OVERVIEWS

The multistage pressure-reduction control valve has a three-stage, contoured pressure-reduction mechanism and a two-stage, Multiple-orifice-cage pressure-reduction mechanism in its trim and is used to control high differential pressure fluid flow. The multistage pressure-reduction mechanism effectively consumes energy and thereby suppresses cavitation that would otherwise occur due to a steep pressure drop. The throttling passage is simple in construction and this prevents scale from depositing or clogging. The multistage pressure-reduction mechanism operates over the entire range from fully closed to fully open.

It is most suitable as a recirculation control valve on a boiler feed water pump or a pressure-reduction valve for high-pressure reactants.

SPECIFICATIONS

Body

Type
EGVM : Straight-through, forged globe valve
EAVM : Angle type, forged globe valve

Nominal size
1½, 2, 3, 4, 5, 6, 8 inches

Pressure rating
ANSI Classes 1500 and 2500

End connection
Stud-bolted end (RF, RJ)
Welded end BW (3 to 8 inches)

Material
JIS SFVA F11A, F22B, F5B
ASTM A182 F5, F11, F22

Bonnet
Plain bonnet (0 to 230 °C)

Gland type
Bolted gland

Packing
Grease provided. Graphite packing is used.

Gasket
Type
Spiral wound, Serrated

Material
Graphite, Stainless steel (SUS316), (PTFE)

Note) PTFE: Polytetrafluoroethylene

Trim

Valve plug
Single-seat, three-stage contoured
Equal percentage (%C)
Linear (LC)

Cage
Multiple-orifice design, single stage, variable-throttling, and
Multiple-orifice design, single stage, fixed-throttling.

Material
SUS440C, SUS630, SUS316 Stellite (#1, #6)
Actuator

**Type**
Double acting piston actuator (Model DAP)

**Action**
Direct-action or reverse-action

**Supply pressure**
490 kPa \( (~5.0 \text{ kgf/cm}^2) \)

**Air connection**
Rc 1/4

**Ambient temperature**
-30 to 70°C
A pneumatic diaphragm actuator or an electric actuator can also be installed to order.

**Valve action**
Air-to-close (Used with direct action actuator configuration)
Air-to-open (Used with reverse action actuator configuration)

**Optional Accessories**
Positioner, pressure regulator with filter, hand wheel, limit switch, solenoid valve, motion transmitter, booster relay, air failure backup or lock system, and others.

*Note* For optional items, refer to the specification sheets and installation drawings of respective accessories.

**Additional Specifications**
- Special inspections
  - Flow characteristic inspection, material inspection (material certificate), non-destructive inspections
- Special Air piping and joints

**Performance**

**Rated Cv value**
Refer to Table 1.

**Inherent rangeability**
30:1

**Allowable differential pressure**
Refer to Table 2.

**Leakage specification**
Class V

**Hysteresis error**
Within 1% of F.S. (with positioner)

**Linearity**
Within ±1% of F.S. (with positioner)

**Finish**
Blue (Munsell 10B 5/10) or silver, or customer-specified color

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### Table 1  Cv value and travels

<table>
<thead>
<tr>
<th>Nominal size (in.)</th>
<th>1½</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>6</th>
<th>8 *1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Cv value ANSI 1500</td>
<td>5</td>
<td>10</td>
<td>16</td>
<td>25</td>
<td>35</td>
<td>50</td>
</tr>
<tr>
<td>ANSI 2500</td>
<td>2.5</td>
<td>6.3</td>
<td>10</td>
<td>16</td>
<td>25</td>
<td>35</td>
</tr>
<tr>
<td>Rated travel (mm)</td>
<td>14.3</td>
<td>14.3</td>
<td>25.0</td>
<td>*2</td>
<td>25.0</td>
<td>37.5</td>
</tr>
</tbody>
</table>

*1: Valve size 8 in. series uses an electric actuator.
*2: For ANSI 2500 and Cv=10, the rated travel is 14.3 mm

**Flow characteristic**

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**Figure 1 Flow characteristics - Equal percentage (%C)**

**Figure 2 Flow characteristics - Linear (%)**
Allowable differential pressure (Air-to-close and Air-to-open)

Table 2  Pressure rating of ANSI Class 1500

<table>
<thead>
<tr>
<th>Pressure rating</th>
<th>Actuator</th>
<th>Supply pressure kPa {kgf/cm²}</th>
<th>kPa {kgf/cm²} by rated Cv values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>ANSI 1500</td>
<td>DAP560</td>
<td>490 {5.0}</td>
<td>26000</td>
</tr>
<tr>
<td></td>
<td>DAP1000</td>
<td>490 {5.0}</td>
<td>26000</td>
</tr>
<tr>
<td></td>
<td>DAP1500</td>
<td>490 {5.0}</td>
<td>26000</td>
</tr>
</tbody>
</table>

Table 3  Pressure rating of ANSI Class 2500

<table>
<thead>
<tr>
<th>Pressure rating</th>
<th>Actuator</th>
<th>Supply pressure kPa {kgf/cm²}</th>
<th>kPa {kgf/cm²} by rated Cv values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>2.5</td>
</tr>
<tr>
<td>ANSI 2500</td>
<td>DAP560</td>
<td>490 {5.0}</td>
<td>42700</td>
</tr>
<tr>
<td></td>
<td>DAP1000</td>
<td>490 {5.0}</td>
<td>42700</td>
</tr>
<tr>
<td></td>
<td>DAP1500</td>
<td>490 {5.0}</td>
<td>42700</td>
</tr>
</tbody>
</table>

Note) 1) Positioner is necessary.

2) If a pneumatic backup system is used as a provision against air supply failures, base valve selection on either the normal supply air pressure or the set point of the backup system pressure (the trip pressure), whichever is lower.

3) Take care that the maximum allowable differential pressure does not exceed the highest working pressure in ANSI B16.34-1981

4) Take care that the inlet pressure (P1) does not exceed the allowable differential pressure for a closed valve.
Please, read 'Terms and Conditions' from following URL before the order and use.
http://www.azbil.com/products/bi/order.html

Specifications are subject to change without notice.

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