Mini gate valve
with toggle lever

This manual is valid for the valve ordering numbers:
012 . . - . A06- . . .

The respective product identification is given on each valve in the following or in a similar way:

Explanation of symbols:

- Read declaration carefully before you start any other action!
- Keep body parts and objects away from the valve opening!
- Attention!
- Hot surfaces; do not touch!
- Product is in conformity with EC guidelines, if applicable!
- Loaded springs and/or air cushions are potential hazards!
- Disconnect electrical power and compressed air lines. Do not touch parts under voltage!
- Wear gloves!

Read these «Installation, Operating & Maintenance Instructions» and the enclosed «General Safety Instructions» carefully before you start any other action!
Installation, Operating, and Maintenance Instructions
Series 01.2, DN 16 - 50 (5/8" - 2")

Imprint:

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Intended use of product

Use product for vacuum applications under the conditions indicated in the chapter «Technical data» only! Other applications are only allowed with the written permission of VAT.

Technical data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure range</td>
<td>$1 \times 10^{-7}$ mbar to 2 bar (abs)</td>
</tr>
<tr>
<td>Differential pressure on the gate</td>
<td>$\leq 2$ bar in either direction</td>
</tr>
<tr>
<td>Max. Differential pressure at opening</td>
<td>$\leq 30$ mbar</td>
</tr>
<tr>
<td>Admissible temperature:</td>
<td></td>
</tr>
<tr>
<td>- Valve body</td>
<td>$\leq 100^\circ$C</td>
</tr>
<tr>
<td>- Manual actuator</td>
<td>$\leq 80^\circ$C</td>
</tr>
<tr>
<td>- Position indicator</td>
<td>$\leq 80^\circ$C</td>
</tr>
</tbody>
</table>

The temperatures specified in the technical data are only admissible if the valve is in open or closed position. Operation of the valve during the bakeout cycle is prohibited.

Further data according to VAT catalogue «Vacuum Valves 2000». 
Installation into the vacuum system

The valve seat side is indicated by the symbol "V" on the connection flange.

Admissible forces

Forces from evacuating the system, from the weight of other components, and from baking can lead to deformation of the valve body and to malfunction of the valve. The stress has to be relieved by suitable means, e.g. bellows sections. The following forces are admissible:

<table>
<thead>
<tr>
<th>DN (nom. I.D.)</th>
<th>Axial tensile or compressive force «FA»</th>
<th>Bending moment «M»</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm</td>
<td>inch</td>
<td>N</td>
</tr>
<tr>
<td>16</td>
<td>5/8</td>
<td>295</td>
</tr>
<tr>
<td>25</td>
<td>1</td>
<td>345</td>
</tr>
<tr>
<td>40</td>
<td>1½</td>
<td>490</td>
</tr>
<tr>
<td>50</td>
<td>2</td>
<td>590</td>
</tr>
</tbody>
</table>

If a combination of both forces («FA» and «M») occurs, the values mentioned above are invalid. Please contact VAT for more information.

Operation

Normal operation

Valve is opened and closed by means of turning the toggle lever by 180°.

Admissible temperature

See «Technical data»!

Mechanical locking of the manual actuator

To avoid unintentional opening or closing, the manual actuator can be mechanically locked by inserting a thin split pin (see arrows in the picture).
Preventive maintenance

Under clean operating conditions, the valve does not require any maintenance during the specified cycle life.

Maintenance

Replacement of the gate

1. Vent chambers on either side of valve
2. Open valve by means of manual actuator
3. Remove bonnet screws (61) in crosswise order
4. Withdraw actuator/mechanism assembly carefully from body
   \textbf{Attention:} Balls (65) can fall out!
5. Spread old gate (21) and remove it carefully (balls will fall out)
6. Put new balls (65) into detents of piston shaft and hold them with thumb and forefinger
7. Clip on new gate (21) (see figure 1)
   \textbf{Attention:} Check whether balls are inserted correctly in their detents
8. Check whether gate is inserted properly
   \textbf{Attention:} Seat side: marking \textquotedblleft V\textquotedblright\ on body and gate side without holes (see figure 2)
9. Check and clean sealing surfaces of bonnet-O-ring and valve seat
10. Reassemble in reverse order
    \textbf{Attention:} Tighten screws (61) in crosswise order!
    \text{Torque:} \begin{tabular}{ll}
     DN 16/25 & 1 Nm / 0.74 lbf \cdot ft \\
     DN 40/50 & 2 Nm / 1.48 lbf \cdot ft
    \end{tabular}
Spare parts
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Qty.</th>
<th>DN 16</th>
<th>DN 25</th>
<th>DN 40</th>
<th>DN 50</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>Valve ordering number</em></td>
<td></td>
<td>01224- .A06</td>
<td>01228-.A06</td>
<td>01232-.A06</td>
<td>01234-.A06</td>
</tr>
<tr>
<td>21 65</td>
<td>Valve mechanism (stop included)</td>
<td>1</td>
<td>202201</td>
<td>202200</td>
<td>202199</td>
<td>202198</td>
</tr>
<tr>
<td>60</td>
<td>Pair of locking balls</td>
<td>1</td>
<td>N-5100-019</td>
<td>N-5100-026</td>
<td>N-5100-031</td>
<td>N-5100-033</td>
</tr>
<tr>
<td>62</td>
<td>Bonnet seal O-ring</td>
<td>2</td>
<td>N-5100-117</td>
<td>N-5100-123</td>
<td>N-5100-224</td>
<td>N-5100-229</td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
<td>Qty.</td>
<td>DN 16</td>
<td>DN 25</td>
<td>DN 40</td>
<td>DN 50</td>
</tr>
<tr>
<td></td>
<td><em>Valve ordering number</em></td>
<td></td>
<td>01224-KA06</td>
<td>01228-KA06</td>
<td>01232-KA06</td>
<td>01234-KA06</td>
</tr>
<tr>
<td>21 65</td>
<td>Complete seal kit ISO-KF quick</td>
<td>1</td>
<td>92578-R1</td>
<td>92554-R1</td>
<td>92485-R1</td>
<td>92523-R1</td>
</tr>
<tr>
<td></td>
<td><em>Valve ordering number</em></td>
<td></td>
<td>01224-BA06</td>
<td>01228-BA06</td>
<td>01232-BA06</td>
<td>01234-BA06</td>
</tr>
<tr>
<td>21 60 62 65</td>
<td>Complete seal kit ISO-KF Quick</td>
<td>1</td>
<td>96191-R1</td>
<td>96190-R1</td>
<td>96189-R1</td>
<td>96188-R1</td>
</tr>
</tbody>
</table>
Trouble shooting

Valve does not close/open: Check mechanism!
   Is toggle lever defective?

Leak at gate: Clean valve seat and gate!
   Replace gate, if damaged!
   Is toggle lever defective?

Leak at body: Flanges leaktight?
   Replace bonnet seal!
   Screws at bonnet tightened?

Repairs

Contact VAT for repairs or maintenance. The fabrication No. (012 . . - . A06- . . . / . . ) marked on the valve body has always to be specified. It has to be individually decided whether the work can be performed by the customer or has to be carried out by VAT.

All supplies (e. g. compressed air, electrical power) have to be disconnected for removal/installation of the valve from/into the system.

Even with disconnected supply, loaded springs and/or air cushions in cylinders can be potential hazards.

Keep fingers and objects away from the valve opening!

Products returned to VAT for repair have to be free of harmful substances such as e.g. toxical, caustic or microbiological ones. For radioactively contaminated products the customer has to fill in the VAT form «Contamination and Radiation Report» and to send it with the product. The form is available at VAT. The maximum permissible values indicated in the form must not be exceeded.
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