

TRIPLE OFFSET BUTTERFLY VALVES



VAHN-TECH International Inc., headquartered in Toronto, Canada is a unique company within the Flow Control Industry.

- ✳ 'vt' brand = high quality certified products (API, NSF, CSA, WRAS etc.)
- ✳ Valves, Actuators and Accessories – all 'vt' branded
- ✳ Width and Depth of Product Offerings
- ✳ Flexibility to customize products to customer needs
- ✳ Specialized user-friendly products including large sizes
- ✳ Quick Response
- ✳ Reduced Delivery times
- ✳ Efficient after sales service
- ✳ Competitive Pricing

VAHN-TECH International Inc. is a customer focused organization based on “Value-add” and “Quality Service” principles. Achieving long term partnership with our customers and being their supplier of choice is our prime mission.

We develop, manufacture and market VAHN-TECH (vt) branded Valves, Actuators, Automatic Control Valves and Accessories for variety of Industrial Applications. Our product range includes:



Oil and Gas



Water and Sewage,
Desalination



Chemicals



Paper and Pulp



Irrigation



Power Plants



Various
Industrial Applications

We can supply all types of valves with following materials of construction like:

Ductile Iron, Cast Iron, Carbon Steel, Stainless Steel – SS304, SS304L, SS316, SS316L, Duplex Stainless Steel, Super Duplex, Alloy, Monel and Inconel with variety of seating and stem configurations.



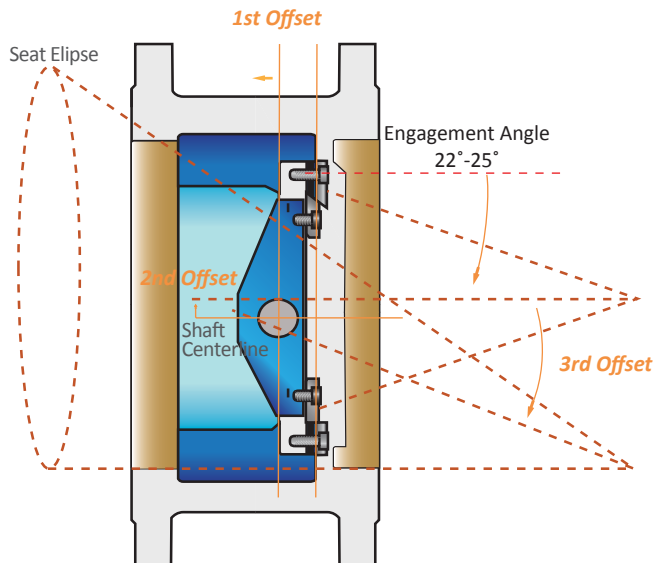
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Principle of Operation

The triple-offset geometry ensures that the body and disc come into contact only at the final shut-off position. This eliminates wear and tear due to interference, reduces operating torque and enhances product life.



Offset 1

The shaft of the valve is behind the disc, providing a continuous sealing area all around the disc.

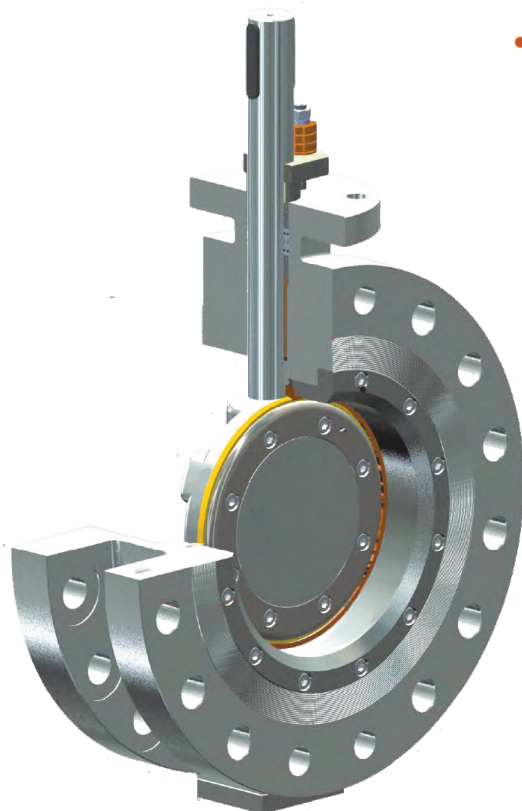
Offset 2

The shaft is offset from the pipe centerline allowing displacement of the sealing from the seat during the 90° opening.

Offset 3

The axis of the conical sealing is inclined to the centerline of the pipe eliminating friction during closing and opening and to achieve uniform compressive sealing around the complete seat.

Design Features

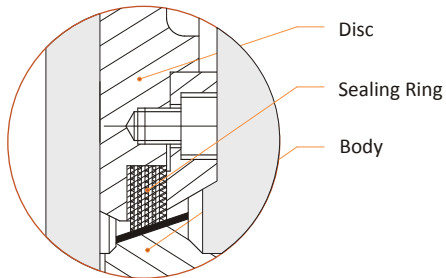


- The Triple Offset design provides Zero Leakage Seat Tightness to API 598 resilient seat standard.
- Integral Seat on Body with Stellite. The seat design prevents solids build-up.
- Bi-directional design.
- Anti-blowout stem for high dependability, completely conforming to API609.
- Inherently fire-safe for multi-layer metal seat.
- 1-piece shaft: Robust one-piece shaft designed to transfer & maintain torque efficiently while ensuring pressure containment safety.
- Tested for Low Fugitive Emission according ISO 15848-2015.
- Extended Bonnet available for Cryogenic applications.

Seat Design

Both Full **PTFE Seat** and **Multi-Layer Seat** are available.

Multi-layer sealing is made of composite layers of Stainless Steel and Non-metal material. Non-metal material can be Flexible Graphite, PTFE, or other material depending on the media and operating conditions.



Multi-Layer Seat Structure

Material	Suitable Temperature
SS + PTFE	-45°C to +230°C
SS + Graphite	-45°C to +400°C

✦ For other temperature range, please contact us.

Design Standards

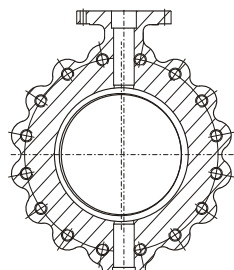
Technical Standard	
Design Standard	API 609
Flanged End Connection	ASME B16.5 / ASME B16.47
Face-to-Face	API 609 / ASME B16.10
Test & Inspection	API 609 / ASME B16.10
Fire-Safe	API 607
Low Fugitive Emission	ISO 15848-2015
NACE Construction	MR 0715

Available End Connections

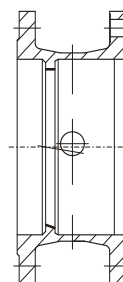
Wafer Type



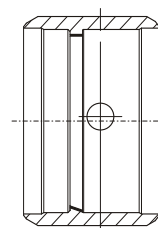
Lug Type



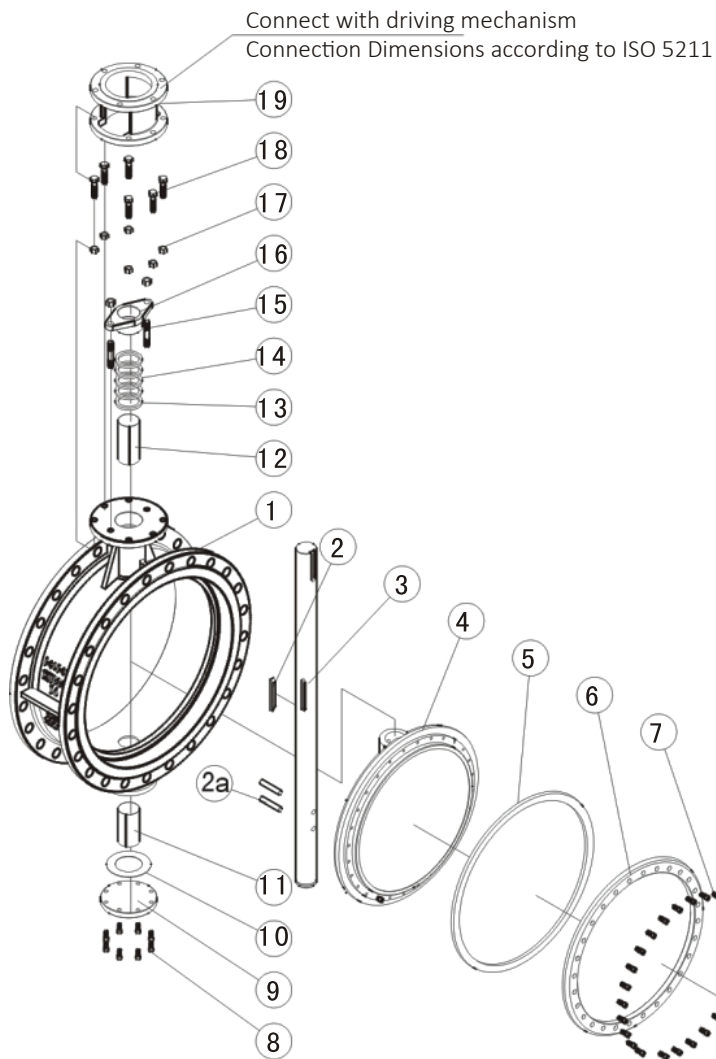
Double-Flanged Type



Butt-Weld Type



Material Construction



No.	Part Name	Material	Optional Material
1	Body	Carbon Steel	SS, Monel, Alloy Steel
2	Key	Carbon Steel	SS, Monel, Alloy Steel
2a	Pin	Carbon Steel	Monel
3	Stem	Carbon Steel	SS316, Monel
4	Disc	Carbon Steel	SS, Monel, Alloy Steel
5	Seal Ring	SS + PTFE	SS + Graphite
6	Retainer Flange	Carbon Steel	SS, Monel, Alloy Steel
7	Bolt	-	SS
8	Bolt	-	SS
9	Cover	Carbon Steel	SS, Monel, Alloy Steel
10	Gasket	Graphite	Graphite
11	Bushing	PTFE + Bronze	Luberized Bronze
12	Bushing	PTFE + Bronze	Luberized Bronze
13	Packing Seat	Carbon Steel	SS, Monel
14	Packing	Graphite	PTFE
15	Bolt	-	SS
16	Packing Bushing	Stainless Steel	SS
17	Nut	-	SS
18	Bolt	-	SS
19	Yoke	Carbon Steel	-

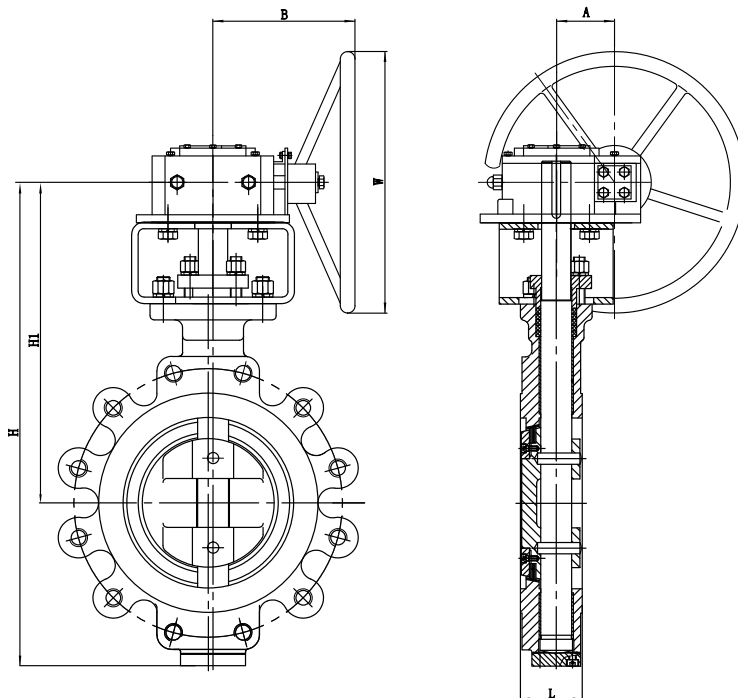
Dimensions

a. Wafer / Lug Type

CLASS 150

Unit: mm

Size		Dimension						Weight (kg)	
NPS	DN	L	H	H1	A	B	W	Wafer	Lug
3"	80	49	320	185	140	63	160	9	9
4"	100	54	342	195	140	63	160	11	14
5"	125	57	365	209	140	63	300	15	18
6"	150	58	415	243	140	63	300	17	20
8"	200	64	510	263	150	84	400	25	31
10"	250	71	567	295	150	84	400	40	49
12"	300	81	665	342	200	108	600	61	79
14"	350	92	739	385	200	108	600	82	107
16"	400	102	825	430	240	152	600	123	150
18"	450	114	910	469	240	152	800	150	182
20"	500	127	990	500	300	168	800	204	253
24"	600	154	1210	618	320	192	800	300	398
30"	750	165	1453	875	12	279	400	454	490
36"	900	203	1775	939	512	279	400	762	771
40"	1000	217	1857	1005	512	279	400	975	1179
42"	1050	214	1980	1086	512	279	400	1234	1338
48"	1200	254	2165	1194	570	368	600	1678	1928
54"	1350	305	2382	1477	630	425	800	2223	2631
60"	1500	333	2684	1617	630	425	800	2903	3447



CLASS 300

Unit: mm

Size		Dimension						Weight (kg)	
NPS	DN	L	H	H1	A	B	W	Wafer	Lug
3"	80	49	320	185	140	63	160	13.5	15.5
4"	100	54	342	195	140	63	160	18	21
5"	125	57	365	209	140	63	300	24	28
6"	150	59	415	243	140	63	300	28	34
8"	200	73	510	263	150	84	400	49	60
10"	250	83	567	295	150	84	400	68	88
12"	300	92	665	342	200	108	600	109	117
14"	350	117	739	385	200	108	600	186	207
16"	400	133	825	430	240	152	60	264	308
18"	450	149	910	469	40	152	800	297	408
20"	500	159	990	500	300	168	800	363	468
24"	600	181	1210	618	320	192	800	454	748
30"	750	254	1937	1180	512	279	600	816	1338
36"	900	305	2198	1298	570	368	600	1429	2154
42"	1050	324	2318	1358	570	368	600	2155	2427

CLASS 600

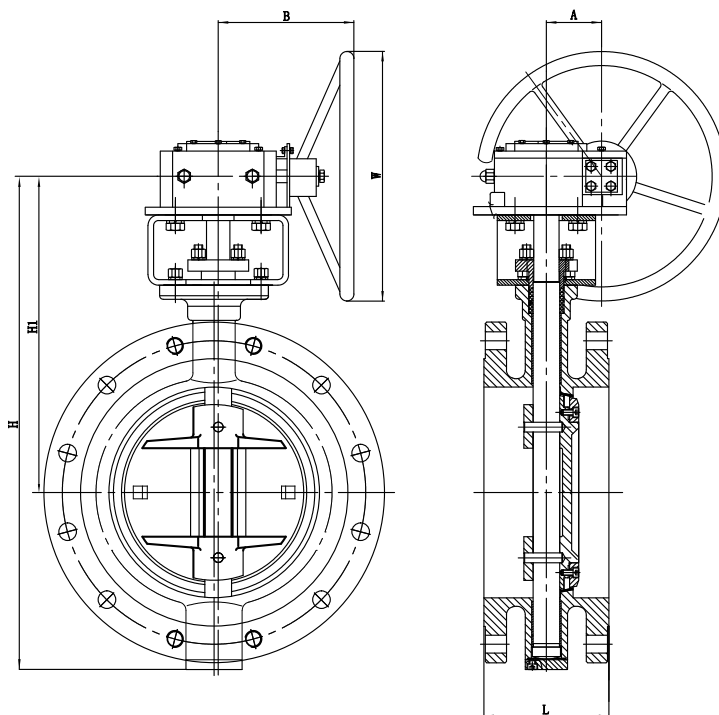
Unit: mm

Size		Dimension						Weight (kg)	
NPS	DN	L	H	H1	A	B	W	Wafer	Lug
6"	150	78	415	243	140	63	300	45	56
8"	200	102	510	236	150	84	400	70	94
10"	250	117	597	295	150	84	400	103	141
12"	300	140	665	342	20	108	600	149	201
14"	350	155	739	385	200	108	600	243	333
16"	400	178	825	430	240	152	600	318	401
18"	450	200	910	469	240	152	800	431	575
20"	500	216	990	500	300	168	800	472	708
24"	600	232	1210	618	320	192	800	826	1061

b. Flanged Ends - Short Pattern

CLASS 150 Unit: mm

Size		Dimension						Weight (kg)
NPS	DN	L	H	H1	A	B	W	
3"	80	114	472	350	50	203	203	15.4
4"	100	127	520	386	60	191	203	23
5"	125	140	580	395	60	215	250	29
6"	150	140	653	475	67	289	305	33
8"	200	152	773	565	67	308	460	50
10"	250	165	880	640	86	346	460	73
12"	300	178	989	711	111	403	610	108
14"	350	190	1044	760	60	601	356	143
16"	400	216	1142	826	60	605	457	186
18"	450	222	1228	887	60	652	610	234
20"	500	229	1337	959	60	805	762	277
24"	600	267	1554	1109	103	763	762	408
28"	700	292	1456	956	245	400	315	653
30"	750	308	1541	991	310	460	400	816
32"	800	318	1611	1036	310	460	400	914
36"	900	330	1743	1103	410	480	400	1157
40"	1000	410	1868	1173	410	480	400	1610
42"	1050	450	1968	1223	410	480	400	2160
48"	1200	470	2145	1320	520	640	400	2359
54"	1350	490	2300	1405	520	640	400	2720
56"	1400	530	2440	1475	520	640	400	3353
60"	1500	570	2594	1559	450	785	630	3629



CLASS 300 Unit: mm

Size		Dimension						Weight (kg)
NPS	DN	L	H	H1	A	B	W	
2"	50	108	365	237	35	169	152	19
3"	80	114	378	253	73	229	152	29
4"	100	127	421	274	73	229	305	39
5"	125	140	482	312	73	229	305	48
6"	150	140	543	351	108	254	305	54
8"	200	152	628	392	108	254	305	84
10"	250	165	855	480	133	305	610	118
12"	300	178	812	515	133	305	610	170
14"	350	191	885	555	194	356	610	231
16"	400	216	951	590	194	356	356	299
18"	450	225	1106	636	194	356	356	390
20"	500	229	1308	685	194	356	356	499
24"	600	267	1445	934	165	686	686	726
28"	700	292	1495	1039	165	686	686	1360
30"	750	292	1535	1060	165	686	686	1429
32"	800	318	1575	1120	165	686	686	757
36"	900	330	1605	1190	165	686	686	2223
40"	1000	410	1755	1234	165	686	686	2531
42"	1050	430	2100	1385	429	805	903	2781
44"	1100	450	2175	1436	429	805	903	2979
48"	1200	470	2303	1570	399	965	903	3602

CLASS 600 Unit: mm

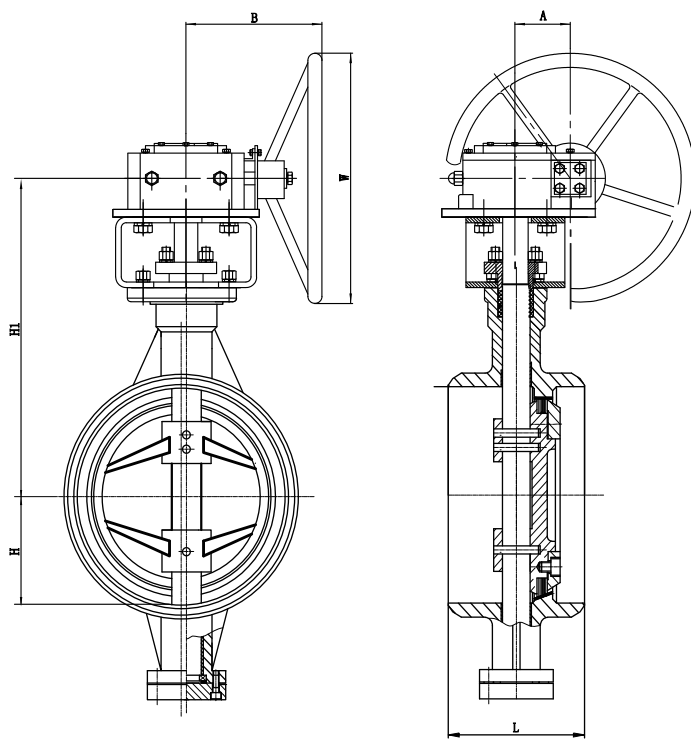
Size		Dimension						Weight (kg)
NPS	DN	L	H	H1	A	B	W	
3"	80	180	541	414	63	140	250	82
4"	100	190	607	447	63	140	250	125
5"	125	200	680	395	108	200	250	165
6"	150	210	686	490	152	240	315	191
8"	200	230	757	536	168	300	315	247
10"	250	250	867	641	192	320	315	413
12"	300	270	1034	727	237	368	400	576
14"	350	290	1087	757	237	368	400	664
16"	400	310	1216	825	237	368	400	971
18"	450	330	1240	840	269	559	400	1117
20"	500	350	1330	978	350	645	400	1639
24"	600	390	1583	1070	350	645	400	2082

c. Butt-Weld Ends

CLASS 150

Unit: mm

Size		Dimension						Weight (kg)
NPS	DN	L	H	H1	B	A	W	
3"	80	114	295	135	84	84	200	32
4"	100	127	305	155	84	84	200	35
5"	125	140	322	167	84	84	200	39
6"	150	140	366	170	94	84	250	43
8"	200	152	396	198	117	145	250	60
10"	250	165	429	231	175	114	315	90
12"	300	178	483	269	175	114	315	107
14"	350	190	498	297	239	145	315	15
16"	400	216	579	333	239	145	315	207
18"	450	222	630	366	239	191	315	267
20"	500	229	655	394	300	191	400	327
24"	600	267	74	452	300	191	400	473
28"	700	292	790	511	300	191	400	653
30"	750	308	815	536	300	269	400	760
32"	800	318	874	577	300	269	400	1033
36"	900	330	899	602	300	269	400	1200
40"	1000	410	1064	696	300	269	400	1487
42"	1050	430	1092	721	300	335	400	1640
44"	1100	450	1148	731	300	335	400	1800
48"	1200	470	1270	800	300	335	400	2007
54"	1350	490	1314	850	425	365	500	2720
56"	1400	530	1384	895	425	365	500	2980
60"	1500	570	1504	1025	425	365	500	3387



CLASS 300

Unit: mm

Size		Dimension						Weight (kg)
NPS	DN	L	H	H1	B	A	W	
3"	80	114	295	132	84	84	200	34
4"	100	127	358	150	84	84	200	44
5"	125	140	365	167	117	145	250	58
6"	150	140	389	188	175	1145	315	73
8"	200	152	417	221	175	1145	315	132
10"	250	165	465	252	239	145	315	151
12"	300	178	546	290	239	145	400	257
14"	350	191	579	318	300	191	400	286
16"	400	216	642	368	300	191	400	416
18"	450	225	673	396	300	191	400	497
20"	500	229	701	422	300	269	400	571
24"	600	267	775	495	399	269	400	881
28"	700	292	904	559	510	351	400	1320
30"	750	292	963	594	510	351	400	1478
32"	800	318	1054	617	510	351	400	1699
36"	900	330	1161	676	615	429	630	2379
40"	1000	410	1242	719	615	429	630	2427
42"	1050	430	1285	739	615	429	630	2685
44"	1100	450	1310	764	615	429	630	2932
48"	1200	470	1374	833	765	399	630	3545

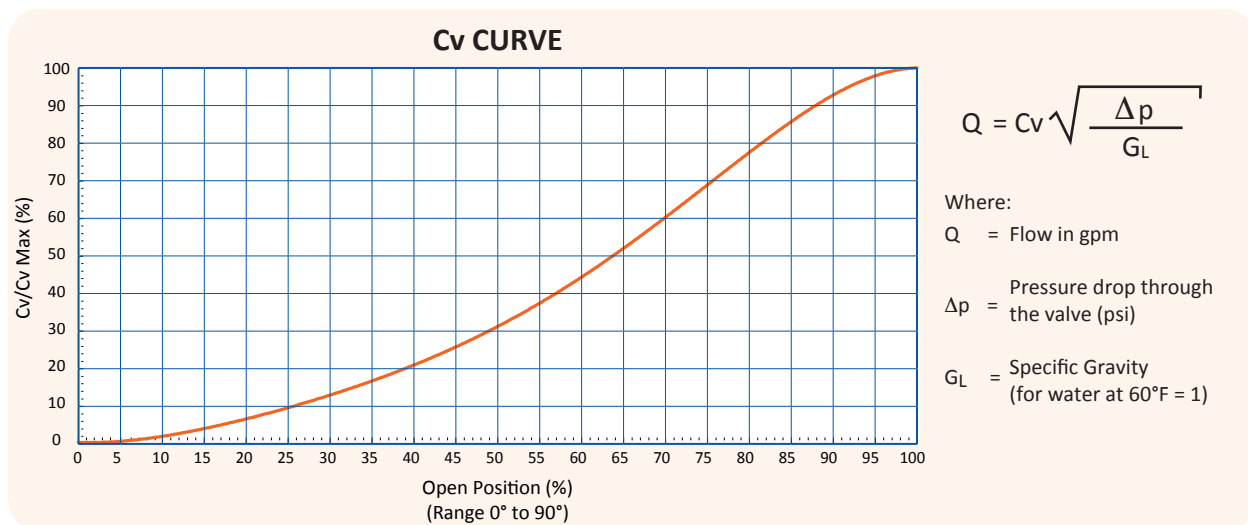
CLASS 600

Unit: mm

Size		Dimension						Weight (kg)
NPS	DN	L	H	H1	B	A	W	
3"	80	180	343	127	94	81	250	75
4"	100	190	371	160	152	145	250	117
5"	125	220	388	178	175	114	315	154
6"	150	210	401	196	175	114	315	186
8"	200	230	447	221	175	114	315	235
10"	250	250	544	290	239	145	315	398
12"	300	270	610	307	300	191	400	554
14"	350	290	640	330	300	191	400	654
16"	400	310	701	391	400	269	400	935
18"	450	330	716	406	400	269	400	1085
20"	500	350	828	452	510	351	400	1610
24"	600	390	620	513	510	351	400	1998

Technical Information

a. Flow Characteristics

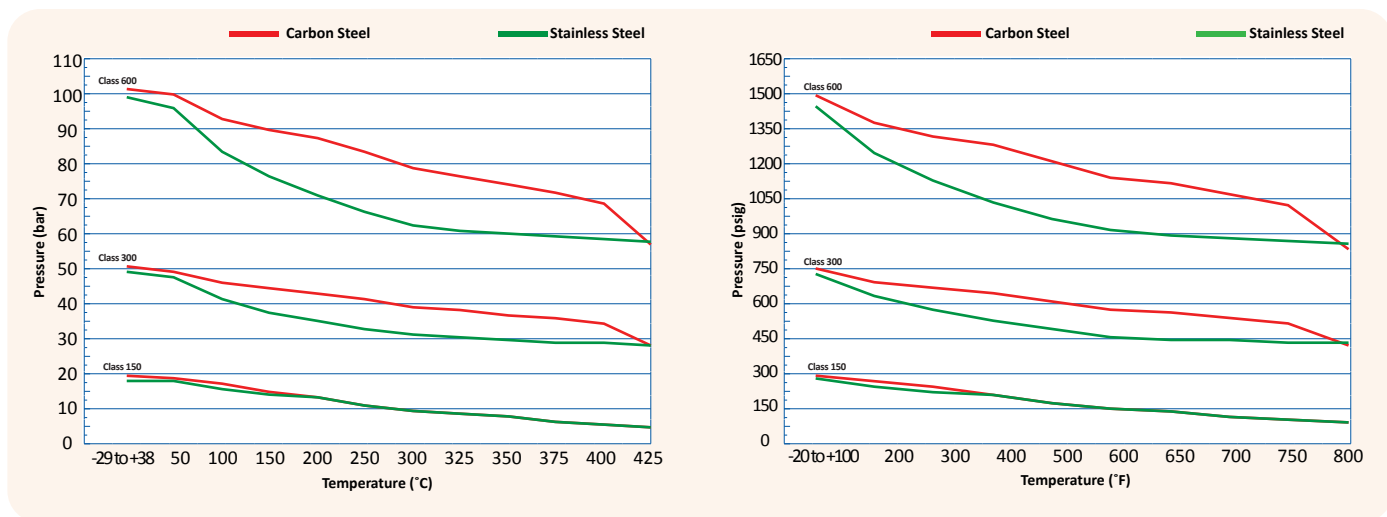


b. Torque Values

unit: Nm

Size		Pressure		
NPS	DN	285 PSI	740 PSI	1480 PSI
3"	80	174	271	460
4"	100	250	395	834
5"	125	283	548	979
6"	150	473	825	2938
8"	200	674	1503	3616
10"	250	983	1887	5649
12"	300	2022	2508	11863
14"	350	2520	4158	14123
16"	400	3175	6271	17061
18"	450	4239	7664	21015
20"	500	5531	10361	16551
24"	600	6011	17559	38415
30"	750	12654	33105	-
36"	900	18078	52877	-
40"	1000	24179	-	-
42"	1050	24857	80219	-
48"	1200	36155	-	-

c. Pressure and Temperature Ratings (ASME B16.34)



Unit: bar

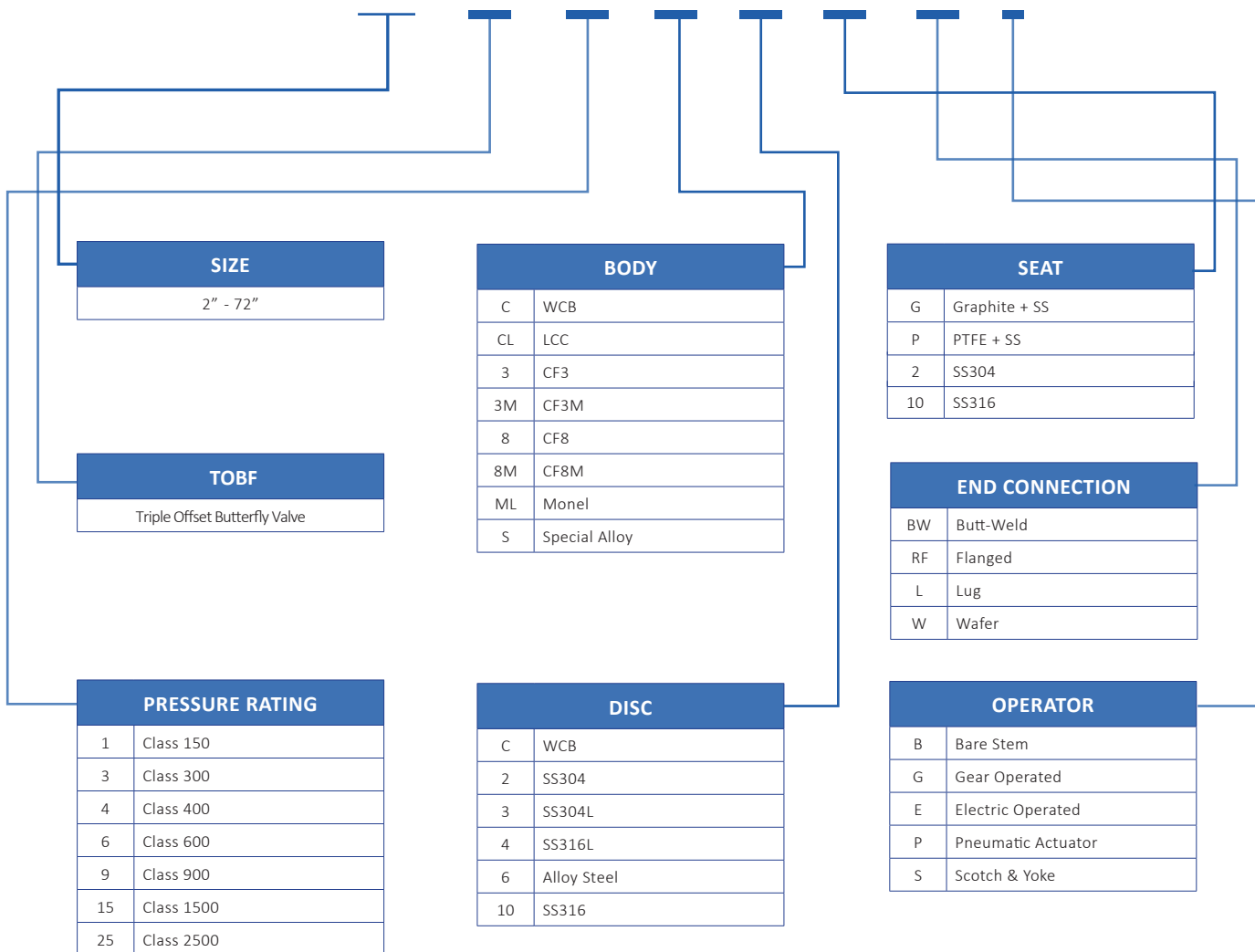
Unit: psig

Temperature (°C)	Carbon Steel A216 Gr. WCB			Stainless Steel A351 Gr. CF8M		
	Class Rating					
	150	300	600	150	300	600
-29 to 38	19.6	51.1	102.1	19.0	49.6	99.3
50	19.2	50.1	100.2	18.4	48.1	96.2
100	17.7	46.6	93.2	16.2	42.2	84.4
150	15.8	45.1	90.2	14.8	38.5	77.0
200	13.8	43.8	87.6	13.7	35.7	71.3
250	12.1	41.9	83.9	12.1	33.4	66.8
300	10.2	39.8	79.6	10.2	31.6	63.2
325	9.3	38.7	77.4	9.3	30.9	61.8
350	8.4	37.6	75.1	8.4	30.3	60.7
375	7.4	36.4	72.7	7.4	29.9	59.8
400	6.5	34.7	69.4	6.5	29.4	58.9
425	5.5	28.8	57.5	5.5	29.1	58.3

Temperature (°F)	Carbon Steel A216 Gr. WCB			Stainless Steel A351 Gr. CF8M		
	Class Rating					
	150	300	600	150	300	600
-20 to 100	285	740	1480	275	720	1440
200	260	680	1360	235	620	1240
300	230	655	1310	215	560	1120
400	200	635	1265	195	515	1025
500	170	605	1205	170	480	955
600	140	570	1135	140	450	900
650	125	550	1100	125	440	885
700	110	530	1060	110	435	870
750	95	505	1015	95	425	855
800	80	410	825	80	420	845

PRODUCT SELECTION

VT - TOV - XX - XX - XX - XX - XX - XX - X



SIZE	
2"	72"

TOBF	
Triple Offset Butterfly Valve	

PRESSURE RATING	
1	Class 150
3	Class 300
4	Class 400
6	Class 600
9	Class 900
15	Class 1500
25	Class 2500

BODY	
C	WCB
CL	LCC
3	CF3
3M	CF3M
8	CF8
8M	CF8M
ML	Monel
S	Special Alloy

DISC	
C	WCB
2	SS304
3	SS304L
4	SS316L
6	Alloy Steel
10	SS316

SEAT	
G	Graphite + SS
P	PTFE + SS
2	SS304
10	SS316

END CONNECTION	
BW	Butt-Weld
RF	Flanged
L	Lug
W	Wafer

OPERATOR	
B	Bare Stem
G	Gear Operated
E	Electric Operated
P	Pneumatic Actuator
S	Scotch & Yoke

FUGITIVE EMISSION TEST - ISO 15848-2015





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