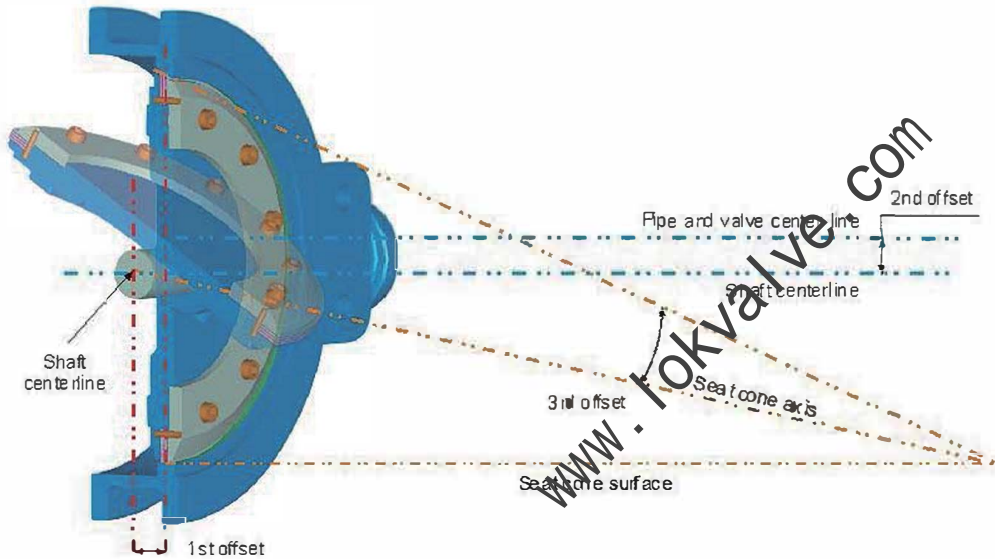


## Design Features

### Triple Offset Frictionless Design

- 1<sup>st</sup> offset: Stem shaft is offset away from sealing plane, allowing increased sealing strength between disc and seat
- 2<sup>nd</sup> offset: Stem shaft rotation axis is offset from center of bore, removing contact between seat and seal ring through most of disc travel.
- 3<sup>rd</sup> offset: Conical seating surface is offset asymmetric to eliminate friction during closing and opening of disc.



### Low Opening & Closing Torque

TC butterfly valves combine triple offsetting of disc and flexibility of graphite lamination to enable tight uniform seals at reduced opening and closing torque.

### Zero Leakage

Laminated seal rings are designed to self-align and allow valves to meet zero leakage per API 598.

### Fire Safe Design

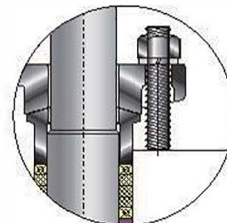
Inherently fire safe, graphite-metal seal rings enable TC valves to comply to API 607 fire test requirements.

### Anti-blowout Shaft

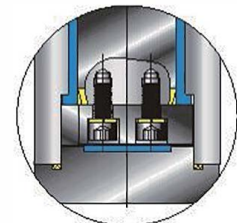
TC butterfly valves feature redundant anti stem blowout designs to fully satisfy both API 609 and ANSI B31.1 requirements.

Top Retention: Shaft is designed with integral collar retained by gland follower.

Bottom Retention: The stem is designed to be blowout-proof.



Upper part retained



Lower part retained

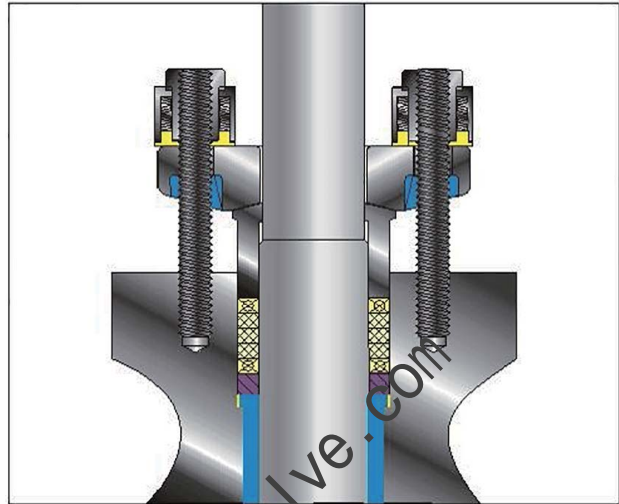
## Design Features

### Low Emission Shaft Seal

We can supply packing to limit fugitive emission rates down to 20ppm\*

- a.) Shaft is fully guided by shaft bearing & gland follower to reduce side load due to line pressure thrust.
- b.) The packing set is pre-compressed and is a combination of braided graphite rings and die formed flexible graphite rings.
- c.) Controlled Ra0.4~Ra0.8 finish on the shaft and Ra1.6 on the Stuffing box provides optimum packing and shaft seating.
- d.) Optional Live Loaded gland flange available to provide constant packing compression to reduce fugitive emissions.
- e.) Optional shaft seal design available per Shell MESC 77/312 & TA-Luft.

\* 20ppm per sniffing method with helium gas.



### Compact Design

Triple offset butterfly valves are designed to API 609 and offers flow control solution in a compact design. The TC series provides a light weight solution to bulky gate, globe, and ball valves when space or weight are at a premium.

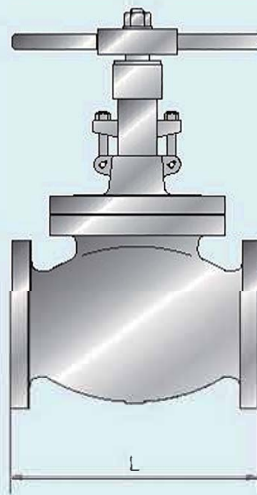
6" Valve	150LB				300LB				600LB			
	Butterfly	Gate	Globe	Ball	Butterfly	Gate	Globe	Ball	Butterfly	Gate	Globe	Ball
Face to Face (mm)	140	267	406	394	140	403	445	403	210	559	559	559
Weight (kg)	49	77	100	191	70	144	168	211	140	234	284	248



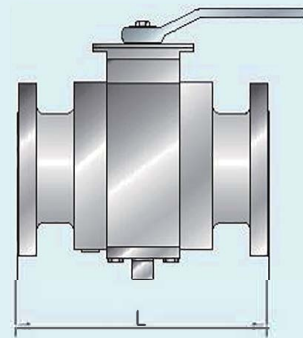
Butterfly



Gate



Globe



Ball

# Triple Offset Butterfly Valve

## Design Features

### High Strength Stem

Provide positive maximum strength.

### Mounting pad

designed per ISO 5211, easily installation of gear box, pneumatic or electric actuators.

### Upper anti blowout

### Extended bearing

Fine-machined and hardened to reduce the stem friction and ensure lower torque, graphite ring prevents contaminants from reaching bearing.

### Low emission packing (optional)

Advanced braided (top and bottom) with low emission packing allows for down to 20ppm on fugitive emission.

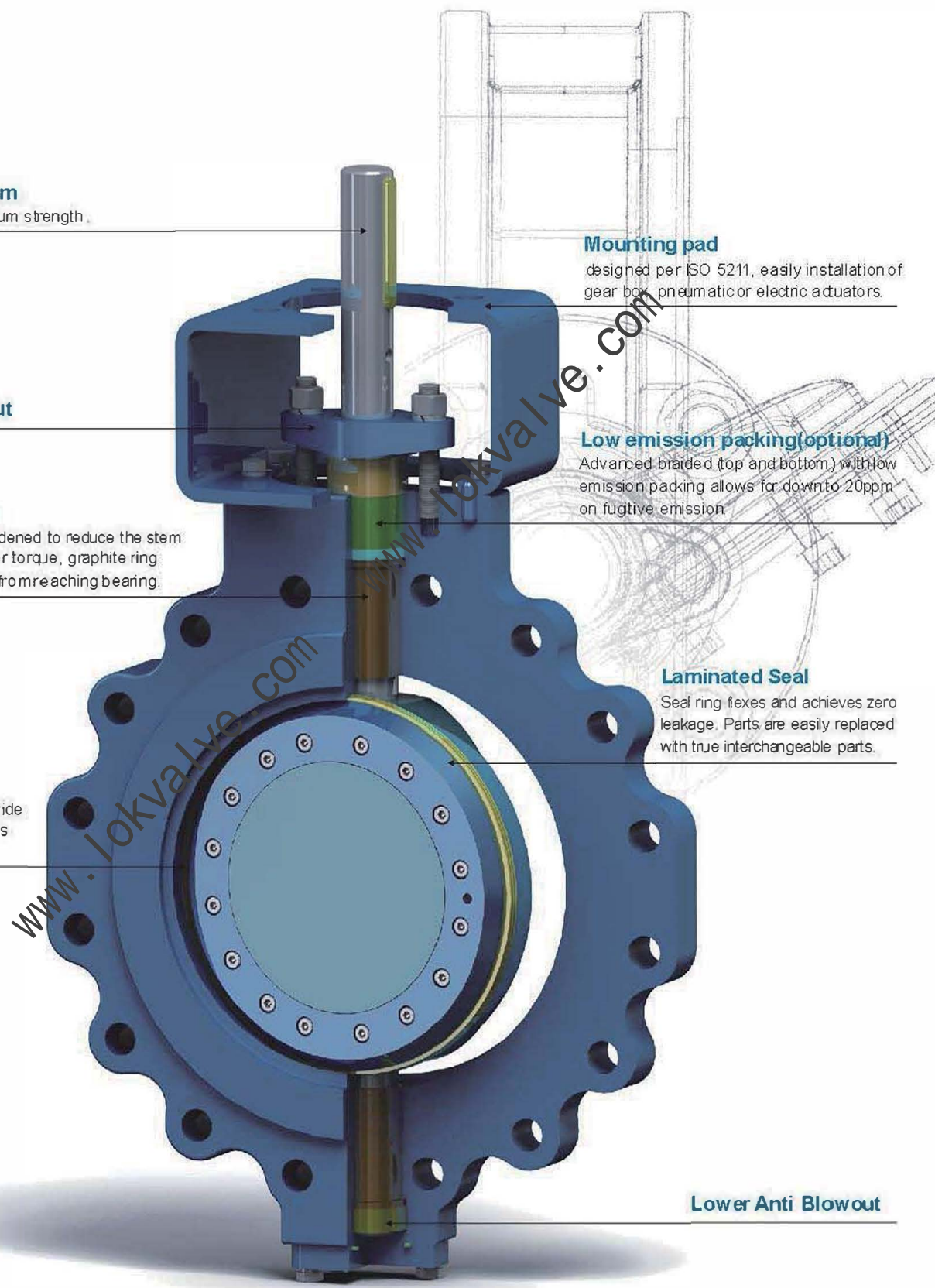
### Stellited seat

Integral hardfaced, provide longer valve life and less maintenance.

### Laminated Seal

Seal ring flexes and achieves zero leakage. Parts are easily replaced with true interchangeable parts.

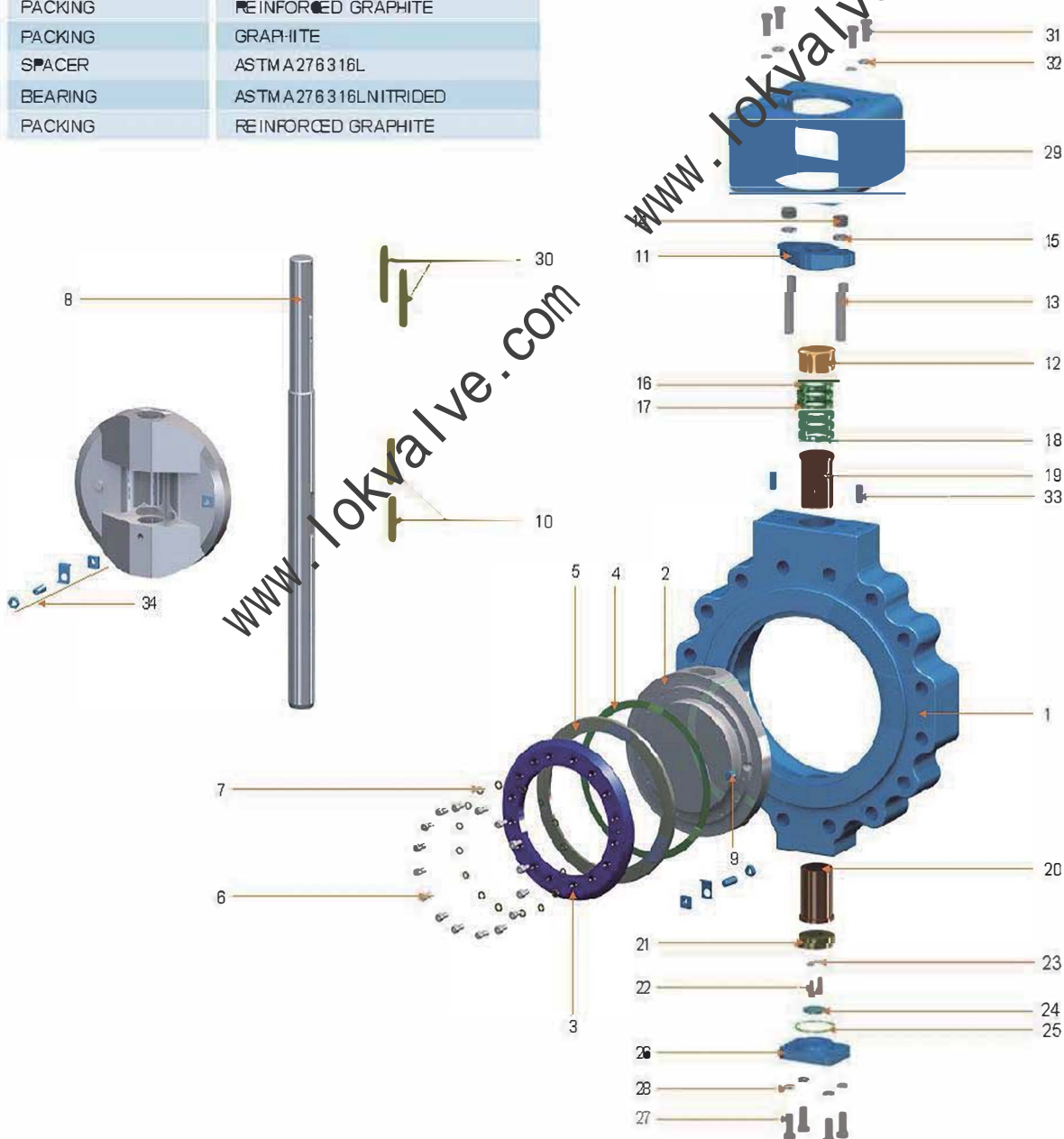
### Lower Anti Blowout



## Material Specifications

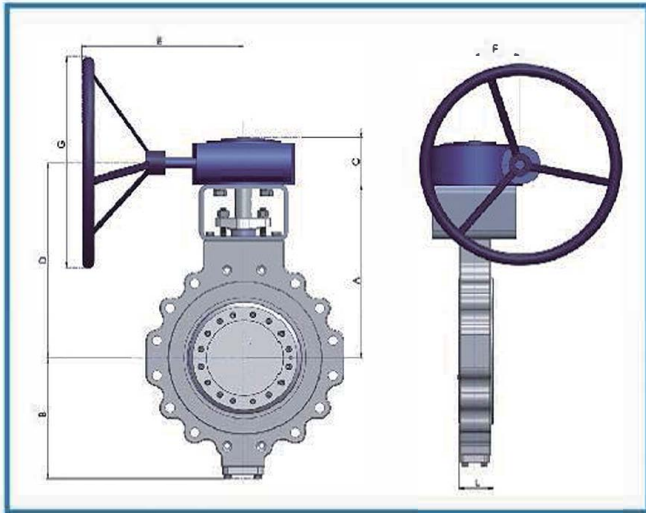
No	Part	Standard Material
1	BODY	ASTM A216 WCB/STL 21 OVERLAY
2	DISC	ASTM A216 WCB
3	RING RETAINER	ASTM A105N NITRIDED
4	GASKET	SPIRAL WOUND GRAPHITE/SS316L
5	SEAL RING	LAMINATED UNS31803+GRAPHITE
6	SCREW	ASTM A193 B8
7	WASHER	S.S
8	STEM	17-4PH
9	PIN	S.S
10	KEY	17-4PH
11	GLAND FLANGE	ASTM A216 WCB
12	PACKING FOLLOWER	ASTM A276 316
13	BOLT	ASTM A193 B7
14	NUT	ASTM A194 2H
15	WASHER	AISI 1066
16	PACKING	REINFORCED GRAPHITE
17	PACKING	GRAPHITE
18	SPACER	ASTM A276 316L
19	BEARING	ASTM A276 316LNITRIDED
20	PACKING	REINFORCED GRAPHITE

No	Part	Standard Material
21	BLOWOUT PROOF BLOCK	ASTM A 276 316L NITRIDED
22	BOLT	ASTM A 193 B8
23	WASHER	S.S
24	THRUST BEARING	ASTM A 276 316L NITRIDED
25	GASKET	SPIRAL WOUND GRAPHITE/SS316L
26	BOTTOM FLANGE	ASTM A 105N
27	STUD	ASTM A 193 B7
28	WASHER	AISI 1066
29	BRACKET	AISI 1020
30	KEY	C.S
31	STUD	ASTM A 193 B7
32	WASHER	AISI 1066
33	PIN	S.S
34	RETAINER DEVICE	S.S

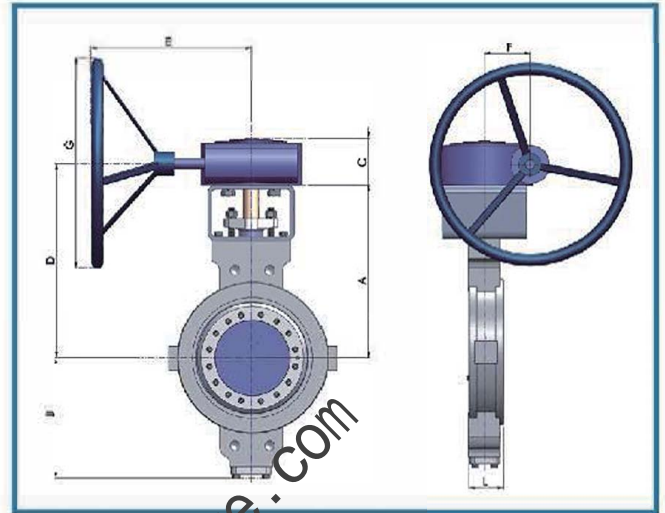


# Triple Offset Butterfly Valve

## Dimensions & Weights



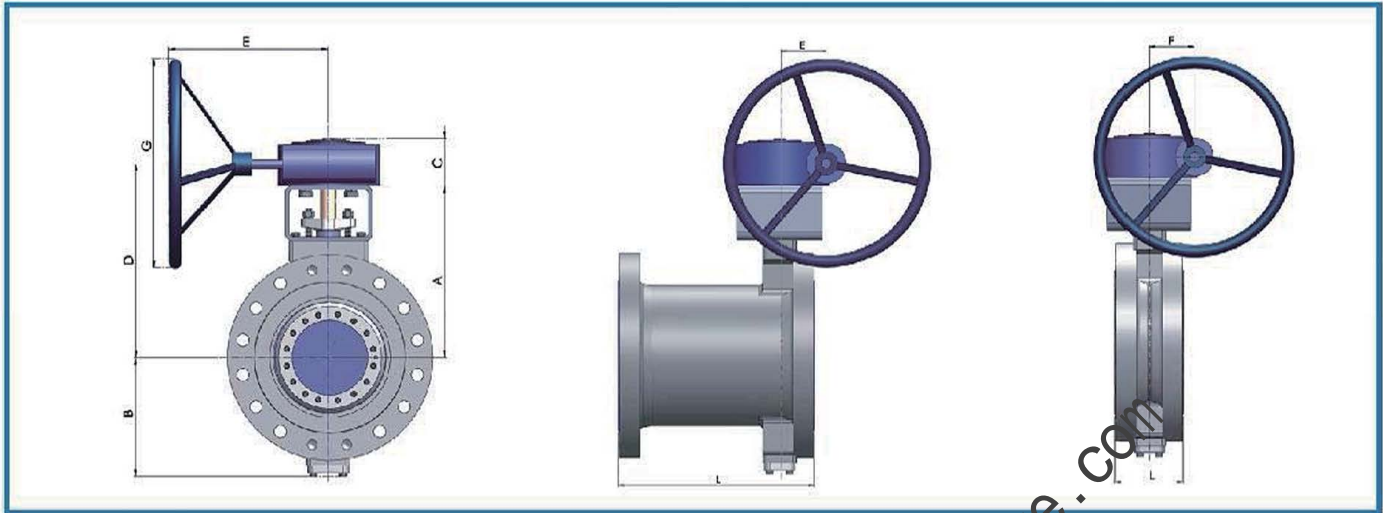
Lug



Wafer

### Class 150LB (inch)

Size	L				Valve Dimensions				Gear Dimensions			Approx. Weight (lb)				Gear Model
	Wafer	Lug	RF-S	RF-L	A	B	C	D	E	F	G	Wafer	Lug	RF-S	RF-L	
3"	1.89	1.89	4.49	7.99	7.60	5.25	2.74	8.86	6.06	1.97	7.99	30.9	35.3	50.6	55.0	SW2
4"	2.13	2.13	5.00	9.02	8.03	5.75	2.64	9.29	6.06	1.97	7.99	39.6	46.2	74.8	79.2	SW2
6"	2.24	2.24	5.51	10.51	9.49	7.32	3.54	11.26	9.06	2.48	11.81	66.0	77.2	116.8	132.0	SW7
8"	2.52	2.52	5.98	11.50	13.07	8.25	3.54	14.84	9.06	2.48	11.81	105.6	116.8	184.8	204.6	SW7
10"	2.80	2.80	6.50	12.99	14.84	9.67	3.82	16.69	10.63	3.15	15.75	136.4	156.5	242.0	290.4	SW10
12"	3.19	3.19	7.01	14.02	16.75	10.85	5.16	17.87	16.54	4.72	19.69	187.0	220.0	332.2	400.2	SW20
14"	3.62	3.62	7.48	15.00	16.89	11.95	5.16	19.02	16.54	4.72	19.69	275.0	330.0	467.4	518.1	SW20
16"	4.02	4.02	8.50	15.99	18.50	13.21	5.16	20.63	16.54	4.72	19.69	396.0	462.0	572.0	638.0	SW20
18"	4.49	4.49	8.74	17.01	22.56	14.85	5.24	24.80	18.11	4.96	23.62	572.0	607.2	720.9	809.1	SW40
20"	5.00	5.00	9.84	17.99	24.69	16.60	5.63	30.43	20.08	5.43	23.62	682.0	793.7	946.0	1047.2	SW60
24"	6.06	6.06	11.51	20.00	27.36	19.28	5.63	34.41	20.08	5.43	23.62	990.0	1221.0	1419.0	1573.0	SW70
28"	6.50	6.50	11.50		30.91	21.54	8.15	35.20	25.59	8.07	29.92					SW200
30"	7.48	7.48	12.52		29.96	21.81	8.15	34.25	25.59	8.07	29.92					SW200
32"	7.48	7.48	12.52		33.27	22.68	8.15	37.56	25.59	8.07	29.92					SW270
36"	7.99	7.99	12.99		36.61	25.59	9.41	41.26	27.17	9.09	29.92					SW300
38"	8.50	8.50	16.14		38.11	27.80	9.41	42.76	27.17	9.09	29.92					SW300
40"	8.50	8.50	16.14		38.78	28.11	9.41	43.43	27.17	9.09	29.92					SW300
42"	9.02	9.02	16.14		39.84	29.17	9.41	48.43	24.41	9.09	29.92					SW400
44"	10.00	10.00	18.50		40.83	30.24	9.41	49.41	24.41	9.09	29.92					SW400
48"	10.00	10.00	18.50		45.00	33.35	10.48	53.59	29.14	10.11	35.44					SW600



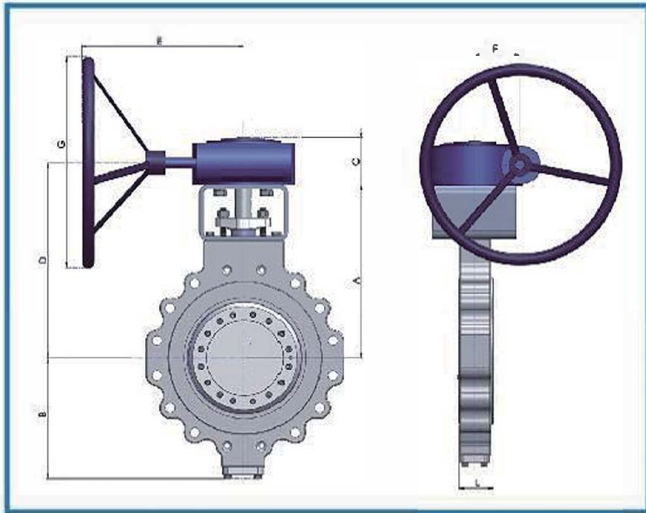
RF

### Class 150LB (mm)

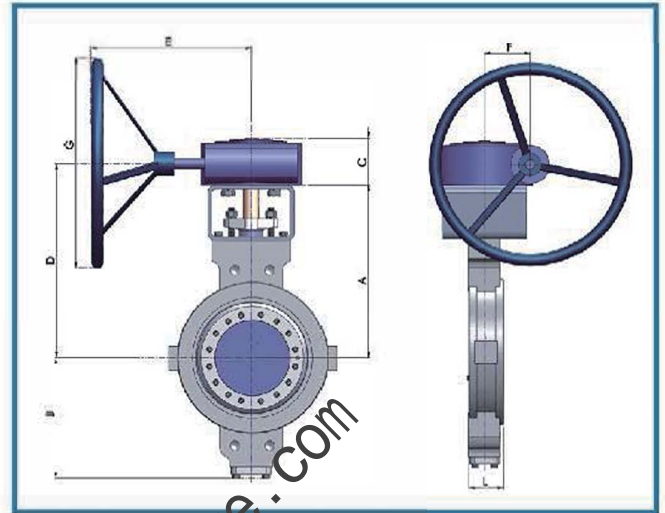
Size	L				Valve Dimensions				Handwheel Dimensions			Approx. Weight (kg)				Gear Model
	Wafer	Lug	RF-S	RF-L	A	B	C	D	E	F	G	Wafer	Lug	RF-S	RF-L	
DN80	48	48	114	203	188	1334	67	236	154	50	203	14	16	23	25	SW2
DN100	54	54	127	229	204	146	67	236	154	50	203	18	21	34	36	SW2
DN150	57	57	140	267	241	188	90	286	230	63	300	30	35	53	60	SW7
DN200	64	64	152	292	332	209.6	90	377	230	63	300	48	53	84	93	SW7
DN250	71	71	165	330	377	245.6	97	424	270	80	400	62	71	110	132	SW10
DN300	81	81	178	355	400	269.6	131	454	420	120	500	85	100	151	182	SW20
DN350	92	92	190	381	423	303.6	131	483	420	120	500	125	150	212	235	SW20
DN400	102	102	216	406	440	335.6	131	524	420	120	500	180	210	260	290	SW20
DN450	114	114	222	432	573	377.1	133	630	460	126	600	260	276	327	367	SW40
DN500	127	127	229	457	627	421.6	143	773	510	138	600	310	360	430	475	SW60
DN600	154	154	267	509	695	489.6	143	874	510	138	600	450	555	645	715	SW70
DN700	165	165	292	534	785	547	207	894	650	205	760					SW200
DN750	190	190	318	559	761	554	207	870	650	205	760					SW200
DN800	190	190	318	559	845	576	207	954	650	205	760					SW270
DN900	203	203	330	584	930	650	239	1048	690	231	760					SW300
DN950	216	216	410	609	968	706	239	1086	690	231	760					SW300
DN1000	216	216	410	609	985	714	239	1103	690	231	760					SW300
DN1050	229	229	410	609	1012	741	239	1230	620	231	760					SW400
DN1100	254	254	470	609	1037	768	239	1255	620	231	760					SW400
DN1200	254	254	470	609	1143	847	266	1361	740	256.75	900					SW600

# Triple Offset Butterfly Valve

## Dimensions & Weights



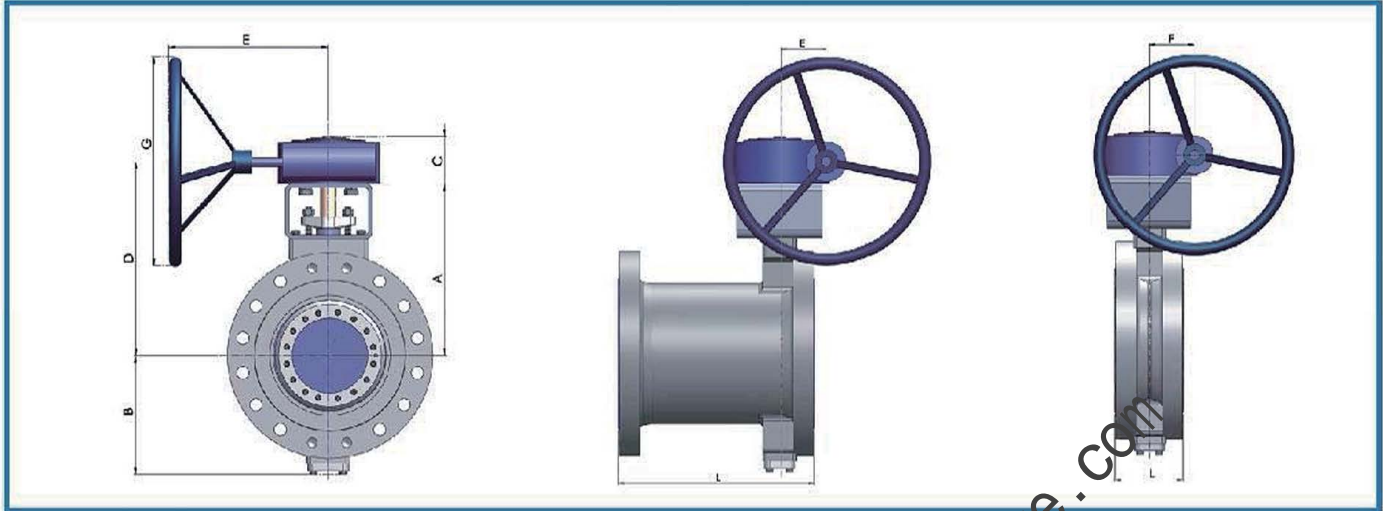
Lug



Wafer

### Class 300LB (inch)

Size	L				Valve Dimensions				Gear Dimensions			Approx. Weight (lb)				Gear Model
	Wafer	Lug	RF-S	RF-L	A	B	C	D	E	F	G	Wafer	Lug	RF-S	RF-L	
3"	1.89	1.89	4.49	11.14	7.68	5.33	2.64	8.94	6.06	1.97	7.99	33.1	37.5	61.7	72.8	SW2
4"	2.13	2.13	5.00	12.01	8.50	6.22	2.64	9.76	6.06	1.97	7.99	41.8	48.4	90.2	107.8	SW2
6"	2.32	2.32	5.51	15.87	12.52	7.70	3.54	14.29	9.06	2.48	11.81	92.4	105.6	165.0	224.4	SW7
8"	2.87	2.87	5.98	16.50	13.98	8.68	3.82	15.83	10.63	3.15	15.75	136.4	158.7	242.0	308.0	SW10
10"	3.27	3.27	6.50	17.99	15.43	10.50	5.16	17.56	16.54	4.72	19.69	211.2	257.4	363.0	473.0	SW20
12"	3.62	3.62	7.01	19.76	17.13	11.85	5.16	19.25	16.54	4.72	19.69	286.0	352.0	488.4	649.0	SW20
14"	4.61	4.61	7.48	30.08	21.73	13.51	5.63	27.48	20.08	5.43	23.62	462.0	627.0	737.0	1001.0	SW60
16"	5.24	5.24	8.50	32.89	23.15	14.89	5.63	30.20	20.08	5.43	23.62	638.0	837.8	959.0	1291.9	SW70
18"	5.87	5.87	8.74	35.98	24.41	16.42	6.61	32.13	20.87	5.43	27.56	781.0	1045.0	1157.4	1631.4	SW100
20"	6.26	6.26	9.51	39.02	25.75	17.48	8.15	30.04	25.59	8.07	29.92	1133.0	1441.0	1617.0	2167.0	SW200
24"	7.13	7.13	10.51	45.00	28.70	20.44	8.15	32.99	25.59	8.07	29.92	1430.0	1995.2	2257.5	3141.6	SW200
28"	9.02	9.02	11.50		32.72	22.44	9.41	37.36	27.17	9.09	29.92					SW300
30"	9.02	9.02	12.52		34.31	24.67	9.41	42.89	24.41	9.09	29.92					SW400
32"	9.49	9.49	12.52		36.22	24.61	9.41	44.80	24.41	9.09	29.92					SW400
36"	9.49	9.49	12.99		39.57	27.36	10.48	48.15	29.14	10.11	35.44					SW600
40"	11.81	11.81	16.14		40.63	29.72	10.48	49.22	29.14	10.11	35.44					SW800



RF

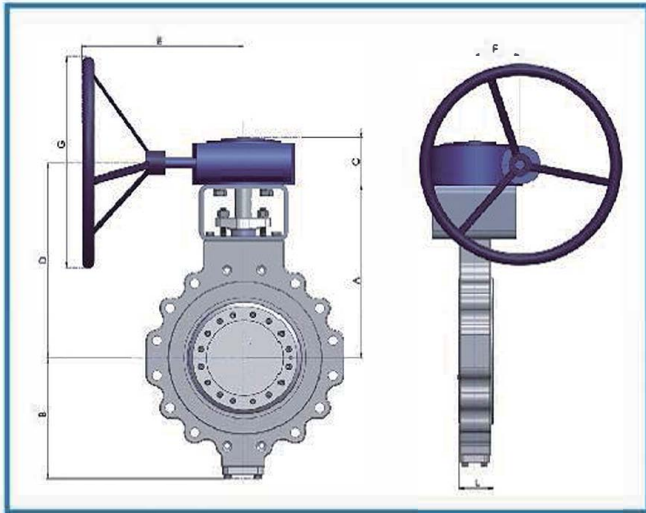
### Class 300LB (mm)

Size	L				Valve Dimensions				Gear Dimensions			Approx. Weight (kg)				Gear Model
	Wafer	Lug	RF-S	RF-L	A	B	C	D	E	F	G	Wafer	Lug	RF-S	RF-L	
DN80	48	48	114	283	195	135.4	67	248	154	50	203	15	17	28	33	SW2
DN100	54	54	127	305	216	158	67	248	154	50	203	19	22	41	49	SW2
DN150	59	59	140	403	318	195.6	67	363	230	63	300	42	48	75	102	SW7
DN200	73	73	152	419	355	225.6	67	402	270	80	400	62	72	110	140	SW10
DN250	83	83	165	457	392	266.6	131	446	420	120	500	96	117	165	215	SW20
DN300	92	92	178	502	435	307.1	131	489	420	120	500	130	160	222	295	SW20
DN350	117	117	190	762	552	343.1	143	698	510	138	600	210	285	335	455	SW60
DN400	133	133	216	838	585	378.1	143	767	510	138	600	290	380	435	585	SW70
DN450	149	149	222	914	620	417.1	168	816	530	138	700	355	475	525	740	SW100
DN500	159	159	229	989	654	444.1	207	763	650	205	760	515	655	735	985	SW200
DN600	181	181	267	1143	729	519.1	207	838	650	205	760	650	905	1024	1425	SW200
DN700	229	229	292	1397	831	570	239	949	690	231	760					SW300
DN750	229	229	318	1472	871.5	626.5	239	1090	620	231	760					SW400
DN800	241	241	318	1547	920	625	239	1138	620	231	760					SW400
DN900	241	241	330	1622	1005	695	266	1223	740	256.75	900					SW600
DN1000	300	300	410	1797	1032	755	266	1250	740	256.75	900					SW600

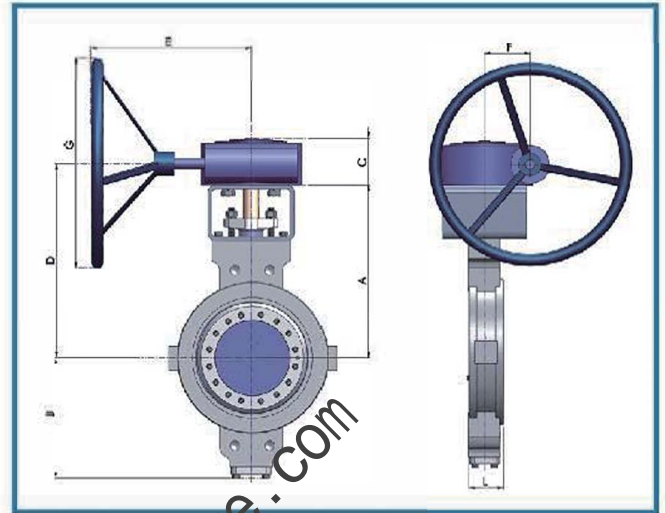


# Triple Offset Butterfly Valve

## Dimensions & Weights



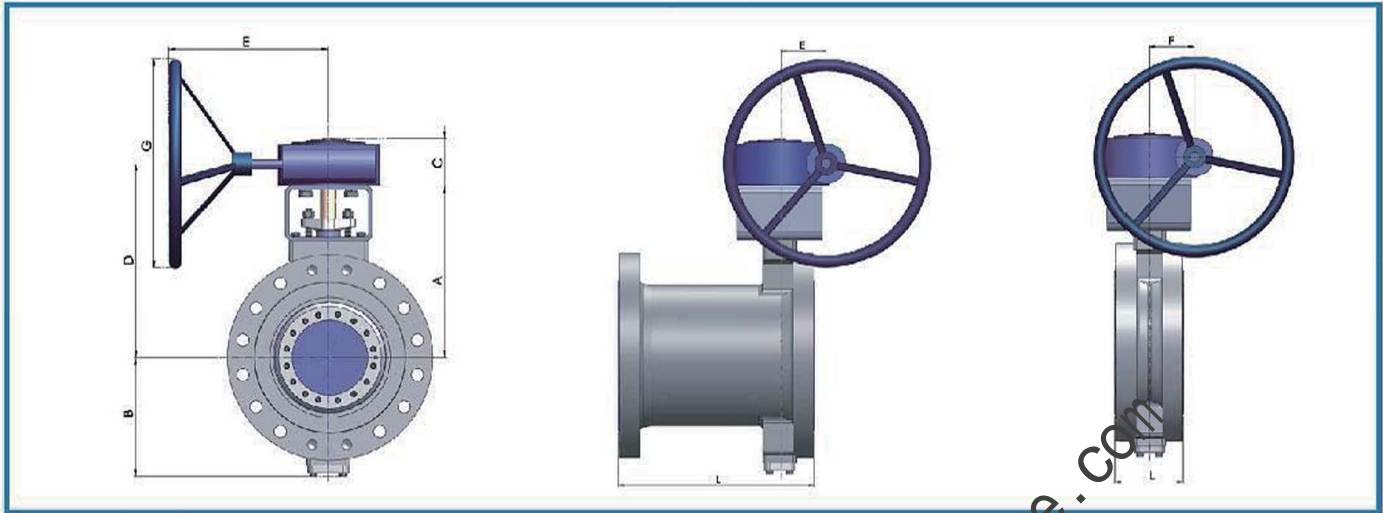
Lug



Wafer

### Class 600LB (inch)

Size	L				Valve Dimensions				Gear Dimensions				Approx. Weight (lb)				Gear Model
	Wafer	Lug	RF-S	RF-L	A	B	C	D	E	F	G	Wafer	Lug	RF-S	RF-L		
4"	2.52	2.52	7.48	17.01	11.54	7.19	5.16	13.31	9.06	2.48	11.81	83.60	105.82	171.96	198.42	SW7	
6"	3.07	3.07	8.27	22.01	13.70	9.14	5.16	15.83	16.54	4.72	19.69	171.60	205.03	308.65	374.79	SW20	
8"	4.02	4.02	9.06	25.98	15.12	10.24	5.24	17.24	18.11	4.96	23.62	253.00	308.65	453.20	616.00	SW40	
10"	4.61	4.61	9.84	30.98	20.24	12.22	5.63	25.98	20.08	5.43	23.62	418.00	529.11	748.00	990.00	SW60	
12"	5.51	5.51	10.63	32.99	21.97	14.16	6.61	29.69	20.87	5.43	27.56	616.00	770.00	976.80	1320.00	SW100	
14"	6.10	6.10	11.42	35.00	21.96	14.69	6.61	30.28	21.65	5.43	29.92	704.00	1146.40	1263.25	1829.83	SW130	
16"	7.01	7.01	12.20	39.00	24.25	16.28	7.40	27.60	25.59	6.73	29.92	943.80	1399.93	1532.21	2204.62	SW180	
18"	7.87	7.87	12.99	42.99	28.86	18.27	9.41	33.50	27.17	9.09	29.92	1227.60	1851.90	2336.90	3130.60	SW300	
20"	8.50	8.50	13.78	47.01	29.65	19.67	9.41	38.23	24.41	9.09	29.92	1601.60	2400.83	2788.84	3858.09	SW400	
24"	9.13	9.13	15.34	55.00	33.66	22.13	9.41	42.24	24.41	9.09	29.92	2189.00	3048.99	3622.19	4916.30	SW400	

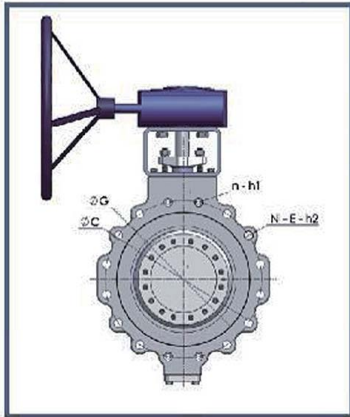


RF

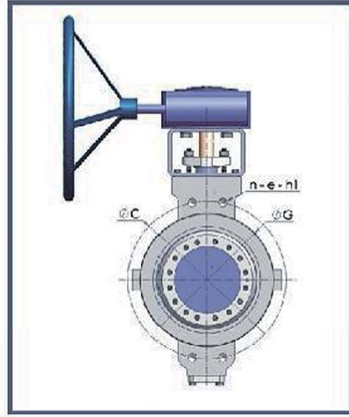
### Class 600LB (mm)

Size	L				Valve Dimensions				Flange Dimensions			Approx. Weight (kg)				Gear Model
	Wafer	Lug	RF-S	RF-L	A	B	C	D	E	F	G	Wafer	Lug	RF-S	RF-L	
DN 100	64	64	190	432	293	182.6	90	338	230	63	300	38	48	78	90	SW7
DN 125	78	78	210	558	348	232.1	131	402	420	120	500	78	93	140	170	SW20
DN 200	102	102	230	660	384	260.1	133	438	460	126	600	115	140	206	280	SW40
DN 250	117	117	250	787	514	310.5	143	660	510	138	600	190	240	340	450	SW60
DN 300	140	140	270	838	558	359.8	168	754	530	138	700	280	350	444	600	SW100
DN 350	155	155	290	888	573	383	168	768	550	138	760	320	520	573	830	SW130
DN 400	178	178	310	991	617	413.5	188	701	650	171	760	429	635	695	1000	SW180
DN 450	200	200	330	1092	733	464	239	851	690	231	760	558	840	1060	1420	SW300
DN 500	216	216	350	1194	753	499.5	239	971	620	231	760	728	1089	1265	1750	SW400
DN 600	232	232	390	1414	855	562	239	1073	620	231	760	995	1383	1643	2230	SW400

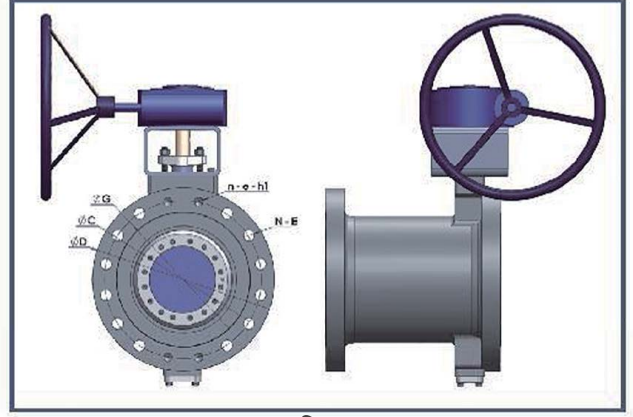
## End Connection Dimensions



Lug



Wafer

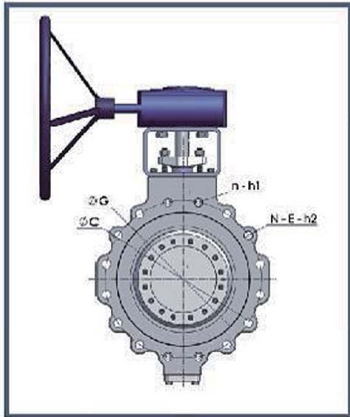


### Class 150LB (Lug and Wafer)

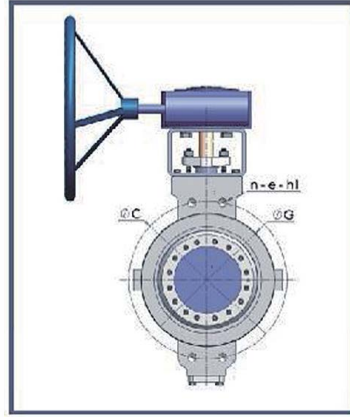
Size		C		C		n	e	N	E	h2		h1	
inch	mm	inch	mm	inch	mm					inch	mm	inch	mm
3"	80	5.00	127	6.00	152.5			4	5/8-11UNC-2B				
4"	100	6.18	157	7.50	190.5	2	φ 19	8	5/8-11UNC-2B				
6"	150	8.50	216	9.51	241.5	2	φ 21	8	3/4-10UNC-2B				
8"	200	10.63	270	11.76	298.5	2	φ 22	8	3/4-10UNC-2B				
10"	250	12.76	324	14.25	362	4	φ 25	12	7/8-9UNC-2B				
12"	300	15.00	381	17.01	432	4	φ 25	12	7/8-9UNC-2B	1.30	33		
14"	350	16.26	413	18.74	476	4	φ 29	12	1-8UNC-2B	1.30	33		
16"	400	18.50	470	21.24	539.5	4	1-8UNC-2B	16	1-8UNC-2B	1.50	38	0.67	17
18"	450	20.98	533	22.76	578	4	1-1/8-8UN-2B	16	1-1/8-8UN-2B	1.50	38	0.79	20
20"	500	22.99	584	25.00	635	4	1-1/8-8UN-2B	20	1-1/8-8UN-2B	1.69	43	0.79	20
24"	600	27.24	692	29.51	749.5	4	1-1/4-8UN-2B	20	1-1/4-8UN-2B	1.89	48	1.18	30

### Class 300LB (Lug and Wafer)

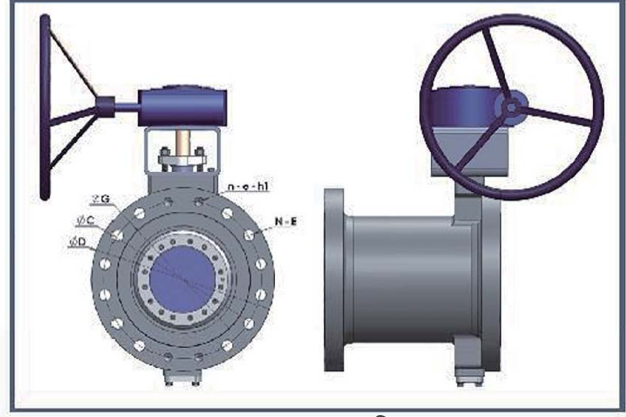
Size		C		C		n	e	N	E	h2		h1	
inch	mm	inch	mm	inch	mm					inch	mm	inch	mm
3"	80	5.00	127	6.63	168.5	4	3/4-10UNC-2B	8	3/4-10UNC-2B				
4"	100	6.18	157	7.87	200	4	φ 22	8	3/4-10UNC-2B				
6"	150	8.50	216	10.63	270	4	φ 22	12	3/4-10UNC-2B				
8"	200	10.63	270	12.99	330	4	φ 25	12	7/8-9UNC-2B				
10"	250	12.76	324	15.26	387.5	4	1-8UNC-2B	16	1-8UNC-2B			0.67	17
12"	300	15.00	381	17.76	451	4	1-1/8-8UN-2B	16	1-1/8-8UN-2B			0.79	20
14"	350	16.26	413	20.26	514.5	4	1-1/8-8UN-2B	20	1-1/8-8UN-2B	1.69	43	0.79	20
16"	400	18.50	470	22.50	571.5	4	1-1/4-8UN-2B	20	1-1/4-8UN-2B	1.89	48	0.87	22
18"	450	21.02	534	24.76	629	4	1-1/4-8UN-2B	24	1-1/4-8UN-2B	1.89	48	0.87	22
20"	500	22.99	584	27.01	686	4	1-1/4-8UN-2B	24	1-1/4-8UN-2B	1.89	48	0.87	22
24"	600	27.24	692	32.01	813	4	1-1/2-8UN-2B	24	1-1/2-8UN-2B	2.24	57	0.98	25



Lug



Wafer



RF

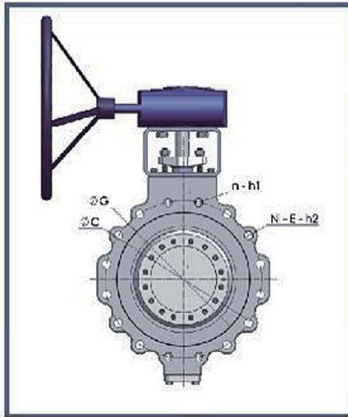
### Class 600LB (Lug and Wafer)

Size		G		C		n	e	N	D	h2		h1	
inch	mm	inch	mm	inch	mm					inch	inch	inch	mm
4"	100	6.18	157	8.50	216	4	7/8-9UNC-2B	7/8-9UNC-2B			0.59	15	
6"	150	8.50	216	11.50	292	4	1-8UN-2B	1-8UN-2B			0.67	17	
8"	200	10.63	270	13.74	349	4	1-1/8-8UN-2B	1-1/8-8UN-2B			0.79	20	
10"	250	12.76	324	17.01	432	4	1-1/4-8UN-2B	1-1/4-8UN-2B	1.89	48	0.87	22	
12"	300	15.00	381	19.25	489	4	1-1/4-8UN-2B	1-1/4-8UN-2B	1.89	48	0.87	22	
14"	350	16.26	417	20.75	527	4	1-3/8-8UN-2B	1-3/8-8UN-2B	2.05	52	0.94	24	
16"	400	18.50	470	23.74	603	4	1-1/2-8UN-2B	1-1/2-8UN-2B	2.24	57	0.98	25	
18"	450	20.98	533	25.75	654	4	1-5/8-8UN-2B	1-5/8-8UN-2B	2.44	62	1.06	27	
20"	500	22.99	584	28.50	724	4	1-5/8-8UN-2B	1-5/8-8UN-2B	2.44	62	1.10	28	
24"	600	27.24	692	32.99	838	4	1-7/8-8UN-2B	1-7/8-8UN-2B	2.83	72	1.26	32	

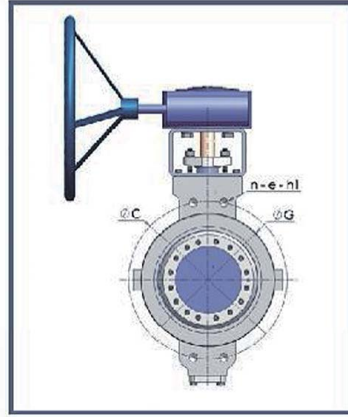
### Class 150LB (RF)

Size		G		C		D		Side A				Side B	
inch	mm	inch	mm	inch	mm	inch	mm	n	e	h1		N	E
										inch	mm		
3"	80	5.00	127	6.00	152.5	7.48	190					4	φ 19
4"	100	6.18	157	7.50	190.5	9.02	229	4	5/8-11UNC-2B	0.79	20	8	φ 19
6"	150	8.50	216	9.51	241.5	10.98	279	4	3/4-11UNC-2B	0.94	24	8	φ 22
8"	200	10.63	270	11.75	298.5	13.58	345	4	3/4-11UNC-2B	0.94	24	8	φ 22
10"	250	12.76	324	14.25	362	15.98	406	4	7/8-9UNC-2B	1.10	28	12	φ 25
12"	300	15.00	381	17.01	432	19.02	483	4	7/8-9UNC-2B	1.26	32	12	φ 25
14"	350	16.26	413	18.74	476	21.06	535	4	1-8UNC-2B	1.26	32	12	φ 29
16"	400	18.50	470	21.24	539.5	23.50	597	4	1-8UNC-2B	1.26	32	16	φ 29
18"	450	20.98	533	22.76	578	25.00	635	4	1-1/8-8UN-2B	1.42	36	16	φ 32
20"	500	22.99	584	25.00	635	27.48	698	4	1-1/8-8UN-2B	1.42	36	20	φ 32
24"	600	27.24	692	29.51	749.5	32.01	813	4	1-1/4-8UN-2B	1.57	40	20	φ 35

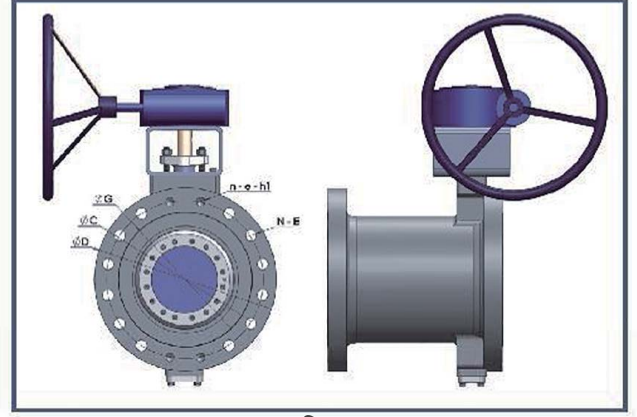
## End Connection Dimensions



Lug



Wafer



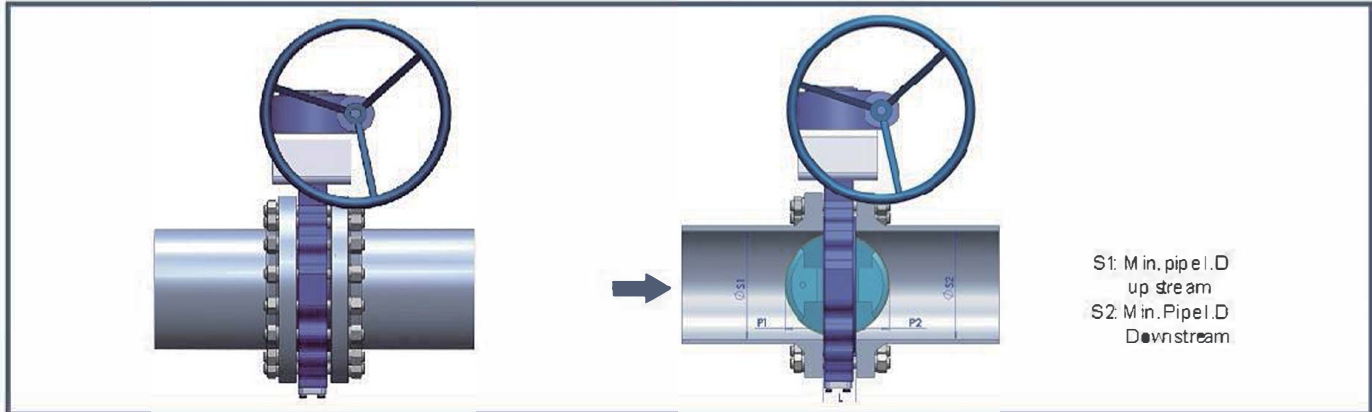
### Class 300LB (RF)

Size		G		C		D		Side A				Side B	
inch	mm	inch	mm	inch	mm	inch	mm	n	e	h1		N	E
										inch	mm		
3"	80	5.00	127	6.63	168.5	8.27	210	4	3/4-10UNC-2B	0.94	24	8	$\phi 22$
4"	100	6.18	157	7.87	200	10.00	254	4	3/4-10UNC-2B	1.10	28	8	$\phi 22$
6"	150	8.50	216	10.63	270	12.60	320	4	3/4-10UNC-2B	0.94	24	12	$\phi 22$
8"	200	10.63	270	12.99	330	14.96	380	4	7/8-9UNC-2B	1.06	27	12	$\phi 25$
10"	250	12.76	324	15.26	387.5	17.52	445	4	1-8UNC-2B	1.18	30	16	$\phi 29$
12"	300	15.00	381	17.76	451	20.51	521	4	1-1/8-8UN-2B	1.42	36	18	$\phi 32$
14"	350	16.26	413	20.26	514.5	23.03	585	4	1-1/8-8UN-2B	1.34	34	20	$\phi 32$
16"	400	18.50	470	22.50	571.5	25.51	648	4	1-1/4-8UN-2B	1.57	40	20	$\phi 35$
18"	450	20.98	533	24.76	629	27.99	711	4	1-1/4-8UN-2B	1.57	40	24	$\phi 35$
20"	500	22.99	584	27.01	686	30.51	775	6	1-1/4-8UN-2B	1.57	40	24	$\phi 35$
24"	600	27.24	692	31.01	813	36.02	915	6	1-1/2-8UN-2B	1.89	48	24	$\phi 41$

### Class 600LB (RF)

Size		G		C		D		Side A				Side B	
inch	mm	inch	mm	inch	mm	inch	mm	n	e	h1		N	E
										inch	mm		
4"	100	6.18	157	8.50	216	10.75	273	4	7/8-9UNC-2B	1.10	28	8	$\phi 25$
6"	150	8.50	216	11.50	292	14.02	356	4	1-8UNC-2B	1.26	32	12	$\phi 29$
8"	200	10.63	270	13.74	349	16.50	419	4	1-1/8-8UN-2B	1.42	36	12	$\phi 32$
10"	250	12.76	324	17.01	432	20.00	508	4	1-1/4-8UN-2B	1.57	40	16	$\phi 35$
12"	300	15.00	381	19.25	489	22.01	559	4	1-1/4-8UN-2B	1.57	40	20	$\phi 35$
14"	350	16.42	417	20.75	527	23.82	605	4	1-3/8-8UN-2B	1.73	44	20	$\phi 38$
16"	400	18.50	470	23.74	603	26.97	685	4	1-1/2-8UN-2B	1.89	48	20	$\phi 41$
18"	450	20.98	533	25.75	654	29.33	745	4	1-5/8-8UN-2B	2.05	52	20	$\phi 45$
20"	500	22.99	584	28.50	724	32.09	815	4	1-5/8-8UN-2B	2.05	52	24	$\phi 45$
24"	600	27.24	692	32.99	838	37.01	940	4	1-7/8-8UN-2B	2.36	60	24	$\phi 51$

## Min. Pipe I. D. for Disc Clearance



### Class 150LB

Size		L		S1		S2		P1		P2	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
80	3"	48	1.89	68	2.68	37	1.46	21	0.83	4	0.16
100	4"	54	2.13	95	3.74	76	2.99	31	1.22	16	0.63
150	6"	57	2.24	141	5.55	130	5.12	51	2.01	37	1.46
200	8"	64	2.52	190	7.48	178	7.01	73	2.87	56	2.20
250	10"	71	2.80	238	9.37	227	8.94	94	3.70	77	3.03
300	12"	81	3.19	288	11.34	278	10.94	116	4.57	96	3.78
350	14"	92	3.62	314	12.36	302	11.89	124	4.88	104	4.09
400	16"	102	4.02	361	14.21	349	13.74	142	5.59	122	4.80
450	18"	114	4.49	412	16.22	397	15.63	165	6.50	139	5.47
500	20"	127	5.00	452	17.80	437	17.20	179	7.05	153	6.02
550	24"	154	6.06	551	21.69	537	21.14	216	8.50	190	7.48

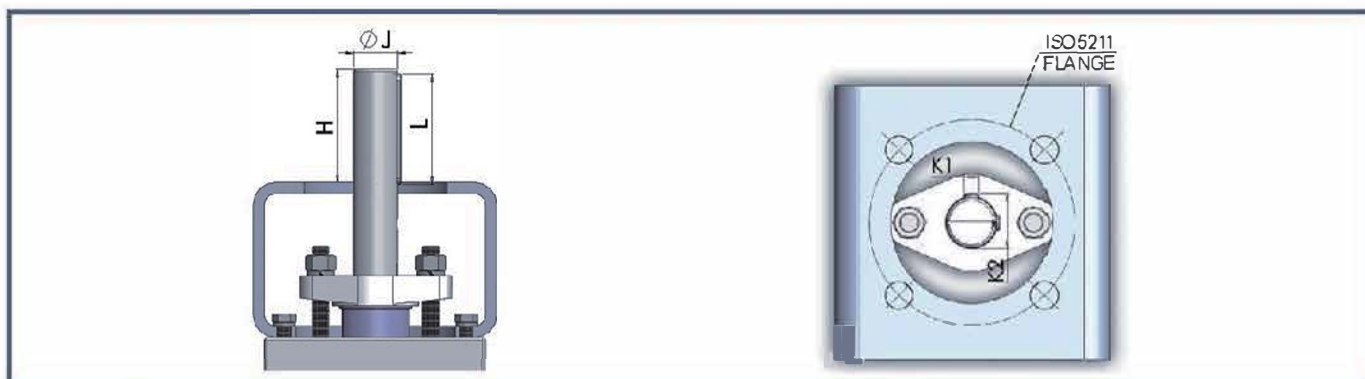
### Class 300LB

Size		L		S1		S2		P1		P2	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
80	3"	48	1.89	68	2.68	37	1.46	21	0.83	4	0.16
100	4"	54	2.13	95	3.74	76	2.99	31	1.22	16	0.63
150	6"	57	2.24	141	5.55	128	5.04	51	2.01	36	1.42
200	8"	64	2.52	188	7.40	173	6.81	70	2.76	51	2.01
250	10"	71	2.80	238	9.29	224	8.82	89	3.50	70	2.76
300	12"	81	3.19	287	11.30	276	10.87	110	4.33	91	3.58
350	14"	92	3.62	308	12.13	297	11.69	110	4.33	92	3.62
400	16"	102	4.02	355	13.98	334	13.15	129	5.08	102	4.02
450	18"	114	4.49	395	15.55	372	14.65	143	5.63	114	4.49
500	20"	127	5.00	441	17.36	420	16.54	161	6.34	132	5.20
550	24"	154	6.06	537	21.14	521	20.51	196	7.72	173	6.81

### Class 600LB

Size		L		S1		S2		P1		P2	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
100	4"	64	2.52	94	3.70	69	2.72	27	1.06	11	0.43
150	6"	78	3.07	143	5.63	124	4.88	43/84	1.73	28	1.10
200	8"	102	4.02	179	7.05	160	6.30	52	2.05	38	1.50
250	10"	117	4.61	226	8.90	208	8.19	70	2.76	53	2.09
300	12"	140	5.51	268	10.55	252	9.92	80	3.15	65	2.56
350	14"	155	6.10	292	11.50	267	10.51	88	3.50	66	2.60
400	16"	178	7.01	335	13.19	303	11.93	108	4.06	74	2.91
450	18"	200	7.87	364	14.33	344	13.54	106	4.17	88	3.46
500	20"	216	8.50	404	15.91	382	15.04	119	4.69	99	3.90
550	24"	232	9.13	504	19.84	478	18.82	161	6.34	134	5.28

## Dimensions of Top Flange



### Class 150LB

Size		H		J		K1		K2		L		ISO5211
inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	
3"	80	1.38	35	0.63	16	0.20	5	0.71	18	1.26	32	F 10
4"	100	1.54	39	0.71	18	0.24	6	0.81	20.5	1.42	36	F 10
6"	150	1.61	41	0.87	22	0.24	6	0.96	24.5	1.57	40	F 10
8"	200	2.28	58	1.02	26	0.31	8	1.14	29	2.20	56	F 12
10"	250	2.28	58	1.10	28	0.31	8	1.22	31	2.20	56	F 12
12"	300	2.48	63	1.26	32	0.39	10	1.38	35	2.48	63	F 14
14"	350	2.83	72	1.38	35	0.39	10	1.50	38	2.76	70	F 16
16"	400	4.06	103	1.57	40	0.47	12	1.69	43	3.94	100	F 16
18"	450	4.45	113	1.77	45	0.55	14	1.91	48.5	4.33	110	F 25
20"	500	4.41	112	1.97	50	0.55	14	2.11	53.5	4.33	110	F 25
24"	600	4.45	113	2.36	60	0.71	18	2.52	64	4.33	110	F 25

### Class 300LB

Size		H		J		K1		K2		L		ISO5211
inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	
3"	80	1.30	33	0.63	16	0.20	5	0.71	18	1.26	32	F 10
4"	100	1.46	37	0.71	18	0.24	6	0.81	20.5	1.42	36	F 10
6"	150	1.89	48	1.02	26	0.31	8	1.14	29	1.77	45	F 12
8"	200	2.28	58	1.10	28	0.31	8	1.22	31	0.20	56	F 12
10"	250	2.87	73	1.38	35	0.39	10	1.50	38	2.76	70	F 16
12"	300	4.06	103	1.57	40	0.47	12	1.69	43	3.94	100	F 16
14"	350	4.45	113	1.97	50	0.55	14	2.11	53.5	4.33	110	F 25
16"	400	4.45	113	2.17	55	0.63	16	2.32	59	4.33	110	F 25
18"	450	5.63	143	2.36	60	0.71	18	2.52	64	5.51	140	F 25
20"	500	6.26	159	2.76	70	0.79	20	2.93	74.5	6.30	160	F 30
24"	600	6.42	163	3.15	80	0.87	22	3.35	85	6.30	160	F 30

### Class 600LB

Size		H		J		K1		K2		L		ISO5211
inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	
4"	100	2.17	55	1.02	26	0.31	8	1.14	29	2.20	56	F 12
6"	150	2.68	68	1.38	35	0.39	10	1.50	38	2.76	70	F 16
8"	200	4.41	112	1.57	40	0.47	12	1.69	43	3.94	100	F 16
10"	250	4.45	113	1.97	50	0.55	14	2.11	53.5	4.33	110	F 25
12"	300	4.45	113	2.36	60	0.71	18	2.52	64	4.33	110	F 25
14"	350	5.71	145	2.56	65	0.71	18	2.72	69	5.51	140	F 25
16"	400	6.22	158	2.95	75	0.79	20	3.13	79.5	6.30	160	F 30
18"	450	6.89	175	3.35	85	0.87	22	3.54	90	7.09	180	F 35
20"	500	7.28	185	3.74	95	0.98	25	3.94	100	7.09	180	F 35
24"	600	8.03	204	4.53	115	1.26	32	4.80	122	8.27	210	F 35

**Valve Operating Torque**

**Class 150LB (Prefered Direction, Shaft Side)**

Valve Nominal Diameter		Running Torque		Operating Pressure															
				0.6MPa (87psi)				1.0MPa (145psi)				1.6MPa (232psi)				2.0MPa (290psi)			
				Start to Open		End to Close		Start to Open		End to Close		Start to Open		End to Close		Start to Open		End to Close	
in	mm	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft
3"	80	35	26	77	57	77	57	77	57	77	57	77	57	77	57	77	57	77	57
4"	100	43	32	100	74	100	74	100	74	100	74	110	81	100	74	110	81	100	74
6"	150	61	45	126	93	130	96	126	93	130	96	164	121	130	96	190	140	130	96
8"	200	83	61	205	151	240	177	205	151	240	177	290	214	240	177	330	243	240	177
10"	250	138	103	340	251	370	273	340	251	370	273	461	340	370	273	541	399	370	273
12"	300	167	123	471	347	550	406	471	347	550	406	654	482	550	406	776	572	550	406
14"	350	218	161	602	444	715	527	602	444	715	527	832	614	715	527	986	727	715	527
16"	400	340	251	874	645	1050	774	874	645	1050	774	1194	881	1050	774	1408	1038	1050	774
18"	450	504	372	1021	753	1230	907	1365	1007	1230	907	1882	1388	1230	907	2227	1643	1230	907
20"	500	815	601	1557	1148	1786	1317	2052	1513	1786	1317	2794	2061	1786	1317	3289	2426	1786	1317
24"	600	1138	839	2321	1712	2584	1906	3111	2294	2584	1906	4295	3168	2584	1906	5084	3750	2584	1906
28"	700	1942	1432	3788	2794	4493	3314	5019	3702	4493	3314	6865	5064	4493	3314	8096	5972	4493	3314
30"	750	2192	1617	4357	3214	5914	4362	5801	4278	5914	4362	7966	5875	5914	4362	9410	6940	5914	4362
32"	800	3265	2408	5945	4385	7275	5366	7731	5702	7275	5366	10410	7676	7275	5366	12196	8995	7275	5366
36"	900	3638	2683	6667	4917	9819	7242	8665	6406	9819	7242	11713	8639	9819	7242	13732	10128	9819	7242
38"	950	4032	2974	7805	5756	11836	8730	10320	7611	11836	8730	14093	10394	11836	8730	16608	12249	11836	8730
40"	1000	4445	3278	8630	6365	13227	9756	11419	8422	13227	9756	15604	11509	13227	9756	18393	13566	13227	9756
42"	1050	4878	3598	9589	7073	14908	10996	12730	9389	14908	10996	17441	12864	14908	10996	20582	15180	14908	10996
44"	1100	5805	4282	12108	8931	16654	12283	16310	12030	16654	12283	22613	16679	16654	12283	26815	19778	16654	12283
48"	1200	6813	5025	15304	11288	19650	14493	20965	15463	19650	14493	29455	21725	19650	14493	35116	25900	19650	14493

**Class 150LB (Reverse Direction)**

Valve Nominal Diameter		Running Torque		Operating Pressure															
				0.6MPa (87psi)				1.0MPa (145psi)				1.6MPa (232psi)				2.0MPa (290psi)			
				Start to Open		End to Close		Start to Open		End to Close		Start to Open		End to Close		Start to Open		End to Close	
in	mm	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft
3"	80	35	26	77	57	80	59	77	57	80	59	77	57	100	74	77	57	100	74
4"	100	43	32	100	74	120	89	100	74	120	89	110	81	150	111	110	81	150	111
6"	150	61	45	126	93	210	155	126	93	210	155	164	121	262	194	190	140	296	218
8"	200	83	61	205	151	319	235	205	151	303	223	290	214	480	354	330	243	545	402
10"	250	138	103	340	251	513	379	340	251	619	456	461	340	777	573	541	399	882	650
12"	300	167	123	471	347	755	557	471	348	917	676	654	482	1159	855	776	572	1321	974
14"	350	218	161	602	444	934	689	602	444	1135	837	832	614	1437	1060	986	727	1638	1208
16"	400	340	251	874	645	1303	961	874	644	1579	1165	1194	881	1993	1470	1408	1038	2270	1674
18"	450	504	372	1021	753	1656	1369	1365	1007	2283	1684	1882	1388	2922	2155	2227	1643	3349	2470
20"	500	815	601	1557	1148	2688	1982	2052	1513	3293	2429	2794	2061	4201	3099	3289	2426	4807	3545
24"	600	1138	839	2321	1712	4016	2962	3111	2294	4971	3666	4295	3168	6403	4723	5084	3750	7358	5427
28"	700	1942	1432	3788	2794	6200	4573	5019	3702	7866	5654	6865	5064	9866	7277	8096	5972	11332	8358
30"	750	2192	1617	4357	3214	7568	5582	5801	4278	9325	6878	7966	5875	11960	8822	9410	6940	13717	10117
32"	800	3265	2408	5945	4385	9884	7290	7731	5702	12054	8891	10410	7676	15310	11292	12196	8995	17480	12893
36"	900	3638	2683	6667	4917	11486	8457	8665	6406	13953	10291	11713	8639	17684	13043	13732	10128	20170	14877
38"	950	4032	2974	7805	5756	13622	10047	10320	7611	16705	12321	14093	10394	21329	15732	16608	12249	24412	18005
40"	1000	4445	3278	8630	6365	14923	11006	11419	8422	18326	13517	15604	11509	23432	17282	18393	13566	26835	19793
42"	1050	4878	3598	9589	7073	16509	12176	12730	9389	20324	14990	17441	12864	26048	19212	20582	15180	29863	22026
44"	1100	5805	4282	12108	8931	20195	14895	16310	12030	25186	18576	22613	16679	32672	24098	26815	19778	37663	27779
48"	1200	6813	5025	15304	11288	24335	17948	20965	15463	30876	22773	29455	21725	40688	30010	35116	25900	47230	34835



## Valve Operating Torque

### Class 300LB (Preferred Direction, Shaft Side)

Valve Nominal Diameter		Running Torque		Operating Pressure															
				1.0MPa (145psi)				2.5MPa (363psi)				4.0MPa (580psi)				5.1MPa (740psi)			
				Start to Open		End to Close		Start to Open		End to Close		Start to Open		End to Close		Start to Open		End to Close	
in	mm	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft		
3"	80	42	31	77	57	77	57	88	65	77	57	120	89	77	57	144	106	77	57
4"	100	52	38	100	74	100	74	131	97	100	74	184	136	100	74	223	165	100	74
6"	150	100	74	166	123	150	111	291	214	150	111	415	306	150	111	507	374	150	111
8"	200	167	123	294	217	278	205	527	389	278	205	760	561	278	205	931	687	278	205
10"	250	262	193	479	354	436	322	873	644	436	322	1266	934	436	322	1555	1147	436	322
12"	300	408	301	676	499	951	701	1182	872	951	701	1687	1245	951	701	2058	1518	951	701
14"	350	978	721	1410	1040	1235	911	2304	1700	1235	911	3198	2359	1235	911	3854	2843	1235	911
16"	400	1163	858	1760	1298	1453	1072	2948	2174	1453	1072	4135	3050	1453	1072	5005	3692	1453	1072
18"	450	1366	1008	2158	1592	1897	1399	3689	2721	1897	1399	5220	3850	1897	1399	6343	4678	1897	1399
20"	500	1705	1258	3053	2252	3043	2244	5075	3743	3043	2244	7097	5234	3043	2244	8580	6328	3043	2244
24"	600	2627	1938	4078	3008	5318	3922	6911	5097	5318	3922	9744	7187	5318	3922	11821	8719	5318	3922
28"	700	3890	2869	6365	4694	8110	5982	11047	8148	8110	5982	15730	11602	8110	5982	19164	14135	8110	5982
30"	750	4860	3585	8342	6153	11224	8278	14780	10901	11224	8278	20318	15649	11224	8278	25939	19131	11224	8278
32"	800	5358	3952	8754	6456	13788	10170	15185	11200	13788	10170	21617	15944	13788	10170	26334	19423	13788	10170
36"	900	7000	5163	11540	8512	18658	13761	20102	14828	18658	13761	28663	21141	18658	13761	34941	25771	18658	13761
40"	1000	8214	6058	15424	11376	22037	16254	28291	20867	22037	16254	41159	30357	22037	16254	50595	37317	22037	16254

### Class 300LB (Reverse Direction)

Valve Nominal Diameter		Running Torque		Operating Pressure															
				1.0MPa (145psi)				2.5MPa (363psi)				4.0MPa (580psi)				5.1MPa (740psi)			
				Start to Open		End to Close		Start to Open		End to Close		Start to Open		End to Close		Start to Open		End to Close	
in	mm	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft	N.m	lbf.ft
3"	80	42	31	77	57	77	57	88	65	116	86	120	89	156	115	144	106	185	136
4"	100	52	38	100	74	110	88	131	97	186	137	184	136	252	186	223	165	301	222
6"	150	100	74	166	123	253	187	291	214	406	300	415	306	560	413	507	374	673	496
8"	200	167	123	294	217	473	349	527	389	766	565	760	561	1059	781	931	687	1273	939
10"	250	262	193	479	354	761	561	873	644	1248	920	1266	934	1735	1280	1555	1147	2092	1543
12"	300	408	301	676	499	1125	830	1182	872	1780	1313	1687	1245	2435	1796	2058	1518	2916	2151
14"	350	978	721	1410	1040	1950	1439	2304	1700	3025	2231	3198	2359	4099	3023	3854	2843	4886	3604
16"	400	1163	858	1760	1298	2541	1874	2948	2174	3989	2942	4135	3050	5436	4010	5005	3692	6498	4792
18"	450	1366	1008	2158	1592	3133	2311	3689	2721	4989	3680	5220	3850	6845	5049	6343	4678	8207	6053
20"	500	1705	1258	3053	2252	4267	3147	5075	3743	6693	4937	7097	5234	9120	6726	8580	6328	10899	8039
24"	600	2627	1938	4078	3008	6173	4553	6911	5097	9704	7158	9744	7187	13236	9762	11821	8719	15825	11672
28"	700	3890	2869	6365	4694	9349	6896	11047	8148	15027	11083	15730	11602	20704	15271	19164	14135	24868	18341
30"	750	4860	3585	8342	6153	13137	9689	14780	10901	21173	15616	21218	15649	29209	21543	25939	19131	35102	25890
32"	800	5358	3952	8754	6456	13041	9618	15185	11200	20902	15416	21617	15944	28762	21214	26334	19423	34527	25466
36"	900	7000	5163	11540	8512	16868	12440	20102	14828	27203	20064	28663	21141	37539	27688	34941	25771	45119	33278
40"	1000	8214	6058	15424	11376	22457	16564	28291	20867	37669	27783	41159	30357	52881	39003	50595	37317	64036	47231

## Valve Operating Torque

### Class 600LB (Preferred Direction, Shaft Side)

Valve Nominal Diameter		Running Torque		Operating Pressure															
				2.5MPa (363psi)				5.0MPa (725psi)				7.5MPa (1088psi)				10.2MPa (1479psi)			
				Start to Open		End to Close		Start to Open		End to Close		Start to Open		End to Close		Start to Open		End to Close	
in	mm	N.m	lbfft	N.m	lb.ft	N.m	lb.ft	N.m	lb.ft	N.m	lb.ft	N.m	lb.ft	N.m	lb.ft	N.m	lb.ft	N.m	lb.ft
3"	80	92	68	114	84	100	74	153	112	100	74	191	141	100	74	232	171	100	74
4"	100	125	92	177	131	144	106	250	184	144	106	323	238	144	106	402	297	144	106
6"	150	327	241	464	342	528	389	656	484	528	389	848	626	528	389	1056	779	528	389
8"	200	510	376	830	612	650	479	1236	912	650	479	1643	1212	650	479	2081	1535	650	479
10"	250	1223	902	1684	1250	1692	1248	2371	1749	1692	1248	3048	2248	1692	1248	3778	2787	1692	1248
12"	300	1707	1259	2190	1615	2412	1779	3243	2392	2412	1779	4295	3168	2412	1779	5432	4007	2412	1779
14"	350	1978	1459	2973	2193	3388	2499	4298	3170	3388	2499	5623	4147	3388	2499	7053	5202	3388	2499
16"	400	2912	2148	4566	3367	4180	3083	6705	4945	4180	3083	8844	6523	4180	3083	11154	8227	4180	3083
18"	450	4893	3609	7260	5355	5692	4198	10443	7702	5692	4198	13625	10049	5692	4198	17062	12585	5692	4198
20"	500	6040	4455	9119	6726	7735	5705	13204	9738	7735	5705	17288	12751	7735	5705	21700	16005	7735	5705
24"	600	8700	6417	13740	10134	14122	10416	20231	14921	14122	10416	26722	19709	14122	10416	33732	24879	14122	10416

### Class 600LB (Reverse Direction)

Valve Nominal Diameter		Running Torque		Operating Pressure															
				2.5MPa (363psi)				5.0MPa (725psi)				7.5MPa (1088psi)				10.2MPa (1479psi)			
				Start to Open		End to Close		Start to Open		End to Close		Start to Open		End to Close		Start to Open		End to Close	
in	mm	N.m	lbfft	N.m	lb.ft	N.m	lb.ft	N.m	lb.ft	N.m	lb.ft	N.m	lb.ft	N.m	lb.ft	N.m	lb.ft	N.m	lb.ft
3"	80	92	68	114	84	153	113	153	113	208	153	191	141	262	193	232	171	321	237
4"	100	125	92	177	131	245	181	250	184	347	256	323	238	448	331	402	297	558	412
6"	150	327	241	464	342	645	475	656	484	912	673	848	626	1180	870	1056	779	1469	1084
8"	200	510	376	830	612	1013	835	1236	912	1665	1228	1643	1212	2197	1620	2081	1535	2772	2044
10"	250	1223	902	1684	1250	2214	1633	2371	1749	3107	2291	3048	2248	4000	2950	3778	2787	4964	3661
12"	300	1707	1259	2190	1615	2943	2171	3243	2392	4309	3178	4295	3168	5676	4186	5432	4007	7151	5274
14"	350	1978	1459	2973	2193	3893	2871	4298	3170	5601	4131	5623	4147	7308	5390	7053	5202	9153	6751
16"	400	2912	2148	4566	3367	5758	4247	6705	4945	8394	6191	8844	6523	11030	8135	11154	8227	13877	10235
18"	450	4893	3609	7260	5355	8779	6475	10443	7702	12595	9290	13625	10049	16411	12104	17062	12585	20532	15143
20"	500	6040	4455	9119	6726	10965	8087	13204	9738	15819	11668	17288	12751	20674	15248	21700	16005	25916	19115
24"	600	8700	6417	13740	10134	16750	12354	20231	14921	24495	18066	26722	19709	32240	23779	33732	24879	40805	29948

#### Notes:

- 1) Torques shown are based on normal temperature.
- 2) Torques shown in this table are to be used as a guide for actuator selection. A safety factor of 1.3~1.5 is recommended for actuator sizing.
- 3) It is recommended that a margin of 5 should be kept for adjustment at opening and closing position of the actuator.
- 4) For more information, please contact Neway engineering department.