

Features

- Metal to metal sealing
- Triple eccentric quarter-turn design
- Torque seated
- Bi-directional tight shutoff
- Zero leakage
- Non-rubbing seating
- Inherently fire safe and fire tested

Applications

- Process fluids
- Hydrocarbons
- Steam/Geothermal steam
- Hot gas/Sour gas (NACE)
- Oxygen, Hydrogen
- Blow down
- Sulfur recovery
- Acid, Caustic, Chloride
- Abrasive service

Body Style

- Double flanged ISO 5752
- Double flanged ANSI B 16-10 (gate)
- Wafer & Lugged API 609
- Butt-Weld.

Materials

- LCB, LC3
- Duplex
- Superduplex
- Monel
- Hastelloy
- 254 SMO
- Alloy steel WC6, WC9
- Inconel
- Alloy 20
- Aluminium Bronze
- Titanium.

Applicable Standards

- Design: ANSI B16.34 / ASME VIII
- Face to face: API/ISO/ANSI
- Flange: ANSI/ISO/DIN/UNI/JIS
- Testing: ZERO leakage
- Fire Test: BS 6755 – API 607 fourth Ed



Description

With the triple offset butterfly valve there are three offsets. Two are placed in a similar position to the double offset butterfly valve, while the third offset is the geometry of the seating surface, creating a type of cone shape of the disc and seat. This cone angle, along with the two eccentric shaft offsets, allows the disc to seal against the seat with no friction.

This seat design also allows for uniform sealing, and thus a tight shutoff in a metal seat design. This design is a lower cost, lower torque option (easier to automate), than alternative style metal seated valves.

Production Range

- ND 2" – 160" ANSI Cl. 150
- ND 2" – 80" ANSI Cl.300
- ND 3" – 80" ANSI Cl. 600
- ND 6" – 48" ANSI Cl. 900
- ND 6" – 24" ANSI body in ANSI Cl. 1500
- ANSI Cl. 2500 with ANSI Cl.900 trim

Design Standards

- Design & Manufacture: ANSI16.34,BS 5155,JIS B2071,DIN 3354.
- Face-to-face Dimension: API 609, ISO 5752,DIN 3202,BS 4504,JIS B2002 .
- Flanged Ends: ANSI B16.5, MSS-SP-44, ISO 7005 ,BS 4504.
- Butt-weld Ends: ANSI B16.25.
- Pressure Test: API 598, ISO 5208, BS 5146.

Temperature - Pressure Limits

- From -196°C (-320°F) up to +818°C (+1600°F)
- From Full Vacuum up to +450 Bar (2200 psi)

Rating

- PN 6-10 – 16 – 25 – 40 – 64 – 100
- ANSI Cl. 150 – 300 – 600 – 900 – 1500 – 2500

Principle Of Operation

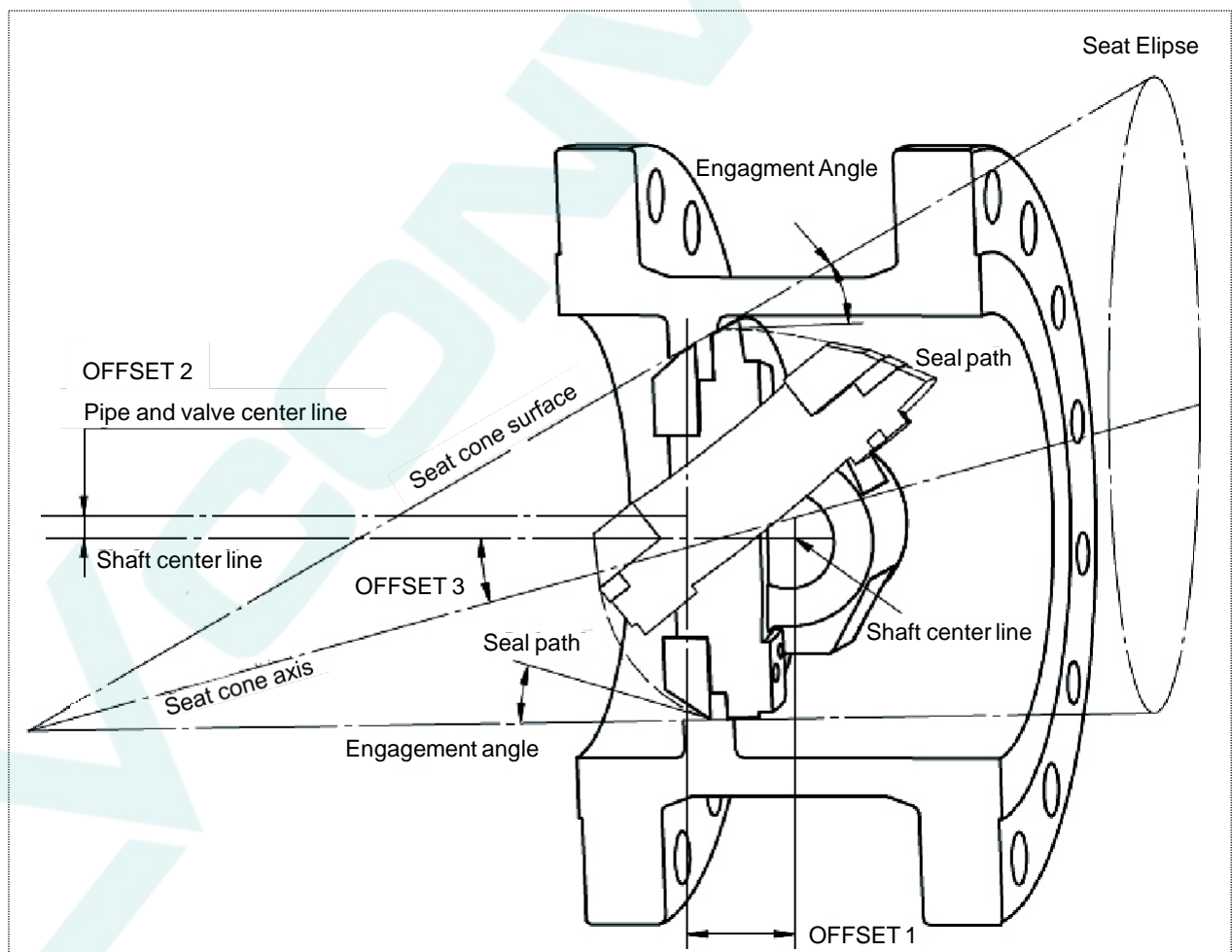
The Convalve Triple Offset Butterfly Valve provides a bi-directional bubble tight shut-off. This geometry ensures that the disc seal contacts the body seat only at the final shut-off position without rubbing or galling, providing a torque generated resilient seal with sufficient “wedging” to ensure a uniform seal contact.

The Triple Offset Geometry

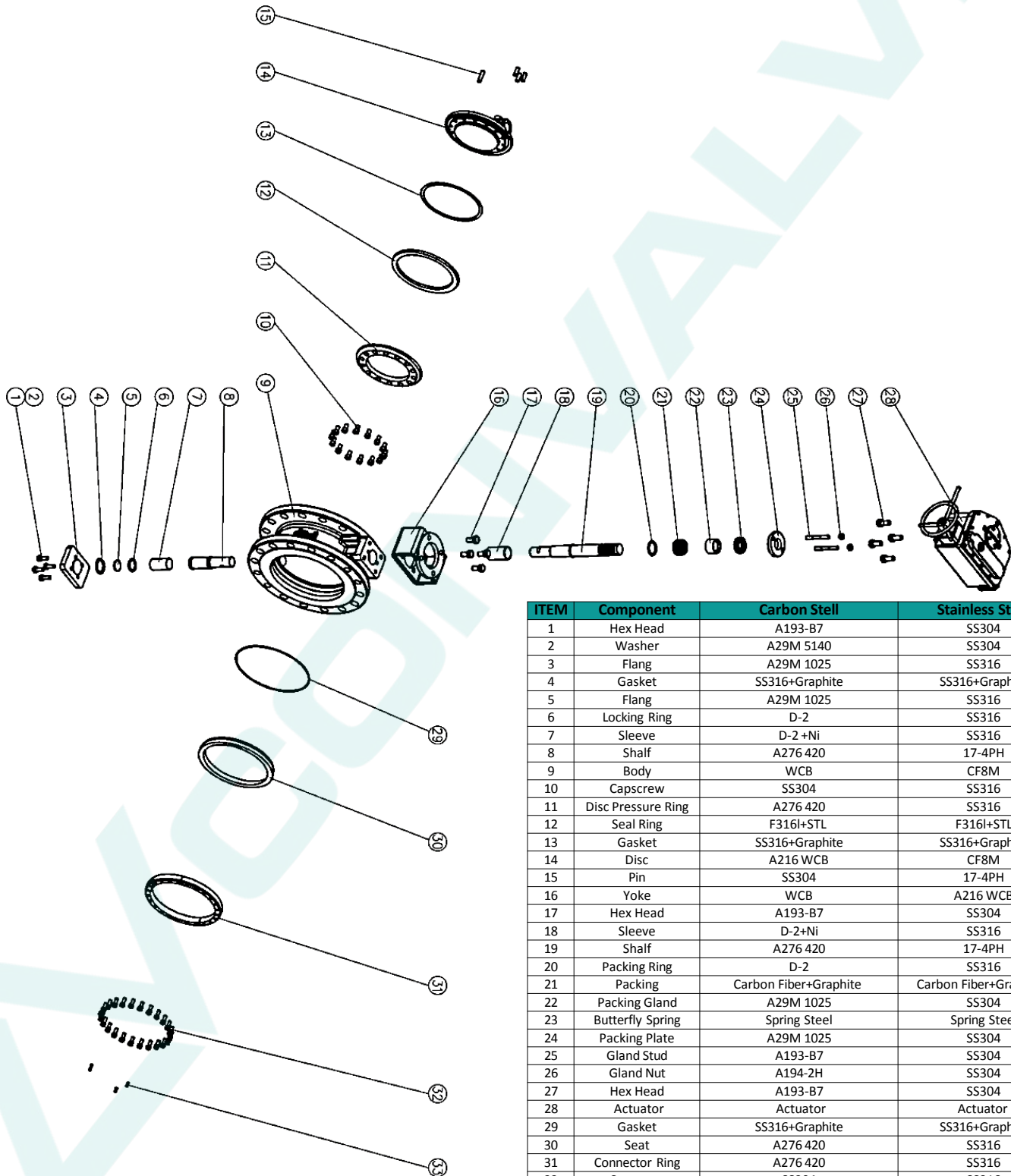
OFFSET 1 The shaft is offset behind the seat axis to allow complete sealing contact around the entire seat.

OFFSET 2 The shaft centerline is offset from the pipe and valve which provides interference free opening and closing of the valve.

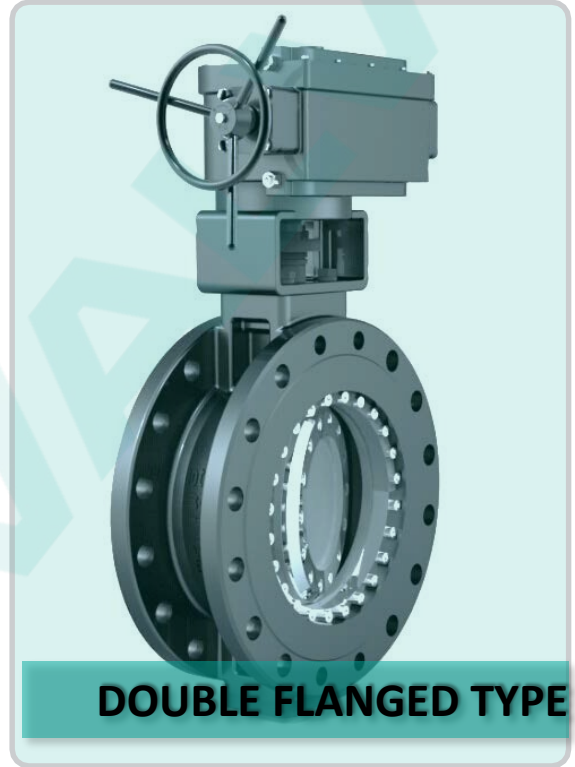
OFFSET 3 The seat cone axis is offset from the shaft centerline to eliminate friction during closing and opening and to achieve uniform compressive sealing around the entire seat.



Materials:



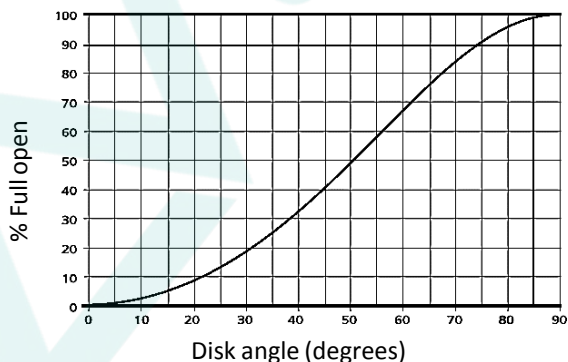
ITEM	Component	Carbon Steel	Stainless Steel
1	Hex Head	A193-B7	SS304
2	Washer	A29M 5140	SS304
3	Flang	A29M 1025	SS316
4	Gasket	SS316+Graphite	SS316+Graphite
5	Flang	A29M 1025	SS316
6	Locking Ring	D-2	SS316
7	Sleeve	D-2+Ni	SS316
8	Shalf	A276 420	17-4PH
9	Body	WCB	CF8M
10	Capscrew	SS304	SS316
11	Disc Pressure Ring	A276 420	SS316
12	Seal Ring	F316+STL	F316+STL
13	Gasket	SS316+Graphite	SS316+Graphite
14	Disc	A216 WCB	CF8M
15	Pin	SS304	17-4PH
16	Yoke	WCB	A216 WCB
17	Hex Head	A193-B7	SS304
18	Sleeve	D-2+Ni	SS316
19	Shalf	A276 420	17-4PH
20	Packing Ring	D-2	SS316
21	Packing	Carbon Fiber+Graphite	Carbon Fiber+Graphite
22	Packing Gland	A29M 1025	SS304
23	Butterfly Spring	Spring Steel	Spring Steel
24	Packing Plate	A29M 1025	SS304
25	Gland Stud	A193-B7	SS304
26	Gland Nut	A194-2H	SS304
27	Hex Head	A193-B7	SS304
28	Actuator	Actuator	Actuator
29	Gasket	SS316+Graphite	SS316+Graphite
30	Seat	A276 420	SS316
31	Connector Ring	A276 420	SS316
32	Capscrew	SS304	SS316
33	Grub Screw	SS304	SS316



Cv Values:

150 LB																			
Valvesize mm inch	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	
80	3	1	6	14	23	31	39	47	54	62	71	82	96	112	128	143	156	163	165
100	4	2	12	26	42	57	72	85	98	113	130	150	176	205	234	262	285	299	302
150	6	16	31	45	59	76	101	134	178	233	297	369	448	531	616	698	758	796	796
200	8	30	57	82	108	140	185	246	327	427	544	676	821	974	1130	1280	1390	1460	1460
250	10	52	99	142	187	242	320	426	566	739	942	1170	1420	1690	1960	2220	2410	2530	2530
300	12	78	147	212	279	362	478	636	846	1100	1410	1750	2120	2520	2920	3310	3600	3780	3780
350	14	106	201	289	380	493	651	866	1150	1500	1920	2380	2890	3430	3980	4510	4890	5140	5140
400	16	165	313	451	594	769	1020	1350	1800	2350	2990	3720	4510	5350	6210	7040	7640	8020	8020
450	18	217	413	594	782	1010	1340	1780	2370	3090	3940	4890	5940	7050	8180	9270	10100	10600	10600
500	20	268	509	733	965	1250	1650	2200	2920	3820	4860	6040	7340	8710	10100	11400	12400	13000	13000
600	24	386	734	1060	1390	1800	2380	3170	4210	5500	7000	8700	10600	12500	14500	16500	17900	18800	18800
700	28	559	1060	1530	2010	2610	3450	4590	6100	7960	10100	12600	15300	18200	21100	23900	25900	27200	27200
750	30	630	1200	1720	2270	2940	3880	5160	6870	8960	11400	14200	17200	20400	23700	28900	29200	30700	30700
800	32	719	1370	1970	2590	3360	4440	5900	7840	10200	13000	16200	19700	23300	27100	30700	33300	35000	35000
900	36	884	1680	2420	3180	4120	5450	7250	9630	12600	16000	19900	24200	28700	33300	37700	40900	43000	43000
1000	40	1170	2220	3190	4210	5450	7210	9580	12700	16600	21200	26300	31900	37900	44000	49800	54100	56900	56900
1050	42	1230	2340	3370	4440	5760	7610	10100	13400	17600	22400	27800	33700	40000	46500	52600	57100	60000	60000
1200	48	1640	3120	4490	5920	7670	10100	13500	17900	23400	29800	37000	45000	53400	61900	70100	76100	80000	80000

300 LB																			
Valvesize mm inch	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°	
80	3	1	6	14	23	31	39	47	54	62	71	82	96	112	128	143	156	163	165
100	4	2	12	26	42	57	72	85	98	113	130	150	176	205	234	262	285	299	302
150	6	6	25	41	54	69	91	121	162	212	268	334	407	482	559	634	689	725	725
200	8	11	45	74	98	126	166	222	298	389	492	613	746	884	1030	1160	1260	1330	1330
250	10	19	82	135	178	229	301	402	540	705	891	1110	1350	1600	1860	2110	2290	2410	2410
300	12	29	122	202	266	342	450	601	807	1050	1330	1660	2020	2400	2780	3150	3420	3600	3600
350	14	39	167	274	363	466	613	818	1100	1430	1810	2260	2750	3260	3780	4290	4660	4900	4900
400	16	58	248	408	539	692	910	1220	1630	2130	2690	3360	4090	4840	5610	6370	6920	7280	7280
450	18	77	326	537	710	911	1200	1600	2150	2810	3550	4420	5380	6380	7400	8390	9110	9590	9590
500	20	95	403	663	876	1130	1480	1980	2650	3460	4380	5460	6640	7880	9130	10400	11300	11800	11800
600	24	136	580	955	1260	1620	2130	2850	3820	4990	6310	7860	9570	11300	13100	14900	16200	17100	17100
700	28	199	844	1390	1840	2360	3100	4150	5560	7260	9190	11400	13900	16500	19100	21700	23600	24800	24800
750	30	232	986	1620	2150	2750	3620	4840	6490	8480	10700	13400	16300	19300	22400	25400	27500	29000	29000
800	32	261	1110	1830	2420	3100	4080	5450	7310	9550	12100	15000	18300	21700	25200	28600	31000	32600	32600
900	36	332	1410	2320	3070	3940	5190	6930	9300	12100	15400	19100	23300	27600	32000	36300	39400	41500	41500
1000	40	399	1700	2790	3690	4740	6230	8330	11200	14600	18400	23000	28000	33200	38400	43600	47400	49900	49900
1050	42	457	1940	3200	4230	5430	7140	9540	12800	16700	21100	26300	32000	38000	44000	50000	54200	57100	57100
1200	48	480	2040	3360	4440	5700	7500	10000	13400	17500	22200	27700	33700	39900	463000	52500	57000	60000	60000



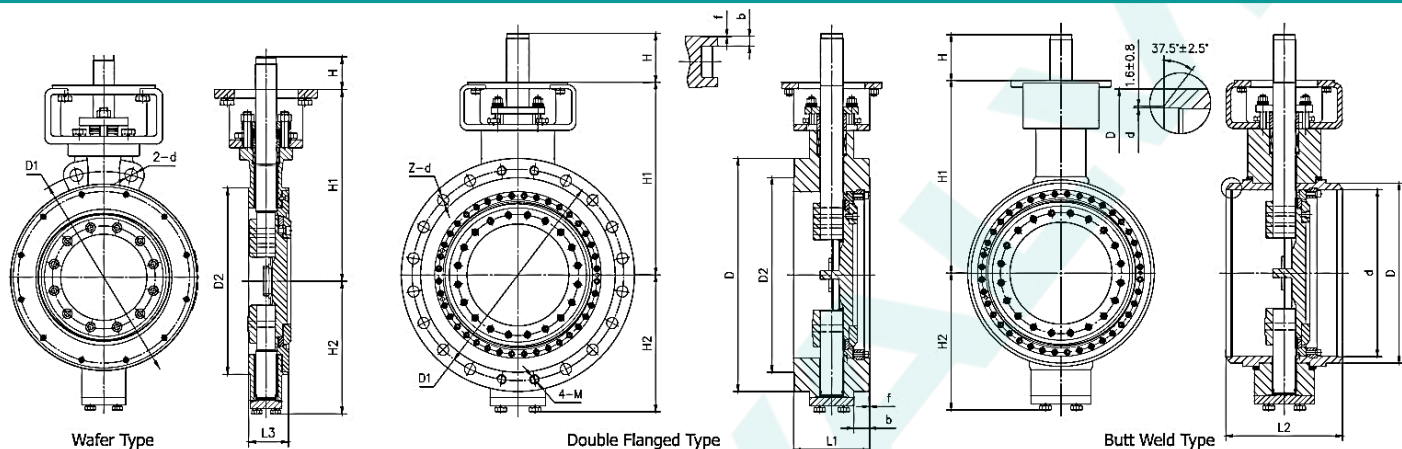
Typical Flow Characteristics:

For control applications a wide variety of actuators and accessories can be provided.

At moderate pressure drop conditions, turndown approaching 100 to 1 can be achieved opening.

The disc lifts off the seat very quickly and equal percentage control curve is produced between 15° 75°.

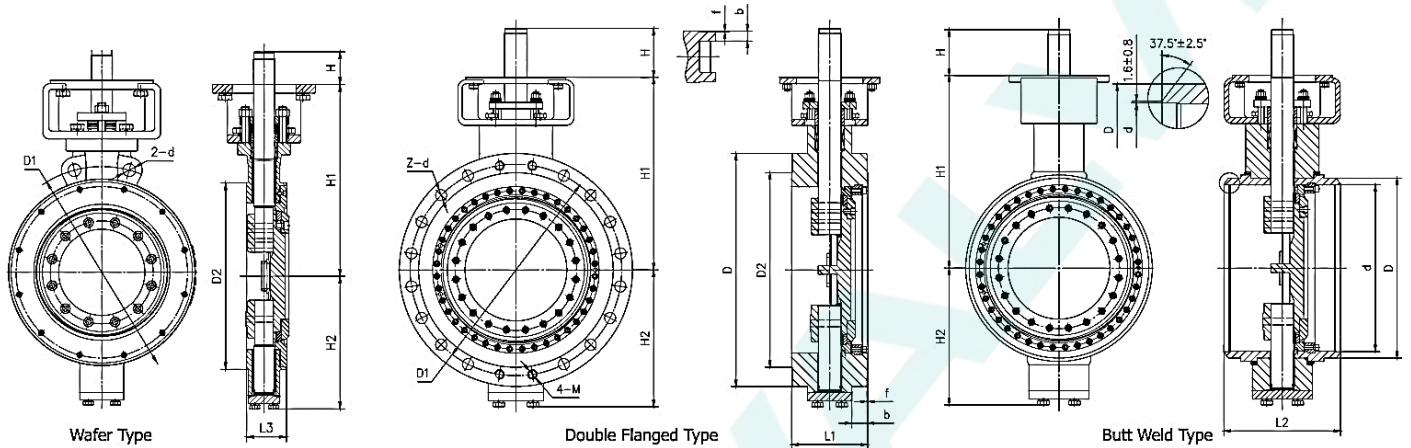
Main Connection Dimension PN6 / PN10



Nominal diameter	L1	L2	L3	D	D1	D2	b	f	Z-ød	M	N	d1	Dn	H1	H2	H
PN6																
DN50	108	150	43	140	110	90	16	2	4-ø14	12	4	47	57	193	94	20
DN80	114	180	49	190	150	128	18	2	4-ø18	16	4	78	90	221	118	25
DN100	127	190	56	210	170	148	18	2	4-ø18	16	4	96	110	243	130	30
DN125	140	200	64	240	200	178	18	2	4-ø18	16	8	121	135	261	153	35
DN150	140	210	70	265	225	202	20	2	4-ø18	16	8	146	161	273	165	40
DN200	152	230	71	320	280	258	22	2	4-ø18	16	8	202	222	309	198	45
DN250	165	250	76	375	335	312	24	2	8-ø18	16	12	245	278	337	235	50
DN300	178	270	83	440	395	365	24	2	8-ø22	20	12	303	330	382.5	274.5	67
DN350	190	290	92	490	445	415	24	2	8-ø22	20	12	351	382	435	314	81
DN400	216	310	102	540	495	465	24	2	12-ø22	20	16	398	432	457	344	87
DN450	222	330	114	595	550	520	24	2	12-ø22	20	16	450	484	510	369	98
DN500	229	350	127	645	600	570	26	2	16-ø22	20	20	501	535	579	410.5	105
DN600	267	390	154	755	705	670	26	2	16-ø26	24	20	602	636	635	472.5	117
DN700	292	430	165	860	810	775	26	5	20-ø26	24	24	692	726	671	529.5	117
DN800	318	470	190	975	920	880	26	5	20-ø30	27	24	792	826	800	648	120
DN900	330	510	200	1075	1020	980	26	5	20-ø30	27	24	892	926	862	708.2	128
DN1000	410	550	216	1175	1120	1080	26	5	24-ø30	27	28	992	1028	955	766.2	170
DN1200	470	630	276	1405	1340	1295	28	5	28-ø33	30	32	1192	1228	1088	884	182
DN1400	530	710	390	1630	1560	1510	32	5	32-ø36	33	36	1392	1428	1188	1022	202
DN1600	600	790	440	1830	1760	1710	34	5	36-ø36	33	40	1592	1628	1227	1095	245
DN1800	670	870	490	2045	1970	1920	36	5	40-ø39	36	44	1792	1828	1300	1165	245
DN2000	760	950	540	2265	2180	2125	38	5	44-ø42	39	48	1992	2028	1390	1280	245
DN2200	800	1000	590	2475	2390	2330	60	6	48-ø48	42	52	2192	2228	1504	1320	245
DN2400	850	1100	650	2685	2600	2540	62	6	52-ø48	42	56	2392	2428	1750	1425	245
DN2600	900	1200	700	2900	2810	2740	64	6	56-ø54	48	60	2592	2628	1910	1540	245
DN2800	950	1300	760	3110	3020	2950	68	6	60-ø54	48	64	2792	2828	2103	1640	245
DN3000	1000	1400	810	3310	3220	3150	70	6	64-ø54	48	68	2992	3028	2234	1740	245

Nominal diameter	L1	L2	L3	D	D1	D2	b	f	Z-ød	M	N	d1	Dn	H1	H2	H
PN10																
DN50	108	150	43	165	125	102	20	2	4-ø18	16	4	47	57	193	94	20
DN80	114	180	49	200	160	138	20	2	4-ø18	16	8	78	90	221	118	25
DN100	127	190	56	220	180	158	22	2	4-ø18	16	8	96	110	243	130	30
DN125	140	200	64	250	210	188	22	2	4-ø18	16	8	121	135	261	153	35
DN150	140	210	70	285	240	212	24	2	4-ø22	20	8	146	161	273	165	40
DN200	152	230	71	340	295	268	24	2	4-ø22	20	8	202	222	309	198	45
DN250	165	250	76	395	350	320	26	2	8-ø22	20	12	245	278	337	235	50
DN300	178	270	83	445	400	370	26	2	8-ø22	20	12	303	330	382.5	274.5	67
DN350	190	290	92	505	460	430	26	2	12-ø22	20	16	351	382	435	314	81
DN400	216	310	102	565	515	482	26	2	12-ø26	24	16	398	432	457	344	87
DN450	222	330	114	615	565	532	28	2	16-ø26	24	20	450	484	510	369	98
DN500	229	350	127	670	620	585	28	2	16-ø26	24	20	501	535	579	410.5	105
DN600	267	390	154	780	725	685	34	2	16-ø30	27	20	602	636	635	472.5	117
DN700	292	430	165	895	840	800	34	5	20-ø30	27	24	692	726	671	529.5	117
DN800	318	470	190	1015	950	905	36	5	20-ø33	30	24	792	826	800	648	120
DN900	330	510	200	1115	1050	1005	38	5	24-ø33	30	28	892	926	862	708.2	128
DN1000	410	550	216	1230	1160	1110	38	5	24-ø36	33	28	992	1028	955	766.2	170
DN1200	470	630	276	1455	1380	1330	44	5	28-ø39	36	30	1192	1228	1088	884	182
DN1400	530	710	390	1675	1590	1535	48	5	32-ø42	39	36	1392	1428	1188	1022	202
DN1600	600	790	440	1915	1820	1760	52	5	36-ø48	45	40	1592	1628	1227	1095	245
DN1800	670	870	490	2115	2020	1960	56	5	40-ø48	45	44	1792	1828	1300	1165	245
DN2000	760	950	540	2325	2230	2170	60	5	44-ø48	45	48	1992	2028	1390	1280	245

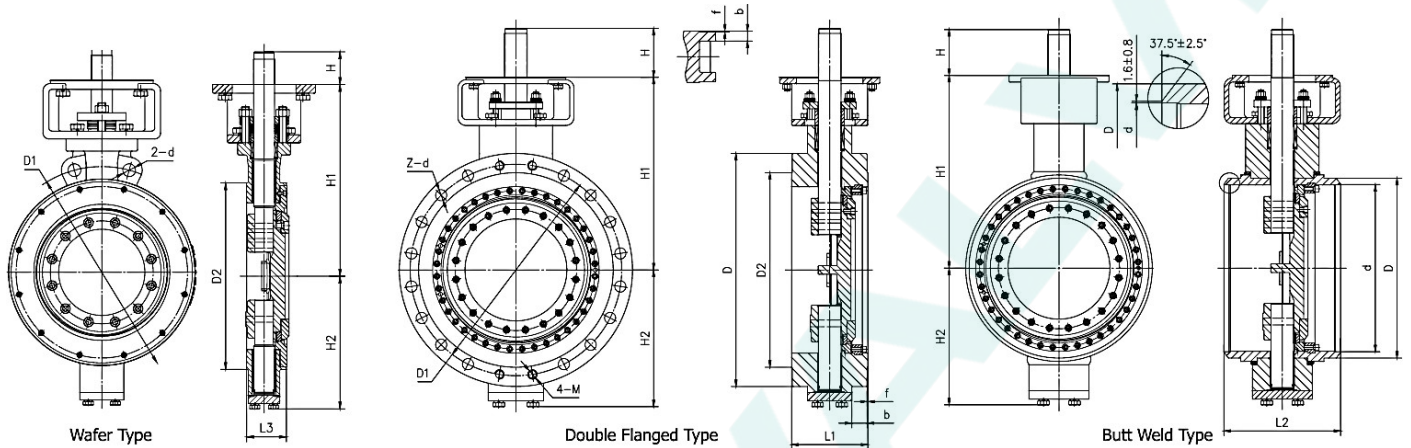
Main Connection Dimension PN16 / PN25



Nominal diameter	L1	L2	L3	D	D1	D2	b	f	N	Z-ød	M	d1	Dn	H1	H2	H
PN16																
DN50	108	150	43	165	125	102	20	2	4	4-ø18	16	47	57	193	94	20
DN80	114	180	49	200	160	138	20	2	8	4-ø18	16	78	90	221	118	25
DN100	127	190	56	220	180	158	22	2	8	4-ø18	16	96	110	243	130	30
DN125	140	200	64	250	210	188	22	2	8	4-ø18	16	121	135	261	153	35
DN150	140	210	70	285	240	212	24	2	8	4-ø22	20	146	161	273	165	40
DN200	152	230	71	340	295	268	24	2	12	8-ø22	20	202	222	309	198	45
DN250	165	250	76	405	355	320	26	2	12	8-ø26	24	245	278	337	235	50
DN300	178	270	83	460	410	378	28	2	12	8-ø26	24	303	330	382.5	274.5	67
DN350	190	290	92	520	470	438	30	2	16	12-ø26	24	351	382	435	314	81
DN400	216	310	102	580	525	490	32	2	16	12-ø30	27	398	432	457	344	87
DN450	222	330	114	640	585	550	34	2	20	16-ø30	27	450	484	510	369	98
DN500	229	350	127	715	650	610	36	2	20	16-ø33	30	501	535	579	410.5	105
DN600	267	390	154	840	770	725	38	2	20	16-ø36	33	602	636	635	472.5	117
DN700	292	430	165	910	840	795	40	5	24	20-ø36	33	692	726	671	529.5	117
DN800	318	470	190	1025	950	900	42	5	24	20-ø39	36	792	826	800	648	120
DN900	330	510	200	1125	1050	1000	44	5	28	24-ø39	36	892	926	862	708.2	128
DN1000	410	550	216	1255	1170	1115	46	5	28	24-ø42	39	992	1028	955	766.2	170
DN1200	470	630	276	1485	1390	1330	52	5	32	28-ø48	45	1192	1228	1088	884	182
DN1400	530	710	390	1685	1590	1530	58	5	36	32-ø48	45	1392	1428	1188	1022	202
DN1600	600	790	440	1930	1820	1750	64	5	40	36-ø55	52	1592	1628	1227	1095	245
DN1800	670	870	490	2130	2020	1950	68	5	44	40-ø55	52	1792	1828	1300	1165	245
DN2000	760	950	540	2345	2230	2150	70	5	48	44-ø60	56	1992	2028	1390	1280	245

Nominal diameter	L1	L2	L3	D	D1	D2	b	f	N	Z-ød	M	d1	Dn	H1	H2	H
PN25																
DN50	108	150	43	165	125	102	20	2	4	4-ø18	16	47	57	193	94	20
DN80	114	180	49	200	160	138	24	2	8	4-ø18	16	78	90	221	118	25
DN100	127	190	56	235	190	162	24	2	8	4-ø22	20	96	110	243	130	30
DN125	140	200	64	270	220	188	26	2	8	4-ø26	24	121	135	261	153	35
DN150	140	210	70	300	250	218	28	2	8	4-ø26	24	146	161	273	165	40
DN200	152	230	71	360	310	278	30	2	12	8-ø26	24	202	222	309	198	45
DN250	165	250	76	425	370	335	32	2	12	8-ø30	27	245	278	337	235	50
DN300	178	270	83	485	430	395	34	2	16	12-ø30	27	303	330	382.5	274.5	67
DN350	190	290	92	555	490	450	38	2	16	12-ø33	30	351	382	435	314	81
DN400	216	310	102	620	550	505	40	2	16	12-ø36	33	398	432	457	344	87
DN450	222	330	114	670	600	555	46	2	20	16-ø36	33	450	484	510	369	98
DN500	229	350	127	730	660	615	48	2	20	16-ø36	33	501	535	579	410.5	105
DN600	267	390	154	845	770	720	58	2	20	16-ø39	36	602	636	635	472.5	117
DN700	292	430	165	960	875	820	50	5	24	20-ø42	39	692	726	671	529.5	117
DN800	318	470	190	1085	990	930	54	5	24	20-ø48	45	792	826	800	648	120
DN900	330	510	200	1185	1090	1030	58	5	28	24-ø48	45	892	926	862	708.2	128
DN1000	410	550	216	1320	1210	1140	62	5	28	24-ø55	52	992	1028	955	766.2	170
DN1200	470	630	276	1530	1420	1350	70	5	32	28-ø55	52	1192	1228	1088	884	182
DN1400	530	710	390	1755	1640	1560	76	5	36	32-ø60	56	1392	1428	1171	985	245
DN1600	600	790	440	1975	1860	1780	84	5	40	36-ø60	56	1592	1628	1237	1075	245
DN1800	670	870	490	2195	2070	1985	90	5	44	40-ø68	64	1792	1828	1390	1190	245
DN2000	760	950	540	2425	2300	2210	96	5	48	44-ø68	64	1992	2028	1515	1305	245

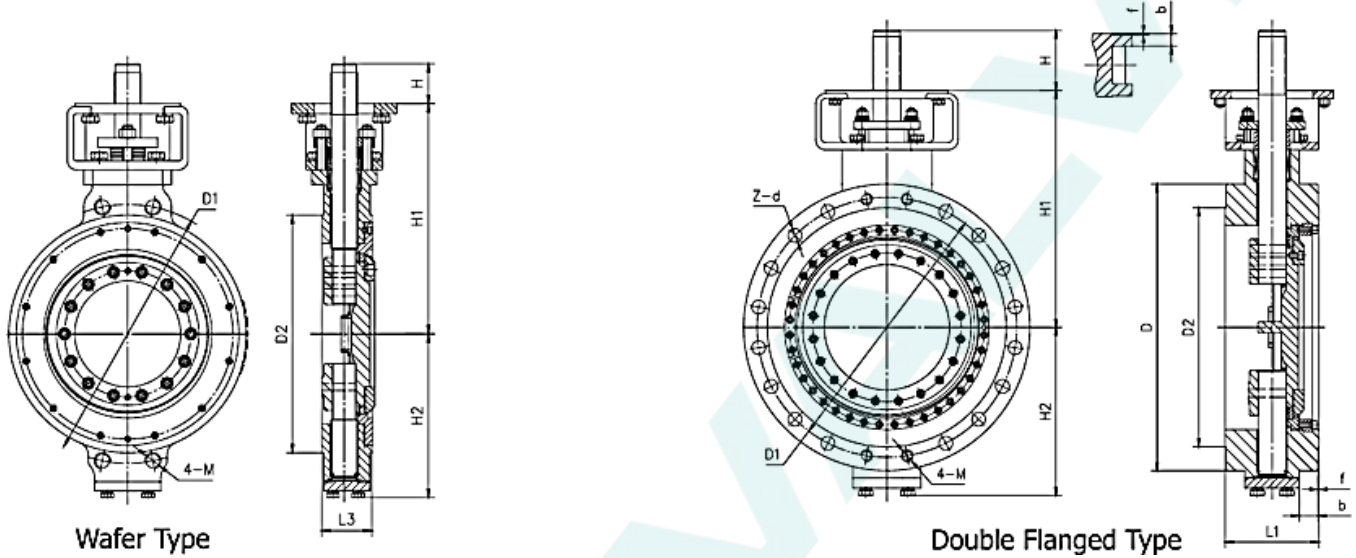
Main Connection Dimension PN40 / PN63



Nominal diameter	L1	L2	L3	D	D1	D2	b	f	N	Z-ød	M	d1	Dn	H1	H2	H
PN40																
DN50	150	150	43	165	125	102	20	2	4	4-ø18	16	47	57	135	120	30
DN80	180	180	49	200	160	138	24	2	8	4-ø18	16	78	90	165	135	34
DN100	190	190	56	235	190	162	24	2	8	4-ø22	20	96	110	204	155	34
DN125	200	200	64	270	220	188	26	2	8	4-ø26	24	120	135	230	175	34
DN150	210	210	70	300	250	218	28	2	8	4-ø26	24	145	161	270	195	64
DN200	230	230	71	375	320	285	34	2	12	8-ø30	27	200	222	304	235	64
DN250	250	250	76	450	385	345	38	2	12	8-ø33	30	252	278	319	275	79
DN300	270	270	83	515	450	410	42	2	16	12-ø33	30	301	330	409	310	79
DN350	290	290	127	580	510	465	46	2	16	12-ø36	33	351	382	499	350	109
DN400	310	310	140	660	585	535	50	2	16	12-ø39	36	398	432	515	400	109
DN450	330	330	160	685	610	560	57	2	20	16-ø39	36	448	484	486	410	109
DN500	350	350	170	755	670	615	57	2	20	16-ø42	39	495	535	531	455	129
DN600	390	390	200	890	795	735	72	2	20	16-ø48	45	595	636	629	530	129

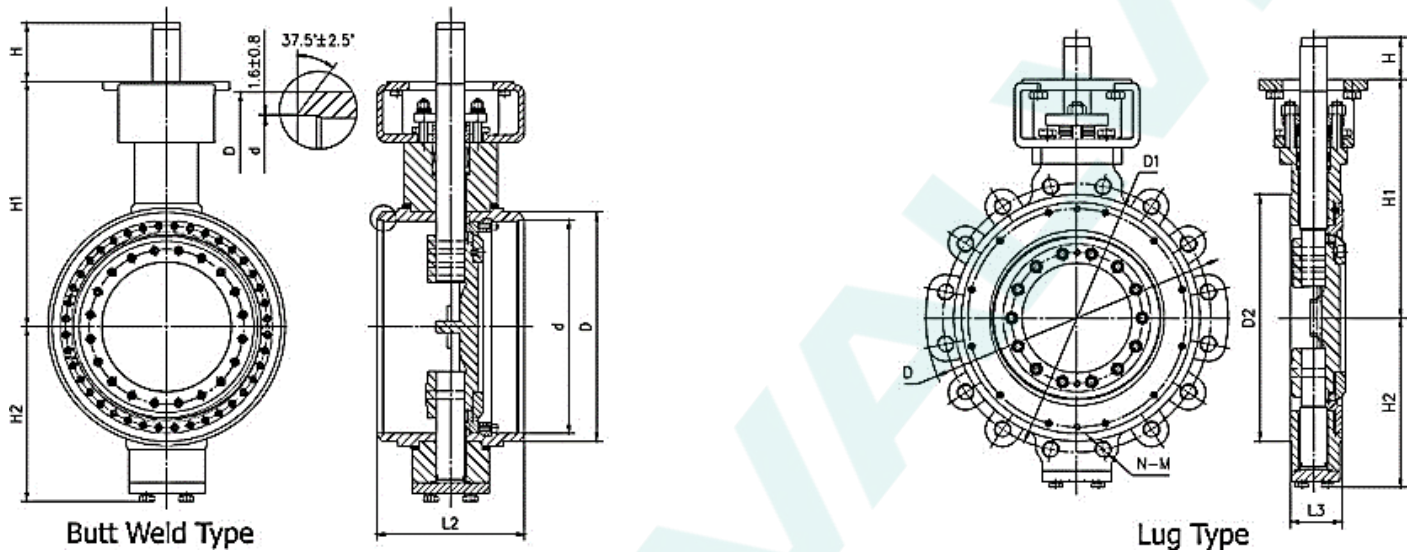
Nominal diameter	L1	L2	L3	D	D1	D2	b	f	N	Z-ød	M	d1	Dn	H1	H2	H
PN63																
DN80	150	150	43	180	135	102	26	2	4	4-ø22	20	47	57	135	120	30
DN80	180	180	64	215	170	138	28	2	8	4-ø22	20	77	90	175	145	34
DN100	190	190	64	250	200	162	30	2	8	4-ø26	24	94	110	214	165	34
DN125	200	200	70	295	240	188	34	2	8	4-ø30	27	118	135	250	195	64
DN150	210	210	76	345	280	218	36	2	8	4-ø33	30	142	161	300	225	64
DN200	230	230	89	415	345	285	42	2	12	8-ø36	33	198	222	334	265	79
DN250	250	250	114	470	400	345	46	2	12	8-ø36	33	246	278	339	295	79
DN300	270	270	114	530	460	410	52	2	16	12-ø36	33	294	330	424	325	109
DN350	290	290	127	600	525	465	56	2	16	12-ø39	36	342	382	414	365	109
DN400	310	310	140	670	585	535	60	2	16	12-ø42	39	368	432	520	405	129
DN500	350	350	170	800	705	615	68	2	20	16-ø48	45	485	535	556	480	129
DN600	390	390	200	930	820	735	76	2	20	16-ø56	52	585	636	654	555	129

Main Connection Dimension PN100



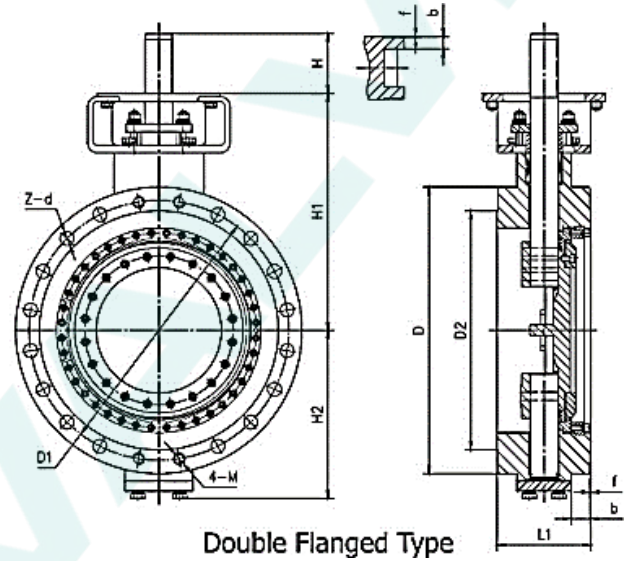
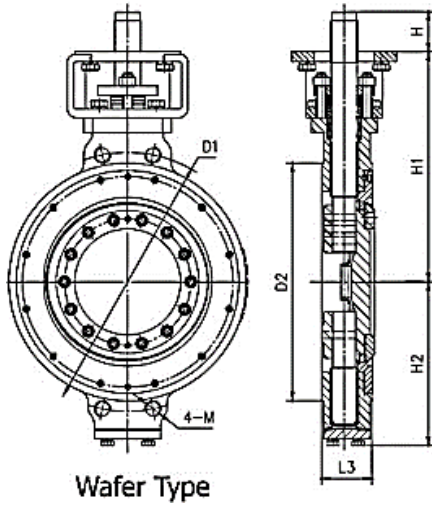
Nominal diameter	L1	L2	L3	D	D1	D2	b	f	N	Z- ϕ d	M	d1	Dn	H1	H2	H
DN(mm)	PN100															
DN50	150	150	43	195	145	102	28	2	4	4- ϕ 26	24	47	57	175	125	40
DN80	180	180	64	230	180	138	32	2	8	4- ϕ 26	24	75	90	165	135	34
DN100	190	190	64	265	210	162	36	2	8	4- ϕ 30	27	92	110	194	145	34
DN125	200	200	70	315	250	188	40	2	8	4- ϕ 33	30	112	135	215	160	34
DN150	210	210	76	355	290	218	44	2	12	8- ϕ 33	30	136	161	255	180	34
DN200	230	230	89	430	360	285	52	2	12	8- ϕ 36	33	190	222	279	210	64
DN250	250	250	114	505	430	345	60	2	12	8- ϕ 39	36	236	278	294	240	64
DN300	270	270	114	585	500	410	68	2	16	12- ϕ 42	39	284	330	330	265	79
DN350	290	290	127	655	560	465	74	2	16	12- ϕ 48	45	332	382	370	295	79
DN400	310	310	140	715	620	535	82	2	16	12- ϕ 48	45	376	432	460	330	79
DN500	350	350	170	870	780	615	94	2	20	16- ϕ 56	52	475	535	496	385	109
DN600	390	390	200	990	875	735	102	2	20	16- ϕ 62	56	575	636	584	440	109

Main Connection Dimension PN1 50LB



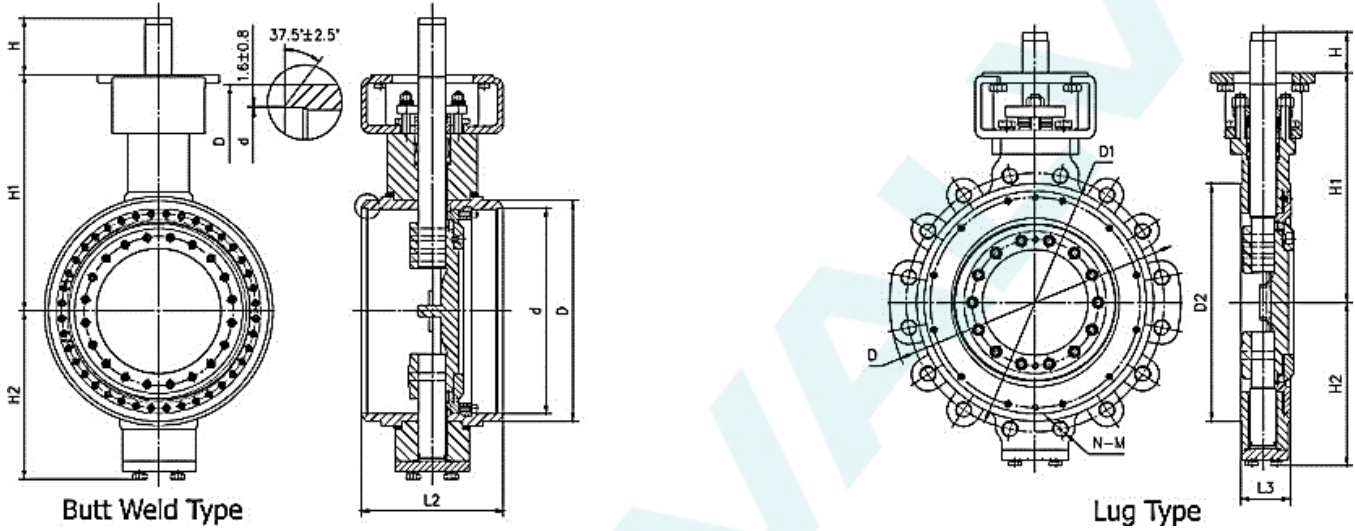
Nominal diameter		L1	L2	L3	D	D1	D2	b(Min)	f	N	Z-ød	M(in)	d1	Dn	H1	H2	H	
		150LB																
2"	DN50	108	150	43	150	120.7	92.1	17,5	2	4	4-ø19	5/8-11UNC-2B	52,5	60,3	193	94	20	
3"	DN80	114	180	48	190	152.4	127	22,3	2	4	4-ø19	5/8-11UNC-2B	77,9	88,9	221	118	25	
4"	DN100	127	190	54	230	190.5	157.2	22,3	2	8	4-ø19	5/8-11UNC-2B	10,3	114,3	243	130	30	
5"	DN125	140	200	56	255	215.9	185.7	22,3	2	8	4-ø22	3/4-10UNC-2B	128,2	139,7	261	153	35	
6"	DN150	140	210	57	280	241.3	215.9	23,9	2	8	4-ø22	3/4-10UNC-2B	154,1	168,3	273	165	40	
8"	DN200	152	230	64	345	298.5	269.9	27	2	8	4-ø22	3/4-10UNC-2B	202,7	219,1	309	198	45	
10"	DN250	165	250	71	405	362	323.8	28,6	2	12	8-ø26	7/8-9UNC-2B	254,5	273	337	235	50	
12"	DN300	178	270	81	485	431.8	381	30,2	2	12	8-ø26	7/8-9UNC-2B	304,8	323,9	383	274,5	67	
14"	DN350	190	290	92	535	476.3	412.8	33,4	2	12	8-ø29	1-8UNC-2B	336,6	355,6	435	314	81	
16"	DN400	216	310	102	595	539.8	469.9	35	2	16	12-ø29	1-8UNC-2B	387,4	406,4	457	344	87	
18"	DN450	222	330	114	635	577.9	533.4	38,1	2	16	12-ø32	1-1/8-8UNC-2B	434,9	457	510	369	98	
20"	DN500	229	350	127	700	635	584.2	41,3	2	20	16-ø32	1-1/8-8UNC-2B	482,6	508	579	410,5	105	
24"	DN600	267	390	154	815	749.3	692.2	46,1	2	20	16-ø35	1-1/4-8UNC-2B	581,1	610	635	472,5	117	
28"	DN700	292	430	229	925	863.6	800	69,9	2	28	24-ø35	1-1/4-8UNC-2B	672,7	711,2	671	529,5	117	
32"	DN800	318	470	241	1060	977.9	914	79,4	2	28	24-ø42	1-1/2-8UNC-2B	770,7	812,8	800	648	120	
36"	DN900	330	510	241	1170	1085.8	1022	88,9	2	32	28-ø42	1-1/2-8UNC-2B	869,3	914,4	862	708,2	128	
40"	DN1000	410	550	300	1290	1200.2	1124	88,9	2	36	32-ø42	1-1/2-8UNC-2B	967,3	1016	955	766,2	170	
48"	DN1200	470	630	360	1510	1422.4	1359	106,4	2	44	40-ø42	1-1/2-8UNC-2B	1164	1219	1088	884	182	

Main Connection Dimension PN300LB



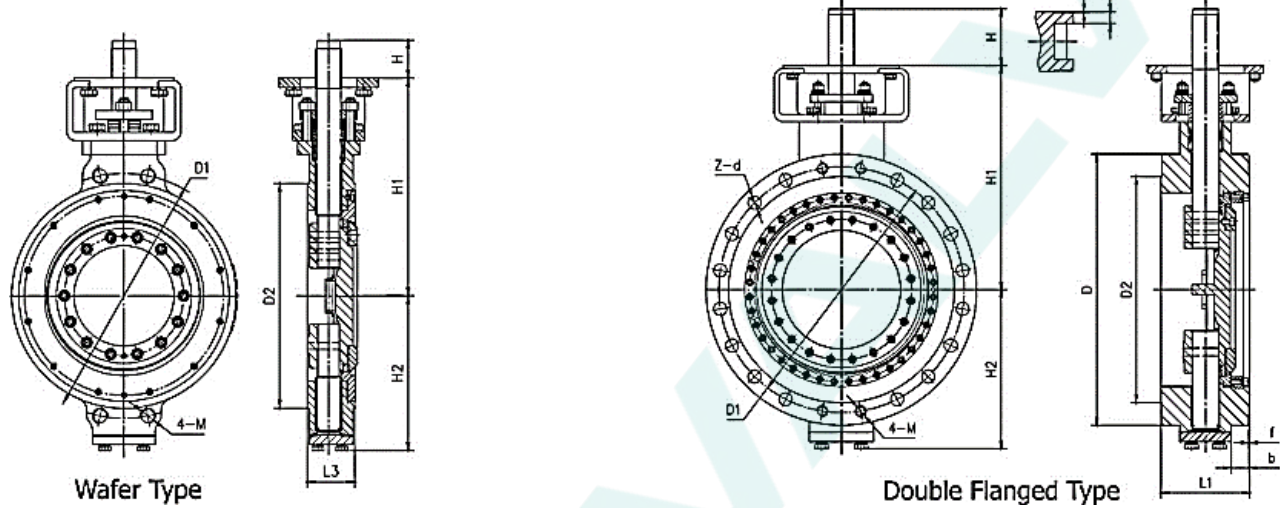
Nominal diameter		L1	L2	L3	D	D1	D2	b(Min)	f	N	Z- ϕ d	M(in)	d1	Dn	H1	H2	H
in	mm	300LB															
2"	DN50	150	150	43	165	127	92,1	20,7	2	8	4- ϕ 19	5/8-11UNC-2B	52,5	60,3	135	120	30
3"	DN80	180	180	48	210	168,3	127	27	2	8	4- ϕ 22	3/4-10UNC-2B	77,9	88,9	159	145	34
4"	DN100	190	190	54	255	200	157,2	30,2	2	8	4- ϕ 22	3/4-10UNC-2B	102,3	114,3	194	165	34
5"	DN125	200	200	56	280	235	185,7	33,4	2	8	4- ϕ 22	3/4-10UNC-2B	128,2	139,7	269	200	64
6"	DN150	210	210	59	320	269,9	215,9	35	2	12	8- ϕ 22	3/4-10UNC-2B	154,1	168,3	269	200	64
8"	DN200	230	230	73	380	330,2	269,9	39,7	2	12	8- ϕ 26	7/8-9UNC-2B	202,7	219,1	285	235	79
10"	DN250	250	250	83	445	387,4	323,8	46,1	2	16	12- ϕ 29	1-8UNC-2B	254,5	273	325	275	79
12"	DN300	270	270	92	520	450,8	381	49,3	2	16	12- ϕ 32	1-1/8-8UN-2B	304,8	323,9	387	315	79
14"	DN350	290	290	117	585	514,4	412,8	52,4	2	20	16- ϕ 32	1-1/8-8UN-2B	336,6	355,6	410	350	79
16"	DN400	310	310	133	650	571,5	469,9	55,6	2	20	16- ϕ 35	1-1/4-8UN-2B	387,4	406,4	465	385	109
18"	DN450	330	330	149	710	628,6	533,4	58,8	2	24	20- ϕ 35	1-1/4-8UN-2B	434,9	457	528	415	109
20"	DN500	350	350	159	775	685,8	584,2	62	2	24	20- ϕ 35	1-1/4-8UN-2B	482,6	508	561	450	129
24"	DN600	390	390	181	915	812,8	692,2	68,3	2	24	20- ϕ 42	1-1/2-8UN-2B	581,1	610	636	530	129
28"	DN700	430	430	229	1035	939,8	800	84,2	2	28	24- ϕ 45	1-5/8-8UN-2B	672,7	711,2	800	590	199
32"	DN800	470	470	241	1150	1054,1	914	96,9	2	28	24- ϕ 52	1-7/8-8UN-2B	770,7	812,8	860	720	199
36"	DN900	510	510	241	1270	1168,4	1022	103,2	2	32	28- ϕ 54	2-8UN-2B	869,3	914,4	940	780	199
40"	DN1000	550	550	300	1240	1155,7	1086	112,8	2	32	28- ϕ 45	1-5/8-8UN-2B	967,3	1016	910	750	199
48"	DN1200	630	630	360	1465	1371,6	1302	131,8	2	32	28- ϕ 52	1-7/8-8UN-2B	1164	1219,2	1000	850	249

Main Connection Dimension PN600LB



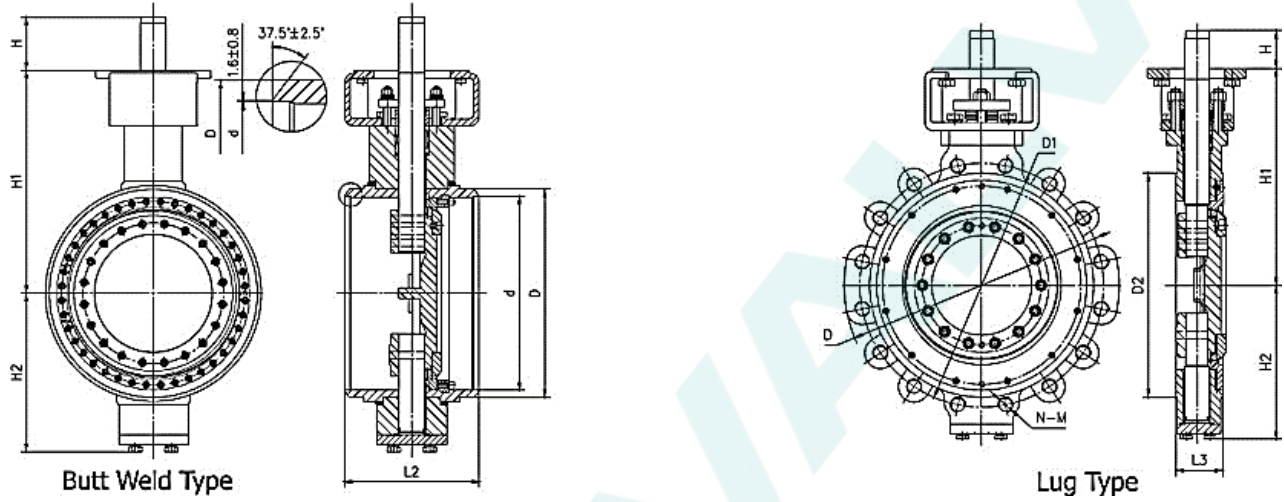
Nominal diameter		L1	L2	L3	D	D1	D2	b(Min)	f	N	Z-ød	M(in)	d1	Dn	H1	H2	H
in	mm	600LB															
2"	DN50	150	150	43	165	127	92,1	25,4	7	8	4-ø19	5/8-11UNC-2B	52,5	60,3	175	125	40
3"	DN80	180	180	54	210	168,3	127	31,8	7	8	4-ø22	3/4-10UNC-2B	77,9	88,9	202	145	44
4"	DN100	190	190	64	275	215,9	157,2	38,1	7	8	4-ø26	7/8-9UNC-2B	102,3	114,3	208	180	44
5"	DN125	200	200	70	330	266,7	185,7	44,5	7	8	4-ø29	1-8UNC-2B	128,2	139,7	235	210	79
6"	DN150	210	210	78	355	292,1	215,9	47,7	7	12	8-ø29	1-8UNC-2B	154,1	168,3	302	225	79
8"	DN200	230	230	102	420	349,2	269,9	55,6	7	12	8-ø32	1-1/8-8UN-2B	198,5	219,1	315	265	79
10"	DN250	250	250	117	510	431,8	323,8	63,5	7	16	12-ø35	1-1/4-8UN-2B	247,7	273	376	310	79
12"	DN300	270	270	140	560	489	381	66,7	7	20	16-ø35	1-1/4-8UN-2B	295,3	323,9	442	340	109
14"	DN350	290	290	155	605	527	412,8	69,9	7	20	16-ø39	1-3/8-8UN-2B	325,4	355,6	457	365	109
16"	DN400	310	310	178	685	603,2	469,9	76,2	7	20	16-ø42	1-1/2-8UN-2B	363,5	406,4	561	410	129
18"	DN450	330	330	200	745	654	533,4	82,6	7	20	20-ø45	1-5/8-8UN-2B	409,5	457	610	450	129
20"	DN500	350	350	216	815	723,9	584,2	88,9	7	24	20-ø45	1-5/8-8UN-2B	455,6	508	645	485	129
24"	DN600	390	390	232	940	838,2	692,2	101,6	7	24	20-ø52	1-7/8-8UN-2B	547,7	610	730	555	178

Main Connection Dimension PN900LB



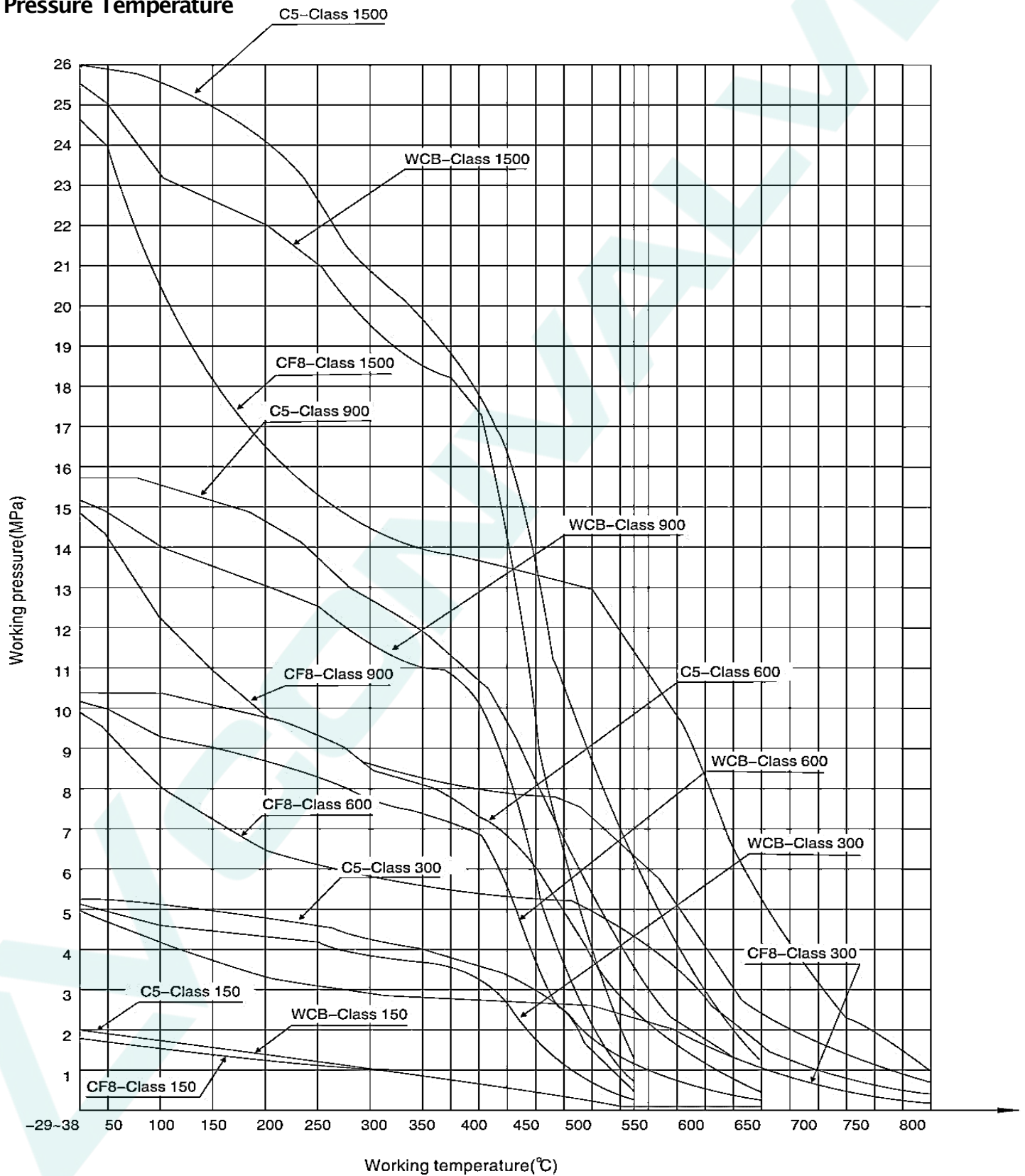
Nominal diameter		L1	L2	L3	D	D1	D2	b(Min)	f	N	Z-ød	M(in)	d1	Dn	H1	H2	H	
		900LB																
4"	DN100	235	235	80	290	235	157,2	44,5	7	8	4-ø32	1-1/8-8UN-2B	77,9	88,9	240	181	64	
6"	DN150	250	250	104	380	317,5	215,9	55,6	7	12	8-ø32	1-1/8-8UN-2B	102,3	114,3	315	238	79	
8"	DN200	310	310	112	470	393,7	269,9	63,5	7	12	8-ø39	1-3/8-8UN-2B	128,2	139,7	360	281	79	
10"	DN250	350	350	135	545	469,9	323,8	69,9	7	16	12-ø39	1-3/8-8UN-2B	154,1	168,3	412	358	109	
12"	DN300	380	380	170	610	533,4	381	79,4	7	20	16-ø39	1-3/8-8UN-2B	198,5	219,1	475	383	109	
14"	DN350	400	400	173	640	558,8	412,8	85,8	7	20	16-ø42	1-1/2-8UN-2B	247,7	273	512	419	128	
16"	DN400	430	430	210	705	616	469,9	88,9	7	20	16-ø45	1-5/8-8UN-2B	295,3	323,9	610	455	129	
18"	DN450	460	460	228	785	685,8	533,4	101,6	7	20	16-ø52	1-7/8-8UN-2B	325,4	355,6	660	503	178	
20"	DN500	490	490	250	855	749,3	584,2	108	7	20	16-ø54	2-8UN-2B	363,5	406,4	685	550	178	
24"	DN600	530	530	275	1040	901,7	692,2	139,7	7	20	16-ø67	2-1/2-6UN-2B	409,5	457	790	656	199	

Main Connection Dimension PN1500LB



Nominal diameter		L1	L2	L3	D	D1	D2	b(Min)	f	N	Z-ød	M(in)	d1	Dn	H1	H2	H
in	mm	1500LB															
6"	DN150	290	290	160	395	317,5	215,9	82,6	7	12	8-ø39	1-3/8-8UN-2B	102,3	114,3	347	257	109
8"	DN200	330	330	180	485	393,7	269,9	92,1	7	12	8-ø45	1-5/8-8UN-2B	128,2	139,7	405	307	109
10"	DN250	390	390	200	585	482,6	323,8	108	7	12	8-ø52	1-7/8-8UN-2B	154,1	168,3	510	371	129
12"	DN300	430	430	230	675	571,5	381	123,9	7	16	12-ø54	2-8UN-2B	198,5	219,1	545	414	129
14"	DN350	470	470	250	750	635	412,8	133,4	7	16	12-ø61	2-1/4-8UN-2B	247,7	273	610	493	178
16"	DN400	510	510	265	825	704,8	469,9	146,1	7	16	12-ø67	2-1/2-6UN-2B	295,3	323,9	655	530	199
18"	DN450	550	550	300	915	774,7	533,4	162	7	16	12-ø74	2-3/4-6UN-2B	325,4	355,6	750	591	199
20"	DN500	630	630	340	985	831,8	584,2	177,8	7	16	12-ø80	3-6UN-2B	363,5	406,4	810	664	199
24"	DN600	710	710	400	1170	990,6	692,2	203,2	7	16	12-ø94	3-1/2-6UN-2B	409,5	457	950	780	249

Pressure Temperature



Material List

ASTM Standard	Chemical Compositions[%]										Mechanical Properties				Hardness Brinell min
	C max	Mn max	P max	S max	Si max	Cr	Mo	Ni	Cu max	V max	Tensile [MPa]min	Yield [MPa]min	Elongation [%]min	Reduction [%]min	
A216WCB	0.30	1.00	0.040	0.045	0.60	≤0.50	≤0.20	≤0.50	0.30	0.03	485-655	250	22	35	
A216WCC	0.25	1,2	0.040	0.045	0.60	≤0.50	≤0.20	≤0.50	0.30	0.03	485-655	275	22	35	
A352 LC3	0.15	0.50-0.80	0.040	0.045	0.60			3.00-4.00			485-655	275	35	24	
A217 WC6	0.05-0.20	0.50-0.80	0.040	0.045	0.60	1.00-1.50	0.45-0.65		0.50		485-655	275	20	35	
A217 WC9	0.05-0.18	0.40-0.70	0.040	0.045	0.60	2.00-2.75	1.00-1.50		0.50		485-655	275	20	35	
A217 C5	0.20	0.40-0.70	0.040	0.045	0.75	4.00-6.50	0.45-0.65		0.50		620-795	415	18	35	
A351 CF3	0.03	1,5	0.040	0.040	2.00	17.0-21.0	≤0.50	8.0-12.0			485	205	35		
A351 CF3M	0.03	1,5	0.040	0.040	1,5	17.0-21.0	9.0-13.0	2.0-3.0			485	205	30		
A351 CF8	0.08	1,5	0.040	0.040	2.00	18.0-21.0	≤0.50	8.0-11.0			485	205	35		
A351 CF8M	0.08	1,5	0.040	0.040	1,5	18.0-21.0	2.0-3.0	9.0-12.0			485	205	30		
A351 CF8C	0.08	1,5	0.040	0.040	2.00	18.0-21.0	≤0.50	9.0-12.0			485	205	30		
A351 CN7M	0.07	1,5	0.040	0.040	1,5	19.0-22.0	2.0-3.0	27.5-30.5			450	170	35		
A105	0.35	0.60-1.50	0.040	0.050	0.35	≤0.30	≤0.12		0.40	0.030	485	150	22	30	187
A182 F6A	0.15	1.00	0.040	0.030	1.00	11.5-13.5		≤0.50			485	275	18	35	143-187
A182 F304	0.08	2.00	0.040	0.030	1.00	18.0-20.2		8.0-11.0			515	205	30	50	
A182 F304L	0.035	2.00	0.040	0.030	1.00	18.0-20.0		8.0-13.0			485	170	30	50	
A182 F316	0.08	2.00	0.040	0.030	1.00	16.0-18.0	2.0-3.0	10.0-14.0			515	205	30	50	
A182 F316L	0.035	2.00	0.040	0.030	1.00	16.0-18.0	2.0-3.0	10.0-15.0			485	170	30	50	
A182 F321	0.08	2.00	0.040	0.030	1.00	≥17.0		9.0-12.0			515	205	30	50	
A182 F11	0.10-0.20	0.30-0.80	0.040	0.040	0.50-1.00	1.0-1.5	0.44-0.65				515	310	20	30	179-217
A182 F22	0.05-0.15	0.30-0.60	0.040	0.040	0.50	2.0-2.5	0.87-1.13				515	310	20	30	156-207
A182 F5	0.15	0.30-0.60	0.030	0.030	0.50	4.0-6.0	0.44-0.65	≤0.50			485	275	20	35	143-217
A350 LF2	0.30	1,35	0.030	0.040	0.15-0.30	≤0.30	≤0.12	≤0.40	0.40	0.030	485-655	250	22	30	
A276 410	0.15	1.00	0.040	0.030	1.00	11.5-13.5					480	275	16	50	
A276 420	0.15	1.00	0.040	0.030	1.00	12.0-14.0								5	255
A276 321	0.08	2.00	0.045	0.030	1.00	17.0-19.0		9.0-12.0			515	205	30	40	
A320 L7	0.38-0.48	0.75-1.00	0.035	0.040	0.15-0.35	0.80-1.10	0.15-0.25				125	105	16	50	
A320 L7M	0.38-0.48	0.75-1.00	0.035	0.040	0.15-0.35	0.80-1.10	0.15-0.25				100	80	16	50	235
A193 B7	0.37-0.49	0.65-1.10	0.035	0.040	0.15-0.35	0.75-1.20	0.15-0.25				860	720	16	50	
A193 B7M	0.37-0.49	0.65-1.10	0.035	0.040	0.15-0.35	0.75-1.20	0.15-0.25				690	550	18	50	235
A193 B16	0.36-0.47	0.45-0.70	0.035	0.040	0.15-0.35	0.80-1.15	0.50-0.65			0.25-0.35	860	725	18	50	
A193 B8	0.08	2.00	0.045	0.030	1.00	18.0-20.0		8.0-10.5			515	205	30	50	223
A193 B8M	0.08	2.00	0.045	0.030	1.00	16.0-18.0	2.00-3.00	10.0-14.0			515	205	30	50	223
A194 2H	≥0.40	1.00	0.040	0.050	0.40										248-352
A194 7	0.37-0.49	0.65-1.10	0.040	0.040	0.15-0.35	0.75-1.20	0.15-0.25								159-237
A194 8	0.08	2.00	0.045	0.030	1.00	18.0-20.0		8.0-10.5							126-300
A194 8M	0.08	2.00	0.045	0.030	1.00	16.0-18.0	2.00-3.00	10.0-14.0							126-300