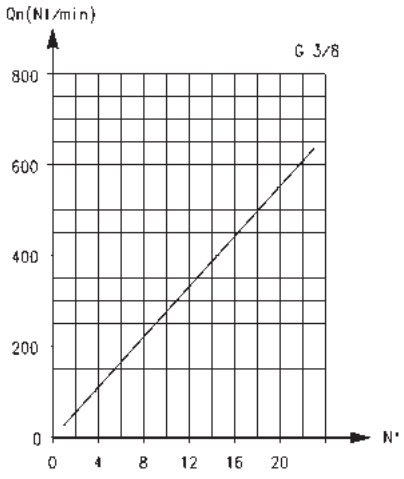
Qn = supply pressure of 6 bar and with ΔP = 1 bar at the outlet
N° = number of screw turns

UNIDIRECTIONAL AND BIDIRECTIONAL FLOW CONTROL REGULATORS



Flow Qn (Nl/min.) from 2 → 1 with controller OPEN: 530
Flow Qn (Nl/min.) from 2 → 1 with controller CLOSED: 160

Qn = supply pressure of 6 bar and with ΔP = 1 bar at the outlet
N° = number of screw turns



Flow Qn (Nl/min.) from 2 → 1 with controller OPEN: 710
Flow Qn (Nl/min.) from 2 → 1 with controller CLOSED: 410

Qn = supply pressure of 6 bar and with ΔP = 1 bar at the outlet
N° = number of screw turns

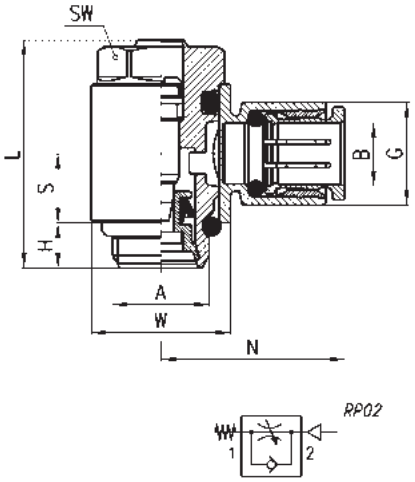
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Unidirectional flow controllers Series PSCU



For mounting on single-acting or double-acting cylinders.
A screwdriver must be used to adjust the registration setting.
Ports: M5, G1/8, G1/4 and G3/8.

Port M5: banjo in brass



DIMENSIONS

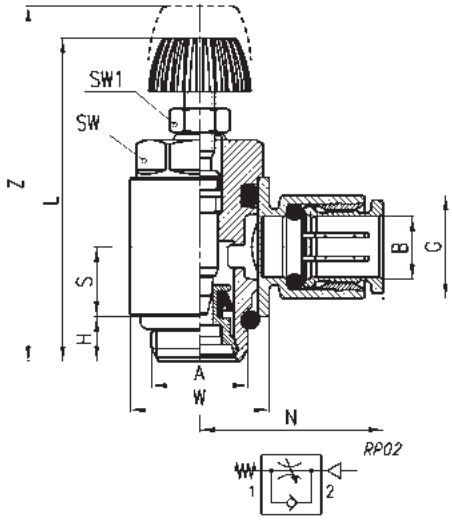
Mod.	A	B	G	H	L	N	S	W	SW
PSCU 602-M5-4	M5	4	8.6	3.5	21.5	18	5.7	8	8
PSCU 602-M5-6	M5	6	10.4	3.5	21.5	19	5.7	8	8
PSCU 604-1/8-4	G1/8	4	11.6	5	27	21	7.75	14	12
PSCU 604-1/8-6	G1/8	6	11.6	5	27	21	7.75	14	12
PSCU 604-1/8-8	G1/8	8	13.9	5	27	22.5	7.75	14	12
PSCU 606-1/4-6	G1/4	6	13.9	6	30.5	24.5	9.25	18.6	15
PSCU 606-1/4-8	G1/4	8	13.9	6	30.5	24.5	9.25	18.6	15
PSCU 606-1/4-10	G1/4	10	16.1	6	30.5	27	9.25	18.6	15
PSCU 608-3/8-10	G3/8	10	20.2	7	36.5	29	11	22	18
PSCU 608-3/8-12	G3/8	12	20.2	7	36.5	29	11	22	18

Unidirectional flow controllers Series PMCU



For mounting on single-acting or double-acting cylinders.
A manually operated knurled screw must be used to adjust the registration setting.
Ports: M5, G1/8, G1/4 and G3/8.

Port M5: banjo in brass



DIMENSIONS

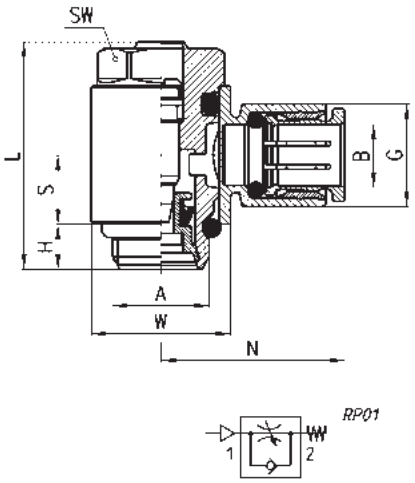
Mod.	A	B	G	H	L	N	S	W	SW	SW1	Z
PMCU 702-M5-4	M5	4	8.6	3.5	31	18	5.7	8	8	5.5	35
PMCU 702-M5-6	M5	6	10.4	3.5	31	19	5.7	8	8	5.5	35
PMCU 704-1/8-4	G1/8	4	11.6	5	36.5	21	7.75	14	12	7	42.5
PMCU 704-1/8-6	G1/8	6	11.6	5	36.5	21	7.75	14	12	7	42.5
PMCU 704-1/8-8	G1/8	8	13.9	5	36.5	22.5	7.75	14	12	7	42.5
PMCU 706-1/4-6	G1/4	6	13.9	6	42	24.5	9.25	18.6	15	7	48
PMCU 706-1/4-8	G1/4	8	13.9	6	42	24.5	9.25	18.6	15	7	48
PMCU 706-1/4-10	G1/4	10	16.1	6	42	27	9.25	18.6	15	7	48
PMCU 708-3/8-10	G3/8	10	20.2	7	48.5	29	11	22	18	10	56.5
PMCU 708-3/8-12	G3/8	12	20.2	7	48.5	29	11	22	18	10	56.5

Unidirectional flow controllers Series PSVU



For mounting on valves.
A screwdriver must be used to adjust the registration setting.
Ports: M5, G1/8, G1/4 and G3/8.

Port M5: banjo in brass



DIMENSIONS

Mod.	A	B	G	H	L	N	S	W	SW
PSVU 602-M5-4	M5	4	8.6	3.5	21.5	18	5.7	8	8
PSVU 602 M5-6	M5	6	10.4	3.5	21.5	19	5.7	8	8
PSVU 604-1/8-4	G1/8	4	11.6	5	27	21	7.75	14	12
PSVU 604-1/8-6	G1/8	6	11.6	5	27	21	7.75	14	12
PSVU 604-1/8-8	G1/8	8	13.9	5	27	22.5	7.75	14	12
PSVU 606-1/4-6	G1/4	6	13.9	6	30.5	24.5	9.25	18.6	15
PSVU 606-1/4-8	G1/4	8	13.9	6	30.5	24.5	9.25	18.6	15
PSVU 606-1/4-10	G1/4	10	16.1	6	30.5	27	9.25	18.6	15
PSVU 608-3/8-10	G3/8	10	20.2	7	36.5	29	11	22	18
PSVU 608-3/8-12	G3/8	12	20.2	7	36.5	29	11	22	18

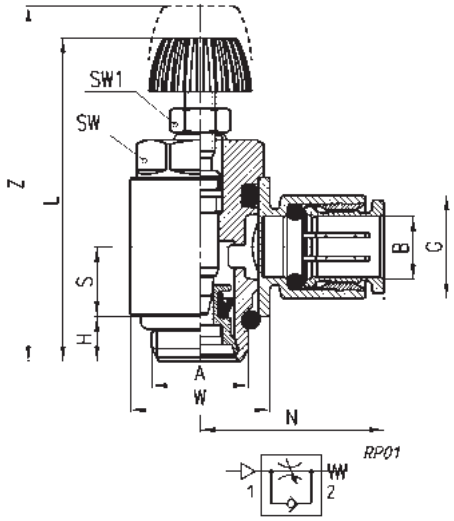
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Unidirectional flow controllers Series PMVU



For mounting on valve.
A manually operated knurled screw must be used to adjust the registration setting.
Ports: M5, G1/8, G1/4 and G3/8.

Port M5: banjo in brass



DIMENSIONS

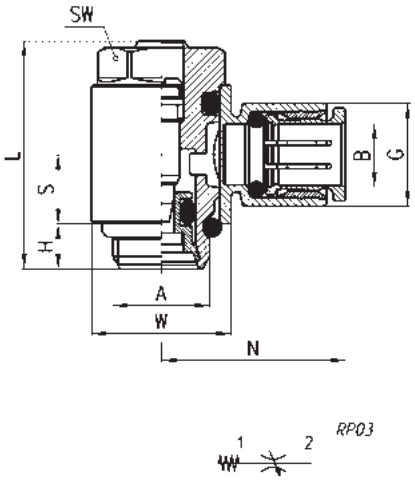
Mod.	A	B	G	H	L	N	S	W	SW	SW1	Z
PMVU 702-M5-4	M5	4	8.6	3.5	31	18	5.7	8	8	5.5	35
PMVU 702-M5-6	M5	6	10.4	3.5	31	19	5.7	8	8	5.5	35
PMVU 704-1/8-4	G1/8	4	11.6	5	36.5	21	7.75	14	12	7	42.5
PMVU 704-1/8-6	G1/8	6	11.6	5	36.5	21	7.75	14	12	7	42.5
PMVU 704-1/8-8	G1/8	8	13.9	5	36.5	22.5	7.75	14	12	7	42.5
PMVU 706-1/4-6	G1/4	6	13.9	6	42	24.5	9.25	18.6	15	7	48
PMVU 706-1/4-8	G1/4	8	13.9	6	42	24.5	9.25	18.6	15	7	48
PMVU 706-1/4-10	G1/4	10	16.1	6	42	27	9.25	18.6	15	7	48
PMVU 708-3/8-10	G3/8	10	20.2	7	48.5	29	11	22	18	10	56.5
PMVU 708-3/8-12	G3/8	12	20.2	7	48.5	29	11	22	18	10	56.5

Bidirectional flow controllers Series PSCO



A screwdriver must be used to adjust the registration setting.
Ports: M5, G1/8, G1/4 and G3/8.

Port M5: banjo in brass



DIMENSIONS

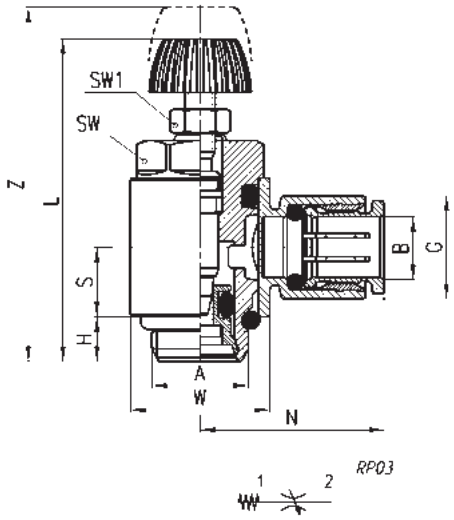
Mod.	A	B	G	H	L	N	S	W	SW
PSCO 602-M5-4	M5	4	8.6	3.5	21.5	18	5.7	8	8
PSCO 602-M5-6	M5	6	10.4	3.5	21.5	19	5.7	8	8
PSCO 604-1/8-4	G1/8	4	11.6	5	27	21	7.75	14	12
PSCO 604-1/8-6	G1/8	6	11.6	5	27	21	7.75	14	12
PSCO 604-1/8-8	G1/8	8	13.9	5	27	22.5	7.75	14	12
PSCO 606-1/4-6	G1/4	6	13.9	6	30.5	24.5	9,25	18.6	15
PSCO 606-1/4-8	G1/4	8	13.9	6	30.5	24.5	9.25	18.6	15
PSCO 606-1/4-10	G1/4	10	16.1	6	30.5	27	9.25	18.6	15
PSCO 608-3/8-10	G3/8	10	20.2	7	36.5	29	11	22	18
PSCO 608-3/8-12	G3/8	12	20.2	7	36.5	29	11	22	18

Bidirectional flow controllers Series PMCO



A manually operated knurled screw must be used to adjust the registration setting.
Ports: M5, G1/8, G1/4 and G3/8.

Port M5: banjo in brass



DIMENSIONS

Mod.	A	B	G	H	L	N	S	W	SW	SW1	Z
PMCO 702-M5-4	M5	4	8.6	3.5	31	18	5.7	8	8	5.5	35
PMCO 702-M5-6	M5	6	10.4	3.5	31	19	5.7	8	8	5.5	35
PMCO 704-1/8-4	G1/8	4	11.6	5	36.5	21	7.75	14	12	7	42.5
PMCO 704-1/8-6	G1/8	6	11.6	5	36.5	21	7.75	14	12	7	42.5
PMCO 704-1/8-8	G1/8	8	13.9	5	36.5	22.5	7.75	14	12	7	42.5
PMCO 706-1/4-6	G1/4	6	13.9	6	42	24.5	9.25	18.6	15	7	48
PMCO 706-1/4-8	G1/4	8	13.9	6	42	24.5	9.25	18.6	15	7	48
PMCO 706-1/4-10	G1/4	10	16.1	6	42	27	9.25	18.6	15	7	48
PMCO 708-3/8-10	G3/8	10	20.2	7	48.5	29	11	22	18	10	56.5
PMCO 708-3/8-12	G3/8	12	20.2	7	48.5	29	11	22	18	10	56.5

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Series TMCU, TMVU, TMCO flow control valves

Unidirectional and bidirectional banjo flow controllers with nominal diameter 2 - 3,8 - 5,8 - 8 mm
Ports: G1/8, G1/4, G3/8, G1/2



Series TMCU, TMVU, TMCO unidirectional and bidirectional flow controllers have been revised in order to decrease their dimensions and improve their flow rate characteristics. Their construction allows for easy assembly to cylinders and valves and allows the regulation adjustment to be precise and gradual.

GENERAL DATA

Construction	needle - type
Valve group	unidirectional and bidirectional controller
Materials	brass - technopolymer - NBR
Mounting	by male threaded
Threaded ports	G1/8 - G1/4 - G3/8 - G1/2
Installation	in any position
Operating temperature	0°C ÷ 60°C (with dry air -20°C)
Operating pressure	0,5 ÷ 10 bar
Nominal pressure	6 bar
Nominal flow	see graph
Nominal dia.	Tube 4 Ø2 - Tube 6 Ø3,8 - Tube 8 Ø5,8 - Tube 10 and 12 Ø8
Fluid	filtered air If lubricated air is used, it is recommended to use ISOVG 32 oil. Once applied the lubrication should never be interrupted.

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CODING EXAMPLE

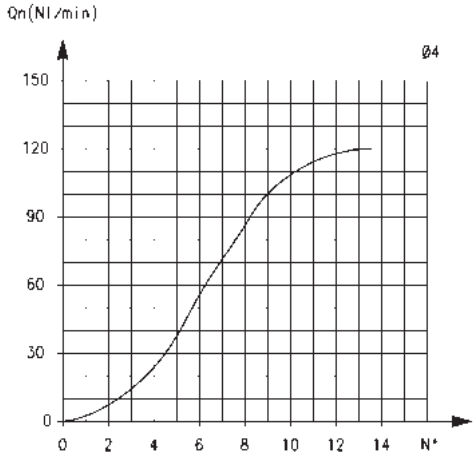
TM	CU		9	74	-	1/8	-	6

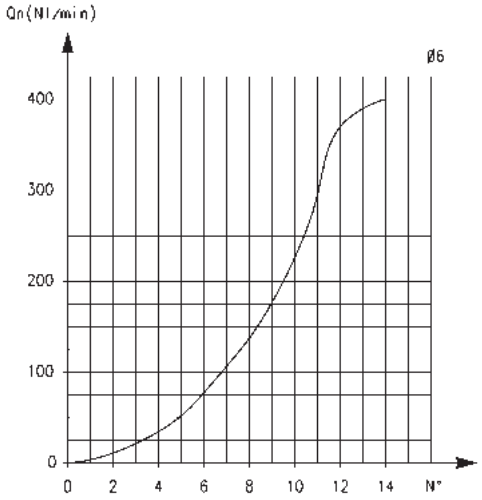
TM	ACTUATION: TM = manual
CU	ASSEMBLY: CU = on cylinders unidirectional VU = on valves unidirectional CO = bidirectional
9	VERSIONS: 9 = manual needle
74	REGULATION: step - ø tube 72 = 2 4 74 = 3.8 6 76 = 5.8 8 78 = 8 10
1/8	PORTS: 1/8 1/4 3/8 1/2
6	Ø TUBE: 4 6 8 10

To ensure the right choice of unidirectional flow controller, proceed as follows: calculate the quantity of air in Nl/min (see cylinder Table); determine the stroke time of the cylinder; refer to graph to see which controller is the right type.

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UNIDIRECTIONAL AND BIDIRECTIONAL FLOW CONTROL REGULATORS

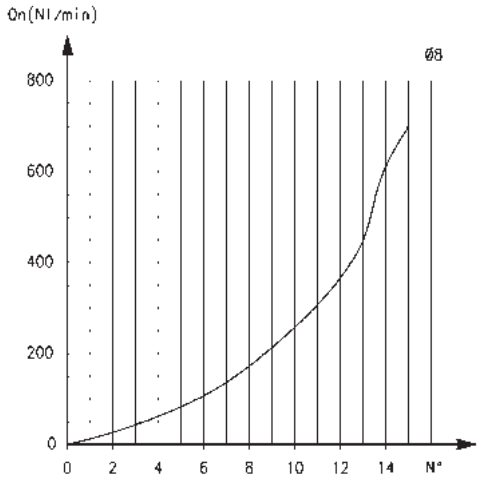


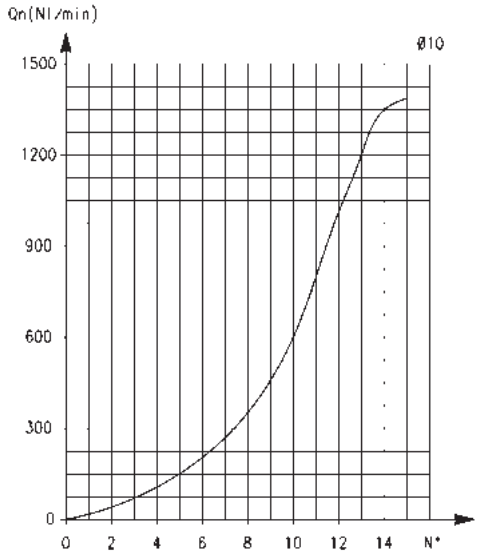


TUBE Ø4
Flow Qn (Nl/min.) from 2 → 1 with controller OPEN: 400
Flow Qn (Nl/min.) from 2 → 1 with controller CLOSED: 280
Qn is determined with a supply pressure of 6 bar and with ΔP = 1 bar at the outlet
N° = number of screw turns.

TUBE Ø6
Flow Qn (Nl/min.) from 2 → 1 with controller OPEN: 550
Flow Qn (Nl/min.) from 2 → 1 with controller CLOSED: 280
Qn is determined with a supply pressure of 6 bar and with ΔP = 1 bar at the outlet
N° = number of screw turns.

UNIDIRECTIONAL AND BIDIRECTIONAL FLOW CONTROL REGULATORS





TUBE Ø8
Flow Qn (Nl/min.) from 2 → 1 with controller OPEN: 890
Flow Qn (Nl/min.) from 2 → 1 with controller CLOSED: 460
Qn is determined with a supply pressure of 6 bar and with ΔP = 1 bar at the outlet
N° = number of screw turns.

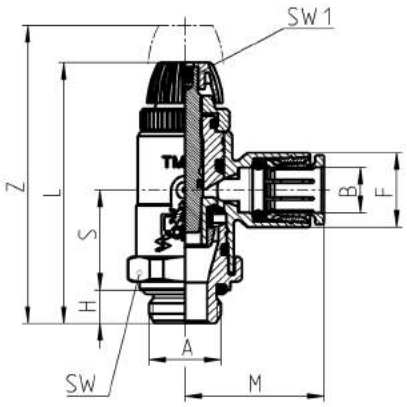
TUBE Ø10
Flow Qn (Nl/min.) from 2 → 1 with controller OPEN: Ø 10-1200/Ø12-1250
Flow Qn (Nl/min.) from 2 → 1 with controller CLOSED: Ø 10-600/ Ø12-600
Qn is determined with a supply pressure of 6 bar and with ΔP = 1 bar at the outlet
N° = number of screw turns.

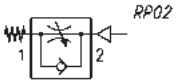
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Series TMCU valves



Unidirectional flow controller for mounting on single-acting or double-acting cylinders.
Adjustment of setting by a hexagonal male key or a manually operated knurled screw.
Ports: G1/8, G1/4, G3/8, G1/2





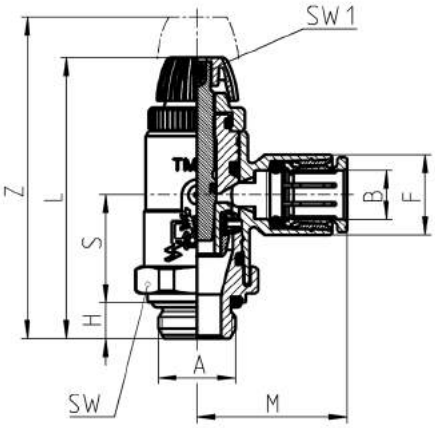
DIMENSIONS

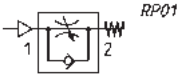
Mod.	A	B	F	H	L	M	S	SW	SW1	Z
TMCU 972-1/8-4	G1/8	4	11,5	5	43	21,5	16,5	16	1,5	50
TMCU 974-1/8-6	G1/8	6	11,5	5	43	21,5	16,5	16	1,5	50
TMCU 974-1/4-6	G1/4	6	11,5	6	44	21,5	16,5	17	1,5	51
TMCU 976-1/8-8	G1/8	8	13,5	5	47	25	17,5	19	2,5	54
TMCU 976-1/4-8	G1/4	8	13,5	6	48,5	25	18	19	2,5	55,5
TMCU 976-3/8-8	G3/8	8	13,5	7	49,5	25	18	20	2,5	56,5
TMCU 978-3/8-10	G3/8	10	16	7	51	29	17	25	2,5	59,5
TMCU 978-1/2-10	G1/2	10	16	8	52	29	17	25	2,5	60,5

Series TMVU valves



Unidirectional flow controller for mounting on valves.
Adjustment of setting by a hexagonal male key or a manually operated knurled screw.
Ports: G1/8, G1/4, G3/8, G1/2





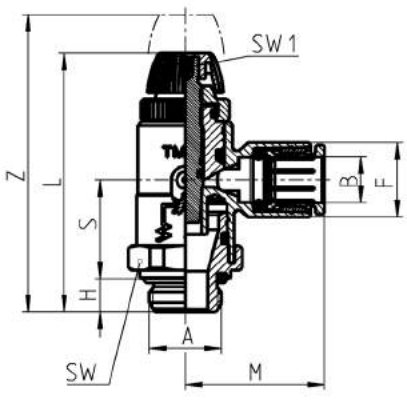
DIMENSIONS

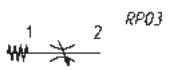
Mod.	A	B	F	H	L	M	S	SW	SW1	Z
TMVU 972-1/8-4	G1/8	4	11,5	5	43	21,5	16,5	16	1,5	50
TMVU 974-1/8-6	G1/8	6	11,5	5	43	21,5	16,5	16	1,5	50
TMVU 974-1/4-6	G1/4	6	11,5	6	44	21,5	16,5	17	1,5	51
TMVU 976-1/8-8	G1/8	8	13,5	5	47	25	17,5	19	2,5	54
TMVU 976-1/4-8	G1/4	8	13,5	6	48,5	25	18	19	2,5	55,5
TMVU 976-3/8-8	G3/8	8	13,5	7	49,5	25	18	20	2,5	56,5
TMVU 978-3/8-10	G3/8	10	16	7	51	29	17	25	2,5	59,5
TMVU 978-1/2-10	G1/2	10	18	8	52	29	17	25	2,5	60,5

Series TMCO valves



Bidirectional flow controller.
Adjustment of setting by a hexagonal male key or a manually operated knurled screw.
Ports: G1/8, G1/4, G3/8, G1/2





DIMENSIONS

Mod.	A	B	F	H	L	M	S	SW	SW1	Z
TMCO 972-1/8-4	G1/8	4	11,5	5	43	21,5	16,5	16	1,5	50
TMCO 974-1/8-6	G1/8	6	11,5	5	43	21,5	16,5	16	1,5	50
TMCO 974-1/4-6	G1/4	6	11,5	6	44	21,5	16,5	17	1,5	51
TMCO 976-1/8-8	G1/8	8	13,5	5	47	25	17,5	19	2,5	54
TMCO 976-1/4-8	G1/4	8	13,5	6	48,5	25	18	19	2,5	55,5
TMCO 976-3/8-8	G3/8	8	13,5	7	49,5	25	18	20	2,5	56,5
TMCO 978-3/8-10	G3/8	10	16	7	51	29	17	25	2,5	59,5
TMCO 978-1/2-10	G1/2	10	16	8	52	29	17	25	2,5	60,5

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Series GSCU, GMCU, GSVU, GMVU, GSCO, GMCO flow control valves

Unidirectional and bidirectional banjo flow controllers with nominal diameter 1,5 - 3,5 - 5 mm
Ports: M5, G1/8 and G1/4



**These unidirectional and bidirectional flow controllers have been designed as small as possible to enable mounting directly on valves or cylinders.
The flow regulation range is wide and gradual, allowing the regulation to be very accurate either at minimum or maximum flow.**

GENERAL DATA

Construction	needle - type
Valve group	unidirectional and bidirectional controller
Materials	body and screws M5 inox; 1/8 - 1/4 - 3/8 - 1/2 OT58 seals NBR
Mounting	by male threaded
Installation	in any position
Operating temperature	0°C ÷ 80°C (with dry air -20°C)
Operating pressure	1 ÷ 10 bar
Nominal pressure	6 bar
Nominal flow	see graph
Nominal diameter	M5 = 1.5 mm - G1/8 = 2 mm - G1/4 = 4 mm G3/8 = 7 mm - G1/2 = 12 mm
Fluid	filtered air

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CODING EXAMPLE

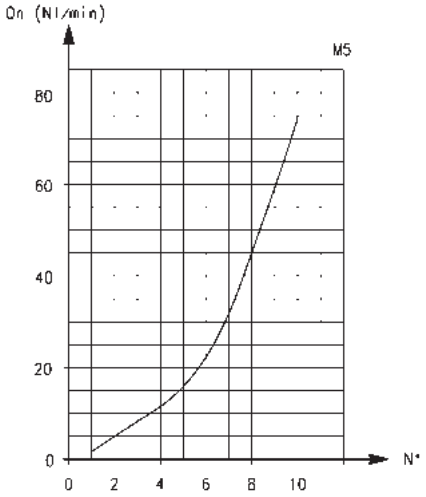
GM	CU		9	03	-	1/8	-	6

GM	ACTUATION: GM = manual GS = screwdriver
CU	ASSEMBLY: CU = on cylinders unidirectional VU = on valves unidirectional CO = bidirectional
9	VERSIONS: 8 = needle (screwdriver operated) 9 = needle (manually operated)
03	FLOW CONTROL RANGE: size / ø tube 13 = 1.5 / 3 14 = 1.5 / 4 03 = 3.5 / 6 04 = 3.5 / 8 05 = 5 / 8 06 = 5 / 10
1/8	PORTS: M5 1/8 1/4
6	Ø TUBE: 3 4 6 8 10

To ensure the right choice of unidirectional flow controller, proceed as follows: calculate the quantity of air in Nl/min (see cylinder Table); determine the stroke time of the cylinder; refer to graph to see which controller is the right type.

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UNIDIRECTIONAL AND BIDIRECTIONAL FLOW CONTROL REGULATORS

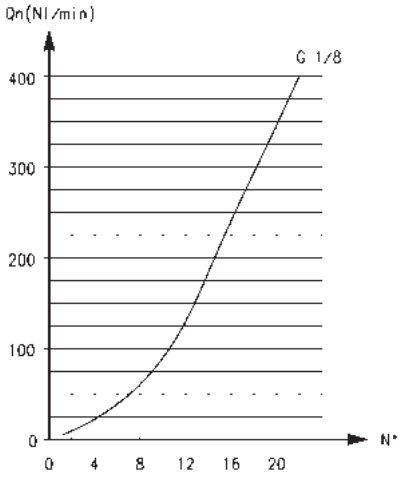


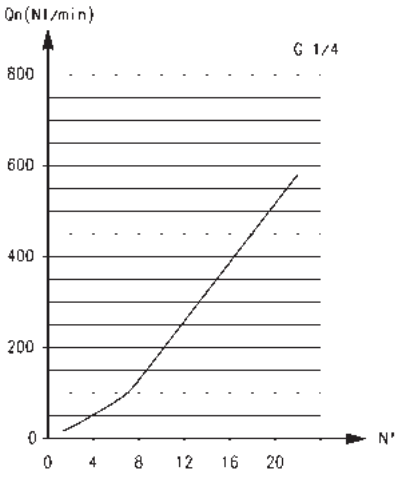
To ensure the right choice of unidirectional flow controller, proceed as follows: calculate the quantity of air in Nl/min (see cylinder Table); determine the stroke time of the cylinder; refer to graph to see which controller is the right type.
In the case of bidirectional regulators, refer to the graph and check whether the flow control range is suitable for the work required.

M5
Flow Qn (Nl/min.) from 2 → 1 with controller OPEN: 70
Flow Qn (Nl/min.) from 2 → 1 with controller CLOSED: 33

N° = number of screw turns
NB: Qn is determined with a supply pressure of 6 bar and with ΔP = 1 bar at the outlet.

UNIDIRECTIONAL AND BIDIRECTIONAL FLOW CONTROL REGULATORS





G1/8
Flow Qn (Nl/min.) from 2 → 1 with controller OPEN: 440
Flow Qn (Nl/min.) from 2 → 1 with controller CLOSED: 170

N° = number of screw turns
NB: Qn is determined with a supply pressure of 6 bar and with ΔP = 1 bar at the outlet.

G1/4
Flow Qn (Nl/min.) from 2 → 1 with controller OPEN: 790
Flow Qn (Nl/min.) from 2 → 1 with controller CLOSED: 460

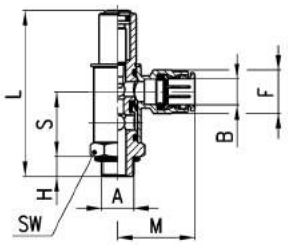
N° = number of screw turns
NB: Qn is determined with a supply pressure of 6 bar and with ΔP = 1 bar at the outlet.

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Valves Series GSCU

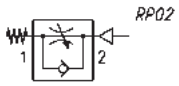


Unidirectional flow controller for mounting on single-acting or double-acting cylinders.
Screwdriver adjustment.
Ports: M5, G1/8, G1/4 .



DIMENSIONS

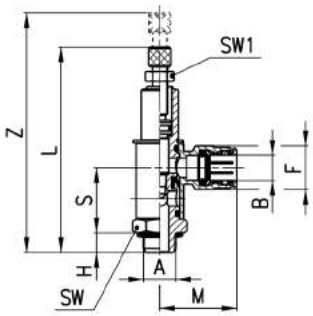
Mod.	A	B	S	H	L	M	F	SW
GSCU 813-M5-3	M5	3	12	3	27,5	12,5	6,5	8
GSCU 814-M5-4	M5	4	12	3	27,5	19	8,8	8
GSCU 803-1/8-6	G1/8	6	22,5	5	50	26,5	13	14
GSCU 804-1/8-8	G1/8	8	22,5	5	50	28	15	14
GSCU 805-1/4-8	G1/4	8	27	7	67,5	28,5	15	19
GSCU 806-1/4-10	G1/4	10	27	7	67,5	31	17,5	19



Valves Series GMCU

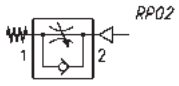


Unidirectional flow controller for mounting on single-acting or double-acting cylinders.
Knurled screw adjustment.
Ports: M5, G1/8, G1/4.



DIMENSIONS

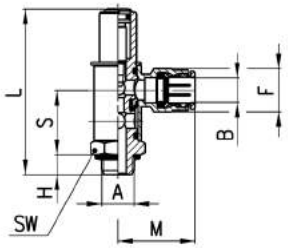
Mod.	A	B	S	H	L	Z	M	F	SW	SW1
GMCU 913-M5-3	M5	3	12	3	37	42,5	12,5	6,5	8	5,5
GMCU 914-M5-4	M5	4	12	3	37	42,5	19	8,8	8	5,5
GMCU 903-1/8-6	G1/8	6	22,5	5	65,5	72,5	26,5	13	14	7
GMCU 904-1/8-8	G1/8	8	22,5	5	65,5	72,5	28	15	14	7
GMCU 905-1/4-8	G1/4	8	27	7	85	97,5	28,5	15	19	10
GMCU 906-1/4-10	G1/4	10	27	7	85	97,5	31	17,5	19	10



Valves Series GSVU

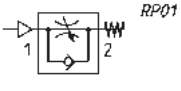


Unidirectional flow controller for mounting on valves.
Screwdriver adjustment.
Ports: M5, G1/8, G1/4.



DIMENSIONS

Mod.	A	B	S	H	L	M	F	SW
GSVU 813-M5-3	M5	3	12	3	27,5	12,5	6,5	8
GSVU 814-M5-4	M5	4	12	3	27,5	19	8,8	8
GSVU 803-1/8-6	G1/8	6	22,5	5	50	26,5	13	14
GSVU 804-1/8-8	G1/8	8	22,5	5	50	28	15	14
GSVU 805-1/4-8	G1/4	8	27	7	67,5	28,5	15	19
GSVU 806-1/4-10	G1/4	10	27	7	67,5	31	17,5	19

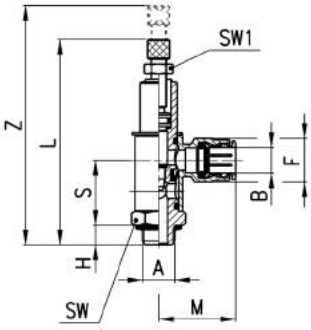


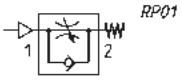
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Valves Series GMVU



Unidirectional flow controller for mounting on valve.
Adjustment of setting by a manually operated knurled screw.
Ports: M5, G1/8, G1/4.





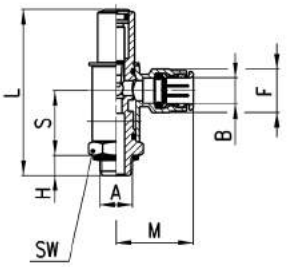
DIMENSIONS

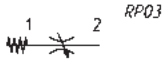
Mod.	A	B	S	H	L	Z	M	F	SW	SW1
GMVU 913-M5-3	M5	3	12	3	37	42,5	12,5	6,5	8	5,5
GMVU 914-M5-4	M5	4	12	3	37	42,5	19	8,8	8	5,5
GMVU 903-1/8-6	G1/8	6	22,5	5	50	72,5	26	13	14	7
GMVU 904-1/8-8	G1/8	8	22,5	5	50	72,5	28	15	14	7
GMVU 905-1/4-8	G1/4	8	27	7	67,5	97,5	29	15	19	10
GMVU 906-1/4-10	G1/4	10	27	7	67,5	97,5	31	17,5	19	10

Valves Series GSCO



Bidirectional flow controller.
Screwdriver adjustment.
Ports: M5, G1/8, G1/4.





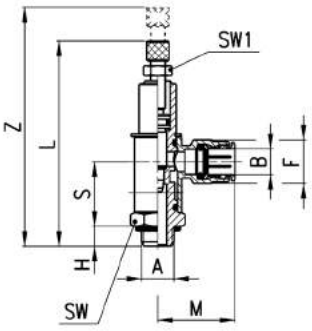
DIMENSIONS

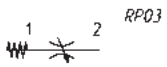
Mod.	A	B	S	H	L	M	F	SW
GSCO 813-M5-3	M5	3	12	3	27,5	12,5	6,5	8
GSCO 814-M5-4	M5	4	12	3	27,5	19	8,8	8
GSCO 803-1/8-6	G1/8	6	22,5	5	50	26,5	13	14
GSCO 804-1/8-8	G1/8	8	22,5	5	50	28	15	14
GSCO 805-1/4-8	G1/4	8	27	7	67,5	28,5	15	19
GSCO 806-1/4-10	G1/4	10	27	7	67,5	31	17,5	19

Valves Series GMCO



Bidirectional flow controller.
Adjustment of setting by a manually operated knurled screw.
Ports: M5, G1/8, G1/4.





DIMENSIONS

Mod.	A	B	S	H	L	Z	M	F	SW	SW1
GMCO 913-M5-3	M5	3	12	3	37	42,5	12,5	6,5	8	5,5
GMCO 914-M5-4	M5	4	12	3	37	42,5	19	8,8	8	5,5
GMCO 903-1/8-6	G1/8	6	22,5	5	65,5	72,5	26,5	13	14	7
GMCO 904-1/8-8	G1/8	8	22,5	5	65,5	72,5	28	15	14	7
GMCO 905-1/4-8	G1/4	8	27	7	85	97,5	28,5	15	19	10
GMCO 906-1/4-10	G1/4	10	27	7	85	97,5	31	17,5	19	10

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Series RFU and RFO flow control valves

Unidirectional and bidirectional
Ports: M5, G1/8, G1/4, G3/8 and G1/2
Nominal diameters: 1,5 mm (M5), 2 and 3 mm (G1/8), 4 and 6 mm (G1/4), 7 mm (G3/8 and G1/2)





» Series RFU: unidirectional flow control valves for the speed regulation of a cylinder

» Series RFO: bidirectional flow control valves for the air flow regulation in both directions and for the pressurization or depressurization of a container.

The unidirectional flow controllers are equipped with M5, G1/8, G1/4, G3/8 and G1/2 ports.
G1/8 and G1/4 ports are available with two different types of adjustment (see diagrams), whereas M5, G3/8 and G1/2 ports have just one type of adjustment.
All models can be panel or wall mounted or they can be mounted on cylinders, as required.

To choose the most suitable model, it is recommended to:
1. calculate the quantity of air in Nl/min (see the cylinders tables in the catalogue appendix);
2. determine the stroke time of the cylinder;
3. check the flow diagrams (see pages 2/7.20.03 and 2/7.20.04).

GENERAL DATA

Construction	needle-type
Valve group	unidirectional and bidirectional controller
Materials	AL body - brass needle (not nickel-plated) - NBR seals
Mounting	with screws in the holes of the valve body or panel mounted
Threaded ports	M5 - G1/8 - G1/4 - G3/8 - G1/2
Installation	as required
Operating temperature	0°C ÷ 80°C (with dry air - 20°C)
Operating pressure	1 ÷ 10 bar (for models with M5 - G1/8 - G1/4 ports) 2 ÷ 10 bar (for models with G3/8 - G1/2 ports)
Nominal pressure	6 bar
Nominal flow	see graph
Nominal diameter	M5 = 1,5 - G1/8 = 2 or 3 mm - G1/4 = 4 or 6 mm - G3/8 and G1/2 = 7 mm
Fluid	filtered air

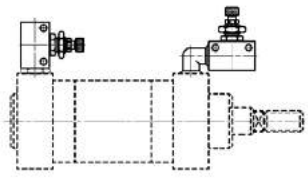
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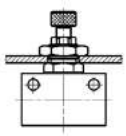
CODING EXAMPLE

RF	U		4	8	2	-	1/8

RF	SERIES
U 4	FUNCTION: U 4 = unidirectional O 3 = bidirectional
8	PORTS: 4 = G1/4 5 = M5 6 = G3/8 7 = G1/2 8 = G1/8
2	FLOW CONTROL RANGE: 2 = ø 1.5 mm max (for ports M5) ø 2 mm max (for ports 1/8 only) 3 = ø 3 mm max (for ports 1/8 only) 4 = ø 4 mm max (for ports 1/4 only) 6 = ø 6 mm max (for ports 1/4 only) 7 = ø 7 mm max (for ports 3/8, 1/2 only)
1/8	PORTS: M5 1/8 1/4 3/8 1/2

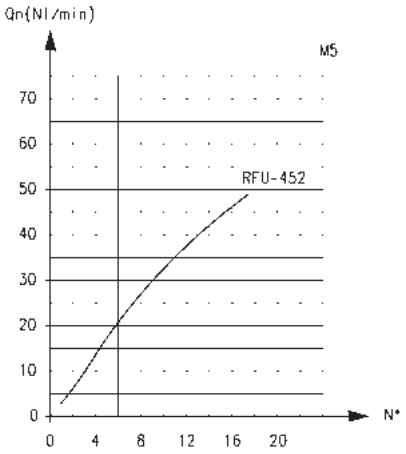
EXAMPLES OF SERIES RFO - RFU VALVES ASSEMBLY





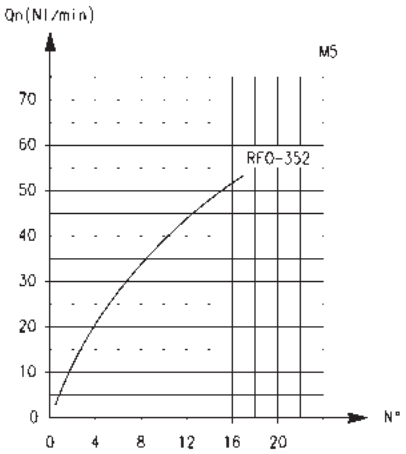
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FLOW DIAGRAMS (1 → 2) - VALVES SERIES RFU / RFO - M5 PORTS



RFU 452-M5: flow from 2 → 1 needle type OPEN = 55 Nl/min
CLOSED = 41 Nl/min

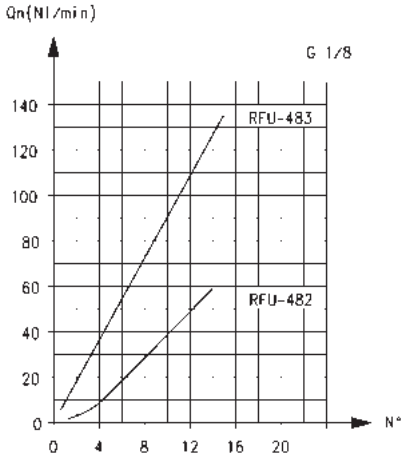
N° = number of screw turns
Note: the flow (Qn) is determined with a pressure of 6 bar at the inlet and ΔP = 1 bar at the outlet.



RFO 352-M5

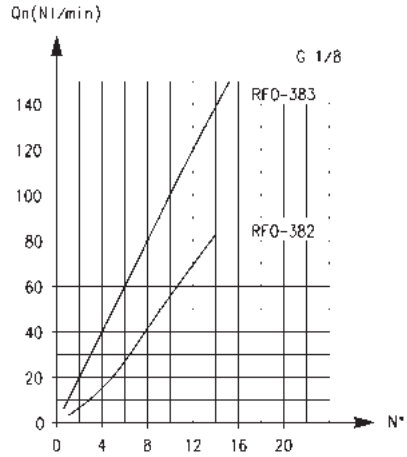
N° = number of screw turns
Note: the flow (Qn) is determined with a pressure of 6 bar at the inlet and ΔP = 1 bar at the outlet.

FLOW DIAGRAMS (1 → 2) - VALVES SERIES RFU / RFO - G1/8 PORTS



RFU 482-1/8: flow from 2 → 1 needle type OPEN = 149 Nl/min
CLOSED = 130,5 Nl/min
RFU 483-1/8: flow from 2 → 1 needle type OPEN = 180 Nl/min
CLOSED = 140 Nl/min

N° = number of screw turns
Note: the flow (Qn) is determined with a pressure of 6 bar at the inlet and ΔP = 1 bar at the outlet.

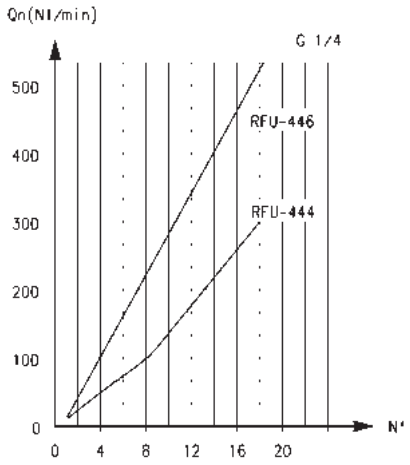


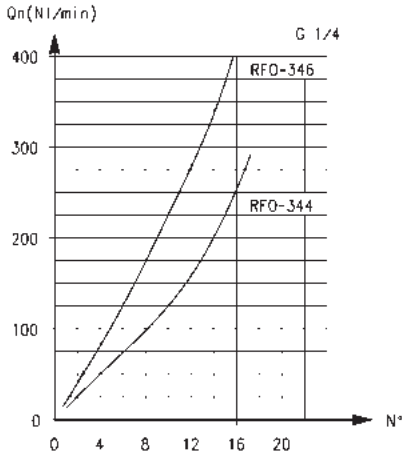
RFO 382-1/8 - RFO 383-1/8

N° = number of screw turns
Note: the flow (Qn) is determined with a pressure of 6 bar at the inlet and ΔP = 1 bar at the outlet.

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FLOW DIAGRAMS (1 → 2) - VALVES SERIES RFU / RFO - G1/4 PORTS





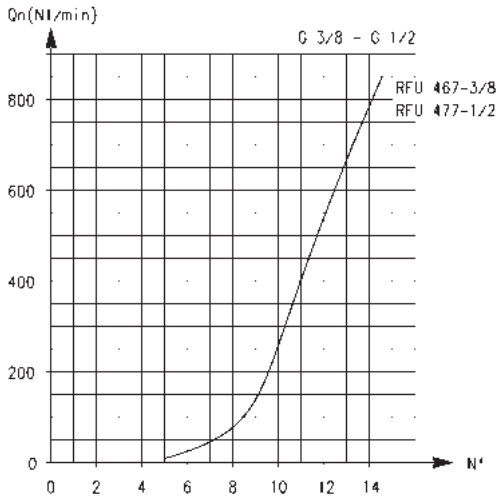
RFU 444-1/4: flow from 2 → 1 needle type OPEN = 680 Nl/min
CLOSED = 534 Nl/min
RFU 446-1/4: flow from 2 → 1 needle type OPEN = 680 Nl/min
CLOSED = 534 Nl/min

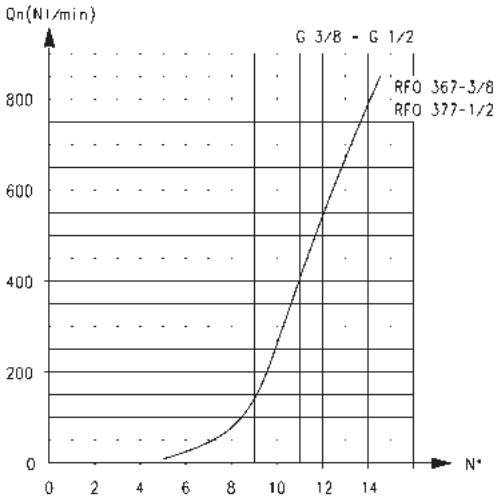
N° = number of screw turns
Note: the flow (Qn) is determined with a pressure of 6 bar at the inlet and ΔP = 1 bar at the outlet.

RFO 344-1/4 - RFO 346-1/4

N° = number of screw turns.
Note: the flow (Qn) is determined with a pressure of 6 bar at the inlet and ΔP = 1 bar at the outlet.

FLOW DIAGRAMS (1 → 2) - VALVES SERIES RFU / RFO - G3/8, G1/2 PORTS





RFU 467-3/8: flow from 2 → 1 needle type OPEN = 1700 Nl/min
CLOSED = 1700 Nl/min
RFU 477-1/2: flow from 2 → 1 needle type OPEN = 1700 Nl/min
CLOSED = 1700 Nl/min

N° = number of screw turns
Note: the flow (Qn) is determined with a pressure of 6 bar at the inlet and ΔP = 1 bar at the outlet.

RFO 367-3/8 - RFO 377-1/2

N° = number of screw turns
Note: the flow (Qn) is determined with a pressure of 6 bar at the inlet and ΔP = 1 bar at the outlet.

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Unidirectional flow control valves Series RFU

To regulate the cylinder speed, the discharging chamber air flow has to be controlled. Therefore, it is recommended to connect the valve threaded outlet 1 to the cylinder inlet and the outlet 2 to the valve user port.



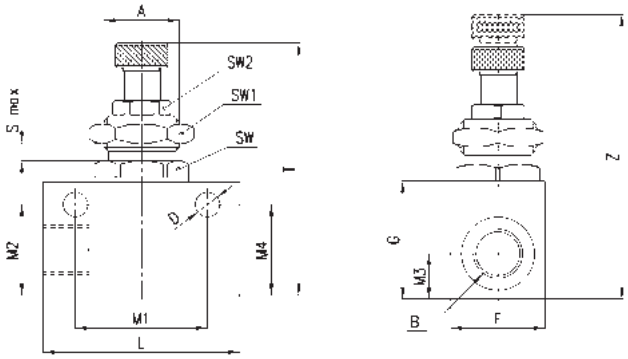


TABLE NOTE:

* knurled ring nut



RFU1

DIMENSIONS

Mod.	Ø	A	B	D	F	G	L	M1	M2	M3	M4	T	Z	S_{Max}	SW	SW1	SW2
RFU 452-M5	1,5	M10x1	M5	4,2	14	16	26	18,5	13,2	7	13,2	39	44,5	3	12	14	8
RFU 482-1/8	2	M12x1	G1/8	4,5	16	21	34	24,5	16,5	8	16,5	46	51	4	14	17	9
RFU 483-1/8	3	M12x1	G1/8	4,5	16	21	34	24,5	16,5	8	16,5	46	51	4	14	17	9
RFU 444-1/4	4	M20x1,5	G1/4	6,5	25	30	52	35	24	12	24	60	69	7	22	24	14
RFU 446-1/4	6	M20x1,5	G1/4	6,5	25	30	52	35	24	12	24	60	69	7	22	24	14
RFU 467-3/8	7	M18x1	G3/8	6,5	27	42	56	43	34,5	28	7,5	75	85	8	22	22	*
RFU 477-1/2	7	M18x1	G1/2	6,5	27	42	56	43	34,5	28	7,5	75	85	8	22	22	*

Bidirectional flow control valves Series RFO



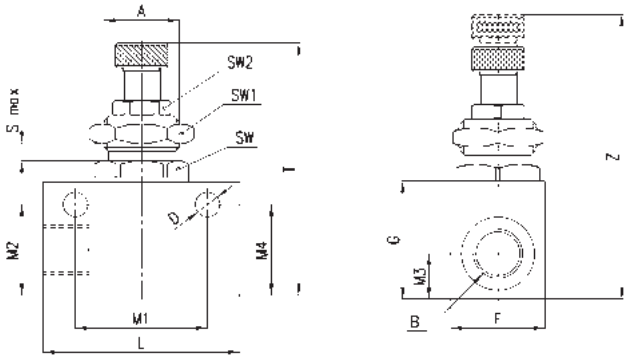


TABLE NOTE:

* knurled ring nut



RFO1

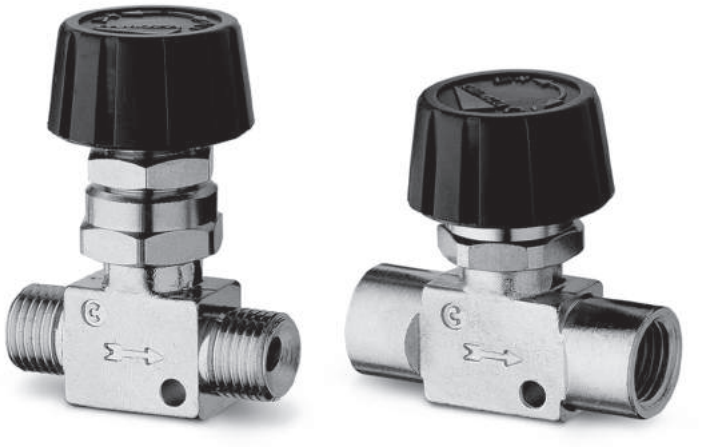
DIMENSIONS

Mod.	Ø	A	B	D	F	G	L	M1	M2	M3	M4	T	Z	S_{Max}	SW	SW1	SW2
RFO 352-M5	1,5	M10x1	M5	4,2	14	16	26	18,5	13,2	7	13,2	39	44,5	3	12	14	8
RFO 382-1/8	2	M12x1	G1/8	4,2	16	21	34	24,5	16,5	8	16,5	46	51	4	14	17	9
RFO 383-1/8	3	M12x1	G1/8	4,5	16	21	34	24,5	16,5	8	16,5	46	51	4	14	17	9
RFO 344-1/4	4	M20x1,5	G1/4	6,5	25	30	52	35	24	12	24	60	69	7	22	24	14
RFO 346-1/4	6	M20x1,5	G1/4	6,5	25	30	52	35	24	12	24	60	69	7	22	24	14
RFO 367-3/8	7	M18x1	G3/8	6,5	27	42	56	43	34,5	28	7,5	75	85	8	22	22	*
RFO 377-1/2	7	M18x1	G1/2	6,5	27	42	56	43	34,5	28	7,5	75	85	8	22	22	*

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Series 28
flow control valves

Bidirectional
Ports: G1/8, G1/4, G3/8, G1/2



These are bidirectional control valves made entirely of nickel-plated brass, with NBR seals and a technopolymer control knob.
They are suitable for regulating compressed air, water or mineral oil.
For models 2810, 2820, 2819 and 2829 exists the possibility to connect plastic, brass or copper tubes, using nut Mod. 1303 and cushion sleeve Mod. 1310/1320.

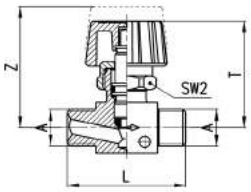
GENERAL DATA

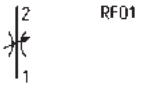
Construction	cone - type
Materials	body = nickel-plated brass control knob = technopolymer seals = NBR
Ports	G1/8, G1/4, G3/8, G1/2
Installation	as required
Operating pressure	0°C ÷ 80°C (with dry air - 20°)
Operating pressure	0 ÷ 10 bar
Nominal flowrate	see table

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Valve Mod. 2810



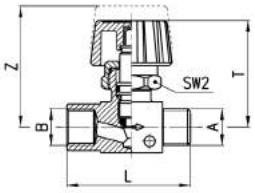


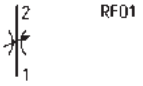


DIMENSIONS							
Mod.	A	L	T	Z	SW2	Δ1bar Nl/min	Free flow Nl/min
2810 1/8	G1/8	40	37	42,5	19	415	590
2810 1/4	G1/4	42	37	42,5	19	508	740
2810 3/8	G3/8	42	37	42,5	19	620	900
2810 1/2	G1/2	54	42	48	22	1540	2080

Valve Mod. 2820



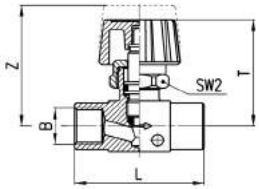


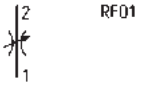


DIMENSIONS								
Mod.	A	B	L	T	Z	SW2	Δ1bar Nl/min	Free flow Nl/min
2820 1/8	G1/8	G1/8	41	37	42,5	19	400	640
2820 1/4	G1/4	G1/4	44	37	42,5	19	530	840
2820 3/8	G3/8	G3/8	55,5	41,5	48	22	1415	1990
2820 1/2	G1/2	G1/2	59	42	49	22	1520	2150

Valve Mod. 2830





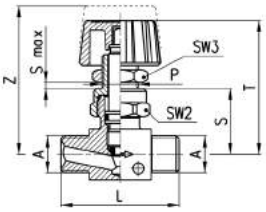


DIMENSIONS							
Mod.	B	L	T	Z	SW2	Δ1bar Nl/min	Free flow Nl/min
2830 1/8	G1/8	42	37	42,5	19	415	635
2830 1/4	G1/4	46	37	42,5	19	530	850
2830 3/8	G3/8	62	41,4	48	22	1415	1980
2830 1/2	G1/2	64	42	49	22	1520	2100

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Valve Mod. 2819





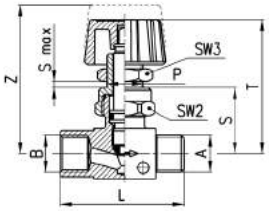


DIMENSIONS

Mod.	A	L	P	S	T	Z	S_{Max}	SW2	SW3
2819 1/8	G1/8	40	1/4	23	47	52,5	7	19	17
2819 1/4	G1/4	42	1/4	23	47	52,5	7	19	17

Valve Mod. 2829





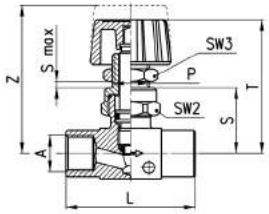


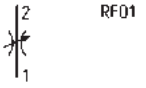
DIMENSIONS

Mod.	A	B	L	P	S	T	Z	S max	SW2	SW3
2829 1/8	G1/8	G1/8	41	1/4	23	47	52,5	7	19	17
2829 1/4	G1/4	G1/4	44	1/4	23	47	52,5	7	19	17

Valve Mod. 2839







DIMENSIONS

Mod.	A	L	P	S	T	Z	S max	SW2	SW3
2839 1/8	G1/8	42	1/4	23	47	52,5	7	19	17
2839 1/4	G1/4	46	1/4	23	47	52,5	7	19	17
2839 3/8	G3/8	62	14X1	28	56,5	63	7	22	17
2839 1/2	G1/2	64	14X1	29	57	64	7	22	17

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Pressure switches, Transducers, Pressure indicators

Series PM: adjustable-diaphragm pressure switches, with setting visual scale, with exchange contacts
Series TRP: electro-pneumatic transducers
Series 2950: pressure indicators, ports M5



Series PM diaphragm pressure switches are available with NC (normally closed) contacts and with NO (normally open) contacts.

Series PM681 pressure switches with setting visual scale comply with EN60730 standards and are suitable for signaliing pressure through a normally closed Reed contact.

A regulating screw, which can be adjusted using a small screwdriver, allows the switch to be set to the required pressure.
The calibrated diaphragm enables an electrical signal to be generated or inhibited depending on the pressure set.

GENERAL DATA

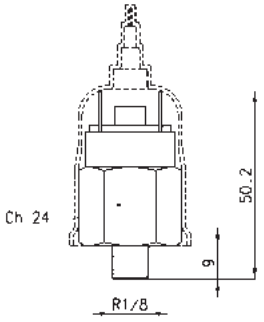
Construction	with adjustable diaphragm
Ports	R1/8, G1/4 (Serie PM) tube 4/2 (Series TRP) M5 (Series 2950)
Mounting	using thread in body
Max. nr. of pulses per 1'	200
Pressure	1 ÷ 10 bar max.
Operating temperature	-5°C ÷ +60°C
Max. power	100 VA
Voltage	220 V
Isolation voltage	1500 V
Max current	0.5 A
Pressure switches protection class	IP40 (Mod. PM681-1, PM681-3) IP54 (Mod. PM11-NC, PM11-NA) IP65 (Mod. PM11-SC)

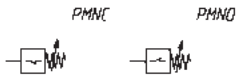
2 CONTROL

Series PM adjustable-diaphragm pressure switches



Supplied with a rubber cap providing protection class IP54.





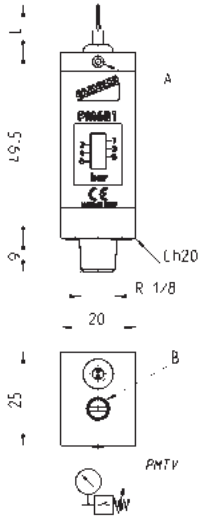
Mod.	Function	Max Voltage	Max Power	Service Type	Insulation voltage	Symbol
PM11-NC	NC = normally closed	48 V AC DC	24 VA	Heavy	500 V	PMNC
PM11-NA	NA = normally open	48 V AC DC	24 VA	Heavy	500 V	PMNO

PMNC = normally closed
PMNO = normally open

Series PM681-... - pressure switches with setting visual scale



In compliance with EN60730 standard
Protection class IP40
Electric connection: PVC cable 2 x 0.22 mm
Electric contact: Reed SPST NO
Body in anodized aluminium and threaded fitting in brass
Hysteresis: 0.8 bar max



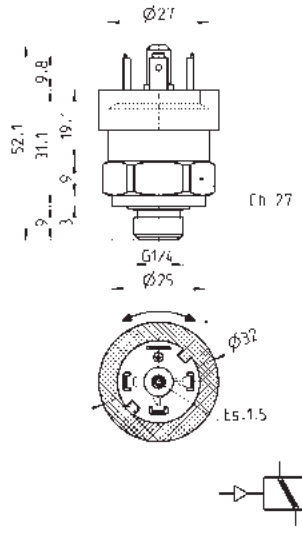
Mod.	L	Max switch voltage	Max switch current	Max switch capacity	Max fluid temperature	Max pressure	Setting range	Weight
PM681-1	1 m	48 V	0.5 A	10 W	60°C	20 bar	1 ÷ 6 bar	95 g
PM681-3	3 m	48 V	0.5 A	10 W	60°C	20 bar	1 ÷ 6 bar	95 g

A = SETTING GRAIN LOCKING B = ADJUSTMENT SCREW

Pressure switch with exchange contacts Mod. PM11-SC



Protection class IP65
(with connector Mod. 124-830)



DIMENSIONS

Mod.	Function	Max Voltage	Operating Temperature	Actuation time	Setting range	Max Hysteresis
PM11-SC	SC (*)	250V AC - 30V DC	-25°C +85°C	> 0,1 ms	2 ÷ 10 bar	0.8 bar

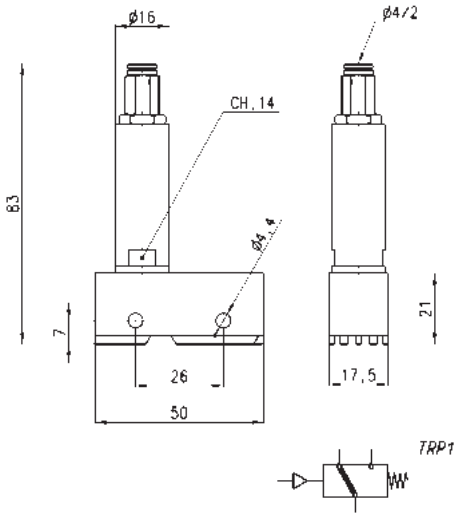
(*) SC = exchange contacts

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Electro-pneumatic transducer Series TRP



Series TRP electro-pneumatic transducer is particularly suitable to convert a pneumatic signal into an electrical signal.
The contacts are NC (normally closed) or NO (normally open), thus making it possible to generate or eliminate current when the pneumatic signal is present.
Minimum operating pressure 2,5 bar.

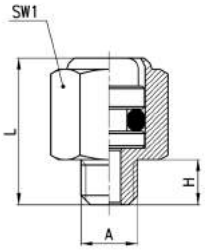


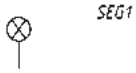
Mod.
TRP-8

Pressure indicators Series 2950



The pressure indicator Mod. 2950-M5 is passive element (no spring, red colour).
It is useful for detecting pressure manually without having to remove the connections.



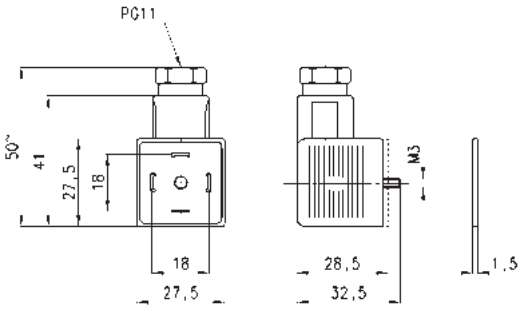


DIMENSIONS

Mod.	A	H	L	SW1
2950 M5	M5	4	13.5	8

3-pole connector Mod. 124-830 for pressure switch Mod. PM11-SC





Mod.	description	colour	working voltage	cable holding	tightening torque
124-830	three-pole connector without electronics	black	-	PG9/PG11	0.5 Nm
124-830EX	three-pole ATEX connector without electronics	black	-	PG9/PG11	0.5 Nm

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Series SWDN
electronic vacuum/pressure switches

With digital display
High precision, easy to use



- Compact and lightweight
- Digital indicator: precision electronic insertion with two separated switch outputs
- Switching point and hysteresis can be programmed with a membrane keypad.

APPLICATIONS:
- electronic vacuum/pressure switch for safety monitoring, optimization of cycle times or energy saving devices;
- it can be installed directly on the gripping point of a handling system;
- setting of the limit vacuum value and continuous vacuum control;
- perfectly suitable for customer needs.

ELECTRIC CONNECTION:
the device is available with hardwired cable of 2 meters or can be supplied with M8 connector.
Accessories and extensions have to be ordered separately. Codes can be found at the end of this section.

GENERAL DATA

Type of pressure/vacuum switch	electronic with polycarbonate housing
Port	with external thread G1/8 and internal thread M5
Display	3 digit display with membrane keypad for the values set up
LED	integrated LED indicators for switching state
Electric connection	with M8 4-pole connector or pre-wired cable of 2 meters

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CODING EXAMPLE

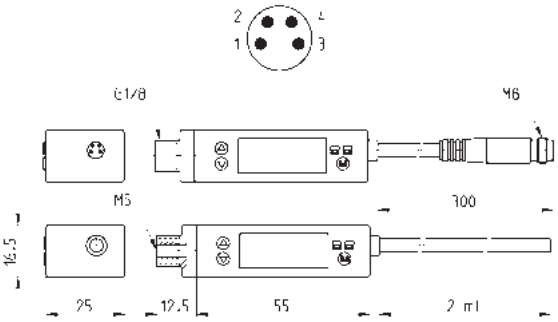
SWDN	-	V01	-	P3	-	2

SWDN	SERIES
V01	SET PRESSURE RANGE: V01 = from -1 bar to 1 bar P10 = from 0 bar to 10 bar
P3	TYPE OF ELECTRIC CONNECTION: P3 = 2 PNP outputs + 1 analog output 1 - 5 V DC (this version is available with 5-pole cable only) P4 = 2 PNP outputs
2	ELECTRIC CONNECTION: 2 = cable of 2 meters M = M8 4 pin connector

Vacuum/Pressure switch Series SWDN



1 = brown (+)
2 = white (OUT 2)
3 = blue (-)
4 = black (OUT 1)
Analogic output = orange



Mod.
SWDN-V01-P3-2
SWDN-V01-P4-2
SWDN-V01-P4-M
SWDN-P10-P3-2
SWDN-P10-P4-2
SWDN-P10-P4-M

TECHNICAL DATA

CHARACTERISTICS

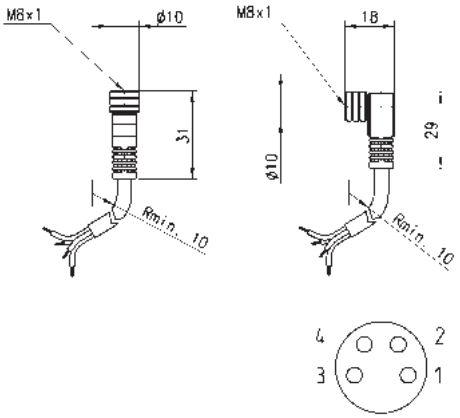
		SWDN-V01-...	SWDN-P10-...
Rated pressure range (set-value)		-1 ÷ 1 bar	0 ÷ 10 bar
Setting pressure range (it can be displayed on the screen)		-1 ÷ 1 bar	-1 ÷ 10 bar
Withstand (Maximum) pressure		3 bar	15 bar
Fluid		Air, non-corrosive gases, incombustible gases	
Set pressure resolution:	**kPa**	0,1	-
	MPa	-	0,001
	Kgf/cm²	0,001	0,01
	bar	0,001	0,01
	Psi	0,01	0,1
	InHg	0,1	-
	mmHg	1	-
	mmH2O	0,1	-
Power supply voltage		12-24 VDC ± 10%, ripple (P-P) 10% or less	
Current consumption		≤ 55mA	
PNP switch output		2 outputs with open collector max. load current of 80mA max. power supply voltage of 24VDC residual voltage ≤ 1V (with load current of 80mA)	
Repeatibility (switch output)		≤ ± 0,2% F.S. ± 1 digit	
Analog output (where foreseen)		1 - 5V ± 5% F.S.	1 - 5V ± 2,5% F.S. (within the linear range: ≤ ± 1% F.S.)
Hysteresis:	**Hysteresis mode**	Adjustable	
	Window comparator mode	Fixed (3 digits)	
Response time		≤ 2,5ms (chattering-proof function: 24ms, 192ms and 768ms)	
Output short circuit protection		YES	
7 segment LED display		3 ½ digit (sampling rate of 5 times/sec)	
Indicator accuracy		≤ ± 2% F.S. ± 1 digit (ambient temperature: 25 ± 3°C)	
Indicator		green LED (OUT1), red LED (OUT2)	
Environment:	**Protection class**	IP40	
	Temperature	Operation: 0 ÷ 50°C Storage: -20 ÷ 60°C (without condensation or freezing)	
	Relative humidity	Operation/Storage: 35 ÷ 85% (without condensation)	
	Withstand (Max.) voltage	1000 VAC in 1 min (between case and lead wire)	
	Insulation resistance	50MΩ min. (at 500VDC between case and lead wire)	
	Vibration	Total amplitude 1.5 mm 10Hz-55Hz-10Hz scan for 1 minute 2 hours each direction of X, Y and Z	
	Shock	980 m/s² (100G) 3 times each direction of X, Y and Z	
Changes due to temperature		≤ ± 2% F.S. of detected pressure (25°C) within the operating temperature range	
Port size		G1/8 - M5	
Lead wire		Oil-resistance cable (0,15 mm²)	
Weight		About 67 g for the version with 2-meter lead wire About 35 g for the version with male connector	

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General terms and conditions for sale are available on www.camozzi.com.

Circular M8 4-pole connectors, Female

Protection class: IP65
Materials: PU non shielded cable





Mod.	Type of connector	Cable length (m)
CS-DF04EG-E200	straight	2
CS-DF04EG-E500	straight	5
CS-DR04EG-E200	90°	2
CS-DR04EG-E500	90°	5

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Series SWCN
electronic vacuum/pressure switches

With digital display
High precision, easy to use



- Compact and lightweight
- Digital indicator: precised electronic insertion with two separated switch outputs
- Switching point and hysteresis can be programmed with a membrane keypad
- Upper and lower limit values can be programmed through two PNP switch outputs

APPLICATIONS:
- electronic vacuum/pressure switch for safety monitoring, optimization of cycle times or energy saving devices;
- it can be installed directly on the gripping point of a handling system;
- setting of the limit vacuum value and continuous vacuum control;
- perfectly suitable for customer needs.

ELECTRIC CONNECTION:
the device is available with hardwired cable of 2 meters or can be supplied with M8 connector.
Accessories and extensions have to be ordered separately. Codes can be found at the end of this section.

GENERAL DATA

Type of pressure/vacuum switch	electronic with polycarbonate housing
Port	with external thread G1/8 and internal thread M5
Display	3 digit display with membrane keypad for the values set up
LED	integrated LED indicators for switching state
Electric connection	with M8 4-pole connector or pre-wired cable of 2 meters

Products designed for industrial applications.
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CODING EXAMPLE

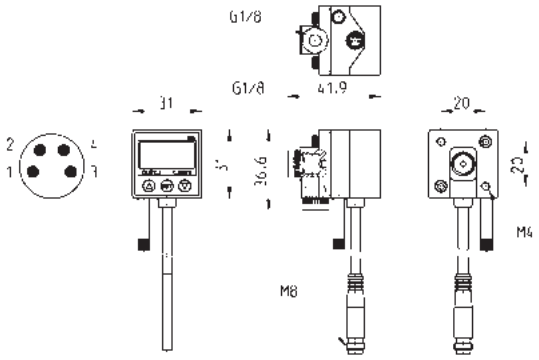
SWCN	-	V01	-	P3	-	2

SWCN	SERIES
V01	SET PRESSURE RANGE: V01 = from -1 bar to 1 bar P10 = from 0 bar to 10 bar
P3	TYPE OF ELECTRIC CONNECTION: P3 = 2 PNP outputs + 1 analog output 1 - 5 V DC (this version is available with 5-pole cable only) P4 = 2 PNP outputs
2	ELECTRIC CONNECTION: 2 = cable of 2 meters M = M8 4 pin connector

Vacuum/Pressure switch Series SWCN



1 = brown (+)
2 = white (OUT 2)
3 = blue (-)
4 = black (OUT 1)
Analogic output = orange



Mod.
SWCN-V01-P3-2
SWCN-V01-P4-2
SWCN-V01-P4-M
SWCN-P10-P3-2
SWCN-P10-P4-2
SWCN-P10-P4-M

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TECHNICAL DATA

CHARACTERISTICS

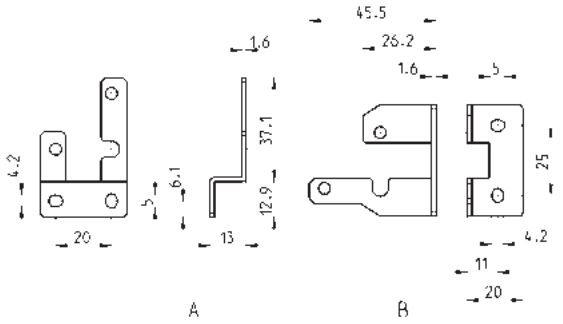
			SWCN-V01-...	SWCN-P10-...
Rated pressure range (set-value)			-1 ÷ 1 bar	0 ÷ 10 bar
Setting pressure range (it can be displayed on the screen)			-1 ÷ 1 bar	-1 ÷ 10 bar
Withstand (Maximum) pressure			3 bar	15 bar
Fluid			Air, non-corrosive gases, incombustible gases	
Set pressure resolution:		**kPa**	0,1	-
		MPa	-	0,001
		Kgf/cm²	0,001	0,01
		bar	0,001	0,01
		Psi	0,01	0,1
		InHg	0,1	-
		mmHg	1	-
		mmH2O	0,1	-
Power supply voltage			12-24 VDC ± 10%, ripple (P-P) 10% or less	
Current consumption			≤ 55mA	
PNP switch output			2 outputs with open collector max. load current of 80mA max. power supply voltage of 24VDC residual voltage ≤ 1V (with load current of 80mA)	
Repeatibility (switch output)			≤ ± 0,2% F.S. ± 1 digit	
Analog output (where foreseen)			1 - 5V ± 5% F.S.	1 - 5V ± 2,5% F.S. ((within the linearity range: ≤ ± 1% F.S.)
Hysteresis:	**Hysteresis mode**		Adjustable	
	Window comparator mode		Fixed (3 digits)	
Response time			≤ 2,5ms (chattering-proof function: 24ms, 192ms and 768ms)	
Output short circuit protection			YES	
7 segment LED display			3 ½ digit (sampling rate of 5 times/sec)	
Indicator accuracy			≤ ± 2% F.S. ± 1 digit (ambient temperature: 25 ± 3°C)	
Indicator			green LED (OUT1), red LED (OUT2)	
Environment:	**Protection class**		IP65	
	Temperature		Operation: 0 ÷ 50°C Storage: -20 ÷ 60°C (without condensation or freezing)	
	Relative humidity		Operation/Storage: 35 ÷ 85% (without condensation)	
	Withstand (Max.) voltage		1000 VAC in 1 min ((between case and lead wire)	
	Insulation resistance		50MΩ min. (at 500VDC between case and lead wire)	
	Vibration		Total amplitude 1.5 mm 10Hz-55Hz-10Hz scan for 1 minute 2 hours each direction of X, Y and Z	
	Shock		980 m/s² (100G) 3 times each direction of X, Y and Z	
Changes due to temperature			≤ ± 2% F.S. of detected pressure (25°C) within the operating temperature range	
Port size			G1/8 - M5	
Lead wire			Oil-resistance cable(0,15 mm²)	
Weight			About 105 g for the version with 2-meter lead wire About 71 g for the version with male connector	

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Mounting bracket Mod. SWCN-B



Supplied with:
- 4 fixing screws M4x5 ISO 724 (fine pitch)
- 1 fixing bracket for surface mounting (A)
- 1 fixing bracket for wall mounting (B)

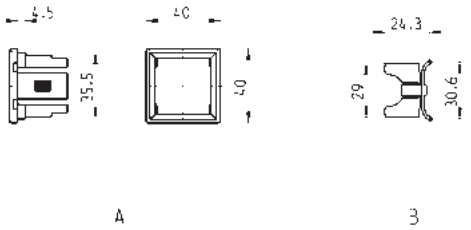


Mod.
SWCN-B

Panel mounting set Mod. SWCN-F



Supplied with:
- 1 pressure switch holder (A)
- 2 panel mounting brackets (B)

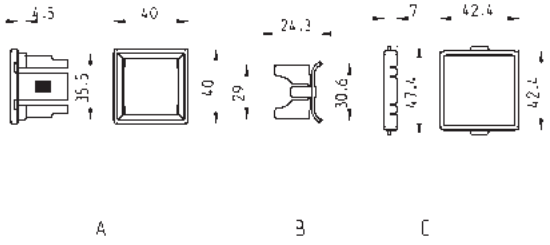


Mod.
SWCN-F

Panel mounting set + transparent cover Mod. SWCN-FP



Supplied with:
- 1 pressure switch holder (A)
- 2 panel mounting brackets (B)
- 1 transparent cover (C)

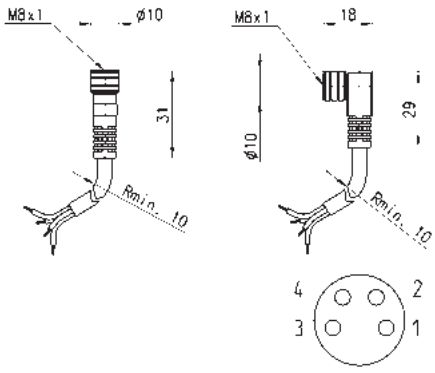


Mod.
SWCN-FP

Circular M8 4-pole connectors, Female



With PU sheathing, non shielded cable.
Protection class: IP65



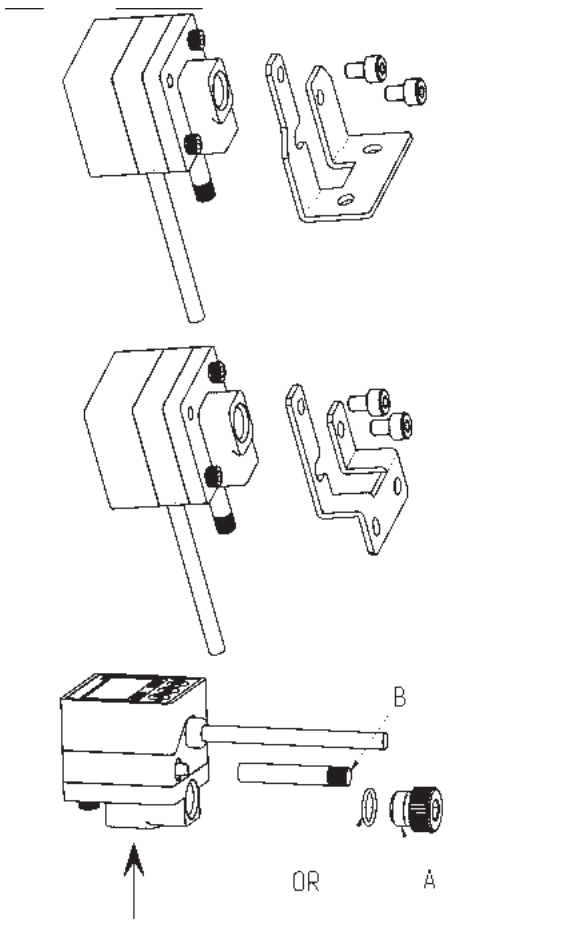
Mod.	Type of connector	Cable length (m)
CS-DF04EG-E200	straight	2
CS-DF04EG-E500	straight	5
CS-DR04EG-E200	right angle (90 degrees)	2
CS-DR04EG-E500	right angle (90 degrees)	5

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Example of mounting with bracket Mod. SWCN-B and standard accessories

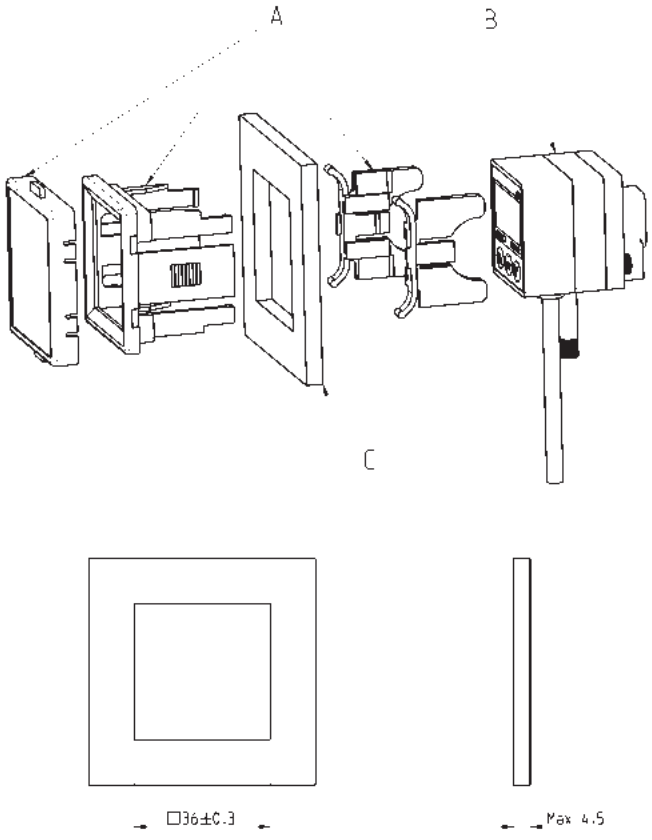
A: ADDITIONAL POWER SUPPLY
In case of use, please unscrew plug A from one side and mount it on the other one.

B: Use of the AIR FILTER TUBE to reach the IP 65 protection class.



Example of mounting with panel mounting set Mod. SWCN-F

A = PANEL MOUNTING SET MOD. SWCN-F
B = PRESSURE SWITCH MOD. SWCN-...
C = PANEL



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Silencers

Series: 2901 - 2903 - 2921 - 2931 - 2938 - 2939 - 2905 - RSW
Ports: M5, G1/8, G1/4, G3/8, G1/2, G3/4, G1



The silencers are indispensable elements for eliminating or reducing the characteristic noise of compressed air during discharge operations. They should always be placed on the outlets of 3/2, 5/2 or 5/3-way valves.
When carrying out maintenance, the silencers should be degreased using white spirit or paraffin and compressed air blown through them in the opposite direction to operation.

Flow rate: determined with inlet supply 6 bar and output in atmosphere.
Noise level: determined through a test which is carried out using a phonometer. Placing the phonometer one meter away from the application at the same height for a period of ten seconds gives an average reading of the noise generated.

GENERAL DATA

Construction	body with male and female thread
Materials used for body	2901 - 2903: brass 2921 - 2931: coppering steel 2938 - 2939: polyethylene
Materials used for silencing	2901 - 2903: stainless steel 2921 - 2931: bronze (sintered) 2938 - 2939: polyethylene
Ports	M5 - G1/8 - G1/4 - G3/8 - G1/2 - G3/4 - G1

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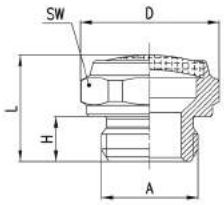
2

CONTROL

Silencers Series 2901

New model





SH1

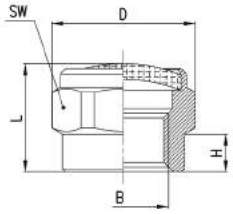


DIMENSIONS

Mod.		A	D	H	L	SW	Max operating pressure (bar)	Flow rate (Nl/min)	Noise db (A)	
2901 M5	*	M5	9	4	8.5	8	10	150	66	* sintered bronze silencer element
2901 1/8		G1/8	15.3	5	12	14	10	700	76	
2901 1/4-17		G1/4	18.5	6	14	17	10	1000	78	
2901 1/4-22		G1/4	23.5	6	15	22	10	1600	80	
2901 3/8		G3/8	23.5	7	16	22	10	1500	76	
2901 1/2		G1/2	29.5	8	17.5	27	10	3400	86	
2901 3/4		G3/4	34	9	20	32	6	4100	87	
2901 1		G1	43	11	24.5	40	6	7600	88	

Silencers Series 2903





SH1

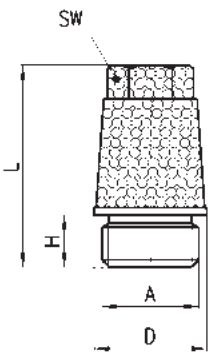


DIMENSIONS

Mod.	B	D	H	L	SW	Max. Oper. Pressure	Flow rate Nl/Min	Noise db(A)
2903 1/8	G1/8	15,3	4	11	14	10	700	74

Silencers Series 2921





SH1



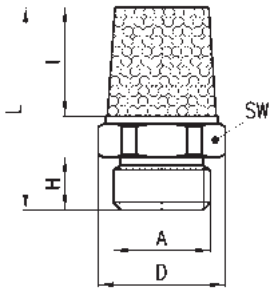
DIMENSIONS

Mod.	A	D	H	L	SW	Max. Oper. Pressure	Flow rate Nl/Min	Noise db(A)
2921 1/8	G1/8	12	4,5	21,5	8	10	1730	81
2921 1/4	G1/4	15	6	28	10	10	3300	85
2921 3/8	G3/8	19	8	37	13	10	4250	79
2921 1/2	G1/2	23	9	43,5	15	10	6800	87
2921 3/4	G3/4	30	10	56	19	10	9800	84
2921 1	G1	37	12	67	24	10	10900	86

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Silencers Series 2931





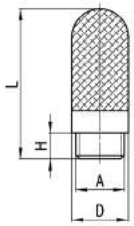
SH1

DIMENSIONS

Mod.	A	D	H	I	L	SW	Max. Oper. Pressure	Flow rate Nl/Min	Noise db (A)
2931 M5	M5	7,7	4	8	16,5	7	10	450	69
2931 M7	M7	9	5	8,5	20	8	10	1130	76
2931 1/8	G1/8	13	4,5	13	21	12	10	1927	88
2931 1/4	G1/4	16,2	6	16,5	27	15	10	3200	86
2931 3/8	G3/8	20	7	23	35,5	19	10	4560	81
2931 1/2	G1/2	24,5	8	28	42	23	10	6800	87
2931 3/4	G3/4	32	9	37	54	30	10	9600	84
2931 1	G1	38,5	11	47	67	36	10	10800	86

Silencers Series 2938





SH1

DIMENSIONS

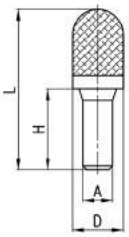
Mod.	A	D	H	L	Max. Oper. Pressure	Flow rate Nl/Min	Noise db (A)
2938 M5	M5	6,5	4,1	23	10	546	67
2938 1/8	G1/8	12,5	5,7	34	10	1441	75
2938 1/4	G1/4	15,5	7	42,5	10	2752	79
2938 3/8	G3/8	18,5	11,5	67,5	10	4735	73
2938 1/2	G1/2	23,5	11	77	10	8534	86

Operating temperature:
- 40 / + 80 °C

Silencers Series 2939

Operating temperature:
- 40 / + 80 °C





SH1

DIMENSIONS

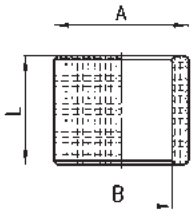
Mod.	⌀A	D	H	L	Max. Oper. Pressure	Flow rate Nl/Min	Noise db (A)	
2939 4	4	7	16	32	10	335	80	
2939 6	6	12,5	20,5	45	10	632	79	*
2939 8	8	13,5	21,5	43,5	10	1229	89	*
2939 10	10	15,5	26,5	57,5	10	2650	87	*

* this code can be used on the Valve Island Series F (see the section 2/3.16).



Silencing bush Series 2905

For flow control valves Mod. SCO and MCO
(see the section 2/7.05)



DIMENSIONS			
Mod.	A	B	L
2905 1/8	14	10	14.5
2905 1/4	18	13.5	14.5
2905 3/8	21	16.8	14.5

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Series AP
directly operated proportional valves

New models

2/2-way proportional valves, NC
Sizes: 16 - 22 mm



- PWM or current operation
- Open loop flow control
- Also suitable for use with vacuum

Several versions available:

- with body in PVDF (size 16mm only),
- with rear flanged bodies
- with lower flanged bodies,
- suitable for use with oxygen
- Seals in FKM and NBR

Series AP directly operated 2/2-way proportional solenoid valves, NC, with nominal diameters range from 0.8 to 2.4 mm, can be used where an open loop flow control is required, with gas mixtures, to control free flows or blows, or emptying chambers using vacuum.

Series AP proportional valves have been manufactured to optimize and reduce friction and stick-slip effects. The output flow is proportional to the control signal. As they can work also in vacuum, a minimum working pressure is not required.

GENERAL DATA

Function	2/2 NC			
Operation	proportional directly operated			
Ports	M5 - G1/8 - with rear flanges - with lower flanges			
Hysteresis	Size 16mm: 12% FS - Size 22mm: 10% FS			
Repeatibility	Size 16mm: 7% FS - Size 22mm: 7% FS			
Operating temperature	0 ÷ 60°C			
Medium	filtered compressed air, unlubricated, according to ISO 8573-1 class 3.4.3, inert gas. All the valves are suitable for use with oxygen.			
Installation	any position			
Materials	body = brass / PVDF (for size 16mm only) seals = NBR and FKM			
	GP7	GPH	U711	U712
Nominal resistance	193 ohm	48 ohm	85 ohm	22 ohm
Rated current	125 mA	250 mA	271 mA	542 mA

NOTE: Having a counterpressure on the outlet connection of at least 25% of the inlet pressure ensures the good functioning of the valve and improves its performance. Example: with inlet Pressure = 1 bar on the outlet connection, a min. counterpressure of 250 mbar is recommended.

CODING EXAMPLE

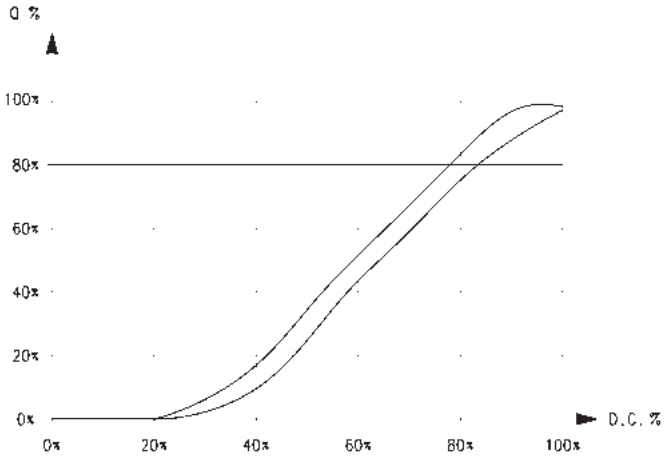
AP	-	7	2	1	1	-	L	R	2	-	U	7	11	OX2

AP	SERIES	
7	BODY: 6 = Size 16 mm	7 = Size 22 mm
2	NUMBER OF WAYS: 2 = 2-way	
1	VALVE FUNCTION: 1 = NC	
1	PORTS: 0 = M5 (for size 16 mm only) 1 = G1/8 (for size 22 mm only) L = male hose adaptor (for body in PVDF only, size 16 mm)	4 = with rear flanges 5 = with lower flanges
L	NOMINAL DIAMETER: D = ø 0.8 mm (for size 16 mm only) F = ø 1 mm H = ø 1.2 mm	L = ø 1.6 mm N = ø 2 mm (for size 22 mm only) Q = ø 2.4 mm (for size 22 mm only)
R	SEAL MATERIAL: R = NBR	W = FKM
2	BODY MATERIAL: 2 = brass	3 = PVDF (for size 16 mm only)
U	ENCAPSULATING MATERIAL: G = PA (for size 16 mm only)	U = PET (for size 22 mm only)
7	SOLENOID DIMENSIONS: P = 16x26 DIN EN 175301-803-C (for size 16 mm only)	7 = 22x22 DIN 43650 B (for size 22 mm only)
11	SOLENOID VOLTAGE: H = 12 V DC 3 W (for size 16 mm only) 7 = 24 V DC 3 W (for size 16 mm only)	11 = 24 V DC 6.5 W (for size 22 mm only) 12 = 12 V DC 6.5 W (for size 22 mm only)
OX2	VERSION: OX2 = version with ASTM G93-03 Certification Level B (FKM seals only) = non-certified NBR version	

FLOW GRAPH

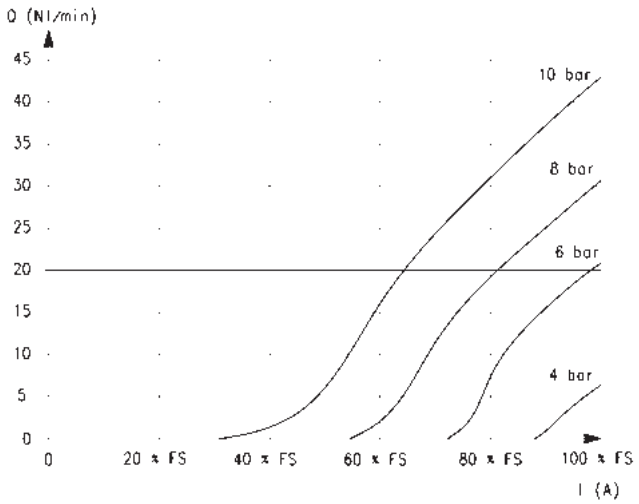
Flow characteristic curve of a proportional valve

Q = flow
D.C. = duty cycle



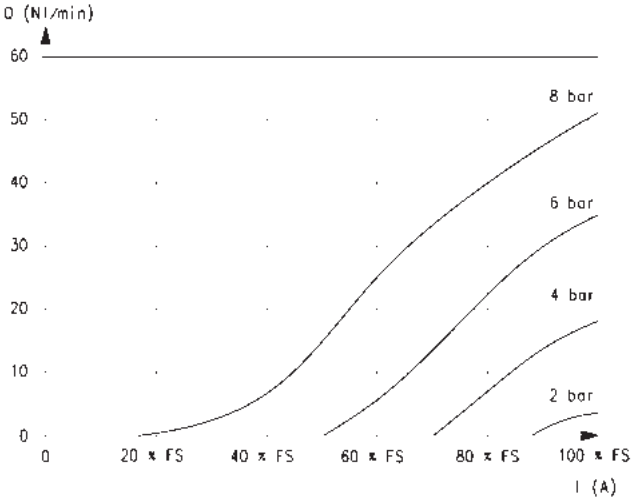
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FLOW DIAGRAMS - size 16mm



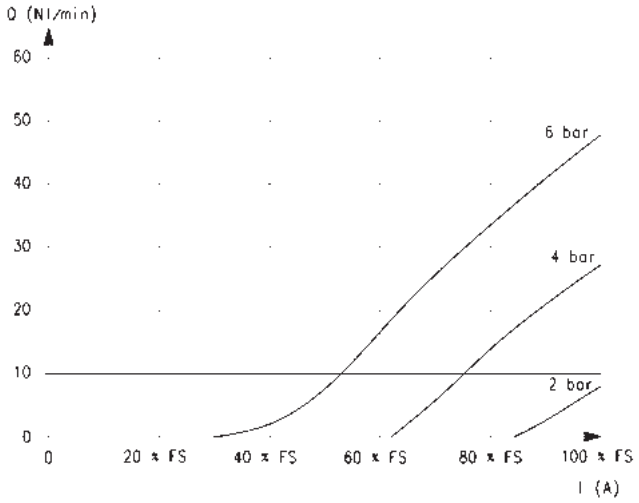
Nozzle 0.8mm

Q = Flow (Nl/min)
I = Current (A)
FS = Full scale



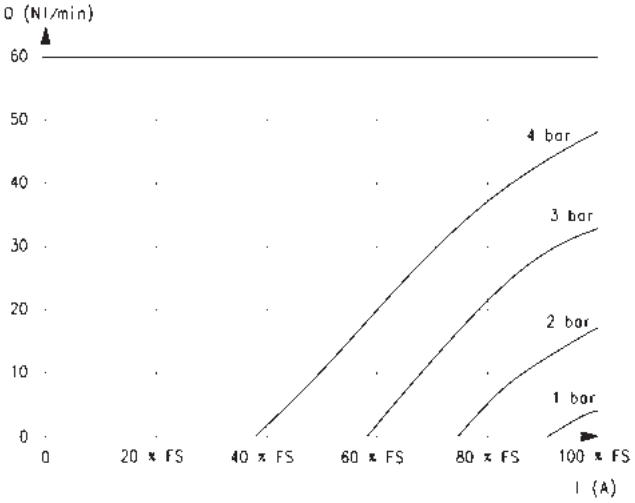
Nozzle 1mm

Q = Flow (Nl/min)
I = Current (A)
FS = Full scale



Nozzle 1.2mm

Q = Flow (Nl/min)
I = Current (A)
FS = Full scale

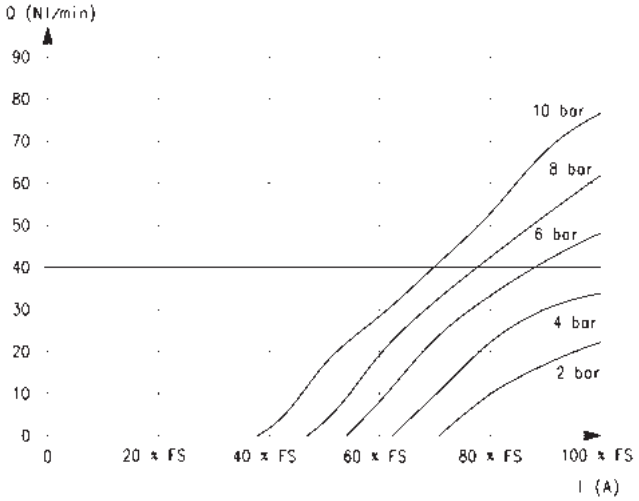


Nozzle 1.6mm

Q = Flow (Nl/min)
I = Current (A)
FS = Full scale

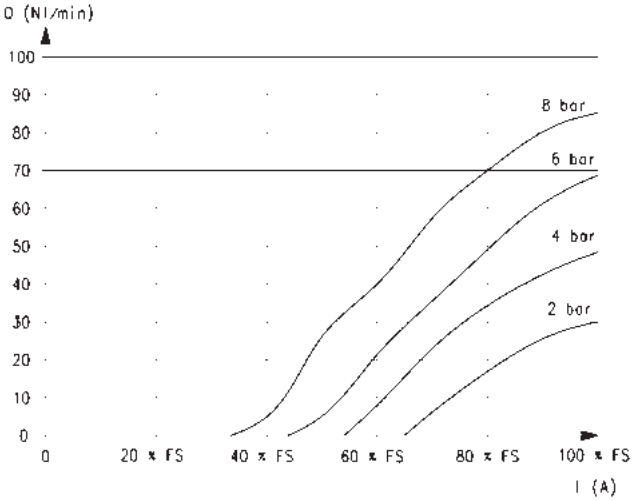
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FLOW DIAGRAMS - size 22mm



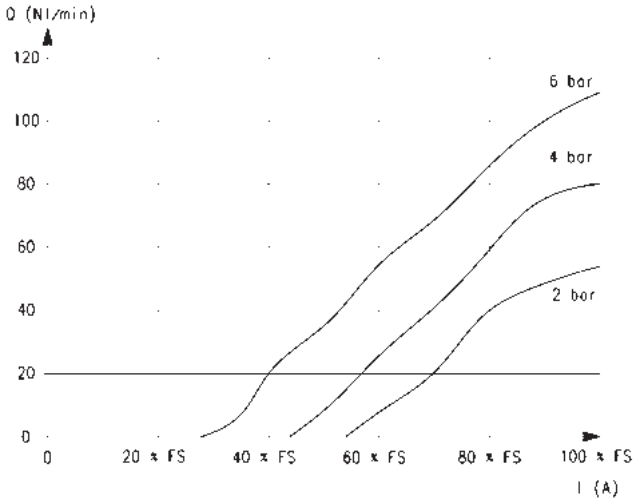
Nozzle 1mm

Q = Flow (Nl/min)
I = Current (A)
FS = Full scale



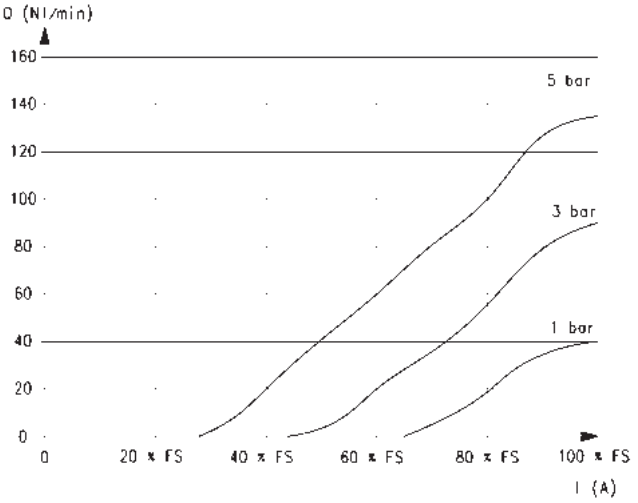
Nozzle 1.2mm

Q = Flow (Nl/min)
I = Current (A)
FS = Full scale



Nozzle 1.6mm

Q = Flow (Nl/min)
I = Current (A)
FS = Full scale

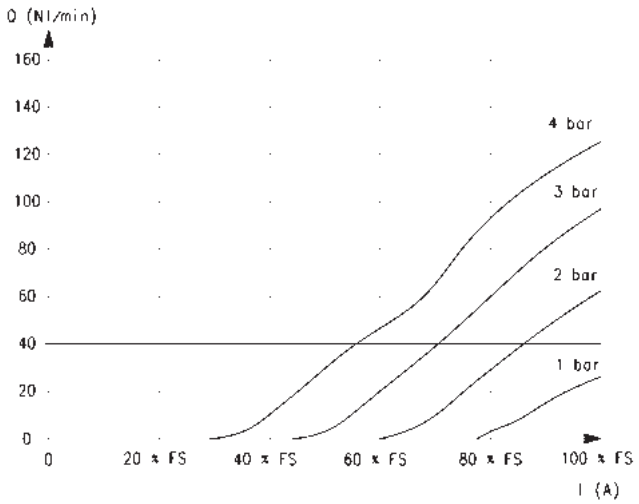


Nozzle 2mm

Q = Flow (Nl/min)
I = Current (A)
FS = Full scale

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FLOW DIAGRAM - size 22mm



Nozzle 2.4mm

Q = Flow (Nl/min)
I = Current (A)
FS = Full scale

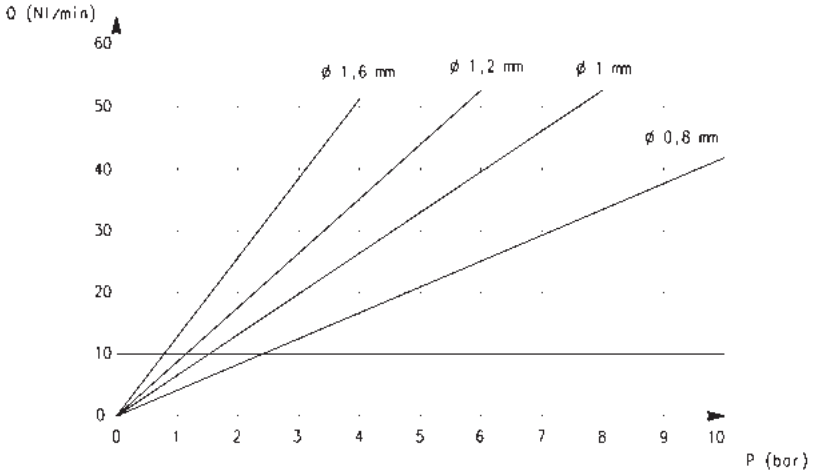
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MAXIMUM FLOW AND RESPONSE TIMES - size 16mm

Maximum flow according to the inlet pressure

DIAGRAM LEGEND:

Q = flow (Nl/min)
I = current (A)



RESPONSE TIMES calculated according to the maximum flow at each operating pressure. [Electromechanical response time: 10 ms]

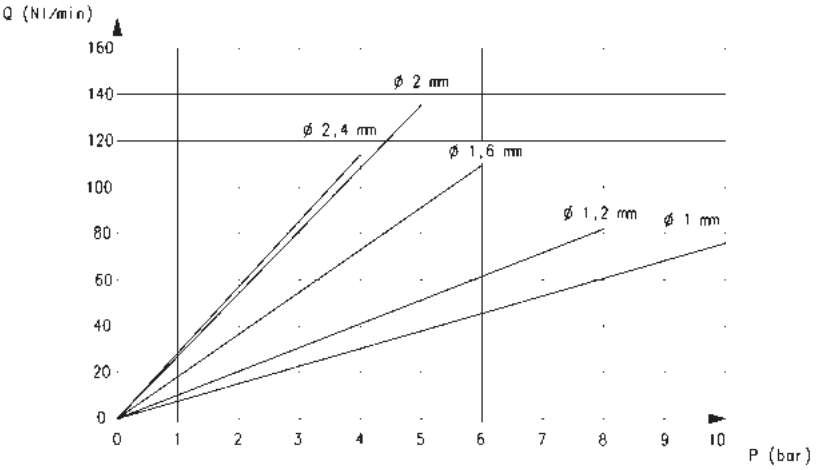
ø	Pin [bar]	Load response time [ms]			Exhaust response time [ms]		
		0% - 10%	0% - 90%	10% - 90%	100% - 90%	100% - 10%	90% - 10%
0.8 mm	10	12	43	31	11	39	28
1 mm	8	12	42	30	11	38	27
1.2 mm	6	10	41	31	11	41	30
1.6 mm	4	10	40	30	11	40	29

MAXIMUM FLOW AND RESPONSE TIMES - size 22mm

Maximum flow according to the inlet pressure

DIAGRAM LEGEND:

Q = flow (Nl/min)
I = current (A)



RESPONSE TIMES calculated according to the maximum flow at each operating pressure. [Electromechanical response time: 10 ms]

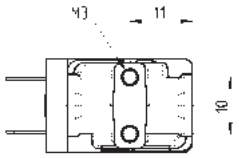
ø	Pin [bar]	Load response time [ms]			Exhaust response time [ms]		
		0% - 10%	0% - 90%	10% - 90%	100% - 90%	100% - 10%	90% - 10%
1 mm	10	10	36	26	10	36	26
1.2 mm	8	10	45	35	12	38	26
1.6 mm	6	12	45	33	12	40	28
2 mm	5	12	42	30	11	34	26
2.4 mm	4	11	45	34	12	44	32

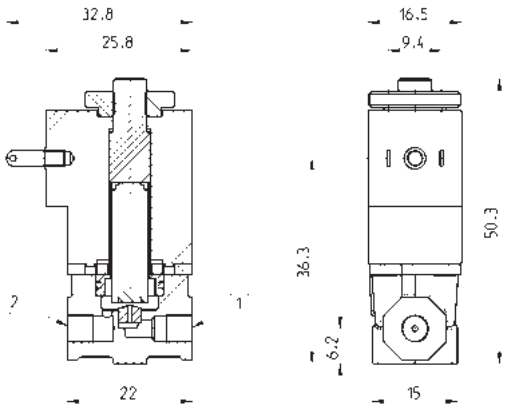
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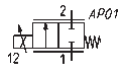
Series AP proportional valves - size 16mm



For the use with vacuum connect the line to connection 2.







Mod.	Port 1	Port 2	Function	Orifice Ø (mm)	kv (l/min)	Max pressure (bar)	Max flow (Nl/min)
AP-6210-DR2-GP*	M5	M5	2/2 NC	0.8	0.3	10	43
AP-6210-FR2-GP*	M5	M5	2/2 NC	1	0.45	8	53
AP-6210-HR2-GP*	M5	M5	2/2 NC	1.2	0.57	6	53
AP-6210-LR2-GP*	M5	M5	2/2 NC	1.6	0.78	4	52
AP-6210-DW2-GP*OX2	M5	M5	2/2 NC	0.8	0.3	10	43
AP-6210-FW2-GP*OX2	M5	M5	2/2 NC	1	0.45	8	53
AP-6210-HW2-GP*OX2	M5	M5	2/2 NC	1.2	0.57	6	53
AP-6210-LW2-GP*OX2	M5	M5	2/2 NC	1.6	0.78	4	52

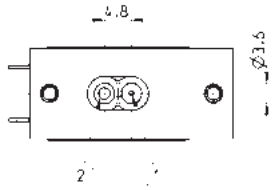
* choose the desired voltage

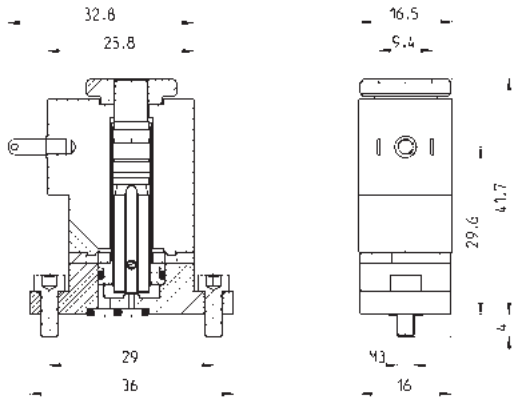
Series AP proportional valves - size 16mm, with lower flanges

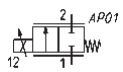
New



For the use with vacuum connect the line to connection 2.







Mod.	Func.	Orifice Ø (mm)	kv (l/min)	Max pressure (bar)	Max flow (Nl/min)
AP-6215-DR2-GP*	2/2 NC	0.8	0.3	10	43
AP-6215-FR2-GP*	2/2 NC	1	0.45	8	53
AP-6215-HR2-GP*	2/2 NC	1.2	0.57	6	53
AP-6215-LR2-GP*	2/2 NC	1.6	0.78	4	52
AP-6215-DW2-GP*OX2	2/2 NC	0.8	0.3	10	43
AP-6215-FW2-GP*OX2	2/2 NC	1	0.45	8	53
AP-6215-HW2-GP*OX2	2/2 NC	1.2	0.57	6	53
AP-6215-LW2-GP*OX2	2/2 NC	1.6	0.78	4	52

* choose the desired voltage

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2

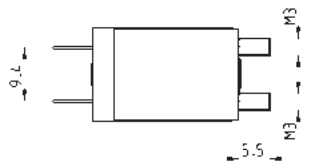
CONTROL

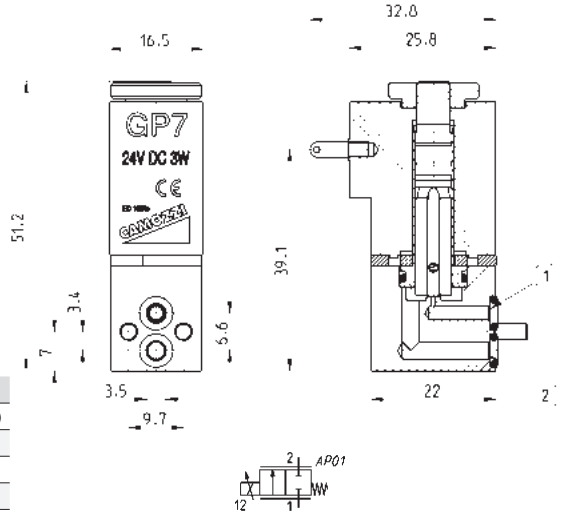
Series AP proportional valves - size 16mm, with rear flanges

New



For the use with vacuum connect the line to connection 2.





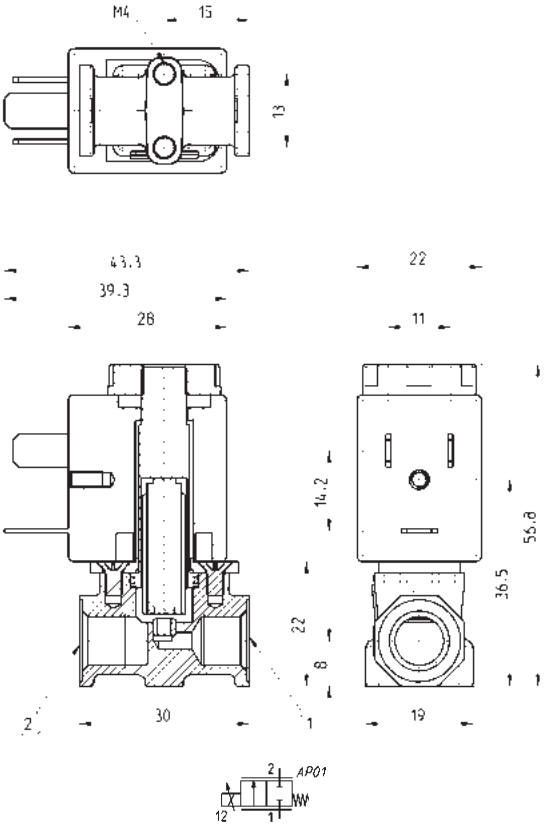
Mod.	Func.	Orifice Ø (mm)	kv (l/min)	Max pressure (bar)	Max flow (Nl/min)
AP-6214-DR2-GP*	2/2 NC	0.8	0.3	10	43
AP-6214-FR2-GP*	2/2 NC	1	0.45	8	53
AP-6214-HR2-GP*	2/2 NC	1.2	0.57	6	53
AP-6214-LR2-GP*	2/2 NC	1.6	0.78	4	52
AP-6214-DW2-GP*OX2	2/2 NC	0.8	0.3	10	43
AP-6214-FW2-GP*OX2	2/2 NC	1	0.45	8	53
AP-6214-HW2-GP*OX2	2/2 NC	1.2	0.57	6	53
AP-6214-LW2-GP*OX2	2/2 NC	1.6	0.78	4	52

* choose the desired voltage

Series AP proportional valves - size 22mm



For the use with vacuum connect the line to connection 2.



Mod.	Port 1	Port 2	Function	Orifice Ø (mm)	kv (l/min)	Max pressure (bar)	Max flow (Nl/min)
AP-7211-FR2-U7*	G1/8	G1/8	2/2 NC	1	0.5	10	75
AP-7211-HR2-U7*	G1/8	G1/8	2/2 NC	1.2	0.7	8	85
AP-7211-LR2-U7*	G1/8	G1/8	2/2 NC	1.6	1.2	6	110
AP-7211-NR2-U7*	G1/8	G1/8	2/2 NC	2	1.7	5	135
AP-7211-QR2-U7*	G1/8	G1/8	2/2 NC	2.4	1.7	4	113
AP-7211-FW2-U7*OX2	G1/8	G1/8	2/2 NC	1	0.5	10	75
AP-7211-HW2-U7*OX2	G1/8	G1/8	2/2 NC	1.2	0.7	8	85
AP-7211-LW2-U7*OX2	G1/8	G1/8	2/2 NC	1.6	1.2	6	110
AP-7211-NW2-U7*OX2	G1/8	G1/8	2/2 NC	2	1.7	5	135
AP-7211-QW2-U7*OX2	G1/8	G1/8	2/2 NC	2.4	1.7	4	113

* choose the desired voltage

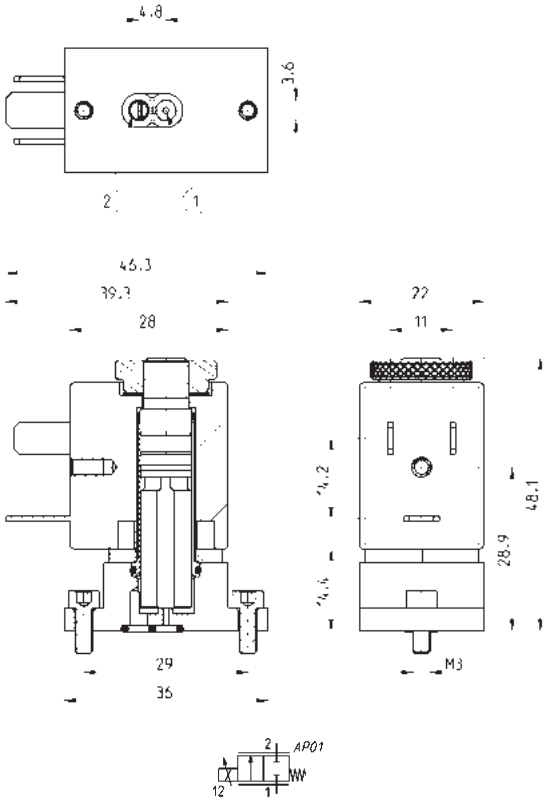
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Series AP proportional valves - size 22mm, with lower flanges

New



For the use with vacuum connect the line to connection 2.



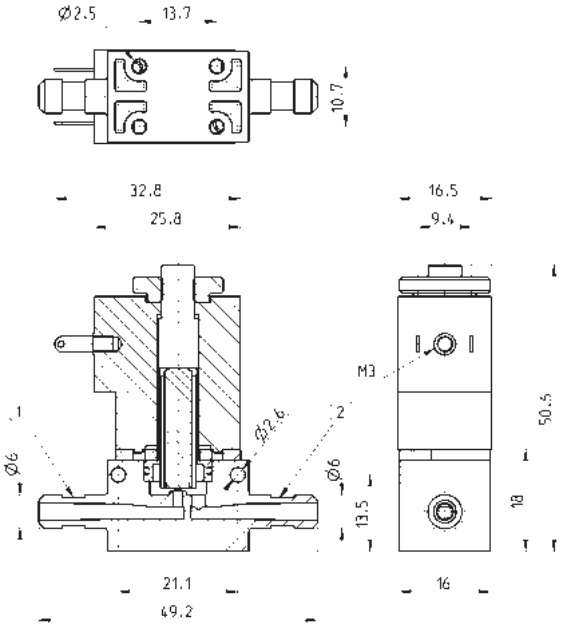
Mod.	Func.	Orifice Ø (mm)	kv (l/min)	Max pressure (bar)	Max flow (Nl/min)
AP-7215-FR2-U7*	2/2 NC	1	0.5	10	75
AP-7215-HR2-U7*	2/2 NC	1.2	0.7	8	85
AP-7215-LR2-U7*	2/2 NC	1.6	1.2	6	110
AP-7215-NR2-U7*	2/2 NC	2	1.7	5	135
AP-7215-QR2-U7*	2/2 NC	2.4	1.7	4	113
AP-7215-FW2-U7*OX2	2/2 NC	1	0.5	10	75
AP-7215-HW2-U7*OX2	2/2 NC	1.2	0.7	8	85
AP-7215-LW2-U7*OX2	2/2 NC	1.6	1.2	6	110
AP-7215-NW2-U7*OX2	2/2 NC	2	1.7	5	135
AP-7215-QW2-U7*OX2	2/2 NC	2.4	1.7	4	113

* choose the desired voltage

Series AP proportional valves, size 16mm - body in PVDF



For the use with vacuum connect the line to connection 2.



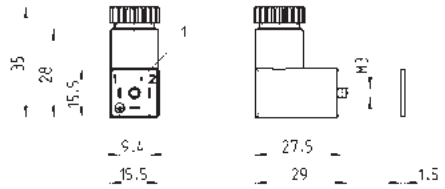
Mod.	Port 1	Port 2	Function	Orifice Ø (mm)	kv (l/min)	Max pressure (bar)	Max flow (Nl/min)
AP-621L-DR3-GP*	Ø6 **	Ø6 **	2/2 NC	0.8	0.3	10	43
AP-621L-FR3-GP*	Ø6 **	Ø6 **	2/2 NC	1	0.45	8	53
AP-621L-HR3-GP*	Ø6 **	Ø6 **	2/2 NC	1.2	0.57	6	53
AP-621L-LR3-GP*	Ø6 **	Ø6 **	2/2 NC	1.6	0.78	4	52
AP-621L-DW3-U7*OX2	Ø6 **	Ø6 **	2/2 NC	0.8	0.3	10	43
AP-621L-FW3-U7*OX2	Ø6 **	Ø6 **	2/2 NC	1	0.45	8	53
AP-621L-HW3-U7*OX2	Ø6 **	Ø6 **	2/2 NC	1.2	0.57	6	53
AP-621L-LW3-U7*OX2	Ø6 **	Ø6 **	2/2 NC	1.6	0.78	4	52

* choose the desired voltage
** pneumatic connection with tube and clamps

Connector Mod. 125-800 DIN 43650 pitch 9.4 mm

For size 16 mm only





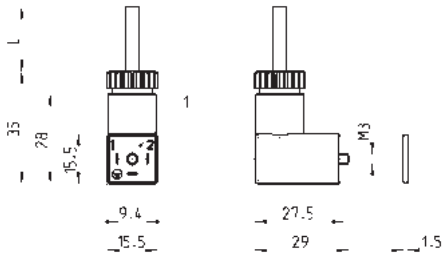
Mod.	description	colour	working voltage	cable holding	tightening torque
125-800	connector, without electronics	black	-	PG7	0.3 Nm

1 = 90° adjustable connector

Connector Mod. 125-550- DIN 43650 pitch 9.4 mm with cable

For size 16 mm only





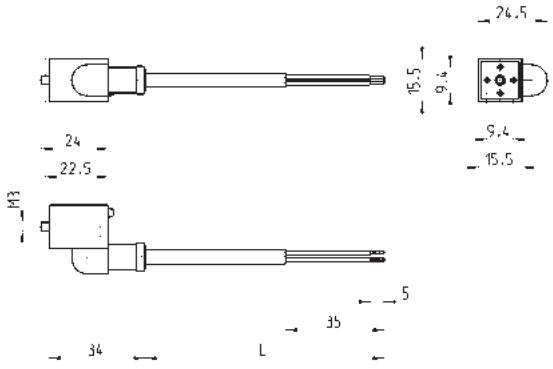
Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
125-550-1	moulded cable, without electronics	black	-	1000 mm	-	0.3 Nm

1 = 90° adjustable connector

In-line connectors with cable Mod. 125-553

For size 16 mm only





Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
125-553-2	in-line moulded cable, without electronics	black	-	2000 mm	-	0.3 Nm
125-553-5	in-line moulded cable, without electronics	black	-	5000 mm	-	0.3 Nm

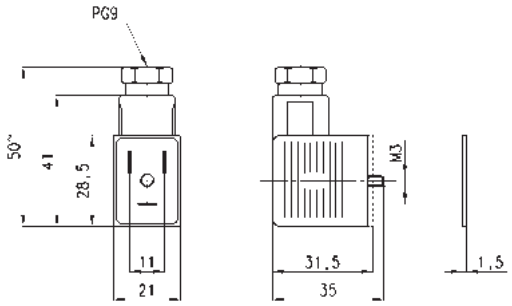
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Connectors Mod. 122-800 DIN 43650



For size 22 mm only

Mod. 122-800EX:
for ATEX certified solenoids Mod. U7*EX,
with anti-screwing off screw Mod. TORX.

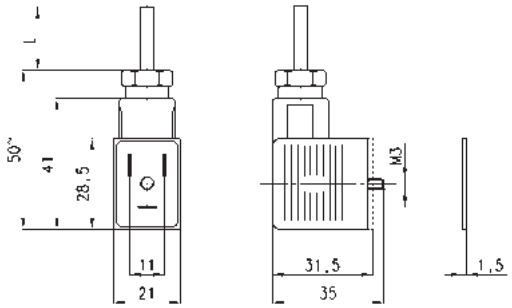


Mod.	description	colour	working voltage	cable holding	tightening torque
122-800	connector, without electronics	black	-	PG9	0.5 Nm
122-800EX	connector, without electronics	black	-	PG9	0.5 Nm

Connectors Mod. 122-550 DIN 43650 with cable



For size 22 mm only

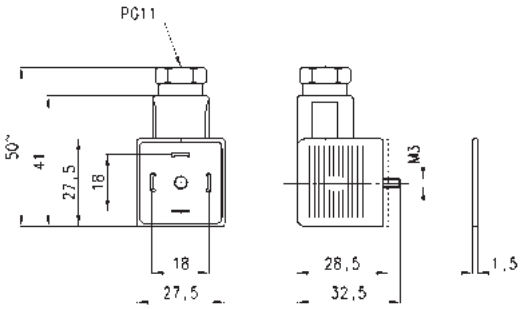


Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
122-550-1	moulded cable, without electronics	black	-	1000 mm	-	0.5 Nm
122-550-5	moulded cable, without electronics	black	-	5000 mm	-	0.5 Nm

Connector Mod. 124-800 DIN 43650



Protection class IP65



Mod.	description	colour	working voltage	cable holding	tightening torque
124-800	connector, without electronics	black	-	PG9/PG11	0.5 Nm

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Series CP directly operated proportional solenoid valves

New models

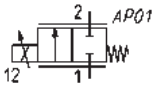
2/2-way NC proportional valves
Sizes: 16 and 20 mm



- High flow
- Great precision
- Low hysteresis
- High working dynamics
- Cartridge body for installation in reduced space

Series CP valves have been designed to optimize dimensions and reduce friction and stick-slip effects. The output flow is proportional to the control signal.
As they can work also in vacuum, a minimum working pressure is not required.
Their cartridge design makes them particularly compact, thus they can be mounted directly near the workstation.

Series CP directly operated proportional solenoid valves can be used where an open loop flow control is required, with gas mixtures or to control flows.



GENERAL DATA

TECHNICAL FEATURES	Size 16mm	Size 20mm
Function	2/2 NC	2/2 NC
Operation	proportional directly operated	proportional directly operated
Pneumatic connections	cartridge	cartridge
Nominal diameters	1 - 1.5 - 2 mm	3 - 3.5 mm
Free flow capacity	70 - 80 - 90 l/min	145 - 165 Nl/min
Operating pressure	2.8 - 2 bar	2.8 - 2 bar
Max overpressure	16 bar	16 bar
Linearity	3% FS	5% FS
Hysteresis	10% FS	15% FS
Repeatibility	5% FS	5% FS
Operating temperature	10°C ÷ 50°C	10°C ÷ 50°C
Media	filtered compressed air, unlubricated, according to ISO 8573-1 class 3.4.3, inert gas. Also suitable for use with oxygen.	filtered compressed air, unlubricated, according to ISO 8573-1 class 3.4.3, inert gas. Also suitable for use with oxygen.
Installation	in any position	in any position
MATERIALS IN CONTACT WITH THE MEDIUM		
Body	brass, stainless steel, PPS	brass, stainless steel, PPS
Seals	FKM	FKM
ELECTRICAL FEATURES		
Operation	PWM > 1000 Hz or current control	PWM > 500 Hz or current control
Operation voltage	6 - 11 - 24 V DC	6 - 11 - 24 V DC
Max power consumption	2 W	3.7 - 3 W
Nominal resistance	11.8 - 37.6 - 184.7 Ohm	6.4 - 25.1 - 102.1 Ohm
Rated current	410 - 238 - 103 mA	615 - 313 - 154 mA
Duty cycle	100%	100%
Electrical connection	cable 300mm AWG24	cable 300mm AWG24
Protection class	IP00 / IP40	IP00 / IP40
Average lifecycles	50000000	50000000
Versions available on demand	base with 1/8 - 1/4 ports	base with 1/8 - 1/4 ports

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CODING EXAMPLE

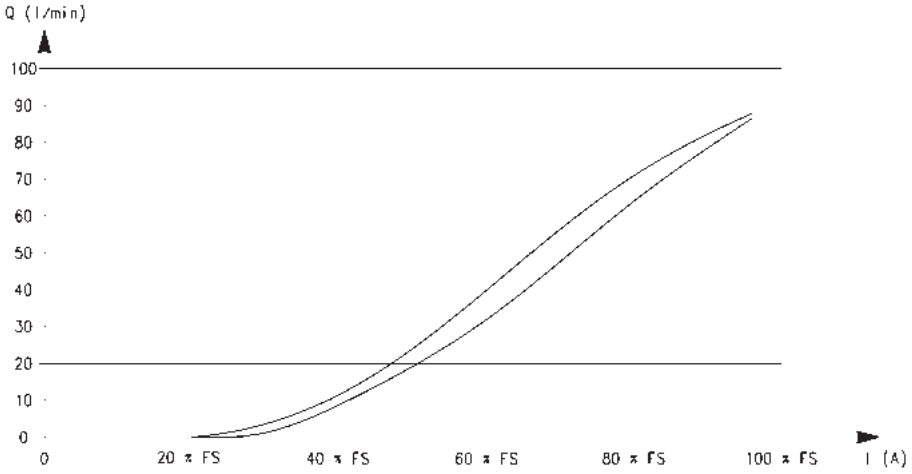
CP	-	C	6	2	1	-	G	W	2	-	0	P	3

CP	SERIES
C	PORTS: C = cartridge S = subbase
6	BODY SIZE: 6 = size 16mm 7 = size 20mm
2	NUMBER OF PORTS: 2 = 2-way
1	FUNCTION: 1 = NC
G	ORIFICE DIAMETRES: F = 1mm (size 16mm only) G = 1.5mm (size 16mm only) N = 2mm (size 16mm only) M = 3mm (size 20mm only) P = 3.5mm (size 20mm only)
W	SEAL MATERIAL: W = FKM
2	BODY MATERIAL: 2 = BRASS
0	OVERMOULDING MATERIAL OF COIL: 0 = cartridge
P	COIL DIMENSIONS: P = ø 16 7 = ø 20
3	VOLTAGE: 1 = 6 V DC 3.1 W (size 16mm only) 3 = 24 V DC 3.1 W (size 16mm only) 5 = 12 V DC 3.1 W (size 16mm only) 7 = 6 V 4.8 W (only Ø 3.5, size 20mm) 9 = 24 V 4.8 W (only Ø 3.5, size 20mm) 2 = 12 V DC 4.3 W (size 20mm only) 4 = 24 V DC 4.3 W (size 20mm only) 6 = 6 V DC 4.3 W (size 20mm only) 8 = 12 V 4.8 W (only Ø 3.5, size 20mm)

HYSTERESIS AND RESPONSE TIMES

DIAGRAM LEGEND:

Q = flow (l/min)
I = current (A)
FS = full scale

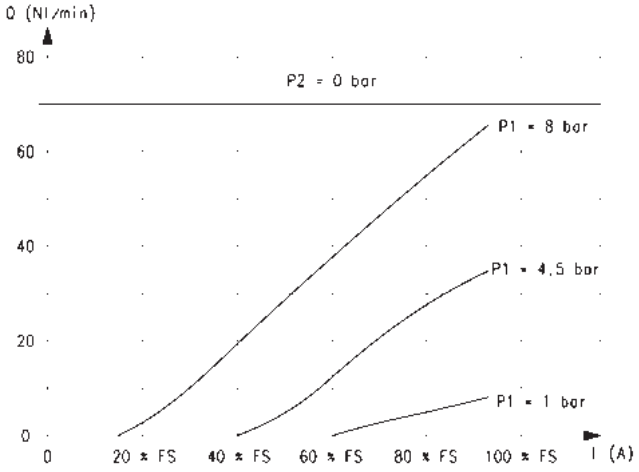


RESPONSE TIMES calculated according to the maximum flow at each operating pressure. [Electromechanical response time: 10 ms]

ø	Pin [bar]	Load response time [ms]			Exhaust response time [ms]		
		0% - 10%	0% - 90%	10% - 90%	100% - 90%	100% - 10%	90% - 10%
1 mm	8	12	42	30	9	33	24
1.5 mm	5	12	39	27	9	33	24
2 mm	3	11	39	28	9	33	26
3 mm	2.8	13	29	16	14	28.5	14.5
3. 5 mm	2	15	31	16	12.5	27.5	15

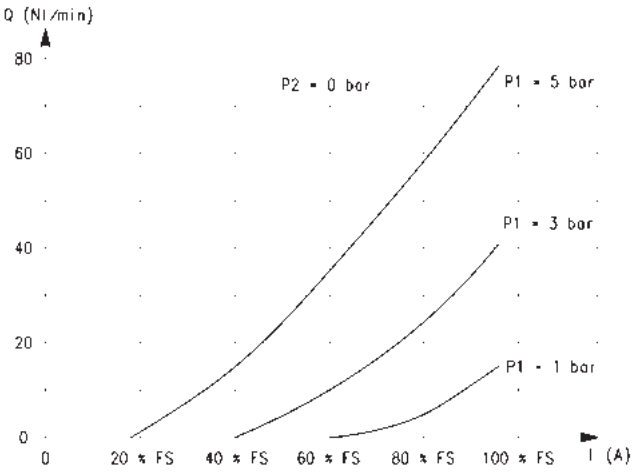
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FLOW DIAGRAMS - Size 16mm



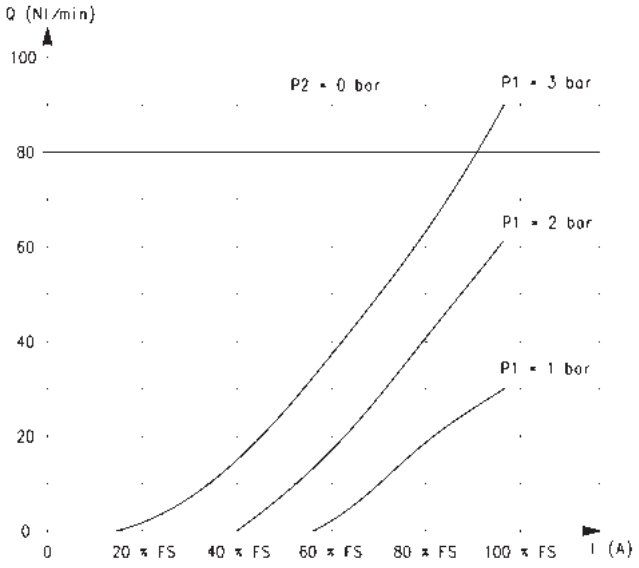
Nominal diameter 1mm

Q = flow (l/min)
I = current (A)
P1 = pressure in load (bar)
P2 = 0 [free flow pressure] (bar)



Nominal diameter 1.5mm

Q = flow (l/min)
I = current (A)
P1 = pressure in load (bar)
P2 = 0 [free flow pressure] (bar)

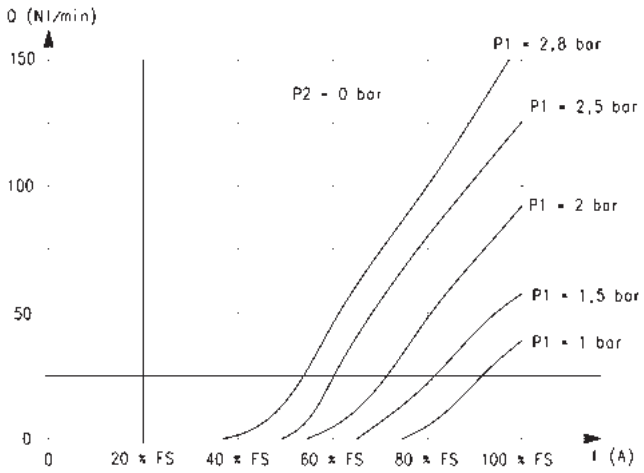


Nominal diameter 2mm

Q = flow (l/min)
I = current (A)
P1 = pressure in load (bar)
P2 = 0 [free flow pressure] (bar)

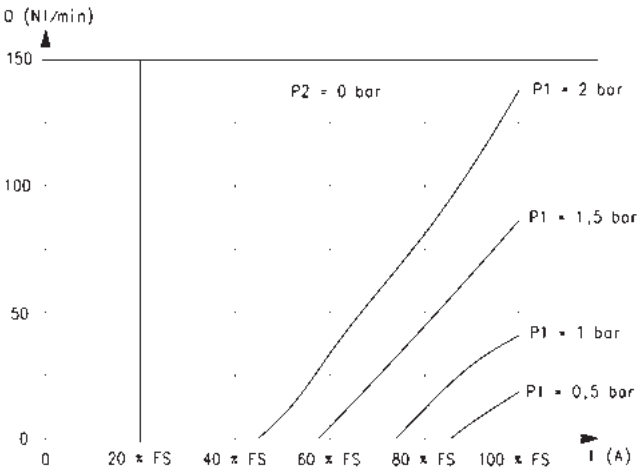
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FLOW DIAGRAMS - Size 20mm



Nominal diameter 3mm

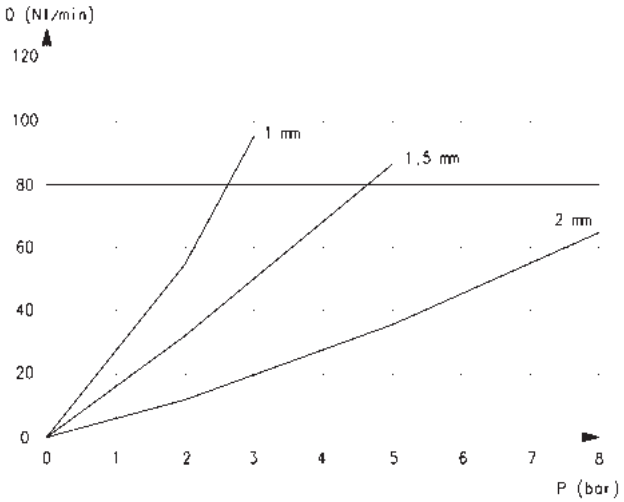
Q = flow (l/min)
I = current (A)
P1 = pressure in load (bar)
P2 = 0 [free flow pressure] (bar)



Nominal diameter 3.5mm

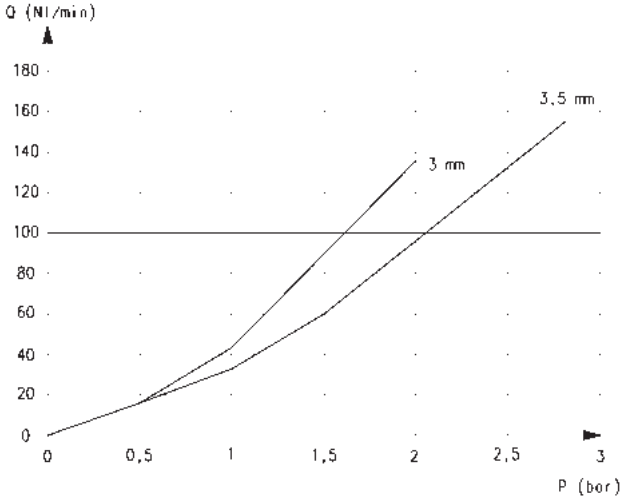
Q = flow (l/min)
I = current (A)
P1 = pressure in load (bar)
P2 = 0 [free flow pressure] (bar)

MAXIMUM FLOW ACCORDING TO THE INLET PRESSURE



Size 16 mm

Q = Flow (Nl/min)
P = Inlet pressure (bar)

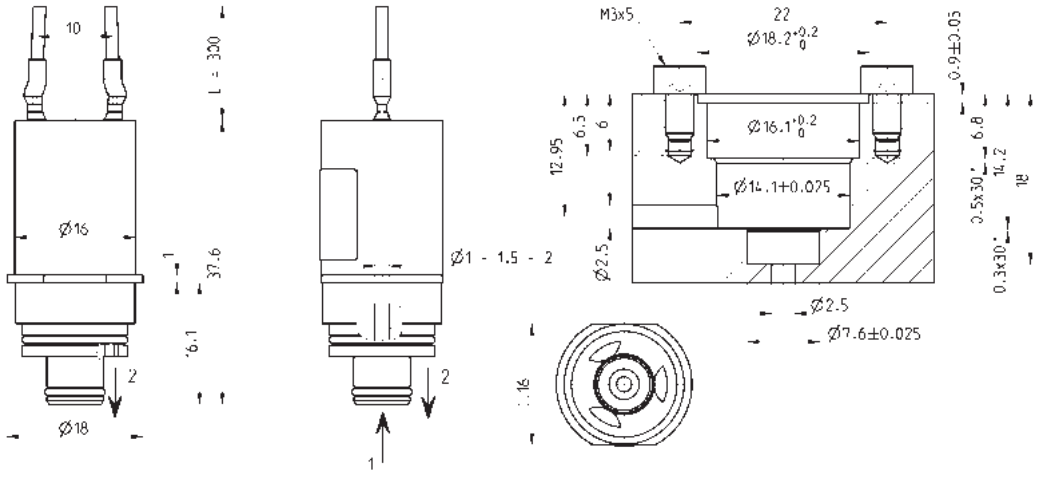


Size 20 mm

Q = Flow (Nl/min)
P = Inlet pressure (bar)

Solenoid valves, size 16mm - dimensions



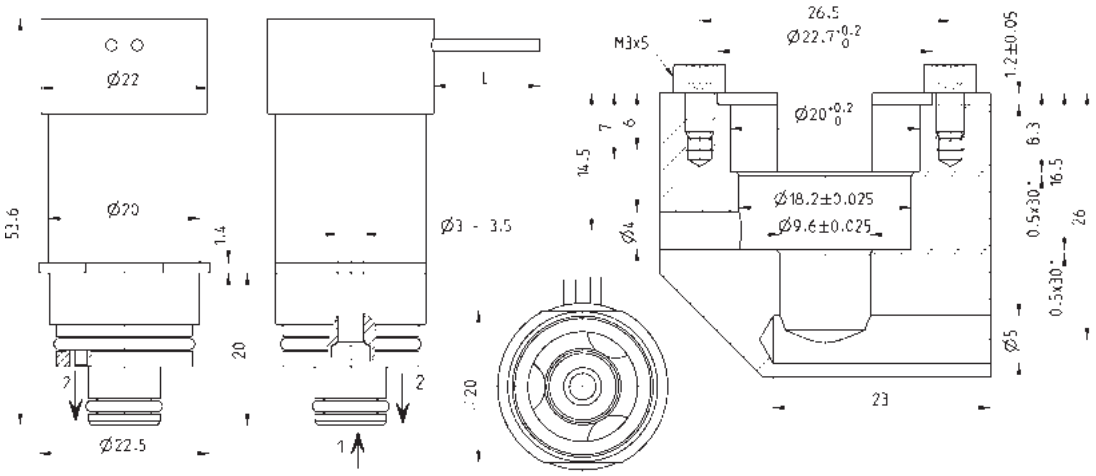


Mod.	Orifice Ø (mm)	Max operating pressure (bar)	Max flow (Nl/min)	Max flow kv (l/min)	Operation voltage (V DC)	Max current (mA)
CP-C621-FW2-0P1	1	8	70	0.55	6	410
CP-C621-GW2-0P1	1.5	5	80	0.88	6	410
CP-C621-NW2-0P1	2	3	90	1.42	6	410
CP-C621-FW2-0P3	1	8	70	0.55	24	103
CP-C621-GW2-0P3	1.5	5	80	0.88	24	103
CP-C621-NW2-0P3	2	3	90	1.42	24	103
CP-C621-FW2-0P5	1	8	70	0.55	11	238
CP-C621-GW2-0P5	1.5	5	80	0.88	11	238
CP-C621-NW2-0P5	2	3	90	1.42	11	238

Solenoid valves, size 20mm - dimensions

New





Mod.	Orifice Ø (mm)	Max operating pressure (bar)	Max flow (Nl/min)	Max flow kv (l/min)	Operation voltage (V DC)	Max current (mA)
CP-C721-MW2-072	3	2.8	150	2.8	6	615
CP-C721-MW2-074	3	2.8	150	2.8	12	313
CP-C721-MW2-076	3	2.8	150	2.8	24	154
CP-C721-PW2-072	3.5	2	130	3	6	615
CP-C721-PW2-074	3.5	2	130	3	12	313
CP-C721-PW2-076	3.5	2	130	3	24	154

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Series 130 electronic control device for proportional valves

PWM control device, with current control system for directly operated proportional valves



- Closed loop current control (max current that can be provided = 1A)
- Management of up and down ramp
- Command signal 0-10V and 4-20mA
- Regulation of min and max current (Span and Offset)

Series 130 electronic control device allows to pilot any proportional valve with a maximun current of 1 A.
It turns a standard inlet signal (0-10V or 4-20 mA) into a PWM signal to obtain at the solenoid outlet a current which is proportional to the inlet signal.

A control system of the provided current allows to compensate variations due to heating of the solenoid or to the variation of the supply voltage.It is possible to adjust the maximum current and the minimum current provided to the solenoid. The outlet signal can have a ramp progress that is adjustable between 0 and 5 s. The device has a firmware dedicated to the proportional valve to pilot in order to guarantee the best performance.

GENERAL DATA

Material of container	Polycarbonate
Electrical connections	screw
Environmental temperature	0 ÷ 50°C
Mounting	in any position
Power supply	6 V ÷ 24 V DC (± 10%)
Consumption	0.4 W (without valve)
Analogical input	0 ÷ 10 V 4 ÷ 20 mA
Input impedence	>30 Kohm with inlet under voltage <200 ohm with inlet under current
Output PWM	120 Hz ÷ 11.7 KHz (fixed, according to the valve chosen)
Maximum current (valve)	1 A
Protection	Polarity inversion, short circuit of the outlet
External diameter of cable jacket	5 ÷ 7.5 mm with seal only 4 ÷ 6 mm with reducer and seal
Conductor section	26 ÷ 16 AWG / 0,13 ÷ 1,5 mm2
Maximum length supply/signal cable	10 m
Maximum length valve cable	5 m
IP protection class according to EN 60529	IP 54
Ramp function	Adjustable time from 0 to 5 s
Regulation min. current (Offset)	0% ÷ 40% F.S.
Regulation maximum current	50% ÷ 100% F.S.

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CODING EXAMPLE

130	-	2	2	2

130	SERIES
2	VOLTAGE: 2 = 24 V DC (max power 24 W) 3 = 12 V DC (max power 12 W) 4 = 6 V DC (max power 6 W) 5 = 11 V DC (max power 11 W)
2	POWER: 1 = 3 W 2 = 6.5 W 3 = 3.2 W 4 = 4.3 W 5 = 10 W
2	PWM FREQUENCY: 2 = 500 Hz 3 = 1 KHz

NOTE: it is possible to realize configurations with voltage, power and PWM frequency values that are not yet foreseen in the coding example.
For further information we suggest you to contact our technical department.

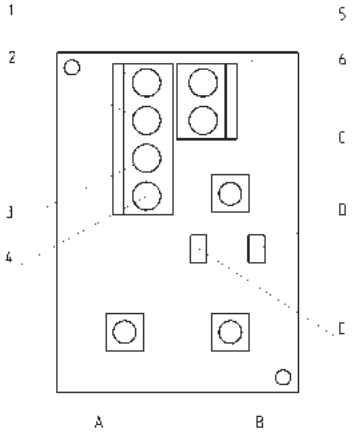
ELECTRICAL CONNECTIONS AND SETTINGS

DRAWING LEGEND:

1 = 6 ÷ 24 V DC (supply)
2 = 0 V (Ground) common also for the reference signal
3 = analogical reference signal 0 ÷ 10V DC
4 = analogical reference signal 4 ÷ 20 mA
A = regulation of min. current (OFFSET)
B = regulation of max. current (SPAN)
C = regulation of the PWM outlet up and down ramp
D = red LED
E = yellow LED

Note 1: the GND of the reference signal and the GND of supply have to be linked together.

Note 2: For the valve connection use a connector without protection - diodes, varistors, etc... - as these might alter the regulation of the device.

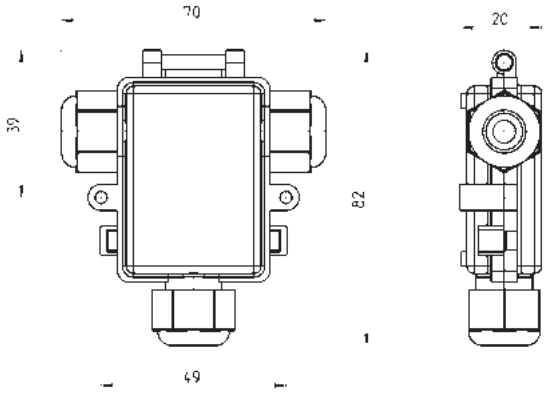


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Series 130 electronic control



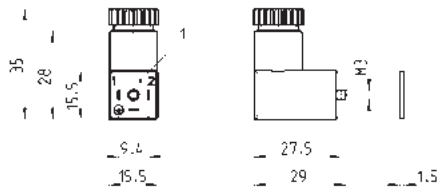
NOTE: it is possible to realize configurations with voltage, power and PWM frequency values that are not shown in the table below. For further information we suggest you to contact our technical department.



Mod.	Matching valve family	Valve voltage (Output)	Adjusted power	Adjusted frequency
130-222	Series AP - size 22 mm	24 V DC	6.5 W	500 Hz
130-322	Series AP - size 22 mm	12 V DC	6.5 W	500 Hz
130-252	Series AP - size 22 mm	24 V DC	10 W	500 Hz
130-352	Series AP - size 22 mm	12 V DC	10 W	500 Hz
130-213	Series AP - size 16 mm	24 V DC	3 W	1000 Hz
130-313	Series AP - size 16 mm	12 V DC	3 W	1000 Hz
130-433	Series CP - size 16 mm	6 V DC	3.2 W	1000 Hz
130-533	Series CP - size 16 mm	11 V DC	3.2 W	1000 Hz
130-233	Series CP - size 16 mm	24 V DC	3.2 W	1000 Hz
130-442	Series CP - size 20 mm	6 V DC	4.3 W	500 Hz
130-342	Series CP - size 20 mm	12 V DC	4.3 W	500 Hz
130-242	Series CP - size 20 mm	24 V DC	4.3 W	500 Hz

Connector Mod. 125-800 DIN 43650 pin spacing 9,4mm



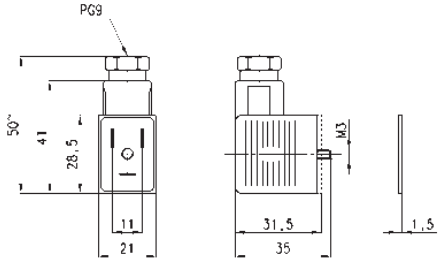


Mod.
125-800

1 = 90° adjustable connector

Connector Mod. 122-800 DIN 43650 (PG)





Mod.	Torque (Nm)
122-800	0.5

Series LR
digital proportional servo valves

New

3/3-way directly operated servo valves for the flow (LRWD2), pressure (LRPD2) and position (LRXD2) control



- Digital version which is completely configurable through USB
- Rotating spool system with a metal to metal seal
- High flow rate
- Electronic control to ensure high precision in the flow control
- 3-way-function with 4 - 6 mm nominal diameters
- Compact version for cabinet mounting on DIN-rail
- Position control version

Series LR digital proportional servo valves are direct driven 3/3-way valves with a patented rotating spool system with closed loop control circuit. The electronic board is integrated into the valve's body ready to connect.

Series LR*D2 digital proportional servo valve has been designed to be as compact as possible in order to save space and to be mounted on a DIN-rail. Thanks to this new digital version, the valve can be configurated through a USB connection according to different requirements.

GENERAL DATA

Power supply	24 V DC +/- 10%, max absorption 1.5 A
Command signal	+/- 10 V 0-10 V 4-20 mA
Hysteresis	1% FS LRWD2 - 0,2% FS LRPD2
Linearity	1% FS LRWD2 - 0.3% FS LRPD2
Switching time	see the following pages
Working temperature	from 0 to 50° C
Relative humidity of air	max. 90%
Direction of assembly	any
Maximum flow	see the diagrams on the following pages
Medium	filtered compressed air, unlubricated, according to ISO 8573-1 class 3.4.3, inert gas
Supply pressure	-0.9 to 10 bar
Leakage	< 1% of maximum flow rate
Electrical connection	male connector M12 8 poles

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CODING EXAMPLE

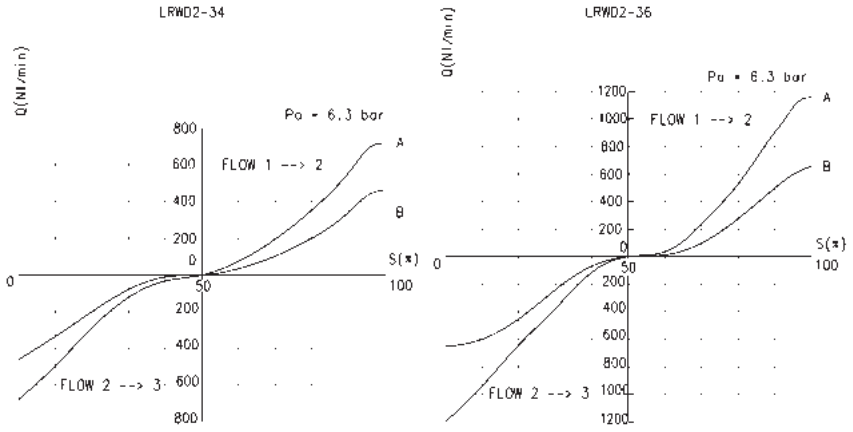
L	R	W	D	2	-	3	4	-	1	-	A	-	00

L	SERIES: L = proportional servo valves	
R	TECHNOLOGY: R = rotating spool	
W	VERSION: W = flow control P = pressure control X = position control	
D	ELECTRONICS: D = digital	
2	MODEL: 2 = compact DIN-RAIL	
3	FUNCTION: 3 = 3/3-way	
4	NOMINAL DIAMETER: 4 = 4 mm 6 = 6 mm	
1	COMMAND SIGNAL (Setpoint): 1 = +/- 10 V 2 = 0 - 10 V 4 = 4 - 20 mA	
A	INPUT SIGNAL: 2 = 0 - 10 V (LRPD2 and LRXD2 only) 4 = 0 - 5V (LRPD2 and LRXD2 only) 5 = 4 - 20mA (LRPD2 and LRXD2 only)	A = internal encoder (LRWD2 only) B = 1 bar (internal sensor - LRPD2 only) D = 10 bar (internal sensor - LRPD2 only) E = 250 mbar (internal sensor - LRPD2 only) F = +1/-1 bar (internal sensor - LRPD2 only)
00	CABLE: 00 = no cable	2F = straight cable of 2 m 2R = 90° cable of 2 m 5F = straight cable of 5 m 5R = 90° cable of 5 m

FLOW DIAGRAMS FOR VALVES LRWD2-34 AND LRWD2-36

LEGEND:

A = free flow
B = ΔP1
Q = flow (Nl/min)
S = set point (%)
Pa = inlet pressure (bar)



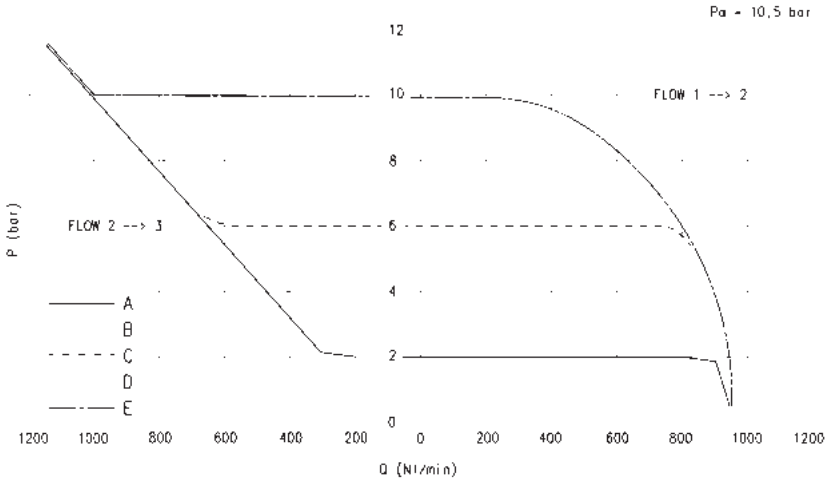
RESPONSE TIMES ACCORDING TO THE COMMAND SIGNAL IN COMPLIANCE WITH THE ISO 10094-2 STANDARD

COMMAND SIGNAL	-5% ÷ +5%	+5% ÷ -5%	-25% ÷ +25%	+25% ÷ -25%	-90% ÷ +90%	+90% ÷ -90%
Time [ms] LRWD2-34	4	5	6	9	10	10
Time [ms] LRWD2-36	5	5	6	6	10	10

*** closed valve with SET POINT = 0**
loaded valve with SET POINT = +
exhaust valve with SET POINT = -

FLOW DIAGRAMS FOR VALVE LRPD2-34

LEGEND:
P = regulated pressure (bar)
F = flow (Nl/min)
Pa = inlet pressure (bar)



RESPONSE TIMES WITH COMMAND SIGNAL BETWEEN 0% AND 100% IN COMPLIANCE WITH ISO 10094-2 STANDARD

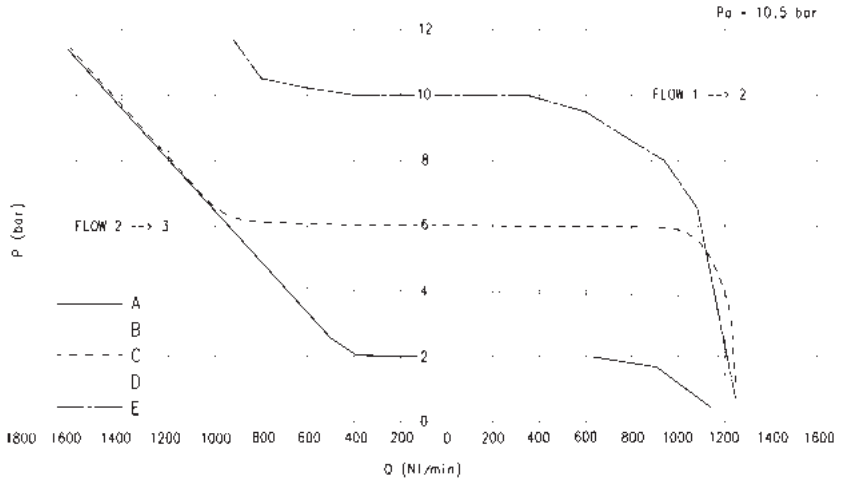
	Without volume	Volume 0,5 l	Volume 2 l
Filling [ms]	24	313	1841
Exhaust [ms]	35	663	3640

valve with SET POINT = 0% and regulated pressure = 0 bar

valve with SET POINT = 100% and regulated pressure = maximum pressure (example: 10 - 1 bar or 250 mbar)

FLOW DIAGRAMS FOR VALVE LRPD2-36

LEGEND:
P = regulated pressure (bar)
F = flow (Nl/min)
Pa = inlet pressure (bar)



RESPONSE TIMES WITH COMMAND SIGNAL BETWEEN 0% AND 100% IN COMPLIANCE WITH ISO 10094-2 STANDARD

	Without volume	Volume 0,5 l	Volume 2 l
Filling [ms]	20	263	1560
Exhaust [ms]	32	357	1905

valve with SET POINT = 0% and regulated pressure = 0 bar

valve with SET POINT = 100% and regulated pressure = maximum pressure (example: 10 - 1 bar or 250 mbar)

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Series LRXD2 - pneumatic and electrical schemes for the installation

The LRXD2 servo valves are proportional valves with a high-precision integrated control for the positioning of pneumatic cylinders.
The valves include a patented 3-way system based on the rotating spool principle with electronic control of the spool position. The servo pneumatic closed loop system allows the control of the position through the feedback of the external positioning sensor or of the Camozzi 6PF cylinder with the integrated linear transducer.
The electronic board which is integrated in the valve body manages speed and acceleration directly.
The Master valve Mod. LRXD2 is equipped with a proper signal to command a LRWD2 valve that will work as a slave-valve.

Configuration for the position control with two valves (Fig. 1)
A = Slave LRWD2-3*-2-A-00 - B = Master LRXD2-3*-*-4-00 - C = 6PF cylinder...

Configuration for the position control with a LRXD2 valve (Fig. 2)
A = Master LRXD2-3*-*-4-00 - B = PR104-... - C = 6PF cylinder...

Fig.1

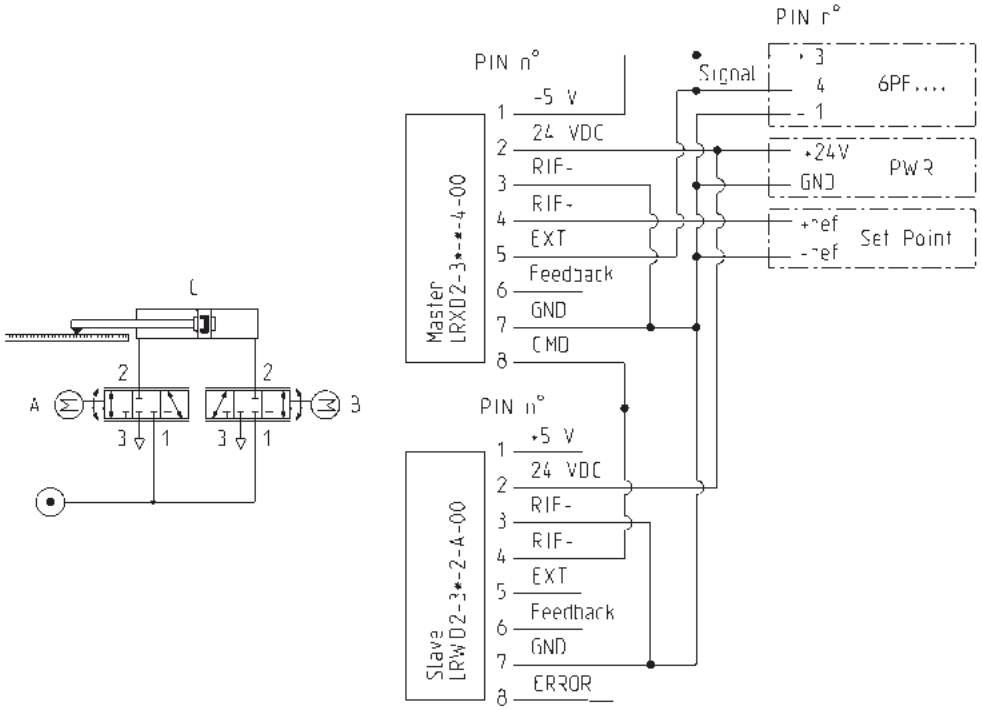
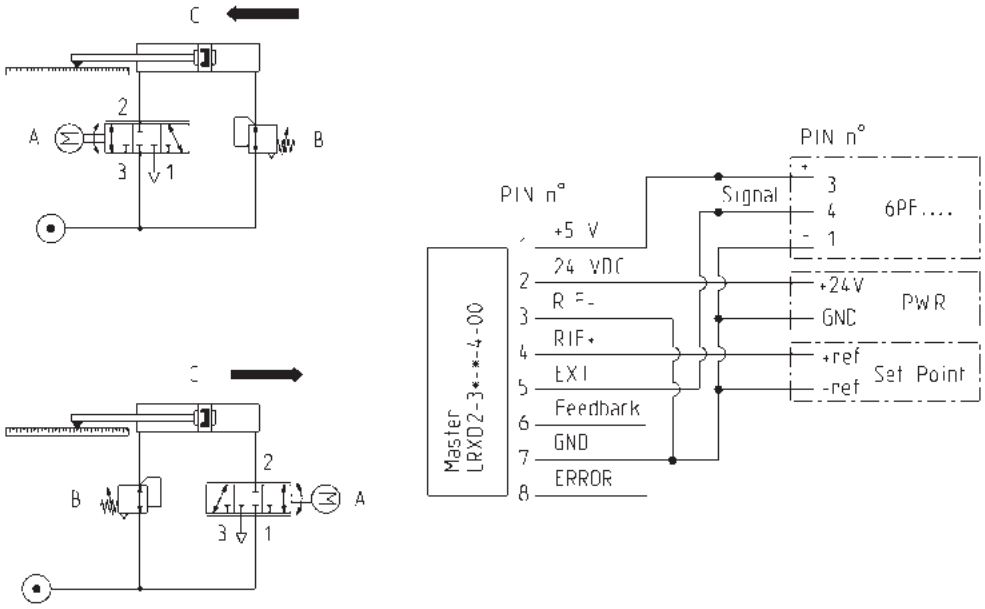


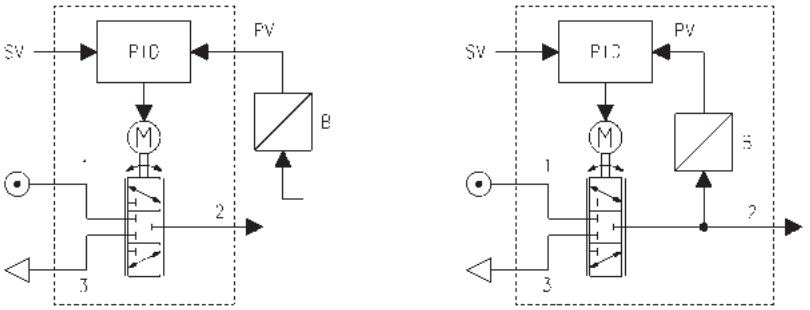
Fig.2



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Series LRPD2 - pneumatic scheme for the installation

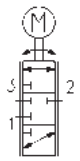
SV = setpoint value
PV = process value
B = sensor
PID = proportional control, integrative, derivative

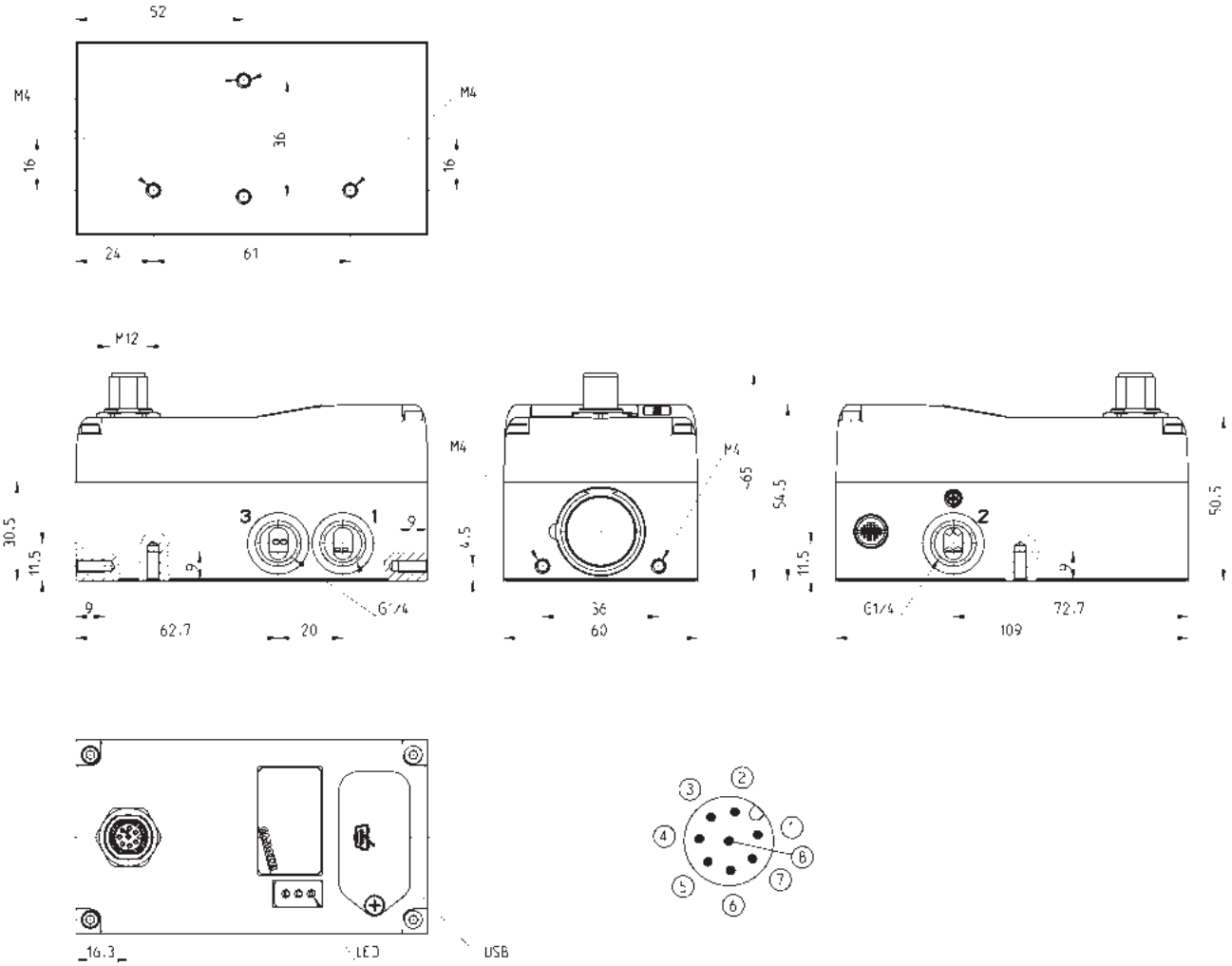


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Series LR digital proportional servo valves - dimensions

The detailed user and maintenance manual and the Hardware configuration Software of the valve is available online at http://catalogue.camozzi.com.





PIN	SIGNAL		DESCRIPTION
1	+5V		+5V power supply for external potentiometer transducer (ref. GND). If used, it is necessary to connect RIF- with GND.
2	24 V DC		24V DC power supply (logic and motor): connect to the positive pole of the 24V DC power supply (ref. GND)
3	RIF-		GND reference or NEGATIVE pole of the command signal (0-10V / 4-20mA / ±10V)
4	RIF+		POSITIVE reference of the command signal (0-10V / 4-20mA / ±10V)
5	EXT	for LRWD valve:	not used
		for LRXD valve:	feedback signal of the external transducer 0-5V / 0-10V / 4-20mA (ref. RIF-)
		for LRPD valve:	feedback signal of the external transducer 0-5V / 0-10V / 4-20mA (ref. RIF-). To be used only with LRPD2 valve versions with external sensor.
6	FBK		feedback signal 0-10V / 4-20mA (ref. GND)
7	GND		common (reference pin 1 and 2): connect to the negative pole of the 24V DC power supply (compulsory)
8	ERR	for LRWD and LRPD valve:	error signal (output) 0-24V (ref. GND)
		for LRXD valve:	command signal 0-10V for slave valve (ref. GND)

Series LR digital proportional servo valves - technical characteristics



* To order the complete code, please replace the asterisk with 4 or 6 according to the desired nominal diameter.

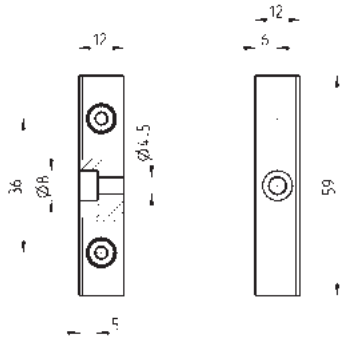
Mod.	Control	Command/Input signal	Sensor/External signal	
LRWD2-3*-1-A-00	flow	+/- 10 V	-	
LRWD2-3*-2-A-00	flow	0-10 V	-	
LRWD2-3*-5-A-00	flow	4..20 mA	-	
LRPD2-3*-1-2-00	pressure	+/- 10 V	0..10 V	
LRPD2-3*-2-2-00	pressure	0-10 V	0..10 V	
LRPD2-3*-5-2-00	pressure	4..20 mA	0..10 V	
LRPD2-3*-1-4-00	pressure	+/- 10 V	0 - 5 V	
LRPD2-3*-2-4-00	pressure	0-10 V	0 - 5 V	
LRPD2-3*-5-4-00	pressure	4..20 mA	0 - 5 V	
LRPD2-3*-1-5-00	pressure	+/- 10 V	4..20 mA	
LRPD2-3*-2-5-00	pressure	0-10 V	4..20 mA	
LRPD2-3*-5-5-00	pressure	4..20 mA	4..20 mA	
LRPD2-3*-1-B-00	pressure	+/- 10 V	1 bar internal	
LRPD2-3*-2-B-00	pressure	0-10 V	1 bar internal	
LRPD2-3*-5-B-00	pressure	4..20 mA	1 bar internal	
LRPD2-3*-1-D-00	pressure	+/- 10 V	10 bar internal	
LRPD2-3*-2-D-00	pressure	0-10 V	10 bar internal	
LRPD2-3*-5-D-00	pressure	4..20 mA	10 bar internal	
LRPD2-3*-1-E-00	pressure	+/- 10 V	250 mbar internal	
LRPD2-3*-2-E-00	pressure	0-10 V	250 mbar internal	
LRPD2-3*-5-E-00	pressure	4..20 mA	250 mbar internal	
LRPD2-3*-1-F-00	pressure	+/- 10 V	+1/-1 bar internal	
LRPD2-3*-2-F-00	pressure	0-10 V	+1/-1 bar internal	
LRPD2-3*-5-F-00	pressure	4..20 mA	+1/-1 bar internal	
LRXD2-3*-1-4-00	position	+/- 10 V	0-5 V	suitable to work with the 6PF cylinder (see the section 1.1.27)
LRXD2-3*-2-4-00	position	0-10 V	0-5 V	suitable to work with the 6PF cylinder (see the section 1.1.27)
LRXD2-3*-5-4-00	position	4..20 mA	0-5 V	suitable to work with the 6PF cylinder (see the section 1.1.27)
LRXD2-3*-1-2-00	position	+/- 10 V	0-10 V	
LRXD2-3*-2-2-00	position	0-10 V	0-10 V	
LRXD2-3*-5-2-00	position	4..20 mA	0-10 V	
LRXD2-3*-1-5-00	position	+/- 10 V	4..20mA	
LRXD2-3*-2-5-00	position	0-10 V	4..20mA	
LRXD2-3*-5-5-00	position	4..20mA	4..20mA	

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Fixing foot Mod. LRADB



Supplied with:
2x feet
4x screws



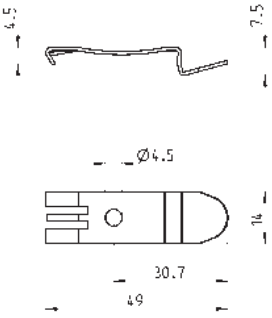
Mod.
LRADB

Mounting brackets for DIN-rail Mod. PCF-EN531



DIN EN 50022 (7,5mm x 35mm - width 1)

Supplied with:
2x mounting brackets
2x screws M4x6 UNI 5931
2x nuts

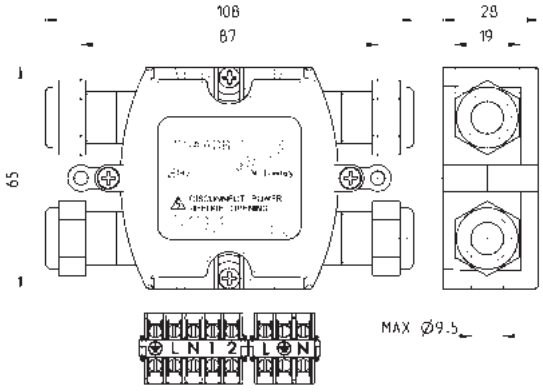


Mod.
PCF-EN531

Electrical tee box Mod. CS-AA08EC



Connection valve-PLC-external transducer

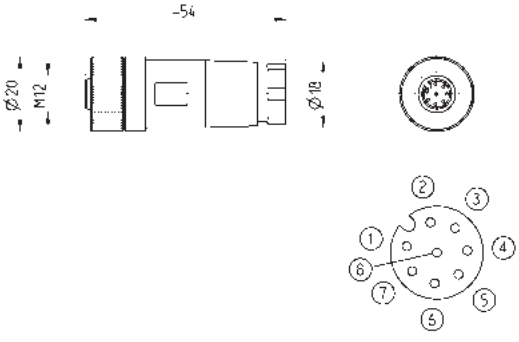


CS-AA08EC

Straight female connector M12 8 poles



For electric supply and commands

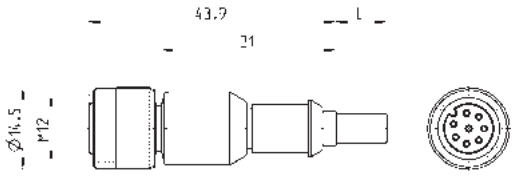


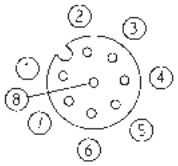
CS-LF08HC

Cable with straight female connector M12 8 poles

For electrical supply and commands





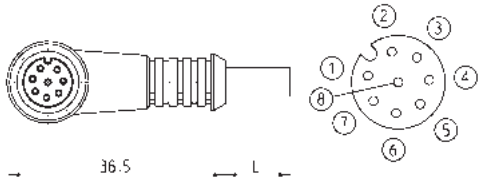


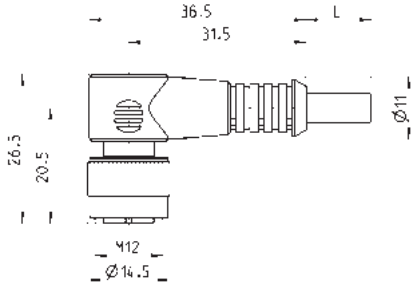
Mod.	Cable length (m)
CS-LF08HB-C200	2
CS-LF08HB-C500	5

Cable with angular (90°) female connector M12 8 poles

For electric supply and commands





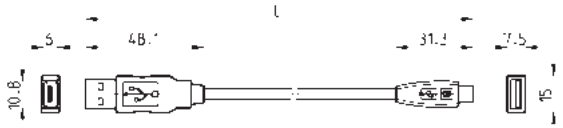


Mod.	Cable length (m)
CS-LR08HB-C200	2
CS-LR08HB-C500	5

USB to Micro USB cable Mod. G11W-G12W-2

For the hardware configuration
of the Camozzi products





Mod.	description	connections	material for outer sheath	cable length "L" (m)
G11W-G12W-2	black shielded cable 28 AWG	standard USB to Micro USB	PVC	2

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Series K8P
electronic proportional micro regulator

Proportional regulator for the pressure control



- » High precision
- » Reduced response times
- » Minimum consumption
- » Self-regulation function
- » Flexibility of use
- » Compact design

The K8P regulator adjusts the outlet pressure through the operation of two K8 monostable valves according to the inlet signal and to the retroactivity of the internal pressure sensor. A self-adjusting function has been integrated into the regulator control algorithm to guarantee the highest levels of performance apart from the volume connected.

Series K8P electronic proportional micro regulators have evolved from our Series K8 mini-solenoid valves. Series K8P regulators guarantee excellent pressure regulation, fast response times, self-regulation and low energy consumption.
Series K8P is a high performance proportional pressure regulator which is suitable for use in all applications where high precision, quick response times and low consumption are required.

GENERAL DATA

Fluids	filtered compressed air, unlubricated, according to ISO 8573-1 class 3.4.3, inert gas
Range of regulated pressure	0.5 ÷ 10 bar 0.15 ÷ 3 bar
Max inlet pressure	11 bar (0.5 ÷ 10 bar) 4 bar (0.15 ÷ 3 bar)
Operating pressure	0 ÷ +50°C
Analogical input	0-10 V DC 4-20 mA Ripple ≤ 0,2%
Analogical output	0.5 - 9.5 V [Feedback]
Analog input impedance	20.000 Ω for versions 0-10 V 250 Ω for versions 4-20 mA
Maximum flow	Inlet P 10 bar - regulated P 6 bar 12 l/min Inlet P 4 bar - regulated P 3 bar 6 l/min
Supply / Use	24 V - ~1 W
Function	3/2 NC
Linearity	≤ ± 1% FS
Hysteresis	±0,5% FS
Repeatability	±0.5% FS
Minimal set point change	50 mV => 50 mB (10 bar) - 100mV => 30 mB (3 bar)
Electrical connection	M8 4 Pin (Male)
In compliance with the European Directive 2004/108/EC	

CODING EXAMPLE

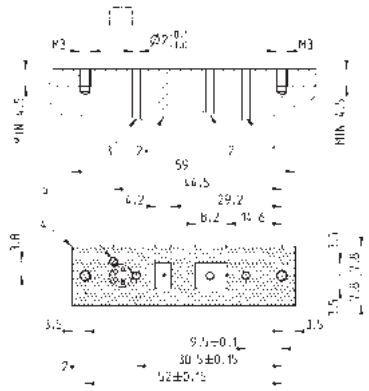
K8P	-	0	-	D	5	2	2	-	0

K8P	SERIES
0	BODY DESIGN: 0 = Stand alone S = Standard Sub-base L = Light Sub-base T = Light Sub-base for the pressure remote reading
D	WORKING PRESSURE: D = 0 -10 bar E = 0 - 3 bar
5	VALVE FUNCTIONS: 5 = 2-way NC
2	COMMAND: 2 = 0-10 V DC 3 = 4-20 mA
2	OUTPUT SIGNAL: 2 = 0-10 V
0	CABLE LENGTH: 0 = without cable 2F = straight cable, 2 m 2R = right angle cable (90 degrees), 2 m 5F = straight cable, 5 m 5R = right angle cable (90 degrees), 5 m

APPLICATIONS

The K8P proportional regulator can be used as a pilot valve to control the opening of high flow valves or to check the high flow pressure regulators proportionally (version with sub-base for the pressure remote reading).
It enables proportional control of power in lifting systems and can be used with inert gas to maintain a constant pressure in pneumatic cylinders or expansion valve chambers.
It has also been designed to maintain a constant pressure during the pulling power applied to the wires in winding machines, to modulate pressure during the smoothing process in woodworking machines or to adjust the opening of diaphragm valves.

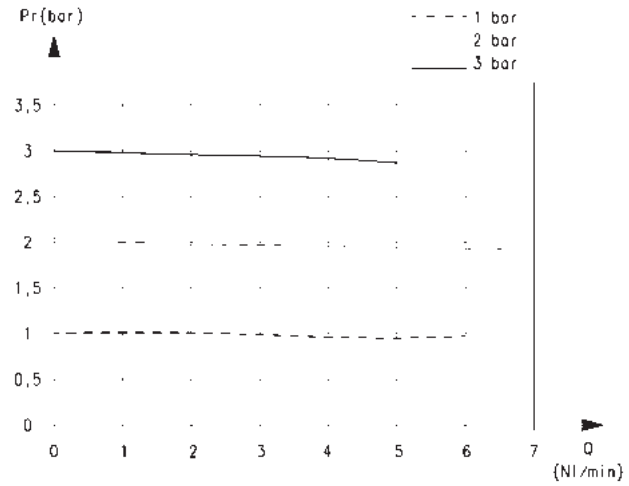
Interface for single use without sub-base



DRAWING LEGEND	
	Notes
1 = Supply	Pneumatic connection
2 = Outlet	Pneumatic connection
2* = area for possible positioning of outlet port 2	Do not exceed the indicated outline
3 = Exhaust	Pneumatic connection
4 = OUTLET DIMENSION	
5 = VENT PORT FOR IP65	Optional when a OR seal is mounted

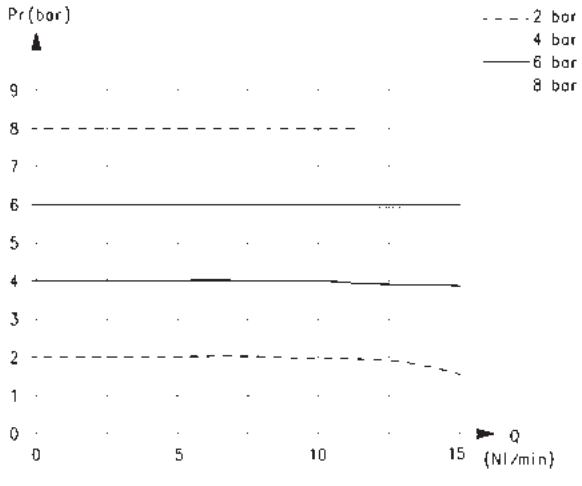
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FLOW DIAGRAMS



Pr = Outlet pressure (bar)*
Q = Flow (Nl/min)*

* = Inlet pressure 4 bar



Pr = Outlet pressure (bar)*
Q = Flow (Nl/min)*

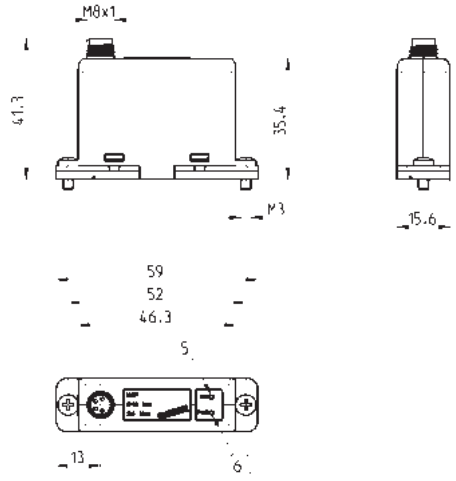
* = Inlet pressure 10 bar

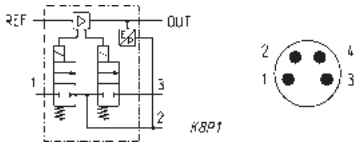
Series K8P electronic proportional micro regulator - dimensions

MALE CONNECTOR M8 4 POLES
Pin 1: +24 V DC (Power supply)
Pin 2: Command analogical signal 0-10 V DC or 4-20 mA
Pin 3: 0 V (Ground) common also for the command signal
Pin 4: Output analogical signal (according to the regulated pressure)

5 red LED
6 green LED







Mod.	
K8P-0-D5*2-0	* according to the type of command desired, insert: 2 (0-10 V DC) or 3 (4-20 mA)
K8P-0-E5*2-0	* according to the type of command desired, insert: 2 (0-10 V DC) or 3 (4-20 mA)
K8P-L-E5*2-0	* according to the type of command desired, insert: 2 (0-10 V DC) or 3 (4-20 mA)
K8P-L-D5*2-0	* according to the type of command desired, insert: 2 (0-10 V DC) or 3 (4-20 mA)
K8P-S-D5*2-0	* according to the type of command desired, insert: 2 (0-10 V DC) or 3 (4-20 mA)
K8P-S-E5*2-0	* according to the type of command desired, insert: 2 (0-10 V DC) or 3 (4-20 mA)
K8P-T-D5*2-0	* according to the type of command desired, insert: 2 (0-10 V DC) or 3 (4-20 mA)
K8P-T-E5*2-0	* according to the type of command desired, insert: 2 (0-10 V DC) or 3 (4-20 mA)

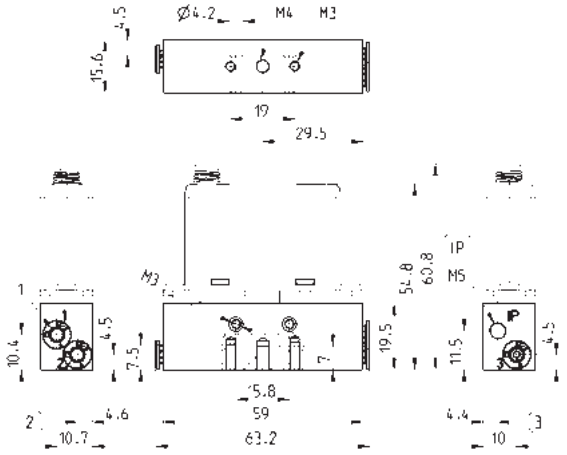
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Standard Sub-base



Note: the use of a silencer on the exhaust is recommended. *

* Mod. 2939 4



Mod.
K8P-AS

1 = Power supply
2 = Outlet
3 = Exhaust

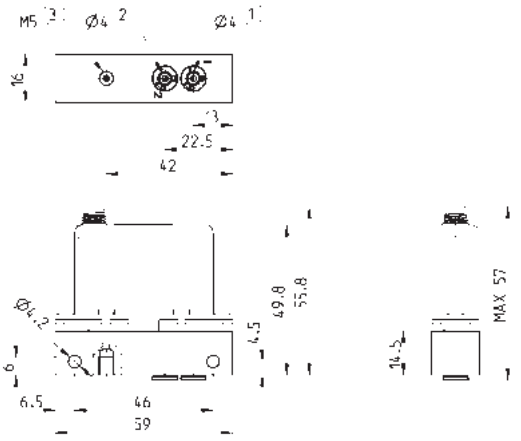
IP = IP65 connection

Light Sub-base



Note: the use of a silencer on the exhaust is recommended. *

* Mod. 2931 M5, 2938 M5, 2901 M5



Mod.
K8P-AL

1 = Power supply
2 = Outlet
3 = Exhaust

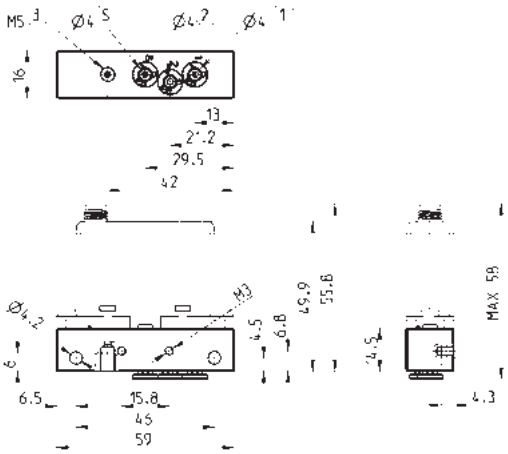
Light Sub-base for the pressure remote reading



Note: the use of a silencer on the exhaust is recommended. *

* Mod. 2931 M5, 2938 M5, 2901 M5

In the version Light sub-base for the pressure remote reading it is also possible to use the fixing bracket B2-E531 (see page 5/2.05.15).



Mod.
K8P-AT

1 = Power supply
2 = Outlet
3 = Exhaust

S = remote-mounted sensor

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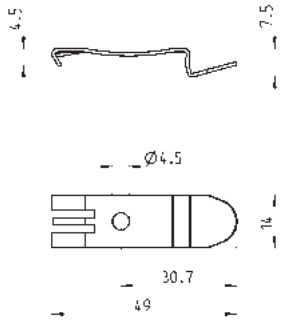
Mounting bracket for DIN rail

DIN EN 50022 (7,5mm x 35mm - width 1)



Supplied with:
1x plate
1x screw M4x6 UNI 5931

Note: this accessory cannot be used with the Light sub-base version.

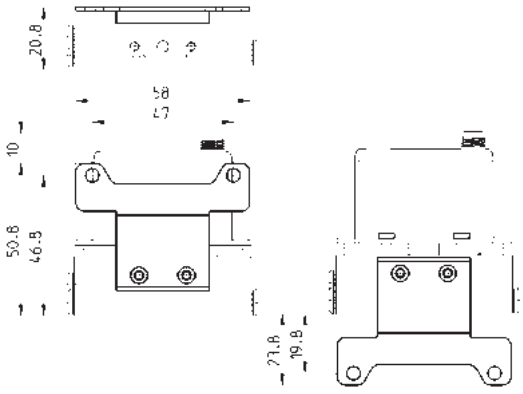


Mod.
PCF-K8P

Bracket for horizontal mounting, for standard sub-base



Supplied with:
1x mounting bracket
2x screws M3x8 UNI 5931

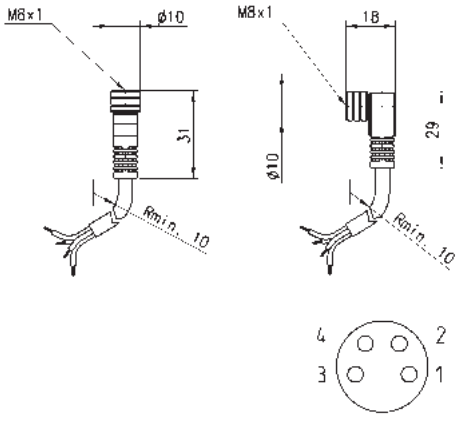


Mod.
K8P-B1

Circular M8 4-pole connectors, Female

With PU sheathing, non shielded cable.
Protection class: IP65





Mod.	Type of connector	Cable length (m)
CS-DF04EG-E200	straight	2
CS-DF04EG-E500	straight	5
CS-DR04EG-E200	right angle (90 degrees)	2
CS-DR04EG-E500	right angle (90 degrees)	5

Series MX-PRO
electronic proportional regulator

Ports: G1/2
Manifold ports: G1/2
Modular - Available with built-in pressure gauges or ports for gauges



- High precision
- Low electric consumption
- High exhaust flow
- Modular with Series MX2
- Available also in the MANIFOLD and external servo pilot supply versions

Series MX-PRO electronic proportional pressure regulator is the result of combining advanced technology of Series K8P electronic proportional micro regulator, with reliability and high performance of Series MX2 modular regulators.
This new regulator ensures high precision in pressure regulation, high flow rate and low consumption. Moreover, it can take the most of Series MX ease of assembly to provide particularly compact Manifolds.

GENERAL DATA

Construction	modular, compact, diaphragm type
Materials	see tables on the following pages
Ports	G1/2
Mounting	vertical in-line, wall-mounting (by means of clamps)
Working temperature	0°C ÷ 50°C
Max inlet pressure **Regulated pressure**	11 bar (10 bar), 4 bar (3 bar) 0.5 ÷ 10 bar, 0.15 ÷ 3 bar
Overpressure exhaust	with relieving (standard) without relieving
Nominal flow	see flow diagrams (following pages)
Air specifications	Filtered compressed air, non lubricated, class 3.4.3 according to ISO 8573.1 standard. If lubrication is necessary, please use only oils with maximum viscosity of 32 Cst and the version with external servo-pilot supply. The servo-pilot supply air quality class must be 3.4.3 according to ISO 8573.1 standard.
Pressure gauge	version with built-in pressure gauge (standard) version with G1/8 port
Analogical input	0-10 V DC Ripple ≤ 0.2% 4–20 mA
Analogical output	0.5-9.5 V DC [Feedback]
Electrical supply	24 V DC ± 10%
Linearity	≤ ± 1% FS
Hysteresis	±0.5% FS
Repeatability	±0.5% FS
Sensibility	0.3% FS
Protection class	IP51
Electrical connection	M8 4 Pin (Male)

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CODING EXAMPLE

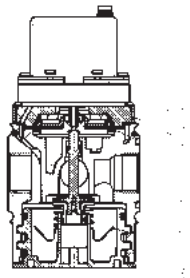
MX	2	-	1/2	-	R	CV	2	0	4	-	LH

MX	SERIES
2	SIZE: 2 = G1/2
1/2	PORTS: 1/2 = G1/2
R	TYPE OF REGULATOR: R = pressure regulator M = Manifold pressure regulator (G1/2 only)
CV	COMMAND: CV = electrical command 0-10 V DC CA = electrical command 4-20 mA EV = electrical command 0-10 V DC with external servo pilot supply EA = electrical command 4-20 mA with external servo pilot supply
2	OPERATING PRESSURE (1 bar = 14,5 psi): 1 = 0.15 ÷ 3 bar 2 = 0.5 ÷ 10 bar (standard)
0	DESIGN TYPE: 0 = relieving (standard) 1 = without relieving
4	PRESSURE GAUGE: 0 = without pressure gauge (with threaded port for gauges) 2 = with built-in pressure gauge 0-6 and working pressure 0.15 ÷ 3 bar 4 = with built-in pressure gauge 0-12 and working pressure 0.5 ÷ 10 bar (standard)
LH	FLOW DIRECTION: = from left to right (standard) LH = from right to left

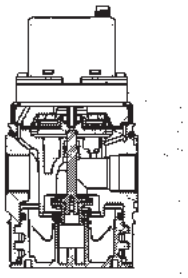
For the assembly of a single component with fixing flanges or wall-mounting, see the section “FRL Series MX Assembled” (pag. 3/1.50.01)

Series MX-PRO electronic proportional regulators - materials

R = pressure regulator
M = Manifold pressure regulator



R



M

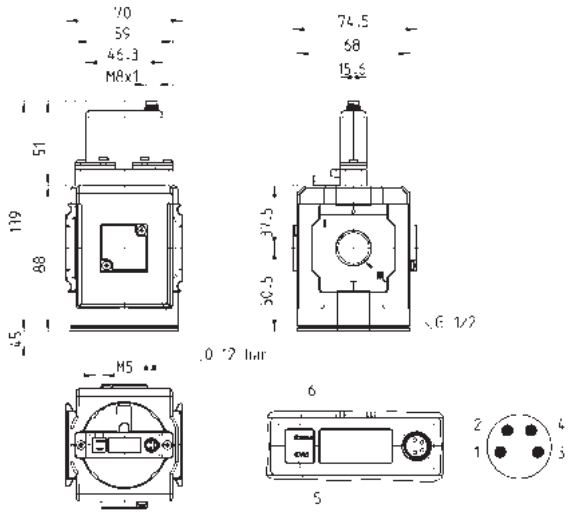
PARTS	MATERIALS
1 = Body	Aluminium
2 = Covering	Polyacetal
3 = Valve holder plug	Polyacetal
4 = Upper base	Polyamide
5 = Lower spring	Zinc-plated steel
6 = Diaphragm	NBR
Seals	NBR

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Series MX-PRO electronic proportional regulators



Male connector M8 4 poles
Pin 1: +24 V DC (Power supply)
Pin 2: Command analogical signal
0-10 V DC or 4-20 mA
Pin 3: 0 V (Ground) common also
for the command signal
Pin 4: Output analogical signal
(according to the
regulated pressure)
5 red LED
6 green LED



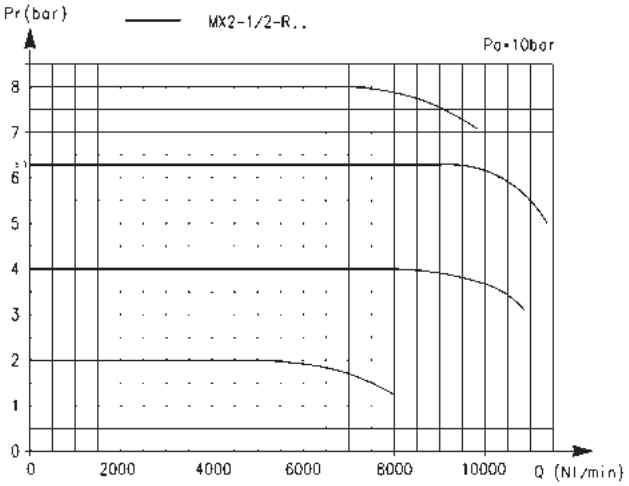
Accessories: see MX accessories (3/1.49)
Assembled FRL: see Series MX (3/1.50)
Connection cables: see Series K8P (2/15.37)

DRAWING NOTE
** = in the versions with external servo pilot supply only (MX2-1/2-REV... and MX2-1/2-REA...)

Mod.	Ports	Electrical command	Operating pressure (1 bar = 14,5 psi)	Relieving	Pressure gauge
MX2-1/2-RCV102	G1/2	0-10 V DC	0.15 ÷ 3 bar	yes	with built-in pressure gauge 0-6
MX2-1/2-RCV112	G1/2	0-10 V DC	0.15 ÷ 3 bar	no	with built-in pressure gauge 0-6
MX2-1/2-RCV204	G1/2	0-10 V DC	0.5 ÷ 10 bar	yes	with built-in pressure gauge 0-12
MX2-1/2-RCV214	G1/2	0-10 V DC	0.5 ÷ 10 bar	no	with built-in pressure gauge 0-12
MX2-1/2-RCA102	G1/2	4-20 mA	0.15 ÷ 3 bar	yes	with built-in pressure gauge 0-6
MX2-1/2-RCA112	G1/2	4-20 mA	0.15 ÷ 3 bar	no	with built-in pressure gauge 0-6
MX2-1/2-RCA204	G1/2	4-20 mA	0.5 ÷ 10 bar	yes	with built-in pressure gauge 0-12
MX2-1/2-RCA214	G1/2	4-20 mA	0.5 ÷ 10 bar	no	with built-in pressure gauge 0-12
MX2-1/2-RCV100	G1/2	0-10 V DC	0.15 ÷ 3 bar	yes	without pressure gauge
MX2-1/2-RCV110	G1/2	0-10 V DC	0.15 ÷ 3 bar	no	without pressure gauge
MX2-1/2-RCV200	G1/2	0-10 V DC	0.5 ÷ 10 bar	yes	without pressure gauge
MX2-1/2-RCV210	G1/2	0-10 V DC	0.5 ÷ 10 bar	no	without pressure gauge
MX2-1/2-RCA100	G1/2	4-20 mA	0.15 ÷ 3 bar	yes	without pressure gauge
MX2-1/2-RCA110	G1/2	4-20 mA	0.15 ÷ 3 bar	no	without pressure gauge
MX2-1/2-RCA200	G1/2	4-20 mA	0.5 ÷ 10 bar	yes	without pressure gauge
MX2-1/2-RCA210	G1/2	4-20 mA	0.5 ÷ 10 bar	no	without pressure gauge
MX2-1/2-REV100	G1/2	0-10 V DC	0.15 ÷ 3 bar	yes	without pressure gauge
MX2-1/2-REV102	G1/2	0-10 V DC	0.15 ÷ 3 bar	yes	with built-in pressure gauge 0-6
MX2-1/2-REV110	G1/2	0-10 V DC	0.15 ÷ 3 bar	no	without pressure gauge
MX2-1/2-REV112	G1/2	0-10 V DC	0.15 ÷ 3 bar	no	with built-in pressure gauge 0-6
MX2-1/2-REV200	G1/2	0-10 V DC	0.5 ÷ 10 bar	yes	without pressure gauge
MX2-1/2-REV204	G1/2	0-10 V DC	0.5 ÷ 10 bar	yes	with built-in pressure gauge 0-12
MX2-1/2-REV210	G1/2	0-10 V DC	0.5 ÷ 10 bar	no	without pressure gauge
MX2-1/2-REV214	G1/2	0-10 V DC	0.5 ÷ 10 bar	no	with built-in pressure gauge 0-12
MX2-1/2-REA100	G1/2	4-20 mA	0.15 ÷ 3 bar	yes	without pressure gauge
MX2-1/2-REA102	G1/2	4-20 mA	0.15 ÷ 3 bar	yes	with built-in pressure gauge 0-6
MX2-1/2-REA110	G1/2	4-20 mA	0.15 ÷ 3 bar	no	without pressure gauge
MX2-1/2-REA112	G1/2	4-20 mA	0.15 ÷ 3 bar	no	with built-in pressure gauge 0-6
MX2-1/2-REA200	G1/2	4-20 mA	0.5 ÷ 10 bar	yes	without pressure gauge
MX2-1/2-REA204	G1/2	4-20 mA	0.5 ÷ 10 bar	yes	with built-in pressure gauge 0-12
MX2-1/2-REA210	G1/2	4-20 mA	0.5 ÷ 10 bar	no	without pressure gauge
MX2-1/2-REA214	G1/2	4-20 mA	0.5 ÷ 10 bar	no	with built-in pressure gauge 0-12

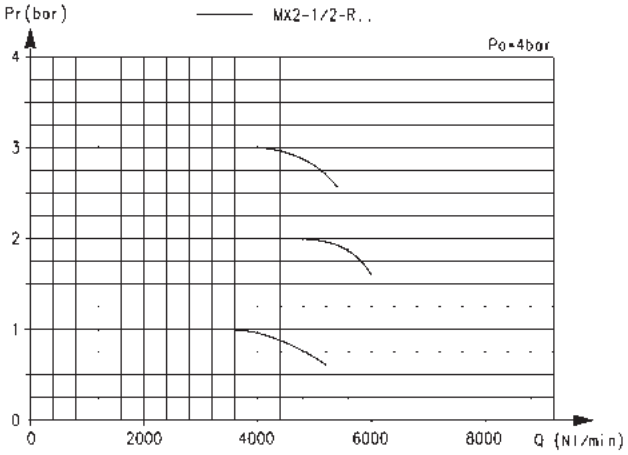
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FLOW DIAGRAMS - STANDARD VERSION



Pr = Regulated pressure
Q = Flow

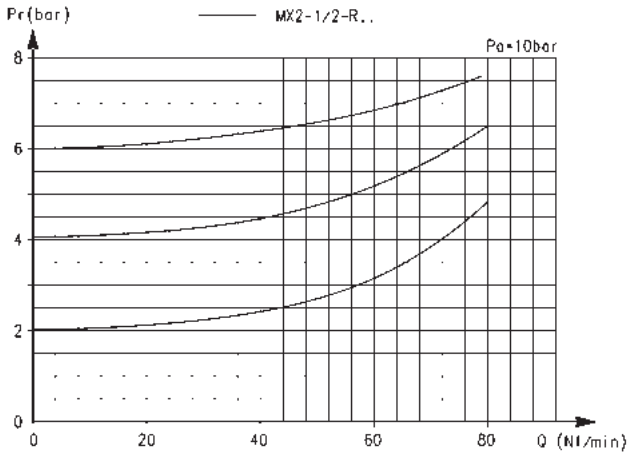
Pa = Inlet pressure



Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

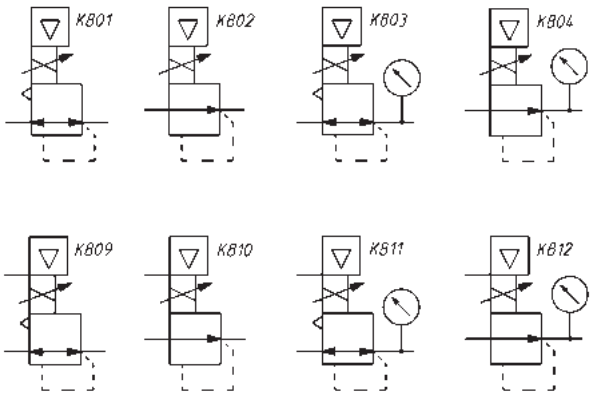
FLOW DIAGRAM AND PNEUMATIC SYMBOLS - STANDARD VERSION



Exhaust flow diagram

Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure



K801 = relieving, electrical command
K802 = NO relieving, electrical command
K803 = relieving, electrical command, built-in pressure gauge
K804 = NO relieving, electrical command, built-in pressure gauge
K809 = relieving, electrical command, ext. servo pilot supply
K810 = NO reliev., electrical command, ext. servo pilot supply
K811 = reliev., el. com., built-in pr. gauge, ext. servo pilot supply
K812 = NO reliev., el. com., built-in pr. gauge, ext. servo pilot sup.

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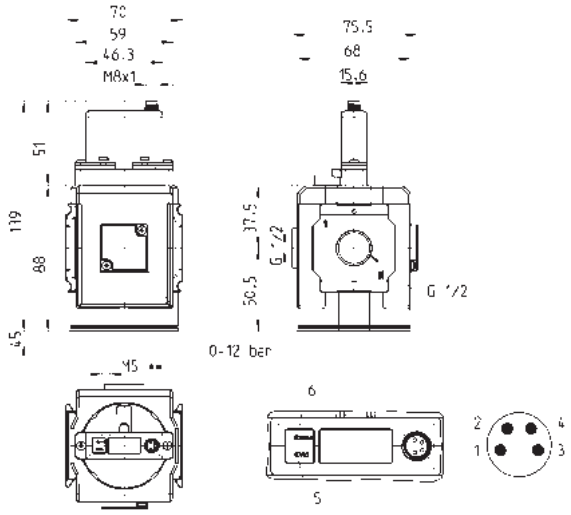
Series MX-PRO Manifold regulators - dimensions



Male connector M8 4 poles
Pin 1: +24 V DC (Power supply)
Pin 2: Command analogical signal
0-10 V DC or 4-20 mA
Pin 3: 0 V (Ground) common also
for the command signal
Pin 4: Output analogical signal
(according to the
regulated pressure)
5 red LED
6 green LED

Accessories: see MX accessories (3/1.49)
Assembled FRL: see Series MX (3/1.50)
Connection cables: see Series K8P (2/15.37)

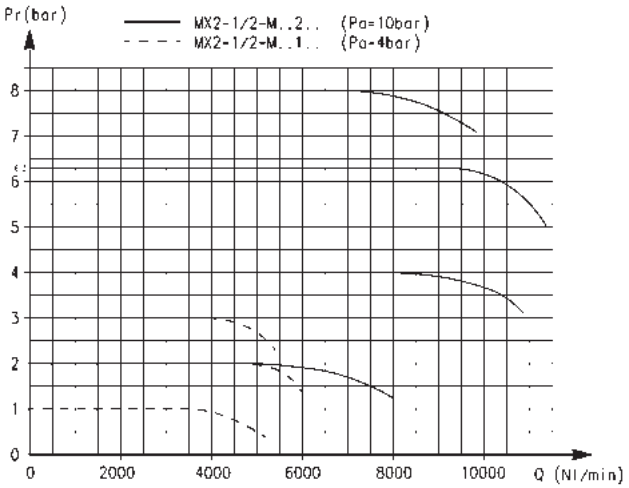
DRAWING NOTE
** = in the versions with external servo pilot supply only (MX2-1/2-REV... and MX2-1/2-REA...)



Mod.	Ports	Electrical command	Operating pressure (1 bar = 14,5 psi)	Relieving	Pressure gauge
MX2-1/2-MCV102	G1/2	0-10 V DC	0.15 ÷ 3 bar	yes	with built-in pressure gauge 0-6
MX2-1/2-MCV112	G1/2	0-10 V DC	0.15 ÷ 3 bar	no	with built-in pressure gauge 0-6
MX2-1/2-MCV204	G1/2	0-10 V DC	0.5 ÷ 10 bar	yes	with built-in pressure gauge 0-12
MX2-1/2-MCV214	G1/2	0-10 V DC	0.5 ÷ 10 bar	no	with built-in pressure gauge 0-12
MX2-1/2-MCA102	G1/2	4-20 mA	0.15 ÷ 3 bar	yes	with built-in pressure gauge 0-6
MX2-1/2-MCA112	G1/2	4-20 mA	0.15 ÷ 3 bar	no	with built-in pressure gauge 0-6
MX2-1/2-MCA204	G1/2	4-20 mA	0.5 ÷ 10 bar	yes	with built-in pressure gauge 0-12
MX2-1/2-MCA214	G1/2	4-20 mA	0.5 ÷ 10 bar	no	with built-in pressure gauge 0-12
MX2-1/2-MCV100	G1/2	0-10 V DC	0.15 ÷ 3 bar	yes	without pressure gauge
MX2-1/2-MCV110	G1/2	0-10 V DC	0.15 ÷ 3 bar	no	without pressure gauge
MX2-1/2-MCV200	G1/2	0-10 V DC	0.5 ÷ 10 bar	yes	without pressure gauge
MX2-1/2-MCV210	G1/2	0-10 V DC	0.5 ÷ 10 bar	no	without pressure gauge
MX2-1/2-MCA100	G1/2	4-20 mA	0.15 ÷ 3 bar	yes	without pressure gauge
MX2-1/2-MCA110	G1/2	4-20 mA	0.15 ÷ 3 bar	no	without pressure gauge
MX2-1/2-MCA200	G1/2	4-20 mA	0.5 ÷ 10 bar	yes	without pressure gauge
MX2-1/2-MCA210	G1/2	4-20 mA	0.5 ÷ 10 bar	no	without pressure gauge
MX2-1/2-MEV100	G1/2	0-10 V DC	0.15 ÷ 3 bar	yes	without pressure gauge
MX2-1/2-MEV102	G1/2	0-10 V DC	0.15 ÷ 3 bar	yes	with built-in pressure gauge 0-6
MX2-1/2-MEV110	G1/2	0-10 V DC	0.15 ÷ 3 bar	no	without pressure gauge
MX2-1/2-MEV112	G1/2	0-10 V DC	0.15 ÷ 3 bar	no	with built-in pressure gauge 0-6
MX2-1/2-MEV200	G1/2	0-10 V DC	0.5 ÷ 10 bar	yes	without pressure gauge
MX2-1/2-MEV204	G1/2	0-10 V DC	0.5 ÷ 10 bar	yes	with built-in pressure gauge 0-12
MX2-1/2-MEV210	G1/2	0-10 V DC	0.5 ÷ 10 bar	no	without pressure gauge
MX2-1/2-MEV214	G1/2	0-10 V DC	0.5 ÷ 10 bar	no	with built-in pressure gauge 0-12
MX2-1/2-MEA100	G1/2	4-20 mA	0.15 ÷ 3 bar	yes	without pressure gauge
MX2-1/2-MEA102	G1/2	4-20 mA	0.15 ÷ 3 bar	yes	with built-in pressure gauge 0-6
MX2-1/2-MEA110	G1/2	4-20 mA	0.15 ÷ 3 bar	no	without pressure gauge
MX2-1/2-MEA112	G1/2	4-20 mA	0.15 ÷ 3 bar	no	with built-in pressure gauge 0-6
MX2-1/2-MEA200	G1/2	4-20 mA	0.5 ÷ 10 bar	yes	without pressure gauge
MX2-1/2-MEA204	G1/2	4-20 mA	0.5 ÷ 10 bar	yes	with built-in pressure gauge 0-12
MX2-1/2-MEA210	G1/2	4-20 mA	0.5 ÷ 10 bar	no	without pressure gauge
MX2-1/2-MEA214	G1/2	4-20 mA	0.5 ÷ 10 bar	no	with built-in pressure gauge 0-12

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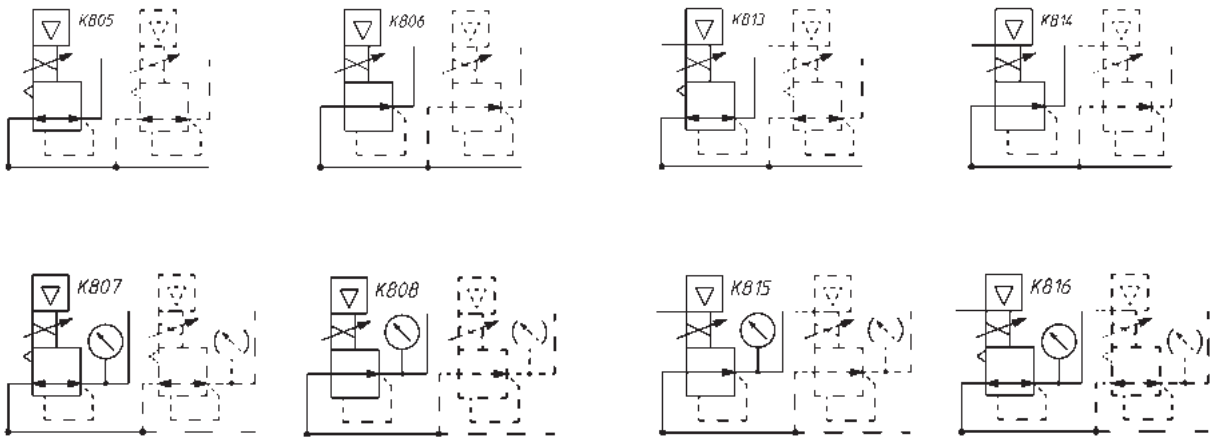
FLOW DIAGRAMS - MANIFOLD VERSION



Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

PNEUMATIC SYMBOLS - MANIFOLD VERSION



K805 = MANIFOLD reg., relieving, electrical command
K806 = MANIFOLD reg., NO relieving, electrical command
K807 = MANIFOLD reg., relieving, electrical command and built-in pressure gauge
K808 = MANIFOLD reg., NO relieving, electrical command and built-in pressure gauge

K813 = MANIFOLD reg., relieving, electrical command, and external servo pilot supply
K814 = MANIFOLD reg., NO relieving, electrical command, and external servo pilot supply
K815 = MANIFOLD reg., relieving, electrical command, built-in pressure gauge and external servo pilot supply
K816 = MANIFOLD reg., NO relieving, electrical command, built-in pressure gauge and external servo pilot supply

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Rapid clamp kit Mod. MX2-...

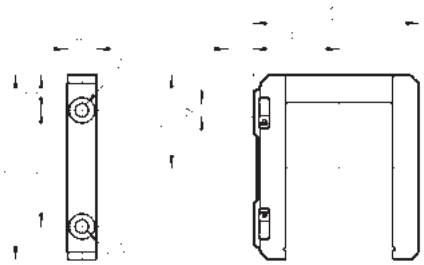


The kit MX2-X is supplied with:
1 rapid clamp, 1 O-ring OR 3125 *,
2 exagonal nuts M5, 2 screws M5x69.

The kit MX2-Z is supplied with:
1 rapid clamp, 1 O-ring OR 3125 *,
1 exagonal nut M5, 1 screw M5x69,
1 screw M5x85 for wall fixing.

* it can be ordered separately (cod. 160-39-11/19)

Materials: technopolymer clamp, NBR O-ring,
zinc-plated steel nuts and screws.



DIMENSIONS

Mod.	A	B	C	D	E	F	G	H	L	M	Notes
MX2-X	5.2	12	46	14	73.5	37.5	70.5	37	-	-	
MX2-Z	5.2	12	46	14	73.5	37.5	70.5	37	14	M5	kit with wall fixing screw

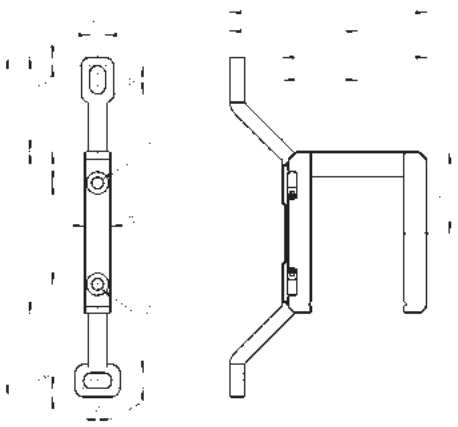
Rapid clamp kit with wall fixing brackets



The kit MX2-Y is supplied with:
1 wall rapid clamp, 1 O-ring OR 3125 **, 2 exagonal nuts, 2 screws M5x69.

** it can be separately ordered (cod. 160-39-11/19)

Materials: technopolymer clamp, NBR O-ring,
zinc-plated steel nuts and screws.



Mod.	A	B	C	D	E	F	G	H	I	L	M	N	O	P	R
MX2-Y	5,2	12	46	14	73,5	32,5	70,5	37	70,5	103	12	6,5	42	152	4

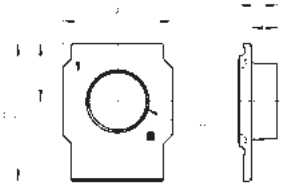
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Terminal flanges (IN/OUT)



The kit is supplied with:
- 1 flange INLET side
- 1 flange OUTLET side

Materials: painted aluminium flanges.



Mod.	A	B	C	D	E	G
MX2-3/8-FL	G3/8	50	26,5	63,5	17	11
MX2-1/2-FL	G1/2	50	26,5	63,5	17	11
MX2-3/4-FL	G3/4	50	26,5	63,5	17	11

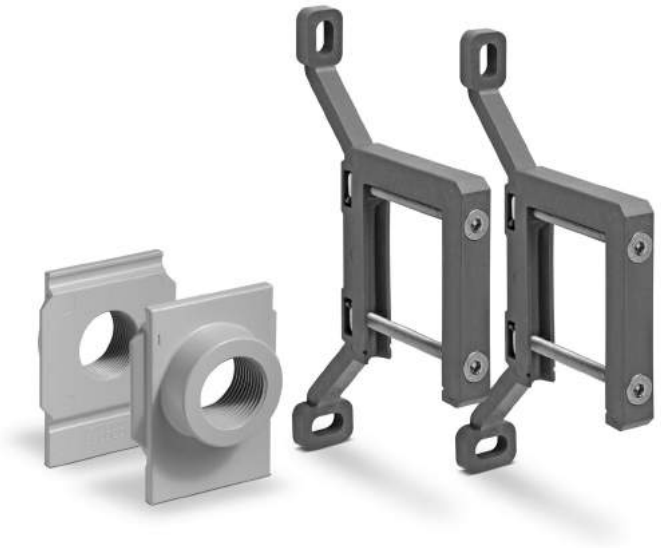
Rapid clamps kit + flanges



Mod.	The kit is supplied with:
MX2-3/8-HH	1x MX2-3/8-FL + 2x MX2-X
MX2-1/2-HH	1x MX2-1/2-FL + 2x MX2-X
MX2-3/4-HH	1x MX2-3/4-FL + 2x MX2-X
MX2-3/8-JJ	1x MX2-3/8-FL + 2x MX2-Z
MX2-1/2-JJ	1x MX2-1/2-FL + 2x MX2-Z
MX2-3/4-JJ	1x MX2-3/4-FL + 2x MX2-Z

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Rapid clamps kit with wall fixing brackets + flanges

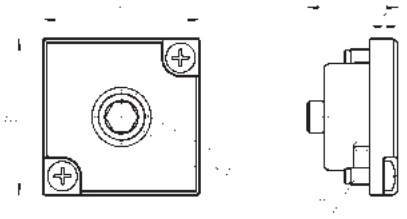


Mod.	The kit is supplied with:
MX2-3/8-KK	1x MX2-3/8-FL + 2x MX2-Y
MX2-1/2-KK	1x MX2-1/2-FL + 2x MX2-Y
MX2-3/4-KK	1x MX2-3/4-FL + 2x MX2-Y

Block for pressure gauge fixing



The kit is supplied with:
1 block
1 grain
2 screws
1 seal

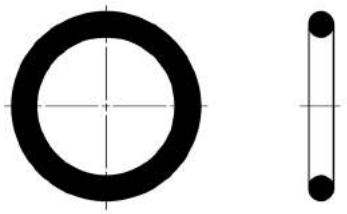


DIMENSIONS

Mod.	A	B	L	M	P	U	SW
MX2-R26-P	28	28	16.5	5	M3X7	1/8	5

O-ring for assembling





Mod.	O-ring	For assembly
160-39-11/19	OR 3125	MX2

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Series ER100
digital electro-pneumatic regulators

Port G1/4



- Compact design
- Digital display
- Analog and digital input
- Programmable
- Zero/span adjustment function
- Error display function, pressure display
- Preset memory function 8-set points (3 bits).

Products designed for industrial applications.
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GENERAL DATA ER104-5xxx

Model	ER104-5 0/1/2 X Analog type	ER104-5 P X Parallel type
Fluid	filtered compressed air, unlubricated, according to ISO 8573-1 class 3.4.3, inert gas	filtered compressed air, unlubricated, according to ISO 8573-1 class 3.4.3, inert gas
Max. working pressure	7 bar	7 bar
Min. working pressure	Control pressure + max. control pressure x 0,2	Control pressure + max. control pressure x 0,2
Pressure control range	0,3 ÷ 5 bar	0,3 ÷ 5 bar
Class protection	IP40	IP40
Power supply voltage	24 V DC +/- 10% (stabilized power supply with a ripple rate of 1% or less)	24 V DC +/- 10% (stabilized power supply with a ripple rate of 1% or less)
Consumption current	0.15 A (or less rush current 0.6 A or less when power is turned on)	0.15 A (or less rush current 0.6 A or less when power is turned on)
Input signal **(Input impendance)**	0 ÷ 10 V DC (6,7 kΩ) 0 ÷ 5 V DC (10 kΩ) 4 ÷ 20 mA DC (250 Ω)	10 bit
Preset input	8 points	N/A
Output signal **Note 1**	Analog output 1-5 VDC (load to be connected impedance 500 kW or more) Switch output NPN or PNP, open collector output, 30 V or less, 50 mA or less, voltage drop 2.4 or less, compatible for use with PLC or Relay	Analog output 1-5 VDC (load to be connected impedance 500 kW or more) Switch output NPN or PNP, open collector output, 30 V or less, 50 mA or less, voltage drop 2.4 or less, compatible for use for PLC or Relay
Error Output signal	NPN or PNP open collector output, 30 V or less, 50 mA or less, voltage drop 2,4 V or less, compatible for use with PLC or Relay	NPN or PNP open collector output, 30 V or less, 50 mA or less, voltage drop 2,4 V or less, compatible for use with PLC or Relay
Direct memory setting	0,05 ÷ 5 bar minimum input width 0,01 bar	0,05 ÷ 5 bar minimum input width 0,01 bar
Hysteresis **Note 2**	0.5% F.S. or less	0.5% F.S. or less
Linearity **Note 2**	±0.3% F.S. or less	±0.3% F.S. or less
Resolution **Note 2**	0.2% F.S. or less	0.2% F.S. or less
Repeatability **Note 2**	0.3% F.S. or less	0.3% F.S. or less
Temperature characteristics: **Zero point fluctation**	0.15% F.S./°C or less	0.15% F.S./°C or less
Temperature characteristics: **Span point fluctation**	0.07% F.S./°C or less	0.07% F.S./°C or less
Max. flow rate (ANR) **Note 3**	400 l/min (see diagram)	400 l/min (see diagram)
Step response time **No load** **Note 4**	0.2 sec. or less	0.2 sec. or less
Step response time **1000 cm³ load** **Note 4**	0.8 sec. or less	0.8 sec. or less
Mechanical vibration proof	98 m/s² or less	98 m/s² or less
Ambient temperature	5°C ÷ 50 °C	5°C ÷ 50 °C
Fluid temperature	5°C ÷ 50 °C	5°C ÷ 50 °C
Connection port size	G1/4	G1/4
Mounting direction	Free	Free
Weight	250g	250g
Note 1:	Select either analog or switch output.	
Note 2:	This characteristic is guaranteed within a regulation range between 10 and 90% of the full scale, with a power voltage of 24V±10%, a supply pressure of 1 bar higher compared with the set pressure (ex. regulation of 3 bar, supply pressure of 3+1 = 4 bar) and a volume connected to the outlet without any loss. In applications with great air consumption, such as the blowing, the indicated tolerance may change.	
Note 3:	The above apply when working pressure and control pressure are maximum	
Note 4:	The above apply when working pressure is maximum and the step is as follows: 50% F.S. -> 100%F.S. 50% F.S. -> 60% F.S. 50% F.S. -> 40% F.S.	

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GENERAL DATA ER104-9xxx

Model	ER104-9 0/1/2 X Analog type	ER104-9P X Parellel type
Fluid	Filtered air according to ISO 132	Filtered air according to ISO 132
Max. working pressure	10 bar	10 bar
Min. working pressure	Control pressure + Max. control pressure + 1 bar	Control pressure + Max. control pressure + 1 bar
Pressure control range	0,5 ÷ 9 bar	0,5 ÷ 9 bar
Class protection	IP40	IP40
Power supply voltage	DC24V ± 10% (stabilized power supply with a ripple rate of 1% or less)	DC24V ± 10% (stabilized power supply with a ripple rate of 1% or less)
Consumption current	0.15 A or less rush current 0.6 A or less when power is turned on	0.15 A or less rush current 0.6 A or less when power is turned on
Input signal **(Input impedance)**	0 a 10 VDC (6.7kΩ) 0 a 5 VDC (10kΩ) 4 a 20 mADC (250 Ω)	10 bit
Preset input	8 points	N/A
Output signal **Note 1**	Analog output 1-5 VDC (load to be connected impedance 500 KW or more) Switch output NPN or PNP, open collector output, 30 V or less, 50 mA or less voltage drop 2.4.V or less, compatible for usage in PLC and Relay.	Analog output 1-5 VDC (load to be connected impedance 500 KW or more) Switch output NPN or PNP, open collector output, 30 V or less, 50 mA or less, voltage drop 2.4.V or less, compatible for usage in PLC and Relay.
Error output signal	NPN or PNP, open collector output, 30 V or less, 50 mA or less, voltage drop 2.4 or less, compatible for usage in PLC and Relay	NPN or PNP, open collector output, 30 V or less, 50 mA or less, voltage drop 2.4 or less, compatible for usage in PLC and Relay
Direct memory setting	0,05 ÷ 9 bar minimum input width 0,01 bar setting resolution 0,02 bar	0,05 ÷ 9 bar minimum input width 0,01 bar setting resolution 0,02 bar
Hysteresis **Note 2**	0.5% F.S. or less	0.5% F.S. or less
Linearity **Note 2**	±0.3% F.S. or less	±0.3% F.S. or less
Resolution **Note 2**	0.2% F.S. or less	0.2% F.S. or less
Repeatability **Note 2**	0.3% F.S. or less	0.3% F.S. or less
Temperature characteristics: **Zero point fluctuation**	0.15% F.S./°C or less	0.15% F.S./°C or less
Temperature characteristics: **Span point fluctuation**	0.07% F.S./°C or less	0.07% F.S./°C or less
Max. flow rate **Note 3**	400 l/min (see diagram)	400 l/min (see diagram)
Step response time **No load** **Note 4**	0.82 sec. or less	0.2 sec. or less
Step response time **1000 cm³ load** **Note 4**	0.8 sec. or less	0.8 sec. or less
Mechanical vibration proof	98 m/s² or less	98 m/s² or less
Ambient temperature	5°C ÷ 50 °C	5°C ÷ 50 °C
Fluid temperature	5°C ÷ 50 °C	5°C ÷ 50 °C
Connecting port size	G1/4	G1/4
Mounting direction	Free	Free
Weight	250g	250g
Note 1	Select either analog or switch output.	
Note 2	This characteristic is guaranteed within a regulation range between 10 and 90% of the full scale, with a power voltage of 24V±10%, a supply pressure of 1 bar higher compared with the set pressure (ex. regulation of 3 bar, supply pressure of 3+1 = 4 bar) and a volume connected to the outlet without any loss. In applications with great air consumption, such as the blowing, the indicated tolerance may change.	
Note 3	The above apply when working pressure and control pressure are maximum.	
Note 4	The above apply when working pressure and control pressure is maximum and the step is as follows: 50% F.S. -> 100%F.S. 50% F.S. -> 60% F.S. 50% F.S. -> 40% F.S.	

STANDARD CODES

Models				
ER104-50AP	ER104-52AP	ER104-5PSP	ER104-90SP	ER104-92SP
ER104-50SP	ER104-52SP	ER 104-90AP	ER104-92AP	ER104-9PSP

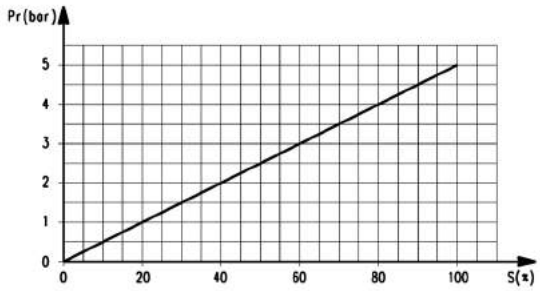
CODING EXAMPLE

ER	1	04	-	5	0	AN

ER	SERIES
1	SIZE: 1 = size 1
04	PORT: 04 = G1/4
5	WORKING PRESSURE: 5 = 0 ÷ 5 bar 9 = 0.5 ÷ 9 bar
0	INPUT: 0 = 0 - 10 V DC 1 = 0 - 5 V DC 2 = 4 - 20 mA P = Parallel 10 bit
AN	OUTPUT: AN = 1 - 5 V analog, error (NPN) AP = 1 - 5 V analog, error (PNP) SN = switch (NPN), error (NPN) SP = switch (PNP), error (PNP)

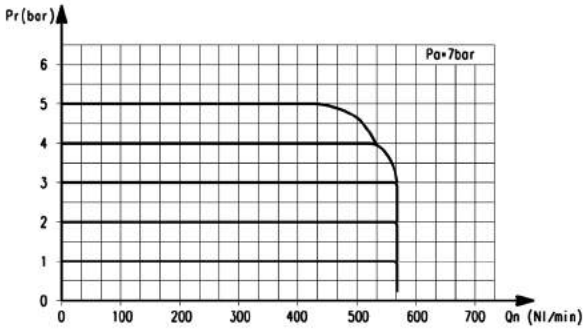
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DIAGRAMS



ER104-5xxx
Input/Output characteristics

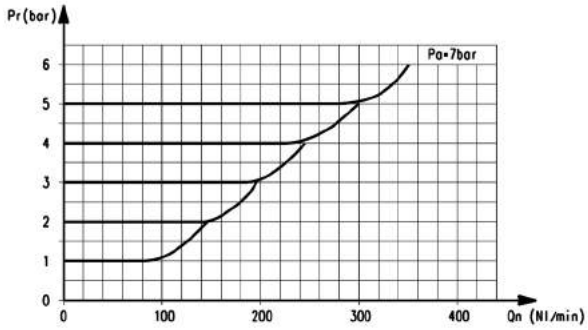
Pr = outlet pressure (bar)
S = input signal (%)



ER104-5xxx
Flow characteristics

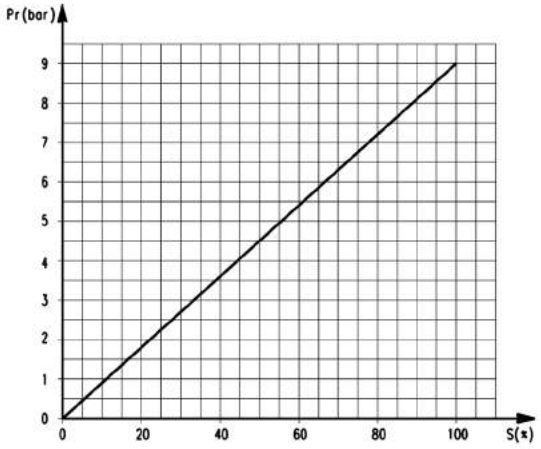
Pr = outlet pressure (bar)
Qn = flow (l/min)
Pa = operating pressure (bar)

DIAGRAMS



ER104-5xxx
Exhaust characteristics

Pr = outlet pressure (bar)
Qn = flow (l/min)
Pa = operating pressure (bar)

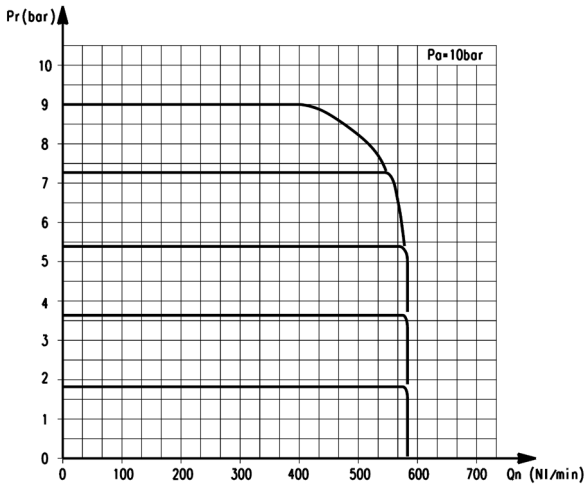


ER104-9xxx
Input/Output characteristics

Pr = outlet pressure (bar)
S = input signal (%)

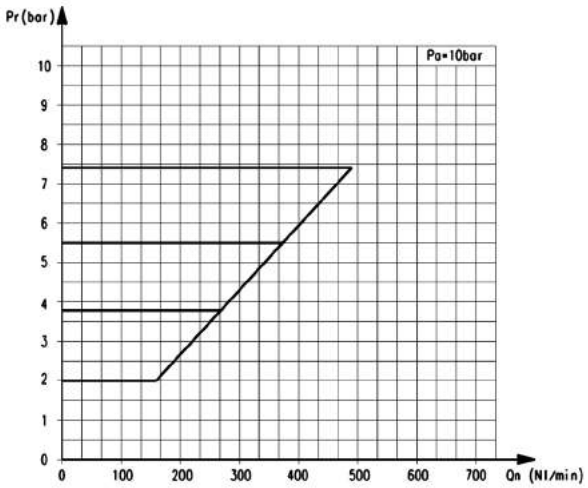
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DIAGRAMS



ER104-9xxx
Flow characteristics

Pr = outlet pressure (bar)
Qn = flow (l/min)
Pa = operating pressure (bar)



ER104-9xxx
Exhaust characteristics

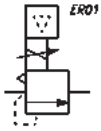
Pr = outlet pressure (bar)
Qn = flow (l/min)
Pa = operating pressure (bar)

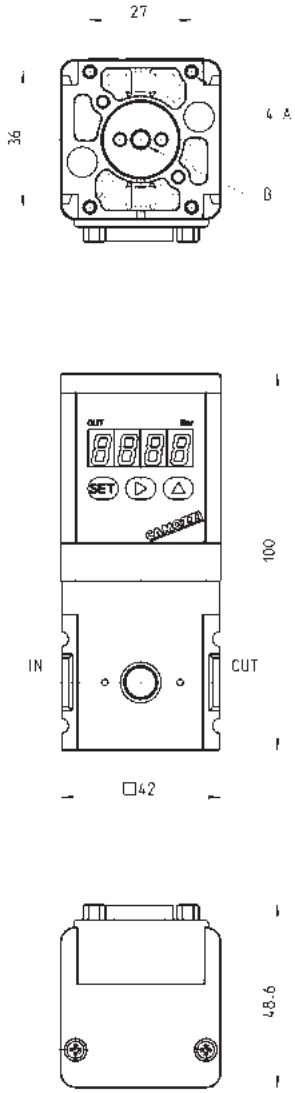
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Proportional regulator Series ER100

See connectors on page 2/15.51.09







DIMENSIONS						
Mod.	A	B	C	D	E	F
ER104	M3 depth 6	Ø5.3 EXH port	D sub-connector 15 pins/plugs	G1/4	4-40 UNC	Ø4.2 Port R (pilot air exhaust port)

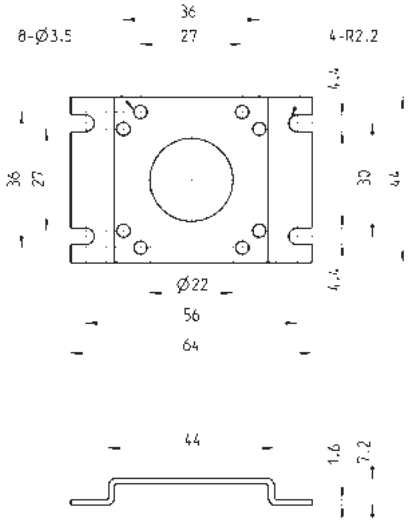
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2
CONTROL

Bracket ER1-B1

Floor installation type



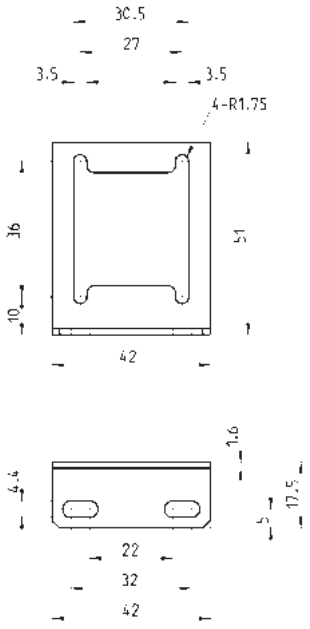


DIMENSIONS
Mod.
ER1-B1

Bracket ER1-B2

Wall installation type





DIMENSIONS
Mod.
ER1-B2

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Series ER200
digital electro-pneumatic regulators

Ports G1/4 and G3/8



- Compact design
- Digital display
- Analog and digital input
- Programmable
- Zero/span adjustment function
- Error display function, pressure display
- Preset memory function 8-set points (3 bits).

Products designed for industrial applications.
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GENERAL DATA ER2XX-5XXX

Model	ER204-5 0/1/2 X ER238-5 0/1/2 X Analog type	ER204-5P X ER238-5P X Parallel type
Fluid	filtered compressed air, unlubricated, according to ISO 8573-1 class 3.4.3, inert gas	filtered compressed air, unlubricated, according to ISO 8573-1 class 3.4.3, inert gas
Max. working pressure	7 bar	7 bar
Min. working pressure	Control pressure + max. control pressure + 1 bar	Control pressure + max. control pressure + 1 bar
Pressure control range	0,3 ÷ 5 bar	0,3 ÷ 5 bar
Class protection	IP40	IP40
Power supply voltage	DC24V ± 10% (stabilized power supply with a ripple rate of 1% or less)	DC24V ± 10% (stabilized power supply with a ripple rate of 1% or less)
Consumption current	0.15 A (rush current 0.6 A or less)	0.15 A (rush current 0.6 A or less)
Input signal(Input Impedance)	0 to 10 VDC (6.7k Ω) 0 to 5 VDC (10k Ω) 4 to 20 mADC (250 Ω)	10 bit
Preset input	8 points	N/A
Output signal **Note 1**	Analog output 1-5 VDC (load to be connected impedance 500 kΩ or more) Switch output NPN or PNP, open collector output, 30 V, 50 mA, voltage drop 2.4 V, compatible for usage in PLC and Relay.	Analog output 1-5 VDC (load to be connected impedance 500 kΩ or more) Switch output NPN or PNP, open collector output, 30 V, 50 mA, voltage drop 2.4 V, compatible for usage in PLC and Relay.
Error output signal	NPN or PNP, open collector, 30 V, 50 mA, voltage drop 2.4 V, compatible for usage in PLC and Relay.	NPN or PNP, open collector, 30 V, 50 mA, voltage drop 2.4 V, compatible for usage in PLC and Relay.
Direct memory setting	0,05 ÷ 5 bar minimum input width 0,01 bar	0,05 ÷ 5 bar minimum input width 0,01 bar
Hysteresis **Note 2**	0.5% F.S. or less	0.5% F.S. or less
Linearity **Note 2**	±0.3% F.S. or less	±0.3% F.S. or less
Resolution **Note 2**	0.2% F.S. or less	0.2% F.S. or less
Repeatability **Note 2**	0.3% F.S. or less	0.3% F.S. or less
Temperature characteristics: **zero point fluctuation**	0.15% F.S./°C or less	0.15% F.S./°C or less
Temperature characteristics: **span point fluctuation**	0.07% F.S./°C or less	0.07% F.S./°C or less
Max. flow rate(ANR) **Note 3**	1500 l/min	1500 l/min
Step response time: **no load**	0.2 sec. or less	0.2 sec. or less
Step response time: **With load 1000 cm³**	0.8 sec. or less	0.8 sec. or less
Mechanical vibration proof	98 m/s² or less	98 m/s² or less
Ambient temperature	5°C ÷ 50 °C	5°C ÷ 50 °C
Fluid temperature	5°C ÷ 50 °C	5°C ÷ 50 °C
Connecting port size **IN/OUT**	G1/4 - G3/8	G1/4 - G3/8
Connecting port size **EXHAUST**	G3/8	G3/8
Mounting	Free	Free
Weight	450g	450g
Note 1:	Select either analog or switch output.	
Note 2:	This characteristic is guaranteed within a regulation range between 10 and 90% of the full scale, with a power voltage of 24V±10%, a supply pressure of 1 bar higher compared with the set pressure (ex. regulation of 3 bar, supply pressure of 3+1 = 4 bar) and a volume connected to the outlet without any loss. In applications with great air consumption, such as the blowing, the indicated tolerance may change.	
Note 3:	The above apply when working pressure and control pressure are maximum.	
Nota 4:	The above apply when working pressure is maximum and the step is as follows: 50% F.S. -> 100% F.S. 50% F.S. -> 60% F.S. 50% F.S. -> 40% F.S.	

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GENERAL DATA ER2XX-9XXX

Model	ER204-9 0/1/2 X ER238-9 0/1/2 X Analog type	ER238-9P X ER238-9P X Parallel type
Fluid	Cleaned air	Cleaned air
Max. working pressure	10 bar	10 bar
Min. working pressure	Control pressure + max. control pressure + 1 bar	Control pressure + max. control pressure + 1 bar
Pressure control range	0,5 - 9 bar	0,5 - 9 bar
Class protection	IP40	IP40
Power supply voltage	DC24V ± 10% (stabilized power supply with a ripple rate of 1% or less)	DC24V ± 10% (stabilized power supply with a ripple rate of 1% or less)
Consumption current	0.15 A (rush corrent 0.6 A or less)	0.15 A (rush corrent 0.6 A or less)
Input signal **(Input impedance)**	0 to 10 VDC (6.7kΩ) 0 to 5 VDC (10kΩ) 4 to 20 mADC (250Ω)	10 bit
Preset input	8 points	N/A
Output signal	Analog output 1-5 VDC (load to be connected impedance 500 kΩ) Switch output NPN or PNP, open collector, 30 V, 50 mA, voltage drop 2.4 V, compatible for usage in PLC and Relay	Analog output 1-5 VDC (load to be connected impedance 500 kΩ) Switch output NPN or PNP, open collector, 30 V, 50 mA, voltage drop 2.4 V, compatible for usage in PLC and Relay
Error output signal	NPN or PNP, open collector, 30 V, 50 mA, voltage drop 2.4 V, compatible for usage in PLC and Relay	NPN or PNP, open collector, 30 V, 50 mA, voltage drop 2.4 V, compatible for usage in PLC and Relay
Direct memory setting	0,05 - 9 bar - min. input 0,01 bar max. error 0,02 bar	0,05 - 9 bar - min. input 0,01 bar max. error 0,02 bar
Hysteresis **Note 2**	0.5% F.S. or less	0.5% F.S. or less
Linearity **Note 2**	±0.3% F.S. or less	±0.3% F.S. or less
Resolution **Note 2**	0.2% F.S. or less	0.2% F.S. or less
Repeatability **Note 2**	0.3% F.S. or less	0.3% F.S. or less
Temperature characteristics: **Zero point fluctuation**	0.15% F.S./°C or less	0.15% F.S./°C or less
Temperature characteristics: **Span point fluctuation**	0.07% F.S./°C or less	0.07% F.S./°C or less
Max. flow rate(ANR) **Note 3**	1500 l/min	1500 l/min
Step response time **No load**	0.2 sec. or less	0.2 sec. or less
Step response time **Load 1000 cm³**	0.8 sec. or less	0.8 sec. or less
Mechanical vibration proof	98 m/s²	98 m/s²
Ambient temperature	5 to 50 °C	5 to 50 °C
Fluid temperature	5 to 50 °C	5 to 50 °C
Connecting port size **IN/OUT**	G1/4 - G3/8	G1/4 - G3/8
Connecting port size **EXHAUST**	G3/8	G3/8
Mounting	Free	Free
Weight	450g	450g
Note 1:	Select either analog or switch output	
Note 2:	This characteristic is guaranteed within a regulation range between 10 and 90% of the full scale, with a power voltage of 24V±10%, a supply pressure of 1 bar higher compared with the set pressure (ex. regulation of 3 bar, supply pressure of 3+1 = 4 bar) and a volume connected to the outlet without any loss. In applications with great air consumption, such as the blowing, the indicated tolerance may change.	
Note 3:	The above apply when working pressure and control pressure are maximum.	
Note 4:	The above apply when working pressure is maximum and the step is as follows: 50% F.S. -> 100% F.S. 50% F.S. -> 60% F.S. 50% F.S. -> 40% F.S.	

STANDARD CODES

Models

ER238-50AP	ER238-52AP	ER238-5PSP	ER238-90SP	ER238-92SP
ER238-50SP	ER238-52SP	ER238-90AP	ER238-92AP	ER238-9PSP

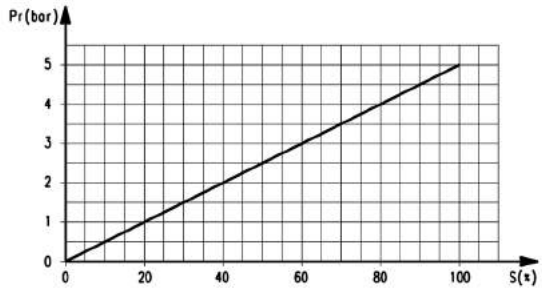
CODING EXAMPLE

ER	2	04	-	5	0	AN

ER	SERIES
2	SIZE: 2 = size 2
04	PORT: 04 = G1/4 38 = G3/8
5	WORKING PRESSURE: 5 = 0 ÷ 5 bar 9 = 0.5 ÷ 9 bar
0	INPUT: 0 = 0 - 10 V DC 1 = 0 - 5 V DC 2 = 4 - 20 mA P = Parallel 10 bit
AN	OUTPUT: AN = 1 - 5 V analog error (NPN) AP = 1 - 5 V analog, error (PNP) SN = switch(NPN), error(NPN) SP = switch (PNP), error (PNP)

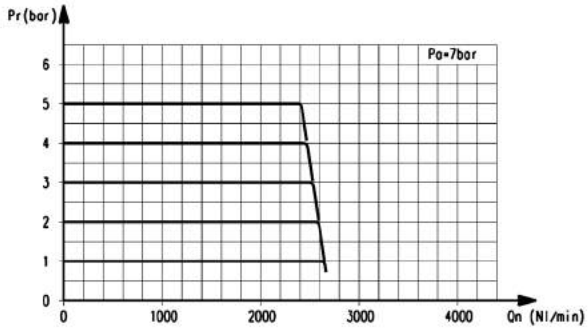
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DIAGRAMS



ER2xx-5xxx
Input/Output characteristics

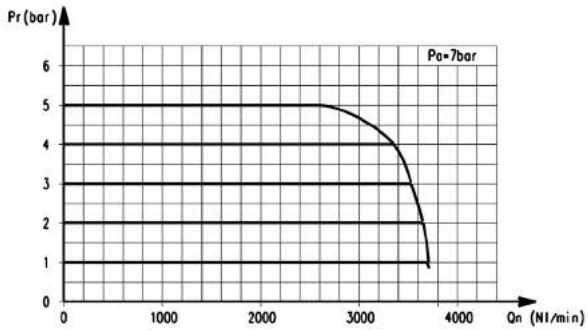
Pr = outlet pressure (bar)
S = input signal (%)



ER204-5xxx
Flow characteristics

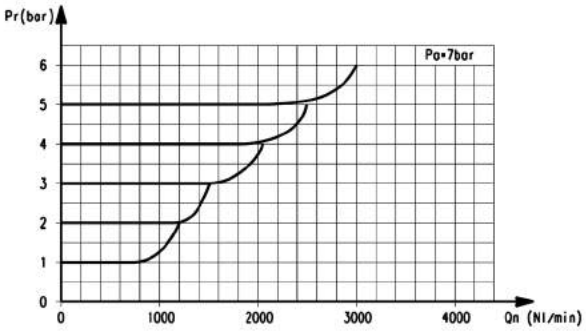
Pr = outlet pressure (bar)
Qn = flow (l/min)
Pa = working pressure (bar)

DIAGRAMS



ER238-5xxx
Flow characteristics

Pr = outlet pressure (bar)
Qn = flow (l/min)
Pa = working pressure (bar)

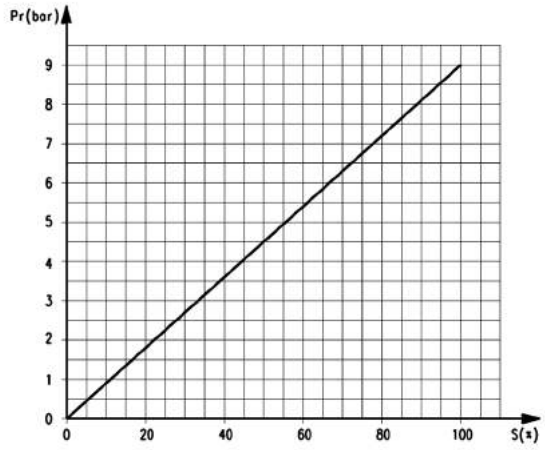


ER2xx-5xxx
Exhaust characteristics

Pr = outlet pressure (bar)
Qn = flow (l/min)
Pa = working pressure (bar)

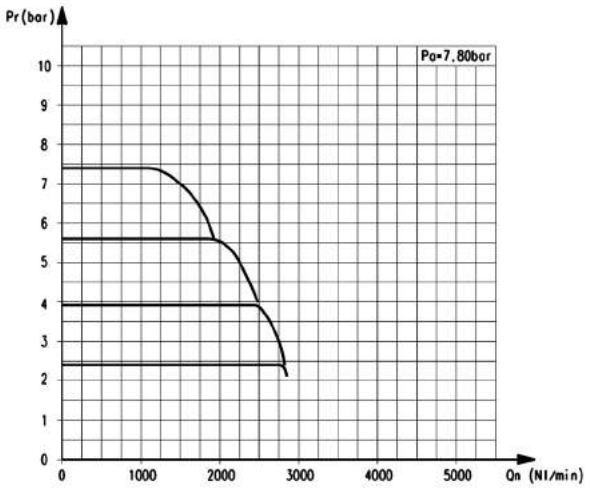
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DIAGRAMS



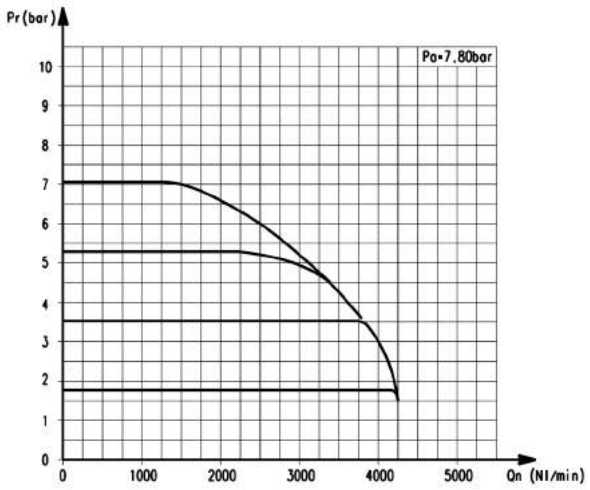
ER2xx-9xxx
Input/Output characteristics

Pr = output pressure (bar)
S = inlet signal (%)
Pa = working pressure (bar)



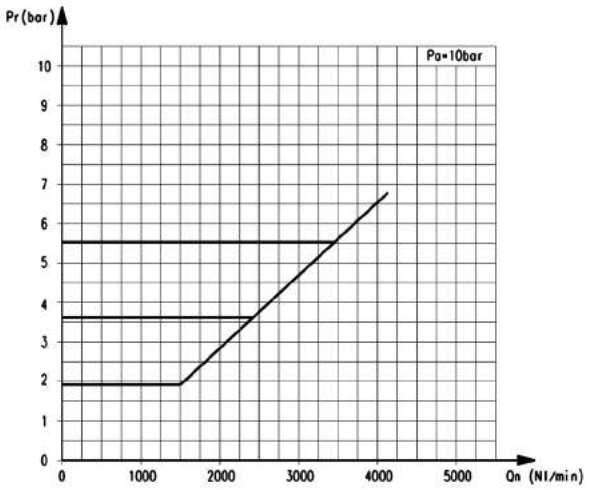
ER204-9xxx
Flow characteristics
Pr = output pressure (bar)
Qn = flow (l/min)
Pa = working pressure (bar)

DIAGRAMS



ER238-9xxx
Flow characteristics

Pr = output pressure (bar)
Qn = flow (l/min)
Pa = working pressure (bar)



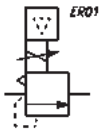
ER2xx-9xxx
Exhaust characteristics

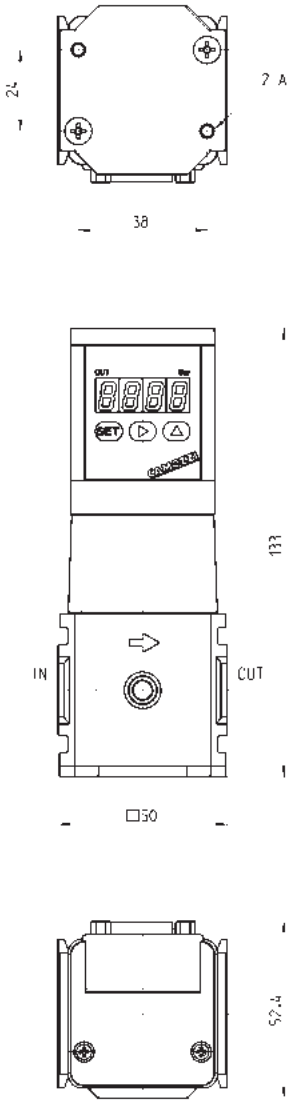
Pr = output pressure (bar)
Qn = flow (l/min)
Pa = working pressure (bar)

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Proportional regulators Series ER200







DIMENSIONS

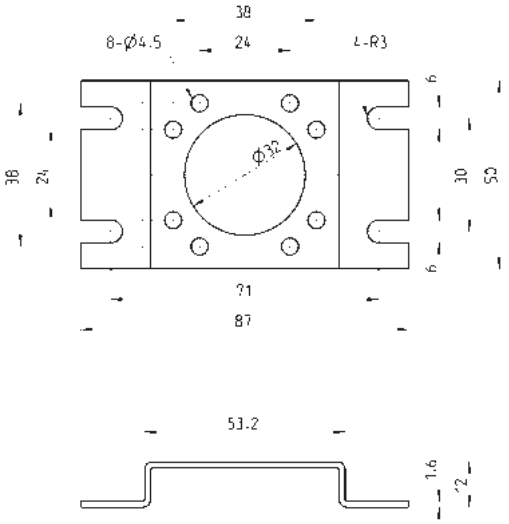
Mod.	A	B	C	D	E	F
ER204	M4 depth 12	D sub-connector 15 pins/plugs	G1/4	4-40 UNC	Ø4.2 Port R (pilot air exhaust port)	G3/8 EXH port
ER238	M4 depth 12	D sub-connector 15 pins/plugs	G3/8	4-40 UNC	Ø4.2 Port R (pilot air exhaust port)	G3/8 EXH port

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Bracket ER2-B1

Floor installation type mounting



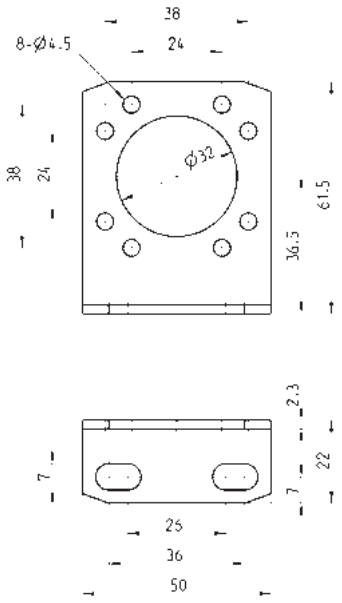


Mod.
ER2-B1

Bracket ER2-B2

Wall installation type mounting





Mod.
ER2-B2

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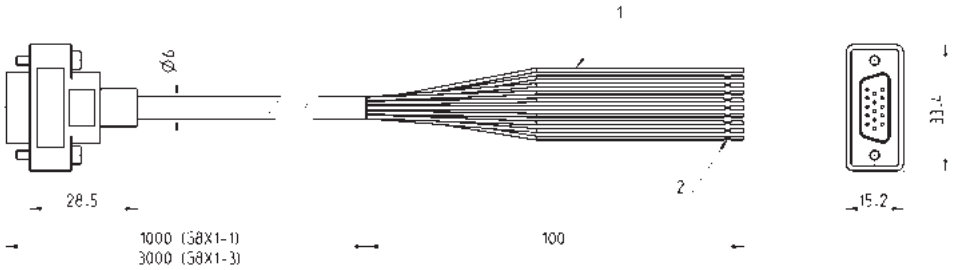
Cable and connector for regulator with analog Input

To check the correspondence between pin and cables' colour, please refer to the instruction sheet included in the packaging or to the user manual.



1 = shield wire*
2 = 9-AWG26

* Connect the shield wire to the power's minus (0 V) side.



Mod.
G8X1-1
G8X1-3

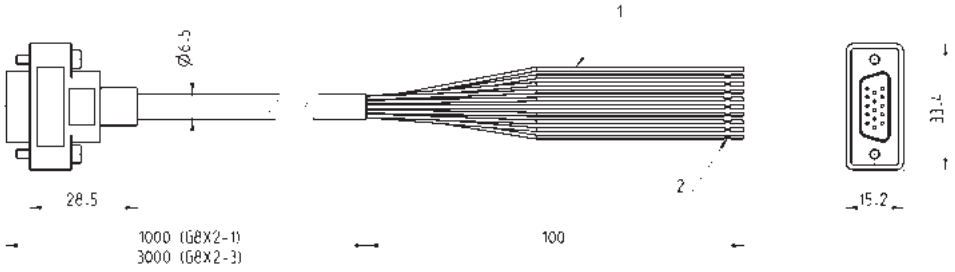
Cable and connector for regulator with parallel Input

To check the correspondence between pin and cables' colour, please refer to the instruction sheet included in the packaging or to the user manual.



1 = shield wire*
2 = 9-AWG26

* Connect the shield wire to the power's minus (0 V) side.



Mod.
G8X2-1
G8X2-3



3 / 1 Series MX Modular FRL Units

		Section
Series MX	**Filters** MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1 Modular Bowl with technopolymer cover and bayonet-type mounting	3/1.05
Series MX	**Coalescing filters** MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1 Modular Bowl with technopolymer cover and bayonet-type mounting	3/1.10
Series MX	**Activated carbon filters** MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1 Modular Bowl with technopolymer cover and bayonet-type mounting	3/1.15
Series MX	**Pressure regulators** MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1 Manifold ports: G1/2 (MX2 only) Modular - Available with built-in pressure gauges or with ports for gauges	3/1.20
Series MX	**Lubricators** MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1 Modular Bowl with technopolymer cover and bayonet-type mounting	3/1.25
Series MX	**Filter-regulators** MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1 Modular Bowl with technopolymer cover and bayonet-type mounting	3/1.30
Series MX	**Lockable isolation 3/2-way valves** MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1 Modular Manual, electro-pneumatic, servo-pilot and pneumatic control	3/1.35
Series MX	**Soft start valves** MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1 Modular	3/1.40
Series MX	**Take-off blocks** MX2 port: G1/2 - MX3 port: G1 Modular	3/1.45
Series MX	**Accessories** Systems of rapid connections designed to make the mouting easier	3/1.49
Series MX	**Assembled FRL** MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1 Assembly through rapid clamps	3/1.50

3 / 2 Series MC Modular FRL Units

		Section
Series MC	**Filters** Ports: G1/4, G3/8 and G1/2 Modular Metal bowl and bayonet-type mounting	3/2.05
Series MC	**Coalescing filters** Ports: G1/4, G3/8 and G1/2 Modular Metal bowl and bayonet-type mounting	3/2.10
Series MC	**Pressure regulators** Ports: G1/4, G3/8 and G1/2 Modular	3/2.15
Series MC	**Lubricators** Ports: G1/4, G3/8 and G1/2 Modular With metal bowl and bayonet-type mounting	3/2.20
Series MC	**Filter-regulators** Ports: G1/4, G3/8 and G1/2 Modular Metal bowl and bayonet-type mounting	3/2.25
Series MC	**Lockable isolation 3/2-way valves** Electropneumatic, pneumatic and manual version Ports: G1/4, G3/8 and G1/2 Modular	3/2.30
Series MC	**Soft start valves** Ports: G1/4, G3/8 and G1/2 Modular	3/2.35
Series MC	**Take-off blocks** Ports: G1/4, G1/2 Modular	3/2.40
Series MC	**Accessories** Systems of rapid connections designed to make the mouting easier	3/2.44
Series MC	**Assembled FRL** Ports: G1/4, G3/8 and G1/2	3/2.45
Series MC	**Manifold pressure regulators** Ports: G1/4 Modular	3/2.50

3 / 3 Series MD Modular FRL Units

		Section
Series MD	**Filters** Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with ø 6, 8 and 10 mm. Modular assembly. Bowl with technopolymer cover and bayonet-type mounting	3/3.05
Series MD	**Coalescing filters** Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with ø 6, 8 and 10 mm. Modular assembly. Bowl with technopolymer cover and bayonet-type mounting	3/3.10
Series MD	**Activated carbon filters** Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with ø 6, 8 and 10 mm. Modular assembly. Bowl with technopolymer cover and bayonet-type mounting	3/3.15
Series MD	**Pressure regulators** Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with ø 6, 8 and 10 mm. Versions: single, combined with other functions, Manifold	3/3.20
Series MD	**Lubricators** Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with ø 6, 8 and 10 mm. Modular assembly. Bowl with technopolymer cover and bayonet-type mounting	3/3.25
Series MD	**Filter-regulators** Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with ø 6, 8 and 10 mm. Modular assembly. Bowl with technopolymer cover and bayonet-type mounting	3/3.30
Series MD	**Lockable isolation 3/2-way valves** Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with ø 6, 8 and 10 mm. Modular. Manual, electro-pneumatic, servo-pilot and pneumatic control	3/3.35
Series MD	**Soft start valves** Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with ø 6, 8 and 10 mm. Modular assembly	3/3.40
Series MD	**Take-off blocks** Module with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with ø 6, 8 and 10 mm (5-way version) Intermediate joining cartridge (3-way version)	3/3.45
Series MD	**Accessories** Systems of rapid connections designed to make the mouting easier	3/3.49
Series MD	**Assembled FRL** Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with ø 6, 8 and 10 mm Modular assembly	3/3.50

3 / 4 FRL Units

		Section
Series N	**Filters and coalescing filters** Ports: G1/8, G1/4	3/4.05
Series N	**Pressure regulators** Ports: G1/8, G1/4	3/4.10
Series N	**Lubricators** Ports: G1/8, G1/4	3/4.15
Series N	**Filter-regulators** Ports: G1/8, G1/4	3/4.20
Series N	**Accessories** Systems of rapid connections designed to make the mouting easier	3/4.25

3 / 5 Pressure regulators

		Section
Series CLR	**Micro pressure regulators** Ports: G1/8, G1/4 With banjo stem with or without relieving Available with or without banjo in technopolymer	3/5.03
Series TC	**Pressure microregulators** For applications with oxygen, without relieving Ports: cartridge construction, G1/8 and 1/8 NPTF	3/5.04
Series M	**Pressure microregulators** Ports: G1/8, G1/4	3/5.05
Series T	**Pressure microregulators** Ports: G1/8, G1/4	3/5.10
Series M, T	**Accessories** Systems of rapid connections designed to make the mouting easier	3/5.12
Series PR	**Precision regulators with manual override** Port: G1/4	3/5.15

3 / 6 Accessories for the air treatment

		Section
Mod. M043, M053, M063	**Pressure gauges** Precision classe CL1,6	3/6.05
Series PG	**Digital pressure gauges** Possibility of a direct mounting with rear or panel connection	3/6.06
Series MX, MC, N	**Condensate drains Filtering elements** Semi-automatic manual drain; Automatic drain; Depressurisation drain; Depressurisation drain, protected Port 1/8 (without drain)	3/6.10

Series MX filters

MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1
Modular
Bowl with technopolymer cover and bayonet-type mounting



- Removal of impurities and condensate
- High flow with minimum pressure decreases
- Cartridge filters of 25 or 5 µm
- Manual, automatic or depressuring drain
- Bowl locking system reducing the risk of accidents

MX is the new series of air treatment components realized by Camozzi, characterized by a modern, linear and compact design, offering high performances. The perfect integration between metal alloys and technopolymers has allowed the realization of a reliable product, light and strong at the same time. Thanks to a new concept of modularity, moreover, the mounting of components has become easier.

The Series MX has been realized to offer a multi-sector solution that guarantees saving in terms of installation time, space and costs.
A special configurator, available on Camozzi website at http://catalogue.camozzi.com (sec. Configurators), allows the customer to choose the most suitable solution for his application, selecting single components or by configuring assembled FRLs.

GENERAL DATA

Construction	modular, compact with filtering element in HDPE
Materials	see TABLE OF MATERIALS (pag. 3/1.05.02)
Ports	MX2: G3/8 - G1/2 - G3/4 MX3: G3/4 - G1
Condensate capacity	MX2: 55 cc MX3: 85 cc
Mounting	vertical in-line wall-mounting (by means of clamps)
Operating temperature	-5°C ÷ 50°C up to 16 bar (with the dew point of the fluid lower than 2°C at the min. working temperature) -5°C ÷ 60°C up to 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Porosity of filtering element	25 µm (standard) 5 µm
Draining of condensate	MX2: manual-semi automatic (standard), automatic, depressurization protected, without drain with port G1/8 MX3: manual-semi automatic (standard), without drain with port G1/8
Operating pressure	0,3 ÷ 16 bar (with automatic drain 1,5 ÷ 12 bar)
Nominal flow	see FLOW DIAGRAMS (pag. 3/1.05.03)
Fluid	compressed air

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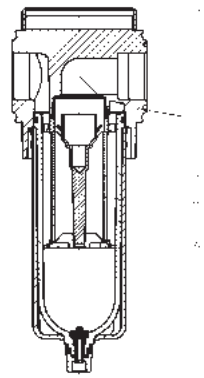
CODING EXAMPLE

MX	2	-	3/8	-	F	0	0	-	LH

MX	SERIES
2	SIZE: 2 = G3/8 - G1/2 - G3/4 3 = G3/4 - G1
3/8	PORT: 3/8 = G3/8 1/2 = G1/2 3/4 = G3/4 1 = G1
F	FILTER
0	FILTERING ELEMENT: 0 = 25 µm (standard) 1 = 5 µm
0	DRAINING OF CONDENSATE: 0 = semiautomatic-manual drain (standard) 3 = automatic drain 5 = depressuring drain, protected 8 = without drain, with port G1/8
LH	FLOW DIRECTION: = from left to right (standard) LH = from right to left

For the assembly of a single component with fixing flanges or wall-mounting, see the section “FRL Series MX Assembled” (pag. 3/1.50.01)

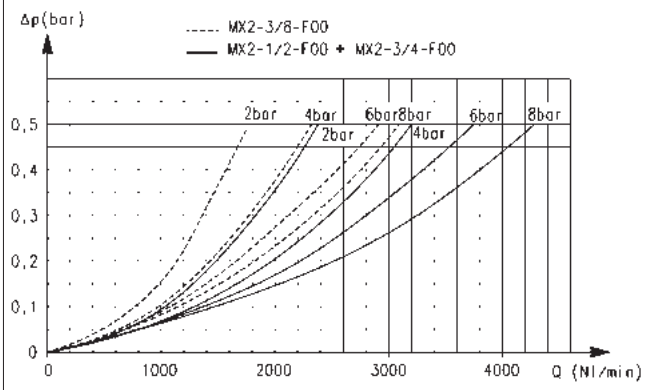
Filters Series MX - materials



PARTS	MATERIALS
1 = Body	Aluminium
2 = Covering	Polyacetal
3 = Bowl with technopolymer cover	Polycarbonate/Polyamide
4 = Valve-guide	Polyacetal
5 = Filtering element	Polyethylene
6 = Separation deflector	Polyacetal
Seals	NBR

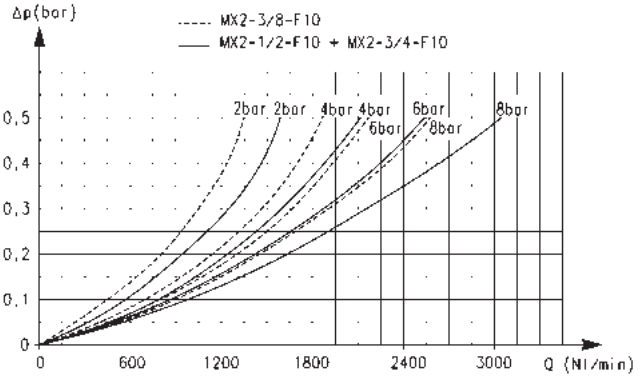
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MX2 FLOW DIAGRAMS



Reference diagram for models with filtering element = 25 µm

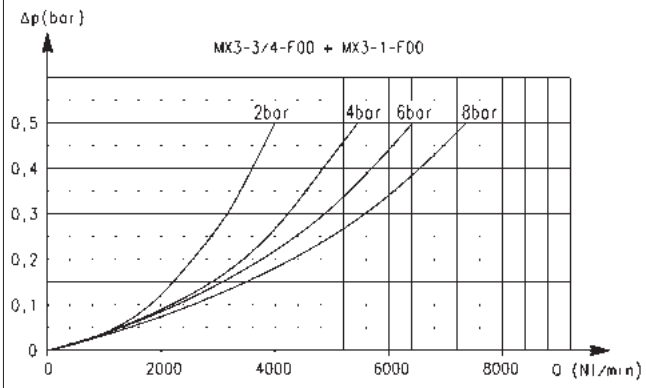
Δp = Pressure drop
Q = Flow



Reference diagram for models with filtering element = 5 µm

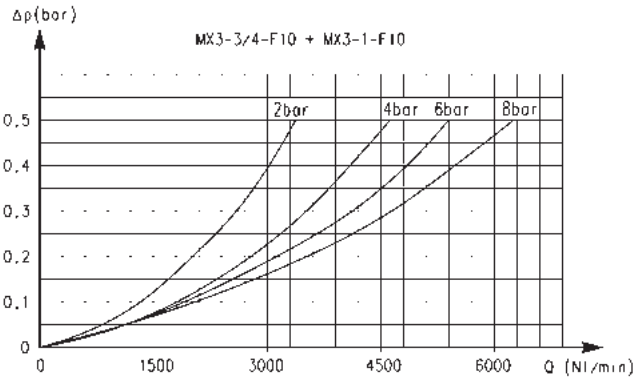
Δp = Pressure drop
Q = Flow

MX3 FLOW DIAGRAMS



Reference diagram for models with filtering element = 25 µm

Δp = Pressure drop
Q = Flow



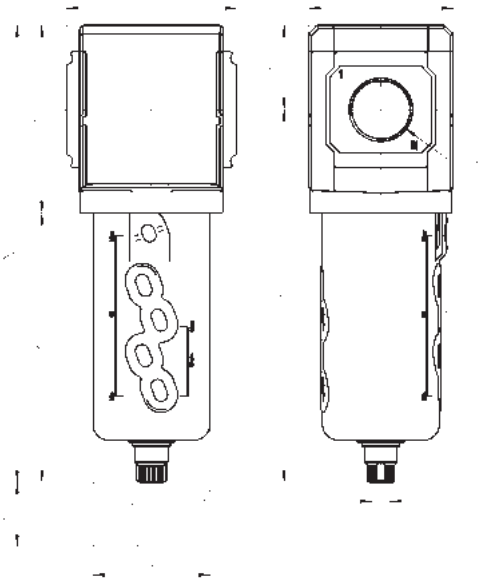
Reference diagram for models with filtering element = 5 µm

Δp = Pressure drop
Q = Flow

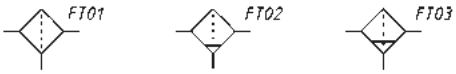
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Filters Series MX - dimensions





Mod.	A	C	G	I	L	M	N	O	R	S	T	Weight (Kg)
MX2-3/8-F00	G3/8	70	55,3	68	G1/8	57,5	212	127	85	174,5	37,5	0.5
MX2-1/2-F00	G1/2	70	55,3	68	G1/8	57,5	212	127	85	174,5	37,5	0.5
MX2-3/4-F00	G3/4	70	55,3	68	G1/8	57,5	212	127	85	174,5	37,5	0.5
MX3-3/4-F00	G3/4	89,5	61,5	76	G1/8	75	241	142	99	196,5	44,5	0.8
MX3-1-F00	G1	89,5	61,5	76	G1/8	75	241	142	99	196,5	44,5	0.8



FT01 = filter without drain with threaded port

FT02 = filter with semiautomatic manual drain

FT03 = filter with automatic or depressuring drain

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Series MX coalescing filters

MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1
Modular
Bowl with technopolymer cover and bayonet-type mounting



- High performance and compressed air purity
- Air quality according to ISO 8573-1 standard
- Cartridge filters 1 or 0,01 µm
- Manual, automatic or depressing drain
- Bowl locking system reducing the risk of accidents

MX is the new series of air treatment components realized by Camozzi, characterized by a modern, linear and compact design, offering high performances. The perfect integration between metal alloys and technopolymers has allowed the realization of a reliable product, light and strong at the same time. Thanks to a new concept of modularity, moreover, the mounting of components has become easier.

The Series MX has been realized to offer a multi-sector solution that guarantees saving in terms of installation time, space and costs. A special configurator, available on Camozzi website at http://catalogue.camozzi.com (sec. Configurators), allows the customer to choose the most suitable solution for his application, selecting single components or by configuring assembled FRLs.

GENERAL DATA

Construction	modular, compact	
Materials	see TABLE OF MATERIALS (pag. 3/1.10.02)	
Ports	MX2: G3/8 - G1/2 - G3/4 MX3: G3/4 - G1	
Condensate capacity	MX2: 55 cc MX3: 85 cc	
Mounting	vertical in-line wall-mounting (by means of clamps)	
Operating temperature	-5°C ÷ 50°C up to 16 bar (with the dew point of the fluid lower than 2°C at the min. working temperature) -5°C ÷ 60°C up to 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)	
Draining of condensate	MX2: manual-semi automatic (standard), automatic, depressurization protected, without drain with port G1/8 MX3: manual-semi automatic (standard), without drain with port G1/8	
Operating pressure	0,3 ÷ 16 bar (with automatic drain 1,5 ÷ 12 bar)	
Nominal flow	see FLOW DIAGRAMS (pag. 3/1.10.03)	
Porosity of filtering element	0,01 µm	1 µm
Residual oil content with inlet at 3 mg/m³	< 0,01mg/m³	< 0,1mg/m³
Oil retain efficiency	99,80%	97%
Particles retain efficiency	99,99999%	99,999%
Fluid	compressed air	
Pre-filtering with filtering element of 1 µm	it is recommended to use a filter of 5 µm	
Pre-filtering with filtering element of 0,01 µm	it is recommended to use a filter with residual oil of 0,1 mg/m³	

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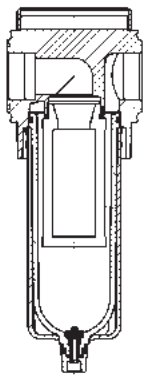
CODING EXAMPLE

MX	2	-	3/8	-	FC	0	0	-	LH

MX	SERIES
2	SIZE: 2 = G3/8 - G1/2 - G3/4 3 = G3/4 - G1
3/8	PORTS: 3/8 = G3/8 1/2 = G1/2 3/4 = G3/4 1 = G1
FC	COALESCING FILTER
0	FILTERING ELEMENT: 0 = 0,01 µm (standard) 1 = 1 µm
0	DRAINING OF CONDENSATE: 0 = semiautomatic-manual drain (standard) 3 = automatic drain 5 = depressuring drain, protected 8 = without drain, with port G1/8
LH	FLOW DIRECTION: = from left to right (standard) LH = from right to left

For the assembly of a single component with fixing flanges or wall-mounting, see the section “FRL Series MX Assembled” (pag. 3/1.50.01)

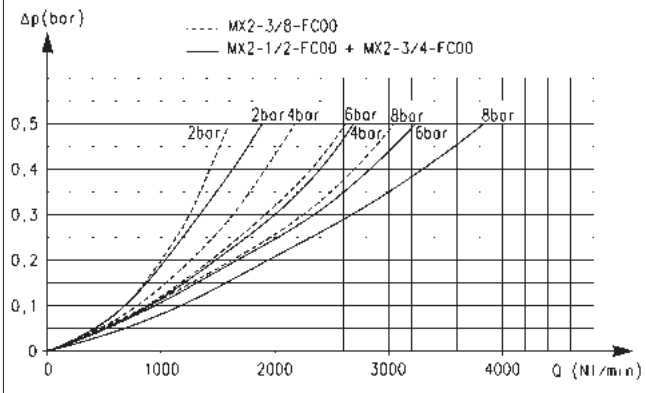
Coalescing filters Series MX - materials



PARTS	MATERIALS
1 = Body	Aluminium
2 = Covering	Polyacetal
3 = Bowl with technopolymer cover	Polycarbonate/Polyamide
4 = Filtering element	Borosilicate
Seals	NBR

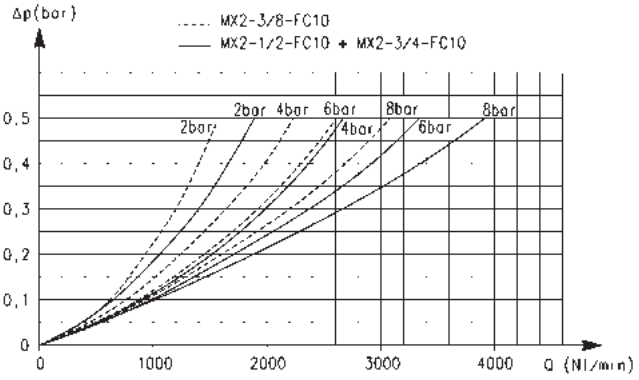
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MX2 FLOW DIAGRAMS



Reference diagram for models with filtering element = 0,01 µm

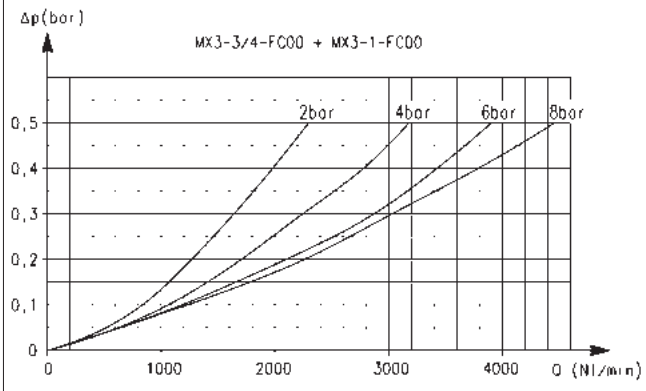
Δp = Pressure drop
Q = Flow



Reference diagram for models with filtering element = 1 µm

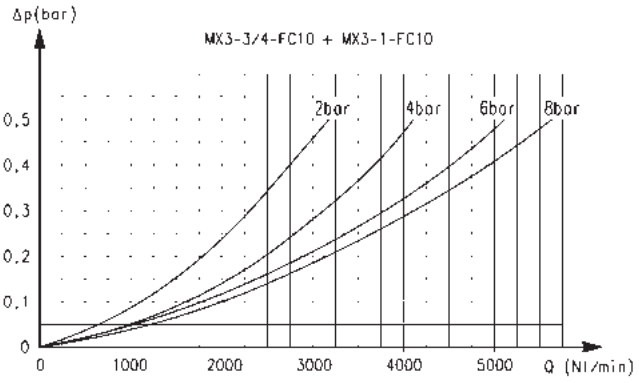
Δp = Pressure drop
Q = Flow

MX3 FLOW DIAGRAMS



Reference diagram for models with filtering element = 0,01 µm

Δp = Pressure drop
Q = Flow



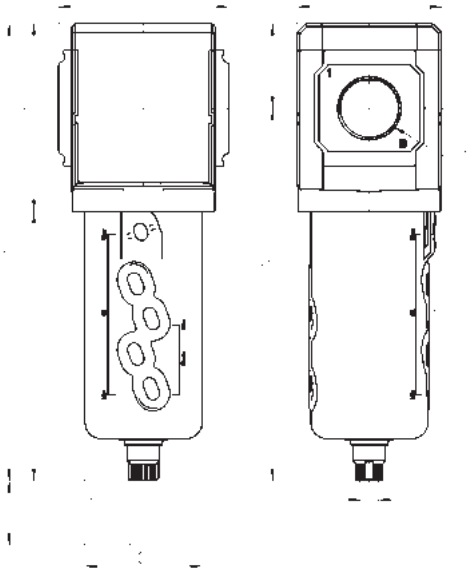
Reference diagram for models with filtering element = 1 µm

Δp = Pressure drop
Q = Flow

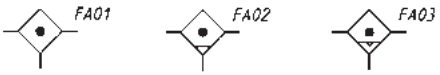
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Coalescing filters Series MX - dimensions





Mod.	A	C	G	I	L	M	N	O	R	S	T	Weight (Kg)
MX2-3/8-FC00	G3/8	70	55,3	68	G1/8	52	212	127	85	174,5	37,5	0.5
MX2-1/2-FC00	G1/2	70	55,3	68	G1/8	52	212	127	85	174,5	37,5	0.5
MX2-3/4-FC00	G3/4	70	55,3	68	G1/8	52	212	127	85	174,5	37,5	0.5
MX3-3/4-FC00	G3/4	89,5	61,5	76	G1/8	75	241	142	99	196,5	44,5	0.8
MX3-1-FC00	G1	89,5	61,5	76	G1/8	75	241	142	99	196,5	44,5	0.8



FA01 = coalescing filter without drain with threaded port

FA02 = coalescing filter with semi-automatic manual drain

FA03 = coalescing filter with automatic or depressuring drain

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General terms and conditions for sale are available on www.camozzi.com.

Series MX activated carbon filters

MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1
Modular
Bowl with technopolymer cover and bayonet-type mounting



- Removal of compressed air oil, liquid, and gas components through the active carbons
- Air quality in compliance with ISO 8573-1 standard, up to class 1.7.1
- Bowl locking system reducing the risk of accidents

MX is the new series of air treatment components realized by Camozzi, characterized by a modern, linear and compact design, offering high performances. The perfect integration between metal alloys and technopolymers has allowed the realization of a reliable product, light and strong at the same time. Thanks to a new concept of modularity, moreover, the mounting of components has become easier.

The Series MX has been realized to offer a multi-sector solution that guarantees saving in terms of installation time, space and costs. A special configurator, available on Camozzi website at http://catalogue.camozzi.com (sec. Configurators), allows the customer to choose the most suitable solution for his application, selecting single components or by configuring assembled FRLs.

GENERAL DATA

Construction	modular, compact with activated carbon filtering element
Materials	see TABLE OF MATERIALS (pag. 3/1.15.02)
Ports	MX2: G3/8 - G1/2 - G3/4 MX3: G3/4 - G1
Mounting	vertical in-line wall-mounting (by means of clamps)
Operating temperature	10°C ÷ 40°C (t max = 60°C)
Draining of condensate	NO DRAINING
Operating pressure	0,3 ÷ 16 bar
Nominal flow	see FLOW DIAGRAMS (pag. 3/1.15.03)
Filtering element	active carbon
Residual oil content	< 0,003 mg/m³
Fluid	compressed air
Pre-filtering	it is recommended to use a filter with residual oil of 0,01mg/m³

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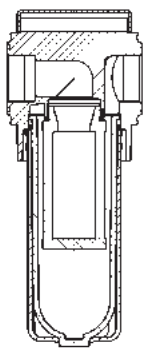
CODING EXAMPLE

MX	2	-	3/8	-	FCA	-	LH

MX	SERIES
2	SIZE: 2 = G3/8 - G1/2 - G3/4 3 = G3/4 - G1
3/8	PORT: 3/8 = G3/8 1/2 = G1/2 3/4 = G3/4 1 = G1
FCA	ACTIVATED CARBON FILTER
LH	FLOW DIRECTION: = from left to right (standard) LH = from right to left

For the assembly of a single component with fixing flanges or wall-mounting, see the section “FRL Series MX Assembled” (pag. 3/1.50.01)

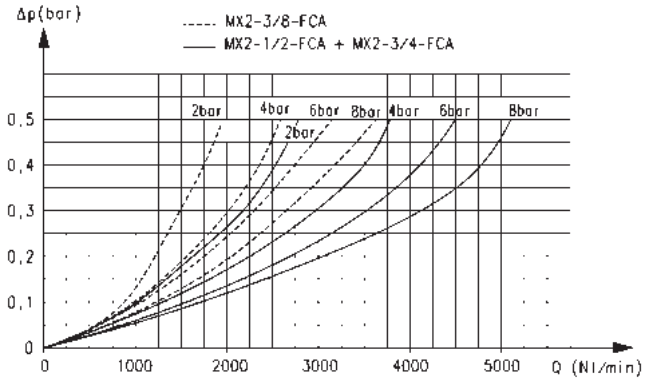
Activated carbon filters Series MX - materials



PARTS	MATERIALS
1 = Body	Aluminium
2 = Covering	Polyacetal
3 = Bowl with technopolymer cover	Polycarbonate/Polyamide
4 = Filtering element	Active carbon
Seals	NBR

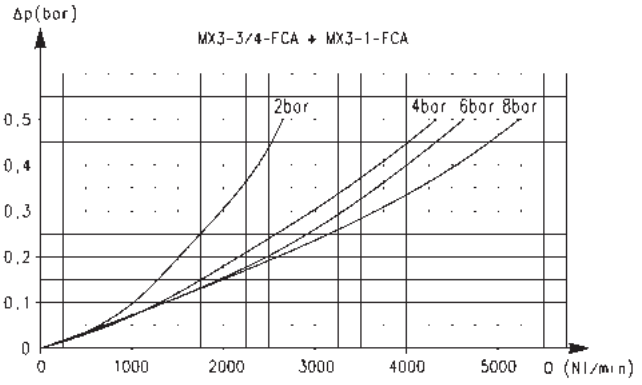
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FLOW DIAGRAMS



Reference diagram for MX2

Δp = Pressure drop
Q = Flow



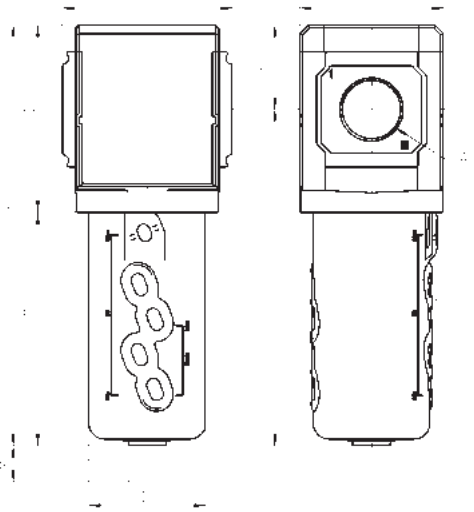
Reference diagram for MX3

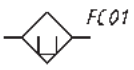
Δp = Pressure drop
Q = Flow

3 TREATMENT

Activated carbon filters Series MX - dimensions







Mod.	A	C	G	I	M	N	O	R	S	T	Weight (Kg)
MX2-3/8-FCA	G3/8	70	55,3	68	89,5	189,5	104,5	85	152	37,5	0.5
MX2-1/2-FCA	G1/2	70	55,3	68	89,5	189,5	104,5	85	152	37,5	0.5
MX2-3/4-FCA	G3/4	70	55,3	68	89,5	189,5	104,5	85	152	37,5	0.5
MX3-3/4-FCA	G3/4	89,5	61,5	76	107	222	123	99,0	177,5	44,5	0.8
MX3-1-FCA	G1	89,5	61,5	76	107	222	123	99,0	177,5	44,5	0.8

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Series MX
pressure regulators

MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1
Manifold ports: G1/2 (MX2 only)
Modular - Available with built-in pressure gauges or ports for gauges



The availability of constant values of the secondary pressure ensures performance optimization and energy saving. The tamper-proof system allows to adjust pressure safely through 2 intervals with primary pressure compensation. All regulators are equipped with an integrated locking system and built-in pressure gauges for a more compact product. The regulators Series MX are suitalbe also for panel mountings.

- Minimal pressure decreases
- Knob with closure
- Tamper-proof system (lockable regulator)
- Integral return exhaust (relieving)
- Manifold version also available

The Series MX has been realized to offer a multi-sector solution that guarantees saving in terms of installation time, space and costs. A special configurator, available on Camozzi website at http://catalogue.camozzi.com (sec. Configurators), allows the customer to choose the most suitable solution for his application, selecting single components or by configuring assembled FRLs.

GENERAL DATA

Construction	modular, compact, diaphragm type
Materials	see TABLE OF MATERIALS (pag. 3/1.20.02)
Ports	MX2: G3/8 - G1/2 - G3/4 MX3: G3/4 - G1 Manifold regulator: G1/2 (MX2 only)
Mounting	vertical in-line wall-mounting (by means of clamps) panel mouting
Operating temperature	-5°C ÷ 50°C up to 16 bar (with the dew point of the fluid lower than 2°C at the min. working temperature) -5°C ÷ 60°C up to 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Inlet pressure	0 ÷ 16 bar
Outlet pressure	0,5 ÷ 10 bar (standard) 0 ÷ 4 bar 0,5 ÷ 7 bar (MX2 only)
Overpressure exhaust	with relieving (standard) without relieving
Nominal flow	see FLOW DIAGRAMS (pag. 3/1.20.03)
Fluid	compressed air
Pressure gauge	version with built-in pressure gauge (standard) version with G1/4 ports for pressure gauge (MX3 only) version with G1/8 ports for pressure gauge (MX2 only)

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

CODING EXAMPLE

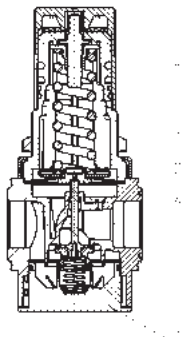
MX	2	-	3/8	-	R	0	0	4	-	LH

MX	SERIES
2	SIZE: 2 = G3/8 - G1/2 - G3/4 3 = G3/4 - G1
3/8	PORTS: 3/8 = G3/8 1/2 = G1/2 3/4 = G3/4 1 = G1
R	TYPER OF REGULATOR: R = pressure regulator M = Manifold pressure regulator (MX2 - G1/2 only)
0	OPERATING PRESSURE (1 bar = 14,5 psi) 0 = 0,5 ÷ 10 bar (standard) 4 = 0 ÷ 4 bar 7 = 0,5 ÷ 7 bar (MX2 only)
0	DESIGN TYPE: 0 = relieving (standard) 1 = without relieving
4	PRESSURE GAUGE: 0 = without pressure gauge (with threaded port for gauges) 2 = with built-in pressure gauge 0-6 and working pressure 0 ÷ 4 bar 3 = with built-in pressure gauge 0-10 and working pressure 0 ÷ 7 bar (MX2 only) 4 = with built-in pressure gauge 0-12 and working pressure 0,5 ÷ 10 bar (standard)
LH	FLOW DIRECTION: = from left to right (standard) LH = from right to left

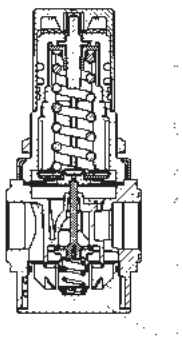
For the assembly of a single component with fixing flanges or wall-mounting, see the section “FRL Series MX Assembled” (pag. 3/1.50.01)

Pressure regulators Series MX - materials

R = pressure regulator
M = Manifold pressure regulator



R

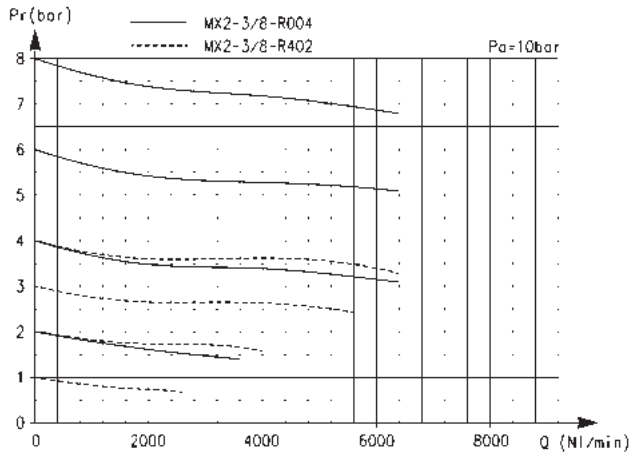


M

PARTS	MATERIALS
1 = Body	Aluminium
2 = Covering	Polyacetal
3 = Valve holder plug	Polyacetal
4 = Regulator knob	Polyamide
5 = Upper spring	Zinc-plated steel
6 = Diaphragm	NBR
7 = Lower spring	Stainless steel
Seals	NBR

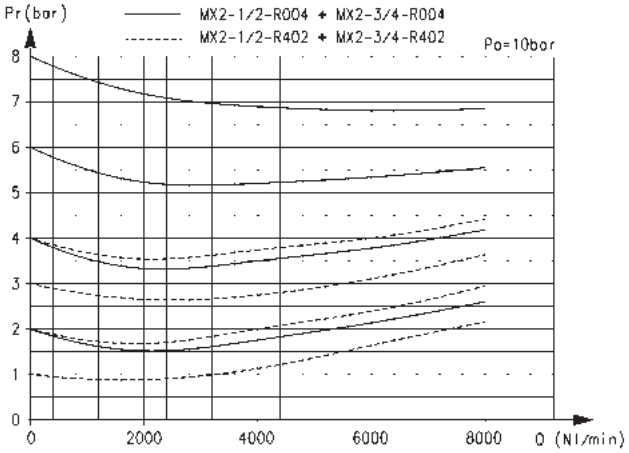
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MX2 FLOW DIAGRAMS



Pr = Regulated pressure
Q = Flow

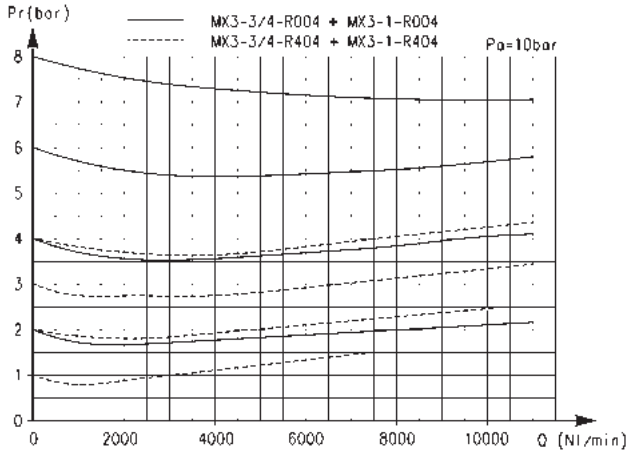
Pa = Inlet pressure



Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

MX3 FLOW DIAGRAM



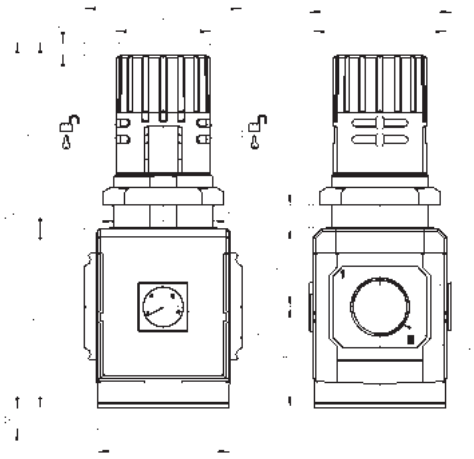
Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

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Pressure regulators Series MX - dimensions





PR01 = regulator without relieving
PR02 = regulator with relieving
PR05 = regulator without relieving and with pressure gauge
PR06 = regulator with relieving and pressure gauge



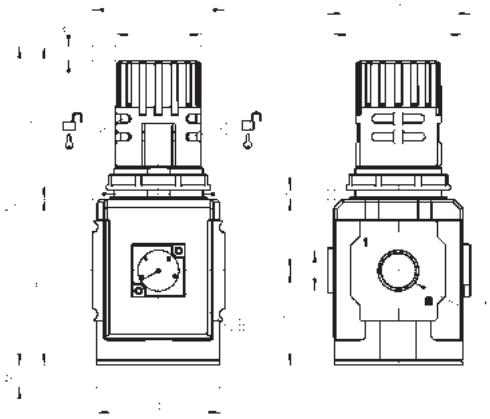
Mod.	A	B (bar)	C	D	E	F	G	H	I	M	N	P	Q	R	S	T	U	Weight (Kg)
MX2-3/8-R004	G3/8	0 ÷ 12	70	45	Ø 4	M47x1,5	70	74,5	68	45	166	78	5	88	50,5	37,5	0 ÷ 13	0.6
MX2-1/2-R004	G1/2	0 ÷ 12	70	45	Ø 4	M47x1,5	70	74,5	68	45	166	78	5	88	50,5	37,5	0 ÷ 13	0.6
MX2-3/4-R004	G3/4	0 ÷ 12	70	45	Ø 4	M47x1,5	70	74,5	68	45	166	78	5	88	50,5	37,5	0 ÷ 13	0.6
MX3-3/4-R004	G3/4	0 ÷ 12	89,5	54	Ø 4	M57x1,5	75	81	76	45	206	104	5	102	57,5	44,5	0 ÷ 20	1
MX3-1-R004	G1	0 ÷ 12	89,5	54	Ø 4	M57x1,5	75	81	76	45	206	104	5	102	57,5	44,5	0 ÷ 20	1

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MANIFOLD pressure regulator Series MX - dimensions

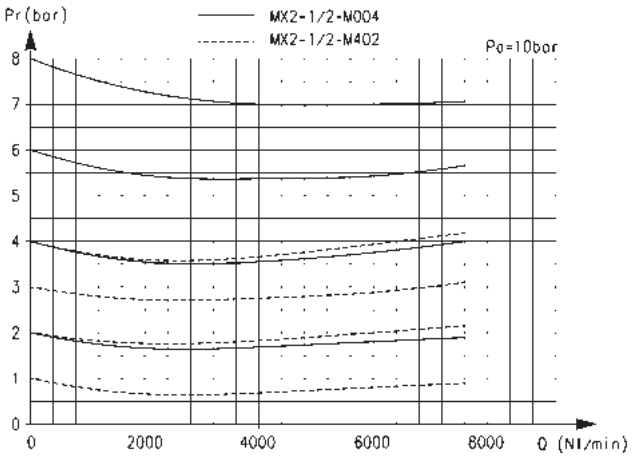


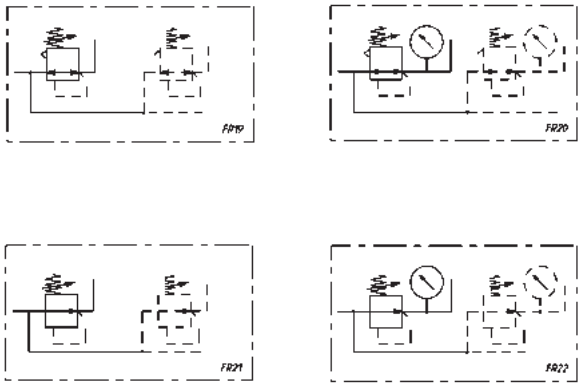
The picture on the left side shows that it is possibile to assembly a certain numer of regulators with the same inlet pressure using proper mounting kits, with or without terminals.
The regulation of the outlet pressure (OUT port) of each regulator can be set up rotating the knob clockwise or anticlockwise unitl the desired pressure is reached.
This regulation has no effect on pressures of previous or following regulators.



Mod.	A	B (bar)	C	D	E	F	G	H	I	M	N	P	Q	R	S	T	U	V (OUT)	Weight (Kg)
MX2-1/2-M004	G1/2	0 ÷ 12	70	45	Ø 4	M47x1,5	70	75,5	68	45	166	78	5	88	50,5	37,5	0 ÷ 13	G1/2	0,6

MANIFOLD REGULATOR - FLOW DIAGRAM and PNEUMATIC SYMBOLS





Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

FR19 = Manifold regulator with relieving and without manometer
FR20 = Manifold regulator with relieving and manometer
FR21 = Manifold regulator without relieving nor manometer
FR22 = Manifold regulator without relieving and with manometer

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series MX lubricators

MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1
Modular
Bowl with technopolymer cover and bayonet-type mounting



- Regulation screw
- Ability to refill the oil even with system under pressure
- High flow
- Check of the oil level through plastic cover openings
- Bowl locking system reducing the risk of accidents

MX is the new series of air treatment components realized by Camozzi, characterized by a modern, linear and compact design, offering high performances. The perfect integration between metal alloys and technopolymers has allowed the realization of a reliable product, light and strong at the same time. Thanks to a new concept of modularity, moreover, the mounting of components has become easier.
These proportional lubricators enable a precision metering.

The Series MX has been realized to offer a multi-sector solution that guarantees saving in terms of installation time, space and costs. A special configurator, available on Camozzi website at http://catalogue.camozzi.com (sec. Configurators), allows the customer to choose the most suitable solution for his application, selecting single components or by configuring assembled FRLs.

GENERAL DATA

Construction	modular, compact
Materials	see TABLE OF MATERIALS (pag. 3/1.25.02)
Ports	MX2: G3/8 - G1/2 - G3/4 MX3: G3/4 - G1
Oil capacity	MX2: 118 cc MX3: 170 cc
Oil refilling	even during use
Mounting	vertical in-line wall-mounting (by means of clamps)
Operating temperature	-5°C ÷ 50°C up to 16 bar (with the dew point of the fluid lower than 2°C at the min. working temperature) -5°C ÷ 60°C up to 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Oil for lubrication	use ISO VG32 oils. Once applied, the lubrication should never be interrupted.
Operating pressure	0 ÷ 16 bar
Min. air consumption for lubrication at 1 bar	MX2: 17 Nl/min MX3: 50 Nl/min
Min. air consumption for lubrication at 6 bar	MX2: 38 Nl/min MX3: 90 Nl/min
Nominal flow	see FLOW DIAGRAMS (pag 3/1.25.03)

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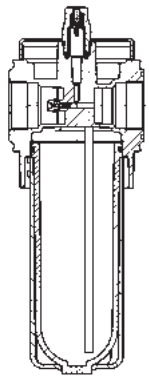
CODING EXAMPLE

MX	2	-	3/8	-	L	00	-	LH

MX	SERIES
2	SIZE: 2 = G3/8 - G1/2 - G3/4 3 = G3/4 - G1
3/8	PORT: 1/2 = G1/2 3/4 = G3/4 1 = G1
L	LUBRICATOR
00	DESIGN TYPE: 00 = atomized oil
LH	FLOW DIRECTION: = from left to right (standard) LH = from right to left

For the assembly of a single component with fixing flanges or wall-mounting, see the section “FRL Series MX Assembled” (pag. 3/1.50.01)

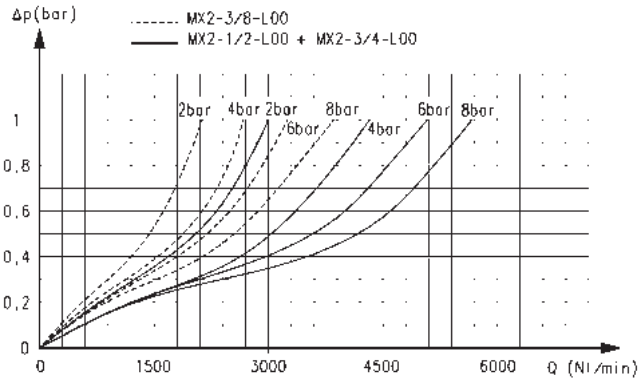
Lubricators Series MX - materials



PARTS	MATERIALS
1 = Body	Aluminium
2 = Covering	Polyacetal
3 = Bowl with technopolymer cover	Polycarbonate/Polyamide
4 = Diaphragm	NBR
5 = Viewer	Polyamide
Seals	NBR

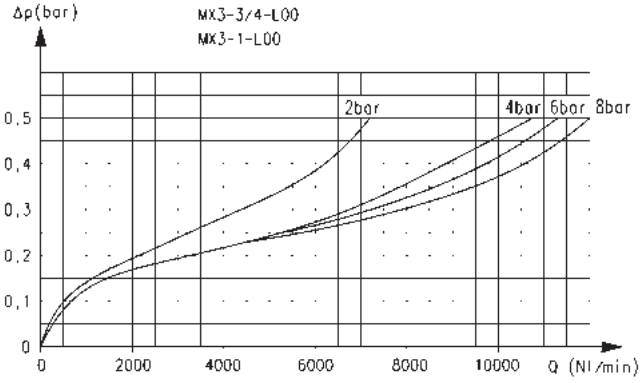
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FLOW DIAGRAMS



Reference diagram for MX2

Δp = Pressure drop
Q = Flow



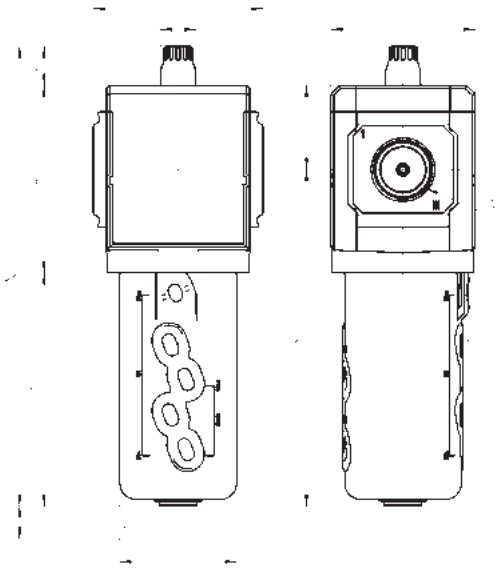
Reference diagram for MX3

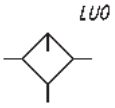
Δp = Pressure drop
Q = Flow

3 TREATMENT

Lubricators Series MX - dimensions







Mod.	A	C	D	G	I	M	N	O	P	R	S	T	Weight (Kg)
MX2-3/8-L00	G3/8	70	18,5	55,5	68	84,5	210	104,5	20,5	85	152	37,5	0.5
MX2-1/2-L00	G1/2	70	18,5	55,5	68	84,5	210	104,5	20,5	85	152	37,5	0.5
MX2-3/4-L00	G3/4	70	18,5	55,5	68	84,5	210	104,5	20,5	85	152	37,5	0.5
MX3-3/4-L00	G3/4	89,5	18,5	61,5	76	100	243	123	21	99	178	44,5	0.8
MX3-1-L00	G1	89,5	18,5	61,5	76	100	243	123	21	99	178	44,5	0.8

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Series MX filter-regulators

MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1
Modular
Bowl with technopolymer cover and bayonet-type mounting



- Filtering between 25 µm or 5 µm
- Available versions: with built-in gauge or with ports for gauge
- Lockable knob with closure
- Bowl locking system reducing the risk of accidents

Series MX filter-regulators integrate filter and pressure reducer in one unit. They are, therefore, compact and suitable for pre-filtering functions.
Available with or without draining (relieving), they are equipped with a valve diaphragm for a direct pressure regulation and with an integrated condensate drainer, manual or automatic. Moreover, they are equipped with a built-in pressure gauge.

The Series MX has been realized to offer a multi-sector solution that guarantees saving in terms of installation time, space and costs. A special configurator, available on Camozzi website at http://catalogue.camozzi.com (sec. Configurators), allows the customer to choose the most suitable solution for his application, selecting single components or by configuring assembled FRLs.

GENERAL DATA

Construction	modular, compact with filtering element in HDPE
Materials	see TABLE OF MATERIALS (pag. 3/1.30.02)
Ports	MX2: G3/8 - G1/2 - G3/4 MX3: G3/4 - G1
Condensate capacity	MX2: 55 cc MX3: 85 cc
Mounting	vertical in-line wall-mounting (by means of clamps) panel mounting
Operating temperature	-5°C ÷ 50°C up to 16 bar (with the dew point of the fluid lower than 2°C at the min. working temperature) -5°C ÷ 60°C up to 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Porosity of filtering element	25 µm (standard) 5 µm
Draining of condensate	MX2: manual-semi automatic (standard), automatic, depressurization protected, without drain with port G1/8 MX3: manual-semi automatic (standard), without drain with port G1/8
Operating pressure	0,3 ÷ 16 bar ((with automatic drain 1,5 ÷ 12)
Nominal flow	see FLOW DIAGRAMS (pag. 3/1.30.03)
Fluid	compressed air
Pressure gauge	version with built-in pressure gauge (standard) version with G1/4 ports for pressure gauge (MX3 only) version with G1/8 ports for pressure gauge (MX2 only)

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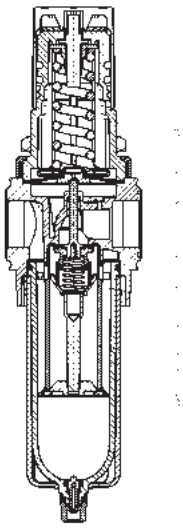
CODING EXAMPLE

MX	2	-	3/8	-	FR	0	0	0	4	-	LH

MX	SERIES
2	SIZE: 2 = G3/8 - G1/2 - G3/4 3 = G3/4 - G1
3/8	PORT: 3/8 = G3/8 1/2 = G1/2 3/4 = G3/4 1 = G1
FR	FILTER-REGULATOR
0	FILTERING ELEMENT WITH DESIGN TYPE: 0 = 25 µm with relieving (standard) 1 = 5 µm with relieving 2 = 25 µm without relieving (with semiautomatic-manual drain only) 3 = 5 µm without relieving (with semiautomatic-manual drain only)
0	DRAINING OF CONDENSATE: 0 = semiautomatic-manual drain (standard) 3 = automatic drain 5 = depressuring drain, protected 8 = without drain, with port G1/8
0	OPERATING PRESSURE: 0 = 0,5 ÷ 10 bar (standard) 4 = 0 ÷ 4 bar 7 = 0,5 ÷ 7 bar (MX2 only)
4	PRESSURE GAUGE: 0 = without pressure gauge(with threaded port) 2 = with built-in pressure gauge 0-6 and working pressure 0 ÷ 4 bar 3 = with built-in pressure gauge 0-10 and working pressure 0 ÷ 7 bar (MX2 only) 4 = with built-in pressure gauge 0-12 and working pressure 0,5 ÷ 10 bar (standard)
LH	FLOW DIRECTION: = from left to right (standard) LH = from right to left

For the assembly of a single component with fixing flanges or wall-mounting, see the section “FRL Series MX Assembled” (pag. 3/1.50.01)

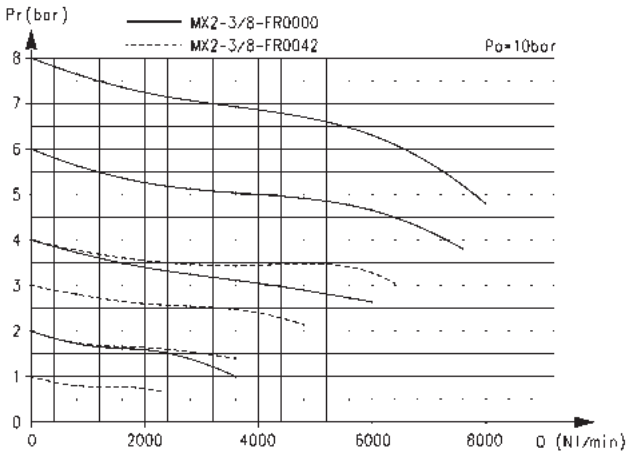
Filter-regulators Series MX - materials



PARTS	MATERIALS
1 = Body	Aluminium
2 = Covering	Polyacetal
3 = Bowl with technopolymer cover	Polycarbonate/Polyamide
4 = Valve guide	Polyacetal
5 = Filtering element	Polyethylene
6 = Separation deflector	Polyacetal
7 = Knob	Polyamide
8 = Upper spring	Zinc-plated steel
9 = Diaphragm	NBR
10 = Lower spring	Stainless steel
Seals	NBR

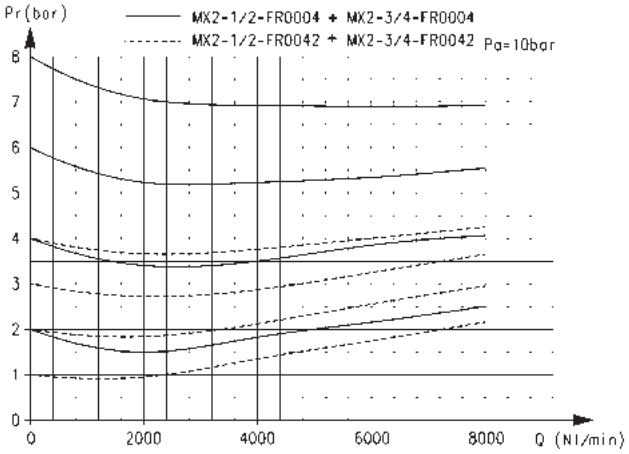
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MX2 FLOW DIAGRAMS



Pr = Regulated pressure
Q = Flow

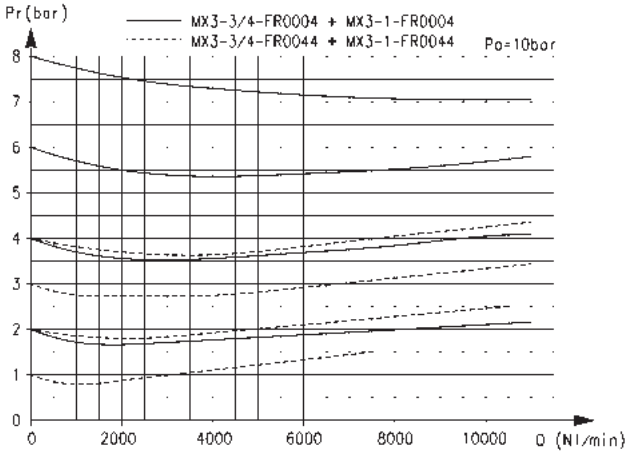
Pa = Inlet pressure



Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

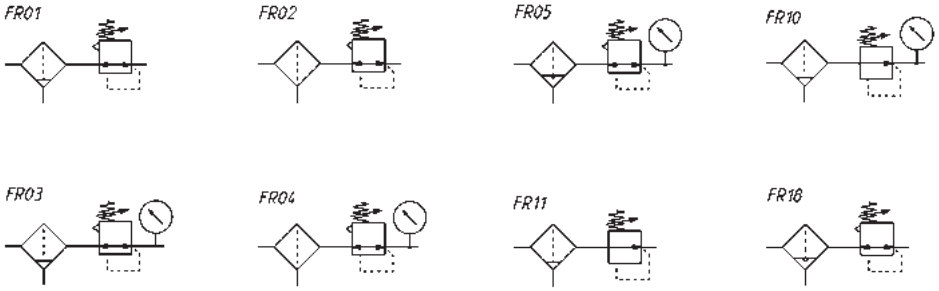
MX3 FLOW DIAGRAM



Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

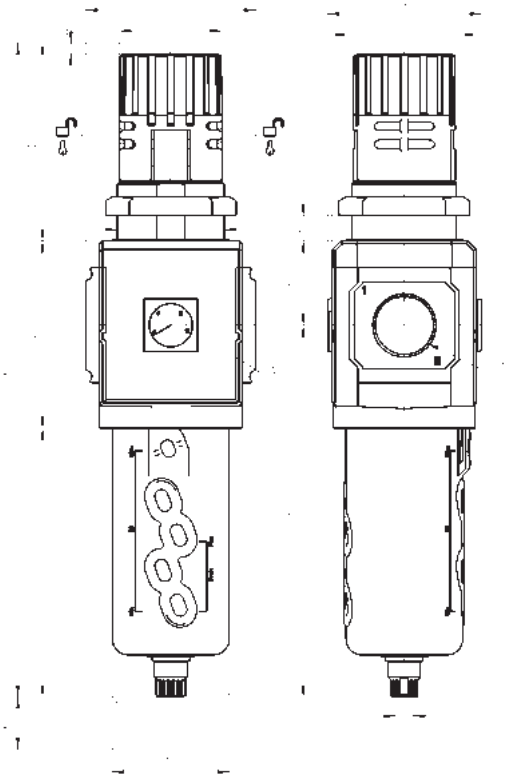
PNEUMATIC SYMBOLS



FR01 = filter-regulator with relieving and manual drain
FR02 = filter-regulator with relieving and without drain
FR03 = filter-regulator with relieving, manual drain and pressure gauge
FR04 = filter-regulator with relieving, without drain and with pressure gauge
FR05 = filter-regulator with relieving, automatic drain and pressure gauge
FR10 = filter-regulator with manual drain, without relieving and with pressure gauge
FR11 = filter-regulator with manual drain and wiithout relieving
FR18 = filter-regulator with relieving and automatic drain

Filter-regulators Series MX - dimensions





Mod.	A	B (bar)	C	D	E	F	G	H	I	L	M	N	O	P	Q	R	S	T	U	Weight (Kg)
MX2-3/8-FR0004	G3/8	0 ÷ 12	70	45	Ø 4.7	M47x1,5	55,5	74,5	68	G1/8	66	290	127	78	5	85	174,5	37,5	0 ÷ 16	0.8
MX2-1/2-FR0004	G1/2	0 ÷ 12	70	45	Ø 4.7	M47x1,5	55,5	74,5	68	G1/8	66	290	127	78	5	85	174,5	37,5	0 ÷ 16	0.8
MX2-3/4-FR0004	G3/4	0 ÷ 12	70	45	Ø 4.7	M47x1,5	55,5	74,5	68	G1/8	66	290	127	78	5	85	174,5	37,5	0 ÷ 16	0.8
MX3-3/4-FR0004	G3/4	0 ÷ 12	89,5	54	Ø 4	M57x1,5	61,5	81	76	G1/8	75	345	142	104	5	99	196,5	44,5	0 ÷ 20	1.3
MX3-1-FR0004	G1	0 ÷ 12	89,5	54	Ø 4	M57x1,5	61,5	81	76	G1/8	75	345	142	104	5	99	196,5	44,5	0 ÷ 20	1.3

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Series MX
lockable isolation 3/2-way valves

MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1
Modular
Manual, electro-pneumatic, servo-pilot and pneumatic control



Manual isolation valves are ideal to allow an easy access to the FRL group. The system is depressurized with the de-activation of the valve.
Electropneumatic isolation valves: ideal where manual access is difficult, they allow a maximum positioning flexibility and are designed to pressurize or depressurize pneumatic systems. The built-in manual override guarantees security in case of an emergency.

- Standard tamperproof lock-out (manual valve)
- One/more locks for the lock-out feature (manual valve)
- Actuation at 24 V, 110 V or 230 V
- Exhaust in atmosphere
- Silencers available on request

The Series MX has been realized to offer a multi-sector solution that guarantees saving in terms of installation time, space and costs. A special configurator, available on Camozzi website at http://catalogue.camozzi.com (sec. Configurators), allows the customer to choose the most suitable solution for his application, selecting single components or by configuring assembled FRLs.

GENERAL DATA

Construction	modular, compact, spool-type
Materials	see TABLE OF MATERIALS (pag. 3/1.35.02)
Ports	MX2: G3/8 - G1/2 - G3/4 MX3: G3/4 - G1
Mounting	in-line wall-mounting (by means of clamps)
Operating temperature	-5°C ÷ 50°C up to 16 bar (with the dew point of the fluid lower than 2°C at the min. working temperature) -5°C ÷ 60°C up to 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Operating pressure	Manual valve: -0,8 bar ÷ 10 bar Electro-pneumatic valve: 2 bar ÷ 10 bar Servopilot or pneumatic valve: -0,8 bar ÷ 10 bar (with pilot 2 ÷ 10 bar)
Nominal flow	see FLOW DIAGRAMS (pag. 3/1.35.03 e 3/1.35.04)
Nominal exhaust flow at 6 bar with Δp = 1 bar	MX2: 6000 Nl/min MX3: 9200 Nl/min
Fluid	compressed air

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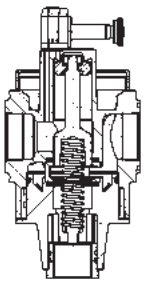
CODING EXAMPLE

MX	2	-	3/8	-	V	01	-	LH

MX	SERIES
2	SIZE: 2 = G3/8 - G1/2 - G3/4 3 = G3/4 - G1
3/8	PORT: 3/8 = G3/8 1/2 = G1/2 3/4 = G3/4 1 = G1
V	3/2-WAY VALVE
01	DESIGN TYPE: 01 = lockable manual control 16 = electro-pneumatic control 17 = servo-pilot control 36 = pneumatic control
LH	FLOW DIRECTION: = from left to right (standard) LH = from right to left

For the assembly of a single component with fixing flanges or wall-mounting, see the section “FRL Series MX Assembled” (pag. 3/1.50.01)

Lockable isolation 3/2-way valves Series MX - materials



PARTS	MATERIALS
1 = Body	Aluminium
2 = Covering	Polyacetal
3 = Valve holder plug	Polyacetal
4 = Lower spring	Zinc-plated steel
5 = Spool	Stainless steel (MX...V16 - V17 - V36) Aluminium (MX...V01)
Seals	NBR

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NOMINAL FLOW DIAGRAM for valves Mod. MX...V01

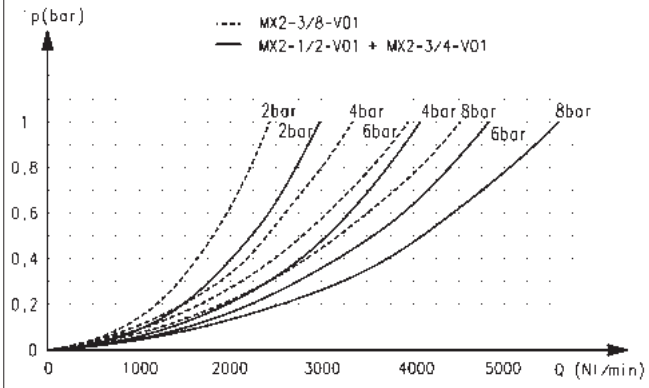


Diagram for lockable manual control valves MX2

Δp = Pressure drop
Q = Flow

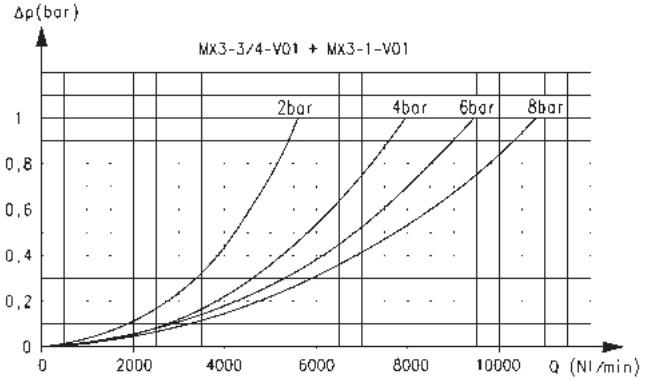


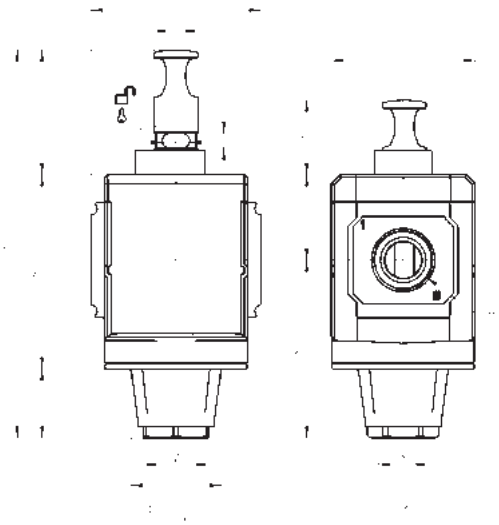
Diagram for lockable manual control valves MX3

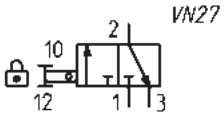
Δp = Pressure drop
Q = Flow

Lockable manual valves Series MX - dimensions

Fig. 1 = closed valve
Fig. 2 = open valve







Mod.	A	B	C	F	G	I	L	M	N	O	P	Q	R	S	SW	T	Weight (Kg)
MX2-3/8-V01	G3/8	G 1/2	70	18	34,5	68	9	8	152	13	51	31	88	63,5	27	37,5	0.5
MX2-1/2-V01	G 1/2	G 1/2	70	18	34,5	68	9	8	152	13	51	31	88	63,5	27	37,5	0.5
MX2-3/4-V01	G3/4	G 1/2	70	18	34,5	68	9	8	152	13	51	31	88	63,5	27	37,5	0.5
MX3-3/4-V01	G3/4	G3/4	89,5	23	48	76	8	14,5	205,5	37	66,5	40	102	94,5	34	44,5	0.9
MX3-1-V01	G1	G3/4	89,5	23	48	76	8	14,5	205,5	37	66,5	40	102	94,5	34	44,5	0.9

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NOMINAL FLOW DIAGRAM for valves Mod. MX...V16 and MX...V36

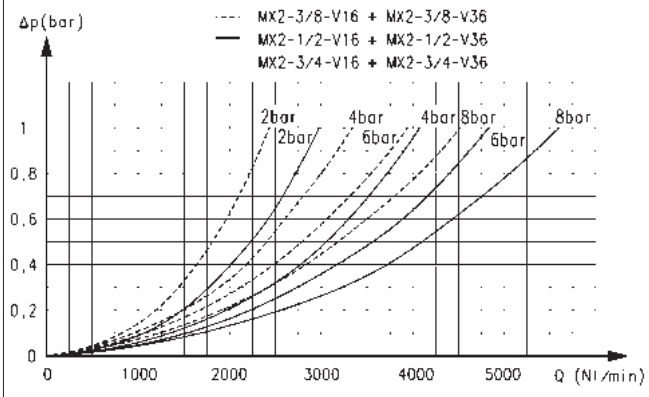


Diagram for electro-pneumatic or pneumatic control valves MX2

Δp = Pressure drop
Q = Flow

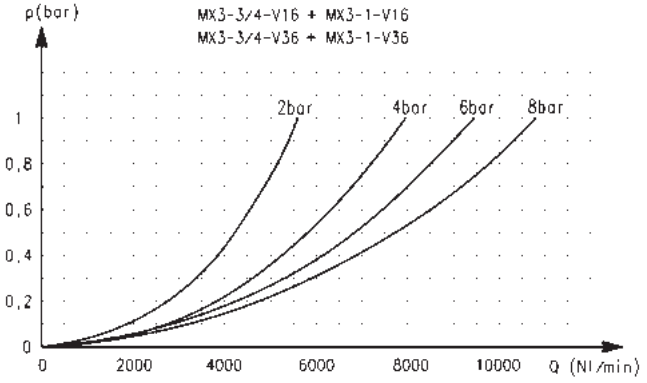


Diagram for electro-pneumatic or pneumatic control valves MX3

Δp = Pressure drop
Q = Flow

3 TREATMENT

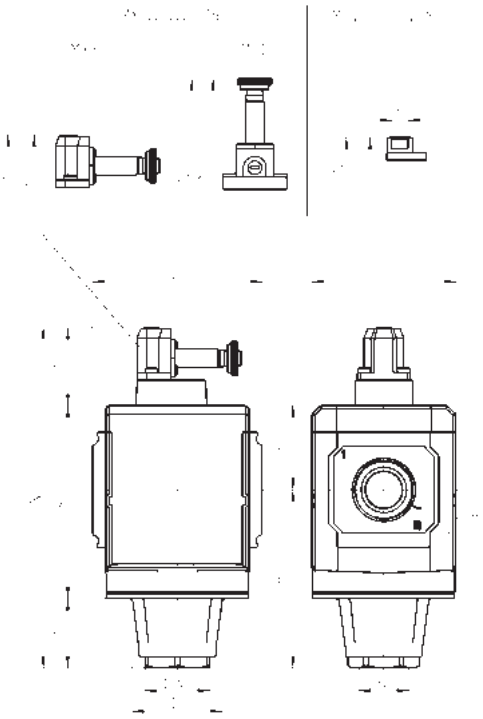
3/2-way isolation valves Series MX - dimensions

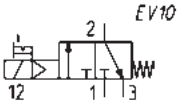
Electro-pneumatic or pneumatic valves

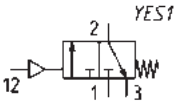


EV10 = solenoid valve, 3/2 NC, monostable, with bistable manual override

YES1 = pneumatically operated valve, 3/2, monostable, mechanical spring







Mod.	A	B	C	G	I	N	O	P	R	S	SW	T	Y	Weight (Kg)	Symbol
MX2-3/8-V16	G3/8	G1/2	70	34,5	68	171	13	70	88	63,5	34	37,5	-	0.5	EV10
MX2-1/2-V16	G1/2	G1/2	70	34,5	68	171	13	70	88	63,5	34	37,5	-	0.5	EV10
MX2-3/4-V16	G3/4	G1/2	70	34,5	68	171	13	70	88	63,5	34	37,5	-	0.5	EV10
MX2-3/8-V36	G3/8	G1/2	70	34,5	68	122	13	21	88	63,5	34	37,5	G1/8	0.5	YES1
MX2-1/2-V36	G1/2	G1/2	70	34,5	68	122	13	21	88	63,5	34	37,5	G1/8	0.5	YES1
MX2-3/4-V36	G3/4	G1/2	70	34,5	68	122	13	21	88	63,5	34	37,5	G1/8	0.5	YES1
MX3-3/4-V16	G3/4	G3/4	89,5	48	76	180,5	37	41,5	102	94,5	34	44,5	-	0.9	EV10
MX3-1-V16	G1	G3/4	89,5	48	76	180,5	37	41,5	102	94,5	34	44,5	-	0.9	EV10
MX3-3/4-V36	G3/4	G3/4	89,5	48	76	164	37	25,5	102	94,5	34	44,5	G1/8	0.9	YES1
MX3-1-V36	G1	G3/4	89,5	48	76	164	37	25,5	102	94,5	34	44,5	G1/8	0.9	YES1

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FLOW DIAGRAM for valves Mod. MX...V17

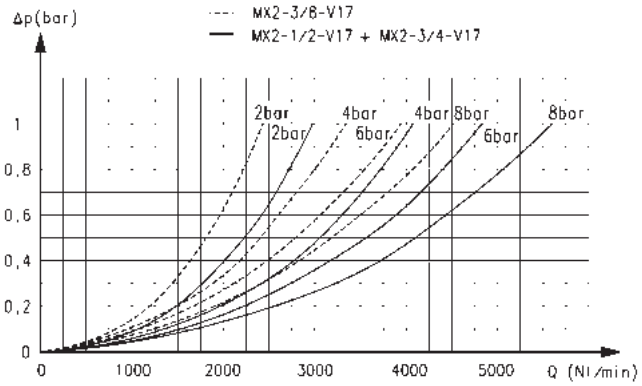


Diagram for servo-pilot control valves MX2

Δp = Pressure drop
Q = Flow

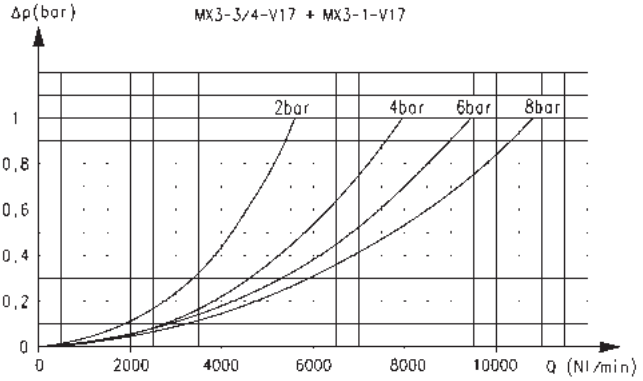


Diagram for servo-pilot control valves MX3

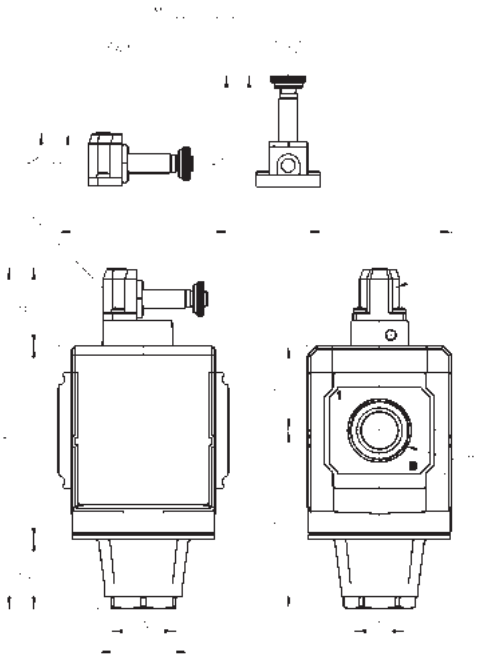
Δp = Pressure drop
Q = Flow

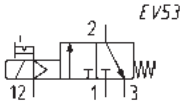
3/2-way isolation valves Series MX - dimensions

Servo-pilot valves



EV53 = solenoid valve, 3/2, monostable,
solenoid pilot with separate air supply and
bistable manual override





Mod.	A	B	C	G	I	N	O	P	R	S	SW	T	X	Weight (Kg)
MX2-3/8-V17	G3/8	G1/2	70	34,5	68	171	13	70	88	63,5	34	37,5	M5	0.5
MX2-1/2-V17	G1/2	G1/2	70	34,5	68	171	13	70	88	63,5	34	37,5	M5	0.5
MX2-3/4-V17	G3/4	G1/2	70	34,5	68	171	13	70	88	63,5	34	37,5	M5	0.5
MX3-3/4-V17	G3/4	G3/4	89,5	48	76	180,5	37	41,5	102	94,5	34	44,5	M5	0.9
MX3-1-V17	G1	G3/4	89,5	48	76	180,5	37	41,5	102	94,5	34	44,5	M5	0.9

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Series MX soft start valves

MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1
Modular



- Security function to maintain the command sequence
- Opening of the main air path at about 50% of the value of the inlet pressure
- Pressure switches available on request

These soft start valves allow a gradual increase of the pressure in pneumatic systems. The pressure increases slowly according to the set regulation until it reaches half of the set value, then it increases rapidly. The valve poppet shifts slowly and securely to the open position to prevent sudden and unsafe movements of the pneumatic components in the system.

The Series MX has been realized to offer a multi-sector solution that guarantees saving in terms of installation time, space and costs. A special configurator, available on Camozzi website at http://catalogue.camozzi.com (sec. Configurators), allows the customer to choose the most suitable solution for his application, selecting single components or by configuring assembled FRLs.

GENERAL DATA

Construction	modular, compact, poppet-type
Materials	see TABLE OF MATERIALS (pag. 3/1.40.02)
Ports	MX2: G3/8 - G1/2 - G3/4 MX3: G3/4 - G1
Mounting	in-line wall-mounting (by means of clamps)
Operating temperature	-5°C ÷ 50°C up to 16 bar (with the dew point of the fluid lower than 2°C at the min. working temperature) -5°C ÷ 60°C up to 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Operating pressure	2 ÷ 16 bar
Nominal flow (at 6 bar with ΔP 1 bar)	MX2: 5800 l/min (G1/2, G3/4) MX2: 4500 l/min (G3/8) MX3: 8500 l/min
Fluid	compressed air

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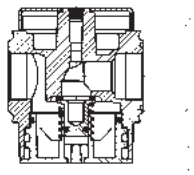
CODING EXAMPLE

MX	2	-	3/8	-	AV	-	LH

MX	SERIES
2	SIZE: 2 = G3/8 - G1/2 - G3/4 3 = G3/4 - G1
3/8	PORT: 3/8 = G3/8 1/2 = G1/2 3/4 = G3/4 1 = G1
AV	SOFT START VALVE
LH	FLOW DIRECTION: = from left to right (standard) LH = from right to left

For the assembly of a single component with fixing flanges or wall-mounting, see the section “FRL Series MX Assembled” (pag. 3/1.50.01)

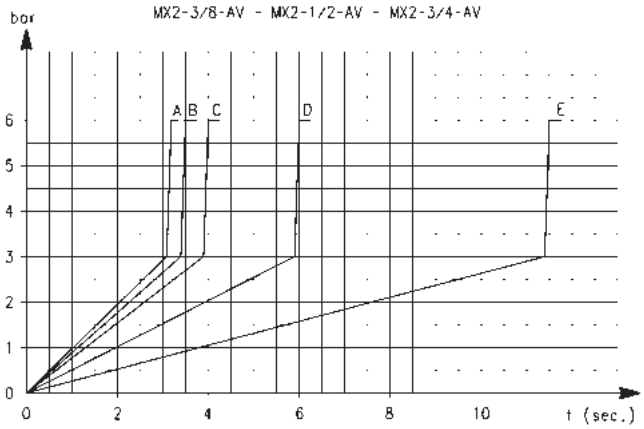
Soft start valves Series MX - materials

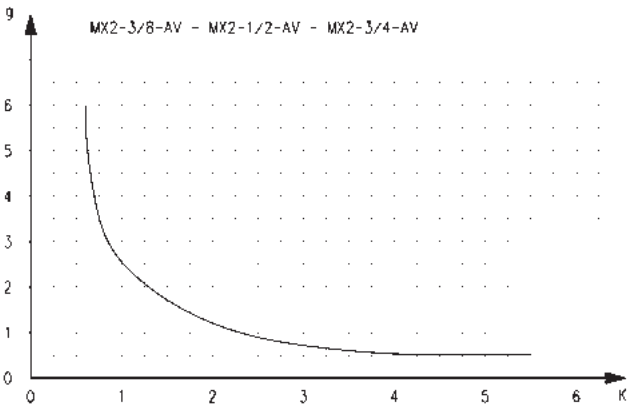


PARTS	MATERIALS
1 = Body	Aluminium
2 = Covering	Polyacetal
3 = Valve holder plug	Polyacetal
4 = Lower spring	Stainless steel
Seals	NBR

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MX2 DIAGRAMS FOR PRESSURISATION TIMES



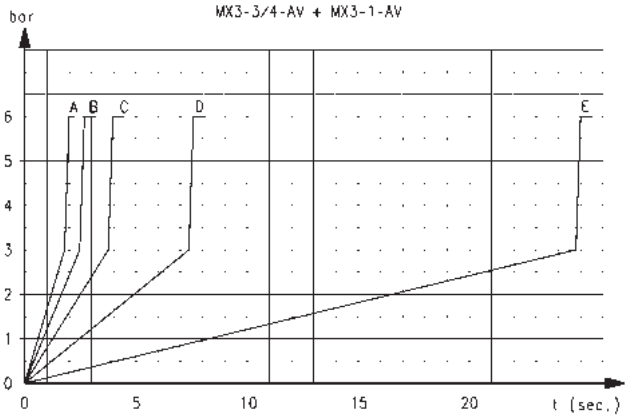


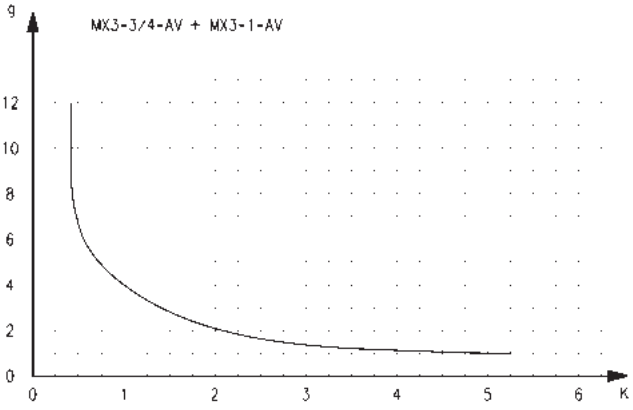
Pressurisation times as to the number of turns of the regulation screw, with downstream volume of 5 litres. A = 5 turns - B = 4 turns - C = 3 turns - D = 2 turns - E = 1 turn. K = number of turns of the regulation screw required to obtain the required pressurisation time with an inlet pressure of 6 bar. Variations of the inlet pressure can cause deviations of the pressure time by ± 20%. K = t/V where: V = volume of the downstream system in litres; t = desired pressuring time in seconds.

EXAMPLE:
V = 5 litres
t = 16 seconds
K = 16/5 = 3,2

Using in the graph this value K, the number of turns of the regulation screw will be approx. 0,8.

MX3 DIAGRAMS FOR PRESSURISATION TIMES





Pressurisation times as to the number of turns of the regulation screw, with downstream volume of 5 litres. A = 5 turns - B = 4 turns - C = 3 turns - D = 2 turns - E = 1 turn. K = number of turns of the regulation screw required to obtain the required pressurisation time with an inlet pressure of 6 bar. Variations of the inlet pressure can cause deviations of the pressure time by ± 20%. K = t/V where: V = volume of the downstream system in litres; t = desired pressuring time in seconds.

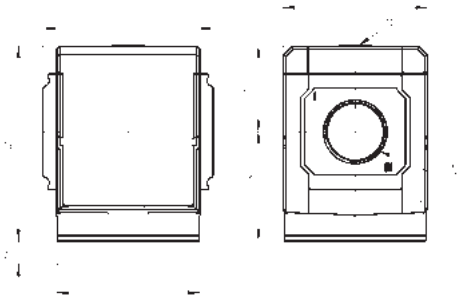
EXAMPLE:
V = 5 litres
t = 16 seconds
K = 16/5 = 3,2

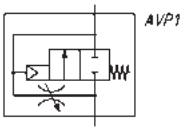
Using in the graph this value K, the number of turns of the regulation screw will be approx. 1,8.

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Soft start valves Series MX - dimensions







Mod.	A	B	C	G	I	M	R	S	T	Weight (Kg)
MX2-3/8-AV	G3/8	G1/8	70	65	68	46,5	88	50,5	37,5	0.4
MX2-1/2-AV	G1/2	G1/8	70	65	68	46,5	88	50,5	37,5	0.4
MX2-3/4-AV	G3/4	G1/8	70	65	68	46,5	88	50,5	37,5	0.4
MX3-3/4-AV	G3/4	G1/8	89,5	75	76	48	102	57,5	44,5	0.7
MX3-1-AV	G1	G1/8	89,5	75	76	48	102	57,5	44,5	0.7

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Series MX take-off blocks

MX2 port: G1/2 - MX3 port: G1
Modular



- Compact design
- Available with or without VNR (no return valve)
- Pressure switches available on request

The Series MX has been realized to offer a multi-sector solution that guarantees saving in terms of installation time, space and costs. A special configurator, available on Camozzi website at http://catalogue.camozzi.com (sec. Configurators), allows the customer to choose the most suitable solution for his application, selecting single components or by configuring assembled FRLs.

The Take-off blocks, when equipped with a no return valve, can be used to bleed non lubricated air.

GENERAL DATA

Construction	modular, compact, diaphragm-type
Materials	see TABLE OF MATERIALS (pag. 3/1.45.02)
Ports	MX2: G1/2 MX3: G1
Take-off ports	MX2: G1/2 MX3: G1
Mounting	in-line wall-mounting (by means of clamps)
Operating temperature	-5°C ÷ 50°C up to 16 bar (with the dew point of the fluid lower than 2°C at the min. working temperature) -5°C ÷ 60°C up to 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Operating pressure	0 ÷ 16 bar
Nominal flow at 6 bar with Δp = 1 bar	MX2-1/2-B00 = 6800 Nl/min MX2-1/2-B01 = 5700 Nl/min MX3-1-B00 = 14500 Nl/min MX3-1-B01 = 10500 Nl/min
Fluid	compressed air

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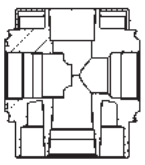
CODING EXAMPLE

MX	2	-	1/2	-	B	00	-	LH

MX	SERIES
2	SIZE: 2 = G1/2 3 = G1
1/2	PORT: 2 = G1/2 3 = G1
B	TAKE-OFF BLOCK
00	DESIGN TYPE: 00 = without no return valve (standard) 01 = with no return valve 02 = without no return valve, with double O-ring seat
LH	FLOW DIRECTION: = from left to right (standard) LH = from right to left

For the assembly of a single component with fixing flanges or wall-mounting, see the section “FRL Series MX Assembled” (pag. 3/1.50.01)

Take-off blocks Series MX - materials



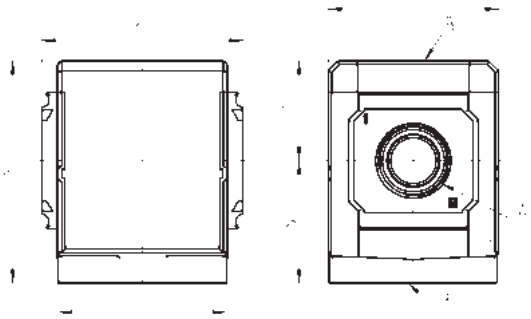
PARTS	MATERIALS
1 = Body	Aluminium
2 = Covering	Polyacetal
Seals	NBR

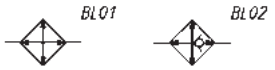
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Series MX take-off blocks - dimensions

TABLE NOTE:
* to complete the code see the CODING EXAMPLE





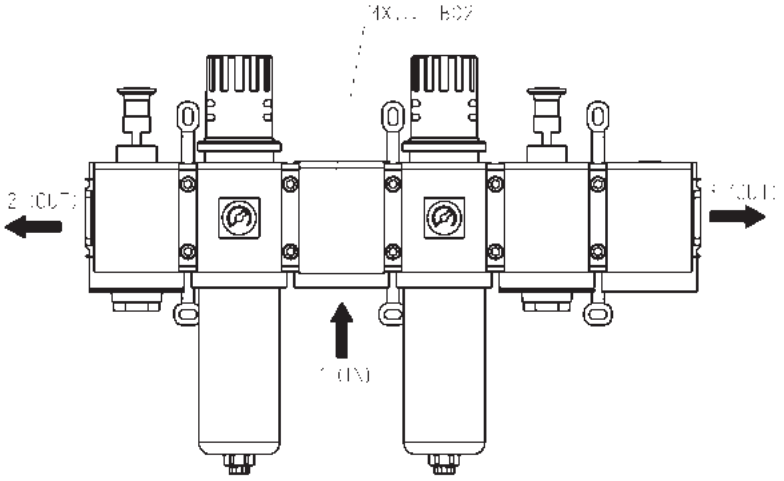
BL01 = take-off block

BL02 = take-off block with VNR

Mod.	A	B	C	G	I	R	S	T	Weight (Kg)
MX2-1/2-B*	G1/2	G1/2	70	65	68	86	47,5	38,5	0.4
MX3-1-B*	G1	G1	89,5	75	76	99	54,5	44,5	0.6

Use of the take-off block MX...- B02

The take-off block with double O-ring seat is particularly suitable when Series MX modules have to be supplied through the same pressure source.
The modules which are connected to the left side are of LH kind.



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ACCESSORIES FOR SERIES MX



Rapid clamps



Rapid clamps
with brackets



Terminal flanges
(IN/OUT)



Fixing brackets
for regulators



Block for pressure gauge
fixing



Assembly O-ring



Systems of rapid connections designed to make mounting easier.

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Rapid clamp kit Mod. MX2-... and MX3...



The kit MX2-X is supplied with:
1 rapid clamp, 1 O-ring OR 3125 *,
2 exagonal nuts M5, 2 screws M5x69.

The kit MX2-Z is supplied with:
1 rapid clamp, 1 O-ring OR 3125 *,
1 exagonal nut M5, 1 screw M5x69,
1 screw M5x85 for wall fixing.

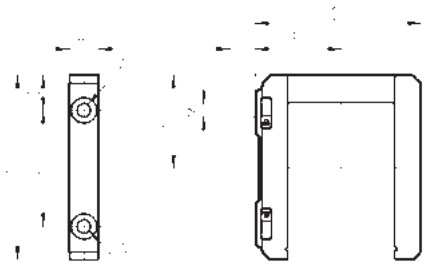
* it can be ordered separately (cod. 160-39-11/19)

The kit MX3-X is supplied with:
1 rapid clamp, 1 O-ring OR 38X2,8 **,
2 square nuts M6, 2 screws M6x75.

The kit MX3-Z is supplied with:
1 rapid clamp, 1 O-ring OR 38X2,8 **,
1 square nut M6, 1 screw M6x75,
1 screw M6x90 for wall fixing.

** it can be ordered separately (OR 38X2,8 NBR)

Materials: technopolymer clamp, NBR O-ring, zinc-plated steel nuts and screws.



See positioning scheme on p. 3/1.50.04

DIMENSIONS

Mod.	A	B	C	D	E	F	G	H	L	M	Notes
MX2-X	5.2	12	46	14	73.5	37.5	70.5	37	-	-	
MX2-Z	5.2	12	46	14	73.5	37.5	70.5	37	14	M5	kit with wall fixing screw
MX3-X	6.2	14	54	16.5	86	40	77	43.5	-	-	
MX3-Z	6.2	14	54	16.5	86	40	77	43.5	13	M6	kit with wall fixing screw

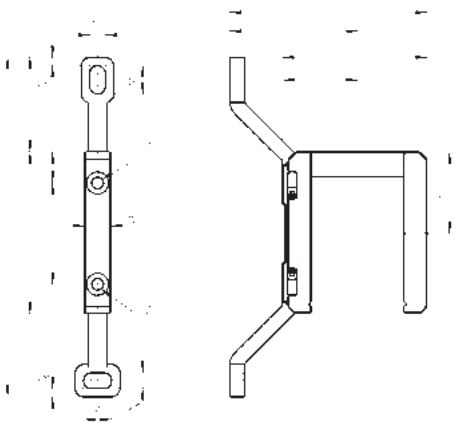
Rapid clamp kit with wall fixing brackets - size 2



The kit MX2-Y is supplied with:
1 wall rapid clamp, 1 O-ring OR 3125 **, 2 exagonal nuts, 2 screws M5x69.

** it can be separately ordered (cod. 160-39-11/19)

Materials: technopolymer clamp, NBR O-ring, zinc-plated steel nuts and screws.



Mod.	A	B	C	D	E	F	G	H	I	L	M	N	O	P	R
MX2-Y	5,2	12	46	14	73,5	32,5	70,5	37	70,5	103	12	6,5	42	152	4

See positioning scheme on p. 3/1.50.04

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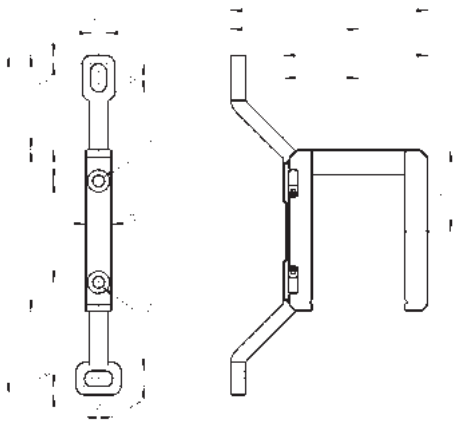
Rapid clamp kit with wall fixing brackets - size 3



The kit MX3-Y is supplied with:
1 wall rapid clamp, 1 O-ring 38X2,8 **,
2 square nuts M6, 2 screws M6x75

** it can be also separately ordered (OR 38X2,8 NBR)

Materials: technopolymer clamp, NBR O-ring, zinc-plated steel nuts and screws.



Mod.	A	B	C	D	E	F	G	H	I	L	M	N	O	P	R
MX3-Y	6,2	14	54	16,5	86	40	77	43,5	68	105	15	8,4	50,5	181	4,5

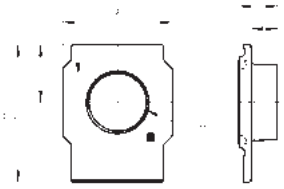
See positioning scheme on p. 3/1.50.04

Terminal flanges (IN/OUT)



The kit is supplied with:
- 1 flange INLET side
- 1 flange OUTLET side

Materials: painted aluminium flanges.

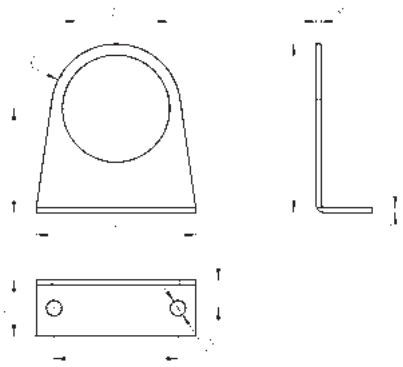


Mod.	A	B	C	D	E	G
MX2-3/8-FL	G3/8	50	26,5	63,5	17	11
MX2-1/2-FL	G1/2	50	26,5	63,5	17	11
MX2-3/4-FL	G3/4	50	26,5	63,5	17	11
MX3-3/4-FL	G3/4	58	30,5	73	20,5	13,5
MX3-1-FL	G1	58	30,5	73	20,5	13,5

Fixing bracket for regulators



The kit is supplied with 1 zinc-plated steel bracket

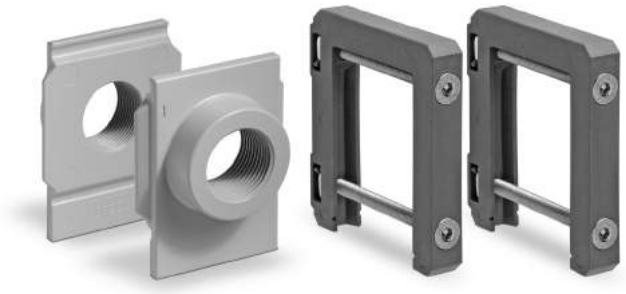


Mod.	A	B	C	D	E	F	G	H	L	M	N
MX2-S	Ø 47,2	73	60,5	R29,5	54	25	15	Ø 6,2	90	2,5	2,5
MX3-S	Ø 57,2	85	55,5	R34,5	66	30	15	Ø 8,2	90	2,5	2,5

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Rapid clamps kit + flanges

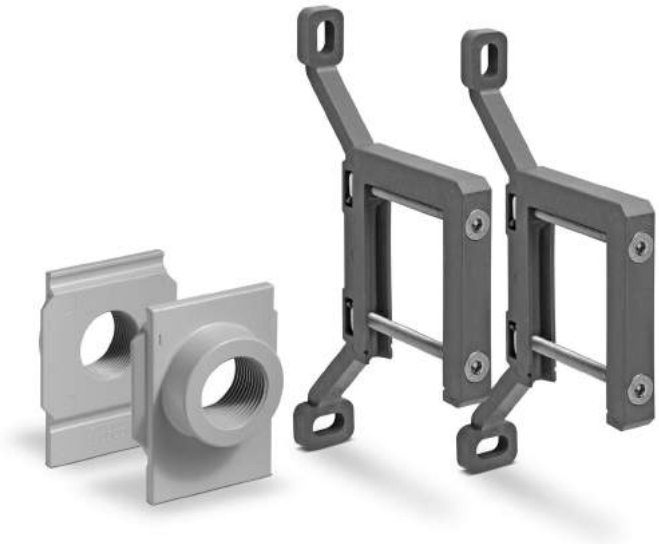
See positioning scheme on page 3/1.50.04



Mod.	The kit is supplied with:
MX2-3/8-HH	1x MX2-3/8-FL + 2x MX2-X
MX2-1/2-HH	1x MX2-1/2-FL + 2x MX2-X
MX2-3/4-HH	1x MX2-3/4-FL + 2x MX2-X
MX2-3/8-JJ	1x MX2-3/8-FL + 2x MX2-Z
MX2-1/2-JJ	1x MX2-1/2-FL + 2x MX2-Z
MX2-3/4-JJ	1x MX2-3/4-FL + 2x MX2-Z
MX3-3/4-HH	1x MX3-3/4-FL + 2x MX3-X
MX3-1-HH	1x MX3-1-FL + 2x MX3-X
MX3-3/4-JJ	1x MX3-3/4-FL + 2x MX3-Z
MX3-1-JJ	1x MX3-1-FL + 2x MX3-Z

Rapid clamps kit with wall fixing brackets + flanges

See positioning scheme on page 3/1.50.04.



Mod.	The kit is supplied with:
MX2-3/8-KK	1x MX2-3/8-FL + 2x MX2-Y
MX2-1/2-KK	1x MX2-1/2-FL + 2x MX2-Y
MX2-3/4-KK	1x MX2-3/4-FL + 2x MX2-Y
MX3-3/4-KK	1x MX3-3/4-FL + 2x MX3-Y
MX3-1-KK	1x MX3-1-FL + 2x MX3-Y

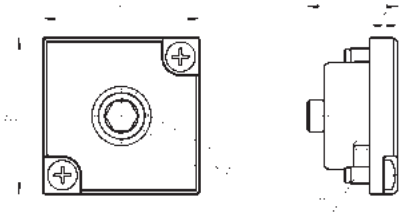
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Block for pressure gauge fixing

New



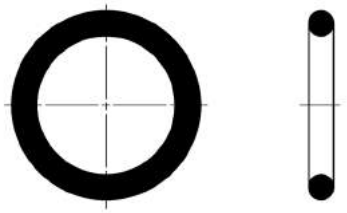
The kit is supplied with:
1 block
1 grain
2 screws
1 seal



DIMENSIONS							
Mod.	A	B	L	M	P	U	SW
MX2-R26-P	28	28	16.5	5	M3X7	1/8	5
MX3-R26-P	28	28	16.5	5	M3X7	1/4	6

O-ring for assembling



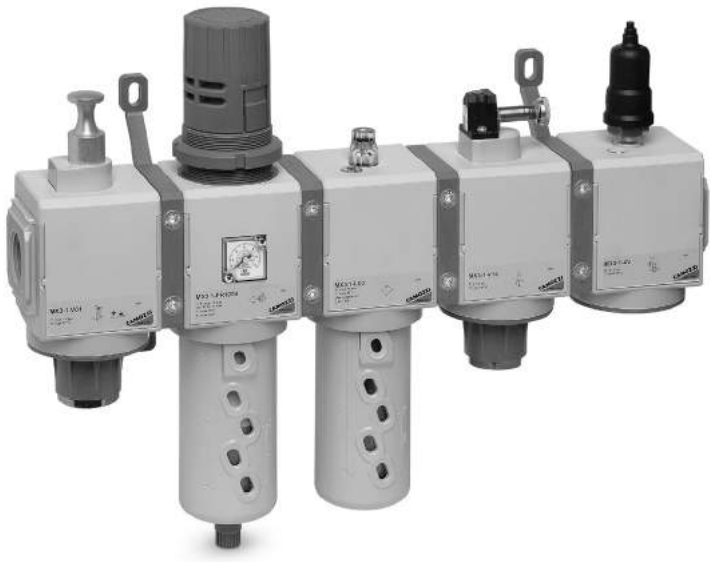


Mod.	O-ring	For assembly
160-39-11/19	OR 3125	MX2
OR 38X2,8 NBR	OR 38X2,8	MX3

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Series MX assembled FRL

MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1
Assembly through rapid clamps



- Compact design
- Dimensions optimization
- Great reliability
- Easy and quick maintenance
- Reduced weight

Series MX FRL can be easily assembled through rapid clamps which allow the connection among single components creating an unlimited number of compositions.
The FRL groups Series MX are also available in the already mounted version (with a single code).

The use of three different types of rapid clamps (standard, with wall fixing screws or with brackets) allows an easy mounting of the assembled groups and to carry out maintenance operations on the single components with no need to disassemble the group.

GENERAL DATA

Construction	modular, compact
Materials	see catalogue pages referring to the single component
Ports	MX2: G3/8 - G1/2 - G3/4 MX3: G3/4 - G1
Mounting	vertical in-line wall-mounting (by means of clamps) panel mounting
Operating temperature	-5°C ÷ 50°C up to 16 bar (according to the single component characteristics) -5°C ÷ 60°C up to 10 bar (according to the single component characteristics)

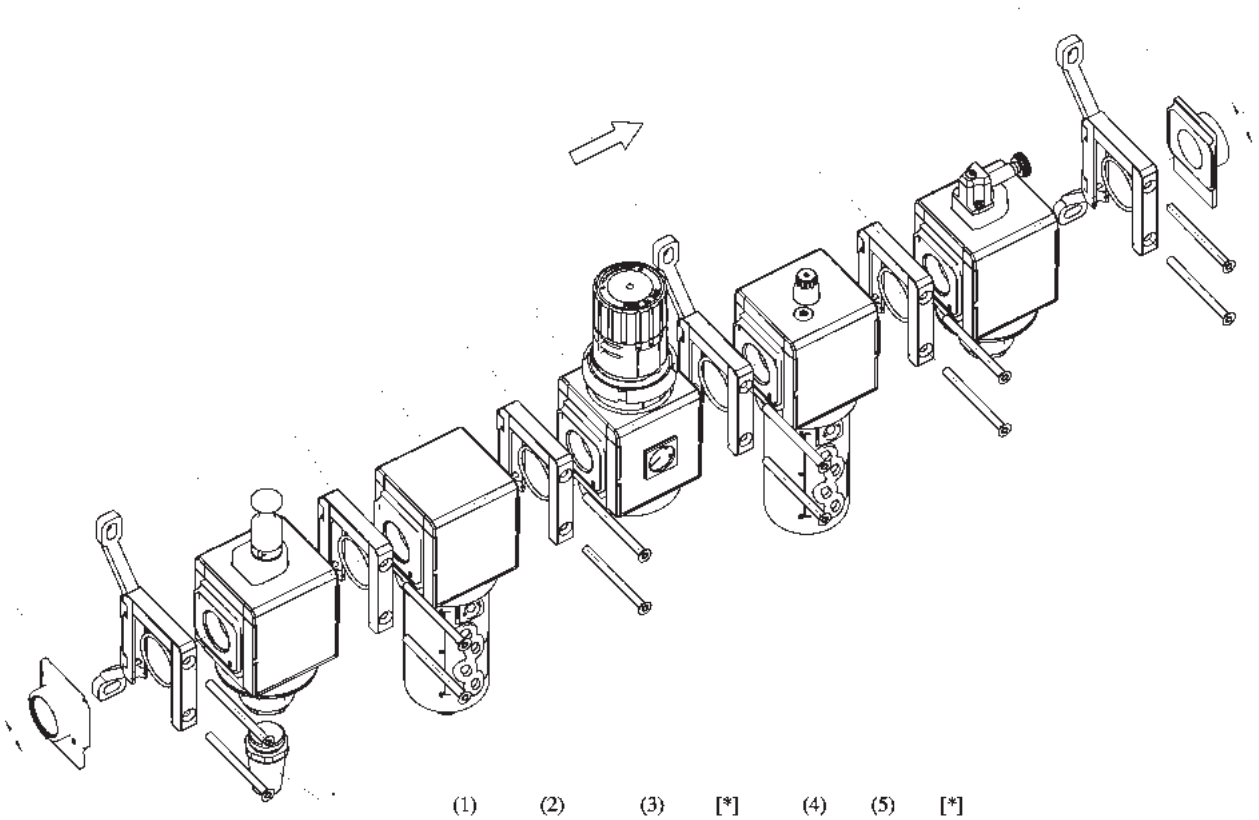
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CONFIGURATION OF ASSEMBLED GROUPS SERIES MX

TO CONFIGURE THE ASSEMBLED GROUPS SERIES MX, USE THE HERE BELOW EXAMPLE AND THE RELATED LEGEND ON PAGE 3/1.50.03.

Configuration of the assembled group in the drawing below:

MX2-3/8-V01+A32XF00XR004YL00XV16-KK



	(1)	(2)	(3)	[*]	(4)	(5)	[*]
	MX	2	3/8	V01	+A32	X	F00	
						X	R004	
n_X						Y	L00	
						X	V16	

(6)	[**]	(7)
KK		

CONFIGURATOR OF ASSEMBLED GROUPS SERIES MX

MX	2	-	3/8	-	V01	X	F00	-	KK	-	LH

MX		SERIES
2	(1)	SIZE: 2 = G3/8 - G1/2 - G3/4 3 = G3/4 - G1
-		
3/8	(2)	IN / OUT THREADS: 3/8 = G3/8 1/2 = G1/2 3/4 = G3/4 1 = G1
-		
V01	(3)	MODULE + [*] (to configure the modules, see the single components pages): F... = Filter FC... = Coalescing filter FCA... = Activated carbons filter R... = Pressure regulator L... = Lubricator FR... = Filter-Regulator V... = Lockable isolation valve AV... = Soft start valve B... = Take-off block (MX2: G1/2 only - MX3: G1 only)
	[*]	The following ACCESSORIES can be added after every single module: REGULATOR AND FILTER-REGULATOR MX2 +A56 = M053-P06 (Pressure gauge) +A57 = M053-P10 (Pressure gauge) +A58 = M063-P12 (Pressure gauge) REGULATOR AND FILTER-REGULATOR MX3 +A60 = M063-P06 (Pressure gauge) +A61 = M063-P12 (Pressure gauge) LOCKABLE ISOLATION VALVE MX2 +A30 = 2901 1/2" (Silencier) +A31 = 2921 1/2" (Silencier) +A32 = 2931 1/2" (Silencier) +A33 = 2938 1/2" (Silencier) LOCKABLE ISOLATION VALVE MX3 +A34 = 2901 3/4" (Silencier) +A35 = 2921 3/4" (Silencier) +A36 = 2931 3/4" (Silencier) SOFT START VALVE +A00 = PM11-NA (Pressure switch, normally open) +A01 = PM11-NC (Pressure switch, normally closed) TAKE-OFF BLOCK MX2 +A08 = PM11-NA (normally open pressure switch) with fitting for fixing to the module +A09 = PM11-NC (normally closed pressure switch) with fitting for fixing to the module +A03 = PM11-SC with fitting for fixing to the module Example: MX2-3/8-V01+A32XF00-KK-LH TAKE-OFF BLOCK MX3 +A06 = PM11-NA (normally open pressure switch) with fitting for fixing to the module +A07 = PM11-NC (normally closed pressure switch) with fitting for fixing to the module +A02 = PM11-SC with fitting for fixing to the module Example: MX3-3/4-V01+A36XF00-KK-LH
X	(4)	MODULES CONNECTION (according to the positioning scheme on p. 3/1.50.04): X = Rapid clamp kit Z = Rapid clamp kit with wall fixing screw Y = Rapid clamp kit with wall fixing brackets
F00	(5) + [*]	see MODULE (3)
-		
KK	(6)	TERMINAL CONNECTIONS + [**] (according to the positioning scheme on p. 3/1.50.04): = no terminal connection HH = n° 1 rapid clamp kit with flanges (IN / OUT) JJ = n° 1 rapid clamp kit with wall fixing screws + flanges (IN / OUT) KK = n° 1 rapid clamp kit with wall fixing brackets + flanges (IN / OUT)
	[**]	WALL CONNECTION: REGULATOR and FILTER-REGULATOR S = Bracket (only with clamps mod. X o HH) Codes examples: MX3-1-R..XV..-S; MX3-1-R..XV..-HSH
-		
LH	(7)	FLOW DIRECTION: = from left to right (standard) LH = from right to left
	(4) + (5) + [*]	REPEATABLE COMBINATION for a "n" number of times

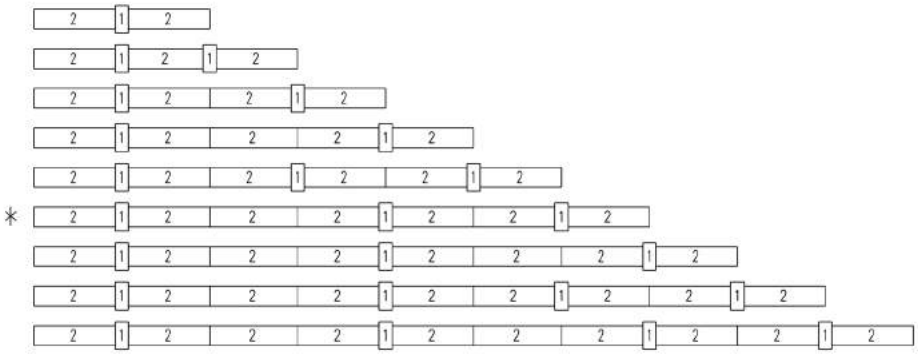
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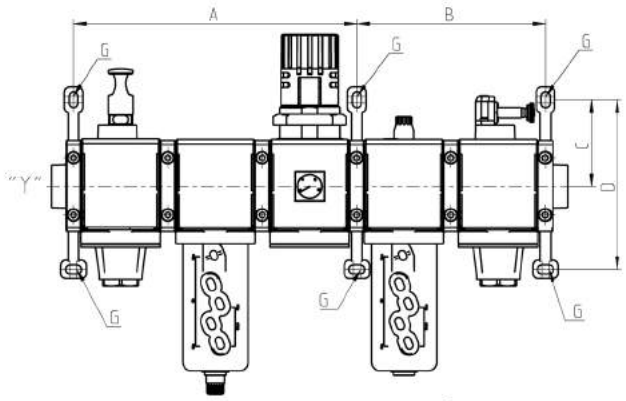
Wall fixing - mounting dimensions and positioning scheme

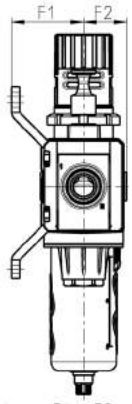
Legend of the POSITIONING SCHEME:
1 = rapid clamp with wall fixing screw
or with wall fixing bracket
2 = module / flange

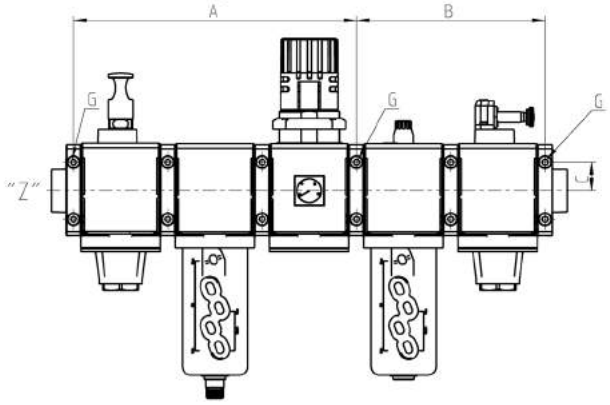
* POSITIONING SCHEME referring to drawings " Y " and " Z ".

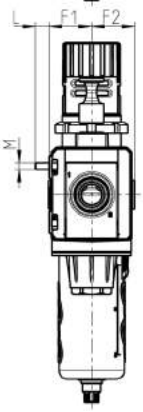
Legend of the ASSEMBLED GROUPS DRAWINGS:
" Y " = with rapid clamps with wall fixing brackets (MX...-Y)
" Z " = with rapid clamp with wall fixing screws (MX...-Z)
G = fixing point











Mod.	A	B	C	D	F1	F2	L	M
MX2-Y	210	140	68,5	134,5	70	37	-	-
MX2-Z	210	140	23	-	37,5	37	13,5	M5
MX3-Y	267	178	82	160	68	40,5	-	-
MX3-Z	267	178	27	-	40,5	40,5	13	M6

CODING EXAMPLE

MX	2	-	3/8	-	0...1

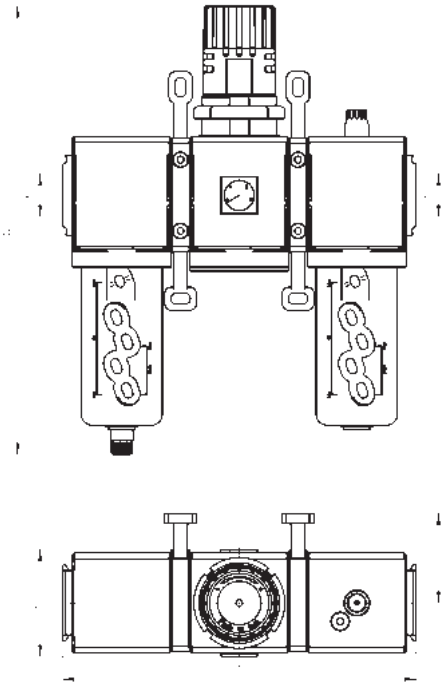
MX	SERIES
2	SIZE: 2 = G3/8 - G1/2 - G3/4 3 = G3/4 - G1
3/8	PORTS: 3/8 = G3/8 1/2 = G1/2 3/4 = G3/4 1 = G1
000001	GROUP COMPOSITION: 000001 = F10 + R004 + L00 000002 = FR1004 + L00 000003 = V01 + FR1004 + L00 000004 = V01 + FR1004 000005 = FR1004 + V16 + AV 000006 = FR1004 + L00 + V16 + AV 000007 = V01 + FR1004 + V16 + AV 000008 = V01 + FR1004 + L00 + V16 + AV + PRESS. NO 000009 = V01 + FR1004 + L00 + V16 + AV + PRESS. NC 000010 = V01 + FR1004 + V16 + AV + PRESS. NO 000011 = V01 + FR1004 + V16 + AV + PRESS. NC 000012 = F13 + FC03

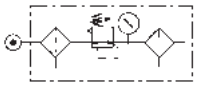
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Composition of the assembled group 000001



Components:
Filter
Regulator
Lubricator



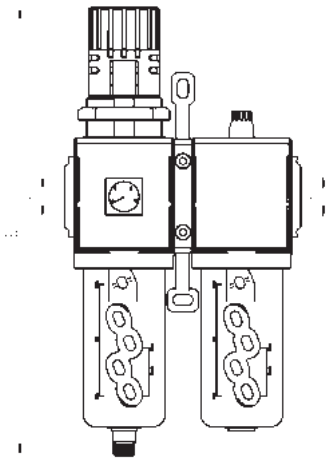


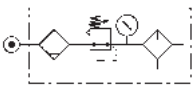
Mod.	A	B	C	D	F1	F2
MX2-3/8-000001	G3/8	289	74,5	210	70	104,5
MX2-1/2-000001	G1/2	289	74,5	210	70	104,5
MX2-3/4-000001	G3/4	289	74,5	210	70	104,5
MX3-3/4-000001	G3/4	345	81	268,5	68	106
MX3-1-000001	G1	345	81	268,5	68	106

Composition of the assembled group 000002



Components:
Filter-regulator
Lubricator





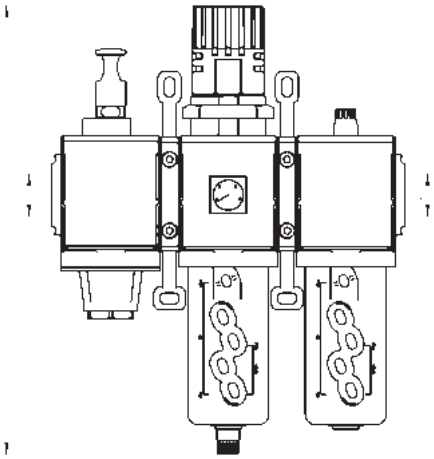
Mod.	A	B	C	D	F1	F2
MX2-3/8-000002	G3/8	289	74,5	140	70	104,5
MX2-1/2-000002	G1/2	289	74,5	140	70	104,5
MX2-3/4-000002	G3/4	289	74,5	140	70	104,5
MX3-3/4-000002	G3/4	345	81	179	68	106
MX3-1-000002	G1	345	81	179	68	106

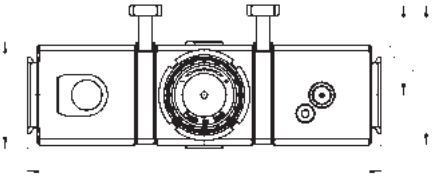
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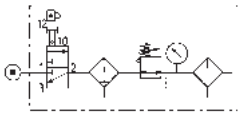
Composition of the assembled group 000003



Components:
Lockable isolation 3/2-way valve
Filter-regulator
Lubricator





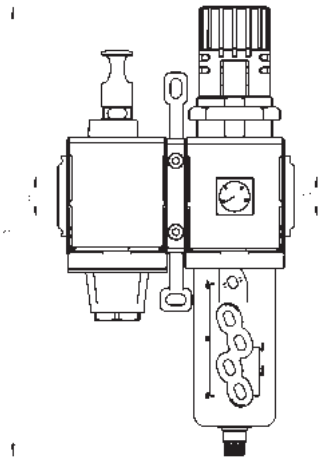


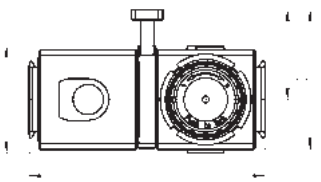
Mod.	A	B	C	D	F1	F2
MX2-3/8-000003	G3/8	289	74,5	210	70	104,5
MX2-1/2-000003	G1/2	289	74,5	210	70	104,5
MX2-3/4-000003	G3/4	289	74,5	210	70	104,5
MX3-3/4-000003	G3/4	345	81	268,5	68	106
MX3-1-000003	G1	345	81	268,5	68	106

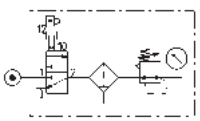
Composition of the assembled group 000004



Components:
Lockable isolation 3/2-way valve
Filter-regulator







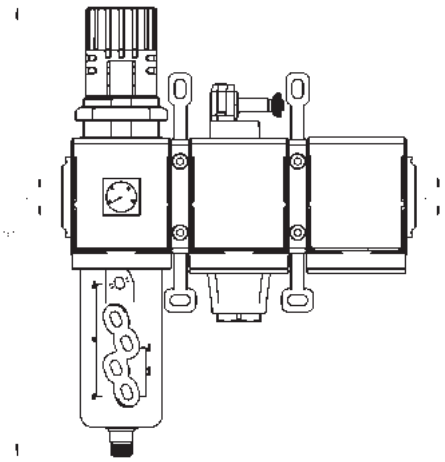
Mod.	A	B	C	D	F1	F2
MX2-3/8-000004	G3/8	289	74,5	140	70	104,5
MX2-1/2-000004	G1/2	289	74,5	140	70	104,5
MX2-3/4-000004	G3/4	289	74,5	140	70	104,5
MX3-3/4-000004	G3/4	345	81	179	68	106
MX3-1-000004	G1	345	81	179	68	106

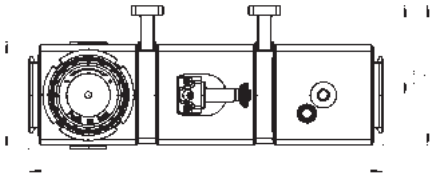
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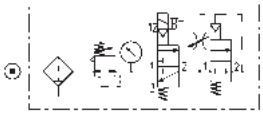
Composition of the assembled group 000005



Components:
Filter-regulator
Lockable isolation 3/2-way valve
Soft start valve





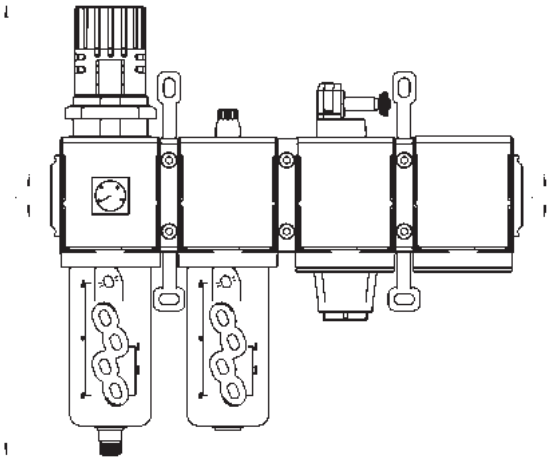


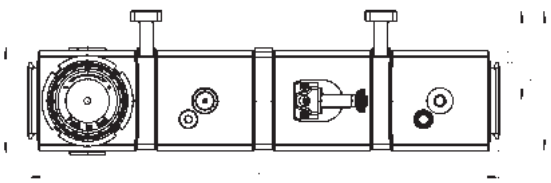
Mod.	A	B	C	D	F1	F2
MX2-3/8-000005	G3/8	289	74,5	210	70	104,5
MX2-1/2-000005	G1/2	289	74,5	210	70	104,5
MX2-3/4-000005	G3/4	289	74,5	210	70	104,5
MX3-3/4-000005	G3/4	345	81	268,5	68	106
MX3-1-000005	G1	345	81	268,5	68	106

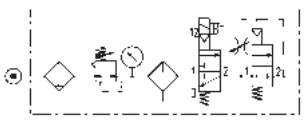
Composition of the assembled group 000006



Components:
Filter-regulator
Lubricator
Soft start valve







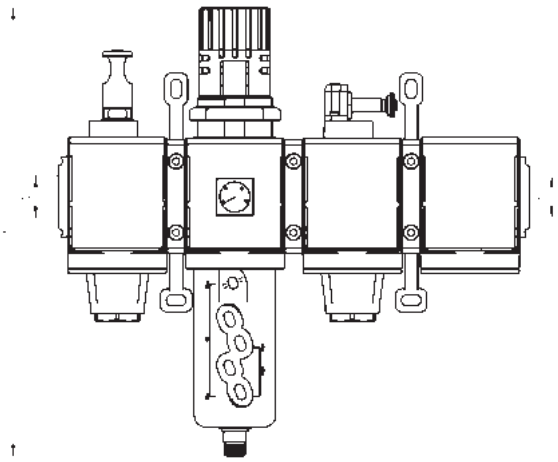
Mod.	A	B	C	D	F1	F2
MX2-3/8-000006	G3/8	289	74,5	280	70	104,5
MX2-1/2-000006	G1/2	289	74,5	280	70	104,5
MX2-3/4-000006	G3/4	289	74,5	280	70	104,5
MX3-3/4-000006	G3/4	345	81	358	68	106
MX3-1-000006	G1	345	81	358	68	106

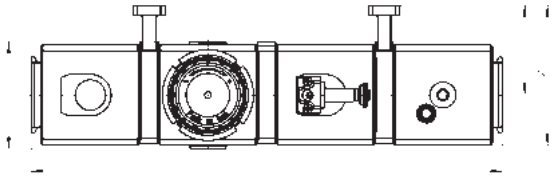
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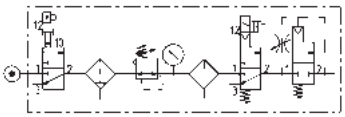
Composition of the assembled group 000007



Components:
Lockable isolation 3/2-way valve
Filter-regulator
Lockable isolation 3/2-way valve
Soft start valve





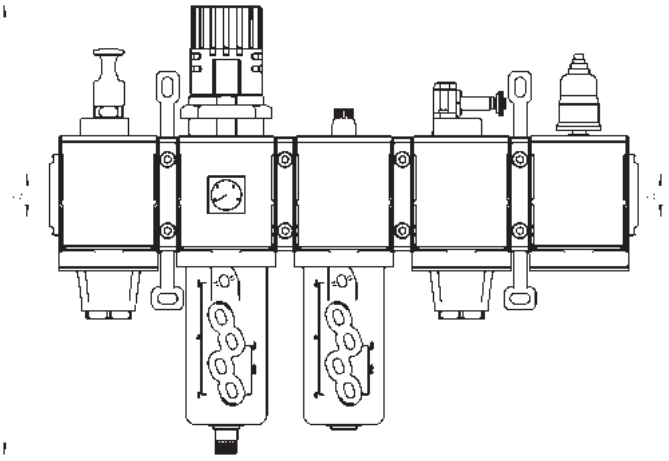


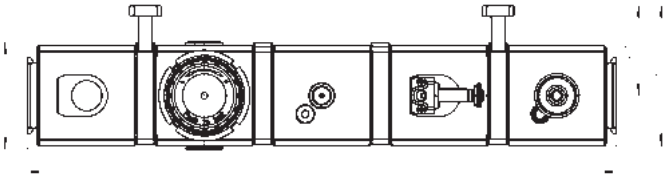
Mod.	A	B	C	D	F1	F2
MX2-3/8-000007	G3/8	289	74,5	280	70	104,5
MX2-1/2-000007	G1/2	289	74,5	280	70	104,5
MX2-3/4-000007	G3/4	289	74,5	280	70	104,5
MX3-3/4-000007	G3/4	345	81	358	68	106
MX3-1-000007	G1	345	81	358	68	106

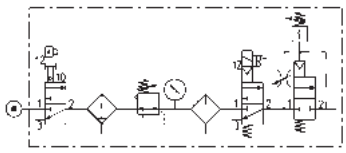
Composition of the assembled group 000008



Components:
Lockable isolation 3/2-way valve
Filter-regulator
Lubricator
Lockable isolation 3/2-way valve
Soft start valve + pressure switch (NO)







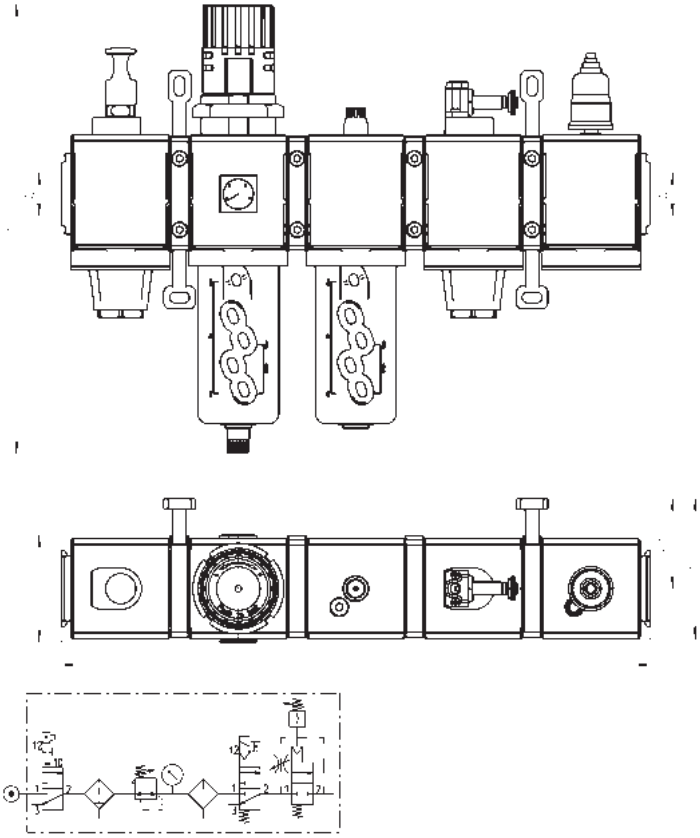
Mod.	A	B	C	D	F1	F2
MX2-3/8-000008	G3/8	289	74,5	350	70	104,5
MX2-1/2-000008	G1/2	289	74,5	350	70	104,5
MX2-3/4-000008	G3/4	289	74,5	350	70	104,5
MX3-3/4-000008	G3/4	345	81	447,5	68	106
MX3-1-000008	G1	345	81	447,5	68	106

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Composition of the assembled group 000009



Components:
Lockable isolation 3/2-way valve
Filter-regulator
Lubricator
Lockable isolation 3/2-way valve
Soft start valve + pressure switch
(NC)

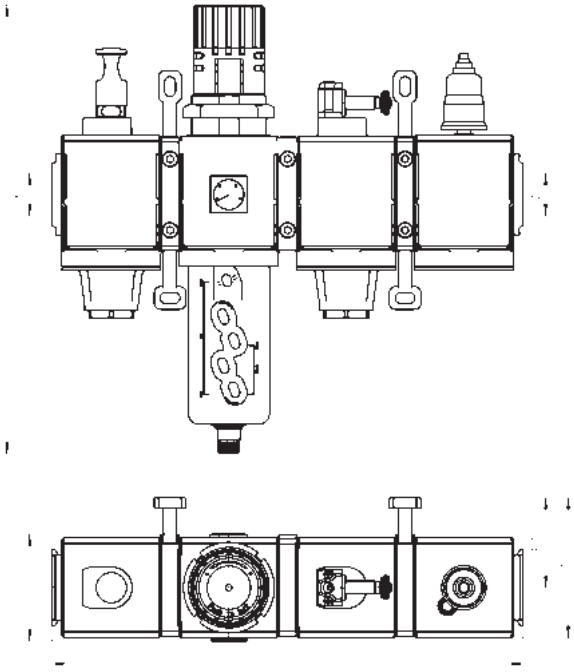


Mod.	A	B	C	D	F1	F2
MX2-3/8-000009	G3/8	289	74,5	350	70	104,5
MX2-1/2-000009	G1/2	289	74,5	350	70	104,5
MX2-3/4-000009	G3/4	289	74,5	350	70	104,5
MX3-3/4-000009	G3/4	345	81	447,5	68	106
MX3-1-000009	G1	345	81	447,5	68	106

Composition of the assembled group 000010



Components:
Lockable isolation 3/2-way valve
Filter-regulator
Lockable isolation 3/2-way valve
Soft start valve + pressure switch
(NO)



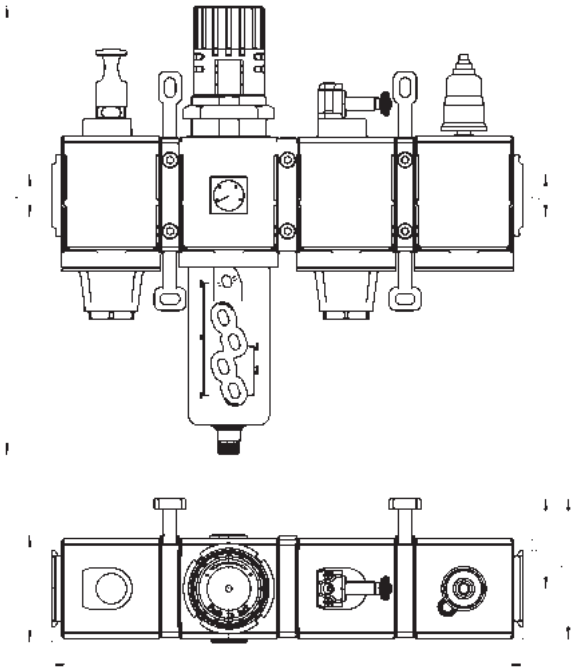
Mod.	A	B	C	D	F1	F2
MX2-3/8-000010	G3/8	289	74,5	280	70	104,5
MX2-1/2-000010	G1/2	289	74,5	280	70	104,5
MX2-3/4-000010	G3/4	289	74,5	280	70	104,5
MX3-3/4-000010	G3/4	345	81	358	68	106
MX3-1-000010	G1	345	81	358	68	106

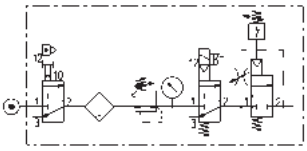
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Composition of the assembled group 000011



Components:
Lockable isolation 3/2-way valve
Filter-regulator
Lockable isolation 3/2-way valve
Soft start valve + pressure switch (NC)



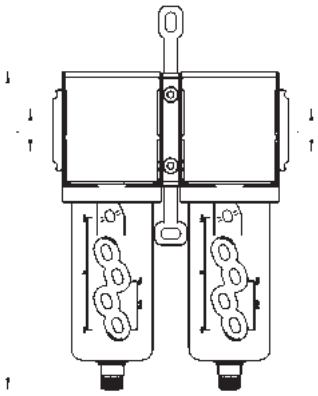


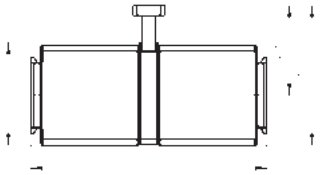
Mod.	A	B	C	D	F1	F2
MX2-3/8-000011	G3/8	289	74,5	280	70	104,5
MX2-1/2-000011	G1/2	289	74,5	280	70	104,5
MX2-3/4-000011	G3/4	289	74,5	280	70	104,5
MX3-3/4-000011	G3/4	345	81	358	68	106
MX3-1-000011	G1	345	81	358	68	106

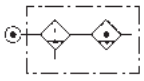
Composition of the assembled group 000012



Components:
Filter
Coalescing filter







Mod.	A	B	C	D	F1	F2
MX2-3/8-000012	G3/8	210	72	140	70	104,5
MX2-1/2-000012	G1/2	210	72	140	70	104,5
MX2-3/4-000012	G3/4	210	72	140	70	104,5
MX3-3/4-000012	G3/4	231	78	179	68	106
MX3-1-000012	G1	231	78	179	68	106

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Series MC filters

Ports G1/4, G3/8 and G1/2
Modular
Metal bowl and bayonet-type mounting



Filters with filtering elements which are different from the standard ones, as well as further drainings of condensate can be ordered on request (see the coding example).

Series MC filters are available with ports G1/4, G3/8 and G1/2.
Bowls are made of metal with a transparent sight glass and have a condensate drain valve which can provide either a manual or semi-automatic function.

GENERAL DATA

Construction	compact modular with filtering element in HDPE
Materials	zama, NBR, tecnopolymer
Ports	G1/4 G3/8 G1/2
Max condensate capacity	cm^3 28 cm^3 72 cm^3 72
Weight	kg 0,339 kg 0,718 kg 0,688
Mounting	vertical in-line or wall-mounting
Operating temperature	-5°C ÷ 50°C at 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Porosity of filtering element	25 µm standard - 5 µm upon request
Draining of condensate	manual - semi automatic standard
Finishing	enamelled
Operating pressure	with standard drain and protected depressurisation 0,3 ÷ 16 bar with depressurisation 0,3 ÷ 10 bar with automatic drain 1,5 ÷12 bar for G3/8 and G1/2
Nominal flow	see graphs

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CODING EXAMPLE

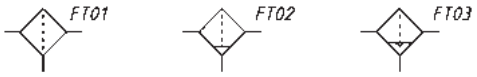
MC	2	02	-	F	0	0

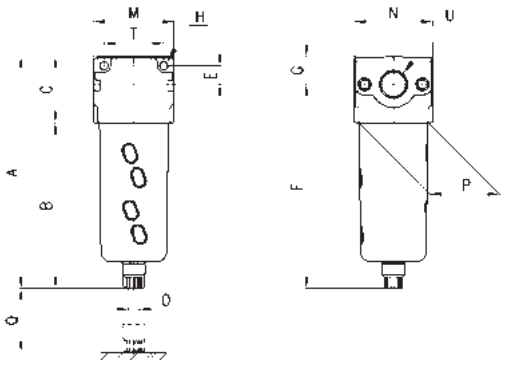
MC	SERIES
2	SIZE: 1 = G1/4 2 = G3/8 - G1/2
02	PORTS: 04 = G1/4 38 = G3/8 02 = G1/2
F	F = FILTER
0	FILTERING ELEMENT: 0 = 25µm (standard) 1 = 5µm
0	DRAINING OF CONDENSATE: 0 = normal - semiautomatic (standard) 3 = automatic drain (only for G3/8 and G1/2) 4 = depressurisation (only G1/4) 5 = depressurisation, protected 8 = no drain, port 1/8 For condensate drains see the section 3/5.10

Filters Series MC



FT01 = filter without drain with threaded port
FT02 = filter with semiautomatic manual drain
FT03 = filter with automatic drain



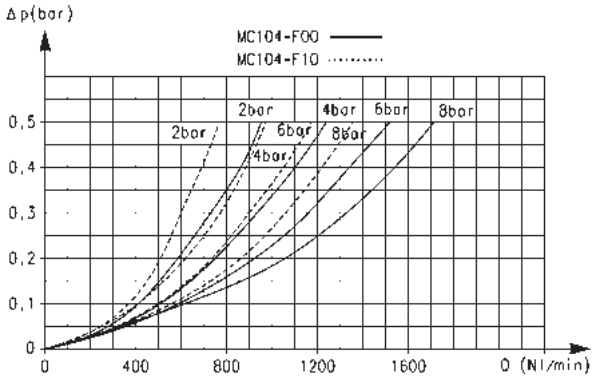


DIMENSIONS

Mod.	A	B	C	E	F	G	H	M	N	O	P	Q	T	U
MC104-F00	143	102	41	11	126,5	16,5	4,5	45	45	G1/8	37	58	35	G1/4
MC238-F00	184	133	51	14	163	21	5,5	62	60	G1/8	53	72	46	G3/8
MC202-F00	184	133	51	14	163	21	5,5	62	60	G1/8	53	72	46	G1/2

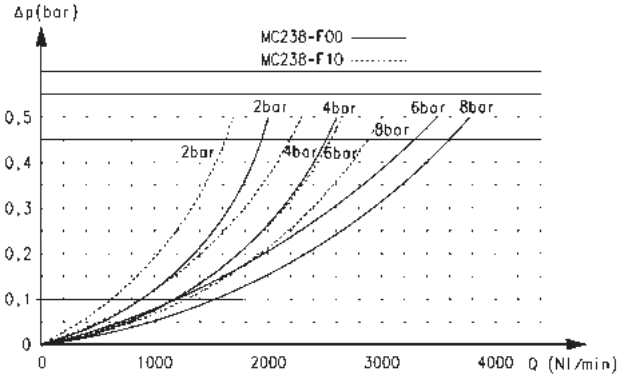
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FLOW DIAGRAMS FOR FILTERS SERIES MC, G1/4 - G3/8 PORTS



Flow diagram for models: MC104-F00 and MC104-F10

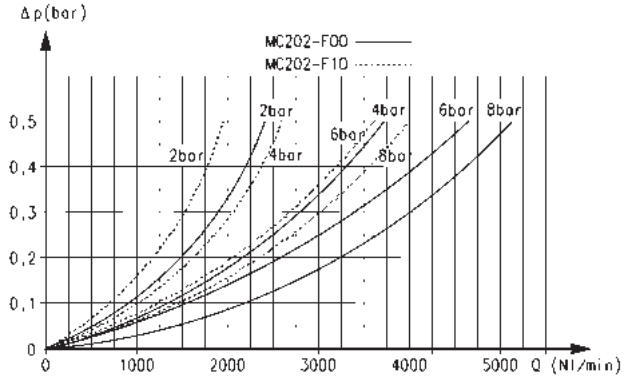
ΔP = Pressure drop
Q = Flow



Flow diagram for models: MC238-F00 and MC238-F10

ΔP = Pressure drop
Q = Flow

FLOW DIAGRAM FOR FILTERS SERIES MC, G1/2 PORTS



Flow diagram for models: MC202-F00 and MC202-F10

ΔP = Pressure drop
Q = Flow

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Series MC coalescing filters

Ports G1/4, G3/8 and G1/2
Modular
Metal bowl and bayonet-type mounting



Series MC coalescing filters are available with G1/4, G3/8 and G1/2 ports. The bowls of these filters are made of metal with a transparent sight glass and may have a condensate drain valve which can provide either a manual or semi-automatic function.

A version with automatic draining of condensate is also available.

GENERAL DATA

Construction	modular, coalescing elements
Materials	zama, NBR, technopolymer
Ports	G1/4 G3/8 G1/2
Max. condensate capacity	cm³ 28 78 78
Weight	kg 0,342 0,718 0,688
Mounting	vertical in line or wall-mounting
Operating temperature	-5°C ÷ 50°C at 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Porosity of filtering element	0,01µm
Draining of condensate	manual - semi-automatic standard
Finish	enamelled
Operating pressure	with standard drain and protected depressurisation 0,3 ÷ 16 bar with depressurisation 0,3 ÷ 10 bar with automatic drain 1,5 ÷ 12 bar for G3/8 and G1/2
Nominal flow	see graph

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CODING EXAMPLE

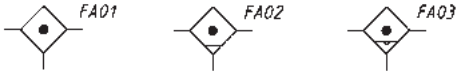
MC	2	02	-	F	B	0

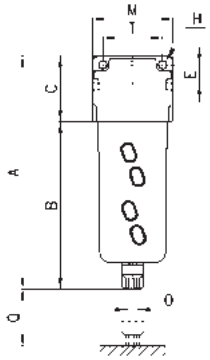
MC	SERIES
2	SIZE: 1 = G1/4 2 = G3/8 - G1/2
02	PORTS: 04 = G1/4 38 = G3/8 02 = G1/2
F	F = FILTER
B	FILTERING ELEMENT: B = 0,01µm
0	DRAINING OF CONDENSATE: 0 = manual - semi-automatic 3 = automatic (only for G3/8 and G1/2) 4 = depressurisation (only G1/4) 5 = depressurisation, protected 8 = no drain, port 1/8 For condensate drains see the section 3/5.10

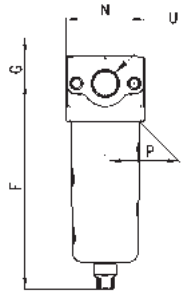
Coalescing filters Series MC



FA01 = coalescing filter without drain with threaded port
FA02 = coalescing filter with semi-automatic manual drain
FA03 = coalescing filter with automatic drain





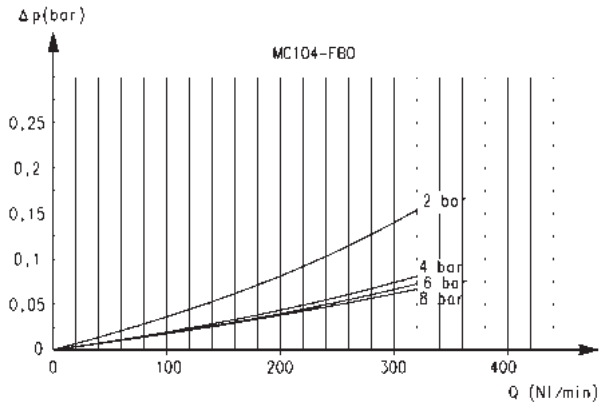


DIMENSIONS

Mod.	A	B	C	E	F	G	H	M	N	O	P	Q	T	U
MC104-FB0	143	102	41	11	126,5	16,5	4,5	45	45	G1/8	37	54	35	G1/4
MC238-FB0	184	133	51	14	163	21	5,5	62	60	G1/8	53	73	46	G3/8
MC202-FB0	184	133	51	14	163	21	5,5	62	60	G1/8	53	73	46	G1/2

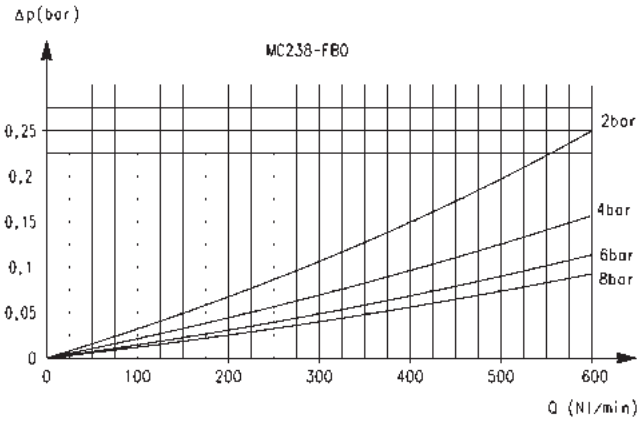
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FLOW DIAGRAMS



Flow diagram for model: MC104-FB0
ΔP = Pressure drop
Q = Flow

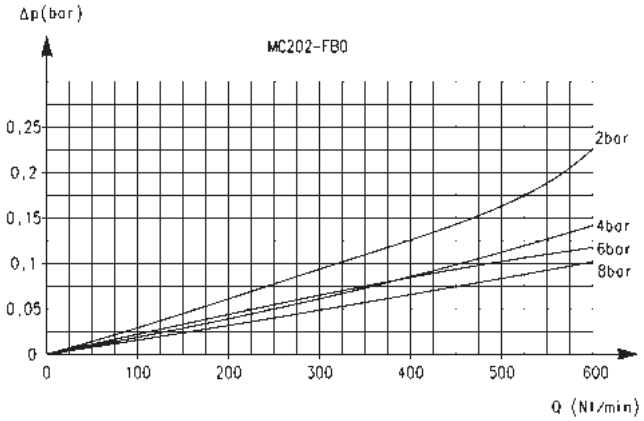
In order to guarantee the indicated performances, the maximum flow of the filter must be the one indicated in the graph. A higher flow rate is possible but the same performances are not guarenteed.



Flow diagram for model: MC238-FB0
ΔP = Pressure drop
Q = Flow

In order to guarantee the indicated performances, the maximum flow of the filter must be the one indicated in the graph. A higher flow rate is possible but the same performances are not guarenteed.

FLOW DIAGRAMS



Flow diagram for model: MC202-FB0
ΔP = Pressure drop
Q = Flow

In order to guarantee the indicated performances, the maximum flow of the filter must be the one indicated in the graph. A higher flow rate is possible but the same performances are not guarenteed.

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Series MC pressure regulators

Ports G1/4, G3/8 and G1/2
Modular



Series MC pressure regulators are available with ports G1/4, G3/8 and G1/2. Versions with secondary pressure relieving are usually available and all regulators can be panel mounted.

GENERAL DATA

Construction	modular, compact, diaphragm type			
Materials	zama, brass, NBR, technopolymer			
Ports		G1/4	G3/8	G1/2
Weight	kg	0,323	0,644	0,624
Pressure gauge ports	G1/8			
Mounting	in-line, wall or console mounting (in any position)			
Operating temperature	-5°C ÷ 50°C (with the dew point of the fluid lower than 2°C at the min. working temperature)			
Finishing	enamelled			
Inlet pressure	0 ÷ 16 bar			
Outlet pressure	0.5 ÷ 10 bar or 0 ÷ 4 bar			
Nominal flow	see graph			
Secondary pressure relieving	standard			

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CODING EXAMPLE

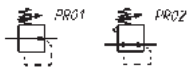
MC	2	02	-	R	T	0	-	■	-	●

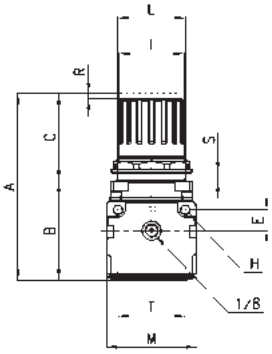
MC	SERIES
2	SIZE: 1 = G1/4 2 = G3/8 - G1/2
02	PORTS 04 = G1/4 38 = G3/8 02 = G1/2
R	R = REGULATOR
T	OPERATING PRESSURE: 0 = 0.5 ÷ 10 (standard) 1 = 0 ÷ 4 2 = 0 ÷ 2 (only G1/4) 7 = 0,5 ÷ 7 (only G1/4) T = calibrated * B = locked *
0	DESIGN TYPE: 0 = self-relieving (standard) 1 = non-relieving 5 = precise relieving
	* NOTE: IF THE REGULATOR IS CALIBRATED OR LOCKED, AFTER THE DESIGN TYPE ADD THE INLET PRESSURE "■" AND THE OUTLET PRESSURE "●" INLET PRESSURE: ■ = enter the SUPPLY pressure value OUTLET PRESSURE: ● = enter the OUTLET pressure value for the LOCKED regulator or the maximum value of the ADJUSTABLE pressure for the CALIBRATED regulator Example of a calibrated regulator with Inlet Pressure = 6.3 bar and Outlet Pressure = 4.5 bar Complete part number: MC202-RT0-6.3-4.5

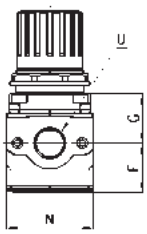
Pressure regulators Series MC



PR01 = regulator without relieving
PR02 = regulator with relieving





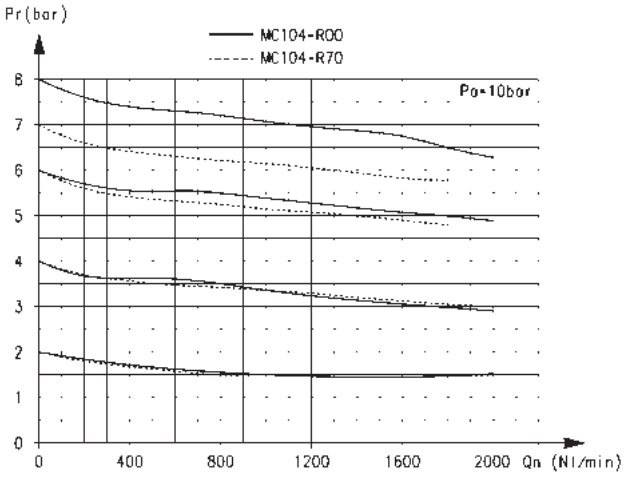


DIMENSIONS

Mod.	A	B	C	E	F	G	H	I	L	M	N	R	S	T	U
MC104-R00	94	56	38	11	28,5	27,5	4,5	28	30X1,5	45	45	3	0÷6	35	G1/4
MC238-R00	127	67	60	14	34	35	5,5	45	47X1,5	62	60	3,5	0÷9	46	G3/8
MC202-R00	127	67	60	14	34	35	5,5	45	47X1,5	62	60	3,5	0÷9	46	G1/2

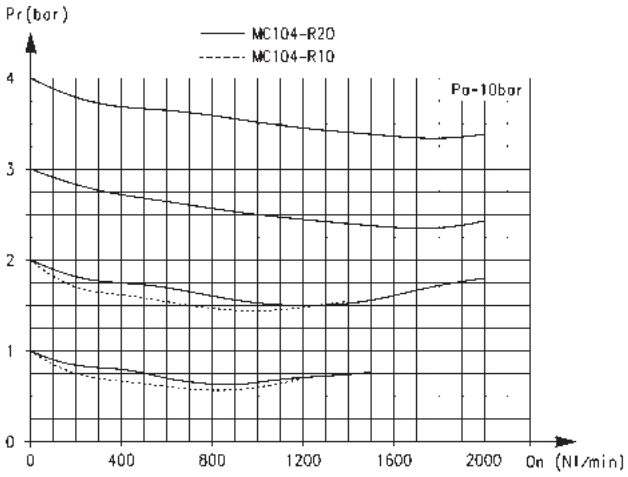
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FLOW DIAGRAMS



Flow diagrams for models: MC104-R00 and MC104-R70

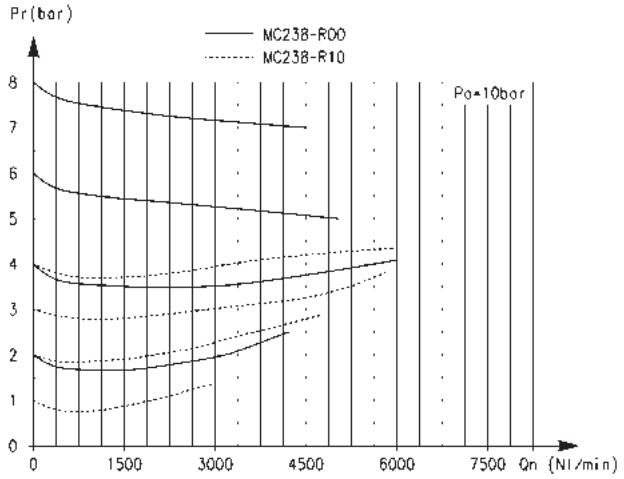
Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow



Flow diagrams for models: MC104-R10 and MC104-R20

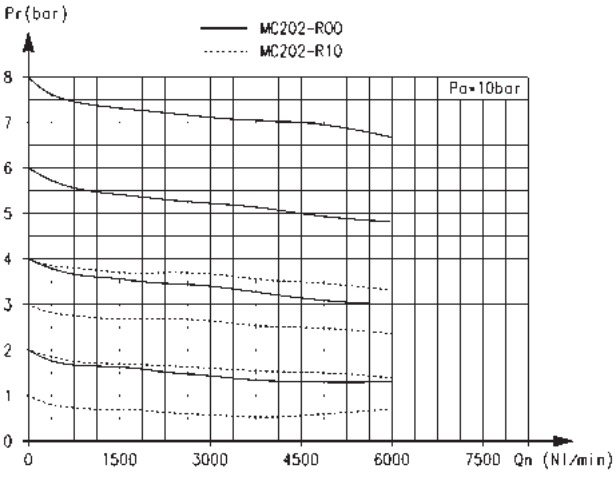
Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow

FLOW DIAGRAMS



Flow diagrams for models: MC238-R00 and MC238-R10

Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow



Flow diagrams for models: MC202-R00 and MC202-R10

Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow

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Series MC lubricators

Ports G1/4, G3/8 and G1/2
Modular
with metal bowl and bayonet-type mounting



Series MC lubricators are available with ports G1/4, G3/8 and G1/2. The bowls of these lubricators are made of metal and are equipped with a transparent viewer. The oil flow can be monitored through the small transparent cap and regulated by means of the proper adjusting screw.

GENERAL DATA

Construction	modular compact
Materials	zama, NBR, technopolymer
Ports	G1/4 G3/8 G1/2
Oil capacity	cm³ 37 170 170
Weight	kg 0,338 0,712 0,674
Mounting	vertical in-line or wall-mounting
Operating temperature	-5°C ÷ 50°C at 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Oil refilling	without pressure (G1/4) also during use (G3/8 - G1/2)
Oil for lubrication	use ISO VG32 oils. Once applied, the lubrication should never be interrupted.
Finishing	enamelled
Operating pressure	0 ÷ 16 bar
Nominal flow	see graphs
Min. air consumption for lubr (Nl/min)	G1/4 - G3/8 - G1/2
at 1 bar	8 - 8 - 8,5
at 6 bar	15 - 17,5 - 15,5

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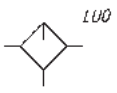
CODING EXAMPLE

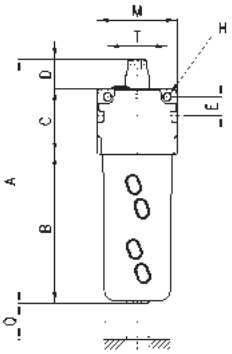
MC	2	02	-	L	00

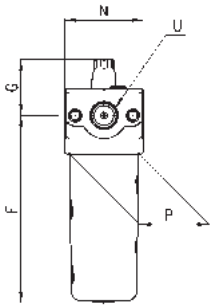
M	SERIES
2	SIZE 1 = G1/4 2 = G3/8 - G1/2
02	PORTS 04 = G1/4 38 = G3/8 02 = G1/2
L	L = LUBRICATOR
00	DESIGN TYPE 00 = atomized oil

Lubricators Series MC







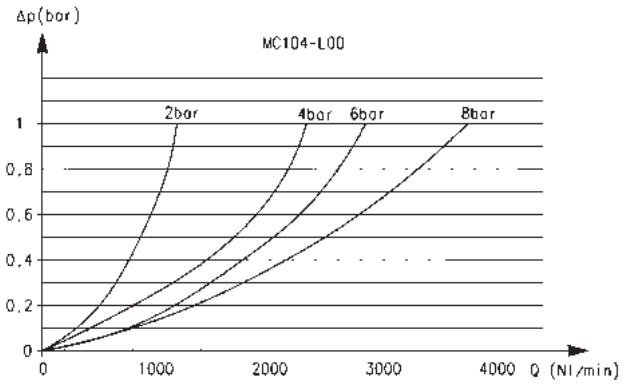


DIMENSIONS

Mod.	A	B	C	D	E	F	G	H	M	N	P	Q	T	U
MC104-L00	148	83	40	25	11	107	41	4,5	45	45	37	84	35	G1/4
MC238-L00	187	115	50	22	14	144	43	5,5	62	60	53	117	46	G3/8
MC202-L00	187	115	50	22	14	144	43	5,5	62	60	53	117	46	G1/2

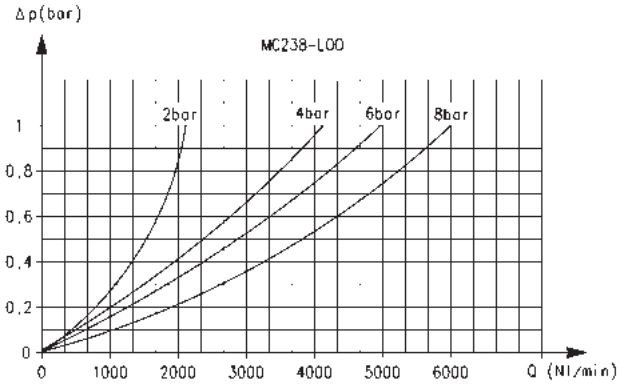
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FLOW DIAGRAMS



Flow diagram for model: MC104-L00

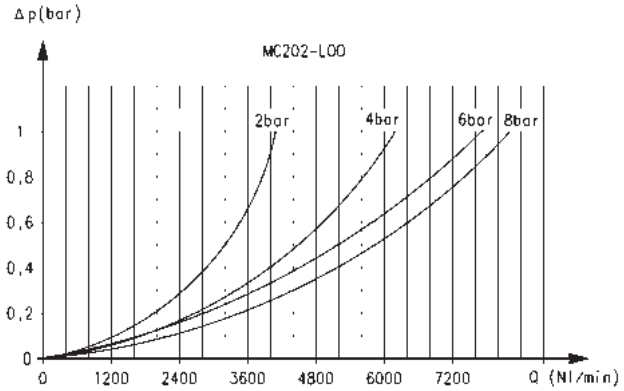
ΔP = Pressure drop
Q = Flow



Flow diagram for model: MC238-L00

ΔP = Pressure drop
Q = Flow

FLOW DIAGRAM



Flow diagram for model: MC202-L00

ΔP = Pressure drop
Q = Flow

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Series MC filter-regulators

Ports G1/4, G3/8 and G1/2
Modular
Metal bowl and bayonet-type mounting



Series MC filter regulators are available with ports G1/4, G3/8 and G1/2. They combine the features of the filters and regulators and have smaller overall dimensions than the two separate components.

GENERAL DATA

Construction	compact modular with filtering element in HDPE - diaphragm type			
Materials	zama, NBR, technopolymer			
Ports		G1/4	G3/8	G1/2
Condensate capacity	cm³	28	72	72
Weight	kg	0,443	0,948	0,928
Pressure gauge ports	G1/8			
Mounting	vertical in-line or wall-mounting			
Operating temperature	-5°C ÷ 50°C at 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)			
Porosity of filtering element	25 µm standard - 5 µm upon request			
Draining of condensate	manual - semi-automatic standard			
Finishing	enamelled			
Inlet pressure	with standard drain and protected depressurisation 0,3 ÷ 16 bar with depressurisation 0,3 ÷ 10 bar with automatic drain 1,5 ÷ 12 bar for G3/8 and G1/2			

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CODING EXAMPLE

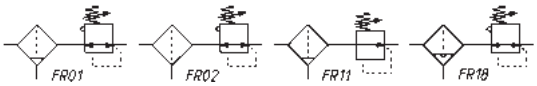
MC	2	02	-	D	0	0	-	4

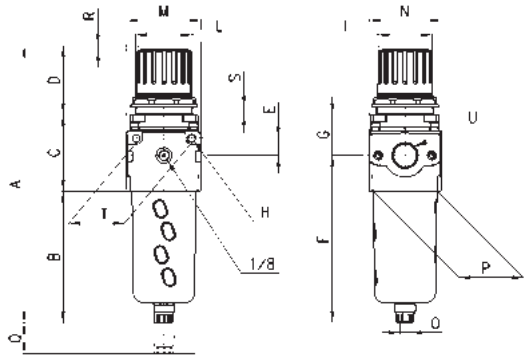
MC	SERIES
2	SIZE: 1 = G1/4 2 = G3/8 - G1/2
02	PORTS: 04 = G1/4 38 = G3/8 02 = G1/2
D	D = FILTER-REGULATOR
0	FILTERING ELEMENT: 0 = 25µm (standard) 1 = 5µm
0	DRAINING OF CONDENSATE: 0 = manual semiautomatic, self-relieving 1 = manual semiautomatic, non relieving 3 = automatic, self-relieving (only for G3/8 and G1/2) 4 = depressurisation, self-relieving (only G1/4) 5 = depressurisation, protected, self-relieving 8 = no drain, port G1/8, self-relieving For condensate drains see the section 3/5.10
4	WORKING PRESSURE = 0,5 ÷ 10 2 = 0 ÷ 2 (only G1/4) 4 = 0 ÷ 4 7 = 0,5 ÷ 7 (only G1/4)

Filter-regulators Series MC



FR01 = filter-regulator with relieving and manual drain
FR02 = FR with relieving and without drain
FR11 = FR with manual drain and without relieving
FR18 = FR with relieving and automatic drain



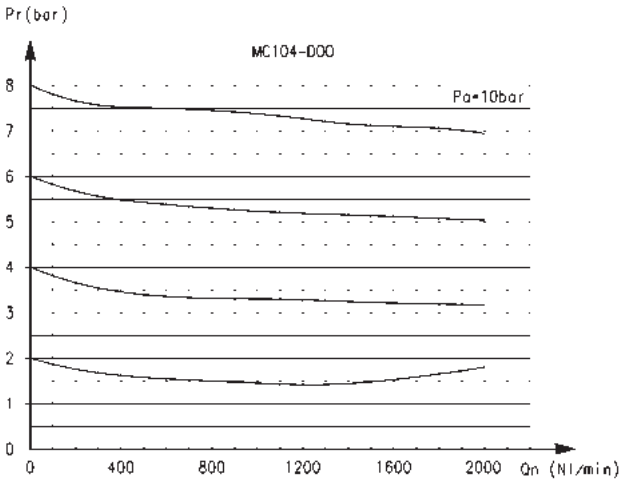


DIMENSIONS

Mod.	A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R	S	T	U
MC104-D00	190,5	102	52	38	11	126,5	27,5	4,5	28	M30x1,5	45	45	G1/8	37	58	3	0 ÷ 6	35	G1/4
MC238-D00	256,5	133	64	59	14	162	35	5,5	45	M47x1,5	62	59	G1/8	53	72	3,5	0 ÷ 9	46	G3/8
MC202-D00	256,5	133	64	59	14	162	35	5,5	45	M47x1,5	62	59	G1/8	53	72	3,5	0 ÷ 9	46	G1/2

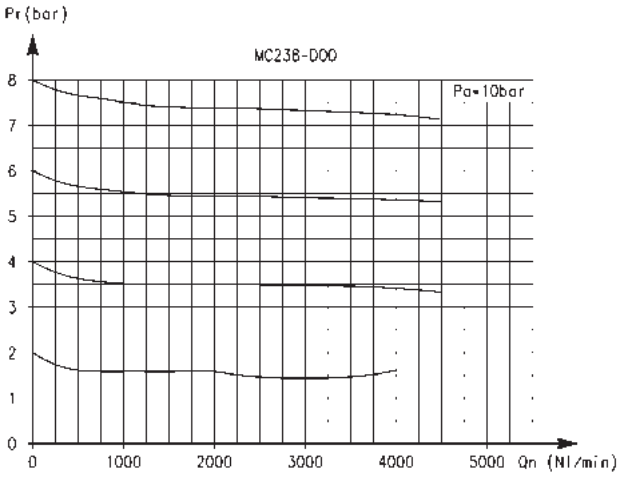
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FLOW DIAGRAMS



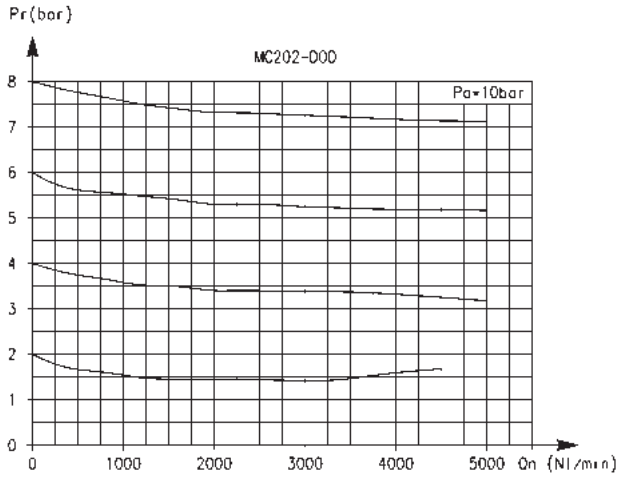
Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow

NOTE: on the filter-regulator the different air quality characteristics that can be reached through the filtering elements options don't affect the flow values shown in the diagram.



Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow

FLOW DIAGRAM



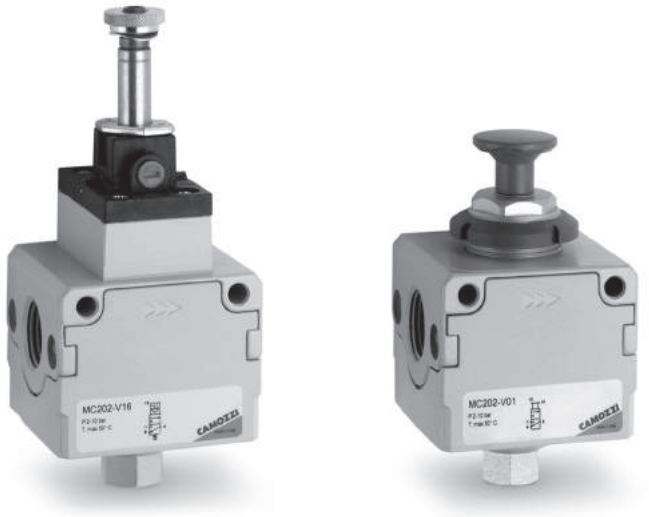
Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow

NOTE: on the filter-regulator the different air quality characteristics that can be reached through the filtering elements options don't affect the flow values shown in the diagram.

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Series MC
lockable isolation 3/2-way valves

Electropneumatic, pneumatic and manual version
Ports G1/4, G3/8 and G1/2
Modular



Positioning of these valves is often before the FRL unit.
The lockable isolation valves are available with ports G1/4, G3/8 and G1/2 and can be panel mounted.

The 3-way lockable isolation valves are available in the electropneumatic, pneumatic and manual version and are designed to block the air inlet of the FRL group and so pressurise and depressurise the equipment.

GENERAL DATA

Construction	modular compact, poppet-type
Materials	zama, NBR, technopolymer
Ports	G1/4 G3/8 G1/2
Weight	kg 0,277 kg 0,536 kg 0,514
Mounting	in- line, wall or panel mounting (in any position)
Operating temperature	-5°C ÷ 50°C (with the dew point of the fluid lower than 2°C at the min. working temperature)
Finishing	enamelled
Operating pressure	2 ÷ 10 bar (-0,8 ÷ 10 bar in the pneumatic version)
Nominal flow	see graphs
Nominal exhaust flow	G1/4 = 1080 Nl/min G3/8 = 2380 Nl/min G1/2 = 2380 Nl/min
Flow determined	at 6 bar with Δp = 1 bar

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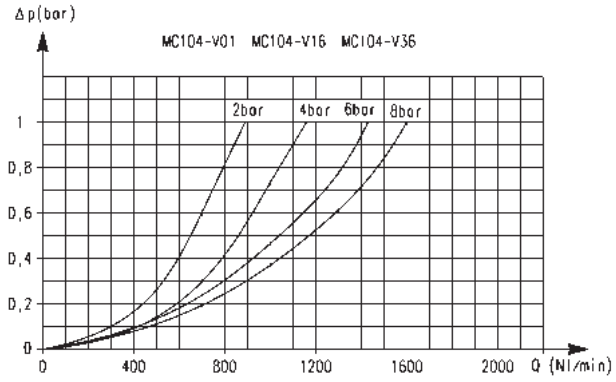
CODING EXAMPLE

MC	2	02	-	V	16

MC	SERIES
2	SIZE: 1 = G1/4 2 = G3/8 - G1/2
02	PORTS: 04 = G1/4 38 = G3/8 02 = G1/2
V	V = 3/2-WAY VALVE
16	DESIGN TYPE: 16 = electropneumatic 36 = pneumatic 01 = padlock valve (manual command)

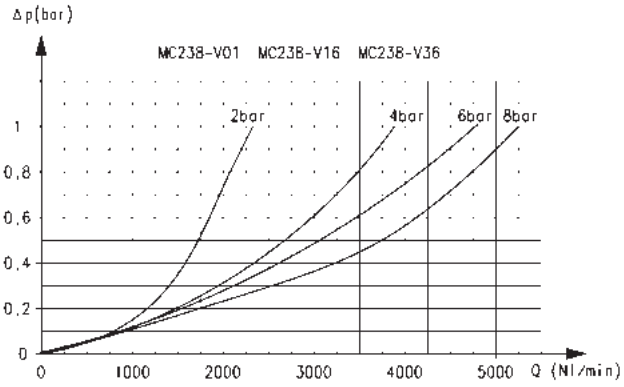
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FLOW DIAGRAMS



Flow diagram for models:
MC104-V01
MC104-V16
MC104-V36

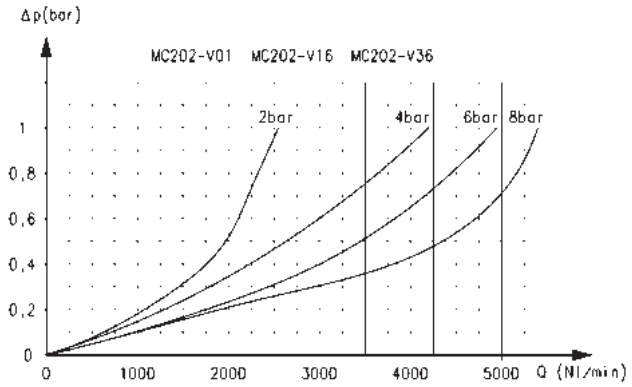
ΔP = Pressure drop
Q = Flow



Flow diagram for models:
MC238-V01
MC238-V16
MC238-V36

ΔP = Pressure drop
Q = Flow

FLOW DIAGRAM



Flow diagram for models:
MC202-V01
MC202-V16
MC202-V36

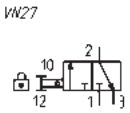
ΔP = Pressure drop
Q = Flow

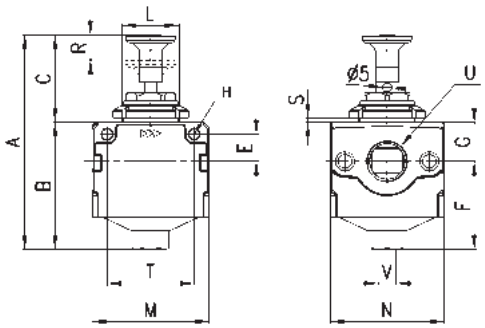
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Lockable isolation valves Series MC - manual version



Actuating force at 6 bar :
- MC104-V01 = 29N
- MC238-V01 = 31N
- MC202-V01 = 31N





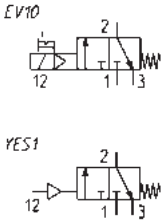
DIMENSIONS

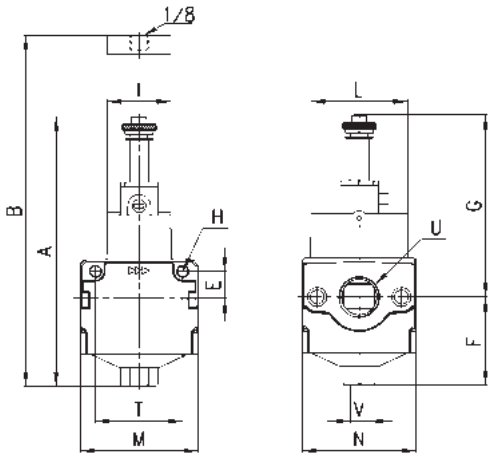
Mod.	A	B	C	E	F	G	H	L	M	N	R	S	T	U	V
MC104-V01	96,5	54,5	42	11	38,5	16	4,5	M30x1,5	45	45	9	0 ÷ 6	35	G1/4	G1/8
MC238-V01	113	67	46	14	46,5	20,5	5,5	M30x1,5	62	60	13	0 ÷ 6	46	G3/8	G1/4
MC202-V01	113	67	46	14	46,5	20,5	5,5	M30x1,5	62	60	13	0 ÷ 6	46	G1/2	G1/4

Lockable isolation valves Series MC - electro-/pneumatic version

EV10 = solenoid valve, 3/2 NC, monostable, with bistable manual override
YES1 = pneumatically operated valve, 3/2, monostable, mechanical spring







DIMENSIONS

Mod.	A	B	E	F	G	H	I	L	M	N	T	U	V	Symbol
MC104-V16	120	-	11	38,5	81,5	4,5	22	32	45	45	35	G1/4	G1/8	EV10
MC238-V16	142,5	-	14	46,5	96	5,5	33,5	51	62	60	46	G3/8	G1/4	EV10
MC202-V16	142,5	-	14	46,5	96	5,5	33,5	51	62	60	46	G1/2	G1/4	EV10
MC104-V36	-	77,5	11	38,5	-	4,5	22	32	45	45	35	G1/4	G1/8	VP01
MC238-V36	-	93,5	14	46,5	-	5,5	33,5	51	62	60	46	G3/8	G1/4	VP01
MC202-V36	-	93,5	14	46,5	-	5,5	33,5	51	62	60	46	G1/2	G1/4	VP01

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Series MC soft start valves

Ports G1/4, G3/8 and G1/2
Modular



Series MC soft start valves are used to avoid damages to people or equipment when pressurising pneumatic systems containing cylinders.
The features of these components allow to pressurise an equipment up to 50% of the indicated pressure, after which 100% is reached rapidly.
The usual location of the soft start valve is after the FRL unit; in fact the modular design allows for perfect adaptability with all Series MC.

A pressure switch can be mounted into the upper part of the unit after removal of the S2610 G1/8 plug.
An electrical or pneumatic 3 way valve should be installed at the bottom of the unit to allow depressurisation.

GENERAL DATA

Construction	modular, compact, poppet type			
Materials	zama, NBR, technopolymer			
Ports		G1/4	G3/8	G1/2
Weight	Kg	0,275	0,566	0,544
Mounting	in-line wall or panel mounting (in any position)			
Operating temperature	-5°C ÷ 50°C (with the dew point of the fluid lower than 2°C at the min. working temperature)			
Finishing	enamelled			
Operating pressure	2 ÷ 10 bar			
Nominal flow (determined at 6 bar with ΔP1)	G1/4 = 1850 Nl/min, G3/8 = 4000 Nl/min, G1/2 = 4350 Nl/min			

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CODING EXAMPLE

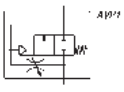
MC	2	02	-	AV

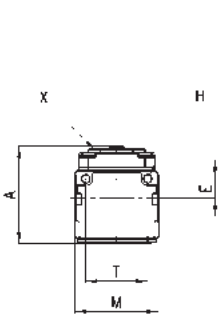
MC	SERIES
2	SIZE: 1 = G1/4 2 = G3/8 - G1/2
02	PORTS: 04 = G1/4 38 = G3/8 02 = G1/2
AV	AV = SOFT START VALVE

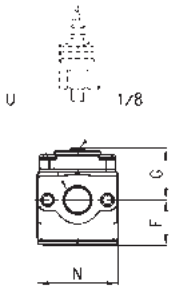
Soft start valve Series MC

X = adjustment screw







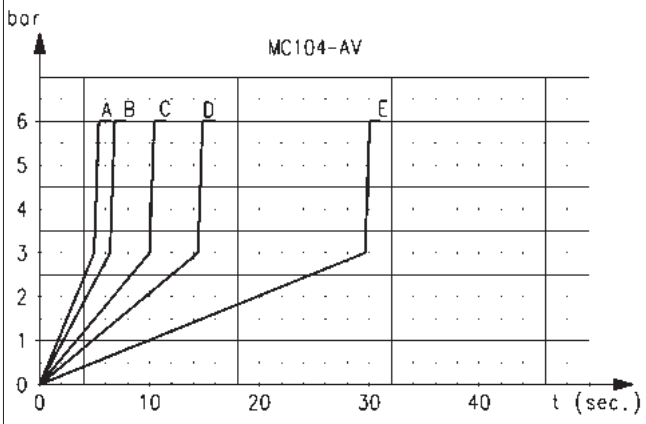


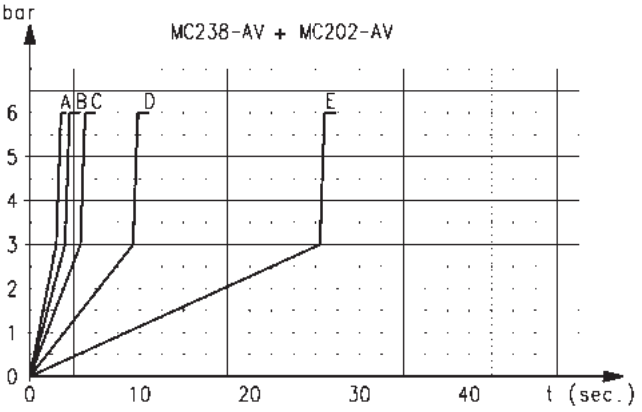
DIMENSIONS

Mod.	A	E	F	G	H	M	N	T	U
MC104-AV	59,5	11	28,5	31	4,5	45	45	35	G1/4
MC238-AV	72,5	14	34	38,5	5,5	62	60	46	G3/8
MC202-AV	72,5	14	34	38,5	5,5	62	60	46	G1/2

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DIAGRAMS FOR PRESSURISATION TIMES

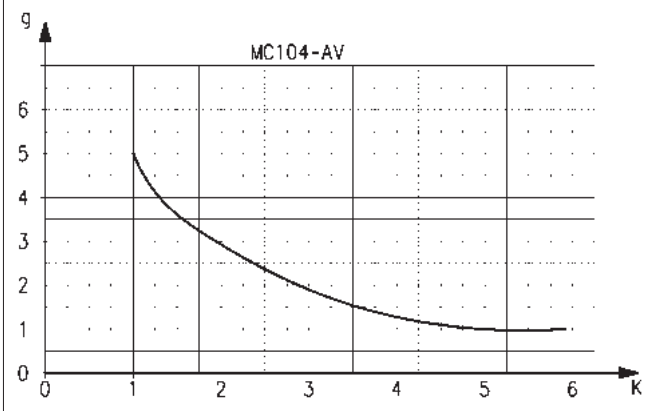


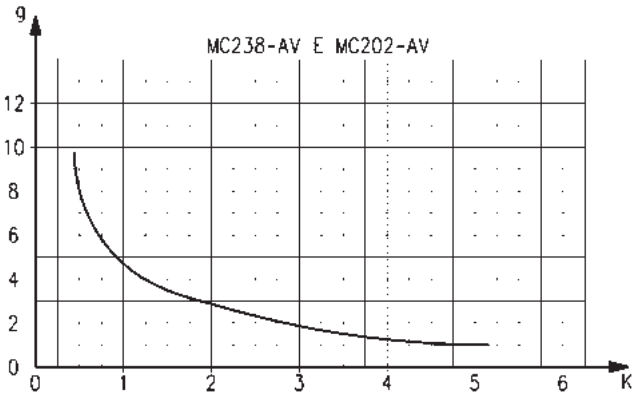


Pressurisation times as to the n° of turns of the regulation screw, with downstream volume of 5 litres. A = 5 turns - B = 4 turns - C = 3 turns - D = 2 turns - E = 1 turn. “K” = n° of turns of the regulation screw required to obtain the required pressurisation time with an inlet pressure of 6 bar. Variations of the inlet pressure can cause deviations of the pressure time by ± 20%. K = t/V where: V = volume of the downstream system in litres; t = desired pressuring time in seconds.

Pressurisation times as to the n° of turns of the regulation screw, with downstream volume of 5 litres. A = 9 turns - B = 7 turns - C = 5 turns - D = 3 turns - E = 1 turn. “K” = n° of turns of the regulation screw required to obtain the required pressurisation time with an inlet pressure of 6 bar. Variations of the inlet pressure can cause deviations of the pressure time by ± 20%. K = t/V where: V = volume of the downstream system in litres; t = desired pressuring time in seconds.

VARIATION IN PRESSURISATION - Example





Example: MC104-AV
V = 5 litres
t = 16 seconds
K = 16/5 = 3,2
g = number of turns
Using in the graph this value K, the number of turns of the regulation screw will be approx. 1,8.

Example: MC238-AV - MC202-AV
V = 5 litres
t = 16 seconds
K = 16/5 = 3,2
g = number of turns
Using in the graph this value K, the number of turns of the regulation screw will be approx. 1,8.

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Series MC take-off blocks

Ports G1/4 and G1/2
Modular



The take-off blocks, when equipped with a no return valve, allow the use of non lubricated air and should be inserted between the regulator and the lubricator.
If mounted as last element, they should be assembled with terminal flanges.

GENERAL DATA

Construction	modular, compact, diaphragm type
Materials	zama, NBR, technopolymer
Ports	G1/4 G1/2
Weight	kg 0,232 kg 0,379
Take off ports	G1/4 G1/2
Mounting	in- line or wall mounting (in any position)
Operating temperature	-5°C ÷ 50°C (with the dew point of the fluid lower than 2°C at the min. working temperature)
Finishing	enamelled
Operating pressure	0 ÷ 16 bar
Nominal flow (6 bar ΔP 1bar)	MC1-B = 4080 Nl/min MC1-B-VNR = 2350 Nl/min MC2-B = 8400 Nl/min MC2-B-VNR = 5600 Nl/min

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CODING EXAMPLE

MC	2	-	B	-	VNR

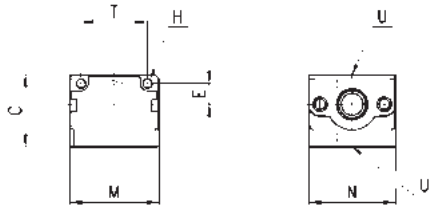
MC	SERIES
2	SIZE: 1 = G1/4 2 = G1/2
B	B = TAKE OFF BLOCK
VNR	VERSION: = standard VNR = with no return valve

Take off blocks Series MC



BL01 = take-off block
BL02 = take-off block with VNR





DIMENSIONS

Mod.	C	H	E	M	N	T	U		Symbol
MC1-B	43	4,5	11	45	45	35	G1/4	1	BL01
MC1-B-VNR	43	4,5	11	45	45	35	G1/4	1	BL02
MC2-B	50	5,5	14	62	60	46	G1/2	2	BL01
MC2-B-VNR	50	5,5	14	62	60	46	G1/2	2	BL02

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ACCESSORIES FOR SERIES MC



Terminal flanges
(kit A)



Mounting brackets
(kit B)



Mounting bracket
Mod. C114-ST



Mounting bracket
Mod. C114-ST/1



Mounting bracket
Mod. C114-ST/2



Mounting bracket
Mod. C238-ST/1



Mounting bracket
Mod. MX2-S



Tie-rods for assembling
(kit C)



Tie-rods for assembling
(kit D)



Screws for assembling
(kit E)



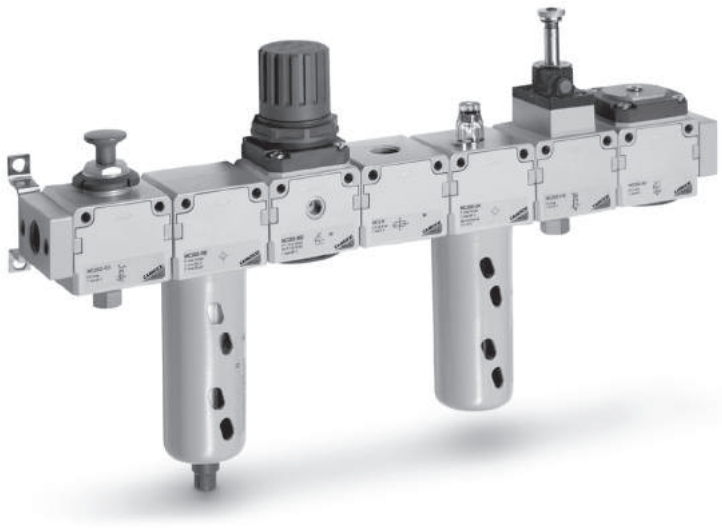
Screws for assembling
(kit F)



Screws for assembling
(kit G)



Assembly O-ring



Systems of rapid connections designed to make mounting easier.

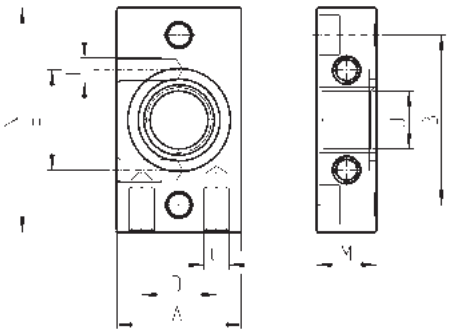
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Terminal flanges (kit A)



The kit MC104-FL is supplied with: 1x left flange; 1x right flange; 4x screws M4x14; 2x O-Ring 2068. Each of the kits MC202-FL and MC238-FL is supplied with: 1x left flange; 1x right flange; 4x screws M5x14; 2x O-Ring 3100.

Materials: painted aluminium flanges, zinc-plated steel screws and NBR O-ring.



DIMENSIONS

Mod.	A	B	C	D	E	F	N	M	U	size
MC104-FL	25	34	M5	15	M5	20	45	12	G1/4	1
MC238-FL	35	44,5	M5	20	-	-	60	14	G3/8	2
MC202-FL	35	44,5	M5	20	-	-	60	14	G1/2	2

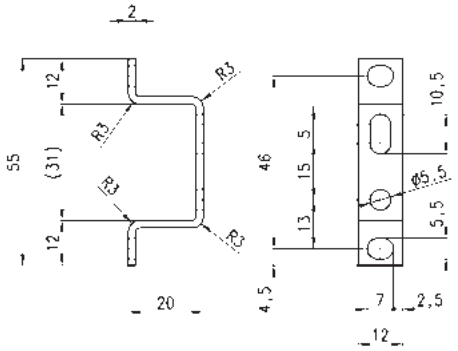
Mounting bracket for (kit B)



Mounting bracket for terminals 1/4, 3/8, 1/2.

The kit MC104-ST is supplied with:
- 2x terminal brackets
- 4x screws M5x10

Materials: zinc-plated steel brackets and screws.



DIMENSIONS

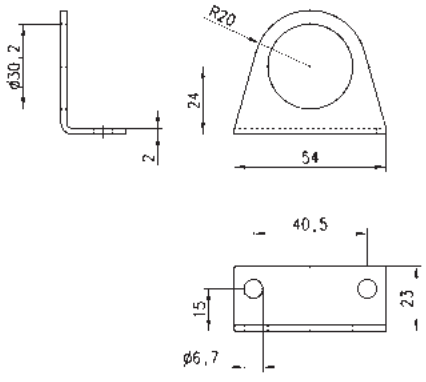
Mod.
MC104-ST

Mounting bracket Mod. C114-ST



For regulators and filter-regulators (G1/4 - G1/8)

The kit is supplied with:
1x zinc-plated steel bracket.



Mod.
C114-ST

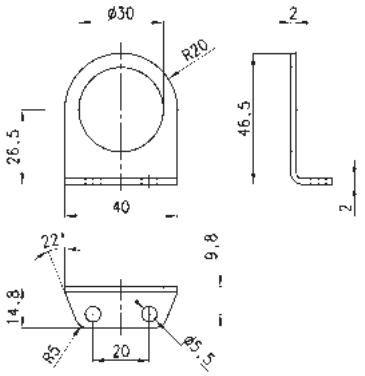
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Mounting bracket Mod. C114-ST/1



For regulators and filter-regulators
(G1/4 - G1/8)

The kit is supplied with 1 zinc-plated steel bracket.



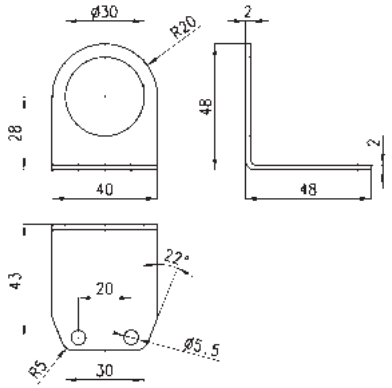
Mod.
C114-ST/1

Mounting bracket Mod. C114-ST/2



For regulators and filter-regulators
(G1/4 - G1/8)

The kit is supplied with 1 zinc-plated steel bracket.



Mod.
C114-ST/2

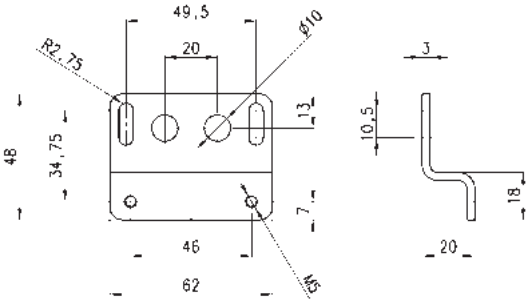
Mounting bracket Mod. C238-ST/1



for MC238 and MC202

The kit is supplied with:
1 bracket; 2 screws M5X65

Materials: zinc-plated steel bracket and screws.



Mod.
C238-ST/1

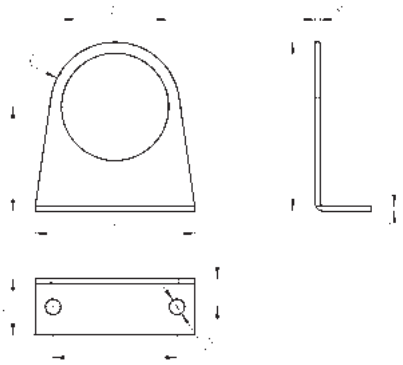
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Fixing bracket Mod. MX2-S



for regulators Mod. MC238 and MC202

The kit is supplied with 1 zinc-plated steel bracket



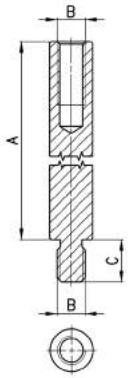
Mod.	A	B	C	D	E	F	G	H	L	M	N
MX2-S	Ø 47,2	73	60,5	R29,5	54	25	15	Ø 6,2	90	2,5	2,5

Tie-rods for assembling (kit C)



The kit MC1-TMF is supplied with:
2 male/female tie-rods; 1 O-ring 2068.
The kit MC2-TMF is supplied with:
2 male/female tie-rods; 1 O-ring 3100.

Materials: nickel-plated steel tie-rods and NBR O-ring.



DIMENSIONS

Mod.	A	B	SW	size
MC1-TMF	45	M4	6	1
MC2-TMF	62	M5	6	2

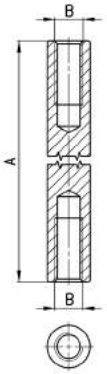
Tie-rods for assembling (kit D)



The kit MC1-TFF is supplied with 2 female tie-rods.

The kit MC2-TFF is supplied with 2 female tie-rods.

Materials: nickel-plated steel tie-rods.



DIMENSIONS

Mod.	A	B	size
MC1-TFF	44	M4	1
MC2-TFF	61	M5	2

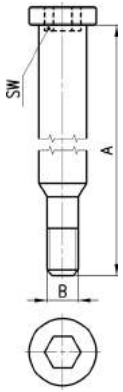
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Screws for assembling (kit E)



The kit MC1-VM is supplied with:
2 male screws; 1 O-ring 2068.
The kit MC2-VM is supplied with:
2 male screws; 1 O-ring 3100

Materials: zinc-plated steel screws and NBR O-ring.



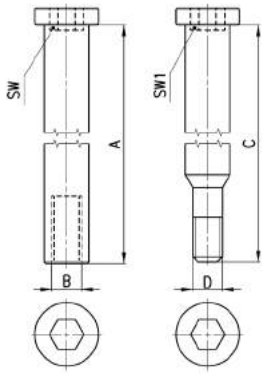
Mod.	A	B	SW	size
MC1-VM	48,5	M4	4	1
MC2-VM	65,5	M5	4	2

Screws for assembling (kit F)



The kit is supplied with: 2 male screws; 2 female screws; 1 O-ring (OR 2068 for MC1-VMF; OR 3100 for MC2-VMF).

Materials: zinc-plated steel male screws, nickel-plated steel female screws and NBR O-ring.



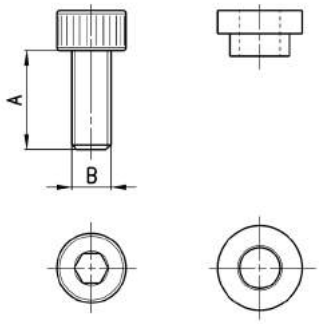
DIMENSIONS							
Mod.	A	B	C	D	SW	SW1	size
MC1-VMF	48,5	M4	42,5	M4	4	4	1
MC2-VMF	65,5	M5	59,5	M5	4	4	2

Screws (kit G) to assemble 2 bodies type “M”



The kit MC1-VMD is supplied with:
4 screws M4X10; 4 spacers; 2 O-ring 2068.
The kit MC2-VMD is supplied with:
4 screws M5X12; 4 spacers; 2 O-ring 3100.

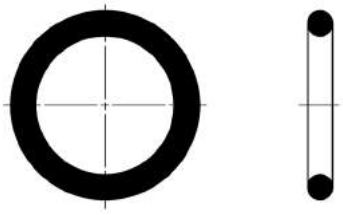
Materials: zinc-plated steel screws, brass spacers and NBR O-ring.



Mod.	A	B	size	
MC1-VMD	10	M4	1	*
MC2-VMD	12	M5	2	*

O-ring for assembling



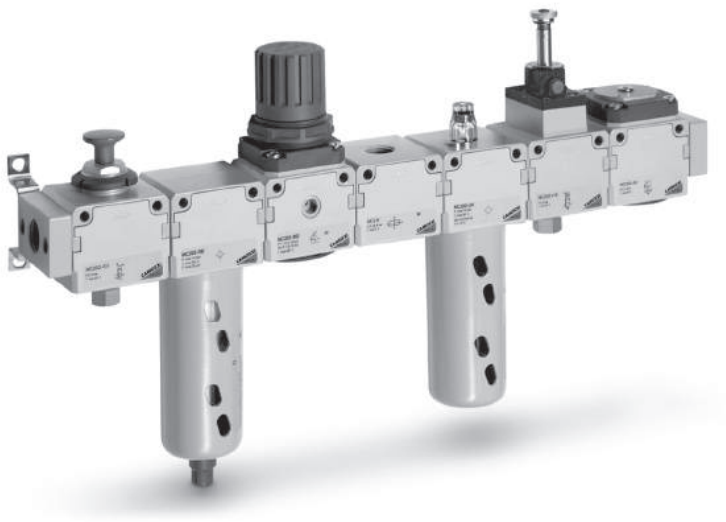


Mod.	O-ring	For assembly	
458-33/1	OR 2068	MC104	
80-26-11/4T	OR 3100	MC238, MC202	*

* spare parts only

Series MC assembled FRL

Ports G1/4, G3/8 and G1/2



- » Clean design
- » Great modularity
- » Easy maintenance

The FRL Series MC in the assembled version can be easily assembled by means of modular tie rods on which it is possible to mount the single elements without any limits in the composition. The FRL groups Series MC are available already mounted (with a single code).

The connections can be made directly on the elements or on the terminal flanges (Kit A) with the advantage that in case of maintenance the group can be extracted without disconnecting the tubing.
The version with flanges is supplied without tie-rods.

GENERAL DATA

Construction	modular, compact
Materials	zama, NBR, technopolymer
Ports	G1/4 - G3/8 - G1/2
Mounting	vertical, in-line or wall-mounting
Operating temperature	-5°C ÷ 50°C at 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Finish	enamelled
Flow	determined at 6 bar inlet supply with ΔP 1 bar (ΔP 0,5 only for FRL)

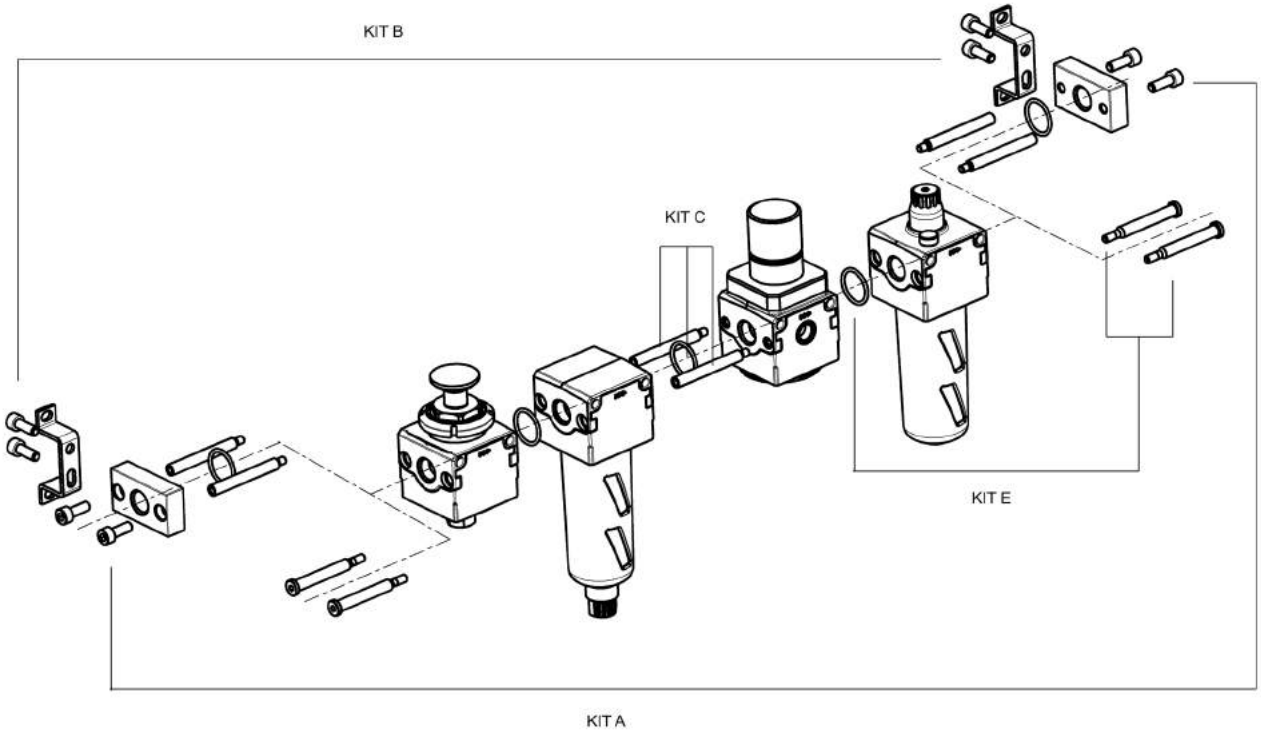
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COMPOSITION OF THE KITS

- EXAMPLE BODY TYPE [M] with female no through threads: - regulator - filter-regulator - Manifold regulator group, an assembly of more manifold regulators counts as a body type “M”.

- EXAMPLE BODY TYPE [P] with through holes: - filter - lubricator - soft start valve - take off block - isolation valve

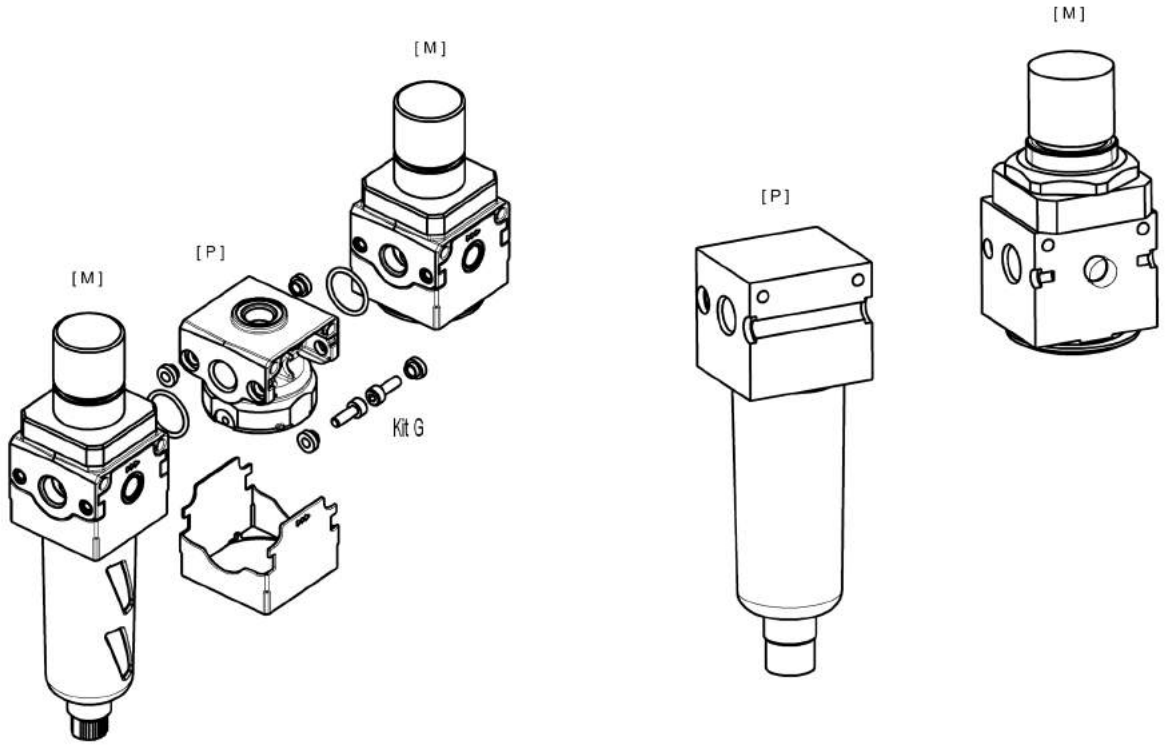
The “x” in the codes in the following table refer to the size, see MC Accessories in the section 3/2.44.



Mod.	Description	Supplied with:
MCxxx-FL	Kit A	1 right flange 1 left flange 4 screws - 2 O-ring
MCxxx-ST	Kit B	2 brackets + 4 screws
MCx-TMF	Kit C	2 tie rods male-female 1 O-ring
MCx-TFF	Kit D	2 tie rods female-female
MCx-VM	Kit E	2 male screws 1 O-ring
MCx-VMF	Kit F	2 male screws 2 female screws 1 O-ring
MCx-VMD	Kit G	4 screws 4 spacers + 2 O-ring To be used on a body type “P” positioned in between two body types “M”.

ASSEMBLY EXAMPLE WITH AND WITHOUT TERMINAL FLANGES

- the body types [M] are with female no through threads
- the body types [P] are with through holes



Assembly between types P and M	KIT for ass. without terminal flanges	KIT for ass. with terminal flanges
P + M	1 kit E	1 Kit A + 1 Kit C
M + P	1 kit E	1 Kit A + 1 Kit C
P + P	1 Kit F	1 Kit A + 1 Kit C + 1 Kit D
P + M + P	2 Kit E	1 Kit A + 2 Kit C
P + P + P	1 Kit F + 1 Kit C	1 Kit A + 2 Kit C + 1 Kit D
M + P + P	1 Kit E + 1 Kit C	1 Kit A + 2 Kit C
M + P + M	1 Kit G	1 Kit A + 1 Kit G
P + M + P + P	2 Kit E + 1 Kit C	1 Kit A + 3 Kit C
P + P + M + P + P	2 Kit E + 2 Kit C	1 Kit A + 4 Kit C

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CODING EXAMPLE

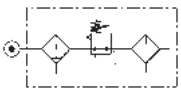
MC	2	02	-	C	-	5	-	FL

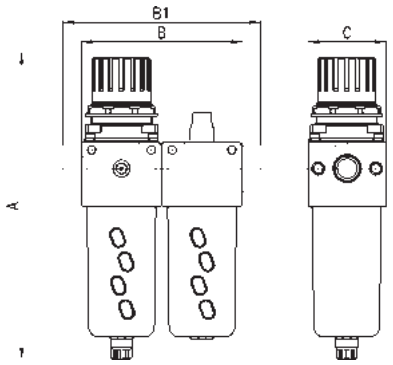
MC	MC = SERIES
2	SIZE 1 = G1/4 2 = G3/8 - G1/2
02	PORT 04 = G1/4 38 = G3/8 02 = G1/2
C	ASSEMBLY GROUP C = D + L E = V01 + D + L FRL = F + R + L GN = D + L + V16 + AV HNA = V01 + D + L + V16 + AV + PRESS NO HNC = V01 + D + L + V16 + AV + PRESS NC N = V01 + D PN = D + V16 + AV QN = V01 + D + V16 + AV TN = V01 + D + L + V16 + AV U = F13 + FB3 (only for 3/8 - 1/2) ZNA = V01 + D + V16 + AV + PRESS NO ZNC = V01 + D + V16 + AV + PRESS NC
5	FILTERING ELEMENT 5 = 5 µm (standard) 25 = 25 µm (upon request)
FL	VERSION FL = with terminal flanges (without brackets)
	LEGEND: D = Filter-regulator 0.5-10 bar, semi-automatic-manual drain with relieving, filtering element 5 µm or 25 µm L = Lubricator V01 = 3/2-way manually operated valve F = Filter 5 µm or 25 µm R = Regulator 0.5-10 bar with relieving V16 = 3/2-way electropneumatically operated valve AV = Soft start valve PRESS NO = Pressure switch, Normally Open PRESS NC = Pressure switch, Normally Closed F13 = Filter 5 µm with automatic drain FB3 = Coalescing filter 0.01 µm with automatic drain

Assembly group C

Components:
Filter-regulator
Lubricator







DIMENSIONS

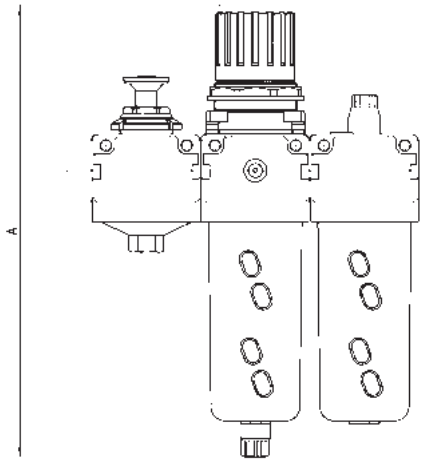
Mod.	A	B	B1	C	Flow rate (Nl/min)
MC104-C-5	193,5	90	-	45	1450
MC238-C-5	256,5	124	-	60	4800
MC202-C-5	256,5	124	-	60	4900
MC104-C-5-FL	193,5	-	114	45	1450
MC238-C-5-FL	256,5	-	152	60	4800
MC202-C-5-FL	256,5	-	152	60	4900

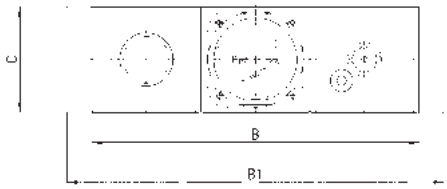
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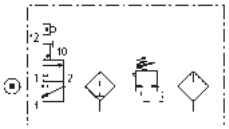
Assembly group E



Components:
Lockable isolation 3/2-way valve
Filter-regulator
Lubricator





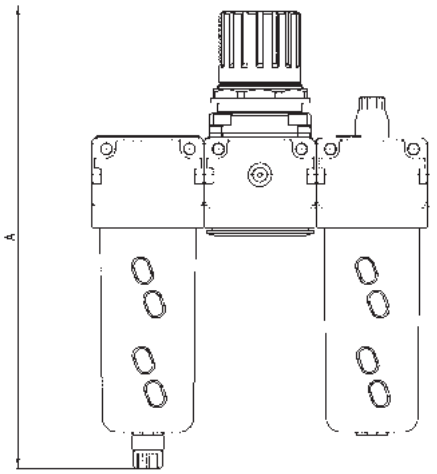


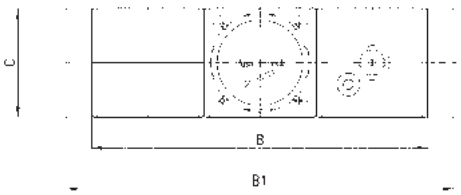
DIMENSIONS					
Mod.	A	B	B1	C	Flow rate (Nl/min)
MC104-E-5	193,5	135	-	45	1450
MC238-E-5	256,5	186	-	60	4800
MC202-E-5	256,5	186	-	60	4950
MC104-E-5-FL	193,5	-	159	45	1450
MC238-E-5-FL	256,5	-	214	60	4800
MC202-E-5-FL	256,5	-	214	60	4950

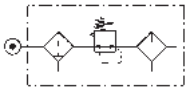
Assembly group FRL



Components:
Filter
Regulator
Lubricator







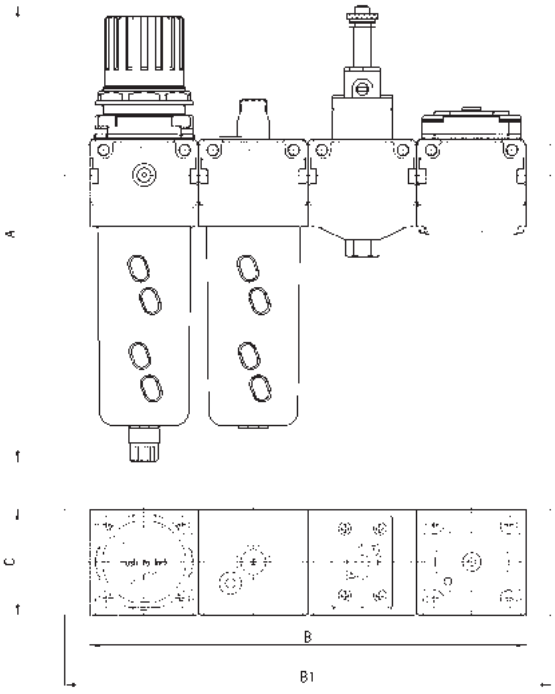
DIMENSIONS					
Mod.	A	B	B1	C	Flow rate (Nl/min)
MC104-FRL-5	193	135	-	45	1450
MC238-FRL-5	256,5	186	-	60	4800
MC202-FRL-5	256,5	186	-	60	4900
MC104-FRL-5-FL	193,5	-	159	45	1450
MC238-FRL-5-FL	256,5	-	214	60	4800
MC202-FRL-5-FL	256,5	-	214	60	4900

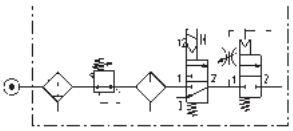
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Assembly group GN



Components:
Filter-regulator
Lubricator
Lockable isolation 3/2-way valve
Soft start valve



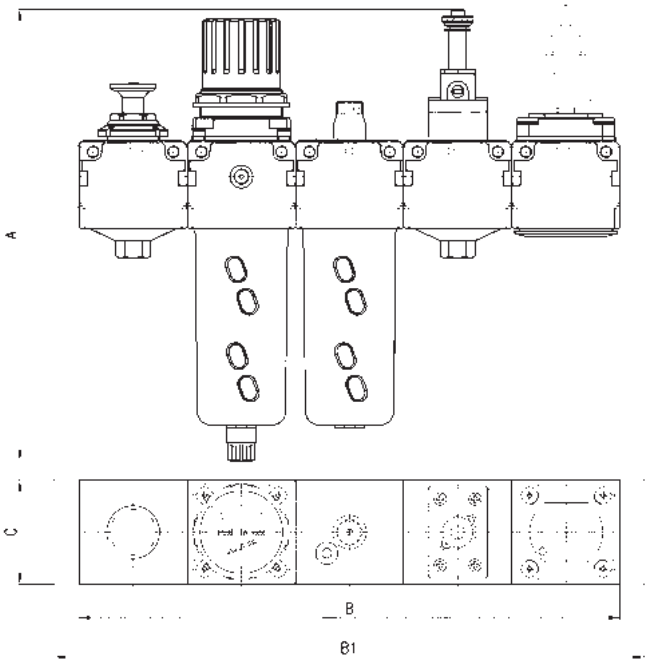


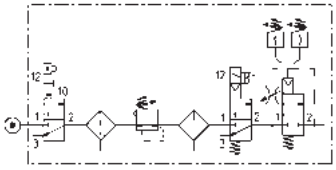
DIMENSIONS					
Mod.	A	B	B1	C	Flow rate (Nl/min)
MC104-GN-5	208	180	-	45	1450
MC238-GN-5	259	248	-	60	4800
MC202-GN-5	259	248	-	60	4900
MC104-GN-5-FL	208	-	204	45	1450
MC238-GN-5-FL	259	-	276	60	4800
MC202-GN-5-FL	259	-	276	60	4950

Assembly group HN...



Components:
Lockable isolation 3/2-way valve
Filter-regulator
Lubricator
Lockable isolation 3/2-way valve
Soft start valve + pressure switch (NC)





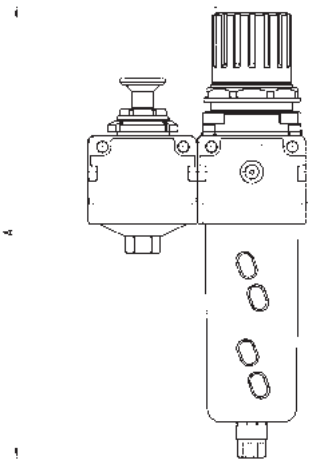
DIMENSIONS					
Mod.	A	B	B1	C	Flow rate (Nl/min)
MC104-HN...-5	208	225	-	45	1450
MC238-HN...-5	259	310	-	60	4800
MC202-HN...-5	259	310	-	60	4950
MC104-HN...-5-FL	208	-	249	45	1450
MC238-HN...-5-FL	259	-	338	60	4800
MC202-HN...-5-FL	259	-	338	60	4950

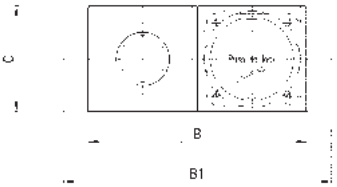
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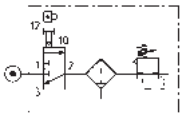
Assembly group N



Components:
Lockable isolation 3/2-way valve
Filter-regulator





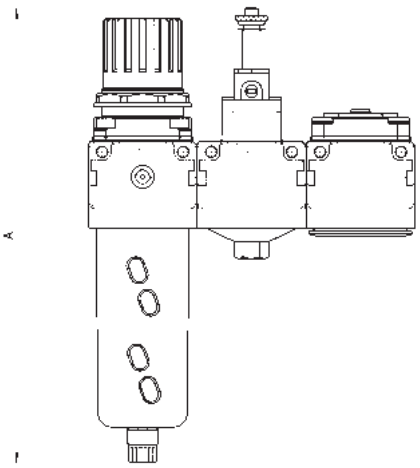


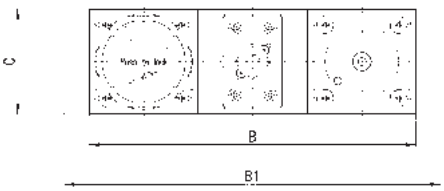
DIMENSIONS					
Mod.	A	B	B1	C	Flow rate (Nl/min)
MC104-N-5	193,5	90	-	45	1450
MC238-N-5	256,5	124	-	60	4800
MC202-N-5	256,5	124	-	60	4950
MC104-N-5-FL	193,5	-	114	45	1450
MC238-N-5-FL	256,5	-	152	60	4800
MC202-N-5-FL	256,5	-	152	60	4950

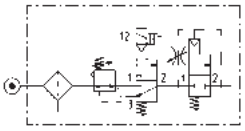
Assembly group PN



Components:
Filter-regulator
Lockable isolation 3/2-way valve
Soft start valve







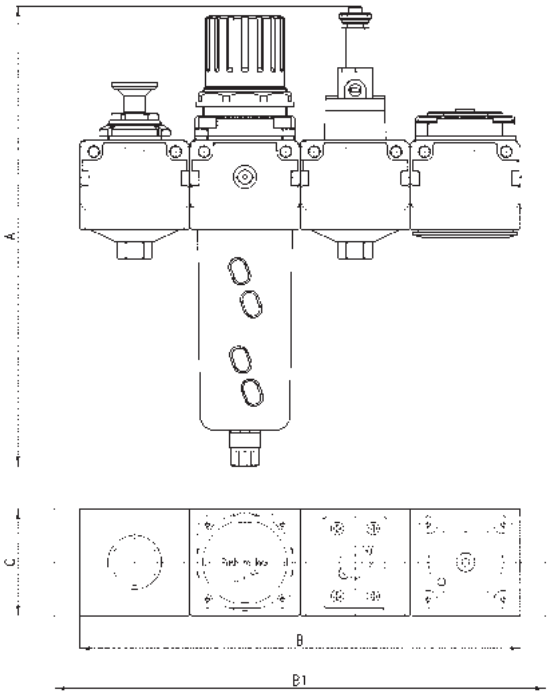
DIMENSIONS					
Mod.	A	B	B1	C	Flow rate (Nl/min)
MC104-PN-5	208	135	-	45	1450
MC238-PN-5	259	186	-	60	4800
MC202-PN-5	259	186	-	60	4950
MC104-PN-5-FL	208	-	159	45	1450
MC238-PN-5-FL	259	-	214	60	4800
MC202-PN-5-FL	259	-	214	60	4950

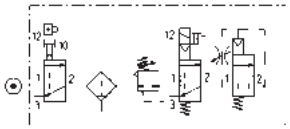
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Assembly group QN



Components:
Lockable isolation 3/2-way valve
Filter-regulator
Lockable isolation 3/2-way valve
Soft start valve



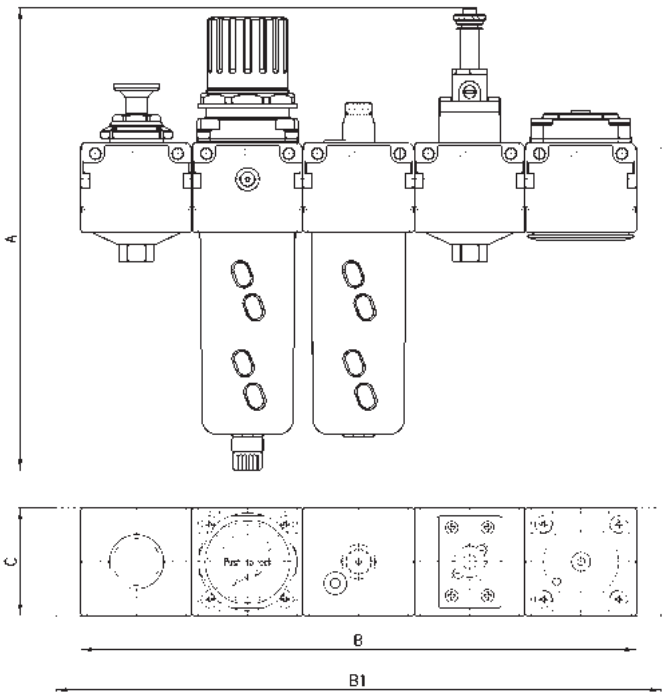


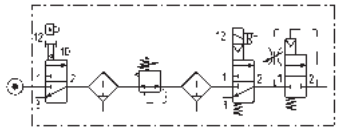
DIMENSIONS					
Mod.	A	B	B1	C	Flow rate (Nl/min)
MC104-QN-5	208	180	-	45	1450
MC238-QN-5	259	248	-	60	4800
MC202-QN-5	259	248	-	60	4950
MC104-QN-5-FL	208	-	204	45	1450
MC238-QN-5-FL	259	-	276	60	4800
MC202-QN-5-FL	259	-	276	60	4950

Assembly group TN



Components:
Lockable isolation 3/2-way valve
Filter-regulator
Lubricator
Lockable isolation 3/2-way valve
Soft start valve





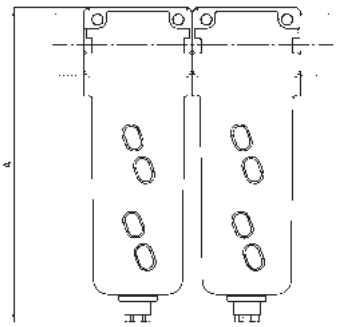
DIMENSIONS					
Mod.	A	B	B1	C	Flow rate (Nl/min)
MC104-TN-5	208	225	-	45	1450
MC238-TN-5	259	310	-	60	4800
MC202-TN-5	259	310	-	60	4950
MC104-TN-5-FL	208	-	249	45	1450
MC238-TN-5-FL	259	-	338	60	4800
MC202-TN-5-FL	259	-	338	60	4950

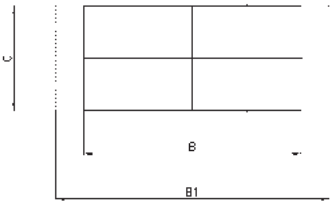
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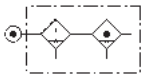
Assembly group U



Components:
Filter
Coalescing filter





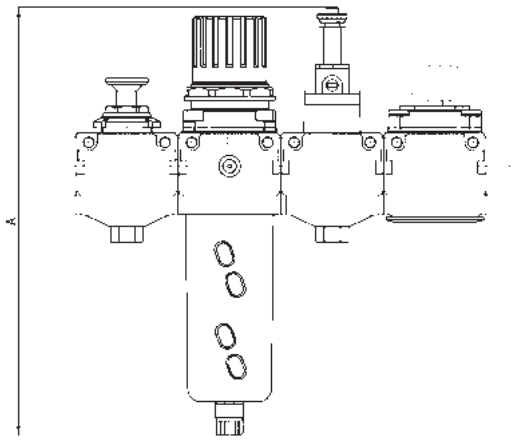


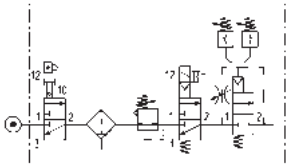
DIMENSIONS					
Mod.	A	B	B1	C	Flow rate (Nl/min)
MC238- U-5	180	124	-	60	2050
MC202- U-5	180	124	-	60	2300
MC238-U-5-FL	180	-	152	60	2050
MC202-U-5-FL	180	-	152	60	2300

Assembly group ZN...



Components:
Lockable isolation 3/2-way valve
Filter-regulator
Lockable isolation 3/2-way valve
Soft start valve + pressure switch
(NO or NC)





DIMENSIONS					
Mod.	A	B	B1	C	Flow rate (Nl/min)
MC104-ZN...-5	208	180	-	45	1450
MC238-ZN...-5	259	248	-	60	4800
MC202-ZN...-5	259	248	-	60	4950
MC104-ZN...-5-FL	208	-	204	45	1450
MC238-ZN...-5-FL	259	-	276	60	4800
MC202-ZN...-5-FL	259	-	276	60	4950

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Series MC
manifold pressure regulators

Ports G1/4
Modular



The manifold pressure regulators with ports G1/4 are available with a second pressure relieving and can be in-line or panel mounted.

GENERAL DATA

Construction	compact modular, diaphragm type
Materials	zama, NBR, technopolymer
Port	G1/4
Weight	kg 0,320
Pressure gauge ports / outlet	G1/8
Mounting	in-line, wall or panel mounting (in any position)
Operating temperature	-5°C ÷ 50°C (with the dew point of the fluid lower than 2°C at the min. working temperature)
Finishing	enamelled
Inlet pressure	0 ÷ 16 bar
Outlet pressure	0.5 ÷ 10 bar or 0 ÷ 4 bar
Flow	see graph
Secondary pressure relieving	standard

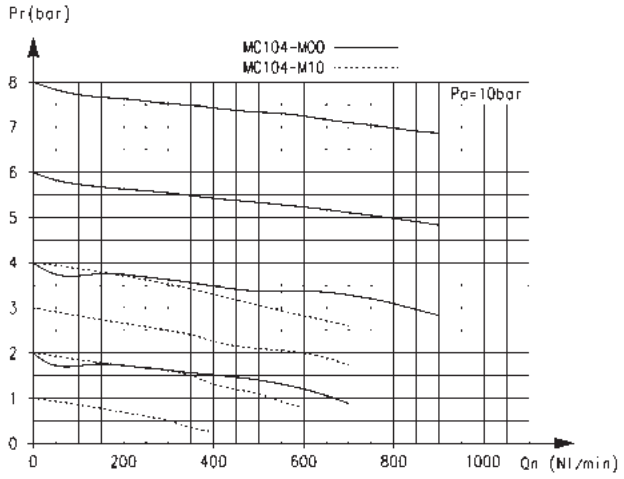
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CODING EXAMPLE

MC	1	04	-	M	0	0

MC	SERIES
1	SIZE: 1 = G1/4
04	PORT: 04 = G1/4
M	MANIFOLD REGULATOR
0	OPERATING PRESSURE: 0 = 0,5 ÷ 10 (standard) 1 = 0 ÷ 4 2 = 0,5 ÷ 2 7 = 0,5 ÷ 7
0	CONSTRUCTION: 0 = self-relieving (standard) 1 = non-relieving 5 = precise relieving

FLOW DIAGRAM



Flow diagram for model: MC104-M00
Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow

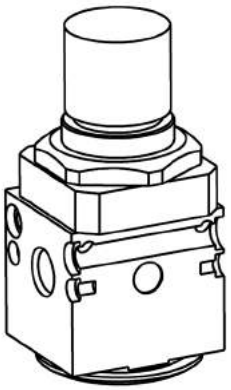
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Assembly

EXAMPLE BODY TYPE [H] :
Manifold regulator with through holes on top (used to mount the manifold regulators to each other).

N.B.: Once a group of manifolds has been assembled, it can be inserted in a FRL group. In this case the manifold regulator assembly alone would be defined as body type M.

"H"



Assembly kits

- Kit A: 1 right flange + 1 left flange + 4 screws + 2 O-ring.

- Kit B: 2 brackets + 4 screws.

- Kit C: 2 tie rods male-female + 1 O-ring.

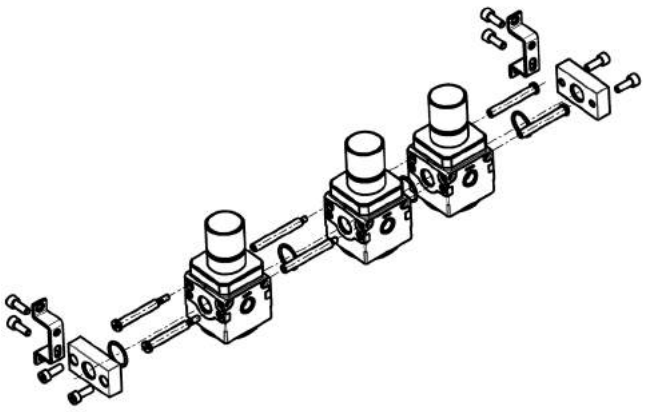
- Kit D: 2 tie rods female-female.

- Kit E: 2 male screws + 1 O-ring.

- Kit F: 2 male screws + 2 female screws + 1 O-ring.

- Kit G: 4 screws + 4 spacers + 2 O-ring, to be used on a body type “P” positioned between two body types “M”.

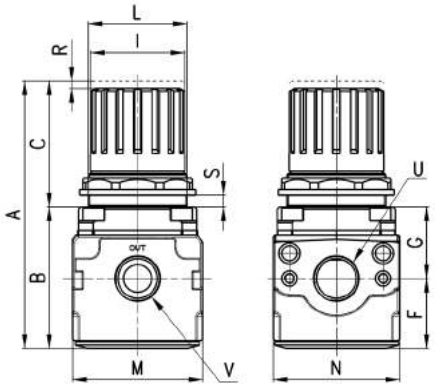
N.B. for configurations which differ from the ones described, you can only add only bodies type “H” and for every part added you should add a Kit “C”.



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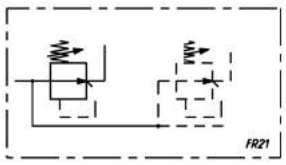
Manifold pressure regulators Series MC







FR19 = Manifold regulator with relieving without pressure gauge



FR21 = Manifold regulator without relieving and without pressure gauge

DIMENSIONS

Mod.	A	B	C	F	G	I	L	M	N	R	S	U	V
MC104-M00	94	55	39	28	28	28	30X1,5	45	45	3	0 ÷ 6	G1/4	G1/8

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Series MD filters

New

Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm.
Modular assembly
Bowl with technopolymer cover and bayonet-type mounting



- Removal of impurities and condensate
- Visual blockage indicator
- Condensate drain options: semi-automatic manual, automatic protected depressurisation, direct G1/8 exhaust
- Bowl locking system reducing the risk of accidents
- Additional air intakes with the same characteristics of the outlet air (line)

The Series MD air preparation product line is characterized by a modern and linear design as well as high performance.
The technopolymer structure has allowed to create a simplified, product, lightweight and robust at the same time.

Thanks to the solution adopted for the pneumatic connection, it is possible to equip the same element with interchangeable cartridges that can either be threaded, or with an integrated super-rapid fitting, both types available in different sizes. Intermediate cartridges can be also integrated to join multiple functions or with derivation to draw air.
An additional air intake, with the same characteristic of the outlet air, is available on the front side and on the rear one. This intake can be used by utilities with limited consumption.

GENERAL DATA

Construction	modular, compact with filtering element in HDPE
Materials	see TABLE OF MATERIALS (pag. 3/0.05.02)
Ports	with interchangeable cartridges: 1/8, 1/4 and 3/8 threaded or integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm
Condensate capacity	24 cc
Fixing	vertical in-line; wall-mounting by means of through holes in the body or with a support bracket
Operating temperature	-5°C ÷ 50°C up to 16 bar
Condensate drain	semi-automatic manual, automatic protected depressurisation, direct G1/8 exhaust
Quality of delivered air according to ISO 8573-1 2010	Class 6.8.4 with 5 µm filtering element Class 7.8.4 with 25 µm filtering element
Operating pressure	0.3 ÷ 16 bar
Nominal flow	see FLOW DIAGRAMS (pag. 3/0.05.03 and 3/0.05.04)
Fluid	compressed air

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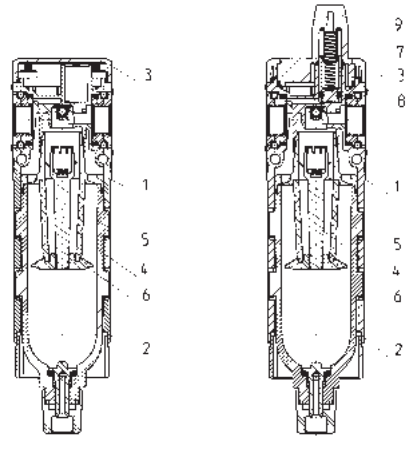
CODING EXAMPLE

MD	1	-	F	0	0	0	-	1/8

MD	SERIES
1	DIMENSION: 1 = 42 mm
F	FILTER
0	FILTERING ELEMENT: 0 = 25 µm 1 = 5 µm
0	CONDENSATE DRAIN: 0 = semiautomatic-manual drain 5 = automatic drain, protected depressurisation 8 = direct G1/8 exhaust
0	VISUAL BLOCKAGE INDICATOR: 0 = not present 1 = present
1/8	PORTS (IN - OUT)*: = without cartridges 1/8 = G1/8 1/4 = G1/4 3/8 = G3/8 6 = tube Ø6 8 = tube Ø8 10 = tube Ø10 * NOTE: if the inlet (IN) cartridge is different from the outlet (OUT) cartridge, both dimensions shall be indicated. Example: MD1-F000-1/4-10 For further information about condensate drains and filtering elements see the section 3/5.10.

Filters Series MD - materials

A = filter
B = filter with visual blockage indicator

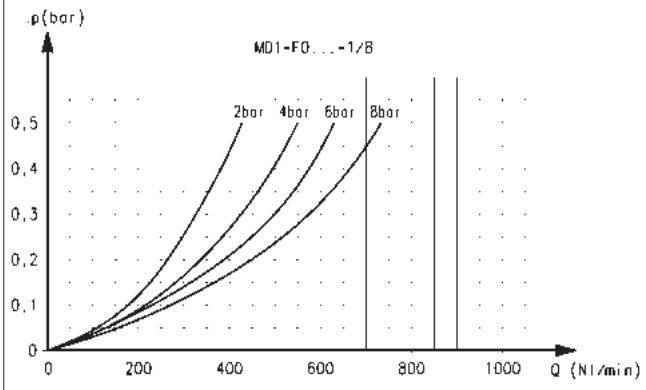


A B

PARTS	MATERIALS
1 = Body	Polyamide
2 = Tank	Polycarbonate
3 = Covering	Polyamide
4 = Valve-guide	Polyacetal
5 = Filtering element	Polyethylene
6 = Separation deflector	Polyacetal
7 = Upper spring	Stainless steel
8 = Piston	Anodized aluminium
9 = Visual blockage indicator	Polycarbonate
Seals	NBR

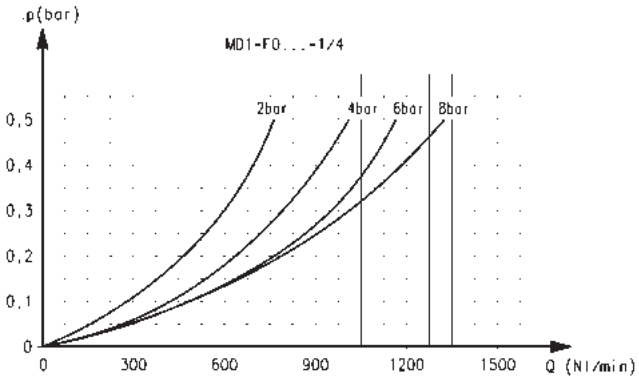
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FLOW DIAGRAMS for models with 25 µm filtering element



Ports with interchangeable 1/8 threaded cartridges

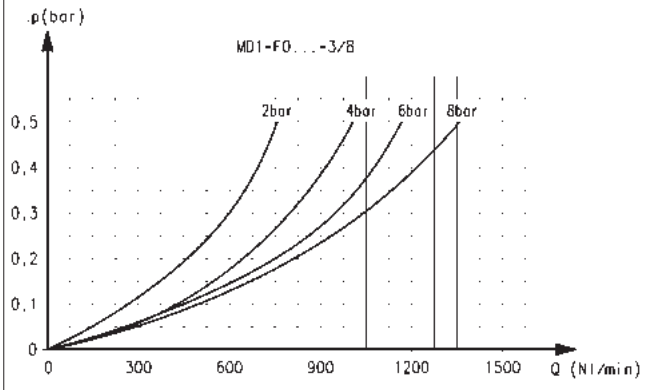
Δp = Pressure drop
Q = Flow



Ports with interchangeable 1/4 threaded cartridges

Δp = Pressure drop
Q = Flow

FLOW DIAGRAMS for models with 25 µm filtering element

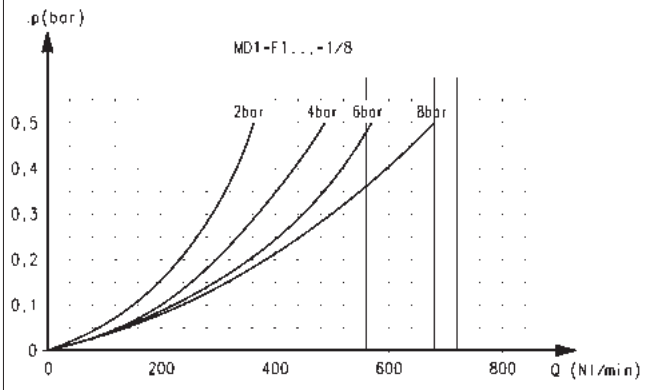


Ports with interchangeable 3/8 threaded cartridges

Δp = Pressure drop
Q = Flow

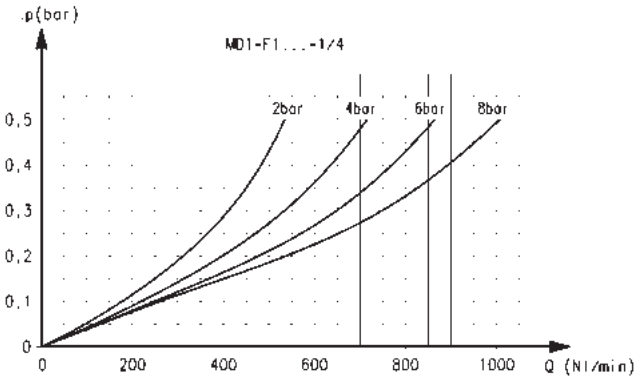
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FLOW DIAGRAMS for models with 5 µm filtering element



Ports with interchangeable 1/8 threaded cartridges

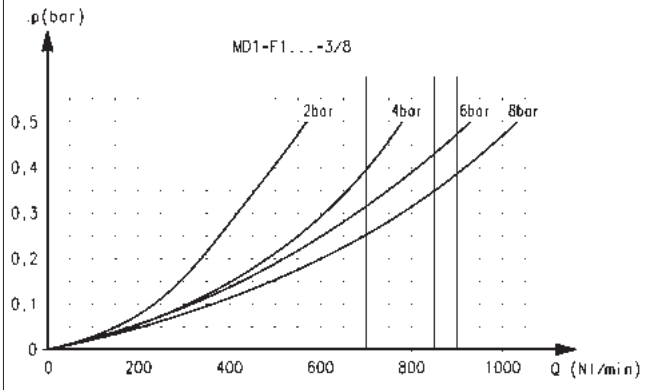
Δp = Pressure drop
Q = Flow



Ports with interchangeable 1/4 threaded cartridges

Δp = Pressure drop
Q = Flow

FLOW DIAGRAMS for models with 5 µm filtering element



Ports with interchangeable 3/8 threaded cartridges

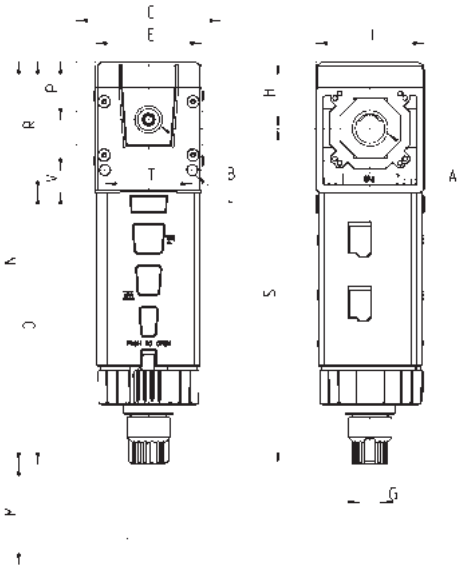
Δp = Pressure drop
Q = Flow

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Series MD filters - dimensions



PNEUMATIC SYMBOLS LEGEND:
FT01 = filter with direct G1/8 exhaust
FT02 = filter with semi-automatic manual drain
FT03 = filter with automatic/depressuring drain





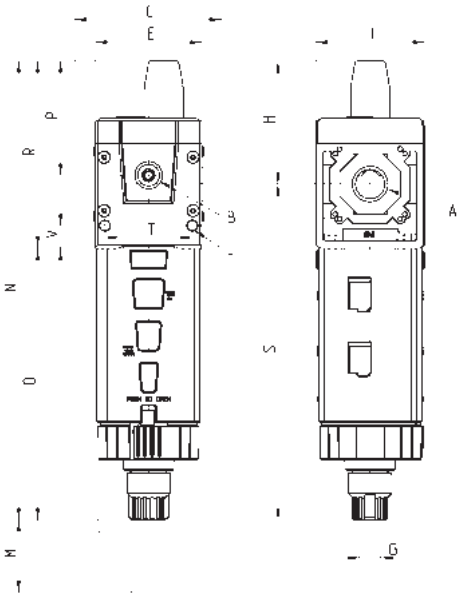
DIMENSIONS

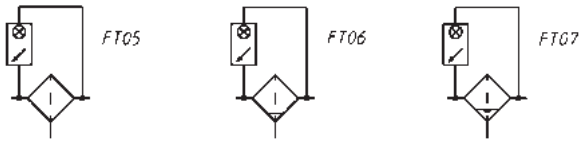
Mod.	A	B	C	E	G	H	I	L	M	N	O	P	R	S	T	V	Weight (Kg)
MD1-F000	-	G1/8	42	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2
MD1-F000-1/8	G1/8	G1/8	42	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2
MD1-F000-1/4	G1/4	G1/8	42	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2
MD1-F000-3/8	G3/8	G1/8	42	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2
MD1-F000-6	Ø6	G1/8	47	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2
MD1-F000-8	Ø8	G1/8	62	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2
MD1-F000-10	Ø10	G1/8	67	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2

Series MD filters with visual blockage indicator - dimensions



PNEUMATIC SYMBOLS LEGEND:
FT05 = filter with direct G1/8 exhaust and visual blockage indicator
FT06 = filter with semi-automatic manual drain and visual blockage indicator
FT07 = filter with automatic/depressuring drain and visual blockage indicator





DIMENSIONS

Mod.	A	B	C	E	G	H	I	L	M	N	O	P	R	S	T	V	Weight (Kg)
MD1-F001	-	G1/8	42	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2
MD1-F001-1/8	G1/8	G1/8	42	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2
MD1-F001-1/4	G1/4	G1/8	42	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2
MD1-F001-3/8	G3/8	G1/8	42	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2
MD1-F001-6	Ø6	G1/8	47	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2
MD1-F001-8	Ø8	G1/8	62	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2
MD1-F001-10	Ø10	G1/8	67	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2

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Series MD coalescing filters

New

Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm.
Modular assembly
Bowl with technopolymer cover and bayonet-type mounting



- High performance and high purity compressed air
- Air quality according to ISO 8573-1:2010 standard, Class 1.8.1 and Class 2.8.2
- Visual blockage indicator
- Condensate drain options: semi-automatic manual, automatic protected depressurisation, direct G1/8 exhaust
- Bowl locking system reducing the risk of accidents
- Additional air intakes with the same characteristics of the inlet air (line)

The coalescing filter is a fine oil separator filter that removes the solids with dimensions from 0.1 to 5 µm and oil vapours with a concentration from 0.01 to 0.1 mg/m³. For a correct fucntioning they require a pre-filtering. Given the characteristic of this filter, it is recommended to replace the filter element at least every 12 months or 8000 working hours.

Thanks to the solution adopted for the pneumatic connection, it is possible to equip the same element with interchangeable cartridges that can either be threaded, or with an integrated super-rapid fitting, both types available in different sizes. Intermediate cartridges can be also integrated to join multiple functions or with derivation to draw air. An additional air intake, with the same characteristic of the outlet air, is available on the front side and on the rear one. This intake can be used by utilities with limited consumption.

GENERAL DATA

Construction	modular, compact with filtering element in BOROSILICATE	
Materials	see TABLE OF MATERIALS (pag. 3/0.10.02)	
Ports	with interchangeable cartridges: 1/8, 1/4 and 3/8 threaded or integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm	
Condensate capacity	24 cc	
Fixing	vertical in-line; wall-mounting by means of through holes in the body or with a support bracket	
Operating temperature	-5°C ÷ 50°C up to 16 bar	
Condensate drain	semi-automatic manual, automatic protected depressurisation, direct G1/8 exhaust	
Quality of delivered air according to ISO 8573-1 2010	Class 2.8.2 with 1 µm filtering element (pre-filtering with Class 6.8.4 is recommended) Classe 1.8.1 with 0.01 µm filtering element (pre-filtering with Classe 2.8.2 is recommended)	
Operating pressure	0.3 ÷ 16 bar	
Nominal flow	see FLOW DIAGRAMS (pag. 3/0.10.03 and 3/0.10.04)	
Oil retain efficiency	99.80% (0.01µm)	97% (1µm)
Particles retain efficiency	99.99999% (0.01µm)	99.999% (1µm)
Fluid	compressed air	

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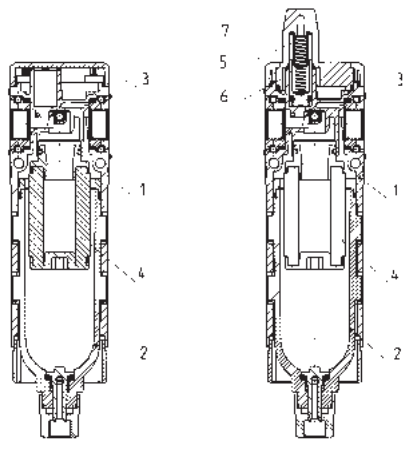
CODING EXAMPLE

MD	1	-	FC	0	0	0	-	1/8

MD	SERIES
1	DIMENSION: 1 = 42 mm
FC	COALESCING FILTER
0	FILTERING ELEMENT: 0 = 0,01 µm 1 = 1 µm
0	CONDENSATE DRAIN: 0 = semiautomatic-manual drain 5 = automatic drain, protected depressurisation 8 = direct G1/8 exhaust
0	VISUAL BLOCKAGE INDICATOR: 0 = not present 1 = present
1/8	PORTS (IN - OUT)*: = without cartridges 1/8 = G1/8 1/4 = G1/4 3/8 = G3/8 6 = tube Ø6 8 = tube Ø8 10 = tube Ø10 * NOTE: if the inlet (IN) cartridge is different from the outlet (OUT) cartridge, both dimensions shall be indicated. Example: MD1-FC000-1/4-10 For further information about condensate drains and filtering elements see the section 3/5.10.

Series MD coalescing filters - materials

A = filter
B = filter with visual blockage indicator

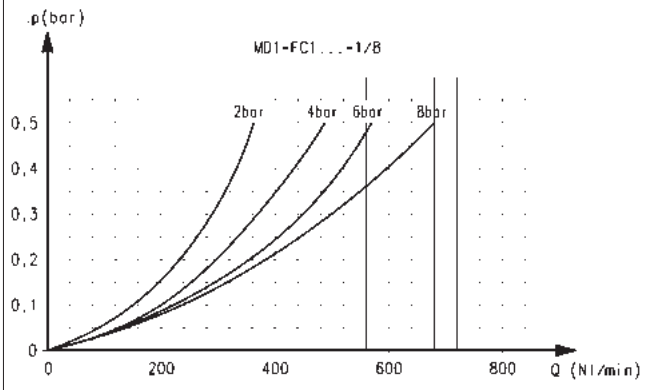


A B

PARTS	MATERIALS
1 = Body	Polyamide
2 = Tank	Polycarbonate
3 = Covering	Polyamide
4 = Filtering element	Borosilicate
5 = Upper spring	Stainless steel
6 = Piston	Anodized aluminium
7 = Visual blockage indicator	Polycarbonate
Seals	NBR

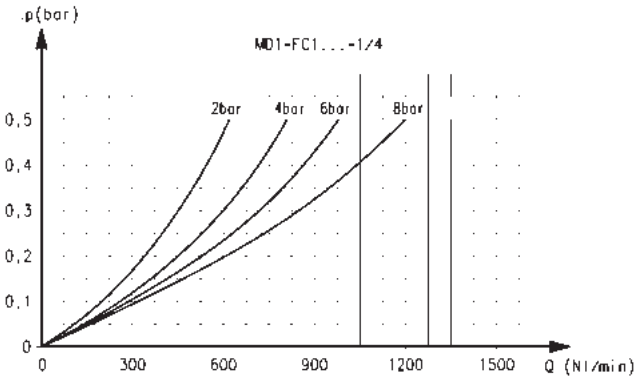
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FLOW DIAGRAMS for models with 1 µm filtering element



Ports with interchangeable 1/8 threaded cartridges

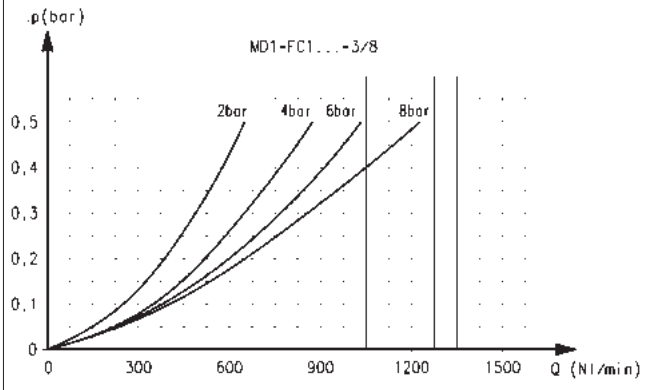
Δp = Pressure drop
Q = Flow



Ports with interchangeable 1/4 threaded cartridges

Δp = Pressure drop
Q = Flow

FLOW DIAGRAMS for models with 1 µm filtering element

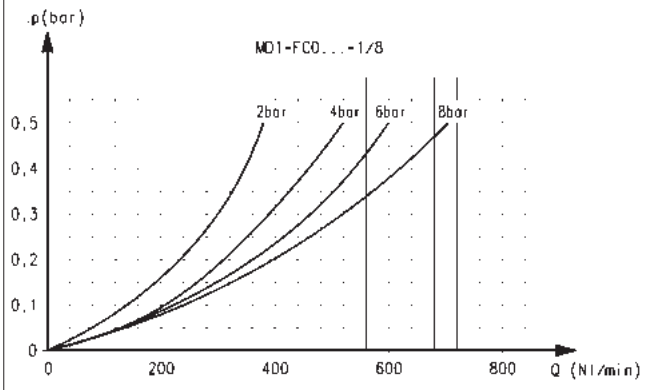


Ports with interchangeable 3/8 threaded cartridges

Δp = Pressure drop
Q = Flow

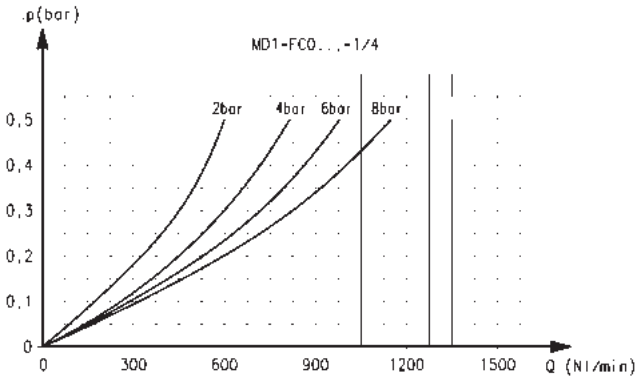
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FLOW DIAGRAMS for models with 0.01 µm filtering element



Ports with interchangeable 1/8 threaded cartridges

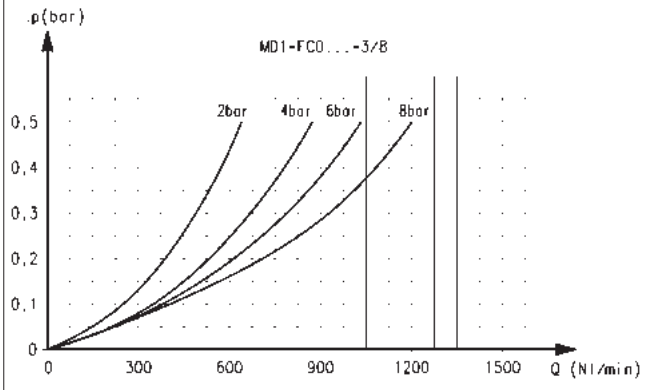
Δp = Pressure drop
Q = Flow



Ports with interchangeable 1/4 threaded cartridges

Δp = Pressure drop
Q = Flow

FLOW DIAGRAMS for models with 0.01 µm filtering element



Ports with interchangeable 3/8 threaded cartridges

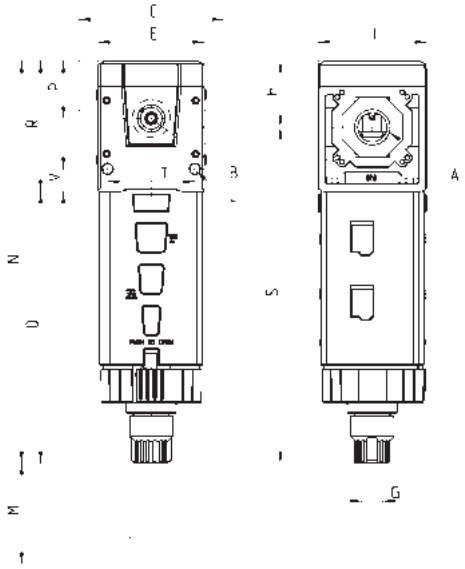
Δp = Pressure drop
Q = Flow

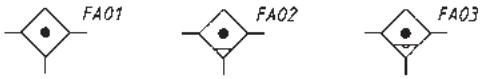
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Series MD coalescing filters - dimensions



PNEUMATIC SYMBOLS LEGEND:
FA01 = coalescing filter with direct G1/8 exhaust
FA02 = coalescing filter with semi-automatic manual drain
FA03 = coalescing filter with automatic/depressuring drain





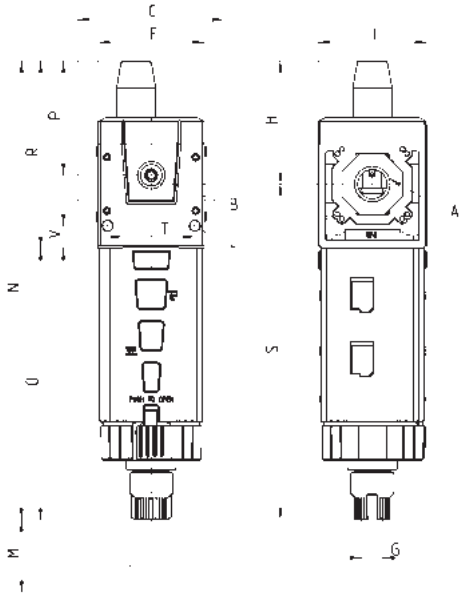
DIMENSIONS

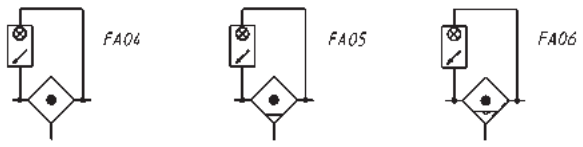
Mod.	A	B	C	E	G	H	I	L	M	N	O	P	R	S	T	V	Weight (Kg)
MD1-FC000	-	G1/8	42	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2
MD1-FC000-1/8	G1/8	G1/8	42	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2
MD1-FC000-1/4	G1/4	G1/8	42	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2
MD1-FC000-3/8	G3/8	G1/8	42	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2
MD1-FC000-6	Ø6	G1/8	47	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2
MD1-FC000-8	Ø8	G1/8	62	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2
MD1-FC000-10	Ø10	G1/8	67	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2

Series MD coalescing filters with visual indicator - dimensions



PNEUMATIC SYMBOLS LEGEND:
FA04 = coalescing filter with direct G1/8 exhaust and visual blockage indicator
FA05 = coalescing filter with semi-automatic manual drain and visual blockage indicator
FA06 = coalescing filter with automatic/depressuring drain and visual blockage indicator





DIMENSIONS

Mod.	A	B	C	E	G	H	I	L	M	N	O	P	R	S	T	V	Weight (Kg)
MD1-FC001	-	G1/8	42	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2
MD1-FC001-1/8	G1/8	G1/8	42	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2
MD1-FC001-1/4	G1/4	G1/8	42	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2
MD1-FC001-3/8	G3/8	G1/8	42	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2
MD1-FC001-6	Ø6	G1/8	47	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2
MD1-FC001-8	Ø8	G1/8	62	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2
MD1-FC001-10	Ø10	G1/8	67	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2

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Series MD
activated carbon filters

New

Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm
Modular assembly
Bowl with technopolymer cover and bayonet-type mounting



- Removal of oil, liquid and gas components from compressed air through the active carbons
- Air quality in compliance with ISO 8573-1 standard, Class 1.7.1
- Visual blockage indicator
- Bowl locking system reducing the risk of accidents
- Additional air intakes with the same characteristics of the inlet air (line)

Within a battery of filters the activated carbon version is placed at the end because it requires a pre-filtering like the coalescing filter.
Given the characteristic of this filter, it is recommended to replace the filter element at least every 6 months or 1000 working hours.

The operating principle is based on the adsorption characteristic of the filtering element which is composed of extremely porous fibers placed on different layers. These fibers create a cross-linked and are thus able to adsorb wet parts and contaminants remaining in the passing air, for example oil vapours/smokes, as well as odours generated from these contaminants.

GENERAL DATA

Construction	modular, compact with activated carbon filtering element
Materials	see TABLE OF MATERIALS (pag. 3/0.15.02)
Ports	With interchangeable cartridges: 1/8, 1/4 and 3/8 threaded or integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm
Mounting	vertical in-line; wall-mounting by means of through holes in the body or with a support bracket
Operating temperature	10°C ÷ 40°C (t max = 60°C)
Condensate drain	not present
Quality of delivered air according to ISO 8573-1 2010	Class 1.7.1 (pre-filtering in Class 1.8.1 is recommended)
Operating pressure	0.3 ÷ 16 bar
Nominal flow	see FLOW DIAGRAMS on the following pages
Filtering element	active carbon
Residual oil content	< 0.003 mg/m³
Fluid	compressed air

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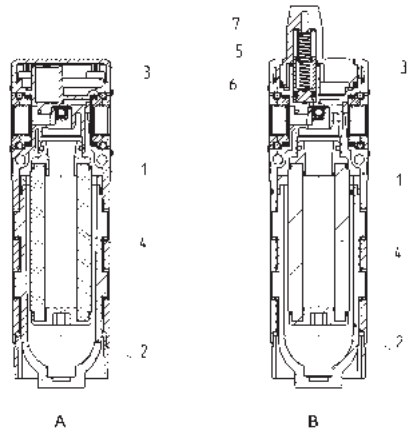
CODING EXAMPLE

MD	1	-	FCA	0	-	1/8

MD	SERIES
1	DIMENSION: 1 = 42 mm
FCA	ACTIVATED CARBON FILTER
0	VISUAL BLOCKAGE INDICATOR: 0 = not present 1 = present
1/8	PORTS (IN - OUT)*: = without cartridges 1/8 = G1/8 1/4 = G1/4 3/8 = G3/8 6 = tube Ø6 8 = tube Ø8 10 = tube Ø10 * NOTE: if the inlet (IN) cartridge is different from the outlet (OUT) cartridge, both dimensions shall be indicated. Example: MD1-FCA1-1/4-10 For further information about condensate drains and filtering elements see the section 3/5.10.

Series MD activated carbon filters - materials

A = filter
B = filter with visual blockage indicator

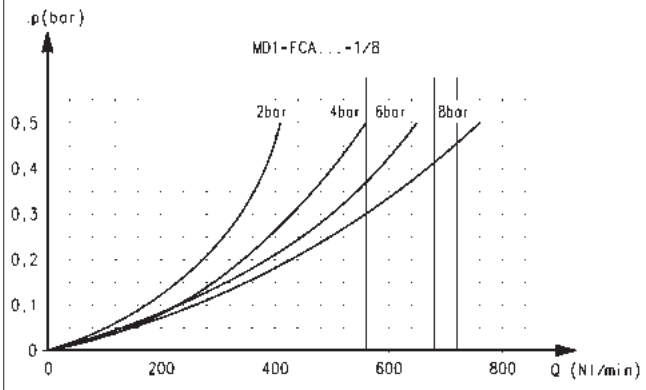


A B

PARTS	MATERIALS
1 = Body	Polyamide
2 = Tank	Polycarbonate
3 = Covering	Polyamide
4 = Filtering element	Active carbons
5 = Upper spring	Stainless steel
6 = Piston	Anodized aluminium
7 = Visual blockage indicator	Polycarbonate
Seals	NBR

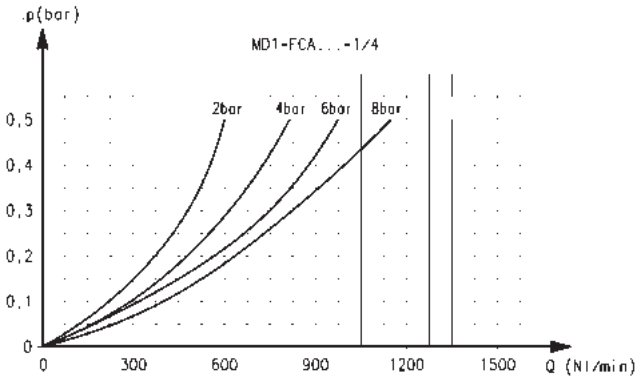
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FLOW DIAGRAMS



Ports with interchangeable 1/8 threaded cartridges

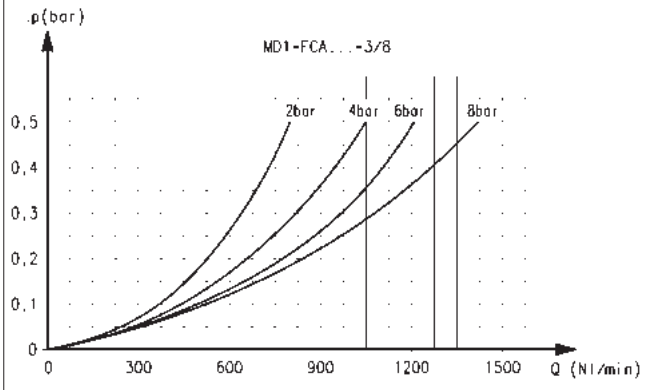
Δp = Pressure drop
Q = Flow



Ports with interchangeable 1/4 threaded cartridges

Δp = Pressure drop
Q = Flow

FLOW DIAGRAMS



Ports with interchangeable 3/8 threaded cartridges

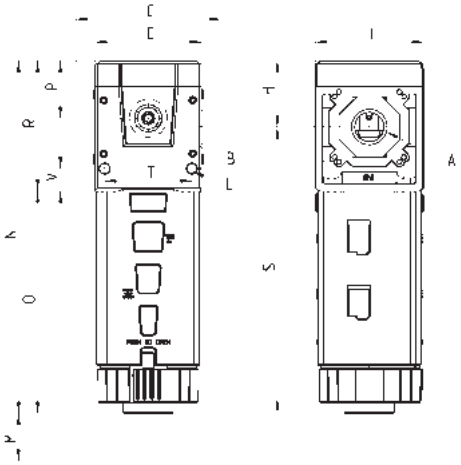
Δp = Pressure drop
Q = Flow

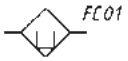
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Series MD activated carbon filters - dimensions



PNEUMATIC SYMBOLS LEGEND:
FC01 = activated carbon filter





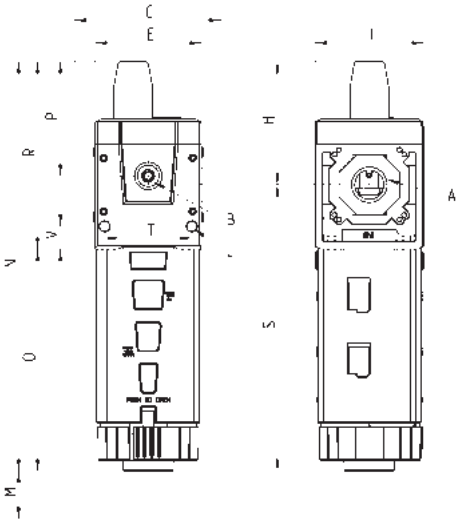
DIMENSIONS

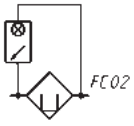
Mod.	A	B	C	E	H	I	L	M	N	O	P	R	S	T	V	Weight (Kg)
MD1-FCA0	-	G1/8	42	42	26.2	43	Ø4	90	139.7	88	22.7	51.7	113.5	34.6	9	0.2
MD1-FCA0-1/8	G1/8	G1/8	42	42	26.2	43	Ø4	90	139.7	88	22.7	51.7	113.5	34.6	9	0.2
MD1-FCA0-1/4	G1/4	G1/8	42	42	26.2	43	Ø4	90	139.7	88	22.7	51.7	113.5	34.6	9	0.2
MD1-FCA0-3/8	G3/8	G1/8	42	42	26.2	43	Ø4	90	139.7	88	22.7	51.7	113.5	34.6	9	0.2
MD1-FCA0-6	Ø6	G1/8	47	42	26.2	43	Ø4	90	139.7	88	22.7	51.7	113.5	34.6	9	0.2
MD1-FCA0-8	Ø8	G1/8	62	42	26.2	43	Ø4	90	139.7	88	22.7	51.7	113.5	34.6	9	0.2
MD1-FCA0-10	Ø10	G1/8	67	42	26.2	43	Ø4	90	139.7	88	22.7	51.7	113.5	34.6	9	0.2

Series MD activated carbon filters with visual indicator - dimensions



PNEUMATIC SYMBOLS LEGEND:
FC02 = activated carbon filter with visual blockage indicator





DIMENSIONS

Mod.	A	B	C	E	H	I	L	M	N	O	P	R	S	T	V	Weight (Kg)
MD1-FCA1	-	G1/8	42	42	48.7	43	Ø4	90	162.2	88	45.2	74.2	113.5	34.6	9	0.2
MD1-FCA1-1/8	G1/8	G1/8	42	42	48.7	43	Ø4	90	162.2	88	45.2	74.2	113.5	34.6	9	0.2
MD1-FCA1-1/4	G1/4	G1/8	42	42	48.7	43	Ø4	90	162.2	88	45.2	74.2	113.5	34.6	9	0.2
MD1-FCA1-3/8	G3/8	G1/8	42	42	48.7	43	Ø4	90	162.2	88	45.2	74.2	113.5	34.6	9	0.2
MD1-FCA1-6	Ø6	G1/8	47	42	48.7	43	Ø4	90	162.2	88	45.2	74.2	113.5	34.6	9	0.2
MD1-FCA1-8	Ø8	G1/8	62	42	48.7	43	Ø4	90	162.2	88	45.2	74.2	113.5	34.6	9	0.2
MD1-FCA1-10	Ø10	G1/8	67	42	48.7	43	Ø4	90	162.2	88	45.2	74.2	113.5	34.6	9	0.2

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Series MD pressure regulators

New

Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm
Versions: single, combined with other functions, Manifold





- Minimal pressure decreases
- Knob with position lock
- Tamper-proof system (lockable regulator)
- With or without overpressure exhaust (relieving)
- Available versions: Manifold, with by-pass valve, calibrated, locked.

Thanks to the flexibility given by the connection inserts, the regulator can be adjusted within a treatment group so that the regulation knob is in the front or lower position. Once the regulation is locked, it is possible to insert as many security locks through the 4 holes.
The by-pass valve allows the fast exhaust of the air introduced.
The different springs enable a more accurate adjustment of the pressure.

The Series MD offers multi-sector solutions that ensure saving in terms of installation time, space and costs. Thanks to the solution adopted for the pneumatic connection, it is possible to equip the same element with interchangeable cartridges that can either be threaded, or with an integrated super-rapid fitting, both types available in different sizes. Intermediate cartridges can be also integrated to join multiple functions or with derivation to draw air.

GENERAL DATA

Construction	modular, compact wiht pre-formed diaphragm
Materials	see TABLE OF MATERIALS (pag. 3/0.20.02)
Ports	with interchangeable cartridges: 1/8, 1/4 and 3/8 threaded or integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm
Fixing	in-line; wall-mounting by means of through holes in the body or with a support bracket; panel mounting
Operating temperature	-5°C ÷ 50°C up to 16 bar
Inlet pressure	0 ÷ 16 bar
Outlet pressure	0 ÷ 2 bar 0 ÷ 4 bar 0.5 ÷ 7 bar 0.5 ÷ 10 bar
Overpressure exhaust	with relieving without relieving
Nominal flow	see FLOW DIAGRAMS (pag. 3/0.20.03 and 3/0.20.05)
Fluid	compressed air

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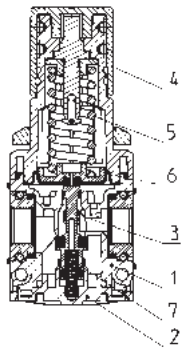
CODING EXAMPLE

MD	1	-	R	T	0	0	-	1/4	-	■	-	●

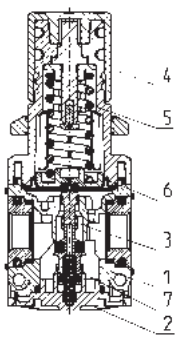
MD	SERIES
1	SIZE: 1 = 42 mm
R	TYPER OF REGULATOR: R = pressure regulator M = Manifold pressure regulator
T	OPERATING PRESSURE (1 bar = 14,5 psi): 0 = 0,5 ÷ 10 bar 2 = 0 ÷ 2 bar 4 = 0 ÷ 4 bar 7 = 0.5 ÷ 7 bar T = calibrated ** B = locked **
0	DESIGN TYPE: 0 = with relieving 1 = without relieving 2 = with relieving and by-pass valve 3 = without relieving, with by-pass valve
0	PRESSURE GAUGE: 0 = without pressure gauge (with 1/8 port)
1/4	PORTS (IN - OUT)*: = without cartridges 1/8 = G1/8 1/4 = G1/4 3/8 = G3/8 6 = tube Ø6 8 = tube Ø8 10 = tube Ø10 * NOTE: if the inlet (IN) cartridge is different from the outlet (OUT) cartridge, both dimensions shall be indicated. Example: MD1-R020-1/4-10
	** NOTE: IF THE REGULATOR IS CALIBRATED OR LOCKED, AFTER THE PORTS ADD THE INLET PRESSURE "■" AND THE OUTLET PRESSURE "●" INLET PRESSURE: ■ = enter the SUPPLY pressure value OUTLET PRESSURE: ● = enter the OUTLET pressure value for the LOCKED regulator or the maximum value of the ADJUSTABLE pressure for the CALIBRATED regulator Example of a calibrated regulator with Inlet Pressure = 6.3 bar and Outlet Pressure = 4.5 bar Complete part number: MD1-RT00-1/4-6.3-4.5

Pressure regulators Series MD - materials

R = pressure regulator
M = Manifold pressure regulator



R

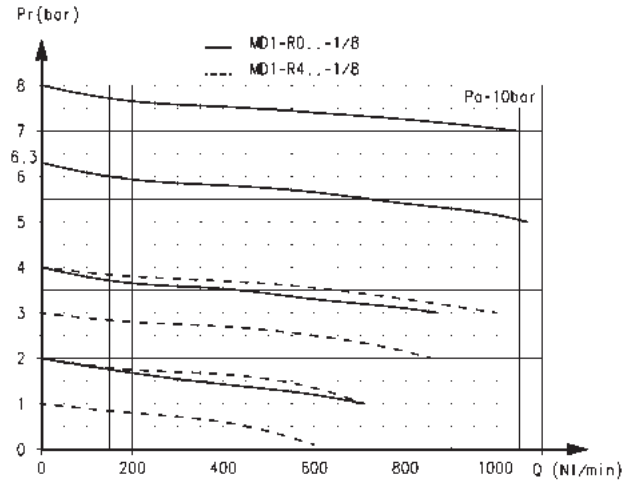


M

PARTS	MATERIALS
1 = Body	Polyamide
2 = Valve holder plug	Polyamide
3 = Poppet	Brass
4 = Knob	Polyamide
5 = Upper spring	Zinc-plated steel
6 = Diaphragm	NBR
7 = Lower spring	Stainless steel
Seals	NBR

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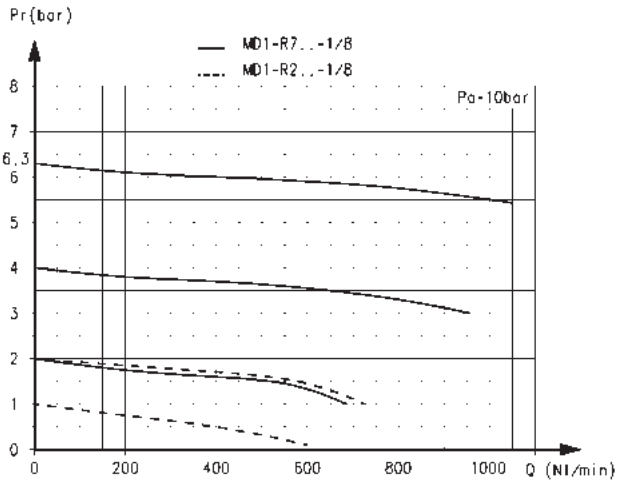
FLOW DIAGRAMS for regulators with working pressures of 2, 4, 7, 10 bar



Ports with interchangeable 1/8 threaded cartridges

Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

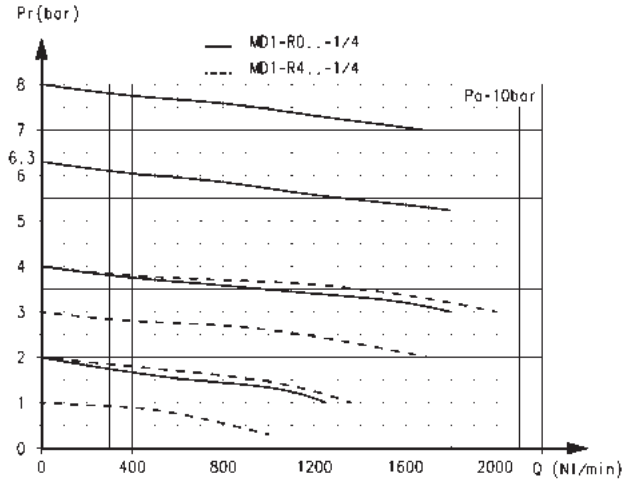


Ports with interchangeable 1/8 threaded cartridges

Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

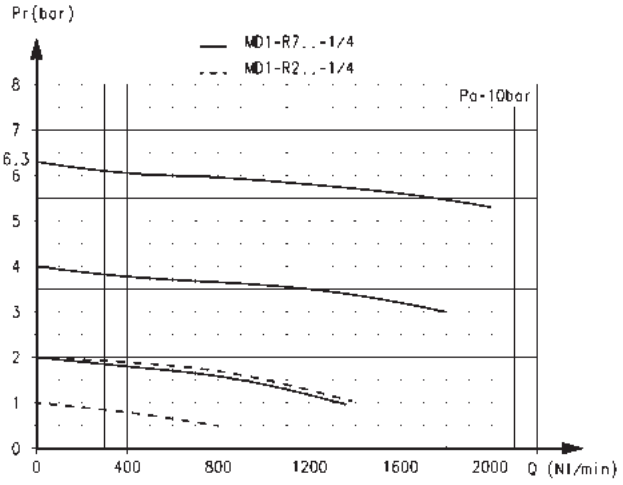
FLOW DIAGRAMS for regulators with working pressures of 2, 4, 7, 10 bar



Ports with interchangeable 1/4 threaded cartridges

Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure



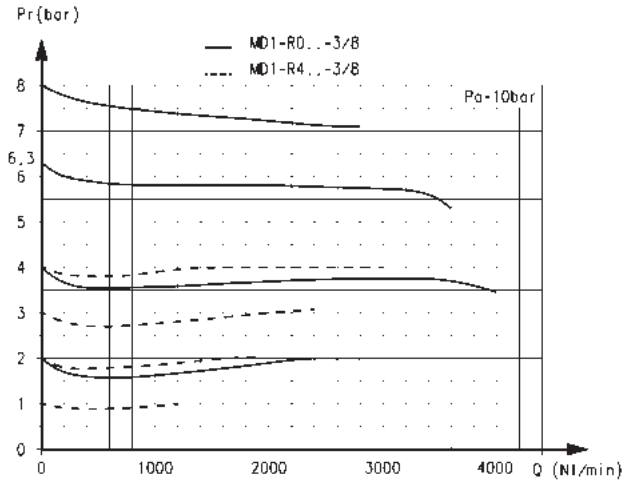
Ports with interchangeable 1/4 threaded cartridges

Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

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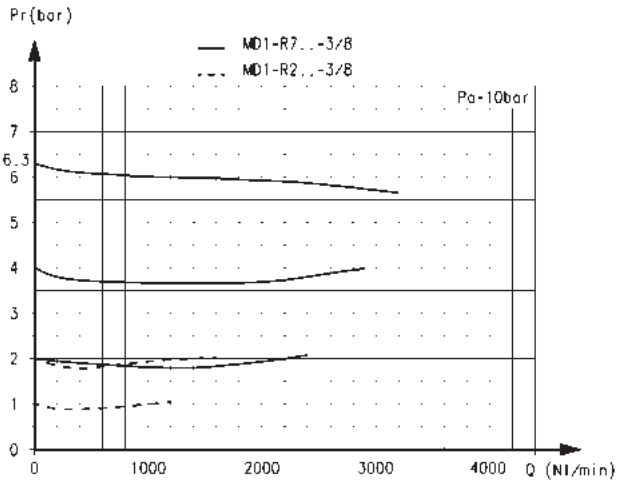
FLOW DIAGRAMS for regulators with working pressures of 2, 4, 7, 10 bar



Ports with interchangeable 3/8 threaded cartridges

Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure



Ports with interchangeable 3/8 threaded cartridges

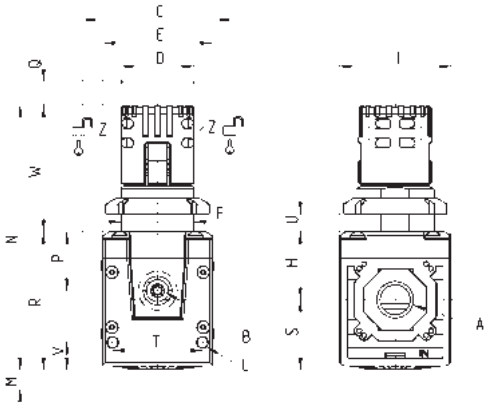
Pr = Regulated pressure
Q = Flow

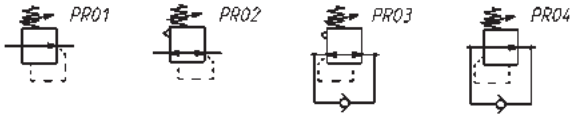
Pa = Inlet pressure

Series MD pressure regulators - dimensions



Pneumatic symbols legend:
PR01 = regulator without relieving
PR02 = regulator with relieving
PR03 = regulator with relieving and by-pass valve
PR04 = regulator without relieving and with by-pass valve

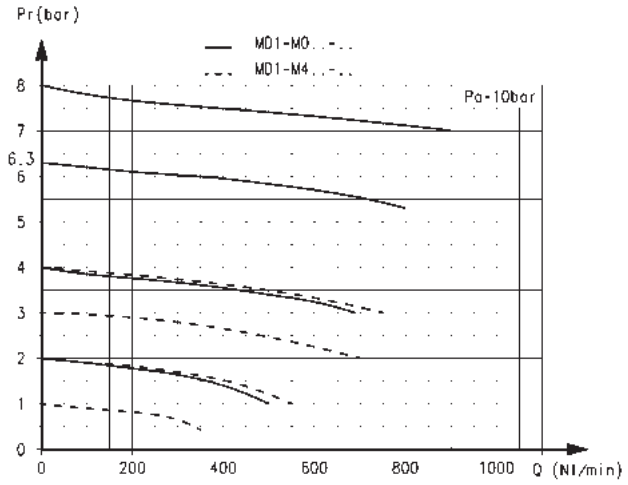




Mod.	A	B	C	D	E	F	H	I	L	M	N	P	Q	R	S	T	U	V	W	Z	Weight (Kg)
MD1-R000	-	G1/8	42	Ø28	42	M28X1,5	26.2	43	Ø4	16	102	22.7	4	53.2	27	34.6	0 ÷ 11	10.5	48.8	Ø3.2	0.2
MD1-R000-1/8	G1/8	G1/8	42	Ø28	42	M28X1,5	26.2	43	Ø4	16	102	22.7	4	53.2	27	34.6	0 ÷ 11	10.5	48.8	Ø3.2	0.2
MD1-R000-1/4	G1/4	G1/8	42	Ø28	42	M28X1,5	26.2	43	Ø4	16	102	22.7	4	53.2	27	34.6	0 ÷ 11	10.5	48.8	Ø3.2	0.2
MD1-R000-3/8	G3/8	G1/8	42	Ø28	42	M28X1,5	26.2	43	Ø4	16	102	22.7	4	53.2	27	34.6	0 ÷ 11	10.5	48.8	Ø3.2	0.2
MD1-R000-6	Ø6	G1/8	47	Ø28	42	M28X1,5	26.2	43	Ø4	16	102	22.7	4	53.2	27	34.6	0 ÷ 11	10.5	48.8	Ø3.2	0.2
MD1-R000-8	Ø8	G1/8	62	Ø28	42	M28X1,5	26.2	43	Ø4	16	102	22.7	4	53.2	27	34.6	0 ÷ 11	10.5	48.8	Ø3.2	0.2
MD1-R000-10	Ø10	G1/8	67	Ø28	42	M28X1,5	26.2	43	Ø4	16	102	22.7	4	53.2	27	34.6	0 ÷ 11	10.5	48.8	Ø3.2	0.2

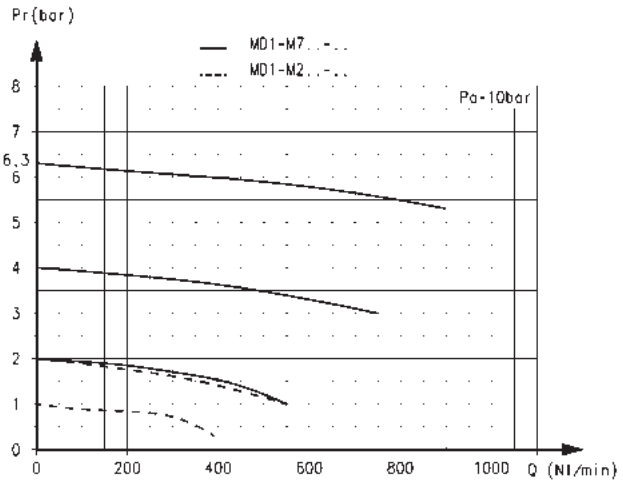
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FLOW DIAGRAMS for Manifold regulators with working pressures of 2, 4, 7, 10 bar



Pr = Regulated pressure
Q = Flow

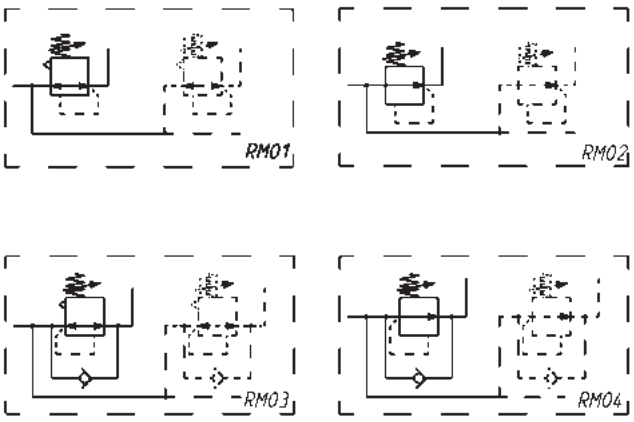
Pa = Inlet pressure



Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

MANIFOLD REGULATOR - PNEUMATIC SYMBOLS



RM01 = Manifold regulator with relieving
RM02 = Manifold regulator without relieving
RM03 = Manifold regulator with relieving and by-pass valve
RM04 = Manifold regulator without relieving,
with by-pass valve

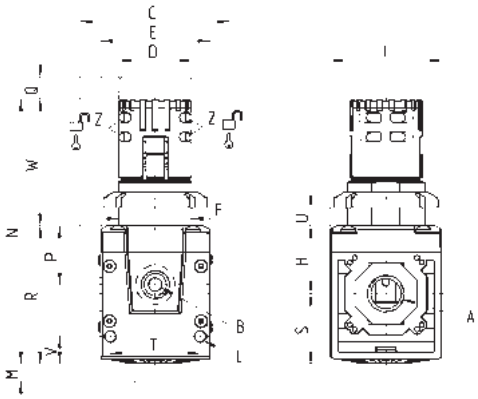
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Series MD pressure regulators - dimensions



There is no limit to the number of regulators that can be connected.

With the Manifold version it is possible to realize a battery of regulators which are fed by a single source of inlet pressure.
Each regulator can be set up at any pressure (lower than the inlet pressure). The front or rear connection of each regulator allows to draw air at the pressure value set on the regulator itself.



Mod.	A	B	C	D	E	F	H	I	L	M	N	P	Q	R	S	T	U	V	W	Z	Weight (Kg)
MD1-M000	-	G1/8	42	Ø28	42	M28X1,5	26.2	43	Ø4	16	102	22.7	4	53.2	27	34.6	0 ÷ 11	10.5	48.8	Ø3.2	0.2

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Series MD lubricators

New

Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm
Modular assembly
Bowl with technopolymer cover and bayonet-type mounting



- Regulation screw
- Ability to refill the oil even with system under pressure
- High flow
- Check of the oil level through plastic cover openings
- Bowl locking system reducing the risk of accidents
- Additional air intakes with the same characteristics of the outlet air (line)

The lubricator allows the nebulization of lubricating oil which is necessary to the functioning of components in specific conditions of use.

By means of a regulation screw the amount of oil can be properly adjusted in order to avoid unnecessary overdoses.

GENERAL DATA

Construction	modular, compact
Materials	see TABLE OF MATERIALS (pag. 3/0.25.02)
Ports	with interchangeable cartridges: 1/8, 1/4 and 3/8 threaded or integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm
Oil capacity	40 cc
Oil refilling	even during use
Mounting	in vertical position by means of through holes in the body
Operating temperature	-5°C ÷ 50°C up to 16 bar
Oil for lubrication	use ISO VG32 oils. Once applied, the lubrication should never be interrupted.
Operating pressure	0 ÷ 16 bar
Min. air consumption for lubrication at 1 bar	15 Nl/min
Min. air consumption for lubrication at 6 bar	25 Nl/min
Nominal flow	see FLOW DIAGRAMS (pag 3/0.25.03)

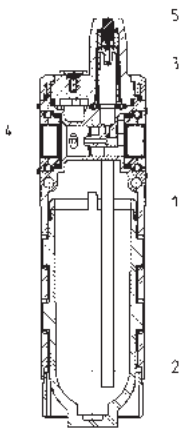
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CODING EXAMPLE

MD	1	-	L	0	0	-	1/8

MD	SERIES
1	DIMENSION: 1 = 42 mm
L	LUBRICATOR
00	DESIGN TYPE: 00 = oil mist with refill valve 10 = oil mist without refill valve
1/8	PORTS (IN - OUT)*: = without ports 1/8 = G1/8 1/4 = G1/4 3/8 = G3/8 6 = tube Ø6 8 = tube Ø8 10 = tube Ø10 * NOTE: if the inlet (IN) cartridge is different from the outlet (OUT) cartridge, both dimensions shall be indicated. Example: MD1-L00-1/4-1/8

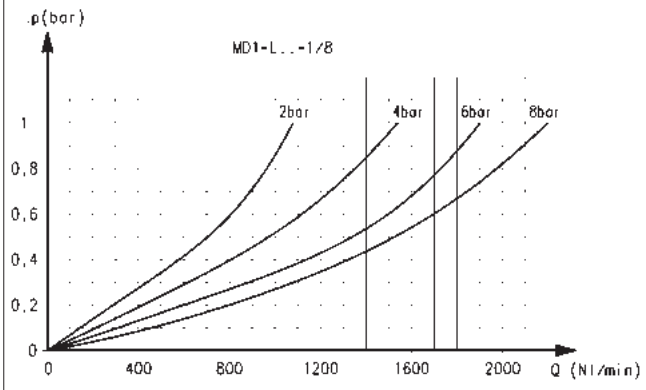
Series MD lubricators - materials



PARTS	MATERIALS
1 = Body	Polyamide
2 = Tank	Polycarbonate
3 = Covering	Polyamide
4 = Diaphragm	NBR
5 = Visual blockage indicator	Polycarbonate
Seals	NBR

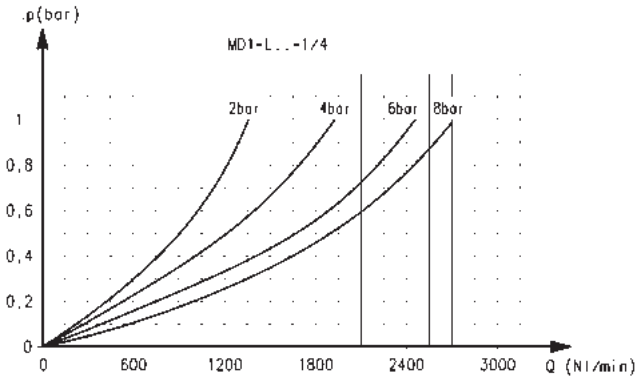
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FLOW DIAGRAMS



Ports with interchangeable 1/8 threaded cartridges

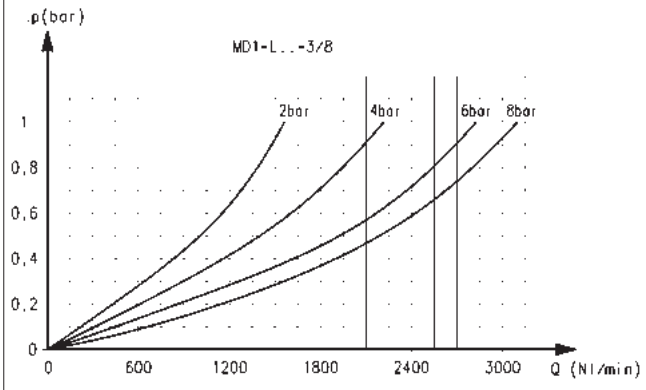
Δp = Pressure drop
Q = Flow



Ports with interchangeable 1/4 threaded cartridges

Δp = Pressure drop
Q = Flow

FLOW DIAGRAMS



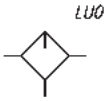
Ports with interchangeable 3/8 threaded cartridges

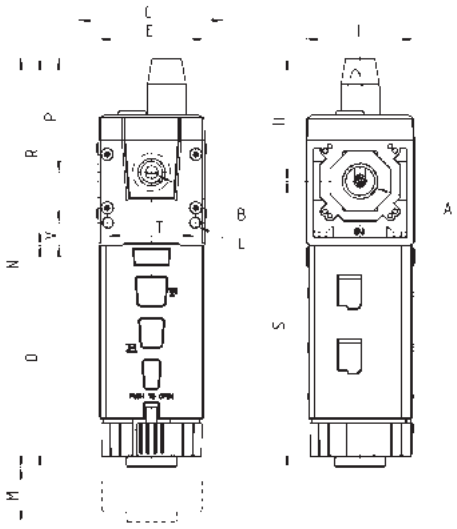
Δp = Pressure drop
Q = Flow

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Series MD lubricators - dimensions







DIMENSIONS

Mod.	A	B	C	E	H	I	L	M	N	O	P	R	S	T	V	Weight (Kg)
MD1-L00	-	G1/8	42	42	48.7	43	Ø4	75	162.2	88	45.2	74.2	113.5	34.6	9	0.2
MD1-L00-1/8	G1/8	G1/8	42	42	48.7	43	Ø4	75	162.2	88	45.2	74.2	113.5	34.6	9	0.2
MD1-L00-1/4	G1/4	G1/8	42	42	48.7	43	Ø4	75	162.2	88	45.2	74.2	113.5	34.6	9	0.2
MD1-L00-3/8	G3/8	G1/8	42	42	48.7	43	Ø4	75	162.2	88	45.2	74.2	113.5	34.6	9	0.2
MD1-L00-6	Ø6	G1/8	47	42	48.7	43	Ø4	75	162.2	88	45.2	74.2	113.5	34.6	9	0.2
MD1-L00-8	Ø8	G1/8	62	42	48.7	43	Ø4	75	162.2	88	45.2	74.2	113.5	34.6	9	0.2
MD1-L00-10	Ø10	G1/8	67	42	48.7	43	Ø4	75	162.2	88	45.2	74.2	113.5	34.6	9	0.2

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Series MD
pressure filter-regulators

New

Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm
Modular assembly
Bowl with technopolymer cover and bayonet-type mounting



- Filtering between 25 µm or 5 µm
- Minimum pressure drops
- Knob with position lock
- Tamper-proof system (lockable regulator)
- Bowl locking system reducing the risk of accidents

Series MD filter-regulators integrate filter and pressure reducer in one unit, thus reducing their dimensions.
The by-pass valve allows the fast exhaust of the air introduced. The different springs enable a more accurate adjustment of the pressure.

Thanks to the solution adopted for the pneumatic connection, it is possible to equip the same element with interchangeable cartridges that can either be threaded, or with an integrated super-rapid fitting, both types available in different sizes. Intermediate cartridges can be also integrated to join multiple functions or with derivation to draw air.

GENERAL DATA

Construction	modular, compact with filtering element in HDPE
Materials	see TABLE OF MATERIALS (pag. 3/0.30.02)
Ports	with interchangeable cartridges: 1/8, 1/4 and 3/8 threaded or integrated with super-rapid fitting for tube with diameters of 6, 8 and 10 mm
Condensate capacity	24 cc
Mounting	in-line; wall-mounting by means of through holes in the body or with a support bracket; panel mounting
Operating temperature	-5°C ÷ 50°C up to 16 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Condensate drain	semi-automatic manual, automatic protected depressurisation, direct G1/8 exhaust
Quality of delivered air according to ISO 8573-1 2010	Class 6.8.4 with 5 µm filtering element Class 7.8.4 with 25 µm filtering element
Operating pressure	0,3 ÷ 16 bar
Nominal flow	see FLOW DIAGRAMS (pag. 3/0.30.03)
Fluid	compressed air

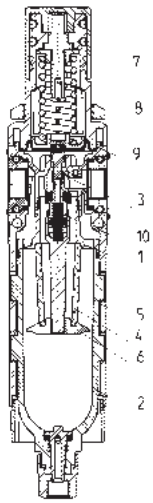
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CODING EXAMPLE

MD	1	-	FR	0	0	0	0	-	1/8

MD	SERIES
1	DIMENSION: 1 = 42 mm
FR	FILTER-REGULATOR
0	FILTERING ELEMENT AND DESIGN TYPE: 0 = 25 µm with relieving 1 = 5 µm with relieving 2 = 25 µm without relieving * 3 = 5 µm without relieving * 4 = 25 µm with relieving and by-pass valve 5 = 5 µm with relieving and by-pass valve 6 = 25 µm without relieving, with by-pass valve * 7 = 5 µm without relieving, with by-pass valve * * this option is available with semiautomatic-manual drain only
0	CONDENSATE DRAIN: 0 = semiautomatic-manual drain 5 = automatic drain, protected depressurisation 8 = direct G1/8 exhaust
0	OPERATING PRESSURE (1 bar = 14,5 psi): 0 = 0,5 ÷ 10 bar 2 = 0 ÷ 2 bar 4 = 0 ÷ 4 bar 7 = 0.5 ÷ 7 bar
0	PRESSURE GAUGE: 0 = without pressure gauge (with 1/8 port)
1/8	PORTS (IN - OUT)*: = without cartridges 1/8 = G1/8 1/4 = G1/4 3/8 = G3/8 6 = tube Ø6 8 = tube Ø8 10 = tube Ø10 * NOTE: if the inlet (IN) cartridge is different from the outlet (OUT) cartridge, both dimensions shall be indicated. Example: MD1-FR0000-1/4-1/8

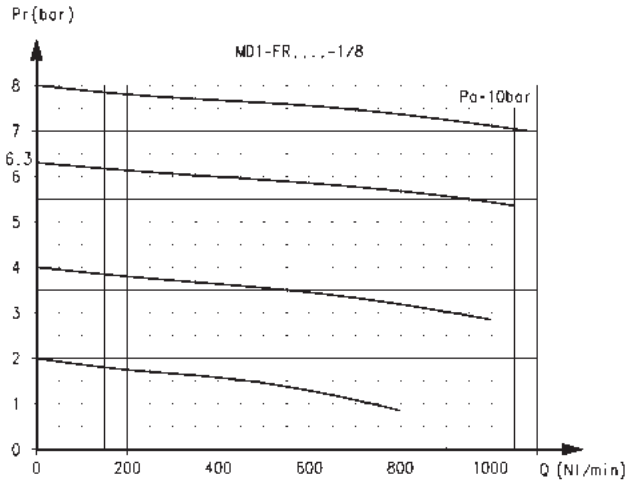
Series MD filter-regulators - materials



PARTS	MATERIALS
1 = Body	Polyamide
2 = Tank	Polycarbonate
3 = Poppet	Brass
4 = Valve guide	Polyacetal
5 = Filtering element	Polyethylene
6 = Separation deflector	Polyacetal
7 = Knob	Polyamide
8 = Upper spring	Zinc-plated steel
9 = Diaphragm	NBR
10 = Lower spring	Stainless steel
Seals	NBR

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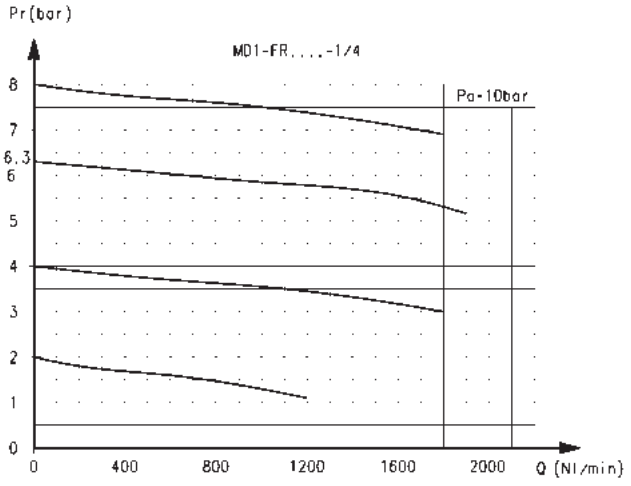
FLOW DIAGRAMS



Ports with interchangeable G1/8 threaded cartridges

Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

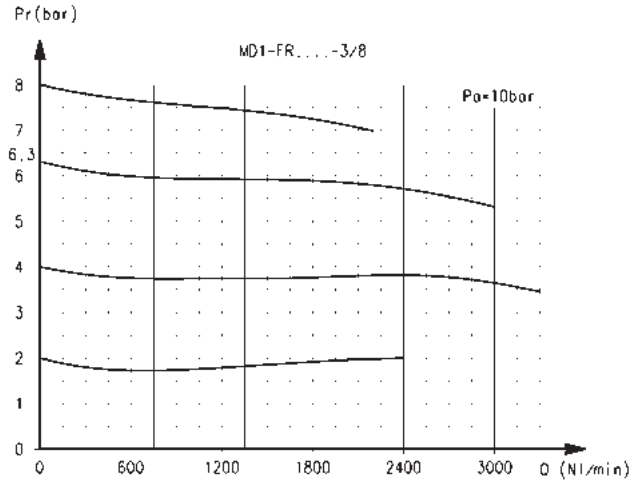


Ports with interchangeable G1/4 threaded cartridges

Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

FLOW DIAGRAMS



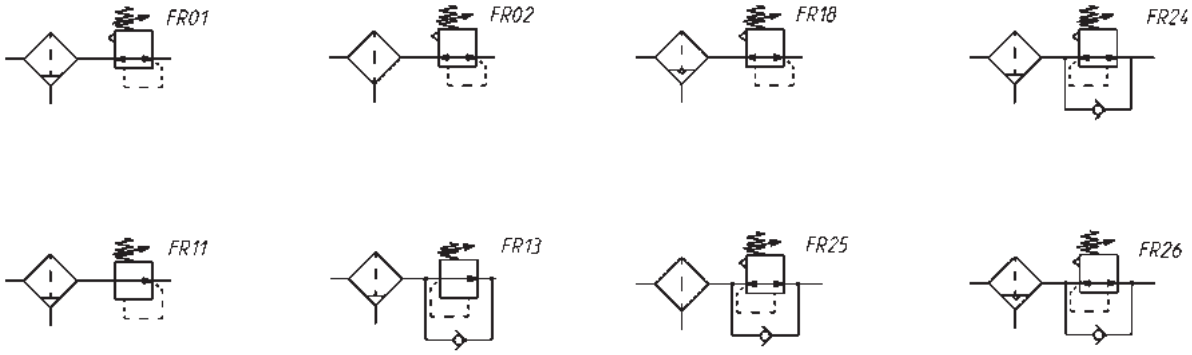
Ports with interchangeable G3/8 threaded cartridges

Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

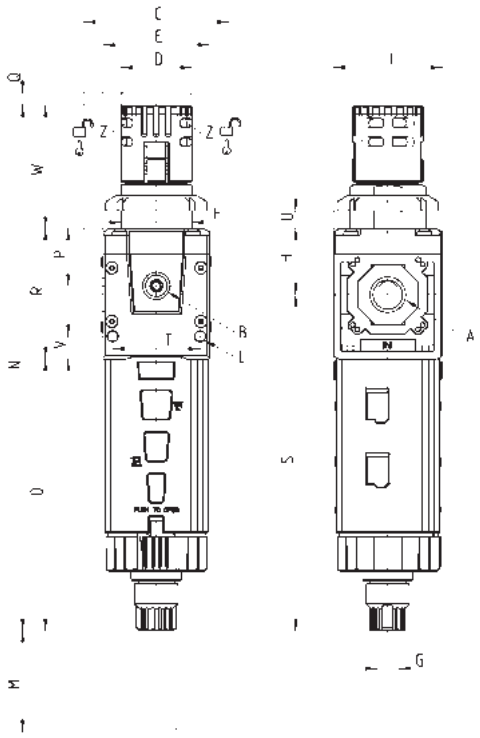
PNEUMATIC SYMBOLS



FR01 = filter-regulator with relieving and semi-automatic manual drain
FR02 = filter-regulator with relieving and direct G1/8 exhaust
FR11 = filter-regulator without relieving, with semi-automatic manual drain
FR13 = filter-regulator without relieving, with by-pass valve and semi-automatic manual drain
FR18 = filter-regulator with relieving and automatic/depressuring drain
FR24 = filter-regulator with relieving, by-pass valve and semi-automatic manual drain
FR25 = filter-regulator with relieving, by-pass valve and direct G1/8 exhaust
FR26 = filter-regulator with relieving, by-pass valve and automatic/depressuring drain

Series MD filter-regulators - dimensions





Mod.	A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R	S	T	U	V	W	Z	Weight (Kg)
MD1-FR0000	-	G1/8	42	Ø28	42	M28X1,5	G1/8	26.2	43	Ø4	110	208.2	107.7	22.7	4	51.7	133.2	34.6	0 ÷ 11	9	48.8	Ø3.2	0.2
MD1-FR0000-1/8	G1/8	G1/8	42	Ø28	42	M28X1,5	G1/8	26.2	43	Ø4	110	208.2	107.7	22.7	4	51.7	133.2	34.6	0 ÷ 11	9	48.8	Ø3.2	0.2
MD1-FR0000-1/4	G1/4	G1/8	42	Ø28	42	M28X1,5	G1/8	26.2	43	Ø4	110	208.2	107.7	22.7	4	51.7	133.2	34.6	0 ÷ 11	9	48.8	Ø3.2	0.2
MD1-FR0000-3/8	G3/8	G1/8	42	Ø28	42	M28X1,5	G1/8	26.2	43	Ø4	110	208.2	107.7	22.7	4	51.7	133.2	34.6	0 ÷ 11	9	48.8	Ø3.2	0.2
MD1-FR0000-6	Ø6	G1/8	47	Ø28	42	M28X1,5	G1/8	26.2	43	Ø4	110	208.2	107.7	22.7	4	51.7	133.2	34.6	0 ÷ 11	9	48.8	Ø3.2	0.2
MD1-FR0000-8	Ø8	G1/8	62	Ø28	42	M28X1,5	G1/8	26.2	43	Ø4	110	208.2	107.7	22.7	4	51.7	133.2	34.6	0 ÷ 11	9	48.8	Ø3.2	0.2
MD1-FR0000-10	Ø10	G1/8	67	Ø28	42	M28X1,5	G1/8	26.2	43	Ø4	110	208.2	107.7	22.7	4	51.7	133.2	34.6	0 ÷ 11	9	48.8	Ø3.2	0.2

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Series MD
lockable isolation 3/2-way valves

New

Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm
Modular
Manual, electro-pneumatic, servo-pilot and pneumatic control



- Standard tamperproof lock-out (manual valve)
- 24 V, 110 V or 230 V coils (see the section 2.2.35)
- Solenoid valve with or without manual override available in different types
- Additional air intakes with the same characteristics of the inlet air (line)

The Series MD offers multi-sector solutions that ensure saving in terms of installation time, space and costs. Series MD lockable isolation valves allow the inlet and exhaust of compressed air from the plant and can meet several application requirements.

The electric version can be equipped with different options of manual override (Push & Turn, Push-in, retaining lever). Moreover, a version without override is also available.
The manually operated valve can be locked thanks to the use of padlocks.

GENERAL DATA

Construction	modular, compact, spool-type
Materials	see TABLE OF MATERIALS (pag. 3/0.35.02)
Ports	with interchangeable cartridges: 1/8, 1/4 and 3/8 threaded, integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm
Fixing	in-line; wall-mounting by means of through holes in the body or with a support bracket; panel-mounting (for manually operated version only)
Operating temperature	-5°C ÷ 50°C up to 16 bar
Operating pressure	Manual valve: -0,8 bar ÷ 10 bar Electro-pneumatic valve: 2 bar ÷ 10 bar Servopilot or pneumatic valve: -0,8 bar ÷ 10 bar (with pilot 2 ÷ 10 bar)
Nominal flow	see FLOW DIAGRAMS (pag. 3/0.35.03 e 3/0.35.04)
Nominal exhaust flow at 6 bar with Δp = 1 bar	850 Nl/min
Fluid	compressed air

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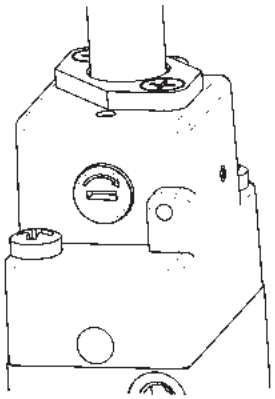
CODING EXAMPLE

MD	1	-	V	01	-	1/8

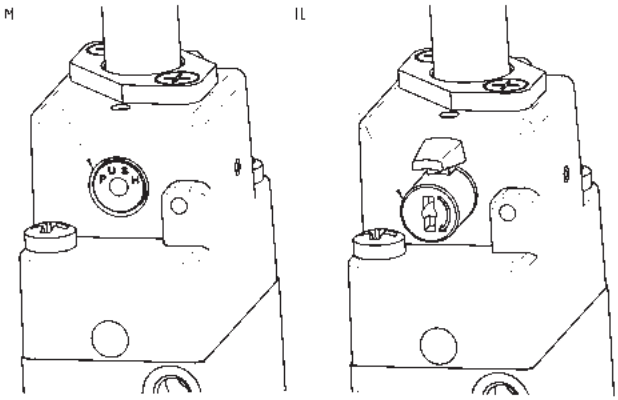
MD	SERIES
1	DIMENSION: 1 = 42 mm
V	3/2-WAY VALVE
01	DESIGN TYPE: 01 = lockable manual control 16 = electro-pneumatic control, Push & Turn manual override 16IL = electro-pneumatic control, bistable manual override, lever type 16IM = electro-pneumatic control, monostable manual override 16IT = electro-pneumatic control without manual override 36 = pneumatic control
1/8	PORTS (IN - OUT) *: = without cartridges 1/8 = G1/8 1/4 = G1/4 3/8 = G3/8 6 = tube Ø6 8 = tube Ø8 10 = tube Ø10

* NOTE: if the inlet (IN) cartridge is different from the outlet (OUT) cartridge, both dimensions shall be indicated.
Example: MD1-V01-1/4-1/8

TYPES OF MANUAL OVERRIDE

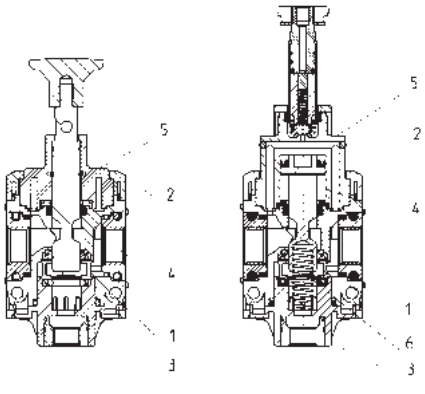


Push & Turn manual override



IL = bistable manual override, lever type
IM = monostable manual override

Series MD lockable isolation 3/2-way valves - materials

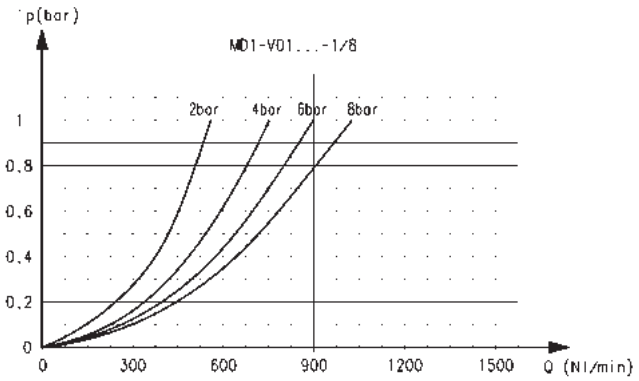


MD.. -V01 MD. .-V16

PARTS	MATERIALS
1 = Body	Polyamide
2 = Covering	Polyamide
3 = Plug	Polyamide
4 = Spool	Anodized aluminium
5 = End-cover	Polyamide
6 = Lower spring	Stainless steel
Seals	NBR

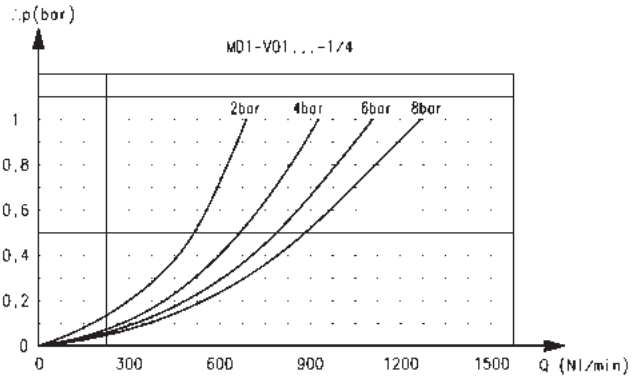
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FLOW DIAGRAMS for manually operated models



Ports with interchangeable G1/8 threaded cartridges

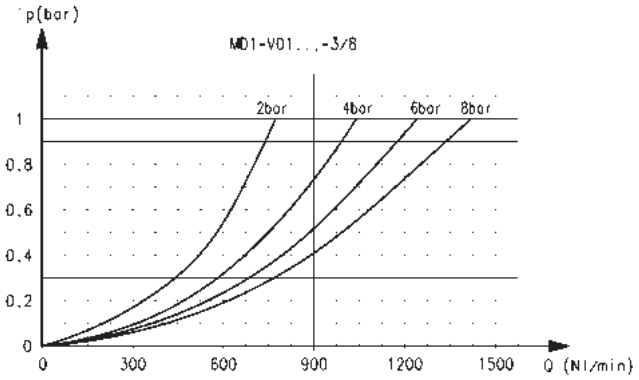
Δp = Pressure drop
Q = Flow



Ports with interchangeable G1/4 threaded cartridges

Δp = Pressure drop
Q = Flow

FLOW DIAGRAM for manually operated models

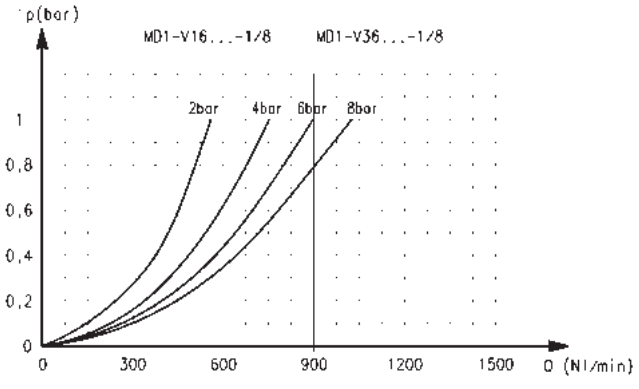


Ports with interchangeable G3/8 threaded cartridges

Δp = Pressure drop
Q = Flow

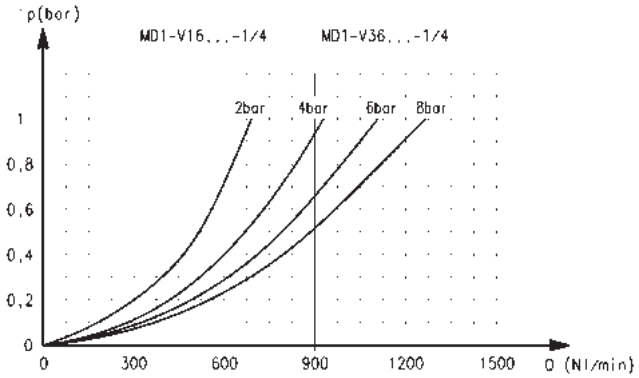
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FLOW DIAGRAMS for electro-pneumatically or pneumatically operated models



Ports with interchangeable G1/8 threaded cartridges

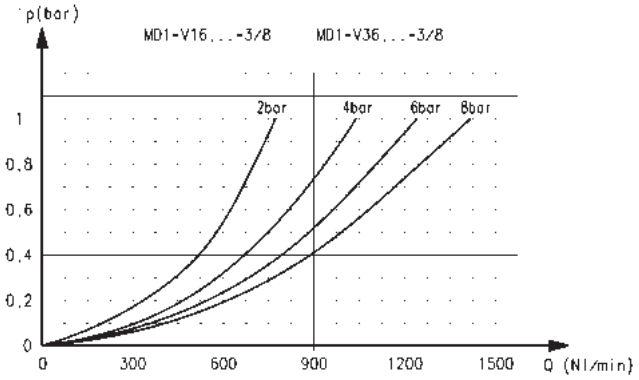
Δp = Pressure drop
Q = Flow



Ports with interchangeable G1/4 threaded cartridges

Δp = Pressure drop
Q = Flow

FLOW DIAGRAM for electro-pneumatically or pneumatically operated models



Ports with interchangeable G3/8 threaded cartridges

Δp = Pressure drop
Q = Flow

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Manually operated valves - dimensions



Fig. 1 = closed valve
Fig. 2 = open valve

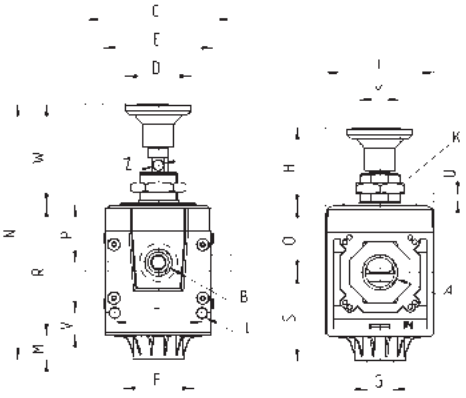
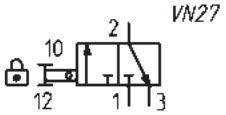


Fig.1 Fig.2

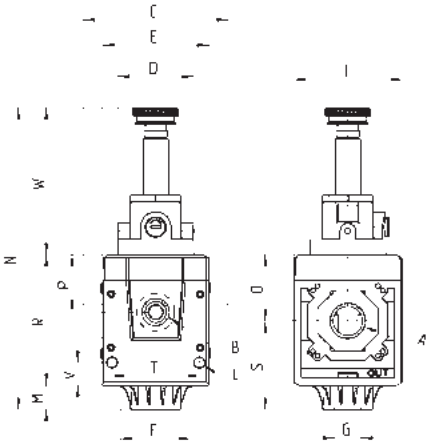


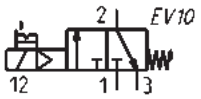
Mod.	A	B	C	D	E	F	G	H	I	K	L	M	N	O	P	R	S	T	U	V	W	Y	Z	Weight (Kg)
MD1-V01	-	G1/8	42	Ø26	42	28.5	G1/8	31	43	19	Ø4	9.5	101	26.2	22.7	51.7	35.1	34.6	0-8	9	39.8	M16X1	Ø4	0.2
MD1-V01-1/8	G1/8	G1/8	42	Ø26	42	28.5	G1/8	31	43	19	Ø4	9.5	101	26.2	22.7	51.7	35.1	34.6	0-8	9	39.8	M16X1	Ø4	0.2
MD1-V01-1/4	G1/4	G1/8	42	Ø26	42	28.5	G1/8	31	43	19	Ø4	9.5	101	26.2	22.7	51.7	35.1	34.6	0-8	9	39.8	M16X1	Ø4	0.2
MD1-V01-3/8	G3/8	G1/8	42	Ø26	42	28.5	G1/8	31	43	19	Ø4	9.5	101	26.2	22.7	51.7	35.1	34.6	0-8	9	39.8	M16X1	Ø4	0.2
MD1-V01-6	Ø6	G1/8	47	Ø26	42	28.5	G1/8	31	43	19	Ø4	9.5	101	26.2	22.7	51.7	35.1	34.6	0-8	9	39.8	M16X1	Ø4	0.2
MD1-V01-8	Ø8	G1/8	62	Ø26	42	28.5	G1/8	31	43	19	Ø4	9.5	101	26.2	22.7	51.7	35.1	34.6	0-8	9	39.8	M16X1	Ø4	0.2
MD1-V01-10	Ø10	G1/8	67	Ø26	42	28.5	G1/8	31	43	19	Ø4	9.5	101	26.2	22.7	51.7	35.1	34.6	0-8	9	39.8	M16X1	Ø4	0.2

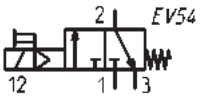
Electro-pneumatically operated valves - dimensions

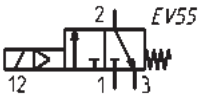


* = add:
- IL for the version with bistable manual override, lever type (EV10)
- IM for the version with monostable manual override (EV54)
- IT for the version without manual override (EV55)







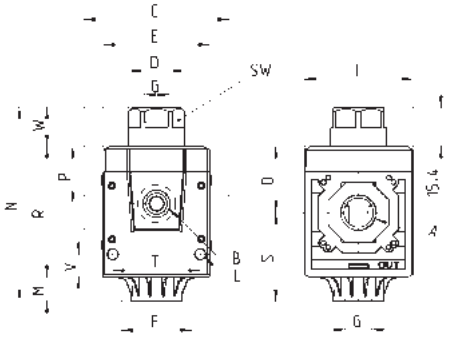


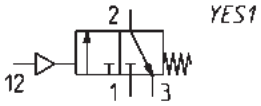
Mod.	A	B	C	D	E	F	G	I	L	M	N	O	P	R	S	T	V	W	Weight (Kg)
MD1-V16*	-	G1/8	42	Ø30	42	28.5	G1/8	43	Ø4	9.5	119.4	26.2	22.7	51.7	35.1	34.6	9	58.2	0.2
MD1-V16*-1/8	G1/8	G1/8	42	Ø30	42	28.5	G1/8	43	Ø4	9.5	119.4	26.2	22.7	51.7	35.1	34.6	9	58.2	0.2
MD1-V16*-1/4	G1/4	G1/8	42	Ø30	42	28.5	G1/8	43	Ø4	9.5	119.4	26.2	22.7	51.7	35.1	34.6	9	58.2	0.2
MD1-V16*-3/8	G3/8	G1/8	42	Ø30	42	28.5	G1/8	43	Ø4	9.5	119.4	26.2	22.7	51.7	35.1	34.6	9	58.2	0.2
MD1-V16*-6	Ø6	G1/8	47	Ø30	42	28.5	G1/8	43	Ø4	9.5	119.4	26.2	22.7	51.7	35.1	34.6	9	58.2	0.2
MD1-V16*-8	Ø8	G1/8	62	Ø30	42	28.5	G1/8	43	Ø4	9.5	119.4	26.2	22.7	51.7	35.1	34.6	9	58.2	0.2
MD1-V16*-10	Ø10	G1/8	67	Ø30	42	28.5	G1/8	43	Ø4	9.5	119.4	26.2	22.7	51.7	35.1	34.6	9	58.2	0.2

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Pneumatically operated valves - dimensions







Mod.	A	B	C	D	E	F	G	I	L	M	N	O	P	R	S	T	V	W	SW	Weight (Kg)
MD1-V36	-	G1/8	42	Ø22	42	28.5	G1/8	43	Ø4	9.5	76.6	26.2	22.7	51.7	35.1	34.6	9	15.4	20	0.2
MD1-V36-1/8	G1/8	G1/8	42	Ø22	42	28.5	G1/8	43	Ø4	9.5	76.6	26.2	22.7	51.7	35.1	34.6	9	15.4	20	0.2
MD1-V36-1/4	G1/4	G1/8	42	Ø22	42	28.5	G1/8	43	Ø4	9.5	76.6	26.2	22.7	51.7	35.1	34.6	9	15.4	20	0.2
MD1-V36-3/8	G3/8	G1/8	42	Ø22	42	28.5	G1/8	43	Ø4	9.5	76.6	26.2	22.7	51.7	35.1	34.6	9	15.4	20	0.2
MD1-V36-6	Ø6	G1/8	47	Ø22	42	28.5	G1/8	43	Ø4	9.5	76.6	26.2	22.7	51.7	35.1	34.6	9	15.4	20	0.2
MD1-V36-8	Ø8	G1/8	62	Ø22	42	28.5	G1/8	43	Ø4	9.5	76.6	26.2	22.7	51.7	35.1	34.6	9	15.4	20	0.2
MD1-V36-10	Ø10	G1/8	67	Ø22	42	28.5	G1/8	43	Ø4	9.5	76.6	26.2	22.7	51.7	35.1	34.6	9	15.4	20	0.2

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Series MD soft start valves

New

Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm
Modular assembly



- Security function to maintain the command sequence
- Opening of the main air path at about 50% of the value of the inlet pressure
- Upper air intake to connect a pressure switch or to extend switching time
- Additional air intakes with the same characteristics of the outlet air (line)

The soft start valves are used to avoid the sudden movement of pneumatic actuators.
Feeding them pneumatically is enough to begin the phase of the pressure gradual increase in the system. By means of a regulation screw, it is possible to determine the time the valve needs to reach the 50% of the inlet pressure. Once this value is reached, the valve opens completely the passage.

The blanked connection on the upper side allows either the time increase to fill the system through a small additional volume or the connection of a pressure switch.

GENERAL DATA

Construction	modular, compact, poppet-type
Materials	see TABLE OF MATERIALS (pag. 3/0.40.02)
Ports	with interchangeable cartridges: 1/8, 1/4 and 3/8 threaded, integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm
Fixing	in-line; wall-mounting by means of through hole in the body or with a support bracket
Operating temperature	-5°C ÷ 50°C
Operating pressure	2 ÷ 10 bar
Nominal flow at 6 bar with ΔP 1 bar	MD1-AV-1/8 = 1000 Nl/min MD1-AV-1/4 = 1350 Nl/min MD1-AV-3/8 = 1500 Nl/min
Fluid	compressed air

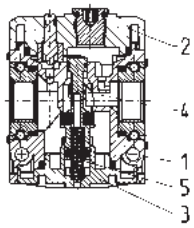
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CODING EXAMPLE

MD	1	-	AV	-	1/8

MD	SERIES
1	DIMENSION: 1 = 42 mm
AV	SOFT START VALVE
1/8	PORTS (IN - OUT)*: = without cartridges 1/8 = G1/8 1/4 = G1/4 3/8 = G3/8 6 = tube Ø6 8 = tube Ø8 10 = tube Ø10 * NOTE: if the inlet (IN) cartridge is different from the outlet (OUT) cartridge, both dimensions shall be indicated. Example: MD1-AV-1/4-1/8

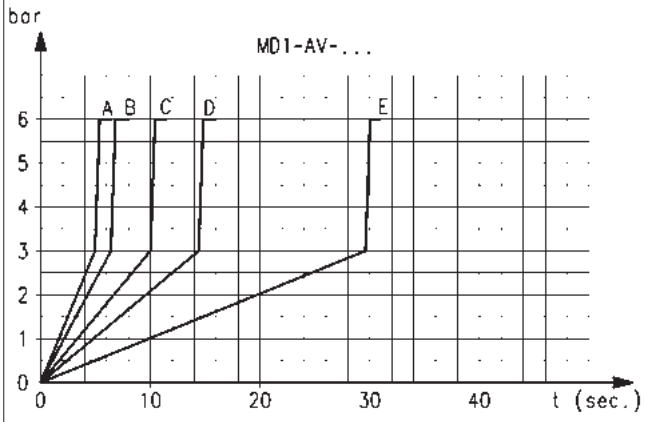
Series MD soft start valves - materials

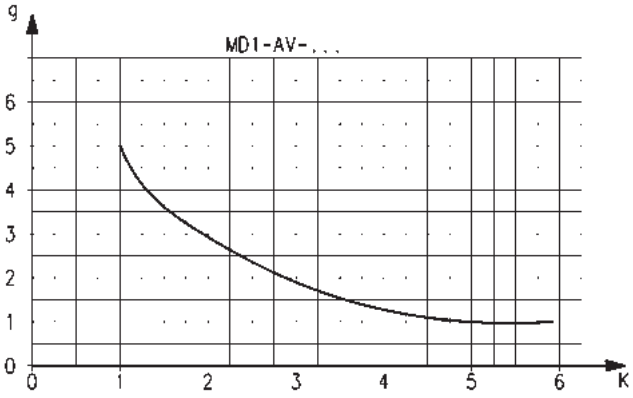


PARTS	MATERIALS
1 = Body	Polyamide
2 = Covering	Polyamide
3 = Plug	Polyamide
4 = Poppet	Brass
5 = Spring	Stainless steel
Seals	NBR

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MD1 DIAGRAMS FOR PRESSURISATION TIMES





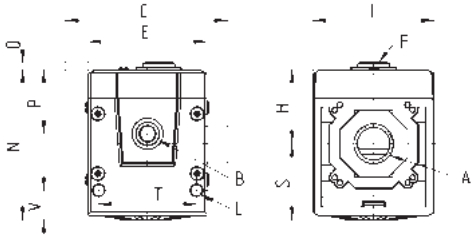
Pressurisation times as to the number of turns of the regulation screw, with downstream volume of 5 litres. A = 5 turns - B = 4 turns - C = 3 turns - D = 2 turns - E = 1 turn. K = number of turns of the regulation screw required to obtain the required pressurisation time with an inlet pressure of 6 bar. Variations of the inlet pressure can cause deviations of the pressure time by ± 20%. K = t/V where: V = volume of the downstream system in litres; t = desired pressuring time in seconds.

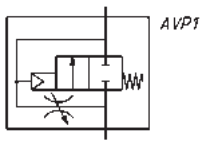
EXAMPLE:
V = 5 litres
t = 16 seconds
K = 16/5 = 3,2

Using in the graph this value K, the number of turns of the regulation screw will be approx. 0,8.

Series MD soft start valves - dimensions







Mod.	A	B	C	E	F	H	I	L	N	O	P	S	T	V	Weight (Kg)
MD1-AV	-	G1/8	42	42	G1/8	26.2	43	Ø4	53.2	2.5	22.7	27	34.6	10.5	0.2
MD1-AV-1/8	G1/8	G1/8	42	42	G1/8	26.2	43	Ø4	53.2	2.5	22.7	27	34.6	10.5	0.2
MD1-AV-1/4	G1/4	G1/8	42	42	G1/8	26.2	43	Ø4	53.2	2.5	22.7	27	34.6	10.5	0.2
MD1-AV-3/8	G3/8	G1/8	42	42	G1/8	26.2	43	Ø4	53.2	2.5	22.7	27	34.6	10.5	0.2
MD1-AV-6	Ø6	G1/8	47	42	G1/8	26.2	43	Ø4	53.2	2.5	22.7	27	34.6	10.5	0.2
MD1-AV-8	Ø8	G1/8	62	42	G1/8	26.2	43	Ø4	53.2	2.5	22.7	27	34.6	10.5	0.2
MD1-AV-10	Ø10	G1/8	67	42	G1/8	26.2	43	Ø4	53.2	2.5	22.7	27	34.6	10.5	0.2

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Series MD take-off blocks

New

Module with interchangeable cartridges:
threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm (5-way version)
Intermediate joining cartridge (3-way version)

- Compact design
- Utilities orientation





The take-off module enables to draw air from the air treatment group, both in middle and end position. The same operation, although in a more limited way, can be carried out with the intermediate cartridge.

GENERAL DATA

Construction	modular, compact
Materials	see TABLE OF MATERIALS (pag. 3/0.45.02)
Ports - Take-off block	with interchangeable cartridges: 1/8, 1/4 and 3/8 threaded or integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm
Ports - Joining cartridge with derivation	3/8
Derivations - Take-off block	4x 1/8
Derivations - Joining cartridge	2x 1/8
Fixing - Take-off block	in-line; wall-mounting by means of through holes in the body or with a support bracket
Operating temperature	-5°C ÷ 50°C
Operating pressure	0 ÷ 16 bar
Nominal flow at 6 bar with Δp = 1 bar	MD1-B00-1/8 = 1300 Nl/min MD1-B00-1/4 = 2300 Nl/min MD1-B00-3/8 = 3400 Nl/min
Fluid	compressed air

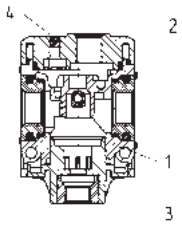
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CODING EXAMPLE

MD	1	-	B	00	-	1/8

MD	SERIES
1	DIMENSION: 1 = 42 mm
B	TAKE-OFF BLOCK
00	DESIGN TYPE: 00 = standard derivation
1/8	PORTS (IN - OUT)*: = without cartridges 1/8 = G1/8 1/4 = G1/4 3/8 = G3/8 6 = tube Ø6 8 = tube Ø8 10 = tube Ø10 * NOTE: if the inlet (IN) cartridge is different from the outlet (OUT) cartridge, both dimensions shall be indicated. Example: MD1-B00-3/8-10

Series MD take-off block - materials

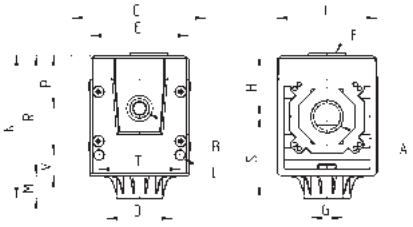


PARTS	MATERIALS
1 = Body	Polyamide
2 = Covering	Polyamide
3 = Plug	Polyamide
4 = Sphere	Stainless steel
Seals	NBR

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Series MD take-off block - dimensions





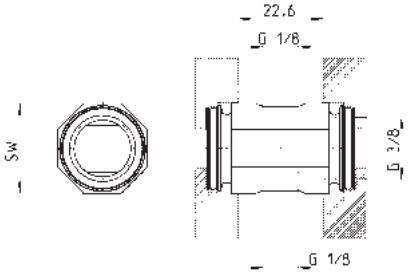


Mod.	A	B	C	D	E	F	G	H	I	L	M	N	P	R	S	T	V	Weight (Kg)
MD1-B00	-	G1/8	42	28.5	42	G1/8	G1/8	26.2	43	Ø4	9.5	61.2	22.7	51.7	35.1	34.6	9	0.2
MD1-B00-1/8	G1/8	G1/8	42	28.5	42	G1/8	G1/8	26.2	43	Ø4	9.5	61.2	22.7	51.7	35.1	34.6	9	0.2
MD1-B00-1/4	G1/4	G1/8	42	28.5	42	G1/8	G1/8	26.2	43	Ø4	9.5	61.2	22.7	51.7	35.1	34.6	9	0.2
MD1-B00-3/8	G3/8	G1/8	42	28.5	42	G1/8	G1/8	26.2	43	Ø4	9.5	61.2	22.7	51.7	35.1	34.6	9	0.2
MD1-B00-6	Ø6	G1/8	47	28.5	42	G1/8	G1/8	26.2	43	Ø4	9.5	61.2	22.7	51.7	35.1	34.6	9	0.2
MD1-B00-8	Ø8	G1/8	62	28.5	42	G1/8	G1/8	26.2	43	Ø4	9.5	61.2	22.7	51.7	35.1	34.6	9	0.2
MD1-B00-10	Ø10	G1/8	67	28.5	42	G1/8	G1/8	26.2	43	Ø4	9.5	61.2	22.7	51.7	35.1	34.6	9	0.2

Intermediate joining cartridge with derivation Mod. MD1-B



The kit is supplied with:
1x intermediate joining cartridge with derivation
4x zinc-plated white special screws Ø4,5 TC/RC



Mod.
MD1-B

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ACCESSORIES FOR SERIES MD



Threaded cartridges



Integrated cartridges with super-rapid fitting



Intermediate joining cartridge Mod. MD1-C



Screws for wall mounting Mod. MD1-D



Rear bracket Mod. MD1-ST/1



Mounting bracket Mod. C114-ST



Mounting bracket Mod. C114-ST/1



Mounting bracket Mod. C114-ST/2



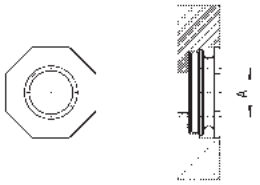
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Threaded cartridges Mod. MD1-A-...

New



The kit is supplied with:
2x nickel-plated threaded cartridges
4x special white zinc-plated screws Ø4,5 TC/RC



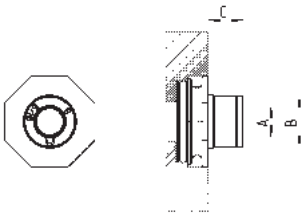
DIMENSIONS	
Mod.	A
MD1-A-1/8	G1/8
MD1-A-1/4	G1/4
MD1-A-3/8	G3/8

Integrated cartridges with super-rapid fitting Mod. MD1-A-...

New



The kit is supplied with:
2x integrated nickel-plated cartridges with super-rapid fitting
4x special white zinc-plated screws Ø4,5 TC/RC



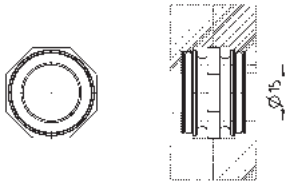
DIMENSIONS			
Mod.	A	B	C
MD1-A-6	Ø6	12.7	8.5
MD1-A-8	Ø8	14.2	10
MD1-A-10	Ø10	16.5	12.5

Intermediate joining cartridge Mod. MD1-C

New



The kit is supplied with:
1x intermediate joining cartridge
4x special white zinc-plated screws Ø4,5 TC/RC



Mod.
MD1-C

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Screws for wall mounting Mod. MD1-D

New

The kit is supplied with:
2x white zinc-plated screws M4x50



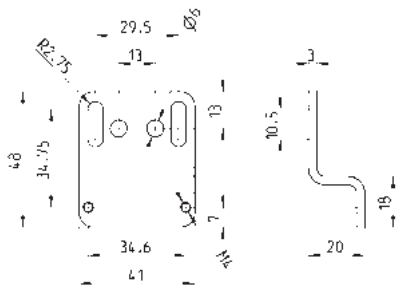
Mod.
MD1-D

Rear bracket Mod. MD1-ST/1

New

The kit is supplied with:
1x zinc-plated bracket
2x white zinc-plated screws M4x50





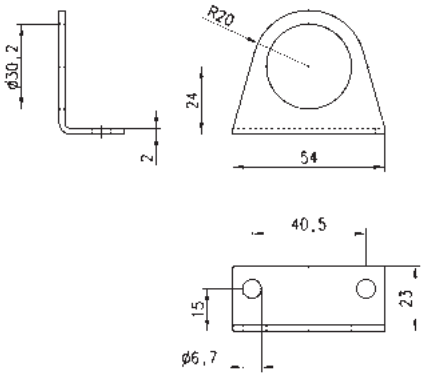
Mod.
MD1-ST/1

Mounting bracket Mod. C114-ST

For regulators and filter-regulators (G1/4 - G1/8)

The kit is supplied with:
1x zinc-plated steel bracket





Mod.
C114-ST

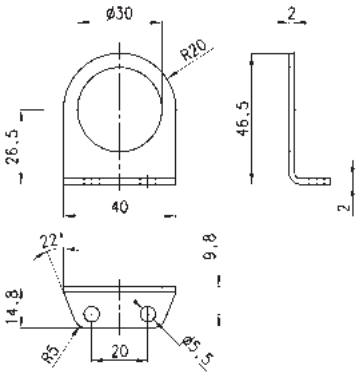
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Mounting bracket Mod. C114-ST/1



For regulators and filter-regulators
(G1/4 - G1/8)

The kit is supplied with:
1x zinc-plated steel bracket



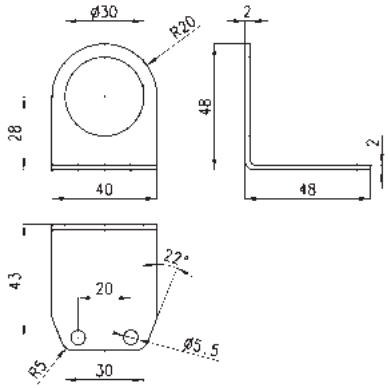
Mod.
C114-ST/1

Mounting bracket Mod. C114-ST/2



For regulators and filter-regulators
(G1/4 - G1/8)

The kit is supplied with:
1x zinc-plated steel bracket



Mod.
C114-ST/2

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Series MD assembled FRL

New

Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm
Modular assembly



- Compact design
- Optimized dimensions
- Great reliability
- Easy and quick maintenance
- Reduced weight
- Quick fixing
- Wide range of functions
- Additional air intakes

The Series MD offers multi-sector solutions that ensure saving in terms of installation time, space and costs.
The various functions can be connected by means of intermediate junctioning cartridges.
The regulator and the valves can be adjusted so as to have the regulation devices or the actuation in front or lower position.
There are different types of wall mounting available.

Thanks to the solution adopted for the pneumatic connection, it is possible to equip the same element with interchangeable cartridges that can either be threaded, or with an integrated super-rapid fitting, both types available in different sizes. Intermediate cartridges can be also integrated to join multiple functions or with derivation to draw air.

GENERAL DATA

Construction	modular, compact
Materials	see catalogue pages referring to the single component
Ports	with interchangeable cartridges: 1/8, 1/4 and 3/8 threaded or integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm
Fixing	vertical in-line; wall-mounting by means of through holes in the body or with a support bracket; panel mounting
Operating temperature	-5°C ÷ 50°C up to 16 bar (according to the single component characteristics)

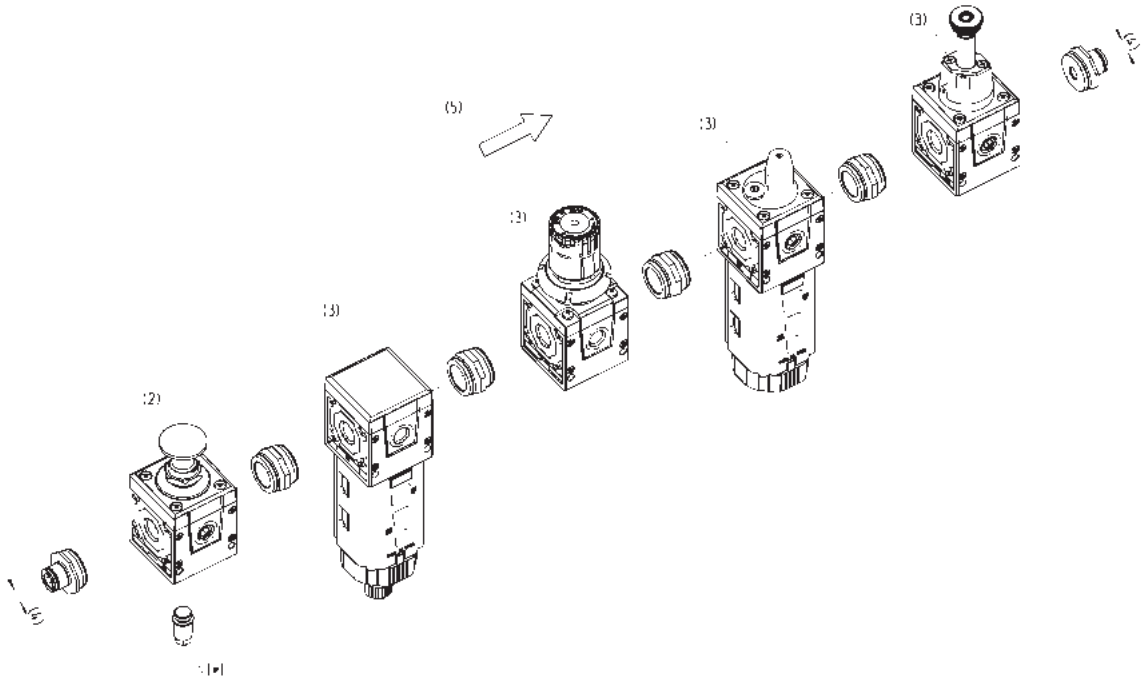
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CONFIGURATION OF SERIES MD ASSEMBLED GROUPS

TO CONFIGURE THE SERIES MD ASSEMBLED GROUPS, USE THE HERE BELOW EXAMPLE AND THE RELATED LEGEND ON PAGE 3/0.50.03.

Configuration of the assembled group in the drawing below:

MD1-V01+A26F000R000L00V16-8



	(1)	(2)	[*]	(3)	[*]		(4)		(5)
MD	1	V01	+A26	F000		-	8	-	
				R004					
				L00					
				V16					

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CONFIGURATOR OF SERIES MD ASSEMBLED GROUPS

MD	1	-	V01	F000	R000	L00	V16	-	8	-	LH

MD		SERIES
1	(1)	DIMENSION: 1 = 42 mm
-		
V01	(2)	MODULE + [*] (to configure the modules, see the single components pages): F... = Filter FC... = Coalescing filter FCA... = Activated carbons filter R... = Pressure regulator L... = Lubricator FR... = Filter-Regulator V... = Lockable isolation valve AV... = Soft start valve B... = Take-off block
	[*]	The following ACCESSORIES can be added after every single module: REGULATOR, FILTER-REGULATOR AND MANIFOLD REGULATOR +A01 = M043-P04 (pressure gauge) +A02 = M043-P06 (pressure gauge) +A03 = M043-P10 (pressure gauge) +A04 = M043-P12 (pressure gauge) +A05 = SWCN-P10-P3-2 (pressure switch) +A06 = SWCN-P10-P4-2 (pressure switch) +A07 = SWCN-P10-P4-M (pressure switch) +A08 = PG010-PB-1/8 (pressure gauge) LOCKABLE ISOLATION VALVE ...V01 / V16 / V36 +A25 = 2901 1/8 (silencier) +A26 = 2921 1/8 (silencier) - recommended choice +A27 = 2931 1/8 (silencier) +A28 = 2938 1/8 (silencier) +A01 = M043-P04 (pressure gauge) +A02 = M043-P06 (pressure gauge) +A03 = M043-P10 (pressure gauge) +A04 = M043-P12 (pressure gauge) +A05 = SWCN-P10-P3-2 (pressure switch) +A06 = SWCN-P10-P4-2 (pressure switch) +A07 = SWCN-P10-P4-M (pressure switch) +A08 = PG010-PB-1/8 (pressure gauge) LOCKABLE ISOLATION VALVE...V16 +A35 = U7H (coils 12V DC) +A36 = U77 (coils 24V DC) +A37 = U79 (coils 48V DC) +A38 = U7K (coils 110V AC) +A39 = U7J (coils 230V AC) +A40 = G7H (coils 12V DC) +A41 = G77 (coils 24V DC) +A42 = G79 (coils 48V DC) +A43 = G7K (coils 110V AC) +A44 = G7J (coils 230V AC) SOFT START VALVE AND 5-WAY TAKE-OFF BLOCK +A15 = PM11-NC (pressure switch mounted on top) +A16 = PM11-NA (pressure switch mounted on top) +A17 = PM681-1 (pressure switch mounted on top) +A18 = PM681-3 (pressure switch mounted on top) +A19 = PM11-SC + S2520 1/8-1/4 (pressure switch with fitting mounted on top) +A05 = SWCN-P10-P3-2 (front mounted pressure switch) +A06 = SWCN-P10-P4-2 (front mounted pressure switch) +A07 = SWCN-P10-P4-M (front mounted pressure switch) +A08 = PG010-PB-1/8 (front mounted pressure switch) INTERMEDIATE JOINING CARTRIDGE WITH DERIVATION (MD1-B) +A17 = PM681-1 (pressure switch mounted on top) +A18 = PM681-3 (pressure switch mounted on top)
F000	(3)	see MODULE (2) + [*]
R000	(3)	see MODULE (2) + [*]
L00	(3)	see MODULE (2) + [*]
V16	(3)	see MODULE (2) + [*]
-		
8	(4)	PORTS (IN - OUT)**: = without cartridges 1/8 = G1/8 1/4 = G1/4 3/8 = G3/8 6 = tube Ø6 8 = tube Ø8 10 = tube Ø10
-		
LH	(5)	FLOW DIRECTION: = from left to right (standard) LH = from right to left

nx = the combination “(3) + (*)” can be repeated an odd (“n”) number of times

** NOTE: if the inlet (IN) cartridge is different from the outlet (OUT) cartridge, both dimensions shall be indicated. Example: MD1-V01F000R000-3/8-8

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Series N
filters and coalescing filters

New version

Ports: G1/8, G1/4



» Available with:
transparent PA12 bowl or
nickel-plated brass bowl
for the small version (N1)

Series N filters are available with G1/8 and G1/4 gas ports.
The models are available with 3 different filtering elements: 25, 5 and 0.01µm.

The version with semi-automatic manual drain is equipped with a transparent bowl that makes the monitoring of the condensate level very easy.

The version with metal bowl is particularly suitable for applications subject to impacts or in the presence of aggressive agents that could damage the PA12 bowl.

GENERAL DATA

Construction	HDPE and coalescing filtering element
Materials	brass, transparent PA12 or nickel-plated brass, NBR
Ports	G1/8 - G1/4
Max. condensate capacity	11 cm³ (bowl size = 1) 28 cm³ (bowl size = 2)
Weight	0.220 kg
Mounting	vertical, inline
Operating temperature	-5°C ÷ 50°C at 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Quality of delivered air according to ISO 8573-1 2010	Class 7.8.4 with 25 µm filtering element Class 6.8.4 with 5 µm filtering element Class 1.8.1 with 0.01 µm filtering element
Draining of condensate	semi-automatic manual
Operating pressure	0.3 ÷ 16 bar (with depressurisation max 10 bar)
Nominal flow	see diagrams

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CODING EXAMPLE

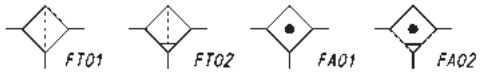
N	2	04	-	F	0	0	-	

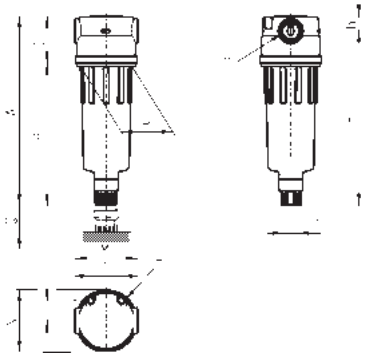
N	SERIES
2	SIZE: 1 = small bowl (11 cm³) 2 = normal bowl (28 cm³)
04	PORTS: 08 = G1/8 04 = G1/4
F	F = FILTER
0	FILTERING ELEMENT: 0 = 25µm (standard) 1 = 5µm B = 0.01µm
0	TYPE OF CONDENSATE DRAIN: 0 = semi-automatic manual drain 4 = depressurisation (normal cup only) 5 = protected depressurisation (normal cup only) 8 = no drain, direct G1/8 exhaust
	BOWL MATERIAL: = transparent PA12 (standard) TM = nickel-plated brass (only in the small size with semi-automatic manual drain or without drain)

Filters Series N



FT01 = filter without drain with threaded port
FT02 = filter with semiautomatic manual drain
FA01 = coalescing filter without drain with threaded port
FA02 = coalescing filter with semi-automatic manual drain



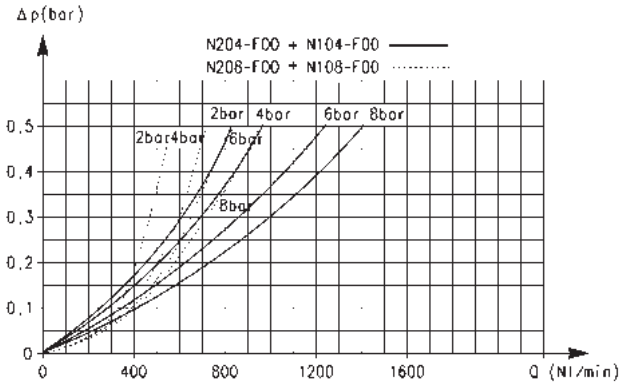


DIMENSIONS

Mod.	A	B	C	E	F	G	H	M	N	O	P	Q	T	U
N108-F00	111	78	33	14.5	101	10	M5	45	44.5	G1/8	38	40	22	G1/8
N104-F00	111	78	33	14.5	101	10	M5	45	44.5	G1/8	38	40	22	G1/4
N208-F00	135	102	33	14.5	125	10	M5	45	44.5	G1/8	38	40	22	G1/8
N204-F00	135	102	33	14.5	125	10	M5	45	44.5	G1/8	38	40	22	G1/4

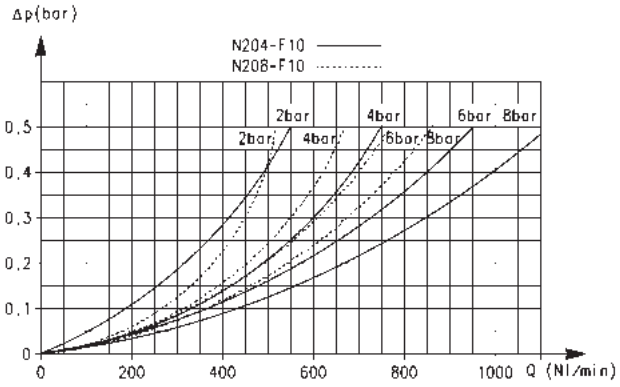
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FLOW DIAGRAMS



Flow diagram for models:
N204-F00 - N104-F00 = _____
N208-F00 - N108-F00 = - - - - - - - -

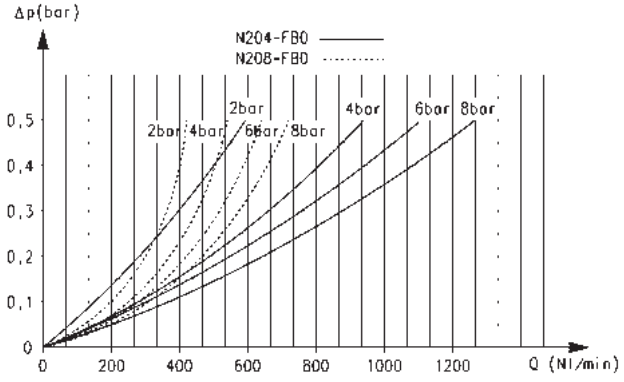
ΔP = Pressure drop
Q = Flow



Flow diagram for models:
N204-F10 = _____
N208-F10 = - - - - - - - -

ΔP = Pressure drop
Q = Flow

FLOW DIAGRAMS



Flow diagram for models:
N204-FB0 = _____
N208-FB0 = - - - - - - - -

ΔP = Pressure drop
Q = Flow

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Series N
pressure regulators

Ports G1/8, G1/4



Series N pressure regulators are available with G1/4 and G1/8 ports. Their design incorporates a self relieving diaphragm so as to allow decremental adjustments.

GENERAL DATA

Construction	diaphragm type
Materials	brass, technopolymer, NBR
Ports	G1/8 - G1/4
Weight	Kg 0.316
Pressure gauge ports	G1/8
Mounting	in - line or console (in any position)
Operating temperature	-5°C ÷ 50°C (with the dew point of the fluid lower than 2°C at the min. working temperature)
Inlet pressure	0 ÷ 16 bar
Outlet pressure	0.5 ÷ 10 bar
Nominal flow	see graphs
Secondary pressure relieving	standard

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CODING EXAMPLE

N	12	04	-	R	T	0	-	■	-	●

N	SERIES
12	SIZE: 12
04	PORTS: 08 = G1/8 04 = G1/4
R	R = REGULATOR
T	OPERATING PRESSURE: 0 = 0.5 ÷ 10 bar (standard) 1 = 0 ÷ 4 bar 2 = 0 ÷ 2 bar 7 = 0.5 ÷ 7 bar T = calibrated * B = locked *
0	DESIGN TYPE: 0 = self-relieving 1 = non-relieving

* NOTE: IF THE REGULATOR IS CALIBRATED OR LOCKED, AFTER THE DESIGN TYPE ADD THE INLET PRESSURE "■" AND THE OUTLET PRESSURE "●"

INLET PRESSURE:
■ = enter the SUPPLY pressure value

OUTLET PRESSURE:
● = enter the OUTLET pressure value for the LOCKED regulator or
the maximum value of the ADJUSTABLE pressure for the CALIBRATED regulator

Example of a calibrated regulator with Inlet Pressure = 6.3 bar and Outlet Pressure = 4.5 bar
Complete part number: N1204-RT0-6.3-4.5

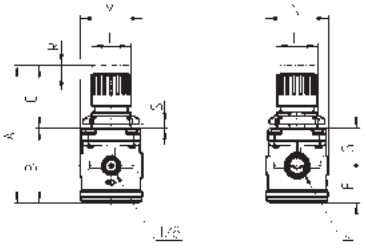
Pressure regulators Series N

Calibrated or blocked regulators on request



PR01 = regulator without relieving
PR02 = regulator with relieving



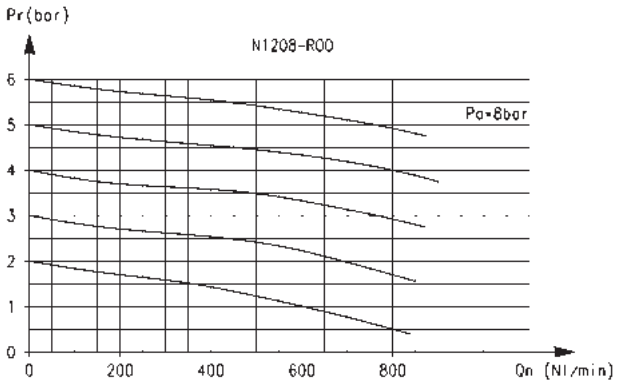


DIMENSIONS

Mod.	A	B	C	F	G	I	L	M	N	R	S	U
N1208-R00	92	53	39	26	27	28	30X1,5	45	45	3	0÷6	G1/8
N1204-R00	92	53	39	26	27	28	30X1,5	45	45	3	0÷6	G1/4

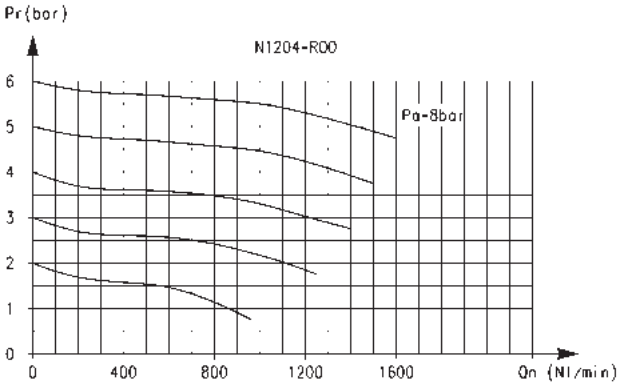
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FLOW DIAGRAMS



Flow diagram for model: N208-R00

Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow



Flow diagram for model: N204-R00

Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow

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Series N lubricators

New version

Ports G1/8, G1/4





» Available with: transparent PA12 bowl or nickel-plated brass bowl for the small version (N1)

Series N lubricators are available with G1/4 and G1/8 ports.
The special type of design allows a vast range of applications in relation to the amount of atomized oil and the air consumed.
The body is made of brass, whilst the bowl can be in transparent PA12 or in nickel-plated brass.

The version with metal bowl is particularly suitable for applications subject to impacts or in the presence of aggressive agents that could damage the PA12 bowl.

GENERAL DATA

Construction	compensation valve
Materials	brass, transparent PA12 or nickel-plated brass, NBR
Ports	G1/8 - G1/4
Oil capacity	26 cm³ (bowl size = 1) 37 cm³ (bowl size = 2)
Weight	0.240 kg
Mounting	vertical, inline
Operating temperature	-5°C ÷ 50°C at 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Oil refilling	without pressure
Oil for lubricator	use ISO VG32 oils. Once applied, the lubrication should never be interrupted
Operating pressure	1 ÷ 16 bar
Nominal flow	see diagrams
Min. air consumption for lubrication	at 1 bar = 7.5 Nl/min at 6 bar = 11 Nl/min

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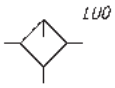
CODING EXAMPLE

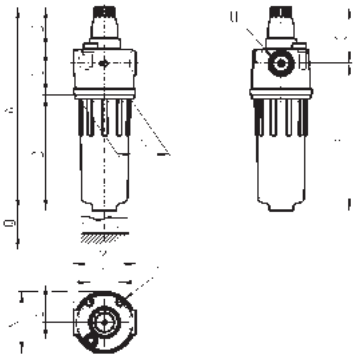
N	2	04	-	L	00	-	

N	SERIES
2	SIZE: 1 = small bowl (26 cm³) 2 = normal bowl (37 cm³)
04	PORTS: 08 = G1/8 04= G1/4
L	L = LUBRICATOR
00	DESIGN TYPE: 00 = atomized oil
	BOWL MATERIAL: = transparent PA12 (standard) TM = nickel-plated brass (only in the small size)

Lubricators Series N



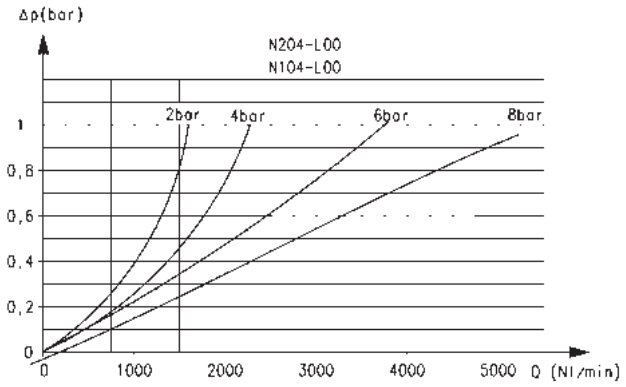




DIMENSIONS

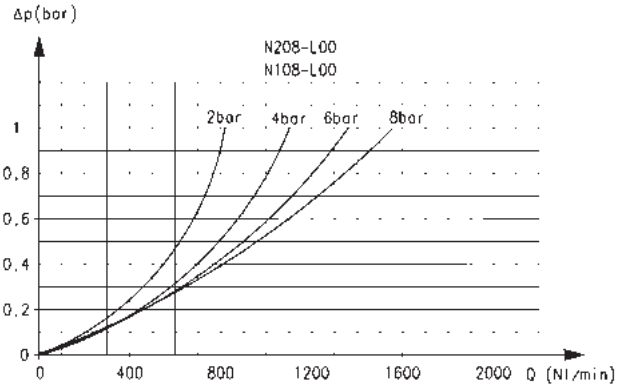
Mod.	A	B	C	D	E	F	G	H	M	N	P	Q	T	U
N108-L00	122.5	59	33	30.5	14.5	82	40.5	M5	45	44.5	38	46.5	22	G1/8
N104-L00	122.5	59	33	30.5	14.5	82	40.5	M5	45	44.5	38	46.5	22	G1/4
N208-L00	146.5	83	33	30.5	14.5	106	40.5	M5	45	44.5	38	46.5	22	G1/8
N204-L00	146.5	83	33	30.5	14.5	106	40.5	M5	45	44.5	38	46.5	22	G1/4

FLOW DIAGRAMS



Flow diagrams for models: N204-L00 and N104-L00

ΔP = Pressure drop
Q = Flow



Flow diagrams for models: N208-L00 and N108-L00

ΔP = Pressure drop
Q = Flow

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series N filter-regulators

New version

Ports G1/8, G1/4



» Available with:
transparent PA12 bowl or
nickel-plated brass bowl
for the small version (N1)

The version with metal bowl is particularly suitable for applications subject to impacts or in the presence of aggressive agents that could damage the PA12 bowl.

**Series N filter-regulator is available with G1/4 and G1/8 ports.
Its design incorporates a self relieving diaphragm. The transparent filter bowl allows an easy monitoring of the condensate level. The semi-automatic manual drain makes both the manual and automatic condensate exhaust easier when there is no pressure.**

GENERAL DATA

Construction	HDPE and coalescing filtering element
Materials	brass body and poppet stainless steel spring NBR O-ring HDPE filtering element transparent PA12 or nickel-plated bowl others: PA
Ports	G1/8 - G1/4
Max. condensate capacity	11 cm³ (bowl size = 1) 28 cm³ (bowl size = 2)
Weight	0.370 Kg
Pressure gauge ports	G1/8
Mounting	vertical, in- line
Operating temperature	-5°C ÷ 50°C a 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Quality of delivered air according to ISO 8573-1 2010	Class 7.8.4 with 25 µm filtering element Class 6.8.4 with 5 µm filtering element
Draining of condensate	semi-automatic manual
Inlet pressure	0 ÷ 16 bar
Outlet pressure	0.5 ÷ 10 bar
Nominal flow	see diagrams
Secondary pressure relieving	standard

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CODING EXAMPLE

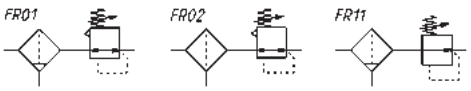
N	2	04	-	D	0	0	-	4	-	

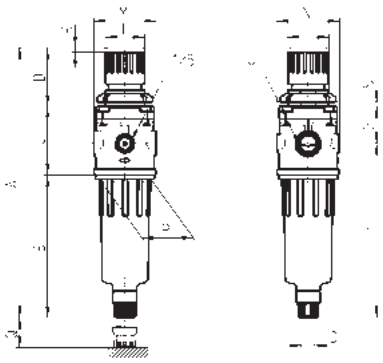
N	SERIES
2	SIZE: 1 = small bowl (11 cm³) 2 = normal bowl (28 cm³)
04	PORTS: 08 = G1/8 04= G1/4
D	D = FILTER-REGULATOR
0	FILTERING ELEMENT: 0 = 25µm (standard) 1 = 5µm
0	DRAINING OF CONDENSATE AND DESIGN TYPE: 0 = semi-automatic manual drain with self-relieving 1 = semi-automatic manual drain without relieving 4 = depressurisation with self-relieving (with normal bowl only) 5 = protected depressurisation with self-relieving (with normal bowl only) 8 = no drain (direct port 1/8), with self-relieving
4	OPERATING PRESSURE: = 0.5 ÷ 10 bar (standard) 2 = 0 ÷ 2 bar 4 = 0 ÷ 4 bar 7 = 0.5 ÷ 7 bar
	BOWL MATERIAL: = transparent PA12 (standard) TM = nickel-plated brass (only in the small size with semi-automatic manual drain or without drain)

Series N filter-regulators



FR01 = filter-regulator with relieving and manual drain
FR02 = FR with relieving and without drain
FR11 = FR with manual drain and wiithout relieving

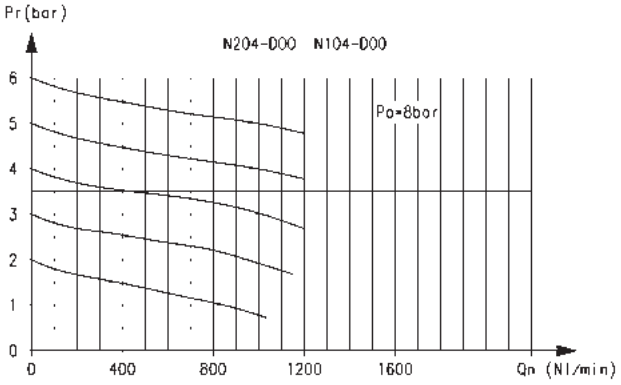




Mod.	A	B	C	D	F	G	I	L	M	N	O	P	Q	R	S	U
N108-D00	167	78	50	39	101	27	28	M30x1,5	45	45	G1/8	38	40	3	0 ÷ 6	G1/8
N104-D00	167	78	50	39	101	27	28	M30x1,5	45	45	G1/8	38	40	3	0 ÷ 6	G1/4
N208-D00	191	102	50	39	125	27	28	M30x1,5	45	45	G1/8	38	40	3	0 ÷ 6	G1/8
N204-D00	191	102	50	39	125	27	28	M30x1,5	45	45	G1/8	38	40	3	0 ÷ 6	G1/4

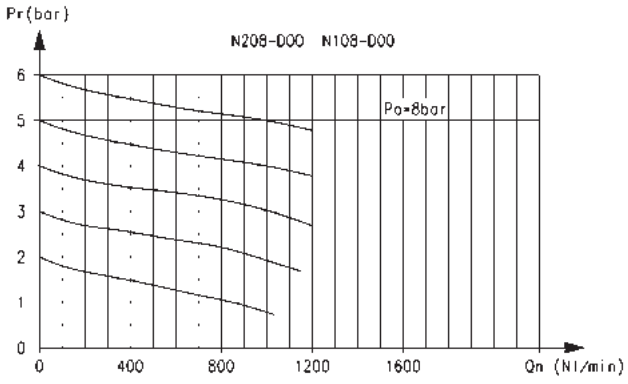
Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

FLOW DIAGRAMS



Flow diagrams for models: N204-D00 - N104-D00

Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow



Flow diagrams for models: N208-D00 - N108-D00

Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow

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ACCESSORIES FOR SERIES N



Mounting bracket
Mod. C114-ST



Mounting bracket
Mod. C114-ST/1



Mounting bracket
Mod. C114-ST/2



Mounting bracket
Mod. N204-ST



Systems of rapid connections designed to make mounting easier.

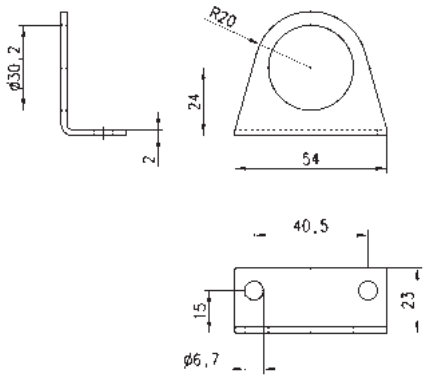
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Mounting bracket Mod. C114-ST



For regulators and filter-regulators (G1/4 - G1/8)

The kit is supplied with:
1x zinc-plated steel bracket.



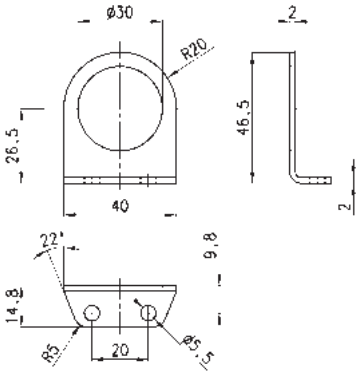
Mod.
C114-ST

Mounting bracket Mod. C114-ST/1



For regulators and filter-regulators (G1/4 - G1/8)

The kit is supplied with 1 zinc-plated steel bracket.



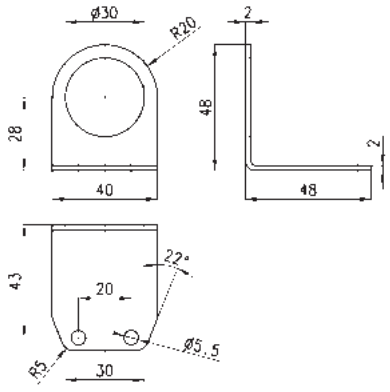
Mod.
C114-ST/1

Mounting bracket Mod. C114-ST/2



For regulators and filter-regulators
(G1/4 - G1/8)

The kit is supplied with 1 zinc-plated steel bracket.



Mod.
C114-ST/2

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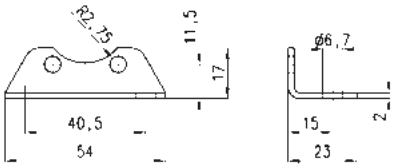


Mounting bracket Mod. N204-ST

For filters and lubricators

The kit is supplied with:
1 bracket
2 screws M5X6

Materials: zinc-plated steel bracket and screws.



Mod.
N204-ST

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series CLR micro pressure regulators

Ports G1/4, G1/8
With banjo stem with or without relieving
Available with or without banjo in technopolymer

- Extremely lightweight
- Compact
- In-line or console mounting





Series CLR micro pressure regulators are available with G1/8 and G1/4 connections. A piston with or without relieving and VS function (valve with fast draining) has been incorporated into its design.
The body is in brass, while the connection fitting is in technopolymer which guarantees maximum lightness. They can be supplied with or without banjo and can be console mounted.

With a threaded top part of the body both direct mounting to a valve outlet (1/8 and 1/4 threads) and console mounting are easily facilitated.
The pressure is precisely regulated simply by turning the polymer knob with a locking nut available to set the desired output.

GENERAL DATA

Construction	piston
Materials	brass body, technopolymer banjo, stainless steel spring; NBR O-ring
Ports	G1/8 - G1/4
Weight	Kg 0,035
Mounting	in-line or panel mounting (in any position)
Operating temperature	-5°C ÷ 50°C (with the dew point of the fluid lower than 2°C at the min. working temperature)
Inlet pressure	2 ÷ 10 bar
Outlet pressure	0,5 ÷ 10 bar
Nominal flow	see graphs
Secondary pressure relieving	standard (all regulators are provided with high relief flow VS function)

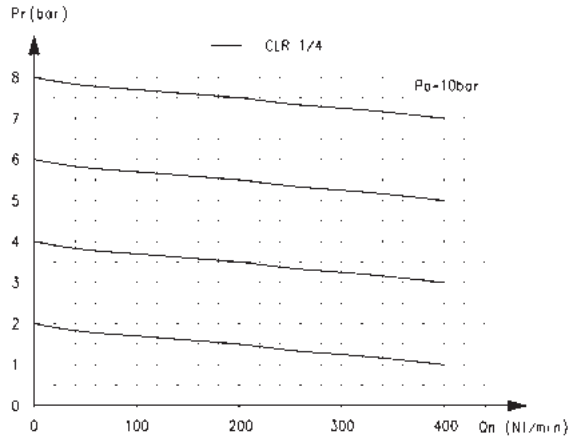
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CODING EXAMPLE

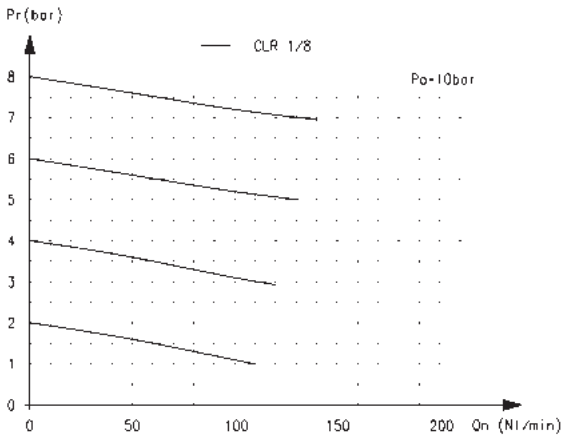
CL	R		1/8	-	01	-	4

CL	SERIES
R	R = REGULATOR
1/8	PORTS: 1/8 = G1/8 1/4 = G1/4
	DESIGN TYPE: = with relieving 01 = without relieving
4	TUBE: = without banjo 4 = Ø4 mm (G1/8 only) 6 = Ø6 mm 8 = Ø8 mm

FLOW DIAGRAMS at 6 bar with ΔP1



Pa = Inlet pressure - Pr = Regulated pressure
Qn = Flow
CLR 1/4-6 = 209 Nl/min
CLR 1/4-8 = 310 Nl/min

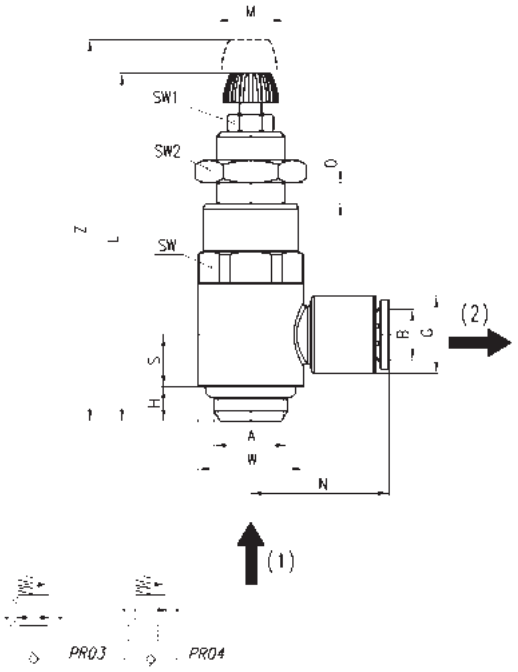


Pa = Inlet pressure - Pr = Regulated pressure
Qn = Flow
CLR 1/8-4 = 90 Nl/min; CLR 1/8-6 = 120 Nl/min - CLR 1/8-8 = 120 Nl/min

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Series CLR Micro pressure regulators with banjo





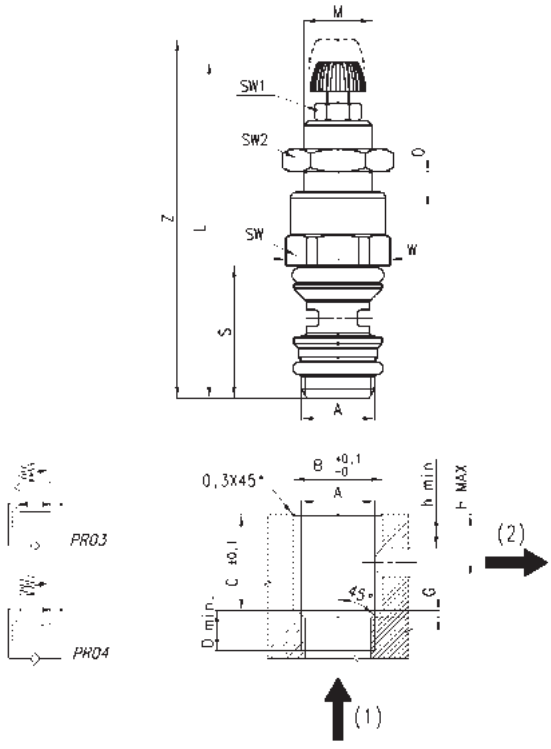
Mod.	A	B	G	H	L	M	N	O	S	W	SW	SW1	SW2	Z
CLR 1/8-4	G1/8	4	11,6	5	52	M11x1	21	0÷6,5	7,75	14	14	7	14	59
CLR 1/8-6	G1/8	6	11,6	5	52	M11x1	21	0÷6,5	7,75	14	14	7	14	59
CLR 1/8-8	G1/8	8	13,9	5	52	M11x1	22,5	0÷6,5	7,75	14	14	7	14	59
CLR 1/4-6	G1/4	6	13,9	6	59,5	M12x1	24,5	0÷8	9,25	18,6	17	7	17	68
CLR 1/4-8	G1/4	8	13,9	6	59,5	M12x1	24,5	0÷8	9,25	18,6	17	7	17	68

DRAWING NOTE
(1) = inlet pressure
(2) = regulated pressure

PR03 = Regulator with relieving and by-pass valve
PR04 = Regulator without relieving and with by-pass valve

Series CLR Micro pressure regulators without banjo





DIMENSIONS

Mod.	A	B	C	D min	G	h min	H MAX	L	M	O	S	W	SW	SW1	SW2	Z
CLR 1/8	G1/8	11	15.5	6	1	5.5	10	52	M11x1	0÷6.5	20.5	15.2	14	7	14	59
CLR 1/4	G1/4	15.65	18.5	7	1.25	7	12	59.5	M12x1	0÷8	24.5	18.5	17	7	17	68

DRAWING NOTE
(1) = inlet pressure
(2) = regulated pressure

PR03 = Regulator with relieving and by-pass valve
PR04 = Regulator without relieving and with by-pass valve

Products designed for industrial applications.
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Series TC
pressure microregulators

New

For applications with oxygen, without relieving
Ports: cartridge construction, G1/8 and 1/8 NPTF





- Compact design
- High performance
- Easy to install
- Materials suitable with several gases

The new Series TC pressure regulator has been designed to be used for all the applications and equipment where it is needed to insert the single component in customized integrated pneumatic circuits (manifolds) or collectors.

The cartridge design and the compact size allow the regulator to be plugged in a proper seat, making the installation easier and reducing the assembly time. To produce the new TC regulator, materials have been analized and chosen on the basis of their suitability with the contact medium. The body in PPS and the seals in FKM ensure thus full compatibility with a wide range of gaseous fluids.

GENERAL DATA

Construction	compact with pre-formed diaphragm
Materials	see the TABLE OF MATERIALS
Ports	cartridge construction in manifold - G1/8 or 1/8NPTF (aluminium body version only)
Mounting	in-line or cartridge (any position)
Operating temperature	-5°C ÷ 50°C
Inlet pressure	0 ÷ 10 bar
Outlet pressure	0 ÷ 0.5 bar 0 ÷ 2 bar 0 ÷ 3 bar 0 ÷ 4 bar
Overpressure exhaust	without relieving
Nominal flow	see the FLOW DIAGRAMS
Medium	air, inert and medical gases, OXYGEN
Repeatability	±0.2% FS

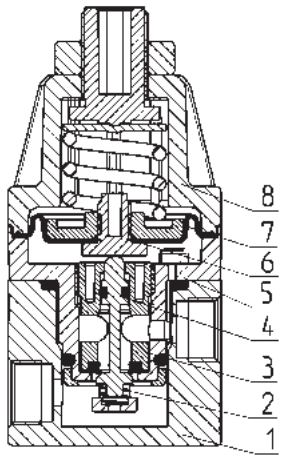
Products designed for industrial applications.
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CODING EXAMPLE

TC	1	-	R	3	1	-	C	-	V	-	OX2

TC	SERIES
1	SIZE
R	REGULATOR
3	WORKING PRESSURE: 1 = 0 ÷ 0.5 bar 2 = 0 ÷ 2 bar 3 = 0 ÷ 3 bar 4 = 0 ÷ 4 bar
1	TYPE OF CONSTRUCTION: 1 = without relieving
C	PORTS: C = Cartridge 1/8 = G1/8 1/8TF = 1/8NPTF
V	SEALS MATERIAL: V = FKM
OX2	VERSIONS: OX1 = for oxygen (non-volatile residue lower than 550 mg/m²) OX2 = for oxygen (non-volatile residue lower than 33 mg/m²)

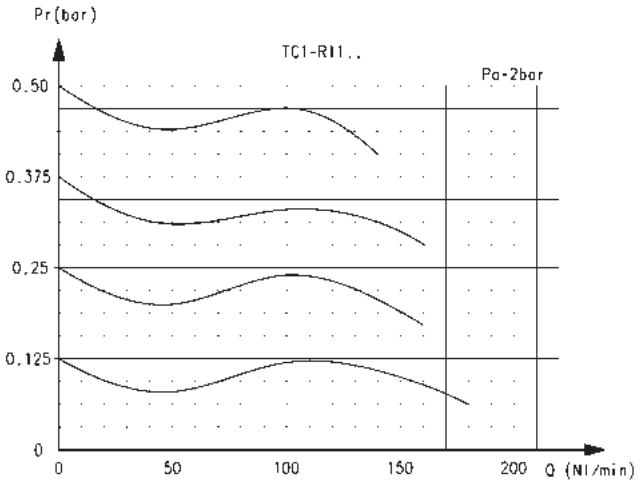
Series TC pressure microregulators - materials



PARTS	MATERIALS
1. Base body	Anodized aluminium
2. Lower spring	Stainless steel
3. Insert	PPS
4. Poppet	Stainless steel
5. Body	PPS
6. Valve guide	PPS
7. Diaphragm	FKM
8. Bell	Polyamide
Seals	FKM

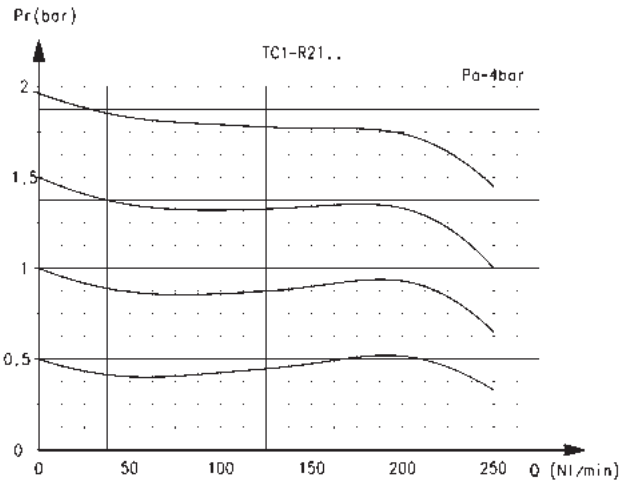
Products designed for industrial applications.
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FLOW DIAGRAMS - 0.5 and 2 bar working pressure



Pr = Regulated pressure
Q = Flow

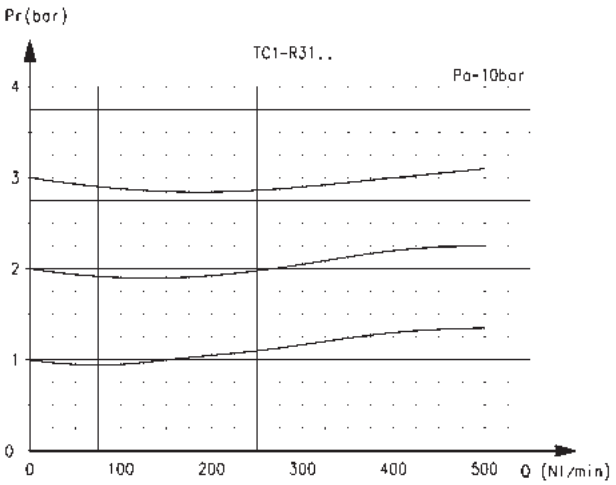
Pa = Inlet pressure



Pr = Regulated pressure
Q = Flow

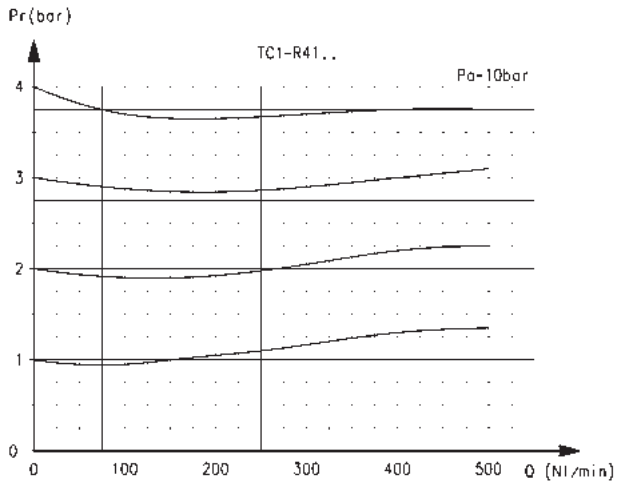
Pa = Inlet pressure

FLOW DIAGRAMS - 3 and 4 bar working pressure



Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure



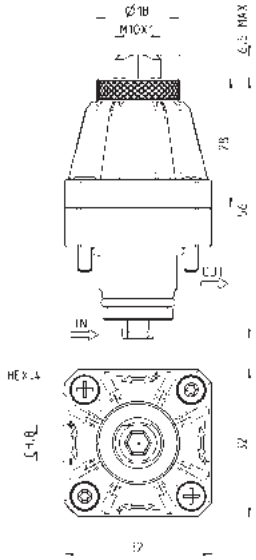
Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series TC cartridge pressure microregulators





Mod.
TC1-R11-C-V-OX1
TC1-R11-C-V-OX2
TC1-R21-C-V-OX1
TC1-R21-C-V-OX2
TC1-R31-C-V-OX1
TC1-R31-C-V-OX2
TC1-R41-C-V-OX1
TC1-R41-C-V-OX2

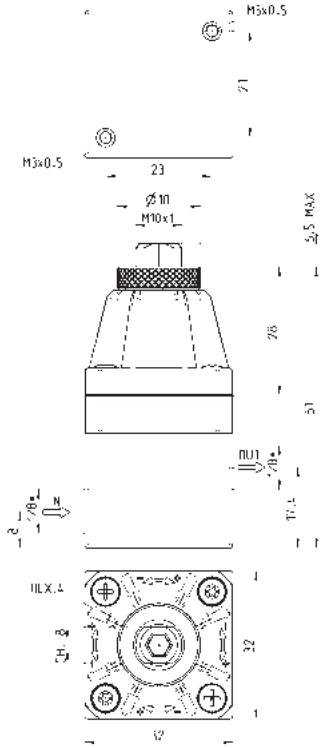


PR01 = regulator without relieving

Series TC pressure microregulators with aluminium body

* to choose the type of thread (G1/8 or 1/8 NPTF) see the Coding example





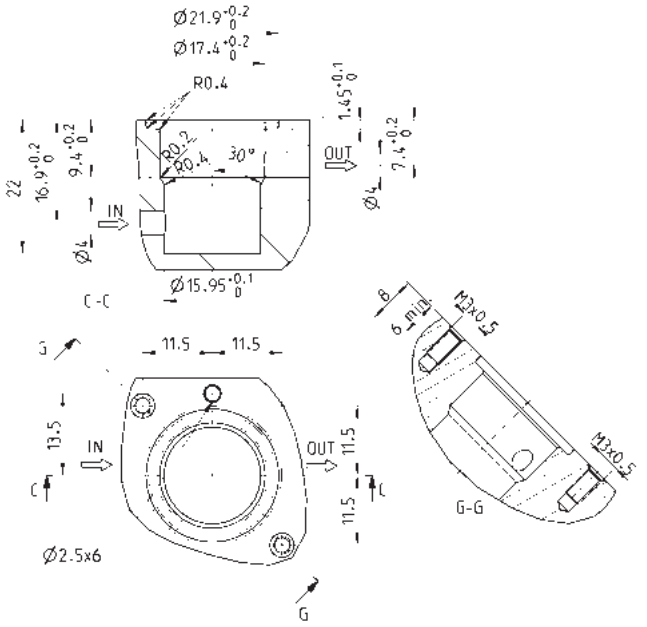
Mod.
TC1-R11-*-V-OX1
TC1-R11-*-V-OX2
TC1-R21-*-V-OX1
TC1-R21-*-V-OX2
TC1-R31-*-V-OX1
TC1-R31-*-V-OX2
TC1-R41-*-V-OX1
TC1-R41-*-V-OX2



PR01 = regulator without relieving

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Seat dimensions for cartridge version



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Series M pressure microregulators

Ports G1/8, G1/4



- Versions with calibrated or blocked regulators are available on request
- Versions with certified diaphragms and seals materials are available on request

Series M pressure regulator is available with G1/8 and G1/4 ports. Its design incorporates a diaphragm and relieving so as to allow decremental adjustments as well.
Microregulators are available with different regulation types: non-relieving, very sensitive self-relieving (through a light air leak) and VS (valve with fast draining).

The VS version is used when a regulator should be inserted between the valve and cylinder, or capacity, without any negative influence on the exhaust.

GENERAL DATA

Construction	diaphragm type
Materials	brass body, stainless steel spring, NBR O-ring
Ports	G1/8 - G1/4
Weight	Kg 0.235
Pressure gauge ports	G1/8
Mounting	in-line or panel mounting (in any position)
Operating temperature	-5°C ÷ 50°C (with the dew point of the fluid lower than 2°C at the min. working temperature)
Inlet pressure	0 ÷ 16 bar
Outlet pressure	0.5 ÷ 10 bar
Nominal flow	see graphs
Secondary pressure relieving	standard

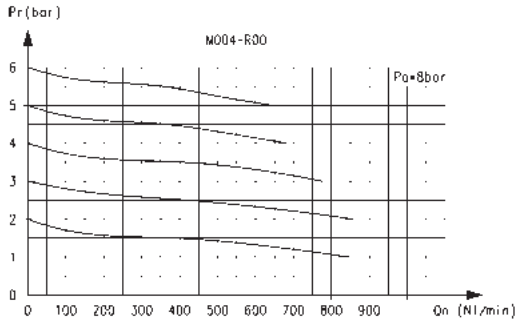
Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

CODING EXAMPLE

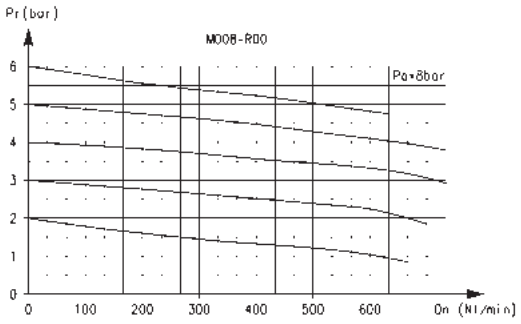
M	0	04	-	R	T	0	-	■	-	●

M	SERIES
0	SIZE
04	PORTS: 08 = G1/8 04 = G1/4
R	REGULATOR
T	OPERATING PRESSURE: 0 = 0.5 ÷ 10 bar (standard) 1 = 0 ÷ 4 bar 2 = 0 ÷ 2 bar 7 = 0.5 ÷ 7 bar T = calibrated * B = locked *
0	DESIGN TYPE: 0 = self relieving 1 = non relieving 5 = precise setting
	REGULATION TYPE: = without high relief flow (standard) VS = high relief flow
	* NOTE: IF THE REGULATOR IS CALIBRATED OR LOCKED, AFTER THE REGULATION TYPE ADD THE INLET PRESSURE "■" AND THE OUTLET PRESSURE "●" INLET PRESSURE: ■ = enter the SUPPLY pressure value OUTLET PRESSURE: ● = enter the OUTLET pressure value for the LOCKED regulator or the maximum value of the ADJUSTABLE pressure for the CALIBRATED regulator Example of a calibrated regulator with Inlet Pressure = 6.3 bar and Outlet Pressure = 4.5 bar Complete part number: M04-RT0-6.3-4.5

FLOW DIAGRAMS



Flow diagram for models: M004-R00
Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow

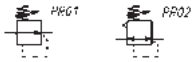


Flow diagram for models: M008-R00
Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow

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Series M pressure microregulator



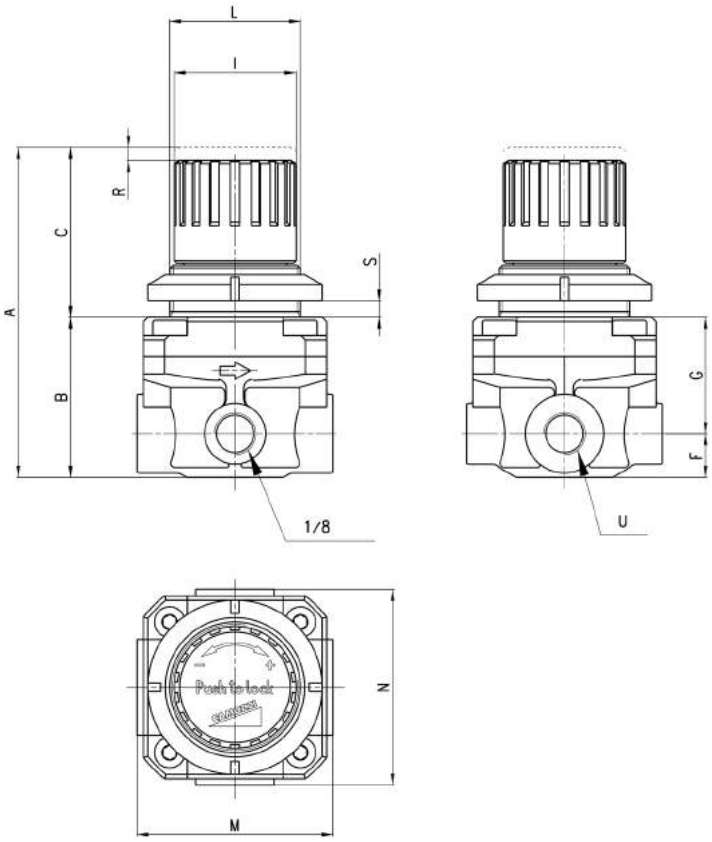


PR01 = regulator without relieving

PR02 = regulator with relieving



PR03 = regulator with relieving and by-pass valve



DIMENSIONS

Mod.	A	B	C	F	G	I	L	M	N	R	S	U	
M008-R00	76	37	39	10	27	28	M30x1,5	45	45	3	0 ÷ 6	G1/8	*
M004-R00	76	37	39	10	27	28	M30x1,5	45	45	3	0 ÷ 6	G1/4	*

* = calibrated or blocked regulator available on request

Series T pressure microregulators

Ports G1/8 and G1/4

- Extremely lightweight
- Compact
- In-line or console mounting



Series T pressure regulators are available with G1/8 and G1/4 brass connections.
A self-relieving piston has been incorporated into the design to allow decreasing adjustments.
Non-relieving versions are also available.

All models are equipped with a valve enabling fast draining (VS) which is useful when a regulator should be inserted between the valve and cylinder (or capacity) without any negative influence on the exhaust.

GENERAL DATA

Construction	piston
Materials	technopolymer body and piston, stainless steel spring, brass inserts, NBR O-ring and poppet
Ports	G1/8 - G1/4
Weight	g 95
Pressure gauge ports	G1/8
Mounting	in-line or panel mounting (in any position)
Operating temperature	-5°C ÷ 50°C (with the dew point of the fluid lower than 2°C at the min. working temperature)
Inlet pressure	0 ÷ 12 bar
Outlet pressure	0, 5 ÷ 10 bar
Nominal flow	see graphs
Secondary pressure relieving	standard
Type of fluid	air and water. Special versions for other types of gas are available upon request.

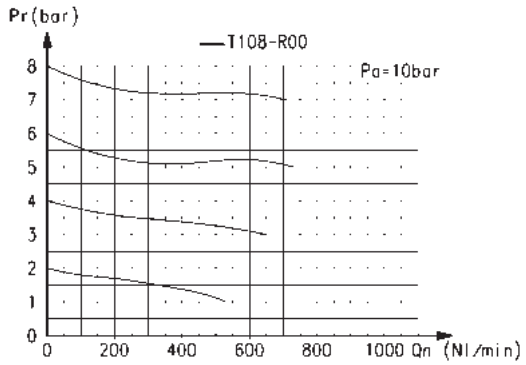
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CODING EXAMPLE

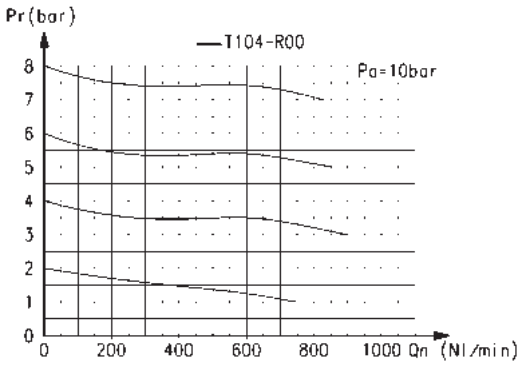
T	1	08	-	R	0	0

T	SERIES
1	SIZE
08	PORTS: 08 = G1/8 04 = G1/4
R	REGULATOR
0	OPERATING PRESSURE: 0 = 0,5 ÷ 10 1 = 0 ÷ 4 2 = 0 ÷ 2 7 = 0 ÷ 7 (standard)
0	DESIGN TYPE: 0 = self-relieving 1 = non relieving

FLOW DIAGRAMS



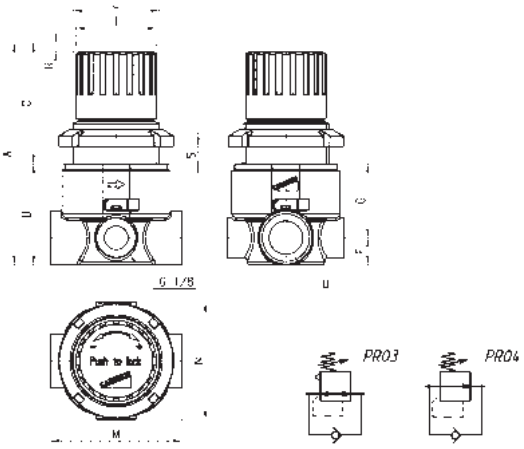
Flow diagram for model: T108-R00
Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow



Flow diagram for model: T104-R00
Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow

Series T pressure microregulator





DIMENSIONS

Mod.	A	B	C	F	G	I	L	M	N	R	S	U
T108-R00	77	35	42	9.5	25.5	28	M30X1.5	46	41	3	7	G1/8
T104-R00	77	35	42	9.5	25.5	28	M30X1.5	46	41	3	7	G1/4

PR03 = regulator with relieving and by-pass valve

PR04 = regulator without relieving and with by-pass valve

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ACCESSORIES FOR SERIES M AND T MICROREGULATORS



Mounting bracket
Mod. C114-ST



Mounting bracket
Mod. C114-ST/1



Mounting bracket
Mod. C114-ST/2



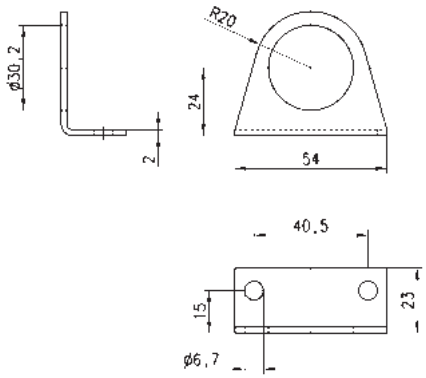
Systems of rapid connections designed to make mounting easier.

Products designed for industrial applications.
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Mounting bracket Mod. C114-ST



The kit is supplied with:
1x zinc-plated steel bracket.

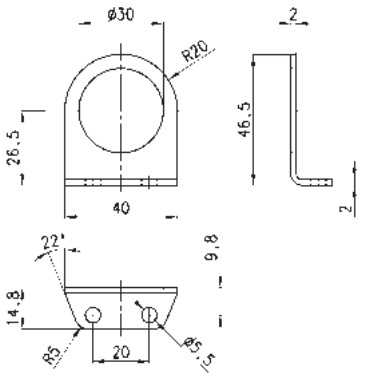


Mod.
C114-ST

Mounting bracket Mod. C114-ST/1



The kit is supplied with 1 zinc-plated steel bracket.

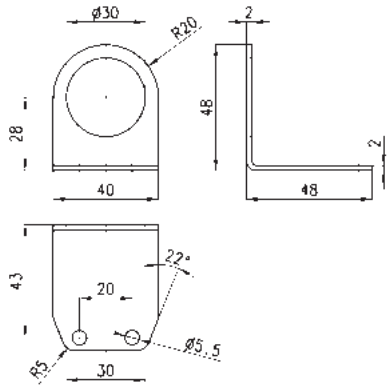


Mod.
C114-ST/1

Mounting bracket Mod. C114-ST/2



The kit is supplied with 1 zinc-plated steel bracket.



Mod.
C114-ST/2

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Series PR precision regulators with manual override

Ports: G1/4



- » High precision
- » Triple diaphragm construction
- » Compact dimensions
- » Adjustment lock
- » Removable adjustment knob
- » Three ranges of pressure

Series PR precision pressure regulators work on a three diaphragms force-balance principle which allows them to react even to the smallest changes in pressure that can occur during operation.

GENERAL DATA

Construction	compact, diaphragm type
Materials	see the following page
Ports	G1/4
Mounting	vertical in-line, wall or panel mounting (in any position)
Working temperature	from 0°C to 50°C
Inlet pressure	0.1 ÷ 9 bar
Outlet pressure	0.05 ÷ 2 bar 0.05 ÷ 4 bar 0.05 ÷ 7 bar (standard)
Overpressure exhaust	with relieving (standard)
Nominal flow	see flow diagrams (following pages)
Media	filtered and not lubricated compressed air according to DIN ISO 8573-1 Classes 1-3-2
Hysteresis	20mbar
Repeatability	±0.2% FS
Bleed air consumption	≤ 5 l/min

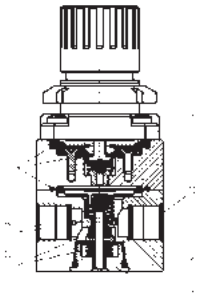
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General terms and conditions for sale are available on www.camozzi.com.

CODING EXAMPLE

PR	1	04	-	M	07

PR	SERIES
1	SIZE: 1 = Size 1
04	PORTS: 04 = G1/4
M	TYPE OF ADJUSTMENT: M = manual
07	OPERATING PRESSURE (1 bar = 14,5 psi): 02 = 0.05 ÷ 2 bar 04 = 0.05 ÷ 4 bar 07 = 0.05 ÷ 7 bar (standard)

Series PR precision regulators - materials

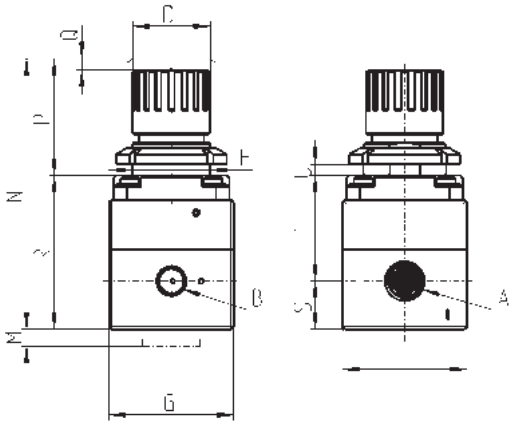


PARTS	MATERIALS
1 = Body	Anodized aluminium
2 = Intermediate body	Aluminium
3 = Valve holder plug	Brass
4 = Bell	Polyamide
5 = Regulator knob	Polyamide
6 = Springs	Stainless steel
7 = Diaphragms	NBR
8= Filters	Stainless steel
9 = Seals	NBR
O-ring	NBR

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Series PR precision regulators - dimensions

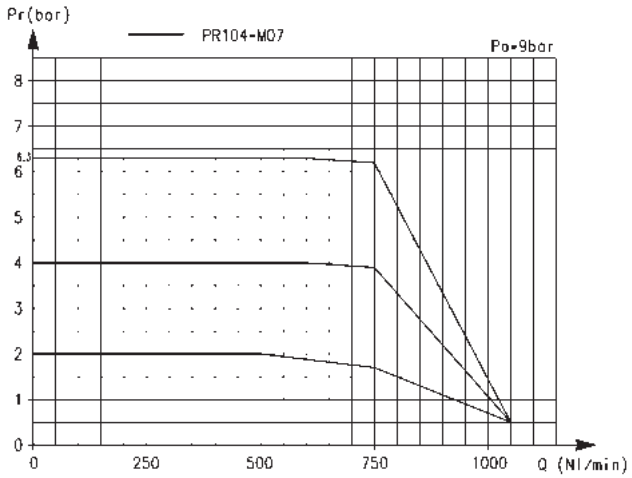






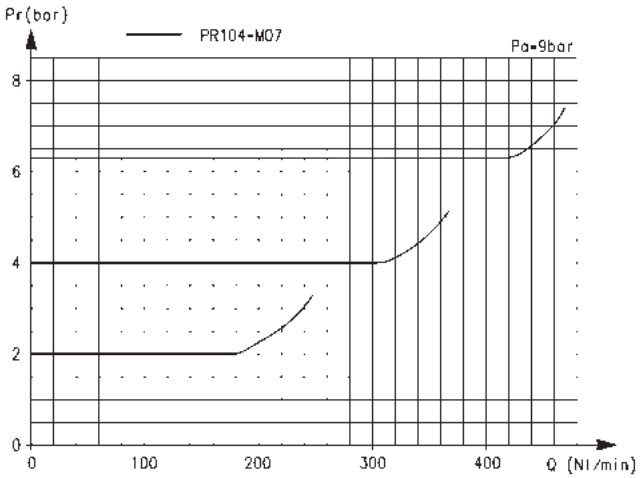
DIMENSIONS															
Mod.	A	B	D	F	G	I	M	N	P	Q	R	S	T	U	Weight (Kg)
PR104-M07	G1/4	G1/8	28	30	45	45	25	96	40	2	56	17.5	38.5	0-6	0.35

Mod. PR104-M07 FLOW DIAGRAMS (STANDARD VERSION)



Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure



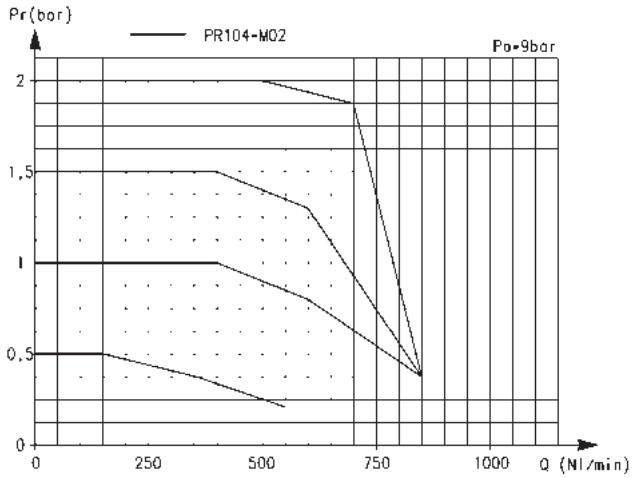
EXHAUST FLOW DIAGRAM

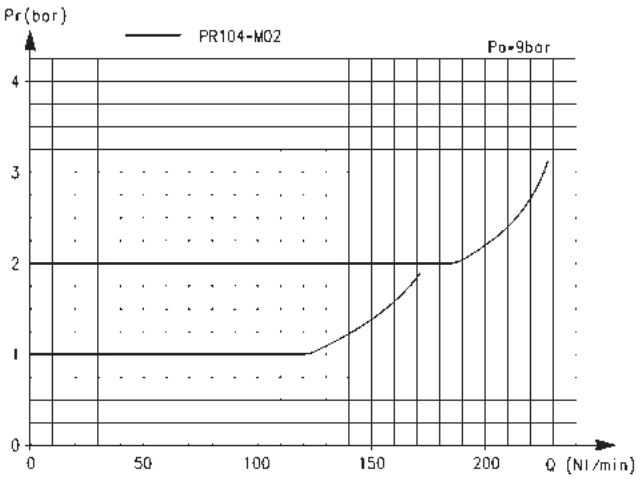
Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

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Mod. PR104-M02 FLOW DIAGRAMS





Pr = Regulated pressure
Q = Flow

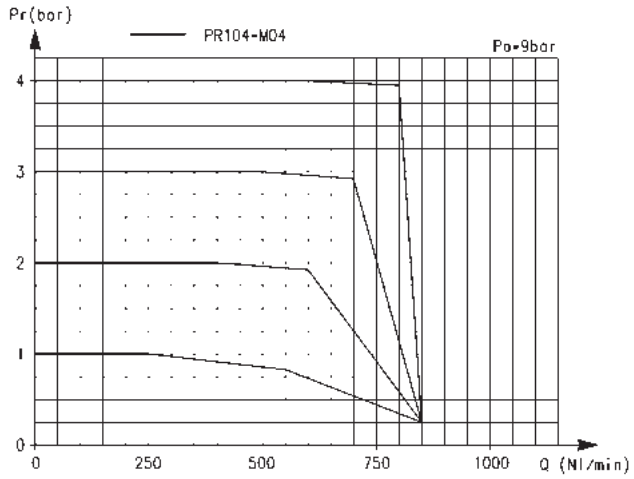
Pa = Inlet pressure

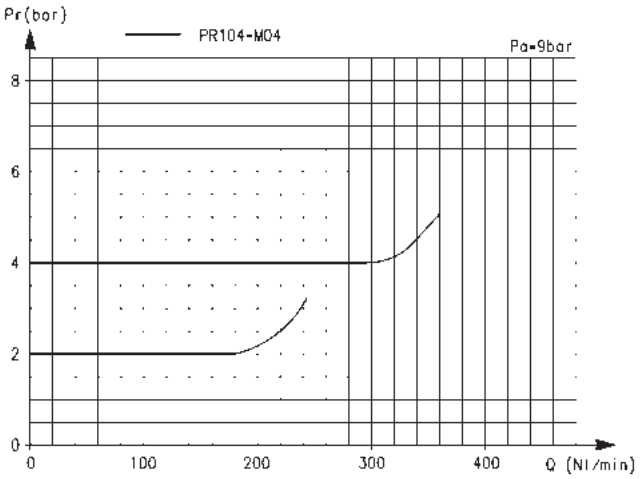
EXHAUST FLOW DIAGRAM

Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

Mod. PR104-M04 FLOW DIAGRAMS





Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

EXHAUST FLOW DIAGRAM

Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

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General terms and conditions for sale are available on www.camozzi.com.

Pressure gauges
Mod. M043.. - M053.. - M063..

Precision class CL1,6

- Radial connection
- Rear connection
- Panel mounting



To select the most suitable pressure gauge, the measurement range should be chosen considering the type of application according to the following criteria:

1. Constant pressure or pressure with slow fluctuations should be within 75% of the maximun scale value.

2. Pulsing pressure or rapid fluctuations should be within 65% of the maximum scale value.

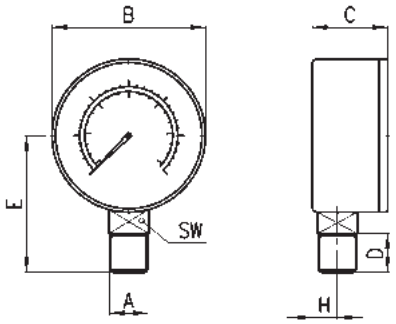
3. Pressure peaks should never exceed the maximum scale value.

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Pressure gauges with radial connection

Precision class CL1,6





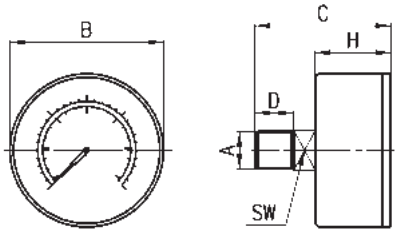
DIMENSIONS

Mod.	A	B	C	D	E	H	SW	Range
M043-R06	R1/8	Ø 38.8	24.2	10	35.2	9	12	0-6 bar
M043-R12	R1/8	Ø 38.8	24.2	10	35.2	9	12	0-12 bar
M053-R12	R1/8	Ø 48.8	27.5	10	43	10	14	0-12 bar
M063-R12	R1/4	Ø 63	28.8	12	50	10	14	0-12 bar

Pressure gauges with rear connection

Precision class CL1,6





DIMENSIONS

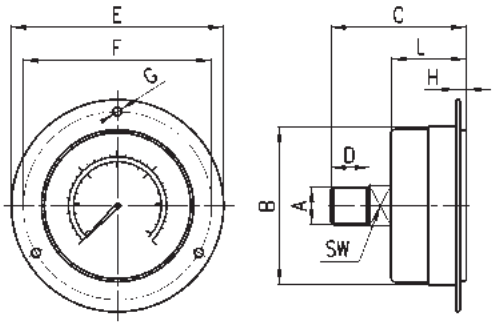
Mod.	A	B	C	D	H	SW	Range
M043-P02,5	R1/8	Ø 38.8	41	10	25	14	0 ÷ 2.5 bar
M043-P04	R1/8	Ø 38.8	41	10	25	14	0 ÷ 4 bar
M043-P06	R1/8	Ø 38.8	41	10	25	14	0 ÷ 6 bar
M043-P10	R1/8	Ø 38.8	41	10	25	14	0 ÷ 10 bar
M043-P12	R1/8	Ø 38.8	41	10	25	14	0 ÷ 12 bar
M053-P04	R1/8	Ø 50	41.5	10	25	14	0 ÷ 4 bar
M053-P06	R1/8	Ø 50	41.5	10	25	14	0 ÷ 6 bar
M053-P10	R1/8	Ø 50	41.5	10	25	14	0 ÷ 10 bar
M053-P12	R1/8	Ø 50	41.5	10	25	14	0 ÷ 12 bar
M063-P04	R1/4	Ø 63	40.5	12	25	14	0 ÷ 4 bar
M063-P06	R1/4	Ø 63	40.5	12	25	14	0 ÷ 6 bar
M063-P12	R1/4	Ø 63	40.5	12	25	14	0 ÷ 12 bar

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Pressure gauges for panel mounting

Precision class CL1,6





DIMENSIONS

Mod.	A	B	C	D	E	F	G	H	L	SW	Range
M043-F04	R1/8	Ø 40.5	43	10	61	51	Ø 3.5	4	27	12	0-4 bar
M043-F06	R1/8	Ø 40.5	43	10	61	51	Ø 3.5	4	27	12	0-6 bar
M043-F10	R1/8	Ø 40.5	43	10	61	51	Ø 3.5	4	27	12	0-10 bar
M043-F12	R1/8	Ø 40.5	43	10	61	51	Ø 3.5	4	27	12	0-12 bar
M063-F12	R1/4	Ø 63	54	12	85	75	Ø 3.5	4.5	30.5	14	0-12 bar

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General terms and conditions for sale are available on www.camozzi.com.

Series PG digital pressure gauges

Possibility of a direct mounting with rear or panel connection



- Pressure unit on display
- Battery-powered / with cable
- Easy and fast read out with digital display
- 4 user programmable pressure units available
- Power saving mode
- Back light
- Dust-proof and splash-proof (IP65 protection class)

The new Series PG digital pressure gauges meet the need of an even more precise pressure adjustment, above all in proportional control.
Thanks to the IP65 protection class these pressure gauges are particularly suitable for applications where the highest environmental protection is required.

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

TECHNICAL DATA

CHARACTERISTICS

	Vacuum PG...-VB...	Pressure PG...-PB...
Pressure units	psi, bar, mmHg, kPa programmable by the user	psi, bar, kgf/cm², MPa programmable by the user
Rated pressure range	0 ÷ -1 bar	0 ÷ 10 bar
Display pressure range	0.1 ÷ -1 bar	-0.1 ÷ 10 bar
Withstand pressure	3 bar	15 bar
Repeatability	≤ ± 1% F.S. ± 1 digit	≤ ± 0,2% F.S. ± 1 digit
Resolution: kPa	1	-
MPa	-	0.001
kgf/cm²	0.01	0.01
bar	0.01	0.01
psi	0.1	0.1
Indicator accuracy	≤ ± 2% F.S. ± 1 digit (ambient temperature: 25 ± 3°C)	
Medium	Filtered air, incombustible and non-corrosive gases	
Back light	Yes	
Sample rate	2 Hz (2 times/second)	
LCD display	3 ½ digit, 7 segment	
Environment: Protection class	IP65 (an air tube must be installed to maintain this grade)	
Temperature	Operation: 0 ÷ 50°C Storage: -10 ÷ 60°C (no condensation or freezing)	
Relative humidity	Operation/storage: 35 ÷ 85% RH (no condensation)	
Vibrations	Total amplitude 1.5mm or 10G 10Hz-55Hz-10Hz scan for 1 minute 2 hours for each direction of X, Y and Z	
Shock	100 m/s² (10G) 3 times for each direction of X, Y and Z	
Changes due to temperature	≤ ± 2% F.S. of detected pressure (25°C) within the operating temperature range	
Pneumatic connections ports	G1/4 - M5 or G1/8 - M5	

FOR BATTERY-POWERED PRESSURE GAUGES ONLY

Battery: Type	CR 2032 lithium
Life	1 year (5 times/day)
Low-power indicator	Yes
Replacement	Yes
Turn-on interval	Display turns off after 60 seconds

FOR PRESSURE GAUGES WITH POWER SUPPLY CABLE ONLY

Supply voltage	from 12 to 28 V DC±10% Ripple
Power consumption	10 mA
Maximum voltage	1000V AC in 1-min (between the casing and the cables)
Isolation resistance	50 Mohm min (at 500 V DC, between the casing and the cables)
Electrical connection: for pressure gauges PG...-2	Unshielded 2-pole cable, length 2 m
for pressure gauges PG...-M	Connection with M8 4-pole connector

Products designed for industrial applications.
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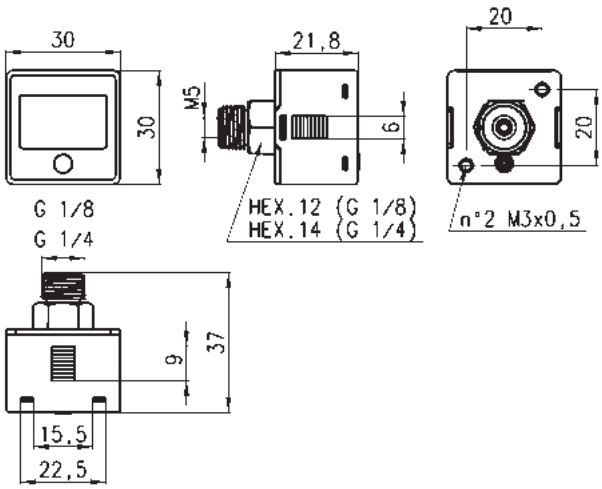
CODING EXAMPLE

PG	010	-	P	B	-	1/8	-	2

PG	SERIES
010	BOTTOM SCALE: 010 = 10 bar 001 = -1 bar
P	PRESSURE RANGE: P = pressure V = vacuum
B	LIGHTING: B = back light
1/8	PNEUMATIC CONNECTIONS: 1/8 = G 1/8 BSPP; M5 1/4 = G 1/4 BSPP; M5 (for battery-powered version only)
2	ELECTRICAL CONNECTION (for version with cable only): 2 = with unshielded 2-pole cable of 2 m M = with cable of 150 mm and M8 4-pole connector

Series PG digital pressure gauges - battery-powered

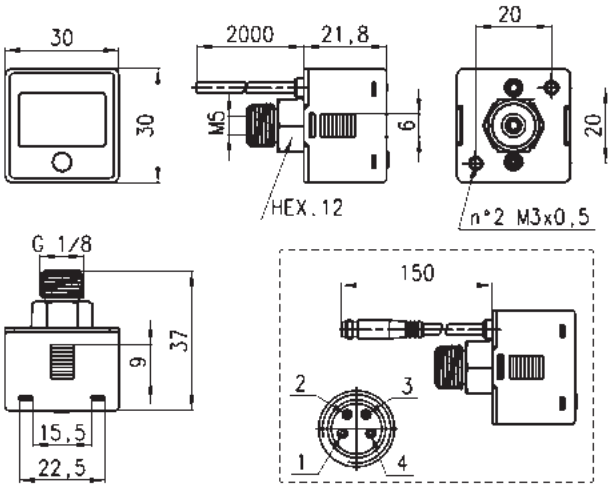




Mod.
PG010-PB-1/8
PG001-VB-1/8
PG010-PB-1/4
PG001-VB-1/4

Series PG digital pressure gauges - with cable



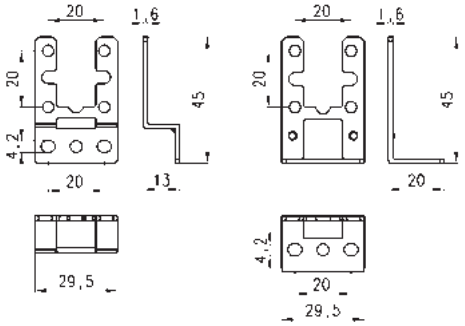


Mod.
PG010-PB-1/8-2
PG001-VB-1/8-2
PG010-PB-1/8-M
PG001-VB-1/8-M

Mounting brackets Mod. PG-B



Supplied with:
1x bracket type A
1x bracket type B
2x screws M3x6

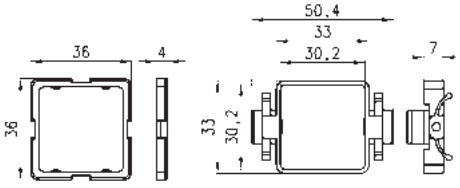


Mod.
PG-B

Panel mounting adapter Mod. PG-F



Supplied with:
1x adapter type A
1x adapter type B



Mod.
PG-F

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Condensate drains
Filtering elements

Semi-automatic manual drain; Automatic drain;
Depressurisation drain; Depressurisation drain, protected
Ports: 1/8 (without drain)






The filters are used to remove impurities in the compressed air, which must then be removed from the pneumatic circuit. The filters can be equipped with different types of drainings of condensate, both automatic and manual.
The correct combination and the functioning is reported in the table and in the descriptions on the following pages.

Different requirements of the air quality determine the use of different types of filtering elements, which retain the impurities during their working, thus clogging and reducing the amount of air in the passage. For this reason it is suggested to replace them once a year at least.

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TABLE TO MATCH FILTERS - DRAININGS OF CONDENSATE /CARTRIDGES

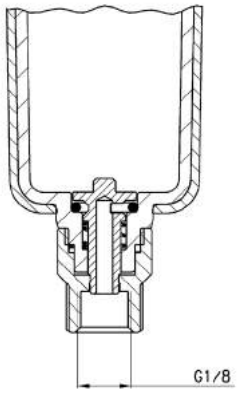
* = type of drain (see the complete description on the following pages)

Mod. filter	Type 0 and 1 *	Type 3 *	Type 4 *	Type 5 *	Type 8 (without drain)	Cartridge 25 µ	Cartridge 5 µ	Cartridge 1 µ	Cartridge 0.01 µ	Activated carbon
N10...-F	X				X	C104-F20/3	C104-F21/3			
N10...-D					X	C104-F20/3	C104-F21/3			
N10...-FB	X				X				MX1-F10	
N20...-F	X		X	X	X	C104-F20/3	C104-F21/3			
N20...-D	X		X	X	X	C104-F20/3	C104-F21/3			
N20...-FB	X		X	X	X				MX1-F10	
MC104-F	X		X			C104-F20/3	C104-F21/3			
MC104-D	X		X			C104-F20/3	C104-F21/3			
MC104-FB	X								MX1-F10	
MC202-F	X	X		X	X	C238-F11/3	C238-F12/3			
MC202-D	X	X		X	X	C238-F11/3	C238-F12/3			
MC202-FB	X	X		X	X				MX2-F10	
MC238-F	X	X		X	X	C238-F11/3	C238-F12/3			
MC238-D	X	X		X	X	C238-F11/3	C238-F12/3			
MC238-FB	X	X		X	X				MX2-F10	
MX2...-F	X	X		X	X	C238-F11/3	C238-F12/3			
MX2...FR	X	X		X	X	C238-F11/3	C238-F12/3			
MX2...-FC	X	X		X	X			MX2-F9	MX2-F10	
MX2..-FCA	X									MX2-F11
MX3...-F		X		X	X	MX3-F7	MX3-F8			
MX3...-FR	X	X		X	X	MX3-F7	MX3-F8			
MX3...-FC	X	X		X	X			MX3-F9	MX3-F10	
MX3..-FCA	X									MX3-F11

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Semi-automatic manual drain (Type 0 and 1)

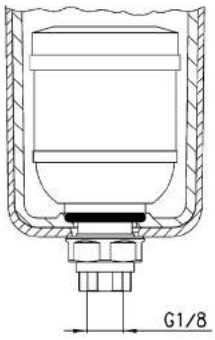
Functioning: with the operator mechanism turned clockwise, each time the pressure falls below 0.3 bar, the draining of condensate will be released; when resetting the pressure, the drain will close again. The release can also be carried out manually; when the bowl is pressurised, the operator mechanism is pushed upwards.



To avoid the discharge of condensate, the operator mechanism should be turned clockwise to completely close the drain.

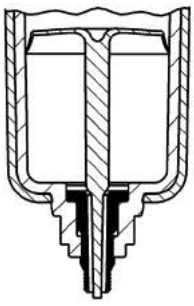
Automatic drain (Type 3)

Functioning: the presence of liquid inside the bowl raises the float, thus opening the exhaust valve.



Depressurisation drain (Type 4)

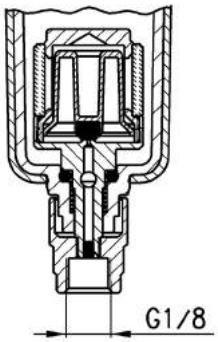
Functioning: each time air is required from the inlet, a slight difference of pressure is created between the upper part and lower part of the drain that rises, thus opening the exhaust valve.



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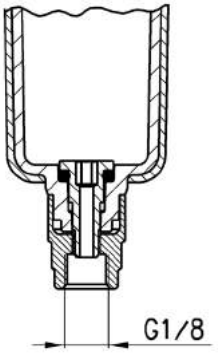
Depressurisation drain (Type 5)

Solution similar to the Type 4 but requiring a ΔP = 1 bar.
Functioning: this version has a filtering element which prevents any impurities from clocking the exhaust hole.



Without drain (Type 8)

The solution with port G1/8 is used to assemble the items to the bowl which is realized with a through hole of ø3 mm and a threaded port G1/8.



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NOTES

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4 / 1 Super-rapid fittings

		Section
Series 6000	**Super-rapid fittings for plastic tubes** Tube external diameters: 3, 4, 5, 6, 8, 10, 12, 14, 16 mm Fittings threads: metric (M3, M5, M6, M7), BSP (G1/8, G1/4 G3/8, G1/2, G3/4), BSPT (R1/8, R1/4, R3/8, R1/2)	4/1.05
Series 7000	**Super-rapid Compact fittings in technopolymer** Tube external diameters: 4, 6, 8, 10, 12, 16 mm Fittings threads: metric (M5, M7), BSP (G1/8, G1/4, G3/8, G1/2, G3/4)	4/1.10
Series 8000	**Dual seal super-rapid fittings** Tube external diameters: 4, 6, 8, 10 and 12 mm Fittings threads: BSP (G1/8, G1/4, G3/8, G1/2)	4/1.15
Series X6000	**Super-rapid fittings in stainless steel 316L** Tube external diameters: 4, 6, 8, 10, 12 mm Fittings threads: BSP (G1/8, G1/4, G3/8, G1/2), BSPT (R1/8, R1/4, R3/8, R1/2)	4/1.25

4 / 2 Rapid fittings

		Section
Series 1000	**Rapid push-in fittings for plastic tubes** Tube external diameters: 5/3, 6/4, 8/6, 10/8, 12/10, 15/12,5 mm Fittings threads: metric (M5, M6, M12x1, M12x1,25), BSP (G1/8, G1/4, G3/8, G1/2), BSPT (R1/8, R1/4, R3/8, R1/2)	4/2.05



4 / 3 Universal fittings

		Section
Series 1000	**Universal nose fittings** Nose fittings for plastic, copper and brass tubes: ø 4, 6, 8, 10, 12 mm Fittings threads: BSP (G1/8, G1/4), BSPT (R1/8, R1/4, R3/8, R1/2)	4/3.05



4 / 4 Fittings accessories

		Section
Series S2000	**Standard fittings Sprint®** Fittings threads: BSP (G1/8, G1/4, G3/8, G1/2), BSPT (R1/8, R1/4, R3/8, R1/2)	4/4.05
Series 2000	**Pipe fittings** Fittings threads: metric (M5), BSP (G1/8, G1/4, G3/8, G1/2, G3/4, G1) BSPT (R1/8, R1/4, R3/8, R1/2, R3/4, R1)	4/4.10





4 / 5 Quick-release couplings

		Section
Series 5000	**Quick-release couplings** Nominal diameters: 5, 7 mm Couplings threads: G1/8, G1/4, G3/8, G1/2 Plastic tubes: 6/4, 8/6, 10/8 Rubber hoses: 6x14, 8x17, 10x19, 13x23	4/5.05
Series 5000L, 5000LT	**Quick-release couplings for the conditioning of moulds for plastics** Nominal diameters: 5, 7 mm Couplings threads: G1/8, G1/4, G3/8	4/5.06





4 / 6 Tubing, spirals and accessories

		Section
Series T, MPL, PNZ	**Tubing, spirals and accessories** Tubes: reinforced PVC Polyamide PA12, Hytrel Polyester, Polyethylene, PU Diameters : 4/2, 5/3, 6/4, 8/6, 10/8, 12/10, 15/12,5 mm	4/6.05



Series 6000 super-rapid fittings for plastic tubes

Sprint®

Tube external diameters: 3, 4, 5, 6, 8, 10, 12, 14, 16 mm
Fittings threads: metric (M3, M5, M6, M7), BSP (G1/8, G1/4, G3/8, G1/2, G3/4), BSPT (R1/8, R1/4, R3/8, R1/2)



Series 6000 super-rapid fittings have been designed with a special collet which provides an homogeneous tight on the whole surface of plastic tubes, thus ensuring high reliability and a long service life, also after connections and disconnections of the tube are repeated several times. The wide range of these fittings includes many types of threads: metric, BSP and BSPT.

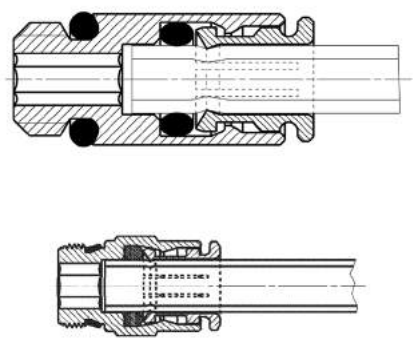
Sprint models are characterized by great reliability of female threads, both BSP and BSPT, with non-flat surfaces. This is possible thanks to a Teflon ring on the male thread, which guarantees a perfect seal between the two threads.

» The “Stop Fitting” model is available with a self-retaining device which interrupts the air flow when the tube is disconnected and restores it when reconnected.

GENERAL DATA

Diameters	ø 4 - 5 -6 - 8 - 10 - 12 - 14 - 16 mm Micro models: ø 3 - 4 - 6 - 8 - 10 mm
Threads	GAS conical ISO 7 (BSPT) GAS cylindrical ISO 228 (BSP); M5-M6 and other metric threads available on request; NPT on request Micro models: M3 - M5 - M7 - G1/8 - G1/4
Temperature	-20°C ÷ 80°C (see the technical data of tubing used) Micro models: -10°C ÷ 80°C (see the technical data of tubing used)
Tube to connect	Rilsan, PA 6-11-12, Polyethylene, PU, Hytrel Polyester
Fluid	compressed air (for other types of fluid, contact our engineers)
Materials	standard models: body and collet in nickel-plated brass, O-Ring in NBR, thread seals in PTFE - NBR - PA models with self-retaining device: body and collet in nickel-plated brass, poppet valve in brass, spring in stainless steel, O-Ring in NBR, thread seals in PTFE
Pressure	standard models: min -0,9 bar - max 16 bar (see tubing) models with self-retaining device: 0 ÷ 16 bar

Fitting with connecting tube

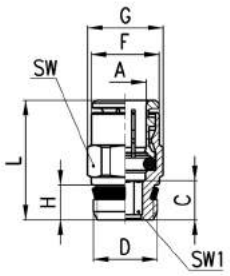


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Fittings Mod. S6510

Male Connector Sprint®





DIMENSIONS

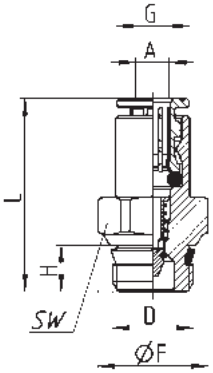
Mod.	A	D	C	F	G	H	L	SW	SW1	Weight (g)
S6510 4-1/8	4	G1/8	3.8	8.8	13.2	5.5	18	12	2.5	9
S6510 4-1/4	4	G1/4	5.5	8.8	15.2	7	19.5	14	2.5	15
S6510 5-1/8	5	G1/8	3.8	9.8	13.2	5.5	19	12	3	8
S6510 5-1/4	5	G1/4	5.5	9.8	15.2	7	20	14	3	14
S6510 6-1/8	6	G1/8	6	11.7	13.2	5.5	22	12	4	10
S6510 6-1/4	6	G1/4	5.5	11.7	15.2	7	21	14	4	14
S6510 6-3/8	6	G3/8	6.5	11.7	20.5	8	22.5	19	4	27
S6510 8-1/8	8	G1/8	7.5	13.7	15.2	5.5	25	14	5	13
S6510 8-1/4	8	G1/4	6.5	13.7	15.2	7	24	14	6	14
S6510 8-3/8	8	G3/8	6	13.7	20.5	8	23.5	19	6	25
S6510 8-1/2	8	G1/2	7.5	13.7	24.5	9	25	22	6	43
S6510 10-1/4	10	G1/4	8.3	15.4	18.5	7	28.5	17	7	23
S6510 10-3/8	10	G3/8	5.3	15.4	20.5	8	25.5	19	8	27
S6510 10-1/2	10	G1/2	4.8	16	24.5	9	25	22	8	39
S6510 12-1/4	12	G1/4	10.3	18.3	20.5	7	29.5	19	7	26
S6510 12-3/8	12	G3/8	9,3	18,3	20,5	8	28,5	19	9	30
S6510 12-1/2	12	G1/2	5,8	18,3	24,5	9	25	22	10	36
S6510 14-3/8	14	G3/8	10,3	20,5	24,5	8	30,5	22	9	42
S6510 14-1/2	14	G1/2	6,3	20,5	24,5	9	26,5	22	12	34
S6510 16-1/2	16	G1/2	9	23,5	26,5	9	32	24	-	42
S6510 16-3/4	16	G3/4	3,5	23,5	27,3	9	26,5	24	-	46

Fittings Mod. S6510...-LF

New

Male Connector Sprint® with self-retaining device





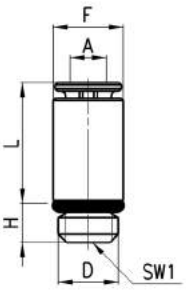
Mod.	A	D	F	G	H	L	SW	weight (g)
S6510 4-1/8-LF	4	G1/8	13.2	8.8	5.5	23	12	11
S6510 6-1/8-LF	6	G1/8	13.2	11.7	6	30.5	12	15

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Fittings Mod. 6512 Micro

Metric-BSP Male Connector





DIMENSIONS

Mod.	A	D	F	H	L	SW1	Weight (g)	
6512 3-M3	3	M3	5.8	2.5	10.2	1.5	1	⋆
6512 3-M5	3	M5	5.8	3.5	10	2	1	•
6512 4-M7-M	4	M7	9.4	5	17.5	2.5	5	•
6512 4-1/8-M	4	G1/8	11.2	5	13	2.5	9	•, Y
6512 6-M7-M	6	M7	10.4	5	17	4	7	•
6512 6-1/8-M	6	G1/8	11.2	5	14	4	7	•, Y
6512 8-1/8-M	8	G1/8	12.4	5	18.5	5	10	•, Y
6512 10-1/4-M	10	G1/4	14.8	6	21	7	16	•

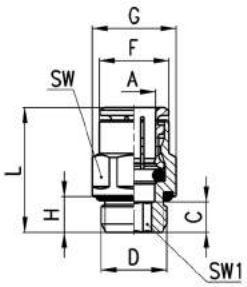
⋆ = with gasket
• = with O-Ring

Fittings Mod. 6512

New model

Metric-BSP Male Connector





DIMENSIONS

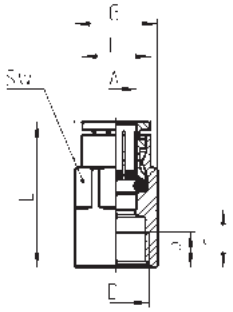
Mod.	A	D	C	F	G	H	L	SW	SW1	Weight (g)
6512 4-M5	4	M5	6	7.8	8.8	4	20	8	2	4
6512 4-M6	4	M6	6.5	8.8	9.9	4.5	20.5	9	2.5	6
6512 4-1/8	4	G1/8	5	8.8	13.5	6	19	12	2.5	10
6512 4-1/4	4	G1/4	6.5	8.8	16.4	7	20.5	15	2.5	14
6512 5-M5	5	M5	6	8.8	9.9	4	21	9	2	5
6512 6-M5	6	M5	6	11.7	13.2	4	22	12	2	8
6512 6-M6	6	M6	6	11.7	13.2	4.5	22.5	12	2.5	8
6512 6-1/8	6	G1/8	5	11.7	13.5	6	21	12	4	10
6512 6-1/4	6	G1/4	6	11.7	16.4	7	22	15	4	13
6512 8-1/8	8	G1/8	8.5	13.7	15.2	6	26	14	5	15
6512 8-1/4	8	G1/4	7	13.7	16.4	7	24.5	15	6	17
6512 8-3/8	8	G3/8	6.5	13.7	20.5	7	23	19	6	27
6512 10-1/4	10	G1/4	9.8	15.4	18.5	7	30	17	7	26
6512 10-3/8	10	G3/8	5.3	15.4	20.5	7	24.5	19	8	27
6512 12-1/4	12	G1/4	10.5	18.3	20.5	7	29.5	19	7	29
6512 12-3/8	12	G3/8	5.8	18.3	20.5	7	24	19	9	24

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Fittings Mod. 6463

Metric-BSP Female Connector





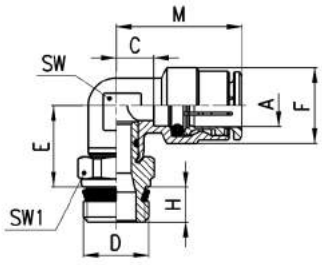
DIMENSIONS

Mod.	A	D	C	F	G	L	P (min)	SW	Weight (g)
6463 4-M5	4	M5	6.5	7.8	8.8	20.5	4.5	9	8
6463 4-1/8	4	G1/8	10	9	13	24	6	12	14
6463 5-1/8	5	G1/8	10	9.8	13	25	6	12	14
6463 6-1/8	6	G1/8	10	11.7	13	26	6	12	14
6463 6-1/4	6	G1/4	11.5	11.9	16.5	27.5	7	15	23
6463 8-1/8	8	G1/8	9.5	13.7	15.2	27	6	14	16
6463 8-1/4	8	G1/4	11.5	13.7	16.5	29	7	15	23
6463 10-1/4	10	G1/4	11.3	15.4	18.5	31.5	7	17	29

Fittings Mod. S6520

Swivel Male Elbow Sprint®





DIMENSIONS

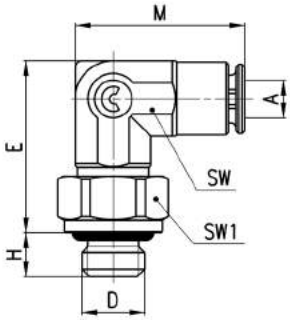
Mod.	A	D	C	E	F	H	M	SW	SW1	Weight (g)
S6520 4-1/8	4	G1/8	3.5	14.5	9	5.5	17.5	8	12	17
S6520 4-1/4	4	G1/4	3.5	14.5	9	7	17.5	8	14	23
S6520 5-1/8	5	G1/8	5.5	14.5	10	5.5	20.5	9	12	17
S6520 5-1/4	5	G1/4	5.5	14.5	10	7	20.5	9	14	23
S6520 6-1/8	6	G1/8	4	15	12.7	5.5	20	9	12	20
S6520 6-1/4	6	G1/4	4	15	12.7	7	20	9	14	23
S6520 6-3/8	6	G3/8	4	15.5	12.7	8	20	9	19	33
S6520 8-1/8	8	G1/8	5	16	14.2	5.5	22.5	11	12	22
S6520 8-1/4	8	G1/4	5	16	14.2	7	22.5	11	14	26
S6520 8-3/8	8	G3/8	5	16.5	14.2	8	22.5	11	19	41
S6520 8-1/2	8	G1/2	5	17	14.2	9	22.5	11	22	48
S6520 10-1/4	10	G1/4	5.8	18.5	16.5	7	26	13	14	32
S6520 10-3/8	10	G3/8	5.8	19	16.5	8	26	13	19	43
S6520 10-1/2	10	G1/2	5.8	19,5	16.5	9	26	13	22	62
S6520 12-1/4	12	G1/4	7.3	20	19.5	7	26.5	15	17	49
S6520 12-3/8	12	G3/8	7,3	20	19,5	8	26,5	15	19	48
S6520 12-1/2	12	G1/2	7,3	20,5	19,5	9	26,5	15	22	70
S6520 14-3/8	14	G3/8	8,3	21	21,5	8	28,5	17	19	74
S6520 14-1/2	14	G1/2	8,3	21,5	21,5	9	28,5	17	22	78

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Fittings Mod. 6522 Micro

Metric Swivel Male Elbow





DIMENSIONS

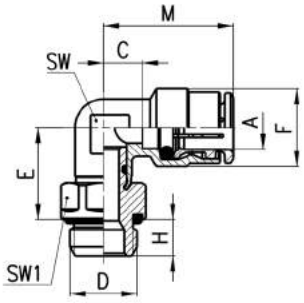
Mod.	A	D	E	H	M	SW	SW1	Weight (g)	
6522 3-M3	3	M3	13.7	2.5	13.7	6	6	4	⋆
6522 3-M5	3	M5	13.7	3.5	13.7	6	8	5	●

⋆ = with gasket
● = with O-Ring

Fittings Mod. 6522

Metric-BSP Swivel Male Elbow





DIMENSIONS

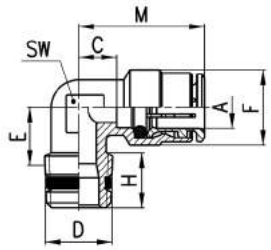
Mod.	A	D	C	E	F	H	M	SW	SW1	Weight (g)
6522 4-M5	4	M5	3.5	12.5	9	4	17.5	8	8	12
6522 4-1/8	4	G1/8	3.5	14.5	9	6	17.5	8	12	15
6522 4-1/4	4	G1/4	3.5	15.5	9	7	17.5	8	15	25
6522 5-M5	5	M5	5.5	12.5	10	4	20.5	9	8	13
6522 6-M5	6	M5	4	13	12.7	4	20	9	10	14
6522 6-1/8	6	G1/8	4	15	12.7	6	20	9	12	19
6522 6-1/4	6	G1/4	4	16	12.7	7	20	9	15	27
6522 8-1/8	8	G1/8	5	16	14.2	6	22.5	11	12	22
6522 8-1/4	8	G1/4	5	17	14.2	7	22.5	11	15	28
6522 8-3/8	8	G3/8	5	17	14.2	7	22.5	11	19	45
6522 10-1/4	10	G1/4	5.8	19.5	16.5	7	26	13	15	41
6522 10-3/8	10	G3/8	5.8	19.5	16.5	7	26	13	19	45
6522 12-1/4	12	G1/4	7.3	20	19.5	7	26.5	15	17	51
6522 12-3/8	12	G3/8	7.3	20.5	19.5	7	26.5	15	19	56

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Fittings Mod. S6500

Metric Fix Male Elbow





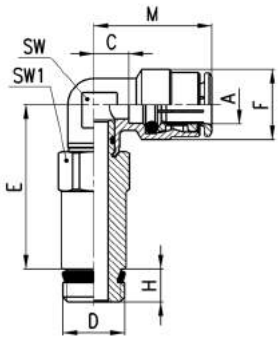
DIMENSIONS

Mod.	A	D	C	E	F	H	M	SW	Weight (g)
S6500 4-1/8	4	R1/8	3.5	8.5	9	7.5	17.5	8	9
S6500 4-1/4	4	R1/4	5	11.5	9	12	19	9	13
S6500 5-1/8	5	R1/8	5.5	8.5	10	7.5	20.5	9	13
S6500 5-1/4	5	R1/4	5.5	11.5	10	12	20.5	9	17
S6500 6-1/8	6	R1/8	4	9	12.7	7.5	20	9	15
S6500 6-1/4	6	R1/4	4	11.5	12.7	12	20	9	16
S6500 8-1/8	8	R1/8	5	10.5	14.2	6.5	22.5	11	18
S6500 8-1/4	8	R1/4	5	11.5	14.2	12.5	22.5	11	21
S6500 8-3/8	8	R3/8	7	13	14.2	11.5	24.5	12	25
S6500 10-1/4	10	R1/4	5.8	13	16.5	11.5	26	13	33
S6500 10-3/8	10	R3/8	5.8	13	16.5	12	26	13	33
S6500 12-1/4	12	R1/4	7.3	14.5	19.5	11	26.5	15	46
S6500 12-3/8	12	R3/8	7.3	13.5	19.5	11.5	26.5	15	39

Fittings Mod. 6525

Long Swivel Male Elbow Sprint®





DIMENSIONS

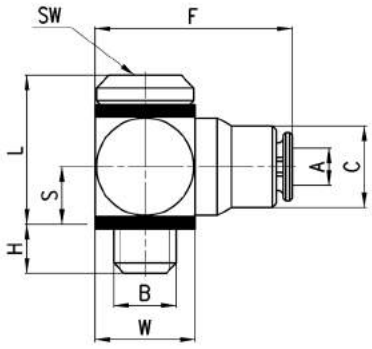
Mod.	A	D	C	E	F	H	M	SW	SW1	Weight (g)
6525 6-1/8	6	G1/8	4	33.8	12.7	5.5	20	9	12	34
6525 6-1/4	6	G1/4	4	34	12.7	7	20	9	14	47
6525 8-1/8	8	G1/8	5	34.8	14.2	5.5	22.5	11	12	35
6525 8-1/4	8	G1/4	5	35	14.2	7	22.5	11	14	50

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Fittings Mod. 6621 Micro

Complete Metric Adjustable
Single Banjo





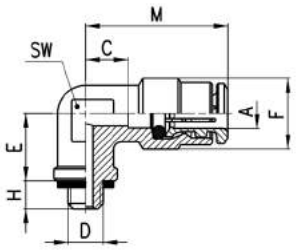
DIMENSIONS

Mod.	A	B	C	F	H	L	S	W	SW	Weight (g)
6621 3-M3	3	M3	5.8	14.2	2.5	9.3	3.5	6	1.5	5
6621 3-M5	3	M5	6.5	16	3.2	11.9	4.8	8	2	6

Fitting Mod. 6501 4-M5

Metric Fix Male Elbow





DIMENSIONS

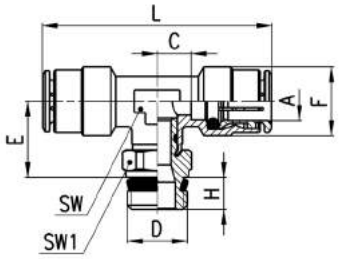
Mod.	A	D	C	E	F	H	M	SW	Weight (g)
6501 4-M5	4	M5	3.5	6	9	4	17.5	8	11

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General terms and conditions for sale are available on www.camozzi.com.

Fittings Mod. S6430

Swivel Male Tee Sprint®





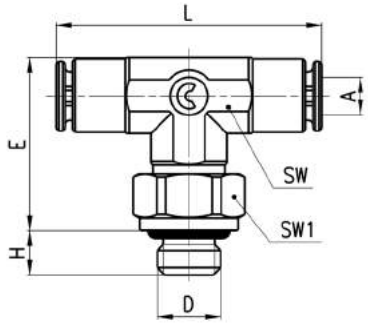
DIMENSIONS

Mod.	A	D	C	E	F	H	L	SW	SW1	Weight (g)
S6430 4-1/8	4	G1/8	3.5	14.5	9	5.5	35	8	12	18
S6430 5-1/8	5	G1/8	5.5	14.5	10	5.5	41	9	12	24
S6430 5-1/4	5	G1/4	5.5	14.5	10	7	41	9	14	30
S6430 6-1/8	6	G1/8	4	15	12.7	5.5	40	9	12	28
S6430 6-1/4	6	G1/4	4	15	12.7	7	40	9	14	33
S6430 8-1/8	8	G1/8	5	16	14.2	5.5	45	11	12	37
S6430 8-1/4	8	G1/4	5	16	14.2	7	45	11	14	42
S6430 8-3/8	8	G3/8	5	16.5	14.2	8	45	11	19	51
S6430 10-1/4	10	G1/4	5.8	18.5	16.5	7	52	13	14	56
S6430 10-3/8	10	G3/8	5.8	19	16.5	8	52	13	19	67
S6430 10-1/2	10	G1/2	5.8	19.5	16.5	9	52	13	22	85
S6430 12-1/4	12	G1/4	7.3	20	19.5	7	53	15	17	60
S6430 12-3/8	12	G3/8	7.3	20	19.5	8	53	15	19	65
S6430 12-1/2	12	G1/2	7.3	20.5	19.5	9	53	15	22	89
S6430 14-1/2	14	G1/2	8.3	21.5	21.5	9	57	17	22	88

Fittings Mod. 6432 Micro

Metric Swivel Male Tee





DIMENSIONS

Mod.	A	D	E	H	L	SW	SW1	Weight (g)	
6432 3-M3	3	M3	13.7	2.5	21.4	6	6	5	⋆
6432 3-M5	3	M5	13.7	3.5	21.4	6	8	6	●

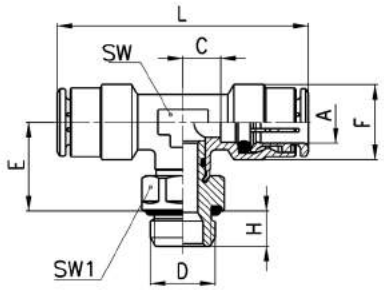
⋆ = with gasket
● = with O-Ring

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General terms and conditions for sale are available on www.camozzi.com.

Fittings Mod. 6432

Metric-BSP Swivel Male Tee





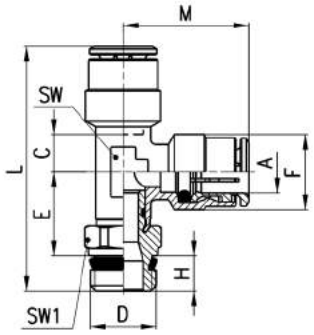
DIMENSIONS

Mod.	A	D	C	E	F	H	L	SW	SW1	Weight (g))
6432 4-M5	4	M5	3.5	12.5	9	4	35	8	8	14
6432 4-1/8	4	G1/8	3.5	14.5	9	6	35	8	12	19
6432 5-M5	5	M5	5.5	12.5	10	4	41	9	8	19
6432 6-1/8	6	G1/8	4	15	12.7	6	40	9	12	29
6432 6-1/4	6	G1/4	4	16	12.7	7	40	9	15	30
6432 8-1/8	8	G1/8	5	16	14.2	6	45	11	12	37
6432 8-1/4	8	G1/4	5	17	14.2	7	45	11	15	39
6432 8-3/8	8	G3/8	5	17	14.2	7	45	11	19	55
6432 10-1/4	10	G1/4	5.8	19.5	16.5	7	52	13	15	59
6432 10-3/8	10	G3/8	5.8	19.5	16.5	7	52	13	19	56
6432 12-1/4	12	G1/4	7.3	20	19.5	7	53	15	17	60
6432 12-3/8	12	G3/8	7.3	20.5	19.5	7	53	15	19	80

Fittings Mod. S6440

Lateral Swivel Male Tee Sprint®





DIMENSIONS

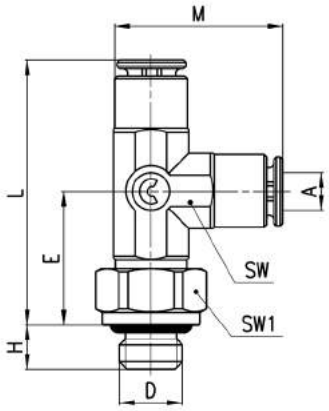
Mod.	A	D	C	E	F	H	L	M	SW	SW1	Weight (g)
S6440 4-1/8	4	G1/8	3.5	14.5	9	5.5	37.5	17.5	8	12	23
S6440 5-1/8	5	G1/8	5.5	14.5	10	5.5	40.5	20.5	9	12	24
S6440 6-1/8	6	G1/8	4	15	12.7	5.5	40.5	20	9	12	26
S6440 6-1/4	6	G1/4	4	15	12.7	7	42	20	9	14	31
S6440 8-1/8	8	G1/8	5	16	14.2	5.5	44	22.5	11	12	37
S6440 8-1/4	8	G1/4	5	16	14.2	7	45.5	22.5	11	14	35
S6440 8-3/8	8	G3/8	5	16.5	14.2	8	47	22.5	11	19	52
S6440 10-1/4	10	G1/4	5.8	18.5	16.5	7	51.5	26	13	14	43
S6440 10-3/8	10	G3/8	5.8	18.5	16.5	8	53	26	13	19	66
S6440 12-3/8	12	G3/8	7.3	19.5	19.5	8	54.5	26.5	15	19	65
S6440 14-1/2	14	G1/2	8.3	21.5	21.5	9	59	28.5	17	22	88

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Fittings Mod. 6442 Micro

Lateral Metric Swivel Male Tee





DIMENSIONS

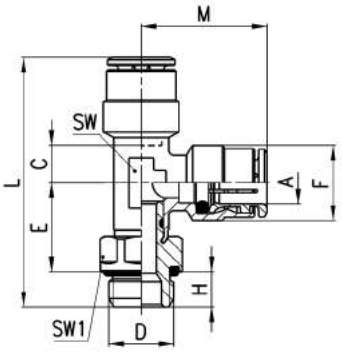
Mod.	A	D	E	H	L	M	SW	SW1	Weight (g)	
6442 3-M3	3	M3	10.7	2.5	21.4	13.7	6	6	5	⋆
6442 3-M5	3	M5	12.2	3.5	21.4	13.7	6	8	6	●

⋆ = with gasket
● = with O-Ring

Fittings Mod. 6442

Lateral Metric-BSP Swivel Male Tee





DIMENSIONS

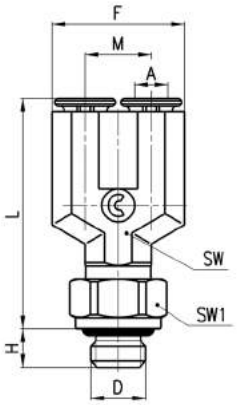
Mod.	A	D	C	E	F	H	L	M	SW	SW1	Weight (g)
6442 4-M5	4	M5	3.5	12.5	9	4	34	17.5	8	8	18
6442 4-1/8	4	G1/8	3.5	14.5	9	6	38	17.5	8	12	19
6442 5-M5	5	M5	5.5	12.5	10	4	36.5	20.5	9	8	19
6442 6-1/8	6	G1/8	4	15	12.7	6	41	20	9	12	26
6442 6-1/4	6	G1/4	4	16	12.7	7	43	20	9	15	36
6442 8-1/8	8	G1/8	5	16	14.2	6	44.5	22.5	11	12	31
6442 8-1/4	8	G1/4	5	17	14.2	7	46.5	22.5	11	15	42
6442 8-3/8	8	G3/8	5	17	14.2	7	46.5	22.5	11	19	50
6442 10-1/4	10	G1/4	5.8	19.5	16.5	7	52.5	26	13	15	46
6442 10-3/8	10	G3/8	5.8	19.5	16.5	7	52.5	26	13	19	66
6442 12-1/4	12	G1/4	7.3	20	16.5	7	53.5	26.5	15	17	73
6442 12-3/8	12	G3/8	7.3	20.5	19.5	7	54	26.5	15	19	64

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Fittings Mod. 6452 Micro

Metric Swivel Male Y





DIMENSIONS

Mod.	A	D	F	H	L	M	SW	SW1	Weight (g)	
6452 3-M3	3	M3	12	2.5	20.9	6	6	6	6	⋆
6452 3-M5	3	M5	12	3.5	20.9	6	6	8	7	●

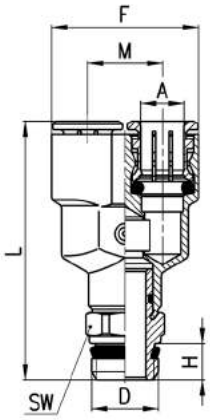
⋆ = with gasket
●= with O-Ring

Fittings Mod. 6451 - S6450

Mod. 6451: Metric Adjustable Male Y

Mod. S6450: Swivel Male Y Sprint®





DIMENSIONS

Mod.	A	D	F	H	L	M	SW	Weight (g)	
6451 4-M5	4	M5	18	4	26.5	9	-	17	⋆
6451 6-M5	6	M5	24.5	4	29.5	12.5	-	27	⋆
S6450 4-1/8	4	G1/8	18	5.5	38	9	12	23	
S6450 6-1/8	6	G1/8	24.5	5.5	41.5	12.5	12	33	
S6450 8-1/8	8	G1/8	28.5	5.5	48.5	14.5	14	48	
S6450 8-1/4	8	G1/4	28.5	7	50	14.5	14	50	

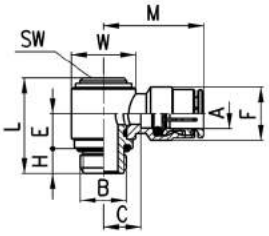
* = not swivel Model with gasket

Fittings Mod. 6622

Complete BSP Swivel
Single Banjo

* Complete Metric Swivel
Single Banjo





DIMENSIONS

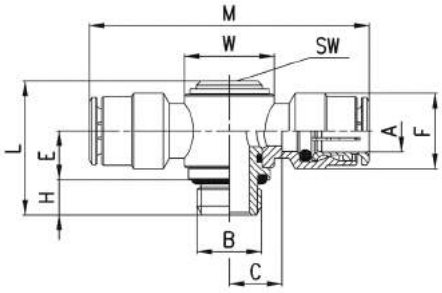
Mod.	A	B	C	E	F	H	L	M	SW	W	Weight (g)	Notes
6622 4-M5	4	M5	4	5.7	8.8	4	15.8	18	2.5	Ø 8	10	*
6622 4-1/8	4	G1/8	7.5	10.2	9	5	25	21.5	4	Ø 14	22	
6622 6-1/8	6	G1/8	8	10.2	12.7	5	25	24	4	Ø 14	24	
6622 6-1/4	6	G1/4	10	9.1	12.7	6	25.3	26	5	Ø 18	35	
6622 8-1/8	8	G1/8	8	10.2	14.2	5	25	25.5	4	Ø 14	28	
6622 8-1/4	8	G1/4	10	9.1	14.2	6	25.3	27.5	5	Ø 18	39	
6622 10-1/4	10	G1/4	8.8	9.1	16.5	6	25.3	29	5	Ø 18	42	

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Fittings Mod. 6632

Complete BSP Swivel
Double Banjo





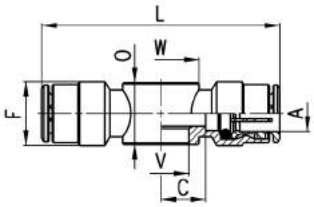
DIMENSIONS

Mod.	A	B	C	E	F	H	L	M	W	SW	Weight (g)
6632 4-1/8	4	G1/8	7.5	10.2	9	5	25	43	Ø 14	4	24
6632 6-1/8	6	G1/8	8	10.2	12.7	5	25	48	Ø 14	4	33
6632 6-1/4	6	G1/4	10	9.1	12.7	6	25.3	52	Ø 18	5	35
6632 8-1/8	8	G1/8	8	10.2	14.2	5	25	51	Ø 14	4	39
6632 8-1/4	8	G1/4	10	9.1	14.2	6	25.3	55	Ø 18	5	40
6632 10-1/4	10	G1/4	8.8	9.1	16.5	6	25.3	58	Ø 18	5	50

Fittings Mod. 6620

Double Banjo





DIMENSIONS

Mod.	A	C	F	L	O	V	W	Weight (g)	assembled with Mod.
6620 4-M5	4	5	9	38	9	5.1	□ 9	13	SCU, SVU, SCO...
6620 4-1/8	4	7.5	9	43	14.5	9.8	Ø 14	19	1631, 1635, SCU, SVU, SCO...
6620 6-1/8	6	8	12.7	48	14.5	9.8	Ø 14	24	1631, 1635, SCU, SVU, SCO...
6620 6-1/4	6	10	12.7	52	14.5	13.2	Ø 18	26	1631, 1635, SCU, SVU, SCO...
6620 8-1/8	8	8	14.2	51	14.5	9.8	Ø 14	32	1631, 1635, SCU, SVU, SCO...
6620 8-1/4	8	10	14.2	55	14.5	13.2	Ø 18	34	1631, 1635, SCU, SVU, SCO...

Fittings Mod. 1631 with gaskets

01... = Single Banjo Stem
02... = Double Banjo Stem
03... = Triple Banjo Stem



Mod.
1631 01-
1631 02-
1631 03-

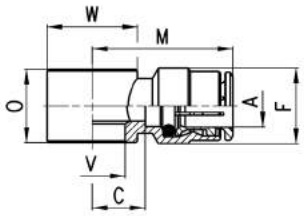
Drawings and dimensions on
page 4/2.05.09

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Fittings Mod. 6610

Single Banjo



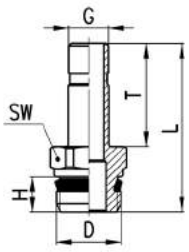


DIMENSIONS									
Mod.	A	C	F	M	O	V	W	Weight (g)	assembled with Mod.
6610 4-M5	4	5	9	19	9	5.1	□ 9	9	1631
6610 4-M6	4	5	9	19	9	5.1	□ 9	8	SCU, SVU, SCO...
6610 4-1/8	4	7.5	9	21.5	14.5	9.8	Ø 14	14	1631, 1635, SCU, SVU, SCO...
6610 5-M5	5	5	10	20	9	5.1	□ 9	9	1631
6610 5-M6	5	5	10	20	9	5.1	□ 9	8	SCU, SVU, SCO...
6610 5-1/8	5	8	10	23	14.5	9.8	Ø 14	16	1631, 1635, SCU, SVU, SCO...
6610 6-M5	6	6.5	12.7	22.5	9	5.1	Ø 10	12	1631
6610 6-M6	6	6.5	12.7	22.5	9	5.1	Ø 10	12	SCU, SVU, SCO...
6610 6-1/8	6	8	12.7	24	14.5	9.8	Ø 14	16	1631, 1635, SCU, SVU, SCO...
6610 6-1/4	6	10	12.7	26	14.5	13.2	Ø 18	19	1631, 1635, SCU, SVU, SCO...
6610 8-1/8	8	8	14.2	25.5	14.5	9.8	Ø 14	19	1631, 1635, SCU, SVU, SCO...
6610 8-1/4	8	10	14.2	27.5	14.5	13.2	Ø 18	22	1631, 1635, SCU, SVU, SCO...
6610 8-3/8	8	11	14.2	28.5	14.5	16.7	Ø 21	23	1631, 1635, SCU, SVU, SCO...
6610 10-1/4	10	8.8	16.5	29	14.5	13.2	Ø 18	22	1635, SCU, SVU, SCO...
6610 10-3/8	10	10.3	16.5	30.5	14.5	16.7	Ø 21	23	1635, SCU, SVU, SCO...
6610 12-1/2	12	12,8	16,5	32	14,5	21	Ø 26	37	1635

Fittings Mod. 6811

Metric Male Adaptor Sprint®





DIMENSIONS								
Mod.	G	D	H	T	L	SW	Weight (g)	
6811 4-M5	4	M5	4	16.5	24.5	8	3	*
6811 4-1/8	4	G1/8	5.5	16.5	27.8	12	10	
6811 5-1/8	5	G1/8	5.5	18	29.3	12	9	
6811 5-1/4	5	G1/4	7	18	31	14	11	
6811 6-1/8	6	G1/8	5.5	18	29.3	12	10	
6811 6-1/4	6	G1/4	7	18	31	14	12	
6811 8-1/8	8	G1/8	5.5	20.5	31.8	12	12	
6811 8-1/4	8	G1/4	7	20.5	33.5	14	13	
6811 10-1/4	10	G1/4	7	23	36	14	16	
6811 10-3/8	10	G3/8	8	23	37.3	19	25	
6811 12-3/8	12	G3/8	8	24	38.3	19	25	
6811 14-1/2	14	G1/2	9	28	44	22	39	

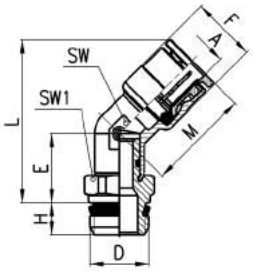
* = with O-Ring

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Fittings Mod. S6110

45° Male Elbow Sprint®





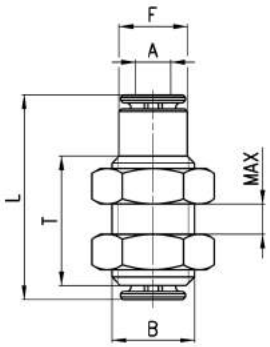
DIMENSIONS

Mod.	A	D	E	F	H	L	M	SW	SW1	Weight (g)
S6110 6-1/8	6	G1/8	14	12.7	5.5	32.5	20.5	11	12	21
S6110 6-1/4	6	G1/4	14	12.7	7	34.5	20.5	11	14	25
S6110 8-1/8	8	G1/8	14	14.2	5.5	32.5	22.5	11	12	21
S6110 8-1/4	8	G1/4	14	14.2	7	34.5	22.5	11	14	26
S6110 8-3/8	8	G3/8	14.5	14.2	8	35	22.5	11	19	38
S6110 10-1/4	10	G1/4	15.5	16.5	7	39.5	26.5	15	17	39
S6110 10-3/8	10	G3/8	15.5	16.5	8	39.5	26.5	15	19	44
S6110 10-1/2	10	G1/2	16	16.5	9	40	26.5	15	22	57
S6110 12-1/4	12	G1/4	15.5	19.5	7	40.5	26.5	15	17	41
S6110 12-3/8	12	G3/8	15.5	19.5	8	40.5	26.5	15	19	46
S6110 12-1/2	12	G1/2	16	19.5	9	41	26.5	15	22	59

Fittings Mod. 6590 Micro

Bulkhead Connector





DIMENSIONS

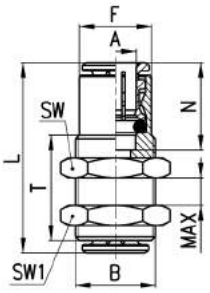
Mod.	A	B	F	L	MAX	T	Weight (g)
6590 3	3	M7x0.75	5.8	18.4	5	11.4	4

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Fittings Mod. 6590

Bulkhead Connector





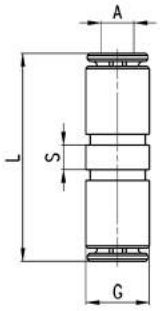
DIMENSIONS

Mod.	A	B	F	L	N	MAX	SW	SW1	T	Weight (g)
6590 4	4	M10x1	8.8	29	14	10.5	14	14	20	16
6590 5	5	M12x1	9.8	31	15	10.5	17	17	20	25
6590 6	6	M14x1	12.5	33	16	10.5	17	17	20	28
6590 8	8	M16x1	14.5	36	17.5	11.5	19	19	21	35
6590 10	10	M18x1	16.3	41.5	20.2	13	22	22	23.5	51
6590 12	12	M20x1	18.8	39.5	19.2	14.5	24	24	25	56
6590 14	14	M22x1	20.5	41.5	20.2	17.5	27	27	30	82

Fittings Mod. 6580 Micro

Union Connector





DIMENSIONS

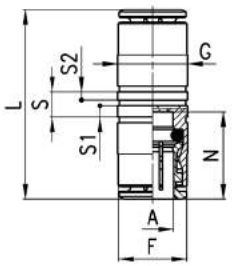
Mod.	A	G	L	S	Weight (g)
6580 3	3	5.8	19.9	2.2	2

Fittings Mod. 6580

Union Connector

New model





DIMENSIONS

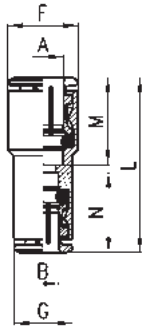
Mod.	A	F	G	L	N	S	S1	S2	Weight (g)
6580 4	4	8.4	9	29	14	5	2.2	1.6	11
6580 5	5	9.4	10	31	15	5	2.2	1.6	15
6580 6	6	11.7	12	34	16	5	2.2	1.6	16
6580 8	8	13.7	14	37	17.5	5	2.2	1.6	23
6580 10	10	15.4	17	41.5	20.2	5	2.2	1.6	33
6580 12	12	18.3	19	39.5	19.2	5.2	2.2	1.6	40
6580 14	14	20.5	21	41.5	20.2	5.2	2.2	1.6	47
6580 16	16	-	47	47	23	-	-	-	60

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Fittings Mod. 6580 - Reducer

Reducer Union Connector





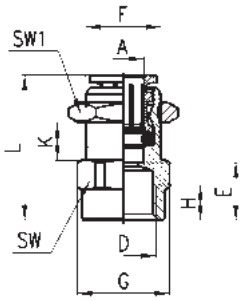
DIMENSIONS

Mod.	A	B	F	G	L	M	N	Weight (g)
6580 6-4	6	4	12	9	31.5	16	14	12
6580 8-6	8	6	14	12.2	35	17.5	16	19
6580 10-8	10	8	16	14	39	20	17.5	25
6580 12-10	12	10	19	16	40.5	19	20	35

Fittings Mod. 6593

BSP Female Bulkhead





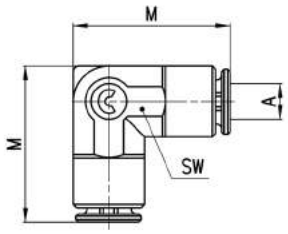
DIMENSIONS

Mod.	A	D	E	F	G	H	L	K (max)	K (min)	SW	SW1	Weight (g)
6593 6-1/8	6	G1/8	10	M12x1	16.4	6	24.5	8.5	2	15	17	19
6593 6-1/4	6	G1/4	11.5	M12x1	18.5	7	26	6.5	2	17	17	22
6593 8-1/8	8	G1/8	10	M15x1	18.5	6	27	9.5	2	17	19	26
6593 8-1/4	8	G1/4	11.5	M15x1	18.5	7	28.5	9.5	2	17	19	26
6593 10-3/8	10	G3/8	12.8	M18x1	24.5	8	32.5	12	2	22	22	43

Fittings Mod. 6550 Micro

Elbow connector





DIMENSIONS

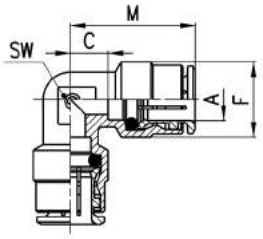
Mod.	A	M	SW	Weight (g)
6550 3	3	13.7	6	3

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Fittings Mod. 6550

Elbow connector





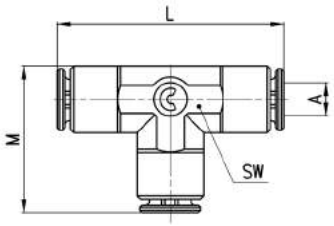
DIMENSIONS

Mod.	A	C	F	M	SW	Weight (g)
6550 4	4	3.5	9	17.5	8	8
6550 5	5	5.5	10	20.5	9	15
6550 6	6	4	12.7	20	9	17
6550 8	8	5	14.2	22.5	11	22
6550 10	10	5.8	16.5	26	13	30
6550 12	12	7.3	19.5	26.5	15	44
6550 14	14	8.3	21.5	28.5	17	71

Fittings Mod. 6540 Micro

Tee Connector





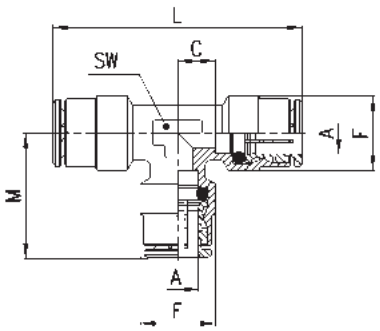
DIMENSIONS

Mod.	A	L	M	SW	Weight (g)
6540 3	3	21.4	13.7	6	4

Fittings Mod. 6540

Tee Connector





DIMENSIONS

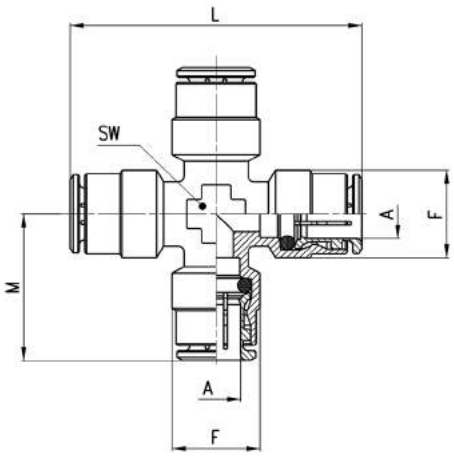
Mod.	A	C	F	L	M	SW	Weight (g)
6540 4	4	3.5	9	35	17.5	8	14
6540 5	5	5.5	10	41	20.5	9	21
6540 6	6	4	12.7	40	20	9	24
6540 8	8	5	14.2	45	22.5	11	32
6540 10	10	5.8	16.5	52	26	13	43
6540 12	12	7.3	19.5	53	26.5	15	60
6540 14	14	8.3	21.5	57	28.5	17	75

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Fittings Mod. 6600

Cross Junction



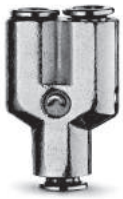


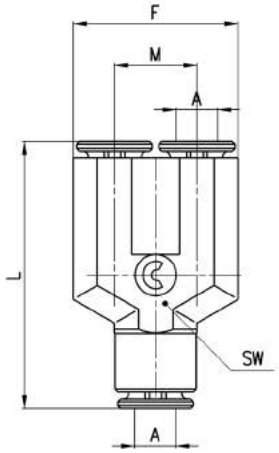
DIMENSIONS

Mod.	A	F	L	M	SW	Weight (g)
6600 4	4	9	38	19	9	26
6600 5	5	10	41	20.5	9	29
6600 6	6	12.7	44	22	10	35
6600 8	8	14.2	49	24.5	12	50
6600 10	10	16.5	55	27.5	14	63
6600 12	12	19.5	56	28	16	84

Fittings Mod. 6560 Micro

Y Union





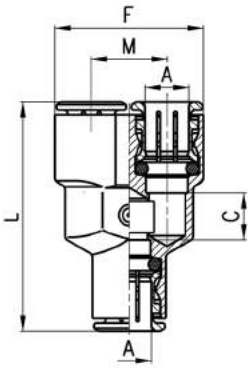
DIMENSIONS

Mod.	A	F	L	M	SW	Weight (g)
6560 3	3	12	20.4	6	6	5

Fittings Mod. 6560

Y Union





DIMENSIONS

Mod.	A	C	F	L	M	Weight (g)
6560 4	4	5	18	33	9	19
6560 6	6	7	24.5	39	12.5	30
6560 8	8	9	28.5	44	14.5	42
6560 10	10	15.5	32	53.5	16	63

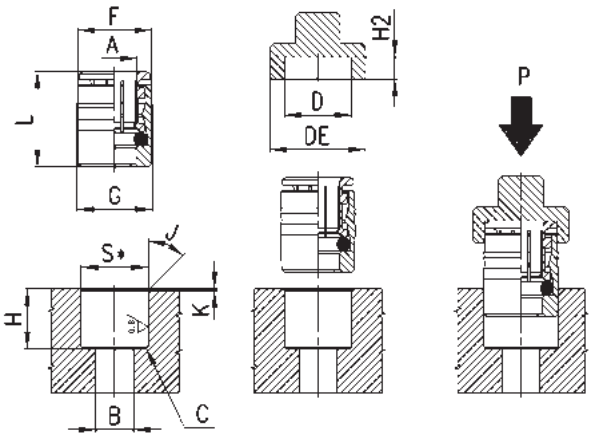
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Fittings Mod. 6700

Cartridge

S* = for both metallic and synthetic seat



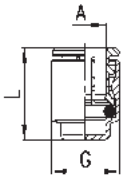


Mod.	A	B	C	D	DE	F	G	H	H2 (+0,1/0)	J	K	L	P min (Kg)	P max (Kg)	S (+0,01/-0,04)	Weight (g)
6700 3	3	2	0.5x45°	6.1	11	5.9	6.2	6.3	2.6	30°	0.3	9.2	80	350	6	1
6700 4	4	3.5	0.5x45°	8.8	14	8.6	9	11	3.3	15°	0.5	14.5	200	360	8.75	4
6700 5	5	3.5	0.5x45°	9.8	15	9.6	10	11.5	3.3	15°	0.5	15.5	230	450	9.75	5
6700 6	6	4	0.5x45°	12	17	11.8	12.2	12	3.8	15°	0.5	16.5	160	570	11.95	8
6700 8	8	6	0.5x45°	14	19	13.8	14.2	14	3.3	15°	0.5	18	140	400	13.95	11
6700 10	10	8	0.5x45°	16	21	15.8	16.2	16.5	3.5	15°	0.5	20.5	150	650	15.95	15

Fittings Mod. 6750

Female Plug





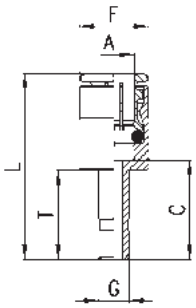
DIMENSIONS

Mod.	A	G	L	Weight (g)
6750 4	4	8.8	15	4
6750 6	6	11.8	17	7
6750 8	8	13.8	18.5	9
6750 10	10	15.8	21	12
6750 12	12	17.8	20	15

Fittings Mod. 6850

Enlarger Junction





DIMENSIONS

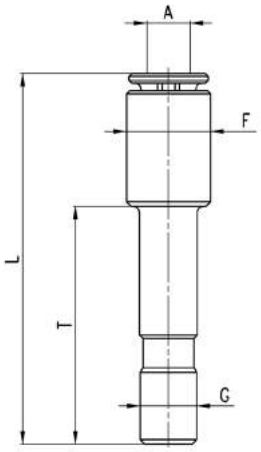
Mod.	A	G	C	F	L	T	Weight (g)
6850 6-4	6	4	17.5	12.7	33.5	16.5	11
6850 8-6	8	6	19	14	36.5	18	15

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Fitting Mod. 6800 Micro

Reducer Junction



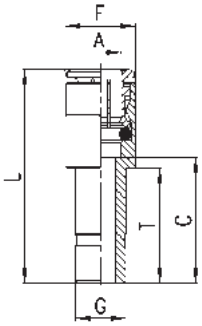


DIMENSIONS						
Mod.	A	F	G	L	T	Weight (g)
6800 3-4	3	5.8	4	26	16.5	2

Fittings Mod. 6800

Reducer Junction





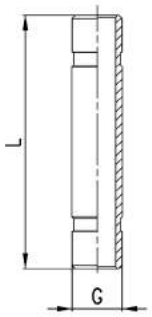
DIMENSIONS							
Mod.	A	G	C	F	L	T	Weight (g)
6800 4-5	4	5	19	9	33	18	8
6800 4-6	4	6	15.5	9	29.5	18	9
6800 4-8	4	8	18	9	32	20.5	10
6800 5-6	5	6	19	10	34	18	11
6800 5-8	5	8	18	10	33	20.5	12
6800 6-8	6	8	18	12.7	34	20.5	12
6800 6-10	6	10	20.5	12.7	36.5	23	17
6800 6-12	6	12	17.5	12.7	33.5	24	21
6800 8-10	8	10	20.5	14	38	23	15
6800 8-12	8	12	21.5	14	39	24	22
6800 10-12	10	12	20.3	16.5	40.5	24	27
6800 10-14	10	14	24.3	16.5	44.5	28	33
6800 12-14	12	14	24.3	18.8	45.5	28	27

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Fittings Mod. 6950

Junction



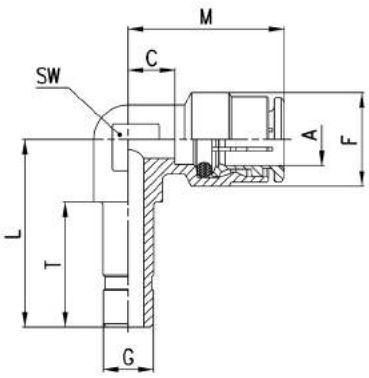


DIMENSIONS			
Mod.	G	L	Weight (g)
6950 4	4	32.5	3
6950 6	6	35.5	4
6950 8	8	40.5	7
6950 10	10	46	10
6950 12	12	48	13
6950 14	14	52	17

Fittings Mod. 6555

Junction Elbow



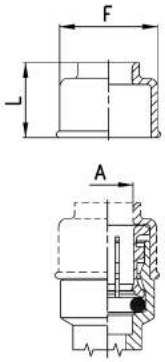


DIMENSIONS									
Mod.	A	G	C	L	F	T	M	SW	Weight (g)
6555 4-4	4	4	3.5	22	9	16.5	17.5	9	8
6555 6-6	6	6	4	24.5	12.7	18	20	9	14
6555 8-8	8	8	5	27.5	14.2	20	22.5	11	21
6555 10-10	10	10	5.8	32	16.5	23	26	13	26

Fittings Mod. 6708

Protection caps
Colour: Black
Self-extinguishing material, class V0





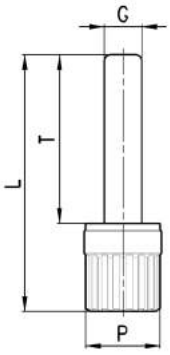
DIMENSIONS				
Mod.	A	F	L	Weight (g)
6708 4	4	10.7	10.7	1
6708 5	5	11.7	11	1
6708 6	6	13.7	11.5	1
6708 8	8	15.7	12.5	1
6708 10	10	18.5	13	1
6708 12	12	20.7	15	2
6708 14	14	23.7	15	2

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General terms and conditions for sale are available on www.camozzi.com.

Accessory Mod. 6900 Micro

Plastic Male Plug





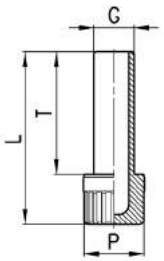
DIMENSIONS

Mod.	G	L	P	T	Weight (g)
6900 3	3	20.5	6	13.5	1

Accessory Mod. 6900

Plastic Male Plug





DIMENSIONS

Mod.	G	L	P	T	Weight (g)
6900 4	4	29	8	20	1
6900 5	5	29.5	8	20.5	1
6900 6	6	31.5	8	22.5	1
6900 8	8	34.5	12	24.5	2
6900 10	10	37	12	27	2
6900 12	12	40.5	16	28.5	3
6900 14	14	42.5	16	30.5	3

Accessory Mod. SP

Disconnecting tube set

The set includes keys to disconnect tubes with diameters between 4 and 12 mm.



Mod.
SP

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series 7000 super-rapid Compact fittings in technopolymer

New model

Tube external diameters: 4, 6, 8, 10, 12, 16 mm
Fittings threads: metric (M5, M7),
BSP (G1/8, G1/4, G3/8, G1/2, G3/4)



Series 7000 super-rapid fittings are realized in technopolymer.

Compact and lightweight, they are suitable for applications where weight can be a key factor.

The special collet, which has been designed properly for this series, provides an homogeneous tight on the whole surface of plastic tubes, thus ensuring high reliability and long service life, also after connections and disconnections of the tube are repeated several times.

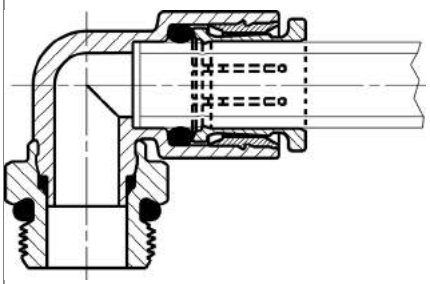
Series 7000 fittings are the answer to the many requests coming from the Pneumatic and Automation market.

» The new “Stop Fitting” model is available with a self-retaining device which interrupts the air flow when the tube is disconnected and restores it when reconnected.

GENERAL DATA

Diameters	ø 4 - 6 - 8 - 10 - 12 - 16 mm
Threads	GAS cylindrical ISO-228 (BSP)
Temperature	-20° ÷ 60°C (see the technical data of tubing used)
Tube to connect	Rilsan, polyamide 6 - 11 - 12, polyethylene, PU, Hytrel Polyester
Fluid	compressed air (for other types of fluids, contact our engineers)
Materials	standard models: body in technopolymer; insert in brass; collet in nickel-plated brass; seals in NBR models with self-retaining device: body in technopolymer; swivel nut, insert and collet nickel-plated brass; poppet valve in not nickel-plated brass; spring in stainless steel; seals in NBR
Operating pressure	standard models: -0.9 ÷ 16 bar (see the technical data of tubing used) models with self-retaining device: 0 ÷ 16 bar

Fitting with connecting tube

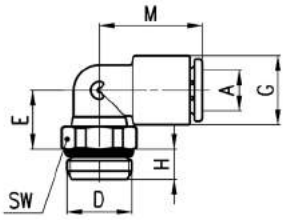


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Fittings Mod. 7522

Metric-BSP Male Swivel Elbow





DIMENSIONS

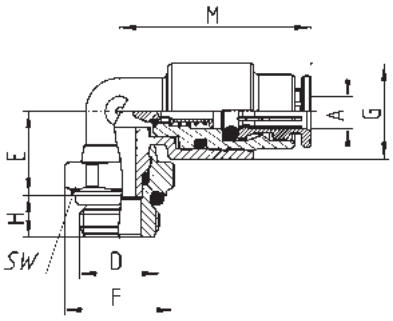
Mod.	A	D	E	G	H	M	SW	Weight (g)
7522 4-M5	4	M5	8,5	9,4	3,5	17	9	4
7522 4-M7	4	M7	11	9,4	5	17	12	6
7522 4-1/8	4	G1/8	9	9,4	5	17	12	7
7522 4-1/4	4	G1/4	9	9,4	6	17	14	10
7522 6-M5	6	M5	9,5	11,6	3,5	18,5	9	5
7522 6-M7	6	M7	12	11,6	5	18,5	12	7
7522 6-1/8	6	G1/8	10	11,6	5	18,5	12	8
7522 6-1/4	6	G1/4	10	11,6	6	18,5	14	11
7522 8-1/8	8	G1/8	13,5	13,9	5	20,5	12	11
7522 8-1/4	8	G1/4	12	13,9	6	20,5	14	13
7522 8-3/8	8	G3/8	12,5	13,9	7	20,5	19	21
7522 10-1/4	10	G1/4	14,5	16,1	6	24	14	15
7522 10-3/8	10	G3/8	13,5	16,1	7	24	19	21
7522 10-1/2	10	G1/2	13,5	16,1	8	24	24	30
7522 12-1/4	12	G1/4	16	20,2	6	28	17	20
7522 12-3/8	12	G3/8	15	20,2	7	28	19	25
7522 12-1/2	12	G1/2	15,5	20,2	8	28	24	34
7522 16-1/2	16	G1/2	30	27	8	33,5	24	61
7522 16-3/4	16	G3/4	24	27	9	33,5	30	70

Fittings Mod. 7522...LF

New

Metric-BSP Male Swivel Elbow
with self-retaining device





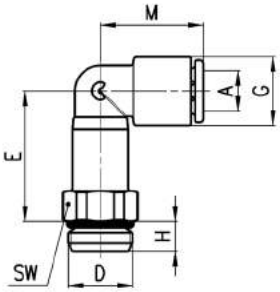
Mod.	A	D	E	F	G	H	M	SW	weight (g)
7522 4-1/8-LF	4	G1/8	10	13	1.,6	5	23	12	11
7522 6-1/8-LF	6	G1/8	13.5	13	13.9	5	37.5	12	23

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Fittings Mod. 7526

Long BSP Male Swivel Elbow





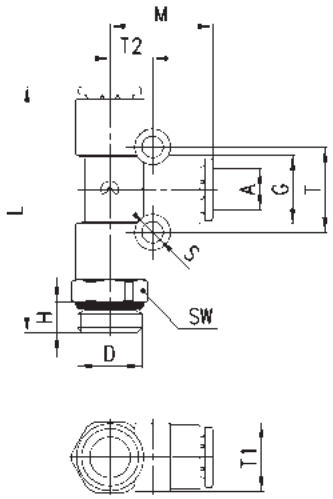
DIMENSIONS

Mod.	A	D	E	G	H	M	SW	Weight (g)
7526 4-1/8	4	G1/8	22	9,4	5	17	12	12
7526 6-1/8	6	G1/8	23	11,6	5	18,5	12	13
7526 6-1/4	6	G1/4	23	11,6	5	18,5	14	16
7526 8-1/8	8	G1/8	29	13,9	5	20,5	12	18
7526 8-1/4	8	G1/4	27	13,9	6	20,5	14	20

Fittings Mod. 7442

Lateral BSP Swivel Male Tee





DIMENSIONS

Mod.	A	D	G	H	L	M	S	T	T1	T2	SW	Weight (g)	
7442 4-1/8	4	G1/8	9,4	5	40	16,5	4	13	9,2	6,5	12	11	
7442 6-1/8	6	G1/8	11,6	5	44	18,5	4	15	11,4	7,5	12	15	
7442 6-1/4	6	G1/4	11,6	6	45	18,5	4	15	11,4	7,5	14	18	
7442 8-1/8	8	G1/8	13,9	5	49	20,5	4	17	13,7	8,5	14	23	
7442 8-1/4	8	G1/4	13,9	6	49	20,5	4	17	13,7	8,5	17	22	
7442 8-3/8	8	G3/8	13,9	7	50,5	20,5	4	17	13,7	8,5	19	29	
7442 10-1/4	10	G1/4	16,1	6	57	24	4	16	15,8	8	17	32	
7442 10-3/8	10	G3/8	16,1	7	57,5	24	4	16	15,8	8	19	33	
7442 12-3/8	12	G3/8	20,2	7	65,5	28	4	19,2	9	9,6	19	51	
7442 12-1/2	12	G1/2	20,2	8	66,5	28	4	19,2	9	9,6	24	58	
7442 16-1/2	16	G1/2	27	8	71,5	33,5	-	-	-	-	24	80	*
7442 16-3/4	16	G3/4	27	9	66,5	33,5	-	-	-	-	30	90	*

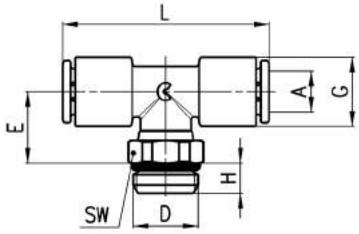
* = model without mounting holes

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General terms and conditions for sale are available on www.camozzi.com.

Fittings Mod. 7432

BSP Swivel Male Tee





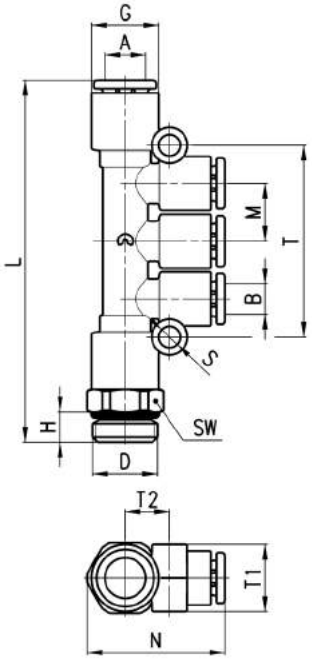
DIMENSIONS

Mod.	A	D	E	G	H	L	SW	Weight (g)
7432 4-M5	4	M5	14	9,4	3,5	34	9	7
7432 4-1/8	4	G1/8	11,5	9,4	5	34	12	9
7432 6-M5	6	M5	15,5	11,6	3,5	37	9	9
7432 6-1/8	6	G1/8	13	11,6	5	37	12	11
7432 6-1/4	6	G1/4	13	11,6	6	37	14	13
7432 8-1/8	8	G1/8	16	13,9	5	41	12	15
7432 8-1/4	8	G1/4	14,5	13,9	6	41	14	17
7432 8-3/8	8	G3/8	15,5	13,9	7	41	19	25
7432 10-1/4	10	G1/4	18,5	16,1	6	48	14	21
7432 10-3/8	10	G3/8	17,5	16,1	7	48	19	27
7432 12-1/4	12	G1/4	31,5	20,2	6	56	20	49
7432 12-3/8	12	G3/8	30,5	20,2	7	56	20	51
7432 12-1/2	12	G1/2	30,5	20,2	8	56	24	58
7432 16-1/2	16	G1/2	30	27	8	67	24	80
7432 16-3/4	16	G3/4	24	27	9	67	30	90

Fittings Mod. 7542

BSP Swivel Male Multi Tee Reducer





DIMENSIONS

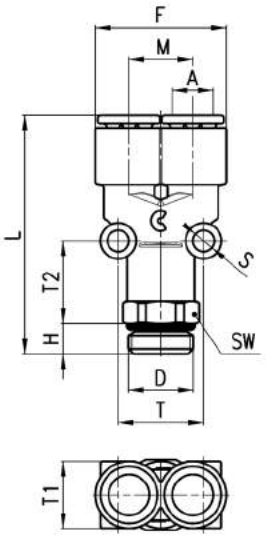
Mod.	A	B	D	G	H	L	M	N	S	SW	T	T1	T2	Weight (g)
7542 6-4-1/8	6	4	G1/8	11,6	5	62,5	9,6	24,5	4	12	32,5	11	7,5	18
7542 6-4-1/4	6	4	G1/4	11,6	6	63,5	9,6	25,5	4	14	32,5	11	7,5	21
7542 8-6-1/8	8	6	G1/8	13,9	5	72	11,5	27,5	4	14	38,2	13,5	9	28
7542 8-6-1/4	8	6	G1/4	13,9	6	72	11,5	27,5	4	14	38,2	13,5	9	26
7542 10-8-1/4	10	8	G1/4	16,1	6	87,5	14,1	31	4	17	45,8	16	10,5	41
7542 10-8-3/8	10	8	G3/8	16,1	7	88	14,1	32	4	19	45,8	16	10,5	42

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Fittings Mod. 7562

BSP Swivel Male Y





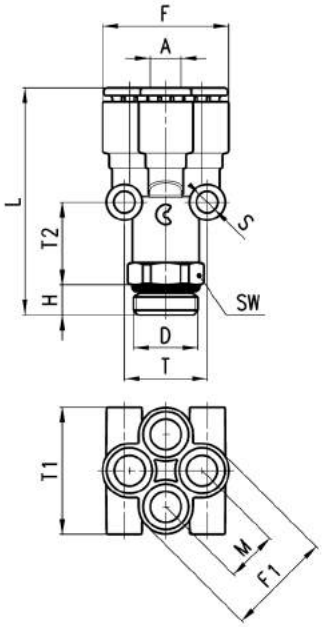
DIMENSIONS

Mod.	A	D	F	H	L	M	S	SW	T	T1	T2	Weight (g)
7562 4-1/8	4	G1/8	18,5	5	40,5	9	4	12	12,2	11,6	16,5	13
7562 6-1/8	6	G1/8	23	5	44	11,4	4	14	14,5	14	18,5	15
7562 6-1/4	6	G1/4	23	6	44	11,4	4	14	14,5	14	17,5	29
7562 8-1/8	8	G1/8	27,2	5	47,5	13,5	4	14	17	14	17,5	24
7562 8-1/4	8	G1/4	26,2	6	49	12,7	4	17	16,5	15,5	19,5	30
7562 10-1/4	10	G1/4	31,7	6	55	15,8	4	17	16,5	16	19,5	32
7562 10-3/8	10	G3/8	31,7	7	55,5	15,8	4	19	16,5	16	19	34

Fittings Mod. 7572

BSP Male Double Y





DIMENSIONS

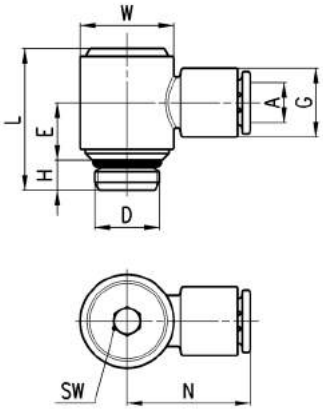
Mod.	A	D	H	F	F1	L	M	S	SW	T	T1	T2	Weight (g)
7572 4-1/8	4	G1/8	5	20,5	17	40,5	8,3	4	12	14,5	20,5	15	17
7572 4-1/4	4	G1/4	6	20,5	17	41,5	8,3	4	14	14,5	20,5	15	21
7572 6-1/8	6	G1/8	5	25	21	45,5	10,2	4	14	16,5	25	17,5	27
7572 6-1/4	6	G1/4	6	25	21	45,5	10,2	4	14	16,5	25	16,5	25

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Fittings Mod. 7622

Complete BSP Swivel Single Banjo





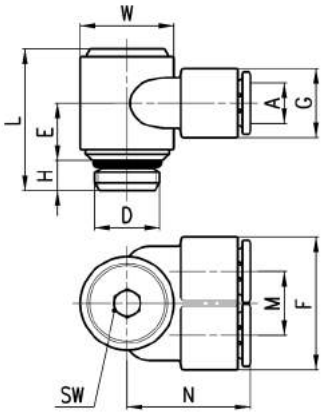
DIMENSIONS

Mod.	A	D	E	G	H	L	N	W	SW	Weight (g)
7622 4-1/8	4	G1/8	10	11,6	5	24,5	21	14	4	12
7622 6-1/8	6	G1/8	10	11,6	5	24,5	21	14	4	12
7622 6-1/4	6	G1/4	12,5	11,6	6	28	24,5	18,5	5	25
7622 8-1/8	8	G1/8	10	13,9	5	24,5	22,5	14	4	14
7622 8-1/4	8	G1/4	12,5	13,9	6	28	24,5	18,5	5	26
7622 10-1/4	10	G1/4	12,5	16,1	6	28	27	18,5	5	27
7622 10-3/8	10	G3/8	12,5	16,1	7	29	27	18,5	5	28
7622 12-3/8	12	G3/8	14	20,2	7	33,5	29	22	5	43

Fittings Mod. 7652

Complete BSP Swivel Double Banjo





DIMENSIONS

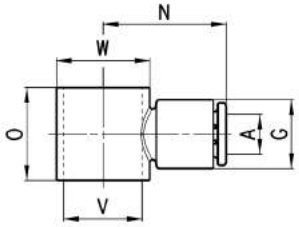
Mod.	A	D	E	F	G	H	L	M	N	W	SW	Weight (g)
7652 4-1/8	4	G1/8	10	22,3	11,6	5	24,5	10,7	21	14	4	15
7652 6-1/8	6	G1/8	10	22,3	11,6	5	24,5	10,7	21	14	4	15
7652 6-1/4	6	G1/4	11,5	26,6	11,6	6	28	12,7	24,5	18,5	5	29
7652 8-1/8	8	G1/8	10	26,6	13,9	5	24,5	12,7	22	14	4	18
7652 8-1/4	8	G1/4	11,5	26,6	13,9	6	28	12,7	24,5	18,5	5	30
7652 10-1/4	10	G1/4	11,5	31	16	6	28	15	26,5	18,5	5	33
7652 10-3/8	10	G3/8	11,5	31	16	7	29	15	26,5	18,5	5	34

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Fittings Mod. 7610 assembled with Mod. 7632 02, 7632 03

Single Banjo



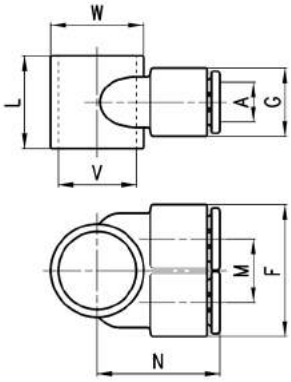


DIMENSIONS							
Mod.	A	G	N	O	V	W	Weight (g)
7610 4-1/8	4	11,6	21	15,5	11	14	3
7610 6-1/8	6	11,6	21	15,5	11	14	4
7610 6-1/4	6	13,9	24,5	18,5	15,5	18,5	6
7610 8-1/8	8	13,9	22,5	15,5	11	14	5
7610 8-1/4	8	13,9	24,5	18,5	15,5	18,5	7
7610 10-1/4	10	16,1	27	18,5	15,5	18,5	7
7610 10-3/8	10	20,2	29	22	18	22	11
7610 12-3/8	12	20,2	29	22	18	22	12

Fittings Mod. 7640 assembled with Mod. 7632 02, 7632 03

Double Banjo





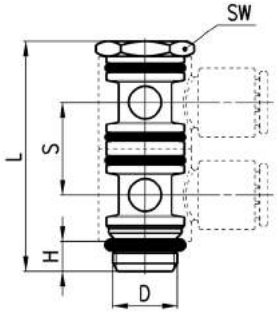
DIMENSIONS									
Mod.	A	F	G	L	M	N	V	W	Weight (g)
7640 4-1/8	4	22,3	11,6	15,5	10,7	21	11	14	6
7640 6-1/8	6	22,3	11,6	15,5	10,7	21	11	14	7
7640 6-1/4	6	26,6	13,9	18,5	12,7	24,5	15,5	18,5	9
7640 8-1/8	8	26,6	13,9	15,5	12,7	22	11	14	10
7640 8-1/4	8	26,6	13,9	18,5	12,7	24,5	15,5	18,5	10
7640 10-1/4	10	31	16	18,5	15	26,5	15,5	18,5	13

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General terms and conditions for sale are available on www.camozzi.com.

Fittings Mod. 7632 02 assembled with Mod. 7610, 7640

Double Banjo Stem





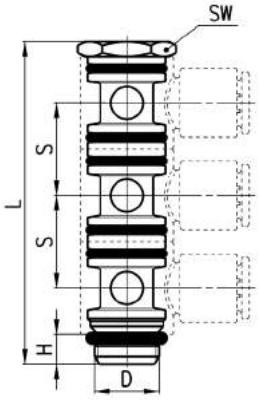
DIMENSIONS

Mod.	D	H	L	S	SW	Weight (g)
7632 02-1/8	G1/8	5	38,5	15,5	13	14
7632 02-1/4	G1/4	6	46	18,5	17	29
7632 02-3/8	G3/8	7	54	22	20	45

Fittings Mod. 7632 03 assembled with Mod. 7610, 7640

Triple Banjo Stem





DIMENSIONS

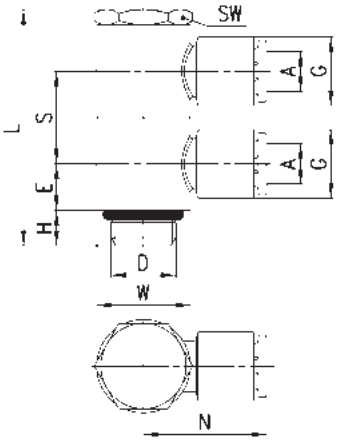
Mod.	D	H	L	S	SW	Weight (g)
7632 03-1/8	G1/8	5	54	15,5	13	18
7632 03-1/4	G1/4	6	64,5	18,5	17	39

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Fittings Mod. 7612 02

Complete BSP Double Adjustable
Single Banjo



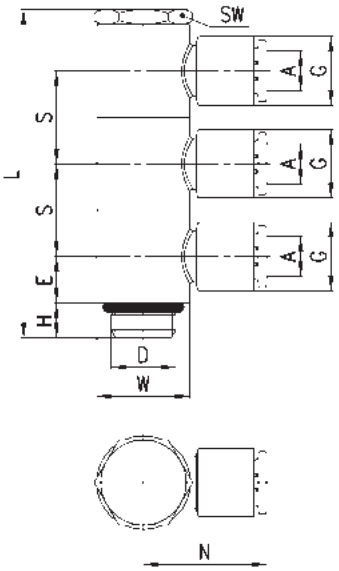


DIMENSIONS											
Mod.	A	D	E	G	H	L	N	S	W	SW	Weight (g)
7612 02-4-1/8	4	G1/8	7,75	11,6	5	38,5	21	15,5	14	13	21
7612 02-6-1/8	6	G1/8	7,75	11,6	5	38,5	21	15,5	14	13	21
7612 02-6-1/4	6	G1/4	9,25	13,9	6	46	24,5	18,5	18,5	17	40
7612 02-8-1/8	8	G1/8	7,75	13,9	5	38,5	22,5	15,5	14	13	24
7612 02-8-1/4	8	G1/4	9,25	13,9	6	46	24,5	18,5	18,5	17	42
7612 02-10-1/4	10	G1/4	9,25	16,1	6	46	27	18,5	18,5	17	44
7612 02-10-3/8	10	G3/8	11	20,2	7	54	29	22	22	20	67
7612 02-12-3/8	12	G3/8	11	20,2	7	54	29	22	22	20	69

Fittings Mod. 7612 03

Complete BSP Triple Adjustable
Single Banjo





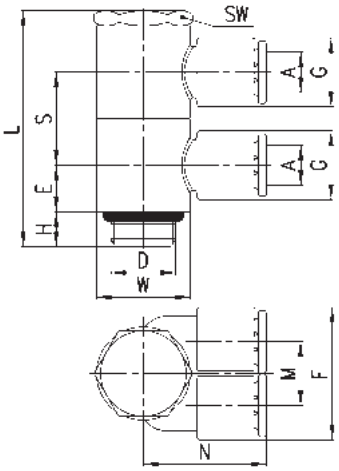
DIMENSIONS											
Mod.	A	D	E	G	H	L	N	S	W	SW	Weight (g)
7612 03-4-1/8	4	G1/8	7,75	11,6	5	54	21	15,5	14	13	29
7612 03-6-1/8	6	G1/8	7,75	11,6	5	54	21	15,5	14	13	30
7612 03-6-1/4	6	G1/4	9,25	13,9	6	64,5	24,5	18,5	18,5	17	55
7612 03-8-1/8	8	G1/8	7,75	13,9	5	54	22,5	15,5	14	13	34
7612 03-8-1/4	8	G1/4	9,25	13,9	6	64,5	24,5	18,5	18,5	17	57
7612 03-10-1/4	10	G1/4	9,25	16,1	6	64,5	27	18,5	18,5	17	62

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Fittings Mod. 7642 02

Complete BSP Double Adjustable
Double Banjo





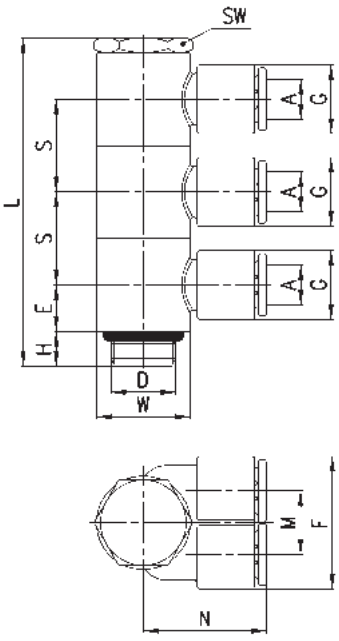
DIMENSIONS

Mod.	A	D	E	F	G	H	L	M	N	S	W	SW	Weight (g)
7642 02-4-1/8	4	G1/8	7,75	22,3	11,6	5	38,5	10,7	21	15,5	14	13	26
7642 02-6-1/8	6	G1/8	7,75	22,3	11,6	5	38,5	10,7	21	15,5	14	13	28
7642 02-6-1/4	6	G1/4	9,25	26,6	13,9	6	46	12,7	24,5	18,5	18,5	17	48
7642 02-8-1/8	8	G1/8	7,75	26,6	13,9	5	38,5	12,7	22	15,5	14	13	33
7642 02-8-1/4	8	G1/4	9,25	26,6	13,9	6	46	12,7	24,5	18,5	18,5	17	50
7642 02-10-1/4	10	G1/4	9,25	31	16	6	46	15	26,5	18,5	18,5	17	56

Fittings Mod. 7642 03

Complete BSP Triple Adjustable
Double Banjo





DIMENSIONS

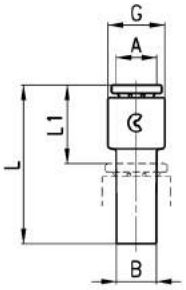
Mod.	A	D	E	F	G	H	L	M	N	S	W	SW	Weight (g)
7642 03-4-1/8	4	G1/8	7,75	22,3	11,6	5	54	10,7	21	15,5	14	13	37
7642 03-6-1/8	6	G1/8	7,75	22,3	11,6	5	54	10,7	21	15,5	14	13	39
7642 03-6-1/4	6	G1/4	9,25	26,6	13,9	6	64,5	12,7	24,5	18,5	18,5	17	67
7642 03-8-1/8	8	G1/8	7,75	26,6	13,9	5	54	12,7	22,5	15,5	14	13	47
7642 03-8-1/4	8	G1/4	9,25	26,6	13,9	6	64,5	12,7	24,5	18,5	18,5	17	71
7642 03-10-1/4	10	G1/4	9,25	31	16,1	6	64,5	15	27	18,5	18,5	17	79

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General terms and conditions for sale are available on www.camozzi.com.

Fittings Mod. 7800

Reducer Junction





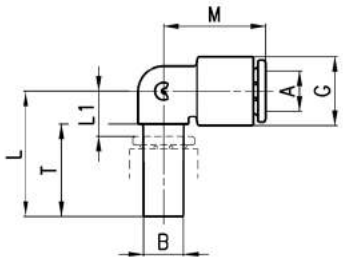
DIMENSIONS

Mod.	A	B	G	L1	L	Weight (g)
7800 4-6	4	6	9,4	14,5	29,5	2
7800 4-8	4	8	9,4	14,5	30,5	3
7800 6-8	6	8	11,6	15,5	31,5	4
7800 6-10	6	10	11,6	15,5	34	4
7800 6-12	6	12	11,6	16,5	35,5	4
7800 8-10	8	10	13,9	16,5	35	5
7800 8-12	8	12	13,9	17,5	37	6
7800 10-12	10	12	16,1	18,5	37,5	7
7800 10-14	10	14	16,1	22,5	39	7

Fittings Mod. 7555

Junction Elbow





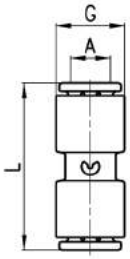
DIMENSIONS

Mod.	A	B	G	L	L1	M	T	Weight (g)
7555 4-4	4	4	9,4	21	7	16,5	16,5	2
7555 6-6	6	6	11,6	23	8	18,5	17,5	4
7555 8-8	8	8	13,9	25	9	20,5	18,5	5
7555 10-10	10	10	16,1	28,5	10	24	21	8
7555 12-12	12	12	20,2	32	13	28	23	12

Fittings Mod. 7580

Union Connector





DIMENSIONS

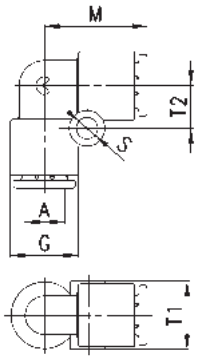
Mod.	A	G	L	Weight (g)
7580 4	4	9,4	29	4
7580 6	6	11,6	31	6
7580 8	8	13,9	33,5	9
7580 10	10	16,1	38,5	11
7580 12	12	20,2	39,5	18

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Fittings Mod. 7550

Elbow Connector





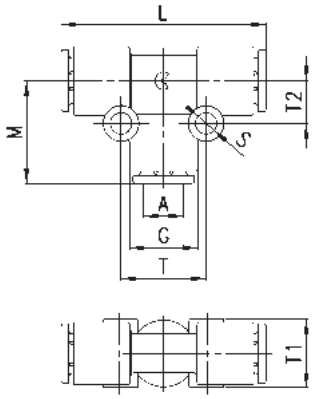
DIMENSIONS								
Mod.	A	G	M	S	T1	T2	Weight (g)	
7550 4	4	9,4	16,5	4	9,2	6,5	4	
7550 6	6	11,6	18,5	4	11,4	7,5	6	
7550 8	8	13,9	20,5	4	13,7	8,5	9	
7550 10	10	16,1	24	4	15,8	8	12	
7550 12	12	20,2	28	4	9	9,6	20	
7550 16	16	27	33,5	-	-	-	42	*

* = model without mounting holes

Fittings Mod. 7540

Tee Connector





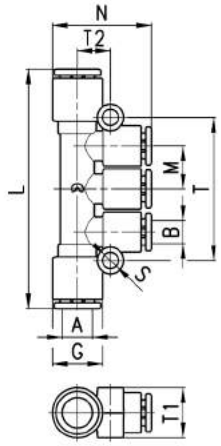
DIMENSIONS									
Mod.	A	G	L	M	S	T	T1	T2	Weight (g)	
7540 4	4	9,2	33	16,5	4	13	9,2	6,5	6	
7540 6	6	11,6	37	18,5	4	15	11,4	7,5	9	
7540 8	8	13,9	41	20,5	4	17	13,7	8,5	14	
7540 10	10	16,1	48	24	4	16	15,8	8	18	
7540 12	12	20,2	56	28	4	19,2	9	9,6	30	
7540 16	16	27	67	33,5	-	-	-	-	61	*

* = model without mounting holes

Fittings Mod. 7545

Multi Tee Reducer





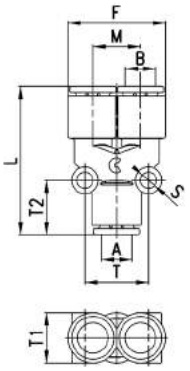
DIMENSIONS											
Mod.	A	B	G	L	M	N	S	T	T1	T2	Weight (g)
7545 6-4	6	4	11,6	55,5	9,6	23,5	4	32,5	11	7,5	12
7545 8-6	8	6	13,9	64	11,5	26,5	4	38,2	13,5	9	18
7545 10-8	10	8	16,1	78,5	14,1	30	4	45,8	16	10,5	27

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Fittings Mod. 7560

Y Connector - Reducer





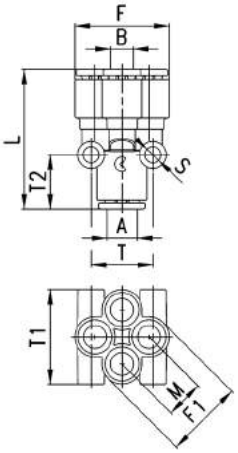
DIMENSIONS

Mod.	A	B	F	L	M	S	T	T1	T2	Weight (g)
7560 4	4	4	18,2	33	9	4	10,8	9,5	13	6
7560 6	6	6	23	35	11,4	4	14,5	11,5	13,5	9
7560 8	8	8	27,2	39,5	13,5	4	17	14	14,5	15
7560 10	10	10	31,7	46	15,8	4	16,5	16	16,5	19
7560 6-4	6	4	18,5	33,5	9	4	12,2	11,6	14,5	7
7560 8-6	8	6	23	36	11,4	4	14,5	14	15,5	11
7560 10-8	10	8	26,2	40	12,7	4	16,5	15,5	16	16

Fittings Mod. 7575

Reduced Double Y





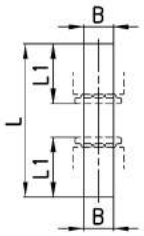
DIMENSIONS

Mod.	A	B	F	F1	L	M	S	T	T1	T2	Weight (g)
7575 6-4	6	4	20,5	17	33,5	8,3	4	14,5	20,5	13,5	12
7575 8-6	8	6	25	21	37	10,2	4	16,5	25	14,5	17

Fittings Mod. 7950

Plastic Junction





DIMENSIONS

Mod.	B	L	L1	Weight (g)
7950 4	4	37	14	1
7950 6	6	39	15	1
7950 8	8	41	16	1
7950 10	10	44	18,5	1
7950 12	12	49	19	1

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Series 8000 dual seal super-rapid fittings

Tube external diameters: 4, 6, 8, 10 and 12 mm
Fittings threads: BSP (G1/8, G1/4, G3/8, G1/2)



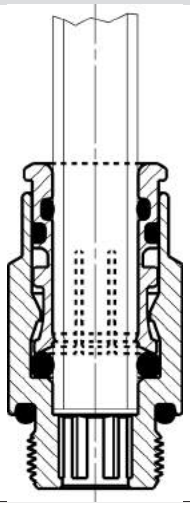
With its vast experience in manufacturing push-in connections for the pneumatics industry and its indepth research into fluid power systems, Camozzi has developed Series 8000 super-rapid fitting evolving from Series 6000, which has been extensively tested in the pneumatic sector.

A patented additional seal provides a double tight on the tube, thus ensuring a highly reliable connection and avoiding any possible leakage that may occur. Connection and disconnection of the tube can be repeated several times without the use of proper tools and without compromising the performance of the fitting ot the sealing on the tube. The NBR seals are standard and can be easily replaced with FKM and EDM seals.

GENERAL DATA

Materials	body and gripper: nickel-plated brass seals: NBR
Threads	Gas cylindrical ISO-228 (BSP)
Pressure	min. - 0,9 - max. 60 bar The Series 8000 fittings have a working pressure of 60 bar but this would generally be limited by the type of tubing used.
Tube to connect	Polyamide (PA) 6 - 11 - 12, PU, Hytrel Polyester
Diameters	ø 4, 6, 8, 10, 12
Fluid	All fluids compatible with the fitting's materials requiring a leak-tight seal, e.g. water. For other fluids, please contact our technicians.
Temperature	-20°C ÷ 80°C

Fitting with connecting tube



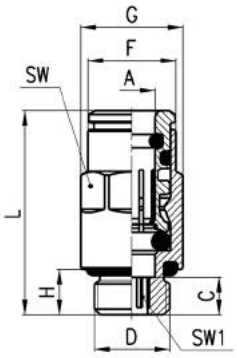
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Fittings Mod. 8512

BSP Male Connector

New diameter





DIMENSIONS

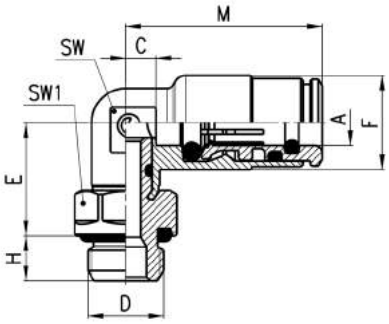
Mod.	A	D	C	F	G	H	L	SW	SW1	Weight (g)
8512 4-1/8	4	G1/8	5	8.8	13.5	6	23.8	12	2.5	14
8512 6-1/8	6	G1/8	5	11.7	13.5	6	27	12	4	15
8512 6-1/4	6	G1/4	6	11.7	16.4	7	28	15	4	25
8512 8-1/8	8	G1/8	8.5	13.7	15.2	6	32.5	14	5	20
8512 8-1/4	8	G1/4	7	13.7	16.4	7	31	15	6	24
8512 10-1/4	10	G1/4	10	16.3	18.5	7	36.5	17	7	32
8512 10-3/8	10	G3/8	4.5	16.3	20.5	7	31	19	8	38
8512 12-3/8	12	G 3/8	4.6	18.4	20.5	7	30.5	19	9	30
8512 12-1/2	12	G 1/2	5.6	18.4	24.8	8	31.5	22	9	50

Fittings Mod. 8522

BSP Swivel Male Elbow

New diameter





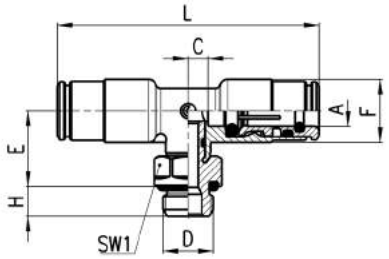
DIMENSIONS

Mod.	A	D	C	E	F	H	M	SW	SW1	Weight (g)
8522 4-1/8	4	G1/8	3	14.5	10	6	21.5	9	12	18
8522 6-1/8	6	G1/8	4	15	12.5	6	26	10	12	23
8522 6-1/4	6	G1/4	4	16	12.5	7	26	10	15	30
8522 8-1/8	8	G1/8	5	16	14.5	6	29	12	12	28
8522 8-1/4	8	G1/4	5	17	14.5	7	29	12	15	34
8522 10-1/4	10	G1/4	5	19.5	16.8	7	31.5	13	15	40
8522 10-3/8	10	G3/8	5	19.5	16.8	7	31.5	13	19	50
8522 12-3/8	12	G 3/8	7	20.5	19	7	33	15	19	55
8522 12-1/2	12	G 1/2	7	21.5	19	8	33	15	22	68

Fittings Mod. 8432

BSP Swivel Male Tee





DIMENSIONS

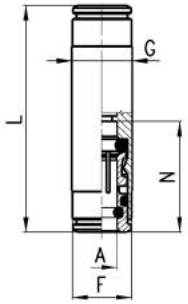
Mod.	A	D	C	E	F	H	L	SW1	Weight (g)
8432 4-1/8	4	G1/8	3	14,5	10	6	43	12	25
8432 6-1/8	6	G1/8	4	15	12,5	6	52	12	33
8432 8-1/8	8	G1/8	5	16	14,5	6	58	12	42
8432 8-1/4	8	G1/4	5	17	14,5	7	58	15	49

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Fittings Mod. 8580

Union Connector





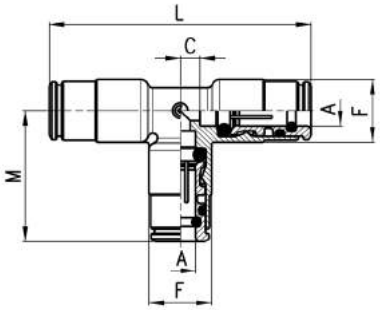
DIMENSIONS

Mod.	A	F	G	L	N	Weight (g)
8580 4	4	8,8	10	38	19	16
8580 6	6	11,7	12	45	22	23
8580 8	8	-	14	48	24	30

Fittings Mod. 8540

Tee Connector





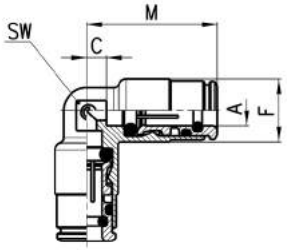
DIMENSIONS

Mod.	A	C	F	M	L	Weight (g)
8540 4	4	3	10	21,5	43	22
8540 6	6	4	12,5	26	52	35
8540 8	8	5	14,5	29	58	49

Fittings Mod. 8550

Elbow Connector





DIMENSIONS

Mod.	A	C	F	M	SW	Weight (g)
8550 4	4	3	10	21,5	9	15
8550 6	6	4	12,5	26	10	25
8550 8	8	5	14,5	29	12	34

Products designed for industrial applications.
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Series X6000 super-rapid fittings in stainless steel 316L

Tube external diameters: 4, 6, 8, 10, 12 mm
Fittings threads: BSP (G1/8, G1/4, G3/8, G1/2),
BSPT (R1/8, R1/4, R3/8, R1/2)

NSF/ANSI 51



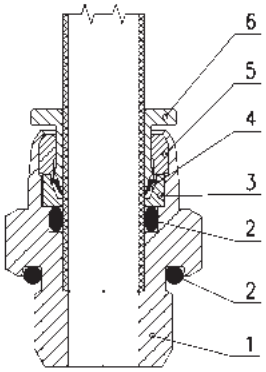
Series X6000 fittings have been designed to offer versatility and ease of installation without any compromise in quality or performance. They are suitable for applications in the pneumatics, fluids, chemical, medical, food and packaging industries.

Series X6000 fittings are practical and safe and allow the connection of fluids even in aggressive environments. The collet ensures excellent grip between the fitting and tubing.

GENERAL DATA

Materials	1 = Body	Stainless steel 316L
	2 = Seals	FKM Alimentary
	3 = Supporting ring	Stainless steel 316L
	4 = Clamping gripper	Stainless steel 301
	5 = Locking bushing	Stainless steel 316L
	6 = Release bushing	Stainless steel 316L
Threads	GAS conical ISO 7 (BSPT) GAS cylindrical ISO 228 (BSP)	
Pressure	max 18 bar (see tubing)	
Tube to connect	PA 6-12, Rilsan PA11, Polyethylene, PU, Polyester Hytrel	
Diameters	4 - 6 - 8 -10 - 12 mm	
Fluid	compressed air and drinking water (for other fluids, please contact our technicians)	
Temperature	-15°C ÷ 150°C NOTE: for a better use of the fitting we recommend to check the tubing specifications.	

Fitting with connecting tube

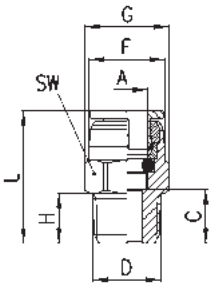


Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Fittings Mod. X6510

BSPT Male Connector





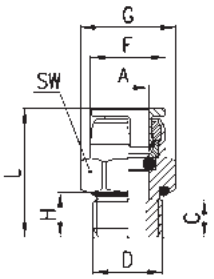
DIMENSIONS

Mod.	A	C	D	F	G	H	L	SW	Weight (g)	Package
X6510 4-1/8	4	8	R1/8	9.7	-	8	20.5	10	9	10
X6510 4-1/4	4	10	R1/4	9.7	-	10	22.5	14	15	10
X6510 6-1/8	6	8	R1/8	11.6	13.4	8	21.5	12	10	10
X6510 6-1/4	6	10	R1/4	11.6	15.2	10	23.5	14	17	10
X6510 8-1/8	8	8.5	R1/8	14.7	17	8	24.6	15	16	10
X6510 8-1/4	8	10	R1/4	14.7	17	10	26.1	15	20	10
X6510 10-1/4	10	11	R1/4	17.4	20.8	10	28.2	19	28	10
X6510 10-3/8	10	12	R3/8	17.4	20.8	11	29.2	19	35	10
X6510 10-1/2	10	14	R1/2	17.4	24.6	13	31.2	22	55	10
X6510 12-1/4	12	12	R1/4	20	-	10	31	22	42	10
X6510 12-3/8	12	12.5	R3/8	20	-	11	31.5	22	44	10
X6510 12-1/2	12	14.5	R1/2	20	-	13	33.5	22	59	10

Fittings Mod. X6512

BSP Male Connector





DIMENSIONS

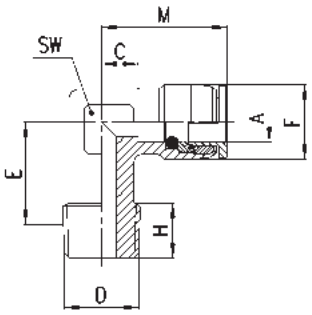
Mod.	A	C	D	F	G	H	L	SW	Weight (g)	Package
X6512 4-1/8	4	5.7	G1/8	9.7	-	5.7	18.2	14	11	10
X6512 4-1/4	4	6.4	G1/4	9.7	-	6	18.9	17	18	10
X6512 6-1/8	6	6.7	G1/8	11.6	15	5.7	20.2	14	12	10
X6512 6-1/4	6	6.5	G1/4	11.6	-	6	20	17	19	10
X6512 8-1/8	8	8.7	G1/8	14.7	-	5.7	24.8	15	18	10
X6512 8-1/4	8	6	G1/4	14.7	-	6	22.1	17	21	10
X6512 10-1/4	10	8.5	G1/4	17.4	-	6	25.7	19	28	10
X6512 10-3/8	10	6.5	G3/8	17.4	-	6.5	23.7	22	29	10
X6512 10-1/2	10	11.5	G1/2	17.4	30	9.5	28.7	27	60	10
X6512 12-1/4	12	8.5	G1/4	20	-	6	27.5	22	40	10
X6512 12-3/8	12	9	G3/8	20	-	6.5	28	22	42	10
X6512 12-1/2	12	12.5	G1/2	20	30	9.5	31.5	27	71	10

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Fittings Mod. X6500

BSPT Fix Elbow





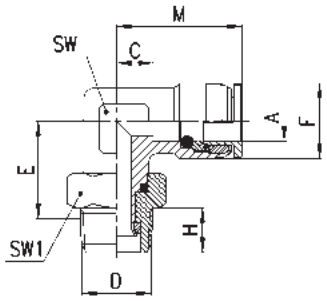
DIMENSIONS

Mod.	A	C	D	E	F	H	M	SW	Weight (g)	Package
X6500 4-1/8	4	7.8	R1/8	12.5	11	8	20.3	12	22	10
X6500 6-1/8	6	8.8	R1/8	12.5	11.9	8	22.3	12	20	10
X6500 6-1/4	6	8.8	R1/4	12	11.9	9	22.3	12	24	10
X6500 8-1/8	8	8.4	R1/8	15	15	8	24.5	12	26	10
X6500 8-1/4	8	8.4	R1/4	14	15	10	24.5	12	25	10
X6500 10-1/4	10	8.7	R1/4	15	17.4	10	25.9	14	36	10
X6500 10-3/8	10	8.7	R3/8	15	17.4	10.8	25.9	14	41	10
X6500 12-1/4	12	9.5	R1/4	16	20	10	28.5	17	49	10
X6500 12-3/8	12	9.5	R3/8	16	20	12	28.5	17	55	10

Fittings Mod. X6520

BSPT Swivel Elbow





DIMENSIONS

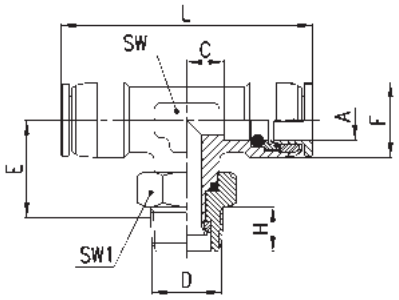
Mod.	A	C	D	E	F	H	M	SW	SW1	Weight (g)	Package (pcs)
X6520 4-1/8	4	4.3	R1/8	15.3	10	8	16.8	12	12	20	10
X6520 4-1/4	4	4.3	R1/4	15.8	10	10	16.8	12	15	24	10
X6520 6-1/8	6	8.8	R1/8	15.3	11.9	8	22.3	12	12	24	10
X6520 6-1/4	6	5.8	R1/4	19.8	13	10	19.3	14	15	33	10
X6520 8-1/8	8	9.4	R1/8	19.5	15	8	25.5	14	12	41	10
X6520 8-1/4	8	9.4	R1/4	19.8	15	10	25.5	14	15	44	10
X6520 10-1/4	10	10.7	R1/4	20.6	17.4	10	27.9	17	15	57	10
X6520 10-3/8	10	10.7	R3/8	20.9	17.4	11	27.9	17	19	65	10
X6520 12-1/4	12	9.5	R1/4	21.1	20	10	28.5	17	15	55	10
X6520 12-3/8	12	9.5	R3/8	20.9	20	11	28.5	17	19	65	10
X6520 12-1/2	12	9.5	R1/2	19.4	20	13	28.5	17	22	80	10

Products designed for industrial applications.
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Fittings Mod. X6430

BSPT Swivel Centre Tee





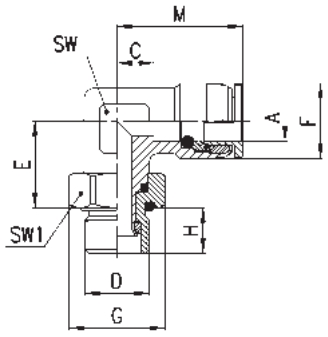
DIMENSIONS

Mod.	A	C	D	E	F	H	L	SW	SW1	Weight (g)	Package
X6430 4-1/8	4	4.3	R1/8	15.3	10	8	33.6	12	12	33	10
X6430 4-1/4	4	4.3	R1/4	15.8	10	10	33.6	12	15	41	10
X6430 6-1/8	6	8.8	R1/8	16.1	11.9	8	44.6	12	12	33	10
X6430 6-1/4	6	5.8	R1/4	18.6	13	10	38.6	14	15	45	10
X6430 8-1/8	8	8.3	R1/8	17.3	15	8	48.8	14	12	46	10
X6430 8-1/4	8	8.3	R1/4	18.5	15	10	48.8	14	15	54	10
X6430 10-1/4	10	10.7	R1/4	21.1	17.4	10	55.8	17	15	77	10
X6430 10-3/8	10	10.7	R3/8	20.9	17.4	11	55.8	17	19	84	10
X6430 12-1/4	12	9.5	R1/4	21.1	20	10	57	17	15	79	10
X6430 12-3/8	12	9.5	R3/8	20.9	20	11	57	17	19	87	10
X6430 12-1/2	12	15.6	R1/2	19.4	20	13	57	17	22	100	10

Fittings Mod. X6522

BSP Swivel Elbow





DIMENSIONS

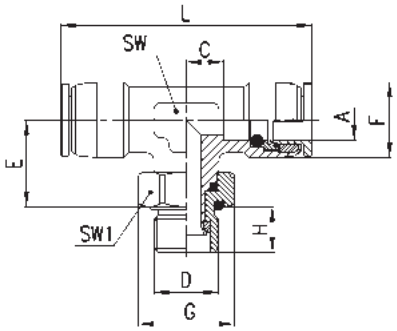
Mod.	A	C	D	E	F	G	H	M	SW	SW1	Weight (g)	Package
X6522 4-1/8	4	4.3	G1/8	15.3	10	15	6.5	16.8	12	14	22	10
X6522 4-1/4	4	4.3	G1/4	15.7	10	18.5	9	16.8	12	17	25	10
X6522 6-1/8	6	8.8	G1/8	15.3	11.9	15	6.5	22.3	12	14	26	10
X6522 6-1/4	6	5.8	G1/4	18.7	13	18.5	9	19.3	14	17	40	10
X6522 8-1/8	8	9.4	G1/8	19.5	15	15	6.5	25.5	14	14	43	10
X6522 8-1/4	8	9.4	G1/4	18.7	15	18.5	9	25.5	14	17	46	10
X6522 10-1/4	10	10.7	G1/4	19.5	17.4	18.5	9	27.9	17	17	59	10
X6522 10-3/8	10	10.7	G3/8	20.4	17.4	24	9	27.9	17	22	72	10
X6522 12-1/4	12	9.5	G1/4	20	20	18.5	9	28.5	17	17	63	10
X6522 12-3/8	12	9.5	G3/8	20.4	20	24	9	28.5	17	22	73	10
X6522 12-1/2	12	9.5	G1/2	20.4	20	30	9.5	28.5	17	27	83	10

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Fittings Mod. X6432

BSP Swivel Centre Tee



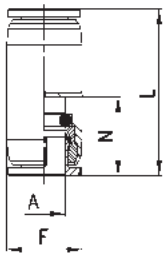


DIMENSIONS												
Mod.	A	C	D	E	F	G	H	L	SW	SW1	Weight (g)	Package
X6432 4-1/8	4	4.3	G1/8	15.3	10	15	6.5	33.6	12	14	33	10
X6432 4-1/4	4	4.3	G1/4	15.7	10	18.5	9	33.6	12	17	46	10
X6432 6-1/8	6	8.8	G1/8	16.1	11.9	15	6.5	44.6	12	14	35	10
X6432 6-1/4	6	5.8	G1/4	17.5	13	18.5	9	38.6	14	17	47	10
X6432 8-1/8	8	8.3	G1/8	17.3	15	15	6.5	48.8	14	14	52	10
X6432 8-1/4	8	8.3	G1/4	17.4	15	18.5	9	48.8	14	17	57	10
X6432 10-1/4	10	10.7	G1/4	20	17.4	18.5	9	55.8	17	17	79	10
X6432 10-3/8	10	10.7	G3/8	20.4	17.4	24	9	55.8	17	22	91	10
X6432 12-1/4	12	9.5	G1/4	20	20	18.5	9	57	17	17	82	10
X6432 12-3/8	12	9.5	G3/8	20.4	20	24	9	57	17	22	94	10
X6432 12-1/2	12	9.5	G1/2	20.4	20	30	9.5	57	17	27	115	10

Fittings Mod. X6580

Union Connector





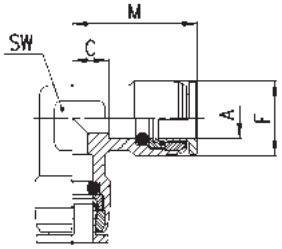
DIMENSIONS						
Mod.	A	F	L	N	Weight (g)	Package
X6580 4	4	10	26.5	12.5	10	10
X6580 6	6	12	28.4	13.5	15	10
X6580 8	8	15	33.7	16.1	26	10
X6580 10	10	18	36.4	17.2	39	10
X6580 12	12	20	41	19	54	10

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General terms and conditions for sale are available on www.camozzi.com.

Fittings Mod. X6550

Elbow Connector





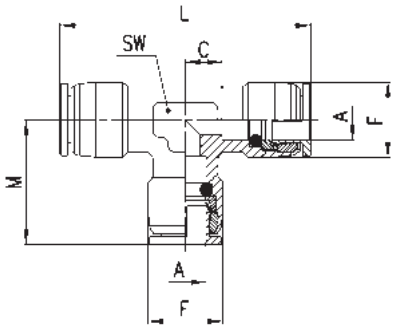
DIMENSIONS

Mod.	A	C	F	M	SW	Weight (g)	Package
X6550 4	4	7.8	11	20.3	12	22	10
X6550 6	6	8.8	11.9	22.3	12	23	10
X6550 8	8	8.4	15	24.5	12	28	10
X6550 10	10	8.7	17.4	25.9	14	42	10
X6550 12	12	9.5	20	28.5	17	58	10

Fittings Mod. X6540

Tee Connector





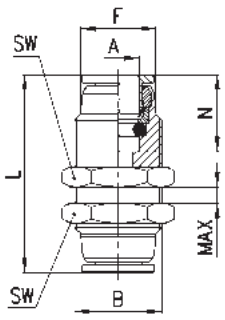
DIMENSIONS

Mod.	A	C	F	L	M	SW	Weight (g)	Package
X6540 4	4	8.8	11	42.6	21.3	12	32	10
X6540 6	6	8.8	11.9	44.6	22.3	12	33	10
X6540 8	8	8.4	15	49	24.5	12	44	10
X6540 10	10	8.7	17.4	51.8	25.9	14	54	10
X6540 12	12	9.5	20	57	28.5	17	80	10

Fittings Mod. X6590

Bulkhead Union Connector





DIMENSIONS

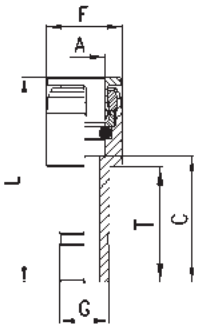
Mod.	A	B	F	L	N	MAX	SW	Weight (g)	Package
X6590 4	4	M11X1	9.7	29	12.5	6	14	17	10
X6590 6	6	M13X1	11.6	34	13.5	9	17	29	10
X6590 8	8	M16X1	14.7	37.2	16.1	9	19	40	10
X6590 10	10	M19X1	17.4	43.4	17.2	11	22	62	10
X6590 12	12	M22X1	20	50	19	15	27	103	10

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Fittings Mod. X6800

Reducer Tube/Stem





DIMENSIONS

Mod.	A	C	F	G	L	T	Weight (g)	Package
X6800 4-6	4	16.8	10	6	29.3	15.3	7	10
X6800 4-8	4	19.8	10	8	32.3	17.8	10	10
X6800 6-8	6	19.8	12	8	33.5	17.8	11	10
X6800 6-10	6	22.6	12	10	36	21.6	12	10
X6800 6-12	6	23	12	12	36.5	-	19	10
X6800 8-10	8	22.5	15	10	38.6	20	14	10
X6800 8-12	8	24.5	15	12	40.6	23	21	10
X6800 10-12	10	26	18	12	43.2	23	27	10

Products designed for industrial applications.
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Series 1000 rapid push-in fittings for plastic tubes

Tube external diameters: 5/3, 6/4, 8/6, 10/8, 12/10, 15/12,5 mm
Fittings threads: metric (M5, M6, M12x1, M12x1,25),
BSP (G1/8, G1/4, G3/8, G1/2), BSPT (R1/8, R1/4, R3/8, R1/2)

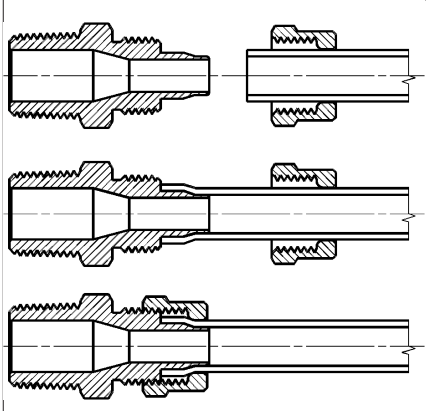


Series 1000 rapid push-in fittings can be easily installed.
The push-in locking nuts can be tightened both manually and with a spanner even in case of stiff tubes like the PA or the Hytrel Polyester.
The special shape of the guiding cone ensures that the tube cannot be accidentally cut.

GENERAL DATA

Materials	body and nut: nickel-plated brass O-ring: NBR thread seals: PTFE, PA, AL
Threads	GAS conical ISO 7 (BSPT) GAS cylindrical ISO 228 (BSP) M5 - M6 NPT and metric (available on request)
Pressure	the nominal pressure of the fittings is always higher than the pressure of the tube
Tube to connect	PA polyethylene braided PVC rilsan PU, Hytrel Polyester
Diameters	5/3 - 6/4 - 8/6 - 10/8 - 12/10 - 15/12,5 mm
Fluid	compressed air low pressure fluids
Temperature	-20°C ÷ 80°C NOTE: for a better use of the fitting we recommend to check the tubing specifications.

Fitting with connecting tube

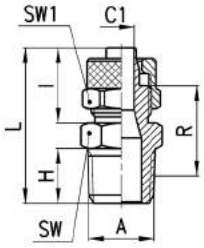


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Fittings Mod. 1510

Metric-BSPT Male Connector





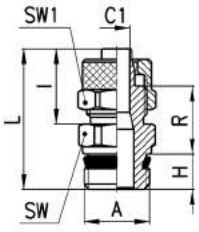
DIMENSIONS

Mod.	Tube	A	C1	H	I	L	R	SW	SW1	Weight (g)
1510 5/3-1/8	5/3	R1/8	2	7,5	12,5	24,5	14,5	12	8	10
1510 6/4-1/8	6/4	R1/8	3	7,5	15	27	16	12	12	15
1510 6/4-1/4	6/4	R1/4	3	11	15	31	18,5	14	12	19
1510 6/4-3/8	6/4	R3/8	3	11,5	15	31,5	18,5	17	12	22
1510 6/4-1/2	6/4	R1/2	3	14	15	34,5	20	22	12	38
1510 6/4-M12x1,25	6/4	M12X1,25	3	10	15	30	18	13	12	17
1510 8/6-1/8	8/6	R1/8	5	7,5	15	27	16	13	14	19
1510 8/6-1/4	8/6	R1/4	5	11	15	31	18,5	14	14	20
1510 8/6-3/8	8/6	R3/8	5	11,5	15	31,5	18,5	17	14	25
1510 8/6-1/2	8/6	R1/2	5	14	15	34,5	20	22	14	39
1510 10/8-1/8	10/8	R1/8	6,5	7,5	16,5	28,5	16,5	14	16	24
1510 10/8-1/4	10/8	R1/4	6,5	11	16,5	32,5	19	14	16	24
1510 10/8-3/8	10/8	R3/8	6,5	11,5	16,5	33	19	17	16	27
1510 10/8-1/2	10/8	R1/2	6,5	14	16,5	36	20,5	22	16	42
1510 12/10-3/8	12/10	R3/8	8,5	11,5	18	34,5	19	17	19	35
1510 12/10-1/2	12/10	R1/2	8,5	14	18	37,5	20,5	22	19	49
1510 15/12,5-1/2	15/12,5	R1/2	11	14	20	39,5	21	22	22	55

Fittings Mod. 1511

Metric Male Connector Sprint®





DIMENSIONS

Mod.	Tube	A	C1	H	I	L	R	SW	SW1	Weight (g)	
1511 5/3-M5	5/3	M5	2	4	12,5	21	10,5	8	8	5	*
1511 5/3-M6	5/3	M6	2	4	12,5	21	10,5	9	8	5	*
1511 5/3-1/8	5/3	G1/8	2	5,5	12,5	23,8	11,8	12	8	10	
1511 6/4-M5	6/4	M5	3	4	13,5	22	10,5	8	9	6	*
1511 6/4-M6	6/4	M6	3	4	13,5	22	10,5	9	9	7	*
1511 6/4-1/8	6/4	G1/8	3	5,5	15	26,3	13,3	12	12	15	
1511 6/4-1/4	6/4	G1/4	3	7	15	28	13,5	14	12	16	
1511 6/4-3/8	6/4	G3/8	3	8	15	29,3	13,8	19	12	27	
1511 8/6-1/8	8/6	G1/8	5	5,5	15	26,3	13,3	12	14	17	
1511 8/6-1/4	8/6	G1/4	5	7	15	28	13,5	14	14	18	
1511 8/6-3/8	8/6	G3/8	5	8	15	29,3	13,8	19	14	27	
1511 10/8-1/8	10/8	G1/8	6,5	5,5	16,5	27,8	13,8	14	16	23	
1511 10/8-1/4	10/8	G1/4	6,5	7	16,5	29,5	14	14	16	25	
1511 10/8-3/8	10/8	G3/8	6,5	8	16,5	30,8	14,3	19	16	30	
1511 10/8-1/2	10/8	G1/2	6,5	9	16,5	32,5	15	22	16	36	
1511 12/10-3/8	12/10	G3/8	8,5	8	18	32,3	14,3	19	19	39	
1511 12/10-1/2	12/10	G1/2	8,5	9	18	34	15	22	19	42	
1511 15/12,5-1/2	15/12,5	G1/2	11	9	20	36	15,5	22	22	52	

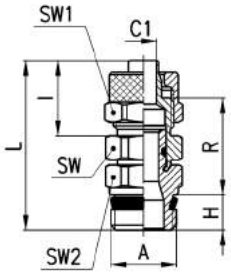
* = with O-Ring

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Fittings Mod. 1560

Swivel Male Connector Sprint®





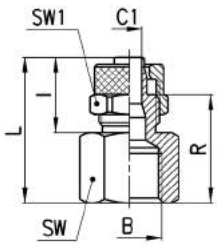
DIMENSIONS

Mod.	Tube	A	C1	H	I	L	R	SW	SW1	SW2	Weight (g)
1560 6/4-1/8	6/4	G1/8	3	5,5	15	31	18	12	12	12	19
1560 6/4-1/4	6/4	G1/4	3	7	15	32,5	18	12	12	14	25
1560 8/6-1/8	8/6	G1/8	5	5,5	15	32	19	13	14	12	21
1560 8/6-1/4	8/6	G1/4	5	7	15	33,5	19	13	14	14	26
1560 10/8-1/4	10/8	G1/4	6,5	7	16,5	34,5	19	14	16	14	27
1560 10/8-3/8	10/8	G3/8	6,5	8	16,5	36	19,5	14	16	19	38
1560 12/10-3/8	12/10	G3/8	6,5	8	18	38	20	17	19	19	46

Fittings Mod. 1463

BSP Female Connector





DIMENSIONS

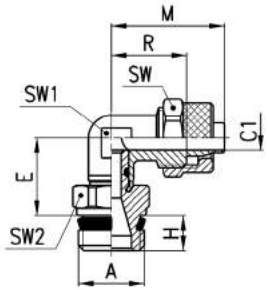
Mod.	Tube	B	C1	I	L	R	SW	SW1	Weight (g)
1463 5/3-1/8	5/3	G1/8	2	12.5	22,5	16	13	8	10
1463 6/4-1/8	6/4	G1/8	3	15	25	17,5	13	12	14
1463 6/4-1/4	6/4	G1/4	3	15	26,5	19	17	12	21
1463 6/4-3/8	6/4	G3/8	3	15	27,5	20	20	12	25
1463 8/6-1/8	8/6	G1/8	5	15	25	17,5	13	14	16
1463 8/6-1/4	8/6	G1/4	5	15	26,5	19	17	14	22
1463 8/6-3/8	8/6	G3/8	5	15	27,5	20	20	14	26
1463 10/8-1/8	10/8	G1/8	6,5	16,5	21,5	13	14	16	19
1463 10/8-1/4	10/8	G1/4	6,5	16,5	28	19,5	17	16	28
1463 10/8-3/8	10/8	G3/8	6,5	16,5	29	20,5	20	16	31
1463 10/8-1/2	10/8	G1/2	6,5	16,5	33	24,5	24	16	43
1463 12/10-3/8	12/10	G3/8	8,5	18	30,5	20,5	20	19	37

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Fittings Mod. 1541

Swivel Male Elbow Sprint®



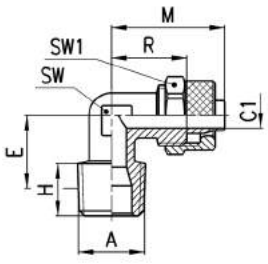


DIMENSIONS											
Mod.	Tube	A	C1	E	H	M	R	SW	SW1	SW2	Weight (g)
1541 6/4-1/8	6/4	G1/8	3	15	5,5	22,5	15	12	10	12	22
1541 6/4-1/4	6/4	G1/4	3	15	7	22,5	15	12	10	14	27
1541 8/6-1/8	8/6	G1/8	5	15	5,5	22,5	15	14	10	12	23
1541 8/6-1/4	8/6	G1/4	5	15	7	22,5	15	14	10	14	28
1541 10/8-1/4	10/8	G1/4	6,5	16	7	25,5	17	16	12	14	35

Fittings Mod. 1500

Fix Metric-BSPT Male Elbow





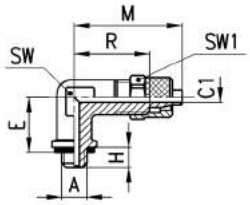
DIMENSIONS										
Mod.	Tube	A	C1	E	H	M	R	SW	SW1	Weight (g)
1500 5/3-1/8	5/3	R1/8	2	13	7,5	21,5	15	8	8	11
1500 6/4-1/8	6/4	R1/8	3	13	7,5	22,5	15	8	12	15
1500 6/4-1/4	6/4	R1/4	3	15,5	11	22,5	15	10	12	21
1500 6/4-3/8	6/4	R3/8	3	17	11,5	23,5	16	12	12	27
1500 6/4-M12x1,25	6/4	M12x1,25	3	14	10	22,5	15	10	12	18
1500 8/6-1/8	8/6	R1/8	5	13	7,5	22,5	15	10	14	19
1500 8/6-1/4	8/6	R1/4	5	15,5	11	22,5	15	10	14	21
1500 8/6-3/8	8/6	R3/8	5	17	11,5	24	16	12	14	29
1500 8/6-1/2	8/6	R1/2	5	21,5	14	27	19	16	14	48
1500 10/8-1/8	10/8	R1/8	6,5	15	7,5	25,5	17	12	16	29
1500 10/8-1/4	10/8	R1/4	6,5	17	11	25,5	17	12	16	29
1500 10/8-3/8	10/8	R3/8	6,5	16,5	11,5	25,5	17	12	16	33
1500 10/8-1/2	10/8	R1/2	6,5	21	14	28,5	20	16	16	58
1500 12/10-3/8	12/10	R3/8	8,5	19	11,5	30	20	14	19	44
1500 12/10-1/2	12/10	R1/2	8,5	21	14	30,5	20,5	16	19	59
1500 15/12,5-1/2	15/12,5	R1/2	11	21	14	34	22,5	16	22	67

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Fittings Mod. 1501 5/3-M5

Metric Fix Male Elbow





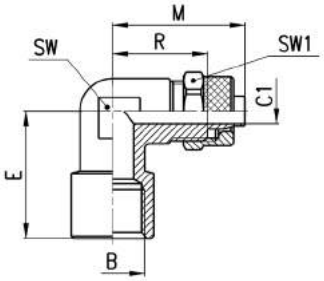
DIMENSIONS

Mod.	Tube	A	C1	E	H	M	R	SW	SW1	Weight (g)
1501 5/3-M5	5/3	M5	2	11	4	21,5	15	8	8	10

Fittings Mod. 1493

BSP Female Elbow





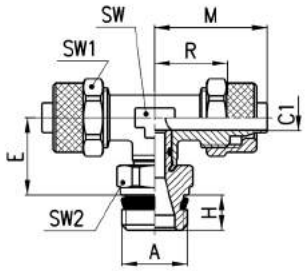
DIMENSIONS

Mod.	Tube	B	C1	E	M	R	SW	SW1	Weight (g)
1493 6/4-1/8	6/4	G1/8	3	19	22.5	15	10	12	20
1493 6/4-1/4	6/4	G1/4	3	23,5	26	18.5	14	12	34
1493 8/6-1/8	8/6	G1/8	5	19	22.5	15	10	14	21
1493 8/6-1/4	8/6	G1/4	5	23,5	26	19	14	14	34
1493 10/8-1/4	10/8	G1/4	6.5	23,5	27.5	18	14	16	39
1493 12/10-3/8	12/10	G3/8	8.5	26	30.5	20.5	16	19	53

Fittings Mod. 1431

Swivel Male Tee Sprint®





DIMENSIONS

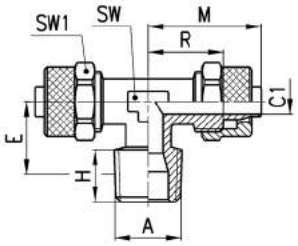
Mod.	Tube	A	C1	E	H	M	R	SW	SW1	SW2	Weight (g)
1431 6/4-1/8	6/4	G1/8	3	15	5,5	22,5	15	10	12	12	32
1431 6/4-1/4	6/4	G1/4	3	15	7	22,5	15	10	12	14	38
1431 8/6-1/8	8/6	G1/8	5	15	5,5	22,5	15	10	14	12	36
1431 8/6-1/4	8/6	G1/4	5	15	7	22,5	15	10	14	14	41
1431 10/8-1/4	10/8	G1/4	6,5	16	7	25,5	17	12	16	14	54

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Fittings Mod. 1410

BSPT Fix Male Tee



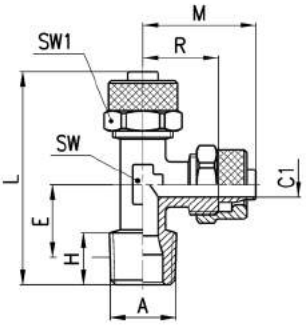


DIMENSIONS										
Mod.	Tube	A	C1	E	H	M	R	SW	SW1	Weight (g)
1410 5/3-1/8	5/3	R1/8	2	12,5	7,5	21,5	15	8	8	16
1410 6/4-1/8	6/4	R1/8	3	12,5	7,5	22,5	15	8	12	25
1410 6/4-1/4	6/4	R1/4	3	15,5	11	22,5	15	10	12	32
1410 8/6-1/8	8/6	R1/8	5	13	7,5	22,5	15	10	14	31
1410 8/6-1/4	8/6	R1/4	5	15,5	11	22,5	15	10	14	35
1410 10/8-1/8	10/8	R1/8	6,5	15	7,5	25,5	17	12	16	47
1410 10/8-1/4	10/8	R1/4	6,5	17	11	25,5	17	12	16	50
1410 10/8-1/2	10/8	R1/2	6,5	21,5	14	28,5	20	16	16	80
1410 12/10-3/8	12/10	R3/8	8,5	19	11,5	30	20	14	19	77
1410 12/10-1/2	12/10	R1/2	8,5	21,5	14	30,5	20,5	16	19	92
1410 15/12,5-1/2	15/12,5	R1/2	11	21,5	14	34	22,5	16	22	107

Fittings Mod. 1420

Lateral BSPT Male Tee





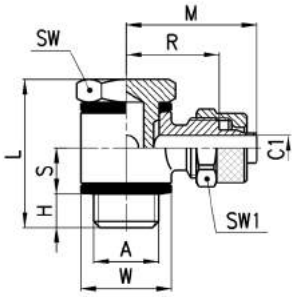
DIMENSIONS											
Mod.	Tube	A	C1	E	H	L	M	R	SW	SW1	Weight (g)
1420 5/3-1/8	5/3	R1/8	2	12,5	7,5	37,5	21,5	15	8	8	15
1420 6/4-1/8	6/4	R1/8	3	12,5	7,5	38,5	22,5	15	8	12	23
1420 6/4-1/4	6/4	R1/4	3	15,5	11	43	22,5	15	10	12	29
1420 8/6-1/8	8/6	R1/8	5	13	7,5	39	22,5	15	10	14	31
1420 8/6-1/4	8/6	R1/4	5	15,5	11	43	22,5	15	10	14	34
1420 10/8-1/8	10/8	R1/8	6,5	15	7,5	43,5	25,5	17	12	16	46
1420 10/8-1/4	10/8	R1/4	6,5	17	11	47	25,5	17	12	16	50

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Fittings Mod. 1521

Complete Metric-BSP
Single Adjustable Banjo





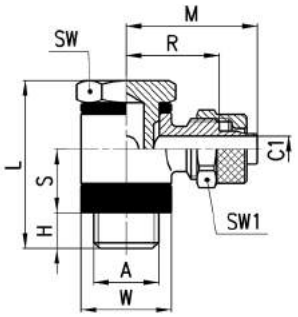
DIMENSIONS

Mod.	Tube	A	C1	H	L	S	M	R	W	SW	SW1	Weight (g)
1521 5/3-M5	5/3	M5	2	3	18	4,5	17	10,5	Ø 9	8	8	10
1521 5/3-1/8	5/3	G1/8	2	6	27	8,5	22,5	16	Ø 14	14	8	26
1521 6/4-M5	6/4	M5	3	3	18	4,5	18	10,5	Ø 9	8	9	11
1521 6/4-1/8	6/4	G1/8	3	6	27	8,5	24	16,5	Ø 14	14	12	31
1521 6/4-1/4	6/4	G1/4	3	8	29,5	8,5	26	18,5	Ø 18	17	12	48
1521 6/4-3/8	6/4	G3/8	3	8	30	8,5	28	20,5	Ø 21	19	12	57
1521 8/6-1/8	8/6	G1/8	5	6	27	8,5	24	16,5	Ø 14	14	14	34
1521 8/6-1/4	8/6	G1/4	5	8	29,5	8,5	26	18,5	Ø 18	17	14	46
1521 8/6-3/8	8/6	G3/8	5	8	30	8,5	28	20,5	Ø 21	19	14	64

Fittings Mod. 1525

Complete Single
Adjustable Long Banjo





DIMENSIONS

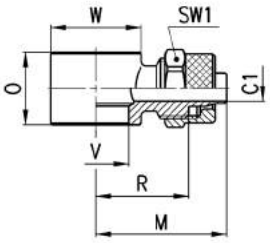
Mod.	Tube	A	C1	H	L	S	M	R	W	SW	SW1	Weight (g)
1525 6/4-1/8	6/4	G1/8	3	6	31	12,5	24	16,5	Ø14	14	12	35
1525 6/4-1/4	6/4	G1/4	3	8	33,5	12,5	26	18,5	Ø18	17	12	48
1525 6/4-3/8	6/4	G3/8	3	8	34	12,5	28	20,5	Ø21	19	12	60
1525 8/6-1/8	8/6	G1/8	5	6	31	12,5	24	16,5	Ø14	14	14	35
1525 8/6-1/4	8/6	G1/4	5	8	33,5	12,5	26	18,5	Ø18	17	14	54
1525 8/6-3/8	8/6	G3/8	5	8	34	12,5	28	20,5	Ø21	19	14	64
1525 10/8-1/8	10/8	G1/8	6,5	6	31	12,5	25	16,5	Ø14	14	16	38
1525 10/8-1/4	10/8	G1/4	6,5	8	33,5	12,5	27	18,5	Ø18	17	16	57
1525 10/8-3/8	10/8	G3/8	6,5	8	34	12,5	29,5	21	Ø21	19	16	69
1525 10/8-1/2	10/8	G1/2	6,5	9	35	12,5	32	23,5	Ø26	27	16	112
1525 12/10-3/8	12/10	G3/8	8	8	34	12,5	31,5	21,5	Ø21	19	19	77
1525 12/10-1/2	12/10	G1/2	8,5	9	35	12,5	33,5	23,5	Ø26	27	19	111
1525 15/12,5-1/2	15/12,5	G1/2	11	9	35	12,5	36,5	25	Ø26	27	22	120

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Fittings Mod. 1610

Single Banjo





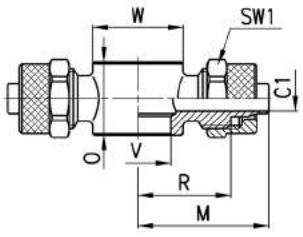
DIMENSIONS

Mod.	Tube	C1	M	O	R	V	W	SW1	Weight (g)	assembled with Mod.
1610 5/3-M5	5/3	2	17	9	10.5	5.1	Ø 9	8	8	1631, 1635
1610 5/3-M6	5/3	2	17	9	10.5	5.1	Ø 9	8	7	SCU, SVU, SCO...
1610 5/3-1/8	5/3	2	22.5	14.5	16	9.8	Ø 14	8	13	1631, 1635, SCU, SVU, SCO...
1610 6/4-M5	6/4	3	18	9	10.5	5.1	Ø 9	9	8	1631, 1635
1610 6/4-M6	6/4	2	18	9	10.5	5.1	Ø 9	9	8	SCU, SVU, SCO...
1610 6/4-1/8	6/4	3	24	14.5	16.5	9.8	Ø 14	12	18	1631, 1635, SCU, SVU, SCO...
1610 6/4-1/4	6/4	3	26	14.5	18.5	13.2	Ø 18	12	21	1631, 1635, SCU, SVU, SCO...
1610 6/4-3/8	6/4	3	28	14.5	20.5	16.7	Ø 21	12	22	1631, 1635, SCU, SVU, SCO...
1610 8/6-1/8	8/6	5	24	14.5	16.5	9.8	Ø 14	14	19	1631, 1635, SCU, SVU, SCO...
1610 8/6-1/4	8/6	5	26	14.5	18.5	13.2	Ø 18	14	22	1631, 1635, SCU, SVU, SCO...
1610 8/6-3/8	8/6	5	28	14.5	20.5	16.7	Ø 21	14	25	1631, 1635, SCU, SVU, SCO...
1610 10/8-1/8	10/8	6.5	25	14.5	16.5	9.8	Ø 14	16	25	1635, SCU, SVU, SCO...
1610 10/8-1/4	10/8	6.5	27	14.5	18.5	13.2	Ø 18	16	24	1635, SCU, SVU, SCO...
1610 10/8-3/8	10/8	6.5	29.5	14.5	21	16.7	Ø 21	16	28	1635, SCU, SVU, SCO...
1610 10/8-1/2	10/8	6.5	32	14.5	23.5	21	Ø 26	16	35	1635
1610 12/10-3/8	12/10	8	31.5	14.5	21.5	16.7	Ø 21	19	36	1635, SCU, SVU, SCO...
1610 12/10-1/2	12/10	8.5	33.5	14.5	23.5	21	Ø 26	19	40	1635
1610 15/12,5-1/2	15/12,5	11	36.5	14.5	25	21	Ø 26	22	48	1635

Fittings Mod. 1620

Double Banjo





DIMENSIONS

Mod.	Tube	C1	M	O	R	V	W	SW1	Weight (g)	assembled with Mod.
1620 6/4-M5	6/4	3	18	9	10,5	5,1	Ø 9	9	12	1631, 1635
1620 6/4-1/8	6/4	3	24	14,5	16,5	9,8	Ø 14	12	29	1631, 1635, SCU, SVU, SCO...
1620 6/4-1/4	6/4	3	26	14,5	18,5	13,2	Ø 18	12	31	1631, 1635, SCU, SVU, SCO...
1620 8/6-1/8	8/6	5	24	14,5	16,5	9,8	Ø 14	14	31	1631, 1635, SCU, SVU, SCO...
1620 8/6-1/4	8/6	5	26	14,5	18,5	13,2	Ø 18	14	34	1631, 1635, SCU, SVU, SCO...

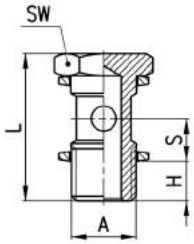
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Fittings Mod. 1631 01

Single Banjo Stem



Assembled with adjustable fittings Mod. 6610; 6620; 1610; 1620; 2023; 1170



DIMENSIONS

Mod.	A	H	L	S	SW	Weight (g)	
1631 01-M5	M5	4	18	5,5	8	3	⋆
1631 01-1/8	G1/8	6	27	8,5	14	13	
1631 01-1/4	G1/4	8	29,5	8,5	17	24	
1631 01-3/8	G3/8	8	30	8,5	19	35	
1631 01-1/2	G1/2	9	31	8,5	27	63	

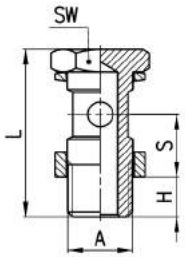
⋆ = zinc-plated steel

Fittings Mod. 1635 01

Single Long Banjo Stem



Assembled with adjustable fittings Mod. 6610; 6620; 1610; 1620; 2023; 1170



DIMENSIONS

Mod.	A	H	L	S	SW	Weight (g)	
1635 01-1/8	G1/8	6	31	12,5	14	15	
1635 01-1/4	G1/4	8	33,5	12,5	17	27	
1635 01-3/8	G3/8	8	34	12,5	19	37	
1635 01-1/2	G1/2	9	35	12,5	27	71	
1635 01-M12x1,25	M12x1,25	8	33,5	12,5	17	27	⋆
1635 01-M12x1,5	M12x1,5	8	33,5	12,5	17	27	⋆

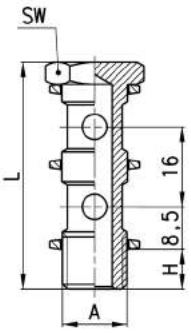
* = models that can be assembled with 1/4 banjo fittings

Fittings Mod. 1631 02

Double Banjo Stem



Assembled with adjustable fittings Mod. 6610; 6620; 1610; 1620; 2023; 1170



DIMENSIONS

Mod.	A	H	L	SW	Weight (g)
1631 02-1/8	G1/8	6	43	14	18
1631 02-1/4	G1/4	8	45,5	17	33
1631 02-3/8	G3/8	8	46	19	48

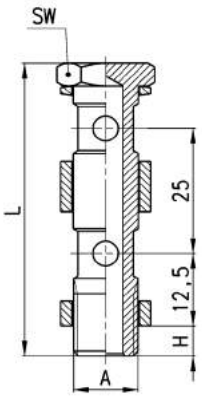
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Fittings Mod. 1635 02

Double Long Banjo Stem

Assembled with adjustable fittings Mod. 6610; 6620; 1610; 1620; 2023; 1170





DIMENSIONS

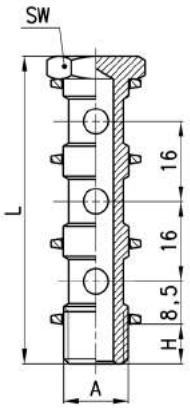
Mod.	A	H	L	SW	Weight (g)
1635 02-1/8	G1/8	6	56	14	26
1635 02-1/4	G1/4	8	58,5	17	33
1635 02-3/8	G3/8	8	59	19	64
1635 02-1/2	G1/2	9	60	27	111

Fittings Mod. 1631 03

Triple Banjo Stem

Assembled with adjustable fittings Mod. 6610; 6620; 1610; 1620; 2023; 1170





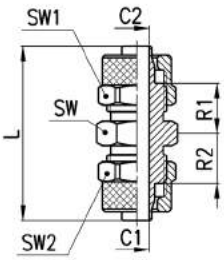
DIMENSIONS

Mod.	A	H	L	SW	Weight (g)
1631 03-1/8	G1/8	6	59	14	24
1631 03-1/4	G1/4	8	61,5	17	42
1631 03-3/8	G3/8	8	62	19	62

Fittings Mod. 1580

Union Connector





DIMENSIONS

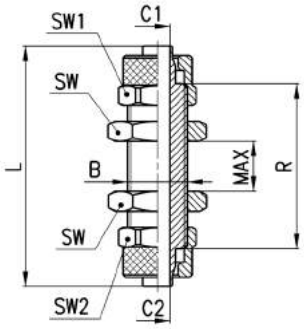
Mod.	Tube	C1	C2	L	R1	R2	SW	SW1	SW2	Weight (g)
1580 5/3	5/3	2	2	28,5	7,5	7,5	8	8	8	8
1580 6/4	6/4	3	3	34,5	10	10	12	12	12	22
1580 8/6	8/6	5	5	34,5	9,75	9,75	13	14	14	28
1580 10/8	10/8	6,5	6,5	38	10,5	10,5	14	16	16	38
1580 12/10	12/10	8,5	8,5	41	10,5	10,5	17	19	19	55
1580 15/12,5	15/12,5	11	11	45	11	11	22	22	22	80
1580 8/6-6/4	8/6-6/4	5	3	34,5	9,75	9,75	13	12	14	24
1580 10/8-6/4	10/8-6/4	6,5	3	36,5	10,5	10	14	12	16	31

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Fittings Mod. 1590

Bulkhead Union Reducer





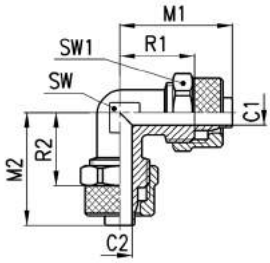
DIMENSIONS

Mod.	Tube	B	C1	C2	L	R	MAX	SW	SW1	SW2	Weight (g)
1590 5/3	5/3	M7x0,75	2	2	40	27	9	8	8	8	12
1590 6/4	6/4	M10x1	3	3	48	33	14	14	12	12	33
1590 8/6	8/6	M12x1	5	5	48	33	12	17	14	14	43
1590 10/8	10/8	M14x1	6,5	6,5	48	31	10	17	16	16	52
1590 12/10	12/10	M16x1	8,5	8,5	53	33	10	19	19	19	71
1590 6/4-5/3	6/4-5/3	M10x1	3	2	48	34	14	14	12	12	33
1590 8/6-6/4	8/6-6/4	M12x1	5	3	48	33	12	17	14	14	44

Fittings Mod. 1550

Elbow Connector





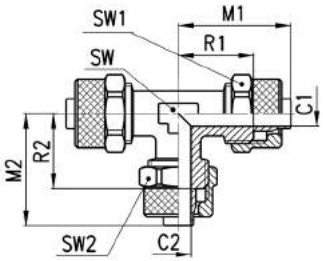
DIMENSIONS

Mod.	Tube	C1	C2	M1	M2	R1	R2	SW	SW1	Weight (g)
1550 6/4	6/4	3	3	22,5	22,5	15	15	8	12	21
1550 8/6	8/6	5	5	22,5	22,5	15	15	10	14	27
1550 10/8	10/8	6,5	6,5	25,5	25,5	17	17	12	16	40
1550 12/10	12/10	8,5	8,5	30	30	20	20	14	19	61
1550 15/12,5	15/12,5	11	11	34	34	22,5	22,5	16	22	88

Fittings Mod. 1540

Tee Connector





DIMENSIONS

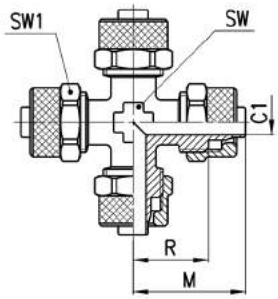
Mod.	Tube	C1	C2	M1	M2	R1	R2	SW	SW1	SW2	Weight (g)
1540 5/3	5/3	2	2	21,5	21,5	15	15	8	8	8	17
1540 6/4	6/4	3	3	22,5	22,5	15	15	8	12	12	31
1540 8/6	8/6	5	5	22,5	22,5	15	15	10	14	14	39
1540 10/8	10/8	6,5	6,5	25,5	25,5	17	17	12	16	16	58
1540 12/10	12/10	8,5	8,5	30	30	20	20	14	19	19	90
1540 15/12,5	15/12,5	11	11	34	34	22,5	22,5	16	22	22	128
1540 8/6-6/4	8/6-6/4	5	3	22,5	22,5	15	15	10	14	12	38
1540 10/8-6/4	10/8-6/4	6,5	3	25,5	23,5	17	16,5	12	16	12	50
1540 10/8-8/6	10/8-8/6	6,5	5	25,5	24	17	16,5	12	16	14	53

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Fittings Mod. 1600

Cross Connector





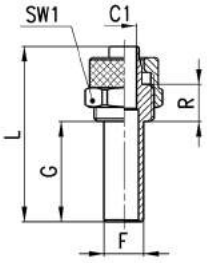
DIMENSIONS

Mod.	Tube	C1	M	R	SW	SW1	Weight (g)
1600 6/4	6/4	3	22,5	15	8	12	41
1600 8/6	8/6	5	22,5	15	10	14	52

Fittings Mod. 1470

Adaptor with Junction





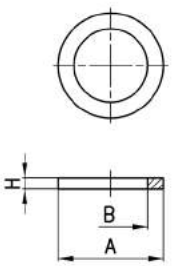
DIMENSIONS

Mod.	Tube	F	C1	G	L	R	SW1	Weight (g)
1470 6/4	6/4	6	3	20	35	7,5	12	11
1470 8/6	8/6	8	5	20	35	7,5	14	15

Accessories Mod. 2651

Aluminium Washer





DIMENSIONS

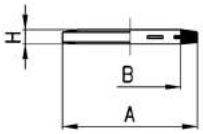
Mod.	A	B	H	Weight (g)
2651 1/8	14	9,8	1,5	1
2651 1/4	18	13,2	1,5	1
2651 3/8	22	16,7	1,5	1
2651 1/2	26	20,9	1,5	1
2651 1	38,5	33,4	1,5	2

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Accessories Mod. 2661

Plastic Washer



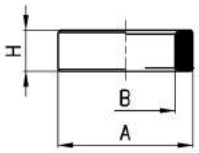


DIMENSIONS				
Mod.	A	B	H	Weight (g)
2661 M3	4,9	2,8	0,7	1
2661 M5	8	5,2	1	1
2661 M6	9	6,2	1	1
2661 1/8	14	10,2	1,9	1
2661 1/4	18	13,5	1,9	1
2661 3/8	21	16,5	2,1	1
2661 1/2	26	21,2	1,9	1

Accessories Mod. 2665

Plastic Washer



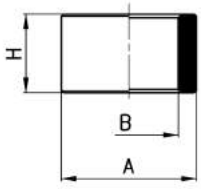


DIMENSIONS				
Mod.	A	B	H	Weight (g)
2665 1/8	14	9,8	5	1
2665 1/4	18	13,2	5	1
2665 3/8	21	16,8	5	1
2665 1/2	26	21,1	5	1

Accessories Mod. 2669

Plastic Washer





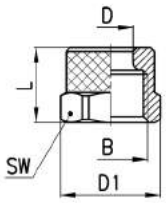
DIMENSIONS				
Mod.	A	B	H	Weight (g)
2669 1/8	14	9,8	10	1
2669 1/4	18	13,2	10	2
2669 3/8	21	16,8	10	2
2669 1/2	26	21,1	10	2

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Accessories Mod. 1703

Blocking nut





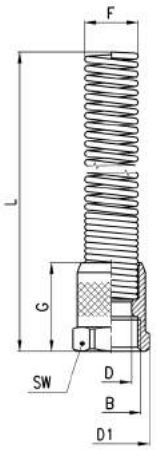
DIMENSIONS

Mod.	Tube	B	D	D1	L	SW1	Weight (g)
1703 5/3-M7x0,75	5/3	M7x0,75	5,1	8,8	8,5	8	1
1703 6/4-M8x0,75	6/4	M8x0,75	6,1	9,8	8,5	9	2
1703 6/4-M10x1	6/4	M10x1	6,1	13,3	10	12	4
1703 8/6-M12x1	8/6	M12x1	8,2	15,5	10	14	5
1703 10/8-M14x1	10/8	M14x1	10,15	17,5	13	16	8
1703 12/10-M16x1	12/10	M16x1	12,2	21	13,5	19	12
1703 15/12,5-M20x1	15/12,5	M20x1	15,2	24,5	16	22	15

Accessories Mod. 1723

Blocking nut with metal spring





DIMENSIONS

Mod.	Tube	B	F	D	D1	G	L	SW	Weight (g)
1723 6/4-M10x1	6/4	M10x1	8,9	6,1	13,3	18	90,5	12	15
1723 8/6-M12x1	8/6	M12x1	10,9	8,2	15,5	18	94,5	14	23
1723 10/8-M14x1	10/8	M14x1	12,5	10,15	17,5	22	96,5	16	29
1723 12/10-M16x1	12/10	M16x1	15,5	12,2	21	23,5	108	19	46
1723 15/12,5-M20x1	15/12,5	M20x1	18,5	15,2	24,5	28	120	22	57

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Series 1000 universal nose fittings

Nose fittings for plastic, copper and brass tubes: ø 4, 6, 8, 10, 12 mm
Fittings threads: BSP (G1/8, G1/4),
BSPT (R1/8, R1/4, R3/8, R1/2)



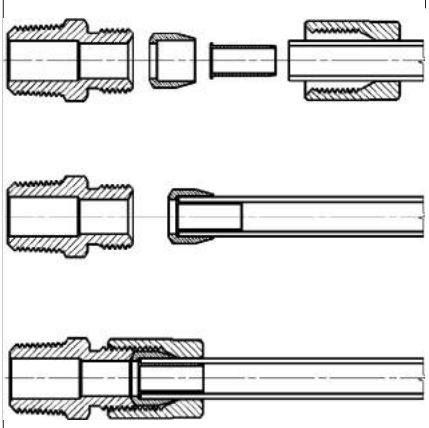
Series 1000 nose fittings are used with plastic tubes as well as with copper, brass, steel and aluminium tubes. These fittings, which are suitable for several applications, can be used within pneumatic, oil-pressure and low-pressure hydraulic circuits.

The fittings seats, noses and nuts comply with the DIN 3870-3861 standards.

GENERAL DATA

Material	nickel-plated brass
Threads	GAS, conical ISO 7 (BSPT) GAS, cylindrical ISO 228 (BSP)
Pressure	refer to operating pressure of tubes, max pressure 40 bar
Connecting tube	annealed copper and plastic tubes (with reinforcement)
Diameters	4 - 6 - 8 - 10 - 12 mm
Fluid	compressed air and other low pressure fluids
Temperature	see data for tubing used

Fittings with connecting tube

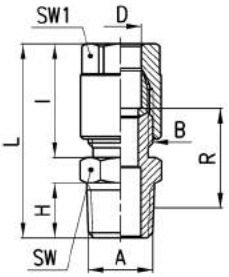


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Fittings Mod. 1050

BSPT Male Connector





DIMENSIONS

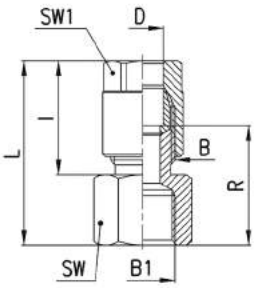
Mod.	D	A	B	H	I	L	R	SW	SW1	Weight (g)	
1050 4-1/8	4	R1/8	1/8	7,5	19	31	14	12	12	19	
1050 6-1/8	6	R1/8	1/8	7,5	19	31	14	12	12	18	
1050 6-1/4	6	R1/4	1/8	11	19	35	16,5	14	12	23	
1050 8-1/8	8	R1/8	1/4	7,5	23	35	15,5	14	14	29	
1050 8-1/4	8	R1/4	1/4	11	23	39	18	14	14	33	
1050 8-3/8	8	R3/8	1/4	11,5	23	39,5	18	17	14	40	
1050 10-1/4	10	R1/4	3/8	11	25,5	41,5	18	17	17	51	
1050 10-3/8	10	R3/8	3/8	11,5	25,5	42	18	17	17	55	
1050 10-1/2	10	R1/2	3/8	14	25,5	45	18	22	17	65	
1050 12-1/4	12	R1/4	M18x1,5	11	24,5	40,5	12	19	19	56	*
1050 12-3/8	12	R3/8	M18x1,5	11,5	24,5	41	12	19	19	58	*
1050 12-1/2	12	R1/2	M18x1,5	14	24,5	44	12	22	19	68	*

* = with bi-conical olive

Fittings Mod. 1063

BSP Female Connector





DIMENSIONS

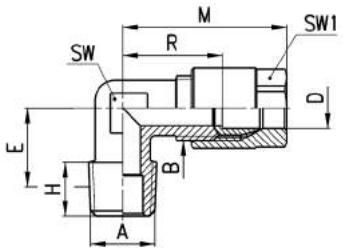
Mod.	D	B1	B	I	L	R	SW	SW1	Weight (g)
1063 4-1/8	4	G1/8	1/8	19	29	18,5	13	12	19
1063 6-1/8	6	G1/8	1/8	19	29	18,5	13	12	18
1063 6-1/4	6	G1/4	1/8	19	30,5	20	17	12	25
1063 8-1/8	8	G1/8	1/4	23	33	20	14	14	31
1063 8-1/4	8	G1/4	1/4	23	34,5	21,5	17	14	35

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Fittings Mod. 1020

BSPT Fix Male Elbow





DIMENSIONS

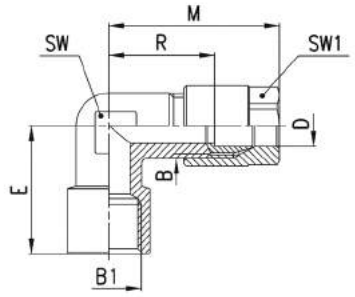
Mod.	D	A	B	E	H	M	R	SW	SW1	Weight (g)	
1020 4-1/8	4	R1/8	1/8	11,5	7,5	29,5	19	9	12	21	
1020 6-1/8	6	R1/8	1/8	11,5	7,5	29,5	19	9	12	19	
1020 6-1/4	6	R1/4	1/8	13,5	11	29,5	19	12	12	27	
1020 8-1/8	8	R1/8	1/4	11,5	7,5	33	20	11	14	35	
1020 8-1/4	8	R1/4	1/4	13,5	11	33	20	12	14	36	
1020 8-3/8	8	R3/8	1/4	15,5	11,5	35	22	14	14	50	
1020 10-1/4	10	R1/4	3/8	15	11	38	22,5	13	17	59	
1020 10-3/8	10	R3/8	3/8	15,5	11,5	38	22,5	14	17	58	
1020 10-1/2	10	R1/2	3/8	16	14	38	22,5	16	17	78	
1020 12-1/4	12	R1/4	M18x1,5	15	11	37	16,5	15	19	66	*
1020 12-3/8	12	R3/8	M18x1,5	15	11,5	37	16,5	15	19	66	*
1020 12-1/2	12	R1/2	M18x1,5	16	14	37	16,5	16	19	75	*

* = with bi-conical olive

Fittings Mod. 1093

BSP Female Elbow





DIMENSIONS

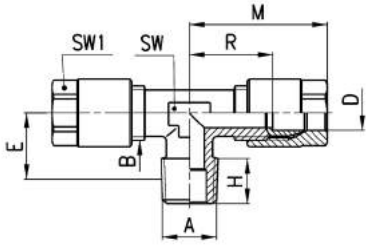
Mod.	D	B1	B	E	M	R	SW	SW1	Weight (g)
1093 4-1/8	4	G1/8	1/8	19	29,5	18,5	12	12	31
1093 6-1/8	6	G1/8	1/8	19	29,5	19	12	12	25
1093 6-1/4	6	G1/4	1/8	23	30,5	20	13	12	39
1093 8-1/8	8	G1/8	1/4	19	33	20	11	14	39
1093 8-1/4	8	G1/4	1/4	23	35	22	13	14	44

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Fittings Mod. 1000

BSPT Fix Male Tee





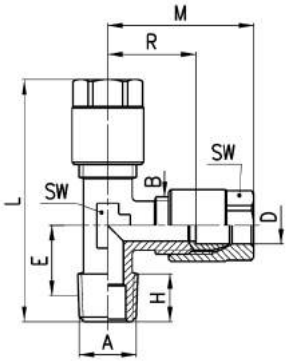
DIMENSIONS

Mod.	D	A	B	E	H	M	R	SW	SW1	Weight (g)
1000 4-1/8	4	R1/8	1/8	11,5	7,5	29,5	19	9	12	35
1000 6-1/8	6	R1/8	1/8	11,5	7,5	29,5	19	9	12	33
1000 8-1/4	8	R1/4	1/4	13,5	11	33	20	12	14	63
1000 10-1/4	10	R1/4	3/8	15	11	38	22,5	13	17	104

Fittings Mod. 1010

Lateral BSPT Fix Male Tee





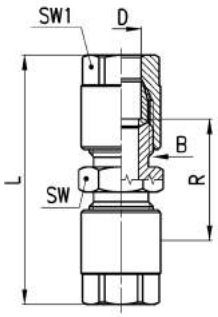
DIMENSIONS

Mod.	D	A	B	E	H	L	M	R	SW	SW1	Weight (g)
1010 4-1/8	4	R1/8	1/8	11,5	7,5	48	29,5	19	9	12	37
1010 6-1/8	6	R1/8	1/8	11,5	7,5	48	29,5	19	9	12	33
1010 8-1/4	8	R1/4	1/4	13,5	11	54,5	33	20	12	14	61
1010 10-1/4	10	R1/4	3/8	15	11	61,5	38	22,5	13	17	103

Fittings Mod. 1230

Union Connector





DIMENSIONS

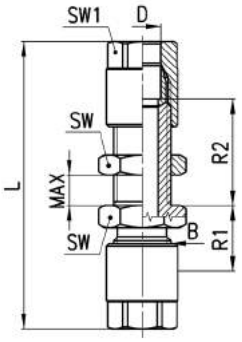
Mod.	D	B	L	R	SW	SW1	Weight (g)	
1230 4	4	1/8	42,5	21,5	12	12	29	
1230 6	6	1/8	42,5	21,5	12	12	26	
1230 8	8	1/4	51	25	14	14	48	
1230 10	10	3/8	56	25	17	17	83	
1230 12	12	M18x1,5	54	13	19	19	140	*

* = with bi-conical olive

Fittings Mod. 1250

Bulkhead Connector





DIMENSIONS

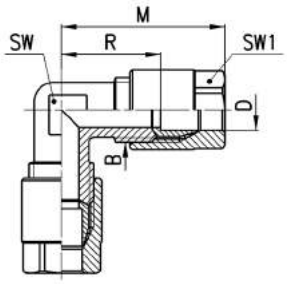
Mod.	D	B	L	R1	R2	MAX	SW	SW1	Weight (g)
1250 4	4	1/8	57,5	12,5	23	12	14	12	40
1250 6	6	1/8	57,5	13	23,5	12	14	12	38
1250 8	8	1/4	65	15	24	13	17	14	67
1250 10	10	3/8	72,5	15	26,5	13	22	17	119

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Fittings Mod. 1220

Elbow Connector





DIMENSIONS

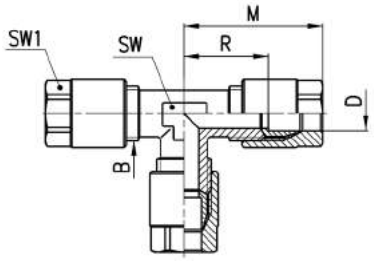
Mod.	D	B	M	R	SW	SW1	Weight (g)	
1220 4	4	1/8	29,5	19	9	12	31	
1220 6	6	1/8	29,5	19	9	12	29	
1220 8	8	1/4	33	20	11	14	53	
1220 10	10	3/8	38	22,5	14	17	92	
1220 12	12	M18x1,5	37	16,5	16	19	99	*

* = with bi-conical olive

Fittings Mod. 1210

Tee Connector





DIMENSIONS

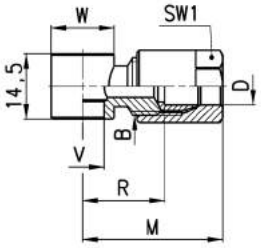
Mod.	D	B	M	R	SW	SW1	Weight (g)	
1210 4	4	1/8	29,5	19	9	12	45	
1210 6	6	1/8	29,5	19	9	12	42	
1210 8	8	1/4	33	20	12	14	79	
1210 10	10	3/8	38	22,5	13	17	133	
1210 12	12	M18x1,5	37	16,5	16	19	144	*

* = with bi-conical olive

Fittings Mod. 1170

Single Banjo





DIMENSIONS

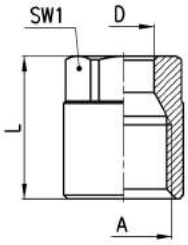
Mod.	D	B	R	M	V	W	SW1	Weight (g)	assembled with Mod.
1170 6-1/8	6	1/8	17.5	28	9.8	∅ 14	12	20	1631, 1635, SCU, SVU, SCO...
1170 6-1/4	6	1/8	20	30.5	13.2	∅ 18	12	24	1631, 1635, SCU, SVU, SCO...
1170 8-1/8	8	1/4	18	31	9.8	∅ 14	14	31	1635, SCU, SVU, SCO...

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Accessories Mod. 1303

Blocking nut





DIMENSIONS					
Mod.	D	A	L	SW1	Weight (g)
1303 4-1/8	4	1/8	15,5	12	8
1303 6-1/8	6	1/8	15,5	12	8
1303 8-1/4	8	1/4	19	14	14
1303 10-3/8	10	3/8	21,5	17	24
1303 12-M18x1,5	12	M18x1,5	19,5	19	27

Accessories Mod. 1310

Olive and Bicone



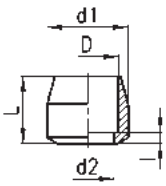


FIG.1

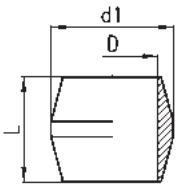


FIG.2

DIMENSIONS							
Mod.	D	d1	d2	l	L	Weight (g)	
1310 4	4	7,8	3	1	8	2	
1310 6	6	7,8	4,5	1	7	1	
1310 8	8	10,8	7	1,5	9	3	
1310 10	10	13,8	9	1,5	11,5	5	
1310 12-M18	12	16,3	12	-	11	6	⋆

Fig. 1 = olive

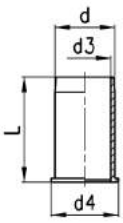
Fig. 2 = bi-conical olive

⋆ = with bi-conical olive

Accessories Mod. 1320

Inserts





DIMENSIONS					
Mod.	d	d3	d4	L	Weight (g)
1320 4	4	3	5	12	1
1320 6	6	5	7	13	1
1320 8	8	7	9	14	1
1320 10	10	9	11	16	2

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Series S2000 pipe fittings Sprint®

Fittings threads: BSP (G1/8, G1/4, G3/8, G1/2), BSPT (R1/8, R1/4, R3/8, R1/2)



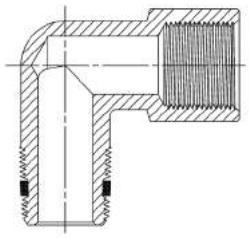
Series S2000 pipe fittings are characterized by great reliability of female threads, both BSP and BSPT, with non-flat surfaces. The pantented Sprint models are provided with a particular torque system which avoids the use of liquid glues or PTFE band, making thus the mounting quicker.

Thanks to this system the connection and disconnection of the fitting can be repeated several times without compromising the seal on the thread.

GENERAL DATA

Material	nickel-plated brass and PTFE
Threads	GAS conical ISO 7 (BSPT) GAS cylindrical ISO 228 (BSP)
Pressure	80 bar
Fluid	compressed air and other low pressure fluids
Temperature	-40°C ÷ 120°C

Pipe fittings Sprint®

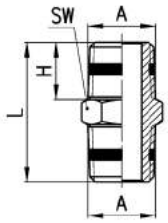


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Fittings Mod. S2500

BSPT Nipple Sprint®





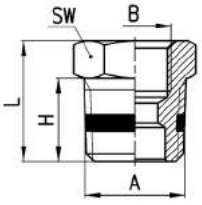
DIMENSIONS

Mod.	A	H	L	SW	Weight (g)
S2500 1/8	R1/8	7,5	19,5	12	8
S2500 1/4	R1/4	11	27	14	15
S2500 3/8	R3/8	11,5	28	17	21
S2500 1/2	R1/2	14	33,5	22	39

Fittings Mod. S2530

BSPT Reducting Nipple Sprint®





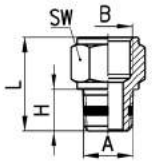
DIMENSIONS

Mod.	A	B	H	L	SW	Weight (g)
S2530 1/4-1/8	R1/4	G1/8	11	16	14	9
S2530 3/8-1/8	R3/8	G1/8	11,5	16,5	17	16
S2530 1/2-1/8	R1/2	G1/8	14	19,5	22	13
S2530 3/8-1/4	R3/8	G1/4	11,5	16,5	17	33
S2530 1/2-1/4	R1/2	G1/4	14	19,5	22	32
S2530 1/2-3/8	R1/2	G3/8	14	19,5	22	22

Fittings Mod. S2520

BSPT Male Reducting Extension Sprint®





DIMENSIONS

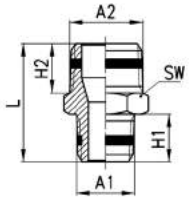
Mod.	A	B	H	L	SW	Weight (g)
S2520 1/8-1/8	R1/8	G1/8	7,5	17,5	13	11
S2520 1/8-1/4	R1/8	G1/4	7,5	19	17	15
S2520 1/8-3/8	R1/8	G3/8	7,5	20	20	19
S2520 1/4-1/4	R1/4	G1/4	11	22,5	17	17
S2520 1/4-3/8	R1/4	G3/8	11	23,5	20	33
S2520 1/4-1/2	R1/4	G1/2	11	27,5	24	34
S2520 3/8-3/8	R3/8	G3/8	11,5	24	20	36
S2520 3/8-1/2	R3/8	G1/2	11,5	28	24	56
S2520 1/2-1/2	R1/2	G1/2	14	30,5	24	41

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Fittings Mod. S2510

BSPT Reducing Sprint®





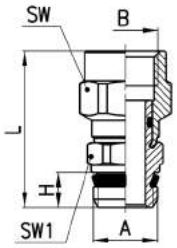
DIMENSIONS

Mod.	A1	A2	H1	H2	L	SW	Weight (g)
S2510 1/8-1/4	R1/8	R1/4	7,5	11	23,5	14	14
S2510 1/8-3/8	R1/8	R3/8	7,5	11,5	24	17	22
S2510 1/4-3/8	R1/4	R3/8	11	11,5	27,5	17	19
S2510 1/4-1/2	R1/4	R1/2	11	14	30,5	22	33
S2510 3/8-1/2	R3/8	R1/2	11,5	14	31	22	36

Fittings Mod. 2541

BSPT Swivel Male Nipple Sprint®





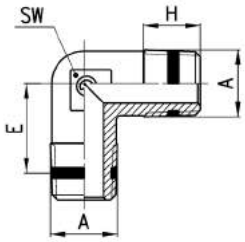
DIMENSIONS

Mod.	A	B	H	L	SW	SW1	Weight (g)
2541 1/8-1/8	G1/8	G1/8	5,5	28	13	14	17
2541 1/4-1/4	G1/4	G1/4	7	31,5	17	14	26
2541 3/8-3/8	G3/8	G3/8	8	34	20	19	39

Fittings Mod. S2010

BSPT Male Elbow Sprint®





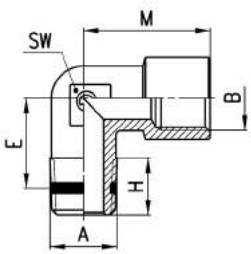
DIMENSIONS

Mod.	A	E	H	SW	Weight (g)
S2010 1/8	R1/8	11,5	7,5	9	9
S2010 1/4	R1/4	13,5	11	12	17
S2010 3/8	R3/8	15,5	11,5	14	25
S2010 1/2	R1/2	16	14	16	47

Fittings Mod. S2020

Male Female Elbow Sprint®





DIMENSIONS

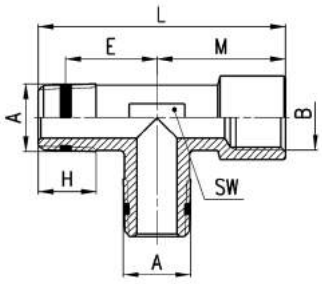
Mod.	A	B	E	H	M	SW	Weight (g)
S2020 1/8-1/8	R1/8	G1/8	11,5	8,5	19	11	16
S2020 1/4-1/4	R1/4	G1/4	15	11	23	13	27
S2020 3/8-3/8	R3/8	G3/8	15	11,5	25	15	33
S2020 1/2-1/2	R1/2	G1/2	17,5	14	31,5	20	62

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Fittings Mod. S2050

M.M.F. Tee Sprint®



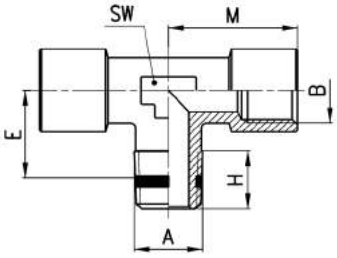


DIMENSIONS								
Mod.	A	B	E	H	L	M	SW	Weight (g)
S2050 1/8-1/8	R1/8	G1/8	11,5	8,5	37	19	12	14
S2050 1/4-1/4	R1/4	G1/4	15	11	46	23	13	44
S2050 3/8-3/8	R3/8	G3/8	15	11,5	48,5	25	16	59
S2050 1/2-1/2	R1/2	G1/2	17,5	14	60,5	31,5	20	81

Fittings Mod. S2060

F.M.F. Tee Sprint®



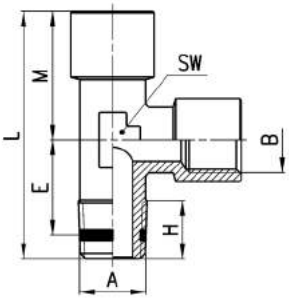


DIMENSIONS								
Mod.	A	B	E	H	M	SW	Weight (g)	
S2060 1/8-1/8	R1/8	G1/8	11,5	8,5	19	12	31	
S2060 1/4-1/4	R1/4	G1/4	15	11	23	13	38	
S2060 3/8-3/8	R3/8	G3/8	15	11,5	25	16	51	
S2060 1/2-1/2	R1/2	G1/2	17,5	14	31,5	20	88	

Fittings Mod. S2070

M.F.F. Tee Sprint®





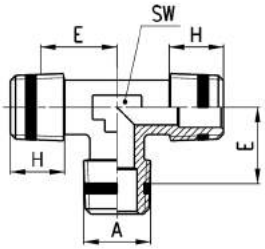
DIMENSIONS								
Mod.	A	B	E	H	L	M	SW	Weight (g)
S2070 1/8-1/8	R1/8	G1/8	11,5	8,5	37	19	12	30
S2070 1/4-1/4	R1/4	G1/4	15	11	46	23	13	36
S2070 3/8-3/8	R3/8	G3/8	15	11,5	48,5	25	16	51
S2070 1/2-1/2	R1/2	G1/2	17,5	14	60,5	31,5	20	89

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Fittings Mod. S2080

Male Tee Sprint®





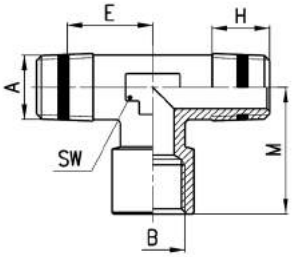
DIMENSIONS

Mod.	A	E	H	SW	Weight (g)
S2080 1/8	R1/8	11,5	7,5	9	14
S2080 1/4	R1/4	13,5	11	12	31
S2080 3/8	R3/8	15,5	11,5	14	50
S2080 1/2	R1/2	16	14	16	63

Fittings Mod. S2090

M.F.M. Tee Sprint®





DIMENSIONS

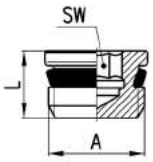
Mod.	A	B	E	H	M	SW	Weight (g)
S2090 1/8-1/8	R1/8	G1/8	11,5	8,5	19	12	22
S2090 1/4-1/4	R1/4	G1/4	15	11	23	13	16
S2090 3/8-3/8	R3/8	G3/8	15	11,5	25	16	59
S2090 1/2-1/2	R1/2	G1/2	17,5	14	31,5	20	80

Fittings Mod. 2612 and Mod. S2610

New size

Mod. 2612: Metric Male Plug
Mod. S2610: BSP Male Plug Sprint®





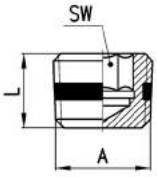
DIMENSIONS

Mod.	A	L	SW	Weight (g)	
2612 M5	M5	5.5	2	1	with O-ring
2612 M7	M7	7	4	2	with O-ring
S2610 1/8	G1/8	7.5	4	3	
S2610 1/4	G1/4	9	6	6	
S2610 3/8	G3/8	10	8	12	
S2610 1/2	G1/2	11	10	21	

Fittings Mod. S2615

BSPT Male Plug Tapper Sprint®





DIMENSIONS

Mod.	A	L	SW	Weight (g)
S2615 1/8	R1/8	8	5	2
S2615 1/4	R1/4	10	7	6
S2615 3/8	R3/8	10	8	12

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series 2000 pipe fittings

Fittings threads: metric (M5),
BSP (G1/8, G1/4, G3/8, G1/2, G3/4, G1),
BSPT (R1/8, R1/4, R3/8, R1/2, R3/4, R1)

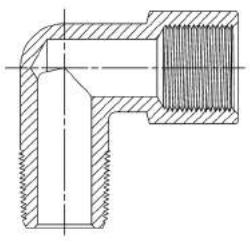


The wide range of Camozzi pipe fittings, which includes straight, L and Tee, Cross piece male or female couplings, guarantees the necessary support during the design of compressed air systems.

GENERAL DATA

Material	nickel-plated brass
Threads	GAS conical ISO 7 (BSPT) GAS cylindrical ISO 228 (BSP)
Pressure	80 bar
Fluid	Compressed air or other low pressure fluids
Temperature	-40°C ÷ 120°C

Pipe fittings

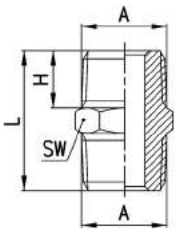


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Fittings Mod. 2500

BSPT Nipple



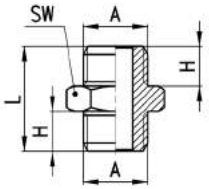


DIMENSIONS					
Mod.	A	H	L	SW	Weight (g)
2500 1/8	R1/8	7,5	19,5	12	9
2500 1/4	R1/4	11	27	14	16
2500 3/8	R3/8	11,5	28	17	21
2500 1/2	R1/2	14	33,5	22	41
2500 3/4	R3/4	16,5	40	27	80
2500 1	R1	19	45,5	34	125

Fittings Mod. 2501

Metric-BSP Nipple



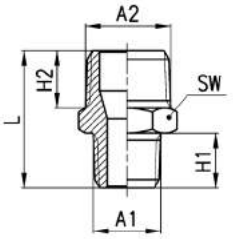


DIMENSIONS					
Mod.	A	H	L	SW	Weight (g)
2501 M5	M5	4	11,5	8	2
2501 1/8	G1/8	6	16,5	13	9
2501 1/4	G1/4	8	21	17	15
2501 3/8	G3/8	9	23	19	21
2501 1/2	G1/2	10	25,5	24	35

Fittings Mod. 2510

BSPT Reducing Nipple





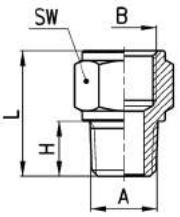
DIMENSIONS							
Mod.	A1	A2	H2	H1	L	SW	Weight (g)
2510 1/8-1/4	R1/8	R1/4	11	7,5	23,5	14	14
2510 1/8-3/8	R1/8	R3/8	11,5	7,5	24	17	18
2510 1/4-3/8	R1/4	R3/8	11,5	11	27,5	17	20
2510 1/4-1/2	R1/4	R1/2	14	11	30,5	22	34
2510 3/8-1/2	R3/8	R1/2	14	11,5	31	22	34
2510 1/2-3/4	R1/2	R3/4	16,5	14	37,5	27	67

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Fittings Mod. 2520

BSPT Male Reducing Extension





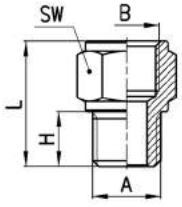
DIMENSIONS

Mod.	A	B	H	L	SW	Weight (g)
2520 1/8-1/8	R1/8	G1/8	7,5	17,5	13	9
2520 1/8-1/4	R1/8	G1/4	7,5	19	17	15
2520 1/8-3/8	R1/8	G3/8	7,5	20	20	19
2520 1/4-1/4	R1/4	G1/4	11	22,5	17	17
2520 1/4-3/8	R1/4	G3/8	11	23,5	20	21
2520 1/4-1/2	R1/4	G1/2	11	27,5	24	35
2520 3/8-3/8	R3/8	G3/8	11,5	24	20	23
2520 3/8-1/2	R3/8	G1/2	11,5	28	24	37
2520 1/2-1/2	R1/2	G1/2	14	30,5	24	41

Fittings Mod. 2521

Metric-BSP Reducing Extension





DIMENSIONS

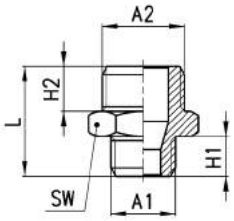
Mod.	A	B	H	L	SW	Weight (g)
2521 M5-1/8	M5	G1/8	4	14	13	7
2521 1/8-1/8	G1/8	G1/8	6	16	13	8
2521 1/8-1/4	G1/8	G1/4	6	17,5	17	14
2521 1/8-3/8	G1/8	G3/8	6	18,5	20	30
2521 1/4-1/4	G1/4	G1/4	8	19,5	17	16
2521 1/4-3/8	G1/4	G3/8	8	20,5	20	20
2521 1/4-1/2	G1/4	G1/2	8	24,5	24	33
2521 3/8-3/8	G3/8	G3/8	9	21,5	20	22
2521 3/8-1/2	G3/8	G1/2	9	25,5	24	35
2521 1/2-1/2	G1/2	G1/2	10	26,5	24	36

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Fittings Mod. 2511

Metric-BSP Reducing Nipple





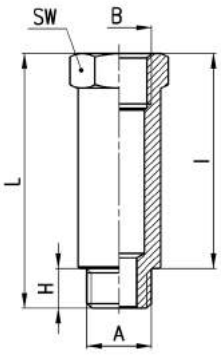
DIMENSIONS

Mod.	A1	A2	H1	H2	L	SW	Weight (g)
2511 M5-1/8	M5	G1/8	4	6	14,5	13	8
2511 1/8-1/4	G1/8	G1/4	6	8	19	17	15
2511 1/8-3/8	G1/8	G3/8	6	9	20	19	19
2511 1/4-3/8	G1/4	G3/8	8	9	22	19	20
2511 1/4-1/2	G1/4	G1/2	8	10	23,5	24	32
2511 3/8-1/2	G3/8	G1/2	9	10	24,5	24	34

Fittings Mod. 2525

BSP Male Extension





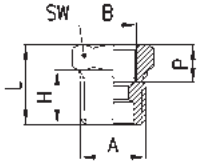
DIMENSIONS

Mod.	A	B	H	I	L	SW	Weight (g)
2525 1/8-16	G1/8	G1/8	6	16	22	13	12
2525 1/8-36	G1/8	G1/8	6	36	42	13	24
2525 1/4-27	G1/4	G1/4	8	27	35	17	30
2525 1/4-43	G1/4	G1/4	8	43	51	17	45

Fittings Mod. 2530

BSPT Reducing





DIMENSIONS

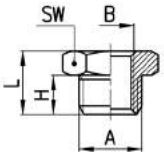
Mod.	A	B	H	P (min)	L	SW	Weight (g)
2530 1/4-1/8	R1/4	G1/8	11	6	16	14	9
2530 3/8-1/8	R3/8	G1/8	11,5	8,5	16,5	17	17
2530 1/2-1/8	R1/2	G1/8	14	9,5	19,5	22	12
2530 3/8-1/4	R3/8	G1/4	11,5	7	16,5	17	34
2530 1/2-1/4	R1/2	G1/4	14	9,5	19,5	22	30
2530 1/2-3/8	R1/2	G3/8	14	8	19,5	22	24
2530 3/4-3/8	R3/4	G3/8	16,5	11,5	23	27	67
2530 3/4-1/2	R3/4	G1/2	16,5	9,5	23,5	27	48
2530 1-1/2	R1	G1/2	19	14	27	34	131

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Fittings Mod. 2531

BSP Reducing





DIMENSIONS

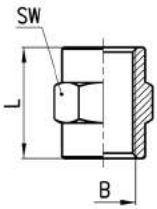
Mod.	A	B	H	L	SW	Weight (g)	
2531 1/8-M5	G1/8	M5	6	10,5	13	8	*
2531 1/4-1/8	G1/4	G1/8	8	13	17	11	*
2531 3/8-1/8	G3/8	G1/8	9	14	19	17	
2531 3/8-1/4	G3/8	G1/4	9	14	19	12	*
2531 1/2-1/8	G1/2	G1/8	10	15,5	24	32	
2531 1/2-1/4	G1/2	G1/4	10	15,5	24	29	
2531 1/2-3/8	G1/2	G3/8	10	15,5	24	22	*

* = with through-out thread

Fittings Mod. 2543

Sleeve





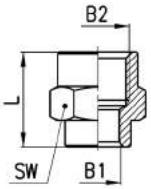
DIMENSIONS

Mod.	B	L	SW	Weight (g)
2543 M5	M5	11	8	3
2543 1/8	G1/8	15	13	8
2543 1/4	G1/4	22	17	19
2543 3/8	G3/8	23	20	19
2543 1/2	G1/2	28	24	29

Fittings Mod. 2553

Reducing Sleeve





DIMENSIONS

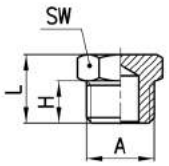
Mod.	B1	B2	L	SW	Weight (g)
2553 M5-1/8	M5	G1/8	13,5	13	7
2553 1/8-1/4	G1/8	G1/4	17	17	18
2553 1/8-3/8	G1/8	G3/8	18	20	18
2553 1/8-1/2	G1/8	G1/2	21,5	24	28
2553 1/4-3/8	G1/4	G3/8	19,5	20	21
2553 1/4-1/2	G1/4	G1/2	23	24	32
2553 3/8-1/2	G3/8	G1/2	24	24	31

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Fittings Mod. 2611

BSP Male Plug



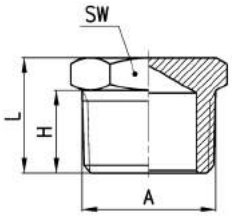


DIMENSIONS					
Mod.	A	H	L	SW	Weight (g)
2611 M5	M5	4	7,5	8	2
2611 1/8	G1/8	6	10,5	13	7
2611 1/4	G1/4	8	13	17	13
2611 3/8	G3/8	9	14	19	18
2611 1/2	G1/2	10	15,5	24	31
2611 1	G1	13	19	38	76

Fitting Mod. 2610 3/4

BSPT Male Plug



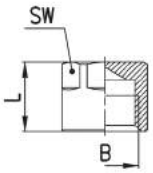


DIMENSIONS					
Mod.	A	H	L	SW	Weight (g)
2610 3/4	R3/4	16,5	23	27	61

Fittings Mod. 2613

BSP Female Plug





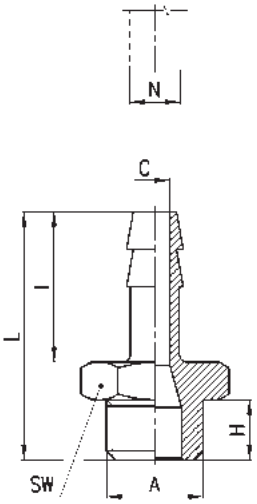
DIMENSIONS				
Mod.	B	L	SW	Weight (g)
2613 1/8	G1/8	11	12	6
2613 1/4	G1/4	13,5	15	13
2613 3/8	G3/8	15,5	18	19
2613 1/2	G1/2	22,5	19	33

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Fittings Mod. 2601

Metric-BSP Male Hose Adaptor





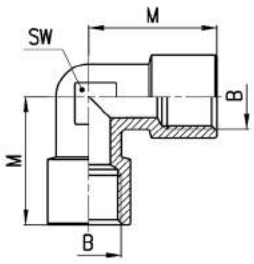
DIMENSIONS

Mod.	N	A	C	H	I	L	SW	Weight (g)
2601 2-M5	2	M5	1,2	4	8	16	8	2
2601 4,5-M5	4	M5	2,5	4	15	23	8	3
2601 7-1/8	7	G1/8	4	6	20	30	12	9
2601 7-1/4	7	G1/4	4	8	20	33	17	16
2601 8-1/8	8	G1/8	5	6	20	30	12	10
2601 9-1/8	9	G1/8	5,5	6	20	30	12	11
2601 9-1/4	9	G1/4	6	8	20	33	17	17
2601 9-3/8	9	G3/8	6	9	20	34	19	21
2601 12-1/4	12	G1/4	8,5	8	20	33	17	20
2601 12-3/8	12	G3/8	9	9	20	34	19	23
2601 12-1/2	12	G1/2	9	10	20	35,5	24	34
2601 17-3/8	17	G3/8	12	9	24	38	19	31
2601 17-1/2	17	G1/2	13	10	24	39,5	24	41

Fittings Mod. 2013

BSPT Female Elbow





DIMENSIONS

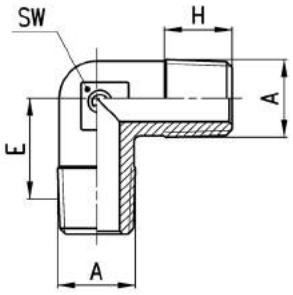
Mod.	B	M	SW	Weight (g)
2013 1/8	G1/8	19	11	16
2013 1/4	G1/4	23	14	28
2013 3/8	G3/8	25	16	39
2013 1/2	G1/2	31,5	20	69

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Fittings Mod. 2010

BSP Male Elbow





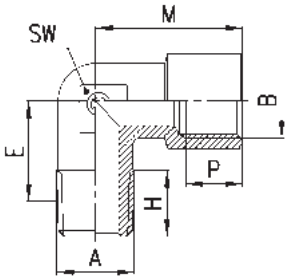
DIMENSIONS

Mod.	A	E	H	SW	Weight (g)
2010 1/8	R1/8	11,5	7,5	9	10
2010 1/4	R1/4	13,5	11	12	18
2010 3/8	R3/8	15,5	11,5	14	28
2010 1/2	R1/2	16	14	16	47
2010 3/4	R3/4	19	16	25	103
2010 1	R1	23	17	30	183

Fittings Mod. 2021 and 2020

Mod. 2021: Metric Male Female Elbow
Mod. 2020: BSPT Male Female Elbow





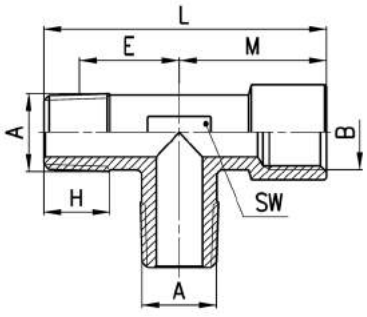
DIMENSIONS

Mod.	A	B	E	H	M	P (min)	SW	Weight (g)
2021 M5-M5	M5	M5	9	4	10,5	4,5	9	7
2020 1/8-1/8	R1/8	G1/8	11,5	8,5	19	6	11	17
2020 1/4-1/4	R1/4	G1/4	15	11	23	7	13	27
2020 3/8-3/8	R3/8	G3/8	15	11,5	25	8	15	33
2020 1/2-1/2	R1/2	G1/2	17,5	14	31,5	9,5	20	63
2020 3/4-3/4	R3/4	G3/4	19	16	36,5	16,5	25	126
2020 1-1	R1	G1	23	17	45	19	30	209

Fittings Mod. 2050

M.M.F. Tee





DIMENSIONS

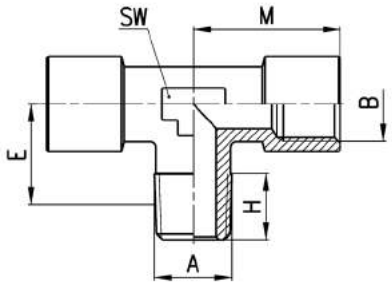
Mod.	A	B	E	H	L	M	SW	Weight (g)
2050 1/8-1/8	R1/8	G1/8	11,5	8,5	37	19	12	27
2050 1/4-1/4	R1/4	G1/4	15	11	46	23	13	35
2050 3/8-3/8	R3/8	G3/8	15	11,5	48,5	25	16	44
2050 1/2-1/2	R1/2	G1/2	17,5	14	60,5	31,5	20	83

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Fittings Mod. 2060

F.M.F. Tee



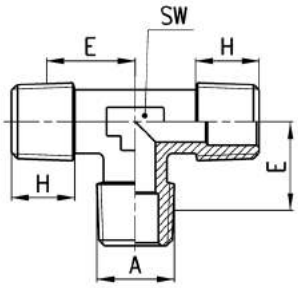


DIMENSIONS							
Mod.	A	B	E	H	M	SW	Weight (g)
2060 1/8-1/8	R1/8	G1/8	11,5	8,5	19	12	22
2060 1/4-1/4	R1/4	G1/4	15	11	23	13	38
2060 3/8-3/8	R3/8	G3/8	15	11,5	25	16	49
2060 1/2-1/2	R1/2	G1/2	17,5	14	31,5	20	89

Fittings Mod. 2080

Male Tee



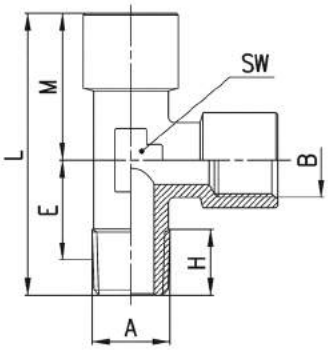


DIMENSIONS					
Mod.	A	E	H	SW	Weight (g)
2080 1/8	R1/8	11,5	7,5	9	14
2080 1/4	R1/4	13,5	11	12	25
2080 3/8	R3/8	15,5	11,5	14	39
2080 1/2	R1/2	16	14	16	82
2080 3/4	R3/4	19	16,2	25	135
2080 1	R1	23	17,5	30	239

Fittings Mod. 2070

M.F.F. Tee





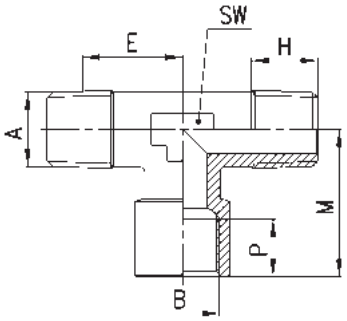
DIMENSIONS								
Mod.	A	B	E	H	L	M	SW	Weight (g)
2070 1/8-1/8	R1/8	G1/8	11,5	8,5	37	19	12	22
2070 1/4-1/4	R1/4	G1/4	15	11	46	23	13	37
2070 3/8-3/8	R3/8	G3/8	15	11,5	48,5	25	16	49
2070 1/2-1/2	R1/2	G1/2	17,5	14	60,5	31,5	20	89

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Fittings Mod. 2090

M.F.M. Tee



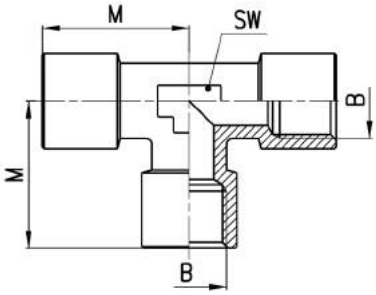


DIMENSIONS								
Mod.	A	B	E	H	M	P	SW	Weight (g)
2090 1/8-1/8	R1/8	G1/8	11,5	8,5	19	6	12	22
2090 1/4-1/4	R1/4	G1/4	15	11	23	7	13	37
2090 3/8-3/8	R3/8	G3/8	15	11,5	25	8	16	44
2090 1/2-1/2	R1/2	G1/2	17,5	14	31,5	9,5	20	83
2090 3/4-3/4	R3/4	G3/4	19	16	36,5	16,5	25	156
2090 1-1	R1	G1	23	17,5	45	19	30	262

Fittings Mod. 2003

Female Tee



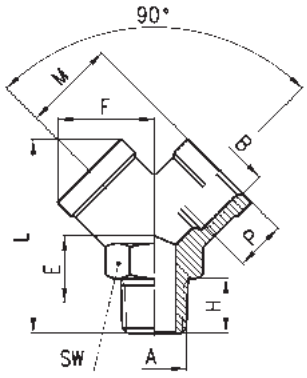


DIMENSIONS				
Mod.	B	M	SW	Weight (g)
2003 1/8	G1/8	19	12	23
2003 1/4	G1/4	23	13	39
2003 3/8	G3/8	25	16	54
2003 1/2	G1/2	31,5	20	97

Fittings Mod. 2040

Y.F.M.F.





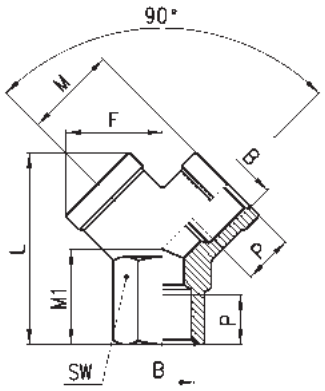
DIMENSIONS										
Mod.	A	B	E	F	H	L	M	P	SW	Weight (g)
2040 1/8-1/8	R1/8	G1/8	9,5	14,5	8	32	14	8	13	22
2040 1/4-1/4	R1/4	G1/4	12	18	11	38	17,5	11	17	38
2040 3/8-3/8	R3/8	G3/8	13,5	20,5	11,5	42,5	19	11,5	20	52
2040 1/2-1/2	R1/2	G1/2	15,5	26,5	14	53	24.5	14	25	110

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Fittings Mod. 2043

Female Y





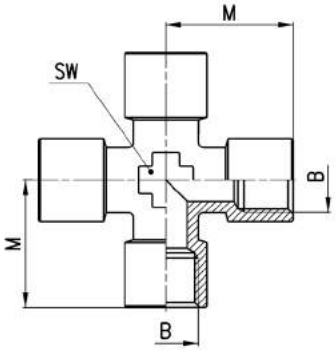
DIMENSIONS

Mod.	B	F	L	M	M1	P	SW	Weight (g)
2043 1/8	G1/8	14,5	26,5	14	12	8	13	18
2043 1/4	G1/4	18	32	17,5	14	11	17	32
2043 3/8	G3/8	20,5	37	19	16	11,5	20	44
2043 1/2	G1/2	26,5	45	24,5	19	14	25	84

Fittings Mod. 2033

Female Cross





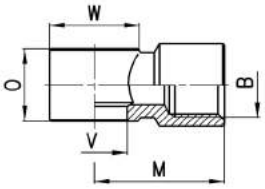
DIMENSIONS

Mod.	B	M	SW	Weight (g)
2033 1/8	G1/8	19	12	27
2033 1/4	G1/4	23	14	51
2033 3/8	G3/8	25	16	70

Fittings Mod. 2023

Single Thread Banjo





DIMENSIONS

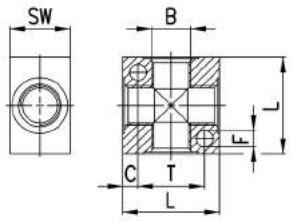
Mod.	B	M	O	V	W	Weight (g)	assembled with Mod.
2023 M5-M5	M5	10.5	9	5.1	□ 9	6	1631
2023 M5-M6	M5	10.5	9	5.1	□ 9	6	SCU, SVU, SCO...
2023 1/8-1/8	G1/8	20	14.5	9.8	Ø 14	14	1631, 1635, SCU, SVU, SCO...
2023 1/4-1/4	G1/4	23.5	14.5	13.2	Ø 18	21	1635, SCU, SVU, SCO...
2023 3/8-3/8	G3/8	26.5	14.5	16.7	Ø 21	27	1635, SCU, SVU, SCO...

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Accessories Mod. 3033

4 Ways Distribution Block with fixing holes
Material: anodized Aluminium





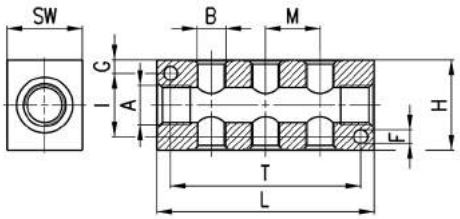
DIMENSIONS

Mod.	B	C	F	L	T	SW	Weight (g)
3033 1/8	G1/8	4	4,5	25	17	16	18
3033 1/4	G1/4	5	5,5	32	22	20	35
3033 3/8	G3/8	7	5,5	40	26	25	73
3033 1/2	G1/2	8	5,5	50	34	30	137

Accessories Mod. 3043

Manifold with double lateral outles
Material: anodized Aluminium





DIMENSIONS

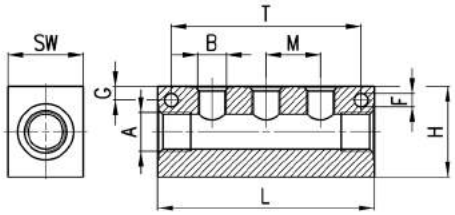
Mod.	A	DOUBLE LATERAL OUTLETS	B	F	G	H	I	L	M	T	SW	Weight (g)
3043 1/4-3D-1/8	1/4	3	1/8	4,5	4,5	30	21	72	18	63	20	85
3043 1/4-4D-1/8	1/4	4	1/8	4,5	4,5	30	21	90	18	81	20	107
3043 1/4-5D-1/8	1/4	5	1/8	4,5	4,5	30	21	108	18	99	20	128
3043 1/4-6D-1/8	1/4	6	1/8	4,5	4,5	30	21	126	18	117	20	151
3043 3/8-3D-1/4	3/8	3	1/4	5,5	6	40	28	92	24	75	25	177
3043 3/8-4D-1/4	3/8	4	1/4	5,5	6	40	28	116	24	99	25	224
3043 3/8-5D-1/4	3/8	5	1/4	5,5	6	40	28	140	24	123	25	270
3043 3/8-6D-1/4	3/8	6	1/4	5,5	6	40	28	164	24	147	25	315
3043 1/2-3D-3/8	1/2	3	3/8	5,5	6,5	50	37	104	26	85	30	287
3043 1/2-4D-3/8	1/2	4	3/8	5,5	6,5	50	37	130	26	111	30	356
3043 1/2-5D-3/8	1/2	5	3/8	5,5	6,5	50	37	156	26	137	30	427
3043 1/2-6D-3/8	1/2	6	3/8	5,5	6,5	50	37	182	26	163	30	495

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Accessories Mod. 3053

Manifold with lateral outlets
Material: anodized Aluminium





DIMENSIONS

Mod.	A	SINGLE LATERAL OUTLETS	B	F	G	H	L	M	T	SW	Weight (g)
3053 1/4-3L-1/8	1/4	3	1/8	4,5	4,5	30	72	18	63	20	92
3053 1/4-4L-1/8	1/4	4	1/8	4,5	4,5	30	90	18	81	20	116
3053 1/4-5L-1/8	1/4	5	1/8	4,5	4,5	30	108	18	99	20	140
3053 1/4-6L-1/8	1/4	6	1/8	4,5	4,5	30	126	18	117	20	164
3053 3/8-3L-1/4	3/8	3	1/4	5,5	6	40	92	24	75	25	191
3053 3/8-4L-1/4	3/8	4	1/4	5,5	6	40	116	24	99	25	243
3053 3/8-5L-1/4	3/8	5	1/4	5,5	6	40	140	24	123	25	294
3053 3/8-6L-1/4	3/8	6	1/4	5,5	6	40	164	24	147	25	345
3053 1/2-3L-3/8	1/2	3	3/8	5,5	6,5	50	104	26	85	30	313
3053 1/2-4L-3/8	1/2	4	3/8	5,5	6,5	50	130	26	111	30	395
3053 1/2-5L-3/8	1/2	5	3/8	5,5	6,5	50	156	26	137	30	474
3053 1/2-6L-3/8	1/2	6	3/8	5,5	6,5	50	182	26	163	30	551

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Series 5000 quick-release couplings

Nominal diameters: 5, 7 mm
Couplings threads: G1/8, G1/4, G3/8, G1/2
Plastic tubes: 6/4, 8/6, 10/8; rubber hoses: 6x14, 8x17, 10x19, 13x23



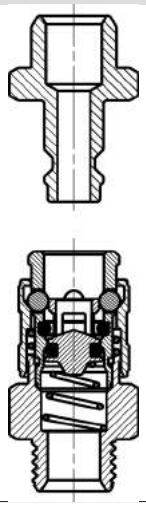
Series 5000 quick-release couplings are suitable in situations where, for plant engineering or safety reasons, the connection or disconnection of tubing must be repeated several times. These operations can be performed with no need to release the pressure and therefore a considerable amount of time can be saved.

Series 5000 quick-release couplings with mini-profile DN 5 are compatible with couplings Rectus Series 21 - 90, Legris 21.
Series 5000 quick-release couplings with European profile DN 7 are compatible with couplings Cejn Series 320.

GENERAL DATA

Valve group	quick release valve
Construction	poppet type
Mounting	threaded
Thread	GAS cylindrical ISO 228 (BSP)
Materials	nickel-plated brass (hardened galvanized steel only for couplings with an “8” as third number in the code) - NBR seals
Connections	G1/8 - G1/4 - G3/8 - G1/2 for plastic tubes and rubber hose
Operating temperature	0°C ÷ 80°C (with dry air -20°C)
Operating pressure	- 0.99 ÷ 12 bar
Nominal pressure	6 bar
Nominal flow	see graph
Nominal diameter	5 or 7 mm
Fluid	compressed air and other low pressure fluids

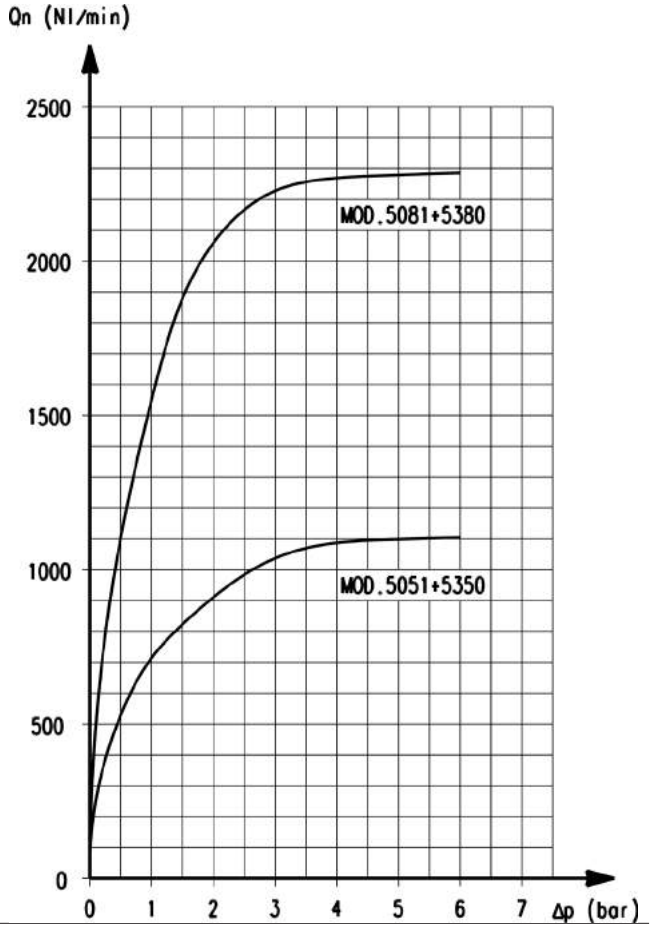
Quick-release couplings



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Flow rate diagram

Quick-release couplings:
the side diagram supplies some useful information about the most suitable model to be used in relation to the operating pressure and the required flow rate. The measurements were taken using the models indicated below and represent the ideal maximum flow rate conditions.
In case tubes of inferior quality are used, this might result in poorer performance.

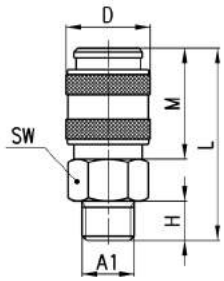


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Fittings Mod. 5051 Series Mini and Mod. 5081 European Standard

BSP Male Quick Coupling





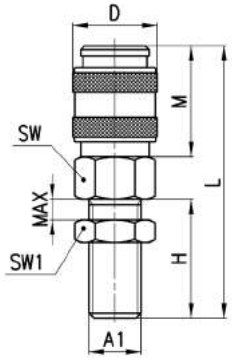
DIMENSIONS

Mod.	A1	Ø	D	H	L	M	SW	Weight (g)
5051 1/8	G1/8	5	17	6	35	20.5	14	28
5051 1/4	G1/4	5	17	8	37	20.5	17	37
5081 1/4	G1/4	7	25	8	47,5	34,5	22	93
5081 3/8	G3/8	7	25	9	48,5	34,5	22	92
5081 1/2	G1/2	7	25	10	49,5	34,5	24	107

Fittings Mod. 5052 Series Mini and Mod. 5082 European Standard

BSP Male Quick Coupling Bulkhead





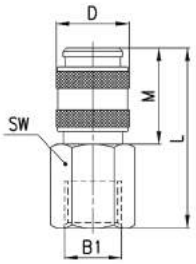
DIMENSIONS

Mod.	A1	Ø	D	H	L	M	max	SW	SW1	Weight (g)
5052 1/8	G1/8	5	17	23	52	20.5	12	14	14	38
5052 1/4	G1/4	5	17	24	53	20.5	12	17	17	52
5082 1/4	G1/4	7	25	24	63,5	34,5	12	22	17	103

Fittings Mod. 5053 Series Mini and Mod. 5083 European Standard

BSP Female Quick Coupling





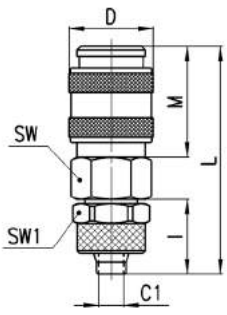
DIMENSIONS

Mod.	B1	Ø	D	L	M	SW	Weight (g)
5053 1/8	G1/8	5	17	37,5	20,5	14	33
5053 1/4	G1/4	5	17	39,5	20,5	17	44
5083 1/4	G1/4	7	25	47,5	34,5	17	88
5083 3/8	G3/8	7	25	49	34,5	20	93
5083 1/2	G1/2	7	25	53	34,5	24	103

Fittings Mod. 5054 Series Mini and Mod. 5084 European Standard

Quick Coupling Push-on





DIMENSIONS

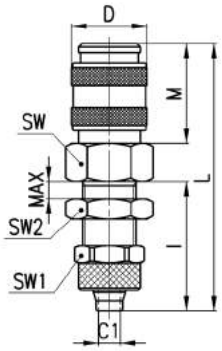
Mod.	Tube	Ø	C1	D	I	L	M	SW	SW1	Weight (g)
5054 6/4	6/4	5	3	17	15	44	20.5	14	12	36
5054 8/6	8/6	5	5	17	15	44	20.5	14	14	38
5084 8/6	8/6	7	5	25	15	54,5	34,5	22	14	99
5084 10/8	10/8	7	6,5	25	16,5	56	34,5	22	16	103

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Fittings Mod. 5055 Series Mini

Quick Coupling Bulkhead Push-on





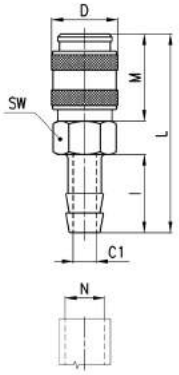
DIMENSIONS

Mod.	Tube	Ø	C1	D	I	L	M	Max	SW	SW1	SW2	Weight (g)
5055 6/4	6/4	5	3	17	29	58	20.5	10	14	12	14	44
5055 8/6	8/6	5	5	17	29	58	20.5	11	17	14	17	52

Fittings Mod. 5056 Series Mini and Mod. 5086 European Standard

Quick Coupling Hose Adapter





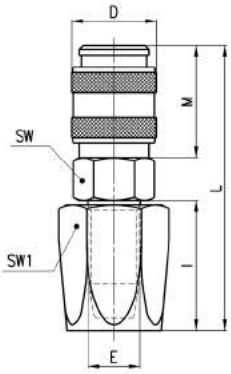
DIMENSIONS

Mod.	N	Ø	C1	D	I	L	M	SW	Weight (g)
5056 06	6	5	3	17	20	49	20.5	14	30
5056 09	9	5	5	17	20	49	20.5	14	32
5086 09	9	7	5	25	20	59,5	34,5	22	95
5086 12	12	7	8	25	20	59,5	34,5	22	96

Fittings Mod. 5057 Series Mini and Mod. 5087 European Standard

Quick Coupling Hose Connector





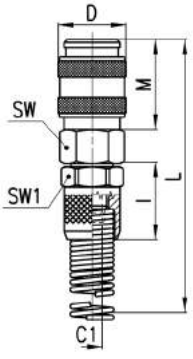
DIMENSIONS

Mod.	Tube	Ø	E	D	I	L	M	SW	SW1	Weight (g)
5057 6x14	6 x 14	5	9	17	25	54.5	20.5	17	17	62
5087 6x14	6 x 14	7	9	25	25	64,5	34,5	22	17	117
5087 8x17	8 x 17	7	10	25	25	64,5	34,5	22	19	123
5087 10x19	10 x 19	7	12	25	27	66,5	34,5	22	22	141
5087 13x23	13 x 23	7	15	25	37	76,5	34,5	22	27	195

Fittings Mod. 5058 Series Mini and Mod. 5088 European Standard

Quick Coupling with Spring





DIMENSIONS

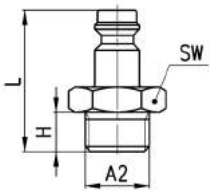
Mod.	Tube	Ø	C1	D	I	M	L	SW	SW1	Weight (g)
5058 6/4	6/4	5	3	17	19	20.5	120.5	14	14	48
5058 8/6	8/6	5	5	17	19	20.5	124.5	14	14	54
5088 8/6	8/6	7	5	25	19	34,5	135	22	14	118
5088 10/8	10/8	7	6,5	25	21,5	34,5	139,5	22	16	125

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Fittings Mod. 5150 Mini Profile and Mod. 5180 European Profile

Male Connector





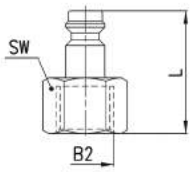
DIMENSIONS

Mod.	A2	Ø	H	L	SW	Weight (g)
5150 1/8	G1/8	5	6	26	13	12
5150 1/4	G1/4	5	8	28.5	17	19
5180 1/4	G1/4	7	8	33	17	21
5180 3/8	G3/8	7	9	34	19	26
5180 1/2	G1/2	7	10	35,5	24	34

Fittings Mod. 5350 Mini Profile and Mod. 5380 European Profile

Female Connector





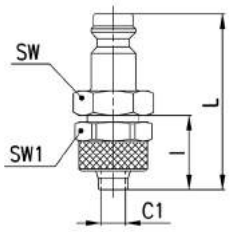
DIMENSIONS

Mod.	B2	Ø	L	SW	Weight (g)
5350 1/8	G1/8	5	25,5	13	14
5350 1/4	G1/4	5	27,5	17	18
5380 1/4	G1/4	7	31,5	17	21
5380 3/8	G3/8	7	32,5	19	23
5380 1/2	G1/2	7	36,5	24	37

Fittings Mod. 5450 Mini Profile and Mod. 5480 European Profile

Push-on Connector





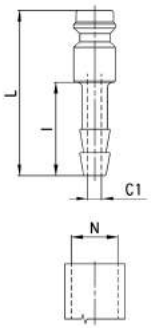
DIMENSIONS

Mod.	Tube	Ø	C1	I	L	SW	SW1	Weight (g)
5450 6/4	6/4	5	3	15	35	12	12	17
5450 8/6	8/6	5	5	15	35	13	14	22
5480 8/6	8/6	7	5	15	39,5	14	14	25
5480 10/8	10/8	7	6,5	16,5	41,5	17	16	33

Fittings Mod. 5650 aMini Profile and Mod. 5680 European Profile

Connector with Barb





DIMENSIONS

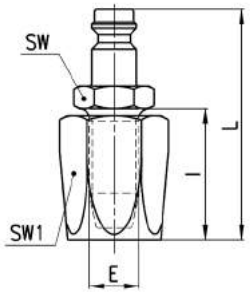
Mod.	N	Ø	C1	I	L	Weight (g)
5650 06	6	5	3	20	35.5	8
5650 09	9	5	5	20	35.5	11
5680 06	6	7	3	20	40	14
5680 09	9	7	5	20	40	15
5680 12	12	7	7	20	40	19

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Fittings Mod. 5750 Mini Profile and Mod. 5780 European Profile

Hose Connector



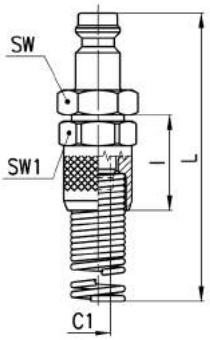


DIMENSIONS								
Mod.	Tube	Ø	E	I	L	SW	SW1	Weight (g)
5750 6x14	6 X 14	5	9	25	45	14	17	40
5780 6x14	6 X 14	7	9	25	50	14	17	44
5780 8x17	8 X 17	7	10	25	50	14	19	50
5780 13x23	13 X 23	7	15	37	62	19	27	123

Fittings Mod. 5850 Mini Profile and Mod. 5880 European Profile

Connector with Spring





DIMENSIONS								
Mod.	Tube	Ø	C1	I	L	SW	SW1	Weight (g)
5850 6/4	6/4	5	3	19	111,5	12	12	27
5850 8/6	8/6	5	5	19	116	14	14	40
5880 8/6	8/6	7	5	19	120	14	14	44
5880 10/8	10/8	7	6,5	21,5	125	17	16	55

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series 5000L and 5000LT quick-release couplings for the conditioning of moulds for plastics

New

Nominal diameters: 5, 7 mm
Couplings threads: G1/8, G1/4, G3/8



The Series 5000L and 5000LT couplings have been designed to connect tubes for water, air or oil, used within plastic injection and die casting moulds.

The Series 5000L and 5000LT couplings provide a quick connection and disconnection method for the replacement of heating and conditioning tubes directed towards the mould, as well as tubes coming from water collectors or sources.

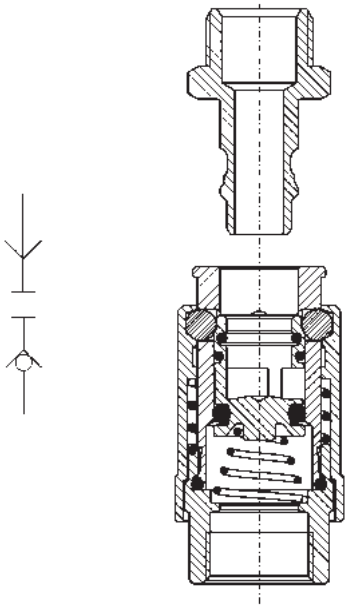
- Series 5000L couplings: without through-hole
- Series 5000LT couplings: with through-hole

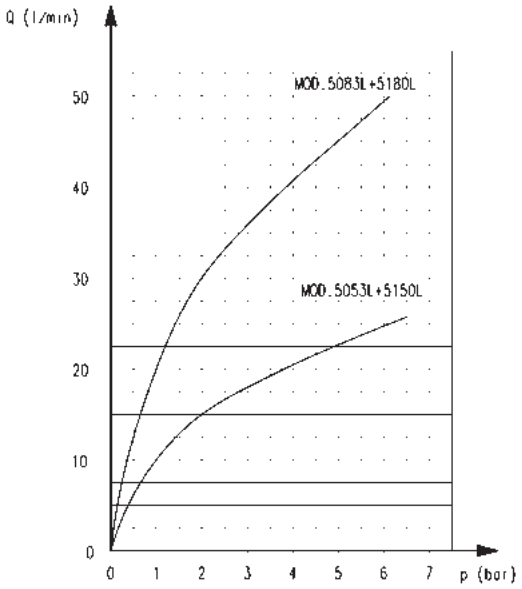
GENERAL DATA

Valve group	quick-release valve
Construction	poppet
Mounting	by means of threading
Threadings	GAS cylindrical ISO 228 (BSP)
Threads	G1/8 - G1/4 - G3/8
Materials	Internal/external parts in brass Springs and balls in stainless steel Seals in FKM
Operating temperature	-15°C ÷ 140°C (200°C with oil)
Operating pressure	-0.99 ÷ 12 bar
Nominal pressure	6 bar
Nominal flow	see flow diagrams on the following page
Nominal diameter	ø5 - ø7
Media	water, air and oil

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Couplings type “L” - operating principle and flow diagram



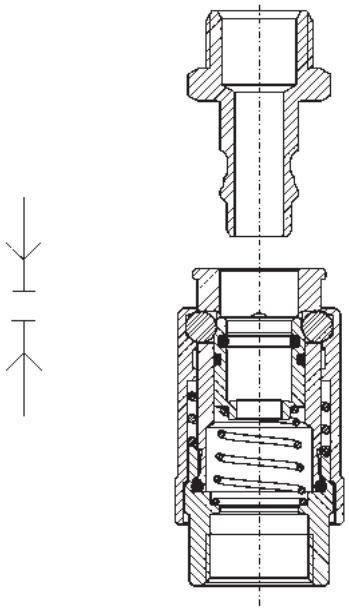


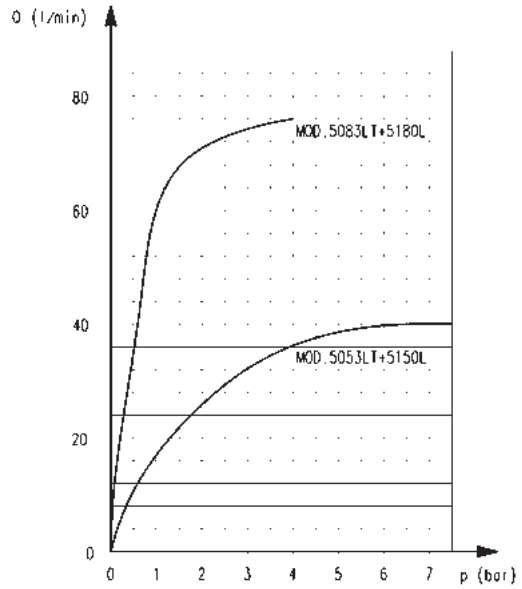
The female couplings are realized to prevent any fluid leakage during connection and disconnection.

Q (l/min) = Flow
p = load loss

The diagram helps users choose the most suitable model in relation to the operating pressure and the required flow rate. The measurements were taken using the models indicated and represent the ideal max flow rate conditions. In case tubes of inferior quality are used, this might result in poorer performance.

Couplings type “LT” - operating principle and flow diagram





For applications requiring a higher flow rate, the female coupling version with through hole is available.
This solution allows a higher fluid flow but doesn’t prevent fluid leakage during disconnection.

Q (l/min) = Flow
p = load loss

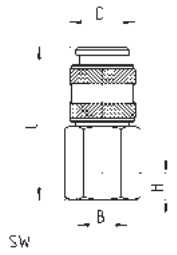
The diagram helps users choose the most suitable model in relation to the operating pressure and the required flow rate. The measurements were taken using the models indicated and represent the ideal max flow rate conditions. In case tubes of inferior quality are used, this might result in poorer performance.

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Fittings Mod. 5053L and 5053LT

BSP female quick-coupling



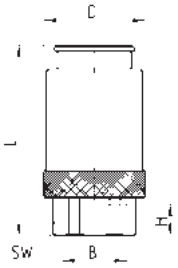


Mod.	B	D	H min	L	SW	weight (g)	Symbol
5053L 1/8	G1/8	17	6	37	14	34	VNR3
5053L 1/4	G1/4	17	7	39	17	44	VNR3
5053LT 1/8	G1/8	17	6	37	14	34	VNR2
5053LT 1/4	G1/4	17	7	39	17	44	VNR2

Fittings Mod. 5083L and 5083LT

BSP female quick-coupling



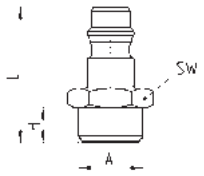


Mod.	B	D	H min	L	SW	weight (g)	Symbol
5083L 1/4	G1/4	26	10	47.5	17	104	VNR3
5083L 3/8	G3/8	26	8	49	20	110	VNR3
5083LT 1/4	G1/4	26	10	47.5	17	104	VNR2
5083LT 3/8	G3/8	26	8	49	20	110	VNR2

Fittings Mod. 5150L and 5180L

Male connector





Mod.	A	H	L	SW	weight (g)
5150L 1/8	G1/8	6	26.5	13	11
5150L 1/4	G1/4	8	29	17	17
5180L 1/4	G1/4	8	34	17	21
5180L 3/8	G3/8	9	35	19	25

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Series T, MPL, PNZ tubing, spirals and accessories

Tubes: reinforced PVC, Polyamide PA12, Hytrel Polyester, Polyethylene, PU.
Diameters: 4/2, 5/3, 6/4, 8/6, 10/8, 12/10, 15/12,5 mm



Camozzi offers a range of tubes and spirals with specific features which are suitable for several technical requirements.
Thanks to high-quality raw materials and with a low specific weight, these products are very small and lightweight. They also show high resistance against stress and flexural vibrations.

The high specularity of internal surfaces for the fluid passage (roughness of about 6 micron) allows to reduce the loosening of loads and to reach very high flows with same diameters.
Technopolymers used are particularly resistant to aging, thus ensuring the product a very long life.

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Tubes Mod. PV



Tubes in reinforced PVC

Standard colour: Blue

Mod.	D/d	Max pressure at 20°C (bar)	Weight (g/m)	Bend radius (mm)	Lot (m)
PV 6/4	6/4	40	22	50	50
PV 8/6	8/6	38	30	60	50
PV 10/8	10/8	30	40	65	50
PV 12/10	12/10	24	56	80	50
PV 15/12,5	15/12.5	18	70	90	50

Tubes Mod. TRN



Tubes in polyamide PA12

Standard colour: Neutral
Colours available on request:
Blue - Red - Green - Black - Yellow

Mod.	D/d	Max pressure at 23°C (bar)	Weight (g/m)	Bend radius (mm)	Lot (m)
TRN 4/2	4/2	44	9.7	16	100
TRN 5/3	5/3	33	12.9	20	100
TRN 6/4	6/4	28	16.2	30	100
TRN 8/6	8/6	20	22.6	40	100
TRN 10/8	10/8	16	29.1	60	50
TRN 12/10	12/10	12	35.6	85	50

Tubes Mod. TRH



Tubes in Hytrel polyester

Standard colour: Blue
Colours available on request:
Red - Green - Black - Yellow - White

Mod.	D/d	Max pressure at 23°C (bar)	Weight (g/m)	Bend radius (mm)	Lot (m)
TRH 4/2-Z	4/2	32	11.5	16	100
TRH 5/3-Z	5/3	27	15.3	25	100
TRH 6/4-Z	6/4	21	19.2	35	100
TRH 8/6-Z	8/6	15	26.8	65	100
TRH 10/8-Z	10/8	12	34.5	100	50
TRH 12/10-Z	12/10	10	42.1	125	50

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Tubes Mod. TPE



Tube in low density polyethylene

Standard colour: Neutral
Colours available on request: Blue

Mod.	D/d	Max pressure at 23°C (bar)	Weight (g/m)	Bend radius (mm)	Lot (m)
TPE 5/3	5/3	17	11.3	23	100
TPE 6/4	6/4	13	14.1	32	100
TPE 8/6	8/6	10	19.8	43	100
TPE 10/8	10/8	7	25.4	76	100

Tubes Mod. TPC



Tubes in Polyurethane 98 Shore

Standard colour: Grey RAL 7012

Mod.	D/d	Max pressure at 23°C (bar)	Weight (g/m)	Bend radius (mm)	Lot (m)
TPC 4/2	4/2	19	11.5	11	100
TPC 6/4	6/4	13	19.2	18	100
TPC 8/6	8/6	9	26.8	35	100
TPC 10/8	10/8	7	34.5	45	100
TPC 12/8	12/8	9	76.6	50	100

Tubes Mod. TSP



Spiral in Rilsan (PA 11)

Standard colour: Blue
Other colours available on request

Mod.	D/d	max pressure at 20°C (bar)	External Ø	Closed length (mm)	Open length (mm)
TSP 6/4	6/4	20	64	1000	15000
TSP 8/6	8/6	14	86	1000	15000
TSP 10/8	10/8	11	102	1050	15000
TSP 12/10	12/10	9	126	1050	15000

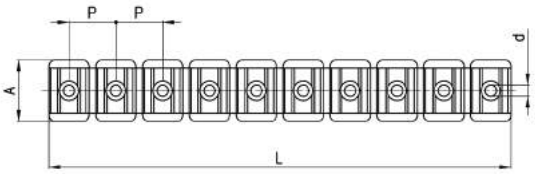
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General terms and conditions for sale are available on www.camozzi.com.

Tubes clamps Mod. MPL

Plastic tubes clamps

Colour: Blue





Mod.	Ø Tube	L	A	d	P	Nr of positions
MPL-4	4	114	19	2.8	11.7	10
MPL-6	6	114	19	2.8	11.7	10
MPL-8	8	143	19	3.8	14.6	10
MPL-10	10	172	19	5.3	17.4	10
MPL-12	12	162	19	5.3	20.5	8
MPL-14	14	180	19	5.3	22.5	8

Tube cutter tool Mod. PNZ... and PNZP-12

Tubes cutter Mod. PNZ...: replacement blades can be ordered separately.

Tubes cutter Mod. PNZP-12: plastic.



PNZ-...



PNZP-12

Mod.	
PNZ-12	able to cut tubes with Ø up to 12 mm
PNZ-25	able to cut tubes with Ø up to 25 mm
PNZP-12	able to cut tubes with Ø up to 12 mm

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.



5 / 1 Suction pads

		Section
Series VTCF	**Flat suction pads (round)** Universal suction pads in NBR or Silicone. Diameters from 3.5 to 95 mm with thread size M3, M5, G1/8, G1/4, both male and female.	5/1.05
Series VTOF	**Flat suction pads (oval)** In NBR or Silicone. Diameters from 7x3,5 to 60x20 mm with thread size M3, M5, G1/8, G1/4, both male and female.	5/1.10
Series VTCL	**Bellows suction pads (round) 1,5 folds** In NBR or Silicone. Diameters from 11 to 53 mm with thread size M5, G1/8, G1/4, both male and female.	5/1.15
Series VTCN	**Bellows suction pads (round) 2,5 folds** In NBR or Silicone. Diameters from 5 to 52 mm with thread size M5, G1/8, G1/4, both male and female.	5/1.20

5 / 2 Ejectors based on Venturi principle

		Section
Series VEB 	**Basic ejectors** Basic ejectors with no moving parts, based on the Venturi principle. Version “L” for porosive workpieces. Version “H” for high vacuum value.	5/2.05
Series VEBL 	**Basic ejectors** Basic ejectors in technopolymer without moving parts, based on the Venturi principle. Different sizes available, with internal nozzle from 0,5 to 2,5 mm and with suction rate from 8 to 207 l/min.	5/2.07
Series VED 	**Inline ejectors** Vacuum ejectors without moving parts, based on the Venturi principle, used for direct installation on suction pads.	5/2.10
Series VEDL 	**Inline ejectors** Vacuum compact ejectors in technopolymer without moving parts, based on the Venturi principle, used for direct installation on suction pads. Available in two sizes with internal nozzle of 0,5 and 0,7 mm and with suction rate from 8 to 16 l/min.	5/2.12
Series VEC 	**Compact ejectors** Vacuum generators with integrated valves and monitoring system. Possibility to command suction and blow-off individually without using external valves.	5/2.15
Series VEM 	**Compact ejectors** Miniaturized vacuum generators with integrated valves and monitoring system. Possibility to command suction and blow-off individually without using external valves.	5/2.20

5 / 3 Accessories

		Section
Series NPF 	**Flexible suction pad mountings** The vulcanisation provides flexibility in all directions. Thread G1/4.	5/3.05
Series NPM, NPR 	**Spring plungers (non rotating)** The spring plungers are used in situations where significant height differences of the workpiece have to be compensated for. Thread size M3, M5, G1/8, G1/4, plunger stroke length from 5 to 75 mm.	5/3.10
Series VNV 	**Check valves** These check valves are mainly used on vacuum gripper systems containing multiple suction pads in order to shut off individual suction pads which are not covered. Thread size M5, G1/8, G1/4, G3/8, G1/2.	5/3.15

5 / 4 Filters

		Section
Series FVD 	**Inline vacuum filters** For use in vacuum systems with minor to medium levels of dirt. Direct mounting on the suction pad.	5/4.05
Series FVT 	**Vacuum cup filters** Used as pre-filters and fine filters for air with varying amounts of contamination, for the protection of the vacuum generator. Mounted as protection for the ejector.	5/4.10

Pressure / vacuum switches

	Section
See	2/8...

Series VTCF flat suction pads (round)

Universal suction pads in NBR or Silicone.
Diameters from 3.5 to 95 mm with thread size M3, M5, G1/8, G1/4, both male and female.



- Wide range of diameters, all available in materials NBR or Silicone.
- Low profile, with reduced intrinsic volume which enables short cycle times and/or the use of smaller vacuum generators.
- Compact design for good resistence towards transversal forces at high accelerations, thus suitable for application with fast movements.
- Negligible movement of the piece in suction phase.

Series VTCF flat suction pads consist of a nipple and rubber part which are delivered separately. In fact, both components can be ordered separately as spare parts.
From diameter 60 mm and up a mounting plate is vulcanised into the rubber part to which the nipple should be mounted.

These suction pads are generally used for handling of objects with smooth or slightly curved surfaces such as sheets of different materials, extruded profiles, cardboard boxes, plastic components, wood panels etc.

Applications:
- Handling of flat parts with smooth or slight rough surfaces
- Silicone version for the handling of parts at high temperatures

GENERAL DATA

Description	robust hard-wearing suction pads consisting of suction pad VTCF and connection nipple
Constuction	- nipples and suction pads are supplied not assembled - diameters of 60 mm and more: nipple screwed into supporting plate vulcanised to the pad
Maintenance	it is possible to replace the soft element
Working temperature	NBR version: -30°C ÷ +120°C (for short time <30 sec.); -10°C ÷ +70°C (long-term) SILICONE version: -50°C ÷ +220°C (for short time <30 sec.); -30°C ÷ +180°C (long-term)

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

TECHNICAL DATA

Mod./Diameter	Suction force (N)*	Int. volume (cm³)	Min. convex curvature radius (mm)	Internal tube diameter (mm)
VTCF-0035	0,42	0,002	2	2
VTCF-0050	0,75	0,005	4	2
VTCF-0080	2,3	0,03	5	2
VTCF-0100	4	0,07	6	2
VTCF-0150	9	0,4	9	4
VTCF-0200	15,5	0,8	13	4
VTCF-0250	26,5	1,3	18	4
VTCF-0300	34	1,3	26	4
VTCF-0350	44	2,7	31	4
VTCF-0400	57,7	3,8	37	4
VTCF-0500	91	7	41	4
VTCF-0600	125	10	70	6
VTCF-0800	260	25	100	6
VTCF-0950	350	35	150	6

CODING EXAMPLE

VT	C	F	-	0035	N	-	M3	M

VT	SERIES VT = Suction pad
C	SHAPE C = round
F	VERSION F = flat
0035	DIAMETERS 0035= 3,5 mm 0050 = 5,0 mm 0080 = 8,0 mm 0100 = 10,0 mm 0150 = 15,0 mm 0200 = 20,0 mm 0250 = 25,0 mm 0300 = 30,0 mm 0350 = 35,0 mm 0400 = 40,0 mm 0500 = 50,0 mm 0600 = 60,0 mm 0800 = 80,0 mm 0950 = 95,0 mm
N	MATERIALS N = NBR S = Silicone
M3	THREAD SIZE M3 = M3 M5 = M5 1/8 = G1/8 1/4 = G1/4
M	THREAD M = male F = female

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

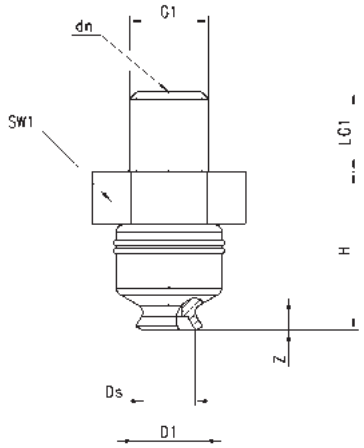
Suction pad VTCF-0035 - male thread

* = N for suction pad in NBR - S for suction pad in Silicone (add the required letter when placing an order)



Tolerances for elastomer parts according to M3 - DIN 7715

VEN1



DIMENSIONS

Suction pad with nipple	D1	dn	Ds	G1	H	LG1	SW1	Z	Suction pad	Nipple
VTCF-0035*-M3M	3,9	1	3,5	M3 M	6	3	5	0,5	VTCF-0035*	NPV-A-M3-M

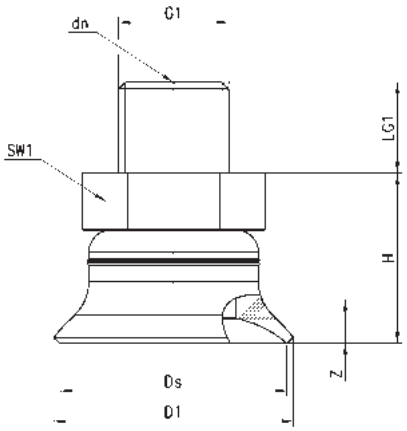
Suction pad VTCF-0050 to 0500 - male thread

* = N for suction pad in NBR - S for suction pad in Silicone (add the required letter when placing an order)



Tolerances for elastomer parts according to M3 - DIN 7715

VEN1



DIMENSIONS

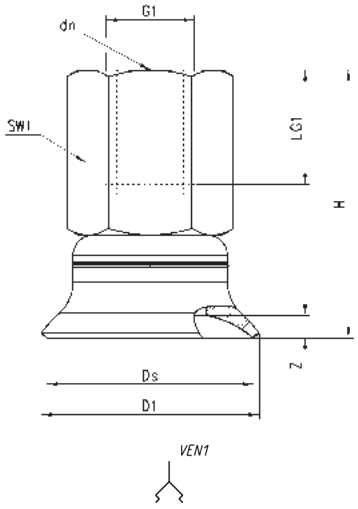
Suction pad with nipple	D1	dn	Ds	G1	H	LG1	SW1	Z	Suction pad	Nipple
VTCF-0050*-M5M	5,4	2	5	M5 M	11,5	4,5	8	0,9	VTCF-0050*	NPV-B-M5-M
VTCF-0080*-M5M	8,5	2	8	M5 M	12	4,5	8	1,4	VTCF-0080*	NPV-B-M5-M
VTCF-0100*-M5M	10,7	2	10	M5 M	12,5	4,5	8	1,3	VTCF-0100*	NPV-B-M5-M
VTCF-0150*-1/8M	15,8	2	15	G1/8 M	13	8	14	1,9	VTCF-0150*	NPV-G-1/8-M
VTCF-0200*-1/8M	21,2	2,4	20	G1/8 M	15	8	14	2,3	VTCF-0200*	NPV-H-1/8-M
VTCF-0250*-1/8M	25,8	2,4	25	G1/8 M	19	8	14	3	VTCF-0250*	NPV-L-1/8-M
VTCF-0300*-1/8M	29,6	2,4	28,5	G1/8 M	17	8	14	2	VTCF-0300*	NPV-L-1/8-M
VTCF-0350*-1/8M	35,6	2,4	35	G1/8 M	19	8	14	3	VTCF-0350*	NPV-L-1/8-M
VTCF-0400*-1/8M	41,6	2,4	40	G1/8 M	19	8	14	3,5	VTCF-0400*	NPV-L-1/8-M
VTCF-0500*-1/8M	51,1	2,4	50	G1/8 M	20	8	14	4	VTCF-0500*	NPV-M-1/8-M

Products designed for industrial applications.
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Suction pad VTCF-0050 to 0500 - female thread



* = N for suction pad in NBR - S for suction pad in Silicone (add the required letter when placing an order)



Tolerances for elastomer parts according to M3 - DIN 7715

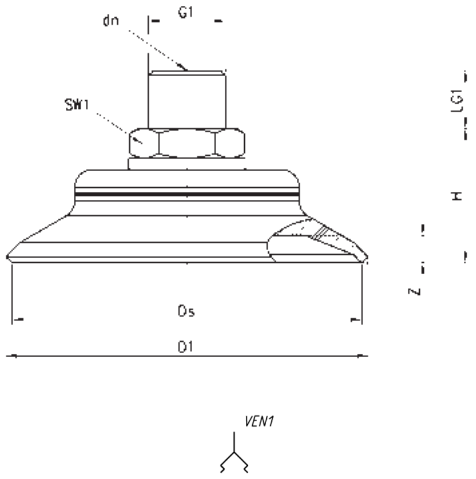
DIMENSIONS

Suction pad with nipple	D1	dm	Ds	G1	H	LG1	SW1	Z	Suction pad	Nipple
VTCF-0100*-1/8F	10,7	2	10	G1/8 F	23,5	9	14	1,3	VTCF-0100*	NPV-F-1/8-F
VTCF-0150*-1/8F	15,8	2	15	G1/8 F	24	9	14	1,9	VTCF-0150*	NPV-G-1/8-F
VTCF-0200*-1/8F	21,2	2	20	G1/8 F	26	9	14	2,3	VTCF-0200*	NPV-H-1/8-F
VTCF-0250*-1/8F	25,8	2,4	25	G1/8 F	30	9	14	3	VTCF-0250*	NPV-L-1/8-F
VTCF-0300*-1/8F	29,6	2,4	28,8	G1/8 F	28	9	14	2	VTCF-0300*	NPV-L-1/8-F
VTCF-0350*-1/8F	35,6	2,4	35	G1/8 F	30	9	14	3	VTCF-0350*	NPV-L-1/8-F
VTCF-0400*-1/8F	41,6	2,4	40	G1/8 F	30	9	14	3,5	VTCF-0400*	NPV-L-1/8-F
VTCF-0500*-1/8F	51,1	2,4	50	G1/8 F	31	9	14	4	VTCF-0500*	NPV-M-1/8-F

Suction pad VTCF-0600 to 0950 - male thread



* = N for suction pad in NBR - S for suction pad in Silicone (add the required letter when placing an order)



Tolerances for elastomer parts according to M3 - DIN 7715

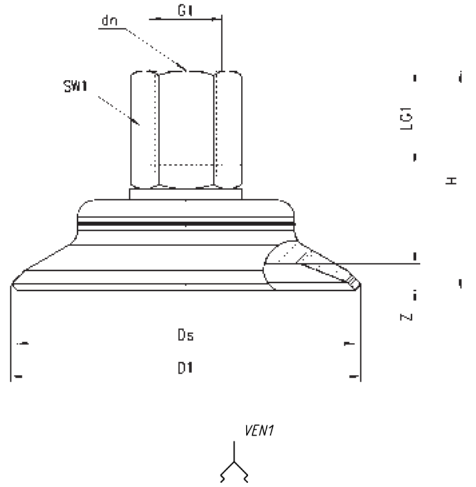
DIMENSIONS

Suction pad with nipple	D1	dm	Ds	G1	H	LG1	SW1	Z	Suction pad	Nipple
VTCF-0600*-1/4M	62,1	5,5	60	G1/4 M	23	10	17	5	VTCF-0600*	NPV-N-1/4-M
VTCF-0800*-1/4M	82,8	5,5	80	G1/4 M	25	10	17	6	VTCF-0800*	NPV-N-1/4-M
VTCF-0950*-1/4M	97,8	5,5	95	G1/4 M	25,5	10	17	6	VTCF-0950*	NPV-N-1/4-M

Suction pad VTCF-0600 to 0950 - female thread



* = N for suction pad in NBR - S for suction pad in Silicone (add the required letter when placing an order)



Tolerances for elastomer parts according to M3 - DIN 7715

DIMENSIONS

Suction pad with nipple	D1	dm	Ds	G1	H	LG1	SW1	Z	Suction pad	Nipple
VTCF-0600* 1/4F	62,1	5,5	60	G1/4 F	39	11	17	5	VTCF 0600*	NPV-N-1/4-F
VTCF-0800* 1/4F	82,2	5,5	80	G1/4 F	41	11	17	6	VTCF 0800*	NPV-N-1/4-F
VTCF-0950* 1/4F	97,8	5,5	95	G1/4 F	41,5	11	17	5	VTCF 0950*	NPV-N-1/4-F

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series VTOF flat suction pads (oval)

Flat suction pads in NBR or Silicone which, thanks to their oval shape, can be used to handle narrow and long workpieces. Diameters from 7x3,5 to 60x20 mm with thread size M3, M5, G1/8, G1/4, both male and female.



- Wide range of diameters, all available in materials NBR or Silicone.
- Low profile with reduced intrinsic volume which enables short cycle times and/or the use of smaller vacuum generators.
- Optimised shape for high suction force with reduced size.
- Support on the bottom to avoid permanent deformation on the workpiece.
- Size 30x10 and up equipped with a special clip to prevent unwanted rotation.

Series VTOF flat oval suction pads consist of a nipple and rubber part. The nipples are inserted directly into the rubber part.
Pads size 30x10 and larger are further equipped with a special clip in order to avoid unwanted rotation during operation.
The suction pads can also be ordered separately without nipples as spare parts.

Applications:
- Handling of narrow workpieces with small undulated gripping surface such as plates, extruded profiles plastic components, etc
- Handling of frame elements as for example doors, windows, etc
- Silicone version for the handling of pieces at high temperatures

GENERAL DATA

Description	robust and wear resistant pad consisting of rubber part and connection nipple
Construction	- nipples and suction pads are supplied not pre-assembled - size 30x10 mm and up equipped with a clip to avoid rotation
Maintenance	it is possible to replace the rubber part
Working temperature	NBR version: -30°C ÷ +120°C (for short time <30 sec.); -10°C ÷ +70°C (long-term) SILICONE version: -50°C ÷ +220°C (for short time <30 sec.); -30°C ÷ +180°C (long-term)

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

TECHNICAL DATA

Mod./Diameter	Suction force (N)*	Volume (cm³)	Min. convex curve radius (mm)	Recommended internal tube diameter (mm)
VTOF-0070-035	1	0,019	3	2
VTOF-0150-050	3,1	0,036	5	2
VTOF-0180-060	4,5	0,058	7	2
VTOF-0300-100	12,2	0,28	10	4
VTOF-0450-150	28,2	0,98	18	6
VTOF-0600-200	50,1	2,3	25	6

CODING EXAMPLE

VT	O	F	-	0070-035	N	-	M3	M

VT	SERIES: VT = suction pad
O	SHAPE: 0 = oval
F	VERSION: F = FLAT
0070-035	DIMENSIONS: 0070-035 = 7,0 x 3,5 mm 0150-050 = 15,0 x 5,0 mm 0180-060 = 18,0 x 6,0 mm 0300-100 = 30,0 x 10,0 mm 0450-150 = 45,0 x 15,0 mm 0600-200 = 60,0 x 20,0 mm
N	MATERIALS: N= NBR S = Silicone
M3	THREAD SIZE: M3 = M3 M5 = M5 1/8 = G1/8 1/4 = G1/4
M	THREAD: M = male F = female

Products designed for industrial applications.
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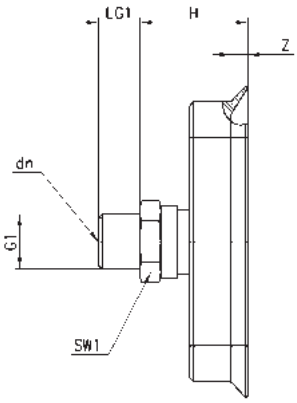
Series VTOF suction pad - male thread

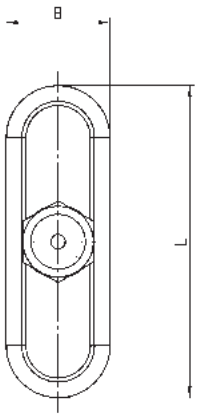
* = N for suction pad in NBR - S for suction pad in Silicone (add the required letter when placing an order)



Tolerances on dimensions
for elastomer parts
according to M3 - DIN 7715

VEN1





DIMENSIONS										
Suction pad with nipple	B	dn	G1	H	L	LG1	SW1	Z	Suction pad	Nipple
VTOF-0070-035*-M3M	3,5	1	M3M	8	7	3	5	08	VTOF-0070-035*	NPV-A-M3-M
VTOF-0150-050*-M5M	5	2	M5M	17	15	5	8	07	VTOF-0150-050*	NPV-C-M5-M
VTOF-0180-060*-M5M	6	2	M5M	17	18	5	8	08	VTOF-0180-060*	NPV-C-M5-M
VTOF-0300-100*-1/8M	10	3,5	G1/8 M	17	30	8	14	1,5	VTOF-0300-100*	NPV-P-1/8-M
VTOF-0450-150*-1/4M	15	3,5	G1/4 M	26	45	10	17	2	VTOF-0450-150*	NPV-Q-1/4-M
VTOF-0600-200*-1/4M	20	3,5	G1/4 M	26	60	10	17	2,5	VTOF-0600-200*	NPV-Q-1/4-M

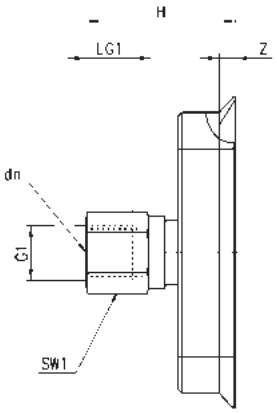
Series VTOF suction pad - female thread

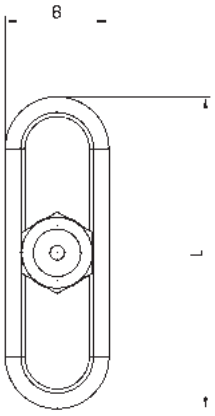
* = N for suction pad in NBR - S for suction pad in Silicone (add the required letter when placing an order)



Tolerances on dimensions
for elastomer parts
according to M3 - DIN 7715

VEN1





DIMENSIONS										
Suction pad with nipple	B	dm	G1	H	L	LG1	SW1	Z	Suction pad	Nipple
VTOF-0150-050*-M5F	5	2	M5 F	22	15	5,5	8	0,7	VTOF-0150-050*	NPV-C-M5-F
VTOF-0180-060*-M5F	6	2	M5 F	22	18	5,5	8	0,8	VTOF-0180-060*	NPV-C-M5-F
VTOF-0300-100*-1/8F	10	3,5	G1/8 F	25	30	9	14	1,5	VTOF-0300-100*	NPV-P-1/8-F
VTOF-0450-150*-1/4F	15	3,5	G1/4 F	36	45	12	17	2	VTOF-0450-150*	NPV-Q-1/4-F
VTOF-0600-200*-1/4F	20	3,5	G1/4 F	36	60	12	17	2,5	VTOF-0600-200*	NPV-Q-1/4-F

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series VTCL bellows suction pads (round) - 1,5 folds

Series VTCL bellows suction pads available in NBR or Silicone which allow an optimal damping when placed on the workpiece. Diameters from 11 to 53 mm with thread size M5, G1/8, G1/4, both male and female.



Series VTCL bellows suction pads (1,5 folds) have a rugged design and consist of a nipple and rubber part.
The nipples are inserted directly into the rubber part.
The rubber parts can also be ordered separately without nipples as spare parts.
Materials: NBR or Silicone

Applications:
- Handling of even or uneven workpieces such as planels for car bodies, tubes, cardboard boxes
Handling of fragile workpieces such as electronics components, injection moulded pieces, etc
- Handling of welded pieces
- Silicone version for handling high temperatures pieces

- Wide range of diameters, available in NBR or Silicone.
- Soft, tapered sealing lip for very good adaption to curved or uneven workpiece surfaces in general.
- High suction force and optimal damping when placed on the workpiece.
- Support on the bottom to avoid permanent deformation of the workpiece.
- Very stiff top fold for good stability and good resistance towards transversal forces at high accelerations.
- Good compensation of possible height differences on the workpiece.
- Optimised shape with 1,5 folds.

GENERAL DATA

Description	wear resistant suction pad consisting of rubber part VTCL with 1,5 folds and connection nipple
Construction	nipples and suction pads are supplied not pre-assembled
Maintenance	it is possible to replace the rubber part
Working temperature	NBR version: -30°C ÷ +120°C (for short time <30 sec.); -10°C ÷ +70°C (long-term) SILICONE version: -50°C ÷ +220°C (for short time <30 sec.); -30°C ÷ +180°C (long-term)

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

TECHNICAL DATA

Mod./Diameter	Suction force (N)*	Pull-off force (N)* (convex)	Volume (cm³)	Min. curve radius (mm)	Recommended internal tube diam. (mm)
VTCL-110	0,95	3,8	0,225	5	4
VTCL-140	1,2	5	0,42	6	4
VTCL-160	2,3	6,7	0,75	7	4
VTCL-200	4,7	10,7	1,15	9	4
VTCL-250	7,3	17,3	3,15	11	4
VTCL-330	13,6	39,6	4,75	15	6
VTCL-430	22,8	64,5	9,25	30	6
VTCL-530	51,3	95	26,25	40	6

CODING EXAMPLE

VT	C	L	-	110	N	-	M5	M

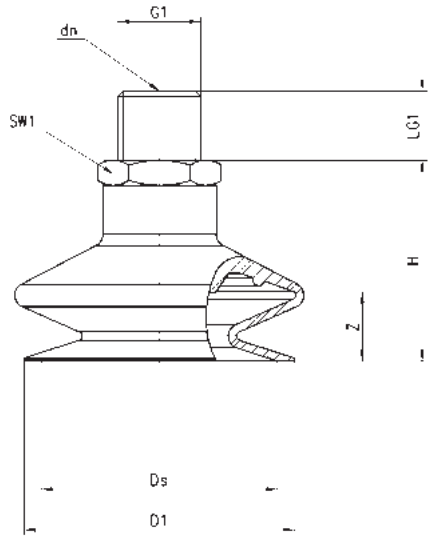
VT	SERIES VT = Suction pad
C	SHAPE C = round
L	VERSION L = bellows 1,5 folds
110	DIAMETERS 110 = 11,0 mm 140 = 14,0 mm 160 = 16,0 mm 200 = 20,0 mm 250 = 25,0 mm 330 = 33,0 mm 430 = 43,0 mm 530 = 53,0 mm
N	MATERIALS N = NBR S = Silicone
M5	THREAD SIZE M5 = M5 1/8 = G1/8 1/4 = G1/4
M	THREAD M = male F = female

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series VTCL suction pad - male thread



* = N for suction pad in NBR
S for suction pad in Silicone
(add the required letter when placing an order)





Tolerances for elastomer parts
according to M3 - DIN 7715

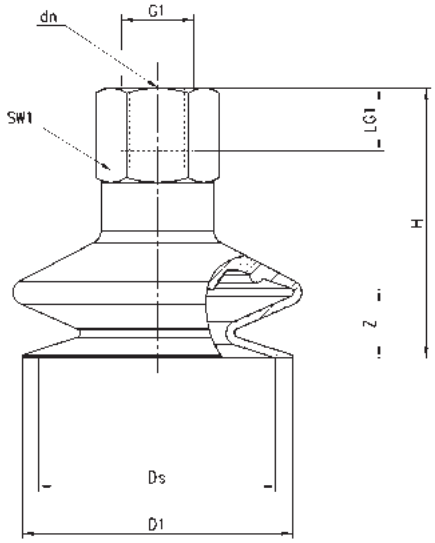
DIMENSIONS

Suction pad with nipple	D1	dn	Ds	G1	H	LG1	SW1	Z	Suction pad	Nipple
VTCL-110*-1/8M	11	3,5	10,4	G1/8 M	22	7,5	14	4	VTCL-110*	NPV-R-1/8-M
VTCL-110*-M5M	11	2,5	10,4	M 5 M	21	5	7	4	VTCL-110*	NPV-D-M5-M
VTCL-140*-1/8M	13	3,5	12,5	G1/8 M	22	7,5	14	5	VTCL-140*	NPV-R-1/8-M
VTCL-140*-M5M	13	2,5	12,5	M 5 M	21	4,5	7	5	VTCL-140*	NPV-D-M5-M
VTCL-160*-1/8M	16,5	3,5	15,6	G1/8 M	25	7,5	14	6	VTCL-160*	NPV-R-1/8-M
VTCL-160*-M5M	16,5	2,5	15,6	M 5 M	24	5	7	6	VTCL-160*	NPV-D-M5-M
VTCL-200*-1/8M	18,3	3,5	18,1	G1/8 M	21,5	7,5	14	5	VTCL-200*	NPV-R-1/8-M
VTCL-200*-M5M	18,3	2,5	18,1	M 5 M	20,5	4,5	7	5	VTCL-200*	NPV-D-M5-M
VTCL-250*-1/8M	23,7	3,5	22,5	G1/8 M	29	7,5	14	12	VTCL-250*	NPV-R-1/8-M
VTCL-330*-1/4M	33	4,4	30	G1/4 M	31	11	17	12	VTCL-330*	NPV-S-1/4-M
VTCL-430*-1/4M	43	4,4	38	G1/4 M	32	11	17	10	VTCL-430*	NPV-S-1/4-M
VTCL-530*-1/4M	53	4,4	50	G1/4 M	38	11	17	15	VTCL-530*	NPV-S-1/4-M

Series VTCL suction pad - female thread



* = N for suction pad in NBR
S for suction pad in Silicone
(add the required letter when placing an order)





Tolerances for elastomer parts
according to M3 - DIN 7715)

DIMENSIONS

Suction pad with nipple	D1	dm	Ds	G1	H	LG1	SW1	Z	Suction pad	Nipple
VTCL-110*-1/8F	11	3,5	10,4	G1/8 F	28	8,5	14	4	VTCL-110*	NPV-R-1/8-F
VTCL-140*-1/8F	13	3,5	12,5	G1/8 F	28	8,5	14	5	VTCL-140*	NPV-R-1/8-F
VTCL-160*-1/8F	16,5	3,5	15,6	G1/8 F	31	8,5	14	6	VTCL-160*	NPV-R-1/8-F
VTCL-200*-1/8F	18,3	3,5	18,1	G1/8 F	27,5	8,5	14	5	VTCL-200*	NPV-R-1/8-F
VTCL-250*-1/8F	23,7	3,5	22,5	G1/8 F	35	8,5	14	12	VTCL-250*	NPV-R-1/8-F
VTCL-330*-1/4F	33	4,4	30	G1/4 F	42	12	17	12	VTCL-330*	NPV-S-1/4-F
VTCL-430*-1/4F	43	4,4	38	G1/4 F	43	12	17	10	VTCL-430*	NPV-S-1/4-F
VTCL-530*-1/4F	53	4,4	50	g1/4 F	49	12	17	15	VTCL-530*	NPV-S-1/4-F

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series VTCN bellows suction pads (round) - 2,5 folds

Series VTCN bellows suction pads, available in NBR or Silicone, are suitable to handle uneven workpiece surfaces or workpiece major height differences. Diameters from 5 to 52 mm with thread size M5, G1/8, G1/4, both male and female.



Series VTCN bellows suction pads (2,5 folds) have a rugged design and consist of a nipple and rubber part.
The nipples are inserted directly into the rubber part.
The rubber parts can also be ordered separately without nipples as spare parts.
Materials: NBR or Silicone

Applications:
- Handling of even or uneven workpieces such as plates for car bodies, tubes, cardboard boxes
- Handling of fragile workpieces such as electronics components, injection moulded pieces, etc
- Handling of welded pieces
- Silicone version for handling of pieces at high temperatures

- Wide range of diameters, in NBR or Silicone versions.
- Soft, tapered sealing lip for very good adaption to curved or uneven workpiece surfaces in general.
- High suction force and optimal damping when placed on the workpiece.
- Support on the bottom to avoid permanent deformation of the workpiece.
- Very stiff top fold for good stability and good resistance towards transversal forces at high accelerations.
- Very good compensation of possible height differences on the workpiece.
- Optimised shape with 2,5 folds.

GENERAL DATA

Description	wear resistant suction pad consisting of rubber part VTCN with 2,5 folds and connection nipple
Construction	nipples and suction pads are supplied not pre-assembled
Maintenance	it is possible to replace the rubber part
Working temperature	NBR version: -30°C ÷ +120°C (for short time <30 sec.); -10°C ÷ +70°C (long-term) SILICONE version: -50°C ÷ +220°C (for short time <30 sec.); -30°C ÷ +180°C (long-term)

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

TECHNICAL DATA

Mod./Diameter	Suction force (N)*	Pull-off force (N)**	Volume (cm³)	Min. curve radius (mm) (convex)	Recommended internal tube diameter (mm)
VTCN-050	0,1	0,8	0,033	2	2
VTCN-070	0,1	0,9	0,043	3	4
VTCN-090	0,7	2,3	0,15	5	4
VTCN-120	0,9	3,5	0,6	6	4
VTCN-140	1,2	5,7	0,975	7	4
VTCN-180	2,3	8,5	1,35	9	4
VTCN-200	3,8	12,1	2	10	4
VTCN-250	4,5	19	5,4	12	4
VTCN-320	12	36,9	10	17	6
VTCN-420	13,6	44	19,5	24	6
VTCN-520	27	96	62	35	6

CODING EXAMPLE

VT	C	N	-	050	N	-	M5	M

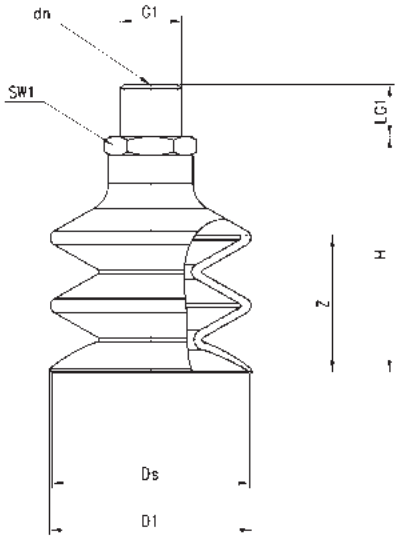
VT	SERIES VT = Suction pad
C	SHAPE C = round
N	VERSION N = bellows, 2,5 folds
050	DIAMETERS 050= 5,0 mm 070 = 7,0 mm 090 = 9,0 mm 120 = 12,0 mm 140 = 14,0 mm 180 = 18,0 mm 200 = 20,0 mm 250 = 25,0 mm 320 = 32,0 mm 420 = 42,0 mm 520 = 52,0 mm
N	MATERIALS N = NBR S = Silicone
M5	THREAD SIZE M5 = M5 1/8 = G1/8 1/4 = G1/4
M	THREAD M = male F = female

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series VTCN suction pad - male thread



* = N for suction pad in NBR
S for suction pad in Silicone
(add the required letter when placing an order)





Tolerances for elastomer parts
according to M3 - DIN 7715

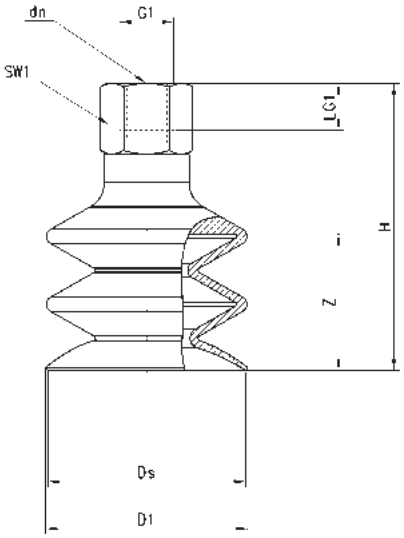
DIMENSIONS

Suction pad with nipple	D1	dn	Ds	G1	H	LG1	SW1	Z	Suction pad	Nipple
VTCN-050*-M5M	5,5	2	5	M 5 M	18,5	5	8	3	VTCN-050*	NPV-E-M5-M
VTCN-070*-1/8M	6,5	3,5	5,9	G1/8 M	20	7,5	14	4	VTCN-070*	NPV-R-1/8-M
VTCN-070*-M5M	6,5	2,5	5,9	M 5 M	19	5	7	4	VTCN-070*	NPV-D-M5-M
VTCN-090*-1/8M	9,3	3,5	9	G1/8 M	21	7,5	14	3	VTCN-090*	NPV-R-1/8-M
VTCN-090*-M5M	9,3	2,5	9	M 5 M	20	5	7	3	VTCN-090*	NPV-D-M5-M
VTCN-120*-1/8M	12,7	3,5	12	G1/8 M	27	7,5	14	7	VTCN-120*	NPV-R-1/8-M
VTCN-120*-M5M	12,7	2,5	12	M 5 M	26	5	7	7	VTCN-120*	NPV-D-M5-M
VTCN-140*-1/8M	15	3,5	14,5	G1/8 M	28	7,5	14	9	VTCN-140*	NPV-R-1/8-M
VTCN-140*-M5M	15	2,5	14,5	M 5 M	27	5	7	9	VTCN-140*	NPV-D-M5-M
VTCN-180*-1/8M	18,5	3,5	17,2	G1/8 M	28	7,5	14	9	VTCN-180*	NPV-R-1/8-M
VTCN-180*-M5M	18,5	2,5	17,2	M 5 M	27	5	7	9	VTCN-180*	NPV-D-M5-M
VTCN-200*-1/8M	20	3,5	20	G1/8 M	28	7,5	14	9	VTCN-200*	NPV-R-1/8-M
VTCN-200*-M5M	20	2,5	20	M 5 M	27	5	7	9	VTCN-200*	NPV-D-M5-M
VTCN-250*-1/8M	24,7	3,5	23	G1/8 M	40	7,5	14	18	VTCN-250*	NPV-R-1/8-M
VTCN-320*-1/4M	32,6	4,4	32	G1/8 M	41,5	11	17	15	VTCN-320*	NPV-S-1/4-M
VTCN-420*-1/4M	43,5	4,4	42,6	G1/4 M	50	11	17	20	VTCN-420*	NPV-S-1/4-M
VTCN-520*-1/4M	52,5	4,4	52,5	G1/4 M	53	11	17	25	VTCN-520*	NPV-S-1/4-M

Series VTCN suction pad - female thread



* = N for suction pad in NBR
S for suction pad in Silicone
(add the required letter when placing an order)





Tolerances for elastomer parts
according to M3 - DIN 7715

DIMENSIONS

Suction pad with nipple	D1	dn	Ds	G1	H	LG1	SW1	Z	Suction pad	Nipple
VTCN-050*-M5F	5,5	2	5	M 5 F	18,5	5	8	3	VTCN-050*	NPV-E-M5-F
VTCN-070*-1/8F	6,5	3,5	5,9	G1/8 F	26	8,5	14	4	VTCN-070*	NPV-R-1/8-F
VTCN-090*-1/8F	9,3	3,5	9	G1/8 F	27	8,5	14	3	VTCN-090*	NPV-R-1/8-F
VTCN-120*-1/8F	12,7	3,5	12	G1/8 F	33	8,5	14	7	VTCN-120*	NPV-R-1/8-F
VTCN-140*-1/8F	15	3,5	14,5	G1/8 F	34	8,5	14	9	VTCN-140*	NPV-R-1/8-F
VTCN-180*-1/8F	18,5	3,5	17,2	G1/8 F	34	8,5	14	9	VTCN-180*	NPV-R-1/8-F
VTCN-200*-1/8F	20	3,5	20	G1/8 F	34	8,5	14	9	VTCN-200*	NPV-R-1/8-F
VTCN-250*-1/8F	24,7	3,5	23	G1/8 F	46	8,5	14	18	VTCN-250*	NPV-R-1/8-F
VTCN-320*-1/4F	32,6	4,4	32	G1/4 F	52,5	12	17	15	VTCN-320*	NPV-S-1/4-F
VTCN-420*-1/4F	43,5	4,4	42,6	G1/4 F	61	12	17	20	VTCN-420*	NPV-S-1/4-F
VTCN-520*-1/4F	52,5	4,4	52,5	G1/4 F	64	12	17	25	VTCN-520*	NPV-S-1/4-F

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series VEB basic ejectors

Basic ejectors with no moving parts, based on the Venturi principle.
Version “L” for porosive workpieces.
Version “H” for high vacuum value.



- No moving parts for long life and low maintenance
- Reduced weight
- Rapid generation of vacuum

Series VEB basic ejectors are universal ejectors suitable for several industrial applications.
They are available in two versions:
- Version “L” for porosive workpieces
- Version “H” for high vacuum value (85%)

Applications:
- Industrial robotics in most sectors
- Wood industry
- Packaging industry
- Food industry

GENERAL DATA

Description	- body in anodized Aluminium - internal nozzle in brass - silencer in technopolymer

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

CODING EXAMPLE

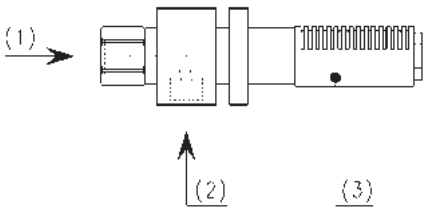
VE	B	-	05	H

VE	SERIES VE = Vacuum ejector
B	VERSION B = basic
05	NOZZLE DIAMETER (MM) 05 = 0,5 mm 07 = 0,7 mm 10 = 1 mm 15 = 1,5 mm 20 = 2 mm 25 = 2,5 mm 30 = 3 mm
H	SUCTION TYPE H = high vacuum L = high suction rate

TECHNICAL DATA

1 = Compressed air inlet
2 = Vacuum inlet
3 = Exhaust



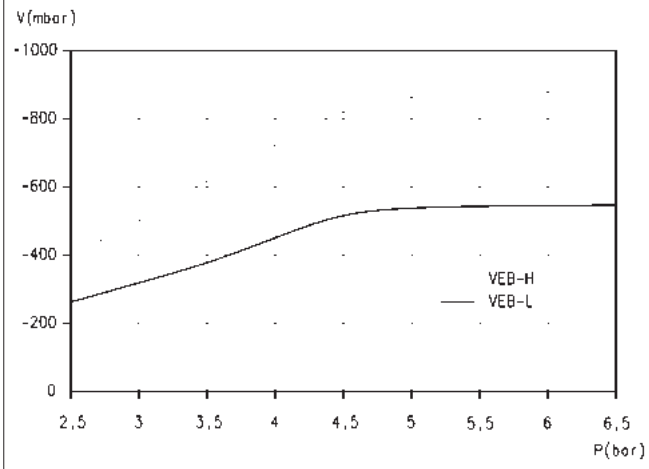


TECHNICAL DATA

Mod.	Ø nozzle (mm)	Degree of evacuation (%)	Suction rate max. (l/min)	Suction rate max. (m³/min)	Air consumption (l/min)	Air consumption (m³/h)	Working pressure (bar)	Weight (kg)
VEB-05H	0,5	82	7	0,4	13	0,8	4,5	0,011
VEB-07H	0,7	85	14	0,8	21	1,3	4,5	0,045
VEB-10H	1	85	34	2	49	2,9	5	0,05
VEB-15H	1,5	85	69	4,1	102	6,1	4,5	0,11
VEB-20H	2	85	124	7,4	186	11,2	5	0,13
VEB-20L	2	55	170	10,2	186	11,2	5	0,13
VEB-25H	2,5	85	184	11	275	16,5	5	0,295
VEB-25L	2,5	55	260	15,6	275	16,5	5	0,295
VEB-30H	3	85	240	14,4	392	23,5	5	0,404
VEB-30L	3	55	370	22,2	392	23,5	5	0,404

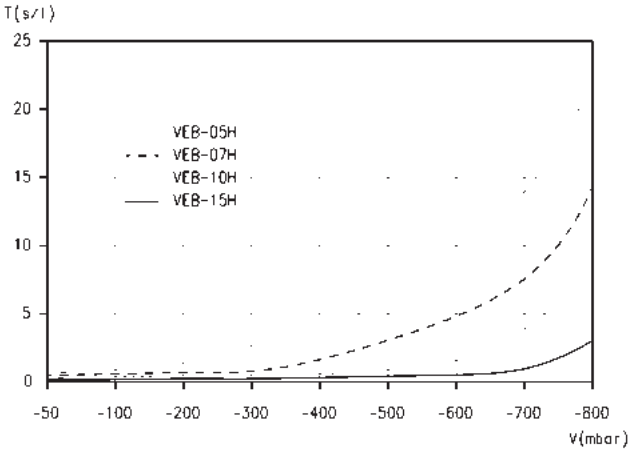
Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Diagrams VEB



LEGEND:
V = vacuum values
P = working pressure

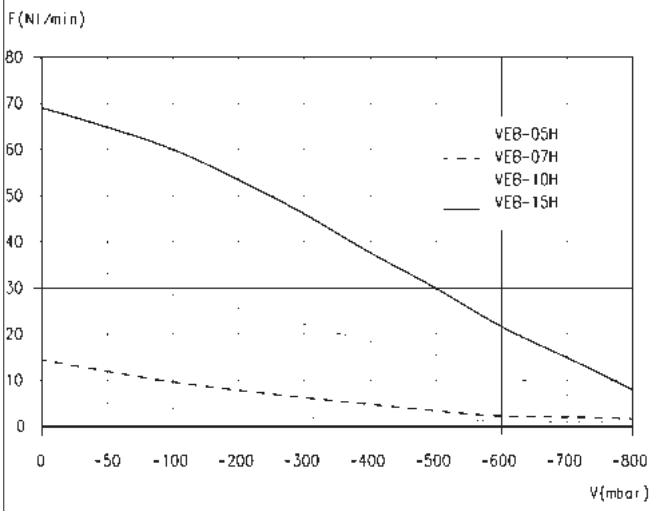
Note: vacuum reachable with different supply pressures



LEGEND:
T = Evacuation time
V = Vacuum values

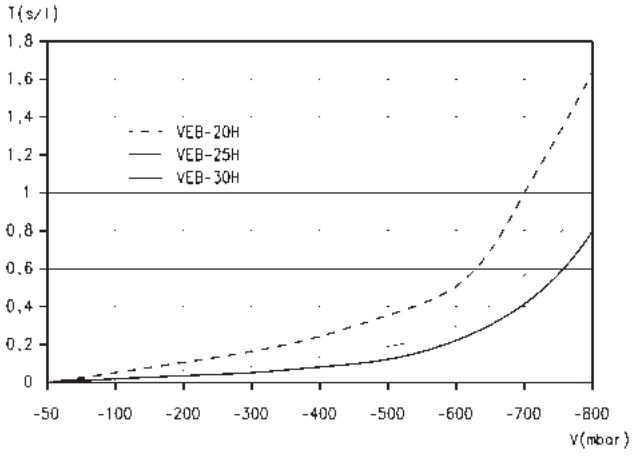
Note: evacuation time for different vacuum values

Diagrams VEB



LEGEND:
F = Suction rate
V = Vacuum values

Note: Suction rate with different vacuum values

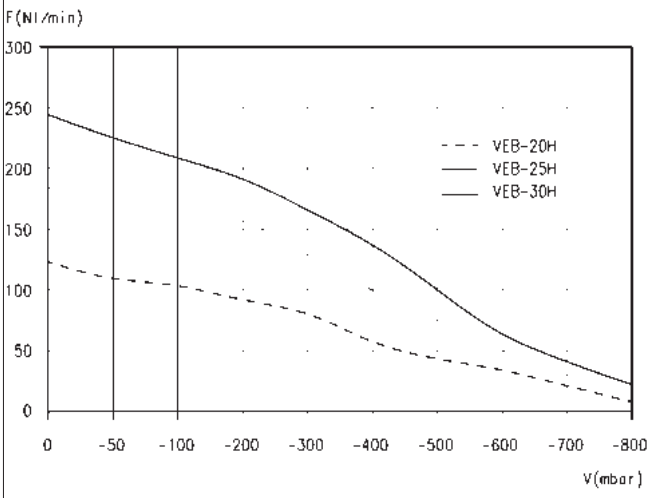


LEGEND:
T = Evacuation time
V = Vacuum values

Note: evacuation time for different vacuum values

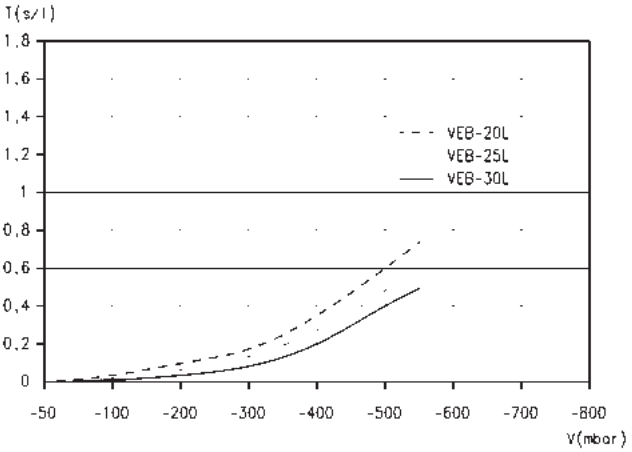
Products designed for industrial applications.
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Diagrams VEB



LEGEND:
F = Suction rate
V = Vacuum values

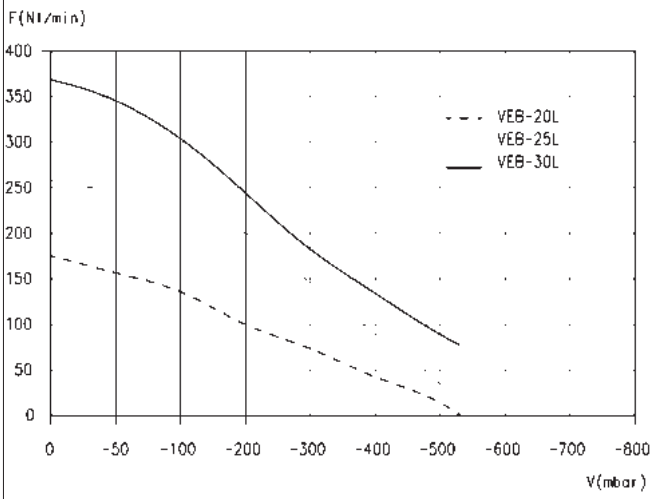
Note: Suction rate with different vacuum values



LEGEND:
T = Evacuation time
V = Vacuum values

Note: evacuation time for different vacuum values

Diagrams VEB



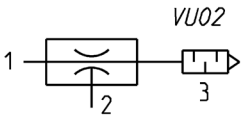
LEGEND:
F = Suction rate
V = Vacuum values

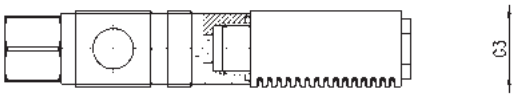
Note: Suction rate with different vacuum values

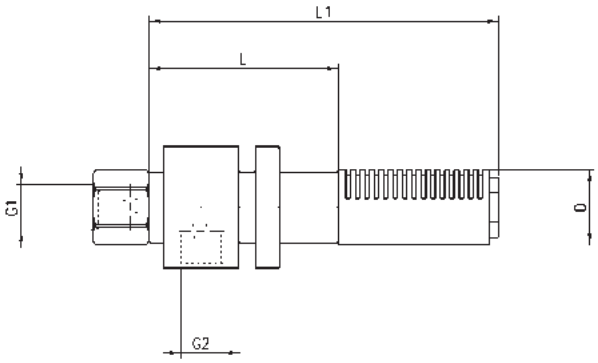
Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

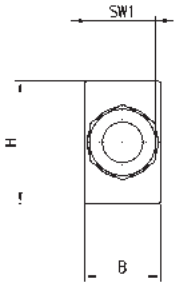
EJECTORS VEB 05...30











DIMENSIONS

Mod.	B	D	G1	G2	G3*	H	L	L1	SW1
VEB-05H	10	7	M5	M5	M5	20	32	50	8
VEB-07H	16	16	G1/8	G1/8	G1/8	26	40	74	14
VEB-10H	16	16	G1/8	G1/8	G1/8	26	45	79	14
VEB-15H	22	21	G1/4	G1/4	G1/4	38	60	101,5	17
VEB-20H	26	25	G1/4	G1/4	G3/8	38	75	125,5	17
VEB-20L	26	25	G1/4	G1/4	G3/8	38	75	125,5	17
VEB-25H	32	30	G3/8	G1/2	G1/2	50	100	161,5	22
VEB-25L	32	30	G3/8	G1/2	G1/2	50	100	161,5	22
VEB-30H	42	40	G3/8	G1/2	G3/4	50	110	194,5	22
VEB-30L	42	40	G3/8	G1/2	G3/4	50	110	194,5	22

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series VEBL basic ejectors

Basic ejectors in technopolymer without moving parts, based on the Venturi principle.
Different sizes available, with internal nozzle from 0,5 to 2,5 mm and with suction rate from 8 to 207 l/min.



- No moving parts for long life and low maintenance
- Reduced weight
- Rapid generation of vacuum
- Easy installation, on proper support too
- Optimized dimensions

Series VEBL basic ejectors are universal ejectors made in technopolymer suitable for several industrial applications such as:
- Industrial robotics in most sectors
- Wood industry
- Packaging industry
- Food industry

GENERAL DATA

Description	Basic ejector
Materials	- body in technopolymer - silencier in technopolymer - internal nozzle in brass

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

CODING EXAMPLE

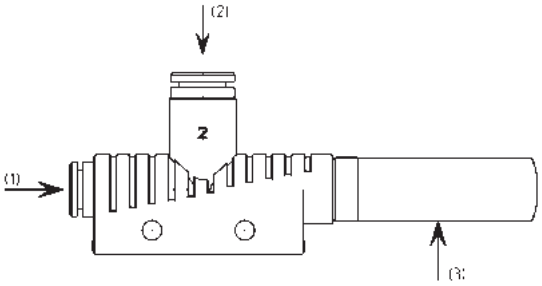
VE	BL	-	10H	-	T2

VE	SERIES: VE = Vacuum ejector
BL	VERSION: BL = basic light
10H	NOZZLE DIAMETER: 05H = 0,5 mm 07H = 0,7 mm 10H = 1 mm 15H = 1,5 mm 20H = 2 mm 25H = 2,5 mm
T2	TYPE OF CONNECTION (ON SUPPLY SIDE): T1 = plier - tube Ø4 T2 = plier - tube Ø6 T3 = plier - tube Ø8

TECHNICAL DATA

1 = Compressed air inlet
2 = Vacuum inlet
3 = Exhaust





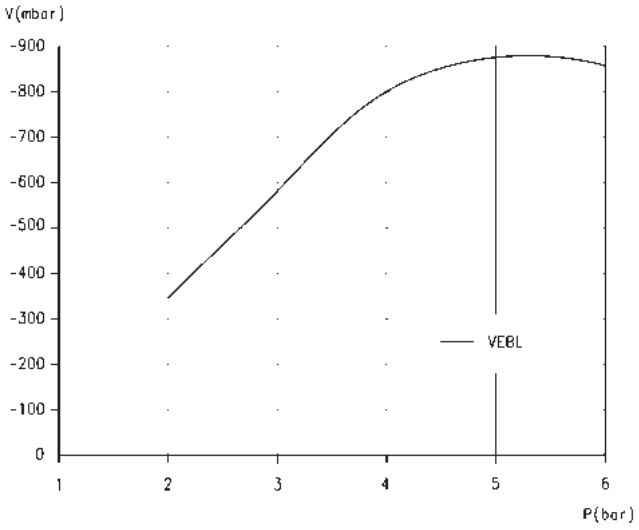
Usable fluids:
compressed air, olied and not, according to ISO 8573-1:2001 class 7-4-4

TECHNICAL DATA

Mod.	Ø nozzle (mm)	Obtainable relative pressure (mbar)	Vacuum flow (l/min)	Air consumption (l/min)	Operating pressure (bar)	Optimum operating pressure (bar)	Operating temperature (bar)	Weight (kg)	Noise level gripped [dB(A)]	Noise level free [dB(A)]	Suggested internal Ø for tubes [mm] up to 2m	Max n° of ejectors for one support
VEBL-05H-T1	0,5	-840	8	13,5	3...6	4,5	0...60	0,0075	53	58	2/2	11
VEBL-07H-T1	0,7	-850	16	22	3...6	4,5	0...60	0,0075	59	65	2/2	11
VEBL-10H-T2	1	-850	38	48	3...6	4,5	0...60	0,022	59	65	4/6	7
VEBL-15H-T2	1,5	-850	71	105	3...6	4,5	0...60	0,022	65	72	4/6	7
VEBL-20H-T3	2	-850	127	197	3...6	4,5	0...60	0,050	68	77	6/8	5
VEBL-25H-T3	2,5	-850	215	311	3...6	4,5	0...60	0,050	70	78	6/8	5

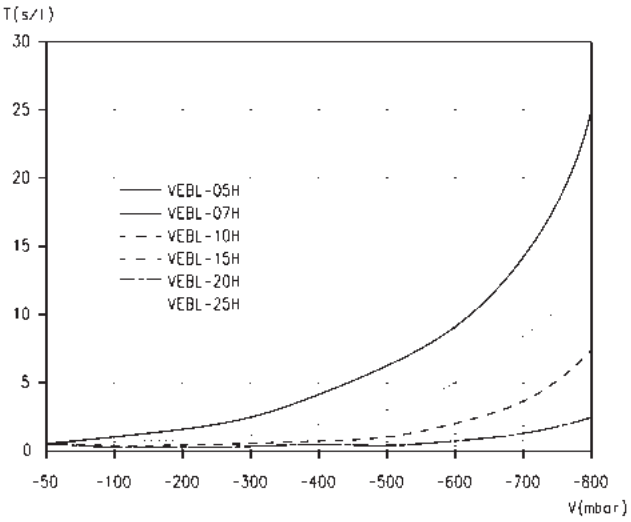
Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Diagrams VEBL



LEGEND:
V = Vacuum values
P = Working pressure

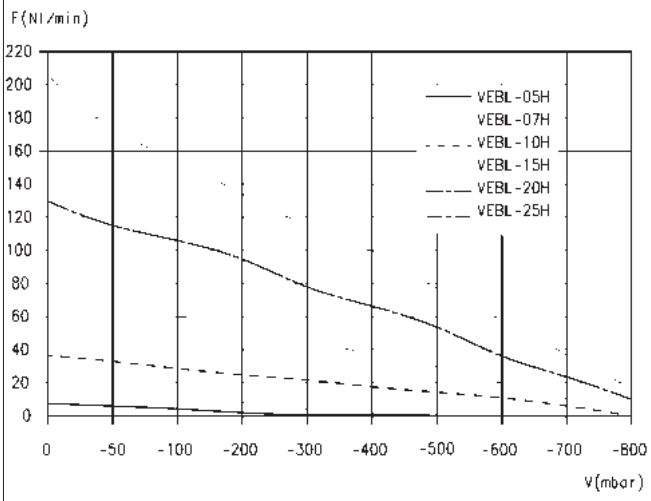
Note: vacuum reachable with different supply pressures



LEGEND:
T = Evacuation time
V = Vacuum values

Note: evacuation time for different vacuum values

Diagrams VEBL



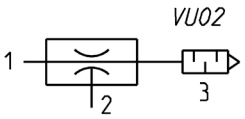
LEGEND:
F = Suction rate
V = Vacuum values

Note: Suction rate with different vacuum values

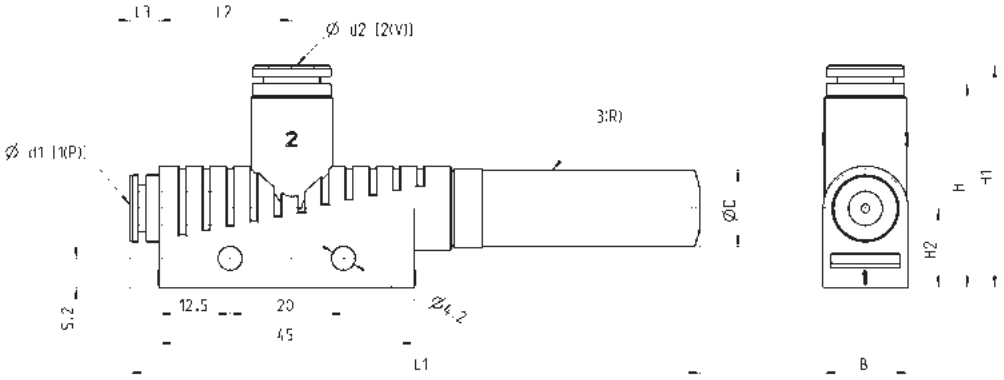
Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Ejectors VEBL-05H...25H





[P] = Pressure
[V] = Vacuum
[R] = Exhaust



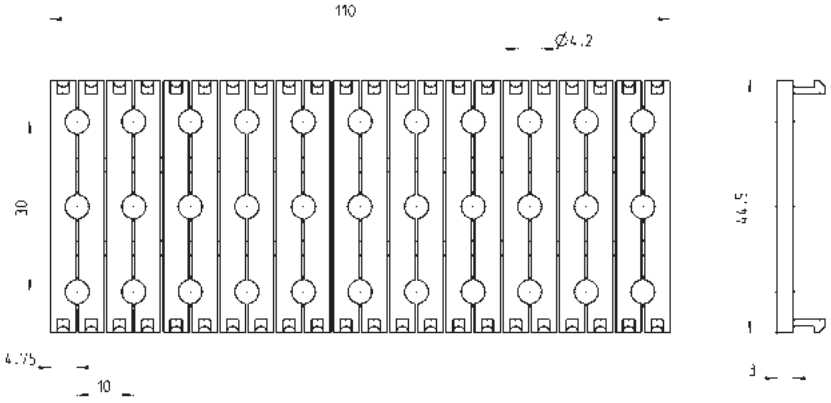
DIMENSIONS

Mod.	B	d1	d2	D	H	H1	H2	L1	L2	L3
VEBL-05H-T1	10	4	4	9	26	28	12	71	18	2
VEBL-07H-T1	10	4	4	9	26	28	12	71	18	2
VEBL-10H-T2	15	6	8	14	34	40	14	97	22	5,5
VEBL-15H-T2	15	6	8	14	34	40	14	97	22	5,5
VEBL-20H-T3	20	8	10	20	39	45,5	17	168	24,5	5,5
VEBL-25H-T3	20	8	10	20	39	45,5	17	168	24,5	5,5

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General terms and conditions for sale are available on www.camozzi.com.

Accessories VEBL-ST

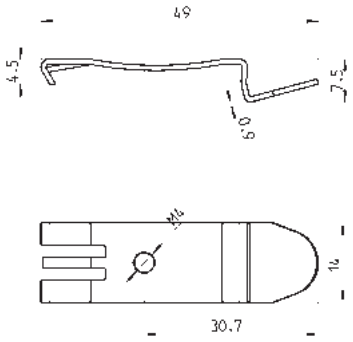




Mod.
VEBL-ST

Accessories VEBL-PCF





Mod.
VEBL-PCF

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series VED inline ejectors

Vacuum ejectors without moving parts, based on the Venturi principle, used for direct installation on suction pads.



- No moving parts for long life and maintenance
- Easy and fast installation directly at the gripping point
- Reduced dimensions and weight

These ejectors are used for direct installation inline between the suction pad compressed air supply.
This substantially reduces the volume to be evacuated and allows therefore shorter cycle times.

GENERAL DATA

Description	- body in anodized Aluminium - internal nozzle in brass

CODING EXAMPLE

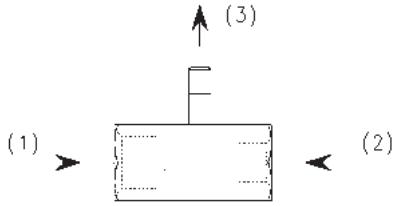
VE	D	-	07

VE	SERIES VE = Vacuum ejectors
D	VERSION D = in-line
07	NOZZLE DIAMETER 07 = 0,7 mm 09 = 0,9 mm

TECHNICAL DATA

1 = Compressed Air Inlet
2 = Vacuum Inlet
3 = Exhaust



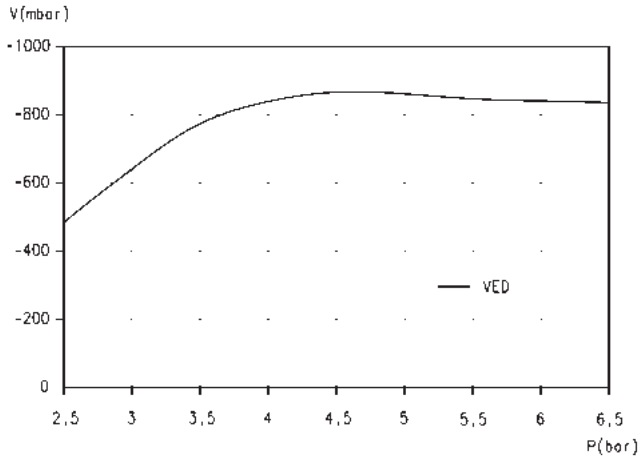


TECHNICAL DATA

Mod.	Ø nozzle (mm)	Degree of evacuation (%)	Suction rate max. (l/min)	Suction rate max. (m³/h)	Air consumption (l/min)	Air consumption (m³/h)	Optimum supply pressure (bar)	Weight (kg)
VED-07	0,7	90	14	0,8	21	1,3	5	0,015
VED-09	0,9	89	21	1,3	36	2,2	5	0,015

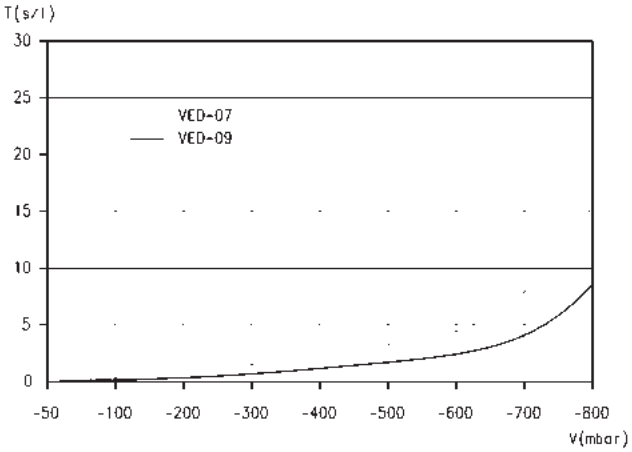
Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Diagrams VED



LEGEND:
V = Vacuum values
P = Working pressure

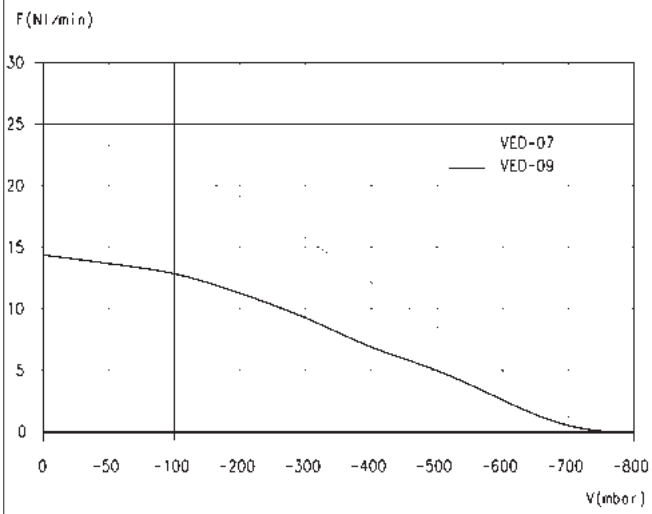
Note: vacuum reachable with different supply pressures



LEGEND:
T = Evacuation time
V = Vacuum values

Note: evacuation time for different vacuum values

Diagrams VED



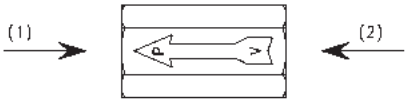
LEGEND:
F = Suction rate
V = Vacuum values

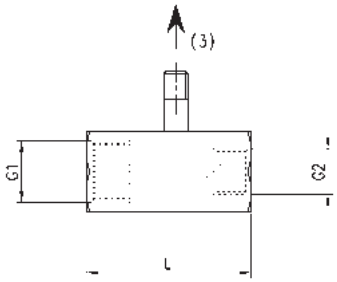
Note: Suction rate with different vacuum values

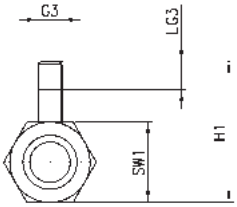
Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

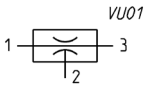
EJECTOR VED 07 and 09











DIMENSIONS							
Mod.	G1	G2	G3*	H1	L	LG3	SW1
VED-07	G1/4	G1/8	M5	29,8	35	5	17
VED-09	G1/4	G1/8	M5	29,8	35	5	17

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series VEDL inline ejectors

Vacuum compact ejectors in technopolymer without moving parts, based on the Venturi principle, used for direct installation on suction pads. Available in two sizes with internal nozzle of 0,5 and 0,7 mm and with suction rate from 8 to 16 l/min.



- No moving parts for long life and maintenance
- Easy and fast installation directly at the gripping point
- Optimized dimensions
- Reduced weight, 5 g only, ideal for dynamic applications
- Low air consumption

Generally, these vacuum compact ejectors are used for direct installation inline between the suction pad and compressed air supply.
This substantially reduces the volume to be evacuated and allows therefore shorter cycle times.

GENERAL DATA

Description	Inline ejectors
Materials	- body in technopolymer - internal nozzle in brass

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

CODING EXAMPLE

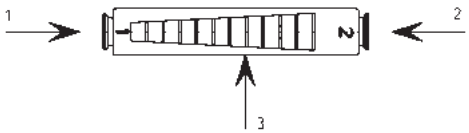
VE	DL	-	05	-	T1

VE	SERIES: VE = Vacuum ejector
DL	VERSION: DL = inline light
05	NOZZLE DIAMETER: 05 = 0,5 mm 07 = 0,7 mm
T1	TYPE OF CONNECTION (ON SUPPLY SIDE): T1 = plier - tube Ø4

TECHNICAL DATA

1 = Compressed air inlet
2 = Vacuum inlet
3 = Exhaust





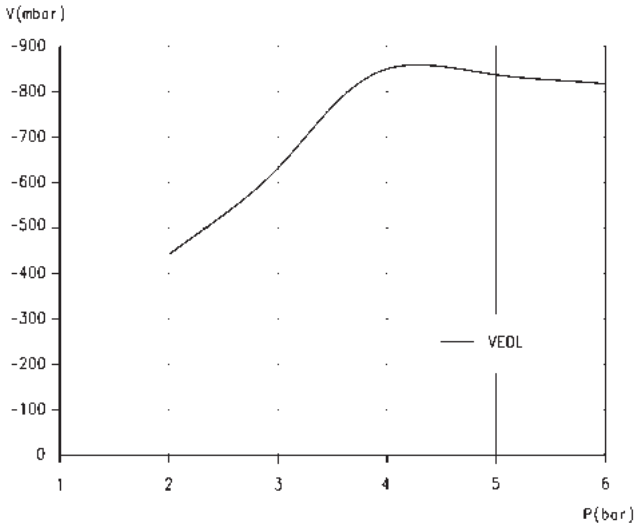
Usable fluids:
compressed air, oiled
and not, according to ISO
8573-1:2001 class 7-4-4

TECHNICAL DATA

Mod.	Ø nozzle (mm)	Obtainable relative pressure (mbar)	Vacuum flow (l/min)	Air consumption [l/min]	Operating pressure	Optimum operating pressure (bar)	Operating temperature (°C)	Weight (kg)	Noise level gripped [dB(A)]	Noise level free [dB(A)]	Suggested internal Ø for tubes (mm) up to 2 m
VEDL-05-T1	0,5	-830	8	13	3...6	4,5	0...60	0,005	52	60	2/2
VEDL-07-T1	0,7	-850	15	25	3...6	4,5	0...60	0,005	55	63	2/2

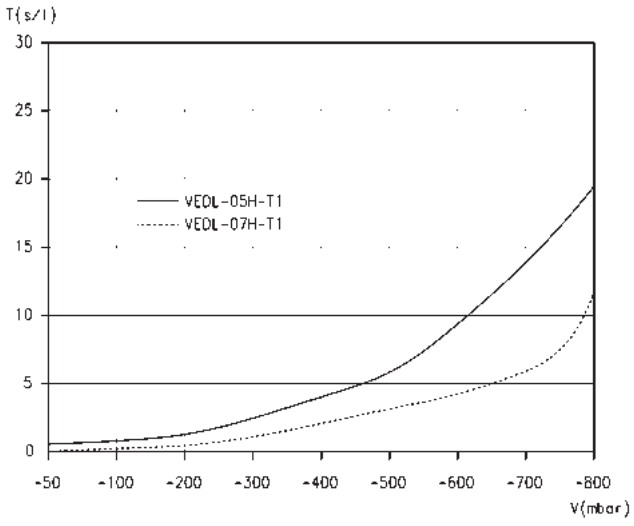
Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Diagrams VEDL



LEGEND:
V = Vacuum values
P = Working pressure

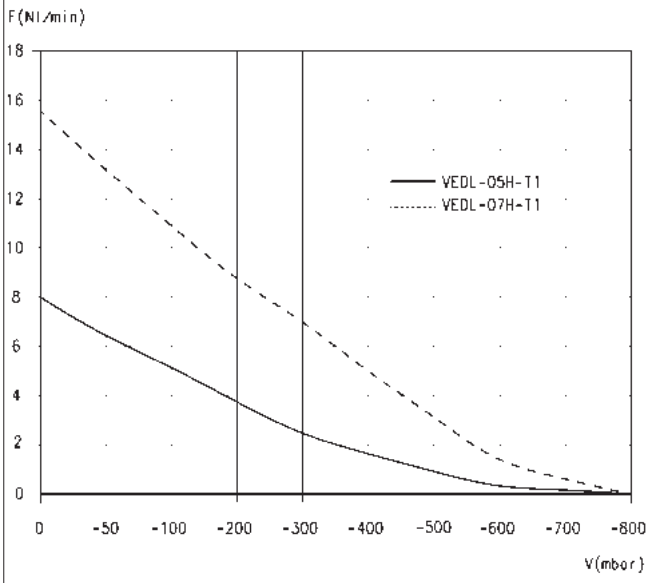
Note: Vacuum reachable with different supply pressures



LEGEND:
T = Evacuation time
V = Vacuum values

Note: Evacuation time for different vacuum values

Diagrams VEDL



LEGEND:
F = Suction rate
V = Vacuum values

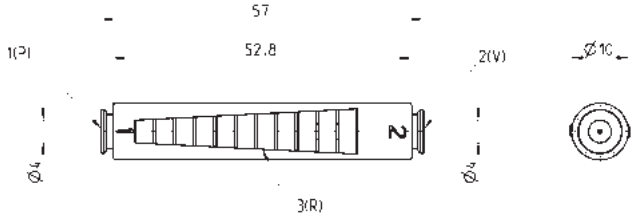
Note: Suction rate with different vacuum values

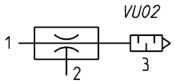
Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Inline ejector VEDL



[P] = Pressure
[V] = Vacuum
[R] = Exhaust





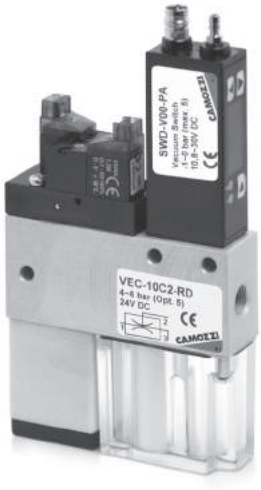
Mod.
VEDL-05-T1
VEDL-07-T1

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series VEC compact ejectors

Vacuum generators with integrated valves and monitoring system. Possibility to command suction and blow-off individually without using external valves.





Vacuum generators with integrated suction and blow-off valves, as well as a monitoring system (vacuum switch). Series VEC compact ejectors allow to control suction and blow-off individually without using external valves.

Versions with integrated air saving functions are available on request. These ejectors are particularly suitable for usein automatic handling systems.

- Wide range of nozzle sizes, covering a great number of applications.
- Modularity for easy installation
- Available with automatic air saving system (optional) for reduced operations costs.
- Easy monitoring of the vacuum level through integrated vacuum switch (available with or without digital display).

GENERAL DATA

Description	- body in anodized aluminium - valve function for the suction available in normally open (NO) or normally closed (NC) version - blow-off valve (NC), integrated silencer and non-return valve
Options	- mechanic/electronic vacuum switch - automatic air-saving system - mounting fitting plate for the battery mounting

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

CODING EXAMPLE

VE	C	-	10	C	2	-	RD

VE	SERIES VE = Vacuum ejector
C	VERSION C = compact
10	NOZZLE DIAMETER (MM) 10 = 1,0 mm 15 = 1,5 mm 20 = 2,0 mm 25 = 2,5 mm
C	VALVE FUNCTION C = NC (suction OFF when not activated) A = NO (suction ON when not activated)
2	VERSION 2 = with Blow-off valve
RD	VERSION * RD = with air saving system and digital vacuum switch (with display). It is supplied complete with connectors and cables. * RE = with air saving system and electronic vacuum switch. It is supplied complete with connectors and cables. VD = without air saving system, digital vacuum switch (with display) VE = without air saving system, with electronic vacuum switch

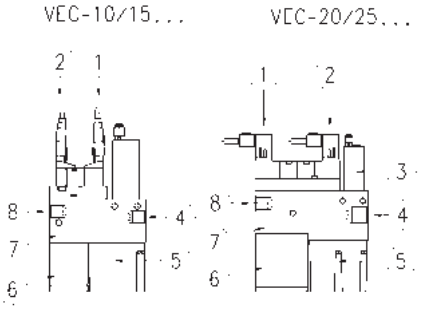
* The air saving circuit, where used, switches the suction signal to “ON” apart from the fact that the jector is NC or NO; this means that, in order to swtch the internal loop back to “OFF”, it is necessary to activate the signal on the coil controlling it (green cable).

TECHNICAL DATA



EJECTOR SYSTEM:

1 = Suction valve	5 = Filter
2 = Blow-off valve	6 = Silencer
3 = Vacuum switch	7 = Body
4 = Vacuum inlet	8 = Compressed air inlet



TECHNICAL DATA

Mod.	Nozzle Ø (mm)	Degree of evacuation (%)	Suction rate max. (l/min)	Suction rate max. (m³/h)	Air consumption (l/min)	Air consumption (m³/h)	Air cons. blow-off (l/min)	Noise level workp. gripped [db(A)]	Noise level free [db(A)]	Optimum working pressure (bar)	Weight (kg)	Temperature range
VEC-10	1	85	37	2,2	53	3,2	200	66	68	5	0,275	0 / 45°C
VEC-15	1,5	85	65	3,9	117	7	200	68	68	5	0,275	0 / 45°C
VEC-20	2	85	116	7	190	11,4	200	76	78	5 - 6	0,465	0 / 45°C
VEC-25	2,5	85	161	9,7	310	18,6	200	72	82	5 - 6	0,465	0 / 45°C

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Air-saving system

When gripping an object, the ejector remains active until a preset vacuum value is reached. Once reached the preset vacuum value, the ejector is shut OFF. If the vacuum level drops below the preset limit value, the ejector is re-activated by the electronic control circuit until the preset vacuum value is reached again.

Note: VEC ejectors with air-saving system are delivered complete with connectors and cables.

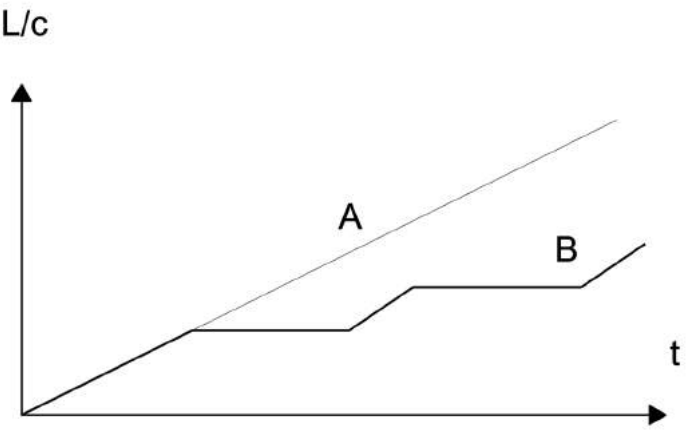


Mod.	
VEC-10/15-A	A = version Normally Open
VEC-10/15-C	C = version Normally Closed
VEC-20/25-A	A = version Normally Open
VEC-20/25-C	C = version Normally Closed

The air saving circuit, where used, switches the suction signal to “ON” apart from the fact that the jector is NC or NO; this means that, in order to swtch the internal loop back to “OFF”, it is necessary to activate the signal on the coil controlling it (green cable).

Applications example

- * Evacuation time = time necessary for the ejector to reach a vacuum level of -600 mbar
- ** Air consumption l/cycle = (105/60) x 5 (105 / 60) x 0,05
- *** Prod. cycles/day = 8 hours x 3600 s = 28.800/20 s per cycle = 1440 cycles x 2 shifts = 2880 cycles

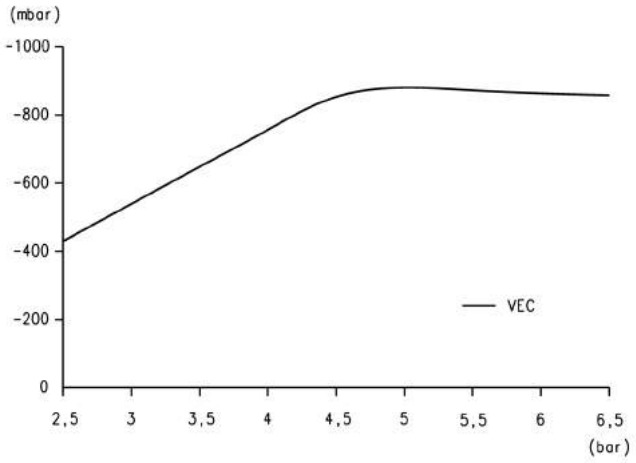


Operating conditions	without air-saving “A”	With air-saving “B”
Model	VEC-15C2-VE	VEC-15C2-RE
Air consumption l/min	105	105
Transport time (sec.)	5	5
Evac. time to -600 mbar (sec.)*	0,05	0,05
Total time vacuum ON (sec.)	5	0,05
Air consumption (l/cycle)**	8,8	0,087
Cycle time (sec.)	20	20
Prod. cycles/day (2-shifts)***	2880	2880
Daily air consumption (l)	25.361	250

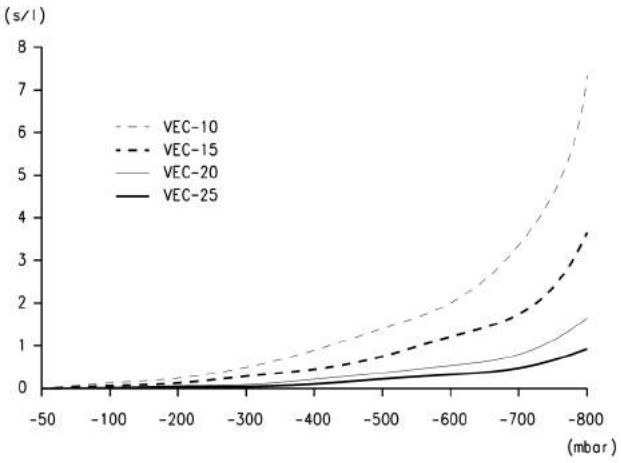
In this example the air-saving system saves around 99% of the air.

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

DIAGRAMS VEC

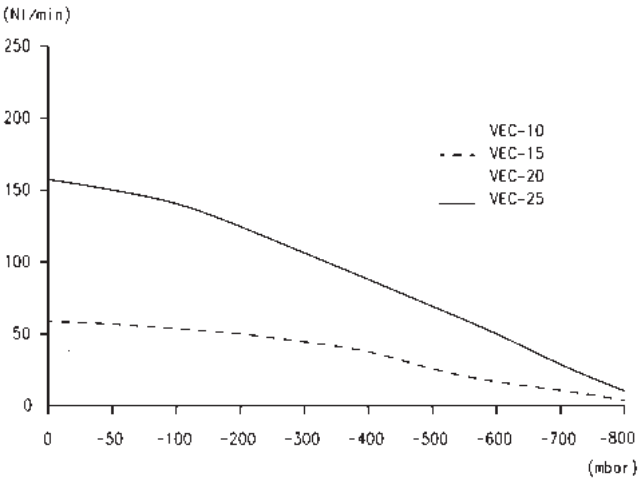


Achievable vacuum at different supply pressures



Evacuation time for different vacuum values

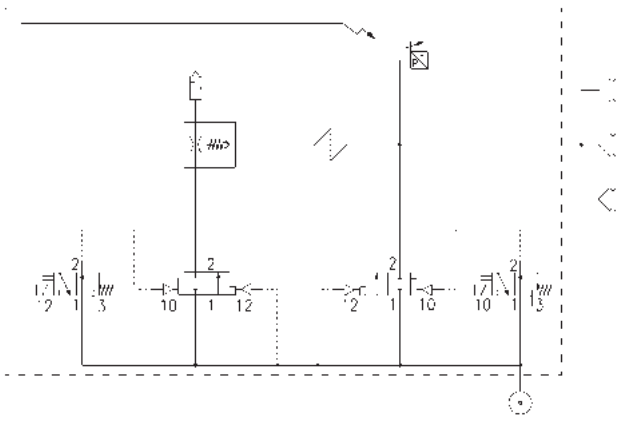
DIAGRAMS VEC



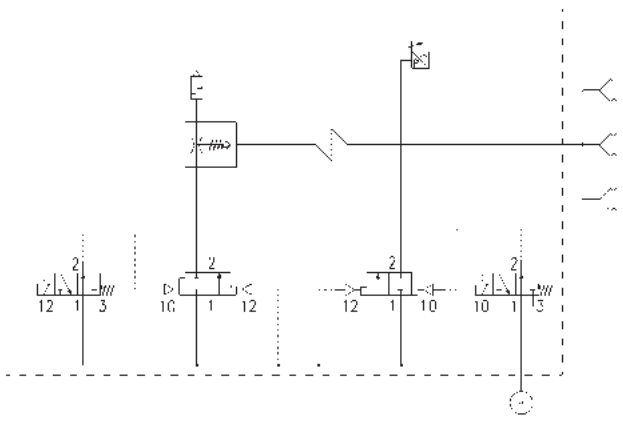
Suction rate for different vacuum values

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Normally Closed valve functions

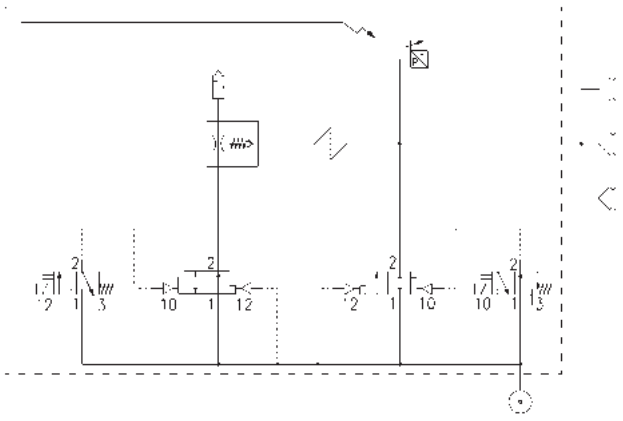


VEC-..C2-RD - VEC-..C2-RE

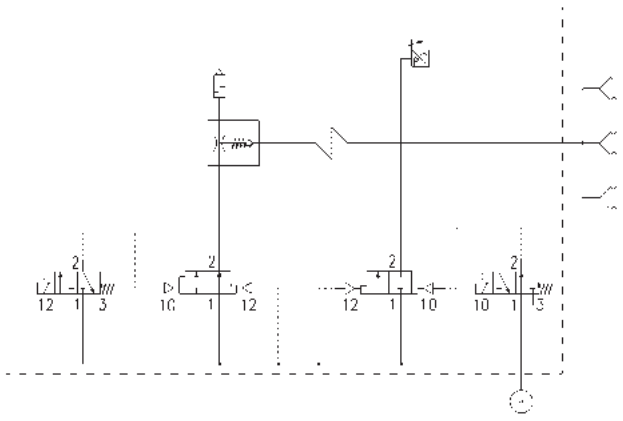


VEC-..C2-VD - VEC-..C2-VE

Normally Open valve functions



VEC-..A2-RD - VEC-..A2-RE



VEC-..A2-VD - VEC-..A2-VE

Products designed for industrial applications.
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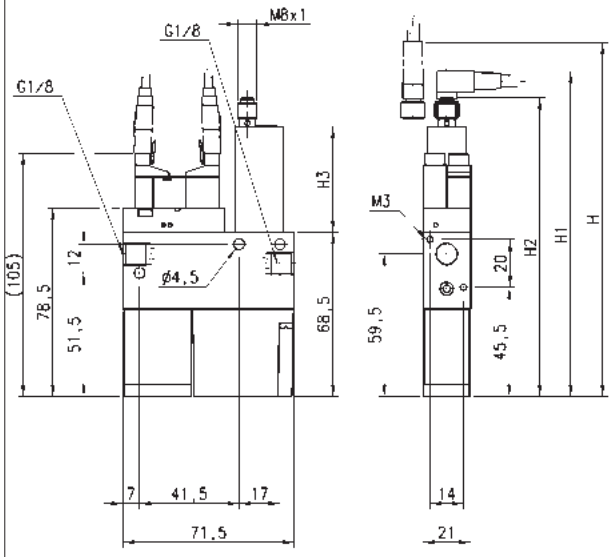
EJECTORS VEC 10 - 15 - 20 - 25



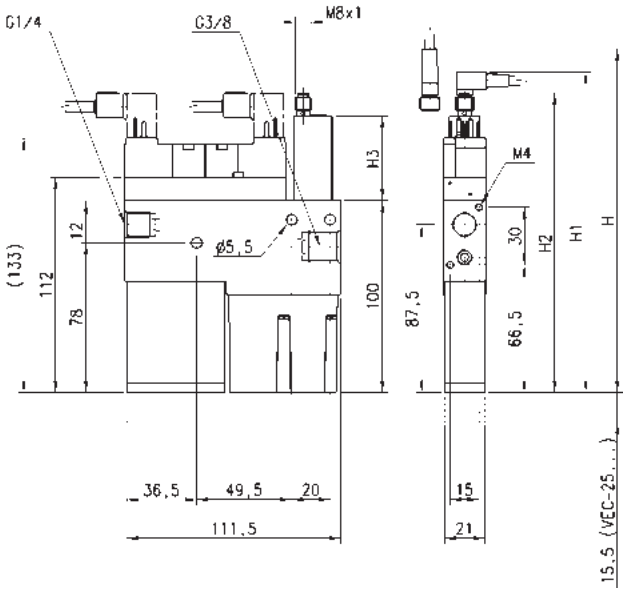
....D = SWD-V00-PA
Electronic digital display; 2 digital outputs

...E = SWE-V00-PA
Electronic without digital display; 1 digital output and 1 analog output.

VEC-10/15...



VEC-20/25...

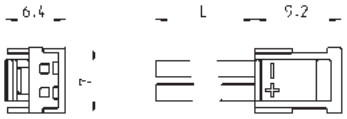


DIMENSIONS						
Mod. [D]	Mod. [E]	R = With air saving	H	H1	H2	H3
VEC-10...-RD	VEC-10...-RE	R	162	150	139	58,5
VEC-15...-RD	VEC-15...-RE	R	162	150	139	58,5
VEC-20...-RD	VEC-20...-RE	R	195,5	183,5	172,5	58,5
VEC-25...-RD	VEC-25...-RE	R	195,5	183,5	172,5	58,5
VEC-10...-VD	VEC-10...-VE	-	147,5	135,5	124,5	44
VEC-15...-VD	VEC-15...-VE	-	147,5	135,5	124,5	44
VEC-20...-VD	VEC-20...-VE	-	181	169	158	44
VEC-25...-VD	VEC-25...-VE	-	181	169	158	44

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Connector Mod. 121-8.. for Mod. VEC-10 and VEC-15



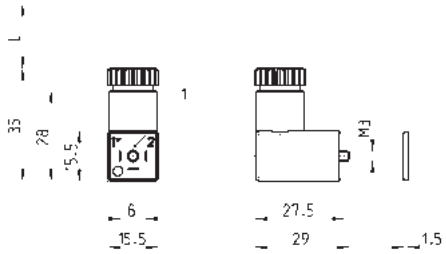


Mod.	description	colour	L = cable length (mm)	cable holding
121-803	crimped cable	black	300	crimping
121-806	crimped cable	black	600	crimping
121-810	crimped cable	black	1000	crimping
121-830	crimped cable	black	3000	crimping

Connector Mod. 126-... DIN 43650 pin spacing 8 mm

For Mod. VEC-20 and VEC-25





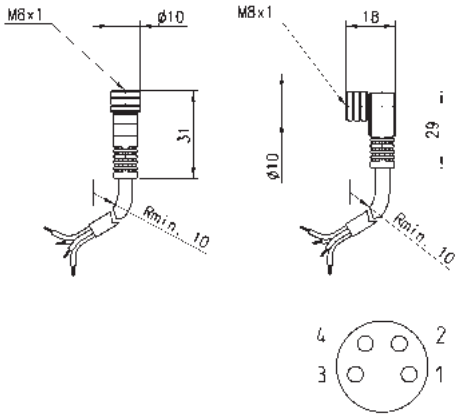
Mod.	description	colour	working voltage	cable length [L]	cable holding	tightening torque
126-550-1	moulded cable, without electronics	black	-	1000 mm	-	0.3 Nm
126-800	connector, without electronics	black	-	-	PG7	0.3 Nm
126-701	connector, varistor + Led	transparent	24 V AC/ DC	-	PG7	0.3 Nm

1 = 90° adjustable connector

Circular M8 4-pole connectors, Female

With PU sheathing, non shielded cable.
Protection class: IP65





Mod.	Type of connector	Cable length (m)
CS-DF04EG-E200	straight	2
CS-DF04EG-E500	straight	5
CS-DR04EG-E200	90°	2
CS-DR04EG-E500	90°	5

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series VEM compact ejectors

Miniaturized vacuum generators with integrated valves and monitoring system. Possibility to command suction and blow-off individually without using external valves.



- Extremely compact with further reduced weight.
- Modularity for easy installation.
- Easy monitoring of the vacuum level through integrated vacuum switch.

One of the most important features of Series VEM compact ejector is the extreme compactness.
This compactness and low weight makes them suitable for "dynamic" applications such as robots, when assembled directly on the part in motion (gripper head etc.)

The Compact ejector Series VEM have integrated suction-and blow off individually without using external valves. With these it is therefore possible to command suction and blow-off individually without using external valves.
The compact ejectors Series VEM are often used in completely automatic handling systems.

GENERAL DATA

Description	- body in anodized Aluminium - valve function for the suction available in normally open (NO) or normally closed (NC) version - blow-off valve (NC), integrated silencer and filter
Options	possibility of mounting fitting plate

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

CODING EXAMPLE

VE	M	-	05	C	2	-	VE

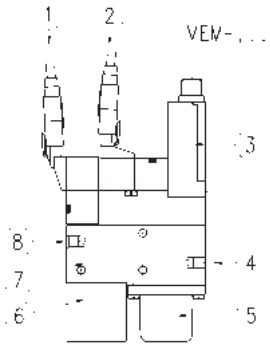
VE	SERIES VE = Vacuum ejector
M	VERSION M = compact, mini
05	NOZZLE DIAMETER 05 = 0,5 mm 07 = 0,7 mm 10 = 1,0 mm
C	VALVE FUNCTION C = NC (suction OFF when not activated) A = NO (suction ON when not activated)
2	VERSION 2 = with Blow-off valve
VE	VALVE TYPE VE = without air saving system, with electronic vacuum switch

TECHNICAL DATA



EJECTOR SYSTEM:

1 = Suction valve
2 = Blow-off valve
3 = Vacuum switch
4 = Vacuum inlet
5 = Filter
6 = Silencer
7 = Body
8 = Compressed air inlet

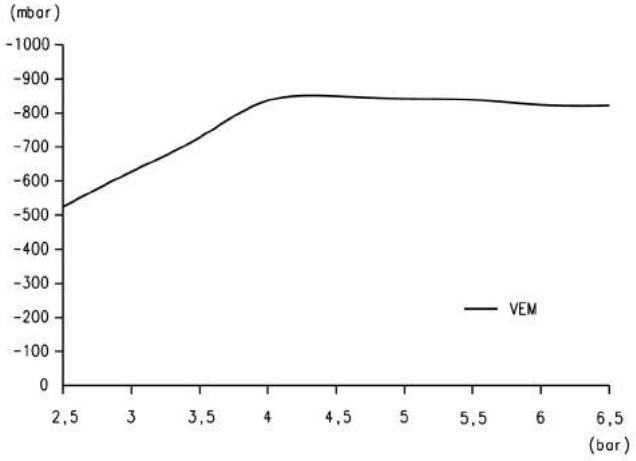


TECHNICAL DATA

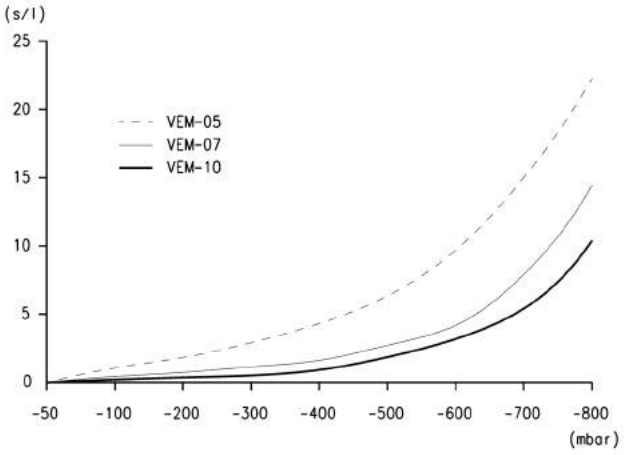
Mod.	Ø nozzle (mm)	Degree of evacuation (%)	Max. Suction rate (l/min)	Max. Suction rate (m³/h)	Air consumption (l/min)	Air cons. during evac. (m³/h)	Air cons. during evac. (l/min)	Noise level workp. gripped [db(A)]	Noise level free [db(A)]	Optimum operating pressure (bar)	Weight (kg)	Temperature range
VEM-05	0,5	85	6	0,4	13	0,8	26	62	62	4,5	0,08	0 / 45°C
VEM-07	0,7	85	12	0,7	21	1,3	26	67	70	4,5	0,08	0 / 45°C
VEM-10	1	85	23	1,4	46	2,8	26	73	76	4,5	0,08	0 / 45°C

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

DIAGRAMS VEM

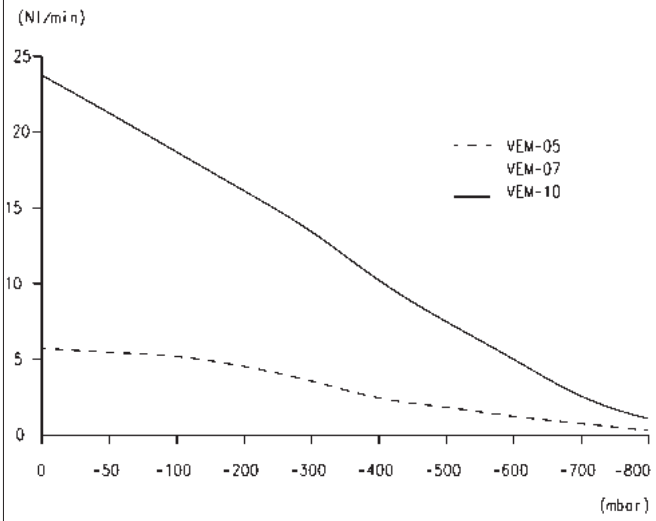


Achievable vacuum at different operating pressures

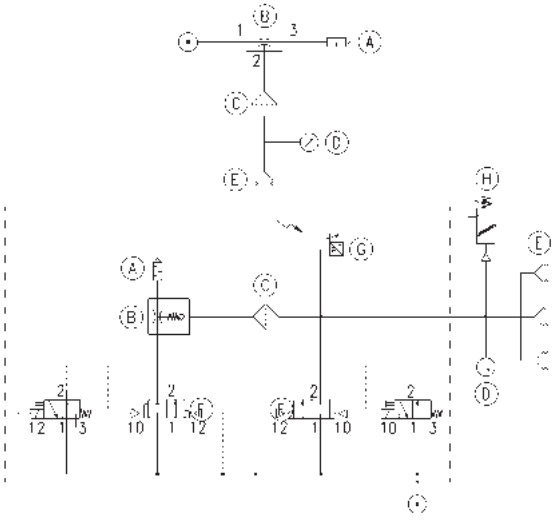


Evacuation time for different vacuum values

DIAGRAMS VEM and EXAMPLES OF PNEUMATIC SCHEME



Suction rate for different vacuum values

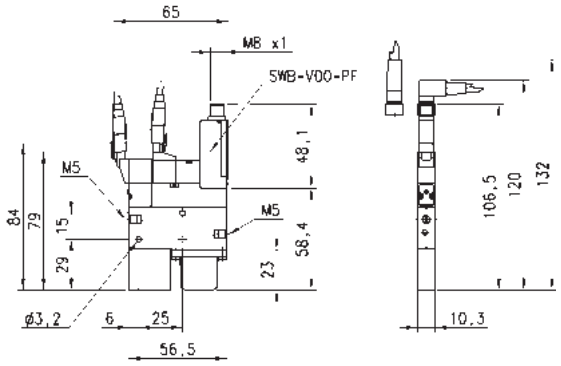


A = Silencer
B = Ejector
C = Vacuum filter
D = Vacuum gauge
E = Suction pad
F = 2/2 valve
G = Adjustable vacuum switch internal signal
H = Adjustable vacuum switch external signal

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series VEM compact ejectors

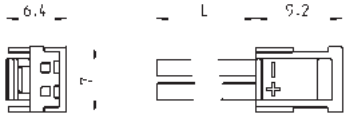




Mod.
VEM-05C2-VE
VEM-05A2-VE
VEM-07C2-VE
VEM-07A2-VE
VEM-10C2-VE
VEM-10A2-VE

Connector Mod. 121-8..



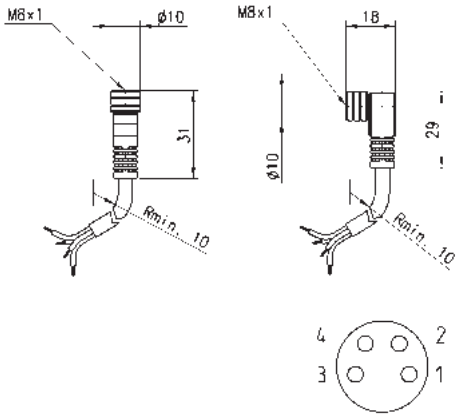


Mod.	description	colour	L = cable length (mm)	cable holding
121-803	crimped cable	black	300	crimping
121-806	crimped cable	black	600	crimping
121-810	crimped cable	black	1000	crimping
121-830	crimped cable	black	3000	crimping

Circular M8 4-pole connectors, Female

Protection class: IP65
Materials: PU non shielded cable





Mod.	Type of connector	Cable length (m)
CS-DF04EG-E200	straight	2
CS-DF04EG-E500	straight	5
CS-DR04EG-E200	90°	2
CS-DR04EG-E500	90°	5

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series NPF
flexible suction pad mountings

The vulcanisation provides flexibility in all directions.
Thread G1/4



- Flexible in all directions for optimal adaption to the workpiece (up to 12°)
- Low pivoting point which reduces the wear on the suction pad.
- Rubber covered (vulcanised) metal connection for heavy loads.

Series NPF flexible suction pad mounting allows a better adaption between the suction pad and the workpiece due to its flexibility in all directions.

Applications:
- Suitable for use in conjunction with larger flat suction pads on bigger workpieces which are either inclined or have a tendency to sag during the lifting operation or simply have a slightly irregular shape.
- They can be used in combination with spring plungers for further compensation in height if needed.

GENERAL DATA

Description	Flexible suction pad mounting
Materials	- Steel body - Vulcanised rubber connection

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

CODING EXAMPLE

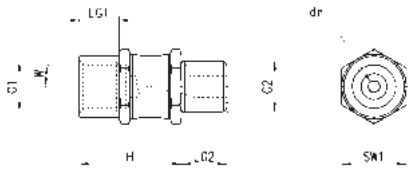
NPF	-	FM	-	1/4	-	M10 X 1,25

NPF	SERIES NPF = Flexible suction pad mountings
FM	THREAD VERSION FM = G1 Female / G2 Male
1/4	FEMALE THREAD G1 1/4 = G1/4
M10x1,25	MALE THREAD G2 M10x1,25 = M10x1,25 1/4 = G1/4

Flexible suction pad mountings Series NPF

* G1 = Female thread (F)
** G2 = Male thread (M)





DIMENSIONS

Mod.	dn	G1 *	G2 **	H	LG1	LG2	SW1	W(°)	Vertical load (N)	Bending moment (Nm)	Weight (g)
NPF-FM-1/4-M10X1,25	2,8	G1/4 F	M10X1,25 M	27	10,5	8	17	12	500	8	26
NPF-FM-1/4-1/4	3	G1/4 F	G1/4 M	27	12	12	17	12	750	10	30

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series NPM and NPR (non rotating) spring plungers

These spring plungers are used in situations where significant height differences of the workpiece have to be compensated for.
Thread size M3, M5, G1/8, G1/4, plunger stroke length from 5 to 75 mm.



- Spring plungers with lower pressure for soft contact on delicate surfaces, and good compensation in height
- Wide range of sizes with diferent stroke lengths covering a wide range of applications
- Non rotating version available

The spring plungers are used in situations where significant height differences of the workpieces have to be compensated for.
The spring provides furthermore a gentle approach towards the workpiece without further complex controls in fully automated system, which is important when handling sensitive workpieces.

Applications:
- Handling of parts with different heights (for example curved metal sheets)
- Handling of a very fragile parts (for example glass sheets), or parts with a delicate surface

GENERAL DATA

Description	- spring plunger consisting of a high-strength steel rod - guide sleeve - lower spring - threaded fitting (internal thread for suction pads until M5, otherwise external thread)

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

CODING EXAMPLE

NPM	-	FM	-	1/4	-	75

NPM	SERIES NPM = spring plunger NPR = spring plunger - non-rotating
FM	THREAD VERSION FM = female / male FF = female / female
1/4	THREAD M3 = M3 M5 = M5 1/8 = G1/8 1/4 = G1/4
75	COMPENSATION STROKE 05 = 5 mm 10 = 10 mm 15 = 15 mm 20 = 20 mm 25 = 25 mm 50 = 50 mm 75 = 75 mm

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

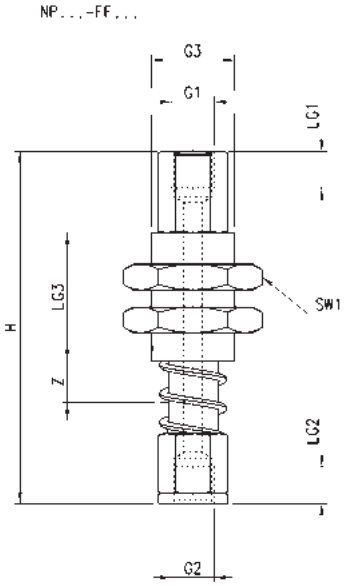
TECHNICAL DATA

Mod.	Spring force (N/mm)	Spring force in rest position (N)	Spring force at half the stroke length (N)	Plunger stroke length (mm)	Max.vertical static load (N)	Max. horizontal static load (N)	Weight (g)
NPM-FF-M3-05	0,596	1,49	2,98	5	550	47	9
NPM-FF-M5-05	0,508	3,3	4,57	5	1500	132	16
NPM-FF-M5-10	0,323	2,75	4,36	10	1500	97	19
NPM-FF-M5-20	0,209	1,78	3,87	20	1500	63	25
NPM-FM-1/8-15	0,221	3,53	5,19	15	3700	385	80
NPM-FM-1/8-25	0,143	3,57	5,36	25	3700	283	90
NPM-FM-1/8-50	0,097	2,92	5,34	50	3700	173	110
NPM-FM-1/4-25	0,711	6,47	15,36	25	2400	747	145
NPM-FM-1/4-50	0,452	1,4	12,7	50	2400	466	175
NPM-FM-1/4-75	0,262	5,38	15,2	75	2400	340	190
NPR-FF-M3-05	0,596	1,49	2,98	5	550	47	9
NPR-FF-M5-05	0,508	3,30	4,57	5	1500	132	16
NPR-FF-M5-10	0,323	2,75	4,36	10	1500	97	19
NPR-FF-M5-20	0,209	1,78	3,87	20	1500	63	25
NPR-FM-1/8-15	0,221	3,53	5,19	15	3700	385	80
NPR-FM-1/8-50	0,097	2,92	5,34	50	3700	173	110
NPR-FM-1/4-25	0,711	6,47	15,36	25	2400	747	144
NPR-FM-1/4-75	0,262	5,38	15,20	75	2400	340	202

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

NPM-NPR Female - Female Version



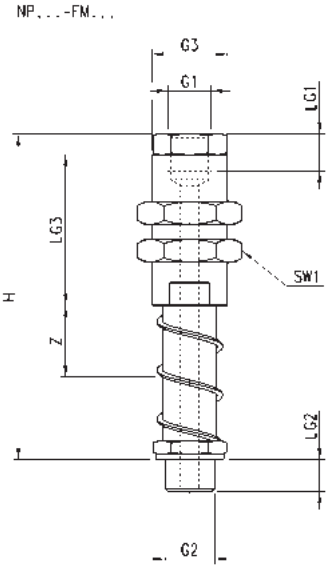


DIMENSIONS

Mod.	G1	G2	G3	H	LG1	LG2	LG3	SW1	Z
NPM-FF-M3-05	M3F	M3F	M6X0,75	33,5	3,8	6	10	10	5
NPM-FF-M5-05	M5F	M5F	G1/8	41,2	5,5	6,2	15	14	5
NPM-FF-M5-10	M5F	M5F	G1/8	47,2	5,5	6,2	15	14	10
NPM-FF-M5-20	M5F	M5F	G1/8	59,2	5,5	6,2	15	14	20
NPR-FF-M3-05	M3F	M3F	M6X0,75	33,5	3,8	6	10	10	5
NPR-FF-M5-05	M5F	M5F	G1/8	41,2	5,5	6,2	15	14	5
NPR-FF-M5-10	M5F	M5F	G1/8	47,2	5,5	6,2	15	14	10
NPR-FF-M5-20	M5F	M5F	G1/8	59,2	5,5	6,2	15	14	20

NPM-NPR Female - Male Version





DIMENSIONS

Mod.	G1	G2	G3	H	LG1	LG2	LG3	SW1	Z
NPM-FM-1/8-15	G1/8	G1/8 M	M16X1	80	8	6,5	30	22	15
NPM-FM-1/8-25	G1/8	G1/8 M	M16X1	93	8	6,5	30	22	25
NPM-FM-1/8-50	G1/8	G1/8 M	M16X1	124	8	6,5	30	22	50
NPM-FM-1/4-25	G1/8	G1/4 M	M20X1,5	95	13	8,5	40	24	25
NPM-FM-1/4-50	G1/8	G1/4 M	M20X1,5	124,5	13	8,5	40	24	50
NPM-FM-1/4-75	G1/8	G1/4 M	M20X1,5	154	13	8,5	40	24	75
NPR-FM-1/8-15	G1/8	G1/8 M	M16X1	80	8	6,5	30	22	15
NPR-FM-1/8-50	G1/8	G1/8 M	M16X1	124	8	6,5	30	22	50
NPR-FM-1/4-25	G1/8	G1/4 M	M20X1,5	95	13	8,5	40	24	25
NPR-FM-1/4-75	G1/8	G1/4 M	M20X1,5	154	13	8,5	40	24	75

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series VNV check valves

These check valves are mainly used on vacuum gripper systems containing multiple suction pads in order to shut off individual suction pads which are not covered.
Thread size M5, G1/8, G1/4, G3/8, G1/2.

» Enable the de-activation of suction pads not in contact with the workpiece, thus makes it possible to create more versatile “multi use” gripping system.



The check valves Series VNV are mainly used on vacuum gripper systems containing multiple suction pads in order to shut off individual suction pads which are not covered or accidently pulled away from the workpiece. In this way the gripper system can operate correctly maintaining the vacuum level necessary for the application.

Applications:
- Handling objects with different shape and dimensions with the same gripping system

GENERAL DATA

Description	- ball seat valve with fixed bypass function - aluminium body with internal elements in brass - integrated dirt filter

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

TECHNICAL DATA

Max required suction flow and according different pressures

Mod.	- 0,3 bar (m³/h)	- 0,3 bar (l/min)	- 0,6 bar (m³/h)	- 0,6 bar (l/min)	Max flow (m³/h)	Max flow (l/min)	Weight (g)
VNV-MF-M5	0,12	2	0,22	3,7	2,3	38,3	2,2
VNV-MF-1/8	0,22	3,7	0,43	7,2	15,7	261,7	11,2
VNV-MF-1/4	0,24	4	0,47	7,8	21,9	365	17,5
VNV-MF-1/2	0,7	11,7	1,4	23,3	37	616,7	47,4
VNV-MF-1/8	0,22	3,7	0,43	7,2	15,7	261,7	11,2
VNV-MF-1/4	0,24	4	0,47	7,8	21,9	365	17,5
VNV-MF-1/2	0,7	11,7	1,4	23,3	37	616,7	47,4

CODING EXAMPLE

VNV	-	MF	-	M5

VNV	SERIES VNV = Check valve
MF	THREAD VERSION MF= G1 male / G2 female FM = G1 female / G2 male
M5	THREAD M5 = M5 1/8 = G1/8 1/4 = G1/4 1/2 = G1/2

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

VNV from M5 to G1/2, Male - Female thread



Drawing note:
A = air flow direction during suction

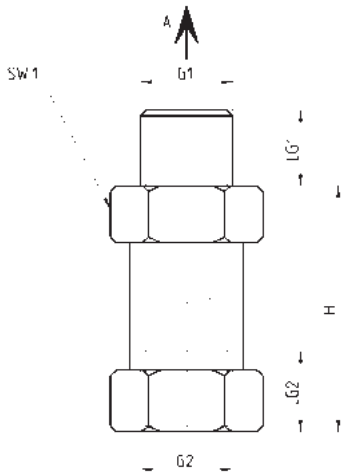
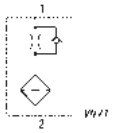


Table note:
* M = Male thread
* F = Female thread



DIMENSIONS						
Mod.	G1*	G2*	H	LG1	LG2	SW1
VNV-MF-M5	M 5 M	M 5 F	15,5	4,5	4,5	8
VNV-MF-1/8	G1/8 M	G1/8 F	26	8,5	8	14
VNV-MF-1/4	G1/4 M	G1/4 F	26	11	10	17
VNV-MF-1/2	G1/2 M	G1/2 F	29	14	12	27

VNV from G1/8 to G1/2 - Female - Male thread



Drawing note:
A = air flow direction during suction

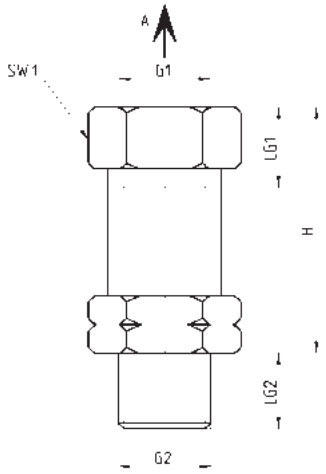
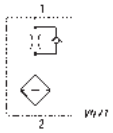


Table note:
* M = Male thread
* F = Female thread



DIMENSIONS						
Mod.	G1*	G2*	H	LG1	LG2	SW1
VNV-FM-1/8	G1/8 F	G1/8 M	26	8	8,5	14
VNV-FM-1/4	G1/4 F	G1/4 M	26	10	11	17
VNV-FM-1/2	G1/2 F	G1/2 M	29	12	14	27

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series FVD inline vacuum filters

For use in vacuum systems with minor to medium levels of dirt.
Direct mounting on the suction pad.



- Hose connection and blocking nut
- Transparent body with an arrow indicating the flow direction
- Replaceable filter element
- Transparent cartridge to check the filter's conditions

These filters can be mounted directly on the suction pad.
The filter element can be easily substituted and its conditions can be checked thanks to its transparent wrapping.

GENERAL DATA

Description	Inline filter
Materials	- body in technopolymer - cloth filter

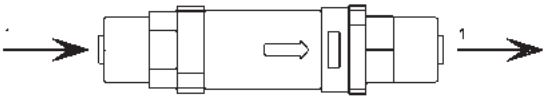
CODING EXAMPLE

FVD	-	6/4	-	50

FVD	SERIES: FVD = inline filter
6/4	CONNECTIONS: 6/4 = tube 6 8/6 = tube 8
50	FILTER ELEMENT: 50 = 50 µm

TECHNICAL DATA





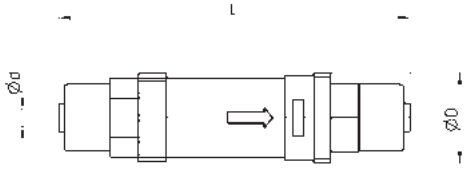
TECHNICAL DATA

Mod.	Filter element (µm)	Nominal flow (l/min)	Max vacuum (mbar)	Max pressure at 25°C (bar)	Max pressure at 50°C (bar)	Weight (kg)
FVD-6/4-50	50	32	-990	7	5	0,006
FVD-8/6-50	50	66	-990	7	5	0,010

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series FVD inline filter







DIMENSIONS			
Mod.	d	D	L
FVD-6/4-50	6	16	61
FVD-8/6-50	8	23	68

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Series FVT vacuum cup filters

Used as pre-filters and fine filters for air with varying amounts of contamination, for the protection of the vacuum generator.
Mounted as protection for the ejector.



- Wide range of sizes
- Recycling filter cartridge
- Replaceable filter element
- Transparent filter cup to check the filter's conditions

These filters can be mounted directly under the ejectors to protect them in case of dusty environmental conditions. The filter element can be substituted very easily and its conditions can be checked thanks to its transparent wrapping. These filters can be wall-mounted through a proper bracket. Filtering of vacuum and air up to 7 bar.

GENERAL DATA

Description	Cup filter
Materials	- body in technopolymer - filter in polyethylene (PE)

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

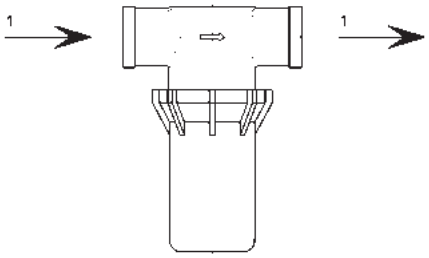
CODING EXAMPLE

FVT	-	FF	-	1/4	-	80

FVT	SERIES: FVT = cup filter
FF	THREAD SIZE: FF = female-female
1/4	CONNECTIONS: 1/8 = G1/8 1/4 = G1/4 3/8 = G3/8 1/2 = G1/2 3/4 = G3/4
80	FILTER ELEMENT: 80 = 80 µm

TECHNICAL DATA



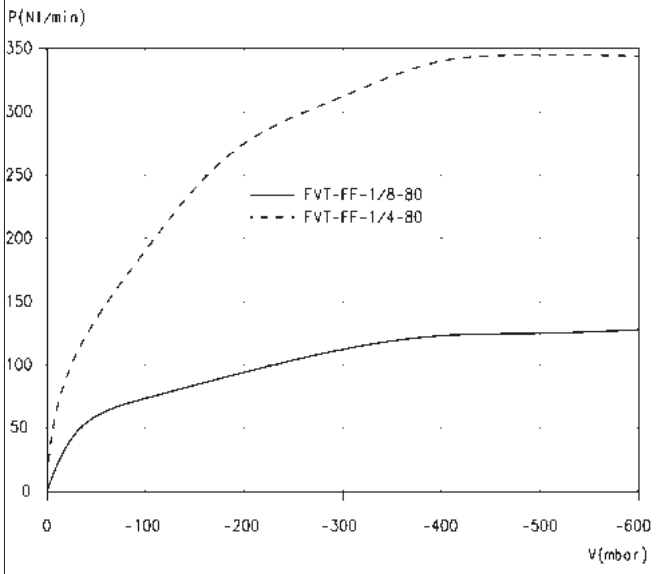


TECHNICAL DATA

Mod.	Filter element (µm)	Nominal flow (l/min)	Max vacuum (mbar)	Max pressure at 25°C (bar)	Max pressure at 50°C (bar)	Weight (kg)
FVT-FF-1/8-80	80	45	-990	7	5	0,049
FVT-FF-1/4-80	80	110	-990	7	5	0,047
FVT-FF-3/8-80	80	245	-990	7	5	0,079
FVT-FF-1/2-80	80	300	-990	7	5	0,076
FVT-FF-3/4-80	80	600	-990	7	5	0,164

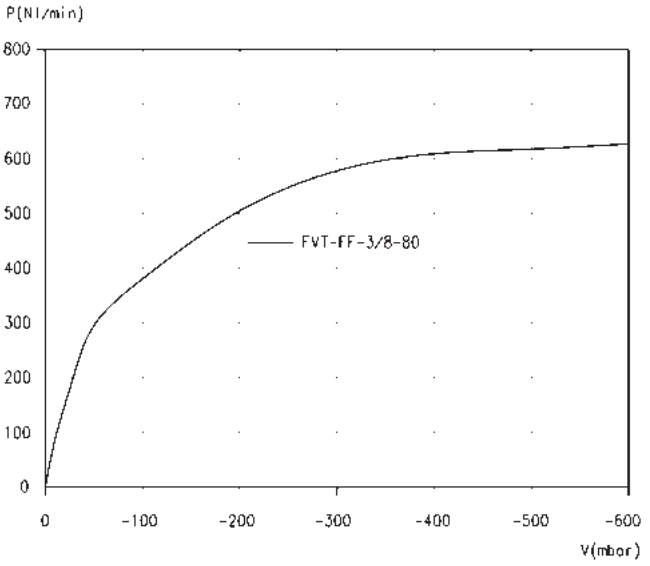
Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Diagrams FVT



LEGEND:
P = Volumetric flow
V = Vacuum values

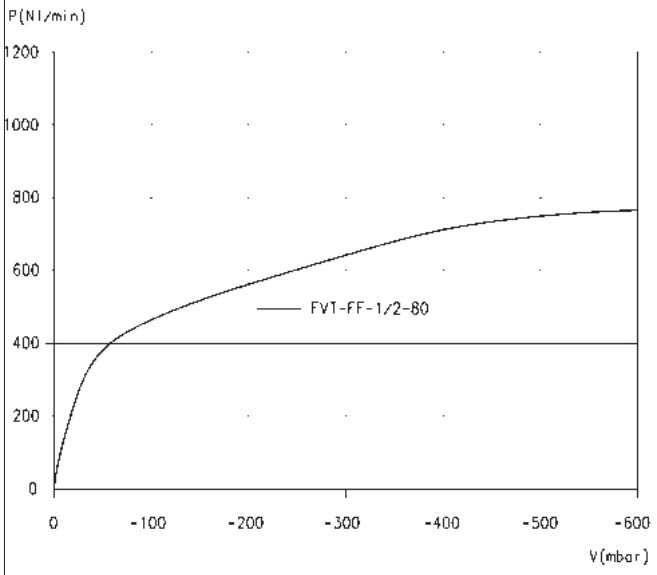
Note: Flow rate for different vacuum values



LEGEND:
P = Volumetric flow
V = Vacuum values

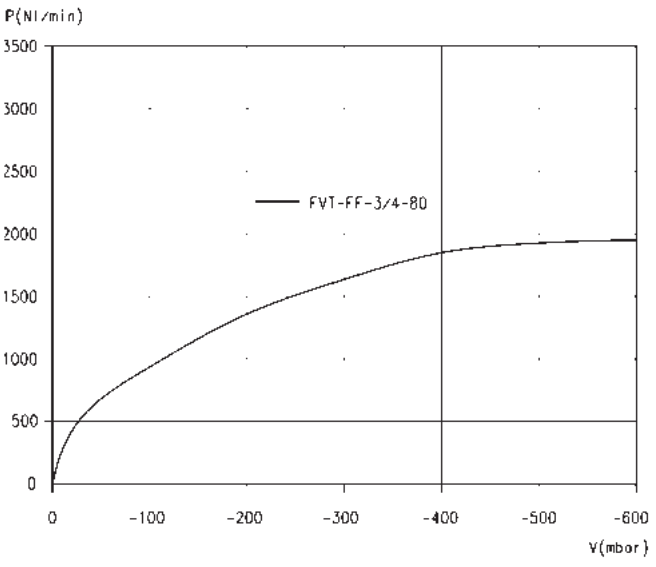
Note: Flow rate for different vacuum values

Diagrams FVT



LEGEND:
P = Volumetric flow
V = Vacuum values

Note: Flow rate for different vacuum values



LEGEND:
P = Volumetric flow
V = Vacuum values

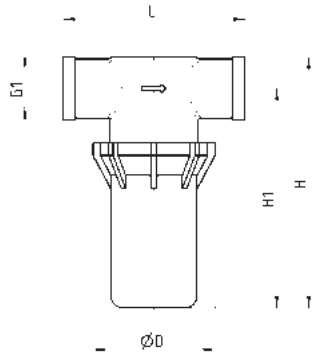
Note: Flow rate for different vacuum values

Products designed for industrial applications.
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Series FVT cup filter





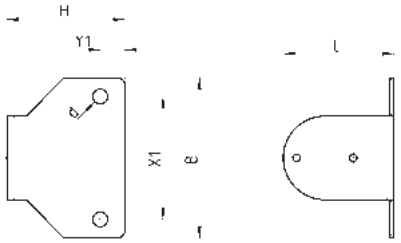


DIMENSIONS					
Mod.	D	G1	H	H1	L
FVT-FF-1/8-80	48	G1/8-F	60	50	58
FVT-FF-1/4-80	48	G1/4-F	60	50	76
FVT-FF-3/8-80	48,5	G3/8-F	101	88	77,2
FVT-FF-1/2-80	48	G1/2-F	101	88	77,2
FVT-FF-3/4-80	75	G3/4-F	137	118	90,5

Mounting foot bracket

The mod. FVT-FF-1/8-80-B is used on cup filters with ports G1/8, G1/4, G3/8 e G1/2.
The mod. FVT-FF-3/4-80-B is used on cup filters with ports G3/4.





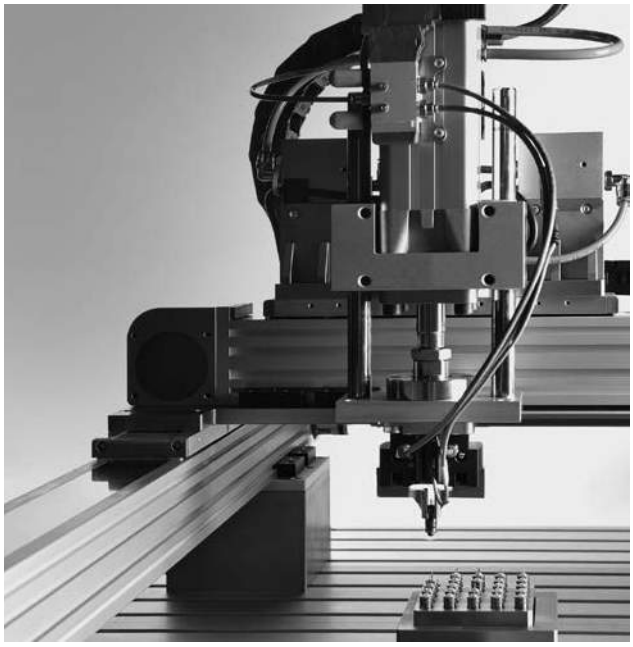
DIMENSIONS						
Mod.	B	d	H	L	X1	Y1
FVT-FF-1/8-80-B	65	6	48	45	50	10
FVT-FF-3/4-80-B	85	6	52	70	70	10

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.

Camozzi.
All you need for Automation

Since 1964 we realize solutions for industrial automation with the intention to satisfy customers, combining the quality of products and processes with the expertise of people and the most advanced technologies. Thanks to 6 highly automated production plants, which are all organized according to the Lean production philosophy, and to the support of the Camozzi Research Centre, which is entirely devoted to technological research, components and ever more advanced systems are designed and realized which combine pneumatics, mechanics and electronics.
We are well aware that each sector presents different characteristics and our multi-technological approach allows us to identify the most suitable technologies and components to create customized systems for every single application.
That is why every day the Camozzi network, present in more than 70 countries through subsidiaries, workshops and distributors, works in close contact with customers to understand their requirements and supply solutions with a real added value.

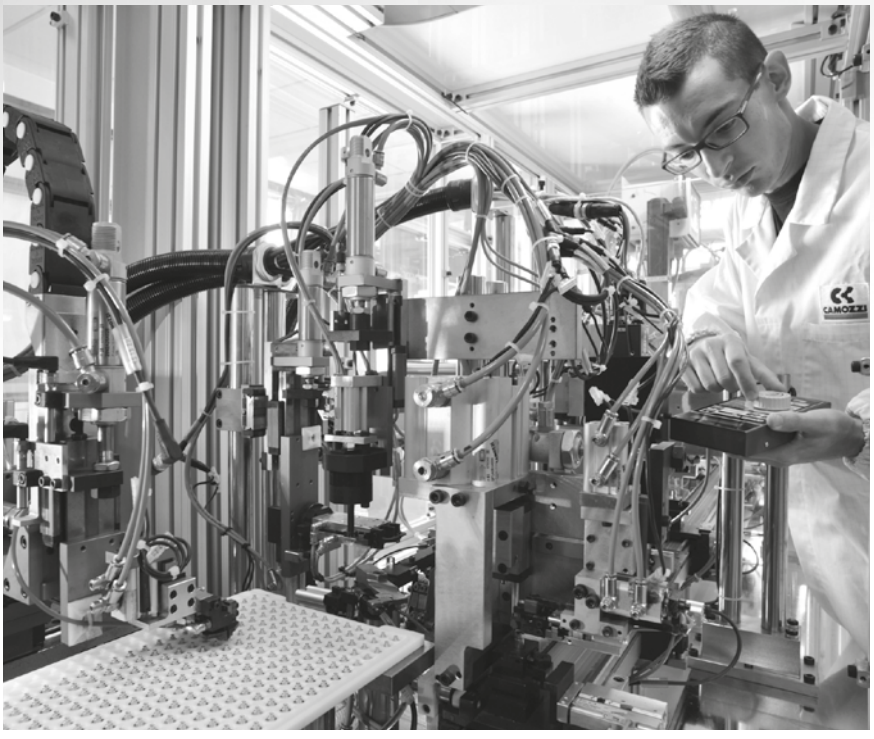






23	52	6	1500
SUBSIDIARIES AND WORKSHOPS	EXCLUSIVE DISTRIBUTORS	PRODUCTION FACILITIES	EMPLOYEES

- INDUSTRIAL
- LIFE SCIENCE
- MOBILE AUTOMATION



Quality...
an absolute and total commitment



Everybody talks about quality.
We prefer to talk about the many components that work together to create a quality system that ensures excellence, not only in the final product but throughout the entire business process.
Research, technological innovation, training, respect for personnel, employee and environmental safety, and total customer care are all factors that Camozzi considers strategic in the achievement of quality reflecting an unyielding commitment to the pursuit of excellence.

ISO 9001
Day by day we try to improve ourselves, to extend our competence and our professionalism in a constant way.

Mandatory directives

- Directive 99/34/EC concerning liability for defective products modified by Legislative Decree 02/02/01 n° 25.
- Directive 2014/35/EU “Equipment designed for use within certain voltages”.
- Directive 2014/30/EU “Electromagnetic Compatibility EMC” and repealing Directive 89/336/EEC.
- Directive 2014/34/EU “Atex”.
- Directive 2006/42/EC “Machi nery”.
- Directive 2014/68/EU “Pressure equipment - PED”.
- Directive 2001/95/EC “General product safety”.
- Regulation 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

COMPANY WITH INTEGRATED MANAGEMENT SYSTEM CERTIFIED BY DNV

ISO 9001 - ISO 14001

One of Camozzi's main goals, besides quality and safety, is the protection of the environment and compatibility of our activities with the territorial context in which they are performed.
Since 1993 Camozzi has been certified according to the ISO 9001 standard and in 2003 the company obtained the ISO 14001 certification.
In the same year, DNV certified the Integrated Management System including both standards. Moreover, in 2013 Camozzi spa obtained the ISO/TS 16949 certification for the C-Truck fittings.

In 2013 Camozzi obtained the voluntary certification of its Quality Management System as “Intermediate stage of manufacture” in compliance with the requirements set out in attachment VII, section 3 of the 93/42/EEC Medical Devices Directive for the production and final testing of pressure control valves for fluids in haemodialysis equipment.

From the 1° July 2003, all products commercialised in the European Union and destined to be used in potenially explosive areas, should be approved according directive 94/9/CE better know as ATEX.
This new directive involves also the non electrical parts, as for instance pneumatic commands which should be approved.
As from 19 April 2016 the Atex Directive is replaced by the new directive 2014/34/EU.



ISO 14001
Minimise the consumption of energy, water, raw material and the production of waste, and focus on recycling wherever possible.

Technical standards

- ISO 4414 - Pneumatic fluid power - General rules relating to systems.

Environmental notes

- Packaging: we respect the environment, using materials which can be recycled. The packaging consists of plastic bags which are recyclable PE and paper.
- Green Design Project: in the study of new products, the environmental impact is always taken into consideration (real project, elaboration, etc.).

Information for the use of Camozzi products

In order to guarantee a proper functioning of its products, Camozzi S.p.A. herewith provides some general information.

Air quality

Beyond respecting the limit values as pressure, force, speed, voltage, temperature and others values that are indicated in the general tables of each product, another aspect to consider is the quality of the compressed air. While resources as electricity, water and gas are normally supplied by external companies that guarantee the standard, air is produced inside a company and therefore it's the user that has to guarantee its quality.

This characteristic is essential for a proper functioning of pneumatic systems. One m³ of air at the atmospheric pressure contains various substances:
- more than 150 million of solid particles with dimensions from 0,01 µm to 100 µm,
- fumes due to combustion,
- water vapour, which quantity depends from the temperature, at 30° there are about 30 g/m³ of water
- oil, up to about 0,03 mg
- micro organisms
- as well as different chemical contaminants, odours etc …

Compressing the air, in the same volume of 1 m³, we find "n" m³ of air, therefore the substances indicated before increase.
In order to limit this, at the inlet and outlet of the compressors filters, driers and oil separators are installed.
In spite of these precautions, the air, during its transport inside tubes or storage in tanks, can collect flakes of rust, a part of the water vapour contained in the air, cooling down, can pass from a gaseous state into a liquid state, but can also transform the oil fumes that were not retained by the previous filters.
For this reason it is advisable to equip the systems or machinery with air treatment groups.

Air treatment: classification according to ISO 8573-1-2010 standard

ISO 8573-1-2010 Class	Solid particles				Water		Oil
	Max. Number of Particles per m³			Max Concentration	Water pressure dew point	Liquid	Total content (liquid, aerosol and vapour)
	0,1 - 0,5 µm	0,5 - 1 µm	1 - 5 µm	mg/m³	°C	g/m³	mg/m³
0	More strict than class 1, defined by the device user						
1	≤ 20,000	≤ 400	≤ 10	-	≤ - 70°	-	≤ 0,01
2	≤ 400,000	≤ 6,000	≤ 100	-	≤ - 40°	-	≤ 0,1
3	-	≤ 90,000	≤ 1,000	-	≤ - 20°	-	≤ 1
4	-	-	≤ 10,000	-	≤ + 3°	-	≤ 5
5	-	-	≤ 100,000	-	≤ + 7°	-	-
6	-	-	-	≤ 5	≤ + 10°	-	-
7	-	-	-	5 - 10	-	≤ 0,5	-
8	-	-	-	-	-	0,5 - 5	-
9	-	-	-	-	-	5 - 10	-
X	-	-	-	> 10	-	> 10	-

These groups can have different functions: isolation valves, pressure regulators, soft-start valves and of course filters.
Only in some applications, lubricators are still used.
Regarding filtering, there are standards of reference as ISO 8573-1-2010 that classify air according to its quality.
This standard defines the relevant class of compressed air according to the presence of three contaminating categories: solid parts, water or water vapour, concentration of micro mist or oil vapours.
In general, if not specified otherwise in the characteristics of the single component, the Camozzi products require an **ISO 8573-1-2010 class 7-4-4** air quality, this wording indicates that:

class 7
A maximum concentration of solid particles of 5 mg/m³ is allowed and the dimension is not declared.
The standard Camozzi filters are declared as class 7 even if the filtering elements are realized with a technology that enables to separate solid particles with a dimension of more than 25 µm.
The air exiting from our filters and therefore the air at the inlet of all other components can contain solid particles with a maximum concentration of 5 mg/m³ but with a maximum dimension of 25 µm.

class 4
The temperature has to arrive at ≤ 3° in order for the water vapor to condense and become liquid.

The classical filters have characteristics that separate the humidity in the air only if it is in a liquid state or nearly.
It is the cooling of the air that enables condensation and then the elimination of the water present in the form of water vapour.
The air flow entering the bowl of the filter sustains a minimum expansion phase, (according to the gas law when gas sustains a sudden expansion its temperature lowers) followed by a vortex, this enables the heavier particles and the water vapour, that is condensed due to the expansion, to adhere to the sides of the bowl and slide down towards the drainage system.
Except for specific versions, the Camozzi filters are declared to be in class 8.
This means that the user has to provide in installing driers in its compressed air production system that, by cooling the air, dehumidify it.

class 4
The concentration of oily parts must be of maximum 5 mg/m³.
The compressors use oil that during the process can be introduced into the system in the form of aerosol, vapour or liquid.
This oil, as all other pollutants, is transported by the air into the pneumatic circuit, enters in contact with the seals of the components and subsequently in the environment through the outlets of the solenoid valves. In this case coalescing filters are used that have an operating principle and filtering cartridges that are different compared to others and this allows to aggregate those micro-molecules of oil suspended in the air and remove them.
The Camozzi coalescing filters enable to reach classes 2 and 1.
It is important to keep in mind that the best performance is reached only by means of a filtering process with subsequent phases.

As illustrated, there are filters with different characteristics, a very efficient filter for a certain contaminant, but may not be so for other contaminants.
The filtering elements determine the class of the filters, these elements should be replaced after a certain period or after a certain number of working hours.
These parameters vary according to the characteristics of the incoming air.

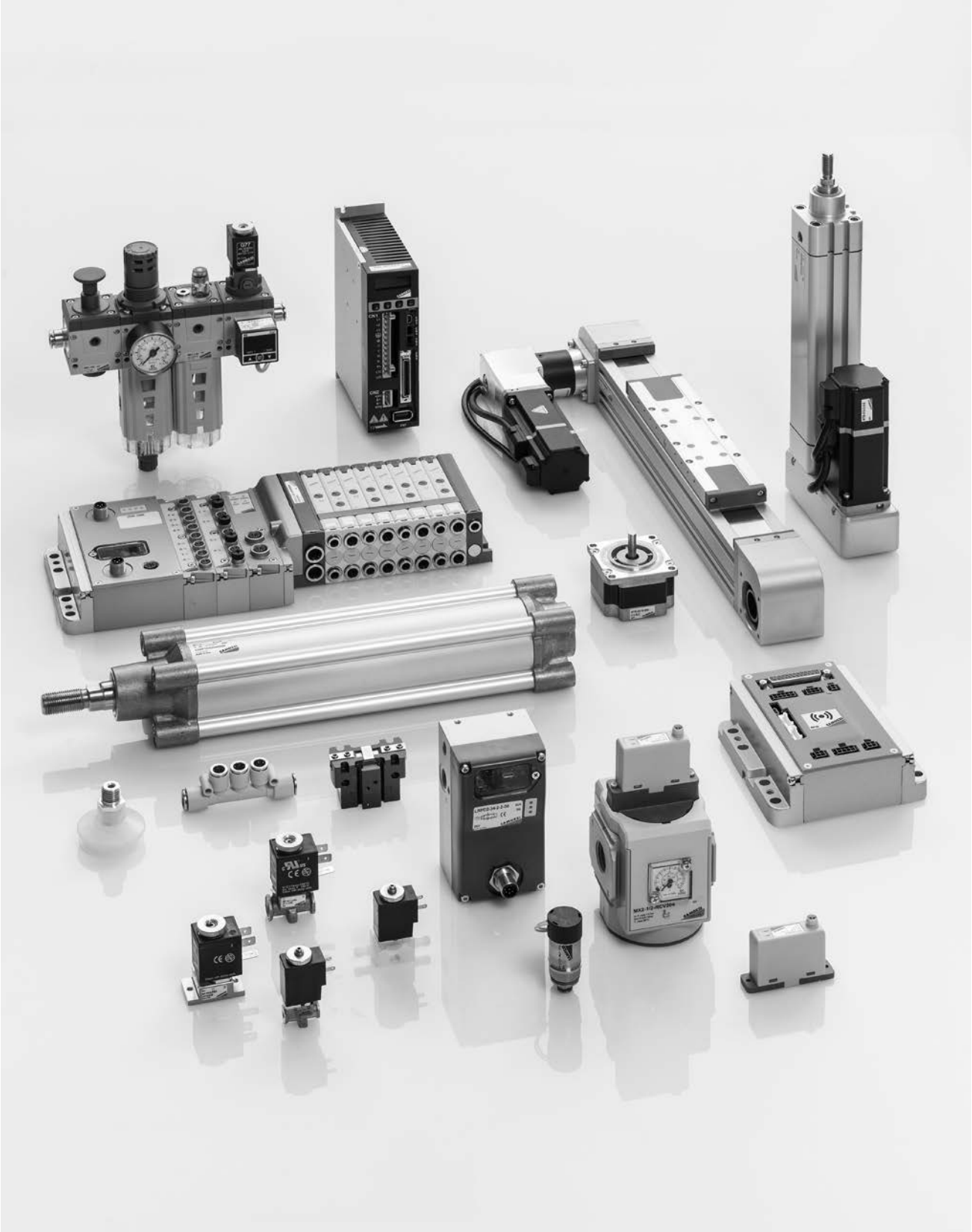
The Camozzi filters are subdivided into different groups:
- Filtering element of 25 µm, class 7-8-4
- Filtering element of 5 µm, class 6-8-4
- Filtering element of 1 µm, class 2-8-2 with pre-filter class 6-8-4
- Filtering element of 0,01 µm, class 1-8-1 with pre-filter class 6-8-4 residual oil content of 0,01 mg/m³
- Activated carbon, class 1-7-1 with pre-filter class 1-8-1 residual oil content of 0,003 mg/m³

The components are previously greased with special products and do not need an additional lubrication. In case it should be necessary, use ISO VG 32 oil.
The quantity of oil introduced into the circuit depends on the different applications, we suggest a dosage of max. 3 drops per minute.

Pneumatic cylinders

The choice of the correct cylinder mounting to the structure and also that of the rod attachment to any moving parts, are as important as the control of parameters relating to speed, mass and radial loads. The control of these parameters has to be guaranteed by the user. The location of position sensors (reed switches), and their switching response times to magnetic fields, is dependant upon the type and bore size of cylinder and the appropriate precautions need to be taken when fixing these items.
(see notes on the pages relative to the sensors).

We do not advise the use of a cylinder application as a shock absorber or as pneumatic cushioning. If used at the maximum speed, we recommend gradual deceleration to avoid a violent impact between piston and the cylinder end cover.
As a general value, we calculate a maximum average speed of 1 m/sec.
In this case no lubrication is required as the lubrication introduced during assembly is sufficient to guarantee good operation. If faster speeds are required, we suggest lubrication in the quantities described above.



Directive ATEX 2014/34/EU: products classified for the use in potentially esplosive atmospheres

ATEX 2014/34/EU



As from 19 April 2016 all products which are commercialised in the European Union and destined to be used in **potentially explosive atmospheres** have to be approved according to the directive 2014/34/EU, also known as ATEX.
This new directive also refers to non-electric items, like pneumatic drives, which need to be approved.

These are the main changes introduced by the new directive 2014/34/EU:
• Also non-electric apparatus and devices, as pneumatic cylinders, are part of the Directive
• The apparatus are assigned to different categories which are assigned to certain potentially explosive zones.
• The products are identified with the CE mark Ex.
• The instructions for use and the declarations of conformity should in order to be supplied with each sold product used in potentially explosive zones.
• Products destined to be used in potentially explosive zones, because of the presence of dust, are included in the directive like the products destined to be used in zones with the presence of dangerous gases.
A potentially explosive atmosphere could be composed of gas, mist, steam or dust which can be created in manufacturing processes or in all those areas in which there is a constant or random presence of inflammable substances.
An explosion can occur when there is an existing presence of inflammable substances and an ignition source in a potentially explosive atmosphere.

An ignition source could be:
• Electrical (electric arcs, induced current, heat generated by the Joule effect)
• Mechanical (heat between surfaces caused by friction, sparks generated by the collision of metallic bodies, electrostatic discharges, adiabatic compression)
• Chemical (exothermic reactions between materials)
• Naked flames.
The products which are subject to the approval are those which, during their normal use or because of a malfunction, present one or more ignition sources for the potentially explosive atmospheres.

The producer has to guarantee that the product conforms with the declarations and to the marking of the product.
Moreover the product should always be accompanied by the relative instructions.
The builder of the equipment and/or user should identify the risk zone in which the products, to which directive 99/92/CE refers, are used and purchase the product according to the use in the pre-determined zone paying attention to the specifications in the relative instructions.

In case a product is composed by two components with different markings, the component which is classified in the lowest category defines the class to which the complete product belongs.

Example:
solenoid suitable for Category 3 marked …
Ex - II 3 EEx…

and valve suitable for Category 2 …
Ex - II 2 EEx…
The valve unit with solenoid can be used only in category 3 or zone 2/22.

Zones, groups and categories

In the places and for the types of equipment subject to Directive 99/92/CE, the employer should execute the classification of the zones regarding the danger of the creation of explosive atmospheres because of the presence of gas or dust.

The apparatus for the use in potentially explosive zones are divided in GROUPS:

GROUP I > apparatus used in mines

GROUP II > apparatus used in installations above the ground

Group I: Apparatus used in mines

CATEGORY M1
Functioning in explosive atmospheres

CATEGORY M2
Non-supplied equipment in explosive atmospheres

Group II: Apparatus for installations above the ground

Product category	GAS	DUST
1	Zone 0	Zone 20
2	Zone 1	Zone 21
3	Zone 2	Zone 22

Classification of zones according to Directive 99/92/CE

Category 1	Zone 0 -	Area in which (permanently, for long periods or often) an explosive atmosphere is present, consisting of a mixture of air and inflammables in the form of gas, vapour or mist.
	Zone 20 -	Area in which (permanently, for long periods or often) an explosive atmosphere is present in the form of a dust/powder cloud which is combustible in the air.
Category 2	Zone 1 -	Area in which, during normal activities, the formation of an explosive atmosphere is probable, consisting of a mixture of air and inflammables in the form of gas, vapours or mist.
	Zone 21 -	Area in which occasionally during normal activities the formation of an explosive atmosphere is probable, in the form of a dust cloud which is combustible in the air.
Category 3	Zone 2 -	Area in which, during normal activities, the formation of an explosive atmosphere, consisting of a mixture of air and inflammables in the form of gas, vapour or mist is not probable and, whenever this should occur, it is only of a short duration.
	Zone 22 -	Area in which, during normal activities, the formation of an explosive atmosphere in the form of a combustible dust cloud is not probable and, whenever this should occur, it is only of a short duration.

Example of Marking: Ⓔx II 2 GD c T100°C (T5) -20°C≤Ta≤60°C

II	Group: Devices which are to be used in spaces exposed to risks of an explosive atmosphere, different from underground spaces, mines, tunnels, etc., individuated according to the criteria in enclosure I of the Directive 2014/34/EU (ATEX).
2	Category: Devices designed to function in compliance with the operational parameters determined by the manufacturer and guarantee a high protection level.
GD	Qualification gas and dusts: Protected against gas (G) and explosive dusts (D).
c	Non-electrical devices: Non-electrical devices for potentially explosive atmospheres. Protection through constructive security.
T 100°C	Max. temperature for components for dusts: Max. superf. temp. of 100°C regarding potential hazards resulting from striking within the vicinity of hazardous dusts.
T5	Max. temperature for components for gas: Max. superf. temp. of 100°C regarding potential hazards which may result from striking within gasy environments.
Ta	Environmental temperature: **-20°C≤Ta≤60°C.** Environmental temperature range (with dry air).

Group I: Temperature classes

Temperature = 150°C
or = 450°C according to the level
of dust on the apparatus.

Group II: Temperature classes

Temp. classes for gas (G)	Admissible surface temperatures
T1	450°C
T2	300°C
T3	200°C
T4	135°C
T5	100°C
T6	85°C

ATEX certified Camozzi products

APPARATUS regarding ATEX - Group II

Cylinders

Series	Category	Zone	Gas/Dust
16*	2 DE-3 SE	1/21 DE -2/22 SE	G/D
24*	2 DE-3 SE	1/21 DE-2/22SE	G/D
25*	2 DE-3 SE	1/21 DE-2/22SE	G/D
31-32	2 DE-3 SE	1/21DE-2/22SE	G/D
31-32 Tandem/multi-position	2 DE	1/21 DE	G/D
40*	2 DE	1/21 DE	G/D
41*	2 DE	1/21 DE	G/D
60*	2 DE-3 SE	1/21DE-2/22 SE	G/D
61*	2 DE-3 SE	1/21DE-2/22 SE	G/D
62*	2 DE	1/21 DE	G/D
27	2 DE	1/21 DE	G/D
QP-QPR	2 DE-3 SE	1/21DE-2/22 SE	G/D
QN	3 SE	2/22 SE	G/D
42	2 DE-3 SE	1/21DE-2/22 SE	G/D
ARP	2	1/21	G/D
CSH/CST/CSV	3	2/22	G/D

Solenoids

Series	Category	Zone	Gas/Dust
U70	3	2/22	G/D
H80	2	1/21	G/D
H80I**	2	1/21	G/D

Pressure switches

Series	Category	Zone	Gas/Dust
PM 11**	1	0/20	G/D

Valves

Series	Category	Zone	Gas/Dust
9#*	2	1/21	G/D
K	3	2/22	G/D
P	3	2/22	G/D
W	3	2/22	G/D
A#	2	1/21	G/D
3#	2	1/21	G/D
4#	2	1/21	G/D
NAMUR#	2	1/21	G/D
E (pneumatic)	2	1/21	G/D
E (electro-pneumatic)	3	2/22	G/D
Y	3	2/22	G/D
2	2	1/21	G/D

FRL

Series	Category	Zone	Gas/Dust
MC#	2	1/21	G/D
N	2	1/21	G/D
MX#	2	1/21	G/D
T	2	1/21	G/D
CLR	2	1/21	G/D
M	2	1/21	G/D

* According to ISO standard
** Products with ATEX and IECEX certification
Without solenoid

DE = Double-acting cylinder
SE = Single-acting cylinder

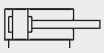
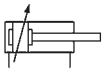
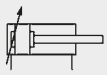
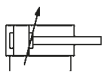
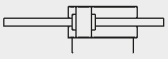
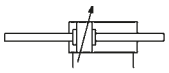
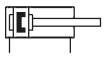
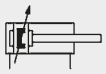
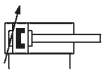
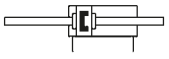
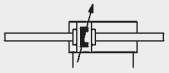
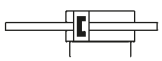
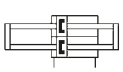
COMPONENTS regarding ATEX - Group II

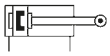
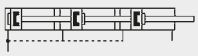
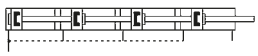
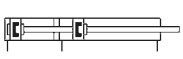
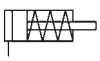
Products	Category	Zone	Gas/Dust
Silencers	2	1/21	G/D
Quick release couplings	2	1/21	G/D
Manifolds	2	1/21	G/D
Subbases	2	1/21	G/D
Feet	2	1/21	G/D
Caps	2	1/21	G/D
Plates	2	1/21	G/D

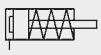
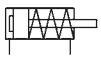
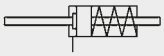
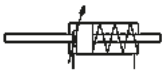
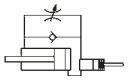
» The order code number of the certified products is obtained by adding “EX” to the standard article number
Es. 358-015 standard solenoid valve
Es. 358-015EX ATEX certified solenoid valve

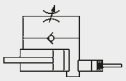
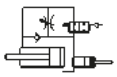
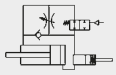
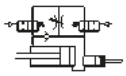
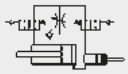
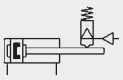
Accessories available in category 2 zone 1/21: couplings, junctions, brackets, piston rod nuts, nuts, counter brackets, bushings, pins, clevis pins, caps, gaskets, diaphragm, sub-bases, plates, feet, hand operated valves, flow valves, flanges, screw, tie rods, automatic and blocking valves, silencers and pressure gauge, connector kits, clamps, rapid and super rapid push-in fittings, hoses, sealing rings, locking nuts. Accessories available in category 3, zone 2/22: adaptors, slot covers, extensions, connectors. For more informations on this kind of products see the website: http://catalogue.camozzi.com within the section: Downloads > Certifications > ATEX Directive 2014/34/EU > List of products excluded from the directive 2014/34/EU ATEX.

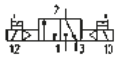
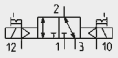
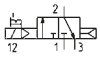
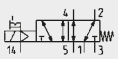
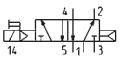
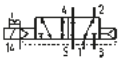
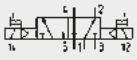
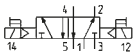
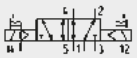
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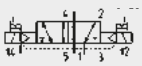
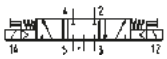
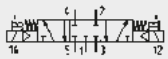
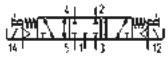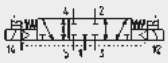
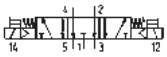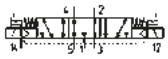
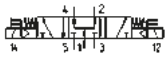
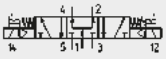
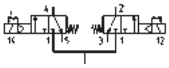
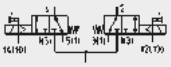
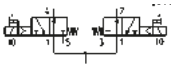
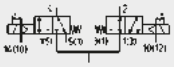
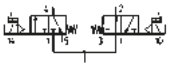
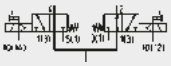
Symbol	Type
	CYLINDERS
CD01 	Double-acting cylinder, fixed cushions
CD02 	Double-acting cylinder, cushioned
CD03 	Double-acting cylinder, adjustable rear cushion
CD04 	Double-acting cylinder, adjustable front cushion
CD05 	Double-acting cylinder, through-rod, fixed cushions
CD06 	Double-acting cylinder, through-rod, adjustable front and rear cushion
CD07 	Double-acting cylinder, magnetic
CD08 	Double-acting cylinder, magnetic, fixed cushions
CD09 	Double-acting cylinder, magnetic, adjustable cushions in both directions
CD10 	Double-acting cylinder, magnetic, adjustable rear cushion
CD11 	Double-acting cylinder, magnetic, adjustable front cushion
CD12 	Double-acting cylinder, magnetic, through-rod, fixed cushions
CD13 	Double-acting cylinder, magnetic, through-rod, adjustable cushions in both directions
CD14 	Double-acting cylinder, magnetic, through-rod
CD15 	Magnetic twin rod cylinders
CD16 	Magnetic twin through-rod cylinders

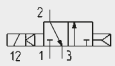
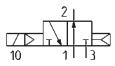
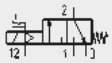
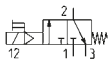
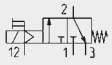
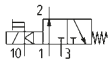
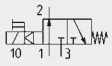
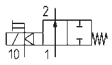
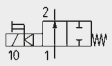
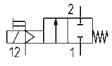
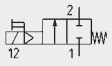
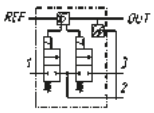
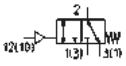
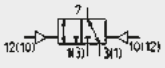
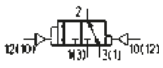
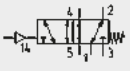
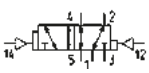
Symbol	Type
	CYLINDERS
CD17 	Double-acting rotary cylinder
CD18 	Double-acting rotary cylinder, magnetic
CD19 	Single-acting rotary cylinder
CD20 	Magnetic double-acting cylinder with fixed cushions, rod, roller
CD21 	Single-acting rotary cylinder
CD2T 	Magnetic tandem cylinder, two stages, fixed cushions single rear supply, sole front supply
CD3T 	Magnetic tandem cylinder, three stages, fixed cushions single rear supply, sole front supply
CD4T 	Magnetic tandem cylinder, four stages, fixed cushions single rear supply, sole front supply
CD5T 	Magnetic tandem cylinder, two stages, fixed cushions, separated rear supplies, sole front supply
CD6T 	Magnetic tandem cylinder, three stages, fixed cushions, single rear supplies, sole front supply
CD7T 	Magnetic tandem cylinder, two stages, fixed cushions, single rear supplies, sole front supply
CD8T 	Magnetic tandem cylinder, two stages, fixed cushions, separated rear and front supplies
CD9T 	Non magnetic tandem cylinder, two stages, fixed cushions, separated rear and front supplies
CDPP 	Magnetic multi-position cylinder, fixed cushions
CDSS 	Double-acting rodless cylinder, magnetic
CS01 	Single-acting cylinder, front spring

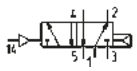
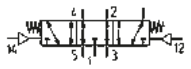
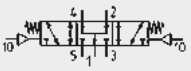
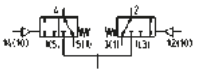
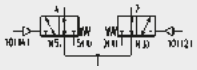
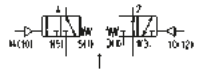
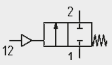
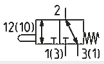
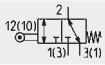
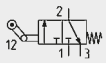
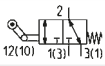
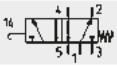
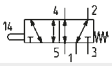
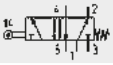
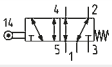
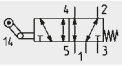
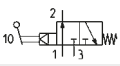
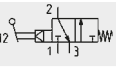
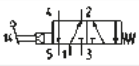
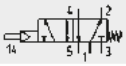
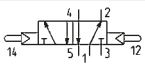
Symbol	Type
	CYLINDERS
CS02 	Single-acting cylinder, front spring
CS03 	Single-acting cylinder, non cushioned
CS04 	Single-acting cylinder, through-rod
CS05 	Single-acting cylinder, through-rod, adjustable cushion
CS06 	Single-acting cylinder, magnetic
CS07 	Single-acting cylinder, front spring, adjustable rear cushion
CS08 	Single-acting cylinder, rear spring, magnetic
CS09 	Single-acting cylinder, magnetic, front spring
CS10 	Single-acting cylinder, through-rod
CS11 	Single-acting cylinder, through-rod, adjustable rear cushion
CS12 	Single-acting cylinder, front spring, adjustable rear cushion
CS13 	Single-acting cylinder, through-rod, adjustable rear cushion
CS14 	Single-acting cylinder with adjustable front cushion and rear connection
CS15 	Magnetic single-acting cylinder, rear spring, rod, roller
CS16 	Magnetic double-acting cylinder, rear spring, rod, roller
HI01 	Hydrocheck, regulated rod thrust

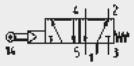
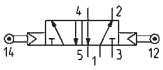
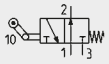
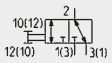
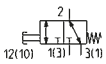
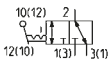
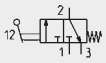
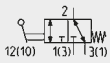
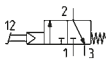
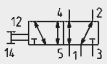
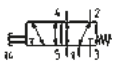
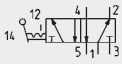
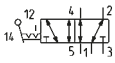
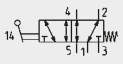
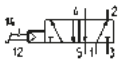
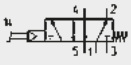
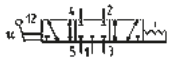
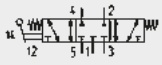
Symbol	Type
	CYLINDERS
HI02 	Hydrocheck, regulated rod return
HI03 	Hydrocheck, regulated rod thrust with stop valve
HI04 	Hydrocheck, regulated rod return with stop valve
HI05 	Hydrocheck, regulated rod thrust with skip valve
HI06 	Hydrocheck, regulated rod return with skip valve
HI07 	Hydrocheck, regulated rod thrust with skip and stop valve
HI08 	Hydrocheck, regulated rod return with skip and stop valve
PNZ1 	Double-acting magnetic grippers
PNZ2 	Magnetic single-/double-acting grippers, front spring
PNZ3 	Magnetic single-/double-acting grippers, rear spring
PNZ4 	Non magnetic single-acting grippers, rear spring
PNZ5 	Magnetic single-acting grippers, rear spring
RDLK 	Rod lock device

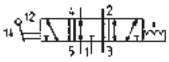
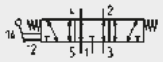
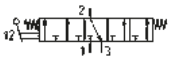
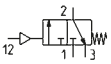
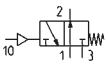
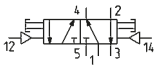
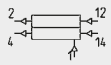
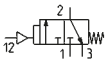
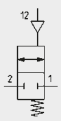
Symbol		Type
		SOLENOID VALVES
EV01		Directly operated solenoid valve, 2/2 NC
EV02		Directly operated solenoid valve, 2/2 NO
EV03		Directly operated solenoid valve, 3/2 NC
EV04		Directly operated solenoid valve, 3/2 NC, monostable, with manual override
EV05		Directly operated solenoid valve, 3/2 NO
EV06		Directly operated solenoid valve, 3/2 NO, monostable, with manual override
EV07		Solenoid valve, 3/2 NC with quick exhaust
EV08		Directly operated solenoid valve, 3/2 NC, bistable, with manual override
EV09		Directly operated solenoid valve, 3/2 NO, bistable, with manual override
EV10		Solenoid valve, 3/2 NC, monostable, with bistable manual override
EV11		Solenoid valve, 3/2, monostable, solenoid pilot with separate air supply and bistable manual override
EV12		Solenoid valve, 3/2 NO, monostable, with bistable manual override
EV13		Solenoid valve, 3/2, monostable, solenoid pilot with separate air supply and bistable manual override
EV14		Solenoid valve, 3/2, bistable, with manual override bistabile
EV15		Solenoid valve, 3/2, bistable, solenoid pilot with separate air supply and bistable manual override
EV16		Solenoid valve, 3/2 NC, monostable, (pneumatic spring) and bistable manual override
EV17		Solenoid valve, 3/2 NO, monostable, (pneumatic spring) and bistable manual override
EV18		Solenoid valve, 5/2, monostable, with bistable manual override
EV19		Solenoid valve, 5/2, monostable, solenoid pilot with separate air supply and bistable manual override
EV20		Solenoid valve, 5/2, monostable, (pneumatic spring) and manual override
EV21		Solenoid valve, 5/2, monostable, (pneumatic spring) and bistable manual override
EV22		Solenoid valve, 5/2, monostable, solenoid pilot with separate air supply, pneumatic spring and bistable manual override
EV23		Solenoid valve, 5/2, bistable, with bistable manual override
EV24		Solenoid valve, 5/2, bistable, with manual override
EV25		Solenoid valve, 5/2, bistable, solenoid pilot with separate air supply and bistable manual override

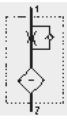
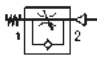
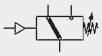
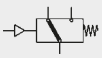
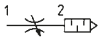
Symbol		Type
		SOLENOID VALVES
EV26		Solenoid valve, 5/2, bistable, solenoid pilot with separate air supply and bistable manual override
EV27		Solenoid valve, 5/3 CC, with manual override
EV28		Solenoid valve, 5/3 CC, with bistable manual override
EV29		Solenoid valve, 5/3, solenoid pilot with separate air supply and bistable manual override
EV30		Solenoid valve, 5/3, solenoid pilot with separate air supply and bistable manual override
EV31		Solenoid valve, 5/3 CO, with manual override
EV32		Solenoid valve, 5/3 CO, with bistable manual override
EV33		Solenoid valve, 5/3 CO, solenoid pilot with separate air supply and bistable manual override
EV34		Solenoid valve, 5/3 CO, solenoid pilot with separate air supply and bistable manual override
EV35		Solenoid valve, 5/3 CP, with manual override
EV36		Solenoid valve, 5/3 CP, with bistable manual override
EV37		Solenoid valve, 5/3 CP, solenoid pilot with separate air supply and bistable manual override
EV38		Solenoid valve, 5/3 CP, solenoid pilot with separate air supply and bistable manual override
EV39		Double solenoid valve, 3/2 NC, monostable, with bistable manual override
EV40		Double solenoid valve, 3/2, monostable, solenoid pilot with separate air supply and bistable manual override
EV41		Double solenoid valve, 3/2 NO, monostable, with bistable manual override
EV42		Double solenoid valve, 3/2, monostable, solenoid pilot with separate air supply and bistable manual override
EV43		Double solenoid valve, 3/2 NC, NO, monostable, with bistable manual override
EV44		Double solenoid valve, 3/2, monostable, solenoid pilot with separate air supply and bistable manual override
EV45		Directly operated solenoid valve, 3/2, possible universal use, reversed printed ports 1 and 2 on the body
EV46		Indirectly operated solenoid valve, 2/2 NO
EV47		Directly operated solenoid valve, 2/2 NC, with linked diaphragm
EV48		Indirectly operated solenoid valve, 2/2 NC
EV49		Indirectly operated Booster solenoid valve, 2/2 NC
EV50		Indirectly operated Booster solenoid valve, 2/2 NO

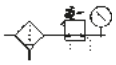
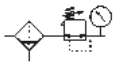
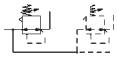
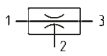
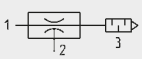
Symbol		Type
		SOLENOID VALVES
EV51		Indirectly operated Booster solenoid valve, 3/2 NC
EV52		Indirectly operated Booster solenoid valve, 3/2 NO
EV53		Pneumatic solenoid valve, 3/2 NC, monostable, with separated solenoid pilot supply and bistable manual override
EV54		Pneumatic solenoid valve, 3/2 NC, monostable, with monostable manual override
EV56		Pneumatic solenoid valve, 3/2 NC, monostable, with separated solenoid pilot supply and monostable manual override
EV57		Pneumatic solenoid valve, 3/2 NO, monostable, with separated solenoid pilot supply and monostable manual override
EV58		Pneumatic solenoid valve, 3/2 NO, monostable, with monostable manual override
EV59		Pneumatic solenoid valve, 2/2 NO, monostable, with separated solenoid pilot supply and monostable manual override
EV60		Pneumatic solenoid valve, 2/2 NO with monostable manual override
EV61		Pneumatic solenoid valve, 2/2 NC, monostable, with separated solenoid pilot supply and monostable manual override
EV62		Pneumatic solenoid valve, 2/2 NC with monostable manual override
		PROPORTIONAL VALVES
ER01		Proportional regulator
AP01		Directly operated proportional valve
LR1		Servo valves
K8P1		Series K8P proportional micro-valve
		PNEUMATICALLY OPERATED VALVES
VP01		Pneumatically operated valve, 3/2, monostable, mechanical spring
VP02		Pneumatically operated valve, 3/2, bistable
VP03		Pneumatically operated valve, 3/2, preferential
VP04		Pneumatically operated valve, 5/2, monostable, mechanical spring
VP05		Pneumatically operated valve, 5/2, preferential

Symbol		Type
		PNEUMATICALLY OPERATED VALVES
VP06		Pneumatically operated valve, 5/2, bistable
VP07		Pneumatically operated valve, 5/2, monostable, pneumatic spring
VP08		Pneumatically operated valve, 5/3 CC
VP09		Pneumatically operated valve, 5/3 CO
VP10		Pneumatically operated valve, 5/3 CP
VP11		Pneumatically operated double valve, 3/2, monostable
VP12		Pneumatically operated double valve, 3/2, monostable
VP13		Pneumatically operated double valve, 3/2, monostable
VP14		Indirect pneumatically operated valve, 2/2, monostable
		MECHANICALLY OPERATED VALVES
VM01		Mechanically operated valve, plunger actuation, 3/2 NC, monostable, mechanical spring
VM02		Mechanically operated valve, plunger actuation, 3/2, monostable, mechanical spring
VM03		Mechanically operated valve, plunger actuation, 3/2 NO, monostable, mechanical spring
VM04		Mechanically operated valve, lever/roller actuation, 3/2 NC, monostable, mechanical spring
VM05		Mechanically operated valve, lever/roller actuation, 3/2, monostable, mechanical spring
VM06		Mechanically operated valve, lever/roller actuation, 3/2 NO, monostabile, mechanical spring
VM07		Mechanically operated valve, unidirectional lever actuation, 3/2 NC, monostable, mechanical spring
VM08		Mechanically operated valve, unidirectional lever actuation, 3/2 monostable, mechanical spring
VM09		Mechanically operated valve, plunger actuation, 5/2, monostable, mechanical spring
VM10		Mechanically operated valve, plunger actuation, 5/2, monostable, mechanical spring
VM11		Mechanically operated valve, lever/roller actuation, 5/2, monostable, mechanical spring
VM12		Mechanically operated valve, lever/roller actuation, 5/2, monostable, mechanical spring
VM13		Mechanically operated valve, unidirectional lever actuation, 5/2, monostable, mechanical spring
VM14		Mechanically operated sensor valve, 3/2 NO, monostable, mechanical spring
VM15		Mechanically operated sensor valve, 3/2 NC, monostable, mechanical spring
VM16		Mechanically operated sensor valve, plunger actuation, 5/2, monostable, mechanical spring
VM17		Mechanically operated sensor valve, 5/2, monostable, mechanical spring
VM18		Mechanically operated sensor valve, plunger actuation, 5/2, bistable

Symbol		Type
		MECHANICALLY OPERATED VALVES
VM19		Mechanically operated sensor valve, lever/roller actuation, 5/2, monostable, mechanical spring
VM20		Mechanically operated sensor valve, lever/roller actuation, 5/2, bistable
VM21		Mechanically operated valve, front actuation, 5/2 NC, monostable, mechanical spring
		MANUALLY OPERATED VALVES
VN01		Manually operated valve, 3/2, bistable
VN02		Manually operated valve, 3/2, bistable, lockable in two positions
VN03		Manually operated valve, 3/2, bistable
VN04		Manually operated valve, 3/2 NC, monostable, mechanical spring
VN05		Manually operated valve, 3/2 NO, monostable, mechanical spring
VN06		Manually operated valve, 3/2, monostable, mechanical spring
VN07		Manually operated lever valve, 3/2, bistable
VN08		Manually operated lever valve, 3/2, bistable
VN09		Manually operated lever valve, 3/2 NC, monostable, mechanical spring
VN10		Manually operated lever valve, 3/2, bistable
VN11		Manually operated lever valve, 3/2, monostable, mechanical spring
VN12		Pedal operated valve, 3/2 NC, monostable, mechanical spring
VN13		Manually operated valve, 5/2, bistable
VN14		Manually operated valve, 5/2, monostable, mechanical spring
VN15		Manually operated lever valve, 5/2, bistable
VN16		Manually operated lever valve, 5/2, bistable
VN17		Manually operated lever valve, 5/2, monostable, mechanical spring
VN18		Pedal operated valve, 5/2, bistable
VN19		Pedal operated valve, 5/2, monostable bistable
VN20		Manually operated lever valve, 5/3 CC, stable
VN21		Manually operated lever valve, 5/3 CC, monostable

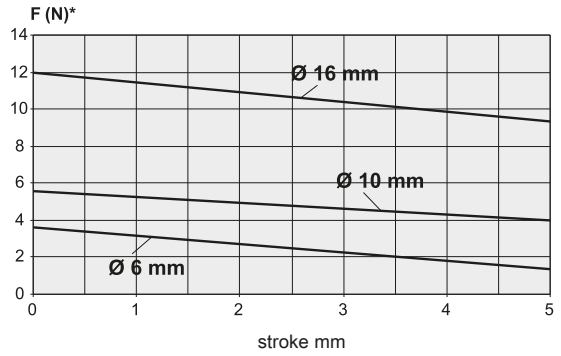
Symbol		Type
		MANUALLY OPERATED VALVES
VN22		Manually operated lever valve, 5/3 CO, stable
VN23		Manually operated lever valve, 5/3 CO, stable
VN24		Manually operated lever valve, 5/3 CO, monostable
VN25		Manually operated lever valve, Joystik
		PNEUMATIC LOGIC VALVES
AND1		"AND" pneumatic symbol
AND2		"AND" logical symbol
OR01		"OR" pneumatical symbol and circuit selector
OR02		"OR" logical symbol
YES1		"YES" pneumatic symbol
YES2		"YES" logical symbol
NOT1		"NOT" pneumatic symbol
NOT2		"NOT" logical symbol
MEM1		"MEMORY" pneumatic symbol
MEM2		"MEMORY" logical symbol
AMP1		Signal amplifier, 3/2 NC, mechanical spring return
2LB1		Jet interruption sender sensor
2LB2		Jet interruption receiver sensor
		AUTOMATIC VALVES
VMP1		Maximum pressure valve
VSC1		Quick exhaust valves
VBU1		Unidirectional blocking valves
VB01		Bidirectional blocking valves
VNR1		Non return valves

Symbol		Type
		AUTOMATIC VALVES
VNV1		Check valve
		FLOW CONTROL VALVES
RFU1		Unidirectional flow control valve
RFO1		Bidirectional flow control valve
RP01		Unidirectional flow control valve
RP02		Unidirectional flow control valve
RP03		Bidirectional flow control valve
		PRESSURE SWITCHES AND VACUUM SWITCHES
PMNA		Pressure switch, Normally Open (NO)
PMNC		Pressure switch, Normally Closed (NC)
PMSC		Pressure swith with exchange contacts
PMTV		Pressure switch with setting visual scale
TRP1		Electro-pneumatic transducer
SEG1		Pressure indicator
CAP1		Capacity
		SILENCIER
SIL1		Silencier
RSW1		Silenced exhaust controller
		FRL
FT01		Filter without drain
FT02		Filter with manual drain
FT03		Filter with automatic drain
FA01		Coalescing filter without drain
FA02		Coalescing filter with manual drain
FA03		Coalescing filter with automatic drain
FC01		Absorption function without cup hole

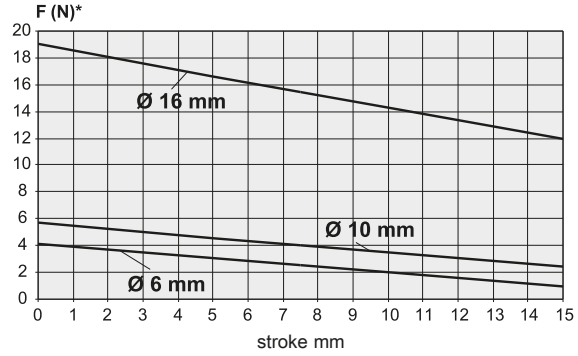
Symbol		Type
		FRL
PR01		Regulator without relieving
PR02		Regulator with relieving
PR03		Regulator with relieving and by-pass valve
PR04		Regulator without relieving and with by-pass valve
PR05		Regulator without relieving and with pressure gauge
PR06		Regulator with relieving and with pressure gauge
LU01		Lubricator
FR01		Filter-regulator with relieving and manual drain
FR02		Filter-regulator with relieving and without drain
FR03		Filter-regulator with relieving, manual drain and pressure gauge
FR04		Filter-regulator with relieving, without drain and with pressure gauge
FR05		Filter-regulator with relieving, manual drain and pressure gauge
FR10		Filter-regulator with manual drain, without relieving and with pressure gauge
FR11		Filter-regulator with manual drain and without relieving
FR18		Filter-regulator with relieving and automatic drain
FR19		Manifold pressure regulator
VN02		Lockable isolation valve
AVP1		Soft start valve
BL01		Take-off block
BL02		Take-off block with VNR
		VACUUM
VU01		In-line ejector
VU02		Silenced in-line ejector
VEN1		Suction pad
FT04		Cup filter

Spring loads cylinders

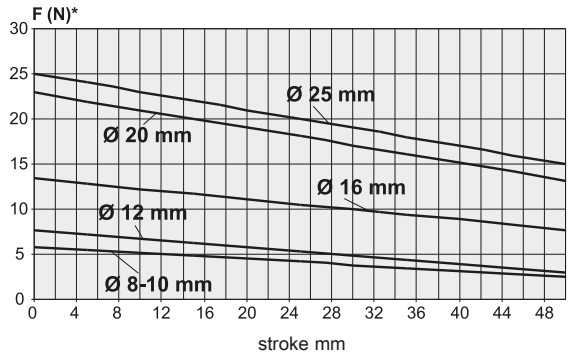
Series 14 - stroke 5 mm



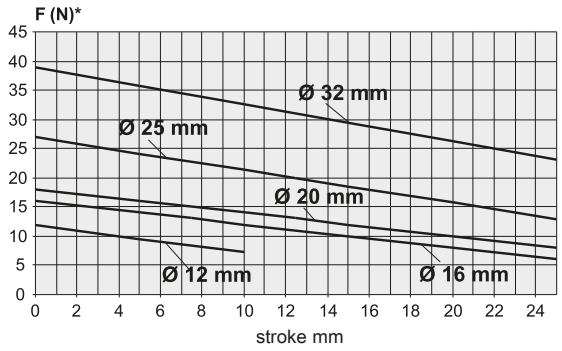
Series 14 - stroke 10 and 15 mm



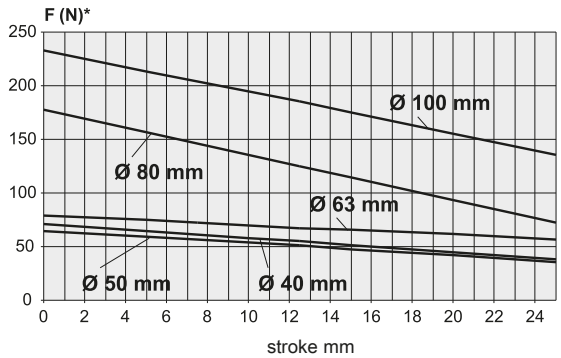
Series 16-24



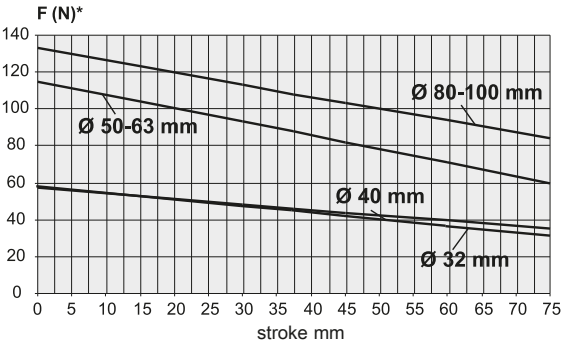
Series 31-32



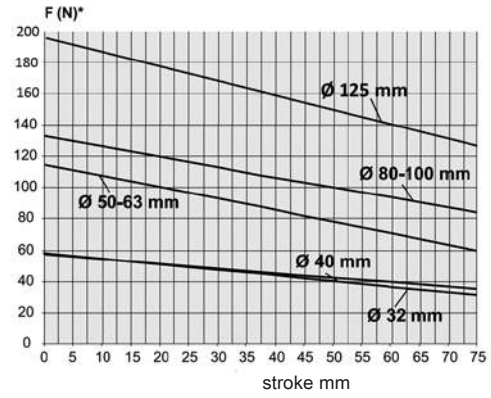
Series 31-32



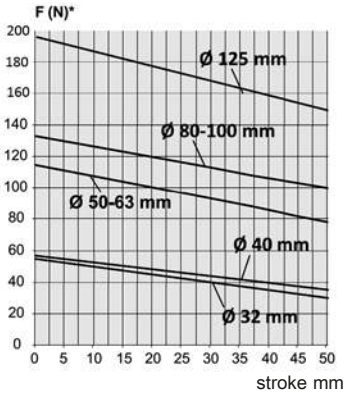
Series 60-61-42-90



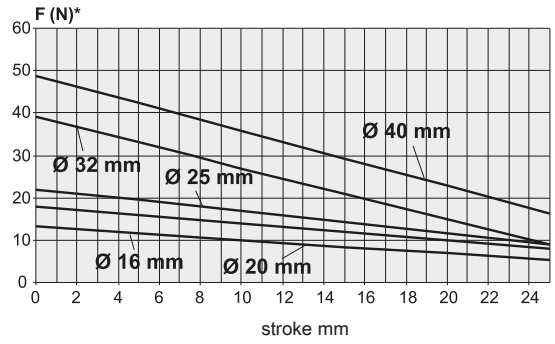
Series 63 - front spring



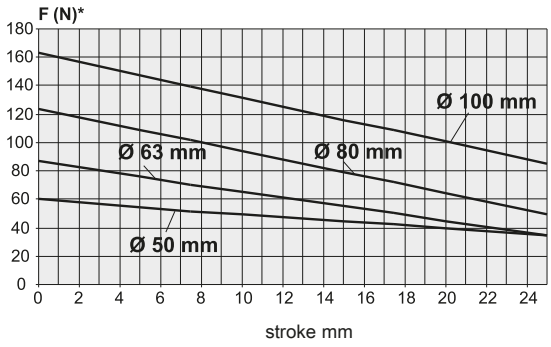
Series 63 - rear spring



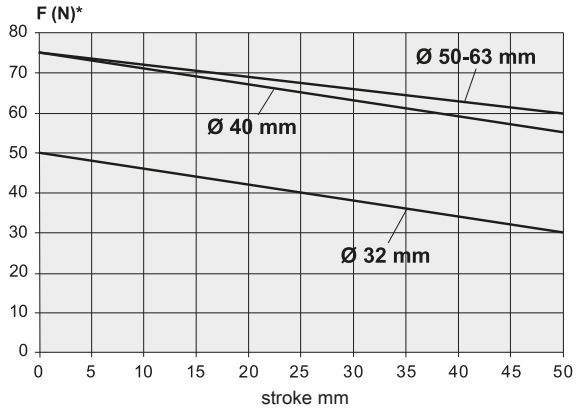
Series QP



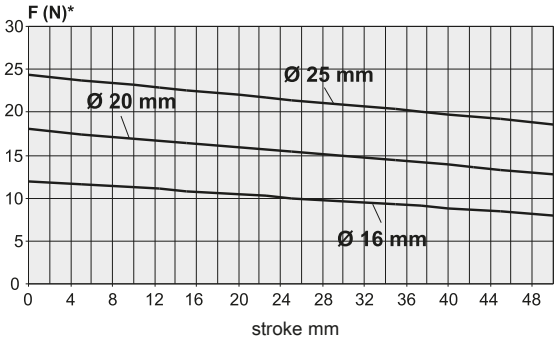
Series QP



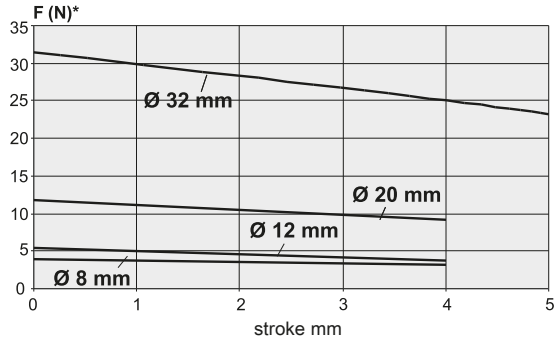
Series 90-97



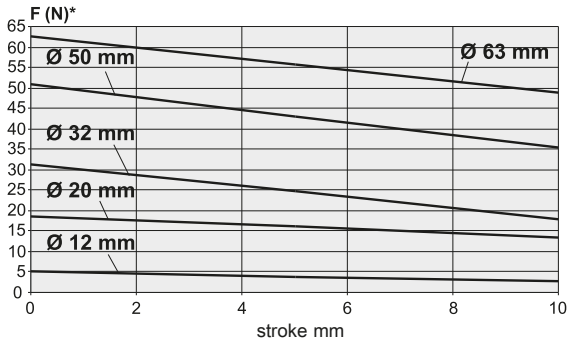
Series 94



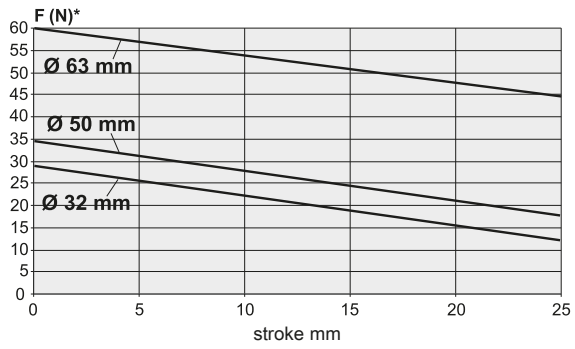
Series QN - stroke 4 and 5 mm



Series QN - stroke 10 mm



Series QN - stroke 25 mm



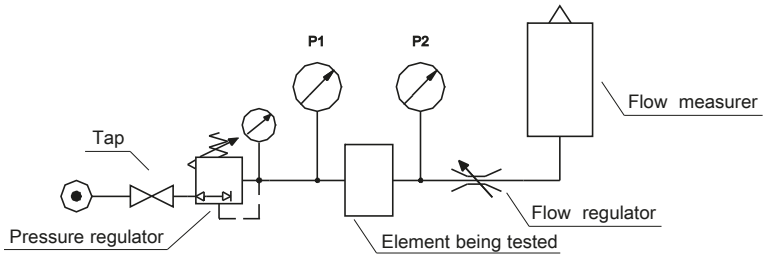
*** F = spring force**

Flow and speed cylinders

Valves and solenoid valves

Flow survey instruments.

The flow rate indicated in the catalogue is obtained with
P1 = 6 bar and P2 = 5 bar.



Maximum speeds obtainable combining a certain flow regulator (mm/sec) with a cylinder

	Cylinders diameter (mm)						
Mod.	**32**	**40**	**50**	**63**	**80**	**100**	**125**
GSCU-1/8"; GSVU-1/8"; GMCU-1/8"; GSCU-1/8"	1000	986	629	395	246	158	100
GSCU-1/4"; GSVU-1/4"; GMCU-1/4"; GSCU-1/4"	-	1000	911	573	357	229	145
RFU 452 M5	204	-	-	-	-	-	-
RFU 482-1/8"	227	145	93	58	36	-	-
RFU 483-1/8"	520	333	212	133	83	53	-
RFU 444-1/4"	-	739	471	296	185	118	75
RFU 446-1/4"	-	-	847	532	332	213	135
SCU M5 - SVU M5	154	-	-	-	-	-	-
SCU-1/4"; SVU-1/4"; MCU-1/4"; MVU-1/4"	-	1000	660	415	259	166	105
SCU-1/8"; SVU-1/8"; MCU-1/8"; MVU-1/8"	604	387	247	155	97	62	-
SCU-3/8"; MCU-3/8"	-	-	-	622	388	249	158
SCU-1/2"; MCU-1/2"	-	-	-	-	1000	869	-

To obtain the above indicated speeds, the connected tubing should have a certain diameter and not exceed, if indicated, the max length (m)

	Tube diameter (mm) and max length (m)				
Mod.	**4/2**	**6/4**	**8/6**	**10/8**	**12/10**
GSCU-1/8"; GSVU-1/8"; GMCU-1/8"; GSCU-1/8"	-	0,4	8	25	-
GSCU-1/4"; GSVU-1/4"; GMCU-1/4"; GSCU-1/4"	-	-	4,5	18	24
RFU 452 M5	3,5	25	-	-	-
RFU 482-1/8"	3	25	-	-	-
RFU 483-1/8"	0,25	10	-	-	-
RFU 444-1/4"	-	2	17	-	-
RFU 446-1/4"	-	-	5	20	-
SCU M5 - SVU M5	5	-	-	-	-
SCU-1/4"; SVU-1/4"; MCU-1/4"; MVU-1/4"	-	0,4	8	25	-
SCU-1/8"; SVU-1/8"; MCU-1/8"; MVU-1/8"	-	7	-	-	-
SCU-3/8"; MCU-3/8"	-	-	3,5	-	-
SCU-1/2"; MCU-1/2"	-	-	-	0,25	3,5

Air flow required by the valve (6 bar) to obtain the above indicated speeds (Nl/min)

	Cylinders diameter (mm)						
Mod.	**32**	**40**	**50**	**63**	**80**	**100**	**125**
GSCU-1/8"; GSVU-1/8"; GMCU-1/8"; GSCU-1/8"	336	517	517	517	517	517	517
GSCU-1/4"; GSVU-1/4"; GMCU-1/4"; GSCU-1/4"	-	525	750	750	750	750	750
RFU 452 M5	69	-	-	-	-	-	-
RFU 482-1/8"	76	76	76	76	76	-	-
RFU 483-1/8"	175	175	175	175	175	175	-
RFU 444-1/4"	-	388	388	388	388	388	388
RFU 446-1/4"	-	-	697	697	697	697	697
SCU M5 - SVU M5	52	-	-	-	-	-	-
SCU-1/4"; SVU-1/4"; MCU-1/4"; MVU-1/4"	-	525	543	543	543	543	543
SCU-1/8"; SVU-1/8"; MCU-1/8"; MVU-1/8"	203	203	203	203	203	203	-
SCU-3/8"; MCU-3/8"	-	-	-	815	815	815	815
SCU-1/2"; MCU-1/2"	-	-	-	-	2100	2846	-

Output forces double-acting cylinders

Thrust side

Values in Newton

SERIES > 16 24 25 27 31 32 QP QN QCT QCB QCTB QCTF 40 41 42 50 52 60 61 62 63 90 92 94 95 97

Ø	Thrust side	Pressure									
		MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)
mm	**cm²**	**0,10 (1)**	**0,20 (2)**	**0,30 (3)**	**0,40 (4)**	**0,50 (5)**	**0,60 (6)**	**0,70 (7)**	**0,80 (8)**	**0,90 (9)**	**1 (10)**
8	0,50	4,44	8,9	13,3	17,7	22,2	26,6	31,0	35,5	39,9	44,4
10	0,79	6,93	13,9	20,8	27,7	34,7	41,6	48,5	55,4	62,4	69,3
12	1,13	9,98	20,0	29,9	39,9	49,9	59,9	69,9	79,8	89,8	99,8
16	2,01	17,74	35,5	53,2	71,0	88,7	106,5	124,2	141,9	159,7	177,4
20	3,14	27,72	55,4	83,2	110,9	138,6	166,3	194,1	221,8	249,5	277,2
25	4,91	43,32	86,6	130,0	173,3	216,6	259,9	303,2	346,5	389,9	433,2
32	8,04	70,97	141,9	212,9	283,9	354,9	425,8	496,8	567,8	638,7	709,7
40	12,56	110,89	221,8	332,7	443,6	554,5	665,4	776,2	887,1	998,0	1108,9
50	19,63	173,27	346,5	519,8	693,1	866,3	1039,6	1212,9	1386,2	1559,4	1732,7
63	31,16	275,08	550,2	825,2	1100,3	1375,4	1650,5	1925,6	2200,7	2475,7	2750,8
80	50,24	443,57	887,1	1330,7	1774,3	2217,8	2661,4	3105,0	3548,6	3992,1	4435,7
100	78,50	693,08	1386,2	2079,2	2772,3	3465,4	4158,5	4851,5	5544,6	6237,7	6930,8
125	122,66	1082,93	2165,9	3248,8	4331,7	5414,7	6497,6	7580,5	8663,5	9746,4	10829,3
160	200,96	1774,28	3548,6	5322,8	7097,1	8871,4	10645,7	12419,9	14194,2	15968,5	17742,8
200	314,00	2772,31	5544,6	8316,9	11089,2	13861,5	16633,8	19406,1	22178,4	24950,8	27723,1
250	490,62	4331,73	8663,5	12995,2	17326,9	21658,6	25990,4	30322,1	34653,8	38985,6	43317,3
320	803,84	7097,10	14194,2	21291,3	28388,4	35485,5	42582,6	49679,7	56776,8	63873,9	70971,0

SERIES > QX

Ø	Thrust side	Pressure									
		MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)
mm	**cm²**	**0,10 (1)**	**0,20 (2)**	**0,30 (3)**	**0,40 (4)**	**0,50 (5)**	**0,60 (6)**	**0,70 (7)**	**0,80 (8)**	**0,90 (9)**	**1 (10)**
10	1,58	14,22	28,44	42,66	56,88	71,1	85,32	99,54	113,76	127,98	142,2
16	4,02	35,48	71	106,4	142	177,4	213	248,4	283,8	319,4	354,8
20	6,28	55,44	110,8	166,4	221,8	277,2	332,6	388,2	443,6	499	554,4
25	9,82	86,64	173,2	260	346,6	433,2	519,8	606,4	693	779,8	866,4
32	16,08	141,94	283,8	425,8	567,8	709,8	851,6	993,6	1135,6	1277,4	1419,4

Traction side

Values in Newton

SERIES > 16 24 25 40 41 42 60 61 62 63 90 92 94 95 97

Ø	Thrust side	Ø rod	Traction side	Pressure									
				MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)
mm	**cm²**	**mm**	**cm²**	**0,10 (1)**	**0,20 (2)**	**0,30 (3)**	**0,40 (4)**	**0,50 (5)**	**0,60 (6)**	**0,70 (7)**	**0,80 (8)**	**0,90 (9)**	**1 (10)**
8	0,50	4	0,38	3,33	6,7	10,0	13,3	16,6	20,0	23,3	26,6	29,9	33,3
10	0,79	4	0,66	5,82	11,6	17,5	23,3	29,1	34,9	40,8	46,6	52,4	58,2
12	1,13	6	0,85	7,49	15,0	22,5	29,9	37,4	44,9	52,4	59,9	67,4	74,9
16	2,01	6	1,73	15,25	30,5	45,7	61,0	76,2	91,5	106,7	122,0	137,2	152,5
20	3,14	8	2,64	23,29	46,6	69,9	93,1	116,4	139,7	163,0	186,3	209,6	232,9
25	4,91	10	4,12	36,39	72,8	109,2	145,5	181,9	218,3	254,7	291,1	327,5	363,9
32	8,04	12	6,91	60,99	122,0	183,0	244,0	305,0	365,9	426,9	487,9	548,9	609,9
40	12,56	16	10,55	93,15	186,3	279,4	372,6	465,7	558,9	652,0	745,2	838,3	931,5
50	19,63	20	16,49	145,55	291,1	436,6	582,2	727,7	873,3	1018,8	1164,4	1309,9	1455,5
63	31,16	20	28,02	247,36	494,7	742,1	989,4	1236,8	1484,2	1731,5	1978,9	2226,2	2473,6
80	50,24	25	45,33	400,25	800,5	1200,8	1601,0	2001,3	2401,5	2801,8	3202,0	3602,3	4002,5
100	78,50	25	73,59	649,76	1299,5	1949,3	2599,0	3248,8	3898,6	4548,3	5198,1	5847,8	6497,6
125	122,66	32	114,62	1011,96	2023,9	3035,9	4047,8	5059,8	6071,8	7083,7	8095,7	9107,6	10119,6
160	200,96	40	188,40	1663,38	3326,8	4990,2	6653,5	8316,9	9980,3	11643,7	13307,1	14970,5	16633,8
200	314,00	40	301,44	2661,41	5322,8	7984,2	10645,7	13307,1	15968,5	18629,9	21291,3	23952,7	26614,1
250	490,62	50	471,00	4158,46	8316,9	12475,4	16633,8	20792,3	24950,8	29109,2	33267,7	37426,1	41584,6
320	803,84	63	772,68	6822,02	13644,0	20466,1	27288,1	34110,1	40932,1	47754,1	54576,2	61398,2	68220,2

SERIES > QX

Ø	Thrust side	Ø rod	Traction side	Pressure									
				MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)
mm	**cm²**	**mm**	**cm²**	**0,10 (1)**	**0,20 (2)**	**0,30 (3)**	**0,40 (4)**	**0,50 (5)**	**0,60 (6)**	**0,70 (7)**	**0,80 (8)**	**0,90 (9)**	**1 (10)**
10	1,58	6	1,0148	9,1332	18,2664	27,3996	36,5328	45,666	54,7992	63,9324	73,0656	82,1988	91,332
16	4,02	16	3,02	26,62	53,2	79,8	106,4	133	159,6	186,2	213	239,6	266,2
20	6,28	20	4,72	41,58	83,2	124,8	166,4	208	249,6	291	332,6	374,2	415,8
25	9,82	24	7,56	66,68	133,4	200	266,6	333,4	400	466,8	533,4	600	666,8
32	16,08	32	12,06	106,46	213	319,4	425,8	532,2	638,8	745,2	851,6	958,2	1064,6

Traction side

Values in Newton

SERIES > 31 32

Ø	Thrust side	Ø rod	Traction side	Pressure									
				MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)
mm	cm²	mm	cm²	0,10 (1)	0,20 (2)	0,30 (3)	0,40 (4)	0,50 (5)	0,60 (6)	0,70 (7)	0,80 (8)	0,90 (9)	1 (10)
12	1,13	6	0,85	7,49	15,0	22,5	29,9	37,4	44,9	52,4	59,9	67,4	74,9
16	2,01	8	1,51	13,31	26,6	39,9	53,2	66,5	79,8	93,1	106,5	119,8	133,1
20	3,14	10	2,36	20,79	41,6	62,4	83,2	104,0	124,8	145,5	166,3	187,1	207,9
25	4,91	10	4,12	36,39	72,8	109,2	145,5	181,9	218,3	254,7	291,1	327,5	363,9
32	8,04	12	6,91	60,99	122,0	183,0	244,0	305,0	365,9	426,9	487,9	548,9	609,9
40	12,56	12	11,43	100,91	201,8	302,7	403,6	504,6	605,5	706,4	807,3	908,2	1009,1
50	19,63	16	17,62	155,53	311,1	466,6	622,1	777,6	933,2	1088,7	1244,2	1399,7	1555,3
63	31,16	16	29,15	257,34	514,7	772,0	1029,4	1286,7	1544,0	1801,4	2058,7	2316,1	2573,4
80	50,24	20	47,10	415,85	831,7	1247,5	1663,4	2079,2	2495,1	2910,9	3326,8	3742,6	4158,5
100	78,50	25	73,59	649,76	1299,5	1949,3	2599,0	3248,8	3898,6	4548,3	5198,1	5847,8	6497,6

SERIES > QP

Ø	Thrust side	Ø rod	Traction side	Pressure									
				MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)
mm	cm²	mm	cm²	0,10 (1)	0,20 (2)	0,30 (3)	0,40 (4)	0,50 (5)	0,60 (6)	0,70 (7)	0,80 (8)	0,90 (9)	1 (10)
12	1,13	6	0,85	7,49	15,0	22,5	29,9	37,4	44,9	52,4	59,9	67,4	74,9
16	2,01	8	1,51	13,31	26,6	39,9	53,2	66,5	79,8	93,1	106,5	119,8	133,1
20	3,14	10	2,36	20,79	41,6	62,4	83,2	104,0	124,8	145,5	166,3	187,1	207,9
25	4,91	10	4,12	36,39	72,8	109,2	145,5	181,9	218,3	254,7	291,1	327,5	363,9
32	8,04	12	6,91	60,99	122,0	183,0	244,0	305,0	365,9	426,9	487,9	548,9	609,9
40	12,56	16	10,55	93,15	186,3	279,4	372,6	465,7	558,9	652,0	745,2	838,3	931,5
50	19,63	16	17,62	155,53	311,1	466,6	622,1	777,6	933,2	1088,7	1244,2	1399,7	1555,3
63	31,16	20	28,02	247,36	494,7	742,1	989,4	1236,8	1484,2	1731,5	1978,9	2226,2	2473,6
80	50,24	25	45,33	400,25	800,5	1200,8	1601,0	2001,3	2401,5	2801,8	3202,0	3602,3	4002,5
100	78,50	25	73,59	649,76	1299,5	1949,3	2599,0	3248,8	3898,6	4548,3	5198,1	5847,8	6497,6

SERIES > 27

Ø	Thrust side	Ø rod	Traction side	Pressure									
				MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)
mm	cm²	mm	cm²	0,10 (1)	0,20 (2)	0,30 (3)	0,40 (4)	0,50 (5)	0,60 (6)	0,70 (7)	0,80 (8)	0,90 (9)	1 (10)
20	3,14	8	2,64	23,29	46,6	69,9	93,1	116,4	139,7	163,0	186,3	209,6	232,9
25	4,91	10	4,12	36,39	72,8	109,2	145,5	181,9	218,3	254,7	291,1	327,5	363,9
32	8,04	12	6,91	60,99	122,0	183,0	244,0	305,0	365,9	426,9	487,9	548,9	609,9
40	12,56	16	10,55	93,15	186,3	279,4	372,6	465,7	558,9	652,0	745,2	838,3	931,5
50	19,63	16	17,62	155,53	311,1	466,6	622,1	777,6	933,2	1088,7	1244,2	1399,7	1555,3
63	31,16	20	28,02	247,36	494,7	742,1	989,4	1236,8	1484,2	1731,5	1978,9	2226,2	2473,6

SERIES > QCT QCB QCTF QCBF

Ø	Thrust side	Ø rod	Traction side	Pressure									
				MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)
mm	cm²	mm	cm²	0,10 (1)	0,20 (2)	0,30 (3)	0,40 (4)	0,50 (5)	0,60 (6)	0,70 (7)	0,80 (8)	0,90 (9)	1 (10)
20	3,14	10	2,36	20,79	41,6	62,4	83,2	104,0	124,8	145,5	166,3	187,1	207,9
25	4,91	12	3,78	33,34	66,7	100,0	133,3	166,7	200,0	233,4	266,7	300,0	333,4
32	8,04	16	6,03	53,23	106,5	159,7	212,9	266,1	319,4	372,6	425,8	479,1	532,3
40	12,56	16	10,55	93,15	186,3	279,4	372,6	465,7	558,9	652,0	745,2	838,3	931,5
50	19,63	20	16,49	145,55	291,1	436,6	582,2	727,7	873,3	1018,8	1164,4	1309,9	1455,5
63	31,16	20	28,02	247,36	494,7	742,1	989,4	1236,8	1484,2	1731,5	1978,9	2226,2	2473,6

Table showing air consumption of double-acting cylinders

Thrust side

Values in Nl for each 10 mm of stroke

SERIES > 16 24 25 27 31 32 QP QCT QCB QCTB QCTF 40 41 42 50 52 60 61 62 63 90 92 94 95 97

Ø	Thrust side	Pressure									
		MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)
mm	cm²	0,10 (1)	0,20 (2)	0,30 (3)	0,40 (4)	0,50 (5)	0,60 (6)	0,70 (7)	0,80 (8)	0,90 (9)	1 (10)
8	0,50	0,001	0,002	0,002	0,003	0,003	0,004	0,004	0,005	0,005	0,006
10	0,79	0,002	0,002	0,003	0,004	0,005	0,005	0,006	0,007	0,008	0,009
12	1,13	0,002	0,003	0,005	0,006	0,007	0,008	0,009	0,010	0,011	0,012
16	2,01	0,004	0,006	0,008	0,010	0,012	0,014	0,016	0,018	0,020	0,022
20	3,14	0,006	0,009	0,013	0,016	0,019	0,022	0,025	0,028	0,031	0,035
25	4,91	0,010	0,015	0,020	0,025	0,029	0,034	0,039	0,044	0,049	0,054
32	8,04	0,016	0,024	0,032	0,040	0,048	0,056	0,064	0,072	0,080	0,088
40	12,56	0,025	0,038	0,050	0,063	0,075	0,088	0,100	0,113	0,126	0,138
50	19,63	0,039	0,059	0,079	0,098	0,118	0,137	0,157	0,177	0,196	0,216
63	31,16	0,062	0,093	0,125	0,156	0,187	0,218	0,249	0,280	0,312	0,343
80	50,24	0,100	0,151	0,201	0,251	0,301	0,352	0,402	0,452	0,502	0,553
100	78,50	0,157	0,236	0,314	0,393	0,471	0,550	0,628	0,707	0,785	0,864
125	122,66	0,245	0,368	0,491	0,613	0,736	0,859	0,981	1,104	1,227	1,349
160	200,96	0,402	0,603	0,804	1,005	1,206	1,407	1,608	1,809	2,010	2,211
200	314,00	0,628	0,942	1,256	1,570	1,884	2,198	2,512	2,826	3,140	3,454
250	490,63	0,981	1,472	1,963	2,453	2,944	3,434	3,925	4,416	4,906	5,397
320	803,84	1,608	2,412	3,215	4,019	4,823	5,627	6,431	7,235	8,038	8,842

SERIES > QX

Ø	Thrust side	Pressure									
		MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)
mm	cm²	0,10 (1)	0,20 (2)	0,30 (3)	0,40 (4)	0,50 (5)	0,60 (6)	0,70 (7)	0,80 (8)	0,90 (9)	1 (10)
10	1,58	0,003	0,005	0,006	0,008	0,009	0,011	0,013	0,014	0,016	0,017
16	4,02	0,008	0,012	0,016	0,02	0,024	0,028	0,032	0,036	0,04	0,044
20	6,28	0,012	0,018	0,026	0,032	0,038	0,044	0,05	0,056	0,062	0,07
25	9,82	0,02	0,03	0,04	0,05	0,058	0,068	0,078	0,088	0,098	0,108
32	16,08	0,032	0,048	0,064	0,08	0,096	0,112	0,128	0,144	0,16	0,176

Traction side

Values in Nl for each 10 mm of stroke

SERIES > 16 24 25 40 41 42 60 61 62 63 90 92 94 95 97

Ø	Thrust side	Ø rod	Traction side	Pressure									
				MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)
mm	cm²	mm	cm²	0,10 (1)	0,20 (2)	0,30 (3)	0,40 (4)	0,50 (5)	0,60 (6)	0,70 (7)	0,80 (8)	0,90 (9)	1 (10)
8	0,50	4	0,38	0,001	0,001	0,002	0,002	0,002	0,003	0,003	0,003	0,004	0,004
10	0,79	4	0,66	0,001	0,002	0,003	0,003	0,004	0,005	0,005	0,006	0,007	0,007
12	1,13	6	0,85	0,002	0,003	0,003	0,004	0,005	0,006	0,007	0,008	0,008	0,009
16	2,01	6	1,73	0,003	0,005	0,007	0,009	0,010	0,012	0,014	0,016	0,017	0,019
20	3,14	8	2,64	0,005	0,008	0,011	0,013	0,016	0,018	0,021	0,024	0,026	0,029
25	4,91	10	4,12	0,008	0,012	0,016	0,021	0,025	0,029	0,033	0,037	0,041	0,045
32	8,04	12	6,91	0,014	0,021	0,028	0,035	0,041	0,048	0,055	0,062	0,069	0,076
40	12,56	16	10,55	0,021	0,032	0,042	0,053	0,063	0,074	0,084	0,095	0,106	0,116
50	19,63	20	16,49	0,033	0,049	0,066	0,082	0,099	0,115	0,132	0,148	0,165	0,181
63	31,16	20	28,02	0,056	0,084	0,112	0,140	0,168	0,196	0,224	0,252	0,280	0,308
80	50,24	25	45,33	0,091	0,136	0,181	0,227	0,272	0,317	0,363	0,408	0,453	0,499
100	78,50	25	73,59	0,147	0,221	0,294	0,368	0,442	0,515	0,589	0,662	0,736	0,810
125	122,66	32	114,62	0,229	0,344	0,458	0,573	0,688	0,802	0,917	1,032	1,146	1,261
160	200,96	40	188,40	0,377	0,565	0,754	0,942	1,130	1,319	1,507	1,696	1,884	2,072
200	314,00	40	301,44	0,603	0,904	1,206	1,507	1,809	2,110	2,412	2,713	3,014	3,316
250	490,63	50	471,00	0,942	1,413	1,884	2,355	2,826	3,297	3,768	4,239	4,710	5,181
320	803,84	63	772,68	1,545	2,318	3,091	3,863	4,636	5,409	6,181	6,954	7,727	8,500

SERIES > QX

Ø	Thrust side	Ø rod	Traction side	Pressure									
				MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)
mm	cm²	mm	cm²	0,10 (1)	0,20 (2)	0,30 (3)	0,40 (4)	0,50 (5)	0,60 (6)	0,70 (7)	0,80 (8)	0,90 (9)	1 (10)
10	1,58	6	1,0148	0,002	0,003	0,004	0,005	0,006	0,007	0,008	0,009	0,010	0,011
16	4,02	16	3,02	0,006	0,01	0,012	0,016	0,018	0,022	0,024	0,028	0,03	0,034
20	6,28	20	4,72	0,01	0,014	0,018	0,024	0,028	0,032	0,038	0,042	0,048	0,052
25	9,82	24	7,56	0,016	0,022	0,03	0,038	0,046	0,052	0,06	0,068	0,076	0,084
32	16,08	32	12,06	0,024	0,036	0,048	0,06	0,072	0,084	0,096	0,108	0,12	0,132

Traction side

Values in Nl for each 10 mm of stroke

SERIES > 31 32

Ø	Thrust side	Ø	Traction side	Pressure									
		rod		MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)
mm	cm²	mm	cm²	0,10 (1)	0,20 (2)	0,30 (3)	0,40 (4)	0,50 (5)	0,60 (6)	0,70 (7)	0,80 (8)	0,90 (9)	1 (10)
12	1,13	6	0,85	0,002	0,003	0,003	0,004	0,005	0,006	0,007	0,008	0,008	0,009
16	2,01	8	1,51	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,014	0,015	0,017
20	3,14	10	2,36	0,005	0,007	0,009	0,012	0,014	0,016	0,019	0,021	0,024	0,026
25	4,91	10	4,12	0,008	0,012	0,016	0,021	0,025	0,029	0,033	0,037	0,041	0,045
32	8,04	12	6,91	0,014	0,021	0,028	0,035	0,041	0,048	0,055	0,062	0,069	0,076
40	12,56	12	11,43	0,023	0,034	0,046	0,057	0,069	0,080	0,091	0,103	0,114	0,126
50	19,63	16	17,62	0,035	0,053	0,070	0,088	0,106	0,123	0,141	0,159	0,176	0,194
63	31,16	16	29,15	0,058	0,087	0,117	0,146	0,175	0,204	0,233	0,262	0,291	0,321
80	50,24	20	47,10	0,094	0,141	0,188	0,236	0,283	0,330	0,377	0,424	0,471	0,518
100	78,50	25	73,59	0,147	0,221	0,294	0,368	0,442	0,515	0,589	0,662	0,736	0,810

SERIES > QP

Ø	Thrust side	Ø	Traction side	Pressure									
		rod		MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)
mm	cm²	mm	cm²	0,10 (1)	0,20 (2)	0,30 (3)	0,40 (4)	0,50 (5)	0,60 (6)	0,70 (7)	0,80 (8)	0,90 (9)	1 (10)
12	1,13	6	0,85	0,002	0,003	0,003	0,004	0,005	0,006	0,007	0,008	0,008	0,009
16	2,01	8	1,51	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,014	0,015	0,017
20	3,14	10	2,36	0,005	0,007	0,009	0,012	0,014	0,016	0,019	0,021	0,024	0,026
25	4,91	10	4,12	0,008	0,012	0,016	0,021	0,025	0,029	0,033	0,037	0,041	0,045
32	8,04	12	6,91	0,014	0,021	0,028	0,035	0,041	0,048	0,055	0,062	0,069	0,076
40	12,56	16	10,55	0,021	0,032	0,042	0,053	0,063	0,074	0,084	0,095	0,106	0,116
50	19,63	16	17,62	0,035	0,053	0,070	0,088	0,106	0,123	0,141	0,159	0,176	0,194
63	31,16	20	28,02	0,056	0,084	0,112	0,140	0,168	0,196	0,224	0,252	0,280	0,308
80	50,24	25	45,33	0,091	0,136	0,181	0,227	0,272	0,317	0,363	0,408	0,453	0,499
100	78,50	25	73,59	0,147	0,221	0,294	0,368	0,442	0,515	0,589	0,662	0,736	0,810

SERIES > 27

Ø	Thrust side	Ø	Traction side	Pressure									
		rod		MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)
mm	cm²	mm	cm²	0,10 (1)	0,20 (2)	0,30 (3)	0,40 (4)	0,50 (5)	0,60 (6)	0,70 (7)	0,80 (8)	0,90 (9)	1 (10)
20	3,14	8	2,64	0,005	0,008	0,011	0,013	0,016	0,018	0,021	0,024	0,026	0,029
25	4,91	10	4,12	0,008	0,012	0,016	0,021	0,025	0,029	0,033	0,037	0,041	0,045
32	8,04	12	6,91	0,014	0,021	0,028	0,035	0,041	0,048	0,055	0,062	0,069	0,076
40	12,56	16	10,55	0,021	0,032	0,042	0,053	0,063	0,074	0,084	0,095	0,106	0,116
50	19,63	16	17,62	0,035	0,053	0,070	0,088	0,106	0,123	0,141	0,159	0,176	0,194
63	31,16	20	28,02	0,056	0,084	0,112	0,140	0,168	0,196	0,224	0,252	0,280	0,308

SERIES > QCT QCB QCTF QCBF

Ø	Thrust side	Ø	Traction side	Pressure									
		rod		MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)
mm	cm²	mm	cm²	0,10 (1)	0,20 (2)	0,30 (3)	0,40 (4)	0,50 (5)	0,60 (6)	0,70 (7)	0,80 (8)	0,90 (9)	1 (10)
20	3,14	10	2,36	0,005	0,007	0,009	0,012	0,014	0,016	0,019	0,021	0,024	0,026
25	4,91	12	3,78	0,008	0,011	0,015	0,019	0,023	0,026	0,030	0,034	0,038	0,042
32	8,04	16	6,03	0,012	0,018	0,024	0,030	0,036	0,042	0,048	0,054	0,060	0,066
40	12,56	16	10,55	0,021	0,032	0,042	0,053	0,063	0,074	0,084	0,095	0,106	0,116
50	19,63	20	16,49	0,033	0,049	0,066	0,082	0,099	0,115	0,132	0,148	0,165	0,181
63	31,16	20	28,02	0,056	0,084	0,112	0,140	0,168	0,196	0,224	0,252	0,280	0,308

SERIES > ARP

	Volume (l)		Pressure (opening/closing)									
			MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)	MPa (bar)
Mod.	open./clos.		0,10 (1)	0,20 (2)	0,30 (3)	0,40 (4)	0,50 (5)	0,60 (6)	0,70 (7)	0,80 (8)	0,90 (9)	1 (10)
ARP 001	0,03	0,03	0,05/0,05	0,08/0,08	0,11/0,11	0,13/0,13	0,16/0,16	0,19/0,19	0,21/0,21	0,24/0,24	0,27/0,27	0,29/0,29
ARP 003	0,10	0,10	0,20/0,20	0,30/0,30	0,40/0,40	0,50/0,50	0,60/0,60	0,70/0,70	0,80/0,80	0,90/0,90	1,00/1,00	1,10/1,10
ARP 005	0,20	0,30	0,40/0,60	0,60/0,90	0,80/1,20	1,00/1,50	1,20/1,80	1,40/2,10	1,60/2,40	1,80/2,70	2,00/3,00	2,20/3,30
ARP 010	0,40	0,50	0,80/1,00	1,20/1,50	1,60/2,00	2,00/2,50	2,40/3,00	2,80/3,50	3,20/4,00	3,60/4,50	4,00/5,00	4,40/5,50
ARP 012	0,49	0,64	0,98/1,28	1,47/1,92	1,96/2,56	2,45/3,20	2,94/3,84	3,43/4,48	3,92/5,12	4,41/5,76	4,90/6,40	5,39/7,04
ARP 020	0,90	1,00	1,80/2,00	2,70/3,00	3,60/4,00	4,50/5,00	5,40/6,00	6,30/7,00	7,20/8,00	8,10/9,00	9,00/10,00	9,90/11,00
ARP 035	1,69	1,90	3,38/3,80	5,07/5,70	6,76/7,60	8,45/9,50	10,14/11,40	11,83/13,30	13,52/15,20	15,21/17,10	16,90/19,00	18,59/20,90
ARP 055	2,80	3,40	5,60/6,80	8,40/10,20	11,20/13,60	14,00/17,00	16,80/20,40	19,60/23,80	22,40/27,20	25,20/30,60	28,00/34,00	30,80/37,40
ARP 055	2,80	3,40	5,60/6,80	8,40/10,20	11,20/13,60	14,00/17,00	16,80/20,40	19,60/23,80	22,40/27,20	25,20/30,60	28,00/34,00	30,80/37,40
ARP 070	3,05	3,70	6,10/7,40	9,15/11,10	12,20/14,80	15,25/18,50	18,30/22,20	21,35/25,90	24,40/29,60	27,45/33,30	30,50/37,00	33,55/40,70
ARP 100	5,52	5,90	11,04/11,80	16,56/17,70	22,08/23,60	27,60/29,50	33,12/35,40	38,64/41,30	44,16/47,20	49,68/53,10	55,20/59,00	60,72/64,90
ARP 150	7,60	9,60	15,20/19,20	22,80/28,80	30,40/38,40	38,00/48,00	45,60/57,60	53,20/67,20	60,80/76,80	68,40/86,40	76,00/96,00	83,60/105,60
ARP 250	8,50	9,80	17,00/19,60	25,50/29,40	34,00/39,20	42,50/49,00	51,00/58,80	59,50/68,60	68,00/78,40	76,50/88,20	85,00/98,00	93,50/107,80
ARP 400	13,60	17,50	27,20/35,00	40,80/52,50	54,40/70,00	68,00/87,50	81,60/105,00	95,20/122,50	108,80/140,00	122,40/157,50	136,00/175,00	149,60/192,50

Dimensioning guide for Shock Absorbers Series SA

In order to select the correct dimensions of Shock absorbers the following parameters are needed:

- Weight of the impact object	m	(kg)
- Impact speed	v	(m/s)
- Propelling or thrust force	F	(N)
- No. of impact cycles per hour	C	(/hr)

Some formulas

1. Kinetic energy	$E_K = mv^2/2$
2. Drive energy	$E_D = F \cdot S$
3. Total energy	$E_T = E_K + E_D$
4. Free fall speed	$v = \sqrt{(2g*h)}$

Some formulas

5. Cylinder's traction force	$F = \frac{D^2 \cdot \pi}{4} \cdot P \cdot g/100$
6. Cylinder's thrust force	$F = \frac{(D^2 - d^2) \cdot \pi}{4} \cdot P \cdot g/100$
7. Maximum shock force (approx.)	$Fm = 1.2\ E_T / S$
8. Total energy consumption per hour	$E_{TC} = E_T \cdot C$
9. Mass	$Me = 2E_T/v^2$

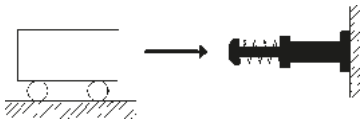
Dimensioning guide: formulas and examples

Symbols description

Symbol	Unit	Description	Symbol	Unit	Description
m		friction coefficient	Fm	(N)	maximum shock force
a	(rad)	angle of incline	g	(m/s²)	gravity acceleration (9.81 m/s²)
q	(rad)	side load angle	h	(m)	hight
w	(rad/s)	angular velocity	m	(kg)	mass to be decelerated
A	(m)	width	Me	(kg)	effective mass
B	(m)	thickness	P	(bar)	operating pressure
C	(/hr)	impact cycles per hour	R	(m)	radius
D	(cm)	cylinder diameter	Rs	(m)	shock absorber mounting distance
d	(cm)	piston rod diameter			from rotation center
E_D	(Nm)	drive energy per cycle	S	(m)	stroke (shock absorber)
E_K	(Nm)	kinetic energy per cycle	T	(Nm)	driving torque
E_T	(Nm)	total energy per cycle	t	(s)	deceleration time
E_{TC}	(Nm)	total energy per hour	v	(m/s)	velocity of impact mass
F	(N)	propelling force	vs	(m/s)	impact velocity at shock absorber

Example 1: Horizontal impact

Application data:
v = 1.0 m/s
m = 50 kg
S = 0.01 m
C = 1500 cycles/h



Calculation:

$E_K = \frac{mv^2}{2} = \frac{50 \cdot 1^2}{2} = 25$ Nm

$E_T = E_k = 25$ Nm

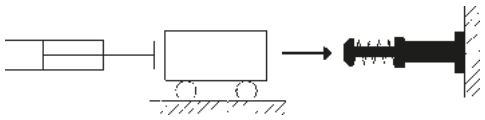
$E_{TC} = E_T \cdot C = 25 \cdot 1500 = 37500$ Nm/h

$Me = \frac{2E_T}{v^2} = \frac{2 \cdot 25}{1^2} = 50$ kg

The adequate Shock Absorber to use in this case is Mod. SA 2015 according to the technical data where we find that E_T (max) = 59 Nm, E_{TC} (max) = 38000 Nm/h and Me (max) = 120 kg.

Example 2: Horizontal impact with propelling force

Application data:
m = 40 kg
P = 6 bar
S = 0.01 m first hypothesis SA 1210
v = 1.2 m/s
D = 50 mm
C = 780 cycles/h
To facilitate the calculation, the pressure in the empty cylinder chamber is not considered (safety condition)



Calculation:

$E_K = \frac{mv^2}{2} = \frac{40 \cdot 1{,}2^2}{2} = 28{,}8$ Nm

Consider the shock absorber with the lowest E_T but superior to 28.8 Nm: mod. SA 2015 S=0.015 m

$E_D = F \cdot S = \frac{D^2 \cdot \pi}{4} \cdot P \cdot g/100 \cdot S = \frac{50^2 \cdot \pi}{4} \cdot 6 \cdot 9{,}81/100 \cdot 0{,}015 = 17{,}3$ Nm

$E_T = E_K + E_D = 28{,}8 + 17{,}3 = 46{,}1$ Nm

$E_{TC} = E_T \cdot C = 46{,}1 \cdot 780 = 35958$ Nm/h

$Me = \frac{2E_T}{v^2} = \frac{2 \cdot 46{,}1}{1{,}2^2} = 64{,}0$ Kg

The adequate Shock Absorber to use in this case is Mod.SA 2015 according to the technical data where we find that E_T (max) = 59 Nm, E_{TC} (max) = 38000 Nm/h and Me (max) = 120 kg.

Example 3: Free fall impact

Application data:
h = 0,35 m
m = 5 kg
S = 0.01 m
first hypothesis SA 1210
C = 1500 cycles/h



Calculation:

$v = \sqrt{(2g \cdot h)} \quad \sqrt{(2 \cdot 9{,}81 \cdot 0{,}35)} = 2{,}6$ m/s

$E_K = m \cdot g \cdot h = 5 \cdot 9{,}81 \cdot 0{,}35 = 17{,}2$ Nm

Consider the shock absorber with the lowest E_T but superior to 17.2 Nm:
mod. SA 1412 S = 0.012 m

$E_D = F \cdot S = m \cdot g \cdot s = 5 \cdot 9{,}81 \cdot 0{,}012 = 0{,}6$ Nm

$E_T = E_K + E_D = 17{,}2 + 0{,}6 = 17{,}8$ Nm

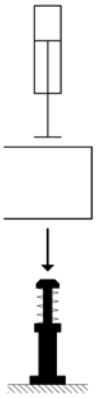
$E_{TC} = E_T \cdot C = 17{,}8 \cdot 1500 = 26700$ Nm/h

$$Me = \frac{2E_T}{v^2} = \frac{2 \cdot 17{,}5}{2{,}6^2} = 5 \text{ Kg}$$

The adequate shock absorber to use in this case is Mod. SA 1412 according to the technical data, where we find that E_T (max) = 20 Nm, E_{TC} (max) = 33000 Nm/h and Me (max) = 40 kg.

Example 4: Vertical impact downwards with propelling force

Application data:
m = 50 kg
S = 0.025 m
P = 6 bar
D = 63 mm
C = 600 cycles/h
v = 1,0 m/s



Calculation:

$$E_K = \frac{mv^2}{2} = \frac{50 \cdot 1^2}{2} = 25 \text{ Nm}$$

$$E_D = F \cdot S = (m \cdot g + \frac{D^2 \cdot \pi}{4} \cdot P \cdot g/100) \cdot S = (50 \cdot 9{,}81 + \frac{63 \cdot \pi}{4} \cdot 6 \cdot 9{,}81/100) \cdot 0{,}025 = 58{,}1 \text{ Nm}$$

$E_T = E_K + E_D = 25 + 58{,}1 = 83{,}1$ Nm

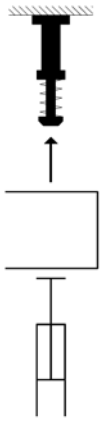
$E_{TC} = E_T \cdot C = 83{,}1 \cdot 600 = 49860$ Nm/h

$$Me = \frac{2E_T}{v^2} = \frac{2 \cdot 84}{1^2} = 168 \text{ Kg}$$

The adequate shock absorber to use in this case is Mod. SA 2725 according to the technical data, where we find that E_T (max) = 147 Nm, E_{TC} (max) = 72000 Nm/h and Me (max) = 270 kg.

Example 5: Vertical impact upwards with propelling force

Application data:
m = 50 kg
h = 0.3 m
S = 0.025 m
first hypothesis
Mod. SA 2525
P = 6 bar =0,6 MPa
D = 63 mm
C = 600 cycles/h
v = 1,0 m/s



Calculation:

$$E_K = \frac{mv^2}{2} = \frac{50 \cdot 1^2}{2} = 25 \text{ Nm}$$

Consider the shock absorber with the lowest E_T but superior to 25 Nm:
mod. SA 2015 S=0.015 m

$$E_D = F \cdot S = (\frac{D^2 \cdot \pi}{4} \cdot P \cdot g/100 - m \cdot g) \cdot S = (\frac{63^2 \cdot \pi}{4} 6 \cdot 9{,}81/100 - 50 \cdot 9{,}81) \cdot 0{,}015 = 20{,}1 \text{ Nm}$$

$E_T = E_K + E_D = 25 + 20{,}1 = 45{,}7$ Nm

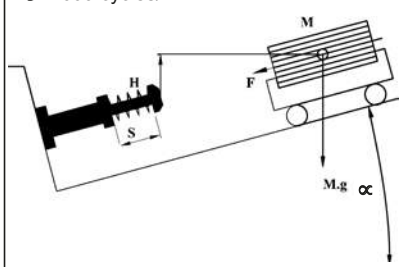
$E_{TC} = E_T \cdot C = 45{,}1 \cdot 600 = 27060$ Nm/h

$$Me = \frac{2E_T}{v^2} = \frac{2 \cdot 45{,}7}{1^2} = 91{,}4 \text{ Kg}$$

The adequate shock absorber to use in this case is Mod. SA 2015 according to the technical data, where we find that E_T (max) = 59 Nm, E_{TC} (max) = 38000 Nm/h and Me (max)= 120 kg.

Example 6: Inclined impact

Application data:
m = 10 kg
h = 0,3 m
S = 0.015 m
α = 30°
C = 600 cycles/h



Calculation:

$v = \sqrt{(2g \cdot h)} \quad \sqrt{(2 \cdot 9{,}81 \cdot 0{,}3)} = 2{,}43$ m/s

$E_K = m \cdot g \cdot h \quad 10 \cdot 9{,}81 \cdot 0{,}3 = 29{,}4$ Nm

$E_D = F \cdot S = m \cdot g \cdot \sin\alpha \cdot s = 10 \cdot 9{,}81 \cdot \sin 30° \cdot 0{,}015 = 10 \cdot 9{,}81 \cdot 0{,}5 \cdot 0{,}015 = 0{,}7$ Nm

$E_T = E_K + E_D = 29{,}4 + 0{,}7 = 30{,}1$ Nm

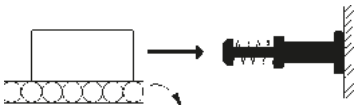
$E_{TC} = E_T \cdot C = 30{,}1 \cdot 600 = 18060$ Nm/h

$$Me = \frac{2E_T}{v^2} = \frac{2 \cdot 30{,}1}{2{,}43^{2a}} = 10{,}2 \text{ Kg}$$

The adequate shock absorber to use in this case is Mod. SA 2015 according to the technical data, where we find that E_T (max) = 59 Nm, E_{TC} (max) = 38000 Nm/h and Me (max) = 120 kg.

Example 7: Horizontal mass on conveyer

Application data:
m = 5 kg
v = 0,5 m/s
μ = 0,25
S = 0.006 m
C = 3000 cycles/h



Calculation:

$E_K = \frac{mv^2}{2} = \frac{5 \cdot 0{,}5^2}{2} = 0{,}63$ Nm

$E_D = F \cdot S = m \cdot g \cdot \mu \cdot s = 5 \cdot 9{,}81 \cdot 0{,}25 \cdot 0{,}006 = 0{,}07$ Nm

$E_T = E_K + E_D = 0{,}63 + 0{,}07 = 0{,}7$ Nm

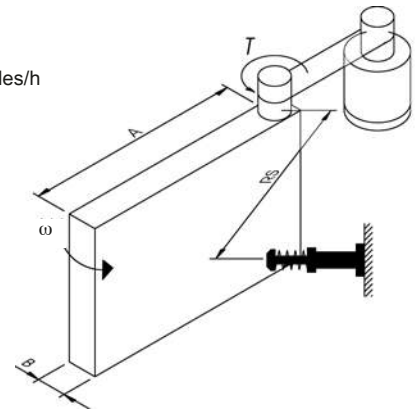
$E_{TC} = E_T \cdot C = 0{,}7 \cdot 3000 = 2100$ Nm/h

$Me = \frac{2E_T}{v^2} = \frac{2 \cdot 07}{0{,}5^2} = 5{,}6$ Kg

The adequate shock absorber to use in this case is Mod. SA 0806 according to the technical data, where we find that E_T (max) = 3 Nm, E_{TC} (max) = 7000 Nm/h and Me (max) = 6 kg.

Example 8: Horizontal rotating door

Application data:
m = 20 kg
ω = 2,0 rad/s
T = 20 Nm
Rs = 0,8 m
A = 1,0 m
S = 0,015 m
C = 600 cycles/h



Calculation:

$I = \frac{m\,(4A^2 + B^2)}{12} = \frac{20(4 \cdot 1{,}0^2 + 0{,}05^2)}{12} = 6{,}67$ Kg · m²

$E_K = \frac{I\omega^2}{2} = \frac{6{,}67 \cdot 2{,}0^2}{2} = 13{,}34$ Nm

$\theta = \frac{S}{Rs} = \frac{0{,}015}{0{,}8} = 0{,}019$ rad

$E_D = T \cdot \theta = 20 \cdot 0{,}018 = 0{,}36$ Nm

$E_T = E_K + E_D = 13{,}34 + 0{,}36 = 13{,}7$ Nm

$E_{TC} = E_T \cdot C = 13{,}7 \cdot 600 = 8220$ Nm/h

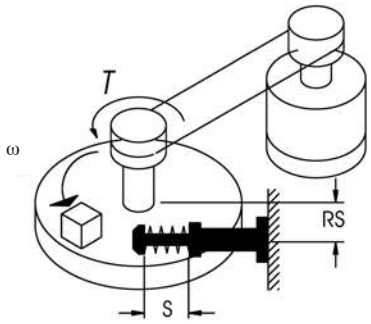
$v = \omega \cdot Rs = 2{,}0 \cdot 0{,}8 = 1{,}6$ m/s

$Me = \frac{2\,E_T}{v^2} = \frac{2 \cdot 13{,}7}{1{,}6^2} = 10{,}7$ Kg

The adequate shock absorber to use in this case is Mod. SA 1412 according to the technical data, where we find that E_T (max) = 20 Nm, E_{TC} (max) = 33000 Nm/h and Me (max) = 40 kg.

Example 9: Horizontal rotating door

Application data:
m = 200 kg
ω = 1,0 rad/s
T = 100 Nm
R = 0,5 m
Rs = 0,4 m
S = 0,015 m
C = 100 cycles/h



Calculation:

$I = \frac{mR^2}{2} = \frac{200 \cdot 0{,}5^2}{2} = 25$ Kg · m²

$E_K = \frac{I\omega^2}{2} = \frac{25 \cdot 1{,}0^2}{2} = 12{,}5$ Nm

$\theta = \frac{S}{Rs} = \frac{0{,}015}{0{,}4} = 0{,}0375$ rad

$E_D = T \cdot \theta = 100 \cdot 0{,}0375 = 3{,}75$ Nm

$E_T = E_K + E_D = 12{,}5 + 3{,}75 = 16{,}25$ Nm

$E_{TC} = E_T \cdot C = 16{,}25 \cdot 100 = 1625$ Nm/h

$v = \omega \cdot Rs = 1{,}0 \cdot 0{,}4 = 0{,}4$ m/s

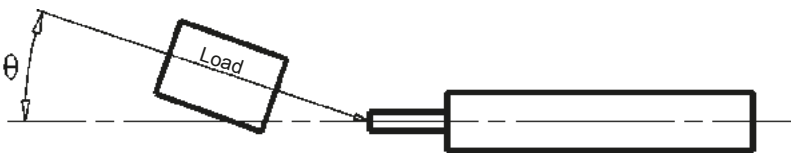
$Me = \frac{2\,E_T}{v^2} = \frac{2 \cdot 16{,}25}{0{,}4^2} = 203$ Kg

The adequate shock absorber to use in this case is Mod. SA 2015 according to the technical data, where we find that E_T (max) = 59 Nm, E_{TC} (max) = 38000 Nm/h and Me (max) = 720 kg.

Perpendicularity of the load

To ensure the lifetime of the shock absorber, the movement of the impact body must be perpendicular to the shock absorbers axial centre.

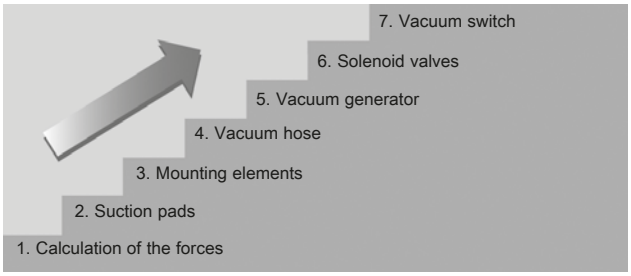
Note: The maximum allowable eccentricity $\theta \leq 2{,}5°$ (0,044 rad).



Example of Vacuum calculation

System design - the procedure

In this section the design procedure is described for a complete system step by step.
This exercise is based on a typical design example.



Flowchart for system design

The calculations in the example are based on the following data:

Workpiece		
Material:	steel sheets, stacked on a pallet	
Surface:	smooth, flat, dry	
Dimensions:	length:	max.2500 mm
	width:	max.1250 mm
	thickness:	max.2,5 mm
	weight:	circa 60 kg

Handling system		
System used:	portal transfer unit	
Available compressed air supply::		8 bar
Control voltage:	24 V DC	
Transfer procedure:	horizontal - horizontal	
Max. acceleration values	X and Y axes:	5 m/s^2
	Z axis:	5 m/s^2
Cycle time:	30 s	
Planned times:	for picking up:	<1s
	for releasing:	<1s

Calculating the weight of the workpiece

For all subsequent calculations, it is important to know the mass of the workpiece to be handled.
This can be calculated with the following formula:

Mass m [kg]:m = L x B x H x ρ
L = lenght [m]
B = width [m]
H = hight [m]
ρ = density [kg/m^3]

Example: m = 2,5 x 1,25 x 0,0025 x 7850
m = 61,33 kg

Forces - how high forces do the suction pads have to support?

In order to determine the necessary holding forces, the above mass calculation is needed. In addition, the suction pads must be capable of handling the acceleration forces which, in a fully automatic system, are by no means negligible. In order to simplify the calculation, the three most important and most frequent load cases are shown graphically and described below.

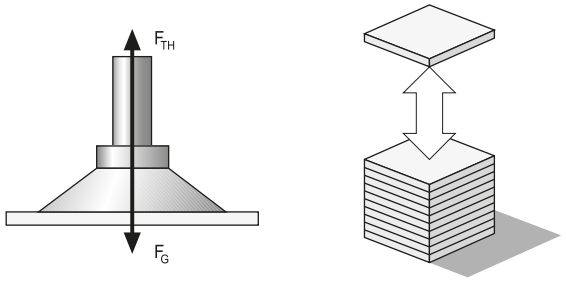
Important:
In the following simplified representations of the load cases I, II and III, the worst case with the highest theoretical holding force must always be used for the subsequent calculations.

Load case I: horizontal suction pads, vertical force

F_{TH}	=	theoretical holding force [N]
m	=	mass [kg]
g	=	acceleration due to gravity [9,81 m/s²]
a	=	system acceleration [m/s²] (remember to include the "emergency off" situation!)
S	=	safety factor (minimum value 1,5; for critical inhomogeneous or porous materials or rough surfaces 2,0 or higher)

Example: F_{TH} **= 61,33 x (9,81 +5) x 1,5**
F_{TH} **= 1363 N**

The suction pads are placed on a horizontal workpiece which is to be moved sideways.



Load case II: horizontal suction pads, horizontal force

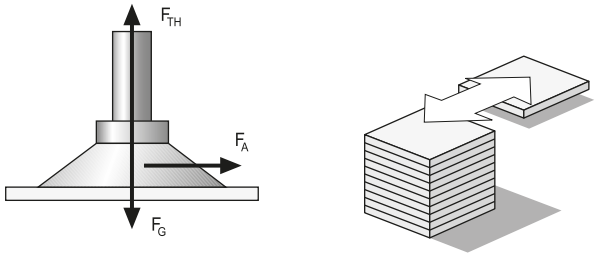
F_{TH} **= m x (g +a/μ) x S**

F_{TH}	=	theoretical holding force [N]
Fa	=	acceleration = m • a
m	=	mass [kg]
g	=	acceleration due to gravity [9,81 m/s²]
a	=	system acceleration [m/s²] (remember to include the "emergency off" situation!)
μ	=	coeff. of friction* = 0,1 for oily surfaces = 0,2 ...0,3 for wet surfaces = 0,5 for wood, metal, glass, stones,... = 0,6 for rough surfaces
S	=	safety factor (minimum value 1,5; for critical inhomogeneous or porous materials or rough surfaces 2,0 or higher)

Example: F_{TH} **= 61,33 x (9,81 +5/0,5) x 1,5**
F_{TH} **= 1822 N**

* Attention! The coefficients of friction shown above are average values.
The actual values for the workpiece to be handled must be determined by testing.

The suction pads are placed on a horizontal workpiece which is to be moved sideways.



Load case III: vertical suction pads, vertical force

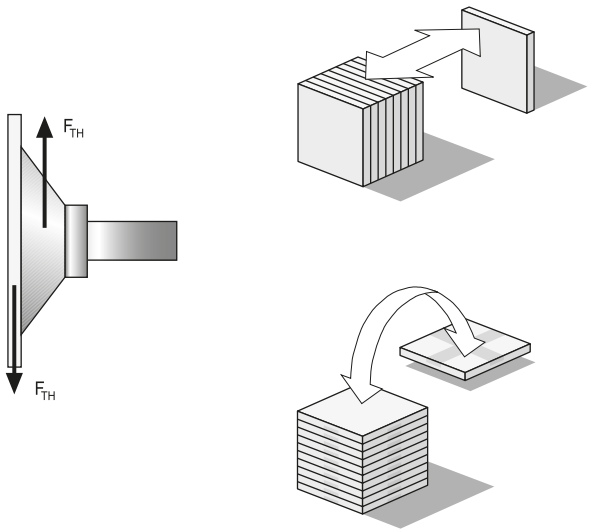
F_{TH} **= (m/μ) x (g +a) x S**

F_{TH}	=	theoretical holding force [N]
m	=	mass [kg]
g	=	acceleration due to gravity [9,81 m/s²]
a	=	system acceleration [m/s²] (remember to include the "emergency off" situation!)
μ	=	coeff. of friction = 0,1 for oily surfaces = 0,2 ...0,3 for wet surfaces = 0,5 for wood, metal, glass, stones, ... = 0,6 for rough surfaces
S	=	safety factor (minimum value 2; higher for critical, inhomogeneous or porous materials or rough surfaces)

Example: F_{TH} **= 61,33 x (9,81 +5/0,5) x 1,5**
F_{TH} **= 1822 N**

For the example used for this description, load case III can be ignored, since the workpieces are to be handled only in a horizontal orientation.

The suction pads are placed on a vertical or horizontal workpiece which is to be moved vertically or turned to the other orientation.



Comparison:
A comparison of the figures for load cases I and II results, in this example, in a maximum value for FTH =1822 N in load case II, and this value is therefore used for further design calculations.

How to select the suction pads



The suction pads are normally selected on the basis of the following criteria:

Operating conditions: the operating conditions (single or multiple shift operation, expected lifetime, aggressive surroundings, temperature etc.) at the point of use are decisive for the selection of the suction pads.

For the selection of the vacuum pad material in relation to the type of work piece to handle, see the table shown in the end of the vacuum pad section.

Surface: depending on the surface of the handled workpieces, certain suction-pad versions may be more suitable.
The product range includes flat and bellows suction pads.

Example:
In this example, where steel sheets are to be handled, we will use the flat suction pads, Mod. VTCF in NBR.
This is the best and most efficient solution for the handling of smooth, flat workpieces.

Calculation of the suction force F_s [N]

$F_S = F_{TH} / n$
F_S = suction force
F_{TH} = theoretical force
n = number of suction pads

Example:
For medium sized (2500 x 1250 mm) steel sheets, normally 6 to 8 suction pads would be used.
The most important criterion for deciding the number of suction pads in this example, is the flexing of the steel sheet during transport.

Calculation of the suction force F_s [N]

$F_S = 1822/6$
$F_S = 304$ N

According to the Technical Data as shown on section a/3.07_01 for Series VTCF, 6 pcs. of suction pads Mod. VTCF-0950N are needed with a suction force of 340 N each.

Calculation of the suction force F_s [N]

$F_S = 1822/8$
$F_S = 228$ N

According to the Technical Data as shown on section a/3.07_01 for Series VTCF, 8 pcs. of suction pads Mod. VTCF-800N are needed with a suction force of 260 N each.

In this example we decide to use 6 pcs. of suction pads Mod. VTCF-950N since this number is sufficient and helps to keep the costs down.

Important:
- The load which each suction pad can carry is shown in the table Technical Data.
- The load-carrying capacity of the suction pad must always be greater than the calculated value.

Selection of the mounting elements



Normally, the manner in which the suction pads are mounted is defined to meet the customer's needs. However, there may be special reasons which make a specific mounting element mandatory in certain cases:
Uneven or sloping surfaces
The suction pad must be able to adapt itself to the slope:
» flexible nipple NPF

Different heights or thicknesses
The suction pads must be spring-mounted in order to compensate for varying heights:
» spring plunger NPM-NPR

Example:
In this example the steel sheets are stacked on a pallet. If the sheets are larger than the pallet, they may hang down at the ends. This means that the suction pads must be able to compensate for considerable height differences and slope angles.

We decide to use:
Spring plunger NPM-FM-1/4-75
We need the largest possible stroke to cope with the hanging ends of the steel sheets.
The 1/4 thread is needed for connection to the flexible nipple.

Flexible nipple Mod. NPF
Optimum flexibility for inclined workpiece surfaces.

Check valves Mod. VNV
These are used on vacuum gripper systems containing multiple suction pads in order to shut off indivual suction pads which are not covered by the workpiece, (when handling work pieces of different sizes).

Note:
When selecting the mounting elements, please make sure that these can be screwed onto the suction pads, i.e. that they have threads of the same size. Also note the load-carrying capacities of the mounting elements.

Selection of vacuum hoses



The size of the vacuum hose should match the suction pads which are used.
For the selection of the suitable tube dimensions, see recommendations under Technical Data.

Example:
For exampe, from the table with Technical Data we choose a TRN 8/6 hose in polyammide.

Calculation vacuum generators



Based upon our experience and upon the values measured during the system design, we recommend to choose the vacuum generator depending on the diameter of the suction pad, according to the table below:

Calculation of the required suction rate V [M³/H, L/MIN]

V	=	n x VS
n	=	number of suction pads
V_S	=	required suction rate for a single suction pad [m³/h, l/min]

The suction rate values of the different vacuum generators can be found in the table Technical Data.

Example: **V = 6 x 16,6**
V = 99,6 l/min

Required suction rate as a function of the suction pad diameter

Suction pad ø	Required suction rate Vs	
up to 20 mm	0,17 m³/h	2,83 l/min
up to 40 mm	0,35 m³/h	5,83 l/min
up to 60 mm	0,5 m³/h	8,3 l/min
up to 90 mm	0,75 m³/h	12,7 l/min
up to 120 mm	1 m³/h	16,6 l/min

Note:
The indicated values apply to all types of vacuum generators.
The recommended suction rate is for a single suction pad and is valid only for smooth, air-tight surfaces. For porous surfaces we recommend the execution of a suitable test before the selection of the vacuum generator.

We choose a compact ejector Mod. VEC-20 with a suction rate of 116 l/min.

Selection of vacuum switches



Vacuum switches and pressure gauges are normally selected on the basis of the functions required in the application and on the switching frequency.

The following functions are available:
- adjustable switching point
- fixed or adjustable hysteresis
- digital and/or analog output signals
- status LED
- display with keypad
- connection with M5 Female thread, G1/8 Male flange or plug-in tube

Example:
- vacuum switch SWD-V00-PA with digital display, adjustable switching point and adjustable hysteresis (already integrated in the compact ejector)
- pressure gauge.

Selection of the vacuum switches and pressure gauges

Even if you are confident that the results of the system-design work are correct, you should still carry out tests with original workpieces to be on the safe side.
However, the theoretical system design will give you a good idea of the general parameters for the intended application.

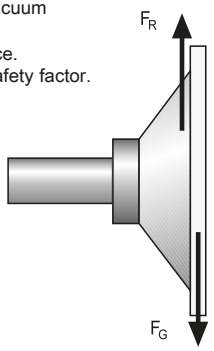
Technical information about suction pads

When designing a vacuum circuit and selecting suitable suction pads it is necessary to follow certain calculations to select each individual component in a correct way.

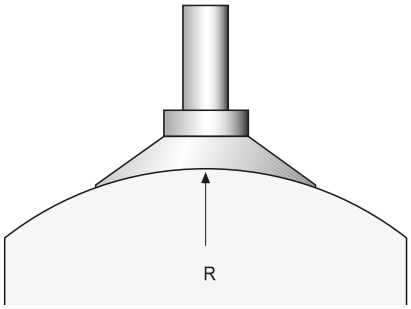
Listed below is a summary of the most common data to take into consideration.

Technical information

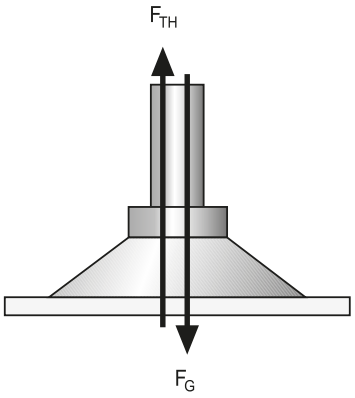
Lateral force
The measured value in N at a vacuum of -0,6 bar on a dry or oily, flat and smooth workpiece surface.
These values do not include a safety factor.



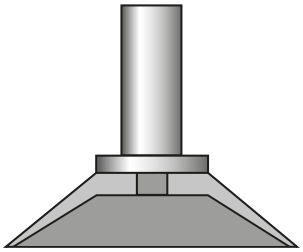
Minimum workpiece curvature radius
This specifies the minimum radius at which the workpiece can be gripped securely by the suction pad.



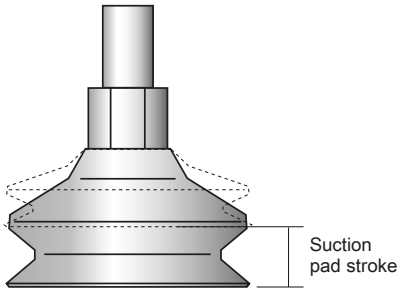
Theoretical suction force
Theoretical force (N) at a -0,6 bar measured at sea level.
Since this is a theoretical value, it is necessary to reduce this value by adding a safety factor to compensate for friction or loss of vacuum, depending on the application (from rough workpiece surface or porous material etc.).



Internal volume
This is used to calculate the total volume of the gripper system.
With this value, it is also possible to calculate the evacuation time.



Suction pad stroke
This is the lifting effect which occurs during evacuation of a bellows type suction pad.



Suction pad material selection

Applications	NBR	SI
Food	•	
Oily parts	•	
Slight marking of workpieces		•
For high temperatures		•
For low temperatures		•
Very smooth surfaces (glass)	•	
Very rough surfaces (wood, stone)	•	•

Selection and configuration

Planning check-list for selection of suction pads

What are the workpiece dimensions and weight?	This is important data for the suction force calculation and to establish the required suction force and number of suction pads (see technical information).
How is the workpiece surface (rough, structured, smooth)?	It determines the kind of suction pad (material, shape, dimensions).
Could the workpiece be dirty? If so, what kind of dirt?	This is important information to select the suction pad dimensioning (see technical information) and also for the design of the dust filter.
What is the highest workpiece temperature?	Temperature is important to select the suction pad material. At temperatures above 70°C the use of silicone versions should be considered.
Is an accurate gripping/placing/positionining, required?	Determines the structure, the type and the version of the suction pad.
What is the cycle time?	This data is important for the dimensioning and plays a part in the calculations (for instance the vacuum generator suction capacity calculation); (see the technical information).
What is the maximum acceleration during handling?	This is important for the dimensioning and design of the suction force, together with the related calculations (for instance the suction capacity and the moment of inertia); (see the techn. inf.).
Which kind of handling is needed (moving, slewing, turning over)?	This data is important to establish the dimension and the suction force calculation.

Materials summary

Chemical designation **Abbreviation**	**Nitrile rubber** **NBR**	**Silicone** **SI**
Wear resistance	••	•
Resistance to permanent deformations	••	••
General weather resistance	••	•••
Resistance to ozone	•	••••
Resistance to oil	••••	•
Resistance to fuels	••	•
Resistance to alcohol, ethanol 96 %	••••	••••
Resistance to solvents	••	••
General resistance to acids	•	•
Resistance to steam	••	••
Tensile strength	••	•
Abrasion value in mm^3 s. DIN 53516 (approx.)	100-120 at 60 Sh.	180-200 at 55 Sh.
Specific resistance [ohm * cm]	-	-
Short-term temperature resistance in °C	from -30° to +120°	from -60° to +250°
Long-term temperature resistance in °C	from -10° to +70°	from -30° to +200°
Shore hardness to DIN 53505	from 40 to 90	from 30 to 85*
Colour/Coding	black	white

* After-bake of silicone 10 h/160 °C = +5 ...10 Shore A

•••• excellent ••• very good •• good • poor to satisfactory

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