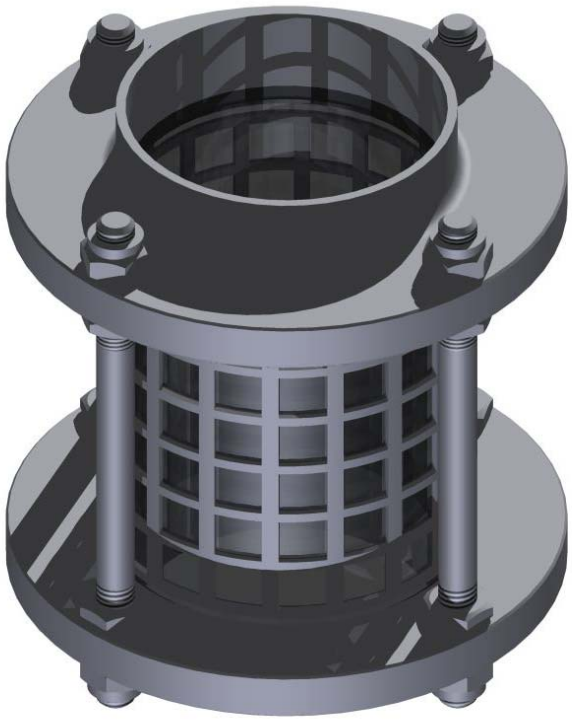
Operating Instructions

Cylinder Sight Glass

M&S Article No. 61300-62000



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2 Symbols used

Danger warnings
Danger warnings are denoted by the danger symbol which appears on the left and are framed.

Information
Descriptions to which particular attention must be paid are denoted by this symbol which appears on the left and are also framed.

3 Sectional drawings

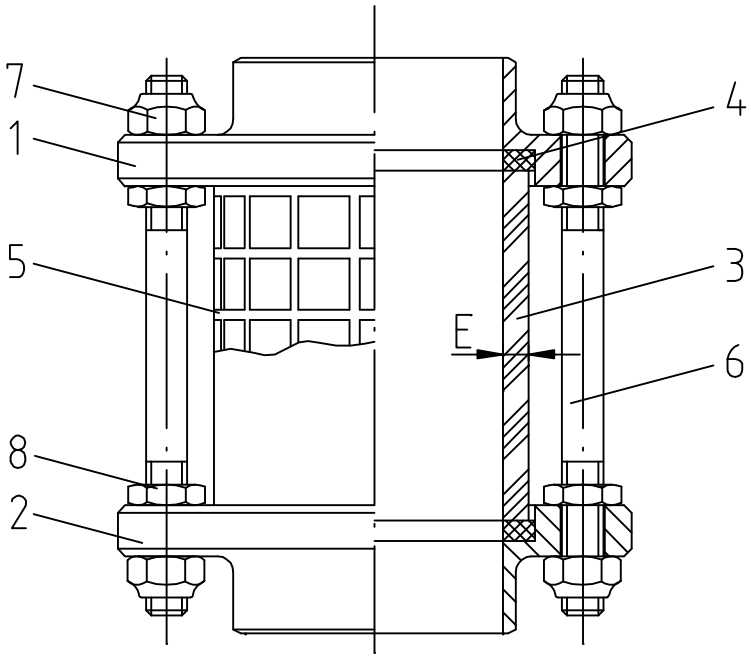

Fig. 1 Sectional view of cylinder sight glass DIN SS (example)

Tab. 1 Bill of material cylinder sight glass DIN SS (example)

Item	Numbe	Designation	Item	Numbe	Designation
1	1	Connection socket[1] (different variants)	5	1	Safety screen (optional)
2	1	Connection socket[1] (different variants)	6	4(6)[3]	Tension rod
3	1	Glass cylinder borosilicate (M&S Art.-No. 61700)	7	8(12)[3]	Self-locking hexagon nut DIN 985
4	2	Gasket NBR[2] (M&S Art.-No. 61900)	8	8(12)[3]	Flat hexagon nut DIN 439

[1)]other connection options see chapter 10.1

[2)]alternative gasket material upon request

[3)]( ) values in brackets for DN125/150

4 Use and operating principle

The cylinder sight glass serves for visual inspection of liquids in pipelines. An optional safety screen prevents the glass from outer damages and also serves as burst protection. The nominal pressure of the glass depends on the nominal width used (see attached Tab.3). The cylinder sight glass is available with different connection variants (see chap.10.1 Variants of cylinder sight glass).

5 Transport

5.1 Checking the delivery contents

- When you receive the cylinder sight glass, check the delivery against the order to make sure they correspond.
- Check that the delivery is complete, and check its condition.

If there are visible signs of transit damage and/or packing units are missing notify the forwarding agent immediately in the consignment note. You (the recipient) should take recourse against the forwarding agent immediately in writing, and M&S Armaturen GmbH must be informed of this action.

Complaints regarding transit damage that is not immediately evident must be made to the forwarding agent within 6 days.

The recipient must bear the costs for claims made after this period.

5.2 Transport

- The packing units must only be transported using suitable lifting equipment and slinging gear.
- Pay attention to the graphic symbols on the packaging.
- Transport the cylinder sight glass carefully to prevent damage from sudden impacts; exercise due care when loading/unloading.

6 Safety advice

- Prior to maintenance works, the pipeline system containing the cylinder sight glass must be depressurised and fluid-free!
- Exceeding the max. permissible operating pressure causes a risk of injuries due to bursting of the glass cylinder and escaping of fluids. If necessary, provide pressure relief devices to prevent excessive pressure. The installation location must effectively prevent any risk of injury. If necessary, protective device must be installed in order to prevent accidents.

7 Installation / disassembly / assembly

7.1 Installation

- Observe the relevant national guidelines and regulations.
- Install the cylinder sight glass without tension into the pipeline system.
- The valve may only be installed when depressurised.
- Only assemble the device in cooled down and cleaned condition.

- The cylinder sight glass can be installed in any position.
- Cylinder sight glasses with screw or threaded connections (cf. Fig.5-8) are delivered ready to assembly. During the installation in a pipeline system, make sure that the glass sits without tension (with parallel faces and centrically facing pipe connection).
- Cylinder sight glasses with welded connections (cf. Abb.3-4) must be disassembled before assembly. During disassembly make sure to loosen the hexagon nuts (7) carefully and crosswise. After disassembly of the cylinder sight glasses, weld the connection sockets (1,2) to the provided pipe ends.
- Before assembly of the cylinder sight glass, align the pipe ends with the welded connection sockets plan and centred to each other. Only this ensures tension-free installation. When inserting the glass cylinder (3), make sure that it is aligned centrally to the receptacle. Avoid contact between glass and socket by all means. Tighten the hexagon nuts (7) carefully and crosswise. Finally lock the hexagon nuts (7) with the flat hexagon nuts (8).

7.2 Disassembly

- The cylinder sight glass may only be disassembled when depressurised.

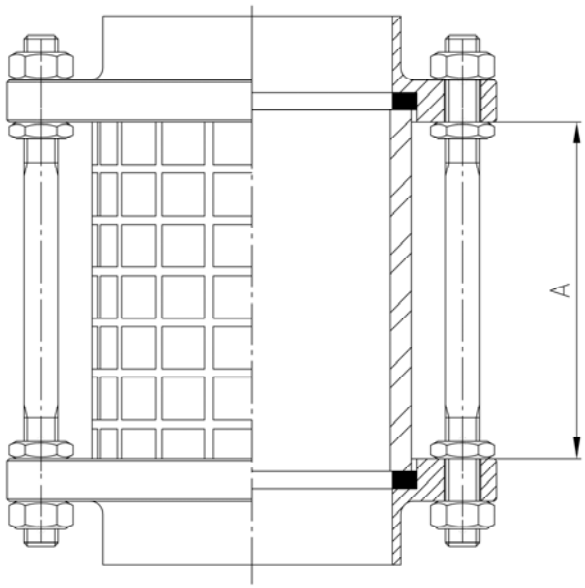

Fig. 2 Cylinder sight glass , adjustment dimension A

- Determine adjustment dimension A (see Fig.2).
- Remove hexagon nut (7) from one side.
- Axially disassemble the connection socket (1 or 2), gaskets (4) and glass cylinder (3).

7.3 Assembly

- During assembly make sure that no outer forces act on the cylinder sight glass.
- Install the glass cylinder (3) centred.
- Set adjustment dimension A and tighten the hexagon nut evenly and crosswise.
- Pay attention that the planes are parallel.

- Assemble in reverse order.
- Check fitting for tightness.
- If the fitting is not tight, loosen the hexagon nut (8) and tighten the hexagon nut (7) evenly.
- Lock with the hexagon nut (8).

8 Repairs/Maintenance

- The maintenance intervals differ from case to case, the operator should define them by himself basing on sporadic checks.
- To replace the gaskets, refer to the installation instructions (chap. 7) or the cleaning instructions (chap. 9).

- M&S Armaturen GmbH cannot accept liability for claims made as a result of non-observance of these Operating Instructions or constructional changes to the cylinder sight glass.
- Any other use or use outside the defined scope is considered to be improper use. M&S Armaturen GmbH will not accept liability for losses incurred as a result of improper use.

9 Cleaning

- Observe the safety data sheets by the cleaning agent manufacturers!

- Clean individual parts carefully.

10 Technical Data

10.1 Variants of the cylinder sight glass

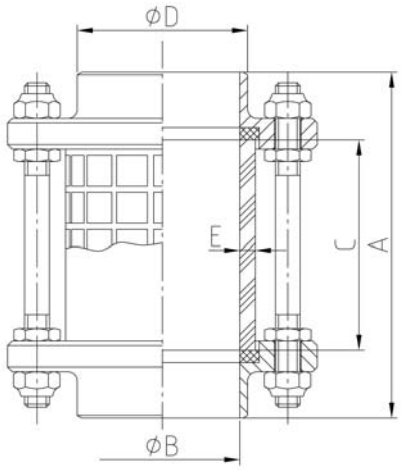

Fig. 3 Cylinder sight glass DIN SS
Art.-No.:61300

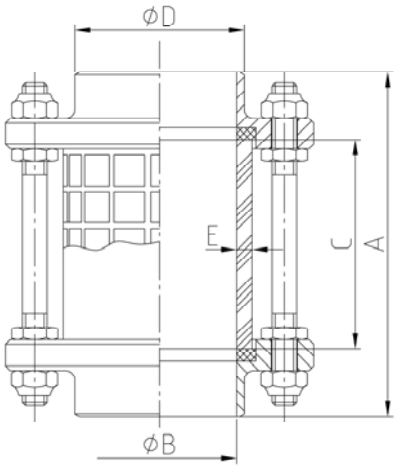

Fig. 4 Cylinder sight glass Inch SS
Art.-No.:61301

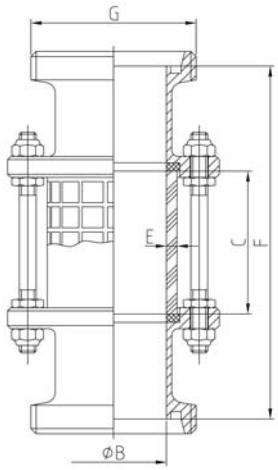

Fig. 5 Cylinder sight glass DIN GG
Art.-No.:61400

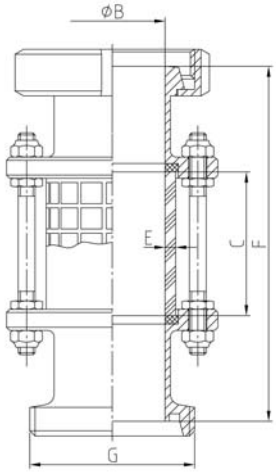

Fig. 6 Cylinder sight glass DIN KG
Art.-No.:61500

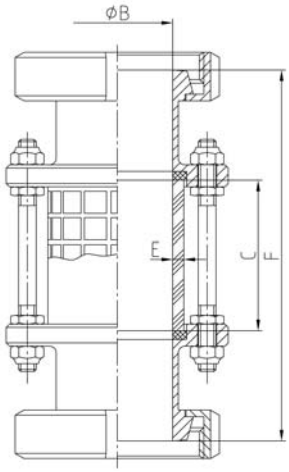

Fig. 7 Cylinder sight glass DIN KK
Art.-No.:61600

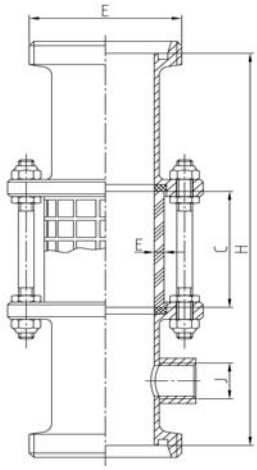

Fig. 8 Cylinder sight glass G1/2“ DIN GG
Art.-No.:62000

10.2 Dimensions of cylinder sight glass

Tab. 2 Dimensions of cylinder sight glass

DN	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [DIN 405-1]	H [mm]	J [ISO 228-1]
10	88	10	60	14	2.5	122	Rd.28x1/8		
15	88	16	60	20	2.5	122	Rd.34x1/8		
20	88	20	60	24	3	124	Rd.44x1/6		
25	98	26	70	30	3	142	Rd.52x1/6	200	G1/2”
32	104	32	70	36	3	154	Rd.58x1/6	210	G1/2”
40	112	38	70	42	5	164	Rd.65x1/6	220	G1/2”
50	112	50	70	54	5	168	Rd.78x1/6	230	G1/2”
65	127	66	85	70	5	191	Rd.95x1/6	250	G1/2”
80	135	81	85	85	5	209	Rd.110x1/4	270	G1/2”
100	169	100	115	104	5	257	Rd.130x1/4	320	G1/2”
125	202	125	160	129	7	270	Rd.160x1/4		
150	216	150	170	154	9	290	Rd.190x1/4		
1“	96	23.3	70	28	3				
1.5“	110	35.1	70	41	5				
2“	110	47.8	70	54	5				
2.5"	125	60.5	85	68	5				
3“	133	72.8	85	78.1	5				
4“	167	97.6	115	103.6	5				

10.3 Pressure strength of the borosilicate glass cylinders (M&S Art.-No.:61700)

Tab. 3 Pressure strength of the borosilicate glass cylinders

DN	Diameter d_a [mm]	Wall thickness s [mm]	Nominal pressure p_n [bar][1]
10	15	2.5	28.00
15	22	2.5	17.95
20	26	3	18.26
25	32	3	14.48
32	40	3	11.35
40	50	5	15.56
50	60	5	12.73
65	75	5	10.00
80	90	5	8.24
100	110	5	6.67
125	140	7	7.37
150	170	9	7.83

[1)] theoretical values with proper assembly

11 Material and surfaces

In contact with product:	1.4301/1.4307	AISI 304/304L
	1.4404	AISI 316L (optional)
Not in contact with product:	1.4301/1.4307	AISI 304/304L

Gaskets:	NBR, EPDM or FKM (depending on specification and/or version)
Glass cylinder:	Borosilicate
Inner surface:	depending on specification
Outer surfaces:	depending on specification