

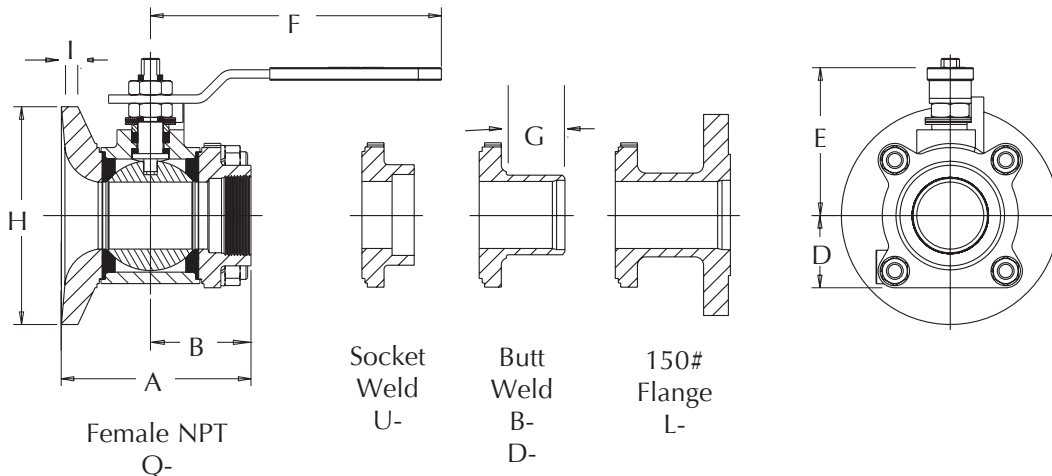
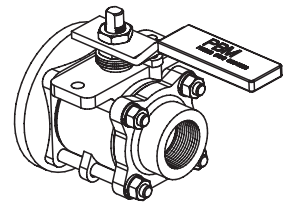
FT, FD Series 5; FT Series 6

Female NPT (Q-), Socket Weld (U-), Butt Weld for Sched. 40 (B-), Butt Weld for Sched. 40 (B-) 150# Flange (L-)

Size	Code	Units	Port Dia. ¹	A			B			D	E	F	G	H	I	Approx. Weight	
				Face to Face			C _l to Face			C _l to Bottom B- D- Q-, U-	C _l to Top of Handle	Handle Length from C _l	Butt Weld Length	Pad Dia.	Pad Thickness *	B-, Q- U-	L-
				Q- U-	B- D-	L-	Q- U-	B- D-	L-								
1/2" DN 15	C	inches	.5	2.83	4.02	4.02	1.56	2.75	2.75	.98	2.63	4.15	1.50	2.75	0.28	2 lbs.	3 lbs.
		mm	13	72	102	102	40	70	70	23	67	105	38	70	7.1	.9 kg.	1.4 kg.
3/4" DN 20	D	inches	.8	3.07	4.10	4.23	1.72	2.75	2.88	1.0	2.78	4.15	1.50	3.00	0.31	2.5 lbs.	4 lbs.
		mm	19	78	104	107	44	70	73	25	71	105	38	70	7.1	1.1 kg.	1.8 kg.
1" DN 25	E	inches	1.0	3.84	4.71	4.96	2.13	3.00	3.25	1.33	3.1	5.09	1.50	3.75	0.32	5 lbs.	7 lbs.
		mm	25	98	120	126	54	76	83	34	78	129	38	95	8.1	2.3 kg.	3.2 kg.
1-1/2" DN 40	G	inches	1.5	5.07	6.07	6.32	2.75	3.75	4.00	1.78	4.41	8.68	1.50	5.50	0.46	13 lbs.	16 lbs.
		mm	38	129	154	161	70	95	102	45	111	221	38	140	11.7	5.9 kg.	7.3 kg.
2" DN 50	H	inches	2.0	5.66	6.66	7.54	3.00	4.00	4.88	2.2	4.7	8.68	1.75	6.50	0.49	19 lbs.	25 lbs.
		mm	51	144	169	192	76	102	124	55	119	221	45	165	12.4	8.6 kg.	11.3 kg.
3" DN 80	K	inches	3.0	8.38	10.63	10.26	4.50	6.75	6.38	3.1	6.78	12.44	2.31	9.00	0.77	57 lbs.	68 lbs.
		mm	76	213	270	261	114	171	162	80	174	315	59	229	19.6	25.9 kg.	30.8 kg.
4" DN 100	L	inches	4.0	10.81	12.81	12.31	6.00	8.00	7.50	4.9	7.34	24.44	2.31	11.50	0.90	120 lbs.	133 lbs.
		mm	102	275	325	313	152	203	191	125	186	611	59	292	22.9	54.4 kg.	60.3 kg.
6" DN 150	M	inches	6.0	—	17.80	16.80	—	11.00	10.00	7.2	Note 2	CF	3.75	17.00	1.23	CF	CF
		mm	154	—	452	427	—	279	254	182	Note 2	CF	95	432	31.2	CF	CF

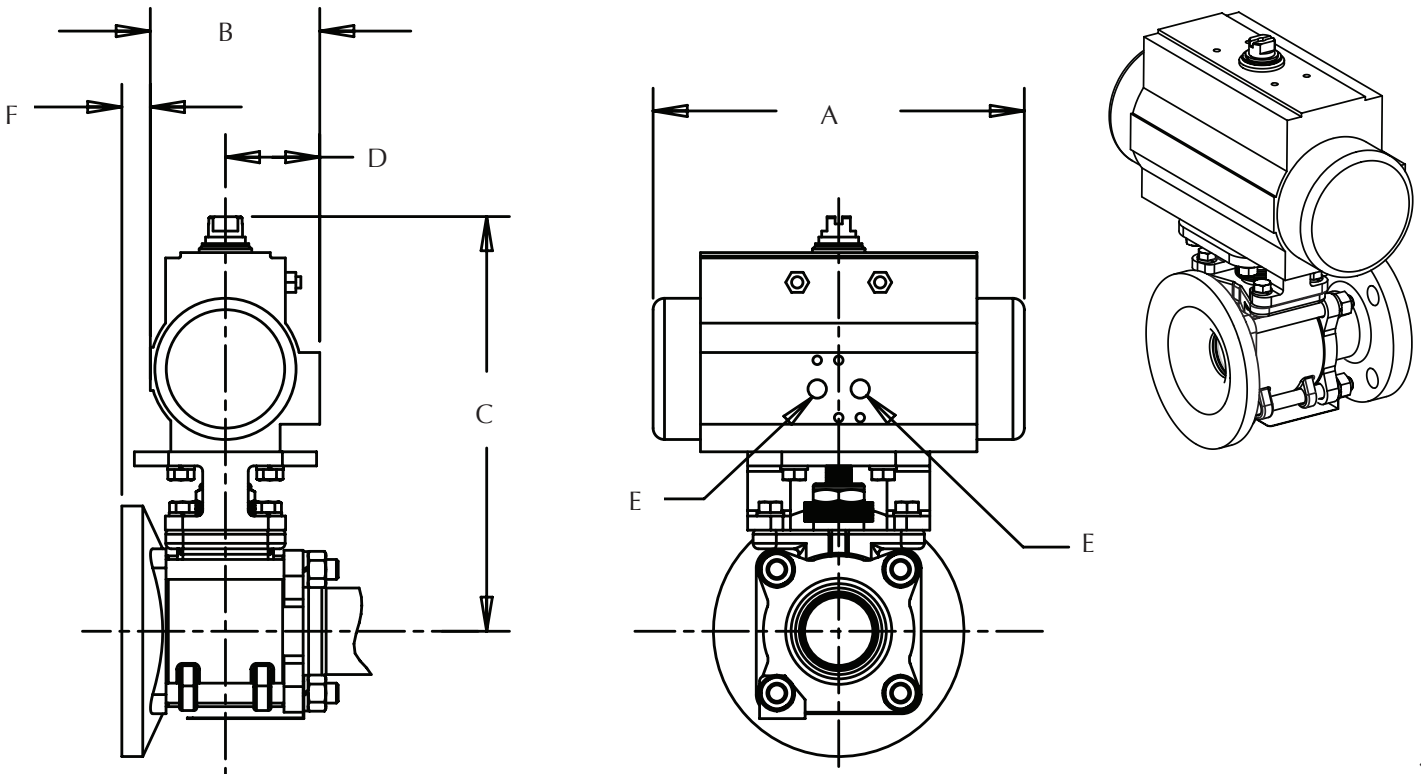
NOTES:

- * For pad thickness requirements greater than those listed, consult PBM.
- 1. Full Port
- 2. Gear Operator recommended.
- 3. CF = Consult Factory
- 4. Consult factory for approximate weight of 6" valves with Butt Weld for Sched. 40 (B-) end fitting.
- 5. Male NPT, Solder Joint, Sil-Brace, Camlock, and Grooved end fittings are also available.
- 6. B- dimensions shown meet Schedule 40. End fittings are also available to meet Schedule 10s or Schedule 5s.
- 7. 1/2" through 3" have 4 bolts. 4" through 8" valves have 8 bolts.
- 8. Flange holes straddle the center line, except for the 1-1/2" size.
- 9. Drawings are for illustration purposes only. Consult PBM prior to any fabrication or installation.
- 10. When using optional cylindrical radius pads, pocket area may increase. Consult PBM if reduced pocket area is desired. Note reduced pocket may decrease valve pressure rating.



FT, FD Series 5; FT Series 6 Actuated

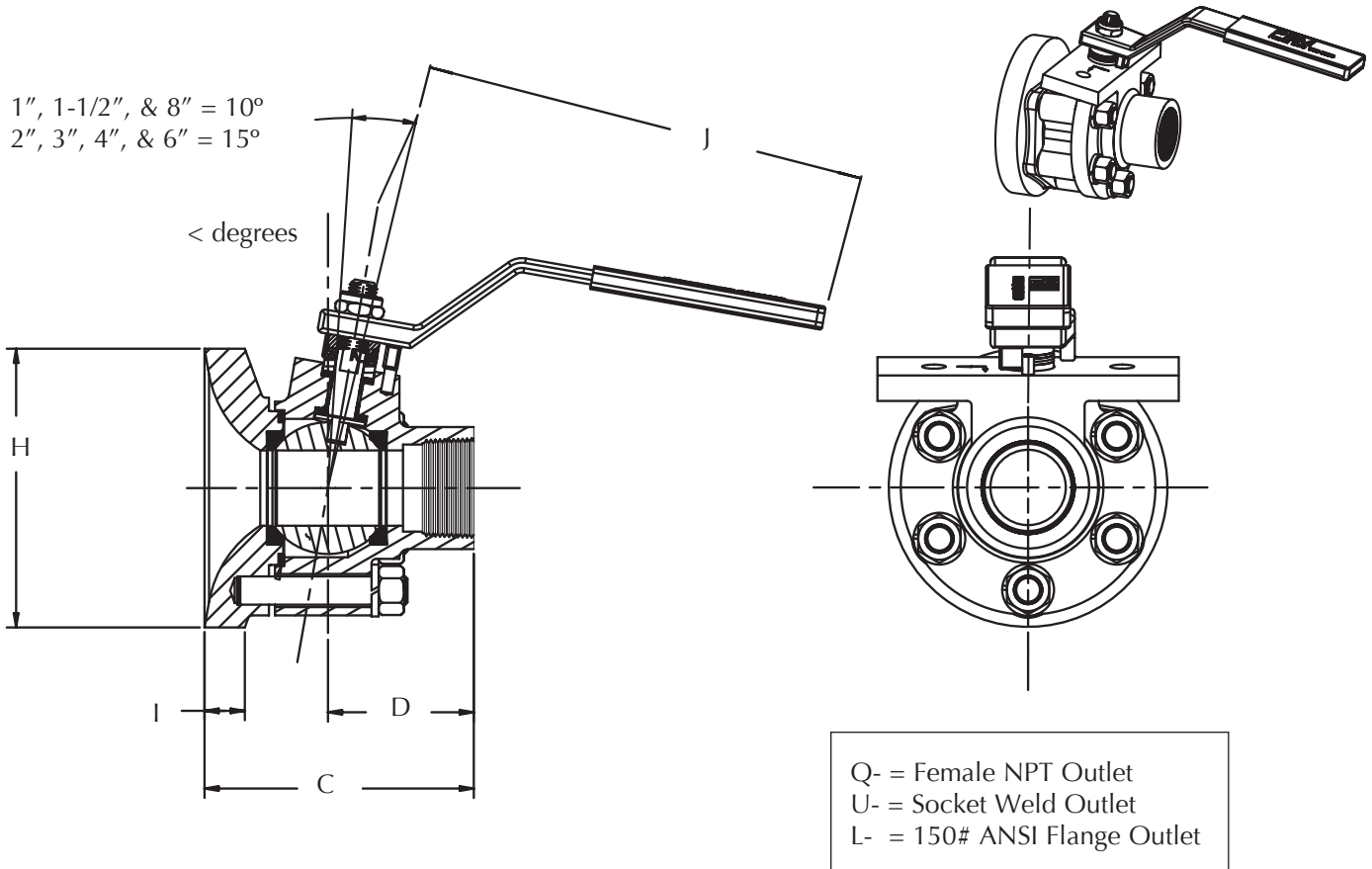
TFM™ OR VTFE SEAT MATERIAL														
Size	Actuator Type	Air Supply		A		B		C		D		E	F	
		psig	barg	inches	mm	inches	mm	inches	mm	inches	mm	NPT	inches	mm
1/2" DN 15	Double Acting	60, 80	4.1/5.5	5.55	141	2.80	71	5.84	148	1.61	41	1/8	0.09	2
	Spring Return	80	5.5	5.55	141	2.80	71	5.84	148	1.61	41	1/8	0.09	2
	Spring Return	60	4.1	6.46	164	3.17	81	6.29	160	1.77	45	1/8	-0.13	-3
3/4" DN 20	Double Acting	60, 80	4.1/5.5	5.55	141	2.80	71	5.99	152	1.61	41	1/8	0.17	4
	Spring Return	60, 80	4.1/5.5	6.46	164	3.17	81	6.44	164	1.77	46	1/8	-0.05	-1
1" DN 25	Double Acting	60, 80	4.1/5.5	5.55	141	2.80	71	6.64	169	1.61	41	1/8	0.53	13
	Spring Return	60, 80	4.1/5.5	8.27	210	3.72	94	7.8	198	2.07	53	1/8	0.06	2
1-1/2" DN 40	Double Acting	80	5.5	6.46	164	3.17	81	8.39	213	1.77	45	1/8	0.92	23
	Double Acting	60	4.1	8.27	210	3.72	94	9.1	231	2.07	53	1/8	0.67	17
	Spring Return	60, 80	4.1/5.5	10.83	275	4.84	123	10.15	258	2.68	68	1/4	0.15	4
2" DN 50	Double Acting	60, 80	4.1/5.5	8.27	210	3.72	94	9.41	239	2.07	53	1/8	1.01	26
	Spring Return	80	5.5	10.83	275	4.84	123	10.46	266	2.68	68	1/4	0.49	12
	Spring Return	60	4.1	13.11	333	5.39	137	11.82	300	2.87	73	1/4	0.14	4
3" DN 80	Double Acting	60, 80	4.1/5.5	13.11	333	5.39	137	13.81	351	2.87	73	1/4	1.36	35
	Spring Return	80	5.5	14.65	372	5.83	148	14.29	363	3.15	80	1/4	1.20	30
	Spring Return	60	4.1	17.15	436	6.46	164	15.18	386	3.44	87	1/4	0.85	22
4" DN 100	Double Acting	60, 80	4.1/5.5	17.15	436	6.46	164	17.34	440	3.44	87	1/4	1.78	45
	Spring Return	60, 80	4.1/5.5	19.69	500	7.36	187	18.28	464	3.94	100	1/4	1.38	35
6" DN 150	Double Acting	60, 80	4.1/5.5	22.78	579	8.58	218	24.13	613	4.29	109	1/4	2.51	64
	Spring Return	80	5.5	22.78	579	8.58	218	24.13	613	4.29	109	1/4	2.51	64
	Spring Return	60	4.1	26.46	672	11.42	290	28.89	734	5.71	145	1/4	1.09	28



AF Series 1 & 3

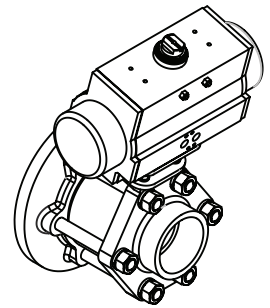
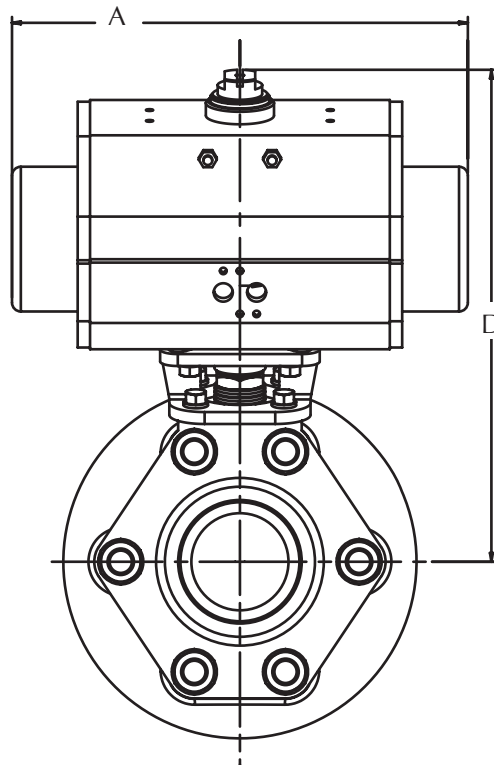
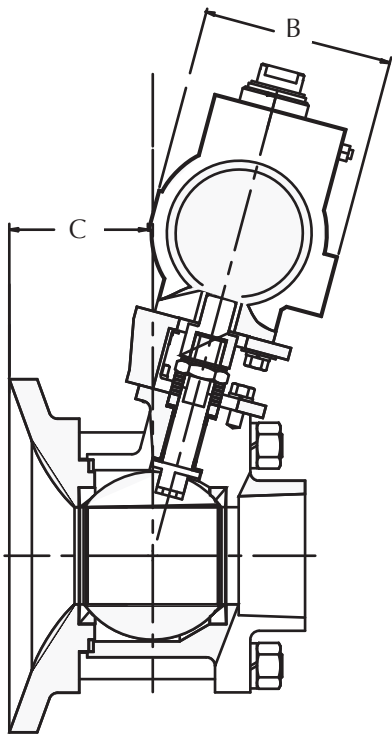
Size	Units	B Port	C		D		H Pad Diameter	I Pad Thickness	J Handle Length
			Face-to-Face		℄ to End				
			Q-, B-, U-	L-	Q-, B-, U-	L-			
1" DN 25	inches	1.00	3.58	4.14	1.94	2.50	3.70	0.53	6.09
	mm	25	91	105	49	64	94	13	155
1-1/2" DN 40	inches	1.50	4.97	5.53	2.69	3.25	5.50	0.62	8.07
	mm	38	126	140	68	83	140	16	205
2" DN 50	inches	2.00	5.53	6.17	2.86	3.50	7.00	0.68	8.07
	mm	51	140	157	73	89	178	17	205
3" DN 80	inches	2.75	8.38	9.19	4.31	5.12	10.00	0.79	12.06
	mm	70	213	233	109	130	254	20	306
4" DN 100	inches	3.50	9.52	10.48	5.24	6.20	11.50	0.91	12.06
	mm	89	242	266	133	157	292	23	306
6" DN 150	inches	5.25	12.12	15.61	6.56	10.05	15.00	1.04	15.06
	mm	133	308	396	167	255	381	26	383

*Buttweld end; Q and U not available in 6" size.



AF Series 1 & 3 Actuated

RTFE or UHMWPE Seats														
Size	Actuator Type	Air supply		Port		A		B		C		D		Air Inlet NPT
		psig	barg	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	
1" DN 25	Double Acting	80	5.5	1.00	25.4	5.55	141	2.80	71	0.85	22	6.67	169	1/8
	Double Acting	60	4.1			5.55	141	3.17	81	0.85	22	6.67	169	1/8
	Spring Return	80	5.5			8.27	210	3.72	95	0.73	19	7.86	200	1/8
	Spring Return	60	4.1			8.27	210	4.17	106	0.55	14	7.86	200	1/8
1-1/2" DN 40	Double Acting	60, 80	4.1, 5.5	1.50	38.1	8.27	210	3.72	95	1.55	39	8.90	226	1/8
	Spring Return	80	5.5			9.47	241	4.17	106	1.37	35	9.40	239	1/4
	Spring Return	60	4.1			13.11	333	5.39	137	0.84	21	9.95	253	1/4
2" DN 50	Double Acting	60, 80	4.1, 5.5	2.00	50.8	8.27	210	3.72	95	2.49	63	9.06	230	1/8
	Spring Return	80	5.5			10.83	275	4.84	123	2.07	53	10.08	256	1/4
	Spring Return	60	4.1			13.11	333	5.39	137	1.86	47	11.45	291	1/4
3" DN 80	Double Acting	60, 80	4.1, 5.5	2.75	69.9	13.11	333	5.39	137	3.32	84	13.93	354	1/4
	Spring Return	80	5.5			14.65	372	5.83	148	3.32	84	14.40	366	1/4
	Spring Return	60	4.1			17.13	435	6.46	164	3.32	84	15.25	387	1/4
4" DN 100	Double Acting	60, 80	4.1, 5.5	3.50	88.9	13.11	333	5.39	137	3.66	93	14.41	366	1/4
	Spring Return	60	5.5			19.69	500	7.36	187	3.62	92	15.73	400	1/4
	Spring Return	80	4.1			17.13	435	6.46	164	3.66	93	15.73	400	1/4
6" DN 150	Double Acting	60, 80	4.1, 5.5	5.25	133.4	19.69	500	7.36	187	4.40	112	19.24	489	1/4
	Spring Return	80	5.5			22.78	579	8.58	218	4.40	112	22.42	569	1/4
	Spring Return	60	4.1			26.46	672	11.42	290	3.25	83	27.02	686	1/4



Materials

Stainless Steel

316 S/S complies with ASTM A 351-CF8M or A479, S31600

316L S/S complies with ASTM A 351-CF3M or A479, S31603

- Is exceptionally corrosion-resistant to acidic and basic environments and does not pit easily.
- Can be polished to a near-mirror finish for easy cleanability.
- Weld fittings have a carbon content of <.03% to facilitate welding.

Carbon Steel, A216-WCB

- This versatile material handles mildly corrosive media.

Bronze, Alloy 922

- Excellent resistance to sea water environments and good steam resistance. Also, suitable for sub-zero temperature applications.

Hastelloy® C-276

- Very good corrosion in reducing and mildly oxidizing environments. Very good resistance to localized attack and very good resistance to stress corrosion cracking. Alloy CW-12MW in cast form.

Others

- Additional materials are available, including Alloy 20, Bronze, Duplex Stainless Steels, Hastelloys, Titanium, and Inconel®.

Seat and Seal Materials

Designation	Description	Color	Purpose
TFM™	Chemically Modified PTFE PBM Standard for Series 4, 5 6, & 7	White	Suitable for applications under 400°F. This chemically modified PTFE material is PBM's standard seat and seal material. It combines the ruggedness of a filled PTFE with the low coefficient of friction of virgin PTFE. TFM™ also has much improved porosity control and deformation under load when compared to PTFE grades. FDA and USP Class VI compliant. Meets bubbletight seat leakage.
RTFE	Glass Reinforced PTFE	Slightly Off White	Suitable for applications under 400°F. Used in a variety of applications. Bubbletight leakage.
VTFE	Virgin PTFE	White	Suitable for applications under 350°F. A low stem torque material ideal for sanitary use. FDA and USP Class VI compliant. Meets bubbletight seat leakage.
S-TEF®	Stainless Steel Reinforced PTFE	Charcoal Gray	Suitable for applications under 450°F. A suitable material for higher pressure/temperature applications. Higher stem torque than virgin grades and TFM™. USP Class VI compliant. Meets bubbletight seat leakage.
CARBON	Carbon/Graphite	Black	Suitable for applications under 750°F (400°C). A hard material impervious to high temperatures. It is used for heat transfer fluid applications and other high temperature applications. Meets Class V seat leakage.
UHMWPE	Ultra High Molecular Weight Polyethylene	Off White	Suitable for applications under 200°F. An extremely wear resistant material having a wear rate about 1/10th that of PTFE. FDA compliant and is used in high cycle applications where possible. Meets bubbletight seat leakage.
PEEK®	Poly ether ether ketone	Putty	Suitable for applications under 500°F. PEEK® is a rugged, high strength material having fairly high stem torque. PBM's PEEK® is 10 weight percent PTFE to reduce the hardness of virgin PEEK®. FDA compliant and meets Class V seat leakage.
KYNAR®	Polyvinylidene Fluoride	Slightly Transparent White	Suitable for applications under 250°F. Kynar® has been used successfully in abrasive service and is suitable for radiation environments where gamma levels accumulate to 1,000 megarads. FDA and USP Class VI compliant. Meets bubbletight seat leakage.

NOTES:

1. PTFE is Polytetrafluorethylene.
2. Seat and seal materials may be mixed in a valve in order to provide media-compatibility and the appropriate torque, temperature and pressure ratings.
3. Temperature ratings above based on 0 psi. See Pressure & Temperature charts on page 8.

Stem Torque

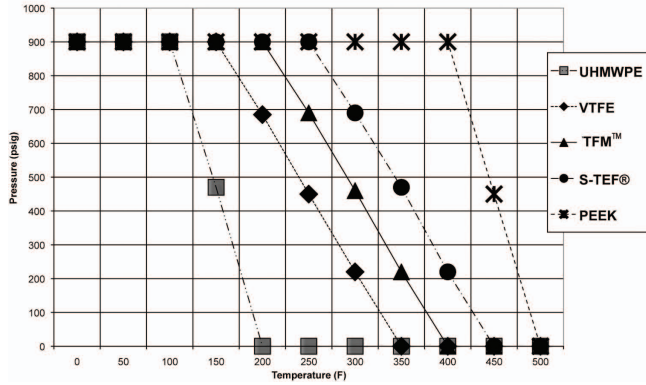
Valve Style/ Series	Valve Size (in.)	As built Torque		Minimum Actuator Sizing vs. Differential Pressure across Seats																															
				0 psig		0 barg		100 psig		6.9 barg		200 psig		13.8 barg		300 psig		20.7 barg		400 psig		27.6 barg		500 psig		34.5 barg		600 psig		41.4 barg		700 psig		48.3 barg	
				in.-lb.	N-m	in.-lb.	N-m	in.-lb.	N-m	in.-lb.	N-m	in.-lb.	N-m	in.-lb.	N-m	in.-lb.	N-m	in.-lb.	N-m	in.-lb.	N-m	in.-lb.	N-m	in.-lb.	N-m	in.-lb.	N-m	in.-lb.	N-m	in.-lb.	N-m	in.-lb.	N-m		
All Series 5 & 6 2-Way & 3-Way	1/2	32	3.6	64	7.2	64	7.2	64	7.2	64	7.2	64	7.2	64	7.2	64	7.2	64	7.2	64	7.2	64	7.2	64	7.2	64	7.2	64	7.2	64	7.2				
	3/4	40	4.5	80	9.0	80	9.0	80	9.0	80	9.0	80	9.0	80	9.0	96	10.8	112	10.8	128	12.7														
	1	58	6.6	116	13.1	116	13.1	116	13.1	150	16.9	185	20.9	220	24.9	trun.																			
	1-1/2	154	17.4	308	34.8	308	34.8	440	49.7	580	65.5	715	80.8	trun.	trun.																				
	2	182	20.6	364	41.1	364	41.1	635	71.7	910	102.8	1,180	133.3	trun.	trun.																				
	2-1/2	288	32.5	576	65.1	576	65.1	1,200	135.6	1,600	180.8	trun.																							
	3	430	48.6	860	97.2	860	97.2	1,560	176.3	trun.																									
4	787	88.9	1,570	177.4	2,650	299.4	trun.																												
6	1,920	217.0	3,840	433.9	7,100	802.3	Use trunnion above 75 psid.																												
AF Series 1 & 3	1	58	6.6	116	13.1	116	13.1	116	13.1	150	17.0	185	20.9	220	24.9	255	28.8	288	32.5																
	1-1/2	132	14.9	264	29.8	264	29.8	375	42.4	500	56.5	600	67.8	725	81.9	850	96.1	950	107.4																
	2	154	17.4	308	34.8	308	34.8	440	49.7	580	65.5	715	80.8	850	96.1																				
	3	336	38.0	675	76.3	675	76.3	1,400	158.2	1,900	214.7	2,400	271.2	2,900	327.7	3,400	384.2																		
	4	432	48.8	860	97.2	860	97.2	1,560	176.3	2,050	231.7	2,540	287.0	3,030	342.4																				
6	1056	119.3	2100	237.3	3950	446.4	Use trunnion above 75 psid.																												
MP Series 5	1/2	67	7.57	135	15.3	142	16.0	149	16.8	154	17.4																								
	3/4	80	9.04	160	18.1	167	18.9	174	19.7	182	20.6																								
	1	154	17.4	307	34.7	322	36.4	337	38.1	358	40.5																								
	1-1/2	313	35.4	627	70.9	670	75.7	759	85.8	843	95.3																								
	2	491	55.5	981	110.9	1,037	117.2	1,238	139.9	1,388	156.8																								
3	840	94.9	1,679	189.7	2,084	235.5	2,761	312.0	3,268	369.3																									
4	1539	173.9	3,077	349.7	4,114	464.9	5,580	630.5	6,679	754.7																									
MP Series 4	1/2, 3/4	77	8.7	144	16.3	144	16.3	144	16.3	144	16.3	144	16.3	144	16.3	144	16.3	144	16.3	144	16.3														
	1	192	21.7	385	43.5	385	43.5	385	43.5	385	43.5	385	43.5	385	43.5	385	43.5	440	49.7	trun.	trun.														
	1-1/2	384	43.4	770	87	770	87	770	87	940	106.2	trun.	trun.																						
	2	432	48.8	865	97.7	865	97.7	865	97.7	1,200	135.6	trun.	trun.																						
	3	864	97.6	1,730	195.5	1,730	195.5	trun.	trun.																										
	4	1,920	216.9	3,840	433.9	3,840	433.9	trun.	trun.																										
6	3,000	339.0	6,000	678.0	8,800	994.4																													
MP Series 1	1/2, 3/4	77	8.7	144	16.3	144	16.3	144	16.3	144	16.3	144	16.3																						
	1	192	21.7	385	43.5	385	43.5	385	43.5	385	43.5	385	43.5																						
	1-1/2	384	43.4	770	87	770	87	770	87	940	106.2	trun.	trun.																						
	2	432	48.8	865	97.7	865	97.7	865	97.7	1,200	135.6	trun.	trun.																						
	3	576	65.1	1,150	129.9	1,150	129.9	1,620	183	2,100	135.6																								
4	864	97.6	1,700	192.1	3,000	339	trun.	trun.																											

- Notes:
1. For valves with UHMWPE and RTFE seats, multiply the above values by 1.25
 2. For valves which have S-TEF® or Kynar® seats multiply the above values by 1.56.
 3. For valves with PEEK® seats multiply the above values by 1.7.
 4. Where trunnion is indicated, PBM recommends trunnion mounting the ball to avoid excessive seat loads and stem torques.
 5. For AF Series 1 and 3 stem torques, refer to PBM Sanitary Brochure, LT-34.
 6. CP torque valves assume service at -320°F.
 7. For Series 5 SD, FD, DD valves ins steam service and having RTFE seats, multiply minimum TFM/VTFE actuator torques by 1.56.

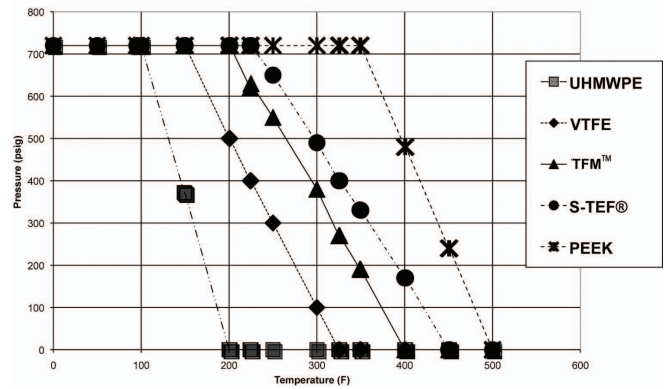
CP Series 6 These are actuals, not sizing.		As Built Torque		Cryo As Built																														
		in.-lb.	N-m	in.-lb.	N-m																													
	1/2	95	11	95	11	95	11	95	11	95	11	95	11	95	11	95	11	95	11	101	11	110	12											
	3/4	95	11	95	11	95	11	95	11	95	11	95	11	95	11	95	11	95	11	101	11	110	12											
	1	145	16	160	18	160	18	160	18	160	18	160	18	170	19	193	22	215	24	238	27													
	1-1/2	420	47	420	47	420	47	420	47	420	47	420	47	477	54	544	61	611	69	677	76													
	2	540	61	840	95	840	95	840	95	840	95	866	98	1013	114	1162	131	1310	148	1458	165													
	3	1020	115	1320	149	1320	149	1320	149	1542	174	1984	224	2425	274	2866	324	3307	374	3749	424													
	4	Consult PBM Engineering.																																



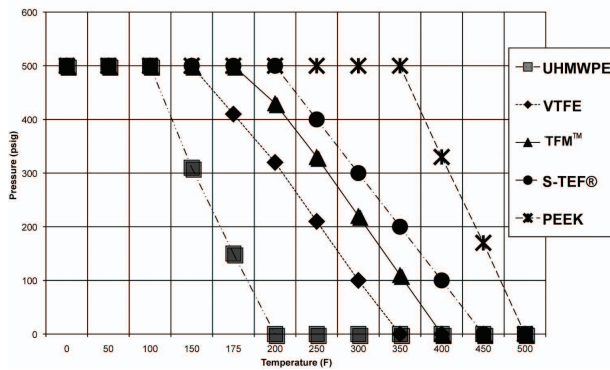
Valves 1-1/2-Inch and Smaller



2-Inch to 3-Inch



4 and 6-Inch



Seat & Seal Temperature and Pressure Charts

Cv Values (gpm)

VALVE SIZE	2-WAY					FLUSH TANK		DIVERTER PORT				
	SP	CP	AN, CN	AF	FT	DP SERIES 5 S/S		DP SERIES 1 BRONZE				
						L-PORT	T-PORT	L-PORT	T-PORT			
	SERIES 5	SERIES 6	SERIES 1/5	SERIES 1	SERIES 5		STRAIGHT	BRANCH		STRAIGHT	BRANCH	
1/4"	5*											
3/8"	10*											
1/2"	12	12	13		14	6.6	7.4	5.2	12	14	8.7	
3/4"	42*	42*	52		42	17	20	13	21	25	16	
1"	73	73*	80	65	70	33	39	24	33	39	24	
1-1/2"	170	170*	190	143	190	79	93	58	79	93	58	
2"	360	360*	400	280	370	149	180	110	149	180	110	
2-1/2"	650				600							
3"	935	935	1,100	700	900	350	415	250	290	345	210	
4"	1,900	1,900	2,400	880	1,650	640	770	465	460	540	340	
6"	4,800		5,600	1,500	3,900	1,550	1,860	1,110	1,050	1,220	790	
8"			10,700	7,400								
10"			17,400									

150# Flanged and Butt Weld, unless indicated otherwise noted (gpm at 1 psi d/p)

VALVE SIZE	MULTI-PORT											
	MP SERIES 5			MP SERIES 4				MP SERIES 1				
	L-PORT	T-PORT		LL-PORT	L-PORT	T-PORT		LL-PORT	L-PORT	T-PORT		LL-PORT
		STRAIGHT	BRANCH			STRAIGHT	BRANCH			STRAIGHT	BRANCH	
1/2"	6.6*	6.6*	5.4*	6.0*	6.6	7.4	5.2	6.6	12	14	8.7	6.6
3/4"	16*	16*	12*	14*	17	20	13	16	17	20	13	16
1"	33	33	21	30	33	39	24	27	33	39	24	27
1-1/4"					32	36	23	26	32	37	23	26
1-1/2"	80	80	49	72	79	93	58	73	79	93	58	73
2"	147	147	89	126	149	180	110	128	149	180	110	128
3"	351	351	212	295	350	415	250	300	200	250	140	180
4"	613	613	368	443	640	770	465	530	365	450	260	340
6"					1,550	1,860	1,110		1,550	1,860	1,110	

*Q (FNPT) ends

Allowable Working Pressures and Temperatures

Valve Style/ Series	Material	Size (inches)	Non-Flanged					
			-20 to 100°F	-28.9 to 37.8°C	300°F	148.9°C	450°F	232.2°C
			psig	barg	psig	barg	psig	barg
SP, SD, DP, DD FT, FD Series 5	316 SS/316L	1-1/2" (DN40) and smaller	900	62.1	770	53.1	680	46.9
	316 SS/316L	2" and larger	720	49.6	620	42.7	540	37.2
	C-276	All	600	41.4	520	35.9	450	31.0
	Carbon Stl.	1-1/2" (DN40) and smaller	900	62.1	770	53.1	680	46.9
	Carbon Stl.	2" (DN50) and larger	740	51.0	655	45.2	620	42.7
SP, SD Series 5	922 Bronze	All	600	41.4	600	41.4	580	40.0
SP, FT, Series 6	316 SS/316L	3" (DN80) and smaller	720	49.6	620	42.7	540	37.2
	Carbon Stl.	3" (DN80) and smaller	740	51.0	655	45.2	620	42.7
CN	316 SS/316L	All	See Flanged Table at Right.					
AN, All Series	C-276	All						
	Carbon Steel	All						
	Bronze	All						
CP, CD Series 6	316 SS/316L	All	720	49.6	620	42.7	540	37.2
MP Series 1	836/922 Bronze	1-1/2" (DN40 and smaller)	400	27.6	385	26.5	360	24.8
	836/922 Bronze	2" (DN50)	350	24.1	340	23.4	315	21.7
	836/922 Bronze	3" (DN80)	300	20.7	290	20.0	270	18.6
	836/922 Bronze	4" (DN100)	See Flanged Table at Right					
	Ductile Iron	1-1/2" (DN40)	550	37.9	440	30.3	340	23.4
	Ductile Iron	2" (DN50)	500	34.5	400	27.6	310	21.4
	Ductile Iron	3" (DN80)	450	31.0	360	24.8	280	19.3
	Ductile Iron	4" (DN100)	See Flanged Table at Right					
MP, Series 4	316 SS/316L	3/4" (DN20) and smaller	900	62.1	770	53.1	680	46.9
	316 SS/316L	1" (DN 25) thru 4" (DN100)	720	49.6	620	42.7	540	37.2
	316 SS/316L	6" (DN150)	275	19.0	205	14.1	195	13.4
	C-276	3/4" (DN20) and smaller	900	62.1	770	53.1	680	46.9
	C-276	1" (DN25) thru 4" (DN100)	720	49.6	620	42.7	540	37.2
	C-276.	6" (DN150)	275	19.0	205	14.1	195	13.4
	Carbon Stl.	3/4" (DN20) and smaller	900	62.1	770	53.1	680	46.9
	Carbon Stl.	1" (DN25) thru 4" (DN100)	740	51.0	655	45.2	620	42.7
	Carbon Stl.	6" (DN150)	300	20.7	250	17.2	220	15.2
	Carbon Stl.	All	275	19.0	205	14.1	195	13.4
MP, Series 5	C-276	All	230	15.9	200	13.8	180	12.4
	Carbon Stl.	All	285	19.7	230	15.9	185	12.8
	Carbon Stl.	All	285	19.7	230	15.9	185	12.8
AF Series 1	316 SS/316L	1-1/2" (DN40) and smaller	900	62.1	770	53.1	680	46.9
	316 SS/316L	2" (DN50)	550	37.9	540	37.2	525	36.2
	316 SS/316L	3" (DN80)	625	43.1	610	42.1	600	41.4
	316 SS/316L	4" (DN100)	550	37.9	540	37.2	525	36.2
	316 SS/316L	6" (DN150)	375	25.9	365	25.2	360	24.8
	C-276	1-1/2" (DN40) and smaller	600	41.4	520	35.9	475	32.8
	C-276	2" (DN50), 4" (DN100)	550	37.9	540	37.2	525	36.2
	C-276	3" (DN80)	600	41.4	520	35.9	475	32.8
	C-276	4" (DN100)	550	37.9	540	37.2	525	36.2
	C-276	6" (DN150)	375	25.9	320	22.1	280	19.3
AF Series 3	316 SS/316L	1-1/2" (DN40) and smaller	720	49.6	620	42.7	540	37.2
	316 SS/316L	2" (DN50), 4" (DN100)	550	37.9	540	37.2	525	36.2
	316 SS/316L	3" (DN80)	625	43.1	610	42.1	600	41.4
	316 SS/316L	4" (DN100)	550	37.9	540	37.2	525	36.2
	316 SS/316L	6" (DN150)	375	25.9	365	25.2	360	24.8
TIV Series 5, 6	316 SS/316L	All	See Flanged Table at Right					
	C-276	All						
	Carbon Stl.	All						

Valid for all flanged valves:

ANSI 150# FLANGE						
Valve Material	-20° to 100° F psig	-28.9° to 37.8° C barg	300° F psig	150° C barg	450° F psig	232° C barg
836 Bronze	225	15.5	180	12.4	135	9.3
922 Bronze	225	15.5	195	13.4	160	11.0
955 Bronze	225	15.5	195	13.4	160	11.0
C-276	230	15.9	200	13.8	180	12.4
316/316L S/S	275	19.0	215	14.8	180	12.4
Carbon Steel.	285	19.7	230	15.9	185	12.8
ANSI 300# FLANGE						
Valve Material	-20° to 100° F psig	-28.9° to 37.8° C barg	300° F psig	150° C barg	450° F psig	232° C barg
C-276	600	41.4	520	35.9	475	32.8
316/316L S/S	720	49.6	560	38.6	495	34.1
Carbon Steel	740	51.0	655	45.2	620	42.7

Use PBM's 2-Way Control Valves in industrial and sanitary throttling or shearing applications to accurately control the flow of liquids or thick media. These valves feature characterized balls with various port shapes, including "V." Manual valve standard.

Control Valves

Sizes:

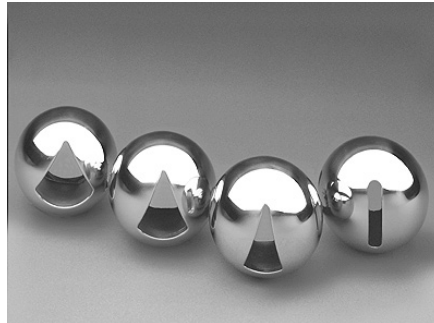
- 1/2" - 6"

Materials:

- 316 & 316L S/S
- Hastelloy®
- Others

Options:

- Actuation
- 30°, 45°, 60° V Angle (Others Available)
- Slotted
- Locking Handle
- Polishing & Electropolishing
- Automation



Positioners

- Gauges/No gauges
- 4-20 mA (Electro-pneumatic)
- 3-15 psi (pneumatic)
- Weatherproof, explosion proof
- Proximity, Mechanical Switches
- Solid State Sensors
- Flat or Domed Indicator



Electric Actuators

- Weatherproof, explosion proof
- Modulating or On/Off
- 2, 3, or 4 position
- Battery back-up
- Communication Bus interfaces available
- Auxiliary Limit Switches
- Motor Brake
- Handwheel override
- Potentiometers
- AC or DC

Solenoids

Features:

- Compact pool valve with threaded port direct mounts to actuator.
- All exhaust ports are pipeable, providing better protection against harsh environments.
- Standard manual override
- DIN, weatherproof and explosion proof solenoids available
- Single and dual coil solenoid constructions
- Mountable in any position

Position Indicators



Options:

- Weatherproof, Explosion proof
- Mechanical or Proximity Switches
- Fieldbus
- DeviceNet
- Visual Indication
- AS-i
- ATEX, IEC, CSA, NEMA, etc.



Torque Ratings for PBM Actuators

Spring Return Actuators

Double Acting Actuators

Actuator Model	Air pressure at actuator (psig)	
	60 psig	80 psig
	Constant Torque Output (in-lbs)	
PAVCL453D -- 0052	133	179
PAVCL453D -- 0063	238	321
PAVCL453D -- 0075	435	586
PAVCL453D -- 0085	629	851
PAVCL453D -- 0100	991	1,336
PAVCL453D -- 0115	1,640	2,210
PAVCL453D -- 0125	2,157	2,906
PAVCL453D -- 0140	3,013	4,018
PAVCL453D -- 0160	4,394	5,859
PAVCL453D -- 0200	8,239	10,981
PAVCL453D -- 0270	19,097	25,469

All published torque values are guaranteed minimum values.

Actuator Model	Spring Set	Spring Torque Output		Air Pressure at Actuator (psig)			
		(in-lbs)		60		80	
		Start	End	Start	End	Start	End
PAVCL253S -- 0052	03	66	46	80	47	N/A	N/A
PAVCL453S -- 0052	05	105	72	N/A	N/A	101	55
PAVCL253S -- 0063	03	128	71	149	79	N/A	N/A
PAVCL453S -- 0063	05	196	111	N/A	N/A	193	95
PAVCL253S -- 0075	03	249	133	275	137	N/A	N/A
PAVCL453S -- 0075	05	380	205	N/A	N/A	354	157
PAVCL253S -- 0085	03	361	215	387	211	N/A	N/A
PAVCL453S -- 0085	05	536	321	N/A	N/A	503	257
PAVCL253S -- 0100	03	564	318	628	329	N/A	N/A
PAVCL453S -- 0100	05	860	489	N/A	N/A	802	378
PAVCL253S -- 0115	03	957	538	1,044	541	N/A	N/A
PAVCL453S -- 0115	05	1,432	800	N/A	N/A	1,352	637
PAVCL253S -- 0125	03	1,313	718	1,351	640	N/A	N/A
PAVCL453S -- 0125	05	1,913	1,055	N/A	N/A	1,762	789
PAVCL253S -- 0140	03	1,958	1,036	1,910	856	N/A	N/A
PAVCL453S -- 0140	05	2,728	1,453	N/A	N/A	2,481	1,017
PAVCL253S -- 0160	04	2,841	1,770	2,447	1,350	N/A	N/A
PAVCL453S -- 0160	05	3,327	2,230	N/A	N/A	3,452	2,240
PAVCL253S -- 0200	04	4,699	3,124	4,788	3,080	N/A	N/A
PAVCL453S -- 0200	06	6,867	4,664	N/A	N/A	5,893	3,539
PAVCL253S -- 0270	05	12,549	8,044	11,495	6,884	N/A	N/A
PAVCL453S -- 0270	08	16,735	10,735	N/A	N/A	15,360	9,220

Weights and Volumes

Actuator Model	Rotate CCW	Rotate CW	PAVC series
	Volume (cu.in.)	Volume (cu.in.)	Approx. wgt (lbs)
PAVCL453D -- 0052	6.1	7.9	2.47
PAVCL453S -- 0052	6.1	6.7	2.87
PAVCL453D -- 0063	12	14	3.66
PAVCL453S -- 0063	12	11.6	4.35
PAVCL453D -- 0075	22	27	6.13
PAVCL453S -- 0075	22	22	7.48
PAVCL453D -- 0085	31	39	8.60
PAVCL453S -- 0085	31	32	10.60
PAVCL453D -- 0100	48	61	12.13
PAVCL453S -- 0100	48	49	15.44
PAVCL453D -- 0115	79	104	19.51
PAVCL453S -- 0115	79	84	25.25
PAVCL453D -- 0125	99	135	23.81
PAVCL453S -- 0125	99	109	31.04
PAVCL453D -- 0140	138	193	35.94
PAVCL453S -- 0140	138	146	48.06
PAVCL453D -- 0160	220	306	47.95
PAVCL453S -- 0160	220	215	65.04
PAVCL453D -- 0200	348	644	81.57
PAVCL453S -- 0200	348	463	121.26
PAVCL453D -- 0270	915	1,086	182.23
PAVCL453S -- 0270	915	946	221.06

