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
- 316L Stainless Steel constructions available with integrated check valve
- Mountable in any position

Construction

Valve Parts in Contact with Fluids		
	V022 Series	8800 Series
Body and Stem	Brass	316L Stainless Steel
Seals	NBR	
Disc	CA	-
Spring	302 Stainless Steel	-
Retainer	17-7PH Stainless Steel	-

Nominal Ambient Temp. Ranges

8800 series: -4°F to 221°F (-20°C to 105°C)
V022 series: 32°F to 125°F (-0°C to 52°C)
Refer to Engineering Section for details.

Operation (V022 Series)

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)

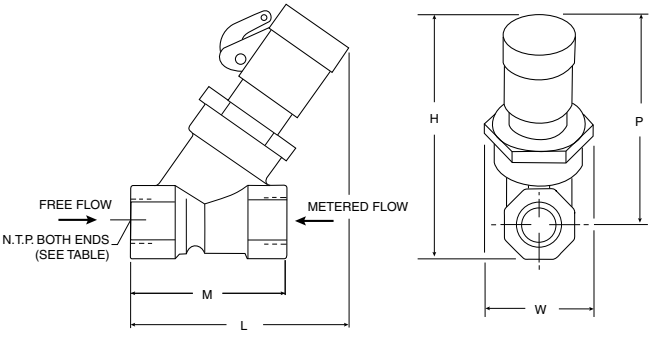
Pipe Size (in)	Orifice Size (in)	Cv Flow Factor ① (KV) Meter Flow	Cv Flow Factor ① (KV) Free Flow	Opening Pressure psi (bar)	Maximum Operating Pressure Differential psi (bar) Air-Inert Gas, Water, and Light Oil	Max. Fluid Temp. ˚F (˚C)	Catalog Number	Body Material	Const. Ref.
Flow control valves									
1/4	3/8	0.22 (0.2)	1.2 (1)	1 (0.07)	125 (8.6)	180 (82)	V022A001	Brass	1
1/4	5/23	0.01 (0.008)	0.74 (0.64)	0 (0)	232 (16) ②	221 (105)	8800A50000N0000	Stainless Steel	5
3/8	3/8	0.9 (0.8)	1.4 (1.2)	1 (0.07)	125 (8.6)	180 (82)	V022 002	Brass	2
1/2	7/16	1.2 (1)	2.6 (2.2)	1 (0.07)	150 (10.3)	180 (82)	V022 003	Brass	3
1/2	1/2	0.01 (0.008)	3.9 (3.4)	0 (0)	232 (16) ②	221 (105)	8800A50200N0000	Stainless Steel	6
3/4	17/32	1.6 (1.4)	4 (3.4)	2.5 (0.17)	175 (12)	180 (82)	V022 004	Brass	4
Flow control valves with integrated check valves									
1/4	5/23	0.02 (0.017)	0.75 (0.65)	0 (0)	232 (16) ②	221 (105)	8800A30000N0000	Stainless Steel	7
1/2	1/2	0.02 (0.017)	3.6 (3.1)	0 (0)	232 (16) ②	221 (105)	8800A30200N0000	Stainless Steel	8

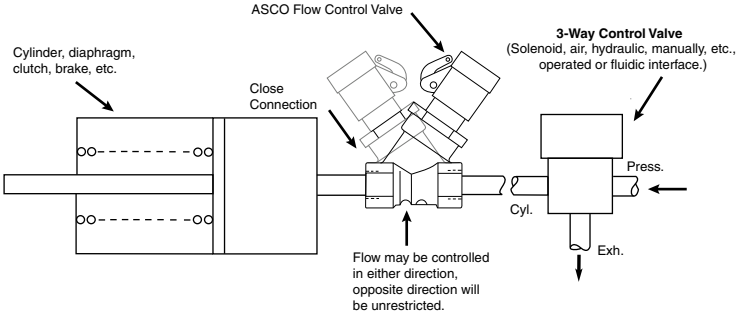
① Refer to Metering Stem Turns chart on next page.
② Only suitable for use with clean dry air or dry inert gas.

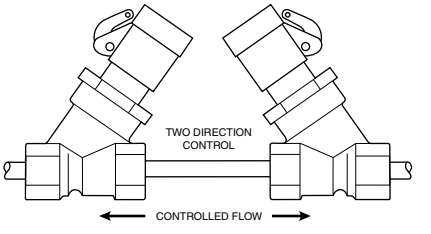
Dimensions inches (mm)

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

Const. Ref. 1-4







FLOW DIAGRAMS

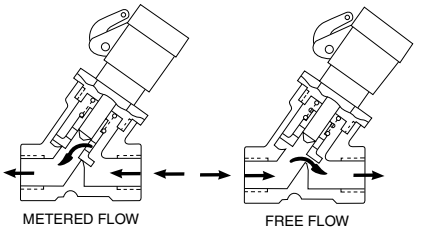


CHART A

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

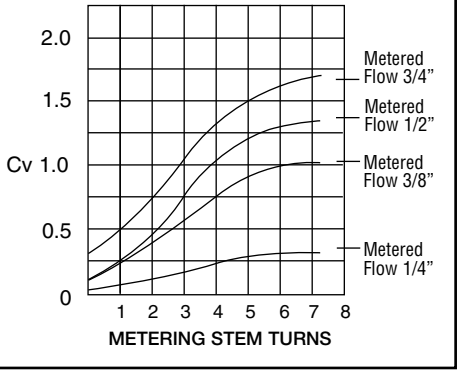
$$\text{WATER } Cv = \frac{GPM}{\sqrt{\Delta p}} \qquad GPM = Cv\sqrt{\Delta p}$$

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

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

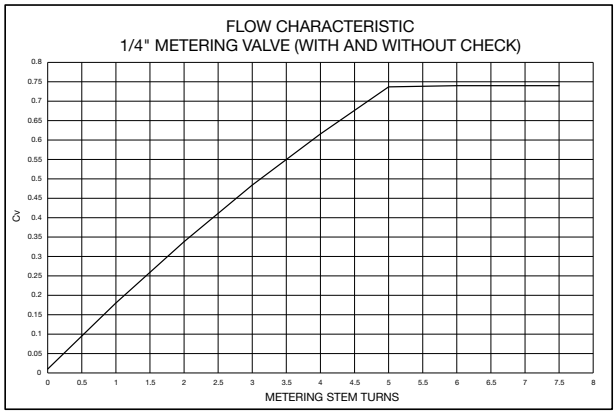
Free Flow Data	
Pipe Size	Cv
1/4	1.2
3/8	1.4
1/2	2.6
3/4	4.0

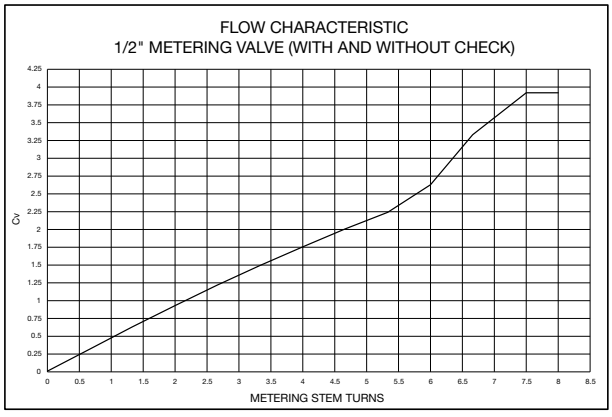
FLOW CHARACTERISTICS FOR V022 SERIES FLOW CONTROL VALVES



ACCESSORIES

Dimensions inches (mm)





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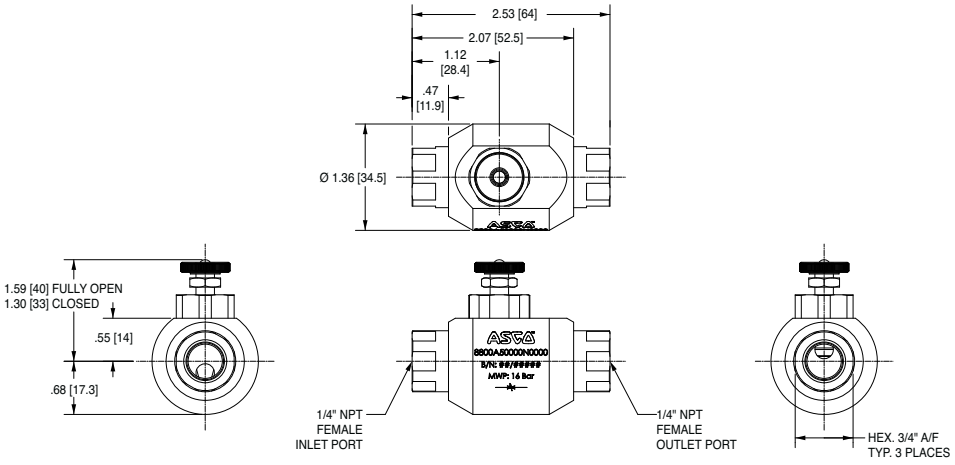

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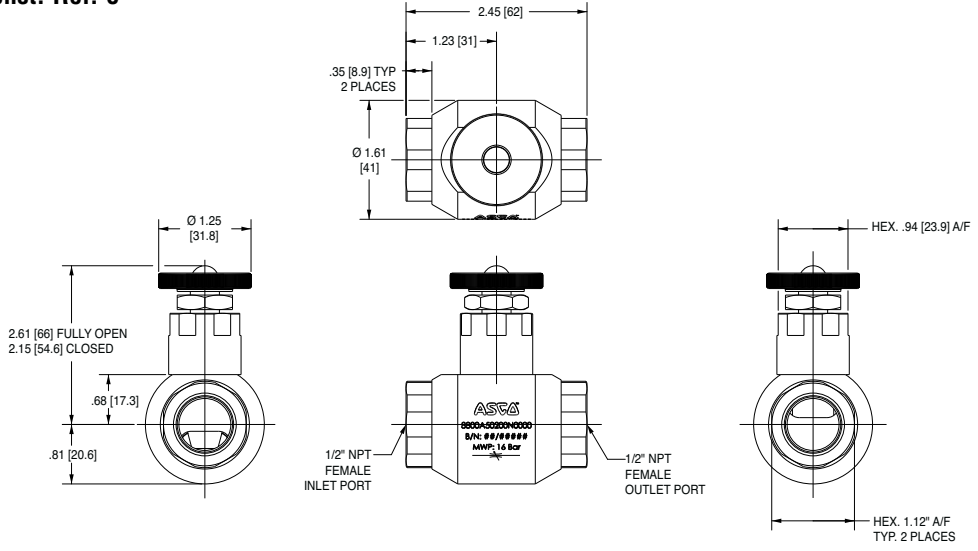
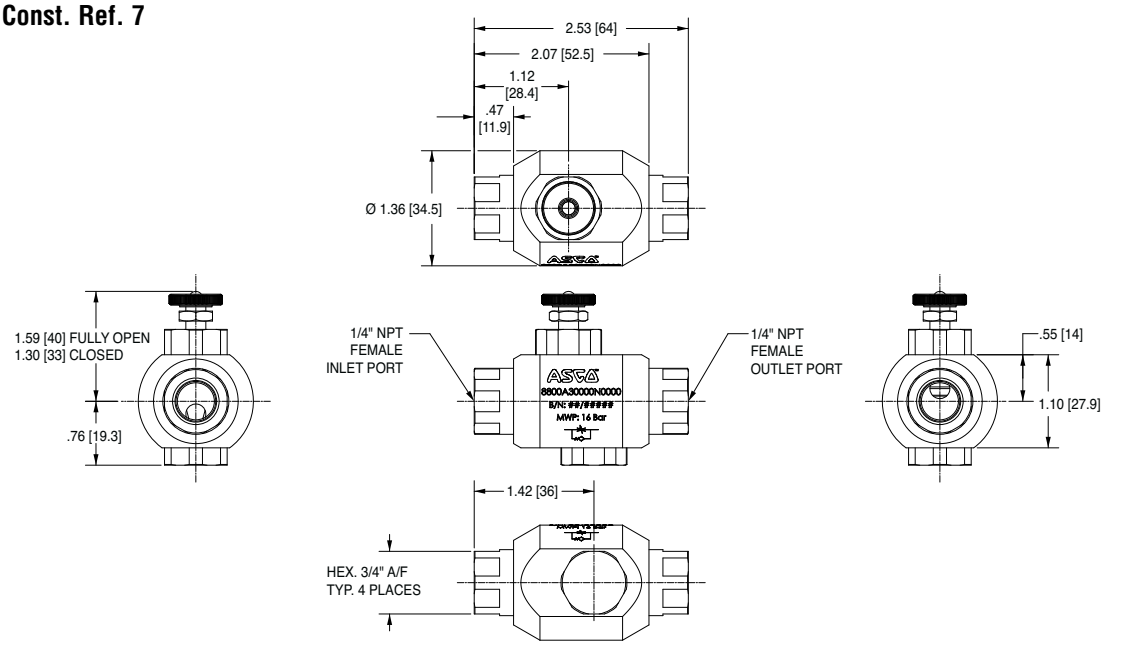


Dimensions inches (mm)

Const. Ref. 7



Const. Ref. 8