72-100 Series

Carbon Steel High Pressure Ball Valve

Threaded, 3000 psig WOG, Cold Non-Shock Body rating. (See referenced P/T chart)
150 psig Saturated Steam.
Vacuum Service to 29 inches Hg.
Federal Specification: WW-V-35C, Type: II, Composition: CS, Style: 3.
MSS SP-110; Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends.

FEATURES

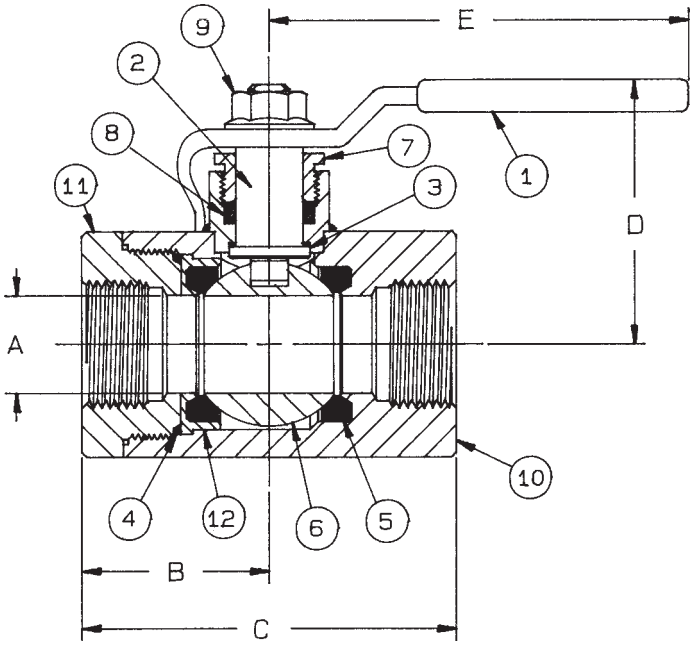
- Barstock design
- Reinforced seats
- Fire safe design when ordered with graphite packing
- Zinc phosphate corrosion protection
- Adjustable packing gland
- Full port, except 2"
- Blow-out-proof stem design
- Heavy duty lever

STANDARD MATERIAL LIST

1. Lever and grip	Steel, zinc plated w/vinyl	7. Gland nut	A108-CS
2. Stem	A108-CS chrome plated	8. Stem packing	MPTFE
3. Stem bearing	RPTFE	9. Lever nut	Steel, zinc plated
4. Retainer seal	RPTFE	10. Body	A108-CS
5. Seat (2)	RPTFE	11. Retainer	A108-CS
6. Ball	A108-CS chrome plated	12. Seat holder	A108-CS

VARIATIONS AVAILABLE:

72-140 Series (316 SS Ball & Stem)



CARBON STEEL HIGH PRESSURE BALL VALVE

NUMBER	SIZE	A	B	C	D	E	Wt.
72-103-01	1/2"	.62	1.46	2.87	2.50	5.62	1.98
72-104-01	3/4"	.81	1.87	3.80	2.62	5.62	3.09
72-105-01	1"	1.00	2.12	4.15	3.12	6.62	4.87
72-106-01	1-1/4"	1.25	2.32	4.65	3.43	8.00	7.67
72-107-01	1-1/2"	1.50	2.64	5.23	3.56	8.00	10.50
72-108-01	2"	1.75	3.00	5.84	4.18	9.00	15.26

OPTIONS AVAILABLE:

(SUFFIX)	OPTION	SIZES
-02-	Stem Grounded	1/2" to 2"
-04-	2-1/4" CS Stem Extension	1" to 1-1/2"
-07-	Steel Tee Handle	1/2" to 1-1/2"
-08-	90° Reversed Stem	1/2" to 2"
-10-	SS Lever & Nut	1/2" to 1-1/2"
-14-	Side Vented Ball (Uni-Directional)	1/2" to 2"
-15-	Wheel Handle, Steel	1/2" to 1"
-19-	Lock Plate	1/2" to 2"
-21-	UHMWPE Trim (Non-PTFE)	1/2" to 2"
-24-	Graphite Packing	1/2" to 2"
-45-	Less Lever & Nut	1/2" to 2"
-56-	Multifill Seats & Packing	1/2" to 2"
-60-	Static Grounded Ball & Stem	1/2" to 2"
-64-	250# Steam Trim	1/2" to 2"
-78-	Delrin Seats, Graphite Packing	1/2" to 2"
-79-	Nylon Seats, Graphite Packing	1/2" to 2"

For Pressure/Temperature Ratings, Refer to Page M-13, Graph No. 15

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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

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

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

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

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_2 = 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
Ball Valves															
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	--	--	--	--	--	--

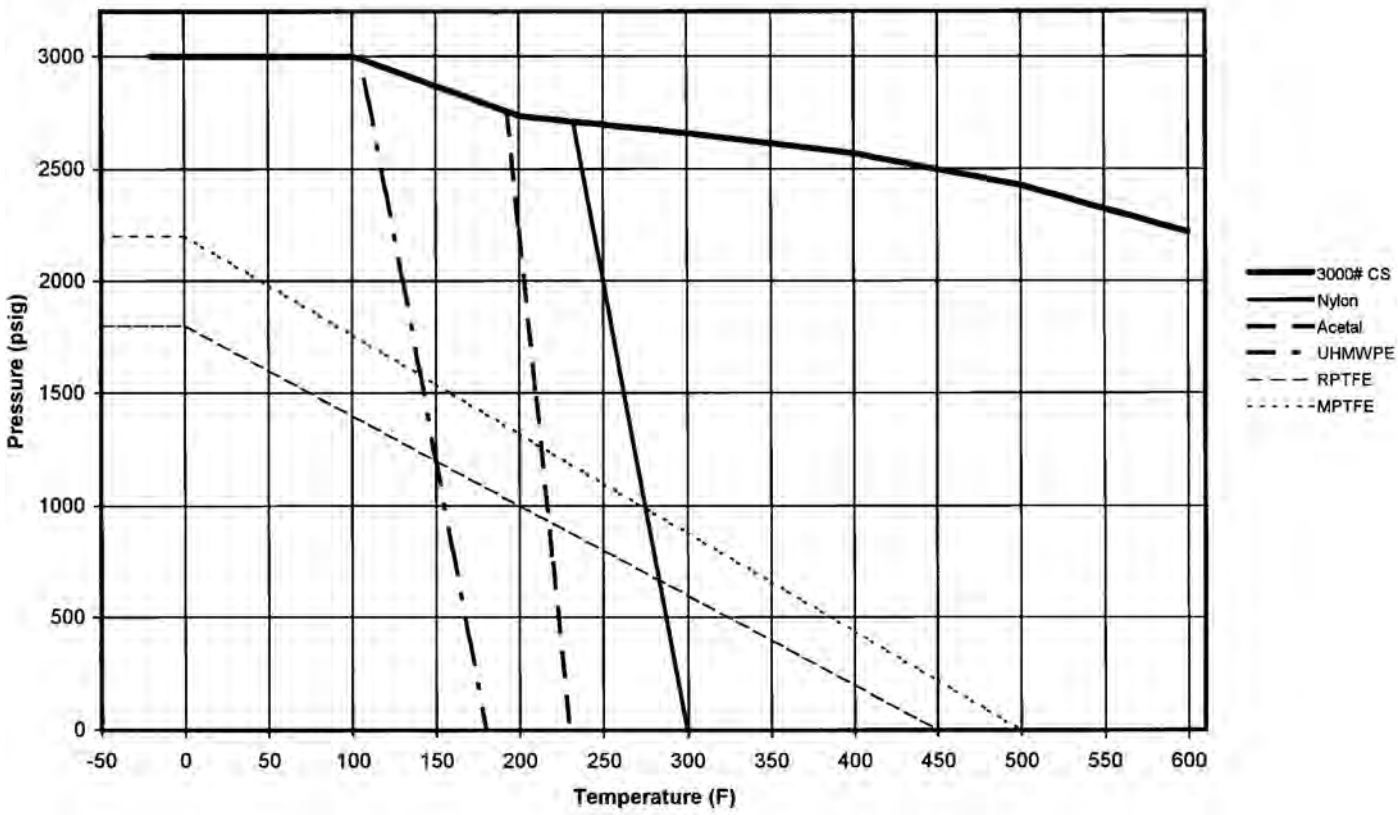
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Cv FACTORS FOR APOLLO VALVES

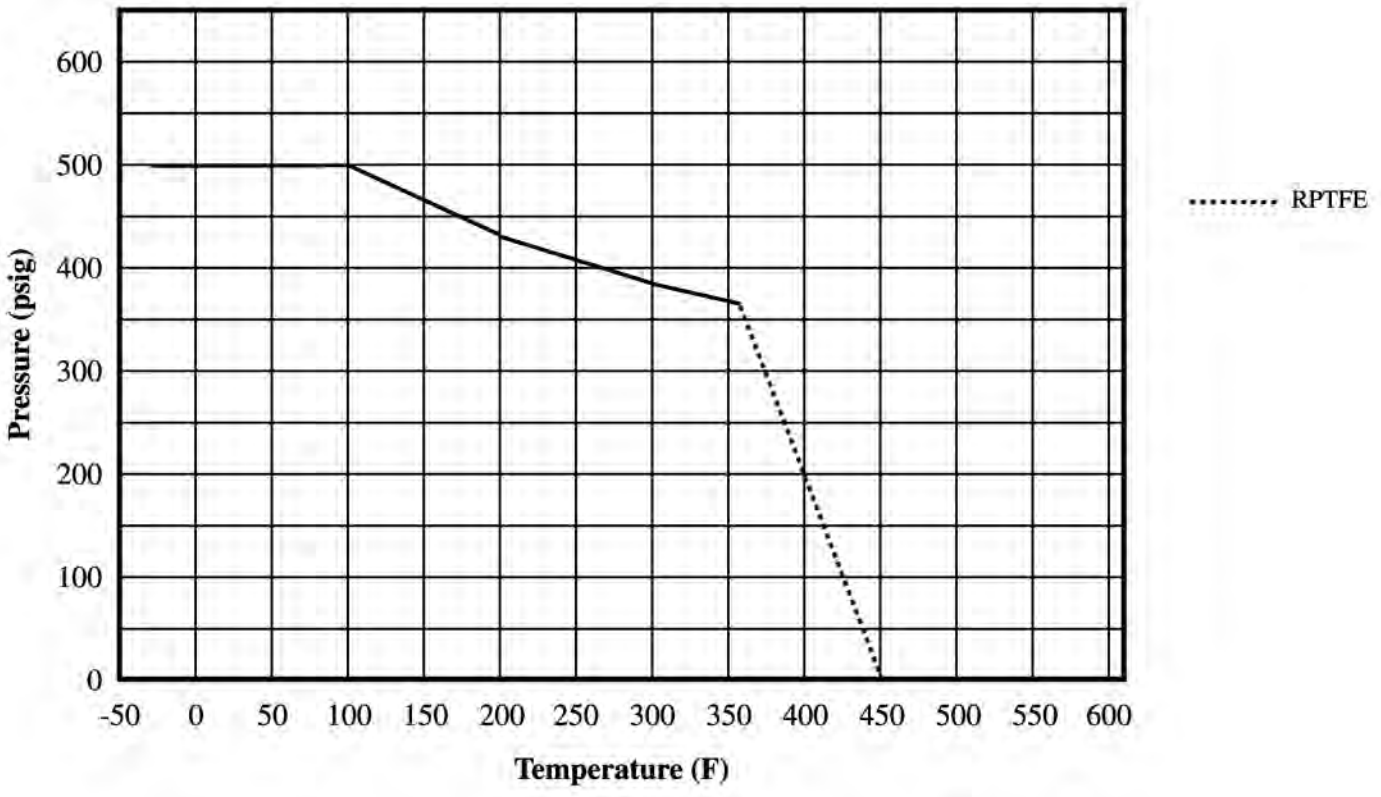
Valve Size (inches)	1/4	3/8	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4	6	8	10	12
Ball Valves															
79 Series	8.5	8.5	9.8	32	44	66	148	218	440	390	--	--	--	--	--
80/81 Series	8.4	7.2	15	30	43	48	84	108	190	370	--	--	--	--	--
82-100/200 Series	8.1	14	26	51	68	120	170	376	510	996	1893	--	--	--	--
83A/83B 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	--	--	--	--	--	--	--	--	--	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	--	--	--	--	--

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3000# CS P-T Rating
(Graph 15)



Refrigeration Valve P-T Rating
(Graph 16)



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