

One Stop Solution Of Quality Valves

FORGED STEEL GATE, GLOBE & CHECK VALVE



BELLOW SEAL & CRYOGENIC SERVICE



- | | |
|-----------------------------|-----------------------------|
| ① VIEW OF MACHINING SHOP/1F | ⑤ AUTO. INDEXING CHUCK |
| ② VIEW OF ASSEMBLY-LINE/2F | ⑥ VERTICAL FORGING PRESS |
| ③ CNC LATHE | ⑦ SEATING EXPANSION MACHINE |
| ④ MACHINING CENTER | ⑧ LAPPING MACHINE |



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FORGED STEEL VALVES & CASTING STEEL VALVES



Machining & Testing

① HIGH PRESSURE HYDRO TESTER
② CRYOGENIC PROCESSING
③ CRYOGENIC TESTING

④ CRYOGENIC VALVE
⑤ HYDRO TESTING FOR CASTING VALVE
⑥ SPECTROMETER

⑦ U.T.M
⑧ COORDINATE MEASURING MACHINE
⑨ BRINELL HARDNESS TESTER



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Product Information

1. TYPE:

- GATE, GLOBE, ANGLE, Y-TYPE, GLOBE, GLOBE NEEDLE POINT, LONG BONNET, BELLOWS SEAL, CRYOGENIC SERVICE
- ACTUATOR (MOV, PNEUMATIC)
- CHECK VALVE (LIFT, SWING, BALL, TILTING, SPRING LOADED), GLOBE CHECK (SDNR)
- DSS VALVE FOR POWER PLANT, STRAINER
- BALL VALVE
- Y-STRAINER VALVE

2. SIZE: 3/8" ~ 2" (2 1/2" ~ 20" BY ORDER)

3. CLASS: API 800, 1500

ANSI 150, 300, 600, 900, 1500, 2500, 4500

4. PORT: REDUCED OR FULL

5. MATERIAL: ASTM A105/A182-F304, F316

A182-F304L, F316L, F5, F9, F11, F22, F51, F53, F91, F347/A350-LF2
ALLOY, MONEL, INCONEL, HASTELLOY

6. END CONNECTION:

SOCKET WELDING ACC. TO ANSI, JIS, KS, DIN
BUTT WELDING ACC. TO ANSI
THREADED ACC. TO NPT, PT
FLANGED ACC. TO ANSI, BSS, JIS, KS, DIN

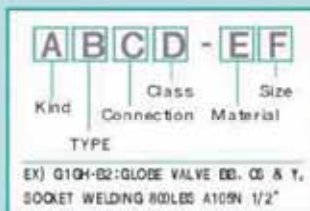
7. BONNET TYPE:

BOLTED BONNET, WELDED BONNET
PRESSURE SEAL BONNET

8. OTHER FEATURE:

OUTSIDE SCREW AND YOKE

Figure Number Abbreviations



A-KIND

- G : GLOBE
- W : GATE
- LC : LIFT CHECK
- SC : SWING CHECK
- BC : BALL CHECK
- BL : BELLOWS
- TC : STOP CHECK
- AG : ANGLE
- N : NEEDLE
- S : STRAINER
- BA : BALL

B-TYPE

- ① BB, OS & Y
- ② WB, OS & Y
- ③ BC, (BOLTED COVER)
- ④ WC, (WELDED COVER)
- ⑤ PS, (PRESSURE SEAL)
- ⑥ Y-TYPE

C-CONNECTION

- G : SOCKET WELDING
- SCR : THREADED
- BW : BUTT WELDING
- RF : RAISED FACE FLANGE
- FF : FLAT FACE FLANGE
- RL : RING JOINT FLANGE

D-CLASS

- A : ANSI 150LBS
- B : ANSI 300LBS
- C : ANSI 600LBS
- D : ANSI 900LBS
- E : ANSI 1500LBS
- F : ANSI 2500LBS
- G : ANSI 4500LBS
- H : API 800LBS
- I : API 1500LBS

E-MATERIAL

- A : ASTM A105
- B : ASTM A105N
- C : ASTM A182-F5
- D : ASTM A182-F9
- E : ASTM A182-F11
- F : ASTM A182-F22
- G : ASTM A182-F304
- H : ASTM A182-F316
- I : ASTM A182-F304L
- J : ASTM A182-F316L
- K : ASTM A182-F321
- L : ASTM A350-LF2

F-SIZE

- ① 3/8"
- ② 1/2"
- ③ 3/4"
- ④ 1"
- ⑤ 1 1/4"
- ⑥ 1 1/2"
- ⑦ 2"
- ⑧ 2 1/2" ~ 20"

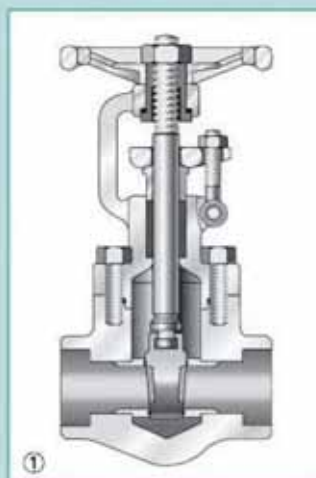
Abbreviations

- **ANSI**: American National Standards Institute Inc.
- **API**: American Petroleum Institute
- **ASB**: Asbestos
- **ASTM**: American Society for Testing and Materials
- **BB**: Bolted Bonnet
- **BC**: Bolted Cover
- **BW**: Butt Welding
- **CWP**: Cold Working Pressure
- **EB**: Extended Bonnet
- **FF**: Flat Face
- **FLGD**: Flanged
- **HF**: Hard Faced
- **INTSS**: Integral Seat Stellite Weld Face
- **ISS**: Inside Screw and Stem
- **JIS**: Japanese Industrial Standard
- **JPI**: Japan Petroleum Institute
- **LB**: Long Bonnet
- **NPT**: National Pipe Taper Thread (Pipe Thread): ANSI
- **OS & Y**: Outside Screw and Yoke
- **PT**: Pipe Taper Thread (Pipe Thread): JIS
- **RF**: Raised Face
- **RS**: Rising Stem
- **RTJ**: Ring Type Joint
- **SB**: Screwed Bonnet
- **SCH**: Schedule
- **SCRD**: Screwed
- **SDNR**: Stem Down Non Return
- **SH**: Surface Hardening
- **STD**: Standard
- **STL**: Stellite
- **SW**: Socket Welding
- **WB**: Welded Bonnet
- **WC**: Welded Cover
- **PS**: Pressure seal

PRODUCT VALVE LIST

DESCRIBED VALVES ARE CURRENTLY PRODUCED
BY DONG KANG METAL CO.,LTD.

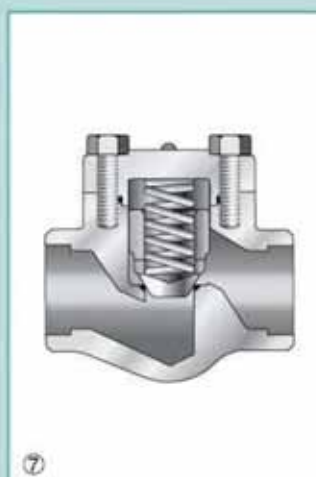
1. GATE VALVE
2. GLOBE VALVE
3. LIFT CHECK VALVE
4. SWING CHECK VALVE
5. NEEDLE VALVE
6. GLOBE CHECK VALVE
7. PISTON CHECK VALVE (W/SPRING)
8. CRYOGENIC GATE VALVE
9. CRYOGENIC GLOBE VALVE
10. CRYOGENIC SWING CHECK VALVE (CASTING)
11. BELLOWS GATE VALVE
12. BELLOWS GLOBE VALVE
13. BELLOWS GLOBE VALVE (CASTING)
14. 3-PIECE BALL VALVE
15. BALL CHECK VALVE (W/SPRING)
16. Y-STRAINER
17. Y-STRAINER (CASTING)
18. Y-GLOBE VALVE



① GATE VALVE



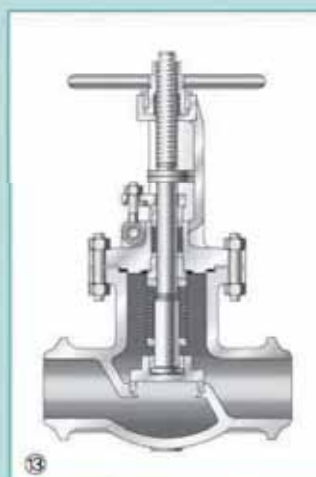
② GLOBE VALVE



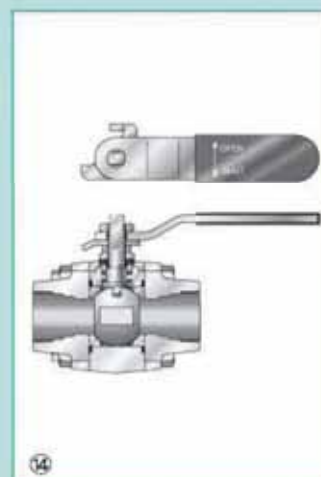
⑦ PISTON CHECK VALVE (W/SPRING)



⑧ CRYOGENIC GATE VALVE



⑬ BELLOWS GLOBE VALVE (CASTING)



⑭ 3-PIECE BALL VALVE



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LIFT CHECK VALVE



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SWING CHECK VALVE



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NEEDLE VALVE



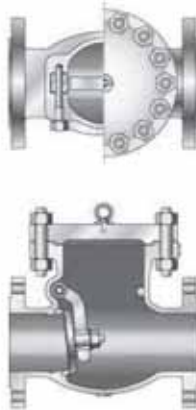
⑥

GLOBE CHECK VALVE



⑨

ORYGENIC GLOBE VALVE



⑩

ORYGENIC SWING CHECK VALVE
(CASTING)



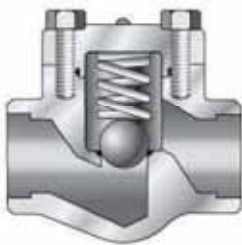
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BELLOWS GATE VALVE



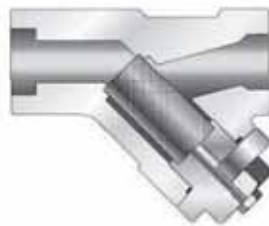
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BELLOWS GLOBE VALVE



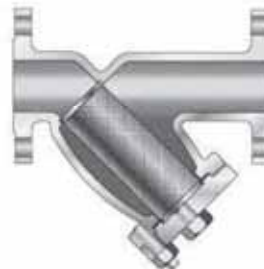
⑮

BALL CHECK VALVE (W/SPRING)



⑯

Y-STRAINER



⑰

Y-STRAINER (CASTING)



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Y-GLOBE VALVE

PRODUCT VALVE LIST

DESCRIBED VALVES ARE CURRENTLY PRODUCED
BY DONG KANG METAL CO.,LTD.

- 19. PNEUMATICALLY OPERATED GLOBE VALVE
- 20. MOTOR OPERATED VALVE (M.O.V)/ GLOBE
- 21. HEATING JACKET VALVE
- 22. ANGLE VALVE
- 23. PRESSURE SEAL BONNET(GLOBE)
- 24. CHECK VALVE PRESSURE SEAL BONNET



19
PNEUMATICALLY OPERATED
GLOBE VALVE



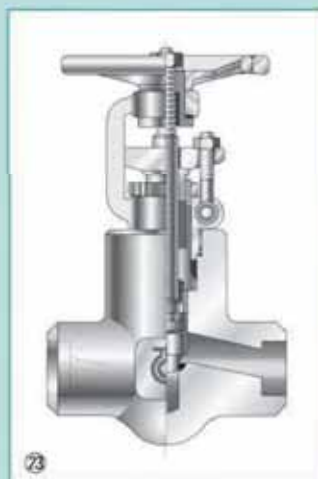
20
MOTOR OPERATED VALVE
(M.O.V)/ GLOBE



21
HEATING JACKET VALVE



22
ANGLE VALVE



23
PRESSURE SEAL BONNET(GLOBE)



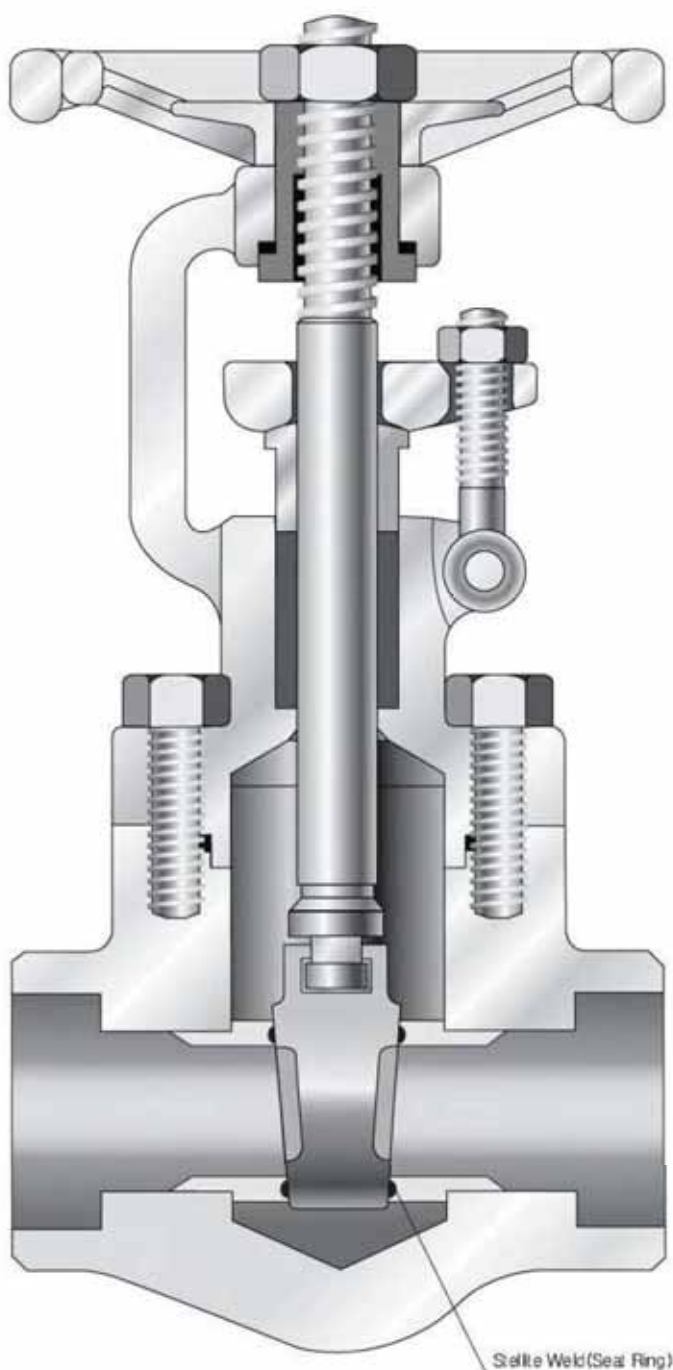
24
CHECK VALVE PRESSURE SEAL
BONNET

| www.valvekorea.co.kr

FORGED STEEL VALVES

- Gate Valves
- Globe Valves
- Lift Check Valves
- Swing Check Valves

GATE VALVES



DESCRIPTION

serves as efficient stop valves with flow in either direction. They are commonly used where a minimum of pressure drop is important because they offer practically no resistance to flow when fully open. Throttling is not conducive to accurate and consistent flow control. Also the valves may be damaged by the high velocity across the seats. They function best fully open or fully closed.

CLASS

API 800, 1500
ANSI 150, 300, 600, 900, 1500, 2500

SIZE

3/8", 1/2", 3/4", 1", 1 1/4", 1 1/2", 2"

MATERIAL

ASTM A105, A182-F5, A182-F9, A182-F11, A182-F22, A182-F304, A182-F316, A182-F304L, A182-F316L, A182-F321, A182-F347, A182-F51, A182-F91, A350-LF2

Other Materials also Available on Application

END CONNECTION

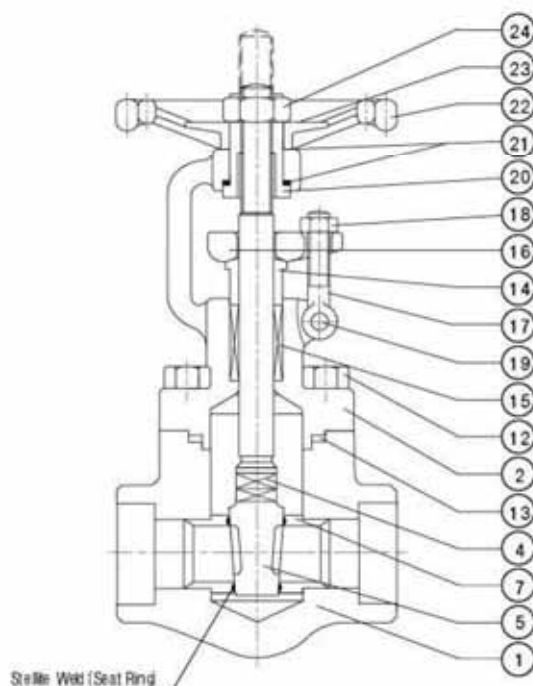
SOCKET WELDING, THREADED
BUTT WELDING, FLANGED

FEATURE

BOLTED BONNET OR WELDED BONNET
OUTSIDE SCREW & YOKE
SOLID WEDGE DISC
RENEWABLE SEAT

GATE VALVES

FORGED STEEL GATE VALVES BOLTED BONNET OS & Y



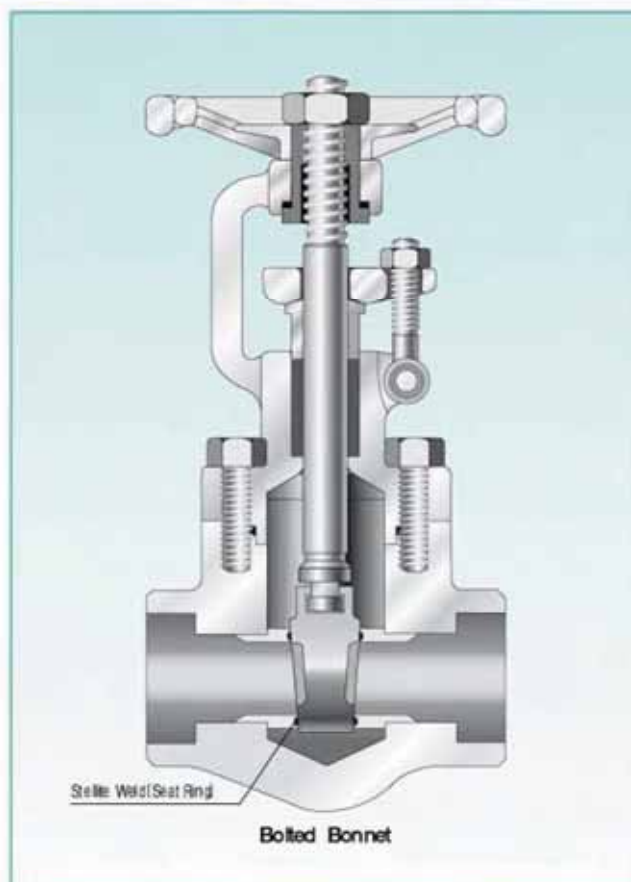
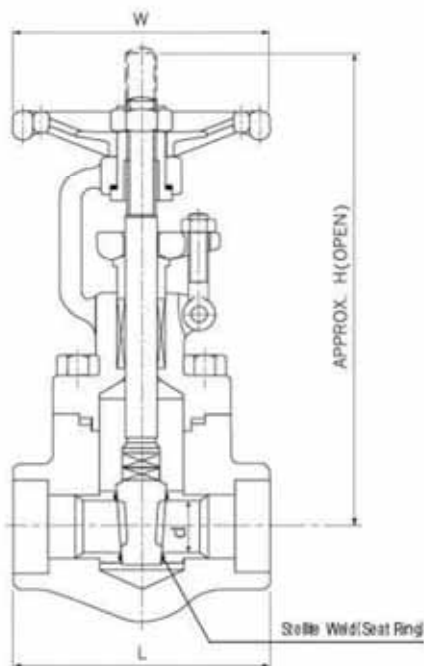
PARTS NOMENCLATURE

Part No.	Part Name	Qty	ASTM Specifications(Specs.-Grades/Types)									
			A105	A182				A182				
				F304	F304L	F316	F316L	F1	F5	F9	F11	F22
1	Body	1	A105 (1)	A182-F304	A182-F304L	A182-F316	A182-F316L	A182-F1	A182-F5	A182-F9	A182-F11	A182-F22
2	Bonnet	1	A105 (1)	A182-F304	A182-F304L	A182-F316	A182-F316L	A182-F1	A182-F5	A182-F9	A182-F11	A182-F22
4	Stem	1	A276-410	A276-304	A276-316			A276-410				
5	Disc	1	A217-CA15	A351-CF8	A351-CF8M			A217-CA15				
7	Seat Ring	2	A276-410+STL	A276-304+STL	A276-316+STL			A276-410+STL				
12	Bonnet Bolt	4	A193-B7	A193-B8				A193-B7				
13	Gasket	1	SS304+Graphite			SS316+Graphite		SS304+Graphite				
14	Gland	1	A276-304									
15	Gland Packing	1set	Graphite									
16	Gland Flange	1	A105	A182-F304				A105				
17	Gland Bolt	2	A276-304									
18	Gland Bolt Nut	2	A194-2H	A194-8				A194-2H				
19	Gland Bolt Pin	2	A276-304									
20	Sleeve	1	A276-410									
21	Sleeve Washer	2	A276-410									
22	Handwheel	1	A197									
23	Nameplate	1	Aluminum									
24	Handwheel Nut	1	A108-1020									

(1) A105 also Available with 0.25% Maximum Carbon.
Other Materials also Available on Application.

GATE VALVES CLASS 600&800

FORGED STEEL GATE VALVES
BOLTED BONNET OS & Y

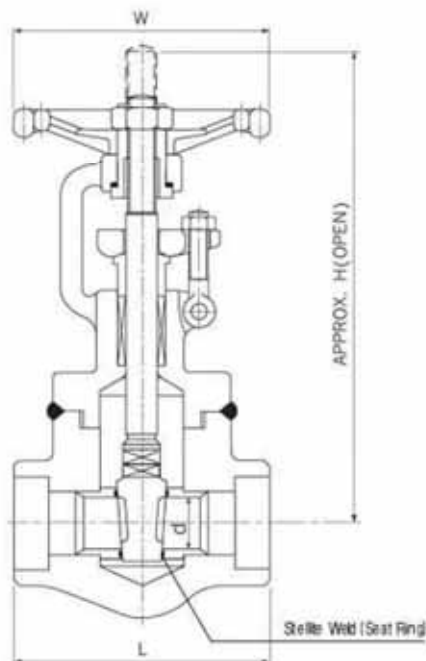


DIMENSIONS & WEIGHTS

CLASS	Port	Valve Size		Center to Top, Open		End to End		Handwheel Diameter		Port Diameter		Approx. Weight	
				H		L		W		d			
		DN	in	mm	in	mm	in	mm	in	mm	in	kg	lb
600 & 800	Reduced	10	3/8	139	5.47	73	2.87	95	3.74	8	0.31	1.5	3.3
		15	1/2	139	5.47	73	2.87	95	3.74	10	0.39	1.4	3.1
		20	3/4	151	5.95	87	3.43	95	3.74	13	0.51	1.9	4.2
		25	1	181	7.13	96	3.77	105	4.13	19	0.75	2.7	6.0
		32	1 1/4	213	8.39	123	4.84	135	5.32	25	0.98	4.8	10.6
		40	1 1/2	226	8.90	141	5.55	135	5.32	30	1.18	5.4	11.9
		50	2	260	10.24	163	6.42	160	6.30	37	1.50	8.9	19.6
	Full	10	3/8	139	5.47	73	2.87	75	2.95	10	0.39	1.4	3.1
		15	1/2	151	5.95	87	3.43	95	3.74	13	0.51	1.9	4.2
		20	3/4	181	7.13	96	3.77	105	4.13	19	0.75	2.7	6.0
		25	1	213	8.37	123	4.84	135	5.32	25	0.98	4.8	10.6
		32	1 1/4	226	8.90	141	5.55	135	5.32	30	1.18	5.4	11.9
		40	1 1/2	260	10.24	163	6.42	160	6.30	37	1.50	8.9	19.6
		50	2	388	15.3	172	6.77	180	7.08	45	1.77	25.4	56.0

GATE VALVES CLASS 900&1500

FORGED STEEL GATE VALVES
WELDED BONNET OS & Y

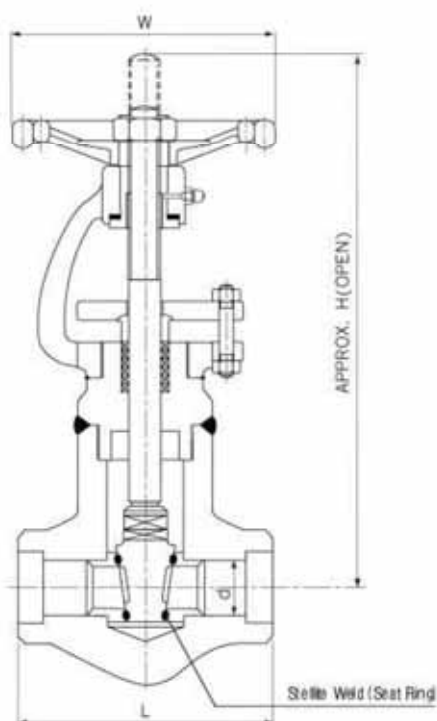


DIMENSIONS & WEIGHTS

CLASS	Port	Valve Size		Center to Top, Open		End to End		Handwheel Diameter		Port Diameter		Approx. Weight	
				H		L		W		d			
		DN	in	mm	in	mm	in	mm	in	mm	in	kg	lb
900 & 1500	Reduced	10	3/8	151	5.51	87	3.43	95	3.74	8	0.31	1.9	4.2
		15	1/2	151	5.51	87	3.43	95	3.74	10	0.51	1.9	4.2
		20	3/4	181	7.13	96	3.77	105	4.13	13	0.51	2.3	5.1
		25	1	213	8.39	123	4.84	135	5.32	19	0.75	4.8	10.6
		32	1 1/4	226	8.90	141	5.55	135	5.32	25	1.00	5.4	11.9
		40	1 1/2	260	10.24	163	6.42	160	6.30	30	1.19	8.9	19.6
		50	2	365	18.0	172	6.77	180	7.08	37	1.57	20.4	44.9
	Full	10	3/8	181	7.28	96	3.77	95	3.74	13	0.51	2.3	5.1
		15	1/2	181	7.13	96	3.77	105	4.13	13	0.51	2.3	5.1
		20	3/4	213	8.27	123	4.84	135	5.32	19	0.75	4.8	10.6
		25	1	226	9.41	141	5.55	135	5.32	25	1.00	5.4	11.9
		32	1 1/4	260	10.98	163	6.42	160	6.30	30	1.19	8.9	19.6
		40	1 1/2	284	12.6	172	6.77	180	7.08	37	1.44	15.2	34.5
		50	2	388	15.3	220	8.66	230	9.06	45	1.77	25.4	56.0

GATE VALVES CLASS 2500

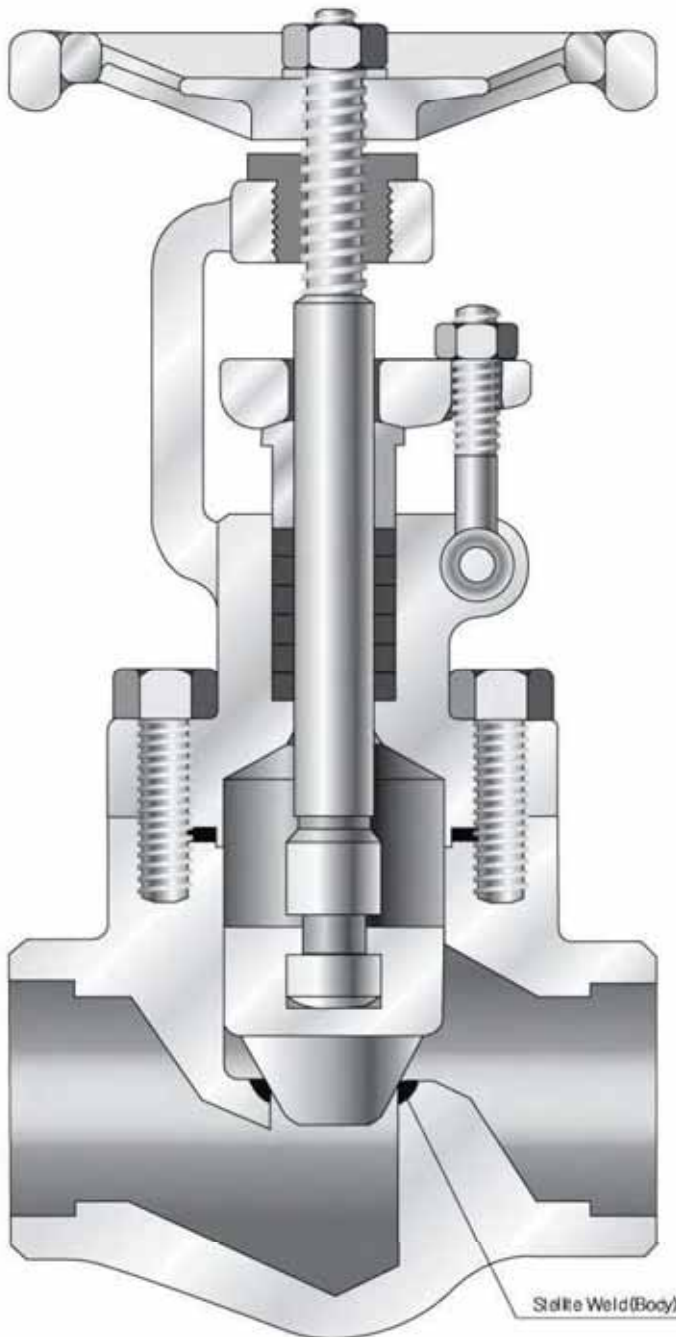
FORGED STEEL GATE VALVES WELDED BONNET OS & Y



DIMENSIONS & WEIGHTS

CLASS	Port	Valve Size		Center to Top, Open		End to End		Handwheel Diameter		Port Diameter		Approx. Weight	
				H		L		W		d			
		DN	in	mm	in	mm	in	mm	in	mm	in	kg	lb
2500	Full	15	1/2	205	8.07	96	3.77	160	6.29	10	0.39	2.9	6.39
		20	3/4	230	9.05	123	4.84	160	6.29	13	0.51	4.8	10.5
		25	1	275	10.82	141	5.55	200	7.87	18	0.70	5.4	11.9
		32	1 1/4	285	11.22	163	6.41	250	9.84	24	0.94	8.9	19.6
		40	1 1/2	315	12.40	172	6.77	250	9.84	30	1.10	26.8	59.1
		50	2	388	15.3	220	8.66	350	13.8	35	1.37	33.4	73.6

GLOBE VALVES



DESCRIPTION

are ideal for throttling service. Their flow characteristics permit accurate and repeatable flow control. However, caution must be exercised to avoid extremely close throttling when pressure drop exceeds 20%. This creates excessive noise, vibration, and possibly damage to valves and piping. When these conditions are anticipated, consult Dong-Kang for recommendations.

CLASS

API 800, 1500

ANSI 150, 300, 600, 900, 2500, 4500

SIZE

3/8", 1/2", 3/4", 1", 1 1/4", 1 1/2", 2"

MATERIAL

ASTM A105, A182-F5, A182-F9, A182-F11, A182-F22, A182-F304, A182-F316, A182-F304L, A182-F316L, A182-F321, A182-F347, A182-F51, A182-F91, A350-LF2

Other Materials also Available on Application

END CONNECTION

SOCKET WELDING, THREADED

BUTT WELDING, FLANGED

FEATURE

BOLTED BONNET OR WELDED BONNET

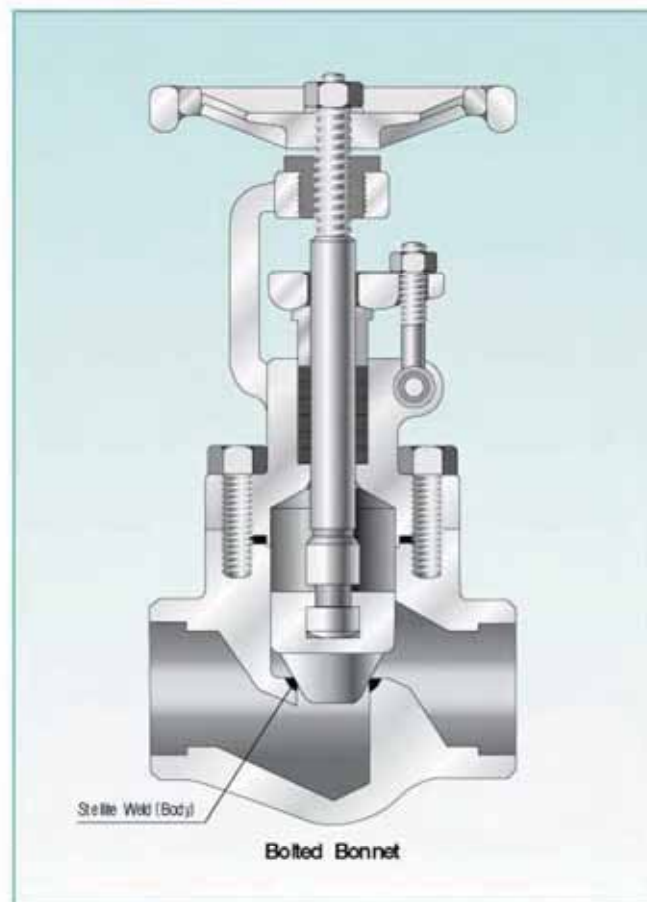
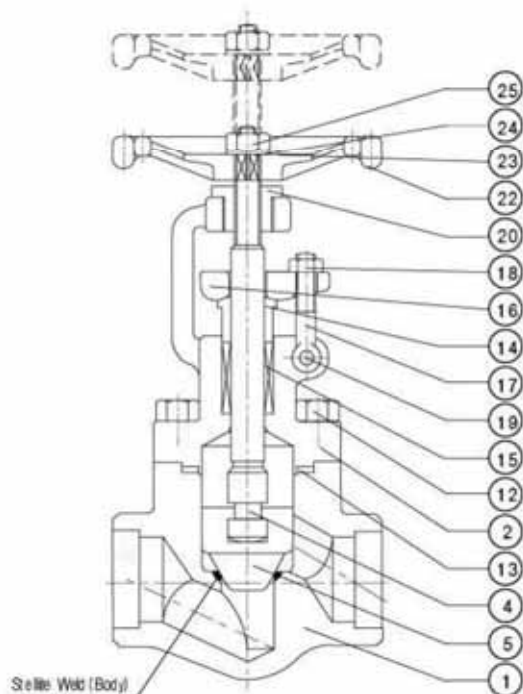
OUTSIDE SCREW & YOKE

PLUG DISC

INTEGRAL SEAT

GLOBE VALVES

FORGED STEEL GLOBE VALVES BOLTED BONNET OS & Y



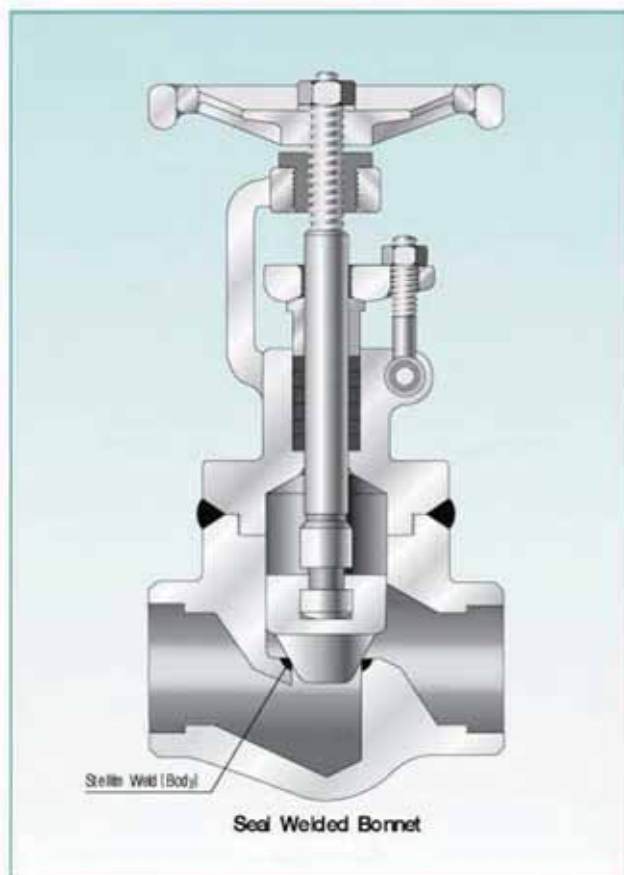
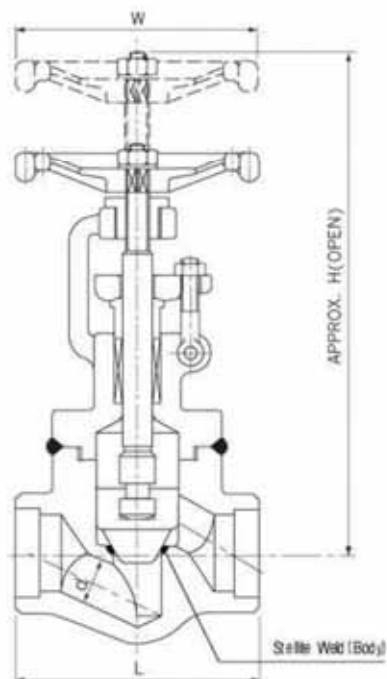
PARTS NOMENCLATURE

Part No.	Part Name	Q ty	ASTM Specifications (Specs.-Grades/Types)									
			A105	A182				A182				
				F304	F304L	F316	F316L	F1	F5	F9	F11	F22
1	Body	1	A105 (1)	A182-F304	A182-F304L	A182-F316	A182-F316L	A182-F1	A182-F5	A182-F9	A182-F11	A182-F22
2	Bonnet	1	A105 (1)	A182-F304	A182-F304L	A182-F316	A182-F316L	A182-F1	A182-F5	A182-F9	A182-F11	A182-F22
4	Stem	1	A276-410	A276-304	A276-316			A276-410				
5	Disc	1	A217-CA15	A351-CF8	A351-CF8M			A217-CA15				
12	Bonnet Bolt	4	A193-B7	A193-B8				A193-B7				
13	Gasket	1	SS304+Graphite			SS316+Graphite		SS304+Graphite				
14	Gland	1	A276-304									
15	Gland Packing	1set	Graphite									
16	Gland Flange	1	A105	A182-F304				A105				
17	Gland Bolt	2	A276-304									
18	Gland Bolt Nut	2	A194-2H	A194-8				A194-2H				
19	Gland Bolt Pin	2	A276-304									
20	Sleeve	1	A276-410									
22	Handwheel	1	A197									
23	Nameplate	1	Aluminum									
24	Handwheel Washer	1	A108-1020									
25	Handwheel Nut	1	A194 -2H									

(1) A105 also Available with 0.25% Maximum Carbon.
Other Materials also Available on Application.

GLOBE VALVES CLASS 600&800

FORGED STEEL GLOBE VALVES
WELDED BONNET OS & Y

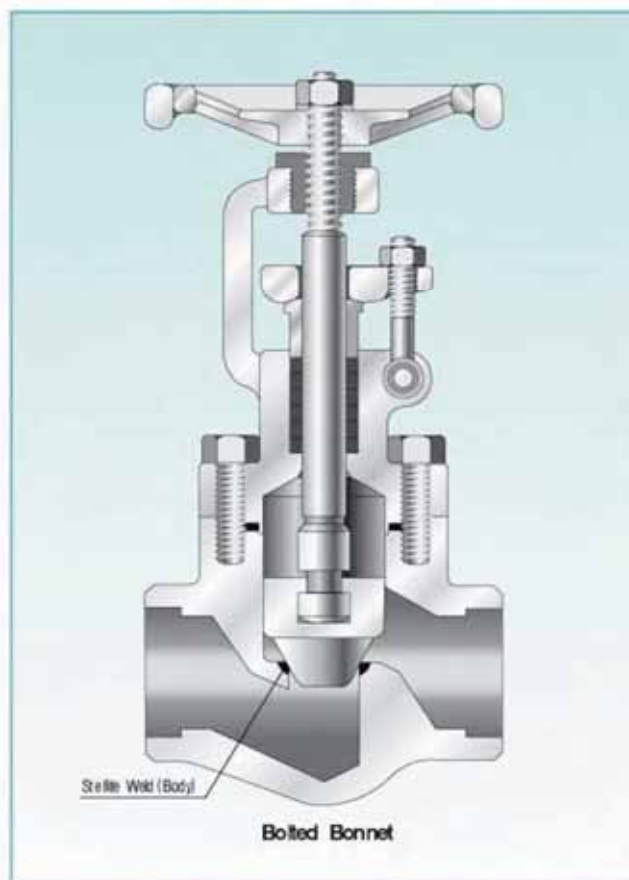
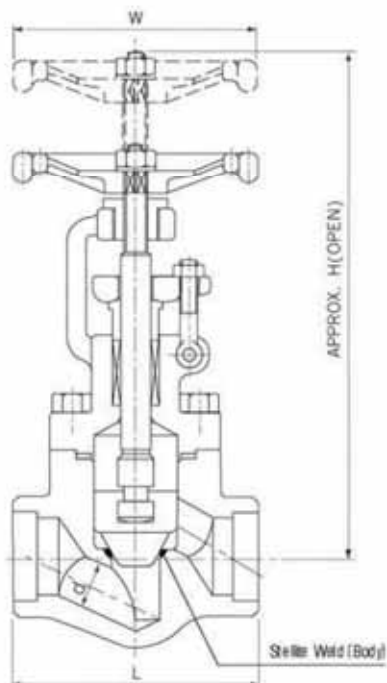


DIMENSIONS & WEIGHTS

CLASS	Port	Valve Size		Center to Top, Open		End to End		Handwheel Diameter		Port Diameter		Approx. Weight	
				H		L		W		d			
		DN	in	mm	in	mm	in	mm	in	mm	in	kg	lb
600 & 800	Reduced	10	3/8	134	5.28	73	2.87	75	2.95	8	0.31	1.5	3.3
		15	1/2	134	5.28	73	2.87	75	2.95	10	0.39	1.4	3.1
		20	3/4	148	5.82	87	3.42	95	3.74	13	0.51	1.9	4.2
		25	1	180	7.09	96	3.77	105	4.13	19	0.75	2.7	6.0
		32	1 1/4	210	8.27	123	4.84	135	5.31	25	0.98	4.9	10.8
		40	1 1/2	223	8.78	141	5.55	135	5.31	30	1.43	5.8	12.8
		50	2	255	10.04	163	6.41	160	6.30	37	1.46	9.3	20.5
	Full	10	3/8	134	5.28	73	2.87	75	2.95	10	0.39	1.4	3.1
		15	1/2	148	5.82	87	3.42	95	3.74	12	0.48	1.9	4.2
		20	3/4	180	7.09	96	3.77	105	4.13	18	0.70	2.7	6.0
		25	1	210	8.29	123	4.84	135	5.31	22	0.87	4.9	10.8
		32	1 1/4	223	8.78	141	5.55	135	5.31	28	1.10	5.8	12.8
		40	1 1/2	255	10.04	163	6.41	160	6.30	33	1.30	9.3	20.5
		50	2	382	15.04	172	6.77	180	7.08	45	1.77	11.2	24.7

GLOBE VALVES CLASS 900&1500

FORGED STEEL GLOBE VALVES
BOLTED BONNET OS & Y

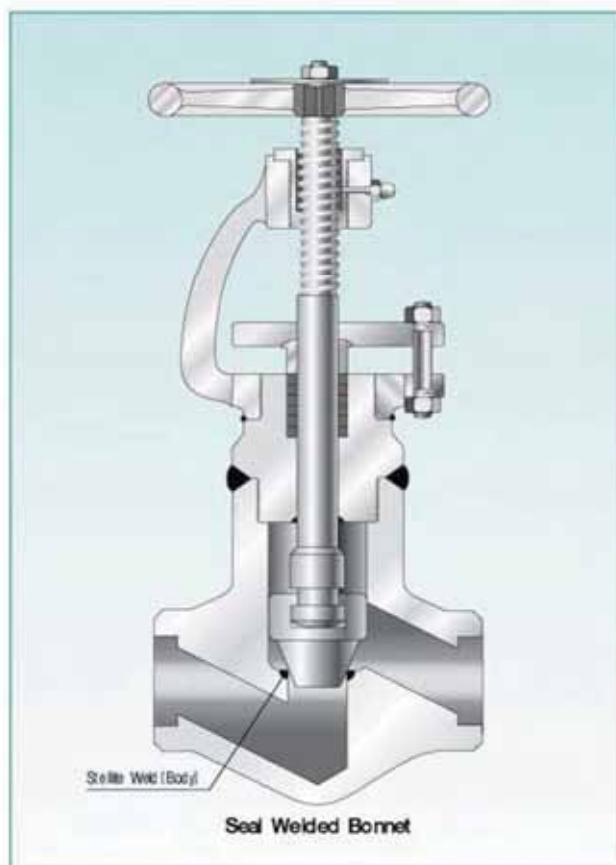
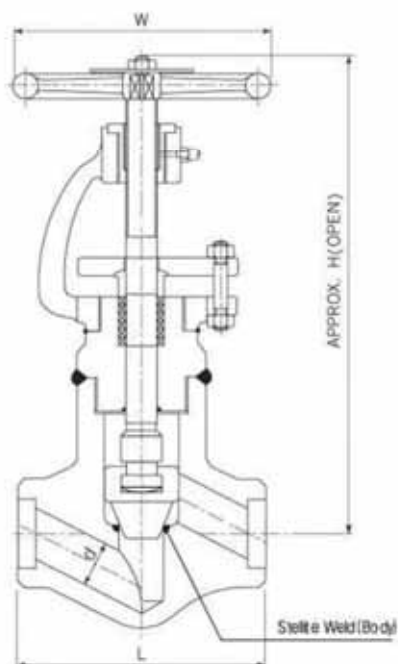


DIMENSIONS & WEIGHTS

CLASS	Port	Valve Size		Center to Top, Open		End to End		Handwheel Diameter		Port Diameter		Approx. Weight	
				H		L		W		d			
		DN	in	mm	in	mm	in	mm	in	mm	in	kg	lb
900 & 1500	Reduced	10	3/8	148	5.83	87	3.42	95	3.74	8	0.31	1.9	4.2
		15	1/2	148	5.83	87	3.42	95	3.74	10	0.39	1.9	4.2
		20	3/4	180	7.09	96	3.77	95	3.74	13	0.51	2.7	6
		25	1	210	8.27	123	4.84	135	5.31	19	0.68	4.9	10.8
		32	1 1/4	223	8.78	141	5.55	135	5.31	25	0.94	5.8	12.8
		40	1 1/2	255	10.04	163	6.41	160	6.29	30	1.22	9.3	20.5
		50	2	364	13.11	172	6.77	180	7.08	37	1.46	20.4	44.9
	Full	10	3/8	180	7.09	96	3.77	95	3.74	10	0.39	2.7	6
		15	1/2	180	7.09	96	3.77	95	3.74	13	0.51	2.7	6
		20	3/4	210	8.27	123	4.84	135	5.31	19	0.68	4.9	10.8
		25	1	223	8.78	141	5.55	135	5.31	25	0.94	5.8	12.8
		32	1 1/4	255	10.04	163	6.41	160	6.29	30	1.22	9.3	20.5
		40	1 1/2	364	14.3	172	6.77	180	7.08	37	1.48	20.5	44.9
		50	2	388	15.3	220	8.66	250	9.84	45	1.77	25.8	58.9

GLOBE VALVES CLASS 2500&4500

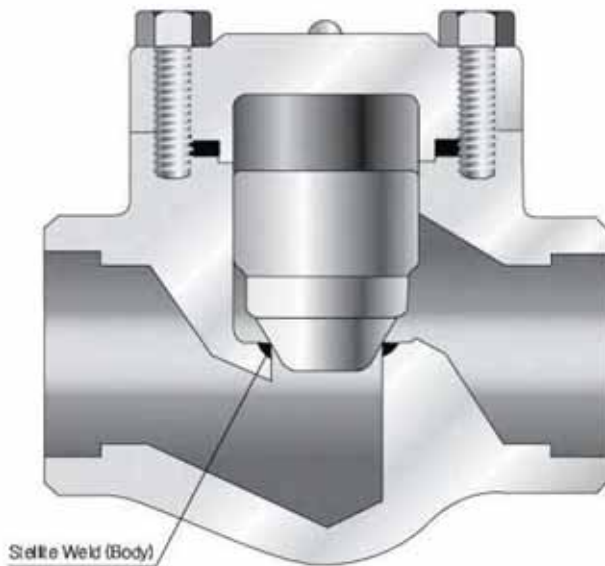
FORGED STEEL GLOBE VALVES
WELDED BONNET OS & Y



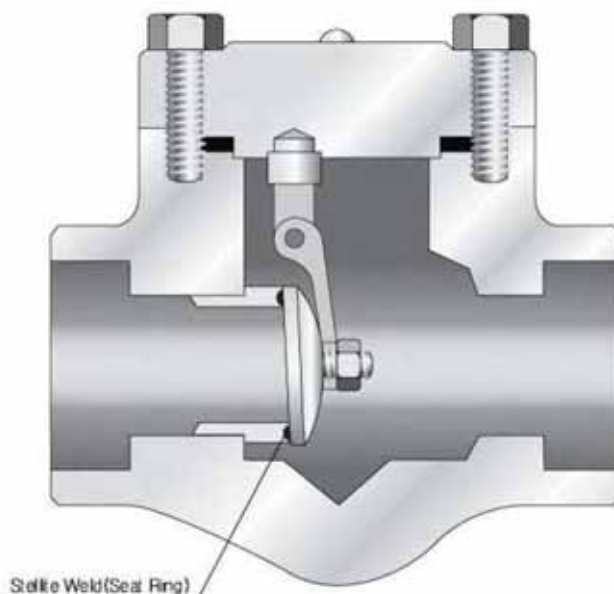
DIMENSIONS & WEIGHTS

CLASS	Port	Valve Size		Center to Top, Open		End to End		Handwheel Diameter		Port Diameter		Approx. Weight	
				H		L		W		d			
		DN	in	mm	in	mm	in	mm	in	mm	in	kg	lb
2500	Full	15	1/2	180	7.08	96	3.77	160	6.29	10	0.39	6.75	14.88
		20	3/4	210	8.26	123	4.84	160	6.29	13	0.51	8.9	19.62
		25	1	223	8.77	141	5.55	200	7.87	18	0.70	16.5	36.37
		32	1 1/4	255	10.0	163	6.41	250	9.84	24	0.94	18.4	40.56
		40	1 1/2	382	15.0	172	6.77	250	9.84	28	1.10	26.4	58.2
		50	2	458	18.0	220	8.66	350	13.8	35	1.38	33.5	73.9
4500	Full	15	1/2	324	12.8	163	6.41	160	6.29	8	0.31	18.4	40.56
		20	3/4	324	12.8	163	6.41	160	6.29	12	0.47	18.3	40.34
		25	1	324	12.8	163	6.41	200	7.87	14	0.55	18.3	40.34
		32	1 1/4	382	15.0	172	6.77	250	9.84	18	0.71	26.4	58.4
		40	1 1/2	382	15.0	172	6.77	250	9.84	22	0.87	26.4	58.2
		50	2	458	18.0	220	8.66	350	13.8	25	0.98	33.5	73.9

CHECK VALVES



LIFT CHECK



SWING CHECK

LIFT CHECK VALVES

DESCRIPTION

have an advantage over most other types of check valves in that they need only a relatively short lift to obtain full valve opening. The lift check valve uses a free-moving closure element that is placed above the seat. It prevents backflow and maintains pressure. The lift check valve is recommended to install in horizontal piping lines because the disc is pushed up by the flow until the flow reverses when gravity and down stream pressure close the closure element against the seat.

CLASS

API 800, 1500

ANSI 150, 300, 600, 900, 1500, 2500, 4500

SIZE

3/8", 1/2", 3/4", 1", 1 1/4", 1 1/2", 2"

MATERIAL

ASTM A105, A182-F5, A182-F9, A182-F11, A182-F22, A182-F304, A182-F316, A182-F304L, A182-F316L, A350-LF2

END CONNECTION

SOCKET WELDING, THREADED

BUTT WELDING, FLANGED

FEATURE

BOLTED COVER OR WELDED COVER

INTEGRAL SEAT

SWING CHECK VALVES

DESCRIPTION

prevent reversal of flow through pipe lines. The swing check valve uses a hinged door to open during flow and to close against a pressure reversal. Most dong-kang swing check valves can be installed in horizontal or vertical upward flow piping. They offer low resistance to flow and are particularly suited to low velocity service.

CLASS

API 800, 1500

ANSI 150, 300, 600, 900, 1500

SIZE

3/8", 1/2", 3/4", 1", 1 1/4", 1 1/2", 2"

MATERIAL

ASTM A105, A182-F5, A182-F9, A182-F11, A182-F22, A182-F304, A182-F316, A182-F304L, A182-F316L, A182-F321, A182-F347, A182-F51, A182-F91, A350-LF2

Other Materials also Available on Application

END CONNECTION

SOCKET WELDING, THREADED

BUTT WELDING, FLANGED

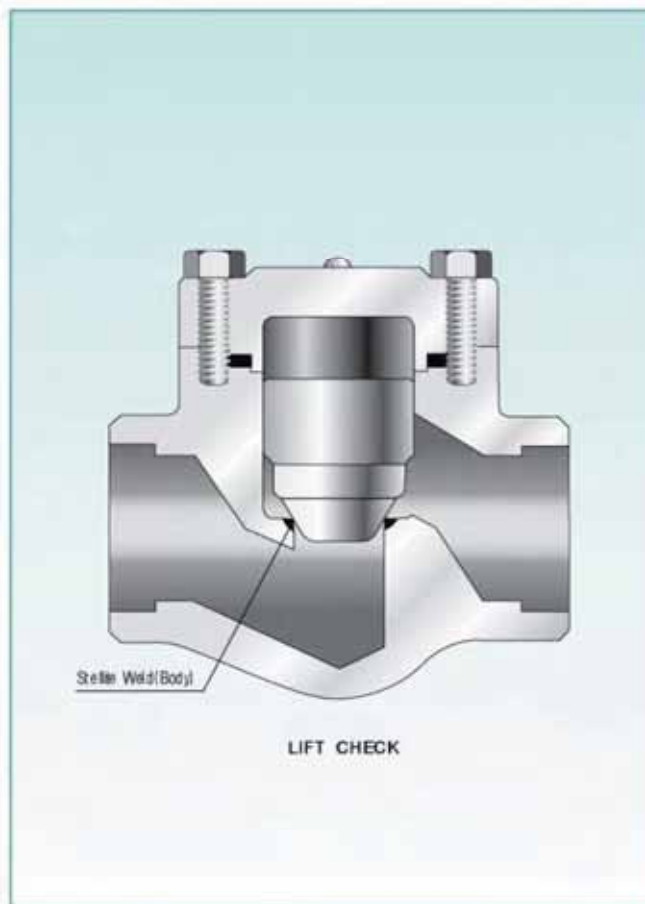
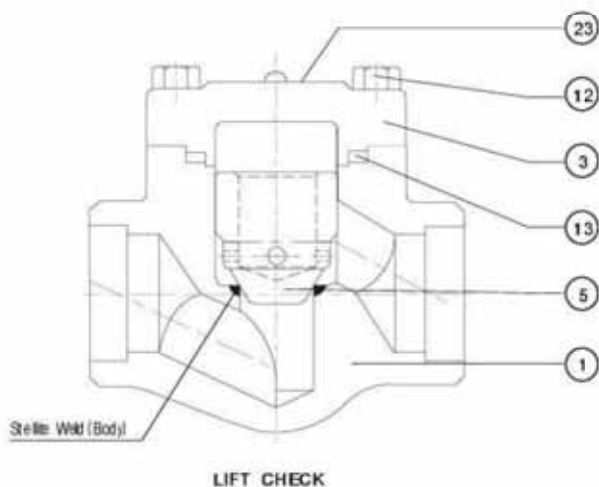
FEATURE

BOLTED COVER OR WELDED COVER

RENEWABLE SEAT

CHECK VALVES

FORGED STEEL LIFT CHECK VALVES BOLTED COVER



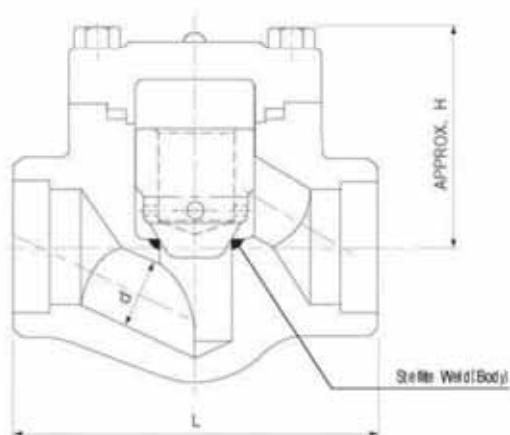
PARTS NOMENCLATURE

No.	Part Name	Q'ty	MATERIAL - ASTM				
			A105	F304	F304L	F316	F316L
1	Body	1	A105 ⁽¹⁾	A182-F304	A182-F304L	A182-F316	A182-F316L
3	Cover	1	A105 ⁽¹⁾	A182-F304	A182-F304L	A182-F316	A182-F316L
5	Disc	1	A217-CA15	A351-CF8	A351-CF8M		
12	Cover Bolt	4	A193-B7	A193-B8			
13	Gasket	1	SS304+Graphite			SS316+Graphite	
23	Nameplate	1	Aluminum				

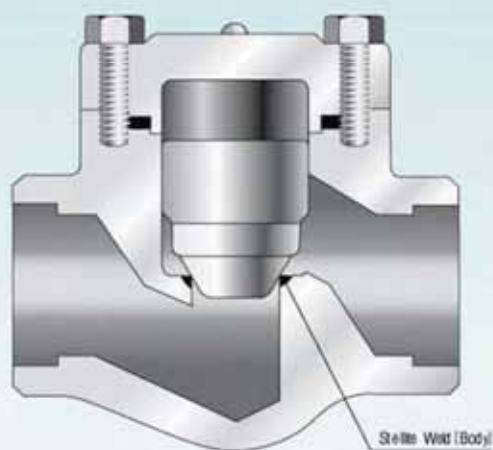
(1) A105 also Available with 0.25% Maximum Carbon.
Other Materials also Available on Application.

CHECK VALVES CLASS 800&1500

FORGED STEEL LIFT CHECK VALVES
BOLTED COVER



LIFT CHECK



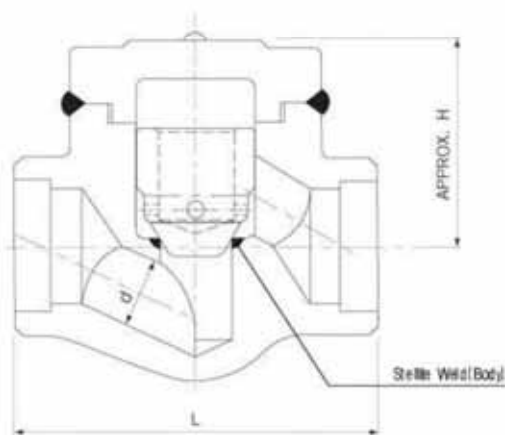
LIFT CHECK

DIMENSIONS & WEIGHTS

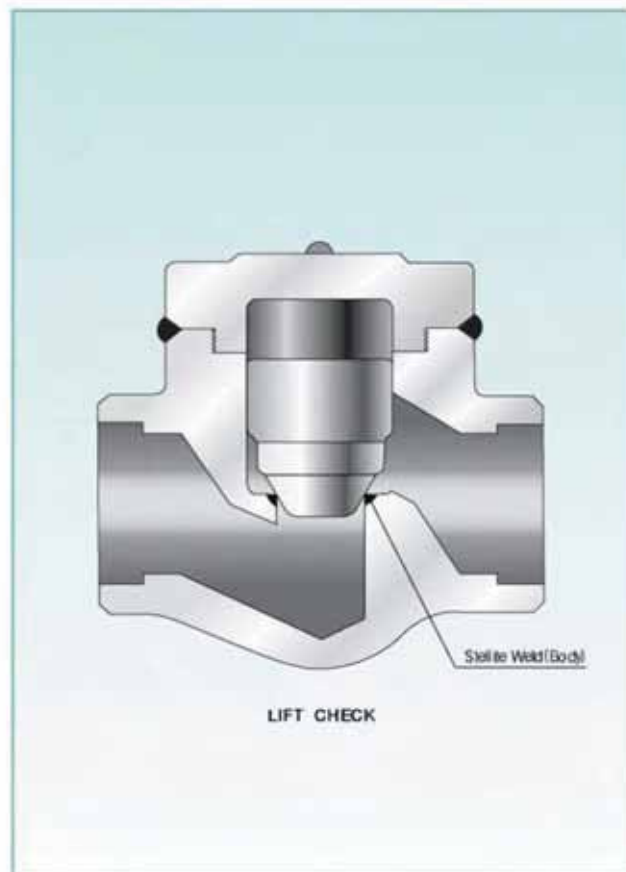
CLASS	Port	Valve Size		Center to Top, Open		End to End		Port Diameter		Approx. Weight	
				H		L		d			
		DN	in	mm	in	mm	in	mm	in	kg	lb
800	Reduced	10	3/8	51	2.00	73	2.87	8	0.31	1.3	2.9
		15	1/2	51	2.00	73	2.87	10	0.39	1.2	2.6
		20	3/4	55	2.17	87	3.42	13	0.51	1.3	2.9
		25	1	65	2.56	96	3.77	19	0.75	2.1	4.6
		32	1 1/4	76	2.99	123	4.84	25	0.98	4.0	8.8
		40	1 1/2	84	3.31	141	5.55	30	1.18	4.7	10.4
		50	2	101	3.98	163	6.41	37	1.46	7.1	15.6
	Full	10	3/8	51	2.00	73	2.87	10	0.39	1.3	2.9
		15	1/2	55	2.17	87	3.42	13	0.51	1.3	2.9
		20	3/4	65	2.56	96	3.77	19	0.75	2.1	4.6
		25	1	76	2.99	123	4.84	25	0.98	4.0	8.8
		32	1 1/4	84	3.31	141	5.55	30	1.18	4.7	10.4
		40	1 1/2	101	3.98	163	6.41	37	1.46	7.1	15.6
		50	2	116	4.57	172	6.77	45	1.77	10.7	23.5
1500	Reduced	10	3/8	55	2.17	87	3.42	8	0.31	1.2	2.6
		15	1/2	55	2.17	87	3.42	10	0.39	1.2	2.6
		20	3/4	65	2.56	96	3.77	13	0.51	2.1	4.6
		25	1	76	2.99	123	4.84	19	0.75	4.0	8.8
		32	1 1/4	84	3.31	141	5.55	25	0.98	4.7	10.4
		40	1 1/2	101	3.98	163	6.41	30	1.18	7.1	15.6
		50	2	116	4.57	172	6.77	37	1.46	10.5	23.1
	Full	10	3/8	65	2.56	96	3.77	10	0.39	3.1	4.6
		15	1/2	65	2.56	96	3.77	13	0.51	2.1	4.6
		20	3/4	76	2.99	123	4.84	19	0.75	4.0	8.8
		25	1	84	3.31	141	5.55	25	0.98	4.7	10.4
		32	1 1/4	101	3.98	163	6.41	30	1.18	7.1	15.6
		40	1 1/2	116	4.57	172	6.77	37	1.46	10.5	23.1
		50	2	136	5.35	220	8.66	44	1.73	12.5	27.5

CHECK VALVES CLASS 2500&4500

FORGED STEEL LIFT CHECK VALVES
WELDED COVER



LIFT CHECK



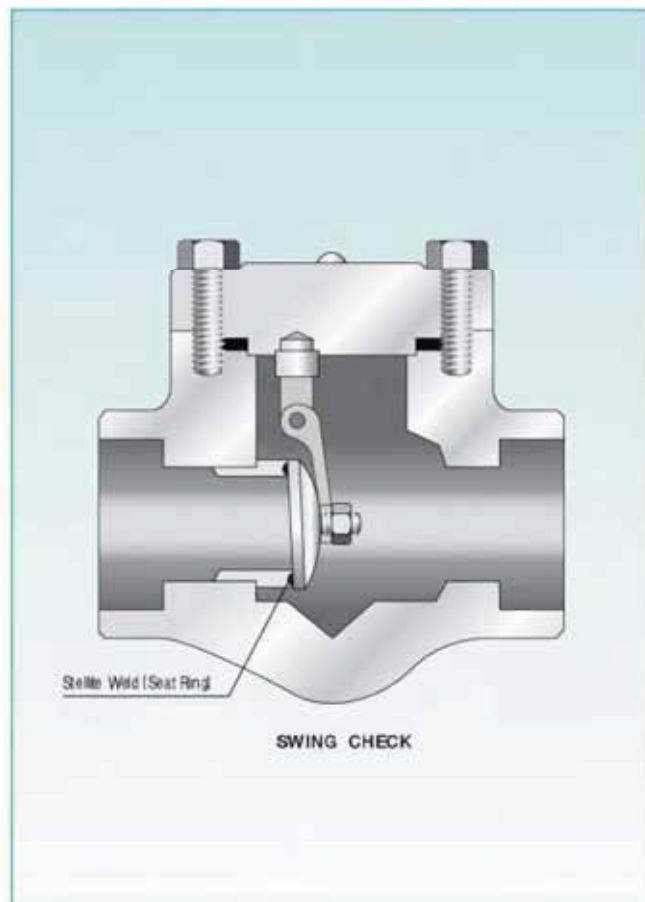
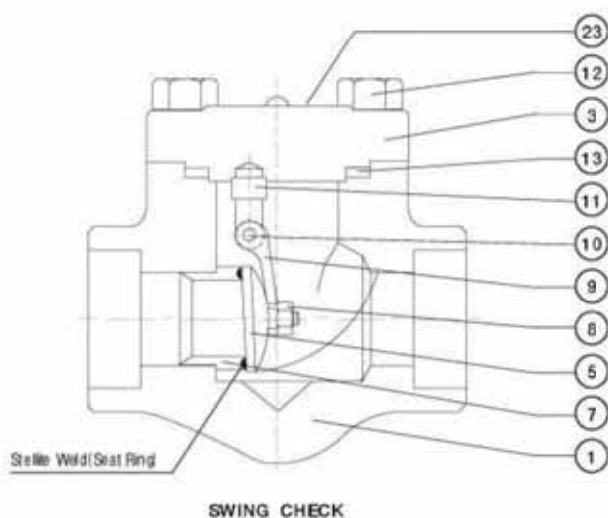
LIFT CHECK

DIMENSIONS & WEIGHTS

CLASS	Port	Valve Size		Center to Top, Open		End to End		Port Diameter		Approx. Weight	
				H		L		d			
		DN	in	mm	in	mm	in	mm	in	kg	lb
2500	Full	15	1/2	65	2.56	96	3.77	10	0.47	2.1	4.6
		20	3/4	76	2.99	123	4.84	13	0.62	4.0	8.8
		25	1	84	3.31	141	5.55	18	0.82	4.7	10.4
		32	1 1/4	101	3.98	163	6.41	24	1.02	7.1	15.6
		40	1 1/2	116	4.57	172	6.77	28	1.10	10.7	23.5
		50	2	136	5.35	220	8.66	35	1.33	12.5	27.5
4500	Full	15	1/2	101	3.98	163	6.41	8	0.31	7.1	15.6
		20	3/4	101	3.98	163	6.41	12	0.47	7.1	15.6
		25	1	101	3.98	163	6.41	14	0.55	7.1	15.6
		32	1 1/4	116	4.57	172	6.77	18	0.71	10.7	23.5
		40	1 1/2	116	4.57	172	6.77	22	0.87	10.7	23.5
		50	2	136	5.35	220	8.66	25	0.98	12.5	27.5

CHECK VALVES

FORGED STEEL SWING CHECK VALVES BOLTED COVER



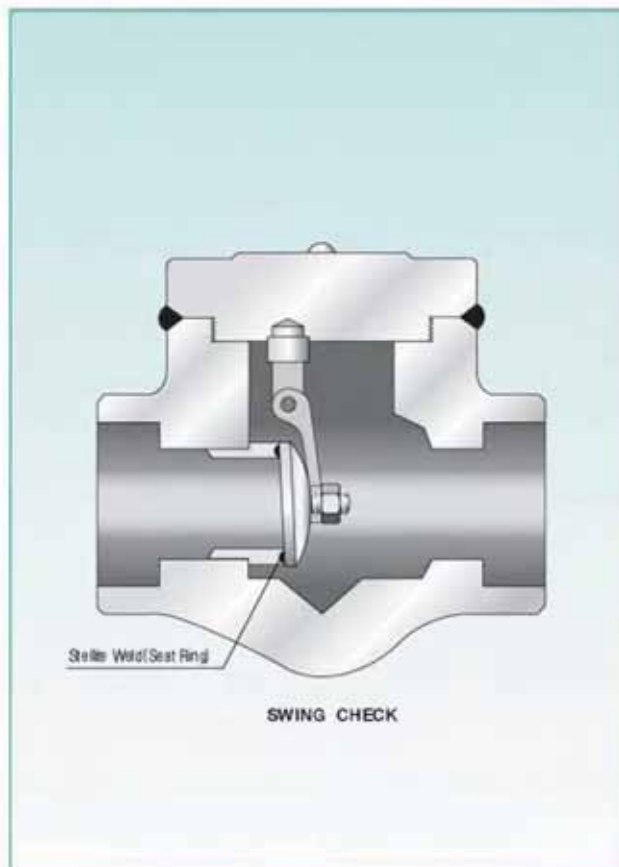
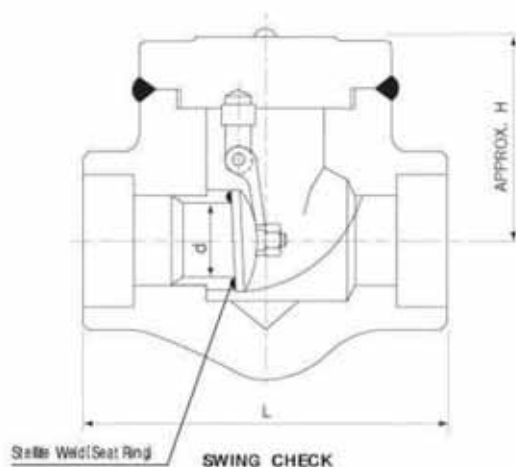
PARTS NOMENCLATURE

No.	Part Name	Q'ty	MATERIAL - ASTM				
			A105	F304	F304L	F316	F316L
1	Body	1	A105 ⁽¹⁾	A182-F304	A182-F304L	A182-F316	A182-F316L
3	Cover	1	A105 ⁽¹⁾	A182-F304	A182-F304L	A182-F316	A182-F316L
5	Disc	1	A217-CA15	A351-CF8	A351-CF8M		
7	Seat Ring	1	A276-410+STL ⁺	A182-304+STL ⁺	A182-316+STL ⁺		
8	Retaining Nut	1	A194-2H	A194-8			
9	Hinge	1	A743-CA40	A351-CF8	A351-CF8M		
10	Hinge Pin	1	A276-304				
11	Supporter	1	A276-410	A276-304	A276-316		
12	Cover Bolt	4	A193-B7	A193-B8			
13	Gasket	1	SS304+Graphite			SS316+Graphite	
23	Nameplate	1	Aluminum				

(1) A105 also Available with 0.25% Maximum Carbon.

CHECK VALVES CLASS 800&1500

FORGED STEEL SWING CHECK VALVES
WELDED COVER



DIMENSIONS & WEIGHTS

CLASS	Port	Valve Size		Center to Top, Open		End to End		Port Diameter		Approx. Weight	
				H		L		d			
		DN	in	mm	in	mm	in	mm	in	kg	lb
800	Reduced	10	3/8	51	2.00	73	2.87	8	0.31	1.1	2.42
		15	1/2	51	2.00	73	2.87	0	0.39	1.0	2.2
		20	3/4	55	2.17	87	3.42	13	0.51	1.4	3.0
		25	1	65	2.56	96	3.77	19	0.75	2.2	4.85
		32	1 1/4	76	2.99	123	4.84	25	0.98	4.0	8.8
		40	1 1/2	84	3.31	141	5.55	30	1.18	4.1	9.0
		50	2	101	3.98	163	6.41	37	1.50	6.0	13.2
	Full	10	3/8	51	2.00	73	2.87	10	0.39	1.0	2.2
		15	1/2	55	2.17	87	3.42	13	0.51	1.4	3.0
		20	3/4	65	2.56	96	3.77	19	0.75	2.2	4.85
		25	1	76	2.99	123	4.84	25	0.98	4.0	8.8
		32	1 1/4	84	3.31	141	5.55	30	1.18	4.1	9.0
		40	1 1/2	101	3.98	163	6.41	37	1.50	6.0	13.2
		50	2	116	4.57	172	6.77	44.5	1.75	10.6	23.3
1500	Reduced	10	3/8	55	2.17	87	3.42	8	0.31	1.4	3.2
		15	1/2	55	2.17	87	3.42	10	0.39	1.4	3.2
		20	3/4	65	2.56	96	3.77	13	0.51	2.2	5.0
		25	1	76	2.99	123	4.84	19	0.75	4.0	9.2
		32	1 1/4	84	3.31	141	5.55	25	0.98	4.1	9.4
		40	1 1/2	101	3.98	163	6.41	30	1.18	6.0	13.8
		50	2	116	4.57	172	6.77	37	1.50	9.3	20.5
	Full	10	3/8	65	2.56	96	3.77	10	0.39	2.2	5.0
		15	1/2	65	2.56	96	3.77	13	0.51	2.2	5.0
		20	3/4	76	2.99	123	4.84	19	0.75	4.0	9.2
		25	1	84	3.31	141	5.55	25	0.98	4.1	9.4
		32	1 1/4	101	3.98	163	6.41	30	1.18	6.0	13.8
		40	1 1/2	116	4.57	172	6.77	37	1.50	9.3	20.5
		50	2	136	5.35	220	8.66	46	1.81	12.8	28.2

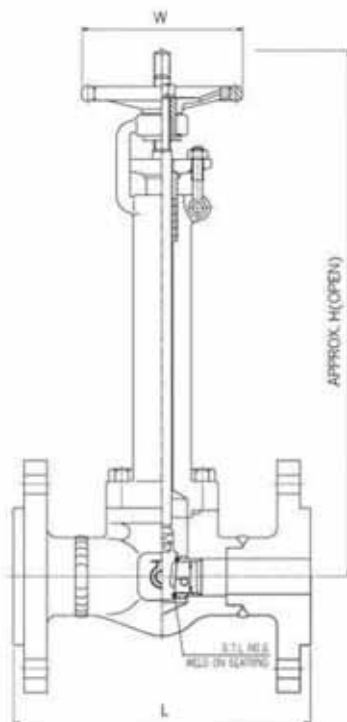
| www.valvekorea.co.kr

CRYOGENIC VALVES

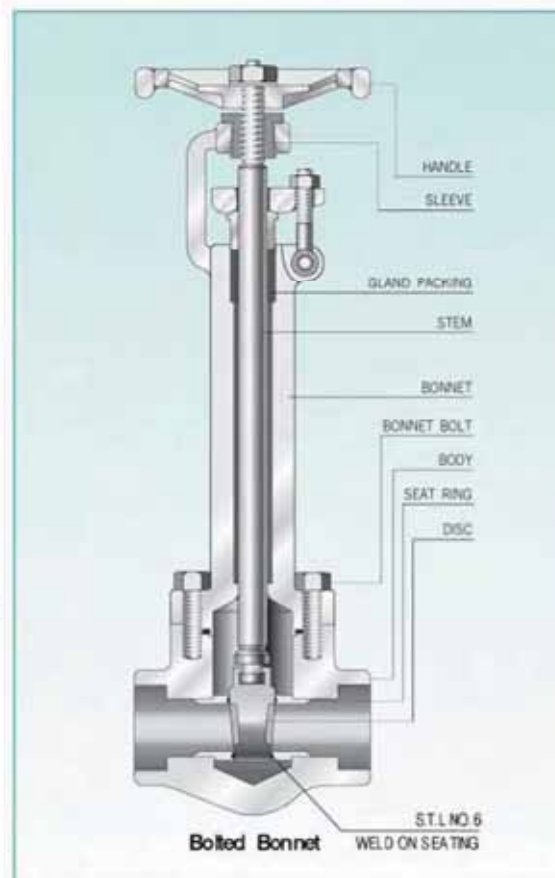
- Gate Valves
- Globe Valves
- Lift Check Valves
- Swing Check Valves
- Casting Swing Check Valves
- Ball Valves

GATE VALVES CLASS RF/150,300,900&1500

FORGED STEEL CRYOGENIC GATE VALVES
REDUCED BORE RF/150, 300, 900, 1500LB ENDS.
BOLTED BONNET OS & Y. RISING STEM RISING HANDWHEEL



- MAIN COMPONENT MATERIAL
 - BODY ASTM A1 8-F3 16L
 - BONNET ASTM A1 82-F3 16L
 - DISC ASTM A2 76-F3 16L
 - SEAT ASTM A1 82-F3 16L(HF)
 - STEM ASTM A2 76-F3 16L
 - GASKET SPRAL W GRAPHITE
 - BONNET BOLTED ASTM A3 20-9M
 - GLAND PACKING GRAPHITE
- BODY & BONNET STANDARD MATERIAL
ASTM A1 82-F3 04 / A 182-F3 16 / A 182-F3 16L
- VALVE DESIGN CONFORM TO BS5352
ANSI B1 6.34, BS63 64
VALVE ENDS CONFORM TO ANSI B 16.11
- SHELL AND SEAT LEAK TEST
ACCORDANCE WITH ANSI B 16.34

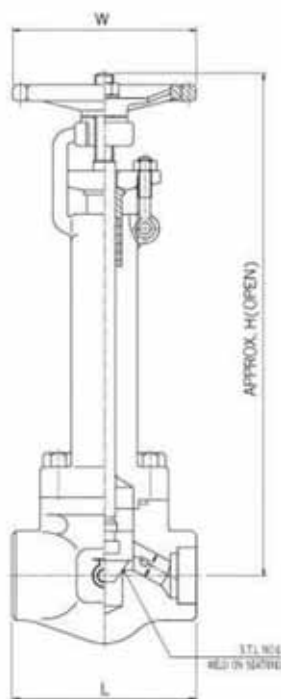


DIMENSIONS & WEIGHTS

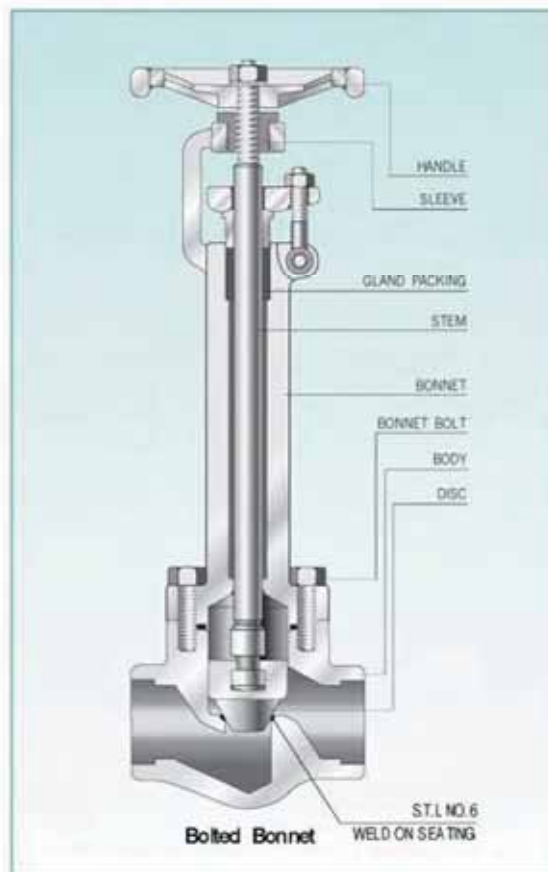
CLASS	Valve Size		Center to Top, Open		End to End		Handwheel Diameter		End to End		Port Diameter		Handwheel Diameter	
			H		L (RF/150, 900LB)		W		L (RF/300, 1500LB)		d			
	DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	150LB kg 300LB kg	300LB kg 1500LB kg
150 300	15	1/2	250	9.98	108	4.25	95	3.74	140	5.51	10	0.39	3.40	4.45
	20	3/4	250	9.98	117	4.60	95	3.74	152	5.98	13	0.51	4.98	6.96
	25	1	280	11.2	127	5.00	105	4.13	165	6.49	19	0.74	6.87	9.10
	32	1 1/4	330	12.9	140	5.51	135	5.31	178	7.00	25	0.98	10.6	13.2
	40	1 1/2	330	12.9	165	5.55	135	5.31	190	7.48	30	1.18	10.6	13.2
	50	2	345	13.5	203	6.49	160	6.29	216	8.50	35	1.37	20.2	23.8
900 1500	15	1/2	250	9.98	216	8.50	95	3.74	216	8.50	10	0.39	7.48	7.48
	20	3/4	250	11.2	229	9.01	105	4.13	229	9.01	13	0.51	10.3	10.3
	25	1	330	12.9	254	10.2	135	5.31	254	10.2	19	0.74	15.9	15.9
	32	1 1/4	330	12.9	279	10.9	135	5.31	279	10.9	25	0.98	19.45	19.45
	40	1 1/2	345	13.5	305	12.0	135	5.31	305	12.0	30	1.18	19.45	19.45
	50	2	455	17.9	368	14.4	160	6.29	368	14.4	35	1.37	28.75	28.75

GLOBE VALVES CLASS 150~800&1500

FORGED STEEL CRYOGENIC GLOBE VALVES
REDUCED BORE SW ENDS. BOLTED BONNET OS & Y.
RISING STEM RISING HANDWHEEL



- MAIN COMPONENT MATERIAL
 - BODY ASTM A182-F316L
 - BONNET ASTM A182-F316L
 - DISC ASTM A276-F316L
 - SEAT ASTM A182-F316L(HF)
 - STEM ASTM A276-F316L
 - GASKET SPECIAL W GRAPHITE
 - BONNET BOLTED ASTM A320-9M
 - GLAND PACKING GRAPHITE
- BODY & BONNET STANDARD MATERIAL
ASTM A182-F304 / A182-F316 / A182-F316L
- VALVE DESIGN CONFORM TO BS 5352
ANSI B1.6.34, BS 6364
VALVE ENDS CONFORM TO ANSI B1.6.11
- SHELL AND SEAT LEAK TEST
ACCORDANCE WITH ANSI B1.6.34

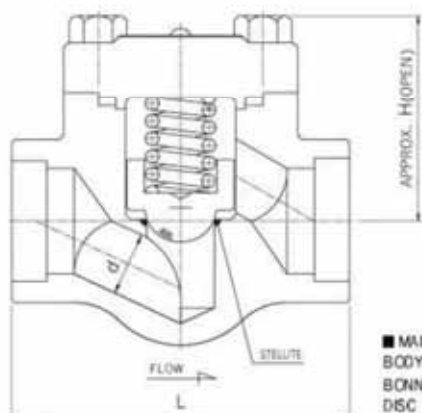


DIMENSIONS & WEIGHTS

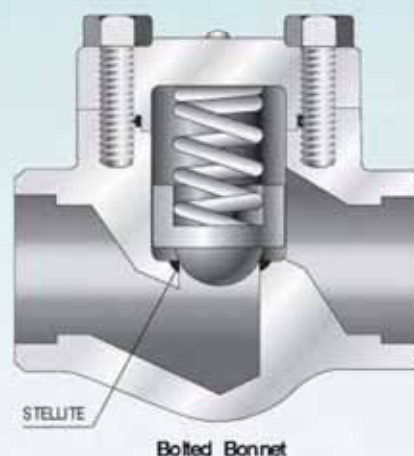
CLASS	Valve Size		Center to Top, Open		End to End		Handwheel Diameter		Port Diameter		Handwheel Diameter	
			H		L		W		d			
	DN	in	mm	in	mm	in	mm	in	mm	in	kg	b
150 300 600 800	15	1/2	245	9.64	73	2.87	95	3.74	10	0.39	2.28	5.01
	20	3/4	245	9.64	87	3.42	95	3.74	13	0.51	3.15	6.93
	25	1	275	10.8	96	3.77	105	4.13	19	0.74	4.45	9.79
	32	1 1/4	325	12.7	123	4.84	135	5.31	25	0.98	8.75	19.2
	40	1 1/2	325	12.7	141	5.55	135	5.31	30	1.18	11.2	24.6
	50	2	340	13.3	163	6.41	160	6.29	35	1.37	14.5	3.19
1500	15	1/2	245	9.64	87	3.42	95	3.74	10	0.39	3.15	6.93
	20	3/4	245	9.64	96	3.77	105	4.13	13	0.51	4.45	9.79
	25	1	325	12.7	123	4.84	135	5.31	19	0.74	8.75	19.2
	32	1 1/4	325	12.7	141	5.55	135	5.31	25	0.98	11.2	24.6
	40	1 1/2	340	13.3	163	6.41	135	5.31	30	1.18	14.5	3.19
	50	2	450	17.7	172	6.77	160	6.29	35	1.37	19.5	4.29

LIFT CHECK VALVES CLASS 150~800&1500

FORGED STEEL CRYOGENIC SPRING LIFT CHECK VALVES
REDUCED BORE SW ENDS. BOLTED COVER



- MAIN COMPONENT MATERIAL
- BODY ASTM A182-F316L
- BONNET ASTM A182-F316L
- DISC ASTM A276-F316L
- SEAT ASTM A182-F316L(HF)
- STEM ASTM A276-F316L
- BONNET BOLTED ASTM A320-BM
- BODY & BONNET STANDARD MATERIAL
- ASTM A182-F304/A182-F316/A182-F316L
- VALVE DESIGN CONFORM TO BS5352
- ANSI B1.6.34, BS5354
- VALVE ENDS CONFORM TO ANSI B16.11
- SHIELD AND SEAT LEAK TEST
- ACCORDANCE WITH ANSI B16.34

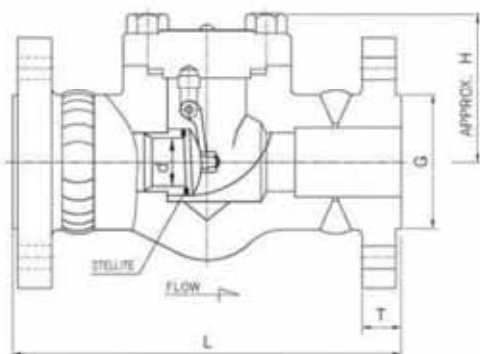


DIMENSIONS & WEIGHTS

CLASS	Valve Size		Center to Top, Open		End to End		Port Diameter		Approx. Weight	
			H		L		d			
	DN	in	mm	in	mm	in	mm	in	kg	lb
150 300 600 800	15	1/2	51	2.00	73	2.87	10	0.39	1.25	2.64
	20	3/4	55	2.17	87	3.42	13	0.51	2.15	4.73
	25	1	65	2.56	96	3.77	19	0.74	3.14	6.90
	32	1 1/4	76	2.99	123	4.84	25	0.98	4.89	10.8
	40	1 1/2	84	3.31	141	5.55	30	1.18	5.22	11.4
	50	2	101	3.98	163	6.41	35	1.37	6.23	13.7
1500	15	1/2	55	2.17	87	3.42	13	0.51	2.15	4.73
	20	3/4	65	2.56	96	3.77	19	0.74	3.14	6.90
	25	1	76	2.99	123	4.84	25	0.98	4.89	10.8
	32	1 1/4	84	3.31	141	5.55	30	1.18	5.22	11.4
	40	1 1/2	101	3.98	163	6.41	35	1.37	6.23	13.7
	50	2	116	4.57	172	6.77	38	1.49	7.89	17.3

SWING CHECK VALVES RF(FLANGE-150,300)

FORGED STEEL CRYOGENIC SWING CHECK VALVES
REDUCED BORE RF ENDS. BOLTED COVER

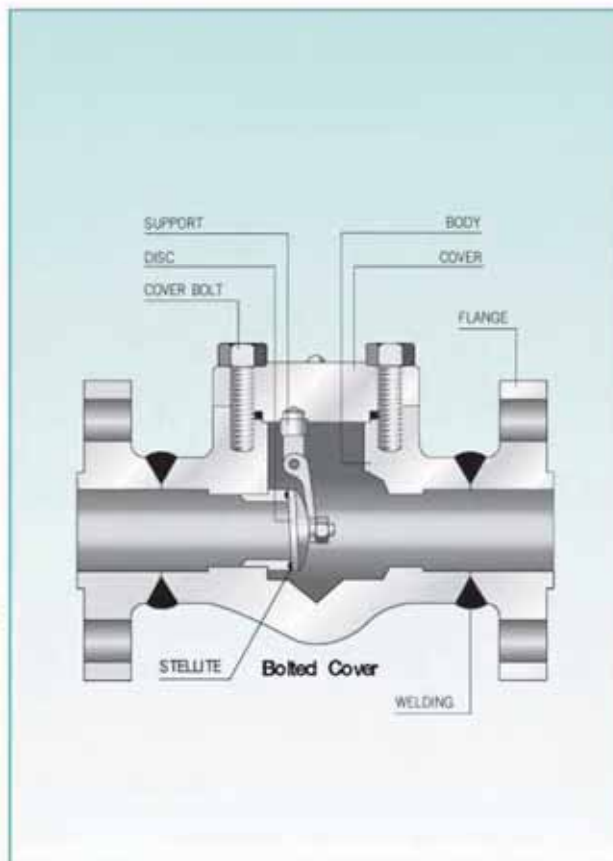


MAIN COMPONENT MATERIAL

BODY ASTM A182-F316L
BONNET ASTM A182-F316L
DISC ASTM A276-F316L
SEAT ASTM A182-F316L(HF)
GASKET SPIRAL W GRAPHITE
BONNET BOLTED ASTM A320-8M

BODY & BONNET STANDARD MATERIAL

ASTM A182-F304/A182-F316/A182-F316L
VALVE DESIGN CONFORM TO BS5352
ANSI B16.34, BS6364
VALVE ENDS CONFORM TO ANSI B16.11
SHELL AND SEAT LEAK TEST
ACCORDANCE WITH ANSI B16.34

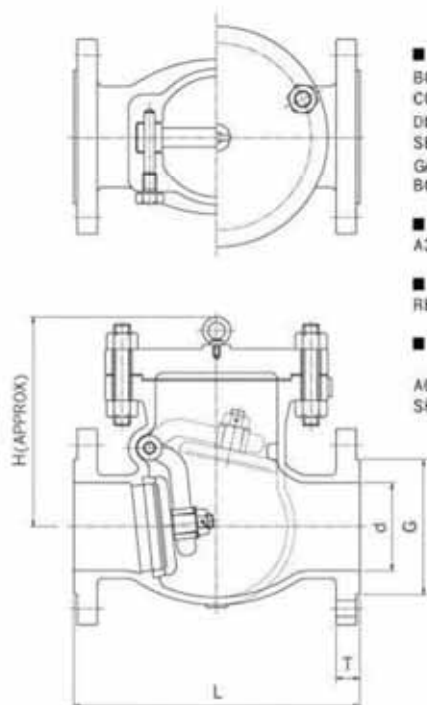


DIMENSIONS & WEIGHTS

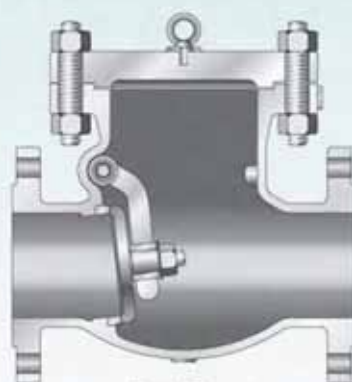
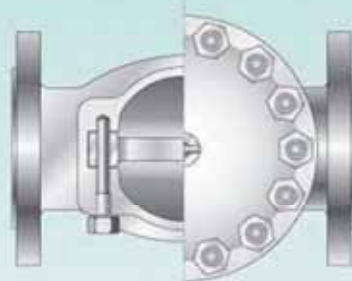
CLASS	Valve Size		Center to Top, Open		End to End		Gasket Diameter		Thickness		Port Diameter		Approx. Weight	
			H		L		G		T		d			
	DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	kg	lb
150	15	1/2	48	1.89	108	4.25	35.1	1.38	11.2	0.44	10	0.39	2.00	4.4
	20	3/4	48	1.89	117	4.60	43.0	1.69	12.7	0.50	13	0.51	2.82	6.2
	25	1	63	2.48	127	5.00	50.8	2.00	14.3	0.56	19	0.75	3.79	8.3
	32	1 1/4	85	3.35	165	6.49	63.5	2.50	15.7	0.62	25	0.98	7.19	15.8
	40	1 1/2	85	3.35	165	6.49	73.2	2.88	17.5	0.69	30	1.43	7.19	15.8
	50	2	104	4.09	203	7.99	92.0	3.62	19.1	0.75	37	1.46	11.62	25.5
300	15	1/2	48	1.89	152	6.00	35.1	1.38	14.2	0.56	10	0.39	2.00	4.4
	20	3/4	48	1.89	178	7.00	43.0	1.69	15.7	0.62	13	0.51	2.82	6.2
	25	1	63	2.48	203	8.00	50.8	2.00	17.5	0.69	19	0.75	3.79	8.3
	32	1 1/4	85	3.35	216	8.50	63.5	2.50	19.1	0.75	25	0.98	7.19	15.8
	40	1 1/2	85	3.35	229	9.00	73.2	2.88	20.6	0.81	30	1.43	7.19	15.8
	50	2	104	4.09	267	10.50	92.0	3.62	22.4	0.88	37	1.46	11.62	25.5

SWING CHECK VALVES CLASS 150&300

CASTING STEEL CRYOGENIC SWING CHECK VALVES
REDUCED BORE RF ENDS, BOLTED COVER



- MAIN COMPONENT MATERIAL
- BODY A351-CF8M
- COVER A351-CF8M
- DISC A351-CF8M
- SEAT A351-CF8M(HF)
- GASKET SPIRAL W GRAPHITE
- BONNET BOLTED ASTM A320-BM
- BODY & BONNET STANDARD MATERIAL
A351-CF8/A351-CF8M/A351-CF3M
- VALVES COMPLY WITH APPLICABLE
REQUIREMENTS OF API 603 MSS SP-42
- PRESSURE-TEMPERATURE RATINGS:
ANSI B1.6.34
ACCORDANCE WITH AWS B16.34
SHELL WALL THICKNESS: ANSI B16.34



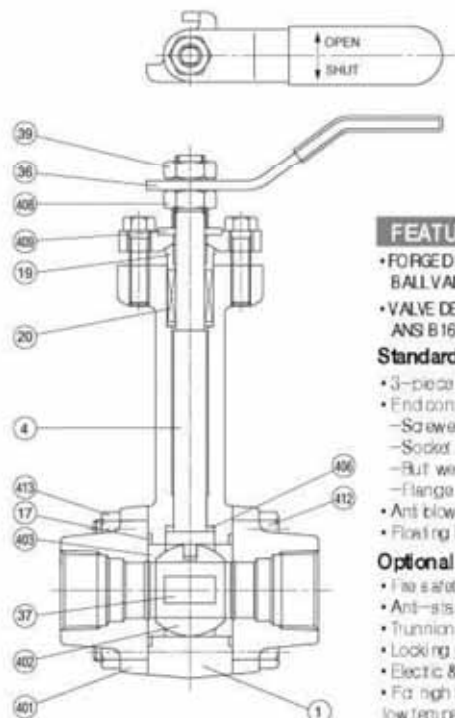
Bolted Bonnet

DIMENSIONS & WEIGHTS

CLASS	Valve Size		Center to Top, Open		End to End		Gasket Diameter		Thickness		Port Diameter		Handwheel Diameter	
			H		L		G		T		d			
	DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	kg	b
150	65	2 1/2	160	6.29	216	8.50	104.6	4.11	17.6	0.69	65	2.55	14.5	31.9
	80	3	170	6.67	241	9.49	127	5.00	19.1	0.75	80	3.14	20.0	44.4
	100	4	210	8.26	292	11.5	157.2	6.18	23.9	0.94	100	3.92	33.0	72.6
	125	5	230	9.05	330	12.9	185.7	7.31	23.9	0.94	125	4.92	46.0	101.2
	150	6	250	9.84	356	14.0	215.9	8.50	25.4	1.0	150	5.90	67.0	147.4
	200	8	280	11.0	495	19.4	269.7	10.6	28.5	1.22	200	2.07	133.0	292.6
300	65	2 1/2	170	6.69	292	19.4	104.6	4.11	25.4	1.00	65	2.55	31.8	69.9
	80	3	185	7.28	318	12.5	127	5.00	28.5	1.12	80	3.14	38.7	85.1
	100	4	230	9.05	356	14.0	157.2	6.18	31.8	1.25	100	3.92	60.0	132.0
	125	5	270	10.6	400	15.7	185.7	7.31	35.1	1.38	125	4.92	78.7	173.1
	150	6	295	11.6	444	17.4	215.9	8.50	36.6	1.44	150	5.90	118.0	259.6
	200	8	345	13.5	533	20.9	269.7	10.6	41.2	1.62	200	2.07	207.0	888.0

BALL CHECK VALVES CLASS 800&1500

3-PIECE BALL VALVES



FEATURES

- FORGED STEEL CRYOGENIC BALL VALVE FULL BORE
- VALVE DESIGN CONFORMS TO BS5351, ANSI B16.34

Standards

- 3-piece Ball Valve
- End connection:
 - Screwed ends/ANSI B1.20.1
 - Socket weld to ASME/ANSI B16.11
 - Butt weld end ASME/ANSI B16.25
 - Flange end/ANSI B16.34
- Anti blow-out proof stem
- Floating ball

Optional

- Fire safety
- Anti-siphon device
- Trunnion mounted
- Locking device
- Electric & Pneumatic Actuator
- For high temperature (max. 450 °C) & low temperature service (max. -196 °C)

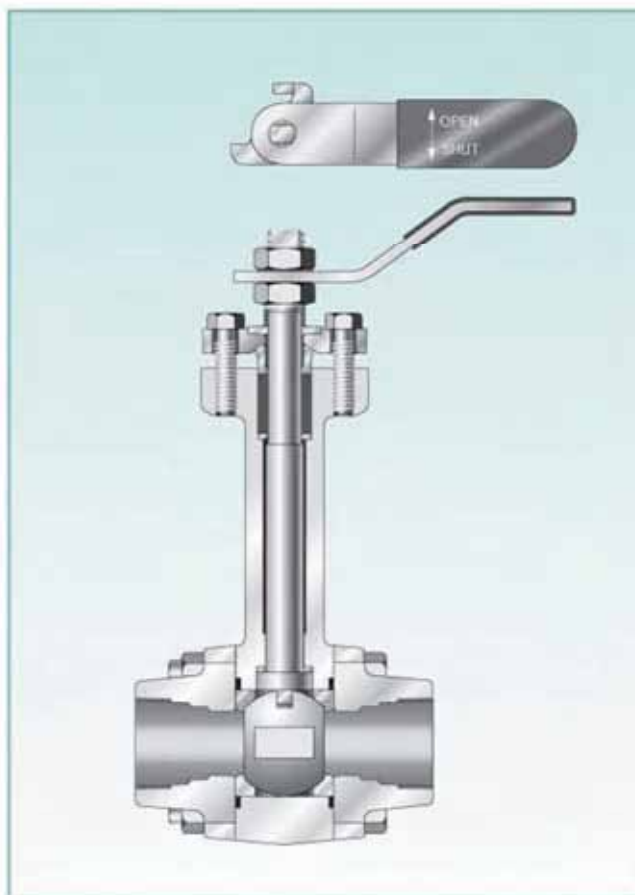
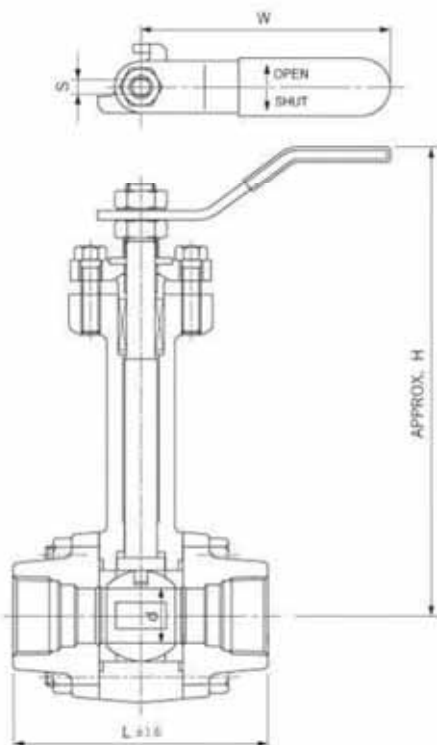


PARTS NOMENCLATURE

Part No.	Part Name	ASTM Specifications		
		A182-F304	A182-F316	A182-F316L
1	Body	A182-F304	A182-F316	A182-F316L
4	Stem	A276-304	A276-316	A276-316L
17	Gasket	PTFE / RTFE		
19	Gland	A276-304		
20	Gland Packing	Reinforced PTFE / RTFE		
36	Handle	A108-1020		
37	Nameplate	ALUMINIUM / SS304		
39	Handle Nut	A276-304		
401	Body Cap	A182-F304	A182-F316	
402	Ball	A276-304	A276-316	A276-316L
403	Seat Ring	PTFE / RTFE / PEEK / CARBON		
406	Thrust Bearing	Reinforced PTFE		
408	Stem Nut	A276-304		
409	Tab Washer	A167-304		
412	Cap Bolt	A193-B8		
413	Cap Bolt Nut	A194-8		

BALL CHECK VALVES CLASS 150,300,600&800

3-PIECE BALL VALVES



DIMENSIONS & WEIGHTS

CLASS	Valve Size		Center to Top		End to End		Length of Handle		Top of Stem		Port Diameter		Approx. Weight	
			H		L		W		S		d			
	DN	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	kg	lb
150 300 600 800	15	1/2	280	11.0	75	2.95	130	5.12	7.7	0.30	14.2	0.56	2.3	5.06
	20	3/4	280	11.0	75	2.95	130	5.12	7.7	0.30	14.2	0.56	2.3	5.06
	25	1	300	11.8	95	3.74	160	6.30	8.8	0.35	20.5	0.81	4.7	10.3
	32	1 1/4	340	13.4	116	4.57	230	9.05	8.8	0.35	26.0	1.02	6.8	15.0
	40	1 1/2	340	13.4	116	4.57	230	9.05	8.8	0.35	31.6	1.24	6.8	15.0
	50	2	360	14.1	128	5.04	230	9.05	8.8	0.35	38.1	1.50	8.9	19.6

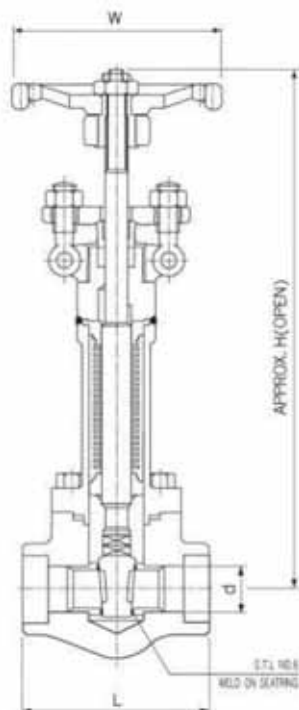
www.valvekorea.co.kr

BELLOWS-SEAL VALVES

- Gate Valves
- Globe Valves
- Casting Globe Valves

GATE VALVES CLASS 150~800&1500

FORGED STEEL BELLOWS-SEAL GATE VALVES
BOLTED BONNET OS & Y.



- VALVE DESIGN CONFORM TO B5352
ANSI B16.34, MSS-SP 117
- VALVE ENDS CONFORM TO ANSI B16.11
STEEL AND SEAT LEAKAGE TEST
ACCORDANCE WITH ANSI B16.34
- RIGHT TABLE INDICATE THE ASTM A105
OTHER MATERIAL ACCORDANCE
- * BELLOWS TEST PRESSURE : 1.02kg/cm²

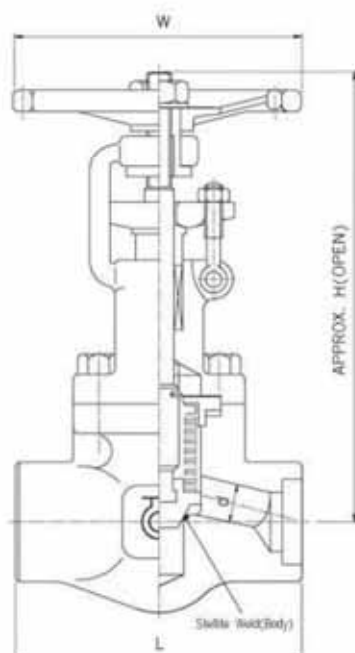


DIMENSIONS & WEIGHTS

CLASS	Valve Size		Center to Top, Open		End to End		Handwheel Diameter		Port Diameter		Handwheel Diameter	
			H		L		W		d			
	DN	in	mm	in	mm	in	mm	in	mm	in	kg	lb
150 300 600 800	15	1/2	279	10.98	96	3.77	105	4.13	10	0.39	4.23	9.30
	20	3/4	279	10.98	96	3.77	105	4.13	13	0.51	4.23	9.30
	25	1	345	13.58	141	5.55	135	5.31	19	0.74	8.45	18.59
	32	1 1/4	345	13.58	141	5.55	135	5.31	25	0.98	8.12	17.86
	40	1 1/2	345	13.58	141	5.55	135	5.31	30	1.18	8.12	17.86
	50	2	385	15.15	163	6.41	160	6.29	35	1.37	14.2	31.24
1500	15	1/2	345	13.58	141	5.55	135	5.31	10	0.39	6.25	13.75
	20	3/4	345	13.58	141	5.55	135	5.31	13	0.51	6.25	13.75
	25	1	385	15.15	163	6.41	160	6.29	19	0.74	10.25	22.55
	32	1 1/4	385	15.15	163	6.41	160	6.29	25	0.98	10.25	22.55
	40	1 1/2	385	15.15	163	6.41	160	6.29	30	1.18	10.25	22.55
	50	2	445	17.51	172	6.77	180	7.08	35	1.37	12.84	28.24

GLOBE VALVES CLASS 150~800&1500

FORGED STEEL BELLOWS-SEAL GLOBE VALVES
BOLTED BONNET OS & Y.

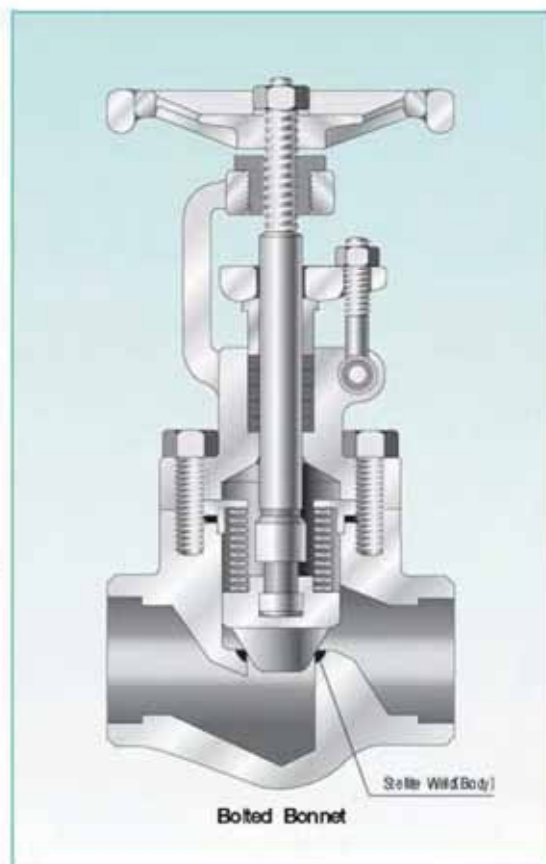


■ VALVE DESIGN CONFORM TO BS552
ANSI B16.34, MSS-SP 117

■ VALVE ENDS CONFORM TO ANSI B16.11
SEAL AND SEAT LEAKAGE TEST
ACCORDANCE WITH ANSI B16.34

■ RIGHT TABLE INDICATE THE ASTM A105
OTHER MATERIAL ACCORDANCE

* BELLOWS TEST PRESSURE : 1.02kg/cm²



DIMENSIONS & WEIGHTS

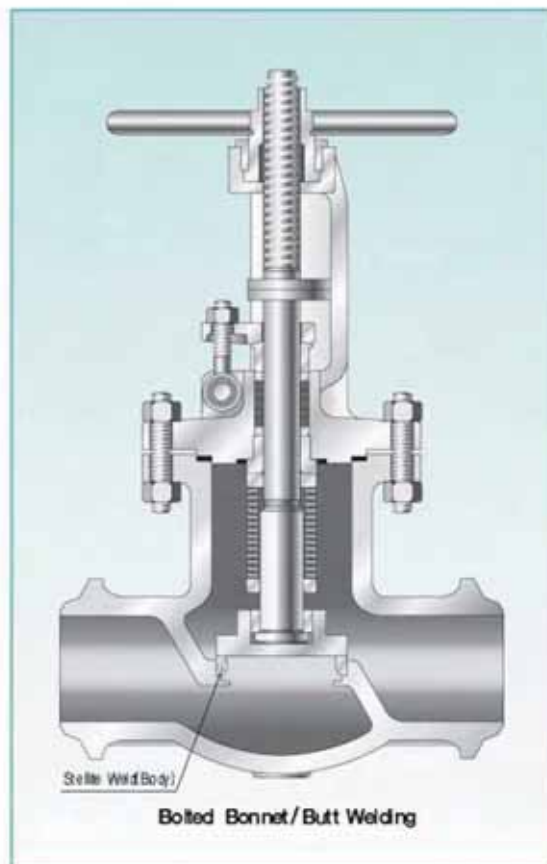
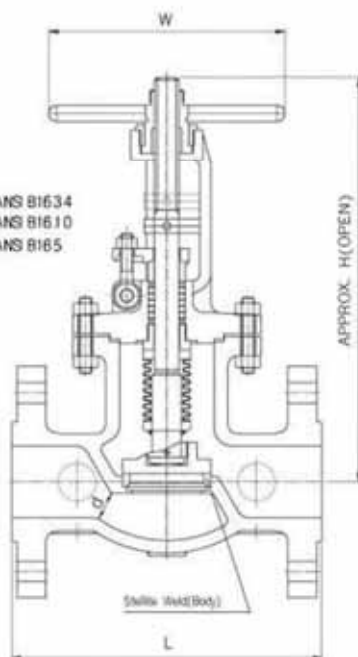
CLASS	Valve Size		Center to Top, Open		End to End		Handwheel Diameter		Port Diameter		Handwheel Diameter	
			H		L		W		d			
	DN	in	mm	in	mm	in	mm	in	mm	in	kg	lb
150 300 600 800	15	1/2	180	7.08	96	3.77	105	4.13	10	0.39	2.85	6.27
	20	3/4	180	7.08	96	3.77	105	4.13	13	0.51	2.85	6.27
	25	1	226	8.89	141	5.55	135	5.31	19	0.74	6.25	13.75
	32	1 1/4	226	8.89	141	5.55	135	5.31	25	0.98	6.25	13.75
	40	1 1/2	226	8.89	141	5.55	135	5.31	30	1.18	6.25	13.75
	50	2	255	10.03	163	6.41	160	6.29	35	1.37	10.25	22.55
1500	15	1/2	226	8.89	141	5.55	135	5.31	10	0.39	6.25	13.75
	20	3/4	226	8.89	141	5.55	135	5.31	13	0.51	6.25	13.75
	25	1	255	10.03	163	6.41	160	6.29	19	0.74	10.25	22.55
	32	1 1/4	255	10.03	163	6.41	160	6.29	25	0.98	10.25	22.55
	40	1 1/2	255	10.03	163	6.41	160	6.29	30	1.18	10.25	22.55
	50	2	287	11.29	172	6.77	180	7.08	35	1.37	12.84	28.24

GLOBE VALVES CLASS 150,300&1500

CASTING BELLOWS-SEAL GLOBE VALVES
BOLTED BONNET OS & Y.

■ FULL PORT, BOLTED BONNET
OUTSIDE SCREW & YOKE
INTEGRAL SEATS, FLANGE ENDS

VALVE CODE KS B2361/ANSI B16.34
FACE TO FACE DIMENSION KS B2306/ANSI B16.10
END FLANGE DIMENSION KS B15.11/ANSI B16.5
PRESSURE API 598



DIMENSIONS & WEIGHTS

CLASS	Valve Size		Center to Top, Open		End to End		Handwheel Diameter		Port Diameter		Handwheel Diameter	
			H		L		W		d			
	DN	in	mm	in	mm	in	mm	in	mm	in	kg	lb
10K/150	65	2 1/2	495	19.48	216	8.50	160	6.29	65	2.55	23.8	52.36
	80	3	620	24.40	241	9.48	180	7.08	80	3.14	34.4	75.68
	100	4	745	29.33	292	11.49	200	7.87	100	3.93	56.4	124.0
	125	5	755	29.72	305	12.00	250	9.84	125	4.92	82.5	181.5
	150	6	835	32.87	406	15.98	300	11.81	150	5.90	118.4	260.4
	200	8	920	36.22	495	19.48	400	15.74	200	7.08	185.6	408.3
20K/300	65	2 1/2	530	20.86	292	11.49	200	7.87	65	2.55	25.5	56.10
	80	3	650	25.59	318	12.51	250	9.84	80	3.14	36.5	80.30
	100	4	780	30.70	356	14.01	300	11.81	100	3.93	59.4	130.6
	125	5	885	34.84	400	15.74	335	13.18	125	4.92	87.4	192.2
	150	6	900	35.43	444	17.48	400	15.74	150	5.90	122.6	269.7
	200	8	1150	45.27	559	22.00	450	17.71	200	7.08	189.5	416.9

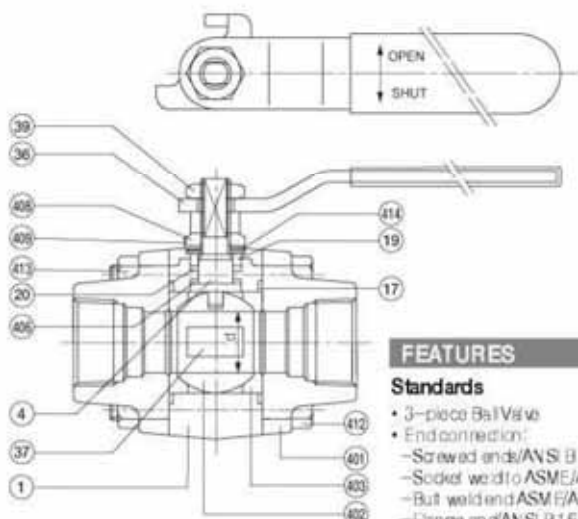
www.valvekorea.co.kr

BALL VALVES Y-STRAINER VALVES

- 3-piece Ball Valves
- Casting Y-Strainer Valves
- Y-Strainer Valves

BALL VALVES

3-PIECE BALL VALVES



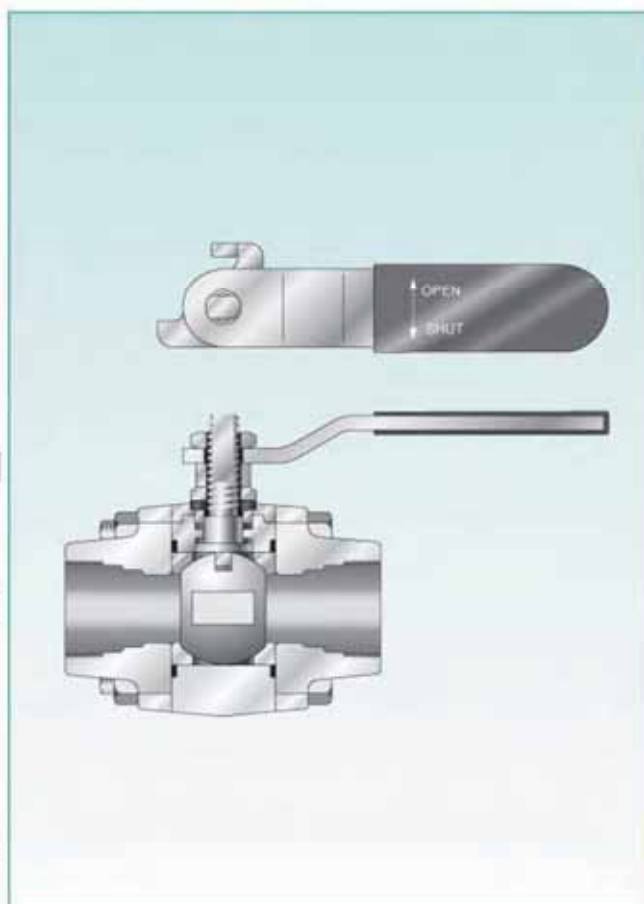
FEATURES

Standards

- 3-piece Ball Valve
- End connection:
 - Screwed end/ANSI B 1.20.1
 - Socket weld to ASME/ANSI B 16.11
 - But weld end ASME/ANSI B 16.25
 - Flange end/ANSI B 16.34
- Anti blow-out proof stem
- Floating ball

Optional

- Fire safety
- Anti-static device
- Trunnion mounted
- Locking device
- Electric & Pneumatic Actuator
- For high temperature(max. 450°C) & low temperature service(max. -196°C)



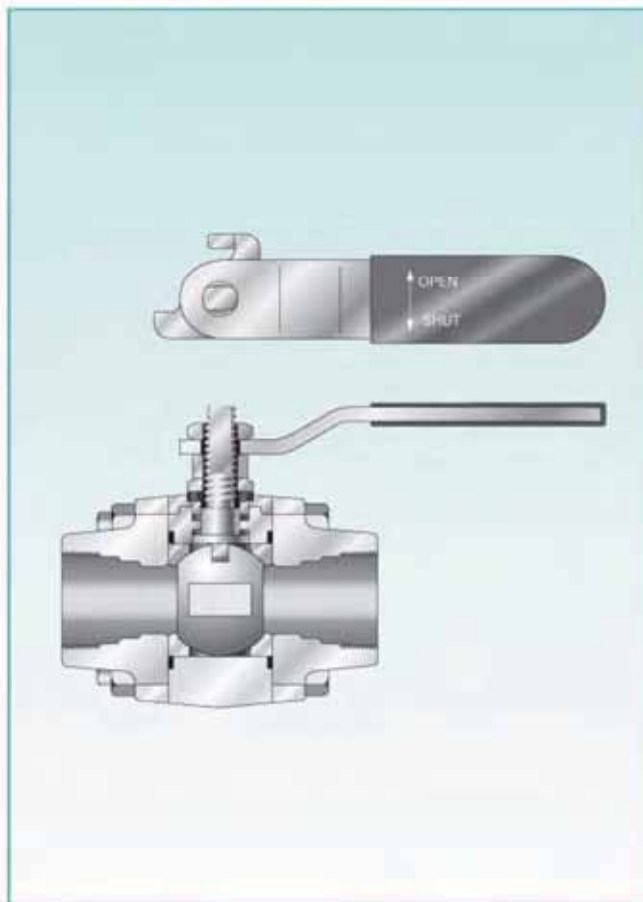
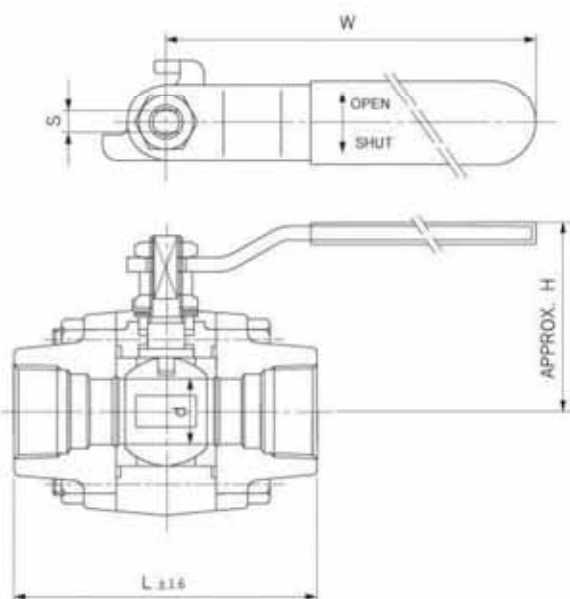
PARTS NOMENCLATURE

Part No.	Part Name	ASTM Specifications		
		A105	A182-F304	A182-F316
1	Body	A105 ⁽¹⁾	A182-F304	A182-F316
4	Stem	A276-304		A276-316
17	Gasket	PTFE / RTFE (SS304+Graphite: Metal Seat)		
19	Gland	A276-304		
20	Gland Packing	Reinforced PTFE / RTFE (Graphite: Metal Seat)		
36	Handle	A108-1020		
37	Nameplate	ALUMINIUM / SS304		
39	Handle Nut	A276-304		
401	Body Cap	A105 ⁽¹⁾	A182-F304	A182-F316
402	Ball	A276-304		A276-316
403	Seat Ring	PTFE / RTFE / PEEK / CARBON (A276-304, 316: Metal Seat)		
406	Thrust Bearing	Reinforced PTFE (Graphite: Metal Seat)		
408	Stem Nut	A276-304		
409	Tab Washer	A167-304		
412	Cap Bolt	A193-B7	A193-B8	
413	Cap Nut	A194-2H	A194-8	
414	Conical Spring	A276-302		

(1) A105 also Available with 0.25% Maximum Carbon.
Other Materials also Available on Application

BALL VALVES CLASS 600, 800 & 1500

3-PIECE BALL VALVES

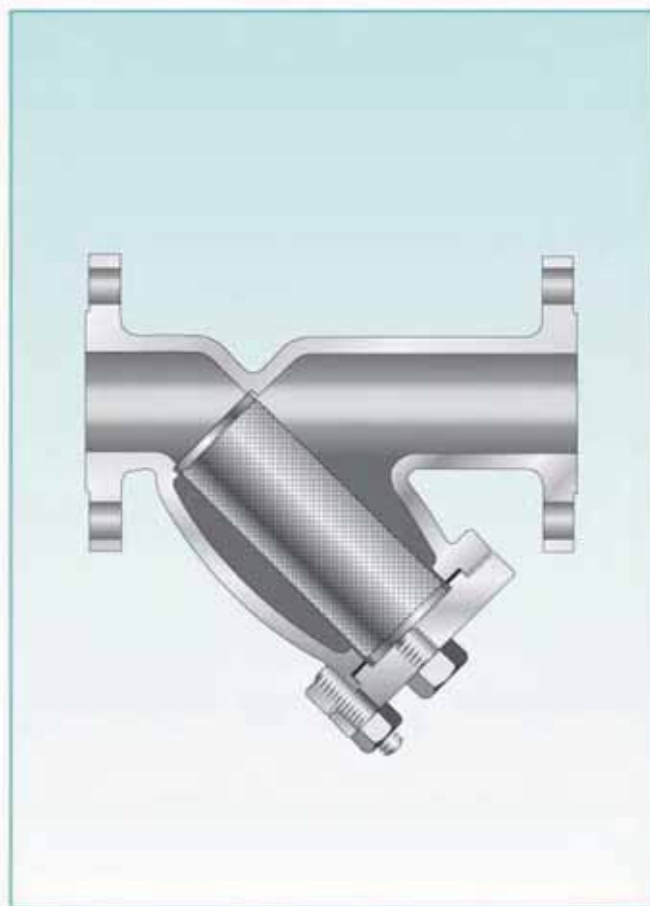
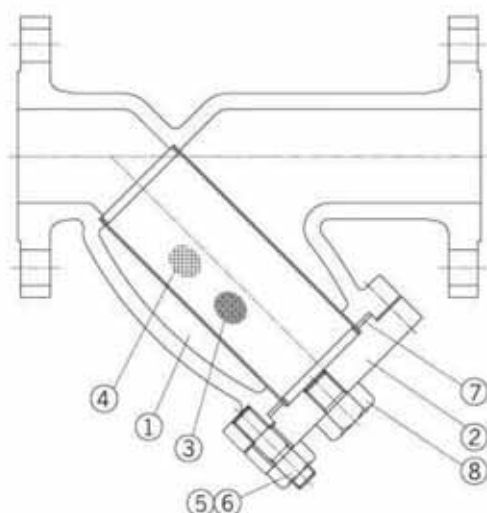


DIMENSIONS & WEIGHTS

CLASS	Valve Size		Center to Top		End to End		Length of Handle		Top of Stem		Port Diameter		Approx. Weight	
			H		L		W		S		d			
	DN	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	kg	lb
600 800	15	1/2	62	2.44	75	2.95	130	5.12	5.7	0.22	14.2	0.56	0.78	1.72
	20	3/4	62	2.44	75	2.95	130	5.12	5.7	0.22	14.2	0.56	0.78	1.72
	25	1	74	2.91	95	3.74	160	6.30	7.7	0.30	20.5	0.81	1.50	3.31
	32	1 1/4	88	3.47	116	4.57	230	9.06	8.8	0.35	26.0	1.02	2.95	6.50
	40	1 1/2	88	3.47	116	4.57	230	9.06	8.8	0.35	31.6	1.24	2.95	6.50
	50	2	93	3.66	128	5.04	230	9.06	8.8	0.35	38.1	1.50	4.00	8.82
1500	15	1/2	62	2.44	75	2.95	130	5.12	5.7	0.22	14.2	0.56	0.78	1.72
	20	3/4	74	2.91	95	3.74	160	6.30	7.7	0.30	20.5	0.81	1.50	3.31
	25	1	88	3.47	116	4.57	230	9.06	8.8	0.35	26.0	1.02	2.95	6.50
	32	1 1/4	88	3.47	116	4.57	230	9.06	8.8	0.35	31.6	1.24	2.95	6.50
	40	1 1/2	93	3.66	128	5.04	230	9.06	8.8	0.35	38.1	1.50	4.00	8.82
	50	2	125	4.92	160	6.29	230	9.06	8.8	0.35	45.2	1.78	8.90	19.60

Y-STRAINER VALVES CLASS 150,300,600,1500&2500

CASTING Y-STRAINER VALVES



PARTS NOMENCLATURE

Part	Part Name	Qty	Materials
1	Body	1	A216-WCB
2	Cover	1	A216-WCB
3	Screen Holder	1	A240-304
4	Screen	1	A240-304
5	Cover Bolt	4	A193-B7
6	Cover Nut	1	A194-2H

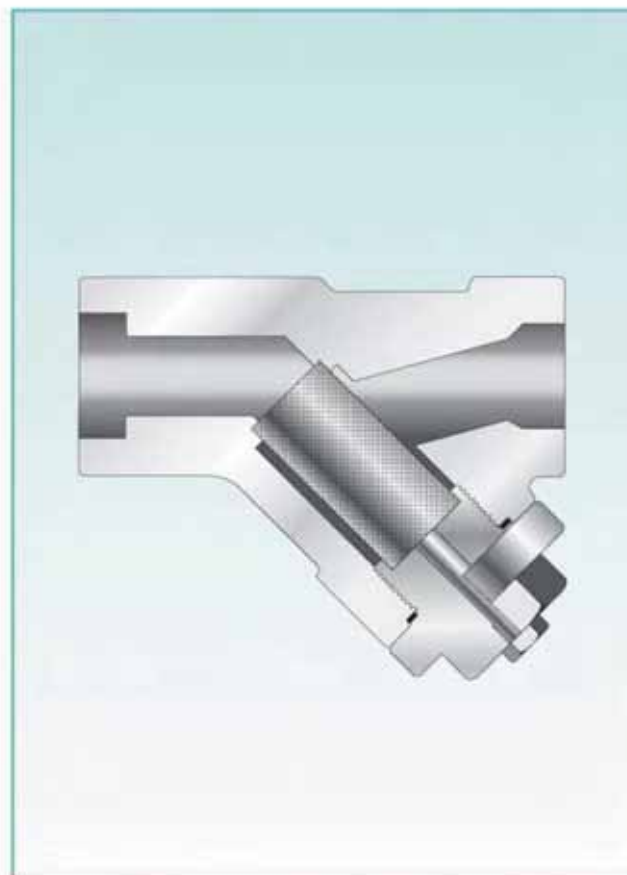
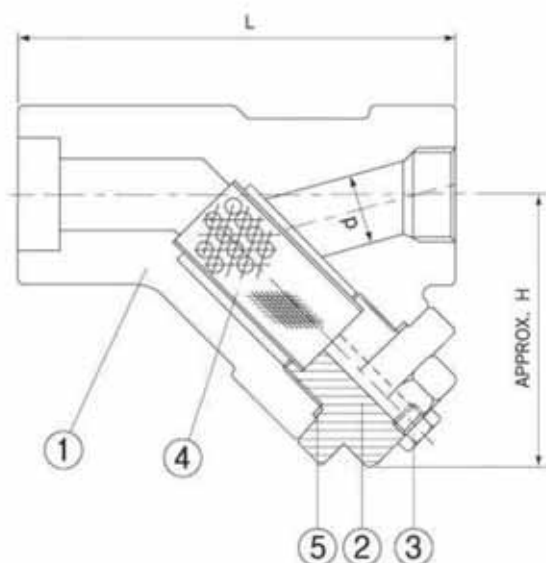
Part	Part Name	Qty	Materials
7	Gasket	1	304+G.P
8	Drain Plug	1	A105

DIMENSIONS

CLASS	Size		CLASS	Size		CLASS	Size		CLASS	Size		CLASS	Size	
	DN	in		DN	in		DN	in		DN	in		DN	in
150	50	2	300	50	2	600	50	2	1500	50	2	2500	50	2
	65	2 1/2		65	2 1/2		65	2 1/2		65	2 1/2		65	2 1/2
	80	3		80	3		80	3		80	3		80	3
	100	4		100	4		100	4		100	4		100	4
	125	5		125	5		125	5		125	5		125	5
	150	6		150	6		150	6		150	6		150	6
	200	8		200	8		200	8		200	8		-	-
	250	10		250	10		250	10		-	-		-	-
	300	12		300	12		-	-		-	-		-	-
	350	14		-	-		-	-		-	-		-	-

Y-STRAINER VALVES CLASS 600&1500

FORGED STEEL Y-STRAINER VALVES



PARTS NOMENCLATURE

Part	Part Name	Qty	Materials		
1	Body	1	A105(1)	F304	F316
2	Cover	1	A105(1)	F304	F316
3	Plug	1	A105	F304	F316
4	Screen	1	SUS304	SUS304	SUS316
5	Gasket	1	SUS304 + GRAPHITE	SUS304 + GRAPHITE	SUS316 + GRAPHITE

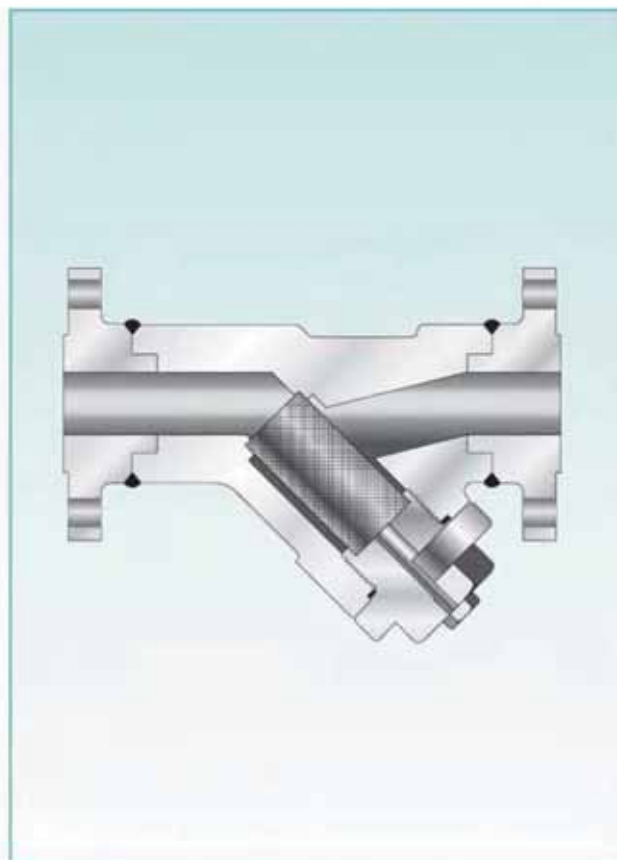
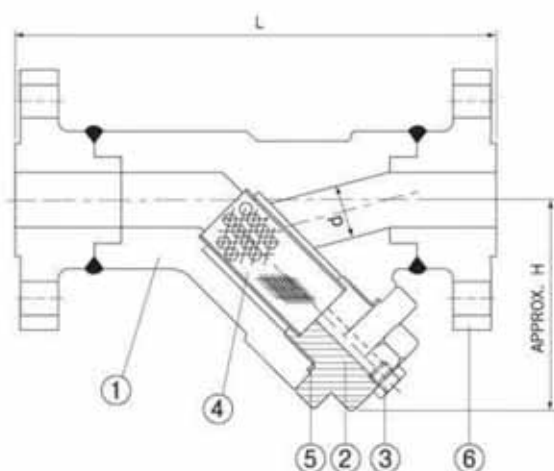
DIMENSIONS & WEIGHTS

CLASS	Valve Size		Center to Top, Open		End to End		End to Hub Diameter		Approx. Weight	
			H		L		d			
	DN	in	mm	in	mm	in	mm	in	kg	lb
600	15	1/2	84	3.30	110	4.33	15	0.59	1.8	4.0
	20	3/4	84	3.30	110	4.33	20	0.79	1.7	3.7
	25	1	90	3.54	120	4.72	25	0.98	2.3	5.1
	32	1 1/4	120	4.72	170	6.69	32	1.26	5.8	12.8
	40	1 1/2	120	4.72	170	6.69	40	1.57	5.6	12.3
	50	2	142	5.59	200	7.87	50	1.97	6.7	14.8
1500	15	1/2	84	3.30	100	3.94	15	0.59	1.8	4.0
	20	3/4	90	3.54	120	4.72	20	0.79	2.3	5.1
	25	1	120	4.72	170	6.69	25	0.98	5.8	12.8
	32	1 1/4	142	5.59	200	7.87	32	1.26	7.1	15.7
	40	1 1/2	142	5.59	200	7.87	40	1.57	6.9	15.2
	50	2	170	6.69	240	7.87	50	1.97	14.4	-

(1) A105 also Available with 0.25% Maximum Carbon.

Y-STRAINER VALVES CLASS 150,300&600

FORGED STEEL Y-STRAINER VALVES FLANGE TYPE



PARTS NOMENCLATURE

Part	Part Name	Qty	Materials		
1	Body	1	A105(1)	F304	F316
2	Cover	1	A105(1)	F304	F316
3	Plug	1	A105	F304	F316
4	Screen	1	SUS304	SUS304	SUS316
5	Gasket	1	SUS304 + GRAPHITE	SUS304 + GRAPHITE	SUS316 + GRAPHITE
6	Flange	2	A105	F304	F316

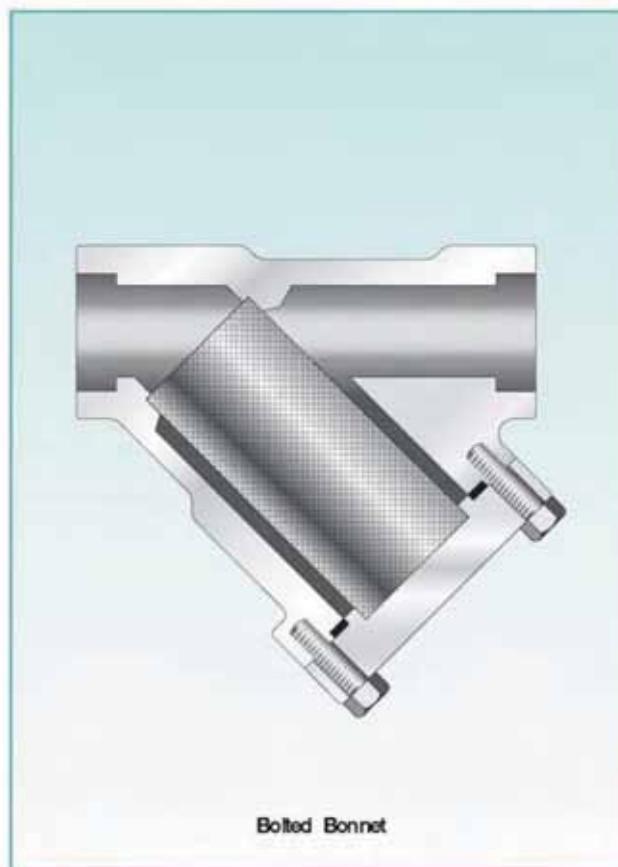
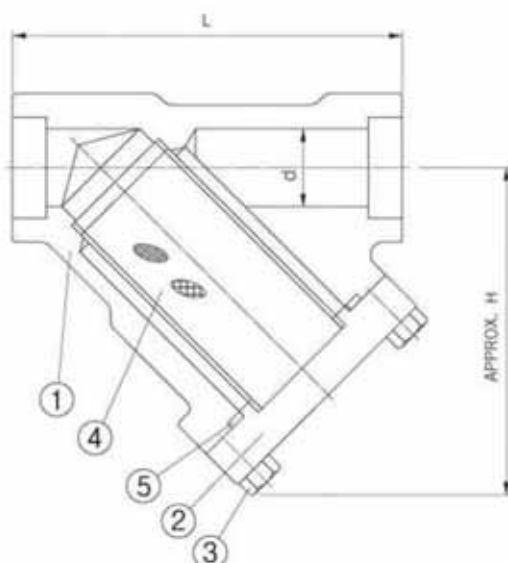
DIMENSIONS & WEIGHTS

CLASS	Valve Size		Center to Top, Open		End to End		End to Hub Diameter		Approx. Weight	
			H		L		d			
	DN	in	mm	in	mm	in	mm	in	kg	lb
150, 300 (10K, 20K, 30K)	15	1/2	84	3.30	178	7.01	15	0.59	-	-
	20	3/4	84	3.30	187	7.36	20	0.79	-	-
	25	1	90	3.54	209	8.22	25	0.98	-	-
	32	1 1/4	120	4.72	241	9.49	32	1.26	-	-
	40	1 1/2	120	4.72	241	9.49	40	1.57	-	-
	50	2	142	5.59	278	10.9	50	1.97	-	-
600 (40K)	15	1/2	84	3.30	180	7.09	15	0.59	-	-
	20	3/4	90	3.54	190	7.48	20	0.79	-	-
	25	1	106	4.17	216	8.50	25	0.98	-	-
	32	1 1/4	142	5.59	260	10.24	32	1.26	-	-
	40	1 1/2	142	5.59	260	10.24	40	1.57	-	-
	50	2	170	6.69	292	11.50	50	1.97	-	-

(1) A105 also Available with 0.25% Maximum Carbon.
Other Materials also Available on Application.

Y-STRAINER VALVES CLASS 600&1500

FORGED STEEL Y-STRAINER VALVES
BOLTED COVER



PARTS NOMENCLATURE

Part	Part Name	Qty	Materials		
1	Body	1	A105(1)	F304	F316
2	Cover	1	A105(1)	F304	F316
3	Cover Bolt	4	A1 93-B7	A193-B8	A193-B8
4	Screen	1	SUS304	SUS304	SUS316
5	Gasket	1	SUS304 + GRAPHITE	SUS304 + GRAPHITE	SUS316 + GRAPHITE

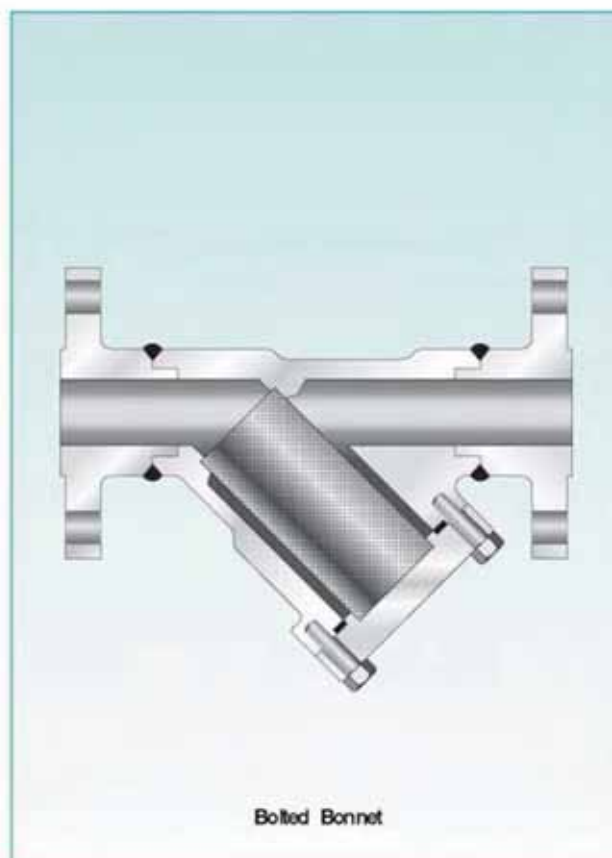
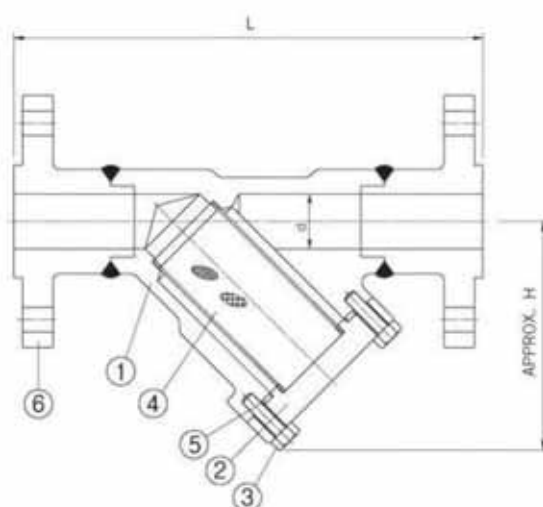
DIMENSIONS & WEIGHTS

CLASS	Valve Size		Center to Top, Open		End to End		End to Hub Diameter		Approx. Weight	
			H		L		d			
	DN	in	mm	in	mm	in	mm	in	kg	lb
600	15	1/2	88	3.46	98	3.85	14	0.55	1.8	4.0
	20	3/4	88	3.46	98	3.85	19	0.74	1.7	3.7
	25	1	105	4.13	120	4.72	24	0.94	2.3	5.1
	32	1 1/4	123	4.84	140	5.51	32	1.26	5.8	12.8
	40	1 1/2	123	4.84	140	5.51	38	1.49	5.6	12.3
	50	2	142	5.59	170	6.69	49	1.92	6.7	14.8
1500	15	1/2	88	3.46	98	3.85	12	0.47	1.8	4.0
	20	3/4	105	4.13	120	4.72	16	0.62	2.3	5.1
	25	1	123	4.84	140	5.51	21	0.82	5.8	12.8
	32	1 1/4	123	4.84	140	5.51	29	1.14	7.1	15.7
	40	1 1/2	142	5.59	170	6.69	34	1.33	6.9	15.2
	50	2	170	6.69	240	7.87	43	1.69	14.4	-

(1) A105 also Available with 0.25% Maximum Carbon.
Other Materials also Available on Application.

Y-STRAINER VALVES CLASS 150,300&600

FORGED STEEL Y-STRAINER VALVES
BOLTED COVER FLANGE TYPE



PARTS NOMENCLATURE

Part	Part Name	Qty	Materials		
1	Body	1	A105(1)	F304	F316
2	Cover	1	A105(1)	F304	F316
3	Cover Bolt	4	A193-B7	A19 3-B8	A193-B8
4	Screen	1	SUS304	SUS304	SUS316
5	Gasket	1	SUS304 + GRAPHITE	SUS304 + GRAPHITE	SUS316 + GRAPHITE
6	Flange	2	A105	F304	F316

DIMENSIONS & WEIGHTS

CLASS	Valve Size		Center to Top, Open		End to End		End to Hub Diameter		Approx. Weight	
			H		L		d			
	DN	in	mm	in	mm	in	mm	in	kg	lb
150, 300 (10K, 20K, 30K)	15	1/2	88	3.46	178	7.01	15	0.59	-	-
	20	3/4	88	3.46	187	7.36	20	0.79	-	-
	25	1	105	4.13	209	8.22	25	0.98	-	-
	32	1 1/4	123	4.84	228	8.97	32	1.26	-	-
	40	1 1/2	123	4.84	228	8.97	40	1.57	-	-
	50	2	142	5.59	278	10.94	50	1.97	-	-
600 (40K)	15	1/2	88	3.46	180	7.09	15	0.59	-	-
	20	3/4	88	3.46	190	7.48	20	0.79	-	-
	25	1	105	4.13	216	8.50	25	0.98	-	-
	32	1 1/4	123	4.84	248	9.76	32	1.26	-	-
	40	1 1/2	123	4.84	248	9.76	40	1.57	-	-
	50	2	142	5.59	288	11.33	50	1.97	-	-

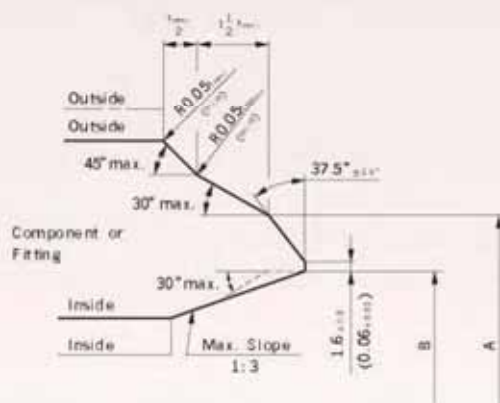
(1) A105 also Available with 0.25% Maximum Carbon.

Options & Accessories, when specified, are shown in all views.

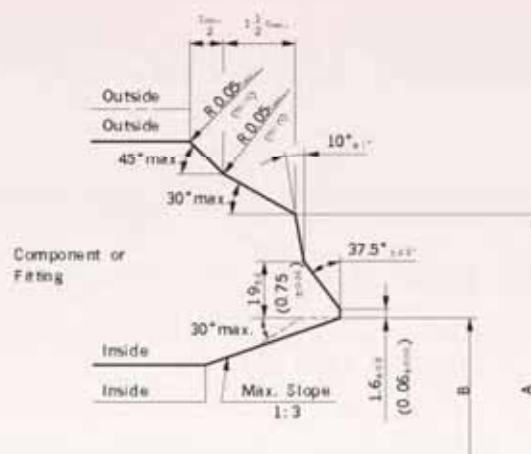
TECHNICAL INFORMATION

- End Connections & Dimensions
- Flanged End Dimensions
- Tolerances
- Tolerance for Pipe Flangs
- Dimensions of End Connection
- Dimensions of Steel Pipes
- Flange Facing Finish
- Finish & Tolerance
- Comparison List for Casting & Forging
- Hydrostatic Test Pressures
- Pressure-Temperature Ratings
- Conversion Tables
- Corrosion Resistance Guide
- Reference Standard & Specification
- Guide to Storage, Installation & Service

END CONNECTIONS& DIMENSIONS



For nominal wall thicknesses
22mm(0.88 in.) & thinner
(Without backing ring)



For nominal wall thicknesses
greater than 22mm(0.88 in.)
(Without backing ring)

BUTT WELDING END

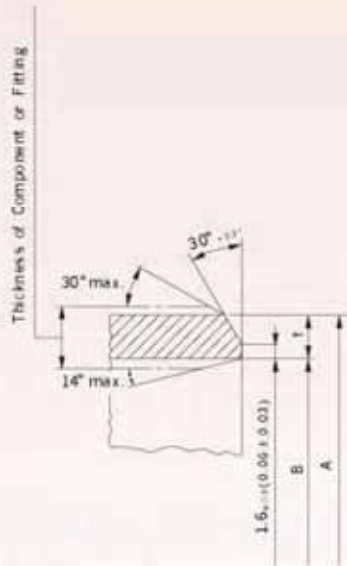
DIMENSIONS (MILLIMETERS/INCHES)-ANSI B16.25

NPS	Pipe Schedule	Outside Dia.		Inside Dia.		Wall Thickness	
		A		B		t	
		mm	in	mm	in	mm	in
1/2	40			16	0.622	2.77	0.109
	80			14	0.546	3.73	0.147
	160	21	0.84	12	0.464	4.78	0.188
	XXS			6	0.252	7.47	0.294
3/4	40			21	0.824	2.87	0.113
	80			19	0.742	3.91	0.154
	160	27	1.05	16	0.612	5.56	0.219
	XXS			11	0.434	7.82	0.308
1	40			27	1.049	3.38	0.133
	80			24	0.957	4.55	0.179
	160	33	1.32	21	0.815	6.36	0.250
	XXS			15	0.599	9.09	0.358
1 1/4	40			35	1.380	3.56	0.140
	80			32	1.278	4.85	0.191
	160	42	1.66	29	1.160	6.35	0.250
	XXS			23	0.896	9.70	0.382
1 1/2	40			41	1.610	3.68	0.145
	80			38	1.500	5.08	0.200
	160	48	1.90	34	1.388	7.14	0.281
	XXS			28	1.100	10.15	0.400

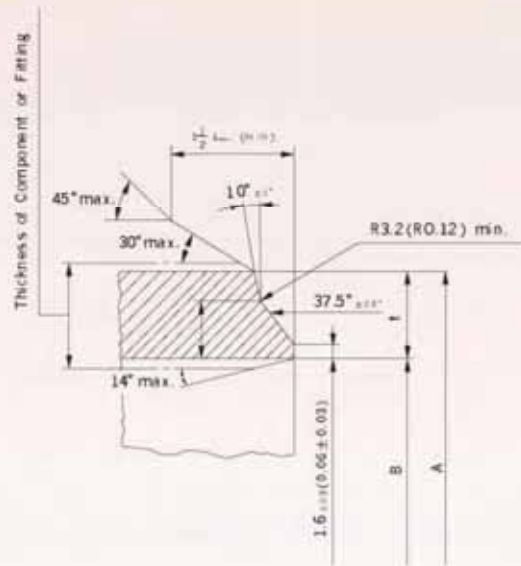
NPS	Pipe Schedule	Outside Dia.		Inside Dia.		Wall Thickness	
		A		B		t	
		mm	in	mm	in	mm	in
2	40			53	2.067	3.91	0.154
	80			49	1.939	5.54	0.218
	160	60	2.38	43	1.687	8.74	0.344
	XXS			38	1.503	11.07	0.436
2 1/2	40			63	2.469	5.15	0.203
	80			59	2.323	7.00	0.276
	160	73	2.88	54	2.125	9.55	0.375
	XXS			45	1.771	14.00	0.552
3	40			78	3.068	5.50	0.216
	80			74	2.900	7.60	0.300
	160	89	3.50	67	2.624	11.15	0.438
	XXS			58	2.300	15.25	0.600
3 1/2	40			90	3.548	5.75	0.226
	80	102	4.00	85	3.364	8.10	0.318
4	40			102	4.026	6.00	0.237
	80			97	3.826	8.55	0.337
	120			92	3.624	11.15	0.438
	160			87	3.438	13.50	0.531
	XXS			80	3.152	17.10	0.674

Note: When ordering butt welding ends, indicate type of ends and pipe schedule to be used.

END CONNECTIONS& DIMENSIONS



For nominal wall thicknesses
22mm(0.88 in.) & thinner



For nominal wall thicknesses
greater than 22mm(0.88 in.)

BUTT WELDING END

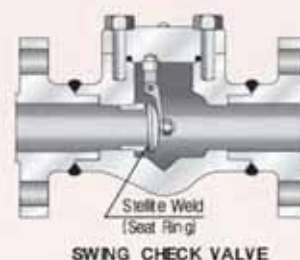
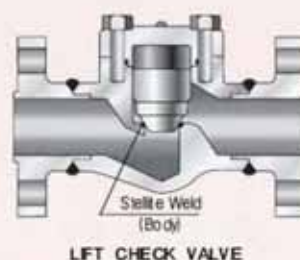
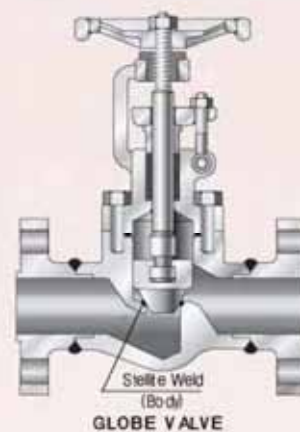
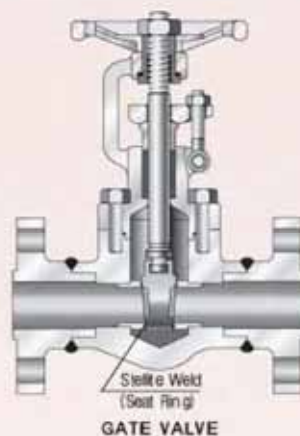
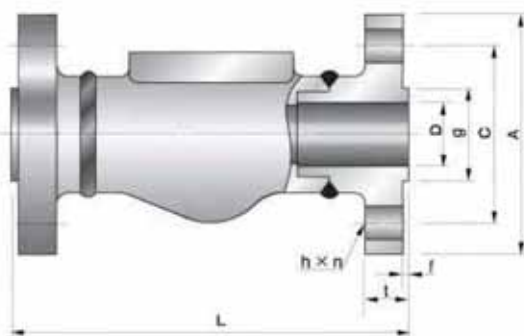
DIMENSIONS (MILLIMETERS/INCHES)-JIS B2312

NPS	Pipe Schedule	Outside Dia.		Inside Dia.		Wall Thickness	
		A		B		t	
		mm	in	mm	in	mm	in
1/2	40			16.1	0.63	2.8	0.11
	80	21.7	0.85	3.7	0.15		
	160			12.3	0.48	4.7	0.19
3/4	40			21.4	0.84	2.9	0.11
	80	27.2	1.07	19.4	0.76	3.9	0.15
	160			16.2	0.64	5.5	0.22
1	40			27.2	1.07	3.4	0.13
	80	34.0	1.34	25.0	0.98	4.5	0.18
	160			21.2	0.83	6.4	0.25
1 1/4	40			35.5	1.40	3.6	0.14
	80	42.7	1.68	32.9	1.30	4.9	0.19
	160			29.9	1.18	6.4	0.25
1 1/2	40			41.2	1.62	3.7	0.15
	80	48.6	1.91	38.4	1.51	5.1	0.20
	160			34.4	1.35	7.1	0.28

NPS	Pipe Schedule	Outside Dia.		Inside Dia.		Wall Thickness	
		A		B		t	
		mm	in	mm	in	mm	in
2	40			52.7	2.07	3.9	0.15
	80	60.5	2.38	49.5	1.95	5.5	0.22
	160			43.1	1.70	8.7	0.34
2 1/2	40			65.9	2.59	5.2	0.20
	80	76.3	3.00	62.3	2.45	7.0	0.28
	160			57.3	2.26	9.5	0.37
3	40			78.1	3.07	5.5	0.22
	80	89.1	3.51	73.9	2.91	7.6	0.30
	160			66.9	2.63	11.1	0.44
3 1/2	40			90.2	3.55	5.7	0.22
	80	101.6	4.00	85.4	3.36	8.1	0.32
	160			76.2	3.00	12.7	0.50
4	40			102.3	4.03	6.0	0.24
	80	114.3	4.50	97.1	3.82	8.6	0.34
	160			87.3	3.44	13.5	0.53

Note: When ordering butt welding ends, indicate type of ends and pipe schedule to be used.

FLANGED END DIMENSIONS

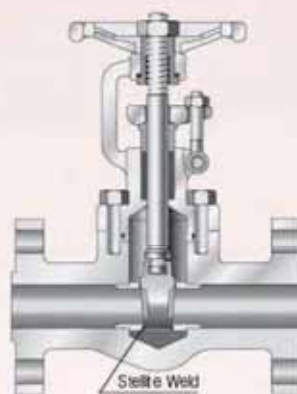
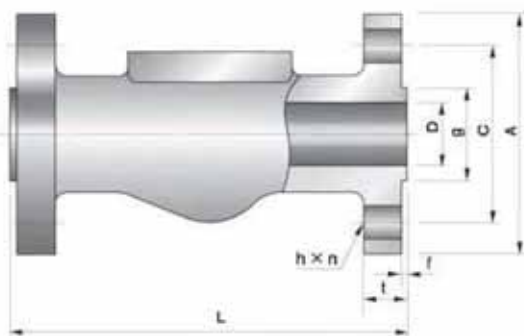


JIS STANDARD

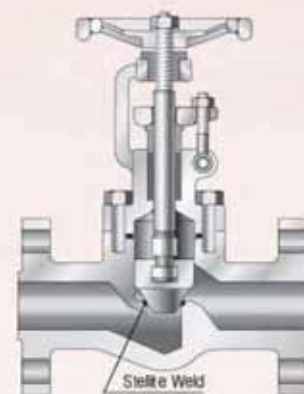
(Unit: mm)

DIMENSIONS (JIS B 2210)													
Pressure Rating	Valve Size		L			D	A	C	g	t	f	h	Number of Bolts n
	DN	In.	Gate	Globe L/Check	Swing Check								
10Kglcm ²	15	1/2	108	108		15	95	70	51	12	1	15	4
	20	3/4	117	117		20	100	75	56	14		15	
	25	1	127	127		25	125	90	67	14		19	
	32	1 1/4	140	140		32	135	100	76	16	2	19	
	40	1 1/2	165	165		40	140	105	81	16		19	
	50	2	178	203		50	155	120	96	16		19	
20Kglcm ²	15	1/2	140	152		15	95	70	51	14	1	15	4
	20	3/4	152	178		20	100	75	56	16		15	
	25	1	165	203		25	125	90	67	16		19	
	32	1 1/4	178	216		32	135	100	76	18	2	19	
	40	1 1/2	190	229		40	140	105	81	18		19	
	50	2	216	267		50	155	120	96	18		19	8
30Kglcm ²	15	1/2	140	152		15	115	80	55	18	1	19	4
	20	3/4	152	178		20	120	85	60	18		19	
	25	1	165	203		25	130	95	70	20		19	
	32	1 1/4	178	216		32	140	105	80	22	2	19	
	40	1 1/2	190	229		40	160	120	90	22		23	
	50	2	216	267		50	165	130	105	22		19	8
40Kglcm ²	15	1/2	165	165		15	115	80	55	20	1	19	4
	20	3/4	190	190		20	120	85	60	20		19	
	25	1	216	216		25	130	95	70	22		19	
	32	1 1/4	229	229		32	140	105	80	24	2	19	
	40	1 1/2	241	241		40	160	120	90	24		23	
	50	2	292	292		50	165	130	105	26		19	8
63Kglcm ²	15	1/2	216	216		15	120	85	55	23	1	19	4
	20	3/4	229	229		20	135	95	60	25		23	
	25	1	254	254		25	140	100	70	27		23	
	32	1 1/4	279	279		32	150	110	80	30	2	23	
	40	1 1/2	305	305		40	175	130	90	32		25	
	50	2	368	368		50	185	145	105	34		23	8

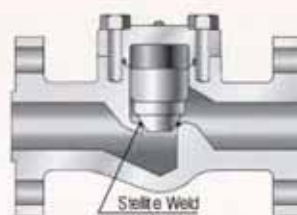
INTEGRAL FLANGED END DIMENSIONS



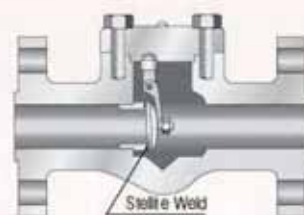
GATE VALVE



GLOBE VALVE



LIFT CHECK VALVE



SWING CHECK VALVE

JIS STANDARD

(Unit: mm)

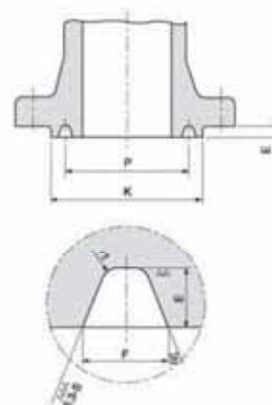
DIMENSIONS (JIS B 2210)													
Pressure Rating	Valve Size		L			D	A	C	g	t	f	h	Number of Bolts n
	DN	In.	Gate	Globe L/Check *	Swing Check								
10Kglcm ²	15	1/2	108		108	15	95	70	51	12	1	15	4
	20	3/4	117		117	20	100	75	56	14		15	
	25	1	127		127	25	125	90	67	14		19	
	32	1 1/4	140		140	32	135	100	76	16	2	19	
	40	1 1/2	165		165	40	140	105	81	16		19	
	50	2	178		203	50	155	120	96	16		19	
20Kglcm ²	15	1/2	140		152	15	95	70	51	14	1	15	4
	20	3/4	152		178	20	100	75	56	16		15	
	25	1	165		203	25	125	90	67	16		19	
	32	1 1/4	178		216	32	135	100	76	18	2	19	
	40	1 1/2	190		229	40	140	105	81	18		19	
	50	2	216		267	50	155	120	96	18		19	
30Kglcm ²	15	1/2	140		152	15	115	80	55	18	1	19	4
	20	3/4	152		178	20	120	85	60	18		19	
	25	1	165		203	25	130	95	70	20		19	
	32	1 1/4	178		216	32	140	105	80	22	2	19	
	40	1 1/2	190		229	40	160	120	90	22		23	
	50	2	216		267	50	165	130	105	22		19	
40Kglcm ²	15	1/2	165		165	15	115	80	55	20	1	19	4
	20	3/4	190		190	20	120	85	60	20		19	
	25	1	216		216	25	130	95	70	22		19	
	32	1 1/4	229		229	32	140	105	80	24	2	19	
	40	1 1/2	241		241	40	160	120	90	24		23	
	50	2	292		292	50	165	130	105	26		19	
63Kglcm ²	15	1/2	216		216	15	120	85	55	23	1	19	4
	20	3/4	229		229	20	135	95	60	25		23	
	25	1	254		254	25	140	100	70	27		23	
	32	1 1/4	279		279	32	150	110	80	30	2	23	
	40	1 1/2	305		305	40	175	130	90	32		25	
	50	2	368		368	50	185	145	105	34		23	

FLANGED END DIMENSIONS

ANSI STANDARD

(Unit: mm / in)

DIMENSIONS (ANSI B 16.5 & B 16.10)																								
Pressure Rating	Valve Size	L								D		A		C		g		t		f		h		Number of Bolts n
		Gate		Globe		Swing																		
		DN	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
150 Lb/in ²	15	1/2	108	4.25	108	4.25	108	4.25	15	0.67	89	3.50	60.3	2.38	34.9	1.38	11.2	0.44	1.6	0.06	16	0.62	4	
	20	3/4	117	4.62	117	4.62	117	4.62	20	0.91	98	3.88	69.9	2.75	42.9	1.69	12.7	0.50			16	0.62		
	25	1	127	5.00	127	5.00	127	5.00	25	1.14	108	4.25	79.4	3.12	50.8	2.00	14.2	0.56			16	0.62		
	32	1 1/4	140	5.50	140	5.50	140	5.50	32	1.38	117	4.62	88.9	3.50	63.5	2.50	15.7	0.62			16	0.62		
	40	1 1/2	165	6.50	165	6.50	165	6.50	40	1.57	127	5.00	98.4	3.88	73.0	2.88	17.5	0.69			16	0.62		
	50	2	178	7.00	203	8.00	203	8.00	50	2.05	152	6.00	120.6	4.75	92.1	3.62	19.1	0.75			19	0.75		
300 Lb/in ²	15	1/2	140	5.50	152	6.00	152	6.00	15	0.67	95	3.75	66.7	2.62	Same As Class 150		14.2	0.56	1.6	0.06	16	0.62	4	
	20	3/4	152	6.00	178	7.00	178	7.00	20	0.91	117	4.62	82.5	3.25			15.7	0.62			19	0.75		
	25	1	165	6.50	203	8.00	203	8.00	25	1.14	124	4.88	88.9	3.50			17.5	0.69			19	0.75		
	32	1 1/4	178	7.00	216	8.50	216	8.50	32	1.38	133	5.25	98.4	3.88			19.1	0.75			19	0.75		
	40	1 1/2	190	7.50	229	9.00	229	9.00	40	1.57	156	6.12	114.3	4.50			20.6	0.81			22	0.88		
	50	2	216	8.50	267	10.50	267	10.50	50	2.05	165	6.50	127.0	5.00			22.4	0.88			19	0.75	8	
600 Lb/in ²	15	1/2	165	6.50	Same As Gate										Same As Class 150		20.6	0.81	6.4	0.25	Same As Class 300			
	20	3/4	190	7.50													22.1	0.87						
	25	1	216	8.50													23.9	0.94						
	32	1 1/4	229	9.00													26.9	1.06						
	40	1 1/2	241	9.50													28.8	1.13						
	50	2	292	11.50													31.8	1.25						
900 Lb/in ²	15	1/2	216	8.50	Same As Gate										Same As Class 150		28.8	1.13	6.4	0.25	22	0.88	4	
	20	3/4	229	9.00													31.8	1.25			22	0.88		
	25	1	254	10													34.8	1.37			25	1.00		
	32	1 1/4	279	11.00													34.8	1.37			25	1.00		
	40	1 1/2	305	12.0													38.1	1.50			29	1.12		
	50	2	368	14.5													44.5	1.75			25	1.00	8	
1500 Lb/in ²	15	1/2	216	8.50	Same As Gate										Same As Class 150		28.8	1.13	6.4	0.25	22	0.88	4	
	20	3/4	229	9.00													31.8	1.25			22	0.88		
	25	1	254	10													34.8	1.37			25	1.00		
	32	1 1/4	279	11.00													34.8	1.37			25	1.00		
	40	1 1/2	305	12.0													38.1	1.50			29	1.12		
	50	2	368	14.5													44.5	1.75			25	1.00	8	
2500 Lb/in ²	15	1/2	264	10.38	Same As Gate										Same As Class 150		36.6	1.44	6.4	0.25	22	0.88	4	
	20	3/4	273	10.75													38.1	1.50			22	0.88		
	25	1	308	12.12													41.4	1.63			25	1.00		
	32	1 1/4	349	13.75													44.5	1.75			29	1.12		
	40	1 1/2	384	15.12													50.8	2.00			32	1.25		
	50	2	451	17.75													57.2	2.25			29	1.12	8	



RING JOINT

PN/ Glass	VALVE SIZE	Dia of Raised Face for Ring Joint	Ring No.	Pitch Dia. of Ring Globe	RTJ TYPE			
					Depth of Globe	Width of Globe	Radius of Globe	
	DN	in	K	P	(mm)	E	F	r1
20/150	15 1/2	-	-	-	-	-	-	-
	20 3/4	-	-	-	-	-	-	-
	25 1	63.5	47.62	R15	6.35	8.74	0.8	
	32 1 1/4	73.0	57.15	R17	6.35	8.74	0.8	
	40 1 1/2	82.5	69.07	R19	6.35	8.74	0.8	
	50 2	102	82.55	R22	6.35	8.74	0.8	
50/300	15 1/2	51.0	34.14	R11	5.56	7.14	0.8	
	20 3/4	63.5	42.88	R13	6.35	8.74	0.8	
	25 1	70.0	50.80	R16	6.35	8.74	0.8	
	32 1 1/4	79.5	60.32	R18	6.35	8.74	0.8	
	40 1 1/2	90.5	68.28	R20	6.35	8.74	0.8	
	50 2	108	82.55	R23	7.92	11.91	0.8	
100/600	15 1/2	51.0	34.14	R11	5.56	7.14	0.8	
	20 3/4	63.5	42.88	R13	6.35	8.74	0.8	
	25 1	70.0	50.80	R16	6.35	8.74	0.8	
	32 1 1/4	79.5	60.32	R18	6.35	8.74	0.8	
	40 1 1/2	90.5	68.28	R20	6.35	8.74	0.8	
	50 2	108	82.55	R23	7.92	11.91	0.8	
150/900	15 1/2	60.5	39.67	R12	6.35	8.74	0.8	
	20 3/4	66.5	44.45	R14	6.35	8.74	0.8	
	25 1	71.5	50.80	R16	6.35	8.74	0.8	
	32 1 1/4	81.0	60.32	R18	6.35	8.74	0.8	
	40 1 1/2	92.0	68.28	R20	6.35	8.74	0.8	
	50 2	124	95.25	R24	7.92	11.91	0.8	
250/1500	15 1/2	60.5	39.67	R12	6.35	8.74	0.8	
	20 3/4	66.5	44.45	R14	6.35	8.74	0.8	
	25 1	71.5	50.80	R16	6.35	8.74	0.8	
	32 1 1/4	81.0	60.32	R18	6.35	8.74	0.8	
	40 1 1/2	92.0	68.28	R20	6.35	8.74	0.8	
	50 2	124	95.25	R24	7.92	11.91	0.8	
420/2500	15 1/2	60.5	42.88	R13	6.35	8.74	0.8	
	20 3/4	73.0	50.80	R16	6.35	8.74	0.8	
	25 1	82.5	60.32	R18	6.35	8.74	0.8	
	32 1 1/4	102	72.24	R21	7.92	11.91	0.8	
	40 1 1/2	114	82.55	R23	7.92	11.91	0.8	
	50 2	133	101.6	R26	7.92	11.91	0.8	

FLANGED END DIMENSIONS

The table covers flanges conforming to pressure classes PN6-PN400 for valves, as well as matching pipe flanges.

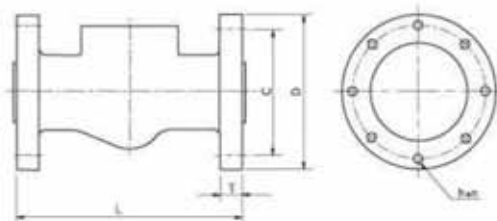
Pressure classes with the same colour coding have the same flange diameter, drilling and number of holes, but the flange thicknesses differ in certain cases.

DIN STANDARD

(Unit: mm / in)

DIMENSIONS (SS, DIN, BS 4504 and EN 558-1)												
Pressure Rating	Valve Size	L		D		C		T		h		Number of Bolts n
		mm	in	mm	in	mm	in	mm	in	mm	in	
PN6	10	130	5.11	75	2.95	50	1.96	12	0.47	11	0.43	4
		210	8.26									
	15	130	5.11	80	3.14	55	2.16	12	0.47	11	0.43	
		210	8.26									
	20	150	5.90	90	3.54	65	2.55	14	0.55	11	0.43	
		230	9.05									
	25	160	6.29	100	3.93	75	2.95	14	0.55	11	0.55	
		230	9.05									
	32	180	7.08	120	4.72	90	3.54	14	0.55	14	0.55	
		260	10.2									
	40	200	7.87	130	5.11	100	3.93	14	0.55	14	0.55	
		260	10.2									
	50	250	9.84	140	5.51	110	4.43	14	0.55	14	0.55	
		300	11.8									
PN10	10	same as class 6		90	3.54	60	2.36	14	0.55	14	0.55	4
	15			95	3.74	65	2.55	14	0.55	14	0.55	
	20			105	4.13	75	2.95	16	0.62	14	0.55	
	25			115	4.52	85	3.34	16	0.62	14	0.55	
	32			140	5.51	100	3.93	16	0.62	18	0.70	
	40			150	5.90	110	4.43	16	0.62	18	0.70	
	50			165	6.49	125	4.92	18	0.70	18	0.70	
PN16	10	same as class 6		90	3.54	60	2.36	14	0.55	14	0.55	4
	15			95	3.74	65	2.55	14	0.55	14	0.55	
	20			105	4.13	75	2.95	16	0.62	14	0.55	
	25			115	4.52	85	3.34	16	0.62	14	0.55	
	32			140	5.51	100	3.93	16	0.62	18	0.70	
	40			150	5.90	110	4.43	16	0.62	18	0.70	
	50			165	6.49	125	4.92	18	0.70	18	0.70	
PN25	10	same as class 6		90	3.54	60	2.36	16	0.62	14	0.55	4
	15			95	3.74	65	2.55	16	0.62	14	0.55	
	20			105	4.13	75	2.95	18	0.70	14	0.55	
	25			115	4.52	85	3.34	18	0.70	14	0.55	
	32			140	5.51	100	3.93	18	0.70	18	0.70	
	40			150	5.90	110	4.43	18	0.70	18	0.70	
	50			165	6.49	125	4.92	20	0.78	18	0.70	
PN40	10	same as class 6		90	3.54	60	2.36	16	0.62	14	0.55	4
	15			95	3.74	65	2.55	16	0.62	14	0.55	
	20			105	4.13	75	2.95	18	0.70	14	0.55	
	25			115	4.52	85	3.34	18	0.70	14	0.55	
	32			140	5.51	100	3.93	18	0.70	18	0.70	
	40			150	5.90	110	4.43	18	0.70	18	0.70	
	50			165	6.49	125	4.92	20	0.78	18	0.70	

FLANGED END DIMENSIONS



Bolt hole positions and numbers of holes according to SS 335 and DIN 2508

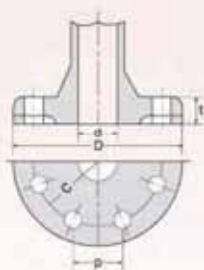
DIN STANDARD

(Unit: mm / in)

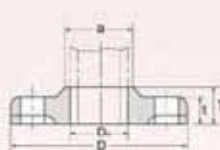
DIMENSIONS (SS, DIN, BS 4504 and EN 558-1)												
Pressure Rating	Valve Size	L		D		C		T		h		Number of Bolts n
		mm	in	mm	in	mm	in	mm	in	mm	in	
PN64	10	130	5.11	100	3.93	70	2.75	20	0.78	14	0.55	4
		210	8.26									
	15	130	5.11	105	4.13	75	2.95	20	0.78	14	0.55	
		210	8.26									
	20	150	5.90									
		230	9.05									
	25	160	6.29	140	5.51	100	3.93	24	0.94	18	0.70	
		230	9.05									
	32	180	7.08	155	6.10	110	4.43	24	0.94	22	0.86	
		260	10.2									
	40	200	7.87	170	6.69	125	4.92	26	1.02	22	0.86	
		260	10.2									
	50	250	9.84	180	7.08	135	5.31	28	1.10	22	0.86	
		300	11.8									
PN100	10	same as class 64		100	3.93	70	2.75	20	0.78	14	0.55	4
	15			105	4.13	75	2.95	20	0.78	14	0.55	
	20											
	25			140	5.51	100	3.93	24	0.94	18	0.70	
	32			155	6.10	110	4.33	24	0.94	22	0.86	
	40			170	6.69	125	4.92	26	1.02	22	0.86	
	50			195	7.67	145	5.70	28	1.10	26	1.02	
PN160	10	same as class 64		100	3.93	70	2.75	20	0.78	14	0.55	4
	15			105	4.13	75	2.95	20	0.78	14	0.55	
	20											
	25			140	5.51	100	3.93	24	0.94	18	0.70	
	32											
	40			170	6.69	125	4.92	28	1.10	22	0.86	
	50			195	7.67	145	5.70	30	1.18	26	1.02	
PN250	10	same as class 64		125	4.92	85	3.34	24	0.94	18	0.70	4
	15			130	5.11	90	3.54	26	1.02	18	0.70	
	20											
	25			150	5.90	105	4.13	28	1.10	22	0.86	
	32											
	40			185	7.28	135	5.31	34	1.33	26	1.02	
	50			200	7.87	150	5.90	38	1.49	26	1.02	8
PN400	10	same as class 64		125	4.92	85	3.34	18	0.70	18	0.70	4
	15			145	5.70	100	3.93	22	0.86	22	0.86	
	20											
	25			180	7.08	130	5.11	26	1.02	26	1.02	
	32											
	40			220	8.66	165	6.49	30	1.18	30	1.18	
	50			235	9.25	180	7.08	30	1.18	30	1.18	8

TOLERANCES ANSI B16.5 Forged Flanges

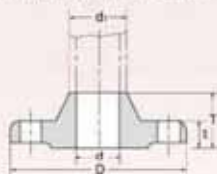
SOLID FLANGE



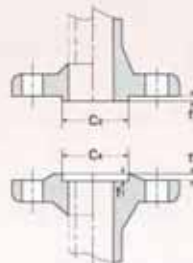
SLIP-ON-FLANGE



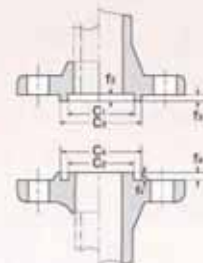
WELDING NECK FLANGE



TYPE OF GASKET SURFACE



MALE & FEMALE TYPE



TONGUE & GROOVE TYPE

THREAD, SOCKET-WELDING, SLIP-ON, LAP JOINT AND BLIND

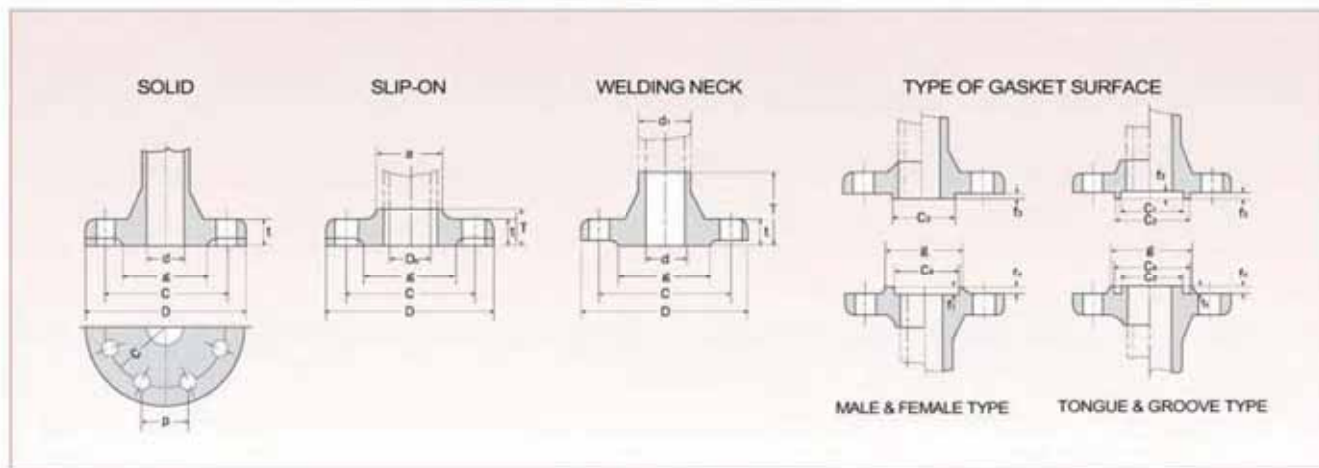
Outside Diameter	When O.D. is 24" or less	$\pm 1/16"$ (1.6mm)*
	When O.D. is Over 24"	$\pm 1/8"$ (3.2mm)*
Inside Diameter	Threaded	Within limits on boring gauge
	Socket-welding, Slip-on and Lap joint	10" & Smaller $+ 1/32"$ (0.8mm), -0 12" & Larger $+ 1/16"$ (1.6mm), -0
Outside Diameter of Hub	5" and Smaller	$+ 3/32"$ (2.4mm)* $- 1/32"$ (0.8mm)
	6" and Larger	$+ 5/32"$ (4.0mm) $- 1/32"$ (0.8mm)
Diameter of Contact Face	1/16" Raised Face	$\pm 1/32"$ (0.8mm)
	1/4" Raised Face Tongue & Globe Male, Female	$\pm 1/64"$ (0.4mm)
Diameter of Counter bore	Same as for Inside Diameter	
Drilling	Bolt Circle	$\pm 1/16"$ (1.6mm)
	Bolt Hole Spacing	$\pm 1/32"$ (0.8mm)
	Eccentricity of Bolt Circle with Respect to Facing	2 1/2" & Smaller $1/32"$ (0.8mm) Max. 3" & Larger $1/16"$ (1.6mm) Max.
	Eccentricity of Bolt Circle with Respect to Bore	$1/32"$ (0.8mm) Max.
	Eccentricity of Bolt Circle with Respect to Bore	$1/32"$ (0.8mm) Max.
Thickness	18" and Smaller	$+ 1/8"$ (3.2mm), -0
	20" and Larger	$+ 3/16"$ (4.8mm), -0
Length Thru Hub	10" and Smaller	$\pm 1/16"$ (1.6mm)
	12" and Larger	$\pm 1/8"$ (3.2mm)

WELDING NECK

Outside Diameter	When O.D. is 24" or less	$\pm 1/16"$ (1.6mm)*
	When O.D. is Over 24"	$\pm 1/8"$ (3.2mm)
Inside Diameter	10" and Smaller	$\pm 1/32"$ (0.8mm)
	12" thru 18"	$\pm 1/16"$ (1.6mm)
	20" and Larger	$+ 1/8"$ (3.2mm) $- 1/16"$ (1.6mm)
Diameter of Contact Face	1/16" Raised Face	$\pm 1/32"$ (0.8mm)
	1/4" Raised Face Tongue & Globe Male, Female	$\pm 1/64"$ (0.4mm)
Diameter of Hub at Base	When Hub Base is 24" or Smaller	$\pm 1/16"$ (1.6mm)*
	When Hub Base is Over 24"	$\pm 1/8"$ (3.2mm)*
Diameter of Hub at Point of Welding	5" and Smaller	$+ 3/32"$ (2.4mm) $- 1/32"$ (0.8mm)
	6" and Larger	$+ 5/32"$ (4.0mm) $- 1/32"$ (0.8mm)
Drilling	Bolt Circle	$\pm 1/16"$ (1.6mm)
	Bolt Hole Spacing	$\pm 1/32"$ (0.8mm)
	Eccentricity of Bolt Circle with Respect to Facing	2 1/2" & Smaller $1/32"$ (0.8mm) Max. 3" & Larger $1/16"$ (1.6mm) Max.
	Eccentricity of Bolt Circle with Respect to Bore	$1/32"$ (0.8mm) Max.*
	Eccentricity of Bolt Circle with Respect to Bore	$1/32"$ (0.8mm) Max.*
Thickness	18" and Smaller	$+ 1/8"$ (3.2mm), -0
	20" and Larger	$+ 3/16"$ (4.8mm), -0
Length Thru Hub	10" and Smaller	$\pm 1/16"$ (1.6mm)
	12" and Larger	$\pm 1/8"$ (3.2mm)

Note: *This tolerance is not covered in ANSI B16.5, but maker's option.

TOLERANCES FOR PIPE FLANGES



(Unit: mm)

Flange Section	Surface Condition	Basic Size	Dimensional Tolerance
Outside Dia D	As Forged (1)	300 & below	+Not Specified
		over 300 thru 600	-2.0
		over 600 thru 1000	+Not Specified
		over 1000 thru 1500	-3.0
		over 1500	+Not Specified
	Finish	300 & below	± 1
		over 300 thru 600	± 1.5
		over 600 thru 1000	± 2
		over 1000 thru 1500	± 2.5
Inside Dia D	Solid Flange d(2)	16 & below	± 1
		over 16 thru 63	± 1.5
		over 63 thru 125	± 2
		over 125 thru 150	± 2.5
		over 250 thru 500	± 3
		over 500 thru 1000	± 4
		over 1000	± 5
	Slip-on Flange d _b	100 & below	± 0.5
		over 100 thru 400	± 1
		over 400 thru 600	± 1.5
		over 600 thru 800	± 2
		over 800 thru 1000	± 2.5
		over 1000	± 3
	Finish	100 & below	± 0.5
		over 100 thru 400	± 1
		over 400 thru 600	± 1.5
		over 600 thru 800	± 2
		over 800 thru 1000	± 2.5
		over 1000	± 3
Bolt Hole	Bolt Circle Dia. C	2500 & below	± 0.5
		over 250 thru 550	± 0.6
		over 550 thru 950	± 0.8
		over 950 thru 1350	± 1
		over 1350	± 1.5

Flange Section	Surface Condition	Basic Size	Dimensional Tolerance
Bolt Hole	Pitch of Hole p	Drilling Hole	-
			± 0.5
			220 & below
			± 0.5
			over 220 thru 450
			± 0.5
			over 450 thru 650
			± 0.5
			over 650 thru 850
			± 0.5
			over 850 thru 1000
			± 0.5
Dia. of Hub	Slip-on Flange (a) and Welding Neck Flange (d)	As Forged	220 & below
			± 0.5
			over 220 thru 450
			± 0.5
			over 450 thru 650
			± 0.5
		Finish	220 & below
			± 1
			over 220 thru 450
			± 1.5
			over 450 thru 650
			± 2
Gasket Seat	C1, C2, C3, C4	Finish	500 & below
			± 0.3
			over 500 thru 1000
			± 0.35
			over 1000 thru 1500
			± 0.4
	f/f _o	Finish	over 1500
			± 0.5
			8 & below
			± 0.2
			over 8
			± 0.25
Thickness t	g	Finish	200 & below
			± 0.5
			over 200 thru 650
			± 0.5
			over 650 thru 1000
			± 1
	One-side Finish	Both-side Finish	ever 1000
			± 1.7
			20 & below
			± 1.5
			over 20 thru 50
			± 0.5
Hub Height T	Flange with Pipe inserted	Finish	over 50 thru 100
			± 0.5
			over 100 thru 200
			± 1.5
			over 200 & below
			± 2
	Flange with Sub-welded Pipe	Finish	over 200 thru 300
			± 2
			over 300 thru 400
			± 2.5
			over 400 thru 500
			± 3

Note

(1) This dimensional tolerance applies to the machined surface, as required.

(2) This dimension "d" has been specified only for the flange, of which the bore part is cylindrical in shape.

Remarks

(1) The dimensions "d" of bore part of the solid flanges with surface, as forged of valves, pumps, etc. are allowed up to plus 100% required thickness shall be free from its influence.

(2) The thickness of flange of valve and the like, of which the dimension between flange faces is limited to a fixed value, are all the column of thickness.

(3) In the case of spot facing of the single surface finishing, the thickness of spot facing is allowed up to 70% of the dimensional t

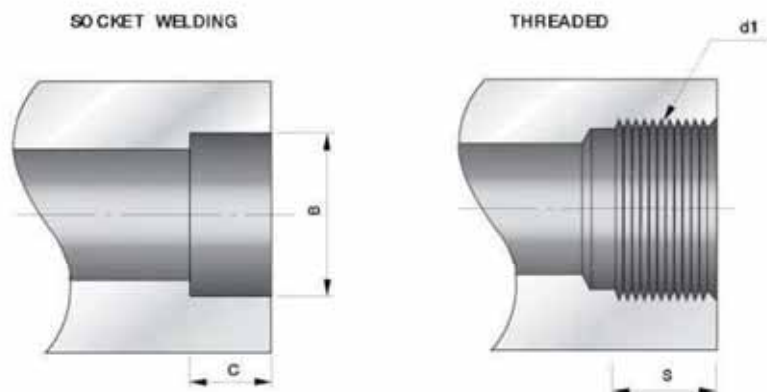
(4) The chain double-dashed lines in the figures of solid flange and socket welding type flange illustrate the cases of large r

of the above dimensional tolerance. Provided that the

owed up to plus 100% of the above dimensional tolerance in

olerance in the above column of thickness in negative side.aised face flange.

DIMENSIONS OF END CONNECTION



SOCKET WELDING

Unit :mm(inch)

Valve size		ANSI B 16.11						JIS B 2316					
		B				Min.C		B				Min.C	
								Min.		Max.			
DN	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
8	1/4	14.10	0.555	14.35	0.565	10	0.38	14.3	0.56	14.6	0.57	10	0.38
10	3/8	17.55	0.690	17.80	0.700	10	0.38	17.8	0.70	18.1	0.71	10	0.38
15	1/2	21.70	0.855	21.95	0.865	10	0.38	22.2	0.87	22.5	0.89	10	0.38
20	3/4	27.05	1.065	27.30	1.075	13	0.50	27.7	1.09	28.0	1.10	13	0.50
25	1	33.80	1.330	34.05	1.340	13	0.50	34.5	1.36	34.8	1.37	13	0.50
32	1 1/4	42.55	1.675	42.80	1.685	13	0.50	43.2	1.70	43.5	1.71	13	0.50
40	1 1/2	48.65	1.915	48.90	1.925	13	0.50	49.1	1.93	49.4	1.94	13	0.50
50	2	61.10	2.406	61.35	2.416	16	0.62	61.1	2.41	61.4	2.42	16	0.62

THREADED

Unit :mm(inch)

Valve size		ANSI B 16.11 / B1. 20.1				JIS B 0203			
		Thread, Min. S		Thread, d1		Thread, Min. S		Thread, d1	
DN	in	mm	in.			mm.	in.		
8	1/4	10.0	0.4018	1/4-18NPT		9.4	0.37	PT1/4-19	
10	3/8	10.5	0.4078	3/8-18NPT		9.7	0.38	PT3/8-19	
15	1/2	13.5	0.5337	1/2-14NPT		12.7	0.50	PT1/2-14	
20	3/4	14.0	0.5457	3/4-14NPT		14.1	0.56	PT3/4-14	
25	1	17.5	0.6828	1-11 1/2NPT		16.2	0.64	PT1-11	
32	1 1/4	18.0	0.7068	1 1/4-11 1/2NPT		18.5	0.73	PT1 1/4-11	
40	1 1/2	18.5	0.7235	1 1/2-11 1/2NPT		18.5	0.73	PT1 1/2-11	
50	2	19.0	0.7565	2-11 1/2NPT		22.8	0.90	PT2-11	

DIMENSIONS OF STEEL PIPES

JIS G3454 STPG 38/JIS G3456 STPT 38/JIS G3455 STS, ETC(LENGTH: 5.5M)																	
NB O.D		Sch20		Sch30		Sch40		Sch60		Sch80		Sch100		Sch120		Sch160	
		Thick	Weight	Thick	Weight	Thick	Weight	Thick	Weight	Thick	Weight	Thick	Weight	Thick	Weight	Thick	Weight
DN	IN	mm	mm	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m
6	1/8"	10.5	-	-	-	1.7	0.369	2.03	2.2	0.450	2.48	2.4	0.479	2.63	-	-	-
8	1/4"	13.8	-	-	-	2.2	0.629	3.46	2.4	0.675	3.71	3.0	0.799	4.39	-	-	-
10	3/8"	17.3	-	-	-	2.3	0.851	4.68	2.8	1.00	5.50	3.2	1.11	6.11	-	-	-
15	1/2"	21.7	-	-	-	2.8	1.31	7.21	3.2	1.46	8.03	3.7	1.64	9.02	-	-	-
20	3/4"	27.2	-	-	-	2.9	1.74	9.57	3.4	2.00	11.0	3.9	2.24	12.3	-	-	-
25	1"	34.0	-	-	-	3.4	2.57	14.1	3.9	2.89	15.9	4.5	3.27	18.0	-	-	-
32	1 1/8"	42.7	-	-	-	3.6	3.47	19.1	4.5	4.24	23.3	4.9	4.57	25.1	-	-	-
40	1 1/2"	48.6	-	-	-	3.7	4.10	22.6	4.5	4.89	26.9	5.1	5.47	30.1	-	-	-
50	2"	60.5	3.2	4.52	-	3.9	5.44	29.9	4.9	6.72	37.0	5.5	7.46	41.0	-	-	-
65	2 1/2"	76.3	4.5	7.97	-	5.2	9.12	30.2	6.0	10.4	57.2	7.0	12.0	66.0	-	-	-
80	3"	89.1	4.5	9.39	-	5.5	11.3	62.2	6.6	13.4	73.7	7.6	15.3	84.2	-	-	-
90	3 1/2"	101.6	4.5	10.8	-	5.7	13.5	74.3	7.0	16.3	89.7	8.1	18.7	103	-	-	-
100	4"	114.3	4.9	13.2	-	6.0	16.0	88.0	7.1	18.8	103.1	8.6	22.4	123	-	-	-
125	5"	139.8	5.1	16.9	-	6.6	21.7	119	8.1	26.3	45	9.5	30.5	168	-	-	-
150	6"	165.2	5.5	21.7	-	7.1	27.7	152	9.3	35.8	197	11.0	41.8	230	-	-	-
200	8"	216.3	6.4	33.1	7.0	36.1	8.2	42.1	232	10.3	52.3	288	12.7	63.8	351	15.1	74.9
250	10"	267.4	6.4	41.2	7.8	49.9	9.3	59.2	326	12.7	79.8	439	15.1	93.9	516	18.2	112
300	12"	318.5	6.4	49.3	8.4	64.2	10.3	78.3	431	14.3	107	589	17.4	125	710	21.4	157
350	14"	355.6	7.9	67.7	9.5	81.1	11.1	94.3	519	15.1	127	699	19.0	158	869	23.8	195
400	16"	406.4	7.9	77.6	9.5	93.0	12.7	123	677	16.7	160	880	21.4	203	1117	26.2	246
450	18"	457.2	7.9	87.5	11.1	122	14.3	156	858	19.0	205	1128	23.8	254	1397	29.4	310
500	20"	508.0	9.5	117	12.7	155	15.1	184	1012	20.6	248	1364	26.2	311	1711	32.5	381

JIS G3452 SGP . E				
NB D.D		Thick	Weight	
DN	IN	mm	mm	kg/m
6	1/8"	10.5	2.0	0.419
8	1/4"	13.8	2.3	0.652
10	3/8"	17.3	2.3	0.851
15	1/2"	21.7	2.8	1.31
20	3/4"	27.2	2.8	1.68
25	1"	34.0	3.2	2.43
32	1 1/8"	42.7	3.5	3.38
40	1 1/2"	48.6	3.5	3.89
50	2"	60.5	3.8	5.31
65	2 1/2"	76.3	4.2	7.47
80	3"	89.1	4.2	8.79
90	3 1/2"	101.6	4.2	10.1
100	4"	114.3	4.5	12.2
125	5"	139.8	4.5	15.0
150	6"	165.2	5.0	19.8
200	8"	216.3	5.8	30.1
250	10"	267.4	6.6	42.4
300	12"	318.5	6.9	53.0
350	14"	355.6	7.9	67.7
400	16"	406.4	7.9	77.6
450	18"	457.2	7.9	87.5
500	20"	508.0	7.9	97.4

ASTM A53/A120																	(ANSI B36.10)													
N.S	OUTSIDE		SCH20				STD				SCH40				XS				SCH80				XXS				SCH160			
	DIAMETER		THICK	WEIGHT		THICK	WEIGHT		THICK	WEIGHT		THICK	WEIGHT		THICK	WEIGHT		THICK	WEIGHT		THICK	WEIGHT		THICK	WEIGHT		THICK	WEIGHT		
	inch	mm	inch	mm	kg/ft	kg/m	inch	mm	kg/ft	kg/m	inch	mm	kg/ft	kg/m	inch	mm	kg/ft	kg/m	inch	mm	kg/ft	kg/m	inch	mm	kg/ft	kg/m	inch	mm	kg/ft	kg/m
1/8"	0.405	103	-	-	-	-	0.068	1.73	0.11	0.36	0.068	1.73	0.11	0.36	0.095	2.41	0.14	0.46	0.095	2.41	0.14	0.46	-	-	-	-	-	-	-	-
1/4"	0.540	137	-	-	-	-	0.068	2.24	0.19	0.63	0.068	2.24	0.19	0.63	0.119	3.02	0.25	0.80	0.119	3.02	0.25	0.80	-	-	-	-	-	-	-	-
3/8"	0.675	171	-	-	-	-	0.091	2.31	0.26	0.85	0.091	2.31	0.26	0.85	0.126	3.20	0.34	1.10	0.126	3.20	0.34	1.10	-	-	-	-	-	-	-	-
1/2"	0.840	213	-	-	-	-	0.109	2.77	0.39	1.27	0.109	2.77	0.39	1.27	0.147	3.73	0.49	1.62	0.147	3.73	0.49	1.62	0.294	7.47	0.78	2.55	0.388	4.78	0.99	193
3/4"	1.050	267	-	-	-	-	0.113	2.87	0.51	1.68	0.113	2.87	0.51	1.68	0.154	3.91	0.67	2.19	0.154	3.91	0.67	2.19	0.308	7.82	1.11	3.63	0.719	5.56	0.88	288
1"	1.315	334	-	-	-	-	0.133	3.39	0.76	2.50	0.133	3.39	0.76	2.50	0.179	4.55	0.99	3.23	0.179	4.55	0.99	3.23	0.388	9.98	1.65	5.46	0.750	6.36	1.29	422
1 1/8"	1.660	422	-	-	-	-	0.140	3.56	1.08	3.38	0.140	3.56	1.08	3.38	0.191	4.85	1.36	4.47	0.191	4.85	1.36	4.47	0.382	9.70	2.37	7.76	0.750	6.36	1.71	560
1 1/2"	1.990	483	-	-	-	-	0.145	3.68	1.23	4.05	0.145	3.68	1.23	4.05	0.200	5.08	1.65	5.41	0.200	5.08	1.65	5.41	0.400	10.16	2.91	9.55	0.881	7.14	2.21	723
2"	2.375	603	-	-	-	-	0.154	3.91	1.66	5.44	0.154	3.91	1.66	5.44	0.218	5.54	2.28	7.48	0.218	5.54	2.28	7.48	0.486	11.07	4.10	13.45	0.944	8.74	3.39	1110
2 1/2"	2.875	730	-	-	-	-	0.203	5.16	2.63	8.62	0.203	5.16	2.63	8.62	0.276	7.01	3.48	11.41	0.276	7.01	3.48	11.41	0.552	14.02	6.22	20.41	0.975	9.53	4.54	1490
3"	3.500	889	-	-	-	-	0.216	5.49	3.44	11.29	0.216	5.49	3.44	11.29	0.300	7.62	4.65	15.27	0.300	7.62	4.65	15.27	0.600	15.24	8.44	27.67	0.488	11.13	6.50	2130
3 1/2"	4.000	1016	-	-	-	-	0.237	5.74	4.14	13.57	0.237	5.74	4.14	13.57	0.318	8.08	5.68	18.63	0.318	8.08	5.68	18.63	-	-	-	-	-	-	-	-
4"	4.500	1143	-	-	-	-	0.258	6.02	4.90	16.07	0.257	6.02	4.90	16.07	0.337	8.56	6.60	22.31	0.337	8.56	6.60	22.31	0.674	17.12	12.50	41.02	0.531	13.49	10.22	3357
5"	5.563	1413	-	-	-	-	0.280	6.55	6.64	21.78	0.258	6.55	6.64	21.78	0.375	9.53	9.45	31.0	0.375	9.53	9.45	31.0	0.750	19.05	17.50	57.42	0.625	15.88	14.96	46.09
6"	6.625	1683	-	-	-	-	0.322	7.11	8.61	28.26	0.280	7.11	8.61	28.26	0.482	10.97	12.97	42.56	0.482	10.97	12.97	42.56	0.864	21.95	24.13	79.2	0.719	18.26	20.59	67.53
8"	8.625	219.1	0.250	6.35	1015	3331	0.365	8.18	12.97	42.55	0.322	8.18	12.97	42.55	0.500	12.7	18.70	64.64	0.500	12.7	18.70	64.64	0.875	22.23	32.89	107.9	0.906	23.01	33.92	111.30
10"	10.750	273.0	0.250	6.35	1273	4175	0.375	9.27	18.28	60.79	0.365	9.27	18.38	60.79	0.500	12.7	24.85	81.57	0.584	15.09	29.25	95.97	1.000	25.4	47.27	155.1	1.125	28.58	52.52	172.30
12"	12.750	323.8	0.250	6.35	1515	4971	0.375	9.53	22.51	73.86	0.406	10.31	24.29	79.70	0.500	12.7	29.70	97.43	0.688	17.48	40.23	132.0	1.000	25.4	56.97	186.9	1.312	33.32	72.76	238.70
14"	14.000	355.6	0.312	7.92	2070	6790	0.375	9.53	24.79	81.33	0.438	11.31	28.87	94.55	0.500	12.7	32.74	107.4	0.750	19.05	48.19	158.1	-	-	-	-	1.406	35.71	85.9	261.75
16"	16.000	406.4	0.312	7.92	2372	7783	0.375	9.53	28.43	93.27	0.500	12.7	37.58	123.3	0.500	12.7	37.58	123.3	0.844	21.44	62.03	203.5	-	-	-	-	1.594	40.49	111.4	365.40
18"	18.000	457.2	0.312	7.92	2675	8775	0.375	9.53	32.06	105.2	0.562	14.27	47.52	155.9	0.500	12.7	42.43	139.2	0.988	23.83	77.63	254.7	-	-	-	-	1.781	45.24	140.3	469.60
20"	20.000	508.0	0.375	9.53	3569	117.1	0.375	9.53	35.69	117.1	0.584	15.09	55.90	184.4	0.500	12.7	47.27	155.1	0.081	26.19	94.85	311.2	-	-	-	-	1.969	50.01	172.2	564.87
24"	24.000	609.6	0.375	9.53	4298	141.0	0.375	9.53	42.98	141.0	0.688	17.48	77.78	255.2	0.500	12.7	56.97	186.3	1.219	30.96	134.66	441.8	-	-	-	-	2.344	59.54	246.2	807.90

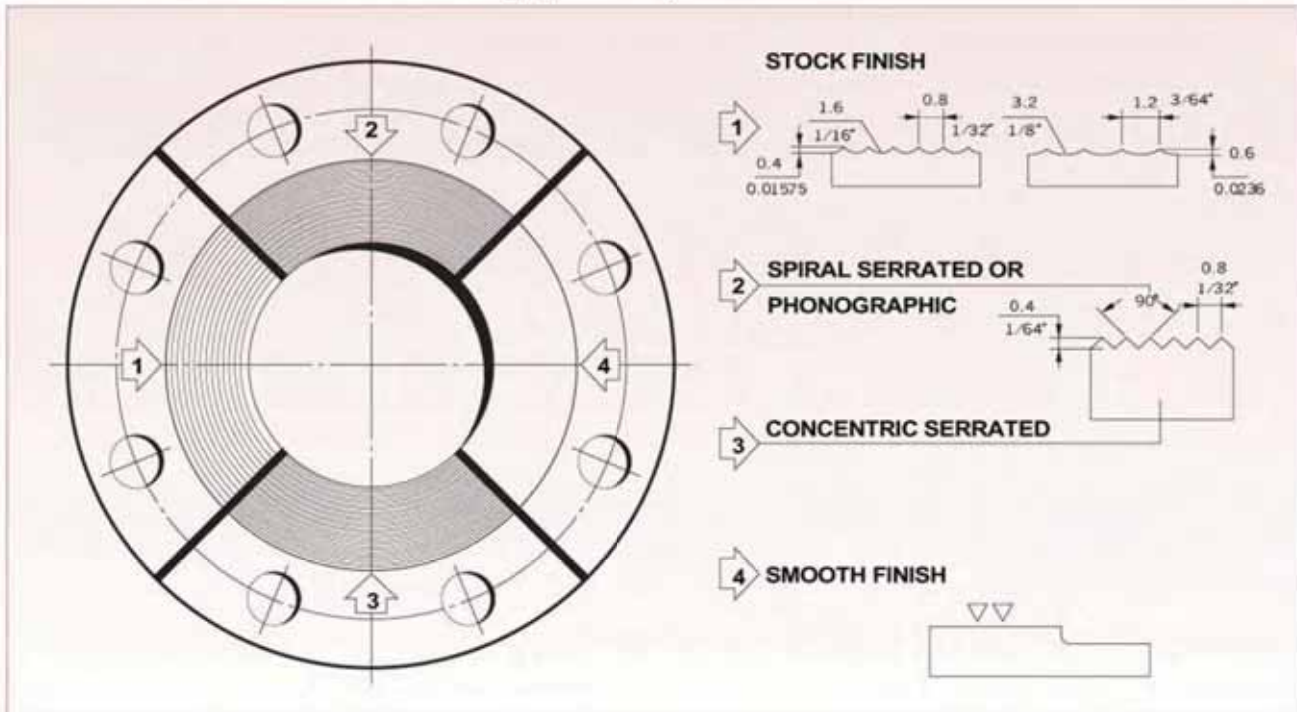
FLANGE FACING FINISH

6.4.4 Flange Facing. The finish of contact faces of pipe flanges and connecting end flanges of fittings shall be judged by visual comparison with standards (see ANSI/ASME B46.1) and not by instruments having stylus tracers and electronic amplification. The finishes required are given below. Other finishes may be furnished by agreement between user and manufacturer.

6.4.4.1 Raised Face Large Male and Female.

Either a serrated concentric or serrated spiral finish having from 24 grooves/in. to 40 grooves/in. shall be used. The cutting tool employed shall have an approximate 0.06 in. or larger radius. The resultant surface finish shall have a 125 in. to 500 in. roughness.

STANDARD FINISHES for Face of Flange(MSS SP6)



STOCK FINISH: The most widely used of any gasket finish, because, practically, is suitable for all ordinary service conditions. This is a continuous spiral groove. Flanges sizes 12" and smaller, are produced with a 1/16" round-nosed tool at a feed of 1/32" per revolution. For sizes 14" and larger, the finish is made with 1/8" round-nosed tool at a feed of 3/64" per revolution.

SPIRAL SERRATED OF PHONOGRAPHIC: This finish is produced by using a 90° included-angle (<V) tool, making a spiral groove 1/64" deep with a feed of 1/32".

CONCENTRIC SERRATED: This finish is produced by using a 90° included-angle (<V) tool, making concentric groove 1/64" deep and 1/32" apart.

SMOOTH FINISH: This finish is produced by several shapes of tools cutting at speeds and feeds which leave no definite tool marks apparent to the naked eye.

1. RAISED FACE, AND LARGE MALE AND FEMALE

Either a serrated-concentric or serrated-spiral finish having from 24 to 40 grooves per inch is used.

The cutting tool employed has an approximate 0.06 in. or larger radius. The resultant surface finish has a 500 micro inch (12.5 μm) approximate roughness.

2. TONGUE AND GROOVE, AND SMALL MALE AND FEMALE

The gasket contact surface does not exceed 125 micro inch (3.2 μm) roughness.

3. RING JOINT

The inside wall surface of gasket groove does not exceed 63 micro inch (1.6 μm) roughness.

4. BLIND

Blind flanges need not be faced in the center if, when this center part is raised, its diameter is at least 1 in.

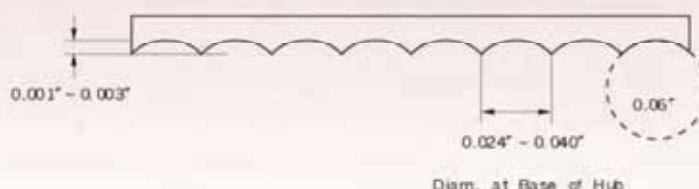
smaller than the inside diameter of fittings of the corresponding pressure class. When the center part is depressed, its diameter greater than the inside diameter of the corresponding pressure class fittings. Machining of the depressed center is not require

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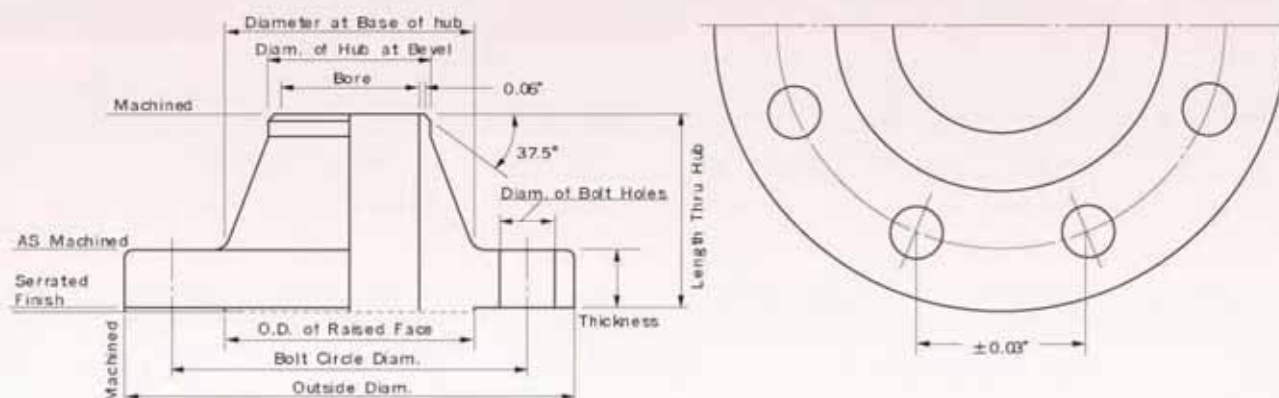
FINISH & TOLERANCE

1. Standard Finishes for Contact Face of Flanges

the flange face shall have a serrated finish consisting of 20 to 40 grooves per inch, 0.002 in. to 0.005 in. deep, cut spirally or concentrically with a round-nose tool.



2. Dimensional tolerances for API 605 flanges

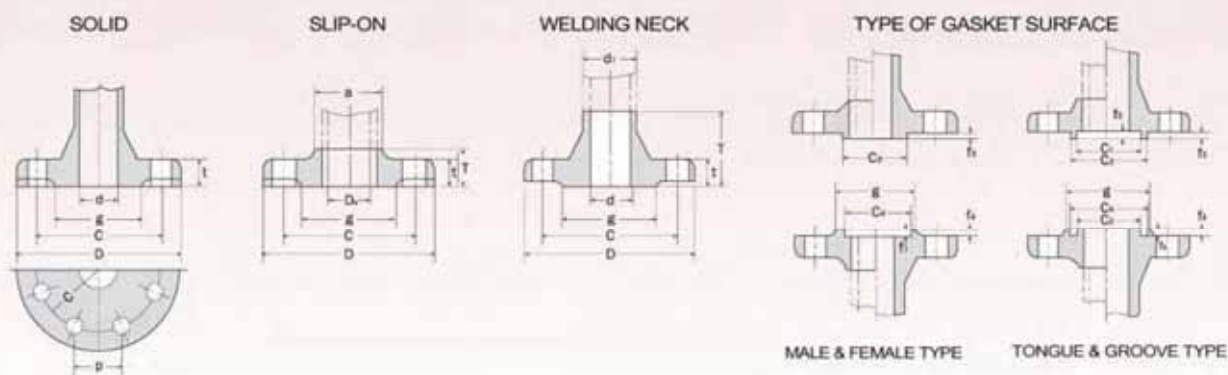


Dimension	Tolerance
Outside diameter of raised face	± 0.03 "
Flange thickness	± 0.19 " , -0 "
Length thru hub	± 0.12 "
Diam. of hub at bevel	$+0.16$ " , -0.03 "
Bolt circle diameter	± 0.06 "
Center-to-center of adjacent bolt holes	± 0.03 "
Bore	$+0.12$ " , -0.06 "
Outside diameter	± 0.12 " *
Diameter at base of hub	± 0.12 " *

Notes:

- (1) Flanges shall have bearing surfaces for bolting that are parallel to the flange face within 1 degree. any back facing or spot facing required to accomplish parallelism between the flange face and nut bearing surface on the back of the flange shall not reduce the flange thickness.
- (2) Tolerances for the welding end of a welding neck flange shall be in accordance with ANSI B16.25.
- (3) Other tolerances than specified the table shall be in accordance with ANSI B16.5.
- (4) The flange shall be either back-faced or spot-faced at the bolt-holes on the flange back if the nut bearing surface at the back of the flange is not parallel with the flange face within the tolerances listed in note(1), if the fillet at the hub interferes with the nut bearing surface or if the flange thickness exceeds the minimum required thickness by more than 0.19 inch(4.8 millimeters). the nut bearing surface is the spot-facing diameter at the bolt-holes as given in MSS SP-9. spot-facing shall be in accordance with MSS SP-9
- (5) Tolerances marked * are not covered in API 605.

COMPARISON LIST FOR CASTING&FORGING



(Unit: mm)

Flange Section	Surface Condition	Basic Size	Dimensional Tolerance
Outside Dia D	As Forged (1)	300 & below	+Not Specified
		over 300 thru 600	-2.0
		over 600 thru 1000	-2.0
		over 1000 thru 1500	+Not Specified
		over 1500	-3.0
	Finish	300 & below	± 1
		over 300 thru 600	± 1.5
		over 600 thru 1000	± 2
		over 1000 thru 1500	± 2.5
Inside Dia D	Solid Flange d(2)	16 & below	± 1
		over 16 thru 63	± 1.5
		over 63 thru 125	± 2
		over 125 thru 150	± 2.5
		over 250 thru 500	± 3
		over 500 thru 1000	± 4
	Slip-on Flange d ₀	100 & below	± 0.5
		over 100 thru 400	± 1
		over 400 thru 600	± 1.5
		over 600 thru 800	± 2
		over 800 thru 1000	± 2.5
		over 1000	± 3
	Finish	100 & below	± 0.5
		over 100 thru 400	± 1
		over 400 thru 600	± 1.5
		over 600 thru 800	± 2
		over 800 thru 1000	± 2.5
		over 1000	± 3
Bolt Hole	Bolt Circle Dia. C	2500 & below	± 0.5
		over 250 thru 550	± 0.6
		over 550 thru 950	± 0.8
		over 950 thru 1350	± 1
		over 1350	± 1.5

Flange Section	Surface Condition	Basic Size	Dimensional Tolerance
Bolt Hole	Pitch of Hole p	Drilling Hole	± 0.5
		220 & below	± 0.2
		over 220 thru 450	± 0.3
		over 450 thru 650	± 0.4
		over 650 thru 850	± 0.5
		over 850 thru 1000	± 0.6
	Slip-on Flange (a) and Welding Neck Flange (d ₁)	As Forged	220 & below
		over 220 thru 450	± 0.3
		over 450 thru 650	± 0.4
		over 650 thru 850	± 0.5
		over 850 thru 1000	± 0.6
		over 1000	± 0.8
Gasket Seat	C1, C2, C3, C4	Finish	500 & below
		over 500 thru 1000	± 0.35
		over 1000 thru 1500	± 0.4
		over 1500	± 0.5
	f ₁	Finish	8 & below
		over 8	± 0.25
	g	Finish	200 & below
		over 200 thru 650	± 0.9
		over 650 thru 1000	± 1
		over 1000	± 1.2
Thickness t	One-side Finish	20 & below	± 1.5
		over 20 thru 50	± 2
		over 50 thru 100	± 3
	Both-side Finish	20 & below	± 1
		over 20 thru 50	± 1.5
		over 50 thru 100	± 2
Hub Height T	Flange with Pipe inserted	Finish	50 & below
		over 50 thru 100	± 1.5
	Flange with But-welded Pipe	Finish	over 100 thru 200
		over 200 & below	± 2
		over 200 thru 300	± 3

Note

- (1) This dimensional tolerance applies to the machined surface, as required.
- (2) This dimension "d" has been specified only for the flange, of which the bore part is cylindrical in shape.

Remarks

- (1) The dimensions "d" of bore part of the solid flanges with surface, as forged of valves, pumps, etc. are allowed up to plus 100% required thickness shall be free from its influence.
- (2) The thickness of flange of valve and the like, of which the dimension between flange faces is limited to a fixed value, are all the column of thickness.
- (3) In the case of spot facing of the single surface finishing, the thickness of spot facing is allowed up to 70% of the dimensional t
- (4) The chain double-dashed lines in the figures of solid flange and socket welding type flange illustrate the cases of large r

of the above dimensional tolerance. Provided that the

owed up to plus 100% of the above dimensional tolerance in

olerance in the above column of thickness in negative side. raised face flange.

HYDROSTATIC TEST PRESSURES

Material			Test pressure by classes																											
Group No	Forging	Casting	150				300				600				900				1500				2500				4500			
			Shell		Seat/ Backseat		Shell		Seat/ Backseat		Shell		Seat/ Backseat		Shell		Seat/ Backseat		Shell		Seat/ Backseat		Shell		Seat/ Backseat		Shell		Seat/ Backseat	
			kg/cm ²	psi	kg/cm ²	psi	kg/cm ²	psi	kg/cm ²	psi	kg/cm ²	psi	kg/cm ²	psi	kg/cm ²	psi	kg/cm ²	psi	kg/cm ²	psi	kg/cm ²	psi	kg/cm ²	psi	kg/cm ²	psi	kg/cm ²	psi	kg/cm ²	psi
	A105																													
1.1		A216-WCB A350-LF2	32.0	460	23.0	325	79.5	1125	58.5	825	158.5	2225	116.5	1650	236.0	3350	172.5	2450	392.0	5515	288.5	4100	652.5	9375	478.5	6800	1172.5	16675	860.0	12225
1.2		A128WCC A350-LF3 A352-LC2 A352-LC3	32.0	460	23.0	325	79.5	1125	58.5	825	158.5	2250	116.5	1650	237.5	3375	174.5	2475	395.5	5625	290.5	4125	659.5	9375	483.5	6875	1186.5	16875	870.5	12375
1.3		A352-LCB	28.5	400	21.5	300	74.5	1050	54.5	775	148.0	2100	109.0	1550	221.5	3150	182.0	2300	367.5	5225	269.0	3825	612.0	8100	448.5	6375	1099.0	15625	806.5	11470
1.4		A350-LF1	26.5	375	19.5	275	67.0	950	49.5	700	133.0	1875	97.0	1375	195.5	2275	144.5	2050	327.0	4650	239.5	3400	543.5	7125	399.5	5675	977.5	13900	717.5	10200
		A217-WC1																												
1.5		A182-F1 A352-LC1	28.5	400	21.5	300	74.5	1050	54.5	775	148.0	2100	109.0	1550	221.5	3150	182.0	2300	367.5	5225	269.0	3825	612.0	8700	448.5	6375	1099.0	15625	806.5	11470
1.7		A217-WC4 A182-F2 A217-WC5	32.0	460	23.0	325	79.5	1125	58.5	825	158.5	2250	116.5	1650	237.5	3375	174.5	2475	395.5	5625	290.5	4125	659.5	9375	483.5	6875	1186.5	16875	870.5	12375
1.9		A182-F12 A217-WC6 A182-F11	32.0	460	23.0	325	79.5	1125	58.5	825	158.5	2250	116.5	1650	237.5	3375	174.5	2475	395.5	5625	290.5	4125	659.5	9375	483.5	6875	1186.5	16875	870.5	12375
1.10		A182-F22 A217-WC9	32.0	460	23.0	325	79.5	1125	58.5	825	158.5	2250	116.5	1650	237.5	3375	174.5	2475	395.5	5625	290.5	4125	659.5	9375	483.5	6875	1186.5	16875	870.5	12375
1.11		A182-F21	32.0	460	23.0	325	79.5	1125	58.5	825	158.5	2250	116.5	1650	237.5	3375	174.5	2475	395.5	5625	290.5	4125	659.5	9375	483.5	6875	1186.5	16875	870.5	12375
1.13		A182-F5a A217-C5	32.0	460	23.0	325	79.5	1125	58.5	825	158.5	2250	116.5	1650	237.5	3375	174.5	2475	395.5	5625	290.5	4125	659.5	9375	483.5	6875	1186.5	16875	870.5	12375
1.14		A182-F9 A217-C12	32.0	460	23.0	325	79.5	1125	58.5	825	158.5	2250	116.5	1650	237.5	3375	174.5	2475	395.5	5625	290.5	4125	659.5	9375	483.5	6875	1186.5	16875	870.5	12375
2.1		A182-F304 A351-CF3 A182-F304H A351-CF8	30.0	425	23.0	325	77.5	1100	56.5	800	153.0	2175	112.5	1600	229.0	3250	169.0	2400	380.0	5400	279.5	3975	633.0	9000	464.5	6600	1139.5	16200	837.0	11900
2.2		A351-CF3A A182-F316 A351-CF8A A182-F316H A351-CF3M A351-CF8M	30.0	425	23.0	325	77.5	1100	56.5	800	153.0	2175	112.5	1600	229.0	3250	169.0	2400	380.0	5400	279.5	3975	633.0	9000	464.5	6600	1139.5	16200	837.0	11900
2.3		A182-F304L A182-F316L	25.0	350	19.5	275	63.5	900	49.5	675	127.0	1800	93.5	1325	190.0	2700	141.0	2000	316.5	4500	232.5	3300	527.5	7500	387.0	5500	949.5	13500	696.5	9900
2.4		A182-F321 A182-F321H	30.0	425	23.0	325	77.5	1100	56.5	800	153.0	2175	112.5	1600	229.0	3250	169.0	2400	380.0	5400	279.5	3975	633.0	9000	464.5	6600	1139.5	16200	837.0	11900
2.5		A182-F347 A182-F347H A351-CF8C A182-F348 A182-F348H	30.0	425	23.0	325	77.5	1100	56.5	800	153.0	2175	112.5	1600	229.0	3250	169.0	2400	380.0	5400	279.5	3975	633.0	9000	464.5	6600	1139.5	16200	837.0	11900
2.6		A351-CH20 A351-CH20	28.5	400	21.5	300	72.5	1025	53.0	750	143.0	2025	106.0	1500	213.5	3025	157.0	2225	356.0	5050	261.0	3700	562.0	8400	435.0	6175	1065.5	15125	782.0	11100
2.7		A182-F310 A351-CH20	28.5	400	21.5	300	72.5	1025	53.0	750	143.0	2025	106.0	1500	213.5	3025	157.0	2225	356.0	5050	261.0	3700	562.0	8400	435.0	6175	1065.5	15125	782.0	11100

PRESSURE-TAMPERATURE RATINGS

(Lbs./sq. in.)

CLASS		150	300	600	800	1500	800										1500																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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(a) Permissible, but not recommended for prolonged usage above 426°C. (b) A350-LF2 is suitable down to -45°C at -29°F at pressure ratings. Do not use A350-LF2 above 399°C.

(c) Permissible, but not recommended for prolonged usage above 593°C.

CONVERSION TABLES

STRESS

1N/m²=1MPa

kgf/cm ²	kgf/cm ²	lbf/in ²	Pa	MPa (x10 ⁶)
1	1 x 10 ²	2.048 x 10 ¹	9.80665 x 10 ⁴	9.80665
1 x 10 ⁻¹	1	2.048 x 10 ¹	9.80665 x 10 ⁴	9.80665 x 10 ⁻¹
4.882 x 10 ⁻⁴	4.882 x 10 ⁻¹	1	4.786 x 10 ¹	4.786 x 10 ⁻⁴
1.01972 x 10 ⁻⁴	1.01972 x 10 ⁻¹	2.089 x 10 ⁻¹	1	1 x 10 ⁻⁴
1.0972 x 10 ⁻¹	1.01972 x 10 ¹	2.089 x 10 ¹	1 x 10 ⁴	1

LENGTH

m	cm	in	ft	yd	km	mile	Nautical mile
1	100	39.37	3.281	1.094	1	0.6214	0.5400
0.01	1	0.3937	0.032 81	0.010 94	1.609	1	0.8690
0.0254	2.510	1	0.083 33	0.027 78	1.852	1.151	1
0.3048	30.48	12	1	0.333 3			
0.9144	91.44	36	3	1			

KINEMATIC VISCOSITY

1Stk=1cSt

cm ² /s	ft ² /s	cSt	St
1	1.076 x 10 ⁻¹	1 x 10 ²	1 x 10 ⁻¹
9.290 x 10 ⁻¹	1	9.2900 x 10 ¹	9.290 x 10 ⁻¹
1 x 10 ⁻¹	1.076 x 10 ⁻¹	1	1 x 10 ⁻¹
1 x 10 ⁻⁴	1.076 x 10 ⁻⁴	1 x 10 ⁻¹	1

AREA

cm ²	m ²	ft ²	yd ²	km ²	acre	mile ²	ha
1	1550	10.76	1.196	1	247.1	0.386 1	100
6.452 x 10 ⁻⁴	1	6.944 x 10 ⁻¹	7.716 x 10 ⁻¹	4.047 x 10 ⁻¹	1	1.562 x 10 ⁻¹	0.4047
0.09290	144	1	0.1111	2.590	640	1	259.0
0.8361	1296	9	1	0.01	2.471	3.861 x 10 ⁻¹	1

VOLUME

cm ³	in ³	ft ³	yd ³	dm ³	gal(British)	gal(U.S.)	l
1	61.024	35.31	1.308	1	0.220 0	0.264 2	61.02
1.639 x 10 ⁻³	1	5.787 x 10 ⁻⁴	2.143 x 10 ⁻⁴	4.546	1	1.201	277.4
0.02832	1.728	1	0.03704	3.785	0.832 7	1	231
0.7646	46.656	27	1	0.016 39	3.605 x 10 ⁻⁴	4.329 x 10 ⁻⁴	1

PRESSURE

Mpa	kgf/cm ²	lbf/in ²	atm	mmHg	inHg	mH ₂ O	ftH ₂ O
1	10.20	145.0	9.869	7.501	295.3	102.0	334.6
0.098 07	1	14.22	0.967 8	0.735 6	28.96	10	32.61
0.006 895	0.070 31	1	0.068 05	0.051 71	2.036	0.703 1	2.307
0.101 3	1.033	14.70	1	0.76	29.92	10.33	33.90
0.133 3	1.360	19.34	1.316	1	39.37	13.60	44.60
0.003 386	0.034 53	0.491 2	0.033 42	0.025 4	1	0.345 3	1.133
0.009 806	0.1	1.422	0.098 78	0.073 55	2.896	1	3.281
0.002 989	0.030 48	0.433 5	0.029 50	0.022 42	0.882 7	0.304 8	1

VISCOSITY

Poise-g/cm ² s (CGS UNIT)	centipoise cP	kg/m ² s	kg/m ² s	lbf ² s
1	100	0.1	360	0.0672
0.01	1	0.001	3.6	0.000672
10	1000.0	1	3600.0	0.672
0.00278	0.278	0.0.278	1	0.000187
14.88	1488.0	1.488	5356.8	1

POWER

KW	PS	HP(British)	kgf-m/s	ft-lbf/s	Kcal/s	BTU/s(British)
1	1.360	1.340	102.0	737.6	0.238 9	0.918 0
0.735 5	1	0.985 9	75	542.5	0.175 7	0.697 3
0.746	1.014	1	76.07	550.2	0.178 2	0.707 2
0.009 807	0.013 33	0.013 15	1	7.233	0.002 343	0.009 297
0.001 356	0.001 843	0.001 817	0.138 3	1.0	0.003 239	0.001 285
4.186	5.691	5.611	426.9	3087.0	1	3.968
1.055	1.434	1.414	107.6	778.0	0.252 0	1

VELOCITY

m/s	km/h	in	ft/s	mi/h
1	3.6	1.944	3.281	2.237
0.277 8	1	0.540 0	0.911 3	0.621 4
0.514 4	151	1	1.688	1.151
0.304 8	1.097	0.592 5	1	0.681 8
0.447 0	1.609	0.869 0	1.467	1

FLOW

l/s	m ³ /h	m ³ /s	British gal/min	U.S. gal/min	ft ³ /h	ft ³ /s
1	3.6	0.001	13.197	15.8514	127.14	0.03532
0.2778	1	0.0.2778	3.6658	4.4032	35.317	0.09.801
1.000	3600.0	1	13197.0	15851.0	127150.0	35.3160
0.075775	0.27279	0.0.75775	1	1.2011	9.6342	0.0.2676
0.06309	0.2271	0.0.6304	0.8325	1	8.0208	0.0.2228
0.0.7865	0.02832	0.0.7865	0.1038	0.1247	1	0.0.2778
28.3153	101.935	0.02832	373.672	448.833	3600.0	1

ENERGY

1J=1Ws, 1Wh=3600Ws, 1cal=4.18605J

kgf-m	lbf-ft	J	kWh	cal
1	7.231	9.807	2.724 x 10 ⁻⁴	2.343 x 10 ³
1.383 x 10 ⁻¹	1	1.356	3.766 x 10 ⁻¹	3.239 x 10 ³
1.0197 x 10 ⁻¹	7.376 x 10 ⁻¹	1	2.778 x 10 ⁻¹	2.389 x 10 ³
3.671 x 10 ¹	2.665 x 10 ¹	3.600 x 10 ¹	1	8.600 x 10 ³
4.269 x 10 ¹	3.087 x 10 ¹	4.186 x 10 ¹	1.163 x 10 ¹	1

WEIGHT

kg	g	l(tonne)France	lb	British ton	U.S ton
0.001	1	0.0.1	0.002205	0.0.984	0.0.1102
1	1.000	0.001	2.2046	0.0.984	0.0.1102
1.000	1 x 10 ³	1	2.204.6	0.9842	1.1023
0.4536	453.6	0.0.4536	1	0.0.446	0.0.51
1.016.05	1.016.047	1.01605	2.240	1	1.12
907.185	907.185	0.90719	2.000	0.86289	1

DENSITY

1g/cm³=1t/m³

g/cm ³	kg/cm ³	lbf/in ³	lbf/ft ³	H.U.S. gal
1	1 x 10 ³	3.613 x 10 ²	6.243 x 10 ¹	8.345
1 x 10 ⁻¹	1	3.613 x 10 ²	6.243 x 10 ¹	8.345 x 10 ⁻¹
2.768 x 10 ⁻¹	2.768 x 10 ⁻¹	1	1.728 x 10 ¹	231
1.602 x 10 ⁻¹	1.602 x 10 ⁻¹	5.787 x 10 ⁻¹	1	1.337 x 10 ⁻¹
1.198 x 10 ⁻¹	1.198 x 10 ⁻¹	4.329 x 10 ⁻¹	7.481	1

FORCE

1dyn=10N

kgf	tf	N	dyn
1	2.205	9.80665	9.80665 x 10 ⁸
4.536 x 10 ⁻¹	1	4.44822	4.44822 x 10 ⁸
1.01972 x 10 ⁻¹	2.248 x 10 ⁻¹	1	1 x 10 ⁸
1.01972 x 10 ⁻⁴	2.248 x 10 ⁻⁴	1 x 10 ⁻¹	1

CORROSION RESISTANCE GUIDE

Fluid	Materials													
	Carbon Steel	Cast Iron	Type 302/304 Stainless Steel	Type 316 Stainless Steel	Bronze	Monel (B)	Hastelloy (B)	Hastelloy (C)	Durimet (D) 20	Titanium	Cobalt-Base Alloy 6	Type 416 Stainless Steel	Type 440c Hard Stainless Steel	17.4ph Hard Stainless Steel
Acetaldehyde	A	A	A	A	A	A	I.L.	A	A	I.L.	I.L.	A	A	A
Acetic acid, Air Free	C	C	B	B	B	B	A	A	A	A	A	C	C	B
Acetic Acid, Aerated	C	C	A	A	A	A	A	A	A	A	A	C	C	B
Acetic Acid, Vapors	C	C	A	A	B	B	I.L.	A	B	A	A	C	C	B
Acetone	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Acetylene	A	A	A	A	I.L.	A	A	A	A	I.L.	A	A	A	A
Alcohols	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Aluminum Sulfate	C	C	A	A	B	B	A	A	A	A	I.L.	C	C	I.L.
Ammonia	A	A	A	A	C	A	A	A	A	A	A	A	A	I.L.
Ammonium Chloride	C	C	B	B	B	B	A	A	A	A	B	C	C	I.L.
Ammonium Nitrate	A	C	A	A	C	C	A	A	A	A	A	C	B	I.L.
Ammonium Phosphate(Mono-basic)	C	C	A	A	B	B	A	A	B	A	A	B	B	I.L.
Ammonium Sulfate	C	C	B	A	B	A	A	A	A	A	A	C	C	I.L.
Ammonium Sulfite	C	C	A	A	C	C	I.L.	A	A	A	A	B	B	I.L.
Aniline	C	C	A	A	C	B	A	A	A	A	A	C	C	I.L.
Asphalt	A	A	A	A	A	A	A	A	A	I.L.	A	A	A	A
Beer	B	C	A	A	B	A	A	A	A	A	A	B	B	A
Benzene (Benzol)	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Benzoic Acid	C	C	A	A	A	A	I.L.	A	A	A	I.L.	A	A	A
Boric Acid	C	C	A	A	A	A	A	A	A	A	A	B	B	I.L.
Butane	A	A	A	A	A	A	A	A	A	I.L.	A	A	A	A
Calcium Chloride (Alkaline)	B	B	C	B	C	A	A	A	A	A	I.L.	C	C	I.L.
Calcium Hypochlorite	C	C	B	B	B	B	C	A	A	A	I.L.	C	C	I.L.
Carbolic Acid	B	B	A	A	A	A	A	A	A	A	A	I.L.	I.L.	I.L.
Carbon Dioxide, Dry	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Carbon Dioxide, Wet	C	C	A	A	B	A	A	A	A	A	A	A	A	A
Carbon Disulfide	A	A	A	A	C	B	A	A	A	A	A	B	B	I.L.
Carbon Tetrachloride	B	B	B	B	A	A	B	A	A	A	I.L.	C	A	I.L.
Carbonic acid	C	C	B	B	C	A	A	A	A	I.L.	I.L.	A	A	A
Chlorine Gas, Dry	A	A	B	B	C	A	A	A	A	C	B	C	C	C
Chlorine Gas, Wet	C	C	C	C	C	C	C	B	C	A	B	C	C	C
Chlorine, Liquid	C	C	C	C	B	C	C	A	B	C	B	C	C	C
Chromic Acid	C	C	C	B	C	A	C	A	C	A	B	C	C	C
Citric Acid	I.L.	C	B	A	A	B	A	A	A	A	I.L.	B	B	B
Coke Oven Gas	A	A	A	A	B	B	A	A	A	A	A	A	A	A
Copper Sulfate	C	C	B	B	B	C	I.L.	A	A	A	I.L.	A	A	A
Cottonseed Oil	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Creosote	A	A	A	A	C	A	A	A	A	I.L.	A	A	A	A
Ethane	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Ether	B	C	A	A	A	A	A	A	A	A	A	A	A	A
Ethyl Chloride	C	C	A	A	A	A	A	A	A	A	A	B	B	I.L.
Ethylene	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Ethylene Glycol	A	A	A	A	A	A	I.L.	I.L.	A	I.L.	A	A	A	A
Ferric Chloride	C	C	C	C	C	C	C	B	C	A	B	C	C	I.L.
Formaldehyde	B	B	A	A	A	A	A	A	A	A	A	A	A	A
Formic acid	I.L.	C	B	B	A	A	A	A	A	C	A	C	C	B
Freon, Wet	B	B	B	A	A	A	A	A	A	A	A	I.L.	I.L.	I.L.
Freon, Dry	B	B	A	A	A	A	A	A	A	A	A	I.L.	I.L.	I.L.
Furfural	A	A	A	A	A	A	A	A	A	A	A	B	B	I.L.
Gasoline, Refined	A	A	A	A	A	A	A	A	A	A	B	A	A	A
Glucose	A	A	A	A	A	A	A	A	A	A	B	A	A	A
Hydrochloric Acid, Aerated	C	C	C	C	C	C	A	B	C	C	B	C	C	C
Hydrochloric Acid, Air Free	C	C	C	C	C	C	A	B	C	C	I.L.	C	C	C
Hydrofluoric Acid, Aerated	B	C	C	B	C	C	A	A	B	C		C	C	C
Hydrofluoric Acid, Air Free	A	C	C	B	C	A	A	A	B	C		C	C	C

A-Recommended
B-Minor to moderate effect. Proceed with caution.
C-Unsatisfactory
I.L.-In formation lacking

Note: Ratings are based on media at ambient temperature unless otherwise specified.
These ratings should be used as a general guide only.

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Fluid	Materials													
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Hydrogen	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Hydrogen Peroxide	I.L.	A	A	A	C	A	B	B	A	A	I.L.	B	B	I.L.
Hydrogen Sulfide, Liquid	C	C	A	A	C	C	A	A	B	A	A	C	C	I.L.
Magnesium Hydroxide	A	A	A	A	B	A	A	A	A	A	A	A	A	I.L.
Mercury	A	A	A	A	C	B	A	A	A	A	A	A	A	B
Methanol	A	A	A	A	A	A	A	A	A	A	A	A	B	A
Methyl Ethyl Ketone	A	A	A	A	A	A	A	A	A	I.L.	A	A	A	A
Milk	C	C	A	A	A	A	A	A	A	A	A	C	C	C
Natural Gas	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Nitric Acid	C	C	A	B	C	C	C	B	A	A	C	C	C	B
Oleic Acid	C	C	A	A	B	A	A	A	A	A	A	A	A	I.L.
Oxalic Acid	C	C	B	B	B	B	A	A	A	B	B	B	B	I.L.
Oxygen	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Petroleum Oils, Refined	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Phosphoric Acid, Aerated	C	C	A	A	C	C	A	A	A	B	A	C	C	C
Phosphoric Acid, Air Free	C	C	A	A	C	B	A	A	A	B	A	C	C	C
Phosphoric Acid Vapors	C	C	B	B	C	C	A	I.L.	A	B	C	C	C	C
Picric Acid	C	C	A	A	C	C	A	A	A	I.L.	I.L.	B	B	I.L.
Potassium Chloride	B	B	A	A	B	B	A	A	A	A	I.L.	C	C	I.L.
Potassium Hydroxide	B	B	A	A	B	A	A	A	A	A	I.L.	B	B	I.L.
Propane	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Rosin	B	B	A	A	A	A	A	A	A	I.L.	A	A	A	A
Silver Nitrate	C	C	A	A	C	C	A	A	A	A	B	B	B	I.L.
Sodium Acetate	A	A	B	A	A	A	A	A	A	A	A	A	A	A
Sodium Carbonate	A	A	A	A	A	A	A	A	A	A	A	B	B	A
Sodium Chloride	C	C	B	B	A	A	A	A	A	A	A	B	B	B
Sodium Chromate	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Sodium Hydroxide	A	A	A	A	C	A	A	A	A	A	A	B	B	A
Sodium Hypochloride	C	C	C	C	B-C	B-C	C	A	B	A	I.L.	C	C	I.L.
Sodium Thiosulfate	C	C	A	A	C	C	A	A	A	A	I.L.	B	B	I.L.
Stannous Chloride	B	B	C	A	C	B	A	A	A	A	I.L.	C	C	I.L.
Stearic Acid	A	C	A	A	B	B	A	A	A	A	B	B	B	I.L.
Sulfate Liquor (black)	A	A	A	A	C	A	A	A	A	A	A	I.L.	I.L.	I.L.
Sulfur	A	A	A	A	C	A	A	A	A	A	A	A	A	A
Sulfur Dioxide, Dry	A	A	A	A	A	A	B	A	A	A	A	B	B	I.L.
Sulfur Trioxide, Dry	A	A	A	A	A	A	B	A	A	A	A	B	B	I.L.
Sulfuric Acid, Aerated	C	C	C	C	C	C	A	A	A	B	B	C	C	C
Sulfuric Acid, Air Free	C	C	C	C	B	B	A	A	A	B	B	C	C	C
Sulfurous Acid	C	C	B	B	B	C	A	A	A	A	B	C	C	I.L.
Tar	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Trichloroethylene	B	B	B	A	A	A	A	A	A	A	A	B	B	I.L.
Turpentine	B	B	A	A	A	B	A	A	A	A	A	A	A	A
Vinegar	C	C	A	A	B	A	A	A	A	I.L.	A	C	C	A
Water, Boiler Feed	B	C	A	A	C	A	A	A	A	A	A	B	A	A
Water, Distilled	A	A	A	A	A	A	A	A	A	A	A	B	B	I.L.
Water, Sea	B	B	B	B	A	A	A	A	A	A	A	C	C	A
Whiskey And Wines	C	C	A	A	A	B	A	A	A	A	A	C	C	I.L.
Zinc Chloride	C	C	C	C	C	C	A	A	A	A	B	C	C	I.L.
Zinc Sulfate	C	C	A	A	B	A	A	A	A	A	A	B	B	I.L.

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 C-Unsatisfactory
 I.L.-In formation lacking

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 These ratings should be used as a general guide only.

REFERENCE STANDARD & SPECIFICATION

ANSI STANDARDS-AMERICAN NATIONAL STANDARDS

B1.1	Unified Screw Threads
B2.1	Pipe Threads(Except Dryseal)
B16.1	Steel Pipe Flanges Flanged Fittings
B16.10	Face to face and End to-End Dimensions of Ferrous Valves
B16.11	Forged Steel Fittings Socket Welding and Threaded
B16.20	Ring-Joint Gaskets and Grooves for Steel Pipe Flanges
B16.21	Nonmetallic Gaskets for Pipe Flanges
B16.25	Buttwelding Ends
B16.34	Steel Valves Flanged and Buttwelding End
B18.21	Square and Hex Bolts and Screws
B18.22	Square and Hex Nuts
B31.1	Power Piping
B31.2	Fuel Gas Piping
B31.3	Chemical Plant and Petroleum Refining Piping
B31.4	Liquid Petroleum Transportation Piping Systems
B31.5	Refrigeration Piping Systems
B31.7	Nuclear Power Piping
B31.8	Gas Transmission and Distribution Piping Systems
B31.10	Wrought-Steel and Wrought-Iron Pipe

API STANDARDS-AMERICAN PETROLEUM INSTITUTE

6A	Specification for Wellhead Equipment
6D	Specification for Pipeline Valve
597	Steel Venturi Gate Valves, Flanged or Buttwelding End
598	Valve Inspection and Test
600	Steel Gate Valve, Flanged or Buttwelding Ends
602	Compact Steel Gate Valves
603	150-Lb, Light-Wall, Corrosion-Resistant Gate Valve for Refinery Use
605	Large Diameter Carbon Steel Flanges

MSS STANDARD PRACTICES-MANUFACTURES STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY.

SP-6	Finishes for Contact Faces of Connecting End-flanges of Ferrous Valves and Fittings
SP-9	Spot-Facing Standard
SP-25	Standard Making System for Valves, Fitting, Flanges and Unions
SP-42	150Lb Corrosion Resistant Cast Flanged Valves
SP-44	Steel Pipe Line Flanges
SP-45	Bypass and Drain Connection Standard
SP-53	Quality Standard for Steel Castings-Dry Particle Magnetic Inspection Method
Sp-54	Quality Standard for Steel Castings-Radiographic Inspection Method
Sp-55	Quality Standard for Steel Castings-Visual Method
SP-61	Hydrostatic Testing of Steel Valves
SP-67	Butterfly Valves
SP-81	Stainless Steel Knife Gate Valves
SP-82	Valve Pressure Testing Methods

GUIDE TO STORAGE, INSTALLATION & SERVICE

I. STORAGE

1. Dongkang valves are thoroughly cleaned to remove fluids, rust and other foreign materials after testing and before shipping.
2. Plastic covers are pressed firmly in both ends to keep the valves clean. Do not remove plastic covers until ready to install.
3. Valves should be stored in a suitably sheltered place to prevent contamination by weather, dirt or dampness. Valves will eventually rust unless treated with a light oil coating, when stored for long periods of time.

II. INSTALLATION

1. Make sure all piping and components are cleaned of dirt and foreign objects.
2. Install valves as indicated by the arrow forged on the valve body.
3. Install valves in a manner that will allow future service and ease of operation.
4. Use hangers to support the weight of the valve and piping properly.
5. Keep valves in a partially open position during the welding process. Valves should be fully closed again after the welding process is completed.

III. OPERATION

1. Valves are manually actuated by means of the handwheel-counterclockwise to open and clockwise to close.

2. Gate valves should be fully opened or fully closed.

Do not use gate valves in a throttling or modulating application.

3. Valves that do not require frequent opening and closing should have grease applied to the stem threads on a regular basis.

4. If a leakage starts in our valve, please follow this procedure.

- a) Do not apply extra force to close the valve.
- b) Open the valve fully, then close again. This usually away foreign materials on the seating surface.
- c) If leakage still continues, after flushings(Step b), disassemble the valve, clean the seating surface and reassemble the valve.

IV. ADJUSTING GLAND PACKING

1. When trying the valve for the time in the piping, it is recommended to adjust the gland packing by tightening the gland bolt nut. Tighten the gland packing uniformly so as to stop leakage. Over tightening can result in hard to turn the valve handwheel.
2. If tightening does not stop leakage around the stem, repacking should be considered at once.