



# 95-200 Series



## Bronze Solder End Full Port Stop and Drain Ball Valve

Solder End, 400 psig WOG, Cold Non-Shock.

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

- Two piece body
- Reinforced seats
- Drain cap designed to prevent loss
- Blow-out-proof stem design
- Adjustable packing gland
- Rugged construction

### STANDARD MATERIAL LIST

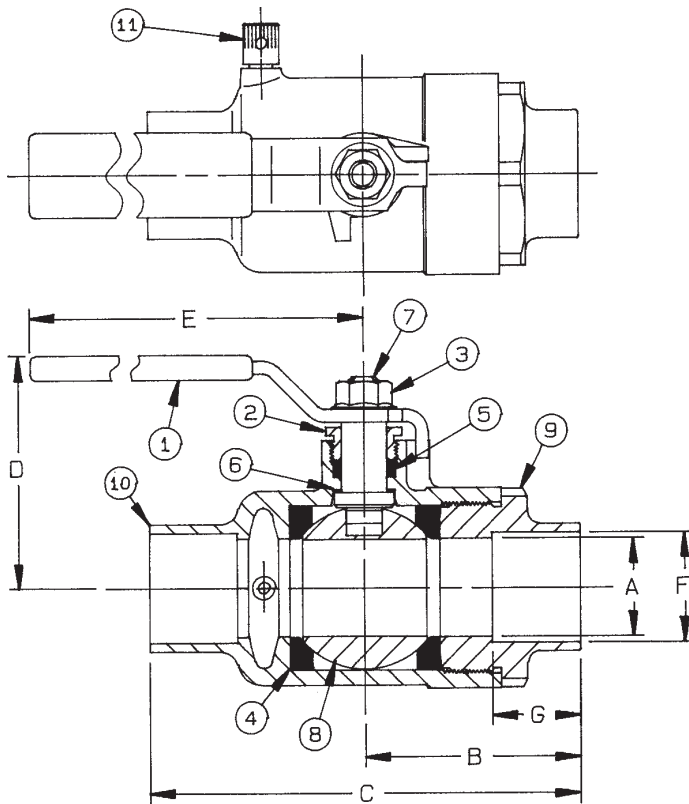
|                   |                            |                  |                    |
|-------------------|----------------------------|------------------|--------------------|
| 1. Lever and grip | Steel, zinc plated w/vinyl | 7. Stem          | B16                |
| 2. Gland screw    | B16                        | 8. Ball          | B16, chrome plated |
| 3. Lever nut      | Steel, zinc plated         | 9. Retainer      | B16                |
| 4. Seat (2)       | RPTFE                      | 10. Body         | B584-C84400        |
| 5. Stem packing   | RPTFE                      | 11. Cap and seal | B16 and EPR        |
| 6. Stem bearing   | RPTFE                      |                  |                    |

### VARIATIONS AVAILABLE:

95-220 Series (Adjustable Stop Lever)

### OPTIONS AVAILABLE:

| (SUFFIX) | OPTION                             | SIZES      |
|----------|------------------------------------|------------|
| -07-     | Steel Tee Handle                   | 1/2" to 1" |
| -08-     | 90° Reversed Stem                  | 1/2" to 1" |
| -10-     | SS Lever & Nut                     | 1/2" to 1" |
| -14-     | Side Vented Ball (Uni-Directional) | 1/2" to 1" |
| -15-     | Wheel Handle, Steel                | 1/2" to 1" |
| -18-     | Plain Yellow Grip                  | 1/2" to 1" |
| -20-     | Slot Vented Ball                   | 1/2" to 1" |
| -24-     | Graphite Packing                   | 1/2" to 1" |
| -27-     | SS Latch-Lock Lever & Nut          | 1/2" to 1" |
| -32-     | SS Tee Handle & Nut                | 1/2" to 1" |
| -45-     | Less Lever & Nut                   | 1/2" to 1" |
| -46-     | Latch Lock Lever - Lock Close Only | 1/2" to 1" |
| -48-     | SS Oval Handle (No Latch) & Nut    | 1/2" to 1" |
| -49-     | Assembled Dry                      | 1/2" to 1" |



The 95-200 is designed to be soft soldered into lines without disassembly. This allows a tested valve to be installed without disturbing the seats and seals in any way. Soldering temperatures not to exceed 500°F.

### BRONZE SOLDER END STOP AND DRAIN FULL PORT BALL VALVE

| NUMBER    | SIZE | A    | B    | C    | D    | E    | F     | G   | Wt.  |
|-----------|------|------|------|------|------|------|-------|-----|------|
| 95-203-01 | 1/2" | .50  | 1.43 | 2.87 | 1.75 | 3.87 | .628  | .50 | .70  |
| 95-204-01 | 3/4" | .81  | 2.12 | 4.12 | 2.15 | 4.87 | .878  | .75 | 1.23 |
| 95-205-01 | 1"   | 1.00 | 2.21 | 4.43 | 2.43 | 4.87 | 1.128 | .90 | 1.90 |

**For Pressure/Temperature Ratings,  
Refer to Page M-8, Graph No. 3**

# 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>2</sub> = outlet pressure-psia (psig + 14.7)  
 T = (temp. °F + 460)  
 Cv = valve constant

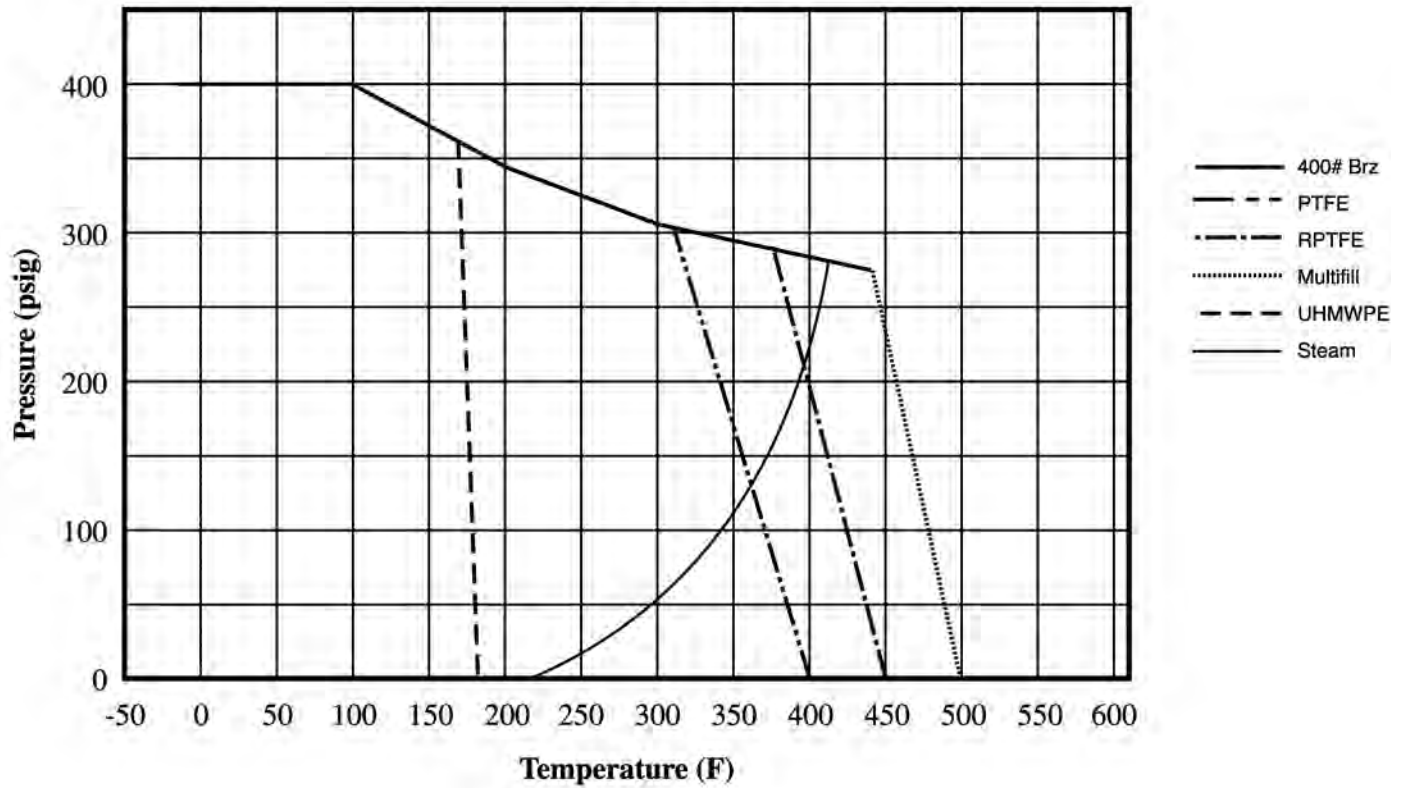
### Cv FACTORS FOR APOLLO VALVES

| Valve Size (inches) | 1/4 | 3/8 | 1/2 | 3/4 | 1  | 1-1/4 | 1-1/2 | 2   | 2-1/2 | 3    | 4    | 6  | 8  | 10 | 12 |
|---------------------|-----|-----|-----|-----|----|-------|-------|-----|-------|------|------|----|----|----|----|
| <b>Ball Valves</b>  |     |     |     |     |    |       |       |     |       |      |      |    |    |    |    |
| 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   | --  | --  | 26  | 48  | 65 | 125   | 170   | 216 | --    | --   | --   | -- | -- | -- | -- |
| 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   | --   | --   | -- | -- | -- | -- |

## Cv FACTORS FOR APOLLO VALVES

| Valve Size (inches) | 1/4 | 3/8 | 1/2 | 3/4 | 1  | 1-1/4 | 1-1/2 | 2   | 2-1/2 | 3    | 4    | 6    | 8    | 10    | 12    |
|---------------------|-----|-----|-----|-----|----|-------|-------|-----|-------|------|------|------|------|-------|-------|
| <b>Ball Valves</b>  |     |     |     |     |    |       |       |     |       |      |      |      |      |       |       |
| 79 Series           | 8.5 | 8.5 | 9.8 | 32  | 44 | 66    | 148   | 218 | 440   | 390  | --   | --   | --   | --    | --    |
| 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      | --  | --  | --  | --  | -- | --    | 86    | 104 | 234   | 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      | --  | --  | --  | --  | -- | --    | 86    | 104 | 234   | 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  | --   | --   | --   | --    | --    |

### 400# Bronze P-T Rating (Graph 3)



### 600# Bronze P-T Rating (Graph 4)

