CHOKE VALVE
for POWDER & GRANULE FLOW CONTROL

(Patented in Japan, U. S. A and England)

MITSUMI Powder & Granule Valve

Epoch-making mechanism!!
Rope bind & release, applied for Sleeve Valve

MFV-200A
(Manual type)

MAY-200A型
(Automatic type)

MITSUMI TECHNICAL INDUSTRY CO., LTD
TOKYO  JAPAN
Throughout history, rope and cloth has been cleverly used in an effort to improve life for mankind. At present, various kinds of rope that has superior mechanical strength and chemical characteristics, some a few millimeters in diameter but stronger than steel, have been developed to withstand a load of several hundred kilograms.

An entirely new type of powder and granule flow control choke valve utilizing rope and cloth has been developed by Mitsumi Technical Industry Co., Ltd.

With many kinds of granulated materials being increasingly used in recent years, the choke valve offers superb performance for opening/closing operation and flow control by attaching it to the inlet or outlet of powder and granule processing machines such as bins, hoppers, etc. The automatic type choke valve is specifically designed for remote control and perfectly meets the users' specifications for sanitation and fine-chemical plants. It is now being used extensively for broad applications in many fields, throughout industry.

(1) Configuration and performance

The choke valve is very simple in construction. The sleeve valve is fitted in the setting slot in the face of the flange on the casing, while the choke rope is set under the wall inside the casing. Also, a number of ropes are arranged in parallel at equal intervals on the choke ring. By turning the choke ring about 90° manually or automatically, the choke rope locks (binds) the sleeve valve towards the center of the valve. When it is turned in the reverse direction, the sleeve valve is unlocked (released), allowing the valve to be opened or closed, as shown in Fig. 1. The choke valve is opened and closed smoothly like a lens shutter, thus ensuring superb powder & granule flow control.

Fig. 1.

(Locking and unlocking operation of choke rope)

Open  ———— Close

(Opening and closing operation of sleeve valve)

(2) Features

* The sleeve valve can easily be removed and replaced (detachable at one touch).
* Powder and granules pass through the valve smoothly without interference.
* Powder and granules make contact only with the inside wall of the sleeve valve, not with other metallic parts (casing, etc.).
* Small operation torque (involute curve effect). Opening torques are almost 0.
* The valve is simple in construction, permitting easy disassembly and reassembly.

The material of the sleeve valve can be selected according to sanitary and fine-chemical specifications.

* Opening and closing angle (shifting angle of handle or lever) is as little as 90°.
* Ultra-fine powder as well as air can be sealed by using appropriate coating cloth and rubber.
* Various types of forced opening adaptors can easily be installed for quick and complete opening of the sleeve valve.
(3) Dimensions

<table>
<thead>
<tr>
<th>Type</th>
<th>O</th>
<th>A</th>
<th>D</th>
<th>H</th>
<th>t</th>
<th>P</th>
<th>E</th>
<th>d</th>
<th>M</th>
<th>L</th>
<th>R</th>
<th>S</th>
<th>X</th>
<th>Y</th>
<th>L</th>
<th>Weight (kg)</th>
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</thead>
<tbody>
<tr>
<td>MFV - 80A</td>
<td>180</td>
<td>102</td>
<td>80</td>
<td>75</td>
<td>10</td>
<td>145</td>
<td>4</td>
<td>10</td>
<td>M 8</td>
<td>225</td>
<td>687</td>
<td>80</td>
<td>200</td>
<td>181.5</td>
<td>100</td>
<td>30</td>
</tr>
<tr>
<td>MAV - 80A</td>
<td>200</td>
<td>122</td>
<td>100</td>
<td>75</td>
<td>10</td>
<td>165</td>
<td>8</td>
<td>10</td>
<td>M 8</td>
<td>235</td>
<td>687</td>
<td>80</td>
<td>200</td>
<td>181.5</td>
<td>100</td>
<td>30</td>
</tr>
<tr>
<td>MFV - 100A</td>
<td>235</td>
<td>147</td>
<td>125</td>
<td>100</td>
<td>10</td>
<td>200</td>
<td>8</td>
<td>10</td>
<td>M 8</td>
<td>250</td>
<td>774</td>
<td>100</td>
<td>250</td>
<td>154</td>
<td>125</td>
<td>30</td>
</tr>
<tr>
<td>MAV - 100A</td>
<td>265</td>
<td>172</td>
<td>150</td>
<td>100</td>
<td>10</td>
<td>230</td>
<td>8</td>
<td>10</td>
<td>M 8</td>
<td>260</td>
<td>774</td>
<td>100</td>
<td>250</td>
<td>154</td>
<td>125</td>
<td>35</td>
</tr>
<tr>
<td>MFV - 150A</td>
<td>320</td>
<td>222</td>
<td>200</td>
<td>110</td>
<td>12</td>
<td>280</td>
<td>8</td>
<td>12</td>
<td>M10</td>
<td>315</td>
<td>862</td>
<td>120</td>
<td>300</td>
<td>206.5</td>
<td>150</td>
<td>35</td>
</tr>
<tr>
<td>MAV - 150A</td>
<td>385</td>
<td>272</td>
<td>250</td>
<td>130</td>
<td>12</td>
<td>345</td>
<td>12</td>
<td>12</td>
<td>M10</td>
<td>340</td>
<td>949</td>
<td>130</td>
<td>350</td>
<td>219</td>
<td>175</td>
<td>35</td>
</tr>
<tr>
<td>MFV - 300A</td>
<td>430</td>
<td>322</td>
<td>300</td>
<td>150</td>
<td>12</td>
<td>390</td>
<td>12</td>
<td>12</td>
<td>M10</td>
<td>365</td>
<td>1037</td>
<td>150</td>
<td>400</td>
<td>231.5</td>
<td>200</td>
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</tr>
<tr>
<td>MAV - 300A</td>
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<td>372</td>
<td>350</td>
<td>180</td>
<td>14</td>
<td>435</td>
<td>12</td>
<td>14</td>
<td>M12</td>
<td>390</td>
<td>1124</td>
<td>170</td>
<td>450</td>
<td>244</td>
<td>225</td>
<td>55</td>
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<tr>
<td>MFV - 350A</td>
<td>540</td>
<td>422</td>
<td>400</td>
<td>220</td>
<td>14</td>
<td>495</td>
<td>16</td>
<td>14</td>
<td>M12</td>
<td>465</td>
<td>1343</td>
<td>200</td>
<td>550</td>
<td>288</td>
<td>275</td>
<td>60</td>
</tr>
<tr>
<td>MAV - 400A</td>
<td>655</td>
<td>526</td>
<td>500</td>
<td>250</td>
<td>15</td>
<td>605</td>
<td>20</td>
<td>14</td>
<td>M14</td>
<td>521</td>
<td>1518</td>
<td>230</td>
<td>650</td>
<td>313</td>
<td>325</td>
<td>65</td>
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<tr>
<td>MFV - 500A</td>
<td>770</td>
<td>626</td>
<td>600</td>
<td>300</td>
<td>15</td>
<td>715</td>
<td>20</td>
<td>14</td>
<td>M14</td>
<td>721</td>
<td>1693</td>
<td>270</td>
<td>750</td>
<td>338</td>
<td>375</td>
<td>80</td>
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</tbody>
</table>

* Valve sizes other than those in the above table are also available.
  ○ Automatic intermediate stop (opening control):
    Used for remote control of opening with pneumatic cylinder drive system. Detailed data are available on request.

* Dimensions and materials are subject to change without prior notice.

(4) Materials (Japanese Industrial standards)

<table>
<thead>
<tr>
<th>Part</th>
<th>Casing</th>
<th>Choke ring</th>
<th>Handle (manual type)</th>
<th>Stopper (manual type)</th>
<th>Arm (automatic type)</th>
<th>Actuator (automatic type)</th>
<th>Opener</th>
<th>Choke rope</th>
<th>Sleeve valve &amp; Chute</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Aluminum alloy (AC7A) plus surface hardened</td>
<td>Aluminum alloy (AC7A) plus surface hardened or Iron (SS41) plus hard chrome plated</td>
<td>Aluminum alloy (A5052) plus surface hardened</td>
<td>Synthetic Resin</td>
<td>Iron (SS41) plus hard chrome plated</td>
<td>SMC pneumatics Inc with solenoid valve, Auto switches</td>
<td>Stainless steel (SUS304)</td>
<td>Nylon, Polyester, Polyethylene, Wire etc (3.0φ to 6.0φ)</td>
<td>Synthetic rubber sheet; PVC, Hypalon, Viton, etc</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ditto</td>
<td></td>
<td>Ditto</td>
<td>Ditto</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
(5) Sleeve valve

Standard sleeve valve

Fully closed  ⏳  Half open  ⏳  Fully open

<table>
<thead>
<tr>
<th>Size</th>
<th>80A</th>
<th>100A</th>
<th>125A</th>
<th>150A</th>
<th>200A</th>
<th>250A</th>
<th>300A</th>
<th>350A</th>
<th>400A</th>
<th>500A</th>
<th>600A</th>
</tr>
</thead>
<tbody>
<tr>
<td>l</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>35</td>
<td>35</td>
<td>35</td>
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<td>L</td>
<td>45</td>
<td>50</td>
<td>55</td>
<td>70</td>
<td>85</td>
<td>100</td>
<td>120</td>
<td>140</td>
<td>155</td>
<td>190</td>
<td>225</td>
</tr>
</tbody>
</table>

Lower chute attachment

<table>
<thead>
<tr>
<th>Size</th>
<th>80A</th>
<th>100A</th>
<th>125A</th>
<th>150A</th>
<th>200A</th>
<th>250A</th>
<th>300A</th>
<th>350A</th>
<th>400A</th>
<th>500A</th>
<th>600A</th>
</tr>
</thead>
<tbody>
<tr>
<td>L'</td>
<td>150</td>
<td>150</td>
<td>200</td>
<td>200</td>
<td>250</td>
<td>300</td>
<td>350</td>
<td>400</td>
<td>450</td>
<td>550</td>
<td>650</td>
</tr>
<tr>
<td>D'</td>
<td>110</td>
<td>130</td>
<td>155</td>
<td>180</td>
<td>230</td>
<td>280</td>
<td>330</td>
<td>380</td>
<td>433</td>
<td>537</td>
<td>637</td>
</tr>
</tbody>
</table>

The size "L' & D'" is the standard measurement but any size can be special ordered.
(6) Forced-opening adaptor

There are two methods for opening the sleeve valve quickly and completely.

(A) Opener type

(B) Weight type

Standard sleeve

Upper chute sleeve valve with weight

Weight

Weight

(7) Setting of sleeve valve

The sleeve valve can be mounted and removed simply by fitting the set ring of the sleeve valve into the setting slot.

Setting slot

Set ring (with plate spring)
(8) Parts name & be sure to observe the following points when using the Forced-opening adaptor

(1) Sleeve valve lower set supporting flange (outlet side): When the bottom of the choke valve is open, that is, when it is not provided with a connecting pipe, and if the sleeve valve is fully opened, the lower set is given a downward tension by the action of the adaptor and hence a flange needs to be installed to prevent the sleeve valve from dropping off the valve.

(2) Connecting pipe at the bottom of choke valve (outlet side): When the sleeve valve is fully opened by the action of the adaptor, it is forced against the wall of the connecting pipe as shown below, or in the case of a weight type, the effective area of the valve is reduced. To avoid this situation the connecting pipe should be same as than the inside diameter of the valve casing.

\[ \text{Un-standard flange} \]

\[ \text{JIS flange} \]

1. Casing  2. Choke ring  3. Handle (MFV type)/Arm (MAV type)  4. Stopper (MFV type only)

(9) Items to be specified when ordering choke valve

* Valve drive system (manual or automatic)
* Type of valve (inside diameter)
* Material of casing (aluminum, stainless steel, aluminum surface treatment)
* Material and type of sleeve valve
* Adaptors (with or without)
* Power source and operating air pressure (for automatic type)
* Necessity of intermediate stop
* Name, characteristics, shape, hardness and flowing efficiency of powder and granules to be used (in detail)
* Devices connected to valve
* Spare parts (with or without)
* Other

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E-mail: inquiry@aaasaveenergy.com

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