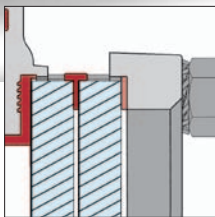
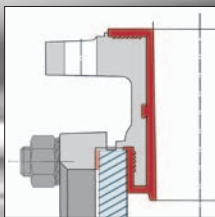


# Richter 2 and 3-Way Sight Glasses

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

**IPEX**  
FLUID & METERING

## 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. H<sub>2</sub>O<sub>2</sub>
- 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

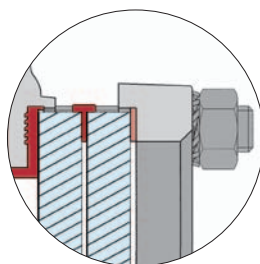
- PSG + TSG: very sturdy design, ductile cast iron with thick-walled lining
- Face-to-face lengths to DIN EN 558-1, basic series 1 (ISO 5752 basic series 1), SGS series additionally with face-to-face lengths up to 1,000 mm.
- Flange connecting dimensions: DIN EN 1092-2, shape B (ISO 7005-2, shape B) 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<br>Polytetrafluoroethylene (PTFE) | .../F   |
| • 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 lining 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**  
(<sup>1</sup>/<sub>2</sub>-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 B16.42
- ⑦ **Pressure Equipment Directive**  
The sight glasses are suitable for vapours, gases, liquids of group 1

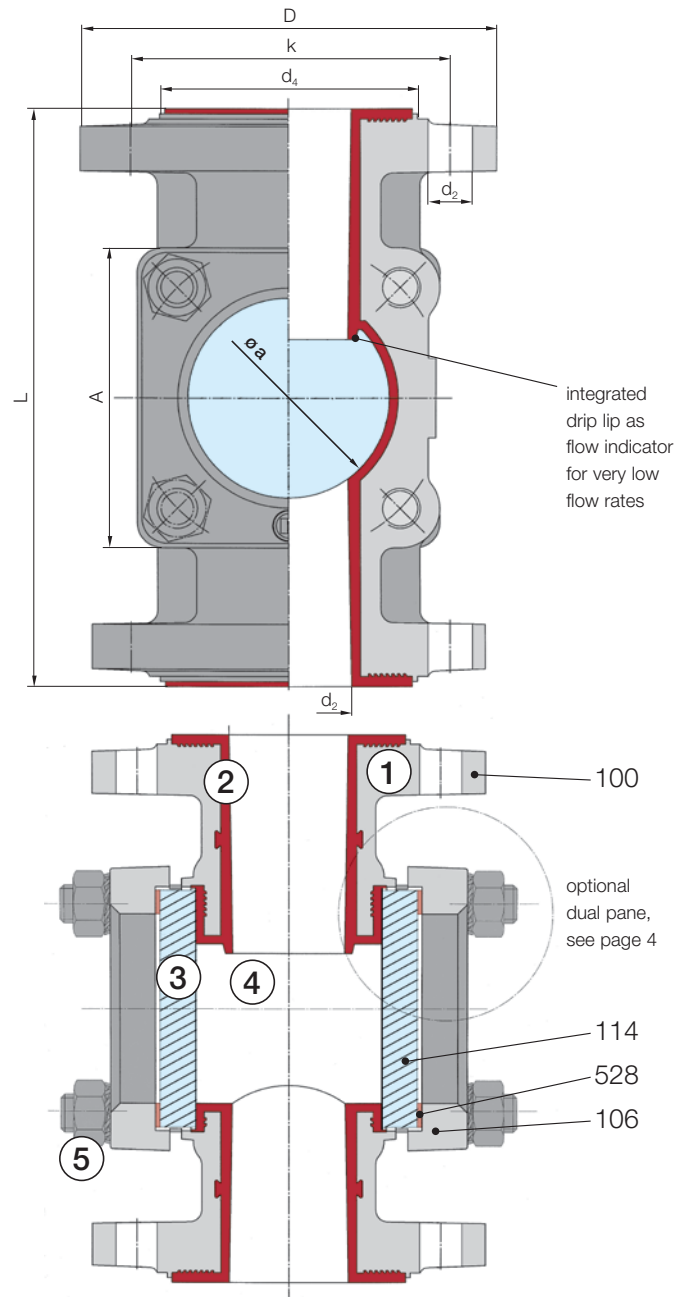
### Options

- 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

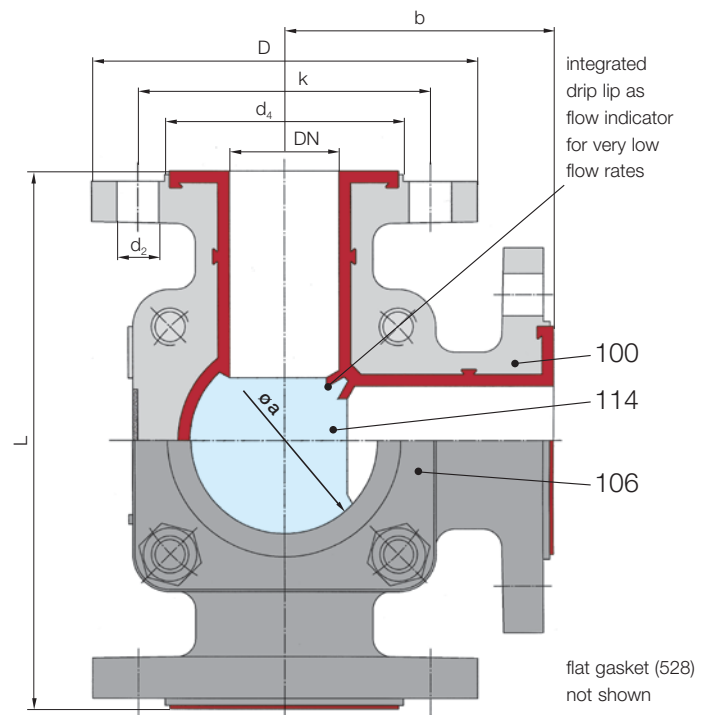
- DN 25-150 (1"-6"): PFA lining
- DN 200 (8"): PTFE lining, deviating design
- DN 250+300 (10"+12"): on request
- Antistatic lining optional



## 3-way sight glass

### TSG series

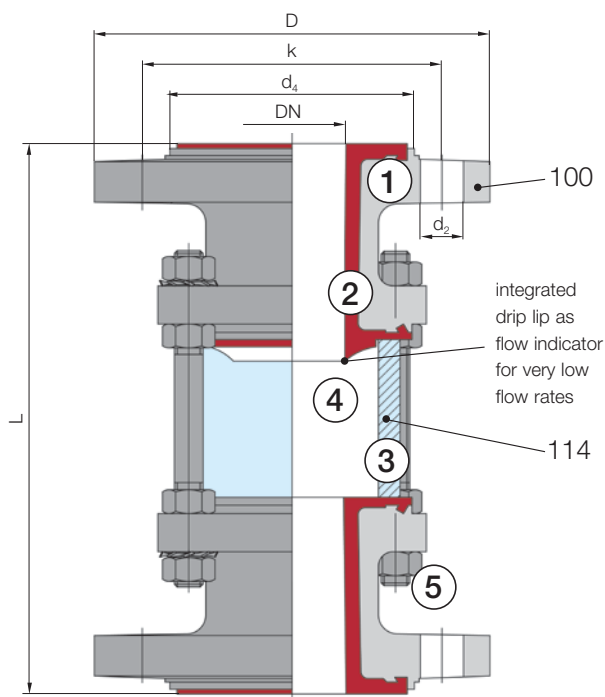
- DN 25, 50 and 80 (1", 2" and 3"): PFA lining
- Antistatic lining optional



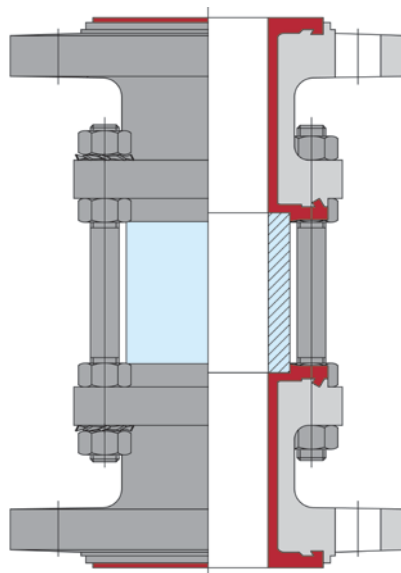
## 2-way cylindrical sight glass

### SGS series

- DN 15-100 (1/2"-4"): PFA lining, antistatic lining 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 <sup>6)</sup>	D	d <sub>4</sub>	k (ISO)	nxd <sub>2</sub> (ISO)	k (ASME/ANSI)	nxd <sub>2</sub> (ASME/ANSI)	a <sup>1)</sup>	b	A
15	1/2"	130	95	45	65	4 x 14	60.5 <sup>5)</sup>	4 x 1 1/2 <sup>5)</sup>	–	–	–
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 <sup>2)</sup>	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 <sup>3)</sup>	145	4 x 18	139.5	4 x 19	80	–	ø 175
80	3"	310	200	138	160	8 x 18	152.5	4 x 19	100	155	ø 190
100	4"	350	225 <sup>4)</sup>	158	180	8 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									

<sup>1)</sup> free field of vision                      <sup>4)</sup> series SGS: 220 mm  
<sup>2)</sup> series TSG: 45 mm                      <sup>5)</sup> threaded holes  
<sup>3)</sup> series SGS: 122 mm                      <sup>6)</sup> 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 <sup>1)</sup>
20	3/4"	–	–	PFA, PFA-L <sup>1)</sup>
25	1"	PFA, PFA-L <sup>1)</sup>	PFA, PFA-L <sup>1)</sup>	PFA, PFA-L <sup>1)</sup>
32	1 1/4"	–	–	PFA, PFA-L <sup>1)</sup>
40	1 1/2"	PFA, PFA-L <sup>1)</sup>	–	PFA, PFA-L <sup>1)</sup>
50	2"	PFA, PFA-L <sup>1)</sup>	PFA, PFA-L <sup>1)</sup>	PFA, PFA-L <sup>1)</sup>
65	2 1/2"	PFA, PFA-L <sup>1)</sup>	–	PFA, PFA-L <sup>1)</sup>
80	3"	PFA, PFA-L <sup>1)</sup>	PFA, PFA-L <sup>1)</sup>	PFA, PFA-L <sup>1)</sup>
100	4"	PFA, PFA-L <sup>1)</sup>	–	PFA, PFA-L <sup>1)</sup>
150	6"	PFA	–	–
200	8"	PTFE	–	–

<sup>1)</sup> PFA-L = PFA antistatic

## Approx. weights (kg)

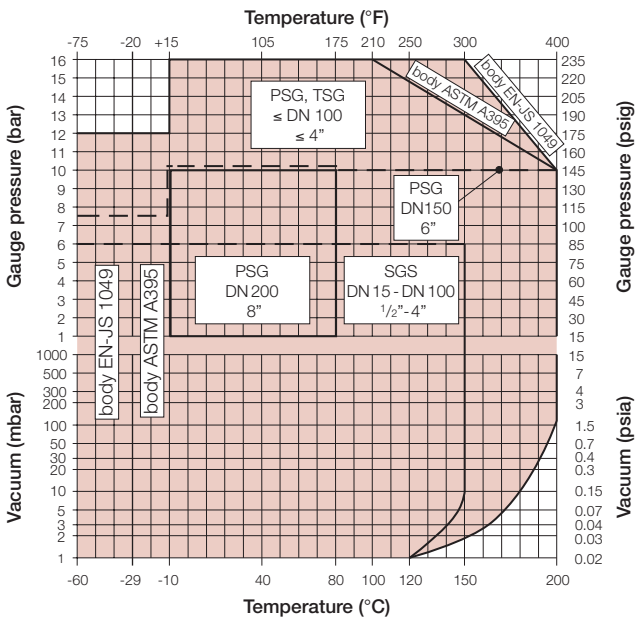
DN	Inch	PSG	TSG	SGS
15	1/2"	–	–	3
20	3/4"	–	–	3
25	1"	6	7	4
32	1 1/4"	–	–	5
40	1 1/2"	9	–	8
50	2"	14	16	10
65	2 1/2"	16	–	13
80	3"	22	39	20
100	4"	36	–	30
150	6"	73	–	–
200	8"	on request	–	–

## Components and materials

Pos.	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



## 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

## Components and materials

see page 5 for further components

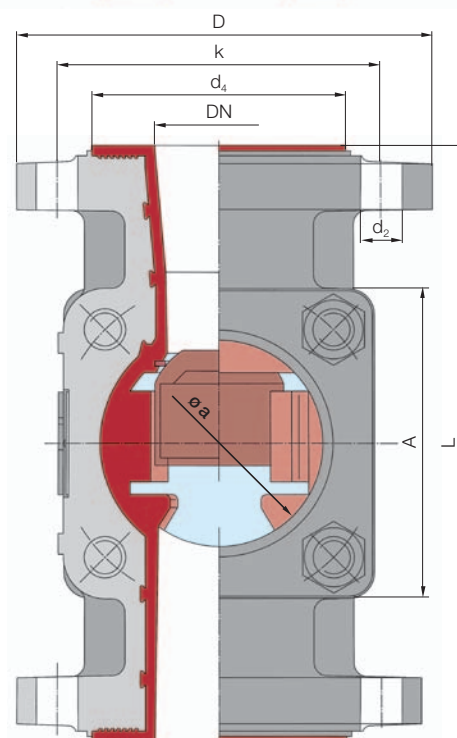
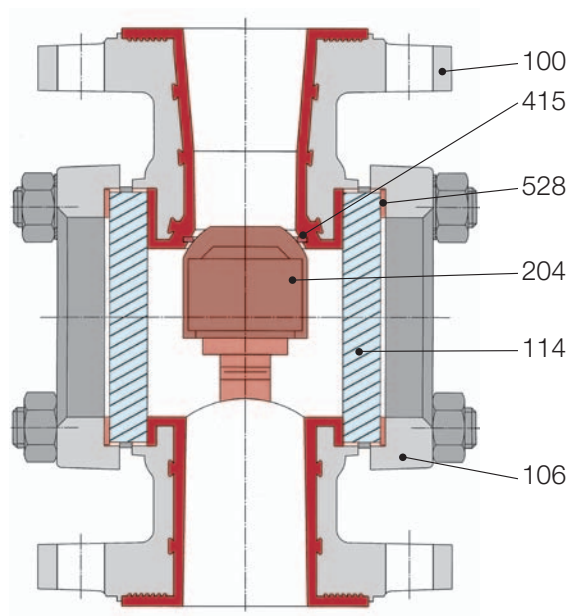
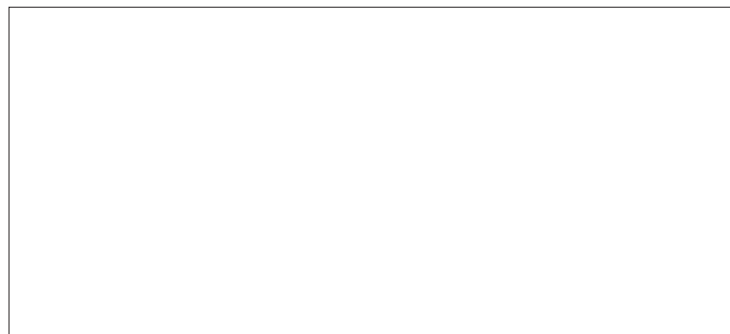
Item	Designation	Materials
204	Plug or ball	PTFE
415	Seat seal	FFKM or FKM

Kalrez® = Trademark of DuPont

Richter = Trademark of Richter Chemie-Technik GmbH

MAXOS®, DURAN® = Trademark of Schott AG

Presented by:



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



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