

CAST STEEL GATE VALVES SERIES



API600 BOLTED BONNET GATE VALVE

Standards

Design and Manufacture: Cast steel gate valve to API 600 (ISO 10434) or API 6D; Cast stainless steel gate valve to API 603 Or API 600; Forged steel gate valve to API 602. Inspection and Test: API 598, API 600 Or API 6D. End flange dimension: ASME B16.5 (for NPS, 24)ASME B16.47 series B. API 605 Or ASME B16.47 series A.MSS SP-44 (for NPS > 24). BW end dimension:ASME B16.25. Socket-weld dimension:ASME B16.11. Face to face and end to end:ASME B16.10. Pressure-temperature ratings:ASME B16.34.

Design of Disc

Gate Valves with NPS ≥ 2 are of wedge flexible gate
Gate valves with NPS < 2 are of wedge solid gate.

Body and Bonnet Connection

The body and bonnet of Class150 – Class900 gate valves are usually connected with studs and nuts. And the body and bonnet of Class1500 – Class2500 gate valves are usually of pressure seal design.

Gasket of Cover Flange

Carbon steel or stainless steel + flexible graphite combined gasket is used for Class150 gate valve; Stainless steel + flexible graphite wounded gasket is used for Class 300 gate valve; Stainless steel + flexible graphite wounded gasket is used for Class600 gate valve,and ring joint gasket is also optional for Class600 gate valve; Ring Joint gasket is used for Class 900 gate valve; Pressurized seal design is used for Class1500 –Class500 gate valve.

Actuation

Hand wheel or gear box is usually used for gate valve actuation. Chain wheel and electric actuator can be also used for gate valve actuation if being requested by the customers.

Belleville Spring Loaded Packing Impacting System

If being requested by the customer, the Belleville spring loaded packing impacting system can be adopted for enhancing the durability and reliability of the packing seal.

Packing Seal

Molded flexible graphite is used for packing material.PTFE or combined packing material can be also used ifbeing requested by the customer. The internal surface of the stuffing box, of which area is contacted with the packing is of excellent finish (Ra3.2 u m). The stem surface,contacting with the packing, should be rolled and pressed after being precisely machined, so as to reach to the high finish and compactness (Ra0.8 u m) and ensure the reliable tightness of the stem area.

Back Seating Design

All our gate valves have the back seating design. In most cases, the carbon steel gate valve is fitted with a renewable back seat. For stainless steel gate valve, the back seat is machined directly in the bonnet or is machined after welding. When the gate valve is at fully open position, the sealing of the back seat can be very reliable. However, as per the requirement of API 600, it is not advisable to add or change packing by the mean of back seating when the valve is Pressure containing.

Seat

For carbon steel gate valve, the seat is usually forged steel.The sealing surface of the seat is spray welded with hard alloy specified by the customer. Renewable threaded seat is used for NPS ≤10 gate valves, and welded on seat can be also optional if being requested by the customer. Welded on seat is used for NPS ≥10 carbon steel gate valves. For Stainless steel gate valve, integ ral seat is usually adopted, or to weld hard alloy directly integrally. Th readed or welded on seat is also optional for stainless steel gate valve if being requested by the customer.

Stem Design

The stem is of integral forged design. The minimum diameter of the stem shall per the standard requirement. The connection of the stem and disc is T type. The strength of the connecting area is bigger than that of the T threaded part of the stem. The strength test of that area conforms to API 591.

Stem Nut

Usually, the stem nut is made of copper alloy. it is also can be made of ASTM A439 D2 if being requested by the customer. For large sized gate valves (NPS 10 for Class 150, NPS 8 for Class 300, NPS 6 for Class 600, NPS 5 for Class 900), rolling bearing is fitted at the two sides of the stem nut in order to minimize the open and close torque of the gate valve.

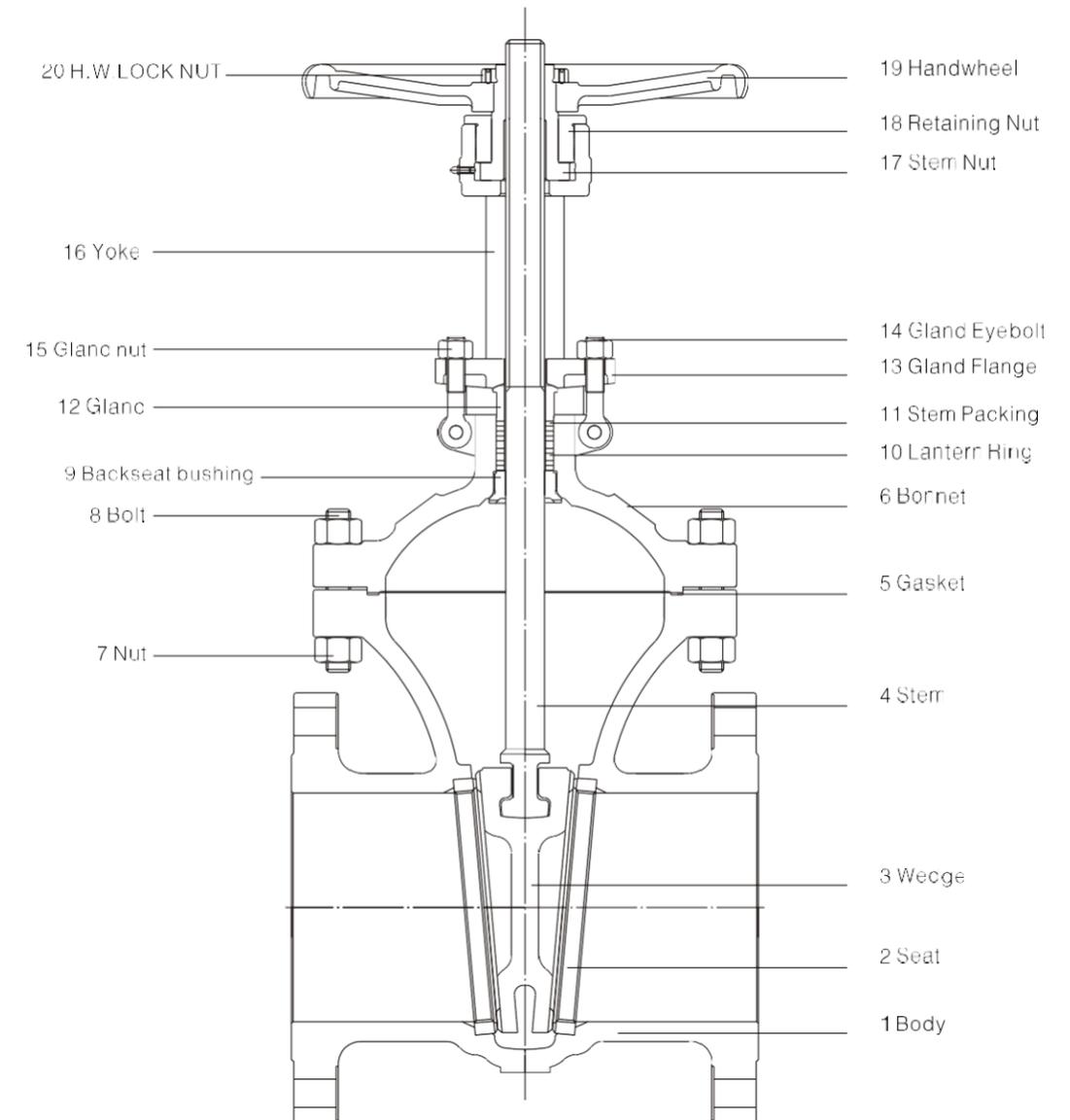
Special Gate Valve

Besides the common gate valves, YuanGao also makes cryogenic gate valve, Jacketed Gate Valve, Bellow Sealed Gate Valve, Extension Stem Gate Valve for underground application,Slat Gate Valve. Etc.



API600 BOLTED BONNET GATE VALVE

Cast Steel Gate Valve Major Features



Main Parameter Specification

Design and Manufacture:	API 600(BS1414,DIN3352),ASME B16.34
Face to Face Dimension:	ASME B16.10
Flange Connection Dimension:	ASME B16.5,NPS ≥26*PER ASME B16.47
BW Connection Dimension:	ASME B16.25
Test and Inspection:	API 598

API600 BOLTED BONNET GATE VALVE

API600 BOLTED BONNET GATE VALVE

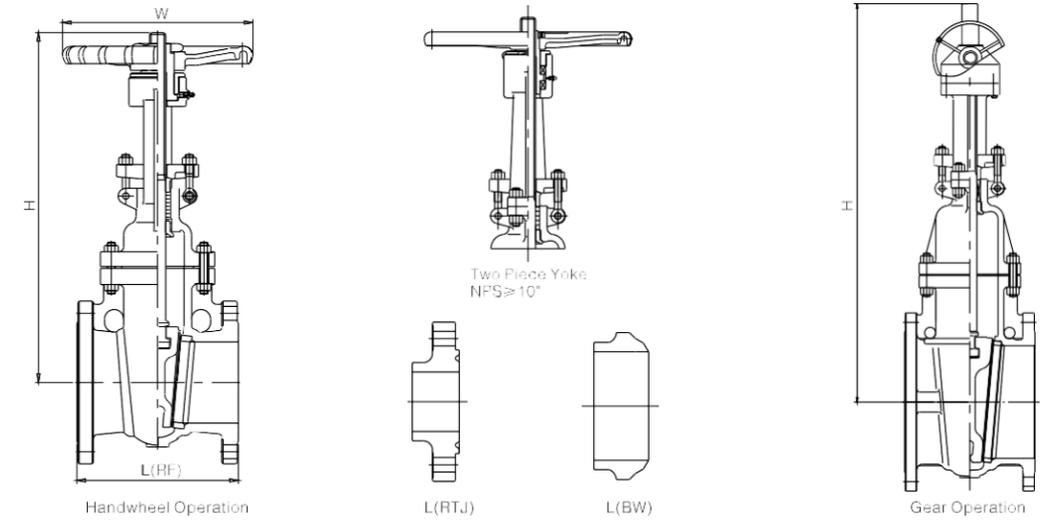
Main Part Material (150Lb/300lb/600Lb/900Lb)

NO.	Part Name	Material							
1	Body	A216 WCB/WCC	A352 LCB/LCC	A217 WC6/WC9/C5	A351 CF8/CF3	A351 CF8M/CF3M	A351 CF8C	A89C 4A/5A/6A	
2	Seat	A105+HF*	A35C LF2+HF*	A182 F11/F22/F304+HF*	A182 F304/F304L+HF*	A182 F316/F316L+HF*	A182 F321+HF*	A182 F51/F53/F55+HF*	
3	Disc	A216 WCB/WCC+HF*	A352 LCB/LCC+HF*	A217 WC6/WC9/C5+HF*	A351 CF8/CF3+HF*	A351 CF8M/CF3M+HF*	A351 CF8C+HF*	A89C 4A/5A/6A+HF*	
4	Stem	A182 F6a	A182 F316/F6a	A182 F6A/A182 F304	A182 F304(L)	A182 F316(L)	A182 F321	A182 F51/F53/F55	
5	Gasket	S.S+Graphite							
6	Bonnet	A216 WCB/WCC	A352 LCB/LCC	A217 WC6/WC9/C5	A351 CF8/CF3	A351 CF8M/CF3M	A351 CF8C	A89C 4A/5A/6A	
7	Nut	A194 2H(M)	A194 4	A194 4	A194 8	A194 8M	A194 4	A194 4	
8	Bolt	A193 B7(M)	A193 L7	A193 B16	A193 B8	A193 B8M	A193 B16	A193 B16	
9	Backseat	A182 F6a	A182 F316	A182 F6a	A182 F304	A182 F316	A182 F321	A182 F51/F53/F55	
10	Lantern ring	A182 F6a	A182 F6a	A182 F304	A182 F304	A182 F316	A182 F304	A182 F316L	
11	Packing	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite	PTFE	
12	Gland	A182 F6a	A182 F6a	A182 F304	A182 F304	A182 F316	A182 F304	A182 F316L	
13	Gland follower	A216 WCB	A352 LCB/LCC	A217 WC6/WC9/C5	A351 CF8	A351 CF8	A351 CF8	A351 CF8	
14	Eyebolt	A193 B7(M)	A193 L7	A193 B16	A193 B8	A193 B8M	A193 B16	A193 B16	
15	Nut	A194 2H(M)	A194 4	A194 4	A194 8	A194 8M	A194 4	A194 4	
16	Yoke	A216 WCB	A352 LCB/LCC	A217 WC6/WC9/C5	A351 Cf8	A351 Cf8	A351 Cf8	A351 Cf8	
17	Stem Nut	Copper Alloy							
18	Retaining Nut	AISI 1025	AISI 1025	AISI 1025	S.S	S.S	S.S	S.S	
19	Handwheel	Ductile iron							
20	H.W.LOCK NUT	AISI 1025	AISI 1025	AISI 1025	S.S	S.S	S.S	S.S	

* Based on different trim, the HF can be different, the widely applied trim include 1#, 2#, 5#, 8#, 10#, 12#, 16# etc.

Construction and Dimension

CLASS 150Lb



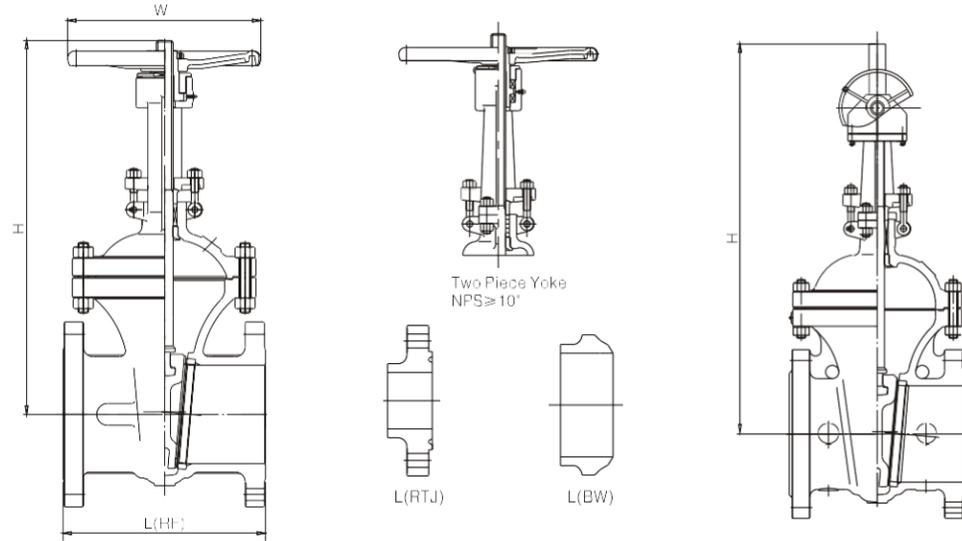
SIZE		L(RF)	L(RT.)	L(BW)	W	M(kg)		H(mm)	
DN(mm)	NPS(in)					RF≈	BW	Manual≈	Gear
40	1 1/2	165	178	165	180	15	14	342	-
50	2	178	191	216	200	17	15	397	-
65	2 1/2	191	203	241	200	27	24	438	-
80	3	203	216	283	250	31	28	504	-
100	4	229	241	305	250	47	42	590	-
125	5	254	267	381	300	58	54	682	-
150	6	267	279	403	300	71	69	756	-
200	8	292	305	419	350	122	113	975	1015
250	10	330	343	457	400	185	170	1170	1210
300	12	356	368	502	450	225	214	1375	1415
350	14	381	394	572	500	355	340	1566	1610
400	16	406	419	610	600	495	475	1770	1825
450	18	432	445	660	600	688	635	1924	1980
500	20	457	470	711	680	900	770	2144	2210
600	24	508	521	813	760	1135	965	2522	2610
650	26	559	-	902	800	1700	1425	2728	2800
700	28	610	-	991	915	1950	1820	2941	3022
750	30	610	-	991	915	2210	1980	3175	3208
800	32	*660	-	*965	915	2900	2600	3320	3400
900	36	711	-	1219	915	3500	3150	3600	3740
1000	40	*762	-	*1066	-	4880	-	-	4100
1050	42	813	-	1397	-	5302	-	-	4300
1200	48	*864	-	*1270	-	7520	-	-	5080
1350	54	*1016	-	*	-	10050	-	-	6430
1500	60	*1270	-	*	-	14800	-	-	6850
1600	64	*1676	-	*	-	15025	-	-	7120

**L will be confirmed by the customer and factory

API600 BOLTED BONNET GATE VALVE

Construction and Dimension

CLASS 300Lb



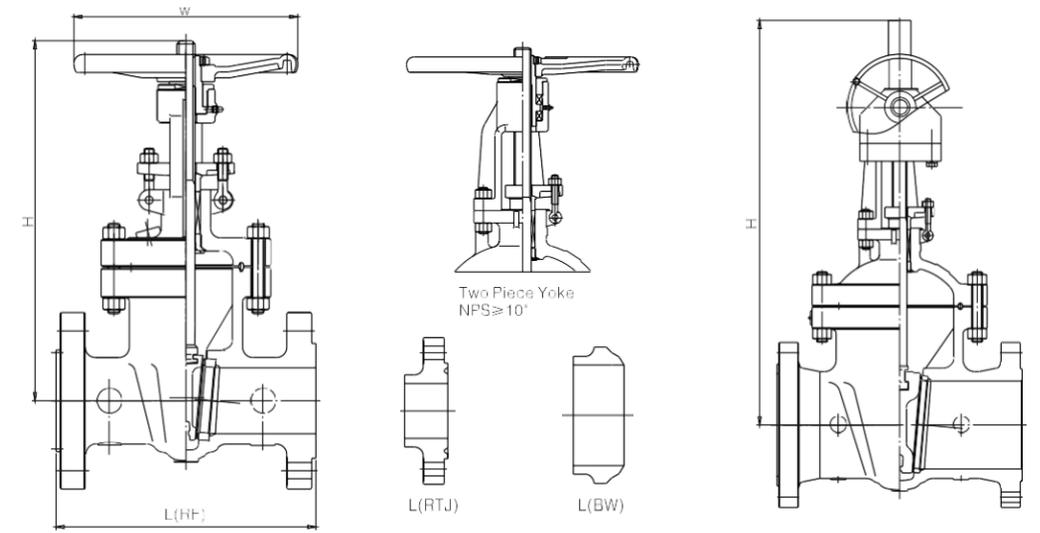
SIZE		L(RF)	L(RT _J)	L(BW)	W	M(kg)		H(mm)	
DN(mm)	NPS(in)					RF _≈	BW	Manual _≈	Gear
40	1 1/2	191	203	191	160	22	16	300	-
50	2	216	232	216	200	26	20	430	-
65	2 1/2	241	257	241	200	39	35	510	-
80	3	283	298	283	250	48	40	540	-
100	4	305	321	305	250	73	59	650	-
125	5	381	397	381	300	110	95	760	-
150	6	403	419	403	350	144	124	840	-
200	8	419	435	419	400	204	176	1040	1080
250	10	457	473	457	450	320	278	1280	1320
300	12	502	518	502	500	465	405	1440	1484
350	14	762	778	762	600	715	643	1590	1646
400	16	838	854	838	600	970	876	1755	1810
450	18	914	930	914	680	1190	1076	1997	2150
500	20	991	1010	991	760	1655	1515	2192	2320
600	24	1143	1165	1143	915	2320	2114	2587	2730
650	26	1245	1270	1245	915	2900	2640	2890	2940
700	28	1346	1372	1346	915	3510	3210	3280	3350
750	30	1397	1422	1397	950	4100	3760	3510	3530
800	32	1524	1552	1524	-	5250	4860	-	3630
900	34	1626	1654	1626	-	-	-	-	-
1000	36	1727	1756	1727	-	6940	6632	-	3820
1050	42	1981	-	1981	-	-	-	-	-
1200	48	*2235	-	*2235	-	-	-	-	-

**L will be confirmed by the customer and factory

API600 BOLTED BONNET GATE VALVE

Construction and Dimension

CLASS 600Lb



SIZE		L(RF)	L(RT _J)	L(BW)	W	M(kg)		H(mm)	
DN(mm)	NPS(in)					RF _≈	BW	Manual _≈	Gear
65	2 1/2	330	333	330	250	55	47	512	-
80	3	356	359	356	250	75	66	549	-
100	4	432	435	432	350	123	102	668	-
150	6	559	562	559	450	260	208	890	-
200	8	660	663	660	500	400	373	1109	1159
250	10	787	790	787	600	700	630	1268	1318
300	12	838	841	838	680	854	766	1458	1508
350	14	889	892	889	760	1112	1059	1640	1735
400	16	991	994	991	800	1317	1243	1825	1895
450	18	1092	1095	1092	915	1862	1768	1992	2155
500	20	1194	1200	1194	-	2200	2090	-	2304
600	24	1397	1407	1397	-	4560	4228	-	2700
650	26	1448	1461	1448	-	5120	4682	-	3020
700	28	1549	1562	1549	-	7450	6850	-	3120
750	30	1651	1664	1651	-	8114	7500	-	3230
800	32	1778	1794	1778	-	9150	8450	-	3540
850	34	1930	1959	1930	-	9830	-	-	3560
900	36	2083	2099	2083	-	10400	9490	-	3905
950	38	*2235	-	*2235	-	11100	-	-	3910
1050	42	*2438	-	*2438	-	-	-	-	-

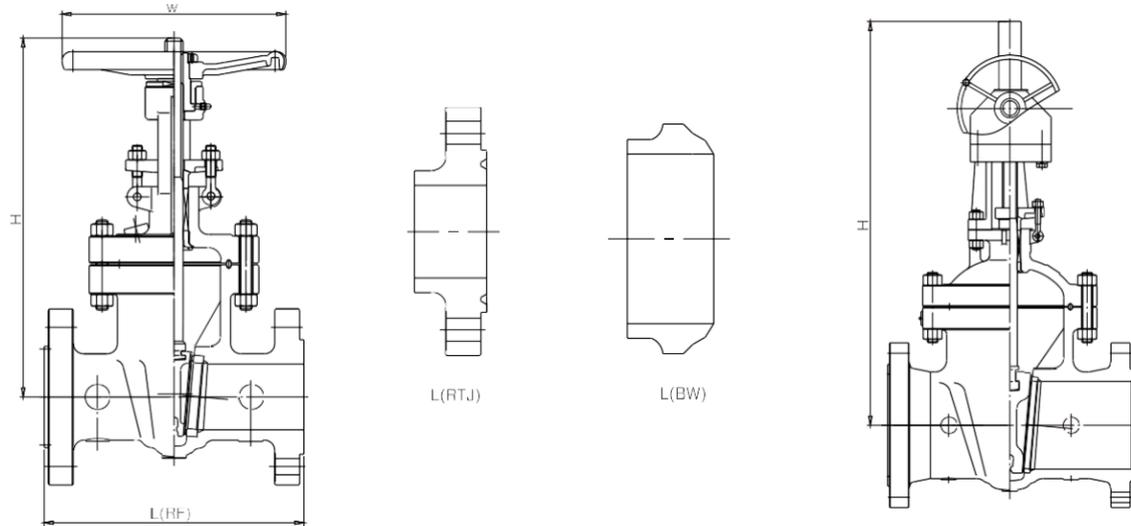
**L will be confirmed by the customer and factory

API600 BOLTED BONNET GATE VALVE

ASME B16.34 PRESSURE SEAL GATE VALVE

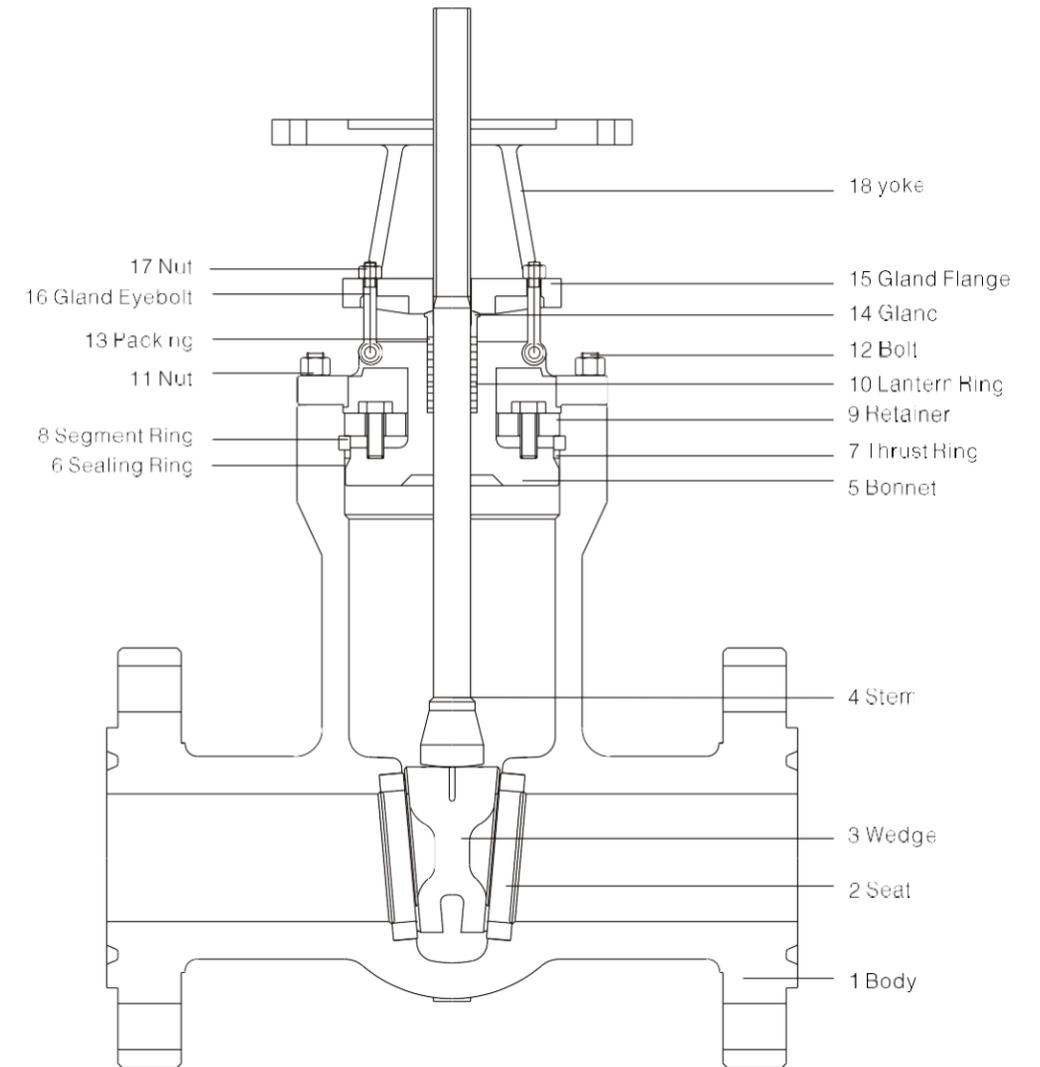
Construction and Dimension

CLASS 900Lb-1500Lb



CLASS	SIZE		L(RF)	L(RT.)	L(BW)	W	M(kg)		H(mm)	
	DN(mm)	NPS(in)					RF≈	BW	Manual≈	Gear
900Lb	50	2	368	371	368	300	55	43	508	-
	65	2 1/2	419	422	419	300	75	59	580	-
	80	3	381	384	381	350	95	79	606	-
	100	4	457	460	457	450	135	111	796	-
	150	6	610	613	610	500	280	258	957	1060
	200	8	737	740	737	600	495	421	1172	1202
	250	10	838	841	838	600	725	684	1300	1334
	300	12	965	968	965	680	1341	1217	1655	1960
	350	14	1029	1032	1029	-	1900	1750	-	2090
	400	16	1130	1140	1130	-	2550	2364	-	2390
	450	18	1219	1232	1219	-	3275	3009	-	2580
1500Lb	500	20	1321	1334	1321	-	3900	3574	-	2780
	600	24	1549	1562	1549	-	5985	5325	-	3130
	50	2	368	371	368	300	95	80	475	-
	65	2 1/2	419	422	419	330	122	110	526	-
	80	3	470	473	470	400	181	145	735	-
	100	4	546	549	546	450	275	220	838	900
	150	6	705	711	705	600	627	560	1042	1221
	200	8	832	841	832	700	1050	922	1385	1555
	250	10	991	1000	991	800	2200	1950	1645	1800
	300	12	1130	1146	1130	915	3300	2850	1750	2010
	350	14	1257	1276	1257	-	4200	3550	-	2159
400	16	1384	1407	1384	-	6300	5500	-	2330	
450	18	1537	1559	1537	-	7350	6400	-	2540	
500	20	1664	1686	1664	-	9800	8500	-	2862	
600	24	1943	1972	1943	-	17800	15600	-	3135	

Pressure Seal Gate Valve Major Features



Main Parameter Specification

Design and Manufacture: API 600(BS1414,DIN3352),ASME B16.34
 Face to Face Dimension: ASME B16.10
 Flange Connection Dimension: ASME B16.5,NPS≥26"PER ASME B16.47
 BW Connection Dimension: ASME B16.25
 Test and Inspection: API 598

ASME B16.34 PRESSURE SEAL GATE VALVE

ASME B16.34 PRESSURE SEAL GATE VALVE

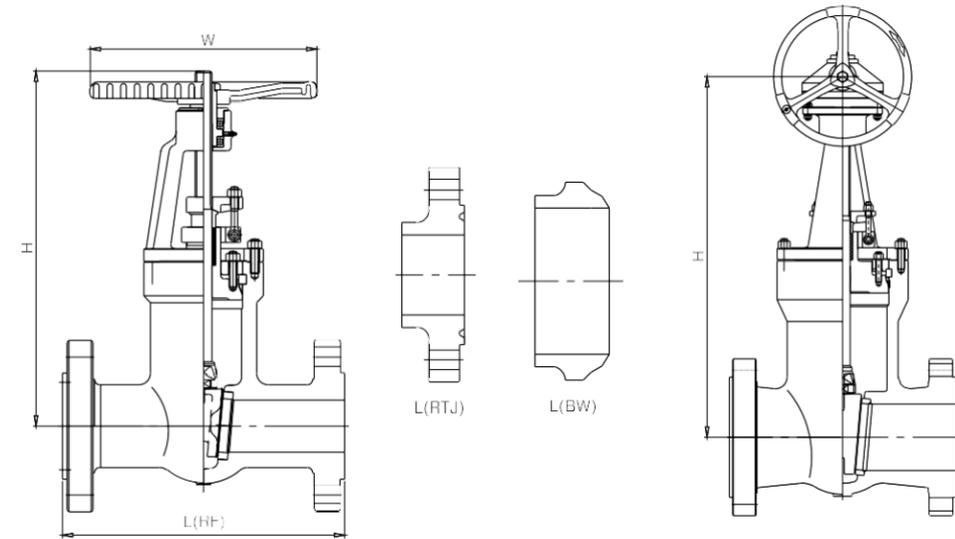
Main Part Material(900Lb/1500Lb/2500Lb)

NO.	Parts	Material							
		A216 WCB/WCC	A352 LCB/LCC	A217 WC6/WC9/C5	A217 C12A	A351 CF8/CF3	A351 CF8M/CF3M	A351 CF8C	A890 4A/5A/6A
1	Body	A216 WCB/WCC	A352 LCB/LCC	A217 WC6/WC9/C5	A217 C12A	A351 CF8/CF3	A351 CF8M/CF3M	A351 CF8C	A890 4A/5A/6A
2	Seat	A105+HF*	LF2+HF*	A182 F11/F22/F5+HF*	A182 F9*	A182 F304(L)+HF*	A182 F316(L)+HF*	A182 F32*+HF*	A182 F51/F53/F55+HF*
3	Disc	A216 WCB/WCC+HF*	A352 LCB/LCC+HF*	A217 WC6/WC9/C5+HF*	A217 C12A	A351 CF8/CF3+HF*	A351 CF8M/CF3M+HF*	A351 CF8C+HF*	A890 4A/5A/6A+HF*
4	Stern	A182 F6a	A182 F316/F6a	A182 F6A/A182 F304	A182 F304	A182 F304(L)	A182 F316(L)	A182 F32*	A182 F51/F53/F55
5	Bonnet	A105	LF2	A182 F11/F22/F5	A182 F9*	A182 F304(L)	A182 F316(L)	A182 F32*	A182 F51/F53/F55
6	Sealing ring	A182 F6A	A182 F304	A182 F304	A182 F304	A182 F304	A182 F316	A182 F316	A182 F5*
7	Thrust ring	A182 F6A	A182 F304	A182 F304	A182 F304	A182 F304	A182 F316	A182 F316	A182 F5*
8	Segment Ring	A182 F6A	A182 F6A	A182 F6A	A182 F6A	A182 F6A	A182 F6A	A182 F6A	A182 F6A
9	Retainer	A105	LF2	A182 F11/F22/F5	A182 F9*	A182 F304	A182 F316	A182 F32*	A182 F51/F53/F55
10	Lantern Ring	A182 F6a	A182 F6a	A182 F304	A182 F304	A182 F304	A182 F316	A182 F316	A182 F316L
11	Nut	A194 2H(M)	A194 4	A194 4	A194 4	A194 8	A194 8M	A194 4	A194 4
12	Bolt	A193 B7(M)	A193 L7	A193 B*6	A193 B*6	A193 B8	A193 B8M	A193 B*6	A193 B*6
13	Packing	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite
14	Gland	A182 F6a	A182 F6a	A182 F304	A182 F304	A182 F304	A182 F316	A182 F316	A182 F316L
15	Gland flange	A216 WCB	A352 LCB/LCC	A217 WC6/WC9/C5	A217 C12A	A351 CF8	A351 CF8	A351 CF8	A351 CF8
16	Gland eyebolt	A193 B7(M)	A193 L7	A193 B*6	A193 B*6	A193 B8	A193 B8M	A193 B*6	A193 B*6
17	Nut	A194 2H(M)	A194 4	A194 4	A194 4	A194 8	A194 8M	A194 4	A194 4
18	Yoke	A216 WCB	A352 LCB/LCC	A217 WC6/WC9/C5	A217 C12A	A351 Cf8	A351 Cf8	A351 Cf8	A351 Cf8

* Based on different trim, the HF can be different, the widely applied trim include 1#, 2#, 5#,8#,10#,12#,16#etc.

Construction and Dimension

CLASS 900Lb



SIZE		L(RF)	L(RTJ)	L(BW)	W	M(kg)		H(mm)	
DN(mm)	NPS(in)					RF≈	BW	Manual≈	Gear
50	2	368	371	216	300	70	52	438	-
65	2 1/2	419	422	254	300	95	71	488	-
80	3	381	384	305	350	138	119	721	-
100	4	457	460	356	450	220	190	807	-
150	6	610	613	508	500	280	224	1058	1046
200	8	737	740	660	600	610	522	1225	1265
250	10	838	841	787	600	743	634	-	1500
300	12	965	968	914	650	1341	1198	-	1685
350	14	1029	1038	991	-	1560	1394	-	1830
400	16	1130	1140	1092	-	2100	1892	-	2145
450	18	1219	1232	1219	-	2750	-	-	2300
500	20	1321	1334	1321	-	3450	2950	-	2483
600	24	1549	1568	1549	-	5464	4800	-	2944

ASME B16.34 PRESSURE SEAL GATE VALVE

Construction and Dimension

CLASS 1500Lb

SIZE		L(RF)	L(RTJ)	L(BW)	W	M(kg)		H(mm)	
DN(mm)	NPS(in)					RF≈	BW	Manual≈	Gear
50	2	368	371	216	300	70	52	438	-
65	2 1/2	419	422	254	350	95	71	570	-
80	3	470	473	305	400	115	82	723	-
100	4	546	549	406	450	195	147	838	900
150	6	705	711	559	600	338	289	1042	1030
200	8	832	841	711	760	577	420	1235	1276
250	10	991	1000	864	800	1016	760	1440	1490
300	12	1130	1146	991	915	2010	1650	1650	1700
350	14	1257	1276	1067	-	2500	2003	-	1968
400	16	1384	1407	1194	-	2955	2313	-	2275
450	18	1537	1559	1346	-	3863	2454	-	2480
500	20	1664	1686	1473	-	5606	3200	-	2687
600	24	1943	1972	1943	-	6480	4900	-	3040

CLASS 2500Lb

SIZE		L(RF)	L(RTJ)	L(BW)	W	M(kg)		H(mm)	
DN(mm)	NPS(in)					RF≈	BW	Manual≈	Gear
50	2	451	454	279	450	98	61	610	-
65	2 1/2	508	514	330	500	179	124	695	-
80	3	578	584	368	-	193	160	-	780
100	4	673	683	457	-	225	174	-	890
150	6	914	927	610	-	495	360	-	1135
200	8	1022	1038	762	-	700	527	-	1300
250	10	1270	1292	914	-	1480	1135	-	1680
300	12	1422	1445	1040	-	2400	1943	-	1750
350	14	-	-	1118	-	3700	-	-	-
400	16	-	-	1245	-	-	-	-	-
450	18	-	-	1397	-	-	-	-	-
500	20	-	-	1524	-	-	-	-	-
600	24	-	-	1676	-	-	-	-	-