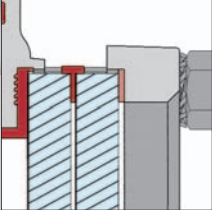
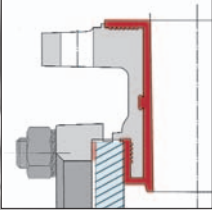


Richter 2 and 3-Way Sight Glasses



- Corrosion-resistant PFA and PTFE lining
- Indication of flow even at very low flow rates
- Optionally with integrated check valve



Richter 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

- -60 to 180 °C (-75 to 360 °F), SGS max. 150 °C (300 °F)
- vacuum to 16 bar (235 psi), SGS max. 6 bar (87 psi)
- horizontal to vertical installation

Product features

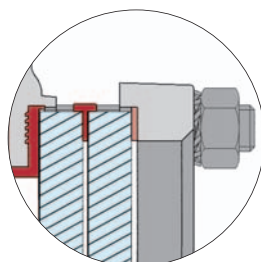
- PSG + TSG: very sturdy design, ductile cast iron with thick-walled lining
- Face-to-face lengths to DIN EN 558-1, basic series 1 (ISO 5752 basic series 1), SGS series additionally with face-to-face lengths up to 1,000 mm.
- Flange connecting dimensions: DIN EN 1092-2, shape B (ISO 7005-2, shape B) 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



Other product features

- ① **Pressure-bearing shell made of ductile cast iron EN-JS 1049 (ASTM A395)**
absorbs system and pipe forces
- ② **Thick-walled lining made of virgin, pure PFA and PTFE**
 - Suitable for almost all media including corrosive, pure, 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**
 - Borosilicate glass to DIN 7080
 - Large free field of vision
 - PSG + TSG: 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 DN 15-100 (1/2-4"):** also indicates very low flow rates
- ⑤ **External corrosion protection**
Epoxy coating, nuts and bolts of stainless steel.
- ⑥ **Identification**
to DIN EN 19, ANSI B16.34
- ⑦ **Pressure Equipment Directive**
The sight glasses are suitable for vapours, gases, liquids of group 1

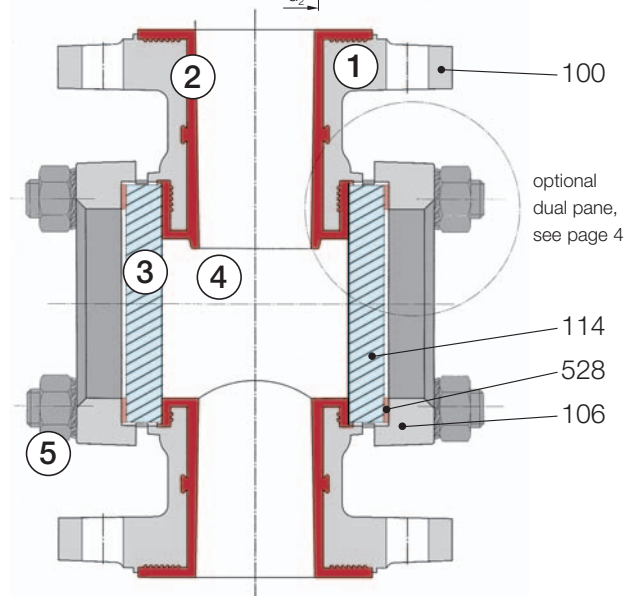
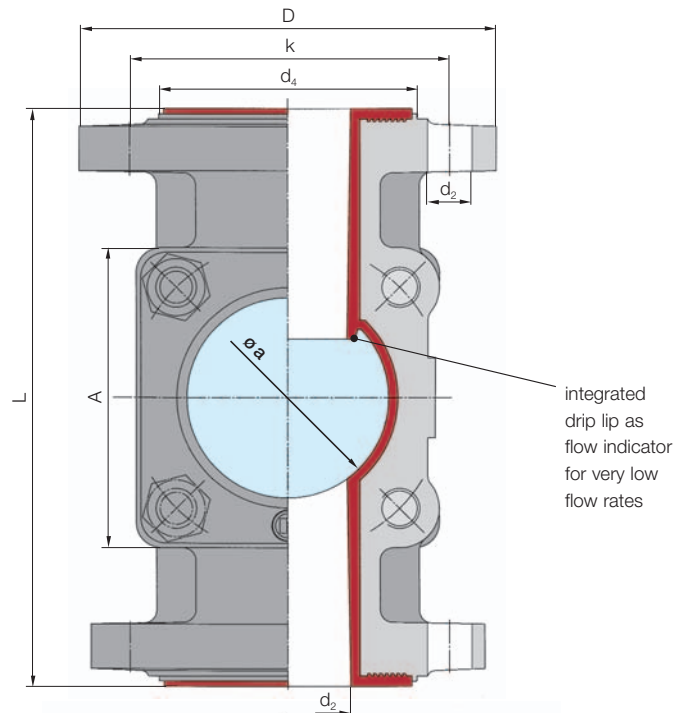
Options

- 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

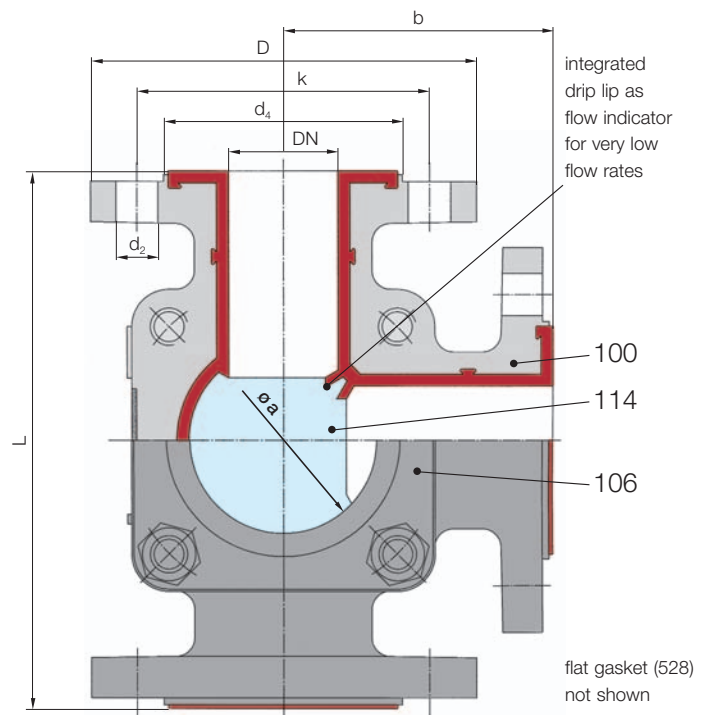
- DN 25 - 150 (1" - 6"): PFA lining
- DN 200 (8"): PTFE lining, deviating design
- DN 250 + 300 (10" + 12"): on request
- Highly permeation-resistant and antistatic linings optional



3-way sight glass

TSG series

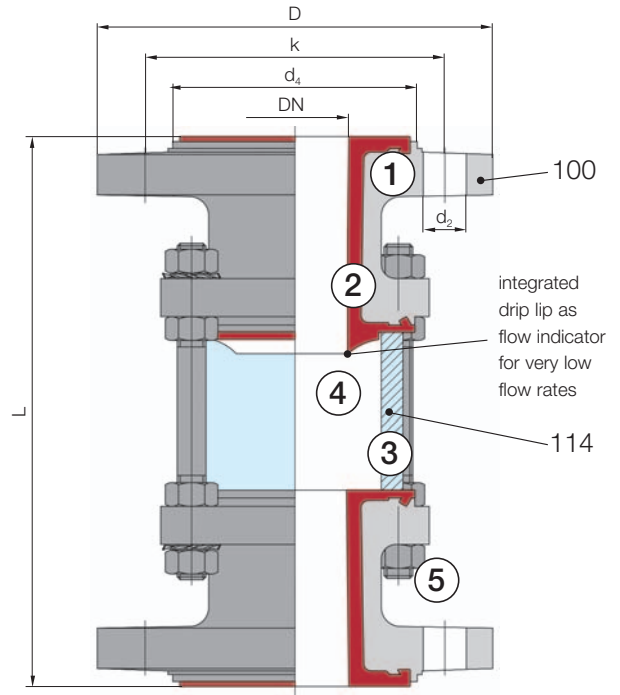
- DN 25, 50 and 80 (1", 2" and 3"): PFA lining
- Highly permeation-resistant and antistatic linings optional



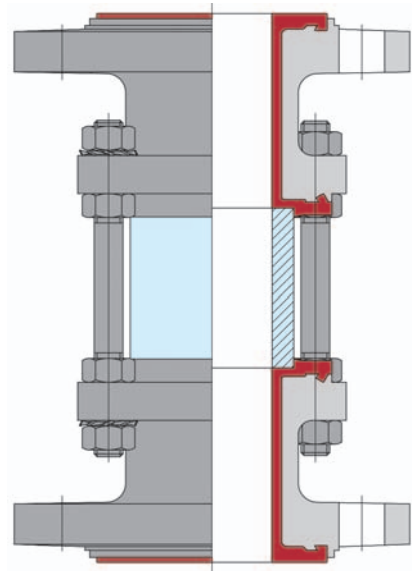
2-way cylindrical sight glass

SGS series

- DN 15-100 (1/2"-4"): PFA lining, highly permeation-resistant and antistatic linings optional
- Max. 6 bar (87 psi), max. 150 °C (300 °F)
- Face-to-face lengths to DIN EN 558-1, basic series 1 (ISO 5752 basic series 1) and to customer's request up to 1,000 mm
- SGS: Cylindrical glass PU coatings on the atmosphere side as protection against impacts, scratches and splintering (no protection against bursting, reduced transparency). T max. 140 °C (285 °F).



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 (mm)

DN	Inch	L ⁶⁾	D	d ₄	k (ISO)	nxd ₂ (ISO)	k (ASME/ANSI)	nxd ₂ (ASME/ANSI)	a ¹⁾	b	A
15	1/2"	130	95	45	65	4 x 14	60.5 ⁵⁾	4 x 1/2 ⁵⁾			
20	3/4"	150	105	58	75	4 x 14	70	4 x 16			
25	1"	160	115	68	85	4 x 14	79.5	4 x 16	48 ²⁾	80	85
32	1 1/4"	180	140	78	100	4 x 18	89	4 x 16			
40	1 1/2"	200	150	88	110	4 x 18	98.5	4 x 16	65		110
50	2"	230	165	102	125	4 x 18	120.5	4 x 19	80	115	120
65	2 1/2"	290	185	120 ³⁾	145	4 x 18	139.5	4 x 19	80		ø 175
80	3"	310	200	138	160	4 x 18	152.5	4 x 19	100	155	ø 190
100	4"	350	225 ⁴⁾	158	180	4 x 18	190.5	8 x 19	125		ø 210
150	6"	480	285	212	240	8 x 22	241.5	8 x 22.5	137		ø 250
200	8"	on request, deviating design									

¹⁾ free field of vision ⁴⁾ series SGS: 220 mm
²⁾ series TSG: 45 mm ⁵⁾ threaded holes
³⁾ series SGS: 122 mm ⁶⁾ series SGS: face to face L up to 1,000 mm possible

Nominal sizes and lining materials

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

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

Approx. weights (kg)

DN	Inch	PSG	TSG	SGS
15	1/2"			3
20	3/4"			3
25	1"	6	7	4
32	1 1/4"			5
40	1 1/2"	9		8
50	2"	14	16	10
65	2 1/2"	16		13
80	3"	22	39	20
100	4"	36		30
150	6"	73		
200	8"	on request		

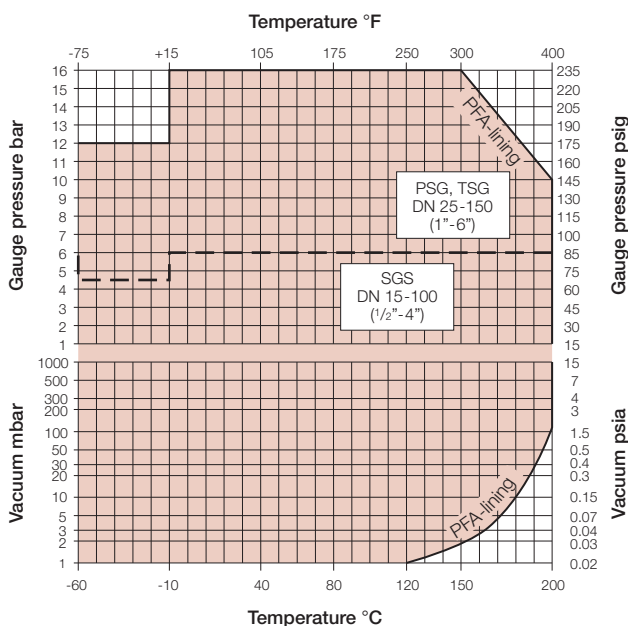
Components and materials

Item	Designation	Materials
100	Body Shell	Ductile cast iron* EN-JS 1049 (ASTM A395)
	Body Lining	see separate table
102	Body end piece Shell	Ductile cast iron* EN-JS 1049 (ASTM A395)
	Body end piece Lining	see separate table
106	Cover	Ductile cast iron* EN-JS 1049 (ASTM A395)
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 DN 15-150 (1/2"-6"), for DN 200 (8") on request

Pressure/temperature diagram for sight glasses PSG, TSG, SGS

Details on PSG DN 200 (8") on request



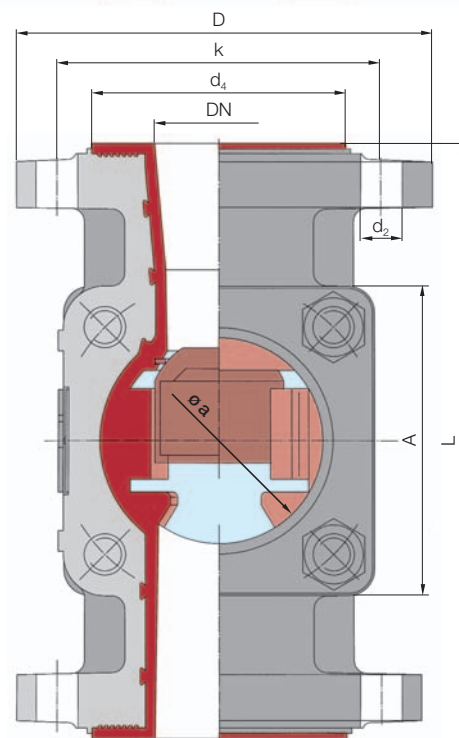
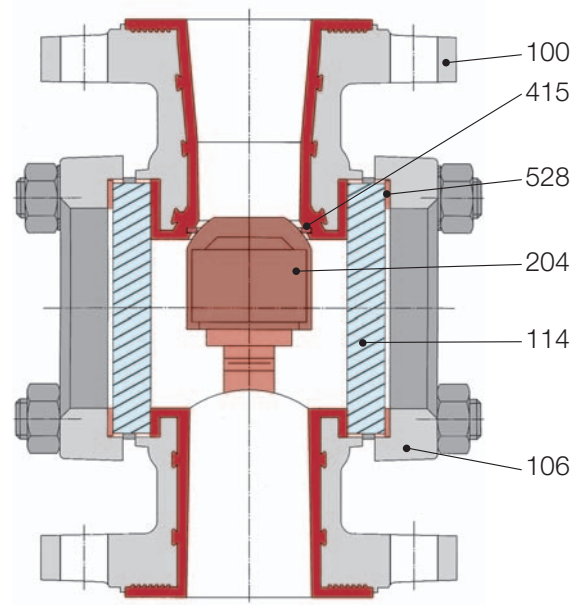
Sight glasses with integrated check valve

- SR series:** with solid ball
- SR-B series:** with solid ball and seat seal
- SRV series:** with hollow ball
- SRV-B series:** with hollow ball and seat seal
- SRZ-V series:** with hollow plug and seat seal

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



SR series with check ball



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

Components and materials

see page 5 for further components

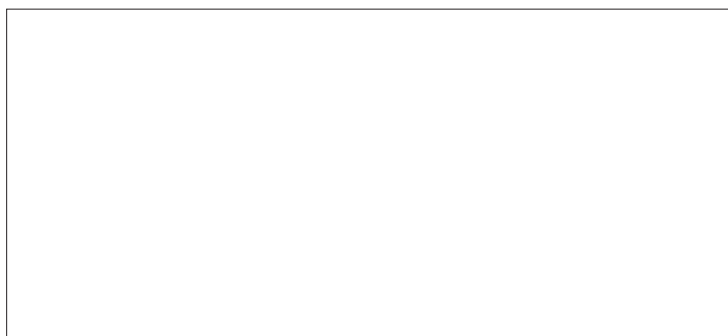
Item	Designation	Materials
204	Plug or ball	PTFE
415	Seat seal	FFKM or FKM

Kalrez® = Trademark of DuPont

Richter = Trademark of Richter Chemie-Technik GmbH

MAXOS®, DURAN® = Trademark of Schott AG

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