

KF Cast Steel Gate Globe & Check Valves



KF Industries



Superior Fluid Control Products

A Brand of **CIRCOR** Energy Products Inc.

PREFACE

Satisfying the world's ever increasing energy demands, KF consistently offers a quality product at a competitive price. Continually improving our state-of-the-art manufacturing and engineering techniques, KF provides the industry with the most extensive valve offering available anywhere in the world.

An ISO manufacturer, KF has produced Ball Valves, Needle Valves, Check Valves and Butterfly Valves since 1962 and is now expanding its product range to include Cast Steel Gate, Globe and Check Valves.

This product line includes a size range of 2" - 48", ANSI Class 150 to 2500 lb. in a wide range of Cast steel materials including ASTM A216-WCB, ASTM A352-LCC, ASTM A217-WC6, ASTM 217-C5 and ASTM A351-CF8M.

This catalogue contains the basic dimensions and specifications needed for ordering KF Cast Steel Valves. The illustrations are representations of a certain size of each line of the products, but do not necessarily represent all the sizes in detail. The designs and materials may vary as KF is continually improving on its product.

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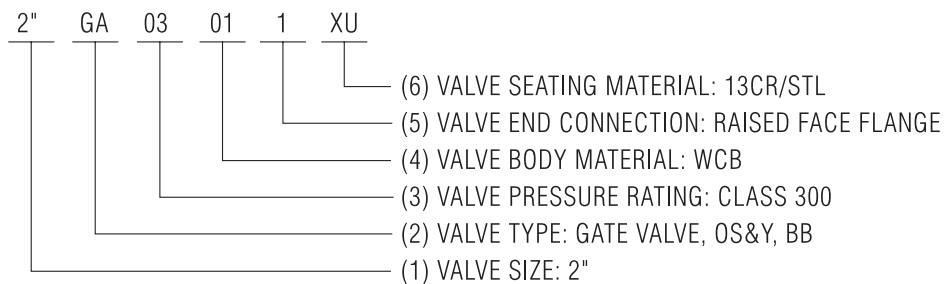
HOW TO ORDER:

Figure numbers are designed to cover essential features. When ordering, please show figure numbers to preclude misunderstanding of your requirements. A detailed description for **specials** must always accompany your order.

The following description may provide a basic guideline in the specification of valves:

SIZE (1)	TYPE (2)	PRESSURE RATING (3)	BODY MATERIALS (3)	END CONNECTION (5)	SEATING CODE (DISC/BODY) (6)
2"	GA-Gate Valve	01-CLASS 150	01-WCB	1-Raised Face	X-13CR/13CR
I	OS&Y. BB	03-CLASS 300	02-WC6	2-Ring Type Joint	XU-13CR/STL
I	GL-Globe Valve	06-CLASS 600	03-CF8	3-Butt Welding	U-STL/STL
I	OS&Y. BB	09-CLASS 900	04-CF8M	6-T&G	P-304/304
I	SC-Swing Check Valve	15-CLASS 1500	05-CF3	8-BW&RF	R-316/316
I	B.C.	25-CLASS 2500	06-CF3M	9-BW&RTJ	N-ALLOY 20/ALLOY 20
I	FS-Full Open Swing Check		07-LCC		H-HASTELLOY B/HASTELLOY B
I	Valve, B.C.		08-WC1		B-BRONZE/BRONZE
I	GP-Gate Valve		09-WC9		T-STEEL/R-PTFE
I	OS&Y, Pressure Seal		10-C5		RU-316/STL
I	GLP-Globe Valve				XUN-13CR/STL/NACE
I	OS&Y, Pressure Seal				RUN-316/STL/NACE
I	SP-Swing Check Valve				
I	Pressure Seal				
48"	GS-Parallel Slide Gate Valve				

EXAMPLE: 2"GA03011XU



Notes:

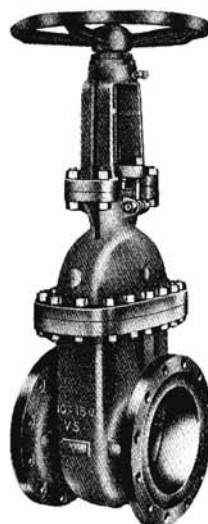
1. All the cast steel gate valves are provided with flexible wedge.
2. All the check valves are swing type.
3. Material to NACE MR-01-75 on request & indicated on nameplate.
4. Design and construction details are subject to change without notice



CLASS 150 ANSI GATE VALVES

APPLICABLE STANDARDS:

- ◆ API600, BS1414 , ANSI B16.34;
- ◆ FACE TO FACE / END TO END: ANSI B16.10;
- ◆ END FLANGES: 2"- 24": ANSI B16.5
26"- 48": MSS-SP44
- ◆ BUTT WELD ENDS: ANSI B16.25
- ◆ SHELL WALL THICKNESS: 2"- 24": API600
26"- 48": MANUFACTURER'S STANDARD

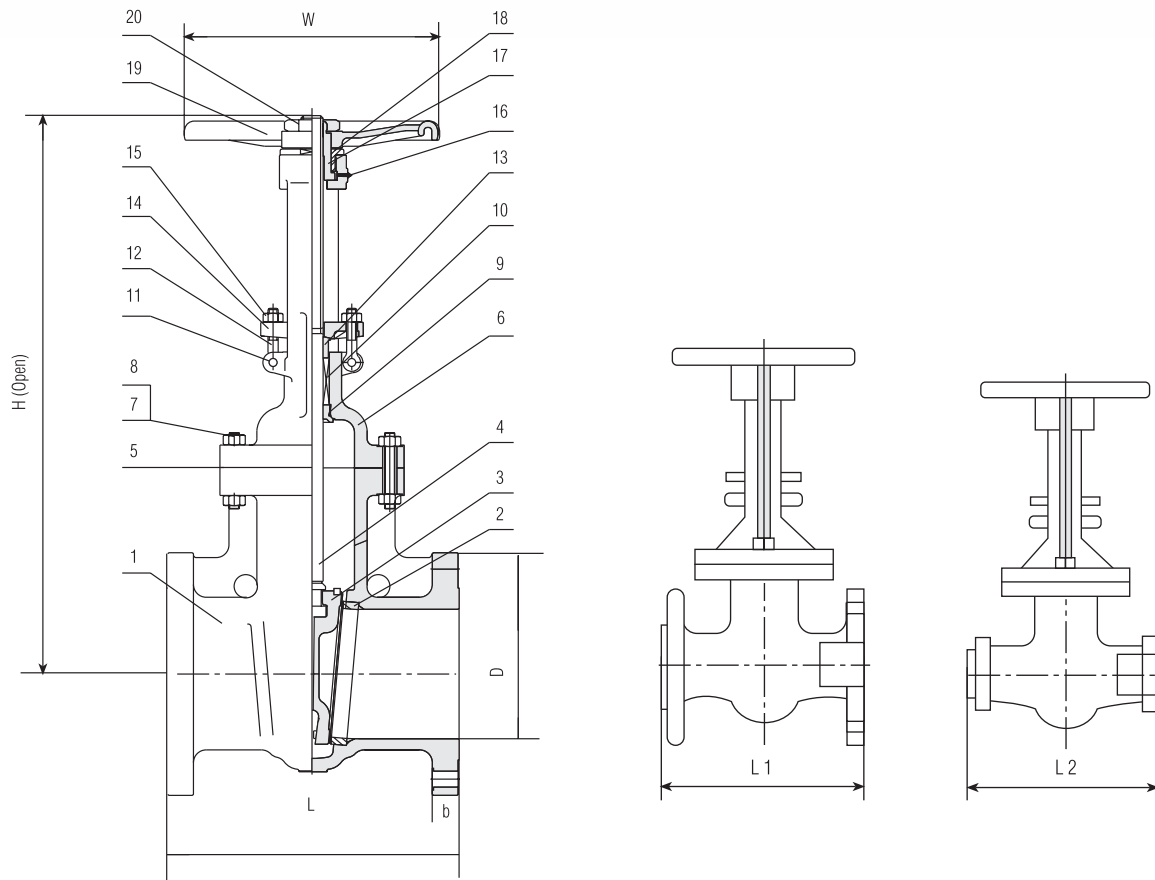


DIMENSIONS AND WEIGHTS: *Gear Operated

NOM SIZE	L RF		L1 RTJ		L2 BW		D		b		H Open		W	Wt
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	MM	Kgs
2	7.00	178	7.52	191	8.50	216	6.00	152.4	0.62	16	16.10	409	200	18
2 1/2	7.50	190	8.00	203	9.50	241	7.00	177.8	0.69	18	17.4	442	200	28
3	8.00	203	8.50	216	11.1	283	7.50	190.5	0.75	19	20.00	508	250	34
4	9.00	229	9.50	241	12.0	305	9.00	228.6	0.94	24	23.2	590	250	52
5	10.0	254	10.5	267	15.0	381	10.0	254.0	0.94	24	27.9	710	250	71
6	10.5	267	11.0	279	15.8	403	11.0	279.4	1.00	25	24.8	630	300	88
8	11.5	292	12.0	305	16.5	419	13.5	342.9	1.12	28	37.8	960	350	144
10	13.0	330	13.5	343	18.0	457	16.0	406.4	1.19	30	45.6	1158	400	197
12	14.0	356	14.5	368	19.8	502	19.0	482.6	1.25	32	54.3	1378	450	298
14	15.0	381	15.5	394	22.5	572	21.0	533.4	1.38	35	60.75	1543	500	406
16	16.0	406	16.5	419	24.0	610	23.5	596.9	1.44	37	68.4	1738	600	524
18	17.0	432	17.5	445	26.0	660	25.0	635.0	1.56	40	77.1	1959	600	720
20	18.0	457	18.5	470	28.0	711	27.5	698.5	1.69	43	87.2	2214	680	1117
24	20.0	508	20.5	521	32.0	813	32.0	812.8	1.88	48	102.3	2599	760	1466
26*	22.0	559	22.5	572	34.0	863	34.3	871.2	2.69	68	121.5	3086	G0	1699
28*	24.0	610	24.5	622	36.0	914	36.5	927.1	2.81	71	131.0	3327	G0	1931
30*	24.0	610	24.5	622	36.0	914	38.7	982.9	2.94	75	142.0	3606	G0	2380
32*	26.0	660	26.5	673	38.0	965	41.8	1062	3.18	81	146.0	3708	G0	2490
36*	28.0	711	28.5	724	40.0	1016	46.0	1168	3.56	90	154.5	3924	G0	3600
42*	32.0	813	32.5	826	45.0	1143	53.0	1346	3.81	97	179.0	4546	G0	4710
48*	42.0	1066	42.5	1079	54.0	1371	59.5	1511	4.25	108	204.0	5181	G0	6500



CLASS 150 ANSI GATE VALVES



BILL OF MATERIAL AND PARTS:

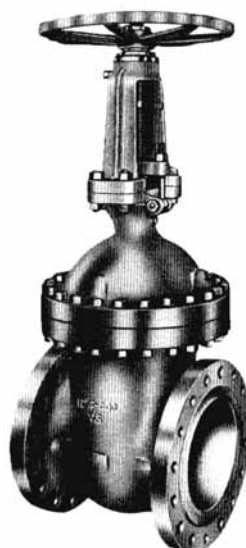
Part No.	Part Name	ASTM Specifications (Specs. - Grades/Types)				
		A216	A352	A217		A351
		WCB	LCC	WC6	C5	CF8M
1	Body	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
2	Seat Ring	A105, LF2, 316 OR 304				
	Seat Ring Surface	13CR, HF(STELLITE), 316, 304, Monel				
3	Gate	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
	Gate Sealing Surface	13CR, HF(STELLITE), 316, 304, Monel				
4	Stem	13CR, 316 OR 304, 17 - 4PH, Monel				
5	Gasket	Soft Iron, Spiral Wound				
6	Bonnet	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
7	Bonnet Bolt Nut	A194 - 2H	A194 - 4	A194 - 2H	A194 - 4	A194 - 8
8	Bonnet Bolt	A193 - B7	A320 - L7	A193 - B7	A193 - B16	A193 - B8
9	Bonnet Bushing	13Cr, 316 OR 304				
10	Gland Packing	Braided Graphite & Die Formed Graphite Ring, PTFE				
11	Eye Bolt Pins	Carbon Steel				
12	Gland Eye Bolts	A193 - B7	A320 - L7	A193 - B7		A193 - B8
13	Gland	13Cr, 316 OR 304				
14	Gland Flange	A216 WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
15	Eye Bolt Nut	A194 - 2H	A194 - 4	A194 - 2H		A194 - 8
16	Grease Nipple	Carbon Steel				
17	Yoke Sleeve	ASTM A439 GR D2C				
18	Retaining Nut	Carbon Steel				
19	Handwheel	Malleable Iron				
20	Handwheel Nut	Carbon Steel				



CLASS 300 ANSI GATE VALVES

APPLICABLE STANDARDS:

- ◆ API600, BS1414 , ANSI B16.34;
- ◆ FACE TO FACE / END TO END: ANSI B16.10;
- ◆ END FLANGES: 2"- 24": ANSI B16.5
26"- 36": MSS-SP44
- ◆ BUTT WELD ENDS: ANSI B16.25
- ◆ SHELL WALL THICKNESS: 2"- 24": API600
26"- 36": MANUFACTURER'S STANDARD

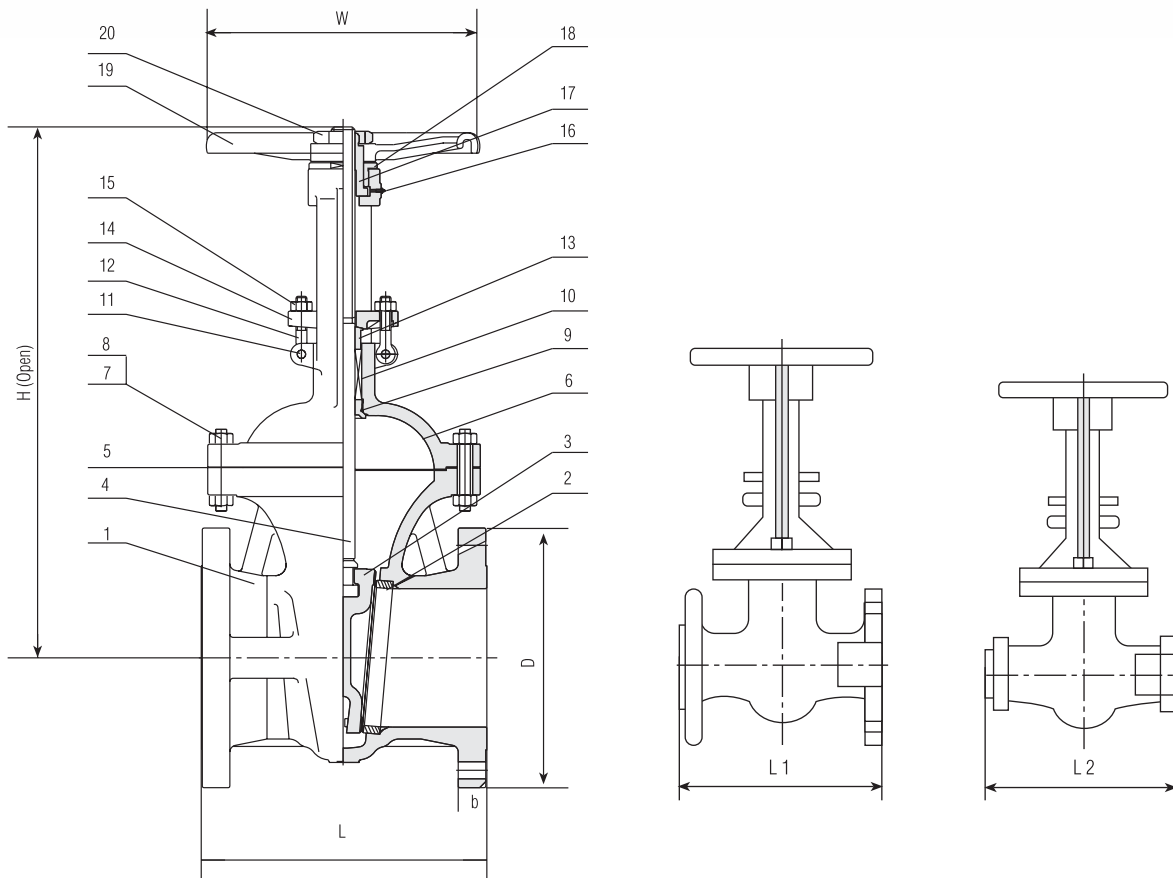


DIMENSIONS AND WEIGHTS: *Gear Operated

NOM SIZE	L/L2 RF/BW		L1 RTJ		D		b		H Open		W	Wt
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	MM	Kg s
2	8.50	216	9.12	232	6.50	165.1	0.87	22.2	16.70	424	200	24
2½	9.50	241	10.12	257	7.50	190.5	1.00	25.4	18.10	460	200	44
3	11.13	283	11.8	298	8.25	209.5	1.13	28.6	21.00	535	250	52
4	12.00	305	12.6	321	10.0	254.0	1.25	31.7	24.2	615	250	76
5	15.0	381	15.6	397	33.8	279.4	1.37	34.9	26.1	662	350	94
6	15.86	403	16.5	419	12.5	317.5	1.44	36.5	31.3	795	350	146
8	16.50	419	17.1	435	15.0	381.0	1.63	41.3	39.9	1012	400	218
10	18.00	457	18.6	473	17.5	444.5	1.87	47.6	48.5	1231	450	352
12	19.75	502	20.4	518	20.5	520.7	2.00	50.8	57.0	1450	500	472
14	30.00	762	30.6	778	23.0	584.2	2.13	54.0	64.8	1645	600	694
16	33.00	838	33.6	854	25.5	647.7	2.25	57.1	72.5	1841	600	1080
18	36.00	914	36.6	930	28.0	711.2	2.37	60.3	76.5	1943	680	1235
20	39.00	991	39.8	1010	30.5	774.7	2.50	63.5	84.8	2154	965	1655
24	45.00	1143	45.9	1165	36.0	914.4	2.75	69.8	100.5	2553	915	2320
26*	49.00	1244	49.8	1266	38.2	970.2	3.12	79.2	108.3	2750	GO	3100
28*	53.00	1346	53.9	1368	40.7	1035.1	3.38	86.0	122.05	3100	GO	3893
30*	55.00	1397	56.0	1422	43.0	1092.2	3.62	92.0	130.71	3320	GO	4930
32*	60.00	1524	61.9	1546	45.2	1148.1	3.88	98.6	140.20	3560	GO	5230
36*	68.00	1727	69.0	1752	50.0	1270.0	4.12	105	153.94	3910	GO	6885



CLASS 300 ANSI GATE VALVES



BILL OF MATERIAL AND PARTS:

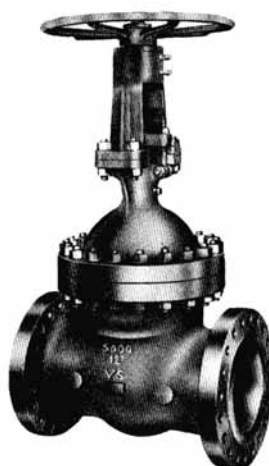
Part No.	Part Name	ASTM Specifications (Specs. - Grades/Types)				
		A216	A352	A217		A351
		WCB	LCC	WC6	C5	CF8M
1	Body	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
2	Seat Ring	A105, LF2, 316 OR 304				
	Seat Ring Surface	13CR, HF(STELLITE), 316, 304, Monel				
3	Gate	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
	Gate Sealing Surface	13CR, HF(STELLITE), 316, 304, Monel				
4	Stem	13CR, 316 OR 304, 17 - 4PH, Monel				
5	Gasket	Soft Iron, Spiral Wound				
6	Bonnet	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
7	Bonnet Bolt Nut	A194 - 2H	A194 - 4	A194 - 2H	A194 - 4	A194 - 8
8	Bonnet Bolt	A193 - B7	A320 - L7	A193 - B7	A193 - B16	A193 - B8
9	Bonnet Bushing	13Cr, 316 OR 304				
10	Gland Packing	Braided Graphite & Die Formed Graphite Ring, PTFE				
11	Eye Bolt Pins	Carbon Steel				
12	Gland Eye Bolts	A193 - B7	A320 - L7	A193 - B7		A193 - B8
13	Gland	13Cr, 316 OR 304				
14	Gland Flange	A216 WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
15	Eye Bolt Nut	A194 - 2H	A194 - 4	A194 - 2H		A194 - 8
16	Grease Nipple	Carbon Steel				
17	Yoke Sleeve	ASTM A439 GR D2C				
18	Retaining Nut	Carbon Steel				
19	Handwheel	Malleable Iron				
20	Handwheel Nut	Carbon Steel				



CLASS 600 ANSI GATE VALVES

APPLICABLE STANDARDS:

- ◆ API600, BS1414 , ANSI B16.34;
- ◆ FACE TO FACE / END TO END: ANSI B16.10;
- ◆ END FLANGES: 2"- 24": ANSI B16.5
26"- 36": MSS-SP44
- ◆ BUTT WELD ENDS: ANSI B16.25
- ◆ SHELL WALL THICKNESS: 2"- 24": API600
26"- 36": MANUFACTURER'S STANDARD

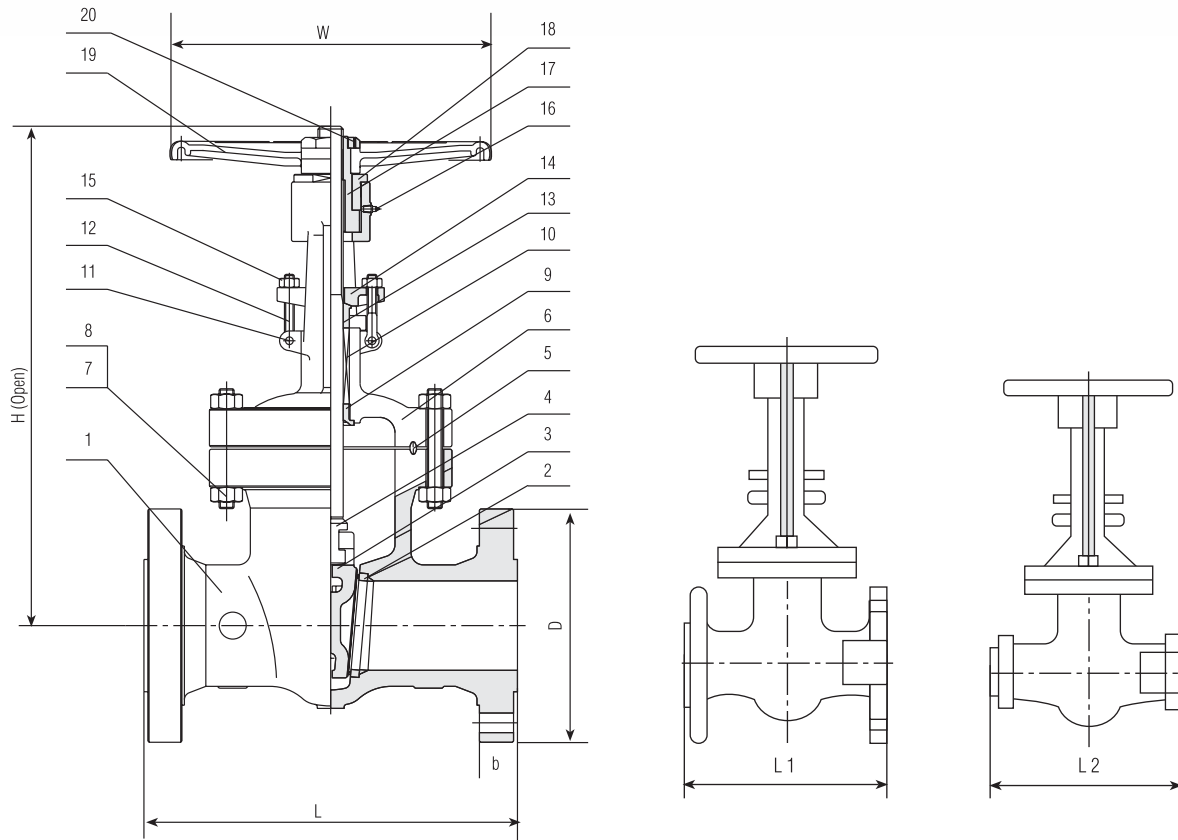


DIMENSIONS AND WEIGHTS: *Gear Operated

NOM SIZE	L/L2 RF/BW		L1 RTJ		D		b		H Open		W	Wt
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	MM	Kgs
2	11.5	292	11.63	295	6.50	165.1	1.00	25.4	18.0	458	250	46
2 1/2	13.0	320	13.13	333	7.50	190.5	1.13	28.6	20.0	508	250	55
3	14.0	356	14.13	359	8.25	209.5	1.25	31.7	22.6	570	250	72
4	17.0	432	17.13	435	10.75	273.0	1.50	38.1	27.2	690	350	128
6	22.0	559	22.13	562	14.00	355.6	1.88	47.6	35.8	910	450	266
8	26.0	660	26.13	664	16.50	419.1	2.19	55.6	41.9	1064	500	419
10	31.0	787	31.13	791	20.00	508.0	2.50	63.5	49.5	1257	600	754
12	33.0	838	33.13	841	22.00	558.8	2.62	66.7	57.8	1468	680	981
14	35.0	889	35.13	892	23.75	603.2	2.75	69.8	63.9	1623	760	1316
16	39.0	991	39.13	994	27.00	685.8	3.00	76.2	71.5	1816	760	1672
18*	42.9	1092	43.13	1095	28.25	742.9	3.25	82.5	89.0	2260	GO	2070
20*	47.0	1194	47.25	1200	32.00	812.8	3.50	88.9	106.5	2705	GO	2405
24*	55.0	1397	55.38	1407	37.00	939.8	4.00	102.0	110.6	2810	GO	4550
26*	57.0	1447	57.48	1460	40.0	1016.0	4.25	107.9	115.0	2921	GO	5260
28*	61.0	1549	61.50	1562	42.25	1073.2	4.38	112.0	123.5	3136	GO	5960
30*	65.0	1651	65.50	1664	44.50	1130.3	4.50	115.0	131.0	3327	GO	6700
32*	70.0	1778	70.50	1791	47.0	1193.8	4.62	117.3	141.0	3581	GO	8312
36*	82.0	2082	82.47	2095	51.75	1314.5	4.88	124.0	158.0	4013	GO	10125



CLASS 600 ANSI GATE VALVES



BILL OF MATERIAL AND PARTS:

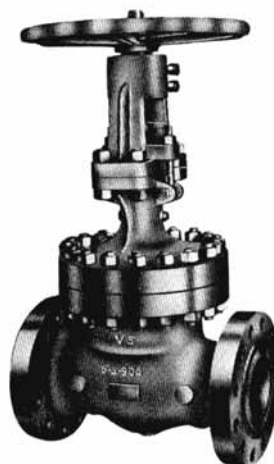
Part No.	Part Name	ASTM Specifications (Specs. - Grades/Types)				
		A216	A352	A217		A351
		WCB	LCC	WC6	C5	CF8M
1	Body	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
2	Seat Ring	A105, LF2, 316 OR 304				
	Seat Ring Surface	13CR, HF(STELLITE), 316, 304, Monel				
3	Gate	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
	Gate Sealing Surface	13CR, HF(STELLITE), 316, 304, Monel				
4	Stem	13CR, 316 OR 304, 17 - 4PH, Monel				
5	Gasket	Ring Joint-Iron				
6	Bonnet	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
7	Bonnet Bolt Nut	A194 - 2H	A194 - 4	A194 - 2H	A194 - 4	A194 - 8
8	Bonnet Bolt	A193 - B7	A320 - L7	A193 - B7	A193 - B16	A193 - B8
9	Bonnet Bushing	13Cr, 316 OR 304				
10	Gland Packing	Braided Graphite & Die Formed Graphite Ring, PTFE				
11	Eye Bolt Pins	Carbon Steel				
12	Gland Eye Bolts	A193 - B7	A320 - L7	A193 - B7		A193 - B8
13	Gland	13Cr, 316 OR 304				
14	Gland Flange	A216 WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
15	Eye Bolt Nut	A194 - 2H	A194 - 4	A194 - 2H		A194 - 8
16	Grease Nipple	Carbon Steel				
17	Yoke Sleeve	ASTM A439 GR D2C				
18	Retaining Nut	Carbon Steel				
19	Handwheel	Malleable Iron				
20	Handwheel Nut	Carbon Steel				



CLASS 900 ANSI GATE VALVES

APPLICABLE STANDARDS:

- ◆ API600, BS1414 , ANSI B16.34;
- ◆ FACE TO FACE / END TO END: ANSI B16.10;
- ◆ END FLANGES:
2" - 24": ANSI B16.5
- ◆ BUTT WELD ENDS: ANSI B16.25
- ◆ SHELL WALL THICKNESS:
2" - 24": API600

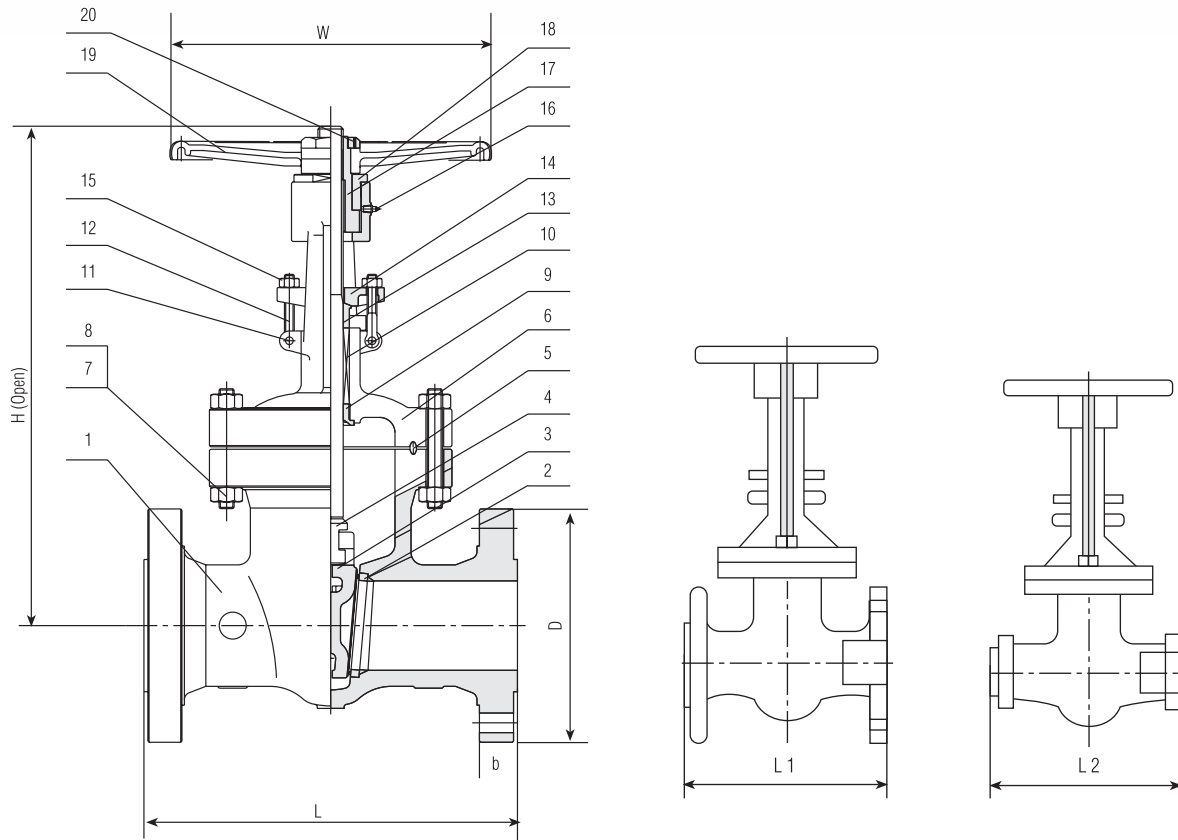


DIMENSIONS AND WEIGHTS: *Gear Operated

NOM SIZE	L/L2 RF/BW		L1 RTJ		D		b		H Open		W	Wt
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	MM	K g s
2	14.5	368	14.63	371	8.50	215.9	1.50	38.1	14.5	620	300	95
2 1/2	16.5	419	16.63	422	9.63	244.5	1.63	41.3	27.8	705	350	108
3	15.0	381	15.13	384	9.50	241.3	1.50	38.1	27.4	695	350	125
4	18.0	457	18.13	460	11.50	292.1	1.75	44.4	32.5	825	400	192
6	24.0	610	24.13	613	15.00	381.0	2.19	55.6	42.0	1065	500	378
8	29.0	737	29.13	740	18.50	469.9	2.50	63.5	52.0	1320	600	635
10	33.0	838	33.13	841	21.50	546.1	2.75	69.8	60.6	1540	750	900
12	38.0	965	38.13	968	24.00	609.6	3.12	79.4	72.5	1840	850	1550
14*	40.5	1029	40.88	1038	25.25	641.2	3.38	85.7	79.7	2025	GO	2170
16*	44.5	1130	44.88	1140	27.75	704.8	3.50	88.9	85.4	2170	GO	3070
18*	48.0	1219	48.50	1232	31.00	787.4	4.00	101.6	87.87	2232	GO	3930
20*	52.0	1320	52.52	1334	33.75	857.2	4.25	107.9	95.87	2435	GO	5120
24*	61.0	1549	61.54	1563	41.00	1041.4	5.50	140.0	112.80	2865	GO	7800



CLASS 900 ANSI GATE VALVES



BILL OF MATERIAL AND PARTS:

Part No.	Part Name	ASTM Specifications (Specs. - Grades/Types)				
		A216	A352	A217		A351
		WCB	LCC	WC6	C5	CF8M
1	Body	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
2	Seat Ring	A105, LF2, 316 OR 304				
	Seat Ring Surface	13CR, HF(STELLITE), 316, 304, Monel				
3	Gate	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
	Gate Sealing Surface	13CR, HF(STELLITE), 316, 304, Monel				
4	Stem	13CR, 316 OR 304, 17 - 4PH, Monel				
5	Gasket	Ring Joint-Iron				
6	Bonnet	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
7	Bonnet Bolt Nut	A194 - 2H	A194 - 4	A194 - 2H	A194 - 4	A194 - 8
8	Bonnet Bolt	A193 - B7	A320 - L7	A193 - B7	A193 - B16	A193 - B8
9	Bonnet Bushing	13Cr, 316 OR 304				
10	Gland Packing	Braided Graphite & Die Formed Graphite Ring				
11	Eye Bolt Pins	Carbon Steel				
12	Gland Eye Bolts	A193 - B7	A320 - L7	A193 - B7		A193 - B8
13	Gland	13Cr, 316 OR 304				
14	Gland Flange	A216 WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
15	Eye Bolt Nut	A194 - 2H	A194 - 4	A194 - 2H		A194 - 8
16	Grease Nipple	Carbon Steel				
17	Yoke Sleeve	ASTM A439 GR D2C				
18	Retaining Nut	Carbon Steel				
19	Handwheel	Malleable Iron				
20	Handwheel Nut	Carbon Steel				



CLASS 1500 ANSI GATE VALVES

APPLICABLE STANDARDS:

- ◆ API600, BS1414 , ANSI B16.34;
- ◆ FACE TO FACE / END TO END: ANSI B16.10;
- ◆ END FLANGES:
2" - 16": ANSI B16.5
- ◆ BUTT WELD ENDS: ANSI B16.25
- ◆ SHELL WALL THICKNESS:
2" - 16": API600

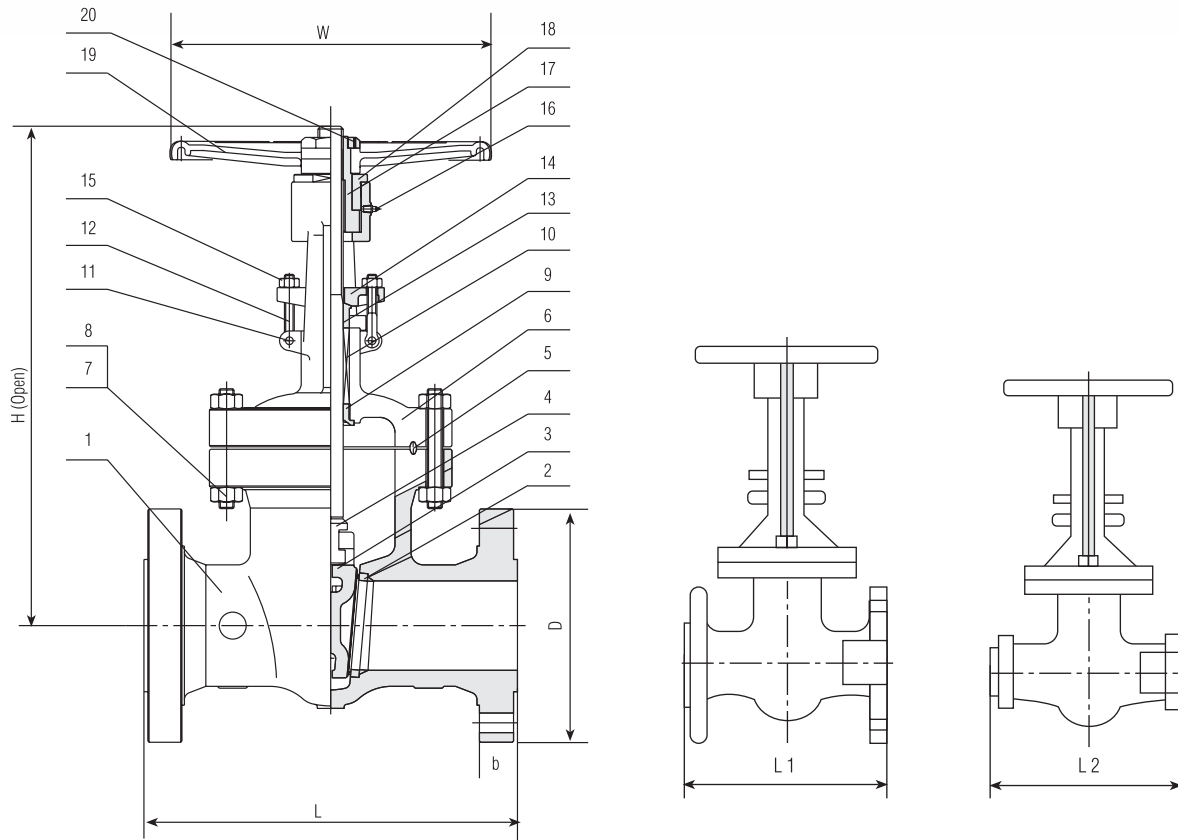


DIMENSIONS AND WEIGHTS: *Gear Operated

NOM SIZE	L/L2 RF/BW		L1 RTJ		D		b		H Open		W	Wt
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	MM	K g s
2	14.5	368	11.63	371	8.50	215.9	1.50	38.1	22.0	559	250	82
2½	16.5	419	16.63	422	9.63	244.5	1.63	41.3	26.5	673	425	127
3	18.5	470	18.63	473	10.50	266.7	1.87	47.6	28.0	711	400	168
4	21.5	546	21.63	549	12.25	311.1	2.13	54.0	33.0	838	500	277
6	27.8	705	28.00	711	15.50	393.7	3.25	82.5	55.0	1397	600	640
8*	32.8	832	33.13	841	19.00	482.6	3.63	92.1	71.8	1822	GO	1180
10*	39.0	991	39.38	1000	23.00	584.2	4.25	107.9	80.8	2051	GO	1118
12*	44.5	1130	45.13	1146	26.50	673.1	4.87	123.8	84.0	2134	GO	3244
14*	49.5	1257	50.25	1276	29.50	749.3	5.25	133.3	89.3	2267	GO	3693
16*	54.5	1384	55.38	1407	32.50	825.6	5.75	146.0	95.3	2420	GO	4890



CLASS 1500 ANSI GATE VALVES



BILL OF MATERIAL AND PARTS:

Part No.	Part Name	ASTM Specifications (Specs. - Grades/Types)				
		A216	A352	A217		A351
		WCB	LCC	WC6	C5	CF8M
1	Body	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
2	Seat Ring	A105, LF2, 316 OR 304				
	Seat Ring Surface	13CR, HF(STELLITE), 316, 304, Monel				
3	Gate	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
	Gate Sealing Surface	13CR, HF(STELLITE), 316, 304, Monel				
4	Stem	13CR, 316 OR 304, 17 - 4PH, Monel				
5	Gasket	Ring Joint-Iron				
6	Bonnet	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
7	Bonnet Bolt Nut	A194 - 2H	A194 - 4	A194 - 2H	A194 - 4	A194 - 8
8	Bonnet Bolt	A193 - B7	A320 - L7	A193 - B7	A193 - B16	A193 - B8
9	Bonnet Bushing	13Cr, 316 OR 304				
10	Gland Packing	Braided Graphite & Die Formed Graphite Ring				
11	Eye Bolt Pins	Carbon Steel				
12	Gland Eye Bolts	A193 - B7	A320 - L7	A193 - B7		A193 - B8
13	Gland	13Cr, 316 OR 304				
14	Gland Flange	A216 WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
15	Eye Bolt Nut	A194 - 2H	A194 - 4	A194 - 2H		A194 - 8
16	Grease Nipple	Carbon Steel				
17	Yoke Sleeve	ASTM A439 GR D2C				
18	Retaining Nut	Carbon Steel				
19	Handwheel	Malleable Iron				
20	Handwheel Nut	Carbon Steel				



CLASS 2500 ANSI GATE VALVES

APPLICABLE STANDARDS:

- ◆ API600, BS1414 , ANSI B16.34;
- ◆ FACE TO FACE / END TO END: ANSI B16.10;
- ◆ END FLANGES:
2" - 10": ANSI B16.5
- ◆ BUTT WELD ENDS: ANSI B16.25
- ◆ SHELL WALL THICKNESS:
2" - 10": API600

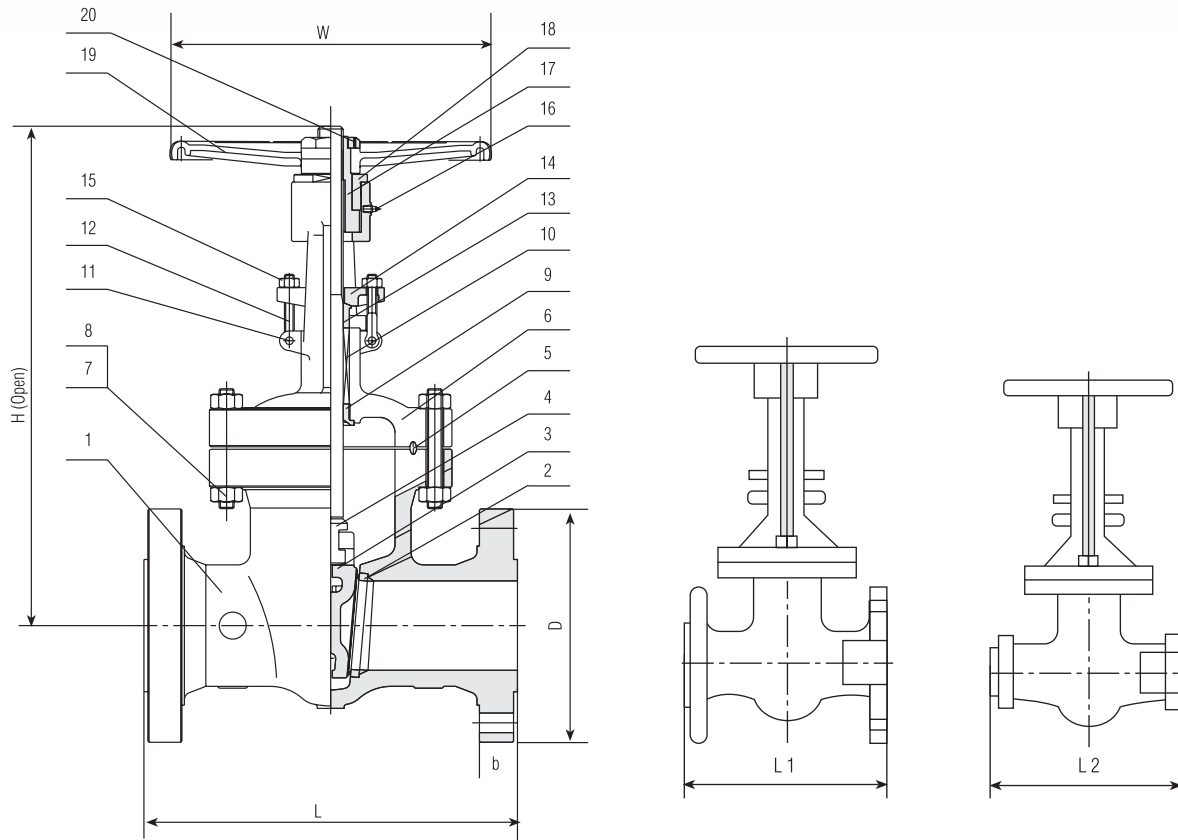


DIMENSIONS AND WEIGHTS: *Gear Operated

NOM SIZE	L/L2 RF/BW		L1 RTJ		D		b		H Open	W	Wt	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	MM	K g s
2	17.75	451	17.88	454	9.25	234.9	2.00	50.8	27.6	700	350	135
2 1/2	20.00	508	20.25	514	10.50	266.7	2.25	57.2	29.5	750	450	210
3	22.75	578	23.00	584	12.00	304.8	2.62	66.5	34.6	887	560	271
4	26.50	673	26.88	683	14.00	355.6	3.00	76.2	42.5	1079	720	506
6*	36.0	914	36.50	927	19.00	482.6	4.25	107.9	53.9	1370	GO	1571
8*	40.25	1022	40.88	1038	21.75	552.5	5.00	127.0	60.5	1530	GO	2401
10*	50.00	1270	50.88	1292	26.50	673.1	6.50	165.1	80.5	2045	GO	4520



CLASS 2500 ANSI GATE VALVES



BILL OF MATERIAL AND PARTS:

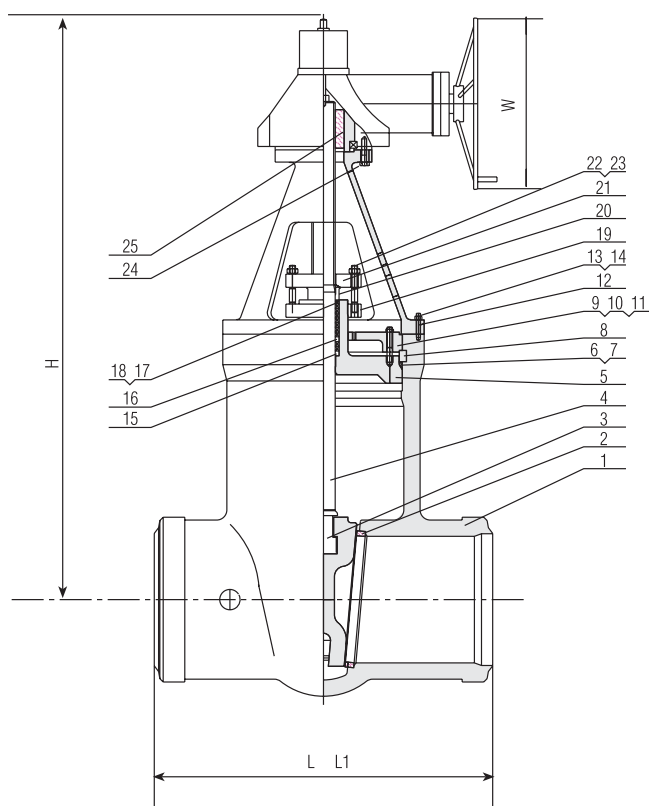
Part No.	Part Name	ASTM Specifications (Specs. - Grades/Types)				
		A216	A352	A217		A351
		WCB	LCC	WC6	C5	CF8M
1	Body	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
2	Seat Ring	A105, LF2, 316 OR 304				
	Seat Ring Surface	13CR, HF(STELLITE), 316, 304, Monel				
3	Gate	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
	Gate Sealing Surface	13CR, HF(STELLITE), 316, 304, Monel				
4	Stem	13CR, 316 OR 304, 17 - 4PH, Monel				
5	Gasket	Ring Joint-Iron				
6	Bonnet	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
7	Bonnet Bolt Nut	A194 - 2H	A194 - 4	A194 - 2H	A194 - 4	A194 - 8
8	Bonnet Bolt	A193 - B7	A320 - L7	A193 - B7	A193 - B16	A193 - B8
9	Bonnet Bushing	13Cr, 316 OR 304				
10	Gland Packing	Braided Graphite & Die Formed Graphite Ring				
11	Eye Bolt Pins	Carbon Steel				
12	Gland Eye Bolts	A193 - B7	A320 - L7	A193 - B7		A193 - B8
13	Gland	13Cr, 316 OR 304				
14	Gland Flange	A216 WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
15	Eye Bolt Nut	A194 - 2H	A194 - 4	A194 - 2H		A194 - 8
16	Grease Nipple	Carbon Steel				
17	Yoke Sleeve	ASTM A439 GR D2C				
18	Retaining Nut	Carbon Steel				
19	Handwheel	Malleable Iron				
20	Handwheel Nut	Carbon Steel				



CLASS 900 ANSI GATE VALVES - PRESSURE SEAL

APPLICABLE STANDARDS:

- ◆ Basic Design: ANSI B16.34, API 600, BS 1414
- ◆ Face To Face / End to End: ANSI B16.10;
- ◆ End Flanges:
 - 2"-24": ANSI B16.5
 - 26"-32": MSS-SP44
- ◆ Butt Weld Ends: ANSI B16.25



BILL OF MATERIAL AND PARTS:

Item	Part Name	Material
1	Body	ASTM A216 WCB
2	Seat Ring	ASTM A105+HF
3	Flexible Wedge	ASTM A216 WCB+HF
4	Stem	ASTM A182 F6
5	Stuffing Box	ASTM A216 WCB
6	Sealing Ring	ASTM A276-304
7	Pressure Ring	ASTM A276-420
8	Segment Ring	ASTM A182 F6
9	Support Plate	ASTM A216 WCB
10	Box-Plate Bolt	ASTM A193 GR B7
11	Box-Plate Nut	ASTM A194 GR 2H
12	Yoke	ASTM A216 WCB
13	Box-Plate Bolt	ASTM A193 GR B7
14	Box-Plate Nut	ASTM A194 GR 2H
15	Packing Plate	ASTM A276-410
16	Lantern Ring	ASTM A276-410
17	Packing I	S.S BRAIDED GRAPHITE
18	Packing II	FLEXIBLE GRAPHITE
19	Gland Flange Seat	ASTM A182 F6
20	Gland	ASTM A276-410
21	Gland Flange	CARBON STEEL
22	Gland Eyebolt	ASTM A193 GR B7
23	Gland Eyebolt Nut	ASTM A194 GR 2H
24	Yoke Gear Stud	ASTM A193 GR B7
25	Stem Nut	ASTM A439-D2

DIMENSIONS AND WEIGHTS (MM):

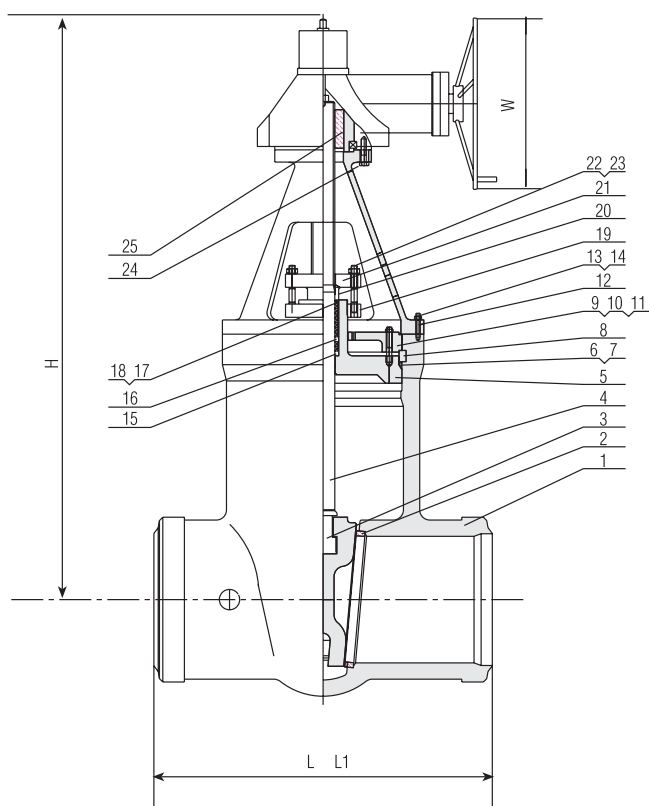
NOM SIZE	3	4	6	8	10	12	14	16	18	20	24	28	30	32
L RF	381	457	609	736	838	965	1028	1130	1219	1320	1549	1663	1778	1857
L1 B W	304	355	508	660	787	914	990	1092	1219	1320	1549	1663	1778	1854
H	584	711	863	1016	1181	1320	1568	2159	2381	2451	2971	3695	4000	4165
W	355	355	609	609	711	711	863	G0	G0	G0	G0	G0	G0	G0
Wt (Kg)	95	130	280	460	820	1150	1500	2100	2750	3400	4400	7100	9000	11000



CLASS 1500 ANSI GATE VALVES - PRESSURE SEAL

APPLICABLE STANDARDS:

- ◆ Basic Design: ANSI B16.34, API 600, BS 1414
- ◆ Face To Face / End to End: ANSI B16.10;
- ◆ End Flanges:
2"-24": ANSI B16.5
- ◆ Butt Weld Ends: ANSI B16.25



BILL OF MATERIAL AND PARTS:

Item	Part Name	Material
1	Body	ASTM A216 WCB
2	Seat Ring	ASTM A105+HF
3	Flexible Wedge	ASTM A216 WCB+HF
4	Stem	ASTM A182 F6
5	Stuffing Box	ASTM A216 WCB
6	Sealing Ring	ASTM A276-304
7	Pressure Ring	ASTM A276-420
8	Segment Ring	ASTM A182 F6
9	Support Plate	ASTM A216 WCB
10	Box-Plate Bolt	ASTM A193 GR B7
11	Box-Plate Nut	ASTM A194 GR 2H
12	Yoke	ASTM A216 WCB
13	Box-Plate Bolt	ASTM A193 GR B7
14	Box-Plate Nut	ASTM A194 GR 2H
15	Packing Plate	ASTM A276-410
16	Lantern Ring	ASTM A276-410
17	Packing I	S.S BRAIDED GRAPHITE
18	Packing II	FLEXIBLE GRAPHITE
19	Gland Flange Seat	ASTM A182 F6
20	Gland	ASTM A276-410
21	Gland Flange	CARBON STEEL
22	Gland Eyebolt	ASTM A193 GR B7
23	Gland Eyebolt Nut	ASTM A194 GR 2H
24	Yoke Gear Stud	ASTM A193 GR B7
25	Stem Nut	ASTM A439-D2

DIMENSIONS AND WEIGHTS (MM):

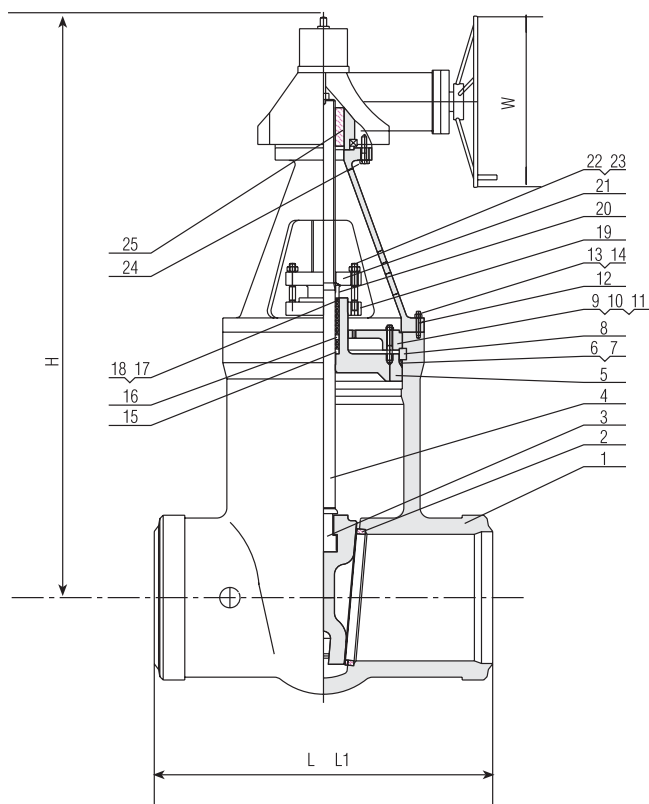
NOM SIZE	2	3	4	6*	8*	10*	12*	14*	16*	18*	20*	24*
L RF	368	470	546	705	832	991	1130	1257	1384	1536	1663	1943
L2 BW	216	305	406	559	711	864	991	1067	1194	1346	1473	1943
H	554	767	875	1094	1372	1655	1834	2150	2260	2285	2387	2794
W	300	450	560	305	G0	G0	G0	G0	G0	G0	G0	G0
Wt (Kg)	60	128	182	394	795	1370	2120	2800	3780	4010	4950	7650



CLASS 2500 ANSI GATE VALVES - PRESSURE SEAL

APPLICABLE STANDARDS:

- ◆ Basic Design: ANSI B16.34, API 600, BS 1414
- ◆ Face To Face / End To End: ANSI B16.10;
- ◆ End Flanges:
2"-16": ANSI B16.5
- ◆ Butt Weld Ends: ANSI B16.25



BILL OF MATERIAL AND PARTS:

Item	Part Name	Material
1	Body	ASTM A216 WCB
2	Seat Ring	ASTM A105+HF
3	Flexible Wedge	ASTM A216 WCB+HF
4	Stem	ASTM A182 F6
5	Stuffing Box	ASTM A216 WCB
6	Sealing Ring	ASTM A276-304
7	Pressure Ring	ASTM A276-420
8	Segment Ring	ASTM A182 F6
9	Support Plate	ASTM A216 WCB
10	Box-Plate Bolt	ASTM A193 GR B7
11	Box-Plate Nut	ASTM A194 GR 2H
12	Yoke	ASTM A216 WCB
13	Box-Plate Bolt	ASTM A193 GR B7
14	Box-Plate Nut	ASTM A194 GR 2H
15	Packing Plate	ASTM A276-410
16	Lantern Ring	ASTM A276-410
17	Packing I	S.S BRAIDED GRAPHITE
18	Packing II	FLEXIBLE GRAPHITE
19	Gland Flange Seat	ASTM A182 F6
20	Gland	ASTM A276-410
21	Gland Flange	CARBON STEEL
22	Gland Eyebolt	ASTM A193 GR B7
23	Gland Eyebolt Nut	ASTM A194 GR 2H
24	Yoke Gear Stud	ASTM A193 GR B7
25	Stem Nut	ASTM A439-D2

DIMENSIONS AND WEIGHTS (MM):

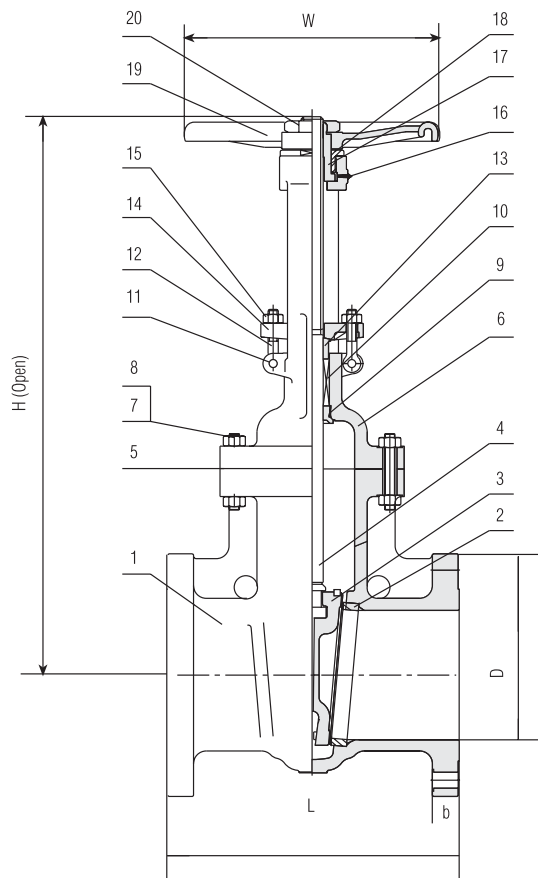
NOM SIZE	2	3	4	6	8	10	12	14	16
L RF	451	478	673	917	1022	1270	--	--	--
L1 B W	279	368	457	610	762	914	1041	1118	1245
H	610	753	850	1254	1374	1685	1752	1879	1981
W	500	500	600	G0	G0	G0	G0	G0	G0
Wt (Kg)	88	135	215	550	900	1600	2300	3200	4100



CLASS 150 ANSI NRS GATE VALVES

APPLICABLE STANDARDS:

- ◆ Basic Design: ANSI B16.34, API 600, BS 1414
- ◆ Face To Face / End To End: ANSI B16.10;
- ◆ End Flanges:
2"-16": ANSI B16.5
- ◆ Butt Weld Ends: ANSI B16.25



BILL OF MATERIAL AND PARTS:

Item	Part	Material
1	Body	ASTM A216 GR WCB
2	Seat Ring	ASTM A105
3	Gate	ASTM A216 WCB+13%Cr
4	Stem	ASTM A182 GR F6
5	Stem Nut	ASTM A439 GR D2
6	Bonnet Bolt Nut	ASTM A194 GR 2H
7	Bonnet Bolt	ASTM A193 GR B7
8	Gasket	SOFT IRON
9	Bonnet	ASTM A216 GR WCB
10	Bonnet Bushing	ASTM A182 GR F6
11	Packing	Flexible Graphite
12	Gland	ASTM A182 GR F6
13	Gland Flange	ASTM A216 GR WCB
14	Eye Bolt Nut	ASTM A307 GR B
15	Eye Bolt	ASTM A194 GR 2H
16	Handwheel	MALLEABLE IRON
17	Washer	CARBON STEEL
18	Handwheel Nut	CARBON STEEL
19	Eye Bolt Pin	CARBON STEEL

DIMENSIONS AND WEIGHTS:

NOM SIZE	2	3	4	6	8	10	12	14
L (MM)	178	203.2	229	266.7	292.1	330.2	356	381
H (MM)	427	385	446	568	710	785	980	1225
W (MM)	200	250	300	350	350	400	450	500
Wt (Kg)	19	31	50	83	139	194	291	400



CLASS 150 ANSI GLOBE VALVES

APPLICABLE STANDARDS:

- ◆ BASIC DESIGN: BS1873
- ◆ FACE TO FACE / END TO END: ANSI B16.10;
- ◆ END FLANGES:
2" - 24": ANSI B16.5
- ◆ BUTT WELD ENDS: ANSI B16.25

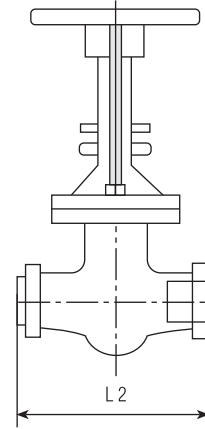
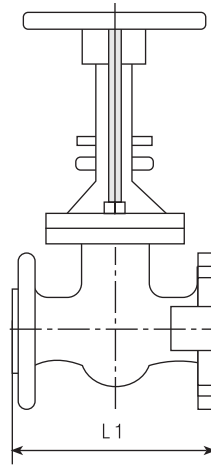
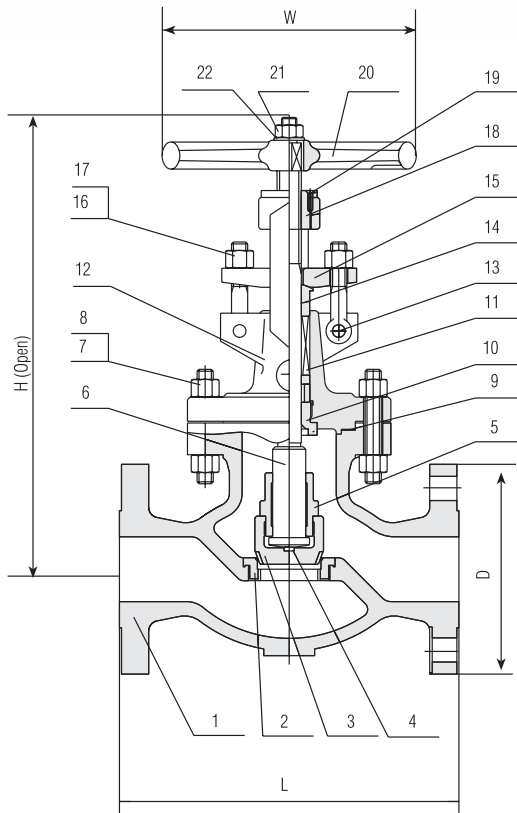


DIMENSIONS AND WEIGHTS: *Gear Operated

NOM SIZE	L/L2 RF BW		L1 RTJ		D		b		H Open		W	Wt
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	MM	Kgs
2	8.00	203	8.50	216	6.00	152.4	0.62	16	16.12	410	200	22
2 1/2	8.50	216	9.00	229	7.00	177.8	0.69	18	17.00	432	200	30
3	9.50	241	10.0	254	7.50	190.5	0.75	19	17.68	450	250	42
4	11.5	292	12.0	305	9.00	228.6	0.94	24	19.68	500	250	60
5	14.0	356	14.5	368	10.0	254.0	0.94	24	21.19	538	300	77
6	16.0	406	16.5	419	11.0	279.4	1.00	25	21.62	550	350	101
8	19.5	495	20.0	508	13.5	342.9	1.12	28	24.43	620	400	161
10	24.5	622	25.0	635	16.0	406.4	1.19	30	30.0	762	750	308
12	27.5	698	28.0	711	19.0	482.6	1.25	32	33.88	860	750	410
14*	31.0	787	31.50	800	21.0	533.4	1.38	35	56.0	1442	G0	610
16*	36.0	914	36.50	927	23.5	596.9	1.44	37	64.0	1625	G0	880
18*	38.5	977	38.98	990	25.0	635.0	1.56	40	71.18	1820	G0	1150
20*	38.5	977	38.98	990	27.5	698.5	1.69	43	79.64	2023	G0	1650
24*	51.0	1295	51.50	1308	32.0	812.8	1.88	48	87.72	2228	G0	2200



CLASS 150 ANSI GLOBE VALVES



BILL OF MATERIAL AND PARTS:

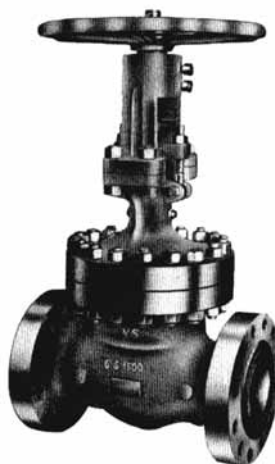
Part No.	Part Name	ASTM Specifications (Specs. - Grades/Types)				
		A216	A352	A217		A351
		WCB	LCC	WC6	C5	CF8M
1	Body	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
2	Seat Ring	A105, LF2, 316 OR 304				
	Seat Ring Surface	13CR, HF(STELLITE), 316, 304, Monel				
3	Disc	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
	Disc Sealing Surface	13CR, HF(STELLITE), 316, 304, Monel				
4	Disc Trust Plate	13CR, 316 OR 304				
5	Disc Nut	13CR, 316 OR 304				
6	Stem	13CR, 316 OR 304, 17 - 4PH, Monel				
7	Bonnet Bolt Nut	A194 - 2H	A194 - 4	A194 - 2H	A194 - 4	A194 - 8
8	Bonnet Bolt	A193 - B7	A320 - L7	A193 - B7	A193 - B16	A193 - B8
9	Gasket	Soft Iron, Spiral Wood				
10	Bonnet Bushing	13Cr, 316 OR 304				
11	Gland Packing	Braided Graphite & Die Formed Graphite Ring				
12	Bonnet	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
13	Eye Bolt Pins	13Cr, 316 OR 304				
14	Gland	13Cr, 316 OR 304				
15	Gland Flange	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
16	Gland Eye Bolts	A193 - B7	A320 - L7M	A193 - B7/A193 - B16		A193 - B8
17	Eye Bolt Nuts	A194 - 2H	A194 - 4	A194 - 2H		A194 - 8
18	Yoke Sleeve	ASTM A439 GR D2C				
19	Screw	Carbon Steel				
20	Handwheel	Malleable Iron				
21	Handwheel Nut	Carbon Steel				
22	Backing Ring	Carbon Steel				



CLASS 300 ANSI GLOBE VALVES

APPLICABLE STANDARDS:

- ◆ BASIC DESIGN: BS1873
- ◆ FACE TO FACE / END TO END: ANSI B16.10;
- ◆ END FLANGES:
2" - 16": ANSI B16.5
- ◆ BUTT WELD ENDS: ANSI B16.25

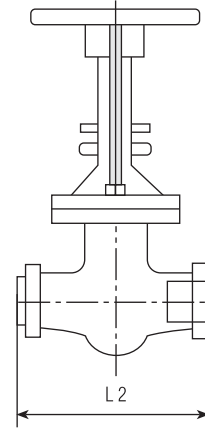
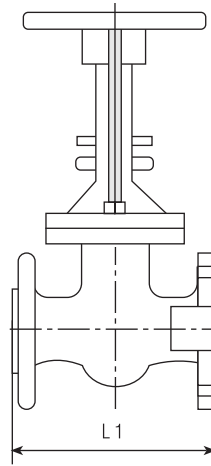
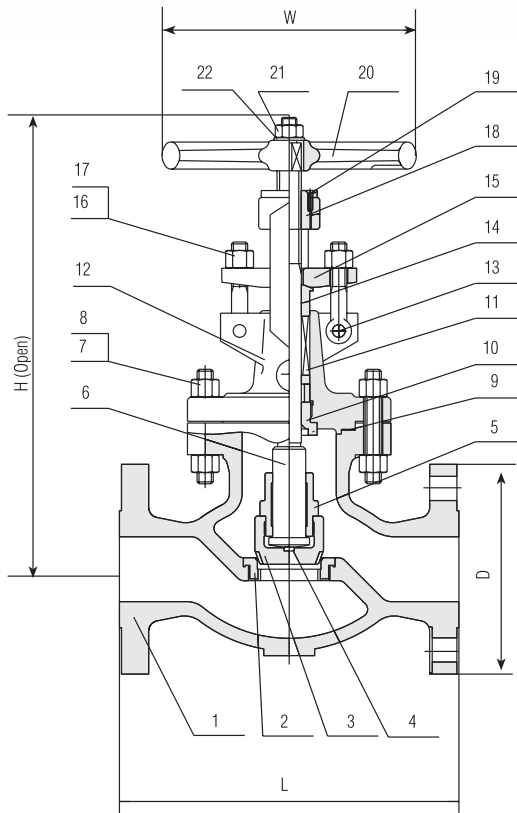


DIMENSIONS AND WEIGHTS: *Gear Operated

NOM SIZE	L/L2 RF BW		L1 RTJ		D		b		H Open		W	Wt
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	MM	Kgs
2	10.5	267	11.13	282	6.50	165.1	0.87	22.2	16.56	420	200	31
2 1/2	11.5	292	12.13	308	7.50	190.5	1.00	25.4	17.13	435	200	40
3	12.5	318	13.13	333	8.25	209.5	1.13	28.6	17.68	450	250	58
4	14.0	356	14.63	371	10.0	254.0	1.25	31.7	20.5	520	250	86
5	15.75	400	16.38	416	33.8	279.4	1.37	34.9	23.38	620	400	130
6	17.5	446	18.13	460	12.5	317.5	1.44	36.5	25.56	650	350	150
8	22.0	559	22.63	575	15.0	381.0	1.63	41.3	31.5	800	400	397
10	24.5	622	25.13	638	17.5	444.5	1.87	47.6	41.0	1040	500	527
12	28.0	711	28.63	727	20.5	520.7	2.00	50.8	44.88	1140	600	608
14*	33.0	838	33.62	854	23.0	584.2	2.13	54.0	50.59	1285	G0	630
16*	34.0	863	34.61	879	25.5	647.7	2.25	57.1	56.30	1430	G0	880



CLASS 300 ANSI GLOBE VALVES



BILL OF MATERIAL AND PARTS:

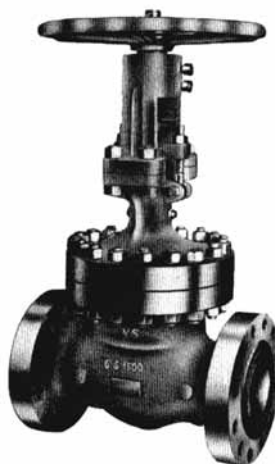
Part No.	Part Name	ASTM Specifications (Specs. - Grades/Types)				
		A216	A352	A217		A351
		WCB	LCC	WC6	C5	CF8M
1	Body	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
2	Seat Ring	A105, LF2, 316 OR 304				
	Seat Ring Surface	13CR, HF(STELLITE), 316, 304, Monel				
3	Disc	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
	Disc Sealing Surface	13CR, HF(STELLITE), 316, 304, Monel				
4	Disc Trust Plate	13CR, 316 OR 304				
5	Disc Nut	13CR, 316 OR 304				
6	Stem	13CR, 316 OR 304, 17 - 4PH, Monel				
7	Bonnet Bolt Nut	A194 - 2H	A194 - 4	A194 - 2H	A194 - 4	A194 - 8
8	Bonnet Bolt	A193 - B7	A320 - L7	A193 - B7	A193 - B16	A193 - B8
9	Gasket	Soft Iron, Spiral Wood				
10	Bonnet Bushing	13Cr, 316 OR 304				
11	Gland Packing	Braided Graphite & Die Formed Graphite Ring				
12	Bonnet	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
13	Eye Bolt Pins	13Cr, 316 OR 304				
14	Gland	13Cr, 316 OR 304				
15	Gland Flange	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
16	Gland Eye Bolts	A193 - B7	A320 - L7M	A193 - B7/A193 - B16		A193 - B8
17	Eye Bolt Nuts	A194 - 2H	A194 - 4	A194 - 2H		A194 - 8
18	Yoke Sleeve	ASTM A439 GR D2C				
19	Screw	Carbon Steel				
20	Handwheel	Malleable Iron				
21	Handwheel Nut	Carbon Steel				
22	Backing Ring	Carbon Steel				



CLASS 600 ANSI GLOBE VALVES

APPLICABLE STANDARDS:

- ◆ BASIC DESIGN: BS1873
- ◆ FACE TO FACE / END TO END: ANSI B16.10;
- ◆ END FLANGES:
2" - 12": ANSI B16.5
- ◆ BUTT WELD ENDS: ANSI B16.25

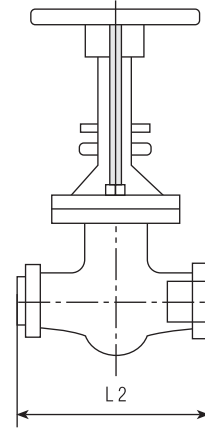
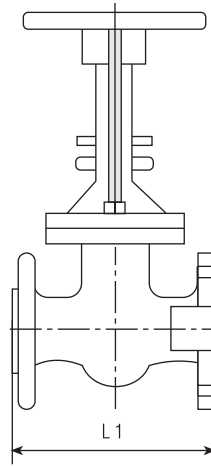
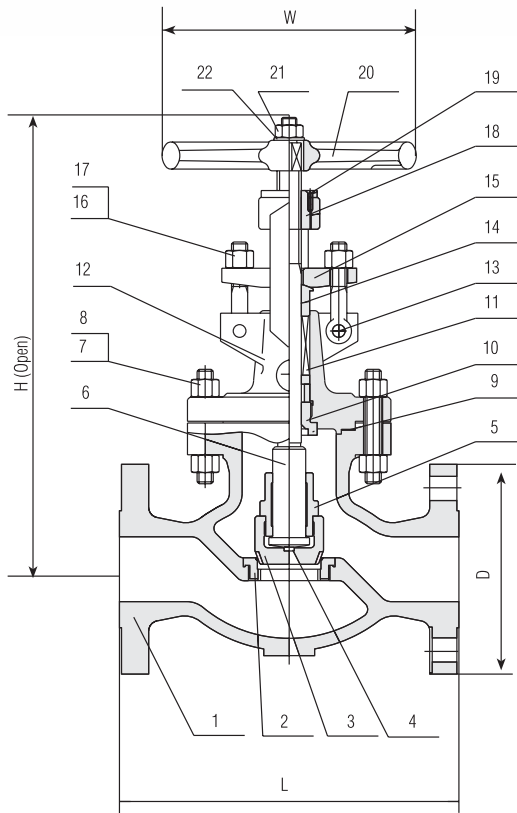


DIMENSIONS AND WEIGHTS: *Gear Operated

NOM SIZE	L/L2 RF BW		L1 RTJ		D		b		H Open		W	Wt
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	MM	Kgs
2	11.50	292	11.63	295	6.50	165.1	1.00	25.4	16.75	425	250	57
2 1/2	13.00	330	13.13	333	7.50	190.5	1.13	28.6	19.75	502	300	73
3	14.00	356	14.13	359	8.25	209.5	1.25	31.7	20.50	521	350	89
4	17.00	432	17.13	435	10.75	273.0	1.50	38.1	24.38	620	450	149
6	22.00	559	22.13	562	14.00	355.6	1.88	47.6	34.88	886	560	417
8	26.00	660	26.13	663	16.50	419.1	2.19	55.6	36.69	932	630	542
10*	31.00	788	31.13	790	20.00	508.0	2.50	63.5	41.0	1040	G0	700
12*	33.00	838	33.13	841	22.00	558.8	2.62	66.7	50.38	1280	G0	900



CLASS 600 ANSI GLOBE VALVES



BILL OF MATERIAL AND PARTS:

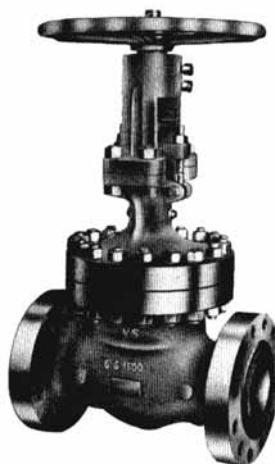
Part No.	Part Name	ASTM Specifications (Specs. - Grades/Types)				
		A216	A352	A217		A351
		WCB	LCC	WC6	C5	CF8M
1	Body	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
2	Seat Ring	A105, LF2, 316 OR 304				
	Seat Ring Surface	13CR, HF(STELLITE), 316, 304, Monel				
3	Disc	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
	Disc Sealing Surface	13CR, HF(STELLITE), 316, 304, Monel				
4	Disc Trust Plate	13CR, 316 OR 304				
5	Disc Nut	13CR, 316 OR 304				
6	Stem	13CR, 316 OR 304, 17 - 4PH, Monel				
7	Bonnet Bolt Nut	A194 - 2H	A194 - 4	A194 - 2H	A194 - 4	A194 - 8
8	Bonnet Bolt	A193 - B7	A320 - L7	A193 - B7	A193 - B16	A193 - B8
9	Gasket	Ring Joint-Iron				
10	Bonnet Bushing	13Cr, 316 OR 304				
11	Gland Packing	Braided Graphite & Die Formed Graphite Ring				
12	Bonnet	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
13	Eye Bolt Pins	13Cr, 316 OR 304				
14	Gland	13Cr, 316 OR 304				
15	Gland Flange	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
16	Gland Eye Bolts	A193 - B7	A320 - L7M	A193 - B7/A193 - B16		A193 - B8
17	Eye Bolt Nuts	A194 - 2H	A194 - 4	A194 - 2H		A194 - 8
18	Yoke Sleeve	ASTM A439 GR D2C				
19	Screw	Carbon Steel				
20	Handwheel	Malleable Iron				
21	Handwheel Nut	Carbon Steel				
22	Backing Ring	Carbon Steel				



CLASS 900 ANSI GLOBE VALVES

APPLICABLE STANDARDS:

- ◆ BASIC DESIGN: BS1873
- ◆ FACE TO FACE / END TO END: ANSI B16.10;
- ◆ END FLANGES:
2" - 12": ANSI B16.5
- ◆ BUTT WELD ENDS: ANSI B16.25

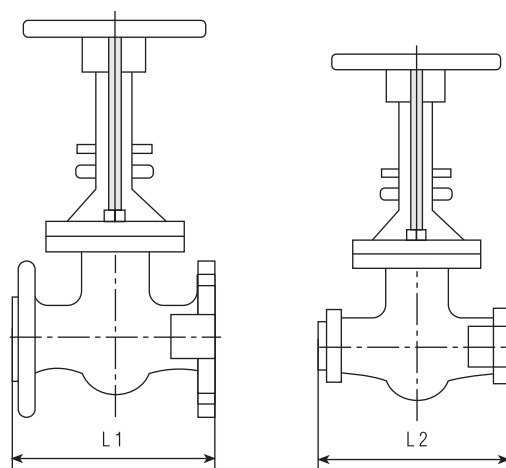
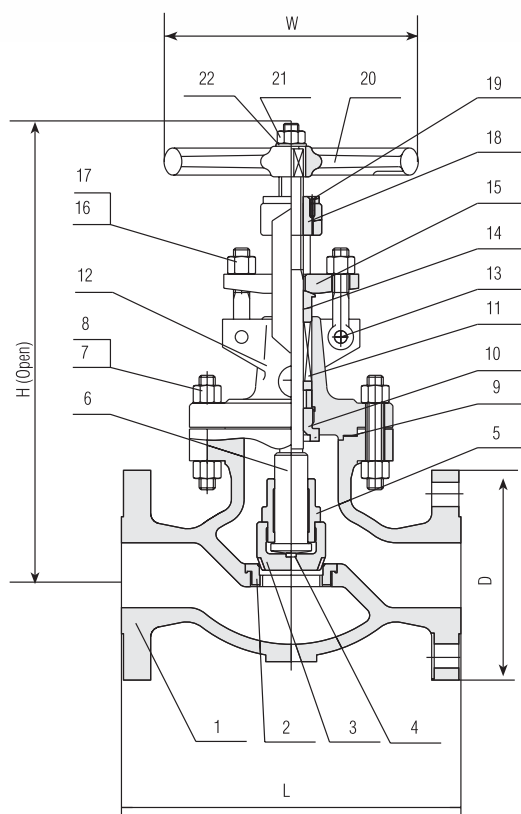


DIMENSIONS AND WEIGHTS: *Gear Operated

NOM SIZE	L/L2 RF BW		L1 RTJ		D		b		H Open		W	Wt
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	MM	Kgs
2	14.50	368	14.63	371	8.50	215.9	1.50	38.1	23.63	600	300	87
2 1/2	16.50	419	16.63	422	9.63	244.5	1.63	41.3	26.00	660	350	130
3	15.00	381	15.13	384	9.50	241.3	1.50	38.1	28.13	665	350	122
4	18.00	457	18.13	460	11.50	292.1	1.75	44.4	31.50	800	500	182
6	24.00	610	24.13	613	15.00	381.0	2.19	55.6	40.00	1015	600	434
8	29.00	737	29.13	740	18.50	469.9	2.50	63.5	45.13	1145	600	730
10*	33.0	838	3.15	842	21.50	546.1	2.75	69.8	50.31	1278	G0	1231
12*	38.00	965	38.22	971	24.00	609.6	3.12	79.4	55.55	1411	G0	1568



CLASS 900 ANSI GLOBE VALVES



BILL OF MATERIAL AND PARTS:

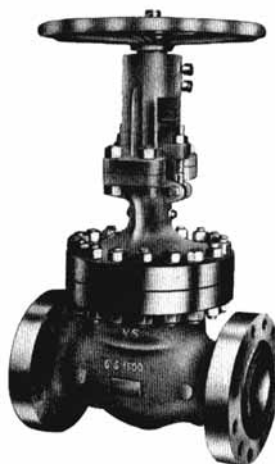
Part No.	Part Name	ASTM Specifications (Specs. - Grades/Types)				
		A216	A352	A217		A351
		WCB	LCC	WC6	C5	CF8M
1	Body	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
2	Seat Ring	A105, LF2, 316 OR 304				
	Seat Ring Surface	13CR, HF(STELLITE), 316, 304, Monel				
3	Disc	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
	Disc Sealing Surface	13CR, HF(STELLITE), 316, 304, Monel				
4	Disc Trust Plate	13CR, 316 OR 304				
5	Disc Nut	13CR, 316 OR 304				
6	Stem	13CR, 316 OR 304, 17 - 4PH, Monel				
7	Bonnet Bolt Nut	A194 - 2H	A194 - 4	A194 - 2H	A194 - 4	A194 - 8
8	Bonnet Bolt	A193 - B7	A320 - L7	A193 - B7	A193 - B16	A193 - B8
9	Gasket	Ring Joint-Iron				
10	Bonnet Bushing	13Cr, 316 OR 304				
11	Gland Packing	Braided Graphite & Die Formed Graphite Ring				
12	Bonnet	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
13	Eye Bolt Pins	13Cr, 316 OR 304				
14	Gland	13Cr, 316 OR 304				
15	Gland Flange	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
16	Gland Eye Bolts	A193 - B7	A320 - L7M	A193 - B7/A193 - B16		A193 - B8
17	Eye Bolt Nuts	A194 - 2H	A194 - 4	A194 - 2H		A194 - 8
18	Yoke Sleeve	ASTM A439 GR D2C				
19	Screw	Carbon Steel				
20	Handwheel	Malleable Iron				
21	Handwheel Nut	Carbon Steel				
22	Backing Ring	Carbon Steel				



CLASS 1500 ANSI GLOBE VALVES

APPLICABLE STANDARDS:

- ◆ BASIC DESIGN: BS1873
- ◆ FACE TO FACE / END TO END: ANSI B16.10;
- ◆ END FLANGES:
2" - 12": ANSI B16.5
- ◆ BUTT WELD ENDS: ANSI B16.25

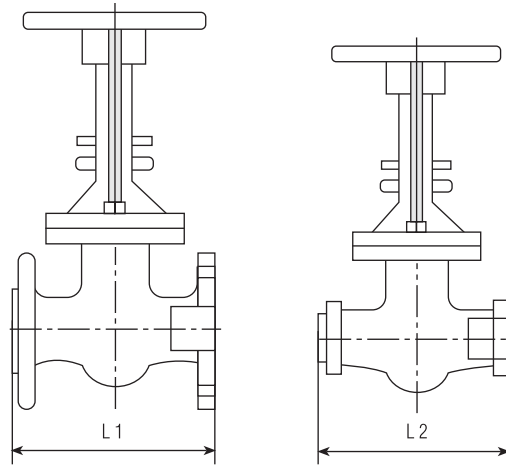
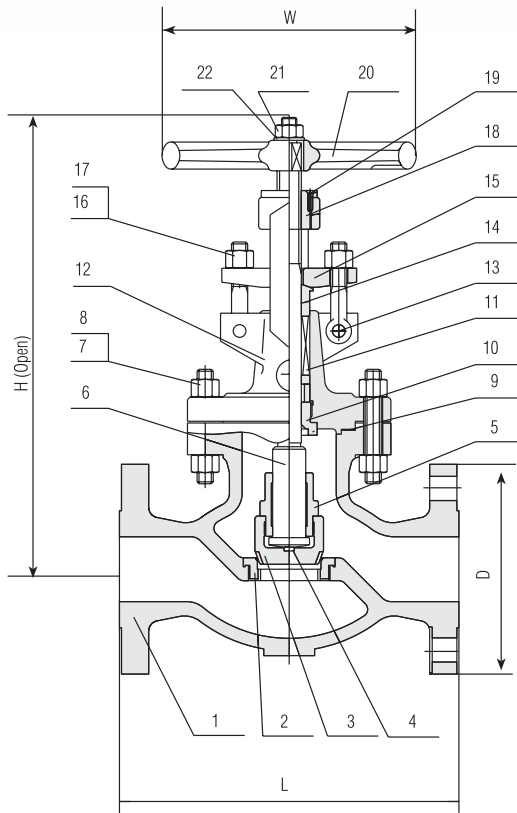


DIMENSIONS AND WEIGHTS: *Gear Operated

NOM SIZE	L/L2 RF BW		L1 RTJ		D		b		H Open		W	Wt
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	MM	Kgs
2	14.50	368	14.62	371	8.50	215.9	1.50	38.1	21.50	546	320	87
2 1/2	16.50	419	16.60	422	9.63	244.5	1.63	41.3	23.20	589	350	168
3	18.50	470	18.62	473	10.50	266.7	1.87	47.6	28.00	711	440	250
4	21.50	546	21.62	549	12.25	311.1	2.13	54.0	28.25	718	500	435
6	27.75	705	27.87	708	15.50	393.7	3.25	82.5	35.04	890	630	540
8*	32.75	832	32.87	835	19.00	482.6	3.63	92.1	48.82	1240	GO	970
10*	39.00	991	39.12	994	23.00	584.2	4.25	107.9	65.00	1651	GO	1520
12*	44.50	1130	44.62	1133	26.50	673.1	4.87	123.8	73.62	1870	GO	1960



CLASS 1500 ANSI GLOBE VALVES



BILL OF MATERIAL AND PARTS:

Part No.	Part Name	ASTM Specifications (Specs. - Grades/Types)				
		A216	A352	A217		A351
		WCB	LCC	WC6	C5	CF8M
1	Body	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
2	Seat Ring	A105, LF2, 316 OR 304				
	Seat Ring Surface	13CR, HF(STELLITE), 316, 304, Monel				
3	Disc	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
	Disc Sealing Surface	13CR, HF(STELLITE), 316, 304, Monel				
4	Disc Trust Plate	13CR, 316 OR 304				
5	Disc Nut	13CR, 316 OR 304				
6	Stem	13CR, 316 OR 304, 17 - 4PH, Monel				
7	Bonnet Bolt Nut	A194 - 2H	A194 - 4	A194 - 2H	A194 - 4	A194 - 8
8	Bonnet Bolt	A193 - B7	A320 - L7	A193 - B7	A193 - B16	A193 - B8
9	Gasket	Ring Joint-Iron				
10	Bonnet Bushing	13Cr, 316 OR 304				
11	Gland Packing	Braided Graphite & Die Formed Graphite Ring				
12	Bonnet	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
13	Eye Bolt Pins	13Cr, 316 OR 304				
14	Gland	13Cr, 316 OR 304				
15	Gland Flange	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
16	Gland Eye Bolts	A193 - B7	A320 - L7M	A193 - B7/A193 - B16		A193 - B8
17	Eye Bolt Nuts	A194 - 2H	A194 - 4	A194 - 2H		A194 - 8
18	Yoke Sleeve	ASTM A439 GR D2C				
19	Screw	Carbon Steel				
20	Handwheel	Malleable Iron				
21	Handwheel Nut	Carbon Steel				
22	Backing Ring	Carbon Steel				

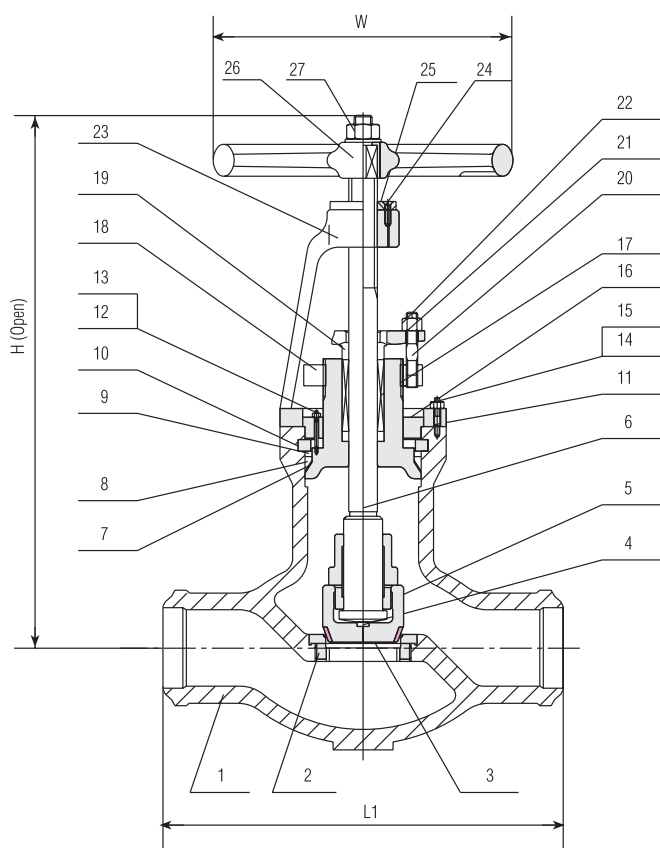


CLASS 600 ANSI GLOBE VALVES - PRESSURE SEAL

APPLICABLE STANDARDS:

- ◆ Basic Design: BS 1873
- ◆ Face to Face / End To End: ANSI B16.10;
- ◆ End Flanges: ANSI B16.5
- ◆ Butt Weld Ends: ANSI B16.25

BILL OF MATERIAL AND PARTS:



Item	Part Name	Material
1	Body	ASTM A216 WCB
2	Seat Ring	ASTM A105+HF
3	Disc	ASTM A216 WCB+HF
4	Disc Thrust Plate	ASTM A276 Type 410
5	Disc Nut	ASTM A276 Type 410
6	Stem	ASTM A182 F6
7	Stuffing Box	ASTM A216 WCB
8	Sealing Ring	ASTM A276 Type 304
9	Pressure Ring	ASTM A276 Type 420
10	Segment Ring	ASTM A276 Type 410
11	Support Plate	ASTM A216 WCB
12	Box-Plate Bolt	ASTM A193 GR B7
13	Box-Plate Nut	ASTM A194 GR 2H
14	Bonnet-Plate Bolt	ASTM A193 GR B7
15	Bonnet-Plate Nut	ASTM A194 GR 2H
16	Lantern Ring	ASTM A276-410
17	Packing	S.S BRAIDED GRAPHITE
18	Gland Flange Seat	ASTM A182 F6
19	Gland	ASTM A276-410
20	Gland Eyebolt	ASTM A193 GR B7
21	Gland Flange	CARBON STEEL
22	Gland Eyebolt Nut	ASTM A194 GR 2H
23	Bonnet	ASTM A216 WCB
24	Screw	CARBON STEEL
25	Yoke Sleeve	ASTM A439-D2
26	Handwheel	MALLEABLE IRON
27	Handwheel Nut	CARBON STEEL

DIMENSIONS AND WEIGHTS (MM):

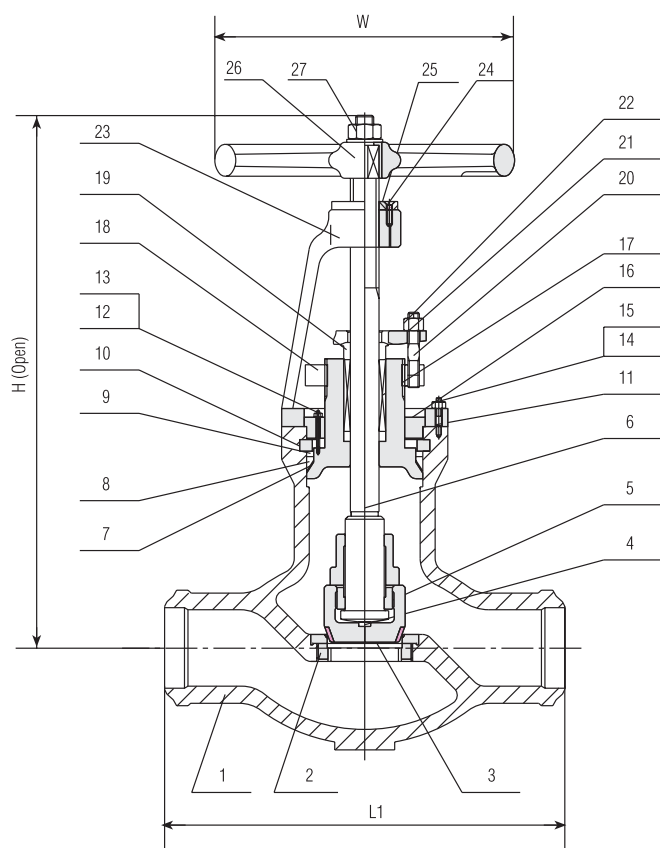
NOM SIZE	2	3	4	6	8	10	12
L RF	292	355	431	558	660	787	838
L1 BW	178	254	304	457	584	711	812
H	425	546	685	939	1092	1270	1570
W	300	355	457	G0	G0	G0	G0
Wt (Kg)	69	80	135	275	480	780	1150



CLASS 900 ANSI GLOBE VALVES - PRESSURE SEAL

APPLICABLE STANDARDS:

- ◆ Basic Design: BS 1873
- ◆ Face to Face / End To End: ANSI B16.10;
- ◆ End Flanges: ANSI B16.5
- ◆ Butt Weld Ends: ANSI B16.25



BILL OF MATERIAL AND PARTS:

Item	Part Name	Material
1	Body	ASTM A216 WCB
2	Seat Ring	ASTM A105+HF
3	Disc	ASTM A216 WCB+HF
4	Disc Thrust Plate	ASTM A276 Type 410
5	Disc Nut	ASTM A276 Type 410
6	Stem	ASTM A182 F6
7	Stuffing Box	ASTM A216 WCB
8	Sealing Ring	ASTM A276 Type 304
9	Pressure Ring	ASTM A276 Type 420
10	Segment Ring	ASTM A276 Type 410
11	Support Plate	ASTM A216 WCB
12	Box-Plate Bolt	ASTM A193 GR B7
13	Box-Plate Nut	ASTM A194 GR 2H
14	Bonnet-Plate Bolt	ASTM A193 GR B7
15	Bonnet-Plate Nut	ASTM A194 GR 2H
16	Lantern Ring	ASTM A276-410
17	Packing	S.S BRAIDED GRAPHITE
18	Gland Flange Seat	ASTM A182 F6
19	Gland	ASTM A276-410
20	Gland Eyebolt	ASTM A193 GR B7
21	Gland Flange	CARBON STEEL
22	Gland Eyebolt Nut	ASTM A194 GR 2H
23	Bonnet	ASTM A216 WCB
24	Screw	CARBON STEEL
25	Yoke Sleeve	ASTM A439-D2
26	Handwheel	MALLEABLE IRON
27	Handwheel Nut	CARBON STEEL

DIMENSIONS AND WEIGHTS (MM):

NOM SIZE	2	3	4	6	8
L RF	368	381	457	609	736
L1 B W	368	304	355	508	660
H	435	685	838	1143	1422
W	300	355	500	G0	G0
Wt (Kg)	89	125	258	465	815

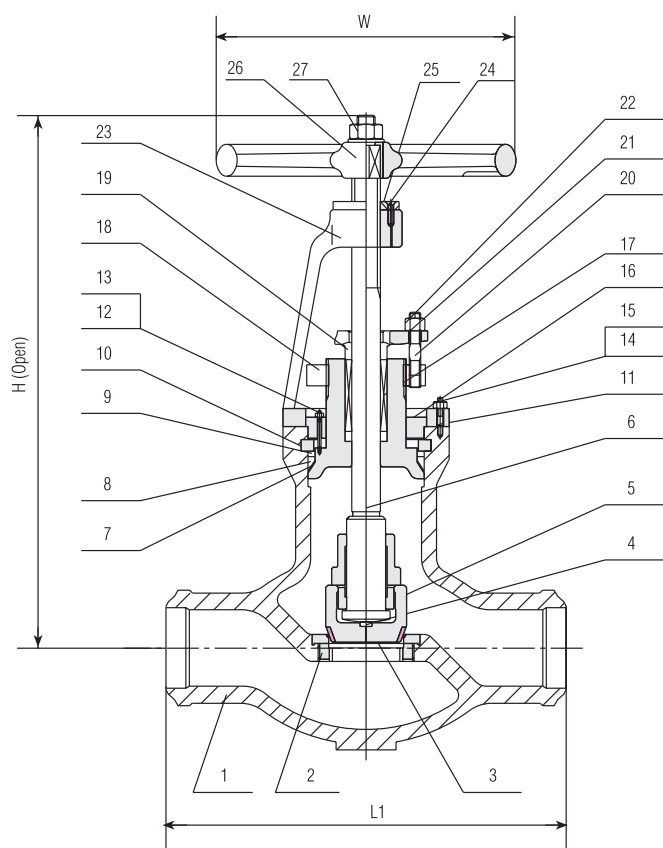


CLASS 1500 ANSI GLOBE VALVES - PRESSURE SEAL

APPLICABLE STANDARDS:

- ◆ Basic Design: BS 1873
- ◆ Face to Face / End To End: ANSI B16.10;
- ◆ End Flanges: ANSI B16.5
- ◆ Butt Weld Ends: ANSI B16.25

BILL OF MATERIAL AND PARTS:



Item	Part Name	Material
1	Body	ASTM A216 WCB
2	Seat Ring	ASTM A105+HF
3	Disc	ASTM A216 WCB+HF
4	Disc Thrust Plate	ASTM A276 Type 410
5	Disc Nut	ASTM A276 Type 410
6	Stem	ASTM A182 F6
7	Stuffing Box	ASTM A216 WCB
8	Sealing Ring	ASTM A276 Type 304
9	Pressure Ring	ASTM A276 Type 420
10	Segment Ring	ASTM A276 Type 410
11	Support Plate	ASTM A216 WCB
12	Box-Plate Bolt	ASTM A193 GR B7
13	Box-Plate Nut	ASTM A194 GR 2H
14	Bonnet-Plate Bolt	ASTM A193 GR B7
15	Bonnet-Plate Nut	ASTM A194 GR 2H
16	Lantern Ring	ASTM A276-410
17	Packing	S.S BRAIDED GRAPHITE
18	Gland Flange Seat	ASTM A182 F6
19	Gland	ASTM A276-410
20	Gland Eyebolt	ASTM A193 GR B7
21	Gland Flange	CARBON STEEL
22	Gland Eyebolt Nut	ASTM A194 GR 2H
23	Stem Block	ASTM A182 F6
24	Pin	ASTM A182 F6
25	Yoke	ASTM A216 WCB
26	Handwheel	MALLEABLE IRON
27	Handwheel Nut	CARBON STEEL

DIMENSIONS AND WEIGHTS (MM):

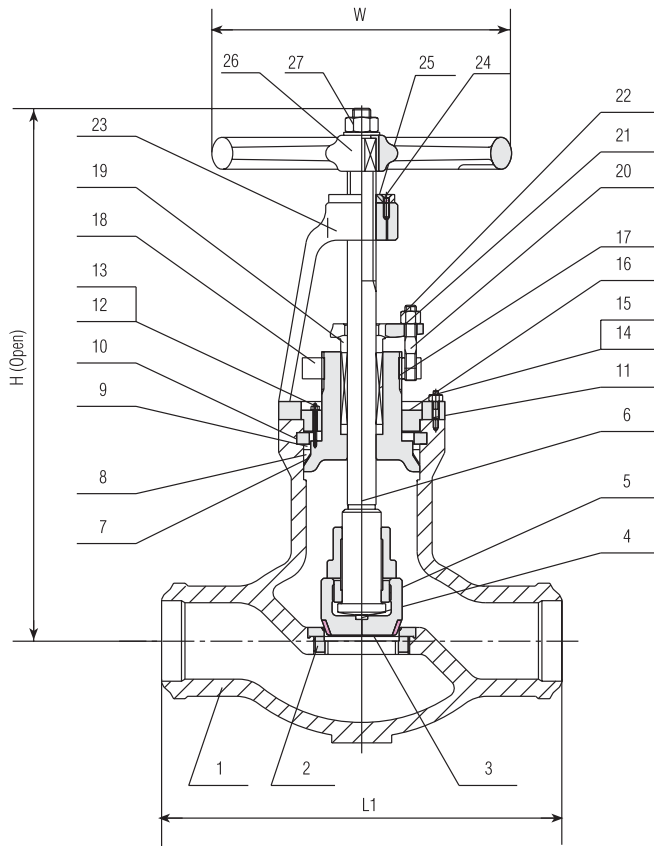
NOM SIZE	2	3	4	6	8
L1 BW	368	469	546	704	831
H	489	635	774	1092	1496
W	300	355	457	G0	G0
Wt (Kg)	62	98	161	412	656



CLASS 2500 ANSI GLOBE VALVES - PRESSURE SEAL

APPLICABLE STANDARDS:

- ◆ Basic Design: BS 1873
- ◆ Face to Face / End To End: ANSI B16.10;
- ◆ End Flanges: ANSI B16.5
- ◆ Butt Weld Ends: ANSI B16.25



BILL OF MATERIAL AND PARTS:

Item	Part Name	Material
1	Body	ASTM A216 WCB
2	Seat Ring	ASTM A105+HF
3	Disc	ASTM A216 WCB+HF
4	Disc Thrust Plate	ASTM A276 Type 410
5	Disc Nut	ASTM A276 Type 410
6	Stem	ASTM A182 F6
7	Stuffing Box	ASTM A216 WCB
8	Sealing Ring	ASTM A276 Type 304
9	Pressure Ring	ASTM A276 Type 420
10	Segment Ring	ASTM A276 Type 410
11	Support Plate	ASTM A216 WCB
12	Box-Plate Bolt	ASTM A193 GR B7
13	Box-Plate Nut	ASTM A194 GR 2H
14	Bonnet-Plate Bolt	ASTM A193 GR B7
15	Bonnet-Plate Nut	ASTM A194 GR 2H
16	Lantern Ring	ASTM A276-410
17	Packing	S.S BRAIDED GRAPHITE
18	Gland Flange Seat	ASTM A182 F6
19	Gland	ASTM A276-410
20	Gland Eyebolt	ASTM A193 GR B7
21	Gland Flange	CARBON STEEL
22	Gland Eyebolt Nut	ASTM A194 GR 2H
23	Bonnet	ASTMA216 WCB
24	Screw	CARBON STEEL
25	Yoke Sleeve	ASTM A439-D2
26	Handwheel	MALLEABLE IRON
27	Handwheel Nut	CARBON STEEL

DIMENSIONS AND WEIGHTS (MM):

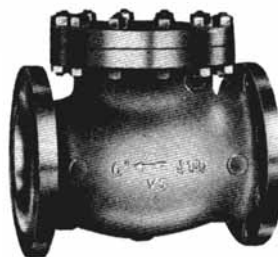
NOM SIZE	2	3	4	6	8
L1 BW	451	578	673	914	1022
H	560	755	1230	1791	2086
W	400	560	G0	G0	G0
Wt (Kg)	140	247	620	1500	3200



CLASS 150 ANSI SWING CHECK VALVES

APPLICABLE STANDARDS:

- ◆ BASIC DESIGN: BS1868;
- ◆ FACE TO FACE / END TO END: ANSI B16.10;
- ◆ END FLANGES:
 - 2" - 24": ANSI B16.5
 - 26" - 36": MSS-SP 44
- ◆ BUTT WELD ENDS: ANSI B16.25

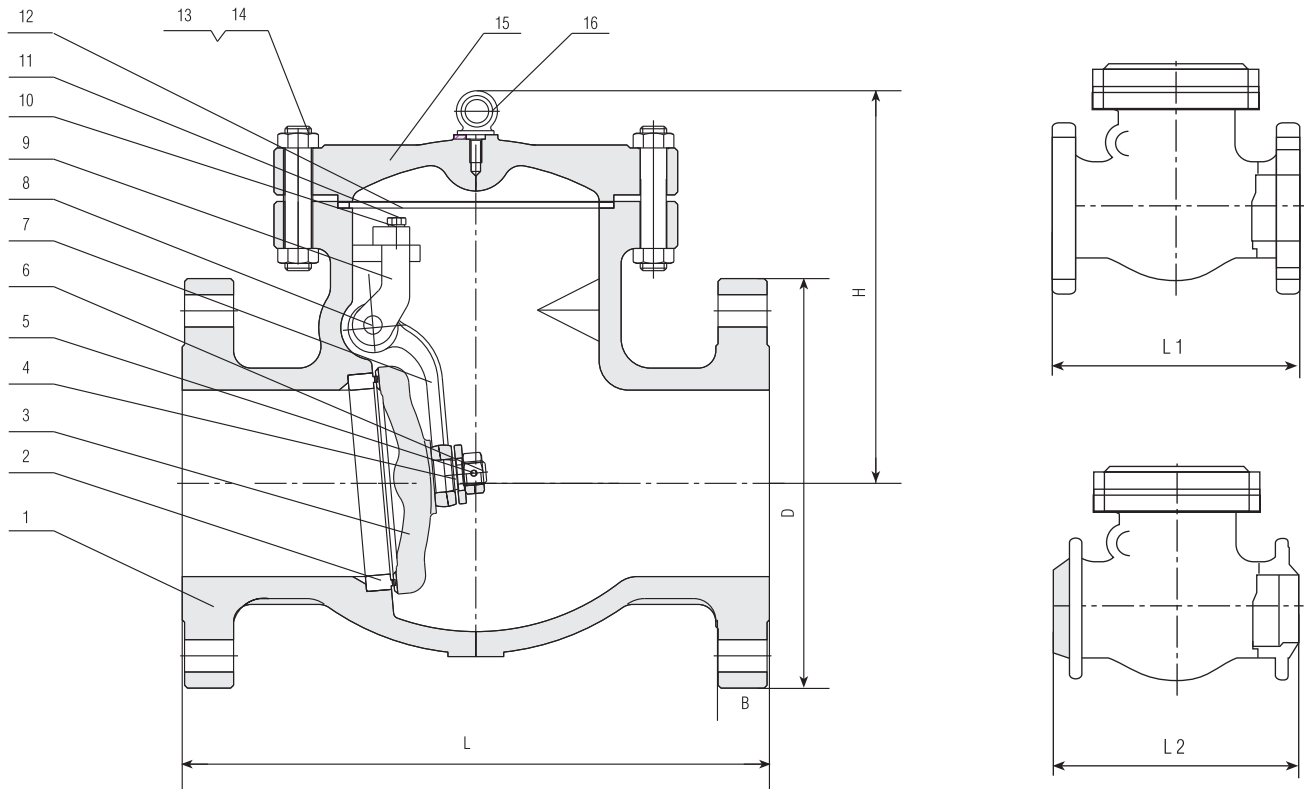


DIMENSIONS AND WEIGHTS:

NOM SIZE	L/L2 RF BW		L1 RTJ		D		B		H		Wt Kgs
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	
2	8.00	203	8.50	216	6.00	152.4	0.62	16	6.50	165	19
2 1/2	8.50	216	9.00	229	7.00	177.8	0.69	18	7.00	178	26
3	9.50	241	10 0	254	7.50	190.5	0.75	19	7.30	186	29
4	11.5	292	12.0	305	9.00	228.6	0.94	24	8.50	217	48
5	14.0	356	14.5	368	10.0	254.0	0.94	24	8.06	230	69
6	16.0	406	16.5	419	11.0	279.4	1.00	25	10.5	266	77
8	19.5	495	20.0	508	13.5	342.9	1.12	28	12.5	318	133
10	24.5	622	25.0	635	16.0	406.4	1.19	30	14.5	368	266
12	27.5	698	28.0	711	19.0	482.6	1.25	32	16.0	406	347
14	31.0	787	31.50	800	21.0	533.4	1.38	35	17.0	432	451
16	36.0	914	36.50	927	23.5	596.9	1.44	37	19.0	483	556
18	38.5	977	38.98	990	25.0	635.0	1.56	40	23.6	600	784
20	38.5	977	.8.98	990	27.5	698.5	1.69	43	26.0	660	835
24	51.0	1295	51.50	1308	32.0	812.8	1.88	48	29.1	740	1580
30	60.0	1524	60.5	1537	38.7	982.9	2.94	75	38.6	980	2120
36	77.0	1955	77.5	1968	46.0	1168	3.56	90	40.8	1035	3344



CLASS 150 ANSI SWING CHECK VALVES



BILL OF MATERIAL AND PARTS:

Part No.	Part Name	ASTM Specifications (Specs. - Grades/Types)				
		A216	A352	A217		A351
		WCB	LCC	WC6	C5	CF8M
1	Body	A216 - WCB	A352 - LCC	A217 - WC6	A217 - WC5	A351 - CF8M
2	Seat Ring	A105, 316 OR 304				
	Seat Ring Surface	13Cr, HF(STELLITE), 316 OR 304				
3	Seat Ring Surface	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
	Seat Ring Surface	13Cr, HF(STELLITE), 316 OR 304				
4	Washer	13Cr, 316 OR 304				
5	Pin	13Cr, 316 OR 304				
6	Disc Nut	13Cr, 316 OR 304				
7	Hinge	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
8	Hinge Pin	STAINLESS STEEL				
9	Bearing Bracket	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
10	Spring Washer	STAINLESS STEEL				
11	Hex Bolt	STAINLESS STEEL				
12	Gasket	Soft Iron, Spiral Wound				
13	Cover Bolt	A193 - B7	A320 - L7	A193 - B7/A193 - B16		A193 - B8
14	Cover Bolt Nut	A194 - 2H	A194 - 4	A194 - 2H / A194 - 8		A194 - 8
15	Cover	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
16	Eye Bolt	A181, 316 OR 304				



CLASS 300 ANSI SWING CHECK VALVES

APPLICABLE STANDARDS:

- ◆ BASIC DESIGN: BS1868;
- ◆ FACE TO FACE / END TO END: ANSI B16.10;
- ◆ END FLANGES:
 - 2" - 24": ANSI B16.5
 - 26" - 30": MSS-SP 44
- ◆ BUTT WELD ENDS: ANSI B16.25

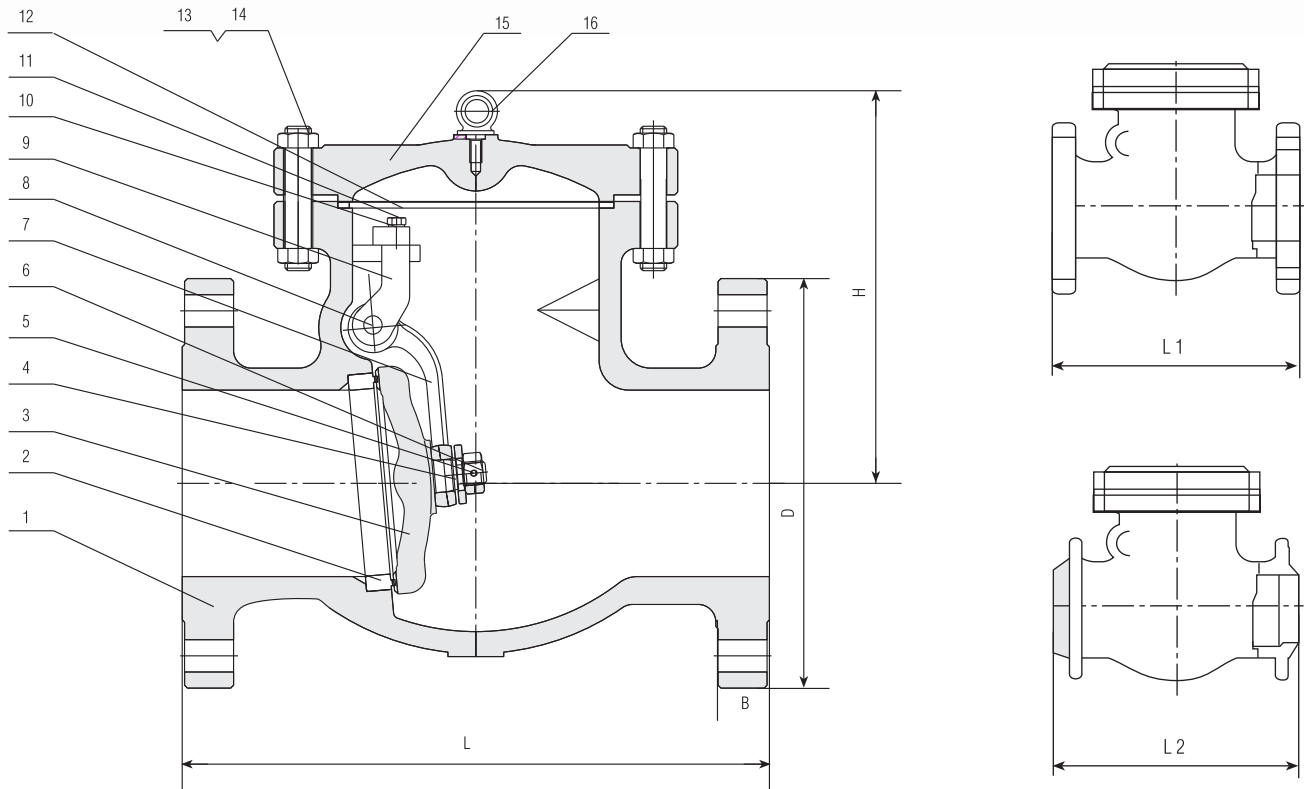


DIMENSIONS AND WEIGHTS:

NOM SIZE	L/L2 RF BW		L1 RTJ		D		B		H		Wt
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	Kgs
2	10.5	267	11.13	283	6.50	165.1	0.87	22.2	7.00	178	21
2 1/2	11.5	292	12.13	308	7.50	190.5	1.00	25.4	7.50	191	32
3	12.5	318	13.13	333	8.25	209.5	1.13	28.6	8.30	211	43
4	14.0	356	14.63	371	10.0	254.0	1.25	31.7	9.70	246	61
5	15.8	400	16.38	416	33.8	279.4	1.37	34.9	12.0	305	84
6	17.5	444	18.13	460	12.5	317.5	1.44	36.5	12.5	318	131
8	21.0	533	21.63	550	15.0	381.0	1.63	41.3	14.0	356	213
10	24.5	622	25.13	638	17.5	444.5	1.87	47.6	15.5	394	384
12	28.0	711	28.63	727	20.5	520.7	2.00	50.8	19.0	482	449
14	33.0	838	33.63	854	23.0	584.2	2.13	54.0	21.0	533	680
16	34.0	864	34.63	880	25.5	647.7	2.25	57.1	23.0	584	840
18	38.5	978	39.13	994	28.0	711.2	2.37	60.3	23.3	590	1025
20	40.5	1016	40.8	1035	30.5	774.7	2.50	63.5	24.2	614	1320
24	53.0	1346	53.8	1368	36.0	914.4	2.75	69.8	27.9	614	1960
30	62.8	1594	63.8	1619	43.0	1092.2	3.62	92.0	34.0	865	3270



CLASS 300 ANSI SWING CHECK VALVES



BILL OF MATERIAL AND PARTS:

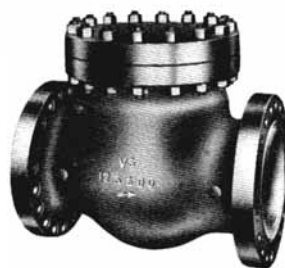
Part No.	Part Name	ASTM Specifications (Specs. - Grades/Types)				
		A216	A352	A217		A351
		WCB	LCC	WC6	C5	CF8M
1	Body	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
2	Seat Ring	A105, 316 OR 304				
	Seat Ring Surface	13Cr, HF(STELLITE), 316 OR 304				
3	Seat Ring Surface	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
	Seat Ring Surface	13Cr, HF(STELLITE), 316 OR 304				
4	Washer	13Cr, 316 OR 304				
5	Pin	13Cr, 316 OR 304				
6	Disc Nut	13Cr, 316 OR 304				
7	Hinge	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
8	Hinge Pin	STAINLESS STEEL				
9	Bearing Bracket	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
10	Spring Washer	STAINLESS STEEL				
11	Hex Bolt	STAINLESS STEEL				
12	Gasket	Soft Iron, Spiral Wound				
13	Cover Bolt	A193 - B7	A320 - L7	A193 - B7/A193 - B16		A193 - B8
14	Cover Bolt Nut	A194 - 2H	A194 - 4	A194 - 2H / A194 - 8		A194 - 8
15	Cover	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
16	Eye Bolt	A181, 316 OR 304				



CLASS 600 ANSI SWING CHECK VALVES

APPLICABLE STANDARDS:

- ◆ BASIC DESIGN: BS1868;
- ◆ FACE TO FACE / END TO END: ANSI B16.10;
- ◆ END FLANGES:
2" - 24": ANSI B16.5
- ◆ BUTT WELD ENDS: ANSI B16.25

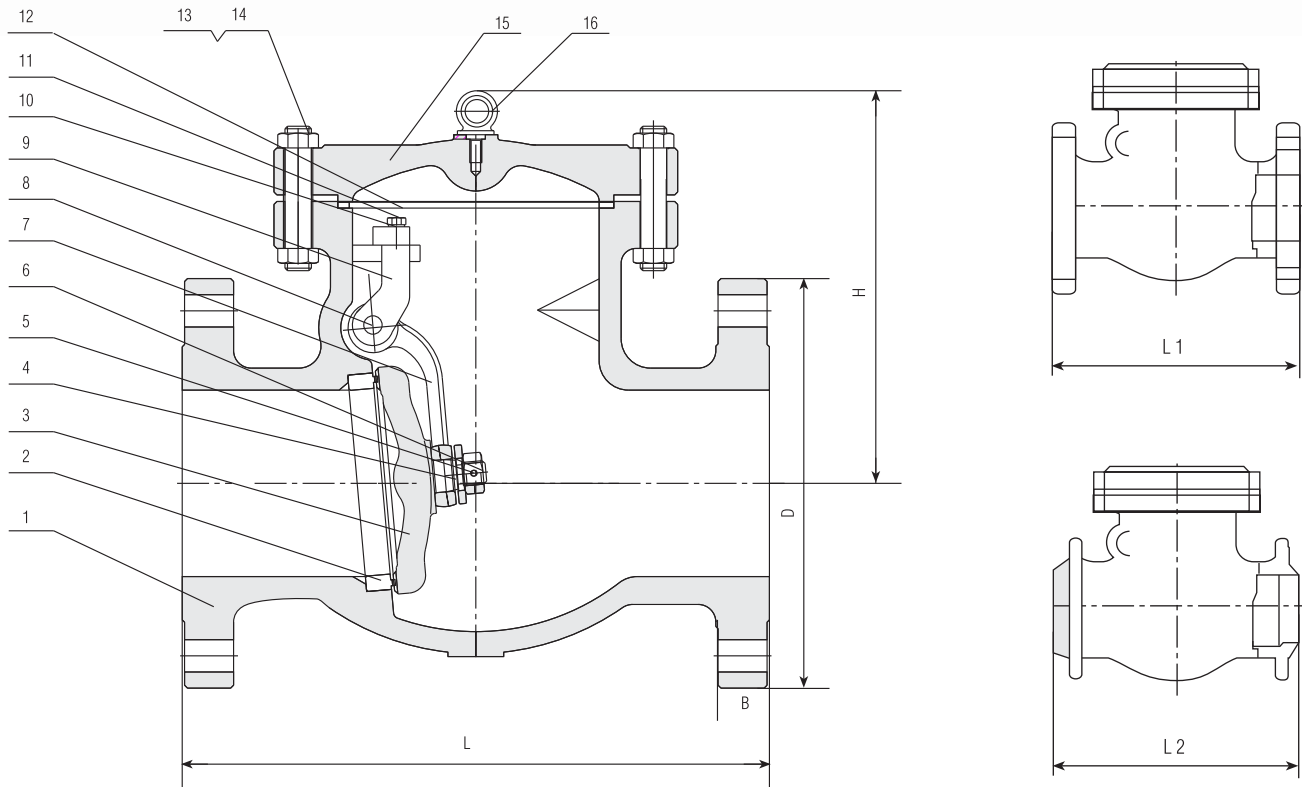


DIMENSIONS AND WEIGHTS:

NOM SIZE	L/L2 RF BW		L1 RTJ		D		B		H		Wt
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	Kgs
2	11.5	292	11.63	295	6.50	165.1	1.00	25.4	7.38	187	52
2½	13.0	330	13.13	333	7.50	190.5	1.13	28.6	8.50	216	63
3	14.0	356	14.13	359	8.25	209.5	1.25	31.7	10.95	278	75
4	17.0	432	17.13	435	10.75	273.0	1.50	38.1	12.44	316	122
6	22.0	559	22.13	562	14.00	355.6	1.88	47.6	15.75	400	227
8	26.0	660	26.13	664	16.50	419.1	2.19	55.6	17.0	432	346
10	31.0	788	31.13	791	20.00	508.0	2.50	63.5	19.0	483	628
12	33.0	838	33.13	841	22.00	558.8	2.62	66.7	20.0	508	796
14	35.0	889	35.13	892	23.75	603.2	2.75	69.8	22.5	572	892
16	39.0	990	39.13	994	27.00	685.8	3.00	76.2	26.0	660	1200
18	43.0	1092	43.13	1095	28.25	742.9	3.25	82.5	28.75	730	1600
20	47.0	1194	47.25	1200	32.00	812.8	3.50	88.9	31.5	800	2420
24	55.0	1397	55.38	1407	37.00	939.8	4.00	102.0	35.5	900	3150



CLASS 600 ANSI SWING CHECK VALVES



BILL OF MATERIAL AND PARTS:

Part No.	Part Name	ASTM Specifications (Specs. - Grades/Types)				
		A216	A352	A217		A351
		WCB	LCC	WC6	C5	CF8M
1	Body	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
2	Seat Ring	A105, 316 OR 304				
	Seat Ring Surface	13Cr, HF(STELLITE), 316 OR 304				
3	Seat Ring Surface	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
	Seat Ring Surface	13Cr, HF(STELLITE), 316 OR 304				
4	Washer	13Cr, 316 OR 304				
5	Pin	13Cr, 316 OR 304				
6	Disc Nut	13Cr, 316 OR 304				
7	Hinge	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
8	Hinge Pin	STAINLESS STEEL				
9	Bearing Bracket	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
10	Spring Washer	STAINLESS STEEL				
11	Hex Bolt	STAINLESS STEEL				
12	Gasket	Ring Joint - Iron				
13	Cover Bolt	A193 - B7	A320 - L7	A193 - B7/A193 - B16		A193 - B8
14	Cover Bolt Nut	A194 - 2H	A194 - 4	A194 - 2H / A194 - 8		A194 - 8
15	Cover	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
16	Eye Bolt	A181, 316 OR 304				



CLASS 900 ANSI SWING CHECK VALVES

APPLICABLE STANDARDS:

- ◆ BASIC DESIGN: BS1868;
- ◆ FACE TO FACE / END TO END: ANSI B16.10;
- ◆ END FLANGES:
2" - 16": ANSI B16.5
- ◆ BUTT WELD ENDS: ANSI B16.25

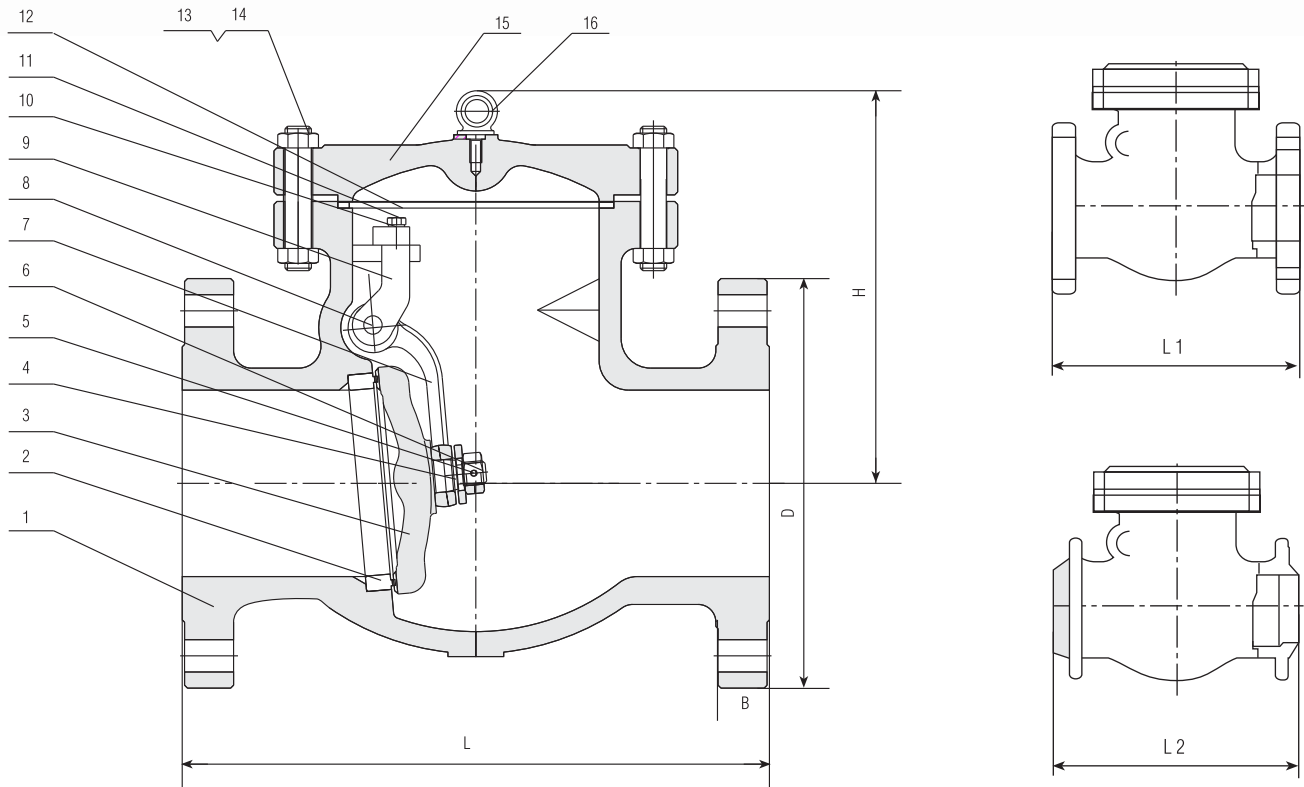


DIMENSIONS AND WEIGHTS:

NOM SIZE	L/L2 RF BW		L1 RTJ		D		b		H		Wt
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	Kgs
2	14.5	368	14.63	371	8.50	215.9	1.50	38.1	9.88	250	69
2½	16.5	419	16.63	422	9.63	244.5	1.63	41.3	10.6	270	93
3	15.0	381	15.13	384	9.50	241.3	1.50	38.1	9.13	230	85
4	18.0	457	18.13	460	11.50	292.1	1.75	44.4	12.3	310	145
6	24.0	610	24.13	613	15.00	381.0	2.19	55.6	14.3	360	310
8	29.0	737	29.13	740	18.50	469.9	2.50	63.5	17.0	430	500
10	33.0	838	33.13	841	21.50	546.1	2.75	69.8	18.9	480	772
12	38.0	965	38.13	968	24.00	609.6	3.12	79.4	22.0	560	1080
14	40.5	1029	40.88	1038	25.25	641.2	3.38	85.7	24.8	629	1500
16	44.5	1130	44.88	1140	27.75	704.8	3.50	88.9	27.6	700	2130



CLASS 900 ANSI SWING CHECK VALVES



BILL OF MATERIAL AND PARTS:

Part No.	Part Name	ASTM Specifications (Specs. - Grades/Types)				
		A216	A352	A217		A351
		WCB	LCC	WC6	C5	CF8M
1	Body	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
2	Seat Ring	A105, 316 OR 304				
	Seat Ring Surface	13Cr, HF(STELLITE), 316 OR 304				
3	Seat Ring Surface	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
	Seat Ring Surface	13Cr, HF(STELLITE), 316 OR 304				
4	Washer	13Cr, 316 OR 304				
5	Pin	13Cr, 316 OR 304				
6	Disc Nut	13Cr, 316 OR 304				
7	Hinge	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
8	Hinge Pin	STAINLESS STEEL				
9	Bearing Bracket	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
10	Spring Washer	STAINLESS STEEL				
11	Hex Bolt	STAINLESS STEEL				
12	Gasket	Ring Joint - Iron				
13	Cover Bolt	A193 - B7	A320 - L7	A193 - B7/A193 - B16		A193 - B8
14	Cover Bolt Nut	A194 - 2H	A194 - 4	A194 - 2H / A194 - 8		A194 - 8
15	Cover	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
16	Eye Bolt	A181, 316 OR 304				



CLASS 1500 ANSI SWING CHECK VALVES

APPLICABLE STANDARDS:

- ◆ BASIC DESIGN: BS1868;
- ◆ FACE TO FACE / END TO END: ANSI B16.10;
- ◆ END FLANGES:
2" - 16": ANSI B16.5
- ◆ BUTT WELD ENDS: ANSI B16.25

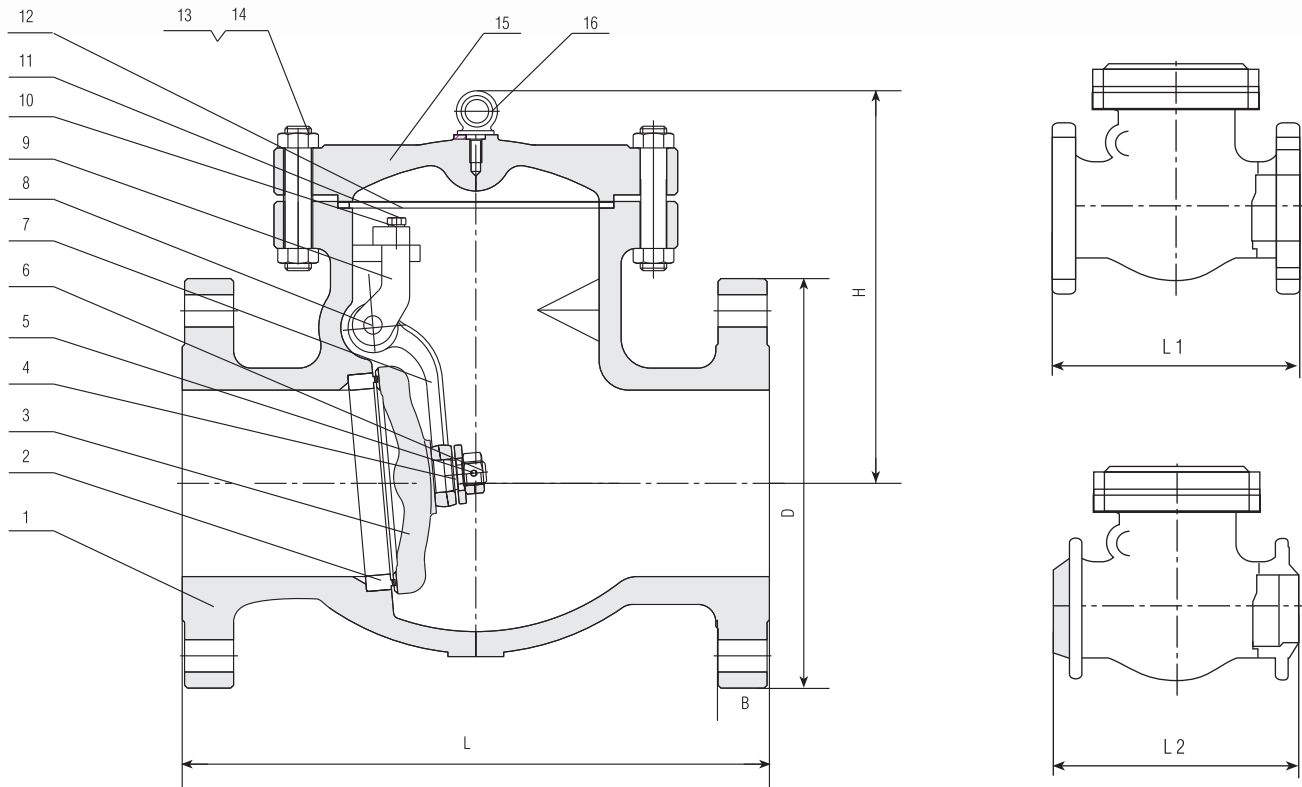


DIMENSIONS AND WEIGHTS:

NOM SIZE	L/L2 RF BW		L1 RTJ		D		b		H		Wt
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	Kgs
2	14.5	368	14.63	371	8.50	215.9	1.50	38.1	12.25	310	69
2 1/2	16.5	419	16.63	422	9.63	244.5	1.63	41.3	12.25	310	93
3	18.50	470	18.63	473	10.50	266.7	1.87	47.6	13.00	330	140
4	21.50	546	21.63	549	12.25	311.1	2.13	54.0	14.00	355	232
6	27.75	705	28.00	711	15.50	393.7	3.25	82.5	15.75	400	490
8	32.75	832	33.13	841	19.00	482.6	.63	92.1	20.88	530	990
10	39.00	991	39.38	1000	23.00	584.2	4.25	107.9	22.06	560	1490
12	44.50	1130	45.13	1146	26.50	673.1	4.87	123.8	25.63	650	1970
14	49.50	1257	50.25	1276	29.50	749.3	5.25	133.3	30.90	785	2450
16	54.50	1384	55.38	1407	32.50	825.6	5.75	146.0	36.61	930	3205



CLASS 1500 ANSI SWING CHECK VALVES



BILL OF MATERIAL AND PARTS:

Part No.	Part Name	ASTM Specifications (Specs. - Grades/Types)				
		A216	A352	A217		A351
		WCB	LCC	WC6	C5	CF8M
1	Body	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
2	Seat Ring	A105, 316 OR 304				
	Seat Ring Surface	13Cr, HF(STELLITE), 316 OR 304				
3	Disc	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
	Disc Sealing Surface	13Cr, HF(STELLITE), 316 OR 304				
4	Washer	13Cr, 316 OR 304				
5	Pin	13Cr, 316 OR 304				
6	Disc Nut	13Cr, 316 OR 304				
7	Hinge	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
8	Hinge Pin	STAINLESS STEEL				
9	Bearing Bracket	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
10	Spring Washer	STAINLESS STEEL				
11	Hex Bolt	STAINLESS STEEL				
12	Gasket	Ring Joint - Iron				
13	Cover Bolt	A193 - B7	A320 - L7	A193 - B7/A193 - B16		A193 - B8
14	Cover Bolt Nut	A194 - 2H	A194 - 4	A194 - 2H / A194 - 8		A194 - 8
15	Cover	A216 - WCB	A352 - LCC	A217 - WC6	A217 - C5	A351 - CF8M
16	Eye Bolt	A181, 316 OR 304				

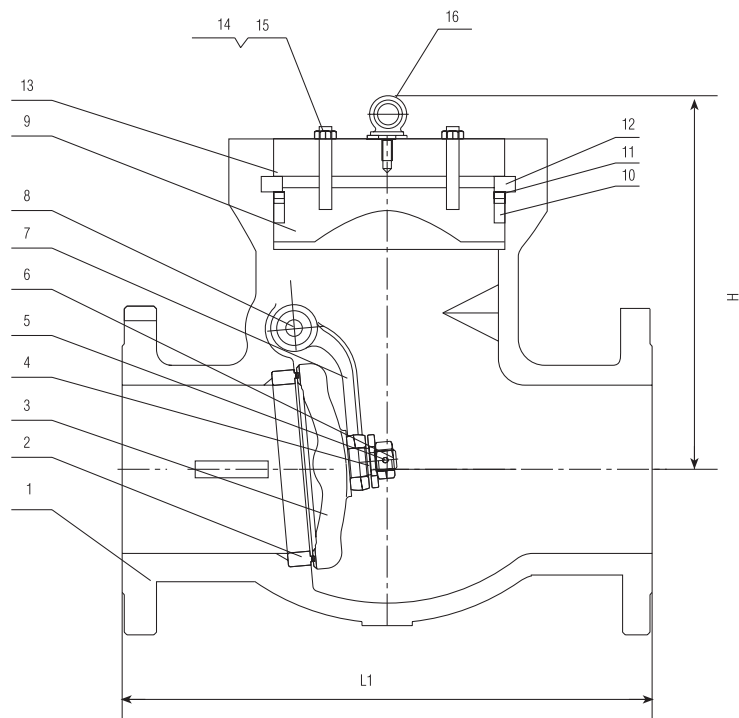


CLASS 1500 ANSI SWING CHECK VALVES - PRESSURE SEAL

APPLICABLE STANDARDS:

- ◆ Basic Design: BS 1868
- ◆ Face To Face / End To End: ANSI B16.10;
- ◆ End Flanges: ANSI B16.5
- ◆ Butt Weld Ends: ANSI B16.25

BILL OF MATERIAL AND PARTS:



Item	Part Name	Material
1	Body	ASTM A216 WCB
2	Seat Ring	ASTM A105+HF
3	Disc	ASTM A216 WCB+HF
4	Disc Washer	ASTM A276 Type 410
5	Disc Nut Pin	ASTM A276 Type 410
6	Disc Nut	ASTM A276 Type 410
7	Hinge	ASTM A216 WCB
8	Hinge Pin	ASTM A182 F6
9	Cover	ASTM A105
10	Sealing Ring	ASTM A276 Type 304
11	Pressure Ring	ASTM A276 Type 410
12	Segment Ring	ASTM A276 Type 410
13	Cover Clamp	ASTM A216 WCB
14	Cover Clamp Bolt	ASTM A193 B7
15	Cover Clamp Nut	ASTM A194 2H
16	Eyebolt	ASTM A181

DIMENSIONS AND WEIGHTS (MM):

NOM SIZE	2	2 1/2	3	4	6	8	10	12	14	16
L RF	368	419	470	546	705	832	991	1130	1257	1384
L1 BW	216	254	305	406	559	711	864	991	1067	1194
H	265	265	270	370	475	570	630	770	795	824
Wt (Kg)	60	75	78	130	334	590	1025	1530	1854	2060

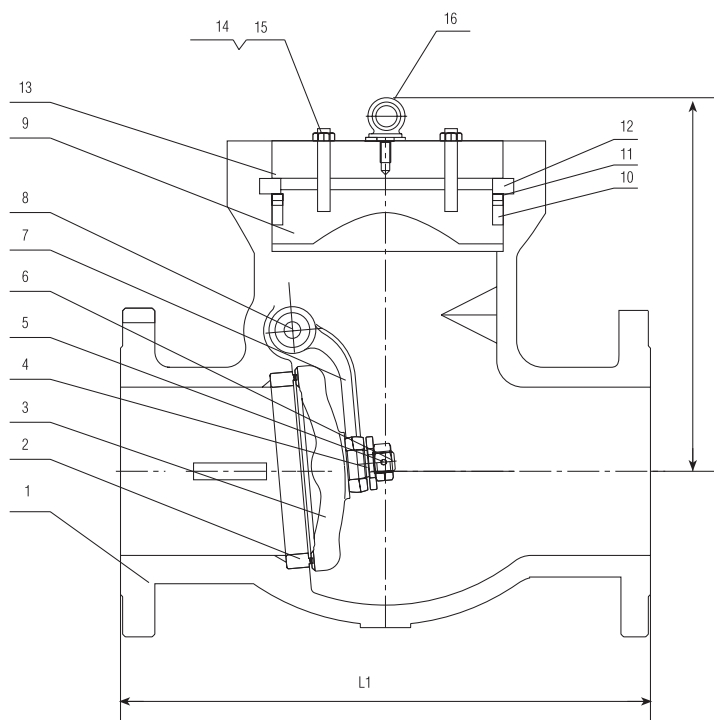


CLASS 2500 ANSI SWING CHECK VALVES - PRESSURE SEAL

APPLICABLE STANDARDS:

- ◆ Basic Design: BS 1868
- ◆ Face To Face / End To End: ANSI B16.10;
- ◆ End Flanges: ANSI B16.5
- ◆ Butt Weld Ends: ANSI B16.25

BILL OF MATERIAL AND PARTS:



Item	Part Name	Material
1	Body	ASTM A216 WCB
2	Seat Ring	ASTM A105+HF
3	Disc	ASTM A216 WCB+HF
4	Disc Washer	ASTM A276 Type 410
5	Disc Nut Pin	ASTM A276 Type 410
6	Disc Nut	ASTM A276 Type 410
7	Hinge	ASTM A216 WCB
8	Hinge Pin	ASTM A182 F6
9	Cover	ASTM A105
10	Sealing Ring	ASTM A276 Type 304
11	Pressure Ring	ASTM A276 Type 410
12	Segment Ring	ASTM A276 Type 410
13	Cover Clamp	ASTM A216 WCB
14	Cover Clamp Bolt	ASTM A193 B7
15	Cover Clamp Nut	ASTM A194 2H
16	Eyebolt	ASTM A181

DIMENSIONS AND WEIGHTS (MM):

NOM SIZE	2	2 1/2	3	4	6	8	10	12
L RF	451	508	578	673	914	1022	1270	1422
L1 B W	279	330	368	457	610	762	914	1041
H	280	305	310	370	485	544	710	800
Wt (Kg)	88	90	95	160	385	640	1200	1725

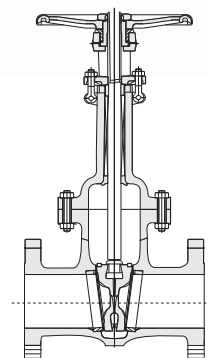


ACCESSORIES

TYPES AVAILABLE UPON REQUEST

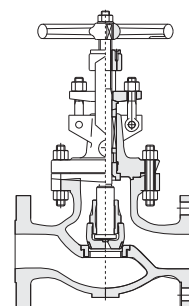
CRYOGENIC VALVES

Cryogenic Gate & Globe Valves can be supplied with extended bonnet with a sufficient gas column length, usually specified by the user, to keep the stem seal packing exposed on to vapor and not the cold liquid to ensure functional integrity



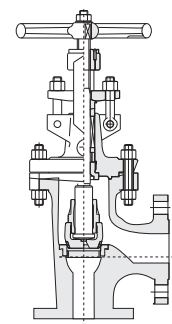
BELLOW SEAL GLOBE VALVES

Bellow Globe Valves can be supplied with swivel disc and renewable seats. Disc and seat ring rectified dimension to API600
End to End dimensions to ANSI B16.10,
Flanges Raised Face to ANSI B16.5,
Butt Welding Ends to ANSI B16.25.



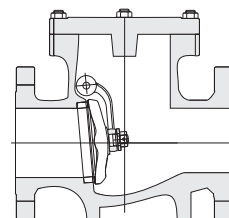
ANGLE GLOBE VALVES

90° Angle Globe Valves can be supplied with renewable seats. Basic design to BS1873, Stop check optional, End to End dimensions to ANSI B16.10, Flanges Raised Face to ANSI B16.5



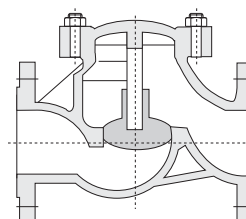
FULL OPENING TYPE CHECK VALVES

Designed to API6D
Face to Face / End to End to ANSI B16.10,
Flanges Raised Face to ANSI B16.5,



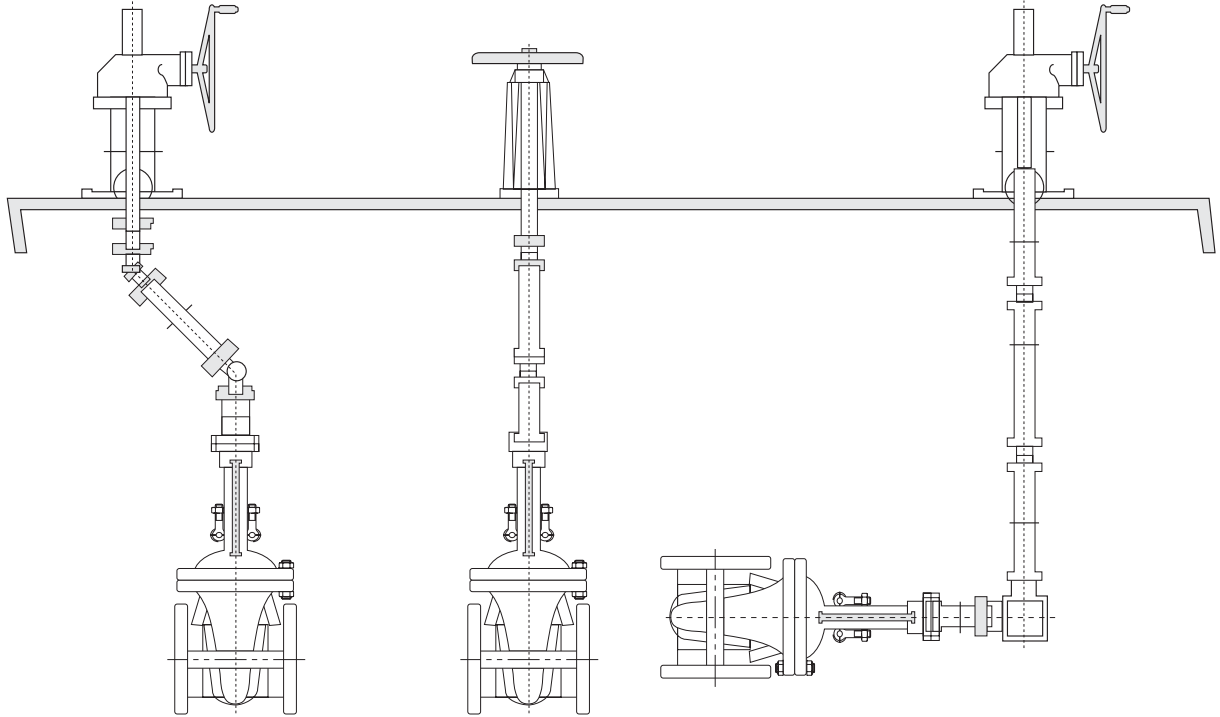
PISTON CHECK VALVES

Designed to ANSI B16.34 Steel Valves
Face to Face / End to End to ANSI B16.10,
Flanges Raised face to ANSI B16.5,



REMOTE CONTROLS - EXTENSION SYSTEM

Extension stems and associated ancillary equipment can be supplied for gate and globe valves. The accessible operating position for valves which is remote from the normal operation location should be informed by the user.



- A.** C/W Extension to Floor Level
Floor Pedestal and Actuator with Indicator, Incorporating Offset Utilizing 2*45 Degree Knuckles.
- B.** C/W Extension to Floor Level
Floor Pedestal and Gearbox with Indicator.
- C.** C/W Extension to Floor Level
Handwheel with deck stuffing box, Incorporating Offset Utilizing 2*45 Degree Knuckles.
- D.** C/W Extension to Floor Level
Floor Pedestal And Handwheel, Incorporating Offset 90° Transition-Gear Transmission & coupling.

LOCATIONS OF BY-PASSES

A built-up by-pass can be furnished when ordered, suitable for warming up on steam-line or for equalizing the pressure around main control valves used on steam or other fluids. Globe and check valves can also be filled with by-passes.

Gate valve shall be regular practice to attach said bypass at the side of the main valves with the stems of both valves parallel, pointing vertically upward.

Globe valve shall be regular practice to attach said bypass at the right-hand side of the main valve, with the stems of both valves parallel, pointing vertically upward. When by-pass is specially required attached at the left hand side, the designation shall be left-hand attachment.

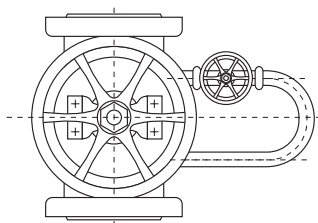
TAPS AND DRAINS FOR FLANGED VALVES

All valves bodies of gate, globe, and check valves with flanges can be provided with one or more blind bosses according to valve type

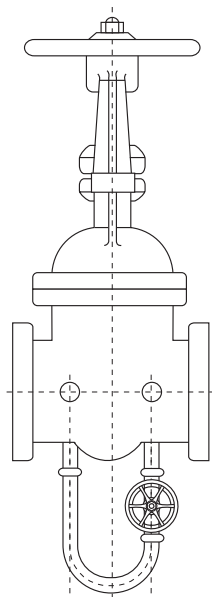
These illustrations indicate a standard method used for designating the location of tapped holes on cast globe, check, and gate valves in all pressure classes.

All bosses will be supplied blind unless ordered tapped. Location of tappings must be indicated on the order and specifying the location reference letter.

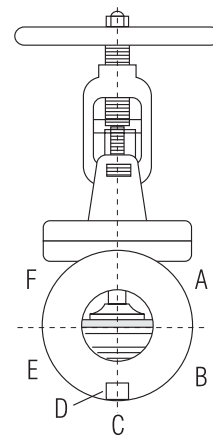
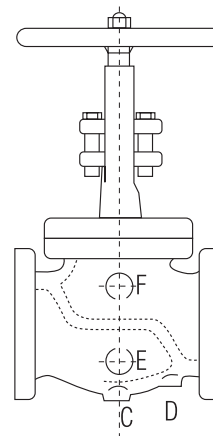
These illustrations are representative of steel valves.



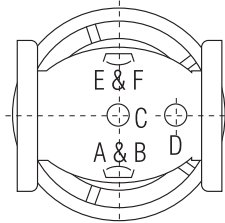
Gate Valve with
By-Pass on Side



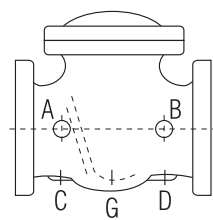
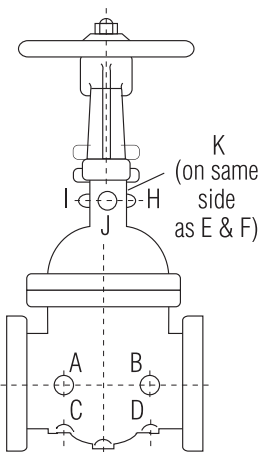
Gate Valve with
By-Pass at Bottom



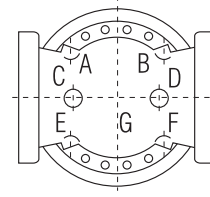
Globe Valve



Globe Valve

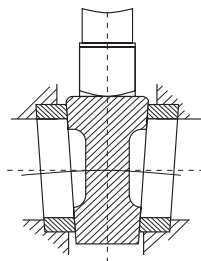


Check Valve

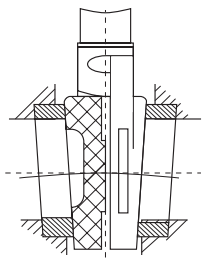


Gate Valve

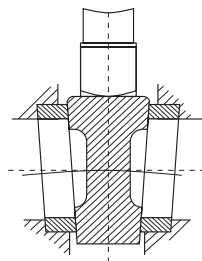
ACCESSORIES
FEATURES ON REQUEST



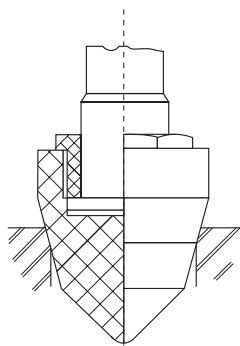
Soft Seat



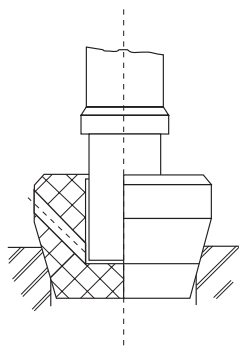
Flexible Wedge



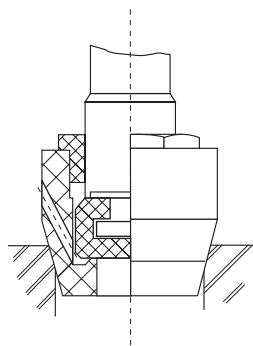
Solid Wedge



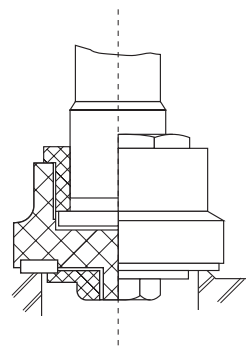
Parabolic Disc



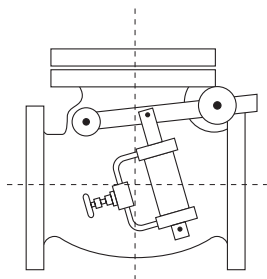
Stop Check



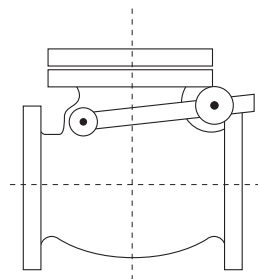
Double Stage Opening Disc



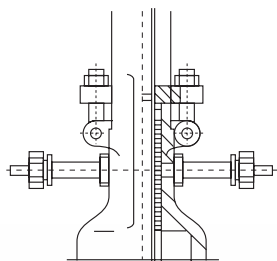
Soft Seat



Swing Check Valve with Shock Absorber



Swing Check Valve with Outside Lever and Weight



Water Seal



MATERIALS FOR VALVE BODYS & BONNETS

ASTM REF	STEEL CLASSIFICATION	TEMPERATURE LIMITS	APPLICATION
ASTM A216 GR WCB	Carbon	-29°C--540°C	Steam, water, oil
ASTM A217 GR WC1	Carbon Moly 1½% Mo	-29°C--540°C	oil vapour, gas and general services
ASTM A217 GR WC6	Chromium Moly 1¼% Cr. ½% Mo	-29°C--600°C	
ASTM A217 GR WC9	Chromium Moly 2¼% Cr. 1% Mo	-29°C--600°C	
ASTM A217 GR C5	Chromium Moly 5% Cr. ½% Mo.	-29°C--650°C	Corrosive / erosive oil refinery service
ASTM A217 GR C12	Chromium Moly 9% Cr. 1% Mo	-29°C--650°C	
ASTM A351 GR CF3M	Stainless (Low Carbon) 18% Cr. 10% Ni. 2% Mo	-196°C--815°C	High and low temperature Corrosion resistance
ASTM A351 GR CF8M	Stainless 18% Cr. 10% Ni. 2% Mo	-196°C--815°C	
ASTM A351 GR CF8C	Stainless 18% Cr. 10% Ni & Cb	-196°C--815°C	
ASTM A352 GR LCB	Carbon	-46°C--350°C	Low temperature
ASTM A 352 GR LC1	Carbon Moly ½% Mo	-60°C--350°C	
ASTM A352 GR LC2	2½% Nickel	-75°C--350°C	
ASTM A 352 GR LC3	3½% Nickel	-100°C--350°C	

MATERIALS FOR VALVE TRIMS

TYPE OF VALVE AND SERVICE	NOMINAL API600 TRIM MATERIAL
	CARBON STEEL OR CHROME BODY MATERIAL
GATE: --Hydrocarbon service 68 deg API (0.790 relative density) and heavier and other lubricating type service. (except H ₂ S) --Caustic	Trim #1, #5 or #8
--Hydrocarbon service lighter than 68 deg API including vapor (non-lubricating service)	Up to 900°F(480°C) maximum fluid design temperature Trim #5, or #8 Over 900°F(480°C) maximum fluid design temperature: Trim #5,
--Steam up to 900°F(480°C)	Trim #5, or #8
--Steam over 900°F(480°C)	Trim #5
--Water, Air, or inert Gas	Trim #1, or #8
Wet H ₂ S	Trim #2, #3, #5, #9, #10, #11, #12, #13 or #14
GLOBE AND CHECK: Any service (except H ₂ S)	Trim #1, #5, or #8



MATERIAL SPECIFICATIONS

ASTM Specification	Chemical Elements (Max.)								Physical Properties (Min.)			
	C	Mn	SI	P	S	Cr	Ni	Mo	Tensile Strength MPa	Yield Strength MPa	Hardness HB	Temp. °C
A216 WCA	0.25	0.70	0.60	0.040	0.045	0.50	0.50	0.20	415	205	137	-29-425
A216 WCB	0.30	1.00	0.60	0.040	0.045	0.50	0.50	0.20	485	250	137	-28-425
A216 WCC	0.25	1.20	0.60	0.040	0.045	0.50	0.50	0.20	485	275	137	-29-425
A216 WC1	0.25	0.5-0.8	0.60	0.040	0.045	0.35	0.50	0.45-0.65	450	240	149-187	455
A217 WC4	0.20	0.5-0.8	0.60	0.040	0.045	0.5-0.8	0.7-1.1	0.45-0.65	485	275	149-187	540
A217 WC5	0.20	0.4-0.7	0.60	0.040	0.045	0.5-0.9	0.6-1.0	0.90-1.20	485	275	149-187	565
A217 WC6	0.20	0.5-0.8	0.60	0.040	0.045	1.0-1.5	-	0.45-0.65	485	275	149-187	595
A217 WC9	0.18	0.4-0.7	0.60	0.040	0.045	2.0-2.75	-	0.90-1.20	485	275	149-187	595
A217 C5	0.20	0.4-0.7	0.75	0.040	0.045	4.0-6.50	-	0.45-0.65	620	415		650
A217 C12	0.20	0.35-0.65	1.00	0.040	0.045	8.0-10.0	-	0.0-1.20	620	415		650
A296 CA15	0.15	1.00	1.50	0.040	0.040	11.5-14.0	1.00	0.50	620	450	269	-20-480
A296 CA40	0.16-0.24	0.60	1.00	0.030	0.040	12.0-14.0			620	450	269	-20-450
A351 CF8	0.08	1.50	2.00	0.040	0.040	18.0-21.0	8-11	0.05	485	205	187	455
A351 CF8M	0.08	1.50	1.50	0.040	0.040	18.0-21.0	9-13	2.0-3.0	485	205	187	425
A351 CF3	0.03	1.50	2.00	0.040	0.040	17.0-21.0	8-12	0.50	485	205	187	425
A351 CF3M	0.03	1.50	1.50	0.040	0.040	17.0-21.0	9-13	2.0-3.0	485	205	187	425
A351 CN7M	0.07	1.50	1.50	0.040	0.040	19.0-22.0	27.5-30.5	2.0-3.0	431	172	187	455
A351 CF10	0.04-0.10	1.50	2.00	0.040	0.040	18.0-21.0	8-11	0.50	485	205	187	-29-540
A351 CK20	0.20	1.50	1.75	0.040	0.040	23.0-27.0	19-22	0.50	485	195	187	-29-540
A352 LCB	0.30	1.00	0.60	0.045	0.040	-	-	-	450-620	240	207	-46
A352 LCC	0.25	1.20	0.60	0.045	0.040	-	-	-	485-655	275	207	-46
A352 LC1	0.25	0.5-0.8	0.60	0.045	0.040	-	-	-	485-620	240		-59
A352 LC2	0.25	0.5-0.8	0.60	0.045	0.040	-	2.0-3.0	-	485-655	275		-73-200
A352 LC3	0.15	0.5-0.8	0.60	0.045	0.040	-	3.0-4.0	-	485-655	275		-101-200
A350 LF1	0.30	0.75-1.05	0.30	0.040	0.035	-	-	-	414-586	207	197	-46
A350 LF2	0.30	1.35	0.30	0.040	0.035	-	-	-	485-655	248	197	-60
A350 LF3	0.20	0.90	0.35	0.040	0.035	-	3.25-3.75	-	483-655	259	197	-101
A350 LF9	0.20	0.40-1.06	-	0.040	0.035	-	1.6-2.24	-	434-607	317	197	-73
A182 F304	0.08	2.00	1.00	0.040	0.030	18.0-20.0	8-11	-	515	205	187	540
A182 F321	0.08	2.00	1.00	0.040	0.030	17.0-21.0	9-12	-	515	205	187	540
A182 F316	0.08	2.00	1.00	0.040	0.030	16.0-18.0	10-14	2-3	515	205	187	540
A182 F316H	0.04-0.10	2.00	1.00	0.040	0.030	16.0-18.0	10-14	2-3	515	205	187	540
A182 F316L	0.035	2.00	1.00	0.040	0.030	16.0-18.0	10-15	2-3	483	172	187	450



MATERIAL SPECIFICATIONS

ASTM Specification	Chemical Elements (Max.)								Physical Properties (Min.)			
	C	Mn	Si	P	S	Cr	Ni	Mo	Tensile Strength MPa	Yield Strength MPa	Hardness HB	Temp. °C
A182 F304L	0.035	2.00	1.00	0.040	0.030	16.0-18.0	8-13	-	483	172	187	425
A182 F304N	0.08	2.00	0.75	0.040	0.030	18.0-20.0	8-10.5	-	550	240	217	540
A182 F304LN	0.03	2.00	0.75	0.040	0.030	18.0-20.0	8-12.5	-	515	205	217	540
A182 F316N	0.08	2.00	0.75	0.040	0.030	16.0-18.0	11-14	2-3	550	240	217	540
A182 F316LN	0.030	2.00	0.75	0.040	0.030	16.0-18.0	11-14	2-3	515	205	197	540
A182 F310	0.15	2.00	1.00	0.040	0.030	24.0-26.0	19-22	-	515	205	197	-254-540
A182 F347	0.08	2.00	1.00	0.040	0.030	17.0-20.0	9-13	-	515	205	197	540
A182 F347H	0.10	2.00	1.00	0.040	0.030	17.0-20.0	9-13	-	515	205	197	450
A182 F10	0.20	0.80	1.0-1.4	0.040	0.030	7.0-9.0	19-22	-	550	205	197	540
A182 F44	0.02	1.00	0.80	0.030	0.010	19.5-20.5	17.5-18.5	6-6.5	650	300	197	540
A182 F45	0.10	0.80	1.4-2.0	0.040	0.030	20.0-22.0	10-12	-	600	310	197	540
A182 F50	0.03	2.00	1.0	0.045	0.030	24.0-26.0	5.5-6.5	1.2-2.0	600-900	450	197	540
A182 F51	0.03	2.00	1.0	0.030	0.020	21.0-23.0	4.5-6.5	2.5-3.5	620	450	197	425
A182 F1	0.28	0.6-0.9	0.35	0.045	0.045	-	-	0.4-0.6	485	275	143-192	425
A182 F2	0.21	0.3-0.8	0.1-0.6	0.040	0.040	0.5-0.81	-	0.4-0.6	485	275	143-192	540
A182 F11	0.20	0.3-0.8	0.5-1.0	0.040	0.040	1.0-1.5	-	0.4-0.6	485	275	143-207	545
A182 F12	0.20	0.3-0.8	0.1-0.6	0.040	0.040	0.6-1.25	-	0.4-0.6	485	275	143-207	545
A182 F9	0.15	0.3-0.6	0.5-1.0	0.030	0.030	8-10	-	0.9-1.1	585	380	179-217	673
A182 F91	0.12	0.3-0.6	0.2-0.5	0.020	0.010	8-9.5	0.40	0.6-1.0	585	415	248	673
A182 F5	0.15	0.3-0.6	0.50	0.030	0.030	4-6	0.50	0.4-0.50	485	275	143-217	550
A182 F5a	0.25	0.6	0.50	0.040	0.030	4-6	0.50	0.4-0.50	620	450	187-248	550
A182 F6a	0.15	1.0	1.0	0.040	0.030	11.5-13.5	0.50	-	585	380	167-229	-101-540
A276 420	0.25	1.0	1.0	0.035	0.030	12-14	-	-	630	440	192	-101-480
A182 F21	0.15	0.3-0.6	0.1	0.020	0.020	2.75-3.25	-	0.8-1.06	515	310	156-207	550
A182 F3V	0.15	0.3-0.6	0.1	0.020	0.020	2.75-3.25	-	0.9-1.1	585-760	415	174-237	550
A182 F22	0.15	0.3-0.6	0.5	0.040	0.040	2.65-3.35	-	0.8-1.06	515	310	156-207	550
A182 F430	0.12	1.0	0.75	0.040	0.040	16-18	0.5	-	415	240	190	450
A105	0.35	0.6-1.05	0.35	0.040	0.050	0.3	0.4	0.12	485	250	187	450

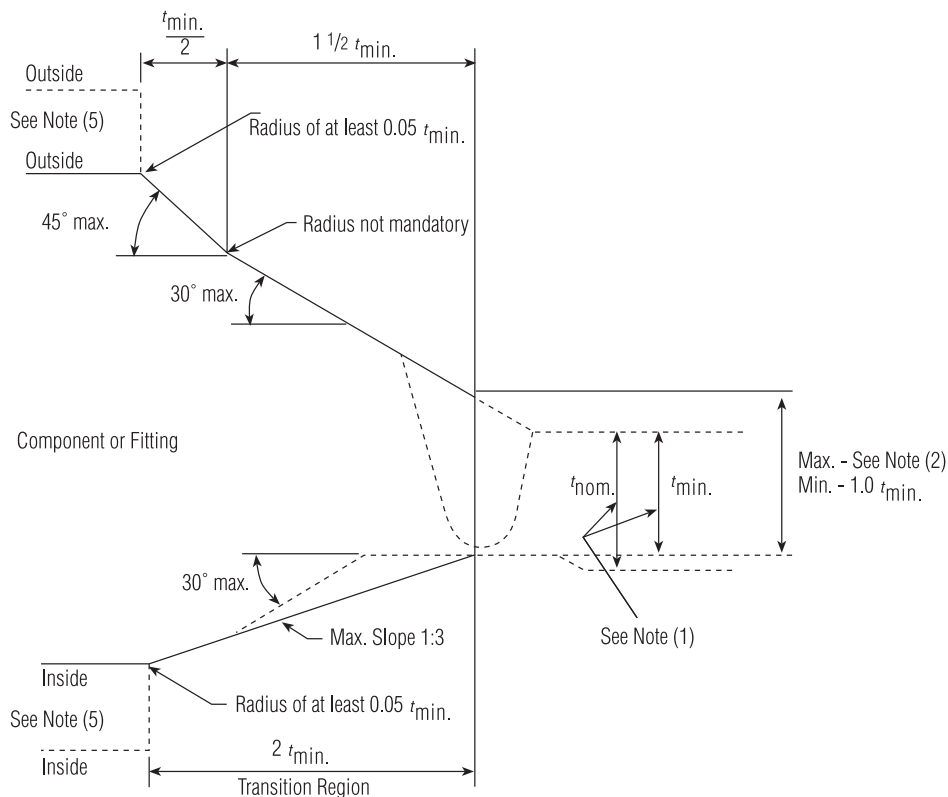


MATERIAL SPECIFICATIONS

ASTM Specification	Chemical Elements (Max.)								Physical Properties (Min.)			
	C	Mn	Si	P	S	Cr	Ni	Mo	Tensile Strength MPa	Yield Strength MPa	Hardness HB	Temp. °C
A193 B7	0.49	0.65-1.1	0.15-0.35	0.035	0.040	0.75-1.20		0.15-0.2	860	720	257	-45.6-510
A193 B7M	0.49	0.65-1.1	0.15-0.35	0.035	0.040	0.75-1.20		0.15-0.2	690	550	201-235	-20-510
A193 B16	0.47	0.45-0.7	0.15-0.35	0.035	0.040	0.8-1.15		0.5-0.65	860	720	197-217	-10-600
A320 L7	0.48	0.75-1.0	0.15-0.35	0.035	0.040	0.8-1.0		0.5-0.25	860	725	201-235	-101-550
A320 B8	0.08	2.0	1.0	0.045	0.030	18-20	8-10		515	205	223	-254-700
A320 B8A	0.08	2.0	1.0	0.045	0.030	18-20	8-10		515	205	192	-254-700
A320 B8M	0.08	2.0	1.0	0.045	0.030	16-18	10-14	2-3	690	550	321	-254-816
A320 B8T	0.08	2.0	1.0	0.045	0.030	17-19	9-12		515	205	192	-196-700
A194 2H	0.45			0.040	0.050				635	350	217-255	-38-450
A194 6	0.15	1.0	1.0	0.040	0.030	11.5-13.5			540	245	228-271	-101-480
A194 8	0.08	2.0	1.0	0.045	0.030	8-10.5	18-20		515	205	126-300	-254-800
A194 8M	0.08	2.0	1.0	0.045	0.030	16-18	10-14	2-3	515	205	126-300	-254-816
A194 8T	0.08	2.0	1.0	0.045	0.030	17-19	9-12		515	205	126-300	-196-700
A540 B21	0.44	0.45-0.7	0.15-0.35	0.025	0.025	0.8-1.15	-	0.5-0.65	827	724	241-385	-12.2-570
A540 B22	0.46	0.65-1.1	0.15-0.35	0.025	0.025	0.75-1.2	-	0.15-0.25	827	724	248-293	-101-550
A540 B23	0.44	0.7-0.9	0.15-0.35	0.025	0.025	0.65-0.95	1.55-2	0.2-0.3	827	724	248-311	-12.2-540
A540 B24	0.44	0.7-0.9	0.15-0.35	0.025	0.025	0.7-0.95	1.65-2	0.3-0.4	827	724	248-311	-12.2-540
A739 B11	0.20	0.4-0.65	0.5-0.8	0.035	0.040	1.0-1.5	-	0.45-0.65	483-655	310	207-241	-38-545
A739 B22	0.15	0.3-0.60	0.5	0.035	0.040	2.0-2.5	-	0.90-1.10	517-655	310	179	-38-540
A276 420	0.24	0.60	0.6	0.035	0.030	12-14	-	0.90-1.10	650	445	228-269	-101-400
AISI 431	0.17	0.80	0.8	0.035	0.030	16-18	1.5-2.5		1078		HRC42	-38-425
AISI 416	0.15	1.25	1.0	0.060	0.15	12-14	-		540	345	200	-38-350
A705 630	0.07	1.00	1.0	0.040	0.030	15-17.5	3-5		1000	860	302	-196-427
A705 631	0.09	1.00	1.0	0.040	0.030	15-18	7.5-7.75		1275	1035	388	-196-427
A705 632	0.05	1.00	1.0	0.030	0.030	14-16	5-7	0.5-1	1105	1035	311	-196-427
B564 N04400	0.20	1.2-1.3	0.2	0.020	0.010	-		-	550	220	HV150	200
B164 N04400	0.20	1.0	0.2	0.035	0.040	-		-	550	220	HV150	200
B462 N08020	0.07	2.0	1.0	0.045	0.035	19-21	32-38	2-3	551	241		-253-427
B335N010001	0.05	1.0	1.0	0.040	0.030	1.00		26-30	795	315	M.100HRB	700
B335N010665	0.02	1.0	0.1	0.040	0.030	1.00		26-30	758	352	M.100HRB	700
B574 N06455	0.03	1.0	0.07	0.020	0.020	15-17		16-18	690	283	M.100HRB	700
B574 N10276	0.015	1.0	0.05	0.020	0.020	15-17		16-18	690	276	M.100HRB	700
B446 N06625	0.10	0.50	0.50	0.015	0.015	20-23		8-10	827	414	M.100HRB	700
B572 N06002	0.15	0.10	0.10	0.040	0.030	20.5-23		8-10	655	241	M.100HRB	700



BUTT WELDING ENDS ANSI B16.25



WELDING END TRANSITIONS MAXIMUM ENVELOPE

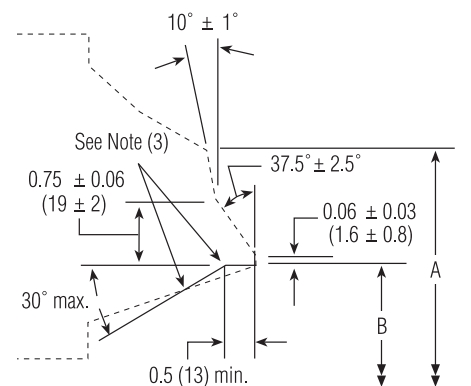
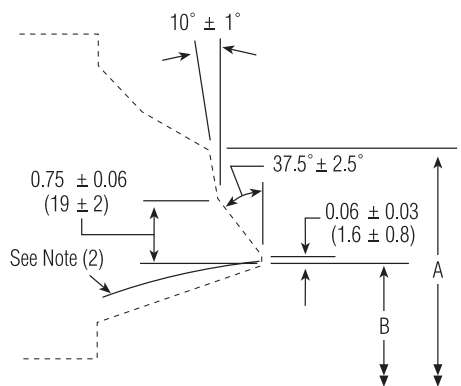
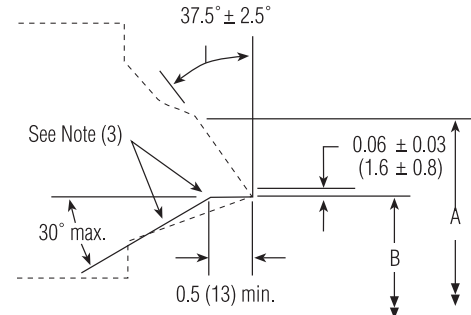
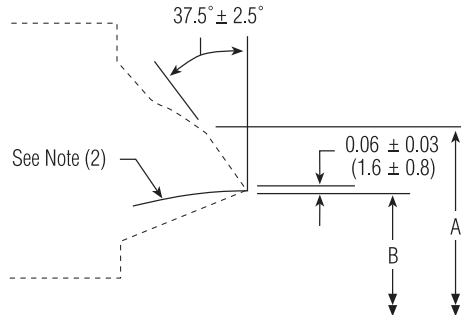
NOTES:

- (1) The value of $t_{min.}$ is whichever of the following is applicable:
 - the minimum ordered wall thickness of the pipe
 - 0.875 times the nominal wall thickness of pipe ordered to a pipe schedule wall thickness which has an under tolerance of 12.5%
 - the minimum ordered wall thickness of the cylindrical welding end of a component or fitting (or the thinner of the two) when the joint is between two components
- (2) The maximum thickness at the end of the component is:
 - the greater of $t_{min.} + 0.15 \text{ in. (4 mm)}$ or $1.15 t_{min.}$ when ordered on a minimum wall basis
 - the greater of $t_{min.} + 0.15 \text{ in. (4 mm)}$ or $1.10 t_{nom.}$ when ordered on a nominal wall basis
 - Weld bevel is shown for illustration only.
 - The weld reinforcement permitted by applicable code may lie outside the maximum envelope.

Where transitions using maximum slope do not intersect inside or outside surface, as shown by phantom outlines, maximum slopes shown or alternate radius shall be used.



BUTT WELDING ENDS ANSI B16.25



Welding End Detail for Joint Without Backing Ring

Welding End Detail for Joint Using Split Rectangular Backing Ring

WELDING END DETAILS INTENDED FOR USE ON NOMINAL WALL THICKNESSES GREATER THAN 0.88 in. (22 mm)

NOTES:

- Dotted lines denote maximum envelope for transitions from welding bevel and root face into body of component specified.
- Internal surface may be as formed or machined for dimension B at root face. Contour within the envelope is manufacturers' option unless otherwise specified in the purchase order.
- Intersections should be slightly rounded.
- Purchase order must specify contour of ring intended to be used.
- Linear dimensions are in inches with metric values shown in millimeters in parenthesis.

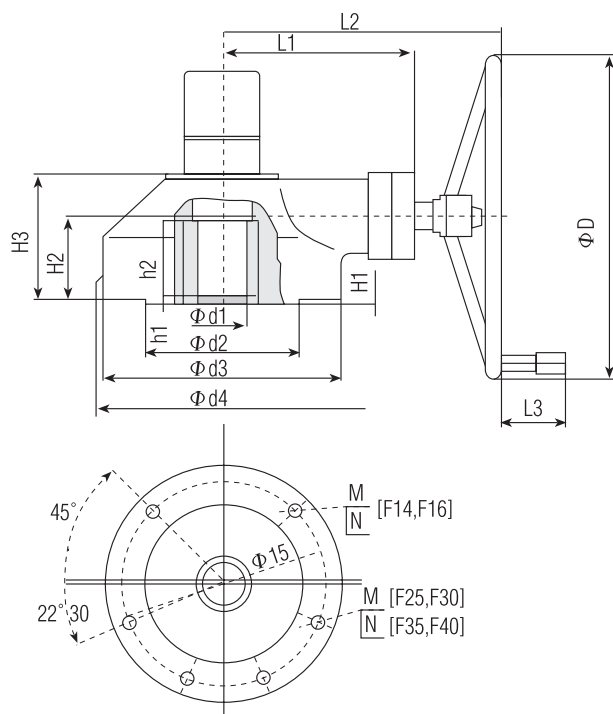
B=NOMINAL INSIDE DIAMETER PIPE

A=OUTSIDE DIAMETER (CAST STEEL VALVES)

A	NPS	2 1/2	3"	3 1/2	4	5	6	8	10	12	14	16	18	20	22	24
	IN MM	2.96 75	3.59 91	4.12 105	4.62 117	5.69 144	6.78 172	8.78 223	10.94 278	12.97 329	14.25 362	16.25 413	18.28 464	20.31 516	22.34 567	24.38 619



GEARING



MAIN PERFORMANCE PARAMETERS

Item	Model				
	SZ00	SZ0	SZ1	SZ2	SZ3
Ratio	3:1	3:1	4:1	6:1	19.3:1
Allowable Torque (N.m)	400	750	1500	3000	6000
Allowable Thrust (KN)	100	98	196	350	630
Weight (Kg)	18	24	42	87	154

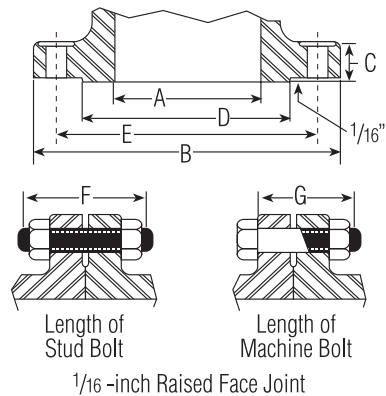
OVERALL SIZE AND DIMENSIONS

Item	Model				
	SZ00	SZ0	SZ1	SZ2	SZ3
d1	42	55	62	85	115
d2	100f8	130f8	200f8	230f8	260f8
d3	178	220	289	346	510
d4	-	-	-	385	-
d5	140	165	254	298	356
D	310	310	460	610	610
h1	1	1	2	21	36
h2	60	70	75	110	170
H1	4	5	5	5	5
H2	76.5	84	95	141	177
H3	122	1331	160	220	330
L1	150	166	221	285	401
L2	240	260	311	400	515
L3	65	100	100	100	100
M	M16	M20	M16	M20	M30
N	4	4	8	8	8
Flange Type	F14	F16	F25	F30	F35

ACCESSORIES

ENGINEERING DATA

STEEL FLANGES CLASS 150, 300 ANSI B16.5, MSS SP-44, In Inches



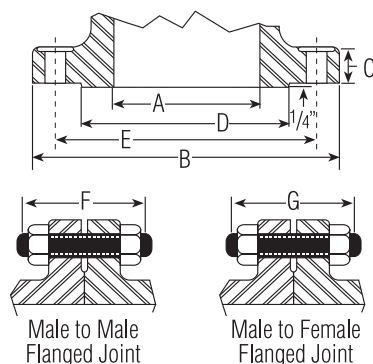
Class	NPS	A Valve or fitting	B	C		D	E	Bolts or Stud Bolts		F	G
				Com- panion flange	Valve or fitting			No	Dia.		
Class 150 Steel	1 1/2	1.50	5.00	0.69	0.56	2.88	3.88	4	1/2	3.00	2.50
	2	2.00	6.00	0.75	0.62	3.62	4.75	4	5/8	3.25	2.75
	2 1/2	2.50	7.00	0.88	0.69	4.12	5.50	4	5/8	3.50	3.00
	3	3.00	7.50	0.94	0.75	5.00	6.00	4	5/8	3.75	3.25
	3 1/2	3.50	8.50	0.94	0.81	5.50	7.00	8	5/8	3.75	3.25
	4	4.00	9.00	0.94		6.19	7.50	8	5/8	3.75	3.25
	5	5.00	10.0	0.94		7.31	8.50	8	3/4	4.00	3.25
	6	6.00	11.0	1.00		8.50	9.50	8	3/4	4.00	3.50
	8	8.00	13.5	1.12		10.62	11.5	8	3/4	4.25	3.75
	10	10.0	16.0	1.19		12.75	14.25	12	7/8	4.75	4.00
	12	12.0	19.0	1.25		15.00	17.00	12	7/8	4.75	4.25
	14	13.25	21.0	1.38		16.25	18.75	12	1	5.25	4.50
	16	15.25	23.5	1.44		18.50	21.25	16	1	5.50	4.75
	18	17.25	25.0	1.56		21.00	22.75	16	1 1/8	6.00	5.00
	20	19.25	27.5	1.69		23.00	25.00	20	1 1/8	6.25	5.50
	24	23.25	32.0	1.88		27.25	29.50	20	1 1/4	7.00	6.00
	30	30.00	38.75	2.94		33.75	36.00	28	1 1/4	....	....
	36	36.00	46.00	3.56		40.25	42.75	32	1 1/2	....	....
	42	42.00	53.00	3.81		47.00	49.50	36	1 1/2	....	....
	48	48.00	59.50	4.25		53.50	56.00	44	1 1/2	....	....
Class 300 Steel	1 1/2	1.50	6.12	0.81		2.88	4.50	4	3/4	3.75	3.00
	2	2.00	6.50	0.88		3.62	5.00	8	5/8	3.50	3.00
	2 1/2	2.50	7.50	1.00		4.12	5.88	8	3/4	4.00	3.50
	3	3.00	8.25	1.12		5.00	6.62	8	3/4	4.25	3.75
	3 1/2	3.50	9.00	1.19		5.50	7.25	8	3/4	4.50	3.75
	4	4.00	10.00	1.25		6.19	7.88	8	3/4	4.50	4.00
	5	5.00	11.00	1.38		7.31	9.25	8	3/4	4.75	4.25
	6	6.00	12.50	1.44		8.50	10.62	12	3/4	5.50	4.75
	8	8.00	15.00	1.62		10.62	13.00	12	7/8	5.50	4.75
	10	10.00	17.50	1.88		12.75	15.25	16	1	6.25	5.50
	12	12.00	20.50	2.00		15.00	17.75	16	1 1/8	6.75	6.00
	14	13.25	23.00	2.12		16.25	20.25	20	1 1/8	7.00	6.25
	16	15.25	25.50	2.25		18.50	22.50	20	1 1/4	7.50	6.50
	18	17.00	28.00	2.38		21.00	24.75	24	1 1/4	7.75	6.75
	20	19.00	30.50	2.50		23.00	27.00	24	1 1/4	8.25	7.25
	24	23.00	36.00	2.75		27.25	32.00	24	1 1/2	9.25	8.00
	30	....	43.00	3.62		33.75	39.25	28	1 3/4	....	....
	36	....	50.00	4.12		40.25	46.00	32	2	....	....



ACCESSORIES

ENGINEERING DATA

STEEL FLANGES CLASS 400, 600, 900 ANSI B16.5, MSS SP-44, In Inches



*Stud Bolt Length "G" also applies
for Tongue to Groove Flanged Joint*

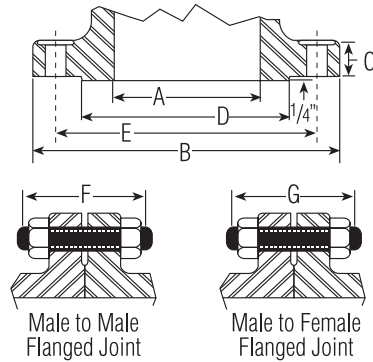
Class	NPS	A	B	C	D	E	Bolts or Stud Bolts		F	G
							No	Dia.		
Class 400 Steel	4	4.00	10.00	1.38	6.19	7.88	8	7/8	5.50	5.25
	5	5.00	11.00	1.50	7.31	9.25	8	7/8	5.75	5.50
	6	6.00	12.50	1.62	8.50	10.62	12	7/8	6.00	5.75
	8	8.00	15.00	1.88	10.62	13.00	12	1	6.75	6.50
	10	10.00	17.50	2.12	12.75	15.25	16	1 1/8	7.50	7.25
	12	12.00	20.50	2.25	15.00	17.75	16	1 1/4	8.00	7.75
	14	13.12	23.00	2.38	16.25	20.25	20	1 1/4	8.25	8.00
	16	15.00	25.50	2.50	18.50	22.50	20	1 3/8	8.75	8.50
	18	17.00	28.00	2.62	21.00	24.75	24	1 3/8	9.00	8.75
	20	18.88	30.50	2.75	23.00	27.00	24	1 1/2	9.75	9.50
Class 600 Steel	24	22.62	36.00	3.00	27.25	32.00	24	1 3/4	10.75	10.5
	1 1/2	1.50	6.12	0.88	2.88	4.50	4	3/4	4.25	4.00
	2	2.00	6.50	1.00	3.62	5.00	8	5/8	4.25	4.00
	2 1/2	2.50	7.50	1.12	4.12	5.88	8	3/4	4.75	4.50
	3	3.00	8.25	1.25	5.00	6.62	8	5/4	5.00	4.75
	3 1/2	3.50	9.00	1.38	5.50	7.25	8	7/8	5.50	5.25
	4	4.00	10.75	1.50	6.19	8.50	8	7/8	5.75	5.50
	5	5.00	13.00	1.75	7.31	10.50	8	1	6.50	6.25
	6	6.00	14.00	1.88	8.50	11.50	12	1	6.75	6.50
	8	7.88	16.50	2.19	10.62	13.75	12	1 1/8	7.75	7.50
	10	9.75	20.00	2.50	12.75	17.00	16	1 1/4	8.50	8.25
	12	11.75	22.00	2.62	15.00	19.25	20	1 1/4	8.75	8.50
	14	12.88	23.75	2.75	16.25	20.25	20	1 3/8	9.25	9.00
	16	14.75	27.00	3.00	18.50	23.75	20	1 1/2	10.0	9.75
	18	16.50	29.25	3.25	21.00	25.75	20	1 5/8	10.75	10.5
	20	18.25	32.00	3.50	23.00	28.50	24	1 5/8	11.50	11.25
	24	22.00	37.00	4.00	27.25	33.00	24	1 7/8	13.00	12.75
	30	....	44.50	4.50	33.75	40.25	28	2	....	....
Class 900 Steel	3	2.88	9.50	1.50	5.00	7.50	8	7/8	5.75	5.50
	4	3.88	11.50	1.75	6.19	9.25	8	1 1/8	6.75	6.50
	5	4.75	13.75	2.00	7.31	11.00	8	1 1/4	7.50	7.25
	6	5.75	15.00	2.19	8.50	12.50	12	1 1/8	7.75	7.50
	8	7.50	18.50	2.50	10.62	15.50	12	1 3/8	8.75	8.50
	10	9.38	21.50	2.75	12.75	18.50	16	1 3/8	9.25	9.00
	12	11.12	24.00	3.12	15.00	21.00	20	1 3/8	10.00	9.75
	14	12.25	25.25	3.38	16.25	22.00	20	1 1/2	10.75	10.50
	16	14.00	27.75	3.50	18.50	24.25	20	1 5/8	11.25	11.00
	18	15.75	31.00	4.00	21.00	27.00	20	1 7/8	12.75	12.50
	20	17.50	33.75	4.25	23.00	29.50	20	2	13.50	13.50
	24	21.00	41.00	5.50	27.25	35.50	20	2 1/2	17.25	17.00



ACCESSORIES

ENGINEERING DATA

STEEL FLANGES CLASS 1500, 2500 ANSI B16.5, MSS SP-44, In Inches



*Stud Bolt Length "G" also applies
for Tongue to Groove Flanged Joint*

Class	NPS	A	B	C	D	E	Bolts or Stud Bolts		F	G
							No	Dia.		
Class 1500 Steel	1½	1.38	7.00	1.25	2.88	4.88	4	1	5.50	5.25
	2	1.88	8.50	1.50	3.62	6.50	7	7/8	5.75	5.50
	2½	2.25	9.62	1.62	4.12	4.50	8	1	6.25	6.00
	3	2.75	10.50	1.88	5.00	8.00	8	1½	7.00	6.75
	4	3.62	12.25	2.12	6.19	9.50	8	1¼	7.75	7.50
	5	4.38	14.75	2.88	7.31	11.50	8	1½	9.75	9.50
	6	5.38	15.50	3.25	8.50	12.50	12	1¾	10.25	10.0
	8	7.00	19.00	3.62	10.62	15.50	12	1⅝	11.50	11.25
	10	8.75	23.00	4.25	12.75	19.00	12	1⅞	13.25	13.00
	12	10.38	26.50	4.88	15.00	22.50	16	2	14.75	14.50
	14	11.38	29.50	5.25	16.25	25.00	16	2¼	15.00	15.75
	16	13.00	32.50	5.75	18.50	27.75	16	2½	17.50	17.25
Class 2500 Steel	1½	1.12	8.00	1.75	2.88	5.75	4	1⅛	7.00	6.75
	2	1.50	9.25	2.00	3.62	6.75	8	1	7.25	7.00
	2½	1.88	10.50	2.25	4.12	7.75	8	1⅛	8.00	7.75
	3	2.25	12.00	2.62	5.00	9.00	8	1¼	9.00	8.75
	4	2.88	14.00	3.00	6.19	10.75	8	1½	140.25	10.00
	5	3.62	15.50	3.62	7.31	12.75	8	1¾	12.00	11.75
	6	4.38	19.00	4.25	8.50	14.50	8	2	13.75	13.50
	8	5.75	21.75	5.00	10.62	17.25	12	2	15.25	15.00
	10	7.25	26.50	6.50	12.75	21.75	12	2½	19.50	19.25
	12	8.62	30.00	7.25	15.00	24.38	12	2¾	21.50	21.25



ACCESSORIES

ENGINEERING DATA

PRESSURE-TEMPERATURE RATINGS

STEEL, NICKEL ALLOY and OTHER ALLOYS ANSI B16.34

WORKING PRESSURE, PSIG													
CLASS	TEMP °F	A216 WCB A105	A217 C5	A217 WC6 A182 F11	A217 WC9 182 F22	A352 LCB	A352 LC3 A350 LF3	A351 CF8M A182 F316	A351 CF3M	A351 CF8 A182 F304	A351 CF3	A351 CF8C	A351 CN7M
150	-20--	285	290	290	290	265	290	275	275	275	275	275	230
	200	260	260	260	260	250	260	240	240	235	235	245	215
	300	230	230	230	230	230	230	215	215	205	205	225	200
	400	200	200	200	200	200	200	195	195	180	180	200	-
	500	170	170	170	170	170	170	170	170	170	170	170	-
	600	140	140	140	140	140	140	140	140	140	140	140	-
	650	125	125	125	125	125	125	125	125	125	125	125	-
	700	110	110	110	110	-	-	110	110	110	110	110	-
	750	95	95	95	95	-	-	95	95	95	95	95	-
	800	80	80	80	80	-	-	80	80	80	80	80	-
	850	65	65	65	65	-	-	65	65	65	-	65	-
	900	50	50	50	50	-	-	50	-	50	-	50	-
	950	35	35	35	35	-	-	35	-	35	-	35	-
	1000	20	20	20	20	-	-	20	-	20	-	20	-
	1050	-	20	20	20	-	-	20	-	20	-	20	-
	1100	-	20	20	20	-	-	20	-	20	-	20	-
	1150	-	20	-	-	-	-	20	-	20	-	20	-
	1200	-	20	-	-	-	-	20	-	20	-	20	-
	1250	-	-	-	-	-	-	20	-	20	-	20	-
	1300	-	-	-	-	-	-	20	-	20	-	20	-
	1350	-	-	-	-	-	-	20	-	20	-	20	-
300	1400	-	-	-	-	-	-	20	-	20	-	20	-
	1450	-	-	-	-	-	-	20	-	15	-	20	-
	1500	-	-	-	-	-	-	15	-	10	-	15	-
	-20--	740	750	750	750	695	750	720	720	720	720	720	600
	200	675	750	710	715	655	750	620	620	600	600	635	555
	300	655	730	675	675	640	730	560	560	530	530	590	525
	400	635	705	660	650	620	705	515	515	470	470	555	-
	500	600	665	640	640	585	665	480	480	435	435	520	-
	600	550	605	605	605	535	605	450	450	415	415	490	-
	650	535	590	590	590	525	590	445	445	410	410	480	-
	700	535	570	570	570	-	-	430	430	405	405	470	-
	750	505	530	530	530	-	-	425	425	400	400	460	-
	800	410	500	510	510	-	-	415	415	395	395	455	-
	850	270	440	485	485	-	-	405	405	390	-	445	-
	900	170	355	450	450	-	-	395	-	385	-	430	-
	950	105	260	380	380	-	-	385	-	375	-	385	-
	1000	50	190	225	270	-	-	365	-	325	-	365	-
	1050	-	140	140	200	-	-	360	-	310	-	360	-
	1100	-	105	95	115	-	-	325	-	260	-	325	-
	1150	-	70	-	-	-	-	275	-	195	-	275	-
	1200	-	45	-	-	-	-	205	-	155	-	170	-
	1250	-	-	-	-	-	-	180	-	110	-	125	-
	1300	-	-	-	-	-	-	140	-	85	-	95	-
	1350	-	-	-	-	-	-	105	-	60	-	70	-
	1400	-	-	-	-	-	-	75	-	50	-	50	-
	1450	-	-	-	-	-	-	60	-	35	-	40	-
	1500	-	-	-	-	-	-	40	-	25	-	35	-



ACCESSORIES

ENGINEERING DATA

PRESSURE-TEMPERATURE RATINGS STEEL, NICKEL ALLOY and OTHER ALLOYS ANSI B16.34

WORKING PRESSURE, PSIG													
CLASS	TEMP °F	A216 WCB A105	A217 C5	A217 WC6 A182 F11	A217 WC9 182 F22	A352 LCB	A352 LC3 A350 LF3	A351 CF8M A182 F316	A351 CF3M	A351 CF8 A182 F304	A351 CF3	A351 CF8C	A351 CN7M
600	-20--	1480	1500	1500	1500	1390	1500	1440	1440	1440	1440	1440	1200
	200	1350	1500	1425	1430	1315	1500	1240	1240	1200	1200	1270	1115
	300	1315	1455	1345	1355	1275	1455	1120	1120	1055	1055	1175	1045
	400	1270	1410	1315	1295	1235	1410	1030	1030	940	940	1110	-
	500	1200	1330	1285	1280	1165	1330	955	955	875	875	1035	-
	600	1095	1210	1210	1210	1065	1210	905	905	830	830	985	-
	650	1075	1175	1175	1175	1045	1175	890	890	815	815	960	-
	700	1065	1135	1065	1135	-	-	865	865	805	805	935	-
	750	1010	1065	1015	1065	-	-	845	845	795	795	920	-
	800	825	995	975	1015	-	-	830	830	790	790	910	-
	850	535	880	900	975	-	-	810	810	780	-	890	-
	900	345	705	755	900	-	-	790	-	770	-	865	-
	950	205	520	445	755	-	-	775	-	750	-	775	-
	1000	105	385	275	535	-	-	725	-	645	-	725	-
	1050	-	280	190	400	-	-	720	-	620	-	720	-
	1100	-	205	-	225	-	-	645	-	515	-	645	-
	1150	-	140	-	-	-	-	550	-	390	-	550	-
	1200	-	90	-	-	-	-	410	-	310	-	345	-
	1250	-	-	-	-	-	-	365	-	220	-	245	-
	1300	-	-	-	-	-	-	275	-	165	-	185	-
900	1350	-	-	-	-	-	-	205	-	125	-	135	-
	1400	-	-	-	-	-	-	150	-	95	-	105	-
	1450	-	-	-	-	-	-	115	-	70	-	80	-
	1500	-	-	-	-	-	-	85	-	50	-	70	-
	-20--	2220	2250	2250	2250	2085	2250	2160	2160	2160	2160	2160	1800
	200	2025	2250	2135	2150	1970	2250	1860	1860	1800	1800	1910	1670
	300	1970	2185	2020	2030	1915	2185	1540	1540	1410	1410	1765	1570
	400	1900	2115	1975	145	1850	2115	1540	1540	1410	1410	1665	-
	500	1795	1995	1925	1920	1745	1995	1435	1435	1310	1310	1555	-
	600	1640	1815	1815	1815	1600	1815	1355	1355	1245	1245	1475	-
	650	1610	1765	1765	1765	1570	1765	1330	1330	1225	1225	1440	-
	700	1600	1705	1705	1705	-	-	1295	1295	1210	1210	1405	-
	750	1510	1595	1595	1595	-	-	1270	1270	1195	1195	1385	-
	800	1235	1490	1525	1525	-	-	1245	1245	1180	1180	1370	-
	850	805	1315	1460	1460	-	-	1215	1215	1165	-	1330	-
	900	515	1060	1350	1350	-	-	1180	-	1150	-	1295	-
	950	310	780	1130	1130	-	-	1160	-	1125	-	1160	-
	1000	155	575	670	805	-	-	1090	-	965	-	1090	-
	1050	-	420	410	595	-	-	1080	-	925	-	1080	-
	1100	-	310	290	340	-	-	965	-	770	-	965	-
	1150	-	205	....	....	-	-	825	-	585	-	825	-
	1200	-	135	....	....	-	-	620	-	465	-	515	-
	1250	-	-	-	-	-	-	545	-	330	-	370	-
	1300	-	-	-	-	-	-	410	-	245	-	280	-
	1350	-	-	-	-	-	-	310	-	185	-	205	-
	1400	-	-	-	-	-	-	225	-	145	-	155	-
	1450	-	-	-	-	-	-	175	-	105	-	125	-
	1500	-	-	-	-	-	-	125	-	70	-	105	-



ACCESSORIES

ENGINEERING DATA

PRESSURE-TEMPERATURE RATINGS

STEEL, NICKEL ALLOY and OTHER ALLOYS ANSI B16.34

WORKING PRESSURE, PSIG													
CLASS	TEMP °F	A216 WCB A105	A217 C5	A217 WC6 A182 F11	A217 WC9 182 F22	A352 LCB	A352 LC3 A350 LF3	A351 CF8M A182 F316	A351 CF3M	A351 CF8 A182 F304	A351 CF3	A351 CF8C	A351 CN7M
1500	-20--	3705	3750	3750	3750	3470	3750	3600	3600	3600	3600	3600	3000
	200	3375	3750	3560	3580	3280	3750	3095	3095	3000	3000	3180	2785
	300	3280	3640	3365	3385	3190	3640	2795	2795	2640	2640	3940	2615
	400	3170	3530	3290	3240	3085	3530	2570	2570	2350	2350	2770	-
	500	2995	3325	3210	3200	2910	3325	2390	2390	2185	2185	2590	-
	600	2735	3025	3025	3025	2665	3025	2255	2255	2075	2075	2460	-
	650	2685	2940	2940	2940	2615	2940	2220	2220	2040	2040	2400	-
	700	2665	2840	2840	2840	-	-	2160	2160	2015	2015	2340	-
	750	2520	2660	2660	2660	-	-	2110	2110	1990	1990	2305	-
	800	2060	2485	2540	2540	-	-	2075	2075	1970	1970	2280	-
	850	1340	2195	2435	2435	-	-	2030	2030	1945	-	2220	-
	900	860	1765	2245	2245	-	-	1970	-	1920	-	2160	-
	950	515	1305	1885	1885	-	-	1930	-	1870	-	1930	-
	1000	260	960	1115	1340	-	-	1820	-	1610	-	1820	-
	1050	-	705	685	995	-	-	1800	-	1545	-	1800	-
	1100	-	515	480	565	-	-	1610	-	1285	-	1610	-
	1150	-	345	-	-	-	-	1370	-	980	-	1370	-
	1200	-	225	-	-	-	-	1030	-	770	-	855	-
	1250	-	-	-	-	-	-	910	-	550	-	615	-
	1300	-	-	-	-	-	-	685	-	410	-	465	-
	1350	-	-	-	-	-	-	515	-	310	-	345	-
	1400	-	-	-	-	-	-	380	-	240	-	255	-
	1450	-	-	-	-	-	-	290	-	170	-	205	-
	1500	-	-	-	-	-	-	205	-	120	-	170	-
2500	-20--	6170	6250	6250	6250	5785	6250	6000	6000	6000	6000	6000	5000
	200	5625	6250	5930	5965	5470	6250	5160	5160	5000	5000	5300	4640
	300	5470	6070	5605	5640	5315	6070	4660	4660	4400	4400	4900	4360
	400	5280	5880	5485	5400	5145	5880	4280	4280	3920	3920	4620	-
	500	4990	5540	5350	5330	4850	5540	3980	3980	3640	3640	4320	-
	600	4560	5040	5040	5040	4440	5040	3760	3760	3460	3460	4100	-
	650	4475	4905	4905	4905	4355	4905	3700	3700	3400	3400	4000	-
	700	4440	4730	4730	4730	-	-	3600	3600	3360	3360	3900	-
	750	4200	4430	4430	4430	-	-	3520	3520	3320	3320	3840	-
	800	3430	4145	4230	4320	-	-	3460	3460	3280	3280	3800	-
	850	2230	3660	4060	4060	-	-	3320	3320	3240	-	3700	-
	900	1430	2945	3745	3745	-	-	3280	-	3200	-	3600	-
	950	860	2170	3145	3145	-	-	3220	-	3120	-	3220	-
	1000	430	1600	1860	2230	-	-	3030	-	2685	-	3030	-
	1050	-	1170	1145	1660	-	-	3000	-	2570	-	3000	-
	1100	-	860	800	945	-	-	2685	-	2145	-	2685	-
	1150	-	570	-	-	-	-	2285	-	1630	-	2285	-
	1200	-	370	-	-	-	-	1715	-	1285	-	1430	-
	1250	-	-	-	-	-	-	1515	-	915	-	1030	-
	1300	-	-	-	-	-	-	1145	-	685	-	770	-
	1350	-	-	-	-	-	-	860	-	515	-	570	-
	1400	-	-	-	-	-	-	630	-	400	-	430	-
	1450	-	-	-	-	-	-	485	-	285	-	345	-
	1500	-	-	-	-	-	-	345	-	200	-	285	-



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