

## GLASS LEVEL GAUGES

### Code

#### 1 Basic Type

DS LG DIESE Glass level gauge

#### 2 Level Gauge Model

Pos. 1: Level Gauge type

Pos. 2: No. of sections

Pos. 3: Glass size / type

RTR Reflex - rotating execution with tubular cover  
 RTF Reflex - fixed distance execution with tubular cover  
 RBR Reflex - rotating execution with lateral covers  
 RBF Reflex - fixed distance execution with lateral covers  
 RCR Reflex - rotating execution with light cover  
 RDR Reflex - rotating execution with light cover - flat body  
 RCF Reflex - fixed distance execution with light cover  
 RPF Reflex - fixed distance execution with heavy cover  
 RXF Reflex - fixed distance execution with heavy cover - flat body  
 TCR Transparent - rotating execution with light cover  
 TMR Transparent - rotating execution with light cover - flat body  
 TCF Transparent - fixed distance execution with light cover  
 TMF Transparent - fixed distance execution with light cover - flat body  
 TPF Transparent - fixed distance execution with heavy cover  
 TXF Transparent - fixed distance execution with heavy cover - flat body  
 RCW Reflex - weld-on type with light cover  
 TCW Transparent - weld on type with light cover  
 TVR Tubular glass type

#### Options Pos. 3

Standard Type A  
 /B Type B  
 /RV Right View  
 /LV Left View  
 /MS Glass protection with MICA shields  
 /KFS Glass protection with ECTFE shields

#### 3 Process connections

Pos. 1: Nominal dimension

Pos. 2: Nominal pressure

Pos. 3: Type / Finish

Pos. 4: Position

Standard Side / Side  
 /SB Side / Bottom  
 /TS Top / Side  
 /TB Top / Bottom

#### 4 Gauge Valves model

Pos. 1: Type of valves

Pos. 2: Drain and Vent connection

0	None	0	Blind
GR18	Cylindrical plug cocks	PB	Plug BSP
		PT	Plug NPT
		FL	Flange
MT18	Cylindrical plug cocks - Monolithic body	D12	Cylindrical plug cock (Standard)
		D18	Cylindrical plug cock
NPV	Push button valves	PM18	Three way cylindrical plug manometer setting valve with control flange
SHV	Globe valves	DHV	Globe valve
SBB	Ball valves	DBB	Ball valve

#### 5 Distance Centre-to-centre

M... Distance between connections centres in mm  
 M [SL...HL] Standard distance: see table in each level type form

#### 6 Materials

Pos. 1: Wetted parts

Pos. 2: Non-wetted parts

Pos. 3: Gaskets

CS	Carbon steel ASTM A105 galvanized	CS	Carbon steel galvanized	Standard	Graphite / Copper
LF2	Carbon steel A105 LF2 galvanized	SS	Stainless steel AISI 316	GF	Graphite / AISI 316
SS	Stainless steel AISI 316L			PF	PTFE/316
				GG	EPDM (for glass tube)

#### 7 Accessories

LC	Lower check ball	UC	Upper check ball	LUC	Check balls (lower + upper)
LPH	Lower pusher	UPH	Upper pusher	LUPH	Pusher (lower + upper)
VSG	Calibrated scale	NFE	Non-frosting extension	CR...	Continuous reading
MLA	Minimum level arrow	EVA50	Bulb type illuminator	TDR	Microwave transmitter
GPU	Glass tube protection	MJT	Middle terminal for glass tube	ELC	Remote control
LFC	Weight closing for lower handle	UFC	Weight closing for upper handle	LUFC	Weight closing for all handles (lower + upper)
SMHD	Cocks handles lock (all)	LU-SMHD	Shut-off cocks handles lock	D/V-SSHHD	Vent and drain handles lock

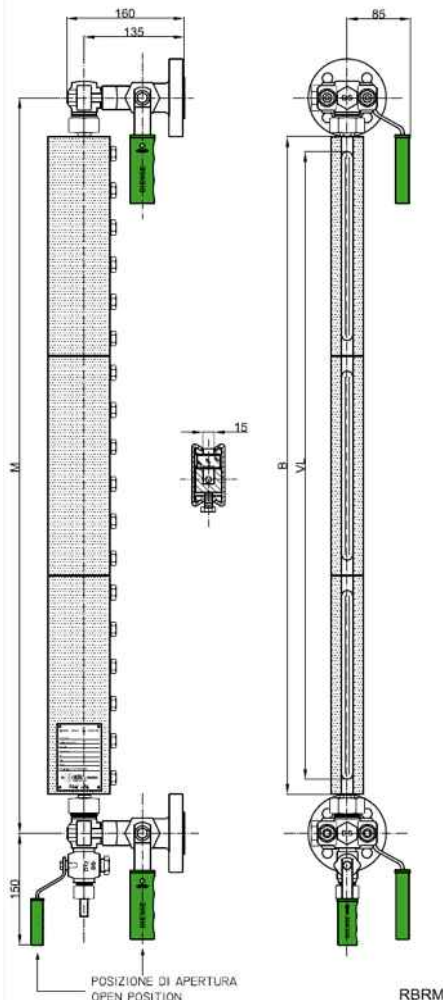
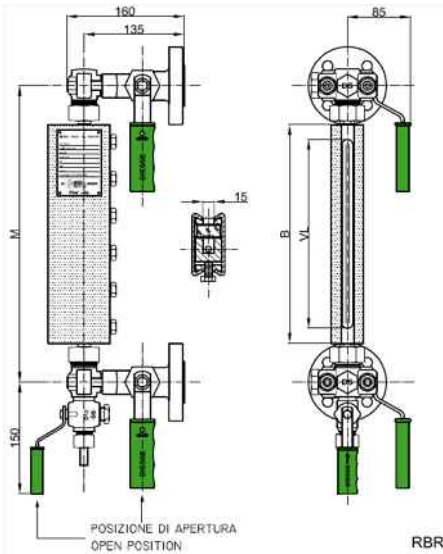
#### 8 Approvals

EEx ATEX SHP... Marine

Code 1 2 3 4 5 6 7 8  
 e.g. DS LG - RBR17 - 20/40/RF - GR18/D12/0 - M 420 - CS/CS - LC/VSG - EEx

**GLASS LEVEL GAUGE  
REFLEX TYPE  
PN25 and PN40 / Class 150  
DS LG - RBR GR18**

Code: DS LG RBR...../40/RF-GR18/.....M....CS/CS



**Technical data**

**Service conditions**

Max Pressure: PN25 and PN40

Max Temperature: 280/300°C (According to DIN 7081 for glasses, see page 1.69)

**View**

Standard: adjustable on 360° in the installation phase

**Distance (Centre-to-centre)**

Standard: see below table (**Distance adjustable - 0 mm / + 10 mm**)

Option: On request intermediate distances and over 3.000 mm

**Materials (Standard)**

Execution:	CS/CS	SS/CS
Gauge body & cocks body:	ASTM A105	AISI 316L
Cocks trim:	AISI 303	AISI 316
Non-wetted parts:	Carbon steel galvanized	Carbon steel galvanized

**Gaskets**

Standard: grahite/copper

Option: graphite/AISI 316 or PTFE/AISI316

**Shut-off cocks**

Type DS GR18: cylindrical plug type - Straight type - Quick 90° closing

Type DS MT18: cylindrical plug type with monolithic body - Straight type - Quick 90° closing

(see page 1.47)

**Centre-to-centre distance  $M = B + 115 \text{ mm or } 140 \text{ mm}$**

Handling: lever operated with PP handle (Standard: right; Option: left)

**Process connections:**

Standard flanges: UNI PN40 DN15-20-25

ANSI#150-300-600/RF DN ½" - ¾" - 1"

Standard threaded unions: BSP-M ½" - ¾"

NPT-M ½" - ¾"

Options: further connections types or direct connections to the process without shut-off cocks

(see page 1.49)

**Vent:** Standard: blind

Option: see page 1.50

**Drain:** Standard: cock type D12 threaded ½"

Option: see page 1.50

**Glasses**

Reflex - Borosilicate glass, "extra hard" and thermally pre-stressed - According to DIN 7081

Standard: fitted with type A (see page 1.69)

Option: type B (see page 1.69)

**Accessories**

See from page 1.55

**Weights**

Housing type DS RBR: see below table

Cocks type DS GR18: Kg. 7,4 approx. (with flanges UNI DN20 PN40)

**Tightening torque of housing screws**

Standard: 40 Nm

**Spare parts**

Housing type DS RBR: see from page 1.69 (drawing with components and parts list see page 1.61)

Cocks type DS GR18: see from page 1.72 (drawing with components and parts list see pag. 1.66)

CODE	TYPE	BODY Length [mm]	DISTANCE SL Pipes L = 57 -0/+10 mm	DISTANCE HL Pipes L = 72 -0/+10 mm	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el	B	M = B+105	M = B+130	VL	x No. elements	
11	1x1	130	235	260	95	115x1	2,4
12	2x1	155	260	285	120	140x1	2,8
13	3x1	180	285	310	145	165x1	3,3
14	4x1	205	310	335	170	190x1	3,8
15	5x1	235	340	365	200	220x1	4,3
16	6x1	265	370	395	230	250x1	4,9
17	7x1	295	400	425	260	280x1	5,4
18	8x1	335	440	465	300	320x1	6,1
19	9x1	360	465	490	320	340x1	6,6
24	4x2	410	515	540	375	190x2	7,5
25	5x2	470	575	600	435	220x2	8,5
26	6x2	530	635	660	495	250x2	9,7
27	7x2	590	695	720	555	280x2	10,7
28	8x2	670	775	800	635	320x2	12,1
29	9x2	720	825	850	680	340x2	13,1
36	6x3	795	900	925	760	250x3	14,4
37	7x3	885	990	1015	850	280x3	15,9
38	8x3	1005	1110	1145	970	320x3	18,0
39	9x3	1080	1185	1210	1040	340x3	19,5
47	7x4	1180	1285	1310	1145	280x4	21,2
48	8x4	1340	1445	1470	1305	320x4	24,0
49	9x4	1440	1545	1570	1400	340x4	26,0
57	7x5	1475	1580	1605	1440	280x5	26,5
58	8x5	1675	1780	1805	1640	320x5	30,0
59	9x5	1800	1905	1930	1760	340x5	32,5
68	8x6	2010	2115	2140	1975	320x6	35,9
69	9x6	2160	2265	2290	2120	340x6	38,9
78	8x7	2345	2450	2475	2310	320x7	41,9
79	9x7	2520	2625	2650	2480	340x7	45,4
88	8x8	2680	2785	2810	2645	320x8	47,9
89	9x8	2880	2985	3010	2840	340x8	51,9

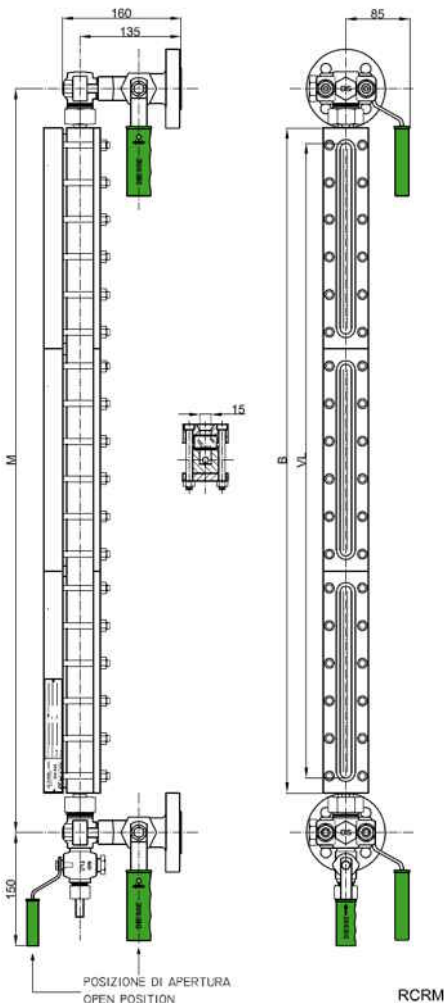
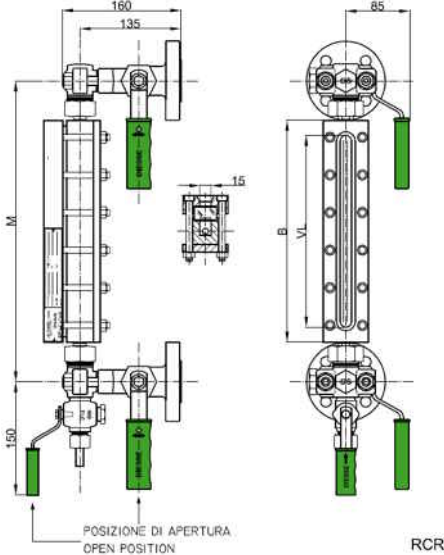
Tab. RBR



**GLASS LEVEL GAUGE  
REFLEX TYPE  
PN40**

**DS LG - RCR GR18**

Code: DS LG RCR.../40/RF-GR18/...-M...-CS/CS



**Technical data**

**Service conditions**

Max Pressure: PN40

Max Temperature: 280/300°C (According to DIN 7081 for glasses, see page 1.69)

**View**

Standard: adjustable on 360° in the installation phase

**Distance (Centre-to-centre)**

Standard: see below table (**Distance adjustable - 0 mm / + 10 mm**)

Option: On request intermediate distances and over 3.000 mm

**Materials (Standard)**

Execution:	CS/CS	SS/CS	SS/SS
Gauge body & cocks body:	ASTM A105	AISI 316L	AISI 316L
Cocks trim:	AISI 303	AISI 316	AISI 316
Non-wetted parts:	Carbon steel galvanized	Carbon steel galvanized	AISI 316

**Gaskets**

Standard: grahite/copper

Option: graphite/AISI 316 or PTFE/AISI316

**Shut-off cocks**

Type DS GR18: cylindrical plug type - Straight type - Quick 90° closing

Handling: lever operated with PP handle (Standard: right; Option: left)

**Process connections:**

Standard flanges: UNI PN40 DN15-20-25 ANSI#150-300-600/RF DN ½" - ¾" - 1"

Standard threaded unions: BSP-M ½" - ¾" NPT-M ½" - ¾"

Options: further connections types or direct connections to the process without shut-off cocks

(see page 1.49)

**Vent:** Standard: blind Option: see page 1.50

**Drain:** Standard: cock type D12 threaded ½" Option: see page 1.50

**Glasses**

Reflex - Borosilicate glass, "extra hard" and thermally pre-stressed - According to DIN 7081

Standard: fitted with type A (see page 1.69)

**Accessories**

See from page 1.55

**Weights**

Housing type DS RCR: see below table

Cocks type DS GR18: Kg. 7,4 approx. (with flanges UNI DN20 PN40)

**Tightening torque of housing screws**

Standard: 35 Nm

**Spare parts**

Housing type DS RCR: see from page 1.69 (drawing with components and parts list see page 1.62)

Cocks type DS GR18: see from page 1.72 (drawing with components and parts list see page 1.66)

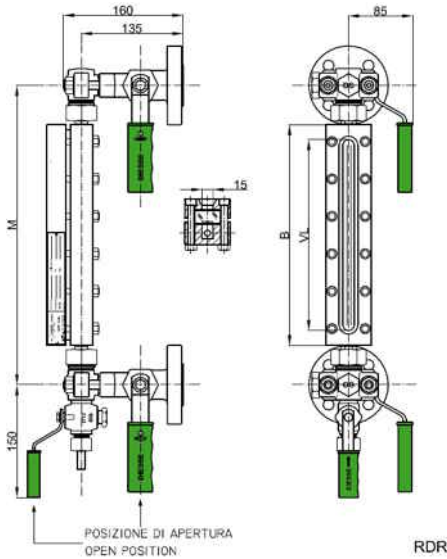
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	x No. el	B	M = B+105	M = B+130	VL	x No. elements	
11	1x1	130	235	260	95	115x1	3,0
12	2x1	155	260	285	120	140x1	3,5
13	3x1	180	285	310	145	165x1	4,0
14	4x1	205	310	335	170	190x1	4,4
15	5x1	235	340	365	200	220x1	5,2
16	6x1	265	370	395	230	250x1	5,6
17	7x1	295	400	425	260	280x1	6,3
18	8x1	335	440	465	300	320x1	7,0
19	9x1	360	465	490	320	340x1	7,6
24	4x2	410	515	540	375	190x2	8,6
25	5x2	470	575	600	435	220x2	10,2
26	6x2	530	635	660	495	250x2	11,0
27	7x2	590	695	720	555	280x2	12,5
28	8x2	670	775	800	635	320x2	13,8
29	9x2	720	825	850	680	340x2	15,0
36	6x3	795	900	925	760	250x3	16,5
37	7x3	885	990	1015	850	280x3	18,6
38	8x3	1005	1110	1145	970	320x3	20,7
39	9x3	1080	1185	1210	1040	340x3	22,5
47	7x4	1180	1285	1310	1145	280x4	24,7
48	8x4	1340	1445	1470	1305	320x4	27,5
49	9x4	1440	1545	1570	1400	340x4	29,9
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58	8x5	1675	1780	1805	1640	320x5	34,3
59	9x5	1800	1905	1930	1760	340x5	37,3
68	8x6	2010	2115	2140	1975	320x6	41,3
69	9x6	2160	2265	2290	2120	340x6	44,8
78	8x7	2345	2450	2475	2310	320x7	48,0
79	9x7	2520	2625	2650	2480	340x7	52,2
88	8x8	2680	2785	2810	2645	320x8	54,8
89	9x8	2880	2985	3010	2840	340x8	59,6

Tab. RCR

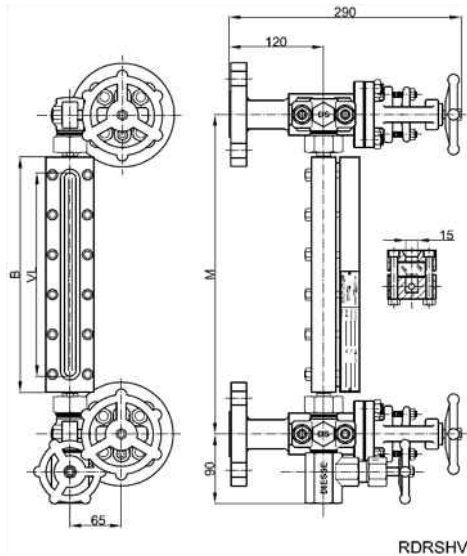
**GLASS LEVEL GAUGE  
REFLEX TYPE  
PN40**

**DS LG - RDR GR18 / SHV**

Code: DS LG RDR... /40/RF-GR18/...-M...-CS/CS



Code: DS LG RDR... /40/RF-SHV/...-M...-CS/CS



**Technical data**

**Service conditions**

Max Pressure: PN40

Max Temperature: 280/300°C (According to DIN 7081 for glasses, see page 1.69)

**View**

Standard: adjustable on 360° in the installation phase

**Distance (Centre-to-centre)**

Standard: see below table (**Distance adjustable - 0 mm / + 10 mm**)

Option: On request intermediate distances and over 3.000 mm

**Materials (Standard)**

Execution:	CS/CS	SS/CS	SS/SS
Gauge body:	ASTM A105	AISI 316L	AISI 316L
Cocks body type DS GR18:	ASTM A105	AISI 316L	AISI 316L
Cocks trim:	AISI 303	AISI 316	AISI 316
Valves body type DS SHV:	A105 LF2	AISI 316L	AISI 316L
Stem, disc / seat valves:	AISI 410 / AISI 316	AISI 316	AISI 316
Non-wetted parts:	Carbon steel galvanized	Carbon steel galvanized	AISI 316

**Gaskets**

Standard: grahite/copper

Option: graphite/AISI 316 or PTFE/AISI316

**Shut-off cocks**

Type DS GR18: cylindrical plug type - Straight type - Quick 90° closing

Handling: lever operated with PP handle (Standard: right; Option: left)

Valves type DS SHV: globe type - Opening/Closing by handwheel

**Process connections:**

Standard flanges: UNI PN40 DN15-20-25      ANSI#150-300-600/RF DN ½" - ¾" - 1"

Standard threaded unions: BSP-M ½" - ¾"      NPT-M ½" - ¾"

Options: further connections types or direct connections to the process without shut-off cocks

(see page 1.49)

**Vent:** Standard: blind

Option: see page 1.50

**Drain:** Standard: cock type D12 threaded ½"

Option: see page 1.50

**Glasses**

Reflex - Borosilicate glass, "extra hard" and thermally pre-stressed - According to DIN 7081

Standard: fitted with type B (see page 1.69)

Option: type A (see page 1.69)

**Accessories**

See from page 1.55

**Weights**

Housing type DS RDR: see below table

Cocks type DS GR18: Kg. 7,4 approx. (with flanges UNI DN20 PN40)

Valves type DS SHV: Kg. 11,8 approx. (with flanges UNI DN20 PN40)

**Tightening torque of housing screws**

Standard: 35 Nm

**Spare parts**

Housing type DS RDR: see from page 1.69 (drawing with components and parts list see page 1.62)

Cocks type DS GR18: see from page 1.72 (drawing with components and parts list see page 1.66)

Valves type DS SHV: see from page 1.74 (drawing with components and parts list see page 1.68)

CODE	TYPE	BODY Length [mm]	DISTANCE SL Pipes L = 57 -0/+10 mm	DISTANCE HL Pipes L = 72 -0/+10 mm	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
		B	M = B+105	M = B+130	VL		
11	1	130	235	260	95	115	2,9
12	2	155	260	285	120	140	3,4
13	3	180	285	310	145	165	3,8
14	4	205	310	335	170	190	4,4
15	5	235	340	365	200	220	5,2
16	6	265	370	395	230	250	5,6
17	7	295	400	425	260	280	6,0
18	8	335	440	465	300	320	6,5
19	9	360	465	490	320	340	7,5

Tab. RDR











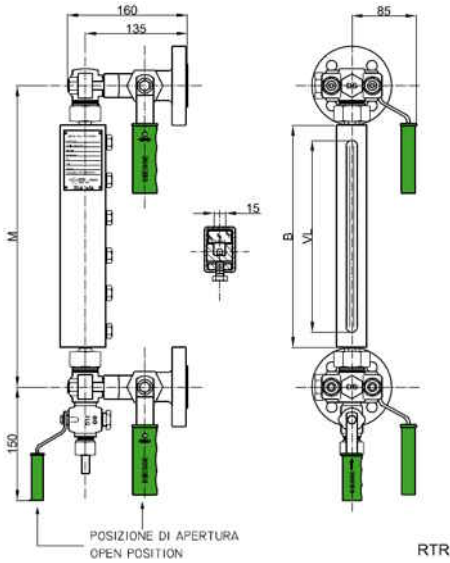




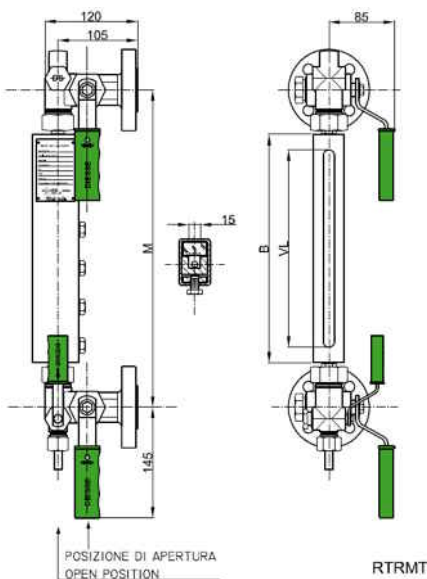
**GLASS LEVEL GAUGE  
REFLEX TYPE  
PN16**

**DS LG - RTR GR18 / MT18**

Code: DS LG RTR... /16/RF-GR18/.../...-M...-CS/CS



Code: DS LG RTR... /16/RF-MT18/.../...-M...-CS/CS



**Technical data**

**Service conditions**

Max Pressure: PN16

Max Temperature: 280/300°C (According to DIN 7081 for glasses, see page 1.69)

**View**

Standard: adjustable on 360° in the installation phase

**Distance (Centre-to-centre)**

Standard: see below table (Distance adjustable - 0 mm / + 10 mm)

**Materials (Standard)**

Execution: CS/CS  
Gauge body & cocks body: ASTM A105  
Cocks trim: AISI 303  
Non-wetted parts: Carbon steel galvanized

**Gaskets**

Standard: grahite/copper Option: graphite/AISI 316 or PTFE/AISI316

**Shut-off cocks**

Type DS GR18: cylindrical plug type - Straight type - Quick 90° closing

Type DS MT18: cylindrical plug type with monolithic body - Straight type - Quick 90° closing

(see page 1.47)

**Centre-to-centre distance  $M = B + 115 \text{ mm}$  or  $140 \text{ mm}$**

Handling: lever operated with PP handle (Standard: right; Option: left)

**Process connections:**

Standard flanges: UNI PN16/40 DN15-20-25 ANSI#150/RF DN ½" - ¾" - 1"

Standard threaded unions: BSP-M ½" - ¾" NPT-M ½" - ¾"

Options: further connections types or direct connections to the process without shut-off cocks

(see page 1.49)

**Vent:** Standard: blind

Option: see page 1.50

**Drain:** Standard: cock type D12 threaded ½"

Option: see page 1.50

**Glasses**

Reflex - Borosilicate glass, "extra hard" and thermally pre-stressed - According to DIN 7081

Standard: fitted with type A (see page 1.69)

**Accessories**

See from page 1.55

**Weights**

Housing type DS RTR: see below table

Cocks type DS GR18: Kg. 7,4 approx. (with flanges UNI DN20 PN40)

Cocks type DS MT18: Kg. 6,1 approx. (with flanges UNI DN20 PN40)

**Tightening torque of housing screws**

Standard: 25 Nm

**Spare parts**

Housing type DS RTR: see from page 1.69 (drawing with components and parts list see page 1.61)

Cocks type DS GR18: see from page 1.72 (drawing with components and parts list see page 1.66)

Cocks type DS MT18: see from page 1.64 (drawing with components and parts list see page 1.67)

**With cocks type DS GR18:**

CODE	TYPE	BODY Length [mm]	DISTANCE SL Pipes L = 57 -0/+10 mm	DISTANCE HL Pipes L = 72 -0/+10 mm	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el	B	M = B+105	M = B+130	VL	x No. elements	
11	1x1	130	235	260	95	115x1	1,8
12	2x1	155	260	285	120	140x1	2,0
13	3x1	180	285	310	145	165x1	2,2
14	4x1	205	310	335	170	190x1	2,5
15	5x1	235	340	365	200	220x1	2,9
16	6x1	265	370	395	230	250x1	3,2
17	7x1	295	400	425	260	280x1	3,6
18	8x1	335	440	465	300	320x1	4,0
19	9x1	360	465	490	320	340x1	4,3

Tab. RTR

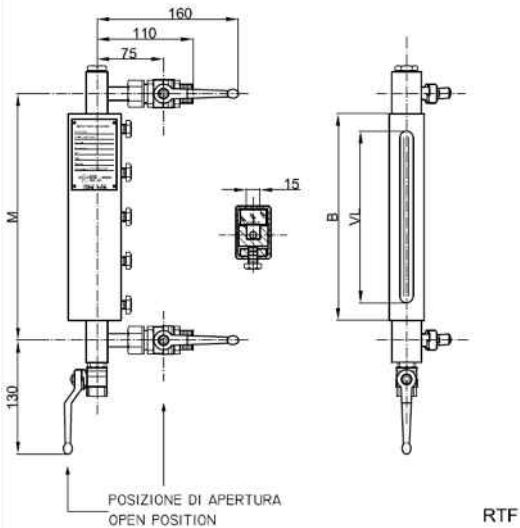
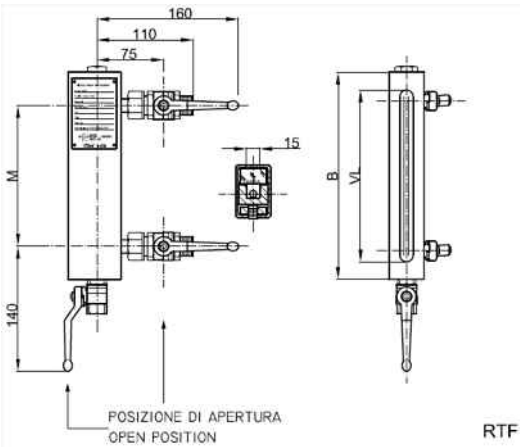
**With cocks type DS MT18 (Monolithic body):**

CODE	TYPE	BODY Length [mm]	DISTANCE SL Pipes L = 57 -0/+10 mm	DISTANCE HL Pipes L = 72 -0/+10 mm	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el	B	M = B+115	M = B+140	VL	x No. elements	
11	1x1	130	245	270	95	115x1	1,8
12	2x1	155	270	295	120	140x1	2,0
13	3x1	180	295	320	145	165x1	2,2
14	4x1	205	320	345	170	190x1	2,5
15	5x1	235	350	375	200	220x1	2,9
16	6x1	265	380	405	230	250x1	3,2
17	7x1	295	410	435	260	280x1	3,6
18	8x1	335	450	475	300	320x1	4,0
19	9x1	360	475	500	320	340x1	4,3

Tab. RTRMT

**GLASS LEVEL GAUGE  
REFLEX TYPE  
PN16  
DS LG - RTF SBB / D12**

Code: DS LG RTF...-1/2"GASM-SBB/DBB/PB-M...-CS/CS



**Technical data**

**Service conditions**

Max Pressure: PN16  
Max Temperature:  
- With PTFE gaskets and ball valves type DS SBB: 120°C  
- With graphite gaskets and cylindrical plug cocks type DS D12: 170°C

**View**

Standard: front, on request lateral (right or left) adjustable in the production phase

**Distance (Centre-to-centre)**

On request, Fixed distance, not adjustable

**Materials (Standard)**

Execution: CS/CS  
Gauge body: ASTM A105  
Body, ball and sealing of ball valves type DS SBB: Brass (CW617N) / Brass (CW617N) / PTFE  
Body, trim and sealing of cocks type DS D12: ASTM A105 / AISI 303 / Graphite  
Non-wetted parts: Carbon steel galvanized

**Gaskets**

Standard: PTFE/copper Option: graphite/copper

**Valves**

Standard: ball valves type SBB threaded 1/2" BSP-F - Quick 90° closing  
Handling: lever operated

Option: on request cylindrical plug cocks type DS D12 threaded 1/2" BSP-F - Quick 90° closing (see page 3.3)

Handling: lever operated with PP handle

**Process connections:**

Standard: threaded 1/2" BSP-M (with ball valves type DS SBB)  
threaded 1/2" BSP-F (with revolving female connections - without valves)

**Vent:**

Standard: threaded 3/8" BSP-F with plug

**Drain:**

Standard: ball valve type DS DBB threaded 3/8" BSP-F - Quick 90° closing  
Handling: lever operated

**Option:**

on request with cylindrical plug cocks type DS D12 threaded 3/8" BSP-F or BSP-M with drain tube

**Glasses**

Reflex - Borosilicate glass, "extra hard" and thermally pre-stressed - According to DIN 7081  
Standard: fitted with type A (see page 1.69)

**Accessories**

See from page 1.55

**Weights**

Housing type DS RTF: see below table  
Ball valve type DS SBB: Kg. 0,2 unit approx.  
Cock type DS D12: Kg. 0,5 unit approx.

**Tightening torque of housing screws**

Standard: 20 Nm

**Spare parts**

Housing type DS RTF: see from page 1.69 (drawing with components and parts list see page 1.61)  
Cocks type DS D12: see from page 1.72

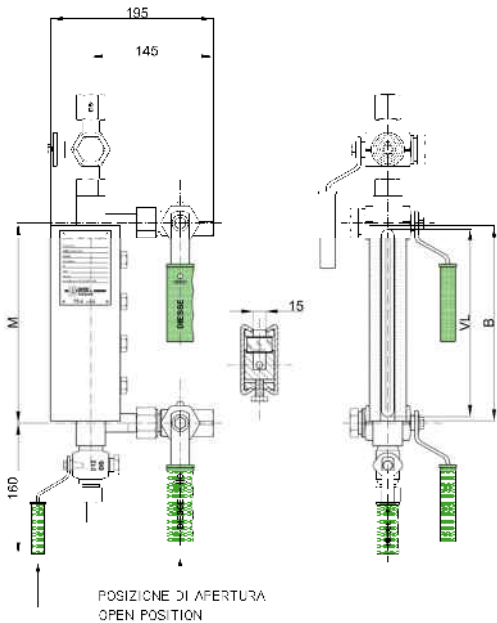
CODE	TYPE	BODY Length [mm]	DISTANCE [mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
		B	M	VL		
11	1	130	On request	95	115	1,8
12	2	155	On request	120	140	2,0
13	3	180	On request	145	165	2,2
14	4	205	On request	170	190	2,5
15	5	235	On request	200	220	2,9
16	6	265	On request	230	250	3,2
17	7	295	On request	260	280	3,6
18	8	335	On request	300	320	4,0
19	9	360	On request	320	340	4,3

Tab. RTF

**GLASS LEVEL GAUGE  
REFLEX TYPE  
PN25**

**DS LG - RBFPM D18**

Code: DS LG RBFPM...-1/2"GASF-D18/D12/PM18-M...-CS/CS



RBFPM

**Technical data**

**Service conditions**

Max Pressure: PN25  
Max Temperature: 170°C

**View**

Standard: front, on request lateral (right or left) adjustable in the production phase

**Distance (Centre-to-centre)**

On request, Fixed distance, not adjustable

**Materials (Standard)**

Execution: CS/CS  
Gauge body & cocks body: ASTM A105  
Cocks trim: AISI 303  
Non-wetted parts: Carbon steel galvanized

**Gaskets**

Standard: grahite/copper

**Shut-off cocks**

Standard: cylindrical plug cocks type DS D18 threaded 1/2" BSP-F - Quick 90° closing (see page 3.4)

Handling: lever operated with PP handle

**Process connections:**

Standard: threaded 1/2" BSP-F (with cylindrical plug cocks type DS D18)  
threaded M28x2-F (with revolving female connections - without valves)

**Vent:**

Standard: three way cylindrical plug manometer setting valve with control flange type DS PM18 threaded 1/2" BSP-F (see page 3.5)

Handling: lever operated with PP handle

Option: on request threaded 1/2" BSP-F with plug (without cock)

**Drain:**

Standard: with cylindrical plug cock type DS D12 threaded 1/2" BSP-M with drain tube - Quick 90° closing (see page 3.3)

Handling: lever operated with PP handle

**Glasses**

Reflex - Borosilicate glass, "extra hard" and thermally pre-stressed - According to DIN 7081

Standard: fitted with type A (see page 1.69)

Option: type B (see page 1.69)

**Accessories**

See from page 1.55

**Weights**

Housing type DS RBFPM: see below table

Cocks type DS D18: Kg. 0,9 unit approx.

Cock type DS PM18: Kg. 1,2 unit approx.

Cock type DS D12: Kg. 0,5 unit approx.

**Tightening torque of housing screws**

Standard: 40 Nm

**Spare parts**

Housing type DS RBFPM: see from page 1.69 (drawing with components and parts list see page 1.61)

Cocks type DS D18: see from page 1.72

Cock type DS PM18: see from page 1.72

Cock type DS D12: see from page 1.72

CODE	TYPE	BODY Length [mm]	DISTANCE [mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
		B	M	VL		
11	1	130	On request	95	115	2,4
12	2	155	On request	120	140	2,8
13	3	180	On request	145	165	3,3
14	4	205	On request	170	190	3,8
15	5	235	On request	200	220	4,3
16	6	265	On request	230	250	4,9
17	7	295	On request	260	280	5,4
18	8	335	On request	300	320	6,1
19	9	360	On request	320	340	6,6

Tab. RBFPM



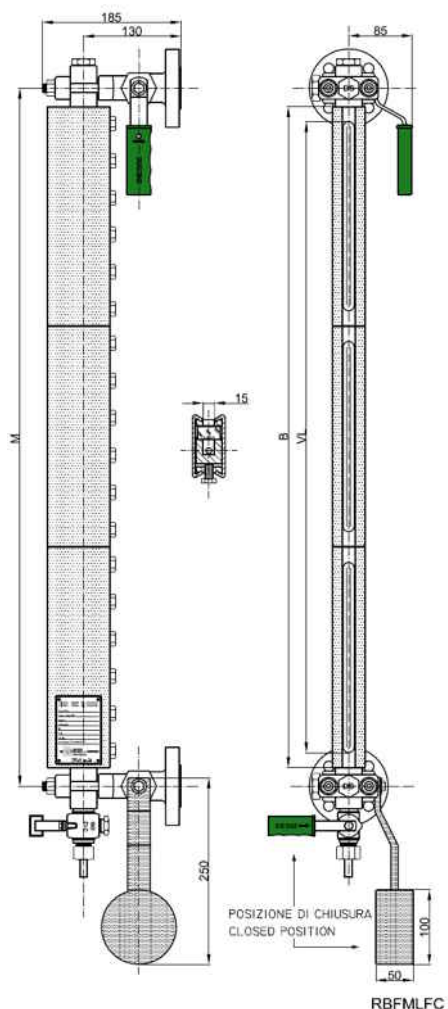
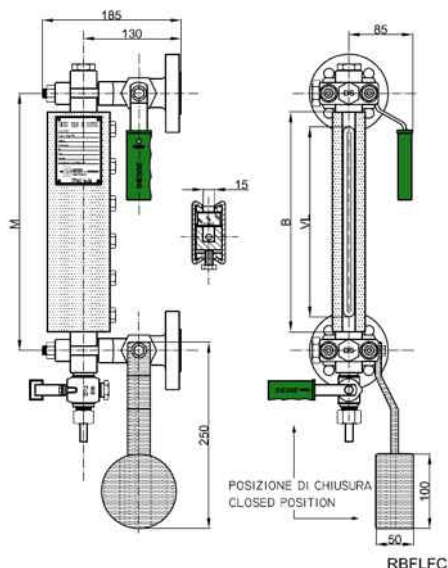




**GLASS LEVEL GAUGE  
REFLEX TYPE  
PN25 and PN40 / Class 150**

**DS LG - RBF GR18 - LFC**

Code: DS LG RBF... /40/RF-GR18/...M...-CS/CS - LFC



**Technical data**

**Service conditions**

Max Pressure: PN25 and PN40  
Max Temperature: 280/300°C (According to DIN 7081 for glasses, see page 1.69)

**Application**

Fluid storage tanks also aboard of ships

**View**

Standard: front, on request lateral (right or left) adjustable in the production phase

**Distance (Centre-to-centre)**

Standard: see below table for minimum distance (Fixed distance, not adjustable)  
Option: On request intermediate distances and over 3.000 mm

**Materials (Standard)**

Execution:	CS/CS	SS/CS
Gauge body & cocks body:	ASTM A105	AISI 316L
Cocks trim:	AISI 303	AISI 316
Non-wetted parts:	Carbon steel galvanized	Carbon steel galvanized

**Gaskets**

Standard: grahite/copper                      Option: graphite/AISI 316 or PTFE/AISI316

**Shut-off cocks**

Type DS GR18: cylindrical plug type - Straight type - Quick 90° closing  
Lower cock with weight closing accessory for self closing  
Handling: lever operated (Standard: right; Option: left)

**Process connections:**

Standard flanges:	UNI PN40 DN15-20-25	ANSI#150-300-600/RF DN ½" - ¾" - 1"
Standard threaded unions:	BSP-M ½" - ¾"	NPT-M ½" - ¾"

Options: further connections types to the process (see page 1.51)

**Vent:** Standard: threaded ½" with plug                      Option: see page 1.52

**Drain:** Standard: cock type D12 threaded ½"                      Option: see page 1.52

**Glasses**

Reflex - Borosilicate glass, "extra hard" and thermally pre-stressed - According to DIN 7081  
Standard: fitted with type A (see page 1.69)                      Option: type B (see page 1.69)

**Accessories**

See from page 1.55

**Weights**

Housing type DS RBF: see below table  
Cocks type DS GR18 with weight closing for lower handle: Kg. 10,8 approx. (with flanges UNI DN20 PN40)

**Tightening torque of housing screws**

Standard: 40 Nm

**Spare parts**

Housing type DS RBR: see from page 1.69 (drawing with components and parts list see page 1.61)  
Cocks type DS GR18: see from page 1.72 (drawing with components and parts list see pag. 1.66)

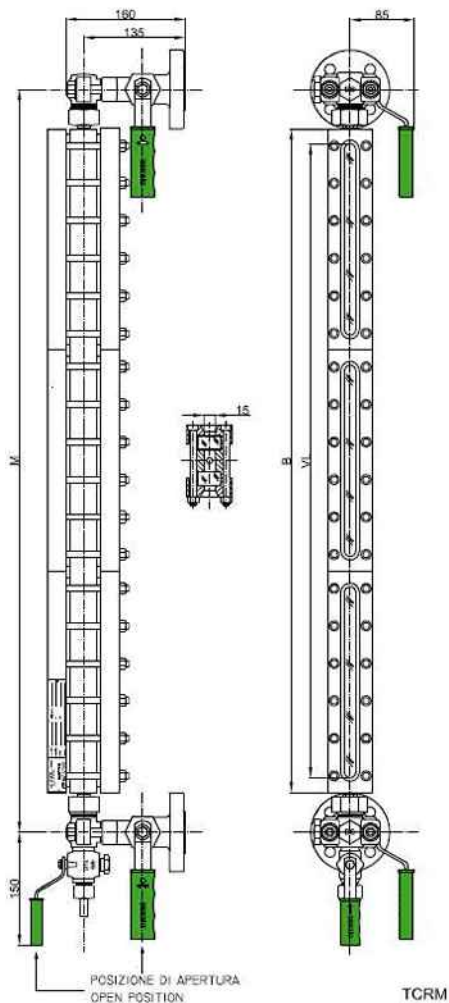
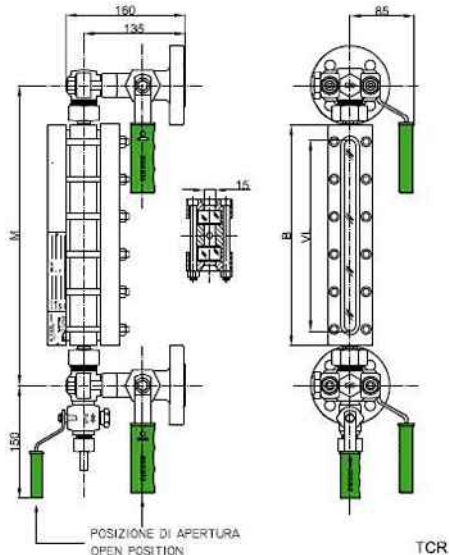
CODE	TYPE	BODY Length [mm]	DISTANCE SL MINIMUM [mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el	B	M = B+40	VL	x No. elements	
11	1x1	130	170	95	115x1	3,7
12	2x1	155	195	120	140x1	4,1
13	3x1	180	220	145	165x1	4,6
14	4x1	205	245	170	190x1	5,1
15	5x1	235	275	200	220x1	5,6
16	6x1	265	305	230	250x1	6,2
17	7x1	295	335	260	280x1	6,7
18	8x1	335	375	300	320x1	7,4
19	9x1	360	400	320	340x1	7,9
24	4x2	410	450	375	190x2	8,8
25	5x2	470	510	435	220x2	9,8
26	6x2	530	570	495	250x2	11,0
27	7x2	590	630	555	280x2	12,0
28	8x2	670	710	635	320x2	13,4
29	9x2	720	760	680	340x2	14,4
36	6x3	795	835	760	250x3	15,7
37	7x3	885	925	850	280x3	17,2
38	8x3	1005	1045	970	320x3	19,3
39	9x3	1080	1120	1040	340x3	20,8
47	7x4	1180	1220	1145	280x4	22,5
48	8x4	1340	1380	1305	320x4	25,3
49	9x4	1440	1480	1400	340x4	27,3
57	7x5	1475	1515	1440	280x5	27,8
58	8x5	1675	1715	1640	320x5	31,3
59	9x5	1800	1840	1760	340x5	33,8
68	8x6	2010	2050	1975	320x6	37,2
69	9x6	2160	2200	2120	340x6	40,2
78	8x7	2345	2385	2310	320x7	43,2
79	9x7	2520	2560	2480	340x7	46,7
88	8x8	2680	2720	2645	320x8	49,3
89	9x8	2880	2920	2840	340x8	53,2

Tab. RBF

## GLASS LEVEL GAUGE TRANSPARENT TYPE PN25 and PN40

### DS LG - TCR GR18

Code: DS LG TCR..... /40/RF-GR18/.....M....CS/CS



#### Technical data

#### Service conditions

Max Pressure: PN25 e PN40

Max Temperature: 280/300°C (According to DIN 7081 for glasses, see page 1.69)

#### View

Standard: adjustable on 360° in the installation phase

Note: depending on operating conditions, each element may have one or more internal reinforcements

#### Distance (Centre-to-centre)

Standard: see below table (**Distance adjustable - 0 mm + 10 mm**)

Option: On request intermediate distances and over 3.000 mm

#### Materials (Standard)

Execution:	CS/CS	SS/CS	SS/SS
Gauge body & cocks body:	ASTM A105	AISI 316L	AISI 316L
Cocks trim:	AISI 303	AISI 316	AISI 316
Non-wetted parts:	Carbon steel galvanized	Carbon steel galvanized	AISI 316

#### Gaskets

Standard: grahite/copper

Option: graphite/AISI 316 or PTFE/AISI316

#### Shut-off cocks

Type DS GR18: cylindrical plug type - Straight type - Quick 90° closing

Handling: lever operated with PP handle (Standard: right; Option: left)

#### Process connections:

Standard flanges: UNI PN40 DN15-20-25

ANSI#150-300-600/RF DN ½" - ¾" - 1"

Standard threaded unions: BSP-M ½" - ¾"

NPT-M ½" - ¾"

Options: further connections types or direct connections to the process without shut-off cocks (see page 1.49)

Vent: Standard: blind

Option: see page 1.50

Drain: Standard: cock type D12 threaded ½"

Option: see page 1.50

#### Glasses

Transparent - Borosilicate glass, "extra hard" and thermally pre-stressed - According to DIN 7081

Standard: fitted with type A (see page 1.69)

#### Accessories

See from page 1.55

#### Weights

Housing type DS TCR: see below table

Cocks type DS GR18: Kg. 7,4 approx. (with flanges UNI DN20 PN40)

#### Tightening torque of housing screws

Standard: 35 Nm

#### Spare parts

Housing type DS TCR: see from page 1.69 (drawing with components and parts list see page 1.64)

Cocks type DS GR18: see from page 1.72 (drawing with components and parts list see pag. 1.66)

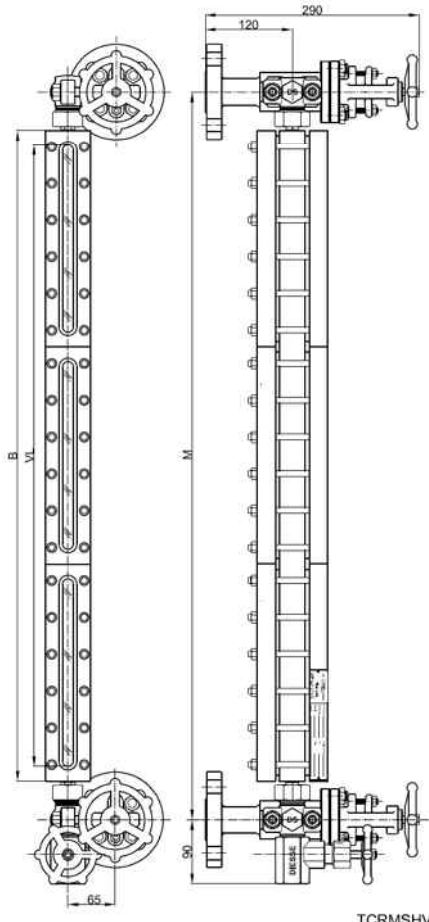
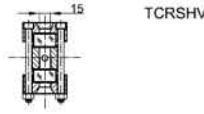
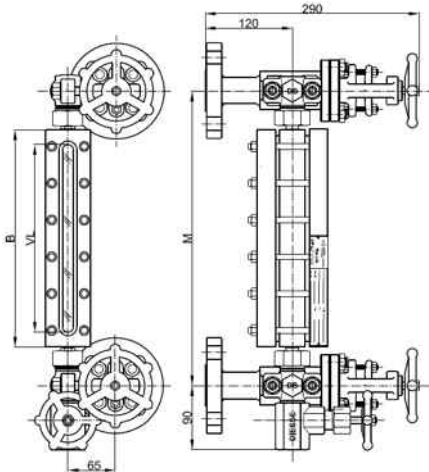
CODE	TYPE	BODY Length [mm]	DISTANCE SL Pipes L = 57 -0/+10 mm	DISTANCE HL Pipes L = 72 -0/+10 mm	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el	B	M = B+105	M = B+130	VL	x No. elements	
11	1x1	130	235	260	95	115x1	3,2
12	2x1	155	260	285	120	140x1	3,8
13	3x1	180	285	310	145	165x1	4,3
14	4x1	205	310	335	170	190x1	4,7
15	5x1	235	340	365	200	220x1	5,5
16	6x1	265	370	395	230	250x1	6,0
17	7x1	295	400	425	260	280x1	6,7
18	8x1	335	440	465	300	320x1	7,4
19	9x1	360	465	490	320	340x1	8,1
24	4x2	410	515	540	375	190x2	9,2
25	5x2	470	575	600	435	220x2	10,8
26	6x2	530	635	660	495	250x2	11,8
27	7x2	590	695	720	555	280x2	13,3
28	8x2	670	775	800	635	320x2	14,6
29	9x2	720	825	850	680	340x2	16,0
36	6x3	795	900	925	760	250x3	17,7
37	7x3	885	990	1015	850	280x3	19,8
38	8x3	1005	1110	1145	970	320x3	21,9
39	9x3	1080	1185	1210	1040	340x3	24,0
47	7x4	1180	1285	1310	1145	280x4	26,3
48	8x4	1340	1445	1470	1305	320x4	29,1
49	9x4	1440	1545	1570	1400	340x4	31,9
57	7x5	1475	1580	1605	1440	280x5	32,8
58	8x5	1675	1780	1805	1640	320x5	36,3
59	9x5	1800	1905	1930	1760	340x5	39,8
68	8x6	2010	2115	2140	1975	320x6	43,6
69	9x6	2160	2265	2290	2120	340x6	47,8
78	8x7	2345	2450	2475	2310	320x7	50,8
79	9x7	2520	2625	2650	2480	340x7	55,7
88	8x8	2680	2785	2810	2645	320x8	57,9
89	9x8	2880	2985	3010	2840	340x8	63,5

Tab. TCR

**GLASS LEVEL GAUGE  
TRANSPARENT TYPE  
PN25 and PN40**

**DS LG - TCR SHV**

Code: DS LG TCR..... /40/RF-SHV/.../...-M....-CS/CS



TCRMSHV

**Technical data**

**Service conditions**

Max Pressure: PN25 e PN40

Max Temperature: 280/300°C (According to DIN 7081 for glasses, see page 1.69)

**View**

Standard: adjustable on 360° in the installation phase

Note: depending on operating conditions, each element may have one or more internal reinforcements

**Distance (Centre-to-centre)**

Standard: see below table (**Distance adjustable - 0 mm / + 10 mm**)

Option: On request intermediate distances and over 3.000 mm

**Materials (Standard)**

Execution:	CS/CS	SS/CS	SS/SS
Gauge body:	ASTM A105 / A105 LF2	AISI 316L	AISI 316L
Valves body:	A105 LF2	AISI 316L	AISI 316L
Stem, disc / seat valves:	AISI 410 / AISI 316	AISI 316	AISI 316
Non-wetted parts:	Carbon steel galvanized	Carbon steel galvanized	AISI 316

**Gaskets**

Standard: grahite/copper

Option: graphite/AISI 316 or PTFE/AISI316

**Shut-off valves**

Type DS SHV: globe type

Handling: by handwheel

**Process connections:**

Standard flanges: UNI PN40 DN15-20-25

ANSI#150-300-600/RF DN ½" - ¾" - 1"

Standard threaded unions: BSP-M ½" - ¾"

NPT-M ½" - ¾"

Options: further connections types or direct connections to the process without shut-off valves (see page 1.53)

**Vent:** Standard: blind

Option: see page 1.54

**Drain:** Standard: valve type DHV threaded ¾"

Option: see page 1.54

**Glasses**

Transparent - Borosilicate glass, "extra hard" and thermally pre-stressed - According to DIN 7081

Standard: fitted with type A (see page 1.69)

**Accessories**

See from page 1.55

**Weights**

Housing type DS TCR: see below table

Valves type DS SHV: Kg. 11,8 approx. (with flanges UNI DN20 PN40)

**Tightening torque of housing screws**

Standard: 35 Nm

**Spare parts**

Housing type DS TCR: see from page 1.69 (drawing with components and parts list see page 1.64)

Valves type DS GR18: see from page 1.74 (drawing with components and parts list see pag. 1.68)

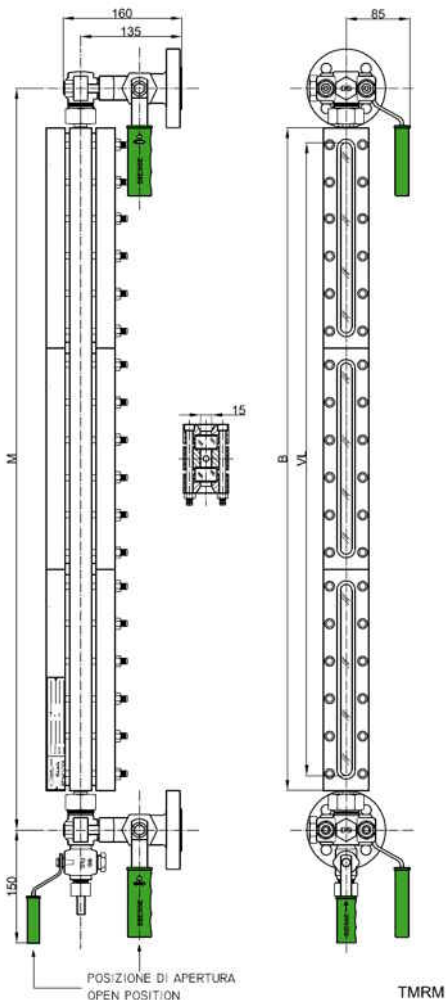
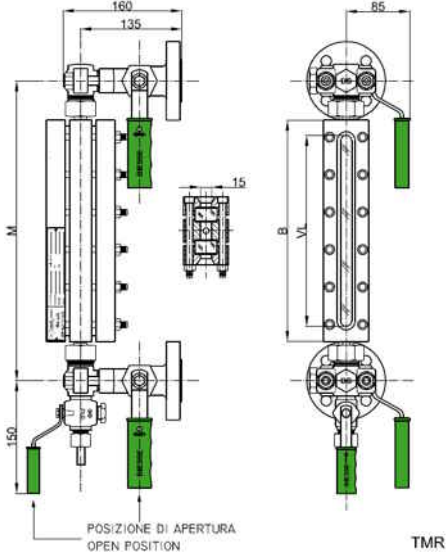
CODE	TYPE	BODY Length [mm]	DISTANCE SL Pipes L = 57 -0/+10 mm	DISTANCE HL Pipes L = 72 -0/+10 mm	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el	B	M = B+105	M = B+130	VL	x No. elements	
11	1x1	130	235	260	95	115x1	3,2
12	2x1	155	260	285	120	140x1	3,8
13	3x1	180	285	310	145	165x1	4,3
14	4x1	205	310	335	170	190x1	4,7
15	5x1	235	340	365	200	220x1	5,5
16	6x1	265	370	395	230	250x1	6,0
17	7x1	295	400	425	260	280x1	6,7
18	8x1	335	440	465	300	320x1	7,4
19	9x1	360	465	490	320	340x1	8,1
24	4x2	410	515	540	375	190x2	9,2
25	5x2	470	575	600	435	220x2	10,8
26	6x2	530	635	660	495	250x2	11,8
27	7x2	590	695	720	555	280x2	13,3
28	8x2	670	775	800	635	320x2	14,6
29	9x2	720	825	850	680	340x2	16,0
36	6x3	795	900	925	760	250x3	17,7
37	7x3	885	990	1015	850	280x3	19,8
38	8x3	1005	1110	1145	970	320x3	21,9
39	9x3	1080	1185	1210	1040	340x3	24,0
47	7x4	1180	1285	1310	1145	280x4	26,3
48	8x4	1340	1445	1470	1305	320x4	29,1
49	9x4	1440	1545	1570	1400	340x4	31,9
57	7x5	1475	1580	1605	1440	280x5	32,8
58	8x5	1675	1780	1805	1640	320x5	36,3
59	9x5	1800	1905	1930	1760	340x5	39,8
68	8x6	2010	2115	2140	1975	320x6	43,6
69	9x6	2160	2265	2290	2120	340x6	47,8
78	8x7	2345	2450	2475	2310	320x7	50,8
79	9x7	2520	2625	2650	2480	340x7	55,7
88	8x8	2680	2785	2810	2645	320x8	57,9
89	9x8	2880	2985	3010	2840	340x8	63,5

Tab. TCR

## GLASS LEVEL GAUGE TRANSPARENT TYPE PN40

### DS LG - TMR GR18

Code: DS LG TMR...../40/RF-GR18/.....M....CS/CS



#### Technical data

#### Service conditions

Max Pressure: PN40

Max Temperature: 280/300°C (According to DIN 7081 for glasses, see page 1.69)

#### View

Standard: adjustable on 360° in the installation phase

#### Distance (Centre-to-centre)

Standard: see below table (Distance adjustable - 0 mm / + 10 mm)

Option: On request intermediate distances and over 3.000 mm

#### Materials (Standard)

Execution:	CS/CS	SS/CS	SS/SS
Gauge body & cocks body:	ASTM A105	AISI 316L	AISI 316L
Cocks trim:	AISI 303	AISI 316	AISI 316
Non-wetted parts:	Carbon steel galvanized	Carbon steel galvanized	AISI 316

#### Gaskets

Standard: grahite/copper

Option: graphite/AISI 316 or PTFE/AISI316

#### Shut-off cocks

Type DS GR18: cylindrical plug type - Straight type - Quick 90° closing

Handling: lever operated with PP handle (Standard: right; Option: left)

#### Process connections:

Standard flanges: UNI PN40 DN15-20-25

ANSI#150-300-600/RF DN ½" - ¾" - 1"

Standard threaded unions: BSP-M ½" - ¾"

NPT-M ½" - ¾"

Options: further connections types or direct connections to the process without shut-off cocks (see page 1.49)

#### Vent:

Standard: cock type D12 threaded ½"

Option: see page 1.50

#### Drain:

Standard: cock type D12 threaded ½"

Option: see page 1.50

#### Glasses

Transparent - Borosilicate glass, "extra hard" and thermally pre-stressed - According to DIN 7081

Standard: fitted with type B (see page 1.69)

Option: type A (see page 1.69)

#### Accessories

See from page 1.55

#### Weights

Housing type DS TMR: see below table

Cocks type DS GR18: Kg. 7,4 approx. (with flanges UNI DN20 PN40)

#### Tightening torque of housing screws

Standard: 35 Nm

#### Spare parts

Housing type DS TMR: see from page 1.69 (drawing with components and parts list see page 1.64)

Cocks type DS GR18: see from page 1.72 (drawing with components and parts list see pag. 1.66)

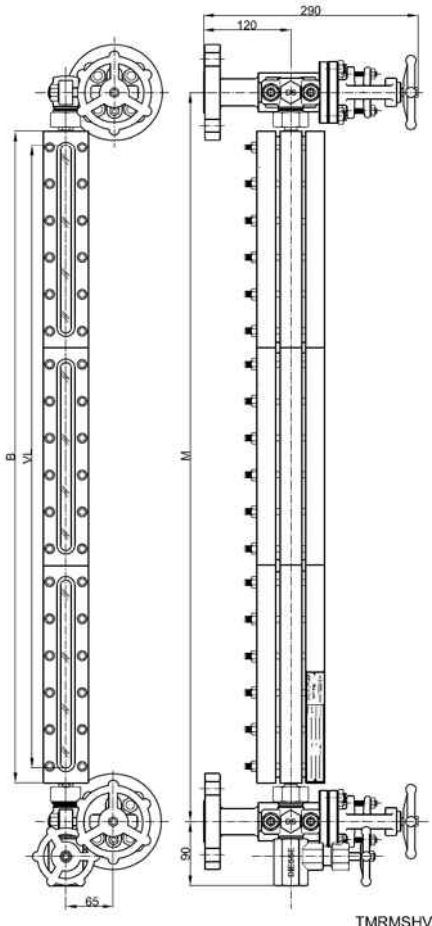
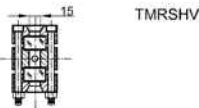
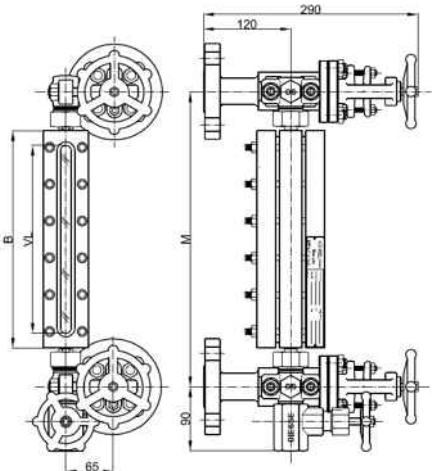
CODE	TYPE	BODY Length [mm]	DISTANCE SL Pipes L = 57 -0/+10 mm	DISTANCE HL Pipes L = 72 -0/+10 mm	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el	B	M = B+105	M = B+130	VL	x No. elements	
11	1x1	130	235	260	95	115x1	3,6
12	2x1	155	260	285	120	140x1	4,3
13	3x1	180	285	310	145	165x1	4,9
14	4x1	205	310	335	170	190x1	5,4
15	5x1	235	340	365	200	220x1	6,3
16	6x1	265	370	395	230	250x1	6,9
17	7x1	295	400	425	260	280x1	7,7
18	8x1	335	440	465	300	320x1	8,6
19	9x1	360	465	490	320	340x1	9,4
24	4x2	410	515	540	375	190x2	10,6
25	5x2	470	575	600	435	220x2	12,4
26	6x2	530	635	660	495	250x2	13,6
27	7x2	590	695	720	555	280x2	15,2
28	8x2	670	775	800	635	320x2	17,0
29	9x2	720	825	850	680	340x2	18,6
36	6x3	795	900	925	760	250x3	20,3
37	7x3	885	990	1015	850	280x3	22,7
38	8x3	1005	1110	1145	970	320x3	25,4
39	9x3	1080	1185	1210	1040	340x3	27,8
47	7x4	1180	1285	1310	1145	280x4	30,2
48	8x4	1340	1445	1470	1305	320x4	33,8
49	9x4	1440	1545	1570	1400	340x4	37,0
57	7x5	1475	1580	1605	1440	280x5	37,7
58	8x5	1675	1780	1805	1640	320x5	42,2
59	9x5	1800	1905	1930	1760	340x5	46,2
68	8x6	2010	2115	2140	1975	320x6	50,6
69	9x6	2160	2265	2290	2120	340x6	55,4
78	8x7	2345	2450	2475	2310	320x7	59,0
79	9x7	2520	2625	2650	2480	340x7	64,6
88	8x8	2680	2785	2810	2645	320x8	67,4
89	9x8	2880	2985	3010	2840	340x8	73,8

Tab. TMR

**GLASS LEVEL GAUGE  
TRANSPARENT TYPE  
PN40**

**DS LG - TMR SHV**

Code: DS LG TMR...../40/RF-SHV/.....M...-CS/CS



TMRMSHV

**Technical data**

**Service conditions**

Max Pressure: PN40

Max Temperature: 280/300°C (According to DIN 7081 for glasses, see page 1.69)

**View**

Standard: adjustable on 360° in the installation phase

**Distance (Centre-to-centre)**

Standard: see below table (**Distance adjustable - 0 mm / + 10 mm**)

Option: On request intermediate distances and over 3.000 mm

**Materials (Standard)**

Execution:	CS/CS	SS/CS	SS/SS
Gauge body:	ASTM A105 / A105 LF2	AISI 316L	AISI 316L
Valves body:	A105 LF2	AISI 316L	AISI 316L
Stem, disc / seat valves:	AISI 410 / AISI 316	AISI 316	AISI 316
Non-wetted parts:	Carbon steel galvanized	Carbon steel galvanized	AISI 316

**Gaskets**

Standard: grahite/copper

Option: graphite/AISI 316 or PTFE/AISI316

**Shut-off valves**

Type DS SHV: globe type

Handling: by handwheel

**Process connections:**

Standard flanges: UNI PN40 DN15-20-25

ANSI#150-300-600/RF DN ½" - ¾" - 1"

Standard threaded unions: BSP-M ½" - ¾"

NPT-M ½" - ¾"

Options: further connections types or direct connections to the process without shut-off valves

(see page 1.53)

**Vent:** Standard: blind

Option: see page 1.54

**Drain:** Standard: valve type DHV threaded ¾"

Option: see page 1.54

**Glasses**

Transparent - Borosilicate glass, "extra hard" and thermally pre-stressed - According to DIN 7081

Standard: fitted with type B (see page 1.69)

Option: type A (see page 1.69)

**Accessories**

See from page 1.55

**Weights**

Housing type DS TMR: see below table

Valves type DS SHV: Kg. 11,8 approx. (with flanges UNI DN20 PN40)

**Tightening torque of housing screws**

Standard: 35 Nm

**Spare parts**

Housing type DS TMR: see from page 1.69 (drawing with components and parts list see page 1.64)

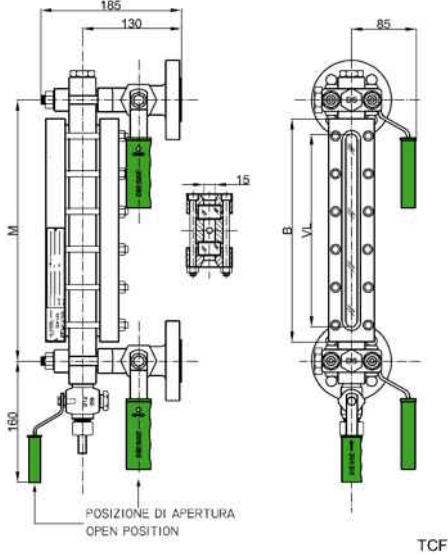
Valves type DS SHV: see from page 1.74 (drawing with components and parts list see pag. 1.68)

CODE	TYPE	BODY Length [mm]	DISTANCE SL Pipes L = 57 -0/+10 mm	DISTANCE HL Pipes L = 72 -0/+10 mm	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el	B	M = B+105	M = B+130	VL	x No. elements	
11	1x1	130	235	260	95	115x1	3,6
12	2x1	155	260	285	120	140x1	4,3
13	3x1	180	285	310	145	165x1	4,9
14	4x1	205	310	335	170	190x1	5,4
15	5x1	235	340	365	200	220x1	6,3
16	6x1	265	370	395	230	250x1	6,9
17	7x1	295	400	425	260	280x1	7,7
18	8x1	335	440	465	300	320x1	8,6
19	9x1	360	465	490	320	340x1	9,4
24	4x2	410	515	540	375	190x2	10,6
25	5x2	470	575	600	435	220x2	12,4
26	6x2	530	635	660	495	250x2	13,6
27	7x2	590	695	720	555	280x2	15,2
28	8x2	670	775	800	635	320x2	17,0
29	9x2	720	825	850	680	340x2	18,6
36	6x3	795	900	925	760	250x3	20,3
37	7x3	885	990	1015	850	280x3	22,7
38	8x3	1005	1110	1145	970	320x3	25,4
39	9x3	1080	1185	1210	1040	340x3	27,8
47	7x4	1180	1285	1310	1145	280x4	30,2
48	8x4	1340	1445	1470	1305	320x4	33,8
49	9x4	1440	1545	1570	1400	340x4	37,0
57	7x5	1475	1580	1605	1440	280x5	37,7
58	8x5	1675	1780	1805	1640	320x5	42,2
59	9x5	1800	1905	1930	1760	340x5	46,2
68	8x6	2010	2115	2140	1975	320x6	50,6
69	9x6	2160	2265	2290	2120	340x6	55,4
78	8x7	2345	2450	2475	2310	320x7	59,0
79	9x7	2520	2625	2650	2480	340x7	64,6
88	8x8	2680	2785	2810	2645	320x8	67,4
89	9x8	2880	2985	3010	2840	340x8	73,8

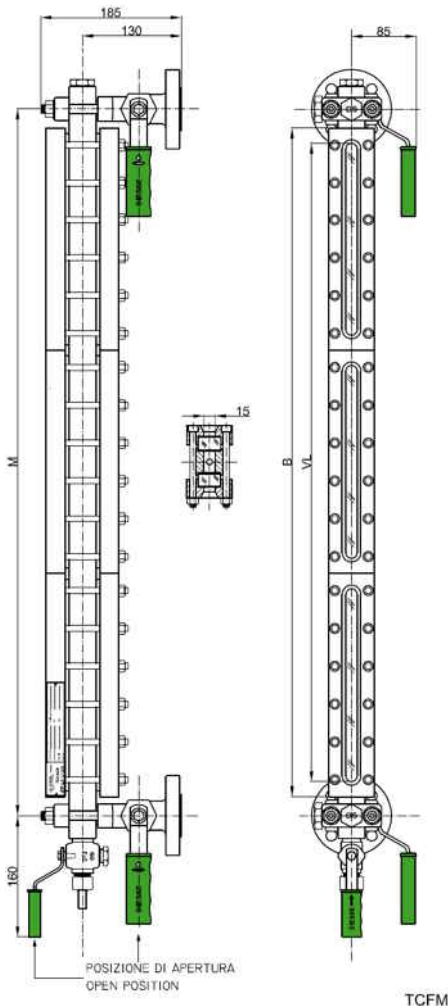
Tab. TMR

**GLASS LEVEL GAUGE  
TRANSPARENT TYPE  
PN40 / Class 300  
DS LG - TCF GR18**

Code: DS LG TCF..... /40/RF-GR18/.../...-M...-CS/CS



TCF



TCFM

**Technical data**

**Service conditions**

Max Pressure: PN40; Class 300 (A105: 51 bar @ 38°C; AISI 316L: 49,6 bar @ 38°C)  
Max Temperature: 280/300°C (According to DIN 7081 for glasses, see page 1.69)

**View**

Standard: front, on request lateral (right or left) adjustable in the production phase

Note: depending on operating conditions, each element may have one or more internal reinforcements

**Distance (Centre-to-centre)**

Standard: see below table for minimum distance (Fixed distance, not adjustable)

Option: On request intermediate distances and over 3.000 mm

**Materials (Standard)**

Execution:	CS/CS	SS/CS	SS/SS
Gauge body & cocks body:	ASTM A105	AISI 316L	AISI 316L
Cocks trim:	AISI 303	AISI 316	AISI 316
Non-wetted parts:	Carbon steel galvanized	Carbon steel galvanized	AISI 316

**Gaskets**

Standard: grahite/copper

Option: graphite/AISI 316 or PTFE/AISI316

**Shut-off cocks**

Type DS GR18: cylindrical plug type - Straight type - Quick 90° closing

Handling: lever operated with PP handle (Standard: right; Option: left)

**Process connections:**

Standard flanges: UNI PN40 DN15-20-25 ANSI#150-300-600/RF DN ½" - ¾" - 1"

Standard threaded unions: BSP-M ½" - ¾" NPT-M ½" - ¾"

Options: further connections types or quick connections to the process without shut-off cocks (see page 1.51)

Vent: Standard: threaded ½" with plug

Option: see page 1.52

Drain: Standard: cock type D12 threaded ½"

Option: see page 1.52

**Glasses**

Transparent - Borosilicate glass, "extra hard" and thermally pre-stressed - According to DIN 7081

Standard: fitted with type A (see page 1.69)

**Accessories**

See from page 1.55

**Weights**

Housing type DS TCF: see below table

Cocks type DS GR18: Kg. 7,4 approx. (with flanges UNI DN20 PN40)

**Tightening torque of housing screws**

Standard: 35 Nm

**Spare parts**

Housing type DS TCF: see from page 1.69 (drawing with components and parts list see page 1.64)

Cocks type DS GR18: see from page 1.72 (drawing with components and parts list see page 1.66)

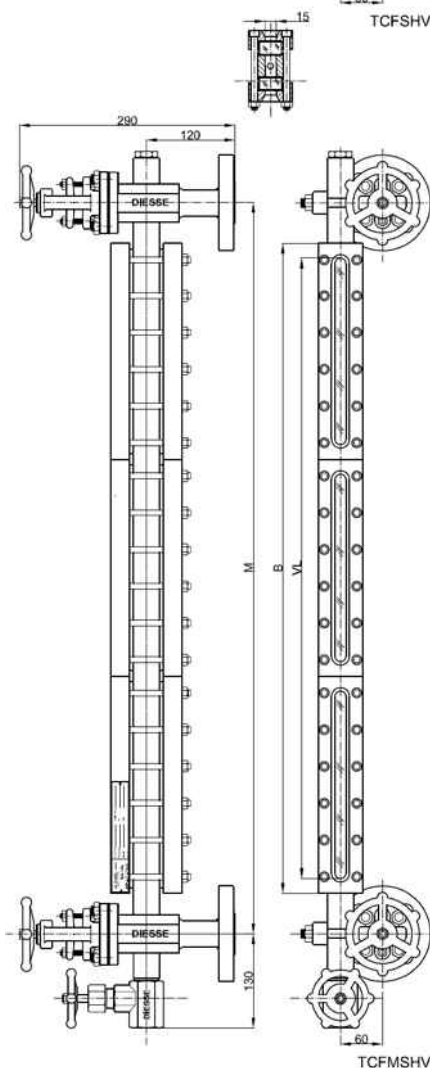
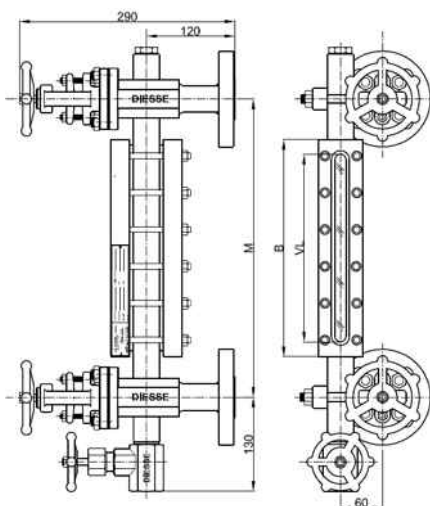
CODE	TYPE	BODY Length [mm]	DISTANCE SL MINIMUM [mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el	B	M = B+40	VL	x No. elements	
11	1x1	130	170	95	115x1	4,5
12	2x1	155	195	120	140x1	5,1
13	3x1	180	220	145	165x1	5,6
14	4x1	205	245	170	190x1	6,0
15	5x1	235	275	200	220x1	6,8
16	6x1	265	305	230	250x1	7,3
17	7x1	295	335	260	280x1	8,0
18	8x1	335	375	300	320x1	8,7
19	9x1	360	400	320	340x1	9,4
24	4x2	410	450	375	190x2	10,5
25	5x2	470	510	435	220x2	12,1
26	6x2	530	570	495	250x2	13,1
27	7x2	590	630	555	280x2	14,6
28	8x2	670	710	635	320x2	15,9
29	9x2	720	760	680	340x2	17,3
36	6x3	795	835	760	250x3	19,0
37	7x3	885	925	850	280x3	21,1
38	8x3	1005	1045	970	320x3	23,2
39	9x3	1080	1120	1040	340x3	25,3
47	7x4	1180	1220	1145	280x4	27,6
48	8x4	1340	1380	1305	320x4	30,4
49	9x4	1440	1480	1400	340x4	33,2
57	7x5	1475	1515	1440	280x5	34,1
58	8x5	1675	1715	1640	320x5	37,6
59	9x5	1800	1840	1760	340x5	41,1
68	8x6	2010	2050	1975	320x6	44,9
69	9x6	2160	2200	2120	340x6	49,1
78	8x7	2345	2385	2310	320x7	52,1
79	9x7	2520	2560	2480	340x7	57,0
88	8x8	2680	2720	2645	320x8	59,2
89	9x8	2880	2920	2840	340x8	64,8

Tab. TCF

**GLASS LEVEL GAUGE  
TRANSPARENT TYPE  
PN40 / Class 300**

**DS LG - TCF SHV**

Code: DS LG TCF... /40/RF-SHV...-M...-CS/CS



**Technical data**

**Service conditions**

Max Pressure: PN40; Class 300 (A105: 51 bar @ 38°C; AISI 316L: 49,6 bar @ 38°C)  
Max Temperature: 280/300°C (According to DIN 7081 for glasses, see page 1.69)

**View**

Standard: front, on request lateral (right or left) adjustable in the production phase  
Note: depending on operating conditions, each element may have one or more internal reinforcements

**Distance (Centre-to-centre)**

Standard: see below table for minimum distance (Fixed distance, not adjustable)  
Option: On request intermediate distances and over 3.000 mm

**Materials (Standard)**

Execution ne:	CS/CS	SS/CS	SS/SS
Gauge body:	ASTM A105 / A105 LF2	AISI 316L	AISI 316L
Valves body:	A105 LF2	AISI 316L	AISI 316L
Stem, disc / seat valves:	AISI 410 / AISI 316	AISI 316	AISI 316
Non-wetted parts:	Carbon steel galvanized	Carbon steel galvanized	AISI 316

**Gaskets**

Standard: grahite/copper  
Option: graphite/AISI 316 or PTFE/AISI316

**Shut-off valves**

Type DS SHV: globe type  
Handling: by handwheel

**Process connections:**

Standard flanges: UNI PN40 DN15-20-25 ANSI#150-300-600/RF DN 1/2" - 3/4" - 1"  
Standard threaded unions: BSP-M 1/2" - 3/4" NPT-M 1/2" - 3/4"  
Options: further connections types or direct connections to the process without shut-off valves (see page 1.53)

**Vent:** Standard: threaded 1/2" with plug Option: see page 1.54

**Drain:** Standard: valve type DHV threaded 3/4" Option: see page 1.54

**Glasses**

Transparent - Borosilicate glass, "extra hard" and thermally pre-stressed - According to DIN 7081  
Standard: fitted with type A (see page 1.69)

**Accessories**

See from page 1.55

**Weights**

Housing type DS TCF: see below table  
Valves type DS SHV: Kg. 11,8 approx. (with flanges UNI DN20 PN40)

**Tightening torque of housing screws**

Standard: 35 Nm

**Spare parts**

Housing type DS TCF: see from page 1.69 (drawing with components and parts list see page 1.64)  
Valves type DS SHV: see from page 1.74 (drawing with components and parts list see page 1.68)

CODE	TYPE	BODY Length [mm]	DISTANCE SL MINIMUM [mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el	B	M = B+80	VL	x No. elements	
11	1x1	130	210	95	115x1	4,5
12	2x1	155	235	120	140x1	5,1
13	3x1	180	260	145	165x1	5,6
14	4x1	205	285	170	190x1	6,0
15	5x1	235	315	200	220x1	6,8
16	6x1	265	345	230	250x1	7,3
17	7x1	295	375	260	280x1	8,0
18	8x1	335	415	300	320x1	8,7
19	9x1	360	440	320	340x1	9,4
24	4x2	410	490	375	190x2	10,5
25	5x2	470	550	435	220x2	12,1
26	6x2	530	610	495	250x2	13,1
27	7x2	590	670	555	280x2	14,6
28	8x2	670	750	635	320x2	15,9
29	9x2	720	800	680	340x2	17,3
36	6x3	795	875	760	250x3	19,0
37	7x3	885	965	850	280x3	21,1
38	8x3	1005	1085	970	320x3	23,2
39	9x3	1080	1160	1040	340x3	25,3
47	7x4	1180	1260	1145	280x4	27,6
48	8x4	1340	1420	1305	320x4	30,4
49	9x4	1440	1520	1400	340x4	33,2
57	7x5	1475	1555	1440	280x5	34,1
58	8x5	1675	1755	1640	320x5	37,6
59	9x5	1800	1880	1760	340x5	41,1
68	8x6	2010	2090	1975	320x6	44,9
69	9x6	2160	2240	2120	340x6	49,1
78	8x7	2345	2425	2310	320x7	52,1
79	9x7	2520	2600	2480	340x7	57,0
88	8x8	2680	2760	2645	320x8	59,2
89	9x8	2880	2960	2840	340x8	64,8

Tab. TCF













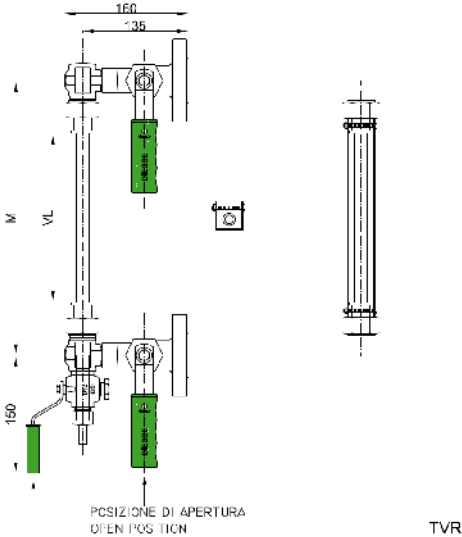




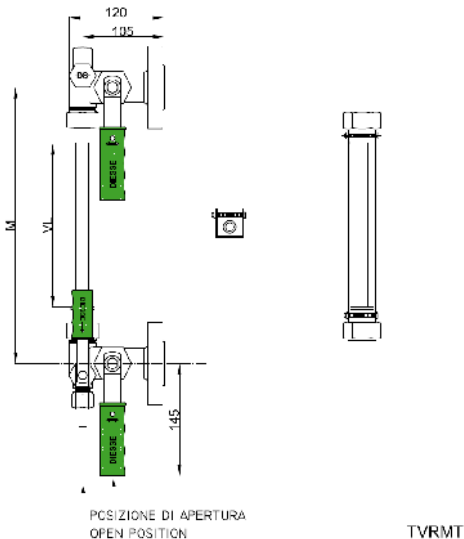
## LEVEL GAUGE WITH GLASS TUBE AND "U" SHAPED PROTECTION

### DS LG - TVR GR18 / MT18

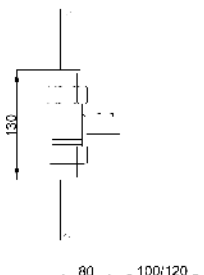
Code: DS LG TVR... /16/RF-GR18/.../...-M...-CS/CS



Code: DS LG TVR... /16/RF-MT18/.../...-M...-CS/CS



MIDDLE TERMINAL - CODE: MJT



#### Technical data

#### Service conditions

Max Pressure: max: 5 barg (Max. pressure also function of the length and the temperature)  
Max Temperature: 120°C

#### View

Standard: adjustable on 360° in the installation phase (rotating the "U" shaped protection)

#### Distance (Centre-to-centre)

On request

Max with a single glass tube 3.000 mm

Option: on request are available distances over 3.000 mm using the middle terminals to connect more glass tubes

#### Visible length [VL]

#### With shut-off cocks type DS GR18

##### • With the "U" shaped protection

Visible length [VL] = Centre-to-centre distance [M] - 135 mm (with extended stuffing box covers to fasten the "U" shaped protection)

##### • Without protection

Visible length [VL] = Centre-to-centre distance [M] - 95 mm (with standard stuffing box covers)

#### With shut-off cocks type DS MT18

##### • With the "U" shaped protection

Visible length [VL] = Centre-to-centre distance [M] - 145 mm (with extended stuffing box covers to fasten the "U" shaped protection)

##### • Without protection

Visible length [VL] = Centre-to-centre distance [M] - 105 mm (with standard stuffing box cover)

#### Materials (Standard)

Execution:	CS/CS	SS/CS	SS/SS
Cocks body:	ASTM A105	AISI 316L	AISI 316L
Cocks trim:	AISI 303	AISI 316	AISI 316
Non-wetted parts:	Carbon steel galvanized	Carbon steel galvanized	AISI 316

#### Glass tube

Standard: borosilicate glass 3.3, Ø 16 mm, thickness 2,5 mm

#### Protection for glass tube (Option always recommended)

Standard: metal sheet "U" shaped in stainless steel AISI 304

#### Gaskets

Standard:	Cocks: graphite/copper	Glass sealing: EPDM
Option:	Cocks: graphite/AISI 316	Glass sealing: graphite
	Cocks: PTFE/AISI316	Glass sealing: PTFE

#### Shut-off cocks

Type DS GR18: cylindrical plug type - Straight type - Quick 90° closing

Type DS MT18: cylindrical plug type with monolithic body - Straight type - Quick 90° closing  
(see page 1.47)

Handling: lever operated with PP handle (Standard: right; Option: left)

#### Process connections:

Standard flanges: UNI PN16/40 DN15-20-25 ANSI#150/RF DN ½" - ¾" - 1"

Standard threaded unions: BSP-M ½" - ¾" NPT-M ½" - ¾"

Options: further connections types or direct connections to the process without cocks  
(see page 1.49)

Vent: Standard: blind Option: see page 1.50

Drain: Standard: cock type D12 threaded ½" Option: see page 1.50

#### Accessories

See from page 1.55

#### Weights

Cocks type DS GR18: Kg. 7,4 approx. (with flanges UNI DN20 PN40)

Cocks type DS MT18: Kg. 6,1 approx. (with flanges UNI DN20 PN40)

#### Spare parts

Glass tube: Length = Centre-to-centre distance [M] - 30 mm

Protection: Length = Centre-to-centre distance [M] - 100 mm

Cocks type DS GR18: see from page 1.72

(drawing with components and parts list see page 1.66)

Cocks type DS MT18: see from page 1.64

(drawing with components and parts list see page 1.67)

#### Utilization

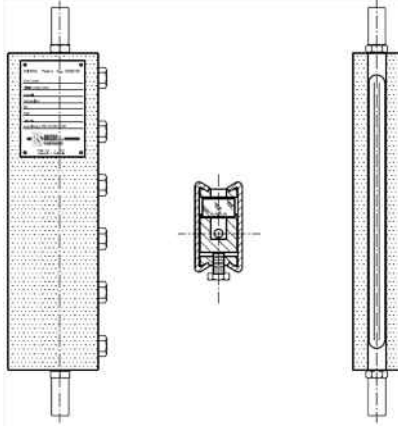
#### The product is NOT suitable for use in the following instances:

- if it is likely to be exposed to vibrations (glass tube will break)
- if the installation is situated by a walkway (possibility of blows/impact)
- if exposed to steam (shortens glass tube life)

**HOUSING WITH GRINDED PIPES**

**HOUSING TYPE DS - RBR**

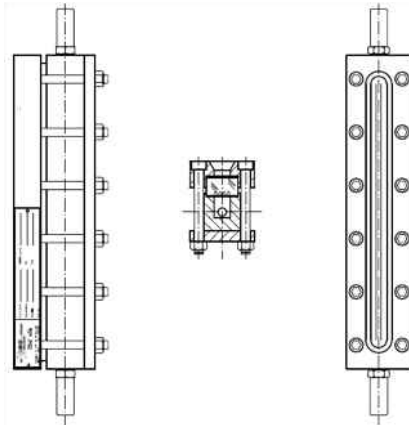
See technical data at page 1.7



Code: DS RBR ...  
(See details at page 1.61)

**HOUSING TYPE DS - RCR**

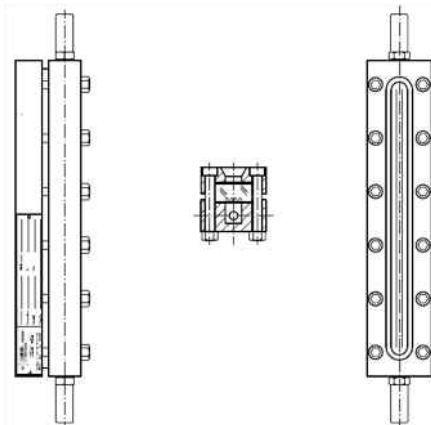
See technical data at page 1.9



Code: DS RCR ...  
(See details at page 1.62)

**HOUSING TYPE DS - RDR**

See technical data at page 1.10



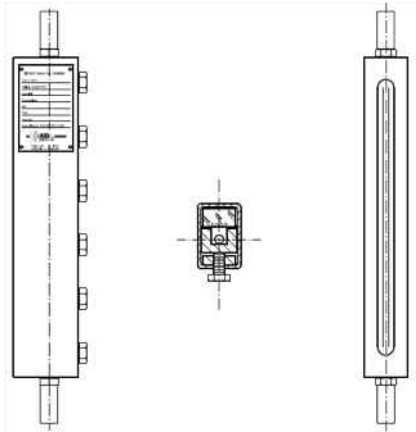
Code: DS RDR ...  
(See details at page 1.62)



**HOUSING WITH GRINDED PIPES**

**HOUSING TYPE DS - RTR**

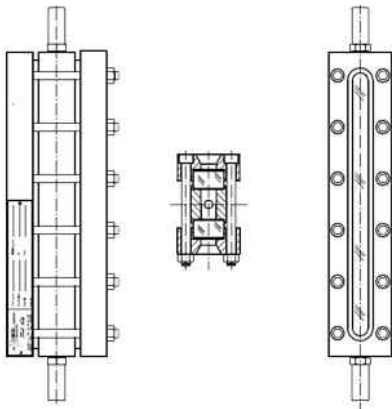
See technical data at page 1.17



Code: DS RTR ...  
(See details at page 1.61)

**HOUSING TYPE DS - TCR**

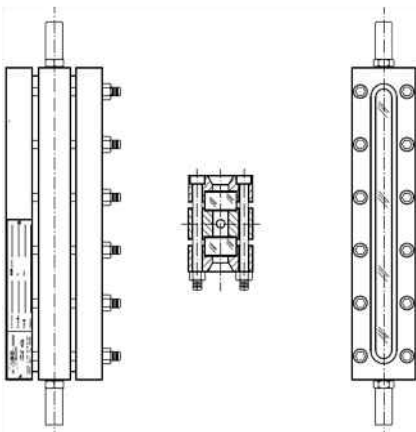
See technical data at page 1.25



Code: DS TCR ...  
(See details at page 1.64)

**HOUSING TYPE DS - TMR**

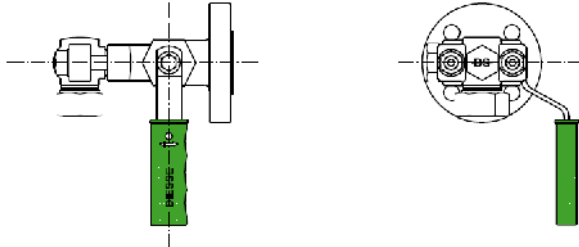
See technical data at page 1.27



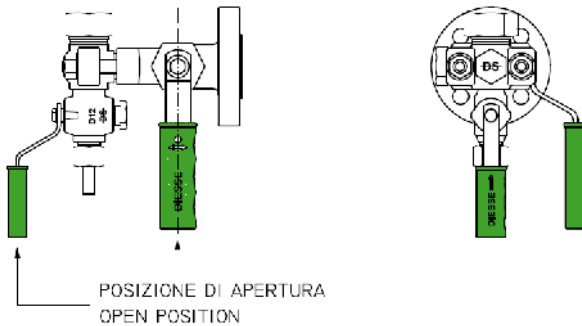
Code: DS TMR ...  
(See details at page 1.64)

**CYLINDRICAL PLUG COCKS**

**SHUT OFF COCKS TYPE DS GR18**

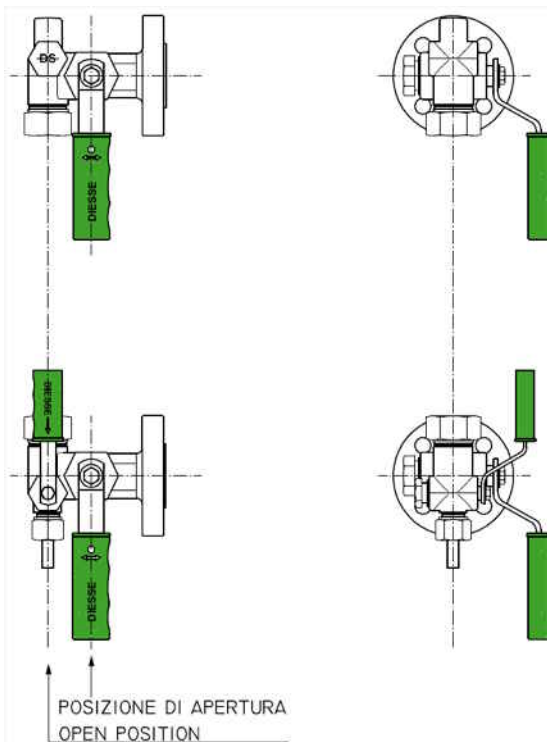


Code: DS GR18 ...  
(See details at page 1.66)



Executions on request:  
LH [Left handling]  
AHPD [In service vertical handles]

**SHUT OFF COCKS TYPE DS MT18**

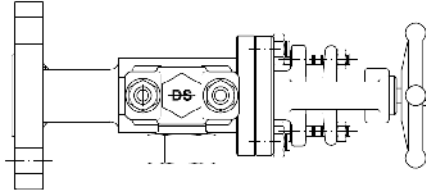
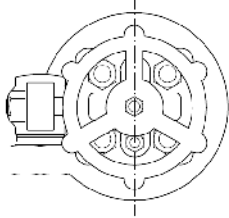


Code: DS MT18 ...  
(See details at page 1.67)

Execution on request:  
AHPD [In service vertical handles]

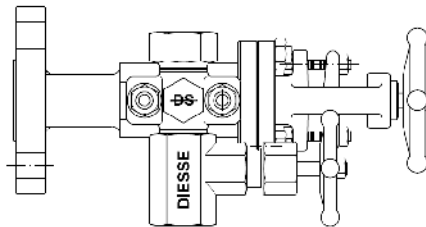
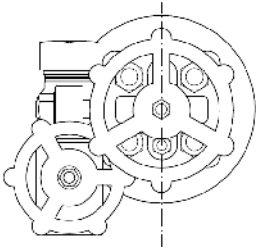
**GLOBE VALVES AND PUSH BUTTON VALVES**

**SHUT OFF GLOBE VALVES TYPE DS SHV**

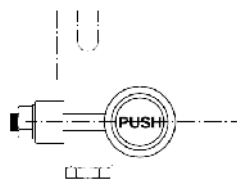
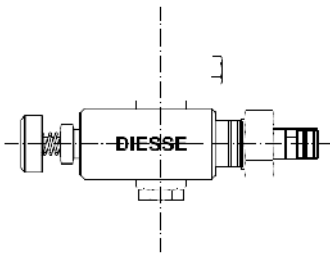


Code: DS SHV ...  
(See details at page 1.68)

Execution on request:  
LSB [Valves on the left side]

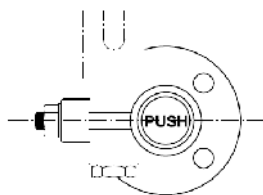
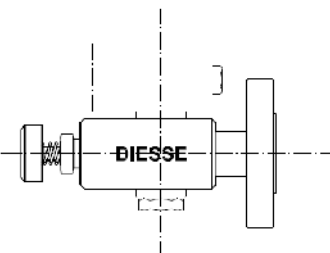


**PUSH BUTTON VALVES TYPE DS NPV (SELF-CLOSING VALVES)**



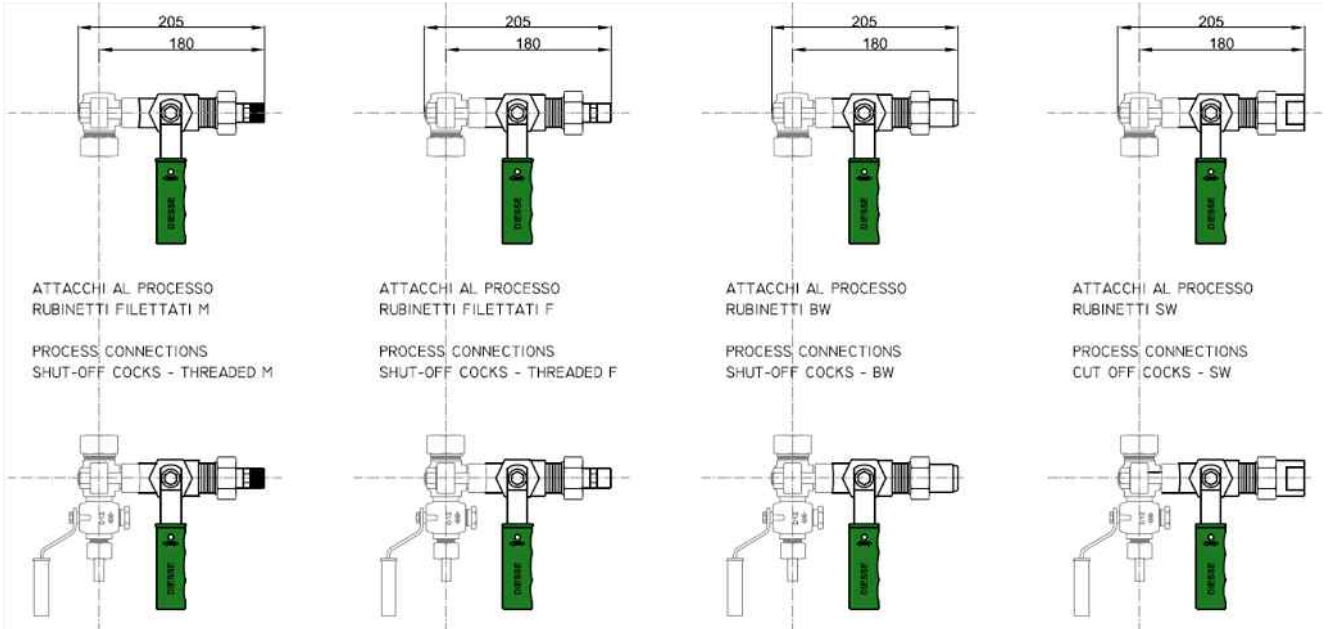
Code: DS NPV ...  
(See details at page 1.67)

Execution on request:  
LSB [Valves on the left side]

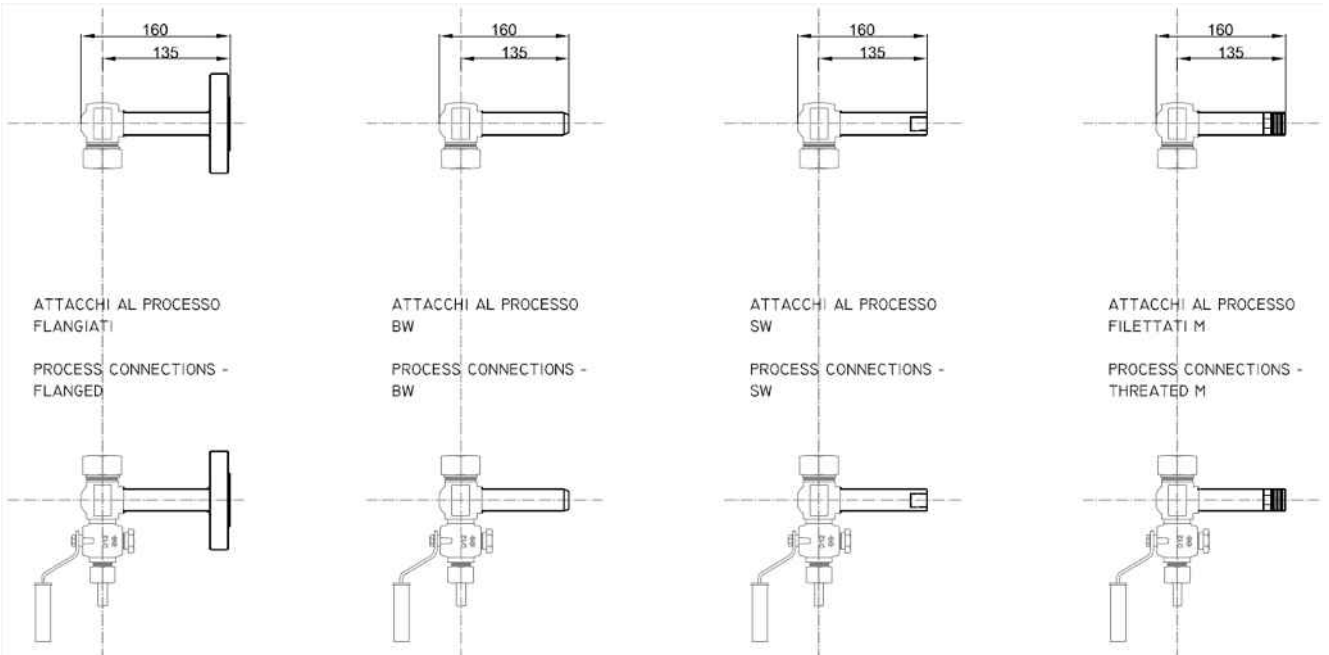


**PROCESS CONNECTIONS - GLASS LEVEL GAUGES WITH GRINDED PIPES AND CYLINDRICAL PLUG COCKS**

**SHUT OFF COCKS TYPE DS GR18**

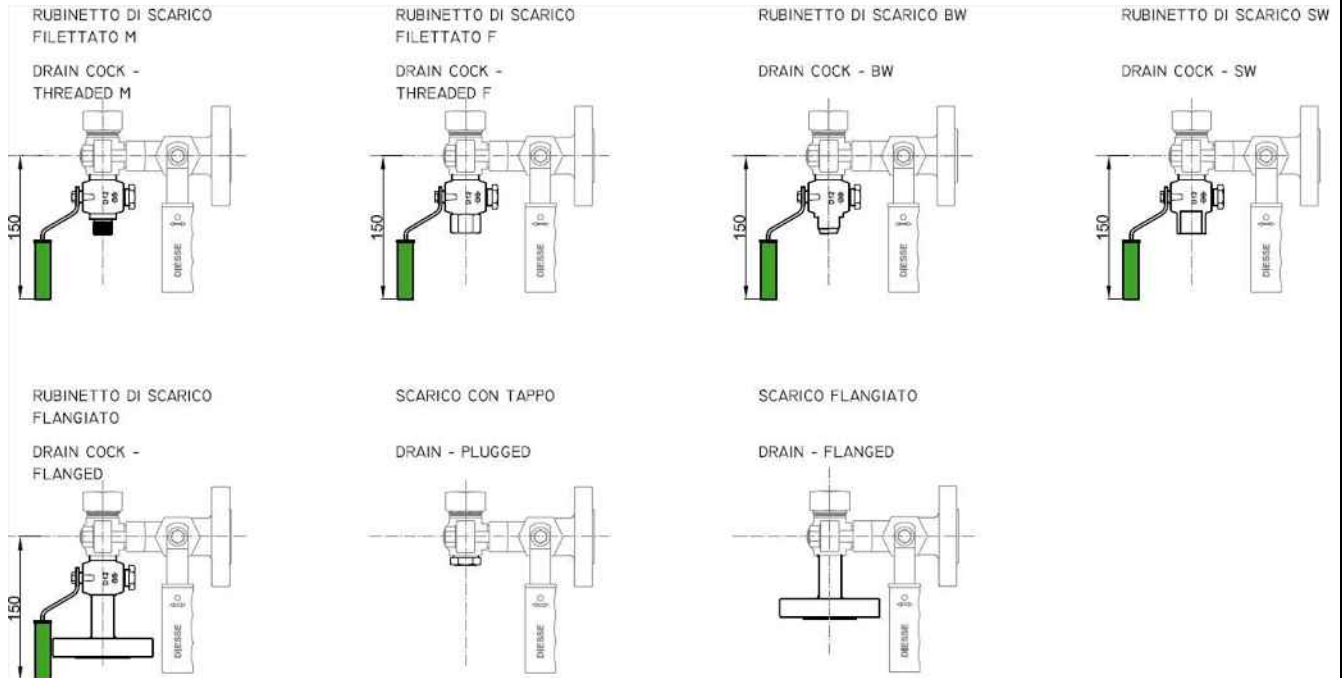


**WITHOUT SHUT OFF COCKS**

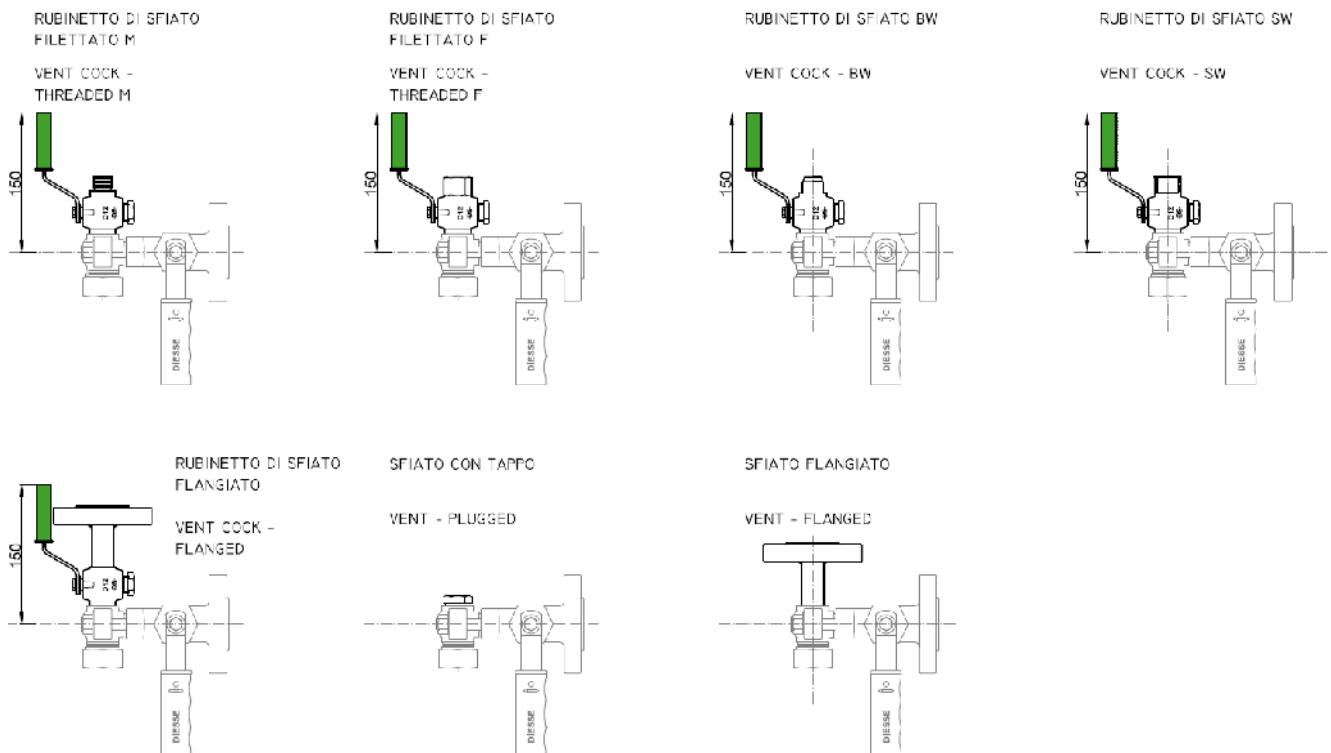


**DRAIN AND VENT - GLASS LEVEL GAUGES WITH GRINDED PIPES AND CYLINDRICAL PLUG COCKS**

**DRAIN for shut off cocks type DS GR18**

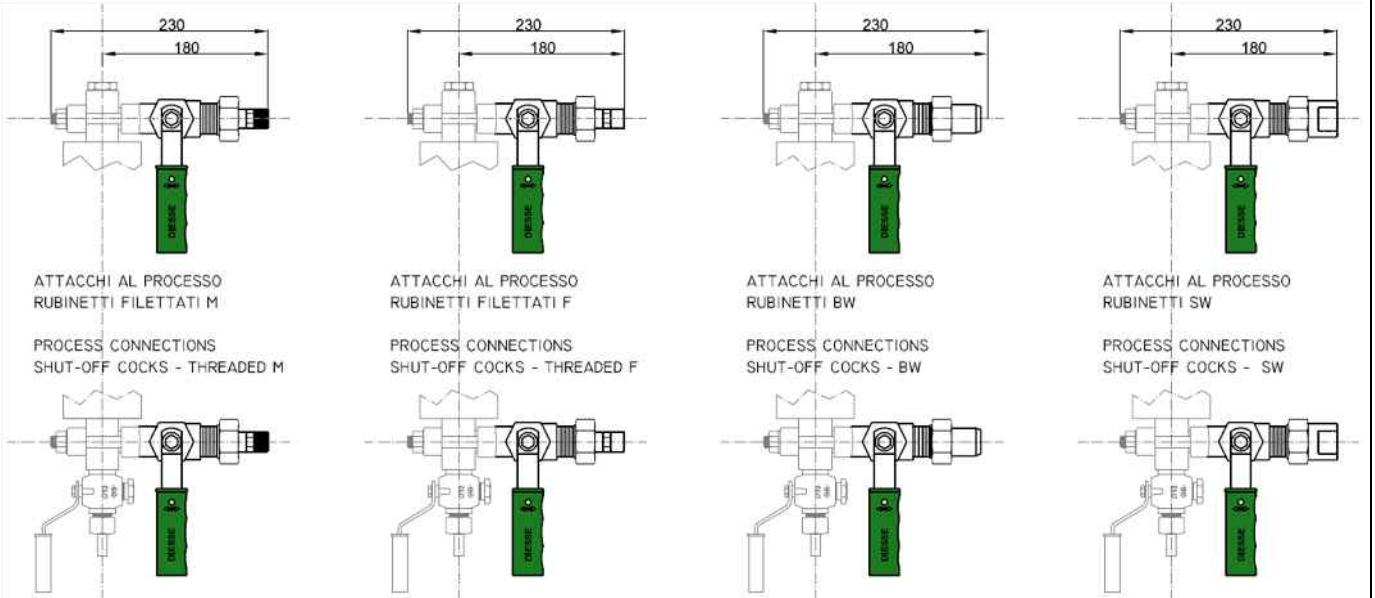


**VENT for shut off cocks type DS GR18**

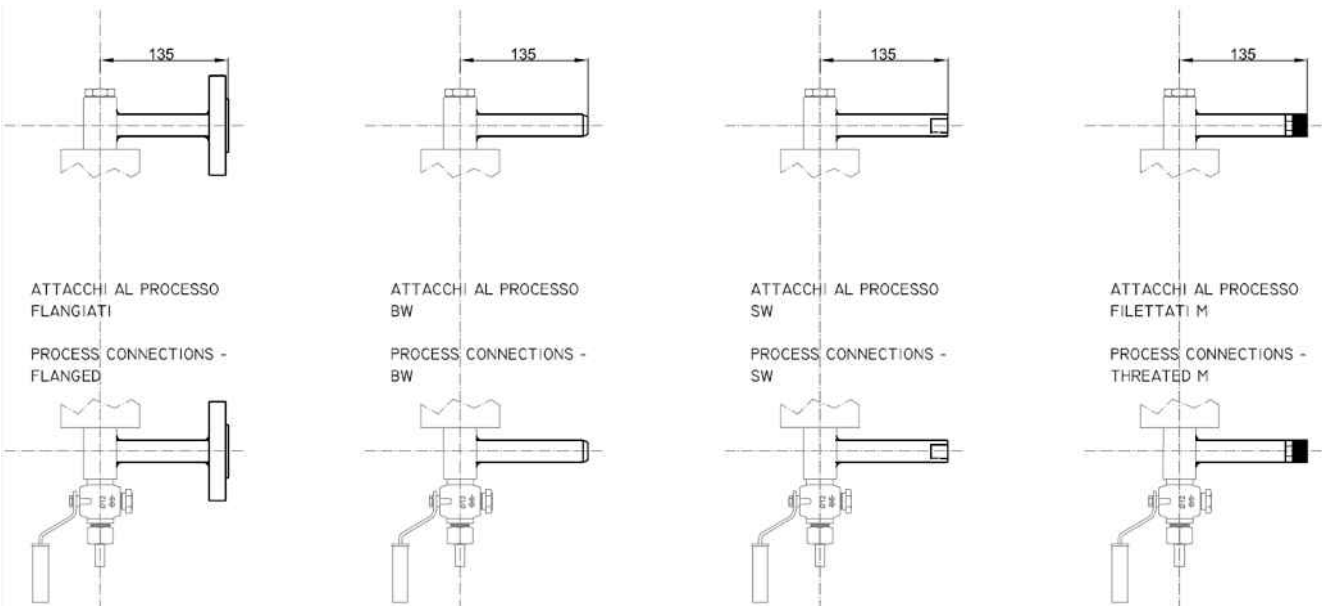


**PROCESS CONNECTIONS - GLASS LEVEL GAUGES WITH FIXED DISTANCE BETWEEN CENTERS AND CYLINDRICAL PLUG COCKS**

**SHUT OFF COCKS TYPE DS GR18**



**WITHOUT SHUT OFF COCKS**

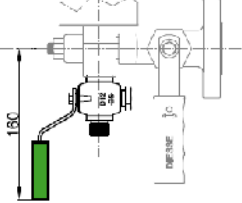


**DRAIN AND VENT - GLASS LEVEL GAUGES WITH FIXED DISTANCE BETWEEN CENTERS AND CYLINDRICAL PLUG COCKS**

**DRAIN for shut off cocks type DS GR18**

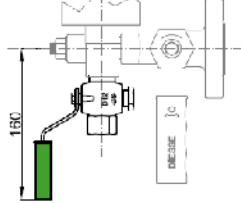
RUBINETTO DI SCARICO  
FILETTATO M

DRAIN COCK -  
THREADED M



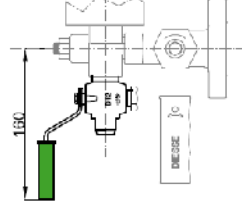
RUBINETTO DI SCARICO  
FILETTATO F

DRAIN COCK -  
THREADED F



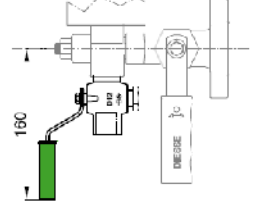
RUBINETTO DI SCARICO BW

DRAIN COCK - BW



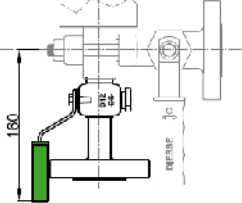
RUBINETTO DI SCARICO SW

DRAIN COCK - SW



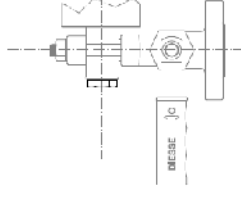
RUBINETTO DI SCARICO  
FLANGIATO

DRAIN COCK -  
FLANGED



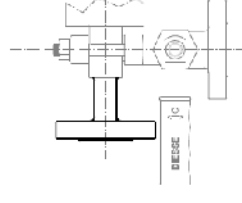
SCARICO CON TAPPO

DRAIN - PLUGGED



SCARICO FLANGIATO

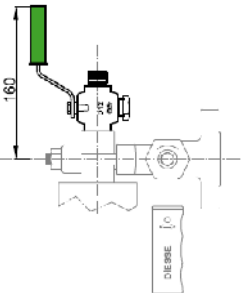
DRAIN - FLANGED



**VENT for shut off cocks type DS GR18**

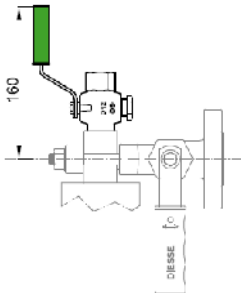
RUBINETTO DI SFIATO  
FILETTATO M

VENT COCK -  
THREADED M



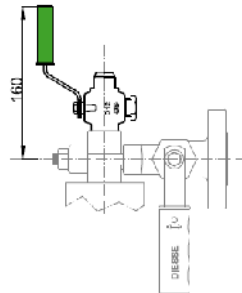
RUBINETTO DI SFIATO  
FILETTATO F

VENT COCK -  
THREADED F



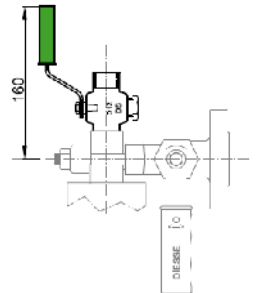
RUBINETTO DI SFIATO BW

VENT COCK - BW



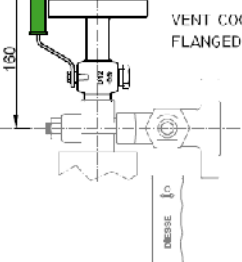
RUBINETTO DI SFIATO SW

VENT COCK - SW



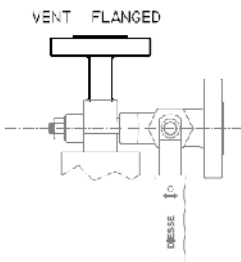
RUBINETTO DI SFIATO  
FLANGIATO

VENT COCK -  
FLANGED



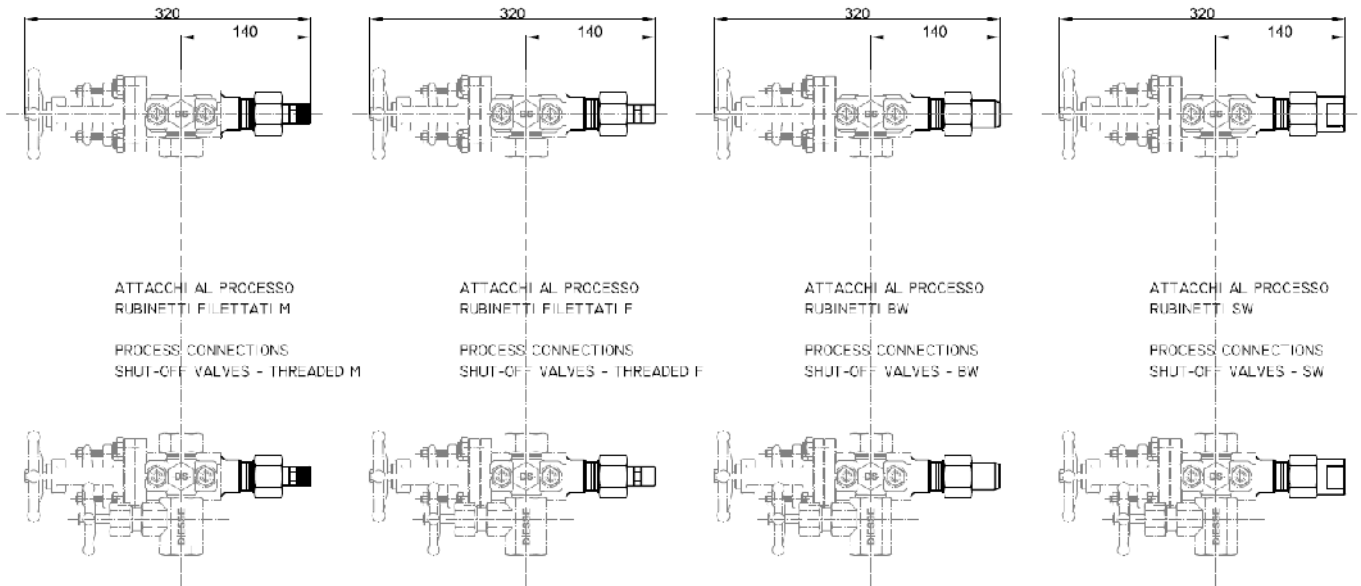
SFIATO FLANGIATO

VENT FLANGED

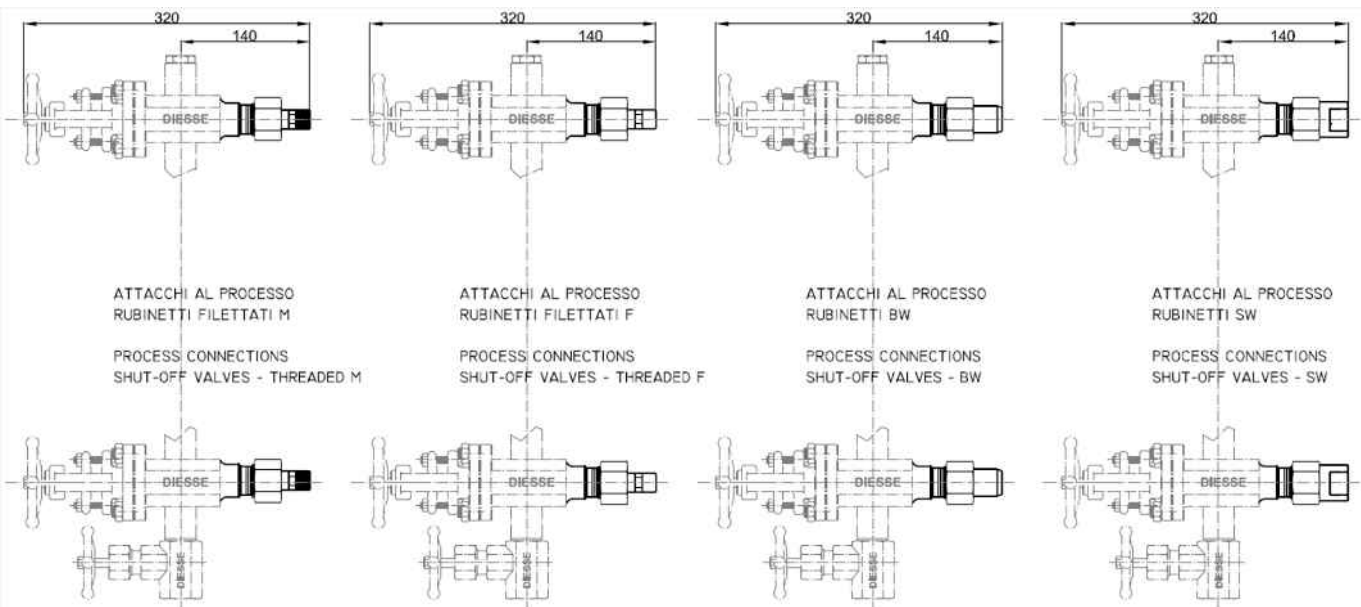


**PROCESS CONNECTIONS - GLOBE VALVES**

**SHUT OFF VALVES TYPE DS SHV for housings with grinded pipes**



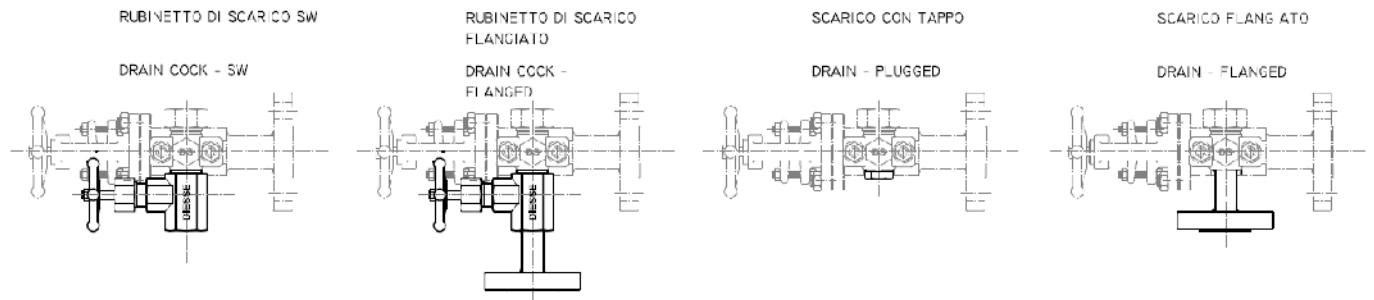
**SHUT OFF VALVES TYPE DS SHV for housings with fixed distance between centers**



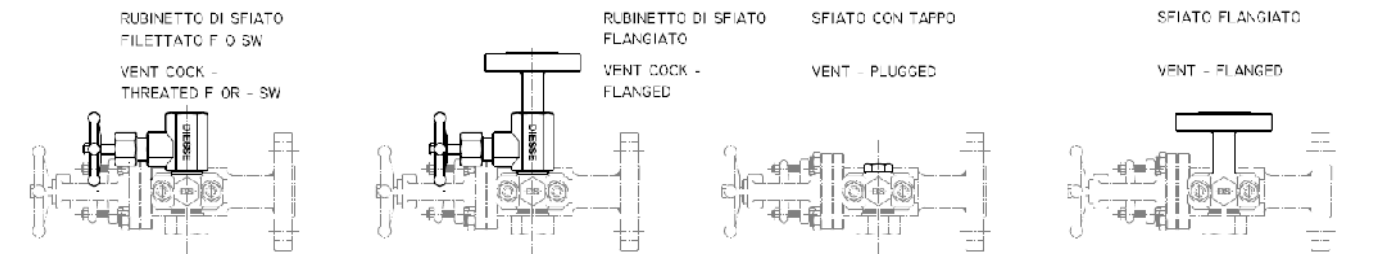


**DRAIN AND VENT - GLOBE VALVES**

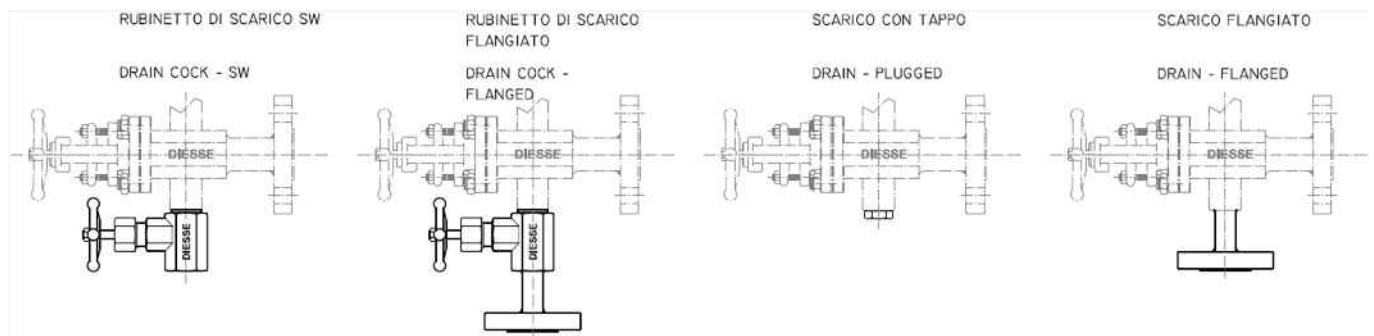
**DRAIN for shut off valves type DS SHV for housings with grinded pipes**



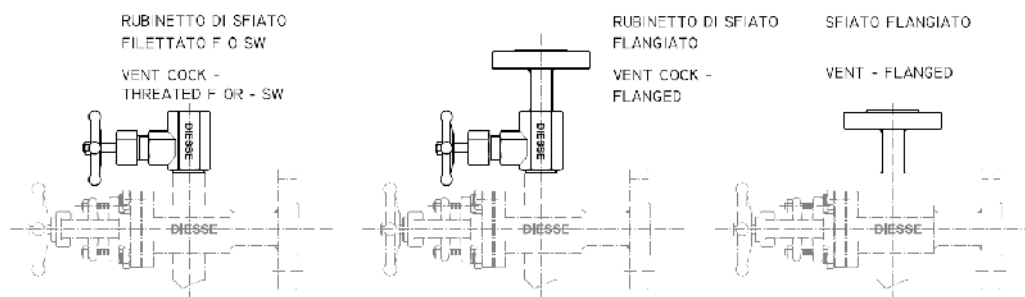
**VENT for shut off valves type DS SHV for housings with grinded pipes**



**DRAIN for shut off valves type DS SHV for housings with fixed distance between centers**



**VENT for shut off valves type DS SHV for housings with fixed distance between centers**

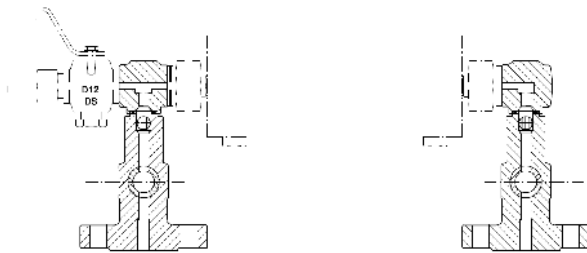


**ACCESSORIES FOR GLASS LEVEL GAUGES**

**SAFETY BALL**

The Diesse level gauges can be equipped with a safety ball lower and/or upper (in stainless steel 316) positioned inside the valves, which stops the fluid flow in case glass breakage occurs. The breakage is anyway improbable if the operations are carried out in the proper way.

**Shut-off cocks type DS GR 18**



Code:  
LC [Safety ball for lower shut-off cock]  
UC [Safety ball for upper shut-off cock]

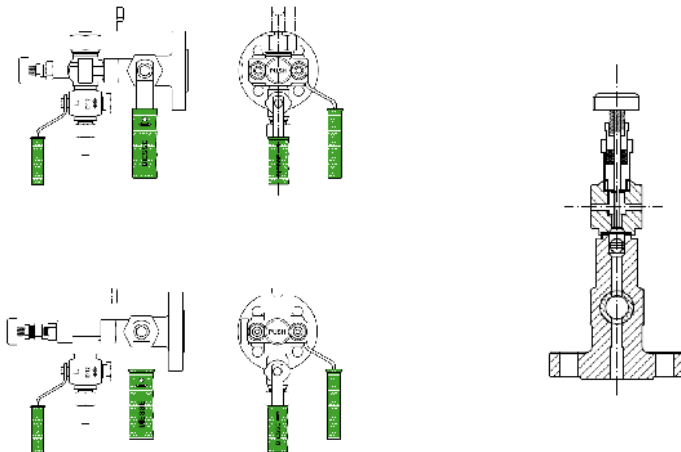
**Shut-off valves type DS SHV**

The shut-off valves type DS SHV are always equipped with safety balls.

**PUSHER for safety ball**

**Shut-off cocks type DS GR 18**

To re-position the safety balls and enable the normal flow of the fluid, on request it's available a pusher in stainless steel.

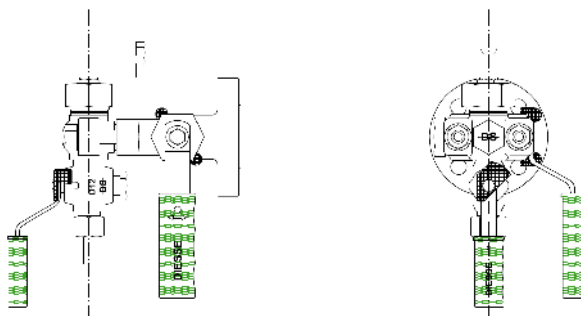


Code:  
LPH [Pusher for lower shut-off cock]  
UPH [Pusher for upper shut-off cock]

**Shut-off valves type DS SHV**

The pusher is not necessary for shut-off valves type DS SHV because, when closing, the extension of the stem provides by itself for the repositioning of the safety ball.

**COCKS HANDLES LOCK (on request also lockable)**

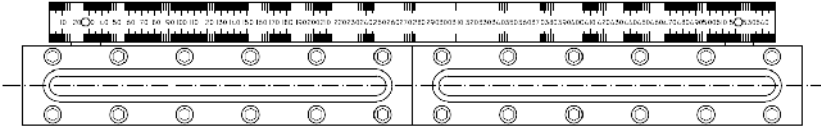


Code:  
SMHD [Cocks handles lock (all)]  
LU-SMHD [Shut-off handles lock]  
D-SMHD [Drain handle lock]  
V-SMHD [Vent handle lock]

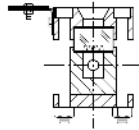
## ACCESSORIES FOR GLASS LEVEL GAUGES

### CALIBRATED SCALE

The calibrated scale (millimeters) is in stainless steel, the values are engraved and black coloured. The standard indication correspond to the centre-to-centre distance of the level gauge. On request other materials and graduations can be supplied.

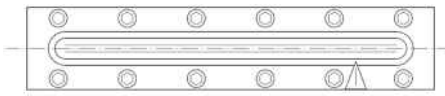


Code: VSG

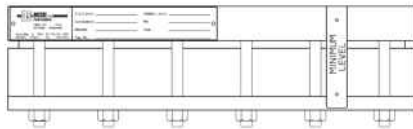


### MINIMUM LEVEL ARROW

To mark the minimum level of the fluid which must be maintained inside the tank, a minimum level arrow in stainless steel can be fixed on the level gauge. On request to enable its regulation along the full visible length it is possible to fix the arrow on a small rail.

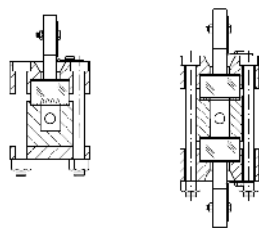
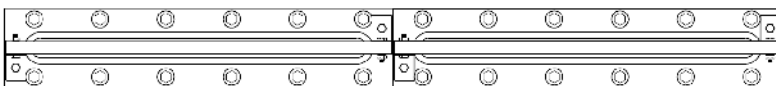


Code: MLA



### NON-FROSTING EXTENSION

On request an acrylic transparent resin slab can be supplied to be positioned on the level gauge glass (both for reflex and transparent one) to avoid the frost formation on the external surface of the glass to facilitate the fluid level reading. The non-frosting extension is recommended when the fluid reach a temperature  $< 0^{\circ}\text{C}$ .

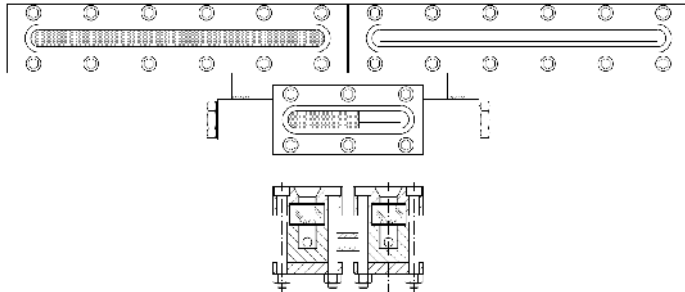


Code: NFE

**ACCESSORIES FOR GLASS LEVEL GAUGES**

**CONTINUOUS READING**

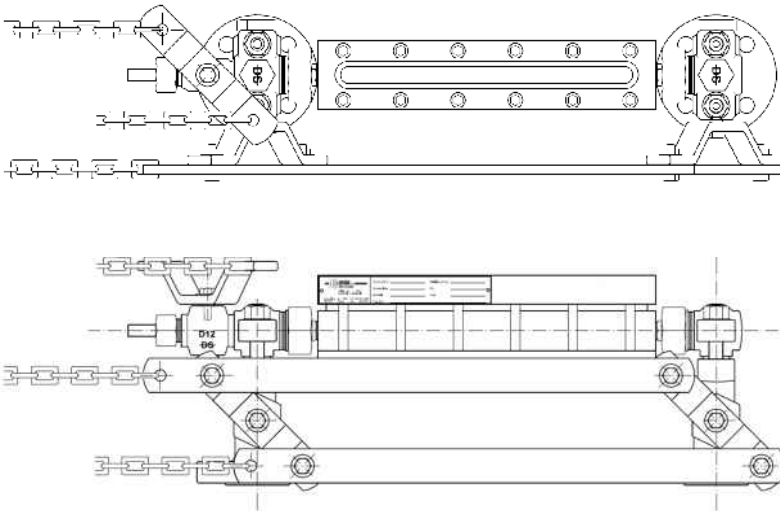
The execution of a multiple level gauge involves a discontinuity in reading due to short dark area as a result of the two elements joint. If a continuous reading of the fluid level is necessary, a special type can be supplied.



Code: CR

**REMOTE CONTROL**

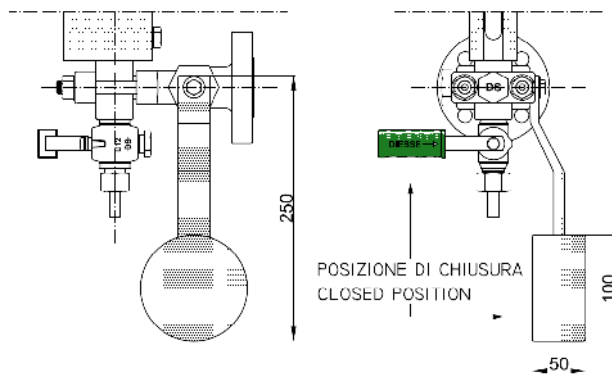
In case of level gauge installed in a high position which does not enable an easy shut-off cocks opening/closure, the handles can be equipped with a remote control device. Cable or chains are not supplied by the manufacturer.



Code: ELC

**WEIGHT CLOSING for handle (SELF-CLOSING DEVICE)**

This device is supplied to ensure that the shut-off cocks remain closed even in case of the operator absence.



Code:  
LFC [Weight closing for lower handle]  
LFC [Weight closing for upper handle]

### ACCESSORIES FOR GLASS LEVEL GAUGES

#### ILLUMINATION LAMP (For transparent level gauges only)

The visibility of the transparent level gauges can be improved by the installation of an illumination lamp positioned on the back side of the instrument. The lamp light is directed at the level gauge by a borosilicate or plexiglas diffuser.

#### Materials:

Body and cover: aluminium with epoxy paint  
 Option in stainless steel AISI 316

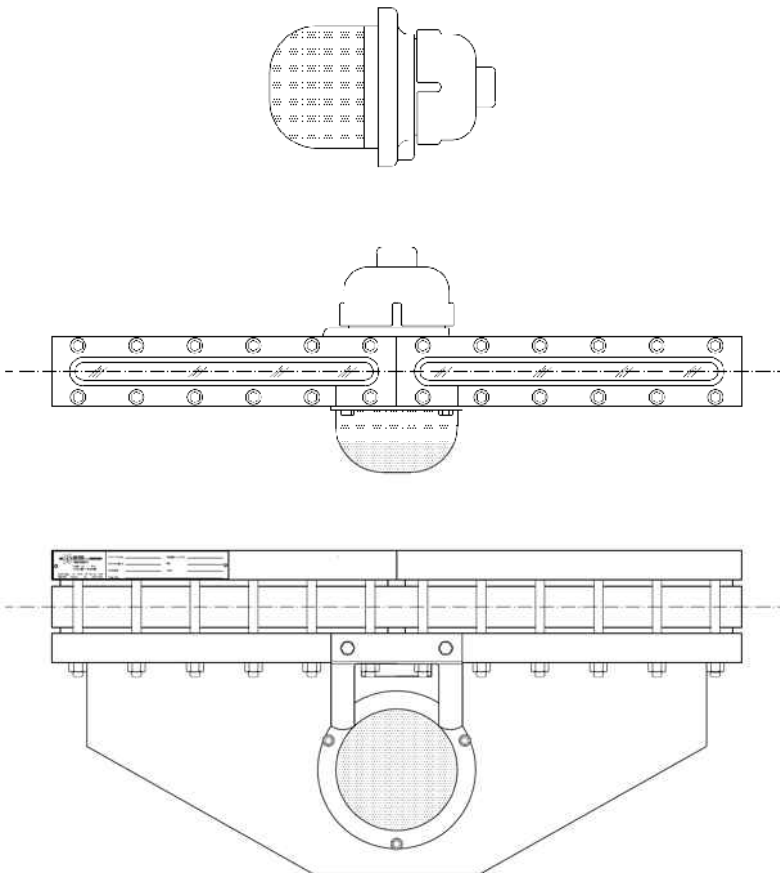
Transparent globe: thermoresistant and impact resistant glass

Support for glass level gauge: carbon steel galvanized  
 Option in stainless steel AISI 316

Lamp: fluorescent bulb 11 W E27 for supply voltage 230 V AC, 50/60 Hz  
 Option with LED lamp 24V DC 5W E27

#### Technical data:

Supply voltage	12-24 V AC/DC	125 V AC	230 V AC
Rated current	90-130 mA	15 mA	20 mA
Working temperature	- 20°C + 60°C	- 20°C + 60°C	- 20°C + 60°C
Frequency	--	50 / 60 Hz	50 / 60 Hz
Average power consumption	2 W	1,6 W	4,5 W
Lamp power	6J	6J	6J
Service	Continuous	Continuous	Continuous
Cable entry	3/4" NPT-F	3/4" NPT-F	3/4" NPT-F
ATEX approval	INERIS 01 ATEX 0068X	INERIS 01 ATEX 0068X	INERIS 01 ATEX 0068X



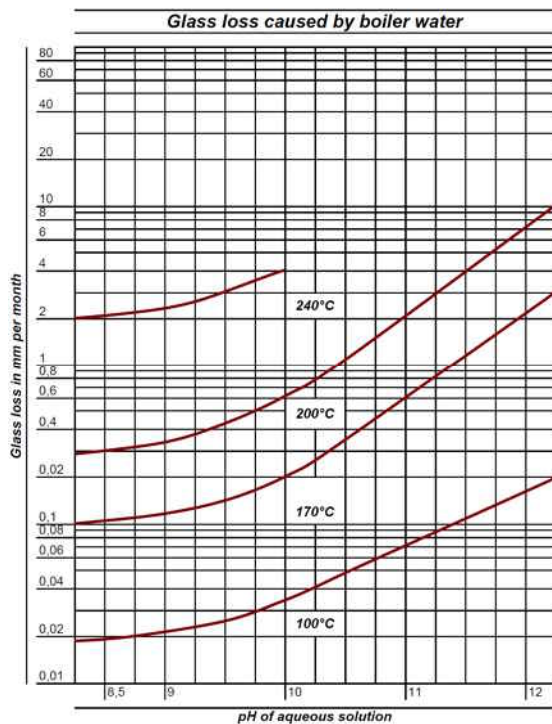
Code: EVA50

### USE WITH SATURATED STEAM

The maximum operating conditions of the equipment must be carefully evaluated in case of use with saturated steam in order to decide the best type which avoids often maintenance operations/parts replacements.

Suggestions to be taken into consideration:

- **To avoid often tightening of the union nut for grinded pipes (pos. 15 of page 1.66)**  
Should the operating conditions not exceed a maximum pressure value of 15 bar (197°C) it is recommended the purchase of a level gauge with grinded pipes even if they can be considered suitable for applications up to 20 bar.  
Higher values would dry the graphite sealing gasket of the upper pipe in a very short time and cause leakages which could damage the whole level gauge and the lower cock.
- **To avoid often glasses replacement**  
it is recommended to:
  - Utilize reflex level gauges with fixed distance execution if operating conditions do not exceed the value of 20 bar (211°C). Higher values would cause the glass breakage in a short time (see diagram "glass loss caused by boiler water" regarding glass life)
  - Utilize transparent level gauges type DS LG - TCF or type DS LG - TMF with mica shields protection for operation conditions not exceeding the value of 32 bar (236°C)
  - Utilize transparent level gauges type DS LG - TPF with mica shields protection for operating conditions not exceeding the value of 50 bar (263°C)
  - Utilize transparent level gauges type DS LG - TXF with mica shields protection for operating conditions not exceeding the value of 70 bar (280°C)



Glass loss - 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).

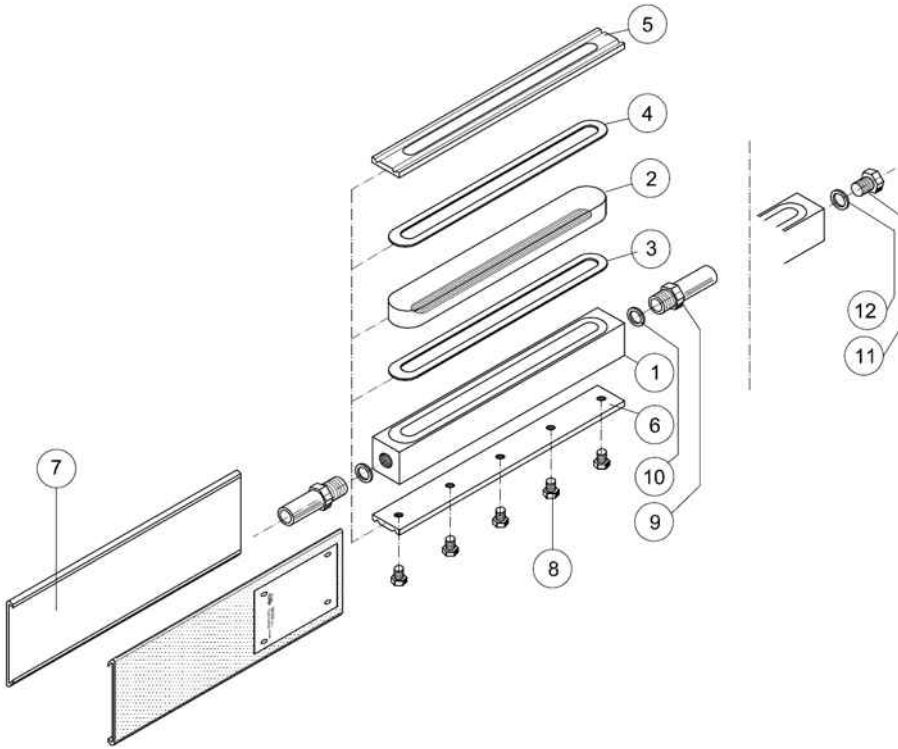
**DURING THE FIRST HOURS OF INSTRUMENT USE** and particularly in case of use with high temperature steam, should any leakage occur, gently tighten the stuffing box (pos. 12 and 13 of page 1.66), the fitting screws and the nuts (for housing tightening starting in the middle and then work outwards on alternate sides).

The grease contained in the graphite gaskets is dissolved by the high temperatures, the gaskets dry and loose the sealing capacity that can be restored by this easy operation.

**ANYWAY BOLTS AND NUTS CONDITIONS CHECKS SHOULD BE CARRIED OUT REGULARLY.**

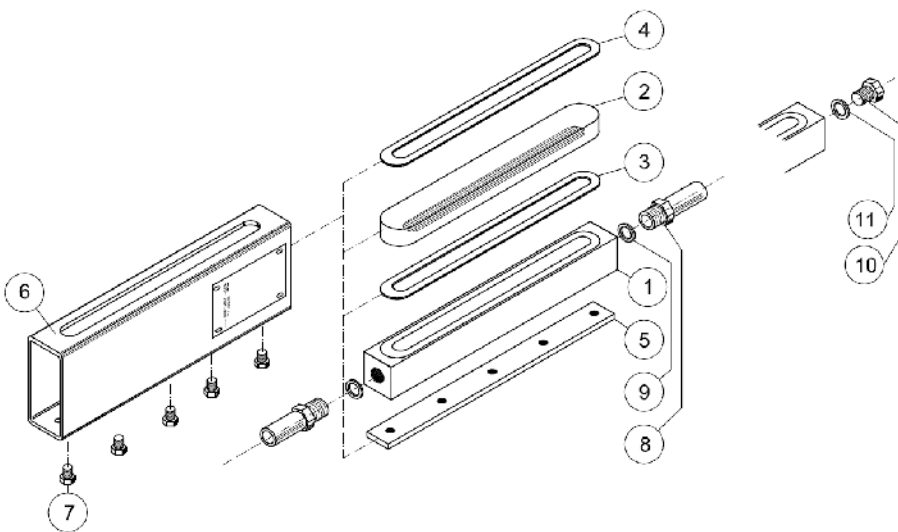
**REFLEX HOUSINGS - COMPONENTS**

**HOUSING TYPE DS LG - RBR / DS LG - RBF**



1. Level gauge body
2. Reflex glass DIN 7081
3. Sealing gasket
4. Cushion gasket
5. Frontal cover
6. Fixing plate
7. Lateral covers
8. Bolts
9. Grinded pipes (LG-RBR)
10. Metal gaskets (LG-RBR)
11. Vent plug (LG-RBF)
12. Metal gasket (LG-RBF)

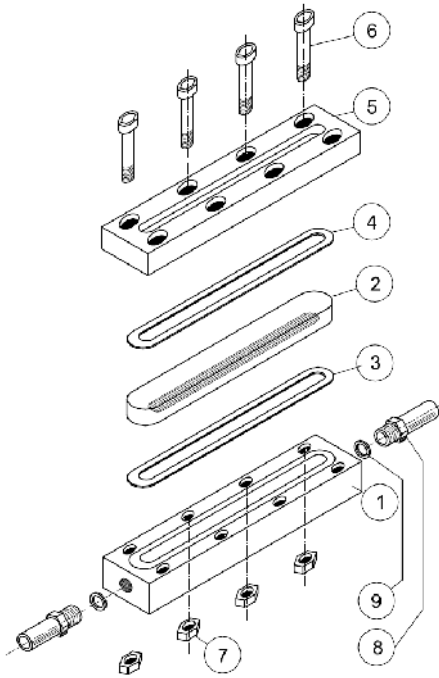
**HOUSING TYPE DS LG - RTR / DS LG - RTF**



1. Level gauge body
2. Reflex glass DIN 7081
3. Sealing gasket
4. Cushion gasket
5. Fixing plate
6. Tubular cover
7. Bolts
8. Grinded pipes (LG-RTR)
9. Metal gaskets (LG-RTR)
10. Vent plug (LG-RTF)
11. Metal gasket (LG-RTF)

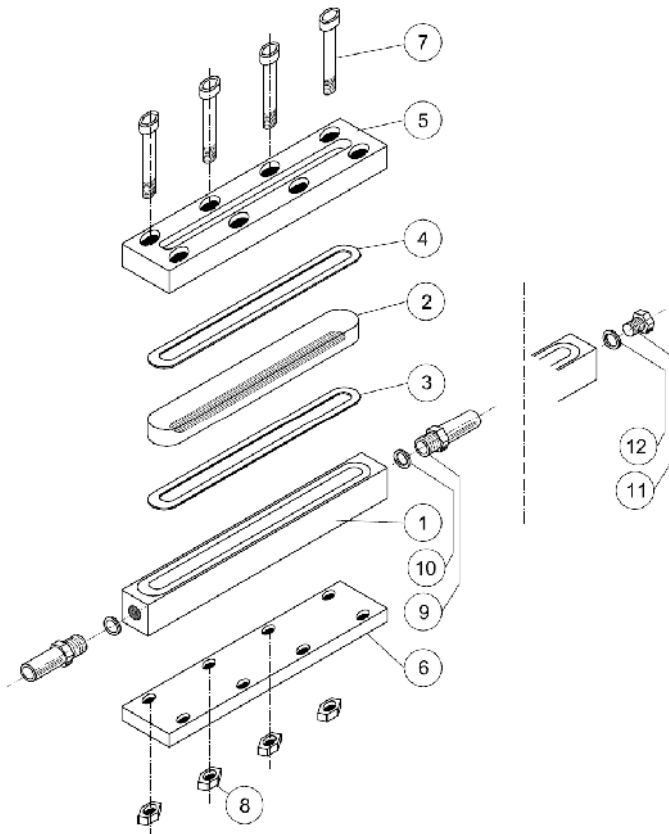
**REFLEX HOUSINGS - COMPONENTS**

**HOUSING TYPE DS LG - RDR**



1. Level gauge body
2. Reflex glass DIN 7081
3. Sealing gasket
4. Cushion gasket
5. Cover
6. Bolts
7. Nuts
8. Grinded pipes
9. Metal gaskets

**HOUSING TYPE DS LG - RCR / DS LG - RCF**

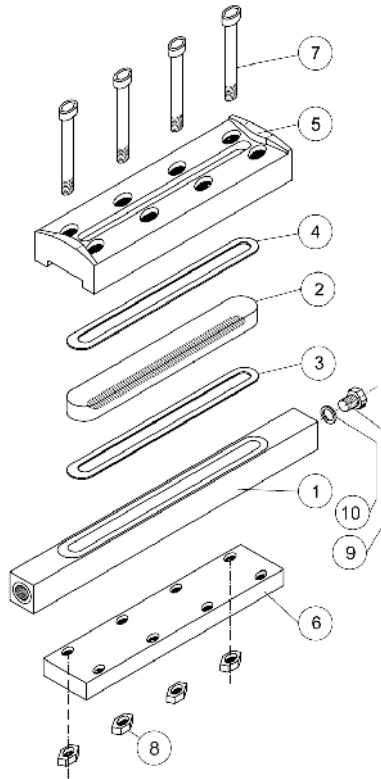


1. Level gauge body
2. Reflex glass DIN 7081
3. Sealing gasket
4. Cushion gasket
5. Cover
6. Fixing plate
7. Bolts
8. Nuts
9. Grinded pipes (LG-RCR)
10. Metal gaskets (LG-RCR)
11. Vent plug (LG-RCF)
12. Metal gasket (LG-RCF)



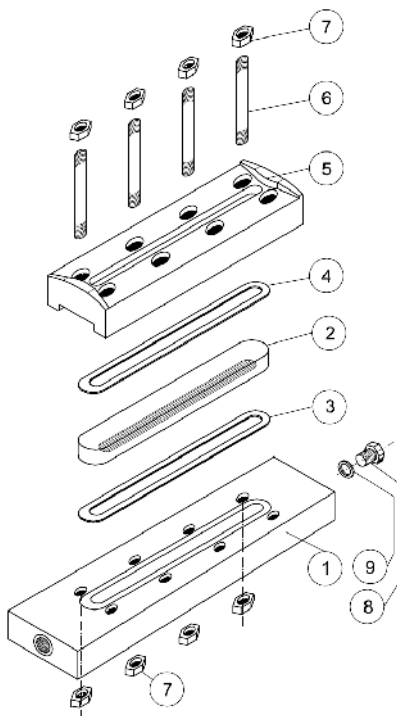
**REFLEX HOUSINGS - COMPONENTS**

**HOUSING TYPE DS LG - RPF**



1. Level gauge body
2. Reflex glass DIN 7081
3. Sealing gasket
4. Cushion gasket
5. Cover
6. Fixing plate
7. Bolts
8. Nuts
9. Vent plug
10. Metal gasket

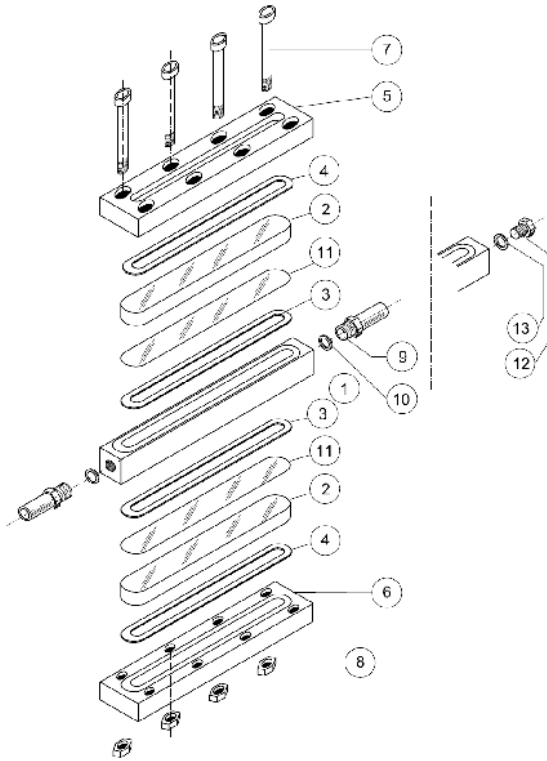
**HOUSING TYPE DS LG - RXF**



1. Level gauge body
2. Reflex glass DIN 7081
3. Sealing gasket
4. Cushion gasket
5. Cover
6. Bolts
7. Nuts
8. Vent plug
9. Metal gasket

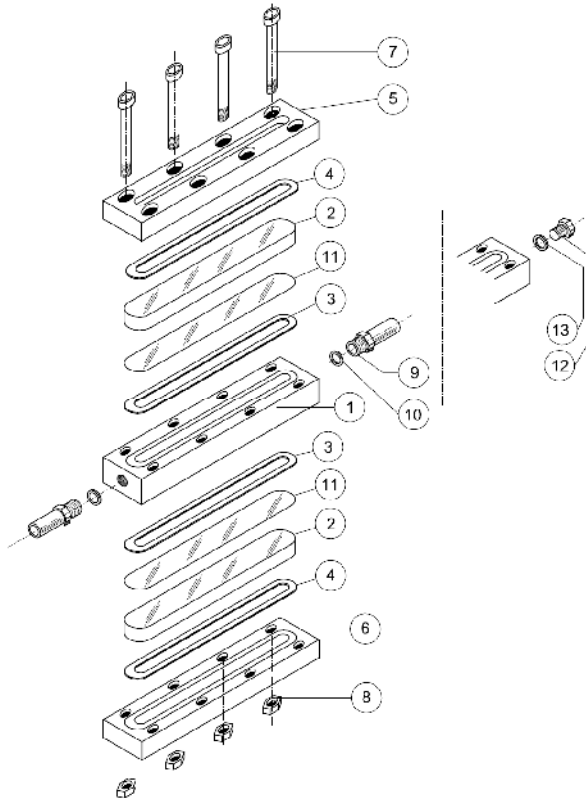
**TRANSPARENT HOUSINGS - COMPONENTS**

**HOUSING TYPE DS LG - TCR / DS LG - TCF**



- 1. Level gauge body
- 2. Transparent glass DIN 7081
- 3. Sealing gaskets
- 4. Cushion gaskets
- 5. Frontal cover
- 6. Back cover
- 7. Bolts
- 8. Nuts
- 9. Grinded pipes (LG-TCR)
- 10. Metal gaskets (LG-TCR)
- 11. Mica shields (optional)
- 12. Vent plug (LG-TCF)
- 13. Metal gasket (LG-TCF)

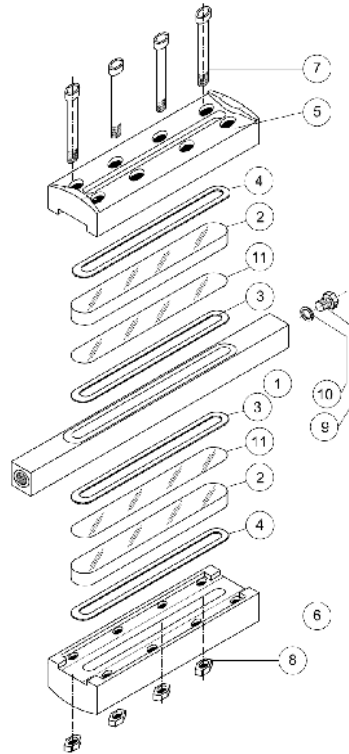
**HOUSING TYPE DS LG - TMR / DS LG - TMF**



- 1. Level gauge body
- 2. Transparent glass DIN 7081
- 3. Sealing gaskets
- 4. Cushion gaskets
- 5. Frontal cover
- 6. Back cover
- 7. Bolts
- 8. Nuts
- 9. Grinded pipes (LG-TMR)
- 10. Metal gaskets (LG-TMR)
- 11. Mica shields (optional)
- 12. Vent plug (LG-TMF)
- 13. Metal gasket (LG-TMF)

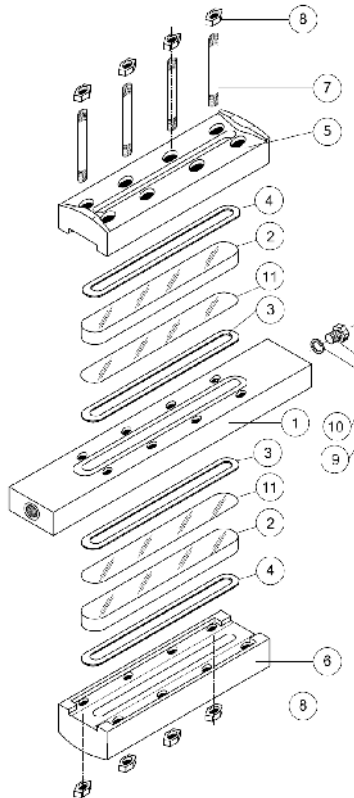
**TRANSPARENT HOUSINGS - COMPONENTS**

**HOUSING TYPE DS LG - TPF**



1. Level gauge body
2. Transparent glass DIN 7081
3. Sealing gaskets
4. Cushion gaskets
5. Frontal cover
6. Back cover
7. Bolts
8. Nuts
9. Vent plug
10. Metal gasket
11. Mica shields (optional)

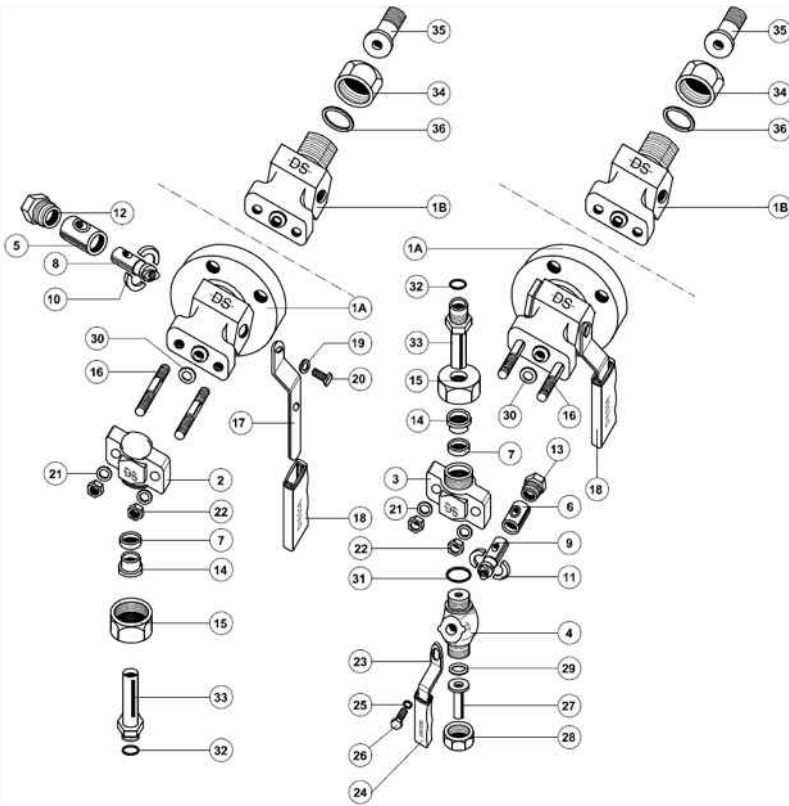
**HOUSING TYPE DS LG - TXF**



1. Level gauge body
2. Transparent glass DIN 7081
3. Sealing gaskets
4. Cushion gaskets
5. Frontal cover
6. Back cover
7. Bolts
8. Nuts
9. Vent plug
10. Metal gasket
11. Mica shields (optional)

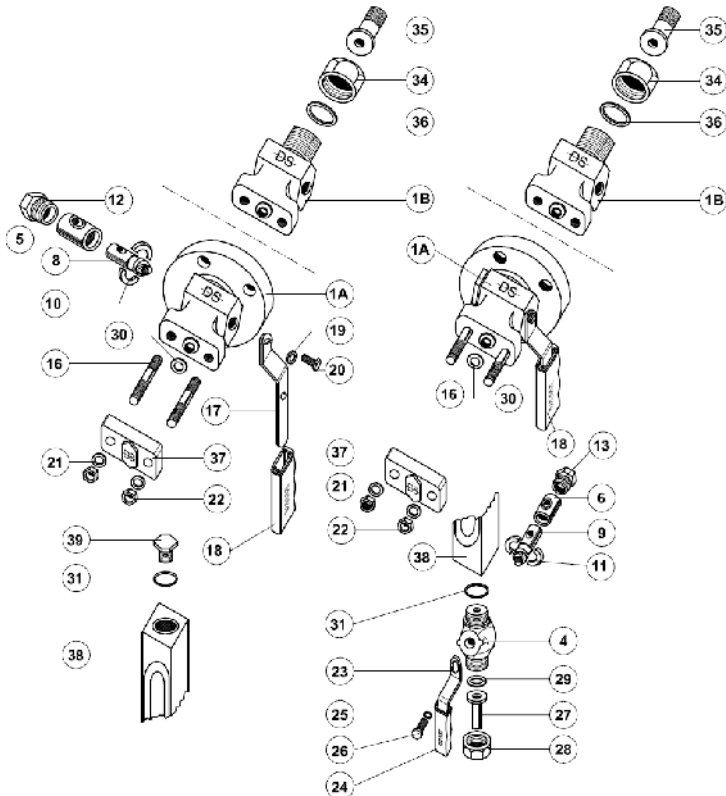
## SHUT-OFF COCKS - COMPONENTS

### SHUT-OFF COCKS TYPE DS GR 18 for housings with grinded pipes



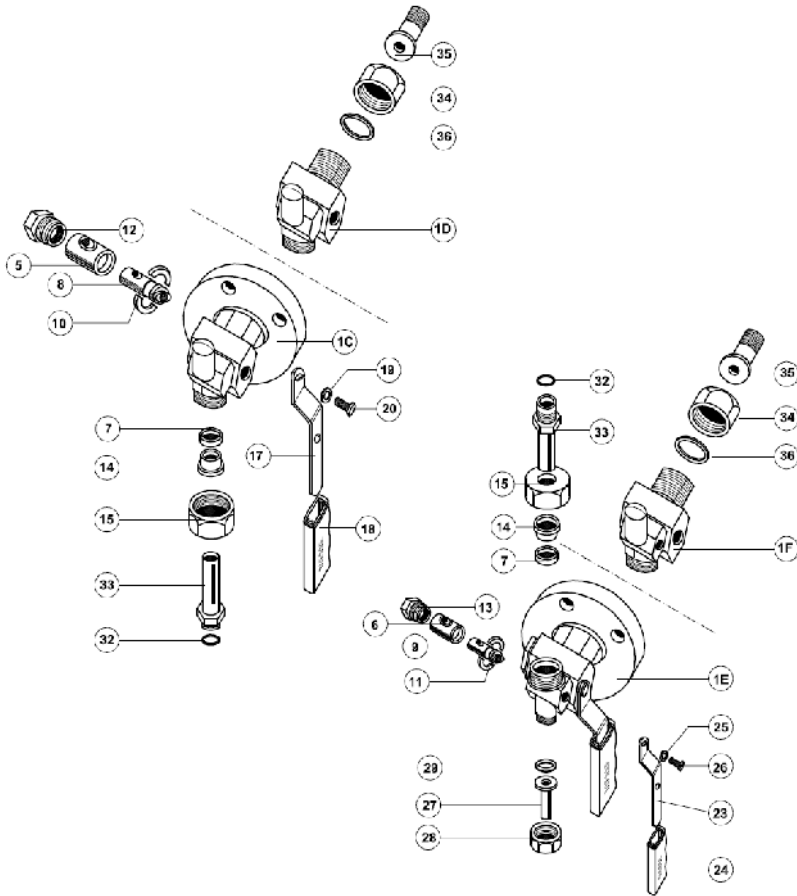
- 1A. Flanged shut-off cocks body
- 1B. Threaded shut-off cocks body
- 2. Upper support
- 3. Lower support
- 4. Drain cock body
- 5. Cases Ø 26 x 18 x 32 mm
- 6. Case Ø 18 x 12 x 23 mm
- 7. Packing rings Ø 23,5 x 16 x 10 mm
- 8. Cylindrical plugs Ø 18 mm
- 9. Cylindrical plug Ø 12 mm
- 10. Split rings Ø 26
- 11. Split ring Ø 18
- 12. Stuffing boxes 7/8"G
- 13. Stuffing box 1/2"G
- 14. Stuffing boxes Ø 26 x 17 x 11,5 mm
- 15. Union nuts 1"G for grinded pipes
- 16. Bolts
- 17. Handles
- 18. PP covers for handles
- 19. Washers M8
- 20. Bolts M8 x 12
- 21. Washers M12
- 22. Nuts M12
- 23. Drain handle
- 24. PP cover for drain handle
- 25. Washer M6
- 26. Bolt M6 x 10
- 27. Drain pipe
- 28. Union nut 1/2"G for drain pipe
- 29. Gasket Ø 18,3 x 9,2 x 1,5 mm
- 30. Gaskets Ø 23 x 14,5 x 2 mm
- 31. Gaskets Ø 27 x 21,5 x 1,5 mm
- 32. Gaskets Ø 14 x 9 x 1,5 mm
- 33. Grinded pipes Ø 16 mm
- 34. Union nuts 1"G for threaded connections
- 35. Threaded connections
- 36. Gaskets Ø 29,5 x 13 x 2 mm
- 37. Fixing brackets
- 38. Level gauge body
- 39. Plugs

### SHUT-OFF COCKS TYPE DS GR 18 for housings with fixed distance between centers



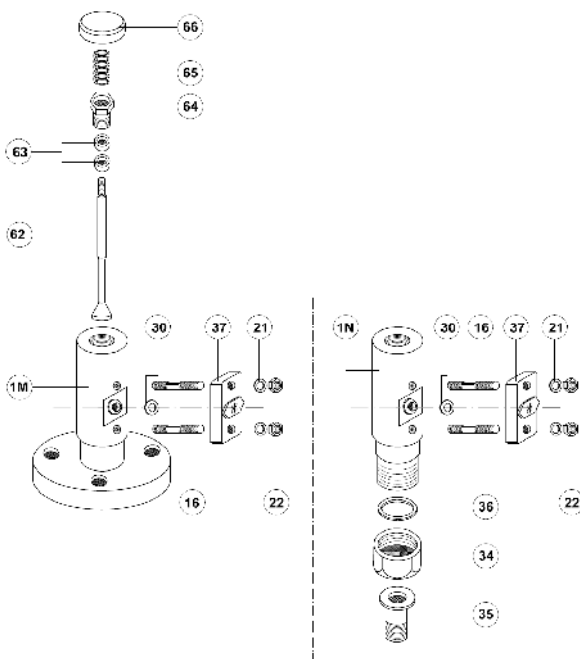
## SHUT-OFF COCKS - COMPONENTS

### SHUT-OFF COCKS TYPE DS MT 18 for housings with grinded pipes



- 1C. Flanged upper monolithic body
- 1D. Threaded upper monolithic body
- 1E. Flanged lower monolithic body
- 1F. Threaded lower monolithic body
- 5. Cases Ø 26 x 18 x 32 mm
- 6. Case Ø 18 x 12 x 23 mm
- 7. Packing rings Ø 23,5 x 16 x 10 mm
- 8. Cylindrical plugs Ø 18 mm
- 9. Cylindrical plug Ø 12 mm
- 10. Split rings Ø 26
- 11. Split ring Ø 18
- 12. Stuffing boxes 7/8"G
- 13. Stuffing box 1/2"G
- 14. Stuffing boxes Ø 26 x 17 x 11,5 mm
- 15. Union nuts 1"G for grinded pipes
- 17. Handles
- 18. PP covers for handles
- 19. Washers M8
- 20. Bolts M8 x 12
- 23. Drain handle
- 24. PP cover for drain handle
- 25. Washer M6
- 26. Bolt M6 x 10
- 27. Drain pipe
- 28. Union nut 1/2"G for drain pipe
- 29. Gasket Ø 18,3 x 9,2 x 1,5 mm
- 32. Gaskets Ø 14 x 9 x 1,5 mm
- 33. Grinded pipes Ø 16 mm
- 34. Union nuts 1"G for threaded connections
- 35. Threaded connections
- 36. Gaskets Ø 29,5 x 13 x 2 mm

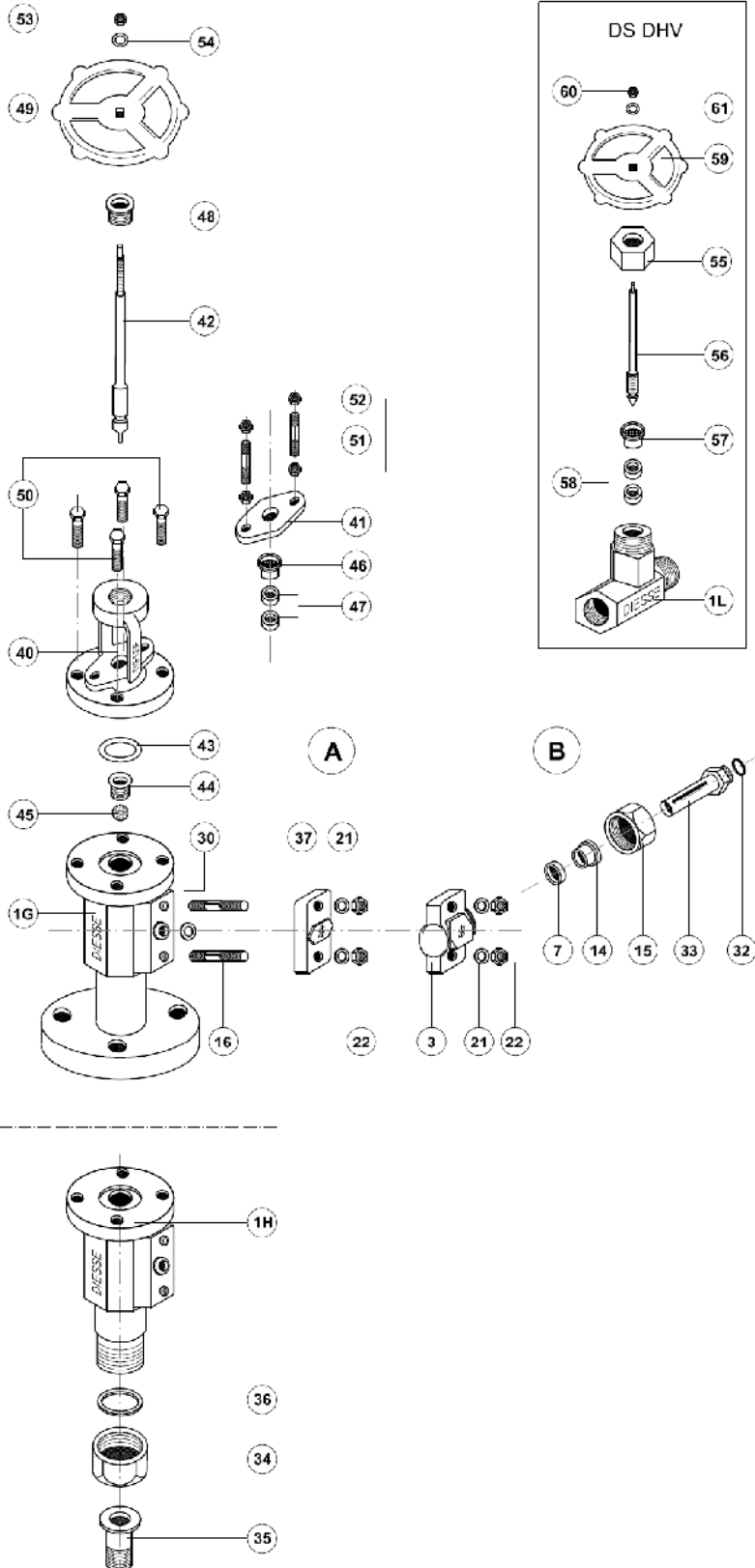
### PUSH-BUTTON VALVE TYPE DS NPV



- 1M. Flanged shut-off valve body
- 1N. Threaded shut-off valve body
- 16. Bolts M12
- 21. Washers M12
- 22. Nuts M12
- 30. Gaskets Ø 23 x 14,5 x 2 mm
- 34. Union nuts 1"G for threaded connections
- 35. Threaded connections
- 36. Gaskets Ø 29,5 x 13 x 2 mm
- 37. Fixing brackets
- 62. Stem
- 63. Gaskets Ø 18,5 x 10 x 8 mm
- 64. Stuffing box
- 65. Spring
- 66. Button

## SHUT-OFF COCKS - COMPONENTS

### SHUT-OFF VALVES TYPE DS SHV



- 1G. Flanged shut-off valves body
- 1H. Threaded shut-off valves body
- 3. Support
- 7. Packing rings Ø 23,5 x 16 x 10 mm
- 14. Stuffing boxes Ø 26 x 17 x 11,5 mm
- 15. Union nuts 1"G for grinded pipes
- 16. Bolts M12
- 21. Washers M12
- 22. Nuts M12
- 30. Gaskets Ø 23 x 14,5 x 2 mm
- 32. Gaskets Ø 14 x 9 x 1,5 mm
- 33. Grinded pipes Ø 16 mm
- 34. Union nuts 1"G for threaded connections
- 35. Threaded connections
- 36. Gaskets Ø 29,5 x 13 x 2 mm
- 37. Fixing brackets
- 40. Bonnet
- 41. Stuffing box bracket
- 42. Stem
- 43. Gaskets Ø 47x32x3,5 mm
- 44. Seat
- 45. Safety ball
- 46. Stuffing boxes Ø 22x13,5x14 mm
- 47. Gaskets Ø 20 x 12,7 x 9 mm
- 48. Bush for stem
- 49. Handwheel
- 50. Bolts M10 x 25
- 51. Bolts M8 x 48
- 52. Nuts M8
- 53. Nuts M8
- 54. Washers M8
  
- 1L. Drain and/or vent valve body type DS DHV
- 55. Gland nut 3/4"G
- 56. Stem
- 57. Stuffing box Ø 18x13x10,5 mm
- 58. Gaskets Ø 18,5 x 10 x 8 mm
- 59. Handwheel
- 60. Nut M7
- 61. Washer M7

Connections to the housing body

- A Execution with fixed distance between centers
- B Execution with grinded pipes

## 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.

#### Main physical/chemical/mechanical properties:

Tensile bending strenght::  $\geq 150 \text{ N/mm}^2$   
 Transition temperature :  $T_g = 500^\circ\text{C} - \text{DIN 52 324}$   
 Acid resistance: Class 1 - DIN 12 116  
 Alkali resistance: Class 2 - DIN 52 322 and ISO 695  
 Hydrolitic resistance: Class 1 - DIN 12 111 and ISO 719

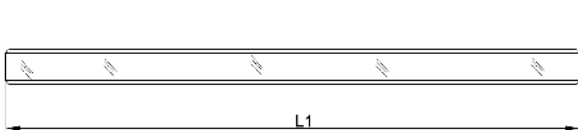
#### Max working conditions:

Maximum working temperature:  $280^\circ\text{C}$  for permanent use /  $300^\circ\text{C}$  for maximum 300 hours use.  
 Saturated steam applications: see page 1.59.

#### Standards references:

DIN 7081	BS 3463	JIS B 8211
ÖNORMM7354	ÖMV H 2009	MIL-G-16356 D
TGL 7210	S.O.D. Spec. 123	Esso Eng. Spec. 123

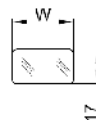
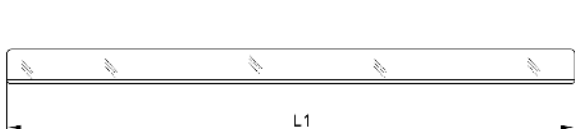
The **reflex glass** has a smooth surface (external side) and a prismatic one to be put in contact with the fluid to absorbe the light. Taking advantage of the optical laws of refraction, the fluid appears dark, while the surface in contact with the gas reflects the light appearing very clear.



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.

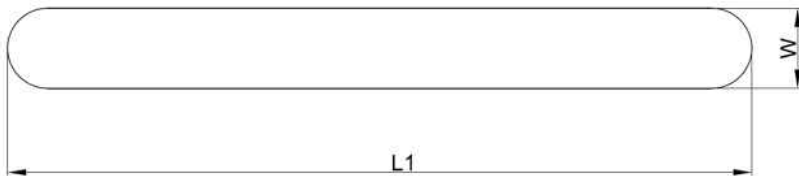
#### MICA SHIELDS to protect transparent glasses

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]

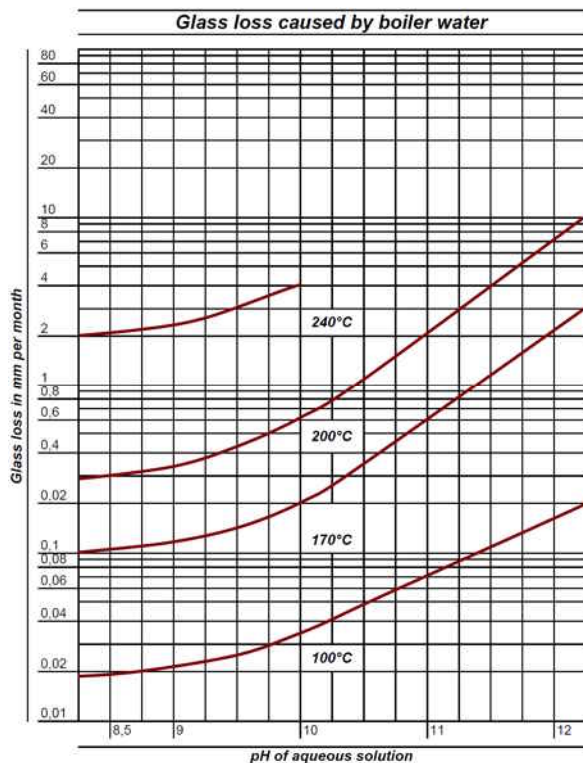
#### Available size

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



Glass loss - 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] (Grafito)

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 opened 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

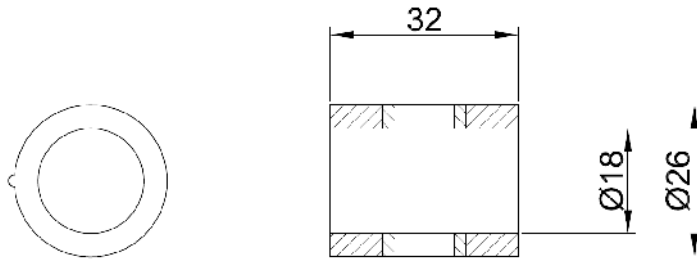
**SPARE PARTS FOR GLASS LEVEL GAUGES**

**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

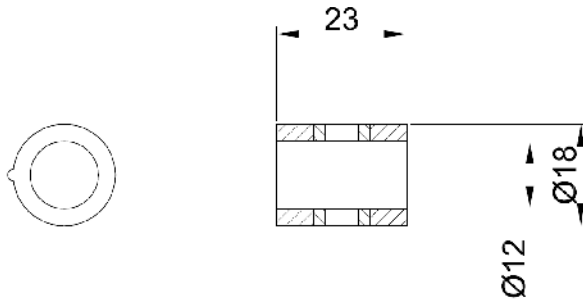


Code: BB18G (Graphite)  
BB18P (PTFE)

**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

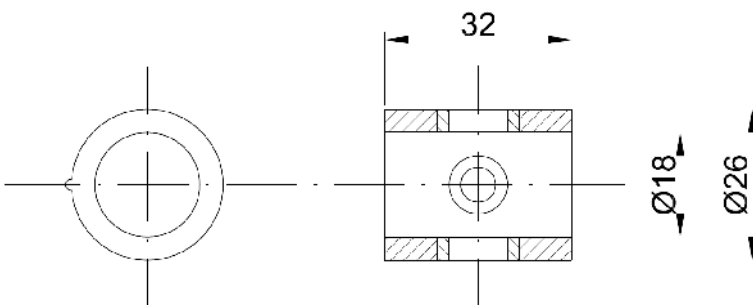
Standard material: Graphite with stainless steel 316 rings on valve bore  
Option: PTFE with stainless steel 316 rings on valve bore



Code: BB12G (Graphite)  
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)

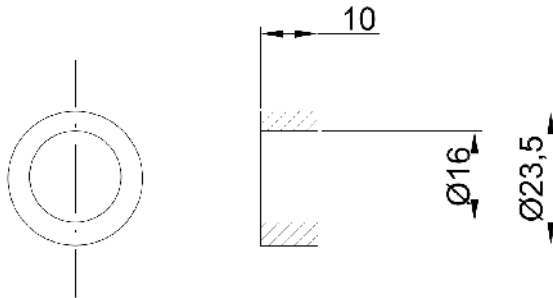
## SPARE PARTS FOR GLASS LEVEL GAUGES

### 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)



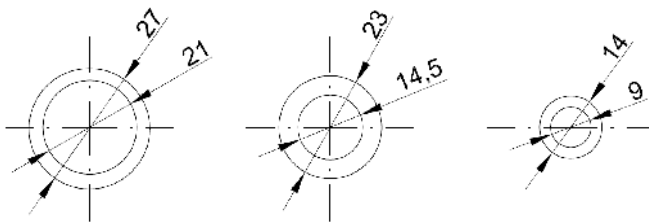
Code: AA16G (Graphite)  
AA16P (PTFE)  
AA16E (EPDM)

### 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. 2 gaskets type GM23... (not suitable for DS MT18)
- No. 1 gasket type GM27... (not suitable for DS MT18)
- No. 2 gaskets type GM14...

**SPARE PARTS FOR GLASS LEVEL GAUGES**

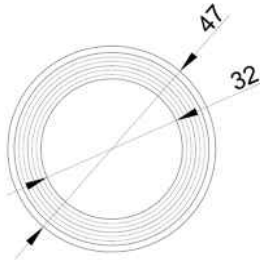
**GASKETS for globe valves type DS SHV**

**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)

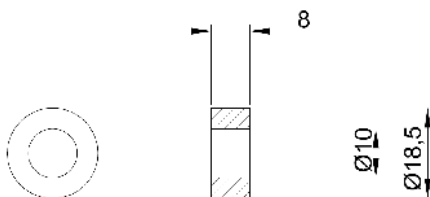
**GASKETS for push-button valves type DS NPV and needle valves type DS DHV**

**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)