Type 42-20 and Type 42-25 Differential Pressure Regulators
Self-operated Pressure Regulators (opening)
Note on these mounting and operating instructions

These mounting and operating instructions assist you in mounting and operating the device safely. The instructions are binding for handling SAMSON devices.

⇒ For the safe and proper use of these instructions, read them carefully and keep them for later reference.

⇒ If you have any questions about these instructions, contact SAMSON’s After-sales Service Department (aftersalesservice@samson.de).

The mounting and operating instructions for the devices are included in the scope of delivery. The latest documentation is available on our website at www.samson.de > Service & Support > Downloads > Documentation.

### WARNING!

Damage to health relating to the REACH regulation.

If a SAMSON device contains a substance which is listed as being a substance of very high concern on the candidate list of the REACH regulation, this circumstance is indicated on the SAMSON delivery note.

Information on safe use of the part affected, see http://www.samson.de/reach-en.html.

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**Definition of signal words**

<table>
<thead>
<tr>
<th><strong>DANGER</strong></th>
<th>Hazardous situations which, if not avoided, will result in death or serious injury</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WARNING</strong></td>
<td>Hazardous situations which, if not avoided, could result in death or serious injury</td>
</tr>
<tr>
<td><strong>NOTICE</strong></td>
<td>Property damage message or malfunction</td>
</tr>
<tr>
<td><strong>Tip</strong></td>
<td>Recommended action</td>
</tr>
</tbody>
</table>

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1 General safety instructions

DANGER

− All safety instructions and warnings given in these mounting and operating instructions, particularly those concerning installation, start-up, and maintenance, must be strictly observed.

− The device must be mounted, started up or serviced by fully trained and qualified personnel only; the accepted industry codes and practices are to be observed. Make sure employees or third persons are not exposed to any danger.

− According to these mounting and operating instructions, trained personnel refers to individuals who are able to judge the work they are assigned to and recognize possible dangers due to their specialized training, their knowledge and experience as well as their knowledge of the applicable standards.

− The devices comply with the requirements of the European Pressure Equipment Directive 2014/68/EU. Devices with a CE marking have an EU declaration of conformity, which includes information about the applied conformity assessment procedure. This declaration of conformity can be provided on request.

− To ensure appropriate use, only use the device in applications where the operating pressure and temperatures do not exceed the specifications used for sizing the device at the ordering stage.

− The manufacturer does not assume any responsibility for damage caused by external forces or any other external factors.

− Any hazards that could be caused in the regulator by the process medium, operating pressure or by moving parts are to be prevented by taking appropriate precautions.

− Proper transport, storage, installation, operation, and maintenance are assumed.

Note

Non-electric valve versions whose bodies are not lined with an insulating material coating do not have their own potential ignition source according to the risk assessment stipulated in EN 13463-1: 2009, section 5.2, even in the rare incident of an operating fault. Therefore, such valve versions do not fall within the scope of Directive 2014/34/EU.

For connection to the equipotential bonding system, observe the requirements specified in section 6.4 of EN 60079-14: 2011 (VDE 0165 Part 1).
2 Process medium and scope of application

Differential pressure regulator for extended heating systems and industrial applications. 
Differential pressure set points \( \Delta p \) from 0.05 to 10 bar · Valves DN 15 to 250 · Pressure rating PN 16 to 40 · Suitable for liquids and vapors from 5 to 350 °C as well as for air and non-flammable gases up to 80 °C
The valve opens when the differential pressure rises and exceeds the adjusted set point.

3 Transportation and storage

The device must be carefully handled, transported and stored. Protect the regulator against adverse influences, such as dirt, moisture or temperature outside the ambient temperature range.

Do not remove the protective caps from the valve ports until immediately before installing the valve into the pipeline.

When regulators are too heavy to be lifted by hand, fasten the lifting equipment to a suitable place on the valve body.

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**WARNING**

Do not attach lifting slings or rigging equipment to mounting parts, such as the control line etc. The valve can fall or mounting parts may be damaged.

Securely fasten slings or rigging equipment to the valve body and secure against slipping.

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4 Design and principle of operation

See Fig. 1 on page 7.

The differential pressure regulators are designed to maintain a constant pressure difference between the upstream pressure line (+) and the downstream pressure line (−) to an adjustable set point (Type 42-25) or a fixed set point (Type 42-20).

The regulators basically consist of the valve with seat (2) and plug (3) and an opening actuator (Type 2425/2420) with an operating diaphragm (13).

Valve and actuator are delivered separately and must be assembled on site using a coupling nut (11, width across flats 41, max. tightening torque 120 Nm).
Design and principle of operation

The medium flows through the valve between the plug (3) and the seat (2) in the direction indicated by the arrow. The position of the valve plug determines the differential pressure prevailing across the plant. The Type 2422 Valve is balanced. The forces acting on the valve plug created by the upstream and downstream pressures are balanced by a balancing bellows (5) or balancing diaphragm 1) (5.1).

Regulators balanced by a bellows or a diaphragm only differ in the pressure balancing principle applied. Valves balanced by a diaphragm have a balancing diaphragm (5.1) instead of the balancing bellows (5). The downstream pressure \( p_2 \) acts on the bottom of the diaphragm and the upstream pressure \( p_1 \) on the top of the diaphragm. As a result, the forces created by the upstream and downstream pressures acting on the plug are balanced out.

The differential pressure across the plant is transmitted over the upstream pressure line with the pressure \( p_1 \) (+) and the downstream pressure line with the pressure \( p_2 \) (−) to the operating diaphragm (13) where it is converted into a positioning force. This force moves the plug according to the force of the set point springs (16).

The set point springs are mounted inside the actuator for a fixed set point (Type 42-20). These springs can be adjusted externally for an adjustable set point (Type 42-25).

1) Type 2422 Valve, balanced by a diaphragm, DN 65 to 250 only

Regulator configurations

<table>
<thead>
<tr>
<th>Regulator</th>
<th>Valve</th>
<th>Actuator</th>
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</thead>
<tbody>
<tr>
<td>Type 42-20</td>
<td>Type 2422 balanced</td>
<td>Type 2420 fixed set point</td>
</tr>
<tr>
<td>Type 42-25</td>
<td>Type 2422 balanced</td>
<td>Type 2425 adjustable set point</td>
</tr>
</tbody>
</table>
Design and principle of operation

**Fig. 1:** Functional diagrams of Type 42-25 and Type 42-20

**Type 42-25**
Type 2422 Valve, balanced by a diaphragm
(DN 65 to 250)

**Type 2425 Actuator**

**Type 2422 Valve, balanced by a bellows**
(DN 15 to 250)

**Type 42-20**
Type 2422 Valve, balanced by a diaphragm
(DN 65 to 100)

**Type 2420 Actuator**

**Type 2422 Valve, balanced by a bellows**
(DN 15 to 100)

\[ p_1 \text{ Upstream pressure (+)} \]
\[ p_2 \text{ Downstream pressure (–)} \]
5 Installation

The Type 42-20 and Type 42-25 Regulators are designed for installation in the bypass or short circuit of the plant.

- Choose a place of installation that allows you to freely access the regulator even after the entire plant has been completed.
- Install a strainer (e.g. SAMSON Type 2 N) upstream of the regulator (see section 5.2).
- Flush the pipeline thoroughly before installing the regulator to ensure that any sealing parts, weld spatter and other impurities carried along by the process medium do not impair the proper functioning of the valve, above all the tight shut-off.
- The direction of flow must match the direction indicated by the arrow on the body.

5.1 Mounting position

See Fig. 1 on page 7.
See Fig. 2 for permissible mounting positions.

Standard mounting position - Install valve without actuator in a horizontal pipeline with the connection for the actuator facing downward. Make sure the medium flows through the valve in the direction indicated by the arrow.

![Fig. 2: Permissible mounting positions](image)

Connect the actuator to the valve bottom section using the coupling nut (11, width across flats 41, max. tightening torque 120 Nm).

NOTICE

Incorrectly installed regulator
The pressure regulator can be damaged.
- Make sure the regulator is installed free of stress.
- Do not attach supports (if required) directly to the valve or actuator. Attach the supports near to the connecting flanges.
- Observe permissible mounting position.

NOTICE

The connection between the plug stem (4) and diaphragm stem (12) is force locking.
Do not remove the screw plug.
5.2 Strainer
Install the strainer upstream of the regulator. The direction of flow must correspond to the arrow on the body. The filter element must be installed to hang downwards or sideways for applications with steam. Remember to leave enough space to remove the filter element.

5.3 Shut-off valve
Install a hand-operated shut-off valve both upstream of the strainer and at the outlet of the return flow pipe (see Fig. 7). This allows the plant to be shut down for cleaning and maintenance, and when the plant is not used for longer periods of time.

5.4 Pressure gauges
Install a pressure gauge both upstream and downstream of the regulator to monitor the pressures prevailing in the plant. Install the pressure gauge on the downstream side behind the downstream pressure tapping point (not between the tapping point and the valve).

5.5 Control line, compensation chamber and needle valve
Control line - A control line preferably as an 8 x 1 mm stainless steel pipe must be provided at the site of installation. Connect the control lines on the valve body to the threaded boreholes (up to DN 100: G ¼; DN 125 and larger: G ¾) in the inlet and outlet. The free inlet and outlet lengths at the valve must be at least three times the nominal size (DN). Install any instruments that can cause turbulence in the flow sufficiently far away from
Installation

the pressure tapping points. (min. three times the nominal size (DN), see Fig. 6).
When the control lines are connected to the main pipe, keep the minimum distance of five times the nominal size (DN). Connect control lines at the side of the main pipe. Do not change the pipe diameter of the main pipeline with an eccentric reducer.

Control line kit · A control line kit for tapping pressure directly at the valve body is available as an accessories part from SAMSON (T 3095). These control line kits for tapping pressure directly at the valve body already take into account the flow conditions. As a result, no special attention has to be paid to the flow conditions on connecting the regulators.

Compensation chamber · A compensation chamber is required for liquids above 150 °C as well as for steam (valve balanced by a bellows). The mounting position of the compensation chamber is indicated by an adhesive label on the chamber itself as well as by an arrow and the word "top" stamped on the top of the chamber. This mounting position must be adhered to; otherwise the safe functioning of the pressure reducing valve cannot be guaranteed.

**Note**

Only a valve balanced by a bellows can be used for steam control applications.

![Correct! Connection at the side – optimal](image1)

![Incorrect! Connection at the top – incorrect position](image2)

![Incorrect! Connection at the bottom – incorrect position](image3)

Fig. 5: Control line connection

Fig. 6: Regulator installation · Distances
**Needle valve** - If the regulator tends to hunt, we recommend installing a SAMSON screw joint with restriction (needle valve) at the control line connection of the actuator.

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**Note**

*Needle valves, condensation chambers, excess pressure relief equipment and compression-type screw fittings can be supplied as required. These accessories are listed in T 3095.*

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**Fig. 7:** Typical installations

Installation in the bypass of a centrifugal pump

1. Shut-off valve
2. Strainer
3. Differential pressure regulator
4. Pressure gauge
5. Needle valve (optional)
6. Compensation chamber · A compensation chamber is required for liquids above 150 °C or for steam.

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Installation in the short-circuit pipe of a house substation

\[ p_1 \quad \text{Upstream pressure} \]
\[ p_2 \quad \text{Downstream pressure} \]
6 Operation
See Fig. 1 on page 7.

6.1 Start-up

- First start up the regulator after mounting all parts.
- Make sure the control lines are open and correctly connected.
- If needle valves are installed in the control lines, open them before start-up.
  Fill condensation chambers with the process medium before start-up.
- Open the shut-off valves slowly preferably starting from the downstream side.

6.2 Adjusting the set point

Type 42-25
Adjust the required set point by tensioning the set point springs at the nut (17).
If small differential pressure set points are to be adjusted, we recommend using a differential pressure gauge instead of the two pressure gauges to monitor the pressure.
Turn the nut (17) clockwise (\(\text{\textdegree}\)) to increase the pressure set point and counterclockwise (\(\text{\textdegree}\)) to reduce the pressure set point.

Type 42-20
Set point fixed to \(\Delta p = 0.2, 0.3, 0.4 \) or 0.5 bar.

6.3 Decommissioning
Preferably close first the shut-off valve on the upstream side of the valve and then on the downstream side of the valve.

7 Maintenance and troubleshooting
The regulators do not require any maintenance. Nevertheless, they are subject to natural wear, particularly at the seat, plug and operating diaphragm.
Depending on the operating conditions, check the regulator at regular intervals to avoid possible malfunctions.
Details on faults and how to remedy them can be found in Table 1:

- We recommend removing the valve from the pipeline.
**WARNING**

Excessive pressure may cause parts to move. Before performing any work on the regulator, depressurize the relevant plant section and, depending on the process medium, drain it as well. Shut off or disconnect the control lines.

**Table 1: Troubleshooting**

<table>
<thead>
<tr>
<th>Malfunction</th>
<th>Possible reasons</th>
<th>Recommended action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Differential pressure exceeds the adjusted set point</td>
<td>Insufficient upstream pressure pulses on the actuator diaphragm</td>
<td>Clean the control line, needle valve and screw joint with restriction.</td>
</tr>
<tr>
<td></td>
<td>Leak between seat and plug due to wear</td>
<td>Disassemble the regulator and replace damaged parts.</td>
</tr>
<tr>
<td></td>
<td>Strainer blocked</td>
<td>Clean strainer.</td>
</tr>
<tr>
<td></td>
<td>Defective operating diaphragm</td>
<td>Replace the operating diaphragm (see section 7.1).</td>
</tr>
<tr>
<td></td>
<td>Valve or $K_{VS}$ coefficient too small for control task</td>
<td>Check valve sizing. Select valve with larger $K_{VS}$ coefficient, if necessary.</td>
</tr>
<tr>
<td>Differential pressure drops below the adjusted set point</td>
<td>Valve or $K_{VS}$ coefficient too large for control task</td>
<td>Check valve sizing. Select valve with smaller $K_{VS}$ coefficient, if necessary.</td>
</tr>
<tr>
<td></td>
<td>Control line downstream of valve blocked.</td>
<td>Clean the control line, needle valve and screw joint with restriction.</td>
</tr>
<tr>
<td></td>
<td>Leak between seat and plug due to wear</td>
<td>Disassemble the regulator and replace damaged parts.</td>
</tr>
<tr>
<td>Control loop hunts.</td>
<td>Valve or $K_{VS}$ coefficient too large for control task</td>
<td>Check valve sizing. Select valve with smaller $K_{VS}$ coefficient, if necessary.</td>
</tr>
<tr>
<td></td>
<td>No damping of the pulses as the restriction in the screw fitting of the actuator is too large or is missing.</td>
<td>Install suitable needle valve in the control line at the actuator. Close this needle valve until the control loop becomes stable. Do not close the needle valve completely!</td>
</tr>
<tr>
<td>Jerky control response</td>
<td>Increased friction, e.g. due to foreign particles between seat and plug.</td>
<td>Remove valve from the pipeline and clean parts.</td>
</tr>
</tbody>
</table>

If faults cannot be remedied following the recommended action in the table, contact SAMSON (see section 8).

High temperatures
When used at high temperatures, allow the plant section to cool down to ambient temperature.

Residual medium
As valves are not free of cavities, remember that residual process medium might still be contained in the valve.
7.1 Replacing the operating diaphragm

See Fig. 1 on page 7.
If just the operating diaphragm is defective, it can be replaced without having to remove the valve from the pipeline. Drain the relevant section of the pipeline. Unscrew the control lines and separate the actuator from the valve.

**Type 42-20**

![WARNING]

*The set point springs may be loaded. Before opening the diaphragm actuator, first unscrew the short bolts and then the long bolts in an even pattern.*

1. Undo the bolts (15) at the actuator.
2. Remove the bottom diaphragm case together with the spring assembly. Pull the top part of the diaphragm case off the diaphragm stem (12).
3. Unscrew the nut (18) while holding the bottom diaphragm stem or opposite nut stationary using a suitable tool.
4. Lift off the diaphragm plate (19) and pull out the diaphragm.
5. Insert a new diaphragm.
6. Proceed in the reverse order to continue assembly of the regulator.

**Type 42-25**

1. Unscrew the nuts (17) and remove the entire spring assembly.
2. Remove bolts (15) and pull both diaphragm cases from the diaphragm stem.
3. Place the diaphragm stem together with nut (18) into a vise and unscrew the nut (18.1) together with the top part of the diaphragm stem.
4. Lift off the diaphragm plate (19) and pull out the diaphragm.
5. Insert a new diaphragm.
6. To reassemble, proceed in reverse order.

A tightening torque of 40 Nm applies to both items 15 and 18.

For start-up, proceed as described in section 6.1.
8 After-sales service

Contact SAMSON’s After-sales Service department for support concerning service or repair work or when malfunctions or defects arise.

E-mail address

You can reach the After-sales Service Department at aftersalesservice@samson.

Addresses of SAMSON AG and its subsidiaries

The addresses of SAMSON AG, its subsidiaries, representatives and service facilities worldwide can be found on our website (www.samson.de) in all SAMSON product catalogs or on the back of these Mounting and Operating Instructions.

To assist diagnosis and in case of an unclear mounting situation, specify the following details (so far as possible). See section 9:

- Type and nominal size of the valve
- Model number with index
- Upstream and downstream pressure
- Temperature and process medium
- Min. and max. flow rate
- Is a strainer installed?
- Installation drawing showing the exact location of the regulator and all the additionally installed components (shut-off valves, pressure gauge etc.)
9 Nameplate

Nameplates are attached to the valve and the actuator.

**DIN version**
1. Valve type
2. Model number
3. Configuration ID
4. Order number or date
5. $K_{VS}$ coefficient
6. Valve size
7. Nominal pressure
8. Perm. differential pressure
9. Perm. temperature
10. Body material

**ANSI version**
5. Valve size
8. Perm. differential pressure
9. Perm. temperature [°F]
10. Body material
11. $C_v$ coefficient ($K_{VS} \times 1.17$)
12. Class (pressure rating)

**Actuator nameplate**
1. Model number
2. Model number index
3. Order number or date
4. Effective area
5. Labeling according to DIN
6. Labeling according to ANSI
7. Max. perm. pressure
8. Nominal pressure
9. Differential pressure across the restriction
10. Set point range
11. Diaphragm material
12. Year
# Appendix

## 10.1 Technical data

<table>
<thead>
<tr>
<th>Type</th>
<th>42-25</th>
<th>42-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valve size</td>
<td>DN 15 to 250</td>
<td>DN 15 to 100</td>
</tr>
<tr>
<td>Pressure rating</td>
<td>PN 16, 25 or 40</td>
<td></td>
</tr>
<tr>
<td>Max. permissible temperature</td>
<td>Valve</td>
<td>See pressure-temperature diagram in T 3000</td>
</tr>
<tr>
<td></td>
<td>Actuator 1)</td>
<td>With compensation chamber: steam and liquids up to 350 °C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Without compensation chamber: liquids up to 150 °C · Air and gases up to 80 °C</td>
</tr>
<tr>
<td>Set point ranges in bar</td>
<td>0.05 to 0.25 · 0.1 to 0.6 · 0.2 to 1 · 0.5 to 1.5 · 1 to 2.5 · 2 to 5 · 4.5 to 10</td>
<td>0.2 · 0.3 · 0.4 or 0.5</td>
</tr>
<tr>
<td>Actuator area A</td>
<td>80 cm²</td>
<td>160 cm²</td>
</tr>
<tr>
<td>Max. perm. operating pressure for actuator with two diaphragms</td>
<td>40 bar</td>
<td>40 bar</td>
</tr>
<tr>
<td>Leakage class according to IEC 60534-4</td>
<td>≤0.05 % of K₉₅ coefficient</td>
<td></td>
</tr>
</tbody>
</table>

1) Higher temperatures on request

Terms for control valve sizing according to IEC 60534, Parts 2-1 and 2-2:  
\[ F_L = 0.95, \ X_T = 0.75 \]

See section 11 for the assignment of actuator and valve.
11 Dimensions

Valve balanced by a bellows

Fig. 9: Dimensional drawing of Type 2422 Valve balanced by a bellows

Type 42-25 · Type 42-20 · Balanced by a bellows

Fig. 10: Dimensional drawing of actuator with two diaphragms

Type 42-25 with actuator with two diaphragms (special version)

Add approx. 55 mm to the overall height H.

Fig. 10: Dimensional drawing of actuator with two diaphragms
Table 2: Dimensions in mm and weights in kg · Type 42-20 and Type 42-25 · Valve balanced by a bellows

<table>
<thead>
<tr>
<th>Valve size DN</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
<th>65</th>
<th>80</th>
<th>100</th>
<th>125</th>
<th>150</th>
<th>200</th>
<th>250</th>
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</thead>
<tbody>
<tr>
<td>Length L L</td>
<td>130</td>
<td>150</td>
<td>160</td>
<td>180</td>
<td>200</td>
<td>230</td>
<td>290</td>
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<td>350</td>
<td>400</td>
<td>480</td>
<td>600</td>
<td>730</td>
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<tr>
<td>Height H1</td>
<td>225</td>
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<td>Height H2</td>
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<tr>
<td>Other materials</td>
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<td>120</td>
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<tr>
<td>Height H</td>
<td>390</td>
<td>465</td>
<td>520</td>
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</tr>
<tr>
<td>Actuator ØD = 225 mm, A = 160 cm²</td>
<td>ØD = 285 mm, A = 320 cm²</td>
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<tr>
<td>Weight 1) in kg 11.5 12 13 19.5 20 22.5 38 43 57</td>
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<td>Type 42-25 Differential Pressure Regulator</td>
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<tr>
<td>Height H</td>
<td>625</td>
<td>700</td>
<td>755</td>
<td>990</td>
<td>1120</td>
<td>1260</td>
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<td>ØD = 285 mm, A = 640 cm²</td>
<td>ØD = 390 mm, A = 640 cm²</td>
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<tr>
<td>Weight 1) in kg 21 21.5 22.5 29 29.5 32 46 51 65 135 185 425 485</td>
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<tr>
<td>Height H</td>
<td>625</td>
<td>700</td>
<td>755</td>
<td>990</td>
<td>1120</td>
<td>1260</td>
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<tr>
<td>Actuator ØD = 225 mm, A = 320 cm²</td>
<td>ØD = 285 mm, A = 640 cm²</td>
<td>ØD = 390 mm, A = 640 cm²</td>
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<td>Weight 1) in kg 16 16.5 17.5 24 24.5 27 46 51 65 135 185 425 485</td>
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<tr>
<td>Height H</td>
<td>625</td>
<td>700</td>
<td>755</td>
<td>940</td>
<td>1070</td>
<td>1210</td>
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<tr>
<td>Actuator ØD = 225 mm, A = 160 cm²</td>
<td>ØD = 285 mm, A = 320 cm²</td>
<td>ØD = 390 mm, A = 640 cm²</td>
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<td>Weight 1) in kg 16 16.5 17.5 24 24.5 27 42 47 61 135 175 415 475</td>
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<tr>
<td>Height H</td>
<td>625</td>
<td>700</td>
<td>755</td>
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</tr>
<tr>
<td>Height H</td>
<td>605</td>
<td>680</td>
<td>735</td>
<td>940</td>
<td>1070</td>
<td>1210</td>
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</tr>
<tr>
<td>Actuator ØD = 170 mm, A = 80 cm²</td>
<td>ØD = 225 mm, A = 160 cm²</td>
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<tr>
<td>Weight 1) in kg 16 16.5 17.5 24 24.5 27 42 47 61 102 170 410 470</td>
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<tr>
<td>Height H</td>
<td>685</td>
<td>760</td>
<td>815</td>
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<tr>
<td>Actuator ØD = 170 mm, A = 80 cm²</td>
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<tr>
<td>Weight 1) in kg 16 16.5 17.5 24 24.5 27 42 47 61</td>
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</tr>
</tbody>
</table>

1) Weight applies to the version with material specifications EN-GJL-250/PN 16. Add +10 % for all other materials.
2) Optionally with actuator A = 640 cm²
3) Optionally with actuator A = 320 cm²
Dimensions

Valve balanced by a diaphragm

Type 42-20/42-25 · Balanced by a diaphragm

Type 42-25 with two diaphragms: Add approx. 55 mm to the overall height H.

1) Type 42-20 only

Fig. 11: Dimensional drawing of Type 2422 Valve balanced by a diaphragm
### Table 3: Dimensions in mm and weights in kg · Type 42-20 and Type 42-25 · Valve balanced by a diaphragm

<table>
<thead>
<tr>
<th>Valve size DN</th>
<th>65</th>
<th>80</th>
<th>100</th>
<th>125</th>
<th>150</th>
<th>200</th>
<th>250</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length L</td>
<td>290</td>
<td>310</td>
<td>350</td>
<td>400</td>
<td>480</td>
<td>600</td>
<td>730</td>
</tr>
<tr>
<td>Height H2</td>
<td>98</td>
<td>118</td>
<td>145</td>
<td>175</td>
<td>175</td>
<td>260</td>
<td></td>
</tr>
</tbody>
</table>

#### Type 42-20 Differential Pressure Regulator

<table>
<thead>
<tr>
<th>Set points</th>
<th>Type 2420 Actuator</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2 · 0.3 · 0.4 · 0.5 bar</td>
<td></td>
</tr>
<tr>
<td>Height H1</td>
<td>355 375 –</td>
</tr>
<tr>
<td>Actuator</td>
<td>ØD = 285 mm · A = 320 cm²</td>
</tr>
<tr>
<td>Weight, approx. kg</td>
<td>38 43 51 –</td>
</tr>
</tbody>
</table>

#### Type 42-25 Differential Pressure Regulator

<table>
<thead>
<tr>
<th>Set points</th>
<th>Type 2425 Actuator</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.05 to 0.25 bar</td>
<td></td>
</tr>
<tr>
<td>Height H</td>
<td>590 610 815 840 910</td>
</tr>
<tr>
<td>Actuator</td>
<td>ØD = 390 mm · A = 640 cm²</td>
</tr>
<tr>
<td>Weight, approx. kg</td>
<td>42 47 55 75 95 250 270</td>
</tr>
</tbody>
</table>

| 0.1 to 0.6 bar   |                    |
| Height H         | 590 610 815 840 910 |
| Actuator         | ØD = 285 mm · A = 320 cm² \[1\]  ØD = 390 mm · A = 640 cm² \[1\] |
| Weight, approx. kg | 42 47 55 75 95 250 270 |

| 0.2 to 1 bar     |                    |
| Height H         | 590 610 765 790 860 |
| Actuator         | ØD = 225 mm · A = 160 cm² \[2\]  ØD = 285 mm · A = 320 cm² \[1\] |
| Weight, approx. kg | 42 47 55 75 95 250 270 |

| 0.5 to 1.5 bar   |                    |
| Height H         | 590 610 765 790 860 |
| Actuator         | ØD = 225 mm · A = 160 cm² \[2\]  ØD = 285 mm · A = 320 cm² \[1\] |
| Weight, approx. kg | 42 47 55 75 95 250 270 |

| 1 to 2.5 bar     |                    |
| Height H         | 590 610 765 790 860 |
| Actuator         | ØD = 225 mm · A = 160 cm² \[2\] |
| Weight, approx. kg | 42 47 55 75 95 250 270 |

| Set point range 2 to 5 bar |                    |
| Height H         | 590 610 765 790 860 |
| Actuator         | ØD = 225 mm · A = 160 cm² \[2\] |
| Weight, approx. kg | 42 47 55 75 95 250 270 |

\[1\] Optionally with 640 cm² actuator

\[2\] Optionally with 320 cm² actuator