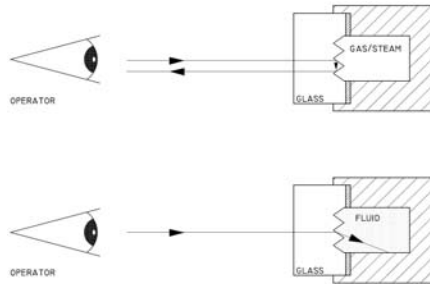




REFLEX level gauges

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:

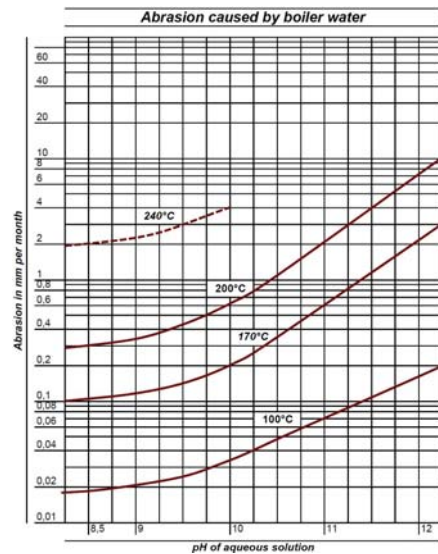
Max. pressure: 255,5 bar @ 38°C (rating class 1500)
Max. temperature: 300°C (max. temperature allowed by borosilicate glasses as per the DIN 7081 standard - see page 1.69)

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).



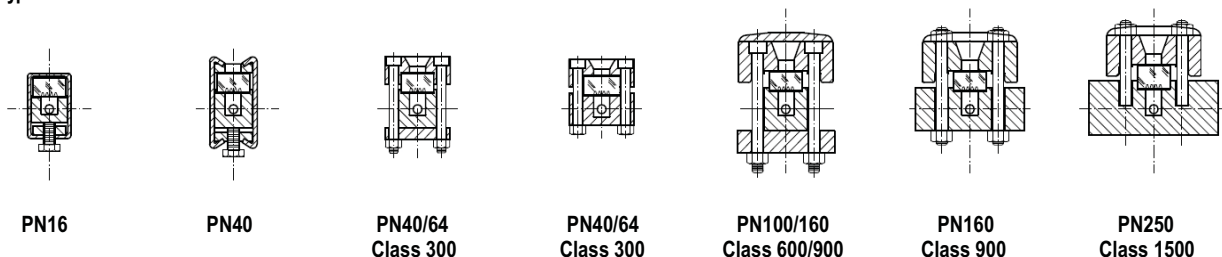
The product is NOT suitable for use in the following instances:

- 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; 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 centre-to-centre 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 (type GR18 or MT18 - see page 1.47)
- Globe valves (type SHV - see page 1.48)
- Push-button valves (type NPV - see page 1.48)
- Ball valves (type 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

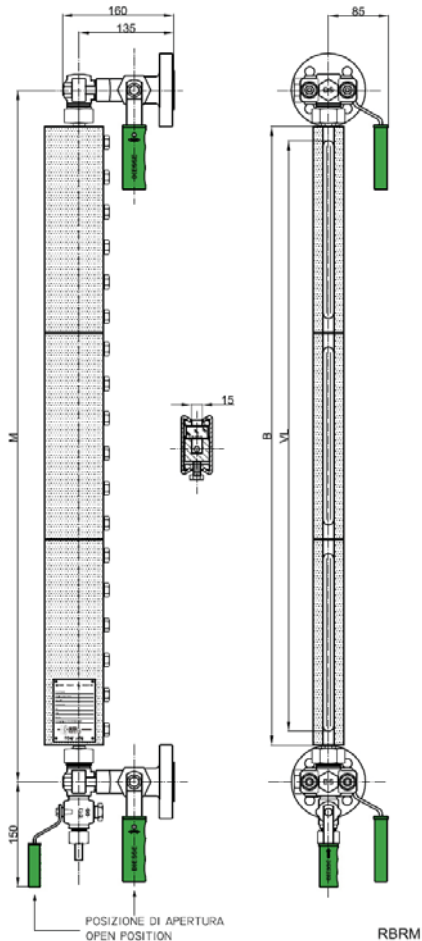
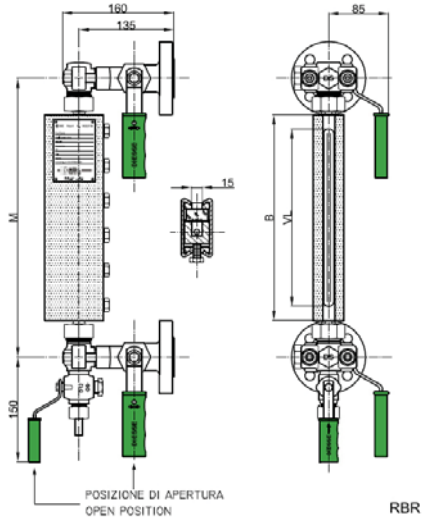
All DIESE products are individually checked and tested in accordance with company quality procedures and the industry regulations currently in effect.

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

Gaskets

Standard: graphite/copper

Option: graphite/AISI 316 or PTFE/AISI316

Shut-off cocks

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

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

(see page 1.47) **Centre-to-centre distance $M = B + 115 \text{ mm}$ or 140 mm**

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

Process connections:

Standard flanges: UNI PN40 DN15-20-25

ANSI#150-300-600/RF DN 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 type 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)

Option: type B (see page 1.69)

Accessories

See from page 1.55

Weights

Housing type DS RBR: see below table

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

Tightening torque of housing screws

Standard: 40 Nm

Spare parts

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

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

CODE	TYPE	BODY Length [mm]	DISTANCE SL Pipes L = 57 -0/+10 mm	DISTANCE HL Pipes L = 70 -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