**Series 250**

**Pneumatic Control Valve Type 3252-1 and Type 3252-7**

**High Pressure Valve Type 3252**

**Application**

Control valve used to control small flow rates in process engineering

<table>
<thead>
<tr>
<th>Nominal size</th>
<th>G ¼&quot; to 1&quot;</th>
<th>NPT ¼&quot; to 1&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal pressure</td>
<td>PN 40 to 400</td>
<td>ANSI Class 300 to 2500</td>
</tr>
<tr>
<td>Temperatures</td>
<td>-200 to 450 °C</td>
<td>-320 to 800 °F</td>
</tr>
</tbody>
</table>

Type 3252 High Pressure Valve with globe-style or angle-style valve body with

- Type 3271 Pneumatic Actuator (Type 3252-1 Control Valve) or
- Type 3277 Pneumatic Actuator (Type 3252-7 Control Valve)

**Valve body**

- Material WN 1.4404/A 316 L
- G or NPT threaded connection, optionally welding ends or weld-on flanges

**Valve plug**

- With metal sealing

The control valves have a modular-assembly design and can be equipped with various accessories as follows:

- Positioners, limit switches, solenoid valves and other equipment for attachment according to DIN IEC 534-6 and NAMUR recommendation.

For more details, please refer to Information Sheet T 8350 EN.

**Versions**

**Standard version** designed as globe-style or angle-style valve body with PTFE V-ring packing suitable for temperature ranges of -10 to 220 °C (15 to 430 °F)

Nominal pressure PN 40 to PN 400, ANSI Class 300 to 2500

Female thread G ¼", ⅜", 1" or NPT ½", ⅜", 1"

Body material WN 1.4404/A 316 L
- **Type 3252-1** Control Valve with Type 3271-5 Pneumatic Actuator (120 cm²) or Type 3271 Pneumatic Actuator (350 cm²)
- **Type 3252-7** Control Valve (Fig. 1) with Type 3277-5 Pneumatic Actuator (120 cm²) or with Type 3277 Pneumatic Actuator (350 cm²) for integral positioner attachment.

**Additional versions available with**

- **Welding ends** size DN 15, 20, 25 or ANSI ¼", ⅜", 1"
- **Flanges** size DN 15, 20, 25 or ANSI ¼", ⅜", 1"
- **Male thread** on request
- **Insulating section** for temperatures from -200 to 450 °C (−320 to 800 °F)
- **Metal bellows seal** for PN 40 to PN 400 or ANSI Class 150 to 2500
- **Special valve body materials** on request
- **Adjustable stuffing box**

---

**Fig. 1** :: Type 3252-7 High Pressure Valve with Type 3767 i/p Positioner

---

**Associated Information Sheet**

T 8000 EN

**Associated Data Sheets for Pneumatic Actuators**

T 8310 EN, T 8311 EN

**Edition August 2001**

**Data Sheet**

T 8053 EN
Principle of operation
The process medium flows through the valve in the direction indicated by the arrow. The position of the plug determines the cross-sectional area of flow between the seat and the plug. The plug stem is connected to the actuator stem via coupling and sealed with a self-adjusting packing. For higher demands regarding the tightness of the seal to the outside, the valve can be equipped with a multiple-walled metal bellows.

Fail-safe position
Depending on how the compression springs are arranged in the actuator (see Data Sheets T 8310 EN and T 8311 EN for details), the control valve has two different fail-safe positions in case the supply air fails:

Actuator stem extends (FA)
Whenever the supply air fails, the valve closes.

Actuator stem retracts (FE)
Whenever the supply air fails, the valve opens.

Table 1 · Technical data for Type 3252

<table>
<thead>
<tr>
<th>Connection</th>
<th>Female thread</th>
<th>Welding ends</th>
<th>Weld-on flanges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal pressure</td>
<td></td>
<td>PN 40 ... 400 or ANSI Class 300 ... 2500</td>
<td></td>
</tr>
<tr>
<td>Seat-plug seal</td>
<td>Metal sealing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Characteristic</td>
<td>Equal percentage or linear</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rangeability</td>
<td>50 : 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Temperature ranges
Valve body without insulating section: -10 ... 220 °C (15 ... 430 °F)
Valve body with Insul. sec. short long: -50 ... 450 °C (-57 ... 800 °F)
Bellows seal: -200 ... 450 °C (-320 ... 800 °F)

Leakage class acc. to DIN IEC 534: IV
### Table 2: Materials (WN = Material No. acc. to DIN)

<table>
<thead>
<tr>
<th>Standard version</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Valve body</td>
<td>WN 1.4404 / A 316 L ¹)</td>
</tr>
<tr>
<td>Valve bonnet (wetted parts)</td>
<td>WN 1.4404 / A 316 L</td>
</tr>
<tr>
<td>Seat and plug</td>
<td>(Stellited seats and purely Stellited plug also available)</td>
</tr>
<tr>
<td>Packing</td>
<td>V-ring packing PTFE incl. carbon</td>
</tr>
<tr>
<td>Body gasket</td>
<td>WN 1.4404 / A 316 L</td>
</tr>
<tr>
<td>Insulating section</td>
<td>WN 1.4404 / A 316 L</td>
</tr>
<tr>
<td>Metal bellows seal</td>
<td></td>
</tr>
<tr>
<td>Intermediate piece</td>
<td>WN 1.4404 / A 316 L</td>
</tr>
<tr>
<td>Metal bellows PN 40 ... 400 Cl 300 ... 2500</td>
<td>WN 1.4571 / A 316 Ti</td>
</tr>
</tbody>
</table>

¹) Other materials on request

### Table 3: \(K_v\) values available

<table>
<thead>
<tr>
<th>(K_v)</th>
<th>0.1</th>
<th>0.16</th>
<th>0.25</th>
<th>0.4</th>
<th>0.63</th>
<th>1.0</th>
<th>1.6</th>
<th>2.5</th>
<th>4.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>(C_v)</td>
<td>0.12</td>
<td>0.2</td>
<td>0.3</td>
<td>0.5</td>
<td>0.75</td>
<td>1.2</td>
<td>2.0</td>
<td>3.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Seat (\varnothing) mm</td>
<td>6</td>
<td>12</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travel mm</td>
<td>7.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 4: Permissible differential pressures for versions without metal bellows seal

<table>
<thead>
<tr>
<th>Bench range</th>
<th>0.6 ... 1.0</th>
<th>1.2 ... 2.0</th>
<th>1.85 ... 2.3</th>
<th>2.7 ... 3.3</th>
<th>0.5 ... 1.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required supply pressure</td>
<td>1.2</td>
<td>2.2</td>
<td>2.5</td>
<td>3.5</td>
<td>1.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DN</th>
<th>15 to 25 or (\frac{1}{2})&quot; to 1&quot;</th>
<th>1.6 (\times) 2.5</th>
<th>12</th>
<th>4.0 (\times) 14</th>
</tr>
</thead>
<tbody>
<tr>
<td>(K_v)</td>
<td>0.1 (\times) 0.16</td>
<td>0.25 (\times) 0.4</td>
<td>0.63 (\times) 1.0</td>
<td>6</td>
</tr>
<tr>
<td>(\Delta p) for (p_2 = 0)</td>
<td>120</td>
<td>50</td>
<td>128</td>
<td>205</td>
</tr>
<tr>
<td></td>
<td>350</td>
<td>330</td>
<td>400</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>120</td>
<td>8</td>
<td>82</td>
<td>135</td>
</tr>
<tr>
<td></td>
<td>350</td>
<td>130</td>
<td>270</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td>120</td>
<td>2</td>
<td>60</td>
<td>99</td>
</tr>
<tr>
<td></td>
<td>350</td>
<td>90</td>
<td>198</td>
<td>310</td>
</tr>
</tbody>
</table>

### Table 5: Permissible differential pressures for versions with metal bellows seal

<table>
<thead>
<tr>
<th>Bench range</th>
<th>0.6 ... 1.0</th>
<th>1.2 ... 2.0</th>
<th>1.85 ... 2.3</th>
<th>2.7 ... 3.3</th>
<th>0.5 ... 1.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required supply pressure</td>
<td>1.2</td>
<td>2.2</td>
<td>2.5</td>
<td>3.5</td>
<td>1.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DN</th>
<th>15 to 25 or (\frac{1}{2})&quot; to 1&quot;</th>
<th>1.6 (\times) 2.5</th>
<th>12</th>
<th>4.0 (\times) 14</th>
</tr>
</thead>
<tbody>
<tr>
<td>(K_v)</td>
<td>0.1 (\times) 0.16</td>
<td>0.25 (\times) 0.4</td>
<td>0.63 (\times) 1.0</td>
<td>6</td>
</tr>
<tr>
<td>(\Delta p) for (p_2 = 0)</td>
<td>120</td>
<td>--</td>
<td>102</td>
<td>164</td>
</tr>
<tr>
<td></td>
<td>350</td>
<td>100</td>
<td>320</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>120</td>
<td>--</td>
<td>66</td>
<td>108</td>
</tr>
<tr>
<td></td>
<td>350</td>
<td>65</td>
<td>216</td>
<td>320</td>
</tr>
<tr>
<td></td>
<td>350</td>
<td>65</td>
<td>158</td>
<td>248</td>
</tr>
</tbody>
</table>

All pressures stated in bar.
**Table 6**  Dimensions in mm and weights for Type 3252 High Pressure Valve with globe-style valve body

<table>
<thead>
<tr>
<th>Valve Standard</th>
<th>DIN</th>
<th>ANSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIN</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>ANSI</td>
<td>Cl 300</td>
<td>Cl 300</td>
</tr>
<tr>
<td>DIN</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>ANSI</td>
<td>Cl 300</td>
<td>Cl 300</td>
</tr>
<tr>
<td>DIN</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>ANSI</td>
<td>Cl 300</td>
<td>Cl 300</td>
</tr>
</tbody>
</table>

**Weights in kg (approx.) for globe-style valve body incl. yoke**

| With female thread | 8.5 | Cl 300 | on request |
| With welding ends | 6.5 | Cl 300 | on request |
| With flanges | 13 | 19.5 | Cl 2500 | 12.5 | 13.5 | 16.5 |

1) Only PN 40

**Table 7**  Dimensions in mm and weights for Type 3252 High Pressure Valve with angle-style valve body

<table>
<thead>
<tr>
<th>Valve</th>
<th>Standard</th>
<th>DIN</th>
<th>ANSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIN</td>
<td>15</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>ANSI</td>
<td>Cl 300</td>
<td>Cl 300</td>
<td>Cl 2500</td>
</tr>
<tr>
<td>DIN</td>
<td>15</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>ANSI</td>
<td>Cl 300</td>
<td>Cl 300</td>
<td>Cl 2500</td>
</tr>
<tr>
<td>DIN</td>
<td>15</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>ANSI</td>
<td>Cl 300</td>
<td>Cl 300</td>
<td>Cl 2500</td>
</tr>
</tbody>
</table>

**Weights in kg (approx.) for angle-style valve body incl. yoke**

| With female thread | 7.5 | Cl 300 | on request |
| With welding ends | 5.5 | Cl 300 | on request |
| With flanges | 12 | 18.5 | Cl 2500 | 11.5 | 12.5 | 15.5 |

1) Only PN 40 2) Special lengths
### Dimensions for globe-style and angle-style valve bodies

![Diagram of globe-style and angle-style valve bodies]

**Table 8** Dimensions in mm for versions with insulating section or metal bellows seal

<table>
<thead>
<tr>
<th>Globe valve</th>
<th>DN</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>1/2”</th>
<th>3/4”</th>
<th>1”</th>
</tr>
</thead>
<tbody>
<tr>
<td>H4 with insulating section</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PN 40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PN 400</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PN 250</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PN 400</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H4 with metal bellows seal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PN 40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PN 400</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>415</td>
<td>415</td>
<td></td>
</tr>
<tr>
<td>PN 250</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>588</td>
<td>588</td>
<td></td>
</tr>
<tr>
<td>PN 400</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle valve</th>
<th>DN</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>1/2”</th>
<th>3/4”</th>
<th>1”</th>
</tr>
</thead>
<tbody>
<tr>
<td>H4 with insulating section</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PN 40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PN 400</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>381</td>
<td>381</td>
<td></td>
</tr>
<tr>
<td>PN 250</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>450</td>
<td>450</td>
<td></td>
</tr>
<tr>
<td>PN 400</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>554</td>
<td>554</td>
<td></td>
</tr>
<tr>
<td>H4 with metal bellows seal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PN 40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PN 400</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>415</td>
<td>415</td>
<td></td>
</tr>
<tr>
<td>PN 250</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>381</td>
<td>381</td>
<td></td>
</tr>
<tr>
<td>PN 400</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>554</td>
<td>554</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weights</th>
<th>DN</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>1/2”</th>
<th>3/4”</th>
<th>1”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal bellows seal, additional weight in kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PN 40/160</td>
<td></td>
<td>3.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PN 250</td>
<td></td>
<td>5.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PN 400</td>
<td></td>
<td>6.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Please submit the following details when ordering:

**Type 3252 Valve**  
Globe- or angle-style valve body

**DN** ... **PN** ...  
According to DIN or ANSI

**Type of connection**  
Female thread G or NPT/  
welding ends or flanges

**Characteristic**  
Equal percentage or linear

**Pneumatic actuator**  
Type 3271 or Type 3277  
see T 8310 EN/T 8311 EN

**Fail-safe position**  
Valve closed or valve open

**Process medium**  
Density in kg/m³ and temperature in °C

**Max. flow rate**  
in kg/h or m³/h

**Pressure**  
p₁ in bar (absolute pressure p₁abs)  
p₂ in bar (absolute pressure p₂abs)

**Accessories**  
Positioner, limit switch

---

### Table 9 - Dimensions in mm and weights for actuators

<table>
<thead>
<tr>
<th>Actuator</th>
<th>cm²</th>
<th>120</th>
<th>350</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diaphragm ( \varnothing ) D</td>
<td>168</td>
<td>280</td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>69</td>
<td>85</td>
<td></td>
</tr>
<tr>
<td>H₃ (Type 3271 Actuator and Type 3277)</td>
<td>225</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Thread</th>
<th>M 30 x 1.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>a (for Type 3271 Actuator)</td>
<td>G ( \frac{1}{8} ) (NPT ( \frac{1}{8} ))</td>
</tr>
<tr>
<td>a2 (for Type 3277 Actuator)</td>
<td>G ( \frac{3}{8} ) (NPT ( \frac{3}{8} ))</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weight of Type 3271 Actuator (approx. kg)/ handwheel</th>
<th>without</th>
<th>with</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weight of Type 3277 Actuator (approx. kg)/ handwheel</th>
<th>without</th>
<th>with</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.5</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

1) Minimum clearance for disassembly of actuator

Specifications subject to change without notice.