



spare parts for glass level gauges



SPARE PARTS FOR GLASS LEVEL GAUGES

GLASSES reflex type and transparent type

The level gauges can be supplied with two different types of glasses: reflex or transparent. Both in borosilicate, they are manufactured according to the high quality standards and grant the highest resistance to the chemical agents and thermal shock.

Standards references:

- DIN 7081
- BS 3463
- JIS B 8211
- MIL - G - 16356 D

Physical characteristics:

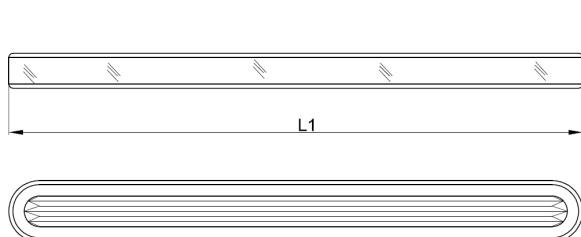
Coefficient of thermal expansion α 20°C; 300°C: $4,1 \times 10^{-6}/K$
 Density ρ at 25°C: 2,3 g/cm³
 Young's modulus E: 67×10^3 N/mm²
 Poisson's ratio μ : 0,20
 Refractive index n_d ($\lambda = 587,6$ nm): 1,482
 Abbe number v_d : 64,5
 Internal transmittance at 550 nm: 98,9% at 10 mm thickness

Temperature:

Thermal shock resistance ΔT : 265 K
 Transformation temperature T_g : 545°C
 Max. permissible temperature: 300°C
 Saturated steam applications: see page 1.59

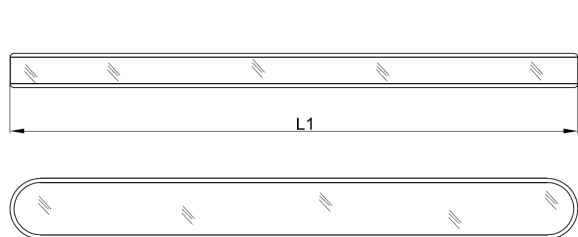
Chemical characteristic	Hydrolytic resistance	Acid resistance	Alkaline resistance
Test according to	DIN ISO 720 Class 1 (HGA1)	DIN ISO 1776	DIN ISO 695 (Identical to DIN 52322) Class A2
Max. abrasion according to DIN ISO	0,1	<100 $\mu\text{g Na}_2\text{O}/\text{dm}^2$	>75-175 mg/dm^2
Max. abrasion	0,050	<60 $\mu\text{g Na}_2\text{O}/\text{dm}^2$	>100 mg/dm^2

The **reflex glass** has a smooth surface (external side) and a prismatic one to be put in contact with the fluid to absorb the light. Taking advantage of the optical laws of refraction, the fluid appears dark, while the surface in contact with the gas reflects the light appearing very clear.



Code: BGR _ [Width: A o B] _ [Size: 1...9]

The **transparent glass** has two smooth surfaces and the reading is obtained by the different transparency between the fluids and their gas. A clearer reading can be obtained by installing an illumination lamp which is able to increase the contrast by a diffuser.



Code: BGT _ [Width: A o B] _ [Size: 1...9]

Available size

Both transparent and reflex glasses can be supplied in two different types:

- type A - width 30 mm
- type B - width 34 mm

SIZE	1	2	3	4	5	6	7	8	9
LEVEL GAUGE BODY LENGTH [mm]	130	155	180	205	235	265	295	335	360
GLASS LENGTH L1 [mm]	115	140	165	190	220	250	280	320	340
GLASS WIDTH W TYPE A [mm]	30	30	30	30	30	30	30	30	30
GLASS WIDTH W TYPE B [mm]	34	34	34	34	34	34	34	34	34
GLASS THICKNESS [mm]	17	17	17	17	17	17	17	17	17

SPARE PARTS FOR GLASS LEVEL GAUGES

The transparent glass can be protected by the corrosive action of particular fluids by a **MICA** shield or a **PCTFE** shield positioned between the glass and the fluid.

MICA SHIELDS to protect transparent glasses

The MICA shield protection is recommended in case of:

Steam with pressure > 20 bar (see below diagram) and fluids like caustic soda, citric acid....

Type of mica shield:

Transparent Ruby Muskovite mica shield, thickness 0,15 / 0,20 mm.



Code: RMMS _[Width: A o B] _[Size: 1...9]

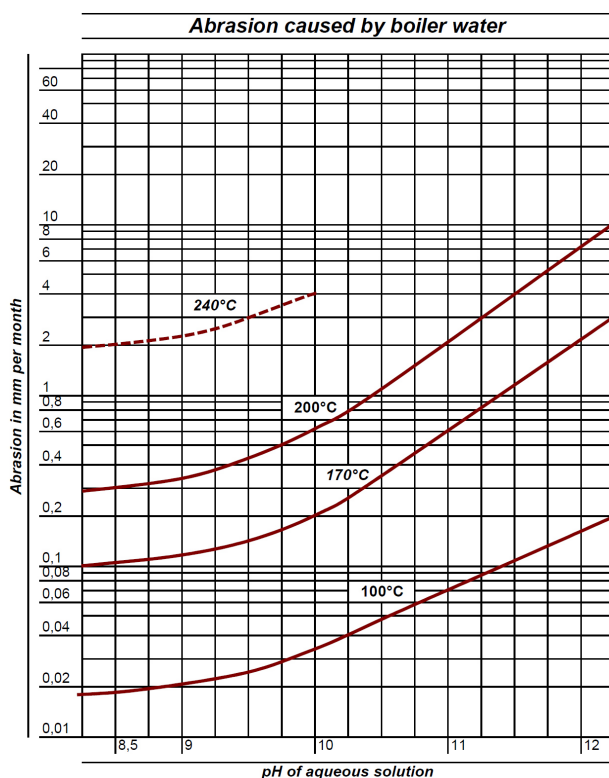
Available size

The shields can be supplied in two different types depending from the glass they have to protect:

type A - width 30 mm

type B - width 34 mm

SIZE	1	2	3	4	5	6	7	8	9
LEVEL GAUGE BODY LENGTH [mm]	130	155	180	205	235	265	295	335	360
SHIELD LENGTH L1 [mm]	115	140	165	190	220	250	280	320	340
SHIELD WIDTH W TYPE A [mm]	30	30	30	30	30	30	30	30	30
SHIELD WIDTH W TYPE B [mm]	34	34	34	34	34	34	34	34	34



Abrasion - shown here for unprotected borosilicate glasses.
The glasses life depends not only on the temperature but also on the water pH (higher pH values shorten glass life).

The **PCTFE** shield is strictly recommended with fluoridic acid.

SPARE PARTS FOR GLASS LEVEL GAUGES

GLASSES GASKETS

On request, the glass can be supplied also along with two gaskets.

- Standard sealing gasket: Graphite with reinforcement (S.S. 316 foil)
- Standard cushion gasket: Graphite with reinforcement (S.S. 316 foil)

Option: PTFE

Option: PTFE; Aramidic fiber (asbestos free)

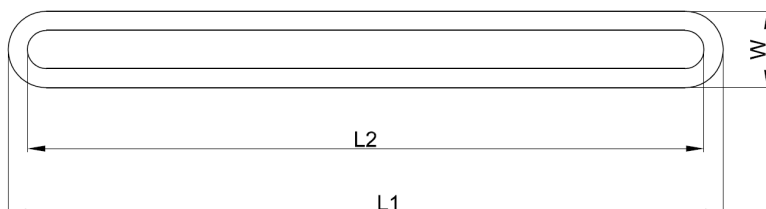
Code:

JGG _ [Width: A o B] _ [Size: 1...9] (Graphite)

JGG _ [Width: A o B] _ [Size: 1...9]
(Graphite Hochdruck)

JGP _ [Width: A o B] _ [Size: 1...9] (PTFE)

CGA _ [Width: A o B] _ [Size: 1...9] (Aramidic fiber)



SIZE	1	2	3	4	5	6	7	8	9
LEVEL GAUGE BODY LENGTH [mm]	130	155	180	205	235	265	295	335	360
GASKET LENGTH L1 [mm]	115	140	165	190	220	250	280	320	340
VISIBLE LENGTH L2 [mm]	95	120	145	170	200	230	260	300	320
GASKET WIDTH W TYPE A [mm]	30	30	30	30	30	30	30	30	30
GASKET WIDTH W TYPE B [mm]	34	34	34	34	34	34	34	34	34

INSTRUCTIONS FOR THE REMOVAL AND REPLACEMENT OF GLASSES AND GASKETS

Assumptions:

- The glass and gaskets replacement requires such specific devices and tools that the operation by personnel not specifically trained to do so is not advised
- The level gauge is designed so that dismounting is possible solely by means of specific tools in order to avoid any involuntary opening of its parts

If the buyer decides to proceed with its own personnel and tools for maintenance operations, such as the replacement of the glass and/or the gaskets, it is **IMPORTANT**:

- that two people with good technical knowledge of maintenance are envisioned
- the customer contact the manufacturer to decide the proper parts and get instructions
- to carefully read the instructions reported in the use and maintenance manual provided with the instrument
- the operators wear appropriate individual personal protective means and all necessary precautions must be taken to avoid accidents

Before starting any maintenance operation, it is important to wait until the temperature of the equipment reaches the room temperature

Before level gauge dismounting be sure that the instrument is not under pressure:

- 1) Unscrew the tightening bolts and nuts and be sure that when it is done no parts fall
- 2) Remove all gaskets residues from the housing. Use **non-abrasive** products and in any case products that are could incise the glass housing (any incision will affect the glass sealing)
- 3) Carefully clean all components by non-abrasive products

Mounting:

- 1) Insert the sealing gasket in the housing, put the glass over (if it's a reflex type the prismatic surface must be in contact with the fluid) and then the cushion gasket; in case of a transparent type, if foreseen, insert the mica shields (or the one in PCTFE) between the sealing gaskets and the glass (it must perfectly adhere to the glass surface in contact with the fluid)
- 2) Position the cover avoiding any movement of glass and gasket, even slightly
- 3) Proceed by tightening the fitting screws in the cross sequence shown on the instruction provided with the glass. The tightening torque is mentioned on every products data sheet

Before restarting the equipment:

- Leave the shut-off valves closed in order to avoid dangerous "head butts" to the glasses and their seal
- If small leakage of fluid are noted, gently tighten the stuffing box, the screws and sealing nuts

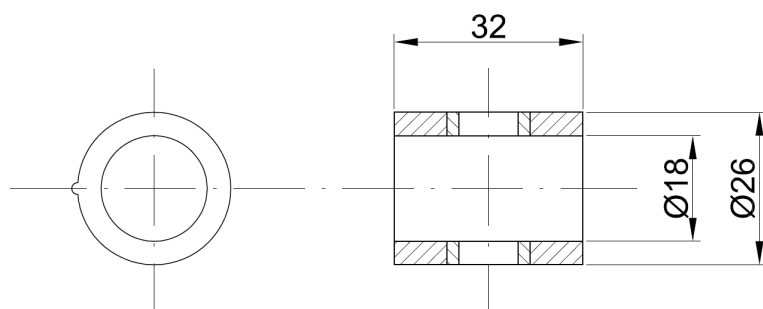
GASKETS for cylindrical plug cocks

Two holes case for cock type DS D18 or for shut-off cocks type DS GR18 and type DS MT18

Each shut-off cocks needs two cases (cylindrical gaskets)

Standard material: Graphite with stainless steel 316 rings on valve bore

Option: PTFE with stainless steel 316 rings on valve bore



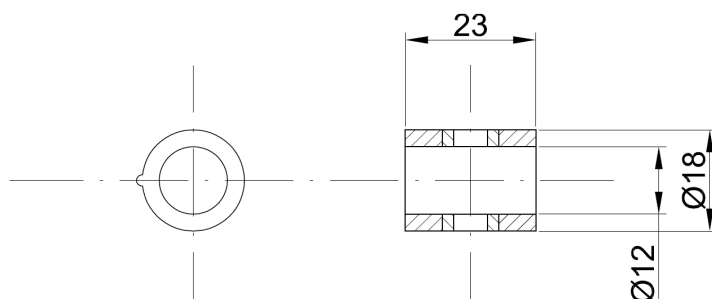
Code: BB18G (Graphite)
BB18GL (Graphite layer)
BB18P (PTFE)

Two holes case for cock type DS D12 or for drain cock of the shut-off cocks type DS GR18 and type DS MT18

Each shut-off cocks has a drain cock as standard

Standard material: Graphite with stainless steel 316 rings on valve bore

Option: PTFE with stainless steel 316 rings on valve bore

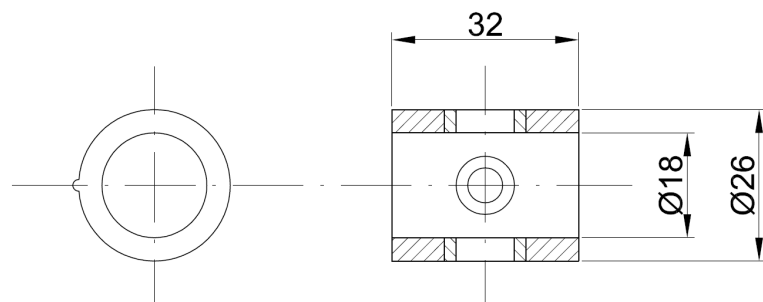


Code: BB12G (Graphite)
BB12GL (Graphite layer)
BB12P (PTFE)

Three holes case for manometer setting valve type DS PM18 three way with flange for inspection manometer

Standard material: Graphite with stainless steel 316 rings on valve bore

Option: On request



Code: DD18 (Graphite)

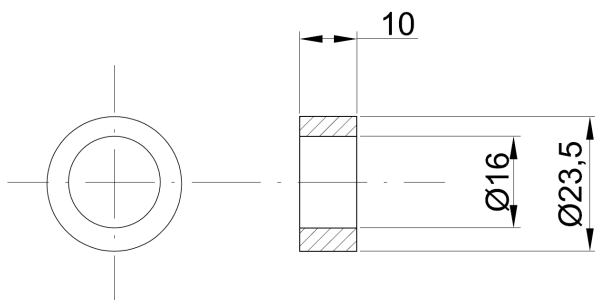
SPARE PARTS FOR GLASS LEVEL GAUGES

Gasket for grinded pipes

Each shut-off cocks (type DS GR18 and type DS MT18) needs two packing rings to ensure the sealing of the housing pipes

Standard material: Graphite

Option: PTFE (chevron type); EPDM (only for glass tube)



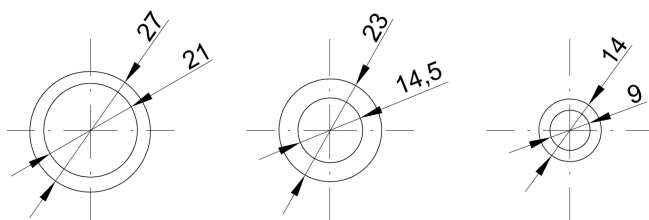
Code: AA16G (Graphite)
AA16P (PTFE)
AA16E (EPDM)

Metal gaskets

Each shut-off cocks (type DS GR18 and type DS MT18) needs several metallic gaskets (see the set quantity mentioned below):

Standard material: Copper

Option: stainless steel AISI 316



Code: GM23CU (Copper)
GM27CU (Copper)
GM14CU (Copper)

GM23SS (Stainless steel 316)
GM27SS (Stainless steel 316)
GM14SS (Stainless steel 316)

SPARE PARTS SET FOR HOUSING

Each reflex housing needs a glass for every element (see the data sheets); in case of transparent level gauge, the glasses are two for every element. Each glass needs two gaskets (a sealing gasket and a cushion gasket).

- Reflex glass: 1 x No. elements of the level gauge
- Transparent glass: 2 x No. elements of the level gauge
- Gaskets: 2 x No. glasses

SET OF SPARE PARTS FOR SHUT-OFF COCKS TYPE DS GR18 AND TYPE DS MT18

Each shut-off cocks (type DS GR18 and type DS MT18) needs a gaskets set composed by:

- No. 2 cases type BB18...
- No. 1 case type BB12...
- No. 2 packing ring type AA16...
- No. 1 gasket pos. 29 page 1.66 (only for drain cock with drain pipe)
- No. 2 gaskets pos. 36 page 1.66 (only for shut-off cocks with threaded connections)
- No. 2 gaskets type GM23... (not suitable for DS MT18)
- No. 1 gasket type GM27... (not suitable for DS MT18)
- No. 2 gaskets type GM14...

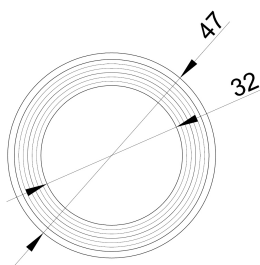
GASKETS for globe valves type DS SHV

Gasket between body and bonnet

Each shut-off valves type DS SHV needs two gaskets.

Standard material: Graphite / AISI 316L

Option: PTFE



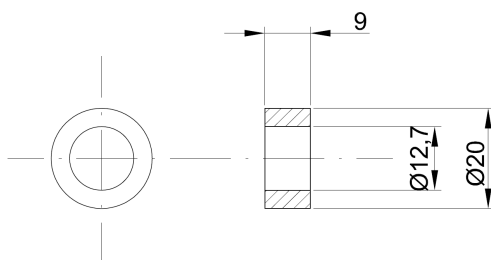
Code: GSM47G (Graphite)
GSM47P (PTFE)

Gasket for stem

Each shut-off valves type DS SHV needs four gaskets.

Standard material: Graphite

Option: PTFE (chevron type)



Code: AA20G (Graphite)
AA20P (PTFE)

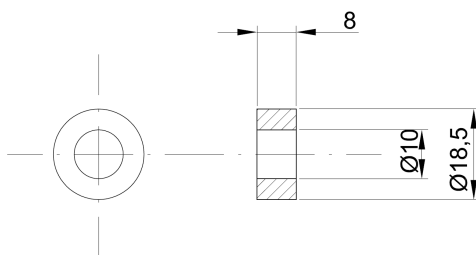
GASKETS for push-button valves type DS NPV and needle valves type DS DHV

Gasket for stem

Both push-button valve type DS NPV and needle valve type DS DHV need two gaskets.

Standard material: Graphite

Option: PTFE (chevron type)



Code: AA18.5G (Graphite)
AA18.5P (PTFE)