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 Temperature 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		
1/4	3/8	.22	1.2	1	300	180	V022A1
3/8	3/8	.90	1.4	1	300	180	V0222
1/2	7/16	1.2	2.6	1	300	180	V0223
3/4	17/32	1.6	4.0	2.5	300	180	V0224

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

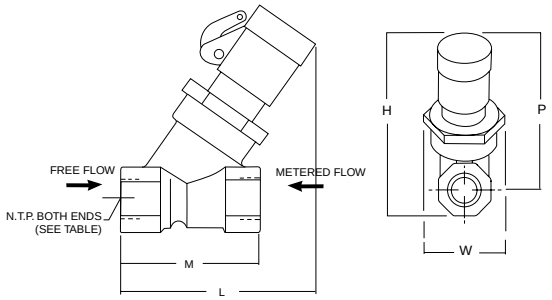
Specifications (Metric units)

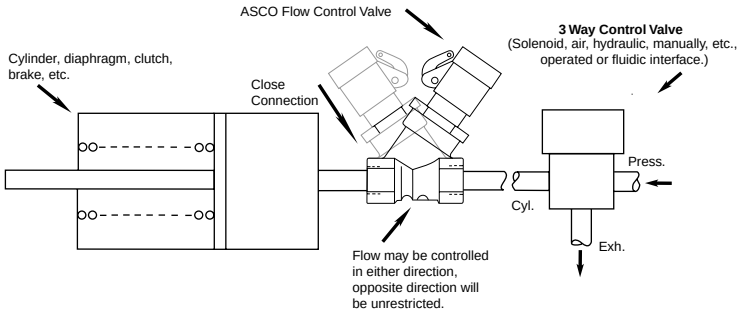
Pipe Size (ins.)	Orifice Size (mm)	Kv Flow Factor (m3/h) ①		Opening Pressure (bar)	Maximum Operating Pressure Differential (bar)	Max. Fluid Temp. ˚C	Catalog Number
		Meter Flow	Free Flow		Air-Inert Gas, Water, and Light Oil		
1/4	10	.2	1.0	0.07	21	82	V022A1
3/8	10	.8	1.2	0.07	21	82	V0222
1/2	11	1.0	2.2	0.07	21	82	V0223
3/4	13	1.4	3.4	0.17	21	82	V0224

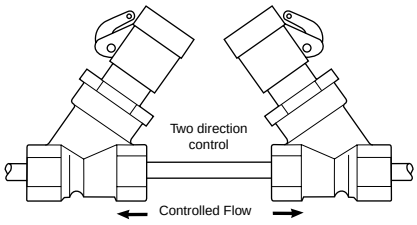
Note: ① Refer to Chart A for Cv vs. Metering Stem Turns.

Dimensions: inches (mm)

Catalog Number	H	L	M	P	W
V022A1	3.12	2.69	1.91	2.62	1.31
	79	68	49	67	33
V0222	3.12	2.69	1.91	2.69	1.31
	79	68	49	68	33
V0223	3.34	3.22	2.28	2.81	1.31
	85	82	58	71	33
V0224	3.75	3.69	2.75	3.09	1.47
	95	94	70	79	37







FLOW DIAGRAMS

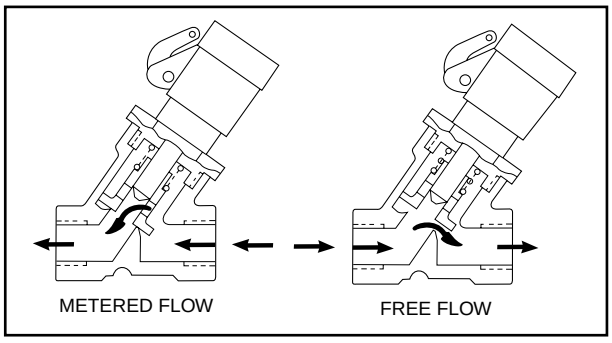


CHART A

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