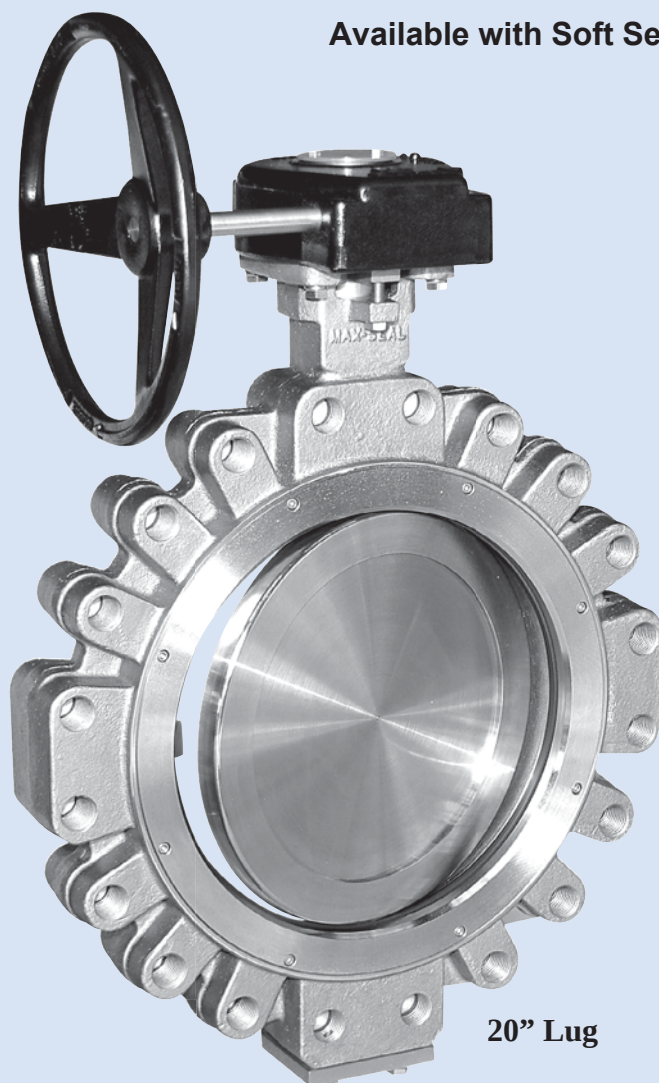




MAX-SEAL HP SERIES

High Performance Butterfly Valves Double Offset Eccentric Design

Available with Soft Seating, Metal Seating, & Fire Safe Design



20" Lug

MODEL BL630

Size Range:
2"–24", optional thru 120"



6" Wafer

MODEL BW630

Pressure Range: ANSI Class
150/300/600/900

Max-Seal Performance Series valves are designed and manufactured in accordance with the requirements of USCG CFR 46 Category A.

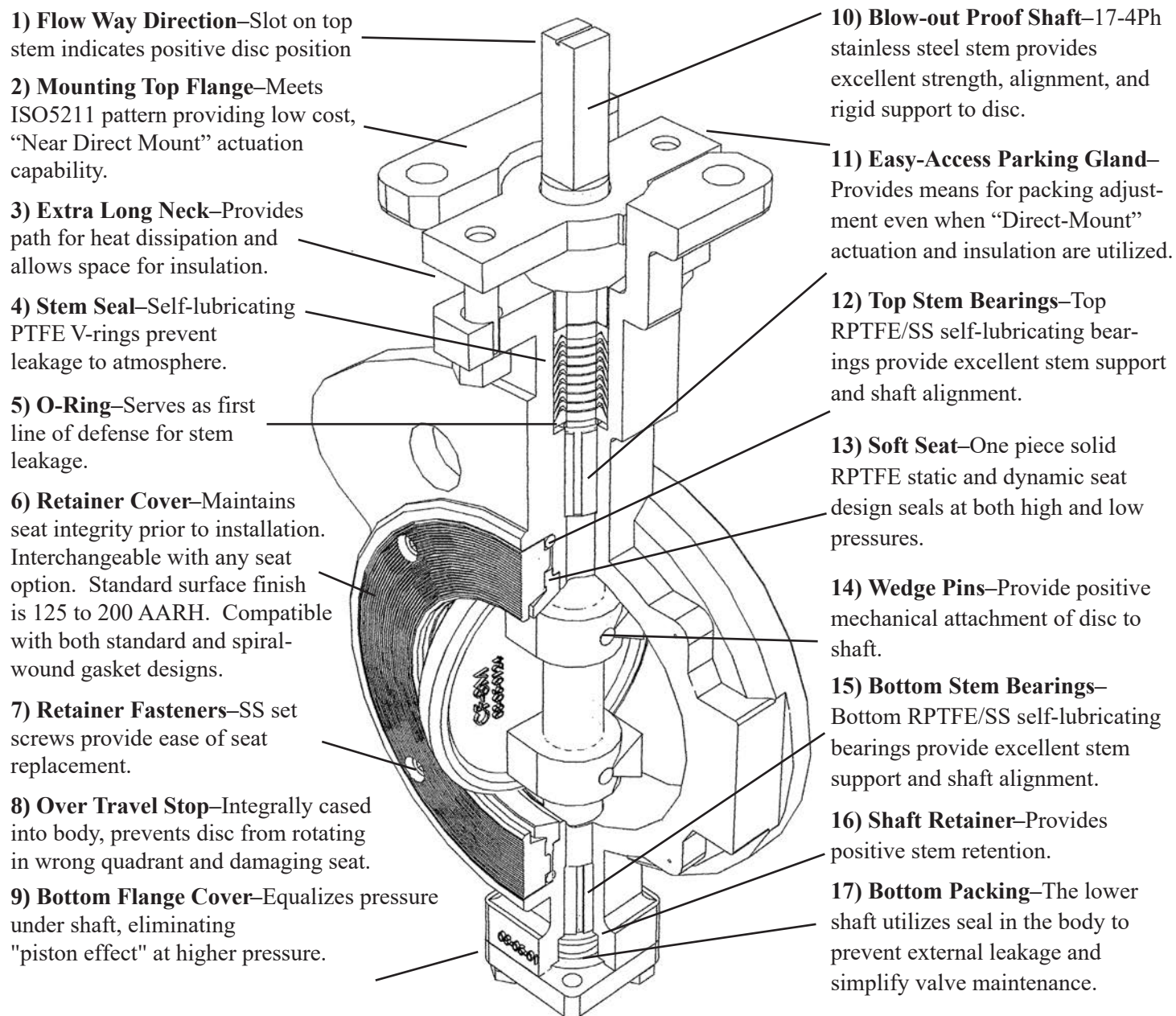


Max-Seal High Performance Butterfly Valves are backed by the resources and experience of over 36 years of process valve and automation experience.

www.maxsealinc.com

VALVE DESIGN FEATURES

Max-Seals's high performance butterfly was introduced in 1987. The MAX-SEAL valve is the result of years of experience in the design and manufacturing of ball and butterfly valves. All valves are leak tested per API 598 standards, and tagged per MSS-SP25 & API 609B specifications.



Range of Applications:

- Chemical & petrochemical
- Power generation plants
- Ship building industries
- Fiber industries
- Food industries
- LNG, HRSG industries
- Oil refinery industries
- Desalination industries
- Steel & iron industries
- Pulp & paper plants
- Coal & mining industries
- Higher Pressure HVAC Applications

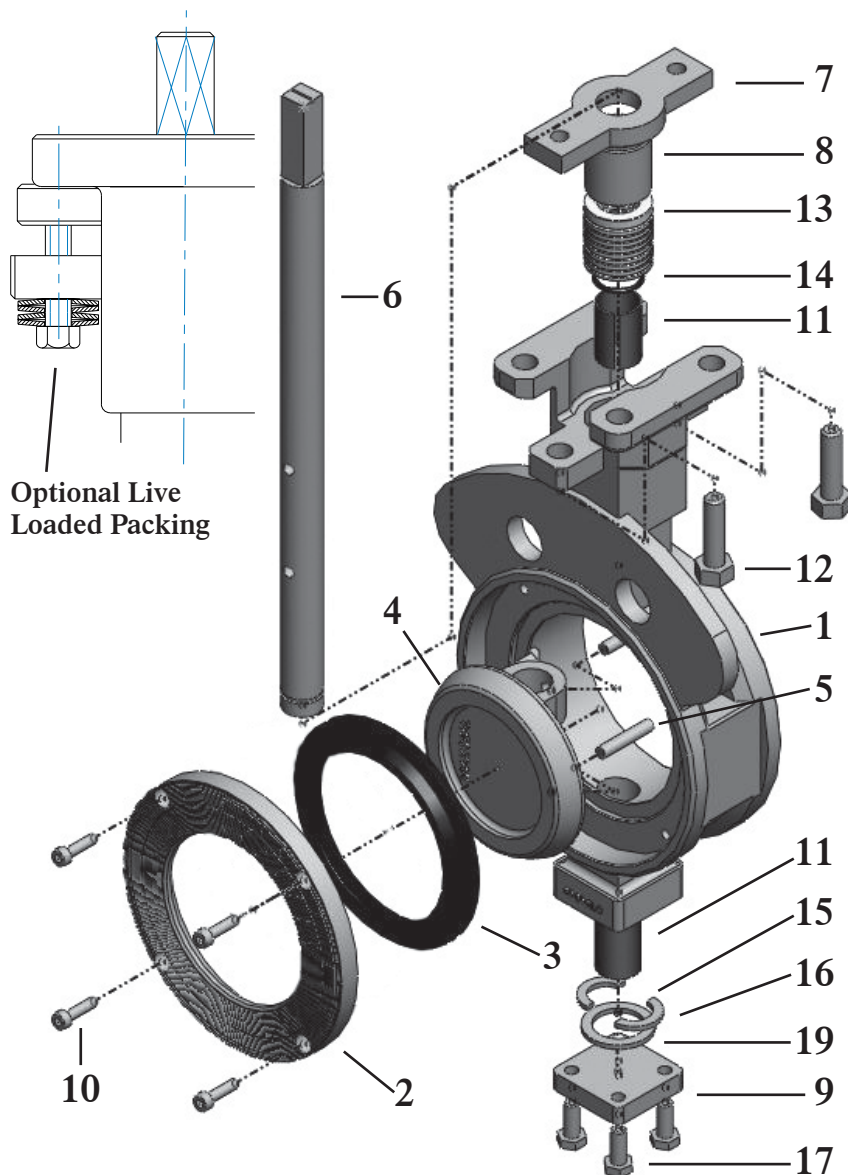
Specific descriptions, dimensions, and construction details illustrated may vary slightly from this bulletin. They are for general use only. We reserve the right to revise or modify product design without prior notice.

BUTTERFLY VALVES - DOUBLE OFFSET / ECCENTRIC DESIGN

Standard Bill of Materials

No	Part	Qty	Material	Code
1	Valve Body	1	Carbon Steel A216 Gr. WCB	CS
			SS304 A351 Gr. CF8	S4
			SS316 A351 Gr. CF8M	SS
			Alloy 20 A351 Gr. CN7M	A2
			Al-Bronze B148 C95800	AB
			Ductile Iron ASTM A395	DI
2	Seat Retainer	1	Carbon Steel A216 Gr. WCB	CS
			SS304 A351 Gr. CF8	S4
			SS316 A351 Gr. CF8M	SS
			Al-Bronze B148 C95800	AB
3	Seat	1	PTFE	T
			TFM	F
			RPTFE	R
			Fire Safe	FS
			Metal	M
4	Disc	1	SS304 A351 Gr. CF8	S4
			SS316 A351 Gr. CF8M	SS
			Alloy 20 A351 Gr. CN7M	A2
			Monel 400 M35-1	M4
5	Disc Pins	2	SS304 A240 Tp 304	S4
			SS316 A240 Tp 316	SS
			Monel K500	M5
6	Stem	1	SS304 A276 Tp 304	S4
			SS316 A276 Tp 316	SS
			Monel K500	M5
			17-4PH A564 Gr. 630	S7
7	Packing Gland	1	SS400 A283-C	CS
			SS304 A351 Gr. CF8	S4
8	Packing Follower	1	SS400 A283-C	CS
			SS304 A351 Gr. CF8	S4
9	Bottom Cover	1	SS400 A283-C	CS
			SS304 A240 Tp 304	S4
			SS316 A240 Tp 316	S6
10	Retainer Bolts	2	SS304 A193 Gr. B8	S4
			SS316 A193 Gr. B8M	SS
11	Stem Bearings	2	SPCC	SP
			Stainless Steel & RTFE	SR
			Stainless Steel	SS
12	Gland Bolts	4	SS304 A193 Gr. B8	S4
13	Stem Packing	1 set	PTFE	T
			Graphite	G
14	Packing Retainer	1	Viton	V
15	Shaft Retainer	1	SS316 A276 Tp 316	SS
16	Bottom Packing	1	PTFE	T
			Graphite	G
17	Bottom Bolts	4	SS304 A193 Gr. B8	S4

Exploded View



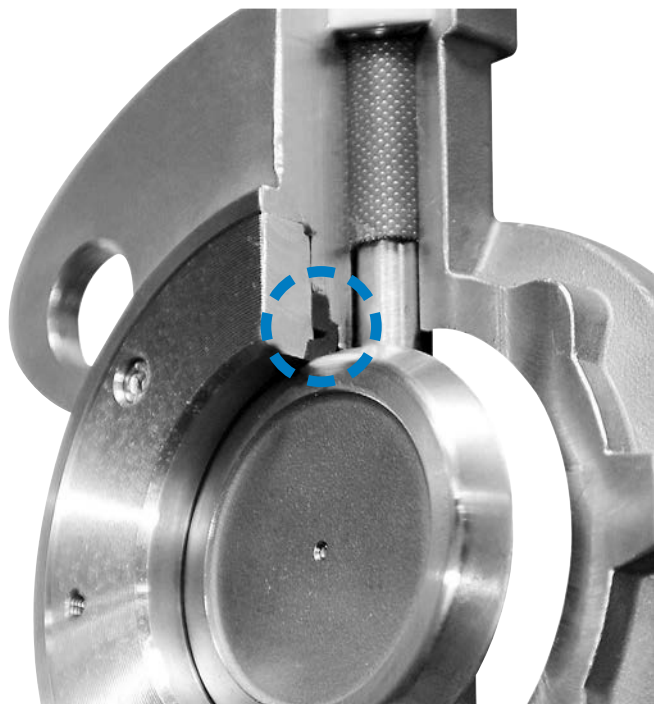
* Special material can be produced to meet customer's special requirements.

HIGH PERFORMANCE BUTTERFLY VALVE MODEL NUMBER CODES

Model	Pressure Class		Body Material		Disc Material		Stem Material		Seat Material		Stem Seal		Operator	
Wafer-BW Lug-BL	150	630	316SS	SS	316SS	SS	316SS	SS	PTFE	T	PTFE	T	Lever	L
	300	730	WCB	CS	304SS	S4	17-4ph	S7	RPTFE	R	RPTFE	R	Gear	G
	600	830	Ductile Iron	DI			304SS	S4	Metal	M	Graphite	G	Bare Stem	N

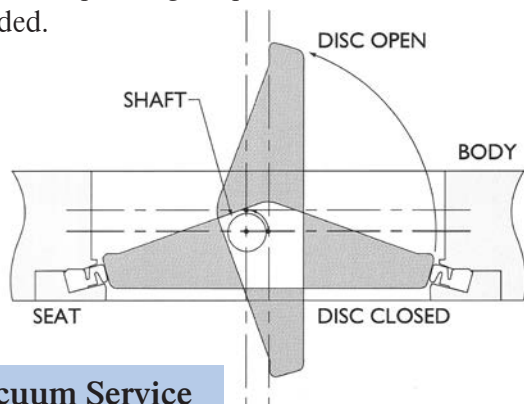
ORDERING EXAMPLE BY PART NUMBER

Wafer	Class150	316SS	316SS	17-4ph	RPTFE	Graphite	Lever
Model	Pressure Class	Body	Disc	Stem	Seat	Stem Seal	Operator
BW	630	SS	SS	S7	R	G	L



Eccentric Double Offset Design Seating

The double offset shaft/disc design ensures bi-directional sealing throughout the full pressure range of the valve. The cam-like action produced by the offset stem and disc, effectively lifts the disc off the seat during the initial opening of the valve, reducing seat wear and eliminating seat deformation at the top and bottom. When the disc is in the open position, there is no contact between the disc and seat. Operating torques are reduced and seat life is extended.



Vacuum Service

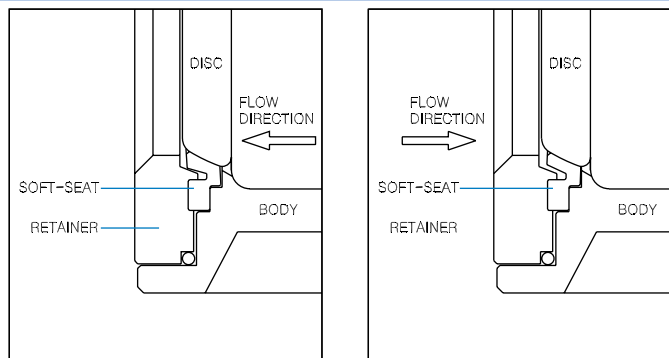
The drop tight sealing capabilities of MAX-SEAL valves are excellent for vacuum service. ***Soft seated standard valves are suitable for vacuum service to 20 microns.*** Denote vacuum service on the order.

Dead End Service

MAX-SEAL lug bodies for dead-end service are offered as standard in full ANSI Class 150 and 300.

Structural Characteristics of the MAX-SEAL High Performance Butterfly Valve Seat Design

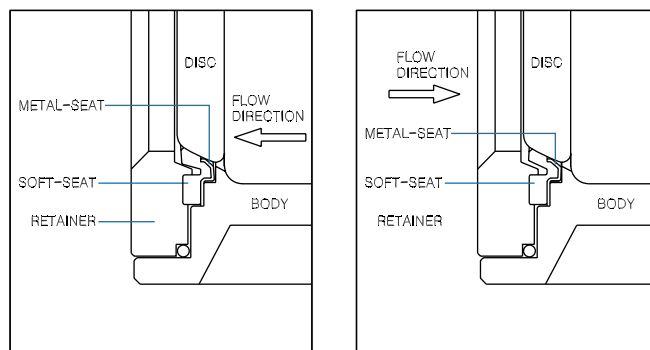
Soft Seat High Performance Butterfly Valve



Seat Material Maximum Working Temperature:

PTFE-SEAT 190°C (375°F)	TFM-SEAT 246°C (475°F)
RPTFE-SEAT 230°C (446°F)	UHMWPE-SEAT 82°C (180°F)
PEEK-SEAT 270°C (529°F)	

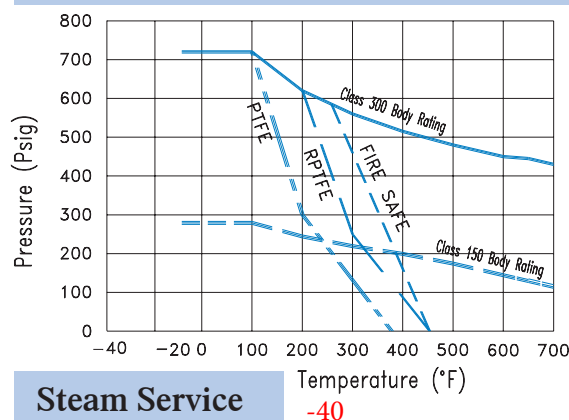
Fire-Safe Seat High Performance Butterfly Valve



Seat Material Maximum Working Temperature:

SS316L*RPTFE 230°C (446°F)
FIRE-SAFE to API 607 5th Edition
SEAT LEAKAGE - Leakage of soft seated version is ZERO

PRESSURE TEMPERATURE RATING



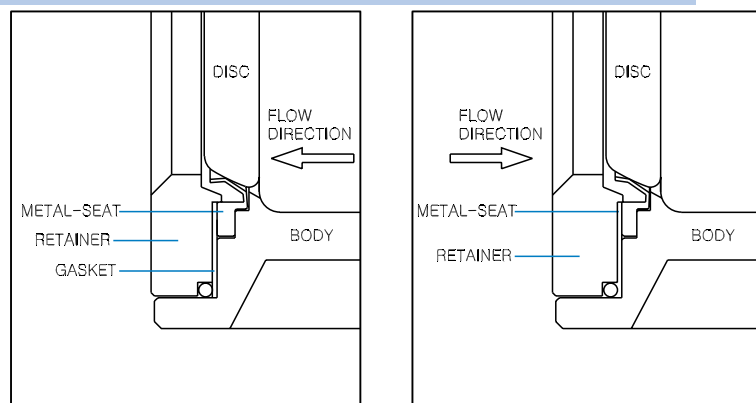
Steam Service

MAX-SEAL standard valves are ideally suited for saturated steam applications to 120 psig steam (RPTFE seat). Carbon filled TFM seats and high temperature graphite stem packing can handle pressure up to 200 psig steam.

SEVERE SERVICE - METAL SEATED VALVES

The Max-Seal metal seated valves are designed to provide high performance service in abrasive, dirty and/or high temperature applications. Uniquely designed for reliable, tight shut-off Performance up to ANSI-FCI 70-2 Class V leakage criteria.

Metal Seat High Performance Butterfly Valve



Seat Material Maximum Working Temperature

METAL-SEAT 315°C (600°F) (316L)

Class V of ANSIB16. 104 leakage rate.

PRODUCT IDENTIFICATION

=MAX-SEAL=

Model #: _____

Trim: _____

Size: _____

Rating: _____

Body

Disc

Seat

Psi/CWP

Max-T

No: _____

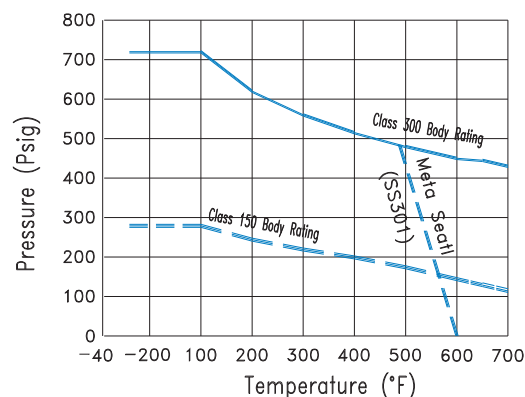
Date: _____

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Every Max-Seal valve has a special identification tag attached to the valve body. Information includes valve figure number, the size and pressure class, the materials of construction, and the operating pressures and temperatures.

The metal tag also includes a serial number; The serial number is recorded by the Max-Seal Quality Control Department along with the test results and material certification data, for individual traceability and certification of every valve produced.

PRESSURE TEMPERATURE RATING



Standard Specifications

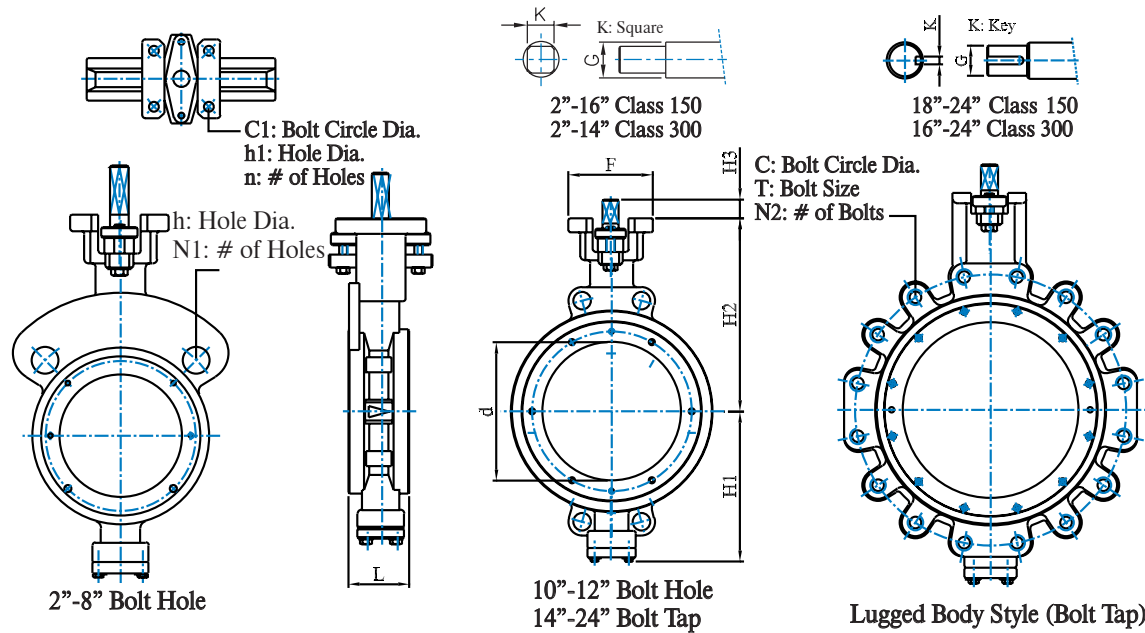
- Body Style: Wafer, Lug
- Valve Size: 2"-40" (50-1000mm)
- Rating: ANSI Class 150, ANSI Class 300
- Applicable Flange Standard: ANSI B16.5
- Face to Face Dimensions: API 609, MSS SP68, ISO5752
- Actuator Mounting Flange: ISO 5211
- Valve Design: MSS SP-68
- Valve Design: API 609
- Valve Marking: MSS SP-25
- Valve Testing: API 598 Inspection and Testing
- Valve Testing: MSS SP-61 Testing of Steel Valves
- Valve Design: ANSI B16.34
- Valve Material: NACE MR-01-TS
- Valve to have Official API Monogram
- Valve to API Specification Q1
- Valve to API ISO 9001:2000
- Valve to ISO/TS 29001

A wide selection of higher pressures & sizes reaching up to 120 inch, ANSI Class 300, 600 & 900 are available on a special order basis.

Every Valve is Strength Tested

Shell tested to 150% of rated pressure with the disc open... hydro-static seat tested for bi-directional positive shutoff without leakage at 110% of rated pressure. We also test for absence of leakage into valve shaft bearing areas. Only valves meeting a positive shut-off standard are approved for shipment.





*C/F Factory for larger sizes from 28" - 120"

ANSI Class 150 High Performance Butterfly Valves - Model 630

			H1		H2						Lug / Wafer Drilling					Top Plate Drilling				Weight Lb	
Size	d	L	Wafer	Lug	Wafer	Lug	H3	F	G	K	C	h	T	N1	N2	C1	n	h1	ISO	BW630-SS	BL630-SS
2"	1.93	1.69	3.31	3.31	4.84	4.84	1.38	2.76	0.512	0.433	4.75	0.79	5/8-11	2	4	2.76	4	0.39	F07	6.0	11.5
2.5"	2.44	1.81	3.66	3.66	5.67	5.67	1.38	2.76	0.512	0.433	5.50	0.79	5/8-11	2	4	2.76	4	0.39	F07	8.5	16.0
3"	2.87	1.89	4.13	4.06	6.06	6.06	1.38	2.76	0.630	0.433	6.00	0.79	5/8-11	2	4	2.76	4	0.39	F07	10.5	20.5
4"	3.74	2.13	4.65	4.57	6.85	6.85	1.38	2.76	0.630	0.433	7.50	0.79	5/8-11	2	8	2.76	4	0.39	F07	14.0	26.5
5"	4.72	2.20	5.39	5.67	7.68	7.36	1.38	2.76	0.748	0.551	8.50	0.91	3/4-10	2	8	2.76	4	0.39	F07	20.90	31.69
6"	5.55	2.24	6.14	5.98	8.50	8.66	1.38	2.76	0.866	0.669	9.50	0.91	3/4-10	2	8	2.76	4	0.39	F07	27.5	39.5
8"	7.64	2.52	7.28	6.97	9.84	10.04	1.97	4.53	1.102	0.866	11.75	0.91	3/4-10	2	8	4.02	4	0.47	F10	46.0	62.0
10"	9.41	2.83	9.17	8.98	11.22	11.14	1.97	4.53	1.181	0.866	14.25	1.02	7/8-9	4	12	4.92	4	0.51	F12	73.5	100.5
12"	11.30	3.19	10.24	10.20	12.80	12.76	1.97	5.12	1.378	1.063	17.00	1.02	7/8-9	4	12	4.92	4	0.59	F12	106.5	157.5
14"	13.03	3.62	11.65	12.05	14.57	14.57	1.97	5.12	1.575	1.063	18.75	1.14	1-8	4	12	4.92	4	0.59	F12	137.15	178.0
16"	15.08	4.02	13.35	13.35	16.54	16.54	2.17	6.10	1.772	1.417	21.25	1.14	1-8	4	16	5.51	4	0.75	F14	C/F	280
18"	17.09	4.49	14.29	14.29	17.52	17.52	3.15	6.50	1.969	0.63x0.39	22.75	1-1/8-8		4	16	6.50	4	0.91	F16	C/F	326
20"	18.98	5.00	16.46	16.46	19.69	19.29	3.15	6.50	2.165	0.63x0.39	25.00	1-1/8-8		4	20	6.50	4	0.91	F16	C/F	466
22"	20.47	6.06	17.05	-	20.87	-	3.15	9.06	2.362	0.71x0.43	27.25	1-1/4-8		4	20	10.0	8	0.75	F25	C/F	C/F
24"	22.83	6.06	18.43	18.43	22.64	21.85	4.33	9.84	2.559	0.79x0.47	29.50	1-1/4-8		6	20	10.0	8	0.75	F25	C/F	C/F

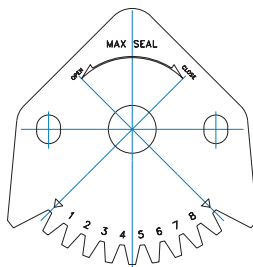
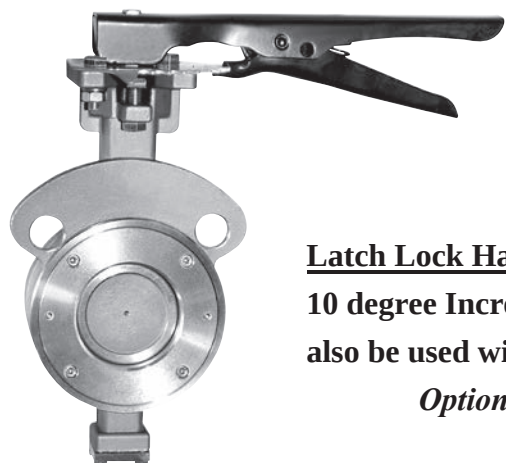
Valve Weights are for Bare Stem Valves

ANSI Class 300 High Performance Butterfly Valves - Model 730

			H1		H2						Lug / Wafer Drilling					Top Plate Drilling				Weight Lb	
Size	d	L	Wafer	Lug	Wafer	Lug	H3	F	G	K	C	h	T	N1	N2	C1	n	h1	ISO	BW730-SS	BL730-SS
2"	1.93	1.69	3.31	3.39	4.84	4.84	1.38	2.76	0.512	0.433	5.00	0.79	5/8 - 11	2	8	2.76	4	0.39	F07	6.0	11.5
2.5"	2.44	1.81	3.66	3.86	5.67	5.67	1.38	2.76	0.512	0.433	5.88	0.91	3/4 - 10	2	8	2.76	4	0.39	F07	C/F	16.0
3"	2.87	1.89	4.13	4.13	6.06	6.06	1.38	2.76	0.630	0.433	6.62	0.91	5/8 - 11	2	8	2.76	4	0.39	F07	10.55	20.5
4"	3.74	2.13	4.65	4.72	6.85	6.85	1.38	2.76	0.630	0.433	7.88	0.91	5/8 - 11	2	8	2.76	4	0.39	F07	14.15	26.5
5"	4.72	2.20	5.39	5.67	7.68	7.36	1.38	2.76	0.748	0.551	9.25	0.91	3/4 - 10	2	8	2.76	4	0.39	F07	C/F	C/F
6"	5.55	2.32	6.14	6.89	8.50	9.06	1.38	2.76	0.866	0.669	10.63	0.91	3/4 - 10	2	12	2.76	4	0.39	F07	28.60	52
8"	7.64	2.87	7.83	7.83	10.63	10.63	1.97	4.53	1.181	0.866	13.00	1.02	7/8 - 9	2	12	4.92	4	0.51	F12	60.30	94.5
10"	9.41	3.27	9.49	9.61	12.28	12.28	1.97	5.12	1.378	1.063	15.25	1 - 8		4	16	4.92	4	0.51	F12	C/F	145
12"	11.30	3.62	10.83	10.83	14.29	14.29	1.97	6.50	1.772	1.417	17.75	1-1/8 - 8		4	16	5.51	4	0.75	F14	C/F	228.5
14"	13.03	4.61	12.72	12.72	15.55	15.55	2.17	6.69	1.969	0.63x0.39	20.25	1-1/8 - 8		4	20	6.50	4	0.91	F16	C/F	C/F
16"	15.08	5.24	13.86	13.86	17.32	17.32	3.15	6.50	2.165	0.63x0.39	22.50	1 - 8		4	20	6.50	4	0.91	F16	314	C/F
18"	17.09	5.87	15.31	15.31	19.09	19.09	3.15	7.09	2.559	0.79x0.47	24.75	1-1/8 - 8		4	24	6.50	4	0.91	F16	C/F	C/F
20"	18.98	6.26	16.46	16.46	21.26	21.26	3.15	11.81	2.756	0.79x0.47	27.00	1-1/8 - 8		4	24	10.0	8	0.75	F25	346	C/F
24"	22.83	7.13	19.02	-	24.61	-	4.33	11.81	3.346	0.98x0.55	32.00	1-1/4 - 8		4	24	10.0	8	0.75	F25	C/F	C/F

Valve Weights are for Bare Stem Valves

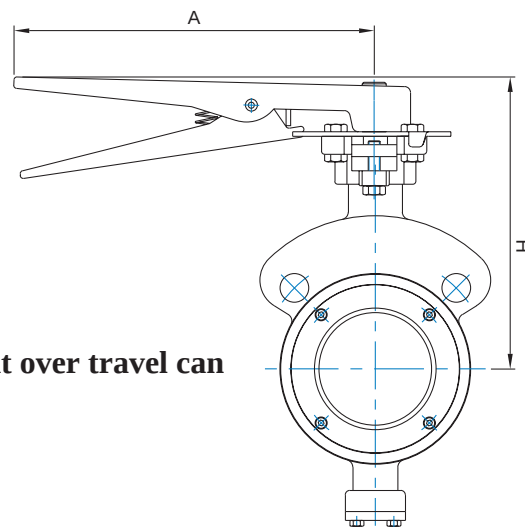
HANDLE AND GEAR OPERATOR DIMENSIONS



Latch Lock Handle:

10 degree Increments with off stop to prevent over travel can also be used with a padlock.

Optional: Infinite throttling plate



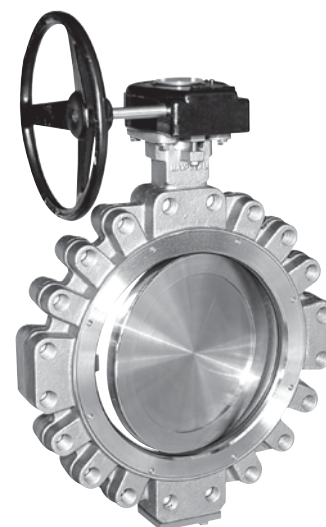
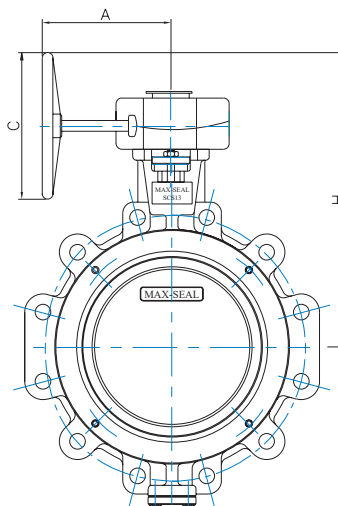
LOCK-LEVER TYPE HANDLE

SIZE	2"	2.5"	3"	4"	5"	6"	8" and Larger
H	6.26	7.09	7.48	8.27	9.02	9.80	Gear Operator Is Recommended
A	8.78	8.78	8.78	8.78	10.35	10.35	

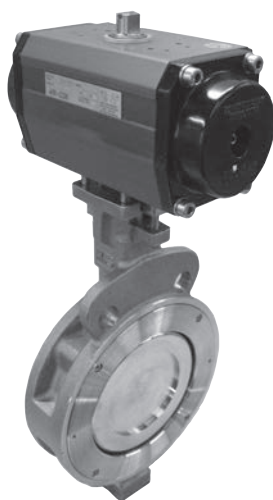
WORM GEAR TYPE OPERATOR (ANSI CLASS 150)

SIZE	2"	2.5"	3"	4"	5"	6"	8"	10"	12"	14"	16"
H	8.50	9.33	9.72	10.51	12.36	13.15	16.34	17.32	20.59	21.54	23.90
C	4.72	4.72	4.72	4.72	6.89	6.89	9.84	9.84	13.78	13.78	13.78
A	4.65	4.65	4.65	4.65	8.66	8.66	9.06	9.06	11.02	11.02	11.02

SIZE	18"	20"	22"	24"	26"	28"	30"	32"	34"	36"	40"
H	25.59	26.77	28.54	39.13	37.80	38.19	44.09	46.06	50.39	51.57	55.51
C	13.78	13.78	13.78	13.78	23.62	23.62	25.59	25.59	27.56	27.56	27.56
A	11.81	11.81	11.81	11.81	12.60	12.60	12.60	12.60	15.75	15.75	15.75



Max-Seal offers a broad line of Automation Systems for precise proportioning or on-off control in either *Pneumatic* or *Electrically* powered units.



Actuator Mounting Flange: Universally designed to mount valve automation equipment complying to ISO 5211. Sizes 2"–14" Class 150 & 2"–12" Class 300 can be directly mounted, larger sizes require a mounting bracket.

For Direct Mount Option: A mounting plate spacer is usually needed to compensate for the longer shaft of butterfly valves.

MAXSEAL 630 SERIES CV VALUE

SIZE		Angle of Opening								
INCH	MM	10°	20°	30°	40°	50°	60°	70°	80°	90°
2"	50	2	5	13	21	31	46	65	80	85
2 1/2"	65	4	8	21	35	52	76	106	130	140
3"	80	6	15	36	61	89	120	153	170	178
4"	100	14	35	70	107	170	258	320	360	374
5"	125	22	50	106	177	263	394	545	685	768
6"	150	40	100	165	265	405	605	815	980	1060
8"	200	65	160	295	505	810	1140	1605	1980	2120
10"	250	101	280	449	742	1131	1700	2315	3105	3340
12"	300	152	410	667	1091	1661	2545	3619	4450	4850
14"	350	211	584	900	1483	2167	3167	4511	5665	6344
16"	400	271	725	1199	1967	2939	4215	6128	7350	7980
18"	450	326	779	1401	2174	3520	5105	7325	9478	10275
20"	500	412	1045	1861	3070	4606	6717	9499	11905	13050
24"	600	624	1283	2821	4634	7004	10267	14297	17500	18896
26"	650	788	1830	3535	5757	8686	12827	17250	22500	23850
28"	700	667	2100	4010	6555	9807	14403	19800	24500	28081
30"	750	677	2500	4737	7444	11166	15902	22491	29850	32135
32"	800	1162	3010	5757	9494	14140	21109	27500	34050	38430
36"	900	1111	3700	7777	12221	18332	26109	35329	43500	48550
40"	1000	1414	4500	9598	15554	23331	33200	43900	55000	61000
Pressure Recovery Factor K_v		0.88	0.85	0.82	0.80	0.74	0.68	0.61	0.60	0.59

MAXSEAL 630 SERIES TORQUE VALUE, Class 150

SIZE		Soft Seated				Metal Seated			
INCH	MM	70 psi	150 psi	210 psi	285 psi	70 psi	150 psi	210 psi	285 psi
2"	50	218	244	261	270	435	479	487	496
2 1/2"	65	318	341	365	400	636	671	682	735
3"	80	387	429	456	525	787	829	856	927
4"	100	458	536	615	720	1008	1099	1151	1193
5"	125	785	882	962	1250	1458	1634	1746	2067
6"	150	978	1215	1417	1535	1890	2007	2125	2262
8"	200	1327	1857	1960	2270	2535	2786	3095	3417
10"	250	2099	2657	3200	3700	3599	4199	4956	5549
12"	300	2918	3824	4729	5635	4528	5837	7144	8375
14"	350	4325	5610	7165	9100	7913	10385	12858	13813
16"	400	5624	7652	9734	12775	9464	13248	15614	21523
18"	450	8130	10904	13356	17350	13380	17846	21811	25062
20"	500	10022	15818	17182	24000	17454	22909	29454	37028
24"	600	15195	20894	26117	31340	23268	30391	37513	47009

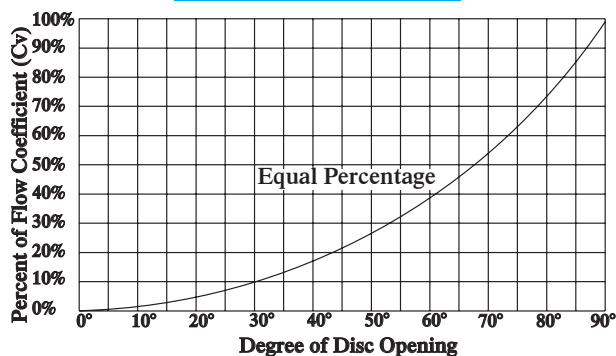
MAXSEAL 730 SERIES TORQUE VALUE, Class 300

SIZE		Soft Seated				Metal Seated			
INCH	MM	150 psi	350 psi	600 psi	740 psi	150 psi	350 psi	600 psi	740 psi
2"	50	353	444	466	478	671	727	773	784
2 1/2"	65	444	554	596	610	846	915	970	1025
3"	80	475	601	654	685	894	1006	1048	1160
4"	100	674	980	1072	1180	1379	1608	1900	2007
5"	125	975	1388	1618	1800	1866	2229	2543	2725
6"	150	1138	1611	1862	1965	1891	2438	2777	2999
8"	200	2055	2805	3278	3538	3309	4533	5266	5511
10"	250	2888	4470	5282	5892	4571	6965	7952	8489
12"	300	3992	6666	8039	8627	6092	12604	15327	17856
14"	350	5891	11577	14472	15925	10136	17366	22190	24119
16"	400	8847	13447	20323	22356	14227	25404	33534	35566
18"	450	11749	16774	27769	29904	19225	36313	48060	52874
20"	500	18577	33119	39141	42152	26872	53744	72938	79336
24"	600	24193	41399	51232	54845	35190	65980	89074	98970

MAXSEAL 730 SERIES CV VALUE

SIZE		Angle of Opening								
INCH	MM	10°	20°	30°	40°	50°	60°	70°	80°	90°
2"	50	2	5	13	21	31	46	65	80	85
2 1/2"	65	4	8	21	35	52	76	106	130	140
3"	80	6	15	36	61	89	120	153	170	178
4"	100	14	35	70	107	170	258	320	360	374
5"	125	22	50	106	177	263	394	545	685	768
6"	150	40	100	165	265	405	605	815	980	1060
8"	200	61	112	268	444	672	990	1364	1750	1919
10"	250	91	180	394	651	990	1485	2005	2650	2828
12"	300	131	255	581	954	1449	2222	2985	3755	4085
14"	350	182	330	778	1278	1869	2732	3889	4750	5205
16"	400	237	430	1066	1747	2611	3742	5439	6400	7105
18"	450	323	600	1389	2192	3353	5050	7050	8650	9350
20"	500	404	780	1818	3000	4505	6565	9382	11035	12100
24"	600	611	1200	2757	4530	6848	10039	13978	17080	18200
Pressure Recovery Factor K_v		0.88	0.85	0.82	0.80	0.74	0.68	0.61	0.60	0.59

Flow Data Rated Cv



The volume of water in United States gallons per minute that will pass through a given valve opening with a pressure drop of 1 pound per square inch. (water at temp = 60 deg.f)



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Valve Torque Vs Degree of Disc Opening

The torque in the table above is rated for maximum pressure drop when valve is in the closed position. Butterfly valve torque varies from full close to full open. It generally follows as indicated in the chart on the right.

