

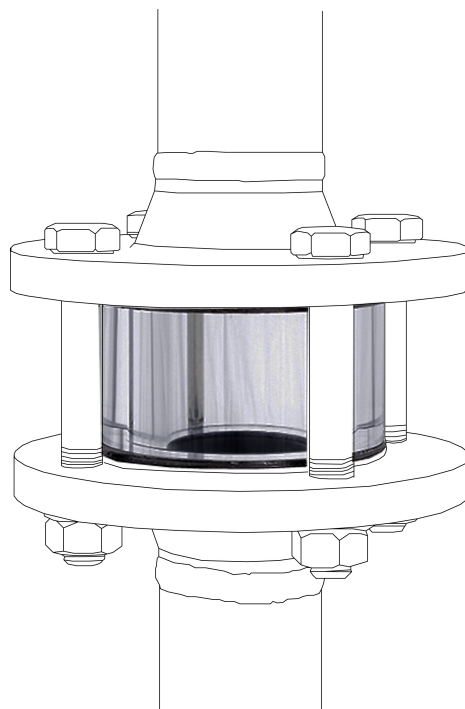


Instruction Manual

DG04

Flow Sight Class

for Installation between two Flanges



PKP Prozessmesstechnik GmbH
Borsigstraße 24
D-65205 Wiesbaden-Nordenstadt
Tel.: ++49-(0)6122-7055-0
Fax: ++49-(0)6122-7055-50
Email: info@pkp.de – www.pkp.de

Table of Contents

Safety Information.....	2
Mounting instructions.....	3
Maintenance and care.....	5

Safety Information

General Instructions

To ensure safe operation, the device should only be operated according to the specifications in the instruction manual. The requisite Health & Safety regulations for a given application must also be observed. This statement also applies to the use of accessories. Every person who is commissioned with the initiation or operation of this device must have read and understood the operating instructions and in particular the safety instructions!

The liability of the manufacturer expires in the event of damage due to improper use, non-observance of this operating manual, use of insufficiently qualified personnel and unauthorized modification of the device.

Proper Usage

The sight class of the DG04 series are used for the optical control monitoring of liquids. Any other use of the device is prohibited and outside the scope of application.

In particular, applications in which shock loads occur (for example, pulsed operation) should be discussed and checked in advance with our technical staff.

The devices of the DG04 series should not be used as sole monitoring devices in order to detect or even avoid dangerous operating states in plants and machines. The plant or machine itself must be planned and constructed in such a way that critical conditions which pose a danger to man and the environment are excluded from the outset

Dangerous substances

For dangerous media such as e.g. Oxygen, Acetylene, flammable or toxic substances as well as refrigeration systems, compressors, etc. must comply with the relevant regulations beyond the general rules.

Qualified Personnel

The devices of the DG04 may only be installed by trained, qualified personnel who are able to mount the devices correctly. Qualified personnel are persons, who are familiar with assembling, installation, placing in service and operating these devices and who are suitably trained and qualified.

Inward Monitoring

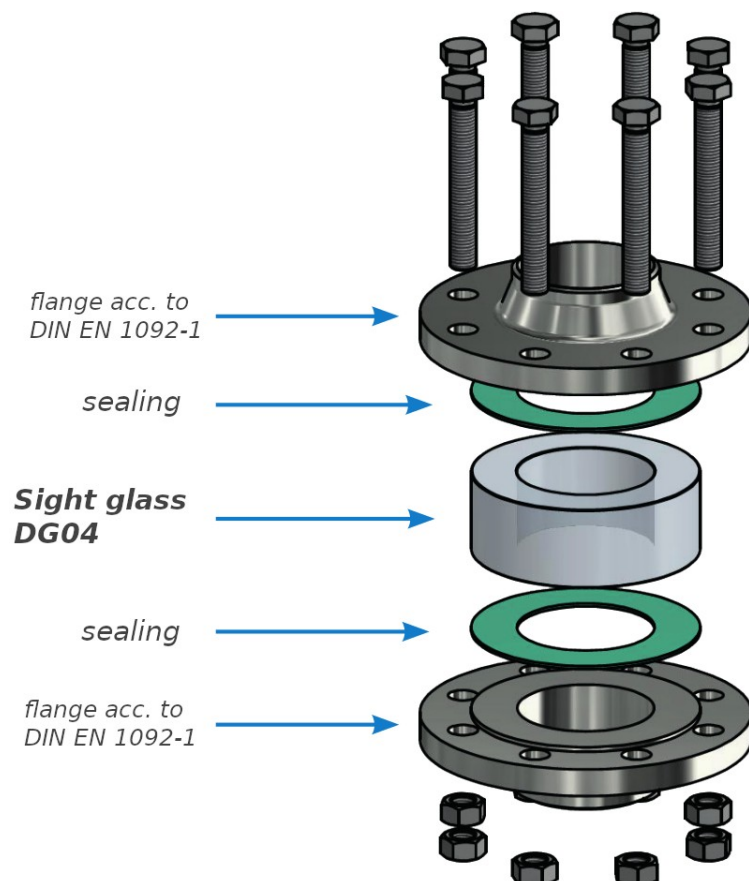
Please check directly after delivery the device for any transport damages and deficiencies. Additional with reference to the accompanying delivery note the number of parts must be checked.

Claims for replacement or goods which relate to transport damage can only be considered valid if the delivery company is notified without delay.

Mounting instructions

General information:

- Only carry out installation and maintenance work when the unit is depressurised and has cooled down.
- The installation position is horizontal or vertical with flow from bottom to top.
- Piping, tank and sightglass frame must be free from contamination.
- The assembly must be stabil without the sightglass frame, as this must not be used to stabilise the piping
- It is essential to protect the sealing surfaces of the base flange from damage (e.g. during welding work).



Flanges:

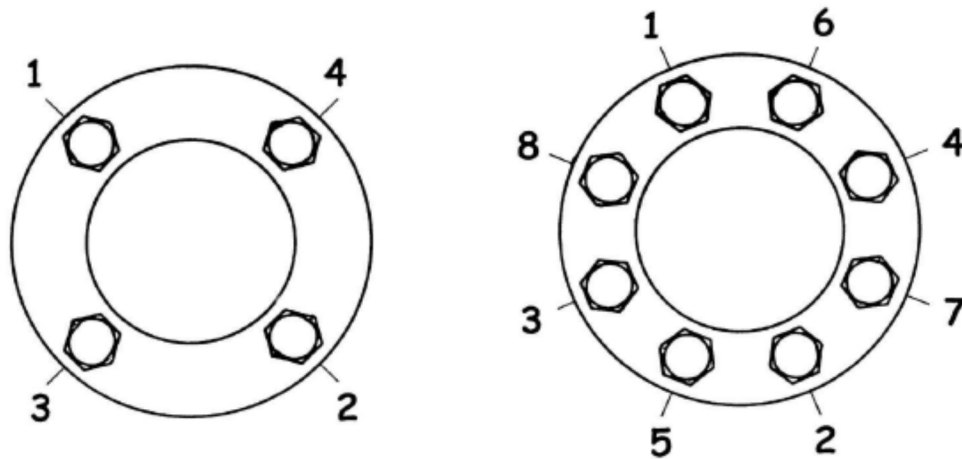
- Piping flanges must be plane-parallel and concentric
- Flange size and design of the sealing surface must match the flow sight glass
- Distance of the pipe flanges: Overall length of the flow sight glass + double the gasket thickness.
- The connecting screws must be tightened crosswise, gradually and evenly.
- Torques depend primarily on the gasket material used.

Seals:

- Place the new gasket and the sight glass exactly centrically on the lower gasket.
- The inscription on the gasket must face outwards.
- The gasket must not protrude into the inner diameter DN.
- Contact between the sight glass and the flange is not permissible, as this can damage the sight glass due to different expansion coefficients.
- Place the upper gasket and the cover flange exactly centrically on the glass tube.

Tighten the screws:

- Tighten the screws in many small steps crosswise using a torque spanner to the tightening torques of the screw/sealant combination.
- To avoid glass distortion, all screws must have exactly the same tightening torque.
- We recommend lubricated screws. For the recommended torques of the cover screws and the standard seals, please refer to the respective product data sheets of the corresponding manufacturers.



After commissioning:

- Under the influence of pressure and temperature, you can expect the seal to "set".
- Check the torques of the fastening screws again in a cold and depressurised state and correct if necessary.

Maintenance and care

The sight glasses are insensitive to contamination, as the inner surface is flushed by the flowing medium.

The sight glasses have no dead spaces, so that the sight glass can be flushed or cleaned together with the pipeline when changing the product.

The sight glasses are insensitive to contamination because the inner surface is rinsed by the flowing medium.

The sight glasses have no dead spaces, so that when the product is changed, the sight glass can be rinsed or cleaned together with the piping.

When cleaning the outer glass surface, use a clean and soft cloth and avoid scratching the glass (loss of strength). Commercially available cleaning agents (e.g. glass cleaner) may be used.

If the glass is also so dirty from the inside that it cannot be rinsed free by the medium itself, the sight glass can be removed and cleaned in the same way as from the outside (loosen the fastening nuts crosswise).

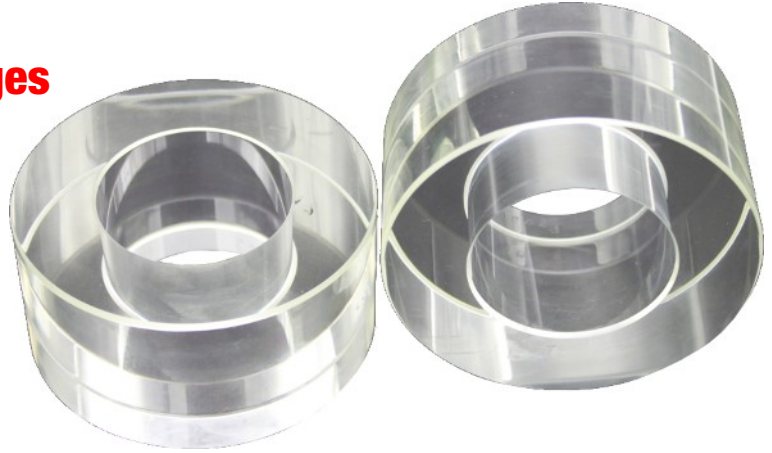
When reinstalling, always use new gaskets.

If the surface of the sight glass is affected (scratches, fissured surface, visible glass erosion due to milky surface), the sight glass must be replaced, as a loss of strength must be assumed.

DG04

Flow Sight Glass for Installation between Two Flanges

- for liquids and gases
- 360° all round visibility
- easy installation between two DIN- or ANSI-flanges
- DN 10 up to DN 500
- design in acrylic or borosilicate glass
- insensitive to contamination
- maximum pressure 16 bar
- max. temperature: 280 °C



Flange not included in scope of delivery

Description:

Model series DG04 sight glasses are distinguished by their rugged construction and wide range of applications. A 50 mm long ring made of acrylic or borosilicate glass with very thick walls is clamped between two existing flanges. Their dimensions match those of the sealing face on the raised area of the flange. This sizing makes support from a separate metal housing unnecessary.

In addition, this design allows the flow to be viewed and monitored from any direction. The flange screws provide additional protection against mechanical damage.

The sight glass has no dead spaces, so that it can be flushed / cleaned together with the pipeline when changing products.

There are no deposits in the sight glass when the pipeline is drained, because the inner diameter of the sight glass corresponds to the inner diameter of the pipeline. The DG04 are therefore also ideally suited for sterile and antiseptide applications.

Typical applications:

The sight glasses can be used in almost all pipelines. In the borosilicate glass version, the units can be used for chemically very aggressive media. They are insensitive to contamination because the inner surface is always rinsed by the flowing medium.

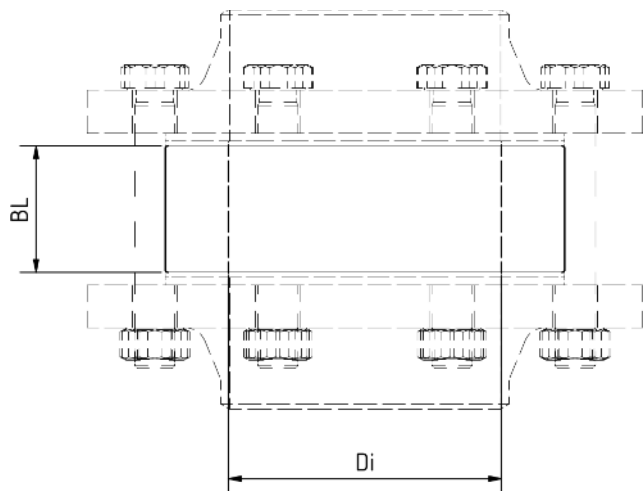
In particular, the larger nominal sizes are very cost effective solutions since they only require the transparent cylinder and no metal housing with flanges.

Models:

DG 04.A: material: acrylic glass
max. temperature: +80 °C

DG 04.B: material: borosilicate glass
max. temperature: -200...+280 °C
for aggressive medias and high temperatures

Dimensions:



Order Code:

Order number: **DG04.** **A.** **50.** **D.** **025.** **0**

Flow sight glass for installation between two flanges

Models:

A = acrylic glass
B = borosilicate glass

Length:

050 = 50 mm (standard)
030 = 30 mm (for borosilicate glass only)
100 = 100 mm (for acrylic glass only)
Special length on request

Connection:

D = flange acc. to DIN 1092-1, max. PN 16
A = ASMEI-flange 16.5 B, max. PN 20

Nominal size:

010...500 = nominal size appropriate table „Dimensions“

Options:

0 = without
1 = please specify in plain text

Advice:

The flanges, screws and gaskets are not included in the delivery.

Dimensions, Pressure Stage, Weight:

Sight glasses for flanges acc. to DIN 1092-1:

Nominal size	Ø Inner Di [mm]	Ø Outer [mm]	Pressure Stage / Weight [kg]	
			Acrylic	Borosilicate
DN 10	14	40	PN 16 / 0,07	PN 16 / 0,13
DN 15	18	45	PN 16 / 0,008	PN 16 / 0,16
DN 20	22	58	PN 16 / 0,14	PN 16 / 0,27
DN 25	29	68	PN 16 / 0,18	PN 16 / 0,36
DN 32	38	79	PN 16 / 0,23	PN 16 / 0,46
DN 40	44	88	PN 16 / 0,28	PN 16 / 0,56
DN 50	55	102	PN 16 / 0,36	PN 16 / 0,71
DN 65	71	122	PN 16 / 0,47	PN 16 / 0,94
DN 80	83	138	PN 10 / 0,59	PN 16 / 1,16
DN 100	108	158	PN 10 / 0,64	PN 16 / 1,27
DN 125	132	188	PN 10 / 0,86	PN 16 / 1,71
DN 150	160	212	PN 10 / 0,93	PN 16 / 1,85
DN 200	208	268	PN 10 / 1,38	PN 16 / 2,73
DN 250	260	320	PN 8 / 1,65	PN 10 / 3,28
DN 300	310	370	PN 6	PN 10 / 4,41
DN 350	341	430	/	PN 10 / 6,2
DN 400	392	482	/	PN 10 / 7,1
DN 450	443	532	/	PN 10 / 7,8
DN 500	494	585	/	PN 10 / 8,9

Standard length BL = 50 mm

Larger sizes, pressures and other lengths on request.

The pressure-temperature limits according to DIN EN 1092-1

Sight glasses for ASME flanges acc. to 16.5 B, Class 150:

NPS	Ø Inner Di [mm]	Ø Outer [mm]	Pressure Stage / Weight [kg]	
			Acrylic	Borosilicate
3/8"	/	/	/	/
1/2"	16	35	PN 19 / 0,05	PN 20 / 0,09
3/4"	21	43	PN 18 / 0,07	PN 20 / 0,13
1"	27	50	PN 16 / 0,09	PN 20 / 0,17
1 1/4"	35	63	PN 16 / 0,13	PN 20 / 0,26
1 1/2"	41	73	PN 16 / 0,18	PN 20 / 0,35
2"	53	92	PN 16 / 0,27	PN 20 / 0,54
2 1/2"	63	105	PN 14 / 0,34	PN 20 / 0,67
3"	78	127	PN 14 / 0,48	PN 20 / 1,96
4"	102	157	PN 10 / 0,69	PN 20 / 1,36
5"	128	186	PN 10 / 0,88	PN 19 / 1,74
6"	154	216	PN 8 / 1,11	PN 16 / 2,19
8"	203	270	PN 8 / 1,53	PN 15 / 3,03
10"	255	324	PN 6 / 1,93	PN 10 / 3,82
12"	305	381	PN 6	PN 10

Standard length BL = 50 mm

Larger sizes, pressures and other lengths on request.

The pressure-temperature limits according to ASME 16.5 B!