Sure Seal High Performance Butterfly Valves

Soft Seat

ANSI Classes 150 & 300

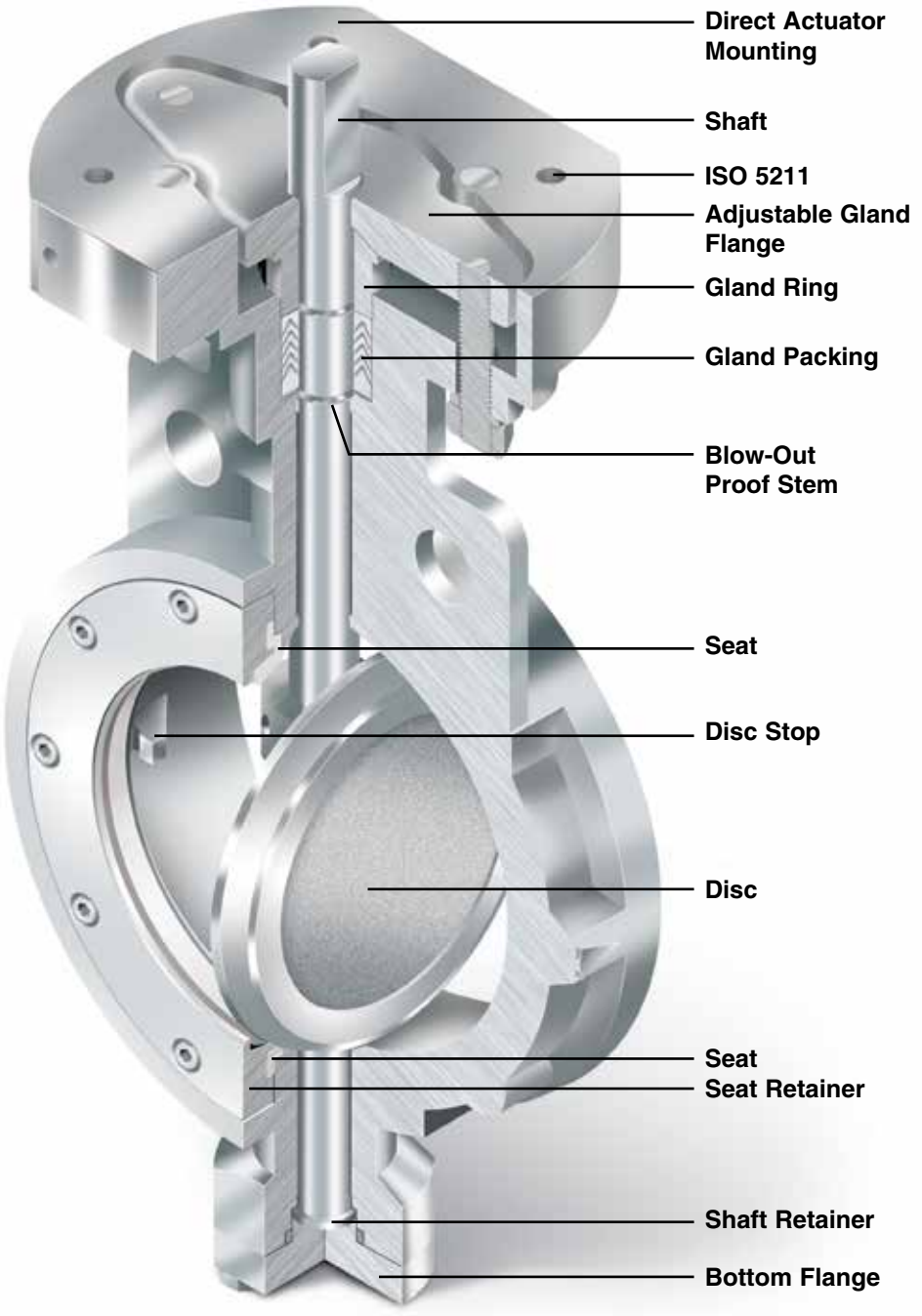
Sure Seal, part of the OPW Fluid Transfer Group, offers a comprehensive selection of quality and long term economic solutions with High Performance Butterfly Valves for industrial and commercial applications. Available in a broad range of materials, sizes, and pressures our ISO 9001 Quality Systems insure that each valve Sure Seal supplies exceeds your application expectations.

Sure Seal manufactures patented butterfly valves and actuators used with industrial piping applications such as chemical, food processing, pulp and paper, shipbuilding, e-coat phosphate paint systems, transportation dry bulk market, and pharmaceutical applications. Sure Seal machines and manufactures parts in house with modern advanced computer controlled machining centers to assure the highest standards in the industry. Every valve manufactured is tested to 110% of it's full pressure rating as standard.

SURE SEAL INCORPORATED IS PROUD TO BE ISO 9001 certified

Awards and Industry Recognition

- API - American Petroleum Institute
- CE - Consultants Europe Certification
- CRN - Canadian Registration Number
- ISO - International Standards Organization
- PED - Pressure Equipment Directive



SEAT

Soft Seated
High Performance Valve

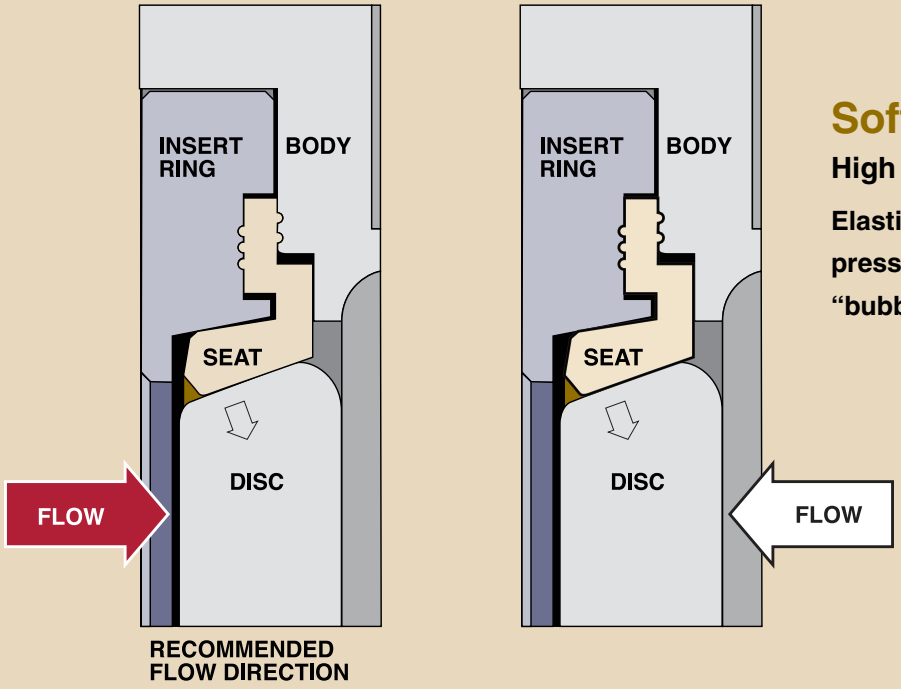
Seat: PTFE (392°F/200°C)
R-PTFE (482°F/250°C)

DIRECT ACTUATOR MOUNTING

Sure Seal High Performance Valves have the features and benefits that are required in quality manufactured High Performance Butterfly Valves.

- Direct Mount Actuation
- Live Loaded Adjustable Packing
- Uninterrupted Gasket Surface*
- Consult Factory for Spiral Wound Gasket
- Bi-Directional Service
- Bubble-Tight Sealing
- One Piece Through Shaft
- Welded Disc Pins
- Integrally Cast Disc Stop
- Blow-Out Proof Stem

* **NOTE:** Consult factory when using spiral wound gasket.



Soft Seated

High Performance Valve

Elasticity of the seat and fluid pressure assures perfect "bubble-tight" sealing.

NUMBERING GUIDE

XX - XXX - XXXX - SSX - XX

Size

Series

G - Soft Seat

ANSI Class

1 - 150
3 - 300

Body Style

W - Wafer
L - Lug

Body Material

C - Carbon
S - 316 Stainless

Disc

S - 316 Stainless

Shaft

S - 17-4 Stainless
3 - 316 Stainless (150 psi Max Pressure)

Seat

R - RTFE
H - UHMWPE
P - PTFE
K - PEEK

Series

H10 - 10 Position Handle
H - Infinite Position Handle (Optional)
G - Worm Gear

Specials

*Consult factory for additional materials.

BASIC FORMULAS FOR CV VALUE

Fluids	Pressure Condition	Cv Value
Liquid	n/a	$Cv = 1.17Q\sqrt{\frac{G_s}{\Delta P}}$
Gas	$\Delta P < 0.5P_1$	$Cv = \frac{Q}{272}\frac{\sqrt{G_s(T+273)}}{\sqrt{\Delta P(P_1+P_2)}}$
	$\Delta P \geq 0.5P_1$	$Cv = \frac{Q\sqrt{G_s(T+273)}}{236P_1}$
Steam	$\Delta P < 0.5P_1$	$Cv = \frac{WK}{13.5\sqrt{\Delta P(P_1+P_2)}}$
	$\Delta P \geq 0.5P_1$	$Cv = \frac{WK}{11.9P_1}$

Legend

- Q : volume rate of flow (liquid m^3/h, gas Nm^3/h)
- W : volume rate of flow (steam kg/h)
- P_1 : inlet pressure (liquid kgf/cm^2, gas/steam kgf/cm^2 abs.)
- P_2 : outlet pressure (liquid kgf/cm^2, gas/steam kgf/cm^2 abs.)
- ΔP : pressure drop P_1-P_2
- G_s : specific gravity of fluid
- T : temperature of fluid (°C)
- K : correction coefficient to superheat 1 + 0.0013 x deg. °C of superheat

* When $P_2 < 0.5P_1$, use $0.5P_1$ instead of ΔP

ANSI CLASS 150

Valve Size			Cv Relating to the Angle of Disc Opening								
inch	mm	Unit	10°	20°	30°	40°	50°	60°	70°	80°	90°
2	50	Cv	2.1	6.4	12.9	20.2	30.4	43.2	72	81	92
2.5	65	Cv	3	10.5	21	33	49.5	71	117	132	150
3	80	Cv	5.2	18.2	36.4	57.2	86	122	203	230	260
4	100	Cv	9.2	32.2	64.4	101	152	216	360	405	460
5	125	Cv	15.2	53.2	106	167	251	357	595	670	760
6	150	Cv	23	81	161	253	380	540	897	1015	1150
8	200	Cv	42	147	295	462	695	987	1640	1850	2100
10	250	Cv	64	225	450	705	1056	1505	2496	2816	3200
12	300	Cv	94	330	660	1035	1551	2210	3666	4136	4700
14	350	Cv	116	406	815	1276	1915	2726	4525	5105	5800
16	400	Cv	160	560	1120	1760	2640	3760	6240	7040	8000
18	450	Cv	210	735	1470	2310	3465	4935	8190	9240	10500
20	500	Cv	280	980	1960	3080	4620	6580	10920	12320	14000
24	600	Cv	420	1470	2940	4620	6930	9870	16380	18480	21000
30	750	Cv	670	2345	4690	7370	11055	15745	26130	29480	33500

*All values represented in US gallon per minute (GPM).

ANSI CLASS 300

Valve Size			Cv Relating to the Angle of Disc Opening								
inch	mm	Unit	10°	20°	30°	40°	50°	60°	70°	80°	90°
2	50	Cv	1.8	6.4	12.9	20.2	30.4	43.2	72	81	92
2.5	65	Cv	3	10.5	21	33	49.5	71	117	132	150
3	80	Cv	5.2	18.2	36.4	57.2	86	122	203	230	260
4	100	Cv	9.2	32.2	64.5	101	152	216	360	405	460
5	125	Cv	15.2	53.2	106	167	251	357	595	670	760
6	150	Cv	23	81	161	253	380	540	987	1015	1150
8	200	Cv	38	133	266	418	627	895	1485	1675	1900
10	250	Cv	56	196	392	616	925	1316	2185	2465	2800
12	300	Cv	82	287	575	905	1355	1930	3200	3610	4100
14	350	Cv	110	385	770	1210	1815	2585	4290	4840	5500
16	400	Cv	152	532	1065	1675	2510	3575	5930	6690	7600
18	450	Cv	198	695	1390	2180	3270	4655	7725	8715	9900
20	500	Cv	260	910	1820	2860	4290	6110	10140	11440	13000
24	600	Cv	390	1365	2730	4290	6435	9165	15210	17160	19500

*All values represented in US gallon per minute (GPM).

ANSI CLASS 150 TORQUE TABLE

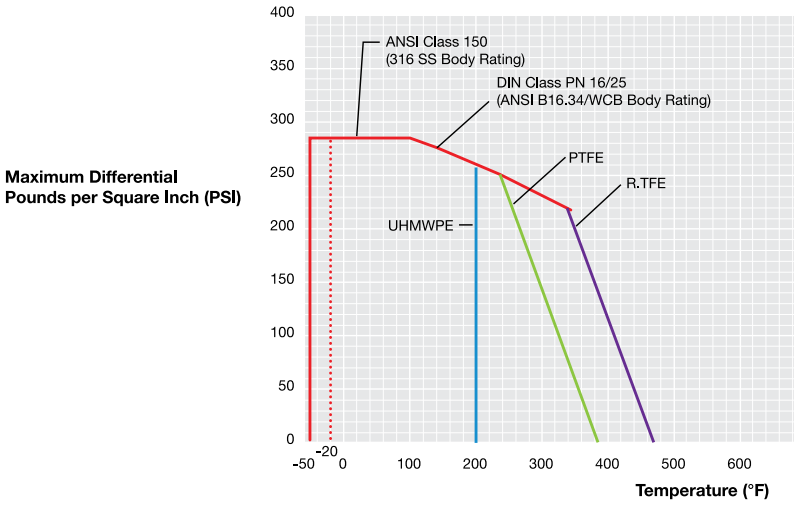
Size in	Size mm	Soft Seated 0 Psi	75 Psi	150 Psi	225 Psi	285 Psi
2”	50	200	225	250	266	276
2.5”	65	210	235	265	275	305
3”	80	222	249	276	292	334
4”	100	265	313	361	414	489
5”	130	377	430	483	531	690
6”	150	401	517	633	743	805
8”	200	477	796	1115	1177	1363
10”	250	960	1301	1642	1982	2292
12”	300	1238	1796	2354	2911	3470
14”	350	1899	2704	3509	4487	5700
16”	400	2359	3682	5005	6372	8364
18”	450	3345	5080	6815	8342	10842
20”	500	5620	6505	10267	11152	15578
24”	600	7080	11329	15578	19472	23367
30”	750	12338	18410	24080	29740	35410

ANSI CLASS 300 TORQUE TABLE

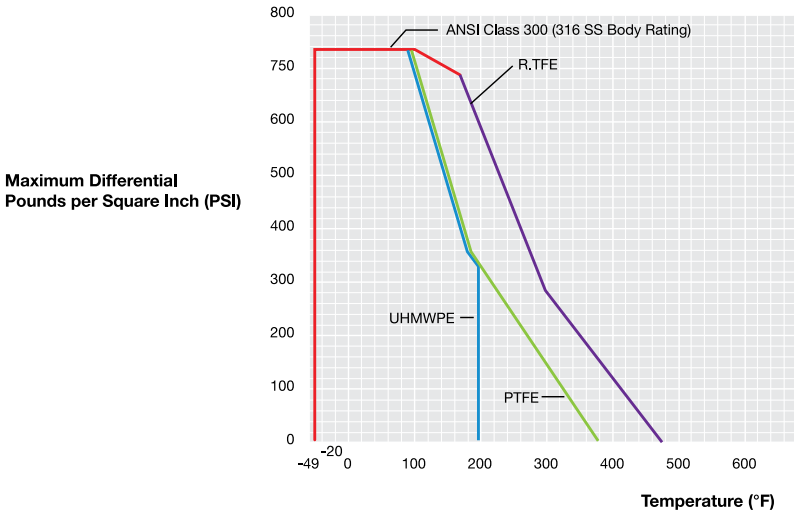
Size in	Size mm	Soft Seated 150 Psi	285 Psi	400 Psi	500 Psi	600 Psi	700 Psi
2”	50	270	299	341	359	366	372
2.5”	65	282	315	360	381	390	403
3”	80	299	334	378	403	415	434
4”	100	391	489	564	595	620	682
5”	130	524	690	744	805	867	960
6”	150	682	748	960	1053	1115	1177
8”	200	1115	1363	1518	1642	1735	1921
10”	250	1759	2456	2726	3036	3222	3594
12”	300	2523	3717	4213	4709	5080	5452
14”	350	4049	6107	7966	9625	9957	10953
16”	400	5775	8962	10953	11949	13277	14604
18”	450	7302	11617	14604	15932	17259	18587
20”	500	10909	16551	19472	20888	23013	24783
24”	600	16551	24827	28323	31864	35050	37528

NOTE: All torques are in inch pounds.

ANSI CLASS 150 SEAT RATING



ANSI CLASS 300 SEAT RATING



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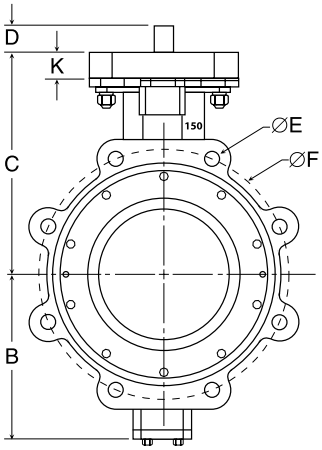
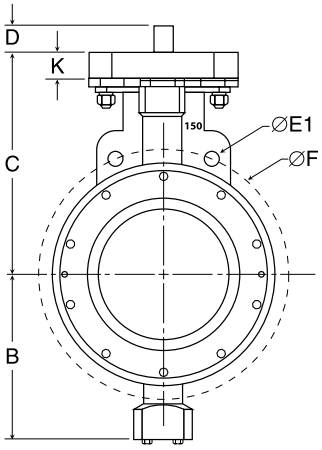
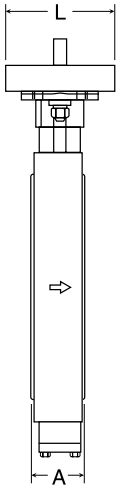
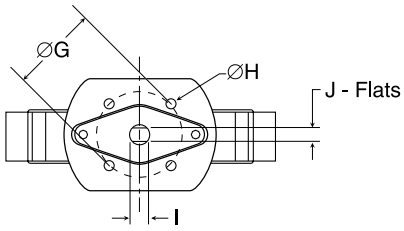


LUG BODY

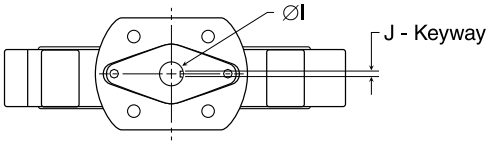


WAFER BODY





DOUBLE D SHAFT
2" – 8" 150# 2" – 6" 300#



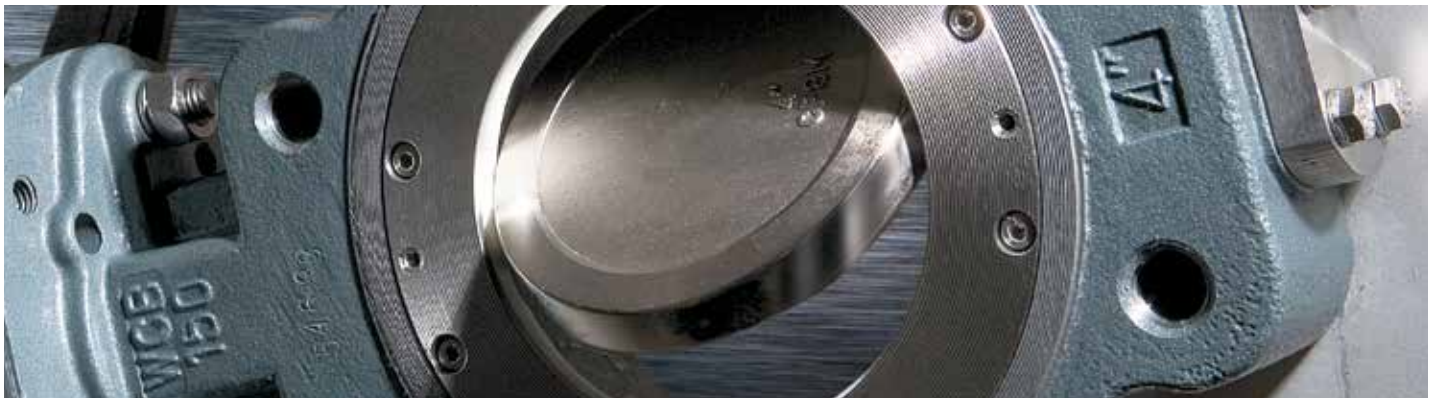
SINGLE KEY
10" – 24" 150# 8" – 12" 300#
DOUBLE KEY
30" - 150# 18" - 24" 300#

ANSI 150 HIGH PERFORMANCE VALVES

in	mm	A	B	C	D	E	E1	F	G	H	I	J	K	L
2"	50	1.69	3.94	5.78	1.25	4 X 5/8 – 11	2 X 3/4	4.75	2.76	.37	.500	.375	1.25	4.15
2.5	65	1.84	4.06	6.49	1.25	4 X 5/8 – 11	2 X 3/4	5.50	2.76	.37	.625	.438	1.25	4.15
3"	80	1.88	4.37	6.77	1.25	4 X 5/8 – 11	2 X 3/4	6.00	2.76	.37	.625	.438	1.25	4.15
4"	100	2.12	4.80	6.98	1.25	8 X 5/8 – 11	2 X 3/4	7.50	2.76	.37	.625	.438	1.25	4.15
5"	125	2.25	6.38	8.39	1.25	8 X 3/4 – 10	2 X 7/8	8.50	2.76	.37	.750	.500	1.25	4.15
6"	150	2.25	5.97	8.71	1.25	8 X 3/4 – 10	2 X 7/8	9.50	2.76	.37	.750	.500	1.25	4.15
8"	200	2.50	7.76	10.43	1.25	8 X 3/4 – 10	2 X 7/8	11.75	4.02	.44	.875	.625	1.60	5.12
10"	250	2.83	8.61	11.81	2.00	12 X 7/8 – 9	2 X 1	14.25	4.92	.56	1.125	1/4 X 1/4	1.00	5.25
12"	300	3.19	10.63	12.80	2.00	12 X 7/8 – 9	2 X 1	17.00	4.92	.56	1.125	1/4 X 1/4	1.00	5.25
14"	350	3.62	11.68	16.03	2.25	12 X 1 – 8	2 X 1⅛	18.75	4.92	.56	1.375	5/16 X 5/16	1.00	5.25
16"	400	4.00	13.78	16.73	3.00	16 X 1 – 8	2 X 1⅛	21.25	6.50	.81	1.875	3/8 X 1/2	1.88	6.50
18"	450	4.50	14.76	17.72	3.00	16 X 1⅛ – 8	4 X 1⅛ – 8	22.75	6.50	.81	1.875	3/8 X 1/2	1.88	6.50
20"	500	5.00	16.43	18.94	3.00	20 X 1⅛ – 8	4 X 1⅛ – 8	25.00	6.50	.81	2.125	1/2 X 1/2	2.00	6.50
24"	600	6.06	19.37	23.23	4.00	20 X 1¼ – 8	4 X 1¼ – 8	29.50	6.50	.81	2.555	3/4 X 1/2	2.50	11.02
30"	750	7.51	24.24	26.90	5.33	28 X 1¼ – 8	———	36.00	10.00	.69	3.14	.87 x .55	3.00	11.25

ANSI 300 HIGH PERFORMANCE VALVES

in	mm	A	B	C	D	E	E1	F	G	H	I	J	K	L
2"	50	1.69	3.94	5.78	1.25	8 X 5/8 – 11	8 X .69	5.00	2.76	.37	.500	.375	1.25	4.15
2.5	65	1.84	4.06	6.49	1.25	8 X 3/4 – 10	2 X 7/8	5.88	2.76	.37	.625	.438	1.25	4.15
3"	80	1.88	4.37	6.77	1.25	8 X 3/4 – 10	2 X 7/8	6.62	2.76	.37	.625	.438	1.25	4.15
4"	100	2.12	4.80	6.98	1.25	8 X 3/4 – 10	2 X 7/8	7.88	2.76	.37	.625	.438	1.25	4.15
5"	125	2.31	6.38	8.39	1.25	8 X 3/4 – 10	2 X 7/8	9.25	2.76	.37	.750	.500	1.25	4.15
6"	150	2.31	7.75	9.53	1.25	12 X 3/4 – 10	2 X 7/8	10.62	2.76	.37	.750	.500	1.25	4.15
8"	200	2.88	8.91	11.42	2.00	12 X 7/8 – 9	2 X 1	13.00	4.02	.44	1.125	1/4 X 1/4	2.00	5.12
10"	250	3.25	9.88	12.32	2.25	16 X 1 – 8	4 X 1 – 8	15.25	4.92	.56	1.375	5/16 X 5/16	1.00	5.25
12"	300	3.62	11.00	13.90	3.00	16 X 1⅛ – 8	4 X 1⅛ – 8	17.75	4.92	.56	1.625	3/8 X 3/8	1.00	5.25
14"	350	4.62	12.57	15.95	3.00	20 X 1⅛ – 8	4 X 1⅛ – 8	20.25	6.50	.81	1.875	1/2 X 3/8	2.00	6.50
16"	400	5.25	15.83	18.31	3.00	20 X 1¼ – 8	4 X 1¼ – 8	22.50	6.50	.81	1.875	1/2 X 3/8	2.00	6.50
18"	450	5.88	16.81	19.29	4.33	24 X 1¼ – 8	4 X 1¼ – 8	24.75	10.00	.75	2.555	3/4 X 1/2	1.25	11.02
20"	500	6.30	17.72	22.44	4.33	24 X 1¼ – 8	4 X 1¼ – 8	27.00	10.00	.75	2.555	3/4 X 1/2	1.25	11.02
24"	600	7.12	21.65	24.92	5.71	24 X 1½ – 8	4 X 1½ – 8	32.00	10.00	.75	3.142	.866 X .788	1.25	11.02



WEIGHT (CL. 150) UNIT: POUNDS (LBS.)

Valve Size Inch	mm	WAFER (Bare Shaft) WCB	CF8(M)	LUG (Bare Shaft) WCB	CF8(M)	Manual Lever	Actuator Worn Gear
2”	50	10	12	12	12.5	3.5	12 (24:1)
2.5”	65	12	13	15	16		
3”	80	14	15	18	18		
4”	100	17	18	29	31		
5”	125	23	25	36	38	4.9	
6”	150	29	31	42	44		
8”	200	44	46	66	68	–	27 (30:1)
10”	250	71	73	102	104		38 (50:1)
12”	300	93	97	146	148		
14”	350	128	143	199	201		75 (80:1)
16”	400	187	203	300	309		
18”	450	218	240	335	346		
20”	500	333	344	408	426		200 (320:1)
24”	600	545	554	650	675		
30”	750	—	—	1350	1380		

*Flange up to 24 inch according to ANSI B16.5 class 150.
30 inch according to MSS SP-44 class 150.

WEIGHT (CL. 300) UNIT: POUNDS (LBS.)

Valve Size Inch	mm	WAFER (Bare Shaft) WCB	CF8(M)	LUG (Bare Shaft) WCB	CF8(M)	Manual Lever	Actuator Worn Gear
2”	50	10	12	12	12.5	3.5	12 (24:1)
2.5”	65	12	13	15	16		
3”	80	14	15	18	18		
4”	100	17	18	29	31		
5”	125	23	25	36	38	4.9	
6”	150	29	31	42	44		
8”	200	44	46	66	68	–	27 (30:1)
10”	250	71	73	102	104		38 (50:1)
12”	300	93	97	146	148		75 (80:1)
14”	350	265	271	378	385		
16”	400	385	392	488	498		200 (320:1)
18”	450	523	533	720	733		
20”	500	644	654	855	870		
24”	600	1162	1187	1444	1472		

*Flange up to 24 inch according to ANSI B16.5 class 300.

SURE SEAL VALVE STANDARDS

ASME B16.10	Valves - face to face dimensions
ASME B16.34	Valves - flanged and butt-welding ends
ASME B16.5	Pipe flanges and flanged fittings
ASME/FCI 70-2	American National standard for control valve seat leakage
MSS SP68	High Pressure - offset seat butterfly valves
ISO 5752	Metal valves for use in flanged pipe systems - face-to-face & center-to-face dimensions
API 609	“Butterfly valves, lug-type and wafer-type”
MSS SP61	Pressure testing
NACE MR-01-75	
P.E.D. 97/23/EC	European pressure equipment directive.
ISO 9001 Cert.	
ANSI B16.104	Leakage rate for metal seated valves.
ISO 5211	Top plate mounting dimensions
API 598	Pressure testing
MSS SP25	Valve tagging and marking
MSS SP44	Pipe Flanges

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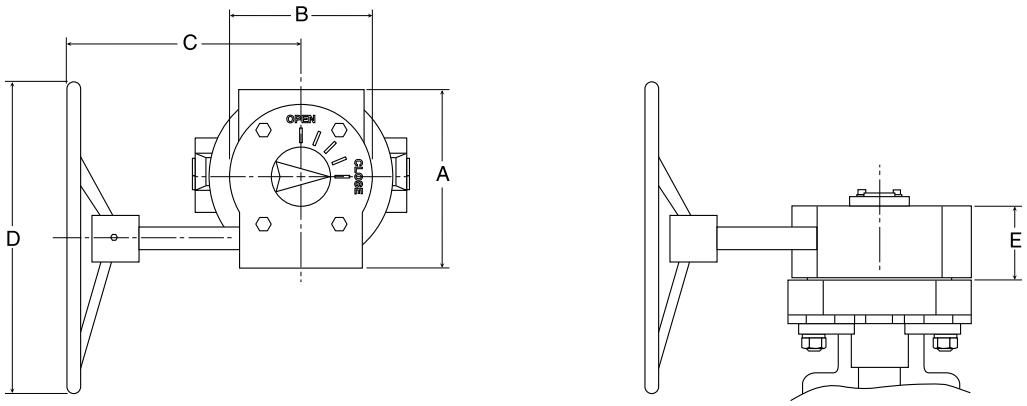
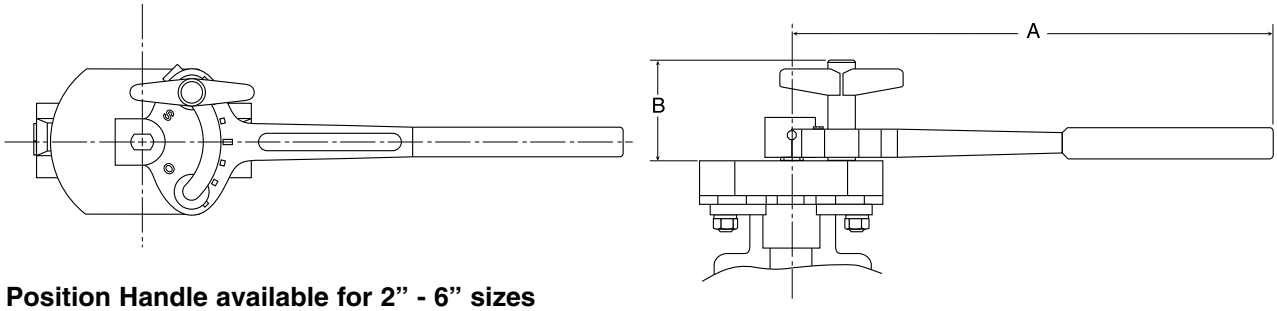
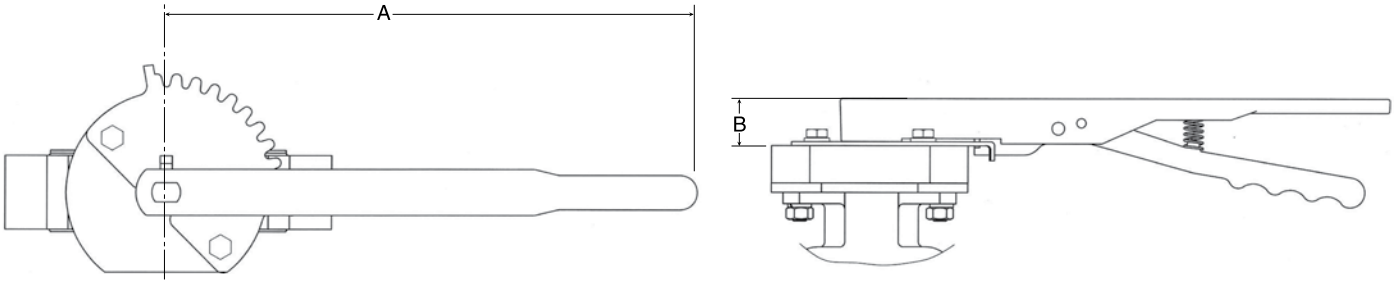
Gear Operator available for 2” - 24” sizes



Infinite Handle available for 2” - 8” sizes



10 Position Handle available for 2” - 6” sizes



GEAR OPERATOR

in	mm	A	B	C	D	E
2”-6”	**50-150**	5.07	4.00	5.70	8”	2.65
8”-14”	**200-350**	6.09	6.00	9.50	12”	3.00
16”-20”	**400-500**	7.80	6.70	9.00	12”,16” or 20”	3.00
24”	**600**	11.50	10.25	11.75	20”	4.40
30”	750	11.50	10.25	11.75	20”	4.40

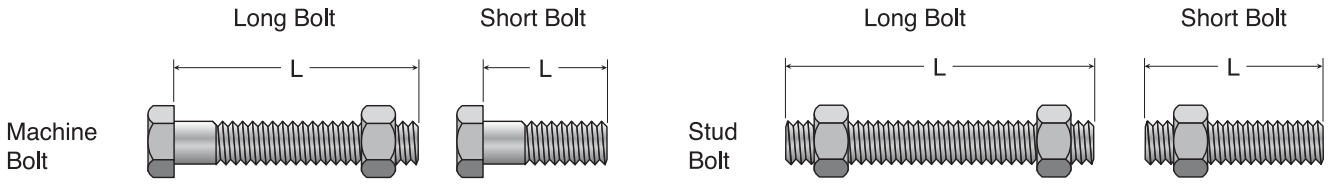
INFINITE HANDLE

in	mm	A	B
2	**50**	11.6	2.88
2.5”-6”	**65-150**	13.8	2.88
8”	**200**	19.7	2.88

10 POSITION HANDLE

in	mm	A	B
2”-6”	**50-150**	13.75	1.14

WAFER TYPE



Unit: Inch

ANSI CLASS 150

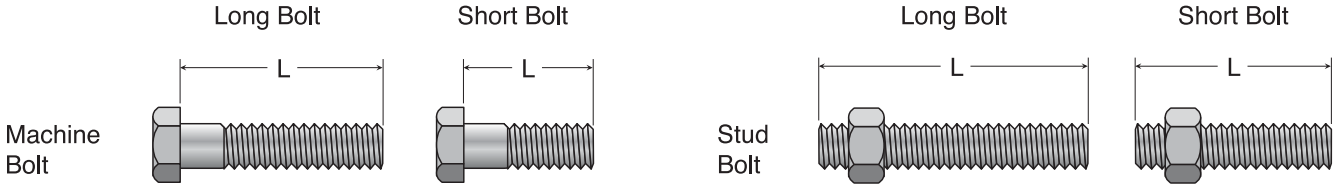
Size			Long Bolt			Short Bolt		
				Length			Length	
in	mm	Bolt Size	Qty.	Machine	Stud	Qty.	Machine	Stud
2”	50	5/8” - 11 unc	4	4.625	5.375	–	–	–
2.5”	65	5/8” - 11 unc	4	5.000	5.750	–	–	–
3”	80	5/8” - 11 unc	4	5.125	6.000	–	–	–
4”	100	5/8” - 11 unc	8	5.375	6.125	–	–	–
5”	125	3/4” - 10 unc	8	5.625	6.750	–	–	–
6”	150	3/4” - 10 unc	8	5.750	6.875	–	–	–
8”	200	3/4” - 10 unc	8	6.375	7.375	–	–	–
10”	250	7/8” - 9 unc	12	6.875	8.125	–	–	–
12”	300	7/8” - 9 unc	12	7.500	8.750	–	–	–
14”	350	1” - 8 unc	12	8.375	9.875	–	–	–
16”	400	1” - 8 unc	16	8.875	10.250	–	–	–
18”	450	1 1/8” - 8 un	12	9.750	11.500	8	2.875	5.000
20”	500	1 1/8” - 8 un	16	10.500	12.250	8	2.750	4.750
24”	600	1 1/4” - 8 un	16	12.250	14.000	8	3.125	5.125

Unit: Inch

ANSI CLASS 300

Size			Long Bolt			Short Bolt		
				Length			Length	
in	mm	Bolt Size	Qty.	Machine	Stud	Qty.	Machine	Stud
2”	50	5/8” - 11 unc	8	4.750	5.750	–	–	–
2.5”	65	3/4” - 10 unc	8	5.375	6.375	–	–	–
3”	80	3/4” - 10 unc	8	5.750	8.750	–	–	–
4”	100	3/4” - 10 unc	8	6.175	7.375	–	–	–
5”	125	3/4” - 10 unc	8	6.500	7.375	–	–	–
6”	150	3/4” - 10 unc	12	6.750	7.875	–	–	–
8”	200	7/8” - 9 unc	12	7.875	9.125	–	–	–
10”	250	1” - 8 unc	12	8.875	10.500	8	2.750	4.250
12”	300	1 1/8” - 8 un	12	9.750	11.500	8	3.125	5.000
14”	350	1 1/8” - 8 un	16	10.500	12.000	8	3.250	4.750
16”	400	1 1/4” - 8 un	16	12.000	13.000	8	3.250	5.000
18”	450	1 1/4” - 8 un	20	13.000	14.000	8	3.500	5.000
20”	500	1 1/4” - 8 un	20	14.000	15.000	8	4.000	5.500
24”	600	1 1/2” - 8 un	20	15.000	16.500	8	4.250	6.000

LUGGED TYPE



Unit: Inch

ANSI CLASS 150

Size			Long Bolt			Short Bolt		
				Length			Length	
in	mm	Bolt Size	Qty.	Machine	Stud	Qty.	Machine	Stud
2”	50	5/8” - 11 unc	8	1.375	2.375	–	–	–
2.5”	65	5/8” - 11 unc	8	1.500	2.625	–	–	–
3”	80	5/8” - 11 unc	8	1.875	2.750	–	–	–
4”	100	5/8” - 11 unc	16	1.875	2.750	–	–	–
5”	125	3/4” - 10 unc	16	2.000	3.250	–	–	–
6”	150	3/4” - 10 unc	16	2.000	3.250	–	–	–
8”	200	3/4” - 10 unc	16	2.125	3.375	–	–	–
10”	250	7/8” - 9 unc	24	2.375	3.750	–	–	–
12”	300	7/8” - 9 unc	24	2.500	4.000	–	–	–
14”	350	1” - 8 unc	24	2.750	4.375	–	–	–
16”	400	1” - 8 unc	32	3.000	4.625	–	–	–
18”	450	1 1/8” - 8 un	32	3.750	5.000	8	2.875	5.000
20”	500	1 1/8” - 8 un	32	3.250	5.125	8	2.750	4.750
24”	600	1 1/4” - 8 un	32	3.625	5.625	8	3.125	5.125
30”	750	1 1/4” - 8 un	48	6.000	7.500	8	4.500	6.000

Unit: Inch

ANSI CLASS 300

Size			Long Bolt			Short Bolt		
				Length			Length	
in	mm	Bolt Size	Qty.	Machine	Stud	Qty.	Machine	Stud
2”	50	5/8” - 11 unc	8	1.375	2.375	–	–	–
2.5”	65	5/8” - 11 unc	8	1.500	2.625	–	–	–
3”	80	5/8” - 11 unc	8	1.875	2.750	–	–	–
4”	100	5/8” - 11 unc	16	1.875	2.750	–	–	–
5”	125	3/4” - 10 unc	16	2.000	3.250	–	–	–
6”	150	3/4” - 10 unc	16	2.000	3.250	–	–	–
8”	200	3/4” - 10 unc	16	1.125	3.375	–	–	–
10”	250	7/8” - 9 unc	24	2.375	3.750	–	–	–
12”	300	7/8” - 9 unc	24	2.500	4.000	–	–	–
14”	350	1 1/8” - 8 un	32	4.500	6.000	8	3.250	4.750
16”	400	1 1/4” - 8 un	32	5.000	6.500	8	3.500	5.000
18”	450	1 1/4” - 8 un	40	5.000	6.500	8	3.500	5.000
20”	500	1 1/4” - 8 un	40	5.500	7.000	8	3.500	5.500
24”	600	1 1/2” - 8 un	40	6.000	8.000	8	4.000	6.000

DESIGN DETAILS

The Sure Seal High Performance Butterfly Valve is a double eccentric (double offset) design. This design minimizes torque and increases valve service life by decreasing seat to disc interference through out the disc travel. Valves are available in wafer and lug design for ASME (Class 150 and 300 (2”-30”) Class 150# (2”-30”) and Class 300# (2”-24”). The valve is bi-directional by design but has a recommended flow direction which is clearly marked on the valve body.

PRE-INSTALLATION INSPECTION AND PREPARATION

Before installation of the valve into the pipeline it is recommended to inspect the valve as follows:

1. Check for any damage that might have occurred during shipping.
2. *Review metal tag attached to valve to ensure design, pressure class and material of construction meet required application.
3. Remove the protective covers from the face of the valve, and clean or remove any foreign particles from the machined face of the valve. This is the gasket sealing area, keeping it clean will ensure proper sealing after installation.
4. Cycle the valve from the closed to fully open position to ensure that travel stops are adjusted to provide complete travel. The valve operates counterclockwise to open and clockwise to close. A disc stop is an integral part of the valve design to stop over travel in a clockwise rotation. This stop should not be used for closure adjustment. If the valve disc is in contact with the stop the disc has traveled beyond the optimal sealing position.
5. Close valve. The valve should be in the closed position during installation to prevent damage to the disc sealing surface.

*Note: The metal tag affixed to every Sure Seal High Performance Butterfly Valve is equipped with the valve size, pressure class and materials of construction. A second metal tag with an individualized serial number is also attached to allow tracking of the valve with regard to pressure test, assembly date and material test reports.

PIPELINE INSPECTION AND PREPARATION

1. Remove any foreign materials such as rust, welding slag, or welding wire from the pipeline.
2. Clean the pipe flange to ensure good gasket contact
3. Check pipe and pipe flange I.D. to ensure adequate disc clearance.

WARNING:

Failure to properly clean the piping before start up can result in damage to the disc or seat, this could cause premature leakage and shorten the life expectancy of the valve.

INSTALLATION TOOLS

Installation tools are not included with the purchase of the Sure Seal High Performance Butterfly Valve. The only required tool for installation of valve is a wrench suitable to tighten flange bolts and/or nuts. A hoist may be required for valve sizes exceeding manageable weights.

REQUIRED BOLTING

The tables on page 9 and 10 outline size, type and quantity of bolting recommended for the installation of valve. Bolting is not supplied with the purchase of valve. Recommendations are based on pipe flanges in accordance with ASME B16.5.

FLANGE GASKET

Valve is designed to work with fiber gaskets of 1/16” or less and metallic wound gaskets.

INSTALLATION

1. Ensure that disc is in the closed position
2. Be sure to identify the direction of flow arrow on the valve and place in service accordingly. For optimal performance and to extend valve life it is recommended installing the valve with the seat in the upstream position.
3. The valve can be installed in any position; horizontal, vertical or intermediate positions. For applications with solid particles present it is recommended to install the valve with the stem in the horizontal position.
4. Align gasket with the valve and pipe flange. Gaskets are not supplied with valve. Valve is designed to work with fiber gaskets of 1/16” or less and metallic wound gaskets.
5. Install lower flange bolts without tightening to support valve between flanges.
6. Place remaining bolts through flanges and tighten in a diagonal or cross pattern to ensure uniform compression of gasket.

WARNING:

Failure to acknowledge the direction of flow in the pipeline and flow direction on the valve can shorten service life. Over torque of the flange bolts can lead to flange gasket damage and premature leakage.

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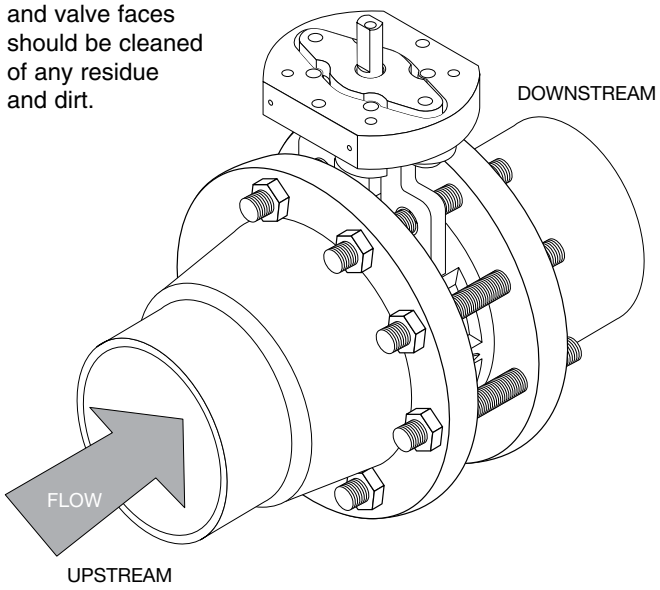
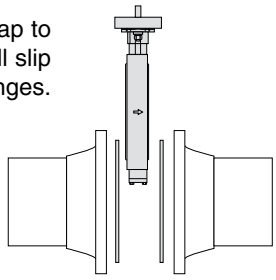
Pipe flange faces and valve faces should be cleaned of any residue and dirt.

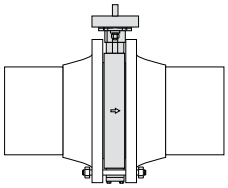


Allow enough gap to ensure the valve will slip easily between flanges.

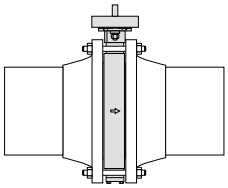
Center the flange gasket and valve.



Install valve in the closed Position to prevent damage to the sealing areas.



Tighten all bolts to ensure a leak free seal.



OPERATION:

1. The valve can be fitted with various operating devices such as Lever Handle, Manual Gear, Pneumatic Actuator or Electric Actuator.
2. By rotating the disc counter-clockwise to open or clockwise to close the flow inside the pipeline can be regulated or shutoff, whichever is desired.

MAINTENANCE:

Regular maintenance is not needed. Occasional adjustment of the stem packing may be required using the gland flange studs and bolts. It is important to adjust these nuts evenly and not to over tighten. Failure to do so could lead to premature stem packing wear and eventual valve failure. In most cases should a stem packing leak occur during operation the packing / gland flange bolts can be tightened to correct the leakage.

This is accomplished by turning the gland flange nuts clockwise one turn at a time until leakage is stopped. Should adjustment fail to correct leak packing can be replaced as steps listed under “Packing Replacement” or a new valve can be purchased.

Dirt and debris left in pipeline from construction can damage seat or disc edge and cause seat failure. Should seat failure occur follow step listed under “Seat Replacement” to correct problem.

PREPARATION / MINOR REPAIR

1. Identify media in pipe. Protection against exposure to toxic and/or flammable liquids should be taken.
2. Depressurize pipeline and drain completely.
3. Make sure disc is in the closed position and remove valve and operator by reversing the installation procedures.
   *Note: It is important that the valve operator always be attached to the valve while valve is under pressure.

PACKING REPLACEMENT (ONCE PIPELINE IS DEPRESSURIZED AND DRAINED.)

1. Remove operator and mounting hardware from top of valve.
2. Remove gland flange nuts and lock washers.
3. Remove gland flange, bolts and packing gland.
4. Remove old packing and replace with new.
5. Reverse steps reinstalling packing gland, gland flange, bolts nut and washers. Tighten nuts to below listed torque.

Gland Flange Bolt Torque

in	mm	
2”-6”	50-150	4 ft lbs
8”-14”	200-350	8 ft lbs
16”-24”	400-600	11 ft lbs
30”	750	13 ft lbs

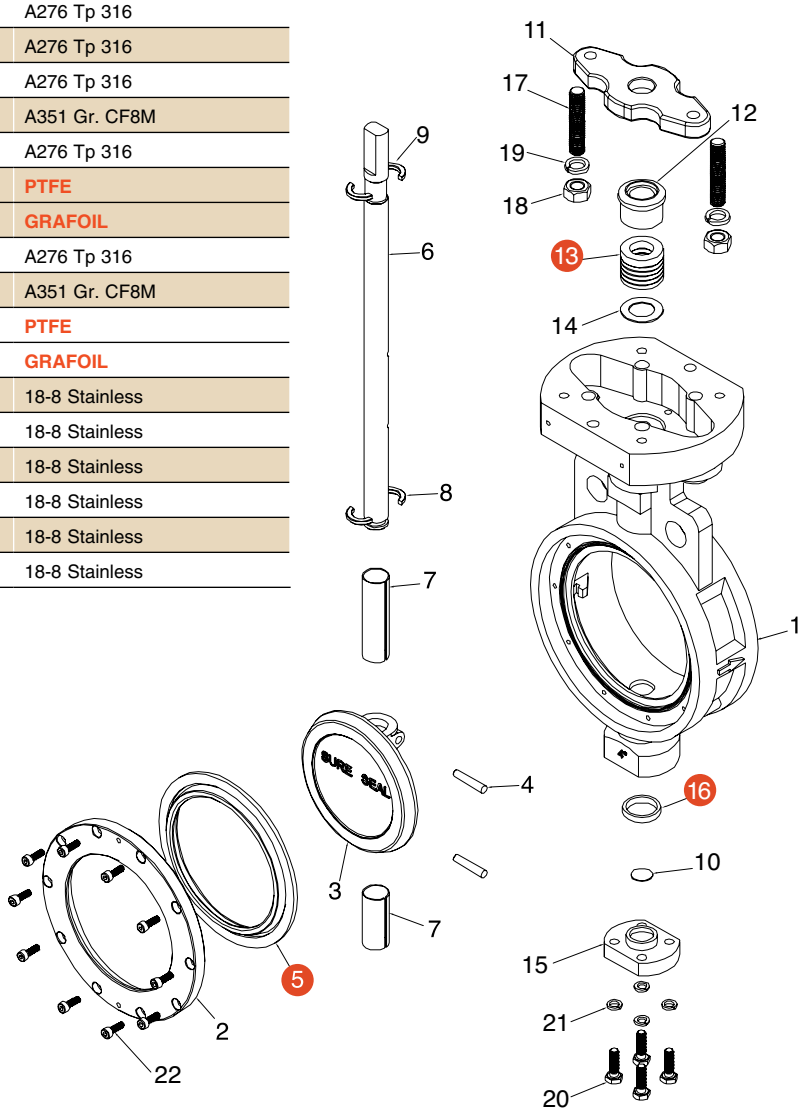
6. Cycle valve several times with wrench (being careful to not damage stem) and then reinstall operator.

SOFT SEAT PARTS LIST

Part #	Designation	Material Description	ASTM #
1	Valve Body	Carbon Steel	A216 Gr. WCB
		316 SS	A351 Gr. CF8M
2	Insert Ring	Carbon Steel	AISI 1045
		316 SS	A276 Tp 316
3	Disc	316 SS	A351 Gr. CF8M
		316/ENP SS	A351 Gr. CF8M/ENP Plate
		316/STELLITE SS	A351 Gr. CF8M/Stellite Weld
4	Disc Pin	316 SS	A276 Tp 316
*5	Soft Seat	Teflon	PTFE
		Reinforced Teflon	RTFE
		Ultra High Molecular Weight Polyethleyne	UHMWPE
		Poletherether Ketone	PEEK
6	Shaft	630 SS	17-4PH
		316 SS	A276 Tp 316
7	Shaft Bearing	Black Teflon on 304 SS	Metalplast on A276 Tp 304 SS
8	Shaft Retainer	316 SS	A276 Tp 316
9	Blowout Retainer	316 SS	A276 Tp 316
10	Shaft Spacer	316 SS	A276 Tp 316
11	Gland Flange	316 SS	A351 Gr. CF8M
12	Packing Gland	316 SS	A276 Tp 316
*13	Gland Packing	Teflon	PTFE
		Grafoil	GRAFOIL
14	Packing Retainer	316 SS	A276 Tp 316
15	Bottom Plug	316 SS	A351 Gr. CF8M
*16	Bottom Packing	Teflon	PTFE
		Grafoil	GRAFOIL
17	Stud Bolt	304 SS	18-8 Stainless
18	Hex Nut	304 SS	18-8 Stainless
19	Spring Washer	304 SS	18-8 Stainless
20	Hex Bolt	304 SS	18-8 Stainless
21	Lock Washer	304 SS	18-8 Stainless
22	Socket Hd Screw	304 SS	18-8 Stainless

SEAT REPLACEMENT

1. Place valve on bench with seat retainer ring facing up. Remove all retainer ring cap screws and lift ring from valve. (Cap screws can be threaded into the tapped holes located at the 12 o'clock and 6 o'clock positions to aid in retainer ring removal.)
2. Remove old seat and discard.
3. Clean seat cavity and retainer ring. Clean and polish disc edge to remove any scratches that may interfere with sealing against seat.
4. Attach seat to seat ring.
5. Install seat and seat ring. Install seat ring bolts and torque in a cross pattern to below listed torques.



Seat Ring Bolt Torque

mm	
4	4 ft lbs
6	8 ft lbs
8	11 ft lbs
10	15 ft lbs

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