

Features

- Adjustable flow control design provides greater capacity than most constructions
- Spring-loaded disc allows free flow in one direction and an adjustable flow in the other
- Tapered brass stem controls flow through the cross-hole in the disc
- Unique locking device in adjusting knob
- Scribed graduations provide position indication for the stem
- Mountable in any position

Construction

| Valve Parts in Contact with Fluids | |
|------------------------------------|------------------------|
| Body and Stem | Brass |
| Seals | NBR |
| Disc | CA |
| Spring | 302 Stainless Steel |
| Retainer | 17-7PH Stainless Steel |



Nominal Ambient Temp. Ranges

125°F (52°C) maximum.

Refer to Engineering Section for details.

Operation

When the pawl is in the up position, it creates a friction lock on the knurled bonnet and the knob cannot rotate. When the pawl is at 90° to the knob, the knob can be rotated.

Refer to Engineering Section for details.

Specifications (English units)

| Pipe Size (ins.) | Orifice Size (ins.) | Cv Flow Factor ① | | Opening Pressure (psi) | Maximum Operating Pressure Differential (psi) | Max. Fluid Temp. °F | Catalog Number |
|---|---------------------|------------------|-----------|------------------------|---|---------------------|----------------|
| | | Meter Flow | Free Flow | | Air-Inert Gas, Water, and Light Oil | | |
| NORMALLY CLOSED (Closed when de-energized) | | | | | | | |
| 1/4 | 3/8 | .22 | 1.2 | 1 | 300 | 180 | V022A001 |
| 3/8 | 3/8 | .90 | 1.4 | 1 | 300 | 180 | V022 002 |
| 1/2 | 7/16 | 1.2 | 2.6 | 1 | 300 | 180 | V022 003 |
| 3/4 | 17/32 | 1.6 | 4.0 | 2.5 | 300 | 180 | V022 004 |

① Refer to Chart A for Cv vs. Metering Stem Turns.

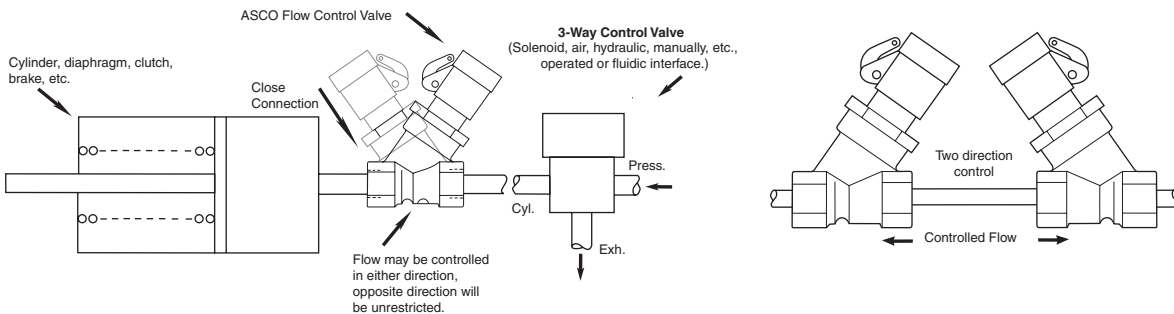
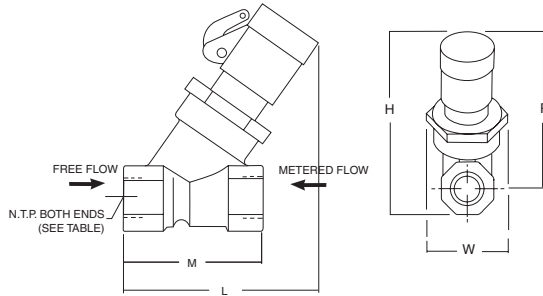
Specifications (Metric units)

| Pipe Size (ins.) | Orifice Size (mm) | Kv Flow Factor (m3/h) ① | | Opening Pressure (bar) | Maximum Operating Pressure Differential (bar) | Max. Fluid Temp. °C | Catalog Number |
|---|-------------------|-------------------------|-----------|------------------------|---|---------------------|----------------|
| | | Meter Flow | Free Flow | | Air-Inert Gas, Water, and Light Oil | | |
| NORMALLY CLOSED (Closed when de-energized) | | | | | | | |
| 1/4 | 10 | .2 | 1.0 | 0.07 | 21 | 82 | V022A001 |
| 3/8 | 10 | .8 | 1.2 | 0.07 | 21 | 82 | V022 002 |
| 1/2 | 11 | 1.0 | 2.2 | 0.07 | 21 | 82 | V022 003 |
| 3/4 | 13 | 1.4 | 3.4 | 0.17 | 21 | 82 | V022 004 |

① Refer to Chart A for Cv vs. Metering Stem Turns.

Dimensions inches (mm)

| Catalog Number | | H | L | M | P | W |
|----------------|------|------|------|------|------|------|
| V022A001 | ins. | 3.12 | 2.69 | 1.91 | 2.62 | 1.31 |
| | mm | 79 | 68 | 49 | 67 | 33 |
| V022 002 | ins. | 3.12 | 2.69 | 1.91 | 2.69 | 1.31 |
| | mm | 79 | 68 | 49 | 68 | 33 |
| V022 003 | ins. | 3.34 | 3.22 | 2.28 | 2.81 | 1.31 |
| | mm | 85 | 82 | 58 | 71 | 33 |
| V022 004 | ins. | 3.75 | 3.69 | 2.75 | 3.09 | 1.47 |
| | mm | 95 | 94 | 70 | 79 | 37 |



Flow Diagrams

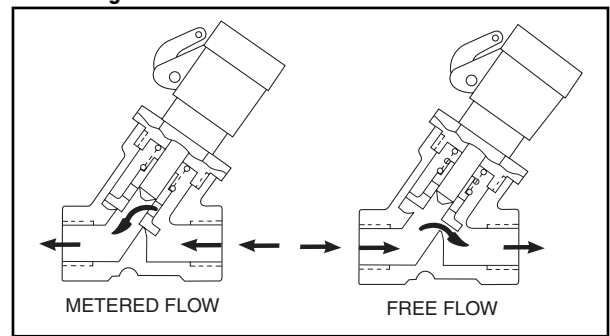


Chart A

Example I: A 1/2" N.P.T. flow control valve is required to pass 3 GPM of water at a Δp of 16 psi. Determine the position of the metering stem.

$$Cv = \frac{GPM}{\sqrt{\Delta p}} \quad Cv = \frac{3}{\sqrt{16}} = 0.75$$

From the graph for the 1/2" N.P.T. flow control valve with a Cv of .75, the stem should be positioned three turns out from fully closed.

Example II: To determine the flow using the same data of 16 psi, Δp and METERED Cv of .75, the solution will be:

$$GPM = Cv \sqrt{\Delta p} = .75 \sqrt{16} = 3$$

Example III: The flow through this valve in the FREE FLOW position is:

$$GPM = Cv * \sqrt{\Delta p} = 2.6 \sqrt{16} = 10.4$$

*Cv is obtained from free flow data table.

- P₁ - Inlet Pressure (PSIA)
- P₂ - Outlet Pressure (PSIA)
- Δp - Pressure Drop (P₁ - P₂) psi
- G - Specific Gravity of Gas @ 14.7 PSIA and 60°F.
- T - Absolute Temperature of Flowing Medium (°F + 460)

SIZING EQUATIONS

$$WATER \quad Cv = \frac{GPM}{\sqrt{\Delta p}} \quad GPM = Cv \sqrt{\Delta p}$$

$$AIR \quad Cv = \frac{SCFH}{960 \sqrt{\Delta p(P_1 + P_2) / GT}}$$

$$SCFH = Cv \quad 960 \sqrt{\Delta p(P_1 + P_2) / GT}$$

| Free Flow Data | |
|----------------|-----|
| Pipe Size | Cv |
| 1/4 | 1.2 |
| 3/8 | 1.4 |
| 1/2 | 2.6 |
| 3/4 | 4.0 |

Flow Characteristics for ASCO Flow Control Valves

