



# 83R-100 Series

## Carbon Steel 3-Piece Full Port Ball Valve With Actuator Ready ISO Mounting Pad 1-1/2" & 2"

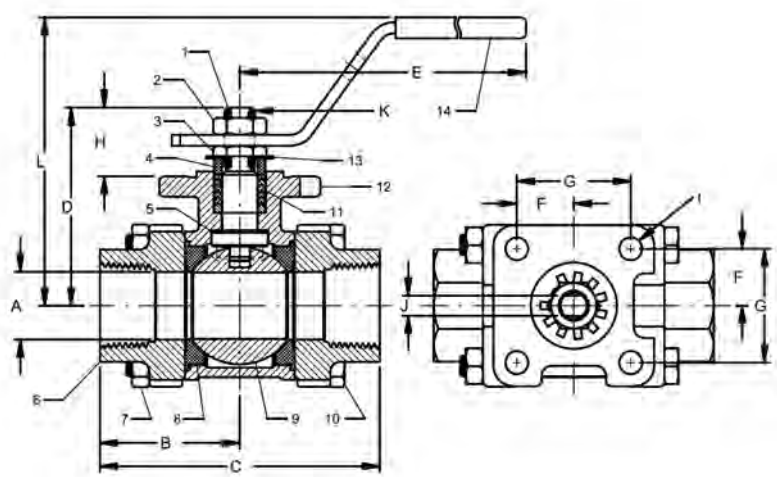
Full Port Threaded, 800 psig CWP, Cold Non-Shock. 150 psig Saturated Steam.  
 Vacuum Service to 29 inches Hg.  
 Federal Specification: WW-V-35C, Type: II, Composition: CS, Style: 1.  
 MSS SP-110; Ball Valve Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends.  
 Meets NACE MR-01-75

### 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

### STANDARD MATERIAL LIST

1. Stem	A108-CS	8. Seat (2)	RPTFE
2. Jam nut	Steel, zinc plate	9. Ball	A108-CS chrome plate
3. Low profile nut	316 SS	10. Body bolt (4)	Stl-gr. 8-zinc plt
4. Gland	A276-316	11. Stem packing	MPTFE
5. Stem bearing	RPTFE	12. Body	ASTM A216-WCB
6. End cap (2)	A216-WCB	13. Lock tab washer	304 SS
7. Hex nut (4)	Stl-gr. 8-zinc plt	14. Lever and grip	Stl-zinc plt-w/vinyl



**For Pressure/Temperature Ratings,  
Refer to Page M-10, Graph No. 7**

### VARIATIONS AVAILABLE:

- 83R-140 Series (316 SS Ball & Stem)

### OPTIONS AVAILABLE:

(SUFFIX)	OPTION
-02-	Static Grounded
-04-	2-1/4" Stem Extension
-08-	90° Reversed Stem
-10-	SS Lever & Nut
-14-	Vented Ball
-18-	Plain Yellow Grip
-21-	UHMWPE Seats (Non-PTFE)
-24-	Graphite Stem Packing
-27-	Latch Lock Lever
-35-	VTFE Trim
-36-	SS Round Handle
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut
-56-	Multifill Seats & Graphite Packing
-59-	SS External Trim - 3-pc. Valves
-60-	Grounded Ball & Stem
-63-	NPT x Socket Weld
-66-	NPT x Buttweld
-P01-	BSPP (Parallel) Thread Connection
-T01-	BSPT (Tapered) Thread Connection
-AR-	Less Handle & Stop-Add Belleville Washers
-WB-	With Lever & Belleville Washers

CARBON STEEL 3-PIECE FULL PORT  
BALL VALVE WITH ISO MOUNTING PAD

NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J (FLATS)	K (THRDS.) UNF	L
83R-10-01	1-1/2"	1.50	2.59	5.18	3.49	8.06	.98	1.95	1.16	.34	.370/.372	5/8-18	4.35
83R-108-01	2"	2.00	3.01	6.03	3.95	8.06	.98	1.95	1.16	.34	.370/.372	5/8-18	4.85



# 83R-100 Series

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

Full Port Threaded, 800 psig CWP, Cold Non-Shock. 150 psig Saturated Steam.  
Vacuum Service to 29 inches Hg.

Federal Specification: WW-V-35C, Type: II, Composition: CS, Style: 1.

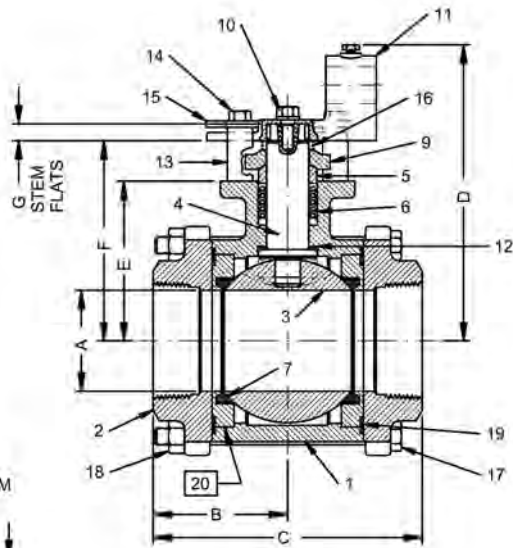
MSS SP-110; Ball Valve Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends.  
Meets NACE MR-01-75

### 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

### STANDARD MATERIAL LIST

1. Body	ASTM A216-WCB	12. Stem Bearing	RPTFE
2. End Caps	ASTM A216-WCB	13. Stops (2)	SS
3. Ball	A108-CS, Chrome Plated	14. Stop Screws (2)	SS
4. Stem	A108-CS	15. Lock Plate	SS
5. Packing Gland	CS	16. Grounding Spring	SS
6. Stem Seal	MPTFE	17. Body Bolts (6)	SS
7. Seats (2)	RPTFE	18. Heavy Hex Nuts (6)	SS
8. Gland Screws (2)	SS	19. Body Seals (2)	RPTFE
9. Gland Plate	SS	20. Seat Holders (2)	CS
10. Adapter Screw	SS	21. Pipe Handle	(not shown)
11. Handle Adapter	SS		



### VARIATIONS AVAILABLE:

- 83R-140 Series (316 SS Ball & Stem)

### OPTIONS AVAILABLE:

(SUFFIX) OPTION

-02-	Static Grounded
-14-	Vented Ball
-24-	Graphite Stem Packing
-35-	VTFE Trim
-49-	Assembled Dry
-57-	Cleaned For Gaseous Oxygen
-60-	Grounded Ball & Stem
-63-	NPT x Socket Weld
-70-	4" Extended Bonnet

**For Pressure/Temperature Ratings,  
Refer to Page M-10, Graph No. 7**

CARBON STEEL 3-PIECE FULL PORT  
BALL VALVE WITH ISO MOUNTING PAD

NUMBER	SIZE	A	B	C	D	E	F	G	H	I	J (FLATS)	K	L (THRDS.) UNF
83R-100-01	3"	3.00	4.00	8.00	8.80	4.75	5.94	.50	1.420	2.840	.725	1.250	3.28

# 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

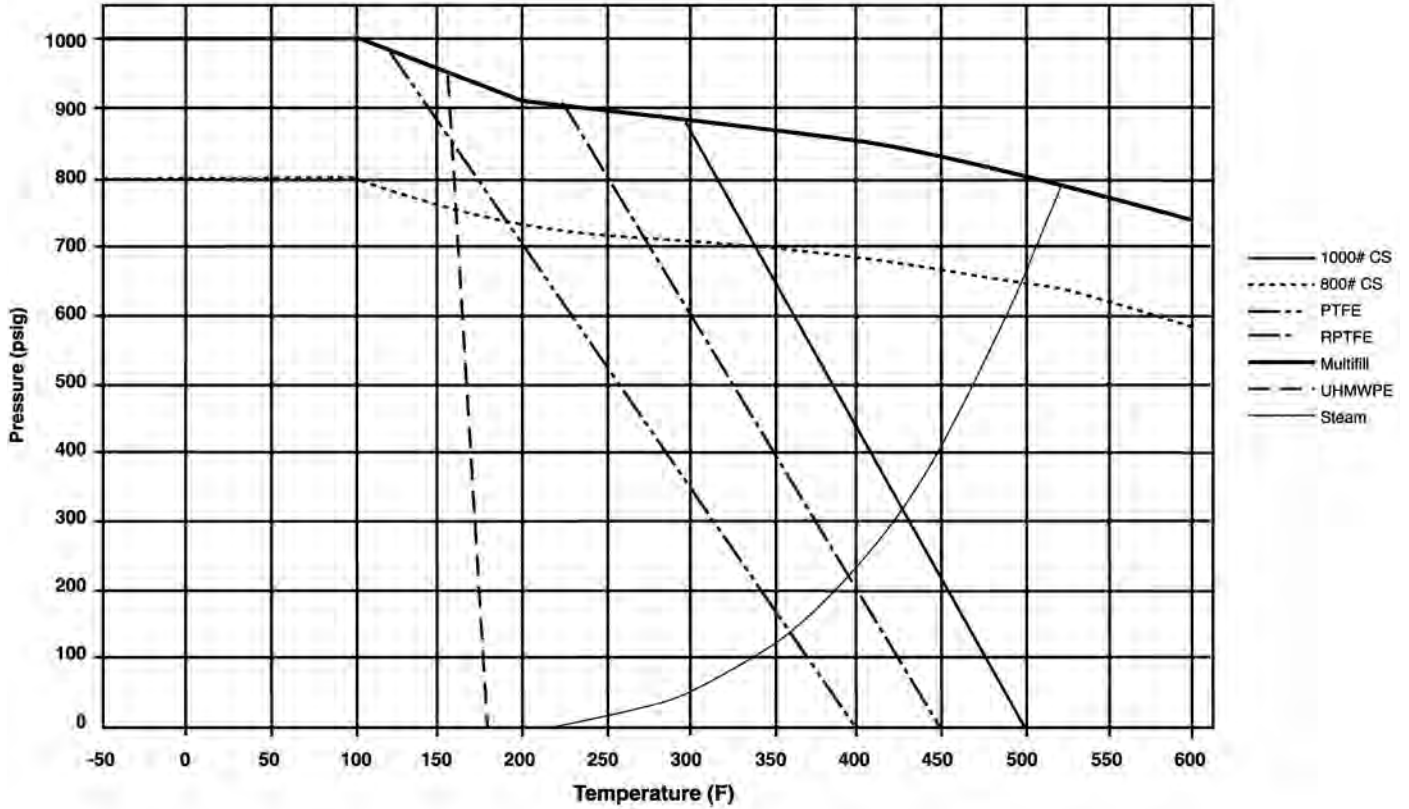
### Cv FACTORS FOR APOLLO VALVES

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	--	--	--	--	--

## 1000# CS P-T Rating (Graph 7)



## 1000# SS P-T Rating (Graph 8)

