



KOSDAQ
KOSDAQ Listed Company

			
API 6D	ISO 9001	BV (API 607)	CE 0036
AUTHORIZED COMPANY			



FLANGED & BUTT WELDING ENDS

CAST STEEL VALVES

Gate,
Globe &
Check Valves

 **HS VALVE CO., LTD**

HS VALVE will continue on self development....



INTRODUCTION

HS Valve Co.,Ltd. founded in 1987 with a mandate to become a world class manufacturer of Ball, Gate, Globe and Check Valves to meet the high standards of the Oil and Gas, Chemical and Refined Petroleum markets

HS Valve is committed to excellence and our in house quality controls are in accordance with ISO 9001 and we thoroughly inspect and test every valve to ensure only 100% quality products leave our factory.

We have our valves working throughout the World from the Middle East to Canada.

We look forward to working with you and the opportunity to earn your valued business.

Sincerely,

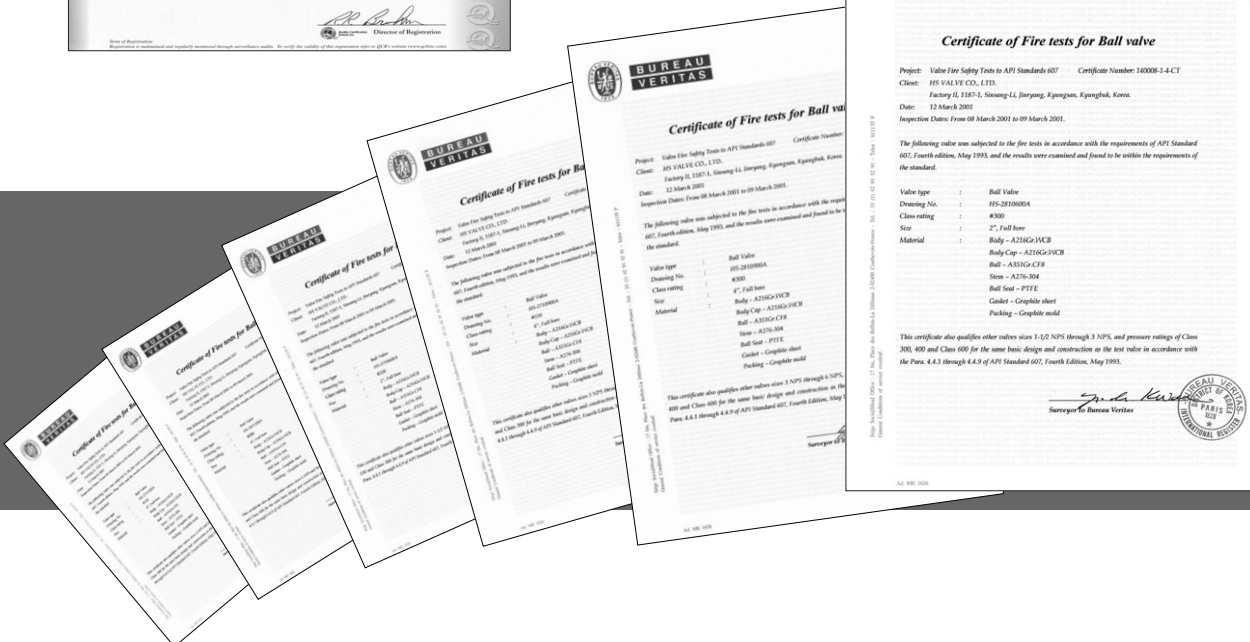
Won Gyu CHANG
President

A handwritten signature in black ink that reads "Won Gyu Chang". The signature is written in a cursive style with a large, sweeping flourish at the end.



COMPANY CERTIFICATES & PROFILE

- 1987. 3 Established HS Valve CO., Ltd.
- 1996. 7 Listed KOREAN STANDARD MARK 8759 (KS B 2308 Ball Valve Flange Type)
- 1996. 12 EM Mark Approval
- 1997. 6 Listed KOREAN STANDARD MARK 97-09-030 (KS B 2301 Bronze Valve)
- 1997. 11 Received President's Award
- 1998. 11 Started to manufacture Welded Ball Valve
- 1999. 3 Approved Certificate of ISO9001, API-6D
- 1999. 8 Listed KOREAN STANDARD MARK 97-09-030 (KS B 2301 Screw Type 10K Globe Valve)
- 1999. 9 Venture Enterprise
- 1999. 10 Received President's Award
- 1999. 11 Received Mayor's Award
- 2000. 1 KS B 2301 Screw Type 10K Swing Check Valve
- 2000. 3 Listed in KOSDAQ'
- 2000. 7 Started to manufacture PAN Check Valve
- 2000. 10 Started to manufacture Gas Filter
- 2001. 1 Listed KOREAN STANDARD MARK 01-1789 KS B 2361 Cast steel Flanged Type (10K, 20K Gate & Globe Valve)
- 2001. 3 Received Certificate of Fire Safety Tests for Ball valve-BUREAU VERITAS (Class 150#, 300# & 600#)



General Design Specification

Items	American Std	British Std
Shell wall thickness and general valve design specification	API 600 API 6D	BS 1414 (Gate valve) BS 1873 (Globe valve) BS 1868 (Check valve)
Pressure-temperature rating	ASME B 16 · 34	BS 1560
Face to face and end to end dimension	ASME B 16 · 10	BS 2080
End flange dimension Gasket contact facing	ASME B 16 · 5	BS 1560
Welding end dimension	ASME B 16 · 25	BS 1414 (Gate valve) BS 1873 (Globe valve) BS 1868 (Check valve)

- MSS SP 44 for 22" and 26" and larger, For end Flange dimension Refer page 22

Standard Product Range

Valve Type	ANSI Class	Design Standard	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"	Remark
			50 ^{mm}	65	80	100	125	150	200	250	300	
Gate	150	API 600 BS 1414	●	●	●	●	●	●	●	●	●	Requirement (14" to 40")
	300		●	●	●	●	●	●	●	●	●	Requirement (14" to 36")
	600		●	●	●	●	●	●	●	●	●	Requirement (8" to 24")
Globe	150	API 600 BS 1873	●	●	●	●	●	●	●	●	●	Requirement (10" to 18")
	300		●	●	●	●	●	●	●	●	●	Requirement (10" to 12")
	600		●	●	●	●	●	●	●	●	●	Requirement (5" to 12")
Check	150	API 6D BS 1868	●	●	●	●	●	●	●	●	●	Requirement (14" to 30")
	300		●	●	●	●	●	●	●	●	●	Requirement (14" to 30")
	600		●	●	●	●	●	●	●	●	●	Requirement (8" to 24")

- Standard Product Range (Stock Item)
 - Gate Valve Class 150, 300, 600(2" to 8") / WCB or LCC Nace
 - Globe Valve Class 150, 300, 600(2" to 8") / WCB or LCC Nace
 - Check Valve Class 150, 300, 600(2" to 8") / WCB or LCC Nace
- Special Order
- 2) The Standard Contact of end flange is RF Flange With Phono Finnish Isour Standard
- 3) Stock Item All Valves Hand operator type.
(Only Globe Class 600-6" Over Gear oper.)
- 4) For special Shell materials, Refer to "Valve shell material" on page 5

Valve Shell Materials

ASTM Specification	Material Designation	Hardness / NACE	Remarks
A 216 Gr WCB	High-Temperature cast carbon Steel	HRC 22 Max.	
A 352 Gr LCB	Low-Temperature cast carbon Steel	"	
LCC	"	"	
A 351 Gr CF8	Corrosion resistant cast steel	-	
CF8M	"	-	
A 105	High-Temperature Forged Steel	HRC 22 Max.	
A 350 Gr LF2	Low-Temperature Forged Steel	"	

- Besides its standard material ASTM A216-WCB, HS VALVE Cast steel valves are optionally available with the materials listed above.
- Refer to ASME B16 • 34 for detail of ASTM A216, 217 and 352 Pressure-temperature rating
The minimum working temperatures of ASTM A 352 are based on ASME B 31.3.

Bonnet Gasket Materials

Gasket Material	ANSI Class			Remark
	150	300	600	
Graphite Sheet	●	●		
Corrugated Metal	○			
Ring Joint		○	○	
Spiral wound Metal, Graphite Filled		○	●	

- : HS VALVE Standard
- : Option
- Various Optional Bonnet Gasket Materials Are Available

Gland Packing Materials

- Graphite Yarn or Grafoil Is Our standard Gland Packing
Various Optional Materials Are Available

HS Valve Figure Number

EX) Swing Check 600LB 4" Full Port, A352 LCC / NAC 316SS+HF Trim RF

1) Valve Type

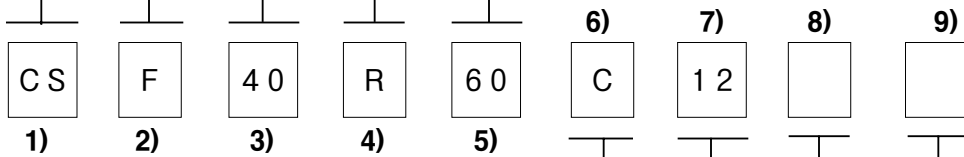
Code	Type
GA	Gate
GL	Globe
CP	Piston Check
CS	Swing Check

2) Port

Code	Type
F	Full Port
R	Regular Port

3) Size

Code	Size	Code	Size
02	1 / 4"	50	5"
03	3 / 8"	60	6"
05	1 / 2"	80	8"
07	3 / 4"	100	10"
10	1"	120	12"
12	1 1 / 4"	140	14"
15	1 1 / 2"	160	16"
20	2"	180	18"
25	2 1 / 2"	200	20"
30	3"	240	24"
40	4"		



6) Body Material

Code	Type
A	A105N
W	A216 WCB
F	A 350 LF2
C	A 352 LCC
Other Materials Available	

7) Trim

Code	Type
1	F6
2	304
3	F310
4	Hard F6
5	HF Seat & Wedge / Disc
6	F6 & Cu-Ni
7	F6 & Hard F6
8	F6 & HF Seats
9	Monel
10	316
11	Monel & HF Seats
12	316 & HF Seats
13	Alloy 20
14	Alloy 20 & HF Seats

Bolted Cover

4)End Connection

Code	Type
J	RTJ
R	RF
S	Threaded
W	Butt-Weld
40	Sch 40
80	Sch 80
XH	Extra Heavy
12	Sch 120
16	Sch 160
XX	DBL Extra Heavy

5)Pressure

Code	Pressure
01	150 ASNI
03	300 ASNI
06	600 ASNI
08	800 API
09	900 ASNI
15	1500 ASNI
25	2500 ASNI
A2	API 2000
A3	API 3000
A5	API 5000

8)Soft Seal Insert Seat / Clapper

Option Only Available For Swing Check Valves	
T	Teflon
V	Viton
B	Buna
S	Special

9)Options

Code	Type
A	Angle Pattern
BS	Bellow Seal
PS	Pressure Seal Body
SW	Seal Welded Body
FW	Full Penetration
	Welded Body
RT	RTJ Bonnet
G	Gear Operated

Customer Special

Materials Selection

Gate Vavles (150, 300, 600)

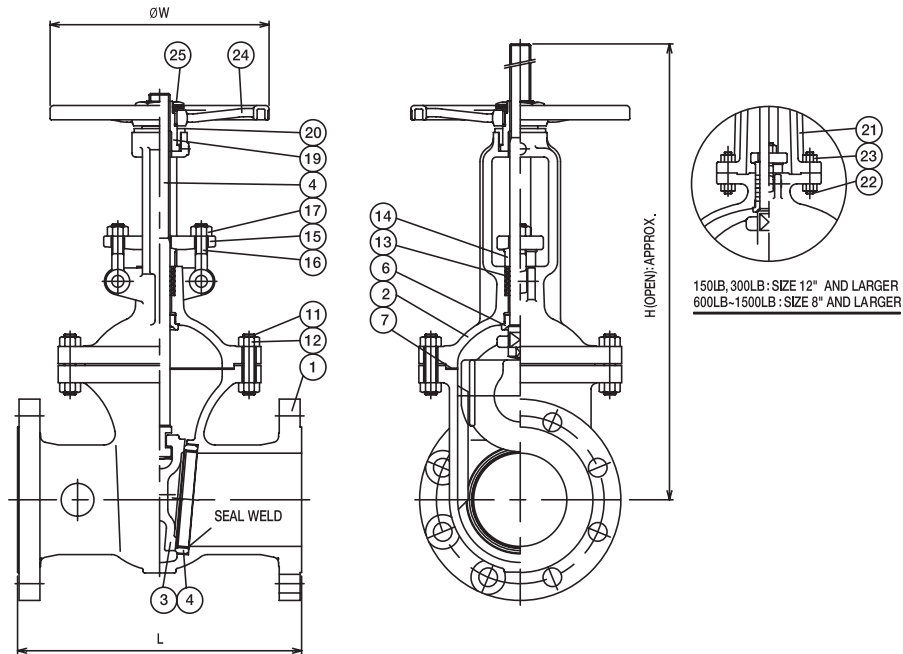


TABLE 1 : STANDARD MATERIAL

NO.	PART	STANDARD (Trim No.8)	CARBON STEEL (Trim No.12, NACE)	LOW TEMP' (-50°F) (Trim No.12,NACE)
1	BODY	A216 WCB	A216 WCB	A352 LCC
2	BONNET	A216 WCB	A216 WCB	A352 LCC
3	WEDGE	6" & BELLOW	A217 CA15	A351 CF8M
		8" & LARGER	A217 CA15(1)	A351 CF8M(2)
4	STEM	A276 410	A276 316	A276 316
5	SEAT RING	A182 F6+HF(4)	316+HF	
6	BACK SEAT	A276 410	A276 316	A276 316
7	GASKET	Graphite+316		
11	BONNET BOLT	A193 B7	A193 B7M	A320 L7M
12	BONNET NUT	A194 2H	A194 2HM	A194 7M
13	PACKING	Graphite + Grafoil		
14	PACKING GLAND	A276 410	A276 316	A276 316
15	GLAND FLANGE	A105 or A216 WCB		LF2 / LCC
16	GLAND BOLT	A193 B7	A193 B7M	A193 B8
17	GLAND NUT	A194 2H	A194 2HM	A194 8
19	YOKE SLEEVE		DUCTILE IRON	
20	SLEEVE GLAND	CARBON STEEL		
21	YOKE	SHELL MATERIAL		
22	YOKE BOLT	A193 B7	A193 B7M	A320 L7M
23	YOKE BOLT NUT	A194 2H	A194 2HM	A193 7M
24	HAND WHEEL	DUCTILE IRON		
25	WHEEL NUT	CARBON STEEL		

TABLE 2 : PRESSURE RATING

CLASS	PRESSURE@100°F	
	A216 WCB	A352 LCC
150	285 PSI	290 PSI
300	740 PSI	750 PSI
600	1480 PSI	1500 PSI

STANDARD APPLICABLE

* API 600, 598

* ASME B16.34, B16.10, B16.5, B16.25

NOTE

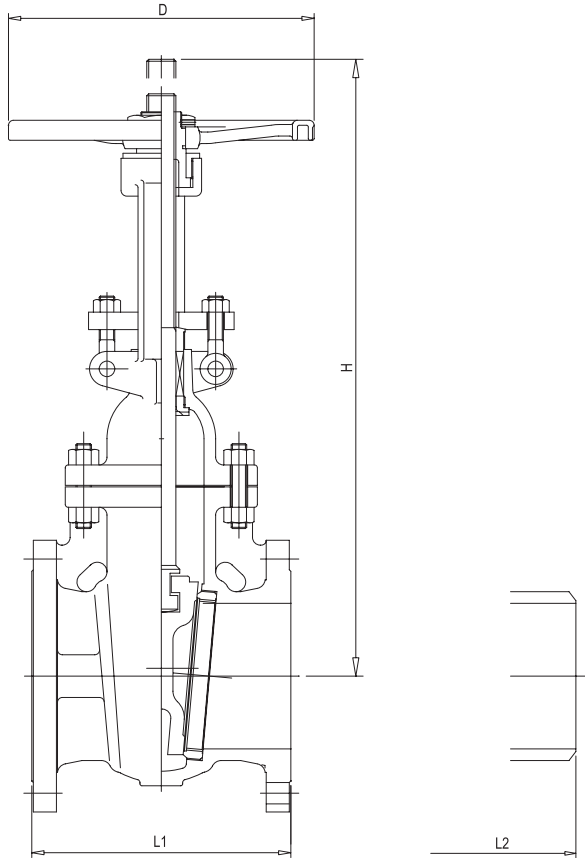
1. Option : A216 WCB+13Cr Faced

2. Option : A216 WCB + 316 Faced

3. Option : A352 LCC + 316 Faced

4. Option : SIZE 10" & Below : A106 + HF and
SIZE 12" & OVER : A576 1020 + HF

Class 150 Cast Steel Gate Valve

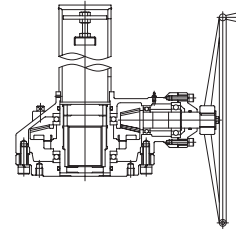


- Bolted bonnet
- Outside screw & yoke
- Rising stem
- Flexible disc

■ Description of Parts

Face to Face	ASME B16.10
Flange Dimension	ASME B16.5
Basic Design	API 600, BS1414
Test & Inspection	API 6D & 598

*Gear operation : 14" & over size



■ Dimensions

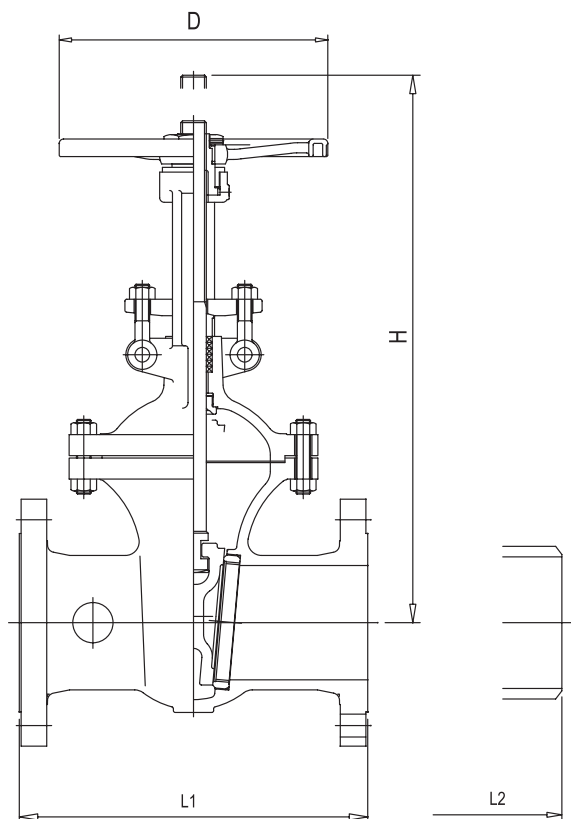
(mm)

Valve Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	28	30	32	34	36	40
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	700	750	800	850	900	1000
L 1 (face to face)	in	7.0	7.5	8.0	9.0	10.5	11.5	13.0	14.0	15.0	16.0	17.0	18.0	20.0	24.0	24.0	26.0	28.0	28.0	30.0
	mm	178	190	203	229	267	292	330	356	381	406	432	457	508	610	610	660	711	711	762
L 2 (end to end)	in	8.5	9.5	11.12	12.0	15.87	16.5	18.0	19.75	22.5	24.0	26.0	28.0	32.0	36.0	36.0	38.0	40.0	40.0	42.0
	mm	216	241	283	305	403	419	457	502	572	610	660	711	813	914	914	965	1016	1016	1067
*H (open)	in	16.3	17.1	18.4	22.2	30	37.8	50.6	58.3	60	66.9	74.6	83.5	1096	116.7	126.4	133.9	145.7	145.7	161.8
	mm	414	435	468	565	762	960	1285	1480	1523	1700	1895	2120	2784	2965	3210	3400	3560	3700	4109
*D (hand wheel)	in	7.9	7.9	9.8	9.8	11.8	13.8	15.7	17.7	19.7	19.7	24.8	24.8	31.5	31.5	31.5	35.4	35.4	35.4	35.4
	mm	200	200	250	250	300	350	400	450	500	500	630	630	800	800	800	900	900	900	900

* Specification is subject to change without prior notice due to improvements.

Class 300 Cast Steel Gate Valve

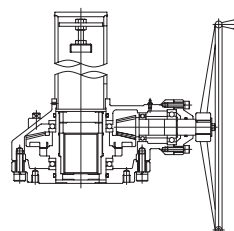
- Bolted bonnet
- Outside screw & yoke
- Rising stem
- Flexible disc



■ Description of Parts

Face to Face	ASME B16.10
Flange Dimension	ASME B16.5
Basic Design	API 600, BS1414
Test & Inspection	API 6D & 598

* Gear operation : 14" & over size

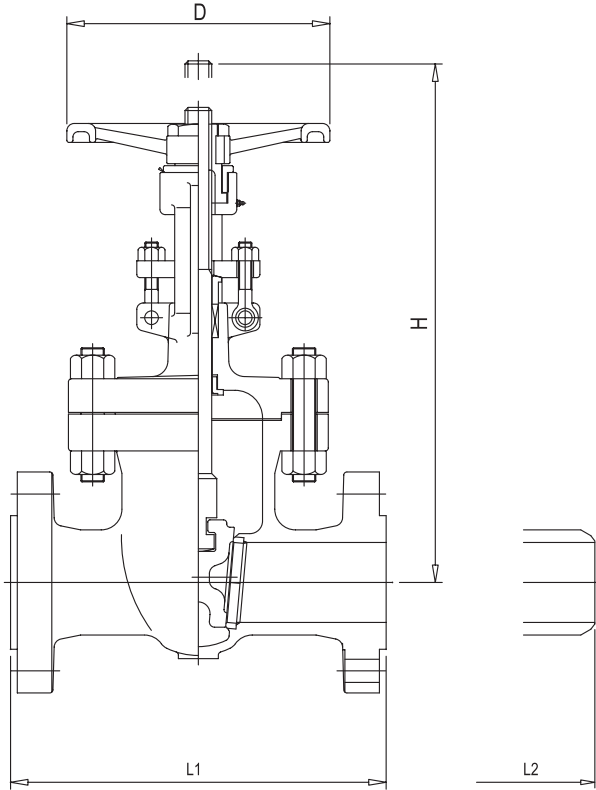


■ Dimensions

(mm)

Valve Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	28	30	32	34	36
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	700	750	800	850	900
L 1 (face to face)	in	8.5	9.5	11.125	12.0	15.75	16.5	18.0	19.75	30.0	33.0	36.0	39.0	45.0	53.0	55.0	60.0	64.0	68.0
	mm	216	241	283	305	403	419	457	502	762	838	914	991	1143	1346	1397	1524	1626	1727
L 2 (end to end)	in	8.5	9.5	11.125	12.0	15.875	16.5	18.0	19.75	30.0	33.0	36.0	39.0	45.0	53.0	55.0	60.0	64.0	68.0
	mm	216	241	283	305	403	419	457	502	762	838	914	991	1143	1346	1397	1524	1626	1727
*H (open)	in	17.52	18.9	20.27	24	30.78	39.37	48.1	56.3	60.4	66.65	75.2	84.45	99.2	122	123	135.8	142.1	149.6
	mm	445	480	515	610	782	1000	1222	1430	1535	1693	1910	2145	2520	3100	3300	3450	3610	3800
*D (hand wheel)	in	8.81	8.81	9.8	11.8	13.8	15.7	17.7	19.7	19.7	24.8	24.8	24.8	24.8	24.8	35.4	35.4	35.4	35.4
	mm	224	224	250	300	350	400	450	500	500	630	630	630	630	630	900	900	900	900

Class 600 Cast Steel Gate Valve

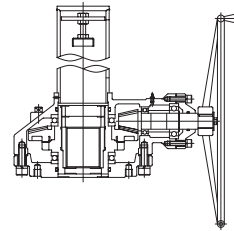


- Bolted bonnet
- Outside screw & yoke
- Rising stem
- Flexible disc

■ Description of Parts

Face to Face	ASME B16.10
Flange Dimension	ASME B16.5
Basic Design	API 600, BS1414
Test & Inspection	API 6D & 598

* Gear operation : 10" & over size



■ Dimensions

(mm)

Valve Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	22	24
	mm	50	65	80	100	150	200	250	300	350	400	450	500	550	600
L 1 (face to face)	in	11.5	13.0	14.0	17.0	22.0	26.0	31.0	33.0	35.0	39.0	43.0	47.0	51.0	55.0
	mm	292	330	356	432	559	660	787	838	889	991	1092	1194	1295	1397
L 2 (end to end)	in	11.5	13.0	14.0	17.0	22.0	26.0	31.0	33.0	35.0	39.0	43.0	47.0	51.0	55.0
	mm	292	330	356	432	559	660	787	838	889	991	1092	1194	1295	1397
*H (open)	in	18.1	19.25	20.8	25.7	36.6	42.4	50.2	58.7	63.5	70.9	82.7	88.6	98.4	107.5
	mm	460	489	530	654	930	1078	1274	1492	1614	1800	2100	2250	2500	2730
*D (hand wheel)	in	9.8	9.8	11.8	13.8	17.7	19.7	19.7	19.7	23.6	23.6	25.6	23.6	23.6	23.6
	mm	250	250	300	350	450	500	500	500	630	630	800	800	900	900

Materials Selection

Globe Valves(150, 300, 600)

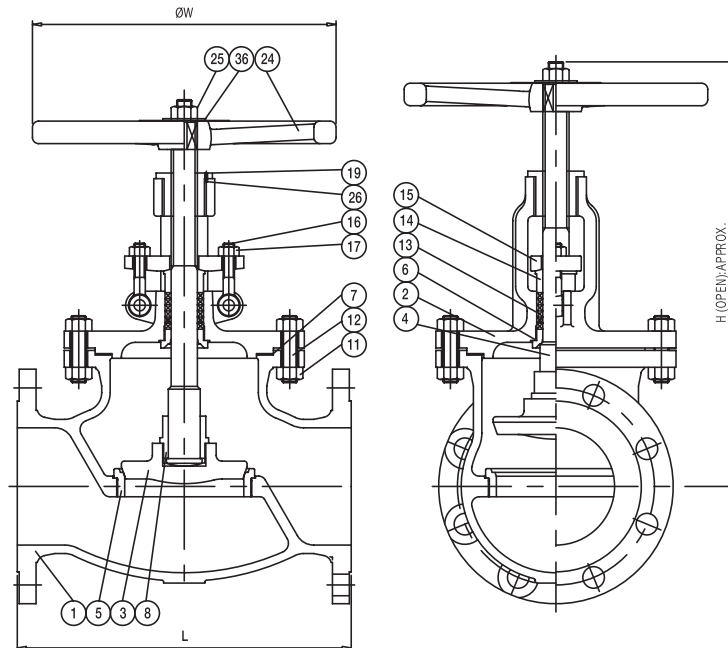


TABLE 1 : STANDARD MATERIAL

NO.	PART	STANDARD (Trim No.8)	CARBON STEEL (Trim No.12, NACE)	LOW TEMP' (-50°F) (Trim No.12,NACE)
1	BODY	A216 WCB	A216 WCB	A352 LCC
2	BONNET	A216 WCB	A216 WCB	A352 LCC
3	DISC	6" & BELLOW	A217 CA15	A351 CF8M
		8" & LARGER	A217 CA15(1)	A351 CF8M(2)
4	STEM	A276 410	A276 316	A276 316
5	SEAT RING	A182 F6+HF(4)	316+HF	
6	BACK SEAT	A276 410	A276 316	A276 316
7	GASKET	Graphite+316		
8	DISC NUT	A276 410	A276 316	A276 316
11	BONNET NUT	A194 2H	A194 2HM	A194 7M
12	BONNET BOLT	A193 B7	A193 B7N	A320 L7M
13	PACKING	Graphite + Grafoil		
14	PACKING GLAND	A276 410	A276 316	A276 316
15	GLAND FLANGE	A105 or A216 WCB		
16	GLAND BOLT	A193 B7	A193 B7M	A193 B8
17	GLAND NUT	A194 2H	A194 2HM	A194 8
19	YOKE BUSH	DUCTILE IRON		
24	HAND WHEEL	DUCTILE IRON		
25	WHEEL NUT	CARBON STEEL		
36	WASHER	CARBON STEEL		

TABLE 2 : PRESSURE RATING

CLASS	PRESSURE@100°F	
	A216 WCB	A352 LCC
150	285 PSI	290 PSI
300	740 PSI	750 PSI
600	1480 PSI	1500 PSI

STANDARD APPLICABLE

*API 598

*ASME B16.34, B16.10, B16.5, B16.25

*BS1873

NOTE

1. Option : A216 WCB+13Cr Faced

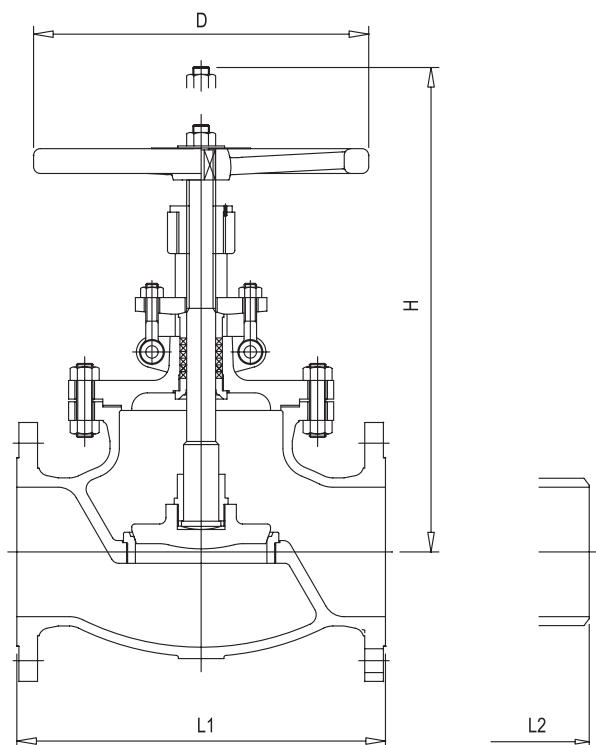
2. Option : A216 WCB + 316 Faced

3. Option : A352 LCC + 316 Faced

4. Option : A106 + HF

Class 150 Cast Steel Globe Valve

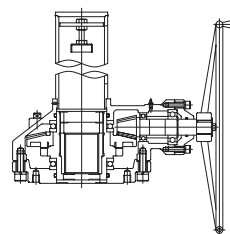
- Bolted bonnet
- Outside screw & yoke
- Rising stem
- Swivel disc



■ Description of Parts

Face to Face	ASME B16.10
Flange Dimension	ASME B16.5
Basic Design	API 600, BS 1873
Test & Inspection	API 6D & 598

* Gear operation or Hammer blow :
10" & over size



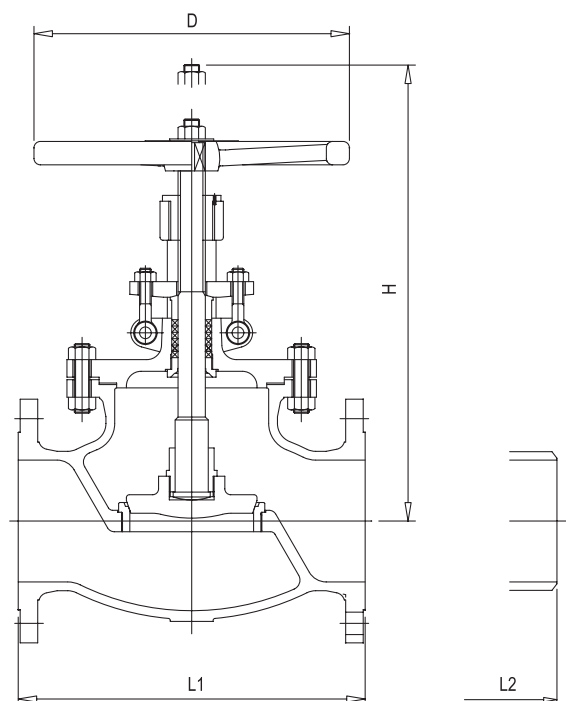
■ Dimensions

(mm)

Valve Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18
	mm	50	65	80	100	150	200	250	300	350	400	450
L 1 (face to face)	in	8.0	8.5	9.5	11.5	16.0	19.5	24.5	27.5	31.0	36.0	38.5
	mm	203	216	241	292	406	495	622	698	787	914	978
L 2 (end to end)	in	8.0	8.5	9.5	11.5	16.0	19.5	24.5	27.5	31.0	36.0	38.5
	mm	203	216	241	292	406	495	622	698	787	914	978
*H (open)	in	12.9	14.0	15.4	18.1	19.9	24.8	27.0	30.7	45.0	50.8	52.9
	mm	370	390	415	460	506	630	686	781	1144	1291	1343
*D (hand wheel)	in	7.9	8.9	9.8	11.0	13.8	17.7	19.7	22.0	23.6	23.6	25.6
	mm	200	225	250	280	350	450	500	560	600	600	650

Class 300 Cast Steel Globe Valve

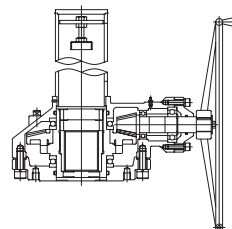
- Bolted bonnet
- Outside screw & yoke
- Rising stem
- Swivel disc



■ Description of Parts

Face to Face	ASME B16.10
Flange Dimension	ASME B16.5
Basic Design	API 600, BS 1873
Test & Inspection	API 6D & 598

* Gear operation or Hammer blow :
10" & over size



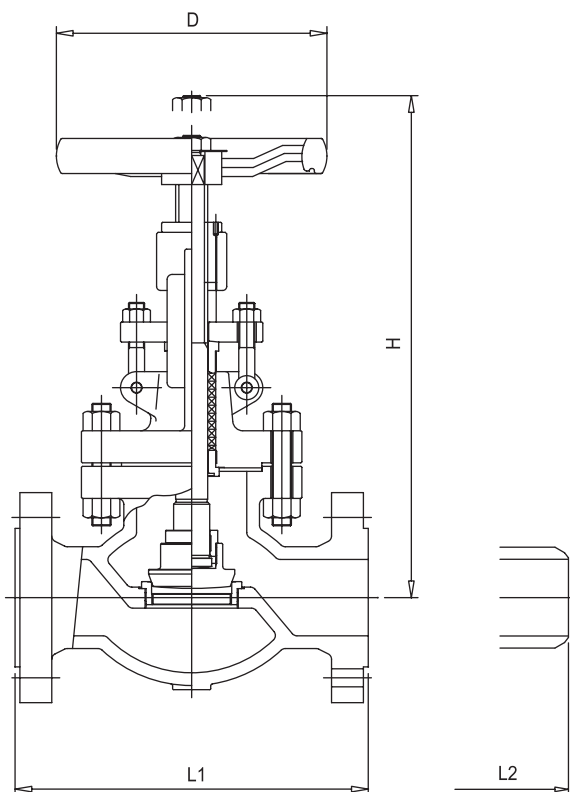
■ Dimensions

(mm)

Valve Size	in	2	2 1/2	3	4	6	8	10	12
	mm	50	65	80	100	150	200	250	300
L 1 (face to face)	in	10.5	11.5	12.5	14.0	17.5	22.0	24.5	28.0
	mm	267	292	318	356	444	559	622	711
L 2 (end to end)	in	10.5	11.5	12.5	14.0	17.5	22.0	24.5	28.0
	mm	267	292	318	356	444	559	622	711
*H (open)	in	13.9	15.7	17.3	20.0	26.6	31.3	36.6	38.0
	mm	352	400	439	509	675	795	930	965
*D (hand wheel)	in	8.8	9.8	11.0	13.8	17.7	19.7	26.8	29.9
	mm	224	250	280	350	450	500	680	760

Class 600 Cast Steel Globe Valve

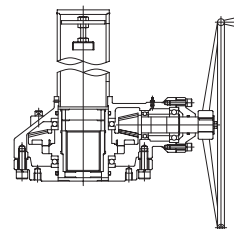
- Bolted bonnet
- Outside screw & yoke
- Rising stem
- Swivel disc



■ Description of Parts

Face to Face	ASME B16.10
Flange Dimension	ASME B16.5
Basic Design	API 600, BS 1873
Test & Inspection	API 6D & 598

* Gear operation or Hammer blow :
6" & over size



■ Dimensions

(mm)

Valve Size	in	2	2 1/2	3	4	6	8	10	12
	mm	50	65	80	100	150	200	250	300
L 1 (face to face)	in	11.5	13.0	14.0	17.0	22.0	26.0	31.0	33.0
	mm	292	330	356	432	559	660	787	838
L 2 (end to end)	in	11.5	13.0	14.0	17.0	22.0	26.0	31.0	33.0
	mm	292	330	356	432	559	660	787	838
*H (open)	in	15.7	18.7	19.9	24.0	30.4	34.3	40.0	46.9
	mm	400	476	506	610	773	872	1016	1192
D (hand wheel)	in	9.8	11.8	13.8	15.7	19.7	23.6*	27.6*	31.5*
	mm	250	300	350	400	500	600	700	800

* Specification is subject to change without prior notice due to improvements.

Materials Selection

Full Open Swing Check Valves (150, 300, 600)

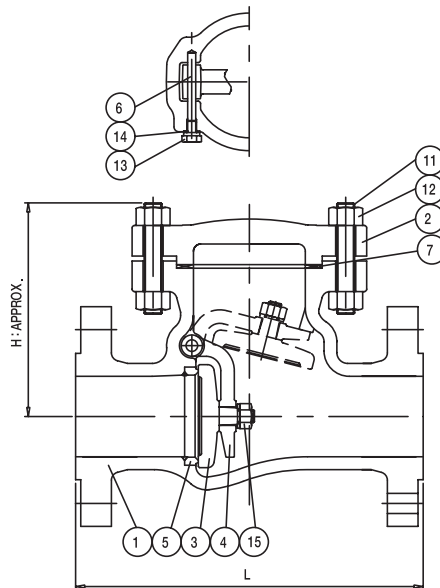


TABLE 1 : STANDARD MATERIAL

NO.	PART	STANDARD (Trim No.8)	CARBON STEEL (Trim No.12, NACE)	LOW TEMP' (-50°F) (Trim No.12,NACE)
1	BODY	A216 WCB	A216 WCB	A352 LCC
2	COVER	A216 WCB	A216 WCB	A352 LCC
3	DISC	6" & BELLOW	A217 CA15	A351 CF8M
		8" & OVER	A217 CA15(1)	A351 CF8M(2)
4	ARM	A216 WCB	A216 WCB	A352 LCC
5	SEAT RING	A182 F6+HF(4)	316+HF	
6	HINGE PIN	A276 410	A276 316	A276 316
7	GASKET	Graphite+316		
11	COVER BOLT	A193 B7	A193 B7M	A320 L7M
12	COVER NUT	A194 2H	A194 2HM	A194 7M
13	PLUG	A105	A182 F316	A182 F316
14	PLUG GASKET	304SS	316SS	
15	DISC NUT	A193 B8		

TABLE 2 : PRESSURE RATING

CLASS	PRESSURE@100°F	
	A216 WCB	A352 LCC
150	285 PSI	290 PSI
300	740 PSI	750 PSI
600	1480 PSI	1500 PSI

STANDARD APPLICABLE

*API 6D, API 598

*ASME B16.34, B16.10, B16.5, B16.25

*BS 1868

NOTE

1. Option : A216 WCB+13Cr Faced

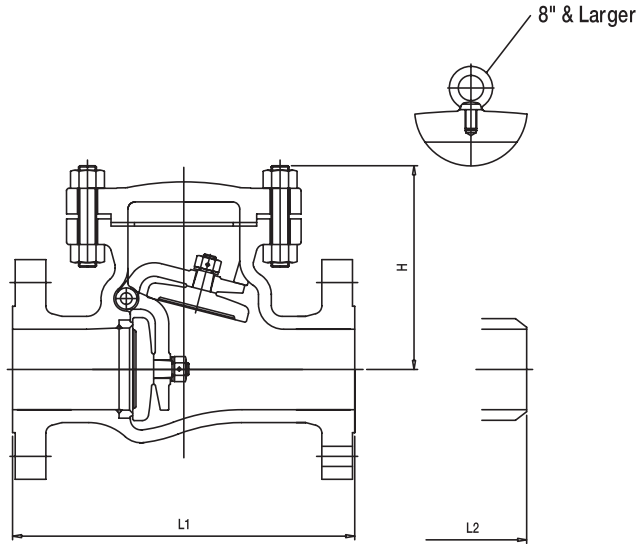
2. Option : A216 WCB + 316 Faced

3. Option : A352 LCC + 316 Faced

4. Option : A106 + HF

Class 150 Cast Steel Full Open Swing Check Valve

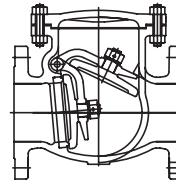
- Bolted cover
- Swing type disc



■ Description of Parts

Face to Face	ASME B16.10
Flange Dimension	ASME B16.5
Basic Design	API 6D, BS 1868
Test & Inspection	API 6D & 598

* Option : Regular Swing check



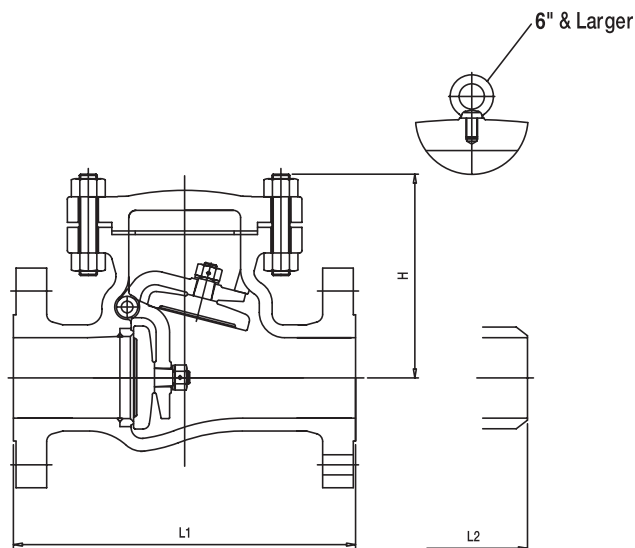
■ Dimensions

(mm)

Valve Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	22	24	26	28	30
	mm	50	65	80	100	150	200	250	300	350	400	450	500	550	600	650	700	750
L 1 (face to face)	in	8.0	8.5	9.5	11.5	14.0	19.5	24.5	27.5	31.0	34.0	38.5	38.5	42.0	51.0	51.0	57.0	60.0
	mm	203	216	241	292	356	495	622	698	787	864	978	978	1067	1295	1295	1448	1524
L 2 (end to end)	in	8.0	8.5	9.5	11.5	14.0	19.5	24.5	27.5	31.0	34.0	38.5	38.5	42.0	51.0	51.0	57.0	60.0
	mm	203	216	241	292	356	495	622	698	787	864	978	978	1067	1295	1295	1448	1524
H	in	6.0	6.7	7.1	7.9	9.8	11.6	13.2	14.5	16.3	18.1	20.1	21.7	23.0	24.8	26.8	28.2	29.9
	mm	152	170	180	200	250	295	334	368	415	460	510	550	585	630	680	716	760

Class 300 Cast Steel Full Open Swing Check Valve

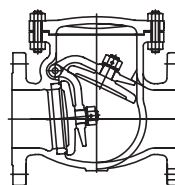
- Bolted cover
- Swing type disc



■ Description of Parts

Face to Face	ASME B16.10
Flange Dimension	ASME B16.5
Basic Design	API 6D, BS 1868
Test & Inspection	API 6D & 598

* Option : Regular Swing check

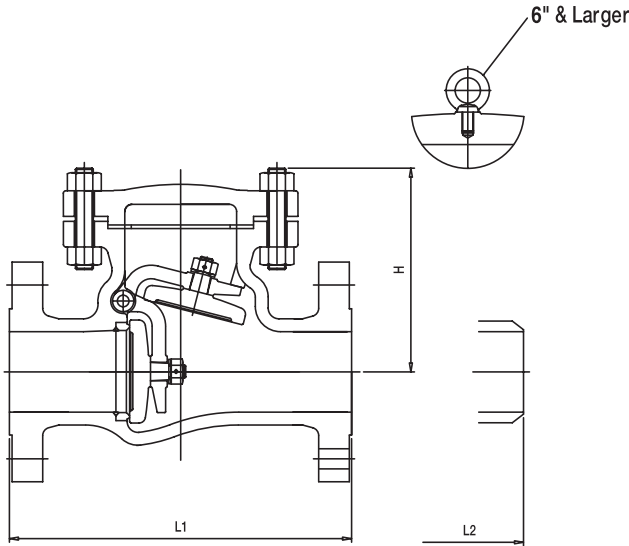


■ Dimensions

Valve Size	(mm)															
	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	28	30
L 1 (face to face)	in	10.5	11.5	12.5	14.0	17.5	21.0	24.5	28.0	33.0	34.0	38.5	40.0	53.0	59.0	62.75
	mm	267	292	318	356	444	533	622	711	838	864	978	1016	1346	1499	1594
L 2 (end to end)	in	10.5	11.5	12.5	14.0	17.5	21.0	24.5	28.0	33.0	34.0	38.5	40.0	53.0	59.0	62.75
	mm	267	292	318	356	444	533	622	711	838	864	978	1016	1346	1499	1594
H	in	6.5	7.5	8.7	8.9	10.7	13.0	14.2	16.0	18.9	21.1	22.6	24.8	31.7	36.6	38.4
	mm	165	190	205	225	272	330	360	406	480	535	575	630	805	930	975

Class 600 Cast Steel Full Open Swing Check Valve

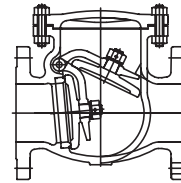
- Bolted cover
- Swing type disc



■ Description of Parts

Face to Face	ASME B16.10
Flange Dimension	ASME B16.5
Basic Design	API 6D, BS 1868
Test & Inspection	API 6D & 598

* Option : Regular Swing check



■ Dimensions

(mm)

Valve Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L 1 (face to face)	in	11.5	13.0	14.0	17.0	22.0	26.0	31.0	33.0	35.0	39.0	43.0	47.0	55.0
	mm	292	330	356	432	559	660	787	838	889	991	1092	1194	1397
L 2 (end to end)	in	11.5	13.0	14.0	17.0	22.0	26.0	31.0	33.0	35.0	39.0	43.0	47.0	55.0
	mm	292	330	356	432	660	660	787	838	889	991	1092	1194	1397
H	in	7.1	7.8	8.7	10.1	14.0	14.0	16.3	17.7	21.9	23.7	25.0	27.8	33.7
	mm	180	197	220	256	356	356	415	450	556	601	635	707	856

Comparison List for Casting and Forgings

General Classification	Casting			Forgings		
	ASTM	JIS	BS	ASTM	JIS	BS
Cast Iron	A126 - Class A	G5501-FC20	1452-14	-	-	-
	- Class B	-FC25	-17	-	-	-
	- Class C	-FC30	-20	-	-	-
Malleable Iron	A197	G5703-FCMB28	310-B18/6	-	-	-
	A47 - 32510	-FCMB35	-B22/14	-	-	-
	- 35018	-FCMB37	-	-	-	-
Ductile Iron	A395	G5502-FCD40	-	-	-	-
	-	-FCD45	-	-	-	-
	A536	-FCD55	-	-	-	-
Carbon Steel	A216 - WCA	G5151-SCPH1	-	A105	G3201-SF45	1503-161B
	-	G5101-SC46	1504-161	-	-	-
	- WCB	G5151-SCPH2	-B	A105	G3201-SF50	1503-161C
Carbon -1/2Mo	A217 - WC1	G5111-SCA41	1504-240	A18 -F1	-	1503-240B
1 1/4Cr-1/2Mo	- WC6	G5111-SCA51	1504-621	-F11	-	-
2 1/4Cr-1Mo	- WC9	-	-622	-F22	-	1503-622
5Cr-1/2Mo(C 0.25)	A217 - C5	G5111-SCA52	1504-625	-F5a	-	1503-625
9Cr-1Mo	A217 - C12	-	1504-629	-F9	-	-
Carbon Steel for Low Temp.	A352 - LCB	-	4242-GRA	A350-LF1	-	-
Carbon-1Mo for Low Temp.	- LC1	-	-	-	-	-
2 1/2Ni	- LC2	-	-	-	-	-
3 1/2Ni	- LC3	-	-	A350-LF3	-	-
13Cr	A217 - CA15	G5121-SCS1	-	A182-F6	G4303-SUS51B	1503-713
18Cr-8Ni(C 0.03)	A351 - CF3	-	-	A182-F304L	-SUS28B	-
18Cr-8Ni(C 0.08)	- CF8	G5121-SCS13	-	-F304	-SUS27B	1503-801
18Cr-8Ni-2Mo(C 0.03)	A351 - CF3M	G5121-SCS16	-	-F316L	G4303-SUS33B	-
18Cr-8Ni-2Mo(C 0.08)	- CF8M	-SCS14	1632-GRC	-F316	-SUS32B	1503-845B
18Cr-8Ni-Cb(C 0.08)	A351 - CF8C	-	-	-F347	G4303-SUS43B	-821Nb
22Cr-12Ni(C 0.10)	- CH10	-	-	-	-	-
22Cr-12Ni(C 0.20)	- CH20	-	-	-	-	-
23Cr-19Ni(C 0.20)	- CK20	-	-	-	-	-
19Cr-27Ni-2Mo-3Cu(C 0.07)	- CN7M	-	-	-	-	-
HASTELLOY.B	A494-N-12MV	-	-	-	-	-

Bolt & Nut Material

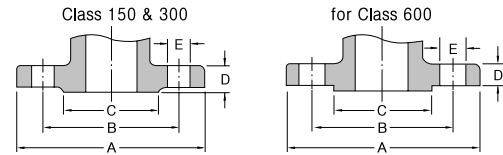
Body Material	General		NACE	
	Bolt	Nut	Bolt	Nut
High-Temperature cast steel	ASTM A193 B7 (HB MAX 302)	ASTM A194 2H (HB 248 to 352)	ASTM A193 B7M (HRC MAX 22)	ASTM A194 2HM (HRC MAX 22)
Low-Temperature cast steel	ASTM A320 L7	ASTM A194 Gr4	ASTM A320 L7M (HRC MAX 22)	ASTM A194 7M (HRC MAX 22)
Corrosion-Resist cast steel	ASTM A193 B8 (HB MAX 223)	ASTM A194 8 (HB MAX 126 to 300)	④	

- ③ HS VALVE STANDARD
 ④ Option
 ⑤ Same as General requirement

Steel Pipe Flange

ASME B16.5 ASME Class 150 RF to 600 RF

Class 150 Steel Pipe Flange Dimensions



Nominal Size		A		B		C		D		E		Bolt	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	Number	Diam
2	50	6.00	152	4.75	120.5	3.62	92	0.75 (0.62)	19.1 (15.9)	0.75	19	4	5/8
2 1/2	65	7.00	178	5.50	139.5	4.12	105	0.88 (0.69)	22.3 (17.5)	0.75	19	4	5/8
3	80	7.50	190	6.00	152.5	5.00	127	0.94 (0.75)	23.9 (19.1)	0.75	19	4	5/8
4	100	9.00	229	7.50	190.5	6.19	157	0.94	23.9	0.75	19	8	5/8
5	125	10.00	254	8.50	216.0	7.31	186	0.94	23.9	0.88	22	8	3/4
6	150	11.00	279	9.50	241.5	8.50	216	1.00	25.4	0.88	22	8	3/4
8	200	13.50	343	11.75	298.5	10.62	270	1.12	28.6	0.88	22	8	3/4
10	250	16.00	406	14.25	362.0	12.75	324	1.19	30.2	1.00	25	12	7/8
12	300	19.00	483	17.00	432.0	15.00	381	1.25	31.8	1.00	25	12	7/8
14	350	21.00	533	18.75	476.0	16.25	413	1.38	35.0	1.12	29	12	1
16	400	23.50	597	21.25	539.5	18.50	470	1.44	36.6	1.12	29	16	1
18	450	25.00	635	22.75	578.0	21.00	533	1.56	39.7	1.25	32	16	1 1/8
20	500	27.50	698	25.00	635.0	23.00	584	1.69	42.9	1.25	32	20	1 1/8
24	600	32.00	813	29.50	749.5	27.25	692	1.88	47.7	1.38	35	20	1 1/8

Height of raised face is 0.06" (1.6mm) each. Dimensions in () are for valve flanges.

Class 300 Steel Pipe Flange Dimensions

Nominal Size		A		B		C		D		E		Bolt	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	Number	Diam
2	50	6.50	165	5.00	127.0	3.62	92	0.88	22.3	0.75	19	8	5/8
2 1/2	65	7.50	190	5.88	149.0	4.12	105	1.00	25.4	0.88	22	8	3/4
3	80	7.25	210	6.62	168.0	5.00	127	1.12	28.6	0.88	22	8	3/4
4	100	10.00	254	7.88	200.0	6.19	157	1.25	31.8	0.88	22	8	3/4
5	125	11.00	279	9.25	235.0	7.31	186	1.38	35.0	0.88	22	8	3/4
6	150	12.50	318	10.62	270.0	8.50	216	1.44	36.6	0.88	22	12	3/4
8	200	15.00	381	13.00	330.0	10.62	270	1.62	41.3	1.00	25	12	7/8
10	250	17.50	444	15.25	387.5	12.75	324	1.88	47.7	1.12	29	16	1
12	300	20.50	521	17.75	451.0	15.00	381	2.00	50.8	1.25	32	16	1 1/8
14	350	23.00	584	20.25	514.5	16.25	413	2.12	54.0	1.25	32	20	1 1/8
16	400	25.50	648	22.50	571.5	18.50	470	2.25	57.2	1.38	35	20	1 1/4
18	450	28.00	711	24.75	628.5	21.00	533	2.38	60.4	1.38	35	24	1 1/4
20	500	30.50	775	27.00	686.0	23.00	584	2.50	63.5	1.38	35	24	1 1/4
24	600	36.00	914	32.00	813.0	27.25	692	2.75	69.9	1.62	41	24	1 1/2

Height of raised face is 0.06" (1.6mm) each.

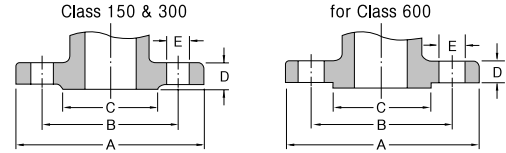
Class 600 Steel Pipe Flange Dimensions

Nominal Size		A		B		C		D		E		Bolt	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	Number	Diam
2	50	6.50	165	5.00	127.0	3.62	92	1.00	25.4	0.75	19	8	5/8
2 1/2	65	7.50	190	5.88	149.0	4.12	105	1.12	28.6	0.88	22	8	3/4
3	80	8.25	210	6.62	168.0	5.00	127	1.25	31.8	0.88	22	8	3/4
4	100	10.75	273	8.50	216.0	6.19	157	1.50	38.1	1.00	25	8	7/8
5	125	13.00	330	10.50	266.5	7.31	186	1.75	44.5	1.12	29	8	1
6	150	14.00	356	11.50	292.0	8.50	216	1.88	47.7	1.12	29	12	1
8	200	16.50	419	13.75	349.0	10.62	270	2.19	55.6	1.25	32	12	1 1/8
10	250	20.00	508	17.00	432.0	12.75	324	2.50	63.5	1.38	35	16	1 1/4
12	300	22.00	559	19.25	489.0	15.00	381	2.62	66.7	1.38	35	20	1 1/4
14	350	23.75	603	20.75	527.0	16.25	413	2.75	69.9	1.50	38	20	1 3/8
16	400	27.00	686	23.75	603.0	18.50	470	3.00	76.2	1.62	41	20	1 1/2
18	450	29.25	743	25.75	654.0	21.00	533	3.25	82.6	1.75	45	20	1 5/8
20	500	32.00	813	28.50	724.0	23.00	584	3.50	88.9	1.75	45	24	1 5/8
24	600	37.00	940	33.00	838.0	27.25	692	4.00	102.0	2.00	51	24	1 7/8

Height of raised face is 0.25" (6.4mm) each.

Steel Pipe Flange & MSS SP-44 Specification

API 605 Class 150 RF, Class 300 RF



Class 150 Integral Flange Dimensions

Nominal Size		A		B		C		D		E		Bolt	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	Number	Diam
26	650	30.94	786	29.31	744.5	28.00	711.2	1.62	41.3	0.88	22.2	36	3/4
28	700	32.94	837	31.31	795.3	30.00	762.0	1.75	44.4	0.88	22.2	40	3/4
30	750	34.94	887	33.31	846.1	32.00	812.8	1.75	44.4	0.88	22.2	44	3/4
32	800	37.06	941	35.44	900.1	34.00	863.6	1.81	46.0	0.88	22.2	48	3/4
34	850	39.56	1005	37.69	957.3	36.25	920.8	1.94	49.2	1.00	25.4	40	7/8
36	900	41.62	1057	39.75	1009.6	38.25	971.6	2.06	52.4	1.00	25.4	44	7/8
38	950	44.25	1124	42.12	1070.0	40.25	1022.4	2.12	54.0	1.12	28.6	40	1
40	1000	46.25	1175	44.12	1120.8	42.50	1079.5	2.19	55.6	1.12	28.6	44	1
42	1060	48.25	1226	46.12	1171.6	44.50	1130.3	2.31	58.7	1.12	28.6	48	1
44	1100	50.25	1276	48.12	1222.4	46.50	1181.1	2.38	60.3	1.12	28.6	52	1
46	1150	52.81	1341	50.56	1284.3	48.62	1235.1	2.44	61.9	1.25	31.8	40	1 1/8
48	1200	54.81	1392	52.56	1335.1	50.75	1289.0	2.56	65.1	1.25	31.8	44	1 1/8
50	1250	56.81	1443	54.56	1385.9	52.75	1339.8	2.69	68.3	1.25	31.8	48	1 1/8
52	1300	58.81	1494	56.56	1436.7	54.75	1390.6	2.75	69.8	1.25	31.8	52	1 1/8
54	1350	61.00	1549	58.75	1492.2	56.75	1441.1	2.81	71.4	1.25	31.8	56	1 1/8
56	1400	63.00	1600	60.75	1543.0	58.75	1492.3	2.88	73.0	1.25	31.8	60	1 1/8
58	1450	65.94	1675	63.44	1611.3	60.75	1543.0	2.94	74.6	1.38	34.9	48	1 1/4
60	1500	67.94	1726	65.44	1662.1	63.00	1600.2	3.00	76.2	1.38	34.9	52	1 1/4

Height of raised face is 0.06" (1.6mm) each.

Class 300 Integral Flange Dimensions

Nominal Size		A		B		C		D		E		Bolt	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	Number	Diam
26	650	34.12	867	31.62	803.3	29.00	736.6	3.50	88.9	1.38	34.9	32	1 1/4
28	700	36.25	921	33.75	857.2	31.00	787.4	3.50	88.9	1.38	34.9	36	1 1/4
30	750	39.00	991	36.25	920.8	33.25	844.6	3.69	93.7	1.50	38.1	36	1 3/8
32	800	41.50	1054	38.50	977.9	35.50	901.7	4.06	103.2	1.62	41.3	32	1 1/2
34	850	43.62	1108	40.62	1031.9	37.50	952.5	4.06	103.2	1.62	41.3	36	1 1/2
36	900	46.12	1172	42.88	1089.0	39.75	1009.6	4.06	111.1	1.75	44.4	32	1 5/8
38	950	48.12	1222	44.88	1139.8	41.75	1060.4	4.38	115.9	1.75	44.4	36	1 5/8
40	1000	51.12	1273	46.88	1190.6	43.88	1114.4	4.56	119.1	1.75	44.4	40	1 5/8
42	1060	52.50	1334	49.00	1244.6	46.00	1168.4	4.69	127.0	1.88	47.6	36	1 3/4
44	1100	54.50	1384	51.00	1295.4	48.00	1219.2	5.00	128.6	1.88	47.6	40	1 3/4
46	1150	57.50	1460	53.75	1365.2	50.00	1270.0	5.06	128.6	2.00	50.8	36	1 7/8
48	1200	59.50	1511	55.75	1416.0	52.25	1327.2	5.06	138.1	2.00	50.8	40	1 7/8

Height of raised face is 0.06" (1.6mm) each.

MSS SP-44 Class 150 RF, Class 300 RF & Class 600 RF

Class 150 Steel Pipe Line Flange Dimensions

Nominal Size		A		B		C		D		E		Bolt	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	Number	Diam
22	550	29.50	750	27.25	692	25.25	641	1.81	46.0	1.38	35	20	1 1/4

Height of raised face is 0.06" (1.5mm) each.

Class 300 Steel Pipe Line Flange Dimensions

Nominal Size		A		B		C		D		E		Bolt	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	Number	Diam
22	550	33.00	840	29.25	743	25.25	641	2.62	66.5	1.62	41	24	1 1/2

Height of raised face is 0.06" (1.5mm) each.

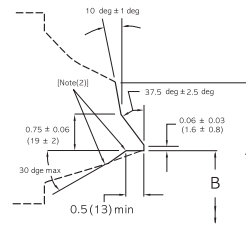
Class 600 Steel Pipe Line Flange Dimensions

Nominal Size		A		B		C		D		E		Bolt	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	Number	Diam
22	550	34.25	870	30.62	778	26.25	641	3.75	95.0	1.88	47	24	1 3/4

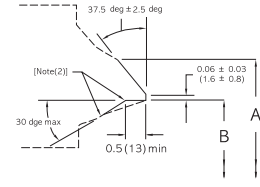
Height of raised face is 0.06" (6.4mm) each.

Butt Welding end Detail

ASME B16.25



(a) Welding End Detail for Joint Using Split Rectangular Backing Ring



(b) Welding End Detail for Joint Using Split Rectangular Backing Ring

		Pipe Schedule No.	Nominal Pipe Size									
A	in	All	2 1/2	3	4	5	6	8	10	12	14	16
	mm		75.18	91.19	117.35	144.53	172.21	223.01	277.88	329.44	361.95	412.75
	in	STD								12.000	13.250	15.250
	mm									304.80	336.55	387.35
	in	40	2.469	3.068	4.026	5.047	6.065	7.981	10.020	11.938	13.124	15.000
	mm		62.71	77.93	102.26	128.19	154.05	202.72	254.51	303.23	333.35	381.00
	in	XS								11.750	13.000	
	mm									298.45	330.20	
	in	60						7.813	9.750	11.626	12.814	14.688
	mm							198.45	247.65	295.30	325.48	373.08
B	in	80	2.323	2.900	3.826	4.813	5.761	7.625	9.562	11.376	12.500	14.314
	mm		59.00	73.66	97.18	122.25	147.33	193.68	242.87	288.95	317.50	363.58
	in	100						7.437	9.312	11.064	12.126	13.938
	mm							188.90	236.52	281.03	308.00	354.03
	in	120			3.624	4.563	5.501	7.187	9.062	10.750	11.814	13.564
	mm				92.05	115.90	139.73	182.55	230.17	273.05	300.08	344.53
	in	140						7.001	8.750	10.500	11.500	13.124
	mm							177.83	222.25	266.70	292.10	333.35
	in	160	2.125	2.624	3.438	4.313	5.817	6.875	8.500	10.126	11.188	12.814
	mm		53.98	66.65	87.33	109.55	131.75	174.63	215.90	257.20	284.18	325.48
	in	XXS	1.771	2.300	3.152	4.063	4.897	6.813				
	mm		44.98	58.42	80.06	103.20	124.38	173.05				
		Pipe Schedule No.	Nominal Pipe Size									
A	in	All	18	20	22	24	26	28	30	32	34	36
	mm		464.31	515.87	567.44	619.25	670.05	720.85	771.65	825.50	876.30	927.10
	in	10					25.376	27.376	29.376	31.376	33.376	35.376
	mm						644.55	695.35	746.15	796.95	847.75	898.55
	in	20					25.000	27.000	29.000	31.000	33.000	35.000
	mm						635.00	685.80	736.60	787.40	838.20	889.00
	in	STD	17.250	19.250	21.250	23.250						
	mm		438.15	488.95	539.75	590.55						
	in	XS	17.000	19.000	21.000	23.000						
	mm		431.80	482.60	533.40	584.20						
	in	30				22.876		26.750	28.750	30.750	32.750	34.750
	mm					581.05		679.45	730.25	781.05	831.85	882.65
B	in	40	16.876	18.182		22.624				30.624	32.624	34.500
	mm		428.65	477.82		574.65				777.85	828.65	876.30
	in	60	16.500	18.376	20.250	22.062						
	mm		419.10	466.75	514.35	560.37						
	in	80	16.124	17.938	19.750	21.562						
	mm		409.55	455.63	501.65	547.67						
	in	100	15.688	17.438	19.250	20.938						
	mm		398.48	422.93	488.95	531.83						
	in	120	15.250	17.000	18.750	20.376						
	mm		387.35	431.80	476.25	517.55						
	in	140	14.876	16.500	18.250	19.876						
	mm		377.85	419.10	463.55	504.85						
	in	160	14.438	16.062	17.750	19.312						
	mm		366.73	407.97	450.85	490.52						

* Specification is subject to change without prior notice due to improvements.

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