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)

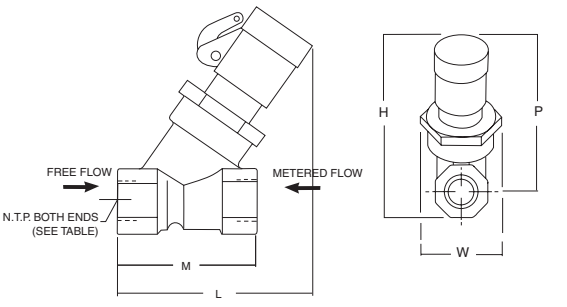
Pipe Size (ins.)	Orifice Size (ins.)	Cv Flow Factor ① Meter Flow	Cv Flow Factor ① Free Flow	Opening Pressure (psi)	Maximum Operating Pressure Differential (psi) Air-Inert Gas, Water, and Light Oil	Max. Fluid Temp. °F	Catalog Number
NORMALLY CLOSED (Closed when de-energized)							
1/4	3/8	.22	1.2	1	300	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.							

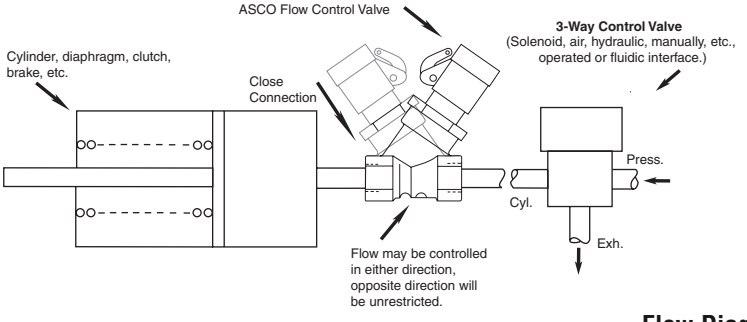
Specifications (Metric units)

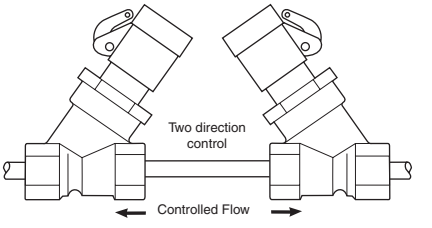
Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h) ① Meter Flow	Kv Flow Factor (m3/h) ① Free Flow	Opening Pressure (bar)	Maximum Operating Pressure Differential (bar) Air-Inert Gas, Water, and Light Oil	Max. Fluid Temp. °C	Catalog Number
NORMALLY CLOSED (Closed when de-energized)							
1/4	10	.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

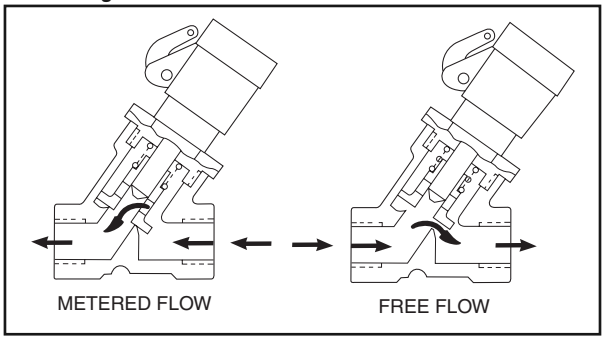


Chart A

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.

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

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.

P_1 - Inlet Pressure (PSIA)
P_2 - Outlet Pressure (PSIA)
Δp - Pressure Drop (P_1 - P_2) psi
G - Specific Gravity of Gas @ 14.7 PSIA and 60˚F.
T - Absolute Temperature of Flowing Medium (˚F + 460)

SIZING EQUATIONS

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

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

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

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