



# 77-ARX Series

## Bronze Full Port Ball Valve with Actuator Ready ISO Mounting Pad



Threaded, 600 psig WOG, Cold Non-Shock. 250 psig Saturated Steam. (See referenced P/T chart).

Vacuum Service to 29 inches Hg.

Federal Specification: WW-V-35C, Type: II, Composition: BZ, Style: 3.

MSS SP-110; Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends.

### FEATURES

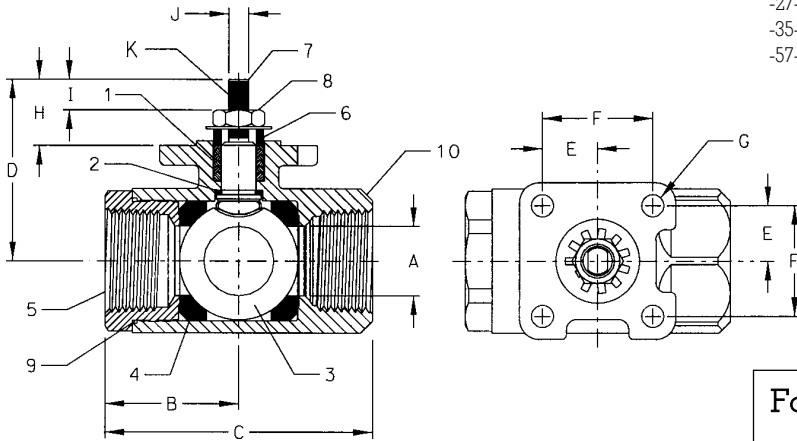
- Multi-piece packing set
- ISO 5211 mounting pad
- Stainless ball & stem
- Blow-out-proof stem design
- Adjustable packing gland
- Live loaded packing

### STANDARD MATERIAL LIST

1. Stem packing	MPTFE	6. Gland	B16
2. Stem bearing	RYTON	7. Stem	A276-316
3. Ball	316 SS	8. Jam nut	SS
4. Seat (2)	MPTFE	9. Body seal	PTFE (1-1/4" to 2")
5. Retainer	B16 (1/4" to 1")	10. Body	B584-C84400
	B584-C84400 (1-1/4" to 2")	11. Belleville washer(s)	SS

### OPTIONS AVAILABLE:

(SUFFIX)	OPTION	SIZES
-14-	Vented Ball	1/4" to 2"
-24-	Graphite Packing	1/4" to 2"
-27-	Latch Lock Handle	1/4" to 2"
-35-	PTFE Seats	1/4" to 2"
-57-	Oxygen Cleaned	1/4" to 2"



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

BRONZE FULL PORT BALL VALVE WITH ISO MOUNTING PAD

NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J (FLATS)	K (THRDS.) UNF	WT.
77-AR1-64	1/4"	.37	1.02	2.18	1.40	.61	1.17	.28	.61	.23	.247/.249	3/8-24	.60
77-AR2-64	3/8"	.37	1.02	2.18	1.40	.61	1.17	.28	.61	.23	.247/.249	3/8-24	.57
77-AR3-64	1/2"	.50	1.12	2.20	1.54	.61	1.17	.28	.61	.21	.247/.249	3/8-24	.62
77-AR4-64	3/4"	.86	1.68	3.12	2.28	.70	1.39	.28	.84	.31	.247/.249	3/8-24	1.76
77-AR5-64	1"	1.00	1.81	3.62	2.87	.98	1.95	.34	1.06	.40	.370/.372	5/8-18	3.44
77-AR7-64	1-1/2"	1.50	2.37	4.75	3.37	.98	1.95	.34	1.16	.37	.370/.372	5/8-18	6.25
77-AR8-64	2"	2.00	2.69	5.38	3.86	.98	1.95	.34	1.16	.37	.370/.372	5/8-18	11.72

# 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

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

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

Where:

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

### Flow of Gas

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

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

Where:

Q = flow in SCFH  
 ΔP = pressure drop (psig)  
 SpGr = specific gravity (based on air = 1.0)  
 P<sub>1</sub> = 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

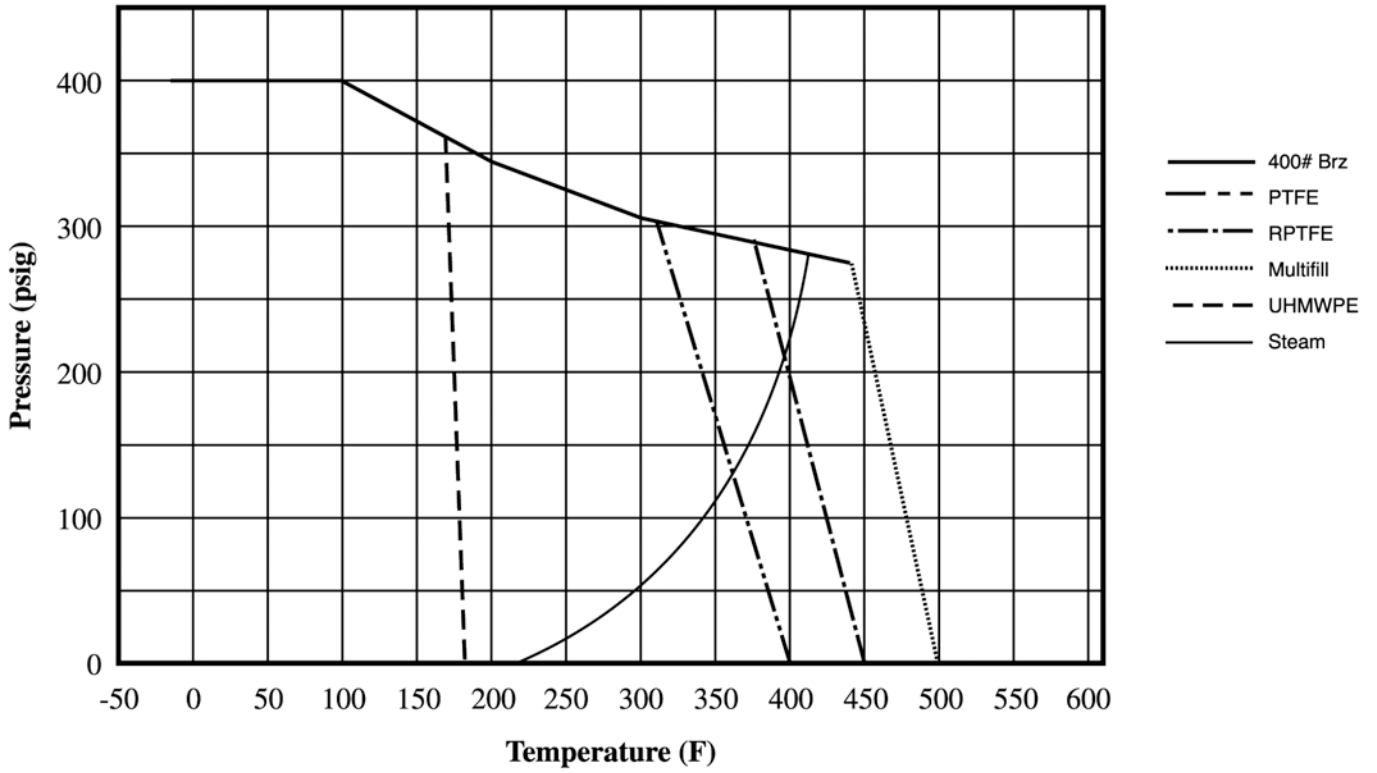
SIZE		1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
OPEN	90°	8.1	14	26	51	68	120	170	376	510	996	1893

### 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)

