

PRATT®

a MUELLER brand

HP SERIES HIGH PERFORMANCE DOUBLE OFFSET BUTTERFLY VALVE

Engineering Creative Solutions for Fluid Systems Since 1901



MUELLER

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CONSTRUCTION SPECIFICATION

Pratt® HP Series High Performance Double Offset Butterfly Valves



VALVE WITH LEVER OPERATOR



VALVE WITH GEAR OPERATOR

Sizes	2" through 72"
Body	WCB A-216 Carbon Steel CF8M A351 Stainless Steel
Disc	CF8M A351 Stainless Steel
Stem	17-4 PH Stainless Steel
Seat	PTFE, RTFE, 316 SS, Inconel, Fire Safe, MTFE
Bearing Material	Graphite Reinforced Teflon, 316 SS
Packing Material	PTFE Cup & Cone, Graphite
Actuation Options	Worm Gear, Lever, Pneumatic, Electric
Pressure Ratings	CL.150 - 2"-72" CL. 300 - 2"-48" CL. 600 - 2"-24"

NOTE: Many alloys & seat materials are available to accommodate virtually any service condition.

FEATURES

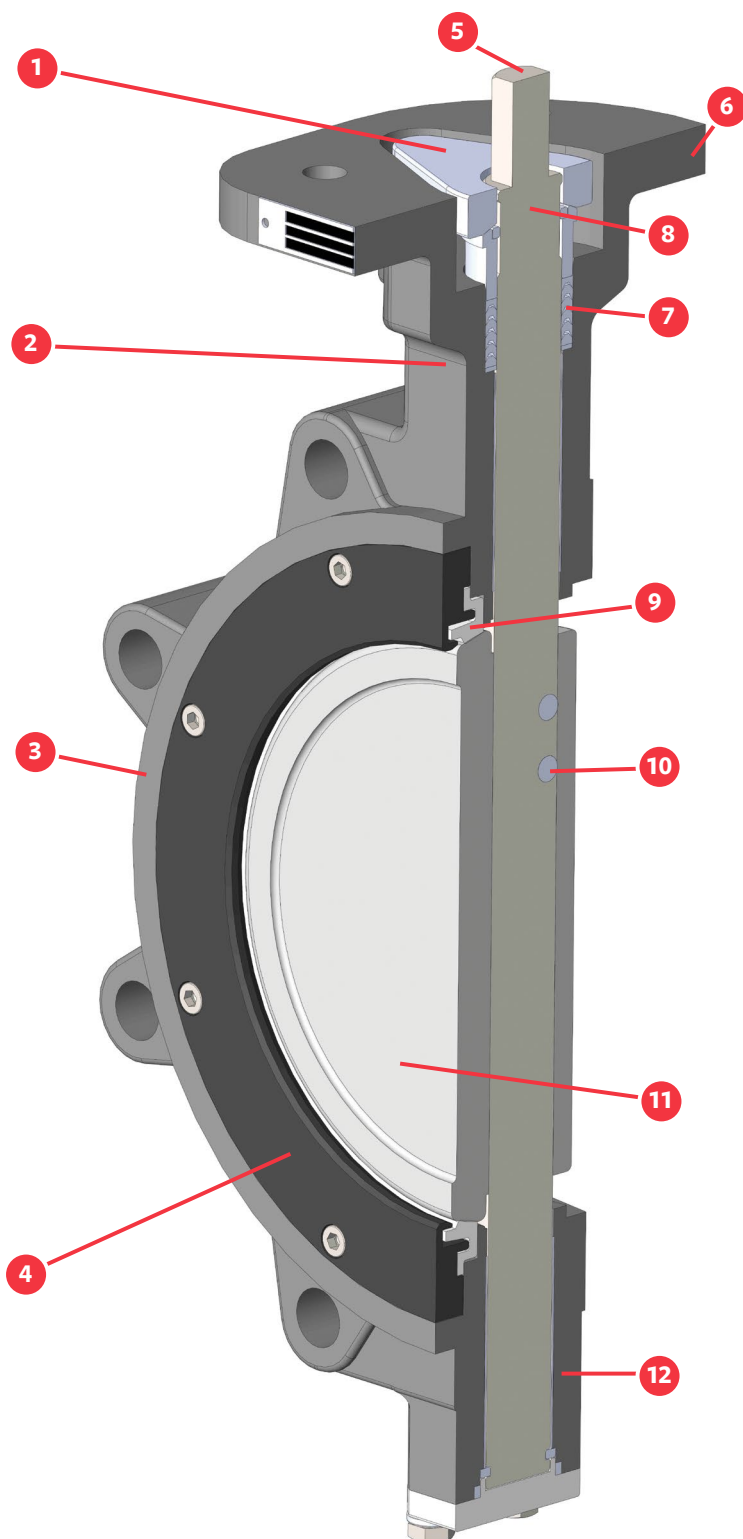
- Double offset disc & shaft
- Blowout proof shaft design
- Bi-Directional (Soft Seat only)
- Dead End & Double Dead End Service (Lug Type only)
- Fire Safe Certified (Metal seat and Fire safe seat, API 607)
- Spherical Sealing Surface

OPTIONAL FEATURES

- Live loaded packing
- O₂ Cleaning
- Steam jacket
- Bonnet extension
- Oil free cleaning
- Anti static
- Customized option designs are available upon request

DESIGN DETAILS

Butterfly Valve, Sizes 2" - 72": 2" - 72" ANSI 150, 2" - 48" ANSI 300, 3" - 24" ANSI 600



1 BELOW BONNET GLAND PACKING

Our recessed gland packing eliminates the requirement for mounting kit and reduces overall package height. Our cup and cone design gland flange and packing compression guide allows an even compression of packing even if field adjustments are made incorrectly.

2 EXTENDED NECK

Bonnet to flange clearance is a minimum of 2" allowing for piping insulation on all sizes of valves.

3 BODY

Precision cast bodies in virtually any alloy allows customers to utilize proper materials for virtually any application. Castings conform to all applicable ASME codes. Certified independent testing can be performed when requested or required such as RT and PT. Bodies are available in Wafer, Lug, Double Flanges and Butt-weld.

4 SEAT RETENTION RING

Our highly engineered retainer plate assures customer of proper seat stability and allows for full rated bi-directional, dead end service. The HP series seat retention ring conforms to the latest revisions of API 609 accommodating spiral wound gasket sealing elements to fall outside the bolting area.

5 SHAFT

Our hardened 17-4 one piece design provides shaft strength and integrity under the most severe conditions. Other shaft materials are available depending upon application.

6 BONNET

Allows for direct mounting of all types of actuation. Standard drilling conforms to Kv industrial standards. ISO drilling is also available upon request.

7 PACKING

Multi layered "cup and cone" PTFE packing allows for even compression against shaft and shaft journal area providing a positive seal even under high cycles. Multi layered graphite packing is available for metal seated and fire safe valves.

8 BLOWOUT PROOF SHAFT RETENTION

Engineered to be one of the safest valves in the market our shaft retention system meets API requirements. Shaft retention system allows the gland flange and follower to slide up and down a machined recessed portion of the shaft. If a shaft were to shear our system prevents hydraulic force from projecting the shaft keeping it safely retained above the packing.

9 SEAT

The HP series seat is machined to lock between the body and retention ring but is allowed to move under pressure. This allows us to utilize solid seats giving maximum disc edge coverage, high cycle life and very low torque without the requirement for rubber O-ring energizers or metal back up support.

10 DISC TO SHAFT PINS

A tangential tapered hole is machined on the leading edge of the valve shaft and through the shaft journal of the disc placing the pins in a compression mode. Taper pins are spot welded in place after final assembly.

11 DISC

Disc is designed to have minimal deflection and movement under pressure which reduces torque and improves cycle life. The discs tapered edge and offset shaft journal generates a "camming" motion allowing for a release from the seat within the first few degrees of opening.

12 BEARINGS

Full length upper and lower bearing materials are constructed of 316 S.S. impregnated with either PTFE or Graphite depending on Service conditions.

SUGGESTED SPECIFICATIONS

Pratt® HP Series Wafer / Lug Butterfly Valve, Sizes 2" - 72"

GENERAL

Valves shall be of Wafer, Lug or Double Flanged design for installation between ANSI 150, 300 or 600 flanges. Design Standards: API 609, ANSI/ASME B16.34, soft seated and metal seated, and API 607 (Fire Safe Test)

PRESSURE RATING

ANSI 150 – 285 PSI
ANSI 300 – 740 PSI
ANSI 600 – 1440 PSI

BODY

Standard valve body shall be 1 piece Carbon Steel (ASTM 216) or CF8M (ASTM A351) construction conforming to the following. Many other materials available upon request including high alloys.
API 609 Category B
MSS-SP-68 Table 1
ANSI/ASME B 16.10 Table 8
ISO 5752 Table 1 & BS 5155
ANSI/ASME B 16.5 Class 150, 300, 600
ANSI/ASME B 16.47 Series A Class 150, 300
MSS-SP-44 Class 150, 300, 600

DISC

Standard valve disc shall be CF8M (ASTM 351) with other materials available upon request. The angled sealing surface allows for quick release from seat which reduces torque and seat wear.

INTEGRALLY CAST TRAVEL POSITION STOP

Designed to prevent over travel of disc and provides a set point when calibrating automation.

BLOW OUT PROOF SHAFT

Standard valve shaft shall be constructed of 17/4 PH Stainless Steel to provide maximum strength and stability for high torque applications. Other materials available upon request.

SEAT

Valve seat shall be PTFE, RTFE or MTFE as standard offering. Seat design is free floating and pressure assisted to provide an interference and pressure assisted seal to achieve a positive seal under both low and high pressures in both directions. Fire Safe and metal seats are also available.

SEAT RETAINER PLATE

Shall follow body material and shall conform to the latest revisions of API accommodating Spiral wound gaskets to seal with no special requirements. Bolting is located outside the sealing element.

PACKING

Soft seated valve shall use Teflon “Cup and Cone” packing. Metal Seated and Fire Safe valves shall use Die-formed Graphite packing. Either arrangement shall be easily adjustable with no special tools required.

GLAND PACKING

Below bonnet gland packing allows for automation to direct mount with no brackets and couplers which can allow hysteresis on valve shaft. Our overall package remains low profile reducing overall space requirements.

BEARINGS

Stainless Steel / Teflon bearing material for soft seated valves and Stainless steel / graphite for Fire Safe and Metal seated valves. Both materials are superior in reducing friction and side thrust and are suitable for corrosive applications.

TESTING

All valves are 100% tested per API 598 and documented. Standard Testing reports and MTR's can be supplied at any time at no charge. Customized testing can also be performed based on customer's requirements.

Additional materials are available. Contact us or your local Pratt distributor for more information.

CV FLOW DATA

Pratt® HP Series High Performance Double Offset BFF

During its product development phase, the HP Series Wafer / Lug Butterfly Valve was tested to ensure that it met our own rigorous standards for flow capacity. Throughout testing, the HP Series valve has consistently produced high Cv values which translates to lower flow resistance, and low system operating cost to the user over the life of the valve. The following Cv chart represents the flow characteristics for all sizes available.

CV VALUE OF HIGH PERFORMANCE BUTTERFLY VALVE CLASS 150

SIZE		DEGREE OF OPENING								
INCH	MM	10°	20°	30°	40°	50°	60°	70°	80°	90°
2	50	2	5	12	19	32	45	65	81	88
2.5	65	3	9	21	33	54	77	111	138	150
3	80	5	14	32	50	82	116	168	209	227
4	100	9	25	57	90	148	209	303	377	410
5	125	16	44	104	163	266	377	548	681	740
6	150	25	65	150	235	380	540	785	975	1060
8	200	55	130	305	480	785	1110	1615	2005	2200
10	250	85	205	475	750	1225	1735	2520	3135	3400
12	300	115	280	655	1025	1680	2380	3450	4290	4700
14	350	150	355	830	1305	2140	3030	4395	5465	5900
16	400	200	475	1115	1750	2860	4055	5880	7310	7900
18	450	265	630	1475	2315	3790	5365	7790	9680	10500
20	500	345	830	1935	3040	4975	7050	10230	12715	13800
22	550	375	975	2275	3580	5855	8295	12035	14960	16300
24	600	485	1265	2955	4640	7590	10755	15605	19405	21100
26	650	550	1450	3350	5300	8650	12250	17800	22100	24000
28	700	650	1750	4050	6350	10350	14650	21300	26450	28800
30	750	750	2000	4600	7250	11900	16850	24400	30350	33000
32	800	850	2350	5450	8600	14050	19900	28850	35850	39000
34	850	1000	2750	6450	10150	16650	23550	34200	42500	46200
36	900	1100	2950	6900	10900	17800	25200	36600	45500	49400
40	1000	1550	4000	9300	14650	23950	33900	49200	60500	66500
42	1050	1650	4350	10100	15900	26000	36850	53450	65000	72200
48	1200	2350	6100	14200	22350	36550	51800	75150	91450	101600

CV VALUE OF HIGH PERFORMANCE BUTTERFLY VALVE CLASS 300

SIZE		DEGREE OF OPENING								
INCH	MM	10°	20°	30°	40°	50°	60°	70°	80°	90°
2	50	2	5	12	19	32	45	65	81	88
2.5	65	3	9	21	33	54	77	111	138	150
3	80	5	14	32	50	82	116	168	209	227
4	100	9	25	57	90	148	209	303	377	410
5	125	16	44	104	163	266	377	548	681	740
6	150	24	60	139	218	357	506	735	914	995
8	200	45	110	260	410	670	945	1375	1710	1900
10	250	75	175	415	650	1065	1505	2185	2720	3000
12	300	105	250	580	910	1495	2115	3070	3815	4100
14	350	135	325	755	1185	1940	2750	3985	4955	5400
16	400	175	415	970	1520	2490	3525	5120	6365	6900
18	450	245	590	1375	2165	3540	5015	7275	9045	9800
20	500	315	760	1770	2780	4555	6450	9360	11635	12600
24	600	435	1135	2645	4155	6800	9635	13980	17380	18900
30	750	650	1750	4050	6400	10450	14800	21500	26700	29000
36	900	1000	2700	6300	9900	16200	22900	33250	41350	44900
40	1000	1450	3800	8900	13950	22850	32400	47000	57800	63500
42	1050	1500	3950	9250	14550	23850	33750	49000	59600	66200
48	1200	2100	5450	12750	20050	32850	46550	67500	82100	91200

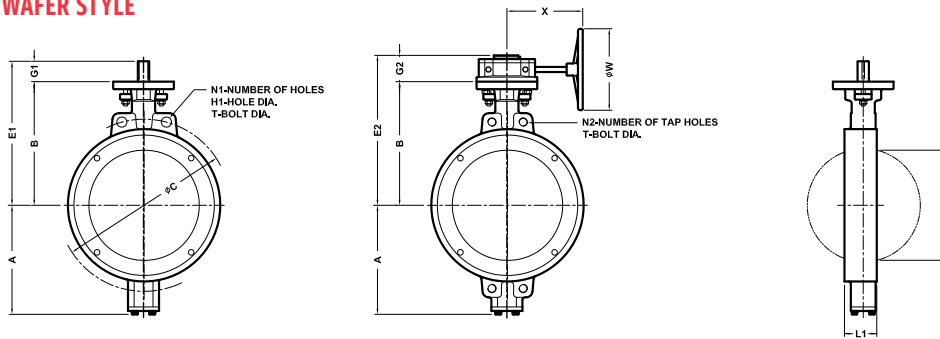
CV VALUE OF HIGH PERFORMANCE BUTTERFLY VALVE CLASS 600

SIZE		DEGREE OF OPENING								
INCH	MM	10°	20°	30°	40°	50°	60°	70°	80°	90°
3	80	3	9	21	33	54	77	112	139	151
4	100	5	15	34	53	87	124	180	224	243
6	150	15	38	88	139	228	322	468	581	630
8	200	30	70	160	250	410	580	845	1050	1100
10	250	50	120	285	450	735	1040	1510	1875	2000
12	300	70	165	380	600	980	1390	2015	2505	2700
14	350	90	220	515	810	1330	1880	2730	3395	3700
16	400	125	305	705	1110	1820	2575	3735	4645	5100
18	450	135	325	765	1200	1965	2780	4035	5015	5500
20	500	195	470	1095	1715	2810	3980	5775	7180	7800
24	600	300	750	1750	2750	4500	6400	9250	11500	12500

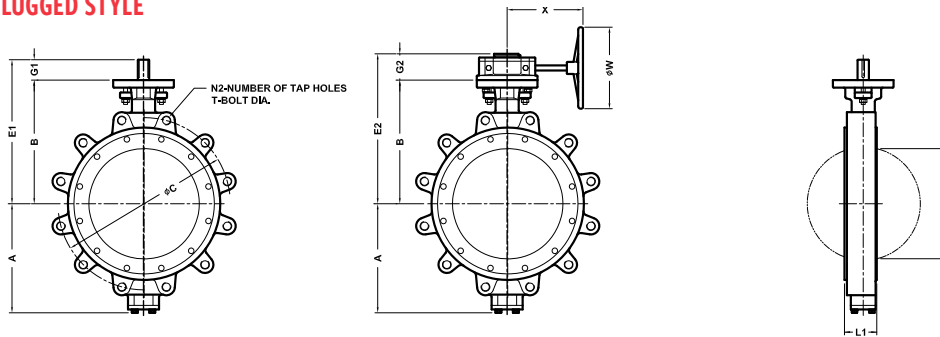
DIMENSIONAL DATA

Pratt® HP Series High Performance Double Offset BFV, ANSI 150

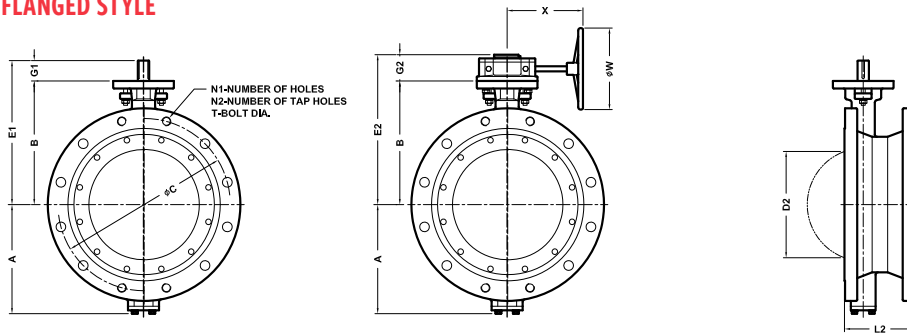
WAFER STYLE



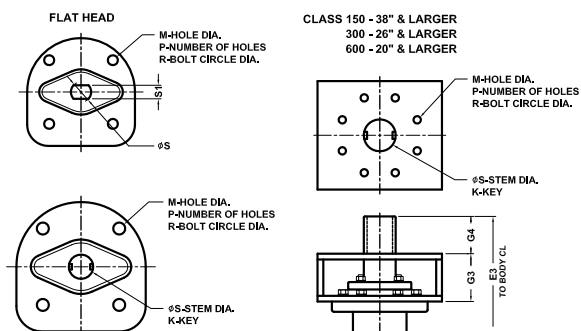
LUGGED STYLE



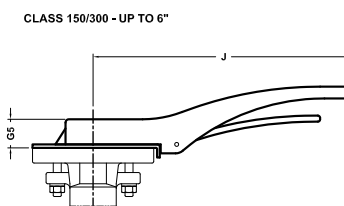
FLANGED STYLE



TOP WORKS



HAND LEVER



VALVE SIZE	G5	J
2"-3" Class 150 / 300	1.29	8.86
4"-6" Class 150 / 300	1.29	12.78

HP SERIES WEIGHTS

SIZE	CLASS 150	CLASS 300	CLASS 600	SIZE	CLASS 150	CLASS 300	CLASS 600
2"	9	9		18"	359	605	1,415
2.5"	15	15		20"	447	662	1,617
3"	22	22	53	24"	763	1,005	2,110
4"	24	24	68	26"	840	1,322	
5"	29	40	114	28"	895	1,516	
6"	33	48	163	30"	1,014	1,712	
8"	55	81	260	32"	1,129	1,881	
10"	99	178	438	36"	1,560	2,262	
12"	143	196	667	40"	2,125	2,750	
14"	178	328	920	42"	2,363		
16"	323	464	1,122	48"	2,537		

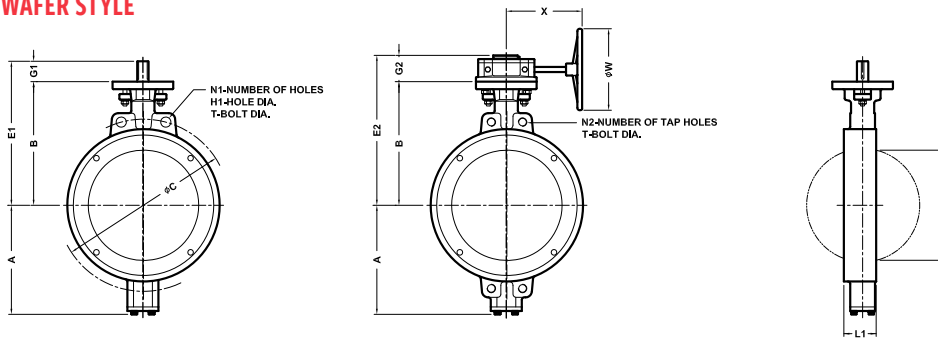
DIMENSIONS: CLASS 150

SIZE (INCH)	A	B	G1	G2	G3	G4	E1	E2	E3	X	W	D1	D2	L1	L2	C	T	FLANGED DRILLING						TOP WORKS						
																		WAFER			LUG	FLANGE			R	P	M	S1	S	KEY
																		N1	N2	H1	N2	N1	N2							
2	4.18	4.92	1.26	2.36	-	-	6.18	7.28	-	7.00	6.00	1.52	0.98	1.73	-	4.75	5/8"x11UNC	2	-	3/4	4	-	-	3.25	4	0.43	0.374	0.551	-	
2.5	4.26	5.87	1.26	2.36	-	-	7.13	8.23	-	7.00	6.00	2.18	1.63	1.89	-	5.50	5/8"x11UNC	2	-	3/4	4	-	-	3.25	4	0.43	0.437	0.624	-	
3	4.65	6.30	1.26	2.36	-	-	7.56	8.66	-	7.00	6.00	2.71	2.14	1.93	-	6.00	5/8"x11UNC	2	-	3/4	4	-	-	3.25	4	0.43	0.437	0.624	-	
4	5.12	7.01	1.26	2.36	-	-	8.27	9.37	-	7.00	6.00	3.54	3.03	2.13	5.00	7.50	5/8"x11UNC	2	-	3/4	8	4	4	3.25	4	0.43	0.500	0.748	-	
5	5.79	7.60	1.26	2.36	-	-	8.86	9.96	-	7.00	6.00	4.50	4.05	2.24	5.51	8.50	3/4"x10UNC	2	-	7/8	8	4	4	3.25	4	0.43	0.500	0.748	-	
6	6.81	8.39	1.26	2.36	-	-	9.65	10.75	-	7.00	6.00	5.39	4.98	2.24	5.51	9.50	3/4"x10UNC	2	-	7/8	8	4	4	3.25	4	0.43	0.500	0.748	-	
8	7.99	9.45	1.26	2.73	-	-	10.71	12.18	-	10.07	12.00	7.24	6.93	2.56	5.98	11.75	3/4"x10UNC	2	-	7/8	8	4	4	5.00	4	0.55	0.626	0.874	-	
10	8.97	11.02	2.05	2.73	-	-	13.07	13.75	-	10.07	12.00	9.13	8.81	2.83	6.50	14.25	7/8"x9UNC	2	-	1	12	8	4	5.00	4	0.55	-	1.124	0.25x0.25	
12	10.74	12.20	2.01	2.73	-	-	14.21	14.93	-	10.07	12.00	10.90	10.50	3.19	7.01	17.00	7/8"x9UNC	2	-	1	12	8	4	5.00	4	0.55	-	1.124	0.25x0.25	
14	12.12	13.19	2.24	3.44	-	-	15.43	16.63	-	12.00	12.00	12.31	11.95	3.62	7.48	18.75	1"x8UNC	2	-	1-1/8	12	8	4	5.00	4	0.55	-	1.374	0.31x0.31	
16	13.70	15.47	2.99	3.44	-	-	18.46	18.91	-	12.00	12.00	14.08	13.78	4.02	8.50	21.25	1"x8UNC	2	-	1-1/8	16	12	4	6.50	4	0.83	-	1.874	0.50x0.50	
18	15.07	16.54	2.99	4.03	-	-	19.53	20.57	-	12.09	16.00	16.22	15.86	4.49	8.74	22.75	1 1/8"x8UN	-	4	-	16	12	4	6.50	4	0.83	-	1.874	0.50x0.50	
20	16.26	17.72	2.99	4.03	-	-	20.71	21.75	-	12.09	16.00	17.84	17.51	5.00	9.02	25.00	1 1/8"x8UN	-	4	-	20	16	4	6.50	4	0.83	-	2.124	0.50x0.50	
22	17.71	19.29	4.02	5.12	-	-	23.31	24.41	-	16.93	23.62	19.53	19.28	6.06	10.51	27.25	1 1/4"x8UN	-	4	-	20	16	4	10.00	8	0.75	-	2.555	0.75x0.50	
24	19.09	20.87	4.02	5.12	-	-	24.89	25.99	-	16.93	23.62	21.24	21.02	6.06	10.51	29.50	1 1/4"x8UN	-	4	-	20	16	4	10.00	8	0.75	-	2.555	0.75x0.50	
26	20.27	22.24	4.02	5.12	-	-	26.26	27.36	-	16.93	23.62	22.71	22.36	6.50	11.50	31.75	1 1/4"x8UN	-	4	-	24	20	4	10.00	8	0.75	-	2.555	0.75x0.50	
28	21.65	23.62	4.02	5.12	-	-	27.64	28.74	-	16.93	23.62	24.76	24.49	6.50	11.50	34.00	1 1/4"x8UN	-	4	-	28	24	4	10.00	8	0.75	-	2.555	0.75x0.50	
30	23.42	25.39	4.45	6.81	-	-	29.84	32.20	-	18.82	27.56	26.45	26.18	7.48	12.52	36.00	1 1/4"x8UN	-	4	-	28	24	4	10.00	8	0.75	-	3.146	0.87x0.55	
32	24.60	26.38	4.45	6.81	-	-	30.83	33.19	-	18.82	27.56	28.42	28.19	7.48	12.52	38.50	1 1/2"x8UN	-	4	-	28	24	4	10.00	8	0.75	-	3.146	0.87x0.55	
34	26.57	27.56	4.45	6.81	-	-	32.01	34.37	-	18.82	27.56	30.16	29.96	7.99	12.99	40.50	1 1/2"x8UN	-	4	-	32	28	4	10.00	8	0.75	-	3.146	0.87x0.55	
36	26.77	28.74	4.45	6.81	-	-	33.19	35.55	-	18.82	27.56	32.16	31.93	7.99	12.99	42.75	1 1/2"x8UN	-	4	-	32	28	4	10.00	8	0.75	-	3.146	0.87x0.55	
38	27.56	27.56	-	6.69	5.91	4.72	-	40.16	38.19	22.83	27.56	33.93	33.66	8.50	16.14	45.25	1 1/2"x8UN	-	4	-	32	28	4	11.73	8	0.91	-	3.933	1.10x0.63	
40	29.84	30.12	-	6.69	5.91	4.72	-	42.72	40.75	22.83	27.56	36.33	35.98	8.50	16.14	47.25	1 1/2"x8UN	-	4	-	36	32	4	11.73	8	0.91	-	3.933	1.10x0.63	
42	31.10	30.71	-	6.69	6.30	4.72	-	43.70	41.73	22.83	27.56	37.91	37.76	9.49	16.93	49.50	1 1/2"x8UN	-	4	-	36	28	8	11.73	8	0.91	-	3.933	1.10x0.63	
48	35.43	34.65	-	6.69	6.30	5.31	-	47.64	46.26	22.83	27.56	43.93	43.46	10.00	18.50	56.00	1 1/2"x8UN	-	8	-	44	36	8	11.73	8	0.91	-	4.720	1.26x0.71	

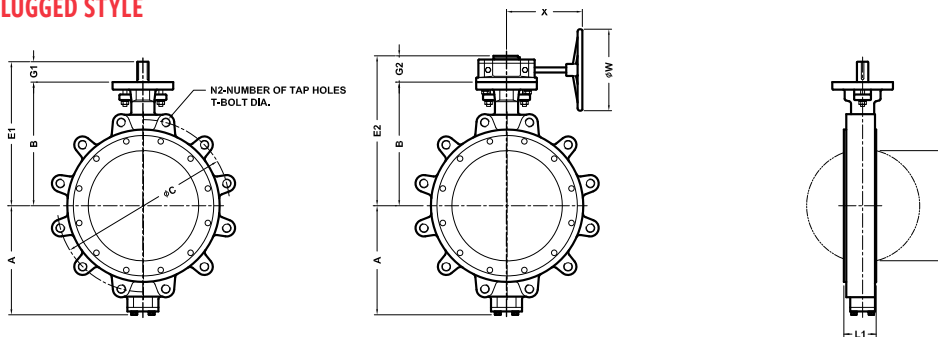
DIMENSIONAL DATA

Pratt® HP Series High Performance Double Offset BFV, ANSI 300 & ANSI 600

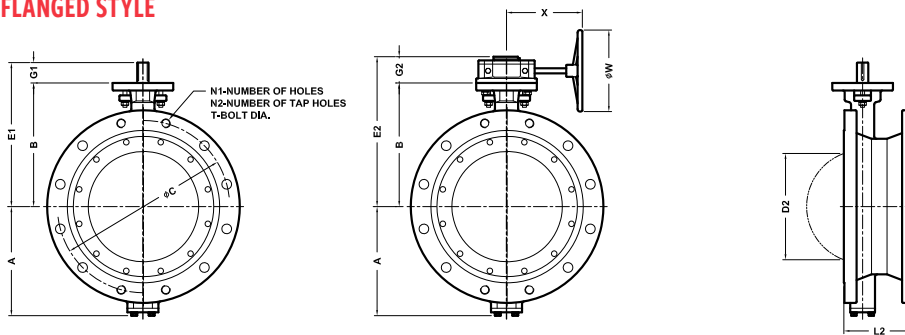
WAFER STYLE



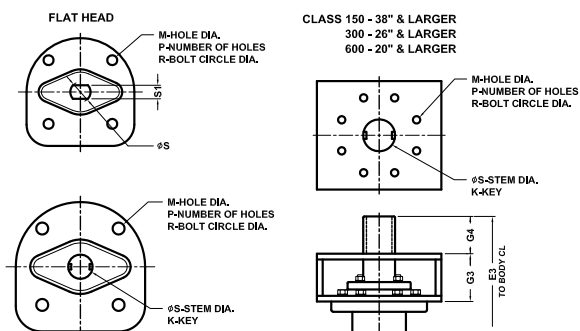
LUGGED STYLE



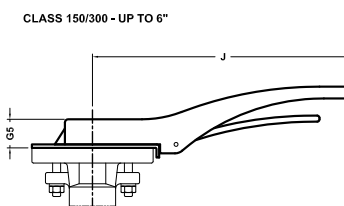
FLANGED STYLE



TOP WORKS



HAND LEVER



VALVE SIZE	G5	J
2"-3" Class 150 / 300	1.29	8.86
4"-6" Class 150 / 300	1.29	12.78

DIMENSIONS: CLASS 300

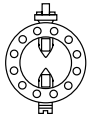
SIZE (INCH)	A	B	G1	G2	G3	G4	E1	E2	E3	X	W	D1	D2	L1	L2	C	T	FLANGED DRILLING						TOP WORKS					
																		WAFER		LUG		FLANGE		R	P	M	S1	S	KEY
																		N1	N2	H1	N2	N1	N2						
2	4.18	4.92	1.26	2.36	-	-	6.18	7.28	-	7.00	6.00	1.52	0.98	1.73	-	5.00	5/8"x11UNC	2	-	3/4	8	-	-	3.25	4	0.43	0.374	0.551	-
2.5	4.26	5.87	1.26	2.36	-	-	7.13	8.23	-	7.00	6.00	2.18	1.63	1.89	-	5.88	3/4"x10UNC	2	-	7/8	8	-	-	3.25	4	0.43	0.437	0.624	-
3	4.65	6.30	1.26	2.36	-	-	7.56	8.66	-	7.00	6.00	2.71	2.14	1.93	-	6.62	3/4"x10UNC	2	-	7/8	8	-	-	3.25	4	0.43	0.437	0.624	-
4*	5.12	7.01	1.26	2.36	-	-	8.27	9.37	-	7.00	6.00	3.54	3.03	2.13	5.00	7.88	3/4"x10UNC	2	-	7/8	8	4	4	3.25	4	0.43	0.500	0.748	-
5	5.79	7.60	1.26	2.36	-	-	8.86	9.96	-	7.00	6.00	4.50	4.05	2.24	5.51	9.25	3/4"x10UNC	2	-	7/8	8	4	4	3.25	4	0.43	0.500	0.748	-
6	7.17	8.66	1.26	2.36	-	-	9.92	11.02	-	7.00	6.00	5.32	4.96	2.32	5.51	10.62	3/4"x10UNC	2	-	7/8	12	8	4	3.25	4	0.43	0.500	0.748	-
8	8.77	10.24	2.01	2.73	-	-	12.25	12.97	-	10.07	12.00	7.25	6.81	2.87	5.98	13.00	7/8"x9UNC	2	-	1	12	8	4	5.00	4	0.55	-	1.124	0.25x0.25
10	9.84	11.42	2.01	2.73	-	-	13.43	14.15	-	10.07	12.00	8.90	8.58	3.27	6.50	15.25	1"x8UNC	-	4	-	16	12	4	5.00	4	0.55	-	1.124	0.25x0.25
12	11.06	12.80	2.09	3.44	-	-	14.89	16.24	-	12.00	12.00	10.57	10.28	3.62	7.01	17.75	1 1/8"x8UNC	-	4	-	16	12	4	5.00	4	0.55	-	1.374	0.31x0.31
14	13.11	14.76	2.99	4.02	-	-	17.75	18.78	-	12.09	16.00	11.93	11.66	4.61	7.48	20.25	1 1/8"x8UNC	-	4	-	20	16	4	6.50	4	0.83	-	1.874	0.50x0.50
16	14.88	16.73	2.99	4.02	-	-	19.72	20.75	-	12.09	16.00	13.58	13.19	5.24	8.50	22.50	1 1/4"x8UNC	-	4	-	20	16	4	6.50	4	0.83	-	2.122	0.50x0.50
18	16.53	18.31	4.02	5.12	-	-	22.33	23.43	-	16.93	23.62	15.71	15.39	5.87	8.74	24.75	1 1/4"x8UNC	-	4	-	24	20	4	10.00	8	0.75	-	2.555	0.75x0.50
20	18.11	19.88	4.02	5.12	-	-	23.90	25.00	-	16.93	23.62	17.88	17.52	6.26	9.02	27.00	1 1/4"x8UNC	-	4	-	24	20	4	10.00	8	0.75	-	2.555	0.75x0.50
24	20.94	22.83	4.45	6.81	-	-	27.28	29.64	-	18.82	27.56	20.95	20.55	7.13	10.51	32.00	1 1/2"x8UNC	-	4	-	24	20	4	10.00	8	0.75	-	3.146	0.87x0.55
26	22.05	22.64	-	6.81	5.91	4.45	-	35.36	33.00	18.82	27.56	22.05	21.69	8.27	11.50	34.50	1 5/8"x8UNC	-	4	-	28	24	4	10.00	8	0.71	-	3.146	0.87x0.55
28	24.02	24.02	-	6.69	6.30	4.72	-	37.01	35.04	22.83	27.56	23.82	23.42	9.02	11.50	37.00	1 5/8"x8UNC	-	4	-	28	24	4	11.73	8	0.91	-	3.933	1.10x0.63
30	25.98	25.59	-	6.69	6.30	4.72	-	38.58	36.61	22.83	27.56	26.47	25.87	9.06	12.52	39.25	1 3/4"x8UNC	-	4	-	28	24	4	11.73	8	0.91	-	3.933	1.10x0.63
32	26.38	26.38	-	6.69	6.30	4.72	-	39.37	37.40	22.83	27.56	28.66	28.26	9.49	12.52	41.50	1 7/8"x8UNC	-	8	-	28	20	8	11.73	8	0.91	-	3.933	1.10x0.63
36	29.72	29.92	-	6.69	6.30	5.31	-	42.91	41.53	22.83	27.56	32.60	32.05	10.75	12.99	46.00	2"x8UNC	-	8	-	32	24	8	11.73	8	0.91	-	4.720	1.26x0.71
40	29.84	30.71	-	8.15	6.69	5.91	-	45.55	43.31	23.82	31.50	35.47	35.35	11.81	16.14	45.50	1 5/8"x8UNC	-	8	-	32	24	8	14.02	8	1.30	-	5.508	1.42x0.79
42	31.10	31.89	-	8.15	6.69	5.91	-	46.73	44.49	23.82	31.50	36.53	36.35	11.81	16.14	47.50	1 5/8"x8UNC	-	8	-	32	24	8	14.02	8	1.30	-	5.508	1.42x0.79
48	34.84	36.61	-	9.29	7.87	6.89	-	53.77	51.37	24.96	35.43	41.93	41.38	13.78	18.50	54.00	1 7/8"x8UNC	-	8	-	32	24	8	15.98	8	1.54	-	6.920	1.77x0.98

*Flanged Type - A: 5.99 B: 7.48 E1: 8.74 E2: 10.51

DIMENSIONS: CLASS 600

SIZE (INCH)	A	B	G1	G2	G3	G4	E1	E2	E3	X	W	D1	D2	L1	L2	C	T	FLANGED DRILLING						TOP WORKS					
																		WAFER		LUG		FLANGE		R	P	M	S1	S	Key
																		N1	N2	H1	N2	N1	N2						
3	5.16	6.57	1.18	2.36	-	-	7.75	8.93	-	7.00	6.00	2.67	2.51	2.17	-	6.62	3/4"x10UNC	2	-	7/8	8	-	-	3.25	4	0.43	0.500	0.748	-
4	5.95	7.68	1.26	2.73	-	-	8.94	10.41	-	10.07	12.00	3.61	2.94	2.52	7.48	8.50	7/8"x9UNC	2	-	1	8	4	4	5.00	4	0.55	0.624	0.874	-
6	8.38	9.45	2.24	3.44	-	-	11.69	12.89	-	12.00	12.00	5.00	4.22	3.07	8.27	11.50	1"x8UNC	-	4	-	12	8	4	5.00	4	0.55	-	1.374	0.31x0.31
8	9.76	11.42	2.99	4.02	-	-	14.41	15.44	-	12.09	16.00	6.35	5.71	4.06	9.06	13.75	1 1/8"x8UNC	-	4	-	12	8	4	6.50	4	0.83	-	1.874	0.50x0.50
10	11.33	13.19	2.99	4.02	-	-	16.18	17.21	-	12.09	16.00	8.11	7.84	4.61	9.84	17.00	1 1/4"x8UNC	-	4	-	16	12	4	6.50	4	0.83	-	1.874	0.50x0.50
12	13.11	15.16	4.02	5.12	-	-	19.18	20.28	-	16.93	23.62	9.69	9.41	5.51	10.63	19.25	1 1/4"x8UNC	-	4	-	20	16	4	10.00	8	0.75	-	2.358	0.75x0.50
14	14.96	17.13	4.02	5.12	-	-	21.15	22.25	-	16.93	23.62	10.94	10.43	6.10	11.42	20.75	1 3/8"x8UNC	-	4	-	20	16	4	10.00	8	0.75	-	2.555	0.75x0.50
16	16.33	18.70	4.02	5.12	-	-	22.72	23.82	-	16.93	23.62	12.68	12.28	7.01	12.20	23.75	1 1/2"x8UNC	-	4	-	20	16	4	10.00	8	0.75	-	2.555	0.75x0.50
18	18.11	19.69	4.45	6.81	-	-	24.14	26.50	-	18.82	27.56	14.46	14.45	7.87	12.99	25.75	1 5/8"x8UNC	-	4	-	20	16	4	10.00	8	0.75	-	3.146	0.87x0.55
20	19.29	19.69	-	6.69	5.91	4.72	-	32.29	30.32	22.83	27.56	15.75	15.31	8.50	13.78	28.50	1 5/8"x8UNC	-	4	-	24	20	4	11.73	8	0.91	-	3.933	1.10x0.63
24	23.03	22.83	-	6.69	6.30	4.72	-	35.82	33.85	22.83	27.56	19.92	19.37	9.13	15.35	33.00	1 7/8"x8UNC	-	4	-	24	16	8	11.73	8	0.91	-	3.933	1.10x0.63

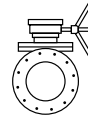
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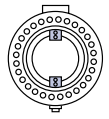
MODEL 2FII



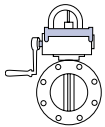
MONOFLANGE MKII



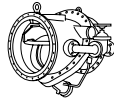
PLUG VALVES



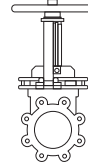
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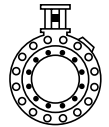
**INDICATING BUTTERFLY
VALVES UL & FM APPROVED**



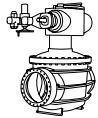
**TILTING DISC
CHECK VALVES**



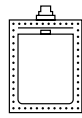
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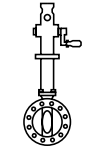
**N-STAMP NUCLEAR
BUTTERFLY VALVES**



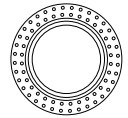
CONE VALVES



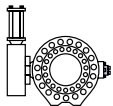
RECTANGULAR



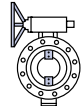
**PIVA POST INDICATING VALVES
ASSEMBLY UL & FM APPROVED**



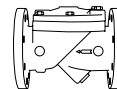
SLEEVE VALVES



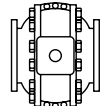
**RUBBER SEATED
BALL VALVES**



TRITON® 250



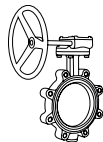
CHECK VALVES



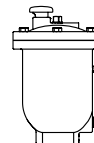
**METAL SEATED
BALL VALVE**



CONTROL SYSTEMS



INDUSTRIAL VALVES



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