

77-100-SV SERIES

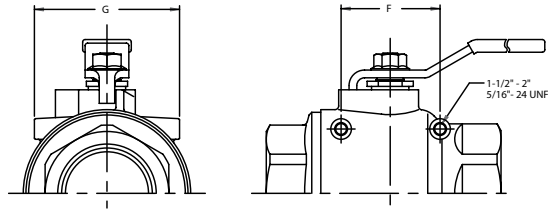
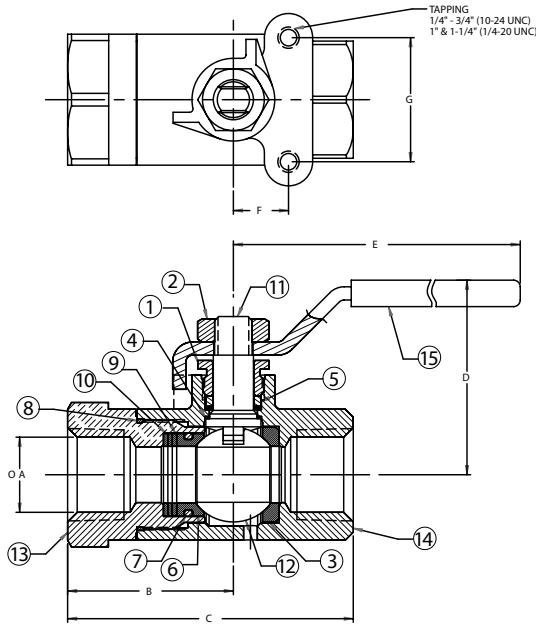
Bronze Full Port Ball Valve with Safety Vent

Female NPT Thread, 0-200 psig, -20°F to 150°F
MSS SP-110 compliant.



FEATURES

- Reinforced seats
- Mounting pad for easy actuator mounting
- Down stream venting in closed position
- Blow-out-proof stem design
- Adjustable packing gland
- Full port for full flow & min. pressure drop



OPTIONS AVAILABLE: (More information in Section J)

| (SUFFIX) | OPTION | SIZES |
|----------|---|---------------|
| -01 | Standard Configuration | All |
| -02- | Stem Grounded | 1/4" to 2" |
| -04- | 2.25" CS Stem Extension | 1/4" to 1.25" |
| -07- | Steel Tee Handle | 1/4" to 1.25" |
| -08- | 90° Reversed Stem | 1/4" to 2" |
| -10- | SS Lever & Nut | 1/4" to 2" |
| -15- | Wheel Handle, Steel | 1/4" to 1.25" |
| -16- | Chain Lever - Vertical | 3/4" to 2" |
| -17- | Rough Chrome Plated - Bronze Valves | 1/4" to 2" |
| -18- | Plain Yellow Grip | 1/4" to 2" |
| -24- | Graphite Packing | 1/4" to 2" |
| -27- | SS Latch-Lock Lever & Nut | 1/4" to 2" |
| -30- | Cam-Lock and Grounded | 1/4" to 1.25" |
| -32- | SS Tee Handle & Nut | 1/4" to 1.25" |
| -36- | SS High-Rise Round Handle & Nut | 1/4" to 1.25" |
| -40- | Cyl-Loc and Grounded | 1/4" to 1.25" |
| -45- | Less Lever & Nut | 1/4" to 2" |
| -46- | Latch Lock Lever - Lock in Closed Position Only | 1/4" to 2" |
| -47- | SS Oval Latch-Lock Handle & Nut | 1/4" to 3/4" |
| -48- | SS Oval Handle (No Latch) & Nut | 1/4" to 2" |
| -49- | Assembled Dry | 1/4" to 2" |
| -50- | 2.25" CS Locking Stem Extension | 1/4" to 2" |
| -57- | Oxygen Cleaned | 1/4" to 2" |
| -58- | Chain Lever - Horizontal | 3/4" to 2" |
| -60- | Static Grounded Ball & Stem | 1/4" to 2" |

STANDARD MATERIAL LIST

| PART | MATERIAL |
|------|--|
| 1 | Packing gland B16 |
| 2 | Lever nut Steel, zinc plated |
| 3 | Seat RPTFE |
| 4 | Stem bearing RPTFE |
| 5 | Stem packing MPTFE |
| 6 | Seat RPTFE |
| 7 | O-ring Fluorosilicone |
| 8 | Body seal PTFE (1.25" to 2") |
| 9 | Spacer B16 |
| 10 | Belleville washers SS |
| 11 | Stem B16 |
| 12 | Ball B16, chrome plated |
| 13 | Retainer B16 (1/4" to 1") B584 C84400 (1.25" to 2") |
| 14 | Body B584 C84400 |
| 15 | Lever/grip Steel, zinc plated w/vinyl |

| PRODUCT NUMBER | SIZE | A | B | C | D | E | F | G | WT. |
|----------------|-------|------|------|------|------|------|------|------|-------|
| 77-101-SV | 1/4" | 0.43 | 1.43 | 2.52 | 1.76 | 3.88 | 0.50 | 1.12 | 0.79 |
| 77-102-SV | 3/8" | 0.50 | 1.60 | 2.69 | 1.76 | 3.88 | 0.50 | 1.12 | 0.75 |
| 77-103-SV | 1/2" | 0.50 | 1.50 | 2.59 | 1.76 | 3.88 | 0.50 | 1.12 | 0.69 |
| 77-104-SV | 3/4" | 0.81 | 1.82 | 3.37 | 2.16 | 5.43 | 0.87 | 1.37 | 1.83 |
| 77-105-SV | 1" | 1.00 | 2.05 | 3.86 | 2.69 | 5.43 | 0.93 | 1.50 | 3.32 |
| 77-106-SV | 1.25" | 1.25 | 2.37 | 4.50 | 2.91 | 5.43 | 0.93 | 1.50 | 5.05 |
| 77-107-SV | 1.5" | 1.50 | 2.63 | 7.78 | 3.31 | 7.78 | 2.08 | 3.06 | 6.71 |
| 77-108-SV | 2" | 2.00 | 3.00 | 5.69 | 3.73 | 7.78 | 2.40 | 3.52 | 11.75 |

FOR PRESSURE/TEMPERATURE RATINGS,
REFER TO PAGE M-10, GRAPH NO. 4



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

$$Q = C_v \sqrt{\frac{\Delta P}{\text{SpGr}}}$$

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

Where:

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

FLOW OF GAS

$$Q = 1360 C_v \sqrt{\frac{(\Delta P) (P_2)}{(\text{SpGr}) (T)}}$$

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

Where:

Q = flow in SCFH
 ΔP = pressure drop (psig)
 SpGr = specific gravity (based on air = 1.0)
 P₂ = outlet pressure-psia (psig + 14.7)
 T = (temp. °F + 460)
 Cv = valve constant

Cv FACTORS FOR APOLLO VALVES

| SIZE (IN.) | 1/4 | 3/8 | 1/2 | 3/4 | 1 | 1.25 | 1.5 | 2 | 2.5 | 3 | 4 | 6 | 8 | 10 | 12 |
|--------------------|-----|-----|-----|-----|----|------|-----|-----|-----|------|------|----|----|----|----|
| VALVE | | | | | | | | | | | | | | | |
| 32-100/200 Series | 5.1 | 6.6 | 8 | 24 | 30 | 45 | 55 | 95 | -- | -- | -- | -- | -- | -- | -- |
| 64-100/200 Series | 6 | 7 | 19 | 34 | 50 | 104 | 268 | 309 | 629 | 1018 | 1622 | -- | -- | -- | -- |
| 64W Series | -- | -- | -- | -- | -- | -- | -- | -- | 629 | 1018 | 1622 | -- | -- | -- | -- |
| 70B-140 Series | 8.4 | 7.2 | 15 | 30 | 43 | 48 | 84 | 108 | 190 | 370 | 670 | -- | -- | -- | -- |
| 70-100/200 Series | 8.4 | 7.2 | 15 | 30 | 43 | 48 | 84 | 108 | 190 | 370 | 670 | -- | -- | -- | -- |
| 70-300/400 Series | -- | -- | 15 | 30 | 43 | 48 | 84 | 108 | -- | -- | -- | -- | -- | -- | -- |
| 70-600 Series | 2.3 | 4.5 | 5.4 | 12 | 14 | 21 | 34 | 47 | -- | -- | -- | -- | -- | -- | -- |
| 70-800 Series | 8.4 | 7.2 | 15 | 30 | 43 | 48 | 84 | -- | -- | -- | -- | -- | -- | -- | -- |
| 71AR Series | -- | -- | -- | 30 | 43 | 48 | 84 | 108 | 190 | 370 | -- | -- | -- | -- | -- |
| 71-100/200 Series | -- | -- | -- | 30 | 43 | 48 | 84 | 108 | 190 | 370 | -- | -- | -- | -- | -- |
| 72-100/900 Series | -- | -- | 26 | 48 | 65 | 125 | 170 | 216 | -- | -- | -- | -- | -- | -- | -- |
| 73A-100 Series | 8.4 | 7.2 | 15 | 30 | 43 | 48 | 84 | 108 | -- | -- | -- | -- | -- | -- | -- |
| 73-300/400 Series | -- | -- | 26 | 48 | 65 | 125 | 170 | 216 | -- | -- | -- | -- | -- | -- | -- |
| 74-100 Series | 8.4 | 7.2 | 15 | 30 | 43 | 48 | 84 | 108 | 190 | 370 | 670 | -- | -- | -- | -- |
| 75-100 Series | 8.4 | 7.2 | 15 | 30 | 43 | 48 | 84 | 108 | 190 | 370 | 670 | -- | -- | -- | -- |
| 76AR Series | 8.4 | 7.2 | 15 | 30 | 43 | 48 | 84 | 108 | 190 | 370 | 670 | -- | -- | -- | -- |
| 76F-100 Series | 8.1 | 15 | 15 | 51 | 68 | 125 | 177 | 389 | -- | -- | -- | -- | -- | -- | -- |
| 76-100 Series | 8.4 | 7.2 | 15 | 30 | 43 | 48 | 84 | 108 | 190 | 370 | -- | -- | -- | -- | -- |
| 76-300/400 Series | -- | -- | 26 | 48 | 65 | 125 | 170 | 216 | -- | -- | -- | -- | -- | -- | -- |
| 76-600 Series | 2.3 | 4.5 | 5.4 | 12 | 14 | 21 | 34 | 47 | -- | -- | -- | -- | -- | -- | -- |
| 7K-100 Series | -- | -- | 15 | 51 | 68 | 125 | 177 | 389 | 503 | -- | -- | -- | -- | -- | -- |
| 77AR Series | 8.1 | 15 | 15 | 51 | 68 | 125 | 177 | 389 | -- | -- | -- | -- | -- | -- | -- |
| 77C-100/200 Series | 4.5 | 7.2 | 16 | 36 | 68 | 125 | 177 | 389 | 503 | -- | -- | -- | -- | -- | -- |
| 77D-140 Series | 4.5 | 7.2 | 16 | 36 | 68 | 125 | 177 | 389 | -- | -- | -- | -- | -- | -- | -- |
| 77D-640 Series | -- | -- | -- | 11 | 24 | 35 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 77G-UL Series | 4.5 | 7.2 | 16 | 36 | 68 | 125 | 177 | 389 | 503 | -- | -- | -- | -- | -- | -- |
| 77W Series | -- | -- | 16 | 36 | 68 | 125 | 177 | 389 | -- | -- | -- | -- | -- | -- | -- |
| 77X Series | -- | -- | 16 | 36 | 68 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 77-100/200 Series | 8.1 | 15 | 15 | 51 | 68 | 125 | 177 | 389 | 503 | -- | -- | -- | -- | -- | -- |
| 79 Series | 8.5 | 8.5 | 9.8 | 32 | 44 | 66 | 148 | 218 | 440 | 390 | -- | -- | -- | -- | -- |

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FLOW DATA

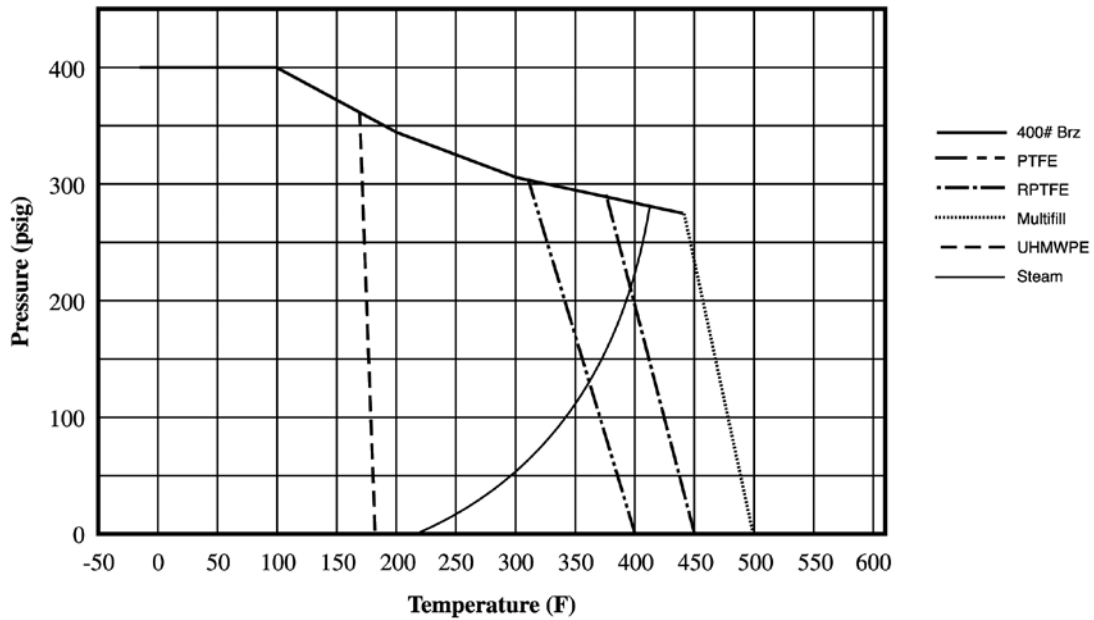
For Apollo® Ball Valves

Cv FACTORS FOR APOLLO VALVES (continued from page M-3)

| SIZE (IN.) | 1/4 | 3/8 | 1/2 | 3/4 | 1 | 1.25 | 1.5 | 2 | 2.5 | 3 | 4 | 6 | 8 | 10 | 12 |
|--------------------|-----|-----|-----|-----|----|------|-----|-----|-----|------|------|------|------|-------|-------|
| VALVE | | | | | | | | | | | | | | | |
| 80/81 Series | 8.4 | 7.2 | 15 | 30 | 43 | 48 | 84 | 108 | 190 | 370 | -- | -- | -- | -- | -- |
| 82-100/200 Series | 8.1 | 14 | 26 | 51 | 68 | 120 | 170 | 376 | 510 | 996 | 1893 | -- | -- | -- | -- |
| 83A/83B Series | 8.1 | 14 | 26 | 51 | 68 | 120 | 170 | 376 | -- | -- | -- | -- | -- | -- | -- |
| 83R-100/200 Series | -- | -- | -- | -- | -- | -- | 170 | 376 | -- | 996 | 1893 | -- | -- | -- | -- |
| 86A/86B Series | 8.1 | 14 | 26 | 51 | 68 | 120 | 170 | 376 | -- | -- | -- | -- | -- | -- | -- |
| 86R-100/200 Series | -- | -- | -- | -- | -- | -- | 170 | 376 | -- | 996 | 1893 | -- | -- | -- | -- |
| 87A-100 Series | -- | -- | -- | -- | -- | -- | 86 | 104 | 234 | 375 | 673 | 1099 | 1902 | 3890 | -- |
| 87A-200 Series | -- | -- | 15 | 19 | 75 | -- | 195 | 410 | 545 | 1021 | 2016 | 4837 | 9250 | 15170 | 22390 |
| 87A-700 Series | -- | -- | -- | -- | -- | -- | 86 | 104 | 234 | 375 | 673 | 1099 | 1902 | 3890 | -- |
| 87A-900 Series | -- | -- | 15 | 19 | 75 | -- | 195 | 410 | 545 | 1021 | 2016 | 4837 | 9250 | 15170 | 22390 |
| 87B-100 Series | -- | -- | -- | -- | -- | -- | -- | -- | -- | 375 | 673 | 1099 | 1902 | 3890 | -- |
| 88A-100 Series | -- | -- | -- | -- | -- | -- | 86 | 104 | 234 | 375 | 673 | 1099 | 1902 | 3890 | -- |
| 88A-200 Series | -- | -- | 15 | 19 | 75 | -- | 195 | 410 | 545 | 1021 | 2016 | 4837 | 9250 | 15170 | 22390 |
| 88A-700 Series | -- | -- | -- | -- | -- | -- | 86 | 104 | 234 | 375 | 673 | 1099 | 1902 | 3890 | -- |
| 88A-900 Series | -- | -- | 15 | 19 | 75 | -- | 195 | 410 | 545 | 1021 | 2016 | 4837 | 9250 | 15170 | 22390 |
| 88B-100 Series | -- | -- | -- | -- | -- | -- | -- | -- | -- | 375 | 673 | 1099 | 1902 | 3890 | -- |
| 89-100 Series | 8.4 | 7.2 | 15 | 30 | 43 | 48 | 84 | 108 | 190 | 370 | -- | -- | -- | -- | -- |
| 9A-100 Series | 8.3 | 6.7 | 5.7 | 10 | 16 | 25 | 40 | 62 | -- | -- | -- | -- | -- | -- | -- |
| 91-100 Series | 8.3 | 6.7 | 5.7 | 10 | 16 | 25 | 40 | 62 | -- | -- | -- | -- | -- | -- | -- |
| 92-100 Series | 8.3 | 6.7 | 5.7 | 10 | 16 | 25 | 40 | 62 | -- | -- | -- | -- | -- | -- | -- |
| 93-100 Series | 8.3 | 6.7 | 5.7 | 10 | 16 | 25 | 40 | 62 | -- | -- | -- | -- | -- | -- | -- |
| 94A-100/200 Series | 6 | 7 | 19 | 34 | 50 | 104 | 268 | 309 | 629 | 1018 | 1622 | -- | -- | -- | -- |
| 95-100/200 Series | -- | -- | 15 | 51 | 68 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 95A-300/400 Series | -- | -- | 19 | 34 | 50 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 96-100 Series | 8.3 | 6.7 | 5.7 | 10 | 16 | 25 | 40 | 62 | -- | -- | -- | -- | -- | -- | -- |
| 399-100 Series | 8.4 | 7.2 | 15 | 30 | 43 | 48 | 84 | 108 | 190 | 370 | -- | -- | -- | -- | -- |
| 489-100 Series | 8.4 | 7.2 | 15 | 30 | 43 | 48 | 84 | 108 | 190 | 370 | -- | -- | -- | -- | -- |

PRESSURE TEMPERATURE RATINGS

400# Bronze (GRAPH 3)



600# Bronze (GRAPH 4)

