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THT CORPORATION



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“Customers needs are
our top priority”

THT
THT CORPORATION

THT-17.06RA



Greetings

THT's strength is guaranteeing customer satisfaction. Quality assurance, quick delivery, and reasonable price are mandatory requirements of each transaction.

As the preferred business partner, we look to meet and serve you.
Our business motto is "Customers' needs are our top priority."

We hope we till make long time good relation with you.

Best regards.



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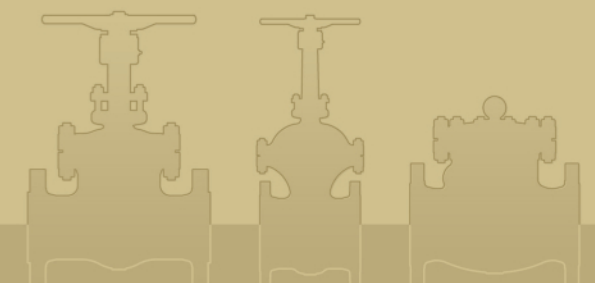


FIGURE NUMBERING

EXAMPLE) FIGURE NUMBER 0 GA 150 4" 1 1 HW : A216 Gr WCB Gate Valve CLASS 150 4"
Bolted Bonnet, OS & Y, Raised Face 13CR HAND WHEEL

0	GA	150	4"	1	1	HW
MATERIAL	TYPE	RATING	SIZE	END CONNECTION	TRIM	OPERATION
0 : A216 WCB	GA :	150 : 150LB	2"	1: RF	1 : 13CR	HW : HAND WHEEL
1 : A217 C5	GATE	300 : 300LB	2½"	2 : FF	2 : 304	CW : CHAIN WHEEL
2 : A217 WC6	GL :	600 : 600LB	3"	3 : BW	3 : 316	GO : GEAR OPERATOR
3 : A217 WC9	GLOBE	900 : 900LB	4"	4 : RTJ	4 : 304L	MO : MOTOR
4 : A351 CF8	CH :	1500 : 1500LB	5"	5 : TG	5 : 316L	OPERATOR
5 : A351 CF8M	CHECK	2500 : 2500LB	6"		6 : 317	PO : PNEUMATIC
6 : A351 CF3	YS :		8"		7 : MONEL	OPERATOR
7 : A351 CF3M	Y-STRAINER		10"			
	DC:		12"			
	DUO-CHECK		?			
			36"			

MAIN PRODUCTION ITEMS

	GATE VALVES						
	CLASS TYPE	150	300	600	900	1500	2500
	BB	2" - 56"	2" - 36"	2" - 30"	2" - 24"	2" - 24"	2" - 12"
	GLOBE VALVES						
	CLASS TYPE	150	300	600	900	1500	2500
	BB	2" - 18"	2" - 16"	2" - 12"	2" - 12"	2" - 12"	2" - 12"
	SW-CH VALVES						
	CLASS TYPE	150	300	600	900	1500	2500
	BC	2" - 36"	2" - 36"	2" - 30"	2" - 24"	2" - 24"	2" - 12"
	Y-STRAINER						
	CLASS TYPE	150				300	
	BC		2" - 18"			2" - 14"	
	DUO-CHECK VALVES						
	CLASS TYPE	150	300	600			
	WAFER	2" - 24"	2" - 24"	2" - 24"			

MATERIAL SELECTIONS

SHELL MATERIAL

Service Temperature		Material Specifications			
		ASTM		JIS	
Over -5℃ Up to	425℃	A216Gr. WCB	A105	SCPH2	S25C
	455℃	A217Gr. WC1	A182Gr. F1	SCPH11	
	593℃	A217Gr.WC6	A182Gr. F11	SCPH21	
		A217Gr. WC9	A182Gr. F22	SCPH32	
	650℃	A217Gr. C5	A182Gr. F5a	SCPH61	
	800℃	A351Gr. CF8	A182Gr. F304	SCS13	SUSF304
	Down to -29℃		A350Gr. LF1		
	-46℃	A352Gr. LCB	A350Gr. LF2	SCPL1	
	-59℃	A352Gr. LC1		SCPL11	
	-73℃	A352Gr. LC2		SCPL21	
	-101℃	A352Gr. LC3	A350Gr. LF3	SCPL31	
		A351Gr. CF8	A182Gr. F304	SCS13	SUSF304
		A351Gr. CF3	A182Gr. F304L	SCS19	SUSF304L
	-196℃	A351Gr. CF8M	A182Gr. F316	SCS14	SUSF316
		A351Gr. CF3M	A182Gr. F316L	SCS16	SUSF316L

TRIM MATERIAL

Trim No.	Nominal Trim	Material Type	Body Seat Surface	Disc Seat Surface	Stem and other trim
1	F6	13Cr	13% Chromium	13% Chromium	13% Chromium
2	304	18-8Cr-Ni	Type304 Stainless Steel	Type304 Stainless Steel	Type304 Stainless Steel
3	F310	25-20Cr-Ni	Type310 Stainless Steel	Type310 Stainless Steel	Type310 Stainless Steel
4	Hard F6	Hard13Cr	Hard13% Chromium	Hard13% Chromium	13% Chromium
5	Hardfaced	Co Cr-A	Stellite	Stellite	13% Chromium
6	F6 and Cu-Ni	13Cr Cu-Ni	Cu-Ni	13% Chromium	13% Chromium
7	F6 and Hard F6	13Cr Hard13Cr	13% Chromium Hard13% Chromium	13% Chromium	13% Chromium
8	F6 and Hardfaced	13Cr Co Cr-A	Stellite	13% Chromium	13% Chromium
9	Monel	Ni-Cu alloy	Monel	Monel	Monel
10	316	18-8Cr-Ni	Type316 Stainless-Steel	Type316 Stainless-Steel	Type316 Stainless-Steel

CAST STEEL BOLTED BONNET GATE VALVES



CAST STEEL

GATE VALVES BOLTED BONNET

① BODY

The body is in cast steel and is carefully designed in all its details. The basic dimension, i.e. wall thickness, face to face and flange comply with the relevant API and ANSI standards. The body-to-bonnet flange is normally circular, except in the 150 lb Class which is oval. The sealing surface for connection to the bonnet are flat finish in the 150 lb Class, male and female in the 300lb Class or may be ring joint in the 600 lb Class and above. The body is threaded or seal welded for renewable seats. Bosses are provided for drain taps or by-pass piping.

② BONNET

The bonnet is in cast steel. It is machined to accept the yoke sleeve and incorporates a stuffing box dimension in accordance with the API standard.

③ WEDGE

The wedge is part of the trim. It is in cast stainless and alloy steel for diameters up to 10" and in cast steel for larger valves. It is connected to the stem by means of a T-joint. The guides on each side of the wedge are machined for proper alignment with the body guides. Special attention is given to the seating surface which are ground and lapped to insure a perfectly tight seal.

⑥ STEM

The stem is part of the trim. The stem is provided with a T-head. A ground backseat is provided to ensure a perfectly tight seal to the stuffing box when the valve is fully open. The stem is ground to minimize friction and prevent damage to gland packing. The threading is trapezoidal ACME type. Dimensions comply with the API 600 standard.

⑧ YOKE SLEEVE

The yoke sleeve is made from cast austenitic ductile iron having high resistance to wear and a high melting point. It is designed to permit removal from the bonnet or the yoke while the valve is in service. Gate valves 6" 600lb, Class and above are fitted with a ball thrust bearing.

②① SEAT RINGS

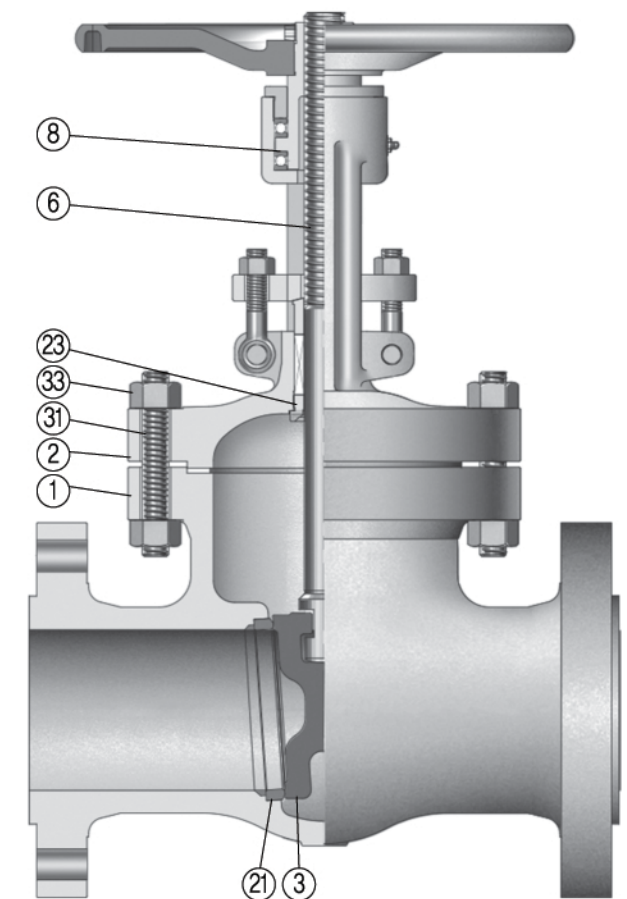
The seat rings as a welded-in type is designed to prevent any turbulence and damage by corrosion. It is are forged or rolled into one piece for all dimensions, heat treated to obtain the desired surface hardness, and cleaned thoroughly before assembling.

②③ BONNET BUSHING

The bonnet bushing or backseat is part of the trim. Special attention is given both to its machining and heat treatment to insure a proper seat.

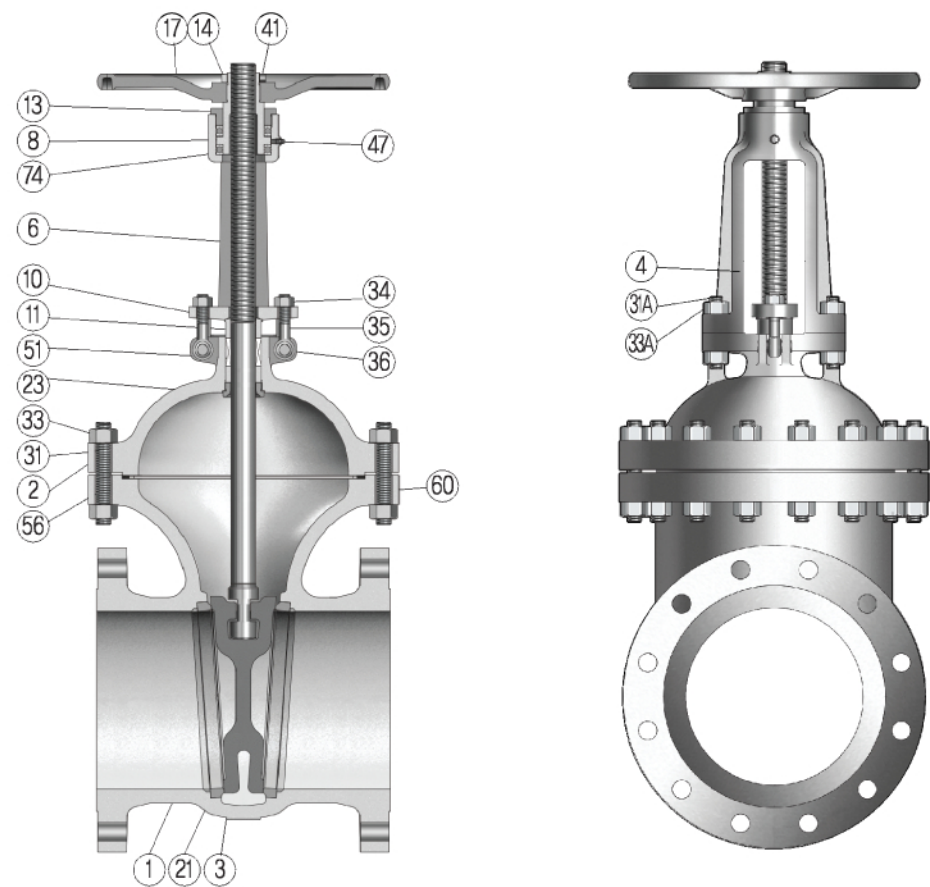
③①, ③③ BONNET BOLTING

Bonnet studs and nuts are manufactured from alloy steel to the relevant ASTM standard.



CAST STEEL

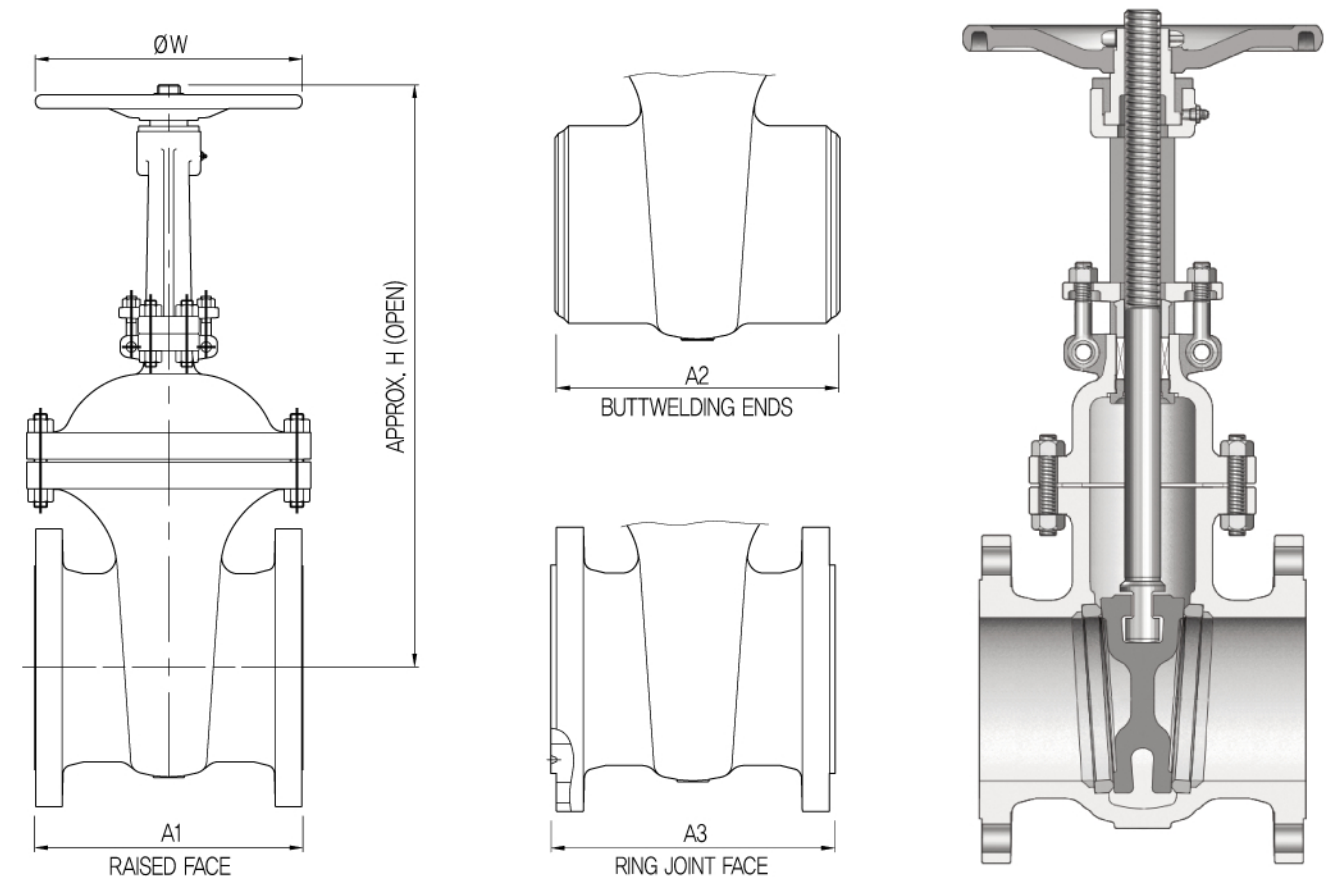
GATE VALVES BOLTED BONNET



No	PARTS NAME	ASTM SPECIFICATIONS					
		CARBON STEEL	LOW TEMP. SERVICE		HIGH TEMP. SERVICE		
1	BODY	A216-WCB	A352-LCB	A352-LC2	A217-WC6	A217-WC9	A217-C5
2	BONNET	A216-WCB	A352-LCB	A352-LC2	A217-WC6	A217-WC9	A217-C5
3	WEDGE	A216-WCB / A217-CA15	A352-LCB / A351-CF8	A352-LC2 / A351-CF8	A217-WC6 / A217-CA15	A217-WC9 / A217-CA15	A217-C5 / A217-CA15
4	YOKE	A216-WCB	A216-WCB	A216-WCB	A216-WCB	A216-WCB	A216-WCB
6	STEM	A479-410	A479-304	A479-304	A479-410	A479-410	A479-410
8	YOKE SLEEVE	A439-D2C	A439-D2C	A439-D2C	A439-D2C	A439-D2C	A439-D2C
10	GLAND FLANGE	A105 / A283-D	A105 / A283-D	A105 / A283-D	A105 / A283-D	A105 / A283-D	A105 / A283-D
11	PACKING GLAND	A576-1020 + HCr.	A576-1020 + HCr.	A576-1020 + HCr.	A576-1020 + HCr.	A576-1020 + HCr.	A576-1020 + HCr.
13	SLEEVE NUT	A576-1020	A576-1020	A576-1020	A576-1020	A576-1020	A576-1020
14	WHEEL NUT	A576-1020 + Zn.	A576-1020 + Zn.	A576-1020 + Zn.	A576-1020 + Zn.	A576-1020 + Zn.	A576-1020 + Zn.
17	HANDWHEEL	A536-60	A536-60	A536-60	A536-60	A536-60	A536-60
21	BODY SEAT RING	A106	A240-304	A240-304	A182-F11	A182-F22	A182-F5
23	BACK SEAT RING	A479-410	A479-304	A479-304	A479-410	A479-410	A479-410
31	BONNET BOLT	A193-B7	A320-L7	A320-L7	A193-B16	A193-B16	A193-B16
31A	YOKE BOLT	A193-B7	A193-B7	A193-B7	A193-B7	A193-B7	A193-B7
33	BONNET NUT	A194-2H	A194-4L	A194-4L	A194-7	A194-7	A194-7
33A	YOKE NUT	A194-2H	A194-2H	A194-2H	A194-2H	A194-2H	A194-2H
34	HINGE NUT	A194-2H	A194-2H	A194-2H	A194-2H	A194-2H	A194-2H
35	HINGE BOLT	A307-B	A307-B	A307-B	A307-B	A307-B	A307-B
36	HINGE PIN	A576-1020	A576-1020	A576-1020	A576-1020	A576-1020	A576-1020
41	SET SCREW	SCM 435	SCM 435	SCM 435	SCM 435	SCM 435	SCM 435
47	GREASE NIPPLE	STEEL + Cr.	STEEL + Cr.	STEEL + Cr.	STEEL + Cr.	STEEL + Cr.	STEEL + Cr.
51	PACKING	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE
56	GASKET	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE
60	NAME PLATE	A240-304	A240-304	A240-304	A240-304	A240-304	A240-304
74	THRUST BEARING	BEARING STEEL	BEARING STEEL	BEARING STEEL	BEARING STEEL	BEARING STEEL	BEARING STEEL

CAST STEEL

GATE VALVES BOLTED BONNET • CLASS 150/300



CLASS 150

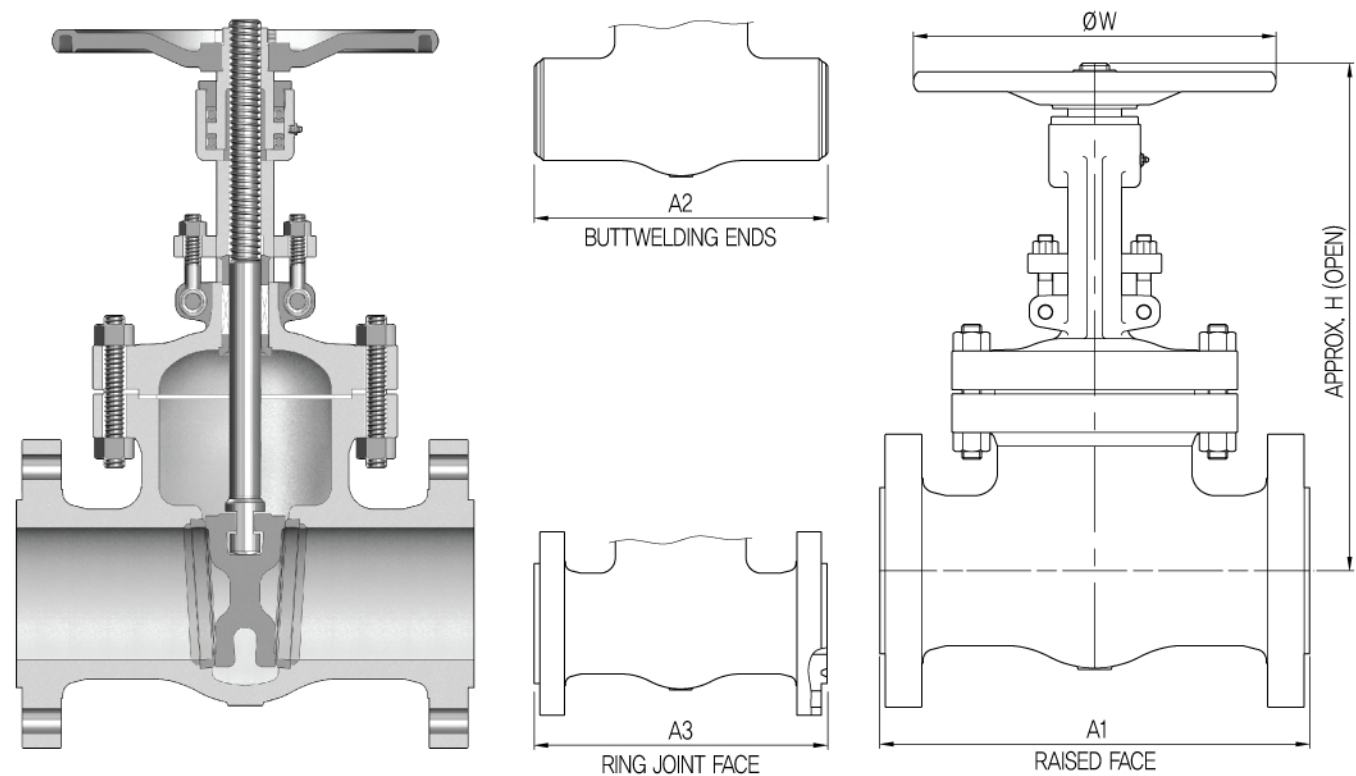
VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24	26	28	30	32	36
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600	650	700	750	800	900
A1	inch	7.00	7.50	8.00	9.00	10.00	10.50	11.50	13.00	14.00	15.00	16.00	17.00	18.00	20.00	22.00	24.00	24.00	26.00	28.00
(RF)	mm	178	190	203	229	254	267	292	330	356	381	406	432	457	508	559	610	610	660	711
A2	inch	8.50	9.50	11.12	12.00	15.00	15.88	16.50	18.00	19.75	22.50	24.00	26.00	28.00	32.00	34.00	36.00	36.00	38.00	40.00
(BW)	mm	216	241	282	305	381	403	419	457	502	572	610	660	711	813	864	914	914	965	1016
H	inch	13.39	15.35	17.72	21.26	27.17	29.53	38.19	45.28	55.12	60.24	69.29	76.77	93.70	110.24	120.08	125.20	135.83	146.46	155.51
(OPEN HEIGHT)	mm	340	390	450	540	690	750	970	1150	1400	1530	1760	1950	2380	2800	3050	3180	3450	3720	3950
W	inch	7.87	7.87	8.82	9.84	11.02	12.40	13.98	15.75	17.72	19.69	22.05	24.80	24.80	24.80	27.95	27.95	31.50	31.50	31.50
(HANDWHEEL DIA.)	mm	200	200	224	250	280	315	355	400	450	500	560	630	630	630	710	710	800	800	800

CLASS 300

VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24	26	28	30	32	36
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600	650	700	750	800	900
A1 & A2	inch	8.50	9.50	11.12	12.00	15.00	15.88	16.50	18.00	19.75	30.00	33.00	36.00	39.00	45.00	49.00	53.00	55.00	60.00	68.00
(RF & BW)	mm	216	241	282	305	381	403	419	457	502	762	838	914	991	1143	1245	1346	1397	1524	1727
A3	inch	9.12	10.12	11.74	12.62	15.62	16.50	17.12	18.62	20.37	30.62	33.62	36.62	39.75	45.88	50.00	54.00	56.00	61.12	69.12
(RTJ)	mm	232	257	298	321	397	419	435	473	518	778	854	930	1010	1165	1270	1372	1422	1552	1755
H	inch	13.39	15.35	17.72	21.26	27.17	29.92	38.58	48.03	57.09	61.81	70.87	85.83	96.46	114.17	122.05	127.95	135.83	149.61	161.42
(OPEN HEIGHT)	mm	340	390	450	540	690	760	980	1220	1450	1570	1800	2180	2450	2900	3100	3250	3450	3800	4100
W	inch	7.87	7.87	9.84	11.02	12.40	13.98	15.75	17.72	19.69	22.05	24.80	24.80	24.80	27.95	31.50	24.80	24.80	27.95	27.95
(HANDWHEEL DIA.)	mm	200	200	250	280	315	355	400	450	500	560	630	630	630	710	800	630	630	710	710

CAST STEEL

GATE VALVES BOLTED BONNET • CLASS 600/900



CLASS 600

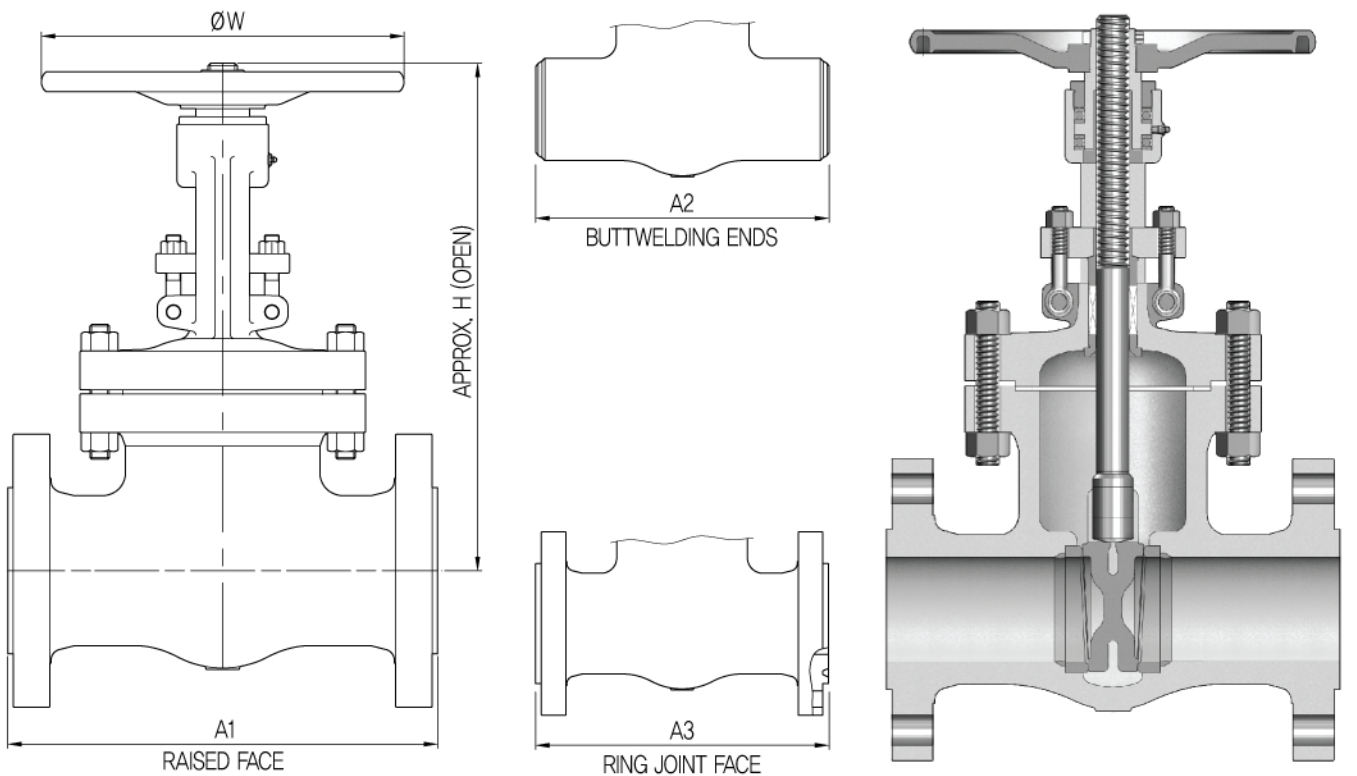
VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24	26	28	30
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600	650	700	750
A1 & A2 (RF & BW)	inch	11.50	13.00	14.00	17.00	20.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00	57.00	61.00	65.00
	mm	292	330	356	432	508	559	660	787	838	889	991	1092	1194	1397	1448	1549	1651
A3 (RTJ)	inch	11.62	13.12	14.12	17.12	20.12	22.12	26.12	31.12	33.12	35.12	39.12	43.12	47.25	55.38	57.50	61.50	65.50
	mm	295	333	359	435	511	562	663	790	841	892	994	1095	1200	1407	1461	1562	1664
H (OPEN HEIGHT)	inch	14.57	17.72	19.69	24.80	29.53	33.07	41.73	50.39	68.90	72.83	82.68	92.52	102.36	114.17	127.95	133.86	143.70
	mm	370	450	500	630	750	840	1060	1280	1750	1850	2100	2350	2600	2900	3250	3400	3650
W (HANDWHEEL DIA.)	inch	7.87	9.84	11.02	13.98	15.75	19.69	19.69	24.80	24.80	24.80	27.95	31.50	31.50	24.80	27.95	31.50	31.50
	mm	200	250	280	355	400	500	500	630	630	630	710	800	800	630	710	800	800

CLASS 900

VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
A1 & A2 (RF & BW)	inch	14.50	16.50	15.00	18.00	22.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	61.00
	mm	368	419	381	457	559	610	737	838	965	1029	1130	1219	1321	1549
A3 (RTJ)	inch	14.62	16.62	15.12	18.12	22.12	24.12	29.12	33.12	38.12	40.88	44.88	48.50	52.50	61.75
	mm	371	422	384	460	562	613	740	841	968	1039	1140	1232	1334	1568
H (OPEN HEIGHT)	inch	18.50	19.69	22.44	27.56	33.07	39.37	53.15	62.99	70.08	76.77	86.61	94.49	102.36	122.05
	mm	470	500	570	700	840	1000	1350	1600	1780	1950	2200	2400	2600	3100
W (HANDWHEEL DIA.)	inch	11.02	12.40	12.40	13.98	19.69	19.69	24.80	24.80	27.95	27.95	24.80	24.80	27.95	31.50
	mm	280	315	315	355	500	500	630	630	710	710	630	630	710	800

CAST STEEL

GATE VALVES BOLTED BONNET • CLASS 1500/2500



CLASS 1500

VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
A1 & A2 (RF & BW)	inch	14.50	16.50	18.50	21.50	26.50	27.75	32.75	39.00	44.50	49.50	54.50	60.50	65.50	76.50
	mm	368	419	470	546	673	705	832	991	1130	1257	1384	1537	1664	1943
A3 (RTJ)	inch	14.62	16.62	18.62	21.62	26.62	28.00	33.13	39.38	45.12	50.25	55.38	61.38	66.38	77.62
	mm	371	422	473	549	676	711	842	1001	1146	1276	1406	1559	1686	1971
H (OPEN HEIGHT)	inch	18.50	19.69	28.35	33.86	37.40	47.24	59.06	64.96	82.68	88.58	94.49	112.20	122.05	141.73
	mm	470	500	720	860	950	1200	1500	1650	2100	2250	2400	2850	3100	3600
W (HANDWHEEL DIA.)	inch	11.02	12.40	13.98	19.69	19.69	24.80	24.80	27.95	31.50	24.80	31.89	31.50	31.50	39.37
	mm	280	315	355	500	500	630	630	710	800	630	810	800	800	1000

CLASS 2500

VALVE	inch	2	2.5	3	4	5	6	8	10	12
SIZE	mm	50	65	80	100	125	150	200	250	300
A1 & A2 (RF & BW)	inch	17.75	20.00	22.75	26.50	31.25	36.00	40.25	50.00	56.00
	mm	451	508	578	673	794	914	1022	1270	1422
A3 (RTJ)	inch	17.87	20.25	23.00	26.88	31.75	36.50	40.87	50.88	56.88
	mm	454	514	584	683	807	927	1038	1292	1444
H (OPEN HEIGHT)	inch	23.62	29.53	31.10	43.31	49.21	57.09	62.99	76.77	88.58
	mm	600	750	790	1100	1250	1450	1600	1950	2250
W (HANDWHEEL DIA.)	inch	11.02	13.98	13.98	19.69	19.69	24.80	19.69	24.80	24.80
	mm	280	355	355	500	500	630	500	630	630

CAST STEEL BOLTED BONNET GLOBE VALVES



CAST STEEL

GLOBE VALVES BOLTED BONNET

① BODY

The body is in cast steel. The basic dimension, i.e. wall thickness, face to face and flange comply with the relevant API and ANSI standards. The body-to-bonnet flange is circular and the sealing surface for connection to the bonnet are recessed in the 150lb and 300lb class or may be ring joint in the high classes. Bosses are provided for drain taps or by-pass piping.

② BONNET

The bonnet is in cast steel. It is machined to accept the yoke sleeve and incorporates a stuffing box dimension in accordance with the API standard.

③ DISC

The disc is part of the trim. It is in cast stainless steel for diameters up to 8" and in cast steel for larger valves. It is normally supplied of the flat, tapered or plug type or, on request, of the parabolic regulating type, always free to rotate on the stem. Special attention is given to the seating face which is ground and lapped, for a perfectly tight seal.

⑥ STEM

The stem is part of the trim. A ground backseat is provided to ensure a perfectly tight seal to the stuffing box when the valve is fully open. The stem is attached to the disc by means of a threaded ring which allows the disc to rotate. The stem is ground to minimize friction and prevent damage to gland packing.

⑨ YOKE BUSH

The yoke sleeve is made from cast austenitic ductile iron having high resistance to wear and a high melting point. It is screwed into the bonnet and properly sized to withstand the stresses which develop when opening and closing the valve.

②① BODY SEAT

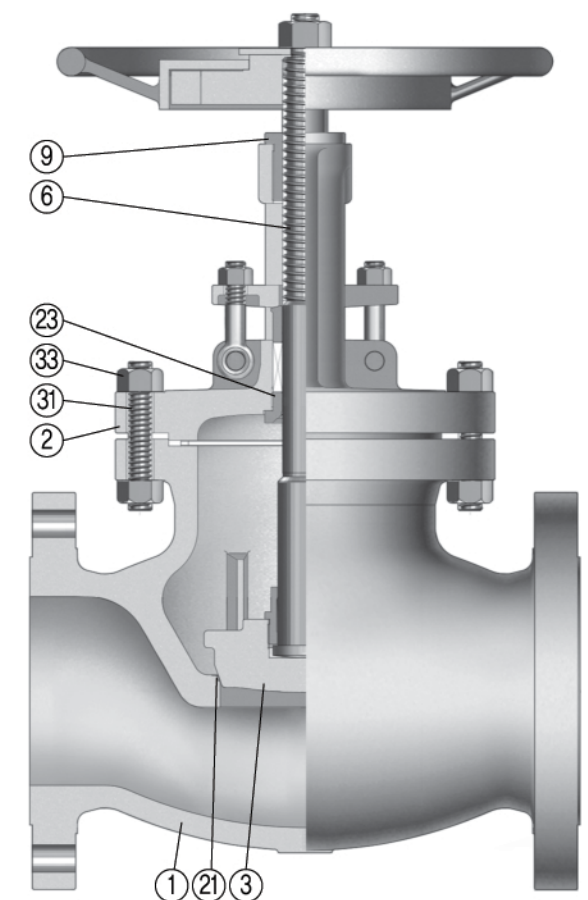
The integral seat overlaid with stellite on the body has strong resistance for seat damage and keeps stable seal constantly.

②③ BONNET BUSHING

The bonnet bushing or backseat is part of the trim. Special attention is given to its machining and heat treatment to insure a proper seat for gland repacking under pressure. Special attention is given to the seating face which is ground and lapped, for a perfectly tight seal.

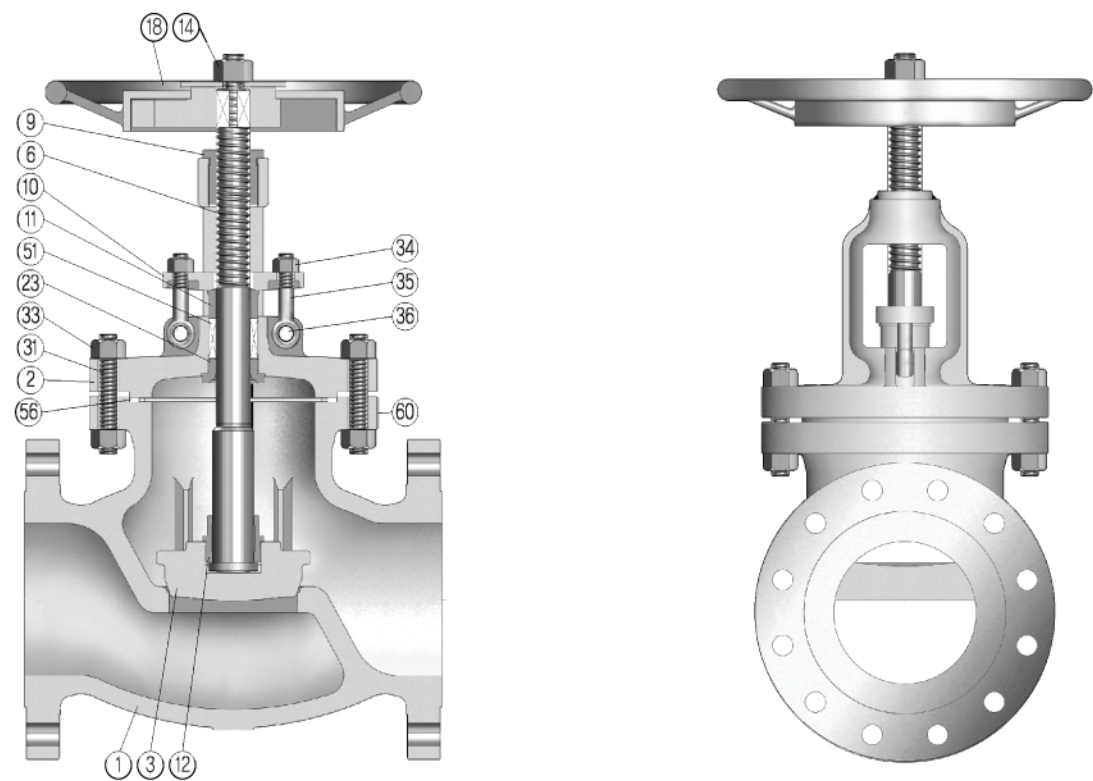
③①, ③③ BONNET BOLTING

Bonnet studs and nuts are manufactured from alloy steel to the relevant ASTM standard.



CAST STEEL

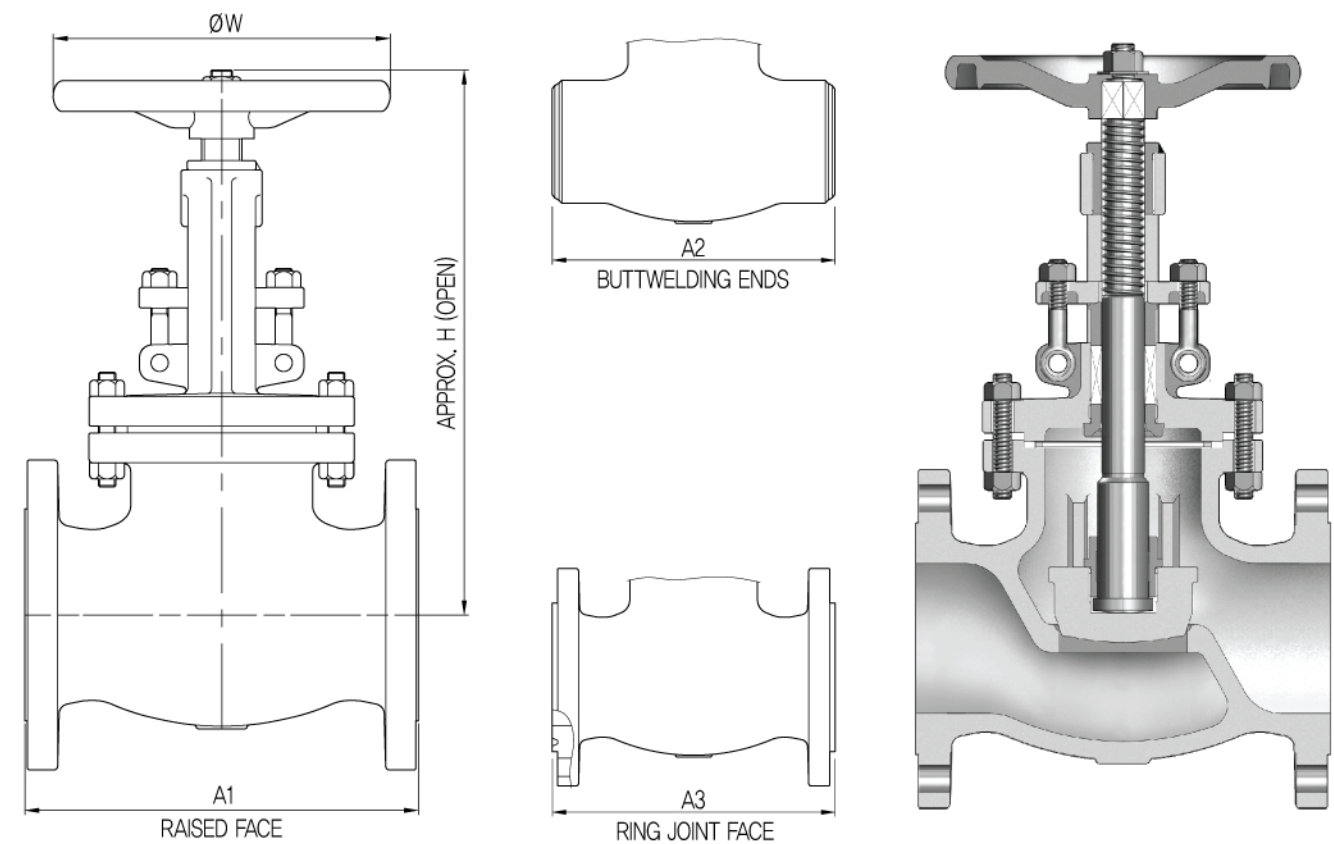
GLOBE VALVES BOLTED BONNET



No	PARTS NAME	ASTM SPECIFICATIONS					
		CARBON STEEL	LOW TEMP. SERVICE		HIGH TEMP. SERVICE		
1	BODY	A216-WCB	A352-LCB	A352-LC2	A217-WC6	A217-WC9	A217-C5
2	BONNET	A216-WCB	A352-LCB	A352-LC2	A217-WC6	A217-WC9	A217-C5
3	DISC	A216-WCB / A217-CA15	A352-LCB / A351-CF8	A352-LC2 / A351-CF8	A217-WC6 / A217-CA15	A217-WC9 / A217-CA15	A217-C5 / A217-CA15
6	STEM	A479-410	A479-304	A479-304	A479-410	A479-410	A479-410
9	YOKE BUSH	A439-D2C	A439-D2C	A439-D2C	A439-D2C	A439-D2C	A439-D2C
10	GLAND FLANGE	A105 / A283-D	A105 / A283-D	A105 / A283-D	A105 / A283-D	A105 / A283-D	A105 / A283-D
11	PACKING GLAND	A576-1020 + HCr.	A576-1020 + HCr.	A576-1020 + HCr.	A576-1020 + HCr.	A576-1020 + HCr.	A576-1020 + HCr.
12	DISC NUT	A479-410	A479-304	A479-304	A479-410	A479-410	A479-410
14	WHEEL NUT	A563-A	A563-A	A563-A	A563-A	A563-A	A563-A
18	HANDWHEEL	A536-60	A536-60	A536-60	A536-60	A536-60	A536-60
23	BACK SEAT RING	A479-410	A479-304	A479-304	A479-410	A479-410	A479-410
31	BONNET BOLT	A193-B7	A320-L7	A320-L7	A193-B16	A193-B16	A193-B16
33	BONNET NUT	A194-2H	A194-4L	A194-4L	A194-7	A194-7	A194-7
34	HINGE NUT	A194-2H	A194-2H	A194-2H	A194-2H	A194-2H	A194-2H
35	HINGE BOLT	A307-B	A307-B	A307-B	A307-B	A307-B	A307-B
36	HINGE PIN	A576-1020	A576-1020	A576-1020	A576-1020	A576-1020	A576-1020
51	PACKING	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE
56	GASKET	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE
60	NAME PLATE	A240-304	A240-304	A240-304	A240-304	A240-304	A240-304

CAST STEEL

GLOBE VALVES BOLTED BONNET • CLASS 150/300



CLASS 150

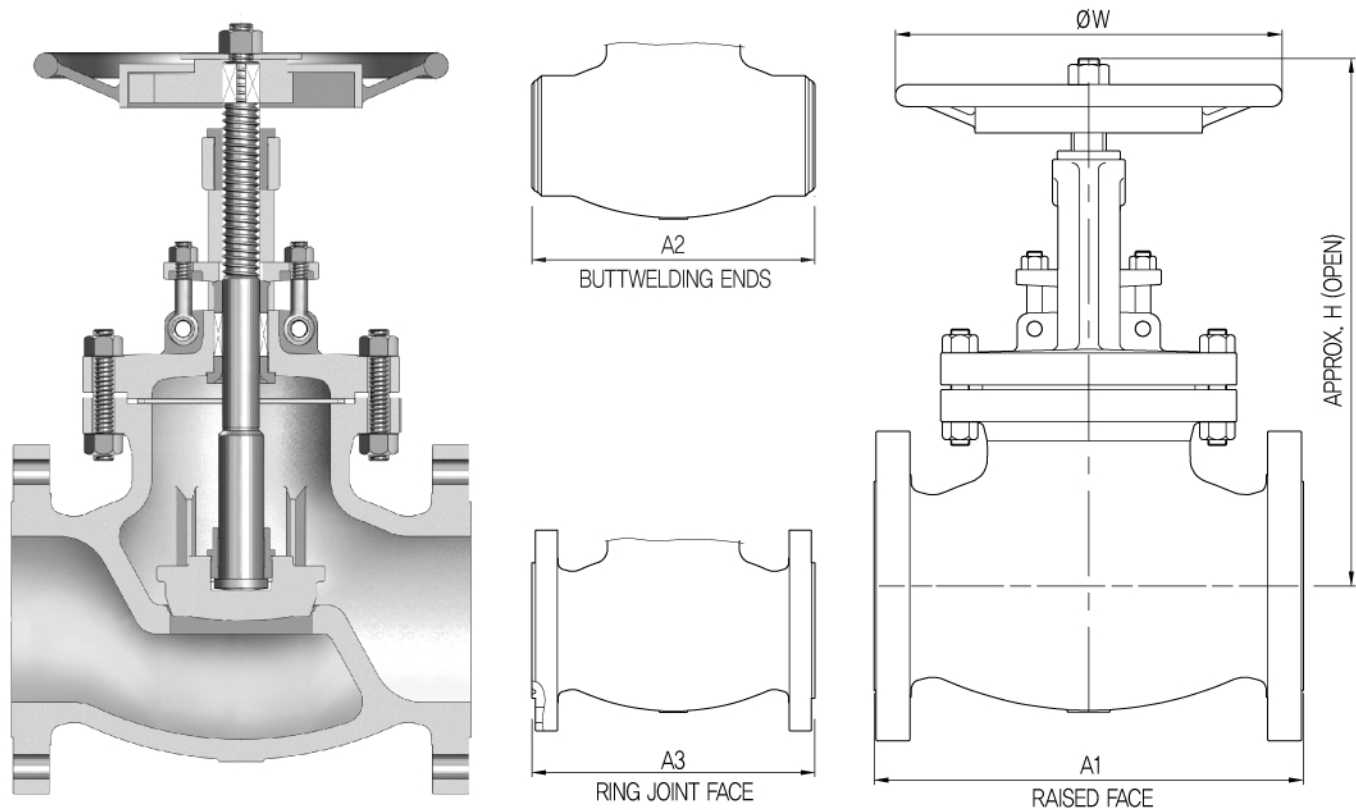
VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450
A1 & A2 (RF & BW)	inch	8.00	8.50	9.50	11.50	14.00	16.00	19.50	24.50	27.50	31.00	36.00	38.50
	mm	203	216	241	292	356	406	495	622	698	787	914	978
H (OPEN HEIGHT)	inch	13.39	14.57	15.35	17.32	18.50	21.65	24.41	27.95	30.71	37.40	55.12	62.99
	mm	340	370	390	440	470	550	620	710	780	950	1400	1600
W (HANDWHEEL DIA.)	inch	7.09	7.87	9.84	9.84	11.02	12.40	15.75	15.75	19.69	23.62	19.69	24.80
	mm	180	200	250	250	280	315	400	400	500	600	500	630

CLASS 300

VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450
A1 & A2 (RF & BW)	inch	10.50	11.50	12.50	14.00	15.75	17.50	22.00	24.50	28.00	33.00	34.00	38.50
	mm	267	292	318	356	400	444	559	622	711	838	864	978
A3 (RTJ)	inch	11.12	12.12	13.12	14.62	16.37	18.12	22.62	25.12	28.62	33.62	34.62	39.12
	mm	283	308	334	372	416	460	575	638	727	854	880	994
H (OPEN HEIGHT)	inch	13.39	14.57	15.35	17.72	20.87	23.62	29.53	45.28	55.12	61.02	66.14	70.87
	mm	340	370	390	450	530	600	750	1150	1400	1550	1680	1800
W (HANDWHEEL DIA.)	inch	7.09	7.87	9.84	11.02	13.78	15.75	19.69	19.69	24.80	24.80	27.95	31.50
	mm	180	200	250	280	350	400	500	500	630	630	710	800

CAST STEEL

GLOBE VALVES BOLTED BONNET • CLASS 600/900



CLASS 600

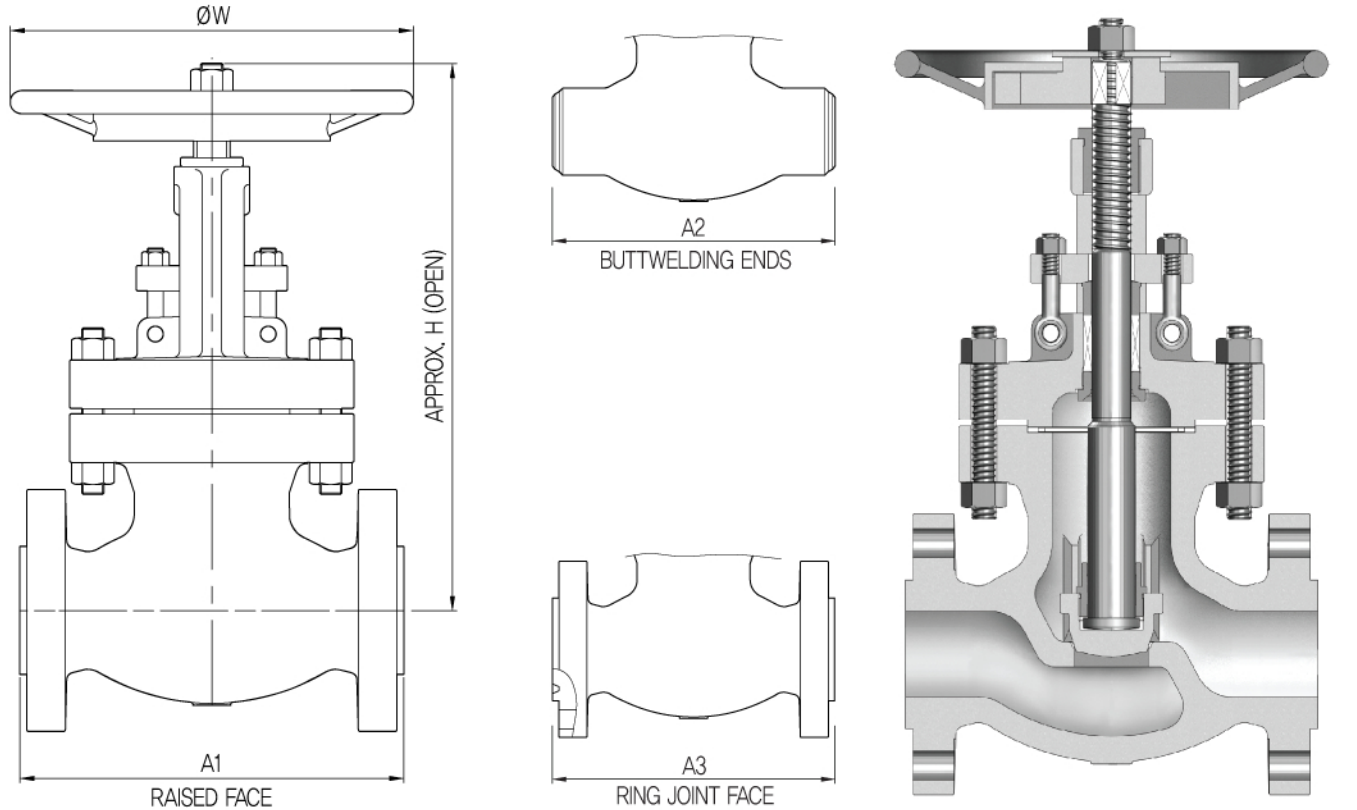
VALVE	inch	2	2.5	3	4	5	6	8	10	12
SIZE	mm	50	65	80	100	125	150	200	250	300
A1 & A2 (RF & BW)	inch	11.50	13.00	14.00	17.00	20.00	22.00	26.00	31.00	33.00
	mm	292	330	356	432	508	559	660	787	838
A3 (RTJ)	inch	11.62	13.12	14.12	17.12	20.12	22.12	26.12	31.12	33.12
	mm	295	333	359	435	511	562	663	790	841
H (OPEN HEIGHT)	inch	14.57	17.72	18.90	20.87	26.38	31.50	47.24	61.02	68.90
	mm	370	450	480	530	670	800	1200	1550	1750
W (HANDWHEEL DIA.)	inch	8.82	11.02	13.78	15.75	19.69	23.62	24.80	27.95	24.80
	mm	224	280	350	400	500	600	630	710	630

CLASS 900

VALVE	inch	2	2.5	3	4	5	6	8	10	12
SIZE	mm	50	65	80	100	125	150	200	250	300
A1 & A2 (RF & BW)	inch	14.50	16.50	15.00	18.00	22.00	24.00	29.00	33.00	38.00
	mm	368	419	381	457	559	610	737	838	965
A3 (RTJ)	inch	14.62	16.62	15.12	18.12	22.12	24.12	29.12	33.12	38.12
	mm	371	422	384	460	562	613	740	841	968
H (OPEN HEIGHT)	inch	22.44	22.83	22.83	25.59	31.50	45.28	51.18	61.02	66.93
	mm	570	580	580	650	800	1150	1300	1550	1700
W (HANDWHEEL DIA.)	inch	13.78	13.78	15.75	15.75	23.62	24.80	27.95	24.80	31.50
	mm	350	350	400	400	600	630	710	630	800

CAST STEEL

GLOBE VALVES BOLTED BONNET • CLASS 1500/2500



CLASS 1500

VALVE	inch	2	2.5	3	4	5	6	8	10	12
SIZE	mm	50	65	80	100	125	150	200	250	300
A1 & A2 (RF & BW)	inch	14.50	16.50	18.50	21.50	26.50	27.75	32.75	39.00	44.50
	mm	368	419	470	546	673	705	832	991	1130
A3 (RTJ)	inch	14.62	16.62	18.62	21.62	26.62	28.00	33.13	39.38	45.12
	mm	371	422	473	549	676	711	842	1001	1146
H (OPEN HEIGHT)	inch	22.44	22.83	23.23	33.46	42.52	47.24	66.93	76.77	94.49
	mm	570	580	590	850	1080	1200	1700	1950	2400
W (HANDWHEEL DIA.)	inch	13.78	13.78	15.75	23.62	19.69	24.80	24.80	31.50	35.43
	mm	350	350	400	600	500	630	630	800	900

CLASS 2500

VALVE	inch	2	2.5	3	4	5	6	8	10	12
SIZE	mm	50	65	80	100	125	150	200	250	300
A1 & A2 (RF & BW)	inch	17.75	20.00	22.75	26.50	31.25	36.00	40.25	50.00	56.00
	mm	451	508	578	673	794	914	1022	1270	1422
A3 (RTJ)	inch	17.87	20.25	23.00	26.88	31.75	36.50	40.87	50.88	56.88
	mm	454	514	584	683	807	927	1038	1292	1444
H (OPEN HEIGHT)	inch	24.41	27.95	32.28	47.24	63.78	73.23	94.49	104.33	122.05
	mm	620	710	820	1200	1620	1860	2400	2650	3100
W (HANDWHEEL DIA.)	inch	11.81	11.81	15.75	19.69	24.80	24.80	31.50	31.50	39.37
	mm	300	300	400	500	630	630	800	800	1000

CAST STEEL BOLTED COVER SWING CHECK VALVES



CAST STEEL

SWING CHECK VALVES BOLTED COVER

① BODY

The body is in cast steel, carefully designed to keep pressure drops to a minimum. A wide opening on top of the body permits easy inspection and maintenance. The basic dimension, i.e., wall thickness, face to face and flanges, comply with the relevant API and ANSI standards. The body-to-cover flange is circular. The body is threaded for a renewable seats and an integral over-travel stop is incorporated for the disc. Bosses are provided for drain taps or by-pass piping.

② COVER

The cover is in cast steel. The sealing surface for the connection to the body are recessed in the 150 and 300 class and ring joint in the higher classes.

③ DISC

The disc is part of the trim. The back side has a threaded stud for attachment to the hinge with a stainless steel nut and split pin to insure a strong connection. The seating face is ground and lapped, for a perfectly tight seal.

②① BODY SEAT RING

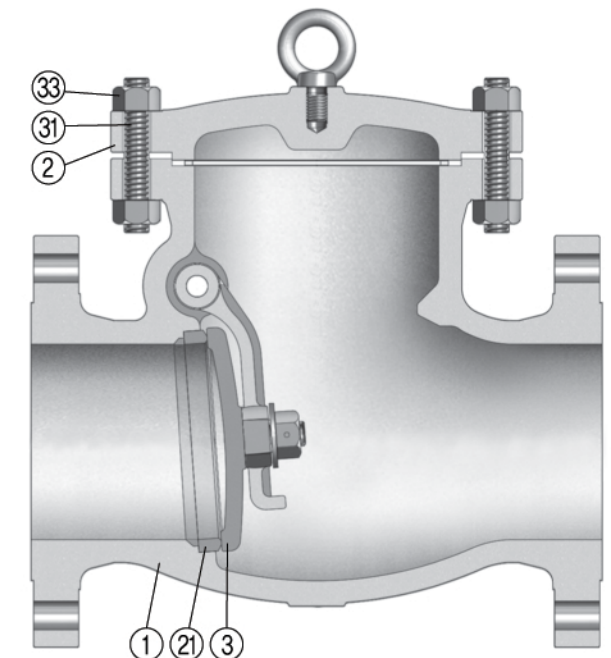
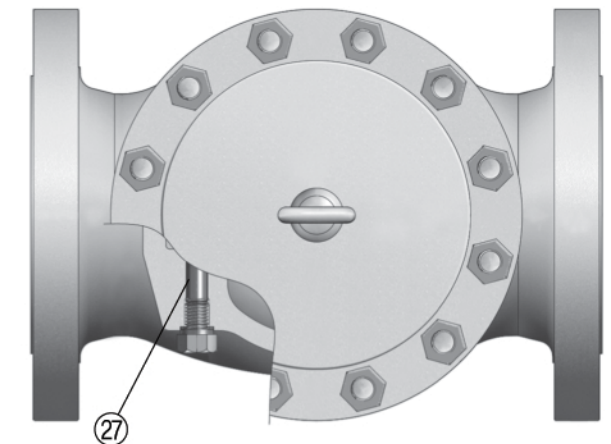
The seat rings as a welded-in type is designed to prevent any turbulence and damage by corrosion. It is are forged or rolled into one piece for all dimensions, heat treated to obtain the desired surface hardness, and cleaned thoroughly before assembling.

②⑦ HINGE PIN

The hinge pin is part of the trim. The hinge pin is retained in the body by threaded plugs and sealed by metallic or non-asbestos gaskets. The pin can be easily removed for maintenance of the valve.

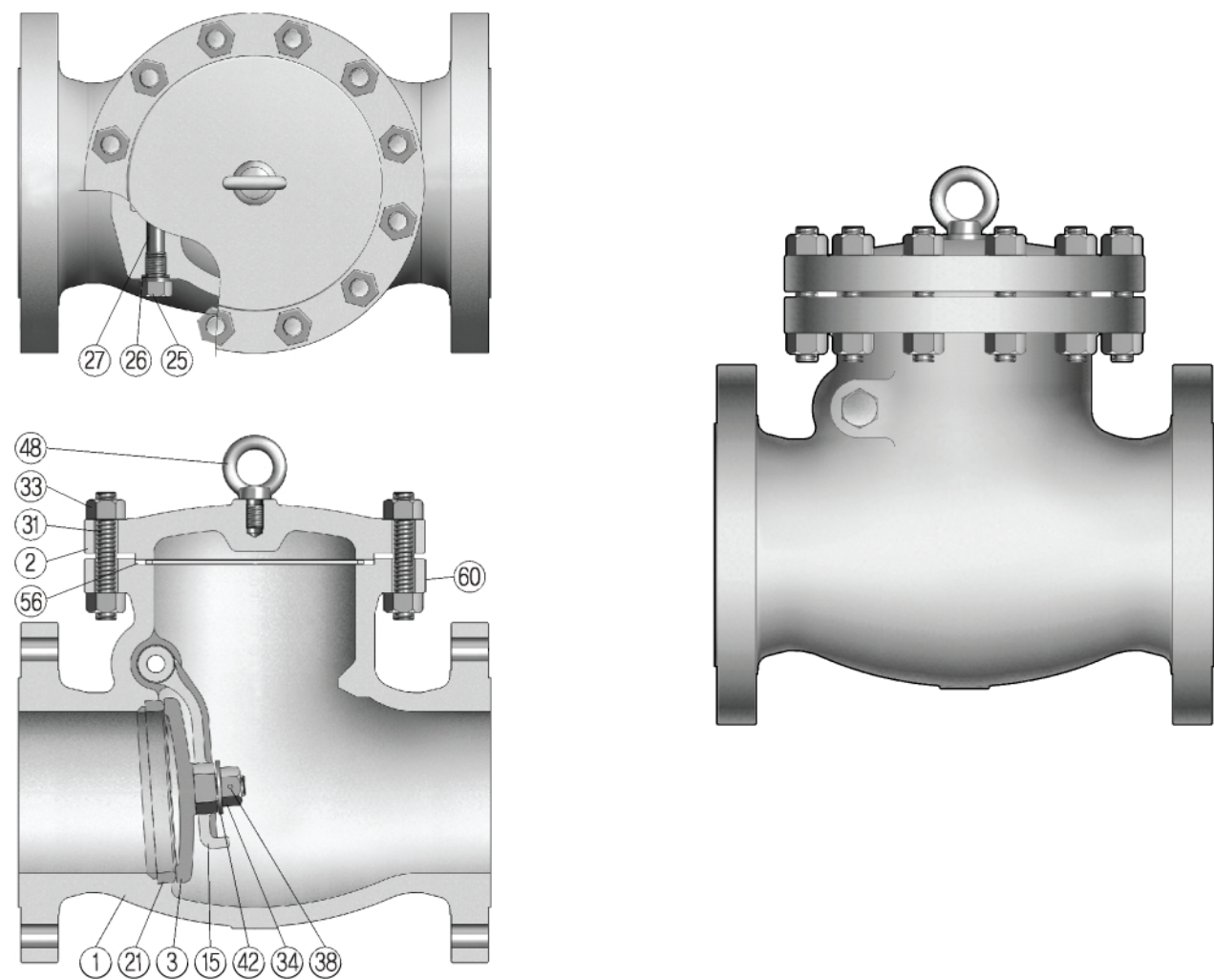
③①, ③③ COVER BOLTING

Cover studs and nuts are manufactured from alloy steel to the relevant ASTM standard.



CAST STEEL

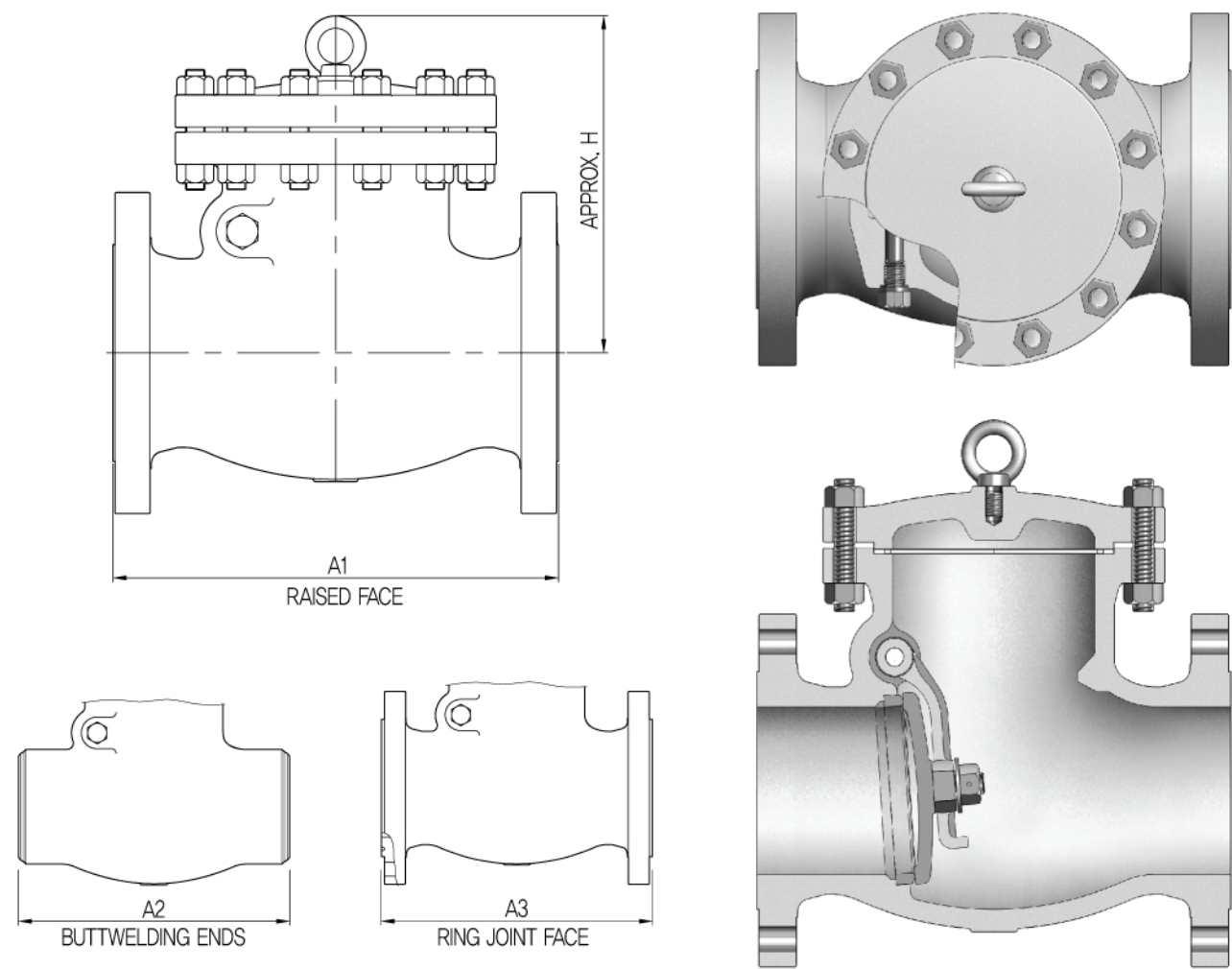
SWING CHECK VALVES BOLTED COVER



No	PARTS NAME	STANDARD	ASTM SPECIFICATIONS			
			LOW TEMP. SERVICE		HIGH TEMP. SERVICE	
1	BODY	A216-WCB	A352-LCB	A352-LC2	A217-WC6	A217-WC9
2	COVER	A216-WCB	A352-LCB	A352-LC2	A217-WC6	A217-WC9
3	DISC	A216-WCB / A217-CA15	A352-LCB / A351-CF8	A352-LC2 / A351-CF8	A217-WC6 / A217-CA15	A217-WC9 / A217-CA15
15	ARM	A216-WCB	A352-LCB	A352-LC2	A217-WC6	A217-WC9
21	BODY SEAT RING	A106	A240-304	A240-304	A182-F11	A182-F22
25	PLUG BOLT	A307-B	A479-304	A479-304	A479-410	A479-410
26	PLUG GASKET	SOFT STEEL	A479-304	A479-304	A479-410	A479-410
27	ROD PIN	A479-410	A479-304	A479-304	A479-410	A479-410
31	COVER BOLT	A193-B7	A320-L7	A320-L7	A193-B16	A193-B16
33	COVER NUT	A194-2H	A194-4L	A194-4L	A194-7	A194-7
34	DISC NUT	A194-2H	A194-2H	A194-2H	A194-2H	A194-2H
38	SPLIT PIN	A580-304	A580-304	A580-304	A580-304	A580-304
42	PLAIN WASHER	A240-304	A240-304	A240-304	A240-304	A240-304
48	EYE BOLT	A307-B	A307-B	A307-B	A307-B	A307-B
56	GASKET	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE
60	NAME PLATE	A240-304	A240-304	A240-304	A240-304	A240-304

CAST STEEL

SWING CHECK VALVES BOLTED COVER • CLASS 150/300



CLASS 150

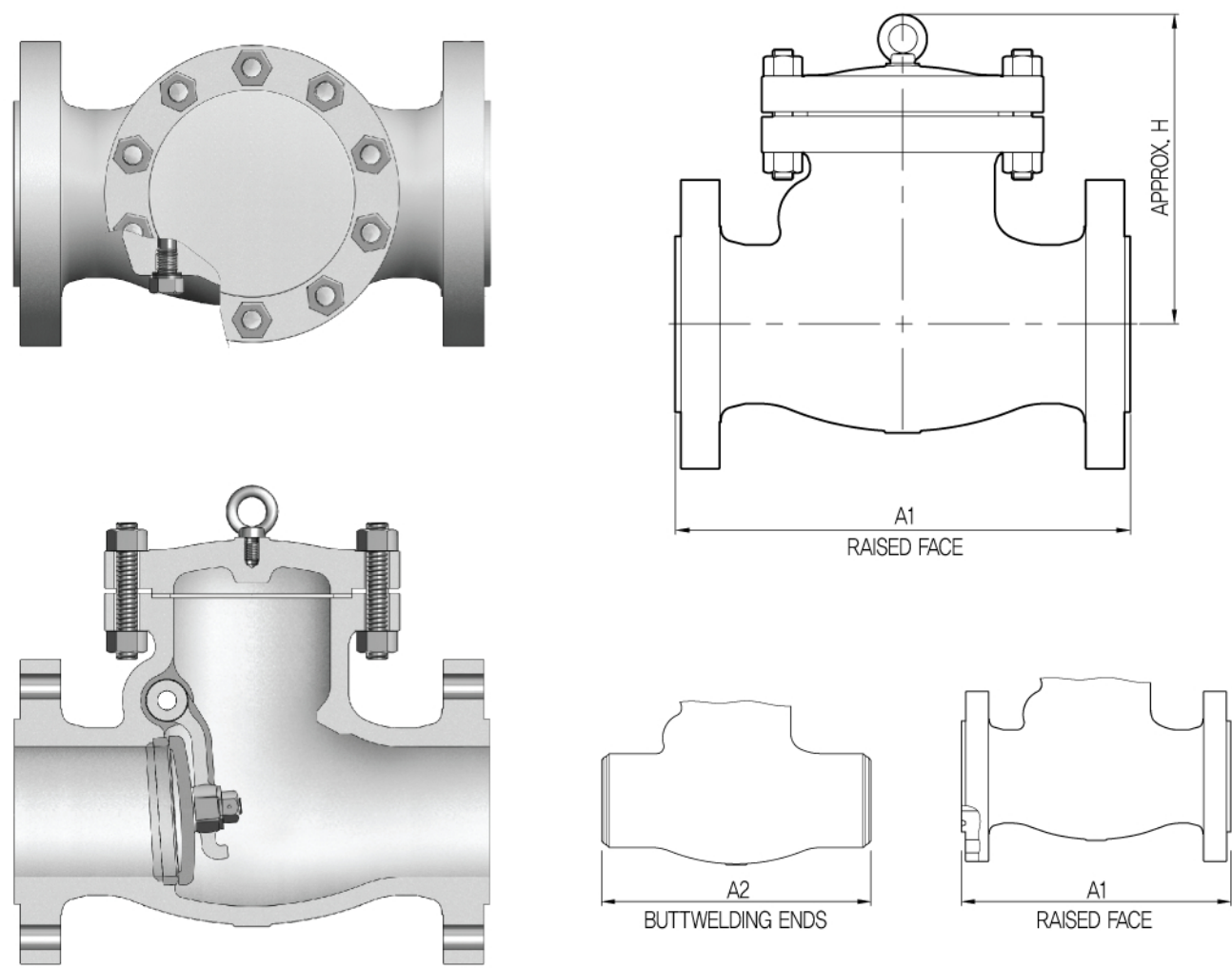
VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24	26	28	30
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600	650	700	750
A1 & A2 (RF & BW)	inch	8.00	8.50	9.50	11.50	13.00	14.00	19.50	24.50	27.50	31.00	34.00	38.50	38.50	51.00	51.00	57.00	60.00
H (VALVE HEIGHT)	inch	6.10	6.69	7.09	7.87	9.06	9.84	13.39	15.75	17.72	18.50	23.62	26.38	26.77	31.50	32.28	33.46	41.34

CLASS 300

VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24	26	28	30
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600	650	700	750
A1 & A2 (RF & BW)	inch	10.50	11.50	12.50	14.00	15.75	17.50	21.00	24.50	28.00	33.00	34.00	38.50	40.00	53.00	53.00	59.00	62.75
A3 (RTJ)	inch	11.12	12.12	13.12	14.62	16.37	18.12	21.62	25.12	28.62	33.62	34.62	39.12	40.75	53.88	54.00	60.00	63.75
H (VALVE HEIGHT)	inch	6.30	6.69	7.48	9.06	9.84	13.39	16.14	17.72	19.69	22.44	23.62	26.77	29.92	35.43	42.52	43.31	47.24

CAST STEEL

SWING CHECK VALVES BOLTED COVER • CLASS 600/900



CLASS 600

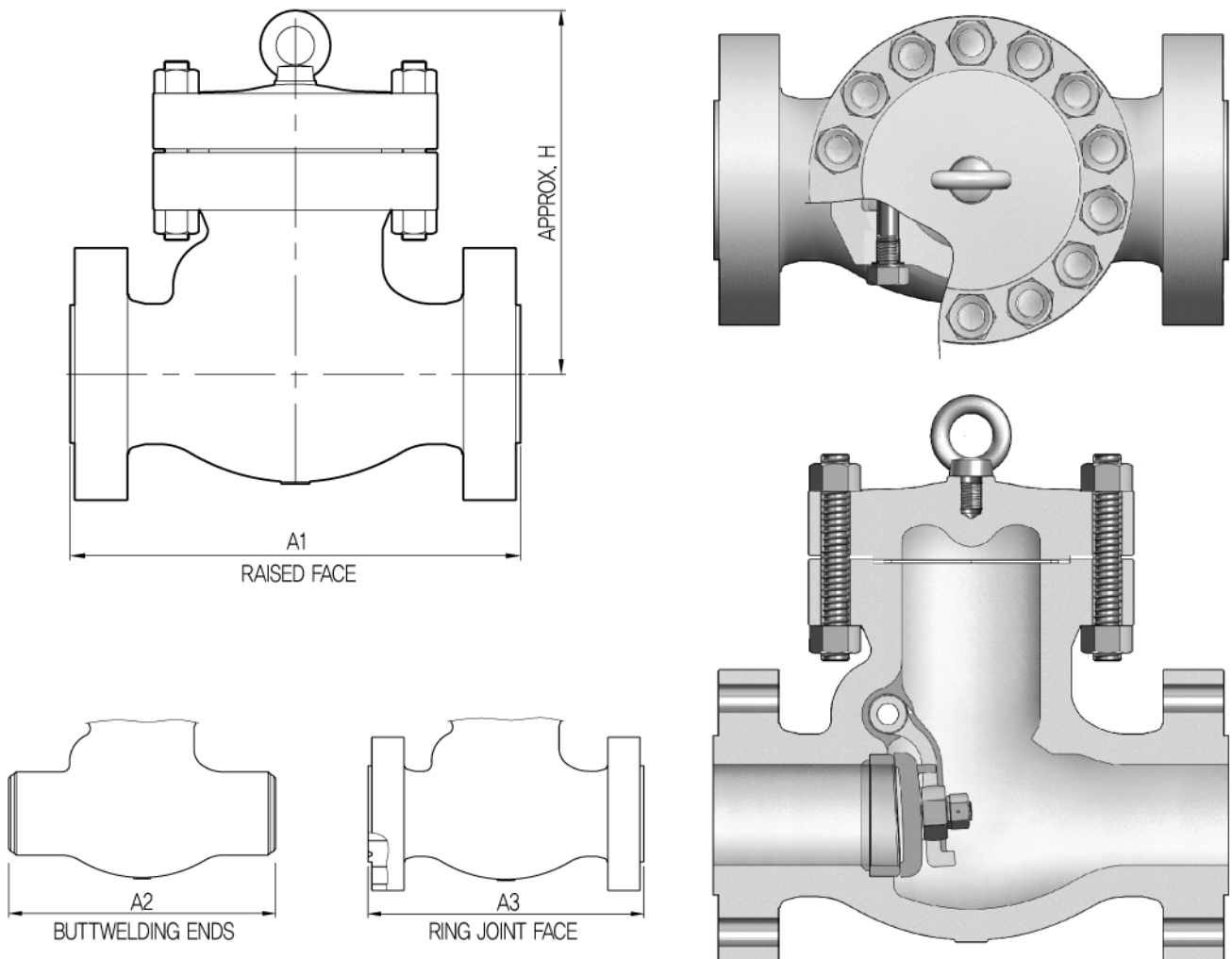
VALVE SIZE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24	26	28	30
	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600	650	700	750
A1 & A2 (RF & BW)	inch	11.50	13.00	14.00	17.00	20.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00	57.00	63.00	65.00
	mm	292	330	356	432	508	559	660	787	838	889	991	1092	1194	1397	1448	1600	1651
A3 (RTJ)	inch	11.62	13.12	14.12	17.12	20.12	22.12	26.12	31.12	33.12	35.12	39.12	43.12	47.25	55.38	57.50	63.50	65.50
	mm	295	333	359	435	511	562	663	790	841	892	994	1095	1200	1407	1461	1613	1664
H (VALVE HEIGHT)	inch	7.48	8.66	9.06	11.02	14.17	14.96	18.11	22.83	24.80	26.38	29.13	31.10	34.65	43.31	47.24	49.21	55.12
	mm	190	220	230	280	360	380	460	580	630	670	740	790	880	1100	1200	1250	1400

CLASS 900

VALVE SIZE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24
	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
A1 & A2 (RF & BW)	inch	14.50	16.50	15.00	18.00	22.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	61.00
	mm	368	419	381	457	559	610	737	838	965	1029	1130	1219	1321	1549
A3 (RTJ)	inch	14.62	16.62	15.12	18.12	22.12	24.12	29.12	33.12	38.12	40.88	44.88	48.50	52.50	61.75
	mm	371	422	384	460	562	613	740	841	968	1039	1140	1232	1334	1568
H (VALVE HEIGHT)	inch	9.45	11.42	12.60	13.78	15.75	16.93	0.00	22.83	25.59	30.71	35.43	41.34	43.31	49.21
	mm	240	290	320	350	400	430		580	650	780	900	1050	1100	1250

CAST STEEL

SWING CHECK VALVES BOLTED COVER • CLASS 1500/2500



CLASS 1500

VALVE SIZE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24
	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
A1 & A2 (RF & BW)	inch	14.50	16.50	18.50	21.50	26.50	27.75	32.75	39.00	44.50	49.50	54.50	60.50	65.50	76.50
	mm	368	419	470	546	673	705	832	991	1130	1257	1384	1537	1664	1943
A3 (RTJ)	inch	14.62	16.62	18.62	21.62	26.62	28.00	33.13	39.38	45.12	50.25	55.38	61.38	66.38	77.62
	mm	371	422	473	549	676	711	842	1001	1146	1276	1406	1559	1686	1971
H (VALVE HEIGHT)	inch	9.45	11.42	12.80	13.39	21.26	23.23	25.59	30.71	34.65	41.34	43.31	49.21	53.15	62.99
	mm	240	290	325	340	540	590	650	780	880	1050	1100	1250	1350	1600

CLASS 2500

VALVE SIZE	inch	2	2.5	3	4	5	6	8	10	12
	mm	50	65	80	100	125	150	200	250	300
A1 & A2 (RF & BW)	inch	17.75	20.00	22.75	26.50	31.25	36.00	40.25	50.00	56.00
	mm	451	508	578	673	794	914	1022	1270	1422
A3 (RTJ)	inch	17.87	20.25	23.00	26.88	31.75	36.50	40.87	50.88	56.88
	mm	454	514	584	683	807	927	1038	1292	1444
H (VALVE HEIGHT)	inch	11.42	14.96	16.54	18.90	22.05	25.59	28.35	33.46	39.37
	mm	290	380	420	480	560	650	720	850	1000

CAST STAINLESS STEEL VALVES

- GATE VALVES – Bolted Bonnet
- GLOBE VALVES – Bolted Bonnet
- SWING CHECK VALVES – Bolted Cover
- DUO–CHECK VALVES



CAST STAINLESS STEEL

GATE VALVES BOLTED BONNET

① BODY

The body is in cast stainless steel and is carefully designed in all its details. The basic dimension, i.e. wall thickness, face to face and flanges comply with the relevant API and ANSI standards. The sealing surfaces for connection to the bonnet are flat finish in the 150lb Class, recessed in the 300lb Class or may be ring joint in the 600lb Class and above. Bosses may be provided for drain taps or by-pass piping.

② BONNET

The bonnet is in stainless steel. It is machined to accept the yoke sleeve and incorporates a stuffing box dimension in accordance with the API standard.

③ WEDGE

The wedge is part of the trim. It is normally supplied as flexible. It is connected to the stem by means of a T-joint. The guides on each side of the wedge are casted for proper alignment with the body guides. Special attention is given to the seating surface which are ground and lapped to insure a perfectly tight seal.

⑥ STEM

The stem is part of the trim. A stem is provided with a T-head. A ground backseat is provided to ensure perfectly tight seal to the stuffing box when the valve is fully open. The stem is ground to minimize friction and prevent damage to gland packing. The threading is trapezoidal ACME type. Dimensions comply with the applicable standard.

⑧ YOKE SLEEVE

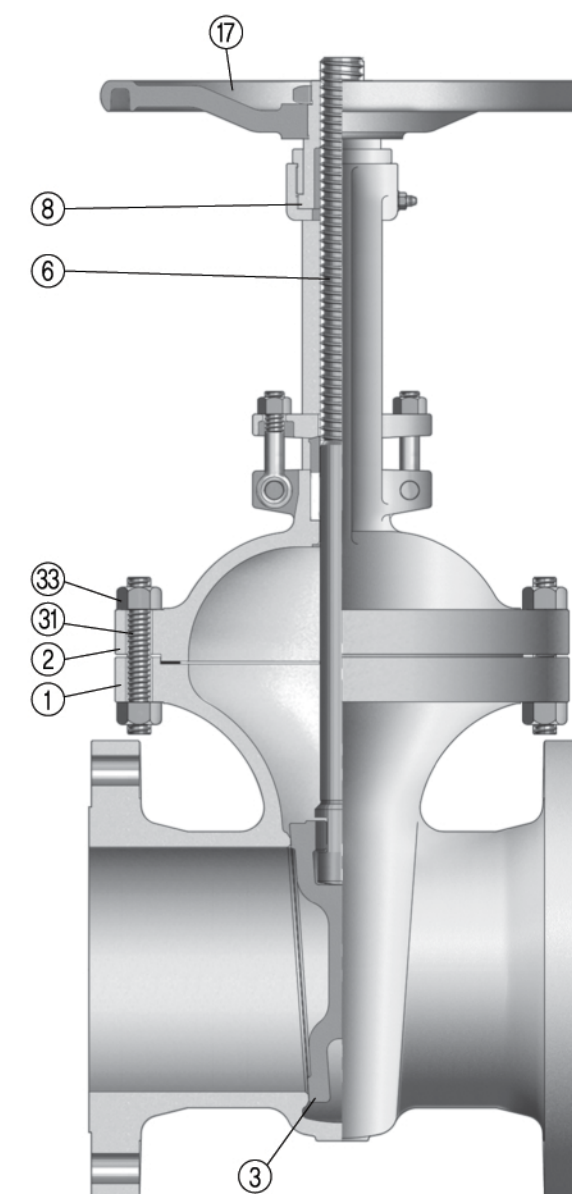
The yoke sleeve is made from bronze, stainless steel or ductile iron having high resistance to wear and a high melting point. It is designed to permit removal from the bonnet or the yoke while the valve is in service. Gate valves 6" 600lb Class and above are fitted with a ball thrust bearing.

⑰ HANDWHEEL

The steel or nodular iron handwheels are well shaped and large enough to give ease of movement when operating the valve, even under maximum differential pressure.

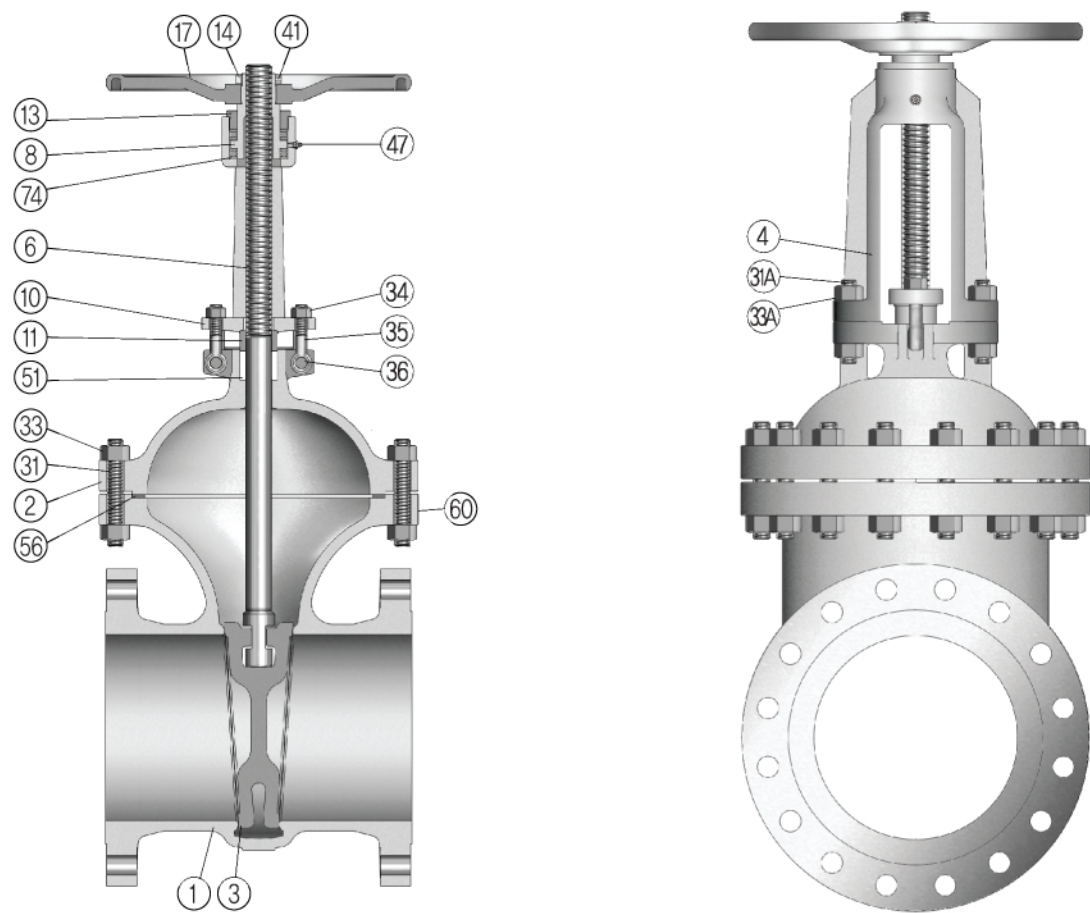
③①, ③③ BONNET BOLTING

Bonnet studs and nuts are manufactured from alloy or stainless steel to the relevant ASTM standard.



CAST STAINLESS STEEL

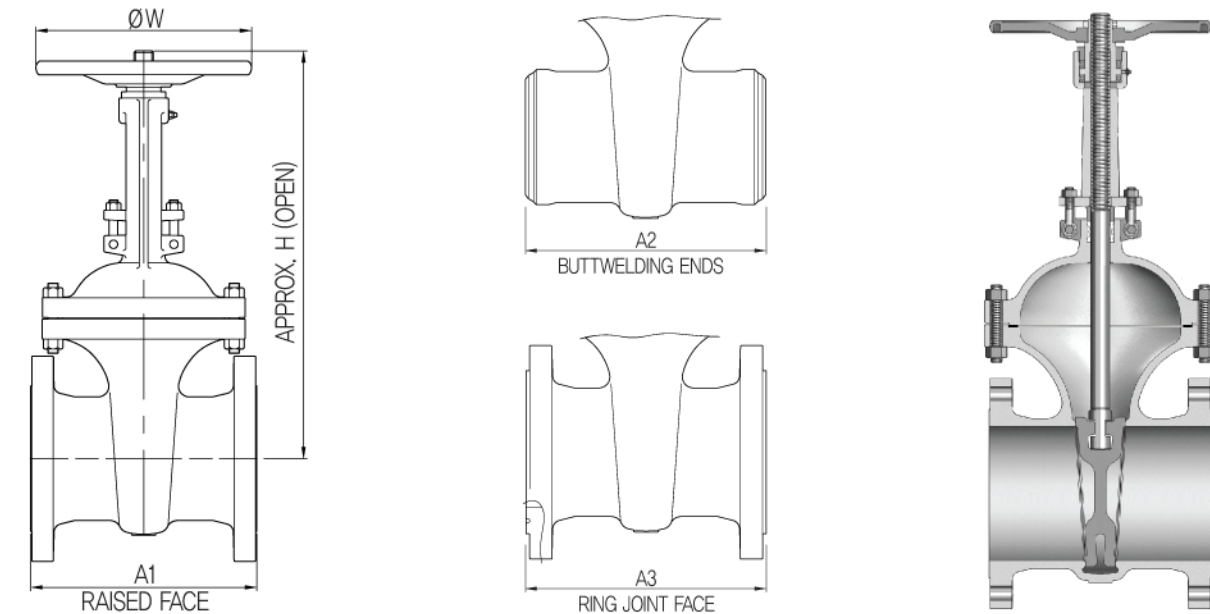
GATE VALVES BOLTED BONNET



No		PARTS NAME				ASTM SPECIFICATIONS				CORROSION SERVICE			
1	BODY	A351-CF8	A351-CF8M	A351-CF3	A351-CF3M								
2	BONNET	A351-CF8	A351-CF8M	A351-CF3	A351-CF3M								
3	WEDGE	A351-CF8	A351-CF8M	A351-CF3	A351-CF3M								
4	YOKE	A351-CF8	A351-CF8	A351-CF8	A351-CF8								
6	STEM	A479-304	A479-316	A479-304L	A479-316L								
8	YOKE SLEEVE	A439-D2C	A439-D2C	A439-D2C	A439-D2C								
10	GLAND FLANGE	A351-CF8 / A240-304	A351-CF8 / A240-304	A351-CF8 / A240-304	A351-CF8 / A240-304								
11	PACKING GLAND	A479-304	A479-316	A479-304L	A479-316L								
13	SLEEVE NUT	A479-304	A479-304	A479-304	A479-304								
14	WHEEL NUT	A351-CF8	A351-CF8	A351-CF8	A351-CF8								
17	HANDWHEEL	A536-60	A536-60	A536-60	A536-60								
31	BONNET BOLT	A193-B8	A193-B8	A193-B8	A193-B8								
31A	YOKE BOLT	A193-B8	A193-B8	A193-B8	A193-B8								
33	BONNET NUT	A194-8	A194-8	A194-8	A194-8								
33A	YOKE NUT	A194-8	A194-8	A194-8	A194-8								
34	HINGE NUT	A194-8	A194-8	A194-8	A194-8								
35	HINGE BOLT	A193-B8	A193-B8	A193-B8	A193-B8								
36	HINGE PIN	A479-304	A479-304	A479-304	A479-304								
41	SET SCREW	304 S.S	304 S.S	304 S.S	304 S.S								
47	GREASE NIPPLE	STEEL + Cr.	STEEL + Cr.	STEEL + Cr.	STEEL + Cr.								
51	PACKING	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE								
56	GASKET	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE								
60	NAME PLATE	A240-304	A240-304	A240-304	A240-304								
74	THRUST BEARING	BEARING STEEL	BEARING STEEL	BEARING STEEL	BEARING STEEL								

CAST STAINLESS STEEL

GATE VALVES BOLTED BONNET • CLASS 150/300/600



CLASS 150

VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
A1 (RF)	inch	7.00	7.50	8.00	9.00	10.00	10.50	11.50	13.00	14.00	15.00	16.00	17.00	18.00	20.00
	mm	178	190	203	229	254	267	292	330	356	381	406	432	457	508
A2 (BW)	inch	8.50	9.50	11.12	12.00	15.00	15.88	16.50	18.00	19.75	22.50	24.00	26.00	28.00	32.00
	mm	216	241	282	305	381	403	419	457	502	572	610	660	711	813
H (OPEN HEIGHT)	inch	14.17	16.14	16.54	22.05	25.98	29.53	38.19	45.28	55.12	61.02	67.72	76.77	82.68	108.27
	mm	360	410	420	560	660	750	970	1150	1400	1550	1720	1950	2100	2750
W (HANDWHEEL DIA.)	inch	7.09	7.09	7.87	8.82	9.84	11.02	12.40	13.98	17.72	19.69	22.05	24.80	24.80	24.80
	mm	180	180	200	224	250	280	315	355	450	500	560	630	630	630

CLASS 300

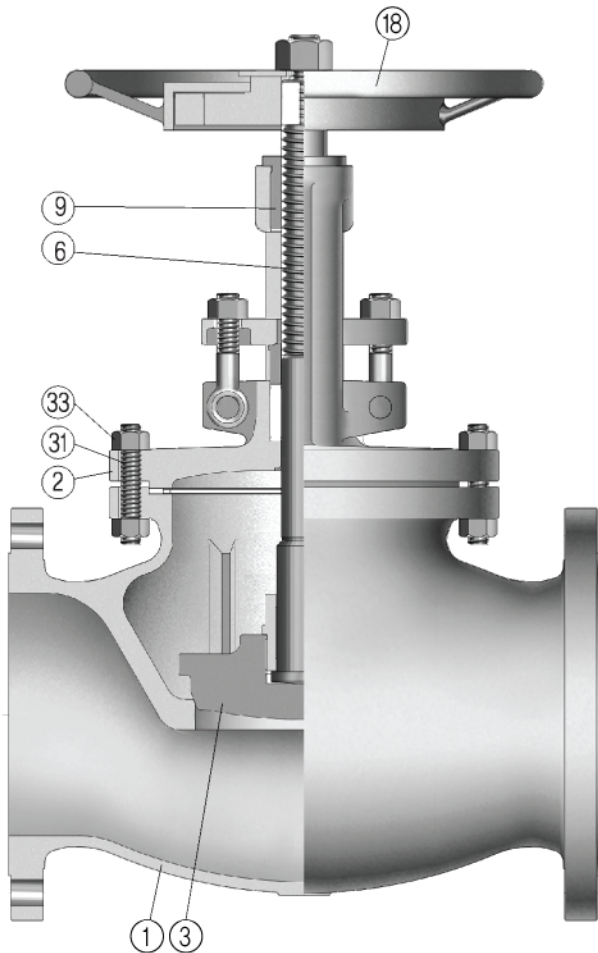
VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
A1 & A2 (RF & BW)	inch	8.50	9.50	11.12	12.00	15.00	15.88	16.50	18.00	19.75	30.00	33.00	36.00	39.00	45.00
	mm	216	241	282	305	381	403	419	457	502	762	838	914	991	1143
A3 (RTJ)	inch	9.12	10.12	11.74	12.62	15.62	16.50	17.12	18.62	20.37	30.62	33.62	36.62	39.75	45.88
	mm	232	257	298	321	397	419	435	473	518	778	854	930	1010	1165
H (OPEN HEIGHT)	inch	13.39	15.35	17.72	21.26	27.17	29.92	38.58	48.03	57.09	61.81	70.87	85.83	96.46	114.17
	mm	340	390	450	540	690	760	980	1220	1450	1570	1800	2180	2450	2900
W (HANDWHEEL DIA.)	inch	7.87	7.87	9.84	11.02	12.40	13.98	15.75	17.72	19.69	22.05	24.80	24.80	24.80	27.95
	mm	200	200	250	280	315	355	400	450	500	560	630	630	630	710

CLASS 600

VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
A1 & A2 (RF & BW)	inch	11.50	13.00	14.00	17.00	20.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00
	mm	292	330	356	432	508	559	660	787	838	889	991	1092	1194	1397
A3 (RTJ)	inch	11.62	13.12	14.12	17.12	20.12	22.12	26.12	31.12	33.12	35.12	39.12	43.12	47.25	55.38
	mm	295	333	359	435	511	562	663	790	841	892	994	1095	1200	1407
H (OPEN HEIGHT)	inch	14.57	17.72	19.69	24.80	29.53	33.07	41.73	50.39	68.90	72.83	82.68	92.52	102.36	114.17
	mm	370	450	500	630	750	840	1060	1280	1750	1850	2100	2350	2600	2900
W (HANDWHEEL DIA.)	inch	7.87	9.84	11.02	13.98	15.75	19.69	19.69	24.80	24.80	24.80	27.95	31.50	31.50	24.80
	mm	200	250	280	355	400	500	500	630	630	630	710	800	800	630

CAST STAINLESS STEEL

GLOBE VALVES BOLTED BONNET



1 BODY

The body is in stainless steel. The basic dimension, i.e. wall thickness, face to face and flanges comply with the relevant API and ANSI standards. The body-to-bonnet flange is circular and the sealing surface for connection to the bonnet are recessed in the 150lb and 300lb class or may be ring joint in the higher classes. The body may be threaded for a renewable seats. Bosses may be provided for drain taps or by-pass piping.

2 BONNET

The bonnet is in stainless steel. It is machined to accept the yoke sleeve and incorporates a stuffing box dimension in accordance with the BS standard.

3 DISC

The disc is part of the trim. It is normally supplied of the flat, tapered or plug type or, on request, of the parabolic regulating type, always free to rotate on the stem. Special attention is given to the sealing face which is ground and lapped for a perfectly tight seal.

6 STEM

The stem is part of the trim. A ground backseat is provided to ensure perfectly tight seal to the stuffing box when the valve is fully open. The stem is attached to the disc by means of a threaded ring which allows the disc to rotate. The stem is ground to minimize friction and prevent damage to gland packing.

9 YOKE BUSH

The yoke sleeve is made from bronze, stainless steel or ductile iron having high resistance to wear and a high melting point. It is screwed into the bonnet and properly sized to withstand the stresses which develop when opening and closing the valve.

18 HANDWHEEL

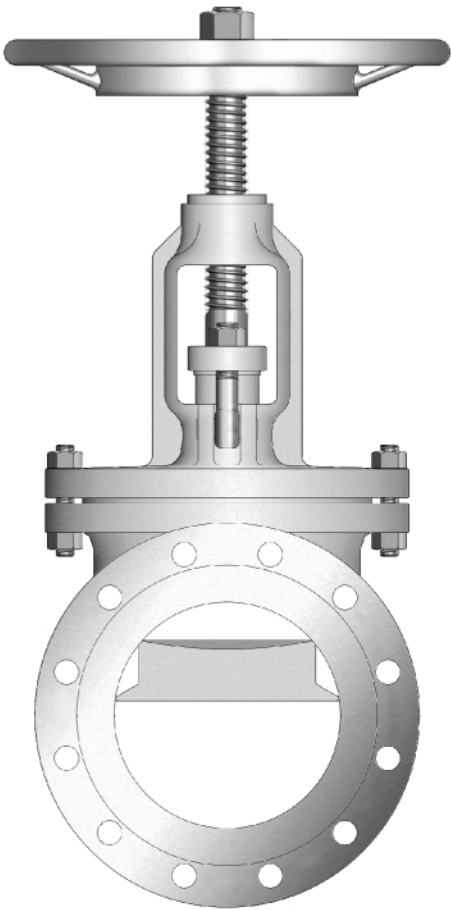
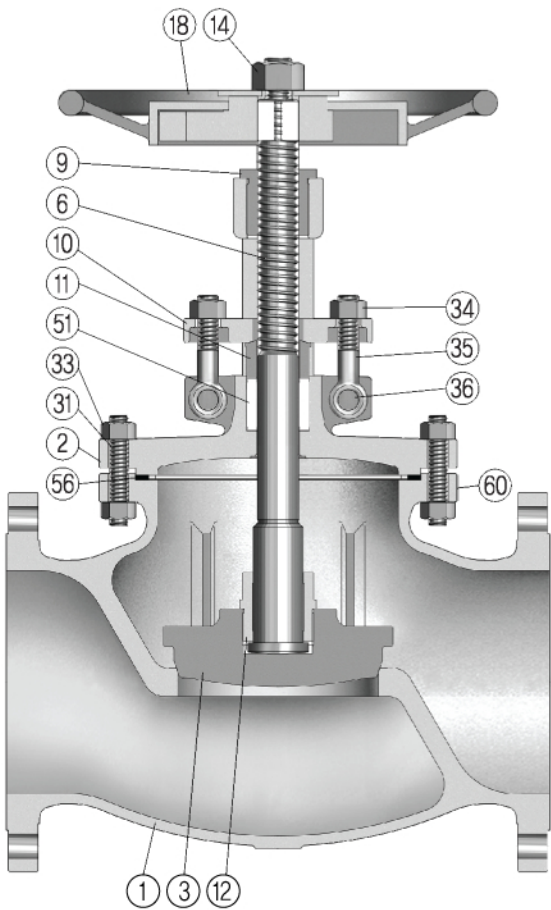
The steel or nodular iron handwheels are well shaped and large enough to give ease of movement when operating the valve, even under maximum differential pressure.

31, 33 BONNET BOLTING

Bonnet studs and nuts are manufactured from alloy or stainless steel to the relevant ASTM standard.

CAST STAINLESS STEEL

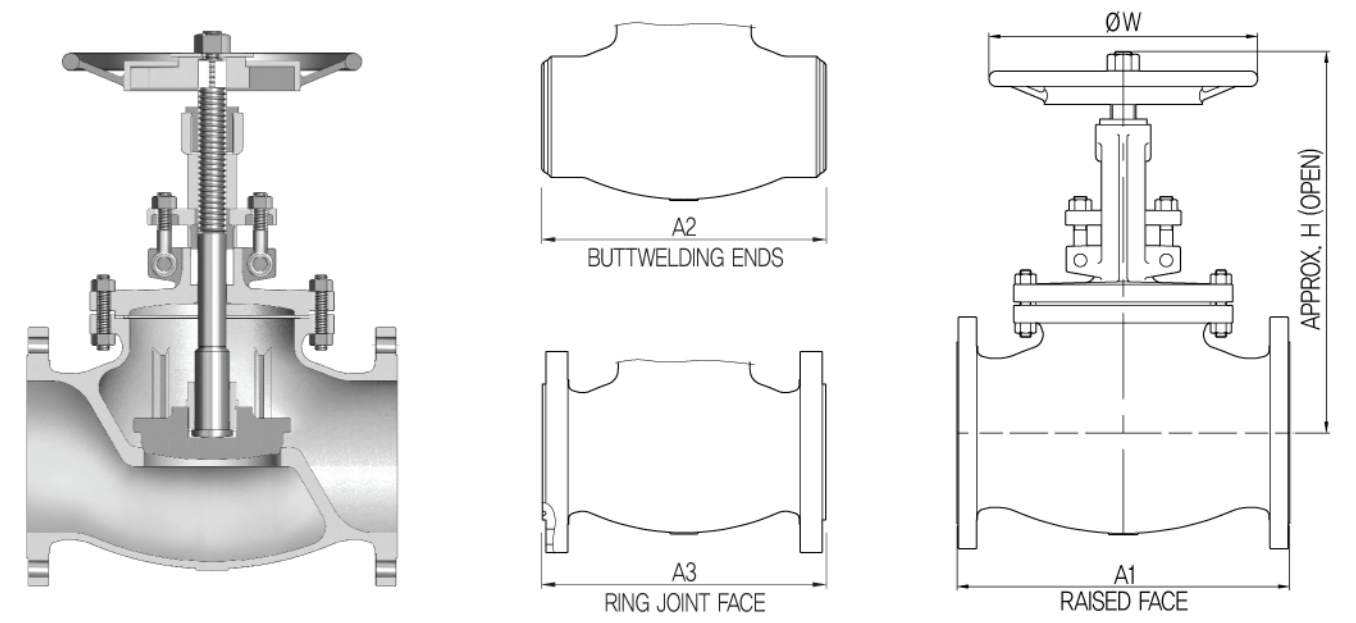
GLOBE VALVES BOLTED BONNET



No	PARTS NAME	ASTM SPECIFICATIONS			
		CORROSION SERVICE			
1	BODY	A351-CF8	A351-CF8M	A351-CF3	A351-CF3M
2	BONNET	A351-CF8	A351-CF8M	A351-CF3	A351-CF3M
3	DISC	A479-304 / A351-CF8	A479-316 / A351-CF8M	A479-304L / A351-CF3	A479-316L / A351-CF3M
6	STEM	A479-304	A479-316	A479-304L	A479-316L
9	YOKE BUSH	A439-D2C	A439-D2C	A439-D2C	A439-D2C
10	GLAND FLANGE	A351-CF8 / A240-304	A351-CF8 / A240-304	A351-CF8 / A240-304	A351-CF8 / A240-304
11	PACKING GLAND	A479-304	A479-316	A479-304L	A479-316L
12	DISC NUT	A479-304	A479-316	A479-304L	A479-316L
14	WHEEL NUT	A194-8	A194-8	A194-8	A194-8
18	HANDWHEEL	A536-60	A536-60	A536-60	A536-60
31	BONNET BOLT	A193-B8	A193-B8	A193-B8	A193-B8
33	BONNET NUT	A194-8	A194-8	A194-8	A194-8
34	HINGE NUT	A194-8	A194-8	A194-8	A194-8
35	HINGE BOLT	A193-B8	A193-B8	A193-B8	A193-B8
36	HINGE PIN	A479-304	A479-304	A479-304	A479-304
51	PACKING	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE
56	GASKET	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE
60	NAME PLATE	A240-304	A240-304	A240-304	A240-304

CAST STAINLESS STEEL

GLOBE VALVES BOLTED BONNET • CLASS 150/300/600



CLASS 150

VALVE SIZE	inch	2	2.5	3	4	5	6	8	10	12
A1 & A2 (RF & BW)	inch	8.00	8.50	9.50	11.50	14.00	16.00	19.50	24.50	27.50
H (OPEN HEIGHT)	mm	203	216	241	292	356	406	495	622	698
W (HANDWHEEL DIA.)	inch	13.39	14.57	15.35	17.32	18.50	21.65	24.41	27.95	30.71
	mm	340	370	390	440	470	550	620	710	780
	inch	7.09	7.87	8.82	9.84	11.02	12.40	15.75	15.75	19.69
	mm	180	200	224	250	280	315	400	400	500

CLASS 300

VALVE SIZE	inch	2	2.5	3	4	5	6	8	10	12
A1 & A2 (RF & BW)	inch	10.50	11.50	12.50	14.00	15.75	17.50	22.00	24.50	28.00
A3 (RTJ)	mm	267	292	318	356	400	444	559	622	711
H (OPEN HEIGHT)	inch	11.12	12.12	13.12	14.62	16.37	18.12	22.62	25.12	28.62
	mm	283	308	334	372	416	460	575	638	727
W (HANDWHEEL DIA.)	inch	13.39	14.57	15.35	17.72	20.87	23.62	29.53	45.28	55.12
	mm	340	370	390	450	530	600	750	1150	1400
	inch	7.09	7.87	9.84	11.02	13.78	15.75	19.69	19.69	24.80
	mm	180	200	250	280	350	400	500	500	630

CLASS 600

VALVE SIZE	inch	2	2.5	3	4	5	6	8	10	12
A1 & A2 (RF & BW)	inch	11.50	13.00	14.00	17.00	20.00	22.00	26.00	31.00	33.00
A3 (RTJ)	mm	292	330	356	432	508	559	660	787	838
H (OPEN HEIGHT)	inch	11.62	13.12	14.12	17.12	20.12	22.12	26.12	31.12	33.12
	mm	295	333	359	435	511	562	663	790	841
W (HANDWHEEL DIA.)	inch	14.57	17.72	18.90	20.87	26.38	31.50	47.24	61.02	68.90
	mm	370	450	480	530	670	800	1200	1550	1750
	inch	8.82	11.02	13.78	15.75	19.69	23.62	24.80	27.95	24.80
	mm	224	280	350	400	500	600	630	710	630

CAST STAINLESS STEEL

SWING CHECK VALVES BOLTED COVER

1 BODY

The body is in stainless steel, carefully designed to keep pressure drops to a minimum. A wide opening on top of the body permits easy inspection and maintenance. The basic dimension, i.e. wall thickness, face to face and flanges, comply with the relevant API and ANSI standards. The body-to-cover flange is circular. Threaded bosses are incorporated to ensure correct alignment of the hinge pin. Bosses may be provided for drain taps or by-pass piping.

2 COVER

The cover is in stainless steel. The sealing surface for the connection to the body are recessed in the 150 and 300 class and ring joint in the higher classes.

3 DISC

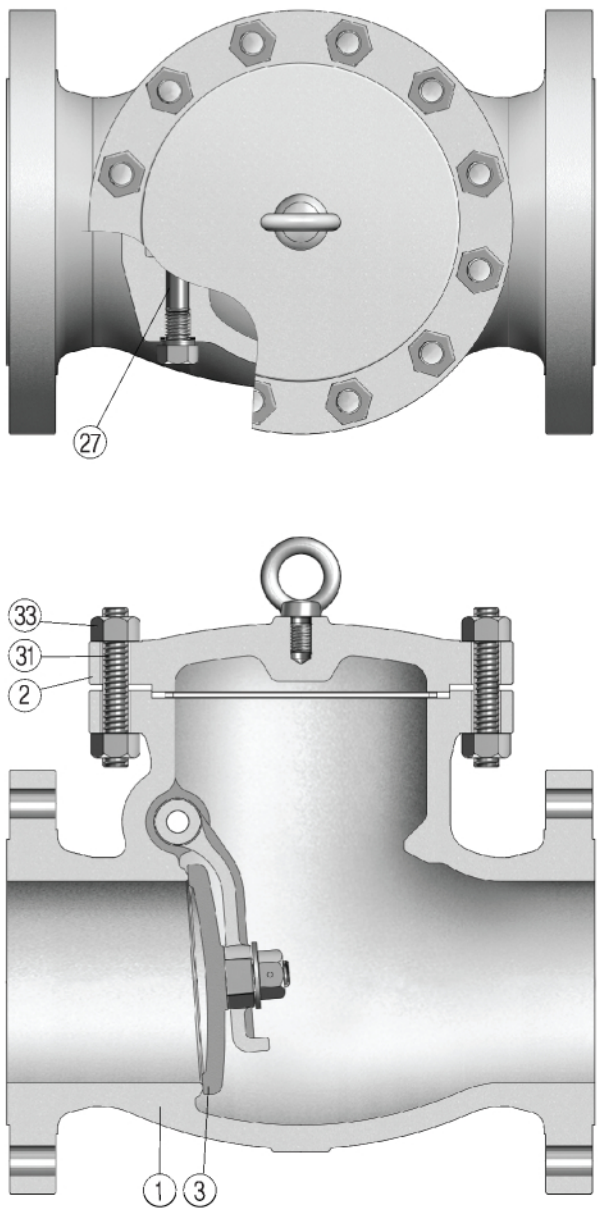
The disc is part of the trim. The back side has a threaded stud for attachment to the hinge with a stainless steel nut and split pin to insure a strong connection. The seating face is ground and lapped, for a perfectly tight seal.

27 HINGE PIN

The hinge pin is part of the trim. The hinge pin is retained in the body by one threaded plugs and sealed by metallic or non-asbestos. The pin can be easily removed for maintenance of the valve.

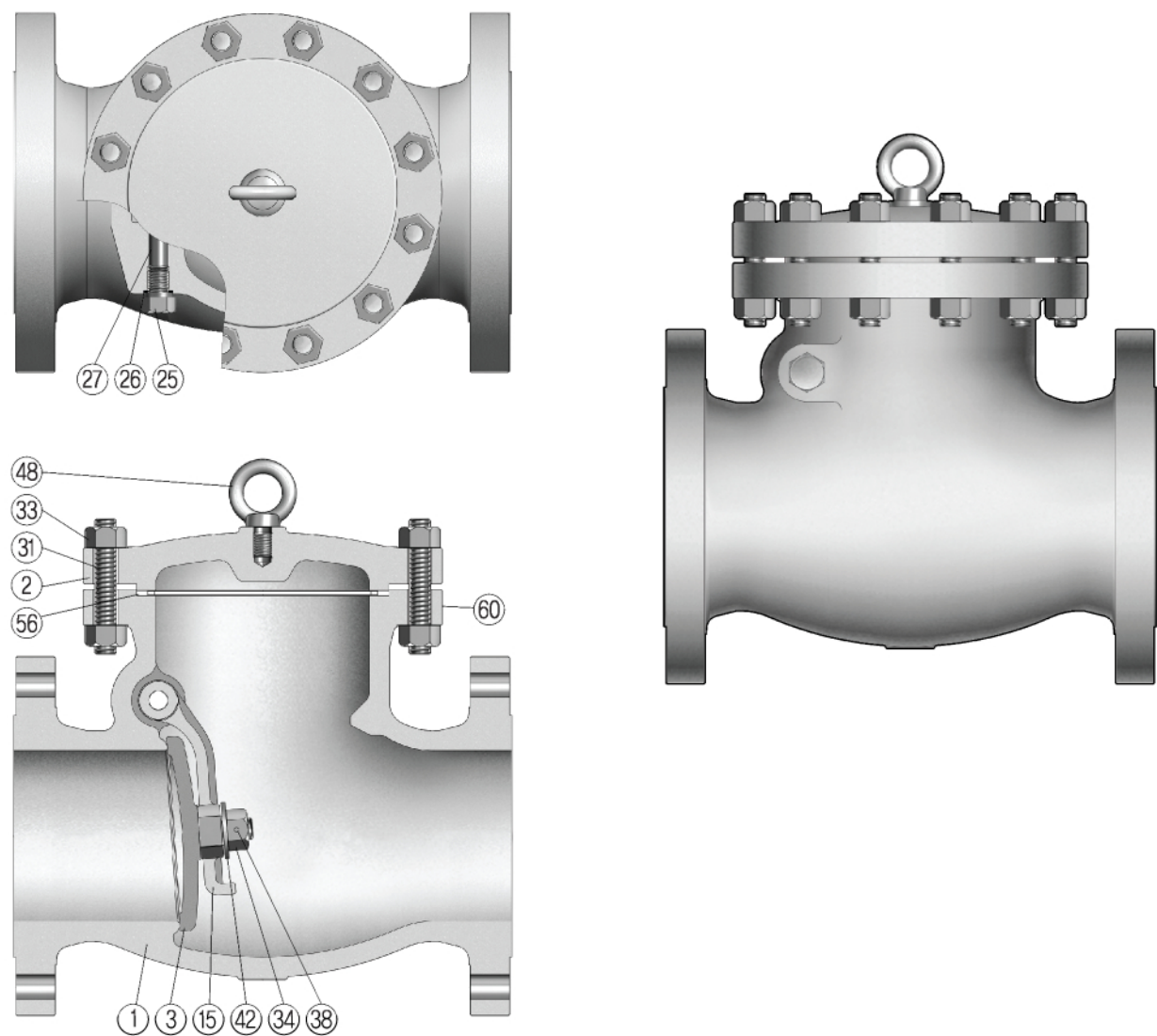
31, 33 COVER BOLTING

The cover studs and nuts are manufactured from alloy or stainless steel to the relevant ASTM standard.



CAST STAINLESS STEEL

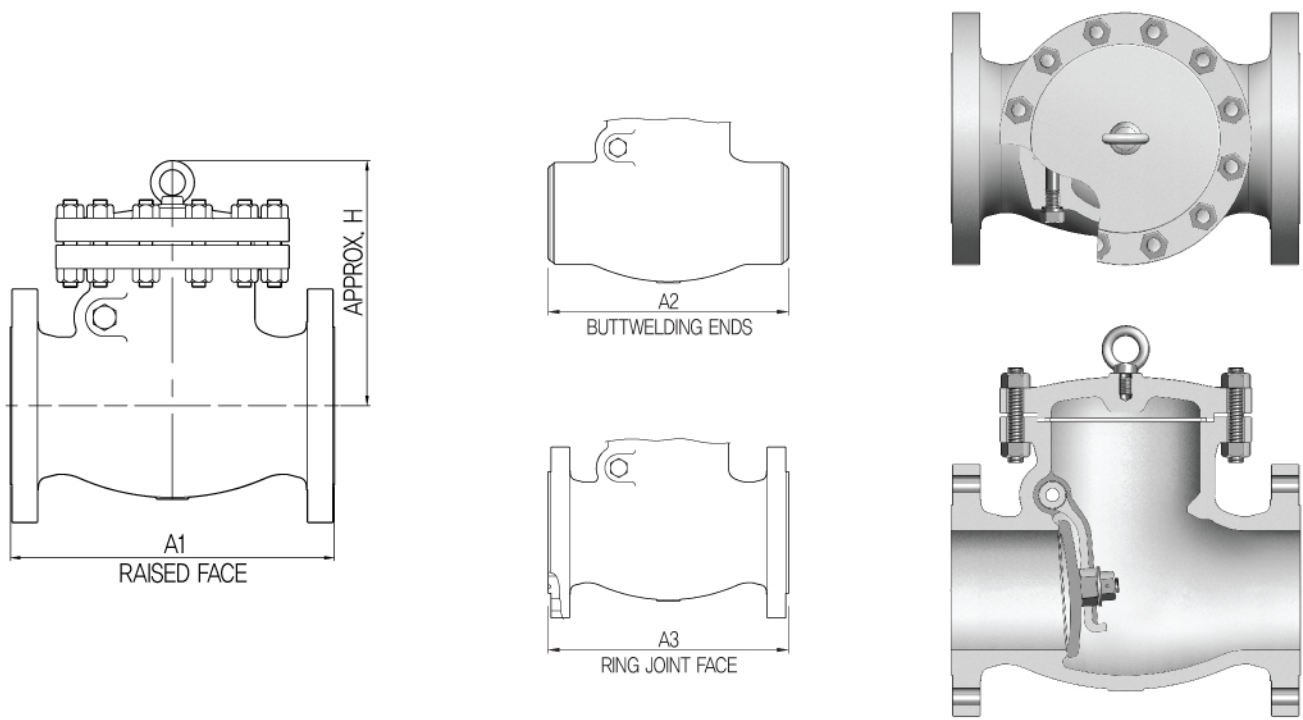
SWING CHECK VALVES BOLTED COVER



No	PARTS NAME	ASTM SPECIFICATIONS			
		CORROSION SERVICE			
1	BODY	A351-CF8	A351-CF8M	A351-CF3	A351-CF3M
2	COVER	A351-CF8	A351-CF8M	A351-CF3	A351-CF3M
3	DISC	A351-CF8	A351-CF8M	A351-CF3	A351-CF3M
15	ARM	A351-CF8	A351-CF8M	A351-CF3	A351-CF3M
25	PLUG BOLT	A479-304	A479-316	A479-304L	A479-316L
26	PLUG GASKET	A479-304	A479-316	A479-304L	A479-316L
27	ROD PIN	A479-304	A479-316	A479-304L	A479-316L
31	COVER BOLT	A193-B8	A193-B8	A193-B8	A193-B8
33	COVER NUT	A194-8	A194-8	A194-8	A194-8
34	DISC NUT	A194-8	A194-8M	A194-8M	A194-8M
38	SPLIT PIN	A580-304	A479-316	A479-304L	A479-316L
42	PLAIN WASHER	A240-304	A240-316	A240-304L	A240-316L
48	EYE BOLT	A193-B8	A193-B8	A193-B8	A193-B8
56	GASKET	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE
60	NAME PLATE	A240-304	A240-304	A240-304	A240-304

CAST STAINLESS STEEL

SWING CHECK VALVES BOLTED COVER • CLASS 150/300/600



CLASS 150

VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
A1 & A2 (RF & BW)	inch	8.00	8.50	9.50	11.50	13.00	14.00	19.50	24.50	27.50	31.00	34.00	38.50	38.50	51.00
	mm	203	216	241	292	330	356	495	622	698	787	864	978	978	1295
H (VALVE HEIGHT)	inch	5.91	6.30	7.09	7.87	9.06	9.84	13.78	15.75	17.72	18.50	23.62	26.38	26.77	31.50
	mm	150	160	180	200	230	250	350	400	450	470	600	670	680	800

CLASS 300

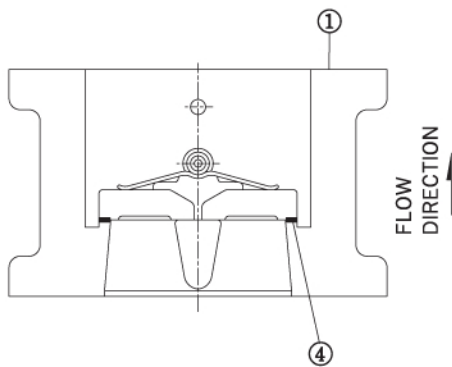
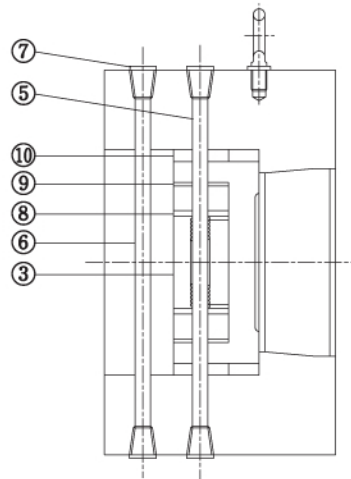
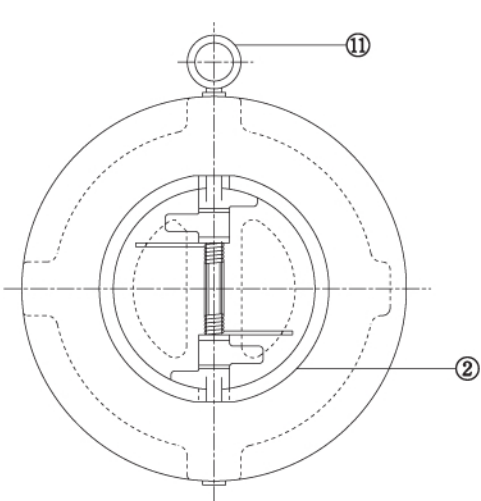
VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
A1 & A2 (RF & BW)	inch	10.50	11.50	12.50	14.00	15.75	17.50	21.00	24.50	28.00	33.00	34.00	38.50	40.00	53.00
	mm	267	292	318	356	400	444	533	622	711	838	864	978	1016	1346
A3 (RTJ)	inch	11.12	12.12	13.12	14.62	16.37	18.12	21.62	25.12	28.62	33.62	34.62	39.12	40.75	53.88
	mm	283	308	334	372	416	460	533	638	727	854	880	994	1035	1368
H (VALVE HEIGHT)	inch	6.30	6.69	7.48	9.06	9.84	13.39	16.14	17.72	19.69	22.44	24.80	26.77	29.92	35.43
	mm	160	170	190	230	250	340	410	450	500	570	630	680	760	900

CLASS 600

VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
A1 & A2 (RF & BW)	inch	11.50	13.00	14.00	17.00	20.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00
	mm	292	330	356	432	508	559	660	787	838	889	991	1092	1194	1397
A3 (RTJ)	inch	11.62	13.12	14.12	17.12	20.12	22.12	26.12	31.12	33.12	35.12	39.12	43.12	47.25	55.38
	mm	295	333	359	435	511	562	663	790	841	892	994	1095	1200	1407
H (VALVE HEIGHT)	inch	7.48	8.66	9.06	11.02	14.17	14.96	18.11	22.83	24.80	26.38	29.13	31.10	34.65	43.31
	mm	190	220	230	280	360	380	460	580	630	670	740	790	880	1100

CAST CARBON & STAINLESS STEEL

DUO-CHECK VALVES BOLTED BONNET



No	PARTS NAME		MATERIAL		
1	BODY	A216-WCB	A351-CF8	A351-CF8M	
2	PLATE DISC	A351-CF8	A351-CF8	A351-CF8M	
3	SPRING	A276-304	A276-304	A276-316	
4	SEAT	A216-WCB+HF	A351-CF8	A351-CF8M	
5	HINGE PIN	A276-304	A276-304	A276-316	
6	STOP PIN	A276-304	A276-304	A276-316	
7	PLUG	A307-B	A276-304	A276-316	
8	BEARING	TEFLON	TEFLON	TEFLON	
9	BEARING	TEFLON	TEFLON	TEFLON	
10	BEARING	TEFLON	TEFLON	TEFLON	
11	EYE BOLT	A307-B	A307-B	A307-B	

■ Features & Advantages

1. Compact Wafer Design

Extremely light weight and economical compared with traditional flanged type, swing-check valve.
2. Prevention of Water Hammer

The sensitive spring incorporated in the valve closes the valve plate before reverse flow occurs preventing water hammer and giving complete pipe line protection even in high head installations.
3. Complete Freedom of Installation

Space saving design simplifies installation. Furthermore, THT Valves can be installed in any position and at any angle allowing rationalized piping layout.
4. Long Service Life

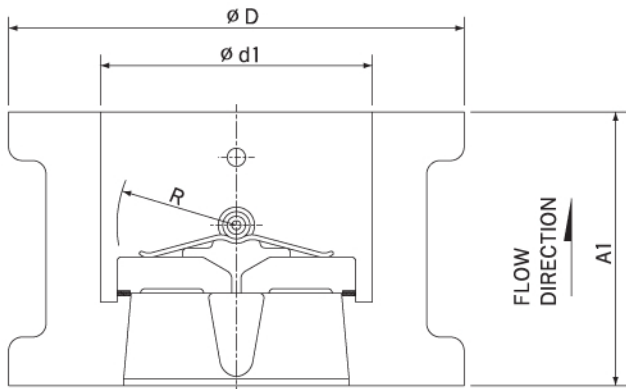
THT Valves incorporate teflon spring bearings to minimize spring wear and assure long service life.
5. Smooth Operation

Teflon Bearings minimize friction for smooth valve plate operation.
6. Tight Sealing

Shock-easening and tight sealing effect ensured by resilient seat.

CAST CARBON & STAINLESS STEEL

DUO-CHECK VALVES BOLTED BONNET • CLASS 150/300/600



CLASS 150

VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
A1	inch	2.36	2.64	2.87	2.87	3.86	3.86	5.00	5.75	7.13	7.24	7.48	7.99	8.62	8.74
(WAFER)	mm	60	67	73	73	86	98	127	146	181	184	190	203	219	222
D	inch	4.13	4.88	5.39	6.89	7.76	8.74	10.98	13.39	16.14	17.72	20.24	21.61	23.86	28.27
(OUTSIDE DIA.)	mm	105	124	137	175	197	222	279	340	410	450	514	549	606	718
d1	inch	2.36	2.87	3.50	4.49	5.55	6.61	8.62	10.75	12.76	14.02	15.98	17.99	20.00	24.02
(OUTLET DIA.)	mm	60	73	89	114	141	168	219	273	324	356	406	457	508	610
R	inch	1.06	1.30	1.61	2.13	2.56	3.11	4.02	4.96	5.98	6.69	7.68	8.62	9.61	11.50
(DISC OPEN RADIUS)	mm	27	33	41	54	65	79	102	126	152	170	195	219	244	292

CLASS 300

VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
A1	inch	2.36	2.64	2.87	2.87	3.86	3.86	5.00	5.75	7.13	8.74	9.13	10.35	11.50	12.52
(WAFER)	mm	60	67	73	73	86	98	127	146	181	222	232	263	292	318
D	inch	4.37	5.12	5.87	7.13	8.5	9.88	12.13	14.25	16.61	19.13	21.26	23.50	25.75	30.51
(OUTSIDE DIA.)	mm	111	130	149	181	216	251	308	362	422	486	540	597	654	775
d1	inch	2.36	2.87	3.50	4.49	5.55	6.61	8.62	10.75	12.76	14.02	15.98	17.99	20.00	24.02
(OUTLET DIA.)	mm	60	73	89	114	141	168	219	273	324	356	406	457	508	610
R	inch	1.06	1.30	1.61	2.13	2.56	3.11	4.02	4.96	5.98	6.69	7.68	8.62	9.61	11.50
(DISC OPEN RADIUS)	mm	27	33	41	54	65	79	102	126	152	170	195	219	244	292

CLASS 600

VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
A1	inch	2.36	2.64	2.87	3.11	4.13	5.35	6.50	8.39	9.02	8.74	12.01	14.29	14.49	17.24
(WAFER)	mm	60	67	73	79	105	136	165	213	229	222	305	363	368	438
D	inch	4.37	5.12	5.87	7.60	9.49	10.51	12.60	15.75	17.99	19.37	22.24	24.13	26.89	31.14
(OUTSIDE DIA.)	mm	111	130	149	193	241	267	320	400	457	492	565	613	683	791
d1	inch	2.36	2.87	3.50	4.49	5.55	6.61	8.62	10.75	12.76	14.02	15.98	17.99	20.00	24.02
(OUTLET DIA.)	mm	60	73	89	114	141	168	219	273	324	356	406	457	508	610
R	inch	1.06	1.30	1.61	2.17	2.56	3.23	4.13	5.24	5.98	6.89	7.80	8.98	9.76	11.61
(DISC OPEN RADIUS)	mm	27	33	41	55	65	82	105	133	152	175	198	228	248	295

CAST STEEL PRESSURE SEAL BONNET GATE VALVES



CAST STEEL

GATE VALVES PRESSURE SEAL BONNET

① BODY

The body of the high pressure gate valve is designed as an one piece casting, with smooth inside contour providing maximum flow efficiency.

The body has an integral casting guiding system to guide the wedge full through the valve stroke.

The pressure seal type gate valve is designed with 4 holes in the neck at the region of the segmental retainer for a proper disassembly.

The contacting surface the pressure seal gasket outside has a stainless steel 18-8 inlay to assure soundness and corrosion resistance for carbon and alloy steel valves.

The body is seal welding for body seatings.

② BONNET

The bonnet is designed and manufactured in order to ensure a perfect seal, as well as to allow for easy dismounting and reassembly.

A longer packing life is ensured by a condensation chamber inserted between the backseat and the packing.

③ FLEXIBLE WEDGE

The flexible wedge is circumferentially symmetrical in order to ensure a complete distribution of forces and to ensure that possible irregularities of alignment can be compensated.

The flexible wedge design is based upon the elasticity of the wedge material.

The flexible wedge contacting surface with deposit stellite no.6 hard facing is ensured by pressure tightness and freedom from sticking. It is connected to the stem by means of a T-joint.

Special attention is given to the seating surfaces which are ground and lapped to ensure a perfectly tight seal.

⑥ STEM

The non-rotating rising stem has trapezoidal thread.

The stem is ground to minimize friction and prevent damage to gland packing. The stem is jointed to the wedge by means of a T-connection which is an integral part of the stem itself. The stemhead has a tapered shoulder for backseating purposes.

②① BODY SEAT RINGS

The seat rings are made of the same material as the body, and surfaces have stellite no.6 hardfacing.

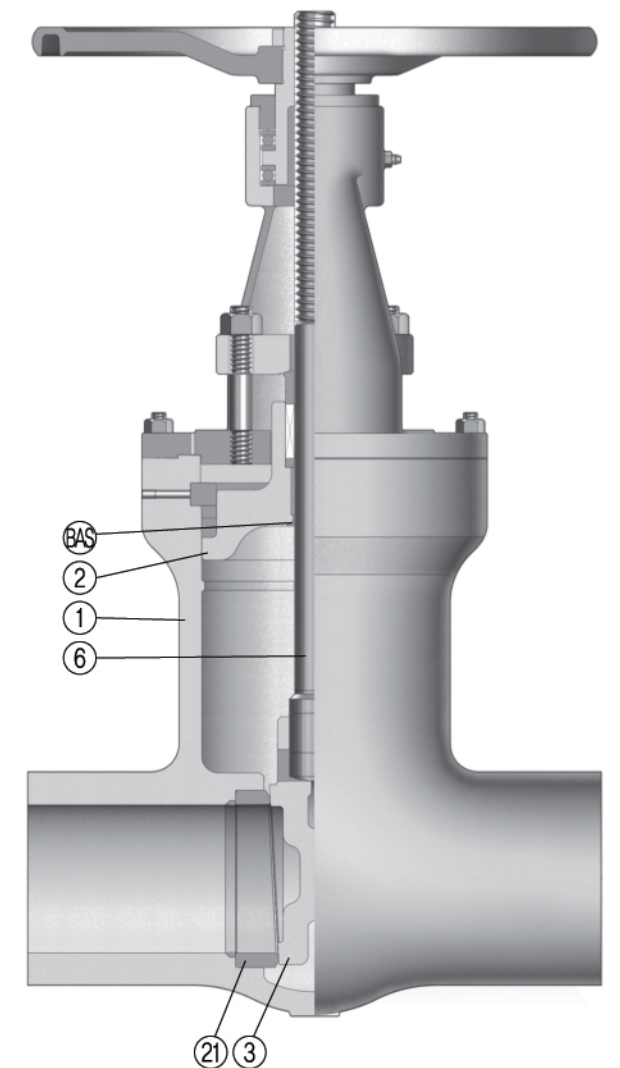
Special attention is given to the seating surfaces which are ground and lapped to ensure a perfectly tight seal.

②①③ BACKSEAT

The bonnet of the high pressure gate valve has an integral backseat design with hardfacing and provides tight sealability due to contact between the backseat and the tapered shoulder stem.

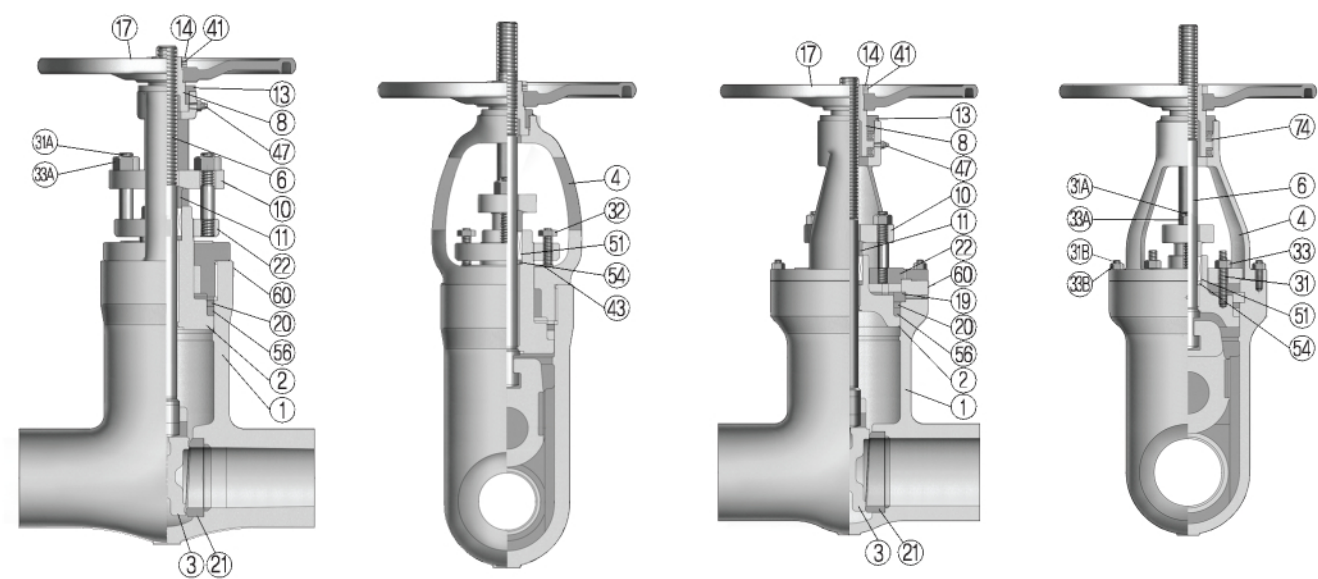
Backseating of the valve results in positive isolation of the stuffing box from the pressure area in case of packing failure.

A ground backseat is provided to ensure a perfectly tight seal to the stuffing box when the valve is full open.



CAST STEEL

GATE VALVES PRESSURE SEAL BONNET



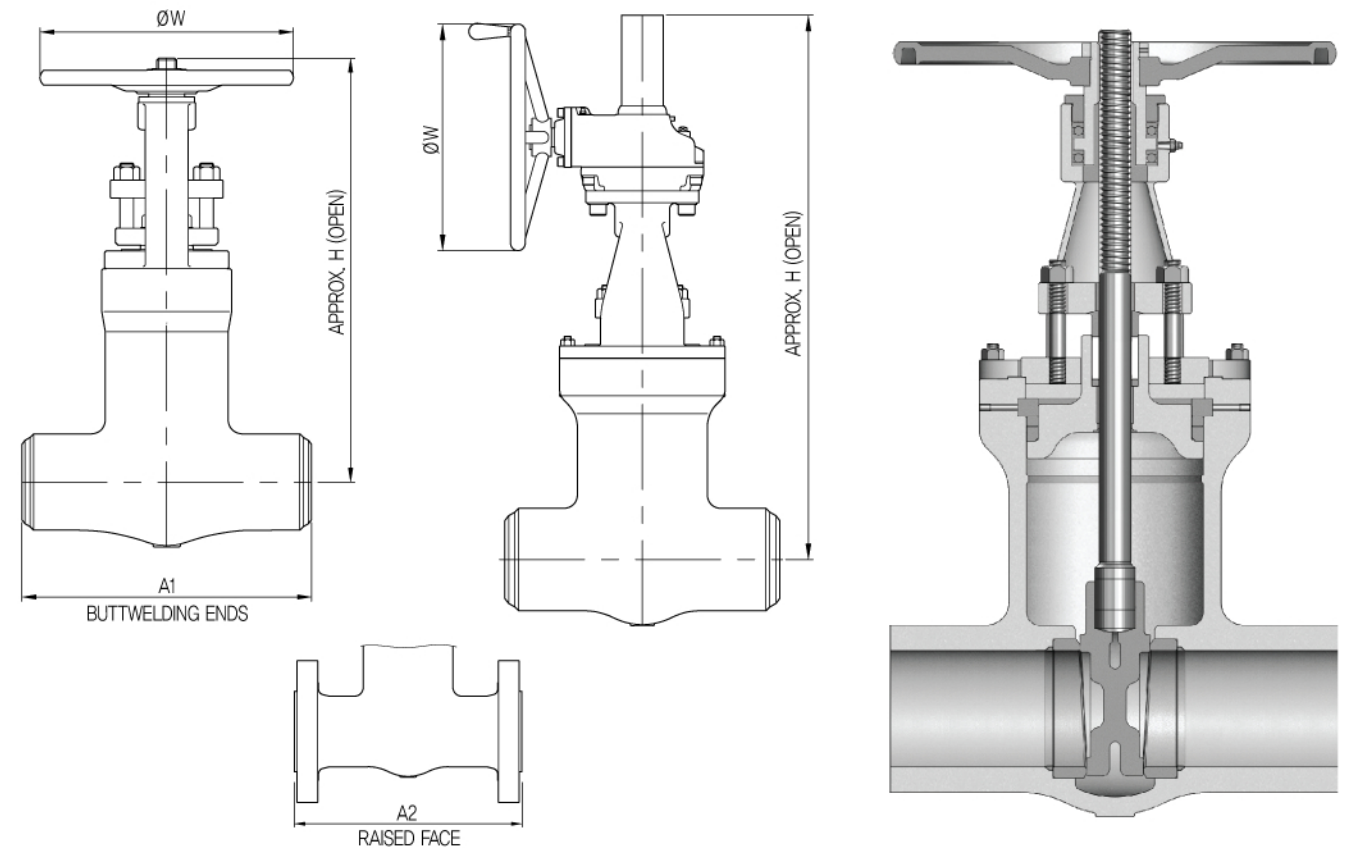
NPS 4 & BELOW

NPS 5 & LARGER

No	PARTS NAME	STANDARD	ASTM SPECIFICATIONS			CORROSION SERVICE
			HIGH TEMP. SERVICE			
1	BODY	A216-WCB	A217-WC6	A217-WC9	A217-C12A	A351-CF8M
2	BONNET	A105 / A216-WCB	A182-F11 / A217-WC6	A182-F22 / A217-WC9	A182-F91 / A217-C12A	A182-F316 / A351-CF8M
3	WEDGE	A216-WCB	A217-WC6	A217-WC9	A217-C12A	A351-CF8M
4	YOKE	A216-WCB	A216-WCB / A217-WC6	A216-WCB / A217-WC9	A216-WCB / A217-C12A	A351-CF8 / A351-CF8M
6	STEM	A479-410	A479-410	A479-410	A276-431	A479-316
8	YOKE SLEEVE	A439-D2C	A439-D2C	A439-D2C	A439-D2C	A439-D2C
10	GLAND FLANGE	A283-D	A283-D	A283-D	A283-D	A240-304
11	PACKING GLAND	A479-304	A479-304	A479-304	A182-F91	A479-316
13	SLEEVE NUT	A576-1020	A576-1020	A576-1020	A576-1020	A479-304
14	WHEEL NUT	A576-1020 + Zn.	A576-1020 + Zn.	A576-1020 + Zn.	A576-1020 + Zn.	A351-CF8
17	HANDWHEEL	A536-60	A536-60	A536-60	A536-60	A536-60
19	RETAINER RING	A283-D + HCr.	A283-D + HCr.	A283-D + HCr.	A182-F91	A240-316
20	THRUST RING	A283-D + HCr.	A283-D + HCr.	A283-D + HCr.	A182-F91	A240-316
21	BODY SEAT RING	A106	A182-F11	A182-F22	A182-F91	A240-316
22	BONNET CLAMP	A283-D	A283-D	A283-D	A283-D	A240-304
31	BONNET BOLT	A193-B7	A193-B16	A193-B16	A193-B16	A193-B8
31A	GLAND BOLT	A193-B7	A193-B7	A193-B7	A193-B7	A193-B8
31B	YOKE BOLT	A193-B7	A193-B7	A193-B7	A193-B7	A193-B8
32	CLAMP BOLT	A193-B7	A193-B7	A193-B7	A193-B7	A193-B8
33	BONNET NUT	A194-2H	A194-7	A194-7	A194-7	A194-8
33A	GLAND NUT	A194-2H	A194-2H	A194-2H	A194-2H	A194-8
33B	YOKE NUT	A194-2H	A194-2H	A194-2H	A194-2H	A194-8
41	SET SCREW	SCM 435	SCM 435	SCM 435	SCM 435	304 S.S
43	CLAMP WASHER	A283-D	A283-D	A283-D	A283-D	A240-304
47	GREASE NIPPLE	STEEL + Cr.	STEEL + Cr.	STEEL + Cr.	STEEL + Cr.	STEEL + Cr.
51	PACKING	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE
54	PACKING RING	A479-410	A479-410	A479-410	A182-F91	A479-316
56	GASKET	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE
60	NAME PLATE	A240-304	A240-304	A240-304	A240-304	A240-304
74	THRUST RING	BEARING STEEL	BEARING STEEL	BEARING STEEL	BEARING STEEL	BEARING STEEL

CAST STEEL

GATE VALVES PRESSURE SEAL BONNET • CLASS 600/900



CLASS 600

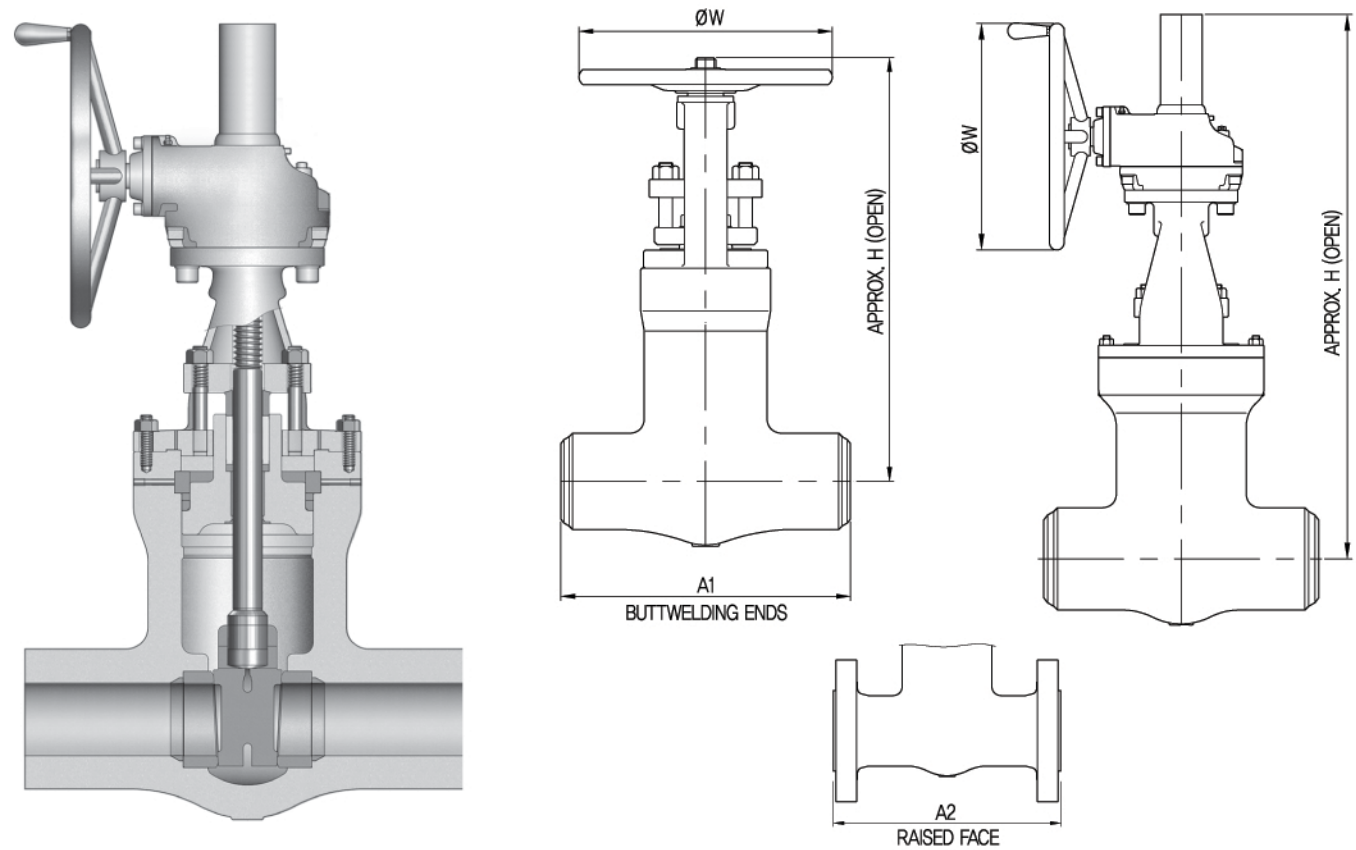
VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
A1	inch	7.00	8.50	10.00	12.00	15.00	18.00	23.00	28.00	32.00	35.00	39.00	43.00	47.00	55.00
(BW)	mm	178	216	254	305	381	457	584	711	813	889	991	1092	1194	1397
A2	inch	11.50	13.00	14.00	17.00	20.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00
(RF)	mm	292	330	356	432	508	559	660	787	838	889	991	1092	1194	1397
H	inch	20.47	21.26	24.02	28.35	33.86	36.22	43.31	50.39	62.99	76.77	82.68	94.49	100.39	118.11
(OPEN HEIGHT)	mm	520	540	610	720	860	920	1100	1280	1600	1950	2100	2400	2550	3000
W	inch	9.84	9.84	11.02	11.02	15.75	19.69	19.69	19.69	24.80	24.80	27.95	31.50	24.80	24.80
(HANDWHEEL DIA)	mm	250	250	280	280	400	500	500	500	630	630	710	800	630	630

CLASS 900

VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
A1	inch	8.50	10.00	12.00	14.00	17.00	20.00	26.00	31.00	36.00	39.00	43.00	48.00	52.00	61.00
(BW)	mm	216	254	305	356	432	508	660	787	914	991	1092	1219	1321	1549
A2	inch	14.50	16.50	15.00	18.00	22.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	61.00
(RF)	mm	368	419	381	457	559	610	737	838	965	1029	1130	1219	1321	1549
H	inch	20.47	20.87	22.83	27.17	31.50	35.83	43.31	51.18	64.96	74.80	82.68	90.55	102.36	118.11
(OPEN HEIGHT)	mm	520	530	580	690	800	910	1100	1300	1650	1900	2100	2300	2600	3000
W	inch	11.02	11.02	11.02	11.02	17.72	19.69	19.69	24.80	27.95	31.50	31.50	35.43	27.95	31.50
(HANDWHEEL DIA)	mm	280	280	280	280	450	500	500	630	710	800	800	900	710	800

CAST STEEL

GATE VALVES PRESSURE SEAL BONNET • CLASS 1500/2500



CLASS 1500

VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
A1 (BW)	inch	8.50	10.00	12.00	16.00	19.00	22.00	28.00	34.00	39.00	42.00	47.00	53.00	58.00	56.00
	mm	216	254	305	406	483	559	711	864	991	1067	1194	1346	1473	1422
A2 (RF)	inch	14.50	16.50	18.50	21.50	26.50	27.75	32.75	39.00	44.50	49.50	54.50	60.50	65.50	76.50
	mm	368	419	470	546	673	705	832	991	1130	1257	1384	1537	1664	1943
H (OPEN HEIGHT)	inch	20.47	20.87	22.83	27.17	30.91	35.04	45.28	61.02	70.87	80.71	86.61	96.46	106.30	118.11
	mm	520	530	580	690	785	890	1150	1550	1800	2050	2200	2450	2700	3000
W (HANDWHEEL DIA)	inch	11.02	11.02	11.02	13.98	17.72	19.69	24.80	27.95	24.80	24.80	24.80	27.95	31.50	35.43
	mm	280	280	280	355	450	500	630	710	630	630	630	710	800	900

CLASS 2500

VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450
A1 (BW)	inch	11.00	13.00	14.50	18.00	21.00	24.00	30.00	36.00	41.00	44.00	49.00	55.00
	mm	279	330	368	457	533	610	762	914	1041	1118	1245	1397
A2 (RF)	inch	17.75	20.00	22.75	26.50	31.25	36.00	40.25	50.00	56.00	—	—	—
	mm	451	508	578	673	794	914	1022	1270	1422	—	—	—
H (OPEN HEIGHT)	inch	19.69	20.08	21.65	25.59	31.10	33.86	47.24	68.90	75.59	78.74	82.68	98.43
	mm	500	510	550	650	790	860	1200	1750	1920	2000	2100	2500
W (HANDWHEEL DIA)	inch	11.02	11.02	11.02	13.98	19.69	19.69	15.75	24.80	24.80	27.95	27.95	31.50
	mm	280	280	280	355	500	500	400	630	630	710	710	800

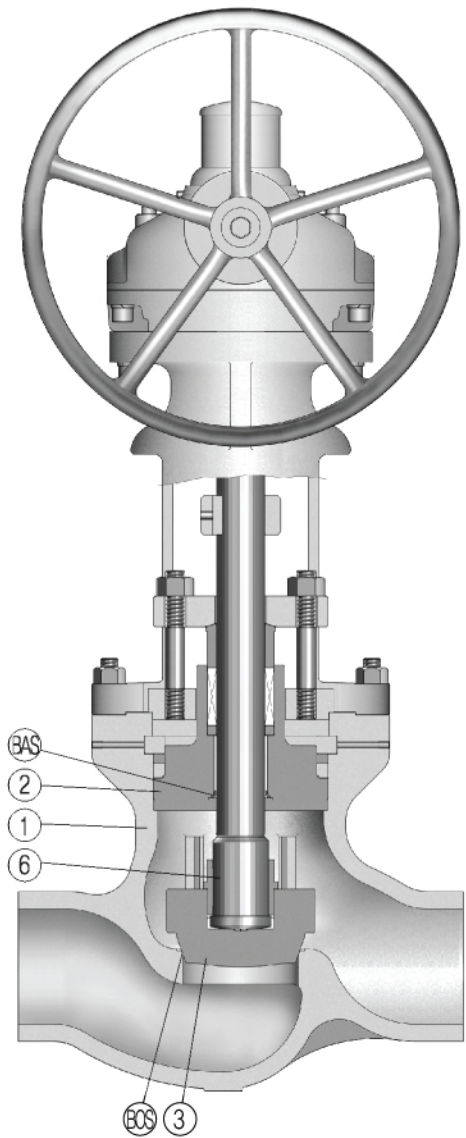
CAST STEEL PRESSURE SEAL BONNET

GLOBE VALVES



CAST STEEL

GLOBE VALVES PRESSURE SEAL BONNET



1 BODY

The body of the high pressure globe valve is designed as an one piece casting, with smooth inside contour providing maximum flow efficiency.
The body has an integral casting guiding system to guide the disc full through the valve stroke.
The pressure seal type globe valve is designed with 4 holes in the neck at the region of the segmental retainer for a proper disassembly.
The contacting surface the pressure seal gasket outside has a stainless steel 18-8 inlay to assure soundness and corrosion resistance for carbon and alloy steel valves.

2 BONNET

The bonnet is designed and manufactured in order to ensure a perfect seal, as well as to allow for easy dismantling and reassembly.
A longer packing life is ensured by a condensation chamber inserted between the backseat and the packing.

3 DISC

The disc contacting surface with deposit stellite no.6 hard facing is ensured by pressure tightness and freedom from sticking. It is connected to the stem by means of a lock nut.
Special attention is given to the seating face which are ground and lapped to a perfectly tight seal.

6 STEM

The non-rotating or rotating rising stem has trapezoidal thread.
The stem is ground to minimize friction and prevent damage to gland packing. The stem is jointed to the disc by means of a lock nut. The stemhead has a tapered shoulder for backseating purpose.

SEAT

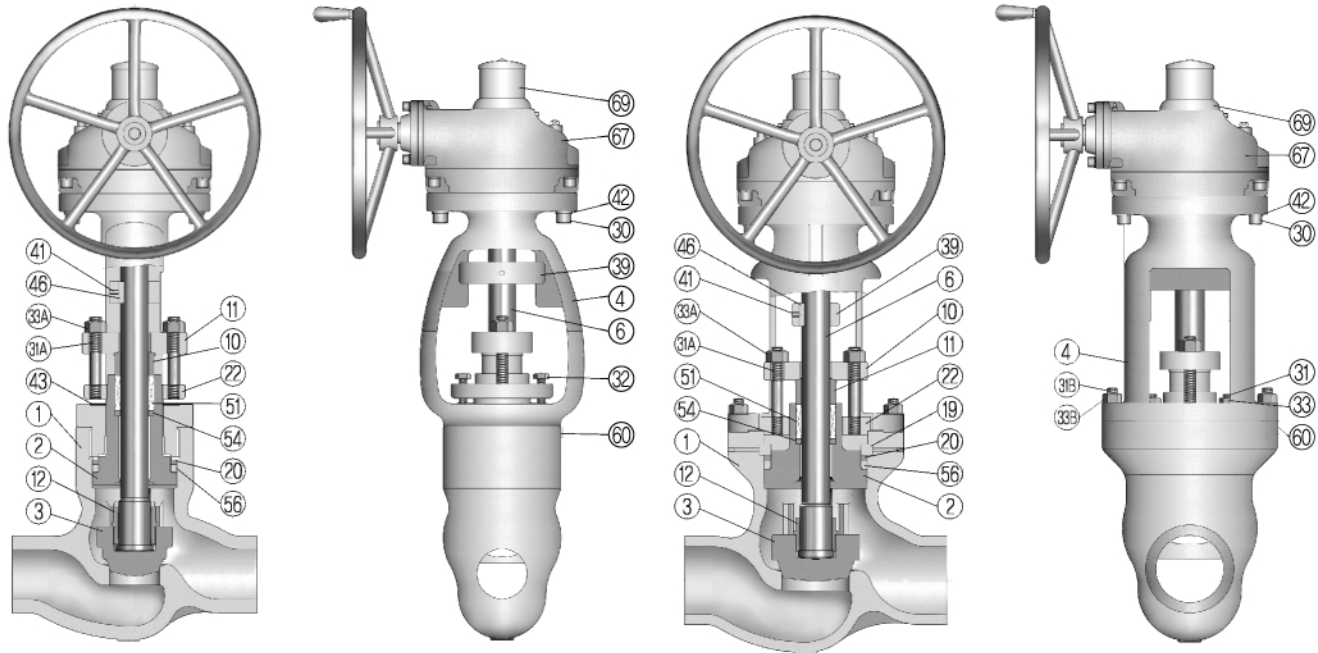
The seat is integral welded to the valve body and is provided with a hardfaced sealing to assure better wear and longer valve life.
Special attention is given to the seating surfaces which are ground and lapped to ensure a perfectly tight seal.

BACKSEAT

The bonnet of the high pressure globe valve has an integral backseat design with hardfacing and provides tight sealability due to contact between the backseat and the tapered shoulder stem.
Backseating of the valve results in positive isolation of the stuffing box from the pressure area in case of packing failure.
A ground backseat is provided to ensure a perfectly tight seal to the stuffing box when the valve is full open.

CAST STEEL

GLOBE VALVES PRESSURE SEAL BONNET



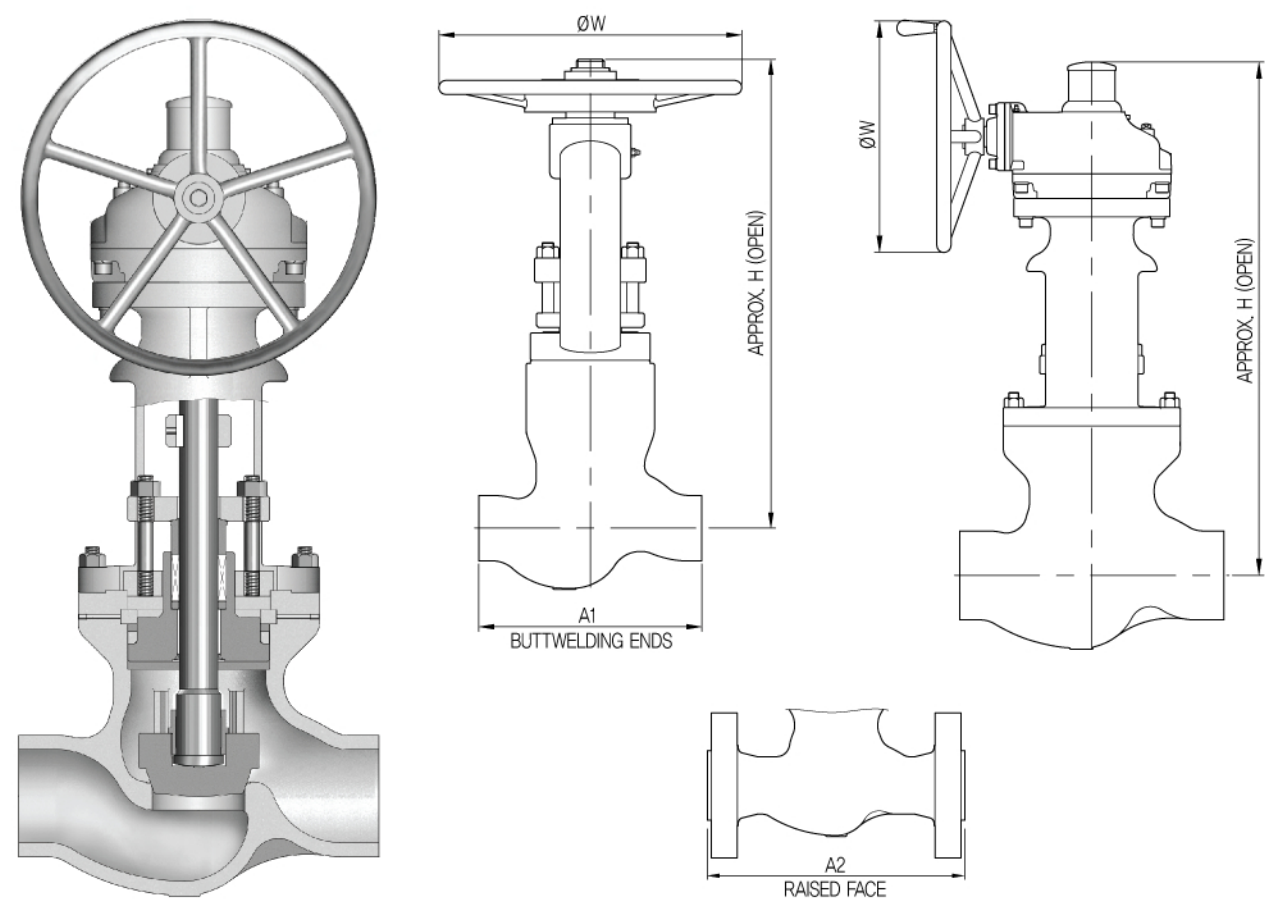
NPS 4 & BELOW

NPS 5 & LARGER

No	PARTS NAME	STANDARD	ASTM SPECIFICATIONS			
			HIGH TEMP. SERVICE		CORROSION SERVICE	
1	BODY	A216-WCB	A217-WC6	A217-WC9	A217-C12A	A351-CF8M
2	BONNET	A105 / A216-WCB	A182-F11 / A217-WC6	A182-F22 / A217-WC9	A182-F91 / A217-C12A	A182-F316 / A351-CF8M
3	DISC	A105 / A216-WCB	A182-F11 / A217-WC6	A182-F22 / A217-WC9	A182-F91 / A217-C12A	A479-316 / A351-CF8M
4	YOKE	A216-WCB	A216-WCB / A217-WC6	A216-WCB / A217-WC9	A216-WCB / A217-C12A	A351-CF8 / A351-CF8M
6	STEM	A479-410	A479-410	A479-410	A276-431	A479-316
10	GLAND FLANGE	A283-D	A283-D	A283-D	A283-D	A240-304
11	PACKING GLAND	A479-304	A479-304	A479-304	A182-F91	A479-316
12	DISC NUT	A479-410	A479-410	A479-410	A479-410	A479-316
19	RETAINER RING	A283-D + HCr.	A283-D + HCr.	A283-D + HCr.	A182-F91	A240-316
20	THRUST RING	A283-D + HCr.	A283-D + HCr.	A283-D + HCr.	A182-F91	A240-316
22	BONNET CLAMP	A283-D	A283-D	A283-D	A283-D	A240-304
30	WRENCH BOLT	SCM 435	SCM 435	SCM 435	SCM 435	A193-B8
31	BONNET BOLT	A193-B7	A193-B16	A193-B16	A193-B16	A193-B8
31A	GLAND BOLT	A193-B7	A193-B7	A193-B7	A193-B7	A193-B8
31B	YOKE BOLT	A193-B7	A193-B7	A193-B7	A193-B7	A193-B8
32	CLAMP BOLT	A193-B7	A193-B7	A193-B7	A193-B7	A193-B8
33	BONNET NUT	A194-2H	A194-7	A194-7	A194-7	A194-8
33A	GLAND NUT	A194-2H	A194-2H	A194-2H	A194-2H	A194-8
33B	YOKE NUT	A194-2H	A194-2H	A194-2H	A194-2H	A194-8
39	STOPPER	A283-D	A283-D	A283-D	A283-D	A240-304
41	SET SCREW	SCM 435	SCM 435	SCM 435	SCM 435	304 S.S
42	SPRING WASHER	A283-D	A283-D	A283-D	A283-D	A240-304
43	CLAMP WASHER	A283-D	A283-D	A283-D	A283-D	A240-304
46	KEY	A576-1045 + Cr.	A576-1045 + Cr.	A576-1045 + Cr.	A576-1045 + Cr.	A576-1045 + Cr.
51	PACKING	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE
54	PACKING RING	A479-410	A479-410	A479-410	A182-F91	A479-316
56	GASKET	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE
60	NAME PLATE	A240-304	A240-304	A240-304	A240-304	A240-304
67	GEAR BOX	A536-60	A536-60	A536-60	A536-60	A536-60
69	STEM COVER	A53	A53	A53	A53	A53

CAST STEEL

GLOBE VALVES PRESSURE SEAL BONNET • CLASS 600/900



CLASS 600

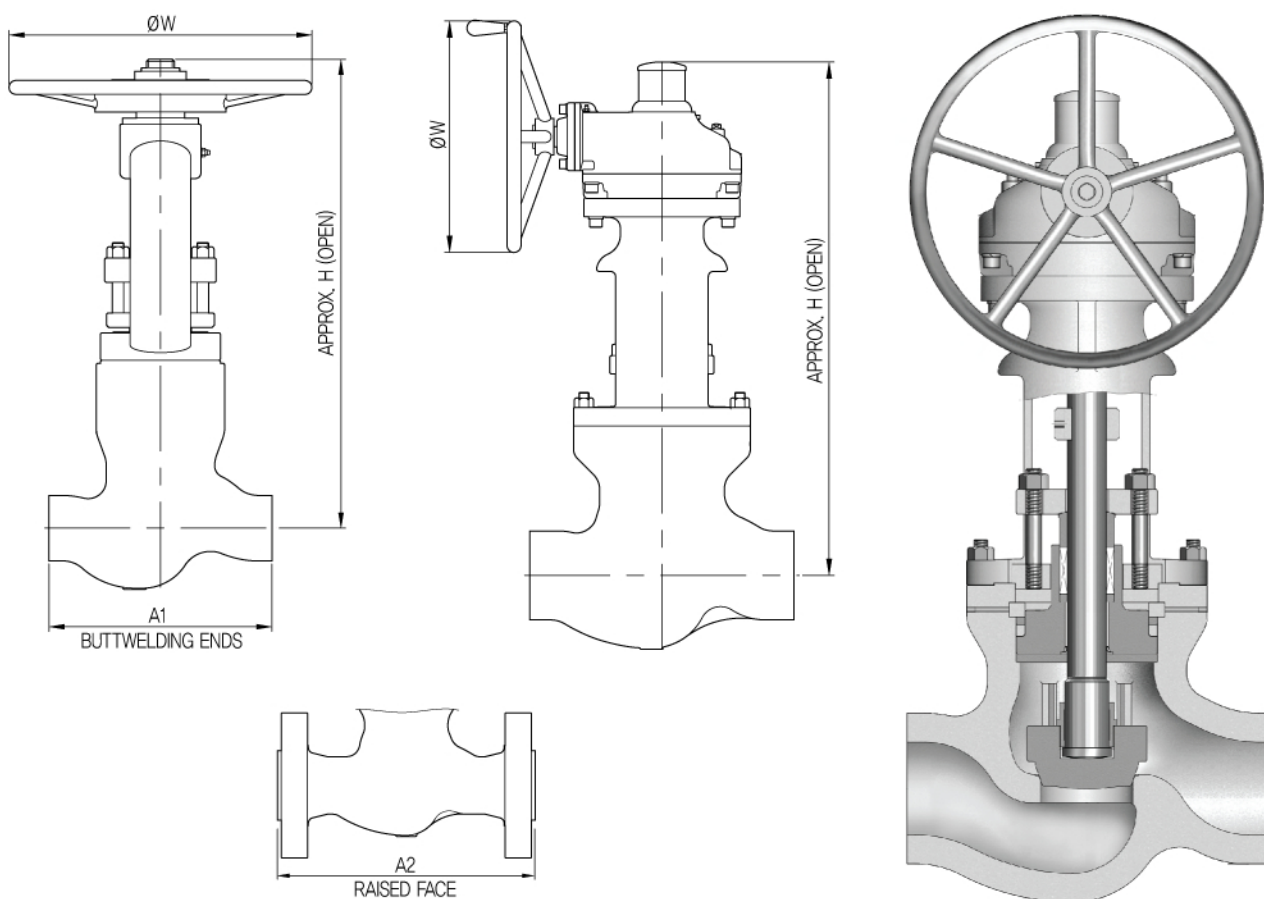
VALVE	inch	2	2.5	3	4	5	6	8	10	12
SIZE	mm	50	65	80	100	125	150	200	250	300
A1 (BW)	inch	7.00	8.50	10.00	12.00	15.00	18.00	23.00	28.00	32.00
	mm	178	216	254	305	381	457	584	711	813
A2 (RF)	inch	11.50	13.00	14.00	17.00	20.00	22.00	26.00	31.00	33.00
	mm	292	330	356	432	508	559	660	787	838
H (OPEN HEIGHT)	inch	20.08	22.83	23.62	29.53	31.50	32.68	43.31	49.21	59.06
	mm	510	580	600	750	800	830	1100	1250	1500
W (HANDWHEEL DIA.)	inch	11.02	13.98	13.78	15.75	19.69	23.62	24.80	27.95	24.80
	mm	280	355	350	400	500	600	630	710	630

CLASS 900

VALVE	inch	2	2.5	3	4	5	6	8	10	12
SIZE	mm	50	65	80	100	125	150	200	250	300
A1 (BW)	inch	8.50	10.00	12.00	14.00	17.00	20.00	26.00	31.00	36.00
	mm	216	254	305	356	432	508	660	787	914
A2 (RF)	inch	14.50	16.50	15.00	18.00	22.00	24.00	29.00	33.00	38.00
	mm	368	419	381	457	559	610	737	838	965
H (OPEN HEIGHT)	inch	22.44	26.38	27.56	29.53	35.04	39.37	47.24	50.39	59.06
	mm	570	670	700	750	890	1000	1200	1280	1500
W (HANDWHEEL DIA.)	inch	13.78	15.75	15.75	15.75	23.62	19.69	27.95	24.80	31.50
	mm	350	400	400	400	600	500	710	630	800

CAST STEEL

GLOBE VALVES PRESSURE SEAL BONNET • CLASS 1500/2500



CLASS 1500

VALVE	inch	2	2.5	3	4	5	6	8	10	12
SIZE	mm	50	65	80	100	125	150	200	250	300
A1 (BW)	inch	8.50	10.00	12.00	16.00	19.00	22.00	28.00	34.00	39.00
	mm	216	254	305	406	483	559	711	864	991
A2 (RF)	inch	14.50	16.50	18.50	21.50	26.50	27.75	32.75	39.00	44.50
	mm	368	419	470	546	673	705	832	991	1130
H (OPEN HEIGHT)	inch	22.44	26.38	28.35	30.71	40.16	45.28	51.18	61.02	66.93
	mm	570	670	720	780	1020	1150	1300	1550	1700
W (HANDWHEEL DIA.)	inch	13.78	15.75	15.75	23.62	19.69	24.80	24.80	31.50	31.50
	mm	350	400	400	600	500	630	630	800	800

CLASS 2500

VALVE	inch	2	2.5	3	4	5	6	8	10	12
SIZE	mm	50	65	80	100	125	150	200	250	300
A1 (BW)	inch	11.00	13.00	14.50	18.00	21.00	24.00	30.00	36.00	41.00
	mm	279	330	368	457	533	610	762	914	1041
A2 (RF)	inch	17.75	20.00	22.75	26.50	31.25	36.00	40.25	50.00	56.00
	mm	451	508	578	673	794	914	1022	1270	1422
H (OPEN HEIGHT)	inch	26.77	27.56	30.71	33.86	48.82	51.18	57.09	66.93	78.74
	mm	680	700	780	860	1240	1300	1450	1700	2000
W (HANDWHEEL DIA.)	inch	15.75	15.75	19.69	23.62	24.80	24.80	31.50	31.50	39.37
	mm	400	400	500	600	630	630	800	800	1000

CAST STEEL PRESSURE SEAL COVER SWING CHECK VALVES



CAST STEEL

SWING CHECK VALVES PRESSURE SEAL COVER

① BODY

The body of the high pressure sw-ch valve is designed as an one piece casting, with smooth inside contour providing maximum flow efficiency.

The pressure seal type sw-ch valve is designed with 4 holes in the neck at the region of the segmental retainer for a proper disassembly.

The contacting surface the pressure seal gasket outside has a stainless steel 18-8 inlay to assure soundness and corrosion resistance for carbon and alloy steel valves.

The body is seal welding for body seating.

② BONNET

The bonnet is designed and manufactured in order to ensure a perfect seal, as well as to allow for easy dismounting and reassembly.

③ DISC

The disc contacting surface with deposit stellite no.6 hard facing is ensured by pressure tightness and freedom from sticking. It is connected to the arm by means of a disc nut.

Special attention is given to the seating face which are ground and lapped to ensure a perfectly tight seal.

②① SEAT RING

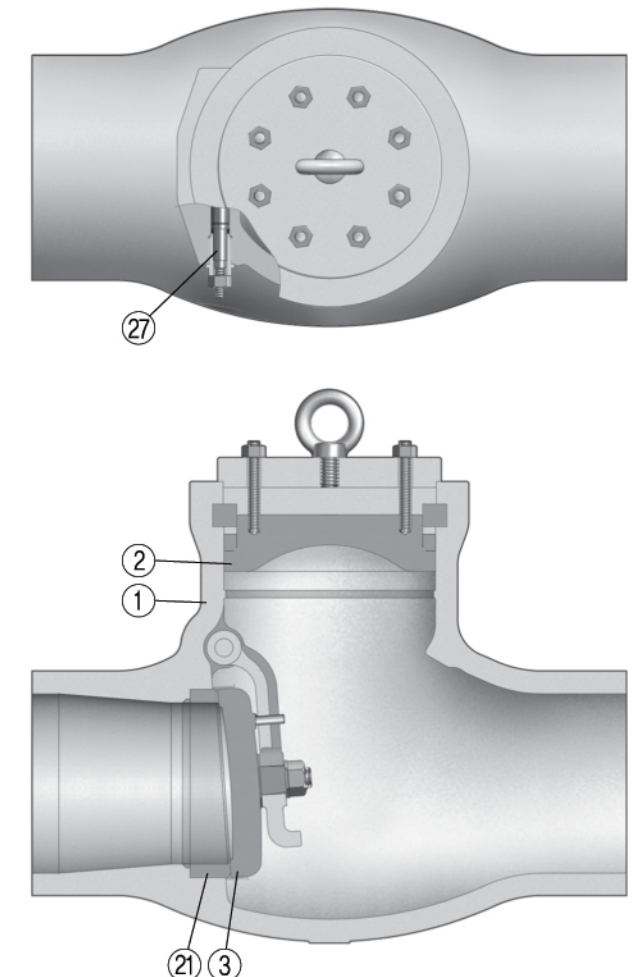
The seat ring are made of the same material as the body, and the surface have stellite no.6 hardfacing. The seat is welded into the valve body preventing leakage between seat and body.

Special attention is given to the seating surface which are ground lapped to ensure a perfectly tight seal.

②⑦ HINGE PIN

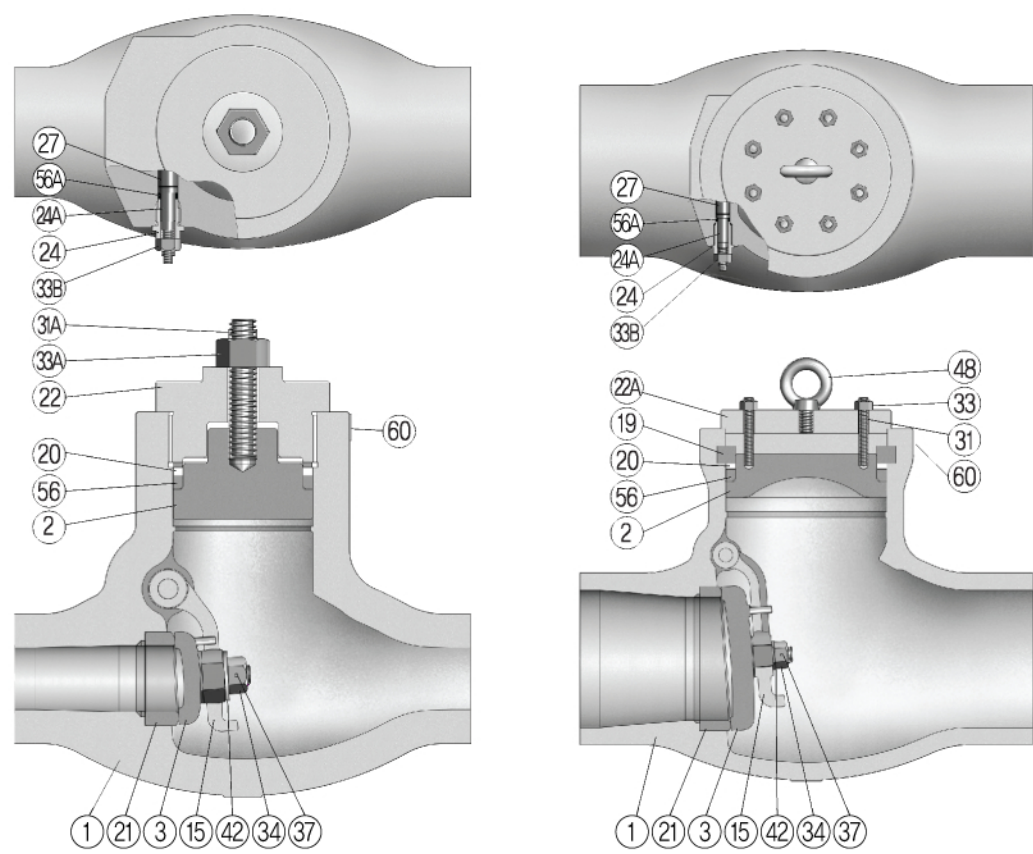
The hinge pin is part of trim. The hinge is retained in the body a thread plug and sealed by metallic gasket.

The hinge pin can be easily removed for maintenance of the valve.



CAST STEEL

SWING CHECK VALVES PRESSURE SEAL COVER



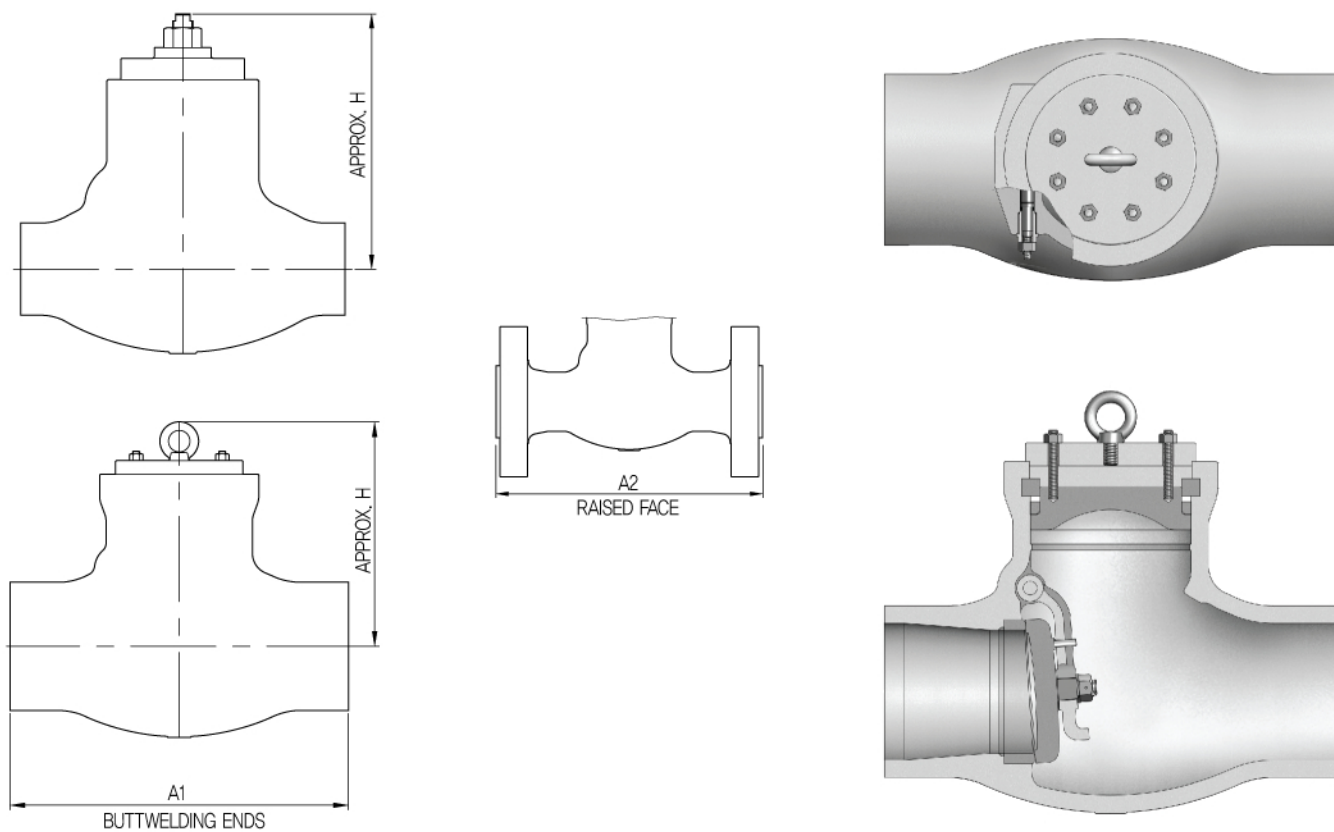
NPS 4 & BELOW

NPS 5 & LARGER

No	PARTS NAME	STANDARD	ASTM SPECIFICATIONS			
			HIGH TEMP.	SERVICE	CORROSION SERVICE	
1	BODY	A216-WCB	A217-WC6	A217-WC9	A217-C12A	A351-CF8M
2	COVER	A105 / A216-WCB	A182-F11 / A217-WC6	A182-F22 / A217-WC9	A182-F91 / A217-C12A	A182-F316 / A351-CF8M
3	DISC	A216-WCB	A217-WC6	A217-WC9	A217-C12A	A351-CF8M
15	ARM	A216-WCB	A217-WC6	A217-WC9	A217-C12A	A351-CF8M
19	RETAINER RING	A283-D + HCr.	A283-D + HCr.	A283-D + HCr.	A182-F91	A240-316
20	THRUST RING	A283-D + HCr.	A283-D + HCr.	A283-D + HCr.	A182-F91	A240-316
21	BODY SEAT RING	A106	A182-F11	A182-F22	A182-F91	A240-316
22	COVER RETAINER	A105 / A216-WCB	A182-F11 / A217-WC6	A182-F22 / A217-WC9	A182-F91 / A217-C12A	A182-F316 / A351-CF8M
22A	COVER CLAMP	A283-D	A283-D	A283-D	A283-D	A240-304
24	PLUG BOLT	A479-410	A479-410	A479-410	A182-F91	A479-316
24A	SEALING BOLT	A479-410	A479-410	A479-410	A182-F91	A479-316
27	ROD PIN	A479-410	A479-410	A479-410	A276-431	A479-316
31	COVER BOLT	A193-B7	A193-B16	A193-B16	A193-B16	A193-B8
31A	COVER RETAINER BOLT	A193-B7	A193-B16	A193-B16	A193-B16	A193-B8
33	COVER NUT	A194-2H	A194-7	A194-7	A194-7	A194-8
33A	COVER RETAINER NUT	A194-2H	A194-7	A194-7	A194-7	A194-8
33B	SEALING BOLT NUT	A194-2H	A194-7	A194-7	A194-7	A194-8
34	DISC NUT	A194-8	A194-8	A194-8	A194-8M	A194-8M
37	SPLIT PIN	A580-304	A580-304	A580-304	A479-316	A479-316
42	PLAIN WASHER	A240-304	A240-304	A240-304	A240-316	A240-316
56	COVER GASKET	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE
56A	PLUG GASKET	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE
60	NAME PLATE	A240-304	A240-304	A240-304	A240-304	A240-304

CAST STEEL

SWING CHECK VALVES PRESSURE SEAL COVER • CLASS 600/900



CLASS 600

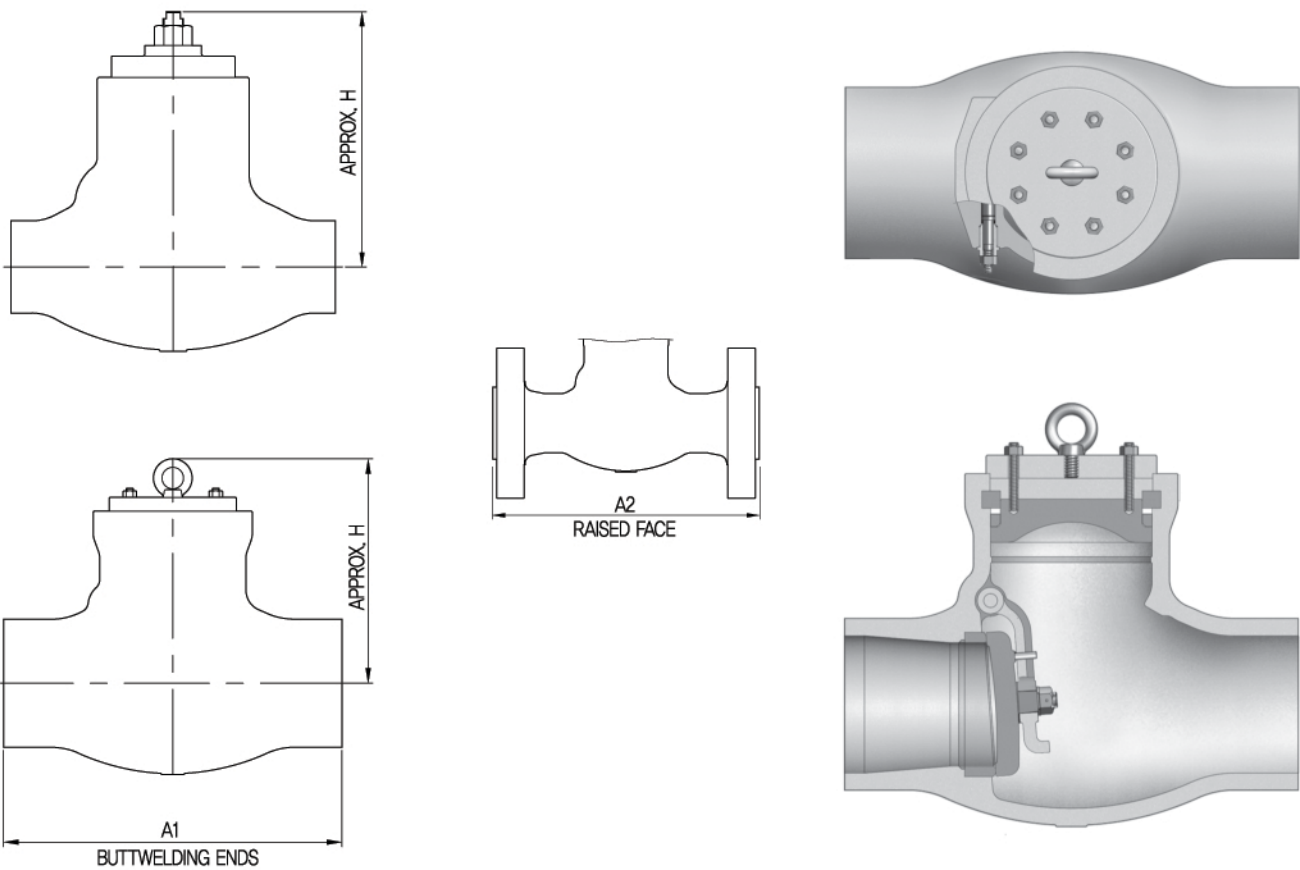
VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
A1 (BW)	inch	7.00	8.50	10.00	12.00	15.00	18.00	23.00	28.00	32.00	35.00	39.00	43.00	47.00	55.00
	mm	178	216	254	305	381	457	584	711	813	889	991	1092	1194	1397
A2 (RF)	inch	11.50	13.00	14.00	17.00	20.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00
	mm	292	330	356	432	508	559	660	787	838	889	991	1092	1194	1397
H (VALVE HEIGHT)	inch	10.24	10.63	12.20	13.39	14.96	15.75	17.72	21.65	22.83	26.38	29.53	33.07	36.22	43.31
	mm	260	270	310	340	380	400	450	550	580	670	750	840	920	1100

CLASS 900

VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
A1 (BW)	inch	8.50	10.00	12.00	14.00	17.00	20.00	26.00	31.00	36.00	39.00	43.00	48.00	52.00	61.00
	mm	216	254	305	356	432	508	660	787	914	991	1092	1219	1321	1549
A2 (RF)	inch	14.50	16.50	15.00	18.00	22.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	61.00
	mm	368	419	381	457	559	610	737	838	965	1029	1130	1219	1321	1549
H (VALVE HEIGHT)	inch	10.24	10.63	12.60	13.78	15.35	16.14	17.72	21.26	22.83	26.38	29.53	33.46	36.22	43.31
	mm	260	270	320	350	390	410	450	540	580	670	750	850	920	1100

CAST STEEL

SWING CHECK VALVES PRESSURE SEAL COVER • CLASS 1500/2500



CLASS 1500

VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
A1	inch	8.50	10.00	12.00	16.00	19.00	22.00	28.00	34.00	39.00	42.00	47.00	53.00	58.00	56.00
(BW)	mm	216	254	305	406	483	559	711	864	991	1067	1194	1346	1473	1422
A2	inch	14.50	16.50	18.50	21.50	26.50	27.75	32.75	39.00	44.50	49.50	54.50	60.50	65.50	76.50
(RF)	mm	368	419	470	546	673	705	832	991	1130	1257	1384	1537	1664	1943
H	inch														
(VALVE HEIGHT)	mm	260	270	320	340	400	420	490	580	650	740	800	920	1050	1200

CLASS 2500

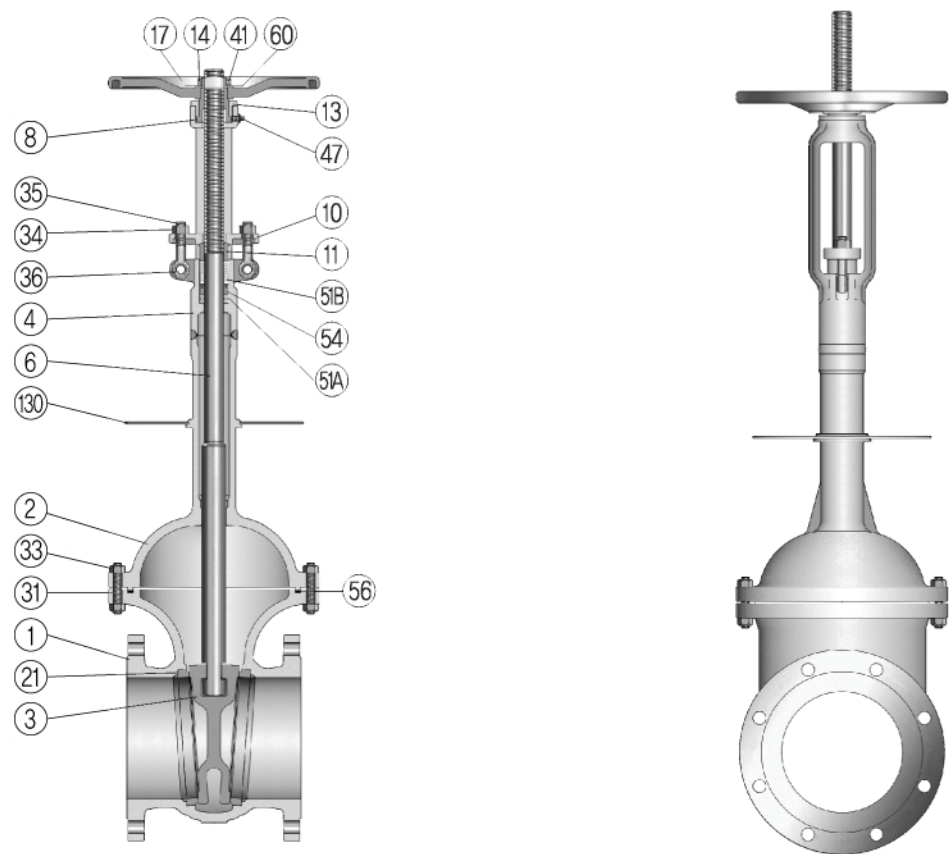
VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450
A1	inch	11.00	13.00	14.50	18.00	21.00	24.00	30.00	36.00	41.00	44.00	49.00	55.00
(BW)	mm	279	330	368	457	533	610	762	914	1041	1118	1245	1397
A2	inch	17.75	20.00	22.75	26.50	31.25	36.00	40.25	50.00	56.00	—	—	—
(RF)	mm	451	508	578	673	794	914	1022	1270	1422	—	—	—
H	inch	10.63	11.02	13.78	14.57	16.14	16.93	19.69	25.59	26.77	31.50	33.86	38.58
(VALVE HEIGHT)	mm	270	280	350	370	410	430	500	650	680	800	860	980

CRYOGENIC VALVES



CAST STAINLESS STEEL

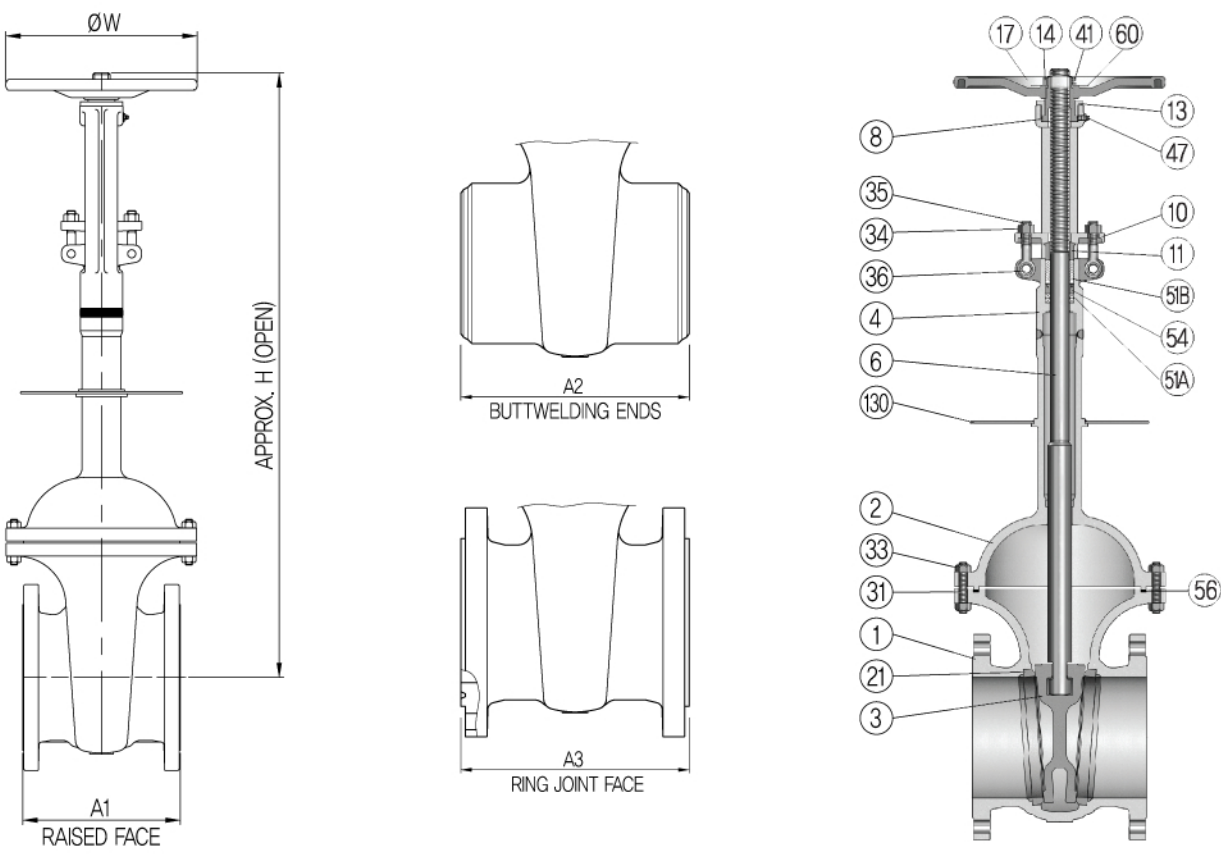
CRYOGENIC GATE VALVES BOLTED BONNET



No	PARTS NAME	ASTM SPECIFICATIONS			
1	BODY	A351-CF8	A351-CF8M	A351-CF3	A351-CF3M
2	BONNET	A351-CF8	A351-CF8M	A351-CF3	A351-CF3M
3	WEDGE	A351-CF8	A351-CF8M	A351-CF3	A351-CF3M
4	YOKE	A351-CF8	A351-CF8M	A351-CF3	A351-CF3M
6	STEM	A479-304	A479-316	A479-304L	A479-316L
8	YOKE SLEEVE	B150-C63000	B150-C63000	B150-C63000	B150-C63000
10	GLAND FLANGE	A240-304	A240-304	A240-304	A240-304
11	PACKING GLAND	A479-304	A479-316	A479-304L	A479-316L
13	SLEEVE NUT	A479-304	A479-304	A479-304	A479-304
14	WHEEL NUT	A351-CF8	A351-CF8	A351-CF8	A351-CF8
17	HANDWHEEL	A536-60	A536-60	A536-60	A536-60
21	BODY SEAT RING	A240-304	A240-316	A240-304L	A240-316L
31	BONNET BOLT	A320-B8	A320-B8	A320-B8	A320-B8
33	BONNET NUT	A194-8	A194-8	A194-8	A194-8
34	HINGE NUT	A194-8	A194-8	A194-8	A194-8
35	HINGE BOLT	A193-B8	A193-B8	A193-B8	A193-B8
36	HINGE PIN	A479-304	A479-304	A479-304	A479-304
41	SET SCREW	304 S.S	304 S.S	304 S.S	304 S.S
47	GREASE NIPPLE	STEEL + Cr.	STEEL + Cr.	STEEL + Cr.	STEEL + Cr.
51A	PACKING	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE
51B	PACKING	RTFE	RTFE	RTFE	RTFE
54	PACKING RING	A479-304	A479-316	A479-304L	A479-316L
56	GASKET	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE
60	NAME PLATE	A240-304	A240-304	A240-304	A240-304
130	INSULATION PLATE	A240-304	A240-304	A240-304	A240-304

CAST STEEL

GATE VALVES BOLTED BONNET • CLASS 150/300



CLASS 150

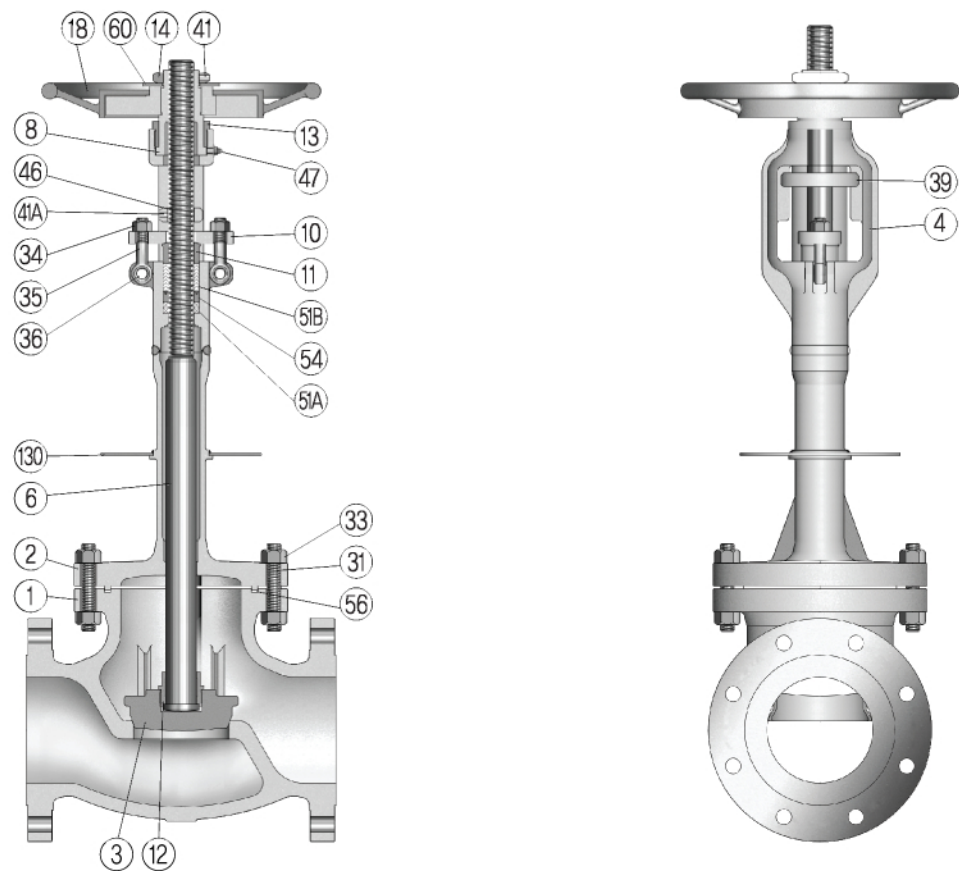
VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
A1	inch	7.00	7.50	8.00	9.00	10.00	10.50	11.50	13.00	14.00	15.00	16.00	17.00	18.00	20.00
(RF)	mm	178	190	203	229	254	267	292	330	356	381	406	432	457	508
A2	inch	8.50	9.50	11.12	12.00	15.00	15.88	16.50	18.00	19.75	22.50	24.00	26.00	28.00	32.00
(BW)	mm	216	241	282	305	381	403	419	457	502	572	610	660	711	813
H	inch	27.17	29.92	31.50	37.40	44.09	47.24	53.15	62.99	72.83	82.68	98.43	104.33	110.24	133.86
(OPEN HEIGHT)	mm	690	760	800	950	1120	1200	1350	1600	1850	2100	2500	2650	2800	3400
W	inch	7.87	7.87	8.82	9.84	11.02	12.40	13.98	15.75	17.72	19.69	19.69	19.69	24.80	24.80
(HANDWHEEL DIA)	mm	200	200	224	250	280	315	355	400	450	500	500	500	630	630

CLASS 300

VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16	18	20	24
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
A1 & A2	inch	8.50	9.50	11.12	12.00	15.00	15.88	16.50	18.00	19.75	30.00	33.00	36.00	39.00	45.00
(RF & BW)	mm	216	241	282	305	381	403	419	457	502	762	838	914	991	1143
A3	inch	9.12	10.12	11.74	12.62	15.62	16.50	17.12	18.62	20.37	30.62	33.62	36.62	39.75	45.88
(RTJ)	mm	232	257	298	321	397	419	435	473	518	778	854	930	1010	1165
H	inch	27.17	29.92	31.50	37.40	44.09	49.21	54.33	63.78	78.74	86.61	102.36	108.27	112.60	137.80
(OPEN HEIGHT)	mm	690	760	800	950	1120	1250	1380	1620	2000	2200	2600	2750	2860	3500
W	inch	7.87	7.87	9.84	11.02	12.40	13.98	15.75	17.72	15.75	19.69	19.69	24.80	24.80	27.95
(HANDWHEEL DIA)	mm	200	200	250	280	315	355	400	450	400	500	500	630	630	710

CAST STAINLESS STEEL

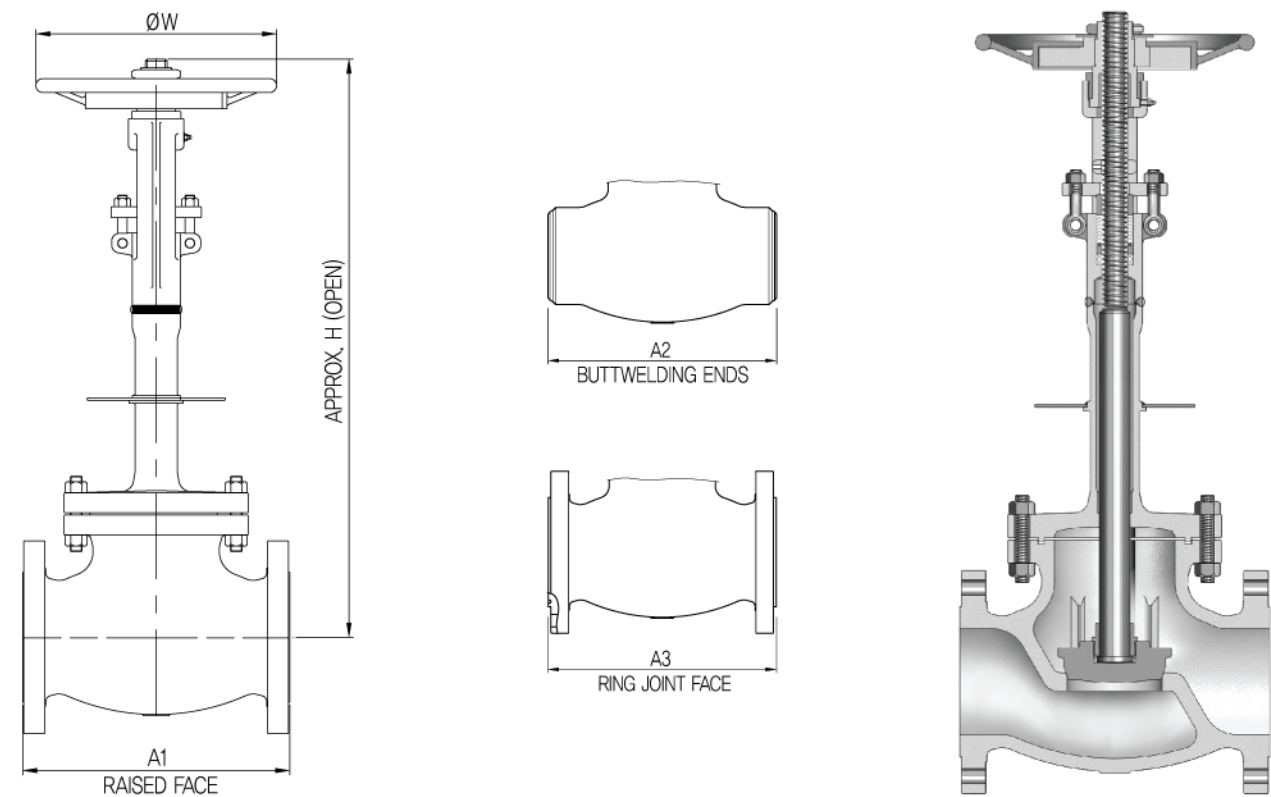
CRYOGENIC GLOBE VALVES BOLTED BONNET



No	PARTS NAME	ASTM SPECIFICATIONS			
1	BODY	A351-CF8	A351-CF8M	A351-CF3	A351-CF3M
2	BONNET	A351-CF8	A351-CF8M	A351-CF3	A351-CF3M
3	DISC	A351-CF8	A351-CF8M	A351-CF3	A351-CF3M
4	YOKE	A351-CF8	A351-CF8M	A351-CF3	A351-CF3M
6	STEM	A479-304	A479-316	A479-304L	A479-316L
8	YOKE SLEEVE	B150-C63000	B150-C63000	B150-C63000	B150-C63000
10	GLAND FLANGE	A240-304	A240-304	A240-304	A240-304
11	PACKING GLAND	A479-304	A479-316	A479-304L	A479-316L
12	DISC NUT	A479-304	A479-316	A479-304L	A479-316L
13	SLEEVE NUT	A479-304	A479-304	A479-304	A479-304
14	WHEEL NUT	A351-CF8	A351-CF8	A351-CF8	A351-CF8
18	HANDWHEEL	A536-60	A536-60	A536-60	A536-60
31	BONNET BOLT	A320-B8	A320-B8	A320-B8	A320-B8
33	BONNET NUT	A194-8	A194-8	A194-8	A194-8
34	HINGE NUT	A194-8	A194-8	A194-8	A194-8
35	HINGE BOLT	A193-B8	A193-B8	A193-B8	A193-B8
36	HINGE PIN	A479-304	A479-304	A479-304	A479-304
39	STOPPER	A240-304	A240-304	A240-304	A240-304
41	SET SCREW	304 S.S	304 S.S	304 S.S	304 S.S
41A	SET SCREW	304 S.S	304 S.S	304 S.S	304 S.S
46	KEY	A576-1045 + Cr.	A576-1045 + Cr.	A576-1045 + Cr.	A576-1045 + Cr.
47	GREASE NIPPLE	STEEL + Cr.	STEEL + Cr.	STEEL + Cr.	STEEL + Cr.
51A	PACKING	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE
51B	PACKING	RTFE	RTFE	RTFE	RTFE
54	PACKING RING	A479-304	A479-316	A479-304L	A479-316L
56	GASKET	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE
60	NAME PLATE	A240-304	A240-304	A240-304	A240-304
130	INSULATION PLATE	A240-304	A240-304	A240-304	A240-304

CAST STEEL

GLOBE VALVES BOLTED BONNET • CLASS 150/300



CLASS 150

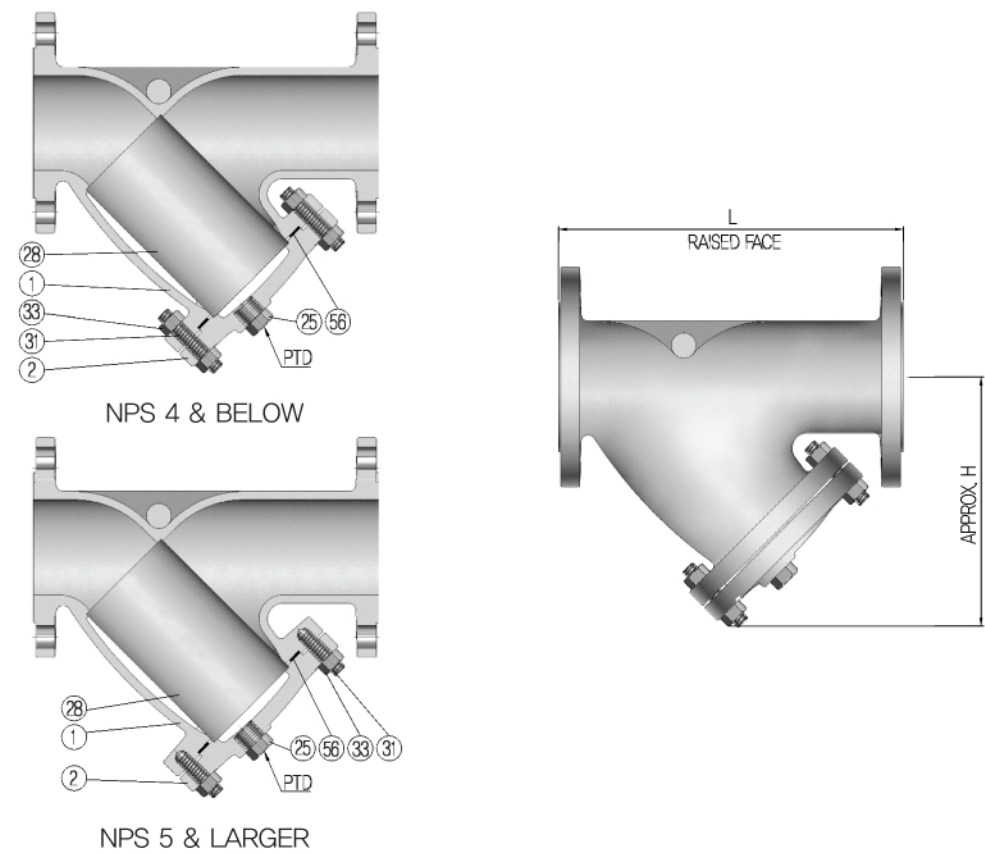
VALVE	inch	2	2,5	3	4	5	6	8	10	12
SIZE	mm	50	65	80	100	125	150	200	250	300
A1 & A2 (RF & BW)	inch	8,00	8,50	9,50	11,50	14,00	16,00	19,50	24,50	27,50
	mm	203	216	241	292	356	406	495	622	698
H (OPEN HEIGHT)	inch	27,17	29,53	29,92	32,68	36,22	38,58	45,28	53,15	59,06
	mm	690	750	760	830	920	980	1150	1350	1500
W (HANDWHEEL DIA.)	inch	7,87	8,82	9,84	11,02	12,40	12,40	15,75	19,69	24,80
	mm	200	224	250	280	315	315	400	500	630

CLASS 300

VALVE	inch	2	2,5	3	4	5	6	8	10	12
SIZE	mm	50	65	80	100	125	150	200	250	300
A1 & A2 (RF & BW)	inch	10,50	11,50	12,50	14,00	15,75	17,50	22,00	24,50	28,00
	mm	267	292	318	356	400	444	559	622	711
A3 (RTJ)	inch	11,12	12,12	13,12	14,62	16,37	18,12	22,62	25,12	28,62
	mm	283	308	334	372	416	460	575	638	727
H (OPEN HEIGHT)	inch	27,17	29,53	29,92	32,68	38,58	41,34	54,33	61,02	70,87
	mm	690	750	760	830	980	1050	1380	1550	1800
W (HANDWHEEL DIA.)	inch	7,87	9,84	11,02	13,98	15,75	15,75	24,80	19,69	19,69
	mm	200	250	280	355	400	400	630	500	500

CAST CARBON STEEL

Y-STRAINER BC BOLTED COVER • CLASS 150/300



No	PARTS NAME	CARBON STEEL	ASTM SPECIFICATIONS	
			LOW TEMP. SERVICE	HIGH TEMP. SERVICE
1	BODY	A216-WCB	A352-LCB	A217-WC6
2	COVER	A216-WCB	A352-LCB	A217-WC6
25	PLUG	A105	A479-304	A182-F11
28	SCREEN	A580-304	A580-304	A580-304
31	COVER BOLT	A193-B7	A320-L7	A193-B16
33	COVER NUT	A194-2H	A194-4L	A194-7
56	GASKET	GRAPHITE	GRAPHITE	GRAPHITE

BC Y-STRAINER CLASS 150

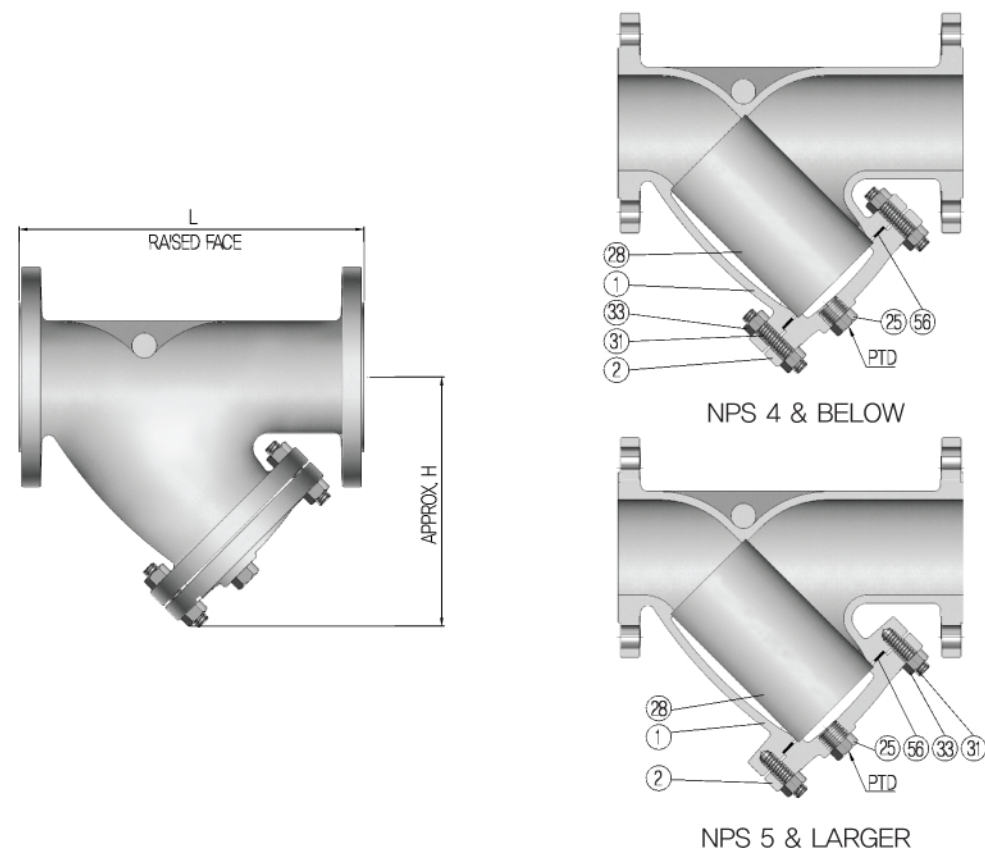
VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400
L (RF, FF)	mm	220	270	290	350	390	440	540	680	800	1050	1060
H (VALVE HEIGHT)	mm	130	180	200	240	275	320	380	480	600	770	890
PTD	inch	3/8	3/8	1/2	1/2	3/4	3/4	3/4	1	1	1	1

BC Y-STRAINER CLASS 300

VALVE	inch	2	2.5	3	4	5	6	8	10	12
SIZE	mm	50	65	80	100	125	150	200	250	300
L (RF, FF)	mm	260	290	315	405	440	520	610	760	892
H (VALVE HEIGHT)	mm	140	180	210	270	310	370	490	565	650
PTD	inch	3/8	3/8	1/2	1/2	3/4	3/4	3/4	1	1

CAST STAINLESS STEEL

Y-STRAINER BC BOLTED COVER • CLASS 150/300



No	PARTS NAME	CARBON STEEL	ASTM SPECIFICATIONS	
			LOW TEMP. SERVICE	HIGH TEMP. SERVICE
1	BODY	A351-CF8	A351-CF8M	A351-CF3
2	COVER	A351-CF8	A351-CF8M	A351-CF3
25	PLUG	A479-304	A479-316	A479-304L
28	SCREEN	A580-304	A580-316	A580-304L
31	COVER BOLT	A193-B8	A193-B8	A193-B8
33	COVER NUT	A194-8	A194-8	A194-8
56	GASKET	GRAPHITE	GRAPHITE	GRAPHITE

BC Y-STRAINER CLASS 150

VALVE	inch	2	2.5	3	4	5	6	8	10	12	14	16
SIZE	mm	50	65	80	100	125	150	200	250	300	350	400
L (RF, FF)	mm	220	270	290	350	390	440	540	680	800	1050	1060
H (VALVE HEIGHT)	mm	130	180	200	240	275	320	380	480	600	770	890
PTD	inch	3/8	3/8	1/2	1/2	3/4	3/4	3/4	1	1	1	1

BC Y-STRAINER CLASS 300

VALVE	inch	2	2.5	3	4	5	6	8	10	12
SIZE	mm	50	65	80	100	125	150	200	250	300
L (RF, FF)	mm	260	290	315	405	440	520	610	760	892
H (VALVE HEIGHT)	mm	140	180	210	270	310	370	490	565	650
PTD	inch	3/8	3/8	1/2	1/2	3/4	3/4	3/4	1	1

PUNCHING SCREEN

1. PERCENTAGE OPEN AREA

Even the "MESH" is same, OPEN AREA is not always same due to the diameter of wire.
The formula of OPEN AREA PERCENTAGE is as follows;

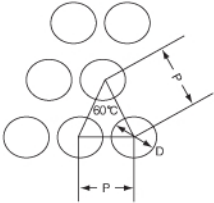
OPEN AREA PERCENTAGE = $\left(\frac{a}{a \times b}\right)^2 \times 100(\%)$ a : Width of Opening
b : Diameter of Wire

The details of wire as follows;

A : Number of Wire					B : Diameter of Wire					C : Width of Opening					D : Percentage of OPEN AREA				
MESH	A SWG	B m/mØ	C m/m	D	MESH	A SWG	B m/mØ	C m/m	D	MESH	A SWG	B m/mØ	C m/m	D	MESH	A SWG	B m/mØ	C m/m	D
5	20	0.914	4.166	67.3	100	42	0.102	0.152	35.8	10	22	0.711	1.829	51.8	120	43	0.092	0.119	31.8
20	28	0.356	0.914	51.8	150	45½	0.066	0.103	37.1	30	32	0.274	0.572	45.7	180	46½	0.053	0.088	38.9
40	36	0.193	0.442	48.4	200	47	0.051	0.076	35.8	40	36	0.193	0.442	48.4	250	48	0.039	0.062	37.7
50	37	0.172	0.336	43.6	300	48	0.040	0.044	27.6	50	37	0.172	0.336	43.6					
60	38	0.152	0.271	41.0															
80	40	0.122	0.195	37.8															

2. OUTSIDE SCREEN (protecting net)

For the outside Screen a stainless steel plate perforated in 60-degree staggered arrangement is used.
For the OPEN AREA you can use the formula below.

OUTSIDE screen	DESCRIPTION	OPEN AREA	Models of strainers	Remarks
	ø 0.8×P1.6	22.8	15~50 (STANDARD)	 $R = \frac{\sqrt{3} \times \pi}{6} \times \left(\frac{D}{P}\right)^2 \times 100(\%)$ $= \frac{91 \times D^2}{P^2}$ R : OPEN AREA P : Pitch(mm) D : Diameter of Hole(mm)
	ø 1×P2	22.8	32~50 (REQUEST)	
	ø 1.2×P2	32.8	65~100	
	ø 1.5×P2.5	32.8	125~100	
	ø 2.5×P4	35.5	200~250	
	ø 3×P5	32.8	300~450	

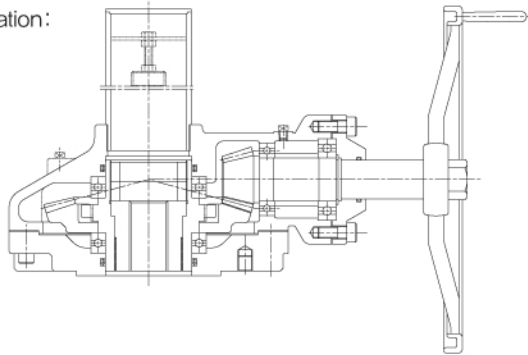
ACCESSORIES

Bevel Gear Actuator

Auxiliary gearing is often desirable to facilitate the operation of large size valves required to close against high pressure.
Namsung Cast Steel Valves can be furnished with a fully enclosed light weight and maintenance free bevel gear actuators.

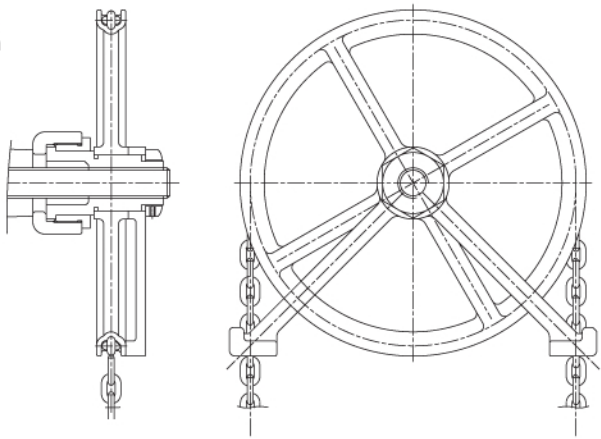
Inquiries or order for valves with gear actuators should include the following information:

- Size and figure number of valve
- Service media, pressure and temperature
- Maximum pressure against which valve must close
- Any handwheel torque or rim pull limitation
- Desired orientation of handwheel to stem
- Desired orientation of handwheel to pipe run
- Limitations, if any, on the type or brand of actuator



Chainwheels

Chainwheels can be furnished complete with chainwheel and chain guide.
They are means of safe and convenient floor operation of valves in overhead or inaccessible locations.

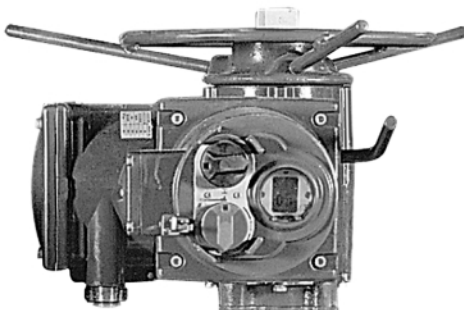


Electric Motor Actuators

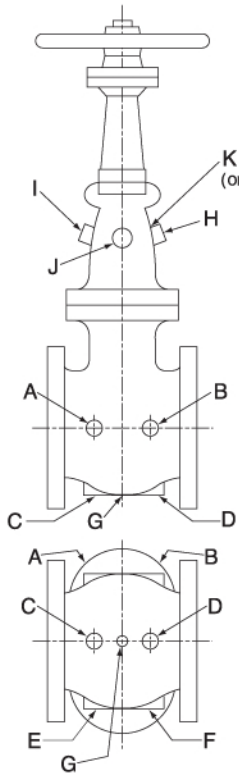
Electric Motor Actuators are available for valves which are in accessibly located, or where emergency may require rapid, positive operation from a remote point.
THT can supplies electric motor actuators for each type of THT Cast Steel Valves when required.
Show on this page are examples of various available actuators.

Inquiries or orders for electric motor actuated valves should include the following information:

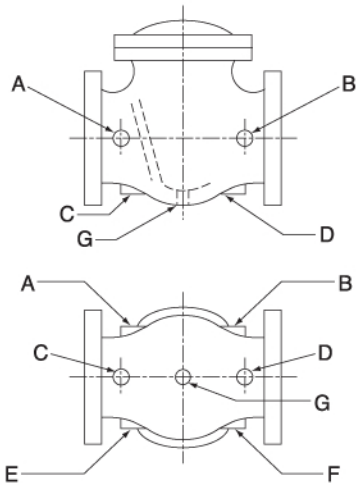
- Size and figure number of valve
- Service media, pressure and temperature
- Maximum pressure against which valve must close
- Desired stem speed or closing time
- Frequency of operation
- Electric power available(voltage, frequency & phases)
- Nema type of electrical enclosure
- Reversing controller specifications
- Control station specifications
- Accessories(Position indicator, dial position indicator, etc.)



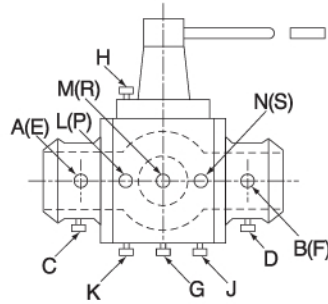
AUXILIARY CONNECTIONS(ASME B16.34)



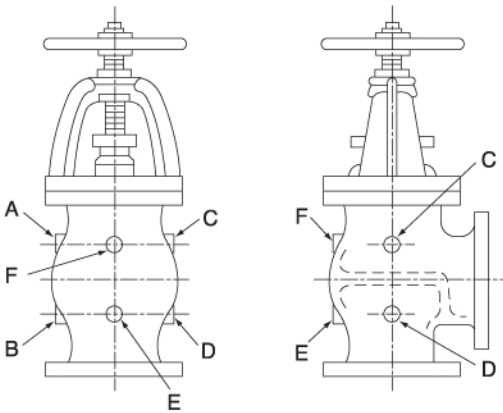
(a) Gate Valve



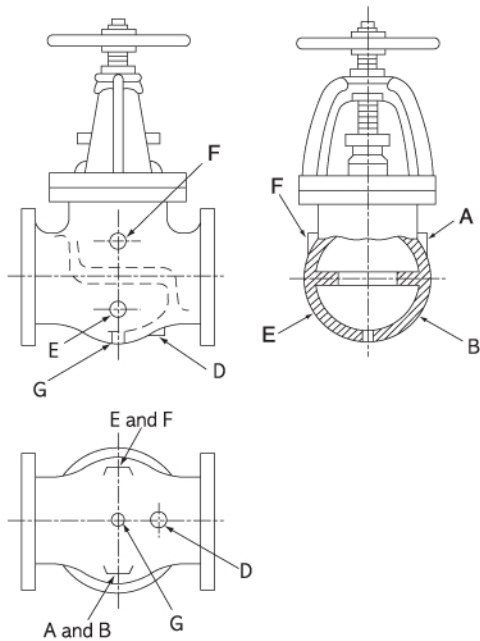
(b) Check Valve



(c) Ball Valve



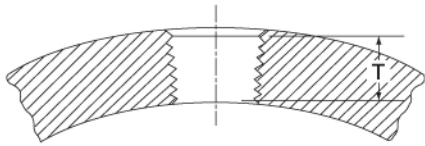
(d) Angle Valve



(e) Globe Valve

METHOD OF DESIGNATING LOCATION OF AUXILIARY CONNECTIONS WHEN SPECIFIED

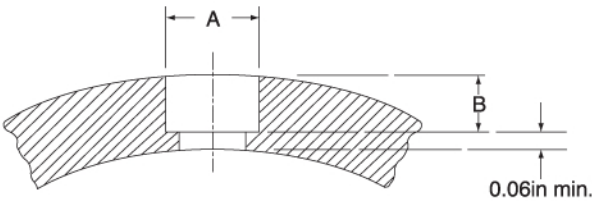
AUXILIARY CONNECTIONS(ASME B16.34)



Connection size	NPS	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Minimum effective thread	mm	10.5	13.5	14.0	17.3	18.0	18.3	19.3
length, T	in.	0.41	0.53	0.55	0.68	0.71	0.72	0.76

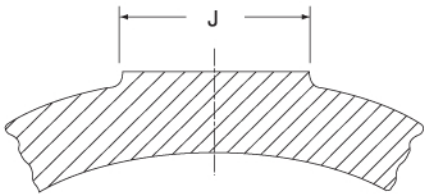
GENERAL NOTE:
The minimum thread lengths are for effective threads in accordance with the effective external pipe thread length as given in ASME B1.20.1.

THREAD LENGTH FOR AUXILIARY CONNECTIONS



Connection size	NPS	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Minimum socket depth, A	mm	17.53	21.72	27.05	33.78	42.54	49.53	61.11
	in.	0.690	0.855	1.065	1.330	1.675	1.915	2.406
Minimum socket depth, B	mm	4.8	4.8	6.4	6.4	6.4	6.4	7.9
	in.	0.19	0.19	0.25	0.25	0.25	0.25	0.31

SOCKET WELDING FOR AUXILIARY CONNECTIONS



Connection size	NPS	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Nominal Boss dia., J	mm	31	38	44	53	63	69	85
	in.	1.25	1.50	1.75	2.12	2.50	2.75	3.38

BOSSES FOR AUXILIARY CONNECTIONS

REFERENCE STANDARD & SPECIFICATION

THT VALVES CONFORM TO THE FOLLOWING STANDARDS AS APPLICBLE TO CUSTOMER REQUIREMENTS.

API Spec 6D	Latest Edition	: API Specification for Pipeline Valves
API Standard 598	Latest Edition	: Valve Inspection and Test
API Standard 600	Latest Edition	: Steel Gate Valves, Flanged and Butt-Welding Ends
API Standard 603	Latest Edition	: Class 150, Cast Corrosion-Resistant Flanged-End Gate Valves
API Standard 605	Latest Edition	: Large-Diameter Carbon Steel Flanges
ANSI B16.5	Latest Edition	: Steel Pipe Flanges and Flanged Fittings
ANSI B16.10	Latest Edition	: Face-to-Face and End-to-End Dimensions of Ferrous Valves
ANSI B16.25	Latest Edition	: Butt-welding Ends
ANSI B16.34	Latest Edition	: Valves-Flanged, Threaded, And Welding End
MSS Standard Practice SP-6	Latest Edition	: Standard Finishes for Contact Faces of Pipe Flanges and Connecting-End Flanges of Valves and Fittings
MSS Standard Practice SP-25	Latest Edition	: Standard Marking System for Valves, Fittings, Flanges and Unions
MSS Standard Practice SP-44	Latest Edition	: Steel Pipe Line Flanges
MSS Standard Practice SP-45	Latest Edition	: By-Pass and Drain Connection Standard
BS 1414	Latest Edition	: Steel wedge gate valve (flange and butt-welding ends)
BS 1868	Latest Edition	: Steel check valve (flange and butt-welding ends)
BS 1873	Latest Edition	: Steel globe and globe stop and check valve (flange and butt-welding ends)
BS 5352	Latest Edition	: Steel wedge gate, globe and check valve (50mm & smaller)
BS 6364	Latest Edition	: Valve for cryogenic service
API		: American Petroleum Institute
ANSI		: American National Standards Institute
ASTM		: American Society for Testing and Materials
ASME		: American Society of Mechanical Engineers
MSS		: Manufacturer Standardization society of the Valve and Fitting Industry
BS		: British Standards Institution
JIS		: Japanese Industrial Standards
JPI		: Japan Petroleum Industitute
NACE		: National Association of corrosion Engineers
AWS		: American welding Society

ENGINEERING DATA

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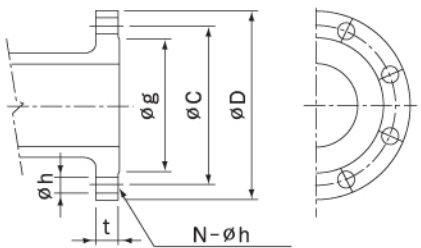


COMPARISON LIST FOR CASTING & FORGING

General classification	Castings			Forgings		
	ASTM	JIS	BS	ASTM	JIS	BS
Cast Iron	A126 – Class A	G5501 – FC20	1452 – 14	–	–	–
	– Class B	– FC25	– 17	–	–	–
	– Class C	– FC30	– 20	–	–	–
Malleable Iron	A197	G5702 – FCMB28	310 – B18/6	–	–	–
	A 47 – 32510	– FCMB35	– B22/14	–	–	–
	– 35018	– FCMB37	–	–	–	–
Ductile Iron	A395	G5502 – FCD40	–	–	–	–
	–	– FCD45	–	–	–	–
	A536	– FCD55	–	–	–	–
Carbon steel	A216 – WCA	G5151 – SCPH1	–	A105	G3201 – SF45	1503 – 161B
	–	G5101 – SC46	1504 – 161	–	–	–
	A216 – WCB	G5151 – SCPH2	– B	A105	G3201 – SF50	1503 – 161C
Carbon–½ Mo	– WCC	–	–	–	–	–
	–	G5101 – SC55	– C	–	–	–
	A217 – WC1	G5111 – SCA41	1504 – 240	A182 – F1	–	1503 – 240B
½ Cr–½ Mo½ Ni	– WC4	–	–	–	–	–
1Cr–½ Mo–½ Ni	– WC5	–	–	A182 – F12	–	1503 – 620
1¼ Cr–½ Mo	– WC6	G5111 – SCA51	1504 – 621	– F11	–	–
2¼ Cr–1 Mo	– WC9	–	– 622	– F22	–	1503 – 622
3Cr–1Mo	–	–	–	– F21	–	–
5Cr–½ Mo(C 0.15)	–	–	–	– F5	–	–
5Cr–½ Mo(C 0.25)	A217 – C5	G5111 – SCA52	1504 – 625	– F5a	–	1503 – 625
7Cr–½ Mo	–	–	–	– F7	–	–
9Cr–1Mo	A217 – C12	–	1504 – 629	– F9	–	–
Carbon Steel for Low Temp	A352 – LCB	–	4242 – GRA	A350 – LF1	–	–
Carbon–Si	–	–	–	– LF2	–	–
Carbon–1Mo for Low Temp	A352 – LC1	–	–	–	–	–
2½ Ni	– LC2	–	–	–	–	–
3½ Ni	– LC3	–	–	A350 – LF3	–	–
Cr–Ni–Cu–Al	–	–	–	– LF4	–	–
13Cr	A217 – CA15	G51212 – SCS1	–	A182 – F6	G4303 – SUS51B	1503 – 713
18Cr–8Ni(C 0.03)	A351 – CF3	–	–	– F304L	– SUS28B	–
18Cr–8Ni(C 0.08)	– CF8	G5121 – SCS13	–	– F304	– SUS27B	1503 – 801
18Cr–8Ni(C 0.10)	–	–	1504 – 801	– F304H	–	–
18Cr–8Ni–2Mo(C 0.03)	A351 – CF3M	G5121 – SCS16	–	– F316L	G4303 – SUS33B	–
18Cr–8Ni–2Mo(C 0.08)	– CF8M	– SCS14	1632 – GRC	– F316	– SUS32B	1503 – 845B
18Cr–8Ni–2Mo(C 0.10)	–	–	–	– F316H	–	–
18Cr–8Ni–Ti(C 0.08)	–	–	–	– F321	G4303 – SUS29B	–
18Cr–8Ni–Ti(C 0.10)	–	–	1504 – 821Ti	–	– F321H	1503 – 821Ti
18Cr–8Ni–Cb(C 0.08)	A351 – CF8C	–	–	– F347	G4303 – SUS43B	– 821Nb
18Cr–8Ni–Cb(C 0.10)	–	–	1504 – 821Nb	– F347H	–	–
18Cr–8Ni–Ta–Cb(C 0.08)	–	–	–	– F348	–	–
18Cr–8Ni–Ta–Cb(C 0.10)	–	–	–	– F348H	–	–
25Cr–2Ni(C 0.15)	–	–	–	– F310	–	–
22Cr–12Ni(C 0.08)	A351 – CH18	–	–	–	–	–
22Cr–12Ni(C 0.10)	– CH10	–	–	–	–	–
22Cr–12Ni(C 0.20)	– CH20	–	–	–	–	–
23Cr–19Ni(C 0.20)	– CK20	–	–	–	–	–
23Cr–19Ni(C 0.35)	– HK30	–	–	–	–	–
23Cr–19Ni(C 0.45)	– HK40	–	–	–	–	–
13Cr–33Ni–Mo(C 0.35)	– HT30	–	–	–	–	–
15Cr–13Ni–2Mo–Cb(C 0.10)	CF10MC	–	–	–	–	–
19Cr–27Ni–2Mo–3Cu(C 0.07)	– CN7M	–	–	–	–	–
8Cr–20Ni(C 0.20)	–	–	–	A182 – F10	–	–
HASTELLOY B	A494–N–12MV	–	–	–	–	–

STEEL PIPE FLANGE

ASME B16.5 CLASS 150



UNIT : mm							
Nominal Pipe Size	Outside Diameter of Flange	Diameter of Raised Face	Thickness of Flange	Diameter of Bolt Circle	Diameter of bolt Holes	Number of Bolts	Diameter of Bolts, in.
1/2	90	34.9	9.6 (8.0)	60.3	16	4	1/2
3/4	100	42.9	11.2 (8.9)	69.9	16	4	1/2
1	110	50.8	12.7 (9.6)	79.4	16	4	1/2
1 1/2	125	73.0	15.9 (12.7)	98.4	16	4	1/2
2	150	92.1	17.5 (14.3)	120.7	19	4	5/8
2 1/2	180	104.8	20.7 (15.9)	139.7	19	4	5/8
3	190	127.0	22.3 (17.5)	152.4	19	4	5/8
4	230	157.2	22.3	190.5	19	8	5/8
5	255	185.7	22.3	215.9	22	8	3/4
6	280	215.9	23.9	241.3	22	8	3/4
8	345	269.9	27.0	298.5	22	8	3/4
10	405	323.8	28.6	362.0	25	12	7/8
12	485	381.0	30.2	431.8	25	12	7/8
14	535	412.8	33.4	476.3	29	12	1
16	595	469.9	35.0	539.8	29	16	1
18	635	533.4	38.1	577.9	32	16	1 1/8
20	700	584.2	41.3	635.0	32	20	1 1/8
24	815	692.2	46.1	749.3	35	20	1 1/4

Thickness of Flange – Not included raised face dimension(2mm).
() – Valve flange dimension.

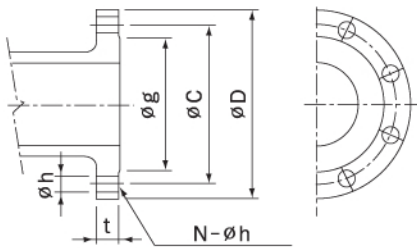
ASME B16.5 CLASS 300

UNIT : mm							
Nominal Pipe Size	Outside Diameter of Flange	Diameter of Raised Face	Thickness of Flange	Diameter of Bolt Circle	Diameter of bolt Holes	Number of Bolts	Diameter of Bolts, in.
1/2	95	34.9	12.7	66.7	16	4	1/2
3/4	115	42.9	14.3	82.6	19	4	5/8
1	125	50.8	15.9	88.9	19	4	5/8
1 1/2	155	73.0	19.1	114.3	22	4	3/4
2	165	92.1	20.7	127.0	19	8	5/8
2 1/2	190	104.8	23.9	149.2	22	8	3/4
3	210	127.0	27.0	168.3	22	8	3/4
4	255	157.2	30.2	200.0	22	8	3/4
5	280	185.7	33.4	235.0	22	8	3/4
6	320	215.9	35.0	269.9	22	12	3/4
8	380	269.9	39.7	330.2	25	12	7/8
10	445	323.8	46.1	387.4	29	16	1
12	520	381.0	49.3	450.8	32	16	1 1/8
14	585	412.8	52.4	514.4	32	20	1 1/8
16	650	469.9	55.6	571.5	35	20	1 1/4
18	710	533.4	58.8	628.6	35	24	1 1/4
20	775	584.2	62.0	685.8	35	24	1 1/4
24	915	692.2	68.3	812.8	41	24	1 1/2

Thickness of Flange – Not included raised face dimension(2mm).

STEEL PIPE FLANGE

ASME B16.5 CLASS 600



UNIT : mm							
Nominal Pipe Size	Outside Diameter of Flange	Diameter of Raised Face	Thickness of Flange	Diameter of Bolt Circle	Diameter of bolt Holes	Number of Bolts	Diameter of Bolts, in.
1/2	95	34.9	14.3	66.7	16	4	1/2
3/4	115	42.9	15.9	82.6	19	4	5/8
1	125	50.8	17.5	88.9	19	4	5/8
1 1/2	155	73.0	22.3	114.3	22	4	3/4
2	165	92.1	25.4	127.0	19	8	5/8
2 1/2	190	104.8	28.6	149.2	22	8	3/4
3	210	127.0	31.8	168.3	22	8	3/4
4	275	157.2	38.1	215.9	25	8	7/8
5	330	185.7	44.5	266.7	29	8	1
6	355	215.9	47.7	292.1	29	12	1
8	420	269.9	55.6	349.2	32	12	1 1/8
10	510	323.8	63.5	431.8	35	16	1 1/4
12	560	381.0	66.7	489.0	35	20	1 1/4
14	605	412.8	69.9	527.0	38	20	1 3/8
16	685	469.9	76.2	603.2	41	20	1 1/2
18	745	533.4	82.6	654.0	44	20	1 5/8
20	815	584.2	88.9	723.9	44	24	1 5/8
24	940	692.2	101.6	838.2	51	24	1 7/8

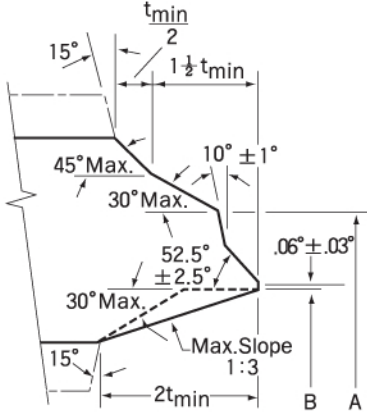
Thickness of Flange – Not included raised face dimension(7mm).

ASME B16.5 CLASS 900

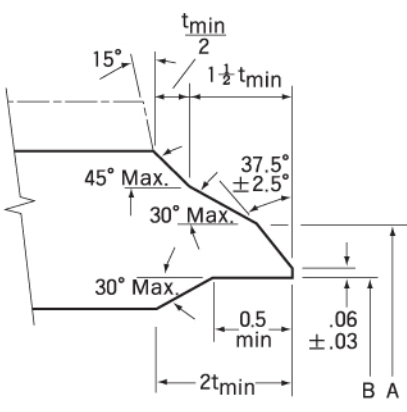
UNIT : mm							
Nominal Pipe Size	Outside Diameter of Flange	Diameter of Raised Face	Thickness of Flange	Diameter of Bolt Circle	Diameter of bolt Holes	Number of Bolts	Diameter of Bolts, in.
1/2	120	34.9	22.3	82.6	22	4	3/4
3/4	130	42.9	25.4	88.9	22	4	3/4
1	150	50.8	28.6	101.6	25	4	7/8
1 1/2	180	73.0	31.8	123.8	29	4	1
2	215	92.1	38.1	165.1	25	8	7/8
2 1/2	245	104.8	41.3	190.5	29	8	1
3	240	127.0	38.1	190.5	25	8	7/8
4	290	157.2	44.5	235.0	32	8	1 1/8
5	350	185.7	50.8	279.4	35	8	1 1/4
6	380	215.9	55.6	317.5	32	12	1 1/8
8	470	269.9	63.5	393.7	38	12	1 3/8
10	545	323.8	69.9	469.9	38	16	1 3/8
12	610	381.0	79.4	533.4	38	20	1 3/8
14	640	412.8	85.8	558.8	41	20	1 1/2
16	705	469.9	88.9	616.0	44	20	1 5/8
18	785	533.4	101.6	685.8	51	20	1 7/8
20	855	584.2	108.0	749.3	54	20	2
24	1040	692.2	139.7	901.7	67	20	2 1/2

Thickness of Flange – Not included raised face dimension(7mm).

BUTTWELDING END DETAILS



Compound Bevel
CONNECTION PIPE WALL THICKNESS
LARGER Than 3/8" SIZE



Plain Bevel
CONNECTION PIPE WALL THICKNESS
3/8" And SMALLER SIZE

A = Outside diameter of matching pipe, wrought or fabricated component
B = Nominal inside diameter
t = Min. wall thickness

TOLERANCE			
VALVE SIZE	2" ~ 10"	12" ~ 10"	20" ~ 24"
A		+0 -0.8	
B	±0.8	±1.6	+3.2 -1.6

Nominal inside diameter “B” Dimensions (ASME & JIS)

NOMINAL PIPE SIZE	O.D(A)		SCH10		SCH20		SCH30		STD	SCH40		SCH60		XH	SCH80	
	JIS	ASME	JIS	ASME	JIS	ASME	JIS	ASME	JIS	JIS	ASME	JIS	ASME	ASME	JIS	ASME
2"	60.5	60.33	—	—	54.1	—	—	—	52.5	52.7	52.50	50.7	—	49.25	49.5	49.25
2½"	76.3	73.03	—	—	67.3	—	—	—	62.713	65.9	62.71	64.3	—	59.00	62.3	59.00
3"	89.1	88.90	—	—	80.1	—	—	—	77.93	78.1	77.93	75.9	—	73.66	73.9	73.66
4"	114.3	114.30	—	—	104.5	—	—	—	102.26	102.3	102.26	100.1	—	97.18	97.1	97.18
5"	139.8	141.30	—	—	129.6	—	—	—	128.19	126.6	128.19	123.6	—	122.25	120.8	122.25
6"	165.2	168.28	—	—	154.2	—	—	—	154	151	154.0	146.6	—	146.33	143.2	146.33
8"	216.3	219.08	—	—	203.5	206.38	202.3	205.0	202.72	199.9	202.72	195.7	198.45	193.68	190.9	193.68
10"	267.4	273.05	—	—	254.5	260.35	251.7	257.45	254.51	248.7	254.51	242.0	247.65	247.65	237.2	242.93
12"	318.5	323.85	—	—	305.7	311.15	301.7	307.09	304.8	297.9	303.23	289.9	295.30	298.45	283.7	288.95
14"	355.6	355.60	342.8	342.9	339.8	339.70	336.6	336.55	336.55	333	333.35	325.4	325.48	330.2	317.6	317.50
16"	406.4	406.40	393.6	393.7	390.6	390.53	387.4	387.35	387.35	381.0	381.0	373.4	373.07	381.0	363.6	363.58
18"	457.2	457.20	444.4	444.5	441.4	441.33	435.0	434.95	483.15	428.6	428.65	419.2	419.1	431.8	409.6	409.6
20"	508.0	508.0	495.2	495.3	489.0	489.95	482.6	482.60	488.95	477.8	477.88	466.8	466.75	482.6	455.6	455.63
24"	—	609.6	—	—	—	590.55	—	581.05	590.55	—	574.8	—	560.43	584.2	—	547.73

VALVE INSIDE DIAMETER DIMENSION

STANDARD : ASME B16.34

UNIT : mm

Nominal Size	FULL BORE					
	150#	300#	600#	900#	1500#	2500#
½	13	13	13	13	13	11
¾	19	19	19	17	17	14
1	25	25	25	22	22	19
1¼	32	32	32	28	28	25
1½	38	38	38	35	35	28
2	51	51	51	47	47	38
2½	64	64	64	57	57	47
3	76	76	76	73	70	57
4	102	102	102	98	92	73
5	127	127	127	121	111	92
6	152	152	152	146	136	111
8	203	203	200	190	178	146
10	254	254	248	238	222	184
12	305	305	298	282	263	219
14	337	337	327	311	289	241
16	387	387	375	356	330	276
18	438	432	419	400	371	311
20	489	483	464	444	416	343
22	540	533	511	489	457	378
24	591	584	559	533	498	413
26	641	635	603	578	540	448
28	692	686	648	622	584	483
30	743	737	695	667	625	517

STANDARD : KS B 2305

UNIT : mm

Nominal Size	5K	10K	16K	20K	30K	40K	63K
15A	15	15	15	15	15	15	12
20A	20	20	20	20	20	20	17
25A	25	25	25	25	25	25	22
32A	32	32	32	32	32	32	29
40A	40	40	40	40	40	38	35
50A	50	50	50	50	50	50	48
65A	65	65	65	65	65	62	57
80A	80	80	80	80	80	75	73
100A	100	100	100	100	100	100	98
125A	125	125	125	125	125	120	120
150A	150	150	150	150	150	150	146
200A	200	200	200	200	200	200	190
250A	250	250	250	250	250	245	238
300A	300	300	300	300	300	295	283
350A	340	340	335	335	335	325	310
400A	400	400	380	380	380	375	355
450A	450	450	430	430	430	420	400
500A	500	500	480	480	480	465	445
550A	550	550	530	530	—	—	—
600A	600	600	580	580	575	560	533

VALVE WALL THICKNESS

LIGHT WALL

STD : ASME B16.34

NOMINAL SIZE	RATINGS											
	150#		300#		600#		900#		1500#		2500#	
	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
½	0.11	3.0	0.12	3.1	0.13	3.4	0.16	4.1	0.19	4.8	0.25	6.3
¾	0.12	3.1	0.15	3.8	0.16	4.1	0.18	4.6	0.23	5.8	0.29	7.4
1	0.16	4.1	0.19	4.8	0.19	4.8	0.22	5.6	0.26	6.6	0.35	8.9
1¼	0.19	4.8	0.19	4.8	0.19	4.8	0.25	6.4	0.31	7.8	0.44	11.2
1½	0.19	4.8	0.19	4.8	0.22	5.6	0.28	7.1	0.38	9.6	0.50	12.7
2	0.22	5.6	0.25	6.4	0.25	6.4	0.31	7.9	0.44	11.2	0.62	15.8
2½	0.22	5.6	0.25	6.4	0.28	7.1	0.34	8.6	0.50	12.7	0.75	19.0
3	0.22	5.6	0.28	7.1	0.31	7.9	0.41	10.4	0.62	15.7	0.88	22.4
4	0.25	6.4	0.31	7.8	0.38	9.6	0.50	12.7	0.75	19.0	1.09	27.7
5	0.28	7.1	0.38	9.6	0.44	11.2	0.59	15.0	0.91	23.1	1.34	34.0
6	0.28	7.1	0.38	9.6	0.50	12.7	0.72	18.3	1.09	27.7	1.59	40.4
8	0.31	8.1	0.44	11.2	0.62	15.8	0.88	22.4	1.41	35.8	2.06	52.3
10	0.34	8.6	0.50	12.7	0.75	19.0	1.06	26.9	1.72	43.7	2.59	65.8
12	0.38	9.6	0.56	14.2	0.91	23.1	1.25	31.8	2.00	50.8	3.03	77.0
14	0.41	10.4	0.62	15.8	0.97	24.6	1.38	35.0	2.19	55.6	3.34	84.8
16	0.44	11.2	0.69	17.5	1.09	27.7	1.56	39.6	2.50	63.5	3.81	96.8
18	0.47	11.9	0.75	19.0	1.22	31.0	1.75	44.4	2.81	71.4	4.27	108.5
20	0.50	12.7	0.81	20.6	1.34	34.0	1.91	48.5	3.12	79.2	4.69	119.1
24	0.57	14.5	0.94	23.9	1.59	40.4	2.28	57.9	3.72	94.5	5.72	145.3

HEAVY WALL

STD : API 600

NOMINAL SIZE	RATINGS											
	150#		300#		600#		900#		1500#		2500#	
	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
½	—	—	—	—	—	—	—	—	—	—	—	—
¾	—	—	—	—	—	—	—	—	—	—	—	—
1	0.25	6.4	0.25	6.4	0.31	7.9	0.50	12.7	0.50	12.7	0.59	15.0
1¼	0.25	6.4	0.25	6.4	0.34	8.6	0.56	14.2	0.56	14.2	0.69	17.5
1½	0.25	6.4	0.31	7.9	0.37	9.4	0.59	15.0	0.59	15.0	0.75	19.1
2	0.34	8.6	0.38	9.7	0.44	11.2	0.75	19.1	0.75	19.1	0.88	22.4
2½	0.38	9.7	0.44	11.2	0.47	11.9	0.88	22.4	0.88	22.4	1.00	25.4
3	0.41	10.4	0.47	11.9	0.50	12.7	0.75	19.1	0.94	23.9	1.19	30.2
4	0.44	11.2	0.50	12.7	0.63	16.0	0.84	21.3	1.13	28.7	1.41	35.8
5	—	—	—	—	—	—	—	—	—	—	—	—
6	0.47	11.9	0.63	16.0	0.75	19.1	1.03	26.2	1.50	38.1	1.91	48.5
8	0.50	12.7	0.69	17.5	1.00	25.4	1.25	31.8	1.88	47.8	2.44	62.0
10	0.56	14.2	0.75	19.1	1.13	28.7	1.44	36.6	2.25	57.2	2.66	67.6
12	0.63	16.0	0.81	20.6	1.25	31.8	1.66	42.2	2.63	66.8	3.41	86.6
14	0.66	16.8	0.88	22.4	1.38	35.1	1.81	46.0	2.75	69.9	—	—
16	0.69	17.5	0.94	23.9	1.50	38.1	2.06	52.3	3.13	79.5	—	—
18	0.72	18.3	1.00	25.4	1.63	41.4	2.25	57.2	3.50	88.9	—	—
20	0.75	19.1	1.06	26.9	1.75	44.5	2.50	63.5	3.88	98.6	—	—
24	0.81	20.6	1.19	30.2	2.00	50.8	2.88	73.2	4.50	114.3	—	—

NOMINAL SEATING SURFACE MATERIALS

Trim		Nominal Trim	Seat Hardness (HB ^d , minimum)	Material Type	Typical Specification(Grade)		
Number					Cast	Forged	Welded
1		F6	b	13 Cr	ASTM A217(CA15)	ASTM A182(F6a)	AWS A5.9 ER410
2		304	c	18-8 Cr-Ni	ASTM A351(CF8)	ASTM A182(F304)	AWS A5.9 ER308
3		F310	c	25-20 Cr-Ni		ASTM A182(F310)	AWS A5.9 ER310
4		Hard F6	750 ^d	Hard 13 Cr		e	
5		Hardfaced	350 ^d	Co Cr-A ^h			AWS A5.13 ERCrCoCr-A
5A		Hardfaced	350 ^d	Ni-Cr			
6		F6 and Cu-Ni	250 ^f	13 Cr	ASTM A217(CA15)	ASTM A182(F6a)	AWS A5.9 ER410
			175 ^f	Cu-Ni		g	
7		F6 and Hard F6	300 ^f	13 Cr	ASTM A217(CA15)	ASTM A182(F6a)	AWS A5.9 ER410
			750 ^f	Hard 13 Cr		e	
8		F6 and Hardfaced	300 ^f	13 Cr	ASTM A217(CA15)	ASTM A182(F6a)	AWS A5.9 ER410
			350 ^f	Co Cr-A ^h			AWS A5.13 ERCrCoCr-A
8A		F6 and Hardfaced	300 ^f	13 Cr	ASTM A217(CA15)	ASTM A182(F6a)	AWS A5.9 ER41
			350 ^f	Ni-Cr			
9		Monel	c	Ni-Cu alloy		Manufacturer' s standard	
10		316	c	18-8 Cr-Ni	ASTM A351(CF8M)	ASTM A182(F316)	AWS A5.9 ER316
11		Monel and Hardfaced	350 ^f	Ni-Cu alloy		Manufacturer' s standard	See Trim 5 or 5A
			c	Trim 5 or 5A			
12		316 and Hardfaced	c	18-8 Cr-Ni	ASTM A351(CF8M)	ASTM A182(F316)	AWS A5.9 ER316
			350 ^f	Trim 5 or 5A			See Trim 5 or 5A
13		Alloy 20	c	19-29 Cr-Ni	ASTM A351(CN7M)	ASTM B473	AWS A5.9 ER320
14		Alloy 20 and Hardfaced	c	19-29 Cr-Ni	ASTM A351(CN7M)	ASTM B473	AWS A5.9 ER320
		Hardfaced	350 ^f	Trim 5 or 5A			See Trim 5 or 5A

a) HB is Brinell hardness number symbol per ASTM E10(formerly BHN)
b) Body and gate seats 250 HB minimum, with 50 HB minimum differential between body and gate seats.
c) Manufacturer' s standard hardness.
d) Differential hardness between body and gate seat surfaces not required.
e) Case hardened by nitriding to thickness of 0.005-inch(0.13 millimeters) minimum.
f) Hardness differential between body and gate seats shall be the manufacturer' s standard.
g) Manufacturer' s standard, with 30 Ni minimum.
h) This classification includes such trademarked materials as Stellite 6, Stoddy 6, and Wallex 6.
i) Manufacturer' s standard hardfacing, with 25 percent Fe maximum.

MATERIAL COMPARISON

Material Classification	Material		Chemical Composition										Tensile Requirements			
	ASTM	KS	JIS	C	Si	Mn	P	S	Ni	Cr	Mo	Other Requirements	Yield Strength min Kg f/mm ²	Yield Strength min Kg f/mm ²	Elongation min %	Reduction of Area min %
Cast Steel & Cast Iron	A-216-WCB			≤0.30	≤0.60	≤1.00	≤0.040	≤0.045	≤0.50	≤0.40	≤0.25	V ≤ 0.03, Cu ≤ 0.50	49~67	25	22	35
	SCPH2	SCPH2		≤0.30	≤0.60	≤1.00	≤0.040	≤0.040	≤0.50	≤0.25	≤0.25	Cu ≤ 0.50	49	25	22	35
	A-216-CLB						≤0.75	≤0.15					22			
	GC20	GC20	FC20										20			
	A-536-60-40-18												42	28	18	
	GCD40	GCD40	FCD40										40	26	15	
	A-197-40-30-5												28	21	5	
	BMC28	FCMB28											28	17	5	
	A-307-B						≤0.04	≤0.05					70		18	
	SB50	SS50					≤0.05	≤0.05					50~62			
Bolt & Nut	SB41	SS41					≤0.05	≤0.05					41~52			
	A-193-B7			0.38~0.48	0.20~0.35	0.75~1.00	≤0.04	≤0.04		0.80~1.10	0.15~0.25		88	74	16	50
	SNB7	SNB7		0.36~0.50	0.18~0.37	0.71~1.04	≤0.045	≤0.045		0.75~1.15	0.13~0.27		88	74	16	50
	SCM3	SCM3		0.33~0.38	0.15~0.35	0.60~0.85	≤0.030	≤0.030		0.90~1.20	0.15~0.30		95	80	15	50
	A-194-2H			≥0.40			≤0.040	≤0.050								
	SM45C	S45C		0.42~0.48	0.15~0.35	0.60~0.90	≤0.030	≤0.035					58	35	20	
	B584 N865			55.0~60.0	0.5~1.50	≤0.40	36.0~42.0	0.40~2.0	≤1.00	0.1~1.5		Ni ≤ 1.00	46	18	20	
	HBsC2	HBsC2		55.0~60.0	0.5~2.0	≤0.40	Remainder	0.50~2.0	≤1.00	≤0.1	≤0.1	Ni ≤ 1.00	50		18	
	B16 NO360			60.0~63.0		2.5~3.7	*	≤0.35				other Than Cu, Pb, Zn, Fe ≤ 0.5	31	13	20	
Copper & Copper Alloy	MBsBE2	BsBM2		56.5~61.5	1.5~3.7	*	≤0.80					(Fe+Sn ≤ 1.8)				
	B124 NO377			58.0~62.0	1.5~2.5	*	≤0.30					total other Element Max 0.50				
	FBsBE2	BsBF2		57.0~61.0	0.5~2.5	*						(Fe+Sn ≤ 1.5)	32		15	

MATERIAL COMPARISON

Material Classification	ASTM	KS	JIS	C	Si	Mn	Chemical Composition					Other Requirements		Tensile Requirements		
							P	S	Ni	Cr	Mo	Yield Strength min kgf/mm ²	Yield Strength min kgf/mm ²	Elongation min %	Reduction of Area min %	
Stainless Steel (Casting)	A-351-CF8			≤0.08	≤2.00	≤1.50	≤0.04	≤0.04	80~110	18.0~21.0		49	21	35		
		SSC13	SCS13	≤0.08	≤2.00	≤2.00	≤0.04	≤0.04	80~110	18.0~21.0		45	19	30		
	A-351-CF3M			≤0.03	≤1.50	≤1.50	≤0.04	≤0.04	90~130	17.0~21.0	2.0~3.0	49	21	30		
		SSC16	SCS16	≤0.03	≤1.50	≤2.00	≤0.04	≤0.04	12.0~16.0	17.0~20.0	2.0~3.0	40	18	33		
	A-351-CF8M			≤0.08	≤1.50	≤1.50	≤0.04	≤0.04	80~120	18.0~21.0	2.0~3.0	49	21	30		
		SSC14	SCS14	≤0.08	≤2.00	≤2.00	≤0.04	≤0.04	10.0~14.0	17.0~20.0	2.0~3.0	45	19	28		
	A-351-CF3			≤0.03	≤2.00	≤1.50	≤0.04	≤0.04	80~120	17.0~21.0		49	21	35		
		SSC19	SCS19	≤0.03	≤2.00	≤2.00	≤0.04	≤0.04	80~120	17.0~21.0		40	19	33		
	A-296 CG3M			≤0.03	≤1.50	≤1.50	≤0.04	≤0.04	90~130	18.0~21.0	3.0~4.0	49	21	30		
	A-276-304			≤0.08	≤1.00	≤2.00	≤0.045	≤0.03	80~10.50	18.0~20.0		21	53	40	50	
Stainless Steel (Bar & Plate)		STS304	SUS304	≤0.08	≤1.00	≤2.50	≤0.045	≤0.03	80~10.50	18.0~20.0		21	53	40	60	
	A-276-316			≤0.08	≤1.00	≤2.00	≤0.045	≤0.03	10.0~14.0	16.0~18.0	2.0~3.0	21	53	40	50	
		STS316	SUS316	≤0.08	≤1.00	≤2.00	≤0.045	≤0.03	10.0~14.0	16.0~18.0	2.0~3.0	21	53	40	60	
	A-276-316L			≤0.03	≤1.00	≤2.00	≤0.045	≤0.03	10.0~14.0	16.0~18.0	2.0~3.0	21	53	40	60	
		STS316L	SUS316L	≤0.03	≤1.00	≤2.00	≤0.045	≤0.03	10.0~15.0	16.0~18.0	2.0~3.0	18	49	40	60	
		STS317L	SUS317L	≤0.03	≤1.00	≤2.00	≤0.045	≤0.03	12.0~15.0	18.0~20.0	3.0~4.0	18	49	40	60	
	AP276-403			≤0.15	≤0.50	≤1.00	≤0.04	≤0.03	11.0~15.0	11.50~13.0		28	49	20	45	
		STS403	SUS403	≤0.15	≤0.50	≤1.00	≤0.04	≤0.03	11.50~13.0			40	60	25	55	
	A-276-410			≤0.15	≤1.00	≤1.00	≤0.04	≤0.03	11.50~13.50			56	70	15	45	
		STS410	SUS410	≤0.15	≤1.00	≤1.00	≤0.04	≤0.03	11.50~13.50			35	55	25	55	
	A-276-420			≥0.15	≤1.00	≤1.00	≤0.04	≤0.03	12.0~14.0			—	—	—	—	
		STS420J ₂	SUS420J ₂	0.26~0.40	≤1.00	≤1.00	≤0.04	≤0.03	12.00~14.00			55	75	12	40	

Certificates



Overseas major clients



Domestic major clients

