

83R-240 SERIES

Carbon Steel 3-Piece Full Port Socket Weld Ball Valve With Actuator Ready ISO Mounting Pad 1.5" & 2"

Socket Weld, 800 CWP (psig), Cold Non-Shock. 150 psig Saturated Steam.
 Vacuum Service to 29 inches Hg.
 MSS SP-110 compliant.
 Meets NACE MR0175 (2000) & MR0103 (2012)

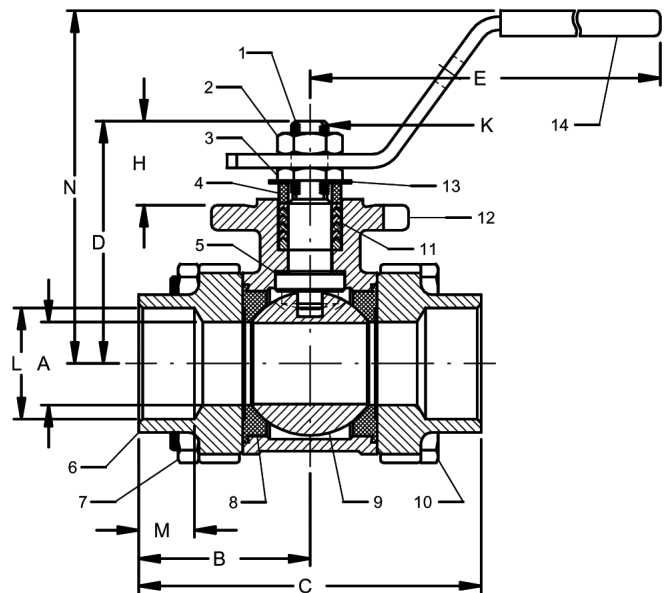


FEATURES

- Multi-piece packing set
- ISO 5211 mounting pad
- Blow-out-proof stem design
- In-line repairable
- Adjustable packing gland
- Investment cast components
- Reinforced seats and seals
- Full port configuration

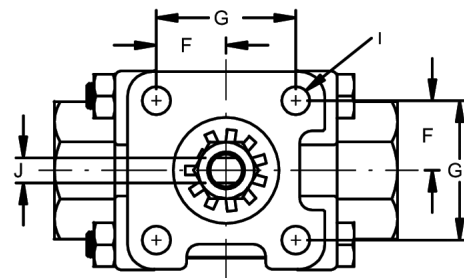
OPTIONS AVAILABLE: (More information in Section J)

| (SUFFIX) | OPTION |
|----------|---|
| -01 | Standard Configuration |
| -02- | Static Grounded |
| -04- | 2.25" Stem Extension |
| -08- | 90° Reversed Stem |
| -10- | SS Lever & Nut |
| -14- | Vented Ball (see page J-4) |
| -18- | Plain Yellow Grip |
| -21- | UHMWPE Seats (Non-PTFE) |
| -24- | Graphite Stem Packing (not fire safe) |
| -27- | Latch Lock Lever |
| -35- | PTFE Trim |
| -36- | SS Round Handle |
| -39- | SS Hi-Rise Locking Wheel Handle, SS Nut |
| -59- | SS External Trim - 3-pc. Valves |
| -60- | Grounded Ball & Stem |
| -AR- | Less Handle & Stop-Add Belleville Washers |
| -WB- | With Lever & Belleville Washers |



STANDARD MATERIAL LIST

| PART | MATERIAL |
|--------------------|----------------------|
| 1 Stem | A276-316 |
| 2 Jam nut | Steel, zinc plate |
| 3 Low profile nut | 316 SS |
| 4 Gland | A276-316 |
| 5 Stem bearing | RPTFE |
| 6 End cap (2) | A216-WCB |
| 7 Hex nut (4) | Stl-gr. 8-zinc plt |
| 8 Seat (2) | RPTFE |
| 9 Ball | 316 SS |
| 10 Body bolt (4) | Stl-gr. 8-zinc plt |
| 11 Stem packing | MPTFE |
| 12 Body | ASTM A216-WCB |
| 13 Lock tab washer | 304 SS |
| 14 Lever and grip | Stl-zinc plt-w/vinyl |



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-12, GRAPH NO. 7

| PRODUCT NUMBER | SIZE | A | B | C | D | E | F | G | H | I | J (FLATS) | K (THRDS.)UNF | L | M | N |
|----------------|------|------|------|------|------|------|------|------|------|------|-----------|---------------|-------|------|------|
| 83R-247-01 | 1.5" | 1.50 | 2.59 | 5.18 | 3.49 | 8.06 | 0.98 | 1.95 | 1.16 | 0.34 | .370/.372 | 5/8-18 | 1.915 | 0.87 | 4.38 |
| 83R-248-01 | 2" | 2.00 | 3.01 | 6.03 | 3.95 | 8.06 | 0.98 | 1.95 | 1.16 | 0.34 | .370/.372 | 5/8-18 | 2.405 | 1.05 | 4.85 |



83R-240 SERIES

Carbon Steel 3-Piece Full Port Socket Weld Ball Valve With Actuator Ready ISO Mounting Pad 3"

Socket Weld, 800 CWP (psig), Cold Non-Shock. 150 psig Saturated Steam.
 Vacuum Service to 29 inches Hg.
 MSS SP-110 compliant.
 Meets NACE MR0175 (2000) & MR0103 (2012)



FEATURES

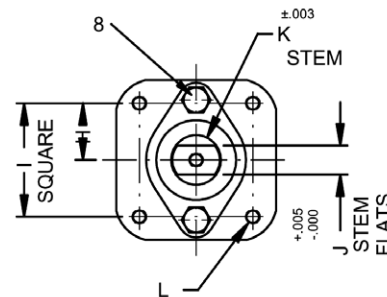
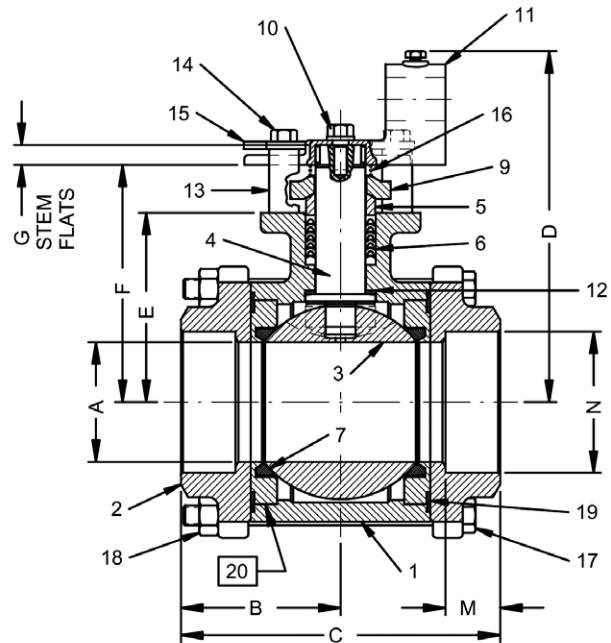
- Multi-piece packing set
- ISO 5211 mounting pad
- Blow-out-proof stem design
- In-line repairable
- Adjustable packing gland
- Investment cast components
- Reinforced seats and seals
- Full port configuration

OPTIONS AVAILABLE: (More information in Section J)

| (SUFFIX) | OPTION | SIZES |
|----------|---------------------------------------|-------|
| -01 | Standard Configuration | All |
| -02- | Static Grounded | 3" |
| -14- | Vented Ball | 3" |
| -24- | Graphite Stem Packing (not fire safe) | 3" |
| -35- | PTFE Trim | 3" |
| -49- | Assembled Dry | 3" |
| -57- | Cleaned For Gaseous Oxygen | 3" |
| -60- | Grounded Ball & Stem | 3" |
| -70- | 4" Extended Bonnet | 3" |

STANDARD MATERIAL LIST

| PART | MATERIAL |
|-----------------------|-----------------|
| 1 Body | ASTM A216-WCB |
| 2 End Caps | ASTM A216-WCB |
| 3 Ball | 316 SS |
| 4 Stem | A276-316 |
| 5 Packing Gland | Carbon Steel |
| 6 Stem Seal | MPTFE |
| 7 Seats (2) | RPTFE |
| 8 Gland Screws (2) | Stainless Steel |
| 9 Gland Plate | Stainless Steel |
| 10 Adapter Screw | Stainless Steel |
| 11 Handle Adapter | Stainless Steel |
| 12 Stem Bearing | RPTFE |
| 13 Stops (2) | Stainless Steel |
| 14 Stop Screws (2) | Stainless Steel |
| 15 Lock Plate | Stainless Steel |
| 16 Grounding Spring | Stainless Steel |
| 17 Body Bolts (6) | Stainless Steel |
| 18 Heavy Hex Nuts (6) | Stainless Steel |
| 19 Body Seals (2) | RPTFE |
| 20 Seat Holders (2) | Carbon Steel |
| 21 Pipe Handle | (not shown) |



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-12, GRAPH NO. 7

| PRODUCT NUMBER | SIZE | A | B | C | D | E | F | G | H | I | J (FLATS) | K | L (THRS.)UNF | M | N |
|----------------|------|------|------|------|------|------|------|------|-------|-------|-----------|-------|--------------|------|------|
| 83R-240-01 | 3" | 3.00 | 4.00 | 8.00 | 8.80 | 4.75 | 5.94 | 0.50 | 1.420 | 2.840 | 0.725 | 1.250 | 3/8-16 | 1.37 | 3.54 |

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

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

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

Where:

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

FLOW OF GAS

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

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

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

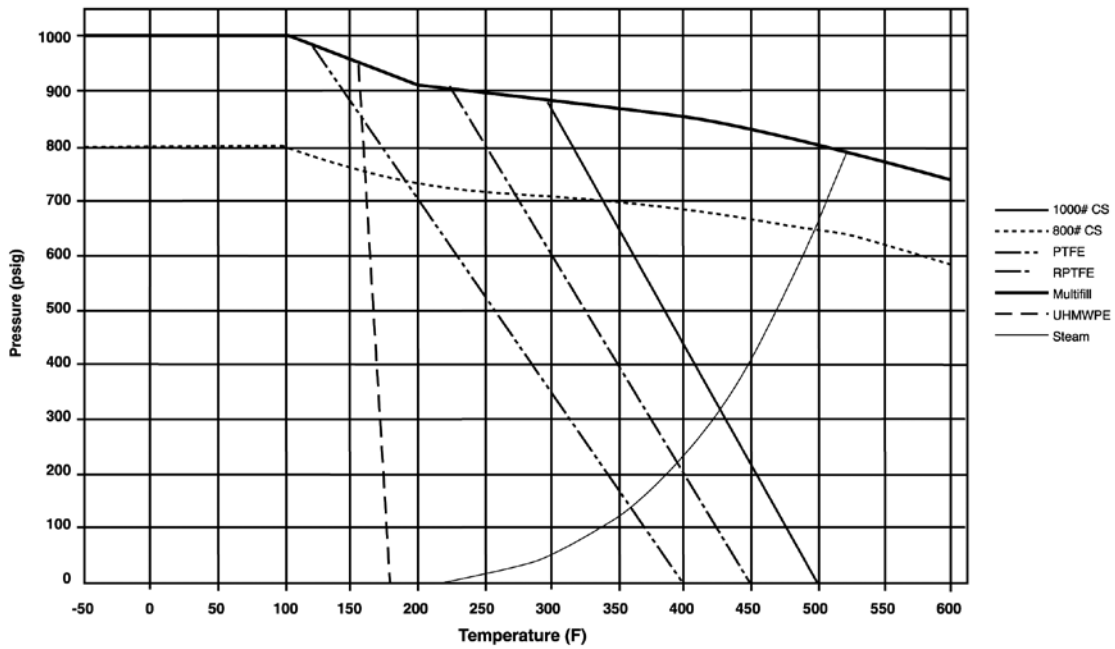
For Apollo® Ball Valves

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

1000# CS (GRAPH 7)



1000# SS (GRAPH 8)

