



## LEVEL GAUGES

GENERAL CATALOGUE



Product origin  
Design & Manufacturing  
**ITALY**

## COMPANY



Born in 1990 from the experience of persons who had been working in this field since many years, DIESSE has successfully developed its know-how in the fluids measuring instruments sector and has registered own patents. Today the company is one of the most well-known level gauge manufacturers in the business and offers a high service performance ensuring high product quality and flexibility, unique and reliable delivery terms, customer care through research of innovative and personalized/tailor made solutions.

Diesse level gauges are manufactured with selected Italian/ European-only components and certified in accordance with major international standards and are exported worldwide through fidelized Distributors and Customers.

## PRODUCTS

DIESSE products are suitable for a wide range of applications in industrial plants, gas and oil, offshore industry or shipbuilding and in boilers or environment field.

The range of measuring instruments includes:

- **GLASS LEVEL GAUGES**
- **MAGNETIC LEVEL GAUGES**

for installation in classified areas (ATEX)  
for marine/ship applications approved by LLOYD'S Register

- **BLOW DOWN VALVES WITH HANDWHEEL OR PNEUMATIC ACTUATOR**
- **CYLINDRICAL PLUG COCKS and NEEDLE VALVES**
- **NEEDLE VALVES**
- **COILS**

Special tailor-made/design products are realized on request





# QUALITY / CERTIFICATES

The quality control and quality assurance systems are in accordance with the international ISO 9001:2015 standard.

DIESSE has got the following certifications:

- **UNI EN ISO 9001:2015**
- **Welders and welding procedures qualifications.**
- **Qualified non-destructive operators (dye penetrant testing)**

The products are available also with the following certificates:

- **Certificate of Quality System for design, manufacturing, final inspection and testing of pressure equipments according to Directive 2014/68/UE - PED.**
- **ATEX Production Quality Assurance Notification for explosion proof (Ex II 2G CT3) according to Directive 2014/34/UE**
- **Machinery General Design Appraisal (classification of Ships) by Lloyd's Register both for glass and magnetic level gauges**

DIESSE has its own internal final testing for standard controls:

- **Hydraulic pressure test up to 400 bar**
- **Penetrant liquid inspection**
- **Painting thickness control**

Calibrations and other tests carried out at qualified laboratories



PED 2014/68/UE



TUTTI I PRODOTTI, I COMPONENTI E GLI ACCESSORI DIESSE SONO ESCLUSIVAMENTE DI ORIGINE ITALIANA O EUROPEA, CONTROLLATI E COLLAUDATI SINGOLARMENTE SECONDO QUANTO PREVISTO DALLE PROCEDURE DI QUALITÀ AZIENDALI E DELLE VIGENTI NORMATIVE DI SETTORE.

ALL DIESSE PRODUCTS, COMPONENTS AND ACCESSORIES ARE ITALIAN or EUROPEAN ORIGIN. THEY ARE INDIVIDUALLY CHECKED AND TESTED IN ACCORDANCE WITH THE COMPANY QUALITY PROCEDURES AND THE INDUSTRY REGULATIONS CURRENTLY IN EFFECT.



## GLASS level gauges

- WITH REFLEX GLASSES
- WITH TRANSPARENT GLASSES
- WELD-ON TYPE
- WITH GLASS TUBE

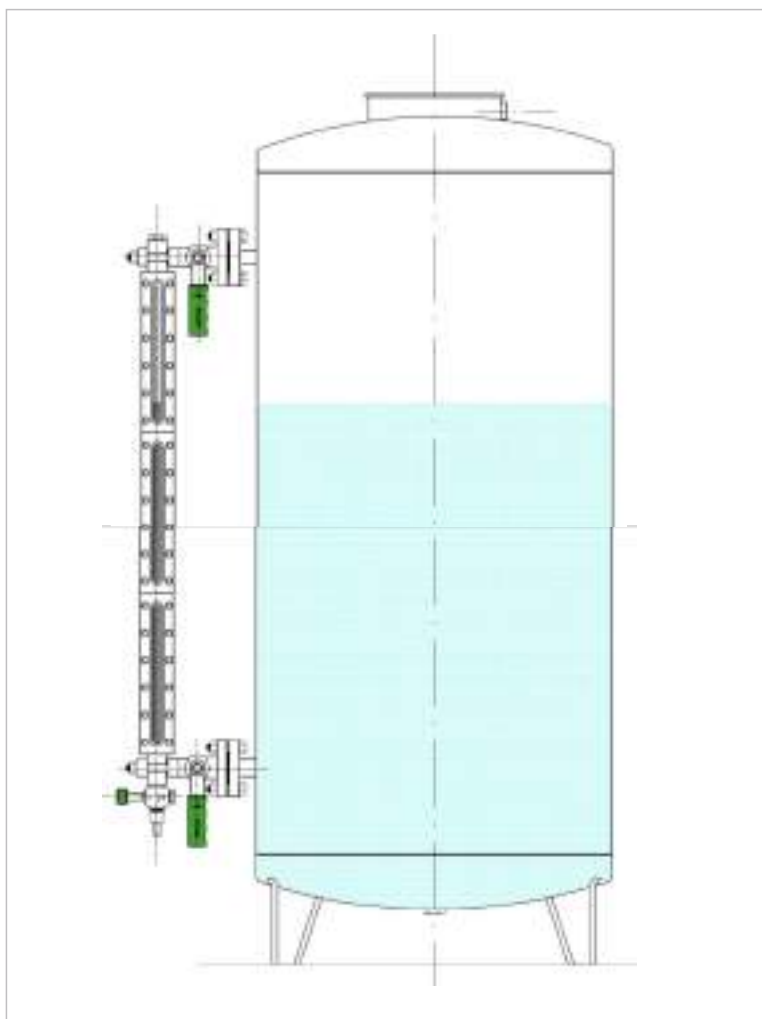


TO RECOMMEND THE MOST SUITABLE LEVEL GAUGE FOR A PARTICULAR PURPOSE,  
PLEASE PROVIDE THE FOLLOWING DATA WHEN ASKING FOR ADVICE OR A QUOTATION.

► essential data

- ► **CENTRE-TO-CENTRE DISTANCE** (distance between process connections)
- MINIMUM VISIBLE LENGTH REQUIRED
- ► **TYPE OF CONNECTIONS** (flanged-threaded-weld-on) and related **STANDARDS** (UNI-ANSI-DIN...)
- POSITION OF PROCESS CONNECTIONS
- POSITION OF THE VALVE HANDLING
- ► **REQUIRED MATERIAL** (wetted and non-wetted parts)
- ► **TYPE OF FLUID**
- ► **DESIGN AND MAXIMUM OPERATING PRESSURES**
- ► **DESIGN AND MAXIMUM OPERATING TEMPERATURES**
- ANY ADDITIONAL ACCESSORIES

Glass level gauges give very accurate level readings, making them the ideal product for calibrating other instruments as well. They play a crucial role during system start-up.

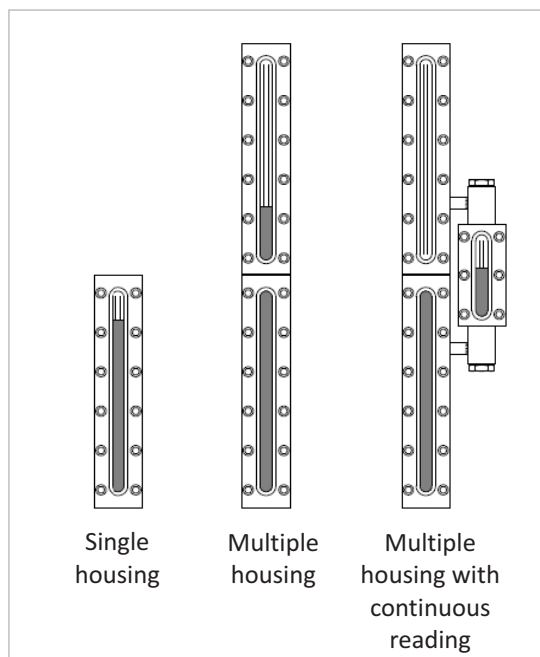


## READING TYPE

The required visible length depends on the type of fluid and the shape of the tank.

The visible length with a single glass varies from 95 mm to 320 mm. If the required visible length exceeds these measurements, additional glasses of the same length are joined together and mounted on a single bar.

To ensure continuous reading along a housing consisting of numerous glasses, one or more housings can be placed on the side at the points where the reading is interrupted.



## GLASS LEVEL GAUGES

### Code

#### 1 Basic Type

DS LG DIESSE 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  
 REF Reflex - fixed distance execution with heavy cover - flat body - flanged connections  
 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  
 TEF Transparent - fixed distance execution with heavy cover - flat body - flanged connections  
 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 shield  
 /KFS Glass protection with ECTFE shield

#### 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
MT18	Cylindrical plug cocks - Monolithic body	FL	Flange
		D12	Cylindrical plug cock (Standard)
NPV	Push button valves	D18	Cylindrical plug cock
SHV	Globe valves	PM18	Three way cylindrical plug manometer setting valve with control flange
SBB	Ball valves	DHV	Globe valve
		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 gauge type data-sheet

#### 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			PC	PTFE / Copper
BRS	Brass			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	CPTV	Union nut for "U" shaped protection
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-SSHD	Vent and drain handles lock
IFS	Interface connection	OP	Painting	SB	Support bracket
ELC	Remote control	VP	Vent pipe		

#### 8 Approvals

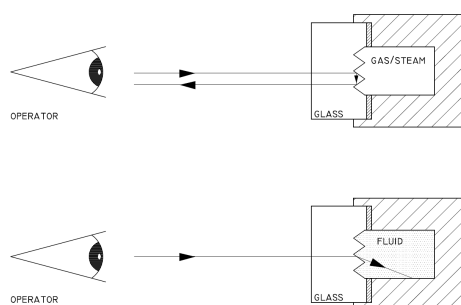
EEx ATEX SHP... Marine

Code 1 2 3 4 5 6 7 8  
 e.g. DS LG - RBF17 - 20/40/RF - GR18/D12/PB - M 420 - CS/CS - LC/VSG - EEx



## REFLEX level gauges

The level is ascertained using a glass which has a smooth side and a wetted prismatic side. The level of the fluid inside the level gauge is shown by using the optical principles of refraction: the wetted part fully absorbs light and so the fluid appears to be black. The part in contact with the gas, on the other hand, fully reflects light and so the gas appears to be of a very light colour.



The product line includes level gauges suitable for pressure ratings from PN10 to PN250 and a huge number of industrial process applications.

### This type of gauge is recommended:

- for taking clear and simple readings (see counter-indications below)
- if you are looking for an inexpensive gauge which will also save you money on maintenance costs

### Operating limits / Conditions:

#### Process:

Max. pressure: 255,5 bar @ 38°C (rating class 1500)

Max. temperature: 300°C (max. temperature allowed by borosilicate glasses as per the DIN 7081 standard - see page 1.69)

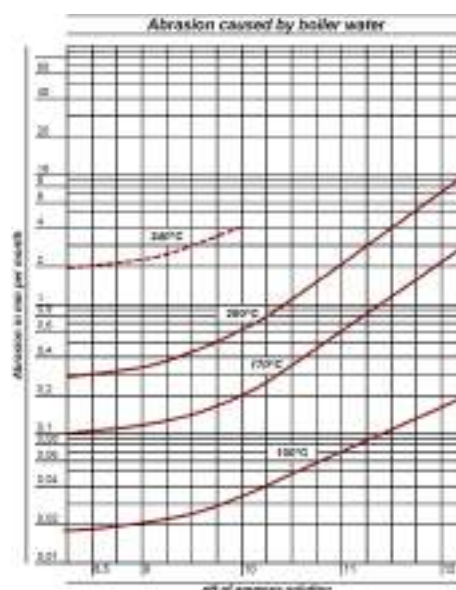
#### Steam: (see page 1.59)

Max. pressure: 22 bar

Max. temperature: 216°C (saturated steam @ 22 bar)

**For saturated steam values > 20 bar, a low-maintenance transparent level gauge with mica shield protection should be used (see graph "Abrasion caused by boiler water" for the estimated glass life).**

**Not only does the glass life depend on the temperature, it depends on the pH of the water (the higher the value, the shorter the glass life).**



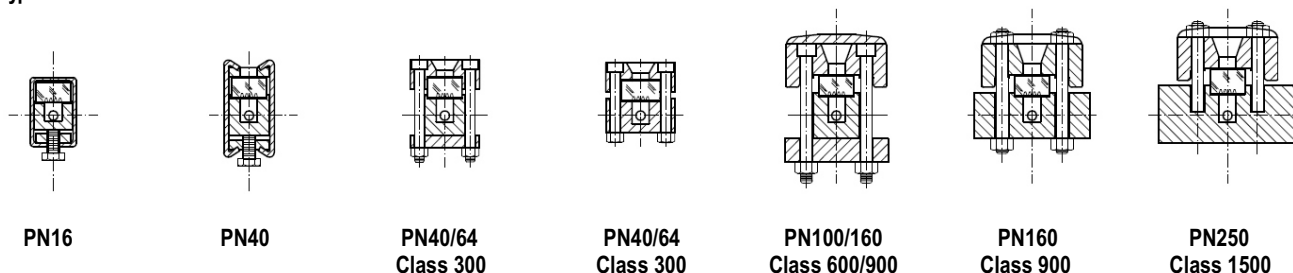
### The product is NOT suitable for use in the following instances:

- ☐ if exposed to corrosive fluid (e.g. caustic soda, hydrofluoric acid, citric acid ...)
- ☐ if exposed to high pressure steam
- ☐ if subjected to repeated thermal shocks

**In the scenarios listed above, the glass must be protected with MICA or PCTFE shields, so a transparent level gauge is necessary**

- ☐ for checking the level of separation between two immiscible fluids (interface)
- ☐ for checking the colour of a fluid (all fluids look very dark)
- ☐ in cases where the fluid is particularly viscous (a film may form on the glass which prevents you from taking an accurate reading)
- ☐ in cases where the fluid is particularly dark (the reflex principle is rendered ineffective)

### Types:



## REFLEX level gauges

### Materials / Specifications:

#### Connections between housing and cocks:

- with grinded pipes and stuffing box (View can be turned by the customer during installation)
- fixed centre-to-centre distance with metal seal (View can be turned during manufacture)

#### Wetted parts:

- standard: galvanized ASTM A105 or A105 LF2 carbon steel, ASTM A182 F316L stainless steel
- additional options: on request

#### Non-wetted parts:

- standard: galvanized carbon steel, AISI 316/316L stainless steel
- additional options: on request

#### Gaskets: (See page 1.71)

- standard: graphite/copper (ASTM A105), graphite/AISI 316 (A105 LF2 and ASTM A182 F316L)
- additional options: PTFE/AISI 316; other extras on request

#### Glasses: (See page 1.69)

- reflex borosilicate glasses, thermally pre-stressed and extra hard as per the DIN 7081 standard

#### Shut-off: (See page 1.49)

- standard: upper valve and lower valve (side/side)
- additional options: on request

#### Drain: (See page 1.50)

- standard: threaded valve
- additional options: on request

#### Vent: (See page 1.50)

- standard: blind (For grinded pipes version)
- threaded with plug (For fixed distance version)
- additional options: on request

### Tank connections:

#### Flanged:

- UNI standard: PN40 DN15 / DN20 / DN25
- ANSI standard: #150 / #300 / #600 DN 1/2" / 3/4" / 1"
- additional options: on request

#### Threaded:

- BSP (GAS) standard: 1/2"-M / 3/4"-M
- NPT standard: 1/2"-M / 3/4"-M

#### Weld-on: from 1/2" to 1" BW or SW

Option: further connections type or direct connections to the process without shut-off cocks (See page 1.49 for more details)

### Shut-off cocks, drain cock and vent cock:

- Cylindrical plug cocks (GR18 or DS MT18 - see page 1.47)
- Globe valves (DS SHV - see page 1.48)
- Push-button valves (DS NPV - see page 1.48)
- Ball valves (DS SBB)

### Spare parts:

***Our spare parts are interchangeable with those of major international manufacturers.***

For the full range of complete sets, turn to the spares section on page 1.69.

### Accessories:

Lower and/or upper safety ball, pusher for safety ball, calibrated scale, non-frosting extension, minimum level arrow, continuous reading, cocks handles lock (see page 1.55 for details)

### Certifications (On request):

- ATEX
- Tests and inspection by Notified Bodies
- NACE MR0175
- Others on request

**All DIESSE products are individually checked and tested in accordance with company quality procedures and the industry regulations currently in effect.**

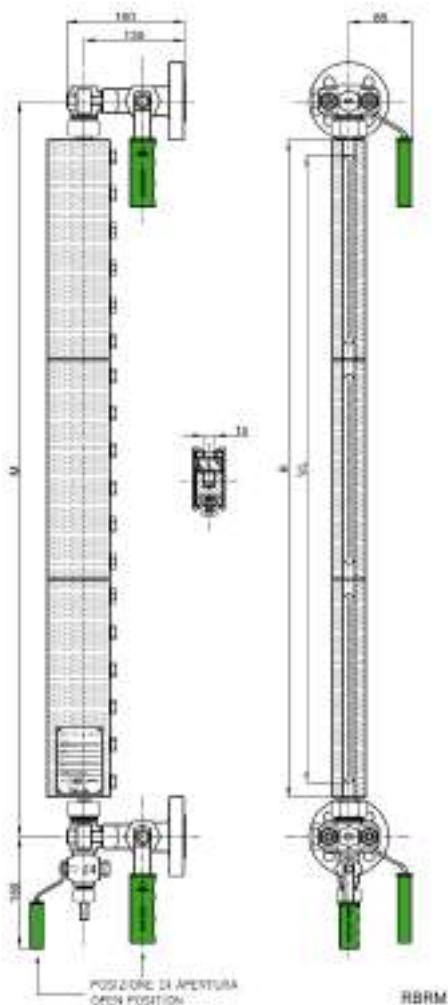
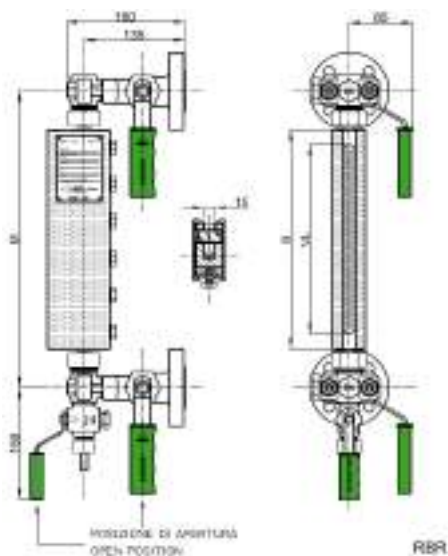
**Certificates can be issued on request.**



## GLASS LEVEL GAUGE REFLEX TYPE PN40

### DS LG - RBR GR18

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



#### Technical data

##### Service conditions

Max Pressure: PN40

Max Temperature: 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:

Gauge body & cocks body:

Cocks trim:

Non-wetted parts:

CS/CS

ASTM A105

AISI 303

Carbon steel galvanized

SS/CS

AISI 316L

AISI 316

Carbon steel galvanized

##### Gaskets

Standard: graphite/copper

Option: graphite/AISI 316 or PTFE/AISI316

##### Shut-off cocks

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

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/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 DS 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 DS RBR: see below table

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

##### Tightening torque of housing screws

Standard: 40 Nm

##### Spare parts

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

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

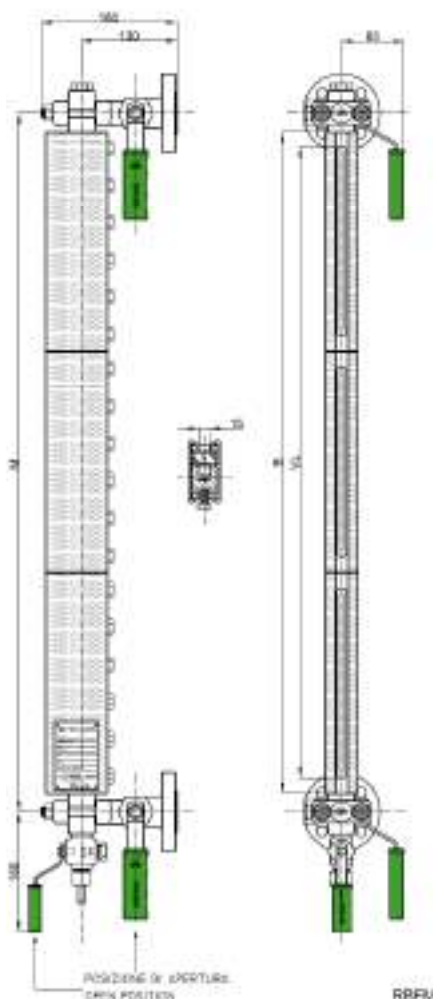
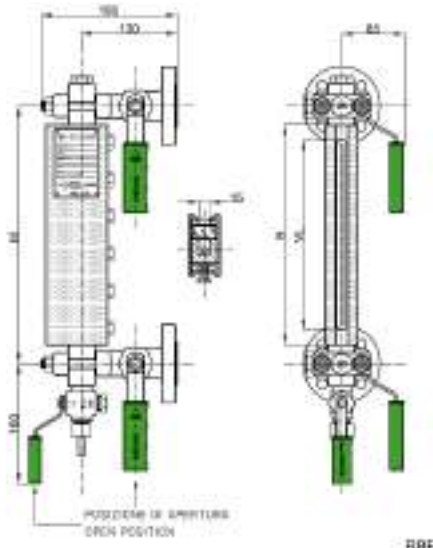
CODE	TYPE	BODY Length [mm]	DISTANCE SL Pipes L = 57 M [-0/+10 mm]	DISTANCE HL Pipes L = 70 M [-0/+10 mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el.	B	M = B+105	M = B+130	VL	x No. elements	
11	1x1	130	235	260	95	115x1	2,4
12	2x1	155	260	285	120	140x1	2,8
13	3x1	180	285	310	145	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 - RBF GR18

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



#### Technical data

##### Service conditions

Max Pressure: PN40

Max Temperature: 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

##### 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:

Gauge body & cocks body:

Cocks trim:

Non-wetted parts:

CS/CS

ASTM A105

AISI 303

Carbon steel galvanized

SS/CS

AISI 316L

AISI 316

Carbon steel galvanized

##### Gaskets

Standard: graphite/copper

Option: graphite/AISI 316 or PTFE/AISI316

##### Shut-off cocks

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

Standard threaded unions: BSP-M 1/2" - 3/4"

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

(See page 1.51)

Vent: Standard: threaded 1/2" with plug

Option: see page 1.52

Drain: Standard: cock DS D12 threaded 1/2"

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 DS RBF: see below table

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

##### Tightening torque of housing screws

Standard: 40 Nm

##### Spare parts

Housing DS RBF: see from page 1.69 (Drawing with components and parts list see page 1.61)

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

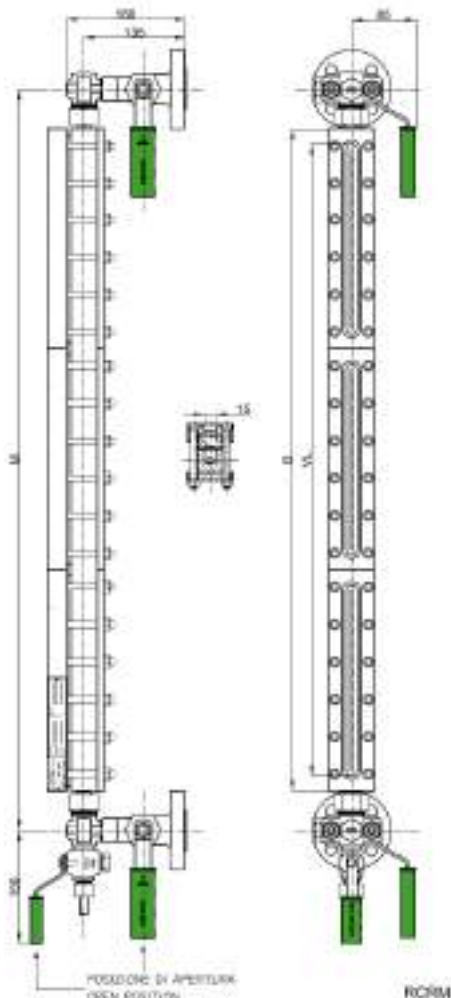
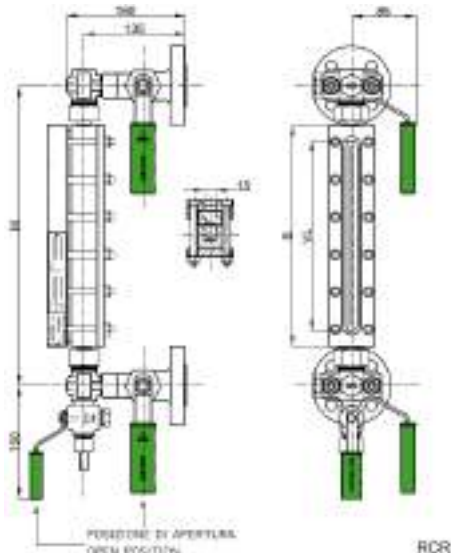
CODE	TYPE	BODY Length [mm]	DISTANCE MINIMUM SL [mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el.	B	M = B+40	VL	x No. elements	
11	1x1	130	170	95	115x1	3,7
12	2x1	155	195	120	140x1	4,1
13	3x1	180	220	145	165x1	4,6
14	4x1	205	245	170	190x1	5,1
15	5x1	235	275	200	220x1	5,6
16	6x1	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 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: 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: graphite/copper

Option: graphite/AISI 316 or PTFE/AISI316

##### Shut-off cocks

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/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 cocks (See page 1.49)

##### Vent:

Standard: blind

Option: see page 1.50

##### Drain:

Standard: cock DS D12 threaded 1/2"

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 DS RCR: see below table

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

##### Tightening torque of housing screws

Standard: 35 Nm

##### Spare parts

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

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

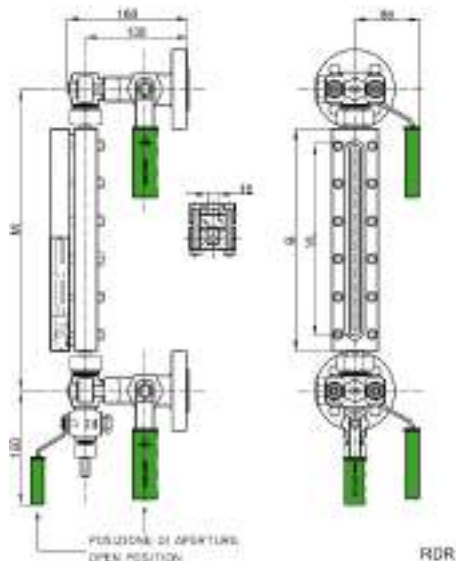
CODE	TYPE	BODY Length [mm]	DISTANCE SL Pipes L = 57 M [-0/+10 mm]	DISTANCE HL Pipes L = 70 M [-0/+10 mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el.	B	M = B+105	M = B+130	VL	x No. elements	
11	1x1	130	235	260	95	115x1	3,0
12	2x1	155	260	285	120	140x1	3,5
13	3x1	180	285	310	145	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
57	7x5	1475	1580	1605	1440	280x5	30,8
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

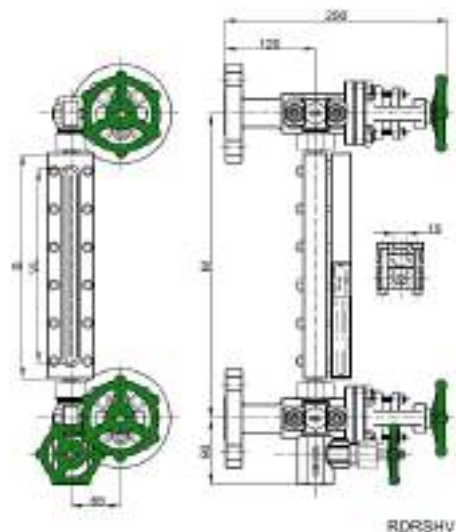
## GLASS LEVEL GAUGE REFLEX TYPE PN40

### 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: 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 500 mm

##### Materials (Standard)

Execution:	CS/CS	SS/CS	SS/SS
Gauge body:	ASTM A105	AISI 316L	AISI 316L
Cocks body DS GR18:	ASTM A105	AISI 316L	AISI 316L
Cocks trim:	AISI 303	AISI 316	AISI 316
Valves body 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: graphite/copper

Option: graphite/AISI 316 or PTFE/AISI316

##### Shut-off cocks

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

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

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

##### Process connections:

Standard flanges: UNI PN40 DN15-20-25 ANSI #150-300/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 DS D12 threaded ½"

Option: see page 1.50

##### Shut-off valves

DS SHV: globe type

Handling: by handwheel

##### Process connections:

Standard flanges: UNI PN40-64 DN15-20-25 ANSI #150-300/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: threaded ½" with plug

Option: see page 1.54

Drain: Standard: valve DS DHV threaded ¾"

Option: see page 1.54

##### 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 DS RDR: see below table

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

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

##### Tightening torque of housing screws

Standard: 35 Nm

##### Spare parts

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

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

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

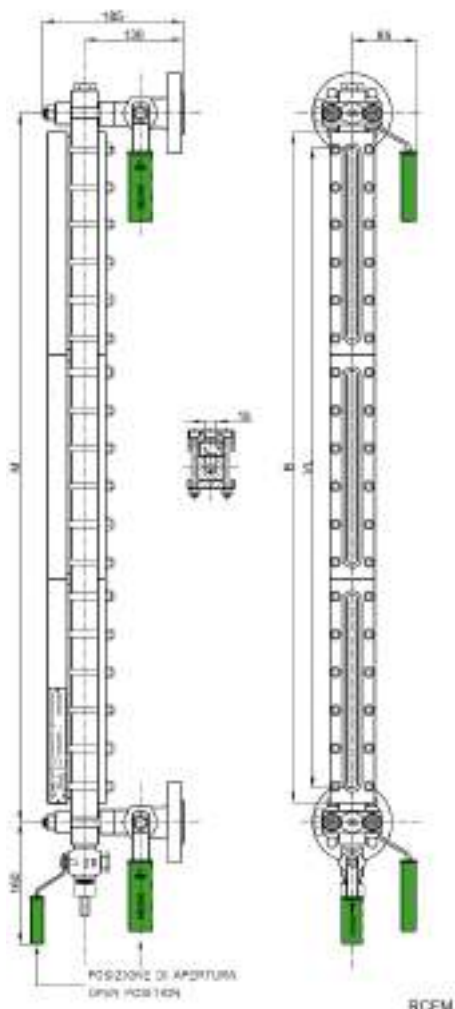
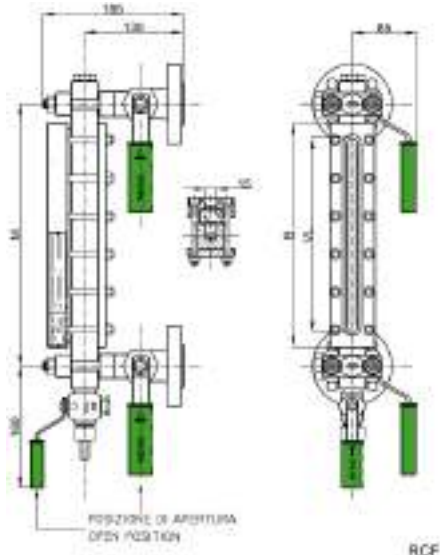
CODE	TYPE	BODY Length [mm]	DISTANCE SL Pipes L = 57 M [-0/+10 mm]	DISTANCE HL Pipes L = 70 M [-0/+10 mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el	B	M = B+105	M = B+130	VL		
11	1x1	130	235	260	95	115	2,9
12	2x1	155	260	285	120	140	3,4
13	3x1	180	285	310	145	165	3,8
14	4x1	205	310	335	170	190	4,4
15	5x1	235	340	365	200	220	5,2
16	6x1	265	370	395	230	250	5,6
17	7x1	295	400	425	260	280	6,0
18	8x1	335	440	465	300	320	6,5
19	9x1	360	465	490	320	340	7,5

Tab. RDR



## GLASS LEVEL GAUGE REFLEX TYPE PN40 and PN64 / Class 300 DS LG - RCF GR18

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



### Technical data

#### Service conditions

Max Pressure: PN40 and PN64; Class 300 (A105: 51 bar @ 38°C; AISI 316L: 49,6 bar @ 38°C)  
Max Temperature: 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

#### 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: graphite/copper      Option: graphite/AISI 316 or PTFE/AISI316

#### Shut-off cocks

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 PN40-64 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 1.51)

**Vent:** Standard: threaded ½" with plug

Option: see page 1.52

**Drain:** Standard: cock DS 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)

#### Accessories

See from page 1.55

#### Weights

Housing DS RCF: see below table  
Cocks DS GR18: Kg. 7,4 approx. (With flanges UNI DN20 PN40)

#### Tightening torque of housing screws

Standard: 35 Nm

#### Spare parts

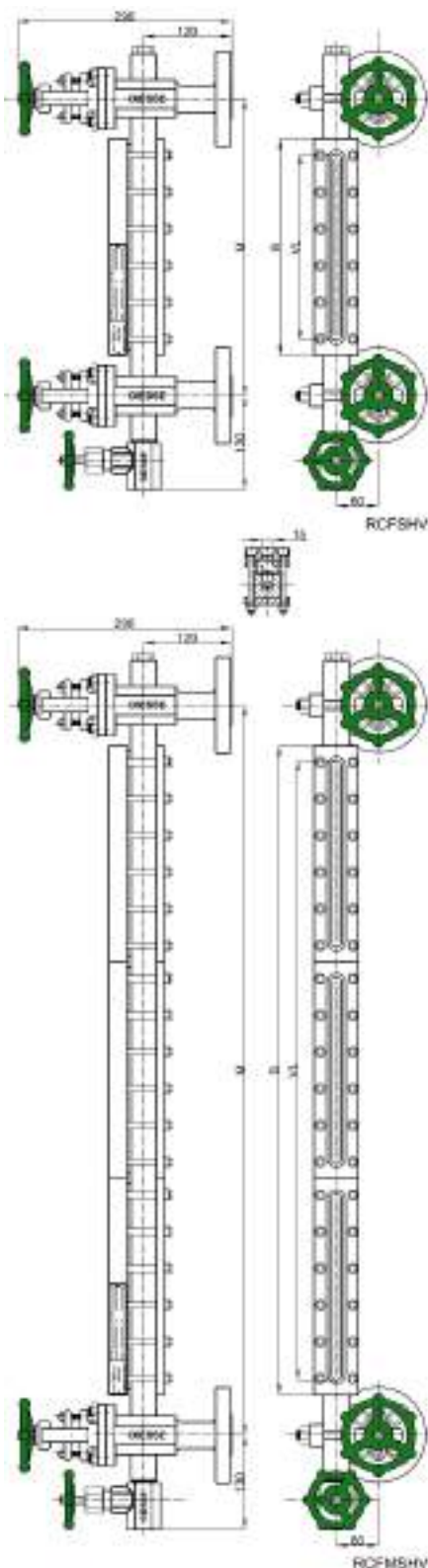
Housing DS RCF: see from page 1.69 (Drawing with components and parts list see page 1.62)  
Cocks DS GR18: see from page 1.72 (Drawing with components and parts list see page 1.66)

CODE	TYPE	BODY Length [mm]	DISTANCE MINIMUM SL [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	4,3
12	2x1	155	195	120	140x1	4,8
13	3x1	180	220	145	165x1	5,3
14	4x1	205	245	170	190x1	5,7
15	5x1	235	275	200	220x1	6,5
16	6x1	265	305	230	250x1	6,9
17	7x1	295	335	260	280x1	7,6
18	8x1	335	375	300	320x1	8,3
19	9x1	360	400	320	340x1	8,9
24	4x2	410	450	375	190x2	9,9
25	5x2	470	510	435	220x2	11,5
26	6x2	530	570	495	250x2	12,3
27	7x2	590	630	555	280x2	13,8
28	8x2	670	710	635	320x2	15,1
29	9x2	720	760	680	340x2	16,3
36	6x3	795	835	760	250x3	17,8
37	7x3	885	925	850	280x3	19,9
38	8x3	1005	1045	970	320x3	22,0
39	9x3	1080	1120	1040	340x3	23,8
47	7x4	1180	1220	1145	280x4	26,0
48	8x4	1340	1380	1305	320x4	28,8
49	9x4	1440	1480	1400	340x4	31,2
57	7x5	1475	1515	1440	280x5	32,1
58	8x5	1675	1715	1640	320x5	35,6
59	9x5	1800	1840	1760	340x5	38,6
68	8x6	2010	2050	1975	320x6	42,6
69	9x6	2160	2200	2120	340x6	46,1
78	8x7	2345	2385	2310	320x7	49,3
79	9x7	2520	2560	2480	340x7	53,5
88	8x8	2680	2720	2645	320x8	56,1
89	9x8	2880	2920	2840	340x8	60,9

Tab. RCF

## GLASS LEVEL GAUGE REFLEX TYPE PN40 and PN64 / Class 300 DS LG - RCF SHV

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



### Technical data

#### Service conditions

Max Pressure: PN40 and PN64; Class 300 (A105: 51 bar @ 38°C; AISI 316L: 49,6 bar @ 38°C)  
Max Temperature: 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

#### 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:	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: graphite/copper

Option: graphite/AISI 316 or PTFE/AISI316

#### Shut-off valves

DS SHV: globe type

Handling: by handwheel

#### Process connections:

Standard flanges: UNI PN40-64 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: threaded ½" with plug

Option: see page 1.54

Drain: Standard: valve DS DHV threaded ¾"

Option: see page 1.54

#### 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 DS RCF: see below table

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

#### Tightening torque of housing screws

Standard: 35 Nm

#### Spare parts

Housing DS RCF: see from page 1.69 (Drawing with components and parts list see page 1.62)

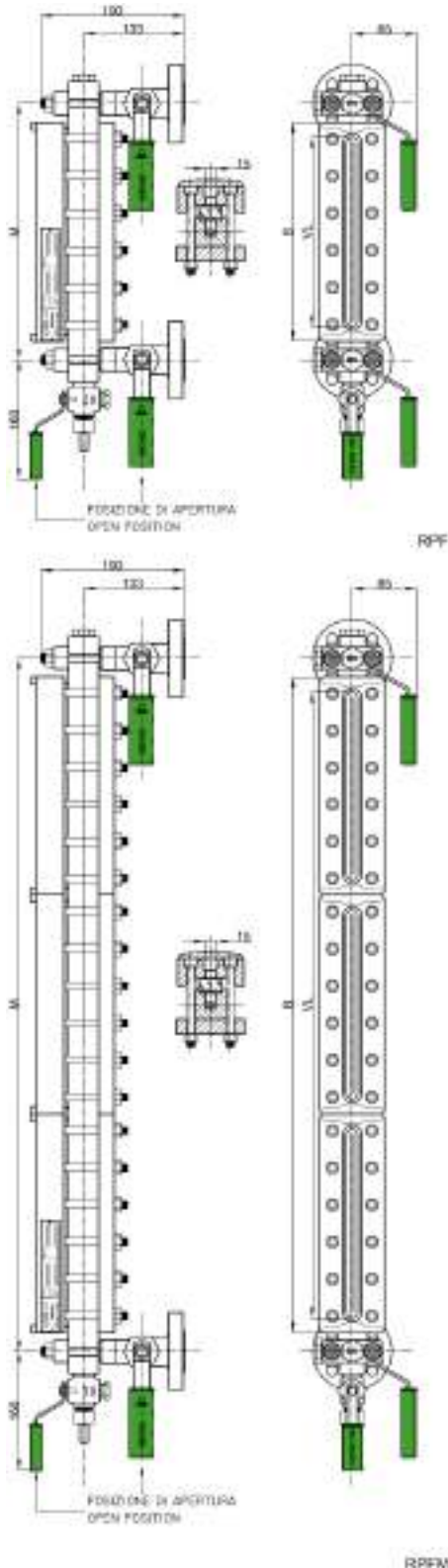
Valves DS SHV: see from page 1.74 (Drawing with components and parts list see page 1.68)

CODE	TYPE	BODY Length [mm]	DISTANCE MINIMUM SL [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	4,3
12	2x1	155	235	120	140x1	4,8
13	3x1	180	260	145	165x1	5,3
14	4x1	205	285	170	190x1	5,7
15	5x1	235	315	200	220x1	6,5
16	6x1	265	345	230	250x1	6,9
17	7x1	295	375	260	280x1	7,6
18	8x1	335	415	300	320x1	8,3
19	9x1	360	440	320	340x1	8,9
24	4x2	410	490	375	190x2	9,9
25	5x2	470	550	435	220x2	11,5
26	6x2	530	610	495	250x2	12,3
27	7x2	590	670	555	280x2	13,8
28	8x2	670	750	635	320x2	15,1
29	9x2	720	800	680	340x2	16,3
36	6x3	795	875	760	250x3	17,8
37	7x3	885	965	850	280x3	19,9
38	8x3	1005	1085	970	320x3	22,0
39	9x3	1080	1160	1040	340x3	23,8
47	7x4	1180	1260	1145	280x4	26,0
48	8x4	1340	1420	1305	320x4	28,8
49	9x4	1440	1520	1400	340x4	31,2
57	7x5	1475	1555	1440	280x5	32,1
58	8x5	1675	1755	1640	320x5	35,6
59	9x5	1800	1880	1760	340x5	38,6
68	8x6	2010	2090	1975	320x6	42,6
69	9x6	2160	2240	2120	340x6	46,1
78	8x7	2345	2425	2310	320x7	49,3
79	9x7	2520	2600	2480	340x7	53,5
88	8x8	2680	2760	2645	320x8	56,1
89	9x8	2880	2960	2840	340x8	60,9

Tab. RCF

## GLASS LEVEL GAUGE REFLEX TYPE PN100 and PN160 / Class 600 and 900 DS LG - RPF GR18

Code: DS LG-RPF...-... /100/RF-GR18/.../...-M...-CS/CS



### Technical data

#### Service conditions

Max Pressure: PN100; Class 600 (A105: 102 bar @ 38°C; AISI 316L: 99,3 bar @ 38°C) and PN160; Class 900 (A105: 153,1 bar @ 38°C; AISI 316L: 148,9 bar @ 38°C)  
Max Temperature: 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

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

Standard: see below table for minimum distance (Fixed distance, not adjustable)  
Option: On request intermediate distances and over 2.000 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: graphite/copper      Option: graphite/AISI 316 or PTFE/AISI316

#### Shut-off cocks

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 PN100-160 DN20 - DN25	ANSI #600-900/RF DN ¾" - 1"
Standard threaded unions:	BSP-M ¾" - 1"	NPT-M ¾" - 1"

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

**Vent:** Standard: threaded ½" with plug  
**Drain:** Standard: cock DS D12 threaded ½"

Option: see page 1.52  
Option: see page 1.52

#### Glasses

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

#### Accessories

See from page 1.55

#### Weights

Housing DS RPF: see below table  
Cocks DS GR18: Kg. 9,2 approx. (With flanges UNI DN20 PN100)

#### Tightening torque of housing screws

Standard: 75 Nm

#### Spare parts

Housing DS RPF: see from page 1.69 (Drawing with components and parts list see page 1.63)  
Cocks DS GR18: see from page 1.72 (Drawing with components and parts list see page 1.66)

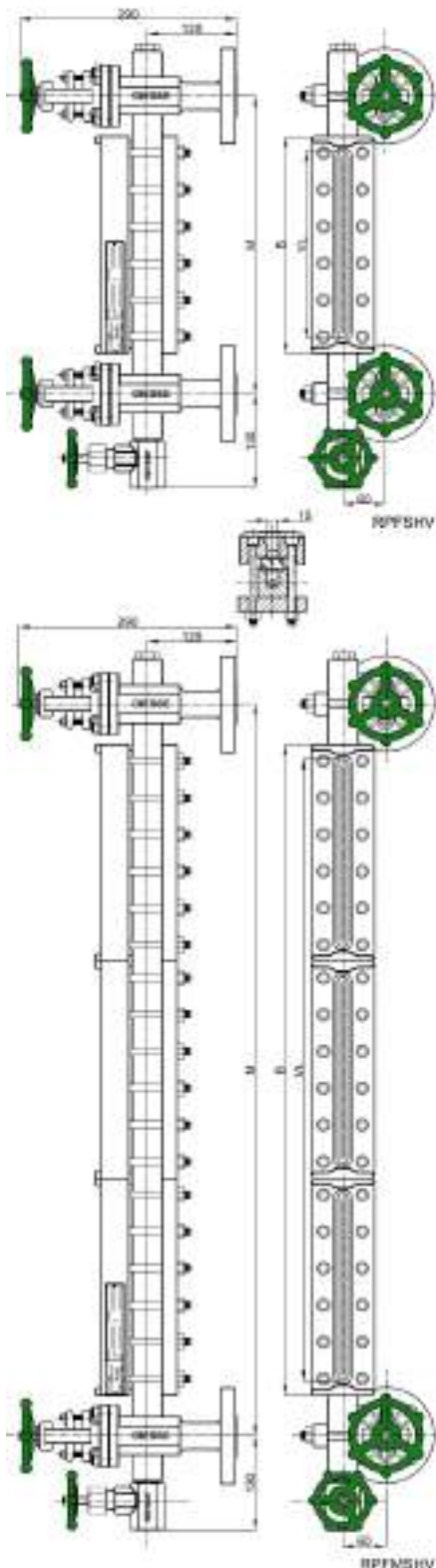
CODE	TYPE	BODY Length [mm]	DISTANCE MINIMUM SL [mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el.	B	M = B+50	VL	x No. elements	
11	1x1	130	180	95	115x1	7,7
12	2x1	155	205	120	140x1	8,6
13	3x1	180	230	145	165x1	9,9
14	4x1	205	255	170	190x1	11,0
15	5x1	235	285	200	220x1	12,3
16	6x1	265	315	230	250x1	13,1
17	7x1	295	345	260	280x1	14,8
18	8x1	335	385	300	320x1	16,0
19	9x1	360	410	320	340x1	17,7
24	4x2	410	460	375	190x2	20,5
25	5x2	470	520	435	220x2	23,1
26	6x2	530	580	495	250x2	24,7
27	7x2	590	640	555	280x2	28,1
28	8x2	670	720	635	320x2	30,5
29	9x2	720	770	680	340x2	33,9
36	6x3	795	845	760	250x3	36,3
37	7x3	885	935	850	280x3	41,4
38	8x3	1005	1055	970	320x3	45,0
39	9x3	1080	1130	1040	340x3	50,1
47	7x4	1180	1230	1145	280x4	54,7
48	8x4	1340	1390	1305	320x4	59,5
49	9x4	1440	1490	1400	340x4	66,3
57	7x5	1475	1525	1440	280x5	68,0
58	8x5	1675	1725	1640	320x5	74,0
59	9x5	1800	1850	1760	340x5	82,5

Tab. RPF

## GLASS LEVEL GAUGE REFLEX TYPE PN100 and PN160 / Class 600 and 900

### DS LG - RPF SHV

Code: DS LG-RPF..... /100/RF-SHV/.....M....-CS/CS



#### Technical data

##### Service conditions

Max Pressure: PN100; Class 600 (A105: 102 bar @ 38°C; AISI 316L: 99,3 bar @ 38°C) and PN160; Class 900 (A105: 153,1 bar @ 38°C; AISI 316L: 148,9 bar @ 38°C)  
Max Temperature: 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

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

Standard: see below table for minimum distance (Fixed distance, not adjustable)  
Option: On request intermediate distances and over 2.000 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: graphite/copper Option: graphite/AISI 316 or PTFE/AISI316

##### Shut-off valves

DS SHV: globe type  
Handling: by handwheel

##### Process connections:

Standard flanges: UNI PN100-160 DN20-25 ANSI #600-900/RF DN ¾" - 1"  
Standard threaded unions: BSP-M ¾" - 1" NPT-M ¾" - 1"  
Options: further connections types or direct connections to the process without shut-off valves (See page 1.53)

Vent: Standard: threaded ½" with plug Option: see page 1.54  
Drain: Standard: valve DS DHV threaded ¾" Option: see page 1.54

##### Glasses

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

##### Accessories

See from page 1.55

##### Weights

Housing DS RPF: see below table  
Valves DS SHV: Kg. 13,5 approx. (With flanges UNI DN20 PN100)

##### Tightening torque of housing screws

Standard: 75 Nm

##### Spare parts

Housing DS RPF: see from page 1.69 (Drawing with components and parts list see page 1.63)  
Valves DS SHV: see from page 1.74 (Drawing with components and parts list see page 1.68)

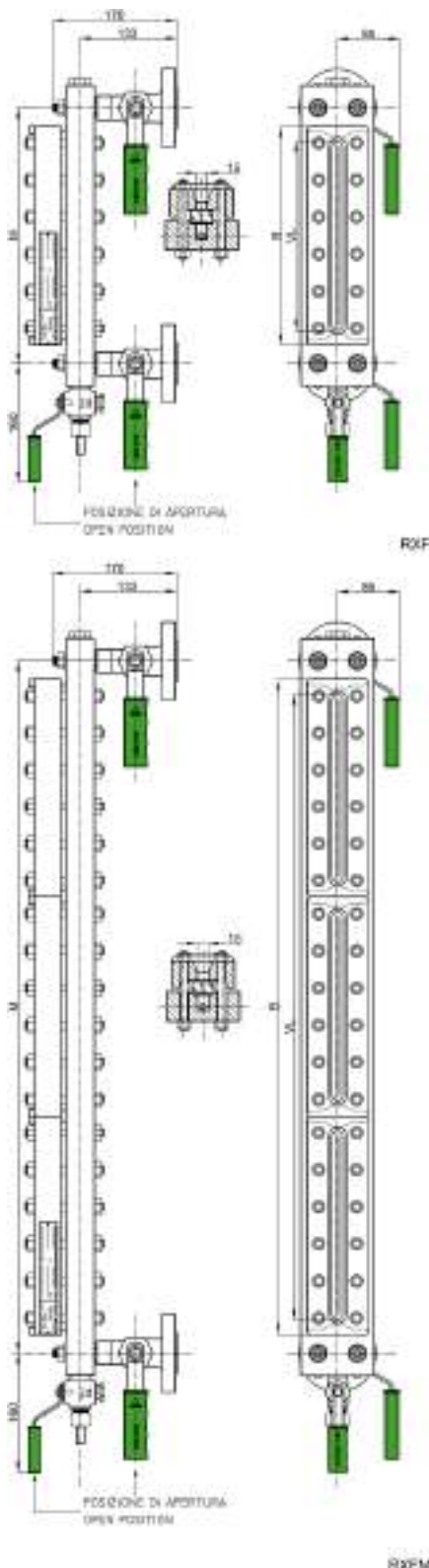
CODE	TYPE	BODY Length [mm]	DISTANCE MINIMUM SL [mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el.	B	M = B+80	VL	x No. elements	
11	1x1	130	210	95	115x1	7,7
12	2x1	155	235	120	140x1	8,6
13	3x1	180	260	145	165x1	9,9
14	4x1	205	285	170	190x1	11,0
15	5x1	235	315	200	220x1	12,3
16	6x1	265	345	230	250x1	13,1
17	7x1	295	375	260	280x1	14,8
18	8x1	335	415	300	320x1	16,0
19	9x1	360	440	320	340x1	17,7
24	4x2	410	490	375	190x2	20,5
25	5x2	470	550	435	220x2	23,1
26	6x2	530	610	495	250x2	24,7
27	7x2	590	670	555	280x2	28,1
28	8x2	670	750	635	320x2	30,5
29	9x2	720	800	680	340x2	33,9
36	6x3	795	875	760	250x3	36,3
37	7x3	885	965	850	280x3	41,4
38	8x3	1005	1085	970	320x3	45,0
39	9x3	1080	1160	1040	340x3	50,1
47	7x4	1180	1260	1145	280x4	54,7
48	8x4	1340	1420	1305	320x4	59,5
49	9x4	1440	1520	1400	340x4	66,3
57	7x5	1475	1555	1440	280x5	68,0
58	8x5	1675	1755	1640	320x5	74,0
59	9x5	1800	1880	1760	340x5	82,5

Tab. RPF



## GLASS LEVEL GAUGE REFLEX TYPE PN160 / Class 900 DS LG - RXF GR18

Code: DS LG-RXF...-.../160/RF-GR18/.../...-M...-CS/CS



### Technical data

#### Service conditions

Max Pressure: PN160; Class 900 (A105: 153,1 bar @ 38°C; AISI 316L: 148,9 bar @ 38°C)  
Max Temperature: 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

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

Standard: see below table for minimum distance (Fixed distance, not adjustable)  
Option: On request intermediate distances and over 2.000 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: graphite/copper      Option: graphite/AISI 316 or PTFE/AISI316

#### Shut-off cocks

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 PN160 DN20 - DN25      ANSI #900/RF DN ¾" - 1"  
Standard threaded unions: BSP-M ¾" - 1"      NPT-M ¾" - 1"  
Options: further connections types or direct 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 DS 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 B (See page 1.69)

#### Accessories

See from page 1.55

#### Weights

Housing DS RXF: see below table  
Cocks DS GR18: Kg. 9,2 approx. (With flanges UNI DN20 PN100)

#### Tightening torque of housing screws

Standard: 75 Nm

#### Spare parts

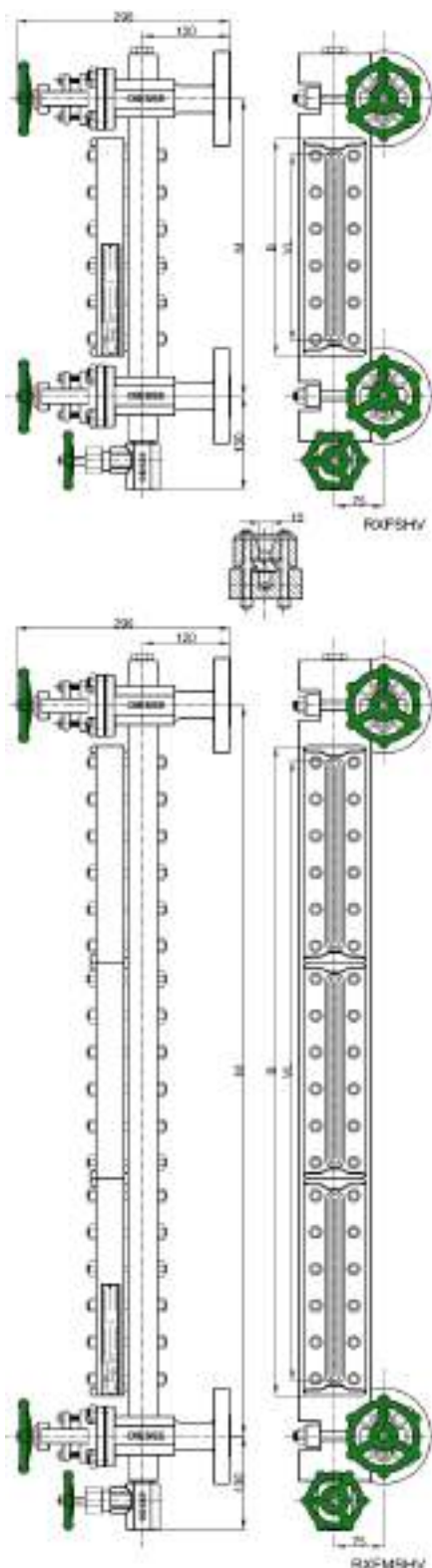
Housing DS RXF: see from page 1.69 (Drawing with components and parts list see page 1.63)  
Cocks DS GR18: see from page 1.72 (Drawing with components and parts list see page 1.66)

CODE	TYPE	BODY Length [mm]	DISTANCE MINIMUM SL [mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el.	B	M = B+50	VL	x No. elements	
11	1x1	130	180	95	115x1	11,3
12	2x1	155	205	120	140x1	12,7
13	3x1	180	230	145	165x1	14,4
14	4x1	205	255	170	190x1	15,5
15	5x1	235	285	200	220x1	17,7
16	6x1	265	315	230	250x1	19,0
17	7x1	295	345	260	280x1	21,3
18	8x1	335	385	300	320x1	23,1
19	9x1	360	410	320	340x1	25,2
24	4x2	410	460	375	190x2	28,0
25	5x2	470	520	435	220x2	32,4
26	6x2	530	580	495	250x2	35,0
27	7x2	590	640	555	280x2	39,6
28	8x2	670	720	635	320x2	43,2
29	9x2	720	770	680	340x2	47,4
36	6x3	795	845	760	250x3	51,0
37	7x3	885	935	850	280x3	57,9
38	8x3	1005	1055	970	320x3	63,3
39	9x3	1080	1130	1040	340x3	69,6
47	7x4	1180	1230	1145	280x4	76,2
48	8x4	1340	1390	1305	320x4	83,4
49	9x4	1440	1490	1400	340x4	91,8
57	7x5	1475	1525	1440	280x5	94,5
58	8x5	1675	1725	1640	320x5	103,5
59	9x5	1800	1850	1760	340x5	114,0

Tab. RXF

## GLASS LEVEL GAUGE REFLEX TYPE PN160 / Class 900 DS LG - RXF SHV

Code: DS LG-RXF...-... /160/RF-SHV/...-M...-CS/CS



### Technical data

#### Service conditions

Max Pressure: PN160; Class 900 (A105: 153,1 bar @ 38°C; AISI 316L: 148,9 bar @ 38°C)  
Max Temperature: 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

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

Standard: see below table for minimum distance (Fixed distance, not adjustable)  
Option: On request intermediate distances and over 2.000 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: graphite/copper

Option: graphite/AISI 316 or PTFE/AISI316

#### Shut-off valves

DS SHV: globe type

Handling: by handwheel

#### Process connections:

Standard flanges: UNI PN160 DN20-25 ANSI #900/RF DN ¾" - 1"  
Standard threaded unions: BSP-M ¾" - 1" NPT-M ¾" - 1"

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

Vent: Standard: threaded ½" with plug

Option: see page 1.54

Drain: Standard: valve DS DHV threaded ¾"

Option: see page 1.54

#### Glasses

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

#### Accessories

See from page 1.55

#### Weights

Housing DS RXF: see below table

Valves DS SHV: Kg. 13,5 approx. (With flanges UNI DN20 PN160)

#### Tightening torque of housing screws

Standard: 75 Nm

#### Spare parts

Housing DS RXF: see from page 1.69 (Drawing with components and parts list see page 1.63)

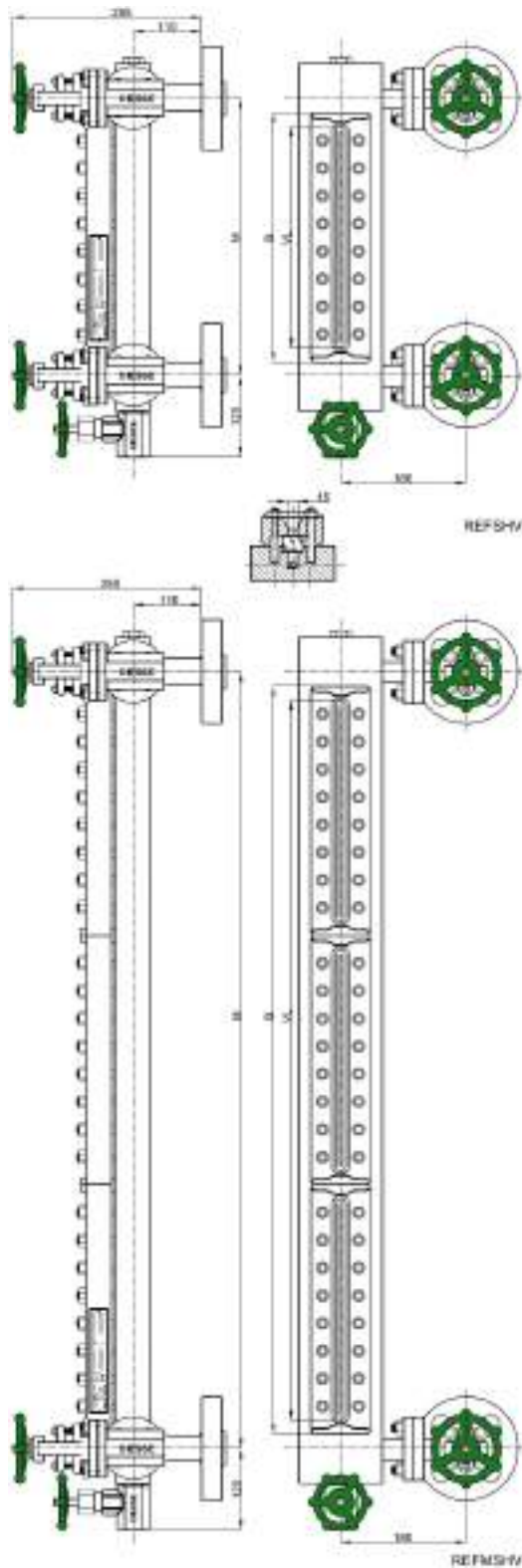
Valves DS SHV: see from page 1.74 (Drawing with components and parts list see page 1.68)

CODE	TYPE	BODY Length [mm]	DISTANCE MINIMUM SL [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	11,3
12	2x1	155	235	120	140x1	12,7
13	3x1	180	260	145	165x1	14,4
14	4x1	205	285	170	190x1	15,5
15	5x1	235	315	200	220x1	17,7
16	6x1	265	345	230	250x1	19,0
17	7x1	295	375	260	280x1	21,3
18	8x1	335	415	300	320x1	23,1
19	9x1	360	440	320	340x1	25,2
24	4x2	410	490	375	190x2	28,0
25	5x2	470	550	435	220x2	32,4
26	6x2	530	610	495	250x2	35,0
27	7x2	590	670	555	280x2	39,6
28	8x2	670	750	635	320x2	43,2
29	9x2	720	800	680	340x2	47,4
36	6x3	795	875	760	250x3	51,0
37	7x3	885	965	850	280x3	57,9
38	8x3	1005	1085	970	320x3	63,3
39	9x3	1080	1160	1040	340x3	69,6
47	7x4	1180	1260	1145	280x4	76,2
48	8x4	1340	1420	1305	320x4	83,4
49	9x4	1440	1520	1400	340x4	91,8
57	7x5	1475	1555	1440	280x5	94,5
58	8x5	1675	1755	1640	320x5	103,5
59	9x5	1800	1880	1760	340x5	114,0

Tab. RXF

## GLASS LEVEL GAUGE REFLEX TYPE PN250 / Class 1500 DS LG - REF SHV

Code: DS LG-REF...-... /1500/...-SHV/...-M...-CS/CS



### Technical data

#### Service conditions

Max Pressure: PN250; Class 1500 (A105: 255,5 bar @ 38°C; AISI 316L: 239,2 bar @ 38°C)  
Max Temperature: 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

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

Standard: see below table for minimum distance (Fixed distance, not adjustable)  
Option: On request intermediate distances and over 2.000 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: graphite/AISI 316

Option: PTFE/AISI316

#### Shut-off valves

DS SHV: globe type  
Handling: by handwheel

#### Process connections:

Standard flanges: UNI PN250 DN On request ANSI #1500 DN On request  
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 DS DHV threaded 3/4"

Option: see page 1.54

#### Glasses

Reflex - Borosilicate glass, "extra hard" and thermally pre-stressed - According to DIN 7081  
Standard: fitted with type B, thickness 21 mm (See page 1.69)

#### Accessories

See from page 1.55

#### Weights

Housing DS REF: see below table  
Valves DS SHV: Kg. 16,5 approx. (With flanges 1" ANSI 1500#RF)

#### Tightening torque of housing screws

Standard: 90 Nm

#### Spare parts

Housing DS REF: see from page 1.69 (Drawing with components and parts list see page 1.63)  
Valves DS SHV: see from page 1.74 (Drawing with components and parts list see page 1.68)

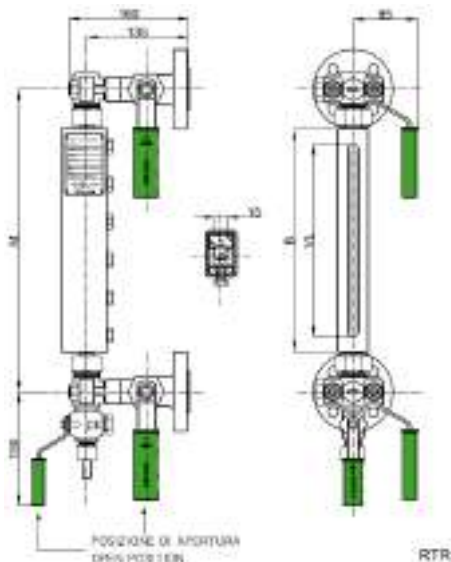
CODE	TYPE	BODY Length [mm]	DISTANCE MINIMUM SL [mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el.	B	M = B+80	VL	x No. elements	
11	1x1	130	210	95	115x1	13,4
12	2x1	155	235	120	140x1	15,2
13	3x1	180	260	145	165x1	17,3
14	4x1	205	285	170	190x1	18,8
15	5x1	235	315	200	220x1	21,5
16	6x1	265	345	230	250x1	23,3
17	7x1	295	375	260	280x1	26,0
18	8x1	335	415	300	320x1	28,5
19	9x1	360	440	320	340x1	31,0
24	4x2	410	490	375	190x2	34,6
25	5x2	470	550	435	220x2	40,0
26	6x2	530	610	495	250x2	43,5
27	7x2	590	670	555	280x2	49,1
28	8x2	670	750	635	320x2	53,9
29	9x2	720	800	680	340x2	59,0
36	6x3	795	875	760	250x3	63,7
37	7x3	885	965	850	280x3	72,1
38	8x3	1005	1085	970	320x3	79,4
39	9x3	1080	1160	1040	340x3	86,9
47	7x4	1180	1260	1145	280x4	95,1
48	8x4	1340	1420	1305	320x4	104,9
49	9x4	1440	1520	1400	340x4	114,9
57	7x5	1475	1555	1440	280x5	118,1
58	8x5	1675	1755	1640	320x5	130,3
59	9x5	1800	1880	1760	340x5	142,8

Tab. REF

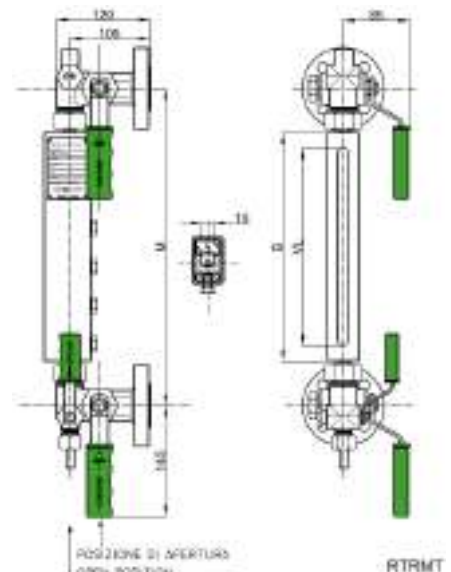
## GLASS LEVEL GAUGE REFLEX TYPE PN16

### 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: 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: graphite/copper Option: graphite/AISI 316 or PTFE/AISI316

##### Shut-off cocks

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

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 DS 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 DS RTR: see below table

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

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

##### Tightening torque of housing screws

Standard: 25 Nm

##### Spare parts

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

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

Cocks DS MT18: see from page 1.72 (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 M [-0/+10 mm]	DISTANCE HL Pipes L = 70 M [-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 M [-0/+10 mm]	DISTANCE HL Pipes L = 70 M [-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

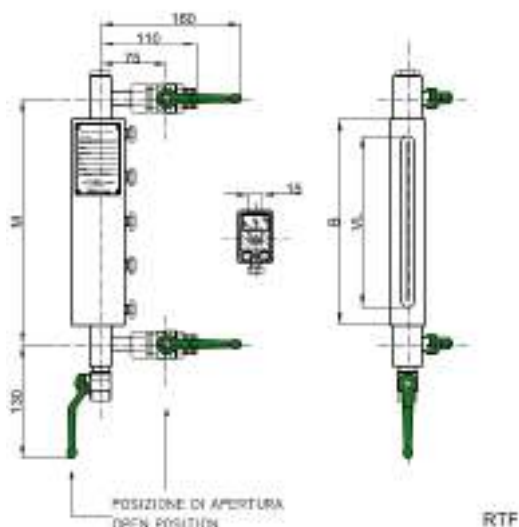
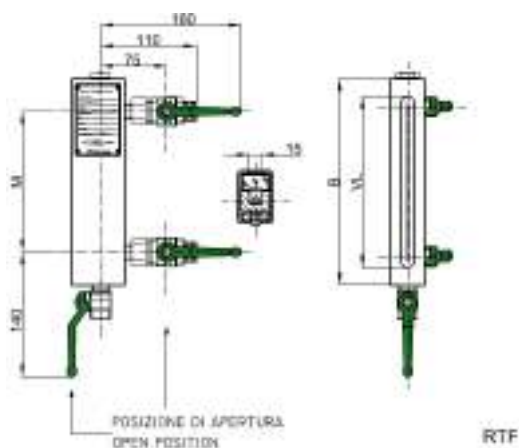
Tab. RTRMT



## 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 DS SBB: 120°C

- With graphite gaskets and cylindrical plug cocks 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:

Gauge body:

Body, ball and sealing of ball valves DS SBB:

Body, trim and sealing of cocks DS D12:

Non-wetted parts:

CS/CS  
ASTM A105  
Brass (CW617N) / Brass (CW617N) / PTFE  
ASTM A105 / AISI 303 / Graphite  
Carbon steel galvanized

##### Gaskets

Standard: PTFE/copper

Option: graphite/copper

##### Valves

Standard: ball valves DS SBB threaded 1/2" BSP-M - Quick 90° closing

Handling: lever operated

Option: on request cylindrical plug cocks DS D12 threaded 1/2" BSP-M or 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 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 DS DBB threaded 3/8" BSP-F - Quick 90° closing

Handling: lever operated

##### Option:

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

##### 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 DS RTF: see below table

Ball valve DS SBB: Kg. 0,2 unit approx.

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

##### Tightening torque of housing screws

Standard: 20 Nm

##### Spare parts

Housing DS RTF: see from page 1.69 (Drawing with components and parts list see page 1.61)

Cocks DS D12: see from page 1.72

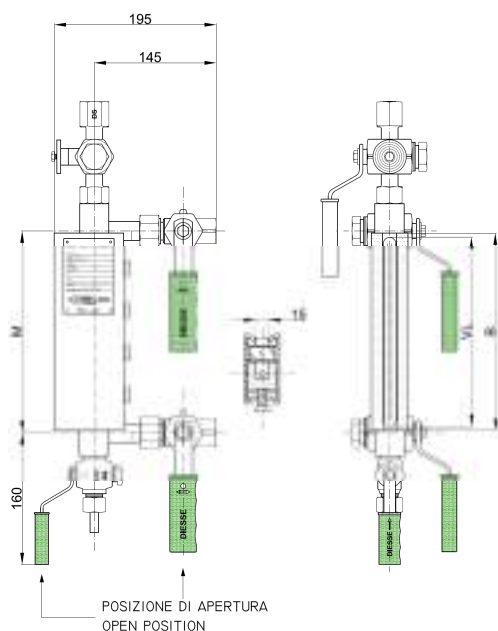
CODE	TYPE	BODY Length [mm]	DISTANCE [mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el.	B	M	VL		
11	1x1	130	On request	95	115	1,8
12	2x1	155	On request	120	140	2,0
13	3x1	180	On request	145	165	2,2
14	4x1	205	On request	170	190	2,5
15	5x1	235	On request	200	220	2,9
16	6x1	265	On request	230	250	3,2
17	7x1	295	On request	260	280	3,6
18	8x1	335	On request	300	320	4,0
19	9x1	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: graphite/copper

#### Shut-off cocks

Standard: cylindrical plug cocks 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 DS D18)  
threaded M28x2-F (With revolving female connections - without valves)

#### Vent:

Standard: three way cylindrical plug manometer setting valve with control flange 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 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 DS RBFPM: see below table  
Cocks DS D18: Kg. 0,9 unit approx.  
Cock DS PM18: Kg. 1,2 unit approx.  
Cock DS D12: Kg. 0,5 unit approx.

#### Tightening torque of housing screws

Standard: 40 Nm

#### Spare parts

Housing DS RBFPM: see from page 1.69 (Drawing with components and parts list see page 1.61)  
Cocks DS D18: see from page 1.72  
Cock DS PM18: see from page 1.72  
Cock DS D12: see from page 1.72

CODE	TYPE	BODY Length [mm]	DISTANCE [mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el.	B	M	VL		
11	1x1	130	On request	95	115	2,4
12	2x1	155	On request	120	140	2,8
13	3x1	180	On request	145	165	3,3
14	4x1	205	On request	170	190	3,8
15	5x1	235	On request	200	220	4,3
16	6x1	265	On request	230	250	4,9
17	7x1	295	On request	260	280	5,4
18	8x1	335	On request	300	320	6,1
19	9x1	360	On request	320	340	6,6

Tab. RBFPM



## MARINE LEVEL GAUGES

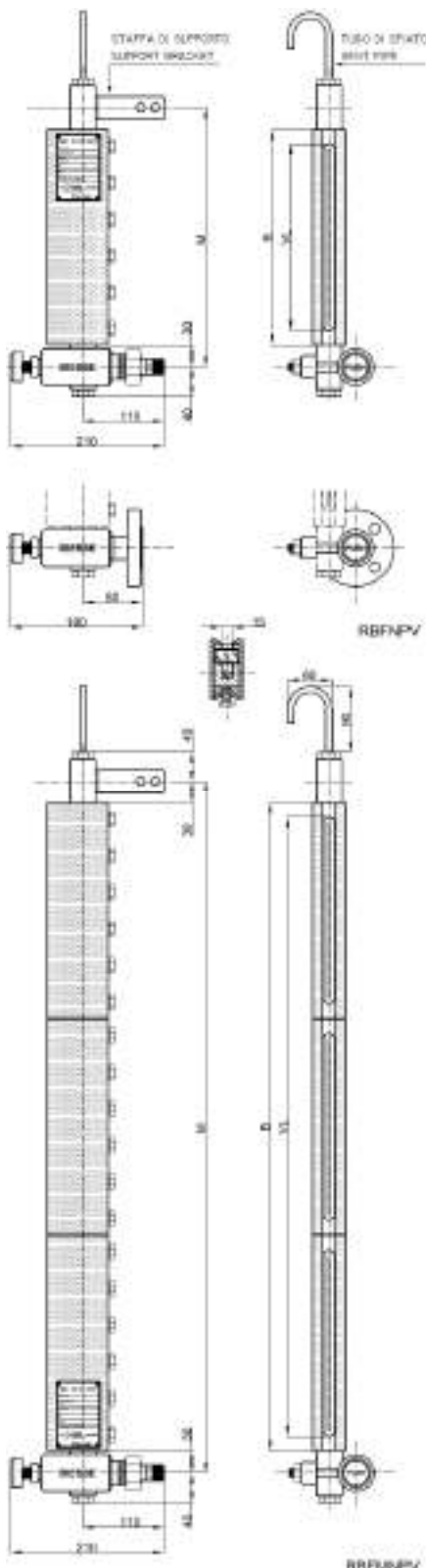
On request the product is available also with  
**the approval certificate of Lloyd's Register**



## GLASS LEVEL GAUGE REFLEX TYPE PN16

### DS LG - RBF NPV

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



#### Technical data

##### Service conditions

Pressione max: PN16  
Temperatura max: 150°C

##### 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 & valve body:	ASTM A105	AISI 316L
Stem and disc:	AISI 410	AISI 316
Non-wetted parts:	Carbon steel galvanized	Carbon steel galvanized

##### Gaskets

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

##### Self-closing Valve

DS NPV: self-closing, push button type  
Handling: opening by push button (Standard: valve on the right side; On request on the left side)

##### Process connections:

Standard flange:	UNI PN16 DN15-20-25	ANSI #150/RF DN 1/2" - 3/4" - 1"
Standard threaded unions:	BSP-M 1/2" - 3/4"	NPT-M 1/2" - 3/4"

Option: further connections types

<b>Vent:</b>	Standard: threaded 1/2" with vent pipe	Option: on request (See details at page 1.52)
<b>Drain:</b>	Standard: threaded 1/2" with plug	Option: on request (See details at 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 DS RBF: see below table  
Valve DS NPV: Kg. 2,6 approx. (With flanges UNI DN20 PN16)

##### Tightening torque of housing screws

Standard: 40 Nm

##### Spare parts

Housing DS RBF: see from page 1.69 (Drawing with components and parts list see page 1.61)  
Valve DS NPV: see from page 1.74 (Drawing with components and parts list see page 1.67)

CODE	TYPE	BODY Length [mm]	DISTANCE MINIMUM SL [mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el.	B	M = B+60	VL	x No. elements	
11	1x1	130	190	95	115x1	3,7
12	2x1	155	215	120	140x1	4,1
13	3x1	180	240	145	165x1	4,6
14	4x1	205	265	170	190x1	5,1
15	5x1	235	295	200	220x1	5,6
16	6x1	265	325	230	250x1	6,2
17	7x1	295	355	260	280x1	6,7
18	8x1	335	395	300	320x1	7,4
19	9x1	360	420	320	340x1	7,9
24	4x2	410	470	375	190x2	8,8
25	5x2	470	530	435	220x2	9,8
26	6x2	530	590	495	250x2	11,0
27	7x2	590	650	555	280x2	12,0
28	8x2	670	730	635	320x2	13,4
29	9x2	720	780	680	340x2	14,4
36	6x3	795	855	760	250x3	15,7
37	7x3	885	945	850	280x3	17,2
38	8x3	1005	1065	970	320x3	19,3
39	9x3	1080	1140	1040	340x3	20,8
47	7x4	1180	1240	1145	280x4	22,5
48	8x4	1340	1400	1305	320x4	25,3
49	9x4	1440	1500	1400	340x4	27,3
57	7x5	1475	1535	1440	280x5	27,8
58	8x5	1675	1735	1640	320x5	31,3
59	9x5	1800	1860	1760	340x5	33,8
68	8x6	2010	2070	1975	320x6	37,2
69	9x6	2160	2220	2120	340x6	40,2
78	8x7	2345	2405	2310	320x7	43,2
79	9x7	2520	2580	2480	340x7	46,7
88	8x8	2680	2740	2645	320x8	49,3
89	9x8	2880	2940	2840	340x8	53,2

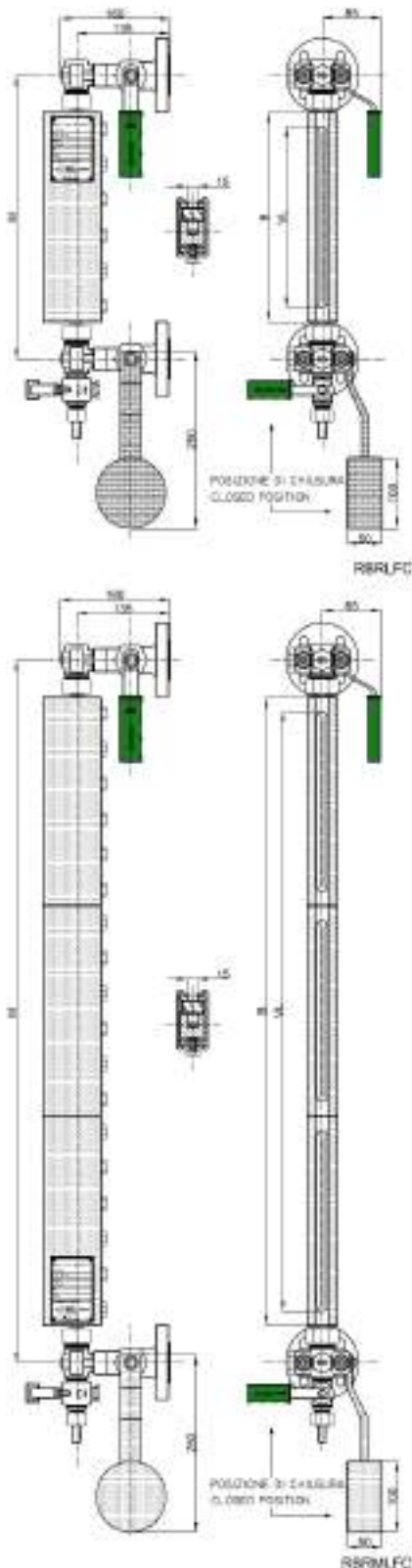
Tab. RBF



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

### DS LG - RBR GR18 - LFC

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



#### Technical data

##### Service conditions

Max Pressure: PN25 and PN40

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

##### Application

Fluid storage tanks also aboard of ships

##### 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:

Gauge body & cocks body:

Cocks trim:

Non-wetted parts:

CS/CS

ASTM A105

AISI 303

Carbon steel galvanized

SS/CS

AISI 316L

AISI 316

Carbon steel galvanized

##### Gaskets

Standard: graphite/copper

Option: graphite/AISI 316 or PTFE/AISI316

##### Shut-off cocks

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

Lower cock with weight closing accessory for self closing

##### Process connections:

Standard flanges: UNI PN40 DN15-20-25

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

Options: further connections types to the process (See page 1.49)

Vent: Standard: blind

Drain: Standard: cock DS D12 threaded ½"

ANSI #150-300/RF DN ½" - ¾" - 1"

NPT-M ½" - ¾"

Option: see page 1.50

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 DS RBR: see below table

Cocks 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 DS RBR: see from page 1.69 (Drawing with components and parts list see page 1.61)

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

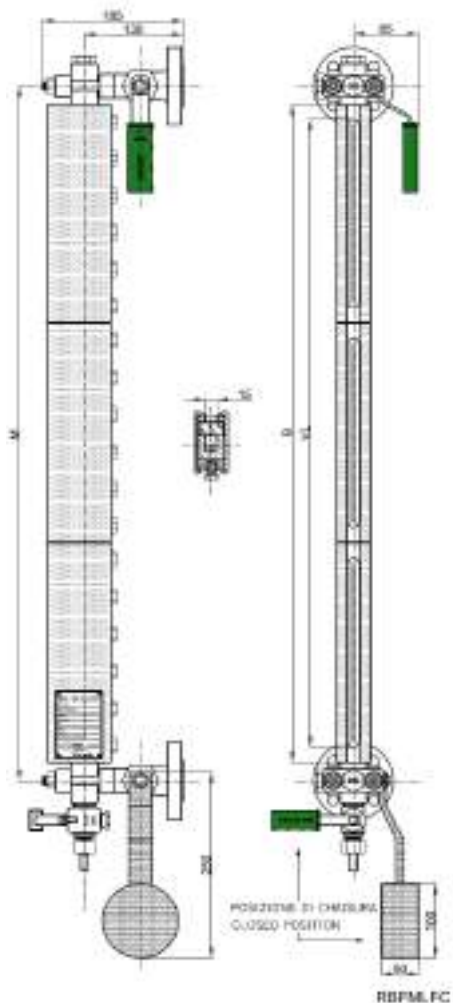
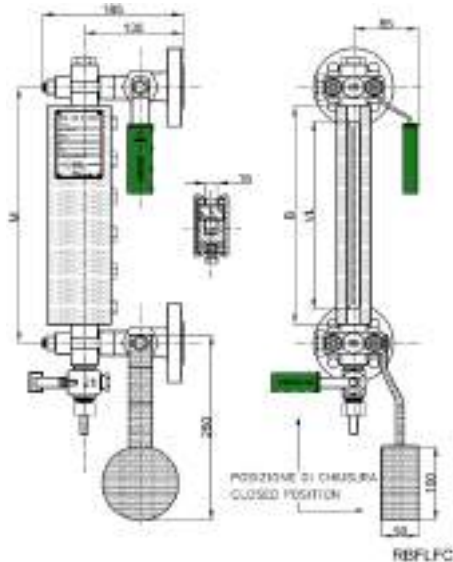
CODE	TYPE	BODY Length [mm]	DISTANCE SL Pipes L = 57 M [-0/+10 mm]	DISTANCE HL Pipes L = 70 M [-0/+10 mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el.	B	M = B+105	M = B+130	VL	x No. elements	
11	1x1	130	235	260	95	115x1	2,4
12	2x1	155	260	285	120	140x1	2,8
13	3x1	180	285	310	145	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 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: 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:

Gauge body & cocks body:

Cocks trim:

Non-wetted parts:

CS/CS

ASTM A105

AISI 303

Carbon steel galvanized

SS/CS

AISI 316L

AISI 316

Carbon steel galvanized

##### Gaskets

Standard: graphite/copper

Option: graphite/AISI 316 or PTFE/AISI316

##### Shut-off cocks

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

Lower cock with weight closing accessory for self closing

##### 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 DS 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 DS RBF: see below table

Cocks 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 DS RBF: see from page 1.69 (Drawing with components and parts list see page 1.61)

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

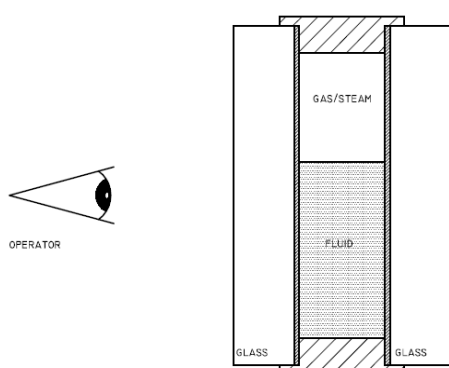
CODE	TYPE	BODY Length [mm]	DISTANCE MINIMUM SL [mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el.	B	M = B+40	VL	x No. elements	
11	1x1	130	170	95	115x1	3,7
12	2x1	155	195	120	140x1	4,1
13	3x1	180	220	145	165x1	4,6
14	4x1	205	245	170	190x1	5,1
15	5x1	235	275	200	220x1	5,6
16	6x1	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

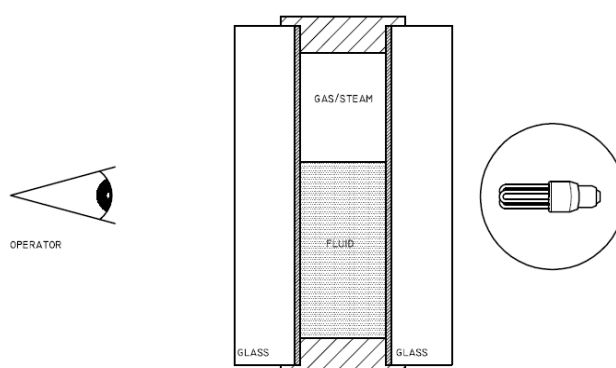
# TRASPARENT level gauges

In this kind of level gauge, the fluid is held between two smooth glasses. The level can be identified as the fluid has a different level of transparency compared to gases and steam.

The transparent level gauge is particularly recommended for applications where the glass needs to be protected from corrosive fluids and high temperatures. A lamp can also be fitted behind the gauge to improve visibility in special operating conditions.



With natural light



With artificial light (illumination lamp)

The product line includes level gauges suitable for pressure ratings from PN10 to PN250 and a huge number of industrial process applications.

## This type of gauge is recommended:

- ☐ for use with corrosive fluids (protective shield for the glass is required)
- ☐ for steam with an operating pressure > 20 bar (protective shield for the glass is required)
- ☐ if repeated thermal shocks are likely (protective shield for the glass is required)
- ☐ for checking the interface (level of separation between two immiscible fluids)
- ☐ for checking the colour of a fluid
- ☐ for dirty / oily fluids

## Operating limits / Conditions:

### Process:

Max. pressure: 255,5 bar @ 38°C (rating class 1500)

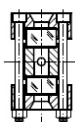
Max. temperature: 300°C (max. temperature allowed by borosilicate glasses as per the DIN 7081 standard - see page 1.69)

### Steam: (see page 1.59)

Max. pressure: 70 bar

Max. temperature: 280°C

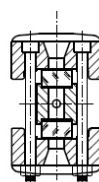
## Types:



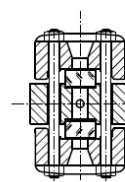
**PN25/40**  
Class 150/300



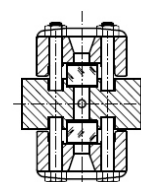
**PN40/64**  
Class 300



**PN64/100**  
Class 600



**PN100/160**  
Class 600/900



**PN250**  
Class 1500

## TRANSPARENT level gauges

### Materials / Specifications:

#### Connections between housing and cocks:

- with grinded pipes and stuffing box (View can be turned can be positioned by the customer during installation)
- fixed centre-to-centre distance with metal seal (View can be turned can be positioned during manufacture)

#### Wetted parts:

- standard: galvanized ASTM A105 or A105 LF2 carbon steel, ASTM A182 F316L stainless steel
- additional options: on request

#### Non-wetted parts:

- standard: galvanized carbon steel, AISI 316/316L stainless steel
- additional options: on request

#### Gaskets: (See page 1.71)

- standard: graphite/copper (ASTM A105), graphite/AISI 316 (A105 LF2 and ASTM A182 F316L)
- additional options: PTFE/AISI 316; other extras on request

#### Glasses: (See page 1.69)

- transparent borosilicate glasses, thermally pre-stressed and extra hard as per the DIN 7081 standard

#### Shut-off: (See page 1.49)

- standard: upper valve and lower valve (side/side)
- additional options: on request

#### Drain: (See page 1.50)

- standard: threaded valve
- additional options: on request

#### Vent: (See page 1.50)

- standard: blind (for grinded pipes version)
- threaded with plug (for fixed distance version)
- additional options: on request

### Tank connections:

#### Flanged:

- UNI standard: PN40 DN15 / DN20 / DN25
- ANSI standard: #150 / #300 / #600 DN 1/2" / 3/4" / 1"
- additional options: on request

#### Threaded:

- BSP (GAS) standard: 1/2"-M / 3/4"-M
- NPT standard: 1/2"-M / 3/4"-M

#### Weld-on: from 1/2" to 1" BW or SW

Option: further connections type or direct connections to the process without shut-off cocks (See page 1.49 for more details)

### Shut-off cocks, drain cock and vent cock:

- Cylindrical plug cocks (GR18 or DS MT18 - see page 1.47)
- Globe valves (DS SHV - see page 1.48)
- Push-button valves (DS NPV - see page 1.48)
- Ball valves (DS SBB)

### Spare parts:

***Our spare parts are interchangeable with those of major international manufacturers.***

For the full range of complete sets, turn to the spares section on page 1.69.

### Accessories:

Mica or PCTFE protective shield for the glass, flameproof and watertight illumination lamp (ATEX approved), lower and/or upper safety ball, pusher for safety ball, calibrated scale, non-frosting extension, minimum level arrow, continuous reading, cocks handles lock (see page 1.55 for details)

### Certifications (On request):

- ATEX
- Tests and inspection by Notified Bodies
- NACE MR0175
- Others on request

**All DIESSE products are individually checked and tested in accordance with company quality procedures and the industry regulations currently in effect.**

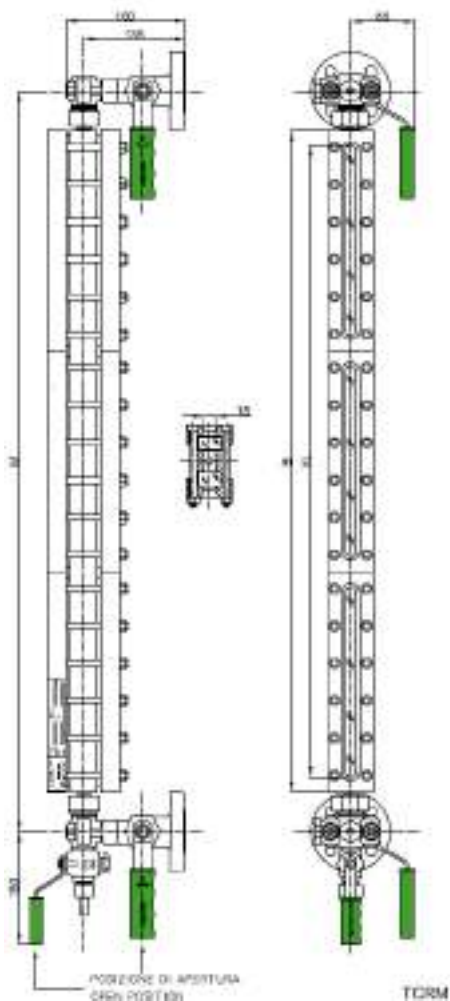
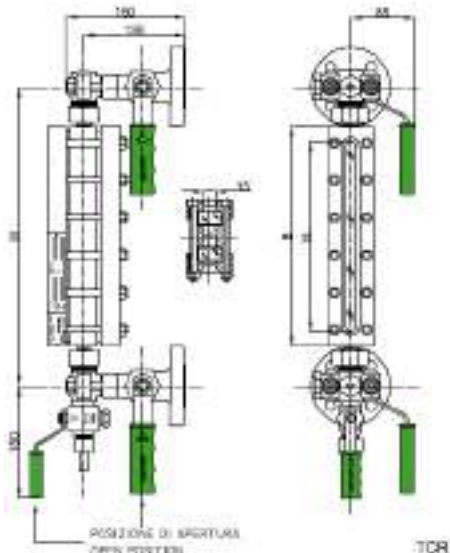
**Certificates can be issued on request.**



## 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: 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: graphite/copper

Option: graphite/AISI 316 or PTFE/AISI316

##### Shut-off cocks

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/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 DS 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 DS TCR: see below table

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

##### Tightening torque of housing screws

Standard: 35 Nm

##### Spare parts

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

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

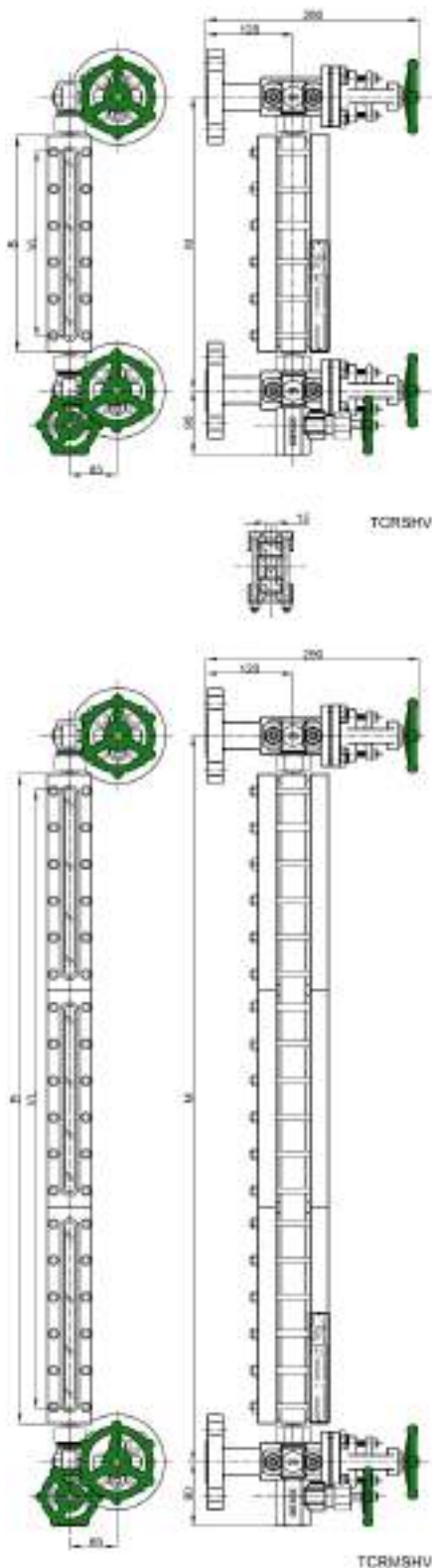
CODE	TYPE	BODY Length [mm]	DISTANCE SL Pipes L = 57 M [-0/+10 mm]	DISTANCE HL Pipes L = 70 M [-0/+10 mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el.	B	M = B+105	M = B+130	VL	x No. elements	
11	1x1	130	235	260	95	115x1	3,2
12	2x1	155	260	285	120	140x1	3,8
13	3x1	180	285	310	145	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



#### Technical data

##### Service conditions

Max Pressure: PN25 e PN40

Max Temperature: 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: graphite/copper

Option: graphite/AISI 316 or PTFE/AISI316

##### Shut-off valves

DS SHV: globe type

Handling: by handwheel

##### Process connections:

Standard flanges: UNI PN40 DN15-20-25

ANSI #150-300/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 DS 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 DS TCR: see below table

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

##### Tightening torque of housing screws

Standard: 35 Nm

##### Spare parts

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

Valves DS GR18: see from page 1.74 (Drawing with components and parts list see page 1.68)

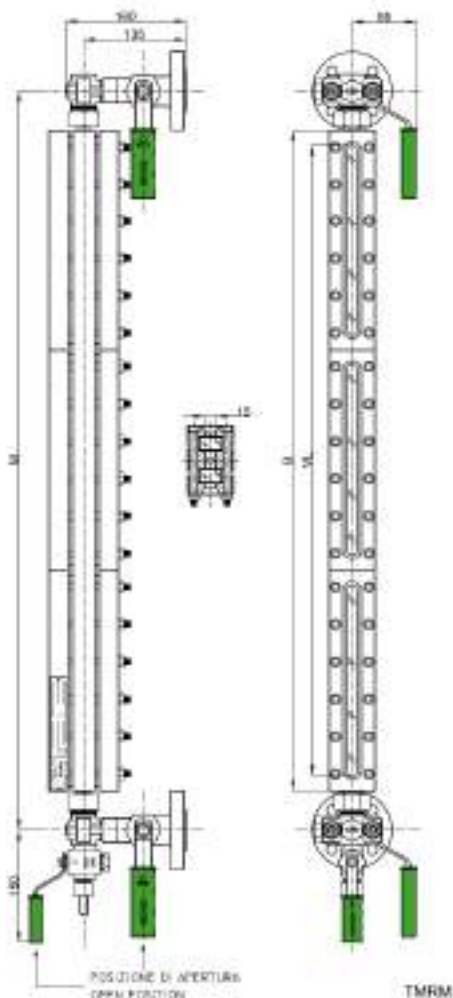
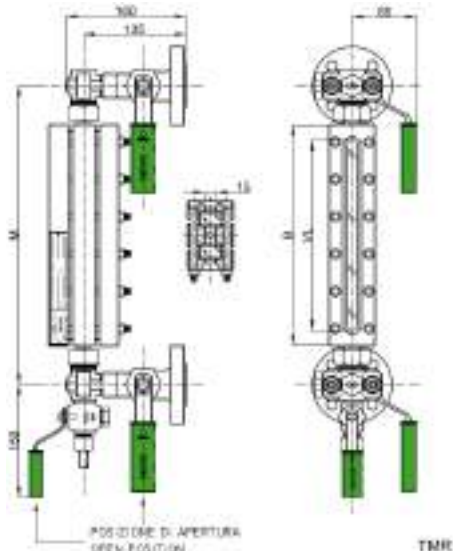
CODE	TYPE	BODY Length [mm]	DISTANCE SL Pipes L = 57 M [-0/+10 mm]	DISTANCE HL Pipes L = 70 M [-0/+10 mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el.	B	M = B+105	M = B+130	VL	x No. elements	
11	1x1	130	235	260	95	115x1	3,2
12	2x1	155	260	285	120	140x1	3,8
13	3x1	180	285	310	145	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: 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: graphite/copper

Option: graphite/AISI 316 or PTFE/AISI316

##### Shut-off cocks

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/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 DS 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 DS TMR: see below table

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

##### Tightening torque of housing screws

Standard: 35 Nm

##### Spare parts

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

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

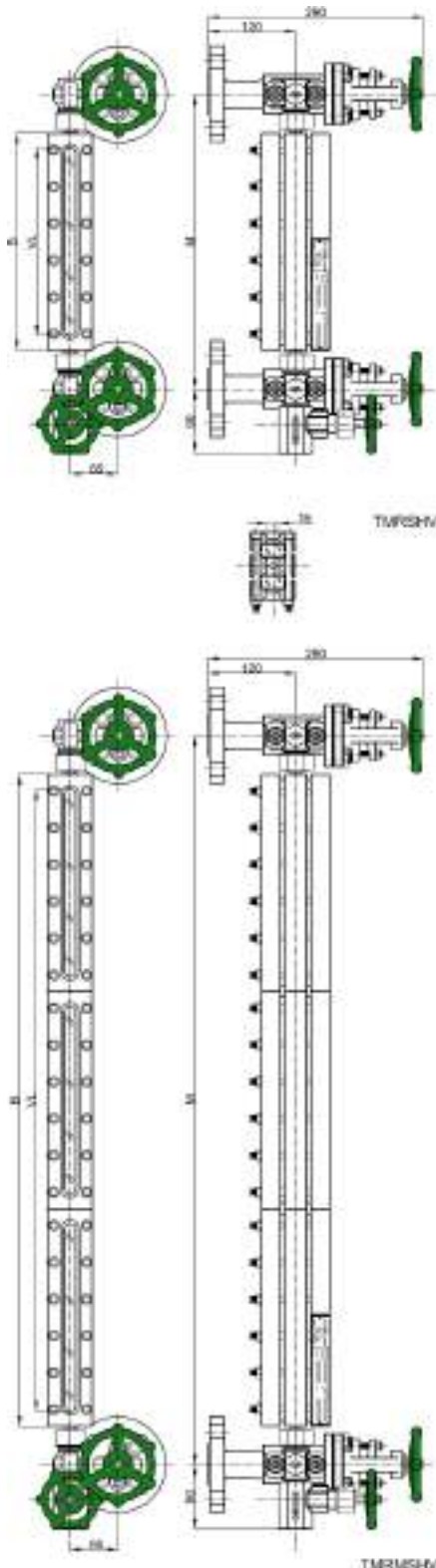
CODE	TYPE	BODY Length [mm]	DISTANCE SL Pipes L = 57 M [-0/+10 mm]	DISTANCE HL Pipes L = 70 M [-0/+10 mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el.	B	M = B+105	M = B+130	VL	x No. elements	
11	1x1	130	235	260	95	115x1	3,6
12	2x1	155	260	285	120	140x1	4,3
13	3x1	180	285	310	145	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



### Technical data

#### Service conditions

Max Pressure: PN40

Max Temperature: 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: graphite/copper

Option: graphite/AISI 316 or PTFE/AISI316

#### Shut-off valves

DS SHV: globe type

Handling: by handwheel

#### Process connections:

Standard flanges:	UNI PN40 DN15-20-25	ANSI #150-300/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 DS 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 DS TMR: see below table

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

#### Tightening torque of housing screws

Standard: 35 Nm

#### Spare parts

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

Valves 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 M [-0/+10 mm]	DISTANCE HL Pipes L = 70 M [-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

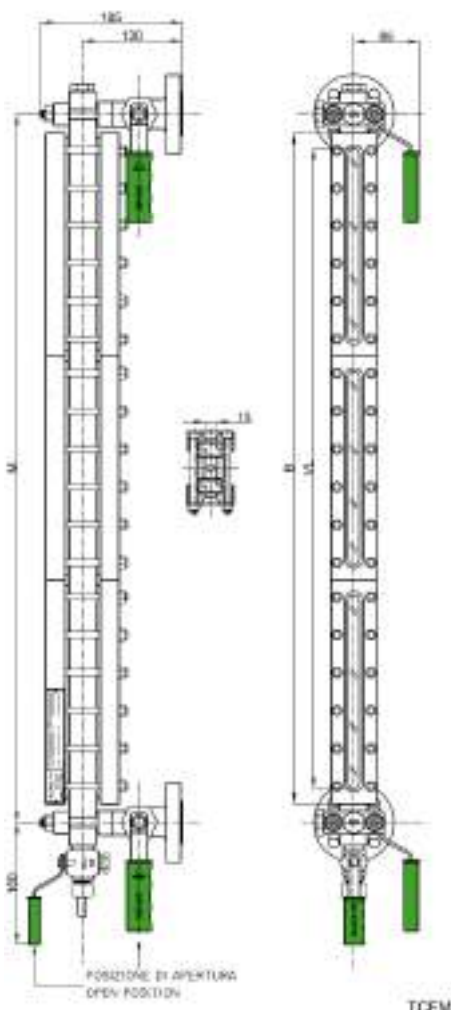
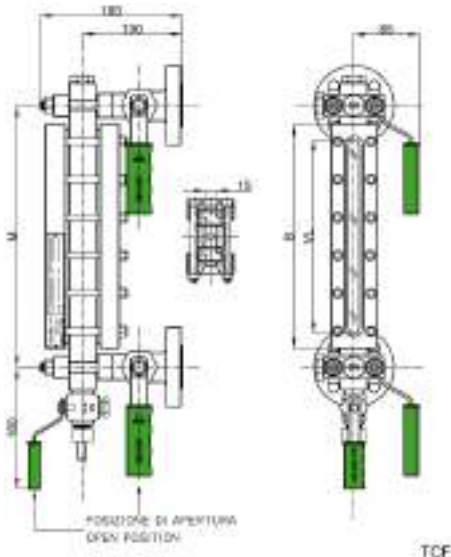
Tab. TMR



## GLASS LEVEL GAUGE TRANSPARENT TYPE PN40 / Class 300

### DS LG - TCF GR18

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



#### Technical data

##### Service conditions

Max Pressure: PN40; Class 300 (A105: 51 bar @ 38°C; AISI 316L: 49,6 bar @ 38°C)  
Max Temperature: 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: graphite/copper      Option: graphite/AISI 316 or PTFE/AISI316

##### Shut-off cocks

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/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 1.51)

**Vent:**      Standard: threaded ½" with plug      Option: see page 1.52  
**Drain:**      Standard: cock DS 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 DS TCF: see below table  
Cocks DS GR18: Kg. 7,4 approx. (With flanges UNI DN20 PN40)

##### Tightening torque of housing screws

Standard: 35 Nm

##### Spare parts

Housing DS TCF: see from page 1.69 (Drawing with components and parts list see page 1.64)  
Cocks DS GR18: see from page 1.72 (Drawing with components and parts list see page 1.66)

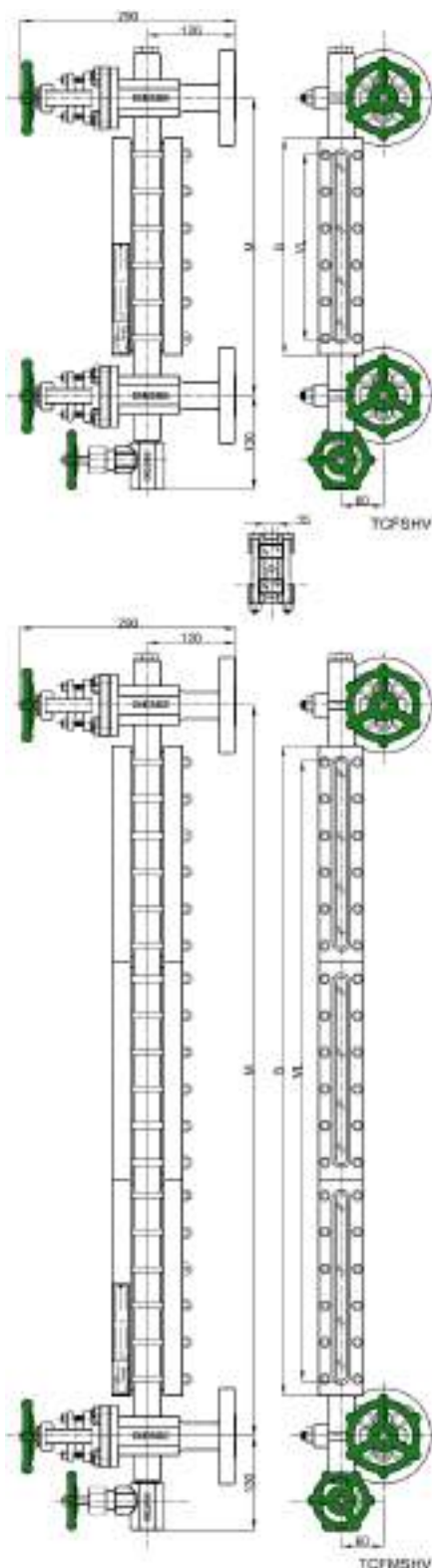
CODE	TYPE	BODY Length [mm]	DISTANCE MINIMUM SL [mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el.	B	M = B+40	VL	x No. elements	
11	1x1	130	170	95	115x1	4,5
12	2x1	155	195	120	140x1	5,1
13	3x1	180	220	145	165x1	5,6
14	4x1	205	245	170	190x1	6,0
15	5x1	235	275	200	220x1	6,8
16	6x1	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: 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:	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: graphite/copper      Option: graphite/AISI 316 or PTFE/AISI316

##### Shut-off valves

DS SHV: globe type  
Handling: by handwheel

##### Process connections:

Standard flanges: UNI PN40 DN15-20-25      ANSI #150-300/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: threaded ½" with plug      Option: see page 1.54  
Drain: Standard: valve DS 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 DS TCF: see below table  
Valves DS SHV: Kg. 11,8 approx. (With flanges UNI DN20 PN40)

##### Tightening torque of housing screws

Standard: 35 Nm

##### Spare parts

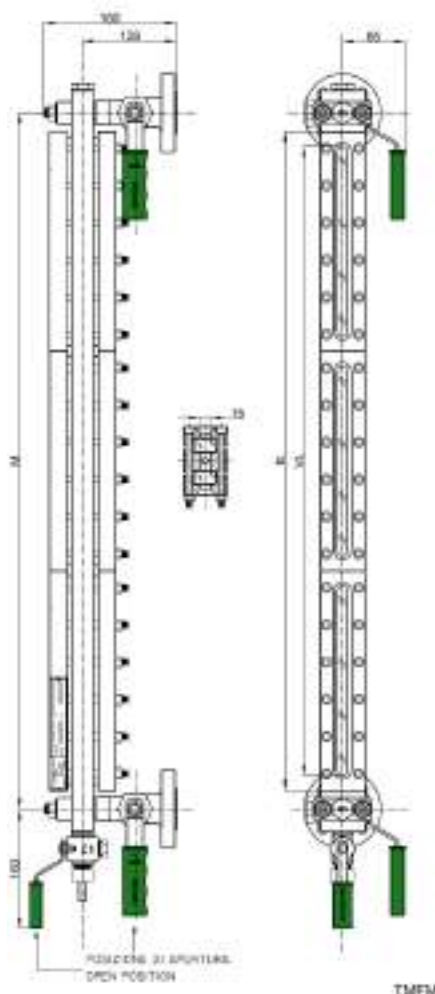
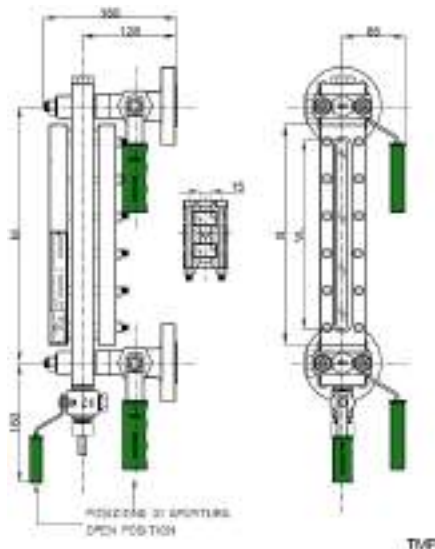
Housing DS TCF: see from page 1.69 (Drawing with components and parts list see page 1.64)  
Valves DS SHV: see from page 1.74 (Drawing with components and parts list see page 1.68)

CODE	TYPE	BODY Length [mm]	DISTANCE MINIMUM SL [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

## GLASS LEVEL GAUGE TRANSPARENT TYPE PN40 and PN64 / Class 300 DS LG - TMF GR18

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



### Technical data

#### Service conditions

Max Pressure: PN40 e PN64; Class 300 (A105: 51 bar @ 38°C; AISI 316L: 49,6 bar @ 38°C)  
Max Temperature: 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

#### 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: graphite/copper      Option: graphite/AISI 316 or PTFE/AISI316

#### Shut-off cocks

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 PN40-64 DN15-20-25      ANSI #150-300/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 1.51)

**Vent:** Standard: threaded ½" with plug

Option: see page 1.52

**Drain:** Standard: cock DS 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 B (See page 1.69)      Option: type A (See page 1.69)

#### Accessories

See from page 1.55

#### Weights

Housing DS TMF: see below table  
Cocks DS GR18: Kg. 7,4 approx. (With flanges UNI DN20 PN40)

#### Tightening torque of housing screws

Standard: 35 Nm

#### Spare parts

Housing DS TMF: see from page 1.69 (Drawing with components and parts list see page 1.64)  
Cocks DS GR18: see from page 1.72 (Drawing with components and parts list see page 1.66)

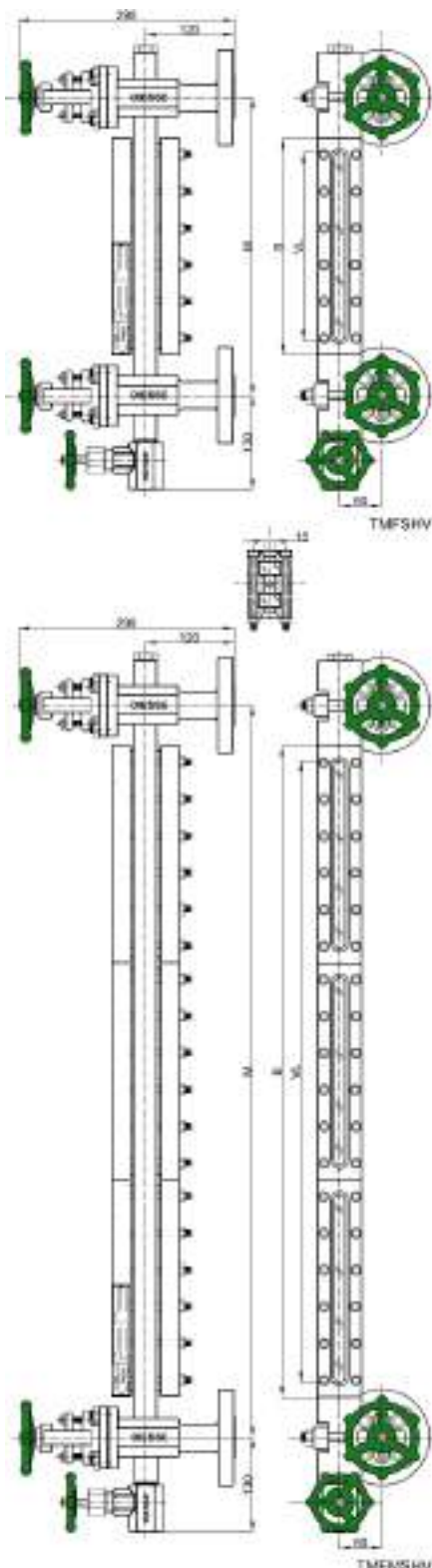
CODE	TYPE	BODY Length [mm]	DISTANCE MINIMUM SL [mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el.	B	M = B+40	VL	x No. elements	
11	1x1	130	170	95	115x1	5,4
12	2x1	155	195	120	140x1	6,1
13	3x1	180	220	145	165x1	6,7
14	4x1	205	245	170	190x1	7,2
15	5x1	235	275	200	220x1	8,1
16	6x1	265	305	230	250x1	8,8
17	7x1	295	335	260	280x1	9,5
18	8x1	335	375	300	320x1	10,4
19	9x1	360	400	320	340x1	11,2
24	4x2	410	450	375	190x2	12,4
25	5x2	470	510	435	220x2	14,2
26	6x2	530	570	495	250x2	15,4
27	7x2	590	630	555	280x2	17,0
28	8x2	670	710	635	320x2	18,8
29	9x2	720	760	680	340x2	20,4
36	6x3	795	835	760	250x3	22,1
37	7x3	885	925	850	280x3	24,5
38	8x3	1005	1045	970	320x3	27,2
39	9x3	1080	1120	1040	340x3	29,6
47	7x4	1180	1220	1145	280x4	32,0
48	8x4	1340	1380	1305	320x4	35,6
49	9x4	1440	1480	1400	340x4	38,8
57	7x5	1475	1515	1440	280x5	39,5
58	8x5	1675	1715	1640	320x5	44,0
59	9x5	1800	1840	1760	340x5	48,0
68	8x6	2010	2050	1975	320x6	52,4
69	9x6	2160	2200	2120	340x6	57,2
78	8x7	2345	2385	2310	320x7	60,8
79	9x7	2520	2560	2480	340x7	66,4
88	8x8	2680	2720	2645	320x8	69,2
89	9x8	2880	2920	2840	340x8	75,6

Tab. TMF

## GLASS LEVEL GAUGE TRANSPARENT TYPE PN40 and PN64 / Class 300

### DS LG - TMF SHV

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



#### Technical data

##### Service conditions

Max Pressure: PN40 e PN64; Class 300 (A105: 51 bar @ 38°C; AISI 316L: 49,6 bar @ 38°C)  
Max Temperature: 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

##### 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:	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: graphite/copper

Option: graphite/AISI 316 or PTFE/AISI316

##### Shut-off valves

DS SHV: globe type

Handling: by handwheel

##### Process connections:

Standard flanges: UNI PN40-64 DN15-20-25 ANSI #150-300/RF DN ½" - ¾" - 1"  
Standard threaded unions: GAS-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: threaded ½" with plug

Option: see page 1.54

Drain: Standard: valve DS 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 DS TMF: see below table

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

##### Tightening torque of housing screws

Standard: 35 Nm

##### Spare parts

Housing DS TMF: see from page 1.69 (Drawing with components and parts list see page 1.64)

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

CODE	TYPE	BODY Length [mm]	DISTANCE MINIMUM SL [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	5,4
12	2x1	155	235	120	140x1	6,1
13	3x1	180	260	145	165x1	6,7
14	4x1	205	285	170	190x1	7,2
15	5x1	235	315	200	220x1	8,1
16	6x1	265	345	230	250x1	8,8
17	7x1	295	375	260	280x1	9,5
18	8x1	335	415	300	320x1	10,4
19	9x1	360	440	320	340x1	11,2
24	4x2	410	490	375	190x2	12,4
25	5x2	470	550	435	220x2	14,2
26	6x2	530	610	495	250x2	15,4
27	7x2	590	670	555	280x2	17,0
28	8x2	670	750	635	320x2	18,8
29	9x2	720	800	680	340x2	20,4
36	6x3	795	875	760	250x3	22,1
37	7x3	885	965	850	280x3	24,5
38	8x3	1005	1085	970	320x3	27,2
39	9x3	1080	1160	1040	340x3	29,6
47	7x4	1180	1260	1145	280x4	32,0
48	8x4	1340	1420	1305	320x4	35,6
49	9x4	1440	1520	1400	340x4	38,8
57	7x5	1475	1555	1440	280x5	39,5
58	8x5	1675	1755	1640	320x5	44,0
59	9x5	1800	1880	1760	340x5	48,0
68	8x6	2010	2090	1975	320x6	52,4
69	9x6	2160	2240	2120	340x6	57,2
78	8x7	2345	2425	2310	320x7	60,8
79	9x7	2520	2600	2480	340x7	66,4
88	8x8	2680	2760	2645	320x8	69,2
89	9x8	2880	2960	2840	340x8	75,6

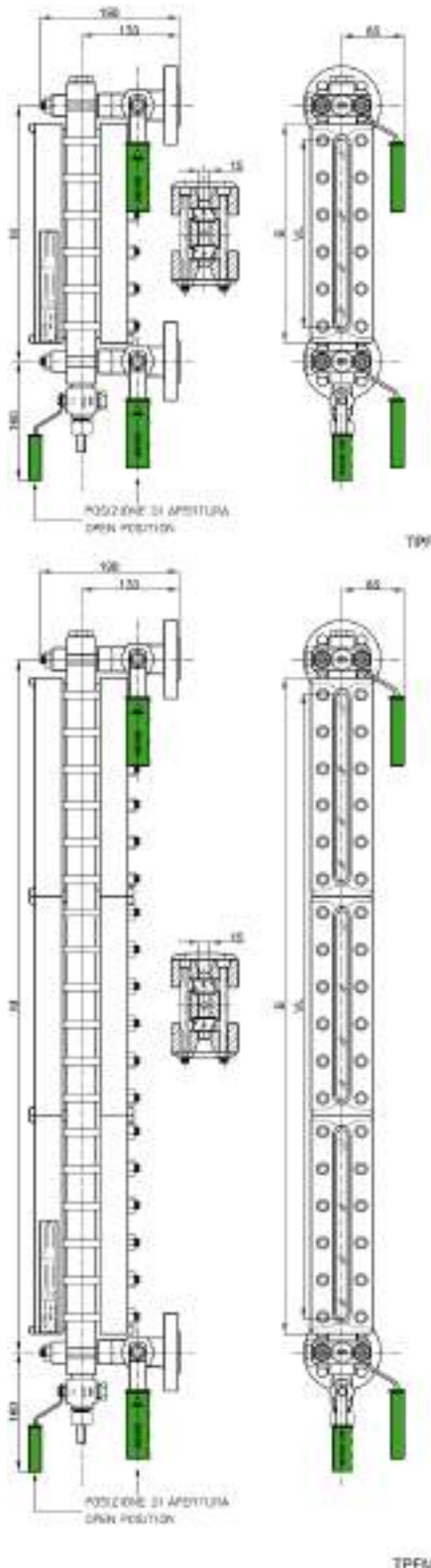
Tab. TMF



## GLASS LEVEL GAUGE TRANSPARENT TYPE PN64 and PN100 / Class 600

### DS LG - TPF GR18

Code: DS LG-TPF.... /100/RF-GR18/...-M...-CS/CS



#### Technical data

##### Service conditions

Max Pressure: PN64 e PN100; Class 600 (A105: 102 bar @ 38°C; AISI 316L: 99,3 bar @ 38°C)  
Max Temperature: 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 2.000 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: graphite/copper      Option: graphite/AISI 316 or PTFE/AISI316

##### Shut-off cocks

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 PN64-100 DN20 - DN25	ANSI #600/RF DN ¾" - 1"
Standard threaded unions:	BSP-M ¾" - 1"	NPT-M ¾" - 1"

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

<b>Vent:</b>	Standard: threaded ½" with plug	Option: see page 1.52
<b>Drain:</b>	Standard: cock DS 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 B (See page 1.69)

##### Accessories

See from page 1.55

##### Weights

Housing DS TPF: see below table  
Cocks DS GR18: Kg. 9,2 approx. (With flanges UNI DN20 PN100)

##### Tightening torque of housing screws

Standard: 75 Nm

##### Spare parts

Housing DS TPF: see from page 1.69 (Drawing with components and parts list see page 1.65)  
Cocks DS GR18: see from page 1.72 (Drawing with components and parts list see page 1.66)

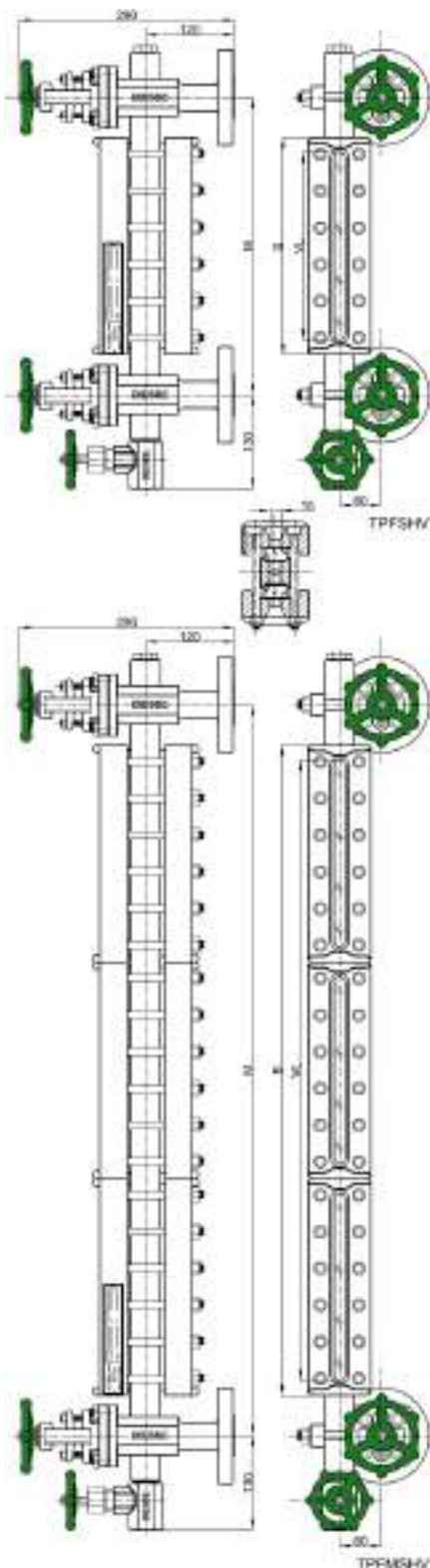
CODE	TYPE	BODY Length [mm]	DISTANCE MINIMUM SL [mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el.	B	M = B+50	VL	x No. elements	
11	1x1	130	180	95	115x1	7,9
12	2x1	155	205	120	140x1	9,0
13	3x1	180	230	145	165x1	10,5
14	4x1	205	255	170	190x1	11,5
15	5x1	235	285	200	220x1	12,8
16	6x1	265	315	230	250x1	13,5
17	7x1	295	345	260	280x1	15,4
18	8x1	335	385	300	320x1	16,8
19	9x1	360	410	320	340x1	18,1
24	4x2	410	460	375	190x2	21,5
25	5x2	470	520	435	220x2	24,1
26	6x2	530	580	495	250x2	25,5
27	7x2	590	640	555	280x2	29,3
28	8x2	670	720	635	320x2	32,1
29	9x2	720	770	680	340x2	34,7
36	6x3	795	845	760	250x3	37,5
37	7x3	885	935	850	280x3	43,2
38	8x3	1005	1055	970	320x3	47,4
39	9x3	1080	1130	1040	340x3	51,3
47	7x4	1180	1230	1145	280x4	57,1
48	8x4	1340	1390	1305	320x4	62,7
49	9x4	1440	1490	1400	340x4	67,9
57	7x5	1475	1525	1440	280x5	71,0
58	8x5	1675	1725	1640	320x5	78,0
59	9x5	1800	1850	1760	340x5	84,5

Tab. TPF

## GLASS LEVEL GAUGE TRANSPARENT TYPE PN64 and PN100 / Class 600

### DS LG - TPF SHV

Code: DS LG-TPF.... /100/RF-GR18/...-M...-CS/CS



#### Technical data

##### Service conditions

Max Pressure: PN64 e PN100; Class 600 (A105: 102 bar @ 38°C; AISI 316L: 99,3 bar @ 38°C)  
Max Temperature: 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 2.000 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: graphite/copper  
Option: graphite/AISI 316 or PTFE/AISI316

##### Shut-off valves

DS SHV: globe type  
Handling: by handwheel

##### Process connections:

Standard flanges: UNI PN64-100 DN15-20-25 ANSI #600/RF DN ¾" - 1"  
Standard threaded unions: BSP-M ¾" - 1" NPT-M ¾" - 1"  
Options: further connections types or direct connections to the process without shut-off valves (See page 1.53)

Vent: Standard: threaded ½" with plug Option: see page 1.54  
Drain: Standard: valve DS 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)

##### Accessories

See from page 1.55

##### Weights

Housing DS TPF: see below table  
Valves DS SHV: Kg. 13,5 approx. (With flanges UNI DN20 PN100)

##### Tightening torque of housing screws

Standard: 75 Nm

##### Spare parts

Housing DS TPF: see from page 1.69 (Drawing with components and parts list see page 1.65)  
Valves DS SHV: see from page 1.74 (Drawing with components and parts list see page 1.68)

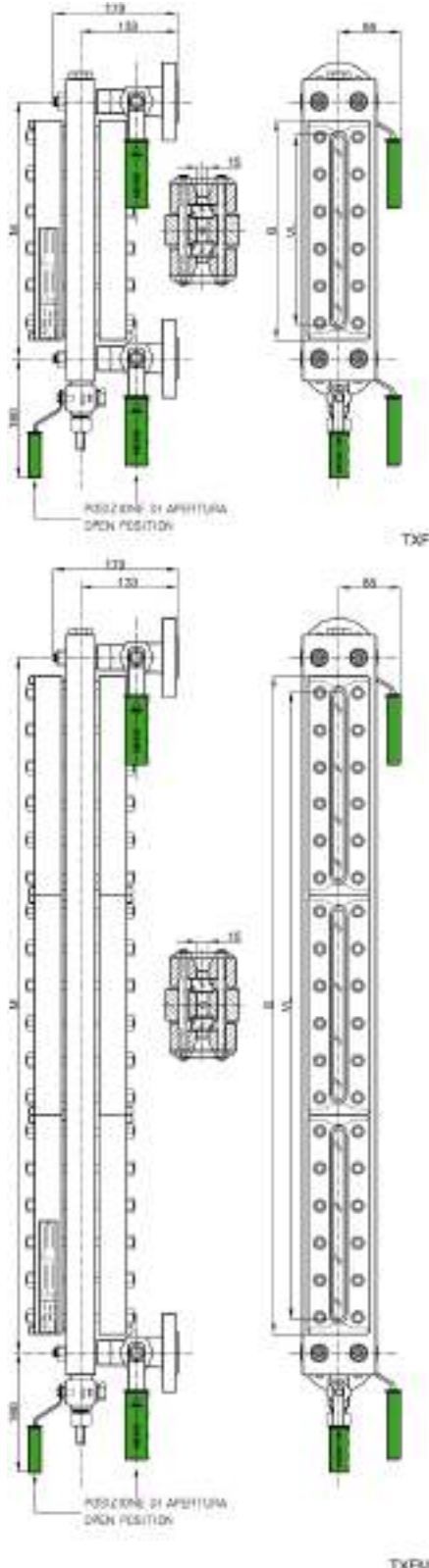
CODE	TYPE	BODY Length [mm]	DISTANCE MINIMUM SL [mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el.	B	M = B+80	VL	x No. elements	
11	1x1	130	210	95	115x1	7,9
12	2x1	155	235	120	140x1	9,0
13	3x1	180	260	145	165x1	10,5
14	4x1	205	285	170	190x1	11,5
15	5x1	235	315	200	220x1	12,8
16	6x1	265	345	230	250x1	13,5
17	7x1	295	375	260	280x1	15,4
18	8x1	335	415	300	320x1	16,8
19	9x1	360	440	320	340x1	18,1
24	4x2	410	490	375	190x2	21,5
25	5x2	470	550	435	220x2	24,1
26	6x2	530	610	495	250x2	25,5
27	7x2	590	670	555	280x2	29,3
28	8x2	670	750	635	320x2	32,1
29	9x2	720	800	680	340x2	34,7
36	6x3	795	875	760	250x3	37,5
37	7x3	885	965	850	280x3	43,2
38	8x3	1005	1085	970	320x3	47,4
39	9x3	1080	1160	1040	340x3	51,3
47	7x4	1180	1260	1145	280x4	57,1
48	8x4	1340	1420	1305	320x4	62,7
49	9x4	1440	1520	1400	340x4	67,9
57	7x5	1475	1555	1440	280x5	71,0
58	8x5	1675	1755	1640	320x5	78,0
59	9x5	1800	1880	1760	340x5	84,5

Tab. TPF

## GLASS LEVEL GAUGE TRANSPARENT TYPE PN100 and PN160 / Class 600 and 900

### DS LG - TXF GR18

Code: DS LG-TXF..... /160/RF-GR18/.....-M...-CS/CS



#### Technical data

##### Service conditions

Max Pressure: PN100; Class 600 (A105: 102 bar @ 38°C; AISI 316L: 99,3 bar @ 38°C) and PN160; Class 900 (A105: 153,1 bar @ 38°C; AISI 316L: 148,9 bar @ 38°C)  
Max Temperature: 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

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

Standard: see below table for minimum distance (Fixed distance, not adjustable)  
Option: On request intermediate distances and over 2.000 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: graphite/copper Option: graphite/AISI 316 or PTFE/AISI316

##### Shut-off cocks

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 PN100-160 DN20 - DN25 ANSI #600-900/RF DN ¾" - 1"  
Standard threaded unions: BSP-M ¾" - 1" NPT-M ¾" - 1"  
Options: further connections types or direct connections to the process without shut-off cocks (See page 1.51)

Vent: Standard: threaded ½" with plug  
Drain: Standard: cock DS D12 threaded ½"

Option: see page 1.52  
Option: see page 1.52

##### Glasses

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

##### Accessories

See from page 1.55

##### Weights

Housing DS TXF: see below table  
Cocks DS GR18: Kg. 9,2 approx. (With flanges UNI DN20 PN100)

##### Tightening torque of housing screws

Standard: 75 Nm

##### Spare parts

Housing DS TXF: see from page 1.69 (Drawing with components and parts list see page 1.65)  
Cocks DS GR18: see from page 1.72 (Drawing with components and parts list see page 1.66)

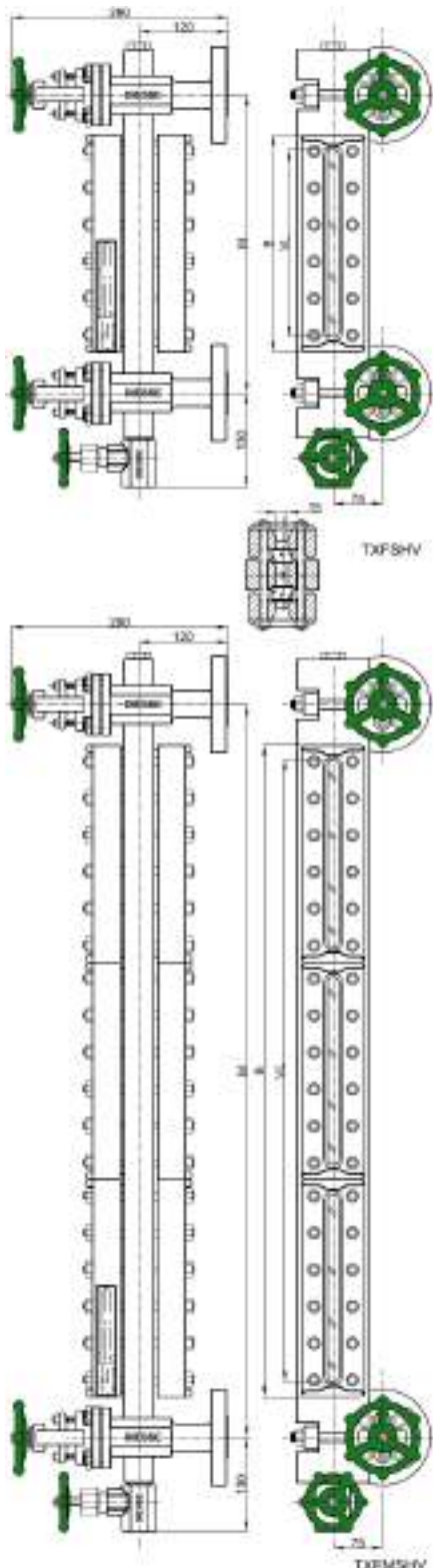
CODE	TYPE	BODY Length [mm]	DISTANCE MINIMUM SL [mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el.	B	M = B+50	VL	x No. elements	
11	1x1	130	180	95	115x1	11,6
12	2x1	155	205	120	140x1	13,2
13	3x1	180	230	145	165x1	15,1
14	4x1	205	255	170	190x1	16,5
15	5x1	235	285	200	220x1	18,3
16	6x1	265	315	230	250x1	19,5
17	7x1	295	345	260	280x1	22,0
18	8x1	335	385	300	320x1	24,1
19	9x1	360	410	320	340x1	25,8
24	4x2	410	460	375	190x2	30,0
25	5x2	470	520	435	220x2	33,6
26	6x2	530	580	495	250x2	36,0
27	7x2	590	640	555	280x2	41,0
28	8x2	670	720	635	320x2	45,2
29	9x2	720	770	680	340x2	48,6
36	6x3	795	845	760	250x3	52,5
37	7x3	885	935	850	280x3	60,0
38	8x3	1005	1055	970	320x3	66,3
39	9x3	1080	1130	1040	340x3	71,4
47	7x4	1180	1230	1145	280x4	79,0
48	8x4	1340	1390	1305	320x4	87,4
49	9x4	1440	1490	1400	340x4	94,2
57	7x5	1475	1525	1440	280x5	98,0
58	8x5	1675	1725	1640	320x5	108,5
59	9x5	1800	1850	1760	340x5	117,0

Tab. TXF

## GLASS LEVEL GAUGE TRANSPARENT TYPE PN100 and PN160 / Class 600 and 900

### DS LG - TXF SHV

Code: DS LG-TXF..... /160/RF-SHV/.....-M...-CS/CS



#### Technical data

##### Service conditions

Max Pressure: PN100; Class 600 (A105: 102 bar @ 38°C; AISI 316L: 99,3 bar @ 38°C) and PN160; Class 900 (A105: 153,1 bar @ 38°C; AISI 316L: 148,9 bar @ 38°C)  
Max Temperature: 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

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

Standard: see below table for minimum distance (Fixed distance, not adjustable)  
Option: On request intermediate distances and over 2.000 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: graphite/copper Option: graphite/AISI 316 or PTFE/AISI316

##### Shut-off valves

DS SHV: globe type  
Handling: by handwheel

##### Process connections:

Standard flanges: UNI PN100-160 DN20-25 ANSI #600-900/RF DN ¾" - 1"  
Standard threaded unions: BSP-M ¾" - 1" NPT-M ¾" - 1"  
Options: further connections types or direct connections to the process without shut-off valves (See page 1.53)

Vent: Standard: threaded ½" with plug Option: see page 1.54  
Drain: Standard: cock DS 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)

##### Accessories

See from page 1.55

##### Weights

Housing DS TXF: see below table  
Valves DS SHV: Kg. 13,5 approx. (With flanges UNI DN20 PN100)

##### Tightening torque of housing screws

Standard: 75 Nm

##### Spare parts

Housing DS TXF: see from page 1.69 (Drawing with components and parts list see page 1.65)  
Valves DS SHV: see from page 1.74 (Drawing with components and parts list see page 1.68)

CODE	TYPE	BODY Length [mm]	DISTANCE MINIMUM SL [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	11,6
12	2x1	155	235	120	140x1	13,2
13	3x1	180	260	145	165x1	15,1
14	4x1	205	285	170	190x1	16,5
15	5x1	235	315	200	220x1	18,3
16	6x1	265	345	230	250x1	19,5
17	7x1	295	375	260	280x1	22,0
18	8x1	335	415	300	320x1	24,1
19	9x1	360	440	320	340x1	25,8
24	4x2	410	490	375	190x2	30,0
25	5x2	470	550	435	220x2	33,6
26	6x2	530	610	495	250x2	36,0
27	7x2	590	670	555	280x2	41,0
28	8x2	670	750	635	320x2	45,2
29	9x2	720	800	680	340x2	48,6
36	6x3	795	875	760	250x3	52,5
37	7x3	885	965	850	280x3	60,0
38	8x3	1005	1085	970	320x3	66,3
39	9x3	1080	1160	1040	340x3	71,4
47	7x4	1180	1260	1145	280x4	79,0
48	8x4	1340	1420	1305	320x4	87,4
49	9x4	1440	1520	1400	340x4	94,2
57	7x5	1475	1555	1440	280x5	98,0
58	8x5	1675	1755	1640	320x5	108,5
59	9x5	1800	1880	1760	340x5	117,0

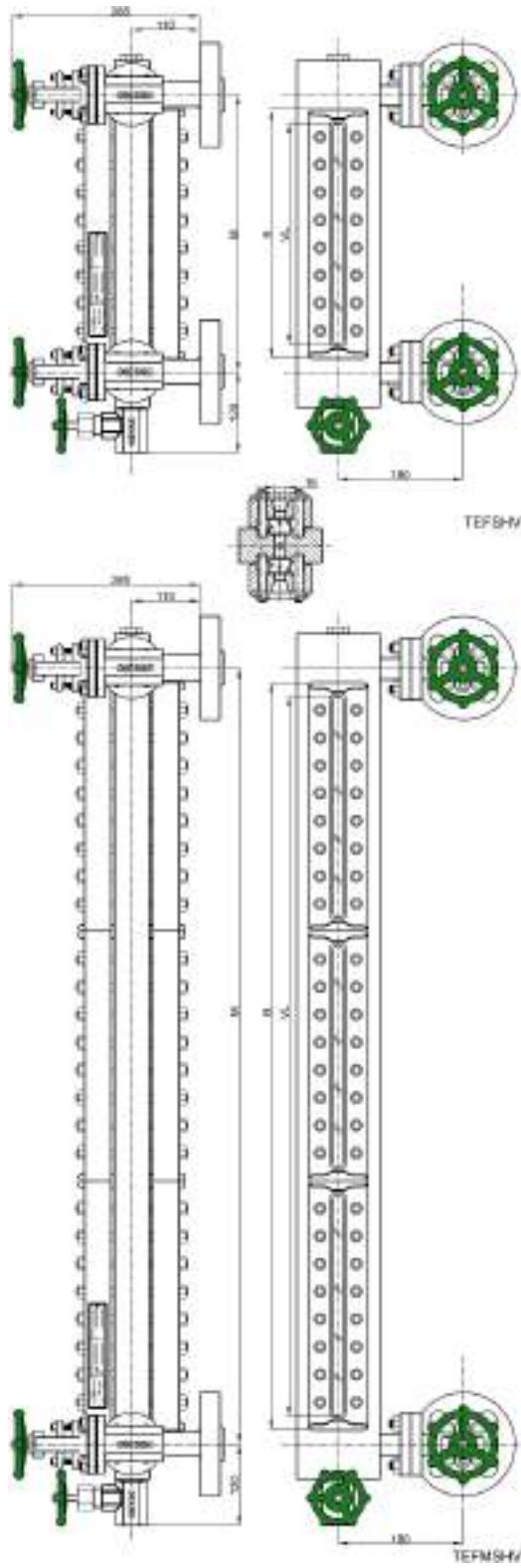
Tab. TXF



## GLASS LEVEL GAUGE TRANSPARENT TYPE PN250 / Class 1500

### DS LG - TEF SHV

Code: DS LG-TEF.... /1500/...-SHV/...-M....-CS/CS



#### Technical data

##### Service conditions

Max Pressure: PN250; Class 1500 (A105: 255,5 bar @ 38°C; AISI 316L: 239,2 bar @ 38°C)  
Max Temperature: 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

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

Standard: see below table for minimum distance (Fixed distance, not adjustable)  
Option: On request intermediate distances and over 2.000 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: graphite/AISI 316

Option: PTFE/AISI316

##### Shut-off valves

DS SHV: globe type  
Handling: by handwheel

##### Process connections:

Standard flanges: UNI PN250 DN On request ANSI #1500 DN On request  
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: cock DS 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 B, thickness 21 mm (See page 1.69)

##### Accessories

See from page 1.55

##### Weights

Housing DS TEF: see below table  
Valves DS SHV: Kg. 16,5 approx. (With flanges 1" ANSI 1500#RF)

##### Tightening torque of housing screws

Standard: 90 Nm

##### Spare parts

Housing DS TEF: see from page 1.69 (Drawing with components and parts list see page 1.65)  
Valves DS SHV: see from page 1.74 (Drawing with components and parts list see page 1.68)

CODE	TYPE	BODY Length [mm]	DISTANCE MINIMUM SL [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	13,7
12	2x1	155	235	120	140x1	15,7
13	3x1	180	260	145	165x1	18,0
14	4x1	205	285	170	190x1	19,8
15	5x1	235	315	200	220x1	22,1
16	6x1	265	345	230	250x1	23,8
17	7x1	295	375	260	280x1	26,7
18	8x1	335	415	300	320x1	29,5
19	9x1	360	440	320	340x1	31,6
24	4x2	410	490	375	190x2	36,6
25	5x2	470	550	435	220x2	41,1
26	6x2	530	610	495	250x2	44,5
27	7x2	590	670	555	280x2	50,5
28	8x2	670	750	635	320x2	55,9
29	9x2	720	800	680	340x2	60,1
36	6x3	795	875	760	250x3	65,2
37	7x3	885	965	850	280x3	74,2
38	8x3	1005	1085	970	320x3	82,4
39	9x3	1080	1160	1040	340x3	88,7
47	7x4	1180	1260	1145	280x4	97,9
48	8x4	1340	1420	1305	320x4	108,9
49	9x4	1440	1520	1400	340x4	117,3
57	7x5	1475	1555	1440	280x5	121,6
58	8x5	1675	1755	1640	320x5	135,5
59	9x5	1800	1880	1760	340x5	145,8

Tab. TEF

## weld-on level gauges

This type of level gauge is designed to be welded on to the tank and withstand the pressure inside it.

It is made from both carbon steel and stainless steel and can take reflex and transparent glasses.

Reflex glasses are recommended as they improve visibility.

In order to prevent warping or distortions while the level gauge is in service, the technician tasked with installing the product must reinforce the wall of the tank where the gauge is to be welded on.

For visible lengths exceeding 320 mm, we recommend welding additional gauges on different axes to avoid weakening the tank structure.

During welding operations (which must only be carried out prior to gauge assembly), special care must be taken to avoid exposing the weld-on base to high temperatures for long periods of time as this may compromise the resistance of the gauge when in operation.

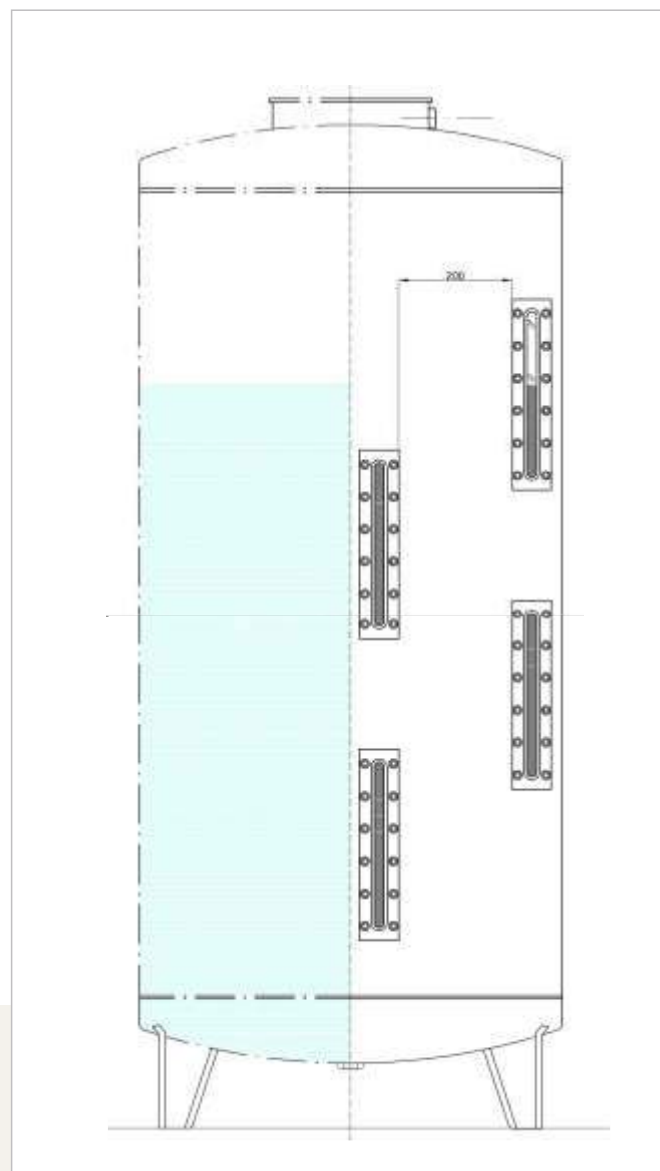
### Operating limits / Conditions:

Process:

Max. pressure: rating class 300 (A105: 51 bar; AISI 316L : 49,6 bar) @ 38°C

Max. temperature: 300°C (max. temperature allowed by borosilicate glasses as per the DIN 7081 standard - see page 1.69)

On request: rating class 600 (A105: 102 bar; AISI 316L : 99,3 bar) @ 38°C



## Materials / Specifications

### Weld-on base:

- standard: flat with a hole running along the whole visible length
- additional options: with radius (state the tank radius); with 2 holes (Ø: 15 mm) at the far ends of the visible length

### Wetted parts:

- standard: galvanized ASTM A105 or A105 LF2 carbon steel, ASTM A182 F316L stainless steel
- additional options: on request

### Non-wetted parts:

- standard: galvanized carbon steel, AISI 316L stainless steel
- additional options: on request

### Gaskets: (see page 1.71)

- standard: graphite
- additional options: PTFE; other extras on request

### Glasses: (see page 1.69)

- reflex or transparent borosilicate glasses, thermally pre-stressed and extra hard as per the DIN 7081 standard

### **Spare parts:**

**Our spare parts are interchangeable with those of major international manufacturers.**

For the full range of complete sets, turn to the spares section on page 1.69.

### **Accessories:**

Mica or PCTFE protective shield (for transparent glass only), calibrated scale, non-frosting extension, minimum level arrow (see page 1.55 for details)

### **Certifications (on request):**

- NACE MR0175
- Others on request



**This kind of level gauge can only be tested once it has been welded on to the tank in question.**

**All DIESSE components are individually checked and tested in accordance with company quality procedures and the industry regulations currently in effect.**

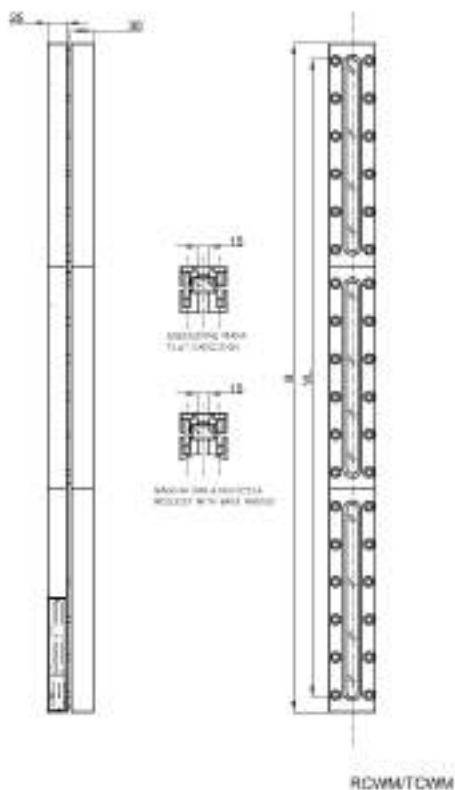
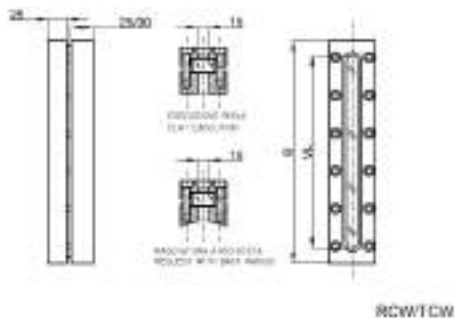
**Certificates can be issued on request.**

**WELD-ON GLASS LEVEL GAUGE  
REFLEX and TRANSPARENT  
PN40 / Class 300**

**DS LG - RCW / TCW**

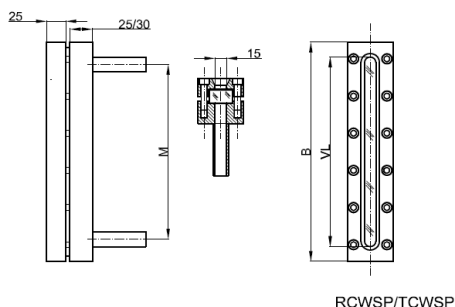
Code: DS LG-RCW...-CS/CS  
Code: DS LG-TCW...-CS/CS

REFLEX  
TRANSPARENT



Code: DS LG-RCWSP...-CS/CS  
Code: DS LG-TCWSP...-CS/CS

REFLEX  
TRANSPARENT



**Technical data**

**Service conditions**

Max Pressure: PN40; Class 300 (A105: 51 bar @ 38°C; AISI 316L: 49,6 bar @ 38°C)  
Option: PN100; Class 600 (A105: 102 bar @ 38°C; AISI 316L: 99,3 bar @ 38°C)  
Max Temperature: 300°C (According to DIN 7081 for glasses, see page 1.69)

**Total length**

Standard: see below table  
Option: On request intermediate lengths and over 1.080 mm

**Process connections**

Standard: Drilling on the whole visible length  
Option: Two holes Ø 15 mm at the opposite ends of the visible length or two pipes welded at the centre-to-centre distance requested (See below drawing)

**Execution of housing to be weld**

Standard: flat  
Option: On request with back radius

**Materials (Standard)**

Execution:	CS/CS	SS/CS	SS/SS
Housing body:	ASTM A105	AISI 316L	AISI 316L
Cover:	ASTM A105	ASTM A105	AISI 316L
Bolts and nuts:	Carbon steel galvanized	Carbon steel galvanized	AISI 316

**Gaskets**

Standard: graphite Option: PTFE

**Glasses**

Reflex and 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**

See below table

**Tightening torque of screws**

Standard: 25-30 Nm

**Spare parts**

See from page 1.69

**Recommendation**

For requested visible lengths over 320 mm, to avoid the tank structure weakness, it is recommended to weld on the tank more level gauges positioned on different axes

CODE	TYPE	BODY Length [mm]	VISIBLE Length [mm]	GLASS Length [mm]	WEIGHT Housing [Kg]
	x No. el.	B	VL	x No. elements	
11	1x1	130	95	115	2,5
12	2x1	155	120	140	3,0
13	3x1	180	145	165	3,4
14	4x1	205	170	190	3,9
15	5x1	235	200	220	4,7
16	6x1	265	230	250	5,1
17	7x1	295	260	280	5,6
18	8x1	335	300	320	6,0
19	9x1	360	320	340	6,9
24	4x2	410	375	190x2	7,8
25	5x2	470	435	220x2	9,4
26	6x2	530	495	250x2	10,2
27	7x2	590	555	280x2	11,2
28	8x2	670	635	320x2	12,0
29	9x2	720	680	340x2	13,8
36	6x3	795	760	250x3	15,3
37	7x3	885	850	280x3	16,8
38	8x3	1005	970	320x3	18,0
39	9x3	1080	1040	340x3	20,7

Tab. RCW/TCW



## level gauges WITH GLASS TUBE

Level gauges with a glass tube are an inexpensive but valid option for checking the level of non-hazardous or non-reactive fluids in unpressurised tanks.

An external metal protection of the glass tube is recommended.

### Available configurations:

Borosilicate glass tube. Diameter: 16 mm; thickness: 2.5 mm.

Centre-to-centre distance with a single tube: 3000 mm.

Visible length (without protection):  
centre-to-centre distance - 95 mm.

Visible length (with protection):  
centre-to-centre distance - 135 mm.

Spare glass tube: centre-to-centre distance - 30 mm.

Spare protection: centre-to-centre distance - 100 mm.

In the event of greater centre-to-centre distances, additional pipes can be connected up via middle terminals for glass tube

### Operating limits / Conditions:

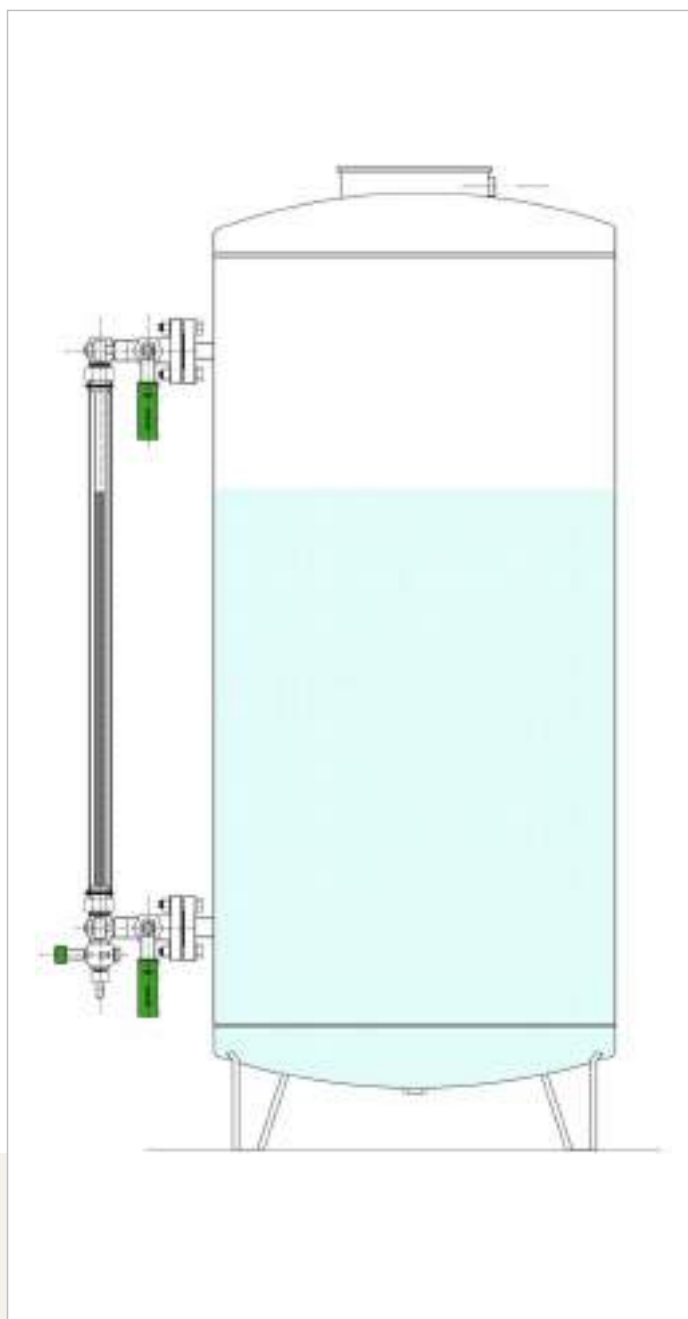
#### Process:

Max. pressure: 5 bar @ 38°C (the max. pressure also depends on the length and temperature)

Max. temperature: 120°C

### 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)



## Materials / Specifications

Transparent tube: grade 3.3 borosilicate glass

Glass protection (optional): AISI 304 stainless steel

Wetted parts:

- standard: galvanized ASTM A105 or A105 LF2 carbon steel, ASTM A182 F316L stainless steel
- additional options: on request

Non-wetted parts:

- standard: galvanized carbon steel, AISI 316/316L stainless steel
- additional options: on request

Gaskets: (see page 1.72)

Cocks:

- standard: graphite/copper (ASTM A105), graphite/AISI 316 (A105 LF2 and ASTM A182 F316L)
- additional options: PTFE; other extras on request

Sealing gasket:

- standard: EPDM
- additional options: graphite or PTFE; other extras on request

Shut-off: (see page 1.49)

- standard: upper valve and lower valve (side/side)
- additional options: on request

Drain: (see page 1.50)

- standard: threaded valve
- additional options: on request

Vent: (see page 1.50)

- standard: blind
- additional options: threaded with plug; other extras on request

### Tank connections:

Flanged:

- UNI standard: PN40 DN15 / DN20 / DN25
- ANSI standard: #150 DN ½" / ¾" / 1"
- additional options: on request

Threaded:

- BSP (GAS) standard: ½"-M / ¾"-M
- NPT standard: ½"-M / ¾"-M

Weld-on: from ½" to 1" BW or SW

Option: further connections type or direct connections to the process without shut-off cocks (see page 1.49 for more details)

### Shut-off cocks, drain cock and vent cock:

- Cylindrical plug cocks

### Spares:

***Our spare parts are interchangeable with those of major international manufacturers.***

For the full range of complete sets, turn to the spares section on page 1.69.

### Accessories:

Stainless steel "U" protection, lower and/or upper safety ball, pusher for safety ball, calibrated, non-frosting extension, minimum level arrow, continuous reading, cocks handles lock (see page 1.55 for details)

### Certifications (on request):

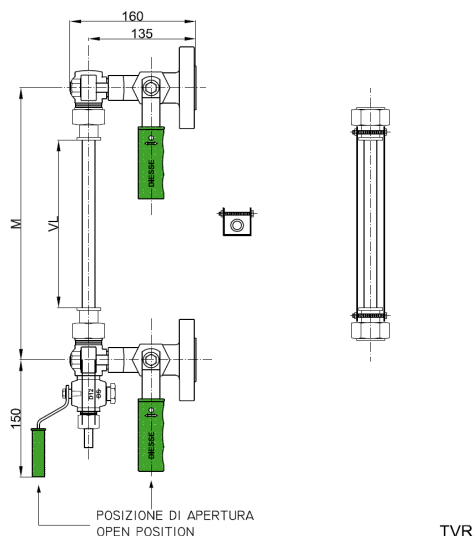
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**For this kind of gauge the pressure test can be performed only on the cocks (on request), glass tubes cannot be tested due to their fragility. All DIESSE components are individually checked and tested in accordance with company quality procedures and the industry regulations currently in effect. Certificates can be issued on request.**

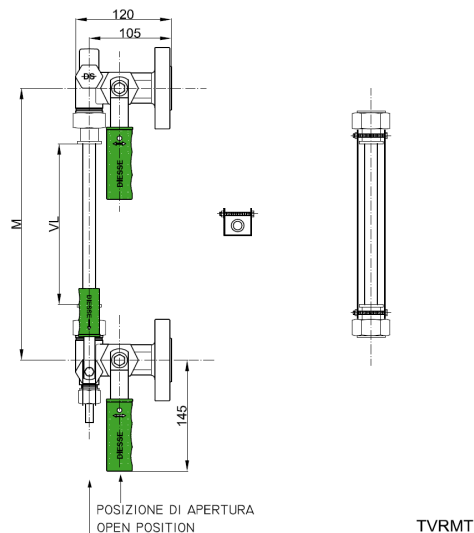
## LEVEL GAUGE WITH GLASS TUBE AND "U" SHAPED PROTECTION

### DS LG - TVR GR18 / MT18

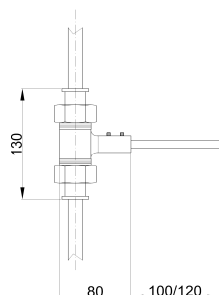
Code: DS LG-TVR...-... /16/RF-GR18/.../...-M...-CS/CS



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



MIDDLE TERMINAL  
CODE: MJT



#### Technical data

##### Service conditions

Max Pressure: 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 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 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

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

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

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 DS D12 threaded ½"

Option: see page 1.50

##### Accessories

See from page 1.55

##### Weights

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

Cocks 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 DS GR18: see from page 1.72

(Drawing with components and parts list see page 1.66)

Cocks 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)



## housings and valves

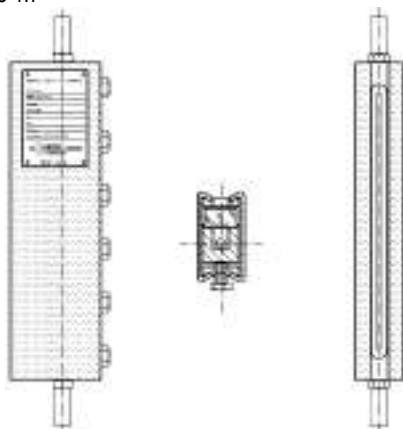




## HOUSING WITH GRINDED PIPES

### HOUSING DS RBR

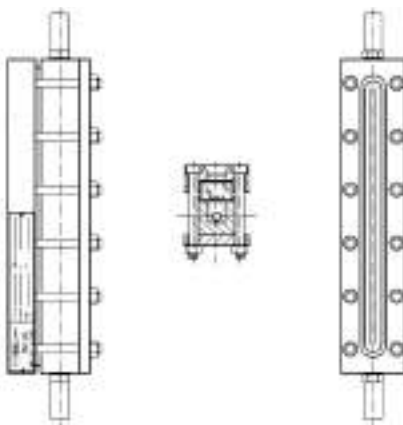
See technical data at page 1.7



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

### HOUSING DS RCR

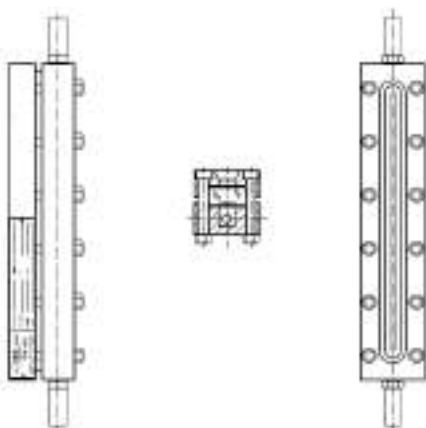
See technical data at page 1.9



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

### HOUSING DS RDR

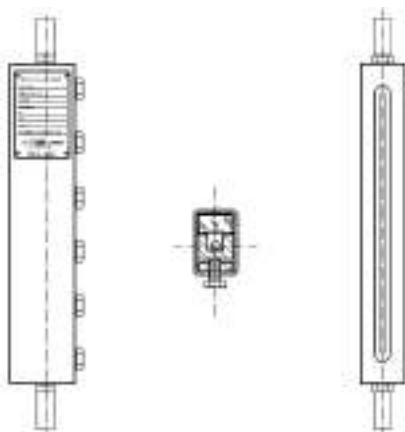
See technical data at page 1.10



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

**HOUSING DS RTR**

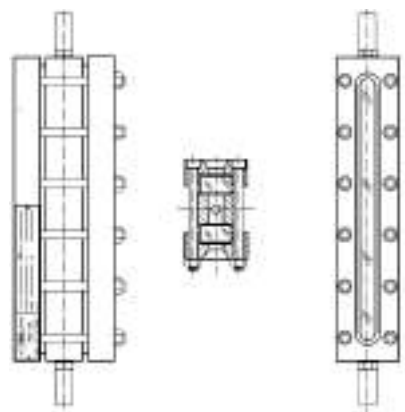
See technical data at page 1.17



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

**HOUSING DS TCR**

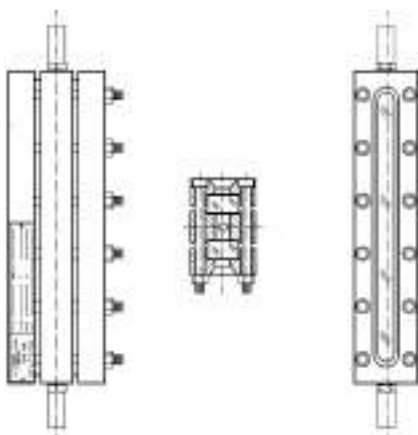
See technical data at page 1.25



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

**HOUSING DS TMR**

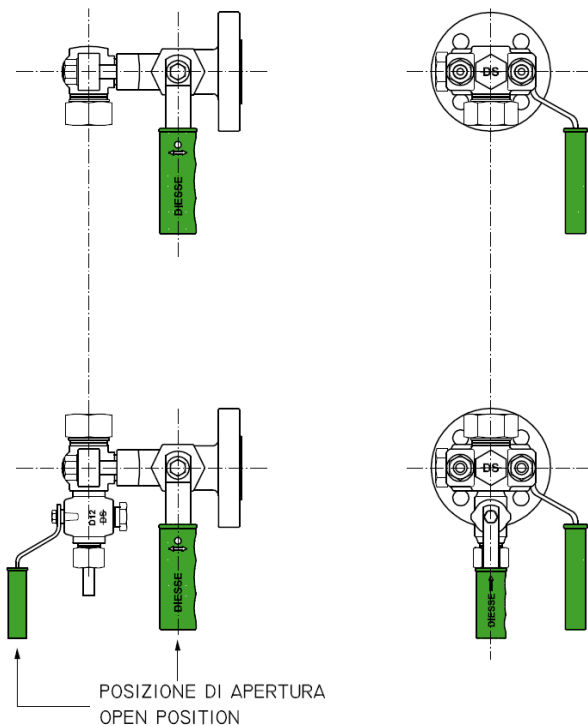
See technical data at page 1.27



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

**CYLINDRICAL PLUG COCKS**

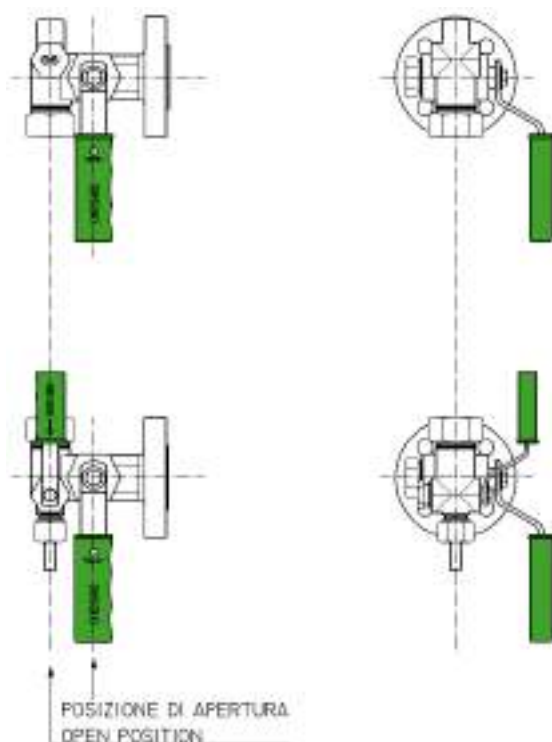
**SHUT-OFF COCKS DS GR18**



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

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

**SHUT-OFF COCKS DS MT18**

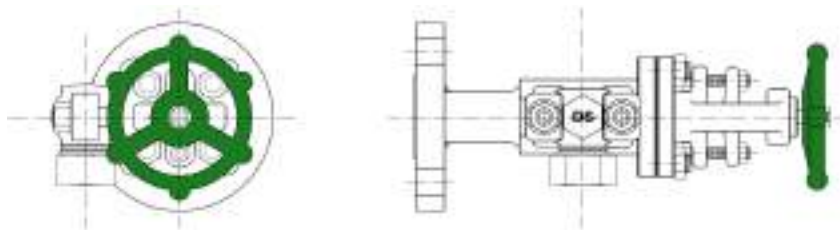


Code: DS MT18 ...  
(See details at page 1.67)

Execution on request:  
AHPD [In service vertical handles]

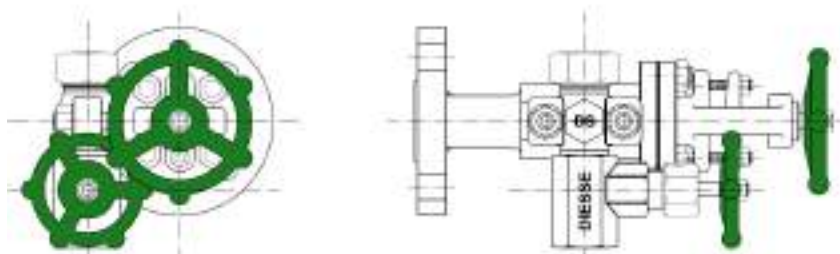
**GLOBE VALVES AND PUSH BUTTON VALVES**

**SHUT-OFF VALVES DS SHV**

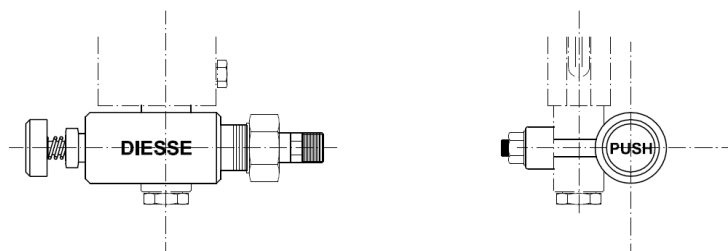


Code: DS SHV ...  
(See details at page 1.68)

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

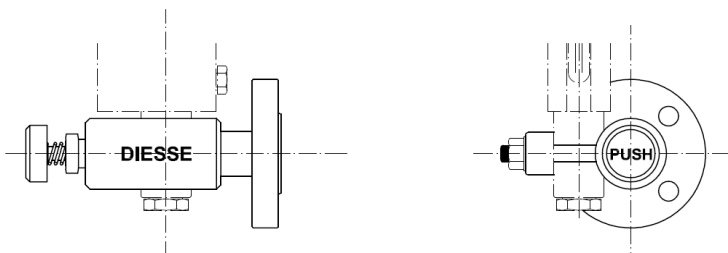


**PUSH BUTTON VALVES DS NPV (SELF-CLOSING VALVES)**



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

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





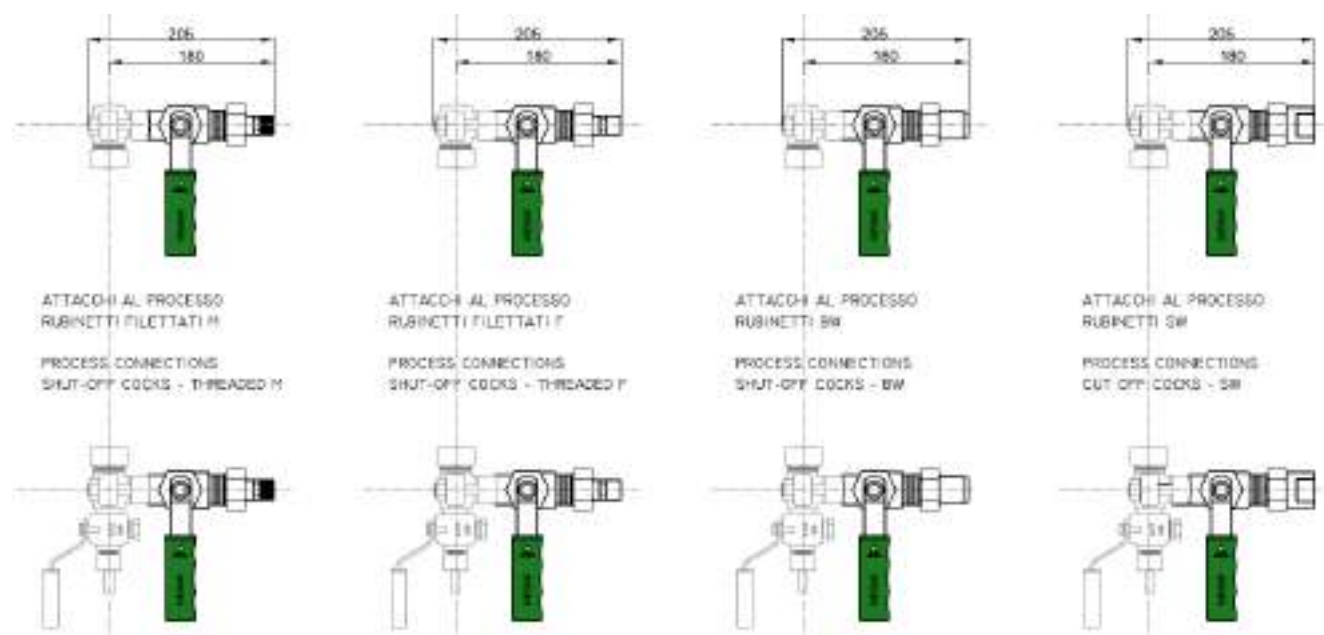


## process connections

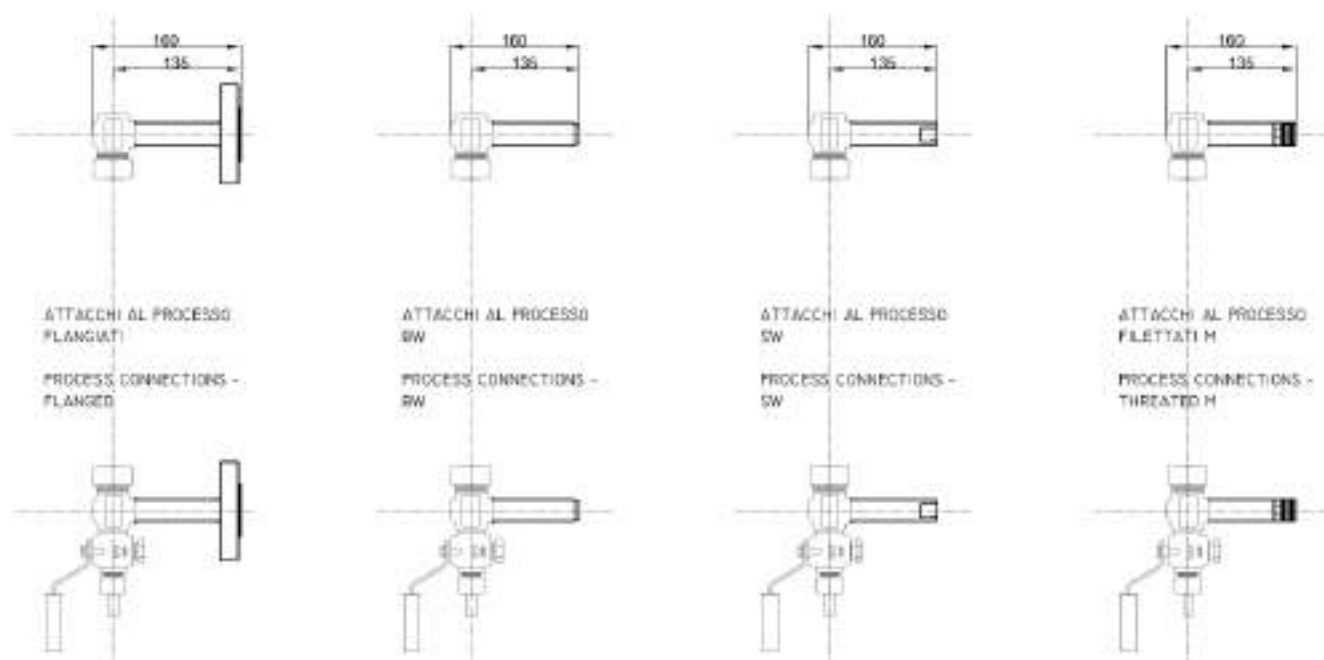


**PROCESS CONNECTIONS - GLASS LEVEL GAUGES WITH GRINDED PIPES AND CYLINDRICAL PLUG COCKS**

**SHUT-OFF COCKS DS GR18**

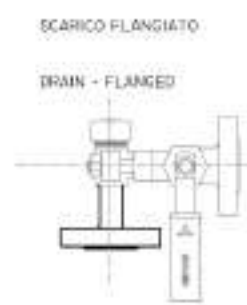
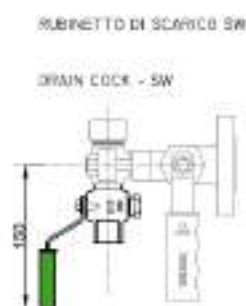
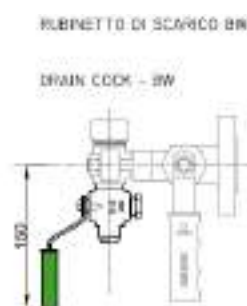
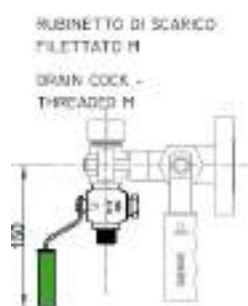


**WITHOUT SHUT-OFF COCKS**

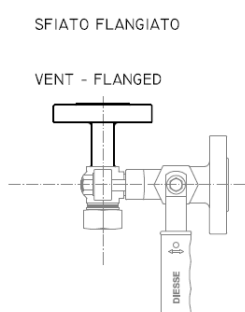
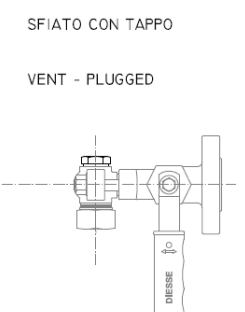
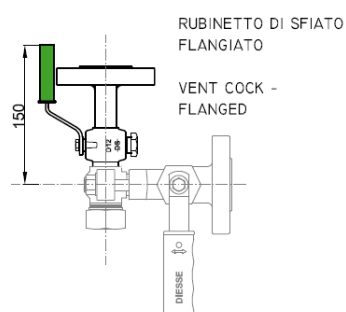
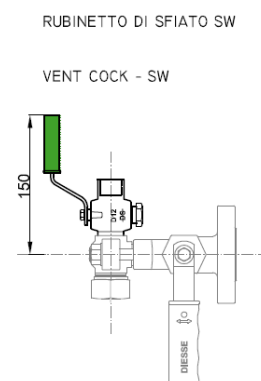
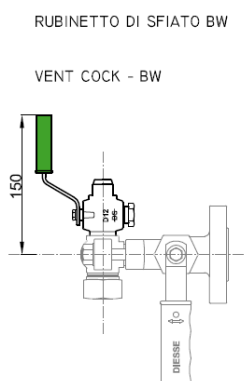
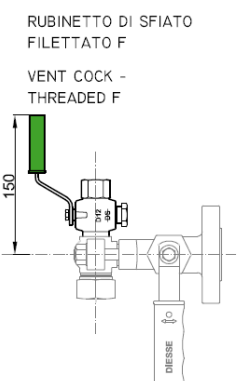
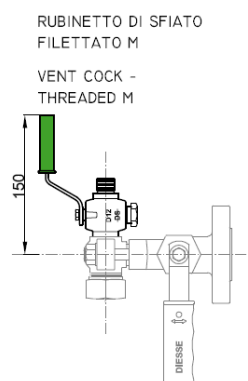


**DRAIN AND VENT - GLASS LEVEL GAUGES WITH GRINDED PIPES AND CYLINDRICAL PLUG COCKS**

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

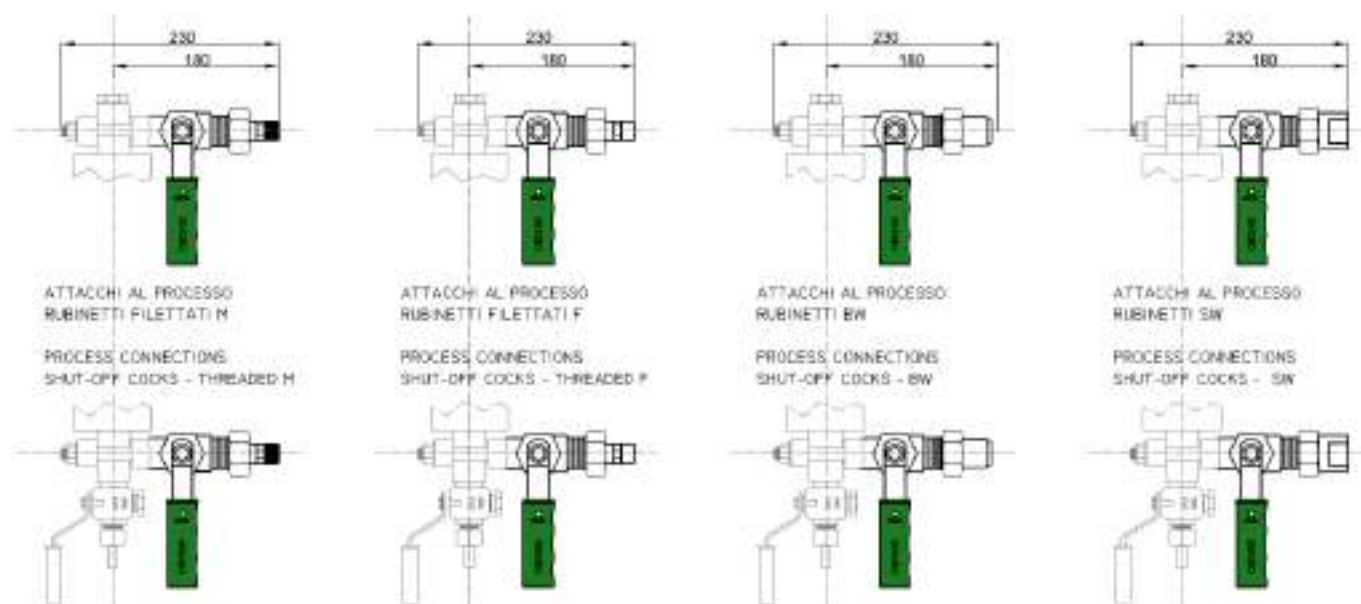


**VENT for shut-off cocks DS GR18**

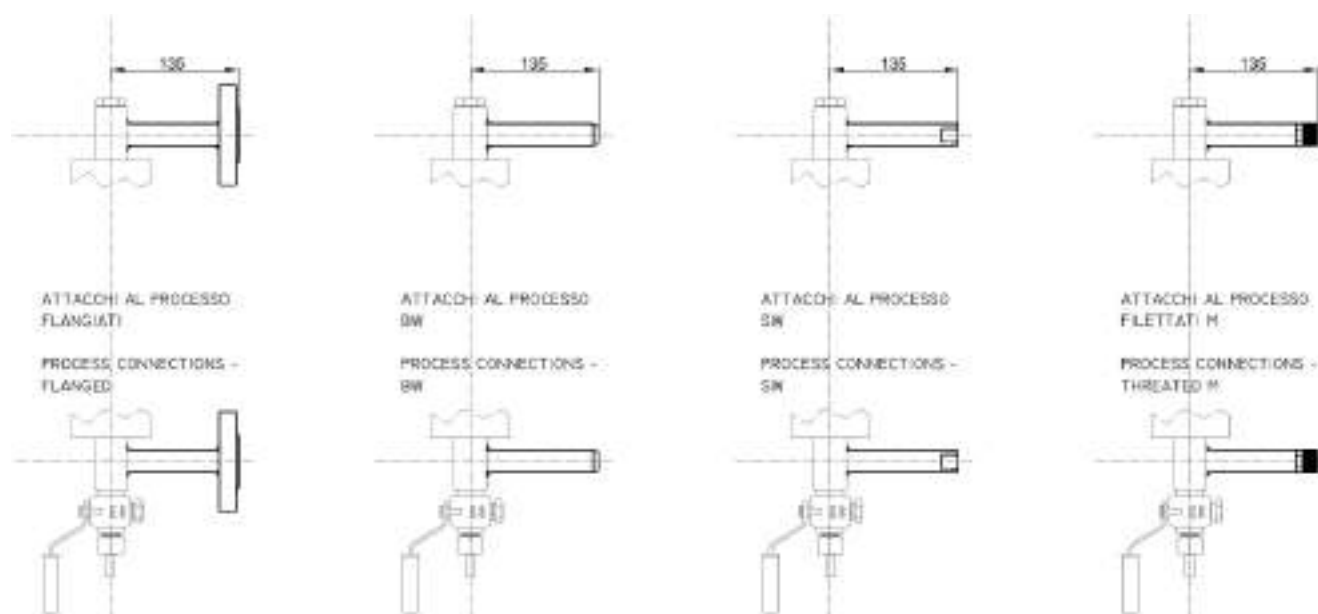


**PROCESS CONNECTIONS - GLASS LEVEL GAUGES WITH FIXED DISTANCE BETWEEN CENTERS AND CYLINDRICAL PLUG COCKS**

**SHUT-OFF COCKS DS GR18**



**WITHOUT SHUT-OFF COCKS**



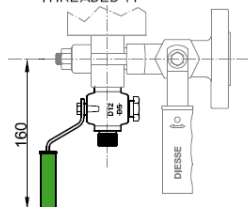


**DRAIN AND VENT - GLASS LEVEL GAUGES WITH FIXED DISTANCE BETWEEN CENTERS AND CYLINDRICAL PLUG COCKS**

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

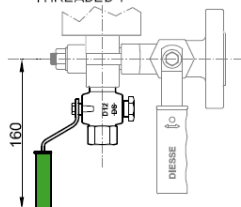
RUBINETTO DI SCARICO  
FILETTATO M

DRAIN COCK -  
THREADED M



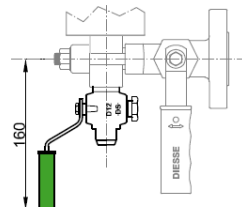
RUBINETTO DI SCARICO  
FILETTATO F

DRAIN COCK -  
THREADED F



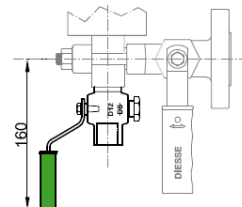
RUBINETTO DI SCARICO BW

DRAIN COCK - BW



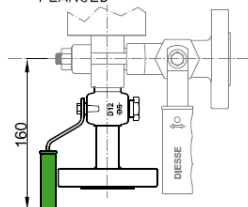
RUBINETTO DI SCARICO SW

DRAIN COCK - SW



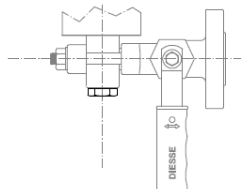
RUBINETTO DI SCARICO  
FLANGIATO

DRAIN COCK -  
FLANGED



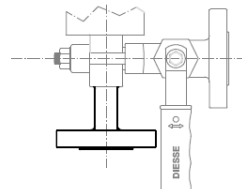
SCARICO CON TAPPO

DRAIN - PLUGGED



SCARICO FLANGIATO

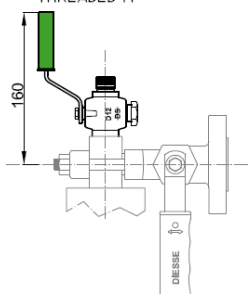
DRAIN - FLANGED



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

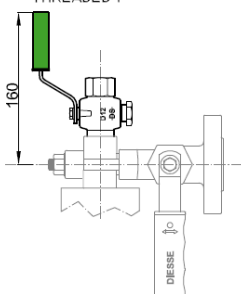
RUBINETTO DI SFIATO  
FILETTATO M

VENT COCK -  
THREADED M



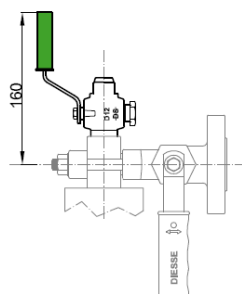
RUBINETTO DI SFIATO  
FILETTATO F

VENT COCK -  
THREADED F



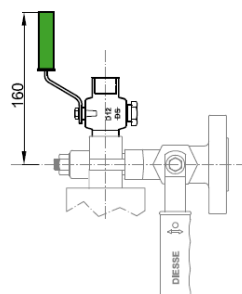
RUBINETTO DI SFIATO BW

VENT COCK - BW



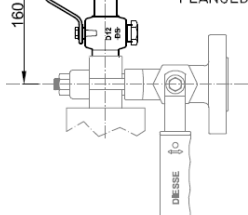
RUBINETTO DI SFIATO SW

VENT COCK - SW



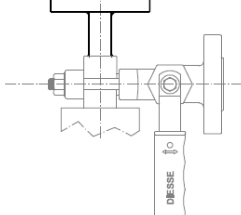
RUBINETTO DI SFIATO  
FLANGIATO

VENT COCK -  
FLANGED



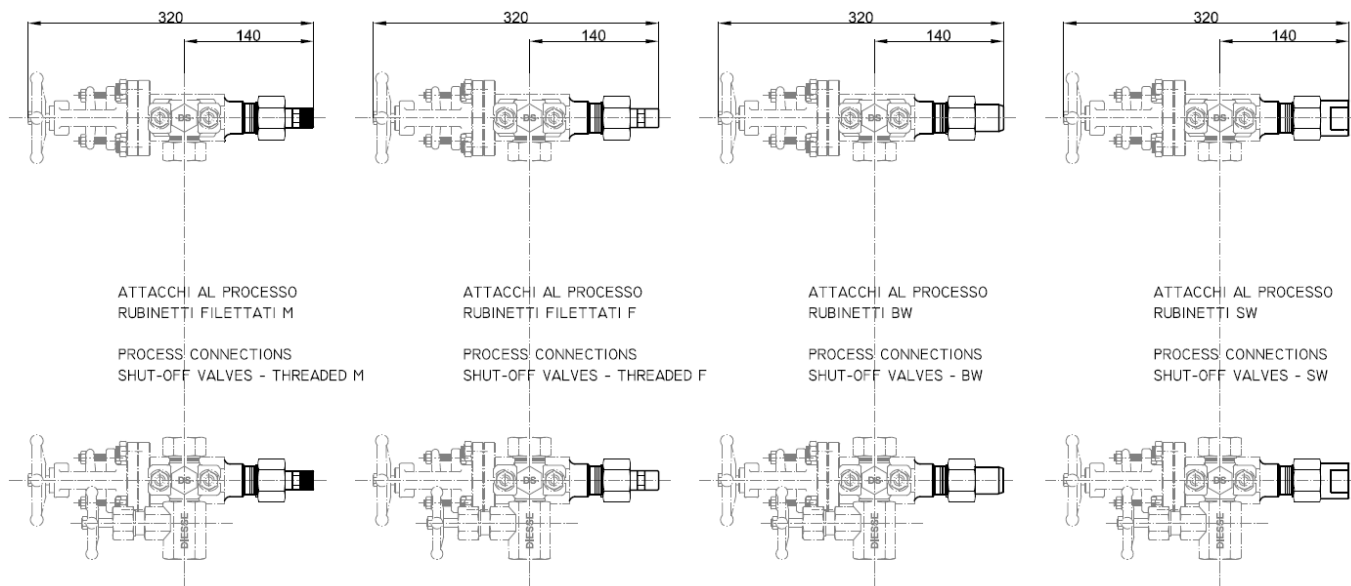
SFIATO FLANGIATO

VENT - FLANGED

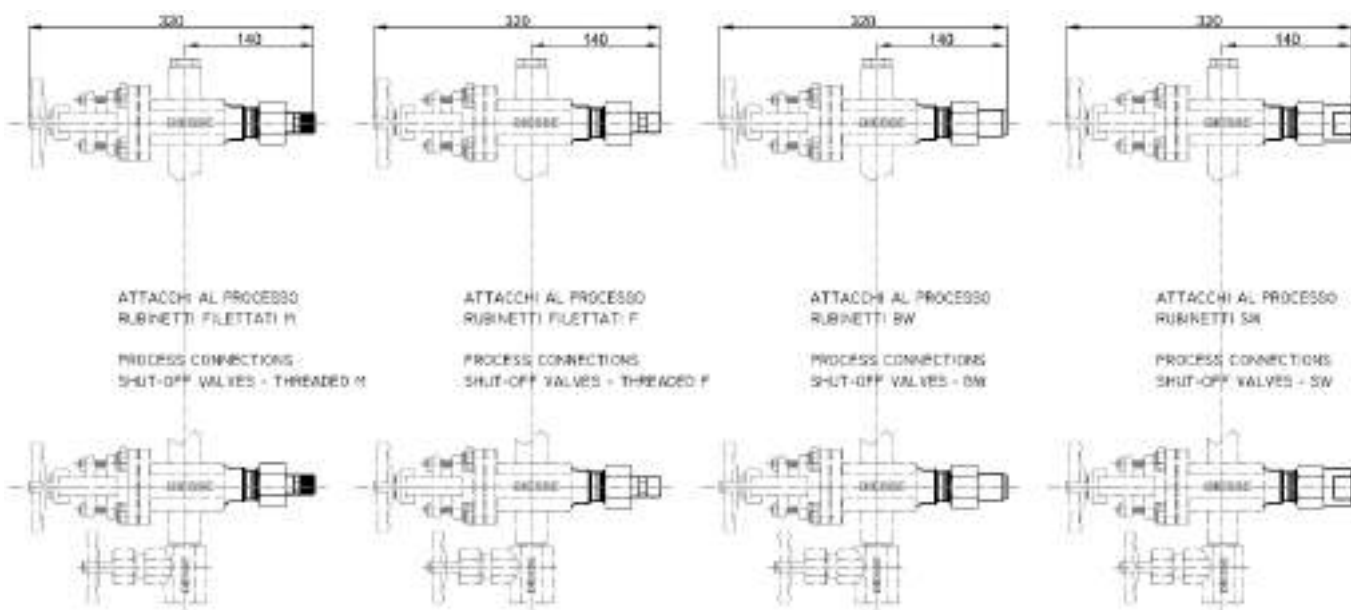


**PROCESS CONNECTIONS - GLOBE VALVES**

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

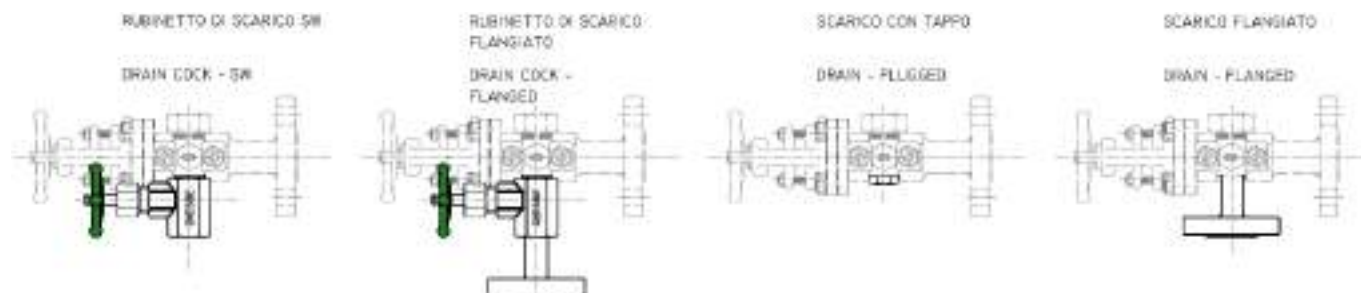


**SHUT-OFF VALVES DS SHV for housings with fixed distance between centers**

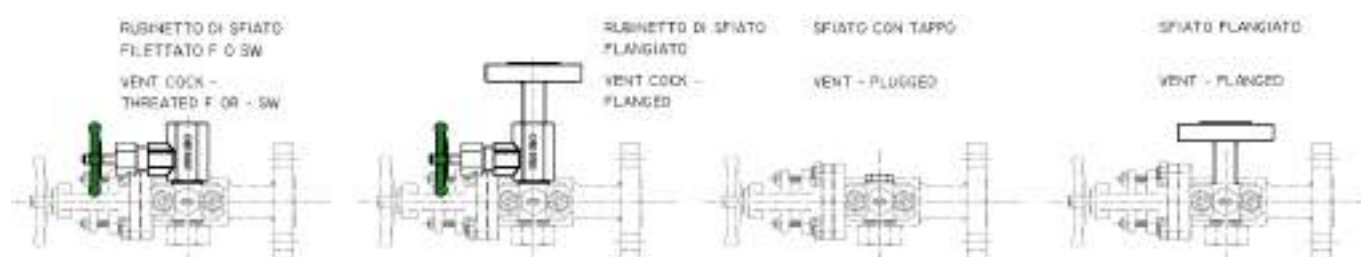


## DRAIN AND VENT - GLOBE VALVES

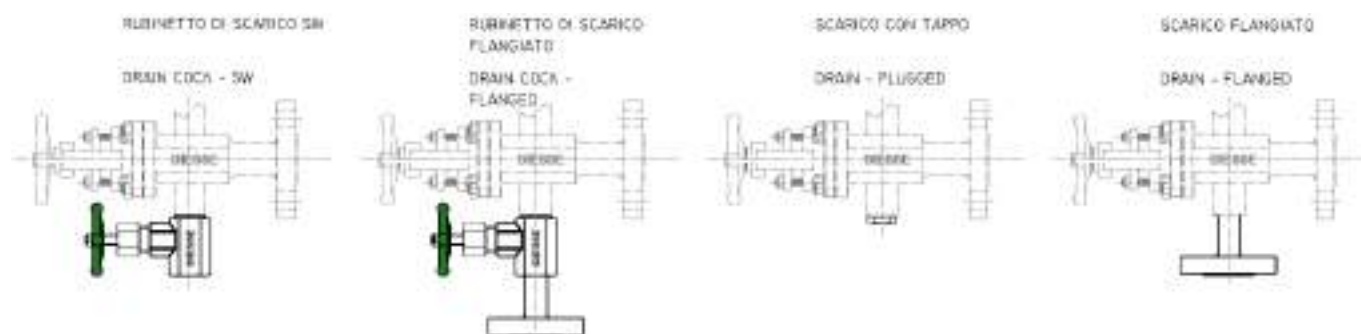
### DRAIN for shut-off valves DS SHV for housings with grinded pipes



### VENT for shut-off valves DS SHV for housings with grinded pipes



### DRAIN for shut-off valves DS SHV for housings with fixed distance between centers



### VENT for shut-off valves DS SHV for housings with fixed distance between centers





## accessories for glass level gauges



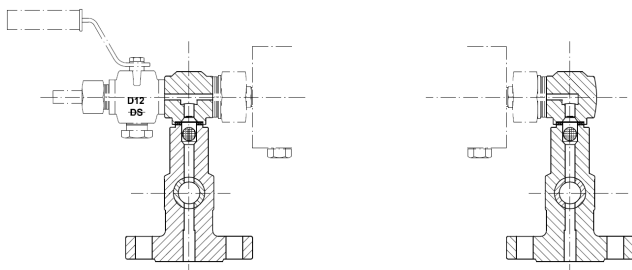


## ACCESSORIES FOR GLASS LEVEL GAUGES

### 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 DS GR 18



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

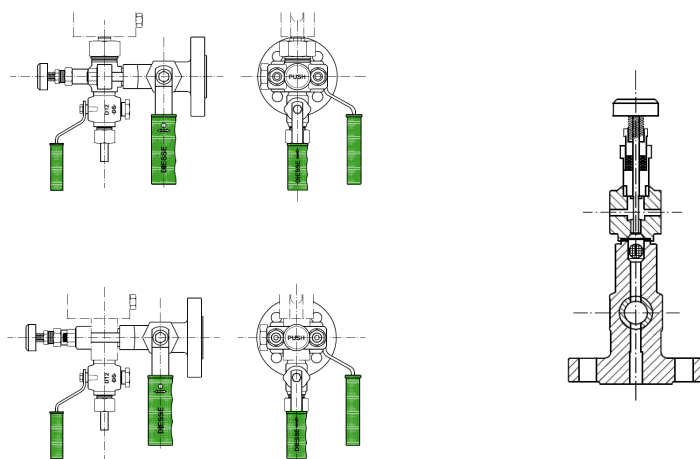
#### Shut-off valves DS SHV

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

### PUSHER for safety ball

#### Shut-off cocks 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.

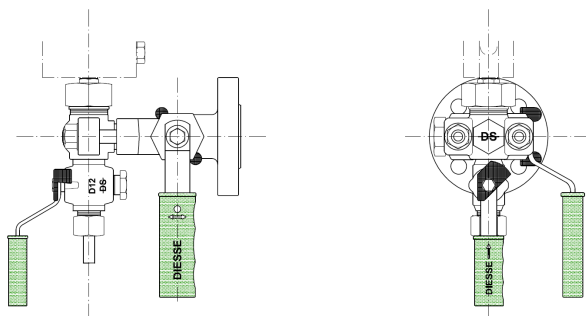


Code:  
LPH [Pusher for lower shut-off cock]  
UPH [Pusher for upper shut-off cock]

#### Shut-off valves DS SHV

The pusher is not necessary for shut-off valves 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)

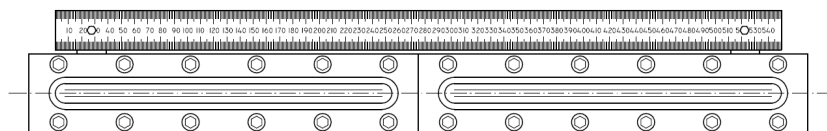


Code:  
SMHD [Cocks handles lock (all)]  
LU-SMHD [Shut-off handles lock]  
D-SMHD [Drain handle lock]  
V-SMHD [Vent handle lock]

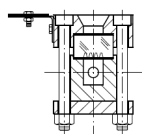
## ACCESSORIES FOR GLASS LEVEL GAUGES

### 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

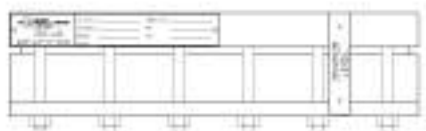


### MINIMUM LEVEL ARROW

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.

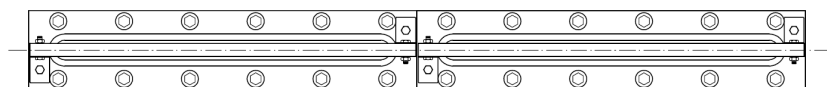


Code: MLA

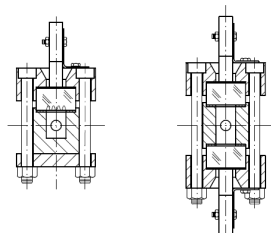


### NON-FROSTING EXTENSION

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  $< 0^{\circ}\text{C}$ .



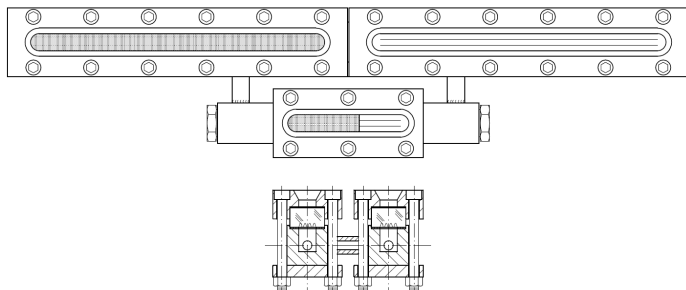
Code: NFE



## ACCESSORIES FOR GLASS LEVEL GAUGES

### CONTINUOUS READING

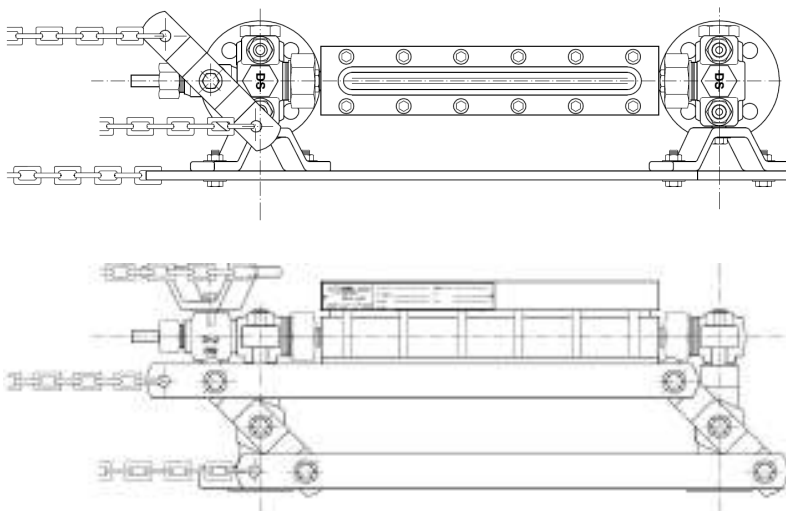
The execution of a multiple level gauge involves a discontinuity in reading due to short dark area as a result of the two elements joint. If a continuous reading of the fluid level is necessary, a special type can be supplied.



Code: CR

### REMOTE CONTROL

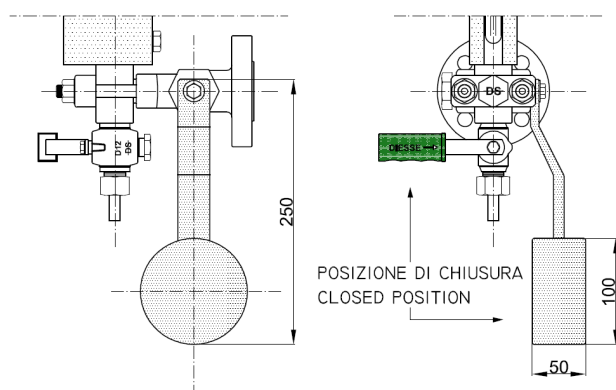
In case of level gauge installed in a high position which does not enable an easy shut-off cocks opening/closure, the handles can be equipped with a remote control device. Cable or chains are not supplied by the manufacturer.



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]  
UFC [Weight closing for upper handle]

## ACCESSORIES FOR GLASS LEVEL GAUGES

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

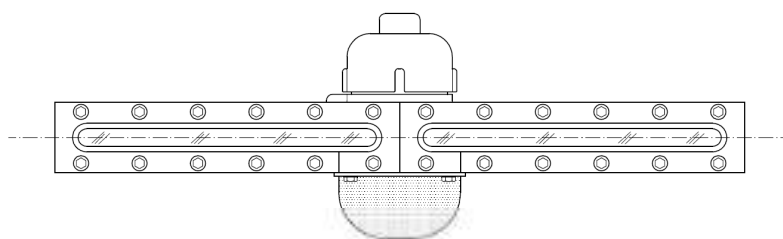
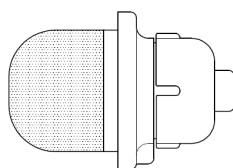
The visibility of the transparent level gauges can be improved by the installation of an illumination lamp positioned on the back side of the instrument. The lamp light is directed at the level gauge by a borosilicate or plexiglas diffuser.

#### Materials:

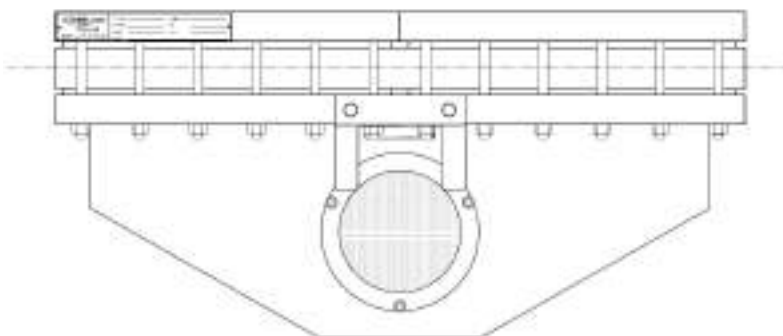
Body and cover:	aluminium with epoxy paint Option in stainless steel AISI 316
Transparent globe:	thermorestant and impact resistant glass
Support for glass level gauge:	carbon steel galvanized Option in stainless steel AISI 316
Lamp:	LED lamp 10 W E27 for supply voltage 230 VAC, 50/60 Hz Option with LED lamp E27 24V DC

#### 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





## ACCESSORIES FOR GLASS LEVEL GAUGES

### ILLUMINATION LAMP with LED driver (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. All external components are made of stainless steel which provides excellent corrosion resistance. The LED driver is completely encapsulated with epoxy resin, thus offering the highest IP protection and can be used in environments with high humidity. The illumination lamp can be supplied with illumination lengths from 250 mm to 2500 mm at 50 mm intervals.



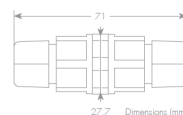
Code: LLSS

Voltage: 110-240 VAC  
Effect: Max 12W  
Available colors: white, yellow, red, green and blue  
Operating temperature: -30°C to +60°C  
Operation: > 50000 hours  
Material: stainless steel  
IP rating: IP 67

#### LED driver specifications

Output	DC Voltage Range	12 V
	Current accuracy	±0,5 V
	Rated current	1,25 A
	Rated power	15 W
Input	Voltage range	100-265 V
	Frequency range	47...63 Hz
	Power factor	PF ≥ 0,90 230V
	Full load efficiency	83
	Leakage current	< 0,25 mA / 220 VAC
Protection	Short circuit	Recovers automatically after fault condition is removed
	Over voltage	≤ 280 VAC
	Over temperature	100°C ± 10°C shut down o/p voltage, re-power on to recover
Environment	Working temperature	-30...+60°C
	Working humidity	20...95% RH, non condensing
	Temperature coefficient	± 0,03%/°C (0...50°C)
	Vibration	10...500 Hz, 5G 12 min
Safety	Safety standards	EN61347-2-13 IP67
	Withstand voltage	I/P-O/P: 3,75 KVAC
	Isolation resistance	I/P-O/P: 100 MOhm
	EMC emission	Compliance to EN55015, EN6100-3-2
	EMC immunity	Compliance to EN61000-4-2,3,4,5,6,8,11 EN61547

#### Inline connector specifications



Rated current: 20 A  
IP rating: IP 67  
Material: nylon  
Fire-retardant rating: UL94V-0/16 20 A  
Insulation resistance: > 2000 Ohm  
Max cable OD: 9,5 mm

#### Materials

Position	Description	Material
A	Male cable connector - IP68	Nylon, general purpose
B	Female cable connector - IP68	Nylon, general purpose
C	Cable gland M12 x 1,5	Nickel-plated brass
D	Connection sleeve	Stainless steel 316
E	M4 x 5 mm screw	Stainless steel 316
F	Saddle washer	LDPE
G	12 V LED driver	Aluminium, 1060
H	LED tube casing	Stainless steel 304
I	LED tube cap	Stainless steel 316
J	Inline cable connector - IP67	Nylon, general purpose



## ACCESSORIES FOR GLASS LEVEL GAUGES

### ILLUMINATION LAMP with LED driver (For transparent level gauges only) with Ex protection

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. All external components are made of stainless steel which provides excellent corrosion resistance. The LED driver is completely encapsulated with epoxy resin, thus offering the highest IP protection and can be used in environments with explosive atmosphere. The illumination lamp can be supplied with illumination lengths from 250 mm to 2500 mm at 50 mm intervals.



Code: LLSP Ex

Voltage: 110-240 VAC

Effect: Max 5W

Available colors: white, yellow, red, green and blue

Operating temperature: -30°C to +50°C

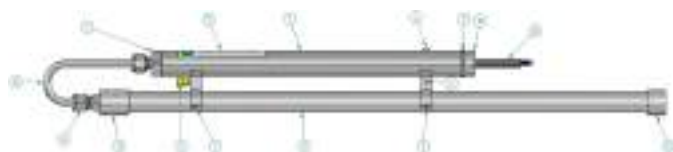
Operation: > 50000 hours

Material: stainless steel S.S. 316

Ex protection:

- With flying lead: Ex mb IIC T4 Gb / Ex mb IIIC T135°C Db
- With optional Ex e JB: Ex eb mb IIC T4 Gb / Ex mb tb IIIC T135°C Db

IP rating: IP 66/67



#### Materials

Position	Description	Material
1	LED driver tube	Stainless steel 316
3	M20 Compression fitting	Stainless steel 316
4	M3 x 6 mm screw	Stainless steel 316
5	Ring cable lug (4 to 6 mm <sup>2</sup> )	Tin-plated brass, with nylon insulation
7	M4 x 5 mm set screw	Stainless steel 316
8	M3 tooth washer	Stainless steel 304
9	LED driver adapter	Stainless steel 316
10	Radox 125 cable 3x0,75 mm <sup>2</sup>	—
11	Led tube casing	Stainless steel 316
12	LED tube adapter	Stainless steel 316
13	LED tube cap	Stainless steel 316
14	M12 compression fitting	Stainless steel 316
15	Connection tube 6 mm	Stainless steel 316
16	LED driver adaptor cap	Stainless steel 316

#### Inline connector specifications



Ex protection: Ex e IIC T6 Gb  
Ex tb IIIC T72°C Db  
Rated current: 10 A  
IP rating: IP 66/67  
Material: plastic

#### Terminal box



Ex protection: Ex eb IIC T4 Gb  
Ex tb IIIC T135°C Db  
IP rating: IP 66  
Material: S.S. 316  
Gasket: silicone rubber





**use with saturated steam**

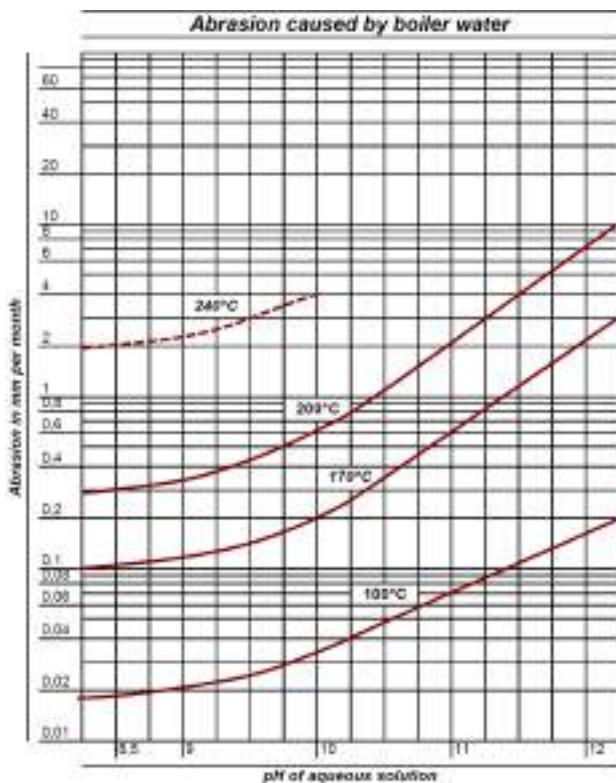


## USE WITH SATURATED STEAM

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 (211°C). 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) taking into consideration the pH value of the water. Higher values would cause the glass breakage in a short time (See diagram "Abrasion caused by boiler water" regarding glass life).
  - Utilize transparent level gauges type DS LG - TCF or type DS LG - TMF with mica shield protection for operation conditions not exceeding the value of 32 bar (236°C).
  - Utilize transparent level gauges type DS LG - TPF with mica shield protection for operating conditions not exceeding the value of 50 bar (263°C).
  - Utilize transparent level gauges type DS LG - TXF with mica shield 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.**



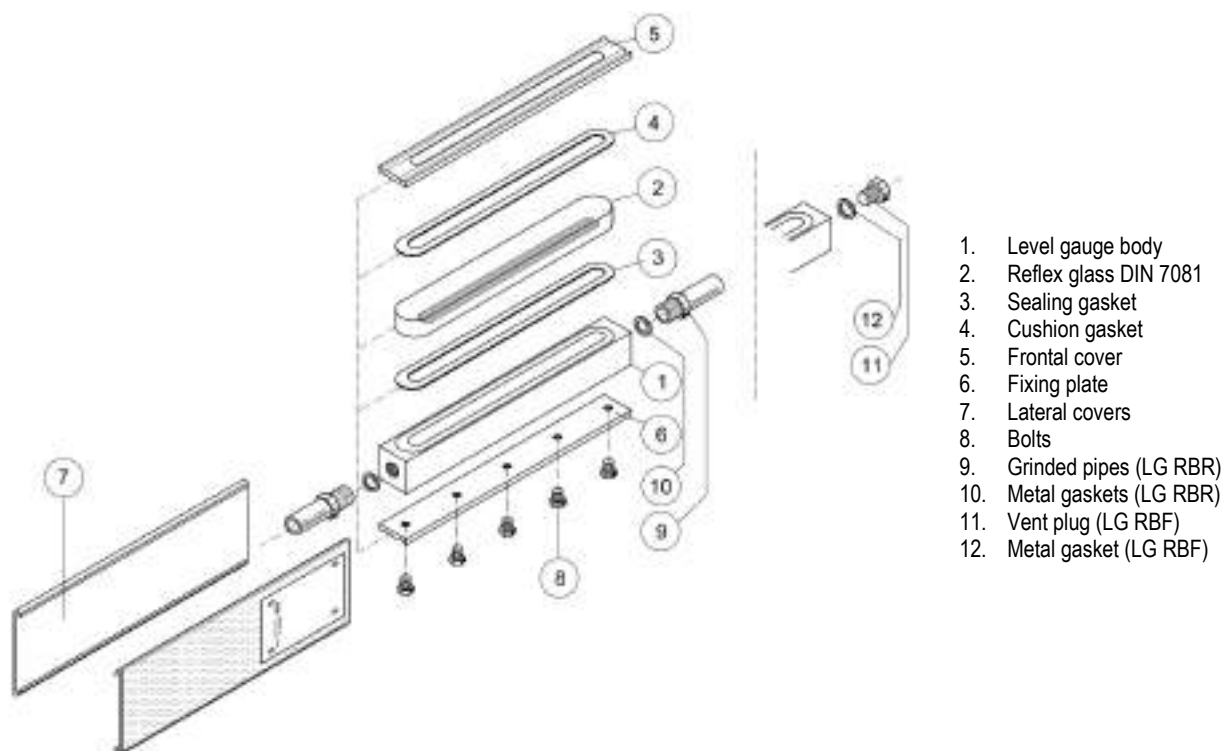
## components for glass level gauges



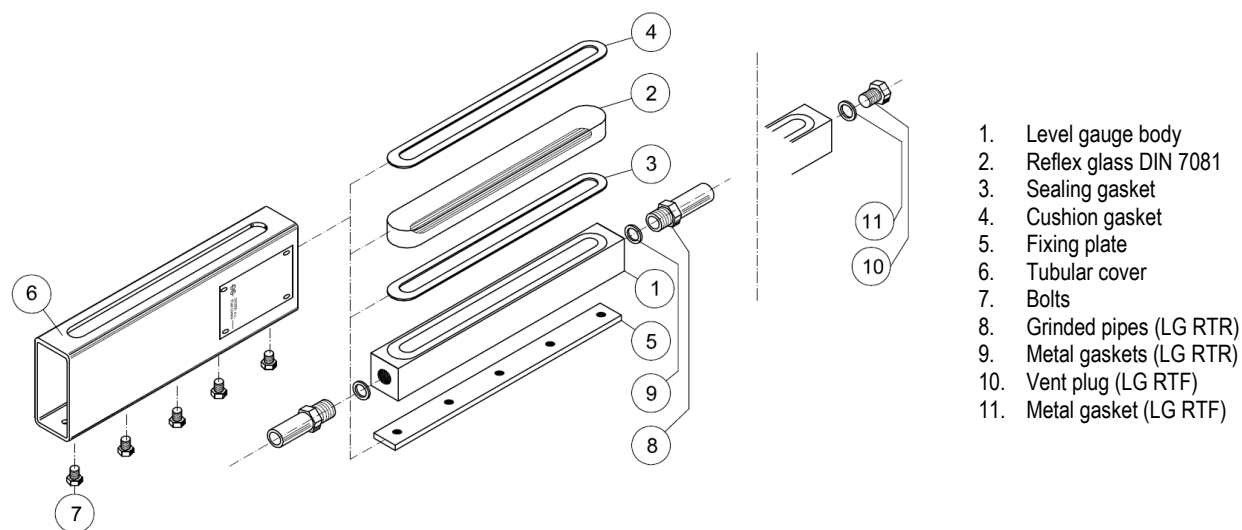


## REFLEX HOUSINGS - COMPONENTS

### HOUSING DS RBR / DS RBF

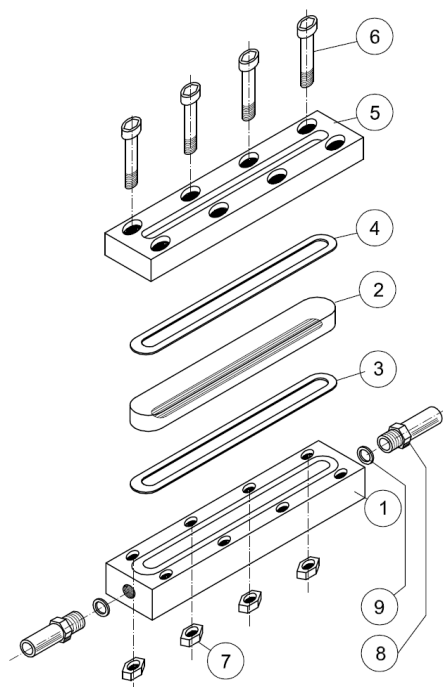


### HOUSING DS RTR / DS RTF



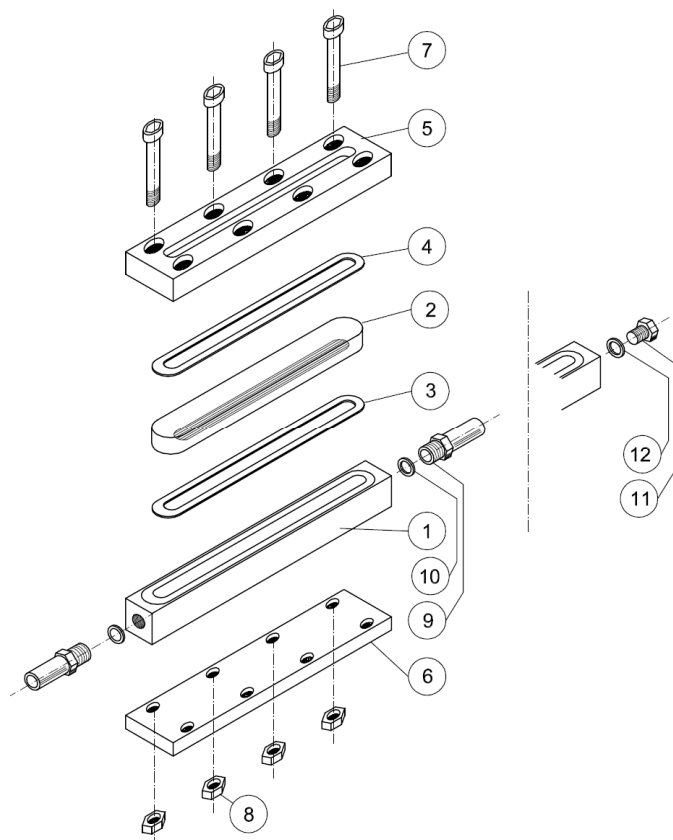
## REFLEX HOUSINGS - COMPONENTS

### HOUSING DS 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

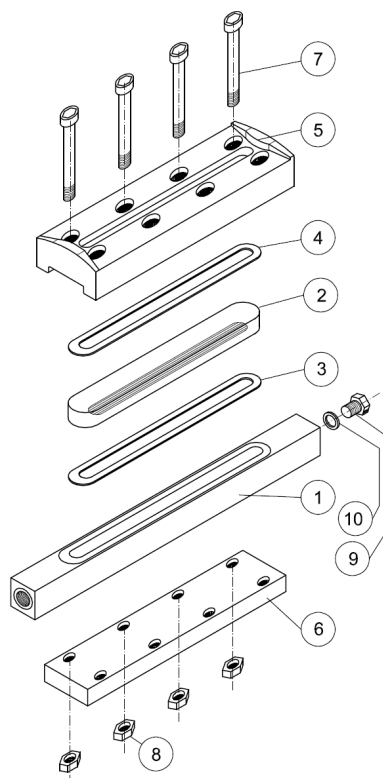
### HOUSING DS RCR / DS RCF



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)

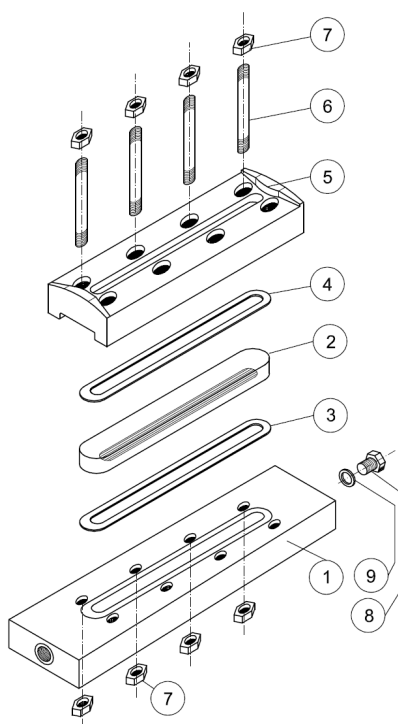
## REFLEX HOUSINGS - COMPONENTS

### HOUSING DS 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

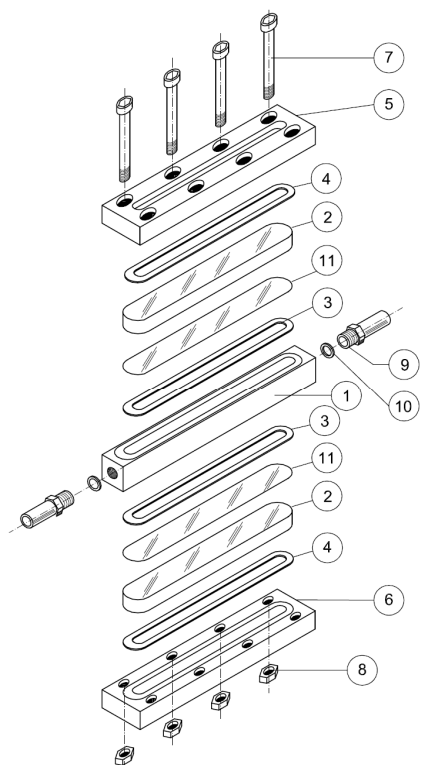
### HOUSING DS RXF / DS REF



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

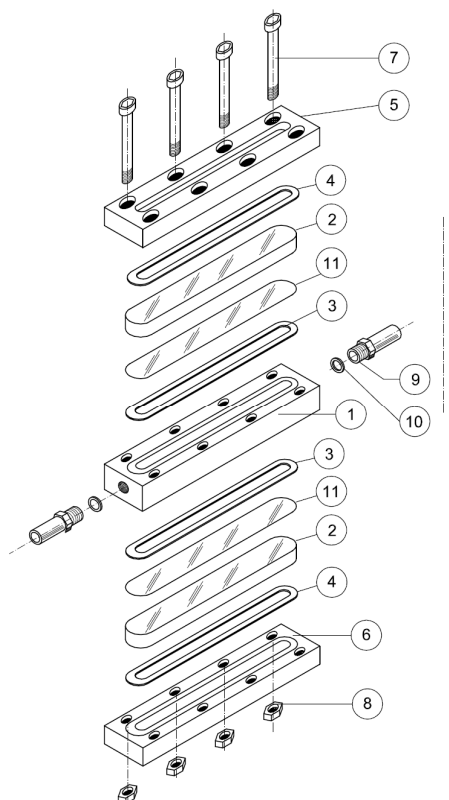
**TRANSPARENT HOUSINGS - COMPONENTS**

**HOUSING TYPE DS TCR / DS 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)

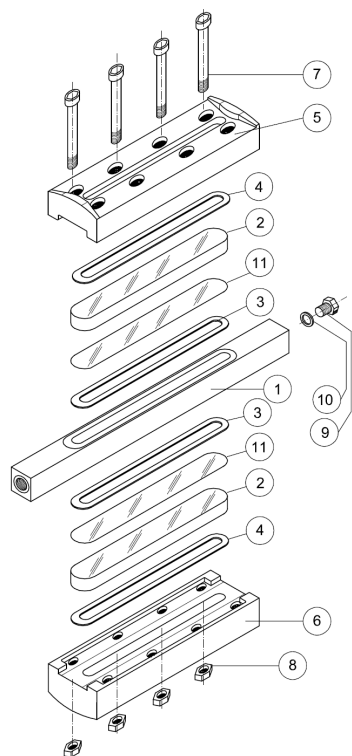
**HOUSING DS TMR / DS TMF**



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)

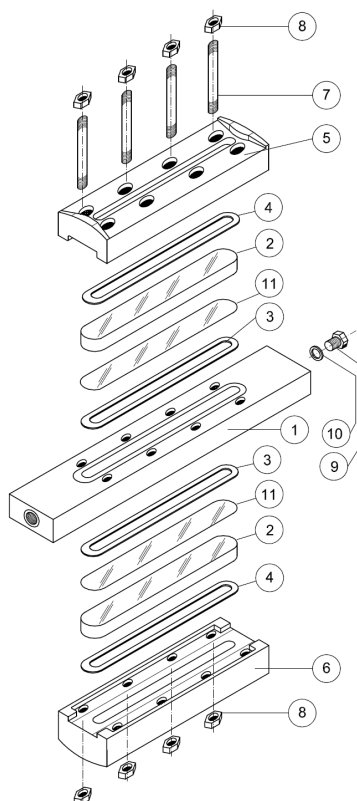
## TRANSPARENT HOUSINGS - COMPONENTS

### HOUSING DS 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 DS TXF / DS TEF

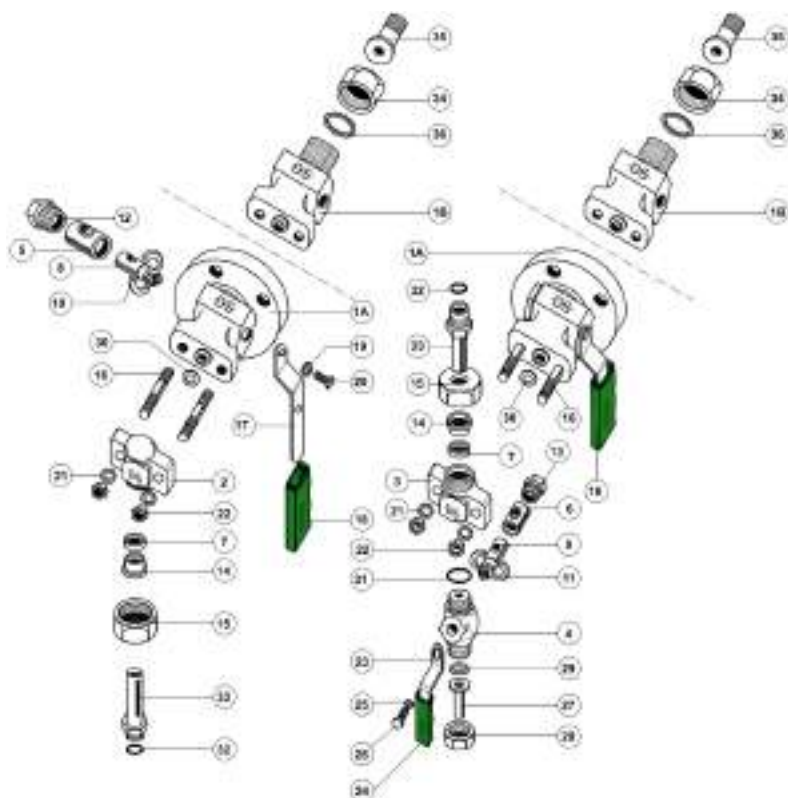


1. Level gauge body
2. Transparent glass DIN 7081
3. Sealing gaskets
4. Cushion gaskets
5. Frontal cover
6. Back cover
7. Bolts
8. Nuts
9. Vent plug
10. Metal gasket
11. Mica shields (optional)



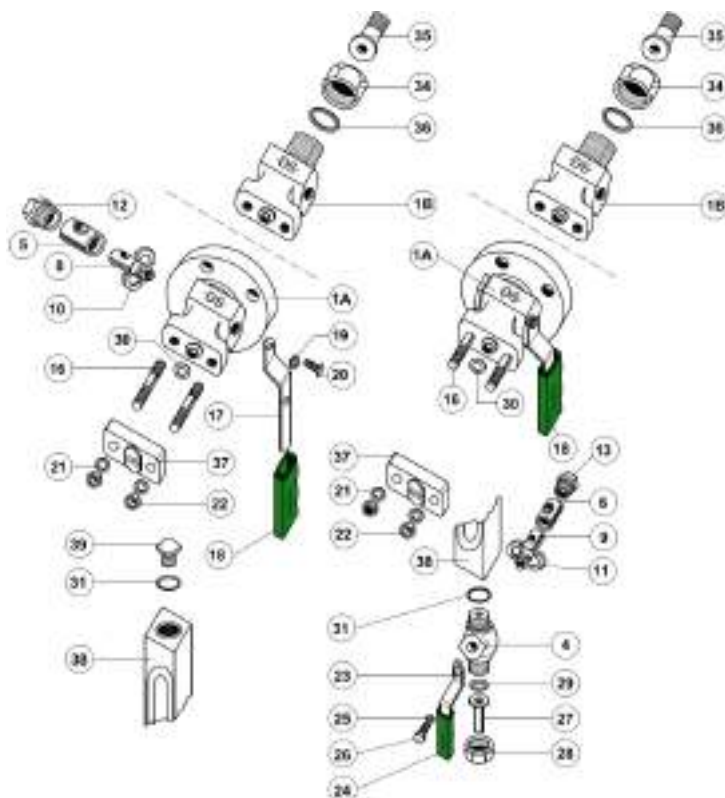
## SHUT-OFF COCKS - COMPONENTS

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



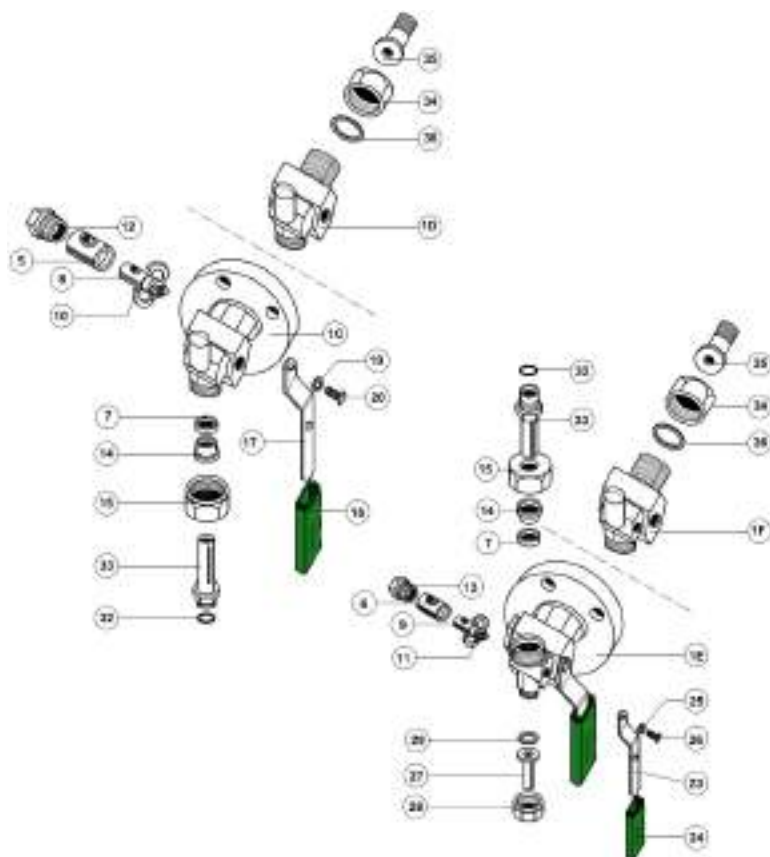
- 1A. Flanged shut-off cocks body
- 1B. Threaded shut-off cocks body
- 2. Upper support
- 3. Lower support
- 4. Drain cock body
- 5. Cases Ø 26 x 18 x 32 mm
- 6. Case Ø 18 x 12 x 23 mm
- 7. Packing rings Ø 23,5 x 16 x 10 mm
- 8. Cylindrical plugs Ø 18 mm
- 9. Cylindrical plug Ø 12 mm
- 10. Split rings Ø 26
- 11. Split ring Ø 18
- 12. Suffing boxes 7/8"G
- 13. Suffing 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 DS GR 18 for housings with fixed distance between centers



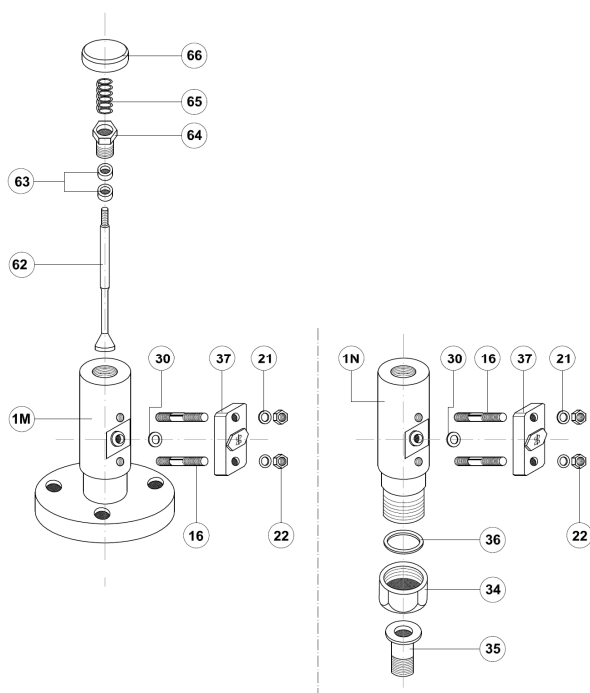
## SHUT-OFF COCKS - COMPONENTS

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



- 10C. Flanged upper monolithic body
- 10D. Threaded upper monolithic body
- 10E. Flanged lower monolithic body
- 10F. 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

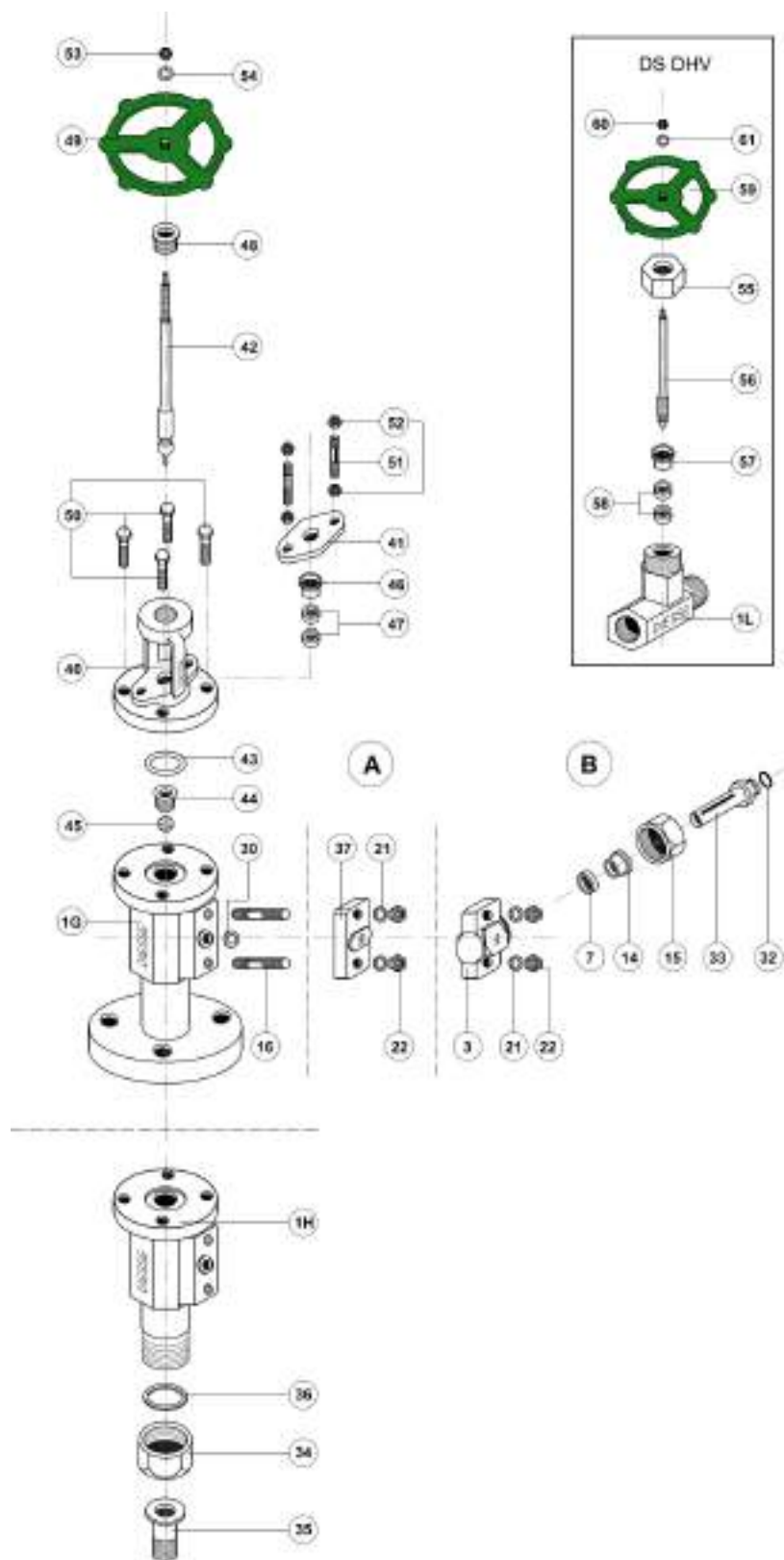
### PUSH-BUTTON VALVE DS NPV



- 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 DS SHV



- 1G. Flanged shut-off valves body
- 1H. Threaded shut-off valves body
- 3. Support
- 7. Packing rings  $\varnothing 23,5 \times 16 \times 10$  mm
- 14. Stuffing boxes  $\varnothing 26 \times 17 \times 11,5$  mm
- 15. Union nuts 1"G for grinded pipes
- 16. Bolts M12
- 21. Washers M12
- 22. Nuts M12
- 30. Gaskets  $\varnothing 23 \times 14,5 \times 2$  mm
- 32. Gaskets  $\varnothing 14 \times 9 \times 1,5$  mm
- 33. Grinded pipes  $\varnothing 16$  mm
- 34. Union nuts 1"G for threaded connections
- 35. Threaded connections
- 36. Gaskets  $\varnothing 29,5 \times 13 \times 2$  mm
- 37. Fixing brackets
- 40. Bonnet
- 41. Stuffing box bracket
- 42. Stem
- 43. Gaskets  $\varnothing 47 \times 32 \times 3,5$  mm
- 44. Seat
- 45. Safety ball
- 46. Stuffing boxes  $\varnothing 22 \times 13,5 \times 14$  mm
- 47. Gaskets  $\varnothing 20 \times 12,7 \times 9$  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 DS DHV
- 55. Gland nut 3/4"G
- 56. Stem
- 57. Stuffing box  $\varnothing 18 \times 13 \times 10,5$  mm
- 58. Gaskets  $\varnothing 18,5 \times 10 \times 8$  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



## SPARE PARTS FOR GLASS LEVEL GAUGES

### GLASSES reflex type and transparent type

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

#### Standards references:

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

#### Physical characteristics:

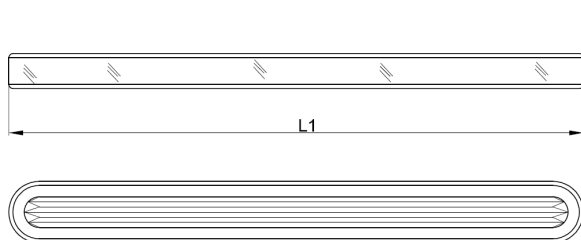
Coefficient of thermal expansion  $\alpha$  20°C; 300°C:  $4,1 \times 10^{-6}/K$   
 Density  $\rho$  at 25°C: 2,3 g/cm<sup>3</sup>  
 Young's modulus E:  $67 \times 10^3$  N/mm<sup>2</sup>  
 Poisson's ratio  $\mu$ : 0,20  
 Refractive index nd ( $\lambda = 587,6$  nm): 1,482  
 Abbe number  $v_d$ :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

#### Temperature:

Thermal shock resistance  $\Delta T$ : 265 K  
 Transformation temperature Tg: 545°C  
 Max. permissible temperature: 300°C  
 Saturated steam applications: see page 1.59

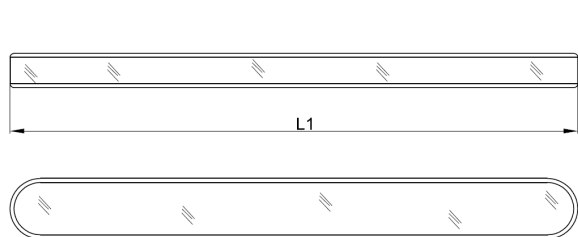
Chemical characteristic	Hydrolytic resistance	Acid resistance	Alkaline resistance
Test according to	DIN ISO 720 Class 1 (HGA1)	DIN ISO 1776	DIN ISO 695 (Identical to DIN 52322) Class A2
Max. abrasion according to DIN ISO	0,1	<100 $\mu\text{g Na}_2\text{O}/\text{dm}^2$	>75-175 $\text{mg}/\text{dm}^2$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

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



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

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



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

#### Available size

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

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

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



## SPARE PARTS FOR GLASS LEVEL GAUGES

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

### MICA SHIELDS to protect transparent glasses

The MICA shield protection is recommended in case of:

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

#### Type of mica shield:

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



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

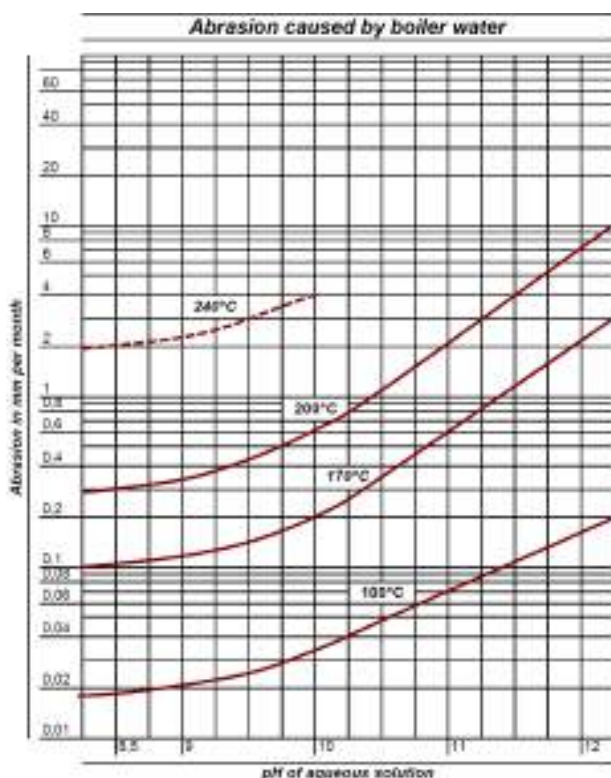
### Available size

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

type A - width 30 mm

type B - width 34 mm

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



Abrasion - shown here for unprotected borosilicate glasses.

The glasses life depends not only on the temperature but also on the water pH (higher pH values shorten glass life).

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

## SPARE PARTS FOR GLASS LEVEL GAUGES

### GLASSES GASKETS

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

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

Option: PTFE

Option: PTFE; Aramidic fiber (asbestos free)

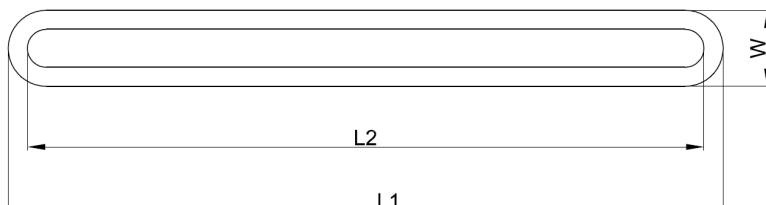
Code:

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

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

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

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



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

### INSTRUCTIONS FOR THE REMOVAL AND REPLACEMENT OF GLASSES AND GASKETS

#### Assumptions:

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

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

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

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

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

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

#### Mounting:

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

#### Before restarting the equipment:

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

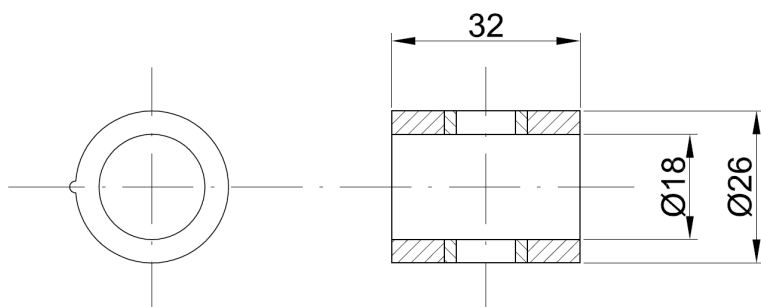
**GASKETS for cylindrical plug cocks**

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

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

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

Option: PTFE with stainless steel 316 rings on valve bore



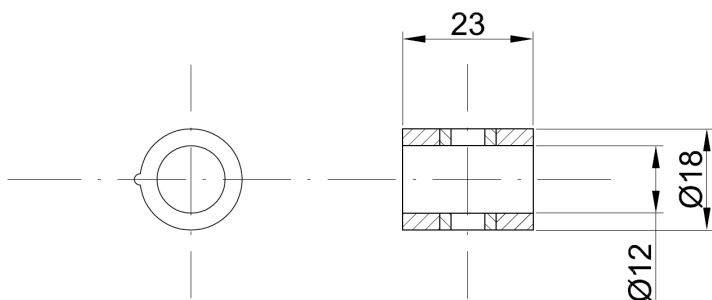
Code: BB18G (Graphite)  
BB18GL (Graphite layer)  
BB18P (PTFE)

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

Each shut-off cocks has a drain cock as standard

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

Option: PTFE with stainless steel 316 rings on valve bore

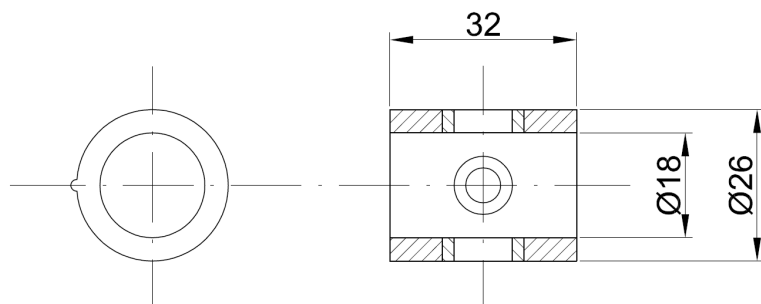


Code: BB12G (Graphite)  
BB12GL (Graphite layer)  
BB12P (PTFE)

**Three holes case for manometer setting valve 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)

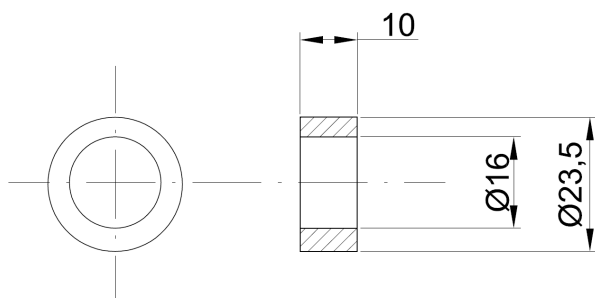
## SPARE PARTS FOR GLASS LEVEL GAUGES

### Gasket for grinded pipes

Each shut-off cocks (DS GR18 and 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)



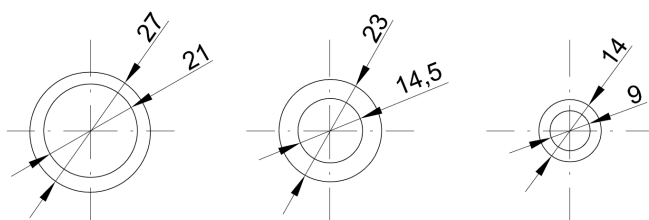
Code: AA16G (Graphite)  
AA16P (PTFE)  
AA16E (EPDM)

### Metal gaskets

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

Standard material: Copper

Option: Stainless steel 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 DS GR18 AND DS MT18

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

- No. 2 cases BB18...
- No. 1 case BB12...
- No. 2 packing ring AA16...
- No. 1 gasket DTG18.3... Pos. 29 Page 1.66 (Only for drain cock with drain pipe)
- No. 2 gaskets DTG29.5... Pos. 36 Page 1.66 (Only for shut-off cocks with threaded connections)
- No. 2 gaskets GM23... (Not necessary for DS MT18)
- No. 1 gasket GM27... (Not necessary for DS MT18)
- No. 2 gaskets GM14...

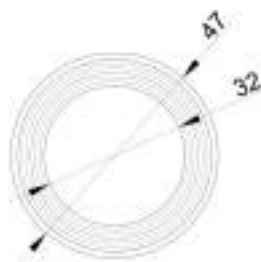
### GASKETS for globe valves DS SHV

#### Gasket between body and bonnet

Each shut-off valves DS SHV needs two gaskets.

Standard material: Graphite / AISI 316L

Option: PTFE



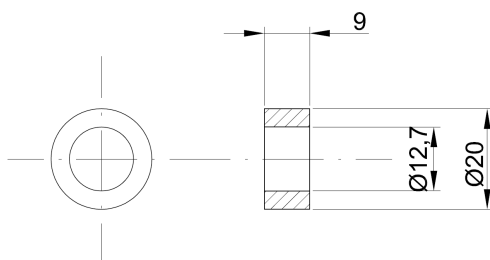
Code: GSM47G (Graphite)  
GSM47P (PTFE)

#### Gasket for stem

Each shut-off valves DS SHV needs four gaskets.

Standard material: Graphite

Option: PTFE (chevron type)



Code: AA20G (Graphite)  
AA20P (PTFE)

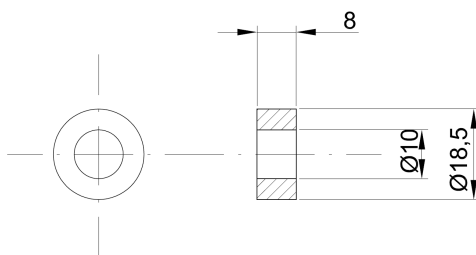
### GASKETS for push-button valves DS NPV and needle valves DS DHV

#### Gasket for stem

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

Standard material: Graphite

Option: PTFE (chevron type)



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

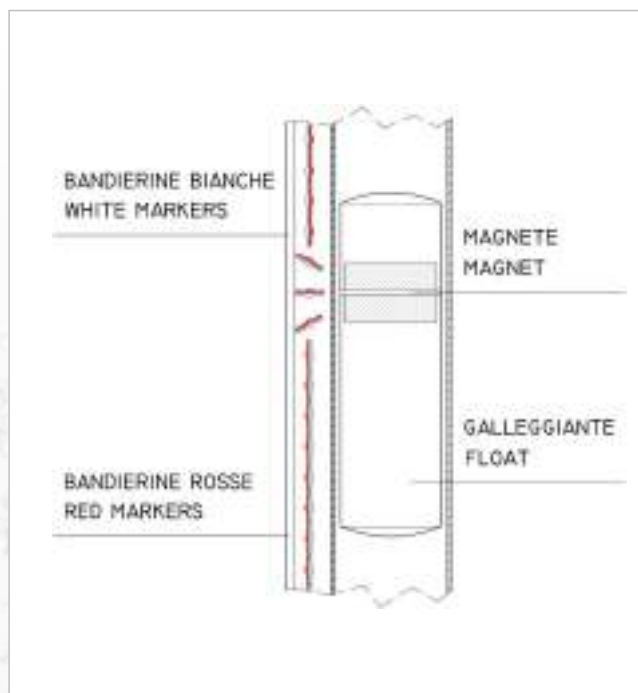


## MAGNETIC level gauges

Magnetic level gauge indicates the level of fluid inside a tank by using the magnetic properties of its elements.

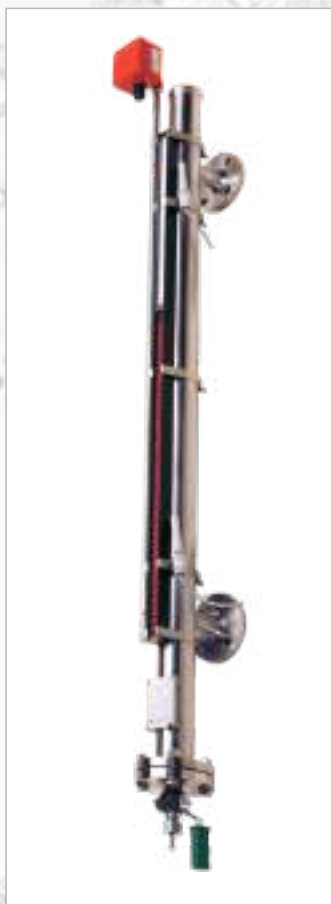
A by-pass (which mainly consists of a tube longer than the fluid range) is connected to the tank containing the fluid whose level is to be measured.

A float containing a magnet moves up and down the main chamber, and its position determines the tank fluid level (the level is clearly indicated by red and white markers). Variation in fluid level causes the float to move and the float magnet then makes the roller display (which also contains a magnet) rotate. Red markers are normally shown in the part of the tank holding the fluid and white markers in the part containing the gas/steam.



Magnetic level gauge with flanged connections, magnetic switches and level transmitter

Magnetic level gauge with flanged cut off cocks, drain cock and level transmitter



Magnetic level gauges are built exclusively according to the centre-to-centre distance specified by the customer. The reading length usually matches the centre-to-centre distance.

The roller display reading point and the height of the level switches can be adjusted quickly and easily thanks to specially designed clamping brackets.

The simple mounting principle means that electronic accessories can be fitted to the gauge at a later stage.

The materials used to manufacture the gauges differ depending on their intended use.

Given that the level gauge works as a result of its magnetic properties, no ferromagnetic materials have been used in its construction.

The standard model features an AISI 316 L stainless steel main chamber and an AISI 316L stainless steel or Titanium Grade 2 float.

DIESSE also offers a wide range of optional accessories, including: shut-off valves, drain valves, vent valves, calibrated scale, bistable switches and level transmitters (described later on in the catalogue).

**TO RECOMMEND THE MOST SUITABLE LEVEL GAUGE FOR A PARTICULAR PURPOSE,  
PLEASE PROVIDE THE FOLLOWING DATA WHEN ASKING FOR ADVICE OR A QUOTATION.**

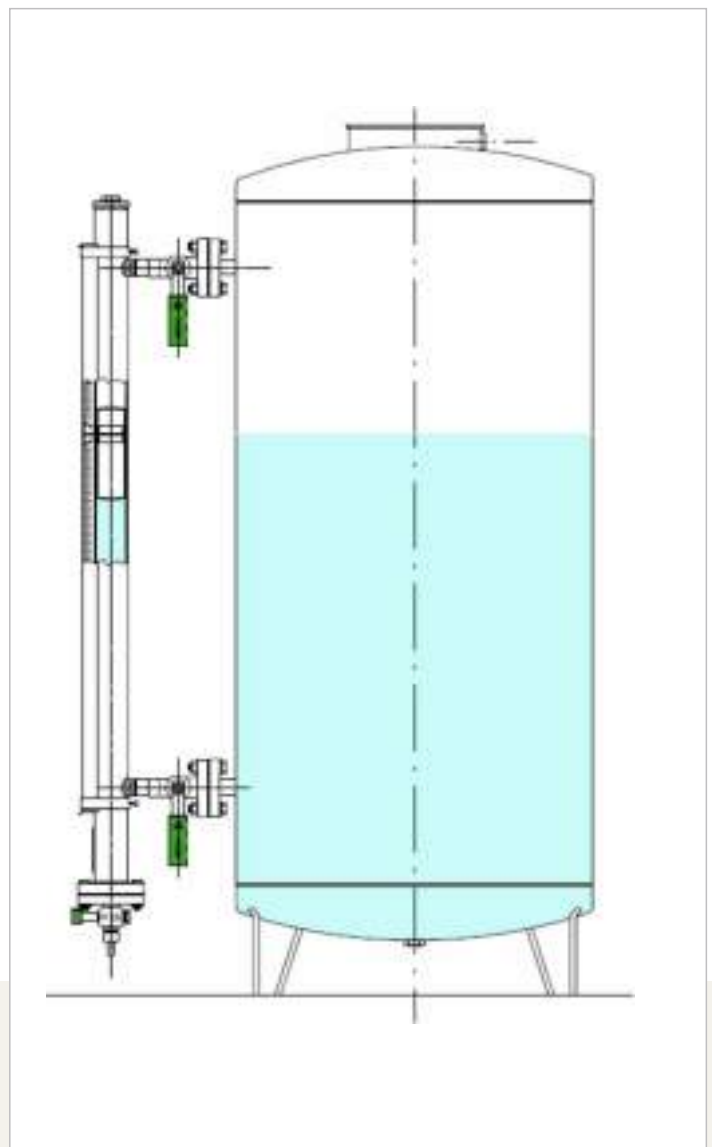
► **essential data**

- ► **CENTRE-TO-CENTRE DISTANCE** (distance between process connections)
- ► **TYPE OF CONNECTIONS** (flanged-threaded-weld-on) and related **STANDARDS** (UNI-ANSI-DIN...)
- POSITION OF PROCESS CONNECTIONS
- POSITION OF THE VALVE HANDLING
- ► **TYPE OF FLUID**
- ► **SPECIFIC WEIGHT OF FLUID**
- ► **DESIGN AND MAXIMUM OPERATING PRESSURES**
- ► **DESIGN AND MAXIMUM OPERATING TEMPERATURES**
- ANY ADDITIONAL ACCESSORIES

Magnetic level gauges are suitable for a wide range of applications and are a perfect alternative to glass level gauges if the latter cannot be used safely.

They are particularly recommended:

- in cases where a particularly accurate fluid level reading is not necessary
- in cases where the maximum pressure and temperature values exceed those listed in the technical specifications of the glasses
- if remote readings have to be taken (e.g. if the level gauge is positioned above or a considerable distance away from the observer's position)
- if continuous readings using a remote gauge situated some distance away from the system are necessary
- if one or more signals (i.e. alarm signals) are required to indicate various tank liquid levels
- if the centre-to-centre distance exceeds 3 metres



## MAGNETIC level gauges

DIESSE magnetic level gauges are manufactured and certified in accordance with the strictest international standards.



Aside from the type of fluid in the tank, the choice of level gauge mainly depends on the operating and design temperature/pressure values. These must always be clearly specified when asking for a quote or placing an order.

Magnetic level gauges differ in terms of their pressure ratings under operating conditions: low, medium and high.

## Materials / Specifications:

The different versions available are as follows:

### Main Chamber:

- Standard: Stainless steel AISI 316L Ø 60.3 mm, thickness 2 mm or 2.7 mm

### Float:

- Standard: Stainless steel AISI 316L or Titanium Grade 2 Ø 50 mm

### Rollers / Housing:

- Standard: brass rollers with red and white epoxy paint / anodised aluminum housing, glass cover
- Options: stainless steel rollers red and white / anodised aluminum or stainless steel housing, polycarbonate or glass cover

### Process connections position:

- Standard: side/side
- Additional Options: side/bottom; top/side; top/bottom

### Process connections type:

- Standard: with flanges, threaded tubes and butt weld tubes
- Additional Options: shut-off cocks (side/side) on request

### Drain:

- Standard: threaded 1/2" with plug
- Additional Options: threaded cock; other extras on request

### Vent:

- Standard: threaded 1/2" with plug
- Additional Options: threaded cock; other extras on request

### Gaskets:

- Standard: graphite/AISI 316
- Options: PTFE/AISI 316, other extras on request

## Accessories:

Magnetic switch, Level transmitter, Calibrated scale, Shut-off cocks, Drain cock, Vent cock, Cocks handles lock (see from page 2.13)

## Certifications (on request):

- Marine Approval
- Others on request

**All DIESSE products are individually checked and tested in accordance with company quality procedures and the industry regulations currently in effect.**  
**Certificates can be issued on request.**



## MAGNETIC LEVEL GAUGES

### Code

#### 1 Basic Type

DS MG DIESESE Magnetic level gauge

#### 2 Level Gauge Model

##### Pos. 1: Level Gauge type

DS BP Stainless steel AISI 316L (Low / Medium pressure)  
DS MP Stainless steel AISI 316L (High Pressure)

#### 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 Distance Centre-to-centre

M... Distance between connections centres in mm

#### 5 Materials

##### Pos. 1: Main chamber

SS Stainless steel AISI 316L

##### Pos. 2: Connections / Bottom flanges / Flat top with plug

SS Stainless steel AISI 316L

##### Pos. 3: Roller display - Housing / Rollers

DAB Aluminium housing / brass with epoxy paint rollers  
BMDAA Aluminium housing / stainless steel rollers  
BMDSS Stainless steel housing / stainless steel rollers

##### Pos. 4: Float

SS Stainless steel AISI 316L  
TG2 Titanium Grade 2  
TG2R Titanium Grade 2 with reinforcements

##### Pos. 5: Gaskets

Standard: Graphite/AISI 316  
PF PTFE/AISI 316

#### 6 Accessories

EBS (Type)	Magnetic switch	LTM	Level transmitter	VSG	Calibrated scale
GR18	Cylindrical plug shut-off cocks	D12	Cylindrical plug drain cock	D12S	Cylindrical plug vent cock
SHV	Shut-off globe valves	DHV	Drain globe valve	DHVS	Vent globe valve
CB	Support bracket	SSHD	Cocks handles lock		
LFC	Weight closing for lower handle	UFC	Weight closing for upper handle	LUFC	Weight closing for all handles (lower + upper)

#### 7 Approvals

SHP... Marine

**Code**                      **1**            **2**            **3**            **4**            **5**            **6**

e.g.                      DS MG - DSBP - 20/16/RF - M 1000 - SS/SS/DAB/SS - GR18 / D12 / VSG

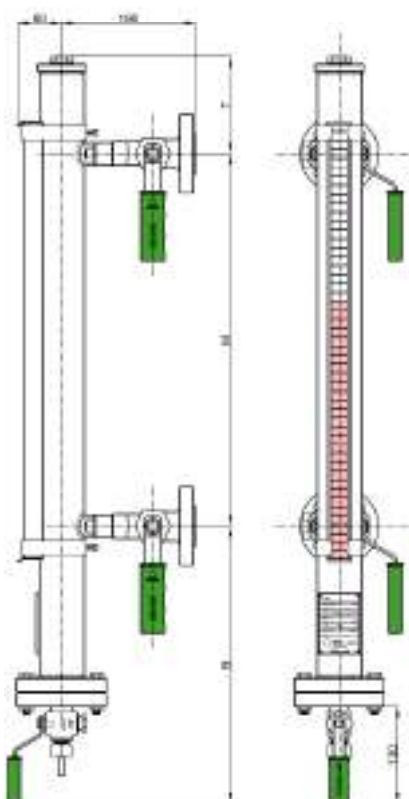
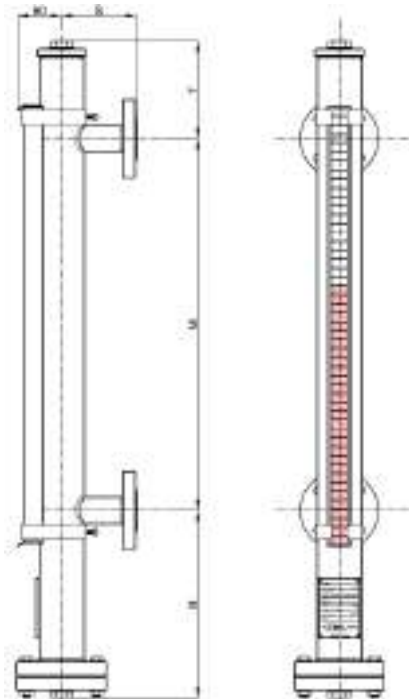


## MAGNETIC LEVEL GAUGE

PN16 and PN25 / Class 150

DS MG - DS BP

Code: DS MG - DSBP - ... /16/RF - M...- SS/SS/.../SS



### Technical data

#### Service conditions

Pressure: PN16 / PN25 / Class 150  
Temperature: up to 300°C  
Specific weight:  $\geq 0,6 \text{ g/cm}^3$

#### View

Standard: adjustable on 360° in the installation phase

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

On request, distances up to 5.600 mm in one sole piece (Fixed distance, not adjustable)  
Option: On request distances over 5.600 mm (Execution in several pieces)

#### Materials (Standard)

Main chamber: Stainless steel 316L ( $\varnothing 60,3 \times 2 \text{ mm}$ )  
Float: Stainless steel 316L ( $\varnothing 50 \text{ mm}$ )  
Titanium Grade 2 ( $\varnothing 50 \text{ mm}$ )  
Process connections: Stainless steel 316L (flanged, threaded pipes, butt weld pipes)  
With shut-off cocks in carbon steel ASTM A105 or stainless steel 316L  
Rollers: Brass with red and white epoxy paint, anodised aluminium housing, glass cover  
Stainless steel red and white, anodised aluminium housing, glass cover (Execution for high temperature)  
Options: roller display housing with stainless steel cover

#### Gaskets

Standard: graphite/AISI 316

Options: PTFE/AISI 316

#### Process connections

Standard flanges:	UNI PN16/40 DN15-20-25	ANSI #150/RF DN $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"
Standard threaded pipes:	BSP-M $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"	NPT-M $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"
	BSP-F $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"	NPT-F $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"
Standard butt weld pipes:	BW $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"	SW $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"

Options: further connections type or connections with cocks (See details at page 2.13 and 2.14)

**Vent:** Standard: threaded  $\frac{1}{2}$ " with plug Options: On request, with flange or with cock (See details at page 2.13 and page 2.14)

**Drain:** Standard: threaded  $\frac{1}{2}$ " with plug Options: On request, with flange or with cock (See details at page 2.13 and page 2.14)

#### Process connections with shut-off cocks: (See details at page 2.13 and page 2.14)

Cocks DS GR18: cylindrical plug type - Straight type - Quick 90° closing  
Valves DS SHV: globe type - Opening/Closing by handwheel

#### Dimensions

B = Distance depending on the specific weight of the fluid  
T = 130 mm (Standard); Option: on request  
S = 100 mm (Standard); Option: on request

#### Accessories

Shut-off cocks	(See details from page 2.13)
Drain cock	(See details from page 2.13)
Vent cock	(See details from page 2.13)
Calibrated scale	(See details from page 2.14)
Magnetic switches	(See details from page 2.15)
Level transmitter	(See details from page 2.29)

#### Weights

Magnetic level gauge: Kg. 12,0 approx. (With centre-to-centre 1.000 mm and flanges DN20 PN16)  
Cocks DS GR18: Kg. 6,2 approx. (With flanges UNI DN20 PN40)  
Valves DS SHV: Kg. 10,6 approx. (With flanges UNI DN20 PN40)

#### Spare parts

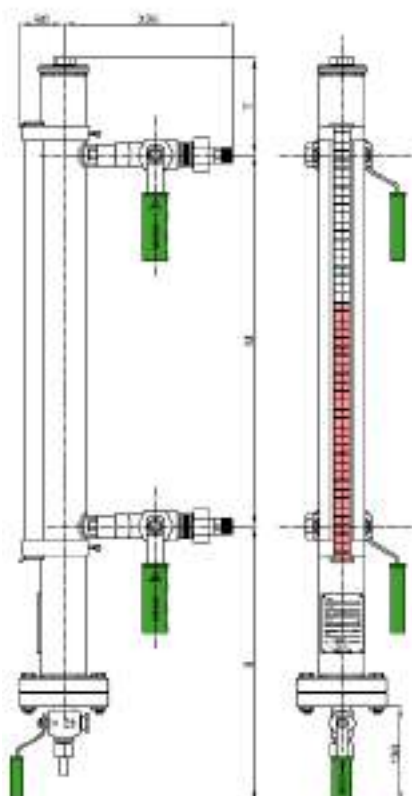
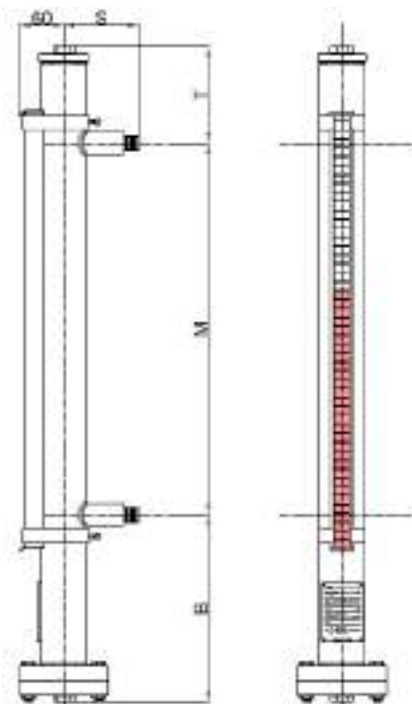
For routine maintenance are not necessary spare parts.  
For cocks and valves see from page 1.72 of the catalogue relative to the glass level gauges.

## MAGNETIC LEVEL GAUGE

PN16 and PN25 / Class 150

DS MG - DS BP

Code: DS MG - DSBP - 1/2" GAS-M - M.... SS/SS/.../SS



### Technical data

#### Service conditions

Pressure: PN16 / PN25 / Class 150  
Temperature: up to 300°C  
Specific weight:  $\geq 0,6 \text{ g/cm}^3$

#### View

Standard: adjustable on 360° in the installation phase

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

On request, distances up to 5.600 mm in one sole piece (Fixed distance, not adjustable)  
Option: On request distances over 5.600 mm (Execution in several pieces)

#### Materials (Standard)

Main chamber: Stainless steel 316L ( $\varnothing 60,3 \times 2 \text{ mm}$ )  
Float: Stainless steel 316L ( $\varnothing 50 \text{ mm}$ )  
Titanium Grade 2 ( $\varnothing 50 \text{ mm}$ )  
Process connections: Stainless steel 316L (flanged, threaded pipes, butt weld pipes)  
With shut-off cocks in carbon steel ASTM A105 or stainless steel 316L  
Rollers: Brass with red and white epoxy paint, anodised aluminium housing, glass cover  
Stainless steel red and white, anodised aluminium housing, glass cover (Execution for high temperature)  
Options: roller display housing with stainless steel cover

#### Gaskets

Standard: graphite/AISI 316

Options: PTFE/AISI 316

#### Process connections

Standard flanges:	UNI PN16/40 DN15-20-25	ANSI #150/RF DN 1/2" - 3/4" - 1"
Standard threaded pipes:	BSP-M 1/2" - 3/4" - 1"	NPT-M 1/2" - 3/4" - 1"
	BSP-F 1/2" - 3/4" - 1"	NPT-F 1/2" - 3/4" - 1"
Standard butt weld pipes:	BW 1/2" - 3/4" - 1"	SW 1/2" - 3/4" - 1"

Options: further connections type or connections with cocks (See details at page 2.13 and 2.14)

**Vent:** Standard: threaded 1/2" with plug Options: On request, with flange or with cock (See details at page 2.13 and page 2.14)

**Drain:** Standard: threaded 1/2" with plug Options: On request, with flange or with cock (See details at page 2.13 and page 2.14)

#### Process connections with shut-off cocks: (See details at page 2.13 and page 2.14)

Cocks DS GR18: cylindrical plug type - Straight type - Quick 90° closing  
Valves DS SHV: globe type - Opening/Closing by handwheel

#### Dimensions

B = Distance depending on the specific weight of the fluid  
T = 130 mm (Standard); Option: on request  
S = 100 mm (Standard); Option: on request

#### Accessories

Shut-off cocks	(See details from page 2.13)
Drain cock	(See details from page 2.13)
Vent cock	(See details from page 2.13)
Calibrated scale	(See details from page 2.14)
Magnetic switches	(See details from page 2.15)
Level transmitter	(See details from page 2.29)

#### Weights

Magnetic level gauge: Kg. 10,0 approx. (with centre-to-centre 1.000 mm and threads 1/2" BSP-M)  
Cocks DS GR18: Kg. 3,8 approx. (with threads 1/2" BSP-M)  
Valves DS SHV: Kg. 8,8 approx. (with threads 1/2" BSP-M)

#### Spare parts

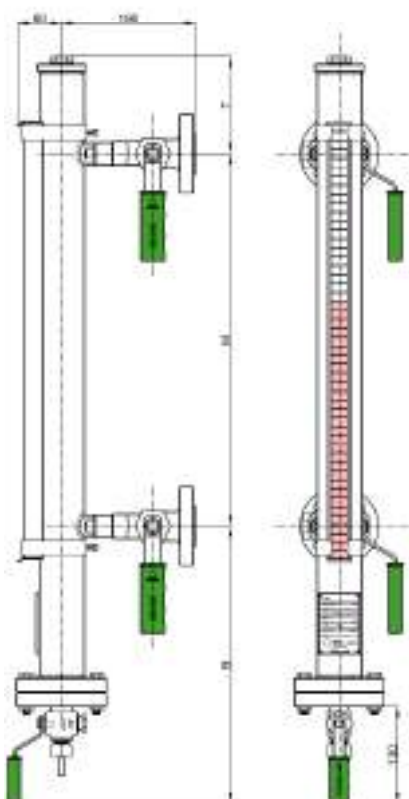
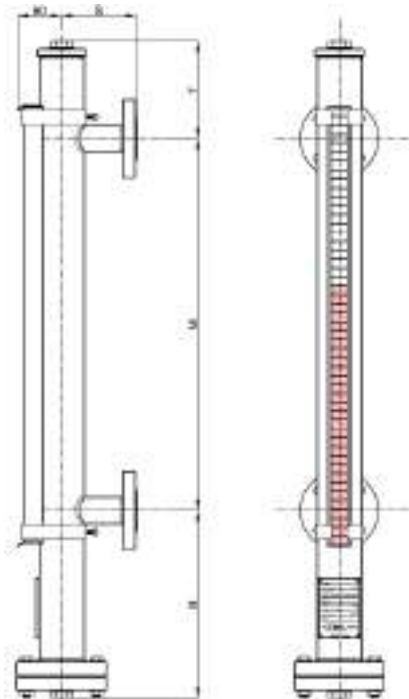
For routine maintenance are not necessary spare parts.  
For cocks and valves see from page 1.72 of the catalogue relative to the glass level gauges.

## MAGNETIC LEVEL GAUGE

PN40 / Class 300

DS MG - DS MP

Code: DS MG - DSMP - ... /40/RF - M...- SS/SS/.../SS



### Technical data

#### Service conditions

Pressure: PN40 / Class 300  
Temperature: up to 300°C  
Specific weight:  $\geq 0,6 \text{ g/cm}^3$

#### View

Standard: adjustable on 360° in the installation phase

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

On request, distances up to 5.600 mm in one sole piece (Fixed distance, not adjustable)  
Option: On request distances over 5.600 mm (Execution in several pieces)

#### Materials (Standard)

Main chamber: Stainless steel 316L ( $\varnothing 60,3 \times 2,77 \text{ mm}$ )  
Float: Titanium Grade 2 ( $\varnothing 50 \text{ mm}$ ) with reinforcements  
Process connections: Stainless steel 316L (flanged, threaded pipes, butt weld pipes)  
With shut-off cocks in carbon steel ASTM A105 or stainless steel 316L  
Rollers: Brass with red and white epoxy paint, anodised aluminium housing, glass cover  
Stainless steel red and white, anodised aluminium housing, glass cover (Execution for high temperature)  
Options: roller display housing with stainless steel cover

#### Gaskets

Standard: graphite/AISI 316

Options: PTFE/AISI 316

#### Process connections

Standard flanges:	UNI PN40 DN15-20-25	ANSI #300/RF DN $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"
Standard threaded pipes:	BSP-M $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"	NPT-M $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"
	BSP-F $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"	NPT-F $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"
Standard butt weld pipes:	BW $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"	SW $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"

Options: further connections type or connections with cocks (See details at page 2.13 and 2.14)

**Vent:** Standard: threaded  $\frac{1}{2}$ " with plug Options: On request, with flange or with cock  
(See details at page 2.13 and page 2.14)

**Drain:** Standard: threaded  $\frac{1}{2}$ " with plug Options: On request, with flange or with cock  
(See details at page 2.13 and page 2.14)

#### Process connections with shut-off cocks: (See details at page 2.13 and page 2.14)

Cocks DS GR18: cylindrical plug type - Straight type - Quick 90° closing  
Valves DS SHV: globe type - Opening/Closing by handwheel

#### Dimensions

B = Distance depending on the specific weight of the fluid  
T = 130 mm (Standard); Option: on request  
S = 100 mm (Standard); Option: on request

#### Accessories

Shut-off cocks	(See details from page 2.13)
Drain cock	(See details from page 2.13)
Vent cock	(See details from page 2.13)
Calibrated scale	(See details from page 2.14)
Magnetic switches	(See details from page 2.15)
Level transmitter	(See details from page 2.29)

#### Weights

Magnetic level gauge: Kg. 12,0 approx. (With centre-to-centre 1.000 mm and flanges DN20 PN40)  
Cocks DS GR18: Kg. 6,2 approx. (With flanges UNI DN20 PN40)  
Valves DS SHV: Kg. 10,6 approx. (With flanges UNI DN20 PN40)

#### Spare parts

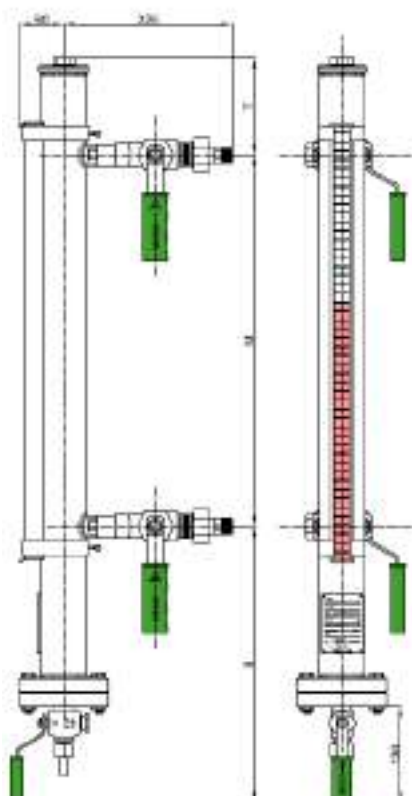
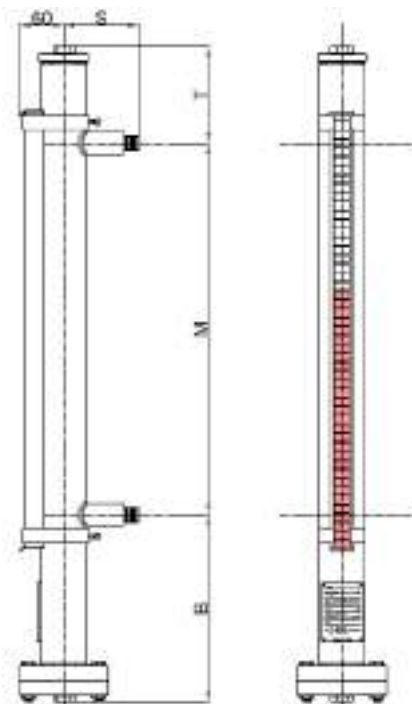
For routine maintenance are not necessary spare parts.  
For cocks and valves see from page 1.72 of the catalogue relative to the glass level gauges.

## MAGNETIC LEVEL GAUGE

PN40 / Class 300

DS MG - DS MP

Code: DS MG - DSBP - 1/2" GAS-M - M...- SS/SS/.../SS



### Technical data

#### Service conditions

Pressure: PN40 / Class 300  
Temperature: up to 300°C  
Specific weight:  $\geq 0,6 \text{ g/cm}^3$

#### View

Standard: adjustable on 360° in the installation phase

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

On request, distances up to 5.600 mm in one sole piece (Fixed distance, not adjustable)  
Option: On request distances over 5.600 mm (Execution in several pieces)

#### Materials (Standard)

Main chamber: Stainless steel 316L ( $\varnothing 60,3 \times 2,77 \text{ mm}$ )  
Float: Titanium Grade 2 ( $\varnothing 50 \text{ mm}$ ) with reinforcements  
Process connections: Stainless steel 316L (flanged, threaded pipes, butt weld pipes)  
With shut-off cocks in carbon steel ASTM A105 or stainless steel 316L  
Rollers: Brass with red and white epoxy paint, anodised aluminium housing, glass cover  
Stainless steel red and white, anodised aluminium housing, glass cover (Execution for high temperature)  
Options: roller display housing with stainless steel cover

#### Gaskets

Standard: graphite/AISI 316

Options: PTFE/AISI 316

#### Process connections

Standard flanges:	UNI PN40 DN15-20-25	ANSI #300/RF DN 1/2" - 3/4" - 1"
Standard threaded pipes:	BSP-M 1/2" - 3/4" - 1"	NPT-M 1/2" - 3/4" - 1"
	BSP-F 1/2" - 3/4" - 1"	NPT-F 1/2" - 3/4" - 1"
Standard butt weld pipes:	BW 1/2" - 3/4" - 1"	SW 1/2" - 3/4" - 1"

Options: further connections type or connections with cocks (See details at page 2.13 and 2.14)

**Vent:** Standard: threaded 1/2" with plug Options: On request, with flange or with cock  
(See details at page 2.13 and page 2.14)

**Drain:** Standard: threaded 1/2" with plug Options: On request, with flange or with cock  
(See details at page 2.13 and page 2.14)

#### Process connections with shut-off cocks: (See details at page 2.13 and page 2.14)

Cocks DS GR18: cylindrical plug type - Straight type - Quick 90° closing  
Valves DS SHV: globe type - Opening/Closing by handwheel

#### Dimensions

B = Distance depending on the specific weight of the fluid  
T = 130 mm (Standard); Option: on request  
S = 100 mm (Standard); Option: on request

#### Accessories

Shut-off cocks	(See details from page 2.13)
Drain cock	(See details from page 2.13)
Vent cock	(See details from page 2.13)
Calibrated scale	(See details from page 2.14)
Magnetic switches	(See details from page 2.15)
Level transmitter	(See details from page 2.29)

#### Weights

Magnetic level gauge: Kg. 10,0 approx. (with centre-to-centre 1.000 mm and threads 1/2" BSP-M)  
Cocks DS GR18: Kg. 3,8 approx. (with threads 1/2" BSP-M)  
Valves DS SHV: Kg. 8,8 approx. (with threads 1/2" BSP-M)

#### Spare parts

For routine maintenance are not necessary spare parts.  
For cocks and valves see from page 1.72 of the catalogue relative to the glass level gauges.



## MAGNETIC MARINE LEVEL GAUGES

On request the product is available also with  
**the approval certificate of Lloyd's Register**



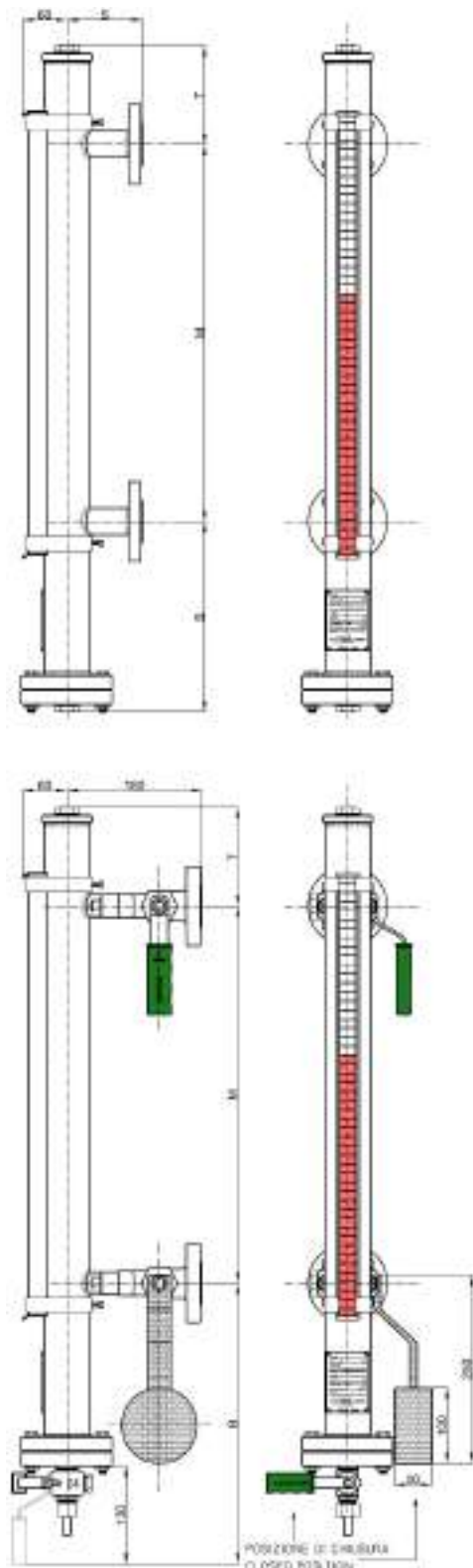


## MAGNETIC LEVEL GAUGE

PN16 and PN25 / Class 150

DS MG - DS BP - SHP

Code: DS MG - DSBP - ... /16/RF - M...- SS/SS/.../SS - SHP



### Technical data

#### Service conditions

Pressure: PN16 / PN25 / Class 150  
Temperature: up to 300°C  
Specific weight:  $\geq 0,6 \text{ g/cm}^3$

#### Application

Fluid storage tanks also aboard of ships

#### View

Standard: adjustable on 360° in the installation phase

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

On request, distances up to 5.600 mm in one sole piece (Fixed distance, not adjustable)  
Option: On request distances over 5.600 mm (Execution in several pieces)

#### Materials (Standard)

Main chamber: Stainless steel 316L ( $\varnothing 60,3 \times 2 \text{ mm}$ )  
Float: Stainless steel 316L ( $\varnothing 50 \text{ mm}$ )  
Titanium Grade 2 ( $\varnothing 50 \text{ mm}$ )  
Process connections: Stainless steel 316L (flanged, threaded pipes, butt weld pipes)  
With shut-off cocks in carbon steel ASTM A105 or stainless steel 316L  
Rollers: Brass with red and white epoxy paint, anodised aluminium housing, glass cover  
Stainless steel red and white, anodised aluminium housing, glass cover (Execution for high temperature)  
Options: roller display housing with stainless steel cover

#### Gaskets

Standard: graphite/AISI 316

Options: PTFE/AISI 316

#### Process connections

Standard flanges:	UNI PN16/40 DN15-20-25	ANSI #150/RF DN $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"
Standard threaded pipes:	BSP-M $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"	NPT-M $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"
	BSP-F $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"	NPT-F $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"
Standard butt weld pipes:	BW $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"	SW $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"

Options: further connections type or connections with cocks (See details at page 2.13 and 2.14)

**Vent:** Standard: threaded  $\frac{1}{2}$ " with plug

Options: On request, with flange or with cock  
(See details at page 2.13 and page 2.14)

**Drain:** Standard: threaded  $\frac{1}{2}$ " with plug

Options: On request, with flange or with cock  
(See details at page 2.13 and page 2.14)

#### Process connections with shut-off cocks: (See details at page 2.13 and page 2.14)

Cocks DS GR18: cylindrical plug type - Straight type - Quick 90° closing  
Lower cock with weight closing accessory for self closing

#### Dimensions

B = Distance depending on the specific weight of the fluid  
T = 130 mm (Standard); Option: on request  
S = 100 mm (Standard); Option: on request

#### Accessories

Shut-off cocks	(See details from page 2.13)
Drain cock	(See details from page 2.13)
Vent cock	(See details from page 2.13)
Calibrated scale	(See details from page 2.14)
Magnetic switches	(See details from page 2.15)
Level transmitter	(See details from page 2.29)

#### Weights

Magnetic level gauge: Kg. 12,0 approx. (With centre-to-centre 1.000 mm and flanges DN20 PN16)  
Cocks DS GR18 with weight closing for lower handle: Kg. 9,6 approx. (With flanges DN20 PN40)

#### Spare parts

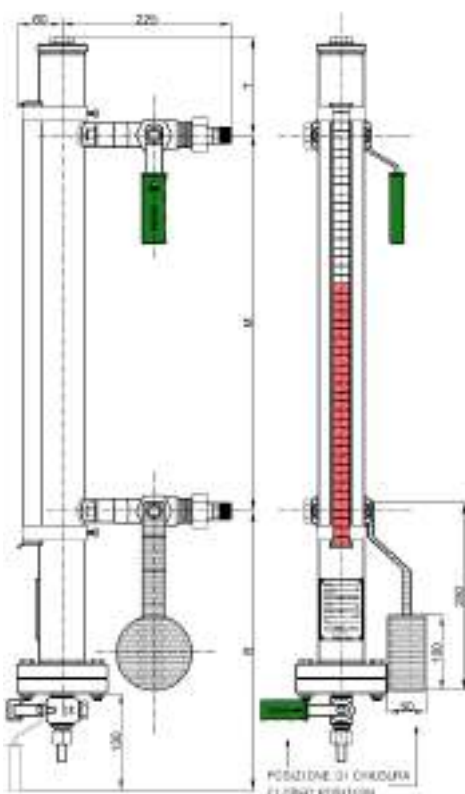
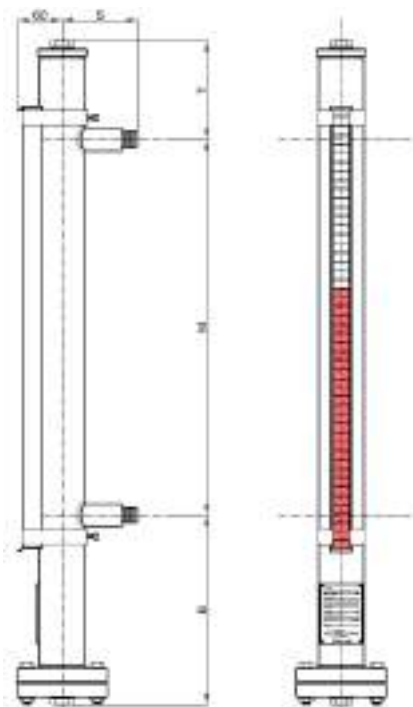
For routine maintenance are not necessary spare parts.  
For cocks and valves see from page 1.72 of the catalogue relative to the glass level gauges.

## MAGNETIC LEVEL GAUGE

PN16 and PN25 / Class 150

DS MG - DS BP - SHP

Code: DS MG - DSBP - 1/2" GAS-M - M...-SS/SS/.../SS-SHP



### Technical data

#### Service conditions

Pressure: PN16 / PN25 / Class 150  
Temperature: up to 300°C  
Specific weight:  $\geq 0,6 \text{ g/cm}^3$

#### Application

Fluid storage tanks also aboard of ships

#### View

Standard: adjustable on 360° in the installation phase

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

On request, distances up to 5.600 mm in one sole piece (Fixed distance, not adjustable)  
Option: On request distances over 5.600 mm (Execution in several pieces)

#### Materials (Standard)

Main chamber: Stainless steel 316L ( $\varnothing 60,3 \times 2 \text{ mm}$ )  
Float: Stainless steel 316L ( $\varnothing 50 \text{ mm}$ )  
Titanium Grade 2 ( $\varnothing 50 \text{ mm}$ )  
Process connections: Stainless steel 316L (flanged, threaded pipes, butt weld pipes)  
With shut-off cocks in carbon steel ASTM A105 or stainless steel 316L  
Rollers: Brass with red and white epoxy paint, anodised aluminium housing, glass cover  
Stainless steel red and white, anodised aluminium housing, glass cover (Execution for high temperature)  
Options: roller display housing with stainless steel cover

#### Gaskets

Standard: graphite/AISI 316

Options: PTFE/AISI 316

#### Process connections

Standard flanges:	UNI PN16/40 DN15-20-25	ANSI #150/RF DN 1/2" - 3/4" - 1"
Standard threaded pipes:	BSP-M 1/2" - 3/4" - 1"	NPT-M 1/2" - 3/4" - 1"
	BSP-F 1/2" - 3/4" - 1"	NPT-F 1/2" - 3/4" - 1"
Standard butt weld pipes:	BW 1/2" - 3/4" - 1"	SW 1/2" - 3/4" - 1"

Options: further connections type or connections with cocks (See details at page 2.13 and 2.14)

**Vent:** Standard: threaded 1/2" with plug

Options: On request, with flange or with cock  
(See details at page 2.13 and page 2.14)

**Drain:** Standard: threaded 1/2" with plug

Options: On request, with flange or with cock  
(See details at page 2.13 and page 2.14)

#### Process connections with shut-off cocks: (See details at page 2.13 and page 2.14)

Cocks DS GR18: cylindrical plug type - Straight type - Quick 90° closing  
Lower cock with weight closing accessory for self closing

#### Dimensions

B = Distance depending on the specific weight of the fluid  
T = 130 mm (Standard); Option: on request  
S = 100 mm (Standard); Option: on request

#### Accessories

Shut-off cocks	(See details from page 2.13)
Drain cock	(See details from page 2.13)
Vent cock	(See details from page 2.13)
Calibrated scale	(See details from page 2.14)
Magnetic switches	(See details from page 2.15)
Level transmitter	(See details from page 2.29)

#### Weights

Magnetic level gauge: Kg. 10,0 approx. (With centre-to-centre 1.000 mm and threads 1/2" BSP-M)  
Cocks DS GR18 with weight closing for lower handle: Kg. 7,2 approx. (With threads 1/2" BSP-M)

#### Spare parts

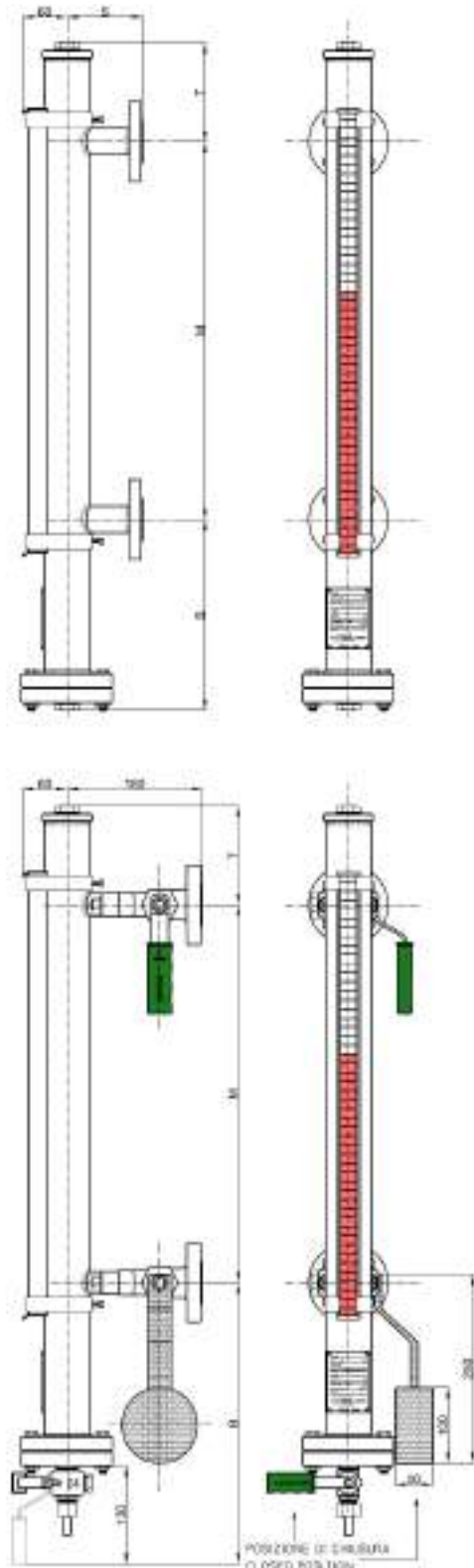
For routine maintenance are not necessary spare parts.  
For cocks and valves see from page 1.72 of the catalogue relative to the glass level gauges.

## MAGNETIC LEVEL GAUGE

PN40 / Class 300

DS MG - DS MP - SHP

Code: DS MG - DSMP - ... /40/RF - M...- SS/SS/.../SS - SHP



### Technical data

#### Service conditions

Pressure: PN40 / Class 300  
Temperature: up to 300°C  
Specific weight:  $\geq 0,6 \text{ g/cm}^3$

#### Application

Fluid storage tanks also aboard of ships

#### View

Standard: adjustable on 360° in the installation phase

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

On request, distances up to 5.600 mm in one sole piece (Fixed distance, not adjustable)  
Option: On request distances over 5.600 mm (Execution in several pieces)

#### Materials (Standard)

Main chamber: Stainless steel 316L ( $\varnothing 60,3 \times 2,77 \text{ mm}$ )  
Float: Titanium Grade 2 ( $\varnothing 50 \text{ mm}$ ) with reinforcements  
Process connections: Stainless steel 316L (flanged, threaded pipes, butt weld pipes)  
With shut-off cocks in carbon steel ASTM A105 or stainless steel 316L  
Rollers: Brass with red and white epoxy paint, anodised aluminium housing, glass cover  
Stainless steel red and white, anodised aluminium housing, glass cover (Execution for high temperature)  
Options: roller display housing with stainless steel cover

#### Gaskets

Standard: graphite/AISI 316

Options: PTFE/AISI 316

#### Process connections

Standard flanges:	UNI PN40 DN15-20-25	ANSI #300/RF DN $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"
Standard threaded pipes:	BSP-M $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"	NPT-M $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"
	BSP-F $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"	NPT-F $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"
Standard butt weld pipes:	BW $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"	SW $\frac{1}{2}$ " - $\frac{3}{4}$ " - 1"

Options: further connections type or connections with cocks (See details at page 2.13 and 2.14)

**Vent:** Standard: threaded  $\frac{1}{2}$ " with plug Options: On request, with flange or with cock (See details at page 2.13 and page 2.14)

**Drain:** Standard: threaded  $\frac{1}{2}$ " with plug Options: On request, with flange or with cock (See details at page 2.13 and page 2.14)

#### Process connections with shut-off cocks: (See details at page 2.13 and page 2.14)

Cocks DS GR18: cylindrical plug type - Straight type - Quick 90° closing  
Lower cock with weight closing accessory for self closing

#### Dimensions

B = Distance depending on the specific weight of the fluid  
T = 130 mm (Standard); Option: on request  
S = 100 mm (Standard); Option: on request

#### Accessories

Shut-off cocks	(See details from page 2.13)
Drain cock	(See details from page 2.13)
Vent cock	(See details from page 2.13)
Calibrated scale	(See details from page 2.14)
Magnetic switches	(See details from page 2.15)
Level transmitter	(See details from page 2.29)

#### Weights

Magnetic level gauge: Kg. 12,0 approx. (With centre-to-centre 1.000 mm and flanges DN20 PN40)  
Cocks DS GR18 with weight closing for lower handle: Kg. 9,6 approx. (With flanges DN20 PN40)

#### Spare parts

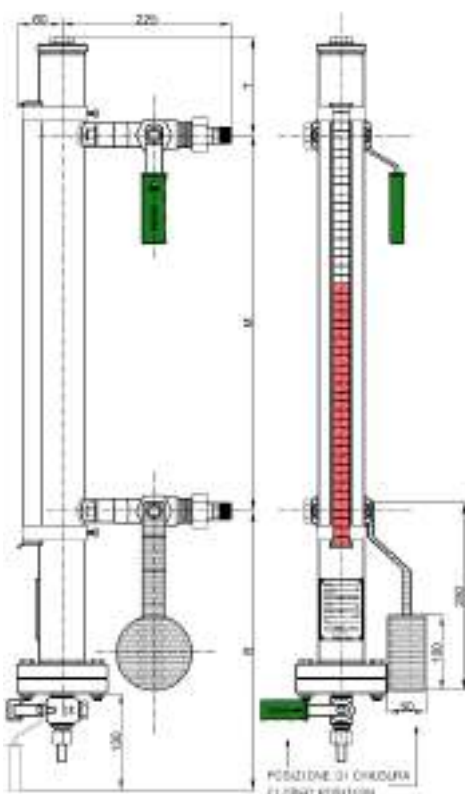
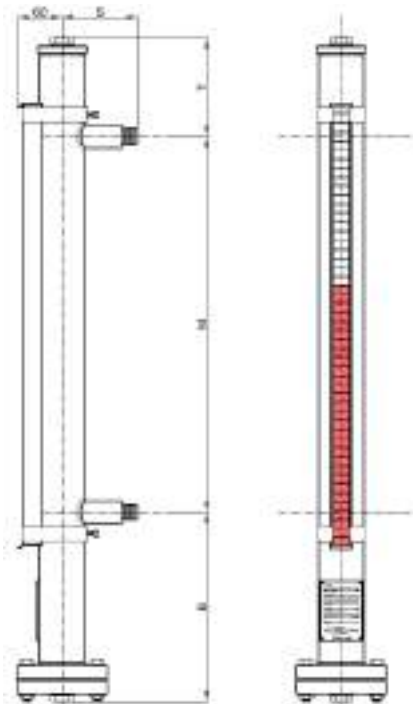
For routine maintenance are not necessary spare parts.  
For cocks and valves see from page 1.72 of the catalogue relative to the glass level gauges.

## MAGNETIC LEVEL GAUGE

PN40 / Class 300

DS MG - DS MP - SHP

Code: DS MG - DSBP - 1/2" GAS-M - M...-SS/SS/.../SS-SHP



### Technical data

#### Service conditions

Pressure: PN40 / Class 300  
Temperature: up to 300°C  
Specific weight:  $\geq 0,6 \text{ g/cm}^3$

#### Application

Fluid storage tanks also aboard of ships

#### View

Standard: adjustable on 360° in the installation phase

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

On request, distances up to 5.600 mm in one sole piece (Fixed distance, not adjustable)  
Option: On request distances over 5.600 mm (Execution in several pieces)

#### Materials (Standard)

Main chamber: Stainless steel 316L ( $\varnothing 60,3 \times 2,77 \text{ mm}$ )  
Float: Titanium Grade 2 ( $\varnothing 50 \text{ mm}$ ) with reinforcements  
Process connections: Stainless steel 316L (flanged, threaded pipes, butt weld pipes)  
With shut-off cocks in carbon steel ASTM A105 or stainless steel 316L  
Rollers: Brass with red and white epoxy paint, anodised aluminium housing, glass cover  
Stainless steel red and white, anodised aluminium housing, glass cover (Execution for high temperature)  
Options: roller display housing with stainless steel cover

#### Gaskets

Standard: graphite/AISI 316

Options: PTFE/AISI 316

#### Process connections

Standard flanges:	UNI PN40 DN15-20-25	ANSI #300/RF DN 1/2" - 3/4" - 1"
Standard threaded pipes:	BSP-M 1/2" - 3/4" - 1"	NPT-M 1/2" - 3/4" - 1"
	BSP-F 1/2" - 3/4" - 1"	NPT-F 1/2" - 3/4" - 1"
Standard butt weld pipes:	BW 1/2" - 3/4" - 1"	SW 1/2" - 3/4" - 1"

Options: further connections type or connections with cocks (See details at page 2.13 and 2.14)

**Vent:** Standard: threaded 1/2" with plug

Options: On request, with flange or with cock  
(See details at page 2.13 and page 2.14)

**Drain:** Standard: threaded 1/2" with plug

Options: On request, with flange or with cock  
(See details at page 2.13 and page 2.14)

#### Process connections with shut-off cocks: (See details at page 2.13 and page 2.14)

Cocks DS GR18: cylindrical plug type - Straight type - Quick 90° closing  
Lower cock with weight closing accessory for self closing

#### Dimensions

B = Distance depending on the specific weight of the fluid  
T = 130 mm (Standard); Option: on request  
S = 100 mm (Standard); Option: on request

#### Accessories

Shut-off cocks	(See details from page 2.13)
Drain cock	(See details from page 2.13)
Vent cock	(See details from page 2.13)
Calibrated scale	(See details from page 2.14)
Magnetic switches	(See details from page 2.15)
Level transmitter	(See details from page 2.29)

#### Weights

Magnetic level gauge: Kg. 10,0 approx. (With centre-to-centre 1.000 mm and threads 1/2" BSP-M)  
Cocks DS GR18 with weight closing for lower handle: Kg. 7,2 approx. (With threads 1/2" BSP-M)

#### Spare parts

For routine maintenance are not necessary spare parts.

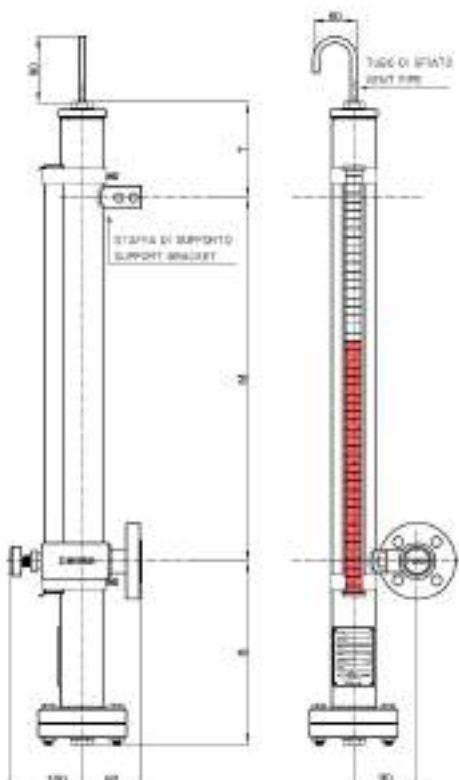
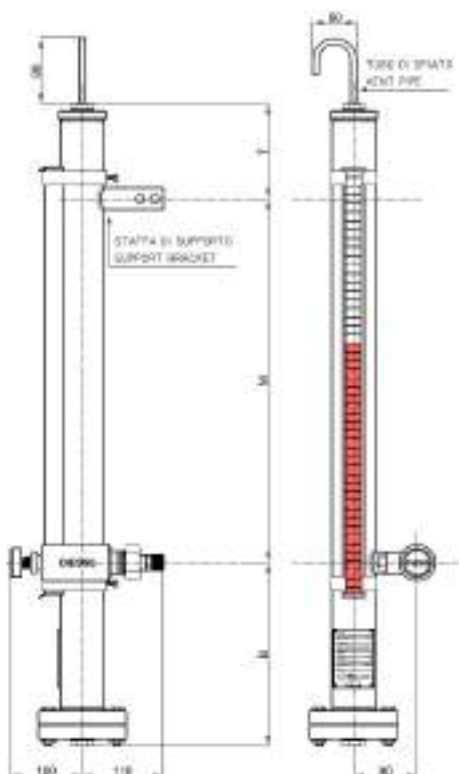
For cocks and valves see from page 1.72 of the catalogue relative to the glass level gauges.

## MAGNETIC LEVEL GAUGE

PN16

DS MG - DS BP - NPV - SHP

Code: DS MG-DSBP-... /16/RF-M...- SS/SS/.../SS-NPV- SHP



### Technical data

#### Service conditions

Pressure: PN16  
Temperature: up to 150°C  
Specific weight:  $\geq 0,6 \text{ g/cm}^3$

#### Application

Fluid storage tanks also aboard of ships

#### View

Standard: adjustable on 360° in the installation phase

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

On request, distances up to 5.600 mm in one sole piece (Fixed distance, not adjustable)  
Option: On request distances over 5.600 mm (In several pieces)

#### Materials (Standard)

Main chamber: Stainless steel 316L ( $\varnothing 60,3 \times 2 \text{ mm}$ )  
Float: Stainless steel 316L ( $\varnothing 50 \text{ mm}$ )  
Titanium Grade 2 ( $\varnothing 50 \text{ mm}$ )  
Process connections: Self closing valve DS NPV, push button type in carbon steel ASTM A105 galvanized or stainless steel 316L  
Rollers: Brass with red and white epoxy paint, anodised aluminium housing, glass cover  
Options: roller display housing with stainless steel cover

#### Gaskets

Standard: graphite/AISI 316

Options: PTFE/AISI 316

#### Self-closing Valve

DS NPV: self-closing, push button type

Handling: opening by push button (Standard: valve on the right side; On request on the left side)

#### Process connection:

Standard flange: UNI PN16 DN15-20-25 ANSI #150/RF DN  $\frac{1}{2}$ " -  $\frac{3}{4}$ " - 1"  
Standard threaded union: BSP-M  $\frac{1}{2}$ " -  $\frac{3}{4}$ " NPT-M  $\frac{1}{2}$ " -  $\frac{3}{4}$ "

Option: further connection types

Vent: Standard: threaded  $\frac{1}{2}$ " with vent pipe

Option: on request (see details at page 1.52)

Drain: Standard: threaded  $\frac{1}{2}$ " with plug

Option: on request (see details at page 1.52)

#### Dimensions

B = Distance depending on the specific weight of the fluid  
T = 130 mm (Standard); Option: on request

#### Accessories

Shut-off cocks (see details from page 2.13)  
Drain cock (see details from page 2.13)  
Vent cock (see details from page 2.13)  
Calibrated scale (see details from page 2.14)  
Magnetic switches (see details from page 2.15)  
Level transmitter (see details from page 2.29)

#### Weights

Magnetic level gauge: Kg. 13,5 approx. (with centre-to-centre 1.000 mm and valve DS NPV flanged DN20 PN16)

#### Spare parts

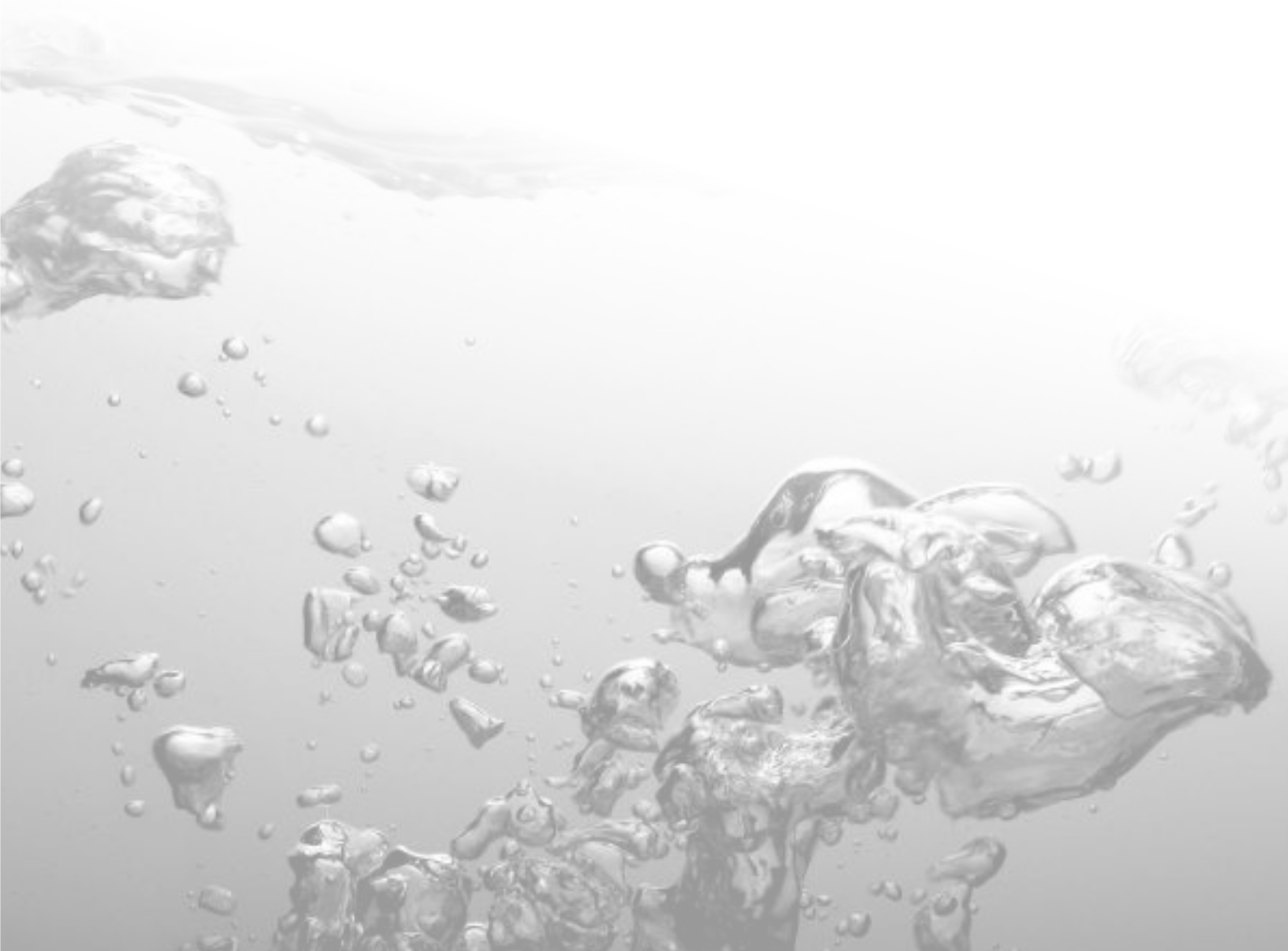
For routine maintenance are not necessary spare parts.

For valve DS NPV: see from page 1.74 (drawing with components and parts list see page 1.67) of the catalogue relative to the glass level gauges.





## accessories for magnetic level gauges

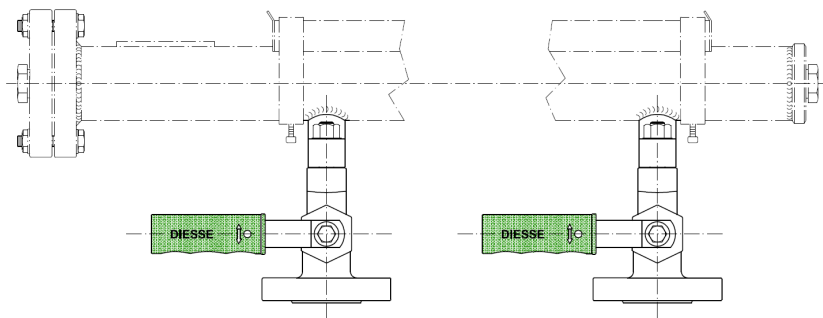


## ACCESSORIES FOR MAGNETIC LEVEL GAUGES

The DIESSE magnetic level gauges can be equipped with shut-off cocks, drain cock and vent cock.  
The shut-off cocks are connected to the main chamber by special T flanges with stainless steel AISI 316 gaskets.

### SHUT OFF COCKS cylindrical plug type

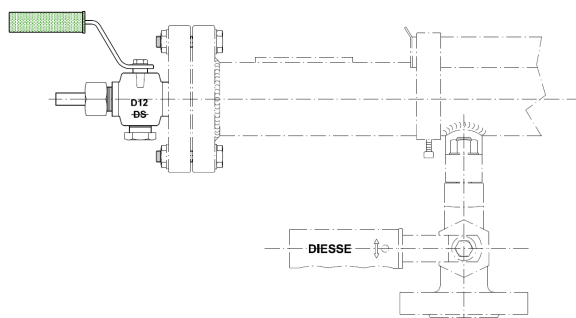
Handling: lever operated with PP handle - Quick 90° closing



Code: GR18

### DRAIN COCK cylindrical plug type

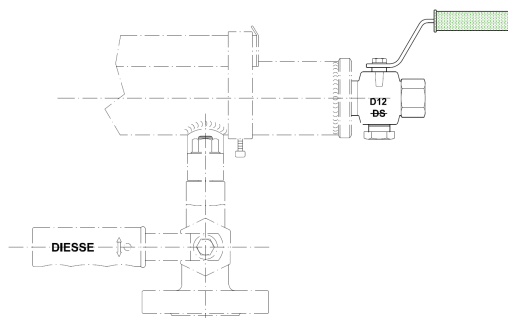
Handling: lever operated with PP handle - Quick 90° closing



Code: D12

### VENT COCK cylindrical plug type

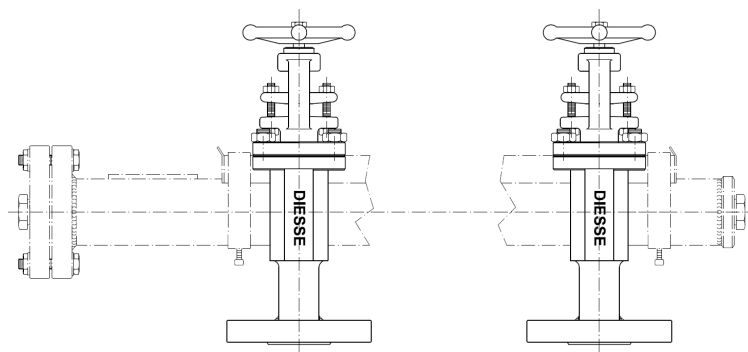
Handling: lever operated with PP handle - Quick 90° closing



Code: D12S

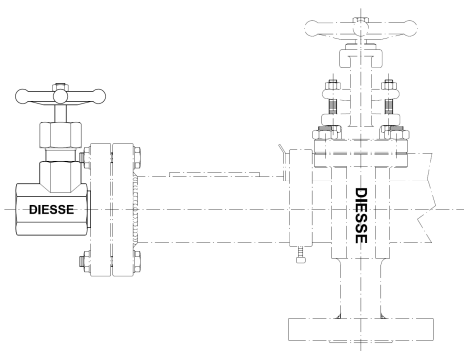
## ACCESSORIES FOR MAGNETIC LEVEL GAUGES

### SHUT OFF VALVES globe type



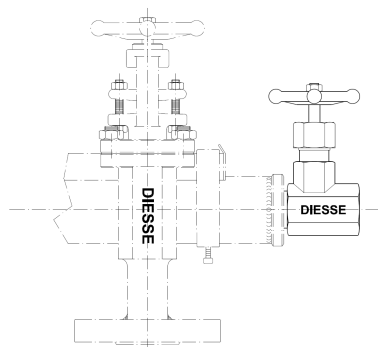
Code: SHV

### DRAIN VALVE globe type



Code: DHV

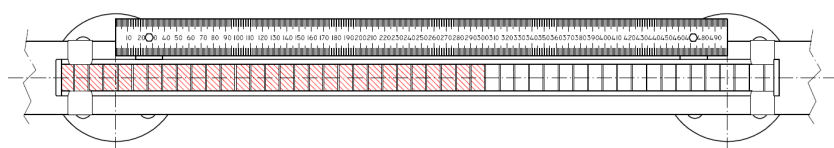
### VENT VALVE globe type



Code: DHVS

### 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.

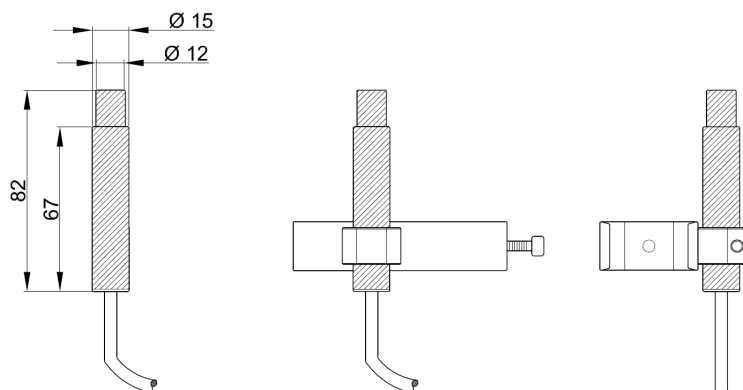


Code: VSG

## ACCESSORIES FOR MAGNETIC LEVEL GAUGES

### MAGNETIC SWITCH type TIM NSB 1240

Magnetic switches are used to monitor certain limits of the level.  
The obtained binary signal can be forwarded to trigger alarms or other controls.

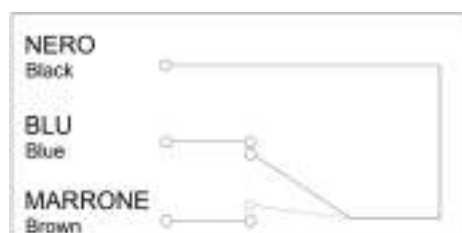


Code: TIM NSB 1240

### Technical data:

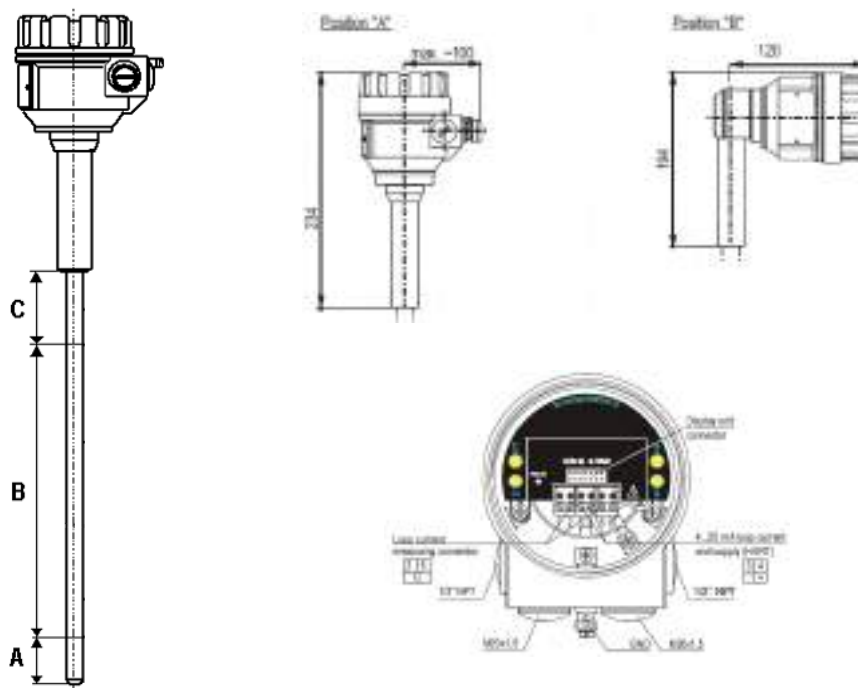
Code	TIM NSB 1240
Contact type	SPDT
Contact behaviour	Bistable
Working	Change-over
Contact material	Fe/Ni with Rodio
Max. power rating	60 VA / 30 W
Max. current rating	0,8 A
Max. voltage rating	220 V
Life time	100 million of controls
Operating frequency	250 imp/s
Repeatability precision	0,1 mm
Impact resistance	30 g / 11 ms
Vibrations resistance	0,35 mm 10-55Hz
Working temperature	-30°C / +160°C
Housing protection	IP 67
Housing material	LAESTRA (SPS) G40
Connection cable	Silicone 3 x 0,75 mmq; Length 3 m Nominal voltage 300 / 500 V Test voltage 2 KV According to table 5 of Standards CEI 20-29

### Connection diagram:



## ACCESSORIES FOR MAGNETIC LEVEL GAUGES

### LEVEL TRANSMITTER



#### Technical data:

Code	DS LTM-MTU-5- ...
Contact type	Magnetostrictive
Measured process value	Liquid level, distance, volume
Housing material	Paint coated aluminium
Tube material	Stainless steel 316 Ti
Measure A	50 mm (Standard) Other measures on request
Measure C	120 mm (Standard) 140 mm (High temperature)
Ambient temperature	-40 ... 70°C, with display -25 ... 70°C On request: execution for high temperature with thermal insulation
Output	Analogue: 4 ... 20 mA (Limit values: 3,9 ... 20,5 mA) With display: SAP 300 graphic display
Damping time	Adjustable 0 s ... 99 s
Error indication	22 mA oppure 3,8 mA or "holding"
Output load	$R_t = (U_t - 12,5V) / 0,02 A$ , $U_t$ = Power supply voltage
Power supply	12,5 V - 36 V DC, 2 wires
Electrical protection	Class III
Ingress protection	IP 67
Electric connection	2x M20x1,5 plastic cable glands for 6 ... 12 mm + 2x NPT 1/2" internal thread for cable protective pipe terminal block for 0,5 ... 1,5 mm <sup>2</sup> (AWG 20 ... AWG 15)
Resolution	1 mm
Nonlinearity	$\pm 2$ mm or $\pm 0,02\%$
Hysteresis	$< \pm 1$ mm
Temperature error	0,04 mm / 10°C (between -25°C ... 50°C)
Current output data	Resolution: 2 $\mu A$ , Accuracy: 10 $\mu A$ , Temperature error: 200 ppm/°C
Accessories	SAP-300 Plug-in display module



## cylindrical plug cocks

- TYPE DS D12
- TYPE DS D18
- TYPE DS PM18

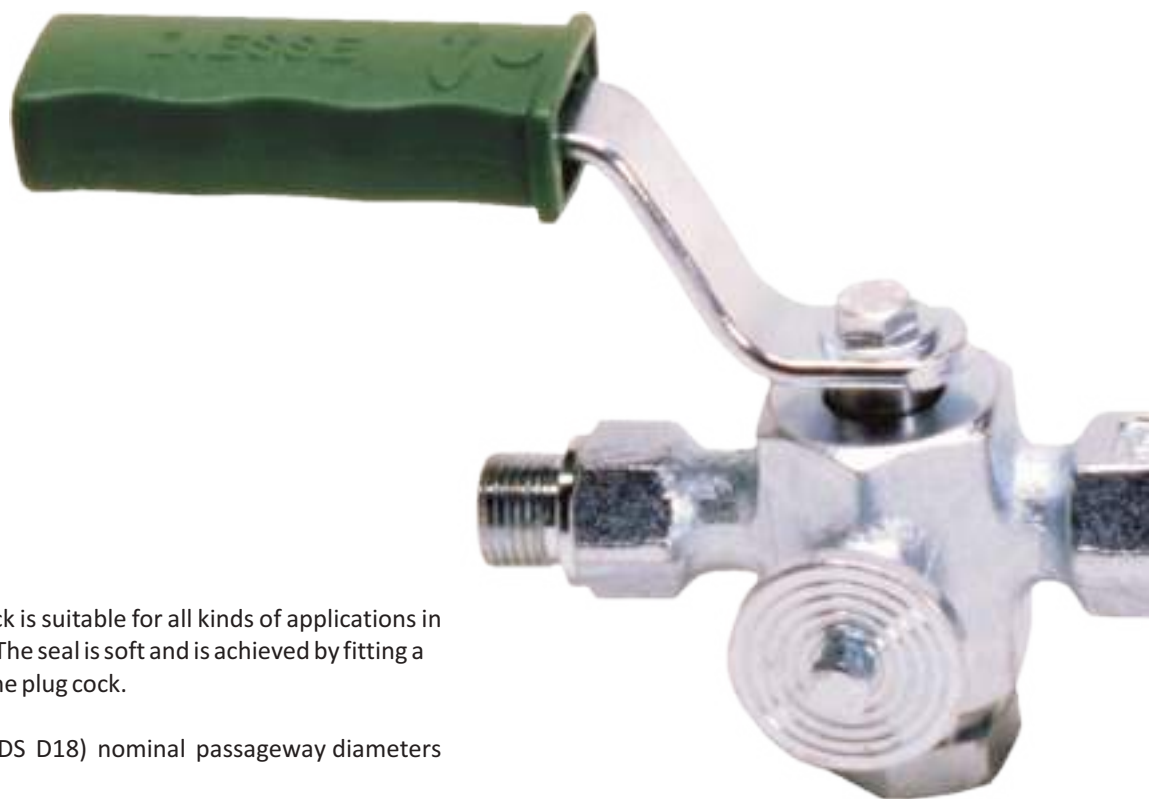
Two ways cylindrical plug cock type DS D12



Two ways cylindrical plug cock type DS D18



Three way cylindrical plug manometer setting valve with control flange type DS PM18



The DIESE cylindrical plug cock is suitable for all kinds of applications in a number of different sectors. The seal is soft and is achieved by fitting a case between the vessel and the plug cock.

6 mm (DS D12) and 8 mm (DS D18) nominal passageway diameters are available.

The DIESE manometer setting valve is a three way cylindrical plug cock with control flange (DS PM18) is soft sealing and the ideal product for securely fitting a manometer.

The cock has a flanged connection for this purpose, which must be screwed in so that no loss occurs as a result of incorrect operation (when a control manometer is not connected).

## Code

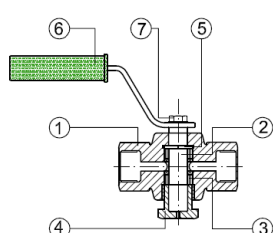
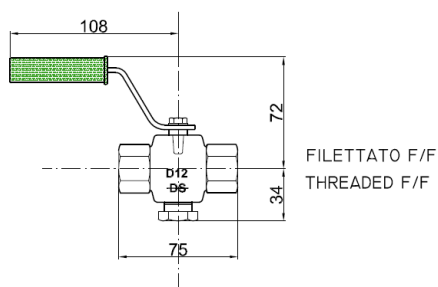
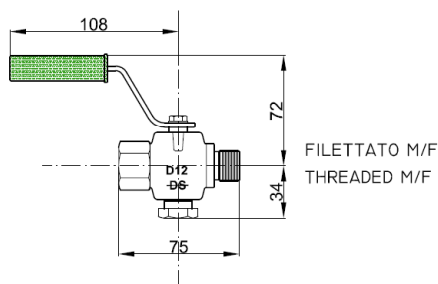
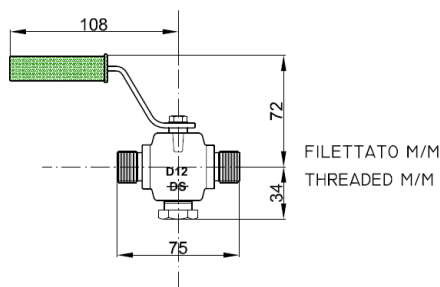
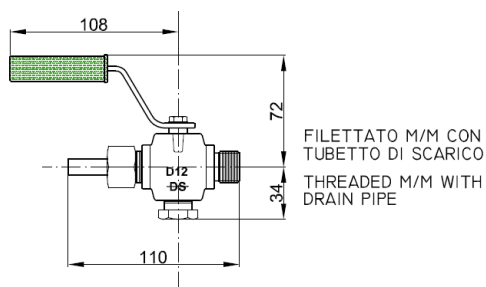
1	<b>Type</b>  DS D12                      Two way cylindrical plug cock with 6 mm bore DS D18                      Two way cylindrical plug cock with 8 mm bore DS PM18                    Three way cylindrical plug manometer setting valve with control flange
2	<b>Process connections</b>  <div> <b>Pos. 1: Nominal size</b>  1/4" or 3/8" or 1/2" </div> <div> <b>Pos. 2: Finitura filetto</b>  BSP (GAS) or NPT </div> <div> <b>Pos. 3: Pressione nominale</b>  PN40 or PN160 </div>
3	<b>Materials</b>  <div> <b>Pos. 1: Wetted parts</b>  CS      Carbon steel ASTM A105 galvanized  LF2     Carbon steel A105 LF2 galvanized  SS      Stainless steel AISI 316L </div> <div> <b>Pos. 2: Non-wetted parts</b>  CS      Carbon steel galvanized  SS      Stainless steel AISI 316 </div> <div> <b>Pos. 3: Gaskets</b>  Standard      Graphite  PF                PTFE </div>
Code	<div>1</div> <div>2</div> <div>3</div>
E.g.	<div>DS D12</div> <div>1/2"/BSP/MM/40</div> <div>CS/CS</div>

## CYLINDRICAL PLUG COCK

PN40 and PN160

DS D12

Code: DS D12 - .../.../40 - CS/CS



### Technical data

#### Service conditions

Max Pressure: PN40 (Standard)  
PN160 (On request) with high pressure sealing  
Max Temperature: 300°C with graphite sealing  
400°C (On request) with high temperature sealing

#### Description

The DIESSE cylindrical plug cock DS D12 is suitable for all kinds of applications in a number of different sectors.  
The seal is soft and is achieved by fitting a case between the vessel and the plug cock.  
It is also fitted as drain and/or vent cock on the glass level gauge gauges DS LG and on magnetic ones DS MG.

#### Handling

Quick 90° opening/closing

#### Materials (Standard)

Execution:	CS/CS	SS/CS	SS/SS
Body:	ASTM A105	AISI 316L	AISI 316L
Trim:	AISI 303	AISI 316	AISI 316
Stuffing box:	Carbon steel galvanized	Carbon steel galvanized	AISI 316
Handle:	Carbon steel galvanized	Carbon steel galvanized	AISI 316
Handle cover:	PP	PP	PP
Bolt and washer:	Carbon steel galvanized	Carbon steel galvanized	Stainless steel

#### Nominal passageway diameter

ND: 6 mm

#### Gasket

Standard: graphite case with passageway rings in stainless steel 316  
Option: PTFE case with passageway rings in stainless steel 316

#### Process connections

##### Type:

F x F - threaded female / female  
M x F - threaded male / female  
M x M - threaded male / male (1/2" BSP: Standard execution with drain pipe)

#### Threaded connections type (Standard):

BSP (GAS) 1/4" - 3/8" - 1/2"  
NPT 1/4" - 3/8" - 1/2"  
Options: flanged connections types or welding type

#### Weight

Cock DS D12: Kg. 0,5 approx.

#### Spare parts

Case with 2 holes: see page 1.72

#### Operating instructions

When starting the installation or after the case (3) replacement, before opening the cock, wait until the instrument reaches the room temperature.  
After the opening, should any leakage occur, softly tighten the stuffing box (4) several times until the leakage stop.

#### Instructions for the case removal and replacement

##### Assumptions:

- The replacement of the cock case requires such specific devices and tools that operations by personnel not specifically trained to do so is not advisable
- The cock has been designed so that dismantling is possible solely by means of specific tools in order to avoid the opening of its part by accident

In the case where the customer decides to proceed with his own personnel and tools for maintenance operations, it is **IMPORTANT**:

- To envision a skill operator with good technical and maintenance knowledge
- To contact the manufacturer for the best way to proceed and the suitable spare parts
- To be sure that operators wear appropriate individual personal protective means, and all necessary precautions are taken to avoid accidents

**Before starting any operation wait until the instrument reach the room temperature.**

**Before disassembling be sure that the pipe is not under pressure.**

- 1) Screw off the stuffing box (4) and the handle bolt (7)
- 2) Remove the handle (6)
- 3) To extract the cylindrical plug (2), by a soft extension (best a wooden one) gently beat on it several times paying attention that it does not fall off.  
Any scrape would compromise the cock sealing.
- 4) Clean the components with no-abrasive substances

##### Assembling:

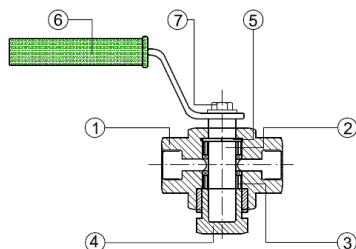
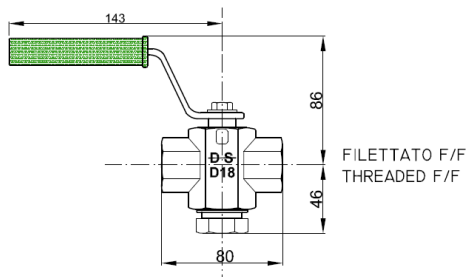
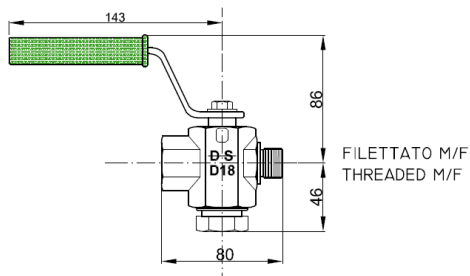
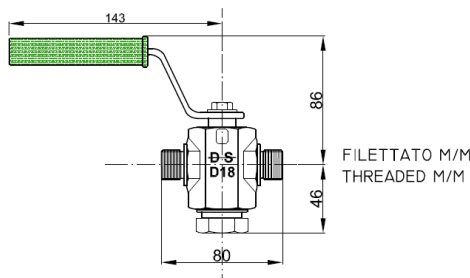
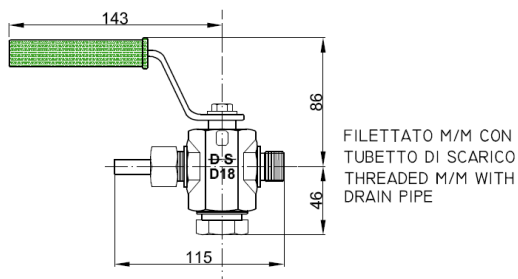
- 1) Insert the cylindrical plug (2) into the case (3) until it blocks against the split ring (5)
- 2) Insert the case (3) in the cock body (1) utilising the guide
- 3) Fix the handle (6) and gently tighten the stuffing box (4)

## CYLINDRICAL PLUG COCK

PN40 and PN160

DS D18

Code: DS D18 - .../.../40 - CS/CS



### Technical data

#### Service conditions

Max Pressure: PN40 (Standard)  
PN160 (On request) with high pressure sealing  
Max Temperature: 300°C with graphite sealing  
400°C (On request) with high temperature sealing

#### Description

The DIESSE cylindrical plug cock DS D18 is suitable for all kinds of applications in a number of different sectors.  
The seal is soft and is achieved by fitting a case between the vessel and the plug cock.

#### Handling

Quick 90° opening/closing

#### Materials (Standard)

Execution: CS/CS  
Body: ASTM A105  
Trim: AISI 303  
Stuffing box: Carbon steel galvanized  
Handle: Carbon steel galvanized  
Handle cover: PP  
Bolt and washer: Carbon steel galvanized

Option: different materials available

#### Nominal passageway diameter

ND: 8 mm

#### Gasket

Standard: graphite case with passageway rings in stainless steel 316  
Option: PTFE case with passageway rings in stainless steel 316

#### Process connections

##### Type:

F x F - threaded female / female  
M x F - threaded male / female  
M x M - threaded male / male (1/2" BSP: Standard execution with drain pipe)

#### Threaded connections type (Standard):

BSP (GAS) 1/2"  
NPT 1/2"

Options: flanged connections types or welding type

#### Weight

Cock DS D18: Kg. 0,9 approx.

#### Spare parts

Case with 2 holes: see page 1.72

#### Operating instructions

When starting the installation or after the case (3) replacement, before opening the cock, wait until the instrument reaches the room temperature.

After the opening, should any leakage occur, softly tighten the stuffing box (4) several times until the leakage stop.

#### Instructions for the case removal and replacement

##### Assumptions:

- The replacement of the cock case requires such specific devices and tools that operations by personnel not specifically trained to do so is not advisable
- The cock has been designed so that dismantling is possible solely by means of specific tools in order to avoid the opening of its part by accident

In the case where the customer decides to proceed with his own personnel and tools for maintenance operations, it is **IMPORTANT**:

- To envision a skill operator with good technical and maintenance knowledge
- To contact the manufacturer for the best way to proceed and the suitable spare parts
- To be sure that operators wear appropriate individual personal protective means, and all necessary precautions are taken to avoid accidents

**Before starting any operation wait until the instrument reach the room temperature.**

**Before disassembling be sure that the pipe is not under pressure.**

- 1) Screw off the stuffing box (4) and the handle bolt (7)
- 2) Remove the handle (6)
- 3) To extract the cylindrical plug (2), by a soft extension (best a wooden one) gently beat on it several times paying attention that it does not fall off.  
Any scrape would compromise the cock sealing.
- 4) Clean the components with no-abrasive substances

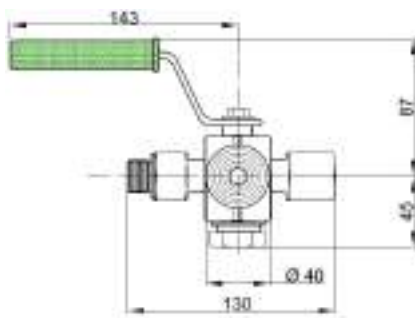
##### Assembling:

- 1) Insert the cylindrical plug (2) into the case (3) until it blocks against the split ring (5)
- 2) Insert the case (3) in the cock body (1) utilising the guide
- 3) Fix the handle (6) and gently tighten the stuffing box (4)

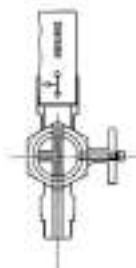
## CYLINDRICAL PLUG MANOMETER SETTING VALVE PN40

### DS PM18

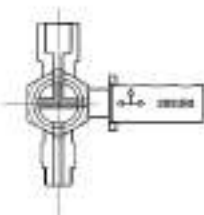
Code: DS PM18 - ....../.../40 - CS/CS



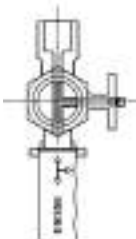
POSIZIONE OPERATIVA  
WORKING POSITION



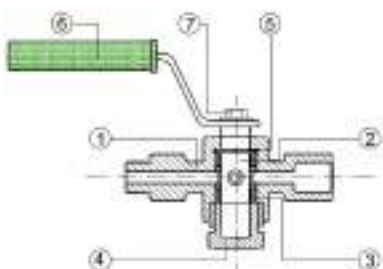
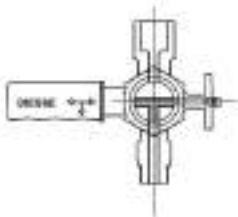
POSIZIONE DI CHIUSURA  
SHUT-OFF POSITION



POSIZIONE DI PROVA  
TEST POSITION



POSIZIONE DI SFIATO  
VENT POSITION



#### Technical data

##### Service conditions

Max Pressure: PN40  
Max Temperature: 300°C

##### Description

The DIESSE manometer setting valve DS PM18 is a cylindrical plug cock with control flange. It is suitable for the manometers installation. It has a little flange provided with a screw that avoids losses when a control manometer is not connected. The seal is soft and is achieved by fitting a case between the vessel and the plug cock.

##### Handling

Quick 90° opening/closing

##### Materials (Standard)

Execution:	CS/CS
Body:	ASTM A105
Trim:	AISI 303
Stuffing box:	Carbon steel galvanized
Handle:	Carbon steel galvanized
Handle cover:	PP
Bolt and washer:	Carbon steel galvanized

Option: different materials available

##### Nominal passageway diameter

ND: 8 mm

##### Nominal passageway diameter for control manometer

ND: 5 mm

##### Gasket

Standard: graphite case with passageway rings in stainless steel 316  
Option: PTFE case with passageway rings in stainless steel 316

##### Process connections

###### Type:

M x F - threaded male / female

##### Threaded connections type (Standard):

BSP (GAS) 3/8" - 1/2"

Options: connections NPT threaded, welding type or flanged type

##### Weight

Cock DS PM18: Kg. 1,2 approx.

##### Spare parts

Case with 3 holes: see page 1.72

##### Operating instructions

When starting the installation or after the case (3) replacement, before opening the cock, wait until the instrument reaches the room temperature.

After the opening, should any leakage occur, softly tighten the stuffing box (4) several times until the leakage stop.

##### Instructions for the case removal and replacement

###### Assumptions:

- The replacement of the cock case requires such specific devices and tools that operations by personnel not specifically trained to do so is not advisable
- The cock has been designed so that dismantling is possible solely by means of specific tools in order to avoid the opening of its part by accident

In the case where the customer decides to proceed with his own personnel and tools for maintenance operations, it is **IMPORTANT**:

- To envision a skill operator with good technical and maintenance knowledge
- To contact the manufacturer for the best way to proceed and the suitable spare parts
- To be sure that operators wear appropriate individual personal protective means, and all necessary precautions are taken to avoid accidents

**Before starting any operation wait until the instrument reach the room temperature.**

**Before disassembling be sure that the pipe is not under pressure.**

- 1) Screw off the stuffing box (4) and the handle bolt (7)
- 2) Remove the handle (6)
- 3) To extract the cylindrical plug (2), by a soft extension (best a wooden one) gently beat on it several times paying attention that it does not fall off.  
Any scrape would compromise the cock sealing.
- 4) Clean the components with no-abrasive substances

###### Assembling:

- 1) Insert the cylindrical plug (2) into the case (3) until it blocks against the split ring (5)
- 2) Insert the case (3) in the cock body (1) utilising the guide
- 3) Fix the handle (6) and gently tighten the stuffing box (4)



## blow down valves

- WITH LEVER
- WITH PNEUMATIC ACTUATOR



Blow down valve with lever and adjustment handwheel



The main function of these valves is to drain mud in hydraulic circuits.

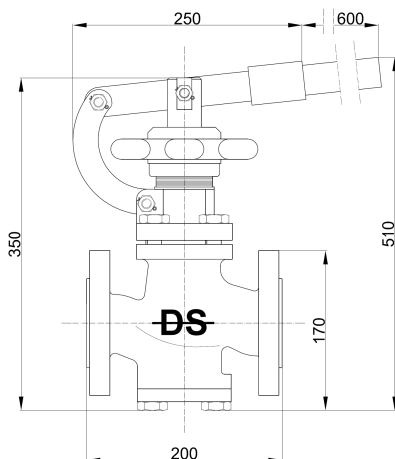
DIESSE blow down valves must be installed downstream of a shut-off globe valve suitable for the intended use of the system.

The seal is metal and, thanks to the tempered disc and stellited seat, the valve can be used with high temperature steam.

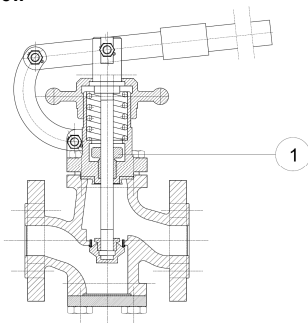
Blow down valve with pneumatic actuator and safety handwheel

## BLOW DOWN VALVE DN40 PN40 DS BDV

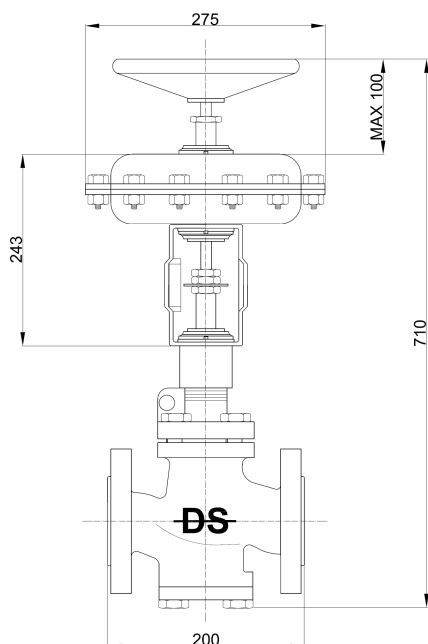
Code: DS BDV - 40/40 - WCB/CS



Sectional view



Code: DS BDVPA - 40/40 - WCB/CS



### Technical data

#### Service conditions

Max pressure: PN40  
Max temperature: 400°C

#### Description

The main function of these valves is to drain mud in hydraulic circuits. DIESSE blow down valves must be installed downstream of a shut-off globe valve suitable for the intended use of the system. The seal is metal and, thanks to the tempered disc and stellited seat, the valve can be used with high temperature steam. On request the valve can be supplied with a pneumatic actuator.

#### Handling

Quick on/off operation by lever or by pneumatic actuator

#### Materials (Standard)

Execution:	CS/CS
Body:	ASTM A216 WCB
Bonnet:	ASTM A216 WCB
Lower cover:	Carbon steel galvanized
Stem:	ASTM F6A
Plug:	ASTM F6A
Seat:	AISI 410A con riporto in stellite Grado 6
Packing:	Graphite

#### Flange-to-flange distance measure

L = 200 mm

#### Process connections

Standard flanges: UNI DN40 PN40  
Option: on request it is possible to reduce the flanges' diameter (UNI or ANSI) maintaining the same body and flange-to-flange distance measure

#### Feeding pneumatic actuator

Air pressure: 35-40 psi

#### Weights

Valve DS BDV: Kg. 20,0 approx.  
Valve DS BDVPA: Kg. 23,0 approx.

#### Operating instructions

##### Caution: the valve can reach high temperatures

- The opening and closing operation of the valve or the screws tightening requires such specific devices and tools that operation by personnel not specifically trained to do so is not advised.
- During the above mentioned operations, operators must wear appropriate individual personal protective means, and all necessary precautions must be taken to avoid accidents.
- The valve has been designed to be disassembled with special tools only, to avoid the opening of its part by accident.

The DIESSE blow down valve must be installed following the direction indicated by the arrow on the body.

We recommend to install the blow down valve downstream of a streamlined flow valve.

To reach the better result we recommend to open very quickly the valve so that the thicker mud on the floor can be removed from water. The manual type enables to block the lever on the preferred open position by means of an adjustment handwheel.

Should any leakage occur when the valve is off, please check that the adjustment handwheel is completely unscrewed.

As the closing spring is very powerful, in case a pneumatic actuator is installed, it is recommended to install a control valve on the air exit to check and slow the plug air emptying.

Should any leakage occur from the packing, slightly screw the gland (1) (1/4 turn at a time, until leakage stops) by means of a 5 mm metal rod.

When the stuffing box completes the adjustment, it is possible to insert a graphite braid to temporary restore the packing.

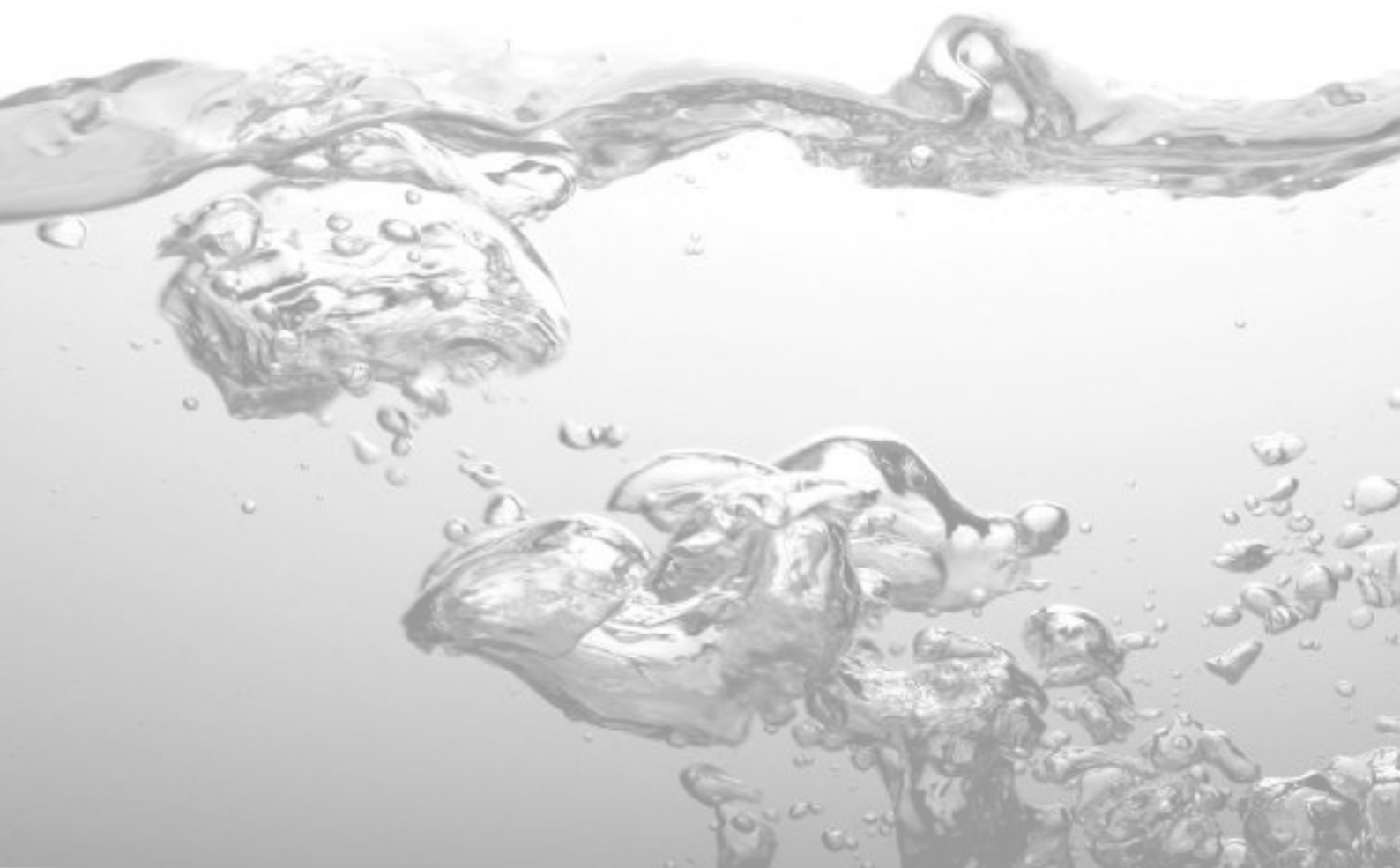
The packing replacement should be done by the Manufacturer because the spring ejection could cause injury to a no-skilled involved operator. The same is recommended for the plug and seat replacements.

It is also recommended, before any valve usage, to assure a careful cleaning of the equipment by checking the presence of welding residual or iron scraps. They could damage the plug and the seat reducing their tight. If any scrape is noted, please contact DIESSE to agree parts replacements.

In the case of installation of the valve near the passage of personnel, it is advisable to signal the presence of the extension tube of the handle by painting of an intense colour, or unscrew it after each use.

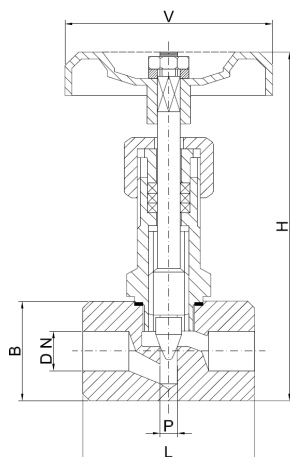


## needle valves



## NEEDLE VALVES

### NEEDLE VALVE Class 3000 psi (Light type)



Code:  
Light type: DS NV 3000  
Heavy type: DS NV HB 3000

Execution	CS	SS
Body	ASTM A105 galvanized	AISI 316L
Bonnet	ASTM A105 galvanized	AISI 316
Needle	AISI 316L	AISI 316L
Stem	AISI 316L	AISI 316L
Packing	PTFE	PTFE
Handwheel	Stamped steel	Stamped steel

DN	L	P	B	V	H	Weight
1/4"	60	5	30	70	115	0,6
3/8"	60	6	30	70	115	0,6
1/2"	60	6	30	70	115	0,6
3/4"	70	7,5	35	70	118	0,7
1"	75	9	40	80	136	1,0
1" 1/4	90	11,5	50	125	165	1,2
1" 1/2	100	16	60	125	175	2,7
2"	120	19	70	125	185	4,1

#### Standard execution:

- Moving needle
- Threaded connections BSP (GAS) F/F or NPT F/F

#### On request:

- Class 6000 psi
- Fixed needle
- Welding connections SW or BW
- Threaded connections BSP (GAS) M/M or NPT M/M
- Flanged connections UNI or ANSI
- Drain screw
- Calibrated opening index
- Bakelite handwheel or bar handwheel
- Graphite packing for high temperature

### NEEDLE VALVE Class 3000 psi (Heavy type)

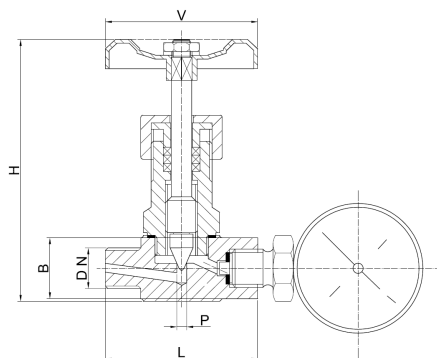
Execution	CS	SS
Body	ASTM A105 galvanized	AISI 316/L
Bonnet	ASTM A105 galvanized	AISI 316
Needle	F6 / AISI 410	AISI 316/L
Stem	F6 / AISI 410	AISI 316
Packing	PTFE	PTFE
Handwheel	Stamped steel	Stamped steel

DN	L	P	B	V	H	Weight
1/4"	61	5	30	70	115	0,6
3/8"	61	6	30	70	115	0,6
1/2"	70	8	35	70	118	0,8
3/4"	78	9	40	80	135	1,1
1"	90	11	50	100	170	2,0
1" 1/4	100	15	60	100	180	2,5
1" 1/2	130	19	70	125	195	3,0
2"	140	22	80	150	210	3,5

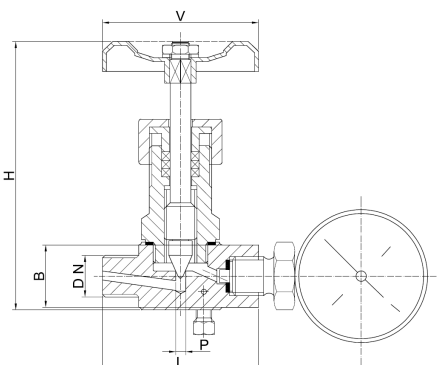


## NEEDLE VALVES

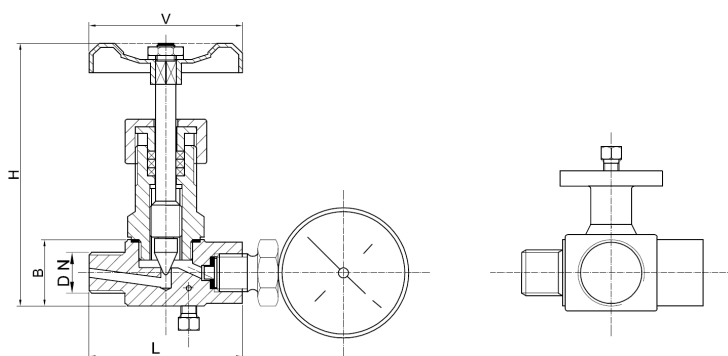
### MANOMETER SETTING NEEDLE VALVE Class 3000 psi



Two way  
Code: DS NV M2S 3000



Two way with zero setting screw  
Code: DS NV M2P 3000



Three way with control flange and  
zero setting screw  
Code: DS NV M3F 3000

Execution	CS	SS
Body	ASTM A105 galvanized	AISI 316L
Bonnet	ASTM A105 galvanized	AISI 316
Needle	AISI 316L	AISI 316L
Stem	AISI 316L	AISI 316L
Packing	PTFE	PTFE
Handwheel	Stamped steel	Stamped steel

DN	L	P	B	V	H	Weight
1/4"	60	3,5	30	70	115	0,6
3/8"	60	4	30	70	115	0,6
1/2"	60	4	30	70	115	0,6

#### Standard execution:

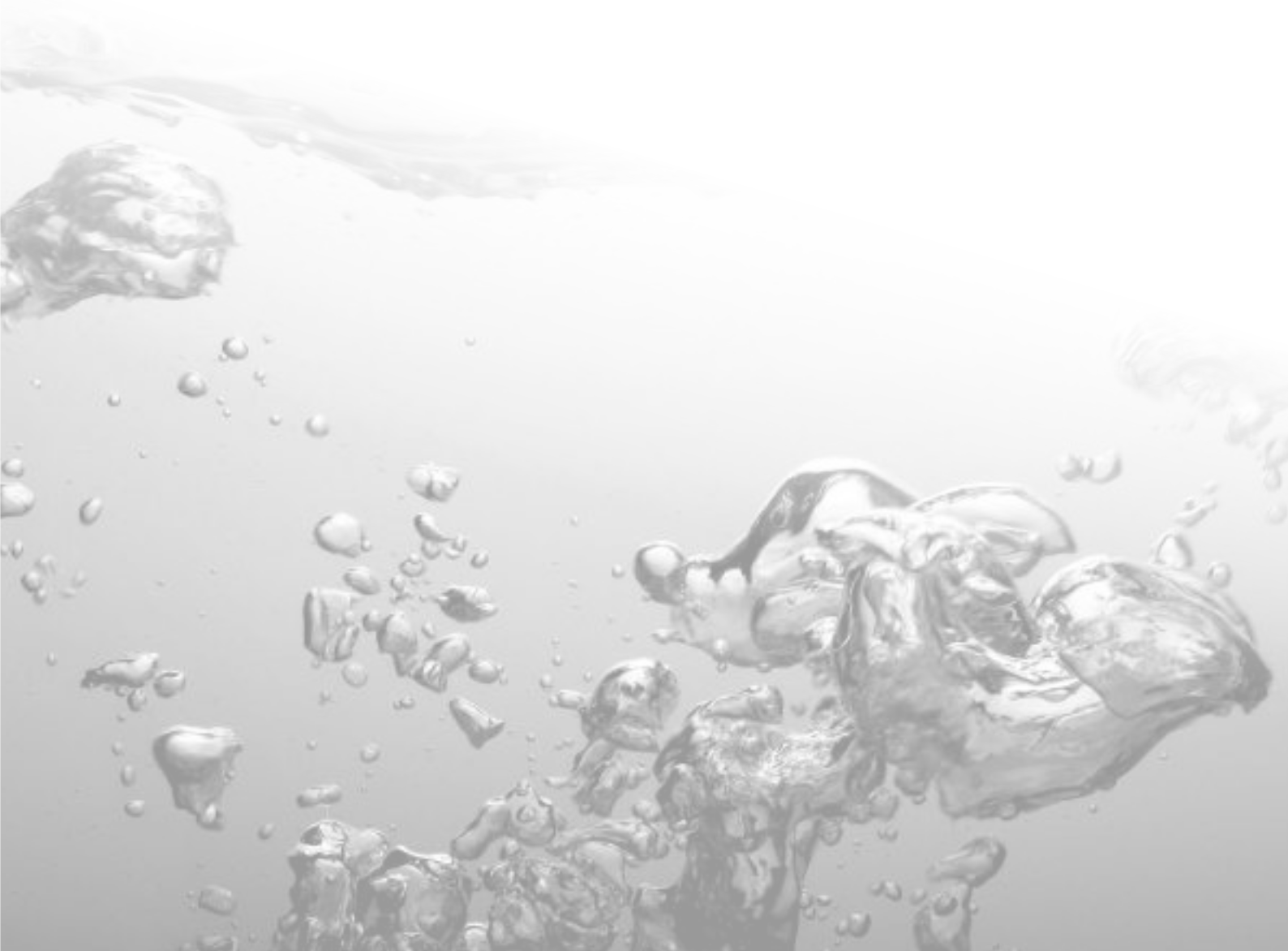
- Moving needle
- Threaded connections BSP (GAS) M/F or NPT M/F

#### On request:

- Class 6000 psi
- Fixed needle
- Welding connections SW or BW
- Bakelite handwheel or bar handwheel
- Graphite packing for high temperature

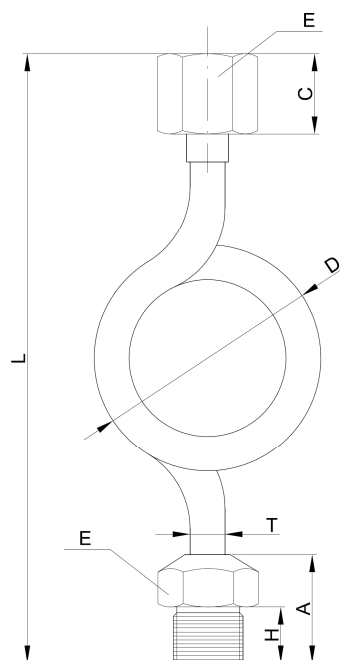


**coils**



## COILS

### COIL with threaded connections male / female (revolving)



Code:

Chromed steel: DS TC CS

Stainless steel: DS TC SS

Copper: DS TC CU

#### Standard execution:

- Size: 1/4" - 3/8" - 1/2"
- 180° execution
- Material: chromed steel, stainless steel (AISI 304) and copper
- Threaded connections BSP (GAS) M/F
- Revolving female

#### On request:

- 90° execution
- Material: Stainless steel (AISI 316)

#### Chromed steel

DN	L	T	D	A	C	H	E
1/4"	140	6x8	60	20	14	12	17
3/8"	165	7x10	65	29	20	14	22
1/2"	180	7x10	65	33	23	16	24

#### Stainless steel (AISI 304)

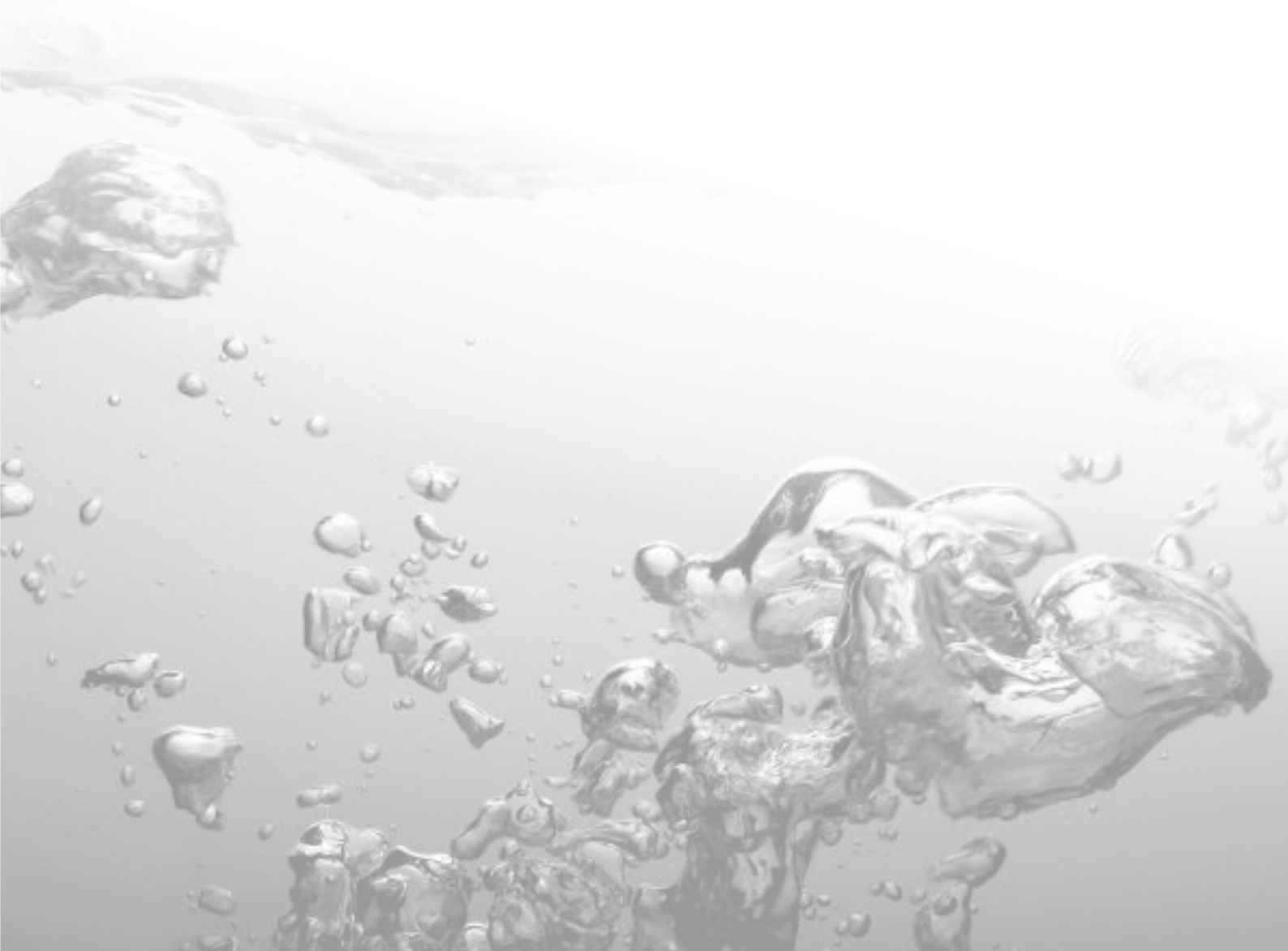
DN	L	T	D	A	C	H	E
1/4"	155	5x7	60	23	17	12	17
3/8"	195	7x10	65	30	20	14	22
1/2"	195	7x10	65	34	24	16	24

#### Copper

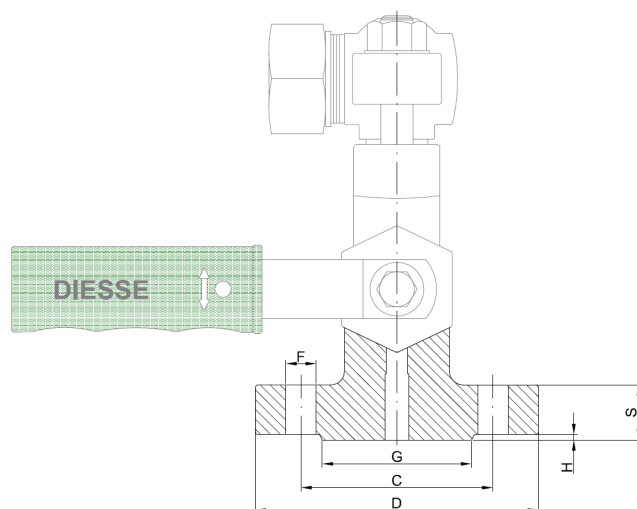
DN	L	T	D	A	C	H	E
1/4"	150	6x8	70	24	14	12	17
3/8"	160	7x10	65	23	18	14	22
1/2"	170	7x10	65	30	19	16	26



## Flange dimensions



## DIMENSIONI FLANGE / FLANGE DIMENSIONS



DIMENSIONI DI ACCOPPIAMENTO (IN MM) DELLE FLANGE PER PRESSIONI NOMINALI / CONNECTING DIMENSIONS (IN MM) OF FLANGES FOR NOMINAL PRESSURES

UNI PN 16							
Size	D	S	G	H	n°	F	C
DN 15	95	14	45	2	4	14	65
DN 20	105	16	58	2	4	14	75
DN 25	115	16	68	2	4	14	85
DN 32	140	16	78	2	4	18	100
DN 40	150	16	88	3	4	18	110
DN 50	165	18	102	3	4	18	125

ANSI 150							
Size	D	S	G	H	n°	F	C
½"	89	11,1	34,9	1,6	4	16	60,3
¾"	98,5	12,7	42,9	1,6	4	16	69,9
1"	108	14,3	50,8	1,6	4	16	79,4
1 ¼"	117,5	15,9	63,5	1,6	4	16	88,9
1 ½"	127	17,5	73	1,6	4	16	98,4
2"	152,5	19,1	92,1	1,6	4	16	120,7

UNI PN 25 - 40							
Size	D	S	G	H	n°	F	C
DN 15	95	16	45	2	4	14	65
DN 20	105	18	58	2	4	14	75
DN 25	115	18	68	2	4	14	85
DN 32	140	18	78	2	4	18	100
DN 40	150	18	88	3	4	18	110
DN 50	165	20	102	3	4	18	125

ANSI 300							
Size	D	S	G	H	n°	F	C
½"	95,5	14,3	34,9	1,6	4	16	66,7
¾"	117,5	15,9	42,9	1,6	4	19	82,5
1"	124	17,5	50,8	1,6	4	19	88,9
1 ¼"	133,5	19	63,5	1,6	4	19	98,4
1 ½"	155,5	20,7	73	1,6	4	22,5	114,3
2"	165	22,2	92,1	1,6	8	19	127

UNI PN 64							
Size	D	S	G	H	n°	F	C
DN 15	105	20	45	2	4	14	75
DN 20	130	22	58	2	4	18	90
DN 25	140	24	65	2	4	18	100
DN 32	155	24	75	2	4	22	110
DN 40	170	26	85	3	4	22	125
DN 50	180	26	95	3	4	22	135

ANSI 600							
Size	D	S	G	H	n°	F	C
½"	95,5	20,65	34,9	6,35	4	16	66,7
¾"	117,5	22,25	42,9	6,35	4	19	82,5
1"	124	23,85	50,8	6,35	4	19	88,9
1 ¼"	133,5	26,95	63,5	6,35	4	19	98,4
1 ½"	155,5	28,55	73	6,35	4	22,5	114,3
2"	165	31,75	92,1	6,35	8	19	127

UNI PN 100 - 160							
Size	D	S	G	H	n°	F	C
DN 15	105	20	45	2	4	14	75
DN 20	130	22	58	2	4	18	90
DN 25	140	24	65	2	4	18	100
DN 32	155	24	75	2	4	22	110
DN 40	170	26	85	3	4	22	125
DN 50	195	28	95	3	4	25	145

ANSI 900 - 1500							
Size	D	S	G	H	n°	F	C
½"	120,5	28,55	34,9	6,35	4	22,5	82,5
¾"	130	31,75	42,9	6,35	4	22,5	88,9
1"	149,5	34,95	50,8	6,35	4	25,5	101,6
1 ¼"	159	34,95	63,5	6,35	4	25,5	111,1
1 ½"	178	38,15	73	6,35	4	28,5	123,8
2"	216	44,45	92,1	6,35	8	25,5	165,1