# GLASS LEVEL GAUGES

## Basic Type
- **DS LG**: DIESESE Glass level gauge

## Level Gauge Model

<table>
<thead>
<tr>
<th>Pos. 1: Level Gauge type</th>
<th>Pos. 2: No. of sections</th>
<th>Pos. 3: Glass size / type</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTR</td>
<td>Reflex - rotating execution with tubular cover</td>
<td></td>
</tr>
<tr>
<td>RTF</td>
<td>Reflex - fixed distance execution with tubular cover</td>
<td></td>
</tr>
<tr>
<td>RBR</td>
<td>Reflex - rotating execution with lateral covers</td>
<td></td>
</tr>
<tr>
<td>RBF</td>
<td>Reflex - fixed distance execution with lateral covers</td>
<td></td>
</tr>
<tr>
<td>RCR</td>
<td>Reflex - rotating execution with light cover</td>
<td></td>
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<tr>
<td>RDR</td>
<td>Reflex - rotating execution with light cover - flat body</td>
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<tr>
<td>RFC</td>
<td>Reflex - fixed distance execution with light cover</td>
<td></td>
</tr>
<tr>
<td>RFR</td>
<td>Reflex - fixed distance execution with heavy cover</td>
<td></td>
</tr>
<tr>
<td>RXF</td>
<td>Reflex - fixed distance execution with heavy cover - flat body</td>
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<tr>
<td>TCR</td>
<td>Transparent - rotating execution with light cover</td>
<td></td>
</tr>
<tr>
<td>TMR</td>
<td>Transparent - rotating execution with light cover - flat body</td>
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</tr>
<tr>
<td>TCF</td>
<td>Transparent - fixed distance execution with light cover</td>
<td></td>
</tr>
<tr>
<td>TMF</td>
<td>Transparent - fixed distance execution with light cover - flat body</td>
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<tr>
<td>TRF</td>
<td>Transparent - fixed distance execution with heavy cover</td>
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<tr>
<td>TXF</td>
<td>Transparent - fixed distance execution with heavy cover - flat body</td>
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</tr>
<tr>
<td>RBF</td>
<td>Reflex - fixed distance execution with lateral covers</td>
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<tr>
<td>RCF</td>
<td>Reflex - fixed distance execution with light cover</td>
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<tr>
<td>RFR</td>
<td>Reflex - fixed distance execution with heavy cover</td>
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<tr>
<td>RXF</td>
<td>Reflex - fixed distance execution with heavy cover - flat body</td>
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<tr>
<td>TCF</td>
<td>Transparent - rotating execution with light cover</td>
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<tr>
<td>TCM</td>
<td>Transparent - rotating execution with light cover - flat body</td>
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<tr>
<td>TRW</td>
<td>Transparent - weld-on type with light cover</td>
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</tr>
<tr>
<td>TVR</td>
<td>Tubular glass type</td>
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## Process connections

<table>
<thead>
<tr>
<th>Pos. 1: Nominal dimension</th>
<th>Pos. 2: Nominal pressure</th>
<th>Pos. 3: Type / Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Side / Side</td>
<td>/SB Side / Bottom</td>
<td></td>
</tr>
<tr>
<td>/TB Top / Bottom</td>
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</table>

## Gauge Valves model

<table>
<thead>
<tr>
<th>Pos. 1: Type of valves</th>
<th>Pos. 2: Drain and Vent connection</th>
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</thead>
<tbody>
<tr>
<td>0 None</td>
<td>0 Blind</td>
</tr>
<tr>
<td>GR18 Cylindrical plug cocks</td>
<td>PB Plug BSP</td>
</tr>
<tr>
<td>MT18 Cylindrical plug cocks - Monolithic body</td>
<td>FL Flange</td>
</tr>
<tr>
<td>NPV Push button valves</td>
<td>D12 Cylindrical plug cock (Standard)</td>
</tr>
<tr>
<td>SHV Globe valves</td>
<td>D18 Cylindrical plug cock</td>
</tr>
<tr>
<td>SBB Ball valves</td>
<td>PM18 Three way cylindrical plug manometer setting valve with control flange</td>
</tr>
</tbody>
</table>

## Distance Centre-to-centre
- **M.** Distance between connections centres in mm
- **M [SL...HL]** Standard distance: see table in each level type form

## Materials

<table>
<thead>
<tr>
<th>Pos. 1: Wetted parts</th>
<th>Pos. 2: Non-wetted parts</th>
<th>Pos. 3: Gaskets</th>
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</thead>
<tbody>
<tr>
<td>CS Carbon steel ASTM A105 galvanized</td>
<td>CS Carbon steel galvanized</td>
<td>Standard</td>
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<tr>
<td>LF2 Carbon steel A105 LF2 galvanized</td>
<td>SS Stainless steel AISI 316</td>
<td>Graphite / Copper</td>
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<tr>
<td>SS Stainless steel AISI 316</td>
<td>GF AISI 316</td>
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## Accessories

<table>
<thead>
<tr>
<th>LC Lower check ball</th>
<th>UC Upper check ball</th>
<th>LUC Check balls (lower + upper)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPH Lower pusher</td>
<td>UPH Upper pusher</td>
<td>LUPH Pusher (lower + upper)</td>
</tr>
<tr>
<td>VSG Calibrated scale</td>
<td>NFSE Non-frosting extension</td>
<td>CR Continuous reading</td>
</tr>
<tr>
<td>MLA Minimum level arrow</td>
<td>EVA50 Bub type illuminator</td>
<td>TDR Microwave transmitter</td>
</tr>
<tr>
<td>GPU Glass tube protection</td>
<td>MTJ Middle terminal for glass tube</td>
<td>ELC Remote control</td>
</tr>
<tr>
<td>LFC Weight closing for lower handle</td>
<td>UFE Weight closing for upper handle</td>
<td>LUC Weight closing for all handles (lower + upper)</td>
</tr>
<tr>
<td>SMHD Cocks handles lock (all)</td>
<td>LU-SMHD Shut-off cocks handles lock</td>
<td>D/V-SSHD Vent and drain handles lock</td>
</tr>
</tbody>
</table>

## Approvals

| EEEx ATEX SHP... Marine |

## Code

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<tr>
<th>1</th>
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<tr>
<td>DS</td>
<td>LG</td>
<td>RBR17</td>
<td>2040RF</td>
<td>GR18D120</td>
<td>M 420</td>
<td>CS/CS</td>
<td>LC/VSG</td>
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</table>
GLASS LEVEL GAUGE
REFLEX TYPE
PN25 and PN40 / Class 150
DS LG - RBR GR18

Technical data

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

View
Standard: adjustable on 360° in the installation phase

Distance (Centre-to-centre)
Standard: see below table. (Distance adjustable - 0 mm / + 10 mm)
Option: On request intermediate distances and over 3.000 mm

Materials (Standard)
Gauge body & cocks body:
ASTM A105
AISI 303
AISI 316
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

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

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

Non-wetted parts: Carbon steel galvanized

Weights
Reflect - Borosilicate glass, “extra hard” and thermally pre-stressed - According to DIN 7081

Accessories
Vent:
Standard: blind
Option: see page 1.50
Drain:
Standard: cock type D12 threaded ½”
Option: see page 1.50

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

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

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

### View
- Standard: 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
- **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
- **Type DS GR18**: cylindrical plug type - Straight type - Quick 90° closing
- **Handling**: lever operated with PP handle (Standard: right; Option: left)
- **Process connections**:
  - **Standard flanges**: UNI PN40 DN15- 20-25
  - **Standard threaded unions**: BSP-M ½" - ¾"
  - **Options**: further connections types or direct connections to the process without shut-off cocks (see page 1.51)

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

### Accessories
- See from page 1.55

### Weights
- **Housing type DS RBF**: see below table
- **Cocks type DS GR18**: Kg. 7,4 approx. (with flanges UNI DN20 PN40)

### Tightening torque of housing screws
- **Standard**: 40 Nm

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

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### Table RBF

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</tr>
</tbody>
</table>

Tab. RBF
Technical data

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

View
Standard: adjustable on 360° in the installation phase

Distance (Centre-to-centre)
Standard: see below table (Distance adjustable - 0 mm / + 10 mm)
Option: On request intermediate distances and over 3.000 mm

Materials (Standard)
Execution:

<table>
<thead>
<tr>
<th></th>
<th>CS/CS</th>
<th>SS/CS</th>
<th>SS/SS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gauge body &amp; cocks body:</td>
<td>ASTM A105</td>
<td>AISI 316L</td>
<td>AISI 316L</td>
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<tr>
<td>Cocks trim:</td>
<td>AISI 303</td>
<td>AISI 316</td>
<td>AISI 316</td>
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<tr>
<td>Non-wetted parts:</td>
<td>Carbon steel galvanized</td>
<td>Carbon steel galvanized</td>
<td>AISI 316</td>
</tr>
</tbody>
</table>

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

Process connections:
Standard flanges: UNI PN40 DN15- 20-25
ANSI#150-300-600/RF DN ½" - ¾" - 1"
Options: further connections types or direct connections to the process without shut-off cocks
(see page 1.49)

Vent:
Standard: blind
Option: see page 1.50

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

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

Accessories
See from page 1.55

Weights
Housing type DS RCR: see below table
Cocks type DS GR18: Kg. 7,4 approx. (with flanges UNI DN20 PN40)

Tightening torque of housing screws
Standard: 35 Nm

Spare parts
Housing type DS RCR: see from page 1.69 (drawing with components and parts list see page 1.62)
Cocks type DS GR18: see from page 1.72 (drawing with components and parts list see page 1.66)

<table>
<thead>
<tr>
<th>CODE</th>
<th>TYPE</th>
<th>BODY Length [mm]</th>
<th>DISTANCE SL Pipes L = 57 /-0/+10 mm</th>
<th>DISTANCE HL Pipes L = 72 /-0/+10 mm</th>
<th>VISIBLE Length [mm]</th>
<th>GLASS Length [mm]</th>
<th>WEIGHT Housing [Kg]</th>
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Tab. RCR
Technical data

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

View
Standard: adjustable on 360° in the installation phase

Distance (Centre-to-centre)
Standard: see below table (Distance adjustable - 0 mm / + 10 mm)
Option: On request intermediate distances and over 3,000 mm

Materials (Standard)
Execution:
- CS/CS
- SS/CS
- SS/SS

Gauge body:
- ASTM A105
- AISI 316L
- AISI 316

Cocks body type DS GR18:
- ASTM A105
- AISI 316L
- AISI 316

Valves body type DS SHV:
- A105 LF2
- AISI 316L
- AISI 316L

Stem, disc / seat valves:
- AISI 410 / 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
Type DS GR18: cylindrical plug type - Straight type - Quick 90° closing
Handling: lever operated with PP handle (Standard: right; Option: left)
Valves type DS SHV: globe type - Opening/Closing by handwheel

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

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

Vent:
Standard: blind
Option: see page 1.50

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

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

Accessories
See from page 1.55

Weights
Housing type DS RDR: see below table
Cocks type DS GR18: Kg. 7,4 approx. (with flanges UNI DN20 PN40)
Valves type DS SHV: Kg. 11,8 approx. (with flanges UNI DN20 PN40)

Tightening torque of housing screws
Standard: 35 Nm

Spare parts
Housing type DS RDR: see from page 1.69 (drawing with components and parts list see page 1.62)
Cocks type DS GR18: see from page 1.72 (drawing with components and parts list see page 1.66)
Valves type DS SHV: see from page 1.74 (drawing with components and parts list see page 1.68)

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Tab. RDR
**Specifications and design can be subject to change without notice**

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

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

#### 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 316
- Cocks trim: AISI 303, 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
- Type DS GR18: cylindrical plug type - Straight type - Quick 90° closing
- Handling: lever operated with PP handle (Standard: right; Option: left)

#### Process connections:
- Standard flanges: UNI PN40-64 DN 15-20-25
- ANSI#150-300-600/RF DN 1/2" - 1"
- Standard threaded unions: BSP-M 1/2" - 1"
- NPT-M 1/2" - 1"
- Options: further connections types or direct connections to the process without shut-off cocks (see page 1.51)

#### Vent:
- Standard: threaded 1/4" with plug
- Option: see page 1.52

#### Drain:
- Standard: cock type D12 threaded 1/4"
- 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 type DS RCF: see below table
- Cocks type DS GR18: Kg. 7.4 approx. (with flanges UNI DN20 PN40)

#### Tightening torque of housing screws
- Standard: 35 Nm

#### Spare parts
- Housing type DS RCF: see from page 1.69 (drawing with components and parts list see page 1.62)
- Cocks type DS GR18: see from page 1.72 (drawing with components and parts list see page 1.66)

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1.11

**Rev.0** Specifications and design can be subject to change without notice.
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: 280/300°C (According to DIN 7081 for glasses, see page 1.69)

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

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
Valves body: A105 LF2, AISI 316L
Stem, disc / seat valves: AISI 410 / 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
Type DS SHV: globe type
Handling: by handwheel

Process connections:
Standard flanges: UNI PN40-64 DN 15-20-25, 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 type 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 type DS RCF: see below table
Valves type DS SHV: Kg. 11,8 approx. (with flanges UNI DN20 PN40)

Tightening torque of housing screws
Standard: 35 Nm

Spare parts
Housing type DS RCF: see from page 1.69 (drawing with components and parts list see page 1.62)
Valves type DS SHV: see from page 1.74 (drawing with components and parts list see page 1.68)
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: 280/300°C (According to DIN 7081 for glasses, see page 1.69)

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

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
Type DS GR18: cylindrical plug type - Straight type - Quick 90° closing
Handling: lever operated with PP handle (Standard: right; Option: left)

Process connections:
Standard flanges: UNI 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 Option: see page 1.52

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

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

Accessories
See from page 1.55

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

Tightening torque of housing screws
Standard: 75 Nm

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

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Tab. RPF
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: 280/300°C (According to DIN 7081 for glasses, see page 1.69)

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

Distance (Centre-to-centre)
Standard: see below table for mimimum 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
Valves body: A105 LF2, AISI 316L
Stem, disc / seat valves: AISI 410 / 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
Type 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 type 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 type DS RPF: see below table
Valves type DS SHV: Kg. 13,5 approx. (with flanges UNI DN20 PN100)

Tightening torque of housing screws
Standard: 75 Nm

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

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Tab. RPF
Specifications and design can be subject to change without notice

**Technical data**

**Service conditions**
Max Pressure: PN160; Class 900 (A105: 153.1 bar @ 38°C; AISI 316L: 148.9 bar @ 38°C)
Max Temperature: 280/300°C (According to DIN 7081 for glasses, see page 1.69)

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

**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 
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**
Type DS GR18: cylindrical plug type - Straight type - Quick 90° closing
Handling: lever operated with PP handle (Standard: right; Option: left)

**Process connections:**
Standard flanges: UNI PN160 DN20 - DN25
Standard threaded unions: BSP-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 type D12 threaded ½" 
Option: see page 1.52

**Glasses**
Reflex - Borosilicate glass, “extra hard” and thermally pre-stressed - According to DIN 7081
Standard: fitted with type B (see page 1.69)

**Accessories**
See from page 1.55

**Weights**
Housing type DS RXF: see below table
Cocks type DS GR18: Kg. 9.2 approx. (with flanges UNI DN20 PN100)

**Tightening torque of housing screws**
Standard: 75 Nm

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

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**CODE**
**TYPE**
**BODY Length [mm]**
**DISTANCE SL MINIMUM [mm]**
**VISIBLE Length [mm]**
**GLASS Level Gauge**
**WEIGHT Housing [Kg]**

Rev.0
Specifications and design can be subject to change without notice
1.15
## Technical data

### Service conditions
Max Pressure: PN160; Class 900 (A105: 153.1 bar @ 38°C; AISI 316L: 148.9 bar @ 38°C)
Max Temperature: 280/300°C (According to DIN 7081 for glasses, see page 1.69)

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

### 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

**Valves body:**
- A105 LF2
- AISI 316L

**Stem, disc / seat valves:**
- AISI 410 / 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
**Type 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 type 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 type DS RXF:** see below table
**Valves type DS SHV:** Kg. 13.5 approx. (with flanges UNI DN20 PN160)

### Tightening torque of housing screws
Standard: 75 Nm

### Spare parts
**Housing type DS RXF:** see from page 1.69 (drawing with components and parts list see page 1.63)
**Valves type DS SHV:** see from page 1.74 (drawing with components and parts list see page 1.68)

### Table RXF

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**Tab. RXF**
Technical data

Service conditions
Max Pressure: PN16
Max Temperature: 280/300°C (According to DIN 7081 for glasses, see page 1.69)

View
Standard: adjustable on 360° in the installation phase

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

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

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

Process connections:
Standard flanges: UNI PN16/40 DN15-20-25
ANSI#150/RF DN ½“ - ¾“ - 1”
Standard threaded unions: BSP-M ½“ - ¾“
NPT-M ½“ - ¾”
Options: further connections types or direct connections to the process without shut-off cocks (see page 1.49)

Vent:
Standard: blind
Option: see page 1.50

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

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

Accessories
See from page 1.55

Weights
Housing type DS RTR: see below table
Cocks type DS GR18: Kg. 7,4 approx. (with flanges UNI DN20 PN40)
Cocks type DS MT18: Kg. 6,1 approx. (with flanges UNI DN20 PN40)

Tightening torque of housing screws
Standard: 25 Nm

Spare parts
Housing type DS RTR: see from page 1.69 (drawing with components and parts list see page 1.61)
Cocks type DS GR18: see from page 1.72 (drawing with components and parts list see page 1.66)
Cocks type DS MT18: see from page 1.64 (drawing with components and parts list see page 1.67)

With cocks type DS GR18:

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Tab. RTR

With cocks type DS MT18 (Monolithic body):

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Tab. RTRMT
Technical data

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

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

Distance (Centre-to-centre)
On request, Fixed distance, not adjustable

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

Gaskets
- Standard: PTFE/copper
- Option: graphite/copper

Valves
- Standard: ball valves type SBB threaded 1/2" BSP-F - Quick 90° closing
- Handling: lever operated
- Option: on request cylindrical plug cocks type DS D12 threaded 1/2" BSP-F - Quick 90° closing (see page 3.3)
- Handling: lever operated with PP handle

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

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

Drain:
- Standard: ball valve type DS DBB threaded 3/8" BSP-F - Quick 90° closing
- Handling: lever operated
- Option: on request with cylindrical plug cocks type DS D12 threaded 3/8" BSP-F or BSP-M with drain tube

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

Accessories
See from page 1.55

Weights
- Housing type DS RTF: see below table
- Ball valve type DS SBB: Kg. 0.2 unit approx.
- Cock type DS D12: Kg. 0.5 unit approx.

Tightening torque of housing screws
- Standard: 20 Nm

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

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Tab. RTF
GLASS LEVEL GAUGE REFLEX TYPE
PN25
DS LG - RBFPM D18

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 type DS D18 threaded 1/2" BSP-F - Quick 90° closing (see page 3.4)
Handling: lever operated with PP handle

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

Vent:
Standard: three way cylindrical plug manometer setting valve with control flange type DS PM18 threaded 1/2" BSP-F (see page 3.5)
Handling: lever operated with PP handle
Option: on request threaded 1/2" BSP-F with plug (without cock)

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

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

Accessories
See from page 1.55

Weights
Housing type DS RBFPM: see below table
Cocks type DS D18: Kg. 0.9 unit approx.
Cock type DS PM18: Kg. 1.2 unit approx.
Cock type DS D12: Kg. 0.5 unit approx.

Tightening torque of housing screws
Standard: 40 Nm

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

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Tab. RBFPM
Specifications and design can be subject to change without notice.

**Technical data**

**Service conditions**
- Pressure max: PN16
- Temperature 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
- Gauge body & valve body: ASTM A105, AISI 316L
- Stem and disc: AISI 410, AISI 316
- Non-wetted parts: Carbon steel galvanized

**Gaskets**
- Standard: graphite/copper
- Option: PTFE/AISI316

**Self-closing Valve**
- Type 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
  - Standard threaded unions: ANSI#150/RF DN ½" - ¾" - 1"
  - Option: further connections types

**Vent**
- Standard: threaded ½" with vent pipe
- Option: on request (see details at page 1.52)

**Drain**
- Standard: threaded ½" 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 type DS RBF: see below table
- Valve type DS NPV: Kg. 2.6 approx. (with flanges UNI DN20 PN16)
  - Tightening torque of housing screws: Standard: 40 Nm

**Spare parts**
- Housing type DS RBF: see from page 1.69 (drawing with components and parts list see page 1.61)
- Valve type DS NPV: see from page 1.74 (drawing with components and parts list see page 1.67)
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: 280/300°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: 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
Type DS GR18: cylindrical plug type - Straight type - Quick 90° closing
Lower cock with weight closing accessory for self closing
Handling: lever operated (Standard: right; Option: left)

Materials (Standard)
Standard flanges: UNI PN40 DN15-20-25
Process connections: BSP-M ½” - ¾”
Standard threaded unions: graphite/copper
Non-wetted parts: Carbon steel galvanized

Standard: 40 Nm
Housing type DS RBR: see from page 1.69 (drawing with components and parts list see page 1.61)

Tightening torque of housing screws
Standard: 40 Nm
Spare parts
Housing type DS RBR: see from page 1.69 (drawing with components and parts list see page 1.61)
Cocks type DS GR18: see from page 1.72 (drawing with components and parts list see pag. 1.66)

CODE TYPE BODY LENGTH [mm] DISTANCE SL Pipes L = 57 -0/+10 mm DISTANCE HL Pipes L = 72 -0/+10 mm VISIBLE GLASS LENGTH [mm] WEIGHT [Kg] x No. el.

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<th>DISTANCE HL Pipes L = 72 -0/+10 mm</th>
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Tab. RBR

Specifications and design can be subject to change without notice
Technical data

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

Application
Fluid storage tanks also aboard of ships

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

Distance (Centre-to-centre)
Standard: see below table for minium distance (Fixed distance, not adjustable)
Option: On request intermediate distances and over 3.000 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
Type DS GR18: cylindrical plug type - Straight type - Quick 90° closing
Lower cock with weight closing accessory for self closing
Handling: lever operated (Standard: right; Option: left)
Process connections:
Standard flanges: UNI PN40 DN15- 20-25
Standard threaded unions: BSP-M ½” - ¾”
Options: further connections types to the process (see page 1.51)

Vent:
Standard: threaded ½” with plug
Option: see page 1.52

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

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

Accessories
See from page 1.55

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

Tightening torque of housing screws
Standard: 40 Nm

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

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Tab. RBF
GLASS LEVEL GAUGE TRANSPARENT TYPE PN25 and PN40

DS LG - TCR GR18

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

Technical data

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

View
Standard: adjustable on 360° in the installation phase
Note: depending on operating conditions, each element may have one or more internal reinforcements

Distance (Centre-to-centre)
Standard: see below table (Distance adjustable - 0 mm / ± 10 mm)
Option: On request intermediate distances and over 3.000 mm

Materials (Standard)
Execution: CS/CS
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/AISI 316

Shut-off cocks
Type DS GR18: cylindrical plug type - Straight type - Quick 90° closing
Handling: lever operated with PP handle (Standard: right; Option: left)

Process connections:
Cocks type DS GR18: see from page 1.72 (drawing with components and parts list see page 1.66)
Standard flanges: UNI PN40 DN15-20-25
Standard threaded unions: BSP-M ½” – ¾”

Drain:
Standard: blind
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)

Weights
Cocks type DS GR18: Kg. 7,4 approx. (with flanges UNI DN20 PN40)
Standard: 35 Nm

Spare parts
Housing type DS TCR: see from page 1.69 (drawing with components and parts list see page 1.64)
Cocks type DS GR18: see from page 1.72 (drawing with components and parts list see pag. 1.66)

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Tab. TCR
Technical data

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

View
Standard: adjustable on 360° in the installation phase
Note: depending on operating conditions, each element may have one or more internal reinforcements

Distance (Centre-to-centre)
Standard: see below table (Distance adjustable - 0 mm / + 10 mm)
Option: On request intermediate distances and over 3.000 mm

Materials (Standard)
Execution: CS/CS SS/CS SS/SS
Gauge body: ASTM A105 / A105 LF2 AISI 316 AISI 316L
Valves body: A105 LF2 AISI 316L AISI 316L
Stem, disc / seat valves: AISI 410 / 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
Type DS SHV: globe type
Handling: by handwheel
Process connections:
Standard flanges: UNI PN40 DN15-20 -25 ANSI#150-300-600/RF DN ½" - ¾" - 1"
Standard: graphite/copper
Option: graphite/AISI 316 or PTFE/AISI316

Glasses
Transparent - Borosilicate glass, "extra hard" and thermally pre-stressed - According to DIN 7081
Standard: see page 1.55

Accessories
Glasses
Process connections:
Type DS SHV: globe type
Standard threaded unions:    BSP-M ½" - ¾"                          NPT-M ½" - ¾"
Standard: graphite/copper                              Option: graphite/AISI 316 or PTFE/AISI316

Catch: by handwheel
Shut-off valves
Standard: blind
Option: see page 1.54

Housing type DS TCR: see below table
Spare parts
Tightening torque of housing screws
Standard: 35 Nm

Technical data

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

View
Standard: adjustable on 360° in the installation phase
Note: depending on operating conditions, each element may have one or more internal reinforcements

Distance (Centre-to-centre)
Standard: see below table (Distance adjustable - 0 mm / + 10 mm)
Option: On request intermediate distances and over 3.000 mm

Materials (Standard)
Execution: CS/CS SS/CS SS/SS
Gauge body: ASTM A105 / A105 LF2 AISI 316 AISI 316L
Valves body: A105 LF2 AISI 316L AISI 316L
Stem, disc / seat valves: AISI 410 / 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
Type DS SHV: globe type
Handling: by handwheel
Process connections:
Standard flanges: UNI PN40 DN15-20-25 ANSI#150-300-600/RF DN ½" - ¾" - 1"
Standard: graphite/copper
Option: graphite/AISI 316 or PTFE/AISI316

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

Accessories
See from page 1.55

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

Tightening torque of housing screws
Standard: 35 Nm

Spare parts
Housing type DS TCR: see from page 1.69 (drawing with components and parts list see page 1.64)
Valves type DS GR18: see from page 1.74 (drawing with components and parts list see pag. 1.68)

---

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

---

Technical data

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

View
Standard: adjustable on 360° in the installation phase
Note: depending on operating conditions, each element may have one or more internal reinforcements

Distance (Centre-to-centre)
Standard: see below table (Distance adjustable - 0 mm / + 10 mm)
Option: On request intermediate distances and over 3.000 mm

Materials (Standard)
Execution: CS/CS SS/CS SS/SS
Gauge body: ASTM A105 / A105 LF2 AISI 316 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
Type DS SHV: globe type
Handling: by handwheel
Process connections:
Standard flanges: UNI PN40 DN15-20-25 ANSI#150-300-600/RF DN ½" - ¾" - 1"
Standard: graphite/copper
Option: graphite/AISI 316 or PTFE/AISI316

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

Accessories
See from page 1.55

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

Tightening torque of housing screws
Standard: 35 Nm

Spare parts
Housing type DS TCR: see from page 1.69 (drawing with components and parts list see page 1.64)
Valves type DS GR18: see from page 1.74 (drawing with components and parts list see pag. 1.68)

---

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

---

Technical data

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

View
Standard: adjustable on 360° in the installation phase
Note: depending on operating conditions, each element may have one or more internal reinforcements

Distance (Centre-to-centre)
Standard: see below table (Distance adjustable - 0 mm / + 10 mm)
Option: On request intermediate distances and over 3.000 mm

Materials (Standard)
Execution: CS/CS SS/CS SS/SS
Gauge body: ASTM A105 / A105 LF2 AISI 316 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
Type DS SHV: globe type
Handling: by handwheel
Process connections:
Standard flanges: UNI PN40 DN15-20-25 ANSI#150-300-600/RF DN ½" - ¾" - 1"
Standard: graphite/copper
Option: graphite/AISI 316 or PTFE/AISI316

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

Accessories
See from page 1.55

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

Tightening torque of housing screws
Standard: 35 Nm

Spare parts
Housing type DS TCR: see from page 1.69 (drawing with components and parts list see page 1.64)
Valves type DS GR18: see from page 1.74 (drawing with components and parts list see pag. 1.68)

---

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

---

Technical data

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

View
Standard: adjustable on 360° in the installation phase
Note: depending on operating conditions, each element may have one or more internal reinforcements

Distance (Centre-to-centre)
Standard: see below table (Distance adjustable - 0 mm / + 10 mm)
Option: On request intermediate distances and over 3.000 mm

Materials (Standard)
Execution: CS/CS SS/CS SS/SS
Gauge body: ASTM A105 / A105 LF2 AISI 316 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
Type DS SHV: globe type
Handling: by handwheel
Process connections:
Standard flanges: UNI PN40 DN15-20-25 ANSI#150-300-600/RF DN ½" - ¾" - 1"
Standard: graphite/copper
Option: graphite/AISI 316 or PTFE/AISI316

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

Accessories
See from page 1.55

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

Tightening torque of housing screws
Standard: 35 Nm

Spare parts
Housing type DS TCR: see from page 1.69 (drawing with components and parts list see page 1.64)
Valves type DS GR18: see from page 1.74 (drawing with components and parts list see pag. 1.68)
GLASS LEVEL GAUGE
TRANSPARENT TYPE
PN40

DS LG - TMR GR18

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

Technical data

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

View
Standard: adjustable on 360° in the installation phase

Distance (Centre-to-centre)
Standard: (Distance adjustable - 0 mm / + 10 mm)
Option: On request intermediate distances and over 3.000 mm

Materials (Standard)
Execution:
Gauge body & cocks body: ASTM A105 - AISI 316L - AISI 316
Cocks trim: AISI 303 - AISI 316 - AISI 316
Non-wetted parts: Carbon steel galvanized - Carbon steel galvanized - AISI 316

Gaskets
Standard: graphite/AISI 316 or PTFE/AISI316

Shut-off cocks
Type DS GR18: cylindrical plug type - Straight type - Quick 90° closing
Handling: lever operated with PP handle (Standard: right; Option: left)

Process connections:
Standard flanges: UNI PN40 DN15-20-25 - ANSI#150-300-600/RF DN ½“ - 1”
Options: further connections types or direct connections to the process without shut-off cocks
(see page 1.49)

Vent:
Standard: blind
Option: see page 1.50

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

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

Accessories
See from page 1.55

Weights
Housing type DS TMR: see below table
Cocks type DS GR18: Kg. 7.4 approx. (with flanges UNI DN20 PN40)

Tightening torque of housing screws
Standard: 35 Nm

Spare parts
Housing type DS TMR: see from page 1.69 (drawing with components and parts list see page 1.64)
Cocks type DS GR18: see from page 1.72 (drawing with components and parts list see pag. 1.66)

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Tab. TMtR
GLASS LEVEL GAUGE
TRANSPARENT TYPE
PN40
DS LG - TMR SHV

Technical data

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

View
Standard: adjustable on 360° in the installation phase

Distance (Centre-to-centre)
Standard: see below table (Distance adjustable - 0 mm / + 10 mm)
Option: On request intermediate distances and over 3.000 mm

Materials (Standard)
Gauge body: ASTM A105 / A105 LF2  
Non-wetted parts: Carbon steel galvanized
Valves body: AISI 316L
Non-wetted parts: Carbon steel galvanized
Stem, disc / seat valves: AISI 410 / AISI 316

Gaskets
Standard: graphite/copper
Option: see page 1.54

Shut-off valves
Type DS SHV: globe type
Drain: Standard: valve type DHV threaded ¾"

Process connections:
Standard flanges: UNI PN40 DN15-20-25
Standard threaded unions: BSP-M ½” - ¾”

Glasses
Transparent - Borsilicate glass, “extra hard” and thermally pre-stressed - According to DIN 7081

Weights
Housing type DS TMR: Kg. 11,8 approx. (with flanges UNI DN20 PN40)

Tightening torque of housing screws
Standard: 35 Nm

Spare parts
Housing type DS TMR: see from page 1.69 (drawing with components and parts list see page 1.68)
Valves type DS SHV: see from page 1.74 (drawing with components and parts list see pag. 1.68)

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*tab. TMR*
Technical data

Service conditions
Max Pressure: PN40; Class 300 (A105: 51 bar @ 38°C; AISI 316L: 49.6 bar @ 38°C)
Max Temperature: 280/300°C (According to DIN 7081 for glasses, see page 1.69)

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

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

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

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

Shut-off cocks
Type DS GR18: cylindrical plug type - Straight type - Quick 90° closing
Handling: lever operated with PP handle (Standard: right; Option: left)

Process connections:
Standard flanges: UNI PN40 DN15-20-25, ANSI#150-300-600/RF DN ½” - ¾” - 1”
Standard threaded unions: BSP-M ½” - ¾”, NPT-M ½” - ¾”
Options: further connections types or direct connections to the process without shut-off cocks (see page 1.51)

Vent:
Standard: threaded ½” with plug, Option: see page 1.52

Drain:
Standard: cock type D12 threaded ½”, Option: see page 1.52

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

Accessories
See from page 1.55

Weights
Housing type DS TCF: see below table
Cocks type DS GR18: Kg. 7.4 approx. (with flanges UNI DN20 PN40)

Tightening torque of housing screws
Standard: 35 Nm

Spare parts
Housing type DS TCF: see from page 1.69 (drawing with components and parts list see page 1.64)
Cocks type DS GR18: see from page 1.72 (drawing with components and parts list see page 1.66)
Technical data

Service conditions
Max Pressure: PN40; Class 300 (A105: 51 bar @ 38°C; AISI 316L: 49.6 bar @ 38°C)
Max Temperature: 280/300°C (According to DIN 7081 for glasses, see page 1.69)

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

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

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

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

Shut-off valves
Type DS SHV: globe type
Handling: by handwheel

Process connections:
Standard flanges:                 UNI PN40 DN15-20-25            ANSI #150-300-600/RF DN 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 type DHV threaded ¾"                     Option: see page 1.54

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

Accessories
See from page 1.55

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

Tightening torque of housing screws
Standard: 35 Nm

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

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Tab. TCF
Technical data

Service conditions
Max Pressure: PN40 & PN64; Class 300 (A105: 51 bar @ 38°C; AISI 316L: 49.6 bar @ 38°C)
Max Temperature: 280/300°C (According to DIN 7081 for glasses, see page 1.69)

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

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
Type DS GR18: cylindrical plug type - Straight type - Quick 90° closing
Handling: lever operated with PP handle (Standard: right; Option: left)
Process connections:
Standard flanges: UNI PN40-64 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 type D12 threaded ½", Option: see page 1.52

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

Accessories
See from page 1.55

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

Tightening torque of housing screws
Standard: 35 Nm

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

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Tab. TMF
**Technical data**

**Service conditions**
Max Pressure: PN40 & PN64; Class 300 (A105: 51 bar @ 38°C; AISI 316L: 49,6 bar @ 38°C)
Max Temperature: 280/300°C (According to DIN 7081 for glasses, see page 1.69)

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

**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)**

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

**Shut-off valves**
Type DS SHV: globe type
Handling: by handwheel

**Process connections:**
Standard flanges:
- UNI PN40-64 DN15 -20-25
- ANSI#150-300-600/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 type DHV threaded ¾"
Option: see page 1.54

**Glasses**
Transparent - Borosilicate glass, “extra hard” and thermally pre-stressed - According to DIN 7081
Standard: fitted with type B (see page 1.69)
Option: type A (see page 1.69)

**Accessories**
See from page 1.55

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

**Tightening torque of housing screws**
Standard: 35 Nm

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

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Tab. TMF
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: 280/300°C (According to DIN 7081 for glasses, see page 1.69)

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

Distance (Centre-to-centre)
Standard: see below table for minimum distance (Fixed distance, not adjustable)
Option: On request intermediate distances and over 2.000 mm

Materials (Standard)
Execution: CS/CS SS/CS SS/SS
Gauge body & cocks body: ASTM A105 AISI 316L 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
Type DS GR18: cylindrical plug type - Straight type - Quick 90° closing
Handling: lever operated with PP handle (Standard: right; Option: left)

Process connections:
Standard flanges: UNI PN64-100 D N20 - 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)

Vent:
Standard: threaded ½” with plug Option: see page 1.52

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

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

Accessories
See from page 1.55

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

Tightening torque of housing screws
Standard: 75 Nm

Spare parts
Housing type DS TPF: see from page 1.69 (drawing with components and parts list see page 1.65)
Cocks type DS GR18: see from page 1.72 (drawing with components and parts list see page 1.66)
Technical data

Service conditions
Max Pressure: PN64 or PN100; Class 600 (A105: 102 bar @ 38°C; AISI 316L: 99.3 bar @ 38°C)
Max Temperature: 280/300°C (According to DIN 7081 for glasses, see page 1.69)

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

Distance (Centre-to-centre)
Standard: see below table for minimum distance (Fixed distance, not adjustable)
Option: On request intermediate distances and over 2.000 mm

Materials (Standard)
Execution: CS/CS, SS/CS, SS/SS
Gauge body: ASTM A105 / A105 LF2, AISI 316L
Valves body: A105 LF2, AISI 316L
Stem, disc / seat valves: AISI 410 / 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
Type 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

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 type DS TPF: see below table
Valves type DS SHV: Kg. 13.5 approx. (with flanges UNI DN20 PN100)

Tightening torque of housing screws
Standard: 75 Nm

Spare parts
Housing type DS TPF: see from page 1.69 (drawing with components and parts list see page 1.65)
Valves type DS SHV: see from page 1.74 (drawing with components and parts list see page 1.68)
GLASS LEVEL GAUGE
TRANSPARENT TYPE
PN100 and PN160 / Class 600 and 900
DS LG - TXF GR18

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

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

Distance (Centre-to-centre)
Standard: see below table for mimimum 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
Type DS GR18: cylindrical plug type - Straight type - Quick 90° closing
Handling: lever operated with PP handle (Standard: right; Option: left)

Process connections:
Standard flanges: UNI PN100-160 DN 20 - 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                                    Option: see page 1.52
Drain:       Standard: cock type D12 threaded ½"                       Option: see page 1.52

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

Accessories
See from page 1.55

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

Tightening torque of housing screws
Standard: 75 Nm

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

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

View
Standard: front, on request lateral (right or left) adjustable in the production phase
Distance (Centre-to-centre)
Standard: see below table for minimum distance (Fixed distance, not adjustable)
Option: On request intermediate distances and over 2000 mm

Materials (Standard)
Execution: CS/CS, SS/CS, SS/SS
Gauge body: ASTM A105 / A105 LF2, AISI 316L
Valves body: A105 LF2, AISI 316L
Stem, disc / seat valves: AISI 410, 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
Type 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 type DHV threaded ¾”, Option: see page 1.54

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

Accessories
See from page 1.55

Weights
Housing type DS TXF: see below table
Valves type DS SHV: Kg. 13.5 approx. (with flanges UNI DN20 PN100)

Tightening torque of housing screws
Standard: 75 Nm

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

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Tab. TXF
WELD-ON GLASS LEVEL GAUGE
REFLEX and TRANSPARENT
PN40 / Class 300

DS LG - RCW / TCW

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: 280/300°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
Housing body: ASTM A105
AISI 316L
AISI 316L
Cover: ASTM A105
AISI 316L

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

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<td>5</td>
<td>235</td>
<td>200</td>
<td>220</td>
<td>4,7</td>
</tr>
<tr>
<td>16</td>
<td>6</td>
<td>265</td>
<td>230</td>
<td>250</td>
<td>5,1</td>
</tr>
<tr>
<td>17</td>
<td>7</td>
<td>295</td>
<td>260</td>
<td>280</td>
<td>5,6</td>
</tr>
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<td>18</td>
<td>8</td>
<td>335</td>
<td>300</td>
<td>320</td>
<td>6,0</td>
</tr>
<tr>
<td>19</td>
<td>9</td>
<td>360</td>
<td>320</td>
<td>340</td>
<td>6,9</td>
</tr>
<tr>
<td>24</td>
<td>4x2</td>
<td>410</td>
<td>375</td>
<td>400</td>
<td>7,8</td>
</tr>
<tr>
<td>25</td>
<td>5x2</td>
<td>470</td>
<td>435</td>
<td>450</td>
<td>9,4</td>
</tr>
<tr>
<td>26</td>
<td>6x2</td>
<td>530</td>
<td>495</td>
<td>505</td>
<td>10,2</td>
</tr>
<tr>
<td>27</td>
<td>7x2</td>
<td>590</td>
<td>555</td>
<td>580</td>
<td>11,2</td>
</tr>
<tr>
<td>28</td>
<td>8x2</td>
<td>670</td>
<td>635</td>
<td>650</td>
<td>12,0</td>
</tr>
<tr>
<td>29</td>
<td>9x2</td>
<td>750</td>
<td>680</td>
<td>700</td>
<td>13,8</td>
</tr>
<tr>
<td>36</td>
<td>6x3</td>
<td>795</td>
<td>760</td>
<td>780</td>
<td>15,3</td>
</tr>
<tr>
<td>37</td>
<td>7x3</td>
<td>885</td>
<td>850</td>
<td>865</td>
<td>16,8</td>
</tr>
<tr>
<td>38</td>
<td>8x3</td>
<td>1005</td>
<td>970</td>
<td>980</td>
<td>18,0</td>
</tr>
<tr>
<td>39</td>
<td>9x3</td>
<td>1080</td>
<td>1040</td>
<td>1060</td>
<td>20,7</td>
</tr>
</tbody>
</table>

Tab. RCW/TCW
**Technical data**

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

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

**Distance (Centre-to-centre)**
On request
Max with a single glass tube 3,000 mm
Option: on request are available distances over 3,000 mm using the middle terminals to connect more glass tubes

**Visible length [VL]**
With shut-off cocks type DS GR18
- With the "U" shaped protection
  Visible length [VL] = Centre-to-centre distance [M] - 135 mm (with extended stuffing box covers to fasten the "U" shaped protection)
- Without protection
  Visible length [VL] = Centre-to-centre distance [M] - 95 mm (with standard stuffing box covers)

With shut-off cocks type DS MT18
- With the "U" shaped protection
  Visible length [VL] = Centre-to-centre distance [M] - 145 mm (with extended stuffing box covers to fasten the "U" shaped protection)
- Without protection
  Visible length [VL] = Centre-to-centre distance [M] - 105 mm (with standard stuffing box cover)

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

**Glass tube**
Standard: borosilicate glass 3.3, Ø 16 mm, thickness 2.5 mm  

**Protection for glass tube (Option always recommended)**
Standard: metal sheet "U" shaped in stainless steel AISI 304

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

**Shut-off cocks**
Type DS GR18: cylindrical plug type - Straight type - Quick 90° closing  
Type DS MT18: cylindrical plug type with monolithic body - Straight type - Quick 90° closing  
(see page 1.47)
Handling: lever operated with PP handle (Standard: right; Option: left)

**Process connections:**
Standard flanges: UNI PN16/40 DN15-20-25  ANSI#150/RF DN ½" - ¾" - 1"  
Standard threaded unions: BSP-M ½" - ¾"  NPT-M ½" - ¾"  
Options: further connections types or direct connections to the process without cocks  
(see page 1.49)

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

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

**Accessories**
See from page 1.55

**Weights**
Cocks type DS GR18: Kg. 7.4 approx. (with flanges UNI DN20 PN40)  
Cocks type DS MT18: Kg. 6.1 approx. (with flanges UNI DN20 PN40)

**Spare parts**
Glass tube: Length = Centre-to-centre distance [M] - 30 mm  
Protection: Length = Centre-to-centre distance [M] - 100 mm  
Cocks type DS GR18: see from page 1.72  
Cocks type DS MT18: see from page 1.64  
(drawing with components and parts list see page 1.66)

**Utilization**
The product is NOT suitable for use in the following instances:
- if it is likely to be exposed to vibrations (glass tube will break)
- if the installation is situated by a walkway (possibility of blows/impact)
- if exposed to steam (shortens glass tube life)
### HOUSING WITH GRINDED PIPES

#### HOUSING TYPE DS - RBR
See technical data at page 1.7

![Diagram of DS RBR housing]

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

#### HOUSING TYPE DS - RCR
See technical data at page 1.9

![Diagram of DS RCR housing]

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

#### HOUSING TYPE DS - RDR
See technical data at page 1.10

![Diagram of DS RDR housing]

Code: DS RDR ...
(See details at page 1.62)
HOUSING WITH GRINDED PIPES

HOUSING TYPE DS - RTR
See technical data at page 1.17

HOUSING TYPE DS - TCR
See technical data at page 1.25

HOUSING TYPE DS - TMR
See technical data at page 1.27
Cylindrical Plug cocks

Shut Off cocks Type DS GR18

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

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

Shut Off cocks Type DS MT18

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

Execution on request:
AHPD [In service vertical handles]
GLOBE VALVES AND PUSH BUTTON VALVES

SHUT OFF GLOBE VALVES TYPE DS SHV

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

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

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

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

Execution on request:
LSB [Valves on the left side]
PROCESS CONNECTIONS - GLASS LEVEL GAUGES WITH GRINDED PIPES AND CYLINDRICAL PLUG COCKS

SHUT OFF COCKS TYPE DS GR18

WITHOUT SHUT OFF COCKS
DRAIN AND VENT - GLASS LEVEL GAUGES WITH GRINDED PIPES AND CYLINDRICAL PLUG COCKS

DRAIN for shut off cocks type DS GR18

VENT for shut off cocks type DS GR18
PROCESS CONNECTIONS - GLASS LEVEL GAUGES WITH FIXED DISTANCE BETWEEN CENTERS AND CYLINDRICAL PLUG COCKS

SHUT OFF COCKS TYPE DS GR18

WITHOUT SHUT OFF COCKS
DRAIN AND VENT - GLASS LEVEL GAUGES WITH FIXED DISTANCE BETWEEN CENTERS AND CYLINDRICAL PLUG COCKS

DRAIN for shut off cocks type DS GR18

VENT for shut off cocks type DS GR18
PROCESS CONNECTIONS - GLOBE VALVES

SHUT OFF VALVES TYPE DS SHV for housings with grinded pipes

SHUT OFF VALVES TYPE DS SHV for housings with fixed distance between centers
# DRAIN AND VENT - GLOBE VALVES

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

<table>
<thead>
<tr>
<th>Drain Valve Type</th>
<th>Drain cock - SW</th>
<th>Drain cock - Flanged</th>
<th>Drain - Plugged</th>
<th>Drain - Flanged</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rubinetto di scarico SW</strong></td>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
<td><img src="image3.png" alt="Image" /></td>
<td><img src="image4.png" alt="Image" /></td>
</tr>
<tr>
<td><strong>Rubinetto di scarico Flanggiato</strong></td>
<td><img src="image5.png" alt="Image" /></td>
<td><img src="image6.png" alt="Image" /></td>
<td><img src="image7.png" alt="Image" /></td>
<td><img src="image8.png" alt="Image" /></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Vent Valve Type</th>
<th>Vent cock - Threaded For - SW</th>
<th>Vent cock - Flanged</th>
<th>Vent - Plugged</th>
<th>Vent - Flanged</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rubinetto di sfiato SW</strong></td>
<td><img src="image9.png" alt="Image" /></td>
<td><img src="image10.png" alt="Image" /></td>
<td><img src="image11.png" alt="Image" /></td>
<td><img src="image12.png" alt="Image" /></td>
</tr>
<tr>
<td><strong>Rubinetto di sfiato Flanggiato</strong></td>
<td><img src="image13.png" alt="Image" /></td>
<td><img src="image14.png" alt="Image" /></td>
<td><img src="image15.png" alt="Image" /></td>
<td><img src="image16.png" alt="Image" /></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Drain Valve Type</th>
<th>Drain cock - SW</th>
<th>Drain cock - Flanged</th>
<th>Drain - Plugged</th>
<th>Drain - Flanged</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rubinetto di scarico SW</strong></td>
<td><img src="image17.png" alt="Image" /></td>
<td><img src="image18.png" alt="Image" /></td>
<td><img src="image19.png" alt="Image" /></td>
<td><img src="image20.png" alt="Image" /></td>
</tr>
<tr>
<td><strong>Rubinetto di scarico Flanggiato</strong></td>
<td><img src="image21.png" alt="Image" /></td>
<td><img src="image22.png" alt="Image" /></td>
<td><img src="image23.png" alt="Image" /></td>
<td><img src="image24.png" alt="Image" /></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Vent Valve Type</th>
<th>Vent cock - Threaded For - SW</th>
<th>Vent cock - Flanged</th>
<th>Vent - Plugged</th>
<th>Vent - Flanged</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rubinetto di sfiato SW</strong></td>
<td><img src="image25.png" alt="Image" /></td>
<td><img src="image26.png" alt="Image" /></td>
<td><img src="image27.png" alt="Image" /></td>
<td><img src="image28.png" alt="Image" /></td>
</tr>
<tr>
<td><strong>Rubinetto di sfiato Flanggiato</strong></td>
<td><img src="image29.png" alt="Image" /></td>
<td><img src="image30.png" alt="Image" /></td>
<td><img src="image31.png" alt="Image" /></td>
<td><img src="image32.png" alt="Image" /></td>
</tr>
</tbody>
</table>
## ACCESSORIES FOR GLASS LEVEL GAUGES

### SAFETY BALL

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

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC</td>
<td>Safety ball for lower shut-off cock</td>
</tr>
<tr>
<td>UC</td>
<td>Safety ball for upper shut-off cock</td>
</tr>
</tbody>
</table>

**Shut-off valves type DS SHV**

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

### PUSHER for safety ball

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

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPH</td>
<td>Pusher for lower shut-off cock</td>
</tr>
<tr>
<td>UPH</td>
<td>Pusher for upper shut-off cock</td>
</tr>
</tbody>
</table>

**Shut-off valves type DS SHV**

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

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMHD</td>
<td>Cocks handles lock (all)</td>
</tr>
<tr>
<td>LU-SMHD</td>
<td>Shut-off handles lock</td>
</tr>
<tr>
<td>D-SMHD</td>
<td>Drain handle lock</td>
</tr>
<tr>
<td>V-SMHD</td>
<td>Vent handle lock</td>
</tr>
</tbody>
</table>
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.

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.

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°C.
# 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.

![Continuous Reading Diagram]

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.

![Remote Control Diagram]

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.

![Weight Closing Diagram]

Code: LFC [Weight closing for lower handle]  
LFC [Weight closing for upper handle]
ACCESSORIES FOR GLASS LEVEL GAUGES

ILLUMINATION LAMP (For transparent level gauges only)

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

Materials:

Body and cover: aluminium with epoxy paint
Option in stainless steel AISI 316
Transparent globe: thermostreistant and impact resistant glass
Support for glass level gauge: carbon steel galvanized
Option in stainless steel AISI 316
Lamp: fluorescent bulb 11 W E27 for supply voltage 230 VAC, 50/60 Hz
Option with LED lamp 24V DC 5W E27

Technical data:

<table>
<thead>
<tr>
<th>Supply voltage</th>
<th>12-24 V AC/DC</th>
<th>125 V AC</th>
<th>230 V AC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated current</td>
<td>90-130 mA</td>
<td>15 mA</td>
<td>20 mA</td>
</tr>
<tr>
<td>Working temperature</td>
<td>- 20°C + 60°C</td>
<td>- 20°C + 60°C</td>
<td>- 20°C + 60°C</td>
</tr>
<tr>
<td>Frequency</td>
<td>50 / 60 Hz</td>
<td>50 / 60 Hz</td>
<td>50 / 60 Hz</td>
</tr>
<tr>
<td>Average power consumption</td>
<td>2 W</td>
<td>1.6 W</td>
<td>4.5 W</td>
</tr>
<tr>
<td>Lamp power</td>
<td>6 J</td>
<td>6 J</td>
<td>6 J</td>
</tr>
<tr>
<td>Service</td>
<td>Continuous</td>
<td>Continuous</td>
<td>Continuous</td>
</tr>
<tr>
<td>Cable entry</td>
<td>3/4&quot; NPT-F</td>
<td>3/4&quot; NPT-F</td>
<td>3/4&quot; NPT-F</td>
</tr>
<tr>
<td>ATEX approval</td>
<td>INERIS 01 ATEX 0068X</td>
<td>INERIS 01 ATEX 0068X</td>
<td>INERIS 01 ATEX 0068X</td>
</tr>
</tbody>
</table>

Code: EVA50
USE WITH SATURATED STEAM

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

- **To avoid often tightening of the union nut for grinded pipes (pos. 15 of page 1.66)**
  Should the operating conditions not exceed a maximum pressure value of 15 bar (197°C) it is recommended the purchase of a level gauge with grinded pipes even if they can be considered suitable for applications up to 20 bar.
  Higher values would dry the graphite sealing gasket of the upper pipe in a very short time and cause leakages which could damage the whole level gauge and the lower cock.

- **To avoid often glasses replacement**
  it is recommended to:
  - Utilize reflex level gauges with fixed distance execution if operating conditions do not exceed the value of 20 bar (211°C). Higher values would cause the glass breakage in a short time (see diagram “glass loss caused by boiler water” regarding glass life)
  - Utilize transparent level gauges type DS LG - TCF or type DS LG - TMF with mica shields protection for operation conditions not exceeding the value of 32 bar (236°C)
  - Utilize transparent level gauges type DS LG - TPF with mica shields protection for operating conditions not exceeding the value of 50 bar (263°C)
  - Utilize transparent level gauges type DS LG - TXF with mica shields protection for operating conditions not exceeding the value of 70 bar (280°C)

![Glass loss caused by boiler water](image)

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

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

HOUSING TYPE DS LG - RTR / DS LG - RTF

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

HOUSING TYPE DS LG - RDR

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

HOUSING TYPE DS LG - RCR / DS LG - RCF

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

HOUSING TYPE DS LG - RPF

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

HOUSING TYPE DS LG - RXF

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

HOUSING TYPE DS LG - TCR / DS LG - TCF

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

HOUSING TYPE DS LG - TMR / DS LG - TMF

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

HOUSING TYPE DS LG - TPF

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

HOUSING TYPE DS LG - TXF

1. Level gauge body
2. Transparent glass DIN 7081
3. Sealing gaskets
4. Cushion gaskets
5. Frontal cover
6. Back cover
7. Bolts
8. Nuts
9. Vent plug
10. Metal gasket
11. Mica shields (optional)
SHUT-OFF COCKS TYPE DS GR 18 for housings with grinded pipes

1A. Flanged shut-off cocks body
1B. Threaded shut-off cocks body
2. Upper support
3. Lower support
4. Drain cock body
5. Cases Ø 26 x 18 x 32 mm
6. Case Ø 18 x 12 x 23 mm
7. Packing rings Ø 23.5 x 16 x 10 mm
8. Cylindrical plugs Ø 18 mm
9. Cylindrical plug Ø 12 mm
10. Split rings Ø 26
11. Split ring Ø 18
12. Stuffing boxes 7/8”G
13. Stuffing box 1/2”G
14. Stuffing boxes Ø 26 x 17 x 11.5 mm
15. Union nuts 1”G for grinded pipes
16. Bolts
17. Handles
18. PP covers for handles
19. Washers M8
20. Bolts M8 x 12
21. Washers M12
22. Nuts M12
23. Drain handle
24. PP cover for drain handle
25. Washer M6
26. Bolt M6 x 10
27. Drain pipe
28. Union nut 1/2”G for drain pipe
29. Gasket Ø 18.3 x 8.2 x 1.5 mm
30. Gaskets Ø 23 x 14.5 x 2 mm
31. Gaskets Ø 27 x 21.5 x 1.5 mm
32. Gaskets Ø 14 x 9 x 1.5 mm
33. Grinded pipes Ø 16 mm
34. Union nuts 1”G for threaded connections
35. Threaded connections
36. Gaskets Ø 29.5 x 13 x 2 mm
37. Fixing brackets
38. Level gauge body
39. Plugs

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

1A. Flanged shut-off cocks body
1B. Threaded shut-off cocks body
2. Upper support
3. Lower support
4. Drain cock body
5. Cases Ø 26 x 18 x 32 mm
6. Case Ø 18 x 12 x 23 mm
7. Packing rings Ø 23.5 x 16 x 10 mm
8. Cylindrical plugs Ø 18 mm
9. Cylindrical plug Ø 12 mm
10. Split rings Ø 26
11. Split ring Ø 18
12. Stuffing boxes 7/8”G
13. Stuffing box 1/2”G
14. Stuffing boxes Ø 26 x 17 x 11.5 mm
15. Union nuts 1”G for grinded pipes
16. Bolts
17. Handles
18. PP covers for handles
19. Washers M8
20. Bolts M8 x 12
21. Washers M12
22. Nuts M12
23. Drain handle
24. PP cover for drain handle
25. Washer M6
26. Bolt M6 x 10
27. Drain pipe
28. Union nut 1/2”G for drain pipe
29. Gasket Ø 18.3 x 8.2 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 - COMPONENTS**

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

1C. Flanged upper monolithic body  
1D. Threaded upper monolithic body  
1E. Flanged lower monolithic body  
1F. Threaded lower monolithic body  
5. Cases Ø 26 x 18 x 32 mm  
6. Case Ø 18 x 12 x 23 mm  
7. Packing rings Ø 23.5 x 16 x 10 mm  
8. Cylindrical plugs Ø 18 mm  
9. Cylindrical plug Ø 12 mm  
10. Split rings Ø 26  
11. Split ring Ø 18  
12. Stuffing boxes 7/8"G  
13. Stuffing box 1/2"G  
14. Stuffing boxes Ø 26 x 17 x 11.5 mm  
15. Union nuts 1"G for grinded pipes  
17. Handles  
18. PP covers for handles  
19. Washers M8  
20. Bolts M8 x 12  
23. Drain handle  
24. PP cover for drain handle  
25. Washer M6  
26. Bolt M6 x 10  
27. Drain pipe  
28. Union nut 1/2"G for drain pipe  
29. Gasket Ø 18.3 x 8.2 x 1.5 mm  
32. Gaskets Ø 23 x 14.5 x 1 mm  
33. Grinded pipes Ø 16 mm  
34. Union nuts 1"G for threaded connections  
35. Threaded connections  
36. Gaskets Ø 29.5 x 13 x 2 mm

**PUSH-BUTTON VALVE TYPE DS NPV**

1M. Flanged shut-off valve body  
1N. Threaded shut-off valve body  
16. Bolts M12  
21. Washers M12  
22. Nuts M12  
30. Gaskets Ø 23 x 14.5 x 2 mm  
34. Union nuts 1"G for threaded connections  
35. Threaded connections  
36. Gaskets Ø 29.5 x 13 x 2 mm  
37. Fixing brackets  
62. Stem  
63. Gaskets Ø 18.5 x 10 x 8 mm  
64. Stuffing box  
65. Spring  
66. Button
### SHUT-OFF COCKS - COMPONENTS

#### SHUT-OFF VALVES TYPE DS SHV

1G. Flanged shut-off valves body
1H. Threaded shut-off valves body
3. Support
7. Packing rings Ø 23.5 x 16 x 10 mm
14. Stuffing boxes Ø 26 x 17 x 11.5 mm
15. Union nuts 1"G for grinded pipes
16. Bolts M12
21. Washers M12
22. Nuts M12
30. Gaskets Ø 23 x 14.5 x 2 mm
32. Gaskets Ø 14 x 9 x 1.5 mm
33. Grinded pipes Ø 16 mm
34. Union nuts 1"G for threaded connections
35. Threaded connections
36. Gaskets Ø 29.5 x 13 x 2 mm
37. Fixing brackets
40. Bonnet
41. Stuffing box bracket
42. Stem
43. Gaskets Ø 47x32x3.5 mm
44. Seat
45. Safety ball
46. Stuffing boxes Ø 22x13.5x14 mm
47. Gaskets Ø 20 x 12.7 x 9 mm
48. Bush for stem
49. Handwheel
50. Bolts M10 x 25
51. Bolts M8 x 48
52. Nuts M8
53. Nuts M8
54. Washers M8

1L. Drain and/or vent valve body type DS DHV
55. Gland nut 3/4"G
56. Stem
57. Stuffing box Ø 18x13x10.5 mm
58. Gaskets Ø 18.5 x 10 x 8 mm
59. Handwheel
60. Nut M7
61. Washer M7

Connections to the housing body
A  Execution with fixed distance between centers
B  Execution with grinded pipes
SPARE PARTS FOR GLASS LEVEL GAUGES

GLASSES reflex type and transparent type

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

Main physical/chemical/mechanical properties:

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

Max working conditions:

- Maximum working temperature: 280\,°C for permanent use / 300\,°C for maximum 300 hours use.
- Saturated steam applications: see page 1.59.

Standards references:

<table>
<thead>
<tr>
<th>DIN 7081</th>
<th>BS 3463</th>
<th>JIS B 8211</th>
</tr>
</thead>
<tbody>
<tr>
<td>ÖNORMM7354</td>
<td>OMV H 2009</td>
<td>MIL-G-16356 D</td>
</tr>
<tr>
<td>TGL 7210</td>
<td>S.O.D. Spec. 123</td>
<td>Eston Eng. Spec. 123</td>
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</table>

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.


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.


Available size

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

<table>
<thead>
<tr>
<th>Type</th>
<th>Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>30 mm</td>
</tr>
<tr>
<td>B</td>
<td>34 mm</td>
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</table>

<table>
<thead>
<tr>
<th>SIZE</th>
<th>LEVEL GAUGE BODY LENGTH [mm]</th>
<th>GLASS LENGTH L1 [mm]</th>
<th>GLASS WIDTH W TYPE A [mm]</th>
<th>GLASS WIDTH W TYPE B [mm]</th>
<th>GLASS THICKNESS [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>130</td>
<td>115</td>
<td>30</td>
<td>34</td>
<td>17</td>
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<tr>
<td>2</td>
<td>155</td>
<td>140</td>
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<td>34</td>
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<tr>
<td>3</td>
<td>180</td>
<td>165</td>
<td>30</td>
<td>34</td>
<td>17</td>
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<td>4</td>
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<td>6</td>
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<td>7</td>
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</tr>
<tr>
<td>9</td>
<td>355</td>
<td>340</td>
<td>30</td>
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<td>17</td>
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</table>

Rev.0 Specifications and design can be subject to change without notice 1.69
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.

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

<table>
<thead>
<tr>
<th>SIZE</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<td>180</td>
<td>205</td>
<td>235</td>
<td>265</td>
<td>295</td>
<td>335</td>
<td>360</td>
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<tr>
<td>SHIELD LENGTH L1 (mm)</td>
<td>115</td>
<td>140</td>
<td>165</td>
<td>190</td>
<td>220</td>
<td>250</td>
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<td>SHIELD WIDTH W TYPE A (mm)</td>
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<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
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<tr>
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<td>34</td>
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<td>34</td>
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</tbody>
</table>

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

The PCTFE shield is strictly recommended with fluoridic acid.
SPARE PARTS FOR GLASS LEVEL GAUGES

GLASSES GASKETS

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

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

Option: PTFE
Option: PTFE; Aramidic fiber (asbestos free)

Code:

- JGG _ [Width: A o B] _ [Size: 1…9] (Grafite)

<table>
<thead>
<tr>
<th>Size</th>
<th>Level Gauge Body Length [mm]</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Gasket Length L1 [mm]</td>
<td>115</td>
<td>140</td>
<td>165</td>
<td>190</td>
<td>220</td>
<td>250</td>
<td>280</td>
<td>320</td>
<td>340</td>
</tr>
<tr>
<td></td>
<td>Visible Length L2 [mm]</td>
<td>95</td>
<td>120</td>
<td>145</td>
<td>170</td>
<td>200</td>
<td>230</td>
<td>260</td>
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<td>320</td>
</tr>
<tr>
<td></td>
<td>Gasket Width W Type A [mm]</td>
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<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
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</tr>
<tr>
<td></td>
<td>Gasket Width W Type B [mm]</td>
<td>34</td>
<td>34</td>
<td>34</td>
<td>34</td>
<td>34</td>
<td>34</td>
<td>34</td>
<td>34</td>
<td>34</td>
</tr>
</tbody>
</table>

INSTRUCTIONS FOR THE REMOVAL AND REPLACEMENT OF GLASSES AND GASKETS

Assumptions:

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

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

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

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

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

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

Mounting:

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

Before restarting the equipment:

- Leave the shut-off valves closed in order to avoid dangerous “head butts” to the glasses and their seal
- If small leakage of fluid are noted, gently tighten the stuffing box, the screws and sealing nuts
## SPARE PARTS FOR GLASS LEVEL GAUGES

### GASKETS for cylindrical plug cocks

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

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

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

![Gasket Diagram](image)

Code: BB18G (Graphite)  
BB18P (PTFE)

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

Each shut-off cocks has a drain cock as standard

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

![Gasket Diagram](image)

Code: BB12G (Graphite)  
BB12P (PTFE)

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

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

![Gasket Diagram](image)

Code: DD18 (Graphite)
**Gasket for grinded pipes**

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

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

![Diagram of gasket](image)

<table>
<thead>
<tr>
<th>Code</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA16G</td>
<td>Graphite</td>
</tr>
<tr>
<td>AA16P</td>
<td>PTFE</td>
</tr>
<tr>
<td>AA16E</td>
<td>EPDM</td>
</tr>
</tbody>
</table>

**Metal gaskets**

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

Standard material: Copper
Option: stainless steel AISI 316

![Diagram of metal gaskets](image)

<table>
<thead>
<tr>
<th>Code</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>GM23CU</td>
<td>Copper</td>
</tr>
<tr>
<td>GM27CU</td>
<td>Copper</td>
</tr>
<tr>
<td>GM14CU</td>
<td>Copper</td>
</tr>
<tr>
<td>GM23SS</td>
<td>Stainless steel 316</td>
</tr>
<tr>
<td>GM27SS</td>
<td>Stainless steel 316</td>
</tr>
<tr>
<td>GM14SS</td>
<td>Stainless steel 316</td>
</tr>
</tbody>
</table>

**SPARE PARTS SET FOR HOUSING**

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

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

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

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

- No. 2 cases type BB18...
- No. 1 case type BB12...
- No. 2 packing ring type AA16...
- No. 2 gaskets type GM23... (not suitable for DS MT18)
- No. 1 gasket type GM27... (not suitable for DS MT18)
- No. 2 gaskets type GM14...
GASKETS for globe valves type DS SHV

Gasket between body and bonnet
Each shut-off valves type DS SHV needs two gaskets.
Standard material: Graphite / AISI 316L
Option: PTFE

Code: GSM47G (Graphite)
GSM47P (PTFE)

Gasket for stem
Each shut-off valves type DS SHV needs four gaskets.
Standard material: Graphite
Option: PTFE (chevron type)

Code: AA20G (Graphite)
AA20P (PTFE)

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

Gasket for stem
Both push-button valves type DS NPV and needle valve type DS DHV need two gaskets.
Standard material: Graphite
Option: PTFE (chevron type)

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