



Female NPT Thread  
 Vacuum Service to 29 inches Hg.  
 MSS SP-110 Compliant.  
 CRN: OC10908.5C

82-100 & 82-140: 600 CWP (psig), 150 SWP\* (psig)  
 82A-140: 400 CWP (psig), 150 SWP\* (psig)

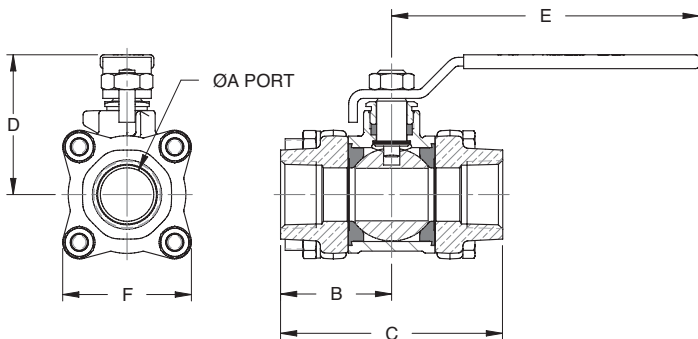
\* Recommend utilizing SS ball & stem in 150 SWP applications.

### FEATURES

- Adjustable packing gland
- Blowout-proof stem design
- Reinforced seats
- Inline repairable
- Full port ball configuration, all sizes

### VARIATIONS AVAILABLE

- 82-100 Series Standard
- 82-140 Series 316 SS Ball & Stem
- 82A-140 Series 3" & 4" Only (316 SS Ball & Stem/Adj. Length Locking Handle)



### STANDARD MATERIAL LIST

	PART	MATERIAL
1	Lever and grip	Steel, zinc plated w/vinyl
2	Stem packing	MPTFE (Chevron style PTFE 82A 3" & 4")
3	Stem bearing	RPTFE
4	Ball	ASTM B16 Brass, chrome plated (1/4"-2.5") ASTM 276-316 SS (3"-4")
5	Seat (2)	RPTFE
6	End cap (2)	B16 Brass (1/4" to 3/8"), B584-C84400 (1/2"-4")
7	Gland nut	B16 Brass
8	Stem	ASTM B16 Brass, ASTM 276-316 SS (1/2"-4")
9	Lever nut	Steel, zinc plated
10	Body bolt	Steel, zinc plated
11	Hex nut	Steel, zinc plated
12	Body	ASTM B584-C84400 (Bronze)

### DIMENSIONS

PRODUCT NO.	SIZE	A	B	C	D	E	F	WT.
82-101-01	1/4"	0.43	1.28	2.56	1.81	3.87	1.60	1.02
82-102-01	3/8"	0.50	1.28	2.56	1.81	3.87	1.60	1.04
82-103-01	1/2"	0.62	1.40	2.81	1.93	4.87	1.78	1.55
82-104-01	3/4"	0.81	1.71	3.43	2.18	4.87	1.98	2.27
82-105-01	1"	1.00	1.93	3.87	2.62	5.50	2.22	3.28
82-106-01	1.25"	1.25	2.37	4.75	2.87	5.50	2.70	5.62
82-107-01	1.5"	1.50	2.62	5.25	3.37	8.00	3.03	8.07
82-108-01	2"	2.00	3.01	6.03	3.68	8.00	3.87	14.42
82-109-01	2.5"	2.50	3.62	7.25	5.14	9.75	5.05	26.61
82A-140-01	3"	3.00	4.18	8.37	8.10	19.13	5.82	43.00
82A-14A-01	4"	4.00	5.43	10.86	8.88	19.13	7.77	106.00

### OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION	SIZES
-01	Standard Configuration	All
-P -01-	BSPP (Parallel) Thread Connection	1/4" to 4"
-T -01-	BSPT (Tapered) Thread Connection	1/4" to 4"
-02-	Static Grounded	1/4" to 4"
-04-	2.25" Stem Extension (Carbon Steel, Zinc Plated)	1/4" to 2"
-05-	Plain Ball	1/4" to 4"
-07-	Tee Handle	1/4" to 2"
-08-	90° Reversed Stem	1/4" to 4"
-10-	SS Lever & Nut	1/4" to 4"
-11-	Therma-Seal™ Insulating Tee Handle	1/4" to 2"
-14-	Vented Ball	1/4" to 4"
-15-	Round Handle	1/4" to 2"
-16-	Vertical Chain Lever	1/2" to 2"
-18-	Plain Yellow Grip	1/4" to 2"
-19-	Lock plate	1/4" to 2"
-20-	Slot Vented Ball	1/4" to 4"
-21-	UHMWPE Seats	1/4" to 4"
-23-	Tank Flange (2" only)	2" ONLY
-24-	Graphite Packing	1/4" to 4"
-27-	Latch Lock Lever	1/2" to 2.5"
-30-	CamLock Handle	1/4" to 1.25"
-32-	SS Tee Handle & Nut	1/4" to 2"
-35-	PTFE Trim	1/4" to 4"
-39-	SS Hi-Rise Locking Wheel Handle, SS Nut	1/4" to 1.25"
-40-	Cyl-Loc & Grounded	1/4" to 1/2"
-45-	Less Lever & Nut	1/4" to 4"
-46-	Latch-Lock Lever - Lock in Closed Position Only	1/2" to 2"
-47-	SS Oval Latch-Lock Handle & Nut	1/2" to 3/4"
-48-	SS Oval Handle (No Latch) & Nut	1/4" to 2"
-49-	No Lubrication. Assembled Dry.	1/4" to 4"
-50-	2.25" CS Locking Stem Extension	1/4" to 2"
-56-	Multifill Seats	1/4" - 4"
-57-	Oxygen Cleaned	1/4" to 4"
-58-	Chain Lever - Horizontal	1/2" to 2"
-59-	SS External Trim	1/4" to 4"
-60-	Grounded Ball & Stem	1/4" to 4"
-63-	NPT x Solder	3/8" to 4"
-92-	Balancing Stop	1/4" to 2"

Pressure/Temperature Ratings - Page M-10, Graph No. 4

The listed  $C_v$  "factors" are derived from actual flow testing, at Apollo's Pageland, South Carolina factory. 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  $C_v$  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
- $C_v$  = 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)
- $C_v$  = Valve constant

**CAUTION:** The gas equation shown, is valid at very low pressure drop ratios. The gas equation is NOT valid when the ratio of pressure drop (ΔP) to inlet pressure (P1) exceeds 0.02.

**NOTE:** Only use the gas equation shown if (P1-P2)/P1 is less than 0.02.

**CV FACTORS FOR APOLLO® VALVES (CONTINUED ON M-4)**

VALVE	SIZE (IN.)														
	1/4	3/8	1/2	3/4	1	1.25	1.5	2	2.5	3	4	6	8	10	12
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	--	--	--	--	--	--	--	--
71-AR 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	--	--	--	--	--	--	--
72-1xx-A/72-9xx-A Series	--	--	26	48	65	125	170	245	--	--	--	--	--	--	--
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	--	--	--	--
76-AR 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	--	--	--	--	--	--	--
76FJ-100 Series	8.1	15	15	51	68	125	177	389	--	--	--	--	--	--	--
76FK-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	--	--	--	--	--	--	--
76J-100 Series	8.4	7.2	15	30	43	48	84	108	190	370	--	--	--	--	--
76J-AR Series	8.4	7.2	15	30	43	48	84	108	190	370	670	--	--	--	--
76K-100 Series	8.4	7.2	15	30	43	48	84	108	190	370	--	--	--	--	--
76K-AR Series	8.4	7.2	15	30	43	48	84	108	190	370	670	--	--	--	--
7K-100 Series	--	--	15	51	68	125	177	389	503	--	--	--	--	--	--
77-AR Series	8.1	15	15	51	68	--	177	389	--	--	--	--	--	--	--

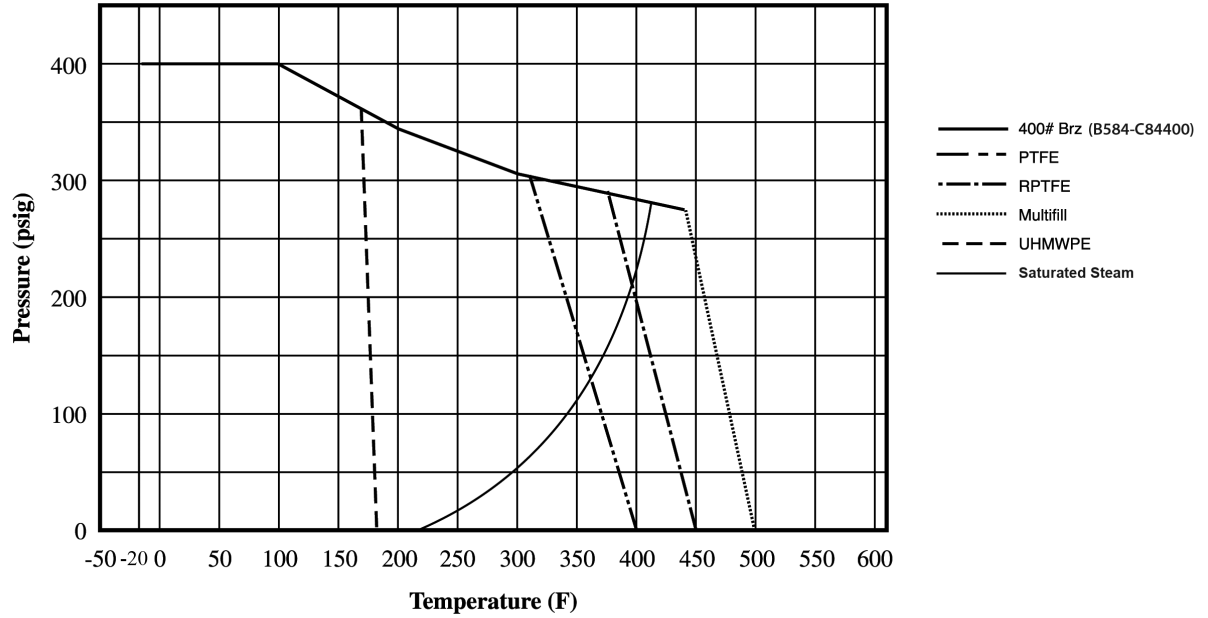
**CV FACTORS FOR APOLLO® VALVES (CONTINUED FROM M-3)**

VALVE	SIZE (IN.)														
	1/4	3/8	1/2	3/4	1	1.25	1.5	2	2.5	3	4	6	8	10	12
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	--	--	--	--	--	--	--
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	--	--	--	--	--
80 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
87A-F00 Series	--	--	--	--	75	--	195	410	545	1021	2016	4837	--	--	--
87B-100 Series	--	--	--	--	--	--	--	--	--	375	673	1099	1902	3890	--
87J-100 Series	--	--	--	--	--	--	86	104	234	375	673	1099	1902	3890	--
87J-200 Series	--	--	15	19	75	--	195	410	545	1021	2016	4837	9250	15170	22390
87J-700 Series	--	--	--	--	--	--	86	104	234	375	673	1099	1902	3890	--
87J-900 Series	--	--	15	19	75	--	195	410	545	1021	2016	4837	9250	15170	22390
87K-100 Series	--	--	--	--	--	--	86	104	234	375	673	1099	1902	3890	--
87K-200 Series	--	--	15	19	75	--	195	410	545	1021	2016	4837	9250	15170	22390
87K-700 Series	--	--	--	--	--	--	86	104	234	375	673	1099	1902	3890	--
87K-900 Series	--	--	15	19	75	--	195	410	545	1021	2016	4837	9250	15170	22390
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
88A-F00 Series	--	--	--	--	75	--	195	410	545	1021	2016	4837	--	--	--
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	--	--	--	--	--	--	--
90-100 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	--	--	--	--
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 CWP**

**BRONZE ASTM B584-C84400**

**GRAPH 3**



**600 CWP**

**BRONZE ASTM B584-C89836**

**GRAPH 4**

