



## FORGED HIGH-PRESSURE VALVES

Technical Data	
Sizes	1/4 - 4"
Pressure Classes	ASME / ANSI Class 900 - 4500
Temperature Range	-50 up 1500°F (-45 up 815°C)
Materials of Construction	Carbon steel (A105) - standard Alloy steel (F22, F91) - standard Stainless steel (316H) - standard Other materials available upon request
In Compliance	ASME B16.34 PED Nuclear ASME III Class 1, 2 and 3 Nuclear Safety Related - 10CFR50 Appendix B SIL
End Connections	Socketweld, buttweld, NPT - standard Others available upon request
Warranty	Four year zero-leakage guarantee*

## CV'S

Valve Nominal Size	Pipe ID	Transition Angle	Bore	Cv Based on Pipe ID	Max Cv of Valve
1/4"	Sch 80 0.302	0°	0.38	5.2	15
3/8"	Sch 80 0.423	7.5°	0.38	12.9	15
1/2"	Sch 160 0.466	10°	0.38	8.5	15
3/4"	Sch XXS 0.434	10°	0.38	9.9	15
1" 2500#	Sch XXS 0.599	0°	0.63	44	44
1" 4500#	Sch XXS 0.599	10°	0.38	7.5	15
1-1/4"	Sch XXS 0.896	15°	0.63	31	44
1-1/2"	Sch XXS 1.100	15°	0.63	22	44
2" 2500#	Sch XXS 1.503	7.5°	1.06	80	136
2" 4500#	1.1	5°	0.63	19	44
2-1/2"	Sch XXS 1.771	12.5°	1.06	58	136
3" 2500#	Sch XXS 2.300	7°	1.5	162	284
4" 2500#	Sch XXS 3.152	15°	1.5	91	284
3" 4500#	1.9	15°	1.06	60	143
4" 4500#	2.61	15°	1.06	43	143

Since the pipe I.D. and corresponding transition from valve I.D. to pipe I.D. has a critical impact on the Cv of the valve, we have devised the above table. This table gives the Cv based on industry standard pipe and also the maximum Cv of the valve only. For Cv with other pipe I.D. or bore size, consult factory. Cv values are approximate, contact factory for exact Cv values.

## PRESSURE / TEMPERATURE RATINGS

A182-F22 (2 1/4 Cr - 1 mo.)*** (Temperature F°)																		
ANSI Rating	-20 to 100	200	300	400	500	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
900	2250	2250	2185	2115	1995	1815	1765	1705	1595	1525	1460	1350	1160	800	525	330	205	125
1500	3750	3750	3640	3530	3325	3025	2940	2840	2660	2540	2435	2245	1930	1335	875	550	345	205
2500	6250	6250	6070	5880	5540	5040	4905	4730	4430	4230	4060	3745	3220	2230	1455	915	570	345
3100	7750	7750	7527	7292	6868	6249	6081	5866	5492	5244	5034	4644	3993	2764	1806	1134	708	426
3500	8750	8750	8498	8233	7753	7055	6865	6623	6200	5920	5683	5243	4508	3120	2040	1280	800	480
4000	10000	10000	9711	9409	8859	8063	7845	7569	7085	6765	6494	5991	5151	3565	2333	1463	915	548
4500	11250	11250	10925	10585	9965	9070	8825	8515	7970	7610	7305	6740	5795	4010	2625	1645	1030	615

A105 (Carbon Steel)** (Temperature F°)														
ANSI Rating	-20 to 100	200	300	400	500	600	650	700	750	800	850	900	950	1000
900	2220	2035	1965	1900	1810	1705	1650	1590	1520	1235	955	690	410	255
1500	3705	3395	3270	3170	3015	2840	2745	2665	2535	2055	1595	1150	685	430
2500	6170	5655	5450	5280	5025	4730	4575	4425	4230	3430	2655	1915	1145	715
3100	7652	7014	6760	6548	6230	5866	5675	5486	5244	4252	3294	2377	1418	886
3500	8640	7920	7633	7393	7033	6623	6408	6193	5920	4800	3720	2685	1600	1000
4000	9875	9053	8724	8449	8036	7569	7324	7076	6765	5485	4253	3070	1828	1143
4500	11110	10185	9815	9505	9040	8515	8240	7960	7610	6170	4785	3455	2055	1285

\*\*\* per ASME/ANSI B16.34 permissible but not recommended for prolonged usage above 1100°F.

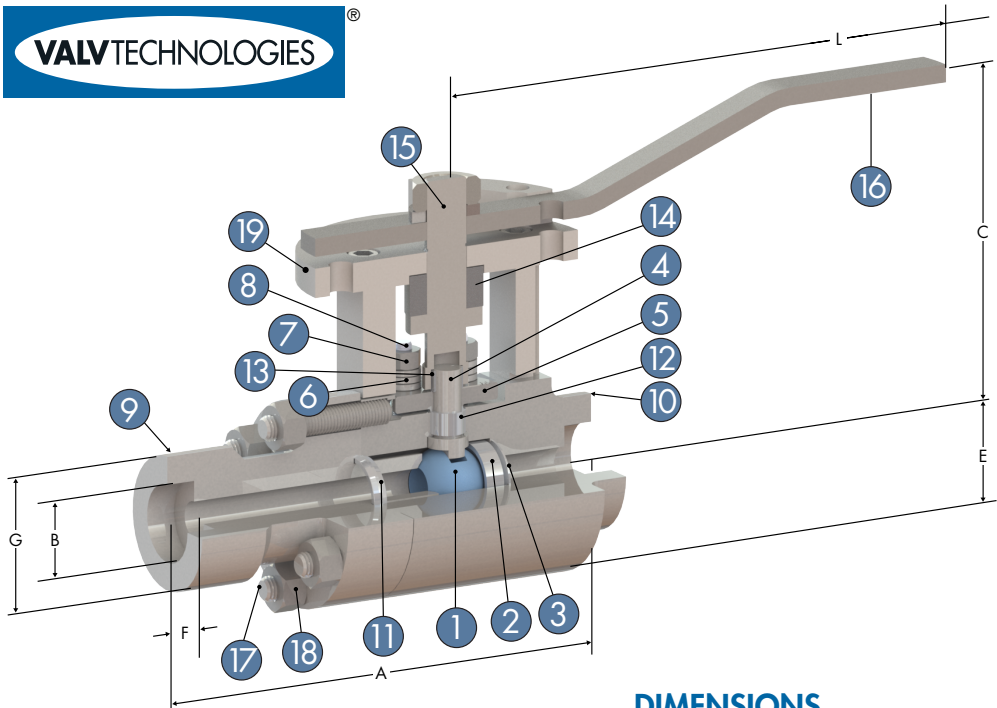
\*\* per ASME/ANSI B16.34 permissible but not recommended for prolonged usage above 800°F.

A182-F316 (316 Stainless Steel) (Temperature F°)																								
ANSI Rating	-20 to 100	200	300	400	500	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
900	2160	1860	1680	1540	1435	1355	1325	1305	1280	1265	1255	1245	1160	1090	1080	915	710	555	440	350	290	225	175	125
1500	3600	3095	2795	2570	2390	2255	2210	2170	2135	2110	2090	2075	1930	1820	1800	1525	1185	925	735	585	480	380	290	205
2500	6000	5160	4660	4280	3980	3760	3680	3620	3560	3520	3480	3460	3220	3030	3000	2545	1970	1545	1230	970	800	630	485	345
3100	7440	6399	5779	5308	4936	4663	4564	4489	4415	4365	4316	4291	3993	3756	3720	3154	2444	1914	1524	1204	992	780	602	428
3500	8400	7225	6525	5993	5573	5265	5153	5068	4985	4928	4873	4845	4508	4240	4200	3560	2760	2160	1720	1360	1120	880	680	483
4000	9600	8258	7458	6849	6369	6018	5889	5791	5698	5631	5569	5538	5151	4845	4800	4068	3155	2468	1965	1555	1280	1005	778	551
4500	10800	9290	8390	7705	7165	6770	6625	6515	6410	6335	6265	6230	5795	5450	5400	4575	3550	2775	2210	1750	1440	1130	875	620

A182-F91 (9Cr. - 1 Mo.) (Temperature F°)																		
ANSI Rating	-20 to 100	200	300	400	500	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
900	2250	2250	2185	2115	1995	1815	1765	1705	1595	1525	1460	1350	1160	1090	1080	905	670	430
1500	3750	3750	3640	3530	3325	3025	2940	2840	2660	2540	2435	2245	1930	1820	1800	1510	1115	720
2500	6250	6250	6070	5880	5540	5040	4905	4730	4430	4230	4060	3745	3220	3030	3000	2515	1855	1200
3100	7750	7750	7527	7292	6868	6249	6081	5866	5492	5244	5034	4644	3993	3756	3720	3118	2302	1488
3500	8750	8750	8498	8233	7753	7055	6865	6623	6200	5920	5683	5243	4508	4240	4200	3520	2600	1680
4000	10000	10000	9711	9409	8859	8063	7845	7569	7085	6765	6494	5991	5151	4845	4800	4023	2973	1920
4500	11250	11250	10925	10585	9965	9070	8825	8515	7970	7610	7305	6740	5795	5450	5400	4525	3345	2160

Standard/interpolated/special/limited class available - consult factory. Working pressures are in accordance with ASME/ANSI B16.34-2017. \*Power applications.

Pressure-temperature rating are in accordance with ASME/ANSI B16.34-2017



**FEATURES**

**Integral metal seat.** Proprietary HVOF RiTech® coating technology ensures the integral seat in ValvTechnologies' valves is resistant to the attack of abrasive magnetite and ferrous oxides.

**Body seal ring.** Field-proven seal ring technology to ensure sealing under all operating conditions up to 1500°F.

**Patented coating process.** With surfaces hardness of 68 - 72 Rc, uninterrupted operation and superior wear resistance is assured even in the most severe conditions.

**Live-loaded gland area.** Featuring a four stud, live-loaded assembly designed for heavy industrial applications. Ensures zero emissions from stem packing in the most severe applications.

**True blow-out proof stem.** Design utilizes a one-piece, hard-faced, blow-out proof stem that is inserted through the inside of the body cavity eliminating the possibility of blow-out through the gland area.

**Absolute zero-leakage.** Every valve tested per ANSI procedures, however, we toughen the standard and define zero-leakage as no detectable leakage of gas or a liquid for a period of three minutes or greater. The ValvTechnologies' standard is zero drops and zero bubbles, guaranteed.

**DIMENSIONS**

V1-1 Butt Weld, Class 900-4500														
NPS	A		C		D		E		G		L		Weight lbs.	
	2500	4500	2500	4500	2500	4500	2500	4500	2500	4500	2500	4500	2500	4500
1/2"	5.5	6.75	4.50	4.50	1.94	2.81	1.19	1.31	0.84	7.1	7.1	7.4	10	
3/4"	5.5	6.75	4.50	4.50	1.94	2.81	1.19	1.31	1.05	7.1	7.1	7.4	10	
1"	8	6.75	5.88	4.50	2.75	2.81	1.75	1.31	1.32	15	7.1	23	10	
1-1/4"	8	9.56	5.88	5.88	2.75	3.25	1.75	2.25	1.66	15	15	22	24	
1-1/2"	8	9.56	5.88	5.88	2.75	3.25	1.75	2.25	1.90	15	15	23	41	
2"	10	9.56	6.68	5.88	3.81	3.25	2.13	2.25	2.38	15	15	32	40	
2-1/2"	10	11.13	6.68	6.68	3.81	3.81	2.13	3	2.88	15	16.4	34	53	
3"	11.5	11.13	N/A	6.68	4.12	3.81	3.37	3	3.50	N/A	16.4	82	55	
4"	11.5	11.13	N/A	6.68	4.12	3.81	3.37	3	4.50	N/A	16.4	85	56	

V1-1 Socket Weld, Class 900-4500																
NPS	A		B	C		D		E		F	G		L		Weight lbs.	
	2500	4500	2500/4500	2500	4500	2500	4500	2500	4500	2500/4500	2500	4500	2500	4500	2500	4500
1/4"	5.5		0.55	4.50		1.94		1.19		0.38	1.50		7.1		7.4	
3/8"	5.5	6.75	0.69	4.50	4.50	1.94	2.81	1.19	1.31	0.38	1.87	1.80	7.1	7.1	7.4	10
1/2"	5.5	6.75	0.85	4.50	4.50	1.94	2.81	1.19	1.31	0.50	1.87	1.80	7.1	7.1	7.4	10
3/4"	5.5	6.75	1.06	4.50	4.50	1.94	2.81	1.19	1.31	0.50	1.87	2.10	7.1	7.1	7.4	10
1"	8	6.75	1.33	5.88	4.50	2.75	3.25	1.75	1.31	0.50	2.30	2.62	15	7.1	23	10
1-1/4"	8	9.56	1.67	5.88	5.88	2.75	3.25	1.75	2.25	0.50	3.50	3.62	15	15	22	24
1-1/2"	8	9.56	1.91	5.88	5.88	2.75	3.25	1.75	2.25	0.50	3.16	4.50	15	15	23	41
2"	10	9.56	2.41	6.68	5.88	3.81	3.25	2.13	2.25	0.63	3.88	4.50	15	15	32	40

All dimensional data is approximate, contact factory for certified dimensions

**BILL OF MATERIALS**

Item	Description	Material				Qty
		F22 (2 1/4 Cr-1 Mo.) Alloy Steel	A105 CARBON Steel Body Trim	316 STAINLESS Steel Body Trim	F91 (8.75 -0.95Cr-0.22V) Alloy Steel	
1	Ball***	A182 Gr. F6a/HVOF RiTech® 31	A182 Gr. F6a/HVOF RiTech® 31	A182 Gr. F6a/HVOF RiTech® 31	SB-637 N07718	1*
2	Upstream seat	SA-182 Gr. F22 Cl 3/H.F.	SA-182 Gr. F22 Cl 3/H.F.	SA-182 Gr. F316/H.F.	SA-182 Gr. F22 Cl 3/H.F.	1*
3	Belleville® spring	SB-637 N07718	SB-637 N07718	SB-637 N07718	SB-637 N07718	1*
4	Stem	A638 Gr. 660/H.F	A638 Gr. 660/H.F	A638 Gr. 660 /H.F	A638 Gr. 660 /H.F	1
5	Gland	SA-182 Gr. F316/H.F	SA-182 Gr. F316/H.F	SA-182 Gr. F316/H.F	SA-182 Gr. F316/H.F	1
6	Gland load spring	AISI Gr. 302	AISI Gr. 302	AISI Gr. 302	AISI Gr. 302	24
7	Gland nut	SA-194 Gr. 8M	SA-194 Gr. 8M	SA-194 Gr. 8M	SA-194 Gr. 8M	4
8	Gland stud	SA-193 Gr. B8M	SA-193 Gr. B8M	SA-193 Gr. B8M	SA-193 Gr. B8M	4
9	End cap/integral seat	SA-182 F22/HVOF RiTech® 31	SA-105/HVOF RiTech® 31	SA-A182 Gr. F316H/HVOF RiTech® 31	SA-182 F91/HVOF RiTech® 31	1*
10	Body	SA-182 F22	SA-105	SA-A182 Gr. F316H	SA-182 F91/HVOF RiTech® 31	1
11	Body seal	SA-564 Type 630 H1150D/PT24	SA-564 Type 630 H1150D/PT24	SA-564 TY pe 630 H1150D/PT24	SB-637 N07718	1*
12	Gland packing	ANSI 316/Grafoil®	ANSI 316/Grafoil®	ANSI 316/Grafoil®	ANSI 316/Grafoil®	1*
13	Key	SA-29 Gr. 1018	SA-29 Gr. 1018	SA-29 Gr. 1018	SA-29 Gr. 1018	2
14	Thrust bearing	A29-1020/H.F.	A29-1020/H.F.	A29-1020/H.F.	A29-1020/H.F.	1
15	Drive sleeve	SA-29 Gr. 4130	SA-29 Gr. 4130	SA-29 Gr. 4130	SA-29 Gr. 4130	1
16	Handle	Steel	Steel	Steel	Steel	1
17	Body stud	SA-193 Gr. B8M	SA-193 Gr. B8M	SA-193 Gr. B8M	SA-193 Gr. B8M	8**
18	Body nut	SA-194 Gr. 8M	SA-194 Gr. 8M	SA-194 Gr. 8M	SA-194 Gr. 8M	8**
19	Stop plate	SA-216 Grade WCB	SA-216 Grade WCB	SA-29 Gr.1020/QPQ	SA-216 Grade WCB	1

\* Recommended spare parts

\*\*Quantity is 6 for 1/2" through 1 1/2"

\*\*\*Ball material is Inconel 718 for class 3500# and 4500#