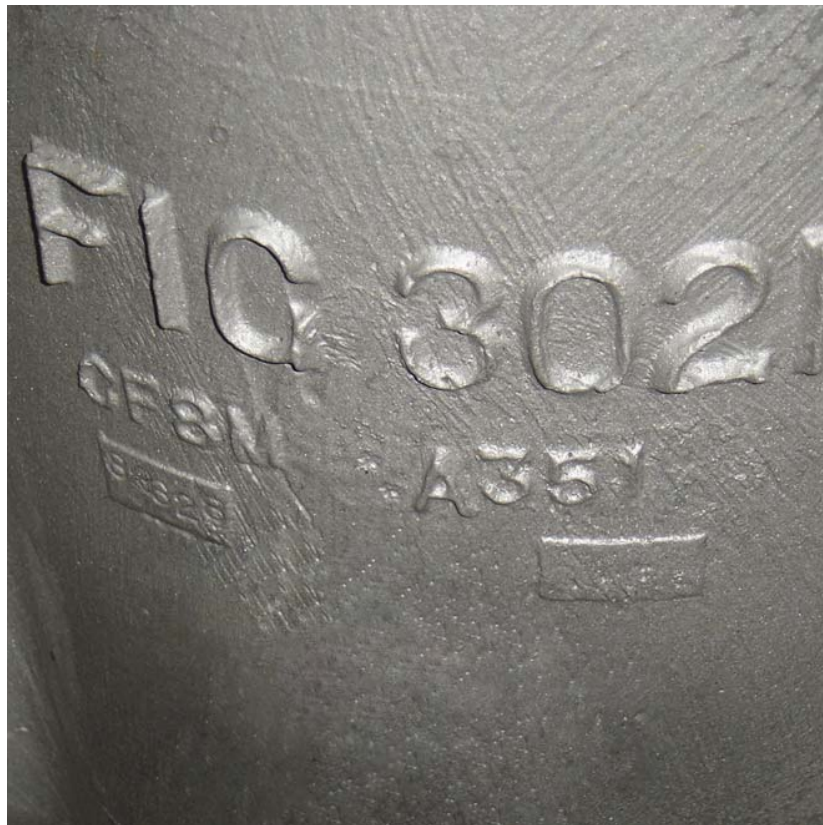


FluoroSeal Specialty Valves



ENGINEERING & TECHNICAL DATA

ENGINEERED SOLUTIONS DIVISION (ESD)

Our Engineered Solutions Division (ESD) is staffed with highly skilled engineers, technicians and draftsmen specialized in modifying existing designs to meet your specific needs.

OUR ENGINEERING COMMITMENT

We will assist you in making the most appropriate selection of alloys and polymers to suit your application.

We will provide you with CV factors and other necessary flow calculations, therefore making your decision process as easy as possible.

We will work together with you to develop the best valve possible, no matter your industry sector:



CHEMICAL



PULP & PAPER



MINING



POWER GENERATION



OIL & GAS

QUALITY ASSURANCE



ISO 9001:2000 Certificate

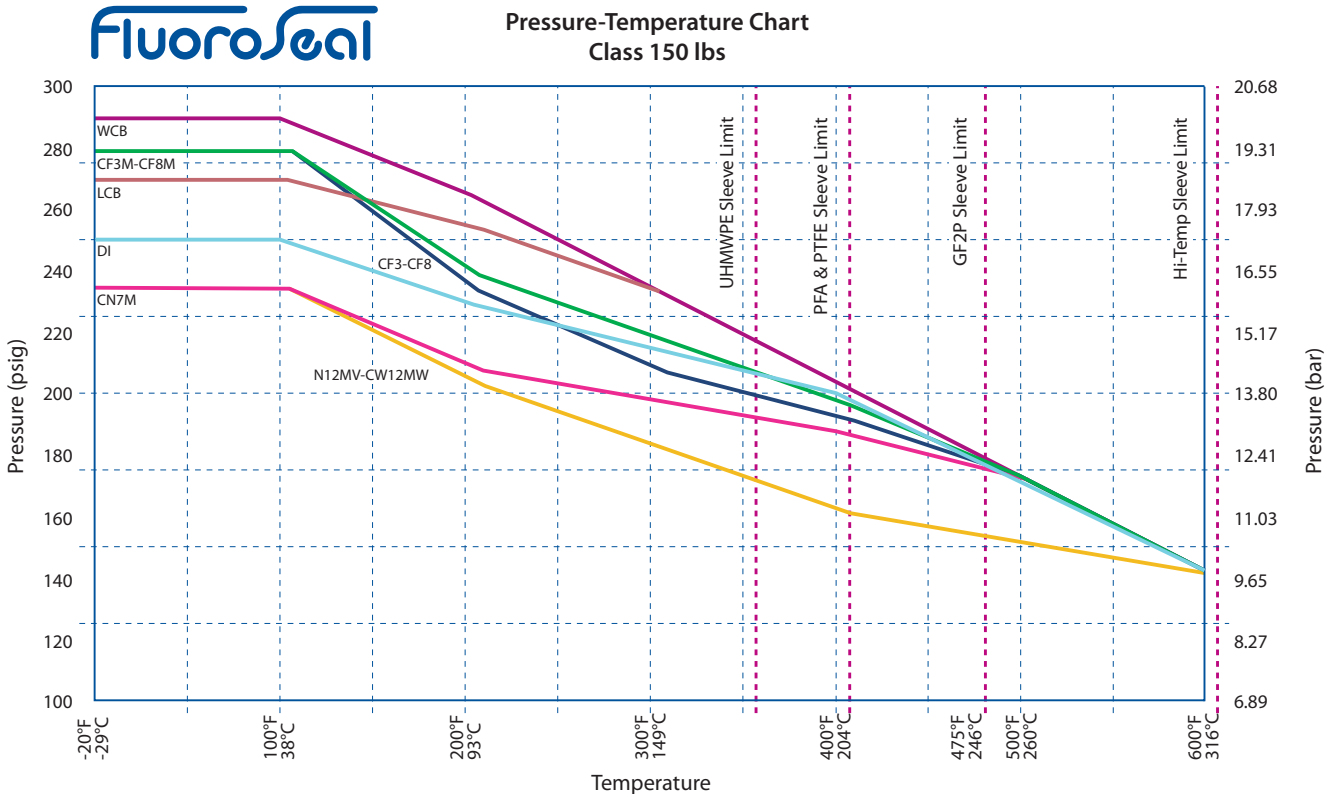
FluoroSeal® Plug Valves possess all of the best design features presently available in a non-lubricated valve. They are inspected throughout the full manufacturing process from foundry to final assembly and packaging to assure high quality and consistency in every unit.

All valves are pressure tested prior to shipment and fully compliant to ANSI B16.34 shell tests and MSS SP-61 seat test requirements. All nickel alloys are helium tested as standard.

TESTING

- All our valves are tested with dry air to 1.5 times the full rated pressure of Class 150 as per ANSI B16.34 paragraph 7.1
- All our valves in Classes 150, 300 and 600 lbs are tested in full compliance with ANSI B16.34 paragraph 7.2
- Our Fire Seal Valves are tested to API 607 Fourth Edition

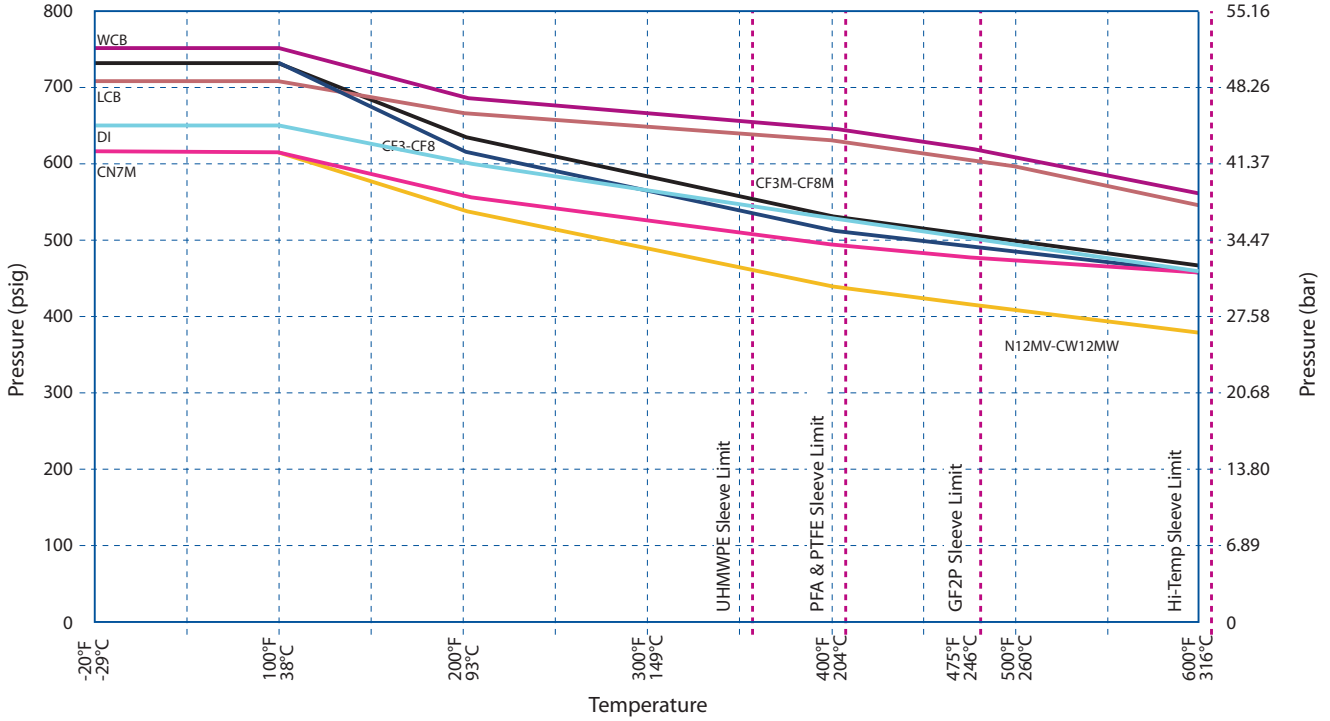
MATERIAL PROPERTIES



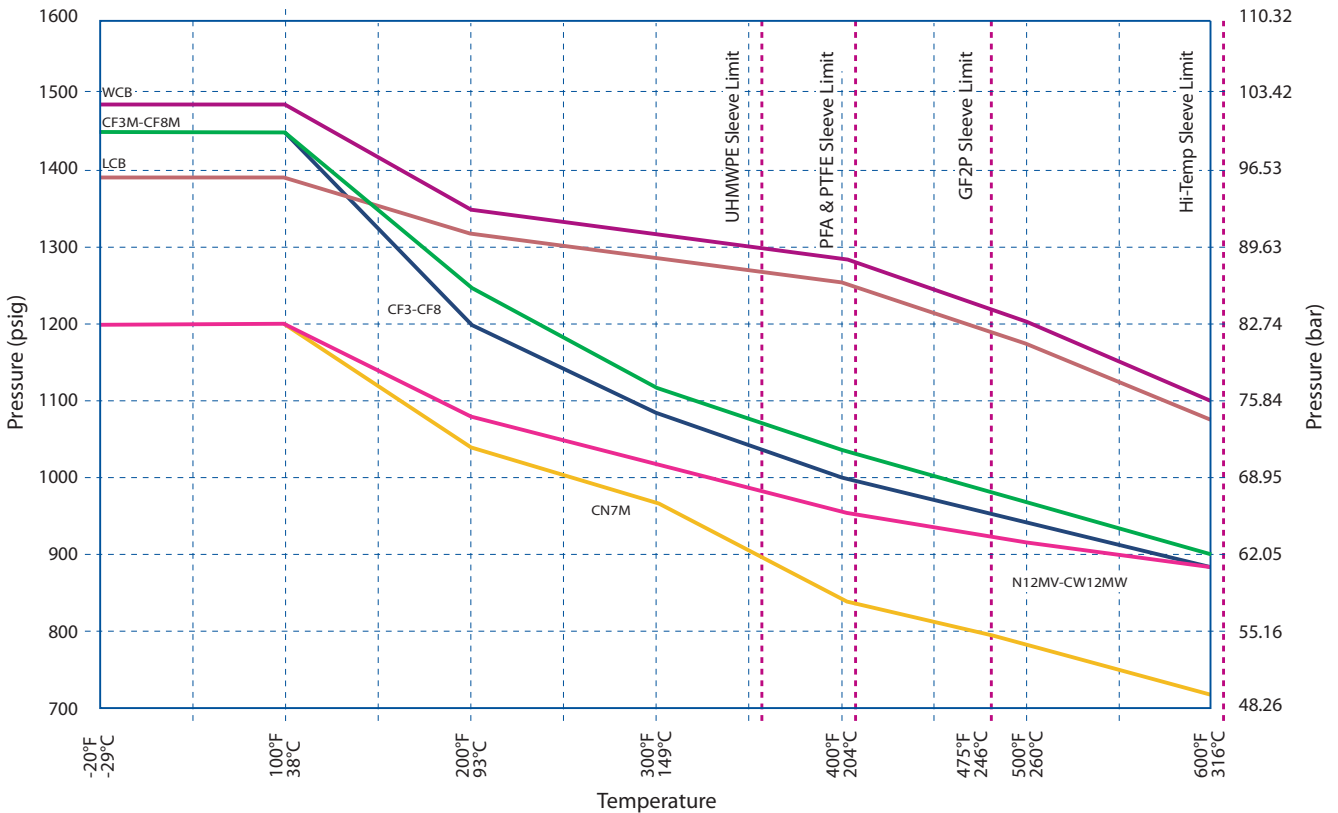
PLUG-ANSI-R001-2007



Pressure-Temperature Chart
Class 300 lbs



Pressure-Temperature Chart
Class 600 lbs



PLUG-ANSI-R001-2007

CV VALUES — 2-WAY PLUG VALVES

VALVE SIZE	OPEN								
	10°	20°	30°	40°	50°	60°	70°	80°	90°
1/2"	0.00	0.00	0.20	0.40	0.90	1.60	2.70	5.40	9.00
3/4"	0.00	0.00	0.20	0.40	0.90	1.60	2.70	5.40	9.00
1"	0.00	0.00	1.10	1.70	4.30	7.70	13.00	26.00	43.00
1 1/2"	0.00	0.20	2.70	6.70	12.50	25.00	37.00	58.00	89.00
2"	0.00	1.90	6.90	12.00	21.00	34.00	55.00	101.00	172.00
3"	0.00	5.00	8.80	21.00	44.00	60.00	103.00	182.00	294.00
4"	0.00	9.80	30.00	56.00	99.00	145.00	208.00	345.00	548.00
6"	0.00	13.00	45.00	90.00	140.00	245.00	380.00	634.00	1075.00
8"	0.00	19.00	51.00	103.00	183.00	317.00	541.00	939.00	1591.00
10"	0.00	23.00	69.00	140.00	248.00	430.00	734.00	1274.00	2159.00
12"	0.00	27.00	102.00	208.00	368.00	637.00	1088.00	1888.00	3200.00

CV VALUES — MULTI-PORT PLUG VALVES

VALVE SIZE	FA	FA4	FA4
	1, 2, 3, 5	Positions A & C	Position B
1/2"	9.00	6.00	6.00
3/4"	9.00	6.00	6.00
1"	20.00	11.00	17.00
1 1/2"	36.00	19.00	33.00
2"	68.00	37.00	43.00
3"	88.00	47.00	78.00
4"	154.00	86.00	139.00
6"	315.00	189.00	227.00
8"	425.00	324.00	408.00
10"	645.00	452.00	753.00
12"			
14"			

CV VALUES — CAGED CONTROL PLUG VALVES

VALVE SIZE	OPEN								
	10°	20°	30°	40°	50°	60°	70°	80°	90°
1"	0.00	0.00	1.70	3.40	6.30	10.00	18.00	32.00	40.90
1 1/2"	0.00	0.80	3.60	7.20	12.50	20.60	34.00	55.00	80.30
2"	0.00	1.70	5.50	11.10	25.00	30.00	52.00	90.00	138.00
3"	0.00	4.50	9.40	21.00	35.00	54.00	103.00	162.00	235.00
4"	0.00	9.80	30.00	55.00	82.00	138.00	193.00	336.00	439.00
6"	0.00	12.90	45.00	86.00	138.00	232.00	378.00	593.00	860.00
8"									
10"									
12"									

PLUG-ANSI-R001-2007

CV VALUES — STANDARD V-PORT PLUG VALVES

VALVE SIZE	PIPE SIZE	OPEN									
		10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
1"	2"	0.31	1.15	2.47	4.27	6.51	9.20	12.31	15.68	19.82	24.20
	1 1/2"	0.35	1.29	2.78	4.80	7.32	10.34	13.84	17.83	22.28	27.20
1 1/2"	1"	0.38	1.42	3.06	5.27	8.04	11.36	15.22	19.59	24.49	29.90
	3"	0.38	1.39	3.01	5.18	7.91	11.17	14.96	19.27	24.08	29.40
	2"	0.39	1.45	3.13	5.39	8.23	11.63	15.57	20.05	25.07	30.60
2"	1 1/2"	0.40	1.48	3.20	5.52	8.42	11.89	15.93	20.51	25.64	31.30
	4"	0.64	2.37	5.11	8.81	13.45	19.00	25.44	32.77	40.96	50.00
3"	3"	0.67	2.48	5.34	9.20	14.04	19.84	26.56	34.21	42.76	52.20
	2"	0.69	2.55	5.50	9.48	14.47	20.44	27.38	35.26	44.07	53.80
3"	6"	1.43	5.31	11.45	19.75	30.13	42.56	57.59	73.40	91.74	112.01
	4"	1.51	5.60	12.06	20.80	31.75	44.84	60.09	77.33	95.66	117.01
	3"	1.54	5.74	12.37	21.33	32.55	45.98	61.57	79.30	99.12	121.01
4"	8"	2.23	8.39	18.10	31.21	47.62	67.26	90.07	115.99	144.99	177.01
	6"	2.35	8.73	18.81	32.44	49.50	69.92	93.63	120.58	150.72	184.01
	4"	2.42	9.01	19.42	33.50	51.12	72.20	96.69	124.51	155.64	190.01
6"	10"	4.90	18.21	39.26	67.70	103.31	145.93	195.41	251.65	314.55	384.03
	8"	4.95	18.40	39.67	68.40	104.39	147.45	197.44	254.27	317.82	388.03
	6"	5.10	18.97	40.89	70.52	107.62	152.01	203.55	262.13	327.65	400.03

OPERATING TORQUE — STANDARD AND FULL PORT PLUG VALVES

VALVE SIZE	PORT TYPE	Break Torque		Seating Torque		Running Torque	
		in.lbs	N.m	in.lbs	N.m	in.lbs	N.m
1/2" & 3/4"	Standard	140	15.82	80	9.04	70	7.91
1"	Standard	400	45.19	250	28.25	200	22.60
1 1/2"	Standard	800	90.39	500	56.49	400	45.19
2"	Standard	1100	124.28	650	73.44	550	62.14
	Full	1200	135.58	765	86.43	450	50.84
4"	Standard	6240	705.03	5200	587.52	-	-
	Full	2400	271.16	1450	163.83	1200	135.58
6"	Standard	5000	564.92	3000	338.95	2500	282.46
	Full	48000	5423.27	40000	4519.39	20000	2259.70
8"	Standard	7800	881.28	4700	531.03	3900	440.64
	Full	93600	10575.38	78000	8812.82	50000	5649.24
10"	Standard	14400	1626.98	13500	1525.30	8100	915.18
	Full	110400	12473.52	92000	10394.60	58000	6553.12
12" & 14"	Standard			29100	3287.86	16000	1807.76
16" & 18"	Standard			30000	3389.54	18000	2033.73
20" & 24"	Standard			130000	14688.03	70000	7908.94

Torque Adjustment Factors

1. For UHMWPE and RTFE sleeves, multiply value by 2
2. For slurry or abrasive service, multiply value by 1.5

Note: Torque values are the same for 2-way and multiport valves