2/2-way Angle-Seat Valve with NPT ends for media up to 365°F (185°C) 1/2" – 2 1/2"

- High flow rates
- Very high cycle life
- Long life alternative to ball valves
- Threaded end body
- Suitable for 150 PSI steam
- Deliverable with flow direction below or above seat
- Normally closed, normally open; or double-acting

Type 2000 Angle Seat can be combined with...

Type 6012/6014 P
Pilot valve

Type 6031
TopControl On/Off-Pilot/Switch

Type 8640/8644
Valve bank

Type 5470
Solenoid valve

Type 6519 NAMUR
Pilot valve

The externally piloted angle-seat valve is operated with a single or double-acting piston actuator. The actuator is available in two different materials, depending on the ambient temperature. High flow rates are attained with the virtually straight flow path. The reliable self-adjusting packing gland provides high sealing integrity. These maintenance-free and robust valves can be retrofitted with a comprehensive range of accessories for position indication, stroke limitation or manual override.

Flow to open valves are anti-waterhammer design (the line pressure dampens the closing). Flow to close valves for gases and steam can generally use smaller actuators, at a lower cost but may require higher air pilot pressure to open and may have a lower flow capacity Cv (see pressure charts).

Technical data

<table>
<thead>
<tr>
<th>Orifice</th>
<th>1/2&quot; – 2 1/2&quot; (DN 13 – 65)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body materials</td>
<td>Threaded port body, Weld end body – Tube</td>
</tr>
<tr>
<td>Actuator material</td>
<td>PA, PPS on request</td>
</tr>
<tr>
<td>Plug seal material</td>
<td>PTFE (NBR, FKM and EPDM on request)</td>
</tr>
<tr>
<td>Media</td>
<td>Water, alcohol, oils, fuel, salt solution, alkali solutions, organic solvents, steam</td>
</tr>
<tr>
<td>Viscosity</td>
<td>max. .93 in³/s; 600 cSt; 600 mm²/s</td>
</tr>
<tr>
<td>Packing gland</td>
<td>(with silicone grease) PTFE V-rings with spring compensation</td>
</tr>
<tr>
<td>Media temperature</td>
<td>14°F to 365°F (-10°C to +185°C) with PTFE seal</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>14°F to 140°F (-10°C to +60°C)</td>
</tr>
<tr>
<td>PPS actuator</td>
<td>Actuator sizes Ø 40 – 80</td>
</tr>
<tr>
<td>PA actuator</td>
<td>Actuator sizes Ø 100 – 125</td>
</tr>
<tr>
<td>Actuator size 40 – 80</td>
<td>41°F to 284°F (+5°C to +140°C)</td>
</tr>
<tr>
<td>Actuator size 100</td>
<td>41°F to 194°F (+5°C to +90°C)</td>
</tr>
<tr>
<td>Actuator size 125</td>
<td>As required, preferably with actuator in upright position</td>
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<tr>
<td>Installation</td>
<td>Neutral gases, air</td>
</tr>
<tr>
<td>Max. pilot pressure</td>
<td>PA and PPS 145 PSI</td>
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<tr>
<td>Actuator size 40 – 80</td>
<td>PA 145 PSI</td>
</tr>
<tr>
<td>Actuator size 100</td>
<td>PPS 100 PSI</td>
</tr>
<tr>
<td>Actuator size 125</td>
<td>PA and PPS 100 PSI</td>
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</tbody>
</table>

Note: For PA actuators in the sizes 40, 50 and 63, the combination of max. media temperature and max. ambient temperature is as shown in the following chart. Use PPS actuator material above these lines.
## Dimensions [mm]

<table>
<thead>
<tr>
<th>DN Orifice</th>
<th>Threaded Port Body</th>
<th>All bodies Actuator size Ø</th>
<th>H</th>
<th>E Ø</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>13/15 NPT 1/2</td>
<td>85 173 14</td>
<td>50 137 64</td>
<td>G 1/4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 NPT 3/4</td>
<td>95 178 14</td>
<td>50 145 64</td>
<td>G 1/4</td>
<td></td>
<td></td>
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<tr>
<td>25 NPT 1</td>
<td>105 212 14</td>
<td>50 148 64</td>
<td>G 1/4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32 NPT 1 1/4</td>
<td>130 226 16</td>
<td>63 186 80</td>
<td>G 1/4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40 NPT 1 1/2</td>
<td>130 230 18</td>
<td>63 189 80</td>
<td>G 1/4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 NPT 2</td>
<td>150 250 20</td>
<td>63 205 80</td>
<td>G 1/4</td>
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<tr>
<td>65 NPT 2 1/2</td>
<td>185 296 22</td>
<td>80 239 101</td>
<td>G 1/4</td>
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### Ordering chart for valves with FLOW DIRECTION BELOW SEAT

Actuator material PA (polyamide) with threaded port

<table>
<thead>
<tr>
<th>Control function</th>
<th>Orifice</th>
<th>Port</th>
<th>Connection</th>
<th>Threaded port NPT</th>
<th>Actuator size Ø (mm)</th>
<th>C value</th>
<th>Operating pressure [PSI]</th>
<th>Minimum pilot pressure [PSI]</th>
<th>Item no. Body</th>
<th>Item no. SL body</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 2/2--way, NC by spring action</td>
<td>1/2&quot; (13)</td>
<td>1/2</td>
<td>50</td>
<td>4.9</td>
<td>232</td>
<td>56.5</td>
<td>454 604</td>
<td>454 619</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4” (20)</td>
<td>3/4</td>
<td>50</td>
<td>9.3</td>
<td>160</td>
<td>56.5</td>
<td>454 605</td>
<td>454 620</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1” (25)</td>
<td>1</td>
<td>63</td>
<td>11.8</td>
<td>232</td>
<td>60.9</td>
<td>456 033</td>
<td>456 028</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1 1/4&quot; (32)</td>
<td>1 1/4</td>
<td>63</td>
<td>22.0</td>
<td>160</td>
<td>60.9</td>
<td>454 606</td>
<td>454 621</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1 1/2&quot; (40)</td>
<td>1 1/2</td>
<td>80</td>
<td>32.5</td>
<td>218</td>
<td>72.5</td>
<td>454 607</td>
<td>454 622</td>
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<td></td>
</tr>
<tr>
<td>2” (50)</td>
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<td>80</td>
<td>44.1</td>
<td>150</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2 1/2” (65)</td>
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<td>63.8</td>
<td>104</td>
<td>63.8</td>
<td>454 610</td>
<td>454 624</td>
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</tr>
</tbody>
</table>

B 2/2--way valve, open by spring force, available on request

Other pressure ranges, circuit functions, flow from above, PPS actuators and accessories available on request
2000 Angle–Seat

Technical data

<table>
<thead>
<tr>
<th>Flow direction above seat (only for gases and steam)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media</td>
</tr>
<tr>
<td>Other technical data</td>
</tr>
<tr>
<td>Attention!</td>
</tr>
</tbody>
</table>

Ordering chart for valves WITH FLOW DIRECTION ABOVE THE SEAT
Actuator material PA (polyamide) with pilot pressure depending on operating pressure according to Charts 1 and 2

<table>
<thead>
<tr>
<th>Control function</th>
<th>Office</th>
<th>Port Connection</th>
<th>Thruthead port</th>
<th>Actuator size Ø [mm]</th>
<th>Cv value</th>
<th>Operating pressure up to 365 °F [PSI]</th>
<th>Item no. St. body</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 2/2–way, NC by spring action</td>
<td>1/2” (13)</td>
<td>1/2</td>
<td>50</td>
<td>4.9</td>
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<td>3/4</td>
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<td>9.3</td>
<td>232</td>
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<td>454 636</td>
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<td>1” (25)</td>
<td>1</td>
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<td>454 628</td>
<td>454 637</td>
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<td>1 1/4” (32)</td>
<td>1 1/4</td>
<td>63</td>
<td>31.3</td>
<td>232</td>
<td>454 629</td>
<td>454 638</td>
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<td></td>
<td>1 1/2” (40)</td>
<td>1 1/2</td>
<td>63</td>
<td>40.6</td>
<td>232</td>
<td>454 630</td>
<td>454 639</td>
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<td>2” (50)</td>
<td>2</td>
<td>80</td>
<td>40.6</td>
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<td>454 631</td>
<td>454 640</td>
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<td>2 1/2” (65)</td>
<td>2 1/2</td>
<td>80</td>
<td>60.3</td>
<td>232</td>
<td>454 632</td>
<td>454 641</td>
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</table>

1) Pilot pressure >80 PSI at maximum system pressure.
Other pressure ranges, circuit functions, PPS actuators and accessories on request
Pressure charts 1 and 2 with circuit function A and flow direction above the seat (air pressure required to lift off the seat)

Chart 1
Actuator size Orifice

Chart 2
Actuator size Orifice

Chart 3
Control function B; Actuator 50 ° 80 mm

3/2–way pilot valves Type 6012 P/6014 P with banjo mounting; 1/4" NPT customer air connection

Options and accessories (on request)
- Circuit function I (double–acting actuator) and B (spring–return normally–open)
- PPS actuator
- Electrical position feedback, Type 1060 and 1062
- Magnetic–inductive proximity sensors, Type 1071
- Stroke limitation max. and min./max.
- Manual actuator
- NAMUR adapter for pilot valves

2000 Angle-Seat

Technical data

Ordering chart for valves WITH FLOW DIRECTION BELOW THE SEAT, NORMALLY OPEN
Actuator material PA (polyamide) with pilot pressure depending on operating pressure according to Chart 3

<table>
<thead>
<tr>
<th>Control function</th>
<th>Orifice</th>
<th>Port Connection</th>
<th>Threaded port NPT</th>
<th>Actuator size Ø [mm]</th>
<th>C&lt;sub&gt;t&lt;/sub&gt; value</th>
<th>Operating pressure up to 365°F [PSI]</th>
<th>Item no. bronze body</th>
<th>Item no. steel body</th>
</tr>
</thead>
<tbody>
<tr>
<td>B 2/2–way, NO by spring action</td>
<td>1/2” (13)</td>
<td>1/2</td>
<td>50</td>
<td>4.9</td>
<td>232</td>
<td>454 612</td>
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<td>3/4” (20)</td>
<td>3/4</td>
<td>50</td>
<td>9.3</td>
<td>232</td>
<td>454 613</td>
<td>454 598</td>
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<td>1” (25)</td>
<td>1</td>
<td>63</td>
<td>22.0</td>
<td>232</td>
<td>454 614</td>
<td>454 599</td>
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</tr>
<tr>
<td></td>
<td>1 1/4” (32)</td>
<td>1 1/4</td>
<td>63</td>
<td>31.3</td>
<td>232</td>
<td>454 615</td>
<td>454 600</td>
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</tr>
<tr>
<td></td>
<td>1 1/2” (40)</td>
<td>1 1/2</td>
<td>63</td>
<td>40.6</td>
<td>232&lt;sup&gt;1)&lt;/sup&gt;</td>
<td>454 616</td>
<td>454 601</td>
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<td>2</td>
<td>63</td>
<td>56.8</td>
<td>188&lt;sup&gt;1)&lt;/sup&gt;</td>
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<td>454 602</td>
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<td>2 1/2” (65)</td>
<td>2 1/2</td>
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<td>89.3</td>
<td>217&lt;sup&gt;1)&lt;/sup&gt;</td>
<td>454 787</td>
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</table>

1) Pilot pressure >80 PSI at maximum system pressure.
Other pressure ranges, circuit functions, PPS actuators and accessories on request

<table>
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<tr>
<th>Connections</th>
<th>Orifice</th>
<th>C&lt;sub&gt;t&lt;/sub&gt;</th>
<th>Max. Operating Pressure&lt;sup&gt;2)&lt;/sup&gt; CFA [PSI]</th>
<th>CFA [PSI]</th>
<th>Required Control Pressure CFA [PSI]</th>
<th>Weight [lbs.]</th>
<th>Actuator Size [mm] ø DIA</th>
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</thead>
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<tr>
<td>NPT</td>
<td>[inch]</td>
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<td>1/2</td>
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<td>4.9</td>
<td>230</td>
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<td>1-1/4</td>
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<td>6.8</td>
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<td>2-1/2</td>
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<td>87</td>
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</tr>
</tbody>
</table>

1) Higher differential pressures by other combinations of actuators on request. 2) Max. operating pressure with steam -> 150 PSI (365°F).
## Ordering chart for valves

Ordering chart for valves WITH FLOW DIRECTION ABOVE THE SEAT, High temperature version, steam @ 150 PSI  
Actuator material PPS (polyphenylsulfide) with pilot pressure depending on operating pressure according to Charts 1 and 2  

<table>
<thead>
<tr>
<th>Control function</th>
<th>Orifice</th>
<th>Port Connection</th>
<th>Threaded port NPT</th>
<th>Actuator size Ø [mm]</th>
<th>Cv value</th>
<th>Pilot air pressure @ 150 PSI</th>
<th>Item no. bronze body</th>
<th>Item no. SS fl.st. body</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 2/2-way, NC by spring action</td>
<td>1/2” (13)</td>
<td>1/2</td>
<td>50</td>
<td>4.9</td>
<td>&lt;60</td>
<td>457 431</td>
<td>462 493</td>
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</tr>
<tr>
<td></td>
<td>3/4” (20)</td>
<td>3/4</td>
<td>50</td>
<td>9.3</td>
<td>&lt;60</td>
<td>457 432</td>
<td>462 494</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1” (25)</td>
<td>1</td>
<td>63</td>
<td>22</td>
<td>&lt;60</td>
<td>US09752</td>
<td>462 495</td>
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</tr>
<tr>
<td></td>
<td>1 1/4” (32)</td>
<td>1 1/4</td>
<td>63</td>
<td>31.3</td>
<td>&lt;60</td>
<td>US09753</td>
<td>462 496</td>
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<td>1 1/2” (40)</td>
<td>1 1/2</td>
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<td>40.6</td>
<td>66</td>
<td>457 335</td>
<td>462 497</td>
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</tr>
<tr>
<td></td>
<td>2” (50)</td>
<td>2</td>
<td>80</td>
<td>60.3</td>
<td>66</td>
<td>457 388</td>
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</tbody>
</table>
Angle seat valve spare part sets (kits contain a valve seat or sealing seat set; see drawing)

**SET 6 valve seat kit, 2/2–way valve with bronze body**

<table>
<thead>
<tr>
<th>DN</th>
<th>Item no. FFK-seal</th>
<th>Item no. FKM seal</th>
</tr>
</thead>
<tbody>
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<td>010 984 N</td>
<td>011 065 L</td>
</tr>
<tr>
<td>3/4” (20)</td>
<td>010 986 Q</td>
<td>011 070 V</td>
</tr>
<tr>
<td>1” (25) *</td>
<td>010 988 S</td>
<td>011 085 H</td>
</tr>
<tr>
<td>1” (25) **</td>
<td>159 635 D</td>
<td>---</td>
</tr>
<tr>
<td>1 1/4” (32)</td>
<td>011 044 P</td>
<td>011 088 L</td>
</tr>
<tr>
<td>1 1/2” (40)</td>
<td>011 046 R</td>
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</tr>
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<td>011 109 W</td>
</tr>
<tr>
<td>2 1/2” (65)</td>
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</table>

* Actuator size 50, Letter code D.
** Actuator size 63/80, Letter code E/F.

**SET 5 Sealing set for PA–actuator**

<table>
<thead>
<tr>
<th>Actuator size Ø</th>
<th>For Valve sizes</th>
<th>Item no. bronze body</th>
<th>Item no. stainless steel body</th>
</tr>
</thead>
<tbody>
<tr>
<td>C 1 1/2” (40)</td>
<td>DN 13/20</td>
<td>643 438 D</td>
<td>643 438 D</td>
</tr>
<tr>
<td>D 2” (50)</td>
<td>DN 13/20/25</td>
<td>011 308 D</td>
<td>011 369 H</td>
</tr>
<tr>
<td>E 2 1/2” (63)</td>
<td>DN 25 – 50</td>
<td>011 334 N</td>
<td>011 372 U</td>
</tr>
<tr>
<td>F 3” (80)</td>
<td>DN 25 – 65</td>
<td>011 366 W</td>
<td>001 902 Y</td>
</tr>
<tr>
<td>G 4” (100)</td>
<td>DN 32 – 65</td>
<td>007 763 H</td>
<td>011 386 K</td>
</tr>
<tr>
<td>H 5” (125)</td>
<td>DN 40 – 65</td>
<td>011 368 G</td>
<td>011 387 L</td>
</tr>
</tbody>
</table>

**Set 5 sealing set for PPS–actuator**

<table>
<thead>
<tr>
<th>Actuator size Ø</th>
<th>For Valve sizes</th>
<th>Item no. bronze body</th>
<th>Item no. stainless steel body</th>
</tr>
</thead>
<tbody>
<tr>
<td>C 1 1/2” (40)</td>
<td>DN 13/20</td>
<td>643 536 X</td>
<td>643 536 X</td>
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<tr>
<td>D 2” (50)</td>
<td>DN 13/20/25</td>
<td>011 373 V</td>
<td>011 388 V</td>
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<tr>
<td>E 2 1/2” (63)</td>
<td>DN 25 – 50</td>
<td>007 765 B</td>
<td>007 766 C</td>
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<tr>
<td>F 3” (80)</td>
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<td>007 767 D</td>
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<td>011 374 W</td>
<td>011 389 W</td>
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<tr>
<td>H 5” (125)</td>
<td>DN 40 – 65</td>
<td>007 764 A</td>
<td>007 768 N</td>
</tr>
</tbody>
</table>
In case of special application conditions, please consult for advice. We reserve the right to make technical changes without notice.