Rectangular gate valve MONOVAT

Transfer valve for load lock / process module isolation
Virtually particle and vibration-free
Outstanding up-time: more than 2 million cycles between maintenance
Bellows sealed actuator
Easy to service

Body material
aluminum or stainless steel

**Aluminum**
double acting pneumatic actuator with position indicator

<table>
<thead>
<tr>
<th>DN (D1 x D)</th>
<th>type B opening: rear side &gt; seat side</th>
<th>type C without bonnet flange</th>
<th>type A opening: rear side = seat side</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm</td>
<td>inch</td>
<td>mm</td>
<td>inch</td>
</tr>
<tr>
<td>32 x 222</td>
<td>1.26 x 8.74</td>
<td>02109-BA24</td>
<td>02109-CA24</td>
</tr>
<tr>
<td>46 x 236</td>
<td>1.8 x 9.3</td>
<td>02110-BA24</td>
<td>02110-CA24</td>
</tr>
<tr>
<td>50 x 336</td>
<td>1.9 x 13.2</td>
<td>02112-BA24</td>
<td>02112-CA24</td>
</tr>
</tbody>
</table>

with solenoid for impulse actuation: 021 . . . 44 (specify control voltage)
Additional opening sizes: see «options»

**Stainless steel**
double acting pneumatic actuator with position indicator

<table>
<thead>
<tr>
<th>DN (D1 x D)</th>
<th>type B opening: rear side &gt; seat side</th>
<th>type C without bonnet flange</th>
<th>type A opening: rear side = seat side</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm</td>
<td>inch</td>
<td>mm</td>
<td>inch</td>
</tr>
<tr>
<td>32 x 222</td>
<td>1.26 x 8.74</td>
<td>02109-BE24</td>
<td>02109-CE24</td>
</tr>
<tr>
<td>46 x 236</td>
<td>1.8 x 9.3</td>
<td>02110-BE24</td>
<td>02110-CE24</td>
</tr>
<tr>
<td>50 x 336</td>
<td>1.9 x 13.2</td>
<td>02112-BE24</td>
<td>02112-CE24</td>
</tr>
</tbody>
</table>

with solenoid for impulse actuation: 021 . . . 44 (specify control voltage)
Additional opening sizes: see «options»
Sealing materials
Gate: VITON
Bonnet: VITON

Feedthrough
Welded bellows

Features
Compact design
Modular system, same actuator for different valve sizes
Mechanically locked in closed position, also without compressed air supply

Low particle operation
Particle-free MONOVAT configuration
Vulcanized gate seal (see glossary)
Polished surfaces
Cleanroom assembly

Actuator
High speed during movement
Shock-free operation
Maximum force only for locking
Rectangular gate valve MONOVAT

Valve types

A

Opening on rear side larger than on seat side
With bonnet flange, gate service through bonnet flange

B

Opening on rear side larger than on seat side
With bonnet flange, gate service through bonnet flange

C

Opening on rear side larger than on seat side
Without bonnet flange, gate service through opening on rear side

A

Same size of opening on seat side and rear side
With bonnet flange, gate service through bonnet flange

\[\n\text{valve seat side}\]
**Options**

**Actuator:**
- Solenoid for impulse actuation 24 V DC, 12 V DC, 115V 50/60 Hz, 220V 50/60 Hz

**Position indicator:**
- Bakeable up to 150° C
- Double limit switches in closed position (connection 15 pin Subminiature D)
- Double limit switches in both end positions (connection 15 pin Subminiature D)

**Valve:**
- Different opening sizes: 25 x 160 / 210 / 265 / 420 mm
- 32 x 336 mm
- 51 x 160 / 210 / 265 / 420 / 510 mm
- 76 x 210 / 265 / 355 / 508 mm
- Other sizes on request
- Customer specified flanges:
  - Sealing surface or groove with O-ring
  - Bolt pattern outside or inside of the sealing line
  - Edges for claw clamps
  - Alignment pins
  - Alignment holes
- Different sealing materials:
  - Fluoroelastomers (FKM)
  - Perfluoroelastomers (FFKM)
  - Silicone (VMQ)
  - Fluorosilicone (FVMQ)
- Surface treatments:
  - Aluminum hard anodized
  - Nickel coating on aluminum
- UHV version:
  - Sealing surface for metal seal on flanges
  - Metal seal on bonnet flange
  - Bellows assembly welded to bonnet flange
- Gate shield:
  - Protection from coating
  - Protection from heating through radiation
- Heating:
  - Valve body prepared for heater cartridges
  - Heater cartridges with or without thermocouple
  - PTC heater cartridges
- Cooling:
  - Liquid cooling on valve body
  - Liquid cooling on gate
- Port KF16 for by-pass, venting, or gauges
- Series 026:
  Valve design with VATLOCK sealing mechanism, stainless steel construction, available sizes DN 25 x 265 mm . . . 600 x 2000 mm

**Accessories**

- VATSEAL metal seal for flanges
- Claw (M8) for valves with clamp edges: **Ordering No.** 32009-QAPR
- Adapter for pneumatic connection R1/4” / NPT1/8” : **Ordering No.** 205784
- Adapter cable for 7 pin position indicator compatible to Series 020: **Ordering No.** 207515
- Adapter kit for valve connection compatible to Series 020, consisting of 2 pcs No. 205784 and 1 pc No. 207515: **Ordering No.** 210703

**Service kits**

- Seal kit, consisting of valve gate and bonnet seal
  **Ordering No.:** see operating manual or price list
- Service kit for actuator, consisting of bellows feedthrough, all actuator seals and VAT high temperature pneumatic grease
  **Ordering No.:** see operating manual
## Rectangular gate valve MONOVAT Series 02

### Technical data

- **Leak rate:** body, seat \(< 1 \cdot 10^{-9} \text{ mbar Is}^{-1}\)**
- **Pressure range:** \(1 \cdot 10^{-9} \text{ mbar to 1.2 bar (abs)}\)
- **Differential pressure on the gate:** \(\leq 1.2 \text{ bar in either direction}\)
- **Differential pressure at opening:** \(\leq 30 \text{ mbar}\)
- **Cycles until first service:** \(\geq 2 \text{ million}\)

**Temperature**
- Valve body: aluminum \(\leq 150^\circ\text{C}\)
- Valve body: stainless steel \(\leq 200^\circ\text{C}\)
- Pneumatic actuator \(\leq 150^\circ\text{C}\)
- Standard position indicator \(\leq 80^\circ\text{C}\)
- Solenoid \(\leq 50^\circ\text{C}\)
- Temperature difference body/gate \(\leq 40^\circ\text{C}\)

**Material**
- Valve body: aluminum 3.2315 (AA 6082)
- Valve body: stainless steel 1.4435, 1.4404 (AISI 316L)
- Valve gate: aluminum 3.2315 (AA 6082)
- Valve gate: stainless steel 1.4435, 1.4404 (AISI 316L)
- Bellows end pieces 1.4435 (AISI 316L)
- Bellows AM 350 (AISI 633)
- Differential pressure tabs, screws 1.4435, 1.4404 (AISI 316L)

**Seal**
- Bonnet VITON
- Gate VITON

**Air connection**
- Internal threads M5

**Position indicator**
- Contact rating \(\leq 50 \text{ V DC } / \leq 3 \text{ A}\)
- Connection 9 pin Subminiature D

**Mounting position**
- Any

### Dimensions

<table>
<thead>
<tr>
<th>DN (D1 x D)</th>
<th>D1 slit height</th>
<th>D slit length</th>
<th>molecular flow</th>
<th>pressure conductance</th>
<th>compressed air pressure</th>
<th>pressure overpressure</th>
<th>volume of air cylinder</th>
<th>closing or opening time</th>
<th>aluminium body (type A)</th>
<th>stainless steel body (type A)</th>
<th>weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm</td>
<td>inch</td>
<td>ls⁻¹</td>
<td>bar</td>
<td>psi</td>
<td>l</td>
<td>ft²</td>
<td>s</td>
<td>kg</td>
<td>lbs</td>
<td>kg</td>
<td>lbs</td>
</tr>
<tr>
<td>32 x 222</td>
<td>1.26 x 8.74</td>
<td>1590</td>
<td>4 – 7</td>
<td>55 – 100</td>
<td>0.09</td>
<td>0.003</td>
<td>(\leq 1)</td>
<td>8</td>
<td>18</td>
<td>16</td>
<td>35</td>
</tr>
<tr>
<td>46 x 236</td>
<td>1.8 x 9.3</td>
<td>3340</td>
<td>4 – 7</td>
<td>55 – 100</td>
<td>0.12</td>
<td>0.004</td>
<td>(\leq 1)</td>
<td>9</td>
<td>20</td>
<td>17</td>
<td>38</td>
</tr>
<tr>
<td>50 x 336</td>
<td>1.9 x 13.2</td>
<td>5000</td>
<td>4 – 7</td>
<td>55 – 100</td>
<td>0.12</td>
<td>0.004</td>
<td>(\leq 1)</td>
<td>10</td>
<td>22</td>
<td>23</td>
<td>51</td>
</tr>
</tbody>
</table>
Series 02

Valves with SEMI/MESC interface for 200 mm and 300 mm wafers

Rear side

Valve seat side

<table>
<thead>
<tr>
<th>Type A</th>
<th>Type B</th>
<th>Type C</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Type A Diagram]</td>
<td>![Type B Diagram]</td>
<td>![Type C Diagram]</td>
</tr>
</tbody>
</table>

For detailed dimensional drawings please contact the nearest VAT subsidiary company.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>D1 x D mm</td>
<td>32 x 222 1.26 x 8.74</td>
<td>46 x 236 1.8 x 9.3</td>
</tr>
<tr>
<td>D mm</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>D mm</td>
<td>1.97</td>
<td>1.97</td>
</tr>
<tr>
<td>D mm</td>
<td>8.74</td>
<td>236</td>
</tr>
<tr>
<td>D mm</td>
<td>222</td>
<td>9.29</td>
</tr>
<tr>
<td>D mm</td>
<td>10.83</td>
<td>1.81</td>
</tr>
<tr>
<td>D mm</td>
<td>1.26</td>
<td>46</td>
</tr>
<tr>
<td>D mm</td>
<td>305</td>
<td>12.01</td>
</tr>
<tr>
<td>D mm</td>
<td>275</td>
<td>1.81</td>
</tr>
<tr>
<td>D mm</td>
<td>1.29</td>
<td>36</td>
</tr>
<tr>
<td>D4 mm</td>
<td>35</td>
<td>1.38</td>
</tr>
<tr>
<td>D4 mm</td>
<td>1.73</td>
<td>1.73</td>
</tr>
<tr>
<td>D5 mm</td>
<td>60</td>
<td>2.36</td>
</tr>
<tr>
<td>D5 mm</td>
<td>3.35</td>
<td>3.35</td>
</tr>
<tr>
<td>L mm</td>
<td>279</td>
<td>10.98</td>
</tr>
<tr>
<td>L mm</td>
<td>14.06</td>
<td>14.06</td>
</tr>
<tr>
<td>O mm</td>
<td>340</td>
<td>13.39</td>
</tr>
<tr>
<td>Q mm</td>
<td>80</td>
<td>8.0</td>
</tr>
<tr>
<td>Q mm</td>
<td>3.15</td>
<td>3.15</td>
</tr>
</tbody>
</table>