

# Cast Steel GGC

**Gate Valve  
Globe Valve  
Swing Check Valve  
Y Strainer**



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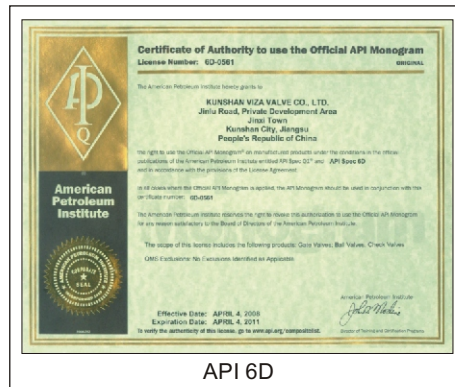
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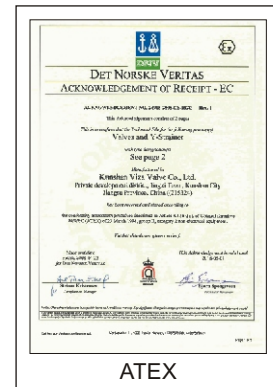
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ISO9001 : 2008



API 6D



## Company Overview



VIZA Valves is China's leading manufacturer of industrial valves. The head office, Suzhou Viza Valve Co., Ltd., is located in Suzhou and has been manufacturing top-quality valves for more than 10 years. From its early days, VIZA Valves has always been an export-oriented manufacturer. All valves are designed, produced, and tested under rigorous international standards such as API, ANSI, ASTM, NACE, ISO, EN, BS, DIN, UNI, MSS SP, AWWA, and JIS. VIZA Valves products are 100% exported to North America, Western Europe, the Middle East, and Australia, to name a few locations.



Viza Valves has built own manufacturing plants: one is Kunshan Viza Valve Co., Ltd. (refer to Kunshan Viza) locating in Kunshan, nearby Shanghai, is focusing on high and middle pressure valves such as floating and trunnion mounted ball valves, cast steel gate, globe and check valves; another is Tianjin Tanggu Viza Valve Co., Ltd. (refer to Tianjin Viza) locating in Tianjin, nearby Beijing, is focusing on low pressure valves such as butterfly valves, resilient seat gate valves and cast iron valves. All products conform to international standards and are widely used in Oil & Gas, Pipeline Transmission, Refining, Chemical and Petrochemical, Power Generation, Water and Waste Water Treatment industries.

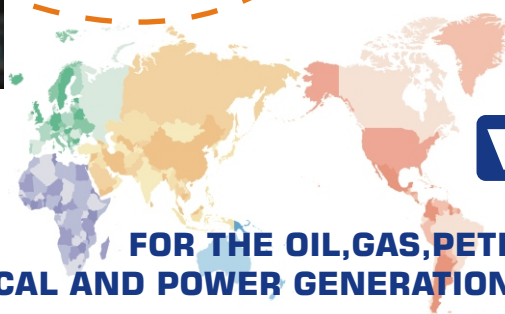


Kunshan Viza is specialized in manufacturing Ball valves and Cast Steel Gate, Globe, Check valves which details are listed in this catalogue. Valve sizes are from 2" to 48", pressure class from 150lbs to 2500lbs, with comprehensive body materials such as WCB, LCB, LCC, LC3, WC1, WC6, WC9, C5, C12, CF8, CF8M, CF3, CF3M, CF8C, Alloy 20, etc. and all kinds of trims for option. The factory has strict quality assurance system and has been certified by API600 & API6D, ISO9001: 2008, PED/CE and ATEX.

VIZA Valves' goal is to produce a zero defect product with a long and reliable service life. Making constant improvements towards this goal minimizes the Total Ownership Costs for all the customers, EPCs, and end-users. VIZA Valves is ready to serve the global energy industry and to work towards a sustainable new world.



# Cast Steel Valves



**FOR THE OIL, GAS, PETROCHEMICAL,  
CHEMICAL AND POWER GENERATION INDUSTRIES**

# Figure Numbers



Example:

12	GA	9	R	CB	5	Ga	-B
1	2	3	4	5	6	7	8

i.e. 12" OS&Y BB Gate Valve, Class 900, Raised Face Flange End, ASTM A216 WCB Body/Bonnet, Trim5, Bevel Gear Type A Actuator, with By Pass.

## 1 Valve Size

NPS	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	30"	32"	36"	40"	42"	48"
DN	50	65	80	100	150	200	250	300	350	400	450	500	600	700	750	800	900	1000	1050	1200
Symbol	2	2.5	3	4	6	8	10	12	14	16	18	20	24	28	30	32	36	40	42	48

## 2 Valve Type

Type	Gate	Globe	Swing Check	Y-Strainer
Symbol	GA	GL	CH	ST

## 3 Nominal Pressure

Class	150	300	600	900	1500	2500
Symbol	1	3	6	9	15	25

PN	16	25	40	63	100	160
Symbol	16	25	40	63	100	160

## 4 End Type

Type	Raised Face Flange	Ring Joint Flange	Groove Face Flange	Butt Welding End	Socket Welding End	Screwed End
Symbol	R	J	G	B	S	N

## 5 Body/Bonnet Material

Material	WCB	WC1	WC6	WC9	C5	C12	LCB	LCC	LC2	LC3	CF8	CF8M	CF3	CF3M	CF8C	CN7M
Symbol	CB	C1	C6	C9	C5	C12	LB	LC	L2	L3	F8	8M	F3	3M	8C	7M
Symbol Temperature	°C	-29 to 427	-29 to 468	-29 to 593	-29 to 649	-29 to 649	-46 to 343	-73 to 343	-101 to 343	-254 to 649	-254 to 649	-254 to 427	-254 to 454	-29 to 649	-29 to 316	
	°F	-20 to 800	-20 to 875	-20 to 1100	-20 to 1200	-20 to 1200	-50 to 650	-100 to 650	-150 to 650	-425 to 1200	-425 to 1200	-425 to 800	-425 to 850	-20 to 1200	-20 to 600	
ASTM	A216	A217				A352				A351						
Standard	150-600#	8	8				2,10,12				2,10,12					
Trim No.	900-2500#	5	5				16				16					

## 6 Trim Material

Trim Number	1	2	5	8	9	10	12	13	16	17	20
Symbol	1	2	5	8	9	10	12	13	16	17	20
Seat Surface	13Cr	304	HF	HF	Monel	316	HF	Alloy 20	HF	HF	Bronze
Disc Surface	13Cr	304	HF	13Cr	Monel	316	316	Alloy 20	HF	HF	Bronze
Stem	F6a	F304	F6a	F6a	Monel	F316	F316	B473	F316	F347	Bronze
Back Seat Ring	410	304	410	410	Monel	316	316	B473	316	347	Bronze

Note:

- Trim number 1 to 17 are same as API 600 table 3.
- HF: Hardfaced with Stellite 6 (Co-Cr-W alloy) or equivalent.
- B473: ASTM B473 N08020.
- The trim Symbol of Y-Strainer is none.

## 7 Valve Actuator

Type	Handwheel	Bevel Gear Type A	Bevel Gear Type B	Spur Gear Type C	Spur Gear Type D	Electrical Actuator	Pneumatic	Bare Stem
Symbol	None	Ga	Gb	Gc	Gd	E	P	B

## 8 Special Code

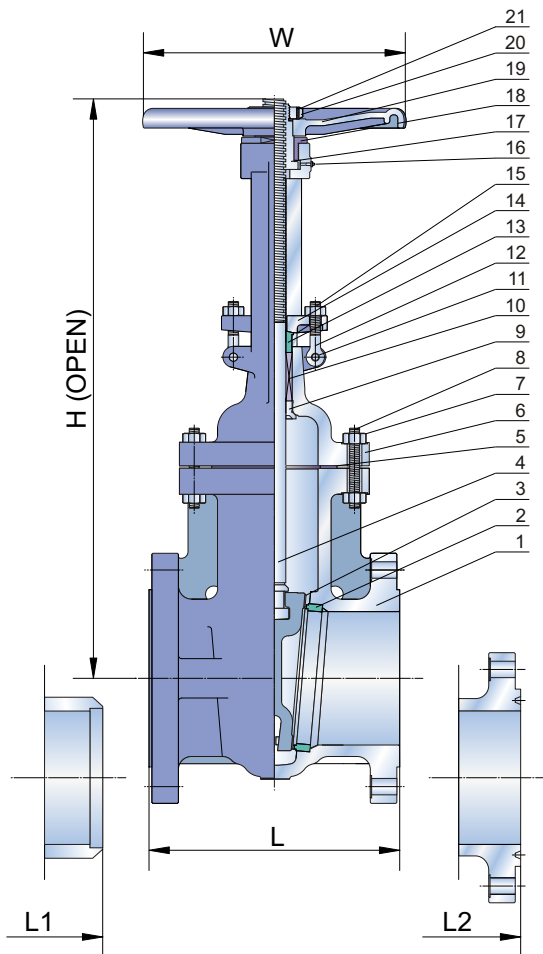
Description	Gate/Globe: OS&Y BB, Swing Check Type 1	Angel Type Globe	Swing Check Type2	Piston Check	Non Rising Stem	Pressure Seal
Symbol	None	A	T	I	N	P

Description	By Pass	Locking device	Stem Protection	Water Seal	Bellows Seal	Extended Bonnet	Reduce Bore	Other
Symbol	B	L	S	W	G	E	R	O

Note: If one valve has two or more special codes, the symbol shall sort by letter.



Figure No. GA1RCB8  
GA1BCB8  
GA1JCB8



### FEATURES

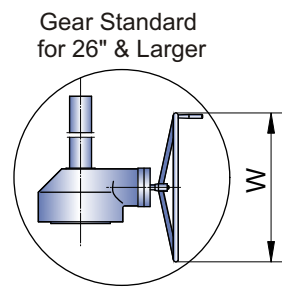
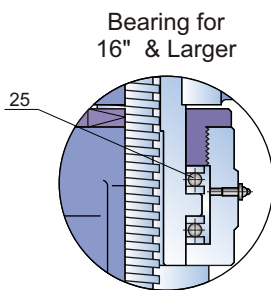
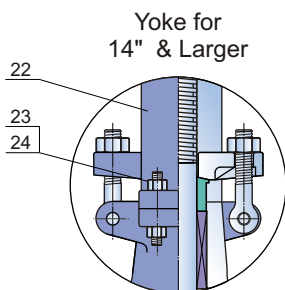
OS & Y, Rising Stem
Bolted Bonnet
Flexible Wedge (2" Solid)
Extended Bonnet for Cryogenic Services
By Pass On Request
Locking Device Optional

### SPECIFICATIONS

Design	ASME B16.34/API 600
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5/B16.47
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

### STANDARD MATERIALS OF PARTS

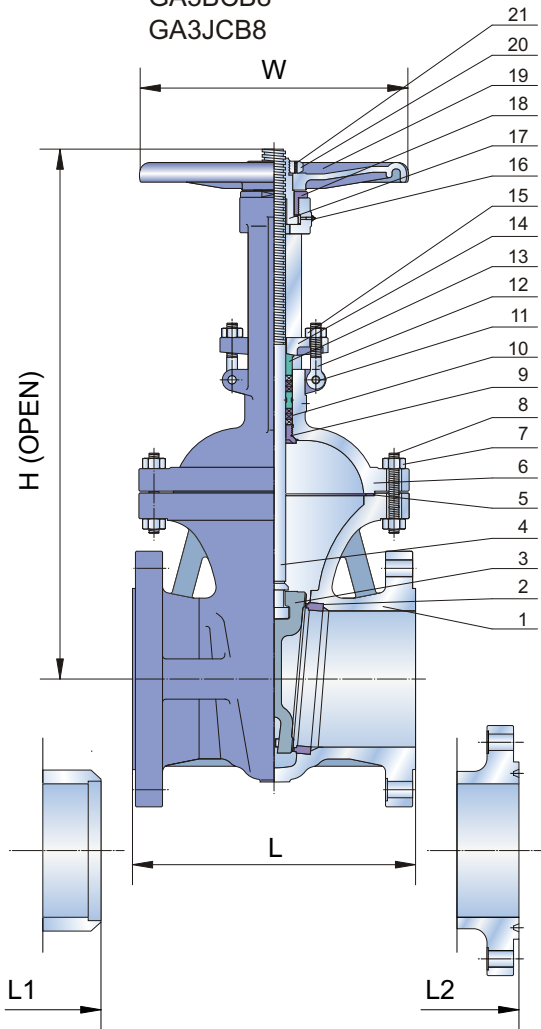
ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105+Stellite Faced
3	Disc	ASTM A216 GR.WCB+13Cr Faced
4	Stem	ASTM A182 GR.F6a
5	Gasket	Soft Iron+Graphite
6	Bonnet	ASTM A216 GR.WCB
7	Bonnet Bolt Nuts	ASTM A194 GR.2H
8	Bonnet Bolts	ASTM A193 GR.B7
9	Backseat Bushing	ASTM A276 Type 410
10	Stem Packing	Braided Graphite & Die formed Graphite Ring
11	Eye Bolt Pins	Carbon Steel
12	Gland Eye Bolts	ASTM A307 GR.B
13	Gland	ASTM A276 Type 410
14	Gland Flange	ASTM A216 GR.WCB
15	Eye Bolt Nuts	ASTM A194 GR.2H
16	Grease Nipple	Carbon Steel
17	Stem Nut	ASTM A439 GR.D-2
18	Retaining Nut	Carbon Steel
19	Handwheel	Ductile Iron
20	Handwheel Nut	Carbon Steel
21	Screw	Carbon Steel
22	Yoke	ASTM A216 GR.WCB
23	Yoke Pan Bolt Nuts	ASTM A194 GR.2H
24	Yoke Pan Bolts	ASTM A193 GR.B7
25	Bearing	Steel



Dimensions and Weights		2"	2.5"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	26"	28"	30"	32"	36"	40"	42"	48"
SIZE	in	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	800	900	1000	1050	1200
	mm	7.00	7.50	8.00	9.00	10.50	11.50	13.00	14.00	15.00	16.00	17.00	18.00	20.00	22.00	24.00	28.00	28.00	30.00	31.00	34.00	
L	in	178	191	203	229	267	292	330	356	381	406	432	457	508	559	610	610	660	711	762	787	864
	mm	8.50	9.50	11.12	12.00	15.88	16.50	18.00	19.75	22.50	24.00	26.00	28.00	32.00	34.00	36.00	36.00	38.00	40.00	42.00	43.00	46.00
L1	in	216	241	283	305	403	419	457	502	572	610	660	711	813	864	914	914	965	1016	1067	1092	1168
	mm	7.50	8.00	8.50	9.50	11.00	12.00	13.50	14.50	15.50	16.50	17.50	18.50	20.50	—	—	—	—	—	—	—	—
L2	in	191	203	216	241	279	305	343	368	394	419	445	470	521	—	—	—	—	—	—	—	—
	mm	15.31	17.28	19.69	23.43	30.59	38.39	45.67	54.72	61.22	71.30	82.80	90.55	102.72	109.45	130.98	141.97	145.98	154.49	168.50	175.39	193.31
H	in	389	439	500	595	777	975	1160	1390	1555	1811	2103	2300	2609	2780	3327	3606	3708	3924	4280	4455	4910
	mm	8	8	10	10	14	14	16	18	22	24	25	27	30	24	24	24	24	24	24	32	32
W	in	200	200	250	250	350	350	400	450	560	600	640	680	760	610	610	610	610	610	610	810	810
	mm	17	23	29	47	80	129	192	287	410	571	720	1170	1466	1699	1931	2380	2490	3600	4580	4710	6500
Weight RF	kg																					



Figure No. GA3RCB8  
GA3BCB8  
GA3JCB8



**FEATURES**

OS & Y, Rising Stem
Bolted Bonnet
Flexible Wedge (2" Solid)
Extended Bonnet for Cryogenic Services
By Pass On Request
Locking Device Optional

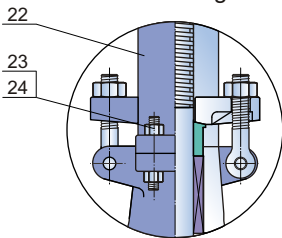
**SPECIFICATIONS**

Design	ASME B16.34/API 600
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5/B16.47
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

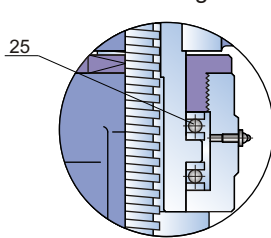
**STANDARD MATERIALS OF PARTS**

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105 + Stellite Faced
3	Disc	ASTM A216 GR.WCB+13Cr Faced
4	Stem	ASTM A182 GR.F6a
5	Gasket	Soft Iron+Graphite
6	Bonnet	ASTM A216 GR.WCB
7	Bonnet Bolt Nuts	ASTM A194 GR.2H
8	Bonnet Bolts	ASTM A193 GR.B7
9	Backseat Bushing	ASTM A276 Type 410
10	Stem Packing	Braided Graphite & Die formed Graphite Ring
11	Eye Bolt Pins	Carbon Steel
12	Gland Eye Bolts	ASTM A307 GR.B
13	Gland	ASTM A276 Type 410
14	Gland Flange	ASTM A216 GR.WCB
15	Eye Bolt Nuts	ASTM A194 GR.2H
16	Grease Nipple	Carbon Steel
17	Stem Nut	ASTM A439 GR.D-2
18	Retaining Nut	Carbon Steel
19	Handwheel	Ductile Iron
20	Handwheel Nut	Carbon Steel
21	Screw	Carbon Steel
22	Yoke	ASTM A216 GR.WCB
23	Yoke Pan Bolt Nuts	ASTM A194 GR.2H
24	Yoke Pan Bolts	ASTM A193 GR.B7
25	Bearing	Steel
26	Lantern Ring On Request	ASTM A276 Type 410

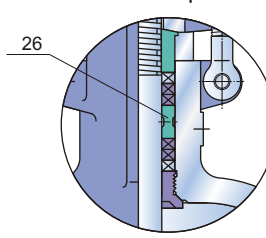
Yoke for 12" & Larger



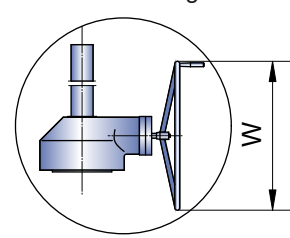
Bearing for 10" & Larger



Lantern Ring On Request



Gear Standard for 18" & Larger



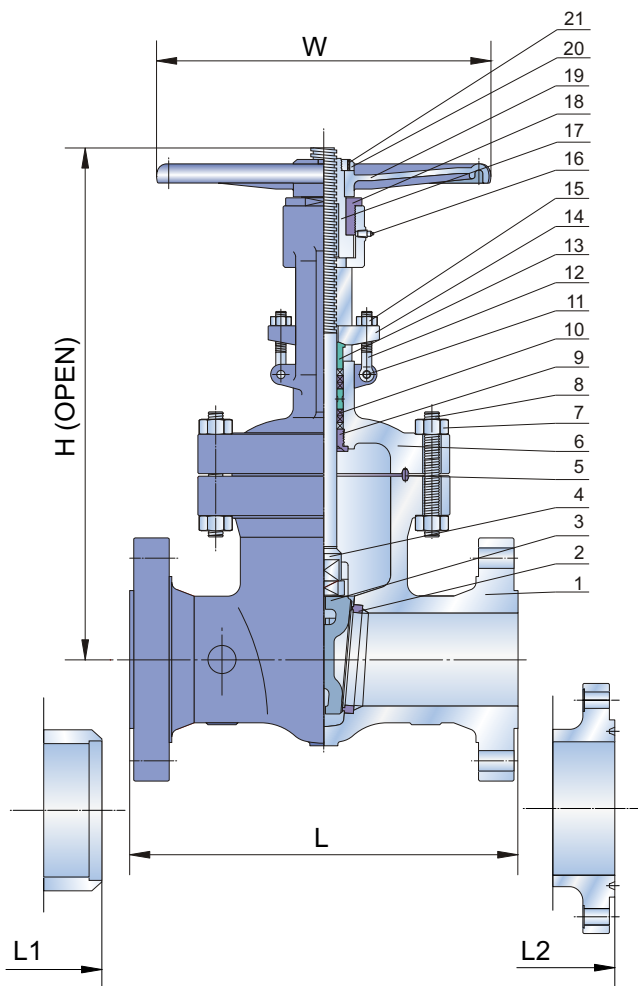
Dimensions and Weights																			
SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	26"	28"	30"	32"	36"
L/L1	in	8.50	9.50	11.12	12.00	15.88	16.50	18.00	19.75	30.00	33.00	36.00	39.00	45.00	49.00	53.00	55.00	60.00	68.00
	mm	216	241	283	305	403	419	457	502	762	838	914	991	1143	1245	1346	1397	1524	1727
L2	in	9.12	10.12	11.74	12.62	16.50	17.12	18.62	20.37	30.62	33.62	36.62	39.75	45.88	50.00	54.00	56.00	61.12	69.12
	mm	232	257	298	321	419	435	473	517	778	854	930	1010	1165	1270	1372	1422	1552	1756
H	in	16.93	19.88	20.87	24.80	31.50	39.69	48.82	57.87	64.76	72.48	77.13	86.38	102.28	110.24	122.05	130.71	140.16	153.94
	mm	430	505	530	630	800	1008	1240	1470	1645	1841	1959	2194	2598	2800	3100	3320	3560	3910
W	in	8	10	10	10	14	16	18	20	24	24	24	24	24	24	24	32	32	32
	mm	200	250	250	250	350	400	450	500	600	600	610	610	610	610	610	810	810	810
Weight RF	kg	30	45	57	88	147	219	368	522	694	1080	1235	1655	2320	3100	3893	4930	5230	6885



# Cast Steel Gate Valve

**Class 600**

Figure No. GA6RCB8  
GA6BCB8  
GA6JCB8



### FEATURES

OS & Y, Rising Stem
Bolted Bonnet
Flexible Wedge (2" Solid)
Extended Bonnet for Cryogenic Services
By Pass On Request
Locking Device Optional

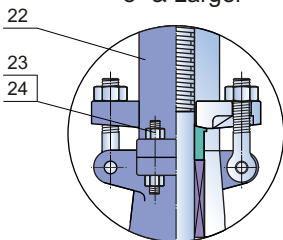
### SPECIFICATIONS

Design	ASME B16.34/API 600
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

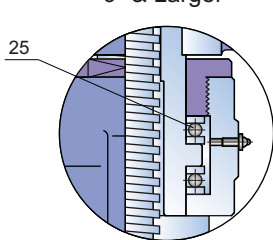
### STANDARD MATERIALS OF PARTS

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105 + Stellite Faced
3	Disc	ASTM A216 GR.WCB+13Cr Faced
4	Stem	ASTM A182 GR.F6a
5	Gasket, Ring Joint	Soft Iron
6	Bonnet	ASTM A216 GR.WCB
7	Bonnet Bolt Nuts	ASTM A194 GR.2H
8	Bonnet Bolts	ASTM A193 GR.B7
9	Backseat Bushing	ASTM A276 Type 410
10	Stem Packing	Braided Graphite & Die formed Graphite Ring
11	Eye Bolt Pins	Carbon Steel
12	Gland Eye Bolts	ASTM A307 GR.B
13	Gland	ASTM A276 Type 410
14	Gland Flange	ASTM A216 GR.WCB
15	Eye Bolt Nuts	ASTM A194 GR.2H
16	Grease Nipple	Carbon Steel
17	Stem Nut	ASTM A439 GR.D-2
18	Retaining Nut	Carbon Steel
19	Handwheel	Ductile Iron
20	Handwheel Nut	Carbon Steel
21	Screw	Carbon Steel
22	Yoke	ASTM A216 GR.WCB
23	Yoke Pan Bolt Nuts	ASTM A194 GR.2H
24	Yoke Pan Bolts	ASTM A193 GR.B7
25	Bearing	Steel
26	Lantern Ring On Request	ASTM A276 Type 410

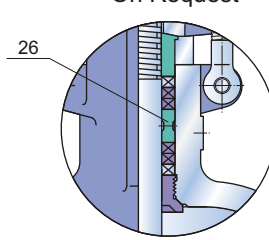
Yoke for 8" & Larger



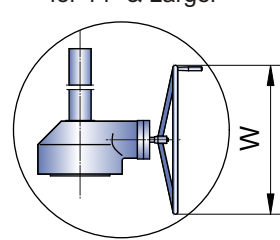
Bearing for 6" & Larger



Lantern Ring On Request



Gear Standard for 14" & Larger



### Dimensions and Weights

SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
L/L1	in	11.50	13.00	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00
	mm	292	330	356	432	559	660	787	838	889	991	1092	1194	1397
L2	in	11.62	13.12	14.12	17.12	22.12	26.12	31.12	33.12	35.12	39.12	43.12	47.25	55.38
	mm	295	333	359	435	562	663	790	841	892	994	1095	1200	1407
H	in	17.91	23.14	21.65	27.17	35.83	41.93	49.49	57.80	63.90	71.50	88.98	106.50	110.63
	mm	455	588	550	690	910	1065	1257	1468	1623	1816	2260	2705	2810
W	in	10	10	10	14	18	20	25	27	24	24	24	24	24
	mm	250	250	250	350	450	500	640	680	610	610	610	610	610
Weight RF	kg	45	55	76	127	277	485	754	936	1316	1672	2070	2405	4550





Figure No. GA9RCB5 GA15RCB5 GA25RCB5  
 GA9BCB5 GA15BCB5 GA25BCB5  
 GA9JCB5 GA15JCB5 GA25JCB5

**FEATURES**

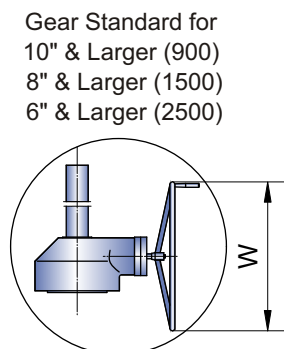
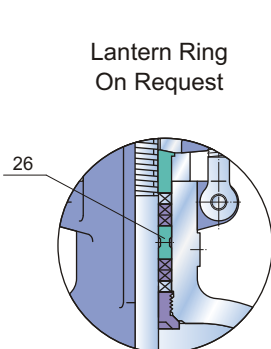
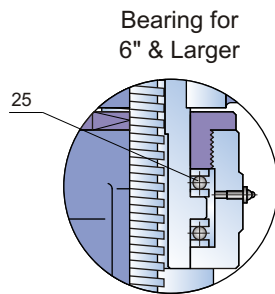
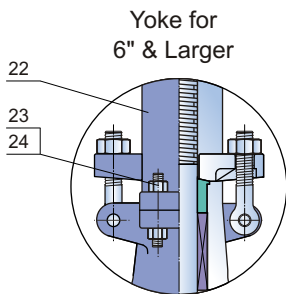
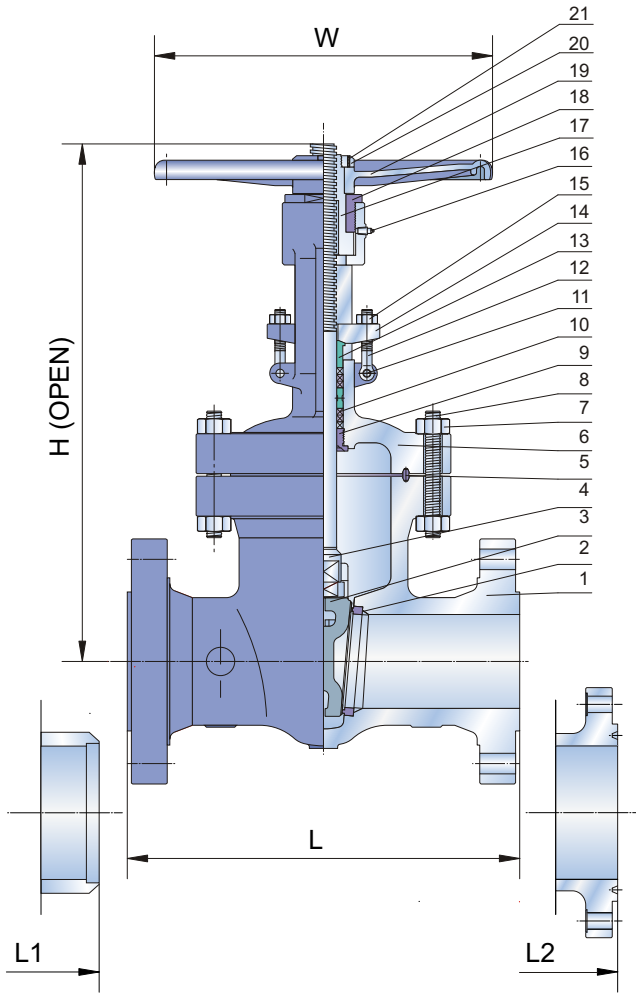
OS & Y, Rising Stem
Bolted Bonnet
Flexible Wedge (2" Solid)
Extended Bonnet for Cryogenic Services
By Pass On Request
Locking Device Optional

**SPECIFICATIONS**

Design	ASME B16.34/API 600
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

**STANDARD MATERIALS OF PARTS**

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTMA105 + Stellite Faced
3	Disc	ASTM A216 GR.WCB+Stellite Faced
4	Stem	ASTM A182 GR.F6a
5	Gasket, Ring Joint	Soft Iron
6	Bonnet	ASTM A216 GR.WCB
7	Bonnet Bolt Nuts	ASTM A194 GR.2H
8	Bonnet Bolts	ASTMA193 GR.B7
9	Backseat Bushing	ASTM A276 Type 410
10	Stem Packing	Braided Graphite & Die formed Graphite Ring
11	Eye Bolt Pins	Carbon Steel
12	Gland Eye Bolts	ASTM A307 GR.B
13	Gland	ASTM A276 Type 410
14	Gland Flange	ASTM A216 GR.WCB
15	Eye Bolt Nuts	ASTM A194 GR.2H
16	Grease Nipple	Carbon Steel
17	Stem Nut	ASTM A439 GR.D-2
18	Retaining Nut	Carbon Steel
19	Handwheel	Ductile Iron
20	Handwheel Nut	Carbon Steel
21	Screw	Carbon Steel
22	Yoke	ASTM A216 GR.WCB
23	Yoke Pan Bolt Nuts	ASTM A194 GR.2H
24	Yoke Pan Bolts	ASTMA193 GR.B7
25	Bearing	Steel
26	Lantern Ring On Request	ASTM A276 Type 410



**Dimensions and Weights CLASS 900**

SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"
L/L1	in	14.50	16.50	15.00	18.00	24.00	29.00	33.00	38.00
L2	in	14.62	16.62	15.12	18.12	24.12	29.12	33.12	38.12
H	in	24.41	27.76	29.02	32.48	41.93	47.99	52.95	72.44
W	in	12	14	14	16	20	24	24	24
Weight RF	kg	95	108	125	194	378	635	900	1550

**Dimensions and Weights CLASS 1500**

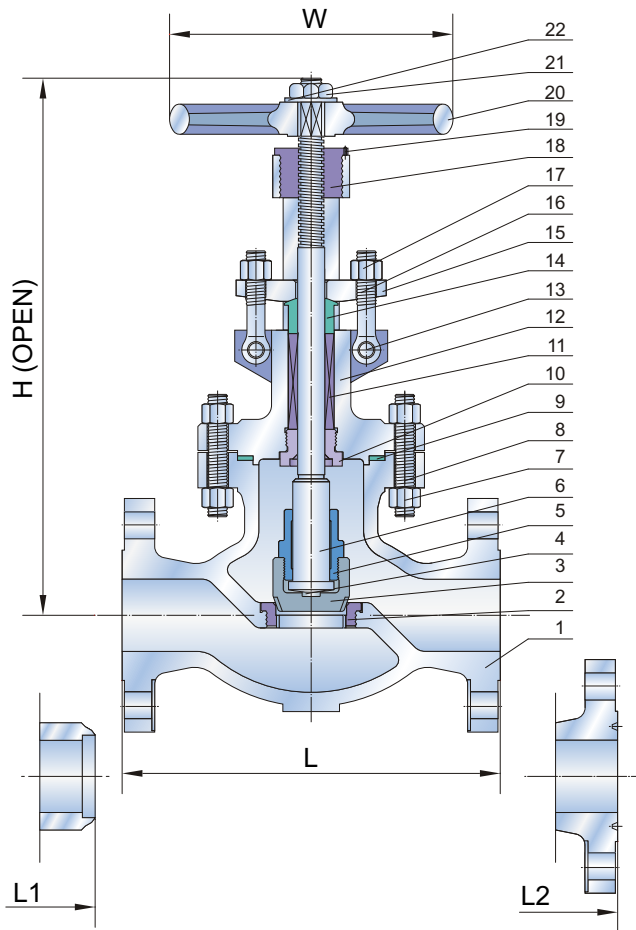
SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"
L/L1	in	14.50	16.50	18.50	21.50	27.75	32.75	39.00	44.50
L2	in	14.62	16.62	18.62	21.62	28.00	33.13	39.38	45.12
H	in	27.36	27.76	30.31	34.33	42.99	55.12	62.99	72.44
W	in	14	16	16	20	24	24	24	24
Weight RF	kg	95	128	181	275	627	1000	2200	3300

**Dimensions and Weights CLASS 2500**

SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"
L/L1	in	17.75	20.00	22.75	26.50	36.00	40.25	50.00	56.00
L2	in	17.87	20.25	23.00	26.88	36.50	40.87	50.88	56.88
H	in	27.56	29.53	34.92	43.19	57.09	63.39	81.73	89.80
W	in	14	18	18	20	24	24	24	24
Weight RF	kg	135	210	271	506	1600	2450	4570	7150



Figure No. GL1RCB8  
GL1BCB8  
GL1JCB8



### FEATURES

OS & Y, Rising Stem
Bolted Bonnet
Conic Disc
Extended Bonnet for Cryogenic Services
Impact Handwheel Optional
Gear Optional

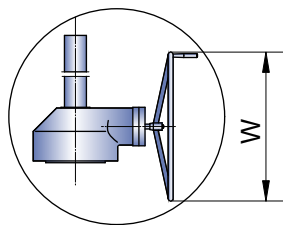
### SPECIFICATIONS

Design	ASME B16.34/BS 1873
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

### STANDARD MATERIALS OF PARTS

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105 + Stellite Faced
3	Disc	ASTM A105 + 13Cr Faced
4	Disc Thrust Plate	ASTM A276 Type 420
5	Disc Nut	ASTM A276 Type 410
6	Stem	ASTM A182 GR.F6a
7	Bonnet Bolt Nuts	ASTM A194 GR.2H
8	Bonnet Bolts	ASTM A193 GR.B7
9	Gasket	Soft Iron+Graphite
10	Backseat Bushing	ASTM A276 Type 410
11	Stem Packing	Braided Graphite & Die formed Graphite Ring
12	Bonnet	ASTM A216 GR.WCB
13	Eye Bolt Pins	Carbon Steel
14	Gland	ASTM A276 Type 410
15	Gland Flange	ASTM A216 GR.WCB
16	Gland Eye Bolts	ASTM A307 GR.B
17	Eye Bolt Nuts	ASTM A194 GR.2H
18	Yoke Bush	ASTM A439 GR.D-2
19	Screw	Carbon Steel
20	Handwheel	Ductile Iron
21	Handwheel Nut	ASTM A194 GR.2H
22	Washer	Carbon Steel

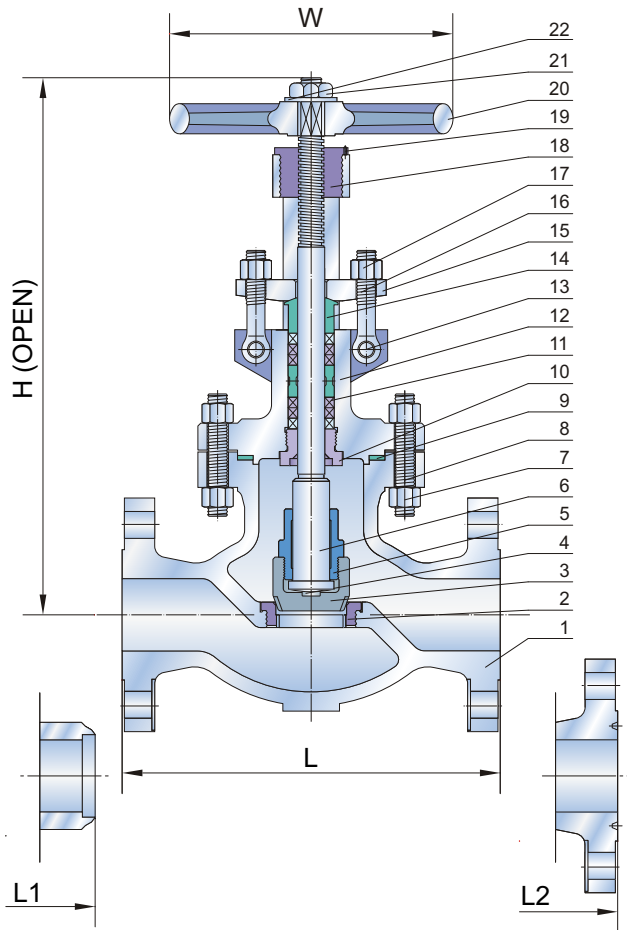
Gear Standard for 16" & Larger



Dimensions and Weights												
SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	14"	16"	18"
L/L1	in	8.00	8.50	9.50	11.50	16.00	19.50	24.50	27.50	31.00	36.00	38.50
	mm	203	216	241	292	406	495	622	698	787	914	978
L2	in	8.50	9.00	10.00	12.00	16.50	20.00	25.00	28.00	31.50	36.50	39.00
	mm	216	229	254	305	419	508	635	711	800	927	991
H	in	13.58	16.34	15.94	19.09	20.47	23.62	30.00	33.94	38.58	47.05	51.18
	mm	345	415	405	485	520	600	762	862	980	1195	1300
W	in	8	8	10	12	14	18	20	25	25	24	24
	mm	200	200	250	300	350	450	500	640	640	610	610
Weight RF	kg	22	32	38	62	104	159	308	539	610	880	1150



Figure No. GL3RCB8  
GL3BCB8  
GL3JCB8



**FEATURES**

OS & Y, Rising Stem
Bolted Bonnet
Conic Disc
Extended Bonnet for Cryogenic Services
Impact Handwheel Optional
Gear Optional

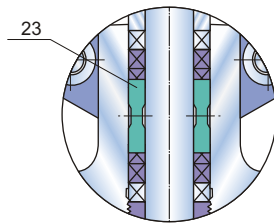
**SPECIFICATIONS**

Design	ASME B16.34/BS 1873
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

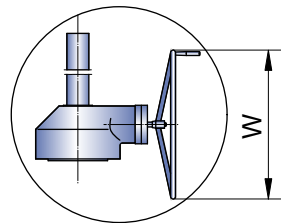
**STANDARD MATERIALS OF PARTS**

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105 + Stellite Faced
3	Disc	ASTM A105 + 13Cr Faced
4	Disc Thrust Plate	ASTM A276 Type 420
5	Disc Nut	ASTM A276 Type 410
6	Stem	ASTM A182 GR.F6a
7	Bonnet Bolt Nuts	ASTM A194 GR.2H
8	Bonnet Bolts	ASTM A193 GR.B7
9	Gasket	Soft Iron+Graphite
10	Backseat Bushing	ASTM A276 Type 410
11	Stem Packing	Braided Graphite & Die formed Graphite Ring
12	Bonnet	ASTM A216 GR.WCB
13	Eye Bolt Pins	Carbon Steel
14	Gland	ASTM A276 Type 410
15	Gland Flange	ASTM A216 GR.WCB
16	Gland Eye Bolts	ASTM A307 GR.B
17	Eye Bolt Nuts	ASTM A194 GR.2H
18	Yoke Bush	ASTM A439 GR.D-2
19	Screw	Carbon Steel
20	Handwheel	Ductile Iron
21	Handwheel Nut	ASTM A194 GR.2H
22	Washer	Carbon Steel
23	Lantern Ring On Request	ASTM A276 Type 410

Lantern Ring On Request



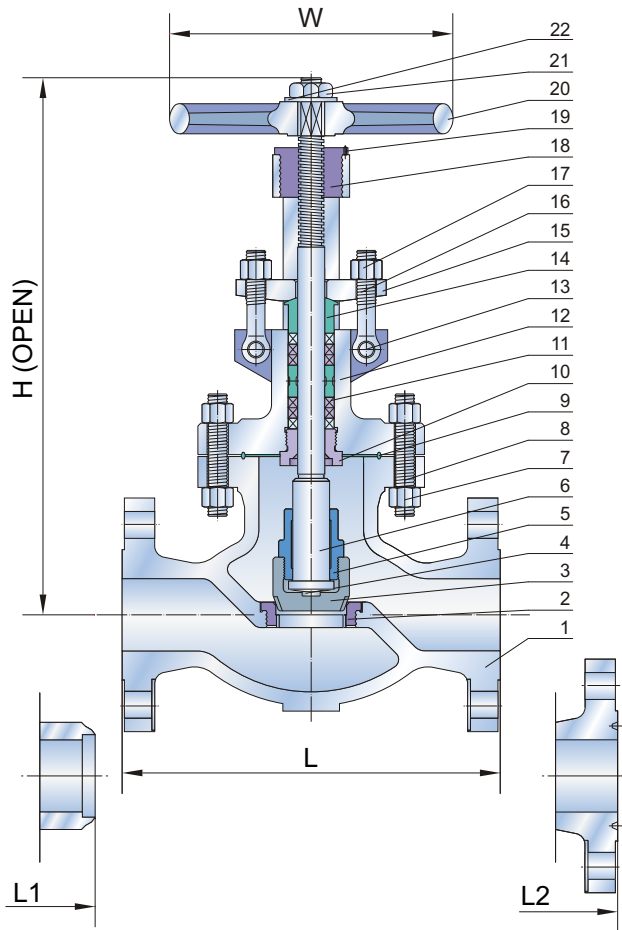
Gear Standard for 14" & Larger



Dimensions and Weights										
SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	14"
L/L1	in	10.50	11.50	12.50	14.00	17.50	22.00	24.50	28.00	33.00
	mm	267	292	318	356	445	559	622	711	838
L2	in	11.12	12.12	13.12	14.62	18.12	22.62	25.12	28.62	33.62
	mm	283	308	333	371	460	575	638	727	854
H	in	14.57	18.66	17.32	20.67	24.41	35.83	37.36	40.63	42.91
	mm	370	474	440	525	620	910	949	1032	1090
W	in	8	10	10	14	18	22	24	25	24
	mm	200	250	250	350	450	560	600	640	610
Weight RF	kg	28	48	56	82	154	240	319	632	975



Figure No. GL6RCB8  
GL6BCB8  
GL6JCB8



### FEATURES

OS & Y, Rising Stem
Bolted Bonnet
Conic Disc
Extended Bonnet for Cryogenic Services
Impact Handwheel Optional
Gear Optional

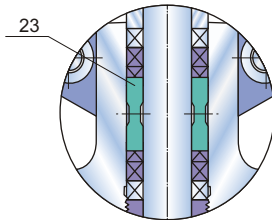
### SPECIFICATIONS

Design	ASME B16.34/BS 1873
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

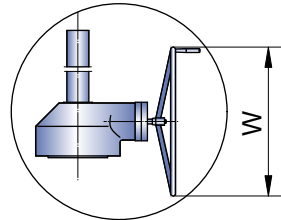
### STANDARD MATERIALS OF PARTS

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105 + Stellite Faced
3	Disc	ASTM A105 + 13Cr Faced
4	Disc Thrust Plate	ASTM A276 Type 420
5	Disc Nut	ASTM A276 Type 410
6	Stem	ASTM A182 GR.F6a
7	Bonnet Bolt Nuts	ASTM A194 GR.2H
8	Bonnet Bolts	ASTM A193 GR.B7
9	Gasket, Ring Joint	Soft Iron
10	Backseat Bushing	ASTM A276 Type 410
11	Stem Packing	Braided Graphite & Die formed Graphite Ring
12	Bonnet	ASTM A216 GR.WCB
13	Eye Bolt Pins	Carbon Steel
14	Gland	ASTM A276 Type 410
15	Gland Flange	ASTM A216 GR.WCB
16	Gland Eye Bolts	ASTM A307 GR.B
17	Eye Bolt Nuts	ASTM A194 GR.2H
18	Yoke Bush	ASTM A439 GR.D-2
19	Screw	Carbon Steel
20	Handwheel	Ductile Iron
21	Handwheel Nut	ASTM A194 GR.2H
22	Washer	Carbon Steel
23	Lantern Ring On Request	ASTM A276 Type 410

Lantern Ring On Request



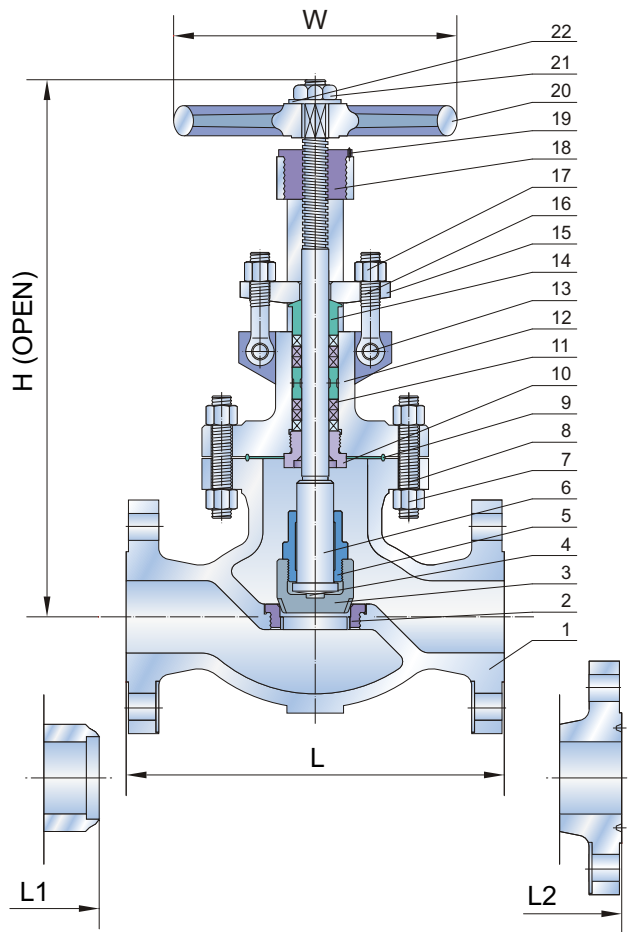
Gear Standard for 10" & Larger



Dimensions and Weights		2"	2.5"	3"	4"	6"	8"	10"	12"
SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"
	mm	50	65	80	100	150	200	250	300
L/L1	in	11.50	13.00	14.00	17.00	22.00	26.00	31.00	33.00
	mm	292	330	356	432	559	660	787	838
L2	in	11.62	13.12	14.12	17.12	22.12	26.12	31.12	33.12
	mm	295	333	359	435	562	663	790	841
H	in	18.19	21.26	23.03	26.38	34.88	36.69	40.94	50.39
	mm	462	540	585	670	886	932	1040	1280
W	in	10	10	12	18	20	25	24	24
	mm	250	250	350	450	500	640	610	810
Weight RF	kg	36	70	85	123	404	450	700	900



Figure No. GL9RCB5 GL15RCB5 GL25RCB5  
 GL9BCB5 GL15BCB5 GL25BCB5  
 GL9JCB5 GL15JCB5 GL25JCB5



**FEATURES**

OS & Y, Rising Stem
Bolted Bonnet
Conic Disc
Extended Bonnet for Cryogenic Services
Impact Handwheel Optional
Gear Optional

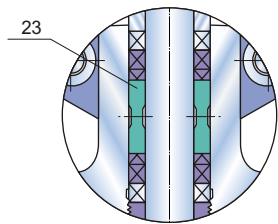
**SPECIFICATIONS**

Design	ASME B16.34/BS 1873
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

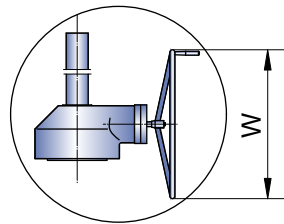
**STANDARD MATERIALS OF PARTS**

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105 + Stellite Faced
3	Disc	ASTM A105 + Stellite Faced
4	Disc Thrust Plate	ASTM A276 Type 420
5	Disc Nut	ASTM A276 Type 410
6	Stem	ASTM A182 GR.F6a
7	Bonnet Bolt Nuts	ASTM A194 GR.2H
8	Bonnet Bolts	ASTM A193 GR.B7
9	Gasket, Ring Joint	Soft Iron
10	Backseat Bushing	ASTM A276 Type 410
11	Stem Packing	Braided Graphite & Die formed Graphite Ring
12	Bonnet	ASTM A216 GR.WCB
13	Eye Bolt Pins	Carbon Steel
14	Gland	ASTM A276 Type 410
15	Gland Flange	ASTM A216 GR.WCB
16	Gland Eye Bolts	ASTM A307 GR.B
17	Eye Bolt Nuts	ASTM A194 GR.2H
18	Yoke Bush	ASTM A439 GR.D-2
19	Screw	Carbon Steel
20	Handwheel	Ductile Iron
21	Handwheel Nut	ASTM A194 GR.2H
22	Washer	Carbon Steel
23	Lantern Ring On Request	ASTM A276 Type 410

Lantern Ring On Request



Gear Standard for 6" & Larger



Dimensions and Weights							CLASS 900
SIZE	in	2"	2.5"	3"	4"	6"	8"
	mm	50	65	80	100	150	200
L/L1	in	14.50	16.50	15.00	18.00	24.00	29.00
	mm	368	419	381	457	610	737
L2	in	14.62	16.62	15.12	18.12	24.12	29.12
	mm	371	422	384	460	613	740
H	in	23.62	25.98	26.18	31.50	43.62	46.61
	mm	600	660	665	800	1108	1184
W	in	14	14	18	20	24	24
	mm	350	350	450	500	610	610
Weight RF	kg	95	138	122	195	435	730

Dimensions and Weights							CLASS 2500
SIZE	in	2"	2.5"	3"	4"	6"	8"
	mm	50	65	80	100	150	200
L/L1	in	17.75	20.00	22.75	26.50	36.00	40.25
	mm	451	508	578	673	914	1022
L2	in	17.87	20.25	23.00	26.88	36.50	40.87
	mm	454	514	584	683	927	1038
H	in	28.35	31.50	34.84	49.61	75.00	97.05
	mm	720	800	885	1260	1905	2465
W	in	16	20	22	24	24	24
	mm	400	500	560	600	610	610
Weight RF	kg	176	264	308	759	1990	4390

Dimensions and Weights							CLASS 1500
SIZE	in	2"	2.5"	3"	4"	6"	8"
	mm	50	65	80	100	150	200
L/L1	in	14.50	16.50	18.50	21.50	27.75	32.75
	mm	368	419	470	546	705	832
L2	in	14.62	16.62	18.62	21.62	28.00	33.13
	mm	371	422	473	549	711	841
H	in	25.98	25.98	30.31	33.46	45.08	52.95
	mm	660	660	770	850	1145	1345
W	in	14	14	20	22	24	24
	mm	350	350	500	560	610	610
Weight RF	kg	95	138	250	435	540	970



# Cast Steel Swing Check Valve

Class 150

Figure No. CH1RCB8 CH1RCB8-T  
 CH1BCB8 CH1BCB8-T  
 CH1JCB8 CH1JCB8-T

## FEATURES

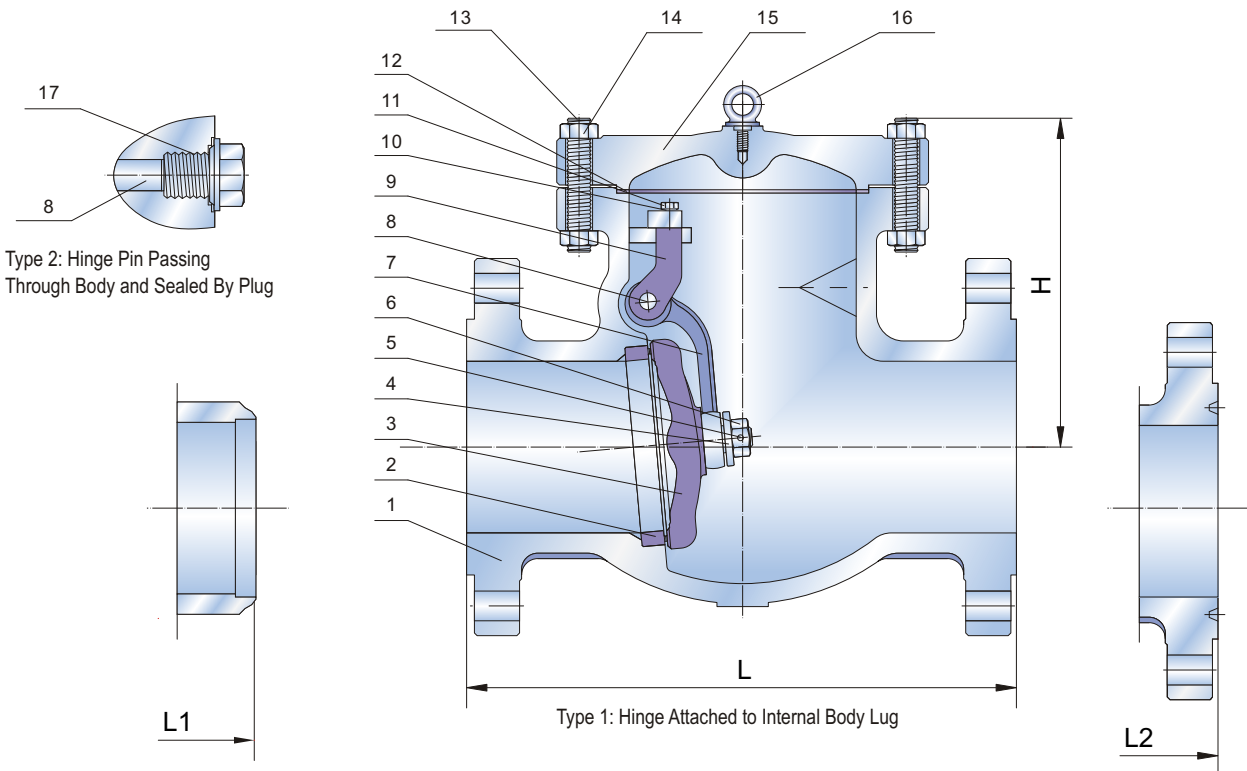
Bolted Cover
Swing Type Disc
Type 1 Standard 2"-10"
Type 2 Standard 12"-30"
6" & Larger With Eye Bolt
By Pass On Request
Lever & Weight Optional

## SPECIFICATIONS

Design	ASME B16.34/BS 1868
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

## STANDARD MATERIALS OF PARTS

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105 + Stellite Faced
3	Disc	ASTM A216 GR.WCB + 13Cr Faced
4	Disc Washer	ASTM A276 Type 410
5	Disc Nut Pin	Stainless Steel
6	Disc Nut	Stainless Steel
7	Hinge	ASTM A216 GR.WCB
8	Hinge Pin	ASTM A182 GR.F6a
9	Bearing Bracket	ASTM A216 GR.WCB
10	Spring Washer	Carbon Steel
11	Hex, Bolt	Carbon Steel
12	Gasket	Soft Iron+Graphite
13	Cover Bolt	ASTM A193 GR.B7
14	Cover Bolt Nut	ASTM A194 GR.2H
15	Cover	ASTM A216 GR.WCB
16	Eye Bolt	Carbon Steel
17	Plug	Carbon Steel



## Dimensions and Weights

SIZE	in	2'	2.5'	3'	4'	6'	8'	10'	12'	14'	16'	18'	20'	24'	30'
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	750
L/L1	in	8.00	8.50	9.50	11.50	14.00	19.50	24.50	27.50	31.00	34.00	38.50	38.50	51.00	60.00
	mm	203	216	241	292	356	495	622	699	787	864	978	978	1295	1524
L2	in	8.50	9.00	10.00	12.00	14.50	20.00	25.00	28.00	31.50	34.50	39.00	39.00	51.50	—
	mm	216	229	254	305	368	508	635	711	800	876	991	991	1308	—
H	in	6.10	6.70	7.09	8.66	10.55	12.20	14.57	16.73	18.70	20.67	22.83	24.72	34.72	38.27
	mm	155	170	180	220	268	310	370	425	475	525	580	628	882	972
Weight RF	kg	19	26	29	46	77	163	220	366	428	555	775	835	1180	1960

# Class 300 Cast Steel Swing Check Valve



Figure No. CH3RCB8 CH3RCB8-T  
 CH3BCB8 CH3BCB8-T  
 CH3JCB8 CH3JCB8-T

## FEATURES

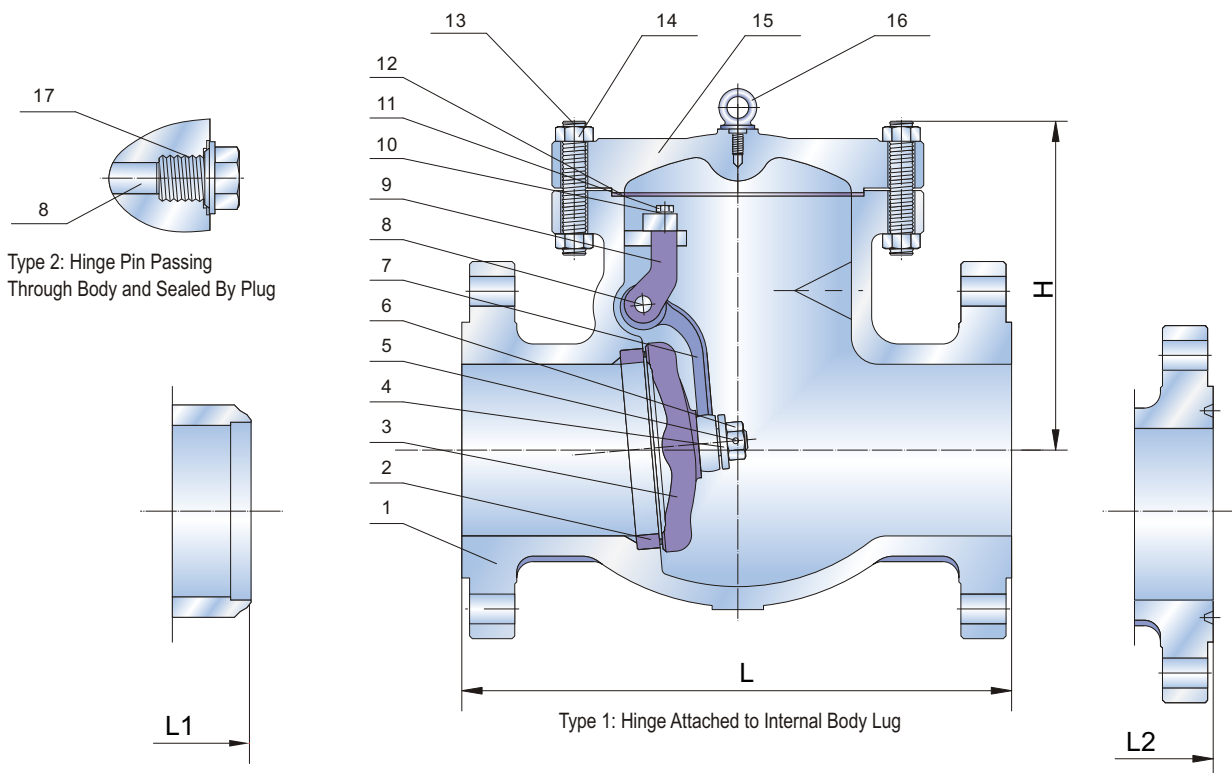
Bolted Cover
Swing Type Disc
Type 1 Standard 2"-8"
Type 2 Standard 10"-24"
3" & Larger With Eye Bolt
By Pass On Request
Lever & Weight Optional

## SPECIFICATIONS

Design	ASME B16.34/BS 1868
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

## STANDARD MATERIALS OF PARTS

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105 + Stellite Faced
3	Disc	ASTM A216 GR.WCB + 13Cr Faced
4	Disc Washer	ASTM A276 Type 410
5	Disc Nut Pin	Stainless Steel
6	Disc Nut	Stainless Steel
7	Hinge	ASTM A216 GR.WCB
8	Hinge Pin	ASTM A182 GR.F6a
9	Bearing Bracket	ASTM A216 GR.WCB
10	Spring Washer	Carbon Steel
11	Hex, Bolt	Carbon Steel
12	Gasket	Soft Iron+Graphite
13	Cover Bolt	ASTM A193 GR.B7
14	Cover Bolt Nut	ASTM A194 GR.2H
15	Cover	ASTM A216 GR.WCB
16	Eye Bolt	Carbon Steel
17	Plug	Carbon Steel



## Dimensions and Weights

SIZE	in	2"	2.5"	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	in	10.50	11.50	12.50	14.00	17.50	21.00	24.50	28.00	33.00	34.00	38.50	40.00	53.00
	mm	267	292	318	356	445	533	622	711	838	864	978	1016	1346
L2	in	11.12	12.12	13.12	14.62	18.12	21.62	25.12	28.62	33.62	34.62	39.12	40.75	53.88
	mm	283	308	333	371	460	549	638	727	854	879	994	1035	1368
H	in	6.89	7.28	7.80	9.25	11.10	13.19	15.15	18.11	20.47	21.81	23.62	26.38	29.53
	mm	175	185	198	235	282	335	385	460	520	554	600	670	750
Weight RF	kg	21	30	39	69	125	210	307	450	680	840	1025	1320	1960



# Cast Steel Swing Check Valve

Class 600

Figure No. CH6RCB8 CH6RCB8-T  
 CH6BCB8 CH6BCB8-T  
 CH6JCB8 CH6JCB8-T

## FEATURES

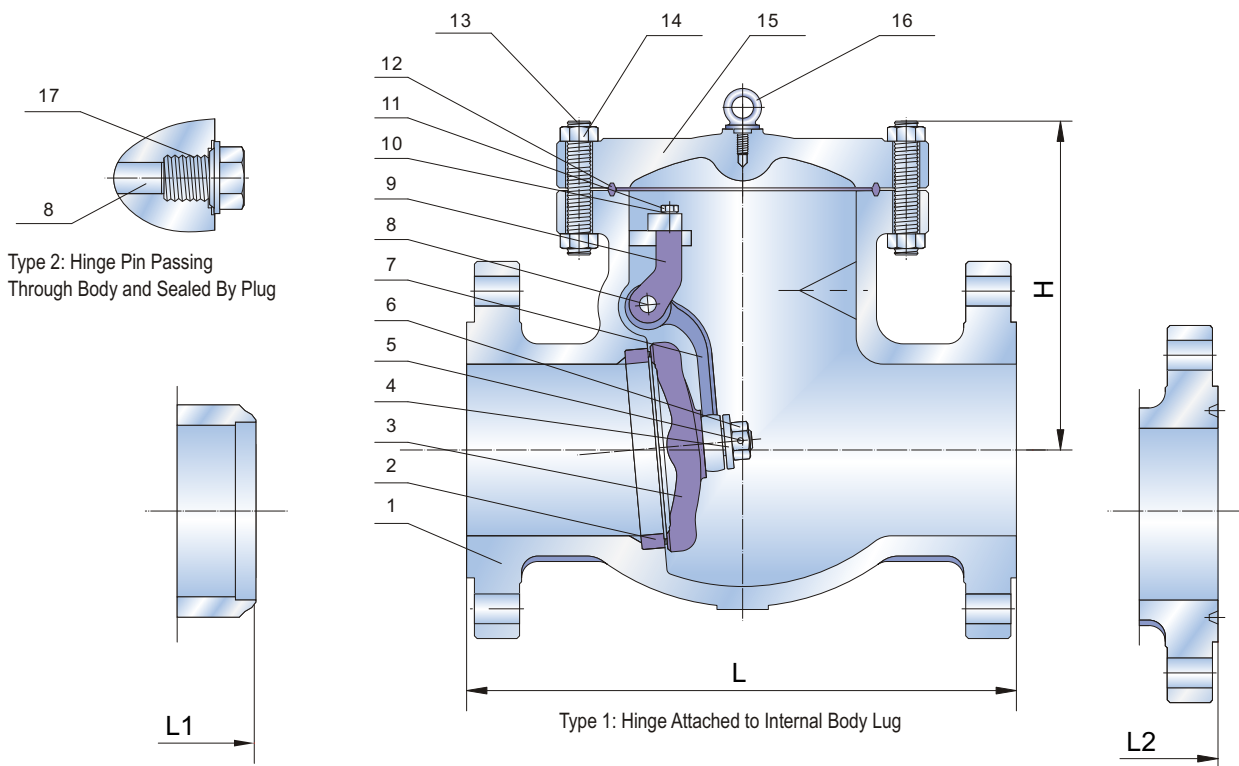
Bolted Cover
Swing Type Disc
Type 1 Standard 2"-6"
Type 2 Standard 8"-24"
With Eye Bolt
By Pass On Request
Lever & Weight Optional

## SPECIFICATIONS

Design	ASME B16.34/BS 1868
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

## STANDARD MATERIALS OF PARTS

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105 + Stellite Faced
3	Disc	ASTM A216 GR.WCB + 13Cr Faced
4	Disc Washer	ASTM A276 Type 410
5	Disc Nut Pin	Stainless Steel
6	Disc Nut	Stainless Steel
7	Hinge	ASTM A216 GR.WCB
8	Hinge Pin	ASTM A182 GR.F6a
9	Bearing Bracket	ASTM A216 GR.WCB
10	Spring Washer	Carbon Steel
11	Hex, Bolt	Carbon Steel
12	Gasket, Ring Joint	Soft Iron
13	Cover Bolt	ASTM A193 GR.B7
14	Cover Bolt Nut	ASTM A194 GR.2H
15	Cover	ASTM A216 GR.WCB
16	Eye Bolt	Carbon Steel
17	Plug	Carbon Steel



## Dimensions and Weights

SIZE	in	2'	2.5'	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	in	11.50	13.00	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00
	mm	292	330	356	432	559	660	787	838	889	991	1092	1194	1397
L2	in	11.62	13.12	14.12	17.12	22.12	26.12	31.12	33.12	35.12	39.12	43.12	47.25	55.38
	mm	295	333	359	435	562	663	790	841	892	994	1095	1200	1407
H	in	7.16	7.87	8.94	10.24	12.80	15.35	19.29	20.79	22.56	25.98	28.35	29.37	37.80
	mm	182	200	227	260	325	390	490	528	572	660	720	746	960
Weight RF	kg	36	49	70	122	269	465	673	875	944	1220	1620	2120	3100



# Class 900-2500 Cast Steel Swing Check Valve



Figure No. CH9RCB5 CH9RCB5-T CH15RCB5 CH15RCB5-T CH25RCB5 CH25RCB5-T  
 CH9BCB5 CH9BCB5-T CH15BCB5 CH15BCB5-T CH25BCB5 CH25BCB5-T  
 CH9JCB5 CH9JCB5-T CH15JCB5 CH15JCB5-T CH25JCB5 CH25JCB5-T

## FEATURES

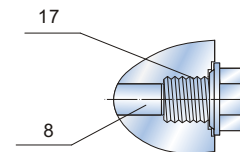
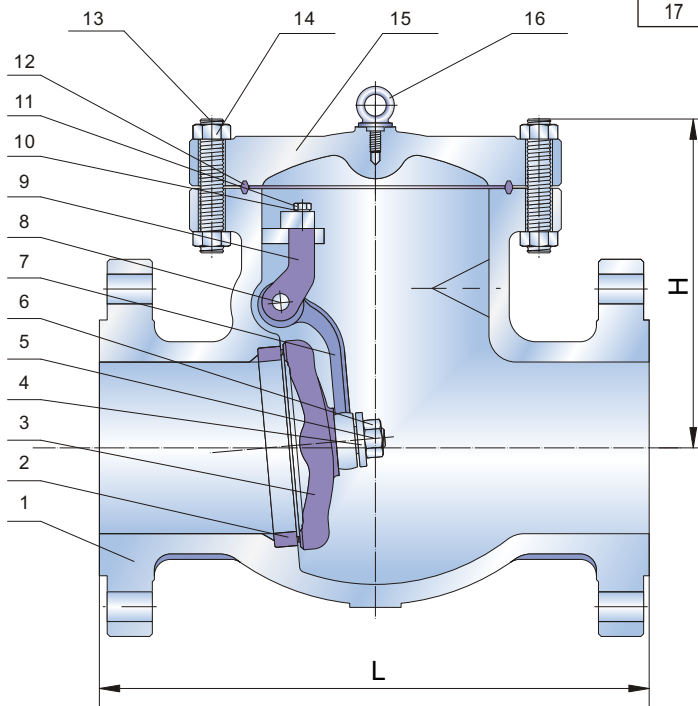
Bolted Cover
Swing Type Disc
Type 1 Optional
Type 2 Standard
With Eye Bolt
By Pass On Request
Lever & Weight Optional

## SPECIFICATIONS

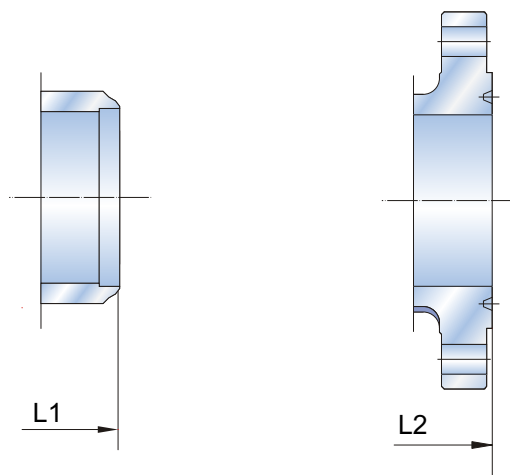
Design	ASME B16.34/BS 1868
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

## STANDARD MATERIALS OF PARTS

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105 + Stellite Faced
3	Disc	ASTM A216 GR.WCB + Stellite Faced
4	Disc Washer	ASTM A276 Type 410
5	Disc Nut Pin	Stainless Steel
6	Disc Nut	Stainless Steel
7	Hinge	ASTM A216 GR.WCB
8	Hinge Pin	ASTM A182 GR.F6a
9	Bearing Bracket	ASTM A216 GR.WCB
10	Spring Washer	Carbon Steel
11	Hex, Bolt	Carbon Steel
12	Gasket, Ring Joint	Soft Iron
13	Cover Bolt	ASTM A193 GR.B7
14	Cover Bolt Nut	ASTM A194 GR.2H
15	Cover	ASTM A216 GR.WCB
16	Eye Bolt	Carbon Steel
17	Plug	Carbon Steel



Type 2: Hinge Pin Passing Through Body and Sealed By Plug



Dimensions and Weights		CLASS 900									
SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"		
	mm	50	65	80	100	150	200	250	300		
L/L1	in	14.50	16.50	15.00	18.00	24.00	29.00	33.00	38.00		
	mm	368	419	381	457	610	737	838	965		
L2	in	14.62	16.62	15.12	18.12	24.12	29.12	33.12	38.12		
	mm	371	422	384	460	613	740	841	968		
H	in	11.65	11.81	11.81	12.87	17.36	19.76	26.14	30.51		
	mm	296	300	300	327	441	502	664	775		
Weight RF	kg	70	100	91	150	305	510	810	1120		

Dimensions and Weights		CLASS 1500									
SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"		
	mm	50	65	80	100	150	200	250	300		
L/L1	in	14.50	16.50	18.50	21.50	27.75	32.75	39.00	44.50		
	mm	368	419	470	546	705	832	991	1130		
L2	in	14.62	16.62	18.62	21.62	28.00	33.13	39.38	45.12		
	mm	371	422	473	549	711	841	1000	1146		
H	in	11.65	11.81	13.43	16.22	20.12	26.77	29.76	33.74		
	mm	296	300	341	412	511	680	756	857		
Weight RF	kg	70	100	150	245	550	1010	1550	2280		

Dimensions and Weights		CLASS 2500									
SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"		
	mm	50	65	80	100	150	200	250	300		
L/L1	in	17.75	20.00	22.75	26.50	36.00	40.25	50.00	56.00		
	mm	451	508	578	673	914	1022	1270	1422		
L2	in	17.87	20.25	23.00	26.88	36.50	40.87	50.88	56.88		
	mm	454	514	584	683	927	1038	1292	1445		
H	in	16.38	16.50	17.36	18.86	20.12	27.99	33.50	39.37		
	mm	416	419	441	479	511	711	851	1000		
Weight RF	kg	145	240	330	650	1400	2420	3750	5500		



# Materials Of Parts

## CAST STEEL GATE VALVE STANDARD MATERIALS OF PARTS

ITEM	PART NAME	CARBON STEEL			ALLOY STEEL			STAINLESS STEEL				
1	Body	A216 WCB	A352 LCB	A352 LCC	A217 WC1	A217 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C
2	Seat Ring	A105	A350 LF2	A350 LF2	A182 F1	A182 F11	A182 F5	A182 F304	A182 F316	A182 F304L	A182 F316L	A182 F321
3	Disc	A216 WCB	A352 LCB	A352 LCC	A217 WC1	A217 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C
4	Stem	A182 F6a	A182 F304	A182 F304	A182 F6a	A182 F6a	A182 F6a	A182 F304	A182 F316	A182 F304L	A182 F316L	A182 F321
5	Gasket	CL150-600	Soft Iron +Graphite	304+Graphite	304+Graphite	304+Graphite	304+Graphite	304+Graphite	316+Graphite			
		CL900-2500 Ring Joint	Soft Iron	304	304	304	304	304	316			
6	Bonnet	A216 WCB	A352 LCB	A352 LCC	A217 WC1	A217 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C
7	Bonnet Bolt Nuts	A194 2H	A194 4	A194 4	A194 2H	A194 4	A194 4	A194 8				
8	Bonnet Bolts	A193 B7	A320 L7	A320 L7	A193 B7	A193 B16	A193 B16	A193 B8				
9	Backseat Bushing	A276 410	A276 304	A276 304		A276 410		A276 304	A276 316	A276 304L	A276 316L	A276 321
10	Stem Packing	Braided Graphite & Die formed Graphite Ring			Braided Graphite & Die formed Graphite Ring			Braided Graphite & Die formed Graphite Ring				
11	Eye Bolt Pins	Carbon Steel			Carbon Steel			Stainless Steel				
12	Gland Eye Bolts	A307 B	A320 L7	A320 L7	A193 B7	A193 B16	A193 B16	A193 B8				
13	Gland	A276 410	A276 304	A276 304		A276 410		A276 304	A276 316	A276 304L	A276 316L	A276 321
14	Gland Flange	A216 WCB	A352 LCB	A352 LCC	A217 WC1	A217 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C
15	Eye Bolt Nuts	A194 2H	A194 4	A194 4	A194 2H	A194 4	A194 4	A194 8	A194 8	A194 8	A194 8	A194 8
16	Grease Nipple	Carbon Steel			Carbon Steel			Stainless Steel				
17	Stem Nut	A439 D-2			A439 D-2			A439 D-2				
18	Retaining Nut	Carbon Steel			Carbon Steel			Stainless Steel				
19	Handwheel	Ductile Iron			Ductile Iron			Ductile Iron				
20	Handwheel Nut	Carbon Steel			Carbon Steel			Stainless Steel				
21	Screw	Carbon Steel			Carbon Steel			Stainless Steel				
22	Yoke	A216 WCB	A352 LCB	A352 LCC	A216 WCB	A216 WCB	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C
23	Yoke Pan Bolt Nuts	A194 2H	A194 4	A194 4	A194 2H	A194 4	A194 4	A194 8				
24	Yoke Pan Bolts	A193 B7	A320 L7	A320 L7	A193 B7	A193 B16	A193 B16	A193 B8				
25	Bearing	Steel			Steel			Steel				
26	Lantern Ring On Request	A276 410	A276 304	A276 304		A276 410		A276 304	A276 316	A276 304L	A276 316L	A276 321

Note: Seating surface and trim materials see P2

## CAST STEEL GLOBE VALVE STANDARD MATERIALS OF PARTS

ITEM	PART NAME	CARBON STEEL			ALLOY STEEL			STAINLESS STEEL				
1	Body	A216 WCB	A352 LCB	A352 LCC	A217 WC1	A217 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C
2	Seat Ring	A105	A350 LF2	A350 LF2	A182 F1	A182 F11	A182 F5	A182 F304	A182 F316	A182 F304L	A182 F316L	A182 F321
3	Disc	A105	A350 LF2	A350 LF2	A182 F1	A182 F11	A182 F5	A182 F304	A182 F316	A182 F304L	A182 F316L	A182 F321
4	Disc Thrust Plate	A276 420	A276 304	A276 304		A276 420		A276 304	A276 316	A276 304L	A276 316L	A276 321
5	Disc Nut	A276 410	A276 304	A276 304		A276 410		A276 304	A276 316	A276 304L	A276 316L	A276 321
6	Stem	A182 F6a	A182 F304	A182 F304	A182 F6a	A182 F6a	A182 F6a	A182 F304	A182 F316	A182 F304L	A182 F316L	A182 F321
7	Bonnet Bolt Nuts	A194 2H	A194 4	A194 4	A194 2H	A194 4	A194 4	A194 8				
8	Bonnet Bolts	A193 B7	A320 L7	A320 L7	A193 B7	A193 B16	A193 B16	A193 B8				
9	Gasket	CL150-600	Soft Iron +Graphite	304+Graphite	304+Graphite	304+Graphite	304+Graphite	304+Graphite	316+Graphite			
		CL900-2500 Ring Joint	Soft Iron	304	304	304	304	304	316			
10	Backseat Bushing	A276 410	A276 304	A276 304		A276 410		A276 304	A276 316	A276 304L	A276 316L	A276 321
11	Stem Packing	Braided Graphite & Die formed Graphite Ring			Braided Graphite & Die formed Graphite Ring			Braided Graphite & Die formed Graphite Ring				
12	Bonnet	A216 WCB	A352 LCB	A352 LCC	A217 WC1	A217 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C
13	Eye Bolt Pins	Carbon Steel			Carbon Steel			Stainless Steel				
14	Gland	A276 410	A276 304	A276 304		A276 410		A276 304	A276 316	A276 304L	A276 316L	A276 321
15	Gland Flange	A216 WCB	A352 LCB	A352 LCC	A217 WC1	A217 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C
16	Gland Eye Bolts	A307 B	A320 L7	A320 L7	A193 B7	A193 B16	A193 B16	A193 B8				
17	Eye Bolt Nuts	A194 2H	A194 4	A194 4	A194 2H	A194 4	A194 4	A194 8				
18	Yoke Bush	A439 D-2			A439 D-2			A439 D-2				
19	Screw	Carbon Steel			Carbon Steel			Stainless Steel				
20	Handwheel	Ductile Iron			Ductile Iron			Ductile Iron				
21	Handwheel Nut	A194 2H			A194 2H			Stainless Steel				
22	Washer	Carbon Steel			Carbon Steel			Stainless Steel				
23	Lantern Ring On Request	A276 410	A276 304	A276 304		A276 410		A276 304	A276 316	A276 304L	A276 316L	A276 321

Note: Seating surface and trim materials see P2

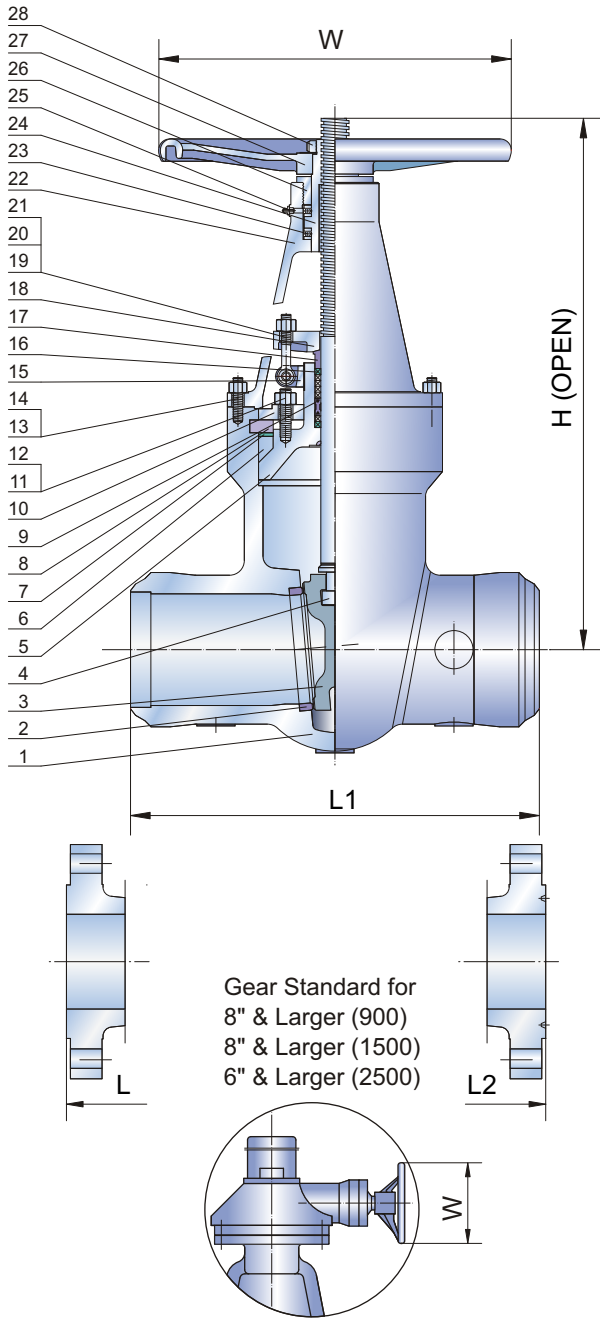
## CAST STEEL SWING CHECK VALVE STANDARD MATERIALS OF PARTS

ITEM	PART NAME	CARBON STEEL			ALLOY STEEL			STAINLESS STEEL				
1	Body	A216 WCB	A352 LCB	A352 LCC	A217 WC1	A217 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C
2	Seat Ring	A105	A350 LF2	A350 LF2	A182 F1	A182 F11	A182 F5	A182 F304	A182 F316	A182 F304L	A182 F316L	A182 F321
3	Disc	A216 WCB	A352 LCB	A352 LCC	A217 WC1	A217 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C
4	Disc Washer	A276 410	A276 304	A276 304		A276 410		A276 316				
5	Disc Nut Pin	Stainless Steel			Stainless Steel			316				
6	Disc Nut	Stainless Steel			Stainless Steel			316				
7	Hinge	A216 WCB	A352 LCB	A352 LCC	A217 WC1	A217 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C
8	Hinge Pin	A182 F6a	A182 F304	A182 F304	A182 F6a	A182 F6a	A182 F6a	A182 F304	A182 F316	A182 F304L	A182 F316L	A182 F321
9	Bearing Bracket	A216 WCB	A352 LCB	A352 LCC	A217 WC1	A217 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C
10	Spring Washer	Carbon Steel			Carbon Steel			Stainless Steel				
11	Hex Bolt	A193 B7	A320 L7	A320 L7	A193 B7	A193 B16	A193 B16	A193 B8				
12	Gasket	CL150-600	Soft Iron +Graphite	304+Graphite	304+Graphite	304+Graphite	304+Graphite	304+Graphite	316+Graphite			
		CL900-2500 Ring Joint	Soft Iron	304	304	304	304	304	316			
13	Cover Bolt	A193 B7	A320 L7	A320 L7	A193 B7	A193 B16	A193 B16	A193 B8				
14	Cover Bolt Nut	A194 2H	A194 4	A194 4	A194 2H	A194 4	A194 4	A194 8				
15	Cover	A216 WCB	A352 LCB	A352 LCC	A217 WC1	A217 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C
16	Eye Bolt	Carbon Steel			Carbon Steel			Stainless Steel				
17	Pulg	A105	A350 LF2	A350 LF2	A182 F1	A182 F11	A182 F5	A182 F304	A182 F316	A182 F304L	A182 F316L	A182 F321

Note: Seating surface and trim materials see P2



Figure No. GA9RCB5-P GA15RCB5-P GA25RCB5-P  
 GA9BCB5-P GA15BCB5-P GA25BCB5-P  
 GA9JCB5-P GA15JCB5-P GA25JCB5-P



**FEATURES**

OS & Y, Rising Stem
Pressure Seal
Flexible Wedge
Backseat Weld-Deposited
By Pass On Request
Locking Device Optional
Gear Optional

**SPECIFICATIONS**

Design	ASME B16.34
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

**STANDARD MATERIALS OF PARTS**

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105+Stellite Faced
3	Disc	ASTM A216 GR.WCB+Stellite Faced
4	Stem	ASTM A182 GR.F6a
5	Bonnet	ASTM A216 GR.WCB+Stellite Faced
6	Gasket	ASTM A182 GR.F304
7	Thrust Ring	ASTM A276 Type 410
8	Separate Ring	Carbon Steel
9	Lantern Ring On Request	ASTM A276 Type 410
10	Bonnet Retainer	Carbon Steel
11	Bonnet Bolts	ASTM A193 GR.B7
12	Bonnet Bolt Nuts	ASTM A194 GR.2H
13	Yoke Bolts	ASTM A193 GR.B7
14	Yoke Bolt Nuts	ASTM A194 GR.2H
15	Gland Eye	ASTM A216 GR.WCB
16	Stem Packing	Braided Graphite & Die formed Graphite Ring
17	Gland	ASTM A276 Type 410
18	Gland Flange	ASTM A216 GR.WCB
19	Eye Bolt Pins	Carbon Steel
20	Gland Eye Bolts	ASTM A193 GR.B7
21	Eye Bolt Nuts	ASTM A194 GR.2H
22	Yoke	ASTM A216 GR.WCB
23	Bearing	Steel
24	Stem Nut	ASTM A439 GR.D-2
25	Grease Nipple	Carbon Steel
26	Retaining Nut	Carbon Steel
27	Handwheel	Ductile Iron
28	Handwheel Nut	Carbon Steel

Dimensions and Weights				CLASS 900					
SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"
	mm	50	65	80	100	150	200	250	300
L	in	14.50	16.50	15.00	18.00	24.00	29.00	33.00	38.00
	mm	368	419	381	457	610	737	838	965
L1	in	8.50	10.00	12.00	14.00	20.00	26.00	31.00	36.00
	mm	216	254	305	356	508	660	787	914
L2	in	14.62	16.62	15.12	18.12	24.12	29.12	33.12	38.12
	mm	371	422	384	460	613	740	841	968
H	in	24.00	30.00	30.71	33.86	40.35	50.63	60.63	70.28
	mm	610	762	780	860	1025	1286	1540	1785
W	in	12	14	14	16	20	24	24	24
	mm	300	350	350	400	500	610	610	610
Weight BW	kg	50	72	86	110	202	530	782	1135

Dimensions and Weights				CLASS 2500					
SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"
	mm	50	65	80	100	150	200	250	300
L	in	17.75	20.00	22.75	26.50	36.00	40.25	50.00	56.00
	mm	451	508	578	673	914	1022	1270	1422
L1	in	11.00	13.00	14.50	18.00	24.00	30.00	36.00	41.00
	mm	279	330	368	457	610	762	914	1041
L2	in	17.87	20.25	23.00	26.88	36.50	40.87	50.88	56.88
	mm	454	514	584	683	927	1038	1292	1445
H	in	24.00	30.55	30.90	34.40	44.02	53.46	66.14	74.50
	mm	610	776	785	874	1118	1358	1680	1892
W	in	14	18	18	20	24	24	24	24
	mm	350	450	450	500	610	610	610	610
Weight BW	kg	60	112	122	192	480	830	1678	2320

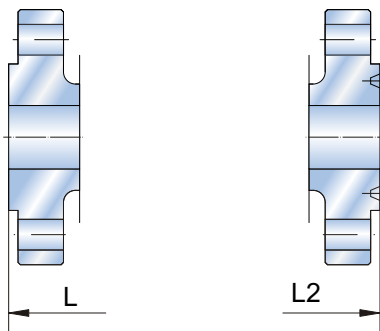
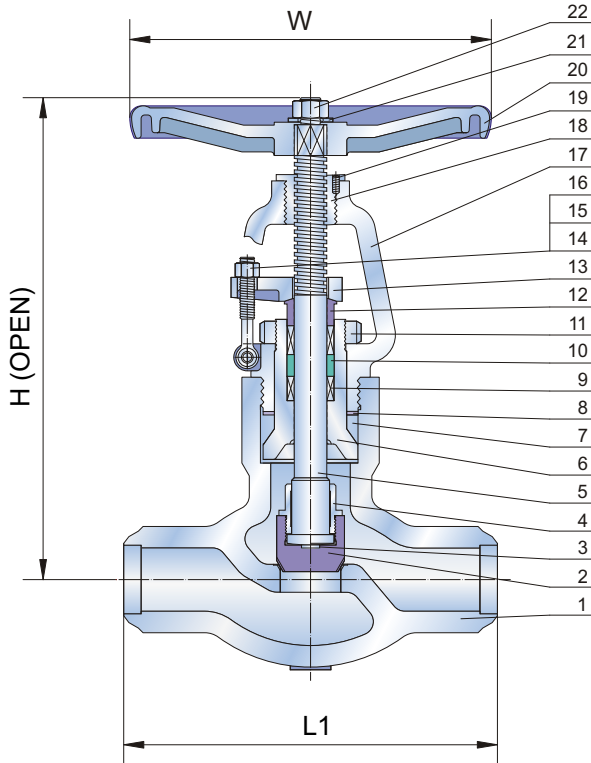
Dimensions and Weights				CLASS 1500					
SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"
	mm	50	65	80	100	150	200	250	300
L	in	14.50	16.50	18.50	21.50	27.75	32.75	39.00	44.50
	mm	368	419	470	546	705	832	991	1130
L1	in	8.50	10.00	12.00	16.00	22.00	28.00	34.00	39.00
	mm	216	254	305	406	559	711	864	991
L2	in	14.62	16.62	18.62	21.62	28.00	33.13	39.38	45.12
	mm	371	422	473	549	711	842	1000	1146
H	in	24.00	30.55	30.90	34.40	40.35	53.46	61.74	74.50
	mm	610	776	785	874	1025	1358	1568	1892
W	in	12	16	16	20	24	24	24	24
	mm	300	400	400	500	600	610	610	610
Weight BW	kg	50	78	92	145	230	540	1060	1184



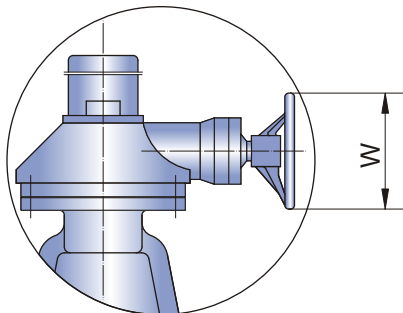
# Pressure Seal Globe Valve

## Class 900-2500

Figure No. GL9RCB5-P GL15RCB5-P GL25RCB5-P  
 GL9BCB5-P GL15BCB5-P GL25BCB5-P  
 GL9JCB5-P GL15JCB5-P GL25JCB5-P



Gear Standard for  
 6" & Larger (900)  
 6" & Larger (1500)  
 4" & Larger (2500)



### FEATURES

OS & Y, Rising Stem
Pressure Seal
Conic Disc
Backseat Weld-Deposited
By Pass On Request
Locking Device Optional
Gear Optional

### SPECIFICATIONS

Design	ASME B16.34
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

### STANDARD MATERIALS OF PARTS

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB+Stellite Faced
2	Disc	ASTM A105+Stellite Faced
3	Disc Thrust Plate	ASTM A276 Type 420
4	Disc Nut	ASTM A276 Type 410
5	Stem	ASTM A182 GR.F6a
6	Bonnet	ASTM A216 Gr.WCB+Stellite Faced
7	Gasket	ASTM A182 GR.F304
8	Thrust Ring	ASTM A276 Type 410
9	Stem Packing	Braided Graphite & Die formed Graphite Ring
10	Lantern Ring	ASTM A276 Type 410
11	Bonnet Retainer	Carbon Steel
12	Gland	ASTM A276 Type 410
13	Gland Flange	ASTM A216 GR.WCB
14	Eye Bolt Pins	Carbon Steel
15	Gland Eye Bolts	ASTM A193 GR.B7
16	Eye Bolt Nuts	ASTM A194 GR.2H
17	Yoke	ASTM A216 GR.WCB
18	Yoke Bush	ASTM A439 GR.D-2
19	Screw	Carbon Steel
20	Handwheel	Ductile Iron
21	Washer	Carbon Steel
22	Handwheel Nut	ASTM A194 GR.2H

Dimensions and Weights		CLASS 900					
SIZE	in	2"	2.5"	3"	4"	6"	8"
	mm	50	65	80	100	150	200
L/L1	in	14.50	16.50	15.00	18.00	24.00	29.00
	mm	368	419	381	457	610	737
L2	in	14.62	16.62	15.12	18.12	24.12	29.12
	mm	371	422	384	460	613	740
H	in	24.41	25.40	28.50	33.40	48.23	53.15
	mm	620	645	724	848	1225	1350
W	in	14	14	18	20	24	24
	mm	350	350	450	500	610	610
Weight BW	kg	62	86	86	140	380	948

Dimensions and Weights		CLASS 1500					
SIZE	in	2"	2.5"	3"	4"	6"	8"
	mm	50	65	80	100	150	200
L/L1	in	14.50	16.50	18.50	21.50	27.75	32.75
	mm	368	419	470	546	705	832
L2	in	14.62	16.62	18.62	21.62	28.00	33.13
	mm	371	422	473	549	711	842
H	in	24.41	25.40	32.68	33.86	48.50	70.24
	mm	620	645	830	860	1232	1784
W	in	14	14	20	22	24	24
	mm	350	350	500	560	610	610
Weight BW	kg	62	86	112	158	765	1494

Dimensions and Weights		CLASS 2500					
SIZE	in	2"	2.5"	3"	4"	6"	8"
	mm	50	65	80	100	150	200
L/L1	in	17.75	20.00	22.75	26.50	36.00	40.25
	mm	451	508	578	673	914	1022
L2	in	17.87	20.25	23.00	26.88	36.50	40.87
	mm	454	514	584	683	927	1038
H	in	24.41	30.63	34.84	51.10	53.74	83.46
	mm	620	778	885	1298	1365	2120
W	in	16	20	22	24	24	24
	mm	400	500	560	610	610	610
Weight BW	kg	80	115	152	358	965	2095



Figure No. CH9RCB5-P CH15RCB5-P CH25RCB5-P  
 CH9CB5-P CH15BCB5-P CH25BCB5-P  
 CH9JCB5-P CH15JCB5-P CH25JCB5-P

**FEATURES**

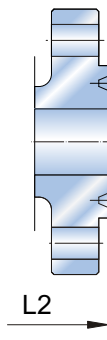
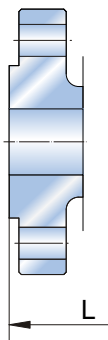
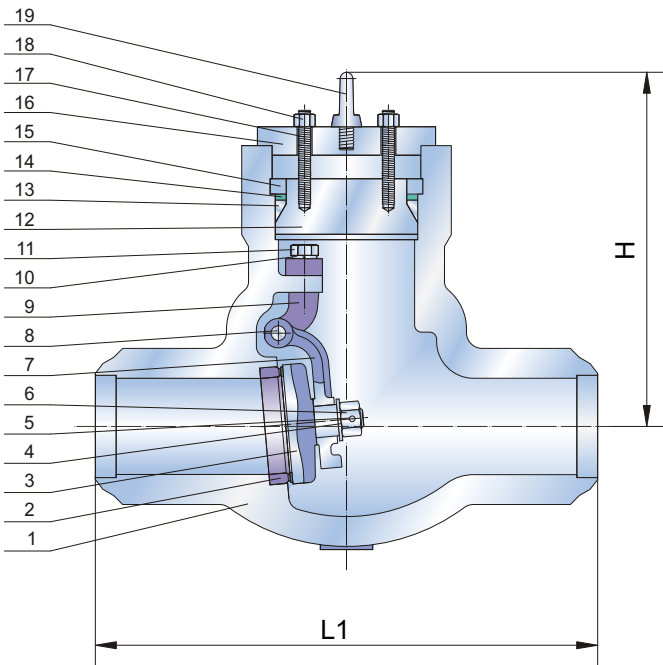
Pressure Seal
Swing Type Disc
Type 1 Standard
Type 2 Optional
With Eye Bolt
By Pass On Request
Lever & Weight Optional

**SPECIFICATIONS**

Design	ASME B16.34
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

**STANDARD MATERIALS OF PARTS**

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105 + Stellite Faced
3	Disc	ASTM A216 GR.WCB + Stellite Faced
4	Disc Washer	ASTM A276 Type 410
5	Disc Nut Pin	Stainless Steel
6	Disc Nut	Stainless Steel
7	Hinge	ASTM A216 GR.WCB
8	Hinge Pin	ASTM A182 GR.F6a
9	Bearing Bracket	ASTM A216 GR.WCB
10	Spring Washer	Carbon Steel
11	Hex, Bolt	Carbon Steel
12	Bonnet	ASTM A216 GR.WCB
13	Gasket	ASTM A182 GR.F304
14	Thrust Ring	ASTM A276 Type 410
15	Separate Ring	ASTM A276 Type 410
16	Cover	ASTM A216 GR.WCB
17	Cover Bolts	ASTM A193 GR.B7
18	Cover Bolt Nuts	ASTM A194 GR.2H
19	Eye Bolt	Carbon Steel



Dimensions and Weights		CLASS 900								
SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	
	mm	50	65	80	100	150	200	250	300	
L/L1	in	14.50	16.50	15.00	18.00	24.00	29.00	33.00	38.00	
	mm	368	419	381	457	610	737	838	965	
L2	in	14.62	16.62	15.12	18.12	24.12	29.12	33.12	38.12	
	mm	371	422	384	460	613	740	841	968	
H	in	11.65	11.81	11.81	12.87	17.36	19.76	26.14	30.51	
	mm	296	300	300	327	441	502	664	775	
Weight BW	kg	50	77	68	115	230	387	632	910	

Dimensions and Weights		CLASS 1500								
SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	
	mm	50	65	80	100	150	200	250	300	
L/L1	in	14.50	16.50	18.50	21.50	27.75	32.75	39.00	44.50	
	mm	368	419	470	546	705	832	991	1130	
L2	in	14.62	16.62	18.62	21.62	28.00	33.13	39.38	45.12	
	mm	371	422	473	549	711	841	1000	1146	
H	in	11.65	11.81	13.43	16.22	20.12	26.77	29.76	33.74	
	mm	296	300	341	412	511	680	756	857	
Weight BW	kg	50	77	115	190	452	845	1280	1780	

Dimensions and Weights		CLASS 2500								
SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	
	mm	50	65	80	100	150	200	250	300	
L/L1	in	17.75	20.00	22.75	26.50	36.00	40.25	50.00	56.00	
	mm	451	508	578	673	914	1022	1270	1422	
L2	in	17.87	20.25	23.00	26.88	36.50	40.87	50.88	56.88	
	mm	454	514	584	683	927	1038	1292	1445	
H	in	16.38	16.50	17.36	18.86	20.12	27.99	33.50	39.37	
	mm	416	419	441	479	511	711	851	1000	
Weight BW	kg	110	190	260	535	1110	1980	2980	4350	



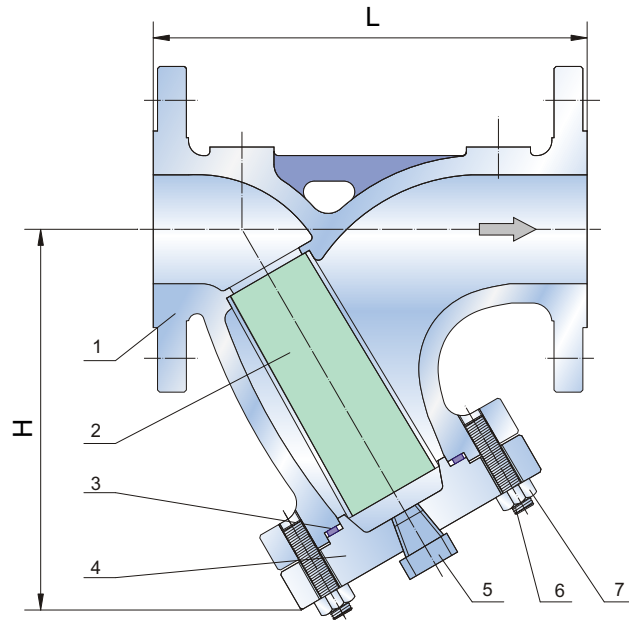
Figure No. ST1RCB  
ST3RCB

### SPECIFICATIONS

Design	ASME B16.34
Face to Face	ASME B16.10
End Flange	ASME B16.5
Test	API 598

### STANDARD MATERIALS OF PARTS

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Screen	ASTM A276 Type 304
3	Gasket	304+Graphite
4	Cover	ASTM A216 GR.WCB
5	Plug	ASTM A105
6	Cover Bolts	ASTM A193 GR.B7
7	Cover Bolt Nuts	ASTM A194 GR.2H



Dimensions and Weights									CLASS 150
SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"
	mm	50	65	80	100	150	200	250	300
L	in	8.00	8.50	9.50	11.50	16.00	19.50	24.50	27.50
	mm	203	216	241	292	406	495	622	699
H	in	5.71	7.20	8.11	8.98	12.95	17.32	19.96	23.39
	mm	145	183	206	228	329	440	507	594
Weight	kg	12	18	21	32	48	105	169	215

Dimensions and Weights									CLASS 300
SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"
	mm	50	65	80	100	150	200	250	300
L	in	10.50	11.50	12.50	14.00	17.50	22.00	24.50	28.00
	mm	267	292	318	356	445	559	622	711
H	in	6.70	7.28	9.25	11.42	14.76	17.72	22.64	26.18
	mm	170	185	235	290	375	450	575	665
Weight	kg	15	18	35	51	92	182	285	307

# Stem Data & Operation Torques



## Gate Valve

CLASS	ITEM	VALVE SIZE																					
		2"	2.5"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	26"	28"	30"	32"	36"	40"	42"	48"	
150	Stem Thread O.D.	3/4"	3/4"	7/8"	1"	1 1/8"	1 1/4"	1 3/8"	1 1/2"	1 5/8"	1 3/4"	1 7/8"	2"	2 1/4"	2 3/8"	2 1/2"	2 3/4"	3"	3 1/4"	3 3/8"	3 3/4"		
	Thread Per Inch	6	6	5	5	5	4	4	4	3	3	3	3	3	3	3	3	2	2	2	2		
	Pitch ( in )	0.167	0.167	0.2	0.2	0.2	0.25	0.25	0.25	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.5	0.5	0.5	0.5		
	Turns to Open	16	19	18	24	34	36	44	52	44	53	58	64	75	81	88	94	99	74	84	88	98	
	Touque (N.m)	16	18	24	38	76	111	182	269	325	435	565	748	1256	1411	1587	1935	2127	3239	4193	4802	6480	
300	Stem Thread O.D.	3/4"	3/4"	7/8"	1"	1 1/4"	1 3/8"	1 1/2"	1 5/8"	1 3/4"	1 7/8"	2"	2 1/8"	2 1/2"	2 3/4"	3 1/4"	3 1/4"	3 1/4"					
	Thread Per Inch	6	6	5	5	4	4	4	3	3	3	3	3	3	3	2	2	2					
	Pitch ( in )	0.167	0.167	0.2	0.2	0.25	0.25	0.25	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.5	0.5	0.5					
	Turns to Open	17	19	18	24	26	36	44	40	45	53	58	64	76	80	88	64	68	76				
	Touque (N.m)	23	26	35	55	159	291	458	661	810	1088	1430	1778	2823	3580	4115	5866	6620	8410				
600	Stem Thread O.D.	3/4"	7/8"	1"	1 1/8"	1 1/2"	1 5/8"	1 7/8"	2"	2 1/4"	2 3/8"	2 1/2"	2 3/4"	3"									
	Thread Per Inch	6	5	5	5	4	3	3	3	3	3	3	2										
	Pitch ( in )	0.167	0.2	0.2	0.2	0.25	0.333	0.333	0.333	0.333	0.333	0.333	0.5										
	Turns to Open	17	16	18	24	27	27	33	40	45	53	58	64	51									
	Touque (N.m)	35	47	70	122	406	641	1023	1508	2098	2816	3038	3981	6896									
900	Stem Thread O.D.	1"	1 1/8"	1 1/8"	1 1/4"	1 5/8"	1 7/8"	2 1/8"	2 1/4"														
	Thread Per Inch	5	5	5	4	3	3	3	3														
	Pitch ( in )	0.2	0.2	0.2	0.25	0.333	0.333	0.333	0.333														
	Turns to Open	14	16	18	21	22	28	34	40														
	Touque (N.m)	80	90	95	159	569	978	1728	2601														
1500	Stem Thread O.D.	1"	1 1/8"	1 1/4"	1 3/8"	1 3/4"	2 1/8"	2 1/2"	2 3/4"														
	Thread Per Inch	5	5	4	4	3	3	3	3														
	Pitch ( in )	0.2	0.2	0.25	0.25	0.333	0.333	0.333	0.333														
	Turns to Open	14	16	17	22	22	28	34	40														
	Touque (N.m)	117	172	224	349	1009	2025	3259	4437														
2500	Stem Thread O.D.	1"	1 1/8"	1 1/4"	1 3/8"	1 7/8"	2 3/8"	2 7/8"	3 1/4"														
	Thread Per Inch	5	5	4	4	3	3	2	2														
	Pitch ( in )	0.2	0.2	0.25	0.25	0.333	0.333	0.333	0.333														
	Turns to Open	15	17	17	22	22	28	34	40														
	Touque (N.m)	165	224	281	559	1407	2913	5748	8332														

## Globe Valve

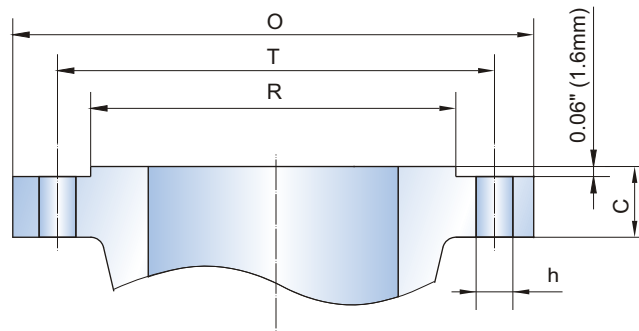
CLASS	ITEM	VALVE SIZE								
		2"	2.5"	3"	4"	6"	8"	10"	12"	
150	Stem Thread O.D.	7/8"	7/8"	1"	1 1/8"	1 1/4"	1 1/2"	1 5/8"	2"	
	Thread Per Inch	5	5	5	5	5	4	3	3	
	Pitch ( in )	0.2	0.2	0.2	0.2	0.2	0.2	0.25	0.333	0.333
	Turns to Open	4	7	7	8	9	9	9	7	7
	Touque (N.m)	47	66	84	157	239	326	620	1198	
300	Stem Thread O.D.	7/8"	7/8"	1"	1 1/8"	1 1/2"	2"	2 1/8"	2 3/8"	
	Thread Per Inch	5	5	5	5	4	3	3	3	
	Pitch ( in )	0.2	0.2	0.2	0.2	0.25	0.333	0.333	0.333	0.333
	Turns to Open	4	8	7	8	7	7	9	9	9
	Touque (N.m)	62	85	118	218	727	1309	2160	3100	
600	Stem Thread O.D.	1"	1"	1 1/8"	1 3/4"	2"	2 3/8"	2 3/8"	2 3/4"	
	Thread Per Inch	5	5	5	3	3	3	3	3	
	Pitch ( in )	0.2	0.2	0.2	0.333	0.333	0.333	0.333	0.333	0.333
	Turns to Open	8	8	8	6	9	9	9	9	9
	Touque (N.m)	142	244	316	602	1590	2782	4579	6216	
900	Stem Thread O.D.	1 1/4"	1 1/4"	1 5/8"	1 5/8"	2 1/8"	2 3/8"			
	Thread Per Inch	5	5	3	3	3	3			
	Pitch ( in )	0.2	0.2	0.333	0.333	0.333	0.333			
	Turns to Open	8	9	5	6	9	9			
	Touque (N.m)	285	412	528	1063	1792	3439			
1500	Stem Thread O.D.	1 1/4"	1 1/4"	1 5/8"	1 3/4"	2 3/8"	2 3/4"			
	Thread Per Inch	5	5	3	3	3	3			
	Pitch ( in )	0.2	0.2	0.333	0.333	0.333	0.333			
	Turns to Open	8	9	5	6	9	9			
	Touque (N.m)	352	772	876	1816	3868	5011			
2500	Stem Thread O.D.	1 1/4"	1 1/2"	1 5/8"	1 3/4"	2 3/8"	2 3/4"			
	Thread Per Inch	5	4	3	3	3	3			
	Pitch ( in )	0.2	0.25	0.333	0.333	0.333	0.333			
	Turns to Open	8	7	6	6	9	9			
	Touque (N.m)	502	824	959	2062	6530	9682			



# Steel End Flange Dimensions

## Class 150-300

### CLASS 150 300 RF



CLASS	SIZE		O		R		C		T		h		Bolt	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	QTY.	Diameter
150	2	50	6.00	152	3.62	92	0.62	16	4.75	120.5	0.75	19	4	5/8
	2 1/2	65	7.00	178	4.12	105	0.69	18	5.50	139.5	0.75	19	4	5/8
	3	80	7.50	190	5.00	127	0.75	19	6.00	152.5	0.75	19	4	5/8
	4	100	9.00	229	6.19	157	0.94	24	7.50	190.5	0.75	19	8	5/8
	6	150	11.00	279	8.50	216	1.00	26	9.50	241.5	0.88	22	8	3/4
	8	200	13.50	343	10.62	270	1.12	29	11.75	298.5	0.88	22	8	3/4
	10	250	16.00	406	12.75	324	1.19	31	14.25	362	1.00	25	12	7/8
	12	300	19.00	483	15.00	381	1.25	32	17.00	432	1.00	25	12	7/8
	14	350	21.00	533	16.25	413	1.38	35	18.75	476	1.12	29	12	1
	16	400	23.50	597	18.50	470	1.44	37	21.25	540	1.12	29	16	1
	18	450	25.00	635	21.00	533	1.56	40	22.75	578	1.25	32	16	1 1/8
	20	500	27.50	699	23.00	584	1.69	43	25.00	635	1.25	32	20	1 1/8
	24	600	32.00	813	27.25	692	1.88	48	29.50	749.5	1.38	35	20	1 1/4
	26	650	34.25	870	29.50	749	2.69	69	31.75	806.5	1.38	35	24	1 1/4
	28	700	36.50	927	31.50	800	2.81	72	34.00	863.5	1.38	35	28	1 1/4
	30	750	38.75	984	33.75	857	2.94	75	36.00	914.5	1.38	35	28	1 1/4
	32	800	41.75	1060	36.00	914	3.19	81	38.50	978	1.62	41	28	1 1/2
	36	900	46.00	1168	40.25	1022	3.56	91	42.75	1086	1.62	41	32	1 1/2
40	1000	50.75	1289	44.25	1124	3.56	91	47.25	1200	1.62	41	36	1 1/2	
42	1050	53.00	1346	47.00	1194	3.81	97	49.50	1257.5	1.62	41	36	1 1/2	
48	1200	59.50	1511	53.50	1359	4.25	108	56.00	1422.5	1.62	41	44	1 1/2	
300	2	50	6.50	165	3.62	92	0.88	23	5.00	127	0.75	19	8	5/8
	2 1/2	65	7.50	190	4.12	105	1.00	26	5.88	149	0.88	22	8	3/4
	3	80	8.25	210	5.00	127	1.12	29	6.62	168.5	0.88	22	8	3/4
	4	100	10.00	254	6.19	157	1.25	32	7.88	200	0.88	22	8	3/4
	6	150	12.50	318	8.50	216	1.44	37	10.62	270	0.88	22	12	3/4
	8	200	15.00	381	10.62	270	1.62	42	13.00	330	1.00	25	12	7/8
	10	250	17.50	445	12.75	324	1.88	48	15.25	387.5	1.12	29	16	1
	12	300	20.50	521	15.00	381	2.00	51	17.75	451	1.25	32	16	1 1/8
	14	350	23.00	584	16.25	413	2.12	54	20.25	514.5	1.25	32	20	1 1/8
	16	400	25.50	648	18.50	470	2.25	58	22.50	571.5	1.38	35	20	1 1/4
	18	450	28.00	711	21.00	533	2.38	61	24.75	628.5	1.38	35	24	1 1/4
	20	500	30.50	775	23.00	584	2.50	64	27.00	686	1.38	35	24	1 1/4
	24	600	36.00	914	27.25	692	2.75	70	32.00	813	1.62	41	24	1 1/2
	26	650	38.25	972	29.50	749	3.12	80	34.50	876.5	1.75	45	28	1 5/8
	28	700	40.75	1035	31.50	800	3.38	86	37.00	940	1.75	45	28	1 5/8
	30	750	43.00	1092	33.75	857	3.62	92	39.25	997	1.88	48	28	1 3/4
	32	800	45.25	1149	36.00	914	3.88	98	41.50	1054	2.00	51	28	1 7/8
	36	900	50.00	1270	40.25	1022	4.12	105	46.00	1168.5	2.12	54	32	2

End Flange Dimensions:

Size 2"-24" to ASME B16.5, Size 26"-48" to ASME B16.47 A.

Tolerances: Unit inch

Thickness C:

NPS ≤ 18" +0.12, -0  
NPS ≥ 20" +0.19, -0

Drilling and Facing:

Bolt Circle Diameter h: ± 0.06

Center to Center of Adjacent Bolt Holes: ± 0.03

Eccentricity Between Bolt Circle Diameter and Machined Facing Diameters:

NPS ≤ 2 1/2" ± 0.03

NPS ≥ 3" ± 0.06

Outside Diameter R:

0.06 Raised Face: NPS 2"-24" ± 0.03

NPS ≥ 26" ± 0.08

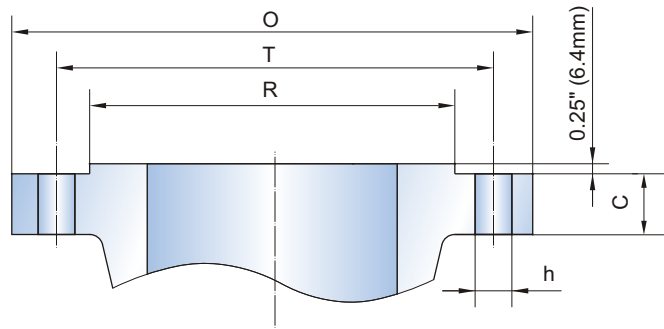
0.25 Raised Face: NPS 2"-24" ± 0.02

NPS ≥ 26" ± 0.04





CLASS 600-2500 RF



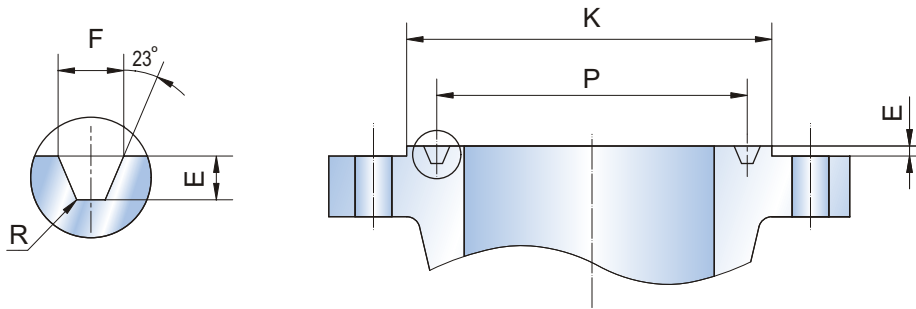
CLASS	SIZE		O		R		C		T		h		Bolt	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	QTY.	Diameter
600	2	50	6.50	165	3.62	92	1.00	26	5.00	127	0.75	19	8	5/8
	2 1/2	65	7.50	190	4.12	105	1.12	29	5.88	149	0.88	22	8	3/4
	3	80	8.25	210	5.00	127	1.25	32	6.62	168	0.88	22	8	3/4
	4	100	10.75	273	6.19	157	1.50	38	8.50	216	1.00	25	8	7/8
	6	150	14.00	356	8.50	216	1.88	48	11.50	292	1.12	29	12	1
	8	200	16.50	419	10.62	270	2.19	56	13.75	349	1.25	32	12	1 1/8
	10	250	20.00	508	12.75	324	2.50	64	17.00	432	1.38	35	16	1 1/4
	12	300	22.00	559	15.00	381	2.62	67	19.25	489	1.38	35	20	1 1/4
	14	350	23.75	603	16.25	413	2.75	70	20.75	527	1.50	38	20	1 3/8
	16	400	27.00	686	18.50	470	3.00	77	23.75	603	1.62	41	20	1 1/2
	18	450	29.25	743	21.00	533	3.25	83	25.75	654	1.75	44	20	1 5/8
20	500	32.00	813	23.00	584	3.50	89	28.50	724	1.75	44	24	1 5/8	
24	600	37.00	940	27.25	692	4.00	102	33.00	838	2.00	51	24	1 7/8	
900	2	50	8.50	216	3.62	92	1.50	38.5	6.50	165.1	1.00	26	8	7/8
	2 1/2	65	9.62	244	4.12	105	1.62	41.5	7.50	190.5	1.12	29	8	1
	3	80	9.50	241	5.00	127	1.50	38.5	7.50	190.5	1.00	26	8	7/8
	4	100	11.50	292	6.19	157	1.75	44.5	9.25	234.9	1.25	32	8	1 1/8
	6	150	15.00	381	8.50	216	2.19	56.0	12.50	317.5	1.25	32	12	1 1/8
	8	200	18.50	470	10.62	270	2.50	63.5	15.50	393.7	1.50	39	12	1 3/8
	10	250	21.50	545	12.75	324	2.75	70.0	18.50	469.9	1.50	39	16	1 3/8
	12	300	24.00	610	15.00	381	3.12	79.5	21.00	533.4	1.50	39	20	1 3/8
	14	350	25.25	640	16.25	413	3.38	86.0	22.00	558.8	1.62	42	20	1 1/2
	16	400	27.75	705	18.50	470	3.50	89.0	24.25	615.9	1.75	45	20	1 5/8
	18	450	31.00	785	21.00	533	4.00	102.0	27.00	685.8	2.00	51	20	1 7/8
20	500	33.75	855	23.00	584	4.25	108.0	29.50	749.3	2.12	54	20	2	
24	600	41.00	1040	27.25	692	5.50	140.0	35.50	901.7	2.62	67	20	2 1/2	
1500	2	50	8.50	216	3.62	92	1.50	38.5	6.50	165.1	1.00	26	8	7/8
	2 1/2	65	9.62	244	4.12	105	1.62	41.5	7.50	190.5	1.12	29	8	1
	3	80	10.50	267	5.00	127	1.88	48.0	8.00	203.2	1.25	32	8	1 1/8
	4	100	12.25	311	6.19	157	2.12	54.0	9.50	241.3	1.38	35	8	1 1/4
	6	150	15.50	394	8.50	216	3.25	83.0	12.50	317.5	1.50	39	12	1 3/8
	8	200	19.00	483	10.62	270	3.62	92.9	15.50	393.7	1.75	45	12	1 5/8
	10	250	23.00	585	12.75	324	4.25	108.0	19.00	482.6	2.00	51	12	1 7/8
	12	300	26.50	675	15.00	381	4.88	124.0	22.50	571.5	2.12	54	16	2
	14	350	29.50	750	16.25	413	5.25	133.5	25.00	635.0	2.38	61	16	2 1/4
	16	400	32.50	825	18.50	470	5.75	146.5	27.75	704.8	2.62	67	16	2 1/2
	18	450	36.00	915	21.00	533	6.38	162.0	30.50	774.7	2.88	74	16	2 3/4
20	500	38.75	985	23.00	584	7.00	178.0	32.75	831.8	3.12	80	16	3	
24	600	46.00	1170	27.25	692	8.00	203.5	39.00	990.6	3.62	93	16	3 1/2	
2500	2	50	9.25	235	3.62	92	2.00	51.0	6.75	171.4	1.12	29	8	1
	2 1/2	65	10.50	267	4.12	105	2.25	57.5	7.75	196.8	1.25	32	8	1 1/8
	3	80	12.00	305	5.00	127	2.62	67.0	9.00	228.6	1.38	35	8	1 1/4
	4	100	14.00	356	6.19	157	3.00	76.5	10.75	273.0	1.62	42	8	1 1/2
	6	150	19.00	483	8.50	216	4.25	108.0	14.50	368.3	2.12	54	8	2
	8	200	21.75	550	10.62	270	5.00	127.0	17.25	438.1	2.12	54	12	2
	10	250	26.50	675	12.75	324	6.50	165.5	21.25	539.7	2.62	67	12	2 1/2
12	300	30.00	760	15.00	381	7.25	184.5	24.38	619.1	2.88	74	12	2 3/4	

End Flange Dimensions: ASME B16.5  
Tolerances: the Same as Class 150 300



# Dimensions of Ring Joint Facing Class 150-2500

## CLASS 150-2500 RTJ



CLASS	SIZE		Ring No.	P		E		F		R		K	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm
150	2	50	R22	3.250	82.55	0.250	6.35	0.344	8.74	0.03	0.8	4.00	102
	2 1/2	65	R25	4.000	101.60	0.250	6.35	0.344	8.74	0.03	0.8	4.75	121
	3	80	R29	4.500	114.30	0.250	6.35	0.344	8.74	0.03	0.8	5.25	133
	4	100	R36	5.875	149.22	0.250	6.35	0.344	8.74	0.03	0.8	6.75	171
	6	150	R43	7.625	193.68	0.250	6.35	0.344	8.74	0.03	0.8	8.62	219
	8	200	R48	9.750	247.65	0.250	6.35	0.344	8.74	0.03	0.8	10.75	273
	10	250	R52	12.000	304.80	0.250	6.35	0.344	8.74	0.03	0.8	13.00	330
	12	300	R56	15.000	381.00	0.250	6.35	0.344	8.74	0.03	0.8	16.00	406
	14	350	R59	15.625	396.88	0.250	6.35	0.344	8.74	0.03	0.8	16.75	425
	16	400	R64	17.875	454.02	0.250	6.35	0.344	8.74	0.03	0.8	19.00	483
	18	450	R68	20.375	517.52	0.250	6.35	0.344	8.74	0.03	0.8	21.50	546
	20	500	R72	22.000	558.80	0.250	6.35	0.344	8.74	0.03	0.8	23.50	597
24	600	R76	26.500	673.10	0.250	6.35	0.344	8.74	0.03	0.8	28.00	711	
300 600	2	50	R23	3.250	82.55	0.312	7.92	0.469	11.91	0.03	0.8	4.25	108
	2 1/2	65	R26	4.000	101.60	0.312	7.92	0.469	11.91	0.03	0.8	5.00	127
	3	80	R31	4.875	123.82	0.312	7.92	0.469	11.91	0.03	0.8	5.75	146
	4	100	R37	5.875	149.22	0.312	7.92	0.469	11.91	0.03	0.8	6.88	175
	6	150	R45	8.312	211.13	0.312	7.92	0.469	11.91	0.03	0.8	9.50	241
	8	200	R49	10.625	269.88	0.312	7.92	0.469	11.91	0.03	0.8	11.88	302
	10	250	R53	12.750	323.85	0.312	7.92	0.469	11.91	0.03	0.8	14.00	356
	12	300	R57	15.000	381.00	0.312	7.92	0.469	11.91	0.03	0.8	16.25	413
	14	350	R61	16.500	419.10	0.312	7.92	0.469	11.91	0.03	0.8	18.00	457
	16	400	R65	18.500	469.90	0.312	7.92	0.469	11.91	0.03	0.8	20.00	508
	18	450	R69	21.000	533.40	0.312	7.92	0.469	11.91	0.03	0.8	22.62	575
	20	500	R73	23.000	584.20	0.375	9.52	0.531	13.49	0.06	1.5	25.00	635
	24	600	R77	27.250	692.15	0.438	11.13	0.656	16.66	0.06	1.5	29.50	749
	26	650	R93	29.500	749.30	0.500	12.7	0.781	19.84	0.06	1.5	31.88	861
	28	700	R94	31.500	800.10	0.500	12.7	0.781	19.84	0.06	1.5	33.88	861
	30	750	R95	33.750	857.25	0.500	12.7	0.781	19.84	0.06	1.5	36.12	917
	32	800	R96	36.000	914.40	0.562	14.27	0.906	23.01	0.06	1.5	38.75	984
	36	900	R98	40.250	1022.35	0.562	14.27	0.906	23.01	0.06	1.5	43.00	1092

CLASS	SIZE		Ring No.	P		E		F		R		K	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm
900	2	50	R24	3.750	95.25	0.312	7.92	0.469	11.91	0.03	0.8	4.88	124
	2 1/2	65	R27	4.250	107.95	0.312	7.92	0.469	11.91	0.03	0.8	5.38	137
	3	80	R31	4.875	123.82	0.312	7.92	0.469	11.91	0.03	0.8	6.12	156
	4	100	R37	5.875	149.22	0.312	7.92	0.469	11.91	0.03	0.8	7.12	181
	6	150	R45	8.312	211.12	0.312	7.92	0.469	11.91	0.03	0.8	9.50	241
	8	200	R49	10.625	269.88	0.312	7.92	0.469	11.91	0.03	0.8	12.12	308
	10	250	R53	12.750	323.85	0.312	7.92	0.469	11.91	0.03	0.8	14.25	362
	12	300	R57	15.000	381.00	0.312	7.92	0.469	11.91	0.03	0.8	16.50	419
	14	350	R62	16.500	419.10	0.438	11.13	0.656	16.66	0.06	1.5	18.38	467
	16	400	R66	18.500	469.90	0.438	11.13	0.656	16.66	0.06	1.5	20.62	524
	18	450	R70	21.000	533.40	0.500	12.7	0.781	19.84	0.06	1.5	23.38	594
	20	500	R74	23.000	584.20	0.500	12.7	0.781	19.84	0.06	1.5	25.50	648
24	600	R78	27.250	692.15	0.625	15.88	1.062	26.97	0.09	2.3	30.38	772	
1500	2	50	R24	3.750	95.25	0.312	7.92	0.469	11.91	0.03	0.8	4.88	124
	2 1/2	65	R27	4.250	107.95	0.312	7.92	0.469	11.91	0.03	0.8	5.38	137
	3	80	R35	5.375	136.52	0.312	7.92	0.469	11.91	0.03	0.8	6.62	168
	4	100	R39	6.375	161.92	0.312	7.92	0.469	11.91	0.03	0.8	7.62	194
	6	150	R46	8.312	211.12	0.375	9.52	0.531	13.49	0.06	1.5	9.75	248
	8	200	R50	10.625	269.88	0.438	11.13	0.656	16.66	0.06	1.5	12.50	318
	10	250	R54	12.750	323.85	0.438	11.13	0.656	16.66	0.06	1.5	14.62	371
	12	300	R58	15.000	381.00	0.562	14.27	0.906	23.01	0.06	1.5	17.25	438
	14	350	R63	16.500	419.10	0.625	15.88	1.062	26.97	0.09	2.3	19.25	489
	16	400	R67	18.500	469.90	0.688	17.48	1.188	30.18	0.09	2.3	21.50	546
	18	450	R71	21.000	533.40	0.688	17.48	1.188	30.18	0.09	2.3	24.12	613
	20	500	R75	23.000	584.20	0.688	17.48	1.312	33.32	0.09	2.3	26.50	673
24	600	R79	27.250	692.15	0.812	20.62	1.438	36.53	0.09	2.3	31.25	794	
2500	2	50	R26	4.000	101.60	0.312	7.92	0.469	11.91	0.03	0.8	5.25	133
	2 1/2	65	R28	4.375	111.12	0.375	9.52	0.531	13.49	0.03	0.8	5.88	149
	3	80	R32	5.000	127.00	0.375	9.52	0.531	13.49	0.06	1.5	6.62	168
	4	100	R38	6.188	157.18	0.438	11.13	0.656	16.66	0.06	1.5	8.00	203
	6	150	R47	9.000	228.60	0.500	12.70	0.781	19.84	0.06	1.5	11.00	279
	8	200	R51	11.000	279.40	0.562	14.27	0.906	23.01	0.06	1.5	13.38	340
	10	250	R55	13.500	342.90	0.688	17.48	1.188	30.18	0.09	2.3	16.75	425
	12	300	R60	16.000	406.40	0.688	17.48	1.312	33.32	0.09	2.3	19.50	495

End Flange Dimensions:

Size 2"-24" to ASME B16.5, Size 26"-36" to ASME B16.47 A.

Tolerances: Unit inch

Depth E: + 0.016, -0

Width F: ± 0.008

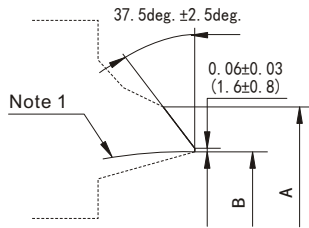
Pith Diameter P: ± 0.005

Radius at Bottom R: R ≤ 0.06 +0.03, -0

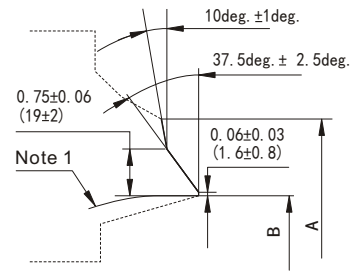
R > 0.06 ± 0.03

Angle 23 Deg.: ± 0.5 Deg.

# Buttwelding End Dimensions



Note 1 Internal surface may be as formed or machined for dimension B at root face. Contour within the envelope shall be in accordance with section.



Wall Thickness not Over 0.88in (22mm)  
Welding End Detail for Joint Without Backing Ring

Wall Thickness Over 0.88in (22mm)  
Welding End Detail for Joint Without Backing Ring

Nominal Pipe Size		Schedule No. [Note(1)]	O.D. at Welding Ends				B		C [Note(3)]		t	
			Wrought or Fabricated Components, A [Note(1)]		Cast Steel Valves, A [Note(2)]							
DN	NPS		mm	in	mm	in	mm	in	mm	in	mm	in
65	2 1/2	40	73.0	2.88	75	2.96	62.5	2.469	62.93	2.479	5.16	0.203
		80					59	2.323	59.69	2.351	7.01	0.276
		160					54	2.125	55.28	2.178	9.53	0.375
		XXS					45	1.771	47.43	1.868	14.02	0.552
80	3	40	88.9	3.50	91	3.59	78	3.068	78.25	3.081	5.49	0.216
		80					73.5	2.900	74.53	2.934	7.62	0.300
		160					66.5	2.624	68.38	2.692	11.13	0.438
		XXS					58.5	2.300	61.19	2.409	15.24	0.600
90	3 1/2	40	101.6	4.00	105	4.12	90	3.548	90.52	3.564	5.74	0.226
		80					85.5	3.364	86.42	3.402	8.08	0.318
100	4	40	114.3	4.50	117	4.62	102	4.026	102.73	4.044	6.02	0.237
		80					97	3.826	98.28	3.869	8.56	0.337
		120					92	3.624	93.78	3.692	11.13	0.438
		160					87.5	3.438	89.65	3.530	13.49	0.531
		XXS					80	3.152	83.30	3.279	17.12	0.674
125	5	40	141.3	5.56	144	5.69	128	5.047	128.80	5.070	6.55	0.258
		80					122	4.813	123.58	4.866	9.53	0.375
		120					116	4.563	118.04	4.647	12.70	0.500
		160					109.5	4.313	112.47	4.428	15.88	0.625
		XXS					103	4.063	106.92	4.209	19.05	0.750
150	6	40	168.3	6.62	172	6.78	154	6.065	154.82	6.094	7.11	0.280
		80					146.5	5.761	148.06	5.828	10.97	0.432
		120					140	5.501	142.29	5.600	14.27	0.562
		160					132	5.187	135.31	5.326	18.26	0.719
		XXS					124.5	4.897	128.85	5.072	21.95	0.864
200	8	40	219.1	8.62	223	8.78	203	7.981	203.75	8.020	8.18	0.322
		60					198.5	7.813	200.02	7.873	10.31	0.406
		80					193.5	7.625	195.84	7.709	12.70	0.500
		100					189	7.437	191.65	7.544	15.09	0.594
		120					182.5	7.187	186.11	7.326	18.26	0.719
		140					178	7.001	181.98	7.163	20.62	0.812
		XXS					174.5	6.875	179.16	7.053	22.23	0.875
		160					173	6.813	177.79	6.998	23.01	0.906
250	10	40	273.0	10.75	278	10.94	254.5	10.020	255.74	10.070	9.27	0.365
		60					247.5	9.750	249.74	9.834	12.70	0.500
		80					243	9.562	245.55	9.670	15.09	0.594
		100					236.5	9.312	240.01	9.451	18.26	0.719
		120					230	9.062	234.44	9.232	21.44	0.844
		140					222	8.750	227.51	8.959	25.40	1.000
		160					216	8.500	221.95	8.740	28.58	1.125
300	12	STD	323.8	12.75	329	12.97	305	12.000	306.08	12.053	9.53	0.375
		40					303	11.938	304.72	11.999	10.31	0.406
		XS					298.5	11.750	300.54	11.834	12.70	0.500
		60					295	11.626	297.79	11.725	14.27	0.562
		80					289	11.374	292.17	11.505	17.48	0.688
		100					281	11.062	285.24	11.232	21.44	0.844
		120					273	10.750	278.31	10.959	25.40	1.000
		140					266.5	10.500	272.75	10.740	28.58	1.125
		160					257	10.126	264.45	10.413	33.32	1.312
350	14	STD	355.6	14.00	362	14.25	336.5	13.250	337.88	13.303	9.53	0.375
		40					333.5	13.124	335.08	13.192	11.13	0.438
		XS					330	13.000	332.34	13.084	12.70	0.500
		60					325.5	12.812	328.15	12.920	15.09	0.594
		80					317.5	12.500	321.22	12.646	19.05	0.750
		100					308	12.124	312.86	12.318	23.83	0.938
		120					300	11.812	305.93	12.044	27.79	1.094
		140					292	11.500	299.00	11.771	31.75	1.250
		160					284	11.188	292.07	11.498	35.71	1.406

# Buttwelding End Dimensions

Nominal Pipe Size		Schedule No. [Note(1)]	O.D. at Welding Ends				B		C [Note(3)]		t	
			Wrought or Fabricated Components, A [Note(1)]		Cast Steel Valves, A [Note(2)]							
DN	NPS		mm	in	mm	in	mm	in	mm	in	mm	in
400	16	STD	406.4	16.00	413	16.25	387.5	15.250	388.68	15.303	9.53	0.375
		40					381	15.000	383.14	15.084	12.70	0.500
		60					373	14.688	376.21	14.811	16.66	0.656
		80					363.5	14.312	367.84	14.482	21.44	0.844
		100					354	13.938	359.53	14.155	26.19	1.031
		120					344.5	13.562	351.18	13.826	30.96	1.219
		140					333.5	13.124	341.43	13.422	36.53	1.438
		160					325.5	12.812	334.50	13.170	40.49	1.594
450	18	STD	457.2	18.00	464	18.28	438	17.250	439.48	17.303	9.53	0.375
		XS					432	17.000	433.94	17.084	12.70	0.500
		40					428.5	16.876	431.19	16.975	14.27	0.562
		60					419	16.500	422.82	16.646	19.05	0.750
		80					409.5	16.124	414.46	16.318	23.83	0.938
		100					398.5	15.688	404.78	15.936	29.36	1.156
		120					387.5	15.250	395.03	15.553	34.93	1.375
		140					378	14.876	386.77	15.225	39.67	1.562
160					366.5	14.438	376.99	14.842	45.24	1.781		
500	20	STD	508.0	20.00	516	20.31	489	19.250	490.28	19.303	9.53	0.375
		XS					482.5	19.000	484.74	19.084	12.70	0.500
		40					478	18.812	480.55	18.920	15.09	0.594
		60					467	18.376	470.88	18.538	20.62	0.812
		80					455.5	17.938	461.13	18.155	26.19	1.031
		100					443	17.438	450.02	17.717	32.54	1.281
		120					432	17.000	440.29	17.334	38.10	1.500
		140					419	16.500	429.17	16.896	44.45	1.750
160					408	16.062	419.44	16.513	50.01	1.969		
550	22	STD	558.8	22.00	567	22.34	539	21.250	541.08	21.303	9.53	0.375
		XS					533	21.000	535.54	21.084	12.70	0.500
		60					514	20.250	518.86	20.428	22.23	0.875
		80					501	19.750	507.75	19.990	28.58	1.125
		100					488.5	19.250	496.63	19.553	34.93	1.375
		120					476	18.750	485.52	19.115	41.28	1.625
		140					463	18.250	474.41	18.678	47.63	1.875
		160					450.5	17.750	463.30	18.240	53.98	2.125
600	24	STD	609.6	24.00	619	24.38	590.5	23.250	591.88	23.303	9.53	0.375
		XS					584	23.000	586.34	23.084	12.70	0.500
		30					581	22.876	583.59	22.975	14.27	0.562
		40					574.5	22.624	577.97	22.755	17.48	0.688
		60					560.5	22.062	565.49	22.263	24.61	0.969
		80					547.5	21.562	554.38	21.826	30.96	1.219
		100					532	20.938	540.49	21.280	38.89	1.531
		120					517.5	20.376	528.03	20.788	46.02	1.812
		140					505	19.876	516.91	20.350	52.37	2.062
		160					490.5	19.312	504.37	19.857	59.54	2.344
650	26	10	660.4	26.00	670	26.38	645.5	25.376	645.50	25.413	7.92	0.312
		20					635	25.000	637.14	25.084	12.70	0.500
700	28	10	711.2	28.00	721	28.38	695.5	27.376	696.30	27.413	7.92	0.312
		20					686	27.000	687.94	27.084	12.70	0.500
		30					679.5	26.750	682.37	26.865	15.88	0.625
750	30	10	762.0	30.00	772	30.38	746	29.376	747.10	29.413	7.92	0.312
		20					736.5	29.000	738.74	29.084	12.70	0.500
		30					730	28.750	733.17	28.865	15.88	0.625
800	32	10	812.8	32.00	825	32.50	797	31.376	797.90	31.413	7.92	0.312
		20					787.5	31.000	789.54	31.084	12.70	0.500
		30					781	30.750	783.97	30.865	15.88	0.625
		40					778	30.624	781.17	30.755	17.48	0.688
850	34	10	863.6	34.00	876	34.50	848	33.376	848.70	33.413	7.92	0.312
		20					838	33.000	840.34	33.084	12.70	0.500
		30					832	32.750	834.77	32.865	15.88	0.625
		40					828.5	32.624	831.97	32.755	17.48	0.688
900	36	10	914.4	36.00	927	36.50	898.5	35.376	899.50	35.413	7.92	0.312
		20					889	35.000	891.14	35.084	12.70	0.500
		30					882.5	34.750	885.57	34.865	15.88	0.625
		40					876.5	34.500	880.02	34.646	19.05	0.750

## NOTES:

- (1) Letter designations signify
  - (a) STD = standard wall thickness
  - (b) XS = extra-strong wall thickness
  - (c) XXS = double extra-strong wall thickness
- (2) The diameters listed are not requirements. They are provided for the convenience of the user.
- (3) Internal machining for continuous backing rings for sizes DN 50 (NPS 2) and smaller is not contemplated.



Material	CHEMICAL COMPOSITIONS (%) max									MECHANICAL PROPERTIES					
	C	Mn	P	S	Si	Ni	Cr	Mo	Other	Tensile, min MPa (ksi)	Yield, min MPa (ksi)	Elongation min (%)	Reduction of Area min (%)	Hardness Brinell	Energy Value J (ft·lbf)
WCB	0.30	1.00	0.04	0.045	0.60	0.50	0.50	0.20	Cu 0.30 V 0.03	485-655 (70-95)	250 (36)	22	35		
WC1	0.25	0.50~ 0.80	0.04	0.045	0.60	0.50	0.35	0.45~ 0.65	Cu 0.50 W 0.10	450-620 (65-90)	240 (35)	24	35		
WC6	0.05~ 0.20	0.50~ 0.80	0.04	0.045	0.60	0.50	1.00~ 1.50	0.45~ 0.65	Cu 0.50 W 0.10	485-655 (70-95)	275 (40)	20	35		
WC9	0.05~ 0.18	0.40~ 0.70	0.04	0.045	0.60	0.50	2.00~ 2.75	0.90~ 1.20	Cu 0.50 W 0.10	485-655 (70-95)	275 (40)	20	35		
C5	0.20	0.40~ 0.70	0.04	0.045	0.75	0.50	4.00~ 6.50	0.45~ 0.65	Cu 0.50 W 0.10	620-795 (90-115)	415 (60)	18	35		
C12	0.20	0.35~ 0.65	0.04	0.045	1.00	0.50	8.00~ 10.00	0.90~ 1.20	Cu 0.50 W 0.10	620-795 (90-115)	415 (60)	18	35		
CA15	0.15	1.00	0.04	0.040	1.50	1.00	11.50~ 14.00	0.50		620-795 (90-115)	450 (65)	18	30		
LCB	0.30	1.00	0.04	0.045	0.60	0.50	0.50	0.20	Cu 0.30 V 0.03	450-620 (65-90)	240 (35)	24	35		18 (13)
LCC	0.25	1.20	0.04	0.045	0.60	0.50	0.50	0.20	Cu 0.30 V 0.03	485-655 (70-95)	275 (40)	22	35		20 (15)
LC2	0.25	0.50~ 0.80	0.04	0.045	0.60	2.0~ 3.0				485-655 (70-95)	275 (40)	24	35		20 (15)
LC3	0.15	0.50~ 0.80	0.04	0.045	0.60	3.0~ 4.0				485-655 (70-95)	275 (40)	24	35		20 (15)
CF8	0.08	1.50	0.040	0.040	2.00	8.0~ 11.0	18.0~ 21.0	0.50		485 (70)	205 (30)	35			
CF8M	0.08	1.50	0.040	0.040	1.50	9.0~ 12.0	18.0~ 21.0	2.0~ 3.0		485 (70)	205 (30)	30			
CF3	0.03	1.50	0.040	0.040	2.00	8.0~ 12.0	17.0~ 21.0	0.50		485 (70)	205 (30)	35			
CF3M	0.03	1.50	0.040	0.040	1.50	9.0~ 13.0	17.0~ 21.0	2.0~ 3.0		485 (70)	205 (30)	30			
CF8C	0.08	1.50	0.040	0.040	2.00	9.0~ 12.0	18.0~ 21.0	0.50	Nb ≥ 8xC ≤ 1	485 (70)	205 (30)	30			
CN7M	0.07	1.50	0.040	0.040	1.50	27.5~ 30.5	19.0~ 22.0	2.0~ 3.0	Cu 3.0~4.0	425 (62)	170 (25)	35			
A105	0.35	0.60~ 1.05	0.035	0.040	0.10~ 0.35	0.40	0.30	0.12	Cu 0.40 V 0.08 Cr+Ni+Cr+Mo+V ≤ 1 Cr+Mo ≤ 0.32	485 (70)	250 (36)	22	30	≤ 187	
F1	0.28	0.60~ 0.90	0.045	0.045	0.15~ 0.35			0.44~ 0.65		485 (70)	275 (40)	20	30	143-192	
F5	0.15	0.30~ 0.60	0.030	0.030	0.50	0.50	4.0~ 6.0	0.44~ 0.65		485 (70)	275 (40)	20	35	143-217	
F11CL2	0.10~ 0.20	0.30~ 0.80	0.040	0.040	0.50~ 1.00		1.00~ 1.50	0.44~ 0.65		485 (70)	275 (40)	20	35	143-207	
F22CL3	0.05~ 0.15	0.30~ 0.60	0.040	0.040	0.50		2.00~ 2.50	0.87~ 1.13		515 (75)	310 (45)	20	30	156-207	
LF2CL1	0.30	0.60~ 1.35	0.035	0.040	0.15~ 0.30	0.40	0.30	0.12	Cu 0.40 V 0.08 Nb 0.02	485-655 (70-95)	250 (36)	22	30		20 (15)
F6aCL2	0.15	1.00	0.040	0.030	1.00	0.50	11.5~ 13.5			585 (85)	380 (55)	18	35	167-229	
F304	0.08	2.00	0.045	0.030	1.00	8.0~ 11.0	18.0~ 20.0		N 0.10	515 (75)	205 (30)	30	50		
F304L	0.03	2.00	0.045	0.030	1.00	8.0~ 13.0	18.0~ 20.0		N 0.10	485 (70)	170 (25)	30	50		



# Materials

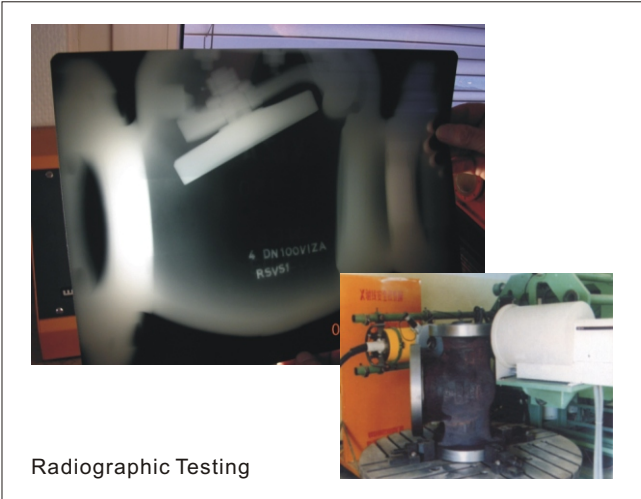
Material	CHEMICAL COMPOSITIONS (%) max									MECHANICAL PROPERTIES					
	C	Mn	P	S	Si	Ni	Cr	Mo	Other	Tensile, min MPa (ksi)	Yield, min MPa (ksi)	Elongation min (%)	Reduction of Area min (%)	Hardness Brinell	Energy Value J (ft·lbf)
F316	0.08	2.00	0.045	0.030	1.00	10.0~ 14.0	16.0~ 18.0	2.00~ 3.00	N 0.10	515 (75)	205 (30)	30	50		
F316L	0.03	2.00	0.045	0.030	1.00	10.0~ 15.0	16.0~ 18.0	2.00~ 3.00	N 0.10	485 (70)	170 (25)	30	50		
F321	0.08	2.00	0.045	0.030	1.00	9.0~ 12.0	17.0~ 19.0		Ti ≥ 5xC ≤ 0.70	515 (75)	205 (30)	30	50		
F347	0.08	2.00	0.045	0.030	1.00	9.0~ 13.0	17.0~ 20.0		Nb ≥ 10xC ≤ 1.10	515 (75)	205 (30)	30	50		
410	0.15	1.00	0.040	0.030	1.00		11.50~ 13.50			480 (70)	275 (40)	20	45		
416	0.15	1.25	0.06	≥ 0.15	1.00		12.00~ 14.00							≤ 262	
420	≥ 0.15	1.00	0.040	0.030	1.00		12.00~ 14.00							≤ 241	
D-2	3.00	0.70~ 1.25	0.08		1.50~ 3.00	18.0~ 22.0	1.75~ 2.75			400 (58)	207 (30)	8.0		139~202	
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 (125)	720 (105)	16	50	≤ HB321 or HRC 35	
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 (100)	550 (80)	18	50	HB200~235 or HRB 93~99	
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	V 0.25~0.35 Al 0.015	860 (125)	725 (105)	18	50	≤ HB321 or HRC 35	
B8	0.08	2.00	0.045	0.030	1.00	8.0~ 11.0	18.0~ 20.0			515 (75)	205 (30)	30	50	≤ HB223 or HRB 96	
B8M	0.08	2.00	0.045	0.030	1.00	10.0~ 14.0	16.0~ 18.0	2.00~ 3.00		515 (75)	205 (30)	30	50	≤ HB223 or HRB 96	
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		860 (125)	725 (105)	16	50		27 (20)
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		690 (100)	550 (80)	18	50	HB200~235 or HRB 93~99	27 (20)
B	0.33	1.25	0.04	0.05						415~690 (60~100)		18		HB121~212 HRB 69~95	
2H	≥ 0.40	1.00	0.040	0.050	0.40									HB248~327 HRC24~35	
2HM	≥ 0.40	1.00	0.040	0.050	0.40									HB159~235 HRB 84~99	
4	0.40~ 0.50	0.70~ 0.90	0.035	0.040	0.15~ 0.35			0.20~ 0.30						HB248~327 HRC24~35	
7	0.37~ 0.49	0.65~ 1.10	0.035	0.040	0.15~ 0.35		0.75~ 1.20	0.15~ 0.25						HB248~327 HRC24~35	
7M	0.37~ 0.49	0.65~ 1.10	0.035	0.040	0.15~ 0.35		0.75~ 1.20	0.15~ 0.25						HB159~235 HRB 84~99	
8	0.08	2.00	0.045	0.030	1.00	8.00~ 11.0	18.0~ 20.0							HB126~300 ≤ HRC32	
8M	0.08	2.00	0.045	0.030	1.00	10.0~ 14.0	16.0~ 18.0	2.00~ 3.00						HB126~300 ≤ HRC32	



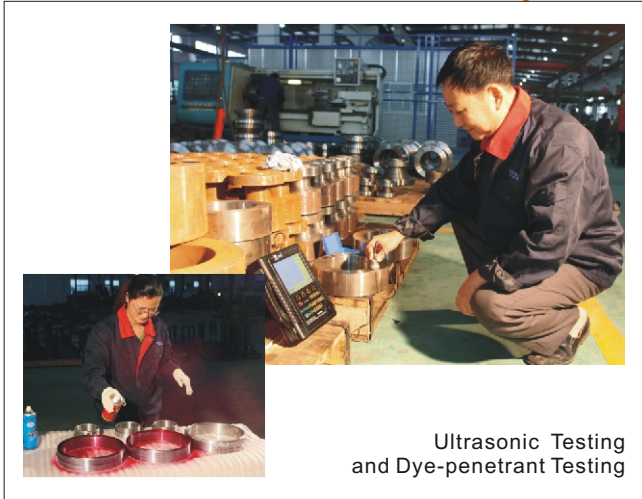
Chemical Analysis with Spectrography



API591 Stem to Wedge Connection Testing (Physical Properties)



Radiographic Testing



Ultrasonic Testing and Dye-penetrant Testing



Pressure Testing and Third Party Inspection

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