77D-14X-01E Series

Bronze Full Port Direct Mount Ball Valve With Actuator Ready ISO Mounting Pad

Threaded, 600 psig CWP, Cold Non-Shock
Vacuum Service to 29 inches Hg.
MSS SP-110 compliant.

FEATURES

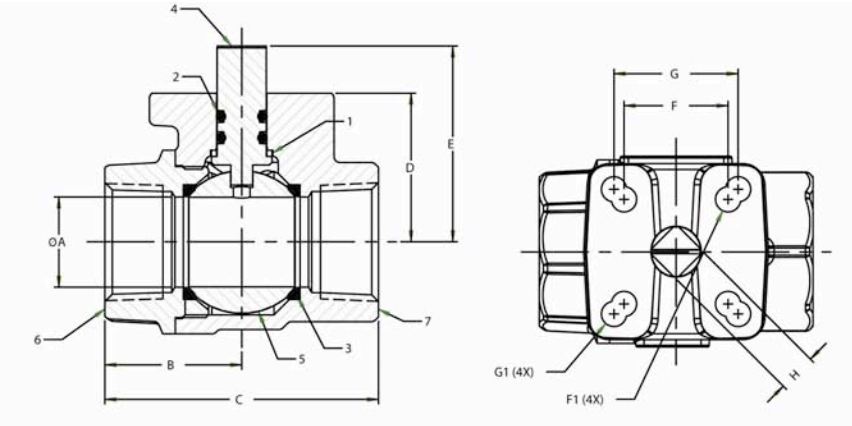
- Blow-out-proof stem design
- Stainless steel ball & stem
- MPTFE seats & bearing
- Dual o-ring stem seal
- Full port for full flow & min. pressure drop
- Direct actuator mounting per ISO 5211

STANDARD MATERIAL LIST

1. Stem bearing	MPTFE	6. Retainer	B16 (1/2"-1")
2. O-ring (2)	EPDM		B584 C84400 (1-1/2"-2")
3. Seat (2)	MPTFE	7. Body	B584 C84400
4. Stem	A276-316		
5. Ball	A276-316/A351-CF8M		

OPTIONS AVAILABLE:

(SUFFIX)	MATERIAL	SIZES	TEMP RANGE	STEAM (MAX)
-01E (STD)	EPDM o-ring	1/2" to 2"	-20° to 400°F	150 WSP @ 366°F
-01N	Nitrile o-ring	1/2" to 2"	-20° to 250°F	15 WSP @ 250°F
-01V	Viton o-ring	1/2" to 2"	-20° to 400°F	50 WSP @ 297°F



For Pressure/Temperature Ratings, Refer to Page M-8, Graph No. 4

BRONZE FULL PORT DIRECT MOUNT WITH ISO PAD

NUMBER	SIZE	A	B	C	D	E	(SQUARE) F	ØF1	(SQUARE) G	ØG1	(DIN SQ) H
77D-143-01E	1/2	0.50	1.15	2.25	1.00	1.37	0.997	0.224	1.167	0.281	0.275
77D-144-01E	3/4	0.75	1.33	2.65	1.38	1.79	1.167	0.281	1.392	0.281	0.275
77D-145-01E	1	1.00	1.54	3.07	1.67	2.20	1.167	0.281	1.392	0.281	0.430
77D-147-01E	1-1/2	1.50	2.12	4.23	2.31	3.05	N/A	N/A	1.949	0.344	0.551
77D-148-01E	2	2.00	2.43	4.85	2.68	3.43	N/A	N/A	1.949	0.344	0.551

FLOW DATA

For Apollo® Ball Valves

The listed Cv "factors" are derived from actual flow testing, in the Apollo® Ball Valve Division, Conbraco Industries, Inc., Pageland, South Carolina. These tests were completed using standard "off the shelf" valves with no special preparation and utilizing standard schedule 40 pipe. It should be understood that these factors are for the valve only and also include the connection configuration. The flow testing is done utilizing water as a fluid media and is a direct statement of the gallons of water flowed per minute with a 1 psig pressure differential across the valve/connection unit. Line pressure is not a factor. Because the Cv is a factor, the formula can be used to estimate flow of most media for valve sizing.

Flow of Liquid

$$Q = Cv\sqrt{\frac{\Delta P}{SpGr}}$$

or $\Delta P = \frac{(Q)^2\ (SpGr)}{(Cv)^2}$

Where:
Q = flow in US gpm
ΔP = pressure drop (psig)
SpGr = specific gravity at flowing temperature
Cv = valve constant

Flow of Gas

$$Q = 1360\ Cv\sqrt{\frac{(\Delta P)\ (P_1)}{(SpGr)\ (T)}}$$

or $\Delta P = \frac{5.4 \times 10^{-7}\ (SpGr)\ (T)}{(Q)^2}\ (Cv)^2\ (P_2)$

Where:
Q = flow in SCFH
ΔP = pressure drop (psig)
SpGr = specific gravity (based on air = 1.0)
P_1 = outlet pressure–psia (psig + 14.7)
T = (temp. °F + 460)
Cv = valve constant

Cv FACTORS
SERIES:
70-100, 71-100, 71AR, 73A-100,
74-100, 76-100, 76AR, 80-100
81-100, 89-100

SIZE		1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
OPEN	90°	8.4	7.2	15	30	43	48	84	108	503	370	670

Cv FACTORS
76F, 77, 77AR, 77C, 77D SERIES

SIZE		1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"
OPEN	90°	8.1	15	15	51	68	125	177	389	503

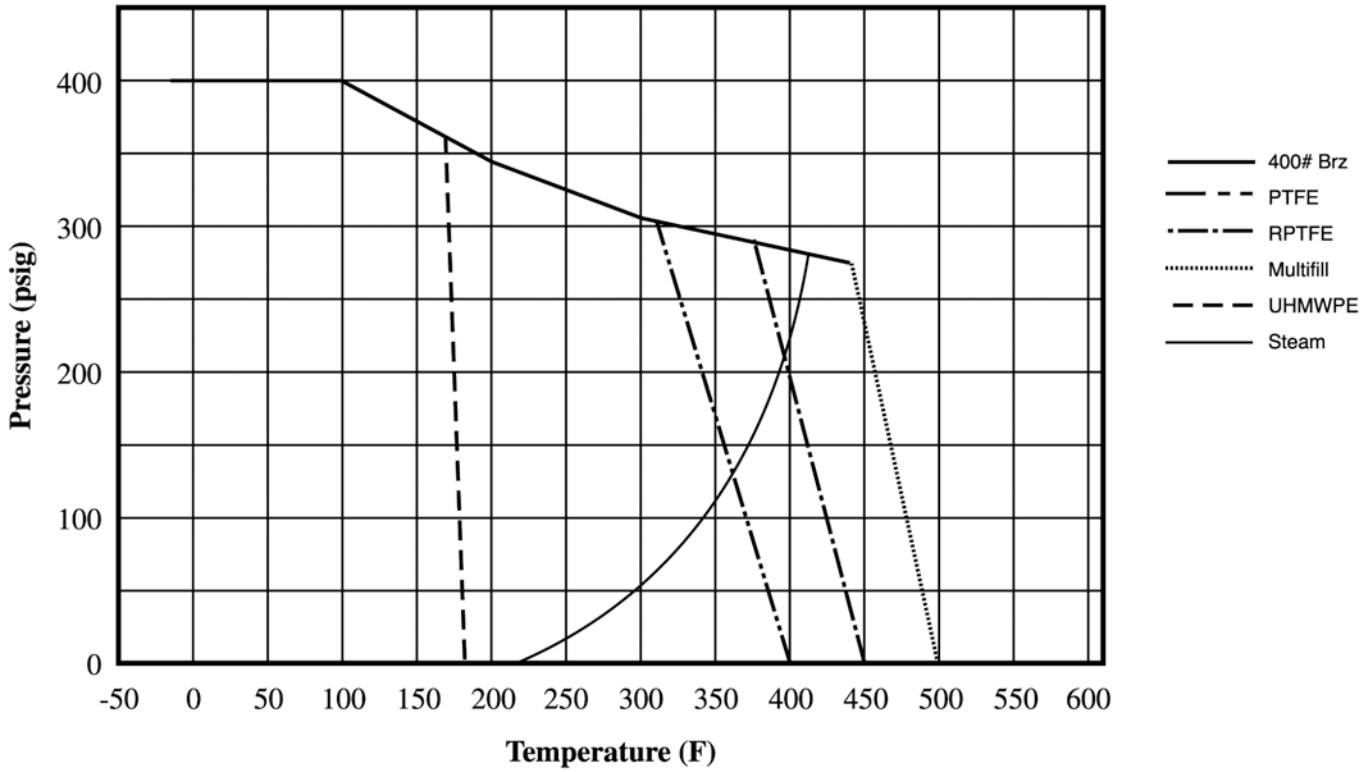
Cv FACTORS
82-100/200, 83R-100/200/700,85R-100/200,86R-100/200/700,83-500/600,86-500/600/900 SERIES

SIZE		1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
OPEN	90°	8.1	14	26	51	68	120	170	376	510	996	1893

Cv FACTORS
83A/83B, 86A/86B, 86C SERIES

SIZE		1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
OPEN	90°	8.1	14	26	51	68	120	170	376

400# Bronze P-T Rating (Graph 3)



600# Bronze P-T Rating (Graph 4)