

RHODES™



Sight Flow Glasses and Flow Indicators



The Widest Selection **The Clearest View**

CRANE

BUILDING SERVICES & UTILITIES

Contents

Our Heritage	3
Quality Assurance	4
Product Overview	5
Sight Flow Indicator Applications	6
Sight Flow Indicator Benefits	7
Product Application Overview	9



Flow Indicators Series 400	
Fig 400 Straight Through Sight Flow Indicator with Spinner	10
Fig 400B Straight Through Sight Flow Indicator with Ball	12

Flow Indicators Series 900



Fig 901 Sight Flow Indicator with Flow Fingers - Gunmetal	14
Fig 903 Straight Through Sight Flow Indicator with Integral Spout - Gunmetal	16
Fig 904 Straight Through Sight Flow Indicator with Flap and Scale Plate - Gunmetal	18
Fig 913 Straight Through Sight Flow Indicator with Integral Spout - Cast Iron	22
Fig 923 Straight Through Sight Flow Indicator with Integral Spout - Carbon Steel	24
Fig 933 Straight Through Sight Flow Indicator with Integral Spout - Stainless Steel	26
Additional Products	28

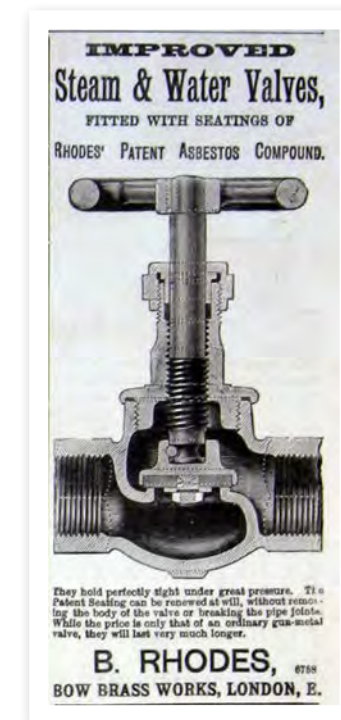
Gorgon Project	20
Product Application	30
Enquiry Specification Questionnaire	32
Notes	33
Sister Brands	34

Our Heritage

Rhodes manufacture and supply Sight Glasses and Sight Flow Indicators. Our products can be found in process and petrochemical plants all over the world, installed on fluid carrying systems where visual inspection of the flow is required.

With a proven design and over 65 years of operational experience, we are the UK market leaders. The Rhodes name is a guarantee of the highest quality product design and manufacture, with quality systems conforming to ISO 9001.

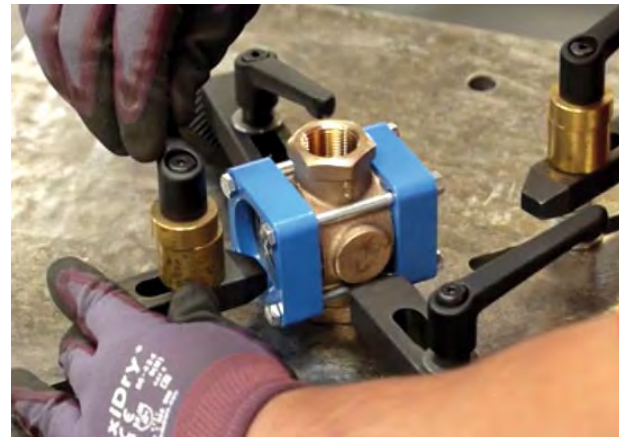
The Rhodes product range has an international reputation for excellence and brings its own area of specialist expertise to markets right across the world. The standard range is well specified by major blue chip companies and is complemented by a design service to build bespoke items to specialist criteria.



Quality Assurance

Rhodes Sight Flow Indicators are designed, manufactured, and tested in dedicated production facilities based in the United Kingdom.

Rhodes employ a continuous programme of research and product development using the very latest innovations in manufacturing technology. Quality systems are accredited to ISO 9001-2008 and 14001.

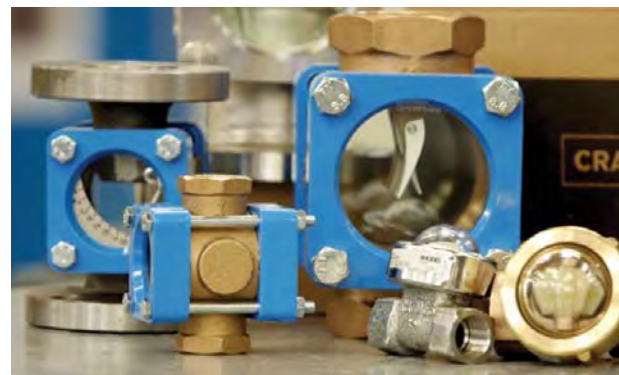
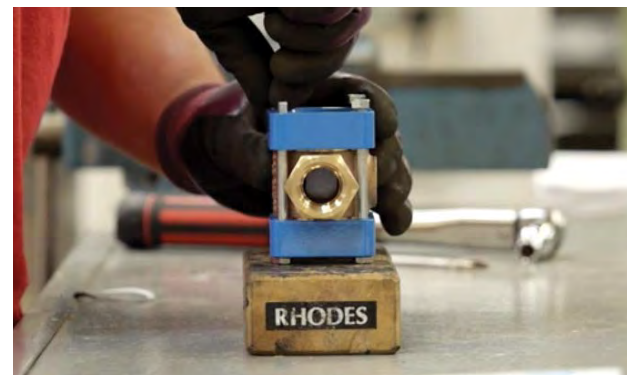
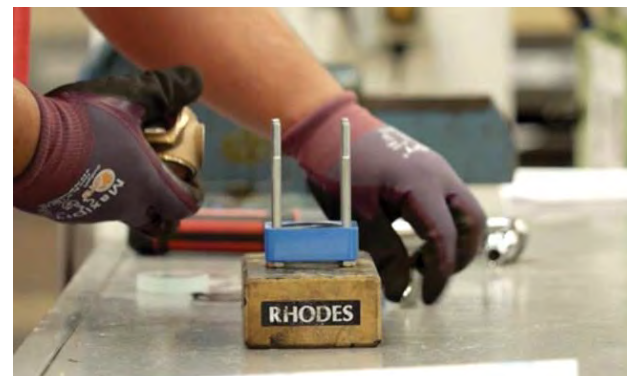


Under the Pressure Equipment Directive (PED) all pressure equipment placed in the market after 29th May 2002 must be assessed against the pressure equipment regulations. As a leading International supplier, Rhodes has ensured that all products and standard documentation meet the directive requirements.

However, the search for quality should mean more than just certificates, so each and every member of the Rhodes team strive to meet market and customer needs and aim to provide first class product, combined with the highest level of customer service.



Pressure Equipment Directive
PED 97/23/EC and
Article 13 of 2014/68/EU



Product Overview

Rhodes Flow Indicators and Sight Glasses enable a visual check to assess if there is a flow of liquid through a pipeline. The pressure range available starts from full vacuum, up to 50 bar, with temperatures ranging from -150°C up to 250°C.

Sight Glasses and Flow Indicators are available in various types as follows:

- Straight through with drip spout
- Straight through with flap and scale plate
- Spinner type
- Flow fingers
- Ball type

Glass and joint options

- Standard - supplied with nickel reinforced graphite joints and toughened soda lime glass
- Extra options available include PTFE joints and Toughened Borosilicate glass

Materials

- Stainless steel
- Gunmetal
- Carbon steel
- Cast iron

Port connections

- Female screwed
- Flanged

Available connection types:

- Female screwed BSP Taper 'Rc' BS EN 10226
- Female screwed BSP Parallel 'Rp' BS EN 10226
- Female screwed BSP Parallel 'G' ISO 228
- Female screwed NPT
- Flanged ANSI 150RF
- Flanged ANSI 150FF
- Flanged ANSI 300RF
- Flanged PN16 BS EN 1092
- Flanged PN25 BS EN 1092
- Flanged Table D BS10
- Flanged Table E BS10
- Flanged Table F BS10
- Flanged Table H BS10
- Buttweld ANSI B16.25
- Socket Weld ANSI B16.11

All Rhodes products are PED compliant and CE marked where applicable. Full certification and documentation available as required.

Sight Flow Indicator Applications

Application of Rhodes Flow Indicators

1. Protection & Performance of Equipment

Rhodes moving member indicator models 400, 900 and 408 series provide operators with clear and easy indication of flow deviation, enabling quick and sure identification of flow failure with any cooling or lubricating liquid. Quick and easy identification of any flow issues is critical for both safe operation and prolonging the life of equipment.

2. Process Indication

Many processes, whether automated or manual, still require the judgement of the human eye to ensure product quality and consistency. Rhodes models within the 900 series enable operators to clearly see what is happening inside a pipe or process vessel.

3. Liquid Storage and Transfer

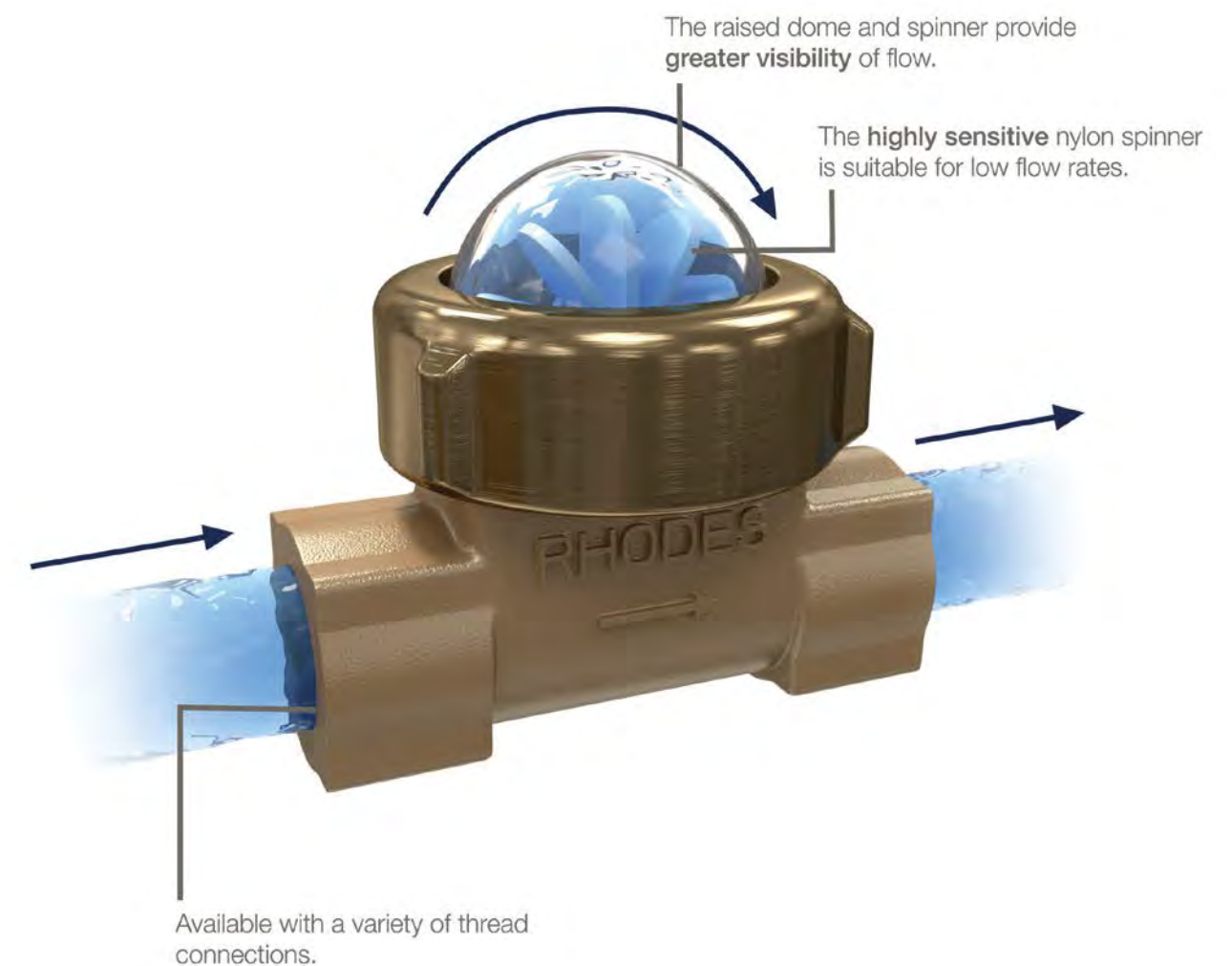
The distribution of liquids frequently embraces many stages of filling and emptying vessels as well as flow through pipelines. Efficiency and stock control often require an operator to know the status of a vessel or pipe and Rhodes Flow Indicators have filled this need for many years.

We have analysed a number of application duties for Rhodes Flow Indicators and have summarised these by industry on the following sheet on pages 30 and 31.

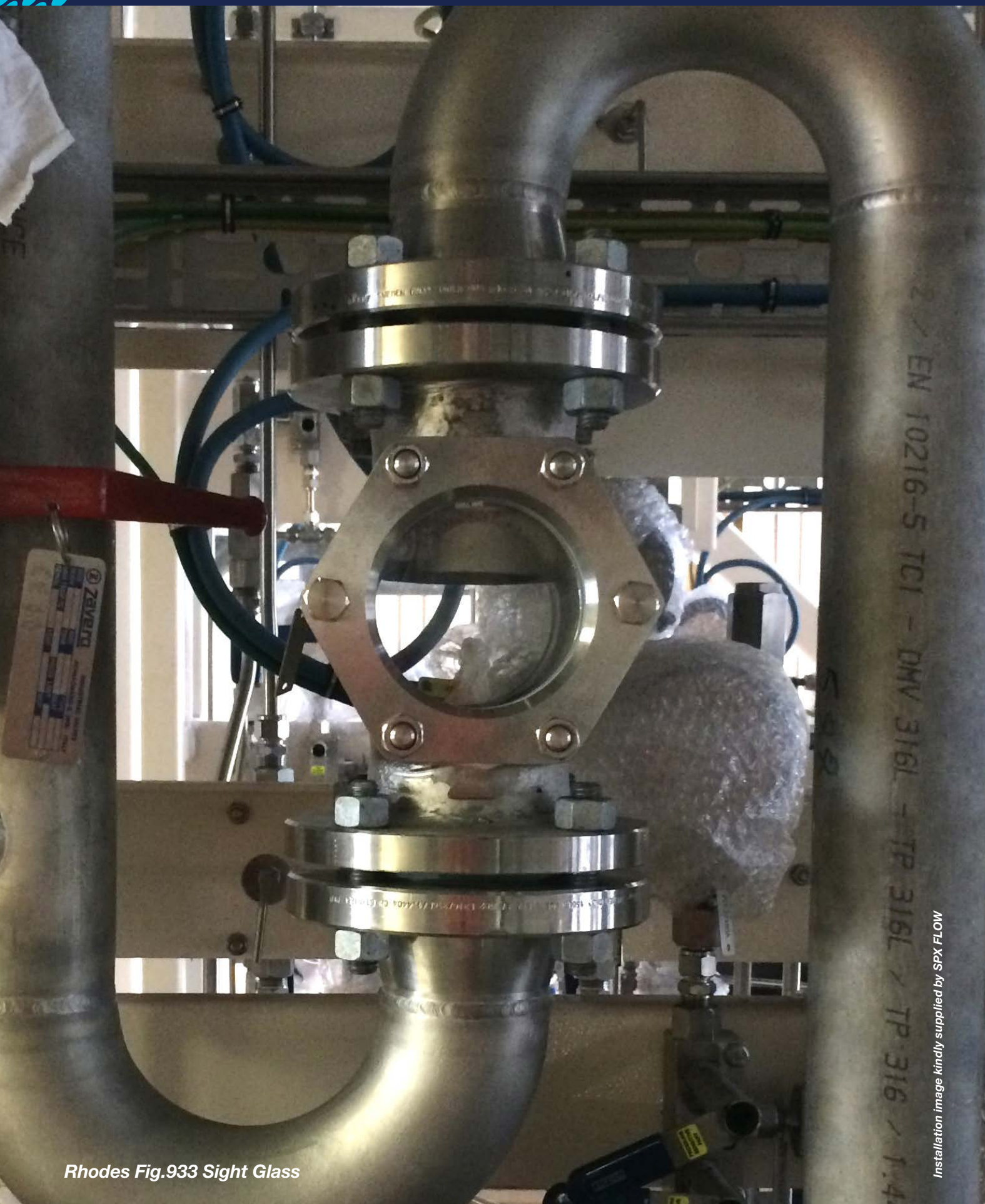
Sight Flow Indicator Benefits

Performance

The Rhodes **Fig.400 with Spinner** is a versatile Sight Flow Indicator, which can be used in any orientation. These compact Sight Flow Indicators are used extensively in plant protection applications to indicate coolant or lubrication flow to pumps, compressors, and engines.



For further details, please refer to pages 10 and 11.



Rhodes Fig.933 Sight Glass

Installation image kindly supplied by SPX FLOW

Product Application Overview

Breweries:

- Waste (brewing liquor/wine)

Cleaning:

- To observe injection of cleaning solvents and agents
- To observe liquid quality on filter lines

Furnaces:

- On cooling lines
- To indicate reverse flow

Marine:

- Cooling lines
- Fuel lines

O.E.M.:

- Compressors
- Cooling lines
- Cooling lines welding machines
- Cooling lines injection moulding machines
- Cooling lines paper making machinery
- Steam condensate

Oil Industry:

- Unloading arms
- To observe the state of a liquid, colour, bubbles, flow rate or extraneous matter

Oil Platforms:

- Sea water coolants

Process Plants:

- Process lines
- Cooling lines
- Lubricating lines

Production:

- Lubricating lines on rolling mills
- Cooling lines on rolling mills

Fig.400 Straight Through Sight Flow Indicator with Spinner

Flow Indicators are used as a visual aid to process operations and plant protection. They provide windows into pipelines, enabling the user to see immediately if flow is taking place and to observe colour and condition of the flow.

FEATURES & BENEFITS

- Compact Sight Flow Indicators are used in plant room application to show coolant or lubrication flows to pumps, compressors and engines. This enables the user to view flow, presence and the condition of a liquid, gas or condensate.
- The Fig. 400 is able to be positioned in any orientation enabling more flexibility when installing.
- The high sensitivity of the spinner **(6)** enables indication of flow as low as 0.7l/s (water).
- Available in both Gunmetal or Stainless Steel bodies **(1)** giving the user greater options of flow medium.
- The Nitrile seals **(4)** and Nylon spinner **(6)** give excellent chemical resistance which is further enhanced in the stainless steel version by the use of Borosilicate glass **(3)** as standard.

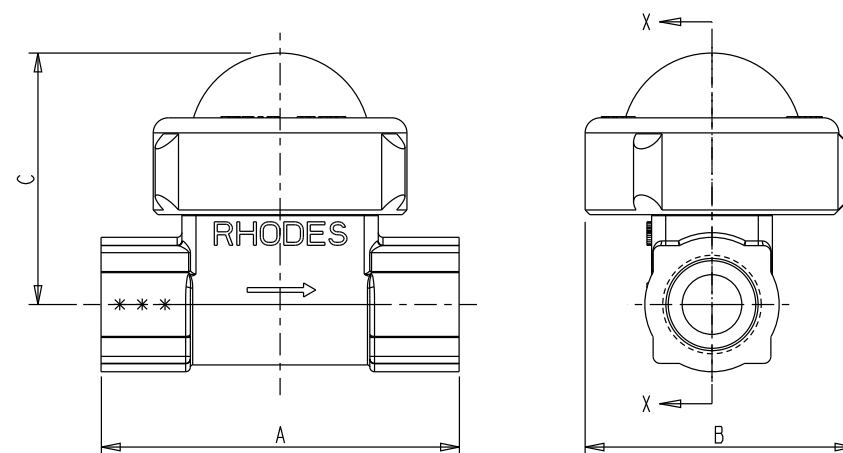
For product application please refer to pages 30 and 31.



Fig.400 Stainless Steel



Fig.400 Gunmetal



DIMENSIONS

Nominal Bore Size	Length A	Maximum Width B	Maximum Height from Centre C	Weight (kg)	Flowrate (l/h, water) Min	Flowrate (l/h, water) Max
DN8	76	57	55	0.5	30	200
DN10	76	57	55	0.5	50	450
DN15	76	57	55	0.6	60	600
DN20	83	57	58	0.6	120	1600
DN25	89	70	68	1.1	300	1600

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Rhodes assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

MATERIALS OF CONSTRUCTION

ITEM NO.	DESCRIPTION	BODY MATERIAL	MATERIAL	QTY
1	Body (options)	Gunmetal	BS EN 1982 CB491K	1
		Stainless Steel	ASTM A351 CF8M	
2	Cover Ring	Gunmetal	Brass BS2872 CZ122	1
		Stainless Steel	Nickel Plated Brass BS2872 CZ122	
3	Glass Dome	Gunmetal	Soda Lime	1
		Stainless Steel	Borosilicate	
4	Gaskets	Nitrile O Ring BS128		2
5	Spinner Mounting Pin	Stainless Steel 316		1
6	Spinner	Glass Filled Nylon		1

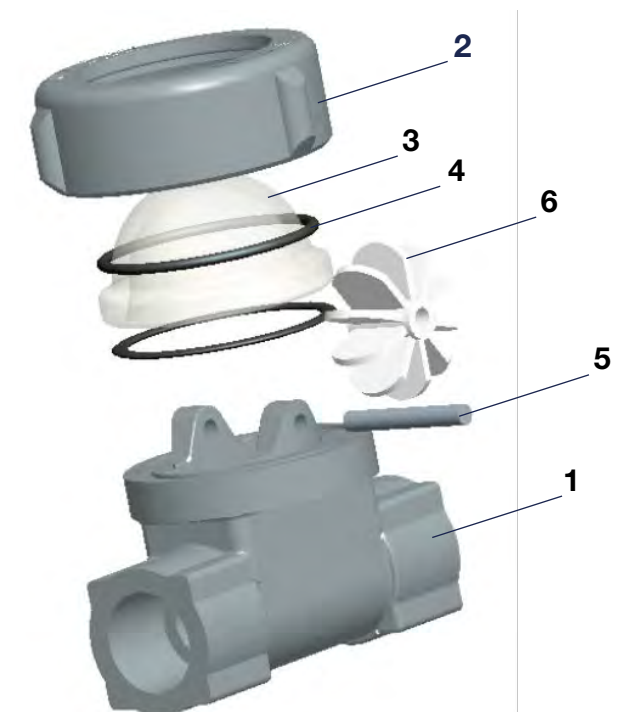
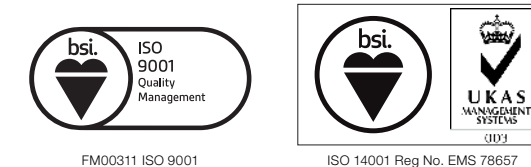
MAXIMUM RATINGS

Gunmetal	Stainless Steel
Pressure 7 Barg	Pressure 16 Barg
Temperature 100°C	Temperature 100°C

END CONNECTIONS

SCREWED
<ul style="list-style-type: none"> • BSP Taper Female 'Rc' BS EN 10226 • BSP Parallel Female 'Rp' BS EN 10226 • BSP Parallel Female 'G' ISO 228 • NPT Female
N.B. Fig. 400 is not available with flanged connections.

APPROVALS



Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Rhodes assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

Fig.400B Straight Through Sight Flow Indicator with Ball

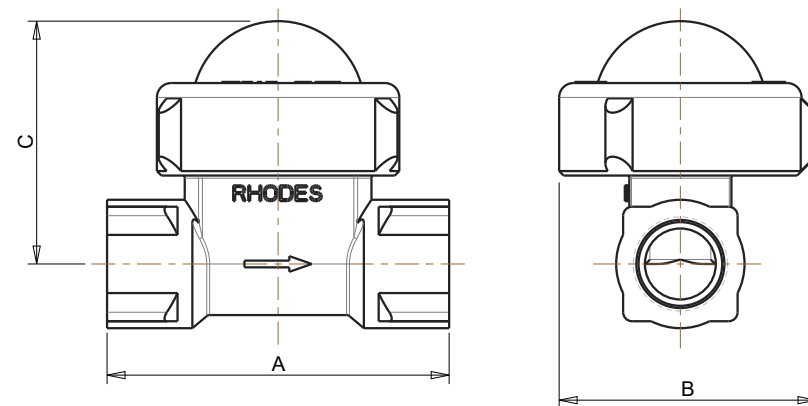
Flow Indicators are used as a visual aid to process operations and plant protection. They provide windows into pipelines, enabling the user to see immediately if flow is taking place and to observe colour and condition of the flow. The design of the 400B dictates that it must be installed with the glass upright. The ball is subject to wear and must be changed at service intervals.



FEATURES & BENEFITS

- Compact Sight Flow Indicators are used in plant room application to show coolant or lubrication flows to pump, compressors and engines. This enables the user to view flow, presence and the condition of a liquid, gas or condensate.
- The Fig.400B can handle a great variety of fluids, including gases and wide flow ranges.
- The Fig.400B is easily maintained by unscrewing the glass retaining ring.
- Available in both Gunmetal or Stainless Steel bodies giving the user greater options of flow medium.
- The Nitrile seals **(4)** provide excellent chemical resistance, further enhanced in the stainless steel version by the use of Borosilicate glass **(3)** as standard.
- When flow is present the PTFE ball **(5)** rises and oscillates within the glass dome. When flow stops, the ball drops.

For product application please refer to pages 30 and 31.



DIMENSIONS

Nominal Bore Size	Overall Length A	Maximum Width B	Maximum Height from Centre C	Weight (kg)	Flowrate (l/h, water) Min	Flowrate (l/h, water) Max
DN8	76	57	55	0.5	30	200
DN10	76	57	55	0.5	50	450
DN15	76	57	55	0.6	60	600
DN20	83	57	58	0.6	120	1600
DN25	89	70	68	1.1	300	1600

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Rhodes assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

MATERIALS OF CONSTRUCTION

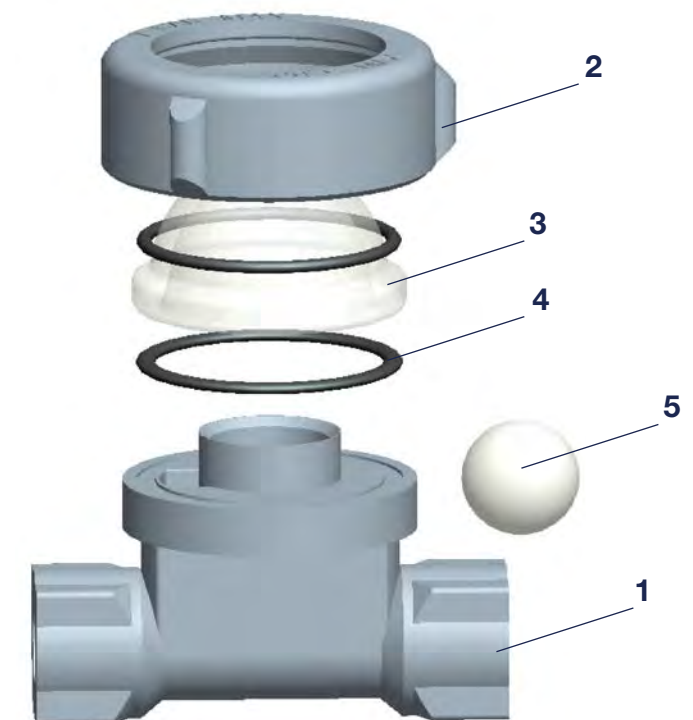
ITEM NO.	DESCRIPTION	BODY MATERIAL	MATERIAL	QTY
1	Body (options)	Gunmetal	BS EN 1982 CB491K	1
		Stainless Steel	ASTM A351 CF8M	
2	Cover Ring	Gunmetal	Brass BS2872 CZ122	1
		Stainless Steel	Nickel Plated Brass BS2872 CZ122	
3	Glass Dome	Gunmetal	Soda Lime	1
		Stainless Steel	Borosilicate	
4	Gaskets	Nitrile O Ring BS128		2
5	Ball	PTFE		1

MAXIMUM RATINGS

Gunmetal	Stainless Steel
Pressure 7 Barg	Pressure 16 Barg
Temperature 100°C	Temperature 100°C

END CONNECTIONS

SCREWED
<ul style="list-style-type: none"> • BSP Taper Female 'Rc' BS EN 10226 • BSP Parallel Female 'Rp' BS EN 10226 • BSP Parallel Female 'G' ISO 228 • NPT Female
N.B. Fig. 400B is not available with flanged connections.



APPROVALS



Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Rhodes assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

Fig.901 Sight Flow Indicator with Flow Fingers - Gunmetal

The Fig 901 general purpose indicator used by equipment manufacturers and process plant users, employs Rhodes' unique patented 'flow fingers' to provide flow indication.

FEATURES & BENEFITS

- The Fig.901 'flow fingers' (5) provide positive indication within clear and murky liquids. Manufactured from glass filled nylon they provide positive indication of flow, even under slow steady conditions.
- 'Flow fingers' (5) are positioned in the middle of the flow (assuming full bore flow) with the middle finger inverted. The design of the flow fingers ensures that they 'wiggle'

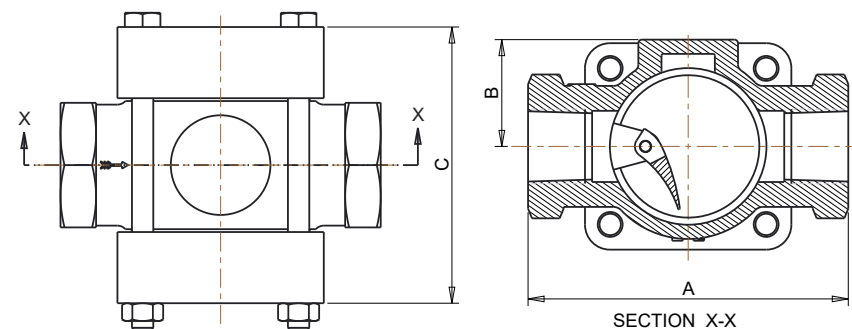
For product application please refer to pages 30 and 31.

TEMPERATURE RATINGS

Max Pressure	Temperature
16 Barg	-9.5°C to 170°C

DIMENSIONS

Screwed (mm)	Length A (mm)	Max Height From Centre B (mm)	Max Width C (mm)	Weight (kg)
15	90	30	78	0.9
20	90	30	78	0.9
25	110	38	92	1.7
40	130	45	103	3.1
50	170	56	128	5.8



MATERIALS OF CONSTRUCTION

ITEM NO.	DESCRIPTION	BODY MATERIAL	MATERIAL	QTY
1	Body	Gunmetal	BS EN 1982 CB491K	1
2	Cover	Mild Steel	BS EN 10025 S355 J2G3	2
3	Glass Disc	Toughened Soda Lime	BS3463	2
		Toughened Borosilicate	DIN7080	
4	Spindle	Stainless Steel	SS316	1
5	Flow Fingers	PES / Glass Filled Nylon		3 to 4
6	Nut	Mild Steel Zinc Plated		4
7	Bolt	Mild Steel Zinc Plated		4
8	Gasket	Nickel Reinforced Graphite		4
		PTFE		4

END CONNECTIONS

SCREWED
<ul style="list-style-type: none"> BSP Taper Female 'Rc' BS EN 10226 BSP Parallel Female 'Rp' BS EN 10226 BSP Parallel Female 'G' ISO 228 NPT Female
N.B. Fig. 901 is not available with flanged connections.

APPROVALS

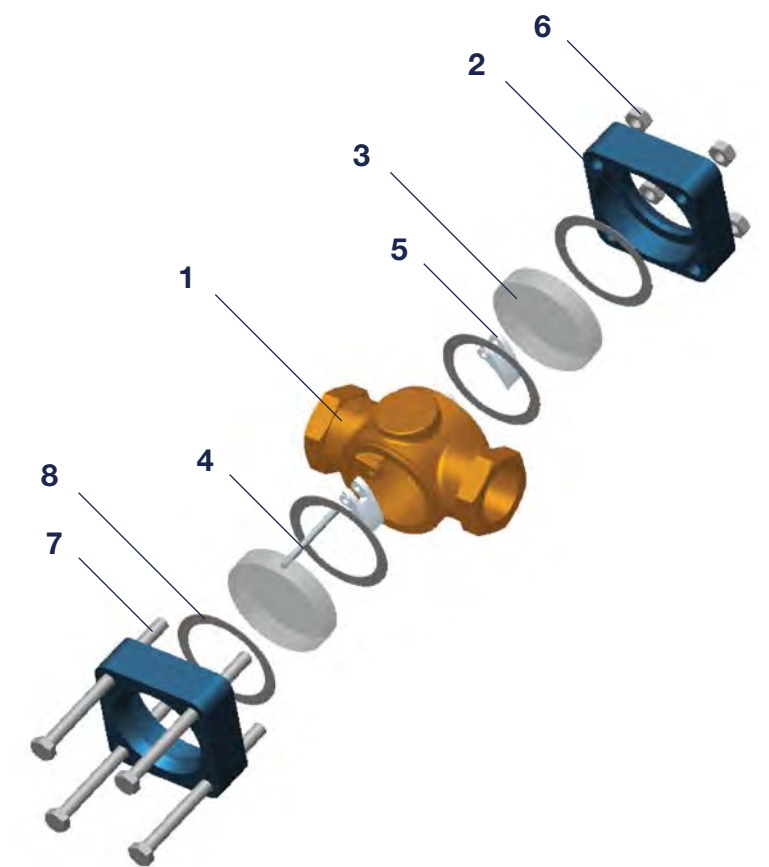


Fig.903 Straight Through Sight Flow Indicators with Integral Spout - Gunmetal

This two sided flow indicator features an integral spout that produces a jetting action for turbulent flow thereby improving the viewing of clear liquids.

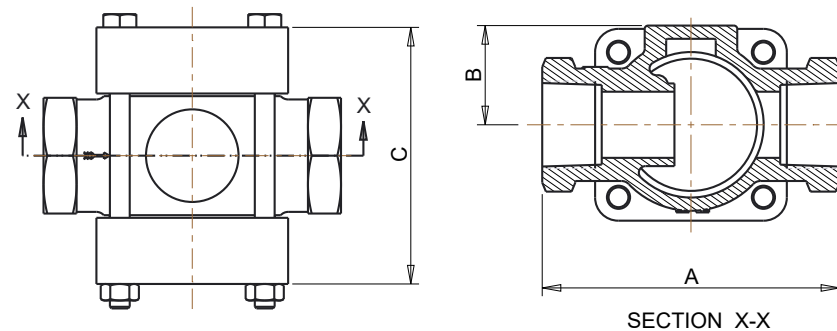
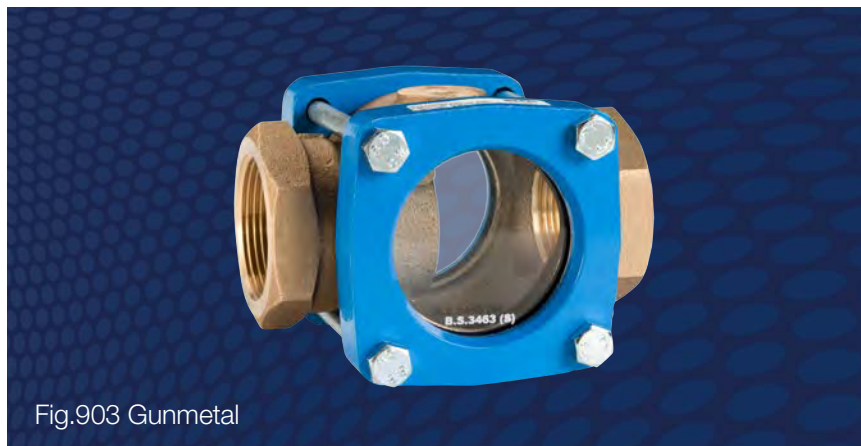
FEATURES & BENEFITS

- The large viewing area allows the flow, colour and condition of the liquid to be observed. This helps monitor product quality and consistency.
- The indicators are suitable for both vertical and horizontal installation. The inclusion of a spout also allows for use as a drip indicator to show valve leaks, distillation or intermittent flow.
- Available with screwed connections. Please refer to end connection options.

For product application please refer to pages 30 and 31.

TEMPERATURE RATINGS

Max Pressure	Temperature
16 Barg	-9.5°C to 200°C



DIMENSIONS

Nominal Bore Size	Overall Length A (mm)	Max Height From Centre B (mm)	Max Width C (mm)
15	90	30	78
20	90	30	78
25	110	38	92
40	130	45	103
50	170	56	128

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Rhodes assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

MATERIALS OF CONSTRUCTION

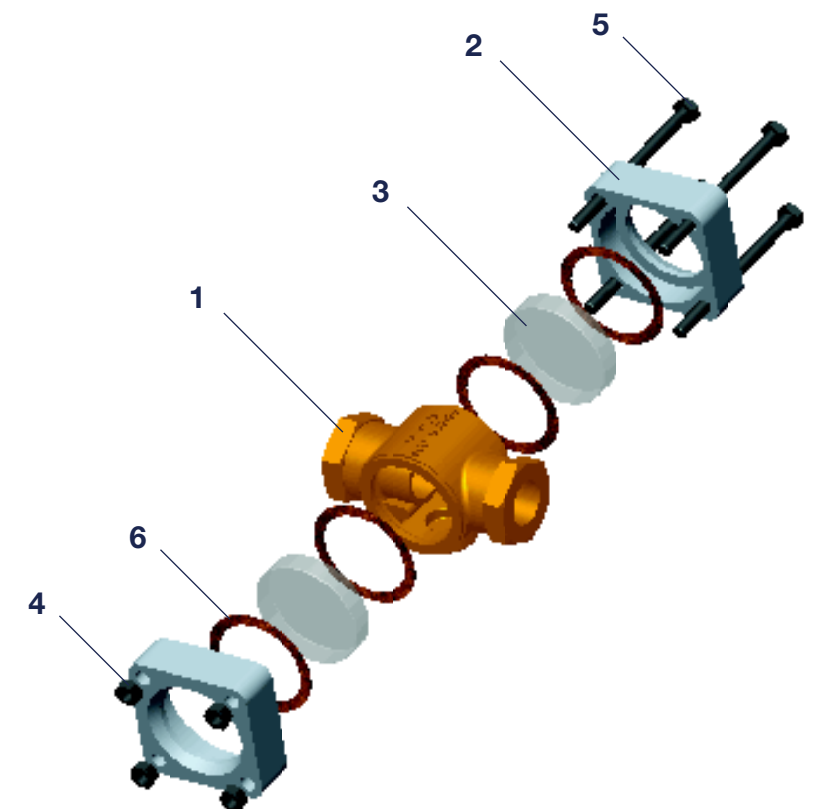
ITEM NO.	DESCRIPTION	BODY MATERIAL	MATERIAL	QTY
1	Body	Gunmetal	BS EN 1982 CB491K	1
2	Cover	Mild Steel	BS EN 10025 S355J2G3	2
3	Glass Disc	Toughened Soda Lime	BS3463	2
		Borosilicate Glass	DIN 7080	
4	Nut	Mild Steel Zinc Plated		4
5	Bolt	Mild Steel Zinc Plated		4
6	Gasket	Nickel Reinforced Graphite		4
		PTFE		

END CONNECTIONS

SCREWED
<ul style="list-style-type: none"> • BSP Taper Female 'Rc' BS EN 10226 • BSP Parallel Female 'Rp' BS EN 10226 • BSP Parallel Female 'G' ISO 228 • NPT Female

N.B. Fig. 903 is not available with flanged connections.

APPROVALS



Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Rhodes assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

Fig.904 Straight Through Sight Flow Indicator with Flap and Scale Plate - Gunmetal

The Fig.904 incorporates a pivoted internal flap (5), which provides indication of change in the rate of flow, from a drip to full flow.

FEATURES & BENEFITS

- The internal stainless steel flap (5) is electro polished to improve viewing in murky liquids.
- The indicators are suitable for both horizontal and vertical upward flows.
- A variety of glass and gasket materials are available as standard.

For product application please refer to pages 30 and 31.

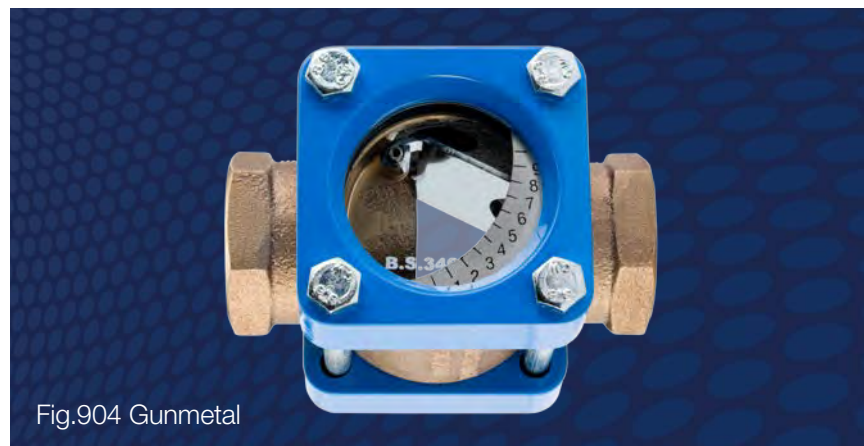
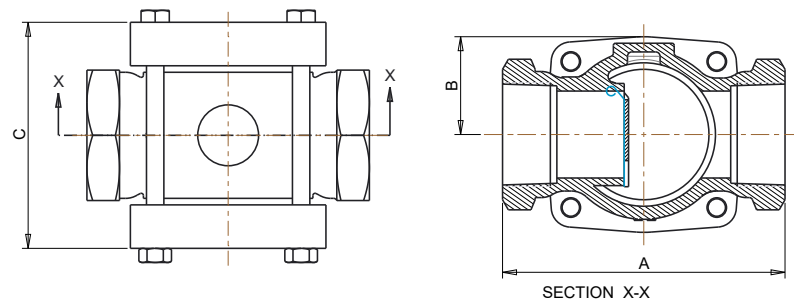


Fig.904 Gunmetal

TEMPERATURE RATINGS

Max Pressure	Temperature
16 Barg	-9.5°C to 200°C



DIMENSIONS

Nominal Bore Size	Overall Length A (mm)	Max Height From Centre B (mm)	Max Width C (mm)
15	90	30	78
20	90	30	78
25	110	38	92
40	130	45	103
50	170	56	128

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Rhodes assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

MATERIALS OF CONSTRUCTION

ITEM NO.	DESCRIPTION	BODY MATERIAL	MATERIAL	QTY
1	Body	Gunmetal	BS EN 1982 CC491K	1
2	Cover	Mild Steel	BS EN 10025 S355J2G3	2
3	Glass Disc	Toughened Soda Lime	BS3463	2
		Borosilicate Glass	DIN 7080	
4	Spirol Pin	Spring Steel		2
5	Flap	Stainless Steel	SS316	1
6	Scale Plate	Aluminium		1
7	Nut	Mild Steel Zinc Plated		4
8	Bolt	Mild Steel Zinc Plated		4
9	Gasket	Nickel Reinforced Graphite		4
		PTFE		4

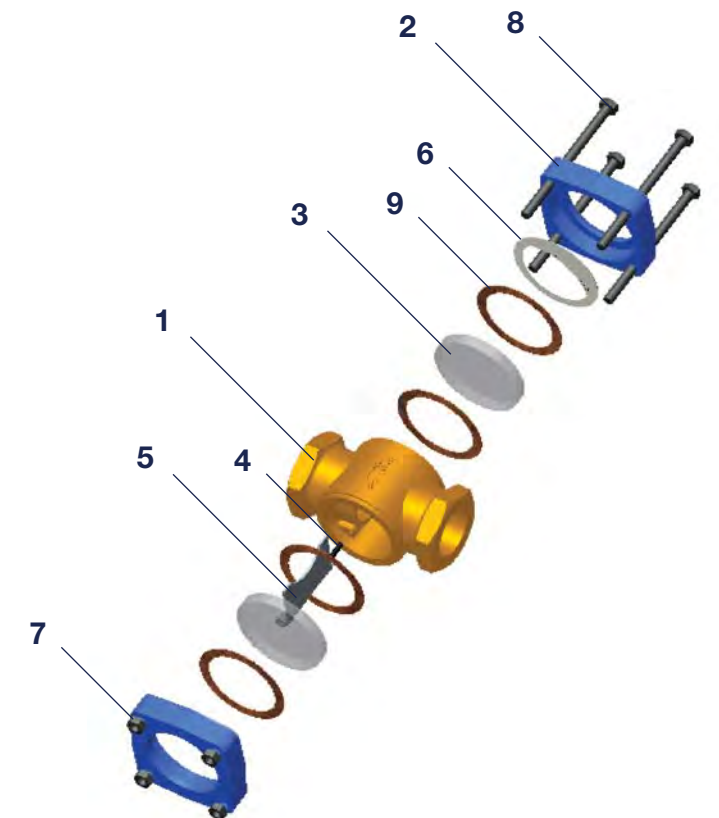
END CONNECTIONS

SCREWED

- BSP Taper Female 'Rc' BS EN 10226
- BSP Parallel Female 'Rp' BS EN 10226
- BSP Parallel Female 'G' ISO 228
- NPT Female

N.B. Fig. 904 is not available with flanged connections.

APPROVALS



Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Rhodes assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.

Gorgon Project

The largest single resource development in Australia's history and one of the world's largest natural gas projects.

Customer: Barton Firtop.

Client: Chevron and Exxon Mobil

Location: Barrow Island, Western Australia

Rhodes supplied several Type A Sight Glasses from 80mm up to 200mm in Carbon Steel and Stainless Steel.



© Chevron Australia

Fig. 913 Straight Through Sight Flow Indicator with Integral Spout - Cast Iron

This two sided flow indicator features an integral spout that produces a jetting action for turbulent flow thereby improving the viewing of clear liquids.

FEATURES & BENEFITS

- The large viewing area allows the flow, colour and condition of the liquid to be observed, enabling the monitoring of product quality and consistency.
- This indicator is suitable for both vertical and horizontal installation. The inclusion of a spout allows for use as a drip indicator to show valve leaks, distillation or similar conditions.
- Available with flanged end connections, see table for further detail.

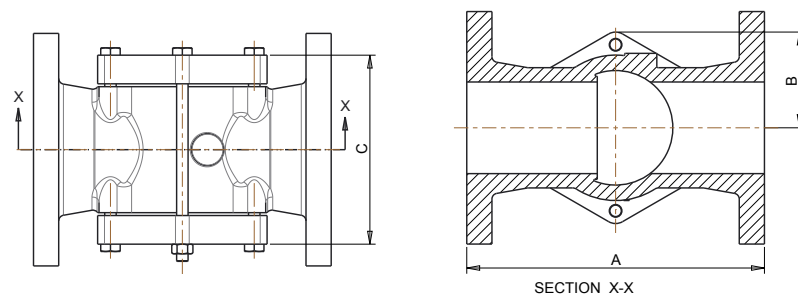
For product application please refer to pages 30 and 31.

TEMPERATURE RATINGS

Max Pressure 16 Barg	Min. Temperature	Max. Temperature
	0°C	180°C

DIMENSIONS

Flanged (mm)	Length A (mm)	Max Height from Centre B (mm)	Max Width C (mm)	Weight (kg)
25	140	38	94	3.5
40	180	45	120	6.5
50	220	56	135	10.5
80	260	86	186	20.5
100	310	94	224	35.5



MATERIALS OF CONSTRUCTION

ITEM NO.	DESCRIPTION	BODY MATERIAL	MATERIAL	QTY
1	Body	Cast Iron	BS EN 1561 EN-GJL-250	1
2	Cover	Mild Steel	BS EN 10025 S355 J2G3	2
3	Glass Disc	Toughened Soda Lime	BS3463	2
		Toughened Borosilicate	DIN7080	
4	Nut	Mild Steel Zinc Plated		4
5	Bolt	Mild Steel Zinc Plated (quantity depends on size)		4
6	Gasket	Nickel Reinforced Graphite		4
		PTFE		

END CONNECTIONS

FLANGED

- ANSI 150RF
- ANSI 150FF
- PN16 BS EN 1092
- Table D BS10
- Table E BS10
- Table F

N.B. Models 913 is not available with screwed ends.

APPROVALS

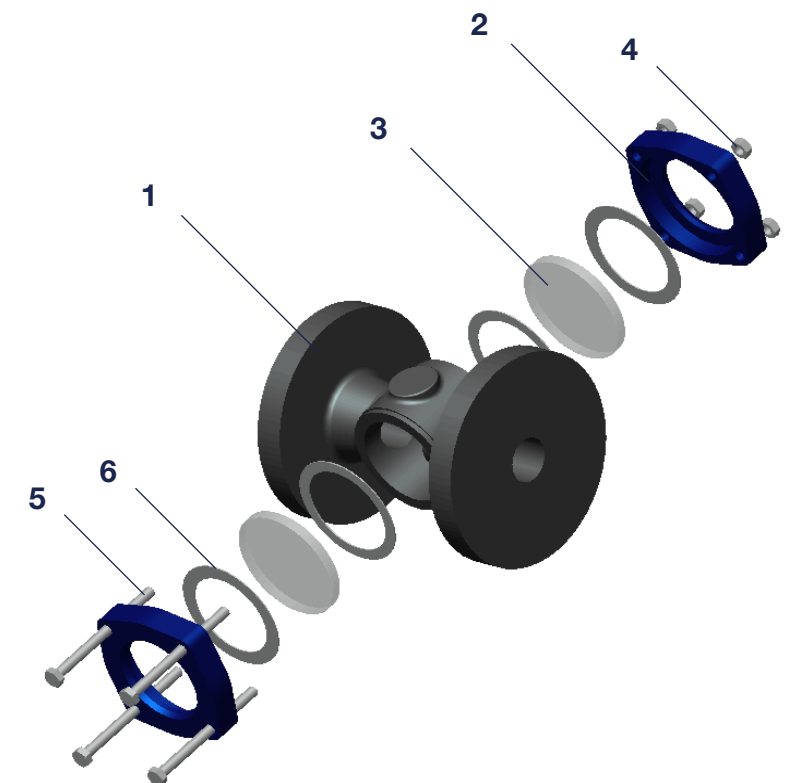


Fig. 923 Straight Through Sight Flow Indicator with Integral Spout - Carbon Steel

This two sided flow indicator features an integral spout that produces a jetting action for turbulent flow thereby improving the viewing of clear liquids.

FEATURES & BENEFITS

- The large viewing area allows the flow, colour and condition of the liquid to be observed, enabling monitoring of product quality and consistency.
- This indicator is suitable for both vertical and horizontal installation. The inclusion of a spout allows for use as a drip indicator to show valve leaks, distillation or similar conditions.
- Available with screwed and flanged end connections, see table below for further detail.

For product application please refer to pages 30 and 31.

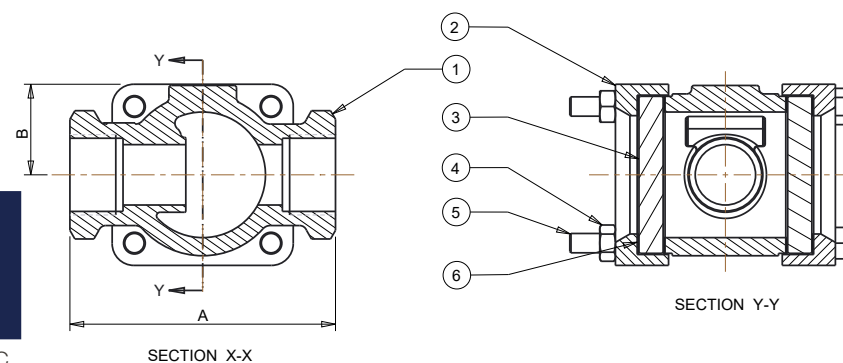
TEMPERATURE RATINGS

Materials			Temperature
Body	Covers & Bolting	Gaskets	
Carbon Steel	Mild Steel	NRG	-9.5°C to 250°C
	Mild Steel	PTFE	-9.5°C to 200°C

*At ambient temperature. Maximum pressure may be reduced by flange rating or by elevated temperatures. Please request further information if required.

DIMENSIONS

SCREWED					FLANGED				
Nominal Bore Size	Length A (mm)	Max Height from Centre B (mm)	Max Width C (mm)	Weight (kg)	Nominal Bore Size	Length A (mm)	Max Height from Centre B (mm)	Max Width C (mm)	Weight (kg)
15	90	30	80	0.9	25	140	38	94	3.5
20	90	30	80	0.9	40	180	45	120	6.5
25	110	38	94	1.7	50	220	56	135	10.5
40	130	45	120	3.1	80	260	86	186	20.5
50	170	56	135	5.8	100	310	94	224	35.5
					150	358	120	306	76



MATERIALS OF CONSTRUCTION

ITEM NO.	DESCRIPTION	BODY MATERIAL	MATERIAL	QTY
1	Body	Carbon Steel	ASTM A216 WCB	1
2	Cover	Mild Steel	BS EN 10025 S355 J2G3	2
3	Glass Disc	Toughened Soda Lime	BS3463	2
		Toughened Borosilicate	DIN 7080	
4	Gasket	Nickel Reinforced Graphite		4
		PTFE		
5	Bolts	Mild Steel Zinc Plated		4
6	Nuts	Mild Steel Zinc Plated		4

MAXIMUM RATINGS

Full Vacuum to 25 Bar

Dependent on connection type

END CONNECTIONS

SCREWED	FLANGED
<ul style="list-style-type: none"> BSP Taper 'Rc' BS EN 10226 BSP Parallel 'Rp' BS EN 10226 BSP Parallel 'G' ISO 228 NPT Buttweld ANSI B16.25 Socket Weld ANSI B16.11 	<ul style="list-style-type: none"> ANSI 150 RF ANSI 150 FF ANSI 300 RF PN16 BS EN 1092 PN25 BS EN 1092 Table E BS10 Table F BS10 Table H BS10

*Other end connections available on request.

APPROVALS

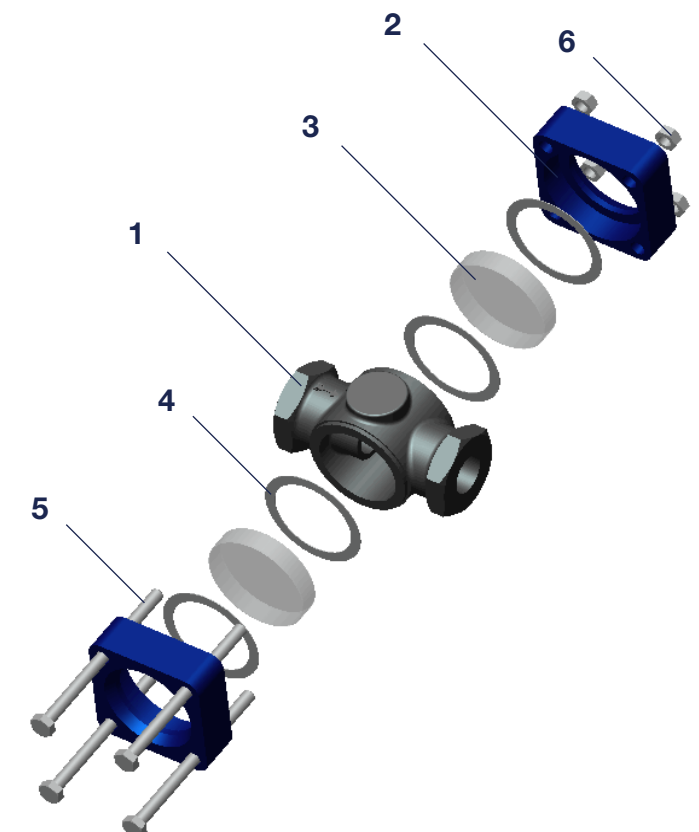


Fig.933 Straight Through Sight Flow Indicator with Integral Spout - Stainless Steel

This two sided flow indicator features an integral spout that produces a jetting action for turbulent flow thereby improving the viewing of clear liquids.

FEATURES & BENEFITS

- The large viewing area allows the flow, colour and condition of the liquid to be observed, enabling monitoring of product quality and consistency.
- This indicator is suitable for both vertical and horizontal installation. The inclusion of a spout allows for use as a drip indicator to show valve leaks, distillation or similar conditions.
- Available with screwed and flanged end connections, see table below for further detail.

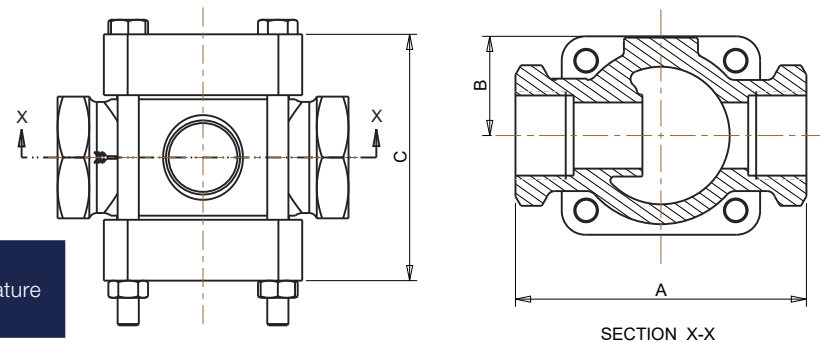
For product application please refer to pages 30 and 31.

TEMPERATURE RATINGS

Materials			Temperature
Body	Covers & Bolting	Gaskets	
Stainless Steel	Mild Steel	NRG	-9.5°C to 250°C
	Mild Steel	PTFE	-9.5°C to 200°C
	Stainless Steel	NRG	-150°C to 250°C
	Stainless Steel	PTFE	-150°C to 200°C

DIMENSIONS

SCREWED					FLANGED				
Screwed (mm)	Length A (mm)	Max Height from Centre B (mm)	Max Width C (mm)	Weight (kg)	Flanged (mm)	Length A (mm)	Max Height from Centre B (mm)	Max Width C (mm)	Weight (kg)
15	90	30	80	0.9	-	-	-	-	-
20	90	30	82	0.9	25	140	38	94	3.5
25	110	38	94	1.7	40	180	45	120	6.5
40	130	45	120	3.1	50	220	56	135	10.5
50	170	56	135	5.8	80	260	86	136	20.5
					100	310	94	224	35.5
					150	358	120	306	76



MATERIALS OF CONSTRUCTION

ITEM NO.	DESCRIPTION	BODY MATERIAL	MATERIAL	QTY
1	Body	Stainless Steel	ASTM A351 CF8M	1
2	Cover	Mild Steel	BS EN 10025 S355 J2G3	2
3	Glass Disc	Toughened Soda Lime	BS3463	2
		Toughened Borosilicate	DIN7080	
		Annealed Borosilicate	BS3463	
4	Nut	Mild Steel Zinc Plated / Stainless Steel		4
5	Bolt	Mild Steel Zinc Plated / Stainless Steel (quantity depends on size)		4
6	Gasket	Nickel Reinforced Graphite / PTFE		4

MAXIMUM RATINGS

Full Vacuum to 25 Bar

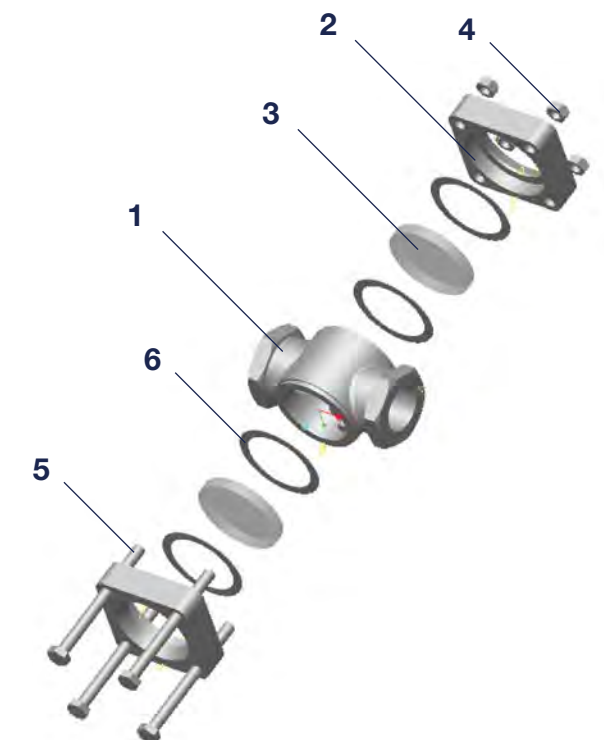
Dependent on connection type

END CONNECTIONS

SCREWED	FLANGED
<ul style="list-style-type: none"> • BSP Taper Female 'Rc' BS EN 10226 • BSP Parallel Female 'Rp' BS EN 10226 • BSP Parallel Female 'G' ISO 228 • NPT • Socket Weld • Butt Weld 	<ul style="list-style-type: none"> • ANSI 150 RF • ANSI 150 FF • ANSI 300 RF • PN16 BS EN 1092 • PN25 BS EN 1092 • Table E BS10 • Table F BS10 • Table H BS10

*Other end connections available on request.

APPROVALS



Additional Products

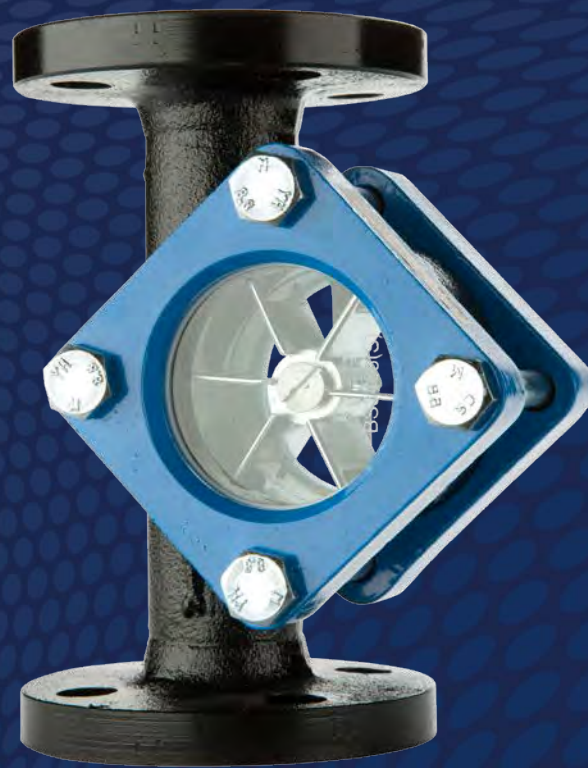


Fig.408 Straight Through Sight Flow Indicator with Spinner

This double sided sight flow indicator incorporates a simple paddle wheel spinner.

The rate at which the spinner rotates provides a visual indication of flow and fluctuation in flow. The stainless steel spinner and mounting pin provide excellent corrosion resistance.

The Fig.408 is particularly versatile as its design enables installation in both horizontal and vertical positions. Operating over a wide flow range it extends the duties of the smaller Fig.400 for larger pipework and higher pressures and temperatures.

This unit is available with a variety of standard screwed or flanged end connections. Size options range from 8mm to 50mm for screwed end connections and from 25mm to 100mm for flanged end connections. Other options include a choice of materials;

Body: Cast Iron, Gunmetal, Carbon Steel or Stainless Steel

Glass: Toughened Soda Lime or Toughened Borosilicate

Gaskets: Nickel Reinforced Graphite or PTFE

The Fig.914 sight flow indicator is a variant of the Fig.913, incorporating a stainless steel flap and scale plate, which has a scale reading from 1 to 10. The flap is hinged in place above the internal drip spout. As liquid flows through the unit the flap is forced to move through an arc.

The position of the flap in relation to the graduated scale-plate, indicates changes of the rate of flow of a liquid in a pipeline, from a drip to full flow conditions.

The internal stainless steel flap is electro polished to improve viewing in murky liquids. The Fig.914 is suitable for both horizontal and vertical upward flows.

Maximum working pressure: 16 Bar

Maximum working temperature: 180°C

This unit is available with a variety of standard screwed or flanged end connections. Other options include a choice of;

Glass: Toughened Soda Lime or Toughened Borosilicate

Gaskets: Nickel Reinforced Graphite or PTFE



Fig.914 Cast Iron Steel Straight Through Sight Flow Indicator with Flap and Scale Plate



Fig.924 Carbon Steel Straight Through Sight Flow Indicator with Flap and Scale Plate

The Fig.924 sight flow indicator is a variant of the Fig.923, incorporating a stainless steel flap and scale plate, which has a scale reading from 1 to 10. The flap is hinged in place above the internal drip spout. As liquid flows through the unit, the flap is forced to move through an arc.

The position of the flap in relation to the graduated scale-plate, indicates changes of the rate of flow of a liquid in a pipeline, from a drip to full flow conditions. The internal stainless steel flap is electro polished to improve viewing in murky liquids. The Fig.924 is suitable for both horizontal and vertical upward flows.

Maximum working pressure: 25 Bar

Maximum working temperature: 250°C

This unit is available with a variety of standard screwed or flanged end connections. Other options include a choice of;

Glass: Toughened Soda Lime or Toughened Borosilicate

Gaskets: Nickel Reinforced Graphite or PTFE

The Fig.934 Sight Flow Indicator is a variant of the Fig.933, incorporating a stainless steel flap and scale plate, which has a scale reading from 1 to 10. The flap is hinged in place above the internal drip spout. As liquid flows through the unit, the flap is forced to move through an arc.

The position of the flap in relation to the graduated scale-plate, indicates changes of the flow rate of a liquid in a pipeline, from a drip to full flow conditions. The internal stainless steel flap is electro polished to improve viewing in murky liquids. The Fig.934 is suitable for both horizontal and vertical upward flows.

Maximum working pressure: 25 Bar

Maximum working temperature: 250°C

This unit is available with a variety of standard screwed or flanged end connections.

Other options include a choice of;

Glass: Toughened Soda Lime or Toughened Borosilicate

Gaskets: Nickel Reinforced graphite or PTFE

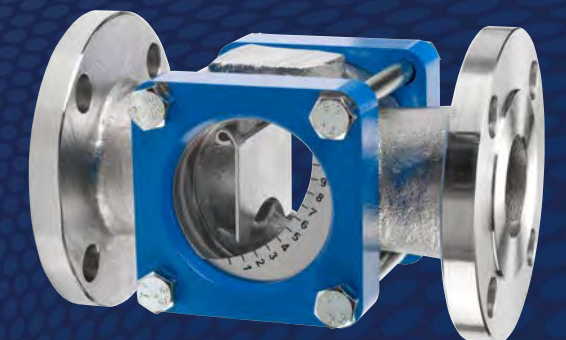


Fig.934 Stainless Steel Straight Through Sight Flow Indicator with Flap and Scale Plate



Type A Flow Indicator

The Type A enables operators to clearly see what is happening inside a pipe or a process vessel.

A simple, robust, straight through sight flow indicator, comprising a good quality cast body which is recessed to hold toughened glass windows on two sides.

The glasses are held in place by steel covers and high tensile bolts. The gaskets of this unit fit into the same recess as the glass windows and consequently cannot be blown out by excessive pressure.

This sight flow indicator is available with a variety of standard flanged end connections and size options range from 25mm to 200mm. Other options include a choice of materials;

Body: Cast Iron, Carbon Steel or Stainless Steel

Glass: Toughened Soda Lime or Toughened Borosilicate

Gaskets: Nickel Reinforced Graphite or PTFE

For any other required materials of construction and working pressures which are outside the ranges listed in the catalogue please get in touch with our sales team.

Product Application

Equipment / Application	Duty	Rhodes Model	Industry
PROTECTION AND PERFORMANCE OF EQUIPMENT			
Air Compressors - Small	Indicating flow in cooling water circuits	400, 408, 900 Series (Flap Type)	General manufacturing Vehicle workshops Public utilities
Air Compressors - Large	Indicating flow in cooling water circuits Indicating flow of oil to lubricating circuits for bearings (Including: High temperature)	408, 900 Series Type A	Heavy industry Large equipment mfg's Process Plants
Gas Compressors	Indicating flow in cooling water circuits Indicating flow of lubricating oil Protection of seal oil interface	408, 900 Series Type A	Oil and gas production platforms Oil and gas pipeline stations Ship loading
Turbine Generators	High and low flow rate water monitoring Indicating flow in cooling water circuits Flow balancing indication to generators Indicating filtration performance Indicating condensate flow	900 Series (Flap Type) 900 Series (Straight Through) Type A	Power generation Land and marine
Engines	Indicating flow in cooling water circuits Monitoring fuel feed lines Indicating lubrication oil flows to bearings Indicating drain line flow	400, 408 900 Series (Flap Type) 900 Series (Straight Through) Type A	Power generation Land and marine Shipping Fire protection
Welding Machines & Robotics	Indicating flow to electrodes	400, 408 900 Series (Flap Type)	Motor Industry Domestic Appliance Manufacture
Injection Moulding Machines	Indicating flow of heating and cooling circuit fluids	400, 408 900 Series (Flap Type)	Component Mfg Food packaging Product packaging
Cavity Wall Injection Machines	Indicating balance of flows of liquids	400	Industrial and domestic premises (energy conservation)
Furnaces	Indicating flow in cooling water circuits Flow balancing indication	400,408 900 Series (Flap type)	Metal Processing
Rolling Mills	Indicating flow of lubrication oil Indicating cooling water flow to dies and quenching water processes	900 Series Type A	Steel Industry
Paper making machinery	Indicating flow in condensate detection and recovery lines	900 Series Type A	Paper, board and compressed fibre manufacture
Boilers	Indicating boiler feed water flow Dosing additive flow indication Condensate detection and recovery Indicating oil flow	400, 408 900 Series Type A	Industrial and commercial H&V Laundries Process plants
Dry cleaning machines	Indicating flow from filters Indicating flow of cleaning agents	900 Series (Flap Type)	Industrial laundries Dry cleaners

Equipment / Application	Duty	Rhodes Model	Industry
PROCESS INDICATION			
Refining Catalyst reaction Heating vessels	Indicating colour change due to heating or catalyst action	900 Series (Straight Through) Type A	Sugar Food processing Pharmaceutical Oil refining Chemical Blending
Fryers Filter Banks Liquid Recovery Plant Blending Fermenting	Indicating filter failure (Indicating quality of product)	900 Series (Straight Through) Type A	Food processing Brewing Soft drinks Edible oils Water treatment Pulp and paper Chemicals Cement, ore and metal processing
Process pipelines Temperature control Vessel Evacuation	Indicating two phase flow (eg: bubbles through liquids)	900 Series (Straight Through) Type A	Power generation Food processing chemical production Flavour and colouring Dairy Brewing
Process vessels Temperature control Ingredient Controls Blending	Indicating viscosity change and media expansion Indicating completion of process cycles	900 Series (Straight Through) Type A	Plastic manufacture Oil industry Paint and varnish Sealants and fillers Toiletries
Quality control in; Blending Dosing and ratio control Dye injection Ore processing Process Vessels	Indicating flow of feedstocks and particularly slurries	400, 900 Series Type A	All major process industries (Including man made fibres)
LIQUID STORAGE AND TRANSFER			
Marine loading and discharge of product and bunker Rail offloading of fuel, oil, gas oil and Nahptha. Pipeline transfer between storage Dye injection of finished product	Indicating liquid flow	400, 408 900 Series Type A	Petroleum production Oil refining Chemical blending and storage
Fire water distribution on fixed plant	Indicating flow of safety safety water system	900 Series Type A	Oil production Paper and pulp hazardous areas Chemical Plants
Foam monitors on vehicles	Indication of foam blending	900 Series Type A	Liquid storage depots, Airfields

BUILDING SERVICES

brownall®

The Brownall range of automatic air eliminators covers slow, medium and high pressure applications. They are suitable for use with water, aviation fuel, diesel and light oils.

The range is complemented by three-way vent valves, offering efficient performance and reliable service combined with potential savings in time and cost by simplifying the venting system for single/multi-boiler or calorifier installations. 01462 443277 or brownallsales@cranebsu.com



Hattersley®

For over 100 years the Hattersley brand has become synonymous with quality, reliability and excellent service. A variety of traditional valves, including ball, butterfly, check, gate and globe valves as well as a range of balancing solutions for constant & variable flow systems are available.

In addition there is a range of public health valves which includes thermal circulation valves which help to prevent Legionnaires' disease.

01473 277410 or uksales@hattersley.com



NABIC®

One of the UK's leading suppliers of gunmetal safety valves, NABIC has long been recognised as the industry standard for commercial and industrial hot water applications.

NABIC valves are ideal for hot water supply, heating, pump relief, bypass relief, outside installation and for use with different gases and liquids.

01462 443278 or nabicsales@cranebsu.com



CRANE®

FLUID SYSTEMS

Crane Fluid Systems has manufactured for more than 90 years a range of malleable iron and bronze pipe fittings, traditional valves, as well as a range of commissioning valves for static and variable flow systems which includes a PICV terminal unit range.

01473 277300 or enquiries@cranebsu.com



IAT Ingolstadt Armaturen is a brand of specialised water safety valves which were originally developed in Ingolstadt, Germany in the 1960s for the prevention of contamination of potable water by industrial, commercial or domestic activities.

01462 443 220 or iatsales@cranebsu.com



Wade®

An extensive range of low and medium pressure brass compression fittings, needle valves and accessories.

The range also covers SISTEM-P and compact push in fittings, nickel plated BSP fittings, silencers, safety relief valves for compressed air, nylon and copper tubing.

01473 277 460 or wadesales@cranebsu.com



GAS UTILITIES

SPERRYN GAS CONTROLS®

Sperryn is a leading supplier of meter installation kits and emergency control valves for domestic, commercial and industrial applications. Using the latest design facilities and technologies, Sperryn regulators offer increased capacity, accuracy and lower pressure drops.

01462 443 226 or sperrysales@cranebsu.com



WASK®

Market leader in the supply of specialist mains and service fittings, along with pipeline equipment of the highest quality, WASK is renowned in the global gas distribution market. WASK Teeset and bagging off equipment has become a standard in the UK gas industry and in many markets overseas.

Latest additions to the range include a unique riser and lateral modular system which allows PE pipework to supply gas into single or multiple occupancy dwellings.

01462 443 225 or sales@wask-uk.com



WATER UTILITIES

POSIFLEX®

PosiFlex expansion joints provide relief for piping system stress caused by thermal and mechanical vibration and/or movement, and can also be utilised to overcome problems of noise.

These flexible connectors are fabricated from a wide range of rubber compounds, open or filled, single or multiple arch and are designed to accommodate the needs of individual pipe systems moving materials as diverse as fluids, foodstuffs, chemicals or crude oil.

01462 443131 or info@posiflex.co.uk



VIKING JOHNSON®

Viking Johnson is a world leader in the manufacture and supply of couplings, flange adaptors, pipe repair and jointing solutions for the international water, wastewater, gas and industrial markets.

Products are suitable for dedicated and wide tolerance application ranging from 15mm to 5000mm in diameter, and can be used to connect or repair many types of pipe material.

01462 443322 or info@vikingjohnson.com



Notes

[illegible]

RHODES™

46-48 WILBURY WAY, HITCHIN,
HERTFORDSHIRE, SG4 0UD

TEL: +44 (0) 1462 443 277

FAX: +44 (0) 1462 443 127

E-MAIL: rhodesales@cranebsu.com

www.rhodesflow.com



ISO 14001 Reg No. EMS 78657

- Designed & manufactured under quality management systems in accordance with BS EN ISO 9001:2008

Every effort has been made to ensure that the information contained in this publication is accurate at the time of publishing. Rhodes assumes no responsibility or liability for typographical errors or omissions or for any misinterpretation of the information within the publication and reserves the right to change without notice.



To visit our Video Library go to:
www.youtube.com/user/CraneBSU

R_SFGFL_0117

The Widest Selection The Clearest View

CRANE

BUILDING SERVICES & UTILITIES

www.cranebssu.com