

# Pressure Control Valves

## Back Pressure Regulators UV 3.5, 3.5S, 3.5Z

Compact Valve for Small Flow Rates



### Technical Data

|                        |                              |
|------------------------|------------------------------|
| Connection DN          | 15 - 25                      |
| Connection G           | 1/2                          |
| Nominal Pressure PN    | 25                           |
| Inlet Pressure         | 0.005 - 20 bar               |
| K <sub>vs</sub> -Value | 0.2 - 0.90 m <sup>3</sup> /h |
| Temperature            | 200 °C                       |
| Medium                 | liquids, gases and steam     |

### Description

Self-acting back pressure regulators are simple control valves offering accurate control while being easy to install and maintain. They control the pressure upstream of the valve without requiring pneumatic or electrical control elements.

The UV 3.5, UV 3.5S and UV 3.5Z backpressure regulators are spring-loaded diaphragm-controlled proportional control valves for small volumes. They are manufactured from deep-drawn stainless steel featuring excellent corrosion resistance. The valve cone can be fitted with a metallic or soft seal.

The spring module comprising spring cap, spring, adjusting screw, diaphragm and internal components, is connected to the valve body only by means of a clamp ring and two bolts. Changing the diaphragm or the complete spring assembly for a different control pressure range is extremely simple and does not call for special tools. The same applies to servicing and maintenance.

Changing the control pressure setting does not affect the height of the valve (non rising adjusting screw).

The inlet pressure to be controlled is balanced across the valve seat by the force of the valve spring (set pressure). If the inlet pressure rises above the set pressure, the valve opens. With decreasing inlet pressure the valve control orifice reduces, when the pipeline is depressurised, the valve is closed. Rotating the adjusting screw clockwise increases the inlet pressure.

The UV 3.5S and UV 3.5Z overflow valves require a pilot line (to be installed on-site).

These valves are no shut-off elements ensuring a tight closing of the valve. In accordance with DIN EN 60534-4 and/or ANSI FCI 70-2 they may feature a leakage rate in closed position in compliance with the leakage classes III or V, optional IV.

### Standard

- » All stainless steel construction
- » Non rising adjusting screw
- » Quick-release body clamp ring
- » Sense line connection (UV 3.5S and UV 3.5Z)

### Options

- » Electro-pneumatic actuation
- » For toxic or hazardous media: sealed spring cap complete with leakage line connection (incl. sealed adjusting screw). Must be installed with a leakage line capable of draining leaking medium safely and without pressure
- » Various diaphragm and seal materials suitable for your medium
- » Special connections: Aseptic, ANSI or JIS flanges, NPT, welding spigots; other connections on request
- » Special versions on request

Operating instructions, know how and safety instructions must be observed. The pressure has always been indicated as overpressure. We reserve the right to alter technical specifications without notice.



### K<sub>vs</sub>-Values [m<sup>3</sup>/h]

| seat I | seat II | seat III |
|--------|---------|----------|
| 0.2    | 0.5     | 0.9      |

### Setting Ranges [bar] UV 3.5 + UV 3.5S

| setting range bar | nominal pressure |
|-------------------|------------------|
| 0.005 - 0.025     | PN 1             |
| 0.02 - 0.12       |                  |
| 0.1 - 0.5         |                  |
| 0.2 - 1.1         | PN 2.5           |
| 0.8 - 2.5         | PN 6             |
| 1 - 5             | PN 10            |
| 4 - 12            | PN 25            |
| 10 - 20           |                  |

### Setting Ranges [bar] UV 3.5Z

| setting range bar | nominal pressure |
|-------------------|------------------|
| 0.005 - 0.025     | PN 1             |
| 0.02 - 0.12       |                  |
| 0.1 - 0.5         |                  |
| 0.2 - 1.1         | PN 2.5           |
| 0.8 - 2.5         | PN 6             |
| 1 - 5             | PN 10            |
| 4 - 12            | PN 16            |

# Pressure Control Valves

## Back Pressure Regulators UV 3.5, 3.5S, 3.5Z

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| Materials                    |  |   |               |
|------------------------------|--|---|---------------|
| Type                         | UV 3.5                                 |   | UV 3.5Z       |
| Temperature                  | 80 °C                                  | 130 °C  | 200 °C        |
| Body                         | CrNiMo-steel                           | CrNiMo-steel  | CrNiMo-steel  |
| Spring Cap                   |  |   |               |
| Internals                    |  |   |               |
| Spring                       | CrNi-steel                             | CrNi-steel  | CrNi-steel    |
| Valve Seal                   | UV 3.5:<br>CrNiMo-steel<br>UV 3.5S: EU | UV 3.5:<br>CrNiMo-steel<br>UV 3.5S: FKM or EPDM or PTFE | SST 316L      |
| Diaphragm                    | CR                                     | FKM or EPDM   | EPDM          |
| Prtection Foil for Diaphragm | PTFE (option)                          | PTFE (option)   | PTFE (option) |

| Dimensions [mm]              |                    |            |                  |       |       |       |
|------------------------------|--------------------|------------|------------------|-------|-------|-------|
| setting range bar            | size               | type       | nominal diameter |       |       |       |
|                              |                    |            | G 1/2            | DN 15 | DN 20 | DN 25 |
| all ranges                   | B                  | 3.5 + 3.5Z | 39               | 39    | 39    | 39    |
| 0.005 - 0.025<br>0.02 - 0.12 | A/A <sub>1</sub> * | 3.5 + 3.5Z | 100              | 130   | 150   | 160   |
|                              | C                  | 3.5        | 275              | 275   | 275   | 272   |
|                              | C                  | 3.5Z       | 405              | 405   | 405   | 415   |
|                              | D                  | 3.5 + 3.5Z | 360              | 360   | 360   | 360   |
| 0.1 - 0.5                    | A/A <sub>1</sub> * | 3.5 + 3.5Z | 100              | 130   | 150   | 160   |
|                              | C                  | 3.5        | 275              | 275   | 275   | 272   |
|                              | C                  | 3.5Z       | 405              | 405   | 405   | 415   |
|                              | D                  | 3.5 + 3.5Z | 264              | 264   | 264   | 264   |
| 0.2 - 1.1                    | A/A <sub>1</sub> * | 3.5 + 3.5Z | 100              | 130   | 150   | 160   |
|                              | C                  | 3.5        | 275              | 275   | 275   | 272   |
|                              | C                  | 3.5 + 3.5Z | 405              | 405   | 405   | 405   |
|                              | D                  | 3.5 + 3.5Z | 200              | 200   | 200   | 200   |
| 0.8 - 2.5                    | A/A <sub>1</sub> * | 3.5        | 100              | 180   | 180   | 180   |
|                              | A/A <sub>1</sub> * | 3.5Z       | 100              | 130   | 150   | 160   |
|                              | C                  | 3.5        | 205              | 205   | 205   | 205   |
|                              | D                  | 3.5Z       | 338              | 338   | 338   | 338   |
| 1 - 5<br>4 - 12<br>10 - 20   | A/A <sub>1</sub> * | 3.5 + 3.5Z | 100              | 130   | 150   | 160   |
|                              | C                  | 3.5        | 205              | 205   | 205   | 205   |
|                              | C                  | 3.5Z       | 338              | 338   | 338   | 338   |
|                              | D                  | 3.5 + 3.5Z | 114              | 114   | 114   | 114   |

\* Overall length tolerances in acc. with DIN EN 558

| Weights [kg]                 |      |                  |       |       |       |
|------------------------------|------|------------------|-------|-------|-------|
| setting range bar            | type | nominal diameter |       |       |       |
|                              |      | G 1/2            | DN 15 | DN 20 | DN 25 |
| 0.005 - 0.025<br>0.02 - 0.12 | 3.5  | 6                | 7.5   | 7.5   | 8     |
|                              | 3.5Z | 6.5              | 8     | 8     | 8.5   |
| 0.1 - 0.5                    | 3.5  | 5.5              | 7     | 7     | 7.5   |
|                              | 3.5Z | 6                | 7.5   | 7.5   | 8     |
| 0.2 - 1.1                    | 3.5  | 4.5              | 6     | 6     | 6.5   |
|                              | 3.5Z | 5                | 6.5   | 6.5   | 7     |
| 0.8 - 2.5                    | 3.5  | 2                | 3.5   | 3.5   | 4     |
|                              | 3.5Z | 2.5              | 4     | 4     | 4.5   |
| 1 - 20                       | 3.5  | 1.5              | 3     | 3     | 3.5   |
|                              | 3.5Z | 2                | 3.5   | 3.5   | 4     |

### Customs Tariff Number

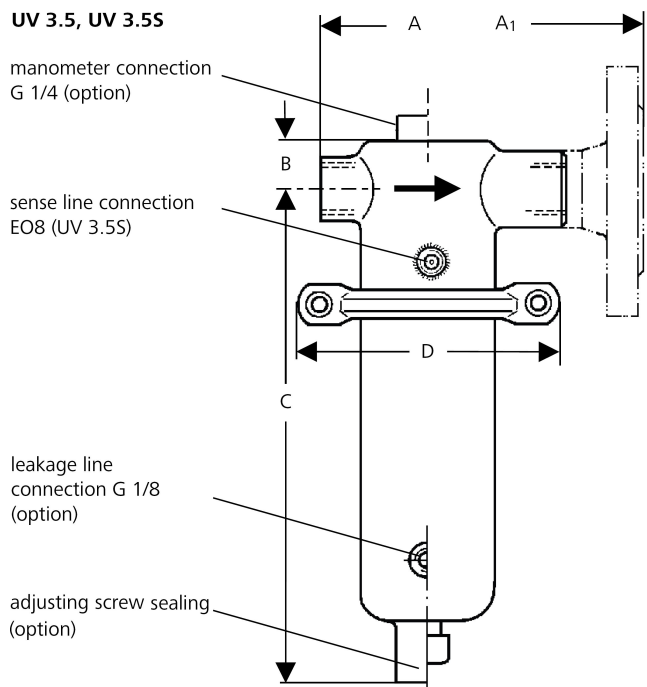
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Special designs on request.

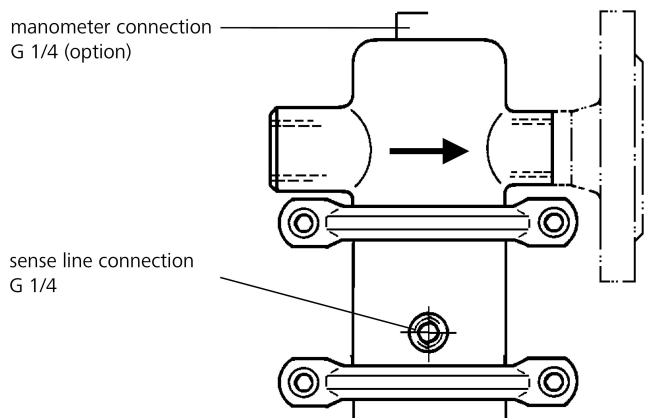
The pressure has always been indicated as overpressure.

Mankenberg reserves the right to alter or improve the designs or specifications of the products described herein without notice.

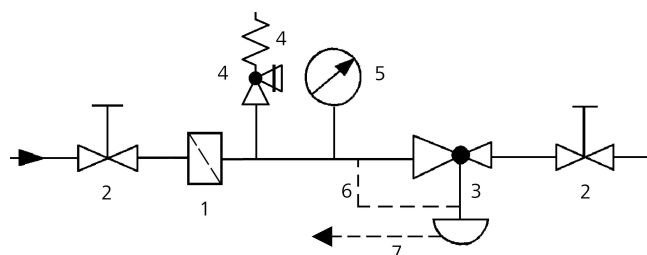
### Dimensional Drawing



### UV 3.5Z (dimensions see UV 3.5)



### Recommended Installation



- 1 Strainer\*
  - 2 Shut-off Valves
  - 3 Backpressure Regulator\*
  - 4 Safety Valves\*
  - 5 Pressure Gauge
  - 6 Sense Line EO8, G 1/4 (option)
  - 7 Leakage Line G 1/8 (option)
- Sense line connection 10 - 20 x DN before the valve  
\*Use MANKENBERG-Products