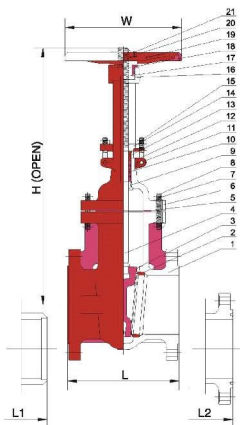


Cast Steel Gate Valve Class 150



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

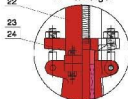
FEATURES

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

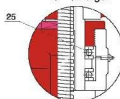
STANDARD MATERIALS OF PARTS

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.F6
5	Gasket	Soft Iron+Graphite
6	Bonnet	ASTM A216 GR.WCB
7	Bonnet Bolt nuts	ASTM A194 GR.2H
8	Bonnet Bolt	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

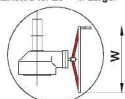
Yoke for
14" & Larger



Bearing for
16" & Larger



Gear Optional for 24" & Smaller
Standard for 28" & Larger



Dimensions and Weights

SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	30"	32"	36"
L	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	700	750	800	900
L1	in	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	24.00	24.00	28.00	28.00
L1	mm	178	191	203	229	267	292	330	356	381	406	432	457	508	610	610	711	711
L2	in	6.50	9.50	11.12	12.00	15.88	16.50	18.00	19.75	22.50	24.00	26.00	28.00	32.00	36.00	36.00	38.00	40.00
L2	mm	216	241	283	305	403	419	457	502	572	610	660	711	813	914	914	965	1016
H	in	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	-	-	-	-
H	mm	191	203	216	241	279	305	343	368	394	419	445	470	521	-	-	-	-
W	in	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	130.98	141.97	145.98	154.49
W	mm	389	439	500	595	777	975	1160	1390	1555	1811	2103	2300	2609	3327	3606	3708	3924
Weight RF	kg	17	23	29	47	80	129	192	287	410	571	720	1170	1466	1931	2380	2490	3600

Cast Steel Gate Valve Class 300

SPECIFICATIONS

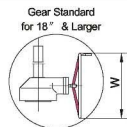
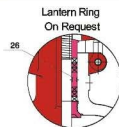
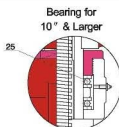
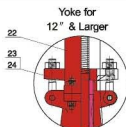
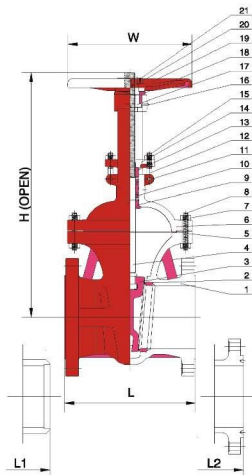
Design	ASME B16.34/API 600
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

FEATURES

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

STANDARD MATERIALS OF PARTS

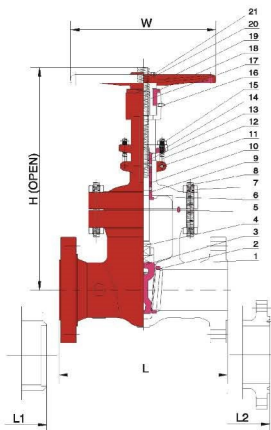
ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105+Stellite Faced
3	Disc	ASTM A216 GR.WCB+13Cr Faced
4	Stem	ASTM A182 GR.F6
5	Gasket	Soft Iron+Graphite
6	Bonnet	ASTM A216 GR.WCB
7	Bonnet Bolt nuts	ASTM A194 GR.2H
8	Bonnet Bolt	ASTM A193 GR.B7
9	Backseat Bushing	ASTM A276 Type 410
10	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



Dimensions and Weights

SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	30"
L/L1	mm	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	53.00	55.00
L2	mm	216	241	283	305	403	419	457	502	762	838	914	991	1143	1346	1397
H	mm	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	54.00	56.00
W	mm	232	257	298	321	419	435	473	517	778	854	930	1010	1165	1372	1422
Weight RF	kg	16.93	19.88	20.67	24.80	31.50	39.69	48.82	57.87	64.76	72.48	77.13	86.38	102.28	122.05	130.71
	mm	430	505	530	630	800	1008	1240	1470	1645	1841	1959	2194	2598	3100	3320
	in	8	10	10	10	14	16	18	20	24	24	24	24	24	24	24
	mm	200	250	250	250	350	400	450	500	600	610	610	610	610	610	610
	kg	30	4	57	88	147	219	368	522	694	1080	1235	1655	2320	3893	4930

Cast Steel Gate Valve Class 600



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

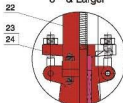
FEATURES

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

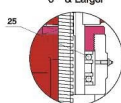
STANDARD MATERIALS OF PARTS

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.F6
5	Gasket	Soft Iron+Graphite
6	Bonnet	ASTM A216 GR.WCB
7	Bonnet Bolt nuts	ASTM A194 GR.2H
8	Bonnet Bolt	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

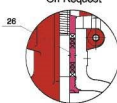
Yoke for 8" & Larger



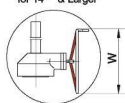
Bearing for 6" & Larger



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"
	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	296	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	88.96	106.50	110.63
	mm	455	588	550	690	910	1065	1257	1468	1623	1816	2280	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

Cast Steel Gate Valve Class 900-2500

SPECIFICATIONS

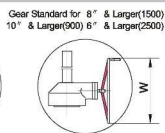
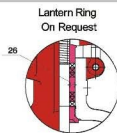
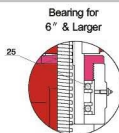
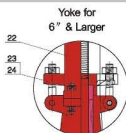
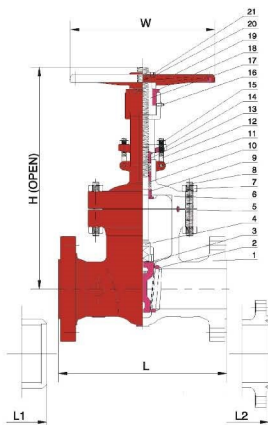
Design	ASME B16.34/API 600
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

FEATURES

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

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.F6
5	Gasket	Soft Iron+Graphite
6	Bonnet	ASTM A216 GR.WCB
7	Bonnet Bolt nuts	ASTM A194 GR.2H
8	Bonnet Bolt	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 Pin Bolt Nuts	ASTM A194 GR.2H
24	Yoke Pin Bolts	ASTM A193 GR.B7
25	Bearing	Steel
26	Lantern Ring On Request	ASTM A276 Type 410



Dimensions and Weights

SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	2"	2.5"	3"	4"	6"	8"	10"	12"	2"	2.5"	3"	4"	6"	8"	10"	12"
	mm	50	65	80	100	150	200	250	300	50	65	80	100	150	200	250	300	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	14.50	16.50	18.50	21.50	27.75	32.75	39.00	44.50	17.75	20.00	22.75	26.50	36.00	40.25	60.00	56.00
	mm	368	419	381	457	610	737	838	965	368	419	470	546	705	832	991	1130	451	508	578	673	914	1022	1270	1422
L2	in	14.62	16.62	15.12	18.12	24.12	29.12	33.12	38.12	14.62	16.62	18.62	21.62	28.00	33.13	39.38	45.12	17.87	20.25	23.00	26.88	36.50	40.87	50.88	56.88
	mm	371	422	384	460	613	740	841	968	371	422	473	549	711	842	1000	1146	454	514	584	683	927	1038	1292	1445
H	in	24.41	27.78	29.02	32.48	41.93	47.99	62.95	72.44	27.38	27.76	30.31	34.33	42.99	55.12	62.95	72.44	27.56	29.53	34.82	43.19	57.09	83.39	81.73	89.80
	mm	620	705	737	825	1065	1219	1345	1840	695	705	770	872	1092	1400	1600	1840	700	750	887	1079	1450	1610	2076	2281
W	in	12	14	16	20	24	24	24	24	16	16	20	24	24	24	24	24	14	18	20	24	24	24	24	24
	mm	300	350	350	400	500	600	610	610	350	400	400	500	600	610	610	610	350	450	450	500	610	610	610	610
Weight R	kg	95	108	125	194	378	635	900	1550	95	128	181	275	627	1000	2200	3300	135	210	271	506	1600	2450	4570	7150

Cast Steel Globe Valve

Impactor Handwheel, the mechanism is based on transmitting the momentum generated by the mass of the handwheel through the impact/impulse generated during the snap closure action of the handwheel. This type of handwheel is used when a standard handwheel cannot create enough closing force to effect a seal.

Stem Nut replaceable in the line.

Revolving rising stem with precision ACME thread.

Stem Packing is designed for optimum control of fugitive emissions leakage to the atmosphere. The ultra low emission leakage rate is assured by the fine finish in the stem, the reduced diametrical clearances and the stem straightness control.

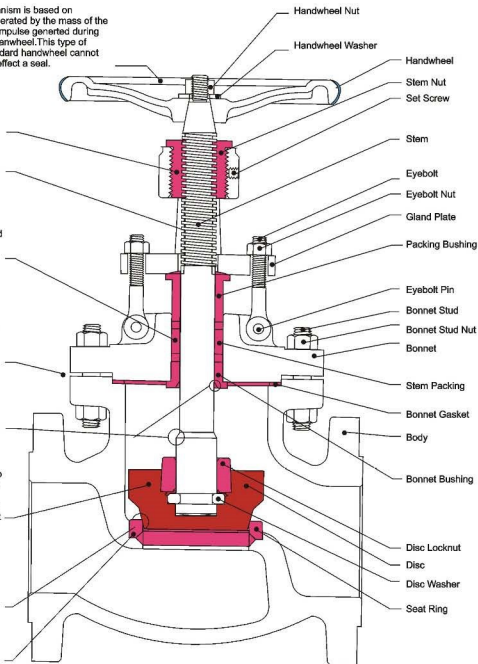
Body to Bonnet Joint designed to apply a uniform load to the gasket to assure a leak proof seal.

Backseat designed to relieve back pressure on the stem packing when fully seated. Replacing stem packing under pressure is not recommended.

Conical Disc, integrally guided to assure true alignment between disc and valve body. The loose disc design allows the disc and seat ring sealing surface to seat correctly without damage.

Stellited Seat Ring, providing increased resistance to wear, abrasion and erosion of the sealing surface.

Seat ring is seal welded to provide a bubble tight joint.



Cast Steel Globe Valve Class 150 Cast Steel Gate Valve Class 900-2500

SPECIFICATIONS

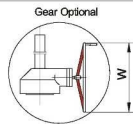
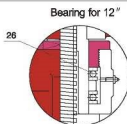
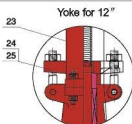
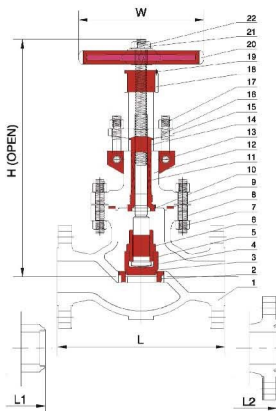
Design	ASME B16.34/BS1873
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

FEATURES

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

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.F6
7	Bonnet Bolt nuts	ASTM A194 GR.2H
8	Bonnet Bolt	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	Yoke	ASTM A216 GR.WCB
24	Yoke Pan Bolt Nuts	ASTM A194 GR.2H
25	Yoke Pan Bolts	ASTM A193 GR.B7
26	Bearing	Steel

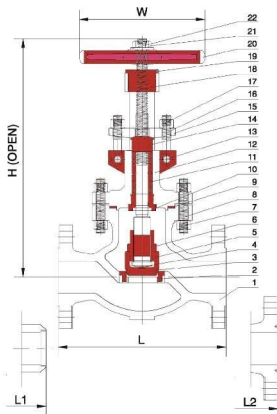


Dimensions and Weights

SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"
	mm	50	65	80	100	150	200	250	300
L/L1	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	698
L2	in	8.50	9.00	10.00	12.00	16.50	20.00	25.00	28.00
	mm	216	229	254	305	419	508	635	711
H	in	13.58	16.34	15.94	19.09	20.47	23.62	30.00	33.94
	mm	345	415	405	485	520	600	762	862
W	in	8	8	10	12	14	18	20	25
	mm	200	200	250	300	350	450	500	640
Weight RF	kg	22	32	38	62	104	159	308	539

Cast Steel Globe Valve Class 300

Cast Steel Globe Valve



SPECIFICATIONS

Design	ASME B16.34/BS1873
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

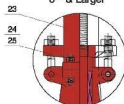
FEATURES

OS & Y-Rising Stem
Bolted Bonnet
Conic Disc
Extended Bonnet for Cryogenic Services
Impact hand wheel Optional
Gear Optional

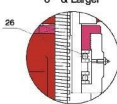
STANDARD MATERIALS OF PARTS

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.F6
7	Bonnet Bolt nuts	ASTM A194 GR.2H
8	Bonnet Bolt	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	Yoke	ASTM A216 GR.WCB
24	Yoke Pan Bolt Nuts	ASTM A194 GR.2H
25	Yoke Pan Bolts	ASTM A193 GR.B7
26	Bearing	Steel

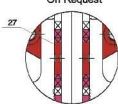
Yoke for 8" & Larger



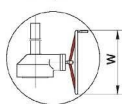
Bearing for 8" & Larger



Lantern Ring On Request



Gear Optional



Dimensions and Weights

SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"
	mm	50	65	80	100	150	200	250	300
L/L1	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
L2	in	11.12	12.12	13.12	14.62	18.12	22.62	25.12	28.62
	mm	283	308	333	371	460	575	638	727
H	in	14.57	18.66	17.32	20.67	24.41	35.83	37.36	40.63
	mm	370	474	440	525	620	910	949	1032
W	in	8	10	10	14	18	22	24	26
	mm	200	250	250	350	450	560	600	650
Weight RF	kg	26	48	58	82	154	240	319	632

Cast Steel Globe Valve Class 600

SPECIFICATIONS

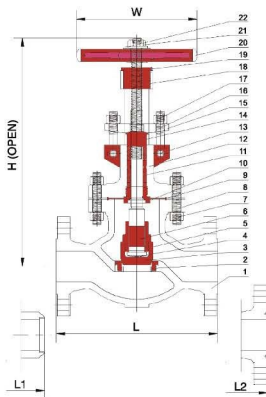
Design	ASME B16.34/BS1873
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

FEATURES

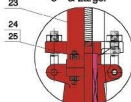
OS & Y Rising Stem
Bolted Bonnet
Conic Disc
Extended Bonnet for Cryogenic Services
Impact hand wheel Optional
Gear Optional

STANDARD MATERIALS OF PARTS

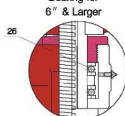
ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105+Stellite Faced
3	Disc	ASTM A105+13Cr Faced
4	Disc Thrust Plate	ASTM A276 Type 420
5	Disc Nut	ASTM A276 Type 410
6	Stem	ASTM A182 GR.F6
7	Bonnet Bolt nuts	ASTM A194 GR.2H
8	Bonnet Bolt	ASTM A193 GR.B7
9	Gasket	Soft Iron
10	Backseat 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	Yoke	ASTM A216 GR.WCB
24	Yoke Pan Bolt Nuts	ASTM A194 GR.2H
25	Yoke Pan Bolts	ASTM A193 GR.B7
26	Bearing	Steel
27	Lantern Ring ON Request	ASTM A276 Type 410



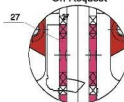
Yoke for 8" & Larger



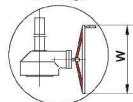
Bearing for 6" & Larger



Lantern Ring On Request



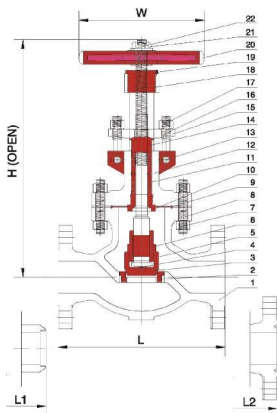
Gear Standard for 10" & Larger



Dimensions and Weights

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	26	24	24
	mm	250	250	350	450	500	630	610	610
Weight RF	kg	36	70	85	123	404	450	700	900

Cast Steel Globe Valve Class 900-2500



SPECIFICATIONS

Design	ASME B16.34/BS1873
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

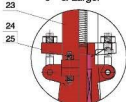
FEATURES

OS & Y/Rising Stem
Bolted Bonnet
Conic Disc
Extended Bonnet for Cryogenic Services
Impact hand wheel Optional
Gear Optional

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.F6
7	Bonnet Bolt nuts	ASTM A194 GR.2H
8	Bonnet Bolt	ASTM A193 GR.B7
9	Gasket	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	Yoke	ASTM A216 GR.WCB
24	Yoke Pan Bolt Nuts	ASTM A194 GR.2H
25	Yoke Pan Bolts	ASTM A193 GR.B7
26	Bearing	Steel
27	Lantern Ring ON Request	ASTM A276 Type 410

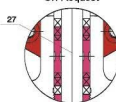
Yoke for 6" & Larger



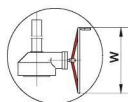
Bearing for 4" & Larger



Lantern Ring On Request



Gear Standard for 6" & Larger



Dimensions and Weights	CALSS 900								CALSS 1500								CALSS 2500							
	2"	2.5"	3"	4"	6"	8"	2"	2.5"	3"	4"	6"	8"	2"	2.5"	3"	4"	6"	8"	2"	2.5"	3"	4"	6"	8"
SIZE	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
L/L1	14.50	50	16.50	65	15.00	80	18.00	100	24.00	150	28.00	200	14.50	16.50	18.50	21.50	27.75	32.75	17.75	20.00	22.75	26.50	36.00	40.25
L2	368	1462	419	1662	381	1512	457	1812	610	2412	737	2912	368	419	470	546	705	832	451	508	578	673	914	1022
H	371	1462	422	1662	384	1512	460	1812	613	2412	740	2912	371	422	473	549	711	841	454	514	584	683	927	1038
W	23.62	25.98	25.98	26.16	31.50	43.62	46.61	25.98	25.98	30.31	33.46	45.08	25.98	25.98	30.31	33.46	45.08	25.98	25.98	30.31	33.46	45.08	25.98	25.98
Weight	96	138	122	195	435	730	95	138	250	435	540	970	176	264	308	759	1990	4390	176	264	308	759	1990	4390

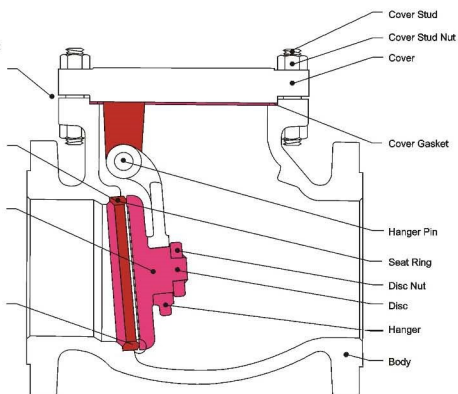
Cast Steel Swing Check Valve

Body to Cover Joint designed to apply a uniform load to the gasket to assure a leak proof seal. Seat Rings are seal welded to provide a bubble tight joint.

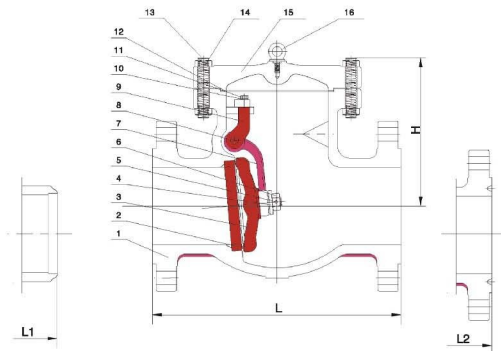
Disc to Hanger connection allows the disc a controlled movement independent of the hanger to assure proper disc alignment with the seat at closure.

The connection is secured by a welded disc nut to prevent disassembly due to vibration and closure impact.

Stellite Seat Ring provides increased resistance to wear abrasion and erosion of the sealing surface.



Cast Steel Swing Check Valve Class 150



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 Thrust Plate	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.F6
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

FEATURES

Bolted Cover
Swing Type Disc
6" & Larger With Eye Bolt
By Pass On Request
Lever & Wight Optional

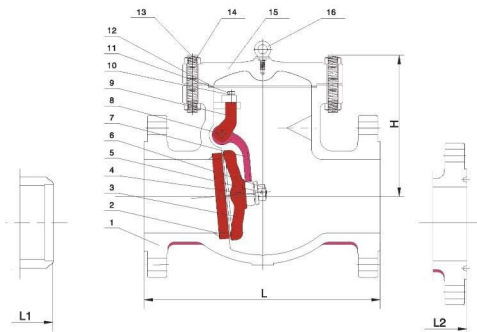
SPECIFICATIONS

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

Dimensions and Weights

SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
L1	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
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
L2	mm	203	216	241	292	356	495	622	699	787	884	978	978	1295
L2	in	8.5	9.00	10.00	12.00	14.50	20.00	25.00	28.00	31.50	34.50	39.00	39.00	51.50
H	mm	216	229	2254	305	368	508	635	711	800	876	991	991	1308
H	in	6.10	6.70	7.08	8.66	10.55	12.20	14.57	16.73	18.70	20.67	22.83	24.72	34.72
H	mm	155	170	180	220	268	310	370	425	475	525	580	628	882
Weight RF	kg	19	26	29	46	77	163	220	366	428	555	775	835	1180

Cast Steel Swing Check Valve Class 300



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.F6
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

FEATURES

Bolted Cover
Swing Type Disc
4" & Larger With Eye Bolt
By Pass On Request
Lever & Wight Optional

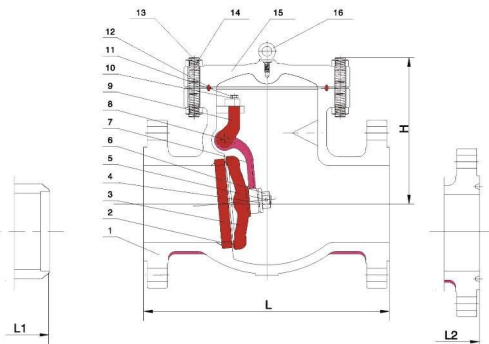
SPECIFICATIONS

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

Dimensions and Weights

SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
L/L1	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
	mm	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
L2	mm	267	292	318	356	445	533	622	711	838	864	978	1016	1346
	mm	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
H	mm	283	308	333	371	460	549	638	727	854	879	994	1035	1368
	mm	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
Weight RF	kg	175	185	198	235	282	335	385	460	520	554	600	670	750
	kg	21	30	39	69	125	210	307	450	680	640	1025	1320	1960

Cast Steel Swing Check Valve Class 600



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.F6
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

FEATURES

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

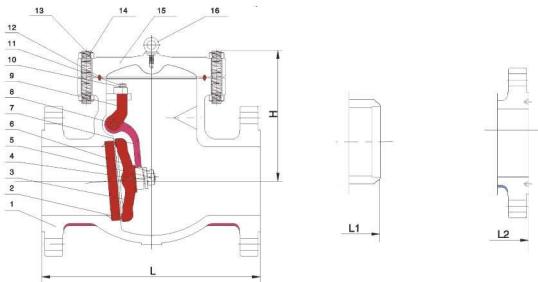
SPECIFICATIONS

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

Dimensions and Weights

SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
L/L1	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
	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
L2	mm	292	330	356	432	559	660	757	828	889	991	1092	1194	1397
	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
H	mm	295	333	359	435	562	663	790	841	892	994	1095	1200	1407
	in	7.166	7.87	8.94	10.24	12.80	15.35	19.29	20.79	22.56	25.98	28.35	29.37	37.80
Weight RF	mm	162	200	227	280	325	390	490	528	572	660	720	746	960
	kg	36	49	70	122	269	465	673	875	994	1220	1620	2120	3100

Cast Steel Swing Check Valve Class 900-2500



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.F6
9	Bearing Bracket	ASTM A216 GR.WCB
10	Spring Washer	Carbon Steel
11	Hex. Bolt	Carbon Steel
12	Gasket, Ring Joint	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

FEATURES

Bolted Cover
Swing Type Disc
With Eye Bolt
By Pass On Request
Lever & Wight Optional

SPECIFICATIONS

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

Dimensions and Weights		CALSS 900										CALSS 1500										CALSS 2500											
SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	2"	2.5"	3"	4"	6"	8"	10"	12"	2"	2.5"	3"	4"	6"	8"	10"	12"	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	14.50	16.50	18.50	21.50	27.75	32.75	39.00	44.50	17.75	20.00	22.75	26.50	36.00	40.25	60.00	66.00	14.50	16.50	15.00	18.00	24.00	29.00	33.00	
	mm	368	419	381	457	610	737	838	965	368	419	470	546	705	832	991	1130	451	508	578	673	914	1022	1270	1422	368	419	381	457	610	737	838	
L2	in	14.62	14.62	15.12	18.12	24.12	29.12	33.12	38.12	14.62	16.62	18.62	21.62	28.00	33.13	38.38	43.12	17.87	20.25	23.00	26.88	36.50	40.87	50.88	56.88	14.62	14.62	15.12	18.12	24.12	29.12	33.12	
	mm	371	422	384	460	613	740	841	968	371	422	473	549	711	841	1000	1146	454	514	584	683	927	1038	1292	1445	371	422	384	460	613	740	841	
H	in	11.65	11.81	11.81	12.87	17.38	19.76	26.14	30.51	11.65	11.81	13.43	16.22	20.12	26.77	29.76	33.74	16.38	18.50	17.38	18.88	20.12	27.99	33.50	39.37	11.65	11.81	11.81	12.87	17.38	19.76	26.14	
	mm	296	300	300	327	441	502	664	775	296	300	341	412	511	680	758	857	416	471	441	479	511	711	851	1000	296	300	300	327	441	502	664	
Weight HF	kg	70	100	91	150	305	510	810	1120	70	100	150	245	550	1010	1550	2290	145	240	330	650	1400	2420	3750	5500	70	100	91	150	305	510	810	
	lb	154	220	200	330	672	1122	1782	2464	154	220	330	539	1210	2223	3411	5000	319	529	727	1433	3090	5346	8250	12100	154	220	200	330	672	1122	1782	

Material of Construction

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
2	seal ring	A105	A350 LF2	A350 LF2	A182 F1	A182 F11	A182 F5	A182 F304	A182 F316	A182 F304L	A182 F316L
3	disc	A216 WCB	A352 LCB	A352 LCC	A216 WC1	A216 WC6	A216 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
4	stem	A182 F6	A182 F304	A182 F304	A182 F6	A182 F6	A182 F6	A182 F304	A182 F316	A182 F304L	A182 F316L
5	Gasket	CL150-300 Soft Iron Ring Joint	304+Graphite	304	304+Graphite	304+Graphite	304+Graphite	304+Graphite			
6	Bonnet	A216 WCB	A352 LCB	A352 LCC	A216 WC1	A216 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
7	bonnet bolt nuts	A194 2H	A194 4	A194 4	A194 2H	A194 4	A194 4	A194 8	A193 B8	A193 B8	A193 B8
8	bonnet bolt	A193 B7	A193 L7	A193 L7	A193 B7	A193 B16	A193 B16	A276 304	A276 316	A276 316L	A276 321
9	backseat bushing	A276 410	A276 304	A276 304	A276 410	A276 410	A276 410	A276 304	A276 316	A276 316L	A276 321
10	Stem Packing	Braded Graphite/Die formed Graphite Ring	Carbon Steel	Carbon Steel	Braded Graphite/Die formed Graphite Ring	Carbon Steel	Carbon Steel	Braded Graphite/Die formed Graphite Ring	Carbon Steel	Carbon Steel	Carbon Steel
11	Eye Bolt Pins	A307 B	A193 L7	A193 L7	A193 B7	A193 B16	A193 B16	A276 304	A276 316	A276 316L	A276 321
12	Gland eye bolts	A276 410	A276 304	A276 304	A276 410	A276 410	A276 410	A276 304	A276 316	A276 316L	A276 321
13	gland	A276 410	A276 304	A276 304	A276 410	A276 410	A276 410	A276 304	A276 316	A276 316L	A276 321
14	gland flange	A216 WCB	A352 LCB	A352 LCB	A216 WC1	A216 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
15	Eye Bolt Nuts	A194 2H	A194 4	A194 4	A194 2H	A194 4	A194 4	A194 8	A193 B8	A193 B8	A193 B8
16	Gland Nipple	A439 D-2	Carbon Steel	Carbon Steel	A439 D-2	Carbon Steel	Carbon Steel	A194 8	A193 B8	A193 B8	A193 B8
17	Stem Nut	A216 WCB	A352 LCB	A352 LCB	A216 WC6	A216 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
18	Retaining Nut	A194 2H	A194 4	A194 4	A194 2H	A194 4	A194 4	A194 8	A193 B8	A193 B8	A193 B8
19	Handwheel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
20	Handwheel nut	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
21	Screw	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
22	yoke	A216 WCB	A352 LCB	A352 LCB	A216 WC6	A216 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
23	yoke pan bolt nuts	A194 2H	A194 4	A194 4	A194 2H	A194 4	A194 4	A194 8	A193 B8	A193 B8	A193 B8
24	yoke pan bolts	A193 B7	A193 L7	A193 L7	A193 B7	A193 B16	A193 B16	A276 304	A276 316	A276 316L	A276 321
25	bearing	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel
26	Larven Ring On Request	A276 410	A276 304	A276 304	A276 410	A276 410	A276 410	A276 304	A276 316	A276 316L	A276 321

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
2	seal ring	A105	A350 LF2	A350 LF2	A182 F1	A182 F11	A182 F5	A182 F304	A182 F316	A182 F304L	A182 F316L
3	disc	A216 WCB	A352 LCB	A352 LCC	A217 WC1	A217 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
4	Disc Thrust Plate	A276 410	A276 304	A276 304	A276 410	A276 410	A276 410	A276 304	A276 316	A276 316L	A276 321
5	Disc Nut	A182 F6	A182 F304	A182 F304	A182 F6	A182 F6	A182 F6	A182 F304	A182 F316	A182 F304L	A182 F316L
6	Bonnet Bolt Nuts	A194 2H	A194 4	A194 4	A194 2H	A194 4	A194 4	A194 8	A193 B8	A193 B8	A193 B8
7	bonnet bolt	A193 B7	A193 L7	A193 L7	A193 B7	A193 B16	A193 B16	A276 304	A276 316	A276 316L	A276 321
8	Gasket	CL150-300 Soft Iron Ring Joint	304+Graphite	304	304+Graphite	304+Graphite	304+Graphite	304+Graphite			
9	Backseat Bushing	A276 410	A276 304	A276 304	A276 410	A276 410	A276 410	A276 304	A276 316	A276 316L	A276 321
10	Stem Packing	Braded Graphite/Die formed Graphite Ring	Carbon Steel	Carbon Steel	Braded Graphite/Die formed Graphite Ring	Carbon Steel	Carbon Steel	Braded Graphite/Die formed Graphite Ring	Carbon Steel	Carbon Steel	Carbon Steel
11	Bonnet	A216 WCB	A352 LCB	A352 LCC	A216 WC1	A216 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
12	Eye Bolt Pins	A307 B	A193 L7	A193 L7	A193 B7	A193 B16	A193 B16	A276 304	A276 316	A276 316L	A276 321
13	Gland Flange	A216 WCB	A352 LCB	A352 LCB	A216 WC1	A216 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
14	Gland eye bolts	A276 410	A276 304	A276 304	A276 410	A276 410	A276 410	A276 304	A276 316	A276 316L	A276 321
15	Gland Flange	A216 WCB	A352 LCB	A352 LCB	A216 WC1	A216 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
16	Eye Bolt Nuts	A194 2H	A194 4	A194 4	A194 2H	A194 4	A194 4	A194 8	A193 B8	A193 B8	A193 B8
17	Yoke Bush	A439 D-2	Carbon Steel	Carbon Steel	A439 D-2	Carbon Steel	Carbon Steel	A194 8	A193 B8	A193 B8	A193 B8
18	Screw	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
19	Handwheel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
20	Handwheel Nut	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
21	Washer	A216 WCB	A352 LCB	A352 LCC	A216 WC6	A216 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
22	Yoke	A194 2H	A194 4	A194 4	A194 2H	A194 4	A194 4	A194 8	A193 B8	A193 B8	A193 B8
23	Yoke Pan Bolt Nuts	A193 B7	A193 L7	A193 L7	A193 B7	A193 B16	A193 B16	A276 304	A276 316	A276 316L	A276 321
24	Yoke Pan Bolts	A193 B7	A193 L7	A193 L7	A193 B7	A193 B16	A193 B16	A276 304	A276 316	A276 316L	A276 321
25	Bearing	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel
26	Larven Ring On Request	A276 410	A276 304	A276 304	A276 410	A276 410	A276 410	A276 304	A276 316	A276 316L	A276 321

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
2	seal ring	A105	A350 LF2	A350 LF2	A182 F1	A182 F11	A182 F5	A182 F304	A182 F316	A182 F304L	A182 F316L
3	disc	A216 WCB	A352 LCB	A352 LCC	A217 WC1	A217 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
4	Disc Washer	A276 410	A276 304	A276 304	A276 410	A276 410	A276 410	A276 304	A276 316	A276 316L	A276 321
5	Disc Nut Pin	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
6	Disc Nut	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
7	Hinge	A216 WCB	A352 LCB	A352 LCC	A217 WC1	A217 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
8	Hinge Pin	A194 2H	A194 4	A194 4	A194 2H	A194 4	A194 4	A194 8	A193 B8	A193 B8	A193 B8
9	Bearing Bracket	A216 WCB	A352 LCB	A352 LCC	A217 WC1	A217 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
10	Spring Washer	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
11	Hox, Bolt	A193 B7	A193 L7	A193 L7	A193 B7	A193 B16	A193 B16	A276 304	A276 316	A276 316L	A276 321
12	Gasket	CL 150-300 Soft Iron Ring Joint	304+Graphite	304	304+Graphite	304+Graphite	304+Graphite	304+Graphite			
13	Cover Bolt	A193 B7	A193 L7	A193 L7	A193 B7	A193 B16	A193 B16	A276 304	A276 316	A276 316L	A276 321
14	Cover Bolt Nut	A194 2H	A194 4	A194 4	A194 2H	A194 4	A194 4	A194 8	A193 B8	A193 B8	A193 B8
15	Cover	A216 WCB	A352 LCB	A352 LCC	A217 WC1	A217 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
16	Eye Bolt	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
17	Plug	A105	A350 LF2	A350 LF2	A182 F1	A182 F11	A182 F5	A182 F304	A182 F316	A182 F304L	A182 F316L

Pressure Seal Gate Valve Class 900-2500

SPECIFICATIONS

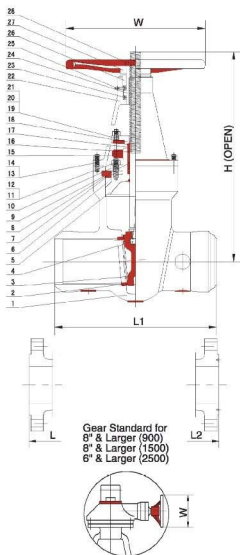
Design	ASME B16.34
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR- 01-75

FEATURES

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

STANDARD MATERIALS OF PARTS

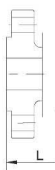
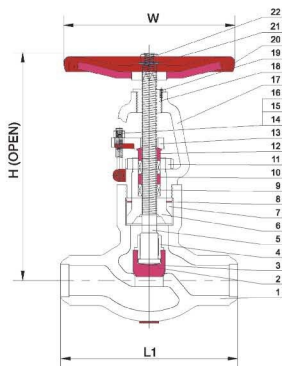
ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105+Stellite Faced
3	Disc	ASTM A21
4	Stem	ASTM A182 GR.F6
5	Bonnet	ASTM A216 GR. WCB+Stellite Faced
6	Gasket	ASTM A182 GR. F304
7	Thrust Ring	ASTM A276 Type 410
8	Separate Ring	Carbon Steel
9	Lantern Ring On Request	ASTM A276 Type 410
10	Bonnet Retainer	Carbon Steel
11	Bonnet Bolts	ASTM A193 GR.B7
12	Bonnet Bolt Nuts	ASTM A194 GR.2H
13	Yoke Bolts	ASTM A194 GR.B7
14	Yoke Bolt Nuts	ASTM A193 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



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

Dimensions and Weights		CALSS 900										CALSS 1500										CALSS 2500											
SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	2"	2.5"	3"	4"	6"	8"	10"	12"	2"	2.5"	3"	4"	6"	8"	10"	12"	2"	2.5"	3"	4"	6"	8"	10"	12"
L	mm	50	65	80	100	150	200	250	300	50	65	80	100	150	200	250	300	50	65	80	100	150	200	250	300	50	65	80	100	150	200	250	300
	mm	1450	1650	1850	2100	2800	3300	3800	4300	1750	2000	2275	2650	3600	4025	5000	5800	1450	1650	1850	2150	2775	3275	3900	4450	1450	1650	1850	2150	2775	3275	3900	4450
L1	mm	368	419	381	457	610	737	838	965	450	508	578	673	914	1022	1270	1422	368	419	470	548	705	832	991	1130	368	419	470	548	705	832	991	1130
	mm	850	1000	1200	1400	2000	2600	3100	3600	1100	1300	1450	1800	2400	3000	3600	4100	850	1000	1200	1600	2200	2800	3400	3900	850	1000	1200	1600	2200	2800	3400	3900
L2	mm	216	254	305	356	508	660	787	914	279	330	398	457	610	762	914	1041	216	254	305	356	508	660	787	914	216	254	305	356	508	660	787	914
	mm	1462	1662	1512	1812	2412	2912	3312	3612	1787	2025	2300	2688	3650	4087	5088	5888	1462	1662	1862	2162	2862	3362	3935	4512	1462	1662	1862	2162	2862	3362	3935	4512
H	in	24.41	30.00	30.71	33.06	40.35	50.63	60.63	70.28	24.00	30.55	30.90	34.40	44.02	53.46	66.14	74.50	24.00	30.55	30.90	34.40	40.35	53.46	61.74	74.50	24.00	30.55	30.90	34.40	40.35	53.46	61.74	74.50
	mm	620	762	780	860	1025	1286	1540	1785	610	776	785	874	1118	1358	1680	1922	610	776	785	874	1025	1358	1588	1952	610	776	785	874	1025	1358	1588	1952
W	in	12	14	16	20	24	24	24	24	18	18	20	24	24	24	24	24	12	14	16	20	24	24	24	24	12	14	16	20	24	24	24	24
	mm	300	350	350	400	500	610	610	610	450	450	500	610	610	610	610	610	300	350	350	400	500	610	610	610	450	450	500	610	610	610	610	610
Weight RF	kg	50	72	86	110	202	530	782	1135	80	112	122	192	480	830	1678	2320	50	92	145	230	540	1080	1194		50	92	145	230	540	1080	1194	

Pressure Seal Globe Valve Class 900-2500



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

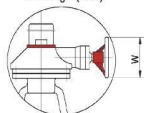
FEATURES

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

STANDARD MATERIALS OF PARTS

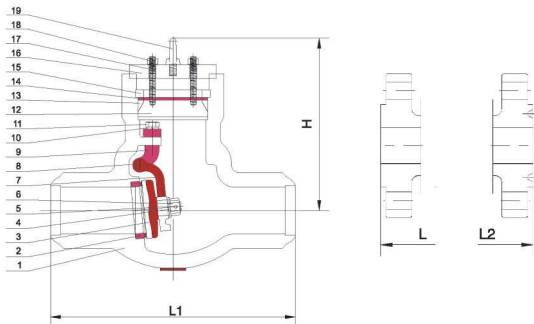
ITEM	PART NAME	MATERIAL
1	Body	ASTM A216GR.WCB+Stellite Faced
2	Disc	ASTM A105+13Cr Faced
3	Disc Thrust Plate	ASTM A276 Type 420
4	Disc Nut	ASTM A276 Type 410
5	Stem	ASTM A182 GR.F6
6	Bonnet	ASTM A216GR.WCB+Stellite Faced
7	Gasket	ASTM A182 GR.F304
8	Thrust Ring	ASTM A276 Type 410
9	Stem Packing	Braided 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

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



Dimensions and Weights	CALSS 900						CALSS 1500						CALSS 2500					
SIZE	2"	2.5"	3"	4"	6"	8"	2"	2.5"	3"	4"	6"	8"	2"	2.5"	3"	4"	6"	8"
L/L1	in mm	50 65	80 100	100 150	150 200	200 250	50 65	80 100	100 150	150 200	200 250	250 300	50 65	80 100	100 150	150 200	200 250	250 300
L2	in mm	14.50 16.50	15.00 18.00	24.00 29.00	38.00 41.00	47.00 54.00	14.50 16.50	15.00 18.00	24.00 29.00	38.00 41.00	47.00 54.00	54.00 61.00	14.50 16.50	15.00 18.00	24.00 29.00	38.00 41.00	47.00 54.00	54.00 61.00
H	in mm	37.1 42.2	42.2 48.3	48.3 53.15	53.15 58.15	58.15 63.15	37.1 42.2	42.2 48.3	48.3 53.15	53.15 58.15	58.15 63.15	63.15 68.15	37.1 42.2	42.2 48.3	48.3 53.15	53.15 58.15	58.15 63.15	63.15 68.15
W	in mm	24.41 25.40	28.50 33.40	48.23 53.15	53.15 58.15	58.15 63.15	24.41 25.40	28.50 33.40	48.23 53.15	53.15 58.15	58.15 63.15	63.15 68.15	24.41 25.40	28.50 33.40	48.23 53.15	53.15 58.15	58.15 63.15	63.15 68.15
Weight RF	kg	62 86	86 140	140 200	200 250	250 300	62 86	86 140	140 200	200 250	250 300	300 350	62 86	86 140	140 200	200 250	250 300	300 350

Pressure Seal Swing Check Valve Class 900-2500



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.F6
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 A 276 Type 410
15	Separate Ring	ASTM A 276 Type410
16	Cover	ASTM A216 GR.WCB
17	Cover Bolt	ASTM A193 GR.B7
18	Cover Bolt Nut	ASTM A194 GR.2H
19	Eye Bolt	Carbon steel

FEATURES

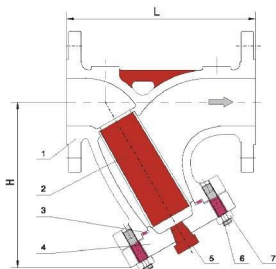
Pressure Seal
Swing Type Disc
Type 1 Standard
Type 2 Optional
With Eye Bolt
By Pass On Request
Lever & Wight Optional

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

Dimensions and Weights		CALSS 900										CALSS 1500										CALSS 2500											
SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	2"	2.5"	3"	4"	6"	8"	10"	12"	2"	2.5"	3"	4"	6"	8"	10"	12"	2"	2.5"	3"	4"	6"	8"	10"	12"
	mm	50	65	80	100	150	200	250	300	50	65	80	100	150	200	250	300	50	65	80	100	150	200	250	300	50	65	80	100	150	200	250	300
L/L1	mm	14.50	16.50	15.00	18.00	24.00	29.00	33.00	38.00	14.50	16.50	18.50	21.50	27.75	32.75	39.00	44.50	17.75	20.00	22.75	26.50	36.00	40.25	50.00	56.00	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	368	419	470	546	705	832	991	1130	451	508	578	673	914	1022	1270	1422	368	419	381	457	610	737	838	965
L2	mm	14.62	14.62	15.12	18.12	24.12	29.12	33.12	38.12	14.62	16.62	18.62	21.62	28.00	33.13	39.38	45.12	17.87	20.25	23.00	26.88	36.50	40.87	50.88	56.88	14.62	14.62	15.12	18.12	24.12	29.12	33.12	38.12
H	mm	371	422	384	460	613	740	841	968	371	422	473	549	711	841	1000	1146	454	514	584	683	927	1038	1292	1445	371	422	384	460	613	740	841	968
	mm	11.65	11.81	11.81	12.87	17.36	19.76	26.14	30.51	11.65	11.81	13.43	16.22	20.12	26.77	29.76	33.74	16.38	18.50	17.36	18.86	20.12	27.99	33.50	39.37	11.65	11.81	11.81	12.87	17.36	19.76	26.14	30.51
Weight BW	kg	50	77	68	115	230	387	632	910	50	77	115	190	452	845	1286	1780	110	190	260	535	1110	1980	2980	4350	50	77	68	115	230	387	632	910

Cast Steel Y-strainer Class 150-600



SPECIFICATIONS

Design	ASME B16.34
Face to Face	ASME B16.10
End to End	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 Bolt	ASTM A193 GR.B7
7	Cover Bolt Nut	ASTM A194 GR.2H

Dimensions and Weights		CALSS 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	584	
Weight	kg	12	18	21	32	48	105	169	215	

Dimensions and Weights		CALSS 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	

Dimensions and Weights		CALSS 600								
SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	
	mm	50	65	80	100	150	200	250	300	
L	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	
H	in	7.28	7.87	9.84	11.81	16.34	19.29	23.43	26.77	
	mm	185	200	250	300	415	490	595	680	
Weight	kg	35	40	48	90	220	360	500	781	

Stem Data & Operation Torques

Gate Valve

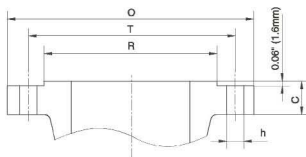
CLASS	ITEM	VALVE SIZE																	
		2"	2.5"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	30"	32"	32"	
150	Stem Thread O.D.	3/4"	3/4"	7/8"	1"	1 1/8"	1 1/4"	1 3/8"	1 1/2"	1 5/8"	1 3/4"	1 7/8"	2"	2 1/4"	2 1/2"	2 3/4"	2 3/4"	3"	
	Thread Per Inch	5	5	5	5	5	4	4	4	4	3	3	3	3	3	3	3	2	
	Pitch(in)	0.2	0.2	0.5	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	
	Turns to Open	13	16	18	24	34	36	44	52	44	53	58	64	75	88	94	99	74	
	Torque(N.m)	16	18	24	38	76	111	182	269	325	435	565	748	1256	1587	1935	2127	3239	
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 1/4"	2 1/2"	2 3/4"	2 3/4"	2 3/4"	2 3/4"	
	Thread Per Inch	5	5	5	5	4	4	4	3	3	3	3	3	3	3	3	3	2	
	Pitch(in)	0.2	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	0.333	0.5	
	Turns to Open	14	16	18	24	26	36	44	40	45	53	58	64	76	88	94			
	Torque(N.m)	23	26	35	55	159	291	458	661	810	1088	1430	1778	2823	4115	5653			
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	5	5	5	5	4	3	3	3	3	3	3	3	3	3				
	Pitch(in)	0.2	0.2	0.2	0.2	0.25	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.5				
	Turns to Open	14	16	18	24	27	27	33	40	45	53	58	64	51					
	Torque(N.m)	35	47	70	122	406	641	1023	1508	2096	2816	3038	3981	6996					
900	Stem Thread O.D.	3/4"	1 1/8"	1 1/8"	1 1/4"	1 5/8"	1 7/8"	2"	2 1/4"	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	0.333									
	Turns to Open	14	16	18	21	22	28	34	40										
	Torque(N.m)	80	90	95	159	569	978	1728	2601										
1500	Stem Thread O.D.	3/4"	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	0.2	0.25	0.333	0.333	0.333	0.333										
	Turns to Open	14	16	16	22	22	28	34	40										
	Torque(N.m)	117	172	224	349	1009	2025	3259	4437										
2500	Stem Thread O.D.	3/4"	1 1/8"	1 1/4"	1 3/8"	1 7/8"	2 3/8"	2 3/8"	3 1/4"										
	Thread Per Inch	5	5	4	4	3	3	2	2										
	Pitch(in)	0.2	0.2	0.2	0.25	0.333	0.333	0.333	0.333	0.333									
	Turns to Open	15	17	17	22	28	28	34	40										
	Torque(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.	3/4"	7/8"	1"	1 1/8"	1 1/4"	1 3/8"	1 1/2"	1 5/8"
	Thread Per Inch	5	5	5	5	4	4	4	3
	Pitch(in)	0.2	0.2	0.2	0.2	0.25	0.25	0.25	0.333
	Turns to Open	4	7	5	8	7	9	10	7
	Torque(N.m)	47	66	84	157	239	326	620	1198
300	Stem Thread O.D.	3/4"	7/8"	1"	1 1/8"	1 3/8"	1 1/2"	1 1/2"	1 3/4"
	Thread Per Inch	5	5	5	5	4	4	4	3
	Pitch(in)	0.2	0.2	0.2	0.2	0.25	0.25	0.333	0.333
	Turns to Open	4	8	7	8	7	9	9	9
	Torque(N.m)	62	85	118	218	727	1309	2160	3100
600	Stem Thread O.D.	7/8"	1"	1 1/8"	1 1/4"	1 5/8"	1 3/4"	2"	2 1/8"
	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	8	8	8	8	9	9	9	9
	Torque(N.m)	142	244	316	602	1590	2782	4579	6216
900	Stem Thread O.D.	1 1/8"	1 1/4"	1 1/4"	1 3/8"	1 3/4"	2"		
	Thread Per Inch	5	4	4	4	3	3		
	Pitch(in)	0.2	0.25	0.25	0.25	0.333	0.333		
	Turns to Open	8	7	7	8	9	9		
	Torque(N.m)	285	412	528	1063	1792	3439		
1500	Stem Thread O.D.	1 1/8"	1 1/4"	1 3/8"	1 1/2"	2"	2 1/4"		
	Thread Per Inch	5	4	4	4	3	3		
	Pitch(in)	0.2	0.25	0.2	0.25	0.333	0.333		
	Turns to Open	8	7	7	8	9	9		
	Torque(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"	2 1/2"		
	Thread Per Inch	4	4	3	3	3	3		
	Pitch(in)	0.25	0.25	0.333	0.333	0.333	0.333		
	Turns to Open	7	7	8	8	9	9		
	Torque(N.m)	502	824	959	2062	6530	9682		

Steel End Flange Dimensions Class 150-300 ASME B16.5/B16.47

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
	2.5	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
	28	700	36.50	927	31.50	800	2.81	72	34.00	963.5	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
300	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
	2	50	6.50	165	3.62	92	0.88	23	5.00	127	0.75	19	8	5/8
	2.5	65	7.50	190	4.12	105	1.00	26	5.88	179	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	61	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
	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

End Flange Dimensions: Size 2" - 24" to ASME B16.5, Size 28" - 36" 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

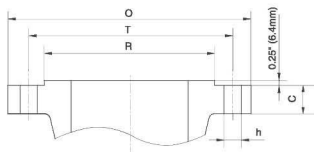
NPS ≤ 2 1/2" ±0.06

Outside Diameter R: 0.06 Raised Face: ±0.03

0.25 Raised Face: ±0.02

Steel End Flange Dimensions Class 600-2500 ASME B16.5

CLASS 600-2500 RF



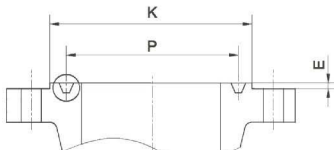
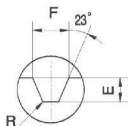
CLASS	SIZE		O		R		C		T		h		Bolt	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	QTY.	Diameter
600	2	50	6.50	165	3.62	92	1.00	26	5.00	127	0.75	19	8	5/8
	2.5	65	7.50	190	4.12	105	1.12	29	5.88	149	0.88	22	8	3/4
	3	80	8.25	210	5.00	127	1.25	32	6.62	168	0.88	22	8	3/4
	4	100	10.75	273	6.19	157	1.50	38	8.50	216	1.00	25	12	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
900	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
	2	50	8.50	216	3.62	92	1.50	38.5	6.50	165.1	1.00	26	8	7/8
	2.5	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	18.00	469.9	1.50	39	16	1 3/8
1500	12	300	24.00	610	15.00	381	3.12	79.5	21.50	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
	2	50	8.50	216	3.62	92	1.50	38.5	6.50	165.1	1.00	26	8	1
	2.5	65	9.62	244	4.12	105	1.62	41.5	7.50	190.5	1.12	29	8	1 1/8
	3	80	10.50	267	5.00	127	1.88	43.5	8.00	200	1.25	32	8	1 1/4
	4	100	12.25	311	6.19	157	2.12	54.0	9.50	235.0	1.38	35	8	1 3/8
2500	6	150	15.50	394	8.50	216	3.25	83.0	12.50	122.50	1.50	39	12	1 1/2
	8	200	19.00	483	10.62	270	3.62	92.9	15.50	155.00	1.75	45	12	1 3/4
	10	250	23.00	585	12.75	324	4.25	108.0	19.00	190.00	2.00	51	12	2
	12	300	26.50	675	15.00	381	4.88	124.0	22.50	222.50	2.12	54	16	2 1/8
	14	350	29.50	750	16.25	413	5.25	133.5	25.00	250.00	2.38	61	16	2 3/8
	16	400	32.50	825	18.50	470	5.75	146.5	27.75	277.75	2.62	67	16	2 3/8
	18	450	36.00	915	21.00	533	6.38	162.0	30.50	305.00	2.88	74	16	2 7/8
	20	500	38.75	985	23.00	584	7.00	178.0	32.75	327.75	3.12	80	16	3 1/8
	24	600	46.00	1170	27.25	692	8.00	203.5	39.00	390.00	3.62	93	16	3 3/8
	2	50	9.25	235	3.62	92	2.00	51.0	6.75	6.75	1.12	29	8	1
2500	2.5	65	10.50	267	4.12	105	2.25	57.5	7.75	7.75	1.25	32	8	1 1/8
	3	80	12.00	305	5.00	127	2.62	67.0	9.00	9.00	1.38	35	8	1 1/4
	4	100	14.00	356	6.19	157	3.00	76.5	10.75	10.75	1.62	42	8	1 1/2
	6	150	19.00	483	8.50	216	4.25	108.0	14.50	14.50	2.12	54	8	2
	8	200	21.75	550	10.62	270	5.00	127.0	17.25	17.25	2.12	54	12	2
	10	250	26.50	675	12.75	324	6.50	165.5	21.50	21.25	2.62	67	12	2 1/2
	12	300	30.00	760	15.00	381	7.25	184.5	24.38	24.38	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 ASME B16.5/B16.47

CLASS 150-2500 RTJ



CLASS	SIZE	Ring No.	P	E	F	R	K
150	2	50	R22 3.250	82.55	0.250	6.35	0.344 8.74 0.03 0.8 4.00 102
	2.5	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 5.25 131
	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 8.750	224.75	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 18.75 425
	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 25.500	673.10	0.500	12.7	0.781 19.84 0.06 1.5 28.00 711
	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	14.3	0.908 23.01 0.09 2.3 38.75 984
300	6	150	R48 8.750	224.75	0.250	6.35	0.344 8.74 0.03 0.8 10.75 273
	8	200	R48 8.750	224.75	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 18.75 425
	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 25.500	673.10	0.500	12.7	0.781 19.84 0.06 1.5 28.00 711
	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	14.3	0.908 23.01 0.09 2.3 38.75 984
	36	900	R98 40.250	1022.36	0.562	14.3	0.908 23.01 0.09 2.3 40.75 1035
	2.5	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	148.22	0.312	7.92	0.469 11.91 0.03 0.8 6.88 175
	6	150	R46 6.812	173.18	0.312	7.92	0.469 11.91 0.03 0.8 8.50 214
	8	200	R49 10.625	269.88	0.312	7.92	0.469 11.91 0.03 0.8 11.88 301
	10	250	R53 12.750	323.86	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	417.80	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 20.500	518.00	0.312	7.92	0.469 11.91 0.03 0.8 22.62 575
	20	500	R73 23.000	584.25	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
	28	700	R81 31.500	800.10	0.500	12.7	0.781 19.84 0.06 1.5 33.88 861
	30	750	R83 33.750	857.25	0.500	12.7	0.781 19.84 0.06 1.5 36.12 917

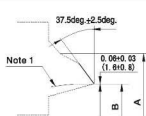
CLASS	SIZE	Ring No.	P	E	F	R	K					
	in	mm	in	mm	in	mm	in	mm				
900	2	50	R24 3.750	95.25	0.312	7.92	0.469	11.91	0.03	0.8	4.88	124
	2.5	65	R27 4.250	107.95	0.312	7.92	0.469	11.91	0.03	0.8	5.38	137
	3	80	R31 4.875	123.82	0.312	7.92	0.469	11.91	0.03	0.8	6.12	156
	4	100	R37 5.875	148.22	0.312	7.92	0.469	11.91	0.03	0.8	7.12	181
	6	150	R45 6.312	161.12	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	417.80	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	12.70	0.781	19.84	0.06	1.5	23.38	594
	24	600	R74 23.000	584.20	0.500	12.70	0.781	19.84	0.06	1.5	25.50	648
1500	2	50	R27 3.750	95.25	0.312	7.92	0.469	11.91	0.03	0.8	4.88	124
	2.5	65	R27 4.250	107.95	0.312	7.92	0.469	11.91	0.03	0.8	5.38	137
	3	80	R35 4.875	123.82	0.312	7.92	0.469	11.91	0.03	0.8	6.62	168
	4	100	R39 5.875	148.22	0.312	7.92	0.469	11.91	0.03	0.8	7.62	194
	6	150	R46 6.812	173.18	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	2.3	17.25	438
	14	350	R63 16.500	417.80	0.625	15.88	1.002	25.97	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
	24	600	R75 23.000	584.20	0.688	17.48	1.312	33.32	0.09	2.3	26.50	673
2500	2	50	R27 3.750	95.25	0.312	7.92	0.469	11.91	0.03	0.8	5.25	133
	2.5	65	R28 4.000	101.60	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 8.000	203.20	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 28" - 36" to ASME B16.47A.

Tolerances: Unit Inch

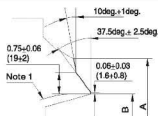
Depth E: +0.016-0
Width F: ±0.008
Pitch Diameter P: ±0.005
Radius at Bottom R: R≤0.06" ±0.03,0
R>0.06±0.03
Angle 23 Deg: ±0.5Deg

Buttwelding End Dimensions ASME B16.25



Wall Thicknesses Not Over 0.88in(22mm)
Welding End Detail for joint Without Backing Ring

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 Thicknesses 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	
DN	NPS		Wrought or Fabricated Components, A[Note(1)]	Cast Steel Valves, A[Note(2)]			mm	in	mm	in	mm	in
65	2.5	40	43.0	2.88	75	2.96	62.5	2.469	62.93	2.479	5.16	0.203
		80					59	2.323	59.69	2.341	7.01	0.276
		160					54	2.125	55.28	2.179	9.53	0.375
		XKS					46	1.771	47.43	1.868	14.02	0.552
80	3	40	88.9	3.50	91	3.95	76	3.068	78.25	3.081	5.49	0.126
		80					73.5	2.900	74.53	2.934	7.62	0.300
		160					66.5	2.625	68.38	2.692	11.13	0.438
		XKS					58.5	2.300	61.19	2.409	15.24	0.600
90	3.5	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
		160					102	4.026	102.73	4.044	8.02	0.237
		XKS					97	3.826	98.28	3.869	8.56	0.337
100	4	40	114.3	4.50	117	4.62	92	3.624	93.78	3.692	11.13	0.438
		80					87.5	3.428	89.65	3.530	13.49	0.531
		160					80	3.152	83.30	3.279	17.12	0.674
		XKS					128	5.047	128.80	5.070	6.55	0.258
125	5	40	141.3	5.56	144	5.69	122	4.813	123.58	4.866	9.53	0.375
		80					116	4.563	118.04	4.647	12.70	0.500
		160					109.5	4.313	112.47	4.428	15.88	0.625
		XKS					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					145.5	5.761	148.06	5.828	10.97	0.432
		160					140	5.501	142.29	5.600	14.27	0.562
		XKS					132	5.187	135.31	5.326	18.26	0.719
200	8	40	219.1	8.62	223	8.78	203	7.981	203.75	8.020	8.18	0.322
		80					196.5	7.713	200.02	7.783	10.31	0.406
		160					193.5	7.625	195.84	7.709	12.70	0.500
		XKS					189	7.437	191.65	7.544	15.09	0.594
250	10	40	273.0	10.75	278	10.94	254.5	10.020	255.74	10.070	9.27	0.365
		80					247.5	9.75	249.74	9.834	12.70	0.500
		160					243	9.652	245.55	9.670	15.09	0.594
		XKS					236.5	9.312	240.01	9.451	18.26	0.719
300	12	40	323.8	12.75	329	12.97	305	12.000	306.08	12.053	9.53	0.375
		80					303	11.938	304.72	11.999	10.31	0.406
		160					298.5	11.750	300.54	11.834	12.70	0.500
		XKS					295	11.626	297.79	11.725	14.27	0.562
350	14	40	355.6	14.00	362	14.25	336.5	13.250	337.88	13.303	9.53	0.375
		80					333.5	13.124	335.08	13.192	11.13	0.438
		160					330	13.000	332.04	13.094	12.70	0.500
		XKS					325.5	12.812	328.15	12.930	15.09	0.594

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
WCB	0.30	1.00	0.04	0.045	0.60	0.50	0.50	0.20	Cu 0.30 V0.03	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 V0.10	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 V0.10	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 V0.10	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 V0.10	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 V0.10	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 V0.03	450-650 (65.0-90.0)	240(35.0)	24	35	J(lbf • ft) 18(13)
LCC	0.25	1.20	0.04	0.045	0.60	0.50	0.50	0.20	Cu 0.30 V0.03	485-655 (70.0-95.0)	275(40.0)	22	35	J(lbf • ft) 20(15)
LC2	0.25	0.50- 0.80	0.04	0.045	0.60	2.0-3.0				485-655 (70.0-95.0)	275(40.0)	24	35	J(lbf • ft) 20(15)
LC3	0.15	0.50- 0.80	0.04	0.040	0.60	3.0-4.0				485-655 (70.0-95.0)	275(40.0)	24	35	J(lbf • ft) 20(15)
CF8	0.08	1.50	0.040	0.040	2.00	8.0- 11.0	18.0- 21.0			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- 12.0	17.0- 21.0	2.0- 3.0		485(70)	205(30)	30		
CF8C	0.08	1.50	0.040	0.040	2.00	27.5- 30.5	18.0- 21.0	0.50	No ≥8xC≤1	485(70)	205(30)	30		
CN7M	0.07	1.50	0.040	0.040	1.50	0.40	19.0- 22.0	2.0- 3.0	Cu0.40 V0.03 Nb0.02	450(62)	170(25)	35		
A105	0.35	0.60- 1.05	0.040	0.050	0.35		0.30	0.12		485(70)	250(36)	22	30	≤187
F1	0.28	0.60- 0.90	0.045	0.450	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
F11-1	0.05- 0.15	0.30- 0.60	0.030	0.030	0.50- 1.00		1.00- 1.50	0.44- 0.65		415(60)	205(30)	20	45	121-174
F22-1	0.05- 0.15	0.30- 0.60	0.040	0.040	0.50		2.00- 2.50	0.87- 1.13		415(60)	205(30)	20	35	≤170
F6A	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	0.040	0.030	1.00	8.0- 11.0	18.0- 20.0			515(75)	205(30)	30	50	
F304L		2.00	0.040	0.030	1.00	8.0- 13.0	18.0- 20.0			485(70)	170(70)	30	50	

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
F316	0.08	2.00	0.040	0.030	1.00	10.0- 14.0	16.0- 18.0	2.00- 3.00			515(75)	250(30)	30	50	
F316L	0.035	2.00	0.040	0.030	1.00	10.0- 15.0	16.0- 18.0	2.00- 3.00			485(70)	170(25)	30	50	
F321	0.08	2.00	0.040	0.030	1.00	9.0- 12.0	≥17.0		To ≥5xC≤0.70		515(75)	205(30)	30	50	
F347	0.08	2.00	0.040	0.030	1.00	9.0- 13.0	17.0- 20.0		Nb+Ta ≥5xC≤0.70		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								≤282
420	Over 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	18.00- 22.00	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	
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	≤HB235 or HRB 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	V0.25-0.35		860(125)	725(105)	18	50	
B8	0.08	2.00	0.030	0.030	1.00	8.00- 10.50	18.00- 20.00				515(75)	205(30)	30	50	≤HB223or HRB 96
B8M	0.08	2.00	0.030	0.030	1.00	10.00- 14.00	16.00- 18.00	2.00- 3.00			515(75)	205(30)	30	50	≤HB223or HRB 96
L7	0.38- 0.48	0.75- 1.00	0.040	0.040	0.15- 0.35		0.80- 1.10	0.15- 0.25			860(125)	725(105)	16	50	
L7M	0.38- 0.48	0.75- 1.00	0.040	0.040	0.15- 0.35		0.80- 1.10	0.15- 0.25			690(100)	550(80)	18	50	≤HB235 or HRB 99
B			0.04	0.05							415-690 (60-100)		18		HRB121-212 HRC 69-95
2H	≥0.40	1.00	0.040	0.050	0.40				Cu0.40 V0.03 Nb0.02						HRB248-352 HRC 24-38
2HM	≥0.40	1.00	0.040	0.050	0.40										HRB248-352 HRC ≤22
4	0.40- 0.50	0.70- 0.90	0.035	0.040	0.15- 0.35			0.20- 0.30							HRB248-352 HRC 24-38
7	0.37- 0.49	0.65- 1.10	0.040	0.040	0.15- 0.35		0.75- 1.20	0.15- 0.25							HRB248-352 HRC 24-38
7M	0.37- 0.49	0.65- 1.10	0.040	0.040	0.15- 0.35		0.75- 1.20	0.15- 0.25							HRB248-352 HRC ≤22
8	0.08	2.00	0.045	0.030	1.00	8.00- 10.50	18.0- 20.0								HB126-300 HRC 50-105
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 HRC 50-105