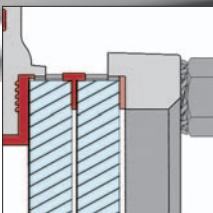
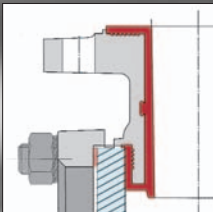


Richter Lined 2- and 3-way Sight Glasses

PSG, TSG, SGS, SR



Corrosion-resistant
PFA and PTFE lining

Indication of flow even at
very low flow rates

Optionally with integrated
check valve



RICHTER
Process Pumps & Valves

IDEX
FLUID & METERING

Richter Lined 2- and 3-way Sight Glasses

Observation of flow, filling level, condition, colour and gas contents of liquids in pipes and vessels and near pumps.

Richter sight glasses are designed

- for media where stainless steel and plastics such as PVC, PP, PVDF etc. are not adequately corrosion-resistant
- as alternative to valves made of special metals (Hastelloy, Monel, tantalum etc.) and to glass-lined valves
- for pure and slightly solids-laden media
- for metal-reactive media, e.g. H₂O₂
- for pure media where good cleaning possibilities and anti-adhesive surfaces are important.

Operating range

Depending on design and material

- -75 to 400 °F (-60 to 200 °C), series SGS max. 300 °F (150 °C)
- vacuum to 235 psi (16 bar), series SGS max. 87 psi (6 bar)
- horizontal to vertical installation

Product features

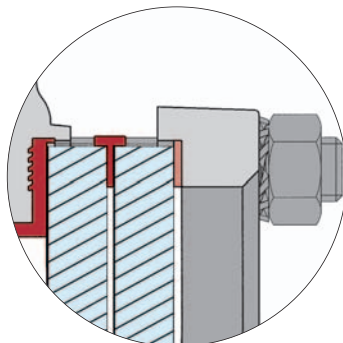
- Series PSG+TSG: very sturdy design, ductile cast iron with thick-walled lining
- Face-to-face lengths to ISO 5752 basic series 1 (DIN EN 558-1, basic series 1), SGS series additionally with face-to-face lengths up to 40" (1.000 mm) on request.
- Flange connecting dimensions: ISO 7005-2, shape B (DIN EN 1092-2, shape B), series PSG+TSG on request drilled to ASME (ANSI) Cl. 150
- Various other options, see page 5

Type codes for sight glasses

- 2-way design PSG/...
- 3-way design TSG/...
- 2-way cylindrical sight glass SGS/...

Lining

- Perfluoroalkoxy (PFA) and Polytetrafluoroethylene (PTFE) .../F
- Highly permeation-resistant PFA-P .../F-P
- Antistatic PFA-L .../F-L



Double sight glass panes

Other product features

- ① **Pressure-bearing shell made of ductile cast iron** ASTM A395 (EN-JS 1049) absorbs system and pipe forces.
- ② **Thick-walled lining made of virgin, pure PFA and PTFE**
 - Suitable for almost all media including corrosive, high-purity, hot and highly permeating media
 - Vacuum-resistant anchoring
 - Conductive and highly permeation-resistant linings optional
 - Universal use for a wide variety of media, also in multi-purpose and test plants
- ③ **Glass panes and cylinders**
 - Tempered borosilicate glass to DIN 7080
 - Large free field of vision
 - PSG+TSG series: sight glass panes and covers to DIN 3237-2, screwed individually to body
 - SGS series: cylindrical glass with all-round vision, optionally cavity-free for high-purity media
- ④ **Integrated drip lip with 1/2"-4" (DN 15-100)** also indicates very low flow rates.
- ⑤ **External corrosion protection** Epoxy coating, nuts and bolts of stainless steel.
- ⑥ **Identification** to ANSI B16.34, DIN EN 19
- ⑦ **European Pressure Equipment Directive** The sight glasses are suitable for vapours, gases, liquids of group 1.

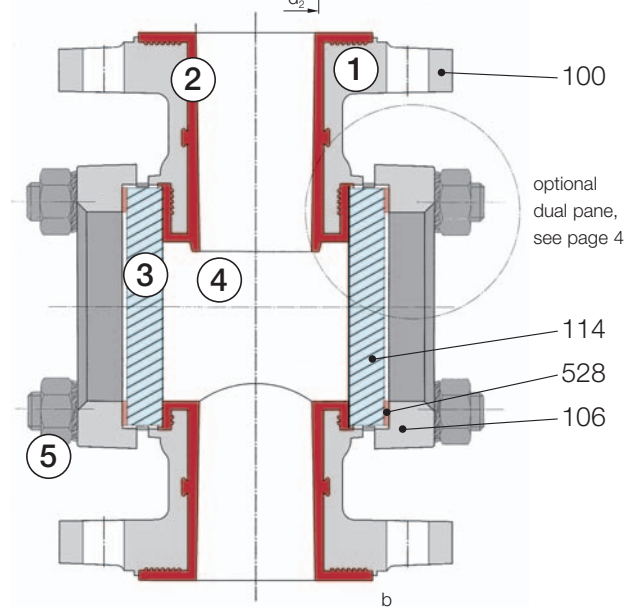
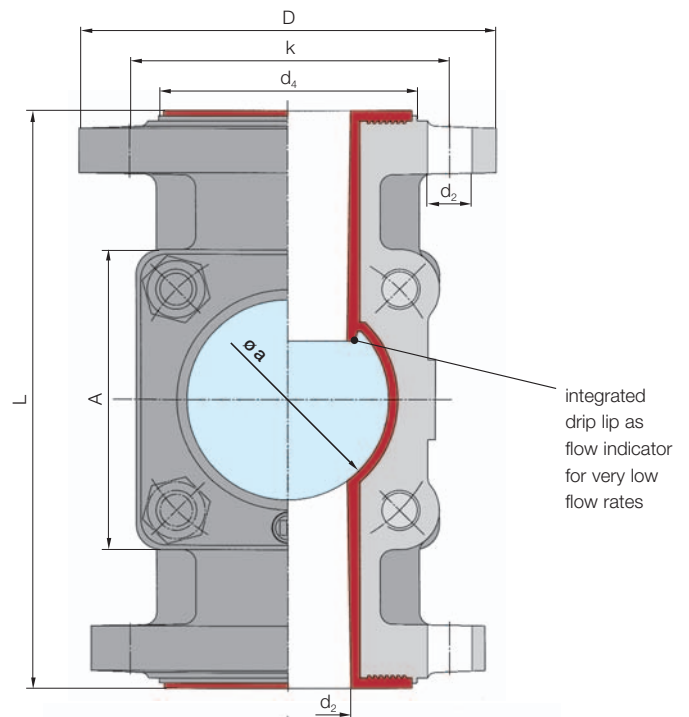
Options

- Double sight glass panes
- Lighting unit, e.g. for opaque media or poor lighting conditions
- Fluoroplastic coating of the wetted panes for greater chemical resistance

2-way sight glass

PSG series

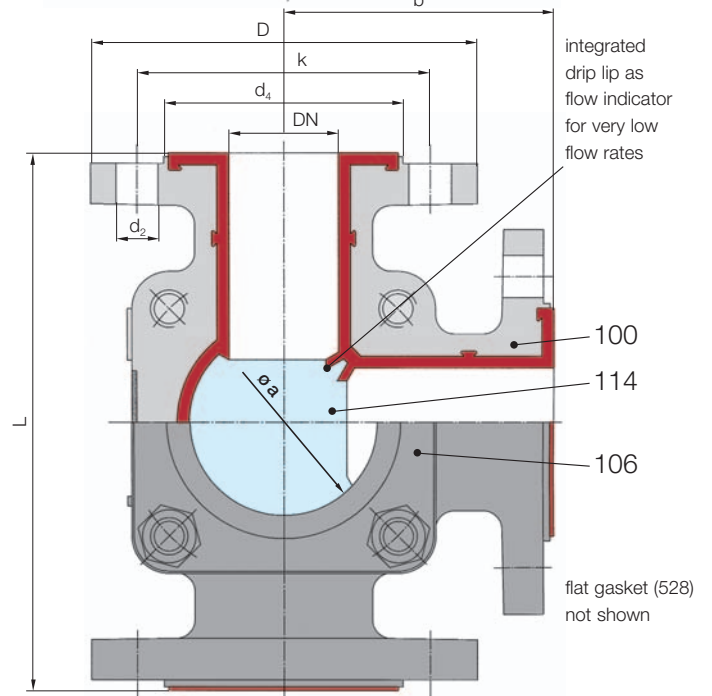
- 1"-6" (DN 25-150): PFA lining
- 8" (DN 200): PTFE lining, deviating design
- 10"+12" (DN 250+300): on request
- Highly permeation-resistant and antistatic linings optional



3-way sight glass

TSG series

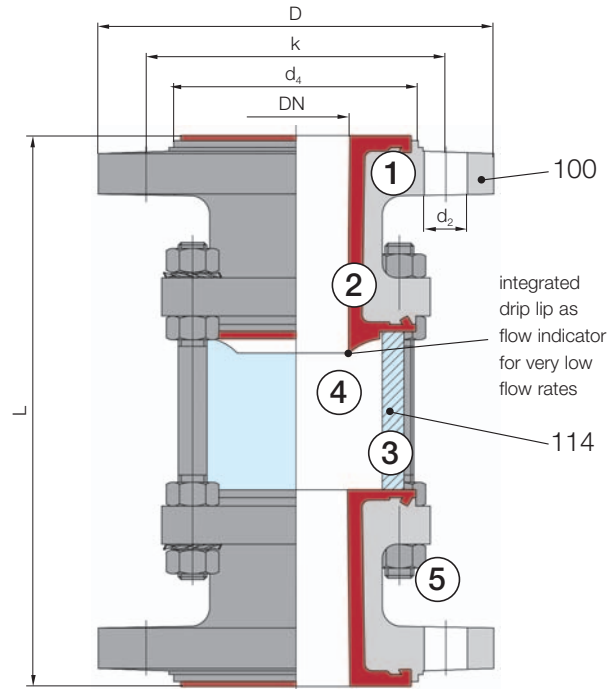
- 1", 2" and 3" (DN 25, 50 and 80): PFA lining
- Highly permeation-resistant and antistatic linings optional



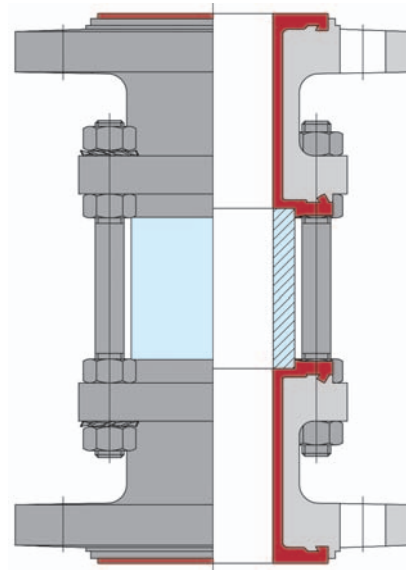
2-way cylindrical sight glass

SGS series

- 1/2"-4" (DN 15-100): PFA lining. Highly permeation-resistant and antistatic linings optional
- Max. 87 psi (6 bar), max. 300 °F (150 °C)
- Face-to-face lengths to ISO 5752, basic series 1 (DIN EN 558-1, basic series 1) and to customer's request up to appr. 40" (1.000 mm) on request
- Cylindrical glass PU coatings on the atmosphere side as protection against impacts, scratches and splintering (no protection against bursting, reduced transparency). T max. 285 °F (140 °C).



Standard design



Design „cavity-free“

Optional „cavity-free“ design for pure and high-purity fluids e.g. in pharmaceutical and fine chemical applications.

On the wetted side the cylindrical glass evenly flushes with the valve lining. This prevents from residues and optimises cleanability.

Design „cavity-free“ goes without drip lip.

Dimensions, materials, weights, pressure/temperature diagram

Installation and connecting dimensions

inch	DN	L ⁶⁾		D		d ₄		k (ASME/ANSI) ⁷⁾		nxd ₂ (ASME/ANSI) ⁷⁾		k (ISO)		nxd ₂ (ISO)		a ¹⁾		b		A	
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
1/2"	15	5.12	130	3.74	95	1.77	45	2.38 ⁵⁾	60.5 ⁵⁾	4x1/2 ⁵⁾	4x1/2 ⁵⁾	2.56	65	4x0.55	4x14	-	-	-	-	-	-
3/4"	20	5.91	150	4.13	105	2.28	58	2.76	70	4x0.63	4x16	2.95	75	4x0.55	4x14	-	-	-	-	-	-
1"	25	6.3	160	4.53	115	2.68	68	3.13	79.5	4x0.63	4x16	3.35	85	4x0.55	4x14	1.89 ²⁾	48 ²⁾	3.15	80	3.35	85
1 1/4"	32	7.09	180	5.51	140	3.07	78	3.5	89	4x0.63	4x16	3.94	100	4x0.71	4x18	-	-	-	-	-	-
1 1/2"	40	7.87	200	5.91	150	3.46	88	3.88	98.5	4x0.63	4x16	4.33	110	4x0.71	4x18	2.56	65	-	-	4.33	110
2"	50	9.06	230	6.5	165	4.02	102	4.74	120.5	4x0.75	4x19	4.92	125	4x0.71	4x18	3.15	80	4.53	115	4.72	120
2 1/2"	65	11.42	290	7.28	185	4.72 ³⁾	120 ³⁾	5.49	139.5	4x0.75	4x19	5.71	145	4x0.71	4x18	3.15	80	-	-	ø6.89	ø175
3"	80	12.2	310	7.87	200	5.43	138	6	152.5	4x0.75	4x19	6.3	160	8x0.75	8x18	3.94	100	6.1	155	ø7.48	ø190
4"	100	13.78	350	8.86 ⁴⁾	225 ⁴⁾	6.22	158	7.5	190.5	8x0.75	8x19	7.09	180	8x0.75	8x18	4.92	125	-	-	ø8.27	ø210
6"	150	18.9	480	11.22	285	8.35	212	9.51	241.5	8x0.89	8x22.5	9.45	240	8x0.87	8x22	5.39	137	-	-	ø9.84	ø250
8"	200	on request, deviating design																			

¹⁾ free field of vision ³⁾ series SGS: 4.8" (122 mm) ⁵⁾ threaded holes ⁷⁾ only for series PSG + TSG
²⁾ series TSG: 1.77" (45 mm) ⁴⁾ series SGS: 8.66" (220 mm) ⁶⁾ series SGS: face to face L up to appr. 39.37 (1,000 mm) possible

Nominal sizes and lining materials

inch	DN	PSG	TSG	SGS
1/2"	15	-	-	PFA, PFA-L ¹⁾ , PFA-P ²⁾
3/4"	20	-	-	PFA, PFA-L ¹⁾ , PFA-P ²⁾
1"	25	PFA, PFA-L ¹⁾ , PFA-P ²⁾	PFA, PFA-L ¹⁾ , PFA-P ²⁾	PFA, PFA-L ¹⁾ , PFA-P ²⁾
1 1/4"	32	-	-	PFA, PFA-L ¹⁾ , PFA-P ²⁾
1 1/2"	40	PFA, PFA-L ¹⁾ , PFA-P ²⁾	-	PFA, PFA-L ¹⁾ , PFA-P ²⁾
2"	50	PFA, PFA-L ¹⁾ , PFA-P ²⁾	PFA, PFA-L ¹⁾ , PFA-P ²⁾	PFA, PFA-L ¹⁾ , PFA-P ²⁾
2 1/2"	65	PFA, PFA-L ¹⁾ , PFA-P ²⁾	-	PFA, PFA-L ¹⁾ , PFA-P ²⁾
3"	80	PFA, PFA-L ¹⁾ , PFA-P ²⁾	PFA, PFA-L ¹⁾ , PFA-P ²⁾	PFA, PFA-L ¹⁾ , PFA-P ²⁾
4"	100	PFA, PFA-L ¹⁾ , PFA-P ²⁾	-	PFA, PFA-L ¹⁾ , PFA-P ²⁾
6"	150	PFA	-	-
8"	200	PTFE	-	-

Approx. weights

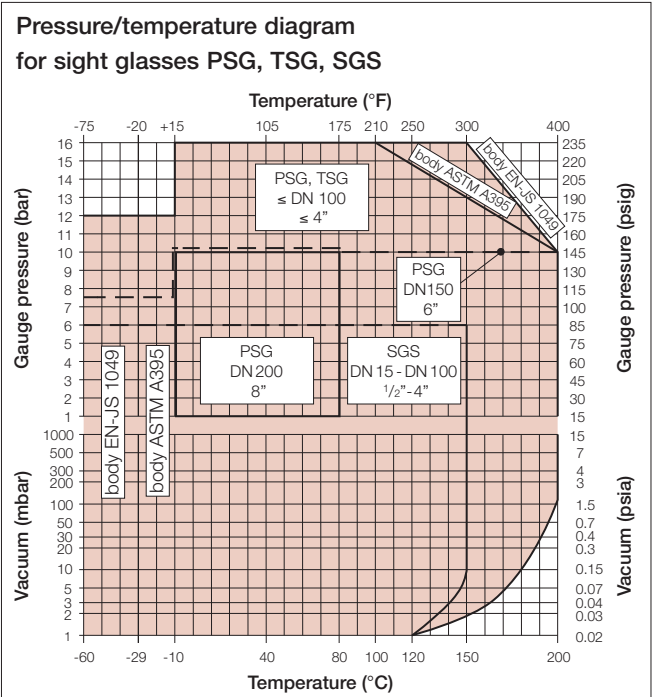
inch	DN	PSG		TSG		SGS	
		lbs	kg	lbs	kg	lbs	kg
1/2"	15	-	-	-	-	6.6	3
3/4"	20	-	-	-	-	6.6	3
1"	25	13.2	6	15.4	7	8.8	4
1 1/4"	32	-	-	-	-	11	5
1 1/2"	40	19.8	9	-	-	17.6	8
2"	50	30.9	14	35.3	16	22.1	10
2 1/2"	65	35.3	16	-	-	28.7	13
3"	80	48.5	22	86	39	44.1	20
4"	100	79.4	36	-	-	66.1	30
6"	150	161	73	-	-	-	-
8"	200	on request		-	-	-	-

¹⁾ PFA-L = PFA antistatic ²⁾ PFA-P = PFA highly permeation-resistant

Components and materials

Item	Designation	Materials
100	Body	Shell: Ductile cast iron* ASTM A395 (EN-JS 1049)
		Lining: see separate table
102	Body end piece	Shell: Ductile cast iron* ASTM A395 (EN-JS 1049)
		Lining: see separate table
106	Cover	Ductile cast iron* ASTM A395 (EN-JS 1049)
114	Sight glass pane and sight glass cylinder	Borosilicate glass, (e.g. MAXOS®, DURAN®)
528	Flat gasket	Aramide
w/o No.	Screws, nuts	Stainless steel

* for 1/2"-6" (DN 15-150), for 8" (DN 200) on request



Kalrez® = TM of Du Pont
 Richter = TM of Richter Chemie-Technik GmbH
 Maxos®, Duran® = TM of Schott AG

Sight glasses with integrated check valve

SR series: with solid ball

SR-B series: with solid ball and soft seat seal

SRV series: with hollow ball

SRV-B series: with hollow ball and soft seat seal

SRZ-V series: with hollow plug and soft seat seal

For details on operating range, pressure/temperature installation position etc.: see publication Check Valves.

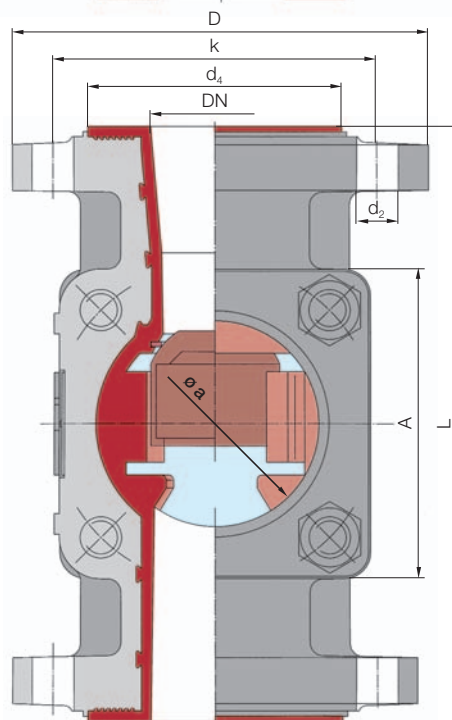
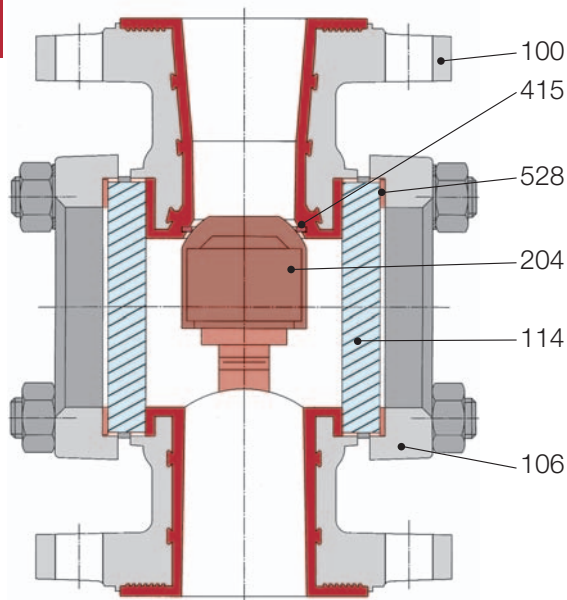


SR series with check ball

Components and materials

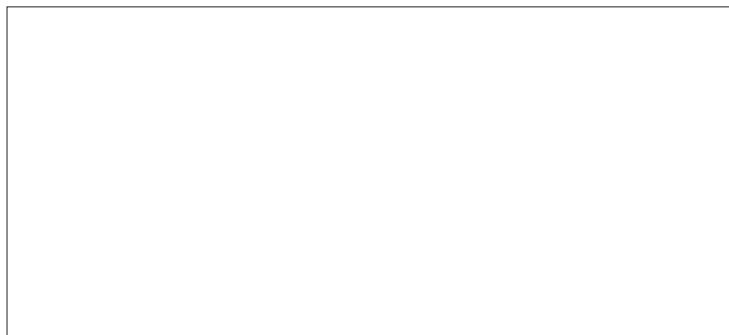
see page 5 for further components

Item	Designation	Materials
204	Plug or ball	PTFE
415	Seat seal	FFKM or FKM



SRZ-V series with hollow plug and soft-sealing seat made of fluorocautchouc (e.g. Kalrez®)

Presented by:



Richter Pumps & Valves Inc.

A Unit of IDEX Corporation

406 State Street

Cedar Falls, 50613 IA, USA

Tel. +1(319) 268-8038, Fax +1(319) 268-8048

Headquarter:

Richter Chemie-Technik GmbH

Otto-Schott-Str. 2, D-47906 Kempen, Germany

Tel. +49(0)21 52/146-0, Fax +49(0)21 52/146-190

www.richter-ct.com, richter-info@idexcorp.com

