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CRP Limited is a leading company in the manufacture and marketing of quality PTFE and fluoropolymer lined process equipment used for handling dangerous and corrosive media or where hygiene requirements are paramount.

Since the business was formed in 1983 it has grown into a multi-million pound company employing nearly 100 people and offering our customer base a "process package" turnkey capability for an extensive range of equipment to the process industries.

CRP is able to manufacture and line a comprehensive range of equipment including piping, fittings, dip pipes, valves, sampling systems and associated ancillary equipment. The CRP Non Glass Sight Glass has become a UK industry standard in the food and beverage industry wherever a robust shatterproof visual product flow or level indicator is required. CRP is a leading UK processor of fluoropolymer lined products for the process and allied industries.

The company is certified to ISO9000, the standard for quality management and assurance in design, development, production, installation and servicing.

### **Application Information - Chemical Resistance**

The plastics utilised by CRP are used primarily as barriers to chemical attack. They are principally used inside metallic housings to protect the metal structure and prevent contamination of the process media. Many components lined by CRP are used in highly critical applications where conventional materials are attacked by the process media.

### **Manufacturing Technology**

CRP uses the latest manufacturing and QA control technology. Many of our processes have been designed in-house using our experience gained since 1985.

CRP has a programme of process investment unmatched in the industry. This includes state of the art PTFE paste extrusion manufacture and melt processable fluoropolymer production using both static and dynamic plastification transfer moulding. Equipment is available for the complete range of requirements from customised specials through batch manufacture to volume production.

### **Quality Control**

Full ISO 9000 certification is held by CRP which includes product design and development. CRP is capable of assisting customers in achieving compliance to the pressure equipment directive where appropriate.

Components, materials and processes can all be certified to European standards and traceability can be undertaken from component to product and vice versa to the appropriate batch or unit level. All of this is structured within our ISO 9000 approved quality system. CRP also has experience in assisting customers to achieve environmental standards and obtain approvals.

CRP has a philosophy of working with our suppliers to help them to ensure their quality systems are suitable for our requirements and regular formal appraisals are a key part of this.

### **E-Commerce Capability**

As a very service driven company, CRP has recognised the potential positive impact of the various areas of e-commerce that are becoming available. Our strategy is to be at the forefront of the technology and to be offering solutions to our existing and potential new customers that enable more cost effective and faster ways of transmitting business.

We have built a package that allows customers with whom we have supply agreements the ability to provide their own project costings through "self-quotations", to place orders and to check stock availability and pay for the goods electronically. This is available via our web site which is used as a gateway.

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To compliment our lined pipe and fittings product range, CRP has within its portfolio a range of valves and sightglasses. These products have been derived from years of research and development coupled with CRP's commitment to supply the highest performance products into the most demanding processes. The applications for these products are diverse from water treatment plants to handling highly corrosive or toxic chemicals at temperatures up to 200 degrees C. They are found extensively in use in petrochemical and pharmaceutical plants, chemical processors and pulp and paper industries.

Where you demand nothing less than the highest levels of performance, reliability and safety from your critical plant equipment, trust CRP's range of lined equipment to provide the performance you require.

## Design Features

All CRP products utilise PTFE and PFA liners for all wetted parts to give maximum product lifetimes in corrosive processes. The products are suitable for services as low as -29 degrees C. up to a maximum of 200 degrees C. The PFA lined products are lined in accordance with ASTM D3307. The PTFE lined equipment to ASTM D1457 type III. CRP has not overlooked the exterior corrosion resistance required either with all exposed steelwork having a hard wearing paint protection system applied and all trim supplied manufactured from 304 stainless steel.

All of the products are designed with high vacuum performance in mind. Heavy wall liners, machined retention grooves and expanded mesh reinforcement are used in the products to provide long service life even under high vacuum forces. The products are also capable of working pressures of up to 19 bar g. Please consult individual product temperature / pressure curve for more information.

The CRP range of products are manufactured to ASME B16.5 class 150 flange dimensions. Face to face dimensions to DIN 3202/1 and API 609.

## Design for severe corrosive applications

All CRP products are manufactured from carbon steel either cast or machined with PTFE or PFA liner. The high mechanical stability of cast steel coupled with the corrosion resistance of the Fluoropolymer lining provides an excellent combination of materials for the manufacture of FluoroFlow products.

These factors make CRP valves particularly suitable for safe reliable operation in applications in petrochemical, pharmaceutical, desalination and water treatment industries. Their inherent smooth bores have non-stick properties ideally suited to the cosmetic, food processing and semiconductor manufacturing industries. They are a good alternative to valves manufactured from costly exotic materials. Their intrinsically safe design features provide increased protection for both the user and the environment.

## Product Identification

All CRP products are provided with a detailed identification plate which enables the end user to quickly identify the correct product for the required application and, when used in conjunction with the relevant temperature pressure curve, will indicate the maximum working capability of the individual product.

## Storage and Installation

It is important that fully lined equipment is correctly stored and installed. The lined mating faces are manufactured from relatively soft materials and must be protected from damage. All CRP mating faces are fitted with protective end boards before leaving the factory. These should only be removed immediately prior to installation. Upon installation the bolts must be tightened to the specific torque and checked with a torque wrench. It is recommended that all bolts are checked at least 24 hours after commissioning.

## Quality Control

Corrosion Resistant Products Limited is totally committed to quality and the management of quality as determined by ISO 9001, to which we have been accredited since 1992. The Company is particularly focused on providing a framework for planning, establishing and reviewing quality objectives, and for ensuring that these are communicated and understood throughout the organisation. All necessary written procedures, in accordance with standards in design, manufacture and supply of CRP products, are in place, to ensure complete product quality and integrity. During manufacture, products are subjected to quality inspections and tests, including dimensional, electrostatic and hydrostatic testing. Certificates of Conformity Compliance and Test can be supplied for any product. Additionally, if stated at time of order placement, a certification package can be supplied to the requirements of EN10204 type 3.1.

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The plastics used by CRP are used primarily as barriers to chemical attack. They are principally used inside metallic housings to protect the metal structure and prevent contamination of the process media. Many components lined by CRP are used in highly critical applications where conventional materials are attacked by the process media.

Ever since their discovery and subsequent development and introduction under the Teflon® trademark, fluoropolymers have demonstrated a versatility unmatched by any other engineering material. With a unique combination of properties fluoropolymer industrial linings have gained acceptance in a wide range of applications.

By combining heat resistance with almost total chemical inertness, excellent dielectric stability and a low coefficient of friction, fluoropolymer industrial coatings offer a balance of properties unbeatable by any other material. It's the original non stick finish. CRP has the resources to help you to solve your process problems.

### **Non Stick**

Very few solid substances will permanently adhere to a fluoropolymer finish. And while tacky materials may show some adhesion, almost all substances release easily.

### **Low Coefficient of Friction**

The dynamic coefficient of friction of fluoropolymers is generally in the range of 0.04 to 0.20, depending on the load, sliding speed and particular fluoropolymer used.

### **Non Wetting**

Since surfaces coated with fluoropolymers are both oleophobic and hydrophobic, they are not readily wet. Clean up is easier and more thorough - in many cases surfaces are self-cleaning.

### **Heat Resistance**

Fluoropolymer industrial linings can operate continuously at temperatures up to 200°C.

### **Unique Electrical Properties**

Over a wide range of frequencies fluoropolymers have high dielectric strength, low dissipation factor and very high surface resistivity. With the use of specific static-dissipating fluoropolymers linings can be produced to allow potentially dangerous electrical charges to pass to earth through the lining.

### **Chemical Resistance**

Fluoropolymers are almost universally chemically resistant. The only chemicals known to affect all fluoropolymer industrial coatings are molten alkali metals and highly reactive fluorinating agents.

### **Other Fluoropolymers**

CRP are able to manufacture products using other fluoropolymer materials including Anti-static PFA, FEP and ETFE (Tefzel). CRP is also a manufacturer of paste extruded PTFE products and fluoropolymer sheet lined products.

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**What is a check valve for?** Simply to prevent backflow of process media.

**Why use a check valve?** Limiting the backward flow in a piping system prevents the drainage of pipelines, the emptying of storage reservoirs and the reverse rotation of centrifugal pumps. Check valves can prevent product contamination, damage or contamination of the process plant and can also act as an additional safety device.

### **Selection of the correct type of check valve for application and duty is crucial**

The performance of any check valve is dependent on the quality of its design and the correct selection and application of the valve to a given duty. If a check valve has been incorrectly selected for a particular application, then it can become a dangerous component within a process piping system. This fact should not be taken lightly, particularly in situations where CRP's check valves are used. These are normally highly corrosive and dangerous chemical applications.

### **Wafer Poppet Check Valves**

This is a spring assisted valve type, ideally suited to low pressure duties where some resistance to initial flow is required and where spring assistance maintains the integrity of the seal against reverse flow. In this type of valve it is possible to customise some of the features of the valve to suit crucial duties such as vent lines and gas feed lines into chemical reactors.

### **Wafer Swing Check Valves**

The free-floating disc is actuated by the process flow and pressure. It is usually used on less critical duties and is particularly suitable for larger diameter applications and where maximum flow and capacity is also required. It can be fitted with soft seal seats where the process application allows.

### **Incorrect Application of Valve Design to Process Duty**

On many occasions the cause of poor performance in check valves has been directly identified as an incorrect choice of the type of valve for a particular duty. Such problems of performance are frequently resolved by simply changing the type of valve used to a more suitable design.

Typical application problems that plant engineers have to resolve are erosion and wear, leakage, pipeline blockage, spring failure, valve sticking open, ball or poppet distortion and high noise level, to name but a few. To obtain the best match of valve design to application, all elements should be considered before deciding on the valve design to be utilised.

### **Flanged Ball Check Valves**

This is a robust valve design; it is free of mechanical spring or plunger guiding mechanisms and is **only** suited to vertical applications. The floating ball is closed onto the sealing seat by the force of the liquid column on the downstream side of the valve. Seating is wholly dependent on gravity and the process pressure applied to the ball.

### **Conclusion**

Selection criteria is critical for check valves. Take into account application duty, media and process conditions before selecting the appropriate check valve design.

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# CTSG - Tubular Pipeline Sight Glass



The CTSG Sight Glasses unique construction provides full 360° process viewing. Manufactured from heavy wall borosilicate glass tube and PFA/PTFE lined flanges for use in the most demanding corrosive and toxic applications.



## Product Features

- Heat treated heavy wall borosilicate glass for managing high line pressures
- Parallel full port flow path prevents liquid retention or bug traps
- Stainless steel tie rods provide protection against side loads and mechanical damage
- Proven design offering safety and security

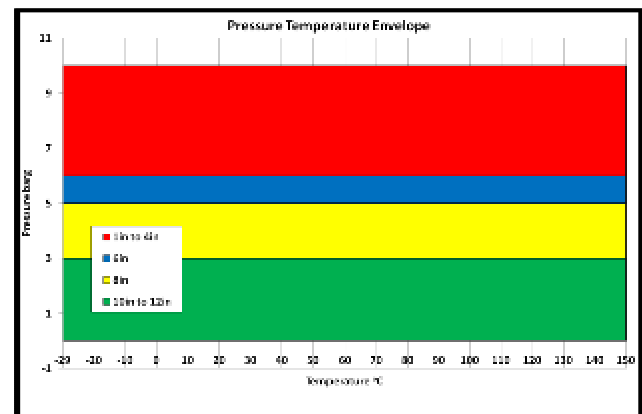
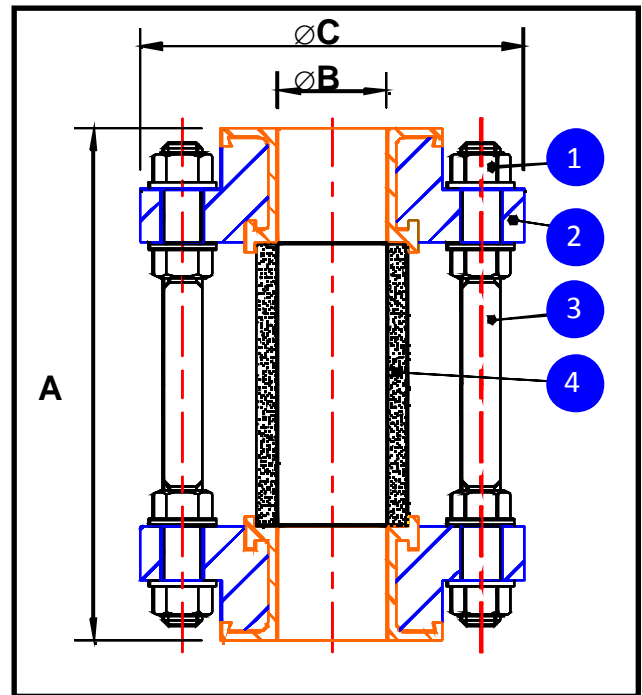
Materials Specification				
Item	Qty	Description	Materials	Specification
1	16/32/48	Nuts/Washers	Stainless Steel	ASTM F594 Gr. 304
2	2	Flange [1" to 6"] [DN25 to DN150]	Carbon Steel PFA	BS 1501-161-430A ASTM D3307
		Flange [8" to 12"] [DN200 to DN300]	Carbon Steel PTFE	BS 1501-161-430A ASTM D1457 Type III
3	4/8/12	Tie Rods	Stainless Steel	BS970 Pt.1 Gr.303S42
4	1	Glass Tube	Borosilicate Glass 3.3	ISO 3585
		Paint Finish	125µ Blue Semi-Gloss	Epoxy

Dimensions					
To Suit Pipework	Face to Face	Bore	Flange Diameter	Weight	Glass

ASME 150 Piping Systems							
Inches	mm	Dim A mm	Dim B mm	Dim C mm	Kg	od mm	Wall mm
1	25	152	20	108	3.5	30	4.5
1½	40	178	36	127	4.9	50	7.0
2	50	203	42	152	7.0	60	9.0
3	80	241	72	190	11.5	90	9.0
4	100	292	103	229	17.2	120	9.0
6	150	356	152	279	25.7	170	9.0
8	200	300	197	343		215	9.0
10	250	300	282	406		300	9.0
12	300	300	307	483		325	9.0

DIN PN 10 / 16 Piping Systems							
Inches	mm	Dim A mm	Dim B mm	Dim C mm	Kg	od mm	Wall mm
1	25	160	20	115	3.8	30	4.5
1½	40	200	36	150	5.5	50	7.0
2	50	230	42	165	8.3	60	9.0
3	80	310	72	200	12.0	90	9.0
4	100	350	103	220	18.5	120	9.0
6	150	480	152	285	29.3	170	9.0
8	200	300	197	340		215	9.0
10	250	300	282	395		300	9.0
12	300	300	307	445		325	9.0

Component	Description
Flanges	PFA lined and unlined stainless steel, or carbon steel, hygienic end connections - tri-clamp, RJT, SMS, DIN etc.
Shield	Perspex safety shield
Glass	Internally lined with FEP for caustic processes
Body	Flow disturbers and indicators, back lighting



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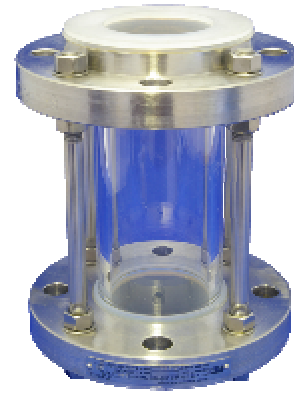
# DTSG - Separation Sight Glass



The DTSG Sight Glass is designed for easy integration into chemical separation process lines, where the process engineer requires an unhindered view of the system reaction.

## Product Features

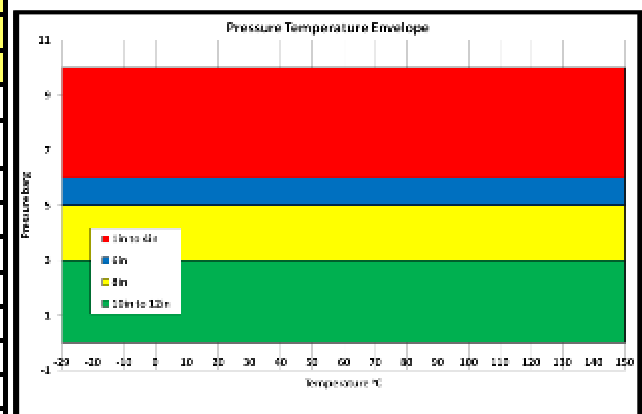
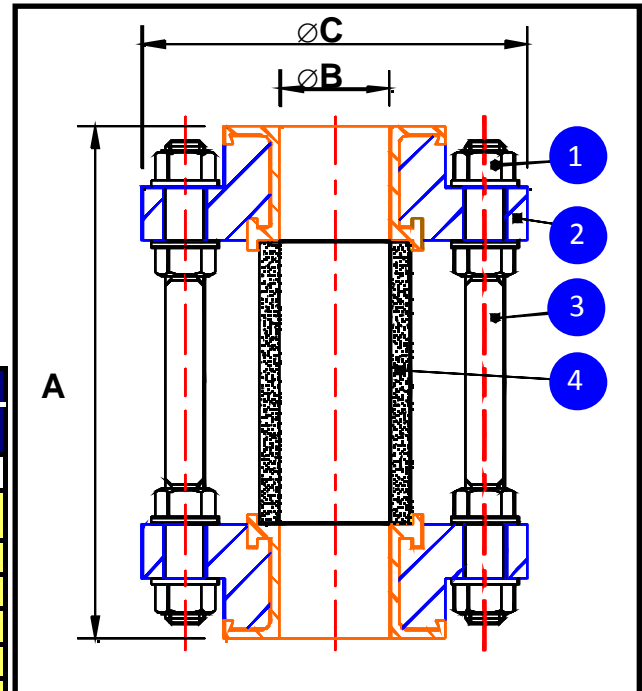
- Heat treated heavy wall borosilicate glass for managing high line pressures
- Parallel full port flow path prevents liquid retention or bug traps
- Stainless steel tie rods provide protection against side loads and mechanical damage
- Proven design offering safety and security



Shown here with PFA lined Stainless Steel Flange-

Materials Specification				
Item	Qty	Description	Materials	Specification
1	16/32/48	Nuts/Washers	Stainless Steel	ASTM F594 Gr. 304
2	2	Flange [1" to 6"] [DN25 to DN150]	Carbon Steel PFA	BS 1501-161-430A ASTM D3307
		Flange [8" to 12"] [DN200 to DN300]	Carbon Steel PTFE	BS 1501-161-430A ASTM D1457 Type III
3	4/8/12	Tie Rods	Stainless Steel	BS970 Pt.1 Gr.303S42
4	1	Glass Tube	Borosilicate Glass 3.3	ISO 3585
		Paint Finish	125µ Blue Semi-Gloss	Epoxy

Dimensions								
To Suit Pipework		Face to Face	Bore	Flange Diameter	Weight	Glass		
ASME 150 Piping Systems								
Inches	mm	Dim A mm Minimum	Dim A mm Maximum	Dim B mm	Dim C mm	Kg	od mm	Wall mm
1	25	105	1500	20	108	3.5	30	4.5
1½	40	105	1500	36	127	4.9	50	7.0
2	50	105	1500	42	152	7.0	60	9.0
3	80	115	1500	72	190	11.5	90	9.0
4	100	120	1500	103	229	17.2	120	9.0
6	150	120	1500	152	279	25.7	170	9.0
8	200	120	1000	197	343		215	9.0
10	250	150	1000	282	406		300	9.0
12	300	150	1000	307	483		325	9.0
DIN PN 10 / 16 Piping Systems								
Inches	mm	Dim A mm Minimum	Dim A mm Maximum	Dim B mm	Dim C mm	Kg	od mm	Wall mm
1	25	105	1500	20	115	3.8	30	4.5
1½	40	105	1500	36	150	5.5	50	7.0
2	50	105	1500	42	165	8.3	60	9.0
3	80	115	1500	72	200	12.0	90	9.0
4	100	120	1500	103	220	18.5	120	9.0
6	150	120	1500	152	285	29.3	170	9.0
8	200	120	1000	197	340		215	9.0
10	250	150	1000	282	395		300	9.0
12	300	150	1000	307	445		325	9.0



Options	
Component	Description
Flanges	PFA lined and unlined stainless steel, or carbon steel, hygienic end connections - tri-damp, RJT, SMS, DIN etc.
Shield	Perspex safety shield
Glass	Internally lined with FEP for caustic processes
Body	Flow disturbers and indicators, back lighting

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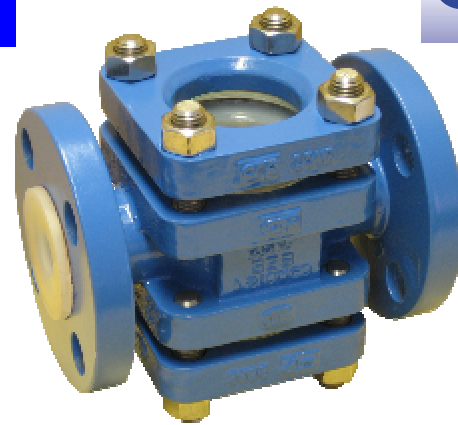
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# BESG - Bulls Eye Sight Glass



A high integrity Bulls Eye sight glass. Having a full bore viewing area through two borosilicate glass windows fitted 180 degrees apart. Lined in PFA ensuring high corrosion resistance.

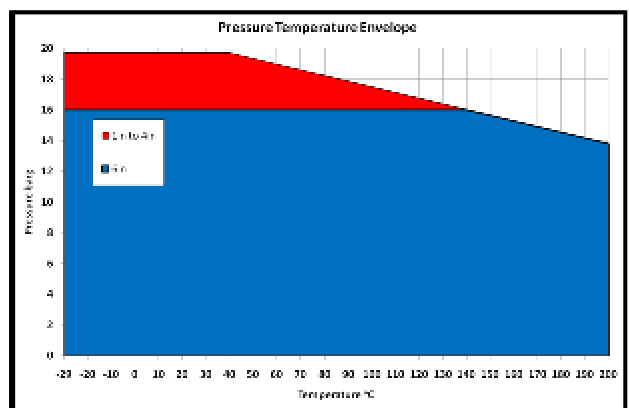
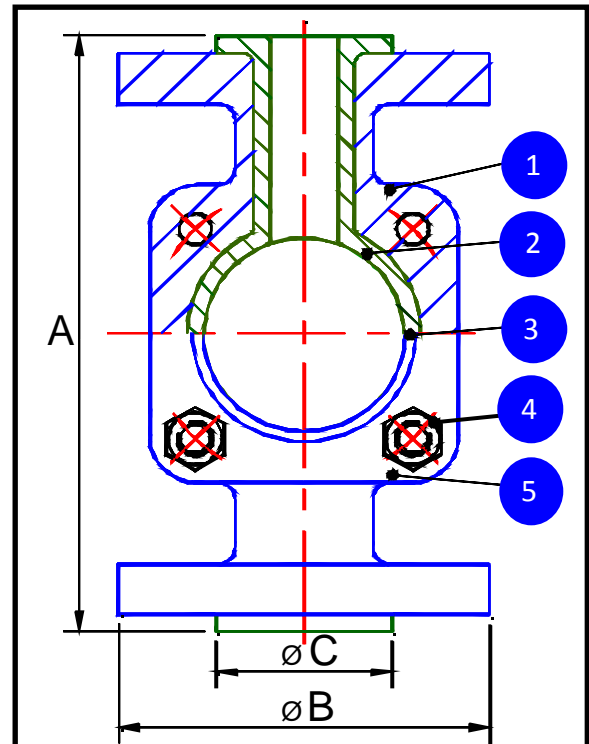


## Product Features

- PFA fluoropolymer lining and borosilicate glass for the most demanding chemical and thermal applications
- Full port design for maximum flow with minimal pressure drop
- Dual windows ensure clear viewing from both sides
- Heavy wall PFA liners provide the highest levels of performance. Operating from full vacuum to 19 Bar g at 200°C - higher than for

Materials Specification				
Item	Qty	Description	Cast Steel	Specification
1	1	Body	Carbon Steel	ASTMA216 Gr. WCB
2	2	Glass Window	Borosilicate Glass 3.3	DIN 7080
3	2	Gasket	Non Asbestos Fibre	
4	8/12	Nuts & Studs	Stainless Steel	BS970 Pt 1 Gr. 304S15
5	2	Window Flange	Carbon Steel PFA	ASTMA216 Gr. WCB ASTM D3307
		Paint Finish	125µ Blue Semi-Gloss	Epoxy

Dimensions						
To Suit Pipework	Face to Face	Flange Diameter	Sealing Face Diameter	Weight	Glass Thickness	
ASME 150 Piping Systems						
Inches	mm	Dim A mm	Dim B mm	Dim C mm	Kg	mm
1	25	152	108	51	4.3	15
1½	40	178	127	73	6.7	15
2	50	203	152	92	10.2	20
3	80	241	190	127	17.5	30
4	100	292	229	157	28.0	30
6	150	406	279	216	61.0	30
DIN PN 10 / 16 Piping Systems						
Inches	mm	Dim A mm	Dim B mm	Dim C mm	Kg	mm
1	25	160	115	68	5.0	15
1½	40	200	150	88	9.0	15
2	50	230	165	102	12.8	20
3	80	310	190	138	20.0	30
4	100	350	229	162	29.0	30
6	150	480	279	218	60.5	30



Options	
Component	Description
Liner	Antistatic
Extras	Viewing Lamp
Body	Flow disturbers and indicators, drip lip
Windows	Double window for added safety
	PFA / FEP lining for glass windows

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# TPSG - Tee Piece Sight Glass



A combined bulls eye sight glass and tee in one cost effective, dual purpose fitting. The unit allows for monitoring of process flow and mixture whilst offering considerable space saving.

## Product Features

- Significant cost savings with two products in one
- Space saving and flange joint reduction
- Face to face identical to a standard equal tee
- Viewing of different process streams from both sides
- Full port design for maximum flow with minimal pressure drop

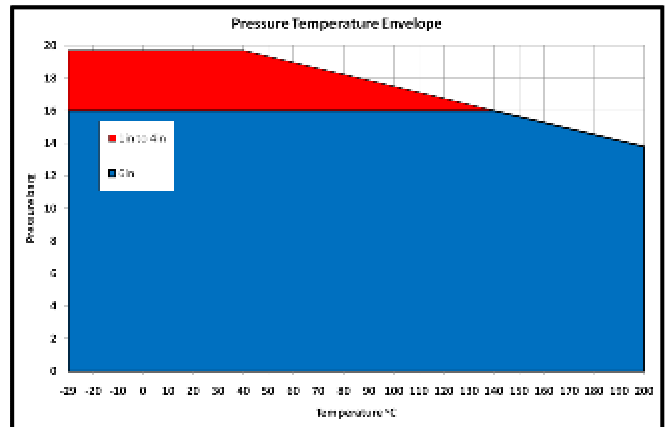
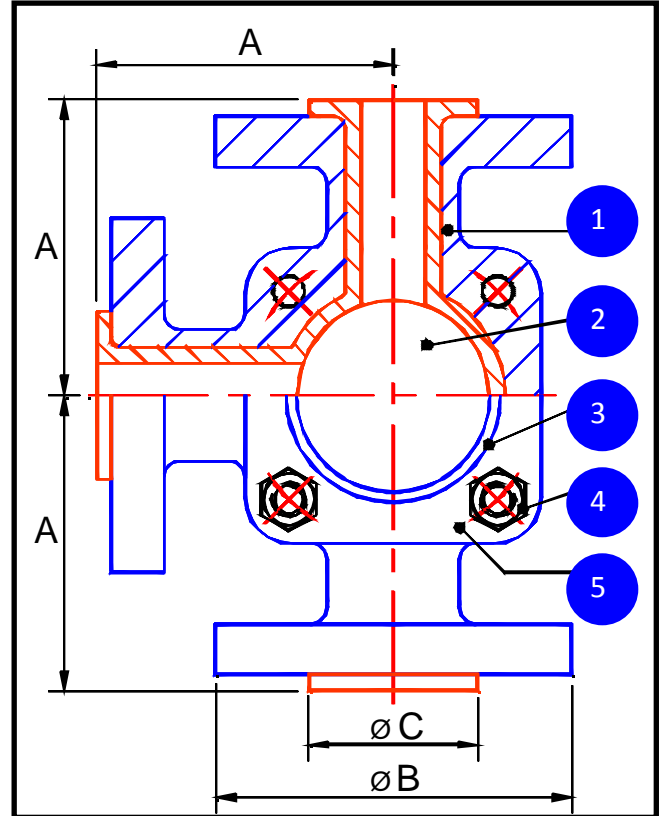
### Materials Specification

Item	Qty	Description	Materials	Specification
1	1	Body	Ductile Iron	ASTMA395
2	2	Glass Window	Borosilicate Glass 3.3	DIN 7080
3	2	Gasket	Non Asbestos Fibre	
4	4/8	Fasteners	Stainless Steel	BS970 Pt. 1 Gr. 304S15
5	2	Window Flange	Ductile Iron	ASTMA395
		Paint Finish	125µ Blue Semi-Gloss	Epoxy

### Dimensions

To suit Pipework		Face to Face	Flange Diameter	Sealing Face Diameter	Weight	Glass Thickness
ASME 150 Piping Systems						
Inches	mm	Dim A mm	Dim B mm	Dim C mm	Kg	mm
1	25	89	108	51	7.1	15
1½	40	102	127	73	11.2	15
2	50	114	152	92	19.0	20
3	80	140	190	127	27.5	30
4	100	165	229	157	48.7	30
6	150	203	279	216	96.0	30
DIN PN 10 / 16 Piping Systems						
Inches	mm	Dim A mm	Dim B mm	Dim C mm	Kg	mm
1	25	110	115	68	8.5	15
1½	40	150	150	88	13.0	15
2	50	120	165	102	21.0	20
3	80	165	200	138	30.0	30
4	100	205	220	162	51.0	30
6	150	285	285	218	92.0	30

Options	
Component	Description
Liner	Antistatic
Extras	Viewing Lamp
Body	Flow disturbers and indicators, Driplip
Windows	Double window for added safety
	PFA / FEP lining for glass windows



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# SPCV- Sight Glass Poppet Check Valve



The SPCV's unique design incorporates a spring assisted poppet check valve and a tubular sight glass in one space saving cost effective unit.

## Product Features

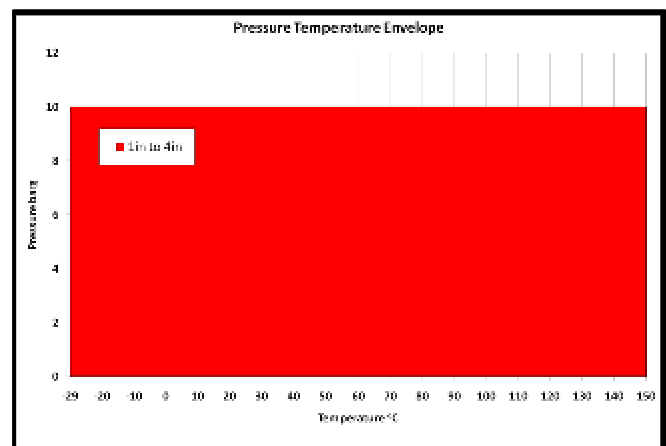
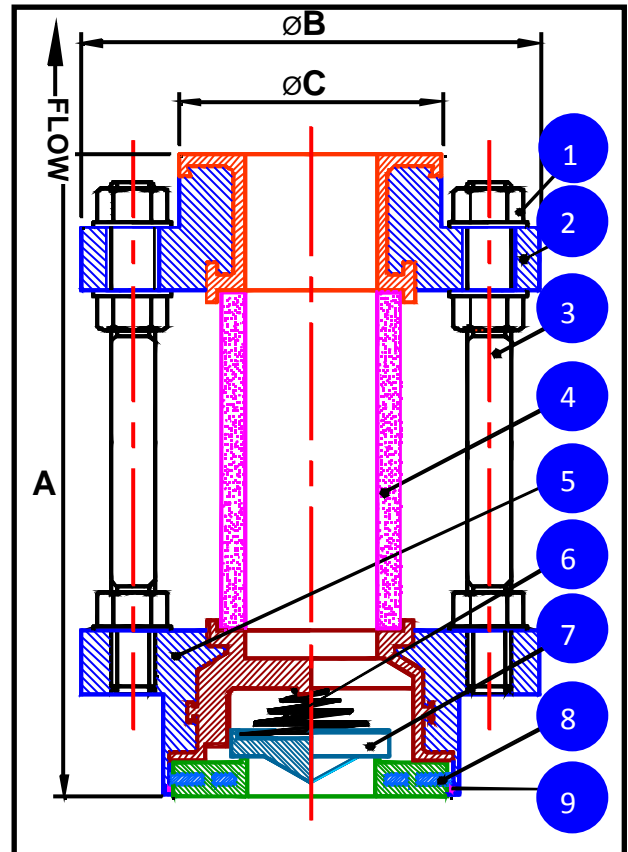
- Significant cost savings with two products in one
- Space saving and flange joint reduction
- Full 360 degree viewing of up and downstream process flow
- All the features of the WPCV and CTSG products



Material Specification				
Item	Qty	Description	Materials	Specification
1	12/12	Nuts/Washers	Stainless Steel	ASTM F594 Grade 304
2	1	Sight Glass Flange	Carbon Steel PFA	BS1501-161-430A ASTM D3307
3	4	Tie Rods	Stainless Steel	BS970 Pt. 1 Grade 303S42
4	1	Sight Glass Tube	Borosilicate Glass 3.3	ISO 3585
5	1	Valve Body	Carbon Steel PFA	BS1501-141-430A ASTM D3307
6	1	Spring	Hastelloy C276	ASTM B574 Grade UNSN10276
7	1	Poppet	PTFE	BS 6564 UA1/1
8	1	Seat Plate	Stainless Steel PFA	ASTM A240 Grade 304 ASTM D3307
9	1	Circlip	Stainless Steel	BS2056 Grade 316S42
		Paint Finish	125µ Blue Semi-Gloss	Epoxy

Dimensions							
To Suit Pipework		Face to Face	Flange Diameter	Sealing Face Diameter	Weight	Glass	
ASME 150 Piping Systems							
Inches	mm	Dim A mm	Dim B mm	Dim C mm	Kg	od mm	Wall mm
1	25	152	108	51	4.0	30	4.5
1½	40	178	127	73	6.0	50	7.0
2	50	203	152	92	9.0	60	9.0
3	80	241	190	127	15.0	90	9.0
4	100	292	229	152	23.0	120	9.0
DIN PN 10 / 16 Piping Systems							
Inches	mm	Dim A mm	Dim B mm	Dim C mm	Kg	od mm	Wall mm
1	25	160	115	51	4.0	30	4.5
1½	40	200	150	73	6.0	50	7.0
2	50	230	165	92	9.0	60	9.0
3	80	310	200	127	15.0	90	9.0
4	100	350	220	152	23.0	120	9.0

Options	
Component	Description
Flange ends	Stainless steel
Shield	Perspex safety shield
Length	Special face to face dimensions



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# BFSG— Ball Float Sight Glass



A combined heavy duty borosilicate sight glass with integral hollow ball check valve. For use in sampling systems and in preventing up stream contamination of vacuum lines or instrumentation.

## Product Features

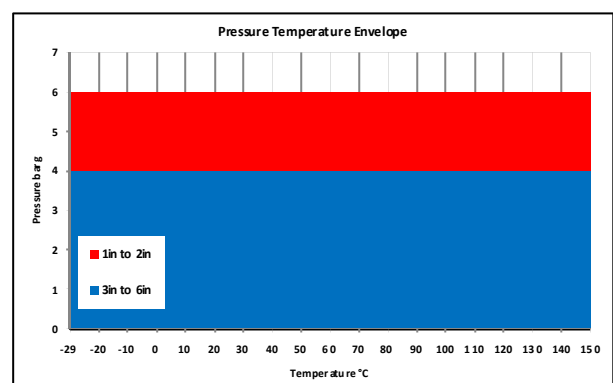
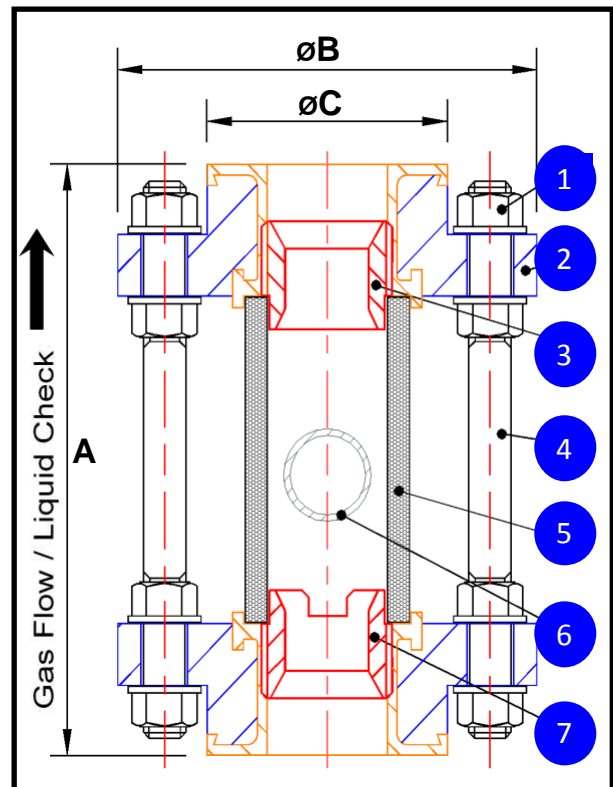
- Heat treated heavy wall borosilicate glass for managing high line pressures
- Parallel full port flow path prevents liquid retention or bug traps
- Stainless steel tie rods provide protection against side loads and mechanical damage
- Clear indication of the floating ball position



Materials Specification				
Item	Qty	Description	Materials	Specification
1	16/16	Nuts/Washers	Stainless Steel	ASTM F594 Gr. 304
2	2	Sight Glass Flange	Carbon Steel	BS1501-161-430A
3	1	Ball Seat	Glass Filled PTFE	BS6564 UA1/1
4	4	Tie Rod	Stainless Steel	BS970 Pt. 1 Gr. 303S42
5	1	Sight Glass Tube	Borosilicate Glass 3.3	ISO 3585
6	1	Hollow Ball	PTFE PFA	ASTM D1457 ASTM D3307
7	1	Castellated Ball Trap	Glass Filled PTFE	BS6564 UA1/1
		Paint Finish	125µ Blue Semi-Gloss	Epoxy

Dimensions							
To Suit Pipework		Face to Face	Flange Diameter	Sealing Face Diameter	Weight	Glass	
ASME 150 Piping Systems							
Inches	mm	Dim A mm	Dim B mm	Dim C mm	Kg	od mm	Wall mm
1	25	152	108	51	3.6	30	4.5
1½	40	178	127	73	5.0	50	7.0
2	50	203	152	92	7.2	60	9.0
3	80	241	190	127	11.6	90	9.0
4	100	292	229	157	17.4	120	9.0
6	150	356	279	215	26.0	170	9.0
DIN PN 10 / 16 Piping Systems							
Inches	mm	Dim A mm	Dim B mm	Dim C mm	Kg	od mm	Wall mm
1	25	160	115	68	4.0	30	4.5
1½	40	200	150	88	5.3	50	7.0
2	50	230	165	102	7.5	60	9.0
3	80	310	190	138	12.2	90	9.0
4	100	350	229	162	19.2	120	9.0
6	150	480	279	218	31.6	170	9.0

Options	
Component	Description
Flanges	PFA lined and unlined stainless steel, hygienic end connections - tri-clamp, RJT, SMS, DIN etc
Shield	Perspex safety shield
Glass	Internally lined with FEP for caustic processes
Body	Flow disturbers and indicators, back lighting



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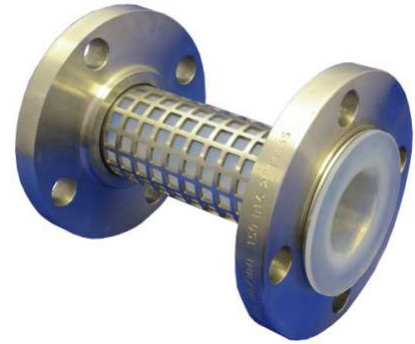
# FLSG- Fluoropolymer Lined Sight Glass



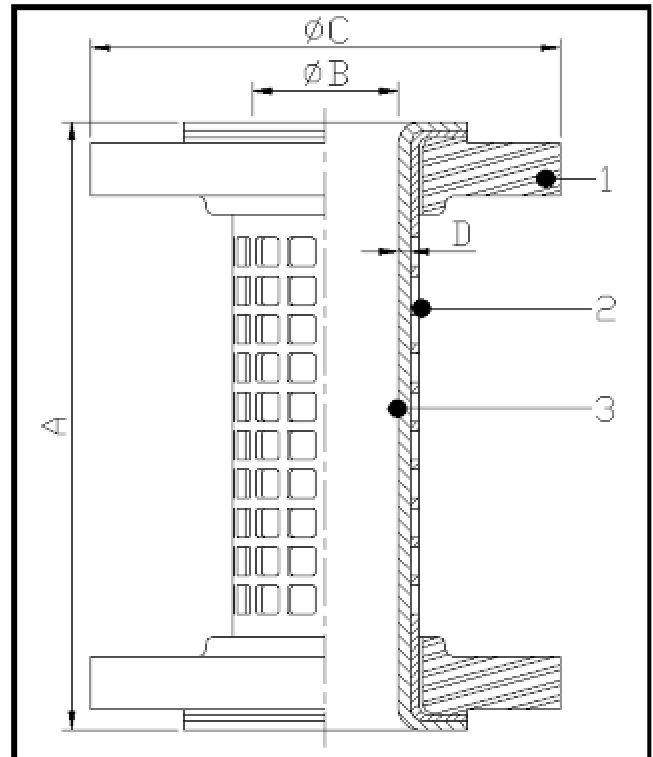
The FLSG Sight Glasses unique construction provides full 360° process viewing. Manufactured from stainless steel with a PFA lining.

## Product Features

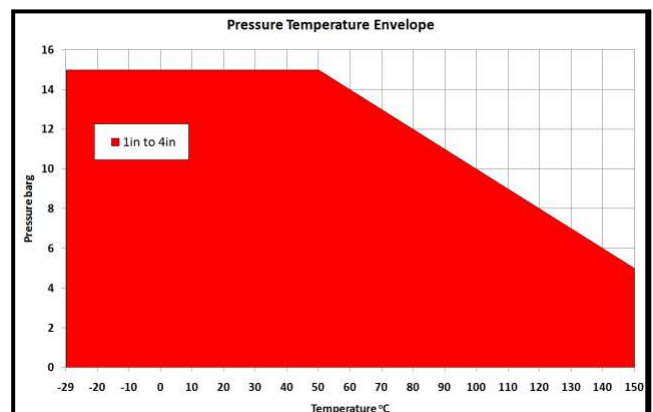
- Stainless steel support tube provides clear viewing whilst being capable of withstanding high pressures.
- Parallel full port flow path prevents liquid retention or bug traps.
- Shatterproof sight tube for maximum safety.
- Compatible with nearly all known chemicals.



Materials Specification				
Item	Qty	Description	Materials	Specification
1	2	Flange	Stainless Steel	ASTM A182 F304
2	1	Housing	Stainless Steel	ASTM A312 TP304
3	1	Liner	PFA	ASTM D3307



Dimensions						
To Suit Piping	Face to Face	Bore	Flange Diameter	Liner Thickness	Weight	
<b>ASME 150 Piping Systems</b>						
Inches	mm	Dim A mm	Dim B mm	Dim C mm	Dim D mm	Kg
1	25	200	22	108	3	2.2
1½	40	200	37	127	3	3.7
2	50	200	49	152	3	5.7
3	80	250	77	190	3	10.6
4	100	250	102	229	3	14.9
<b>DIN PN 10 / 16 Piping Systems</b>						
Inches	mm	Dim A mm	Dim B mm	Dim C mm	Dim D mm	Kg
1	25	200	22	115	3	2.8
1½	40	200	37	150	3	4.7
2	50	200	49	165	3	6.4
3	80	250	77	200	3	10.6
4	100	250	102	220	3	13.5



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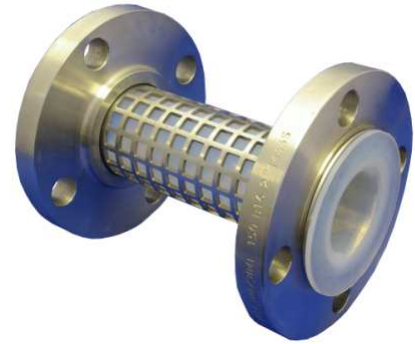
# SLSG- Special Length Sight Glass



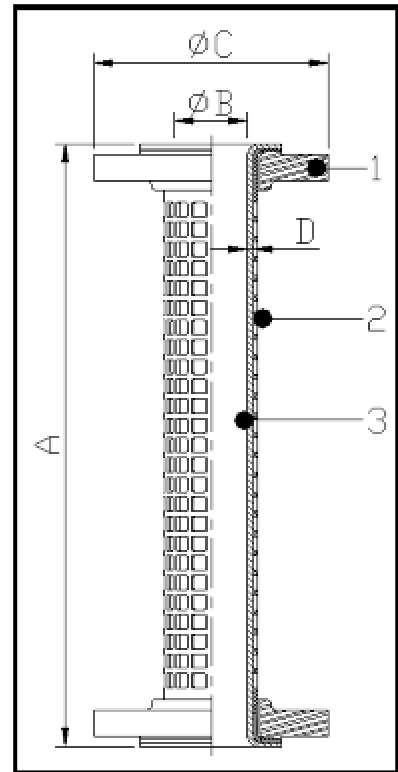
The SLSG Sight Glasses unique construction provides full 360° process viewing. Manufactured from stainless steel with a PFA lining. It is the same product as the FLSG, but available in customer specified lengths.

## Product Features

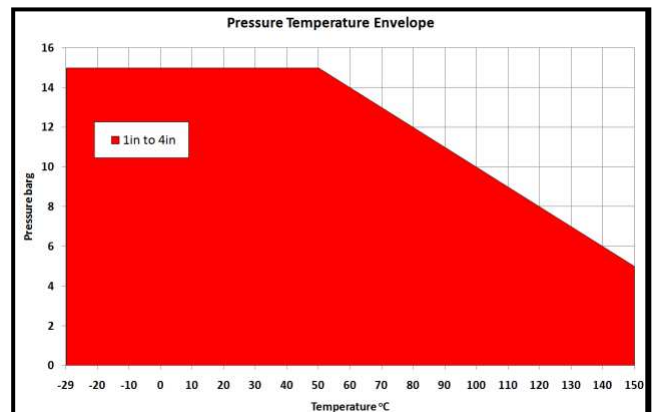
- Stainless steel support tube provides clear viewing whilst being capable of withstanding high pressures.
- Parallel full port flow path prevents liquid retention or bug traps.
- Shatterproof sight tube for maximum safety.
- Compatible with nearly all known chemicals.



Materials Specification				
Item	Qty	Description	Materials	Specification
1	2	Flange	Stainless Steel	ASTM A182 F304
2	1	Housing	Stainless Steel	ASTM A312 TP304
3	1	Liner	PFA	ASTM D3307



Dimensions						
To Suit Pipework		Face to Face		Bore	Flange Diameter	Liner Thickness
ASME 150 Piping Systems						
Inches	mm	Dim A mm minimum	Dim A mm maximum	Dim B mm	Dim C mm	Dim D mm
1	25	200	2800	22	108	3
1½	40	200	2800	37	127	3
2	50	200	2800	49	152	3
3	80	250	2800	72	190	3
4	100	250	2800	102	229	3
DIN PN 10 / 16 Piping Systems						
Inches	mm	Dim A mm minimum	Dim A mm maximum	Dim B mm	Dim C mm	Dim D mm
1	25	200	2800	22	115	3
1½	40	200	2800	37	150	3
2	50	200	2800	49	165	3
3	80	250	2800	72	200	3
4	100	250	2800	102	220	3



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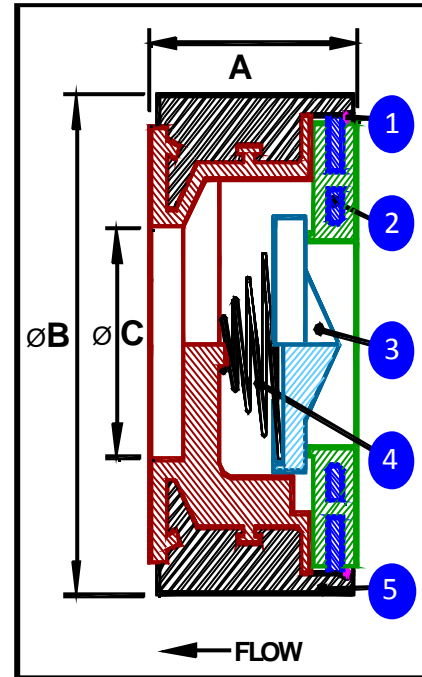
# WPCV - Wafer Poppet Check Valve



The WPCV check valve has a spring assisted poppet and a robust design suitable for a wide range of process applications. PFA, PTFE & Hastelloy to all wetted parts ensures long, high cycle performance.

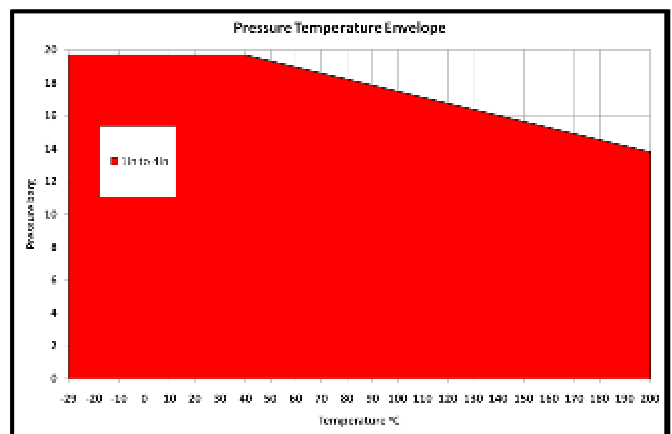
## Product Features

- Positively located spring and poppet - secure from misalignment
- Crush resistant design guards against installation abuse
- Ideal design for low pressure duties
- Full bore design provides maximum flow with minimum pressure drop
- Hastelloy C276 spring as standard - poppet lift pressure 14mBar
- Designed for easy disassembly



Materials Specification				
Item	Qty	Description	Materials	Specification
1	1	Circlip	Stainless Steel	BS2056 Gr. 316S42
2	1	Seat Plate	Stainless Steel PFA	ASTM A240 Gr. 304 ASTM D3307
3	1	Poppet	PTFE	BS6564 UA1/1
4	1	Spring	Hastelloy C276	ASTM B574 Gr. UNS N10276
5	1	Valve Body	Stainless Steel PFA	ASTM A240 Gr. 304 ASTM D3307

Dimensions						
To Suit Pipework		Face to Face	Valve Diameter ASME 150	Valve Diameter DIN PN 10/16	Valve Bore	Weight
Inches	mm	Dim A mm	Dim B mm	Dim B mm	Dim C mm	Kg
½	15	30	45	51	16	0.2
1	25	35	63	73	25	0.5
1½	40	45	82	92	36	1.1
2	50	56	101	107	50	1.7
3	80	71	133	142	66	3.5
4	100	80	171	162	88	5.3



Options	
Component	Description
Body	316 Stainless steel
Spring	Alternative pressure ratings
	PTFE encapsulated
	Alternative spring materials
	Spring removed (floating poppet)

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# FPCV - Flanged Poppet Check Valve



The FPCV check valve embodies all the features of the WPCV valve, with bolted flanged ends which provide standard valve face to face dimensions to suit either ASME or DIN process lines.

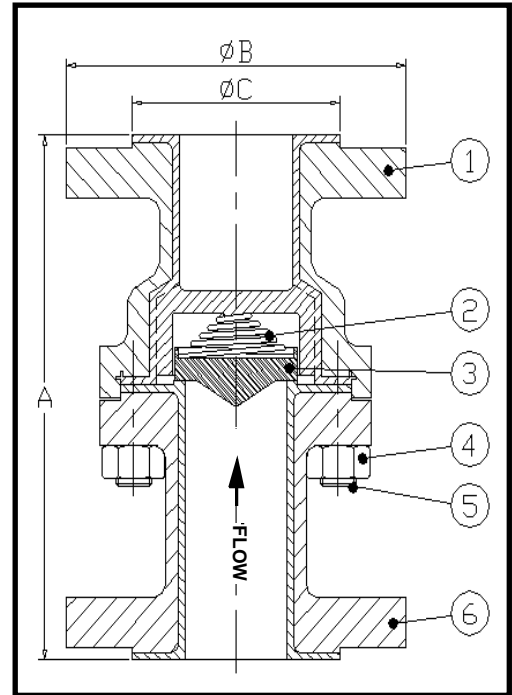


## Product Features

- Flanged connection for installations not compatible with the wafer design
- All the features of the WPCV
- Standard face to face dimensions
- Design suitable for both horizontal and vertical installation
- Poppet lift pressure (cracking) 14mBar - but customized ratings available

## Material Specification

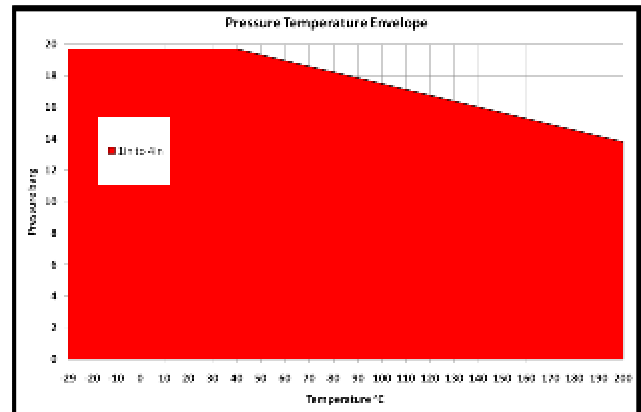
Item	Qty	Description	Materials	Specifications
1	1	Valve Body	Carbon Steel PFA	ASTM A216 Gr. WCB ASTM D3307
2	1	Spring	Has telloy C276	ASTM B574 Grade UNS N10276
3	1	Poppet	PTFE	BS6564 UA 1/1
4	4*	Nut	Stainless Steel	ASTM F594 Gr. 304
5	4*	Stud	Stainless Steel	BS970 Pt 1 Gr. 303S42
6	1	Valve Inlet	Carbon Steel PFA	ASTM A216 Gr. WCB ASTM D3307
		Paint Finish	125µ Blue Semi-Gloss	Epoxy



\* On the 3" and 4" NB valve there are 6 off studs and nuts

Dimensions					
Nominal Bore		Face-to-Face	Flange Diameter	Raised Face	Weight
Inches	mm	Dim A mm	Dim B mm	Dim C mm	kg
<b>ASME 150 Piping Systems</b>					
1	25	152	108	51	3
1½	40	178	127	73	7
2	50	203	152	92	10
3	80	241	190	127	18
4	100	292	229	152	28
<b>DIN PN10/16 Piping Systems*</b>					
1	25	160	115	51	4
1½	40	200	150	73	7
2	50	230	165	92	10
3	80	310	200	127	20
4	100	350	220	152	30

\* The DIN version of the valve is a fabricated construction



Options	
Component	Description
Body	Stainless steel
Length	Special face to face dimensions
Spring	Alternative pressure ratings PTFE encapsulated, alternative spring materials, spring removed (floating poppet)

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# STCV - Swing Check Valve

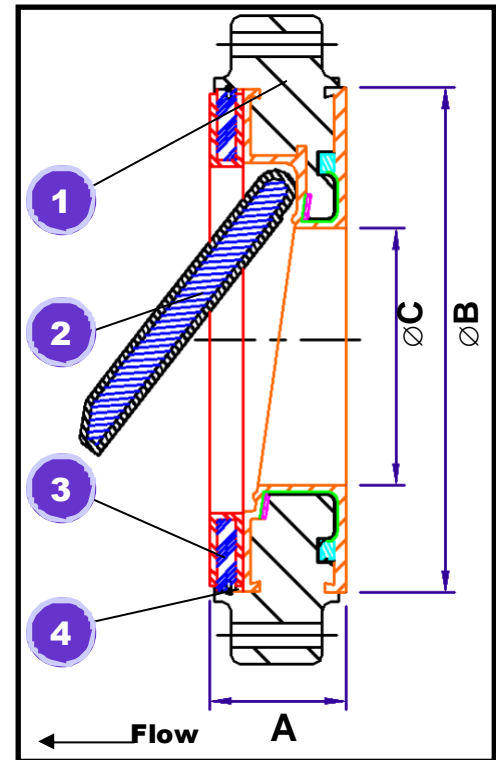


A high integrity PFA moulded wafer swing check valve, with fully encapsulated one piece disc / hinge assembly ensuring prolonged maintenance free service. Suitable for PTFE lined or unlined pipework in all severe process conditions.

## Product Features

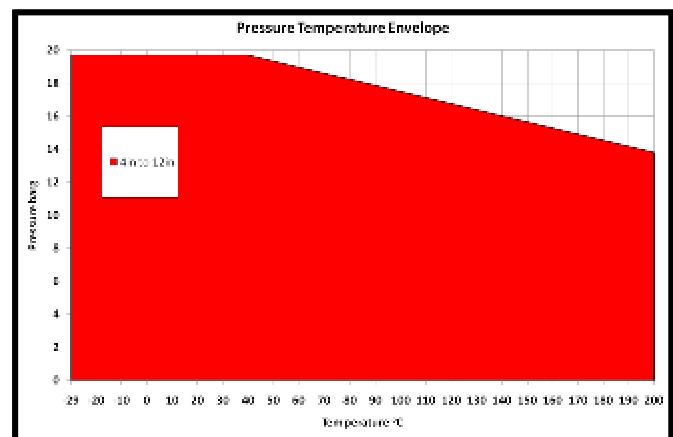
- Retained hinge design to aid installation and prevent disc removal in service
- Machined body T-slots and liner locking system securely holding liner in position
- Angled seat design ensures positive location in horizontal lines
- Virgin PFA with no pigmentation to hide defects
- Strong robust design

Materials Specification				
Item	Qty	Description	Materials	Specification
1	1	Body	Cast Steel PFA	ASTM A216 Gr WCB ASTM D3307
2	1	Disc	Cast Steel PFA	ASTM A216 Gr WCB ASTM D3307
3	1	Retaining Plate	Carbon Steel PFA	BS4360 Gr 43A ASTM D3307
4	1	Cirdip	Stainless Steel	BS2056 Gr 304S15
		Paint Finish	125µ Blue Semi-Gloss	Epoxy



Dimensions						
To Suit Pipework		Face to Face *	Valve Diameter ASME 150	Valve Diameter DIN PN 10/16	Valve Bore	Weight
Inches	mm	Dim A mm	Dim B mm	Dim B mm	Dim C mm	Kg
4	100	52	171	152	71.5	6.0
6	150	56	219	218	110	12.0
8	200	60	275	273	150	21.5
10	250	68	336	329	184	27.5
12	300	78	406	378/384	230	40.5

\* Face to Face dimensions in accordance with DIN3202/T3/K1 and API 609 standards



Options	
Component	Description
Body	Stainless steel
	Antistatic liner
Seat	Soft seats, Kalrez & Viton for gas applications

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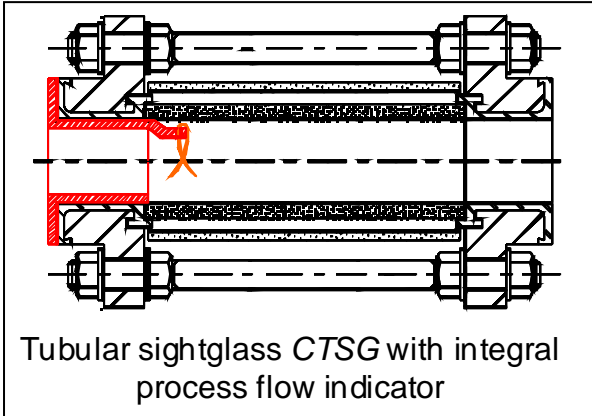
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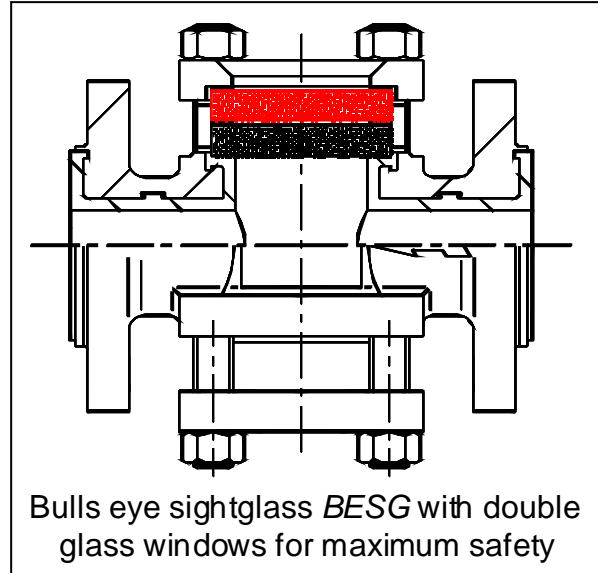
## Ancillary Equipment for Sightglass Products



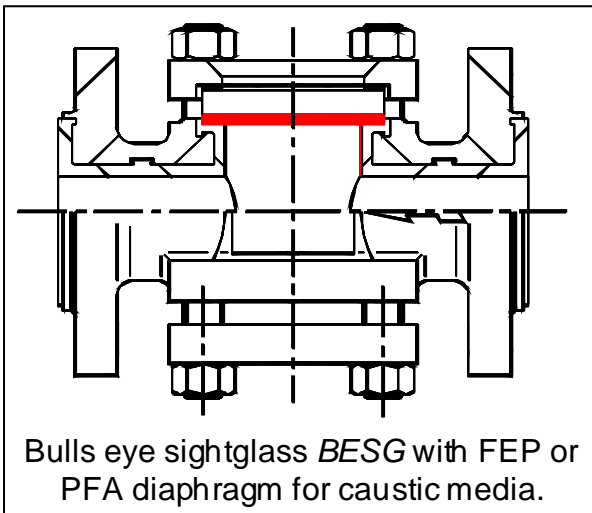
Both the tubular sight glass - CTSG and the Bulls eye sight glass - BESG can be supplied with a variety of ancillary equipment to provide additional functionality. Customised specials can be designed and manufactured to provide solutions to customers specific process problems.



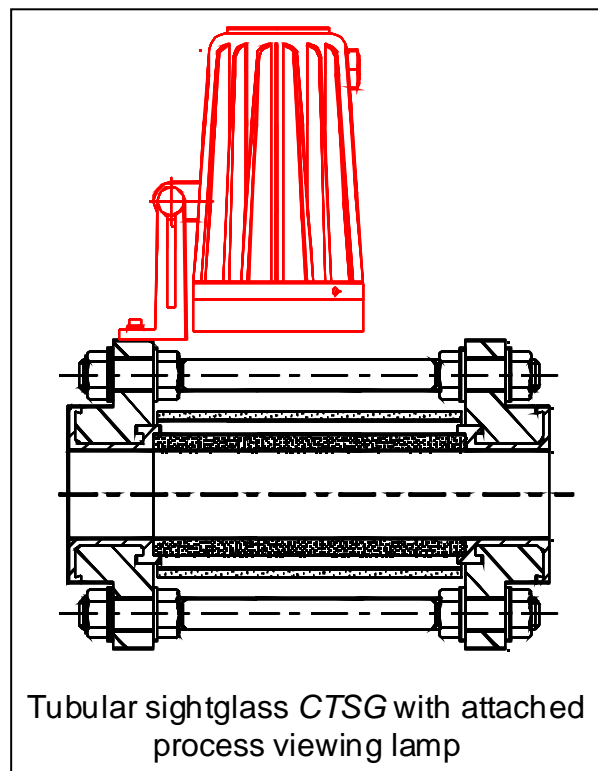
Tubular sightglass CTSG with integral process flow indicator



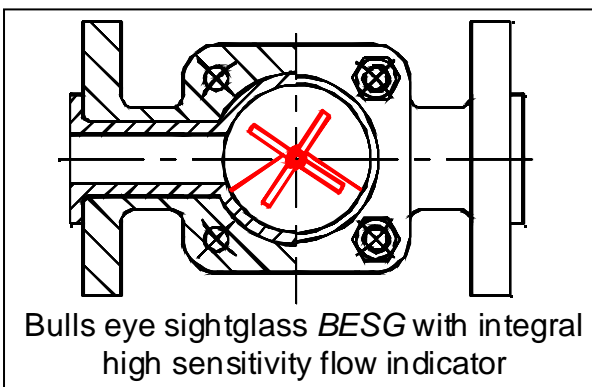
Bulls eye sightglass BESG with double glass windows for maximum safety



Bulls eye sightglass BESG with FEP or PFA diaphragm for caustic media.



Tubular sightglass CTSG with attached process viewing lamp



Bulls eye sightglass BESG with integral high sensitivity flow indicator

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