

ITT RICHTER CHEMIE-TECHNIK

The Answer to Corrosion

Series PSG, TSG, VSG

Operating Manual for Sight Glasses

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Distributed in North America by:

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However, our prior written consent must
be obtained in all cases.

Note:

Before transport, installation operation, etc.
read these instructions carefully!

TM 2311 en Edition 5/95
Version 1.2

Richter



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1 General

RICHTER sight glasses conform to the technical delivery conditions for valves as per DIN 3230.

1.1 Use

The valves have a corrosion-resistant plastic lining and are thus particularly suited for aggressive media.

If the valve is to be employed for operation other than that intended, the operating company has to carefully consider whether the design is suitable for the application in question.

1.2 Product data

Type code

Pane type sight glass : PSG
 Nominal diameters(mm) : 25, 40, 50, 65, 80, 100, 150
 (inch) : 1", 1 1/2", 2", 2 1/2", 3", 4", 6"

3-way sight glass : TSG
 Nominal diameters(mm) : 25, 50, 80
 (inch) : 1", 2", 3"

4-way sight glass : VSG
 Nominal diameters(mm) : 50
 (inch) : 2"

Connecting dimensions

- Face to face } see order
 - Flanges }

Nominal pressure

DN 25 (1") to DN 100 (4") : PN 16 (235 psi)
 DN 150 (6") : PN 10 (145 psi)

Application limits

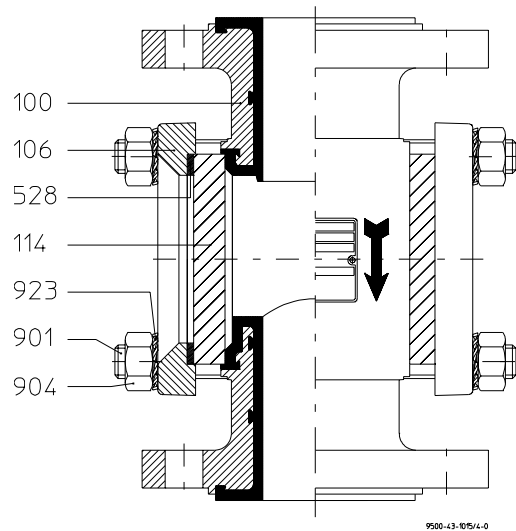
	T max.	at p ressure	
PTFE/PFA lining	400° F	145 psi	
FEP	300° F	145 psi	
		p max.	
		DN 25-100 (1" - 4")	DN 150 (6")
Minus temperature range		235 psi	145 psi
		175 psi	110 psi
	to +15° F		
	+15° F to -75° F		

The valid regulations in the respective country are also to be observed.

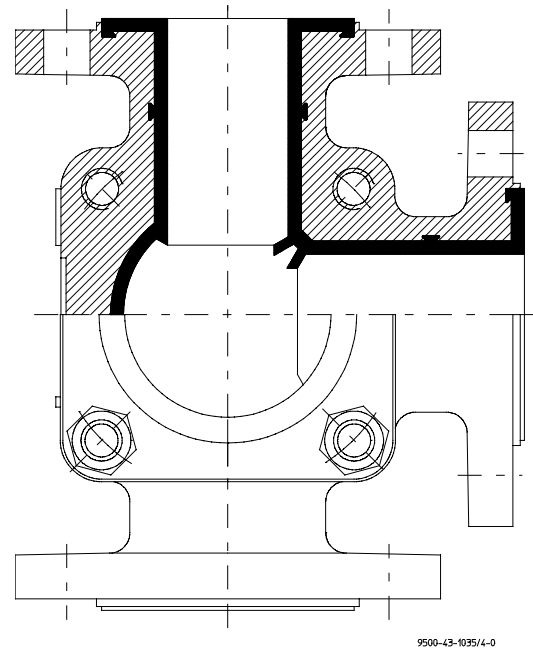
Components

100	Body, consisting of:	
	Shell	: 0.7043 ASTM A395
	Lining	: PFA or FEP
106	Cover	: 0.7043
114	Pane	: borosilicate glass
528	Intermediate ring	: Aramid NBR
901	Stud screw	: A2-70 or A4-70
904	Hex. nut	: A2-70 or A4-70
923	Tooth lock washer	: FSt

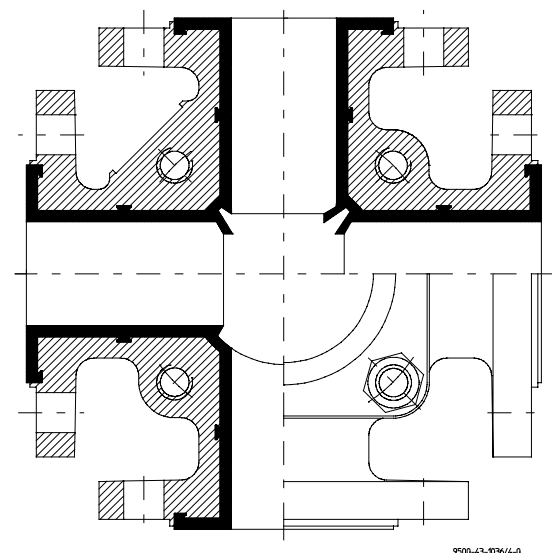
Pane-type sight glass, type PSG



3-way sight glass, type TSG



4-way sight glass, type VSG



2 Safety



The safety precautions in these operating instructions are specially marked with the standard symbol for danger when non-observance could endanger personnel.

2.1 Qualification and training of personnel

The personnel responsible for operation, maintenance, inspection and assembly must hold the appropriate qualifications.

The operating company must precisely define the responsibilities, competence and supervision of the personnel. If the personnel lack the necessary knowledge, they are to be trained and instructed. If required, this can be carried out by the manufacturer / supplier at the request of the operating company. Furthermore, the operating company is to ensure that the contents of the operating instructions have been fully understood by the personnel.

2.2 Dangers through non-observance of the safety precautions

The non-observance of the safety precautions can result in the endangering of personnel as well as of environment and valve. The non-observance of the safety precautions can result in the loss of any rights to claims for damages.

Non-observance may - for example - result in the following :

- failure of important functions of the valve/plant
- endangering of personnel by chemical influences
- endangering the environment through leakage of hazardous media.

2.3 Safety awareness at work

Attention must be paid to the safety precautions in these operating instructions, to the current national regulations concerning accident prevention as well as to any working, operating and safety regulations of the operating company.

2.4 Safety precautions for the operator/user

If hot or cold valve components are a source of danger, the operating company has to secure these components against contact.

2.5 Safety precautions for maintenance, inspection and installation

Valves delivering media which are a health hazard must be decontaminated.

2.6 Unauthorized reconstruction and manufacture of spare parts

Reconstruction or alterations to the valve are only permissible with the agreement of the manufacturer. Original spare parts and accessories authorized by the manufacturer serve to maintain safety. The use of unauthorized parts can annul all liability of the manufacturer for the consequences.

2.7 Improper operation

The operational reliability of the valve supplied is only guaranteed when used as designated, as laid down in **Section 1** of these operating instructions. The application limits given on the identification plate must not be exceeded under any circumstances.

3 Transport and storage



The universally recognized rules of technique and the regulations regarding accident prevention have to be observed at all times during transport handling.

3.1 Transport

The goods have to be handled with care in order to avoid damage.

The yellow flange caps as per DIN 3443 provide protection during transport and may not be removed.

3.2 Unpacking

Immediately after unpacking, the shipment is to be checked in respect of entirety and possible transport damage.

3.3 Storage

If the valve is not to be installed immediately on delivery, it must be properly stored.

We recommend storage in dry rooms at a temperature as constant as possible.

For storage over a longer period, moisture-proof packing may become necessary. This decision is dependent on the local conditions.

3.5 Return shipment



Operators of valves used for delivering aggressive or toxic media have to ensure that the valves have been well flushed and cleaned before being handed to the maintenance personnel.

This is of particular importance when returning to the manufacturer.

4 Product description

The inner profile of these sight glasses has been designed in such a way that, due to the drip ring, even minimal flow can be recognized.

As the cover flanges are fastened by means of studs, these can be removed one by one.

In accordance with DIN EN 19, the **body** displays the following data:

- nominal diameter
- nominal pressure
- material for armouring
- material for lining
- manufacturer's sign
- foundry sign
- cast charge number
- arrow for direction of flow

The **cover flange** also displays the data required by DIN EN 19.

The **identification plate** carries the following data:

- type, nominal pressure, material of the lining
- max. permissible operating pressure
- at
- max. permissible operating temperature
- ITT Richter serial-no.
- ITT Engineered valves order number
- possibly, customer details

Example of order #: 95-00001

In case of queries please state the order-no.

5 Installation

Contamination or damage of the sealing surfaces can best be avoided by leaving the yellow caps on the flanges until immediately before installation.

To prevent the sealing surfaces being damaged by the mating flanges, we recommend the installation of seals.

In cases where there is a considerable danger of damage to the plastic sealing surfaces, e.g. with mating flanges of metal or enamel, PTFE-lined seals with a metal inlay should be used.

The direction of flow is marked by a cast arrow on the body.

Recommended torques for greased flange bolts:

DN mm)	Valve Size (inch)	(Nm)	(inch lbs)
25	1	12	106
40	1 1/2	22	195
50	2	30	266
65	2 1/2	40	354
80	3	25	221
100	4	30	266
150	6	55	487

6 Operation



The valves have been tested with water or air for tightness. If no special measures have been agreed on, there may still be small amounts of water in the flow section of the valve. This is to be taken into account due to a possible reaction with the process liquid.

Following the first load of the valve with operating pressure and operating temperature, the torques of all connecting bolts must be checked.

Recommended **torques** for greased cover flange nuts:

- M12 30 Nm (266 inch lbs) tighten crosswise
- M16 50 Nm (443 inch lbs)

7 Maintenance

- Sporadic verification of tightness.
- Clean the panes externally when required. Soft and/or liquid cleaning materials are to be employed.
- Clean the panes from inside when required.



The safety regulations concerning the handling of media are to be observed at all times.

Even when properly drained and flushed, residual medium can still be present in the valve, e.g. between the sealing surfaces.

The plastic components may also have absorbed medium which, after flushing, gradually emerges from the material. The prescribed protective clothing has therefore to be worn.