Pressure reducing valve
GUNMETAL
WITH THREADED CONNECTIONS

**SUITABLE FOR**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquids</td>
<td>neutral and non-neutral</td>
</tr>
<tr>
<td>Air, gases and vapours</td>
<td>neutral and non-neutral</td>
</tr>
<tr>
<td>Warm water</td>
<td></td>
</tr>
</tbody>
</table>

**EXAMPLES OF USE**

For the protection of:
- domestic water supply systems
- commercial and industrial plants against too high supply pressure.
Pressure reducers are used, if within a piping system despite of varying pressures on the inlet side a certain pressure must not be exceeded on the outlet side.
- potable water supply according to DIN 1988
- process water supply in industrial-and building technology
- snow-making equipment
- fire-fighting equipment and sprinkler systems
- shipbuilding industry and offshore plants

**APPROVALS**

- DIN-DVGW type examination
- Type approval ACS
- Type approval WRAS
- Type approval SINTEF
- TR ZU 032/2013 - TR ZU 010/2011

**Requirements**

- DIN DVGW guidelines
- DIN EN 1567
- DIN 1988
- DIN EN ISO 3822
- PED 2014/68/EU

**Classification society**

- Germanischer Lloyd
- Lloyd’s Register EMEA
- American Bureau of Shipping
- Bureau Veritas
- Russian Maritime Register of Shipping

- GL
- LR EMEA
- ABS
- BV
- RS

**MATERIAL**

- 1/2” – 2”
- 10°C to + 95°C
- Inlet pressure: up to 40 bar
- Outlet pressure: 0,5 to 15 bar depending on version

**SPECIFICATION**
### Pressure reducing valves

**Type 16681**

**ECONOSTO OY**  
Lukkosalmentie 1, PL 1330, 70421 KUOPIO, Finland  
Tel. +358 (0)17 262 3555  
www.econosto.fi

**Suitable for**
- Liquids neutral and non-neutral
- Air, gases and vapours neutral and non-neutral
- Warm water

**Examples of use**
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**Material**

<table>
<thead>
<tr>
<th>Component</th>
<th>Material</th>
<th>DIN EN</th>
<th>ASME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inlet body</td>
<td>Gunmetal</td>
<td>CC499K</td>
<td>CC499K</td>
</tr>
<tr>
<td>Outlet body</td>
<td>Gunmetal</td>
<td>CC499K</td>
<td>CC499K</td>
</tr>
<tr>
<td>Internal parts</td>
<td>Gunmetal</td>
<td>CC499K</td>
<td>CC499K</td>
</tr>
<tr>
<td>Spring</td>
<td>Spring steel with anti-rust protection</td>
<td>1.1200</td>
<td>ASTM A228</td>
</tr>
<tr>
<td>Strainer</td>
<td>Stainless Steel</td>
<td>1.4404</td>
<td>316 L</td>
</tr>
</tbody>
</table>

**Valve version**

- **m** with diaphragm  
  - Adjustment by means of non-rising spindle.  
  - Insert with balanced single seat valve made of gunmetal.

**Complete valve insert SP/HP (order code: 681 Insert-DN..-seal) available as replacement part** can be exchanged without removing the valve.

**Complete valve insert LP (order code: 681 LP Insert-DN..-seal) available as replacement part** can be exchanged without removing the valve.

- Built-in dirt trap made of stainless steel.
- Mesh size:  
  - DN 15 to DN 32: 0.60 mm  
  - DN 40 and DN 50: 0.75 mm

**Medium**

| GF | gaseous and liquid for water, neutral and non-sticking liquids, compressed air and neutral gases; optionally with FPM elastomere seals for non-neutral media i.e. oils, fuels, oil-laden compressed air, etc. |

**Type of lifting mechanism**

- **O** without lifting device

**Outlet pressure ranges**

<table>
<thead>
<tr>
<th>Type</th>
<th>Standard version</th>
<th>Inlet pressure: up to 40 bar</th>
<th>Outlet pressure: from 1 to 8 bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP</td>
<td>Standard version</td>
<td>Inlet pressure: up to 40 bar</td>
<td>Outlet pressure: from 1 to 8 bar</td>
</tr>
<tr>
<td>HP</td>
<td>High-pressure version</td>
<td>Inlet pressure: up to 40 bar</td>
<td>Outlet pressure: from 5 to 15 bar</td>
</tr>
<tr>
<td>LP</td>
<td>Low-pressure version</td>
<td>Inlet pressure: up to 25 bar</td>
<td>Outlet pressure: from 0.5 to 2 bar</td>
</tr>
</tbody>
</table>

Fixed setting at a required outlet pressure against surcharge.

**Available nominal diameters and connection sizes**

<table>
<thead>
<tr>
<th>Nominal diameter DN</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inlet</td>
<td>1/2” (15)</td>
<td>3/4” (20)</td>
<td>1” (25)</td>
<td>1 1/4” (32)</td>
<td>1 1/2” (40)</td>
<td>2” (50)</td>
</tr>
<tr>
<td>Outlet</td>
<td>1/2” (15)</td>
<td>3/4” (20)</td>
<td>1” (25)</td>
<td>1 1/4” (32)</td>
<td>1 1/2” (40)</td>
<td>2” (50)</td>
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</tbody>
</table>

**Type of connection inlet / outlet threaded connections**

<table>
<thead>
<tr>
<th>BSP-Tm / BSP-Tm</th>
<th>Standard threaded connections</th>
<th>Male thread BSP-T / Male thread BSP-T</th>
<th>DIN EN 10226, ISO 7-1 / DIN EN 10226, ISO 7-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>f / f</td>
<td>Version with female thread</td>
<td>Female thread BSP-P / Female thread BSP-P</td>
<td>DIN EN ISO 228-1 / DIN EN ISO 228-1</td>
</tr>
</tbody>
</table>

**Options**

- Pressure gauges 36, 39 or 40 Chapter Accessories
- Valve insert SP/HP completely made of stainless steel Order code: 681 Insert-DN…-seal
- Valve insert LP completely made of stainless steel Order code: 681 LP Insert-DN…-seal

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Type 16681

■ SEALS

<table>
<thead>
<tr>
<th>EPDM</th>
<th>Ethylene propylene diene</th>
<th>Elastomere moulded diaphragm and seals</th>
<th>–10°C to +95°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Against surcharge</td>
<td></td>
<td></td>
<td></td>
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<table>
<thead>
<tr>
<th>FKM</th>
<th>Fluorocarbon</th>
<th>Elastomere moulded diaphragm and seals</th>
<th>–10°C to +95°C</th>
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<th>Pressure gauges 36, 39 or 40</th>
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<tr>
<td>Valve insert SP/HP completely made of stainless steel</td>
<td>Order code: 481 Insert-DN...seal</td>
</tr>
<tr>
<td>Valve insert LP completely made of stainless steel</td>
<td>Order code: 481 LP Insert-DN...seal</td>
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</tbody>
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■ NOMINAL DIAMETERS, CONNECTIONS, INSTALLATION DIMENSIONS

<table>
<thead>
<tr>
<th>Series 681: Connection, installation dimensions, ranges of adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Connection</strong></td>
</tr>
<tr>
<td>Inlet DIN EN 10226</td>
</tr>
<tr>
<td>Outlet DIN EN 10226</td>
</tr>
<tr>
<td>Inlet pressure SP, HP up to bar</td>
</tr>
<tr>
<td>Inlet pressure LP to bar</td>
</tr>
<tr>
<td>Outlet pressure bar</td>
</tr>
<tr>
<td>Installation dimensions in mm</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td>Weight</td>
</tr>
<tr>
<td>Coefficient of flow $K_{vs}$</td>
</tr>
</tbody>
</table>

1 For type 681mGFO-LP

2 The $K_{vs}$ value was determined according to DIN EN 60534-2-3. Instructions on how to determine size and capacity are to be found under section 2.

■ MAIN DIMENSIONS, INSTALLATION DIMENSIONS

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CAPACITY CHARTS

Series 681:

Dimensioning by pressure loss on the outlet pressure side

Flow chart water

Dimensioning by flow velocity

For liquids:
With help of the chart you can determine the nominal diameter (DN) for a given flow volume V (m³/h). According to DVGW-guidelines (DIN 1988) a flow velocity of 2 m/s in domestic water supply systems should not be exceeded.

For compressed air and other gaseous media:
The usual flow velocity for compressed air is 10 - 20 m/s. For gaseous media the flow volume V should always be shown in actual cubic meters/hour.
If the flow volume is given in standard cubic meters, these should be converted into actual cubic meters before using the diagram.

\[ V(\text{m}^3/\text{h}) = \frac{V_{\text{flow}}(\text{Nm}^3/\text{h})}{p_{\text{flow}}(\text{bar})} = \frac{V_{\text{flow}}}{p_{\text{flow}}^{\alpha+1}} \]

Actual cubic meters are based on the prevailing pressure of the medium on the outlet side of the pressure reducer.