



GATE VALVES
GLOBE VALVES
CHECK VALVES
PLUG VALVES
BUTTERFLY VALVES

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**CAST AND FORGED
STEEL VALVES**



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Design

ENERGY VALVES cast steel gate valves are designed and manufactured to provide maximum service life and dependability. All gate valves are full bore and meet the design requirements of API 600 & API 6D, BS 1414 & BS EN 1984 and generally conform to ASME B 16.34. Valves are available in a complete range of body/bonnet materials and trim.

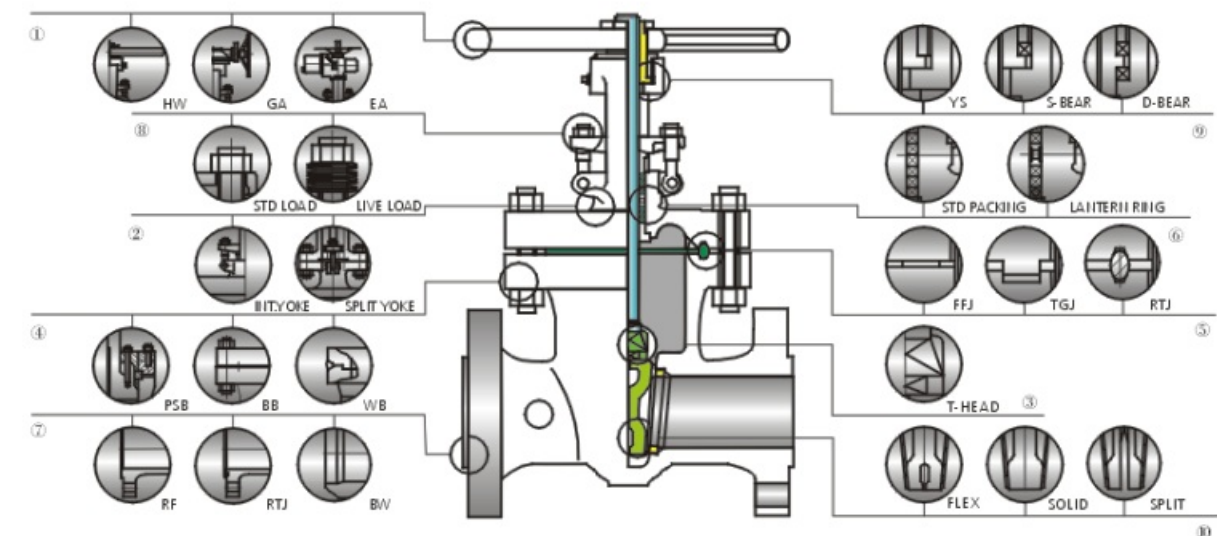
Available Modifications

Trim Changes
End Connection Modifications
Packing & Gasket Changes
Operator Type
Extended Stem

Range of Materials

The major materials of standard body/bonnet are carbon, cryogenic and stainless steel. For some special applications, we can provide others as per customer's requirements.

Pressure Equalizing
Customer's Specified Coatings
Changeable Welded-end Bore
Oxygen & Chlorine Cleaning & Packaging



① Operation

Large handwheel is easy for operation and available with gear, motor, pneumatic or hydraulic actuators for more difficult services.

② OS & Y

The yoke is integrated with bonnet for cast steel gate valve 150LB-8", 300LB-8", 600LB-6", 900LB-4" & below.

③ Stem

T head integrally forged stem ensure sufficient strength of the joint.

④ Bolted Bonnet(BB)

Three ways of bolt bonnet connection are optional: bolted bonnet(BB), welded bonnet(WB) and pressure sealed bonnet(PSB). In particular cases like operating in high temperature and high pressure(normally 2500LB above), PSB will be needed.

⑤ Body-to-Bonnet Joint

Flat Face Joint(FFJ): 150LB
Tongue & Groove Joint(TGJ): 300LB & 600LB
Ring Joint(RTJ): 900LB & above

⑥ Lantern Ring And Double Packing Set

The employ of lantern ring gives a excellent packing compactness. Double packing set is available for critical service.

⑦ Ends Connection

Flanged or butt-welded end is for pipe connection.

⑧ Live Load Packing

With high pressure & temperature variations or frequent cycle required, live loading packing can extends service life in maintenance periods. Belleville springs are employed to provide constant gland stress.

⑨ Yoke Sleeve(YS)

A longer thread life is allowed if the yoke sleeve is equipped. When size is larger than 150LB -12", 300LB -10", 600LB -6", 900/1500/2500LB -4", valves are regularly provided with roll bearings.

⑩ Wedge

The wedge can be categorized into two groups on the basis of its property: flexible & solid wedge or single & dual wedge.

Applicable Standards

Design & Manufacture: API600
 Pressure-temperature Rating: ASME B16.34
 Face to Face: ASME B16.10
 Flanged End: ASME B16.5
 Butt Welded End: ASME B16.25
 Inspection & Test: API 598/API 6D

Main Parts Materials

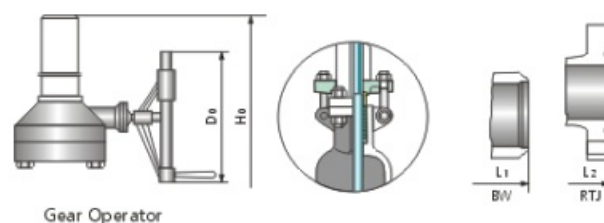
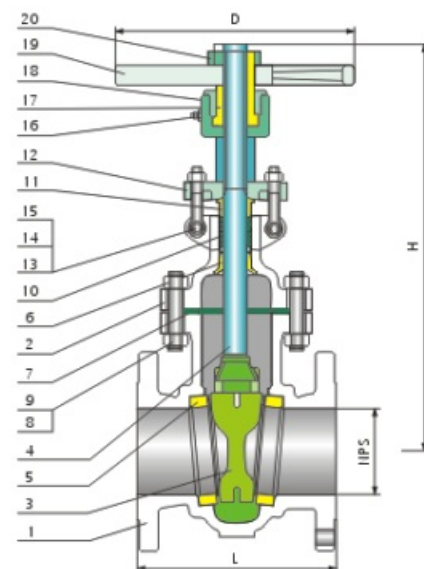
NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Cryogenic Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	Wedge	A216-WCB+CR13	A351-CF8M	A352-LCB+CR13
4	Stem	A182-F6a	A182-F316	A182-F6a
5	Seat Ring	A105+CR13	Integral+HF	A350-LF2+CR13
6	Stem Backseat	A276-420	Integral	A276-420
7	Bonnet Gasket	Spiral Wound(Graphite+304 or 316)		
8	Bonnet Stud	A193-B7	A193-B8	A320-L7
9	Bonnet Stud Nut	A194-2H	A194-8	A194-4
10	Packing	Graphite		
11	Gland	A276-420	A276-316	A276-420
12	Gland Flange	A216-WCB	A351-CF8	A352-LCB
13	Eyebolt Pin	Carbon Steel	A276-304	Carbon Steel
14	Eyebolt	A193-B7	A193-B8	A320-L7
15	Eyebolt Nut	A194-2H	A194-8	A194-4
16	Grease Fitting	Brass+Steel		
17	Yoke Sleeve	Aluminum-Bronze ^b		
18	Yoke Sleeve Jam Nut	Carbon Steel		
19	Handwheel	Ductile Iron		
20	Handwheel Nut	Carbon Steel		

Note: 1) Ductile Ni-Resist optional;

2) Wedge and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.

Design Description

Full Bore
 OS&Y Rising Stem & Non-rising Stem
 Bolted Bonnet
 Flexible Wedge, Fully Guided
 Solid or Split Wedge
 Renewable Seat Ring
 Forged T-head Stem
 Flanged or Butt Welded End



Dimensions Data

ANSI Class 150LB

Size		in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	26	28	30	32	36
		mm	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	800	900
L(RF)	mm	178	191	203	229	267	292	330	356	381	406	432	457	508	559	610	610	711	711	
L1(BW)	mm	216	241	283	305	403	419	457	502	572	610	660	711	813	864	914	914	965	1016	
L2(RTJ)	mm	191	203	216	241	279	305	343	368	394	419	445	470	521	-	-	-	-	-	
H	mm	355	365	430	495	620	775	935	1110	1250	1420	-	-	-	-	-	-	-	-	
H0	mm	-	-	-	-	795	1015	1210	1405	1535	1780	2030	2300	2600	2680	2890	3110	3280	3640	
D	mm	200	200	250	280	300	400	500	500	600	600	-	-	-	-	-	-	-	-	
Do	mm	-	-	-	-	310	310	310	460	460	460	460	530	530	530	530	600	600	600	
Weight	H.W	Kg	20	23	32	45	75	120	180	265	365	485	-	-	-	-	-	-	-	
	G.O	Kg	-	-	-	-	104	150	215	315	451	545	651	863	1165	1550	1880	2300	2550	3390

Applicable Standards

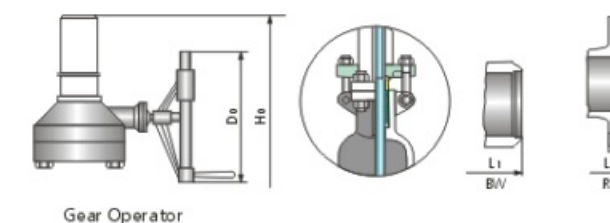
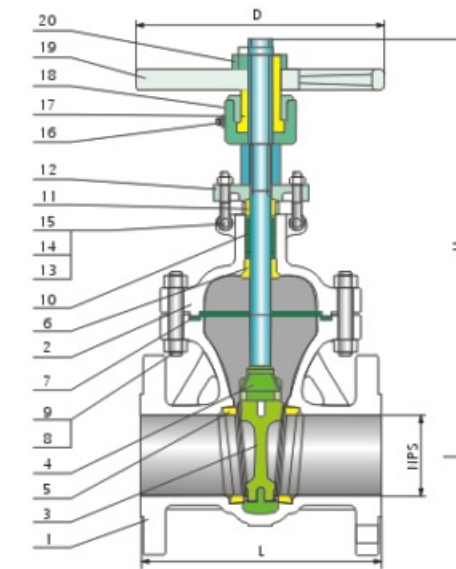
Design & Manufacture: API600
 Pressure-temperature Rating: ASME B16.34
 Face to Face: ASME B16.10
 Flanged End: ASME B16.5
 Butt Welded End: ASME B16.25
 Inspection & Test: API 598/API 6D

Main Parts Materials

NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Cryogenic Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	Wedge	A216-WCB+CR13	A351-CF8M	A352-LCB+CR13
4	Stem	A182-F6a	A182-F316	A182-F6a
5	Seat Ring	A105+CR13	Integral+HF	A350-LF2+CR13
6	Stem Backseat	A276-420	Integral	A276-420
7	Bonnet Gasket	Spiral Wound(Graphite+304 or 316)		
8	Bonnet Stud	A193-B7	A193-B8	A320-L7
9	Bonnet Stud Nut	A194-2H	A194-8	A194-4
10	Packing	Graphite		
11	Gland	A276-420	A276-316	A276-420
12	Gland Flange	A216-WCB	A351-CF8	A352-LCB
13	Eyebolt Pin	Carbon Steel	A276-304	Carbon Steel
14	Eyebolt	A193-B7	A193-B8	A320-L7
15	Eyebolt Nut	A194-2H	A194-8	A194-4
16	Grease Fitting	Brass+Steel		
17	Yoke Sleeve	Aluminum-Bronze ^b		
18	Yoke Sleeve Jam Nut	Carbon Steel		
19	Handwheel	Ductile Iron		
20	Handwheel Nut	Carbon Steel		

Note: 1) Ductile Ni-Resist optional;

2) Wedge and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.



Dimensions Data

ANSI Class 300LB

Size		in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	26	28	30	32	36
		mm	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	800	900
L/L1(RF/BW)	mm	216	241	283	305	403	419	457	502	762	838	914	991	1143	1245	1346	1397	1524	1727	
L2(RTJ)	mm	232	257	298	321	419	435	473	518	778	854	930	1010	1165	1270	1372	1422	1553	1756	
H	mm	364	385	445	520	649	798	1000	1129	1195	-	-	-	-	-	-	-	-	-	
H0	mm	-	-	-	650	835	1030	1255	1460	1585	1830	2000	2175	2620	2850	3080	3180	3300	3760	
D	mm	200	200	280	300	350	400	450	500	600	-	-	-	-	-	-	-	-	-	
Do	mm	-	-	-	310	310	310	460	460	460	460	460	460	530	530	600	600	600	600	
Weight	H.W	Kg	26	36	55	67	147	228	332	512	715	-	-	-	-	-	-	-	-	
	G.O	Kg	-	-	-	100	186	235	416	502	756	965	1224	1400	2385	3000	3300	3550	4400	6050

Applicable Standards

Design & Manufacture: API600
 Pressure-temperature Rating: ASME B16.34
 Face to Face: ASME B16.10
 Flange End: ASME B16.5
 Butt Welded End: ASME B16.25
 Inspection & Test: API 598/API 6DZ

Main Parts Materials

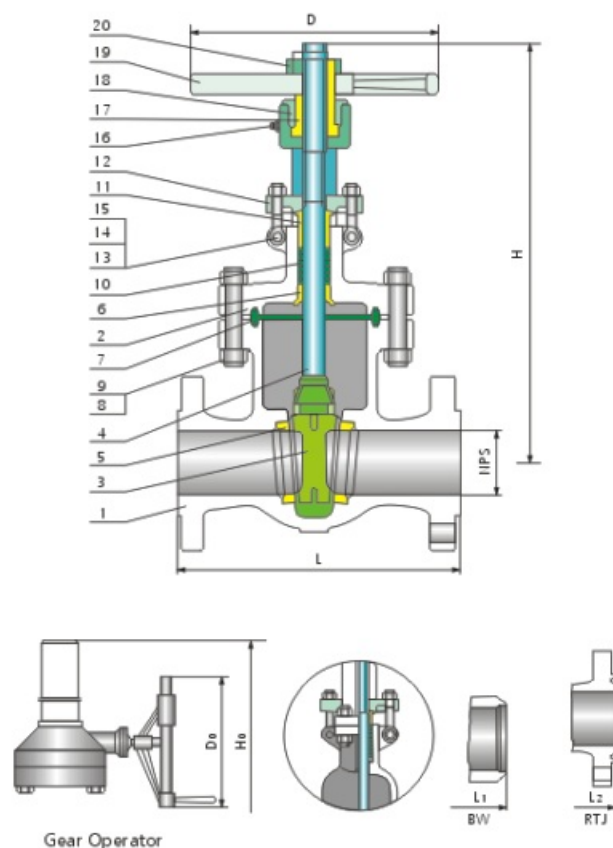
NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Cryogenic Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	Wedge	A216-WCB+CR13	A351-CF8M	A352-LCB+CR13
4	Stem	A182-F6a	A182-F316	A182-F6a
5	Seat Ring	A105+CR13	Integral+HF	A350-LF2+CR13
6	Stem Backseat	A276-420	Integral	A276-420
7	Bonnet Gasket	Spiral Wound(Graphite+304 or 316)		
8	Bonnet Stud	A193-B7	A193-B8	A320-L7
9	Bonnet Stud Nut	A194-2H	A194-8	A194-4
10	Packing	Graphite		
11	Gland	A276-420	A276-316	A276-420
12	Gland Flange	A216-WCB	A351-CF8	A352-LCB
13	Eyebolt Pin	Carbon Steel	A276-304	Carbon Steel
14	Eyebolt	A193-B7	A193-B8	A320-L7
15	Eyebolt Nut	A194-2H	A194-8	A194-4
16	Grease Fitting	Brass+Steel		
17	Yoke Sleeve	Aluminum-Bronze ^b		
18	Yoke Sleeve Jam Nut	Carbon Steel		
19	Handwheel	Ductile Iron		
20	Handwheel Nut	Carbon Steel		

Note: 1) Ductile Ni-Resist optional;

2) Wedge and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.

Design Description

Full Bore
 OS&Y Rising Stem & Non-rising Stem
 Bolted Bonnet
 Flexible Wedge, Fully Guided
 Solid or Split Wedge
 Renewable Seat Ring
 Forged T-head Stem
 Flanged or Butt Welded End



Dimensions Data

ANSI Class 600LB

Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24
		50	65	80	100	150	200	250	300	350	400	450	500	600
L/L1(RF/BW)	mm	292	330	356	432	559	660	787	838	889	991	1092	1194	1397
L2(RTJ)	mm	295	333	359	435	562	664	791	841	892	994	1095	1200	1407
H	mm	380	420	500	575	750	850	1005	1130	1270	1365	-	-	-
H0	mm	-	-	585	695	900	1110	1300	1650	1750	1900	2020	2172	2650
D	mm	250	280	300	350	450	550	650	700	900	900	-	-	-
D0	mm	-	-	310	310	460	460	460	460	530	530	600	600	600
Weight	H.W	Kg	37	50	82	142	245	423	682	932	1177	1513	-	-
	G.O	Kg	-	-	87	134	286	472	657	893	1318	1720	1980	2460

Applicable Standards

Design & Manufacture: API600
 Pressure-temperature Rating: ASME B16.34
 Face to Face: ASME B16.10
 Flange End: ASME B16.5
 Butt Welded End: ASME B16.25
 Inspection & Test: API 598/API 6D

Main Parts Materials

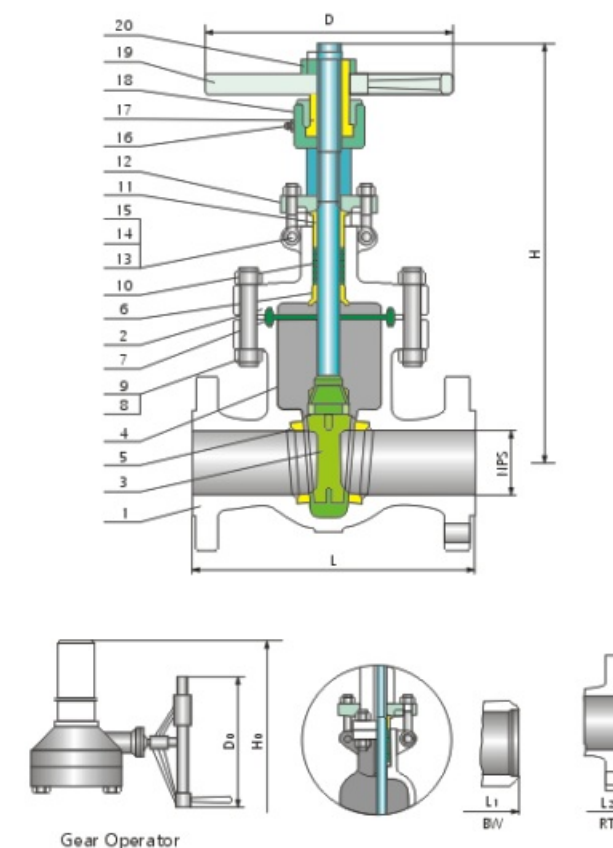
NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Cryogenic Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	Wedge	A216-WCB+CR13	A351-CF8M	A352-LCB+CR13
4	Stem	A182-F6a	A182-F316	A182-F6a
5	Seat Ring	A105+HF	Integral+HF	A350-LF2+HF
6	Stem Backseat	A276-420	Integral	A276-420
7	Bonnet Gasket	Steel Ring	316SS Ring	304SS Ring
8	Bonnet Stud	A193-B7	A193-B8	A320-L7
9	Bonnet Stud Nut	A194-2H	A194-8	A194-4
10	Packing	Graphite		
11	Gland	A276-420	A276-316	A276-420
12	Gland Flange	A216-WCB	A351-CF8	A352-LCB
13	Eyebolt Pin	Carbon Steel	A276-304	Carbon Steel
14	Eyebolt	A193-B7	A193-B8	A320-L7
15	Eyebolt Nut	A194-2H	A194-8	A194-4
16	Grease Fitting	Brass+Steel		
17	Yoke Sleeve	Aluminum-Bronze ^b		
18	Yoke Sleeve Jam Nut	Carbon Steel		
19	Handwheel	Ductile Iron		
20	Handwheel Nut	Carbon Steel		

Note: 1) Ductile Ni-Resist optional;

2) Wedge and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.

Design Description

Full Bore
 OS&Y Rising Stem & Non-rising Stem
 Bolted Bonnet
 Flexible Wedge, Fully Guided
 Solid or Split Wedge
 Renewable Seat Ring
 Forged T-head Stem
 Flanged or Butt Welded End



Dimensions Data

ANSI Class 900LB

Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24
		50	65	80	100	150	200	250	300	350	400	450	500	600
L/L1(RF/BW)	mm	368	419	381	457	610	737	838	965	1029	1130	1219	1321	1549
L2(RTJ)	mm	371	422	384	460	613	740	841	968	1038	1140	-	-	-
H	mm	430	490	505	575	795	885	1035	1180	1350	1890	-	-	-
H0	mm	-	-	-	625	900	1000	1130	1520	1600	2100	2232	2435	2640
D	mm	300	350	350	400	500	650	700	900	900	900	-	-	-
D0	mm	-	-	310	310	460	460	530	530	530	600	800	800	950
Weight	H.W	Kg	70	110	140	178	358	550	1000	1215	1600	2150	-	-
	G.O	Kg	-	-	167	227	396	627	1100	1310	1665	2330	3000	4650

Applicable Standards

Design & Manufacture: API600
 Pressure-temperature Rating: ASME B16.34
 Face to Face: ASME B16.10
 Flange End: ASME B16.5
 Butt Welded End: ASME B16.25
 Inspection & Test: API 598/API 6D

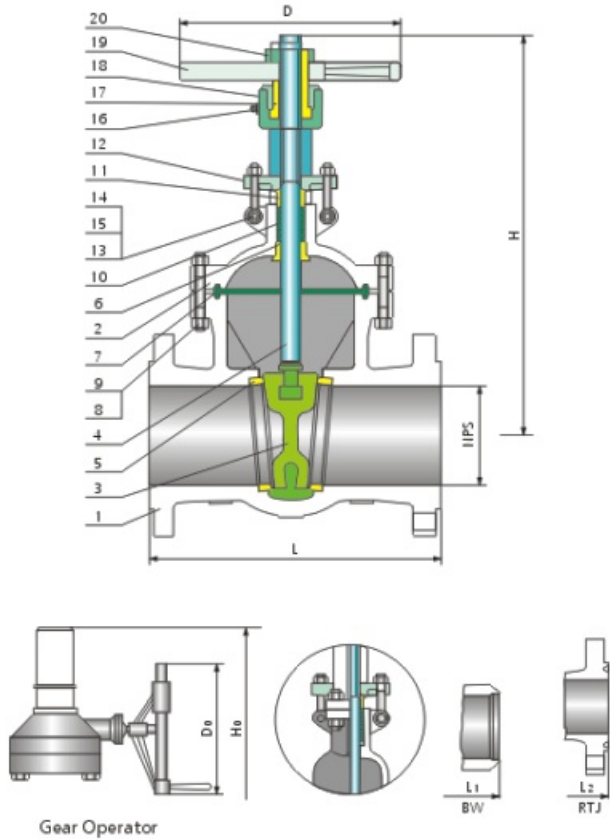
Main Parts Materials

NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Cryogenic Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	Wedge	A216-WCB+CR13	A351-CF8M+HF	A352-LCB+CR13
4	Stem	A182-F6a	A182-F316	A182-F6a
5	Seat Ring	A105+HF	Integral+HF	A350-LF2+HF
6	Stem Backseat	A276-420	Integral	A276-420
7	Bonnet Gasket	Steel Ring	316SS Ring	304SS Ring
8	Bonnet Stud	A193-B7	A193-B8	A320-L7
9	Bonnet Stud Nut	A194-2H	A194-8	A194-4
10	Packing	Graphite		
11	Gland	A276-420	A276-316	A276-420
12	Gland Flange	A216-WCB	A351-CF8	A352-LCB
13	Eyebolt Pin	Carbon Steel	A276-304	Carbon Steel
14	Eyebolt	A193-B7	A193-B8	A320-L7
15	Eyebolt Nut	A194-2H	A194-8	A194-4
16	Grease Fitting	Brass+Steel		
17	Yoke Sleeve	Aluminum-Bronze ¹⁾		
18	Yoke Sleeve Jam Nut	Carbon Steel		
19	Handwheel	Ductile Iron		
20	Handwheel Nut	Carbon Steel		

Note: 1) Ductile Ni-Resist optional;
 2) Wedge and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.

Design Description

Full Bore
 OS&Y Rising Stem & Non-rising Stem
 Bolted Bonnet
 Flexible Wedge, Fully Guided
 Solid or Split Wedge
 Renewable Seat Ring
 Forged T-head Stem
 Flanged or Butt Welded End



Dimensions Data

		ANSI Class 1500LB												
Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L/L1(RF/BW)	mm	368	419	470	546	705	832	991	1130	1257	1384	1537	1664	1943
L2(RTJ)	mm	371	422	473	549	711	841	1000	1146	1276	1407	1559	1686	1971
H	mm	430	490	540	650	835	925	1230	-	-	-	-	-	-
H0	mm	-	-	680	810	1035	1180	1525	1620	1905	2050	2380	2580	2915
D	mm	300	350	400	500	600	750	900	-	-	-	-	-	-
D0	mm	-	-	310	310	460	530	600	600	600	600	600	600	600
Weight	H.W	Kg	70	110	175	270	520	820	1560	-	-	-	-	-
	G.O	Kg	-	-	202	300	575	915	1750	2120	3306	5300	8070	14275

Applicable Standards

Design & Manufacture: API600
 Pressure-temperature Rating: ASME B16.34
 Face to Face: ASME B16.10
 Flange End: ASME B16.5
 Butt Welded End: ASME B16.25
 Inspection & Test: API 598/API 6D

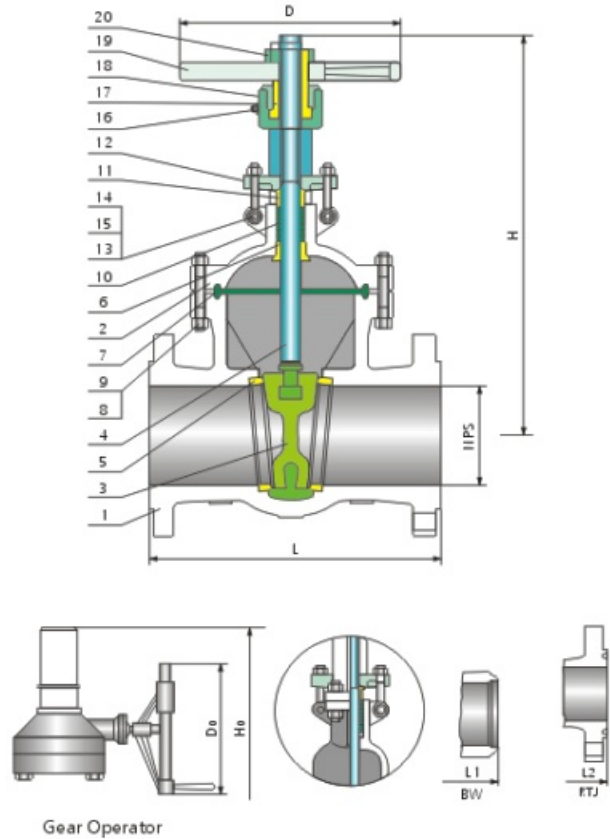
Main Parts Materials

NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Cryogenic Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	Wedge	A216-WCB+HF	A351-CF8M+HF	A352-LCB+HF
4	Stem	A182-F6a	A182-F316	A182-F6a
5	Seat Ring	A105+HF	Integral+HF	A350-LF2+HF
6	Stem Backseat	A276-420	Integral	A276-420
7	Bonnet Gasket	Steel Ring	316SS Ring	304SS Ring
8	Bonnet Stud	A193-B7	A193-B8	A320-L7
9	Bonnet Stud Nut	A194-2H	A194-8	A194-4
10	Packing	Graphite		
11	Gland	A276-420	A276-316	A276-420
12	Gland Flange	A216-WCB	A351-CF8	A352-LCB
13	Eyebolt Pin	Carbon Steel	A276-304	Carbon Steel
14	Eyebolt	A193-B7	A193-B8	A320-L7
15	Eyebolt Nut	A194-2H	A194-8	A194-4
16	Grease Fitting	Brass+Steel		
17	Yoke Sleeve	Aluminum-Bronze ¹⁾		
18	Yoke Sleeve Jam Nut	Carbon Steel		
19	Handwheel	Ductile Iron		
20	Handwheel Nut	Carbon Steel		

Note: 1) Ductile Ni-Resist optional;
 2) Wedge and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.

Design Description

Full Bore
 OS&Y Rising Stem & Non-rising Stem
 Bolted Bonnet
 Flexible Wedge, Fully Guided
 Solid or Split Wedge
 Renewable Seat Ring
 Forged T-head Stem
 Flanged or Butt Welded End



Dimensions Data

		ANSI Class 2500LB									
Size	in	2	2 1/2	3	4	6	8	10	12		
	mm	50	65	80	100	150	200	250	300		
L/L1(RF/BW)	mm	451	508	578	673	914	1022	1270	1422		
L2(RTJ)	mm	454	514	584	683	927	1038	1292	1445		
H	mm	490	580	630	725	1040	1150	1400	-		
H0	mm	580	630	765	850	1100	1150	1460	1660		
D	mm	280	300	350	400	600	750	900	-		
D0	mm	310	310	310	460	530	600	600	600		
Weight	H.W	Kg	100	150	245	390	780	1260	2380	-	
	G.O	Kg	130	180	275	420	835	1355	2565	3250	

Applicable Standards

Design & Manufacture: API602
 Pressure-temperature Rating: ASME B16.34
 Face to Face: ASME B16.10/Manufacturer Standard
 Flange End: ASME B16.5
 Butt Welded End: ASME B16.25
 Socket Welded End: ASME B16.11
 Threaded End: ASME B1.20.1
 Inspection & Test: API 598

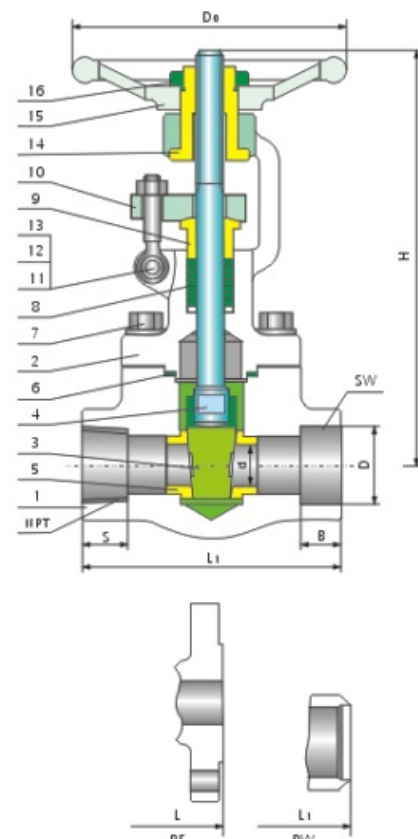
Main Parts Materials

NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Alloy Steel
1	Body	A105	A182-F316	A182-F11
2	Bonnet	A105	A182-F316	A182-F11
3	Wedge	A182-F6a	A182-F316	A182-F6a+HF
4	Stem	A276-410	A276-316	A276-410
5	Seat Ring	A276-410	A182-F316	A276-410+HF
6	Bonnet Gasket ^a	Graphite+304	Graphite+316	Graphite+304
7	Bonnet Stud	A193-B7	A193-B8M	A193-B16
8	Packing	Graphite		
9	Gland	A276-410	A276-316	A276-410
10	Gland Flange	A105	A182-F316	A182-F11
11	Eyebolt Pin	A276-410	A276-316	A276-410
12	Eyebolt	A193-B7	A193-B8M	A193-B16
13	Eyebolt Nut	A194-2H	A194-8M	A194-4
14	Yoke Sleeve	A276-410		
15	Handwheel	Malleable Iron		
16	Handwheel Nut	Carbon Steel		

Note: 1) Spiral wound construction.

Design Description

OS & Y Rising Stem
 Bolted Bonnet or Welded Bonnet
 Single Wedge, Fully Guided
 Renewable Seat Ring
 Yoke Integral with Bonnet
 SW, Screwed Welded End
 NPT, Threaded End
 BW, Butt Welded End
 Flanged End



Dimensions Data ANSI Class 150LB/300LB/600LB/800LB

Size		L ¹⁾	Flange End			d	SW		NPT	H	D0	Weight ²⁾ (kg)	
			150LB	300LB	600LB		D	B	S				
in	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	Bolted	Welded
3/8	10	79	102	140	165	10	17.6	9.6	13.6	151	100	4.5	4
1/2	15	79	108	140	165	10	21.8	9.6	13.6	151	100	5.1	4
3/4	20	92	117	152	190	13.5	27.1	12.7	13.9	158	100	8.2	4.3
1	25	111	127	165	216	18	33.8	12.7	17.3	185	125	10.5	6.6
1 1/4	32	120	140	178	229	24	42.6	12.7	18	239	160	12.4	9.5
1 1/2	40	120	165	190	241	30	48.7	12.7	18.4	243	160	20.1	11
2	50	140	178	216	292	36.5	61.1	15.9	19.2	279	180	28	14.5

Note: 1) 150LB~800LB-BW, SW or NPT; 2) 600LB-RF, 800LB-BW/SW/NPT.

Applicable Standards

Design & Manufacture: API602
 Pressure-temperature Rating: ASME B16.34
 Face to Face: ASME B16.10/Manufacturer Standard
 Flange End: ASME B16.5
 Butt Welded End: ASME B16.25
 Socket Welded End: ASME B16.11
 Threaded End: ASME B1.20.1
 Inspection & Test: API 598

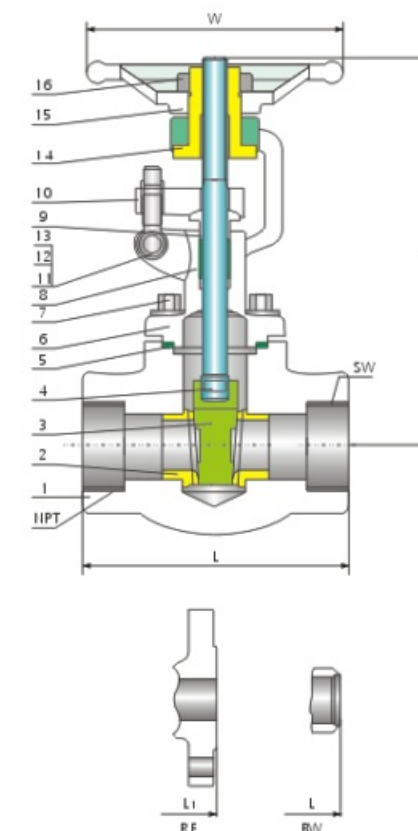
Main Parts Materials

No	Part Name	ASTM Materials		
		Carbon Steel	Stainless Steel	Alloy Steel
1	Body	A105	A182-F316	A182-F11
2	Bonnet	A105	A182-F316	A182-F11
3	Wedge	A182-F6a	A182-F316	A182-F6a+HF
4	Stem	A276-410	A276-316	A276-410
5	Seat Ring	A276-410	A182-F316	A276-410+HF
6	Bonnet Gasket ^a	Graphite+304	Graphite+316	Graphite+304
7	Bonnet Stud	A193-B7	A193-B8M	A193-B16
8	Packing	Graphite		
9	Gland	A276-410	A276-316	A276-410
10	Gland Flange	A105	A182-F316	A182-F11
11	Eyebolt Pin	A276-410	A276-316	A276-410
12	Eyebolt	A193-B7	A193-B8M	A193-B16
13	Eyebolt Nut	A194-2H	A194-8M	A194-4
14	Yoke Sleeve	A276-410		
15	Handwheel	Malleable Iron		
16	Handwheel Nut	Carbon Steel		

Note: 1) Spiral wound construction.

Design Description

OS & Y Rising Stem
 Bolted Bonnet or Welded Bonnet
 Single Wedge, Fully Guided
 Renewable Seat Ring
 Yoke Integral with Bonnet
 SW, Screwed Welded End
 NPT, Threaded End
 BW, Butt Welded End
 Flanged End



Dimensions Data ANSI Class 900LB/1500LB

Size		L	L1	H(Open)	W	Weight(kg)	
Reduced Bore		mm	mm	mm	mm	Bolted	Welded
in	mm						
3/8	10	95	-	169	100	2.5	2.4
1/2	15	111	216	197	125	4.3	4.2
3/4	20	111	229	197	125	4.2	4.0
1	25	120	254	236	160	6.6	6.3
1 1/4	32	120	279	246	160	8.8	8.7
1 1/2	40	140	305	283	180	12.5	12.1
2	50	178	368	330	200	17.2	17.2

Design

ENERGY VALVES cast steel globe valves are designed and manufactured to provide maximum service life and dependability. All globe valves are full bore and meet the design requirements of BS 1873. Valves are available in a complete range of body/bonnet materials and trim.

Available Modifications

Trim Changes
End Connection Modifications
Packing & Gasket Changes
Operator Type
Extended Stem

Range of Materials

The major materials of standard body/bonnet are carbon, cryogenic and stainless steel. For some special applications, we can provide others as per customer's requirements.

Pressure Equalizing
Customer's Specified Coatings
Changeable Welded-end Bore
Oxygen & Chlorine Cleaning & Packaging

Applicable Standards

Design & Manufacture: BS 1873
Pressure-temperature Rating: ASME B16.34
Face to Face: ASME B16.10
Flange End: ASME B16.5
Butt Welded End: ASME B16.25
Inspection & Test: API 598

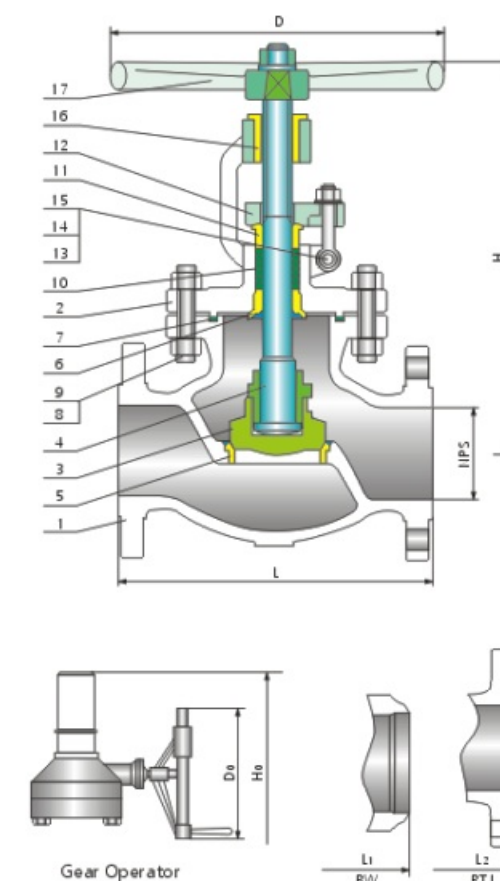
Design Description

Straight Pattern Body Design
OS & Y Rising Stem
BB, Bolted Bonnet
Yoke Integral with Bonnet
Loose Disc
Plug Type Disc or Ball Type Disc
Renewable Seat Ring
Horizontal Service
Flanged or Butt Welded End
Impact Handwheel for 10" & above

Main Parts Materials

NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Cryogenic Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	Disc	A105+CR13	A182-F316+HF	A350-LF2+CR13
4	Stem	A182-F6a	A182-F316	A182-F6a
5	Seat Ring	Integral+CR13	Integral+HF	Integral+CR13
6	Stem Backseat	A273-420	Integral	A276-420
7	Bonnet Gasket	Spiral Wound(Graphite+304 or 316)		
8	Bonnet Stud	A193-B7	A193-B8	A320-L7
9	Bonnet Stud Nut	A194-2H	A194-8	A194-4
10	Packing	Graphite		
11	Gland	A276-420	A276-316	A276-420
12	Gland Flange	A216-WCB	A351-CF8	A352-LCB
13	Eyebolt Pin	Carbon Steel	A276-316	Carbon Steel
14	Eyebolt	A193-B7	A193-B8	A320-L7
15	Eyebolt Nut	A194-2H	A194-8	A194-4
16	Yoke Sleeve	Aluminum-Bronze ¹⁾		
17	Handwheel	Ductile Iron		

Note: 1) A Ductile Ni-resist optional;
2) Disc and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.



① Operation

Large handwheel is easy for operation and available with gear, motor, pneumatic or hydraulic actuators for more difficult services.

② OS & Y

The yoke is integrated with bonnet for cast steel globe valve 10" & below.

③ End Connections

RTJ or butt-welded end is for pipe connection.

④ Lantern Ring And Double Packing Set

The employ of lantern ring gives an excellent packing compactness. Double packing set is available for critical service.

⑤ Disc

Plug disc is available for all sizes which provide excellent sealing property. V port disc is used for throttle application. Soft Teflon disc is suitable for low temperature service condition.

⑥ Live Load Packing

With high pressure & temperature variations or frequent cycle required, live loading packing can extend service life in maintenance periods. Belleville springs are employed to provide constant gland stress.

⑦ Bolted Bonnet(BB)

Three ways of bolt bonnet connection are optional: bolted bonnet(BB), welded bonnet(WB) and pressure sealed bonnet(PSB). In particular cases like operating in high temperature and high pressure (normally 2500LB above), PSB will be needed.

⑧ Yoke Sleeve(YS)

Yoke sleeve is furnished in aluminum bronze to reduce operating torque. Most sizes are available with ball bearing yoke sleeves.

⑨ Body-to-Bonnet Joint

Male & Female Joint(MFJ): 150LB~600LB
Tongue & Groove Joint(TGJ): 150LB~600LB
Ring Joint(RTJ): 900LB & above

⑩ Seat Ring

Screwed or welded on seat is optional for globe valve if being requested by the customer.

Dimensions Data

		ANSI Class 150LB											
Size	in	2	2 1/2	3	4	6	8	10	12	14	16	20	24
	mm	50	65	80	100	150	200	250	300	350	400	500	600
L/L1(RF/BW)	mm	203	216	241	292	406	495	622	698	787	914	978	1295
L2(RTJ)	mm	216	229	254	305	419	508	635	711	800	927	991	1308
H	mm	328	360	373	400	528	680	775	880	-	-	-	-
H0	mm	-	-	-	-	556	658	805	955	1100	1175	1450	1690
D	mm	200	250	250	280	400	450	500	600	-	-	-	-
Do	mm	-	-	-	-	310	310	460	460	460	460	600	600
Weight	H.W	Kg	18	26	43	54	95	160	299	373	-	-	-
	G.O	Kg	-	-	-	-	114	158	259	378	640	920	2200

Applicable Standards

Design & Manufacture: BS 1873
 Pressure-temperature Rating: ASME B16.34
 Face to Face: ASME B16.10
 Flange End: ASME B16.5
 Butt Welded End: ASME B16.25
 Inspection & Test: API 598

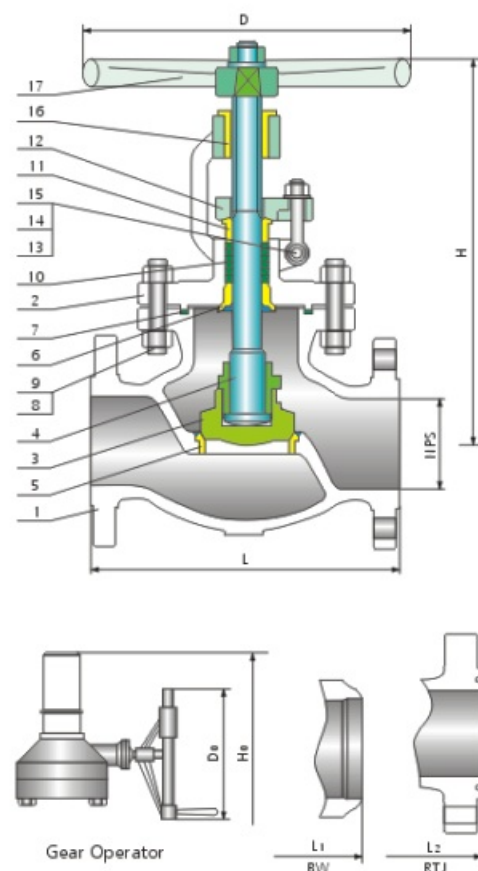
Design Description

Straight Pattern Body Design
 OS & Y Rising Stem
 BB, Bolted Bonnet
 Yoke Integral with Bonnet
 Loose Disc
 Plug Type Disc or Ball Type Disc
 Renewable Seat Ring
 Horizontal Service
 Flanged or Butt Welded End
 Impact Handwheel for 10" & above

Main Parts Materials

NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Cryogenic Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	Disc	A105+CR13	A182-F316+HF	A350-LF2+CR13
4	Stem	A182-F6a	A182-F316	A182-F6a
5	Seat Ring	Integral+CR13	Integral+HF	Integral+CR13
6	Stem Backseat	A273-420	Integral	A276-420
7	Bonnet Gasket	Spiral Wound(Graphite+304 or 316)		
8	Bonnet Stud	A193-B7	A193-B8	A320-L7
9	Bonnet Stud Nut	A194-2H	A194-8	A194-4
10	Packing	Graphite		
11	Gland	A276-420	A276-316	A276-420
12	Gland Flange	A216-WCB	A351-CF8	A352-LCB
13	Eyebolt Pin	Carbon Steel	A276-316	Carbon Steel
14	Eyebolt	A193-B7	A193-B8	A320-L7
15	Eyebolt Nut	A194-2H	A194-8	A194-4
16	Yoke Sleeve	Aluminum-Bronze ¹⁾		
17	Handwheel	Ductile Iron		

Note: 1) A Ductile Ni-resist optional;
 2) Disc and seating may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.



Dimensions Data

ANSI Class 300LB

Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20
		50	65	80	100	150	200	250	300	350	400	450	500
L/L1(RF/BW)	mm	267	292	318	356	444	559	622	711	838	864	977	1016
L2(RTJ)	mm	283	308	333	371	460	575	638	727	-	-	-	-
H	mm	346	390	403	474	635	870	950	1030	-	-	-	-
H0	mm	-	-	-	-	690	950	990	1155	1155	1325	1473	1574
D	mm	220	250	280	350	450	500	600	700	-	-	-	-
D0	mm	-	-	-	-	310	460	460	460	600	600	720	720
Weight	H.W	Kg	29	44	59	87	162	281	355	575	-	-	-
	G.O	Kg	-	-	-	-	177	389	409	635	880	1300	2100

Applicable Standards

Design & Manufacture: BS 1873
 Pressure-temperature Rating: ASME B16.34
 Face to Face: ASME B16.10
 Flange End: ASME B16.5
 Butt Welded End: ASME B16.25
 Inspection & Test: API 598

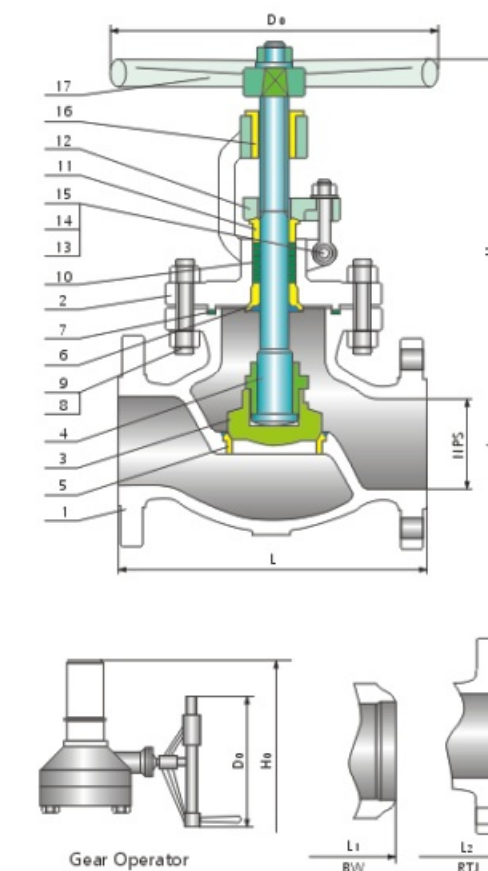
Design Description

Straight Pattern Body Design
 OS & Y Rising Stem
 BB, Bolted Bonnet
 Yoke Integral with Bonnet
 Loose Disc
 Plug Type Disc or Ball Type Disc
 Renewable Seat Ring
 Horizontal Service
 Flanged or Butt Welded End
 Impact Handwheel for 10" & above

Main Parts Materials

NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Cryogenic Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	Disc	A105+CR13	A182-F316+HF	A350-LF2+CR13
4	Stem	A182-F6a	A182-F316	A182-F6a
5	Seat Ring	Integral+CR13	Integral+HF	Integral+CR13
6	Stem Backseat	A273-420	Integral	A276-420
7	Bonnet Gasket	Spiral Wound(Graphite+304 or 316)		
8	Bonnet Stud	A193-B7	A193-B8	A320-L7
9	Bonnet Stud Nut	A194-2H	A194-8	A194-4
10	Packing	Graphite		
11	Gland	A276-420	A276-316	A276-420
12	Gland Flange	A216-WCB	A351-CF8	A352-LCB
13	Eyebolt Pin	Carbon Steel	A276-316	Carbon Steel
14	Eyebolt	A193-B7	A193-B8	A320-L7
15	Eyebolt Nut	A194-2H	A194-8	A194-4
16	Yoke Sleeve	Aluminum-Bronze ¹⁾		
17	Handwheel	Ductile Iron		

Note: 1) A Ductile Ni-resist optional;
 2) Disc and seating may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.



Dimensions Data

ANSI Class 600LB

Size	in	2	2 1/2	3	4	6	8	10	12	14	16
		50	65	80	100	150	200	250	300	350	400
L/L1(RF/BW)	mm	292	330	356	432	559	660	787	838	889	991
L2(RTJ)	mm	295	333	359	435	562	663	790	841	892	994
H	mm	360	410	465	545	785	930	-	-	-	-
H0	mm	-	-	-	575	975	1120	1219	1570	1800	1930
D	mm	280	280	300	400	500	550	-	-	-	-
D0	mm	-	-	-	310	460	460	600	600	760	760
Weight	H.W	Kg	35	42	66	117	263	469	-	-	-
	G.O	Kg	-	-	-	148	334	544	875	1280	3350

Applicable Standards

Design & Manufacture: BS 1873
 Pressure-temperature Rating: ASME B16.34
 Face to Face: ASME B16.10
 Flange End: ASME B16.5
 Butt Welded End: ASME B16.25
 Inspection & Test: API 598

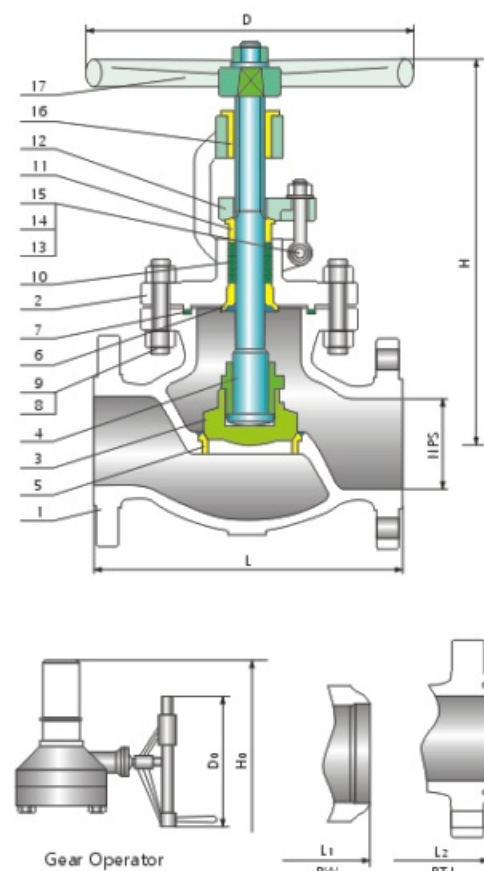
Main Parts Materials

NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Cryogenic Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	Disc	A105+CR13	A182-F316	A350-LF2+CR13
4	Stem	A182-F6a	A182-F316	A182-F6a
5	Seat Ring	Integral+CR13	Integral+HF	Integral+CR13
6	Stem Backseat	A273-420	A276-316	A276-420
7	Bonnet Gasket	Spiral Wound(Graphite+304 or 316)		
8	Bonnet Stud	A193-B7	A193-B8	A320-L7
9	Bonnet Stud Nut	A194-2H	A194-8	A194-4
10	Packing	Graphite		
11	Gland	A276-420	A276-316	A276-420
12	Gland Flange	A216-WCB	A351-CF8	A352-LCB
13	Eyebolt Pin	Carbon Steel	A276-316	Carbon Steel
14	Eyebolt	A193-B7	A193-B8	A320-L7
15	Eyebolt Nut	A194-2H	A194-8	A194-4
16	Yoke Sleeve	Aluminum-Bronze ¹⁾		
17	Handwheel	Ductile Iron		

Note: 1) A Ductile Ni-resist optional;
 2) Disc and seating may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.

Design Description

Straight Pattern Body Design
 OS & Y Rising Stem
 BB, Bolted Bonnet
 Yoke Integral with Bonnet
 Loose Disc
 Plug Type Disc or Ball Type Disc
 Renewable Seat Ring
 Horizontal Service
 Flanged or Butt Welded End
 Impact Handwheel for 10" & above



Dimensions Data

ANSI Class 900LB

Size	in	2	2 1/2	3	4	6	8	10	12
		50	65	80	100	150	200	250	300
L/L1(RF/BW)	mm	368	419	381	457	610	737	838	-
L2(RTJ)	mm	371	422	384	460	613	740	841	-
H	mm	480	520	564	685	950	1050	-	-
H0	mm	-	-	630	720	1015	-	1410	-
D	mm	300	350	400	450	600	700	-	-
D0	mm	-	-	310	310	460	-	600	-
Weight	H.W	Kg	55	68	113	179	429	815	-
	G.O	Kg	-	-	128	210	480	950	-

Applicable Standards

Design & Manufacture: BS 1873
 Pressure-temperature Rating: ASME B16.34
 Face to Face: ASME B16.10
 Flange End: ASME B16.5
 Butt Welded End: ASME B16.25
 Inspection & Test: API 598

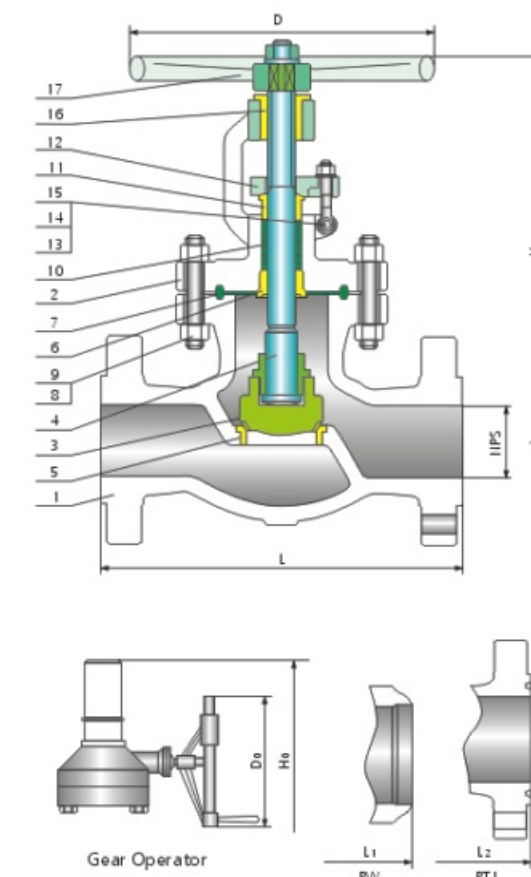
Main Parts Materials

NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Cryogenic Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	Disc	A105+CR13	A182-F316+HF	A350-LF2+CR13
4	Stem	A182-F6a	A182-F316	A182-F6a
5	Seat Ring	Integral+CR13	Integral+HF	Integral+CR13
6	Stem Backseat	A273-420	A276-316	A276-420
7	Bonnet Gasket	Steel Ring	316SS Ring	304SS Ring
8	Bonnet Stud	A193-B7	A193-B8	A320-L7
9	Bonnet Stud Nut	A194-2H	A194-8	A194-4
10	Packing	Graphite		
11	Gland	A276-420	A276-316	A276-420
12	Gland Flange	A216-WCB	A351-CF8M	A352-LCB
13	Eyebolt Pin	Carbon Steel	A276-316	Carbon Steel
14	Eyebolt	A193-B7	A193-B8	A320-L7
15	Eyebolt Nut	A194-2H	A194-8	A194-4
16	Yoke Sleeve	Aluminum-Bronze ¹⁾		
17	Handwheel	Ductile Iron		

Note: 1) A Ductile Ni-resist optional;
 2) Disc and seating may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.

Design Description

Straight Pattern Body Design
 OS & Y Rising Stem
 BB, Bolted Bonnet
 Yoke Integral with Bonnet
 Loose Disc
 Plug Type Disc or Ball Type Disc
 Renewable Seat Ring
 Horizontal Service
 Flanged or Butt Welded End
 Impact Handwheel for 10" & above



Dimensions Data

ANSI Class 1500LB

Size	in	2	2 1/2	3	4	6	8	10
		50	65	80	100	150	200	250
L/L1(RF/BW)	mm	368	419	470	546	705	832	991
L2(RTJ)	mm	371	422	473	549	711	841	1001
H	mm	505	550	630	808	930	-	-
H0	mm	-	-	765	890	1020	1230	1500
D	mm	350	400	400	450	600	-	-
D0	mm	-	-	310	310	530	530	650
Weight	H.W	Kg	137	141	261	336	966	-
	G.O	Kg	-	-	320	397	1035	1550

Dimensions Data

ANSI Class 2500LB

Size	in	2	2 1/2	3	4	6	8	10
		50	65	80	100	150	200	250
L/L1(RF/BW)	mm	451	508	578	673	914	1022	1270
L2(RTJ)	mm	454	514	584	683	927	1038	1292
H	mm	495	495	603	685	-	-	-
H0	mm	-	-	-	-	1371	1600	-
D	mm	400	500	550	600	-	-	-
D0	mm	-	-	-	-	500	600	-
Weight	H.W	Kg	117	117	195	260	-	-
	G.O	Kg	-	-	-	810	1300	-

Applicable Standards

Design & Manufacture: API 602
Pressure-temperature Rating: ASME B16.34
Face to Face: ASME B16.10/Manufacturer Standard
Flange Ends: ASME B16.5
Butt Welded End: ASME B16.25
Socket Welded End: ASME B16.11
Threaded End: ASME B1.20.1
Inspection & Test: API 598

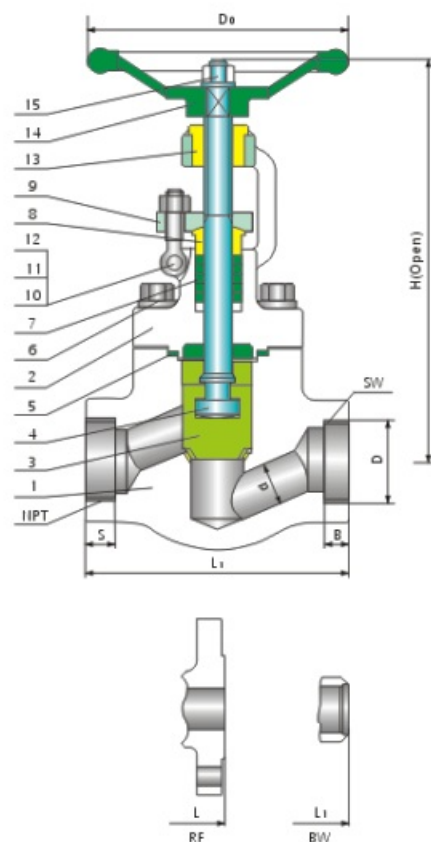
Design Description

OS & Y, Outside Screw and Yoke
Bolted Bonnet or Welded Bonnet
Loose Disc
Plug Type Disc or Ball Type Disc
Integral Seat
Yoke Integral with Bonnet
Rising Stem & Handwheel
Horizontal Service
SW, Screwed Welded End
NPT, Threaded End
BW, Butt Welded End

Main Parts Materials

NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Alloy Steel
1	Body	A105	A182-F316	A182-F11
2	Bonnet	A105	A182-F316	A182-F11
3	Disc	A182-F6a	A182-F316	A182-F6a+HF
4	Stem	A276-410	A276-316	A276-410
5	Bonnet Gasket ¹⁾	Graphite+304	Graphite+316	Graphite+304
6	Bonnet Stud	A193-B7	A193-B8M	A193-B16
7	Packing	Graphite		
8	Gland	A276-410	A276-316	A276-410
9	Gland Flange	A105	A182-F316	A182-F11
10	Eyebolt Pin	A276-410	A276-316	A276-410
11	Eyebolt	A193-B7	A193-B8M	A193-B16
12	Eyebolt Nut	A194-2H	A194-8M	A194-4
13	Yoke Sleeve	A276-410		
14	Handwheel	Malleable Iron		
15	Handwheel Nut	Carbon Steel		

Note: 1) Spiral wound construction;
2) Seat integral with body.



Dimensions Data

ANSI Class 150LB/300LB/600LB/800LB

Size		L ¹⁾	Flange End			d	SW		NPT	H(Open)	D0	Weight ²⁾ (kg)	
			150LB	300LB	600LB		D	B	S			Bolted	Welded
in	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		
3/8	10	79	102	152	165	9	17.6	9.6	13.6	164	100	3.8	2.8
1/2	15	79	108	152	165	9	21.8	9.6	13.6	164	100	5.6	3.4
3/4	20	92	117	178	190	13	27.1	12.7	13.9	164	100	7.8	4.7
1	25	111	127	203	216	17.5	33.8	12.7	17.3	203	125	12.5	9.2
1 1/4	32	120	140	216	229	23	42.6	12.7	18	224	160	17	10.5
1 1/2	40	152	165	229	241	29	48.7	12.7	18.4	260	160	23.5	13.3
2	50	172	203	267	292	35	61.1	15.9	19.2	300	180	38.8	18.9

Note: 1) 150LB-800LB-BW, SW or NPT; 2) 600LB-RF, 800LB-BW/SW/NPT.

Applicable Standards

Design & Manufacture: API 602
Pressure-temperature Rating: ASME B16.34
Face to Face: ASME B16.10/Manufacturer Standard
Flange End: ASME B16.5
Butt Welded End: ASME B16.25
Socket Welded End: ASME B16.11
Threaded End: ASME B1.20.1
Inspection & Test: API 598

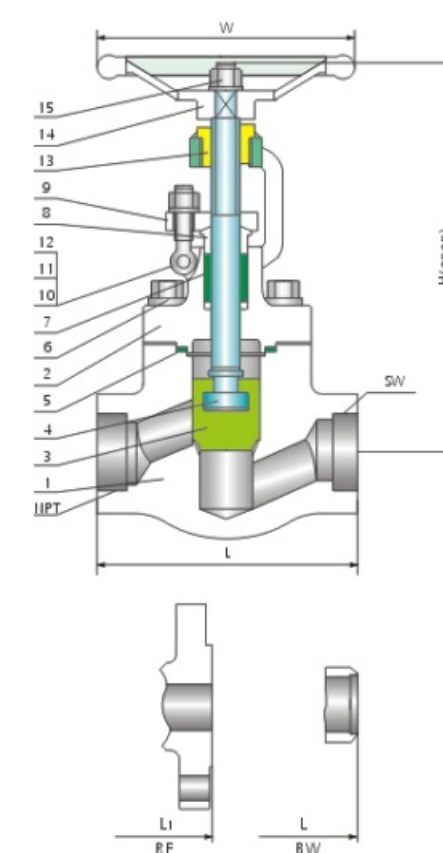
Design Description

OS & Y, Outside Screw and Yoke
Bolted Bonnet or Welded Bonnet
Loose Disc
Plug Type Disc or Ball Type Disc
Integral Seat
Yoke Integral with Bonnet
Rising Stem & Handwheel
Horizontal Service
SW, Screwed Welded End
NPT, Threaded End
BW, Butt Welded End

Main Parts Materials

NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Alloy Steel
1	Body	A105	A182-F316	A182-F11
2	Bonnet	A105	A182-F316	A182-F11
3	Disc	A182-F6a	A182-F316	A182-F6a+HF
4	Stem	A276-410	A276-316	A276-410
5	Bonnet Gasket ¹⁾	Graphite+304	Graphite+316	Graphite+304
6	Bonnet Stud	A193-B8M		
7	Packing	A193-B7	Graphite	A193-B16
8	Gland	A276-410	A276-316	A276-410
9	Gland Flange	A105	A182-F316	A182-F11
10	Eyebolt Pin	A276-410	A276-316	A276-410
11	Eyebolt	A193-B7	A193-B8M	A193-B16
12	Eyebolt Nut	A194-2H	A194-8M	A194-4
13	Yoke Sleeve	A276-410		
14	Handwheel	Malleable Iron		
15	Handwheel Nut	Carbon Steel		

Note: 1) Spiral wound construction;
2) Seat integral with body.



Dimensions Data

ANSI Class 900LB/1500LB

Size		L	L1	H(Open)	W	Weight(kg)	
						Bolted	Welded
in	mm	mm	mm	mm	mm		
3/8	10	92	-	171	100	2.2	2.0
1/2	15	111	216	207	125	3.7	3.4
3/4	20	111	229	207	125	3.6	3.3
1	25	120	254	240	160	6.8	6.0
1 1/4	32	152	279	258	160	7.6	5.6
1 1/2	40	172	305	330	180	11.6	10.3
2	50	210	368	355	200	15.0	14.2

Design

ENERGY VALVES cast steel check valves are designed and manufactured to provide maximum service life and dependability. All check valves are full bore and meet the design requirements of BS 1868 and API 6D. Valves are available in a complete range of body/bonnet materials and trim.

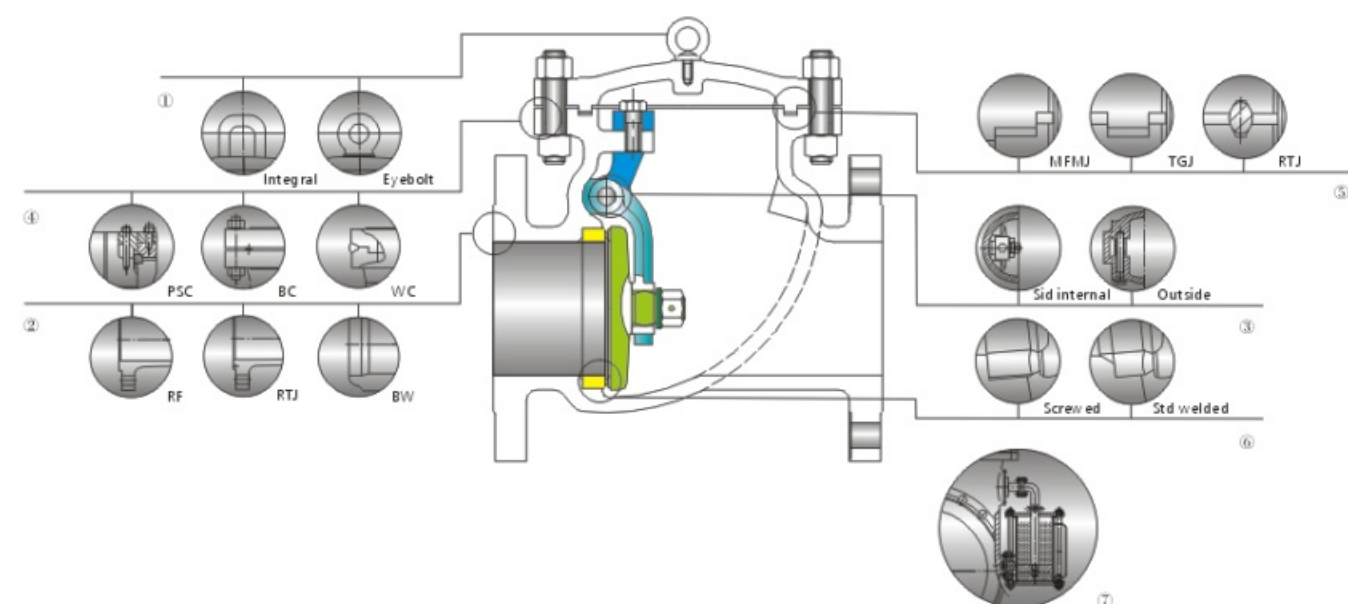
Available Modifications

Trim Changes
End Connection Modifications
Packing & Gasket Changes

Range of Materials

The major materials of standard body/bonnet are carbon, cryogenic and stainless steel. For some special applications, we can provide others as per customer's requirements.

Pressure Equalizing
Customer's Specified Coatings
Changeable Welded-end Bore



① Eyebolt

It is for 150LB-8", 300LB-8", 600LB-6", 900LB/1500LB/2500LB & above.

② Ends Connection

RTJ flanged or butt-welded end is for pipe connection.

③ Outside Lever And Weight

When swing check valve is 12" or below, the external hinge & pin are required for easy operation.

④ Bolted Cover(BC)

Three ways of bolt bonnet connection are optional: bolted cover(BC), welded cover(WC) and pressure sealed cover(PSC). In particular cases like operating in high temperature and high pressure (normally 2500LB above), PSC will be needed.

⑤ Body-to-Bonnet Joint

Male & Female Joint(MFJ): 150LB~600LB
Tongue & Groove Joint(TGJ): 150LB~600LB
Ring Joint(RTJ): 900LB & above

⑥ Seat Ring

Screwed or welded on seat is optional for check valve if being requested by the customer.

⑦ HCU Weighted Mechanical Accumulator

HCU Weighted mechanical accumulator is equipped to dampen or assist the disc as hydraulic pressure changing, leading the valve can be opened gradually at a lower speed.

Applicable Standards

Design & Manufacture: BS 1868/API 6D
Pressure-temperature Rating: ASME B16.34
Face to Face: ASME B16.10
Flange End: ASME B16.5
Butt Welded End: ASME B16.25
Inspection & Test: API 598/API 6D

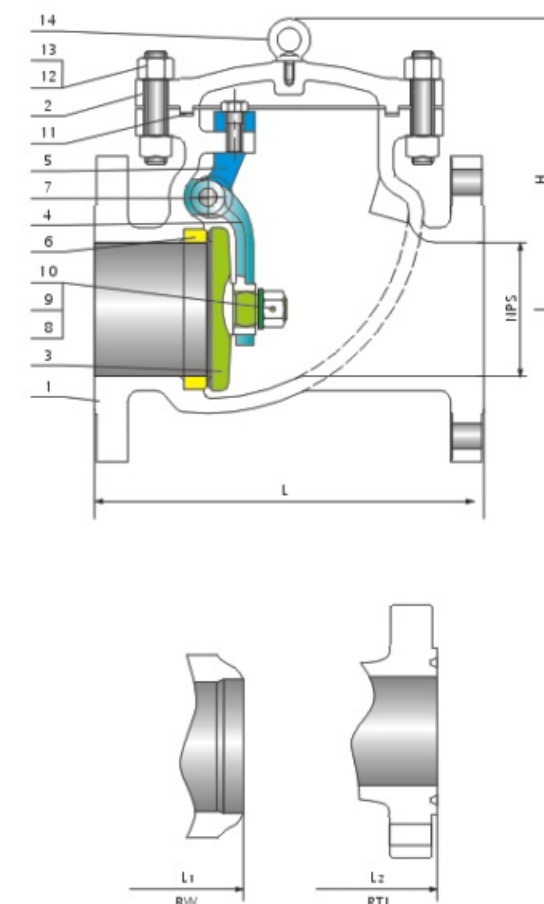
Main Parts Materials

NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Cryogenic Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet Cap	A216-WCB	A351-CF8M	A352-LCB
3	Disc	WCB+CR13	CF8M	LCB+CR13
4	Hinge	A216-WCB	A351-CF8M	A352-LCB
5	Yoke	A216-WCB	A351-CF8M	A352-LCB
6	Seat Ring	A105+CR13	Integral	A350-LF2+CR13
7	Hinge Pin	A276-304	A276-316	A276-304
8	Disc Washer	Carbon Steel	A276-316	Carbon Steel
9	Disc Nut	A194-2H	A194-8M	A194-8
10	Disc Nut Pin	SS304	SS316	SS304
11	Bonnet Gasket	Spiral Wound (Graphite+304 or 316)		
12	Bonnet Stud	A193-B7	A193-B8	A320-L7
13	Bonnet Stud Nut	A194-2H	A194-8	A194-4
14	Eyebolt	Carbon Steel		

Note: Disc and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.

Design Description

BC, Bolted Cover
Swing or Piston Type
Anti-rotation Disc
Renewable Seat Ring
Non-penetrate Disc Shaft
Horizontal or Vertical Service
Flanged or Butt Welded End



Dimensions Data

Size	in	2	2½	3	4	6	8	10	12	14	16	18	20	24	26	28	30	32	36
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	800	900
L/L1(RF/BW)	mm	203	216	241	292	356	495	622	698	787	864	978	978	1295	1295	1448	1524	1727	1956
L2(RTJ)	mm	216	229	254	305	368	508	635	711	800	877	911	991	1308	-	-	-	-	-
H	mm	138	160	172	245	280	347	390	435	465	525	580	615	710	840	920	980	1016	1092
Weight	Kg	12	19	24	37	61	115	180	310	400	503	630	791	960	1250	1580	1950	2800	3200

Applicable Standards

Design & Manufacture: BS1868/API 6D
Pressure-temperature Rating: ASME B16.34
Face to Face: ASME B16.10
Flange End: ASME B16.5
Butt Welded End: ASME B16.25
Inspection & Test: API 598/API 6D

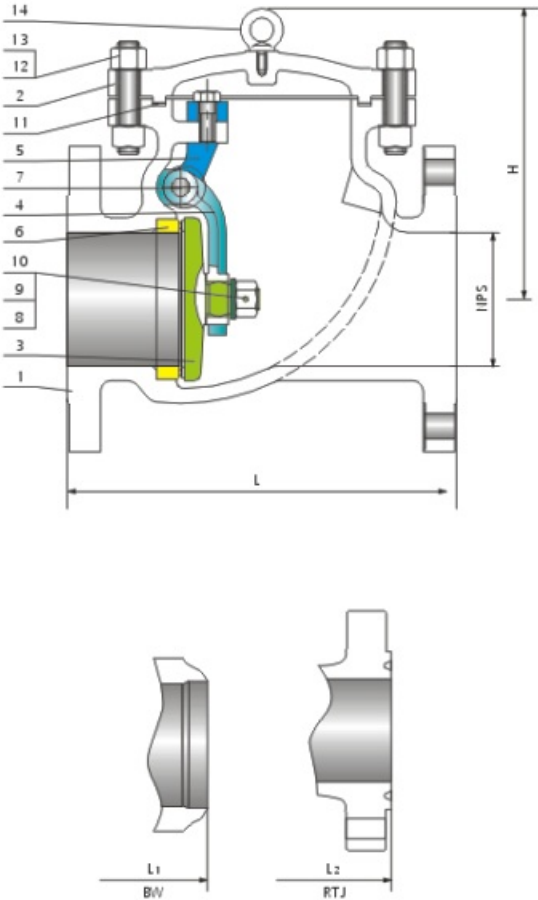
Design Description

BC, Bolted Cover
Swing or Piston Type
Anti-rotation Disc
Renewable Seat Ring
Non-penetrate Disc Shaft
Horizontal or Vertical Service
Flanged or Butt Welded End

Main Parts Materials

NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Cryogenic Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet Cap	A216-WCB	A351-CF8M	A352-LCB
3	Disc	WCB+CR13	CF8M	LCB+CR13
4	Hinge	A216-WCB	A351-CF8M	A352-LCB
5	Yoke	A216-WCB	A351-CF8M	A352-LCB
6	Seat Ring	A105+CR13	Integral	A350-LF2+CR13
7	Hinge Pin	A276-304	A276-316	A276-304
8	Disc Washer	Carbon Steel	A276-316	Carbon Steel
9	Disc Nut	A194-2H	A194-8M	A194-8
10	Disc Nut Pin	SS304	SS316	SS304
11	Bonnet Gasket	Spiral Wound (Graphite+304 or 316)		
12	Bonnet Stud	A193-B7	A193-B8	A320-L7
13	Bonnet Stud Nut	A194-2H	A194-8	A194-4
14	Eyebolt	Carbon Steel		

Note: Disc and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.



Dimensions Data

Size	in	2	2½	3	4	6	8	10	12	14	16	18	20	24	26	28	30	32	36
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	800	900
L/L1(RF/BW)	mm	267	292	318	356	444	533	622	711	838	864	978	1016	1346	1346	1499	1594	1727	2083
L2(RTJ)	mm	283	308	333	371	460	549	638	727	854	879	994	1035	1368	1372	1524	1619	-	-
H	mm	150	178	223	255	310	355	445	485	515	560	620	685	760	850	920	1150	1260	1390
Weight	Kg	18	35	37	57	120	194	280	450	587	761	1030	1191	1892	2300	2600	3200	3700	4300

Applicable Standards

Design & Manufacture: BS1868/API 6D
Pressure-temperature Rating: ASME B16.34
Face to Face: ASME B16.10
Flange End: ASME B16.5
Butt Welded End: ASME B16.25
Inspection & Test: API 598/API 6D

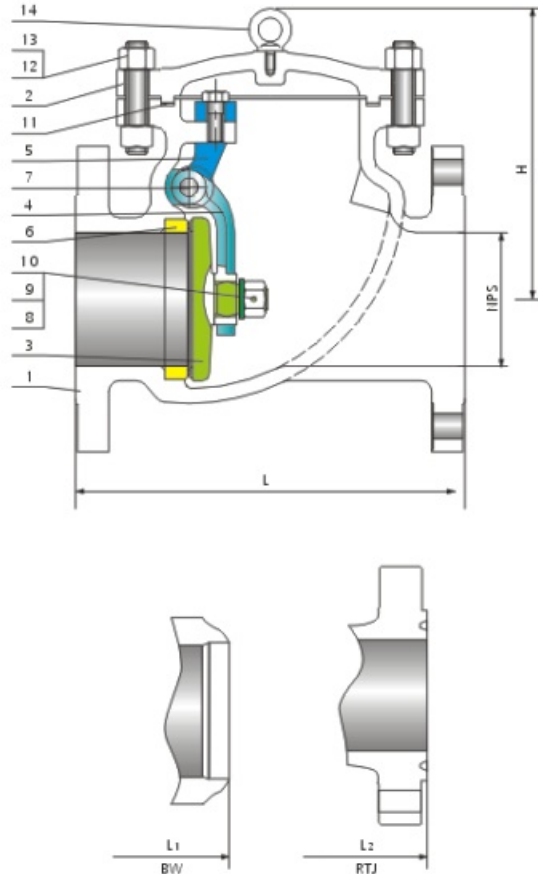
Design Description

BC, Bolted Cover
Swing or Piston Type
Anti-rotation Disc
Renewable Seat Ring
Non-penetrate Disc Shaft
Horizontal or Vertical Service
Flanged or Butt Welded End

Main Parts Materials

NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Cryogenic Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet Cap	A216-WCB	A351-CF8M	A352-LCB
3	Disc	WCB+CR13	CF8M	LCB+CR13
4	Hinge	A216-WCB	A351-CF8M	A352-LCB
5	Yoke	A216-WCB	A351-CF8M	A352-LCB
6	Seat Ring	A105+CR13	Integral	A350-LF2+CR13
7	Hinge Pin	A276-304	A276-316	A276-304
8	Disc Washer	Carbon Steel	A276-316	Carbon Steel
9	Disc Nut	A194-2H	A194-8M	A194-8
10	Disc Nut Pin	SS304	SS316	SS304
11	Bonnet Gasket	Spiral Wound (Graphite+304 or 316)		
12	Bonnet Stud	A193-B7	A193-B8	A320-L7
13	Bonnet Stud Nut	A194-2H	A194-8	A194-4
14	Eyebolt	Carbon Steel		

Note: Disc and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.



Dimensions Data

Size	in	ANSI Class 600LB																
		2	2 1/2	3	4	6	8	10	12	14	16	18	20	24				
L/L1(RF/BW)	mm	292	330	356	432	559	660	787	838	889	991	1092	1194	1397				
L2(RTJ)	mm	295	333	359	435	562	664	791	841	892	994	1095	1200	1407				
H	mm	170	178	225	275	385	445	500	570	590	650	778	970	1100				
Weight	Kg	28	35	41	88	181	357	500	650	889	1285	1800	2150	3200				

Applicable Standards

Design & Manufacture: BS1868/API 6D
 Pressure-temperature Rating: ASME B16.34
 Face to Face: ASME B16.10
 Flange End: ASME B16.5
 Butt Welded End: ASME B16.25
 Inspection & Test: API 598/API 6D

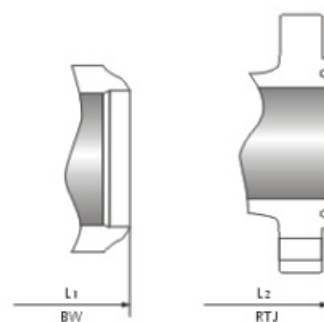
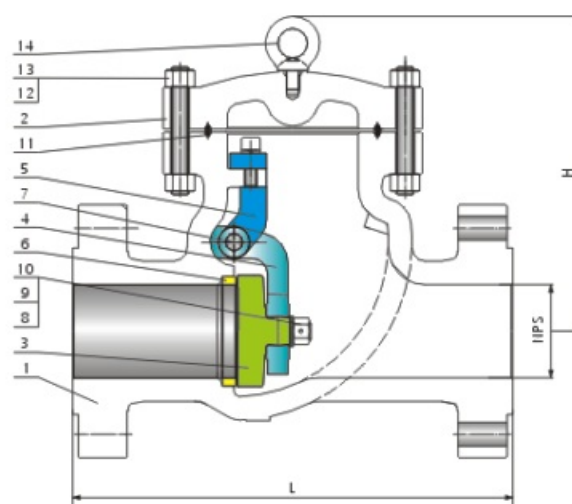
Design Description

BC, Bolted Cover
 Swing or Piston Type
 Anti-rotation Disc
 Renewable Seat Ring
 Non-penetrate Disc Shaft
 Horizontal or Vertical Service
 Flanged or Butt Welded End

Main Parts Materials

NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Cryogenic Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet Cap	A216-WCB	A351-CF8M	A352-LCB
3	Disc	A216-WCB+CR13	A351-CF8M	A352-LCB+CR13
4	Hinge	A216-WCB	A351-CF8M	A352-LCB
5	Yoke	A216-WCB	A351-CF8M	A352-LCB
6	Seat Ring	A105+HF	Integral+HF	A350-LF2+CR13
7	Hinge Pin	A276-304	A276-316	A276-304
8	Disc Washer	Carbon Steel	A276-316	Carbon Steel
9	Disc Nut	A194-2H	A194-8M	A197-8
10	Disc Nut Pin	SS304	SS316	SS304
11	Bonnet Gasket	Steel Ring	SS316 Ring	SS304 Ring
12	Bonnet Stud	A193-B7	A193-B8	A320-L7
13	Bonnet Stud Nut	A194-2H	A194-8	A194-4
14	Eyebolt	Carbon Steel		

Note: Disc and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.



Dimensions Data

ANSI Class 900LB

Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L/L1(RF/BW)	mm	368	419	381	457	610	737	838	965	1029	1130	1219	1321	1549
L2(RTJ)	mm	371	422	384	460	613	740	841	968	1039	1140	1232	1334	1568
H	mm	183	220	280	315	390	460	540	640	680	780	845	1050	1200
Weight	Kg	72	75	80	127	260	410	754	818	1180	1909	2500	2960	4600

Applicable Standards

Design & Manufacture: BS1868/API 6D
 Pressure-temperature Rating: ASME B16.34
 Face to Face: ASME B16.10
 Flange End: ASME B16.5
 Butt Welded End: ASME B16.25
 Inspection & Test: API 598/API 6D

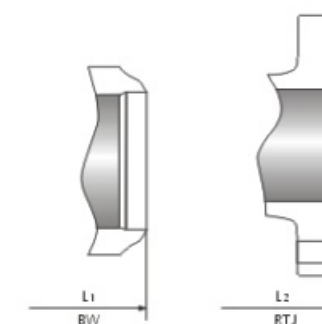
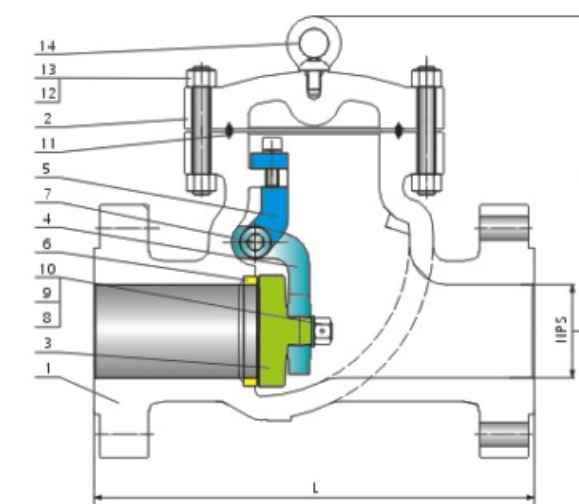
Design Description

BC, Bolted Cover
 Swing or Piston Type
 Anti-rotation Disc
 Renewable Seat Ring
 Non-penetrate Disc Shaft
 Horizontal or Vertical Service
 Flanged or Butt Welded End

Main Parts Materials

NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Cryogenic Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet Cap	A216-WCB	A351-CF8M	A352-LCB
3	Disc	A216-WCB+CR13	A351-CF8M+HF	A352-LCB+CR13
4	Hinge	A216-WCB	A351-CF8M	A352-LCB
5	Yoke	A216-WCB	A351-CF8M	A352-LCB
6	Seat Ring	A105+HF	Integral+HF	A350-LF2+HF
7	Hinge Pin	A276-304	A276-316	A276-304
8	Disc Washer	Carbon Steel	A276-316	Carbon Steel
9	Disc Nut	A194-2H	A194-8M	A194-8
10	Disc Nut Pin	SS304	SS316	SS304
11	Bonnet Gasket	Steel Ring	SS316 Ring	SS304 Ring
12	Bonnet Stud	A193-B7	A193-B8	A320-L7
13	Bonnet Stud Nut	A194-2H	A194-8	A194-4
14	Eyebolt	Carbon Steel		

Note: Disc and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.



Dimensions Data

ANSI Class 1500LB

Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20
	mm	50	65	80	100	150	200	250	300	350	400	450	500
L/L1(RF/BW)	mm	368	419	470	546	705	832	991	1130	1257	1384	1537	1664
L2(RTJ)	mm	371	422	473	549	711	841	1000	1146	1276	1407	1559	1686
H	mm	265	240	303	340	430	500	605	785	830	950	1080	1145
Weight	Kg	72	75	110	205	450	634	1140	1939	2000	2700	3960	4400

Applicable Standards

Design & Manufacture: B51868/API 6D
Pressure-temperature Rating: ASME B16.34
Face to Face: ASME B16.10
Flange End: ASME B16.5
Butt Welded End: ASME B16.25
Inspection & Test: API 598/API 6D

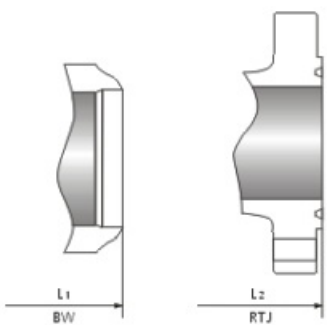
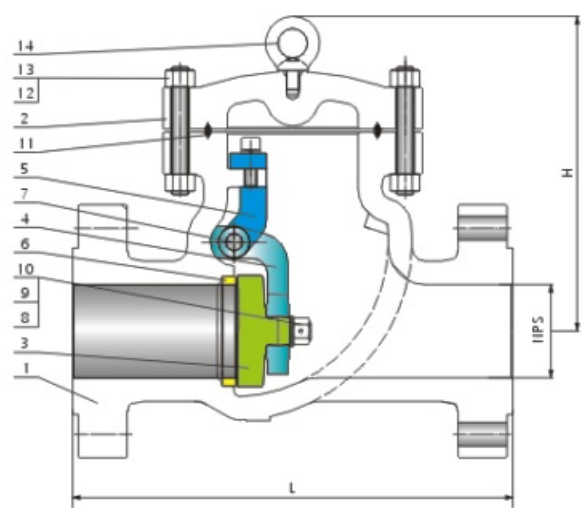
Main Parts Materials

NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Cryogenic Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet Cap	A216-WCB	A351-CF8M	A352-LCB
3	Disc	A216-WCB+CR13	A351-CF8M+HF	A352-LCB+CR13
4	Hinge	A216-WCB	A351-CF8M	A352-LCB
5	Yoke	A216-WCB	A351-CF8M	A352-LCB
6	Seat Ring	A105+HF	Integral+HF	A350-LF2+HF
7	Hinge Pin	A276-304	A276-316	A276-304
8	Disc Washer	Carbon Steel	A276-316	Carbon Steel
9	Disc Nut	A194-2H	A194-8M	A194-8
10	Disc Nut Pin	SS304	SS316	SS304
11	Bonnet Gasket	Steel Ring	SS316 Ring	SS304 Ring
12	Bonnet Stud	A193-B7	A193-B8	A320-L7
13	Bonnet Stud Nut	A194-2H	A194-8	A194-4
14	Eyebolt	Carbon Steel		

Note: Disc and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.

Design Description

BC, Bolted Cover
Swing or Piston Type
Anti-rotation Disc
Renewable Seat Ring
Non-penetrate Disc Shaft
Horizontal or Vertical Service
Flanged or Butt Welded End



Dimensions Data

Size	in	2	2 1/2	3	4	6	8	10	12
	mm	50	65	80	100	150	200	250	300
L/L1(RF/BW)	mm	451	508	578	673	914	1022	1270	1422
L2(RTJ)	mm	454	514	584	683	927	1038	1292	1444
H	mm	285	305	350	410	540	620	705	855
Weight	Kg	93	100	196	440	868	970	1700	2080

Applicable Standards

Design & Manufacture: API 594
Pressure-temperature Rating: ASME B16.34
Face to Face: ASME B16.10
Flange End: ASME B16.5
Butt Welded End: ASME B16.25
Inspection & Test: API 598/API 6D

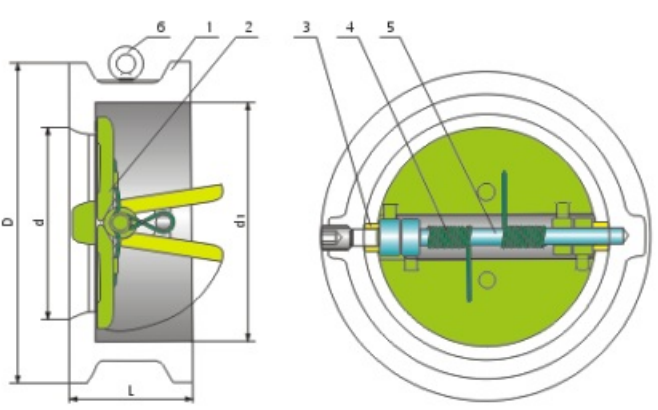
Main Parts Materials

NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Cryogenic Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Plate	A216-WCB+CR13	A351-CF8M+HF	A352-LCB+CR13
3	Stop Pin	A276-420	A276-304	A276-420
4	Back Spring	A313-304	A313-316	A313-304
5	Hinge Pin	A276-420	A276-304	A276-420
6	Eyebolt*	Carbon Steel		

Note: 1) NPS 8" & above.

Design Description

One Piece Body
Butterfly Swing Type
Dual-plate Disc, Long-pattern
Renewable Split Disc
Horizontal or Vertical Service
Wafer End
Available with Flanged or Lug Type



Dimensions Data

Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L	mm	60	67	73	73	98	127	146	181	184	191	203	219	222
D	mm	103	122	135	173	220	277	337	407	448	512	547	604	715
d	mm	51	65	80	102	152	203	254	305	350	400	450	500	600
d1	mm	56	73	88	108	160	210	266	310	355	405	455	505	605
Weight	Kg	2	3	4	6	13	25	39	54	80	117	138	163	331

Dimensions Data

Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L	mm	60	67	73	73	98	127	146	181	222	232	264	292	318
D	mm	110	128	147	179	249	305	359	420	483	537	594	652	772
d	mm	51	65	80	102	152	203	254	305	350	400	450	500	600
d1	mm	58	73	88	108	160	210	266	310	355	405	455	505	608
Weight	Kg	3	4	6	8	18	31	51	77	117	190	200	265	410

Applicable Standards

Design & Manufacture: API 594
Pressure-temperature Rating: ASME B16.34
Face to Face: ASME B16.10
Flange End: ASME B16.5
Inspection & Test: API 598/API 6D

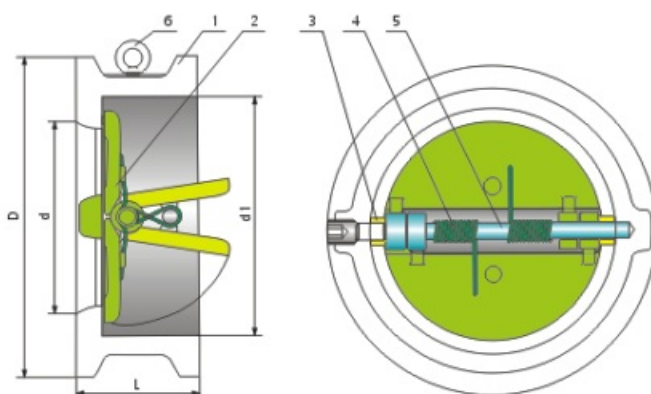
Design Description

One Piece Body
Butterfly Swing Type
Dual-plate Disc, Long-pattern
Renewable Split Disc
Horizontal or Vertical Service
Wafer End
Available with Flanged or Lug Type

Main Parts Materials

NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Cryogenic Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Plate	A216-WCB+CR13	A351-CF8M+HF	A352-LCB+CR13
3	Stop Pin	A276-420	A276-304	A276-420
4	Back Spring	A313-304	A313-316	A313-304
5	Hinge Pin	A276-420	A276-304	A276-420
6	Eyebolt ¹⁾	Carbon Steel		

Note: 1) NPS 8" & above.



Dimensions Data

ANSI Class 600LB

Size	in	2	2 1/2	3	4	6	8	10	12	14	16
	mm	50	65	80	100	150	200	250	300	350	400
L	mm	60	67	73	79	136	165	213	229	273	305
D	mm	110	128	147	191	264	318	398	455	490	562
d	mm	51	65	80	102	152	200	250	305	337	387
d ₁	mm	58	73	88	108	162	212	266	312	355	400
Weight	Kg	4	5	8	11	26	55	95	140	223	360

Dimensions Data

ANSI Class 900LB

Size	in	2	2 1/2	3	4	6	8	10	12	14	16
	mm	50	65	80	100	150	200	250	300	350	400
L	mm	70	83	83	102	159	206	241	292	356	384
D	mm	140	162	165	204	286	356	432	495	518	572
d	mm	51	65	80	102	150	200	250	305	337	387
d ₁	mm	58	73	88	108	162	212	266	312	355	400
Weight	Kg	8	11	14	20	42	84	145	220	350	470

Applicable Standards

Design & Manufacture: API 602
Pressure-temperature Rating: ASME B16.34
Face to Face: ASME B16.10/Manufacturer Standard
Flange End: ASME B16.5
Butt Welded End: ASME B16.25
Socket Welded End: ASME B16.11
Threaded End: ASME B1.20.1
Inspection & Test: API 598

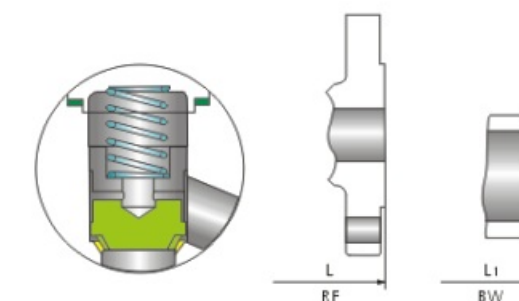
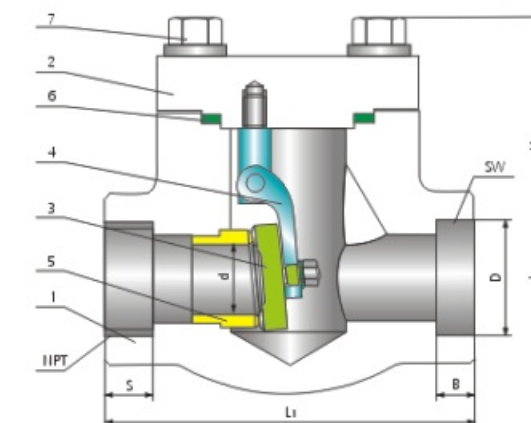
Main Parts Materials

NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Alloy Steel
1	Body	A105	A182-F316	A182-F11
2	Bonnet	A105	A182-F316	A182-F11
3	Disc	A182-F6a	A182-F316	A182-F6a+HF
4	Hinge	A276-410	A276-316	A276-410
5	Seat ¹⁾	A276-410	A182-F316+HF	A276-410+HF
6	Bonnet Gasket ²⁾	Graphite+304	Graphite+316	Graphite+304
7	Bonnet Stud	A193-B7	A193-B8M	A193-B16

Note: 1) Lift type check valve seating integral with body;
2) Spiral wound construction.

Design Description

BC, Bolted Cover
Choice of WB, Welded Bonnet
Lift or Swing Type
Seat Ring Integral with Body of Lift
Horizontal or Vertical Service
SW, Screwed Welded End
NPT, Threaded End
Flanged End



Dimensions Data

ANSI Class 150LB/300LB/600LB/800LB

Size		L ₁ ¹⁾	Flange Ends			d	B		NPT	H	Weight ¹⁾ (kg)	
			150LB	300LB	600LB		D	SW	S		Bolted	Welded
in	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		
3/8	10	79	102	152	165	9	17.6	9.6	13.6	61	3.8	2.8
1/2	15	79	108	152	165	10	21.8	9.6	13.6	61	5.6	3.4
3/4	20	92	117	178	190	13	27.1	12.7	13.9	61	7.8	4.7
1	25	111	127	203	216	17.5	33.8	12.7	17.3	78	12.5	9.2
1 1/4	32	120	140	216	229	23	42.6	12.7	18	84	17	10.5
1 1/2	40	120	165	229	241	30	48.7	12.7	18.4	398	23.5	13.3
2	50	140	203	267	292	35	61.1	15.9	19.2	120	38.8	18.9

Note: 1) 150LB-800LB-BW, SW or NPT; 2) 600LB-RF, 800LB-BW/SW/NPT.

Applicable Standards

Design & Manufacture: API 602
 Pressure-temperature Rating: ASME B16.34
 Face to Face: ASME B16.10/Manufacturer Standard
 Flange End: ASME B16.5
 Butt Welded End: ASME B16.25
 Socket Welded End: ASME B16.11
 Threaded End: ASME B1.20.1
 Inspection & Test: API 598

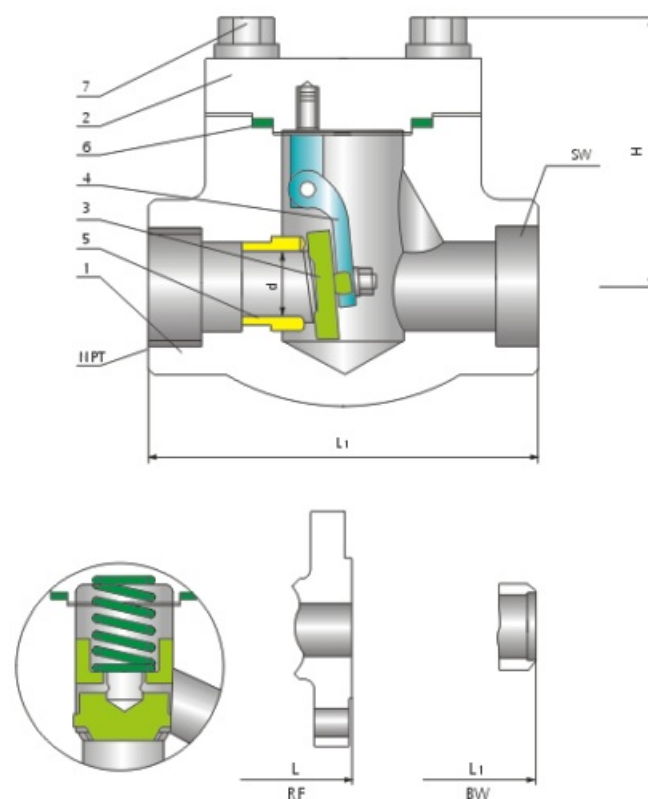
Main Parts Materials

NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Alloy Steel
1	Body	A105	A182-F316	A182-F11
2	Cover	A105	A182-F316	A182-F11
3	Disc	A182-F6a	A182-F316	A182-F6a+HF
4	Hinge	A276-410	A276-316	A276-410
5	Seat ¹	A276-410	A182-F316	A276-410+HF
6	Gasket ²	Graphite+304	Graphite+316	Graphite+304
7	Stud	A193-B7	A193-B8M	A193-B16

Note: 1) Lift type check valve seating integral with body;
 2) Spiral wound construction.

Design Description

BC, Bolted Cover
 Choice of Welded Cover
 Lift or Swing Type
 Seat Ring Integral with Body of Lift
 Horizontal or Vertical Service
 SW, Screwed Welded Ends
 NPT, Threaded End
 BW, Butt Welded End
 Flanged End



Dimensions Data

ANSI Class 900LB/1500LB

Size		L	L1	H(Open)	Weight(kg)
in	mm	mm	mm	mm	
3/8	10	-	95	79	3.1
1/2	15	216	111	79	3.0
3/4	20	229	111	79	3.6
1	25	254	120	97	4.3
1 1/4	32	279	120	105	6.1
1 1/2	40	305	140	120	8.8
2	50	368	178	140	12.6

Applicable Standards

Design & Manufacture: API 6D/API 599
 Pressure-temperature Rating: ASME B16.34
 Anti Static: API 599
 Face to Face: ASME B16.10
 Flange End: ASME B16.5
 Butt Welded End: ASME B16.25
 Inspection & Test: API 598/API 6D

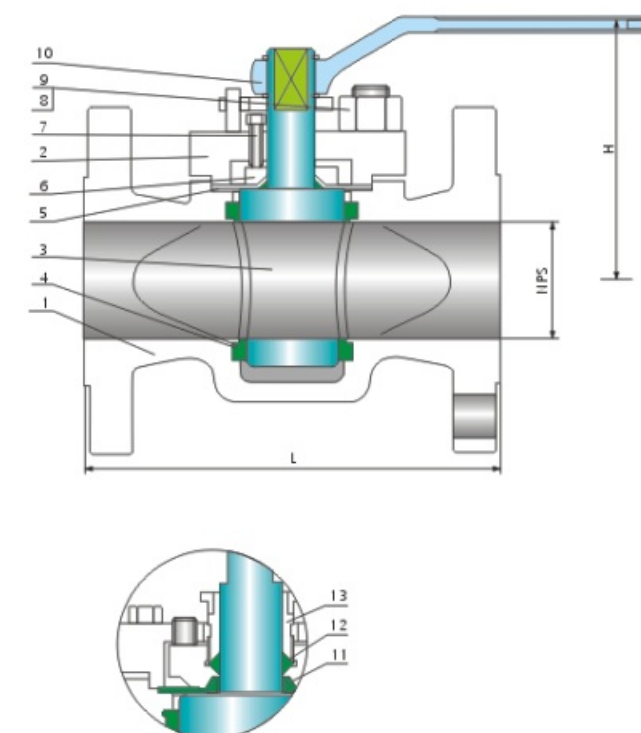
Main Parts Materials

NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Cryogenic Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet Cap	A216-WCB	A351-CF8M	A352-LCB
3	Plug	A182-F304 ¹	A182-F316	A182-F304 ¹
4	Sleeve	Glass Filled PTFE		
5	Bonnet Gasket	Graphite+304 ²	Graphite+316 ²	Graphite+304 ²
6	Adjusting Gasket	A182-F6a	A182-F316	A182-F6a
7	Adjusting Bolt	A193-B7	A193-B8	A320-L7
8	Bonnet Stud	A193-B7	A193-B8	A320-L7
9	Bonnet Bolt	A194-2H	A194-8	A194-4
10	Handle	Carbon Steel		
11	Diaphragm	A167-304+PTFE	A167-316+PTFE	A167-304+PTFE
12	Packing	Graphite		
13	Gland Flange	A216-WCB	A351-CF8M	A352-LCB

Note: 1) A105+ENP Optional;
 2) Jacketed construction.

Design Description

Rugged, Heavy-duty Body
 BC, Bolted Cover
 PTFE Sleeved, Tapered Plug
 Large Port Openings
 Non-lubricated
 Stem Integral with Plug
 In-line Adjustment
 Anti Static Device
 Stopper Device
 Renewable Seat Ring
 Flanged or Butt Welded End
 Available with Gear Operator



Dimensions Data

ANSI Class 150LB

Size	in	2	2 1/2	3	4	6	8	10	12
	mm	50	65	80	100	150	200	250	300
L(RF)	mm	178	190	203	229	267	292	330	356
H	mm	150	165	180	380	520	580	620	680
W	mm	320	350	410	320	320	320	350	380
Weight (Kg)	RF	17	20	25	40	70	135	220	300
	BW	13	14	17.5	29	55	110	185	247

Dimensions Data

ANSI Class 300LB

Size	in	2	2 1/2	3	4	6	8	10	12
	mm	50	65	80	100	150	200	250	300
L(RF)	mm	216	241	283	305	403	419	457	502
H	mm	150	165	180	380	520	580	620	680
W	mm	320	350	410	320	320	320	350	380
Weight (Kg)	RF	17	20	25	40	70	135	220	300
	BW	13	14	17.5	29	55	110	185	247

Applicable Standards

Design & Manufacture: API 6D/API 599
 Pressure-temperature Rating: ASME B16.34
 Anti Static: API 599
 Face to Face: ASME B16.10
 Flange End: ASME B16.5
 Butt Welded End: ASME B16.25
 Inspection & Test: API 598/API 6D

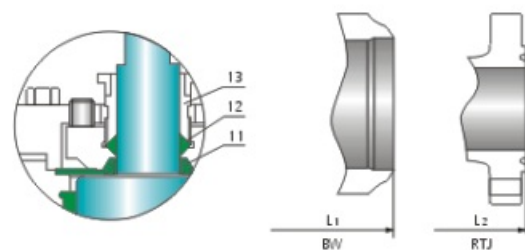
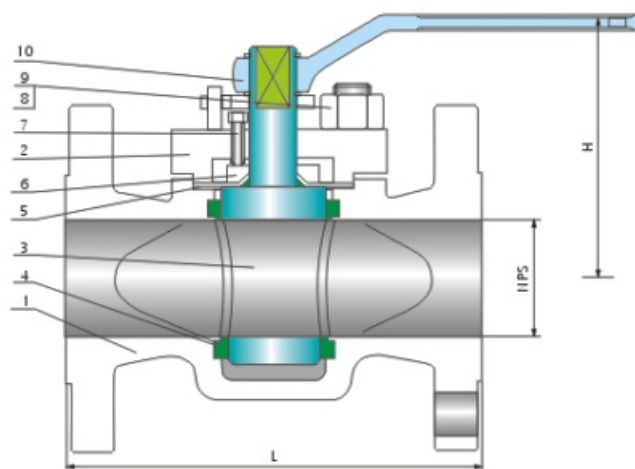
Main Parts Materials

NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Cryogenic Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet Cap	A216-WCB	A351-CF8M	A352-LCB
3	Plug	A182-F304 ¹⁾	A182-F316	A182-F304 ¹⁾
4	Sleeve	Glass Filled PTFE		
5	Bonnet Gasket	Graphite+304 ²⁾	Graphite+316 ²⁾	Graphite+304 ²⁾
6	Adjusting Gasket	A182-F6a	A182-F316	A182-F6a
7	Adjusting Bolt	A193-B7	A193-B8	A320-L7
8	Bonnet Stud	A193-B7	A193-B8	A320-L7
9	Bonnet Bolt	A194-2H	A194-8	A194-4
10	Handle	Carbon Steel		
11	Diaphragm	A167-304+PTFE	A167-316+PTFE	A167-304+PTFE
12	Packing	Graphite		
13	Gland Flange	A216-WCB	A351-CF8M	A352-LCB

Note: 1) A105+ENP Optional;
 2) Jacketed construction.

Design Description

Rugged, Heavy-duty Body
 BC, Bolted Cover
 PTFE Sleeved, Tapered Plug
 Large Port Openings
 Non-lubricated
 Stem Integral with Plug
 In-line Adjustment
 Anti Static Device
 Stopper Device
 Renewable Seat Ring
 Flanged or Butt Welded End
 Available with Gear Operator



Dimensions Data ANSI Class 600LB

Size	in	2	2 1/2	3	4	6	8	10	12
	mm	50	65	80	100	150	200	250	300
L/L1 (RF/BW)	mm	292	330	356	432	559	660	787	838
L2(RTJ)	mm	295	333	359	435	562	664	791	841
H	mm	155	170	185	390	530	590	630	690
W	mm	350	410	320	320	320	350	380	380
Weight (Kg)	RF/RFJ	28	33	37	75	142	250	365	515
	BW	21	23.5	23	46	97	167	227	354

Dimensions Data ANSI Class 900LB

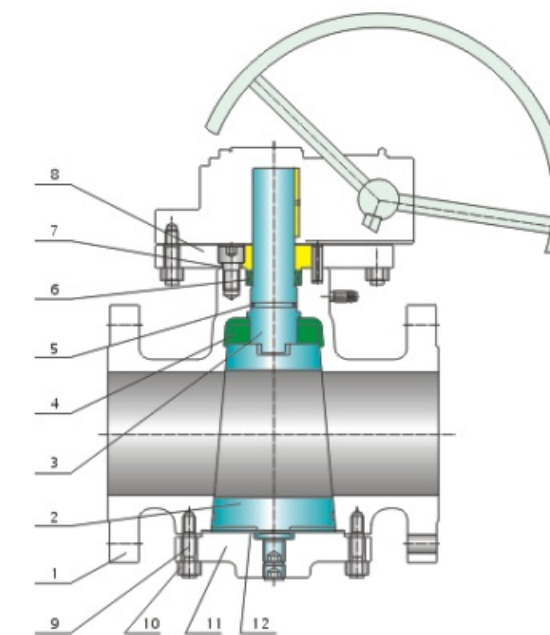
Size	in	2	2 1/2	3	4	6	8	10	12
	mm	50	65	80	100	150	200	250	300
L/L1 (RF/BW)	mm	368	419	381	457	610	737	838	965
L2(RTJ)	mm	371	422	384	460	613	740	841	968
H	mm	155	170	185	390	530	590	630	690
W	mm	350	410	320	320	320	350	380	380
Weight (Kg)	RF/RFJ	52	60	70	92	195	320	455	625
	BW	32	34	47	55	120	197	277	405

Applicable Standards

Design & Manufacture: API 599/API 6D
 Connection Dimension: ASME B16.5/B16.25
 Face to Face: ASME B16.10/API 6D
 Inspection & Test: API 598/API 6D

Main Parts Materials

NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Cryogenic Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Plug	A216-WCB	A351-CF8M	A351-CF8
3	Stem	A182-F6a	A182-F316	A182-F6a
4	Joint	A182 F304	A182 F316	A182 F304
5	O-ring	VITON/NBR		
6	Packing	Flexible Graphite		
7	Bolt	A193-B7	A193-B8	A320-L7
8	Top Flange	A216-WCB	A351-CF8M	A352-LCB
9	Stud	A193-B7	A193-B8	A320-L7
10	Nut	A194-2H	A194-8	A194-4
11	Lower Cover	A216-WCB	A351-CF8M	A352-LCB
12	Gasket	Spiral Wound (Graphite/PTFE+304 or 316)		



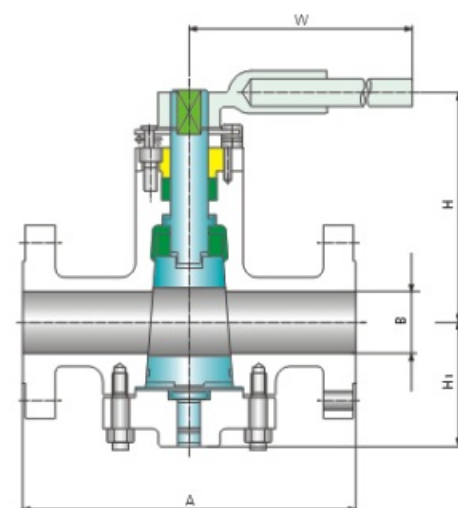
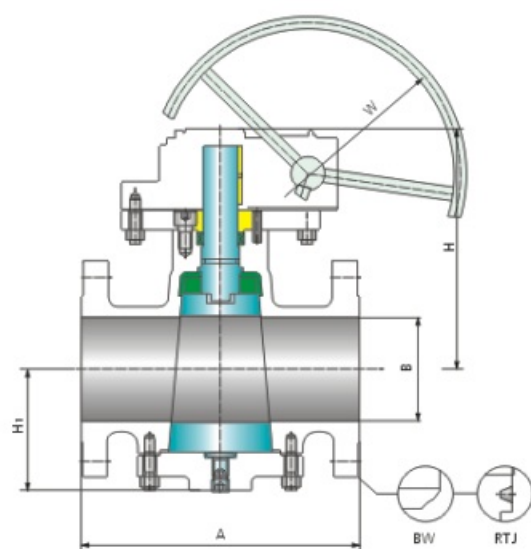
Plug Valve Introduction

1 Purpose

API balance type plug valve suit to nominal pressure class 150 to 1500, work temperature -29°C to 121°C. It's used to be services shut off or turn on in the pipeline of oil, chemical industries, pharmacy, chemical fertilizer, power sector etc. It can be remote control by assembly the motor actuator.

2 Features.

- 1) Rational construction, reliable seal, nice-feature, attractive appearance.
- 2) Inverted pressure balance construction, will be easy for on-off.
- 3) Without oil scupper between body and seal face, the sealed grease can be injected through the lubricating nipple to plug at anytime, strengthen the seal property.
- 4) Plug valve with the anti-static device will be more safer for user.
- 5) Parts materials and flange dimension can be selected according to the actual conditions or client's requirements, to meet various requirement of project.



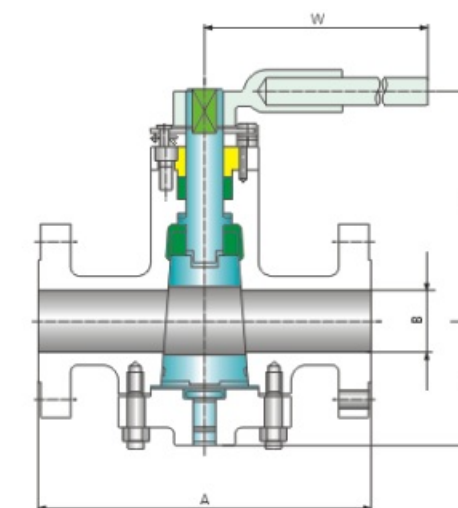
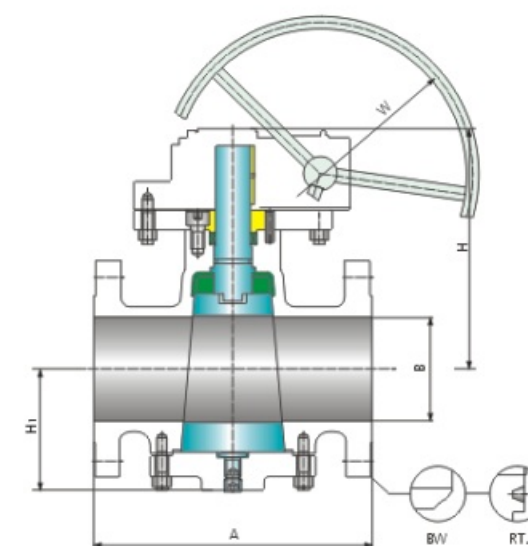
Dimensions Data ANSI Class 150LB

NPS inch	DN	A mm	B mm	H mm	H ₁ mm	W mm	M(RF) kg	T N.m	NPS inch	DN	A mm	B mm	H mm	H ₁ mm	W mm	M(RF) kg	T N.m
Short Series Type ANSI Class 150LB									Venturi Type ANSI Class 150LB								
2	50	178	51	175	106	350	18	98	★10	250	533	252	420	255	600	375	2166
3	80	203	76	190	127	600	31	180	★12	300	610	303	492	316	600	420	3199
4	100	229	102	214	158	700	50	302	★14	350	686	334	498	320	600	480	4849
★6	150	267	152	270	185	900	93	628	★16	400	762	385	645	368	700	590	6032
★8	200	292	201	370	220	600	250	2032	★18	450	864	436	687	426	760	713	9142
★10	250	330	252	420	250	600	330	2166	★20	500	914	487	742	477	760	880	12022
★12	300	356	303	490	310	600	360	3199	★24	600	1067	589	798	522	760	1203	19424

Dimensions Data ANSI Class 300LB

NPS inch	DN	A mm	B mm	H mm	H ₁ mm	W mm	M(RF) kg	T N.m	NPS inch	DN	A mm	B mm	H mm	H ₁ mm	W mm	M(RF) kg	T N.m
Short Series Type ANSI Class 300LB									Venturi Type ANSI Class 300LB								
2	50	216	51	184	108	500	25	172	6	150	403	152	307	200	900	144	1080
2½	70	241	62	190	115	550	33	198	★8	200	419	303	390	230	600	280	3208
3	80	283	76	195	137	600	40	218	★10	250	457	252	433	255	600	370	3258
4	100	305	102	265	168	700	70	536	★12	300	502	303	500	320	700	408	5202
★6	150	403	152	307	200	900	144	1080	★14	350	762	334	630	340	700	510	8486
★8	200	419	201	390	230	600	280	3208	★16	400	838	385	740	376	762	630	10696
★10	250	457	252	433	255	600	370	3258	★18	450	914	436	788	436	762	750	15940
★12	300	502	303	500	320	700	408	5202	★20	500	991	487	833	497	762	890	21040
-	-	-	-	-	-	-	-	-	★24	600	1143	589	889	543	762	1035	24082

Note: ★ Gear Operator



Dimensions Data ANSI Class 600LB

NPS inch	DN	A mm	B mm	H mm	H ₁ mm	W mm	M(RF) kg	T N.m	NPS inch	DN	A mm	B mm	H mm	H ₁ mm	W mm	M(RF) kg	T N.m
Reduced Bore Type ANSI Class 600LB									Venturi Type ANSI Class 600LB								
2	50	292	51	194	108	500	30	292	6	150	403	152	307	200	900	144	1080
2½	70	330	62	200	115	550	40	322	★8	200	419	303	390	230	600	280	3208
3	80	356	76	205	137	780	48	380	★10	250	457	252	433	255	600	370	3258
4	100	432	102	270	168	1100	85	918	★12	300	502	303	500	320	700	408	5202
★6	150	559	152	340	200	600	194	1814	★14	350	762	334	630	340	700	510	8486
★8	200	660	201	405	230	600	305	5114	★16	400	838	385	740	376	762	630	10696
★10	250	787	252	460	255	700	625	6088	★18	450	914	436	788	436	762	750	15940
-	-	-	-	-	-	-	-	-	★20	500	991	487	833	497	762	890	21040
-	-	-	-	-	-	-	-	-	★24	600	1143	589	889	543	762	1035	24082

Dimensions Data ANSI Class 900LB

NPS inch	DN	A mm	B mm	H mm	H ₁ mm	W mm	M(RF) kg	T N.m	NPS inch	DN	A mm	B mm	H mm	H ₁ mm	W mm	M(RF) kg	T N.m
Reduced Bore Type ANSI Class 900LB									Venturi Type ANSI Class 900LB								
2	50	368	51	215	120	700	50	417	★6	150	610	152	365	210	600	240	2548
3	80	381	76	250	145	800	70	540	★8	200	737	201	405	240	600	410	9022
4	100	457	102	300	180	1100	116	1258	★10	250	838	252	460	265	762	860	8516
★6	150	610	152	365	210	600	240	2548	★12	300	965	303	510	335	762	1150	11986
★8	200	737	201	405	240	700	410	7022	★16	400	1130	373	600	390	762	1960	20326
★10	250	838	252	460	265	762	860	8516	-	-	-	-	-	-	-	-	-

Dimensions Data ANSI Class 1500LB

NPS inch	DN	A mm	B mm	H mm	H ₁ mm	W mm	M(RF) kg	T N.m	NPS inch	DN	A mm	B mm	H mm	H ₁ mm	W mm	M(RF) kg	T N.m
Reduced Bore Type ANSI Class 900LB									Venturi Type ANSI Class 900LB								
2	50	368	51	215	120	700	50	654	★6	150	705	144	390	220	600	325	4022
3	80	470	76	60	150	1000	88	862	★8	200	832	192	415	260	762	520	10848
4	100	546	102	320	185	600	160	2064	★10	250	911	239	480	280	762	970	13388
★6	150	705	144	390	220	600	325	4022	★12	300	1130	287	540	360	762	1450	18792
★8	200	832	192	415	260	762	520	10848	-	-	-	-	-	-	-	-	-

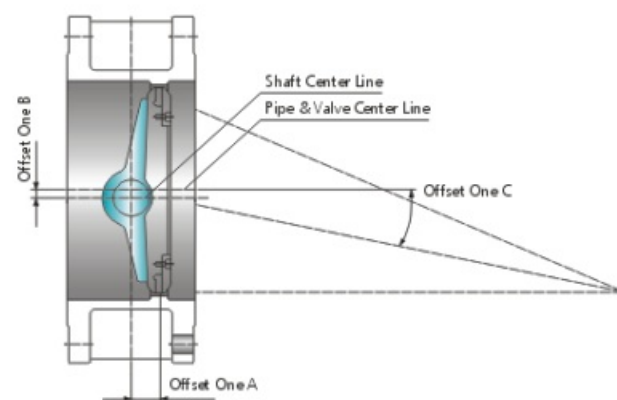
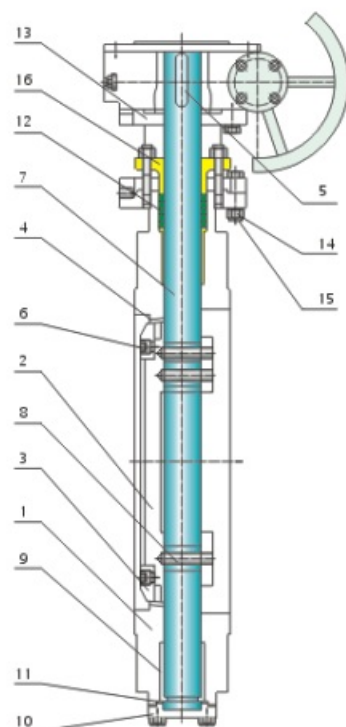
Note: ★ Gear Operator

Applicable Standards

Design & Manufacture: API 609/ASME B16.34
 Connection Dimension: ASME B16.25/ASME B16.5
 Face to Face: API 609
 Inspection & Test: API 598

Main Parts Materials

NO	Part Name	ASTM Material		
		Carbon Steel	Stainless Steel	Cryogenic Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Disc	A216-WCB	A351-CF8M	A352-LCB
3	Seat Gland	A105	A182-F316	A350-LF2
4	Seat	Graphite+304	Graphite+316	Graphite+304
5	Flat Key	Carbon Steel	Stainless Steel	Carbon Steel
6	Screw	B7/2H	B8/8	L7/4
7	Stem	A182-F6a	A182-F316	A182-F6a
8	Pin	A182-F6a	A182-F316	A182-F6a
9	Bushing	Bronze	Bronze	Bronze
10	End Cover	A105	A182-F316	A350-LF2
11	Gasket	Graphite+304 or 316		
12	Packing	Flexible Graphite		
13	Yoke	Carbon Steel	Carbon Steel	Carbon Steel
14	Nut	A194-2H	A194-8	A194-4
15	Bolt	A193-B7	A193-B8	A320-L7
16	Gland	A216-WCB	A351-CF8	A352-LCB

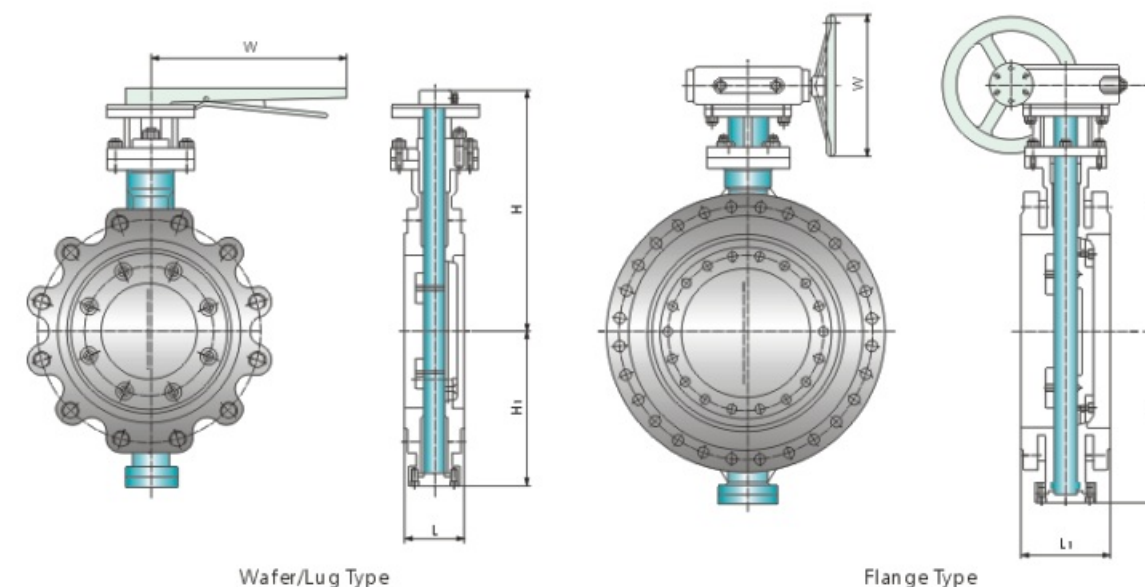


Features and Application

Triple eccentric butterfly valve series are the newly-developed long-life and energy-saving products. The sealing is metal to metal, which could be changed to be seal ring to metal, stainless steel plate and composite graphite to metal.

Under the working condition of high temperature and high pressure, it still has a stable sealing performance. Our company adopts optimized design and new technology, so that the torque is small, gaining the point of energy-saving, labor-saving and reliable sealing performance, thus to ensure the high-reliability of corrosion-resistance, stand fire and wear-resistance.

This product is widely used in petroleum, natural gas, piped gas and medicine, food industry, industrial environmental water treatment and shipping industry.



Wafer/Lug Type

Flange Type

Dimensions Data

ANSI Class 150LB

NPS inch	DN	L mm	L1 mm	H1 mm	H mm	W mm	MT (wafer) kg	T N.m	NPS inch	DN	L mm	L1 mm	H1 mm	H mm	W mm	MT (wafer) kg	T N.m
2	50	43	108	112	225	220	10	55	★16	400	102	216	352	540	600	160	4128
3	80	48	114	126	255	270	12	226	★18	450	114	222	386	585	600	200	5511
4	100	54	127	146	285	270	16	325	★20	500	127	229	415	642	600	270	7190
★6	150	57	140	170	332	360	25	615	★24	600	154	267	482	693	600	420	7814
★8	200	64	152	218	386	300	36	902	★30	750	165	318	622	868	600	700	16450
★10	250	71	165	245	427	300	60	1278	★36	900	200	330	673	1000	700	1050	23501
★12	300	81	178	290	498	500	80	2628	★42	1050	251	410	755	1058	700	1500	31963
★14	350	92	190	316	510	500	120	3276	★48	1200	276	470	866	1278	700	1845	47000

Dimensions Data

ANSI Class 300LB

NPS inch	DN	L mm	L1 mm	H1 mm	H mm	W mm	MT (wafer) kg	T N.m	NPS inch	DN	L mm	L1 mm	H1 mm	H mm	W mm	MT (wafer) kg	T N.m
—	—	—	—	—	—	—	—	—	★16	400	133	216	392	582	600	185	8152
3	80	48	114	130	265	270	15	352	★18	450	149	222	420	651	600	230	10223
4	100	54	127	150	290	270	19	514	★20	500	159	229	465	704	600	330	13469
★6	150	59	140	185	355	300	35	1073	★24	600	181	267	532	780	600	463	22827
★8	200	73	152	236	418	500	42	1954	★30	750	—	318	642	908	700	1280	39726
★10	250	83	165	273	456	500	68	2453	★36	900	—	330	703	1108	700	2150	63452
★12	300	92	178	313	498	600	88	3260	★42	1050	—	410	785	1258	700	3150	85326
★14	350	117	190	338	547	600	144	5405	★48	1200	—	470	906	1478	1000	4885	126742

Dimensions Data

ANSI Class 600LB

NPS inch	DN	L mm	L1 mm	H1 mm	H mm	W mm	MT (wafer) kg	T N.m	NPS inch	DN	L mm	L1 mm	H1 mm	H mm	W mm	MT (wafer) kg	T N.m
—	—	—	—	—	—	—	—	—	★12	300	140	270	378	378	600	398	14236
3	80	54	180	152	305	270	38	575	★14	350	155	290	412	412	600	535	16947
4	100	64	190	193	338	360	58	1043	★16	400	178	310	450	450	600	780	20473
★6	150	78	210	248	416	500	120	3673	★18	450	200	330	512	512	600	989	25218
★8	200	102	230	295	490	600	154	4520	★20	500	216	350	563	563	700	1266	31861
★10	250	117	250	342	580	600	297	7061	★24	600	232	390	622	622	700	1622	46095