



Cat.no.:E-PS



Cat.no.:E-GGC



Cat.no.:E-TMBV



Cat.no.:E-FBV



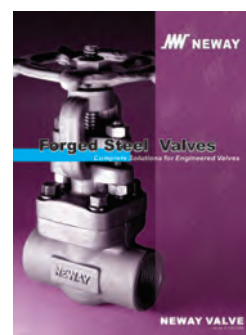
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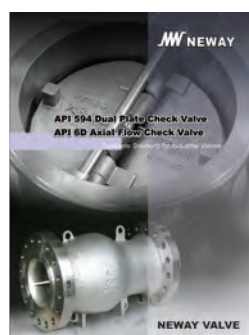
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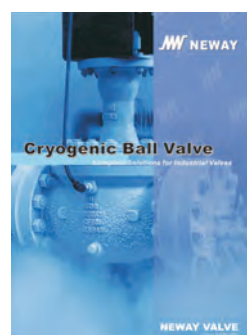
Cat.no.:E-FSV



Cat.no.:E-DAV



Cat.no.:E-CPV



Cat.no.:E-CBV



Cat.no.:E-PV

MW NEWAY
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MW NEWAY



Triple Offset Butterfly Valves

Complete Solutions for Industrial Valves



NEWAY VALVE

Cat.no.:E-TOV-2019

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Triple Offset Butterfly Valve

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Complete Solutions for Industrial Valves

As a global leader of valve manufacturing, Neway (SSE:603699) is dedicated to the production, research, and development of industrial valves. Neway is committed to providing complete valve solutions to all industries through advanced engineering and innovation.

Neway's product line includes Ball, Butterfly, Gate, Globe, Check, Nuclear, Control, Subsea, Safety valves. Our high quality standards and innovative ability are recognized by many global end users and EPCs. Neway valves are utilized in a wide variety of industries and working conditions such as Refining, Chemical, Coal Chemical, Offshore(including subsea), Air Separation, LNG, Nuclear Power, Power Generation, and Pipeline Transmission applications.

Facilities & Service

Neway has developed a sophisticated multi-plant management system operating one valve assembly plant, one API6A valve plant, three foundries, and one R&D center. Our largest assembly plant was expanded in 2013, and it now covers 35,000 square meters.

Advanced software (ANSYS, FE-Safe, CF-Design, Siemens PLM and NX) is applied here at Neway for the Research & Development of products. We use SAP to control the traceability and status of all products during the manufacturing process. In order to ensure the safety, eco-friendliness, and reliability of our products, we use the most advanced fire-safe, cryogenic, high pressure, and fugitive emission test equipment.

As part of Neway's global strategy, to provide better service to our customers, we have established our overseas subsidiaries in USA, Netherlands, Italy, Singapore, and Dubai along with over 80 agents and distributors worldwide.

Quality Assurance

Neway is dedicated to the pursuit of “Zero Defect”. We maintain a quality management system that encompasses our entire operation from order entry, to final inspection. Through Neway's continuous efforts, our products have sucessfully achieved industrial certificates including ISO 9001, API 6A, API 6D, CE/PED, ASME N & NPT, TA-Luft, ABS, CU-TR, and Fire-Safe approvals.

Quality Commitment

ISO 9001



NORSOK



API 6A



CE/PED



ABS

TA Luft



AD2000



Fire Safe Test

Neway recognizes the importance of valve quality for the safety and protection of personnel health and property. It is our quality commitment to focus our resources to provide our customers with first class products at a competitive price, designed, manufactured, inspected and tested in accordance with our customers specifications, while complying with all international standards.

Current industrial standards do not always take into consideration the likelihood and consequences of possible deterioration, related to specific service fluids or the external environments in which they operate; Therefore, we request that our customers communicate with our engineering department. Our valve optimization program continuously strives to provide valves that withstand deterioration in service, and ensure safety over the valves expected lifetime.

Figure Numbers

12

①

TC

②

1

③

W

④

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G

⑤

,

C00

⑥

/

5998

⑦

Neway figure numbers are designed to cover essential features. When ordering, please show figure number to avoid misunderstanding of your requirements. However a detailed description must accompany with any special orders.

① Valve Size

3 = 3"	(DN80)	24 = 24"	(DN600)
4 = 4"	(DN100)	28 = 28"	(DN700)
6 = 6"	(DN150)	30 = 30"	(DN750)
8 = 8"	(DN200)	36 = 36"	(DN900)
10 = 10"	(DN250)	42 = 42"	(DN1050)
12 = 12"	(DN300)	48 = 48"	(DN1200)
14 = 14"	(DN350)	52 = 52"	(DN1300)
16 = 16"	(DN400)	56 = 56"	(DN1400)
18 = 18"	(DN450)	60 = 60"	(DN1500)
20 = 20"	(DN500)	64 = 64"	(DN1600)

② Triple Offset Butterfly Valve

Symbol	Type
TC	Triple Offset Butterfly Valve

④ End Connection

Symbol	Type
R	Raised Face Flanged End
B	Butt-Welding End
W	Wafer
L	Lug

⑦ Trim Code

First digit		Second digit		Third digit		Fourth digit	
Stem		Seat		Metal Seal Ring		Non-metal seal ring	
Code	Material	Code	Material	Code	Material	Code	Material
4	MONEL K500	9	STL.21	9	F51	8	GRAPHITE
5	17-4PH			Q	XM-19		
9	F51			S	INCONEL 718		
A	XM-19			T	17-4PH		
N	INCONEL 718						
P	616HT						
L	431						

Notes: other materials upon request.

Design Features

Industrial valves require higher temperature and pressure ranges that are beyond the capacity of conventional butterfly valves. For this reason, Neway has developed the metal-seated Triple Offset butterfly valve as a solution for the toughest industrial applications. Neway's TC Series butterfly valve offers a light-weight, cost-effective, and compact design with a low operating torque. Additionally, it can replace traditional Gate, Globe, and Ball valves in most industry applications.



Product Range:

Design Standard:	API 609, ASME B16.34
Flange:	ASME B16.5, ASME B16.47
Face-to-face dimension:	API 609, ISO 5752
Size:	3" ~ 120", DN80~DN3000
Pressure rating:	CLASS 150~CLASS 2500, PN16~420
Temperature Range:	-196°C~650°C
Disc sealing surface:	Graphite/Metal laminated, Solid metal
End Connection:	Wafer, Lug, Double flange, Butt-welding



Typical Applications:

- Petrochemical
- Refinery
- Shipbuilding Industry
- Power Plant
- Steel Mill
- Water Treatment

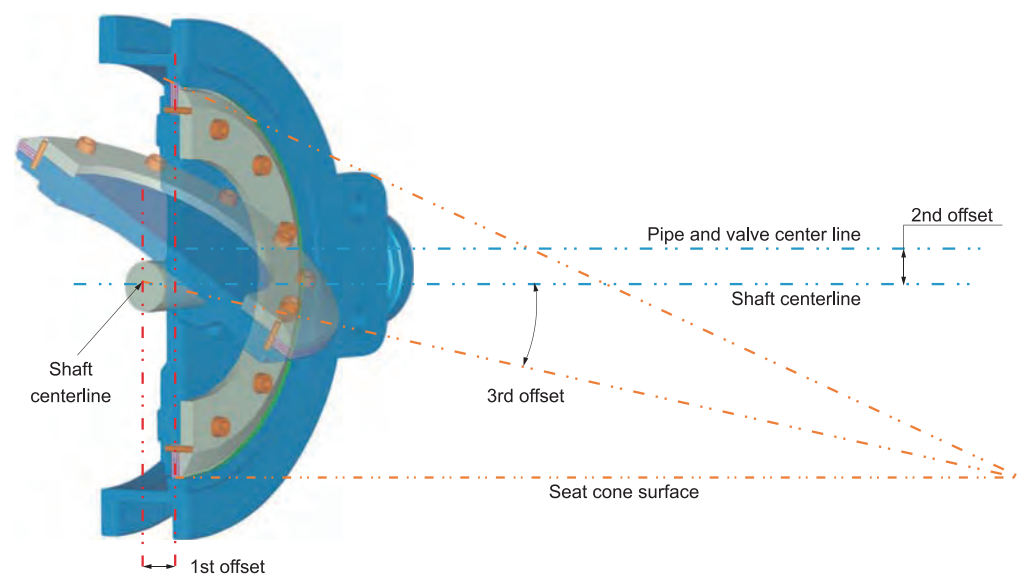
The Neway TC Series butterfly valve has a true metal-seated, quarter-turn design for Bi-directional service. It is fire safe by design, and it eliminates the innate problem of material aging and deformation in soft seated butterfly valves. Full metal construction and increased material compatibility make TC butterfly valves ideal for most process and control applications.

Triple Offset Butterfly Valve

Design Features

Triple Offset Frictionless Design

- Offset 1: The shaft is offset from seat plane, allowing a continuous seating surface.
- Offset 2: The shaft centerline is offset from disc centerline to lift the disc rapidly off and away from the seat when the valve is open.
- Offset 3: The cone axis is offset from seal centerline, eradicating disc-seat friction.



Low operating torque

Neway TC Series butterfly valves combine three offsets with flexible laminated metal and graphite to assure a tight and uniform seal and reduce operating torque.

Zero Leakage

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

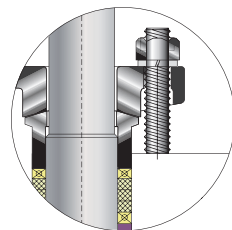
Fire Safe Design

Standard TC Series butterfly valves are not soft seated and can fulfill the fire-safe requirements of API 607.

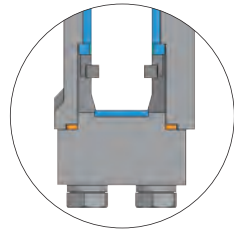
Anti-blowout Shaft

Double anti-blowout design satisfies API 609 and ASME B31.1 requirements through both internal and external stem retention.

- Top Retention: Packing gland follower retains the stem integral collar.
- Bottom Retention: T shaped attachment prevents stem blow-out.



Top retention



Bottom retention

Triple Offset Butterfly Valve

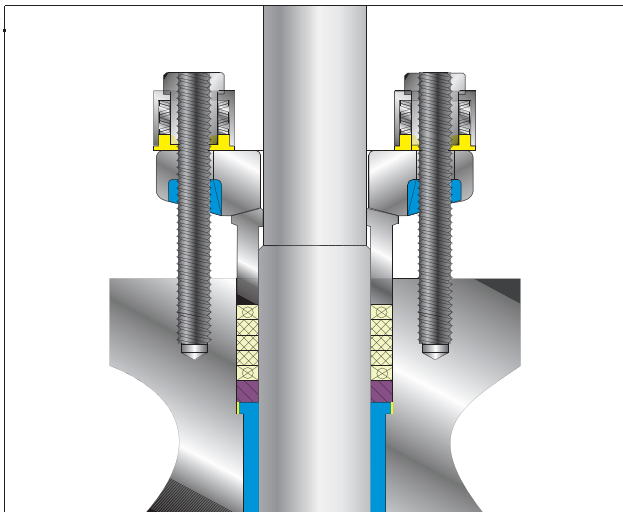
Design Features

Low Emission Shaft Seal

Neway can supply low-emission stem seal with leakage rate up to 20 ppm*.

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

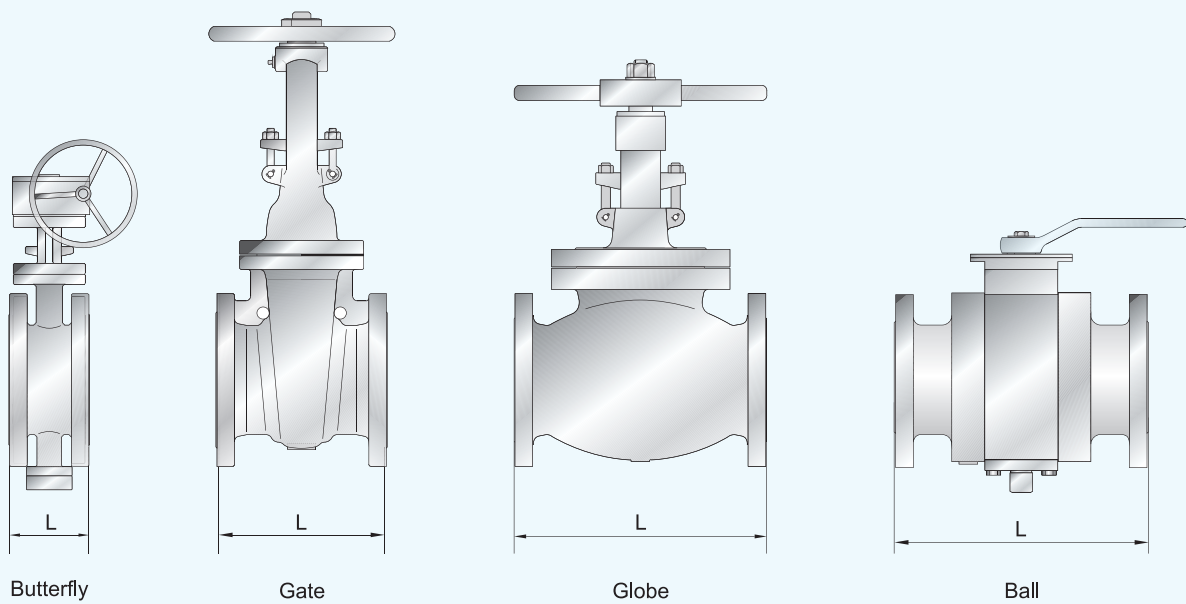
* 20ppm per sniffing method with helium gas.



Compact Design

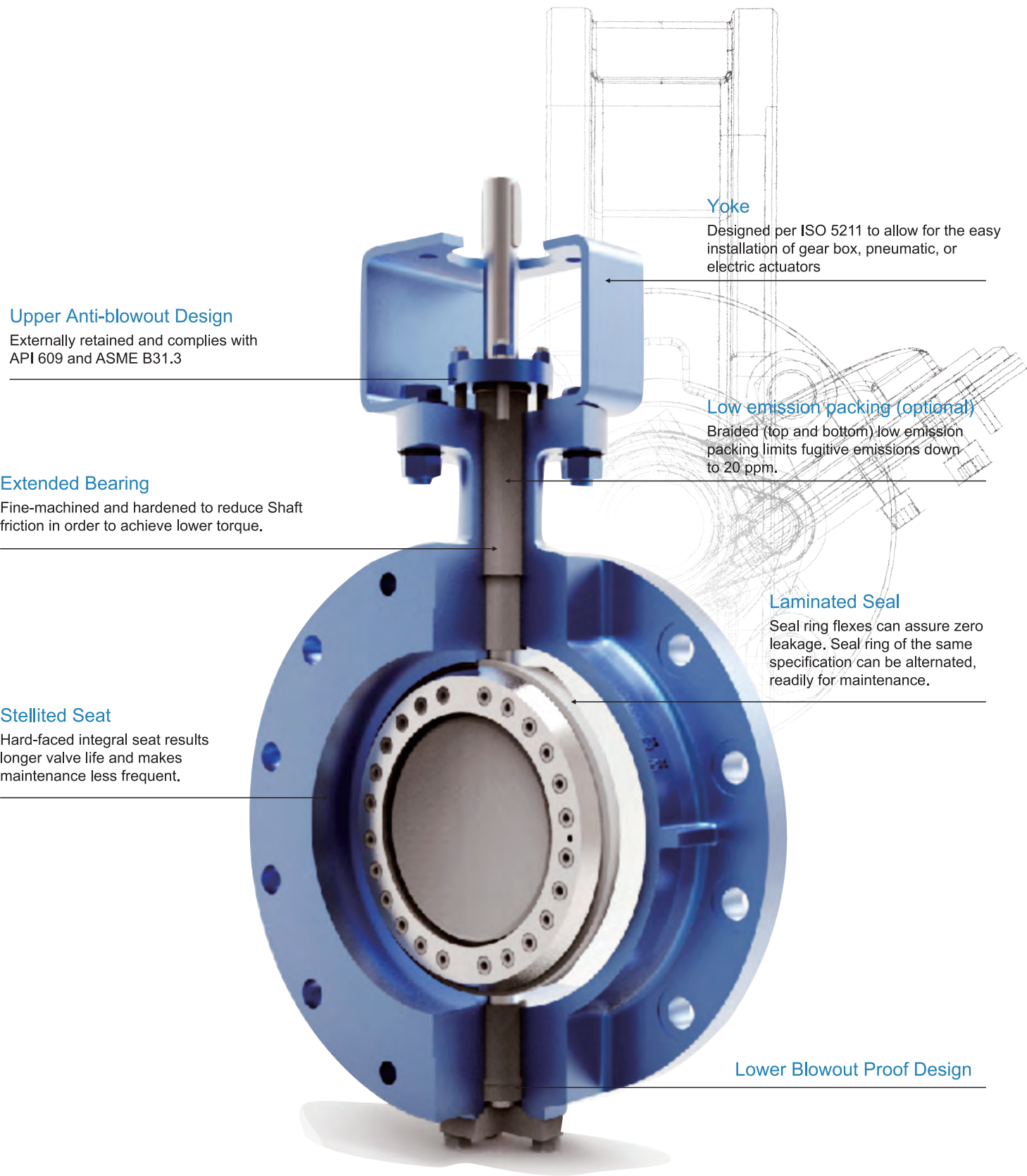
Neway triple offset butterfly valves are designed to API 609 and offers flow control solution in a compact design. The TC series provides a light weight solution to bulky gate, globe, and ball valves when space or weight are at a premium.

6" Valve	CLASS 150				CLASS 300				CLASS 600			
	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	190	70	144	168	211	140	234	284	248



Triple Offset Butterfly Valve

Design Features

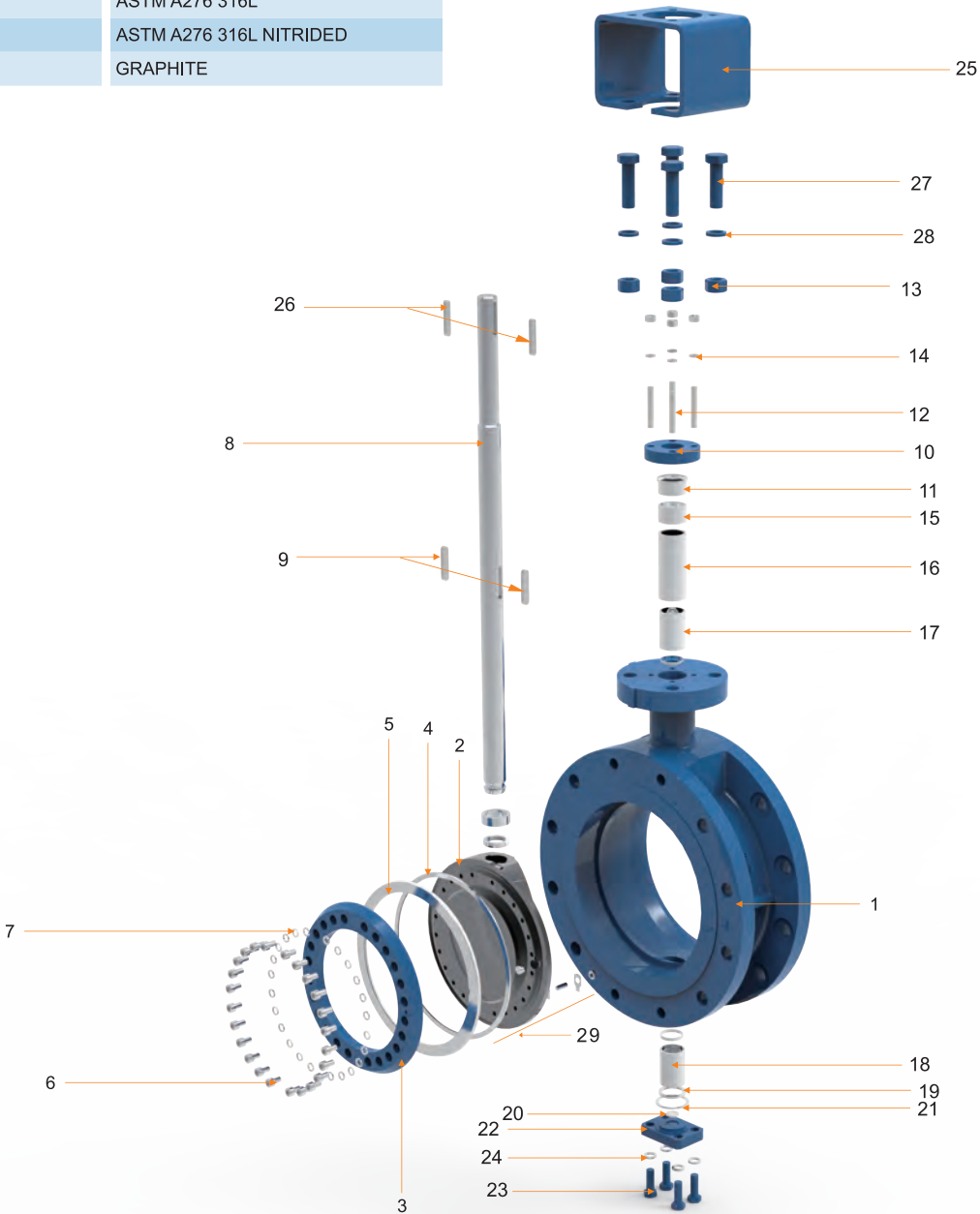


Triple Offset Butterfly Valve

Material Specifications

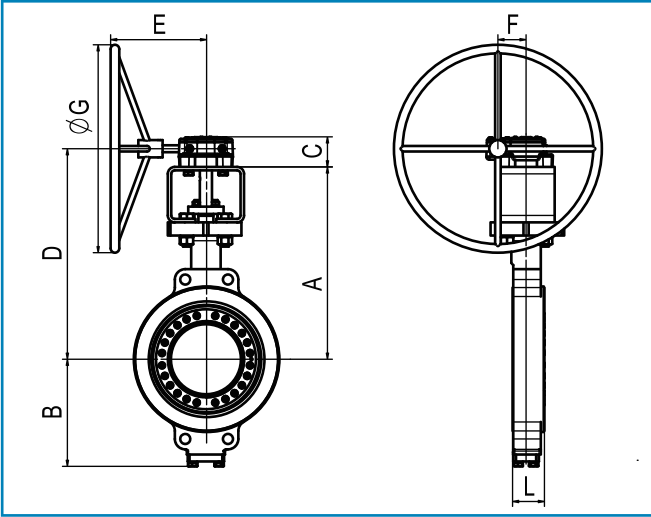
No.	Part	Standard Material
1	BODY	ASTM A216 WCB/STL.21 OVERLAY
2	DISC	ASTM A216 WCB
3	RING RETAINER	ASTM A105N NICKEL PLATED
4	GASKET	SPIRAL WOUND/GRAPHITE
5	SEAL RING	UNS31803+GRAPHITE
6	SCREW	ASTM A193 B8
7	WASHER	AISI 304
8	STEM	ASTM A479 431
9	KEY	ASTM A479 431
10	GLAND FLANGE	ASTM A105N
11	PACKING FOLLOWER	ASTM A276 420
12	BOLT	ASTM A193 B7M
13	NUT	ASTM A194 2HM
14	WASHER	AISI 1566
15	PACKING	GRAPHITE
16	SPACER	ASTM A276 316L
17	BEARING	ASTM A276 316L NITRIDED
18	PACKING	GRAPHITE

No.	Part	Standard Material
19	BLOWOUT PROOF BLOCK	ASTM A276 316L NITRIDED
20	THRUST BEARING	ASTM A276 316L NITRIDED
21	GASKET	GRAPHITE
22	BOTTOM FLANGE	ASTM A105N
23	STUD	ASTM A193 B7M
24	WASHER	AISI 1566
25	BRACKET	AISI 1020
26	KEY	17-4PM
27	STUD	ASTM A193 B7M
28	WASHER	AISI 1566
29	RETAINER DEVICE	AISI 316

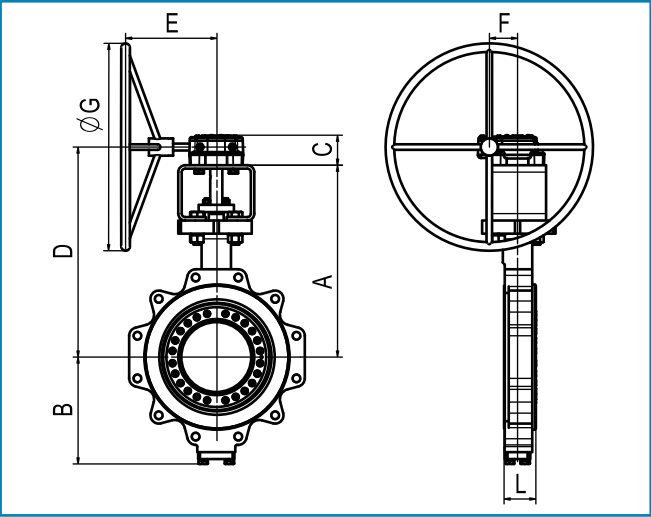


Triple Offset Butterfly Valve

Dimensions & Weights



Lug



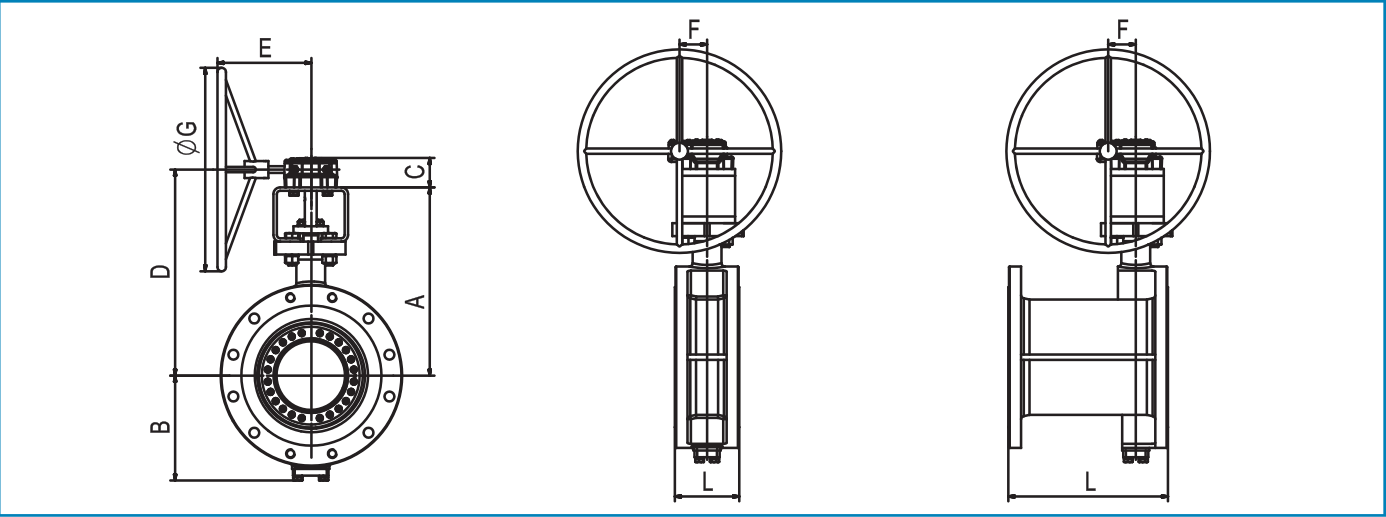
Wafer

Class 150 (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"	1.88	1.88	4.50	8.00	9.06	5.29	1.58	9.82	3.62	1.35	3.94	30.90	35.30	50.70	55.10	A1.5
4"	2.12	2.12	5.00	9.00	10.24	6.00	1.97	11.32	6.30	1.63	7.87	39.70	48.50	75.00	79.40	A3
6"	2.25	2.25	5.50	10.50	12.20	7.24	2.37	13.52	8.35	2.17	11.81	66.10	77.20	116.80	132.30	A7
8"	2.50	2.50	6.00	11.50	14.76	8.49	2.37	16.08	8.35	2.17	11.81	105.80	116.80	185.20	205.00	A7
10"	2.81	2.81	6.50	13.00	16.73	9.67	2.80	18.21	10.04	2.71	15.75	136.70	156.50	242.50	291.00	A10
12"	3.19	3.19	7.00	14.00	18.31	10.85	2.95	19.96	10.04	3.19	15.75	187.40	220.50	332.90	401.20	A20
14"	3.62	3.62	7.50	15.00	21.85	12.17	3.39	23.94	10.83	3.19	23.62	275.60	330.70	467.40	518.10	A20
16"	4.00	4.00	8.50	16.00	22.64	14.45	4.00	24.53	13.62	4.11	23.62	396.80	463.00	617.30	683.40	A30
18"	4.50	4.50	8.75	17.00	24.02	15.24	4.00	25.91	13.62	4.11	23.62	573.20	608.50	749.60	848.80	A30
20"	5.00	5.00	9.00	9.00	25.59	16.61	4.89	27.76	15.67	5.12	23.62	683.40	793.70	992.10	1113.30	A70
24"	6.06	6.06	10.50	18.00	27.56	19.61	4.89	29.72	15.67	5.12	23.62	992.10	1223.60	1422.00	1576.30	A70
28"	6.50	6.50	11.50	20.00	29.92	21.97	6.26	32.24	17.74	7.17	23.62					A180
30"	7.48	7.48	12.52		32.28	23.70	7.01	35.63	18.54	8.23	31.50					A240
32"	7.48	7.48	12.52		34.84	24.65	7.01	38.19	18.54	8.23	31.50					A240
36"	7.99	7.99	12.99		37.80	26.38	7.56	48.72	25.59	9.70	31.50					A460
40"	8.50	8.50	16.14		40.04	27.80	7.56	50.96	25.59	9.70	31.50					A460
42"	9.02	9.02	16.14		41.73	30.35	8.54	49.65	27.76	10.98	31.50					A630
48"	10.00	10.00	18.50		48.03	35.47	8.54	55.94	27.76	10.98	31.50					A630

Triple Offset Butterfly Valve

Dimensions & Weights



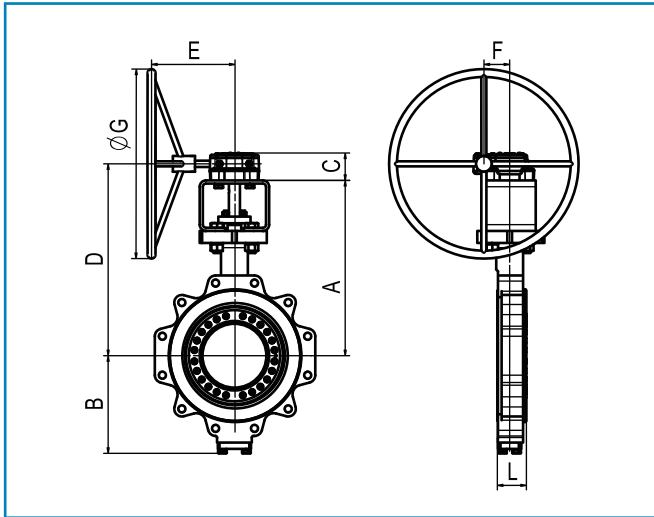
Flange

Class 150 (mm)

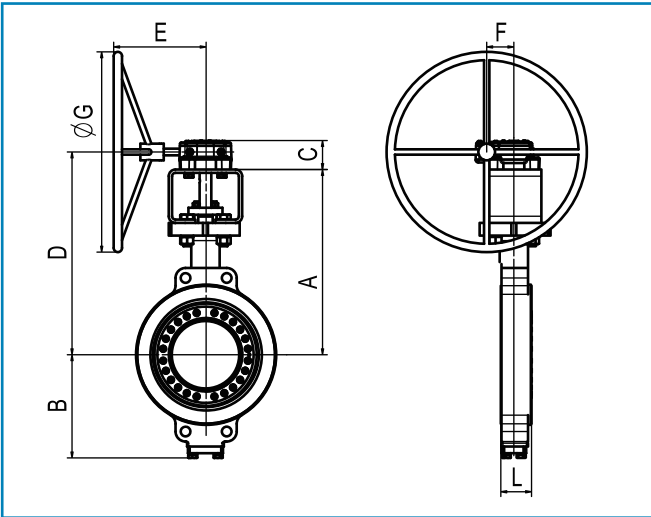
Size	L				Valve Dimensions				Gear Dimensions			Approx. Weight (kg)				Gear Model
	Wafer	Lug	RF-S	RF-L	A	B	C	D	E	F	G	Wafer	Lug	RF-S	RF-L	
3"	48	48	114	203	230	134	40.25	250	92	34.4	100	14	16	23	25	A1.5
4"	54	54	127	229	260	152	50	288	160	41.3	200	18	22	34	36	A3
6"	57	57	140	267	310	184	60.2	344	212	55	300	30	35	53	60	A7
8"	64	64	152	292	375	216	60.2	409	212	55	300	48	53	84	93	A7
10"	71	71	165	330	425	246	71.2	463	255	68.8	400	62	71	110	132	A10
12"	81	81	178	356	465	276	75	507	255	81	400	85	100	151	182	A20
14"	92	92	190	381	555	309	86	608	275	81	600	125	150	212	235	A20
16"	102	102	216	406	575	367	101.5	623	346	104.5	600	180	210	280	310	A30
18"	114	114	222	432	610	387	101.5	658	346	104.5	600	260	276	340	385	A30
20"	127	127	229	457	650	422	124.2	705	398	130	600	310	360	450	505	A70
24"	154	154	267	508	700	498	124.2	755	398	130	600	450	555	645	715	A70
28"	165	165	292		760	558	159	819	450.5	182	600					A180
30"	190	190	318		820	602	178	905	471	209	800					A240
32"	190	190	318		885	626	178	970	471	209	800					A240
36"	203	203	330		960	670	192	1238	650	246.4	800					A460
40"	216	216	410		1017	706	192	1295	650	246.4	800					A460
42"	229	229	410		1060	771	217	1261	705	279	800					A630
48"	254	254	470		1220	901	217	1421	705	279	800					A630

Triple Offset Butterfly Valve

Dimensions & Weights



Lug



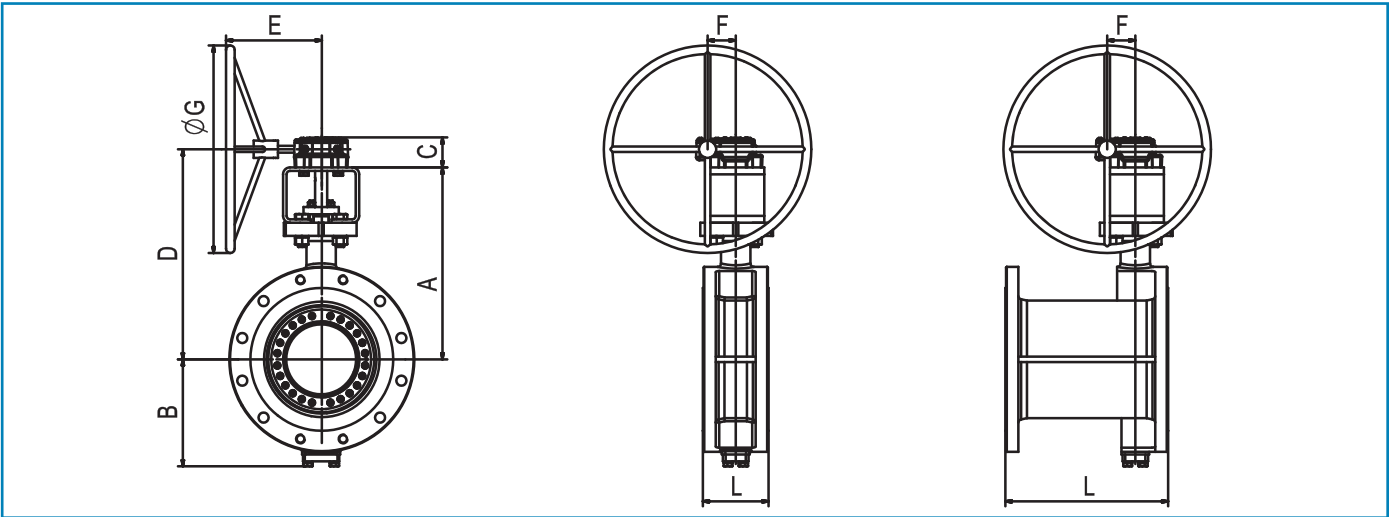
Wafer

Class 300 (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"	1.88	1.88	4.50	11.12	9.06	5.29	1.97	10.14	5.47	1.63	7.87	33.10	37.50	61.70	72.80	A3
4"	2.12	2.12	5.00	12.00	10.24	6.00	1.97	11.32	6.30	1.63	7.87	41.90	48.50	90.40	108.00	A3
6"	2.31	2.31	5.50	15.88	12.99	7.66	2.37	14.31	8.35	2.17	11.81	92.60	105.80	165.30	224.90	A7
8"	2.88	2.88	6.00	16.50	16.14	8.88	2.95	17.80	10.04	3.19	15.75	136.70	158.70	242.50	319.70	A20
10"	3.25	3.25	6.50	18.00	19.29	10.87	4.00	21.18	13.62	4.11	19.69	211.60	257.90	363.80	474.00	A30
12"	3.62	3.62	7.00	19.75	20.47	12.48	4.00	22.36	13.62	4.11	23.62	297.60	363.80	518.10	694.50	A30
14"	4.62	4.62	7.50	30.00	22.83	14.25	4.82	25.00	15.67	5.12	19.69	485.00	650.40	760.60	1025.10	A70
16"	5.25	5.25	8.50	33.00	23.82	15.87	4.82	25.98	15.67	5.12	19.69	639.30	837.80	959.00	1291.90	A70
18"	5.88	5.88	8.75	36.00	25.20	16.85	6.10	27.70	16.91	5.51	23.62	782.60	1047.20	1157.40	1631.40	A900
20"	6.25	6.25	9.00	39.00	26.77	18.35	6.10	29.27	16.14	5.51	19.69	1135.40	1444.00	1620.40	2171.60	A120
24"	7.12	7.12	10.50	45.00	31.69	20.91	7.09	34.84	17.74	7.17	23.62	1433.00	1995.20	2257.50	3141.60	A180
30"	9.02	9.02	12.52		37.80	26.14	7.56	48.72	25.59	9.72	31.50					A460
32"	9.49	9.49	12.52		37.80	26.73	7.56	48.72	25.59	9.72	31.50					A460
36"	9.49	9.49	12.99		43.70	30.16	8.50	52.68	28.82	13.50	23.62					A900
40"	11.81	11.81	16.14		45.87	31.54	8.50	54.84	28.82	13.50	23.62					A900

Triple Offset Butterfly Valve

Dimensions & Weights



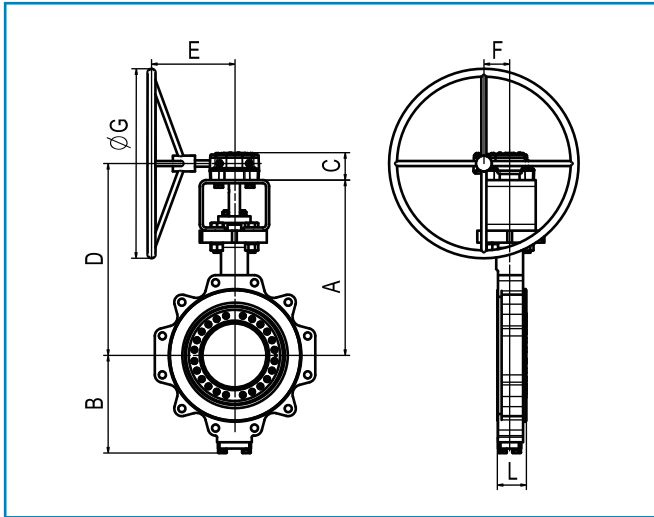
Flange

Class 300 (mm)

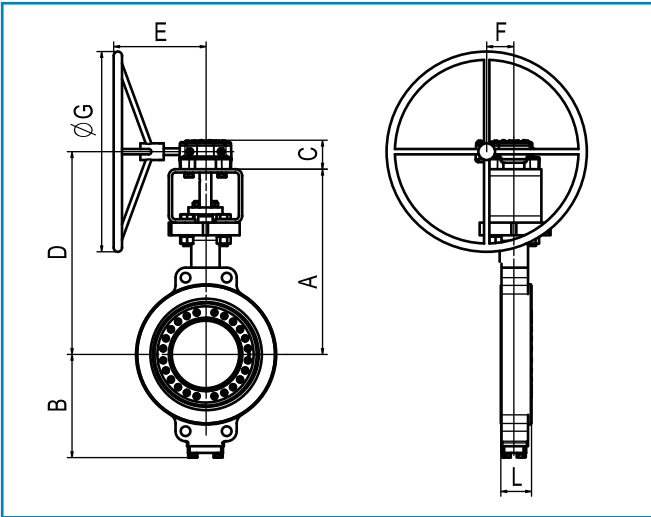
Size	L				Valve Dimensions				Gear Dimensions			Approx. Weight (kg)				Gear Model
	Wafer	Lug	RF-S	RF-L	A	B	C	D	E	F	G	Wafer	Lug	RF-S	RF-L	
3"	48	48	114	282	230	134	50	258	139	41.3	200	15	17	28	33	A3
4"	54	54	127	305	260	152	50	288	160	41.3	200	19	22	41	49	A3
6"	59	59	140	403	330	195	60.2	364	212	55	300	42	48	75	102	A7
8"	73	73	152	418	410	226	75	452	255	81	400	62	72	110	145	A20
10"	83	83	165	457	490	276	101.5	538	346	104.5	500	96	117	165	215	A30
12"	92	92	178	502	520	317	101.5	568	346	104.5	600	135	165	235	315	A30
14"	117	117	190	762	580	362	122.4	635	398	130	500	220	295	345	465	A70
16"	133	133	216	838	605	403	122.4	660	398	130	500	290	380	435	586	A70
18"	149	149	222	914	640	428	155	704	429.5	140	600	355	475	525	740	A900
20"	159	159	229	991	680	466	155	744	410	140	500	515	655	735	985	A120
24"	181	181	267	1143	805	531	180	885	450.5	182	600	650	905	1024	1425	A180
30"	229	229	318		960	664	192	1238	650	247	800					A460
32"	241	241	318		960	679	192	1238	650	247	800					A460
36"	241	241	330		1110	766	216	1338	732	343	600					A900
40"	300	300	410		1165	801	216	1393	732	343	600					A900

Triple Offset Butterfly Valve

Dimensions & Weights



Lug



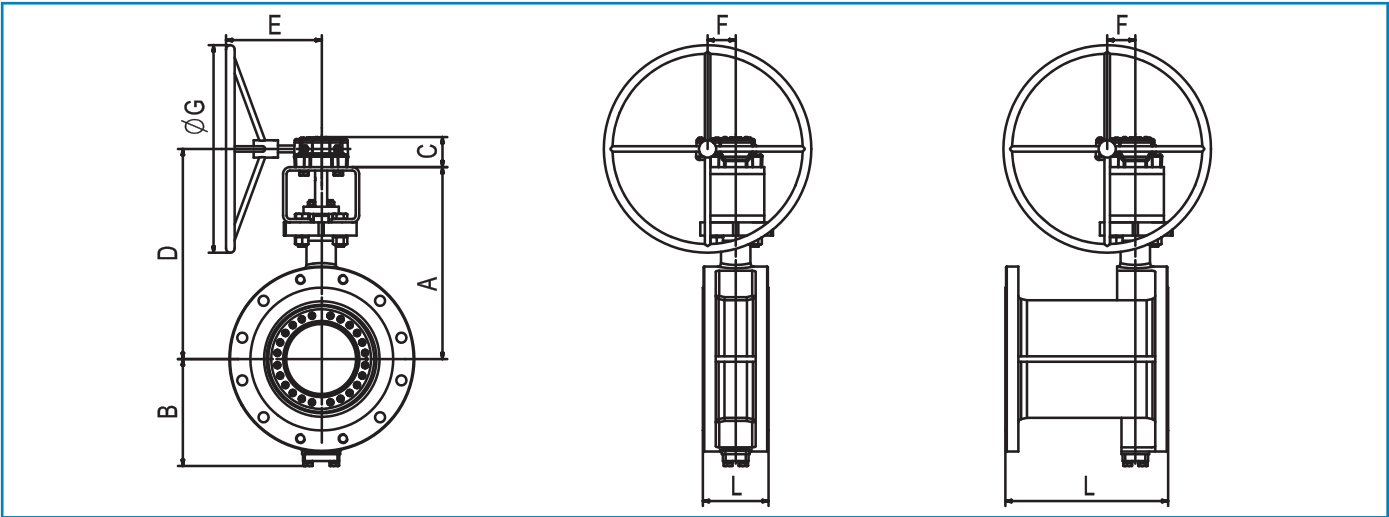
Wafer

Class 600 (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"	2.12	2.12	7.09	14.00	10.63	5.86	2.36	11.95	8.35	2.17	11.81	70.50	83.80	110.20	143.30	A7
4"	2.50	2.50	7.48	17.00	11.81	6.32	2.83	13.29	10.04	2.72	15.75	83.80	105.80	172.00	198.40	A10
6"	3.06	3.06	8.27	22.00	16.93	9.02	2.95	18.58	10.83	3.19	19.69	172.00	205.00	308.60	374.80	A20
8"	4.00	4.00	9.06	26.00	18.70	10.57	4.02	20.59	13.62	4.13	23.62	280.00	341.70	507.10	679.00	A30
10"	4.62	4.62	9.84	31.00	20.47	12.09	4.84	22.64	15.67	5.12	19.69	463.00	584.20	824.50	1091.30	A70
12"	5.50	5.50	10.63	33.00	21.97	14.41	6.02	24.39	16.14	5.51	19.69	617.30	771.60	978.90	1322.80	A90
14"	6.12	6.12	11.42	3500	23.62	15.39	6.02	26.04	16.14	5.51	19.69	705.50	925.90	1263.20	1829.80	A120
16"	7.00	7.00	12.20	39.00	25.20	17.17	6.26	27.52	17.76	7.17	23.62	945.80	1234.60	1532.20	2204.60	A180
18"	7.88	7.88	12.99	43.00	30.12	18.98	7.01	33.46	18.54	8.23	23.62	1366.90	2028.30	2570.60	3351.00	A240
20"	8.50	8.50	13.78	47.00	32.09	20.28	7.56	43.01	25.59	9.72	31.50	1763.70	2645.50	3066.60	4243.90	A460
24"	9.13	9.13	15.35	55.00	33.46	22.20	7.56	44.39	25.59	9.72	31.50	2010.60	2634.50	4354.10	5899.60	A460

Triple Offset Butterfly Valve

Dimensions & Weights

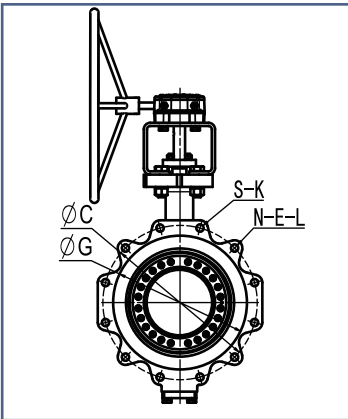


Flange

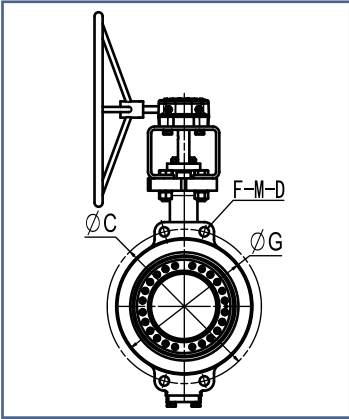
Class 600 (mm)

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	
3"	54	54	180	356	270	149	60	304	212	55	300	32	38	50	65	A7
4"	64	64	190	432	300	161	72	338	255	69	400	38	48	78	90	A10
6"	78	78	210	559	430	229	75	472	275	81	500	78	93	140	170	A20
8"	102	102	230	660	475	269	102	523	346	105	600	127	155	230	308	A30
10"	117	117	250	787	520	307	123	575	398	130	500	210	265	374	495	A70
12"	140	140	270	838	558	366	153	620	410	140	500	280	350	444	600	A90
14"	155	155	290	889	600	391	153	662	410	140	500	320	420	573	830	A120
16"	178	178	310	991	640	436	159	699	451	182	600	429	560	695	1000	A180
18"	200	200	330	1092	765	482	178	850	471	209	600	620	920	1166	1520	A240
20"	216	216	350	1194	815	515	192	1093	650	247	800	800	1200	1391	1925	A460
24"	232	232	390	1397	850	564	192	1128	650	247	800	912	1195	1975	2676	A460

End Connection Dimensions



Lug



Wafer

Wafer	Lug	
G	G	Raised Face Facing Diameter
C	C	Bolting Circle Diameter
N	N	Total Flange Bolt Holes Quantity
F	S	Special Bolt Holes Quantity
M	E	Standard Bolt Hole/Thread Callout
D	L	Effective Thread/Hole Depth
	K	Shortened Thread Depth

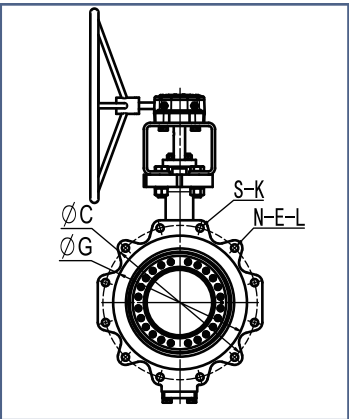
Class 150 (Lug and Wafer)

Size		G		C		F	M	D		N	E	L		S	K	
inch	mm	inch	mm	inch	mm			inch	mm			inch	mm		inch	mm
3"	80	5.00	127	6.00	152.5		NONE	NONE		4	5⁄8-11UNC-2B	full thread		NONE	NONE	NONE
4"	100	6.18	157	7.50	190.5	4	Φ19	through hole		8	5⁄8-11UNC-2B	full thread		NONE	NONE	NONE
6"	150	8.50	216	9.51	241.5	4	Φ21	through hole		8	3⁄4-10UNC-2B	full thread		NONE	NONE	NONE
8"	200	10.63	270	11.75	298.5	4	Φ22	through hole		8	3⁄4-10UNC-2B	full thread		NONE	NONE	NONE
10"	250	12.76	324	14.25	362	4	Φ25	through hole		12	7⁄8-9UNC-2B	full thread		NONE	NONE	NONE
12"	300	15.00	381	17.01	432	4	Φ25	through hole		12	7⁄8-9UNC-2B	1.30	33	NONE	NONE	NONE
14"	350	16.26	413	18.74	476	4	Φ29	through hole		12	1-8UNC-2B	1.30	33	NONE	NONE	NONE
16"	400	18.50	470	21.24	539.5	4	1-8UNC-2B	0.67	17	16	1-8UNC-2B	1.50	38	4	0.67	17
18"	450	20.98	533	22.76	578	4	1-1⁄8-8UN-2B	0.79	20	12	1-1⁄8-8UN-2B	1.50	38	4	0.79	20
20"	500	22.99	584	25.00	635	4	1-1⁄8-8UN-2B	0.79	20	16	1-1⁄8-8UN-2B	1.69	43	4	0.79	20
24"	600	27.24	692	29.51	749.5	4	1-1⁄8-8UN-2B	0.87	22	16	1-1⁄8-8UN-2B	1.89	48	4	0.87	22

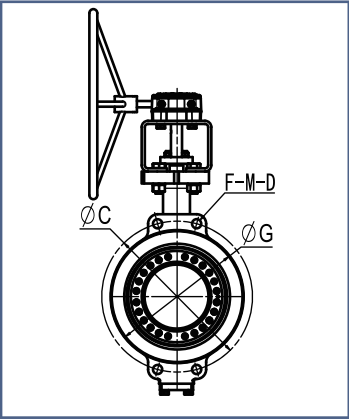
Class 300 (Lug and Wafer)

Size		G		C		F	M	D		N	E	L		S	K	
inch	mm	inch	mm	inch	mm			inch	mm			inch	mm		inch	mm
3"	80	5.00	127	6.63	168.5	4	3⁄4-10UNC-2B	0.51	13	4	3⁄4-10UNC-2B	full thread		4	0.51	13
4"	100	6.18	157	7.87	200	2	Φ22	through hole		8	3⁄4-10UNC-2B	full thread		NONE	NONE	NONE
6"	150	8.50	216	10.63	270	4	Φ22	through hole		12	3⁄4-10UNC-2B	full thread		NONE	NONE	NONE
8"	200	10.63	270	12.99	330	4	Φ25	through hole		12	7⁄8-9UNC-2B	full thread		NONE	NONE	NONE
10"	250	12.76	324	15.26	387.5	4	1-8UNC-2B	0.67	17	12	1-8UNC-2B	full thread		4	0.67	17
12"	300	15.00	381	17.76	451	4	1-1⁄8-8UN-2B	0.79	20	12	1-1⁄8-8UN-2B	full thread		4	0.79	20
14"	350	16.26	413	20.26	514.5	4	1-1⁄8-8UN-2B	0.79	20	16	1-1⁄8-8UN-2B	1.69	43	4	0.79	20
16"	400	18.50	470	22.50	571.5	4	1-1⁄4-8UN-2B	0.87	22	16	1-1⁄4-8UN-2B	1.89	48	4	0.87	22
18"	450	21.02	534	24.76	629	4	1-1⁄4-8UN-2B	0.87	22	20	1-1⁄4-8UN-2B	1.89	48	4	0.87	22
20"	500	22.99	584	27.01	686	4	1-1⁄4-8UN-2B	0.87	22	20	1-1⁄4-8UN-2B	1.89	48	4	0.87	22
24"	600	27.24	692	32.01	813	4	1-1⁄2-8UN-2B	0.98	25	20	1-1⁄2-8UN-2B	2.24	57	4	0.98	25

End Connection Dimensions



Lug



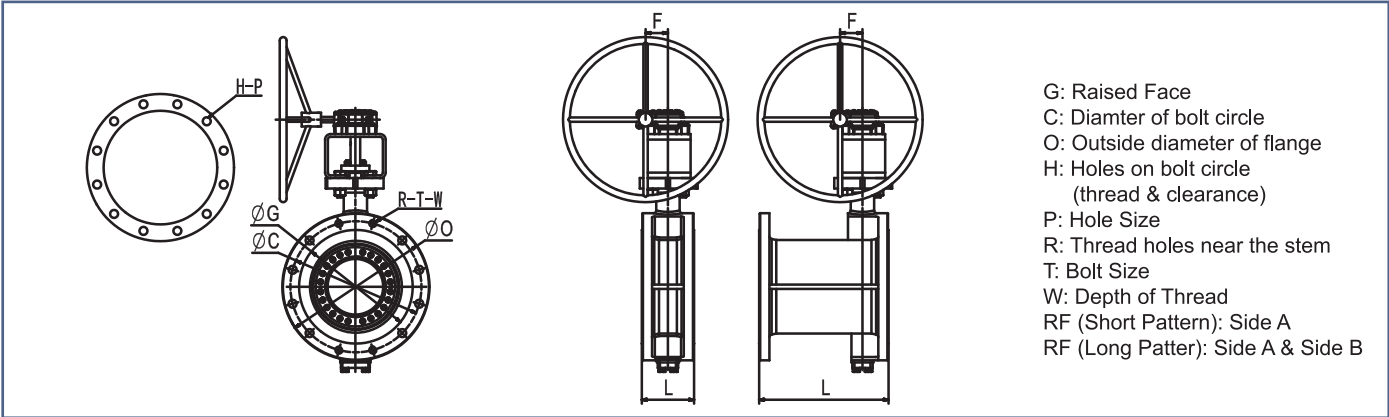
Wafer

Wafer	Lug	
G	G	Raised Face Facing Diameter
C	C	Bolting Circle Diameter
N	N	Total Flange Bolt Holes Quantity
F	S	Special Bolt Holes Quantity
M	E	Standard Bolt Hole/Thread Callout
D	L	Effective Thread/Hole Depth
	K	Shortened Thread Depth

Class 600 (Lug and Wafer)

Size		G		C		F	M	D		N	E	L		S	K	
inch	mm	inch	mm	inch	mm			inch	mm			inch	mm		inch	mm
4"	100	6.18	157	8.50	216	4	7⁄8-9UNC-2B	0.59	15	4	7⁄8-9UNC-2B	full thread		4	0.59	15
6"	150	8.50	216	11.50	292	4	1-8UNC-2B	0.67	17	8	1-8UNC-2B	full thread		4	0.67	17
8"	200	10.63	270	13.74	349	4	1-1⁄8-8UN-2B	0.79	20	8	1-1⁄8-8UN-2B	full thread		4	0.79	20
10"	250	12.76	324	17.01	432	4	1-1⁄4-8UN-2B	0.87	22	12	1-1⁄4-8UN-2B	1.89	48	4	0.87	22
12"	300	15.00	381	19.25	489	4	1-1⁄4-8UN-2B	0.87	22	16	1-1⁄4-8UN-2B	1.89	48	4	0.87	22
14"	350	16.26	413	20.75	527	4	1-3⁄8-8UN-2B	0.94	24	16	1-3⁄8-8UN-2B	1.77	45	4	0.94	24
16"	400	18.50	470	23.74	603	4	1-1⁄2-8UN-2B	0.98	25	16	1-1⁄2-8UN-2B	2.24	57	4	0.98	25
18"	450	20.98	533	25.75	654	4	1-5⁄8-8UN-2B	1.06	27	16	1-5⁄8-8UN-2B	2.44	62	4	1.06	27
20"	500	22.99	584	28.50	724	4	1-5⁄8-8UN-2B	1.06	27	20	1-5⁄8-8UN-2B	2.44	62	4	1.06	27
24"	600	27.24	692	32.99	838	4	1-7⁄8-8UN-2B	1.26	32	20	1-7⁄8-8UN-2B	2.83	72	4	1.26	32

End Connection Dimensions



G: Raised Face
C: Diameter of bolt circle
O: Outside diameter of flange
H: Holes on bolt circle
(thread & clearance)
P: Hole Size
R: Thread holes near the stem
T: Bolt Size
W: Depth of Thread
RF (Short Pattern): Side A
RF (Long Patter): Side A & Side B

RF

Class 150 (RF)

Size		G		C		O		R	T	W		H	P
inch	mm	inch	mm	inch	mm	inch	mm			inch	mm		
3"	80	5.00	127	6.00	152.5	7.48	190					4	Φ19
4"	100	6.18	157	7.50	190.5	9.02	229	4	¾-10UNC-2B	0.79	20	4	Φ19
6"	150	8.50	216	9.51	241.5	10.98	279	4	¾-10UNC-2B	0.94	24	4	Φ22
8"	200	10.63	270	11.75	298.5	13.58	345	4	7⁄8 -9UNC-2B	0.94	24	4	Φ22
10"	250	12.76	324	14.25	362	15.98	406	4	1-8UNC-2B	1.10	28	8	Φ25
12"	300	15.00	381	17.01	432	19.02	483	4	1-½-8UN-2B	1.26	32	8	Φ25
14"	350	16.26	413	18.74	476	21.06	535	4	1-½-8UN-2B	1.26	32	8	Φ29
16"	400	18.50	470	21.24	539.5	23.50	597	4	1-¾-8UN-2B	1.57	40	12	Φ29
18"	450	20.98	533	22.76	578	25.00	635	4	1-¾-8UN-2B	1.42	36	12	Φ32
20"	500	22.99	584	25.00	635	27.48	698	4	1-¾-8UN-2B	1.42	36	16	Φ32
24"	600	27.24	692	29.51	749.5	32.01	813	4	1-½-8UN-2B	1.57	40	16	Φ35

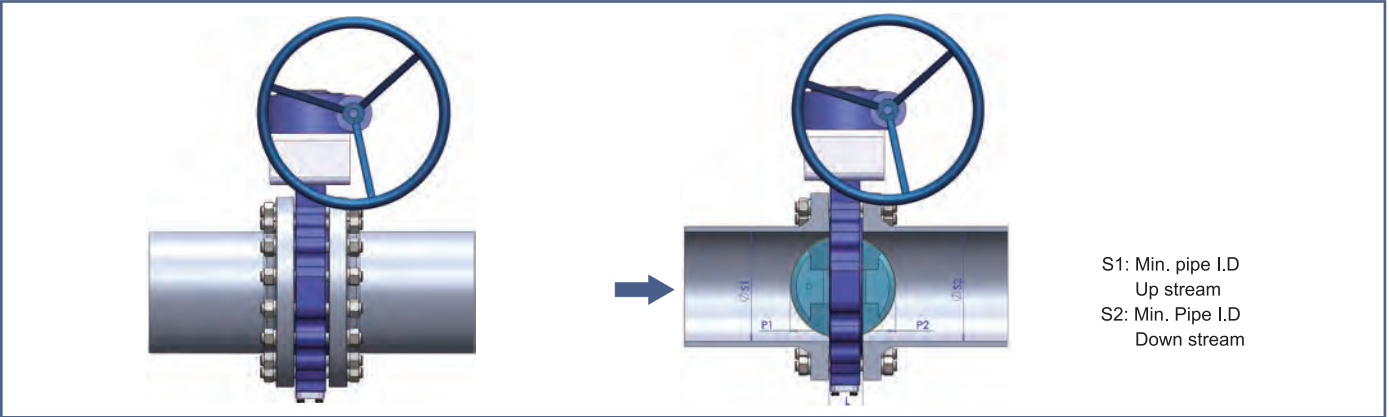
Class 300 (RF)

Size		G		C		O		R	T	W		H	P
inch	mm	inch	mm	inch	mm	inch	mm			inch	mm		
3"	80	5.00	127	6.63	168.5	8.27	210	4	¾ 10UNC-2B	0.94	24	4	Φ22
4"	100	6.18	157	7.87	200	10.00	254	4	¾-10UNC-2B	0.94	24	4	Φ22
6"	150	8.50	216	10.63	270	12.60	320	4	¾-10UNC-2B	0.94	24	8	Φ22
8"	200	10.63	270	12.99	330	14.96	380	4	7⁄8 -9UNC-2B	1.06	27	8	Φ25
10"	250	12.76	324	15.26	387.5	17.52	445	4	1-8UNC-2B	1.18	30	12	Φ29
12"	300	15.00	381	17.76	451	20.51	521	4	1-½-8UN-2B	1.42	36	12	Φ32
14"	350	16.26	413	20.26	514.5	23.03	585	4	1-½-8UN-2B	1.34	34	16	Φ32
16"	400	18.50	470	22.50	571.5	25.51	648	4	1-¾-8UN-2B	1.57	40	16	Φ35
18"	450	21.02	534	24.76	629	27.99	711	4	1-¾-8UN-2B	1.57	40	20	Φ35
20"	500	22.99	584	27.01	686	30.51	775	6	1-¾-8UN-2B	1.57	40	18	Φ35
24"	600	27.24	692	32.01	813	36.02	915	6	1-½-8UN-2B	1.89	48	18	Φ41

Class 600 (RF)

Size		G		C		O		R	T	W		H	P
inch	mm	inch	mm	inch	mm	inch	mm			inch	mm		
4"	100	6.18	157	8.50	216	10.75	273	4	7⁄8-9UNC-2B	1.10	28	4	Φ25
6"	150	8.50	216	11.50	292	14.02	356	4	1-8UNC-2B	1.26	32	8	Φ29
8"	200	10.63	270	13.74	349	16.50	419	4	1-½-8UN-2B	1.42	36	8	Φ32
10"	250	12.76	324	17.01	432	20.00	508	4	1-¾-8UN-2B	1.57	40	12	Φ35
12"	300	15.00	381	19.25	489	22.01	559	4	1-¾-8UN-2B	1.57	40	16	Φ35
14"	350	16.26	413	20.75	527	23.82	605	4	1-¾-8UN-2B	1.89	48	16	Φ38
16"	400	18.50	470	23.74	603	26.97	685	4	1-½-8UN-2B	1.81	46	16	Φ41
18"	450	20.98	533	25.75	654	29.33	745	4	1-¾-8UN-2B	2.05	52	16	Φ45
20"	500	22.99	584	28.50	724	32.01	813	6	1-¾-8UN-2B	2.83	72	18	Φ45
24"	600	27.24	692	32.99	838	37.01	940	4	1-¾-8UN-2B	2.28	58	20	Φ51

Min. Pipe I.D. for Disc Clearance



S1: Min. pipe I.D.
Up stream
S2: Min. Pipe I.D.
Down stream

Class 150

Size		L		S1		S2		P1		P2	
inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
3"	80	1.89	48	2.68	68	1.46	37	0.83	21	0.16	4
4"	100	2.13	54	3.74	95	2.99	76	1.22	31	0.63	16
6"	150	2.24	57	5.55	141	5.12	130	2.01	51	1.46	37
8"	200	2.52	64	7.48	190	7.01	178	2.87	73	2.20	56
10"	250	2.80	71	9.37	238	8.94	227	3.70	94	3.03	77
12"	300	3.19	81	11.34	288	10.94	278	4.57	116	3.78	96
14"	350	3.62	92	12.36	314	11.89	302	4.88	124	4.09	104
16"	400	4.02	102	14.21	361	13.74	349	5.59	142	4.80	122
18"	450	4.49	114	16.22	412	15.63	397	6.50	165	5.47	139
20"	500	5.00	127	17.80	452	17.20	437	7.05	179	6.02	153
24"	600	6.06	154	21.69	551	21.14	537	8.50	216	7.48	190

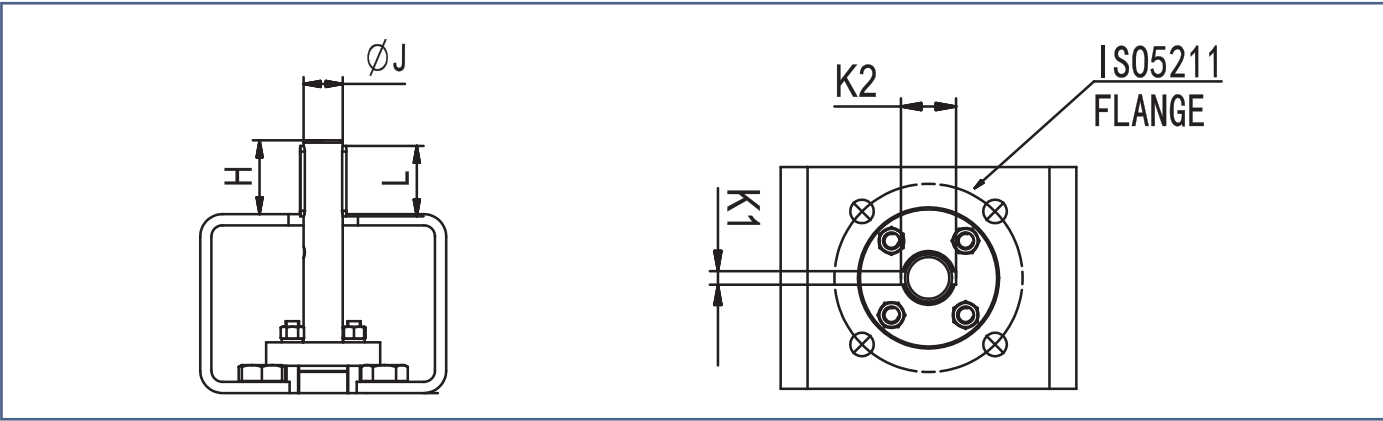
Class 300

Size		L		S1		S2		P1		P2	
inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
3"	80	1.89	48	2.68	68	1.46	37	0.83	21	0.16	4
4"	100	2.13	54	3.74	95	2.99	76	1.22	31	0.63	16
6"	150	2.32	59	5.55	141	5.04	128	2.01	51	1.42	36
8"	200	2.87	73	7.40	188	6.81	173	2.76	70	2.01	51
10"	250	3.27	83	9.29	236	8.82	224	3.50	89	2.76	70
12"	300	3.62	92	11.30	287	10.87	276	4.33	110	3.58	91
14"	350	4.61	117	12.13	308	11.69	297	4.33	110	3.62	92
16"	400	5.24	133	13.98	355	13.15	334	5.08	129	4.02	102
18"	450	5.87	149	15.55	395	14.65	372	5.63	143	4.49	114
20"	500	6.26	159	17.36	441	16.54	420	6.34	161	5.20	132
24"	600	7.13	181	21.14	537	20.51	521	7.72	196	6.81	173

Class 600

Size		L		S1		S2		P1		P2	
inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
4"	100	2.52	64	3.70	94	2.72	69	1.06	27	0.43	11
6"	150	3.07	78	5.63	143	4.88	124	1.73	43.84	1.10	28
8"	200	4.02	102	7.05	179	6.30	160	2.05	52	1.50	38
10"	250	4.61	117	8.90	226	8.19	208	2.76	70	2.09	53
12"	300	5.51	140	10.55	268	9.92	252	3.15	80	2.56	65
14"	350	6.10	155	11.50	292	10.51	267	3.50	89	2.60	66
16"	400	7.01	178	13.19	335	11.93	303	4.06	103	2.91	74
18"	450	7.87	200	14.33	364	13.54	344	4.17	106	3.46	88
20"	500	8.50	216	15.91	404	15.04	382	4.69	119	3.90	99
24"	600	9.13	232	19.84	504	18.82	478	6.34	161	5.28	134

Dimensions of Top Flange



Class 150

Size		H		J		K1		K2		L		ISO 5211
inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	
3"	80	1.26	32	0.63	16	0.20	5	0.79	20	1.26	32	F07
4"	100	1.57	40	0.71	18	0.24	6	0.91	23	1.57	40	F10
6"	150	2.05	52	0.87	22	0.24	6	1.06	27	1.97	50	F12
8"	200	2.05	52	1.02	26	0.31	8	1.26	32	1.97	50	F12
10"	250	2.28	58	1.10	28	0.31	8	1.34	34	2.20	56	F14
12"	300	2.60	66	1.26	32	0.39	10	1.50	38	2.48	63	F14
14"	350	2.60	66	1.38	35	0.39	10	1.61	41	2.48	63	F16
16"	400	3.35	85	1.57	40	0.47	12	1.81	46	3.15	80	F16
18"	450	3.35	85	1.77	45	0.55	14	2.05	52	3.15	80	F16
20"	500	4.13	105	1.97	50	0.55	14	2.24	57	3.94	100	F25
24"	600	4.13	105	2.17	55	0.63	16	2.48	63	3.94	100	F25

Class 300

Size		H		J		K1		K2		L		ISO 5211
inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	
3"	80	1.26	32	0.63	16	0.20	5	0.79	20	1.26	32	F10
4"	100	1.57	40	0.71	18	0.24	6	0.91	23	1.57	40	F10
6"	150	2.05	52	1.02	26	0.31	8	1.26	32	1.97	50	F12
8"	200	2.60	66	1.26	32	0.39	10	1.50	38	2.48	63	F14
10"	250	2.60	66	1.38	35	0.39	10	1.61	41	2.48	63	F16
12"	300	3.35	85	1.57	40	0.47	12	1.81	46	3.15	80	F16
14"	350	4.13	105	1.97	50	0.55	14	2.24	57	3.94	100	F25
16"	400	4.13	105	2.17	55	0.63	16	2.48	63	3.94	100	F25
18"	450	4.53	115	2.36	60	0.71	18	2.68	68	4.33	110	F30
20"	500	4.53	115	2.56	65	0.71	18	2.87	73	4.33	110	F30
24"	600	4.72	115	2.76	70	0.79	20	3.11	79	4.72	120	F35

Class 600

Size		H		J		K1		K2		L		ISO 5211
inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	
3"	80	2.05	52	0.87	22	0.24	6	1.06	27	1.97	50	F12
4"	100	2.28	58	1.02	26	0.31	8	1.26	32	2.20	56	F12
6"	150	3.35	85	1.38	35	0.39	10	1.61	41	3.15	80	F16
8"	200	4.13	105	1.77	45	0.55	14	2.05	52	3.94	100	F25
10"	250	4.13	105	1.97	50	0.55	14	2.24	57	3.94	100	F25
12"	300	4.53	115	2.36	60	0.71	18	2.68	68	4.33	110	F25
14"	350	4.53	115	2.56	65	0.71	18	2.87	73	4.33	110	F30
16"	400	4.53	115	2.76	70	0.79	20	3.11	79	4.33	110	F30
18"	450	6.30	160	3.35	85	0.87	22	3.74	95	6.30	160	F35
20"	500	6.30	160	3.74	95	0.98	25	4.13	105	6.30	160	F40
24"	600	6.30	160	4.13	105	1.10	28	4.61	117	6.30	160	F40

Flow Coefficient (C_v Value)

Class 150

Size		Disc Opening Angle								
in	mm	10°	20°	30°	40°	50°	60°	70°	80°	90°
3"	80	15	29	50	72	87	99	102	110	121
4"	100	30	55	89	128	160	196	229	240	246
6"	150	44	96	143	191	287	430	621	860	956
8"	200	75	163	244	326	488	733	1058	1465	1628
10"	250	124	270	405	541	811	1216	1757	2433	2703
12"	300	249	542	813	1084	1627	2440	3524	4880	5422
14"	350	287	624	936	1247	1871	2807	4054	5613	6237
16"	400	380	826	1239	1652	2478	3717	5368	7433	8259
18"	450	482	1049	1573	2097	3146	4719	6817	9438	10487
20"	500	556	1209	1814	2419	3628	5442	7860	10884	12093
24"	600	839	1825	2737	3650	5474	8212	11861	16423	18248
28"	700	1371	2980	4470	5960	8940	13410	19370	26820	29800
30"	750	1642	3570	5355	7140	10710	16065	23205	32130	35700
32"	800	1886	4100	6150	8200	12300	18450	26650	36900	41000
36"	900	2466	5360	8040	10720	16080	24120	34840	48240	53600
40"	1000	3031	6590	9885	13180	19770	29655	42835	59310	65900
42"	1050	3307	7190	10785	14380	21570	32355	46735	64710	71900
48"	1200	4476	9730	14595	19460	29190	43785	63245	87570	97300

Class 300

Size		Disc Opening Angle								
in	mm	10°	20°	30°	40°	50°	60°	70°	80°	90°
3"	80	15	29	50	72	87	99	102	110	121
4"	100	30	55	89	128	160	196	229	240	246
6"	150	35	77	116	154	231	347	502	694	772
8"	200	68	148	222	296	444	666	962	1332	1480
10"	250	110	238	357	476	715	1072	1548	2144	2382
12"	300	164	355	533	711	1066	1600	2310	3199	3555
14"	350	217	472	708	945	1417	2125	3070	4251	4723
16"	400	306	665	998	1330	1995	2993	4323	5985	6650
18"	450	396	861	1291	1722	2582	3874	5595	7747	8608
20"	500	486	1056	1584	2112	3168	4752	6864	9504	10560
24"	600	775	1685	2528	3370	5055	7583	10953	15165	16850
26"	650	845	1837	2756	3674	5511	8267	11941	16533	18370
28"	700	1118	2430	3645	4860	7290	10935	15795	21870	24300
30"	750	1426	3100	4650	6200	9300	13950	20150	27900	31000
32"	800	1546	3360	5040	6720	10080	15120	21840	30240	33600
36"	900	1969	4280	6420	8560	12840	19260	27820	38520	42800
38"	950	2098	4560	6840	9120	13680	20520	29640	41040	45600
40"	1000	2420	5260	7890	10520	15780	23670	34190	47340	52600
42"	1050	2535	5510	8265	11020	16530	24795	35815	49590	55100
48"	1200	3409	7410	11115	14820	22230	33345	48165	66690	74100

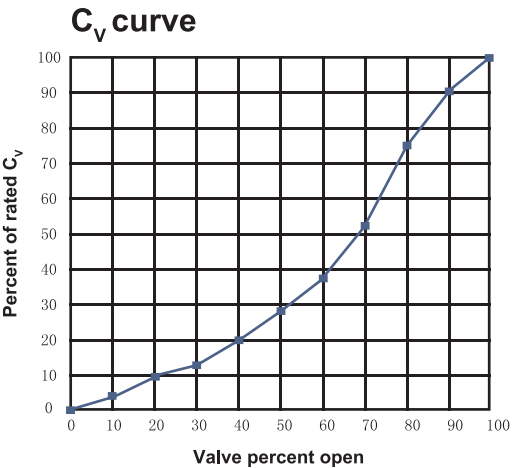
Class 600

Size		Disc Opening Angle								
in	mm	10°	20°	30°	40°	50°	60°	70°	80°	90°
3"	80	4	9	14	19	28	42	61	85	94
4"	100	10	22	33	44	66	99	144	199	221
6"	150	31	67	101	134	202	302	437	605	672
8"	200	49	105	158	211	316	475	685	949	1054
10"	250	81	177	266	354	531	797	1151	1593	1770
12"	300	132	287	430	573	860	1290	1863	2580	2867
14"	350	188	409	614	818	1227	1841	2659	3681	4090
16"	400	260	566	849	1132	1699	2548	3680	5096	5662
18"	450	362	788	1182	1576	2363	3545	5121	7090	7878
20"	500	461	1003	1504	2005	3008	4512	6518	9024	10027
24"	600	695	1510	2265	3020	4530	6795	9815	13590	15100

Notes:

1. Definition:
C_v: The volume of water in gpm at 15°C that will pass through a valve with a pressure drop of 1 PSI.

K_v: The volume of water in m³/hr at 15°C that will pass through a valve with a pressure drop of 1 bar.
2. Flow direction: vertical to shaft
3. C_v = 1.155 K_v



Seller will replace without charge or refund the purchase price of products which prove to be defective in material or workmanship; provided that the product is properly installed and is used in the service for which the Seller recommends it and that the written claim, specifying the alleged defect, is presented to the Seller within 18 months from the date of shipment or 12 months after installation, whichever occurs first. Seller shall in no event bear any labor, equipment, engineering or other costs incurred in connection with any repairs or replacement. The warranty stated in this paragraph is in lieu of all other warranties, either expressed or implied. With respect to warranties, this paragraph states the Buyer’s exclusive remedy and seller’s exclusive liability.