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Best Company

SFF Corp.

SFF Corp.

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COMPANY ABOUT

ASME B16.5 Flanges

RING JOINT FLANGES

LONG WELDING NECK FLANGES

CODE SPECIFICATION

ASME B16.47 SERIES A FLANGES (MSS SP-44)

ASME B 16.47 SERIES B FLANGES (API 605)

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GREETING

SFF Corp. promises to supply best quality products for customer satisfaction.
We also are very grateful to have an opportunity to introduce SFF Corp. to customers.
Since its foundation in 2012, SFF Corp. has made every effort to provide qualified products for the petrol and gas plant, nuclear plant, shipbuilding industry and related industries.
With expanded production capacity and high reputation of satisfaction by domestic and overseas clients, we continue R&D to create a global standard in industrial technologies.
We equip leading-edge facilities like NC boring and turning mill, CNC drilling etc., and continue R&D investment and extensive technical developments by means of coherent service quality and innovation and continual investment from the perspective of customers.
SFF Corp. will pay careful attention to voices of customers in order to maintain sustainable technology and stable product production.

Thank you very much.

COMPANY VIEW

- **COMPANY NAME** : SFF Corp.
- **ADDRESS**
  - Busan office (Busan) : 5F, 282, Myeongjigukje 8-ro, Gangseo-gu, Busan, S.Korea
    Tel: (82) 51-925-0060 / Fax : (82) 51-925-0081 Email: sales@sffcorp.co.kr
  - Factory (4,816㎡) : 178, Geumgok-ri, Jisu-myeon, Jinju-si, Gyeongsangnam-do, S.Korea
    Tel: (82) 55-752-0123 / Fax: (82) 55-752-6677
  - Website: www.sffcorp.co.kr

PRODUCT

FORGINGS / FLANGES

- **SUPPLY RANGE** Standard Flange, Forged Nozzle, Boss, Tubesheet, Orifice Flange, Long Welding Neck Flange, Anchor Flange, Blind Flange, Swivel Flange, Baffle

- **SUPPLY MATERIAL GRADE**

Carbon Steel	LTCS	High Yield	Alloy Steel	Stainless Steel	Duplex	Copper Nickel
A105(N)	A350 LF2, LF3	A694 F42	A182 F11	A182 F304, 304L, 304H	A182 F51	CuNi 90/10
A266 Gr.2, 4 A765 Gr.2		A694 F52	A182 F22	A182 F316, 316L, 316H	A182 F53	CuNi 70/30
		A694 F60	A182 F91	A182 F317, 317L	A185 F55	MONEL 400
		A694 F65	A182 F5	A182 F321, 321H		
		A694 F70	A182 F9	A182 F347, 347H		

WROUGHT / FORGED FITTINGS

- **SUPPLY RANGE** 45/90/180 Deg & Short & Long Elbow / 3D & 5D and special degree Bends Tee, Con Reducer, Ecc Reducer, Cap, Stub-End Swage, Union, Nipple, Coupling, Plug, Weldolet, Sockolet, Threadolet, Flangeolet 45 Deg Lateral, Y-Piece, Transition Piece, Bar Tee

- **SUPPLY MATERIAL GRADE**

Carbon Steel	LTCS	High Yield	Alloy Steel	Stainless Steel	Duplex	Copper Nickel
A234 WPB	A420 WPL6	A860 WPHY42	A234 WP11	A403 WP304, 304L, 304H	A815 S31803	CuNi 90/10
A234 WPC	A350 LF2	A860 WPHY52	A234 WP22	A403 WP316, 316L, 316H	A815 S32750	CuNi 70/30
A105		A860 WPHY60	A234 WP91	A403 WP317, 317L	A815 S32760	MONEL 400
		A860 WPHY65	A234 WP5	A403 WP321, 321H	A182 F51,53,55	
		A860 WPHY70	A234 WP9	A403 WP347, 347H		
		A694 F42,52,60,65,70	A182 F11,22,91,5,9	A182 F304,316,317,321,347		

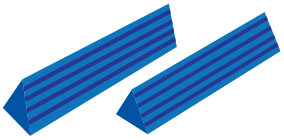
SEAMLESS / WELDED PIPES

- **SUPPLY RANGE** ERW PIPE, EFW PIPE, SAW PIPE, Stainless steel welded pipes, Duplex welded pipes Carbon steel seamless pipes, Stainless steel seamless pipe, Tubes

- **SUPPLY MATERIAL GRADE**

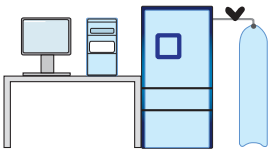
Carbon Steel	LTCS	High Yield	Alloy Steel	Stainless Steel	Duplex	Copper Nickel
A/SA53 Gr.B	A333-1/6	API 5L X42	A/SA53-P1,P5, P11,P12,P22,P91	A/SA312 TP304, 304L, 304H	A789, A790, A928 UNS S32750	CuNi 90/10
A/SA106 Gr.A, B, C	A672-B60, 65, C55, C60, C65 A671	API 5L X52	A691-1 1/4CR, 2 1/4CR, 5CR, 9CR	A/SA312 TP316, 316L	A789, A790, A928 UNS S31803	CuNi 70/30
API 5L Gr.B		API 5L X60		A/SA312 TP317, 317L	A789, A790, A928 UNS 32304	MONEL 400
A134-A283, A134-A285		API 5L X65		A/SA312 TP321, 347, 310, 310S		
A500		API 5L X70				

MANUFACTURING PROCESS



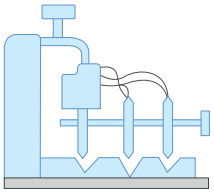
Raw Material

- Raw Material Check
- Quantity Check
- Visual & Dimension Check

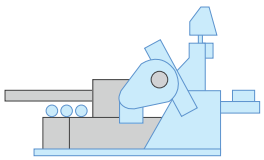


Material Analyzing

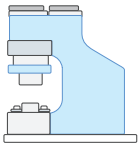
- Chemical Analyzings Check
- Preservation of Analysis Certificate



Gas Cutting

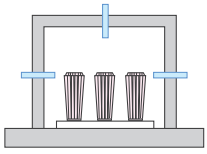


Bandsaw Cutting



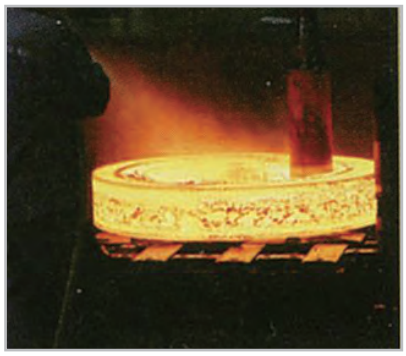
Forging

- Material Grade Check
- Weight Measuring
- Temperature Control
- Mechanical Test

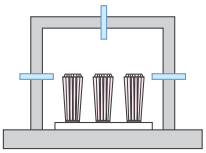


Heating

- Material Grade Check
- Dimension Check
- Weight Measuring

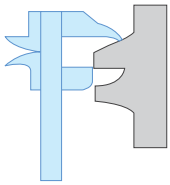


MANUFACTURING PROCESS



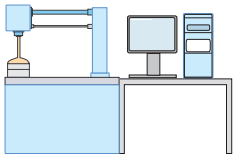
Heat Treatment

- Normalizing
- Tempering
- Q.T
- Solution Treatment



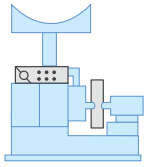
Inspection

- Dimension Test
- Visual Test
- Nondestructive Test

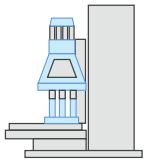


Marking

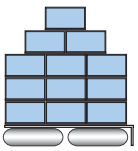
- Description Marking
- Size Marking
- Lot No. Marking



Lathe

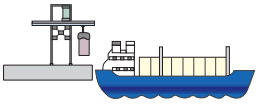


Drilling



Packing

- Packing spec. Check
- Packing Inspection



Shipping

- Dispatching Shipping Documents
- Check Cert. of Origin

FACILITIES

NO	FACILITY	SIZE	Q'TY	MANUFACTURE
1	TURING LATHE	Ø2200 × 1000 H	1	JAPAN
2	DRILL MASTER	Ø2000 × 5000 mm	1	JAPAN
3	TURING LATHE	Ø 1600 × 1000 H	1	JAPAN
4	LATHE	Ø1600 × 2000 mm	1	JAPAN
5	LATHE	Ø 900 × 2000 mm	1	HANKOOK MACHINE TOOLS
6	LATHE	Ø 720 × 1050 mm	1	TONGIL HEAVY INDUSTRY
7	CNC TURNING LATHE	Ø520 × 1050 mm	1	TONGIL HEAVY INDUSTRY
8	CNC TURNING LATHE	Ø435 × 1050 mm	1	TONGIL HEAVY INDUSTRY
9	CNC LATHE	Ø 800	1	GERMANY
10	MARKING M/C	Ø 500 * MAX	1	KOREA
11	WRAPPING M/C	Ø 200 * 3 TON	1	KOREA
12	TRUCK	1.4 TON	1	KIA
13	CRANE	5 TON	1	BANDO
14	CRANE	10 TON	1	BANDO
15	FORKLIFT	2 TON	1	TOYOTA
16	COMPRESSOR	15HP	1	HANSHIN
17	VERTICAL LATHE	LATHE Ø 2000, Ø 1600	1	O-M

TEST EQUIPMENTS

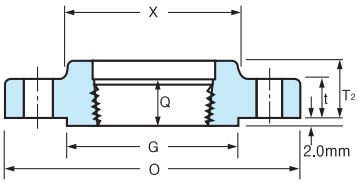
NO	EQUIPMENT	DESCRIPTION	Q'TY	MANUFACTURE
1	UNIVERSAL TEST MACINE	AD-100T	1	KOREA
2	CHARPY IMPACT TESTER	AD-330	1	KOREA
3	BRINELL HARDNESS TESTER	SB-600	1	KOREA
4	SPECTROMETER	DEA PORT	1	GNR
5	SURFACE ROUGHNESS TESTER	SF-210	1	MITUTOYO
6	DIAL GAUGE	0 ~ 50 mm	1	MITUTOYO
7	VERNIER CALIPERS	0 ~150 mm	1	MITUTOYO
8	VERNIER CALIPERS	0 ~300 mm	1	MITUTOYO
9	VERNIER CALIPERS	0 ~600 mm	1	MITUTOYO
10	VERNIER CALIPERS	0 ~1000 mm	1	MITUTOYO
11	VERNIER CALIPERS	0 ~1500 mm	1	MITUTOYO
12	HEIGHT GAUGE	0 ~300 mm	1	MITUTOYO
13	PMI TESTER	X-RAY TUBE TYPE 45Kv 80μA	1	NITON
14	ULTRASONIC THICKNESS GAUGE	2 ~ 200 mm	1	DMSE

ASME B16.5 FLANGES

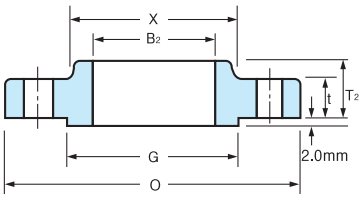
- Class 150 Flanges
- Class 300 Flanges
- Class 400 Flanges
- Class 600 Flanges
- Class 900 Flanges
- Class 1500 Flanges
- Class 2500 Flanges

SFF Corp.

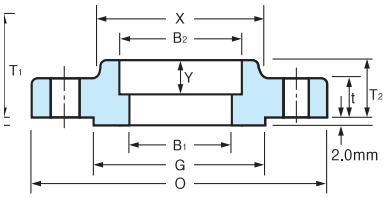
CLASS 150 FLANGES



THREADED



SLIP-ON



SOCKET WELDING

ASME B16.5 FORGED FLANGES

Unit : mm

SIZE	Out-Side Diam. of Flange	Thick-ness of Flange	Thick-ness Lap Joint	Diam. of HUB Base	O.D of Raised Face	Diam. of Hub at Bavel	Length Through Hub			Thread Length	Bore		
							Wel-ding Neck	Slip-On Threaded Socket	Lap Joint		Welding Neck /Socket Welding	Slip-On Threaded Socket	Lap Joint
	O	t	t	X	G	A	T_1	T_2	T_3	Q	B_1	B_2	B_3
1/2	90	9.6	11.2	30	34.9	21.3	46	14	16	16	15.8	22.2	22.9
3/4	100	11.2	12.7	38	42.9	26.7	51	14	16	16	20.9	27.7	28.2
1	110	12.7	14.3	49	50.8	33.4	54	16	17	17	26.6	34.5	34.9
1 1/4	115	14.3	15.9	59	63.5	42.2	56	19	21	21	35.1	43.2	43.7
1 1/2	125	15.9	17.5	65	73.0	48.3	60	21	22	22	40.9	49.5	50.0
2	150	17.5	19.1	78	92.1	60.3	62	24	25	25	52.5	61.9	62.5
2 1/2	180	20.7	22.3	90	104.8	73.0	68	27	29	29	62.7	74.6	75.4
3	190	22.3	23.9	108	127.0	88.9	68	29	30	30	77.9	90.7	91.4
3 1/2	215	22.3	23.9	122	139.7	101.6	70	30	32	32	90.1	103.4	104.1
4	230	22.3	23.9	135	157.2	114.3	75	32	33	33	102.3	116.1	116.8
5	255	22.3	23.9	164	185.7	141.3	87	35	36	36	128.2	143.8	144.4
6	280	23.9	25.4	192	215.9	168.3	87	38	40	40	154.1	170.7	171.4
8	345	27.0	28.6	246	269.9	219.1	100	43	44	44	202.7	221.5	222.2
10	405	28.6	30.2	305	323.8	273.0	100	48	49	49	254.6	276.2	277.4
12	485	30.2	31.8	365	381.0	323.8	113	54	56	56	304.8	327.0	328.2
14	535	33.4	35.0	400	412.8	355.6	125	56	79	57	To be Specified by Pur-chaser	359.2	360.2
16	595	35.0	36.6	457	469.9	406.4	125	62	87	64		410.5	411.2
18	635	38.1	39.7	505	533.4	457.0	138	67	97	68		461.8	462.3
20	700	41.3	42.9	559	584.2	508.0	143	71	103	73		513.1	514.4
24	815	46.1	47.7	663	692.2	610.0	151	81	111	83		616.0	616.0

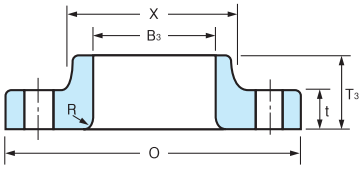
Notes :

(a) For the 'BORE' (B1) other than Standard Wall Thickness, refer to page 70-71

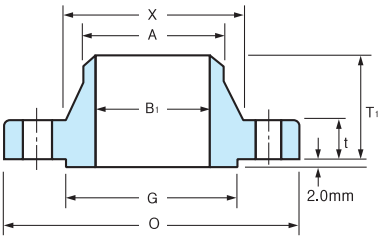
(b) These flanges may be supplied with a flat face. The flat face may be either the full t dimension of thickness plus 2 mm, or the t dimension thickness without the raised face height.

(c) This dimension is for large end of hub, which may be stright or tapered. Taper shall not exceed 7deg on threaded, slip-on, socket-welding, and lapped flanges. This dimension is defined as the diameter at the intersection between the hub taper and the back face of the flange.

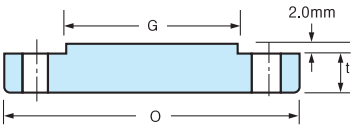
CLASS 150 FLANGES



LAP JOINT



WELDING NECK



BLIND

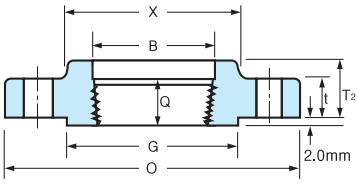
ASME B16.5 FORGED FLANGES

Unit : mm

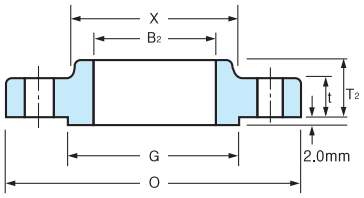
SIZE	Ridius of Fillet	Depth of Socket	DRILLING			LENGTH OF BOLTS				APPROXIMATE WEIGHT(kg)				
			Bolt Circle Diam.	Number of Holes	Diam. of Holes	Diam.of Bolt (inch)	Machine Bolt Length (Raised Face)	Stud Bolt Length		Welding Neck	Slip-On/ Threaded	Lap Joint	Blind	Socket Welding
								2mm Raised Face	Ring Joint					
	R	Y												
1/2	3	10	60.3	4	15.9	1/2	50	55	–	0.51	0.47	0.51	0.47	0.47
3/4	3	11	69.9	4	15.9	1/2	50	65	–	0.73	0.58	0.64	0.63	0.59
1	3	13	79.4	4	15.9	1/2	55	65	75	1.07	0.86	0.93	0.94	0.87
1 1/4	5	14	88.9	4	15.9	1/2	55	70	85	1.40	1.08	1.16	1.23	1.11
1 1/2	6	16	98.4	4	15.9	1/2	65	70	85	1.81	1.41	1.51	1.62	1.45
2	8	17	120.7	4	19.1	5/8	70	85	95	2.59	2.26	2.38	2.64	2.33
2 1/2	8	19	139.7	4	19.1	5/8	75	90	100	4.28	3.43	3.60	4.06	3.55
3	10	21	152.4	4	19.1	5/8	75	90	100	5.18	3.87	4.04	4.90	4.02
3 1/2	10	22.4	177.8	8	19.1	5/8	75	90	100	5.45	4.99	4.99	5.90	4.99
4	11	24.1	190.5	8	19.1	5/8	75	90	100	7.32	5.75	5.96	7.41	5.99
5	11	23.9	215.9	8	22.2	3/4	85	95	110	8.91	6.22	6.44	8.76	6.68
6	13	26.9	241.3	8	22.2	3/4	85	100	115	11.26	7.38	7.59	11.31	7.99
8	13	31.8	298.5	8	22.2	3/4	90	110	120	17.68	12.36	12.66	19.92	13.29
10	13	33.3	362.0	12	25.4	7/8	100	115	125	24.79	17.10	16.78	29.39	19.50
12	13	39.6	431.8	12	25.4	7/8	100	120	135	38.98	27.68	28.30	43.70	29.03
14	13	41.4	476.3	12	28.6	1	115	135	145	51.71	35.20	41.50	59.42	38.56
16	13	44.5	539.8	16	28.6	1	115	135	145	64.41	42.18	52.98	77.11	44.49
18	13	49.3	577.9	16	31.8	1 1/8	125	145	160	74.84	49.71	59.00	94.80	54.43
20	13	54.1	635.0	20	31.8	1 1/8	140	160	170	89.36	65.50	72.12	123.38	70.31
24	13	63.5	749.3	20	34.9	1 1/4	150	170	185	119.66	90.50	99.02	188.24	95.25

(d) Blind flanges may be made with or without hubs at the manufacturer's option.
(e) Dimensions in B1 correspond to the inside diameters of pipe as given in ASME B36. 10M for Standard Wall pipe. Thickness of Standard Wall is the same as Schedule 40 in sizes NPS 10 and smaller. These bore sizes are furnished unless otherwise specified by the purchaser.
(f) Depth of Socket(Y) is covered by ASME B16.5 only in sizes throught 3 inch, over 3 inch is at the manufacture's option.

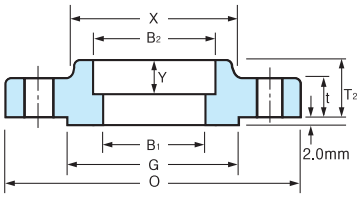
CLASS 300 FLANGES



THREADED



SLIP–ON



SOCKET WELDING

ASME B16.5 FORGED FLANGES

Unit : mm

Nom–inal Pipe Size	Out–side Diam. of Flange	Thick–ness of Flange	Thick–ness Lap Joint	Diam. of Hub Base	O.D of Rais–ed Face	Diam. of Hub at Bavel	Length Through Hub			Thread Length	BORE			
							Weld–ing Neck	Slip–On Threaded Socket Welding	Lap Joint		Welding Neck /Socket Welding	Slip–On /Socket–Welding	Lap Joint	Counter Bore Min. Threaded
	O	t	t	X	G	A	T_1	T_2	T_3	Q	B_1	B_2	B_3	B
1/2	95	12.7	14.3	38	34.9	21.3	51	21	22	16	15.8	22.2	22.9	23.6
3/4	115	14.3	15.9	48	42.9	26.7	56	24	25	16	20.9	27.7	28.2	29.0
1	125	15.9	17.5	54	50.8	33.4	60	25	27	18	26.6	34.5	34.9	35.8
1 1/4	135	17.5	19.1	64	63.5	42.2	64	25	27	21	35.1	43.2	43.7	44.4
1 1/2	155	19.1	20.7	70	73.0	48.3	67	29	30	23	40.9	49.5	50.0	50.3
2	165	20.7	22.3	84	92.1	60.3	68	32	33	29	52.5	61.9	62.5	63.5
2 1/2	190	23.9	25.4	100	104.8	73.0	75	37	38	32	62.7	74.6	75.4	76.2
3	210	27.0	28.6	117	127.0	88.9	78	41	43	32	77.9	90.7	91.4	92.2
3 1/2	230	28.6	30.2	133	139.7	101.6	79	43	44	37	90.1	103.4	104.1	104.9
4	255	30.2	31.8	146	157.2	114.3	84	46	48	37	102.3	116.1	116.8	117.6
5	280	33.4	35.0	178	185.7	141.3	97	49	51	43	128.2	143.8	144.4	144.4
6	320	35.0	36.6	206	215.9	168.3	97	51	52	47	154.1	170.7	171.4	171.4
8	380	39.7	41.3	260	269.9	219.1	110	60	62	51	202.7	221.5	222.2	222.2
10	445	46.1	47.7	321	323.8	273.0	116	65	95	56	254.6	276.2	277.4	276.2
12	520	49.3	50.8	375	381.0	323.8	129	71	102	61	304.8	327.0	328.2	328.6
14	585	52.4	54.0	425	412.8	355.6	141	75	111	64	To be Specified by Pur–chaser	359.2	360.2	360.4
16	650	55.6	57.2	483	469.9	406.4	144	81	121	69		410.5	411.2	411.2
18	710	58.8	60.4	533	533.4	457.0	157	87	130	70		461.8	462.3	462.0
20	775	62.0	63.5	587	584.2	508.0	160	94	140	74		513.1	514.4	512.8
24	915	68.3	69.9	702	692.2	610.0	167	105	152	83		616.0	616.0	614.4

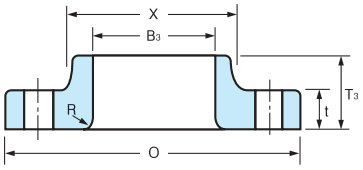
Notes :

(a) For the 'BORE'(B1) other than Standared Wall Thickness, refer to page 70–71

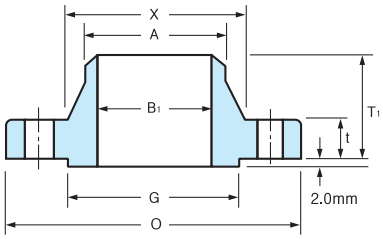
(b) These flanges may be supplied with a flat face. The flat face may be either the full t demension of thickness plus 2 mm, or the t dimension thickness without the raised face height.

(c) This dimension is for large end of hub, which may be straight or tapered. Taper shall not exceed 7 deg on threaded, slip–on, socket–welding, and lapped flanges. This dimension is defined as the diameter at the intersection between the hub taper and the back face of the flange.

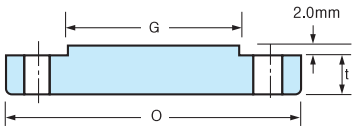
CLASS 300 FLANGES



LAP JOINT



WELDING NECK



BLIND

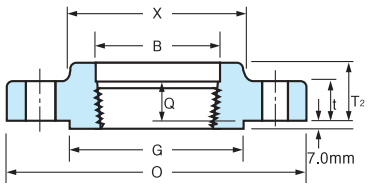
ASME B16.5 FORGED FLANGES

Unit : mm

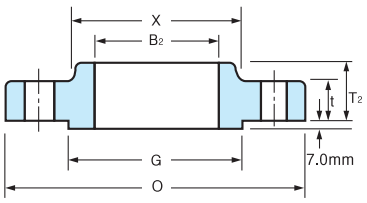
SIZE	Ridius of Fillet	Depth of Socket	DRILLING			LENGTH OF BOLTS				APPROXIMATE WEIGHT(kg)				
			Bolt Circle Diam.	Number of Holes	Diam. of Holes	Diam.of Bolt (inch)	Machine Bolt Length (Raised Face)	Stud Bolt Length		Welding Neck	Slip–On/ Thre–aded	Lap Joint	Blind	Socket Welding
								2mm Raised Face	Ring Joint					
	R	Y												
1/2	3	10	66.7	4	15.9	1/2	55	65	75	0.78	0.62	0.61	0.62	0.62
3/4	3	11	82.6	4	19.1	5/8	65	75	90	1.34	1.15	1.15	1.16	1.19
1	3	13	88.9	4	19.1	5/8	65	75	90	1.64	1.39	1.38	1.42	1.44
1 1/4	5	14	98.4	4	19.1	5/8	70	85	95	2.06	1.67	1.66	1.79	1.73
1 1/2	6	16	114.3	4	22.2	3/4	75	90	100	3.06	2.53	2.52	2.68	2.62
2	8	17	127.0	8	19.1	5/8	75	90	100	3.40	2.80	2.79	3.09	2.94
2 1/2	8	19	149.2	8	22.2	3/4	85	100	115	5.31	4.25	4.22	4.75	4.49
3	10	21	168.3	8	22.2	3/4	90	110	120	7.32	5.81	5.78	6.79	6.20
3 1/2	10	22.4	184.2	8	22.2	3/4	95	110	125	8.17	7.72	7.72	9.53	–
4	11	23.9	200.0	8	22.2	3/4	95	115	125	11.30	10.13	10.07	12.00	–
5	11	23.9	235.0	8	22.2	3/4	110	120	135	15.12	12.58	12.52	15.96	–
6	13	26.9	269.9	12	22.2	3/4	110	120	140	19.68	16.04	15.95	21.20	–
8	13	31.8	330.2	12	25.4	7/8	120	140	150	30.48	24.50	24.37	34.60	–
10	13	33.3	387.4	16	28.6	1	140	160	170	43.74	34.16	39.92	55.34	–
12	13	39.6	450.8	16	31.8	1 1/8	145	170	185	64.41	51.26	58.70	78.90	–
14	13	41.4	514.4	20	31.8	1 1/8	160	180	190	88.30	71.12	83.46	107.05	–
16	13	44.5	571.5	20	34.9	1 1/4	165	190	205	112.94	90.40	106.14	139.25	–
18	13	49.3	628.6	24	34.9	1 1/4	170	195	210	138.34	109.00	133.95	176.90	–
20	13	54.1	685.8	24	34.9	1 1/4	185	205	220	167.37	136.00	157.65	223.17	–
24	13	63.5	812.8	24	41.3	1 1/2	205	230	255	235.41	204.00	240.40	342.00	–

(d) Blind flanges may be made with or without hubs at the manufacturers option.
(e) Dimesions in B1 correspond to the inside diameters of pipe as given in ASME B36, 10M for Standard Wall pipe. Thickness of Standard Wall is the same as Schedule 40 in sizes NPS 10 and smaller. These bore sizes are furnished unless otherwise specified by the purchaser.
(f) Depth of Socket(Y) is covered by ASME B16.5 only in size through 3 inch, over 3 inch is at the manufacture's option.

CLASS 400 FLANGES



THREADED



SLIP–ON

ASME B16.5 FORGED FLANGES

Unit : mm

Nom–inal Pipe Size	Out–side Diam. of Flange	Thick–ness of Flange	Diam. of Hub Base	O.D of Raised Face	Diam. of Hub at Bavel	Length Through Hub			Thread Length	BORE			
						Weld–ing Neck	Slip–On Threaded Socket Welding	Lap Joint		Welding Neck /Socket Welding	Slip–On /Socket–Welding	Lap Joint	Counter Bore Min. Threaded
	O	t	X	G	A	T_1	T_2	T_3	Q	B_1	B_2	B_3	B
1/2	95	14.3	38	34.9	21.3	52	22	22	16	To be specified by Purchaser	22.2	22.9	23.6
3/4	115	15.9	48	42.9	26.7	57	25	25	16		27.7	28.2	29.0
1	125	17.5	54	50.8	33.4	62	27	27	18		34.5	34.9	35.8
1 1/4	135	20.7	64	63.5	42.2	67	29	29	21		43.2	43.7	44.4
1 1/2	155	22.3	70	73.0	48.3	70	32	32	23		49.5	50.0	50.6
2	165	25.4	84	92.1	60.3	73	37	37	29		61.9	62.5	63.5
2 1/2	190	28.6	100	104.8	73.0	79	41	41	32		74.6	75.4	76.2
3	210	31.8	117	127.0	88.9	83	46	46	35		90.7	91.4	92.2
3 1/2	230	35.0	133	139.7	101.6	86	49	49	40		103.4	104.1	104.9
4	255	35.0	146	157.2	114.3	89	51	51	37		116.1	116.8	117.6
5	280	38.1	178	185.7	141.3	102	54	54	43		143.8	144.5	144.4
6	320	41.3	206	215.9	168.3	103	57	57	46		170.7	171.4	171.4
8	380	47.7	260	269.9	219.1	117	68	68	51		221.5	222.2	222.2
10	445	54.0	321	323.8	273.0	124	73	102	56		276.2	277.4	276.2
12	520	57.2	375	381.0	323.8	137	79	108	61		327.0	328.2	328.6
14	585	60.4	425	412.8	355.6	149	84	117	64		359.2	360.2	360.4
16	650	63.5	483	469.9	406.4	152	94	127	69		410.5	411.2	411.2
18	710	66.7	533	533.4	457.0	165	98	137	70		461.8	462.3	462.0
20	775	69.9	587	584.2	508.0	168	102	146	74		513.1	514.4	512.8
24	915	76.2	702	692.2	610.0	175	114	159	83		616.0	616.0	614.4

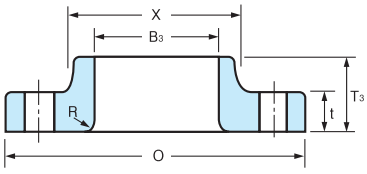
Notes :

(a) For the 'BORE' (B1) other than Standard Wall Thickness, refer to page 70–71

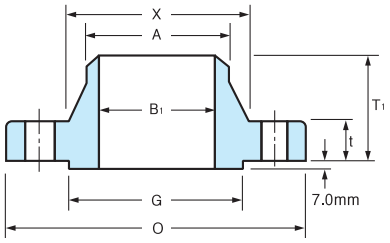
(b) These flanges may by supplied with a flat face. The flat face may be be either the full t dimension of thickness plus 7mm, or the t dimension thickness without the raised face height.

(c) This dimension is for large end of hub, which may be sraight or tapered. Taper shall not exceed 7 deg on threaded, slip–on, socket–welding, and lapped flanges. This dimension is defined as the diameter at the intersection between the hub taper and the back face of the flange.

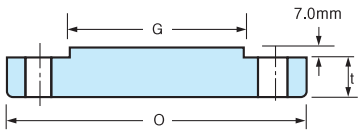
CLASS 400 FLANGES



LAP JOINT



WELDING NECK



BLIND

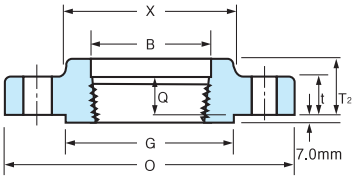
ASME B16.5 FORGED FLANGES

Unit : mm

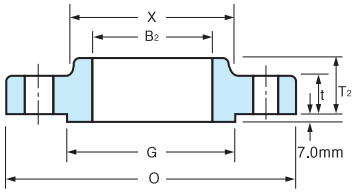
Nominal Pipe Size	Ridius of Fillet	DRILLING			LENGTH OF BOLTS				APPROXIMATE WEIGHT(kg)			
						Stud Bolt Length						
	R	Bolt Circle Diam.	Number of Holes	Diam. of Holes	Diam.of Bolt (inch)	Male and Female / Tongue and Groove	7mm Raised Face	Ring Joint	Welding Neck	Slip-On/ Threaded	Lap Joint	Blind
1/2	3	66.7	4	15.9	1/2	70	75	75	1.36	0.91	0.80	0.91
3/4	3	82.6	4	19.1	5/8	85	90	90	1.59	1.36	1.36	1.40
1	3	88.9	4	19.1	5/8	85	90	90	1.81	1.59	1.59	1.70
1 1/4	5	98.4	4	19.1	5/8	90	95	95	2.50	2.10	2.04	2.27
1 1/2	6	114.3	4	22.2	3/4	100	110	110	3.63	3.10	2.95	3.40
2	8	127.0	8	19.1	5/8	100	110	110	4.54	3.63	3.63	4.40
2 1/2	8	149.2	8	22.2	3/4	115	120	120	6.35	5.44	4.99	6.80
3	10	168.3	8	22.2	3/4	120	125	125	8.17	7.26	6.35	8.90
3 1/2	10	184.2	8	25.4	7/8	135	140	140	11.80	9.53	9.08	13.17
4	11	200.0	8	25.4	7/8	135	140	140	13.61	10.89	9.98	14.40
5	11	235.0	8	25.4	7/8	135	145	145	17.69	14.07	13.15	19.50
6	13	269.9	12	25.4	7/8	145	150	150	22.23	19.98	16.78	27.67
8	13	330.0	12	28.6	1	165	170	170	35.38	30.40	26.16	45.36
10	13	387.4	16	31.8	1 1/8	185	190	190	49.89	41.28	43.09	68.00
12	13	450.8	16	34.9	1 1/4	195	205	205	72.57	59.02	68.95	98.00
14	13	514.4	20	34.9	1 1/4	205	210	210	105.69	81.72	95.25	131.66
16	13	571.5	20	38.1	1 3/8	215	220	220	133.30	106.69	127.00	167.00
18	13	628.6	24	38.1	1 3/8	220	230	230	158.90	129.39	156.49	206.57
20	13	685.8	24	41.3	1 1/2	235	240	250	193.00	152.00	190.51	261.00
24	13	812.8	24	47.6	1 3/4	260	265	280	281.48	231.54	278.96	395.00

(d) Blind flanges may be made with or without hubs at the manufacturer's option.
(e) Dimensions in B1 correspond to the inside diameters of pipe as given in ASME B36, 10M for Standard Wall pipe. Thickness of Standard Wall is the same as Schedule 40 in sizes NPS 10 and smaller. These bore sizes are furnished unless otherwise specified by the purchaser.
(f) Dimensions of sizes 1/2" through 3 1/2" are the same as for Class 600 flanges.

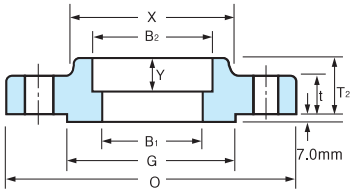
CLASS 600 FLANGES



THREADED



SLIP–ON



SOCKET WELDING

ASME B16.5 FORGED FLANGES

Unit : mm

Nominal Pipe Size	Out–side Diam. of Flange	Thick–ness of Flange	Diam. of Hub	O.D of Raised Face	Diam. of Hub at Bavel	Length Through Hub			Thread Length	BORE			
						Weld–ing Neck	Slip–On Threaded Socket Welding	Lap Joint		Welding Neck /Socket Welding	Slip–On /Socket–Welding	Lap Joint	Counter Bore Min. Threaded
	O	t	X	G	A	T_1	T_2	T_3	Q	B_1	B_2	B_3	B
1/2	95	14.3	38	34.9	21.3	52	22	22	16	To be specified by Purchaser	22.2	22.9	23.6
3/4	115	15.9	48	42.9	26.7	57	25	25	16		27.7	28.2	29.0
1	125	17.5	54	50.8	33.4	62	27	27	18		34.5	34.9	35.8
1 1/4	135	20.7	64	63.5	42.2	67	29	29	21		43.2	43.7	44.4
1 1/2	155	22.3	70	73.0	48.3	70	32	32	23		49.5	50.0	50.6
2	165	25.4	84	92.1	60.3	73	37	37	29		61.9	62.5	63.5
2 1/2	190	28.6	100	104.8	73.0	79	41	41	32		74.6	75.4	76.2
3	210	31.8	117	127.0	88.9	83	46	46	35		90.7	91.4	92.2
3 1/2	230	35.0	133	139.7	101.6	86	49	49	40		103.4	104.1	104.9
4	275	38.1	152	157.2	114.3	102	54	54	42		116.1	116.8	117.6
5	330	44.5	189	185.7	141.3	114	60	60	48		143.8	144.4	144.4
6	355	47.7	222	215.9	168.3	117	67	67	51		170.7	171.4	171.4
8	420	55.6	273	269.9	219.1	133	76	76	58		221.5	222.2	222.2
10	510	63.5	343	323.8	273.0	152	86	111	66		276.2	277.4	276.2
12	560	66.7	400	381.0	323.8	156	92	117	70		327.0	328.2	328.6
14	605	69.9	432	412.8	355.6	165	94	127	74		359.2	360.2	360.4
16	685	76.2	495	469.9	406.4	178	106	140	78		410.5	411.2	411.2
18	745	82.6	546	533.4	457.0	184	117	152	80		461.8	462.3	462.0
20	815	88.9	610	584.2	508.0	190	127	165	83		513.1	514.4	512.8
24	940	101.6	718	692.2	610.0	203	140	184	93		616.0	616.0	614.4

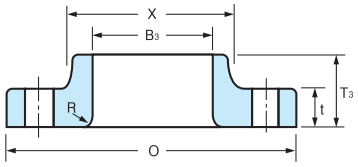
Notes :

(a) For the 'BORE' (B1) other than Standard Wall Thickness, refer to page 70–71

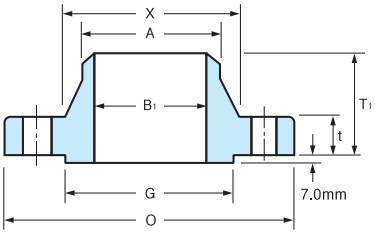
(b) These flanges may be supplied with a flat face. The flat face may be either the full t dimension of thickness plus 7mm, or the t dimension thickness without the raised face height.

(c) This dimension is for large end of hubs, which may be straight or tapered, Taper shall not exceed 7 deg on the theraded, slip–on, socket–welding, and lapped flanges. This dimension is defined as the diameter at the intersection between the hub taper and the back face of the flange.

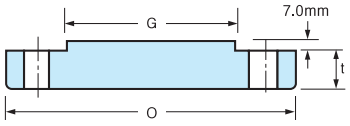
CLASS 600 FLANGES



LAP JOINT



WELDING NECK



BLIND

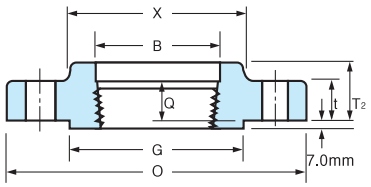
ASME B16.5 FORGED FLANGES

Unit : mm

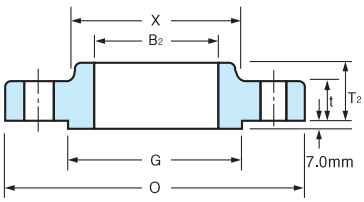
SIZE	Ridius of Fillet	Depth of Socket	DRILLING			LENGTH OF BOLTS				APPROXIMATE WEIGHT(kg)				
			Bolt Circle Diam.	Number of Holes	Diam. of Holes	Diam.of Bolt (inch)	Male and Female / Tongue and Groove	Stud Bolt Length		Welding Neck	Slip-On/ Thre-aded	Lap Joint	Blind	Socket Welding
								7mm Raised Face	Ring Joint					
	R	Y												
1/2	3	10	66.7	4	15.9	1/2	70	75	75	0.90	0.91	0.80	0.91	0.91
3/4	3	11	82.6	4	19.1	5/8	85	90	90	1.59	1.40	1.36	1.40	1.36
1	3	13	88.9	4	19.1	5/8	85	90	90	1.90	1.70	1.59	1.81	1.81
1 1/4	5	14	98.4	4	19.1	5/8	90	95	95	2.49	2.27	2.04	2.40	2.60
1 1/2	6	16	114.3	4	22.2	3/4	100	110	110	3.63	3.10	2.95	3.40	3.18
2	8	17	127.0	8	19.1	5/8	100	110	110	4.54	3.63	3.63	4.40	3.90
2 1/2	8	19	149.2	8	22.2	3/4	115	120	120	6.35	5.44	4.99	6.80	5.90
3	10	21	168.3	8	22.2	3/4	120	125	125	8.16	7.26	6.35	8.90	7.40
3 1/2	10	22.4	184.2	8	25.4	7/8	135	140	140	11.80	9.53	9.08	13.17	–
4	11	23.9	215.9	8	25.4	7/8	140	145	145	16.78	14.97	14.06	18.60	–
5	11	23.9	266.7	8	28.6	1	160	165	165	30.87	28.50	27.50	30.84	–
6	13	26.9	292.1	12	28.6	1	165	170	170	36.77	36.32	35.38	38.00	–
8	13	31.8	349.2	12	31.8	1 1/8	185	190	195	50.80	44.00	50.80	62.20	–
10	13	33.3	431.8	16	34.9	1 1/4	210	215	215	86.26	76.20	74.00	102.00	–
12	13	39.6	489.0	20	34.9	1 1/4	215	220	220	102.51	97.52	108.86	132.00	–
14	13	41.4	527.0	20	38.1	1 3/8	230	235	235	121.56	102.00	111.00	158.00	–
16	13	44.5	603.2	20	41.3	1 1/2	250	255	255	177.06	149.82	165.71	224.73	–
18	13	49.3	654.0	20	44.5	1 5/8	265	275	275	215.65	180.10	194.00	285.00	–
20	13	54.1	723.9	24	44.5	1 5/8	280	285	290	267.86	231.54	258.78	365.00	–
24	13	63.5	838.2	24	50.8	1 7/8	325	330	335	372.00	330.00	362.00	533.45	–

(d) Blind flanges may be made with or without hubs at the manufacturer's option.
(e) Dimensions in B1 correspond to the inside diameters of pipe as given in ASME B36.10M for Standard Wall pipe. Thickness of Stndard Wall is the same as Schedule 40 in sizes NPS 10 and smaller. These bore sizes are furnished unless otherwise specified by the purchaser.
(f) Depth of Socket(Y) is covered by ASME B16.5 only in sizes through 3 inch, over 3 inch is at the manufacturer's option.

CLASS 900 FLANGES



THREADED



SLIP-ON

ASME B16.5 FORGED FLANGES

Unit : mm

Nominal Pipe Size	Outside Diam. of Flange	Thickness of Flange	Diam. of Hub Base	O.D of Raised Face	Diam. of Hub at Bavel	Length Through Hub			Thread Length	BORE			
						Welding Neck	Slip-On Threaded Socket Welding	Lap Joint		Welding Neck /Socket Welding	Slip-On /Socket-Welding	Lap Joint	Counter Bore Min. Threaded
	O	t	X	G	A	T_1	T_2	T_3	Q	B_1	B_2	B_3	B
1/2	120	22.3	38	34.9	21.3	60.0	32.0	32.0	23.0	To be specified by Purchaser	22.2	22.9	23.6
3/4	130	25.4	44	42.9	26.7	70.0	35.0	35.0	26.0		27.7	28.2	29.0
1	150	28.6	52	50.8	33.4	73.0	41.0	41.0	29.0		34.5	34.9	35.8
1 1/4	160	28.6	64	63.5	42.2	73.0	41.0	41.0	31.0		43.2	43.7	44.4
1 1/2	180	31.8	70	73.0	48.3	83.0	44.0	44.0	32.0		49.5	50.0	50.6
2	215	38.1	105	92.1	60.3	102.0	57.0	57.0	39.0		61.9	62.5	63.5
2 1/2	245	41.3	124	104.8	73.0	105.0	64.0	64.0	48.0		74.6	75.4	76.2
3	240	38.1	127	127.0	88.9	102.0	54.0	54.0	42.0		90.7	91.4	92.2
4	290	44.5	159	157.2	114.3	114.0	70.0	70.0	48.0		116.1	116.8	117.6
5	350	50.8	190	185.7	141.3	127.0	79.0	79.0	54.0		143.8	144.4	144.4
6	380	55.6	235	215.9	168.3	140.0	86.0	86.0	58.0		170.7	171.4	171.4
8	470	63.5	298	269.9	219.1	162.0	102.0	114.0	64.0		221.5	222.2	222.2
10	545	69.9	368	323.8	273.0	184.0	108.0	127.0	72.0		276.2	277.4	276.2
12	610	79.4	419	381.0	323.8	200.0	117.0	143.0	77.0		327.0	328.2	328.6
14	640	85.8	451	412.8	355.6	213.0	130.0	156.0	83.0		359.2	360.2	360.4
16	705	88.9	508	469.9	406.4	216.0	133.0	165.0	86.0		410.5	411.2	411.2
18	785	101.6	565	533.4	457.0	229.0	152.0	190.0	89.0		461.8	462.3	462.0
20	855	108.0	622	584.2	508.0	248.0	159.0	210.0	93.0		513.1	514.4	512.8
24	1040	139.7	749	692.2	610.0	292.0	203.0	267.0	102.0		616.0	616.0	614.4

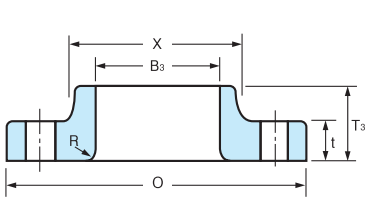
Notes :

(a) For the 'BORE'(B1) other than Standard Wall Thickness, refer to page 70-71

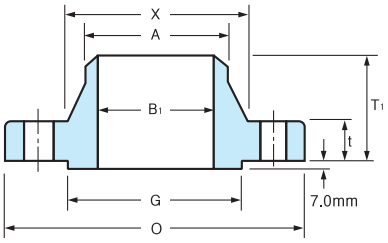
(b) These flanges may be supplied with a flat face. The flat face may be either the full t dimension of thickness plus 7mm, or the t dimension thickness without the raised face height.

(c) This dimension is for large end of hubs, which may be straight or tapered, Taper shall not exceed 7 deg on the theraded, slip-on, socket-welding, and lapped flanges. This dimension is defined as the diameter at the intersection between the hub taper and the back face of the flange.

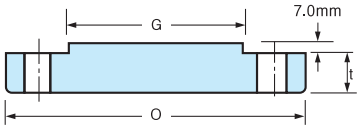
CLASS 900 FLANGES



LAP JOINT



WELDING NECK



BLIND

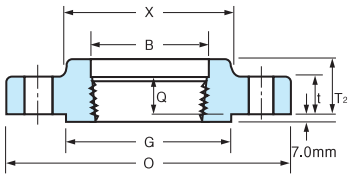
ASME B16.5 FORGED FLANGES

Unit : mm

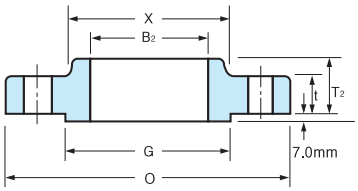
Nom-inal Pipe Size	Ridius of Fillet	DRILLING			LENGTH OF BOLTS				APPROXIMATE WEIGHT(kg)			
						Stud Bolt Length						
	R	Bolt Circle Diam.	Number of Holes	Diam. of Holes	Diam.of Bolt (inch)	Male and Female / Tongue and Groove	7mm Raised Face	Ring Joint	Welding Neck	Slip-On/ Thre-aded	Lap Joint	Blind
1/2	3	82.6	4	22.2	3/4	100	110	110	2.10	1.81	1.81	1.90
3/4	3	88.9	4	22.2	3/4	110	115	115	2.72	2.40	2.30	2.70
1	3	101.6	4	25.4	7/8	120	125	125	3.86	3.41	3.40	4.09
1 1/4	5	111.1	4	25.4	7/8	120	125	125	4.54	4.10	4.09	4.54
1 1/2	6	123.8	4	28.6	1	135	140	140	5.90	5.45	5.40	5.90
2	8	165.1	8	25.4	7/8	140	145	145	10.89	9.98	9.53	11.34
2 1/2	8	190.5	8	28.6	1	150	160	160	16.33	15.80	13.15	16.00
3	10	190.5	8	25.4	7/8	140	145	145	15.00	11.80	11.34	13.17
4	11	235.0	8	31.8	1 1/8	165	170	170	23.13	23.20	22.60	24.50
5	11	279.4	8	34.9	1 1/4	185	190	190	38.50	37.65	36.74	39.46
6	13	317.5	12	31.8	1 1/8	185	190	195	49.89	48.30	47.50	51.50
8	13	393.7	12	38.1	1 3/8	215	220	220	79.45	75.00	86.00	89.00
10	13	469.9	16	38.1	1 3/8	230	235	235	118.04	111.13	125.64	131.54
12	13	533.4	20	38.1	1 3/8	250	255	255	157.00	146.00	167.00	187.00
14	13	558.8	20	41.3	1 1/2	265	275	280	181.60	172.36	180.07	224.07
16	13	616.0	20	44.5	1 5/8	280	285	290	224.73	192.95	211.11	272.40
18	13	685.8	20	50.8	1 7/8	320	325	335	308.72	272.40	295.10	385.90
20	13	749.3	20	54.0	2	345	350	360	376.82	331.42	367.74	488.00
24	13	901.7	20	66.7	2 1/2	430	440	455	685.00	632.00	700.00	905.00

(d) Blind flanges may be made with or without hubs at the manufacturer's option.
(e) Dimensions in B1 correspond to the inside diameters of pipe as given in ASME B36.10M for Standard.

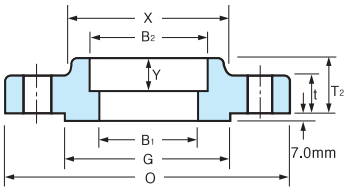
CLASS 1500 FLANGES



THREADED



SLIP–ON



SOCKET WELDING

ASME B16.5 FORGED FLANGES

Unit : mm

Nominal Pipe Size	Out–side Diam. of Flange	Thick–ness of Flange	Diam. of Hub Base	O.D of Raised Face	Diam. of Hub at Bavel	Length Through Hub			Thread Length	BORE			
						Weld–ing Neck	Slip–On Threaded Socket Welding	Lap Joint		Welding Neck /Socket Welding	Slip–On /Socket–Welding	Lap Joint	Counter Bore Min. Threaded
	O	t	X	G	A	T_1	T_2	T_3	Q	B_1	B_2	B_3	B
1/2	120	22.3	38	34.9	21.3	60	32	32	23	To be specified by Purchaser	22.2	22.9	23.6
3/4	130	25.4	44	42.9	26.7	70	35	35	26		27.7	28.2	29.0
1	150	28.6	52	50.8	33.4	73	41	41	29		34.5	34.9	35.8
1 1/4	160	28.6	64	63.5	42.2	73	41	41	31		43.2	43.7	44.4
1 1/2	180	31.8	70	73.0	48.3	83	44	44	32		49.5	50.0	50.6
2	215	38.1	105	92.1	60.3	102	57	57	39		61.9	62.5	63.5
2 1/2	245	41.3	124	104.8	73.0	105	64	64	48		74.6	75.4	76.2
3	265	47.7	133	127.0	88.9	117	73.2	73	50.8		90.7	91.4	92.2
4	310	54.0	162	157.2	114.3	124	90.4	90	57.2		116.1	116.8	117.6
5	375	73.1	197	185.7	141.3	156	104.6	105	57.2		143.8	144.4	144.5
6	395	82.6	229	215.9	168.3	171	119.1	119	69.9		170.7	171.4	171.5
8	485	92.1	292	269.9	219.1	213	142.7	143	76.2		221.5	222.2	222.3
10	585	108.0	368	323.8	273.0	254	158.8	178	84.1		276.4	277.4	276.4
12	675	123.9	451	381.0	323.8	283	180.8	219	91.9		327.2	328.2	328.7
14	750	133.4	495	412.8	355.6	298	–	241	–		359.2	360.2	360.4
16	825	146.1	552	469.9	406.4	311	–	260	–		410.5	411.2	411.2
18	915	162.0	597	533.4	457.0	327	–	276	–		461.8	462.3	462.0
20	985	177.8	641	584.2	508.0	356	–	292	–		513.1	514.4	512.8
24	1170	203.2	762	692.2	610.0	406	–	330	–		616.0	616.0	614.4

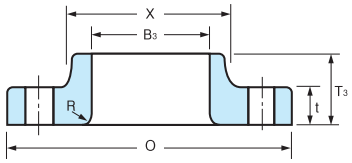
Notes :

(a) For the 'BORE' (B_1) other than Standard Wall Thickness, refer to page 70–71

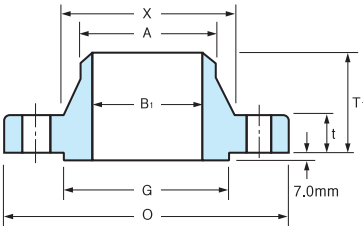
(b) These flanges may be supplied with a flat face. The flat face may be either the full t dimension of thickness plus 7 mm, or the t dimension thickness without the raised face height.

(c) This dimension is for large end of hub, which may be stright or tapered. Taper shall not exceed 7deg on threaded, slip–on, socket–welding, and lapped flanges. This dimension is defined as the diameter at the intersection between the hub taper and the back face of the flange.

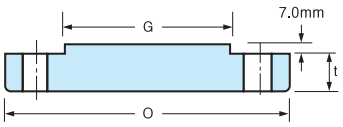
CLASS 1500 FLANGES



LAP JOINT



WELDING NECK



BLIND

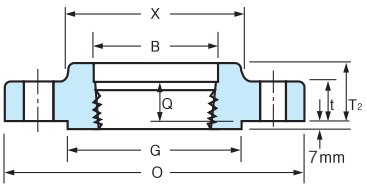
ASME B16.5 FORGED FLANGES

Unit : mm

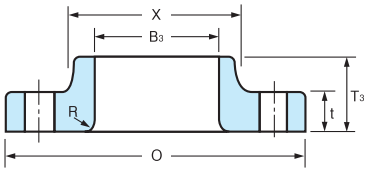
SIZE	Ridius of Fillet	Depth of Socket	DRILLING			LENGTH OF BOLTS				APPROXIMATE WEIGHT(kg)				
			Bolt Circle Diam.	Number of Holes	Diam. of Holes	Diam.of Bolt (inch)	Male and Female/ Tongue and Groove	Stud Bolt Length		Welding Neck	Slip-On/ Thre-aded	Lap Joint	Blind	Socket Welding
								7mm Raised Face	Ring Joint					
	R	Y												
1/2	3	10	82.6	4	22.2	3/4	100	110	110	2.10	1.80	1.80	1.90	1.80
3/4	3	11	88.9	4	22.2	3/4	110	115	115	2.72	2.27	2.27	2.72	2.81
1	3	13	101.6	4	25.4	7/8	120	125	125	3.86	3.40	3.40	4.08	3.61
1 1/4	5	14	111.1	4	25.4	7/8	120	125	125	4.54	4.10	4.09	4.30	4.99
1 1/2	6	16	123.8	4	28.6	1	135	140	140	5.90	5.45	5.40	5.90	6.76
2	8	17	165.1	8	25.4	7/8	140	145	145	10.89	10.50	9.53	11.30	10.89
2 1/2	8	19	190.5	8	28.6	1	150	160	160	16.34	15.80	13.15	16.00	16.34
3	10	20.6	203.2	8	31.8	1 1/8	170	180	180	21.79	21.77	17.24	21.79	–
4	11	23.9	241.3	8	34.9	1 1/4	190	195	195	31.30	31.00	29.00	33.11	–
5	11	23.9	292.1	8	41.3	1 1/2	240	250	250	59.02	58.80	54.00	60.00	–
6	13	26.9	317.5	12	38.1	1 3/8	255	260	265	74.91	74.00	62.00	75.00	–
8	13	31.8	393.7	12	44.5	1 5/8	285	290	300	123.83	117.73	129.73	136.98	–
10	13	33.3	482.6	12	50.8	1 7/8	330	335	345	205.93	197.49	220.19	229.97	–
12	13	39.6	571.5	16	54.0	2	370	375	385	306.00	264.00	286.02	316.00	–
14	13	41.4	635.0	16	60.3	2 1/4	400	405	425	416.00	–	404.06	421.00	–
16	13	44.5	704.8	16	66.7	2 1/2	440	445	470	567.50	–	522.10	559.00	–
18	13	49.3	774.7	16	73.0	2 3/4	490	495	525	736.00	–	669.65	761.00	–
20	13	54.1	831.8	16	79.4	3	535	540	565	929.00	–	805.85	967.00	–
24	13	63.5	990.6	16	92.1	3 1/2	610	615	650	1504.00	–	1285.55	1568.00	–

(d) Blind flanges may be made with or without hubs at the manufacturer's option.
(e) Dimensions in B1 correspond to the inside diameters of pipe as given in ASME B36. 10M for Standard Wall pipe. Thickness of Standard Wall is the same as Schedule 40 in sizes NPS 10 and smaller. These bore sizes are furnished unless otherwise specified by the purchaser.
(f) Depth of Socket(Y) is covered by ASME B16.5 only in sizes throught 3 inch, over 3 inch is at the manufacture's option.
(g) Dimensions of sizes 1/2" through 2 1'2" are the same as for Class 900 flanges.
(h) Over 2 1/2inch of Bore(B, B2)and Thread Length(Q) are at the manufacturer's option.

CLASS 2500 FLANGES



THREADED



LAP JOINT

ASME B16.5 FORGED FLANGES

Unit : mm

Nom–inal Pipe Size	Out–side Diam. of Flange	Thick–ness of Flange	Diam. of Hub Base	O.D of Raised Face	Diam. of Hub at Bavel	Length Through Hub			Thread Length	BORE		
						Weld–ing Neck	Slip–On Threaded Socket Welding	Lap Joint		Welding Neck /Socket Welding	Lap Joint	Counter Bore Min. Threaded
	O	t	X	G	A	T_1	T_2	T_3	Q	B_1	B_3	B
1/2	135	30.2	43	34.9	21.3	73	40	40	29	To be specified by Purchaser	22.9	23.6
3/4	140	31.8	51	42.9	26.7	79	43	43	32		28.2	29.0
1	160	35.0	57	50.8	33.4	89	48	48	35		34.9	35.8
1 1/4	185	38.1	73	63.5	42.2	95	52	52	39		43.7	44.4
1 1/2	205	44.5	79	73.0	48.3	111	60	60	45		50.0	50.6
2	235	50.9	95	92.1	60.3	127	70	70	51		62.5	63.5
2 1/2	265	57.2	114	104.8	73.0	143	79	79	58		75.4	76.2
3	305	66.7	133	127.0	88.9	168	–	92	63.5		91.4	92.2
4	355	76.2	165	157.2	114.3	190	–	108	69.9		116.8	117.6
5	420	92.1	203	185.7	141.3	229	–	130	76.2		144.4	144.5
6	485	108.0	235	215.9	168.3	273	–	152	82.6		171.4	171.5
8	550	127.0	305	269.9	219.1	318	–	178	95.3		222.2	222.3
10	675	165.1	375	323.8	273.0	419	–	229	108.0		277.4	276.4
12	760	184.2	441	381.0	323.8	464	–	254	120.7		328.2	328.7

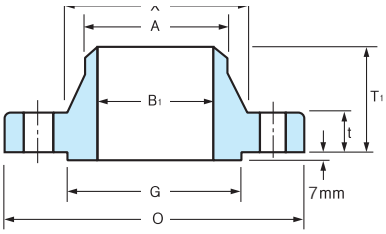
Notes :

(a) For the 'BORE'(B1) other than Standard Wall Thickness, refer to page 70–71

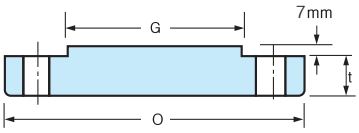
(b) These flanges may be supplied with a flat face. The flat face may be either the full t dimension of thickness plus 7mm, or the t dimension thickness without the raised face height.

(c) This dimension is for large end of hub, which may be stright or tapered. Taper shall not exceed 7deg on threaded, slip–on, socket–welding, and lapped flanges. This dimension is defined as the diameter at the intersection between the hub taper and the back face of the flange.

CLASS 2500 FLANGES



WELDING NECK



BLIND

ASME B16.5 FORGED FLANGES

Unit : mm

Nominal Pipe Size	Ridius of Fillet	DRILLING			LENGTH OF BOLTS				APPROXIMATE WEIGHT(kg)			
						Stud Bolt Length						
	R	Bolt Circle Diam.	Number of Holes	Diam. of Holes	Diam.of Bolt (inch)	Male and Female / Tongue and Groove	7mm Raised Face	Ring Joint	Welding Neck	Thre-aded	Lap Joint	Blind
1/2	3	88.9	4	22.2	3/4	115	120	120	3.18	3.18	3.00	3.18
3/4	3	95.2	4	22.2	3/4	120	125	125	4.08	4.08	3.63	4.54
1	3	108.0	4	25.4	7/8	135	140	140	5.45	5.44	4.99	5.44
1 1/4	5	130.2	4	28.6	1	145	150	150	9.07	8.16	7.26	8.16
1 1/2	6	146.0	4	31.8	1 1/8	165	170	170	11.35	11.00	9.99	10.44
2	8	171.4	8	28.6	1	170	180	180	19.07	17.25	16.80	17.71
2 1/2	8	196.8	8	31.8	1 1/8	190	195	205	23.61	24.97	24.06	25.42
3	10	228.6	8	34.9	1 1/4	215	220	230	42.68	37.68	36.32	39.04
4	11	273.0	8	41.3	1 1/2	250	255	260	64.00	58.00	54.48	60.38
5	11	323.8	8	47.6	1 3/4	290	300	310	110.68	95.25	92.53	101.15
6	13	368.3	8	54.0	2	335	345	355	176.46	146.51	143.01	156.63
8	13	438.2	12	54.0	2	375	380	395	261.27	219.99	213.38	240.62
10	13	539.8	12	66.7	2 1/2	485	490	510	484.43	419.57	408.60	465.36
12	13	619.1	12	73.0	2 3/4	535	540	560	692.35	590.20	572.95	664.06

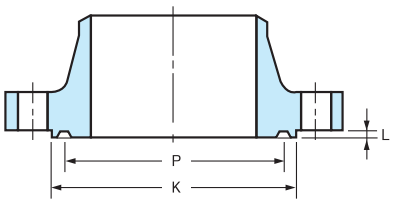
(d) Blind flanges may be made with or without hubs at the manufacturer's option.
(e) Dimensions in B1 correspond to the inside diameters of pipe as given in ASME B36. 10M for Standard Wall pipe. Thickness of Standard Wall is the same as Schedule 40 in sizes NPS 10 and smaller. These bore sizes are furnished unless otherwise specified by the purchaser.
(f) Class 2500 Slip-on are not by ASME B16.5, Slip-on flanges are at the manufacturer's option.
(g) Thread Length(Q) and Length Through Hub(T3) are covered by ASME B16.5 only in sizes through 2 1/2 inch, over 2 1/2 inch is at the manufacturer's option.

RING JOINT FLANGES

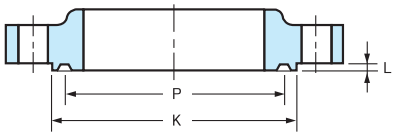
- Class 150 Flanges
- Class 300,400,600 Flanges
- Class 900 Flanges
- Class 1500 Flanges
- Class 2500 Flanges

SFF Corp.

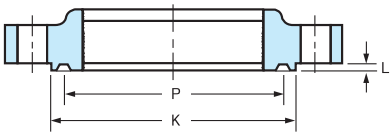
CLASS 150 FLANGES



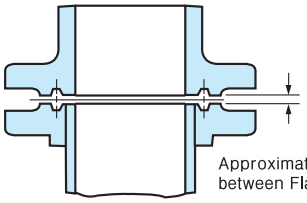
WELDING NECK

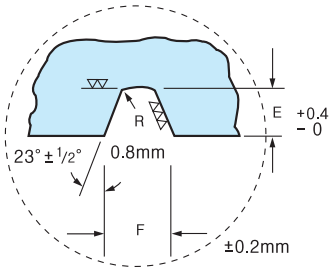


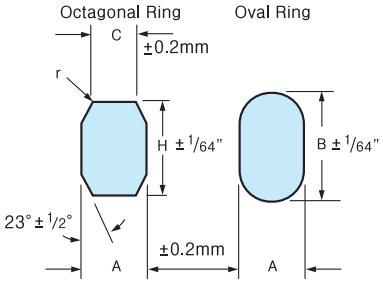
SLIP-ON



THREADED







RING JOINT FLANGES

Unit : mm

Nominal Pipe Size	Pitch Diam. Ring & Groove	Width of Ring	Height of Ring		Width Flat on Octa.Ring	Width of Groove	Depth of Groove	Diam. of R.F for Ring Joint or Lapped	Ring Number	Approximate Distance Between Flanges
			Oval	Octagonal						
	P	A	B	H	C	F	E(L*)	K(Min)		
1	47.63	8	14.3	12.7	5.2	8.74	6.35	63.5	R15	4
1 1/4	57.15	8	14.3	12.7	5.2	8.74	6.35	73.0	R17	4
1 1/2	65.07	8	14.3	12.7	5.2	8.74	6.35	82.5	R19	4
2	82.55	8	14.3	12.7	5.2	8.74	6.35	102.0	R22	4
2 1/2	101.6	8	14.3	12.7	5.2	8.74	6.35	121.0	R25	4
3	114.3	8	14.3	12.7	5.2	8.74	6.35	133.0	R29	4
3 1/2	131.78	8	14.3	12.7	5.2	8.74	6.35	154.0	R33	4
4	149.23	8	14.3	12.7	5.2	8.74	6.35	171.0	R36	4
5	171.45	8	14.3	12.7	5.2	8.74	6.35	194.0	R40	4
6	193.68	8	14.3	12.7	5.2	8.74	6.35	219.0	R43	4
8	247.65	8	14.3	12.7	5.2	8.74	6.35	273.0	R48	4
10	304.8	8	14.3	12.7	5.2	8.74	6.35	330.0	R52	4
12	381.0	8	14.3	12.7	5.2	8.74	6.35	406.0	R56	4
14	396.88	8	14.3	12.7	5.2	8.74	6.35	425.0	R59	3
16	454.03	8	14.3	12.7	5.2	8.74	6.35	483.0	R64	3
18	517.53	8	14.3	12.7	5.2	8.74	6.35	546.0	R68	3
20	558.8	8	14.3	12.7	5.2	8.74	6.35	597.0	R72	3
24	673.1	8	14.3	12.7	5.2	8.74	6.35	711.0	R76	3

Notes :

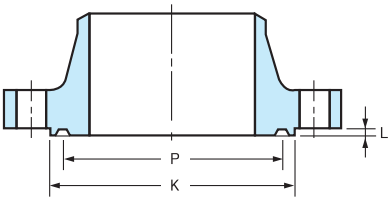
Unless otherwise specified by the customer, Ring Type Joint Flanges will be furnished in accordance with these details. The depth of groove is added to the minimum flanges thickness.

* Raised face "L" is equal to groove dimension "E" but is not subject to tolerance for "E"
* A plus tolerance of 3/64 in. for heights B and H is permitted providing the variation in the height of any given ring does not exceed 1/64 in. throughtout its entire circumference.
  Dimension "R" is max.
  Radius "r" is 1/16 for ring widths 7/8" and less 3/32" for ring width 1" and over.

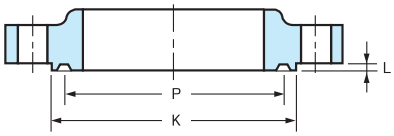
tolerances :

* E (depth) +0.4, −0.0
* F (width) ±0.2
* P (pitch diameter) ±0.13
* R (radius at bottom)
  R≤2+0.8, −0.0
  R≥2±0.8
* 23 deg (angle) ± 1/2 deg

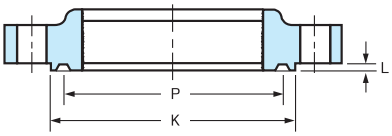
CLASS 300 / 400 / 600 FLANGES



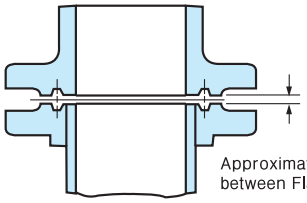
WELDING NECK

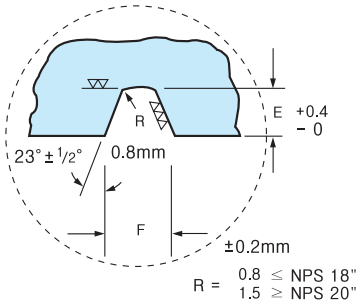


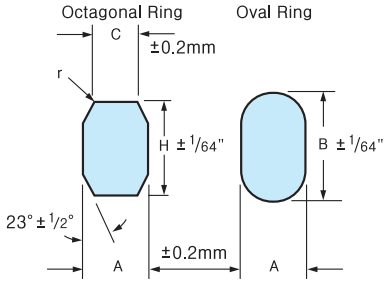
SLIP-ON



THREADED







RING JOINT FLANGES

Unit : mm

Nominal Pipe Size	Pitch Diam. Ring & Groove	Width of Ring	Height of Ring		Width Flat on Octa.Ring	Width of Groove	Depth of Groove	Diam. of R.F for Ring Joint or Lapped	Ring Number	Approximate Distance Between Flanges		
			Oval	Octagonal						CLASS 300	CLASS 400	CLASS 600
	P	A	B	H	C	F	E(L*)	K(Min)				
1/2	34.14	6.4	11.1	9.5	4.3	7.14	5.54	51.0	R11	3		3
3/4	42.88	8.0	14.3	12.7	5.2	8.74	6.35	63.5	R13	4		4
1	50.8	8.0	14.3	12.7	5.2	8.74	6.35	70.0	R16	4		4
1 1/4	60.33	8.0	14.3	12.7	5.2	8.74	6.35	79.5	R18	4		4
1 1/2	68.27	8.0	14.3	12.7	5.2	8.74	6.35	90.5	R20	4		4
2	82.55	11.1	17.5	15.9	7.7	11.91	7.92	108.0	R23	6		5
2 1/2	101.6	11.1	17.5	15.9	7.7	11.91	7.92	127.0	R26	6		5
3	123.83	11.1	17.5	15.9	7.7	11.91	7.92	146.0	R31	6		5
3 1/2	131.78	11.1	17.5	15.9	7.7	11.91	7.92	159.0	R34	6		5
4	149.23	11.1	17.5	15.9	7.7	11.91	7.92	175.0	R37	6	6	5
5	180.98	11.1	17.5	15.9	7.7	11.91	7.92	210.0	R41	6	6	5
6	211.12	11.1	17.5	15.9	7.7	11.91	7.92	241.0	R45	6	6	5
8	269.88	11.1	17.5	15.9	7.7	11.91	7.92	302.0	R49	6	6	5
10	323.85	11.1	17.5	15.9	7.7	11.91	7.92	356.0	R53	6	6	5
12	381.0	11.1	17.5	15.9	7.7	11.91	7.92	413.0	R57	6	6	5
14	419.1	11.1	17.5	15.9	7.7	11.91	7.92	457.0	R61	6	6	5
16	469.9	11.1	17.5	15.9	7.7	11.91	7.92	508.0	R65	6	6	5
18	533.4	11.1	17.5	15.9	7.7	11.91	7.92	575.0	R69	6	6	5
20	584.2	12.7	19.1	17.5	8.7	13.49	9.53	635.0	R73	6	6	5
24	692.15	15.9	22.2	20.7	10.5	16.66	11.13	749.0	R77	6	6	6

Notes :

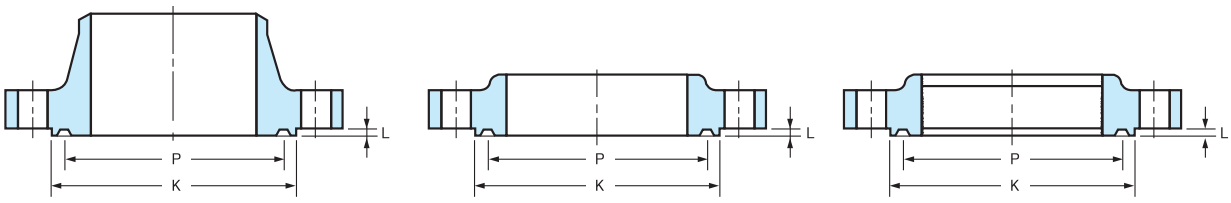
Unless otherwise specified by the customer, Ring Type Joint Flanges will be furnished in accordance with these details. The depth of groove is added to the minimum flanges thickness.

* Raised face "L" is equal to groove dimension "E" but is not subject to tolerance for "E"
* A plus tolerance of 3/64 in. for heights B and H is permitted providing the variation in the height of any given ring does not exceed 1/64 in. throughtout its entire circumference.
  Dimension "R" is max.
  Radius "r" is 1/16 for ring widths 7/8" and less 3/32" for ring width 1" and over.

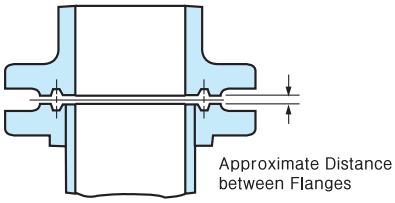
tolerances :

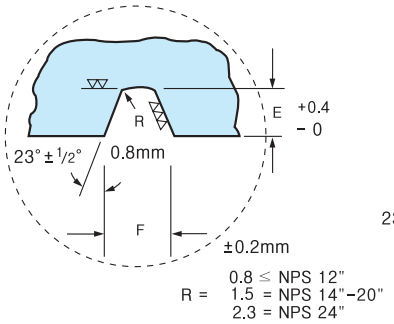
* E (depth) +0.4, −0.0
* F (width) ±0.2
* P (pitch diameter) ±0.13
* R (radius at bottom)
  R≤2+0.8, −0.0
  R≥2±0.8
* 23 deg (angle) ± 1/2 deg

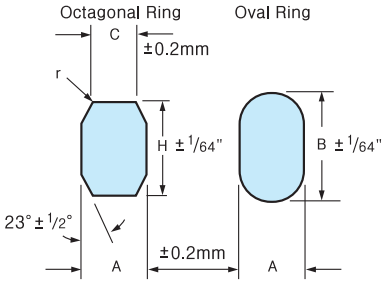
CLASS 900 FLANGES



WELDING NECK　　SLIP-ON　　THREADED







RING JOINT FLANGES

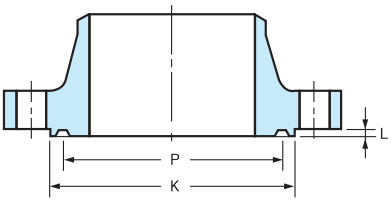
Unit : mm

Nominal Pipe Size	Pitch Diam. Ring & Groove	Width of Ring	Height of Ring		Width Flat on Octa.Ring	Width of Groove	Depth of Groove	Diam. of R.F for Ring Joint or Lapped	Ring Number	Approximate Distance Between Flanges
			Oval	Octagonal						
	P	A	B	H	C	F	E(L*)	K(Min)		
1/2	39.67	8.0	14.3	12.7	5.2	8.74	6.35	60.5	R12	4
3/4	44.45	8.0	14.3	12.7	5.2	8.74	6.35	66.5	R14	4
1	50.8	8.0	14.3	12.7	5.2	8.74	6.35	71.5	R16	4
1 1/4	60.33	8.0	14.3	12.7	5.2	8.74	6.35	81.0	R18	4
1 1/2	68.27	8.0	14.3	12.7	5.2	8.74	6.35	92.0	R20	4
2	95.25	11.1	17.5	15.9	7.7	11.91	7.92	124.0	R24	3
2 1/2	107.95	11.1	17.5	15.9	7.7	11.91	7.92	137.0	R27	3
3	123.83	11.1	17.5	15.9	7.7	11.91	7.92	156.0	R31	4
4	149.23	11.1	17.5	15.9	7.7	11.91	7.92	181.0	R37	4
5	180.98	11.1	17.5	15.9	7.7	11.91	7.92	216.0	R41	4
6	211.12	11.1	17.5	15.9	7.7	11.91	7.92	241.0	R45	4
8	269.88	11.1	17.5	15.9	7.7	11.91	7.92	308.0	R49	4
10	323.85	11.1	17.5	15.9	7.7	11.91	7.92	362.0	R53	4
12	381.0	11.1	17.5	15.9	7.7	11.91	7.92	419.0	R57	4
14	419.1	15.9	22.2	20.7	10.5	16.66	11.13	467.0	R62	4
16	469.9	15.9	22.2	20.7	10.5	16.66	11.13	524.0	R66	4
18	533.4	19.1	25.4	23.8	11.1	19.84	12.70	594.0	R70	5
20	584.2	19.1	25.4	23.8	12.3	19.84	12.70	648.0	R74	5
24	692.15	25.4	33.4	31.8	17.3	26.97	15.88	772.0	R78	6

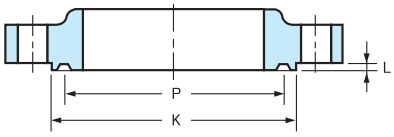
Notes :
Unless otherwise specified by the customer, Ring Type Joint Flanges will be furnished in accordance with these details. The depth of groove is added to the minimum flanges thickness.
* Raised face "L" is equal to groove dimension "E" but is not subject to tolerance for "E"
* A plus tolerance of 3/64 in. for heights B and H is permitted providing the variation in the height of any given ring does not exceed 1/64 in. throughtout its entire circumference.
  Dimension "R" is max.
  Radius "r" is 1/16 for ring widths 7/8" and less 3/32" for ring width 1" and over.

tolerances :
* E (depth) +0.4, −0.0
* F (width) ±0.2
* P (pitch diameter) ±0.13
* R (radius at bottom)
  R≤2+0.8, −0.0
  R≥2±0.8
* 23 deg (angle) ± 1/2 deg

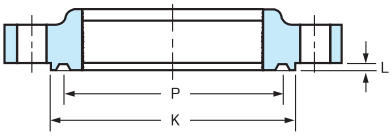
CLASS 1500 FLANGES



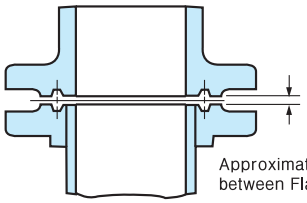
WELDING NECK

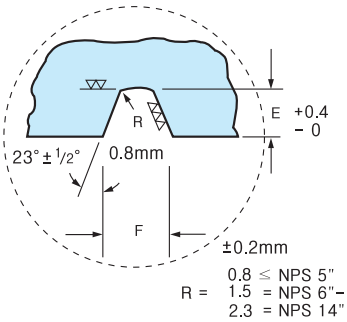


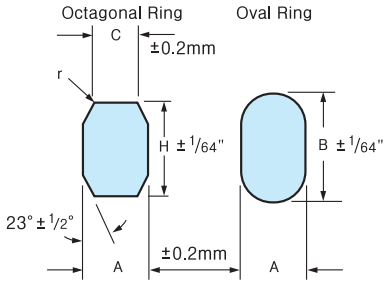
SLIP-ON



THREADED







RING JOINT FLANGES

Unit : mm

Nominal Pipe Size	Pitch Diam. Ring & Groove	Width of Ring	Height of Ring		Width Flat on Octa.Ring	Width of Groove	Depth of Groove	Diam. of R.F for Ring Joint or Lapped	Ring Number	Approximate Distance Between Flanges
			Oval	Octagonal						
	P	A	B	H	C	F	E(L*)	K(Min)		
1/2	39.67	8.0	14.3	12.7	5.2	8.74	6.35	60.5	R12	4
3/4	44.45	8.0	14.3	12.7	5.2	8.74	6.35	66.5	R14	4
1	50.8	8.0	14.3	12.7	5.2	8.74	6.35	71.5	R16	4
1 1/4	60.33	8.0	14.3	12.7	5.2	8.74	6.35	81.0	R18	4
1 1/2	68.27	8.0	14.3	12.7	5.2	8.74	6.35	92.0	R20	4
2	95.25	11.1	17.5	15.9	7.7	11.91	7.92	124.0	R24	3
2 1/2	107.95	11.1	17.5	15.9	7.7	11.91	7.92	137.0	R27	3
3	136.53	11.1	17.5	15.9	7.7	11.91	7.92	168.0	R35	3
4	161.93	11.1	17.5	15.9	7.7	11.91	7.92	194.0	R39	3
5	193.68	11.1	17.5	15.9	7.7	11.91	7.92	229.0	R44	3
6	211.14	12.7	19.1	17.5	8.7	13.49	9.53	248.0	R46	3
8	269.88	15.9	22.2	20.7	10.5	16.66	11.13	318.0	R50	4
10	323.85	15.9	22.2	20.7	10.5	16.66	11.13	371.0	R54	4
12	381.0	22.2	28.6	27.0	14.8	23.01	14.27	438.0	R58	5
14	419.1	25.4	33.4	31.8	17.3	26.97	15.88	489.0	R63	6
16	469.9	28.6	36.5	34.9	19.8	30.18	17.48	546.0	R67	8
18	533.4	28.6	36.5	34.9	19.8	30.18	17.48	613.0	R71	8
20	584.2	31.8	39.7	38.1	22.3	33.32	17.48	673.0	R75	10
24	692.15	34.9	44.5	41.3	24.8	36.53	20.62	794.0	R79	11

Notes :

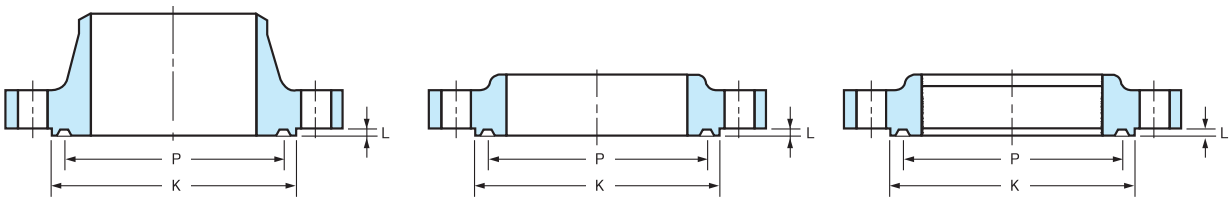
Unless otherwise specified by the customer, Ring Type Joint Flanges will be furnished in accordance with these details. The depth of groove is added to the minimum flanges thickness.

* Raised face "L" is equal to groove dimension "E" but is not subject to tolerance for "E"
* A plus tolerance of 3/64 in. for heights B and H is permitted providing the variation in the height of any given ring does not exceed 1/64 in. throughtout its entire circumference.
  Dimension "R" is max.
  Radius "r" is 1/16 for ring widths 7/8" and less 3/32" for ring width 1" and over.

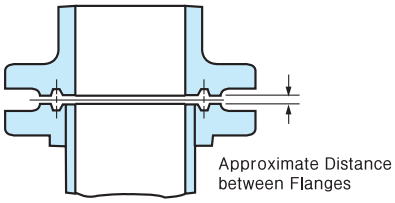
tolerances :

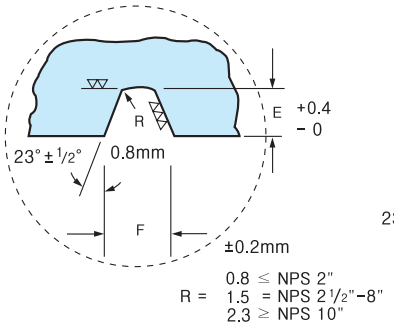
* E (depth) +0.4, −0.0
* F (width) ±0.2
* P (pitch diameter) ±0.13
* R (radius at bottom)
  R≤2+0.8, −0.0
  R≥2±0.8
* 23 deg (angle) ± 1/2 deg

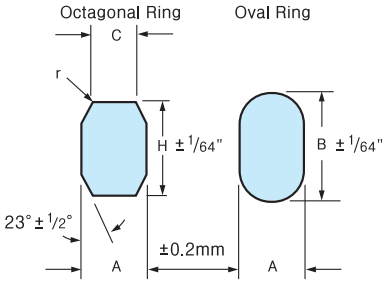
CLASS 2500 FLANGES



WELDING NECK　　SLIP-ON　　THREADED







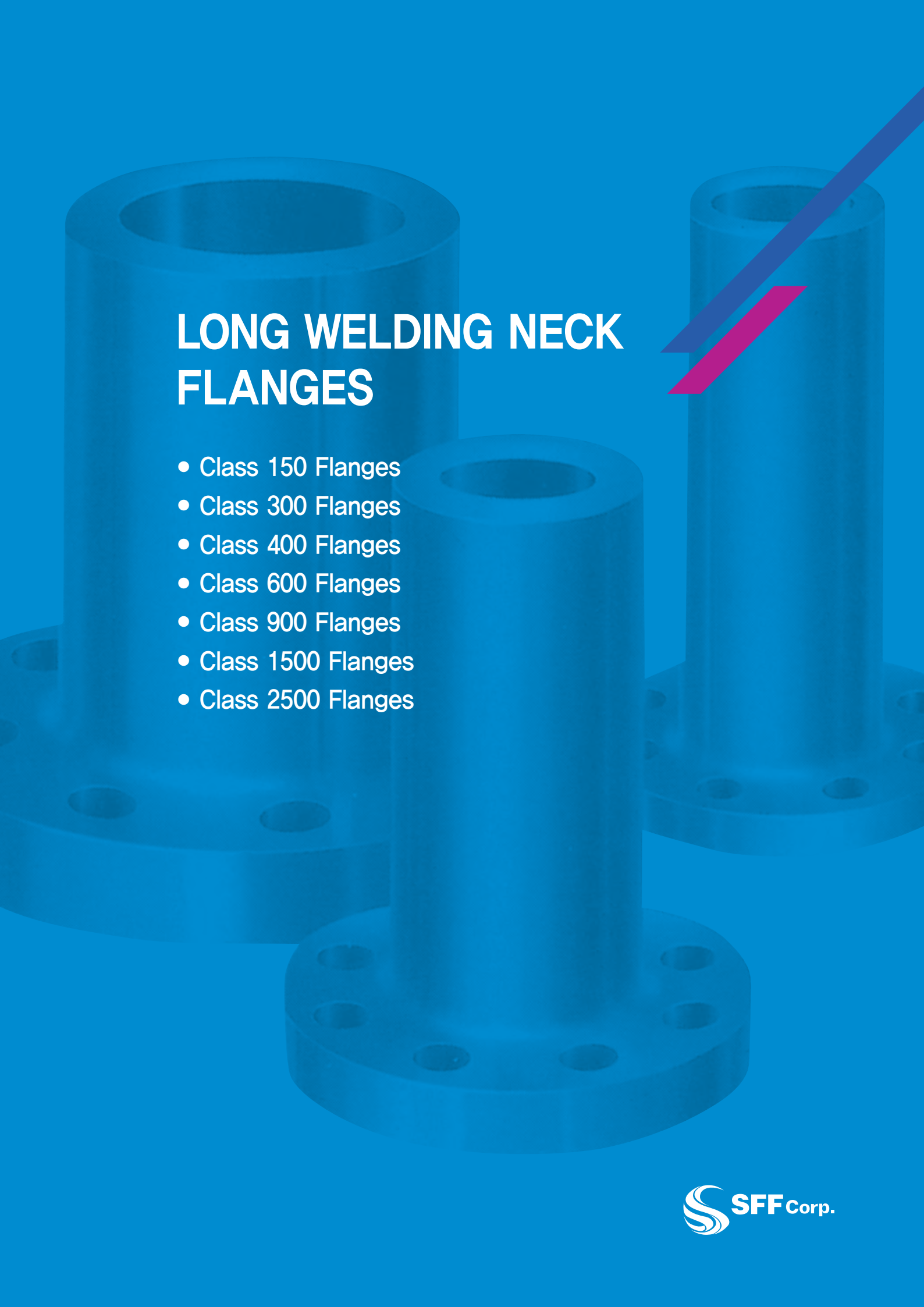
RING JOINT FLANGES

Unit : mm

Nominal Pipe Size	Pitch Diam. Ring & Groove	Width of Ring	Height of Ring		Width Flat on Octa.Ring	Width of Groove	Depth of Groove	Diam. of R.F for Ring Joint or Lapped	Ring Number	Approximate Distance Between Flanges
			Oval	Octagonal						
	P	A	B	H	C	F	E(L*)	K(Min)		
1/2	42.88	8.0	14.3	12.7	5.2	8.74	6.35	65.0	R13	4
3/4	50.8	8.0	14.3	12.7	5.2	8.74	6.35	73.0	R16	4
1	60.33	8.0	14.3	12.7	5.2	8.74	6.35	82.5	R18	4
1 1/4	72.23	11.1	17.5	15.9	7.7	11.91	7.92	102.0	R21	3
1 1/2	82.55	11.1	17.5	15.9	7.7	11.91	7.92	114.0	R23	3
2	101.6	11.1	17.5	15.9	7.7	11.91	7.92	133.0	R26	3
2 1/2	111.13	12.7	19.1	17.5	8.7	13.49	9.53	149.0	R28	3
3	127.0	12.7	19.1	17.5	8.7	13.49	9.53	168.0	R32	3
4	157.18	15.9	22.2	20.7	10.5	16.66	11.13	203.0	R38	4
5	190.5	19.1	25.4	23.8	12.3	19.84	12.7	241.0	R42	4
6	228.6	19.1	25.4	23.8	12.3	19.84	12.7	279.0	R47	4
8	279.4	22.2	28.6	27.0	14.8	23.01	14.27	340.0	R51	5
10	342.9	28.6	36.5	34.9	19.8	30.18	17.48	425.0	R55	6
12	406.4	31.8	39.7	38.1	22.3	33.32	17.48	495.0	R60	8

Notes :
Unless otherwise specified by the customer, Ring Type Joint Flanges will be furnished in accordance with these details. The depth of groove is added to the minimum flanges thickness.
* Raised face "L" is equal to groove dimension "E" but is not subject to tolerance for "E"
* A plus tolerance of 3/64 in. for heights B and H is permitted providing the variation in the height of any given ring does not exceed 1/64 in. throughtout its entire circumference.
  Dimension "R" is max.
  Radius "r" is 1/16 for ring widths 7/8" and less 3/32" for ring width 1" and over.

tolerances :
* E (depth) +0.4, −0.0
* F (width) ±0.2
* P (pitch diameter) ±0.13
* R (radius at bottom)
  R≤2+0.8, −0.0
  R≥2±0.8
* 23 deg (angle) ± 1/2 deg

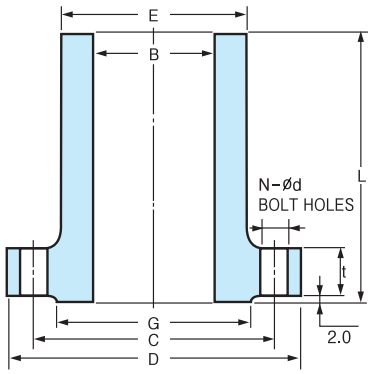


LONG WELDING NECK FLANGES

- Class 150 Flanges
- Class 300 Flanges
- Class 400 Flanges
- Class 600 Flanges
- Class 900 Flanges
- Class 1500 Flanges
- Class 2500 Flanges

SFF Corp.

LONG WELDING NECK FLANGES



CLASS 150

Unit : mm

Nominal Pipe Size	Outside Diameter	O.D of Raised Face	Hub Diam. at Bevel	Diameter of Bore	Thickness of Flange Min	Length Through Hub	Diameter of Bolt Circle	Number of Holes	Diameter of Holes
	D	G	E	B	t	L	C	N	d
1/2	90	34.9	30	12.7	9.6	229	60.3	4	15.9
3/4	100	42.9	38	19.1	11.2	229	69.9	4	15.9
1	110	50.8	49	25.4	12.7	229	79.4	4	15.9
1 1/4	115	63.5	59	31.8	14.3	229	88.9	4	15.9
1 1/2	125	73.0	65	38.1	15.9	229	98.4	4	15.9
2	150	92.1	78	50.8	17.5	229	120.7	4	19.1
2 1/2	180	104.8	90	63.5	20.7	229	139.7	4	19.1
3	190	127.0	108	76.2	22.3	229	152.4	4	19.1
3 1/2	215	139.7	122	88.9	22.3	229	177.8	8	19.1
4	230	157.2	135	101.6	22.3	229	190.5	8	19.1
5	255	185.7	164	127.0	22.3	305	215.9	8	22.2
6	280	215.9	192	152.4	23.9	305	241.3	8	22.2
8	345	269.9	246	203.2	27.0	305	298.5	8	22.2
10	405	323.8	305	254.0	28.6	305	362.0	12	25.4
12	485	381.0	365	304.8	30.2	305	431.8	12	25.4
14	535	412.8	400	355.6	33.4	305	476.3	12	28.6
16	595	469.9	457	406.4	35.0	305	539.8	16	28.6
18	635	533.4	505	457.2	38.1	305	577.9	16	31.8
20	700	584.2	559	508.0	41.3	305	635.0	20	31.8
24	815	692.2	663	609.6	46.1	305	749.3	20	34.9

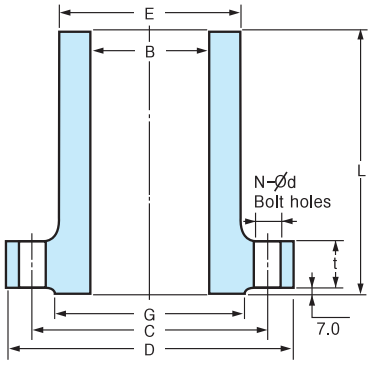
CLASS 300

Unit : mm

Nominal Pipe Size	Outside Diameter	O.D of Raised Face	Hub Diam. at Bevel	Diameter of Bore	Thickness of Flange Min	Length Through Hub	Diameter of Bolt Circle	Number of Holes	Diameter of Holes
	D	G	E	B	t	L	C	N	d
1/2	95	34.9	38	12.7	12.7	229	66.7	4	15.9
3/4	115	42.9	48	19.1	14.3	229	82.6	4	19.1
1	125	50.8	54	25.4	15.9	229	88.9	4	19.1
1 1/4	135	63.5	64	31.8	17.5	229	98.4	4	19.1
1 1/2	155	73.0	70	38.1	19.1	229	114.3	4	22.2
2	165	92.1	84	50.8	20.7	229	127.0	8	19.1
2 1/2	190	104.8	100	63.5	23.9	229	149.2	8	22.2
3	210	127.0	117	76.2	27.0	229	168.3	8	22.2
3 1/2	230	139.7	133	88.9	28.6	229	184.2	8	22.2
4	255	157.2	146	101.6	30.2	229	200.0	8	22.2
5	280	185.7	178	127.0	33.4	305	235.0	8	22.2
6	320	215.9	206	152.4	35.0	305	269.9	12	22.2
8	380	269.9	260	203.2	39.7	305	330.2	12	25.4
10	445	323.8	321	254.0	46.1	305	387.4	16	28.6
12	520	381.0	375	304.8	49.3	305	450.8	16	31.8
14	585	412.8	425	355.6	52.4	305	514.4	20	31.8
16	650	469.9	483	406.4	55.6	305	571.5	20	34.9
18	710	533.4	533	457.2	58.8	305	628.6	24	34.9
20	775	584.2	587	508.0	62.0	305	685.8	24	34.9
24	915	692.2	702	609.6	68.3	305	812.8	24	41.3

Notes : (1) Bore(B) is the same as nominal pipe size.
(2) Welding neck longer than listed are available in all sizes on special order.
(3) E=diameter of hub tolerance (3mm–0) B16.5–2013

LONG WELDING NECK FLANGES



CLASS 400

Unit : mm

Nominal Pipe Size	Outside Diameter	O.D of Raised Face	Hub Diam. at Bevel	Diameter of Bore	Thickness of Flange Min	Length Through Hub	Diameter of Bolt Circle	Number of Holes	Diameter of Holes
	D	G	E	B	t	L	C	N	d
1	125	50.8	54	25.4	17.5	229	88.9	4	19.1
1 1/4	135	63.5	64	31.8	20.7	229	98.4	4	19.1
1 1/2	155	73.0	70	38.1	22.3	229	114.3	4	22.2
2	165	92.1	84	50.8	25.4	229	127.0	8	19.1
2 1/2	190	104.8	100	63.5	28.6	229	149.2	8	22.2
3	210	127.0	117	76.2	31.8	229	168.3	8	22.2
3 1/2	230	139.7	133	88.9	35.0	229	184.2	8	25.4
4	255	157.2	146	101.6	35.0	229	200.0	8	25.4
5	280	185.7	178	127.0	38.1	305	235.0	8	25.4
6	320	215.9	206	152.4	41.3	305	269.9	12	25.4
8	380	269.9	260	203.2	47.7	305	330.0	12	28.6
10	445	323.8	321	254.0	54.0	305	387.4	16	31.8
12	520	381.0	375	304.8	57.2	305	450.8	16	34.9
14	585	412.8	425	355.6	60.4	305	514.4	20	34.9
16	650	469.9	483	406.4	63.5	305	571.5	20	38.1
18	710	533.4	533	457.2	66.7	305	628.6	24	38.1
20	775	584.2	587	508.0	69.9	305	685.8	24	41.3
24	915	692.2	702	609.6	76.2	305	812.8	24	47.6

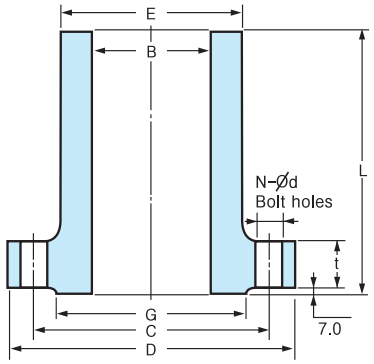
CLASS 600

Unit : mm

Nominal Pipe Size	Outside Diameter	O.D of Raised Face	Hub Diam. at Bevel	Diameter of Bore	Thickness of Flange Min	Length Through Hub	Diameter of Bolt Circle	Number of Holes	Diameter of Holes
	D	G	E	B	t	L	C	N	d
1	125	50.8	54	25.4	17.5	229	88.9	4	19.1
1 1/4	135	63.5	64	31.8	20.7	229	98.4	4	19.1
1 1/2	155	73.0	70	38.1	22.3	229	114.3	4	22.2
2	165	92.1	84	50.8	25.4	229	127.0	8	19.1
2 1/2	190	104.8	100	63.5	28.6	229	149.2	8	22.2
3	210	127.0	117	76.2	31.8	229	168.3	8	22.2
3 1/2	230	139.7	133	88.9	35.0	229	184.2	8	25.4
4	275	157.2	152	101.6	38.1	229	215.9	8	25.4
5	330	185.7	189	127.0	44.5	305	266.7	8	28.6
6	355	215.9	222	152.4	47.7	305	292.1	12	28.6
8	420	269.9	273	203.2	55.6	305	349.2	12	31.8
10	510	323.8	343	254.0	63.5	305	431.8	16	34.9
12	560	381.0	400	304.8	66.7	305	489.0	20	34.9
14	605	412.8	432	355.6	69.9	305	527.0	20	38.1
16	685	469.9	495	406.4	76.2	305	603.2	20	41.3
18	745	533.4	546	457.2	82.6	305	654.0	20	44.5
20	815	584.2	610	508.0	88.9	305	723.9	24	44.5
24	940	692.2	718	609.6	101.6	305	838.2	24	50.8

Notes : (1) Bore(B) is the same as nominal pipe size.
(2) Welding neck longer than listed are available in all sizes on special order.
(3) E=diameter of hub tolerance (3mm-0) B16.5-2013

LONG WELDING NECK FLANGES



CLASS 900

Unit : mm

Nominal Pipe Size	Outside Diameter	O.D of Raised Face	Hub Diam. at Bevel	Diameter of Bore	Thickness of Flange Min	Length Through Hub	Diameter of Bolt Circle	Number of Holes	Diameter of Holes
	D	G	E	B	t	L	C	N	d
1	150	50.8	52	25.4	28.6	229	101.6	4	25.4
1 1/4	160	63.5	64	31.8	28.6	229	111.1	4	25.4
1 1/2	180	73.0	70	38.1	31.8	229	123.8	4	28.6
2	215	92.1	105	50.8	38.1	229	165.1	8	25.4
2 1/2	245	104.8	124	63.5	41.3	229	190.5	8	28.6
3	240	127.0	127	76.2	38.1	229	190.5	8	25.4
4	290	157.2	159	101.6	44.5	229	235.0	8	31.8
5	350	185.7	190	127.0	50.8	305	279.4	8	34.9
6	380	215.9	235	152.4	55.6	305	317.5	12	31.8
8	470	269.9	298	203.2	63.5	305	393.7	12	38.1
10	545	323.8	368	254.0	69.9	305	469.9	16	38.1
12	610	381.0	419	304.8	79.4	305	533.4	20	38.1
14	640	412.8	451	355.6	85.8	305	558.8	20	41.3
16	705	469.9	508	406.4	88.9	305	616.0	20	44.5
18	785	533.4	565	457.2	101.6	305	685.8	20	50.8
20	855	584.2	622	508.0	108.0	305	749.3	20	54.0
24	1040	692.2	749	609.6	139.7	305	901.7	20	66.7

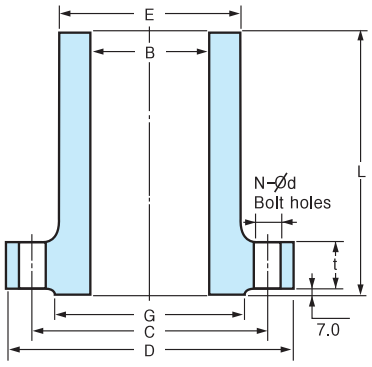
CLASS 1500

Unit : mm

Nominal Pipe Size	Outside Diameter	O.D of Raised Face	Hub Diam. at Bevel	Diameter of Bore	Thickness of Flange Min	Length Through Hub	Diameter of Bolt Circle	Number of Holes	Diameter of Holes
	D	G	E	B	t	L	C	N	d
1	150	50.8	52	25.4	28.6	229	101.6	4	25.4
1 1/4	160	63.5	64	31.8	28.6	229	111.1	4	25.4
1 1/2	180	73.0	70	38.1	31.8	229	123.8	4	28.6
2	215	92.1	105	50.8	38.1	229	165.1	8	25.4
2 1/2	245	104.8	124	63.5	41.3	229	190.5	8	28.6
3	265	127.0	133	76.2	47.7	229	203.2	8	31.8
4	310	157.2	162	101.6	54.0	229	241.3	8	34.9
5	375	185.7	197	127.0	73.1	305	292.1	8	41.3
6	395	215.9	229	152.4	82.6	305	317.5	12	38.1
8	485	269.9	292	203.2	92.1	305	393.7	12	44.5
10	585	323.8	368	254.0	108.0	305	482.6	12	50.8
12	675	381.0	451	304.8	123.9	305	571.5	16	54.0
14	750	412.8	495	355.6	133.4	305	635.0	16	60.3
16	825	469.9	552	406.4	146.1	305	704.8	16	66.7
18	915	533.4	597	457.2	162.0	305	774.7	16	73.0
20	985	584.2	641	508.0	177.8	305	831.8	16	79.4
24	1170	692.2	762	609.6	203.2	305	990.6	16	92.1

Notes : (1) Bore(B) is the same as nominal pipe size.
(2) Welding neck longer than listed are available in all sizes on special order.
(3) E=diameter of hub tolerance (3mm-0) B16.5-2013

LONG WELDING NECK FLANGES



CLASS 2500

Unit : mm

Nominal Pipe Size	Outside Diameter	O.D of Raised Face	Hub Diam. at Bevel	Diameter of Bore	Thickness of Flange Min	Length Through Hub	Diameter of Bolt Circle	Number of Holes	Diameter of Holes
	D	G	E	B	t	L	C	N4	d
1	160	50.8	57	25.4	35.0	229	108.0	4	25.4
1 1/4	185	63.5	73	31.8	38.1	229	130.2	4	28.6
1 1/2	205	73.0	79	38.1	44.5	229	146.0	4	31.8
2	235	92.1	95	50.8	50.9	229	171.4	8	28.6
2 1/2	265	104.8	114	63.5	57.2	229	196.8	8	31.8
3	305	127.0	133	76.2	66.7	229	228.6	8	34.9
4	355	157.2	165	101.6	76.2	229	273.0	8	41.3
5	420	185.7	203	127.0	92.1	305	323.8	8	47.6
6	485	215.9	235	152.4	108.0	305	368.3	8	54.0
8	550	269.9	305	203.2	127.0	305	438.2	12	54.0
10	675	323.8	375	254.0	165.1	305	539.8	12	66.7
12	760	381.0	441	304.8	184.2	305	619.1	12	73.0

Notes :
(1) Bore(B) is the same as nominal pipe size.
(2) Welding neck longer than listed are available in all sizes on special order.
(3) E=diameter of hub tolerance (3mm–0) B16.5–2013

▶ Straight Hub Welding Flanges
– Straight Hub Welding Flanges are an extension of Welding Neck flanges and have straight hubs of uniform thickness.
With the exception of the following, the straight hub welding flanges shall have dimensions of the welding neck flanges of the size.

CODE SPECIFICATION

- REDUCING FLANGES
- THREAD
- FLANGES FACINGS
- COMPARISION OF HARDNESS NUMBER
- TOLERANCE
- STANDARD FINISH
- WELDING ENDS
- ASME ORIFICE FLANGE(ASME B16.36-2006) FORGED-FLANGES
- PIPE & FITTINGS WALL THICKNESS SCHEDULES DIMENSION
- ASTM MATERIAL CHEMICAL COMPOSITION & MECHANICAL REQUIREMENTS
- APPLICABLE ASTM SPECIFICATIONS
- SPECIAL MATERIAL

SFF Corp.

REDUCING FLANGES

THREADED AND SLIP-ON TYPES

HUB :
For hub diameter (X) and height of hub above the back of the flange (N) refer to the list of standard flange specification of the same type and pressure and use the dimensions of a flange one nominal pipe size smaller than the nominal pipe size from which the reduction is being made.

FLANGE O.D., DRILLING TEMPLATE AND THICKNESS :
Outside diameter, drilling template and flange thickness Q(see note on FACINGS) agree with the dimensions of a standard flange of the nominal pipe size from which the reduction is being made.

FACING :
Facing dimensions also agree with the dimensions of a standard flange of the nominal pipe size from which the reduction is being made.
150 lb. and 300 lb. forged steel Threaded, Slip-On, Welding Neck and Blind flanges are furnished with American Standard 1/16" raised face, which is included in flange thickness. Q. 400 lb., 600 lb., 900 lb., 1500 lb. and 2500 lb. flanges are supplied with American Standard 1/4" raised face which is not included in flange thickness (Q)

BORE OR TAPPING :
The bore or tapping is machined to accept a pipe of the nominal pipe size to which the reduction is being made. For reduction to sizes smaller than shown, BLIND FLANGES are tapped or bored to specified nominal pipe size.

EXAMPLE :

THREADED

A. The size designation is NPS 6 x 2 1/2 – Class 300 reducing threaded flange. This flange has the folling dimension : following dimensions :
NPS 2 1/2 = taper pipe thread tapping (ASME B1.20. 1)
320 mm = diameter of regular NPS 6 Class 300 threaded flange
35 mm= thickness of regular NPS 6 Class 300 threaded flange
178 mm = diameter of hub for regular NPS 5 Class 300 threaded flange. Hub diameter may be one size small to reduce machining. In this example a hub diameter of NPS 2 1/2 would be the smallest acceptable.
15.5 mm = height of hub for regular NPS 5 Class 300 threaded flange.

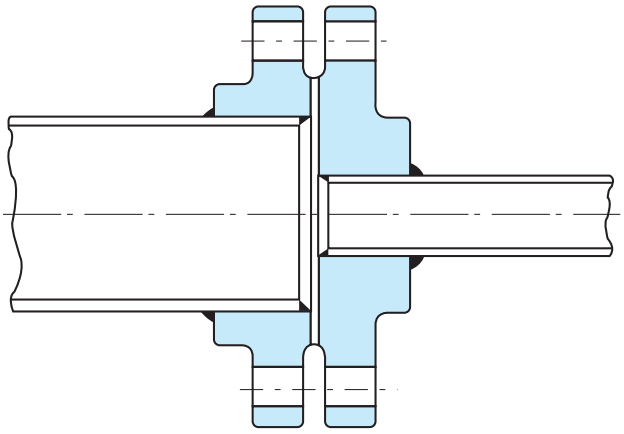
B. The size designation is NPS 6 x 2 – Class 300 reducing threaded flange. Use regular NPS 6 Class 300 blind flange tapped with NPS 2 tapper pipe thread(ASME B1.20. 1)

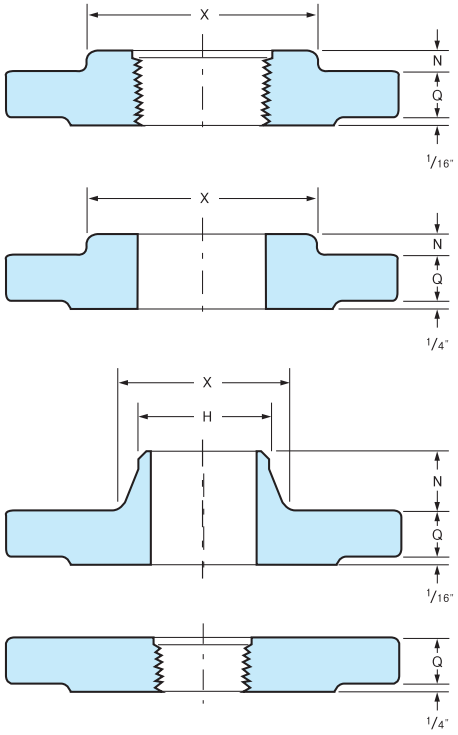
WELDING NECK TYPES :

On Reducing Welding Neck Flanges, which are made only on special order, the hub dimensions agree with the hub dimensions of standard flanges of the size to which reduction is being made. Other flange dimensions, including the drilling template, agree with the standard dimensions of the size from which the reduction is being made.

REDUCING FLANGES

THREADED–SLIP–ON–WELDING NECK





In ordering Reducing Flanges :
specify (1) nominal pipe size of the tapping or bore to which the reduction is being made, (2) the outside diameter of the flange from which the reduction is being made and (3) pressure rating.
EXAMPLE :
A 300 lb. Reducing flange for rducing from a 6" (152.4mm) to a 3" (76.2mm) nominal pipe size should be designated as a 3" x 121/2" –300 lb. Reducing Flange. whether Threaded, Slip–on, or Welding Neck type is desired must also be specified.

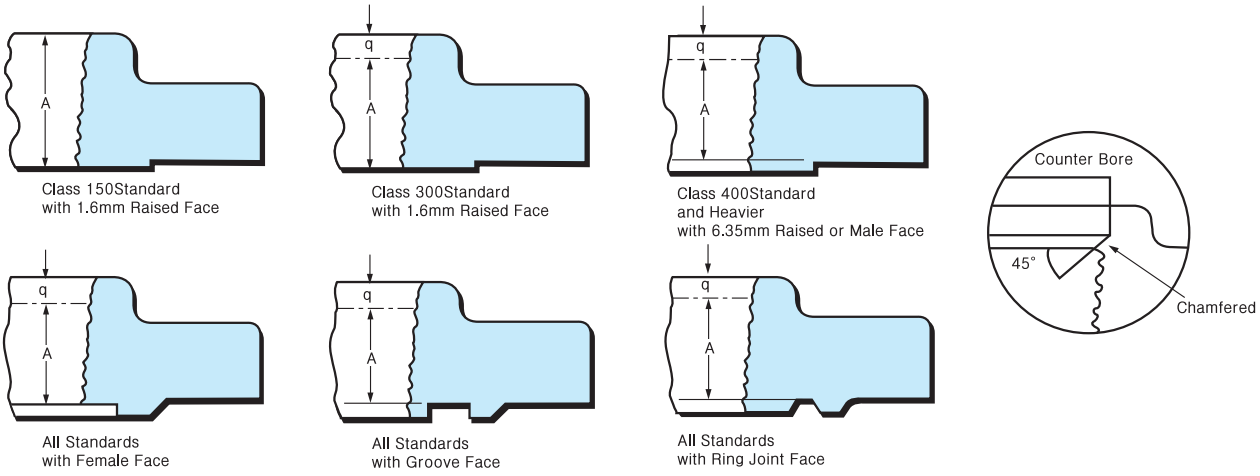
ASME B16.5 FORGED FLANGES

Dimensions in mm

Nominal Pipe size to Which Reduction made tobe is to be Specified by Purchaser	Nominal Flange	OUTSIDE DIAMETER OF FLANGE FROM WHICH REDUCTION IS BEING MADE							Smallest SizeBore or Tapping Requiring Hub Flange
		150 lb. Standard	300 lb. Standard	400 lb. Standard	600 lb. Standard	900 lb. Standard	1500 lb. Standard	2500 lb. Standard	
	3/4	98.4	117.5	117.5	117.5	130.2	130.2	139.7	12.7
	1	108.0	123.8	123.8	123.8	149.2	149.2	158.8	12.7
	1 3/4	117.5	133.4	133.4	133.4	158.8	158.8	184.2	12.7
	1 1/2	127.5	155.6	155.6	155.6	177.8	177.8	203.2	12.7
	2	152.4	165.1	165.1	165.1	215.9	215.9	235.0	25.4
	2 1/2	177.8	190.5	190.5	190.5	244.5	244.5	266.7	31.8
	3	190.5	200.6	209.6	209.6	266.7	266.7	304.8	31.8
	3 1/2	215.9	228.6	228.6	228.6	–	–	–	38.1
	4	228.6	254.0	254.0	273.1	292.1	311.2	355.6	38.1
	5	254.0	279.4	279.4	330.2	349.3	374.7	419.1	38.1
	6	279.4	317.5	317.5	355.6	381.0	393.7	482.6	63.5
	8	342.9	381.0	381.0	419.1	469.9	482.6	552.5	76.2
	10	406.4	444.5	444.5	508.0	546.1	584.2	673.1	88.9
	12	482.6	520.7	520.7	558.8	609.6	673.1	762.0	88.9
	14	533.4	584.2	584.2	603.3	641.4	–	–	88.9
	16	596.9	647.7	647.7	685.8	704.9	–	–	101.6
	18	635.0	711.2	711.2	743.0	787.4	–	–	101.6
	20	698.5	774.7	774.7	812.8	857.3	–	–	101.6
	24	812.8	914.4	914.4	939.8	1041.1	–	–	101.6

Notes :
For reductions to sizes smaller than shown, blind flanges are tapped or bored for specified nominal pipe size

THREAD AND STANDARDS FOR ASME FLANGES(ASME B2.1)



ASME B16.5 FORGED FLANGES

Unit : mm

Nominal Pipe Size	A-THREAD LENGTHS						
	Class 150	Class 300	Class 400	Class 600	Class 900	Class 1500	Class 2500
1/2	15.9	15.9	15.9	15.9	22.2	22.2	28.6
3/4	15.9	15.9	15.9	15.9	25.4	25.4	31.8
1	17.5	17.5	17.5	17.5	28.6	28.6	34.9
1 1/4	20.7	20.7	20.7	20.7	30.2	30.1	38.1
1 1/2	22.2	22.2	22.2	22.2	31.8	31.8	44.5
2	25.4	28.6	28.6	28.6	38.1	38.1	50.8
2 1/2	28.6	31.8	31.8	31.8	47.6	47.6	57.2
3	30.1	31.8	34.9	34.9	41.3	50.8	63.5
3 1/2	31.8	36.5	39.7	39.7	–	–	–
4	33.4	36.5	36.5	41.3	47.6	57.2	69.9
5	36.5	42.9	42.9	47.6	54.0	63.5	76.2
6	39.7	46.1	46.1	50.8	57.2	69.9	82.6
8	44.5	50.8	50.8	60.3	63.5	76.2	95.3
10	49.2	55.6	55.6	65.1	71.5	84.2	108.0
12	55.6	60.3	60.3	69.9	76.2	92.1	120.7
14	57.2	63.5	63.5	73.0	82.6	–	–
16	63.5	68.3	68.3	77.8	85.7	–	–
18	68.3	69.9	69.9	79.4	88.9	–	–
20	69.9	73.0	73.0	82.6	92.1	–	–
24	82.6	82.6	82.6	92.1	101.6	–	–

Notes :

(1) Except flanges with small Male/Female Face(on pipe end), threaded flanges, have an American National Standard taper pipe thread conforming to ASME B2.1

(2) The thread is concentric with the axis of the flange and variations in alignment do not exceed 0.16(1.6mm)in, per foot(0.5 percent)

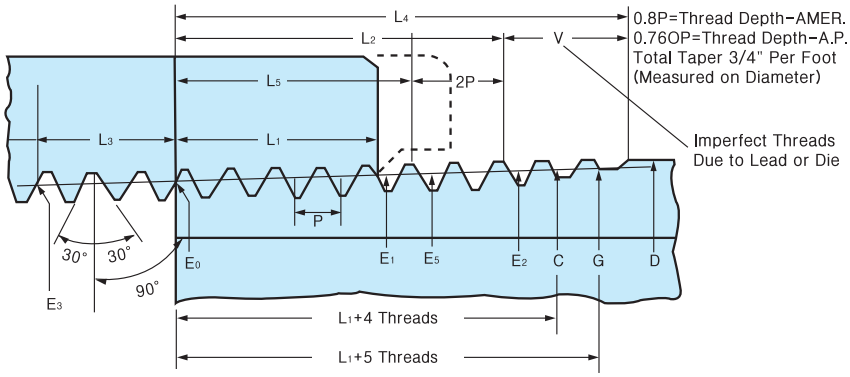
(3) Class 150 flanges are made without counterbore. The threads are chamfered approximately to the major diameter of the thread at the back of the flange at an angle of approximately 45degrees with he axis of the thread. The chamfer is concentric with the thread and include in the measurement of the thread length.

(4) Class 300 and higher pressure flanges are made with a counterbore at the back of the flange. The threads are chamfered to the diameter of the counterbore at an angle of approximately 45 degrees with the axis of the thread. The counterbore and chhamger are concentric with the thread.

(5) The minimum length of effective thread in reducing flanges is at least equal to dimension Q of the corresponding class of threaded flanges as shown in the above tables. Threads do not necessarily extend to the face to the flange.

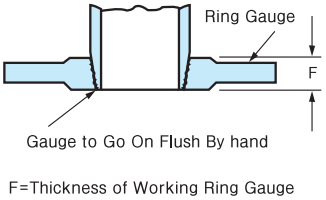
THREAD

THREADED-SLIP-ON-WELDING NECK

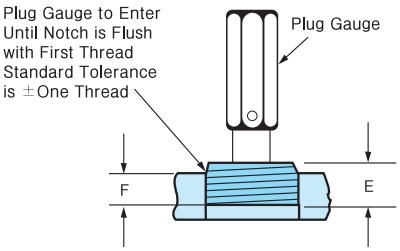


C=Straight Pipe Thread Pitch Dia. for Looknut Connections

G=Minimum Pitch Dia. Straight Female Looknut Thread



F=Thickness of Working Ring Gauge



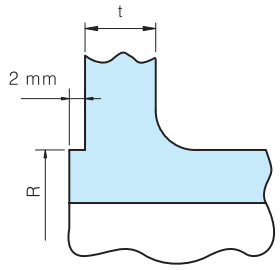
ASME B16.5 FORGED FLANGES

Unit : mm

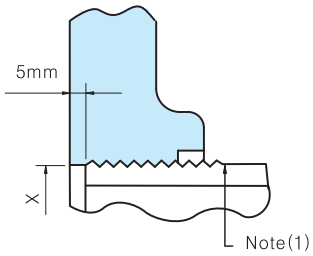
Nominal Pipe Size	Outside Diameter of Pipe	Threads Per inch	Pitch of Thread	Pitch Diameter at Beginning of External Threads	Handtight Engagement		Efective Thread External		Wrench Make-up Length for internal Threaded		Ove all Length External Threads
					Length	Pitch Dia`meter	Length	Pitch Diameter	Length	Pitch Diameter	
	D	H	P	E_0	L_1	E_1	L_2	E_2	L_3	E_3	L
1/2	21	14	1.8	19.3	8.1	19.8	13.6	20.1	5.4	18.9	19.9
3/4	27	14	1.8	24.6	8.6	25.1	13.9	25.4	5.4	24.2	20.2
1	33	11 1/2	2.2	30.8	10.2	31.5	17.3	31.9	6.6	30.4	25.0
1 1/4	42	11 1/2	2.2	39.6	10.7	40.2	18.0	40.7	6.6	39.1	25.6
1 1/2	48	11 1/2	2.2	45.6	10.7	46.3	18.4	46.8	6.6	45.2	26.0
2	60	11 1/2	2.2	57.6	11.1	58.3	19.2	58.8	6.6	57.2	26.9
2 1/2	73	8	3.2	69.1	17.3	70.2	28.9	70.9	6.4	68.7	39.9
3	89	8	3.2	84.9	19.5	86.1	30.5	86.8	6.4	84.5	41.5
3 1/2	102	8	3.2	97.5	20.9	98.8	31.8	99.5	6.4	97.1	42.8
4	114	8	3.2	110.1	21.4	111.4	33.0	112.2	6.4	109.7	44.0
4 1/2	127	8	3.2	122.7	22.2	124.1	34.3	123.0	–	–	–
5	141	8	3.2	136.9	23.8	138.4	35.7	139.2	6.4	136.5	46.7
6	168	8	3.2	163.7	24.3	165.3	38.4	166.1	6.4	163.3	49.4
7	194	8	3.2	189.0	25.4	190.6	41.0	189.3	–	–	–
8	219	8	3.2	214.2	27.0	215.9	43.5	216.9	6.4	213.8	54.5
9	244	8	3.2	239.5	28.7	241.2	46.0	239.8	–	–	–
10	273	8	3.2	267.9	30.7	269.8	48.9	270.9	6.4	267.5	59.9
11	298	8	3.2	293.1	32.6	295.1	51.4	293.5	–	–	–
12	324	8	3.2	318.2	34.5	320.5	54.0	321.7	6.4	317.9	65.0
14	356	8	3.2	349.9	39.7	352.4	57.2	353.5	6.4	349.5	68.2
15	381	8	3.2	375.1	42.8	377.8	59.7	375.6	–	–	–
16	406	8	3.2	400.4	46.0	403.2	62.2	404.3	6.4	400.0	73.2
17	432	8	3.2	425.6	48.3	428.6	64.8	426.1	–	–	–
18	457	8	3.2	450.9	50.8	454.0	67.3	455.1	6.4	450.5	78.3
20	508	8	3.2	501.3	54.0	504.7	72.4	505.9	6.4	500.9	83.4
22	559	8	3.2	551.8	57.2	555.4	77.5	552.4	–	–	–
24	610	8	3.2	602.3	60.3	606.1	82.6	607.5	6.4	601.9	93.6

FLANGES FACINGS

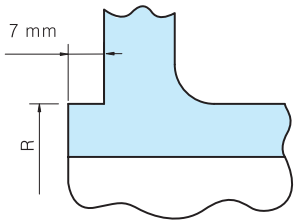
2mm raised face retgularly furnished on Classes 150 and 300 unless otherwise ordered



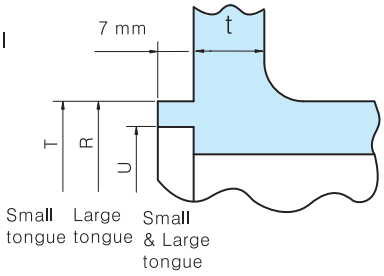
Small female face (on end of pipe)



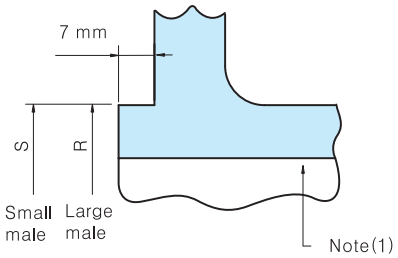
7mm raised face regularly furnished on Classes 400 and higher unless otherwise ordered



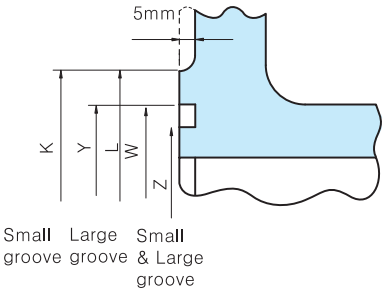
Large or small tongue face [Note (2)]



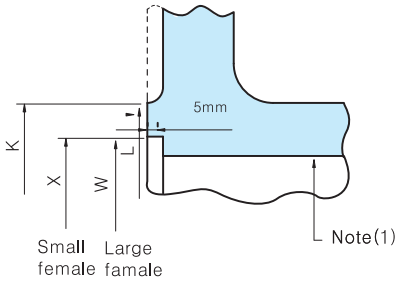
Large or smalle male face [Note (2)]



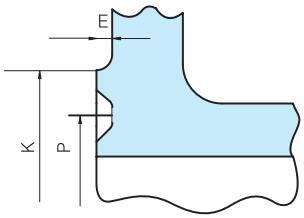
Large or small groove face [Note (2)]



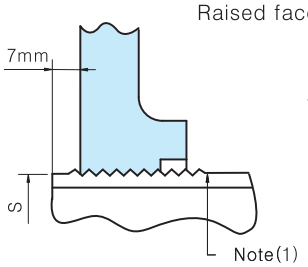
Large or small female face [Note (2)]



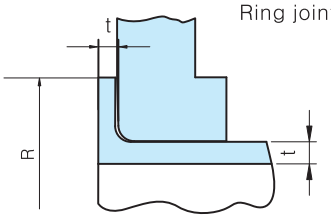
Ring joint face



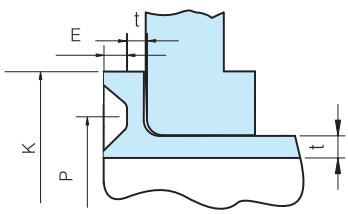
Small male face (on end of pipe)



Lapped Joint Raised face



Lapped Joint Ring joint



FLANGES FACINGS

DIMENSION OF FACINGS
(OTHER THAN RING JOINTS, ALL PRESSURE RATING CLASS)

Unit : mm

Nominal Pipe Size	OUTSIDE DIAMETER			Inside Diameter of Large and Small Tongue	OUTSIDE DIAMETER			Inside Diameter of Large and Small Groove	HEIGHT		Depth of Groove or Female	MIN. OUTSIDE DIAMETER OF RAISED PORTION	
	Raised Face, Large Male & Large Tongue	Small Male	Small Tongue		Large Female & Large Groove	Small Female	Small Groove		Raised Face and 300 ST' DS	Large & Small Male and Tongue Class 400~2500		Small Female & Groove	Large Female & Groove
	R	S	T	U	W	X	Y	Z				K	L
1/2	34.9	18.3	35.1	25.4	36.5	19.9	36.5	23.8	2.0	7.0	5.0	44	46
3/4	42.9	23.8	42.9	33.3	44.4	25.4	44.4	31.8	2.0	7.0	5.0	52	54
1	50.8	30.2	47.8	38.1	52.4	31.8	49.2	36.5	2.0	7.0	5.0	57	62
1 1/4	63.5	38.1	57.2	47.6	65.1	39.7	58.7	46.0	2.0	7.0	5.0	67	75
1 1/2	73.0	44.4	63.5	54.0	74.6	46.0	65.1	52.4	2.0	7.0	5.0	73	84
2	92.1	57.2	82.6	73.0	93.7	58.8	84.1	71.4	2.0	7.0	5.0	92	103
2 1/2	104.8	68.3	95.2	85.7	106.4	69.8	96.8	84.1	2.0	7.0	5.0	105	116
3	127.0	84.1	117.5	108.0	128.6	85.7	119.1	106.4	2.0	7.0	5.0	127	138
3 1/2	139.7	96.8	130.2	120.6	141.3	98.4	131.8	119.1	2.0	7.0	5.0	140	151
4	157.2	109.5	144.5	131.8	158.8	111.1	146.0	130.2	2.0	7.0	5.0	157	168
5	185.7	136.5	173.0	160.3	187.3	138.1	174.6	158.8	2.0	7.0	5.0	186	197
6	215.9	161.9	203.2	190.5	217.5	163.5	204.8	188.9	2.0	7.0	5.0	216	227
8	269.9	212.7	254.0	238.1	271.5	214.3	255.6	236.5	2.0	7.0	5.0	270	281
10	323.8	266.7	304.8	285.8	325.4	268.3	306.4	284.2	2.0	7.0	5.0	324	335
12	381.0	317.5	362.0	342.9	382.6	319.1	363.5	341.3	2.0	7.0	5.0	381	392
14	412.8	349.2	393.7	374.6	414.3	350.8	395.3	373.1	2.0	7.0	5.0	413	424
16	469.9	400.0	447.5	425.4	471.5	401.6	449.3	423.9	2.0	7.0	5.0	470	481
18	533.4	450.8	511.2	489.0	535.0	452.4	512.8	487.4	2.0	7.0	5.0	533	544
20	584.2	501.6	558.8	533.4	585.8	503.2	560.4	531.8	2.0	7.0	5.0	584	595
24	692.2	603.2	666.8	641.4	693.7	604.8	668.3	639.8	2.0	7.0	5.0	692	703

Notes :

(1) For small male and female joints, care should be taken in the use of these dimensions to insure that the inside diameter of fitting or pipe is small enough to permit sufficient bearing surface to prevent the crushing of the gasket. This applies particularly on lines where the joint is made on the end of the pipe. Inside diameter of fitting should match inside diameter of pipe as specified by purchaser. Threaded companion flanges for small male and female joints are furnished with plain face and are threaded with American National Standard Locknut Thread (NPSL).

(2) Raised portion of full face may by furnished unless otherwise specified on order.

(3) Large male and female faces and large tongue and groove are not applicable to Class 150 because of potential dimensional conflicts.

(4) Height of raised face is either 2 mm or 7 mm.

(5) Height of large and small male and tongue is 7 mm.

(6) Depth of groove or female is 5 mm.

COMPARISION OF HARDNESS NUMBER

SAE J417

Vicker's Hardness	Brinell Hardness HB		Rockwell Hardness				Rockwell Superficial Hardness Superficial Brale Pentrator			Shore Hardness	Tensile Strength
	10-mm Ball, 3000-kg Load		HRA A-Scale, 60kg Load Brale Penetrator	HRB B-Scale 100-kg Load 1/16"Dia Ball	HRC C-Scale 150-kg Load Brale Penetrator	HRD D-Scale 100-kg Load Brale Penetrator	15-N Scale 15-kg Load	30-N Scale 30-kg Load	45-N Scale 45-kg Load		(Approximate) in Mpa(KSI)
Hv	Standard Ball	Tungsten Carbide Ball									
940	–	–	85.6	–	68.0	76.9	93.2	84.4	75.4	97	–
920	–	–	85.3	–	67.5	76.5	93.0	84.0	74.8	96	–
900	–	–	85.0	–	67.0	76.1	92.9	83.6	74.2	95	–
880	–	767	84.7	–	66.4	75.7	92.7	83.1	73.6	93	–
860	–	757	84.4	–	65.9	75.3	92.5	82.7	73.1	92	–
840	–	745	84.1	–	65.3	74.8	92.3	82.2	72.2	91	–
820	–	733	83.8	–	64.7	74.3	92.1	81.7	71.8	90	–
800	–	722	83.4	–	64.0	73.8	91.8	81.1	71.0	88	–
780	–	710	83.0	–	63.3	73.3	91.5	80.4	70.2	87	–
760	–	698	82.6	–	62.5	72.6	91.2	79.7	69.4	86	–
740	–	684	82.2	–	61.8	72.1	91.0	79.1	68.6	84	–
720	–	670	81.8	–	61.0	71.5	90.7	78.4	67.7	83	–
700	–	656	81.3	–	60.1	70.8	90.3	77.6	66.7	81	–
690	–	647	81.1	–	59.7	70.5	90.1	77.2	66.2	–	–
680	–	638	80.8	–	59.2	70.1	89.8	76.8	65.7	80	–
670	–	630	80.6	–	58.8	69.8	89.7	76.4	65.3	–	–
660	–	620	80.3	–	58.3	69.4	89.5	75.9	64.7	79	–
650	–	611	80.0	–	57.8	69.0	89.2	75.5	64.1	–	–
640	–	601	79.8	–	57.3	68.7	89.0	75.1	63.5	77	–
630	–	591	79.5	–	56.8	68.3	88.8	74.6	63.0	–	–
620	–	582	79.2	–	56.3	67.9	88.5	74.2	62.4	75	–
610	–	573	78.9	–	55.7	67.5	88.2	73.6	61.7	–	–
600	–	564	78.6	–	55.2	67.0	88.0	73.2	61.2	74	–
590	–	554	78.4	–	54.7	66.7	87.8	72.7	60.5	–	2055(298)
580	–	545	78.0	–	54.1	66.2	87.5	72.1	59.9	72	2020(293)
570	–	535	77.8	–	53.6	65.8	87.2	71.7	59.3	–	1985(570)
560	–	525	77.4	–	53.0	65.4	86.9	71.2	58.6	71	1950(283)
550	505	517	77.0	–	52.3	64.8	86.6	70.5	57.8	–	1905(276)
540	496	507	76.7	–	51.7	64.4	86.3	70.0	57.0	69	1860(270)
530	488	497	76.4	–	51.1	63.9	86.0	69.5	56.2	–	1825(265)
520	480	488	76.1	–	50.5	63.5	85.7	69.0	55.6	67	1795(260)
510	473	479	75.7	–	49.8	62.9	85.4	68.3	54.7	–	1750(254)
500	465	471	75.3	–	49.1	62.2	85.0	67.7	53.9	66	1705(247)
490	456	460	74.9	–	48.4	61.6	84.7	67.1	53.1	–	1660(241)
480	448	452	74.5	–	47.7	61.3	84.3	66.4	52.2	64	1620(235)
470	441	442	74.1	–	46.9	60.7	83.9	65.7	51.3	–	1570(228)
460	433	433	73.6	–	46.1	60.1	83.6	64.9	50.4	62	1530(222)
450	425	425	73.3	–	45.3	59.4	83.2	64.3	49.4	–	1495(217)
440	415	415	72.8	–	44.5	58.8	82.8	63.5	48.4	59	1460(212)
430	405	405	72.3	–	43.6	58.2	82.3	62.7	47.4	–	1410(205)
420	397	397	71.8	–	42.7	57.5	81.8	61.9	46.4	57	1370(199)

COMPARISION OF HARDNESS NUMBER

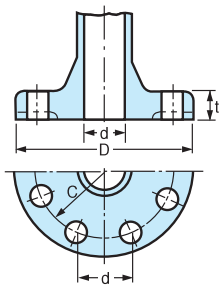
SAE J417

Vicker's Hardness	Brinell Hardness HB		Rockwell Hardness				Rockwell Superficial Hardness Superficial Brale Pentrator			Shore Hardness	Tensile Strength
	10-mm Ball, 3000-kg Load		HRA A-Scale, 60kg Load Brale Penetrator	HRB B-Scale 100-kg Load 1/16"Dia Ball	HRC C-Scale 150-kg Load Brale Penetrator	HRD D-Scale 100-kg Load Brale Penetrator	15-N Scale 15-kg Load	30-N Scale 30-kg Load	45-N Scale 45-kg Load		(Approximate) in Mpa(KSI)
Hv	Standard Ball	Tungsten Carbide Ball									
410	388	388	71.4	–	41.8	56.8	81.4	61.1	45.3	–	1330(193)
400	379	379	70.8	–	40.8	56.0	81.0	60.2	44.1	55	1290(187)
390	369	369	70.3	–	39.8	55.2	80.3	59.3	42.9	–	1240(180)
380	360	360	69.8	110.0	38.8	54.4	79.8	58.4	41.7	52	1205(175)
370	350	350	69.2	–	37.7	53.6	79.2	57.4	40.4	–	1170(170)
360	341	341	68.7	109.0	36.6	52.8	78.6	56.4	39.1	50	1130(164)
350	331	331	68.1	–	35.5	51.9	78.0	55.4	37.8	–	1095(159)
340	322	322	67.6	108.0	34.4	51.1	77.4	54.4	35.5	47	1070(155)
330	313	313	67.0	–	33.3	50.2	76.8	53.6	35.2	–	1035(150)
320	303	303	66.4	107.0	32.2	49.4	76.2	52.3	33.9	45	1005(146)
310	294	294	65.8	–	31.0	48.4	75.6	51.3	32.5	–	980(142)
300	284	284	65.2	105.5	29.8	47.5	74.9	50.2	31.1	42	950(138)
295	280	280	64.8	–	29.2	47.1	74.6	49.7	30.4	–	935(136)
290	275	275	64.5	104.5	28.5	46.5	74.2	49.0	29.5	41	915(133)
285	270	270	64.2	–	27.8	46.0	73.8	48.4	28.7	–	905(131)
280	265	265	63.8	103.5	27.1	45.3	73.4	47.8	27.9	40	890(129)
275	261	261	63.5	–	26.4	44.9	73.0	47.2	27.1	–	875(127)
270	256	256	63.1	102.0	25.6	44.3	72.6	46.4	26.2	38	855(124)
265	252	252	62.7	–	24.8	43.7	72.1	45.7	25.2	–	840(122)
260	247	247	62.4	101.0	24.0	43.1	71.6	45.0	24.3	37	825(120)
255	243	243	62.0	–	23.1	42.2	71.1	44.2	23.2	–	805(117)
250	238	238	61.6	99.5	22.2	41.7	70.6	43.4	22.2	36	795(115)
245	233	233	61.2	–	21.3	41.1	70.1	42.5	21.1	–	780(113)
240	228	228	60.7	98.1	20.3	40.3	69.6	41.7	19.9	34	765(111)
230	219	219	–	96.7	18.0	–	–	–	–	33	730(106)
220	209	209	–	95.0	15.7	–	–	–	–	32	695(101)
210	200	200	–	93.4	13.4	–	–	–	–	30	670(97)
200	190	190	–	91.5	11.0	–	–	–	–	29	635(92)
190	181	181	–	89.5	8.5	–	–	–	–	28	605(88)
180	171	171	–	87.1	6.0	–	–	–	–	26	580(84)
170	162	162	–	85.0	3.0	–	–	–	–	25	545(79)
160	152	152	–	81.7	0.0	–	–	–	–	24	515(75)
150	143	143	–	78.7	–	–	–	–	–	22	490(71)
140	133	133	–	75.0	–	–	–	–	–	21	455(66)
130	124	124	–	71.2	–	–	–	–	–	20	425(62)
120	114	114	–	66.7	–	–	–	–	–	–	390(57)
110	105	105	–	62.3	–	–	–	–	–	–	–
100	95	95	–	56.2	–	–	–	–	–	–	–
95	90	90	–	52.0	–	–	–	–	–	–	–
90	86	86	–	48.0	–	–	–	–	–	–	–
85	81	81	–	41.0	–	–	–	–	–	–	–

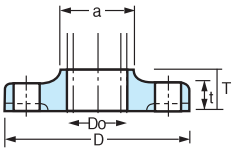
TOLERANCE

ASME B16.5-2009ED FORGED FLANGES (Reversion of ASME B16.5-2009)

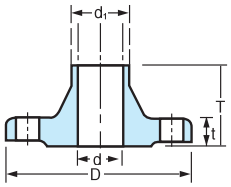
SOLID FLANGE



SLIP-ON FLANGE

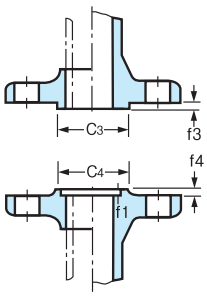


WELDING NECK FLANGE

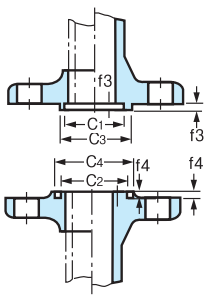


TYPE OF GASKET SURFACE

MALE & FEMALE TYPE



TONGUE & GROOVE TYPE



WELDING NECK

Place	Range	Tolerance(mm)
Outside Diameter	When O.D is 24" or Less	±1.6*(±0.063in)
	When O.D is Over 24"	±3.2*(±0.125in)
Inside Diameter	10" and Smaller	±1.0(±0.03in)
	12" thru 18"	±1.5(±0.06in)
	20" and Larger	+3.0(+0.12in) −1.5(−0.06in)
Diameter of Contact Face	2.0mm Raised Face (Outside)	±1.0(±0.03in)
	7.0mm Raised Face (Outside)	±0.5(±0.02in)
	Tongue, goove, female (Inside & Outside)	±0.5(±0.02in)
Diameter of Hub at Base	When Hub Base is 24" or Smaller	±1.6*(±0.063in)
	When Hub Base is Over 24"	±3.2*(±0.125in)
Diameter of Hub at Welding Point	When O.D is 5" or Less	+2.0(+0.09in) −1.0(−0.03in)
	When O.D is Over 6"	+4.0(+0.16in) −1.0(−0.03in)
Drilling	Bolt Circle Diameter	±1.5(±0.06in)
	Bolt to Bolt Hole	±0.8(±0.03in)
	Eccentricity of Bolt Circle with Respect to Facing	NPS≤2 1/2" 0.8(0.03in) Max. NPS≥3" 1.5(0.06in) Max.
	Eccentricity of Bolt circle with Respect to Bore	0.8 Max. * (0.03in)
	Eccentricity of Facing with Respect to Bore	0.8 Max. * (0.03in)
Thickness	When O.D is 18" or Less	+3.0(+0.12in) −0.0(−0.0in)
	When O.D is Over 20"	+5.0(+0.12in) −0.0(−0.0in)
Length Thru Hub	When O.D is 4" or Less	±1.5(±0.06in)
	5" thru 10"	+1.5(+0.06in) −3.0(−0.12in)
	When O.D is Over 12"	+3.0(+0.12in) −5.0(−0.18in)
Perpendicularity of the face with the bore	5" and smaller	1deg
	6" and larger	0.5deg

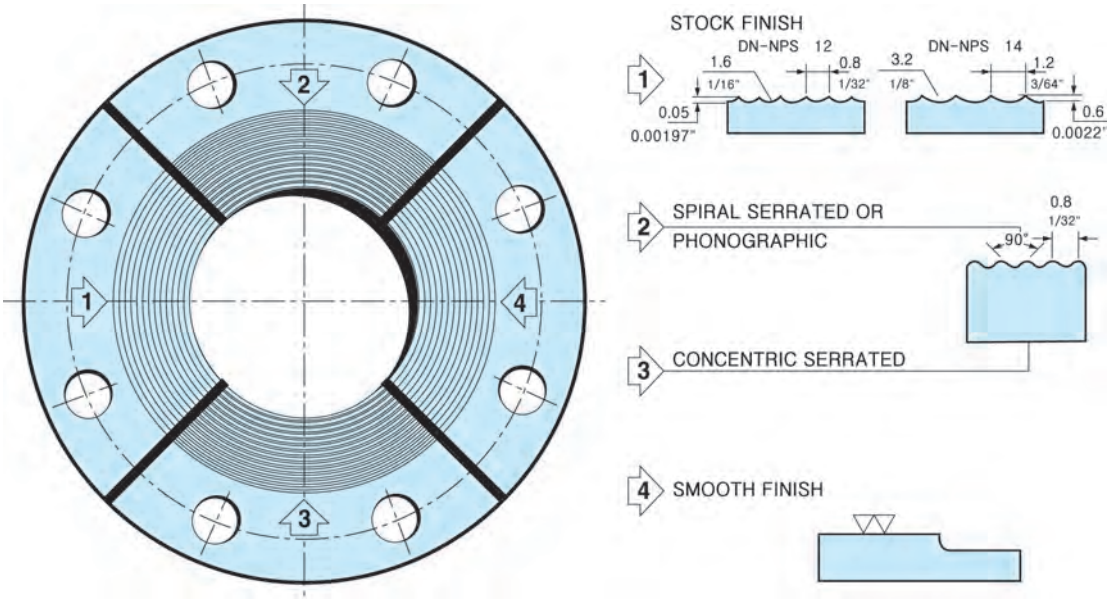
THREAD, SOCKET-WELDING, SLIP-ON, LAP JOINT AND BLIND

Place		Range	Tolerance(mm)
Outside Diameter		When O.D is 24" or Less	±1.6*(±0.063in)
		When O.D is Over 24"	±3.2*(±0.125in)
Inside Diameter	Counter-bores Threaded	When O.D is 10" or Less	±1.0(±0.03in) −0.0(−0.0in)
		When O.D is Over 12"	+1.5(+0.06in) −0.0(−0.0in)
	Counter-bores Socket Welding	1/2≤NPS≤3	±0.25(±0.01in)
	Lap joint Slip-on Socket Welding	When O.D is 10" or Less	±1.0(±0.03in) −0.0(−0.0in)
		When O.D is Over 12"	+1.5(+0.06in) −0.0(−0.0in)
Diameter of Contact Face		2.0mm Raised Face(Outside)	±1.0(±0.03in)
		7.0mm Raised Face(Outside)	±0.5(±0.02in)
		Tongue, goove, female (Inside & Outside)	±0.5(±0.02in)
Diameter of Hub at Base		When Hub Base is 24" or Smaller	±1.6*(±0.063in)
		When Hub Base is Over 24"	±3.2*(±0.125in)
Drilling		Bolt Circle Diameter	±1.5(±0.06in)
		Bolt to Bolt Hole	±0.8(±0.03in)
		Eccentricity of Bolt circle with Respect to Facing	NPS≤2 1/2 ±0.8(0.03in) Max. NPS≥3" ±1.5(0.03in) Max.
		Eccentricity of Bolt Circle with Respect to Bore	0.8 Max. * (0.03in)
		Eccentricity of Facing with Respect to Bore	0.8 Max. * (0.03in)
Thickness		When O.D is 18" or Less	+3.0(+0.12in) −0.0(−0.0in)
		When O.D is Over 20"	+5.0(+0.19in) −0.0(−0.0in)
Length Thru Hub		When O.D is 4" or Less	±1.5(±0.06in)
		5" thru 10"	+1.5(+0.06in) −3.0(−0.12in)
		When O.D. is Over 12"	+3.0(+0.12in) −5.0(−0.18in)

Notes :
*This tolerance is not covered in ASME B 16.5, but maker's option.

STANDARD FINISH

STANDARD FINISHES for Face of Flange(ASME B16.5)



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" (304.8mm) and smaller are produced with a 1/16" round-nosed tool at a feed of 1/32" per revolution. For sizes 14" (355.6mm) and larger, the finish is made with 1/8" round-nosed tool at a feed of 3/64" per revolution.

SPIRAL SERRATED OR PHONOGRAPHIC :

This finish is produced by using a 90° round-nosed tool.

CONCENTRIC SERRATED :

This finish is produced by using a 90° round-nosed tool.

SMOOTH FINISH :

The cutting tool employed shall have an approximate 0.06" radius.
The resultant surface finish shall have a 125μ inch to 250μ inch (ANSI B16.5 para 6.4.5)

1. RAISED FACE, AND LARGE MALE AND FEMALE

Either a serrated-concentric or serrated-spiral finish having from 45 to 55 grooves per inch is used. The cutting tool employed has an approximate 0.06 in radius. The resultant surface finish shall have a 125μ inch (3.2μm) to 250μ inch (6.3μm) approximate roughness.

2. TONGUE AND GROOVE, AND SMALL MALE AND FEMALE

The gasket contact surface does not exceed 125μ in, (3.2μm) roughness.

3. RING JOINT

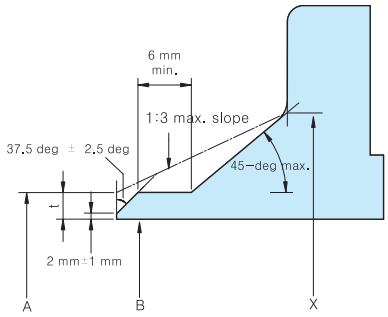
The inside wall surface of gasket groove does not exceed 63μ in, (1.6μ) roughness.

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 is not greater than the inside diameter of the corresponding pressure class fittings. Machining of the derpressed center is not required.

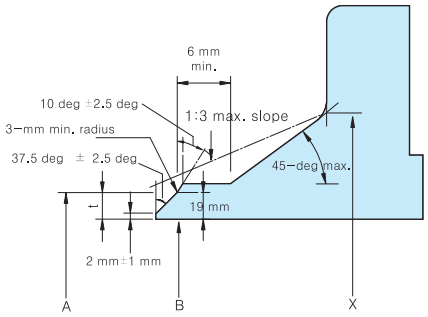
ASME B16.5 FORGED FLANGES

Bevel for Wall Thickness t
From 5mm to 22mm inclusive



Welding Ends
(Welding Neck Flanges, No Backig Rings)

Bevel for Wall Thickness t
Greater Than 22 mm



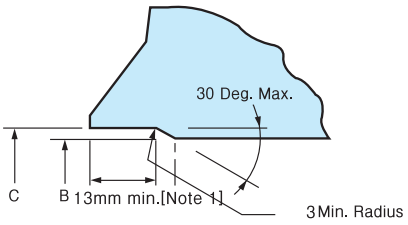
Welding Ends
(Welding Neck Flanges, No Backig Rings)

A = nominal outside diameter of pipe B= nominal inside diameter of pipe t = nominal wall thickness of pipe x = diameter of hub
(See dimensional tables)

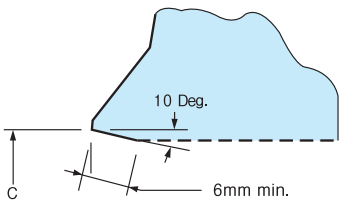
Notes :
When the thickness of the hub at the bevel is greater than that of the pipe to which the flange is joined and the additional thickness is provided on the outside diameter, a taper weld having a slop not exceeding 1 to 3 may be employed or, alternatively, the greater outside diameter may be tapered, at the same maximum slope or less, from a point on the welding bevel equal to the OD at the mating pipe. Similarly, when the greater thickness is provided on the inside of the flange, it shall be taper-bored from the welding end at a slope not exceeding 1 to 3.

When flanges covered by this standard are intended for services with light wall, higher strength pipe, the thickness of the hub at the bevel may be greater than that of the pipe to which the flange is joined. Under these conditions a single taper hub may be provided and the outside diameter of the hub at the base (Dimension X) may also be modified.

The additional thickness may be provided on either inside or outside or partially on each side, but the total additional thickness shall not exceed one-half times the nominal wall thickness of intened mating pipe.



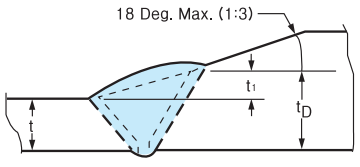
inside contour for use with rectangular backing ring



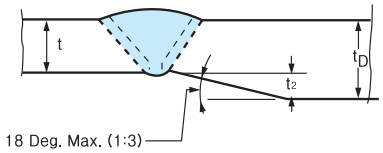
inside contour for use with taper backing ring

A = nominal outside diameter of welding end, mm
B = nominal inside diameter of pipe(=A-2t).mm
C = A-0.79 - 1.75t - 0.25, mm
t = nominal wall thickness of pipe, mm
0.79mm = minus tolerance on outside diameter of pope to ASTM A106, etc.
1.75t = 87.5% of nominal wall(permitted by ASTM A106etc.) multiplied by to conver into terms of diameter.
0.25mm = plus tolerance on diameter C, mm.

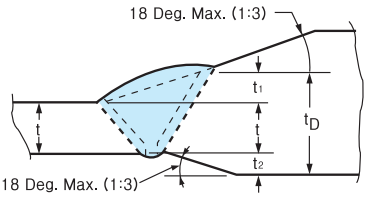
Notes :
(1) 13mm depth based on use of 19mm wide backing ring



bevel for outside thickness



bevel for inside thickness



bevel for combined thickness

Notes :
(1) When the materials joined have equal minimum specified yield strength, there shall be no restriction on the minimum slope.
(2) Neither t1, t2, nor their sum (t1+t2) shall exceed 0.5t.
(3) When the minimum specified yield strength of the sections to be joined are unequal, the valus of tD shall at least equal t time the ratio of minimum specified yield strength of the pipe to minimum specified yield strength of the flange.

ASME ORIFICE FLANGE

ASME B16.36-2006

ORIFICE FLANGES :

are widely used in conjunction with orifice meters for measuring the rate of flow of liquids and gases. They are basically the same as standard welding neck, slip-on and screwed flanges except for the provision of radial, tapped holes in the flange ring for meter connections and additional bolts to act as jack screws to facilitate separating the flanges for inspection or replacement of the orifice plate.

NOTES :

1. JACK SCREW PROVISION

(1) Locaton

Each flange shall have a machine bolt mounted in a hole drilled on the flange center line at 90 deg. From the pressure taps, for use as a jackscrew. Machine bolt shall be regular, with one heavy hex. nut.

(2) Solt fo Nut

A slot shall be provided in the flange 0.06 in. (2mm) wider than the width across flats of the nut. The depth of the slot shall admit the nut so that there is no interference with the joining of the flanges when bolted together without orifice plate.

(3) Tapped Hole

A tapped hole may be provided and te hex nut omitted when agreed on between the purchaser and the manufacturer.

2. PRESSURE TAPS

Each orifice flange is provided with two pressure tap holes extending radially from the outside diameter of the flange to the inside diameter of the flange.

(1) Location

The 0.94 in (24mm) locating dimension for raised face and 0.75 in. (19mm) for ring joint shall be measured at the bore.

(2) Each pressure tap hole shall be equipped with a pipe plug.

3. FACING

The finish of contact faces shall conform to the requirements Of ASME B16.5

4. FLANGE THREADS

Threaded flanges shall have an American National Standard taper pipe thread conforming to ASME B1.20. 1

(1) The thread shall be concentric with the axis of the flange and variations in alignment shall not exceed 0.06 in./ft.(0.5%)

(2) The flanges are made with counterbores at the back of the flange and the threads shall be chamfered to the diameter of the counterbore at an angle of approximately 45 degrees with the axis of the thread to afford easy entrance in making a joint. The counterbore and chamfer shall be concentric with the thread.

(3) In order to permit the pipe to be inserted to the face of the flange, the threads should have full root diameters through to the face of the flange, or shall have a counterbore at face of the flange.

(4) The gaging notch of the working gage shall come flush with the bottom of the chamfer in all threaded flanges and shall be considered as being the intersection of the chamfer cone and the pitch cone of the thread. This depth of chamfer is approximately equal to one-half(1/2) of the pitch of the thread.

(5) The maximum allowable thread variation is one turn large or small from the gaging notch.

5. TOLERANCES

Tolerances on all dimensions shall be as shown in ASME B16.5 except for those shown below.

(1) Pressure Tap Location

Tolerance on location of center of pressure tap hole from flange face shall be:

a. Flanges smaller than NPS 4 ±0.02 in (0.5mm)

b. Flanges NPS 4 and larger ±0.03 in. (0.8mm)

(2) Bore diameter

Bore diameter tolerance (welding neck flanges only) is ±0.5% of nominal value.

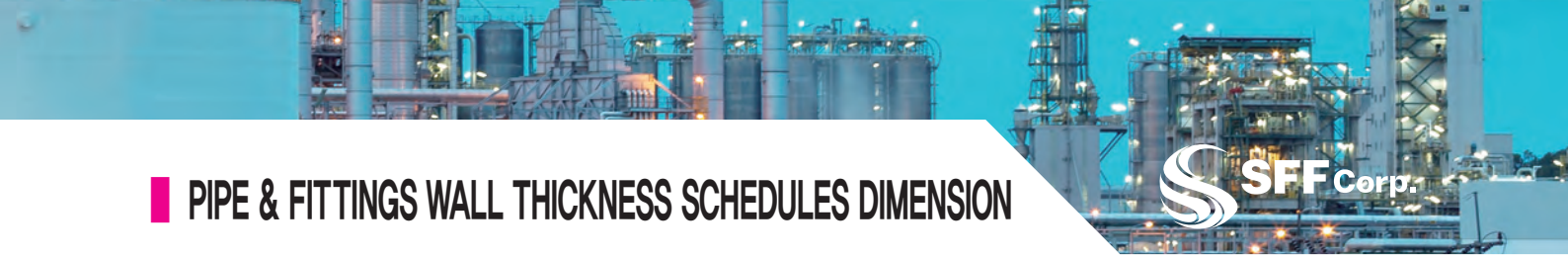
PIPE & FITTINGS WALL THICKNESS SCHEDULES DIMENSION

Nominal Pipe Size (NPS)		Outside Diameter			Nominal Wall Thickness(SS)				Nominal Wall Thickness (Carborn & Low Alloy Steel)				
					Sch5s	Sch10s	Sch40s	Sch80s	Sch5	Sch10	Sch20	Sch30	STD
A	B	MM	IN		MM	MM	MM	MM	MM	MM	MM	MM	MM
6	1/8"	10.3		W.T	–	1.24	1.73	2.41	–	1.24	–	1.45	1.73
				I.D	–	7.82	6.84	5.48	–	7.82	–	7.40	6.84
8	1/4"	13.7	0.540	W.T	–	1.65	2.24	3.02	–	1.65	–	1.85	2.24
				I.D	–	10.40	9.22	7.66	–	10.40	–	10.0	9.22
10	3/8"	17.1	0.675	W.T	–	1.65	2.31	3.20	–	1.65	–	1.85	2.31
				I.D	–	13.80	12.48	10.70	–	13.80	–	13.40	12.48
15	1/2"	21.3	0.840	W.T	1.65	2.11	2.77	3.73	1.65	2.11	–	2.41	2.77
				I.D	18.00	17.08	15.76	13.84	18.00	17.08	–	16.48	15.76
20	3/4"	26.7	1.05	W.T	1.65	2.11	2.87	3.91	1.65	2.11	–	2.41	2.87
				I.D	23.40	22.48	20.96	18.88	23.40	22.48	–	21.88	20.96
25	1"	33.4	1.32	W.T	1.65	2.77	3.38	4.55	1.65	2.77	–	2.90	3.38
				I.D	30.10	27.86	26.64	24.30	30.10	27.86	–	27.60	26.64
32	1 1/4"	42.2	1.66	W.T	1.65	2.77	3.56	4.85	1.65	2.77	–	2.97	3.56
				I.D	38.90	36.66	35.08	32.50	38.90	36.66	–	36.26	35.08
40	1 1/2"	48.3	1.9	W.T	1.65	2.77	3.68	5.08	1.65	2.77	–	3.18	3.68
				I.D	45.00	42.76	40.94	38.14	45.00	42.76	–	41.94	40.94
50	2"	60.3	2.38	W.T	1.65	2.77	3.91	5.54	1.65	2.77	–	3.18	3.91
				I.D	57.00	54.76	52.48	49.22	57.00	54.76	–	53.94	52.48
65	2 1/2"	73.0	2.88	W.T	2.11	3.05	5.16	7.01	2.11	3.05	–	4.78	5.16
				I.D	68.780	66.90	62.68	58.98	68.78	66.90	–	63.44	62.68
80	3"	88.9	3.5	W.T	2.11	3.05	5.49	7.62	2.11	3.05	–	4.78	5.49
				I.D	84.68	82.80	77.92	73.66	84.68	82.80	–	79.34	77.92
90	3 1/2"	101.6	4	W.T	2.11	3.05	5.74	8.08	2.11	3.05	–	4.78	5.74
				I.D	97.38	95.50	90.12	85.44	97.38	95.50	–	92.04	90.12
100	4"	114.3	4.5	W.T	2.11	3.05	6.02	8.56	2.11	3.05	–	4.78	6.02
				I.D	110.08	108.20	102.26	97.18	110.08	108.20	–	104.74	102.26
125	5"	141.3	5.56	W.T	2.77	3.40	6.55	9.53	2.77	3.40	–	–	6.55
				I.D	135.76	134.50	128.20	122.24	135.76	134.50	–	–	128.20
150	6"	168.3	6.62	W.T	2.77	3.40	7.11	10.97	2.77	3.40	–	–	7.11
				I.D	162.76	161.50	154.08	146.36	162.76	161.50	–	–	154.08
200	8"	219.1	8.62	W.T	2.77	3.76	8.18	12.70	2.77	3.76	6.35	7.04	8.18
				I.D	213.56	211.58	202.74	193.70	213.56	211.58	206.40	205.02	202.74
250	10"	273.1	10.75	W.T	3.40	4.19	9.27	12.70	3.40	4.19	6.35	7.80	9.27
				I.D	266.30	264.72	254.56	247.70	266.20	264.62	260.30	257.50	254.46
300	12"	323.9	12.75	W.T	3.96	4.57	9.53	12.70	3.96	4.57	6.35	8.38	9.53
				I.D	315.98	314.76	304.84	298.50	315.88	314.66	311.10	307.04	304.74
350	14"	355.6	14	W.T	3.96	4.78	9.53	12.70	3.96	6.35	7.92	9.53	9.53
				I.D	347.68	346.04	336.54	330.20	347.68	342.90	339.76	336.54	336.54
400	16"	406.4	16	W.T	4.19	4.78	9.53	12.70	4.19	6.35	7.92	9.53	9.53
				I.D	398.02	396.84	387.34	381.00	398.02	393.70	390.56	387.34	387.34
450	18"	457	18	W.T	4.19	4.78	9.53	12.70	4.19	6.35	7.92	11.13	9.53
				I.D	448.62	447.44	437.94	431.60	448.62	444.30	441.16	434.74	437.94
500	20"	508	20	W.T	4.78	5.54	9.53	12.70	4.78	6.35	9.53	12.70	9.53
				I.D	498.44	496.92	488.94	482.60	498.44	495.30	488.94	482.60	488.94
550	22"	559	22	W.T	4.78	5.54	9.53	12.70	4.78	6.35	9.53	12.70	9.53
				I.D	549.44	547.92	539.94	533.60	549.44	546.30	539.94	533.60	539.94
600	24"	610	24	W.T	5.54	6.35	9.53	12.70	5.54	6.35	9.53	14.27	9.53
				I.D	598.92	597.30	590.94	584.60	598.92	597.30	590.94	581.46	590.94
650	26"	660	26	W.T	–	–	–	–	–	7.92	12.70	–	9.53
				I.D	–	–	–	–	–	644.16	634.60	–	640.94
700	28"	711	28	W.T	–	–	–	–	–	7.92	12.70	15.88	9.53
				I.D	–	–	–	–	–	695.16	685.60	679.24	691.94
750	30"	762	30	W.T	6.35	7.92	9.53	12.70	6.35	7.92	12.70	15.88	9.53
				I.D	749.3	746.16	742.94	736.60	749.30	746.16	736.60	730.24	742.94
800	32"	813	32	W.T	–	–	–	–	–	7.92	12.70	15.88	9.53
				I.D	–	–	–	–	–	797.16	787.60	781.24	793.94
850	34"	864	34	W.T	–	–	–	–	–	7.92	12.70	15.88	9.53
				I.D	–	–	–	–	–	848.16	838.60	832.24	844.94
900	36"	914	36	W.T	–	–	–	–	–	7.92	12.70	15.88	9.53
				I.D	–	–	–	–	–	898.16	888.60	882.24	894.94
950	38"	965	38	W.T	–	–	–	–	–	–	–	–	9.53
				I.D	–	–	–	–	–	–	–	–	945.94
1000	40"	1016	40	W.T	–	–	–	–	–	–	–	–	9.53
				I.D	–	–	–	–	–	–	–	–	996.94
1050	42"	1067	42	W.T	–	–	–	–	–	–	–	–	9.53
				I.D	–	–	–	–	–	–	–	–	1047.94
1100	44"	1118	44	W.T	–	–	–	–	–	–	–	–	9.53
				I.D	–	–	–	–	–	–	–	–	1098.94
1150	46"	1168	46	W.T	–	–	–	–	–	–	–	–	9.53
				I.D	–	–	–	–	–	–	–	–	1148.94
1200	48"	1219	48	W.T	–	–	–	–	–	–	–	–	9.53
				I.D	–	–	–	–	–	–	–	–	1199.94

▶Carbon & Low Alloy Steel (B36.10M)

The wall thickness shown represent nominal or average wall diamensions which are subject to a-121/2% mill tolerance.

Note that schdule 40 in. sizes 12" (304.8mm) and larger and that schedule 80 in sizes 10" (254mm) and larger do not agree with schedules 40S and 80S of ASME B36. 19 nor with standard weight and extra strong respectively.



PIPE & FITTINGS WALL THICKNESS SCHEDULES DIMENSION

Nominal Wall Thickness (Carborn & Low Alloy Steel)									Outside Diameter	NPS"	
Sch40	Sch60	XS	Sch80	Sch100	Sch120	Sch140	Sch160	XXS			
MM	MM	MM	MM	MM	MM	MM	MM	MM	MM	A	B
1.73	–	2.41	2.41	–	–	–	–	–	10.3	6	1/8"
6.84	–	5.48	5.48	–	–	–	–	–			
2.24	–	3.02	3.02	–	–	–	–	–	13.7	8	1/4"
9.22	–	7.66	7.66	–	–	–	–	–			
2.31	–	3.20	3.20	–	–	–	–	–	17.1	10	3/8"
12.48	–	10.70	10.70	–	–	–	–	–			
2.77	–	3.73	3.73	–	–	–	4.78	7.47	21.3	15	1/2"
15.76	–	13.84	13.84	–	–	–	11.74	6.36			
2.87	–	3.91	3.91	–	–	–	5.56	7.82	26.7	20	3/4"
20.96	–	18.88	18.88	–	–	–	15.58	11.06			
3.38	–	4.55	4.55	–	–	–	6.35	9.09	33.4	25	1"
26.64	–	24.30	24.30	–	–	–	20.70	15.22			
3.56	–	4.85	4.85	–	–	–	6.35	9.7	42.2	32	1 1/4"
35.08	–	32.50	32.50	–	–	–	29.50	22.80			
3.68	–	5.08	5.08	–	–	–	7.14	10.15	48.3	40	1 1/2"
40.94	–	38.14	38.14	–	–	–	34.02	28.00			
3.91	–	5.54	5.54	–	–	–	8.74	11.07	60.3	50	2"
52.48	–	49.22	49.22	–	–	–	42.82	38.16			
5.16	–	7.01	7.01	–	–	–	9.53	14.02	73.0	65	2 1/2"
62.68	–	58.98	58.98	–	–	–	53.94	44.96			
5.49	–	7.62	7.62	–	–	–	11.13	15.24	88.9	80	3"
77.92	–	73.66	73.66	–	–	–	66.64	58.42			
5.74	–	8.08	8.08	–	–	–	–	–	101.6	90	3 1/2"
90.12	–	85.44	85.44	–	–	–	–	–			
6.02	–	8.56	8.56	–	11.13	–	13.49	17.12	114.3	100	4"
102.26	–	97.18	97.18	–	92.04	–	87.32	80.06			
6.55	–	9.53	9.53	–	12.7	–	15.88	19.05	141.3	125	5"
128.20	–	122.24	122.24	–	115.90	–	109.54	103.20			
7.11	–	10.97	10.97	–	14.27	–	18.26	21.95	168.3	150	6"
154.08	–	146.36	146.36	–	139.76	–	131.78	124.40			
8.18	10.31	12.7	12.7	15.09	18.26	20.62	23.01	22.23	219.1	200	8"
202.74	198.48	193.70	193.70	188.92	182.58	177.86	173.08	174.64			
9.27	12.7	12.7	15.09	18.26	21.44	25.4	28.58	25.4	273.0	250	10"
254.46	247.60	247.60	242.82	236.48	230.12	222.20	215.84	222.20			
10.31	14.27	12.7	17.48	21.44	25.4	28.58	33.32	25.4	323.8	300	12"
303.18	295.26	298.40	288.84	280.92	273.00	266.64	257.16	273.00			
11.13	15.09	12.7	19.05	23.83	27.79	31.75	35.71	–	355.6	350	14"
333.34	325.42	330.20	317.5	307.94	300.02	292.10	284.18	–			
12.7	16.66	12.7	21.44	26.19	30.96	36.53	40.49	–	406.4	400	16"
381.00	373.08	381.00	363.52	354.02	344.48	333.34	325.42	–			
14.27	19.05	12.7	23.83	29.36	34.93	39.67	45.24	–	457	450	18"
428.46	418.9	431.60	409.34	398.28	387.14	377.66	366.52	–			
15.09	20.62	12.7	26.19	32.54	38.1	44.45	50.01	–	508	500	20"
477.82	466.76	482.60	455.62	442.92	431.8	419.10	407.98	–			
–	22.23	12.7	28.58	34.93	41.28	47.63	53.98	–	559	550	22"
–	514.54	533.60	501.84	489.14	476.44	463.74	451.04	–			
17.48	24.61	12.7	30.96	38.89	46.02	52.37	59.54	–	610	600	24"
575.04	560.78	584.60	548.08	532.22	517.96	505.26	490.92	–			
–	–	12.7	–	–	–	–	–	–	660	650	26"
–	–	634.60	–	–	–	–	–	–			
–	–	12.7	–	–	–	–	–	–	711	700	28"
–	–	685.60	–	–	–	–	–	–			
–	–	12.7	–	–	–	–	–	–	762	750	30"
–	–	736.60	–	–	–	–	–	–			
17.48	–	12.7	–	–	–	–	–	–	813	800	32"
778.04	–	787.60	–	–	–	–	–	–			
17.48	–	12.7	–	–	–	–	–	–	864	850	34"
829.04	–	838.60	–	–	–	–	–	–			
19.05	–	12.7	–	–	–	–	–	–	914	900	36"
875.90	–	888.60	–	–	–	–	–	–			
–	–	12.7	–	–	–	–	–	–	965	950	38"
–	–	939.60	–	–	–	–	–	–			
–	–	12.7	–	–	–	–	–	–	1016	1000	40"
–	–	990.60	–	–	–	–	–	–			
–	–	12.7	–	–	–	–	–	–	1067	1050	42"
–	–	1041.60	–	–	–	–	–	–			
–	–	12.7	–	–	–	–	–	–	1118	1100	44"
–	–	1092.60	–	–	–	–	–	–			
–	–	12.7	–	–	–	–	–	–	1168	1150	46"
–	–	1142.60	–	–	–	–	–	–			
–	–	12.7	–	–	–	–	–	–	1219	1200	48"
–	–	1193.60	–	–	–	–	–	–			

▶ Stainless Steel (B36.19M)

The wall thickness shown represent nominal or average wall diamensions which are subject to a–121/2% mill tolerance. +Sizes 14" (355.6mm) through 30" (762.0mm) are not at publication date covered in B36 19. and dimansions listed are those commonly used in the industry.

*Schedules 55 and 105 wall thicknesses do not permit threading in accordance with ASME B2 1. *Note that schdule 40S and schedule 80S in these sizes do not agree with schedule 40 and schedule 80 of ASME B36. 10. and that they are identical to standard weight and extra strong respectively of ASME B36. 10.

ASTM MATERIAL CHEMICAL COMPOSITION & MECHANICAL REQUIREMENTS

ASTM 2013 SECTION 1, VOLUME 1.01

MATE-RIAL			Chemical Compsition (%)												Mechanical Requirements				
			C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V	Nb	N	Y.S (Mpa)	T.S (Mpa)	E.L (%)	R.A (%)	H.B
A 105	K03504	Max.	0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.12	0.40	0.08							187
		Min.		0.10	0.60										250	485	22	30	
A266 GR.1	K03506	Max.	0.30	0.35	1.05	0.025	0.025									585			
		Min.		0.15	0.40										205	415	23	38	
A266 GR.2	K03506	Max.	0.30	0.35	1.05	0.025	0.025									655			
		Min.		0.15	0.40										250	485	20	33	
A266 GR.3	K05001	Max.	0.35	0.35	1.35	0.025	0.025									690			
		Min.		0.15	0.80										260	515	19	30	
A266 GR.4	K03017	Max.	0.30	0.35	1.35	0.025	0.025									655			
		Min.		0.15	0.80										250	485	20	33	
A350 LF.1	K03009	Max.	0.30	0.30	1.35	0.035	0.040	0.40	0.30	0.12	0.40	0.08	0.02			585			197
		Min.		0.15	0.60								0.02		205	415	25	38	
A350 LF.2	K03011	Max.	0.30	0.30	1.35	0.035	0.040	0.40	0.30	0.12	0.40	0.08				655			197
		Min.		0.15	0.60										250	485	22	30	
A350 LF3	K32025	Max.	0.20	0.35	0.90	0.035	0.040	3.70	0.30	0.12	0.40	0.03	0.02			655			197
		Min.		0.20				3.30							260	485		35	
A694	K03014	Max.	0.26	0.35	1.60	0.025	0.025								F42:290 F46:315 F48:330 F50:345 F52:360 F56:385 F60:415 F65:450 F70:485	F42:415 F46:415 F48:425 F50:440 F52:455 F56:470 F60:515 F65:530 F70:565	F42~F65 :20 F70:18		
		Min.		0.15															
A182 F1	K12822	Max.	0.28	0.35	0.90	0.045	0.045			0.65									192
		Min.		0.15	0.60					0.44					275	485	20	30	143
A182 F5	K41545	Max.	0.15	0.50	0.60	0.030	0.030	0.50	6.00	0.65									217
		Min.			0.30				4.00	0.44					275	485	20	35	143
A182 F5a	K42544	Max.	0.25	0.50	0.60	0.040	0.030	0.50	6.00	0.65									248
		Min.							4.00	0.44					450	620	22	50	187
A182 F9	K90941	Max.	0.15	1.00	0.60	0.030	0.030		10.00	1.10									217
		Min.		0.50	0.30				8.00	0.90					380	585	20	40	179
A182 F91	K90901	Max.	0.12	0.50	0.60	0.020	0.010	0.40	9.50	1.05		0.25	0.10	0.07					248
		Min.	0.08	0.20	0.30	Al 0.02 Ti 0.01 Zr 0.01			8.00	0.85		0.18	0.06	0.03	415	620	20	40	190
A182 F11CL1	K11597	Max.	0.15	1.00	0.60	0.030	0.030		1.50	0.65									174
		Min.	0.05	0.50	0.30				1.00	0.44					205	415	20	45	121
A182 F11CL2	K11572	Max.	0.20	1.00	0.80	0.040	0.040		1.50	0.65									207
		Min.	0.10	0.50	0.30				1.00	0.44					275	485	20	30	143
A182 F11CL3	K11572	Max.	0.20	1.00	0.80	0.040	0.040		1.50	0.65									207
		Min.	0.10	0.50	0.30				1.00	0.44					310	515	20	30	156
A182 F12CL1	K11562	Max.	0.15	0.50	0.60	0.045	0.045		1.25	0.65									174
		Min.	0.05		0.30				0.80	0.44					220	415	20	45	121
A182 F12CL2	K11564	Max.	0.20	0.60	0.80	0.040	0.040		1.25	0.65									207
		Min.	0.10	0.10	0.30				0.80	0.44					275	485	20	30	143
A182 F22CL1	K21590	Max.	0.15	0.50	0.60	0.040	0.040		2.50	1.13									170
		Min.	0.05		0.30				2.00	0.87					205	415	20	35	
A182 F22CL3	K21590	Max.	0.15	0.50	0.60	0.040	0.040		2.50	1.13									207
		Min.	0.05		0.30				2.00	0.87					310	515	20	30	156
A182 F22V	K31835	Max.	0.15	0.10	0.60	0.015	0.010	0.25	2.50	1.10	0.20	0.35	0.07			780			237
		Min.	0.11		0.30	B 0.002 Ca 0.015			2.00	0.90		0.25	Ti 0.030		415	620	18	45	174
A182 F304	S30400	Max.	0.08	1.00	2.00	0.045	0.030	11.00	20.00					0.1					
		Min.						8.00	18.00						205	515[8]	30	50	
A182 F304L	S30403	Max.	0.03	1.00	2.00	0.045	0.030	13.00	20.00					0.1					
		Min.						8.00	18.00						170	485[9]	30	50	
A182 F304H	S30409	Max.	0.10	1.00	2.00	0.045	0.030	11.00	20.00										
		Min.	0.04					8.00	18.00						205	515[8]	30	50	
A182 F310	S31000	Max.	0.25	1.00	2.00	0.045	0.030	22.00	26.00										
		Min.						19.00	24.00						205	515[8]	30	50	
A182 F316	S31600	Max.	0.08	1.00	2.00	0.045	0.030	14.00	18.00	3.0				0.1					
		Min.						10.00	16.00	2.0					205	515[8]	30	50	
A182 F316L	S31603	Max.	0.03	1.00	2.00	0.045	0.030	15.00	18.00	3.00				0.1					
		Min.						10.00	16.00	2.00					170	485[9]	30	50	
A182 F316H	S31609	Max.	0.10	1.00	2.00	0.045	0.030	14.00	18.00	3.00									
		Min.	0.04					10.00	16.00	2.00					205	515[8]	30	50	
A182 F317	S31700	Max.	0.08	1.00	2.00	0.045	0.030	15.00	20.00	4.0									
		Min.						11.00	18.00	3.0					205	515[8]	30	50	
A182 F317L	S31703	Max.	0.03	1.00	2.00	0.045	0.030	15.00	20.00	4.0									
		Min.						11.00	18.00	3.0					170	485[9]	30	50	
A182 F321	S32100	Max.	0.08	1.00	2.00	0.045	0.030	12.00	19.00										
		Min.						9.00	17.00		Ti C%*5~0.7				205	515[8]	30	50	
A182 F347	S34700	Max.	0.08	1.00	2.00	0.045	0.030	13.00	20.00			1.10							
		Min.						9.00	17.00			C*10			205	515[8]	30	50	
A182 F6aCL1	S41000	Max.	0.15	1.00	1.00	0.040	0.030	0.50	13.50										207
		Min.							11.50						275	485	18	35	143
A182 F51	S31803	Max.	0.03	1.00	2.00	0.030	0.020	6.50	23.00	3.50				0.20					
		Min.						4.50	21.00	2.50				0.08	450	620	25	45	
A182 F53	S32750	Max.	0.03	0.80	1.20	0.035	0.020	8.00	26.00	5.00	0.5			0.32					310
		Min.						6.00	24.00	3.0				0.24	550[10]	800[10]	15		

Notes :

(1) All values are maximum unless otherwise stated.

(2) The present grade F5a(0.25 max carbon) previous to 1955 was assigned the identification symbol F5. Identification F5 in 1955 was assigned to the 0.15 max carbon grade to be consistent with ASTM specifications for other products such as pipe, tubing, bolting, welding fittings, and the like.

APPLICABLE ASTM SPECIFICATIONS

Material Group No.	GROUP 1 MATERIALS		PRODUCT FORMS	
	Nominal Designation Steel	Forgings	Castings	Plates
		Spec.-Gr. Notes	Spec.-Gr. Notes	Spec.-Gr. Notes
1.1	C-Si	A105	A216-WCB	A515.70
	C-MIN-Si	A350-LF2		A516.70
	3 1/2 Ni	A350-LF3		
1.2	C-MIN-Si		A216-WCC	
			A352-LCC	
	2 1/2 Ni		A352-LC2	A203-B
	3 1/2 Ni		A352-LC3	A203-E
1.3	C-Si		A352-LCB (1)	A515-65
	C-Mn-si			A515-65
	2 1/2 Ni			A203-A
	3 1/2 Ni			A203-D
1.4	C-Si	A350-LF1 CL.1		A515-60
	C-Min-Si			A515-60
1.5	C-1/2 Mo	A182-F1		A204-A
				A204-B
1.7	1/2Cr-1/2Mo	A182-F2		
	Ni-1/2Cr-1/2Mo		A217-WC4	
	3/4Ni-3/4Cr-Mo		A217-WC5	
1.9	1/4Cr-1/2Mo		A217-WC6	
	1 1/4Cr-1/2Mo-Si	A182-11 CL.2		A378-11 CL.2
1.10	2 1/4Cr-1 Mo	A182-22 CL.3	A217-WC9	A378-11 CL.2
1.13	5 Cr-1/2Mo	A181-F5a	A217-C5	
1.14	9 Cr-1Mo	A182-F9	A217-C12	

Material Group No.	GROUP 1 MATERIALS		PRODUCT FORMS	
	Nominal Designation Steel	Forgings	Castings	Plates
		Spec.-Gr. Notes	Spec.-Gr. Notes	Spec.-Gr. Notes
2.1	18 Cr-8Ni	A182-F304	A351-CF3	A240-304
		A182-F304H	A351-CF8	A240-304H
2.2	16 Cr-12 Ni-2 Mo	A182-F316	A351-CF3M	A240-316
		A182-F316H	A351-CF8M	A240-316H
	18 Cr-13 Ni-3 Mo	A182-F317		A240-317
	19 Cr-10 Ni-3 Mo		A351-CG8M	
2.3	18Cr-8 Ni	A182-F304L		A240-304L
	16 Cr-12 Ni-2 Mo	A182-F316L		A240-316L
2.4	18 Cr-10 Ni-Ti	A182-F321		A240-321
		A182-F321H		A240-321H
2.5	18 Cr-10 Ni-Cb	A182-F347		A240-347
		A182-F347H		A240-347H
		A182-F348		A240-348
		A182-F348H		A240-348H
2.6	23 Cr-12 Ni			A240-309H
2.7	25 Cr-20 Ni	A182-F310		A240-310H

(3) For Grade F22V, rare earth metals(REM) may be added in place of calcium, subject to agreement betwen the producer and the puchaser, In that case the total amont of REM shall be determined and erported.
(4) Grades F304, F304L, F316, and F316L shall have a nitrogen content of 0.10%
(5) Grade F321 shall have a tianium content of not less than four times the carbon content and not more than 0.70%
(6) Grade F347 shall have a columbium content of not less than ten times the carbon content and not more than 1.10%
(7) Determined by the 0.2% offset method. For ferritic steels only, the 0.5% extension-under-load method may also be used.
(8) For sections over 5 in. (130mm) in thickness, the minium tensile strength shall be 70 ksi(485 Mpa)
(9) For sections over 5 in. (130mm) in thickness, the minium tensile strength shall be 65 ksi(450 Mpa)
(10) For sections over 2 in. (50mm) in thickness, the minium tensile strength shall be 106 ksi(730 Mpa);the minimum yield strength shall be 75 ksi (515 Mpa)

SPECIAL MATERIAL

DUPLEX (AUSTENITIC-FERRITIC)

UNS Design-ation	ASTM PLATE	ASTM FORGING	TRADE NAME		Chemical Compsition (%)													Mechanical Reuqirements			
					C	Mn	p	s	Si	Ni	Cr	Mo	Cu	N	Fe	Others	Y.S	T.S	E.L(%)	H.B
S32304	A240 TP2304		2304	MAX	0.03	2.5	0.04	0.03	1.0	5.5	24.5	0.6	0.6	0.2						290
				MIN						3.0	21.5	0.05	0.05	0.05			400	600	25	
S31803	A240	F51		MAX	0.03	2.0	0.03	0.02	1.0	6.5	23	3.5		0.2						293
				MIN						4.5	21	2.5		0.08			450	620	25	
S32950	A240	F52		MAX	0.03	2.0	0.035	0.01	0.6	5.2	29	2.5		0.35						293
				MIN						3.5	26	1.0		0.15			485	690	15	
S32750	A240 TP2507	F53	SAF2507	MAX	0.03	1.2	0.035	0.02	0.8	8.0	26	5.0		0.32						310
				MIN						6.0	24	3.0		0.24			550	795	15	
S32760	A240	F55	Zeron100	MAX	0.03	1.0	0.03	0.01	1.0	8.0	26	4.0	1.0	0.3		w				270
				MIN						6.0	24	3.0	0.5	0.2		0.5~1.0	550	750	25	
S32205	A240 TP2205	F60	SAF2205	MAX	0.03	2.0	0.03	0.02	1.0	6.5	23	3.5		0.2						293
				MIN						4.5	22	3.0		0.14			450	655	25	
S32550	A240 TP255	F61		MAX	0.04	1.5	0.04	0.03	1.0	6.5	27	3.9	2.5	0.25						302
				MIN						4.5	24	2.9	1.5	0.1			550	760	15	

* ASTM SECTION 1, VOLUME .03 A240/240M (12a)

ALLOY

UNS Design-ation	ASTM PLATE	ASTM FORGING	TRADE NAME		Chemical Compsition (%)													Mechanical Reuqirements			
					C	Mn	p	s	Si	Ni	Cr	Mo	Cu	Fe	Others	Others2	Others3	Y.S	T.S	E.L(%)	H.B
N02200	SB162	SB160	Nickel 200	MAX	0.15	0.35		0.01	0.35	MIN			0.25	0.4							
				MIN						99.0								100	380	40	
N02201	SB162	SB160	Nickel 201	MAX	0.02	0.35		0.01	0.35	MIN			0.25	0.4							
				MIN						99.0								80	345	40	
N06600	SB168	SB166	Inconel 600	MAX	0.15	1.0		0.015	0.5	MIN	17.0		0.5	10.0							
				MIN						72.0	14.0			6.0				240	550	30	
N06601	SB168	SB166	Inconel 601	MAX	0.1	1.0		0.015	0.5	63.0	25.0		1.0	REMAIN DER	Al						
				MIN						58.0	21.0				1~1.7			205	550	30	
N06690	SB168	SB166	Inconel 690	MAX	0.05	0.5		0.015	0.5	MIN	31		0.5	11.0							
				MIN						58.0	27			7.0				240	586	30	
N08810 N08811	A240/ SB-409	SB408	Inconel 800H/M	MAX	0.05~0.1	1.5		0.015	1.0	35.0	23.0		0.75	MIN	Ti	Al					
				MIN	0.06~0.1					30.0	19.0			39.5	0.15~0.6	0.15~0.6		170	450	30	
N07718	SB637 (FORGING)		Inconel 718	MAX	0.08	0.35	0.015	0.015	0.35	55.0	21.0	3.3	0.3	REMAIN DER	Co 1.0	Ti	Al				MIN
				MIN						50.0	17.0	2.8				0.65~1.15	0.2~0.8	1034	1275	12	331
N06617	SB168	SB166	Inconel 617	MAX	0.15	1.0		0.015	1.0	MIN	24.0	10.0	0.5	3.0	Co	Ti 0.6	BORON				
				MIN	0.05					44.5	20.0	8.0			10.0~15.0	Al 0.8~1.5	MAX0.006	240	655	35	
N07750 (3)	SB637 (FORGING)		Inconel X-750	MAX	0.08	1.0		0.01	0.5	MIN	17.0		0.5	9.0	Co 1.0	Ti	Al				MIN
				MIN						70.0	14.0			5.0		2.25~2.75	0.4~1.0	690	1170	20	310
N07080	SB637 (FORGING)		Nimonic 80A	MAX	0.1	1.0		0.015	1.0	REMAIN DER	21.0			3.0	Al	Ti					
				MIN							18.0				0.5~1.8	1.8~2.7		620	930	20	
N06625	SB446	SB443	Inconel 625	MAX	0.1	0.5	0.015	0.015	0.5	MIN	23.0	10.0		5.0	Nb+Tantalum		Al 0.4				
				MIN						58.0	20.0	8.0			3.15~4.15		Ti0.4(MAX)	276	690	30	
N08825	SB424	SB425	Inconel 825	MAX	0.05	1.0		0.03	0.5	46.0	23.5	3.5	3.0	MIN	Al 0.2	Ti					
				MIN						38.0	19.5	2.5	1.5	22.0		0.6~1.2		241	586	30	
N10276	SB575	SB574	Hastelloy C276	MAX	0.01	1.0	0.04	0.03	0.08	REMAIN DER	16.5	17.0		7.0	Tungsten	Co 2.5	V 0.35				100
				MIN							14.5	15.0		4.0	3~4.5			283	690	40	(HRB)
N06022	SB575	SB574	Hastelloy C22	MAX	0.015	0.5	0.02	0.02	0.08	REMAIN DER	22.5	14.5		6.0	Tungsten	Co 2.5	V 0.35				100
				MIN							20.00	12.5		2.0	2.5~3.5			310	690	45	(HRB)
N06455	SB575	SB574	Hastelloy C4	MAX	0.015	1.0	0.04	0.03	0.08	REMAIN DER	18.0	17.0		3.0	Co 2.0	Ti 0.7					100
				MIN							14.0	14.0						276	690	40	(HRB)
N10665	SB333	SB335	Hastelloy B2	MAX	0.02	1.0	0.04	0.03	0.1	REMAIN DER	1.0	30.0		2.0	Co 1.0						100
				MIN								26.0						350	760	40	(HRB)
N10675 (4)	SB333	SB335	Hastelloy B3	MAX	0.01	3.0	0.03	0.01	0.1	MIN	3.0	32.0		3.0	Co 3.0	V 0.2	Al 0.5				100
				MIN						65.0	1.0	27.0		1.0				350	760	40	(HRB)
C71500	SB171	SB151	Cu-Ni 70/30	MAX		1.0				Ni+Co			REMAIN DER	1.0	LEAD(max)		ZINC 1.0	140	345	30	
				MIN						29~33				0.4	0.05						
C70600	SB171	SB151	Cu-Ni 90/10	MAX		1.0				Ni+Co			REMAIN DER	1.8	LEAD(max)		ZINC 1.0	105	275	30	
				MIN						9~11				1	0.05						

Notes :

(1) ASME 2011 (Add) SECTION II, PART B

(2) Mechanical testing values are for reference (Use plate Mechanical test specification) The values in the table can be fluctuated by heat treatment

(3) Columbium + Tantalum 0.7~1.2

(4) Ni + Mo 94.0 ~ 98.0, Cb 0.2 Max, Ti 0.2 Max, Tantalum 0.2 Max, Tungsten 3.0 Max, Zirconium 0.1 Max

ASME B16.47 SERIES A FLANGES (MSS SP-44)

- MATERIAL SPECIFICATION
- Class 150 Flanges
- Class 300 Flanges
- Class 400 Flanges
- Class 600 Flanges
- Class 900 Flanges
- TOLERANCE (MSS SP-44)

SFF Corp.

MATERIAL SPECIFICATIONS

1. MATERIALS

(1) The Steel used in the manufacture of these flanges shall be selected by the manufacturer to meet the following requirements.
(2) All materials used for flanges shall be killed steel.
(3) The steel used shall be suitable for filed welding to other flanges fittings or pipe manufactured under ASTM specification A105, A153, A106, A381, A694, A707 or API Standards 5L.

$$CE = C + \frac{Mn}{6} + \frac{V+Cr+Mo}{5} + \frac{Ni+Cu}{15}$$

(4) The steel used shall have a maximum carbon content of 0.35 and a carbon equivalent computed by the following equation.: that should not exceed 0.48%, based on ladle analysis.
If the carbon equivalent factor exceeds 0.48% the acceptance of the flanges shall be based on ageement between purchaser and manufcturer.
(5) The choice and used of alloying elements, combined with the elements within the limits prescribed in Section 1-D to give the required tensile properties prescribed in Section 3.1.4 shall be made by the flange manufacturer and included and reported in the ladle analysis to identify the type of steel.

2. HEAT TREATMENT

The F42 and higher grades of flanges of all pressure classes and the class 400 and higher classes of Grade F36 flanges shall be normalized or quenched and tempered.

3. TEST SPECIMENS

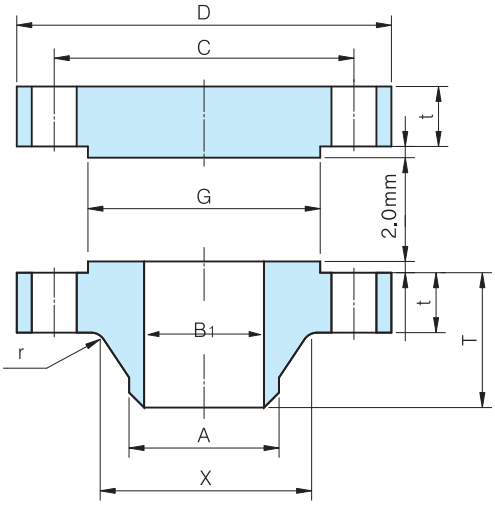
The test speciments may be taken from the forgings or, at the manufactures option, from the billets or forging bar entering into the finished product, provided such test blank has undergone relatively the same forming and the equivalent heat treatment as the finished flange. The dimensions of the test blank must be such as to adequately reflect the heat treatment properties of the hub of the flange. Specimens shall be obtained from the midwall of the thinnest section of the hub of the flange or 19mm (3/4 in.) from the surface of the test blank. The orientation of specimens takes from a flange shall be longitudinal.

4. TENSILE REQUIREMENTS(METRIC & U.S. CUSTOMARY)

GRADE	YIELD POINT MIN.		TENSILE STRENGTH MIN.		ELONGATION IN 50 mm or 2 in. MIN. PERCENT
	Mpa	ksi	Mpa	ksi	
F36	248[a]	36[a]	414	60	20
F42	290	42	414	60	20
F46	317	46	414	60	20
F48	331	48	427	62	20
F50	345	50	441	64	20
F52	359	52	455	66	20
F56	386	56	469	68	20
F60	414	60	517	75	20
F65	448	65	531	77	18
F70	483	70	552	80	18

(a) Note : except as required in MSS-SP-44, Section 4.2.

CLASS 150 FLANGES



ASME B16.47A (MSS SP 44)

Unit : mm

Nominal Pipe Size (inch)	Outside Dia-meter	Thickness		Bore wall Thickness		Length through Hub	O.D of Raised Face	Diameter of Hub Bevel	Diameter of Base of Hub	LENGTH THRU HUB(T)			Radius of Fillet	Approximate Weight(kg)	
		WNF	Blind	9.53mm	12.7mm					Diameter of Bolt Circle	Number of holes	Diameter of Bolt hole			
	D	t	t	B1		T	G	A	X	C			r	WELDING NECK	BLIND
12	485	30.2	30.2	304.74	298.40	113	381.0	323.8	365	431.8	12	25.4	10	38.9	43.7
14	535	33.4	33.4	336.54	330.20	125	412.8	355.6	400	476.3	12	28.6	10	51.7	59.4
16	595	35.0	35.0	387.34	381.00	125	469.9	406.4	457	539.8	16	28.6	10	64.4	77.1
18	635	38.1	38.1	437.94	431.60	138	533.4	457.0	505	577.9	16	31.8	10	74.8	94.8
20	700	41.3	41.3	488.94	482.60	143	584.2	508.0	559	635.0	20	31.8	10	89.3	123.4
22	750	44.5	44.5	539.94	533.60	148	641.4	558.8	610	692.2	20	34.9	10	107.6	152
24	815	46.1	46.1	590.94	584.60	151	692.2	610.0	663	749.3	20	34.9	10	119.6	188.2
26	870	66.7	66.7	641.34	635.00	119	749.0	660.4	676	806.4	24	34.9	10	149.3	306.2
28	925	69.9	69.9	692.14	685.80	124	800.0	711.2	727	863.6	28	34.9	11	169.1	361.9
30	985	73.1	73.1	742.94	736.60	135	857.0	762.0	781	914.4	28	34.9	11	199.8	431.0
32	1060	79.4	79.4	793.74	787.40	143	914.0	812.8	832	977.9	28	41.3	11	247.9	537.0
34	1110	81.0	81.0	844.54	838.20	148	965.0	863.6	883	1028.7	32	41.3	13	264.8	599.5
36	1170	88.9	88.9	895.34	889.00	156	1022.0	914.4	933	1085.8	32	41.3	13	316.4	733.3
38	1240	85.8	85.8	946.14	939.80	156	1073.0	965.2	991	1149.4	32	41.3	13	352.4	798.7
40	1290	88.9	88.9	996.94	990.60	162	1124.0	1016.0	1041	1200.2	36	41.3	13	378.6	894
42	1345	95.3	95.3	1047.74	1041.40	170	1194.0	1066.8	1092	1257.3	36	41.3	13	431	1044.4
44	1405	100.1	100.1	1098.54	1092.20	176	1245.0	1117.6	1143	1314.4	40	41.3	13	484	1195.3
46	1455	101.6	101.6	1149.34	1143.00	184	1295.0	1168.4	1197	1365.2	40	41.3	13	516.5	1304.1
48	1510	106.4	106.4	1200.14	1193.80	191	1359.0	1219.2	1248	1422.4	44	41.3	13	567.2	1469.3
50	1570	109.6	109.6	1250.94	1244.60	202	1410.0	1270.0	1302	1479.6	44	47.6	13	616.7	1622.7
52	1625	114.3	114.3	1301.74	1295.40	208	1461.0	1320.8	1353	1536.7	44	47.6	13	676.9	1816.9
54	1685	119.1	119.1	1352.54	1346.20	214	1511.0	1371.6	1403	1593.8	44	47.6	13	752.5	2039.8
56	1745	122.3	122.3	1403.34	1397.00	227	1575.0	1422.4	1457	1651.0	48	47.6	13	827.2	2244.6
58	1805	127.0	127.0	1454.14	1447.80	233	1626.0	1473.2	1508	1708.2	48	47.6	13	913.6	2498.5
60	1855	130.2	130.2	1504.94	1498.60	238	1676.0	1524.0	1559	1759.0	52	47.6	13	958.0	2700.2

Notes :

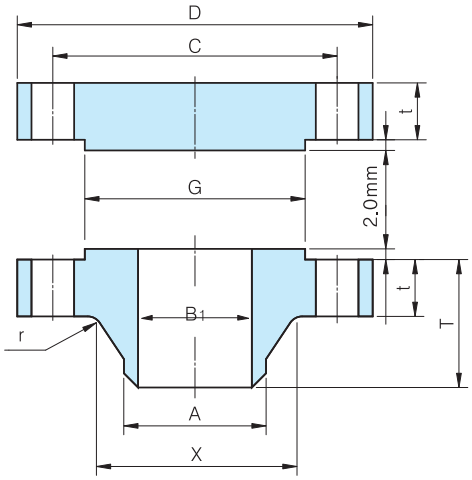
(1) For the 'Bore' (B1) other than wall thickness 9.53mm and 12.7mm, refer to page 70-71

(2) Class 150 flanges will be furnished with 2mm(0.06") raised face, which is excepted from 'Thickness'(t) and 'Length through Hub' (T).

(3) Flanges dimensions of size 12" through 24" flanges [except 22"] are in accordance with ASME B16.5

(4) Blind flanges mays be made with or without hubs at the manufacturer's option.

CLASS 300 FLANGES



ASME B16.47A (MSS SP 44)

Unit : mm

Nominal Pipe Size (inch)	Outside Diameter	Thickness		Bore wall Thickness		Length through Hub	O.D of Raised Face	Diameter of Hub Bevel	Diameter of Base of Hub
		WNF	Blind	9.53mm	12.7mm				
	D	t	t	B_1		T	G	A	X
12	520	49.3	49.3	304.74	298.4	129	381.0	323.8	375
14	585	52.4	52.4	336.54	330.2	141	412.8	355.6	425
16	650	55.6	55.6	387.34	381.0	144	469.9	406.4	483
18	710	58.8	58.8	437.94	431.6	157	533.4	457.0	533
20	775	62.0	62.0	488.94	482.6	160	584.2	508.0	587
22	840	65.1	65.1	539.94	533.6	164	641.5	558.8	641
24	915	68.3	68.3	590.94	584.6	167	692.2	610.0	702
26	970	77.8	82.6	641.34	635.0	183	749.0	660.4	721
28	1035	84.2	88.9	692.14	685.8	195	800.0	711.2	775
30	1090	90.5	93.7	742.94	736.6	208	857.0	762.0	827
32	1150	96.9	98.5	793.74	787.4	221	914.0	812.8	881
34	1205	100.1	103.2	844.54	838.2	230	965.0	863.6	937
36	1270	103.2	109.6	895.34	889.0	240	1022.0	914.4	991
38	1170	106.4	106.4	946.14	939.8	179	1029.0	965.2	994
40	1240	112.8	112.8	996.94	990.6	192	1086.0	1016.0	1048
42	1290	117.5	117.5	1047.74	1041.4	198	1137.0	1066.8	1099
44	1355	122.3	122.3	1098.54	1092.2	205	1194.0	1117.6	1149
46	1415	127.0	127.0	1149.34	1143.0	214	1245.0	1168.4	1203
48	1465	131.8	131.8	1200.14	1193.8	222	1302.0	1219.2	1254
50	1530	138.2	138.2	1250.94	1244.6	230	1359.0	1270.0	1305
52	1580	142.9	142.9	1301.74	1295.4	237	1410.0	1320.8	1356
54	1660	150.9	150.9	1352.54	1346.2	251	1467.0	1371.6	1410
56	1710	152.4	152.4	1403.34	1397.0	259	1518.0	1422.4	1464
58	1760	157.2	157.2	1454.14	1447.8	265	1575.0	1473.2	1514
60	1810	162.0	162.0	1504.94	1498.6	271	1626.0	1524.0	1565

Notes :

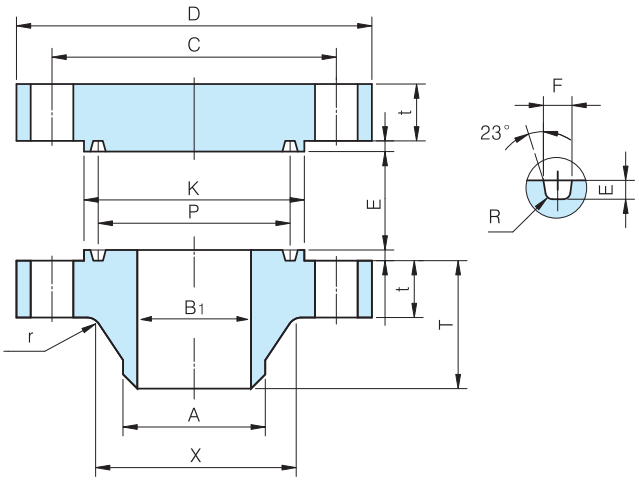
(1) For the 'Bore'(B1) other than wall thickness 9.53mm and 12.7mm, refer to page 70~71

(2) Class 150 flanges will be furnished with 2mm(0.06") raised face, which is excepted from 'Thickness'(t) and 'Length through Hub'(T).

(3) Flanges dimensions of size 12" through 24" flanges [except 22"] are in accordance with ASME B16.5

(4) Blind flanges mays be made with or without hubs at the manufacturer's option.

CLASS 300 FLANGES

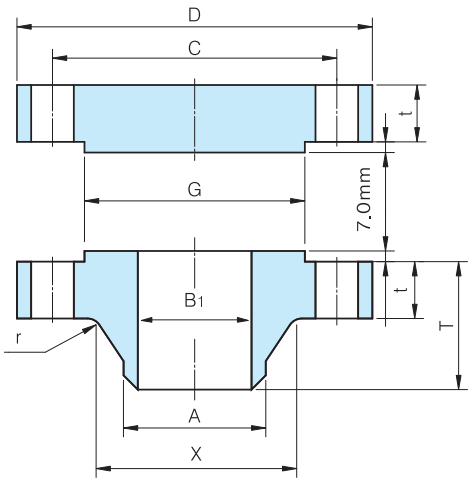


ASME B16.47A (MSS SP 44)

Unit : mm

Nominal Pipe Size (inch)	Drilling			Radius of Fillet	Pitch Diameter	GROOVE DIMENSIONS			Diameter of Raised Face	Ring & Groove Number	Approximate Weight(kg)	
	Diameter of Bolt Circle	Number of holes	Diameter of Bolt hole			Width	Depth	Radius				
	C			r	P	F	E	R	K		WELDING NECK	BLIND
12	450.8	16	31.8	10	381.0	11.91	7.92	0.8	413	R57	64.4	78.9
14	514.4	20	31.8	10	419.1	11.91	7.92	0.8	457	R61	88.3	107.1
16	571.5	20	34.9	10	469.9	11.91	7.92	0.8	508	R65	112.9	139
18	628.6	24	34.9	10	533.4	11.91	7.92	0.8	575	R69	138.3	176.9
20	685.8	24	34.9	10	584.2	13.49	9.53	1.5	635	R73	167.3	223.2
22	743.0	24	41.3	10	635.0	15.1	11.13	1.5	686	R81	200.6	270
24	812.8	24	41.3	10	692.15	16.66	11.13	1.5	749	R77	235.4	342
26	876.3	28	44.5	10	749.3	19.84	12.7	1.5	810	R93	281.3	457.8
28	939.8	28	44.5	11	800.1	19.84	12.7	1.5	861	R94	341.4	564.6
30	997.0	28	47.6	11	857.25	19.84	12.7	1.5	917	R95	391.6	658.8
32	1054.1	28	50.8	11	914.4	23.01	14.27	1.5	984	R96	453.9	769.6
34	1104.9	28	50.8	13	965.2	23.01	14.27	1.5	1035	R97	507.6	889.4
36	1168.4	32	54.90	13	1022.35	23.01	14.27	1.5	1092	R98	564.5	1037.6
38	1092.2	32	41.3	13	–	–	–	–	–	–	319.2	875.2
40	1155.7	32	44.5	13	–	–	–	–	–	–	386.2	1039.8
42	1206.5	32	44.5	13	–	–	–	–	–	–	420.3	1175.6
44	1263.6	32	47.6	13	–	–	–	–	–	–	479.8	1347.3
46	1320.8	28	50.8	13	–	–	–	–	–	–	544.6	1530.3
48	1371.6	32	50.8	13	–	–	–	–	–	–	580.1	1697.8
50	1428.8	32	54.0	13	–	–	–	–	–	–	660.4	1937.8
52	1479.6	32	54.0	13	–	–	–	–	–	–	708.4	2141.7
54	1549.4	28	60.3	13	–	–	–	–	–	–	862.5	2495.5
56	1600.2	28	60.3	13	–	–	–	–	–	–	908.8	2680.2
58	1651.0	32	60.3	13	–	–	–	–	–	–	952.2	2920.0
60	1701.8	32	60.3	13	–	–	–	–	–	–	1011.7	3095.0

CLASS 400 FLANGES



ASME B16.47A (MSS SP 44)

Unit : mm

Nominal Pipe Size (inch)	Outside Diameter	Thickness		Bore wall Thickness		Length through Hub	O.D of Raised Face	Diameter of Hub Bevel	Diameter of Base of Hub
		WNF	Blind	9.53mm	12.7mm				
	D	t	t	B_1		T	G	A	X
12	520	57.2	57.2	304.74	298.40	137	381.0	323.8	375
14	585	60.4	60.4	336.54	330.20	149	412.8	355.6	425
16	650	63.5	63.5	387.34	381.00	152	469.9	406.4	483
18	710	66.7	66.7	437.94	431.60	165	533.4	457.0	533
20	775	69.9	69.9	488.94	482.60	168	584.2	508.0	587
22	840	73.1	73.1	539.94	533.60	164	641.5	558.8	641
24	915	76.2	76.2	590.94	584.60	175	692.2	610.0	702
26	970	88.9	98.5	641.34	635.00	194	749.0	660.4	727
28	1035	95.3	104.8	692.14	685.80	206	800.0	711.2	783
30	1090	101.6	111.2	742.94	736.60	219	857.0	762.0	837
32	1150	108.0	115.9	793.74	787.40	232	914.0	812.8	889
34	1205	111.2	122.3	844.54	838.20	241	965.0	863.6	945
36	1270	114.3	128.6	895.34	889.00	251	1022.0	914.4	1000
38	1205	123.9	123.9	946.14	939.80	206	1035.0	965.2	1003
40	1270	130.2	130.2	996.94	990.60	216	1092.0	1016.0	1054
42	1320	133.4	133.4	1047.74	1041.40	224	1143.0	1066.8	1108
44	1385	139.7	139.7	1098.54	1092.20	233	1200.0	1117.6	1159
46	1440	146.1	146.1	1149.34	1143.00	244	1257.0	1168.4	1213
48	1510	152.4	152.4	1200.14	1193.80	257	1308.0	1219.2	1267
50	1570	157.2	158.8	1250.94	1244.60	268	1362.0	1270.0	1321
52	1620	162.0	163.6	1301.74	1295.40	276	1413.0	1320.8	1372
54	1700	169.9	171.5	1352.54	1346.20	289	1470.0	1371.6	1426
56	1755	174.7	176.3	1403.34	1397.00	298	1527.0	1422.4	1480
58	1805	177.8	181.0	1454.14	1447.80	306	1578.0	1473.2	1530
60	1885	185.8	189.0	1504.94	1498.60	319	1635.0	1524.0	1584

Notes :

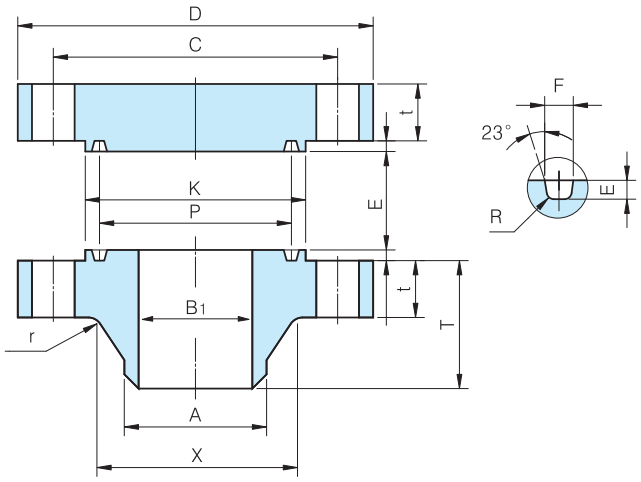
(1) For the 'Bore'(B1) other than wall thickness 9.53mm and 12.7mm, refer to page 70-71

(2) Class 400 flanges will be furnished with 2mm(0.06") raised face, which is excepted from 'Thickness'(t) and 'Length through Hub'(T).

(3) Flanges dimensions of size 12" through 24" flanges [except 22"] are in accordance with ASME B16.5

(4) Blind flanges mays be made with or without hubs at the manufacturer's option.

CLASS 400 FLANGES

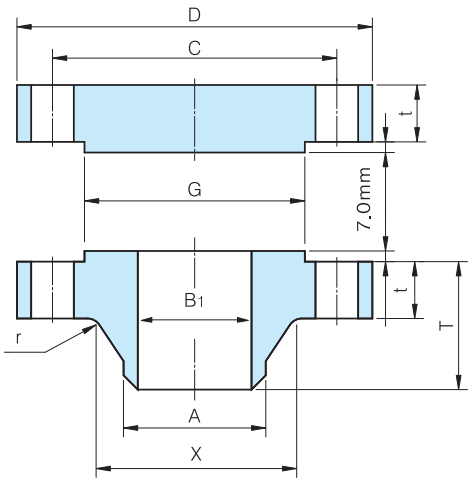


ASME B16.47A (MSS SP 44)

Unit : mm

Nominal Pipe Size (inch)	Drilling			Radius of Fillet	Pitch Diameter	GROOVE DIMENSIONS			Diameter of Raised Face	Ring & Groove Number	Approximate Weight(kg)	
	Diameter of Bolt Circle	Number of holes	Diameter of Bolt hole			Width	Depth	Radius				
	C			r	P	F	E	R	K		WELDING NECK	BLIND
12	450.8	16	34.9	11	381.0	11.91	7.92	0.8	413	R57	72.57	98
14	514.4	20	34.9	11	419.1	11.91	7.92	0.8	457	R61	105.7	131.6
16	571.5	20	38.1	11	469.9	11.91	7.92	0.8	508	R65	133.3	167
18	628.6	24	38.1	11	533.4	11.91	7.92	0.8	575	R69	158.9	206.6
20	685.8	24	41.3	11	584.2	13.49	9.53	1.5	635	R73	193	261
22	743.0	24	44.5	11	635.0	15.1	11.13	1.5	686	R81	215.6	280
24	812.8	24	47.6	11	692.15	16.66	11.13	1.5	749	R77	281.5	395
26	876.3	28	47.6	11	749.3	19.84	12.70	1.5	810	R93	317.5	557.1
28	939.8	28	50.8	13	800.1	19.84	12.70	1.5	861	R94	378.2	673.1
30	997.0	28	54.0	13	857.25	19.84	12.70	1.5	917	R95	431.8	790.3
32	1054.1	28	54.0	13	914.4	23.01	14.27	1.5	984	R96	502.6	922.7
34	1104.9	28	54.0	14	965.2	23.01	14.27	1.5	1035	R97	560.3	1073.5
36	1168.4	32	54.0	14	1022.35	23.01	14.27	1.5	1092	R98	631.5	1249.9
38	1117.6	32	47.6	14	–	–	–	–	–	–	430.4	1100.0
40	1174.8	32	50.8	14	–	–	–	–	–	–	497.5	1279.9
42	1225.6	32	50.8	14	–	–	–	–	–	–	537.5	1421.5
44	1282.7	32	54.0	14	–	–	–	–	–	–	614.2	1633.9
46	1339.8	36	54.0	14	–	–	–	–	–	–	675.6	1841.5
48	1403.4	28	60.3	14	–	–	–	–	–	–	797.6	2120.6
50	1460.5	32	60.3	14	–	–	–	–	–	–	876.6	2379.4
52	1511.3	32	60.3	14	–	–	–	–	–	–	937.6	2615.9
54	1581.2	28	66.7	14	–	–	–	–	–	–	1119.7	3017.3
56	1632.0	32	66.7	14	–	–	–	–	–	–	1196.0	3293.7
58	1682.8	32	66.7	14	–	–	–	–	–	–	1260.3	3584.3
60	1752.6	32	73.0	14	–	–	–	–	–	–	1459.9	4057.1

CLASS 600 FLANGES



ASME B16.47A (MSS SP 44)

Unit : mm

Nominal Pipe Size (inch)	Outside Diameter	Thickness		Bore wall Thickness		Length through Hub	O.D of Raised Face	Diameter of Hub Bevel	Diameter of Base of Hub
		WNF	Blind	9.53mm	12.7mm				
	D	t	t	B_1		T	G	A	X
12	560	66.7	66.7	304.74	298.40	156.0	381.0	323.8	400
14	605	69.9	69.9	336.54	330.20	165.0	412.8	355.6	432
16	685	76.2	76.2	387.34	381.00	178.0	469.9	406.4	495
18	745	82.6	82.6	437.94	431.60	184.0	533.4	457.0	546
20	815	88.9	88.9	488.94	482.60	190.0	584.2	508.0	610
22	870	95.3	95.3	539.94	533.60	197.0	641.4	559.0	667
24	940	101.6	101.6	590.94	584.60	203.0	692.2	610.0	718
26	1015	108.0	125.5	641.34	635.00	222.0	749	660.4	748
28	1075	111.2	131.8	692.14	685.80	235.0	800	711.2	803
30	1130	114.3	139.7	742.94	736.60	248.0	857	762.0	862
32	1195	117.5	147.7	793.74	787.40	260.0	914	812.8	918
34	1245	120.7	154.0	844.54	838.20	270.0	965	863.6	973
36	1315	123.9	162.0	895.34	889.00	283.0	1022	914.4	1032
38	1270	152.4	155.0	946.14	939.80	254.0	1054	965.2	1022
40	1320	158.8	162.0	996.94	990.60	264.0	1111	1016.0	1073
42	1405	168.3	171.5	1047.74	1041.40	279.0	1168	1066.8	1127
44	1455	173.1	177.8	1098.54	1092.20	289.0	1226	1117.6	1181
46	1510	179.4	185.8	1149.34	1143.00	300.0	1276	1168.4	1235
48	1595	189.0	195.3	1200.14	1193.80	316.0	1334	1219.2	1289
50	1670	196.9	203.2	1250.94	1244.60	329.0	1384	1270.0	1343
52	1720	203.2	209.6	1301.74	1295.40	337.0	1435	1320.8	1394
54	1780	209.6	217.5	1352.54	1346.20	349.0	1492	1371.6	1448
56	1855	217.5	225.5	1403.34	1397.00	362.0	1543	1422.4	1502
58	1905	222.3	231.8	1454.14	1447.80	370.0	1600	1473.2	1553
60	1995	233.4	242.9	1504.94	1498.60	389.0	1657	1524.0	1610

Notes :

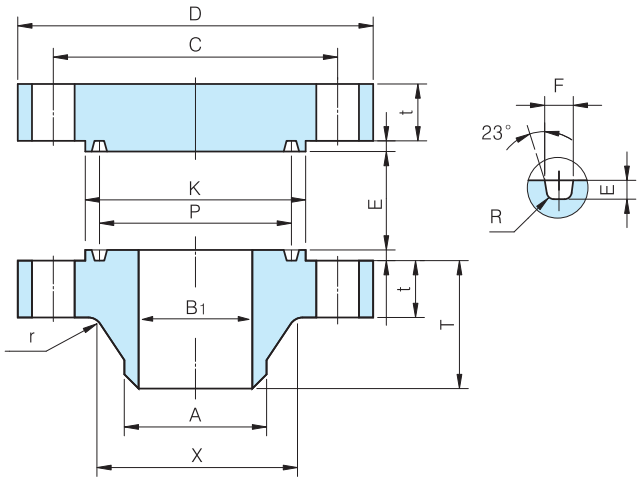
(1) For the 'Bore'(B1) other than wall thickness 9.53mm and 12.7mm, refer to page 70-71

(2) Class 400 flanges will be furnished with 2mm(0.06") raised face, which is excepted from 'Thickness'(t) and 'Length through Hub'(T).

(3) Flanges dimensions of size 12" through 24" flanges [except 22"] are in accordance with ASME B16.5

(4) Blind flanges mays be made with or without hubs at the manufacturer's option.

CLASS 600 FLANGES

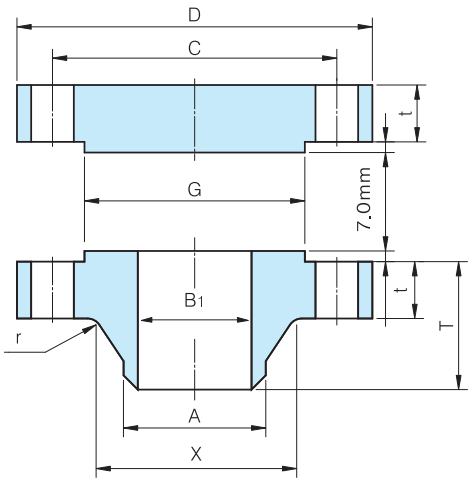


ASME B16.47A (MSS SP 44)

Unit : mm

Nominal Pipe Size (inch)	Drilling			Radius of Fillet	Pitch Diameter	GROOVE DIMENSIONS			Diameter of Raised Face	Ring & Groove Number	Approximate Weight(kg)	
	Diameter of Bolt Circle	Number of holes	Diameter of Bolt hole			Width	Depth	Radius				
	C			r	P	F	E	R	K		WELDING NECK	BLIND
12	489.0	20	34.9	13	381.0	11.91	7.92	0.8	413	R57	102.5	132
14	527.0	20	38.1	13	419.1	11.91	7.92	0.8	457	R61	121.5	158
16	603.2	20	41.3	13	469.9	11.91	7.92	0.8	508	R65	177	224.7
18	654.0	20	44.5	13	533.4	11.91	7.92	0.8	575	R69	215.7	285
20	723.9	24	44.5	13	584.2	13.49	9.53	1.5	635	R73	267.9	365
22	777.8	24	47.6	13	635.0	15.1	11.13	1.5	686	R81	304.5	428
24	838.2	24	50.8	13	692.2	16.66	11.13	1.5	749	R77	372	533.5
26	914.4	28	50.8	13	749.3	19.84	12.70	1.5	810	R93	441.8	765.4
28	965.2	28	54.0	13	800.1	19.84	12.70	1.5	861	R94	500.2	900.3
30	1022.4	28	54.0	13	857.25	19.84	12.70	1.5	917	R95	565.2	1061.2
32	1079.5	28	60.3	13	914.4	23.01	14.27	1.5	984	R96	635.0	1243.7
34	1130.3	28	60.3	14	965.2	23.01	14.27	1.5	1035	R97	695.2	1415.2
36	1193.8	28	66.7	14	1022.35	23.01	14.27	1.5	1092	R98	788.0	1647.8
38	1162.0	28	60.3	14	–	–	–	–	–	–	665.1	1492.0
40	1212.8	32	60.3	14	–	–	–	–	–	–	713.5	1677.3
42	1282.7	28	66.7	14	–	–	–	–	–	–	887.0	2014.4
44	1333.5	32	66.7	14	–	–	–	–	–	–	939.4	2229.5
46	1390.6	32	66.7	14	–	–	–	–	–	–	1036.0	2519.1
48	1460.5	32	73.0	14	–	–	–	–	–	–	1236.2	2934.7
50	1524.0	28	79.4	14	–	–	–	–	–	–	1435.7	3355.5
52	1574.8	32	79.4	14	–	–	–	–	–	–	1503.8	3651.2
54	1632.0	32	79.4	14	–	–	–	–	–	–	1660.7	4074.3
56	1695.4	32	85.7	16	–	–	–	–	–	–	1867.2	4560.0
58	1746.2	32	85.7	16	–	–	–	–	–	–	1975.4	4961.0
60	1822.4	28	92.1	17	–	–	–	–	–	–	2377.1	5723.2

CLASS 900 FLANGES



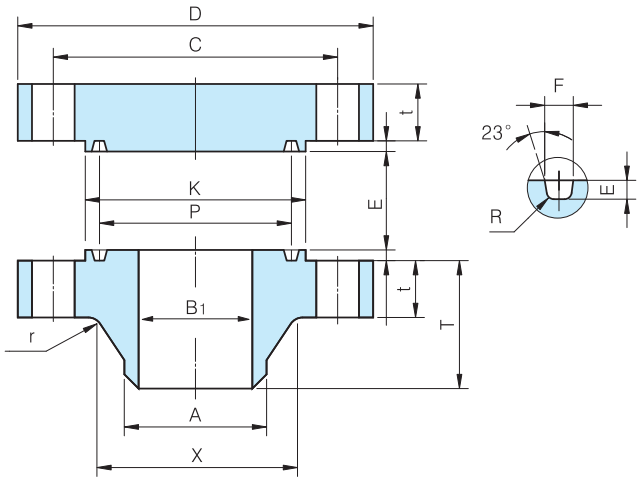
ASME B16.47A (MSS SP 44)

Unit : mm

Nominal Pipe Size (inch)	Outside Diameter	Thickness		Length thru Hub	O.D of Raised Face	Diameter of Hub Bevel	Diameter of Base of Hub	Drilling		
		WNF	Blind					Diameter of Bolt Circle	Number of holes	Diameter of Bolt hole
	D	t	t	T	G	A	X	C		
12	610	79.4	79.4	200	381.0	323.8	419	533.4	20	38.1
14	640	85.8	85.8	213	412.8	355.6	451	558.8	20	41.3
16	705	88.9	88.9	216	469.9	406.4	508	616.0	20	44.5
18	785	101.6	101.6	229	533.4	457.0	565	685.8	20	50.8
20	855	108.0	108.0	248	584.2	508.0	622	749.3	20	54.0
24	1040	139.7	139.7	292	692.2	610.0	749	901.7	20	66.7
26	1085	139.7	160.4	286	749	660.4	775	952.5	20	73.0
28	1170	142.9	171.5	298	800	711.2	832	1022.4	20	79.4
30	1230	149.3	182.6	311	857	762.0	889	1085.8	20	79.4
32	1315	158.8	193.7	330	914	812.8	946	1155.7	20	85.7
34	1395	165.1	204.8	349	965	863.6	1006	1225.6	20	92.1
36	1460	171.5	214.4	362	1022	914.4	1064	1289.0	20	92.1
38	1460	190.5	215.9	352	1099	965.2	1073	1289.0	20	92.1
40	1510	196.9	223.9	364	1162	1016.0	1127	1339.8	24	92.1
42	1560	206.4	231.8	371	1213	1066.8	1176	1390.6	24	92.1
44	1650	214.4	242.9	391	1270	1117.6	1235	1463.7	24	98.4
46	1735	225.5	255.6	411	1334	1168.4	1292	1536.7	24	104.8
48	1785	233.4	263.6	419	1384	1219.2	1343	1587.5	24	104.8

Notes :
(1) For the 'Bore'(B1) other than wall thickness 9.53mm and 12.7mm, refer to page 70-71
(2) Class 900 flanges will be furnished with 2mm(0.06") raised face, which is excepted from 'Thickness'(t) and 'Length through Hub'(T).
(3) Flanges dimensions of size 12" through 24" flanges [except 22"] are in accordance with ASME B16.5
(4) Blind flanges mays be made with or without hubs at the manufacturer's option.

CLASS 900 FLANGES



ASME B16.47A (MSS SP 44)

Unit : mm

Nominal Pipe Size (inch)	Radius of Fillet	Bore wall Thickness		Pitch Diameter	GROOVE DIMENSIONS			Diameter of Raised Face	Ring & Groove Number	Approximate Weight(kg)	
		9.53mm	12.7mm		Width	Depth	Radius				
	r	B_1		P	F	E	R	K		WELDING NECK	BLIND
12	11	304.74	298.40	381.0	11.91	7.92	0.8	419	R57	157	187
14	11	336.54	330.20	419.1	16.66	11.13	1.5	467	R62	181.6	224
16	11	387.34	381.00	469.9	16.66	11.13	1.5	524	R66	224.7	272.4
18	11	437.94	431.60	533.4	19.88	12.70	1.5	594	R70	308.7	385.9
20	11	488.94	482.60	584.2	19.97	12.70	1.5	648	R74	376.8	488
24	11	590.94	584.60	692.15	26.97	15.88	2.3	772	R78	685	905
26	11	641.34	635.00	749.3	30.18	17.48	2.3	832	R100	795.4	1076.1
28	13	692.14	685.80	800.1	33.32	17.48	2.3	889	R101	934.8	1341.7
30	13	742.94	736.60	857.25	33.32	17.48	2.3	946	R102	1066.8	1593.0
32	13	793.74	787.40	914.4	33.32	17.48	2.3	1003	R103	1275.8	1925.7
34	14	844.54	838.20	965.2	36.53	20.62	2.3	1067	R104	1480.2	2283.2
36	14	895.34	889.00	1022.35	36.53	20.62	2.3	1124	R105	1672.6	2638.5
38	19	946.14	939.80	–	–	–	–	–	–	1642.2	2663.7
40	21	996.94	990.60	–	–	–	–	–	–	1742.7	2924.8
42	21	1047.74	1041.40	–	–	–	–	–	–	1891.6	3250.5
44	22	1098.54	1092.20	–	–	–	–	–	–	2207.8	3798.7
46	22	1149.34	1143.00	–	–	–	–	–	–	2553.5	4405.1
48	24	1200.14	1193.80	–	–	–	–	–	–	2736.5	4832.5

MSS SP-44

ASME B16.47A (MSS SP 44)

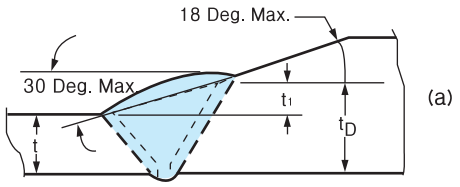
Unit : mm

Place		Range	SIZE	Tolerance (mm)
Outside Diameter	D		NPS≤24	±1.6* (±0.06in)
			NPS≥26	±3.2* (±0.125in)
Inside Diameter	B_1		12≤NPS≤18	±1.5 (±0.06in)
			NPS≥20	±3.0 (±0.12in) −1.5 (−0.06in)
Facing outside Diameter	G	2.0mm Raised Face	12≤NPS≤24	±1.0 (±0.03in)
			NPS≥26	±2.0 (±0.08in)
		7.0mm Raised Face	12≤NPS≤24	±0.5 (±0.02in)
			NPS≥26	±1.0 (±0.04in)
Diameter of Hub at Base	X		All	±3.2* (±0.125in)
Diameter of Hub at Welding Point	A		12≤NPS≤24	+4.0 (+0.16in) −1.0 (−0.03in)
			NPS≥26	+5.0 (+0.21in) −1.5 (−0.06in)
Drilling	Bolt Circle Diameter			±1.5 (±0.06in)
	Bolt to Bolt Hole			±0.8 (±0.03in)
	Eccentricity of Bolt Circle with Respect to Facing		12≤NPS≤24	±1.5 (±0.06in)
			NPS≥26	±2.0 (±0.09in)
Thickness	t	NPS≤18		+3.0 (+0.12in) −0.0 (−0.00in)
		NPS≤20		+5.0 (+0.19in) −0.0 (−0.00in)
Length Thru Hub	T		12≤NPS≤24	+3.0 (+0.12in) −5.0 (−0.18in)
			NPS≥26	±5.0 (0.19in)

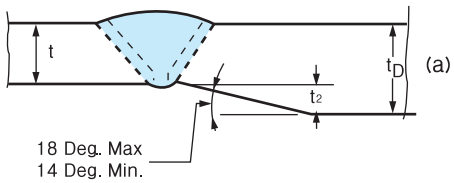
Notes :
Sizes NPS 10 and smaller
Tolerances for these sizes shall be as specified in ASME B 16.5. The listing of decimal tolerances does not imply method of measurement.

*This tolerance is not covered MSS SP-44, but maker's option.

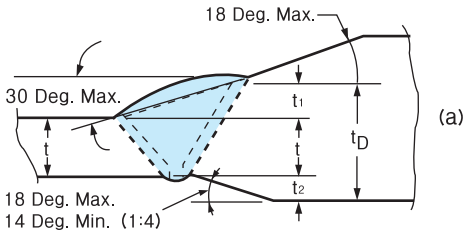
FIGURE 1ACCEPTABLE DESINGNS FOR UNEQUAL WALL THICKNESS (1)



BEVEL FOR OUTSIDE THICKNESS



BEVEL FOR INSIDE THICKNESS



BEVEL FOR COMBINED THICKNESS

Notes :

When the minimum specified yield strengths of the sections to be joined are unequal, the deposited weld metal shall have mechanical properties at least equal to those of the section having the higher strength, and the minimum thickness, tD, shall at least equal t times the ratio of minimum specified yield strength of pipe and flange, but no to exceed 1.5t.

(a) Neither t1, t2, nor t1 + t2 shall exceed 0.5t.

(1) Supplementary Footnote : See ASME B31 Piping codes for additional fabrication details.

FIGURE 2 Bevel Detail for wall Thickness (T)
22mm (0.88 in.)[(a)] or less

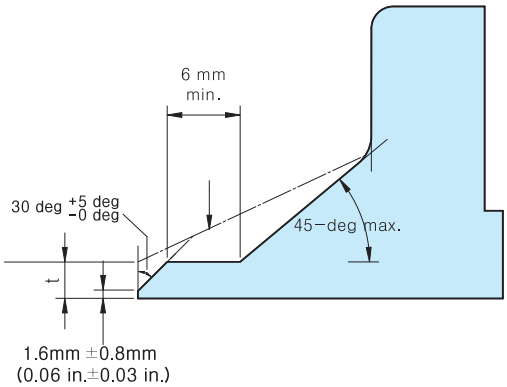
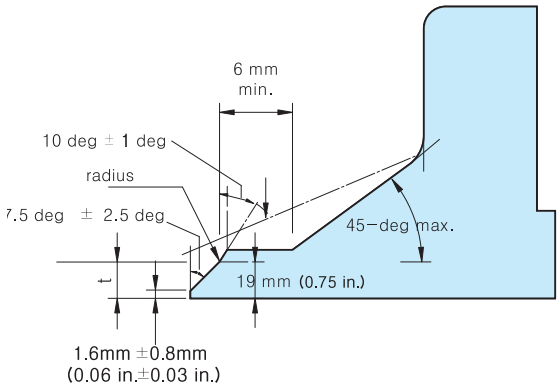


FIGURE 2 Bevel Detail for wall Thickness (T)
22mm (0.88 in.)[(a)] or less



Notes :

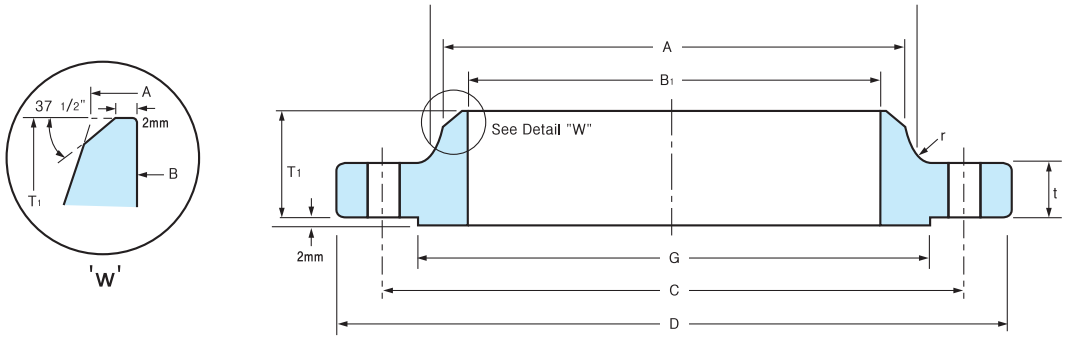
(a) Flange size NPS 24 and smaller may be furnished with 37-1/2° bevel at option of manufacturer.

ASME B 16.47 SERIES B FLANGES (API 605)

- Class 75 Flanges
- Class 150 Flanges
- Class 300 Flanges
- Class 400 Flanges
- Class 600 Flanges
- Class 900 Flanges
- FINISH & TOLERANCE
- WELDING ENDS

SFF Corp.

CLASS 75 / 150 FLANGES



CLASS 75

Unit : mm

Nominal pipe size	Outside Diam.	O.D Raised Face	Diam.of Hub at Base	Diam.of Hub at Bevel	BORE			Length Thru Hub	THICKNESS		Radius at Base of Hub	DRILLING			Approximate Weight(kg)	
					Wall thickness				Welding Neck	Blind		Bolt Circle Diam.	Num. of Holes	Diam.of Holes		
					6.35mm	9.53mm	12.7mm								Welding Neck	Blind
	D	G	X	A	B1			T1	t	t	r	C				
26	760	705	676	661.9	649.2	642.84	636.5	57	31.9	31.9	8	723.9	36	19.1	39.0	117.1
28	815	756	727	712.7	700	693.64	687.3	60	31.9	31.9	8	774.7	40	19.1	44.0	134.8
30	865	806	778	763.5	750.8	744.44	738.1	64	31.9	31.9	8	825.5	44	19.1	47.9	152.0
32	915	857	829	814.3	801.6	795.24	788.9	68	33.5	35.0	8	876.3	48	19.1	53.4	178.4
34	965	908	879	865.1	852.4	846.04	839.7	72	33.5	36.6	8	927.1	52	19.1	57.4	216.0
36	1035	965	935	915.9	903.2	896.84	890.5	84	35.0	40.9	10	992.2	40	22.2	76.7	276.6
38	1085	1016	986	966.7	954	947.64	941.3	87	36.6	43.0	10	1043.0	40	22.2	84.0	319.6
40	1135	1067	1037	1017.5	1004.8	998.44	992.1	91	36.6	43.0	10	1093.8	44	22.2	89.4	349.8
42	1185	1118	1087	1068.3	1055.6	1049.24	1042.9	94	38.2	46.3	10	1144.6	48	22.2	96.4	409.5
44	1250	1175	1140	1119.1	1106.4	1100.04	1093.7	103	41.4	47.7	10	1203.3	36	25.4	120.1	469.7
46	1300	1226	1191	1169.9	1157.2	1150.84	1144.5	106	43.0	49.3	10	1254.1	40	25.4	128.8	524.4
48	1355	1276	1241	1220.7	1208	1201.64	1195.3	110	44.6	52.5	10	1304.9	44	25.4	141.4	605.2
50	1405	1327	1294	1271.5	1258.8	1252.44	1246.1	114	46.2	54.1	10	1355.7	44	25.4	153.2	670.7
52	1455	1378	1345	1322.3	1309.6	1303.24	1296.9	119	46.2	55.7	10	1409.7	48	25.4	161.2	739.8
54	1510	1429	1397	1373.1	1360.4	1354.04	1347.7	124	47.8	58.9	10	1460.5	48	25.4	178.3	841.9
56	1575	1486	1451	1423.9	1411.2	1404.84	1398.5	133	49.3	60.4	11	1520.8	40	28.6	209.7	938.8
58	1625	1537	1502	1474.7	1462	1455.64	1449.3	137	50.9	62.0	11	1571.6	44	28.6	222.4	1024.8
60	1675	1588	1553	1525.5	1512.8	1506.44	1500.1	143	54.1	65.2	11	1622.4	44	28.6	241.0	1144.4

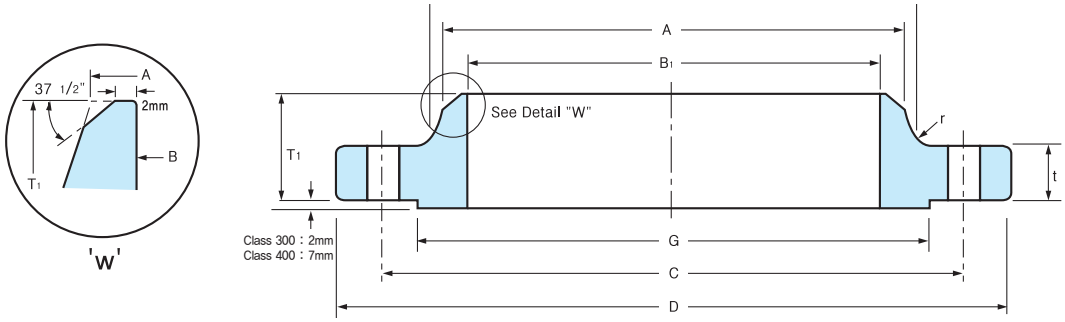
CLASS 150

Unit : mm

Nominal pipe size	Outside Diam.	O.D Raised Face	Diam.of Hub at Base	Diam.of Hub at Bevel	BORE			Length Thru Hub	THICKNESS		Radius at Base of Hub	DRILLING			Approximate Weight(kg)	
					Wall thickness				Welding Neck	Blind		Bolt Circle Diam.	Num. of Holes	Diam.of Holes		
					6.35mm	9.53mm	12.7mm								Welding Neck	Blind
	D	G	X	A	B1			T1	t	t	r	C				
26	785	711	684	661.9	649.2	642.84	636.5	87	39.8	43.0	10	744.5	36	22.2	62.6	164.9
28	835	762	735	712.7	700	693.64	687.3	94	43.0	46.2	10	795.3	40	22.2	71.9	200.1
30	885	813	787	763.5	750.8	744.44	738.1	98	43.0	49.3	10	846.1	44	22.2	78	239.6
32	940	864	840	814.3	801.6	795.24	788.9	106	44.6	52.5	10	900.1	48	22.2	90.3	287.6
34	1005	921	892	865.1	852.4	846.04	839.7	109	47.7	55.7	10	957.3	40	25.4	109.1	348.5
36	1055	972	945	915.9	903.2	896.84	890.5	116	50.9	57.3	10	1009.6	44	25.4	122.6	394.8
38	1125	1022	997	968.2	955.5	949.14	942.8	122	52.5	62.0	10	1070.0	40	28.6	147.7	484.2
40	1175	1080	1049	1019	1006.3	999.94	993.6	127	54.1	65.2	10	1120.8	44	28.6	158.3	554.9
42	1225	1130	1102	1069.8	1057.1	1050.74	1044.4	132	57.3	66.8	11	1171.6	48	28.6	174	617.6
44	1275	1181	1153	1120.6	1107.9	1101.54	1095.2	135	58.9	70.0	11	1222.4	52	28.6	185.3	700.4
46	1340	1235	1205	1171.4	1158.7	1152.34	1146	143	60.4	73.1	11	1284.3	40	31.8	217.4	809.8
48	1390	1289	1257	1222.2	1209.5	1203.14	1196.8	148	63.6	76.3	11	1335.1	44	31.8	235.7	908.5
50	1445	1340	1308	1273	1260.3	1253.94	1247.6	152	66.8	79.5	11	1385.9	48	31.8	259.1	1021.8
52	1495	1391	1360	1323.8	1311.1	1304.74	1298.4	156	68.4	82.7	11	1436.7	52	31.8	274.6	1136.6
54	1550	1441	1413	1374.6	1361.9	1355.54	1349.2	160	70.0	85.8	11	1492.2	56	31.8	297.9	1266.5
56	1600	1492	1465	1425.4	1412.7	1406.34	1400	165	71.6	89.0	14	1543.0	60	31.8	315.5	1398.9
58	1675	1543	1516	1476.2	1463.5	1457.14	1450.8	173	73.1	91.9	14	1611.3	48	34.9	375.2	1585.9
60	1725	1600	1570	1527	1514.3	1507.94	1501.6	178	74.7	95.4	14	1662.1	52	34.9	397.8	1744.5

Notes :
(1) 'Bore'(B1) of flanges is shall be specified by the purchaser.
(2) The flange Thickness(t) & Length through Hub(T1) does not include the raised face thickness.

CLASS 300 / 400 FLANGES



CLASS 300

Unit : mm

Nominal pipe size	Outside Diam.	O.D Raised Face	Diam.of Hub at Base	Diam.of Hub at Bevel	BORE			Length Thru Hub	THICKNESS		Radius at Base of Hub	DRILLING			Approximate Weight(kg)	
					Wall thickness				Welding Neck	Blind		Bolt Circle Diam.	Num. of Holes	Diam.of Holes		
					6.35mm	9.53mm	12.7mm									
	D	G	X	A	B1			T1	t	t	r	C			Welding Neck	Blind
26	865	737	702	665.2	652.5	646.14	639.8	143	87.4	87.4	14	803.3	32	34.9	183.2	388.9
28	920	787	756	716	703.3	696.94	690.6	148	87.4	87.4	14	857.2	36	34.9	201.5	440.1
30	990	845	813	768.4	755.7	749.34	743	156	92.1	92.1	14	920.8	36	38.1	244.3	535.7
32	1055	902	864	819.2	806.5	800.14	793.8	167	101.6	101.6	16	977.9	32	41.3	302.2	673.0
34	1110	953	918	870	857.3	850.94	844.6	171	101.6	101.6	16	1031.9	36	41.3	325.7	744.5
36	1170	1010	965	920.8	908.1	901.74	895.4	179	101.6	101.6	16	1089.0	32	44.5	360.0	830.4
38	1220	1060	1016	971.6	958.9	952.54	946.2	191	109.6	109.6	16	1139.8	36	44.5	401.8	971.4
40	1275	1114	1067	1022.4	1009.7	1003.34	997	197	114.3	114.3	16	1190.6	40	44.5	442.1	1105.1
42	1335	1168	1118	1074.7	1062	1055.64	1049.3	203	117.5	117.5	16	1244.6	36	47.6	490.9	1248.8
44	1385	1219	1173	1125.5	1112.8	1106.44	1100.1	213	125.5	125.5	16	1295.4	40	47.6	540.8	1432.4
46	1460	1270	1229	1176.3	1163.6	1157.24	1150.9	221	127.0	128.6	16	1365.2	36	50.8	633.4	1636.3
48	1510	1327	1278	1227.1	1214.4	1208.04	1201.7	222	127.0	133.4	16	1416.0	40	50.8	650.9	1812.1
50	1560	1378	1330	1277.9	1265.2	1258.84	1252.5	233	136.6	138.2	16	1466.8	44	50.8	677.1	2000.2
52	1615	1429	1383	1328.7	1316	1309.64	1303.3	241	141.3	142.6	16	1517.6	48	50.8	774.8	2209.4
54	1675	1480	1435	1379.5	1366.8	1360.44	1354.1	238	135.0	147.7	16	1578.0	48	50.8	803.7	2469.1
56	1765	1537	1494	1430.3	1417.6	1411.24	1404.9	267	152.4	155.4	17	1651.0	36	60.3	1070.5	2888.4
58	1825	1594	1548	1481.1	1468.4	1462.04	1455.7	273	152.4	160.4	17	1712.9	40	60.3	1137.2	3181.2
60	1880	1651	1599	1557.3	1544.6	1538.24	1531.9	270	149.3	165.1	17	1763.7	40	60.3	1071.2	3483.2

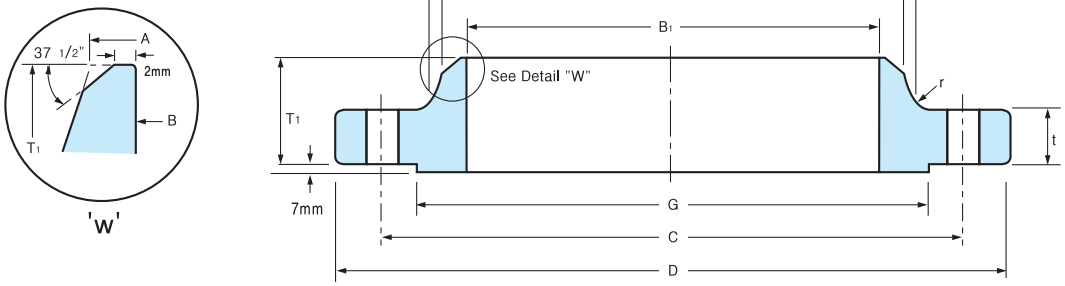
CLASS 400

Unit : mm

Nominal pipe size	Outside Diam.	O.D Raised Face	Diam.of Hub at Base	Diam.of Hub at Bevel	BORE			Length Thru Hub	THICKNESS		Radius at Base of Hub	DRILLING			Approximate Weight(kg)	
					Wall thickness				Welding Neck	Blind		Bolt Circle Diam.	Num. of Holes	Diam.of Holes		
					6.35mm	9.53mm	12.7mm									
	D	G	X	A	B1			T1	t	t	r	C			Welding Neck	Blind
26	850	711	689	660.4	647.7	641.34	635	149	88.9	88.9	11	781.0	28	38.1	176.4	395.5
28	915	762	740	711.2	698.5	692.14	685.8	159	95.3	95.3	13	838.2	24	41.3	218.4	492.9
30	970	819	794	762	749.3	742.94	736.6	170	101.6	101.6	13	895.4	28	41.3	251.6	588.4
32	1035	873	845	812.8	800.1	793.74	787.4	179	108.0	108.0	13	952.5	28	44.5	299.1	709.3
34	1085	927	899	863.6	850.9	844.54	838.2	187	111.2	111.2	14	1003.3	32	44.5	323.4	800.7
36	1155	981	952	914.4	901.7	895.34	889	200	119.1	119.1	14	1066.8	28	47.6	400.3	974.5

Notes :
(1) 'Bore' (B1) of flanges is shall be specified by the purchaser.
(2) The flange Thickness(t) & Length through Hub(T1) does not include the raised face thickness.

CLASS 600 / 900 FLANGES



CLASS 600

Unit : mm

Nominal pipe size	Outside Diam.	O.D Raised Face	Diam.of Hub at Base	Diam.of Hub at Bevel	BORE			Length Thru Hub	THICKNESS		Radius at Base of Hub	DRILLING			Approximate Weight(kg)	
					Wall thickness				Welding Neck	Blind		Bolt Circle Diam.	Num. of Holes	Diam.of Holes		
					6.35mm	9.53mm	12.7mm									
	D	G	X	A	B1			T1	t	t	r	C			Welding Neck	Blind
26	890	727	698	660.4	647.7	641.34	635	181	111.2	111.3	13	806.4	28	44.5	259.1	528.3
28	950	784	752	711.2	698.5	692.14	685.8	190	115.9	115.9	13	863.6	28	47.6	299.4	626.1
30	1020	841	806	762	749.3	742.94	736.6	205	125.5	127.0	13	927.1	28	50.8	371.8	788.6
32	1085	895	860	812.8	800.1	793.74	787.4	216	130.2	134.9	13	984.2	28	54.0	431.8	945.8
34	1160	953	914	863.6	850.9	844.54	838.2	233	141.3	144.2	14	1054.1	24	60.3	542.6	1157.9
36	1215	1010	968	914.4	901.7	895.34	889	243	146.1	150.9	14	1104.9	28	60.3	593.3	1322.7

CLASS 900

Unit : mm

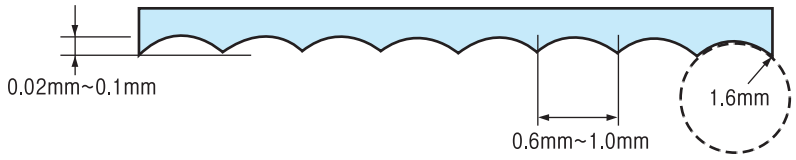
Nominal pipe size	Outside Diam.	O.D Raised Face	Diam.of Hub at Base	Diam.of Hub at Bevel	BORE			Length Thru Hub	THICKNESS		Radius at Base of Hub	DRILLING			Approximate Weight(kg)	
					Wall thickness				Welding Neck	Blind		Bolt Circle Diam.	Num. of Holes	Diam.of Holes		
					6.35mm	9.53mm	12.7mm									
	D	G	X	A	B1			T1	t	t	r	C			Welding Neck	Blind
26	1020	762	743	660.4	647.7	641.34	635	259	135.0	154.0	11	901.7	20	66.7	532.5	928.4
28	1105	819	797	711.2	698.5	692.14	685.8	276	147.7	166.7	13	971.6	20	73.0	673.5	1174.3
30	1180	876	851	762	749.3	742.94	736.6	289	155.6	176.1	13	1035.0	20	79.4	793.3	1408
32	1240	927	908	812.8	800.1	793.74	787.4	303	160.4	186.0	13	1092.2	20	79.4	899.5	1655.8
34	1315	991	962	863.6	850.9	844.54	838.2	319	171.5	195.0	14	1155.7	20	85.7	1061.8	1944.7
36	1345	1029	1016	914.4	901.7	895.34	889	325	173.1	201.7	14	1200.2	24	79.4	1070.4	2107.2

Notes :
(1) 'Bore' (B1) of flanges is shall be specified by the purchaser.
(2) The flange Thickness(t) & Length through Hub(T1) does not include the raised face thickness.

API 605 FORGED FLANGES

1. Standard Finishes for Contact Face of Flanges

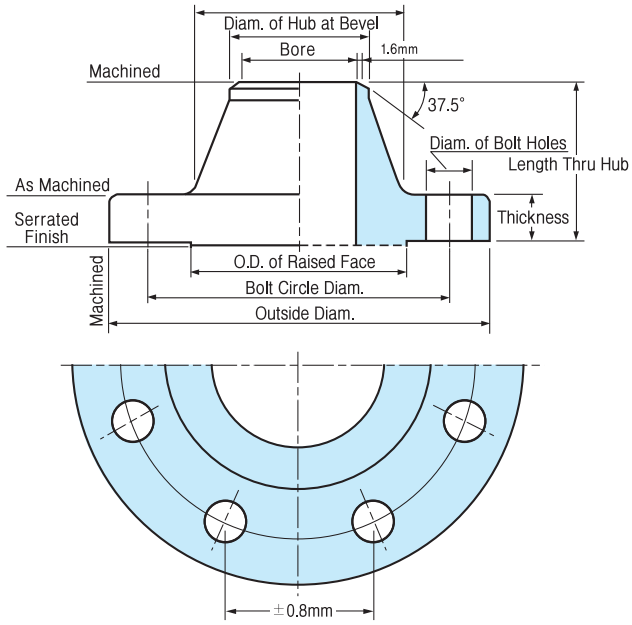
The flange face shall have a serrated finish consistig of 20 to 40 grooves per inch, 0.002inch to 0.005 inch deep,
cut spirally or concentrically with a round-nose tool.



Diam. at Base of Hub

Range	Tolerance (mm)
Outside diameter of Raised Face	±0.8 (±0.03in)
Flange Thickness	+4.8 (+0.19in) −0.0 (−0.00in)
Length Thru Hub	±3.2 (±0.12in)
Diameter of Hub at Bevel	+4.0 (+0.16in) −0.8 (−0.03in)
Bolt Circle Diameter	±1.6 (±0.06in)
Center to Center of adjacent bolt holes	±0.8 (±0.03in)
Bore	±3.0 (±0.12in) −1.6 (−0.06in)
Outside diameter	±3.0 (±0.12in)*
Diameter of Base of Hub	±3.0 (±0.12in)*

2. Dimensional Tolerances for API 605 Flange



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 coformance with ASME B12.25

(3) Other tolerances than specified the table shall be in accordances with ASME 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 of if the flange thickness exceeds the minimum required thickness by more than 0.19 inch(4.8mm) 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 ASME B16.47 SER.B

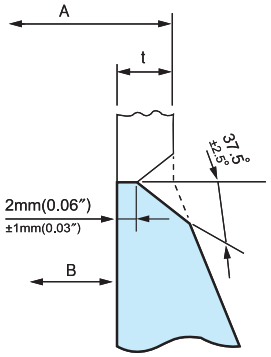
ASME B16.47-2006 TOLERANCE

Place	Range	Tolerance (mm)
Outside Diameter		±3.2* (±0.125in*)
inside Diameter		+3.0 (+0.12in) −2.0 (−0.06in)
Facing	Outside diameter of Raised Face	±2.0 (±0.08in)
	2.0mm Raised Face	±0.5 (±0.02in)
	7.0mm Raised Face	±2.0 (±0.08in)
Diameter of Hub at Base		±3.2* (±0.125in*)
Diameter of Hub at Welding Point		+5.0 (+0.19in) −2.0 (−0.06in)
Drilling		±1.5 (±0.16in)
		±0.8 (±0.03in)
		±1.5 (±0.06in)
Thickness	t ≤25mm (1.0in)	+3.0 (+0.12in) −0.0 (−0.00in)
	25mm (1.0in) 〈 t ≤ 50mm (2.0in)	+5.0 (+0.19in) −0.0 (−0.00in)
	50mm (2.0in)〈 t≤ 75mm (3.0in)	+8.0 (+0.31in) −0.0 (−0.00in)
	t 〉 75mm (3.0in)	+10.0 (+0.38in) −0.0 (−0.00in)
Length Thru Bub		+3.0 (+0.12in) −5.0 (−0.19in)

WELDING ENDS

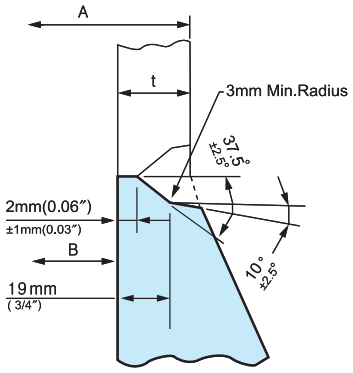
ASME B16.47 FORGED FLANGES

BEVEL FOR WALL THICKNESSES (t)
From 5mm to 22mm inclusive
(0.19in) (0.88in)



A=Nominal Outside Diameter of Pipe
B=Nominal Inside Diameter of Pipe
t =Nominal Wall Thickness of Pipe

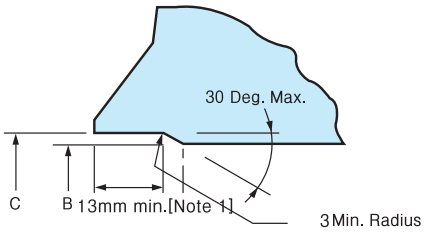
BEVEL FOR WALL THICKNESSES (t)
Greater Than 22mm
(0.88in)



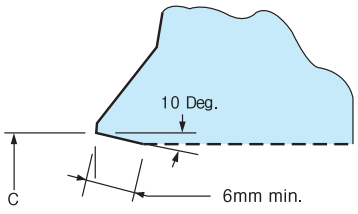
Notes :
When the thickness of the hub at the bevel is greater than that of the pipe to which the flange is joined and the additional thickness is provided on the outside diameter, a taper weld having a slop not exceeding 1 to 3 may be employed or, alternatively, the greater outside diameter may be tapered, at the same maximum slope or less, from a point on the welding bevel equal to the OD at the mating pipe. Similarly, when the greater thickness is provided on the inside of the flange, it shall be taper-bored from the welding end at a slope not exceeding 1 to 3.

When flanges covered by this standard are intended for services with light wall, higher strength pipe, the thickness of the hub at the bevel may be greater than that of the pipe to which the flange is joined. Under these conditions a single taper hub may be provided and the outside diameter of the hub at the base (Dimension X) may also be modified.

The additional thickness may be provided on either inside or outside or partially on each side, but the total additional thickness shall not exceed one-half times the nominal wall thickness of intened mating pipe.



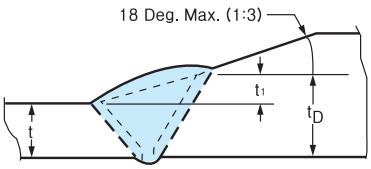
INSIDE CONTOUR FOR USE WITH RECTANGULAR BACKING RING



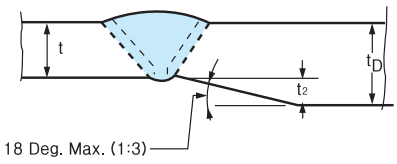
INSIDE CONTOUR FOR USE WITH TAPER BACKING RING

A = nominal outside diameter of welding end, mm
B = nominal inside diameter of pipe(=A-2t).mm
C = A-0.79 - 1.75t - 0.25, mm
t = nominal wall thickness of pipe, mm
0.79mm = minus tolerance on outside diameter of pope to ASTM A106, etc.
1.75t = 87.5% of nominal wall(permitted by ASTM A106etc.) multiplied by to conver into terms of diameter.
0.25mm = plus tolerance on diameter C, mm.

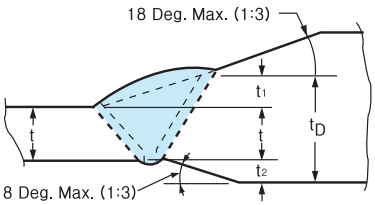
Note :
(1) 13mm depth based on use of 19mm wide backing ring



BEVEL FOR OUTSIDE THICKNESS



BEVEL FOR INSIDE THICKNESS



BEVEL FOR COMBINED THICKNESS

Notes :
(1) When the materials joined have equal minimum specified yield strength, there shall be no restriction on the minimum slope.
(2) Neither t1, t2, nor their sum (t1+t2) shall exceed 0.5t.
(3) When the minimum specified yield strength of the sections to be joined are unequal, the valus of tD shall at least equal t time the ratio of minimum specified yield strength of the pipe to minimum specified yield strength of the flange.

KS & JIS FLANGES

- KS & JIS PIPE DIMENSION
- Class 5K Flanges
- Class 10K Flanges
- Class 16K Flanges
- Class 20K Flanges
- Class 30K Flanges
- Class 40K Flanges
- Class 63K Flanges
- FACING 1
- FACING 2
- TOLERANCE
- JIS MATERIAL CHEMICAL COMPOSITION & MECHANICAL REQUIREMENTS

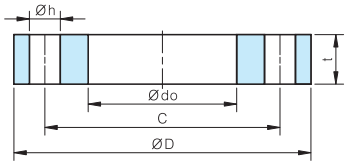
SFF Corp.

KS & JIS PIPE DIMENSION

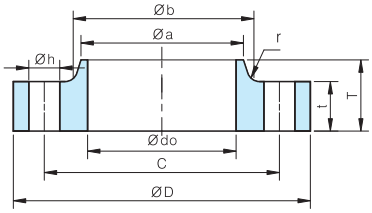
KS & JIS PIPE DIMENSIONS

NOMINAL PIPE SIZE		O*D	SGP	STAINLESS STEEL						
[A]	[B]			5S	10S	20S	40	80	120	160
6	1/8	10.5	6.5	8.5	8.1	7.5	7.1	5.7		
8	1/4	13.8	9.2	11.4	10.5	9.8	9.4	7.8		
10	3/8	17.3	12.7	14.9	14.0	13.3	12.7	10.9		
15	1/2	21.7	16.1	18.4	17.5	16.7	16.1	14.3		12.3
20	3/4	27.2	21.6	23.9	23.0	22.2	21.4	19.4		16.2
25	1	34.0	27.6	30.7	28.4	28.0	27.2	25.0		21.2
32	1 1/4	42.7	35.7	39.4	37.1	36.7	35.5	32.9		29.9
40	1 1/2	48.6	41.6	45.3	43.0	42.6	41.2	38.4		34.4
50	2	60.5	52.9	57.2	54.9	53.5	52.7	49.5		43.1
65	2 1/2	76.3	67.9	72.1	70.3	69.3	65.9	62.3		57.3
80	3	89.1	80.7	84.9	83.1	81.1	78.1	73.9		66.9
90	3 1/2	101.6	93.2	97.4	95.6	93.6	90.2	85.4		76.2
100	4	114.3	105.3	110.1	108.3	106.3	102.3	97.1	92.1	87.3
125	5	139.8	130.8	134.2	133.0	129.8	126.6	120.8	114.4	108.0
150	6	165.2	155.2	159.6	158.4	155.2	151.0	143.2	136.6	128.8
175	7	190.7	180.1							
200	8	216.3	204.7	210.7	208.3	203.3	199.9	190.9	179.9	170.3
225	9	241.8	229.2							
250	10	267.4	254.2	260.6	259.4	254.4	248.8	237.2	224.6	210.2
300	12	318.5	304.7	310.5	309.5	305.5	297.9	283.7	267.7	251.9
350	14	355.6	339.8							
400	16	406.4	390.6							
450	18	457.2	441.4							
500	20	508.0	492.2							

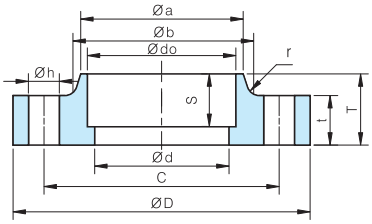
NOMINAL PIPE SIZE		O*D	SGP	CARBON STEEL									
[A]	[B]			10	20	30	40	60	80	100	120	140	160
6	1/8	10.5	6.5				7.1	6.1	5.7				
8	1/4	13.8	9.2				9.4	9.0	7.8				
10	3/8	17.3	12.7				12.7	11.7	10.9				
15	1/2	21.7	16.1				16.1	15.3	14.3				12.3
20	3/4	27.2	21.6				21.4	20.4	19.4				16.2
25	1	34.0	27.6				27.2	26.2	25.0				21.2
32	1 1/4	42.7	35.7				35.5	33.7	32.9				29.9
40	1 1/2	48.6	41.6				41.2	39.6	38.4				34.4
50	2	60.5	52.9		54.1		52.7	50.7	49.5				43.1
65	2 1/2	76.3	67.9		67.3		65.9	64.3	62.3				57.3
80	3	89.1	80.7		80.1		78.1	75.9	73.9				66.9
90	3 1/2	101.6	93.2		92.6		90.2	87.6	85.4				76.2
100	4	114.3	105.3		104.5		102.3	100.1	97.1		92.1		87.3
125	5	139.8	130.8		129.6		126.6	123.6	120.8		114.4		108.0
150	6	165.2	155.2		154.2		151.0	146.6	143.2		136.6		128.8
175	7	190.7	180.1										
200	8	216.3	204.7		203.5	202.3	199.9	195.7	190.9	186.1	179.9	175.1	170.3
225	9	241.8	229.2										
250	10	267.4	254.2		254.6	251.8	248.8	242.0	237.2	231.0	224.6	216.6	210.2
300	12	318.5	304.7		305.7	301.7	297.9	289.9	283.7	275.7	267.7	261.3	251.9
350	14	355.6	339.8	342.8	339.8	336.6	333.4	325.4	317.6	308.0	300.0	292.0	284.2
400	16	406.4	390.6	393.6	390.6	387.4	381.0	373.0	363.6	354.0	344.6	333.4	325.4
450	18	457.2	441.4	444.4	441.4	435.0	428.6	419.2	409.6	398.4	387.4	377.8	366.8
500	20	508.0	492.2	495.2	489.0	482.6	477.8	466.8	455.6	443.0	431.8	419.2	408.0



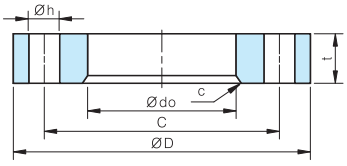
SOP of nominal size
10A to 1500A



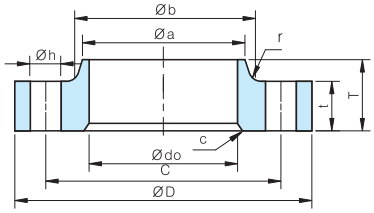
SOH of nominal size
450A to 1500A



SW of nominal size
10A to 80A



LJ of nominal size
15A to 400A



LJ of nominal size
450A to 600A

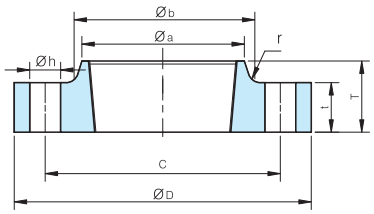
JIS B 2220–2004 (KS B 1503–2007)

Unit : mm

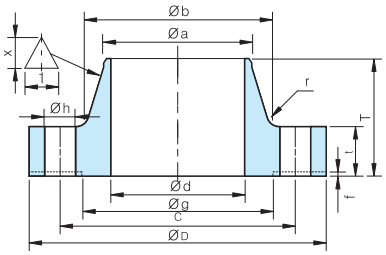
Nominal Size	Outside Diam. of Applicable Pipe	Outside Diam. of Flange	Inside Diam. of Flange				Thickness of Flange		Total Length of Flange		Diametr of hub			
											Small Diameter		Large Diameter	
			SOP,SOH SW	LJ	SW,WN	IT	Except for BL	BL	SOH,SW LJ,TR	WN	SOH,SW LJ,TR	WN	SOH,SW LJ,TR	WN,IT
A		D	do	do	d[2]	d	t	t	T	T	a	a	b	b[3]
10	17.3	75	17.8	–	12.7	10	9	9	13	24	23	17.3	26	26
15	21.7	80	22.2	23.4	16.1	15	9	9	13	25	27	21.7	30	31
20	27.2	85	27.7	28.9	21.6	20	10	10	15	28	33	27.2	36	38
25	34.0	95	34.5	35.6	27.6	25	10	10	17	30	41	34.0	44	46
32	42.7	115	43.2	44.3	35.7	32	12	12	19	33	50	42.7	53	55
40	48.6	120	49.1	50.4	41.6	40	12	12	20	34	56	48.6	60	62
50	60.5	130	61.1	62.7	52.9	50	14	14	24	36	69	60.5	73	73
65	76.3	155	77.1	78.7	67.9	65	14	14	27	39	86	76.3	91	91
80	89.1	180	90.0	91.6	80.7	80	14	14	30	41	99	89.1	105	105
90	101.6	190	102.6	104.1	93.2	90	14	14	–	41	–	101.6	–	117
100	114.3	200	115.4	116.9	105.3	100	16	16	36	41	127	114.3	130	128
125	139.8	235	141.2	143.0	130.8	125	16	16	40	43	154	139.8	161	156
150	165.2	265	166.6	168.4	155.2	150	18	18	40	49	182	165.2	189	184
175	190.7	300	192.1	–	180.1	175	18	18	–	49	–	190.7	–	209
200	216.3	320	218.0	219.5	204.7	200	20	20	–	53	–	216.3	–	235
225	241.8	345	243.7	–	229.4	225	20	20	–	54	–	241.8	–	261
250	267.4	385	269.5	271.7	254.2	250	22	22	–	61	–	267.4	–	290
300	318.5	430	321.0	322.8	304.7	300	22	22	–	62	–	318.5	–	342
350	355.6	480	358.1	360.2	339.8	340	24	24	–	73	–	355.6	–	385
400	406.4	540	409.0	411.2	390.6	400	24	24	–	76	–	406.4	–	438
450	457.2	605	460.0	462.3	441.4	450	24	24	40	79	495	457.2	500	491
500	508.0	655	511.0	514.4	492.2	500	24	24	40	79	546	508.0	552	541
550	558.8	720	562.0	565.2	543.0	550	26	26	42	81	597	558.8	603	593
600	609.6	770	613.0	616.0	593.8	600	26	26	44	81	648	609.6	654	643
650	660.4	825	664.0	–	644.6	650	26	28	48	85	702	660.4	708	698
700	711.2	875	715.0	–	695.4	700	26	30	48	94	751	711.2	758	748
750	762.0	945	766.0	–	746.2	750	28	32	52	100	802	762.0	810	802
800	812.8	995	817.0	–	797.0	800	28	34	52	100	854	812.8	862	852
850	863.6	1045	868.0	–	847.8	850	28	36	54	108	904	863.6	912	902
900	914.4	1095	919.0	–	898.6	900	30	36	56	108	956	914.4	964	952
1000	1016.0	1195	1021.0	–	1000.2	1000	32	40	60	116	1058	1016.0	1066	1052
1100	1117.6	1305	1122.0	–	1098.6	1100	32	44	71	136	1158	1117.6	1170	1162
1200	1219.2	1420	1224.0	–	1200.2	1200	34	48	77	155	1260	1219.2	1272	1272
1350	1371.6	1575	1376.0	–	1346.2	1350	34	54	80	164	1414	1371.6	1426	1427
1500	1524.0	1730	1529.0	–	1498.6	1500	36	58	86	172	1568	1524.0	1580	1582

Notes :
(1) The facing of flanges shall conform to JIS B2202–2004
(2) Adjustment shall be made according to the inside diameter of the steel pipes to be joined with.

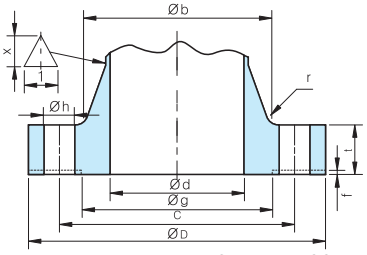
5K



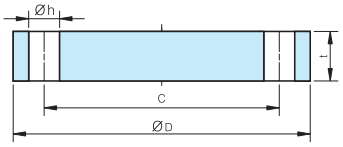
TR of nominal size 10A to 150A



WN of nominal size 10A to 1500A



IT of nominal size 10A to 1500A



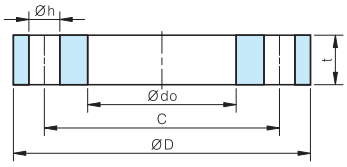
BL of nominal size 10A to 1500A

JIS B 2220-2004 (KS B 1503-2007)

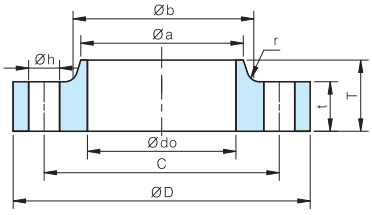
Unit : mm

Nominal Size	Depth of Socket	Norminal designation of thread	Chamfering(4)	Radius of Fillet		Raised face		Diameter of Bolt			Normal Bolt Size	Taper of Hub		Substitutional dimension of WN(5)	
						Height	Diameter								
	SW		LJ	SOH,SW LJ,TR	WN, IT	WN,IT		Diam. of Bolt Circle	Num. of Bolt Holes	Diam. of Bolt Holes		WN	IT (Min)	Thickness	Taper of Hub
A	S	TR	c	r	r(3)	f	g	c		h		x	x	t	x
10	10	Rc 3/8	–	4	4	1	39	55	4	12	M10	1.25	1.25	–	–
15	10	Rc 1/2	3	4	4	1	44	60	4	12	M10	1.25	1.25	–	–
20	13	Rc 3/4	3	4	4	1	49	65	4	12	M10	1.25	1.25	–	–
25	13	Rc 1	3	4	4	1	59	75	4	12	M10	1.25	1.25	–	–
32	13	Rc 1 1/4	4	4	4	2	70	90	4	15	M12	1.25	1.25	–	–
40	13	Rc 1 1/2	4	4	4	2	75	95	4	15	M12	1.25	1.25	–	–
50	16	Rc 2	4	4	4	2	85	105	4	15	M12	1.25	1.25	–	–
65	16	Rc 2 1/2	5	4	4	2	110	130	4	15	M12	1.25	1.25	–	–
80	16	Rc 3	5	4	4	2	121	145	4	19	M16	1.25	1.25	–	–
90	–	–	5	–	4	2	131	155	4	19	M16	1.25	1.25	–	–
100	–	Rc 4	5	4	4	2	141	165	8	19	M16	1.25	1.25	–	–
125	–	Rc 5	6	4	4	2	176	200	8	19	M16	1.25	1.25	–	–
150	–	Rc 6	6	4	4	2	206	230	8	19	M16	1.25	1.25	–	–
175	–	–	–	–	4	2	232	260	8	23	M20	1.25	1.25	–	–
200	–	–	6	–	4	2	252	280	8	23	M20	1.25	1.25	–	–
225	–	–	–	–	4	2	277	305	12	23	M20	1.25	1.25	–	–
250	–	–	6	–	4	2	317	345	12	23	M20	1.25	1.25	–	–
300	–	–	9	–	4	3	360	390	12	23	M20	1.25	1.25	–	–
350	–	–	9	–	4	3	403	435	12	25	M22	1.25	1.25	–	–
400	–	–	9	–	4	3	463	495	16	25	M22	1.25	1.25	–	–
450	–	–	9	5	5	3	523	555	16	25	M22	1.25	1.25	–	–
500	–	–	9	5	5	3	573	605	20	25	M22	1.25	1.25	–	–
550	–	–	9	5	5	3	630	665	20	27	M24	1.25	1.25	–	–
600	–	–	9	5	5	3	680	715	20	27	M24	1.25	1.25	–	–
650	–	–	–	5	5	3	735	770	24	27	M24	1.25	1.25	–	–
700	–	–	–	5	5	3	785	820	24	27	M24	1.5	1.5	36	1.25
750	–	–	–	5	5	3	840	880	24	33	M30	1.5	1.5	38	1.25
800	–	–	–	5	5	3	890	930	24	33	M30	1.5	1.5	38	1.25
850	–	–	–	5	5	3	940	980	24	33	M30	1.75	1.75	38	1.50
900	–	–	–	5	5	3	990	1030	24	33	M30	1.75	1.75	40	1.50
1000	–	–	–	5	5	3	1090	1130	28	33	M30	2	2	50	1.50
1100	–	–	–	7	8	3	1200	1240	28	33	M30	2	2	56	1.50
1200	–	–	–	7	8	3	1305	1350	32	33	M30	2	2	62	1.50
1350	–	–	–	7	8	3	1460	1505	32	33	M30	2	2	62	1.50
1500	–	–	–	7	10	3	1615	1660	36	33	M30	2	2	66	1.50

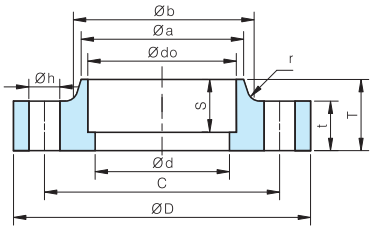
(3) With IT flanges, this dimension is shown for reference.
(4) This may be rounded off with the dimension c as a radius.
(5) This dimension may be determined on the agreement between the parties concerned.



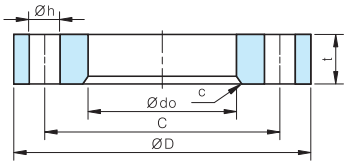
SOP of nominal size
10A to 1500A



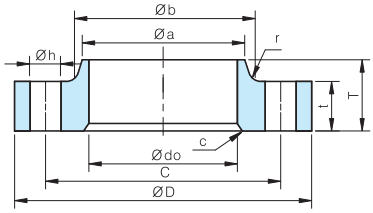
SOH of nominal size
250A to 1500A



SW of nominal size
10A to 80A



LJ of nominal size
15A to 200A



LJ of nominal size
250A to 600A

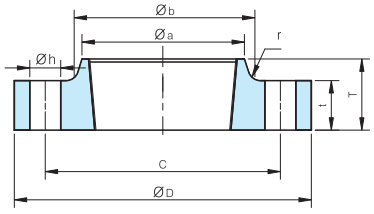
JIS B 2220-2004 (KS B 1503-2007)

Unit : mm

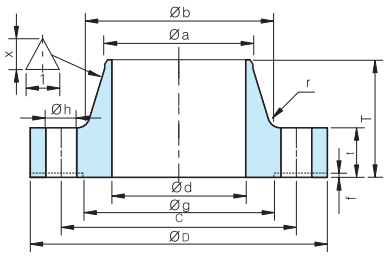
Nominal Size	Outside Diam. of Applicable Pipe	Outside Diam. of Flange	Inside Diam. of Flange				Thickness of Flange		Total Length of Flange		Diametr of hub			
			SOP,SOH SW	LJ	SW,WN	IT	Except for BL	BL	SOH,SW LJ,TR	WN	Small Diameter		Large Diameter	
											SOH,SW LJ,TR	WN	SOH,SW LJ,TR	WN,IT
A		D	do	do	d(2)	d	t	t	T	T	a	a	b	b(3)
10	17.3	90	17.8	–	12.7	10	12	12	16	29	23	17.3	26	28
15	21.7	95	22.2	23.4	16.1	15	12	12	16	31	27	21.7	30	33
20	27.2	100	27.7	28.9	21.6	20	14	14	20	32	33	27.2	36	38
25	34.0	125	34.5	35.6	27.6	25	14	14	20	36	41	34.0	44	47
32	42.7	135	43.2	44.3	35.7	32	16	16	22	38	50	42.7	53	56
40	48.6	140	49.1	50.4	41.6	40	16	16	24	38	56	48.6	60	62
50	60.5	155	61.1	62.7	52.9	50	16	16	24	40	69	60.5	73	75
65	76.3	175	77.1	78.7	67.9	65	18	18	27	44	86	76.3	91	92
80	89.1	185	90.0	91.6	80.7	80	18	18	30	45	99	89.1	105	105
90	101.6	195	102.6	104.1	93.2	90	18	18	–	45	–	101.6	–	117
100	114.3	210	115.4	116.9	105.3	100	18	18	36	45	127	114.3	130	130
125	139.8	250	141.2	143.0	130.8	125	20	20	40	47	154	139.8	161	156
150	165.2	280	166.6	168.4	155.2	150	22	22	40	53	182	165.2	189	184
175	190.7	305	192.1	–	180.1	175	22	22	–	55	–	190.7	–	210
200	216.3	330	218.0	219.5	204.7	200	22	22	–	58	–	216.3	–	238
225	241.8	350	243.7	–	229.4	225	22	22	–	58	–	241.8	–	261
250	267.4	400	269.5	271.7	254.2	250	24	24	36	65	288	267.4	292	292
300	318.5	445	321.0	322.8	304.7	300	24	24	38	68	340	318.5	346	345
350	355.6	490	358.1	360.2	339.8	340	26	26	42	79	380	355.6	386	388
400	406.4	560	409.0	411.2	390.6	400	28	28	44	85	436	406.4	442	442
450	457.2	620	460.0	462.3	441.4	450	30	30	48	90	496	457.2	502	495
500	508.0	675	511.0	514.4	492.2	500	30	30	48	99	548	508.0	554	546
550	558.8	745	562.0	565.2	543.0	550	32	34	52	111	604	558.8	610	597
600	609.6	795	613.0	616.0	593.8	600	32	36	52	112	656	609.6	662	648
650	660.4	845	664.0	–	644.6	650	34	38	56	116	706	660.4	712	700
700	711.2	905	715.0	–	695.4	700	34	40	58	132	762	711.2	770	754
750	762.0	970	766.0	–	746.2	750	36	44	62	139	816	762.0	824	807
800	812.8	1020	817.0	–	797.0	800	36	46	64	139	868	812.8	876	858
850	863.6	1070	868.0	–	847.8	850	36	48	66	139	920	863.6	928	908
900	914.4	1120	919.0	–	898.6	900	38	50	70	140	971	914.4	979	959
1000	1016.0	1235	1021.0	–	1000.2	1000	40	56	74	151	1073	1016.0	1081	1065
1100	1117.6	1345	1122.0	–	1098.6	1100	42	62	95	170	1175	1117.6	1185	1174
1200	1219.2	1465	1224.0	–	1200.2	1200	44	66	101	182	1278	1219.2	1290	1281
1350	1371.6	1630	1376.0	–	1346.2	1350	48	74	110	200	1432	1371.6	1450	1438
1500	1524.0	1795	1529.0	–	1498.6	1500	50	82	123	218	1585	1524.0	1605	1598

Notes :
(1) The facing of flanges shall conform to JIS B2202-2004
(2) Adjustment shall be made according to the inside diameter of the steel pipes to be joined with.

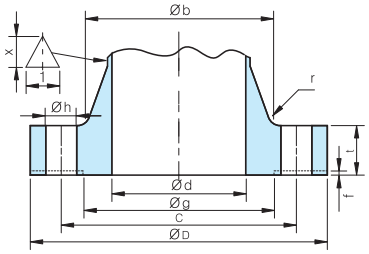
10K



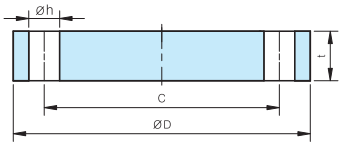
TR of nominal size 10A to 150A



WN of nominal size 10A to 1500A



IT of nominal size 10A to 1500A



BL of nominal size 10A to 1500A

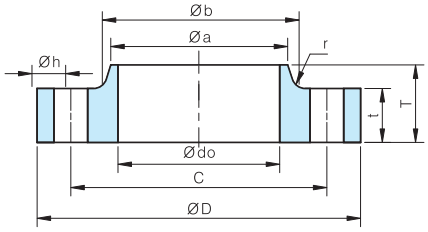
JIS B 2220-2004 (KS B 1503-2007)

Unit : mm

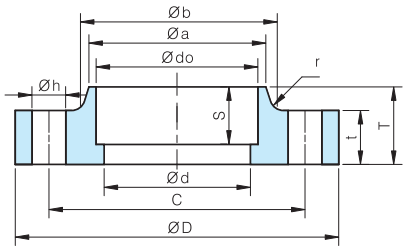
Nominal Size	Depth of Socket	Norminal designation of thread	Chamfering(4)	Radius of Fillet		Raised face		Diameter of Bolt			Normal Bolt Size	Taper of Hub		Substitutional dimension of WN(5)	
						Height	Diameter								
	SW		LJ	SOH, SW,LJ,TR	WN, IT	WN,IT		Diam. of Bolt Circle	Num. of Bolt Holes	Diam. of Bolt Holes		WN	IT (Min)	Thickness	Taper of Hub
A	S	TR	c	r	r(3)	f	g	c		h		x	x	t	x
10	10	Rc 3/8	–	4	4	1	46	65	4	15	M12	1.25	1.25	–	–
15	10	Rc 1/2	3	4	4	1	51	70	4	15	M12	1.25	1.25	–	–
20	13	Rc 3/4	3	4	4	1	56	75	4	15	M12	1.25	1.25	–	–
25	13	Rc 1	3	4	4	1	67	90	4	19	M16	1.25	1.25	–	–
32	13	Rc 1 1/4	4	4	4	2	76	100	4	19	M16	1.25	1.25	–	–
40	13	Rc 1 1/2	4	4	4	2	81	105	4	19	M16	1.25	1.25	–	–
50	16	Rc 2	4	4	4	2	96	120	4	19	M16	1.25	1.25	–	–
65	16	Rc 2 1/2	5	4	4	2	116	140	4	19	M16	1.25	1.25	–	–
80	16	Rc 3	5	4	5	2	126	150	8	19	M16	1.25	1.25	–	–
90	–	–	5	–	5	2	136	160	8	19	M16	1.25	1.25	–	–
100	–	Rc 4	5	4	5	2	151	175	8	19	M16	1.25	1.25	–	–
125	–	Rc 5	6	4	5	2	182	210	8	23	M20	1.25	1.25	–	–
150	–	Rc 6	6	4	5	2	212	240	8	23	M20	1.25	1.25	–	–
175	–	–	–	–	5	2	237	265	12	23	M20	1.25	1.25	–	–
200	–	–	6	–	5	2	262	290	12	23	M20	1.25	1.25	–	–
225	–	–	–	–	5	2	282	310	12	23	M20	1.25	1.25	–	–
250	–	–	6	6	6	2	324	355	12	25	M22	1.25	1.25	–	–
300	–	–	9	6	6	3	368	400	16	25	M22	1.25	1.25	–	–
350	–	–	9	6	6	3	413	445	16	25	M22	1.25	1.25	–	–
400	–	–	9	6	6	3	475	510	16	27	M24	1.25	1.25	–	–
450	–	–	9	6	6	3	530	565	20	27	M24	1.25	1.25	–	–
500	–	–	9	6	6	3	585	620	20	27	M24	1.5	1.5	40	1.25
550	–	–	9	6	6	3	640	680	20	33	M30	1.75	1.75	42	1.5
600	–	–	9	6	6	3	690	730	24	33	M30	1.75	1.75	42	1.5
650	–	–	–	6	6	3	740	780	24	33	M30	1.75	1.75	44	1.5
700	–	–	–	6	6	3	800	840	24	33	M30	2	2	56	1.5
750	–	–	–	6	6	3	855	900	24	33	M30	2	2	60	1.5
800	–	–	–	6	6	3	905	950	28	33	M30	2	2	60	1.5
850	–	–	–	6	6	3	955	1000	28	33	M30	2	2	60	1.5
900	–	–	–	6	6	3	1005	1050	28	33	M30	2	2	62	1.5
1000	–	–	–	6	6	3	1110	1160	28	39	M36	2	2	66	1.5
1100	–	–	–	8	10	3	1220	1270	28	39	M36	2	2	72	1.5
1200	–	–	–	8	10	3	1325	1380	32	39	M36	2	2	76	1.5
1350	–	–	–	8	10	3	1480	1540	36	45	M42	2	2	82	1.5
1500	–	–	–	8	12	3	1635	1700	40	45	M42	2	2	88	1.5

(3) With IT flanges, this dimension is shown for reference.
(4) This may be rounded off with the dimension c as a radius.
(5) This dimension may be determined on the agreement between the parties concerned.

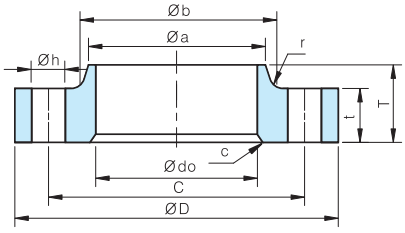
16K



SOH of nominal size
10A to 600A



SW of nominal size
10A to 80A



LJ of nominal size
15A to 600A

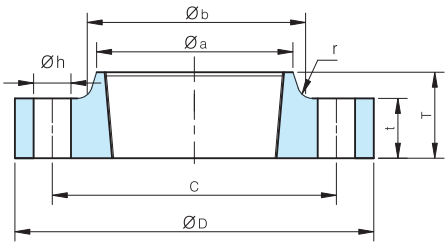
JIS B 2220–2004 (KS B 1503–2007)

Unit : mm

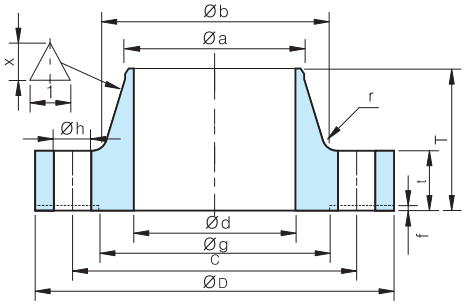
Nominal Size	Outside Diam. of Applicable Pipe	Outside Diam. of Flange	Inside Diam. of Flange				Thickness of Flange	Total Length of Flange			Diametr of hub			
											Small Diameter		Large Diameter	
			SOH,SW	LJ	SW,WN	IT	SOH,LJ,TR WN,IT,BL	SOH,SW LJ,TR	TR	WN	SOH,SW LJ,TR	WN,IT	SOH,SW LJ,TR	WN,IT
A		D	do	do	d(2)	d	t	t	T	T	a	a	b	b(3)
10	17.3	90	17.8	–	12.7	10	12	16	16	31	26	17.3	28	29
15	21.7	95	22.2	23.4	16.1	15	12	16	16	32	30	21.7	32	34
20	27.2	100	27.7	28.9	21.4	20	14	20	20	34	38	27.2	42	39
25	34.0	125	34.5	35.6	27.2	25	14	20	20	36	46	34.0	50	47
32	42.7	135	43.2	44.3	35.5	32	16	22	22	39	56	42.7	60	56
40	48.6	140	49.1	50.4	41.2	40	16	24	24	39	62	48.6	66	62
50	60.5	155	61.1	62.7	52.7	50	16	24	24	40	76	60.5	80	75
65	76.3	175	77.1	78.7	65.9	65	18	26	27	46	94	76.3	98	92
80	89.1	200	90.0	91.6	78.1	80	20	28	30	49	108	89.1	112	105
90	101.6	210	102.6	104.1	90.2	90	20	30	–	50	120	101.6	124	118
100	114.3	225	115.4	116.9	102.3	100	22	34	36	56	134	114.3	138	134
125	139.8	270	141.2	143.0	126.6	125	22	34	40	60	164	139.8	170	162
150	165.2	305	166.6	168.4	151.0	150	24	38	40	69	196	165.2	202	192
200	216.3	350	218.0	219.5	199.9	200	26	40	–	73	244	216.3	252	244
250	267.4	430	269.5	271.7	248.8	250	28	44	–	81	304	267.4	312	298
300	318.5	480	321.0	322.8	297.9	300	30	48	–	88	354	318.5	364	352
350	355.6	540	358.1	360.2	333.4	335	34	52	–	104	398	355.6	408	398
400	406.4	605	409.0	411.2	381.0	380	38	60	–	115	446	406.4	456	452
450	457.2	675	460.0	462.3	431.8	430	40	64	–	126	504	457.2	514	510
500	508.0	730	511.0	514.4	482.6	480	42	68	–	128	558	508.0	568	561
550	558.8	795	562.0	565.2	533.4	530	44	70	–	135	612	558.8	622	616
600	609.6	845	613.0	616.0	584.2	580	46	74	–	141	666	609.6	676	670

Notes :
(1) The facing of flanges shall conform to JIS B2202–2004
(2) Adjustment shall be made according to the inside diameter of the steel pipes to be joined with.

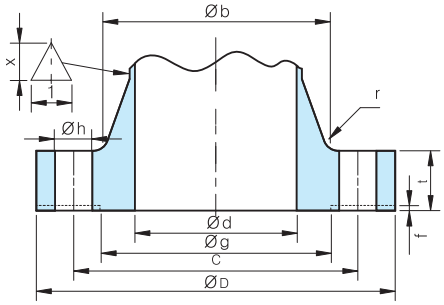
16K



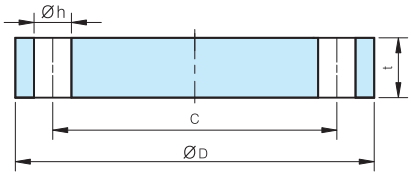
TR of nominal size 10A to 150A



WN of nominal size 10A to 600A



IT of nominal size 10A to 600A



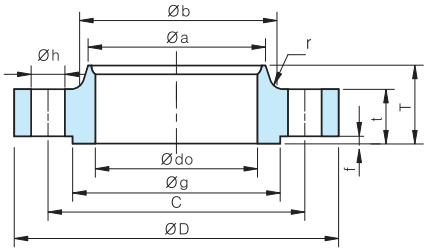
BL of nominal size 10A to 600A

JIS B 2220–2004 (KS B 1503–2007)

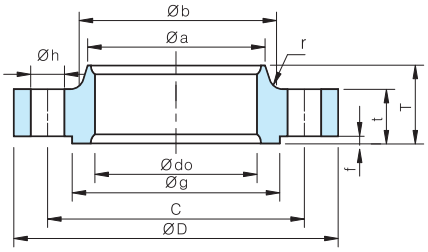
Unit : mm

Nominal Size	Depth of Socket	Norminal designation of thread	Chamfering(4)	Radius of Fillet	Raised face		Diameter of Bolt			Nominal Bolt Size	Taper of Hub	
					Height	Diameter	Diam. of Bolt Circle	Num. of Bolt Holes	Diam. of Bolt Holes		WN	IT
	SW		LJ	SOH,LJ, TR,WN,IT	WN,IT							
A	S	TR	c	r	f	g	c		h		x	x
10	10	Rc 3/8	–	4	1	46	65	4	15	M12	1.25	1.25
15	10	Rc 1/2	3	4	1	51	70	4	15	M12	1.25	1.25
20	13	Rc 3/4	3	4	1	56	75	4	15	M12	1.25	1.25
25	13	Rc 1	3	4	1	67	90	4	19	M16	1.25	1.25
32	13	Rc 1 1/4	4	5	2	76	100	4	19	M16	1.25	1.25
40	13	Rc 1 1/2	4	5	2	81	105	4	19	M16	1.25	1.25
50	16	Rc 2	4	5	2	96	120	8	19	M16	1.25	1.25
65	16	Rc 2 1/2	5	5	2	116	140	8	19	M16	1.25	1.25
80	16	Rc 3	5	6	2	132	160	8	23	M20	1.25	1.25
90	–	–	5	6	2	145	170	8	23	M20	1.25	1.25
100	–	Rc 4	5	6	2	160	185	8	23	M20	1.25	1.25
125	–	Rc 5	6	6	2	195	225	8	25	M22	1.25	1.25
150	–	Rc 6	6	6	2	230	260	12	25	M22	1.25	1.25
200	–	–	6	6	2	275	305	12	25	M22	1.25	1.25
250	–	–	6	6	2	345	380	12	27	M24	1.25	1.25
300	–	–	9	8	3	395	430	16	27	M24	1.25	1.25
350	–	–	9	8	3	440	480	16	33	M30 X 3	1.25	1.25
400	–	–	9	10	3	495	540	16	33	M30 X 3	1.25	1.25
450	–	–	9	10	3	560	605	20	33	M30 X 3	1.25	1.25
500	–	–	9	10	3	615	660	20	33	M30 X 3	1.25	1.25
550	–	–	9	10	3	670	720	20	39	M36 X 3	1.25	1.25
600	–	–	9	10	3	720	770	24	39	M36 X 3	1.25	1.25

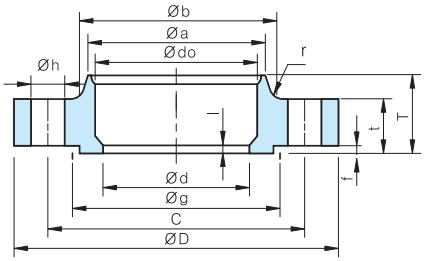
(3) With IT flanges, this dimension is shown for reference.
(4) This may be rounded off with the dimension c as a radius.
(5) This dimension may be determined on the agreement between the parties concerned.



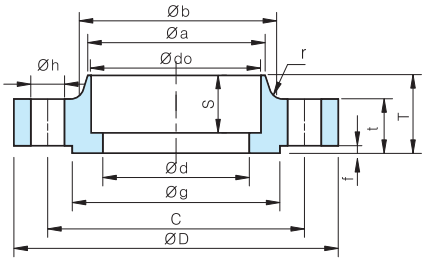
SOH Type A of nominal size
10A to 600A



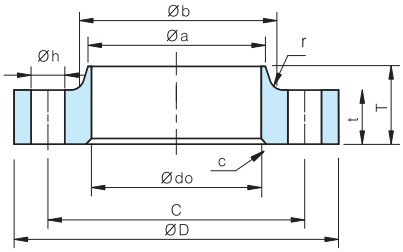
SOH Type B of nominal size
10A to 50A



SOH Type C of nominal size
65A to 600A



SW of nominal size
10A to 80A



LJ of nominal size
15A to 600A

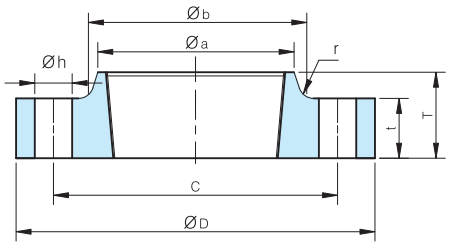
JIS B 2220–2004 (KS B 1503–2007)

Unit : mm

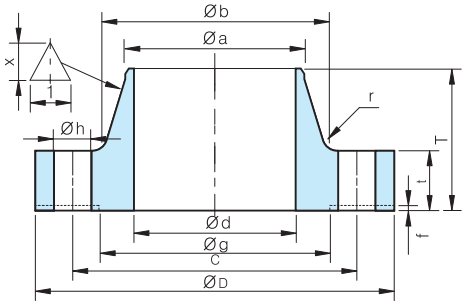
Nominal Size	Outside Diam. of Applicable Pipe	Outside Diam. of Flange	Inside Diam. of Flange				Thickness of Flange		Total Length of Flange		Diametr of hub			
											Small Diameter		Large Diameter	
			SOH,SW	LJ	SOH, SW,WN	IT	Except for BL	BL	SOH,SW LJ,TR	WN	SOH,SW LJ,TR	WN	SOH,SW LJ,TR	WN,IT
A		D	do	do	d(2)	d	t	t	T	T	a	a	b	b(3)
10	17.3	90	17.8	–	12.7	10	14	14	20	33	30	17.3	32	29
15	21.7	95	22.2	23.4	16.1	15	14	14	20	34	34	21.7	36	34
20	27.2	100	27.7	28.9	21.4	20	16	16	22	36	40	27.2	42	39
25	34.0	125	34.5	35.6	27.2	25	16	16	24	38	48	34.0	50	47
32	42.7	135	43.2	44.3	35.5	32	18	18	26	41	56	42.7	60	56
40	48.6	140	49.1	50.4	41.2	40	18	18	26	41	62	48.6	66	62
50	60.5	155	61.1	62.7	52.7	50	18	18	26	42	76	60.5	80	75
65	76.3	175	77.1	65.9	78.9	65	20	20	30	48	100	76.3	104	92
80	89.1	200	90.0	91.6	78.1	80	22	22	34	51	113	89.1	117	105
90	101.6	210	102.6	104.1	90.2	90	24	24	36	54	126	101.6	130	118
100	114.3	225	115.4	116.9	102.3	100	24	24	36	58	138	114.3	142	134
125	139.8	270	141.2	143.0	126.6	125	26	26	40	64	166	139.8	172	162
150	165.2	305	166.6	168.4	151.0	150	28	28	42	73	196	165.2	202	192
200	216.3	350	218.0	219.5	199.9	200	30	30	46	77	244	216.3	252	244
250	267.4	430	269.5	271.7	248.8	250	34	34	52	87	304	267.4	312	298
300	318.5	480	321.0	322.8	297.9	300	36	36	56	94	354	318.5	364	352
350	355.6	540	358.1	360.2	333.4	335	40	40	62	110	398	355.6	408	398
400	406.4	605	409.0	411.2	381.0	380	46	46	70	123	446	406.4	456	452
450	457.2	675	460.0	462.3	431.8	430	48	48	78	134	504	457.2	514	510
500	508.0	730	511.0	514.4	482.6	480	50	50	84	136	558	508.0	568	561
550	558.8	795	562.0	565.2	533.4	530	52	52	90	143	612	558.8	622	616
600	609.6	845	613.0	616.0	584.2	580	54	56	96	149	666	609.6	676	670

Notes :
(1) The facing of flanges shall conform to JIS B2202–2004
(2) Adjustment shall be made according to the inside diameter of the steel pipes to be joined with.

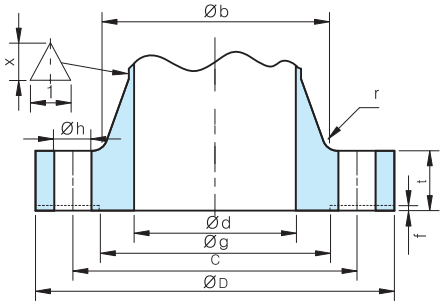
20K



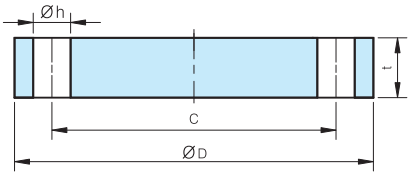
TR of nominal size 10A to 150A



WN of nominal size 10A to 600A



IT of nominal size 10A to 600A



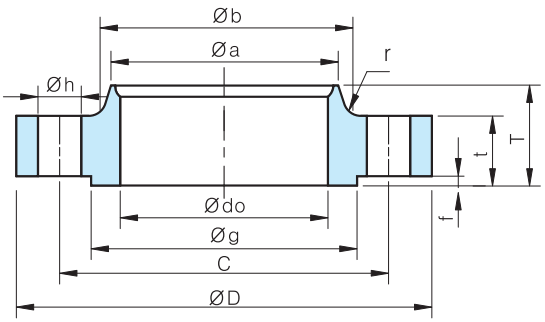
BL of nominal size 10A to 600A

JIS B 2220–2004 (KS B 1503–2007)

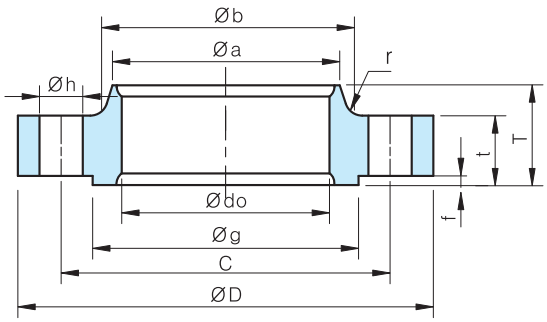
Unit : mm

Nominal Size	Depth of Socket	Norminal designation of thread	Chamfering(4)	Radius of Fillet	Raised face		Diameter of Bolt			Nominal Bolt Size	Stopper	Taper of Hub	
					Height	Diameter	Diam. of Bolt Circle	Num. of Bolt Holes	Diam. of Bolt Holes		SOH Type–C	WN	IT
	SW		LJ	SOH,SW LJ,TR	SOH,SW,TR,WN,IT,BL								
A	S	TR	c	r	f	g	c		h		l	x	x
10	10	Rc 3/8	–	4	1	46	65	4	15	M12	–	1.25	1.25
15	10	Rc 1/2	3	4	1	51	70	4	15	M12	–	1.25	1.25
20	13	Rc 3/4	3	4	1	56	75	4	15	M12	–	1.25	1.25
25	13	Rc 1	3	4	1	67	90	4	19	M16	–	1.25	1.25
32	13	Rc 1 1/4	4	5	2	76	100	4	19	M16	–	1.25	1.25
40	13	Rc 1 1/2	4	5	2	81	105	4	19	M16	–	1.25	1.25
50	16	Rc 2	4	5	2	96	120	8	19	M16	–	1.25	1.25
65	16	Rc 2 1/2	5	5	2	116	140	8	19	M16	6	1.25	1.25
80	16	Rc 3	5	6	2	132	160	8	23	M20	6	1.25	1.25
90	–	–	5	6	2	145	170	8	23	M20	6	1.25	1.25
100	–	Rc 4	5	6	2	160	185	8	23	M20	6	1.25	1.25
125	–	Rc 5	6	6	2	195	225	8	25	M22	6	1.25	1.25
150	–	Rc 6	6	6	2	230	260	12	25	M22	6	1.25	1.25
200	–	–	6	6	2	275	305	12	25	M22	6	1.25	1.25
250	–	–	6	6	2	345	380	12	27	M24	6	1.25	1.25
300	–	–	9	8	3	395	430	16	27	M24	6	1.25	1.25
350	–	–	9	8	3	440	480	16	33	M30 X 3	6	1.25	1.25
400	–	–	9	10	3	495	540	16	33	M30 X 3	7	1.25	1.25
450	–	–	9	10	3	560	605	20	33	M30 X 3	7	1.25	1.25
500	–	–	9	10	3	615	660	20	33	M30 X 3	7	1.25	1.25
550	–	–	9	10	3	670	720	20	39	M36 X 3	7	1.25	1.25
600	–	–	9	10	3	720	770	24	39	M36 X 3	7	1.25	1.25

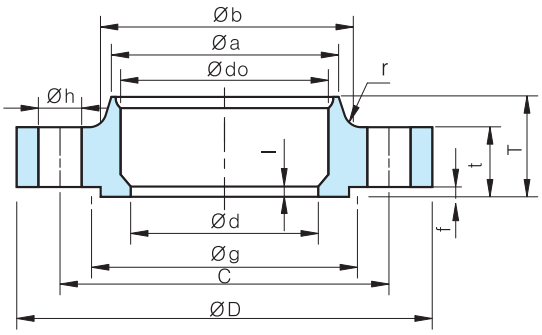
(3) With IT flanges, this dimension is shown for reference.
(4) This may be rounded off with the dimension c as a radius.



SOH type A of nominal size
10A to 400A



SOH type B of nominal size
10A to 50A



SOH type C of nominal size
65A to 400A

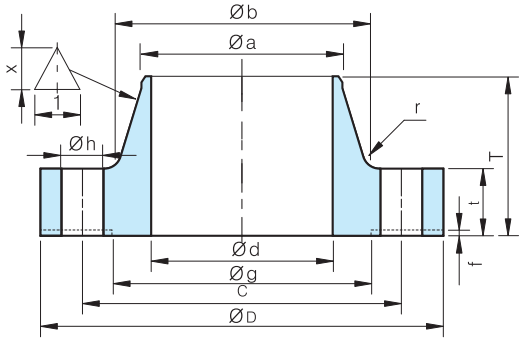
JIS B 2220–2004 (KS B 1503–2007)

Unit : mm

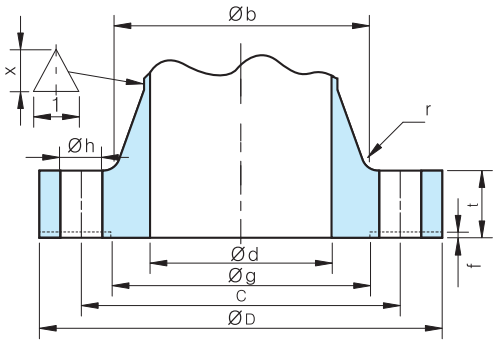
Nominal Size	Outside Diam. of Applicable Pipe	Outside Diam. of Flange	Inside Diam. of Flange			Thickness of Flange	Total Length of Flange		Diametr of hub				Radius of Fillet	
									Small Diameter		Large Diameter			
			SOH	SOH,WN	IT	SOH,WN IT,BL	SOH	WN	SOH	WN	SOH	WN,IT	SOH	WN,IT
A		D	do	d(2)	d	t	t	T	a	a	b	b(3)	r	r(3)
10	17.3	110	17.8	–	–	16	24	–	30	–	34	–	4	–
15	21.7	115	22.2	16.1	15	18	26	45	36	21.7	40	40	5	6
20	27.2	120	27.7	21.4	20	18	28	45	42	27.2	46	44	5	6
25	34.0	130	34.5	27.2	25	20	30	48	50	34.0	54	52	5	6
32	42.7	140	43.2	35.5	32	22	32	52	60	42.7	64	62	6	6
40	48.6	160	49.1	41.2	40	22	34	54	66	48.6	70	70	6	6
50	60.5	165	61.1	52.7	50	22	36	57	82	60.5	86	84	6	8
65	76.3	200	77.1	65.9	65	26	40	69	102	76.3	106	104	8	8
80	89.1	210	90.0	78.1	80	28	44	73	115	89.1	121	118	8	8
90	101.6	230	102.6	90.2	90	30	46	74	128	101.6	134	130	8	8
100	114.3	240	115.4	102.3	100	32	48	76	141	114.3	147	142	8	8
125	139.8	275	141.2	126.6	125	36	54	86	166	139.8	172	172	8	10
150	165.2	325	166.6	151.0	150	38	58	95	196	165.2	204	202	8	10
200	216.3	370	218.0	199.9	200	42	64	102	248	216.3	256	254	8	10
250	267.4	450	269.5	248.8	250	48	72	118	306	267.4	314	312	10	12
300	318.5	515	321.0	297.9	300	52	78	127	360	318.5	370	366	10	15
350	355.6	560	358.1	333.4	335	54	84	134	402	355.6	412	406	12	15
400	406.4	630	409.0	381.0	380	60	92	149	456	406.4	468	462	15	20

Notes :
(1) The facing of flanges shall conform to JIS B2202–2004
(2) Adjustment shall be made according to the inside diameter of the steel pipes to be joined with.
(3) With IT flanges, this dimension is shown for reference.

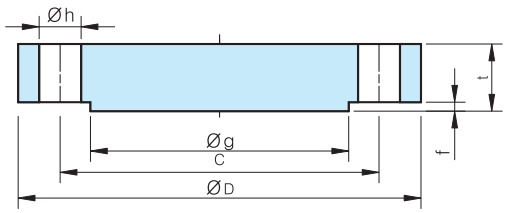
30K



WN of nominal size 15A to 400A



IT of nominal size 15A to 400A

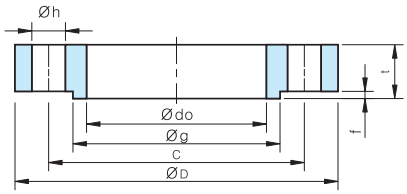


BL of nominal size 10A to 400A

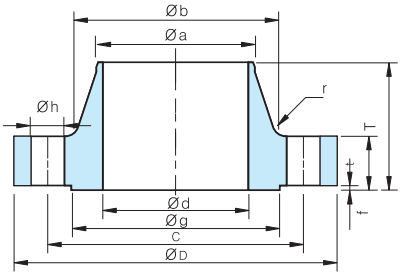
JIS B 2220-2004 (KS B 1503-2007)

Unit : mm

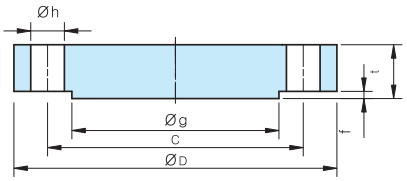
Nominal Size	Raised face		Diameter of Bolt			Norminal Bolt Size	Stopper	Taper of Hub	
	Height	Diameter	Diam. of Bolt Circle	Num. of Bolt Holes	Diam. of Bolt Holes		SOH Type-C	Wn	IT (Min)
	SOH,WN,IT,BL								
A	f	g	C		h		i	x	x
10	1	52	75	4	19	M16	-	-	-
15	1	55	80	4	19	M16	-	1.25	1.25
20	1	60	85	4	19	M16	-	1.25	1.25
25	1	70	95	4	19	M16	-	1.25	1.25
32	2	80	105	4	19	M16	-	1.25	1.25
40	2	90	120	4	23	M20	-	1.25	1.25
50	2	105	130	8	19	M16	-	1.25	1.25
65	2	130	160	8	23	M20	6	1.25	1.25
80	2	140	170	8	23	M20	6	1.25	1.25
90	2	150	185	8	25	M22	6	1.25	1.25
100	2	160	195	8	25	M22	6	1.25	1.25
125	2	195	230	8	25	M22	6	1.25	1.25
150	2	235	275	12	27	M24	6	1.25	1.25
200	2	280	320	12	27	M24	6	1.25	1.25
250	2	345	390	12	33	M30 X 3	6	1.25	1.25
300	3	405	450	16	33	M30 X 3	6	1.25	1.25
350	3	450	495	16	33	M30 X 3	6	1.25	1.25
400	3	510	560	16	39	M36 X 3	7	1.25	1.25



SOP of nominal size
10A to 400A



WN of nominal size
10A to 400A



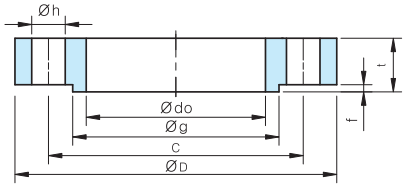
BL of nominal size
10A to 400A

JIS B 2238-1996

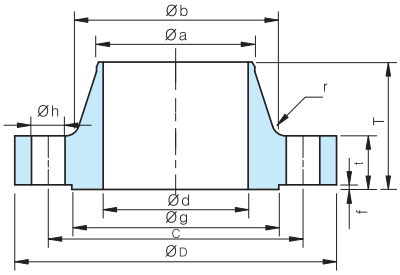
Unit : mm

Nominal Size	Outside Diam. of Applicable Pipe	Outside Diam. of Flange	Thickness of Flange	Inside Diam. of Flange		Diametr of hub		Total Length of Flange	Raised face		Diameter of Bolt			Approx Weight(kg)		
				SOP	WN				Height	Diam-eter	Diam. of Bolt Circle	Num. of Bolt Holes	Diam. of Bolt Hole	SOP	BL	WN
A		D	t	do	d	a	b	T	f	g	C		h			
10	17.3	110	18	17.8	–	17.3	38	53	1	52	75	4	19	1.2	1.2	–
15	21.7	115	20	22.2	15.8	21.7	40	53	1	55	80	4	19	1.3	1.4	1.5
20	27.2	120	20	27.7	21.1	27.2	45	58	1	60	85	4	19	1.5	1.6	1.7
25	34.0	130	22	34.5	26.8	34.0	54	62	1	70	95	4	19	1.9	2.1	2.2
32	42.7	140	24	43.2	35.1	42.7	62	69	2	80	105	4	19	2.4	2.7	2.8
40	48.6	160	24	49.1	40.7	48.6	72	72	2	90	120	4	23	3.1	3.5	3.5
50	60.5	165	26	61.1	52.2	60.5	88	75	2	105	130	8	19	3.3	3.9	4.1
65	76.3	200	30	77.1	65.3	76.3	108	81	2	130	160	8	23	5.5	6.6	6.9
80	89.1	210	32	90.0	76.4	89.1	119	85	2	140	170	8	23	6.4	8.0	7.9
90	101.6	230	34	102.6	89.5	101.6	130	88	2	150	185	8	25	7.9	10.1	9.4
100	114.3	250	36	115.4	101.5	114.3	146	104	2	165	205	8	25	9.9	12.9	12.3
125	139.8	300	40	141.2	–	–	–	–	2	200	250	8	27	15.9	20.8	–
150	165.2	355	44	166.6	150.0	165.2	215	120	2	240	295	12	33	23.2	30.8	30.6
200	216.3	405	50	218.0	198.7	216.3	270	135	2	290	345	12	33	32.1	46.8	41.6
250	267.4	475	56	269.5	247.5	267.4	333	154	2	355	410	12	33	48.6	73.8	68.1
300	318.5	540	60	321.0	296.4	318.5	400	159	3	410	470	16	39	61.1	99.4	96.0
350	355.6	585	64	358.1	331.8	355.6	432	168	3	455	515	16	39	75.2	126.1	115.0
400	406.4	645	70	409.0	379.1	406.4	466	181	3	515	570	16	39	97.4	170.0	143.0

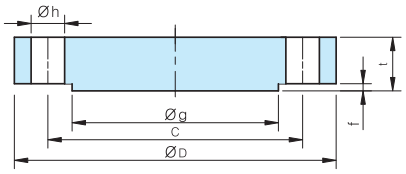
63K



SOP of nominal size
10A to 400A



WN of nominal size
10A to 400A



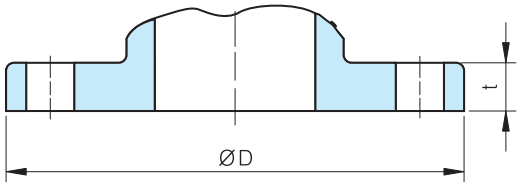
BL of nominal size
10A to 400A

JIS B 2238-1996

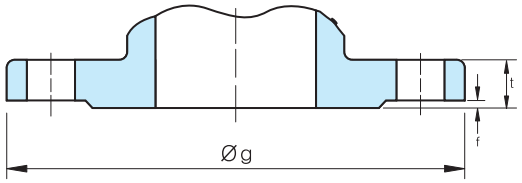
Unit : mm

Nominal Size	Outside Diam. of Applicable Pipe	Outside Diam. of Flange	Thickness of Flange	Inside Diam. of Flange		Diametr of hub		Total Length of Flange	Raised face		Diameter of Bolt			Approx Weight(kg)		
				SOP	WN				Height	Diam-eter	Diam. of Bolt Circle	Num. of Bolt Holes	Diam. of Bolt Hole	SOP	BL	WN
A		D	t	do	d	a	b	T	f	g	C		h			
10	17.3	115	23	17.8	–	17.3	40	61	1	52	80	4	19	1.6	1.7	–
15	21.7	120	23	22.2	15.8	21.7	42	61	1	55	85	4	19	1.8	1.9	1.9
20	27.2	135	25	27.7	21.1	27.2	46	71	1	60	95	4	23	2.4	2.5	2.5
25	34.0	140	27	34.5	26.8	34.0	56	74	1	70	100	4	23	2.7	2.9	3.5
32	42.7	150	30	43.2	35.1	42.7	60	75	2	80	110	4	23	3.4	3.8	3.7
40	48.6	175	32	49.1	40.7	48.6	75	85	2	90	130	4	25	5.5	5.6	5.5
50	60.5	185	34	61.1	52.2	60.5	92	104	2	105	145	8	23	5.5	6.3	6.5
65	76.3	220	38	77.1	65.3	76.3	118	107	2	130	175	8	25	5.8	7.2	10.3
80	89.1	230	40	90.0	76.4	89.1	130	120	2	140	185	8	25	9.9	11.9	12.4
90	101.6	255	42	102.6	89.5	101.6	140	126	2	150	205	8	27	12.7	15.4	15.2
100	114.3	270	44	115.4	101.5	114.3	154	126	2	165	220	8	27	14.7	18.3	17.7
125	139.8	325	50	141.2	–	–	–	–	2	200	265	8	33	23.8	30.0	–
150	165.2	365	54	166.6	150.0	165.2	230	173	2	240	305	12	33	30.9	40.2	39.4
200	216.3	425	60	218.0	198.7	216.3	280	215	2	290	360	12	33	44.6	62.3	60.1
250	267.4	500	68	269.5	247.5	267.4	348	256	2	355	430	12	39	67.1	97.7	114.0
300	318.5	560	77	321.0	296.4	318.5	402	286	3	410	485	16	39	88.9	138.1	154.0
350	355.6	615	81	358.1	331.8	355.6	438	301	3	455	530	16	46	108.5	172.9	191.0
400	406.4	680	89	409.0	379.1	406.4	490	314	3	515	590	16	46	144.2	236.5	247.0

FACING 1



Full Face(FF)



Raised Face

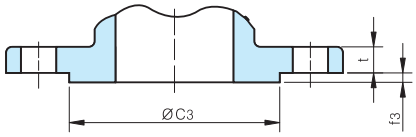
KS/JIS FLANGES

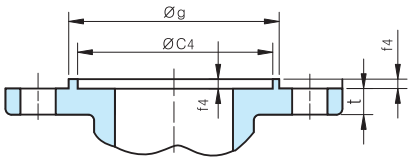
Unit : mm

Nominal Size A	Raised face (RF)									
	Nominal pessure									
	5K		10K		16K		20K		30K	
	g	f	g	f	g	f	g	f	g	f
10	39	1	46	1	46	1	46	1	52	1
15	44	1	51	1	51	1	51	1	55	1
20	49	1	56	1	56	1	56	1	60	1
25	59	1	67	1	67	1	67	1	70	1
32	70	2	76	2	76	2	76	2	80	2
40	75	2	81	2	81	2	81	2	90	2
50	85	2	96	2	96	2	96	2	105	2
65	110	2	116	2	116	2	116	2	130	2
80	121	2	126	2	132	2	132	2	140	2
90	131	2	136	2	145	2	145	2	150	2
100	141	2	151	2	160	2	160	2	160	2
125	176	2	182	2	195	2	195	2	195	2
150	206	2	212	2	230	2	230	2	235	2
175	232	2	237	2	–	–	–	–	–	–
200	252	2	262	2	275	2	275	2	280	2
225	277	2	282	2	–	–	–	–	–	–
250	317	2	324	2	345	2	345	2	345	2
300	360	3	368	3	395	3	395	3	405	3
350	403	3	413	3	440	3	440	3	450	3
400	463	3	475	3	495	3	495	3	510	3
450	523	3	530	3	560	3	560	3	–	–
500	573	3	585	3	615	3	615	3	–	–
550	630	3	640	3	670	3	670	3	–	–
600	680	3	690	3	720	3	720	3	–	–
650	735	3	740	3	–	–	–	–	–	–
700	785	3	800	3	–	–	–	–	–	–
750	840	3	855	3	–	–	–	–	–	–
800	890	3	905	3	–	–	–	–	–	–
850	940	3	955	3	–	–	–	–	–	–
900	990	3	1005	3	–	–	–	–	–	–
1000	1090	3	1110	3	–	–	–	–	–	–
1100	1200	3	1220	3	–	–	–	–	–	–
1200	1305	3	1325	3	–	–	–	–	–	–
1350	1460	3	1480	3	–	–	–	–	–	–
1500	1615	3	1635	3	–	–	–	–	–	–

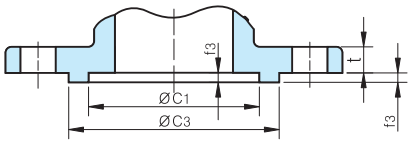
Notes :
(1) Dimension D of full face (FF) shall conform to the outside diameter D of the flange of the attached table 4 to 7.
(2) The thickness of the flange t shall conform to the attached tables 4 to 9.

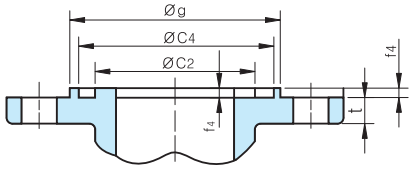
FACING 2





Male-female face(MF)



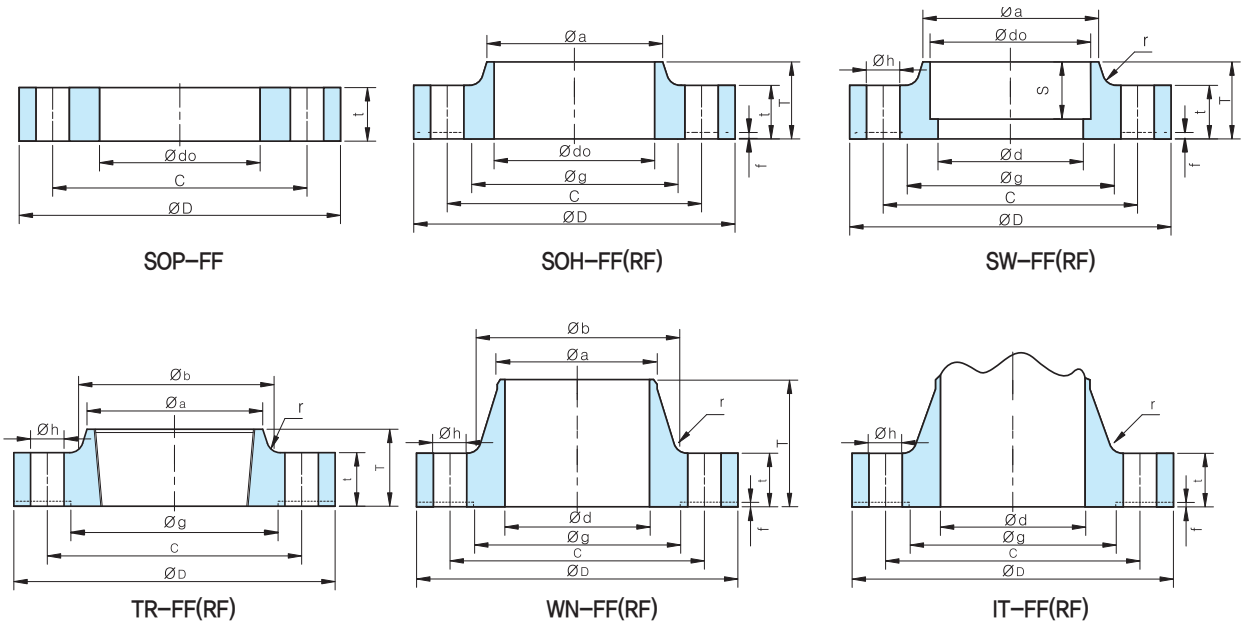


Tongue and groove(TG)

Nominal Size A	Male · Female face (MF)				Tongue and groove (TG)					
	Male seat (MF · M)		Female seat (MF · F)		Tongue seat (TG · T)			Groove seat (TG · G)		
	C	f	C	f	C_1	C_3	f_3	C_2	C_4	f_4
10	38	6	39	5	28	38	6	27	39	5
15	42	6	43	5	32	42	6	31	43	5
20	50	6	51	5	38	50	6	37	51	5
25	60	6	61	5	45	60	6	44	61	5
32	70	6	71	5	55	70	6	54	71	5
40	75	6	76	5	60	75	6	59	76	5
50	90	6	91	5	70	90	6	69	91	5
65	110	6	111	5	90	110	6	89	111	5
80	120	6	121	5	100	120	6	99	121	5
90	130	6	131	5	110	130	6	109	131	5
100	145	6	146	5	125	145	6	124	146	5
125	175	6	176	5	150	175	6	149	176	5
150	215	6	216	5	190	215	6	189	216	5
175	–	–	–	–	–	–	–	–	–	–
200	260	6	261	5	230	260	6	229	261	5
225	–	–	–	–	–	–	–	–	–	–
250	325	6	326	5	295	325	6	294	326	5
300	375	6	376	5	340	375	6	339	376	5
350	415	6	416	5	380	415	6	379	416	5
400	475	6	476	5	440	475	6	439	476	5
450	523	6	524	5	483	523	6	482	524	5
500	575	6	576	5	535	575	6	534	576	5
550	625	6	626	5	585	625	6	584	626	5
600	675	6	676	5	635	675	6	634	676	5
650	727	6	728	5	682	727	6	681	728	5
700	777	6	778	5	732	777	6	731	778	5
750	832	6	833	5	787	832	6	786	833	5
800	882	6	883	5	837	882	6	836	883	5
850	934	6	935	5	889	934	6	888	935	5
900	987	6	988	5	937	987	6	936	988	5
1000	1092	6	1094	5	1042	1092	6	1040	1094	5
1100	1192	6	1194	5	1142	1192	6	1140	1194	5
1200	1292	6	1294	5	1237	1292	6	1235	1294	5
1350	1442	6	1444	5	1387	1442	6	1385	1444	5
1500	1592	6	1594	5	1537	1592	6	1535	1594	5

(3) Dimension g in male-female face (MF) and tongue and groove (TG) shall conform to dimension g of raised face (RF).
(4) The female seat(MF · UF) and the groove (TG · UG) for nominal pressure 5K and 10K shall be of the shapes shown by an imaginary line of the figures.

TOLERANCE FOR PIPE FLANGES



SOP-FF　SOH-FF(RF)　SW-FF(RF)

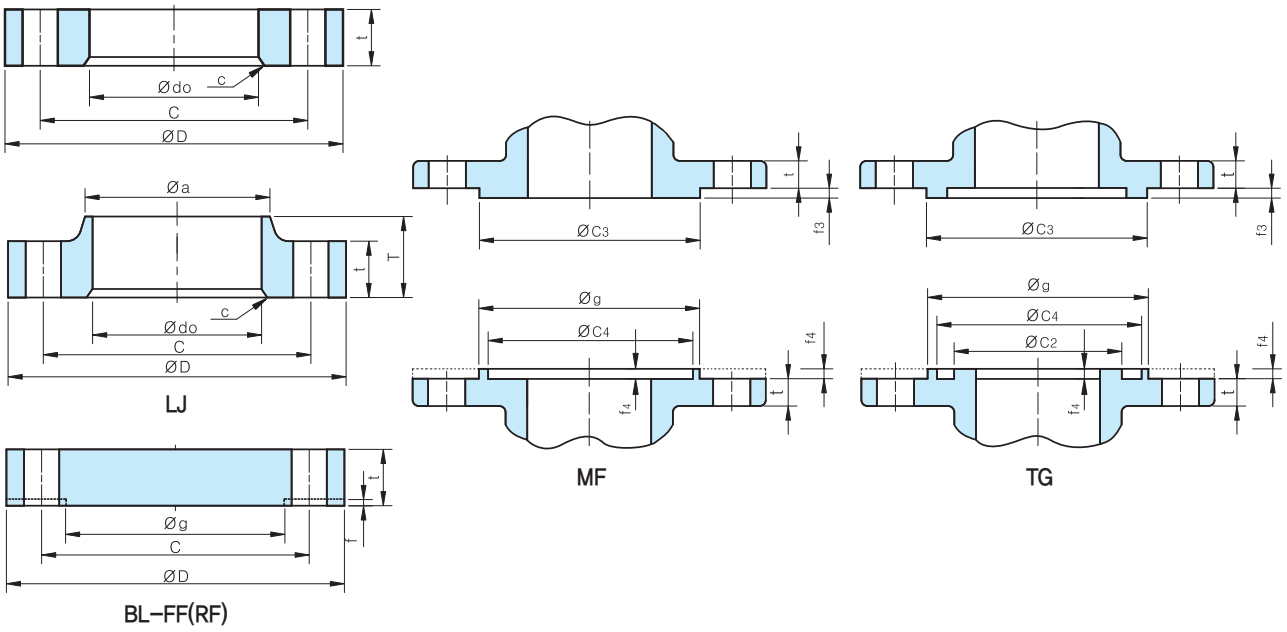
TR-FF(RF)　WN-FF(RF)　IT-FF(RF)

DIMENSIONAL TOLERANCE ON FLANGE

Unit : mm

Dimension		Type of flange	Gasket face	Dimensional Division	Dimensional tolerance
Outside diameter of flange	D	Except for IT	–	600 or less	±1.5
				Over 600	±3
		IT	–	1000 or less	Not specified for plus side values −2
				Over 1000	Not specified for plus side values −3
Diameter of bolt center circle	C	ALL	–	950 or less	±0.8
				Over 950	±1.5
Pitch of bolt hole	–	ALL	–	–	±0.8
Inside Diameter	d0	SOP, SOH SW, LJ	–	100 or less	+0.5 0
				Over 100 to and incl. 400	+1 0
				Over 400 to and incl. 600	+1.5 0
				Over 600 to and incl. 800	+2 0
				Over 800 to and incl. 1000	+2.5 0
				Over 1000	+3 0
Inside Diameter	d	SW, WN	–	100 or less	0 −0.5
				Over 100 to and incl. 400	0 −1
				Over 400 to and incl. 600	0 −1.5
				Over 600 to and incl. 800	0 −2
				Over 800 to and incl. 1000	0 −2.5
				Over 1000	0 −3
Diameter of gasket face	g	SOH, SW, TR WN, IT, BL	RF, MF, TG	700 or less	±0.8
				Over 700	±1.5
Diameter of gasket face	C_1 C_2 C_3 C_4	Except for LJ	MF, TG	500 or less	±0.3
				Over 500 to and incl.1000	±0.35
				Over 1000 to and incl.1500	±0.4
				Over 1500	±0.5
Height of gasket face	f3 f4	Except for LJ	MF, TG	–	±0.2

TOLERANCE FOR PIPE FLANGES



DIMENSIONAL TOLERANCE ON FLANGE

Unit : mm

Dimension		Type of flange	Gasket face	Dimensional Division	Dimensional tolerance
Thickness of flange	t (1) (2)	Except for LJ	FF, MF, TG	20 or less	+1.5 0
				Over 20 to and incl. 50	+2 0
				Over 50	+3 0
		LJ	–	20 or less	+1.5 0
				Over 20 to and incl. 50	+2 0
				Over 50	+3 0
Thickness of flange	t–f (1) (2)	SOH, SW, TR WN, IT, BL	RF	20 or less	+1.5 0
				Over 20 to and incl. 50	+2 0
				Over 50	+3 0
Diameter of hub Small diameter side	a	SOH, SW, LJ TR, WN	–	220 or less	+2 0
				Over 220 to and incl. 650	+4 0
				Over 650	+8 0
Total length of flange	T	SOH, SW, LJ, TR	–	–	±2
		WN	–	200 or less	+2 0
				Over 200	+3 0
Chamfering	c	LJ	–	6 or less	+0.8 0
				Over 6	+1.6 0
Parallelism between gasket face and bolt nut bearing surface	–	Except for LJ	ALL	–	Within 1 degree

Notes :

(1) The tolerance on thickness of integral flange (IT) of piping parts with which the dimension between flange facings is limited to a specific value may be set at twice the specified value.

(2) For the spot facing of flanges, if they are so processed, the thickness is permitted in the minus side to 70% of the tolerance on thickness of spot facing given in the table.

JIS MATERIAL CHEMICAL COMPOSITION & MECHANICAL REQUIREMENTS

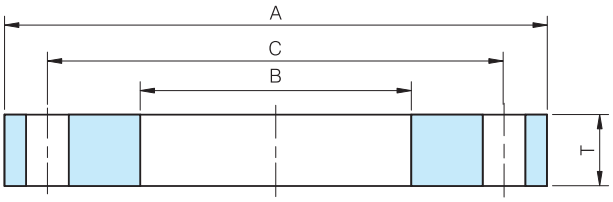
MATE-RIAL		Chemical Comosition (%)														Mechanical Requirements				
		C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V	Nb	Sn	Y.S (N/㎟)	T.S (N/㎟)	E.L (%) axial	E.L (%) tangen.	R.A (%) axial	R.A (%) tangen.	H.B
SF440A	Max.	0.60	0.50	1.20	0.030	0.035									540					121
	Min.		0.15	0.30										195	440	24.0	19.0	45.0	35.0	
SF490A	Max.	0.60	0.50	1.20	0.030	0.035									590					134
	Min.		0.15	0.30										245	490	22.0	17.0	40.0	30.0	
SFVC 1	Max.	0.30	0.35	1.35	0.030	0.030									560					
	Min.			0.40										205	410	21.0		38.0		
SFVC 2A	Max.	0.35	0.35	1.10	0.030	0.030									640					
	Min.			0.40										245	490	18.0		33.0		
SFVC 2B	Max.	0.30	0.35	1.35	0.030	0.030									640					
	Min.			0.70										245	490	18.0		38.0		
SFL 1	Max.	0.30	0.35	1.35	0.030	0.030									590					
	Min.													225	440	22.0		38.0		
SFL 2	Max.	0.30	0.35	1.35	0.030	0.030									640					
	Min.													245	490	19.0		30.0		
S15C	Max.	0.18	0.35	0.60	0.030	0.035														111~167
	Min.	0.13	0.15	0.30										235	370	30.0				
S20C	Max.	0.23	0.35	0.30	0.030	0.035														116~174
	Min.	0.18	0.15	0.30										245	400	28.0				
S25C	Max.	0.28	0.35	0.60	0.030	0.035														123~138
	Min.	0.22	0.15	0.30										265	440	27.0				
S30C	Max.	0.33	0.35	0.90	0.030	0.035														137~197
	Min.	0.27	0.15	0.60										285	470	25.0				
S35C	Max.	0.38	0.35	0.90	0.030	0.035														149~207
	Min.	0.32	0.15	0.60										305	510	23.0				
S40C	Max.	0.43	0.35	0.90	0.030	0.035														156~217
	Min.	0.37	0.15	0.60										325	540	22.0				
S45C	Max.	0.48	0.35	0.90	0.030	0.035														167~229
	Min.	0.42	0.15	0.60										345	570	20.0				
SFVA F1	Max.	0.30	0.35	0.90	0.030	0.030			0.65						660					
	Min.			0.60					0.45					275	480	18.0		35.0		
SFVA F5A/B	Max.	0.15	0.50	0.60	0.030	0.030		6.00	0.65					A: 245	410–590	18.0		40.0		
	Min.			0.30				4.00	0.45					B: 275	480–660	18.0		35.0		
SFVA F9	Max.	0.15	1.00	0.60	0.030	0.030		10.00	1.10						760					
	Min.		0.50	0.30				8.00	0.90					380	590	18.0		40.0		
SFVA F11A/B	Max.	0.20	1.00	0.80	0.030	0.030		1.50	0.65					A: 275	A:480–660	18.0		35.0		
	Min.		0.50	0.30				1.00	0.45					B: 315	B:520–690	18.0		35.0		
SFVA F12	Max.	0.20	0.60	0.80	0.030	0.030		1.25	0.65						660					
	Min.			0.30				0.80	0.45					275	480	18.0		35.0		
SFVA F22A/B	Max.	0.15	0.50	0.60	0.030	0.030		2.50	1.10					A: 205	A:410–590	18.0		40.0		
	Min.			0.630				2.00	0.90					B: 315	B:520–690	18.0		35.0		
SFL3	Max.	0.20	0.35	0.90	0.030	0.030	3.75								640					
	Min.						3.25							255	490	19.0		35.0		
SFVQ 1A	Max.	0.25	0.40	1.50	0.030	0.030	1.00	0.25	0.60		0.05				730					
	Min.			1.20			0.40		0.45					345	550	16.0		38.0		
SFVQ 2A	Max.	0.27	0.40	1.00	0.030	0.030	1.00	0.45	0.70		0.05				730					
	Min.			0.50			0.50	0.25	0.55					345	550	16.0				
SFVQ 3	Max.	0.23	0.40	0.40	0.020	0.020	3.90	2.00	0.60		0.03				790					
	Min.			0.20			2.75	1.50	0.40					490	620	18.0		48.0		
SFVQ 2B	Max.	0.30	0.35	1.35	0.030	0.030									640					
	Min.			0.70										245	490	18.0		38.0		187
SUS F304	Max.	0.08	1.00	2.00	0.040	0.030	11.00	20.00						130under : 205	520	43.0		50.0		187
	Min.						8.00	18.00						130~200 : 205	480	29.0		45.0		187
SUS F304L	Max.	0.03	1.00	2.00	0.040	0.030	13.00	20.00						130under : 175	480	29.0		50.0		187
	Min.						9.00	18.00						130~200 : 175	450	29.0		45.0		187
SUS F304H	Max.	0.10	1.00	2.00	0.040	0.030	12.00	20.00						130under : 205	520	43.0		50.0		187
	Min.	0.04					8.00	18.00						130~200 : 205	480	29.0		45.0		187
SUS F310	Max.	0.15	1.00	2.00	0.040	0.030	22.00	26.00						130under : 205	520	34.0		50.0		187
	Min.						19.00	24.00						130~200 : 205	480	29.0		45.0		187
SUS F316	Max.	0.08	1.00	2.00	0.040	0.030	14.00	18.00	3.00					130under : 205	520	43.0		50.0		187
	Min.						10.00	16.00	2.00					130~200 : 205	480	29.0		45.0		187
SUS F316L	Max.	0.03	1.00	2.00	0.040	0.030	15.00	18.00	3.00					130under : 175	480	29.0		50.0		187
	Min.						12.00	16.00	2.00					130~200 : 175	450	29.0		45.0		187
SUS F316H	Max.	0.10	1.00	2.00	0.010	0.030	14.00	18.00	3.00					130under : 205	520	43.0		50.0		187
	Min.	0.04					10.00	16.00	2.00					130~200 : 205	480	29.0		45.0		187
SUS F317	Max.	0.08	1.00	2.00	0.040	0.030	15.00	20.00	4.00					130under : 205	520	29.0		50.0		187
	Min.						11.00	18.00	3.00					130~200 : 205	480	29.0		50.0		187
SUS F317L	Max.	0.03	1.00	2.00	0.040	0.030	15.00	20.00	4.00					130under : 175	480	29.0		50.0		187
	Min.						11.00	18.00	3.00					130~200 : 175	450	29.0		50.0		187
SUS F321	Max.	0.08	1.00	2.00	0.040	0.030	12.00		Ti : 5*C%~0.60					130under : 205	520	43.0		50.0		187
	Min.						9.00	17.00						130~200 : 205	480	29.0		45.0		187
SUS F347	Max.	0.08	1.00	2.00	0.040	0.030	13.00	20.00			Nb : 10*C%~1.00			130under : 205	520	43.0		50.0		187
	Min.						9.00	17.00						130~200 : 205	480	29.0		45.0		187
SUS F410A	Max.	0.15	1.00	1.00	0.040	0.030	0.50	13.50												187
	Min.							11.50						275	480	16.0		35.0		143

AWWA FLANGES

- Class B&D SO-RING
- Class E&F SO-RING
- Class D&E SO-HUB
- BLIND THICKNESS
- SPECIFICATIONS

SFF Corp.

CLASS B&D SO-RING



AWWA C207-01 STANDARD STEEL-RING FLANGES CLASS B*(86 PSI) AND CLASS D+(175-150 PSI)

Unit : mm

Nominal Pipe Size		Outside Diameter of Flange	Inside Diameter of Flange	Diameter of Bolt Circle	Number of Bolts	Diameter of Bolts	Thickness of Flange	
							Class B	Class D
in.	mm	A	B	C			T	T
4	100	228.6	116.1	190.5	8	15.9	15.9	15.9
5	125	254.0	143.8	215.9	8	19.1	15.9	15.9
6	150	279.4	170.7	241.3	8	19.1	17.5	17.5
8	200	342.9	221.5	298.5	8	19.1	17.5	17.5
10	250	406.4	276.4	362.0	12	22.2	17.5	17.5
12	300	482.6	327.2	431.8	12	22.2	17.5	20.6
14	350	533.4	360.4	476.3	12	25.4	17.5	23.8
16	400	596.9	411.2	539.8	16	25.4	17.5	25.4
18	450	635.0	462.0	577.9	16	28.6	17.5	27.0
20	500	698.5	512.8	635.0	20	28.6	17.5	28.6
22	550	749.3	563.6	692.2	20	31.8	19.1	30.2
24	600	812.8	614.4	749.3	20	31.8	19.1	31.8
26	650	870.0	–	806.5	24	31.8	20.6	33.3
28	700	927.1	–	863.6	28	31.8	22.2	33.3
30	750	984.3	–	914.4	28	31.8	22.2	34.9
32	800	1060.5	–	977.9	28	38.1	23.8	38.1
34	850	1111.3	–	1028.7	32	38.1	23.8	38.1
36	900	1168.4	–	1085.9	32	38.1	25.4	41.3
38	950	1238.3	–	1149.4	32	38.1	25.4	41.3
40	1000	1289.1	–	1200.2	36	38.1	25.4	41.3
42	1050	1346.2	–	1257.3	36	38.1	28.6	44.5
44	1100	1403.4	–	1314.5	40	38.1	28.6	44.5
46	1150	1454.2	–	1365.3	40	38.1	28.6	44.5
48	1200	1511.3	–	1422.4	44	38.1	31.8	47.6
50	1250	1568.5	–	1479.6	44	44.5	31.8	50.8
52	1300	1625.6	–	1536.7	44	44.5	31.8	50.8
54	1350	1682.8	–	1593.9	44	44.5	34.9	54.0
60	1500	1854.2	–	1759.0	52	44.5	38.1	57.2
66	1650	2032.0	–	1930.4	52	44.5	41.3	63.5
72	1800	2197.1	–	2095.5	60	44.5	44.5	66.7
78	1950	2362.2	–	2260.6	64	50.8	50.8	69.9
84	2100	2533.7	–	2425.7	64	50.8	50.8	73.0
90	2250	2705.1	–	2590.8	68	57.2	57.2	76.2
96	2400	2876.6	–	2755.9	68	57.2	57.2	82.6
102	2550	3048.0	–	2908.3	72	63.5	63.5	82.6
108	2700	3219.5	–	3067.1	72	63.5	63.5	85.7
114	2850	3390.9	–	3219.5	76	69.9	69.9	88.9
120	3000	3562.4	–	3371.9	76	69.9	69.9	88.9
126	3150	3733.8	–	3537.0	80	76.2	76.2	95.3
132	3300	3905.3	–	3702.1	80	76.2	76.2	98.4
138	3450	4076.7	–	3860.8	84	82.6	82.6	101.6
144	3600	4248.2	–	4019.6	84	82.6	82.6	104.8

Notes :

(1) Ring flanges may be overbored or counterbored to accommodate larger outside-diameter pipe than shown as nominal. This is done to allow a clear inside diameter after cement-mortar lining. Wrench clearance between the pipe OD and bolt circle must be maintained as well as sufficient gasket seating area.

(2) Metric conversion: nominal pipe size: in. x 25 = mm; dimensions: in. x 25.4 = mm; psi x 6.895 = kPa

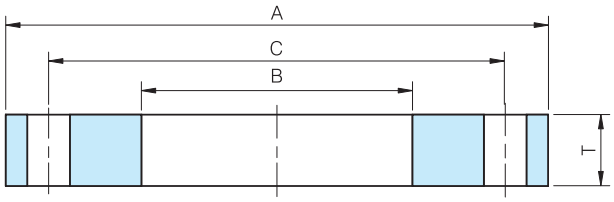
*Pressure rating at atmospheric temperature is 86 psi. These flanges have the same OD and drilling as class 125 cast-iron flanges (ANSI ASME B16.1). In sizes 24 in. and smaller, they also match ANSI/ASME B16.5 150 psi drilling for steel flanges.

+Pressure rating at atmospheric temperature: sizes 4-12 in. inclusive, 175 psi; sizes larger than 12 in., 150 psi. These flanges have the same diameter and drilling as class 125 cast-iron flanges (ANSI/ASME B16.1). In sizes 24 in.and smaller, they also match ANSI/ASME B16.5 150-psi standard for steel flanges.

+The purchaser shall specify the ID of the flange, dimension B, for nominal pipe sizes 26 in. and larger. The diameter of the flange bore shall not exceed the pipe OD by more than 0.19 in.

§ GBolt holes shall be drilled 1/8 in. larger in diameter than the nominal diameter of the bolt except as stated in Sec. 4.2.3.

CLASS E&F SO-RING



AWWA C207-01 STANDARD STEEL-RING FLANGES CLASS E*(275 PSI) AND CLASS F**(300 PSI)

Unit : mm

Nominal Pipe Size		Outside Diameter of Flange		Inside Diameter of Flange		Diameter of Bolt Circle		Number of Bolts		Diameter of Bolts		Thickness of Flange(T)	
		A		B	B	C						T	
in.	mm	CLASS E	CLASS F	CLASS E	CLASS F	CLASS E	CLASS F	CLASS E	CLASS F	CLASS E	CLASS F	CLASS E	CLASS F
4	100	228.6	254.0	116.1	116.1	190.5	200.2	8	8	15.9	19.1	28.6	28.7
5	125	254.0	279.4	143.8	143.8	215.9	235.0	8	8	19.1	19.1	30.2	30.7
6	150	279.4	317.5	170.7	170.9	241.3	269.7	8	12	19.1	19.1	33.4	33.3
8	200	342.9	381.0	221.5	221.7	298.5	330.2	8	12	19.1	22.2	38.1	33.3
10	250	406.4	444.5	276.4	276.4	362.0	387.4	12	16	22.2	25.4	39.7	38.1
12	300	482.6	520.7	327.2	327.2	431.8	450.9	12	16	22.2	28.6	44.5	41.4
14	350	533.4	584.2	360.4	360.4	476.3	514.4	12	20	25.4	28.6	47.6	49.3
16	400	596.9	647.2	411.2	411.2	539.8	571.5	16	20	25.4	31.8	50.8	54.4
18	450	635.0	711.2	462.0	462.0	577.9	628.7	16	24	28.6	31.8	54.0	57.2
20	500	698.5	774.7	512.8	512.8	635.0	685.8	20	24	28.6	31.8	60.3	59.2
22	550	749.3	838.2	563.6	563.6	692.2	743.0	20	24	31.8	31.8	63.5	63.5
24	600	812.8	914.4	614.4	614.4	749.3	812.8	20	24	31.8	38.1	66.7	68.3
26	650	870.0	971.6	–	666.8	806.5	876.3	24	28	31.8	44.5	69.9	76.2
28	700	927.1	1035.1	–	717.6	863.6	939.8	28	28	31.8	44.5	69.9	79.5
30	750	984.3	1092.2	–	768.4	914.4	997.0	28	28	31.8	44.5	73.0	80.0
32	800	1060.5	1149.4	–	819.2	977.9	1054.1	28	28	38.1	44.5	76.2	82.6
34	850	1111.3	1206.5	–	870.0	1028.7	1104.9	32	28	38.1	44.5	76.2	85.9
36	900	1168.4	1270.0	–	920.8	1085.9	1168.4	32	32	38.1	50.8	79.4	87.9
38	950	1238.3	1327.2	–	971.6	1149.4	1219.2	32	32	38.1	50.8	79.4	88.9
40	1000	1289.1	1378.0	–	1022.4	1200.2	1276.4	36	36	38.1	50.8	82.6	92.2
42	1050	1346.2	1447.8	–	1073.2	1257.3	1339.9	36	36	38.1	50.8	85.7	96.8
44	1100	1403.4	1505.0	–	1124.0	1314.5	1397.0	40	36	38.1	50.8	85.7	101.6
46	1150	1454.2	1562.1	–	1174.8	1365.3	1454.2	40	40	38.1	50.8	87.3	104.9
48	1200	1511.3	1651.0	–	1225.6	1422.4	1543.1	44	40	38.1	50.8	88.9	114.3
50	1250	1568.5	–	–	–	1479.6	–	44	–	44.5	–	88.9	–
52	1300	1625.6	–	–	–	1536.7	–	44	–	44.5	–	92.1	–
54	1350	1682.8	–	–	–	1593.9	–	44	–	44.5	–	95.3	–
60	1500	1854.2	–	–	–	1759.0	–	52	–	44.5	–	98.4	–
66	1650	2032.0	–	–	–	1930.4	–	52	–	44.5	–	108.0	–
72	1800	2197.1	–	–	–	2095.5	–	60	–	44.5	–	111.1	–
78	1950	2362.2	–	–	–	2260.6	–	64	–	50.8	–	120.7	–
84	2100	2533.7	–	–	–	2425.7	–	64	–	50.8	–	120.7	–
90	2250	2705.1	–	–	–	2590.8	–	68	–	57.2	–	130.2	–
96	2400	2876.6	–	–	–	2755.9	–	68	–	57.2	–	130.2	–
102	2550	3048.0	–	–	–	2908.3	–	72	–	63.5	–	139.7	–
108	2700	3219.5	–	–	–	3067.1	–	72	–	63.5	–	139.7	–
114	2850	3390.9	–	–	–	3219.5	–	76	–	69.9	–	149.2	–
120	3000	3562.4	–	–	–	3371.9	–	76	–	69.9	–	149.2	–
126	3150	3733.8	–	–	–	3537.0	–	80	–	76.2	–	158.8	–
132	3300	3905.3	–	–	–	3702.1	–	80	–	76.2	–	158.8	–
138	3450	4076.7	–	–	–	3860.8	–	84	–	82.6	–	171.5	–
144	3600	4248.2	–	–	–	4019.6	–	84	–	82.6	–	171.5	–

Notes :

(1) Ring flanges may be overbored or counterbored to accommodate larger outside-diameter pipe than shown as nominal. This is done to allow a clear inside diameter after cement-mortar lining. Wrench clearance between the pipe OD and bolt circle must be maintained as well as sufficient gasket seating area.

(2) Metric conversion: nominal pipe size: in. x 25 = mm; dimensions: in. x 25.4 = mm; psi x 6.895 = kPa

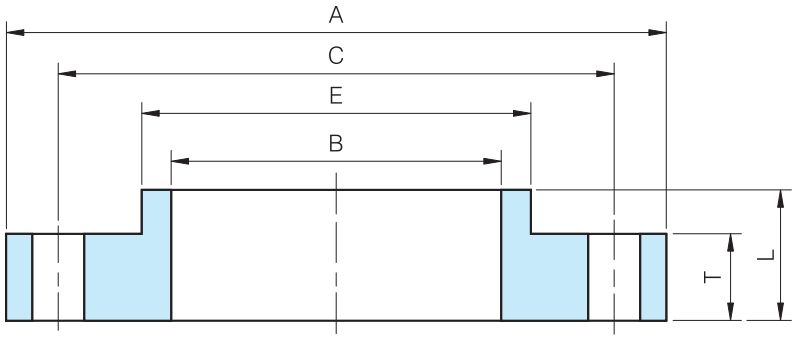
*Pressure rating at atmospheric temperature is 275 psi. These flanges have the same diameter and drilling as ASME B16.1, class 125 cast-iron flanges. In sizes 24 in. and smaller, they also match ASME B16.5, 150 psi standard for steel flanges.

**Pressure rating at atmospheric temperature is 300 psi. These flanges have the same diameter and drilling as ASME B16.2, class 250 cast iron pipe and flanged fittings.

+The purchaser shall specify the ID of the flange, dimension B, for nominal pipe sizes 26 in. and larger. It is recommended that this dimension be 3/it3 in. larger in diameter than the nominal OD of the pipe. (Class E)

§ GBolt holes shall be drilled 1/8 in. larger in diameter than the nominal diameter of the bolt as stated in Sec. 4.2.3.

CLASS D&E SO-HUB



AWWA C207-01 STANDARD STEEL-RING FLANGES CLASS D*(175-150 PSI) AND CLASS E**(275 PSI)

Unit : mm

Nominal Pipe Size		Outside Diameter of Flange	Inside Diameter of Flange	Diameter of Bolt Circle	Number of Bolts	Diameter of Bolts+	Thickness of Flange					
							CLASS D			CLASS E		
in.	mm	A	B	C			T	L	H	T§	L	H
4	100	228.6	116.1	190.5	8	15.9	12.7	22.2	134.9	23.8	33.3	134.9
5	125	254.0	143.8	215.9	8	19.1	14.3	31.8	160.3	23.8	36.5	163.5
6	150	279.4	170.7	241.3	8	19.1	14.3	31.8	192.1	25.4	39.7	192.1
8	200	342.9	221.5	298.5	8	19.1	14.3	31.8	246.1	28.6	44.5	246.1
10	250	406.4	276.4	362.0	12	22.2	17.5	31.8	304.8	30.2	49.2	304.8
12	300	482.6	327.2	431.8	12	22.2	17.5	31.8	365.1	31.8	55.6	365.1
14	350	533.4	360.4	476.3	12	25.4	19.1	31.8	400.1	34.9	57.2	400.1
16	400	596.9	411.2	539.8	16	25.4	19.1	31.8	457.2	36.5	63.5	457.2
18	450	635.0	462.0	577.9	16	28.6	19.1	31.8	504.8	39.7	68.3	504.8
20	500	698.5	512.8	635.0	20	28.6	19.1	31.8	558.8	42.9	73.0	558.8
22	550	749.3	563.6	692.2	20	31.8	25.4	44.5	616.0	46.0	79.4	609.6
24	600	812.8	614.4	749.3	20	31.8	25.4	44.5	663.6	47.6	82.6	663.6
26	650	870.0	665.2	806.5	24	31.8	25.4	44.5	723.9	50.8	85.7	723.9
28	700	927.1	716.0	863.6	28	31.8	25.4	44.5	774.7	52.4	87.3	781.1
30	750	984.3	766.8	914.4	28	31.8	25.4	44.5	825.5	54.0	88.9	831.9
32	800	1060.5	817.6	977.9	28	38.1	28.6	44.5	882.7	57.2	92.1	889.0
34	850	1111.3	868.4	1028.7	32	38.1	28.6	44.5	933.5	58.7	93.7	939.8
36	900	1168.4	919.2	1085.9	32	38.1	28.6	44.5	984.3	60.3	95.3	997.0
38	950	1238.3	970.0	1149.4	32	38.1	28.6	44.5	1035.1	60.3	95.3	1060.5
40	1000	1289.1	1020.8	1200.2	36	38.1	28.6	44.5	1092.2	63.5	98.4	1111.3
42	1050	1346.2	1071.6	1257.3	36	38.1	31.8	44.5	1143.0	66.7	101.6	1168.4
44	1100	1403.4	1122.4	1314.5	40	38.1	31.8	57.2	1193.8	66.7	101.6	1219.2
46	1150	1454.2	1173.2	1365.3	40	38.1	31.8	57.2	1244.6	68.3	103.2	1270.0
48	1200	1511.3	1224.0	1422.4	44	38.1	34.9	63.5	1295.4	69.9	104.8	1327.2
50	1250	1568.5	1274.8	1479.6	44	44.5	34.9	63.5	1346.2	69.9	104.8	1378.0
52	1300	1625.6	1325.6	1536.7	44	44.5	34.9	63.5	1397.0	73.0	108.0	1435.1
54	1350	1682.8	1376.4	1593.9	44	44.5	34.9	63.5	1447.8	76.2	111.1	1492.3
60	1500	1854.2	1528.8	1759.0	52	44.5	38.1	69.9	1600.2	79.4	114.3	1657.4
66	1650	2032.0	1681.2	1930.4	52	44.5	38.1	69.9	1752.6	85.7	123.8	1816.1
72	1800	2197.1	1833.6	2095.5	60	44.5	38.1	69.9	1905.0	88.9	127.0	1993.9
78	1950	2362.2	1986.0	2260.6	64	50.8	44.5	76.2	2063.8	98.4	136.5	2146.3
84	2100	2533.7	2138.4	2425.7	64	50.8	44.5	76.2	2222.5	98.4	136.5	2298.7
90	2250	2705.1	2290.8	2590.8	68	57.2	50.8	82.6	2381.3	108.0	146.1	2457.5
96	2400	2876.6	2443.2	2755.9	68	57.2	50.8	82.6	2540.0	108.0	146.1	2609.9

Notes :

(1) Hub flanges are to be used on pipe that has an OD equal to the nominal pipe size in the first column and shall not be overbored

(2) Metric conversion: nominal pipe size: in. x 25 = mm; dimensions: in. x 25.4 = mm; psi x 6.895 = kPa.

*Pressure rating at atmospheric temperature:sizes 4–12 in. inclusive, 175 psi; sizes larger than 12 in., 150 psi. These Flanges have the diameter and drilling as class 125 cast-iron flanges (ANSI/ASME B16.1). In sizes 24 in. and smaller,they also match ANSI/ASME B16.5 150-psi standard for steel flanges.

**Pressure rating at atmospheric temperature is 275 psi. These flanges have he same diameter and drilling as ASME B16.1, class 125 cast-iron flanges. In sizes 24 in. and smaller, they also match ASME B16.5, 150 psi standard for steel flanges.

+Bolt holes shall be drilled 1/8in. larger in diameter than the nominal diameter of the bolt as stated in Sec.4.2.3.

+Welding neck flanges may be used if desired, at the purchaser's option. (Class E)

§ GThe thickness T of a flange from which the raised face has been removed, shall be no less than Dimension T minus 0.06 in.

BLIND THICKNESS

AWWA C207-01 BLIND FLANGE THICKNESS

Unit : mm

Nominal Pipe Size		Mating Flange ID	Minimum Thickness*			
			Class B	Class D+	Class E	Class F
in.	mm		86psi	175-150psi	275psi	300psi
4	100	116	15.88	15.88	28.58	28.70
5	125	144	15.88	16.51	30.18	30.73
6	150	171	17.48	17.59	33.35	33.27
8	200	221	17.48	20.62	38.10	33.27
10	250	276	17.48	24.21	39.70	38.10
12	300	327	18.26	28.37	44.45	41.40
14	350	360	20.10	28.78	47.63	49.28
16	400	411	22.66	32.13	50.80	54.36
18	450	462	24.13	33.81	53.98	57.15
20	500	513	26.42	36.77	60.33	59.18
22	550	564	28.74	39.83	63.50	63.50
24	600	648	30.89	42.18	66.68	68.53
26	650	699	33.20	45.37	69.85	76.20
28	700	749	35.50	48.40	69.85	79.50
30	750	800	37.53	51.00	73.03	80.42
32	800	851	40.16	54.60	76.20	84.62
34	850	902	42.19	57.21	77.46	88.25
36	900	956	44.48	60.20	81.51	93.25
38	950	1006	47.06	63.66	86.20	96.90
40	1000	1057	49.09	66.28	89.74	101.40
42	1050	1108	51.40	69.32	93.86	105.92
44	1100	1159	53.70	72.36	97.97	110.19
46	1150	1210	55.73	74.99	101.53	114.43
48	1200	1260	58.03	78.03	105.65	121.44
50	1250	1314	60.38	81.17	109.90	–
52	1300	1365	62.69	84.21	114.02	–
54	1350	1416	64.99	87.25	118.14	–
60	1500	1568	71.63	95.97	129.95	–
66	1650	1724	78.53	105.06	142.26	–
72	1800	1876	85.17	113.80	154.08	–

Notes :
(1) All flanges are flat faced.
(2) ASTM A-36 steel used (allowable stress 16,000 psi)
(3) ASTM A-307 Grade B bolts (7,000 psi allowable stress) used for class B and D.
(4) ASTM A-193 Grade B7 bolts (25,000 psi allowable stress) used for class E and F.
(5) For diameters over 48 in., designers should consider using dished heads welded to a standard flange.
*Design Method : ASME Boiler & Pressure Vessel Code, Sec. VIII, Div. 1.
+Class D flanges are rated at 175 psi (1,207 kPa) for nominal pipe size≤12 in. (600 mm), and 150 psi (1,034 kPa) for norminal pipe size 12 in.(600 mm)

AWWA C207-01 SPECIFICATIONS

Steel pipe Flanges for Waterworks Service-Size 4 in. Through 144 in.(100mm through 3.600mm)
-Revision of ANSI/AWWA C207-97

1. MATERIALS

(1) Flanges. Flanges shall be made from seamless forgings, cut from plate as a single piece, welded bar rings, or segmented and welded plates.

1). Forgings. forgings shall meet te the minimum requirements of ASTM A105 or A181.

2). Steel plate or bar. steel plate or bar used in the manufacture of flanges shall meet the following requirements.

1. Tensile strength = 50,000 psi (345 MPa)(min)
2. Yield strength = 32,000 psi (221 Mpa)(min)
3. Carbon (max) = 0.29 percen.
4. Phosphorous (max) = 0.04 percent.
5. Sulfur (max) = 0.05 percent.

The following plate designtions will meet the previously listed requirements :

① ASTM A36.

② ASTM A516, grade 60,65, or 70.

2. TOLERANCES

The dimensions listed in Tables 2 through 7 (following Sec.6.1)
shall apply prior to attachment and subject to the following tolerances:

2.1 Inside diameter of flange	+ 1/16 in. (1.6mm), -0
2.2 Outside diameter of flange	± 1/8 in. (3.2 mm)
2.3 Thickness of flanges 18 in. (450 mm) and smaller	+ 1/8 in. (3.2 mm), -0
2.4 Thickness of flanges 20 in. (500 mm) and larger	+ 3/16 in. (4.8 mm), -0
2.5 Length throught hub 18 in. (450 mm) and smaller	+ 1/8 in. (3.2 mm)
	- 1/32 in. (0.79 mm)
2.6 Length through hub 20 in. (500 mm) and larger	+ 3/16 in. (4.8 mm)
	- 1/16 in. (1.6mm)
2.7 Bolt-circle diameter	± 1/16 in. (1.6 mm)
2.8 Bolt-hole spacing	± 1/32 in. (0.79 mm)

3. FACING

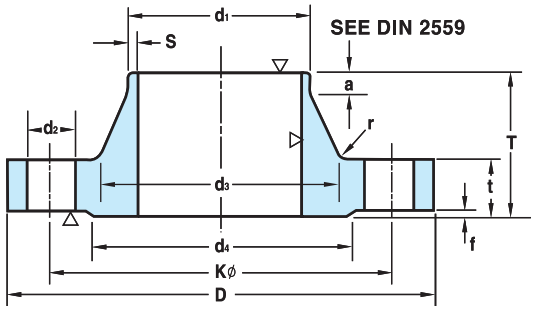
Flanges of all classes shall be flat faced-that is, without projecton or raised face.
Either a serrated concentric or serrated spiral finish having from 24 groovedin.
to 40 groovedin. (0.94 to 2.17 grooves/mm) shall be used.
The cutting tool employed shall have an approximate 0.06 in. (1.52mm) or larger radius.
The resultant surface finish shall have a 250-to 500-pin. (6.35-to 12.7-pm) roughness.

DIN FLANGES

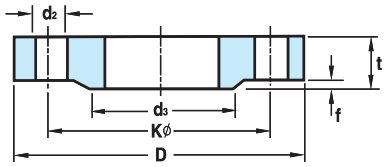
- 6-BAR (DIN 2573, 2527, 2631)
- 10-BAR (DIN 2576, 2527, 2632)
- 16-BAR (DIN 2543, 2527, 2633)
- 25-BAR (DIN 2544, 2527, 2634)
- 40-BAR (DIN 2545, 2527, 2635)

SFF Corp.

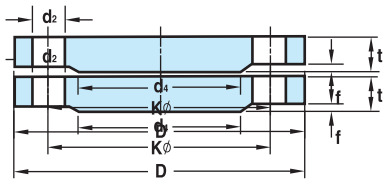
DIN 6BAR



WELDING NECK



SLIP-ON



BLIND

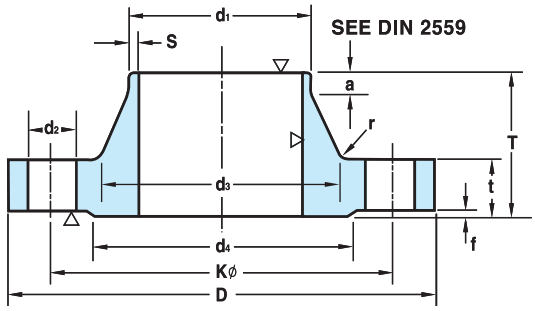
DIN 2573 SLIP – ON FLANGES
DIN 2527 BLIND FLANGES
DIN 2631 WELDING NECK FLANGES

Unit : mm

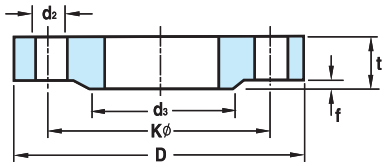
SIZE			Common Dimension						Hub				Radised Face		Drilling				Approx. Weight	
Nomi-nal Bore	d1		D	t			kø	T	d3	s	r	a	d4	f	Num-ber of Bolt	Dia. of Bolt		d2	DIN 2573	DIN 2631
		*		Weld-ing Neck	Slip-on	Blind			* / ANSI											
10	17.2	14	75	12	12	12	50	28	22 / 26	1.8	4	6	35	2	4	M10	–	11	0.363	0.335
15	21.3	20	80	12	12	12	55	30	28 / 30	2	4	6	40	2	4	M10	–	11	0.41	0.392
20	26.9	25	90	14	14	14	65	32	35 / 38	2.3	4	6	50	2	4	M10	–	11	0.6	0.592
25	33.7	30	100	14	14	14	75	35	40 / 42	2.6	4	6	60	2	4	M10	–	11	0.74	0.747
32	42.4	38	120	14	16	14	90	35	50 / 55	2.6	6	6	70	2	4	M12	(1/2")	14	1.19	1.05
40	48.3	44.5	130	14	16	14	100	38	58 / 62	2.6	6	7	80	3	4	M12	(1/2")	14	1.39	1.18
50	60.3	57	140	14	16	14	110	38	70 / 74	2.9	6	8	90	3	4	M12	(1/2")	14	1.53	1.34
65	76.1	–	160	14	16	14	130	38	88	2.9	6	9	110	2	4	M12	(1/2")	14	1.89	1.67
80	88.9	–	190	16	18	16	150	42	102	3.2	8	10	128	3	4	M16	(5/8")	18	2.98	2.71
100	114.3	108	210	16	18	16	170	45	122 / 130	3.6	8	10	148	3	4	M16	(5/8")	18	3.46	3.24
125	139.7	133	240	18	20	18	200	48	148 / 155	4	8	10	178	3	8	M16	(5/8")	18	4.6	4.49
150	168.3	159	265	18	20	18	225	48	172 / 184	4.5	10	12	202	3	8	M16	(5/8")	18	5.22	5.15
200	219.1	–	320	20	22	20	280	55	236	5.9	10	15	258	3	8	M16	(5/8")	18	7.15	7.78
250	273	267	375	22	24	22	335	60	282 / 290	6.3	12	15	312	3	12	M16	(5/8")	18	9.61	10.8
300	323.9	–	440	22	24	22	395	62	342	7.1	12	15	365	4	12	M20	(3/4")	22	12.6	14.0
350	355.6	368	490	22	26	22	445	62	385	7.1	12	15	415	4	12	M20	(3/4")	22	15.6	18.5
400	406.4	419	540	22	28	22	495	65	438	7.1	12	15	465	4	16	M20	(3/4")	22	18.4	21.2
500	508	–	645	24	30	24	600	68	538	7.1	12	15	570	4	20	M20	(3/4")	22	24.5	28.6
600	610	–	755	24	–	–	705	70	640	7.1	12	16	670	5	20	M24	(7/8")	26	–	31.5
700	711	–	860	24	–	–	810	70	740	7.1	12	16	775	5	24	M24	(7/8")	26	–	37.4
800	813	–	975	24	–	–	920	70	842	7.1	12	16	880	5	24	M27	(1")	30	–	46.1
900	914	–	1075	26	–	–	1020	70	942	7.1	12	16	980	5	24	M27	(1")	30	–	55.6
1000	1016	–	1175	26	–	–	1120	70	1045	7.1	16	16	1080	5	28	M27	(1")	30	–	61.9

*Dimensions are only used in Germany

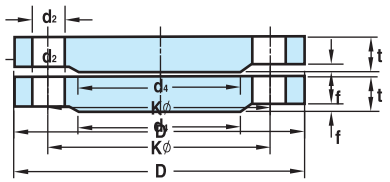
DIN 10BAR



WELDING NECK



SLIP-ON



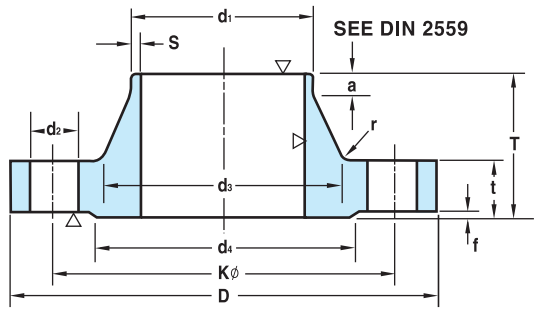
BLIND

DIN 2576 SLIP – ON FLANGES
DIN 2527 BLIND FLANGES
DIN 2632 WELDING NECK FLANGES

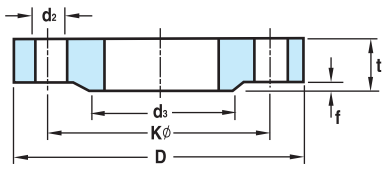
Unit : mm

SIZE			Common Dimension						Hub				Radised Face		Drilling				Approx. Weight	
Nomi-nal Bore	d1		D	t			kø	T	d3	s	r	a	d4	f	Num-ber of Bolt	Dia. of Bolt		d2	DIN 2576	DIN 2632
		*		Weld-ing Neck	Slip-on	Blind			* / ANSI											
10	17.2	14	90	14	14	14	60	35	25 / 28	1.8	4	6	40	2	4	M12	(1/2")	14	0.605	0.58
15	21.3	20	95	14	14	14	65	35	30 / 32	2	4	6	45	2	4	M12	(1/2")	14	0.669	0.648
20	26.9	25	105	16	16	16	75	38	38 / 40	2.3	4	6	58	2	4	M12	(1/2")	14	0.936	0.952
25	33.7	30	115	16	16	16	85	38	42 / 45	2.6	4	6	68	2	4	M12	(1/2")	14	1.11	1.14
32	42.4	38	140	16	16	16	100	40	52 / 56	2.6	6	6	78	2	4	M16	(5/8")	18	1.62	1.69
40	48.3	44.5	150	16	16	16	110	42	60 / 64	2.6	6	7	88	3	4	M16	(5/8")	18	1.86	1.86
50	60.3	57	165	18	18	18	125	45	72 / 75	2.9	6	8	102	3	4	M16	(5/8")	18	2.47	2.53
65	76	–	185	18	18	18	145	45	90	2.9	6	10	122	3	4	M16	(5/8")	18	3	3.06
80	88.9	–	200	20	20	20	160	50	105	3.2	8	10	138	3	8	M16	(5/8")	18	3.79	3.7
100	114.3	108	220	20	20	20	180	52	125 / 131	3.6	8	12	158	3	8	M16	(5/8")	18	4.03	4.62
125	139.7	133	250	22	22	22	210	55	150 / 156	4	8	12	188	3	8	M16	(5/8")	18	5.46	6.3
150	168.3	159	285	22	22	22	240	55	175 / 184	4.5	10	12	212	3	8	M20	(3/4")	22	6.57	7.75
200	219.1	–	340	24	24	24	295	62	235	5.9	10	16	268	3	8	M20	(3/4")	22	9.31	11.3
250	273	267	395	26	26	26	350	68	285 / 292	6.3	12	16	320	3	12	M20	(3/4")	22	11.9	14.7
300	323.9	–	445	26	26	26	400	68	344	7.1	12	16	370	4	12	M20	(3/4")	22	13.8	17.4
350	355.6	368	505	26	28	26	460	68	385	7.1	12	16	430	4	16	M20	(3/4")	22	20.6	23.6
400	406.4	419	565	26	32	26	515	72	440	7.1	12	16	482	4	16	M24	(7/8")	26	27.9	28.6
500	508	–	670	28	38	28	620	75	542	7.1	12	16	585	4	20	M24	(7/8")	26	41.1	38.1
600	610	–	780	28	–	–	725	80	642	7.1	12	18	685	5	20	M27	(1")	30	–	44.6
700	711	–	895	30	–	–	840	80	745	8	12	18	800	5	24	M27	(1")	30	–	62.4
800	813	–	1015	32	–	–	950	90	850	8	12	18	905	5	24	M30	(1 1/8")	33	–	84.1
900	914	–	1115	34	–	–	1050	95	950	10	12	20	1005	5	28	M30	(1 1/8")	33	–	98.5
1000	1016	–	1230	34	–	–	1160	95	1052	10	16	20	1110	5	28	M33	(1 1/8")	36	–	115

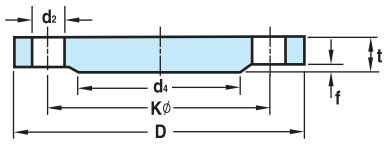
*Dimensions are only used in Germany



WELDING NECK



SLIP-ON



BLIND

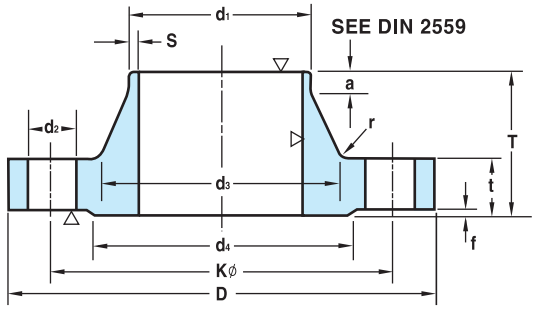
DIN 2543 SLIP – ON FLANGES
DIN 2527 BLIND FLANGES
DIN 2633 WELDING NECK FLANGES

Unit : mm

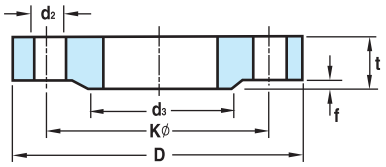
SIZE			Common Dimension						Hub				Radised Face		Drilling				Approx. Weight	
Nominal Bore	d_1	*	D	t Welding Neck	t Slip-on	t Blind	kø	T	d_3 * ANSI	s	r	a	d_4	f	Number of Bolt	Dia. of Bolt		d_2	DIN 2543	DIN 2633
10	17.2	14	90	14	14	14	60	35	25 28	1.8	4	6	40	2	4	M12	(1/2")	14	0.63	0.58
15	21.3	20	95	14	14	14	65	35	30 32	2	4	6	45	2	4	M12	(1/2")	14	0.72	0.648
20	26.9	25	105	16	16	16	75	38	38 40	2.3	4	6	58	2	4	M12	(1/2")	14	1.01	0.952
25	33.7	30	115	16	16	16	85	38	42 45	2.6	4	6	68	2	4	M12	(1/2")	14	1.23	1.14
32	42.4	38	140	16	16	16	100	40	52 56	2.6	6	6	78	2	4	M16	(5/8")	18	1.8	1.69
40	48.3	44.5	150	16	16	16	110	42	60 64	2.6	6	7	88	3	4	M16	(5/8")	18	2.09	1.86
50	60.3	57	165	18	18	18	125	45	72 75	2.9	6	8	102	3	4	M16	(5/8")	18	2.88	2.53
65	76	–	185	18	18	18	145	45	90	2.9	6	10	122	3	4	M16	(5/8")	18	3.66	3.06
80	88.9	–	200	20	20	20	160	50	105	3.2	8	10	138	3	8	M16	(5/8")	18	4.77	3.7
100	114.3	108	220	20	20	20	180	52	125 131	3.6	8	12	158	3	8	M16	(5/8")	18	5.65	4.62
125	139.7	133	250	22	22	22	210	55	150 156	4	8	12	188	3	8	M16	(5/8")	18	8.42	6.3
150	168.3	159	285	22	22	22	240	55	175 184	4.5	10	12	212	3	8	M20	(3/4")	22	10.4	7.75
200	219.1	–	340	24	24	24	295	62	235	5.9	10	16	268	3	12	M20	(3/4")	22	16.1	11
250	273	267	405	26	26	26	355	70	285 292	6.3	12	16	320	3	12	M24	(7/8")	26	24.9	15.6
300	323.9	–	460	28	28	28	410	78	344	7.1	12	16	378	4	12	M24	(7/8")	26	35.1	22
350	355.6	368	520	30	30	30	470	82	390	8	12	16	438	4	16	M24	(7/8")	26	47.8	28.8
400	406.4	419	580	32	32	32	525	85	445	8	12	16	490	4	16	M27	(1")	30	63.5	36.3
500	508	–	715	34	36	36	650	90	548	8	12	16	610	4	20	M30	(1 1/8")	33	102	61.0
600	610	–	840	36	40	–	770	95	652	8.8	12	18	725	5	20	M33	(1 1/4")	36	–	75.4
700	711	–	910	36	–	–	840	100	755	8.8	12	18	795	5	24	M33	(1 1/4")	36	–	77.0
800	813	–	1025	38	–	–	950	105	855	10	12	20	900	5	24	M36	(1 3/8")	39	–	101
900	914	–	1125	40	–	–	1050	110	955	10	12	20	1000	5	28	M36	(1 3/8")	39	–	122
1000	1016	–	1255	42	–	–	1170	120	1058	10	16	22	1115	5	28	M39	(1 1/2")	42	–	162

*Dimensions are only used in Germany

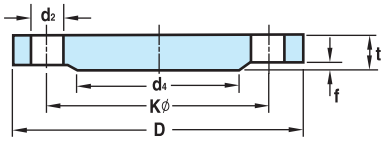
DIN 25BAR



WELDING NECK



SLIP–ON



BLIND

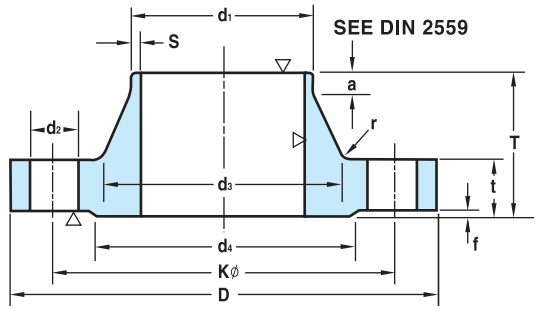
DIN 2544 SLIP – ON FLANGES
DIN 2527 BLIND FLANGES
DIN 2634 WELDING NECK FLANGES

Unit : mm

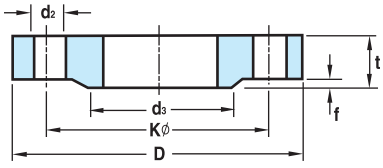
SIZE			Common Dimension						Hub				Radised Face		Drilling				Approx. Weight	
Nomi–nal Bore	d1	*	D	t Weld–ing Neck	t Slip–on	t Blind	kø	T	d3 * / ANSI	s	r	a	d4	f	Num–ber of Bolt	Dia. of Bolt		d2	DIN 2544	DIN 2634
10	17.2	14	90	16	16	16	60	35	25 / 28	1.8	4	6	40	2	4	M12	(1/2")	14	0.72	0.661
15	21.3	20	95	16	16	16	65	38	30 / 32	2	4	6	45	2	4	M12	(1/2")	14	0.81	0.746
20	26.9	25	105	18	18	18	75	40	38 / 40	2.3	4	6	58	2	4	M12	(1/2")	14	1.24	1.06
25	33.7	30	115	18	18	18	85	40	42 / 46	2.6	4	6	68	2	4	M12	(1/2")	14	1.38	1.29
32	42.4	38	140	18	18	18	100	42	52 / 56	2.6	6	6	78	2	4	M16	(5/8")	18	2.03	1.88
40	48.3	44.5	150	18	18	18	110	45	60 / 64	2.6	6	7	88	3	4	M16	(5/8")	18	2.35	2.33
50	60.3	57	165	20	20	20	125	48	72 / 75	2.9	6	8	102	3	4	M16	(5/8")	18	3.2	2.82
65	76	–	185	22	22	22	145	52	90	2.9	6	10	122	3	8	M16	(5/8")	18	4.29	3.74
80	88.9	–	200	24	24	24	160	58	105	3.2	8	12	138	3	8	M16	(5/8")	18	5.88	4.75
100	114.3	108	235	24	24	24	190	65	128 / 134	3.6	8	12	162	3	8	M20	(3/4")	22	7.54	6.52
125	139.7	133	270	26	26	26	220	68	155 / 162	4	8	12	188	3	8	M24	(7/8")	26	10.8	9.07
150	168.3	159	300	28	28	28	250	75	182 / 192	4.5	10	12	218	3	8	M24	(7/8")	26	14.5	11.8
200	219.1	–	360	30	30	30	310	80	244	6.3	10	16	278	3	12	M24	(7/8")	26	22.3	17.0
250	273	267	425	32	32	32	370	88	292 / 298	7.1	12	18	335	3	12	M27	(1")	30	33.5	24.4
300	323.9	–	485	34	34	34	430	92	352	8	12	18	395	4	16	M27	(1")	30	46.3	31.2
350	355.6	368	555	38	38	38	490	100	398	8	12	20	450	4	16	M30	(1 1/4")	33	68	47.2
400	406.4	419	620	40	40	40	550	110	452	8.8	12	20	505	4	16	M33	(1 1/4")	36	89.7	61.7
500	508	–	730	44	44	45	660	125	558	10	12	20	615	4	20	M33	(1 1/4")	36	138	89.6
600	610	–	845	46	–	–	770	125	660	11	12	20	720	5	20	M36	(1 3/8")	39	–	104
700	711	–	960	46	–	–	875	125	760	12.5	12	20	820	5	24	M39	(1 1/2")	42	–	136
800	813	–	1085	50	–	–	990	135	865	14.2	12	22	930	5	24	M45	(1 3/4")	48	–	186
900	914	–	1185	54	–	–	1090	145	968	16	12	24	1030	5	28	M45	(1 3/4")	48	–	236
1000	1016	–	1320	58	–	–	1210	155	1070	17.5	16	24	1140	5	28	M52	(2")	56	–	307

*Dimensions are only used in Germany

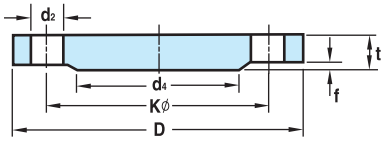
DIN 40BAR



WELDING NECK



SLIP–ON



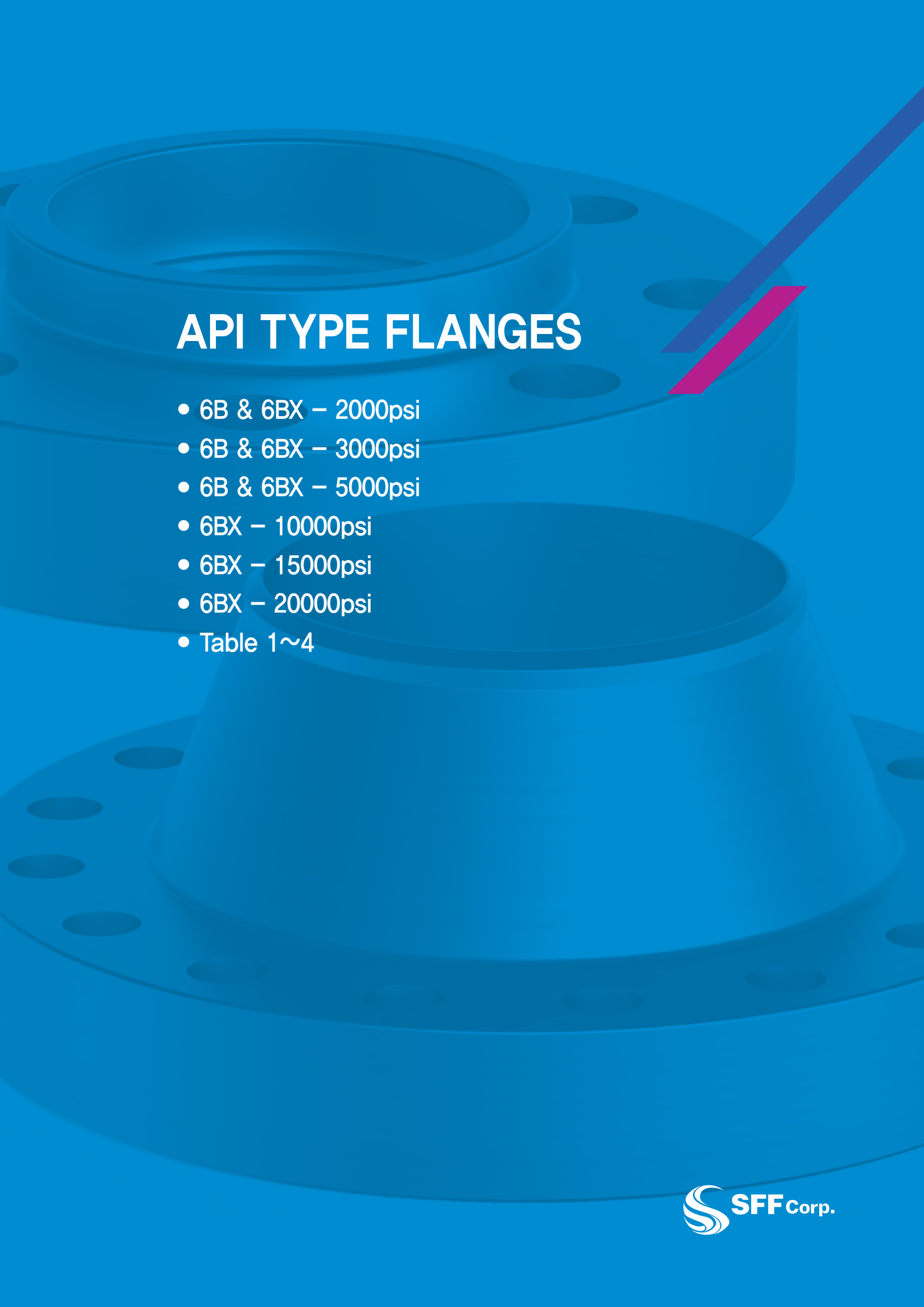
BLIND

DIN 2545 SLIP – ON FLANGES
DIN 2527 BLIND FLANGES
DIN 2635 WELDING NECK FLANGES

Unit : mm

SIZE			Common Dimension						Hub				Radised Face		Drilling				Approx. Weight	
Nomi–nal Bore	d_1	*	D	t Weld–ing Neck	t Slip–on	t Blind	kø	T	d_3 * ANSI	s	r	a	d_4	f	Num–ber of Bolt	Dia. of Bolt		d_2	DIN 2545	DIN 2635
10	17.2	14	90	16	16	16	60	35	25 28	1.8	4	6	40	2	4	M12	(1/2")	14	0.72	0.661
15	21.3	20	95	16	16	16	65	38	30 32	2	4	6	45	2	4	M12	(1/2")	14	0.81	0.746
20	26.9	25	105	18	18	18	75	40	38 40	2.3	4	6	58	2	4	M12	(1/2")	14	1.24	1.06
25	33.7	30	115	18	18	18	85	40	42 46	2.6	4	6	68	2	4	M12	(1/2")	14	1.38	1.29
32	42.4	38	140	18	18	18	100	42	52 56	2.6	6	6	78	2	4	M16	(5/8")	18	2.03	1.88
40	48.3	44.5	150	18	18	18	110	45	60 64	2.6	6	7	88	3	4	M16	(5/8")	18	2.35	2.33
50	60.3	57	165	20	20	20	125	48	72 75	2.9	6	8	102	3	4	M16	(5/8")	18	3.2	2.82
65	76	–	185	22	22	22	145	52	90	2.9	6	10	122	3	8	M16	(5/8")	18	4.29	3.74
80	88.9	–	200	24	24	24	160	58	105	3.2	8	12	138	3	8	M16	(5/8")	18	5.88	4.75
100	114.3	108	235	24	24	24	190	65	128 134	3.6	8	12	162	3	8	M20	(3/4")	22	7.54	6.52
125	139.7	133	270	26	26	26	220	68	155 162	4	8	12	188	3	8	M24	(7/8")	26	10.8	9.07
150	168.3	159	300	28	28	28	250	75	182 192	4.5	10	12	218	3	8	M24	(7/8")	26	14.5	11.8
	193.7	–	350	32	32	32	295	82	218	5.6	10	15	260	3	12	M27	(1")	30	22.1	18.2
200	219.1	–	375	34	34	34	320	88	244	6.3	10	16	285	3	12	M27	(1")	30	27.2	21.5
250	273	267	450	38	38	38	385	105	298 306	7.1	12	18	345	3	12	M30	(1 1/8")	33	43.8	34.9
300	323.9	–	515	42	42	42	450	115	362	8	12	18	410	4	16	M30	(1 1/8")	33	63.3	49.7
350	355.6	368	580	46	46	46	510	125	408	8.8	12	20	465	4	16	M33	(1 1/4")	36	89.5	68.1
400	406.4	419	660	50	50	50	585	135	462	11	12	20	535	4	16	M36	(1 3/8")	39	127	96.5
500	508	–	755	52	52	56	670	140	562	14.2	12	20	615	4	20	M39	(1 1/2")	42	172	117

*Dimensions are only used in Germany



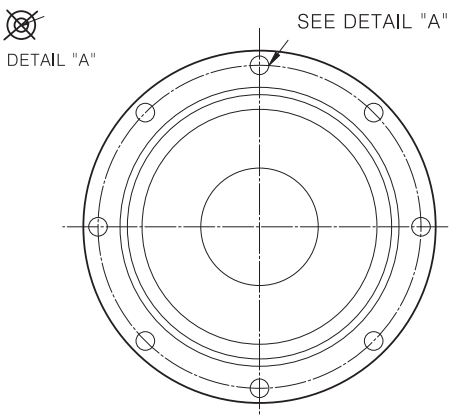
API TYPE FLANGES

- 6B & 6BX – 2000psi
- 6B & 6BX – 3000psi
- 6B & 6BX – 5000psi
- 6BX – 10000psi
- 6BX – 15000psi
- 6BX – 20000psi
- Table 1~4

SFF Corp.

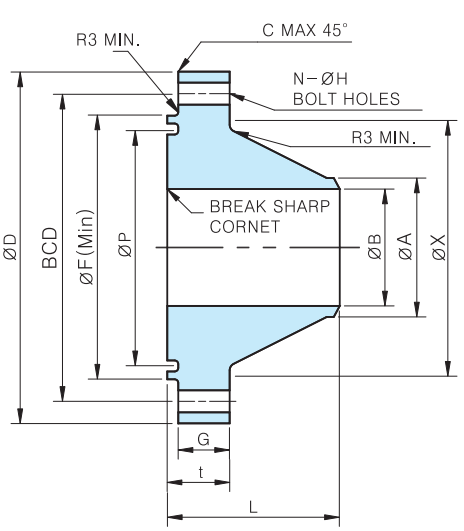
TYPE 6B & 6BX 2000PSI

BOLT HOLE CENTERLINE LOCATED
WITHIN 0.03 OF THEORETICAL
B.C. AND EQUAL SPACING



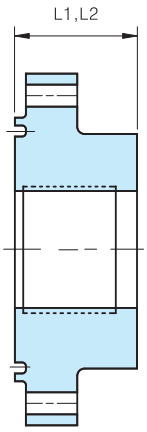
RING GROOVE MUST BE CONCENTRIC
WITH BORE WITHIN 0.010 TOTAL
INDICATOR RUNOUT

*Outside Diametr (D) TOLERANCE
−2 1/16~5 1/8 : ±1.52
−7 1/16~30 : ±3.05
*BOLT HOLE TOLERANCE (H)
−2 1/16~13 5/8: +1.52~−0.51
−16 3/4~30 : +2.29~−0.51
*Neck Diameter Welding Neck(A) TOLERANCE
−2 1/16~4 1/16 : +2.29~−0.76
−5 1/8 ; +2.29~−2.03
−7 1/16~11 : +4.06~−0.76



Welding Neck
Line Pipe Flange

*Large Diameer of Hub(X) TOLERANCE
−26 3/4~30 : +0~−3.05
*Total Thickness(t) TOLERANCE
−±3.05, −0
*Hub Length Welding Neck(L) TOLERANCE
−±1.52



*L1:Hub length Threaded
Line Pipe flange

*L2:Hub Length Threaded
Casting flange

Threaded Flange

*Neck Diameter Welding Neck(A) TOLERANCE
−2 1/16~4 1/16: +2.29~−0.76
−5 1/8 : +2.29~−2.03
−7 1/16~11 : +4.06~−0.76
−26 3/4~30 : +0~3.05

2000#

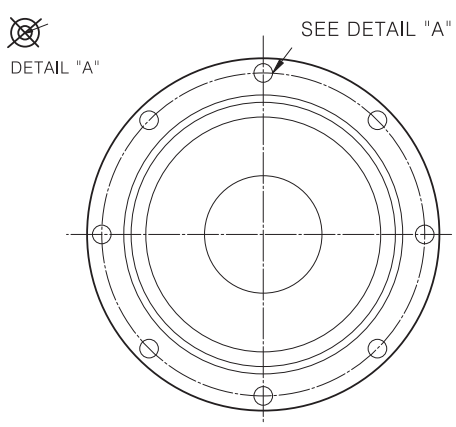
Unit : mm

Nominal Size & Bore of Flange	Outside Diam.	Max. Chamfer	Max. Bore	Diam of Raised Face	Total Thick.	Basic Thick.	Diam. of Hub	Neck Dia. of W.N	Hub Length of W.N	Hub Length	Hub Length	Pitch of Diam.	Diam. of Bolt Circle	Num. of Bolt	Diam. of Bolt Holes	Ring No. (R or RX)	Ring No. (BX)
	D	C	B	F	t	G	X	A	L	L_1	L_2	P		N	H		
2 1/6	165.10	3.0	53.09	107.95	33.27	25.40	84.07	60.45	81.03	44.45	–	82.55	127.00	8	19.05	23	–
2 9/16	190.50	3.0	65.79	127.00	36.58	28.45	100.08	73.15	87.38	49.28	–	101.60	149.35	8	22.35	26	–
3 1/8	209.55	3.0	81.79	146.05	39.62	31.75	117.35	88.90	90.42	53.85	–	123.83	168.15	8	22.35	31	–
4 1/16	273.05	3.0	108.71	174.75	45.97	38.10	152.40	114.30	109.47	61.98	88.90	149.23	215.90	8	25.40	37	–
5 1/8	330.20	3.0	131.06	209.55	52.32	44.45	188.98	141.22	122.17	68.33	101.60	180.98	266.70	8	28.45	41	–
7 1/16	355.60	6.4	181.86	241.30	55.63	47.75	222.25	168.40	125.48	74.68	114.30	211.15	292.10	12	28.45	45	–
9	419.10	6.4	229.36	301.75	63.50	55.63	273.05	219.20	141.22	84.07	127.00	269.88	349.25	12	31.75	49	–
11	508.00	6.4	280.16	355.60	71.37	63.50	342.90	273.05	160.27	93.73	133.35	323.85	431.80	16	35.05	53	–
13 5/8	558.80	6.4	346.96	412.75	74.68	66.55	400.05	–	–	100.08	100.08	381.00	488.95	20	35.05	57	–
16 3/4	685.80	6.4	426.21	508.00	84.07	76.20	495.30	–	–	114.30	114.30	469.90	603.25	20	41.15	65	–
21 1/4	812.80	6.4	540.51	635.00	98.55	88.90	609.60	–	–	136.65	136.65	584.20	723.90	24	44.45	73	–
26 3/4	1041.40	6.4	680.21	804.93	126.24	104.90	835.91	742.95	318.26	–	–	756.87	952.50	20	47.75	–	167
30	1122.43	6.4	762.76	908.05	134.11	111.50	931.93	833.12	337.31	–	–	848.61	1039.88	32	44.45	–	303

*Total Thickness of Flange and Minimum Length of Hub

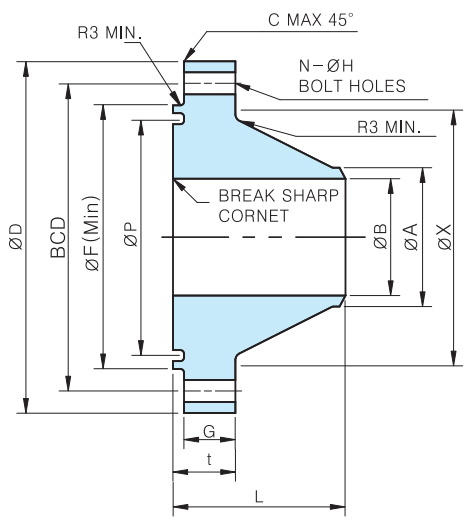
TYPE 6B & 6BX 3000PSI

BOLT HOLE CENTERLINE LOCATED
WITHIN 0.03 OF THEORETICAL
B.C. AND EQUAL SPACING



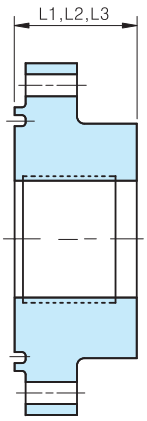
RING GROOVE MUST BE CONCENTRIC
WITH BORE WITHIN 0.010 TOTAL
INDICATOR RUNOUT

*Outside Diametr (D) TOLERANCE
−2 1/16~5 1/8 : ±1.52
−7 1/16~30 : ±3.05
*BOLT HOLE TOLERANCE (H)
−2 1/16~13 5/8: +1.52~−0.51
−16 3/4~30 : +2.29~−0.51
*Neck Diameter Welding Neck(A) TOLERANCE
−2 1/16~4 1/16 : +2.29~−0.76
−5 1/8 ; +2.29~−2.03
−7 1/16~11 : +4.06~−0.76



Welding Neck
Line Pipe Flange

*Large Diameer of Hub(X) TOLERANCE
*Total Thickness(t) TOLERANCE
− ±3.05, −0
*Hub Length Welding Neck(L) TOLERANCE
− ±1.52



*L1:Hub length Threaded
Line Pipe Flange
*L2:Hub Length Threaded
Casting Flange
*L3:Hub Length Tubir
Flange

Threaded Flange

*Neck Diameter Welding Neck(A) TOLERANCE
−2 1/16~4 1/16: +2.29~−0.76
−5 1/8 : +2.29~−2.03
−7 1/16~11 : +4.06~−0.76
−26 3/4~30 : +0~3.05

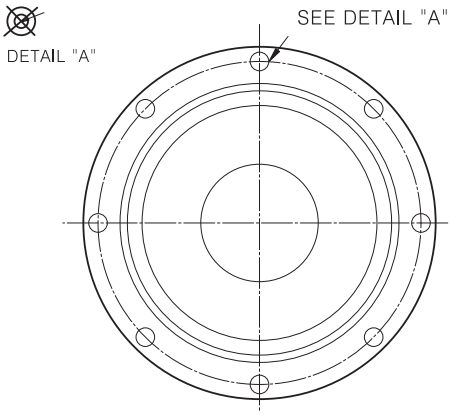
3000#

Unit : mm

Nominal Size & Bore of Flange	Outside Diam.	Max. Chamfer	Max. Bore	Diam of Raised Face	Total Thick.	Basic Thick.	Diam. of Hub	Neck Dia. of W.N	Hub Length of W.N	Hub Length	Hub Length	Hub Length	Pitch of Diam.	Diam. of Bolt Circle	Num. of Bolt	Diam. of Bolt Holes	Ring No. (R or RX)	Ring No. (BX)
	D	C	B	F	t	G	X	A	L	L_1	L_2	L_3	P		N	H		
2 1/16	215.90	3.0	53.09	123.95	45.97	38.10	104.65	60.45	109.47	65.02	–	65.02	95.25	165.10	8	25.40	24	–
2 9/16	244.35	3.0	65.79	136.65	49.28	41.15	123.95	73.15	112.78	71.37	–	71.37	107.95	190.50	8	28.45	27	–
3 1/8	241.30	3.0	81.79	155.45	45.97	38.10	127.0	88.90	109.47	61.98	–	74.68	123.83	190.50	8	25.40	31	–
4 1/16	292.10	3.0	108.71	180.85	52.32	44.45	158.75	114.30	122.17	77.72	88.90	88.90	149.23	234.95	8	31.75	37	–
5 1/8	349.25	3.0	131.06	215.90	58.67	50.80	190.50	141.22	134.87	87.38	101.60	–	180.98	279.40	8	35.05	41	–
7 1/16	381.00	6.4	181.86	241.30	63.50	55.63	234.95	168.40	147.57	93.73	114.30	–	211.15	317.50	12	31.75	45	–
9	469.90	6.4	229.36	307.85	71.37	63.50	298.45	219.20	169.93	109.47	127.00	–	269.88	393.70	12	38.10	49	–
11	546.10	6.4	280.16	361.95	77.72	69.85	368.30	273.05	192.02	115.82	133.35	–	323.85	469.90	16	38.10	53	–
13 5/8	609.60	6.4	346.96	419.10	87.38	79.25	419.10	–	–	125.48	125.48	–	381.00	533.40	20	38.10	57	–
16 3/4	704.85	6.4	426.21	523.75	100.08	88.90	508.00	–	–	128.52	144.53	–	469.90	615.95	20	44.45	66	–
21 1/4	857.25	6.4	527.81	647.70	120.65	107.95	622.30	–	–	171.45	171.45	–	584.20	749.30	20	53.85	74	–
26 3/4	1101.85	6.4	680.21	831.85	161.04	139.70	869.95	776.22	353.06	–	–	–	761.29	1000.25	24	53.85	–	168
30	1185.67	6.4	762.76	922.27	167.13	144.53	970.03	871.22	370.33	–	–	–	848.61	1090.68	32	50.80	–	303

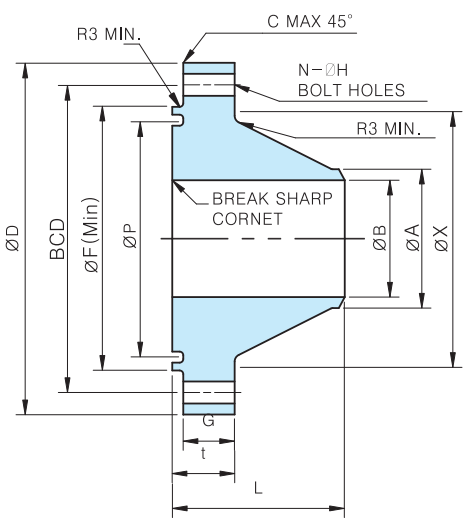
TYPE 6B & 6BX 5000PSI

BOLT HOLE CENTERLINE LOCATED
WITHIN 0.03 OF THEORETICAL
B.C. AND EQUAL SPACING



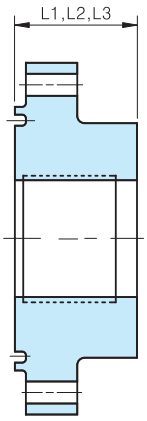
RING GROOVE MUST BE CONCENTRIC
WITH BORE WITHIN 0.010 TOTAL
INDICATOR RUNOUT

*Outside Diametr (D) TOLERANCE
−2 1/16~5 1/8 : ±1.52
−7 1/16~30 : ±3.05
*BOLT HOLE TOLERANCE (H)
−2 1/16~13 5/8: +1.52~−0.51
−16 3/4~30 : +2.29~−0.51
*Neck Diameter Welding Neck(A) TOLERANCE
−2 1/16~4 1/16 : +2.29~−0.76
−5 1/8 ; +2.29~−2.03
−7 1/16~11 : +4.06~−0.76



Welding Neck
Line Pipe Flange

*Large Diameer of Hub(X) TOLERANCE
*Total Thickness(t) TOLERANCE
− ±3.05, −0
*Hub Length Welding Neck(L) TOLERANCE
− ±1.52



*L1:Hub length Threaded
Line Pipe flange

*L2:Hub Length Threaded
Casting flange

Threaded Flange

*Neck Diameter Welding Neck(A) TOLERANCE
−2 1/16~4 1/16: +2.29~−0.76
−5 1/8 : +2.29~−2.03
−7 1/16~11 : +4.06~−0.76
−26 3/4~30 : +0~3.05

5000#

Unit : mm

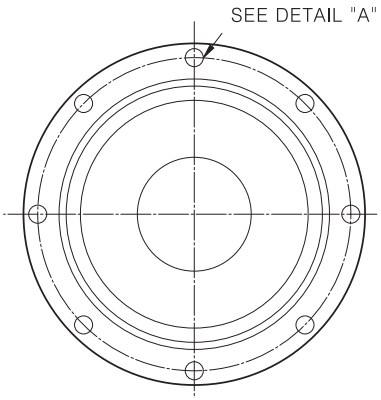
Nominal Size & Bore of Flange	Outside Diam.	Max. Chamfer	Max. Bore	Diam of Raised Face	Total Thick.	Basic Thick.	Diam. of Hub	Neck Dia. of W.N	Hub Length of W.N	Hub Length	Hub Length	Hub Length	Pitch of Diam.	Diam. of Bolt Circle	Num. of Bolt	Diam. of Bolt Holes	−Ring No. (R or RX)	Ring No. (BX)
	D	C	B	F	t	G	X	A	L	L_1	L_2	L_3	P		N	H		
2 1/6	215.90	3.0	53.09	123.95	45.97	38.10	104.65	60.45	109.47	65.02	–	65.02	95.25	165.10	8	25.40	24	–
2 9/16	244.35	3.0	65.79	136.65	49.28	41.15	123.95	73.15	112.78	71.37	–	71.37	107.95	190.50	8	28.45	27	–
3 1/8	266.70	3.0	81.79	168.15	55.63	47.75	133.35	88.90	125.48	81.03	–	81.03	136.53	203.20	8	31.75	35	–
4 1/16	311.15	3.0	108.71	193.55	61.98	53.85	162.05	114.30	131.83	98.55	98.55	98.55	161.93	241.30	8	35.05	39	–
5 1/8	374.65	3.0	131.06	228.60	81.03	73.15	196.85	141.22	163.58	112.78	112.78	–	193.68	292.10	8	41.15	44	–
7 1/16	393.70	6.4	181.86	247.65	91.95	82.55	228.60	168.40	181.10	128.52	128.52	–	211.15	317.50	12	38.10	46	–
9	482.60	6.4	229.36	317.50	103.12	91.95	292.10	219.20	223.77	153.92	153.92	–	269.88	393.70	12	44.45	50	–
11	584.20	6.4	280.16	371.60	119.13	107.95	368.30	273.05	265.18	169.93	169.93	–	323.85	482.60	12	50.80	54	–
13 5/8	673.10	6.4	346.96	457.20	112.78	98.55	481.08	423.93	233.43	–	–	–	398.02	590.55	16	44.45	–	160
16 3/4	771.65	6.4	426.21	534.92	130.30	121.92	555.75	527.05	212.85	–	–	–	469.38	676.15	16	50.80	–	162
15 3/4	904.75	6.4	477.01	627.13	165.86	147.57	674.62	598.42	324.61	–	–	–	550.72	803.15	20	53.85	–	163
21 1/4	990.60	6.4	540.51	701.55	180.85	161.80	758.95	679.45	352.30	–	–	–	618.96	885.95	24	53.85	–	165

*Total Thickness of Flange and Minimum Length of Hub

TYPE 6BX 10000PSI

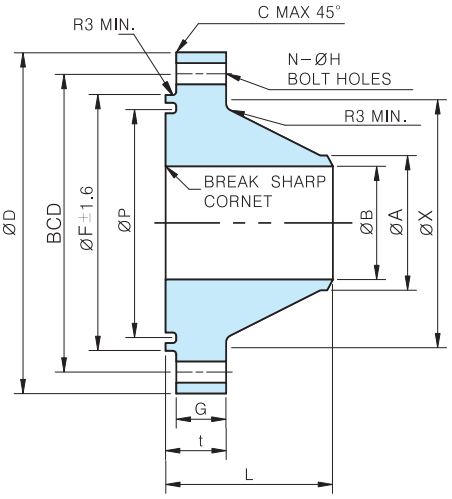
BOLT HOLE CENTERLINE LOCATED
WITHIN 0.03 OF THEORETICAL
B.C. AND EQUAL SPACING

DETAIL "A"



B TO RING GROOVE MUST BE CONCENTRIC
WITHIN 0.010 TOTAL INDICATOR RUNOUT

*Outside Diameter(ØD) TOLERANCE
–1 13/16~5 1/8 : ±1.52
–7 1/16~21 1/4 : ±3.05
*BOLT HOLE TOLERANCE(ØH)
–1 13/16~5 1/8 : +1.52~–0.51
–7 1/16~21 1/4 : +2.29~–0.51



*Total Thickness(t) TOLERANCE
– ±3.05, –0
*Hub Length Welding Neck(L TOLERANCE
– +0., –3.05
*Large diameter of Hub(X) TOLERANCE
– +0, –3.05
*Total Thickness(t) TOLERANCE
– +3.05, –0

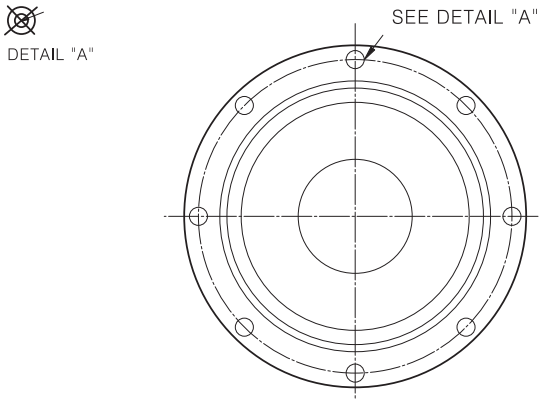
10000#

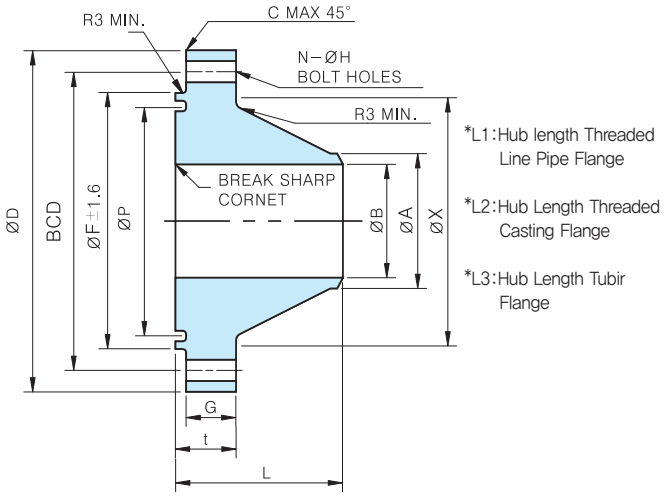
Unit : mm

Nominal Size & Bore of Flange	Outside Diam.	Max. Bore	Max. Chamfer	Diam of Raised Face	Total Thick.	Diam. of Hub	Neck Dia. of W.N	Hub Length of W.N	Pitch of Diam.	Diam. of Bolt Circle	Num. of Bolt	Diam. of Bolt Holes	Ring No. (BX)Ring No. (BX)
	D	B	C	F	T	X	A	L	P		N	H	
1 13/16	187.45	46.74	3.0	104.65	42.16	88.90	65.02	97.03	71.86	146.05	8	22.35	151
2 1/16	200.15	53.09	3.0	111.25	43.94	100.08	74.68	101.85	79.91	158.75	8	22.35	152
2 9/16	231.65	65.79	3.0	131.83	51.31	120.65	91.95	114.81	95.73	184.15	8	25.40	153
3 1/16	269.75	78.49	3.0	152.40	58.42	141.99	110.24	128.27	111.30	215.90	8	28.45	154
4 1/16	315.98	103.89	3.0	184.91	70.36	182.63	146.05	149.86	141.76	258.83	8	31.75	155
7 1/16	357.12	131.06	3.0	220.73	79.25	223.77	182.63	166.62	168.20	299.97	12	31.75	169
9	479.55	180.09	6.4	301.75	103.12	301.75	254.00	204.72	230.14	403.35	12	41.15	156
11	552.45	229.36	6.4	358.65	123.95	374.65	327.15	224.03	285.86	476.25	16	41.15	157
13 5/8	654.05	280.16	6.4	428.75	141.22	450.85	400.05	250.70	342.63	565.15	16	47.75	158
16 3/4	871.47	426.21	6.4	576.33	168.15	655.57	601.73	250.70	469.38	776.22	24	50.80	162
18 3/4	1039.88	477.01	6.4	696.98	223.01	752.35	674.62	384.81	561.52	925.58	24	60.45	164
13 5/8	1143.00	540.51	6.4	781.05	241.30	847.85	762.00	412.75	630.44	1022.35	24	66.55	166

TYPE 6BX 15000PSI

BOLT HOLE CENTERLINE LOCATED
WITHIN 0.03 OF THEORETICAL
B.C. AND EQUAL SPACING





*L1:Hub length Threaded Line Pipe Flange

*L2:Hub Length Threaded Casting Flange

*L3:Hub Length Tubir Flange

B TO RING GROOVE MUST BE CONCENTRIC
WITHIN 0.010 TOTAL INDICATOR RUNOUT

*Outside Diameter(ØD) TOLERANCE
–1 13/16~5 1/8 : ±1.52
–7 1/16~21 1/4 : ±3.05
*BOLT HOLE TOLERANCE(ØH)
–1 13/16~5 1/8 : +1.52~–0.51
–7 1/16~21 1/4 : +2.29~–0.51

*Total Thickness(t) TOLERANCE
– ±3.05, –0
*Hub Length Welding Neck(L TOLERANCE
– +0., –3.05
*Large diameter of Hub(X) TOLERANCE
– +0, –3.05
*Total Thickness(t) TOLERANCE
– +3.05, –0

15000#

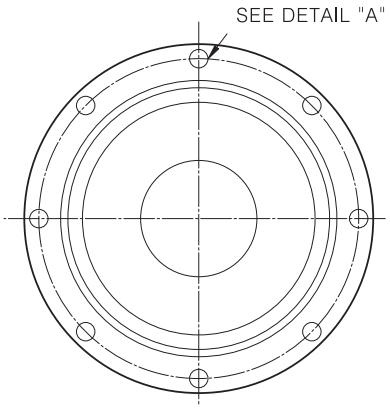
Unit : mm

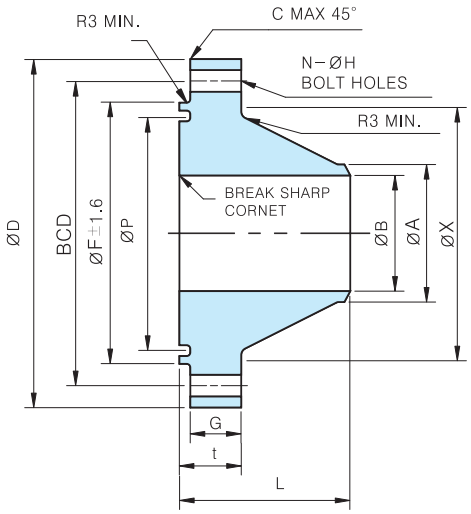
Nominal Size & Bore of Flange	Outside Diam.	Max. Chamfer	Max. Bore	Diam of Raised Face	Total Thick.	Diam. of Hub	Neck Dia. of W.N	Hub Length of W.N	Pitch of Diam.	Diam. of Bolt Circle	Num. of Bolt	Diam. of Bolt Holes	Ring No. (BX)Ring No. (BX)
	D	C	B	F	T	X	A	L	P		N	H	
1 13/16	208.03	3.0	46.74	106.43	45.21	97.54	71.37	99.31	71.86	160.27	8	25.40	151
2 1/16	222.25	3.0	53.09	114.30	50.80	111.25	82.55	111.00	79.91	174.75	8	25.40	152
2 9/16	254.00	3.0	65.79	133.35	57.15	128.52	100.08	120.65	95.73	200.15	8	28.45	153
3 1/16	287.27	3.0	78.49	153.92	64.26	153.92	122.17	134.11	111.30	230.12	8	31.75	154
4 1/16	360.43	3.0	103.89	193.55	78.49	195.33	158.75	157.99	141.76	290.58	8	38.10	155
5 1/8	419.10	3.0	131.06	225.55	98.55	244.35	200.15	186.69	168.20	342.90	12	41.15	169
7 1/16	504.95	6.4	180.09	304.80	119.13	325.37	276.35	192.02	230.14	428.75	16	41.15	156
9	647.70	6.4	229.36	381.00	146.05	431.80	349.25	276.35	285.86	552.45	16	50.80	157
11	812.80	6.4	280.16	454.15	187.45	584.20	426.97	429.51	342.63	711.20	20	53.85	158
13 5/8	885.95	6.4	346.96	541.27	204.72	595.38	528.57	325.37	416.39	771.65	20	60.45	159
18 3/4	1162.05	6.4	477.01	722.38	255.52	812.80	730.25	417.32	561.52	1016.00	20	79.25	164

TYPE 6BX 20000PSI

BOLT HOLE CENTERLINE LOCATED
WITHIN 0.03 OF THEORETICAL
B.C. AND EQUAL SPACING

DETAIL "A"





B TO RING GROOVE MUST BE CONCENTRIC
WITHIN 0.010 TOTAL INDICATOR RUNOUT

*Outside Diameter(ØD) TOLERANCE
–1 13/16~5 1/8 : ±1.52
–7 1/16~21 1/4 : ±3.05
*BOLT HOLE TOLERANCE(ØH)
–1 13/16~5 1/8 : +1.52~–0.51
–7 1/16~21 1/4 : +2.29~–0.51

*Total Thickness(t) TOLERANCE
– ±3.05, –0
*Hub Length Welding Neck(L TOLERANCE
– +0., –3.05
*Large diameter of Hub(X) TOLERANCE
– +0, –3.05
*Total Thickness(t) TOLERANCE
– +3.05, –0

20000#

Unit : mm

Nominal Size & Bore of Flange	Outside Diam.	Max. Chamfer	Max. Bore	Diam of Raised Face	Total Thick.	Diam. of Hub	Neck Dia. of W.N	Hub Length of W.N	Pitch of Diam.	Diam. of Bolt Circle	Num. of Bolt	Diam. of Bolt Holes	Ring No. (BX)Ring No. (BX)
	D	C	B	F	T	X	A	L	P		N	H	
1 13/16	257.05	3.0	46.74	117.35	63.50	133.35	109.47	119.13	71.86	203.20	8	28.45	151
2 1/16	287.27	3.0	53.09	131.83	71.37	153.92	127.00	130.05	79.91	230.12	8	31.75	152
2 9/16	325.37	3.0	65.78	150.88	79.25	172.97	144.53	144.27	95.73	261.87	8	35.05	153
3 1/16	357.12	3.0	78.49	171.45	85.85	192.02	160.27	155.70	111.30	287.27	8	38.10	154
4 1/16	446.02	3.0	103.89	218.95	106.43	242.82	206.25	185.93	141.76	357.12	8	47.75	155
7 1/16	655.57	6.4	180.09	352.55	165.10	385.83	338.07	268.22	230.14	553.97	16	53.85	156
9	804.93	6.4	229.36	441.45	204.72	481.08	428.75	319.02	285.86	685.80	16	66.55	157
11	882.65	6.4	280.16	504.95	223.77	566.67	508.00	333.25	342.63	749.30	16	73.15	158
13 5/8	1162.05	6.4	346.96	614.43	292.10	693.67	628.65	431.80	416.39	1016.00	20	79.25	159

TABLE 1

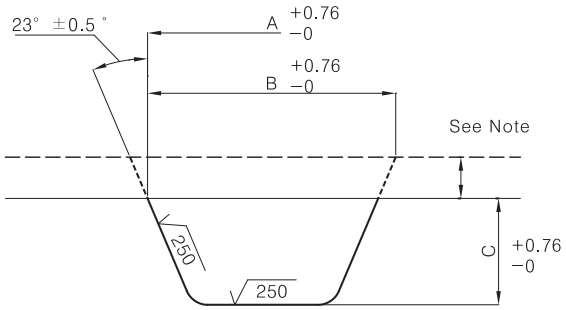


TABLE 1. ROUGH MACHING DETAIL FOR CORROSION RESISTANT API RING GROOVE

(1)	(2)	(3)	(4)
Ring Number	Outside Diameter of Groove	Width of Groove	Width of Groove
	A	B	C
BX 150	81.79	18.29	9.14
BX 151	86.11	18.80	9.14
BX 152	94.49	19.56	9.65
BX 153	111.25	21.08	10.41
BX 154	127.25	22.35	11.18
BX 155	157.00	24.64	11.94
BX 156	250.19	30.48	14.73
BX 157	307.34	33.53	16.26
BX 158	365.51	36.07	17.78
BX 159	440.94	39.37	19.56
BX 160	416.31	26.92	17.78
BX 162	486.66	24.89	11.94
BX 163	571.75	32.51	21.84
BX 164	586.23	39.88	21.84
BX 165	640.84	34.29	22.61
BX 166	656.34	41.91	22.61
BX 167	776.73	29.97	24.89
BX 168	782.57	32.77	24.89
BX 169	185.17	23.88	13.21
R 20	85.34	15.75	9.91
R 23	102.87	19.05	11.43
R 24	115.57	19.05	11.43
R 25	118.62	15.75	9.91
R 26	121.92	19.05	11.43
R 27	128.27	19.05	11.43
R 31	144.02	19.05	11.43
R 35	156.72	19.05	11.43
R 37	169.42	19.05	11.43
R 39	182.12	19.05	11.43
R 41	201.17	19.05	11.43

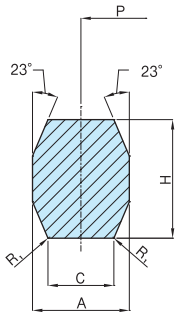
(1)	(2)	(3)	(4)
Ring Number	Outside Diameter of Groove	Width of Groove	Width of Groove
	A	B	C
R 44	213.87	19.05	11.43
R 45	231.39	19.05	11.43
R 46	232.92	20.57	13.21
R 47	256.79	26.92	16.26
R 49	290.07	19.05	11.43
R 50	294.89	23.88	14.73
R 53	344.17	19.05	11.43
R 54	349.00	23.88	14.73
R 57	401.32	19.05	11.43
R 63	454.41	34.04	19.56
R 65	490.22	19.05	11.43
R 66	495.05	23.88	14.73
R 69	553.72	19.05	11.43
R 70	561.59	26.92	16.26
R 73	606.04	20.57	13.21
R 74	612.39	26.92	16.26
R 82	77.47	19.05	11.43
R 84	83.82	19.05	11.43
R 85	101.35	20.57	13.21
R 86	115.57	23.88	14.73
R 87	124.97	23.88	14.73
R 88	152.15	26.92	16.26
R 89	142.49	26.92	16.26
R 90	186.94	30.23	17.78
R 91	302.01	40.39	21.08
R 99	255.27	19.05	11.43
R 201	59.94	12.70	7.62
R 205	71.12	12.70	10.67
R 210	106.68	16.76	9.91
R 215	150.37	19.05	11.43

Notes :
Allow 1/8 in. or greater for final machining of weld overlay

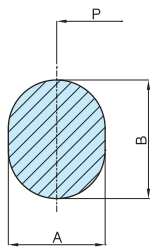
TABLE 2

TOLERANCES

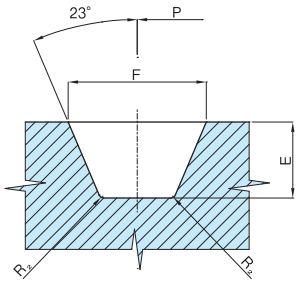
A (width of ring)	±0.203
B&H (height of ring)	±0.508
C (width of flat on octagonal ring)	±0.203
E (depth of groove)	+0.508/−0
F (widh of groove)	±0.203
P (average pith diameter of ring)	±0.178
(overage pith diameter of groove)	±0.127
R1 (radius in rings)	±0.508
R2 (radius in groove)	max
23° (angle)	±1/2deg



a) Octagonal



b) Oval



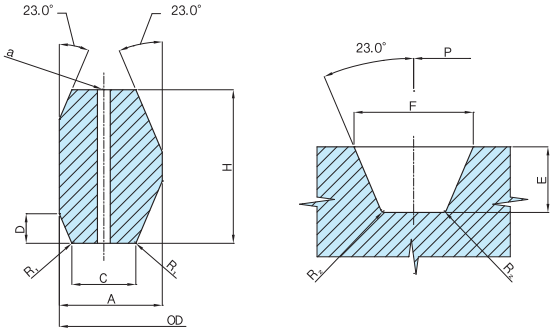
c) Groove

TABLE 2. TYPE R RING GASKETS

Unit : mm

Nominal Size & Bore of Flange	Pitch Diameter of Ring and Groove	Width of Ring	Height of Ring Oval	Height of Ring Octagnal	Width of Flat of Octagonal Ring	Radius in Octagonal Ringa	Depth of Groove	Width of Groove	Radius in Groove	Approx. Distance Between Made-up Flanges
	P	A	B	H	C	R_1	E	F	R_2	S
R 20	68.28	7.95	14.22	12.70	5.23	1.52	6.35	8.74	0.76	4.06
R 23	82.55	11.13	17.53	16.00	7.75	1.52	7.87	11.91	0.76	4.83
R 24	95.25	11.13	17.53	16.00	7.75	1.52	7.87	11.91	0.76	4.83
R 26	101.60	11.13	17.53	16.00	7.75	1.52	7.87	11.91	0.76	4.83
R 27	107.95	11.13	17.53	16.00	7.75	1.52	7.87	11.91	0.76	4.83
R 31	123.83	11.13	17.53	16.00	7.75	1.52	7.87	11.91	0.76	4.83
R 35	136.53	11.13	17.53	16.00	7.75	1.52	7.87	11.91	0.76	4.83
R 37	149.23	11.13	17.53	16.00	7.75	1.52	7.87	11.91	0.76	4.83
R 39	161.93	11.13	17.53	16.00	7.75	1.52	7.87	11.91	0.76	4.83
R 41	180.98	11.13	17.53	16.00	7.75	1.52	7.87	11.91	0.76	4.83
R 44	193.68	11.13	17.53	16.00	7.75	1.52	7.87	11.91	0.76	4.83
R 45	211.15	11.13	17.53	16.00	7.75	1.52	7.87	11.91	0.76	4.83
R 46	211.15	12.70	19.05	17.53	8.66	1.52	9.65	13.49	1.52	4.83
R 47	228.60	19.05	25.40	23.88	12.32	1.52	12.70	19.84	1.52	4.06
R 49	269.88	11.13	17.53	16.00	7.75	1.52	7.87	11.91	0.76	4.83
R 50	269.88	15.88	22.35	20.57	10.49	1.52	11.18	16.66	1.52	4.06
R 53	323.85	11.13	17.53	16.00	7.75	1.52	7.87	11.91	0.76	4.83
R 54	323.85	15.88	22.35	20.57	10.49	1.52	11.18	16.66	1.52	4.06
R 57	381.00	11.13	17.53	16.00	7.75	1.52	7.87	11.91	0.76	4.83
R 63	419.10	25.40	33.27	31.75	17.30	2.29	15.75	27.00	2.29	5.59
R 65	469.90	11.13	17.53	16.00	7.75	1.52	7.87	11.91	0.76	4.83
R 66	469.90	15.88	22.35	20.57	10.49	1.52	11.18	16.66	1.52	4.06
R 69	533.40	11.13	17.53	16.00	7.75	1.52	7.87	11.91	0.76	4.83
R 70	533.40	19.05	25.40	23.88	12.32	1.52	12.70	19.84	1.52	4.83
R 73	584.20	12.70	19.05	17.53	8.66	1.52	9.65	13.49	1.52	3.30
R 74	584.20	19.05	25.40	23.88	12.32	1.52	12.70	19.84	1.52	4.83
R 82	57.15	11.13	–	16.00	7.75	1.52	7.87	11.91	0.76	4.83
R 84	63.50	11.13	–	16.00	7.75	1.52	7.87	11.91	0.76	4.83
R 85	79.38	12.70	–	17.53	8.66	1.52	9.65	13.49	1.52	3.30
R 86	90.50	15.88	–	20.57	10.49	1.52	11.18	16.66	1.52	4.06
R 87	100.03	15.88	–	20.57	10.49	1.52	11.18	16.66	1.52	4.06
R 88	123.83	19.05	–	23.88	12.32	1.52	12.70	19.84	1.52	4.83
R 89	114.30	19.05	–	23.88	12.32	1.52	12.70	19.84	1.52	4.83
R 90	155.58	22.23	–	26.92	14.81	1.52	14.22	23.01	1.52	4.83
R 91	260.35	31.75	–	38.10	22.33	2.29	17.53	33.35	2.29	4.06
R 99	234.95	11.13	–	16.00	7.75	1.52	7.87	11.91	0.76	4.83

TABLE 3



A* (width of ring)——— ±0.203/–0
C (width of flat) ——————— +0.015,–0
D (height of chamfer)——+0/–0.762
E (depth of groove) ——— +0.508/–0
F (widh of groove)——————— ±0.203

H*(height of ring)————+0.203/–0
OD (OD of ring)————+0.508/–0
P (average pitch diameter of groove)————————— ±0.127
R1 (radius in rings) ———— ±0.508
R2 (radius in groove)————— max
23o (angle) ——————±1/2deg

*A plus tolerancee of 0.008 in. for width a and height H is permitted, provided the variation in width or height of any ring does not exceed 0.004 in. throughtout its entire circumference.
*Note: The pressure passage hole illustrated in the RX ring cross section in rings RX–82 through RX–91 only. centerline of hole shall be located at midpoint of dimension C.Hole diameter shall be 0.06 in. for rings RX–82 through RX–85, 0.09 in. for rings RX–86, and RX–87, and 0.12 in.for rings RX–88 through RX–91.

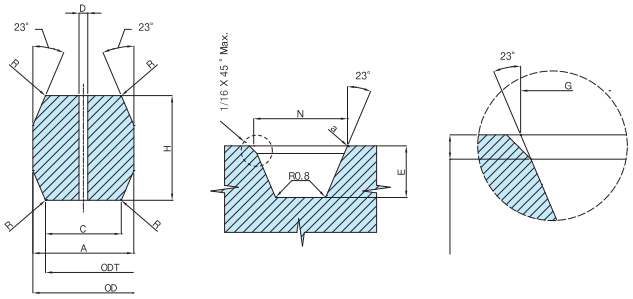
TABLE 3 API TYPE RX PRESSURE ENERGIZED RING GASKETS

Unit : mm

Ring Number	Pitch Diameter of Ring and Groove	Outside Diameter of Ring	Width of Ring	Width of Flat	Height of Outside Bevel	Height of Ring	Radius in Ring	Depth of Groove	Width of Groove	Radius in Groove	Approx. Distance Between Made-up Flanges
	P	OD	A	C	D	H	R_1	E	F	R_2	S
RX 20	68.3	76.2	8.7	4.6	3.2	19.1	1.5	6.4	8.7	0.8	9.7
RX 23	82.6	93.3	11.9	6.5	4.2	25.4	1.5	7.9	11.9	0.8	11.9
RX 24	95.3	106.0	11.9	6.5	4.2	25.4	1.5	7.9	11.9	0.8	11.9
RX 25	101.6	109.6	8.7	4.6	3.2	19.1	1.5	6.4	8.7	0.8	–
RX 26	101.6	111.9	11.9	6.5	4.2	25.4	1.5	7.9	11.9	0.8	11.9
RX 27	108.0	118.3	11.9	6.5	4.2	25.4	1.5	7.9	11.9	0.8	11.9
RX 31	123.8	134.5	11.9	6.5	4.2	25.4	1.5	7.9	11.9	0.8	11.9
RX 35	136.5	147.2	11.9	6.5	4.2	25.4	1.5	7.9	11.9	0.8	11.9
RX 37	136.5	159.9	11.9	6.5	4.2	25.4	1.5	7.9	11.9	0.8	11.9
RX 39	149.2	172.6	11.9	6.5	4.2	25.4	1.5	7.9	11.9	0.8	11.9
RX 41	181.0	191.7	11.9	6.5	4.2	25.4	1.5	7.9	11.9	0.8	11.9
RX 44	193.7	204.4	11.9	6.5	4.2	25.4	1.5	7.9	11.9	0.8	11.9
RX 45	211.2	221.8	11.9	6.5	4.2	25.4	1.5	7.9	11.9	0.8	11.9
RX 46	211.2	222.3	13.5	6.7	4.8	28.6	1.5	9.7	13.5	1.5	11.9
RX 47	228.6	245.3	19.8	10.3	6.9	41.3	2.3	12.7	19.8	1.5	23.1
RX 49	269.9	280.6	11.9	6.5	4.2	25.4	1.5	7.9	11.9	0.8	11.9
RX 50	269.9	283.4	16.7	8.5	5.3	31.8	1.5	11.2	16.7	1.5	11.9
RX 53	323.9	334.6	11.9	6.5	4.2	25.4	1.5	7.9	11.9	0.8	11.9
RX 54	323.9	337.3	16.7	8.5	5.3	31.8	1.5	11.2	16.7	1.5	11.9
RX 57	381.0	391.7	11.9	6.5	4.2	25.4	1.5	7.9	11.9	0.8	11.9
RX 63	419.1	441.7	27.0	14.8	8.5	50.8	2.3	16.0	27.0	2.3	21.3
RX 65	469.9	480.6	11.9	6.5	4.2	25.4	1.5	7.9	11.9	0.8	11.9
RX 66	469.9	483.4	16.7	8.5	5.3	31.8	1.5	11.2	16.7	1.5	11.9
RX 69	533.4	544.1	11.9	6.5	4.2	25.4	1.5	7.9	11.9	0.8	11.9
RX 70	533.4	550.1	19.8	10.3	6.9	41.3	2.3	12.7	19.8	1.5	18.3
RX 73	584.2	596.1	13.5	6.7	5.3	31.8	1.5	9.7	13.5	1.5	15.0
RX 74	584.2	600.9	19.8	10.3	6.9	41.3	2.3	12.7	19.8	1.5	18.3
RX 82	57.2	67.9	11.9	6.5	4.2	25.4	1.5	7.9	11.9	0.8	11.9
RX 84	63.5	74.2	11.9	6.5	4.2	25.4	1.5	7.9	11.9	0.8	11.9
RX 85	79.4	90.1	13.5	6.7	4.2	25.4	1.5	9.7	13.5	1.5	9.7
RX 86	90.5	103.6	15.1	8.5	4.8	28.6	1.5	11.2	16.7	1.5	9.7
RX 87	100.0	113.1	15.1	8.5	4.8	28.6	1.5	11.2	16.7	1.5	9.7
RX 88	123.8	139.3	17.5	10.3	5.3	31.8	1.5	12.7	19.8	1.5	9.7
RX 89	114.3	129.8	18.3	10.3	5.3	31.8	1.5	12.7	19.8	1.5	9.7
RX 90	155.6	174.6	19.8	12.2	7.4	44.5	2.3	14.2	23.0	1.5	18.3
RX 91	260.4	286.9	30.2	19.8	7.5	45.2	2.3	17.5	33.4	2.3	19.1
RX 99	235.0	245.7	11.9	6.5	4.2	25.4	1.5	7.9	11.9	0.8	11.9
RX 201	46.1	51.5	5.7	3.2	1.4[a]	11.3	0.5[b]	4.1	5.6	0.8	–
RX 205	57.2	62.3	5.6	3.0	1.8[a]	11.1	0.5[b]	4.1	5.6	0.5	–
RX 210	88.9	97.6	9.5	5.4	3.2[a]	19.1	0.8[b]	6.4	9.5	0.8	–
RX 215	130.2	140.9	11.9	5.3	4.2[a]	25.4	1.5[b]	7.9	11.9	0.8	–

Notes :
a Tolerance on these dimension is to, +0, –0.015 / b Tolerance on these dimension is to +0.2, –0

TABLE 4



TOLERANCES

A (width of ring) ——— +0.203/–0
C (width of flat) ——— +0.152,–0
D (height of chamfer) ——— ±0.508
E (depth of groove) ——— +0.508/–0
G (OD of groove) ——— +0.102/–0

Ha (height of ring) ——— +0.203/0
N (width of groove) ——— +0.102/–0
OD (OD of ring) ——— +0/–0.152
ODT (OD of flat) ——— ±0.051
R (radius in ring) ——— see note
23o (angle) ——— ±1/4o

*A plus tolerancee of 0.008 in. for width a and height H is permitted, provided the variation in width or height of any ring does not exceed 0.004 in. throught out its entire circumference.
*Radius "R" shall be 8 to 12% of the gasket height "H".

TABLE 4 API TYPE BX PRESSURE ENERGIZED RING GASKETS

Unit : mm

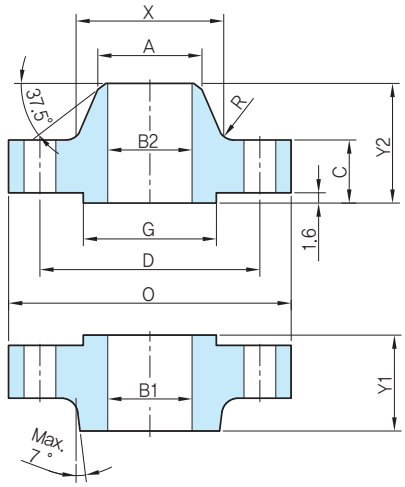
Ring Number	Number Size	Outside Diameter of Ring	Height of Ring	Width of Ring	Diameter of Flat	Width of Flat	Hole Size	Depth of Groove	Outside Diameter of Groove	Width of Groove
		OD	H	A	ODT	C	D	E	G	N
BX 150	1 11/16	72.19	9.30	9.30	70.87	7.98	1.52	5.59	73.48	11.43
BX 151	1 13/16	76.40	9.63	9.63	75.03	8.26	1.52	5.59	77.77	11.84
BX 152	2 1/16	84.68	10.24	10.24	83.24	8.79	1.52	5.84	86.23	12.65
BX 153	2 9/16	100.94	11.38	11.38	99.31	9.78	1.52	6.86	102.77	14.07
BX 154	3 1/16	116.84	12.40	12.40	115.09	10.64	1.52	7.62	119.00	15.39
23BX 155	4 1/16	147.96	14.22	14.22	145.95	12.22	1.52	8.38	150.62	17.73
BX 156	7 1/16	237.92	18.62	18.62	235.28	15.98	3.05	11.18	241.83	23.39
BX 157	9	294.46	20.98	20.98	291.49	18.01	3.05	12.70	299.06	26.39
BX 158	11	352.04	23.14	23.14	348.77	19.86	3.05	14.22	357.23	29.18
BX 159	13 5/8	426.72	25.70	25.70	423.09	22.07	3.05	15.75	432.64	32.49
BX 160	13 5/8	402.59	23.83	13.74	399.21	10.36	3.05	14.22	408.00	19.96
BX 161	16 5/8	491.41	28.07	16.21	487.45	12.24	3.05	17.02	497.94	23.62
BX 162	16 5/8	475.49	14.22	14.22	473.48	12.22	1.52	8.38	478.33	17.91
BX 163	18 3/4	556.16	30.10	17.37	551.89	13.11	3.05	18.29	563.50	25.55
BX 164	18 3/4	570.56	30.10	24.59	566.29	20.32	3.05	18.29	577.90	32.77
BX 165	21 1/4	624.71	32.03	18.49	620.19	13.97	3.05	19.05	632.56	27.20
BX 166	21 1/4	640.03	32.03	26.14	635.51	21.62	3.05	19.05	647.88	34.87
BX 167	26 3/4	759.36	35.86	13.11	754.28	8.03	1.52	21.34	768.33	22.91
BX 168	26 3/4	765.25	35.86	16.05	760.17	10.97	1.52	21.34	774.22	25.86
BX 169	5 1/8	173.51	15.85	12.93	171.27	10.69	1.52	9.65	176.66	16.92
BX 170	9	218.03	14.22	14.22	216.03	12.22	1.52	8.38	220.88	17.91
BX 171	11	267.44	14.22	14.22	265.43	12.22	1.52	8.38	270.28	17.91
BX 172	13 5/8	333.07	14.22	14.22	331.06	12.22	1.52	8.38	335.92	17.91
BX 303	30	852.75	37.95	16.97	847.37	11.61	1.52	22.61	862.31	27.38

BS3293-1960

- Class 150 Flanges
- Class 300 Flanges
- Class 400 Flanges
- Class 600 Flanges

SFF Corp.

CLASS 150



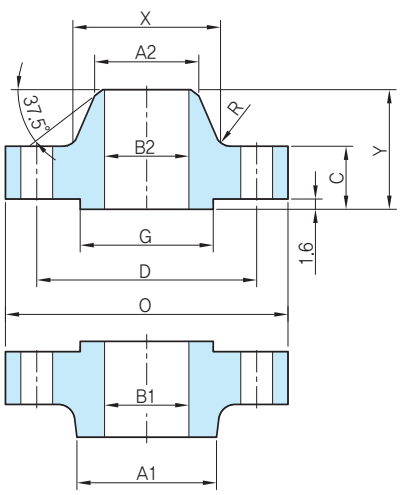
BS3293-1960

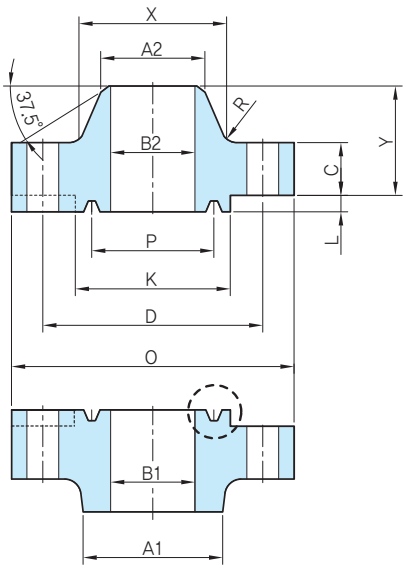
Unit : mm

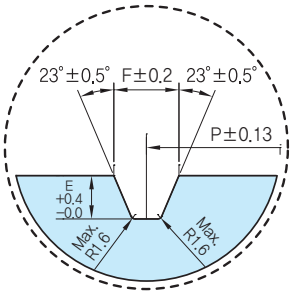
Size		Outside Dia. of Flange		Thicness of Flange Min.		Outside Dia. Large end of Hub		Outside Dia. Small end of Hub		Outside Dia. of Raised Face		Flange Bore		
DN	NPS	O		C		X		A		G		B1		B2
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	
650	26	34,1/4	870.0	2	50.8	28,1/2	723.9	26	660.4	29,1/4	743.0	26,1/4	666.8	to be specified by the purchaser
700	28	36,1/2	927.1	2,1/16	52.4	30,3/4	781.1	28	711.2	31,1/4	793.8	28,1/4	717.6	
750	30	38,3/4	984.3	2,1/8	54.0	32,3/4	831.9	30	762.0	33,3/4	857.3	30,1/4	768.4	
800	32	41,3/4	1060.5	2,1/4	57.2	35	889.0	32	812.8	35,3/4	908.1	32,1/4	819.2	
850	34	43,3/4	1111.3	2,5/16	58.7	37	939.8	34	863.6	37,3/4	958.9	34,1/4	870.0	
900	36	46	1168.4	2,3/8	60.3	39,1/4	997.0	36	914.4	40,1/4	1022.4	36,1/4	920.8	
950	38	48,3/4	1238.3	2,3/8	60.3	41,3/4	1060.5	38	965.2	42,1/4	1073.2	38,1/4	971.6	
1000	40	50,3/4	1289.1	2,1/2	63.5	43,3/4	1111.3	40	1016.0	44,1/4	1124.0	40,1/4	1022.4	
1050	42	53	1346.2	2,5/8	66.7	46	1168.4	42	1066.8	47	1193.8	42,1/4	1073.2	
1100	44	55,1/4	1403.4	2,5/8	66.7	48	1219.2	44	1117.6	49	1244.6	44,1/4	1124.0	
1150	46	57,1/4	1454.2	2,11/16	68.3	50	1270.0	46	1168.4	51	1295.4	46,1/4	1174.8	
1200	48	59,1/2	1511.3	2,3/4	69.9	52,1/4	1327.2	48	1219.2	53,1/2	1358.9	48,1/4	1225.6	

Size		Length Through Hub				Fillet Radius		Drilling				
		Slip-on		Welding Neck				Dia. of Bolt Circle		No. of Bolts	Dia. of Bolt Holes	
DN	NPS	Y1		Y2		R		D			B1	
		inch	mm	inch	mm	inch	mm	inch	mm		inch	mm
650	26	3,3/8	85.7	5	127.0	1/4	6.4	31,3/4	806.5	24	1,3/8	34.9
700	28	3,7/16	87.3	5,1/16	128.6	1/4	6.4	34	863.6	28	1,3/8	34.9
750	30	3,1/2	88.9	5,1/8	130.2	1/4	6.4	36	914.4	28	1,3/8	34.9
800	32	3,5/8	92.1	5,1/4	133.4	5/16	7.9	38,1/2	977.9	28	1,5/8	41.3
850	34	3,11/16	93.7	5,5/16	134.9	5/16	7.9	40,1/2	1028.7	32	1,5/8	41.3
900	36	3,3/4	95.3	5,3/8	136.5	5/16	7.9	42,3/4	1085.9	32	1,5/8	41.3
950	38	3,3/4	95.3	5,3/8	136.5	3/8	9.5	45,1/4	1149.4	32	1,5/8	41.3
1000	40	3,7/8	98.4	5,1/2	139.7	3/8	9.5	47,1/4	1200.2	36	1,5/8	41.3
1050	42	4	101.6	5,5/8	142.9	3/8	9.5	49,1/2	1257.3	36	1,5/8	41.3
1100	44	4	101.6	5,5/8	142.9	7/16	11.1	51,3/4	1314.5	40	1,5/8	41.3
1150	46	4,1/16	103.2	5,11/16	144.5	7/16	11.1	53,3/4	1365.3	40	1,5/8	41.3
1200	48	4,1/8	104.8	5,3/4	146.1	7/16	11.1	56	1422.4	44	1,5/8	41.3

CLASS 300







Ring Type Joint
Groove Detail

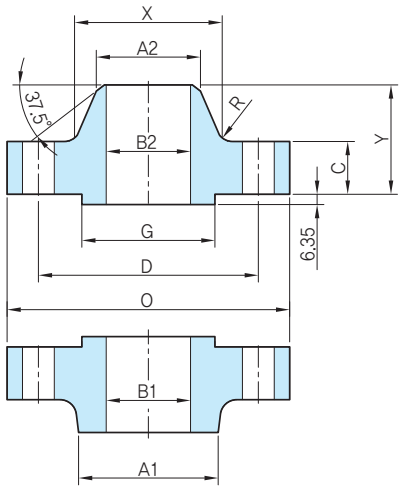
BS3293-1960

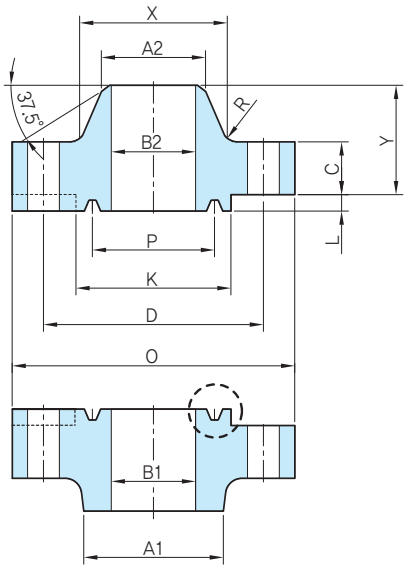
Unit : mm

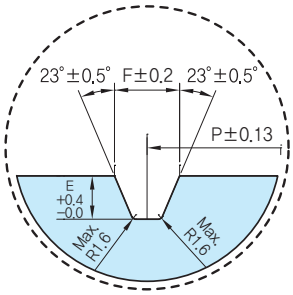
Size		Outside Dia. of Flange		Thicness of Flange Min.		Outside Dia. Large end of Hub		Outside Dia. Small end of Hub				Outside Dia. of Raised Face		Flange Bore		
								Slip-on		Welding Neck						
DN	NPS	O		C		X		A1		A2		G		B1		B2
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	
650	26	38,1/4	971.6	3,1/8	79.4	28,3/8	720.7	27,1/16	687.4	26,1/4	666.8	29,1/2	749.3	26,1/4	666.8	to be specified by the purchaser
700	28	40,3/4	1035.1	3,3/8	85.7	30,1/2	774.7	29,1/8	739.8	28,1/4	717.6	31,1/2	800.1	28,1/4	717.6	
750	30	43	1092.2	3,5/8	92.1	32,8/16	825.5	31,3/16	792.2	30,1/4	768.4	33,3/4	857.3	30,1/4	768.4	
800	32	45,1/4	1149.4	3,7/8	98.4	34,11/16	881.1	33,1/4	844.6	32,1/4	819.2	36	914.4	32,1/4	819.2	
850	34	47,1/2	1206.5	4	101.6	36,7/8	936.6	35,5/16	896.9	34,5/16	871.5	38	965.2	34,1/4	870.0	
900	36	50	1270.0	4,1/8	104.8	39	990.6	37,3/8	949.3	36,5/16	922.3	40,1/4	1022.4	36,1/4	920.8	

Size		Length Through Hub		Fillet Radius		Drilling				Ring No.	Dia. of Raised Protion		Pitch Dia.		Groove Width		Depth of Groove E / Height of facing L	
						Dia. of Bolt Circle		No. of Bolts	Dia. of Bolt Holes									
DN	NPS	Y		R		D					K		P		F		E(L)	
		inch	mm	inch	mm	inch	mm		inch	mm		inch	mm	inch	mm	inch	mm	inch	mm
650	26	7,1/4	184.2	3/8	9.5	34,1/2	876.3	28	1,3/4	44.5	R93	31,7/8	810.0	29,1/2	749.30	25/32	19.84	1/2	12.7
700	28	7,3/4	196.9	7/16	11.1	37	939.8	28	1,3/4	44.5	R94	33,7/8	861.0	31,1/2	800.10	25/32	19.84	1/2	12.7
750	30	8,1/4	209.6	7/16	11.1	39,1/4	997.0	28	1,7/8	47.6	R95	36,1/8	917.0	33,3/4	857.25	25/32	19.84	1/2	12.7
800	32	8,3/4	222.3	7/16	11.1	41,1/2	1054.1	28	2	50.8	R96	38,3/4	984.0	36	914.40	29/32	23.01	9/16	14.27
850	34	9,1/8	231.8	1/2	12.7	43,1/2	1104.9	28	2	50.8	R97	40,3/4	1035.0	38	965.20	29/32	23.01	9/16	14.27
900	36	9,1/2	241.3	1/2	12.7	46	1168.4	32	2,1/8	54.0	R98	43	1092.0	40,1/4	1022.35	29/32	23.01	9/16	14.27

CLASS 400







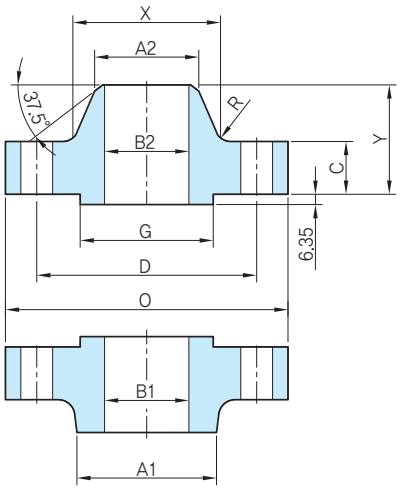
Ring Type Joint Groove Detail

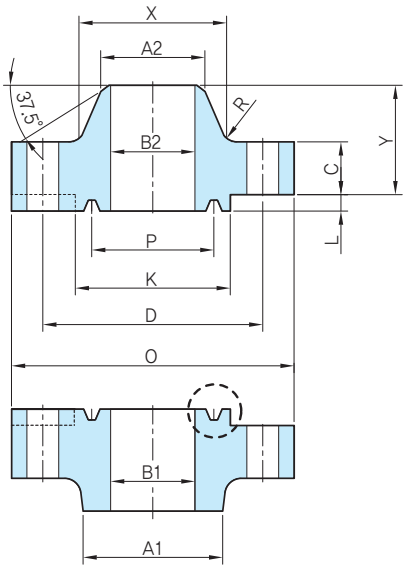
BS3293-1960

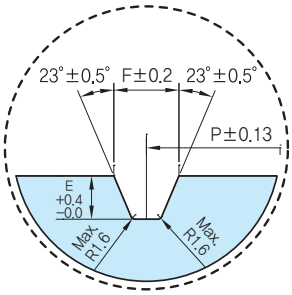
Unit : mm

Size		Outside Dia. of Flange		Thicness of Flange Min.		Outside Dia. Large end of Hub		Outside Dia. Small end of Hub				Outside Dia. of Raised Face		Flange Bore		
								Slip-on		Welding Neck						
DN	NPS	O		C		X		A1		A2		G		B1		B2
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	
650	26	38,1/4	971.6	3,1/2	88.9	28,5/8	727.1	27,5/16	693.7	26,5/16	668.3	29,1/2	749.3	26,1/4	666.8	to be specified by the purchaser
700	28	40,3/4	1035.1	3,3/4	95.3	30,13/16	782.6	29,3/8	746.1	28,5/16	719.1	31,1/2	800.1	28,1/4	717.6	
750	30	43	1092.2	4	101.6	32,15/16	836.6	31,1/2	800.1	30,5/16	769.9	33,3/4	857.3	30,1/4	768.4	
800	32	45,1/4	1149.4	4,1/4	108.0	35	889.0	33,9/16	852.5	32,3/8	822.3	36	914.4	32,1/4	819.2	
850	34	47,1/2	1206.5	4,3/8	111.1	37,3/16	944.6	35,5/8	904.9	34,3/8	873.1	38	965.2	34,1/4	870.0	
900	36	50	1270.0	4,1/2	114.3	39,3/8	1000.1	37,3/4	958.9	36,7/16	925.5	40,1/4	1022.4	36,1/4	920.8	

Size		Length Through Hub		Fillet Radius		Drilling				Ring No.	Dia. of Raised Protion		Pitch Dia.		Groove Width		Depth of Groove E Height of facing L	
						Dia. of Bolt Circle		No. of Bolts	Dia. of Bolt Holes									
DN	NPS	Y		R		D					K		P		F		E(L)	
		inch	mm	inch	mm	inch	mm		inch	mm		inch	mm	inch	mm	inch	mm	inch	mm
650	26	7,5/8	193.7	7/16	11.1	34,1/2	876.3	28	1,7/8	47.6	R93	31,7/8	810.0	29,1/2	749.30	25/32	19.84	1/2	12.7
700	28	8,1/8	206.4	1/2	12.7	37	939.8	28	2	50.8	R94	33,7/8	861.0	31,1/2	800.10	25/32	19.84	1/2	12.7
750	30	8,5/8	219.1	1/2	12.7	39,1/4	997.0	28	2,1/8	54.0	R95	36,1/8	917.0	33,3/4	857.25	25/32	19.84	1/2	12.7
800	32	9,1/8	231.8	1/2	12.7	41,1/2	1054.1	28	2,1/8	54.0	R96	38,3/4	984.0	36	914.40	29/32	23.01	9/16	14.27
850	34	9,1/2	241.3	9/16	14.3	43,1/2	1104.9	28	2,1/8	54.0	R97	40,3/4	1035.0	38	965.20	29/32	23.01	9/16	14.27
900	36	9,7/8	250.8	9/16	14.3	46	1168.4	32	2,1/8	54.0	R98	43	1092.0	40,1/4	1022.35	29/32	23.01	9/16	14.27







Ring Type Joint
Groove Detail

BS3293-1960

Unit : mm

Size		Outside Dia. of Flange		Thicness of Flange Min.		Outside Dia. Large end of Hub		Outside Dia. Small end of Hub				Outside Dia. of Raised Face		Flange Bore		
								Slip-on		Welding Neck						
DN	NPS	O		C		X		A1		A2		G		B1		B2
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	
650	26	40	1016.0	4,1/4	108.0	29,7/16	747.7	27,13/16	706.4	26,7/16	671.5	29,1/2	749.3	26,1/4	666.8	to be specified by the purchaser
700	28	42,1/4	1073.2	4,3/8	111.1	31,5/8	803.3	29,15/16	760.4	28,1/2	723.9	31,1/2	800.1	28,1/4	717.6	
750	30	44,1/2	1130.3	4,1/2	114.3	33,15/16	862.0	32,1/16	814.4	30,1/2	774.7	33,3/4	857.3	30,1/4	768.4	
800	32	47	1193.8	4,5/8	117.5	36,1/8	917.6	34,3/16	868.4	32,1/2	825.5	36	914.4	32,1/4	819.2	
850	34	49	1244.6	4,3/4	120.7	38,5/16	973.1	36,5/16	922.3	34,9/16	877.9	38	965.2	34,1/4	870.0	
900	36	51,3/4	1314.5	4,7/8	123.8	40,5/8	1031.9	38,7/16	976.3	36,9/16	928.7	40,1/4	1022.4	36,1/4	920.8	

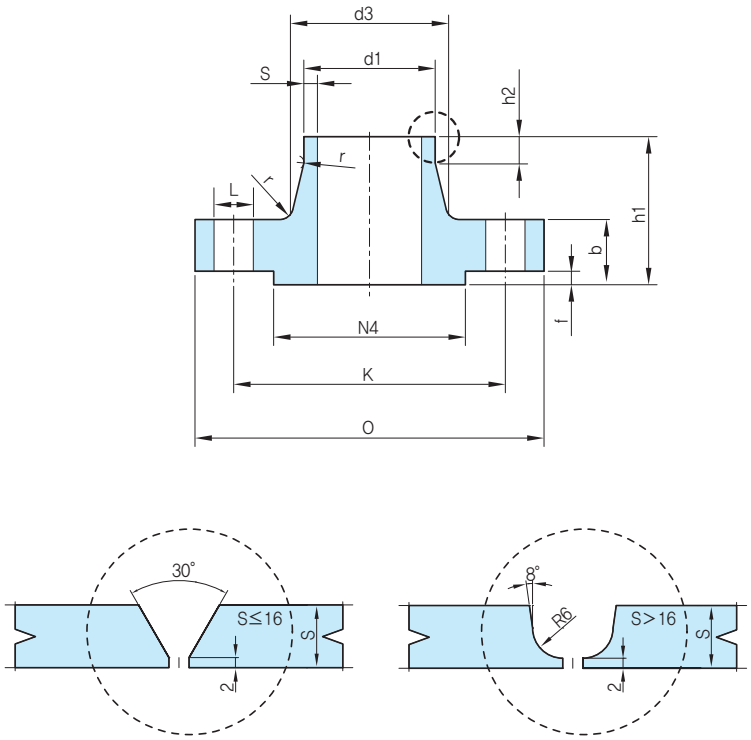
Size		Length Through Hub		Fillet Radius		Drilling				Ring No.	Dia. of Raised Protion		Pitch Dia.		Groove Width		Depth of Groove E Height of facing L	
						Dia. of Bolt Circle		No. of Bolts	Dia. of Bolt Holes									
DN	NPS	Y		R		D					K		P		F		E(L)	
		inch	mm	inch	mm	inch	mm		inch	mm		inch	mm	inch	mm	inch	mm	inch	mm
650	26	8,3/4	222.3	9/16	14.3	36	914.4	28	2	50.8	R93	31,7/8	810.0	29,1/2	749.30	25/32	19.84	1/2	12.7
700	28	9,1/4	235.0	5/8	15.9	38	965.2	28	2,1/8	54.0	R94	33,7/8	861.0	31,1/2	800.10	25/32	19.84	1/2	12.7
750	30	9,3/4	247.7	11/16	17.5	40,1/4	1022.4	28	2,1/8	54.0	R95	36,1/8	917.0	33,3/4	857.25	25/32	19.84	1/2	12.7
800	32	10,1/4	260.4	11/16	17.5	42,1/2	1079.5	28	2,3/8	60.3	R96	38,3/4	984.0	36	914.40	29/32	23.01	9/16	14.27
850	34	10,5/8	269.9	3/4	19.1	44,1/2	1130.3	28	2,3/8	60.3	R97	40,3/4	1035.0	38	965.20	29/32	23.01	9/16	14.27
900	36	11,1/8	282.6	3/4	19.1	47	1193.8	28	2,5/8	66.7	R98	43	1092.0	40,1/4	1022.35	29/32	23.01	9/16	14.27

DIN STANDARD

- Dimensional Tolerance
- DIN 2527 PN 6, 10, 16, 25, 40, 64, 100
- DIN 2573 PN 6
- DIN 2576 PN 10
- DIN 2630 PN 2.5
- DIN 2631 PN 6
- DIN 2632 PN 10
- DIN 2633 PN 16
- DIN 2634 PN 25
- DIN 2635 PN 40
- DIN 2636 PN 64
- DIN 2637 PN 100
- DIN 2638 PN 160
- DIN 2627 PN 400
- DIN 2628 PN 250
- DIN 2629 PN 320

SFF Corp.

DIMENSIONAL TOLERANCE

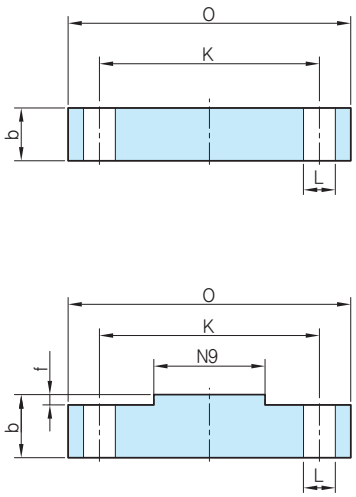


BS3293-1960

Unit : mm

Dimension	Size	Tolerance	
Outside diameter D	≤ 200mm	±1.0	
	〉 200mm ≤ 300mm	±1.5	
	〉 300mm ≤ 400mm	±2.0	
	〉400mm	±2.0	
Bore diameter	–	Except Welding Neck	Welding Neck
	≤ 100mm	+0.5 / −0	+0.0 / −1.0
	〉 100mm ≤ 400mm	+1.0 / −0	+0.0 / −1.5
	〉400mm	+1.5 / −0	+0.0 / −2.0
Flange thickness b	≤ 10mm	±0.5	
	〉 10mm ≤ 20mm	±0.8	
	〉 20mm ≤ 30mm	±1.0	
	〉 30mm ≤ 50mm	±1.0	
	〉50mm	±1.5	
Neck thickness S	≤ DN 100	+1.0 / −0	
	〉 DN 100 ≤ DN 250	+1.5 / −0	
	〉DN 250	+2.0 / −0	
Facing diameter N4	≤ DN 80	+0.0 / −1.0	
	〉 DN 80 ≤ DN 300	+0.0 / −2.0	
	〉DN 300	+0.0 / −3.0	
Facing height h1	≤ DN 80	±1.5	
	〉 DN 80 ≤ DN 250	±2.0	
	〉DN 250	±3.0	

DIN 2527



DIN 2527 PN 6

Unit : mm

DN	Out-side Dia. D	Thick-ness of Flange b	Dia. of Bolt Circle K	Dia. of Shoul-dear Max.N9	Bolting		Dia. of Bolt Holes L
					Num-ber	Size	
10	75	12	50	–	4	M10	11
15	80	12	55	–	4	M10	11
20	90	14	65	–	4	M10	11
25	100	14	75	–	4	M10	11
32	120	14	90	–	4	M12	14
40	130	14	100	–	4	M12	14
50	140	14	110	–	4	M12	14
65	160	14	130	55	4	M12	14
80	190	16	150	70	4	M16	18
100	210	16	170	90	4	M16	18
125	240	18	200	115	8	M16	18
150	265	18	225	140	8	M16	18
175	295	20	255	165	8	M16	18
200	320	20	280	190	8	M16	18
250	375	22	335	235	12	M16	18
300	440	22	395	285	12	M20	22
350	490	22	445	330	12	M20	22
400	540	22	495	380	16	M20	22
500	645	24	600	475	20	M20	22

DIN 2527 PN 10

Unit : mm

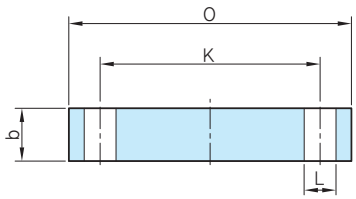
DN	Out-side Dia. D	Thick-ness of Flange b	Dia. of Bolt Circle K	Dia. of Shoul-dear Max.N9	Bolting		Dia. of Bolt Holes L
					Num-ber	Size	
10	90	14	60	–	4	M12	14
15	95	14	65	–	4	M12	14
20	105	16	75	–	4	M12	14
25	115	16	85	–	4	M12	14
32	140	16	100	–	4	M16	18
40	150	16	110	–	4	M16	18
50	165	18	125	–	4	M16	18
65	185	18	145	55	4	M16	18
80	200	20	160	70	8	M16	18
100	220	20	180	90	8	M16	18
125	250	22	210	115	8	M16	18
150	285	22	240	140	8	M20	22
175	315	24	270	165	8	M20	22
200	340	24	295	190	8	M20	22
250	395	26	350	235	12	M20	22
300	445	26	400	285	12	M20	22
350	505	26	460	330	16	M20	22
400	565	26	515	380	16	M24	26
500	670	28	620	475	20	M24	26

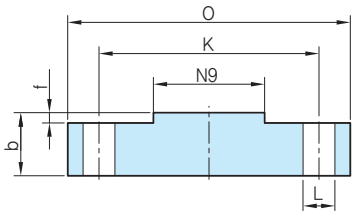
DIN 2527 PN 16

Unit : mm

DN	Out-side Dia. D	Thick-ness of Flange b	Dia. of Bolt Circle K	Dia. of Shoul-dear Max.N9	Bolting		Dia. of Bolt Holes L
					Num-ber	Size	
10	90	14	60	–	4	M12	14
15	95	14	65	–	4	M12	14
20	105	16	75	–	4	M12	14
25	115	16	85	–	4	M12	14
32	140	16	100	–	4	M16	18
40	150	16	110	–	4	M16	18
50	165	18	125	–	4	M16	18
65	185	18	145	55	4	M16	18
80	200	20	160	70	8	M16	18
100	220	20	180	90	8	M16	18
125	250	22	210	115	8	M16	18
150	285	22	240	140	8	M20	22
175	315	24	270	165	8	M20	22
200	340	24	295	190	12	M20	22
250	405	26	355	235	12	M24	26
300	460	28	410	285	12	M24	26
350	520	30	470	330	16	M24	26
400	580	32	525	380	16	M27	30
500	715	36	650	475	20	M30	33

DIN 2527





DIN 2527 PN 25

Unit : mm

DN	Out –side Dia. D	Thick –ness of Flange b	Dia. of Bolt Circle K	Dia. of Shoul –dear Max.N9	Bolting		Dia. of Bolt Holes L
					Num –ber	Size	
10	90	16	60	–	4	M12	14
15	95	16	65	–	4	M12	14
20	105	18	75	–	4	M12	14
25	115	18	85	–	4	M12	14
32	140	18	100	–	4	M16	18
40	150	18	110	–	4	M16	18
50	165	20	125	–	4	M16	18
65	185	22	145	55	8	M16	18
80	200	24	160	70	8	M16	18
100	235	24	190	90	8	M20	22
125	270	26	220	115	8	M24	26
150	300	28	250	140	8	M24	26
175	330	28	280	165	12	M24	26
200	360	30	310	190	12	M24	26
250	425	32	370	237	12	M27	30
300	485	34	430	285	16	M27	30
350	555	38	490	332	16	M30	33
400	620	40	550	380	16	M33	36
500	730	45	660	475	20	M33	36

DIN 2527 PN 40

Unit : mm

DN	Out –side Dia. D	Thick –ness of Flange b	Dia. of Bolt Circle K	Dia. of Shoul –dear Max.N9	Bolting		Dia. of Bolt Holes L
					Num –ber	Size	
10	90	16	60	–	4	M12	14
15	95	16	65	–	4	M12	14
20	105	18	75	–	4	M12	14
25	115	18	85	–	4	M12	14
32	140	18	100	–	4	M16	18
40	150	18	110	–	4	M16	18
50	165	20	125	–	4	M16	18
65	185	22	145	55	8	M16	18
80	200	24	160	70	8	M16	18
100	235	24	190	90	8	M20	22
125	270	26	220	115	8	M24	26
150	300	28	250	140	8	M24	26
175	350	32	295	165	12	M27	30
200	375	34	320	190	12	M27	30
250	450	38	385	235	12	M30	33
300	515	42	450	285	16	M30	33
350	580	46	510	330	16	M33	36
400	660	50	585	380	16	M36	39
500	755	56	670	475	20	M39	42

DIN 2527 PN 64

Unit : mm

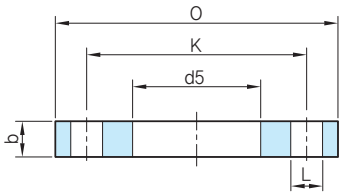
DN	Out –side Dia. D	Thick –ness of Flange b	Dia. of Bolt Circle K	Dia. of Shoul –dear N9	Bolting		Dia. of Bolt Holes L	Height of Shoul –der f
					Num –ber	Size		
10	100	20	70	40	4	M12	14	2
15	105	20	75	45	4	M12	14	2
25	140	24	100	68	4	M16	18	2
32	155	24	110	78	4	M20	22	2
40	170	26	125	88	4	M20	22	3
50	180	26	135	102	4	M20	22	3
65	205	26	160	122	8	M20	22	3
80	215	28	170	138	8	M20	22	3
100	250	30	200	162	8	M24	26	3
125	295	34	240	188	8	M27	30	3
150	345	36	280	218	8	M30	33	3
175	375	40	310	260	12	M30	33	3
200	415	42	345	285	12	M33	36	3
250	470	46	400	345	12	M33	36	3
300	530	52	460	410	16	M33	36	4
350	600	56	525	465	16	M36	39	4
400	670	60	585	535	16	M39	42	4

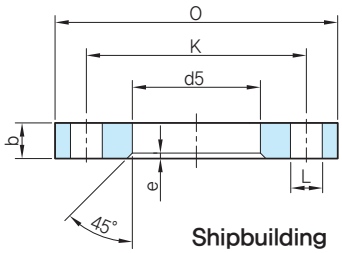
DIN 2527 PN 100

Unit : mm

DN	Out –side Dia. D	Thick –ness of Flange b	Dia. of Bolt Circle K	Dia. of Shoul –dear N9	Bolting		Dia. of Bolt Holes L	Height of Shoul –der f
					Num –ber	Size		
10	100	20	70	40	4	M12	14	2
15	105	20	75	45	4	M12	14	2
25	140	24	100	68	4	M16	18	2
32	155	24	110	78	4	M20	22	2
40	170	26	125	88	4	M20	22	3
50	195	28	145	102	4	M24	26	3
65	220	30	170	122	8	M24	26	3
80	230	32	180	138	8	M24	26	3
100	265	36	210	162	8	M27	30	3
125	315	40	250	188	8	M30	33	3
150	355	44	290	218	12	M30	33	3
175	385	48	320	260	12	M30	33	3
200	430	52	360	285	12	M33	36	3
250	505	60	430	345	12	M36	39	3
300	585	68	500	410	16	M39	42	4
350	655	74	560	465	16	M45	48	4

DIN 2573 / 2576





Shipbuilding

DIN 2573 PN 6

DIN 2576 PN 10

Unit : mm

DN	Outside Diameter d1		Inside Dia. d5	e	Out-side Dia. D	Thick-ness of Flange b	Dia. of Bolt Circle K	Dia. of Bolt Holes L	Bolting		Out-side Dia. D	Thick-ness of Flange b	Dia. of Bolt Circle K	Dia. of Bolt Holes L	Bolting	
	ISO	DIN							Num-ber	Size					Num-ber	Size
10	–	14.0	14.5	5	75	12	50	11	4	M10	90	14	60	14	4	M12
	17.2	–	17.7													
15	–	20.0	21.0	5	80	12	55	11	4	M10	95	14	65	14	4	M12
	21.3	–	22.0													
20	–	25.0	26.0	5	90	14	65	11	4	M10	105	16	75	14	4	M12
	26.9	–	27.6													
25	–	30.0	31.0	5	100	14	75	11	4	M10	115	16	85	14	4	M12
	33.7	–	34.4													
32	–	38.0	39.0	5	120	16	90	14	4	M12	140	16	100	18	4	M16
	42.4	–	43.1													
40	–	44.5	45.5	5	130	16	100	14	4	M12	150	16	110	18	4	M16
	48.3	–	49.0													
50	–	57.0	58.1	6	140	16	110	14	4	M12	165	18	125	18	4	M16
	60.3	–	61.1													
65	–	–	–	6	160	16	130	14	4	M12	185	18	145	18	4	M16
	76.1	–	77.1													
80	–	–	–	7	190	18	150	18	4	M16	200	20	160	18	8	M16
	88.9	–	90.3													
100	–	108.0	109.6	7	210	18	170	18	4	M16	220	20	180	18	8	M16
	114.3	–	115.9													
125	–	133.0	134.8	7	240	20	200	18	8	M16	250	22	210	18	8	M16
	139.7	–	141.6													
150	–	159.0	161.1	7	265	20	225	18	8	M16	285	22	240	22	8	M20
	168.3	–	170.5													
175	–	–	–	7	–	–	–	–	–	–	315	24	270	22	8	M20
	193.7	–	196.1													
200	–	–	–	7	320	22	280	18	8	M16	340	24	295	22	8	M20
	219.1	–	221.8													
250	–	267.0	270.2	7	375	24	335	18	12	M16	395	26	350	22	12	M20
	273.0	–	276.2													
300	–	–	–	7	440	24	395	22	12	M20	445	26	400	22	12	M20
	323.9	–	327.6													
350	355.6		359.7	7	490	26	445	22	12	M20	505	28	460	22	16	M20
		368.0	372.2													
400	406.4		411	7	540	28	495	22	16	M20	565	32	515	26	16	M24
		419.0	423.7													
450	–	–	–	7	595	30	550	22	16	M20	615	38	565	26	20	M24
	457.0	–	462.3													
500	–	–	–	7	645	30	600	22	20	M20	670	38	620	26	20	M24
	508.0	–	513.6													

DIN 2630

DIN 2630 PN 2.5

Unit : mm

DN	Outside Diameter d1		Outside Dia. D	Thick-ness of Flange b	Dia. of Bolt Circle K	h1	Hub Dia. d3	s	r	h2	Dia. of Shoul-der N4	Height of Shoul-der f	Dia. of Bolt Holes L	Bolting	
	ISO	DIN												Number	Size
10	–	14.0	75.0	12.0	50.0	28.0	22.0	1.8	4.0	6.0	35.0	2.0	11.0	4	M10
	17.2	–					26.0								
15	–	20.0	80.0	12.0	55.0	30.0	28.0	2.0	4.0	6.0	40.0	2.0	11.0	4	M10
	21.3	–					30.0								
20	–	25.0	90.0	14.0	65.0	32.0	35.0	2.3	4.0	6.0	50.0	2.0	11.0	4	M10
	26.9	–					38.0								
25	–	30.0	100.0	14.0	75.0	35.0	40.0	2.6	4.0	6.0	60.0	2.0	11.0	4	M10
	33.7	–					42.0								
32	–	38.0	120.0	14.0	90.0	35.0	50.0	2.6	6.0	6.0	70.0	2.0	14.0	4	M12
	42.4	–					55.0								
40	–	44.5	130.0	14.0	100.0	38.0	58.0	2.6	6.0	7.0	80.0	3.0	14.0	4	M12
	48.3	–					62.0								
50	–	57.0	140.0	14.0	110.0	38.0	70.0	2.9	6.0	8.0	90.0	3.0	14.0	4	M12
	60.3	–					74.0								
65	–	–	160.0	14.0	130.0	38.0	88.0	2.9	6.0	9.0	110.0	3.0	14.0	4	M12
	76.1	–													
80	–	–	190.0	16.0	150.0	42.0	102.0	3.2	8.0	10.0	128.0	3.0	18.0	4	M16
	88.9	–													
100	–	108.0	210.0	16.0	170.0	45.0	122.0	3.6	8.0	10.0	148.0	3.0	18.0	4	M16
	114.3	–					130.0								
125	–	133.0	240.0	18.0	200.0	48.0	148.0	4.0	8.0	10.0	178.0	3.0	18.0	8	M16
	139.7	–					155.0								
150	–	159.0	265.0	18.0	225.0	48.0	172.0	4.5	10.0	12.0	202.0	3.0	18.0	8	M16
	168.3	–					184.0								
200	–	–	320.0	20.0	280.0	55.0	236.0	5.9	10.0	15.0	258.0	3.0	18.0	8	M16
	219.1	–													
250	–	267.0	375.0	22.0	335.0	60.0	282.0	6.3	12.0	15.0	312.0	3.0	18.0	12	M16
	273.0	–					290.0								
300	–	–	440.0	22.0	395.0	62.0	342.0	7.1	12.0	15.0	365.0	4.0	22.0	12	M20
	323.9	–													
350	–	368.0	490.0	22.0	445.0	62.0	385.0	7.1	12.0	15.0	415.0	4.0	22.0	12	M20
	355.6	–													
400	–	419.0	540.0	22.0	495.0	65.0	438.0	7.1	12.0	15.0	465.0	4.0	22.0	16	M20
	406.4	–													
500	508.0	–	645.0	24.0	600.0	68.0	538.0	7.1	12.0	15.0	570.0	4.0	22.0	20	M20
600	610.0	–	755.0	24.0	705.0	70.0	640.0	7.1	12.0	16.0	670.0	5.0	26.0	20	M24
700	711.0	–	860.0	24.0	810.0	70.0	740.0	7.1	12.0	16.0	775.0	5.0	26.0	24	M24
800	813.0	–	975.0	24.0	920.0	70.0	842.0	7.1	12.0	16.0	880.0	5.0	30.0	24	M27
900	914.0	–	1075.0	26.0	1020.0	70.0	942.0	7.1	12.0	16.0	980.0	5.0	30.0	24	M27
1000	1016.0	–	1175.0	26.0	1120.0	70.0	1045.0	7.1	16.0	16.0	1080.0	5.0	30.0	28	M27
1200	1220.0	–	1375.0	26.0	1320.0	70.0	1245.0	7.0	16.0	16.0	1280.0	5.0	30.0	32	M27
1400	1420.0	–	1575.0	26.0	1520.0	70.0	1445.0	7.0	16.0	16.0	1480.0	5.0	30.0	36	M27
1600	1620.0	–	1790.0	26.0	1730.0	80.0	1645.0	8.0	16.0	20.0	1690.0	5.0	30.0	40	M27
1800	1820.0	–	1990.0	26.0	1930.0	80.0	1845.0	9.0	16.0	20.0	1890.0	5.0	30.0	44	M27
2000	2020.0	–	2190.0	26.0	2130.0	80.0	2045.0	10.0	16.0	22.0	2090.0	5.0	30.0	48	M27
2200	2220.0	–	2405.0	28.0	2340.0	90.0	2248.0	10.0	18.0	25.0	2295.0	6.0	33.0	52	M30
2400	2420.0	–	2605.0	28.0	2540.0	90.0	2448.0	10.0	18.0	25.0	2495.0	6.0	33.0	56	M30
2600	2620.0	–	2805.0	28.0	2740.0	90.0	2648.0	10.0	18.0	25.0	2695.0	6.0	33.0	60	M30
2800	2820.0	–	3030.0	30.0	2960.0	90.0	2848.0	10.0	18.0	25.0	2910.0	6.0	36.0	64	M33
3000	3020.0	–	3230.0	30.0	3160.0	90.0	3050.0	10.0	18.0	25.0	3110.0	6.0	36.0	68	M33
3200	3220.0	–	3430.0	30.0	3360.0	90.0	3250.0	10.0	20.0	25.0	3310.0	6.0	36.0	72	M33
3400	3420.0	–	3630.0	32.0	3560.0	95.0	3450.0	10.0	20.0	28.0	3510.0	6.0	36.0	76	M33
3600	3620.0	–	3840.0	32.0	3770.0	100.0	3652.0	10.0	20.0	28.0	3720.0	6.0	36.0	80	M33
3800	3820.0	–	4045.0	34.0	3970.0	100.0	3852.0	10.0	20.0	28.0	3920.0	6.0	39.0	80	M36
4000	4020.0	–	4245.0	34.0	4170.0	100.0	4052.0	10.0	20.0	28.0	4120.0	6.0	39.0	84	M36

DIN 2631

DIN 2631 PN 6

Unit : mm

DN	Outside Diameter d1		Outside Dia. D	Thick-ness of Flange b	Dia. of Bolt Circle K	h1	Hub Dia. d3	s	r	h2	Dia. of Shoul-der N4	Height of Shoul-der f	Dia. of Bolt Holes L	Bolting	
	ISO	DIN												Number	Size
10	–	14.0	75.0	12.0	50.0	28.0	22.0	1.8	4.0	6.0	35.0	2.0	11.0	4	M10
	17.2	–					26.0								
15	–	20.0	80.0	12.0	55.0	30.0	28.0	2.0	4.0	6.0	40.0	2.0	11.0	4	M10
	21.3	–					30.0								
20	–	25.0	90.0	14.0	65.0	32.0	35.0	2.3	4.0	6.0	50.0	2.0	11.0	4	M10
	26.9	–					38.0								
25	–	30.0	100.0	14.0	75.0	35.0	40.0	2.6	4.0	6.0	60.0	2.0	11.0	4	M10
	33.7	–					42.0								
32	–	38.0	120.0	14.0	90.0	35.0	50.0	2.6	6.0	6.0	70.0	2.0	14.0	4	M12
	42.4	–					55.0								
40	–	44.5	130.0	14.0	100.0	38.0	58.0	2.6	6.0	7.0	80.0	3.0	14.0	4	M12
	48.3	–					62.0								
50	–	57.0	140.0	14.0	110.0	38.0	70.0	2.9	6.0	8.0	90.0	3.0	14.0	4	M12
	60.3	–					74.0								
65	–	–	160.0	14.0	130.0	38.0	88.0	2.9	6.0	9.0	110.0	3.0	14.0	4	M12
	76.1	–													
80	–	–	190.0	16.0	150.0	42.0	102.0	3.2	8.0	10.0	128.0	3.0	18.0	4	M16
	88.9	–													
100	–	108.0	210.0	16.0	170.0	45.0	122.0	3.6	8.0	10.0	148.0	3.0	18.0	4	M16
	114.3	–					130.0								
125	–	133.0	240.0	18.0	200.0	48.0	148.0	4.0	8.0	10.0	178.0	3.0	18.0	8	M16
	139.7	–					155.0								
150	–	159.0	265.0	18.0	225.0	48.0	172.0	4.5	10.0	12.0	202.0	3.0	18.0	8	M16
	168.3	–					184.0								
200	–	–	320.0	20.0	280.0	55.0	236.0	5.9	10.0	15.0	258.0	3.0	18.0	8	M16
	219.1	–													
250	–	267.0	375.0	22.0	335.0	60.0	282.0	6.3	12.0	15.0	312.0	3.0	18.0	12	M16
	273.0	–					290.0								
300	–	–	440.0	22.0	395.0	62.0	342.0	7.1	12.0	15.0	365.0	4.0	22.0	12	M20
	323.9	–													
350	–	368.0	490.0	22.0	445.0	62.0	385.0	7.1	12.0	15.0	415.0	4.0	22.0	12	M20
	355.6	–													
400	–	419.0	540.0	22.0	495.0	65.0	438.0	7.1	12.0	15.0	465.0	4.0	22.0	16	M20
	406.4	–													
500	508.0	–	645.0	24.0	600.0	68.0	538.0	7.1	12.0	15.0	570.0	4.0	22.0	20	M20
600	610.0	–	755.0	24.0	705.0	70.0	640.0	7.1	12.0	16.0	670.0	5.0	26.0	20	M24
700	711.0	–	860.0	24.0	810.0	70.0	740.0	7.1	12.0	16.0	775.0	5.0	26.0	24	M24
800	813.0	–	975.0	24.0	920.0	70.0	842.0	7.1	12.0	16.0	880.0	5.0	30.0	24	M27
900	914.0	–	1075.0	26.0	1020.0	70.0	942.0	7.1	12.0	16.0	980.0	5.0	30.0	24	M27
1000	1016.0	–	1175.0	26.0	1120.0	70.0	1045.0	7.1	16.0	16.0	1080.0	5.0	30.0	28	M27
1200	1220.0	–	1405.0	28.0	1340.0	90.0	1248.0	8.0	16.0	20.0	1295.0	5.0	33.0	32	M30
1400	1420.0	–	1630.0	32.0	1560.0	90.0	1452.0	8.0	16.0	20.0	1510.0	5.0	36.0	36	M33
1600	1620.0	–	1830.0	34.0	1760.0	90.0	1655.0	9.0	16.0	20.0	1710.0	5.0	36.0	40	M33
1800	1820.0	–	2045.0	36.0	1970.0	100.0	1855.0	10.0	16.0	20.0	1920.0	5.0	39.0	44	M36
2000	2020.0	–	2265.0	38.0	2180.0	110.0	2058.0	11.0	16.0	25.0	2125.0	5.0	42.0	48	M39
2200	2220.0	–	2475.0	42.0	2390.0	115.0	2260.0	12.0	18.0	25.0	2335.0	6.0	42.0	52	M39
2400	2420.0	–	2685.0	44.0	2600.0	125.0	2462.0	13.0	18.0	25.0	2545.0	6.0	42.0	56	M39
2600	2620.0	–	2905.0	46.0	2810.0	130.0	2665.0	14.0	18.0	25.0	2750.0	6.0	48.0	60	M45
2800	2820.0	–	3115.0	48.0	3020.0	135.0	2865.0	15.0	18.0	30.0	2960.0	6.0	48.0	64	M45
3000	3020.0	–	3315.0	50.0	3220.0	140.0	3068.0	16.0	18.0	30.0	3160.0	6.0	48.0	68	M45
3200	3220.0	–	3525.0	54.0	3430.0	150.0	3272.0	16.0	20.0	30.0	3370.0	6.0	48.0	72	M45
3400	3420.0	–	3735.0	56.0	3640.0	160.0	3475.0	18.0	20.0	35.0	3580.0	6.0	48.0	76	M45
3600	3620.0	–	3970.0	60.0	3860.0	165.0	3678.0	18.0	20.0	35.0	3790.0	6.0	56.0	80	M52

DIN 2632

DIN 2632 PN 10

Unit : mm

DN	Outside Diameter d1		Outside Dia. D	Thick-ness of Flange b	Dia. of Bolt Circle K	h1	Hub Dia. d3	s	r	h2	Dia. of Shoul-der N4	Height of Shoul-der f	Dia. of Bolt Holes L	Bolting	
	ISO	DIN												Number	Size
10	–	14.0	90.0	14.0	60.0	35.0	25.0	1.8	4.0	6.0	40.0	2.0	14.0	4	M12
	17.2	–					28.0								
15	–	20.0	95.0	14.0	65.0	35.0	30.0	2.0	4.0	6.0	45.0	2.0	14.0	4	M12
	21.3	–					32.0								
20	–	25.0	105.0	16.0	75.0	38.0	38.0	2.3	4.0	6.0	58.0	2.0	14.0	4	M12
	26.9	–					40.0								
25	–	30.0	115.0	16.0	85.0	38.0	42.0	2.6	4.0	6.0	68.0	2.0	14.0	4	M12
	33.7	–					45.0								
32	–	38.0	140.0	16.0	100.0	40.0	52.0	2.6	6.0	6.0	78.0	2.0	18.0	4	M16
	42.4	–					56.0								
40	–	44.5	150.0	16.0	110.0	42.0	60.0	2.6	6.0	7.0	88.0	3.0	18.0	4	M16
	48.3	–					64.0								
50	–	57.0	165.0	18.0	125.0	45.0	72.0	2.9	6.0	8.0	102.0	3.0	18.0	4	M16
	60.3	–					75.0								
65	–	–	185.0	18.0	145.0	45.0	90.0	2.9	6.0	10.0	122.0	3.0	18.0	4	M16
	76.1	–													
80	–	–	200.0	20.0	160.0	50.0	105.0	3.2	8.0	10.0	138.0	3.0	18.0	8	M16
	88.9	–													
100	–	108.0	220.0	20.0	180.0	52.0	125.0	3.6	8.0	12.0	158.0	3.0	18.0	8	M16
	114.3	–					131.0								
125	–	133.0	250.0	22.0	210.0	55.0	150.0	4.0	8.0	12.0	188.0	3.0	18.0	8	M16
	139.7	–					156.0								
150	–	159.0	285.0	22.0	240.0	55.0	175.0	4.5	10.0	12.0	212.0	3.0	22.0	8	M20
	168.3	–					184.0								
200	–	–	340.0	24.0	295.0	62.0	234.0	5.9	10.0	16.0	268.0	3.0	22.0	8	M20
	219.1	–													
250	–	267.0	395.0	26.0	350.0	68.0	285.0	6.3	12.0	16.0	320.0	3.0	22.0	12	M20
	273.0	–					292.0								
300	–	–	445.0	26.0	400.0	68.0	344.0	7.1	12.0	16.0	370.0	4.0	22.0	12	M20
	323.9	–													
350	–	368.0	505.0	26.0	460.0	68.0	385.0	7.1	12.0	16.0	430.0	4.0	22.0	16	M20
	355.6	–													
400	–	419.0	565.0	26.0	515.0	72.0	440.0	7.1	12.0	16.0	482.0	4.0	26.0	16	M24
	406.4														
500	508.0	–	670.0	28.0	620.0	75.0	542.0	7.1	12.0	16.0	585.0	4.0	26.0	20	M24
600	610.0	–	780.0	28.0	725.0	80.0	642.0	7.1	12.0	18.0	685.0	5.0	30.0	20	M27
700	711.0	–	895.0	30.0	840.0	80.0	746.0	8.0	12.0	18.0	800.0	5.0	30.0	24	M27
800	813.0	–	1015.0	32.0	950.0	90.0	850.0	8.0	12.0	18.0	905.0	5.0	33.0	24	M30
900	914.0	–	1115.0	34.0	1050.0	95.0	950.0	10.0	12.0	20.0	1005.0	5.0	33.0	28	M30
1000	1 016.0	–	1230.0	34.0	1160.0	95.0	1052.0	10.0	16.0	20.0	1110.0	5.0	36.0	28	M33
1200	1220.0	–	1455.0	38.0	1380.0	115.0	1255.0	11.0	16.0	25.0	1330.0	5.0	39.0	32	M36
1400	1420.0	–	1675.0	42.0	1590.0	120.0	1460.0	12.0	16.0	25.0	1535.0	5.0	42.0	36	M39
1600	1620.0	–	1 915	46.0	1820.0	130.0	1665.0	14.0	16.0	25.0	1760.0	5.0	48.0	40	M45
1800	1820.0	–	2115.0	50.0	2020.0	140.0	1868.0	15.0	16.0	30.0	1960.0	5.0	48.0	44	M45
2000	2020.0	–	2325.0	54.0	2230.0	150.0	2072.0	16.0	16.0	30.0	2170.0	5.0	48.0	48	M45
2200	2220.0	–	2550.0	58.0	2440.0	160.0	2275.0	18.0	18.0	35.0	2370.0	6.0	56.0	52	M52
2400	2420.0	–	2760.0	62.0	2650.0	170.0	2478.0	20.0	18.0	35.0	2570.0	6.0	56.0	56	M52
2600	2620.0	–	2960.0	66.0	2850.0	180.0	2680.0	22.0	18.0	40.0	2780.0	6.0	56.0	60	M52
2800	2820.0	–	3180.0	70.0	3070.0	190.0	2882.0	22.0	18.0	40.0	3000.0	6.0	56.0	64	M52
3000	3020.0	–	3405.0	75.0	3290.0	200.0	3085.0	24.0	18.0	45.0	3210.0	6.0	62.0	68	M56

DIN 2633

DIN 2633 PN 16

Unit : mm

DN	Outside Diameter d1		Outside Dia. D	Thick-ness of Flange b	Dia. of Bolt Circle K	h1	Hub Dia. d3	s	r	h2	Dia. of Shoul-der N4	Height of Shoul-der f	Dia. of Bolt Holes L	Bolting	
	ISO	DIN												Number	Size
10	–	14.0	90.0	14.0	60.0	35.0	25.0	1.8	4.0	6.0	40.0	2.0	14.0	4	M12
	17.2	–					28.0								
15	–	20.0	95.0	14.0	65.0	35.0	30.0	2.0	4.0	6.0	45.0	2.0	14.0	4	M12
	21.3	–					32.0								
20	–	25.0	105.0	16.0	75.0	38.0	38.0	2.3	4.0	6.0	58.0	2.0	14.0	4	M12
	26.9	–					40.0								
25	–	30.0	115.0	16.0	85.0	38.0	42.0	2.6	4.0	6.0	68.0	2.0	14.0	4	M12
	33.7	–					45.0								
32	–	38.0	140.0	16.0	100.0	40.0	52.0	2.6	6.0	6.0	78.0	2.0	18.0	4	M16
	42.4	–					56.0								
40	–	44.5	150.0	16.0	110.0	42.0	60.0	2.6	6.0	7.0	88.0	3.0	18.0	4	M16
	48.3	–					64.0								
50	–	57.0	165.0	18.0	125.0	45.0	72.0	2.9	6.0	8.0	102.0	3.0	18.0	4	M16
	60.3	–					75.0								
65	–	–	185.0	18.0	145.0	45.0	90.0	2.9	6.0	10.0	122.0	3.0	18.0	4	M16
	76.1	–													
80	–	–	200.0	20.0	160.0	50.0	105.0	3.2	8.0	10.0	138.0	3.0	18.0	8	M16
	88.9	–													
100	–	108.0	220.0	20.0	180.0	52.0	125.0	3.6	8.0	12.0	158.0	3.0	18.0	8	M16
	114.3	–					131.0								
125	–	133.0	250.0	22.0	210.0	55.0	150.0	4.0	8.0	12.0	188.0	3.0	18.0	8	M16
	139.7	–					156.0								
150	–	159.0	285.0	22.0	240.0	55.0	175.0	4.5	10.0	12.0	212.0	3.0	22.0	8	M20
	168.3	–					184.0								
175	–	–	315.0	24.0	270.0	60.0	210.0	5.4	10.0	12.0	242.0	3.0	22.0	8	M20
	193.7	–													
200	–	–	340.0	24.0	295.0	62.0	235.0	5.9	10.0	16.0	268.0	3.0	22.0	12	M20
	219.1	–													
250	–	267.0	405.0	26.0	355.0	70.0	285.0	6.3	12.0	16.0	320.0	3.0	26.0	12	M24
	273.0	–					292.0								
300	–	–	460.0	28.0	410.0	78.0	344.0	7.1	12.0	16.0	378.0	4.0	26.0	12	M24
	323.9	–													
350	–	368.0	520.0	30.0	470.0	82.0	390.0	8.0	12.0	16.0	438.0	4.0	26.0	16	M24
	355.6	–													
400	–	419.0	580.0	32.0	525.0	85.0	445.0	8.0	12.0	16.0	490.0	4.0	30.0	16	M27
	406.4	–													
500	508.0	–	715.0	34.0	650.0	90.0	548.0	8.0	12.0	16.0	610.0	4.0	33.0	20	M30
600	610.0	–	840.0	36.0	770.0	95.0	652.0	8.8	12.0	18.0	725.0	5.0	36.0	20	M33
700	711.0	–	910.0	36.0	840.0	100.0	755.0	8.8	12.0	18.0	795.0	5.0	36.0	24	M33
800	813.0	–	1025.0	38.0	950.0	105.0	855.0	10.0	12.0	20.0	900.0	5.0	39.0	24	M36
900	914.0	–	1125.0	40.0	1050.0	110.0	955.0	10.0	12.0	20.0	1000.0	5.0	39.0	28	M36
1000	1016.0	–	1255.0	42.0	1170.0	120.0	1058.0	10.0	16.0	22.0	1115.0	5.0	42.0	28	M39
1200	1220.0	–	1485.0	48.0	1390.0	130.0	1262.0	12.5	16.0	30.0	1330.0	5.0	48.0	32	M45
1400	1420.0	–	1685.0	52.0	1590.0	145.0	1465.0	14.2	16.0	30.0	1530.0	5.0	48.0	36	M45
1600	1620.0	–	1930.0	58.0	1820.0	160.0	1668.0	16.0	16.0	35.0	1750.0	5.0	56.0	40	M52
1800	1820.0	–	2130.0	62.0	2020.0	170.0	1870.0	17.5	16.0	35.0	1950.0	5.0	56.0	44	M52
2000	2020.0	–	2345.0	66.0	2230.0	180.0	2072.0	20.0	16.0	40.0	2150.0	5.0	62.0	48	M56

DIN 2634

DIN 2634 PN 25

Unit : mm

DN	Outside Diameter d1		Outside Dia. D	Thick-ness of Flange b	Dia. of Bolt Circle K	h1	Hub Dia. d3	s	r	h2	Dia. of Shoul-der N4	Height of Shoul-der f	Dia. of Bolt Holes L	Bolting	
	ISO	DIN												Number	Size
10	–	14.0	90.0	16.0	60.0	35.0	25.0	1.8	4.0	6.0	40.0	2.0	14.0	4	M12
	17.2	–					28.0								
15	–	20.0	95.0	16.0	65.0	38.0	30.0	2.0	4.0	6.0	45.0	2.0	14.0	4	M12
	21.3	–					32.0								
20	–	25.0	105.0	18.0	75.0	40.0	38.0	2.3	4.0	6.0	58.0	2.0	14.0	4	M12
	26.9	–					40.0								
25	–	30.0	115.0	18.0	85.0	40.0	42.0	2.6	4.0	6.0	68.0	2.0	14.0	4	M12
	33.7	–					46.0								
32	–	38.0	140.0	18.0	100.0	42.0	52.0	2.6	6.0	6.0	78.0	2.0	18.0	4.0	M16
	42.4	–					56.0								
40	–	44.5	150.0	18.0	110.0	45.0	60.0	2.6	6.0	7.0	88.0	3.0	18.0	4.0	M16
	48.3	–					64.0								
50	–	57.0	165.0	20.0	125.0	48.0	72.0	2.9	6.0	8.0	102.0	3.0	18.0	4.0	M16
	60.3	–					75.0								
65	–	–	185.0	22.0	145.0	52.0	90.0	2.9	6.0	10.0	122.0	3.0	18.0	8.0	M16
	76.1	–													
80	–	–	200.0	24.0	160.0	58.0	105.0	3.2	8.0	12.0	138.0	3.0	18.0	8.0	M16
	88.9	–													
100	–	108.0	235.0	24.0	190.0	65.0	128.0	3.6	8.0	12.0	162.0	3.0	22.0	8.0	M20
	114.3	–					134.0								
125	–	133.0	270.0	26.0	220.0	68.0	155.0	4.0	8.0	12.0	188.0	3.0	26.0	8.0	M24
	139.7	–					162.0								
150	–	159.0	300.0	28.0	250.0	75.0	182.0	4.5	10.0	12.0	218.0	3.0	26.0	8.0	M24
	168.3	–					192.0								
175	–	–	330.0	28.0	280.0	75.0	218.0	5.6	10.0	15.0	248.0	3.0	26.0	12	M24
	193.7	–													
200	–	–	360.0	30.0	310.0	80.0	244.0	6.3	10.0	16.0	278.0	3.0	26.0	12	M24
	219.1	–													
250	–	267.0	425.0	32.0	370.0	88.0	292.0	7.1	12.0	18.0	335.0	3.0	30.0	12	M27
	273.0	–					298.0								
300	–	–	485.0	34.0	430.0	92.0	352.0	8.0	12.0	18.0	395.0	4.0	30.0	16	M27
	323.9	–													
350	–	368.0	555.0	38.0	490.0	100.0	398.0	8.0	12.0	20.0	450.0	4.0	33.0	16	M30
	355.6	–													
400	–	419.0	620.0	40.0	550.0	110.0	452.0	8.8	12.0	20.0	505.0	4.0	36.0	16	M33
	406.4	–													
500	–	–	730.0	44.0	660.0	125.0	558.0	10.0	12.0	20.0	615.0	4.0	36.0	20	M33
	508.0	–													
600	–	–	845.0	46.0	770.0	125.0	660.0	11.0	12.0	20.0	720.0	5.0	39.0	20	M36
	610.0	–													
700	–	–	960.0	46.0	875.0	125.0	760.0	12.5	12.0	20.0	820.0	5.0	42.0	24	M39
	711.0	–													
800	–	–	1085.0	50.0	990.0	135.0	864.0	14.2	12.0	22.0	930.0	5.0	48.0	24	M45
	813.0	–													
900	–	–	1185.0	54.0	1090.0	145.0	968.0	16.0	12.0	24.0	1030.0	5.0	48.0	28	M45
	914.0	–													
1000	–	–	1320.0	58.0	1210.0	155.0	1070.0	17.5	16.0	24.0	1140.0	5.0	56.0	28	M52
	1016.0	–													

DIN 2635

DIN 2635 PN 40

Unit : mm

DN	Outside Diameter d1		Outside Dia. D	Thick-ness of Flange b	Dia. of Bolt Circle K	h1	Hub Dia. d3	s	r	h2	Dia. of Shoul-der N4	Height of Shoul-der f	Dia. of Bolt Holes L	Bolting	
	ISO	DIN												Number	Size
10	–	14.0	90.0	16.0	60.0	35.0	25.0	1.8	4.0	6.0	40.0	2.0	14.0	4	M12
	17.2	–					28.0								
15	–	20.0	95.0	16.0	65.0	38.0	30.0	2.0	4.0	6.0	45.0	2.0	14.0	4	M12
	21.3	–					32.0								
20	–	25.0	105.0	18.0	75.0	40.0	38.0	2.3	4.0	6.0	58.0	2.0	14.0	4	M12
	26.9	–					40.0								
25	–	30.0	115.0	18.0	85.0	40.0	42.0	2.6	4.0	6.0	68.0	2.0	14.0	4	M12
	33.7	–					46.0								
32	–	38.0	140.0	18.0	100.0	42.0	52.0	2.6	6.0	6.0	78.0	2.0	18.0	4.0	M16
	42.4	–					56.0								
40	–	44.5	150.0	18.0	110.0	45.0	60.0	2.6	6.0	7.0	88.0	3.0	18.0	4.0	M16
	48.3	–					64.0								
50	–	57.0	165.0	20.0	125.0	48.0	72.0	2.9	6.0	8.0	102.0	3.0	18.0	4.0	M16
	60.3	–					75.0								
65	–	–	185.0	22.0	145.0	52.0	90.0	2.9	6.0	10.0	122.0	3.0	18.0	8.0	M16
	76.1	–													
80	–	–	200.0	24.0	160.0	58.0	105.0	3.2	8.0	12.0	138.0	3.0	18.0	8.0	M16
	88.9	–													
100	–	108.0	235.0	24.0	190.0	65.0	128.0	3.6	8.0	12.0	162.0	3.0	22.0	8.0	M20
	114.3	–					134.0								
125	–	133.0	270.0	26.0	220.0	68.0	155.0	4.0	8.0	12.0	188.0	3.0	26.0	8.0	M24
	139.7	–					162.0								
150	–	159.0	300.0	28.0	250.0	75.0	182.0	4.5	10.0	12.0	218.0	3.0	26.0	8.0	M24
	168.3	–					192.0								
175	–	–	350.0	32.0	295.0	82.0	218.0	5.6	10.0	15.0	260.0	3.0	30.0	12.0	M27
	193.7	–													
200	–	–	375.0	34.0	320.0	88.0	244.0	6.3	10.0	16.0	285.0	3.0	30.0	12.0	M27
	219.1	–													
250	–	267.0	450.0	38.0	385.0	105.0	298.0	7.1	12.0	18.0	345.0	3.0	33.0	12.0	M30
	273.0	–					306.0								
300	–	–	515.0	42.0	450.0	115.0	362.0	8.0	12.0	18.0	410.0	4.0	33.0	16.0	M30
	323.9	–													
350	–	368.0	580.0	46.0	510.0	125.0	408.0	8.8	12.0	20.0	465.0	4.0	36.0	16.0	M33
	355.6	–													
400	–	419.0	660.0	50.0	585.0	135.0	462.0	11.0	12.0	20.0	535.0	4.0	39.0	16.0	M36
	406.4	–													
500	–	419.0	755.0	52.0	670.0	140.0	562.0	14.2	12.0	20.0	615.0	4.0	42.0	20.0	M39
	508.0	–													

DIN 2636

DIN 2636 PN 64

Unit : mm

DN	Outside Diameter d1		Outside Dia. D	Thick-ness of Flange b	Dia. of Bolt Circle K	h1	Hub Dia. d3	s	r	h2	Dia. of Shoul-der N4	Height of Shoul-der f	Dia. of Bolt Holes L	Bolting	
	ISO	DIN												Number	Size
10	–	14.0	100.0	20.0	70.0	45.0	28.0	1.8	4.0	6.0	40.0	2.0	14.0	4.0	M12
	17.2	–					32.0								
15	–	20.0	105.0	20.0	75.0	45.0	32.0	2.0	4.0	6.0	45.0	2.0	14.0	4.0	M12
	21.3	–					34.0								
25	–	30.0	140.0	24.0	100.0	58.0	48.0	2.6	4.0	8.0	68.0	2.0	18.0	4.0	M16
	33.7	–					52.0								
40	–	44.5	170.0	26.0	125.0	62.0	65.0	2.9	6.0	10.0	88.0	3.0	22.0	4.0	M20
	48.3	–					70.0								
50	–	57.0	180.0	26.0	135.0	62.0	78.0	2.9	6.0	10.0	102.0	3.0	22.0	4.0	M20
	60.3	–					82.0								
65	–	–	205.0	26.0	160.0	68.0	98.0	3.2	6.0	12.0	122.0	3.0	22.0	8.0	M20
	76.1	–													
80	–	–	215.0	28.0	170.0	72.0	112.0	3.6	8.0	12.0	138.0	3.0	22.0	8.0	M20
	88.9	–													
100	–	108.0	250.0	30.0	200.0	78.0	132.0	4.0	8.0	12.0	162.0	3.0	26.0	8.0	M24
	114.3	–					138.0								
125	–	133.0	295.0	34.0	240.0	88.0	162.0	4.5	8.0	12.0	188.0	3.0	30.0	8.0	M27
	139.7	–					168.0								
150	–	159.0	345.0	36.0	280.0	95.0	192.0	5.6	10.0	12.0	218.0	3.0	33.0	8.0	M30
	168.3	–					202.0								
175	–	–	375.0	40.0	310.0	105.0	228.0	6.3	10.0	16.0	260.0	3.0	33.0	12.0	M30
	193.7	–													
200	–	–	415.0	42.0	345.0	110.0	256.0	7.1	10.0	16.0	285.0	3.0	36.0	12.0	M33
	219.1	–													
250	–	267.0	470.0	46.0	400.0	125.0	310.0	8.8	12.0	18.0	345.0	3.0	36.0	12.0	M33
	273.0	–					316.0								
300	–	–	530.0	52.0	460.0	140.0	372.0	11.0	12.0	18.0	410.0	4.0	36.0	16.0	M33
	323.9	–													
350	–	368.0	600.0	56.0	525.0	150.0	420.0	12.5	12.0	20.0	465.0	4.0	39.0	16.0	M36
	355.6	–													
400	–	419.0	670.0	60.0	585.0	160.0	475.0	14.2	12.0	20.0	535.0	4.0	42.0	16.0	M39
	406.4	–													

DIN 2637

DIN 2637 PN 100

Unit : mm

DN	Outside Diameter d1		Outside Dia. D	Thick-ness of Flange b	Dia. of Bolt Circle K	h1	Hub Dia. d3	s	r	h2	Dia. of Shoul-der N4	Height of Shoul-der f	Dia. of Bolt Holes L	Bolting	
	ISO	DIN												Number	Size
10	–	14.0	100.0	20.0	70.0	45.0	28.0	1.8	4.0	6.0	40.0	2.0	14.0	4.0	M12
	17.2	–					32.0								
15	–	20.0	105.0	20.0	75.0	45.0	32.0	2.0	4.0	6.0	45.0	2.0	14.0	4.0	M12
	21.3	–					34.0								
25	–	30.0	140.0	24.0	100.0	58.0	48.0	2.6	4.0	8.0	68.0	2.0	18.0	4.0	M16
	33.7	–					52.0								
40	–	44.5	170.0	26.0	125.0	62.0	65.0	2.9	6.0	10.0	88.0	3.0	22.0	4.0	M20
	48.3	–					70.0								
50	–	57.0	195.0	28.0	145.0	68.0	86.0	3.2	6.0	10.0	102.0	3.0	26.0	4.0	M24
	60.3	–					90.0								
65	–	–	220.0	30.0	170.0	76.0	108.0	3.6	6.0	12.0	122.0	3.0	26.0	8.0	M24
	76.1	–													
80	–	–	230.0	32.0	180.0	78.0	120.0	4.0	8.0	12.0	138.0	3.0	26.0	8.0	M24
	88.9	–													
100	–	108.0	265.0	36.0	210.0	90.0	145.0	5.0	8.0	12.0	162.0	3.0	30.0	8.0	M27
	114.3	–					150.0								
125	–	133.0	315.0	40.0	250.0	105.0	180.0	6.3	8.0	12.0	188.0	3.0	33.0	8.0	M30
	139.7	–													
150	–	159.0	355.0	44.0	290.0	115.0	210.0	7.1	10.0	12.0	218.0	3.0	33.0	12.0	M30
	168.3	–													
175	–	–	385.0	48.0	320.0	127.0	245.0	8.8	10.0	16.0	260.0	3.0	33.0	12.0	M30
	193.7	–													
200	–	–	430.0	52.0	360.0	130.0	278.0	10.0	10.0	16.0	285.0	3.0	36.0	12.0	M33
	219.1	–													
250	–	267.0	505.0	60.0	430.0	157.0	340.0	12.5	12.0	18.0	345.0	3.0	39.0	12.0	M36
	273.0	–													
300	–	–	585.0	68.0	500.0	170.0	400.0	14.2	12.0	18.0	410.0	4.0	42.0	16.0	M39
	323.9	–													
350	–	368.0	655.0	74.0	560.0	189.0	460.0	16.0	12.0	20.0	465.0	4.0	48.0	16.0	M45
	355.6	–													

DIN 2638

DIN 2638 PN 160

Unit : mm

DN	Outside Diameter d1		Outside Dia. D	Thick-ness of Flange b	Dia. of Bolt Circle K	h1	Hub Dia. d3	s	r	h2	Dia. of Shoul-der N4	Height of Shoul-der f	Dia. of Bolt Holes L	Bolting	
	ISO	DIN												Number	Size
10	–	14.0	100.0	20.0	70.0	45.0	28.0	2.0	4.0	6.0	40.0	2.0	14.0	4.0	M12
	17.2	–					32.0								
15	–	20.0	105.0	20.0	75.0	45.0	32.0	2.0	4.0	6.0	45.0	2.0	14.0	4.0	M12
	21.3	–					34.0								
25	–	30.0	140.0	24.0	100.0	58.0	48.0	2.9	4.0	8.0	68.0	2.0	18.0	4.0	M16
	33.7	–					52.0								
40	–	44.5	170.0	28.0	125.0	64.0	65.0	3.6	6.0	10.0	88.0	3.0	22.0	4.0	M20
	48.3	–					70.0								
50	–	57.0	195.0	30.0	145.0	75.0	86.0	4.0	6.0	10.0	102.0	3.0	26.0	4.0	M24
	60.3	–					90.0								
65	–	–	220.0	34.0	170.0	82.0	108.0	5.0	6.0	12.0	122.0	3.0	26.0	8.0	M24
	76.1	–													
80	–	–	230.0	36.0	180.0	86.0	120.0	6.3	8.0	12.0	138.0	3.0	26.0	8.0	M24
	88.9	–													
100	–	108.0	265.0	40.0	210.0	100.0	145.0	8.0	8.0	12.0	162.0	3.0	30.0	8.0	M27
	114.3	–					150.0								
125	–	133.0	315.0	44.0	250.0	115.0	180.0	10.0	8.0	14.0	188.0	3.0	33.0	8.0	M30
	139.7	–													
150	–	159.0	355.0	50.0	290.0	128.0	210.0	12.5	10.0	14.0	218.0	3.0	33.0	12.0	M30
	168.3	–													
175	–	–	390.0	54.0	320.0	138.0	245.0	14.2	10.0	16.0	260.0	3.0	36.0	12.0	M33
	193.7	–													
200	–	–	430.0	60.0	360.0	140.0	278.0	16.0	10.0	16.0	285.0	3.0	36.0	12.0	M33
	219.1	–													
250	–	267.0	515.0	68.0	430.0	155.0	340.0	20.0	12.0	18.0	345.0	3.0	42.0	12.0	M39
	273.0	–													
300	–	–	585.0	78.0	500.0	175.0	400.0	22.2	12.0	18.0	410.0	4.0	42.0	16.0	M39
	323.9	–													

DIN 2627 / DIN 2628

DIN 2627 PN 400

Unit : mm

DN	Outside Diameter d1		Outside Dia. D	Thick-ness of Flange b	Dia. of Bolt Circle K	h1	Hub Dia. d3	s	r	h2	Dia. of Shoul-der N4	Height of Shoul-der f	Dia. of Bolt Holes L	Bolting	
	ISO	DIN												Number	Size
10	17.2	–	125.0	28.0	85.0	65.0	48.0	3.6	4.0	8.0	40.0	2.0	18.0	4	M16
15	26.9	–	145.0	30.0	100.0	68.0	56.0	5.0	4.0	8.0	45.0	2.0	22.0	4	M20
25	42.4	–	180.0	38.0	130.0	90.0	82.0	7.1	4.0	10.0	68.0	2.0	26.0	4	M24
40	60.3	–	220.0	48.0	165.0	110.0	106.0	10.0	6.0	12.0	88.0	3.0	30.0	4	M27
50	76.1	–	235.0	52.0	180.0	120.0	120.0	12.5	6.0	15.0	102.0	3.0	30.0	8	M27
65	101.6	–	290.0	64.0	225.0	135.0	158.0	16.0	6.0	18.0	122.0	3.0	33.0	8	M30
80	114.3	–	305.0	68.0	240.0	150.0	174.0	17.5	8.0	20.0	138.0	3.0	33.0	8	M30
100	139.7	–	370.0	80.0	295.0	175.0	216.0	22.2	8.0	25.0	162.0	3.0	39.0	8	M36
125	193.7	–	415.0	92.0	340.0	200.0	258.0	30.0	8.0	30.0	188.0	3.0	39.0	12	M36
150	219.1	–	475.0	105.0	390.0	225.0	302.0	35.0	10.0	35.0	218.0	3.0	42.0	12	M39
200	273.0	–	585.0	130.0	490.0	280.0	388.0	40.0	10.0	40.0	285.0	3.0	48.0	16	M45

DIN 2628 PN 250

Unit : mm

DN	Outside Diameter d1		Outside Dia. D	Thick-ness of Flange b	Dia. of Bolt Circle K	h1	Hub Dia. d3	s	r	h2	Dia. of Shoul-der N4	Height of Shoul-der f	Dia. of Bolt Holes L	Bolting	
	ISO	DIN												Number	Size
10	–	14.0	75.0	12.0	50.0	28.0	22.0	1.8	4.0	6.0	35.0	2.0	11.0	4	M10
	17.2	–					26.0								
15	–	20.0	130.0	26.0	90.0	60.0	48.0	2.6	4.0	6.0	45.0	2.0	18.0	4	M16
	21.3	–													
25	–	30.0	150.0	28.0	105.0	65.0	60.0	3.6	4.0	8.0	68.0	2.0	22.0	4	M20
	33.7	–													
40	–	44.5	185.0	34.0	135.0	80.0	84.0	5.0	6.0	10.0	88.0	3.0	26.0	4	M24
	48.3	–													
50	–	57.0	200.0	38.0	150.0	85.0	95.0	6.3	6.0	10.0	102.0	3.0	26.0	8	M24
	60.3	–													
65	–	–	230.0	42.0	180.0	95.0	124.0	8.0	6.0	12.0	122.0	3.0	26.0	8	M24
	76.1	–													
80	–	–	255.0	46.0	200.0	102.0	136.0	11.0	8.0	12.0	138.0	3.0	30.0	8	M27
	101.6	–													
100	–	–	300.0	54.0	235.0	120.0	164.0	14.2	8.0	14.0	162.0	3.0	33.0	8	M30
	127.0	–													
125	–	–	340.0	60.0	275.0	140.0	200.0	16.0	8.0	16.0	188.0	3.0	33.0	12	M30
	152.4	–													
150	–	–	390.0	68.0	320.0	160.0	240.0	17.5	10.0	18.0	218.0	3.0	36.0	12	M33
	177.8	–													
200	–	–	485.0	82.0	400.0	190.0	305.0	25.0	10.0	25.0	285.0	3.0	42.0	12	M39
	244.5	–													
250	–	–	585.0	100.0	490.0	215.0	385.0	32.0	12.0	30.0	345.0	3.0	48.0	16	M45
	298.5	–													

DIN 2629

DIN 2629 PN 320

Unit : mm

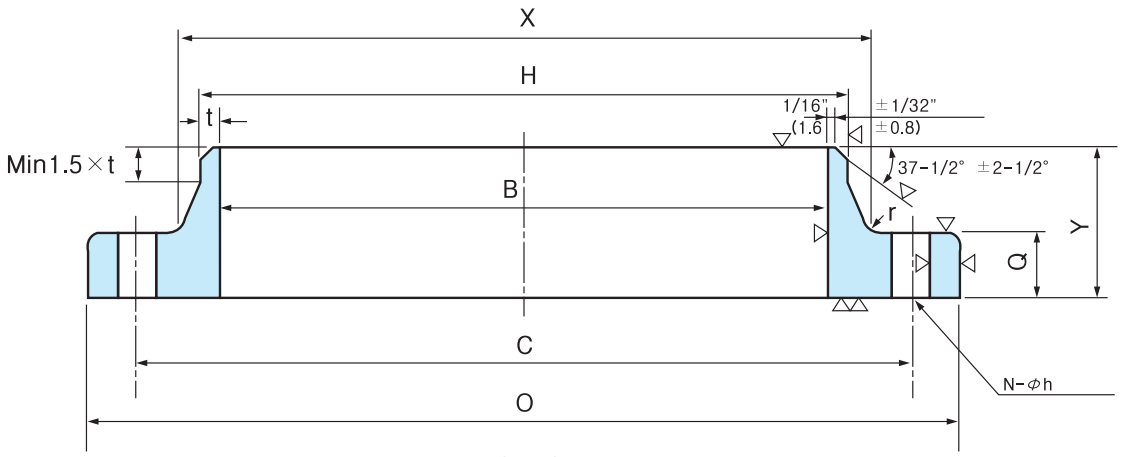
DN	Outside Diameter d1		Outside Dia. D	Thick-ness of Flange b	Dia. of Bolt Circle K	h1	Hub Dia. d3	s	r	h2	Dia. of Shoul-der N4	Height of Shoul-der f	Dia. of Bolt Holes L	Bolting	
	ISO	DIN												Number	Size
10	–	14.0	75.0	12.0	50.0	28.0	22.0	1.8	4.0	6.0	35.0	2.0	11.0	4	M10
	17.2	–					26.0								
15	–	20.0	80.0	12.0	55.0	30.0	28.0	2.0	4.0	6.0	40.0	2.0	11.0	4	M10
	21.3	–					30.0								
20	–	25.0	90.0	14.0	65.0	32.0	35.0	2.3	4.0	6.0	50.0	2.0	11.0	4	M10
	26.9	–					38.0								
25	–	30.0	100.0	14.0	75.0	35.0	40.0	2.6	4.0	6.0	60.0	2.0	11.0	4	M10
	33.7	–					42.0								
32	–	38.0	120.0	14.0	90.0	35.0	50.0	2.6	6.0	6.0	70.0	2.0	14.0	4	M12
	42.4	–					55.0								
40	–	44.5	130.0	14.0	100.0	38.0	58.0	2.6	6.0	7.0	80.0	3.0	14.0	4	M12
	48.3	–					62.0								
50	–	57.0	140.0	14.0	110.0	38.0	70.0	2.9	6.0	8.0	90.0	3.0	14.0	4	M12
	60.3	–					74.0								
65	–	–	160.0	14.0	130.0	38.0	88.0	2.9	6.0	9.0	110.0	3.0	14.0	4	M12
	76.1	–													
80	–	–	190.0	16.0	150.0	42.0	102.0	3.2	8.0	10.0	128.0	3.0	18.0	4	M16
	88.9	–													
100	–	108.0	210.0	16.0	170.0	45.0	122.0	3.6	8.0	10.0	148.0	3.0	18.0	4	M16
	114.3	–					130.0								
125	–	133.0	240.0	18.0	200.0	48.0	148.0	4.0	8.0	10.0	178.0	3.0	18.0	8	M16
	139.7	–					155.0								
150	–	159.0	265.0	18.0	225.0	48.0	172.0	4.5	10.0	12.0	202.0	3.0	18.0	8	M16
	168.3	–					184.0								
200	–	–	320.0	20.0	280.0	55.0	236.0	5.9	10.0	15.0	258.0	3.0	18.0	8	M16
	219.1	–													
250	–	267.0	375.0	22.0	335.0	60.0	282.0	6.3	12.0	15.0	312.0	3.0	18.0	12	M16
	273.0	–					290.0								
300	–	–	440.0	22.0	395.0	62.0	342.0	7.1	12.0	15.0	365.0	4.0	22.0	12	M20
	323.9	–													
350	–	368.0	490.0	22.0	445.0	62.0	385.0	7.1	12.0	15.0	415.0	4.0	22.0	12	M20
	355.6	–													
400	–	419.0	540.0	22.0	495.0	65.0	438.0	7.1	12.0	15.0	465.0	4.0	22.0	16	M20
	406.4	–													
500	508.0	–	645.0	24.0	600.0	68.0	538.0	7.1	12.0	15.0	570.0	4.0	22.0	20	M20
600	610.0	–	755.0	24.0	705.0	70.0	640.0	7.1	12.0	16.0	670.0	5.0	26.0	20	M24
700	711.0	–	860.0	24.0	810.0	70.0	740.0	7.1	12.0	16.0	775.0	5.0	26.0	24	M24
800	813.0	–	975.0	24.0	920.0	70.0	842.0	7.1	12.0	16.0	880.0	5.0	30.0	24	M27
900	914.0	–	1075.0	26.0	1020.0	70.0	942.0	7.1	12.0	16.0	980.0	5.0	30.0	24	M27
1000	1016.0	–	1175.0	26.0	1120.0	70.0	1045.0	7.1	16.0	16.0	1080.0	5.0	30.0	28	M27
1200	1220.0	–	1375.0	26.0	1320.0	70.0	1245.0	7.0	16.0	16.0	1280.0	5.0	30.0	32	M27
1400	1420.0	–	1575.0	26.0	1520.0	70.0	1445.0	7.0	16.0	16.0	1480.0	5.0	30.0	36	M27
1600	1620.0	–	1790.0	26.0	1730.0	80.0	1645.0	8.0	16.0	20.0	1690.0	5.0	30.0	40	M27
1800	1820.0	–	1990.0	26.0	1930.0	80.0	1845.0	9.0	16.0	20.0	1890.0	5.0	30.0	44	M27
2000	2020.0	–	2190.0	26.0	2130.0	80.0	2045.0	10.0	16.0	22.0	2090.0	5.0	30.0	48	M27
2200	2220.0	–	2405.0	28.0	2340.0	90.0	2248.0	10.0	18.0	25.0	2295.0	6.0	33.0	52	M30
2400	2420.0	–	2605.0	28.0	2540.0	90.0	2448.0	10.0	18.0	25.0	2495.0	6.0	33.0	56	M30
2600	2620.0	–	2805.0	28.0	2740.0	90.0	2648.0	10.0	18.0	25.0	2695.0	6.0	33.0	60	M30
2800	2820.0	–	3030.0	30.0	2960.0	90.0	2848.0	10.0	18.0	25.0	2910.0	6.0	36.0	64	M33
3000	3020.0	–	3230.0	30.0	3160.0	90.0	3050.0	10.0	18.0	25.0	3110.0	6.0	36.0	68	M33
3200	3220.0	–	3430.0	30.0	3360.0	90.0	3250.0	10.0	20.0	25.0	3310.0	6.0	36.0	72	M33
3400	3420.0	–	3630.0	32.0	3560.0	95.0	3450.0	10.0	20.0	28.0	3510.0	6.0	36.0	76	M33
3600	3620.0	–	3840.0	32.0	3770.0	100.0	3652.0	10.0	20.0	28.0	3720.0	6.0	36.0	80	M33
3800	3820.0	–	4045.0	34.0	3970.0	100.0	3852.0	10.0	20.0	28.0	3920.0	6.0	39.0	80	M36
4000	4020.0	–	4245.0	34.0	4170.0	100.0	4052.0	10.0	20.0	28.0	4120.0	6.0	39.0	84	M36

YAYLOR FLANGES

- Class 125 Flanges
- Class 175 Flanges
- Class 250 Flanges
- Class 350 Flanges

SFF Corp.

TAYLOR FLANGES CLASS-125



WELDING NECK TYPE

DIN 2638 PN 160

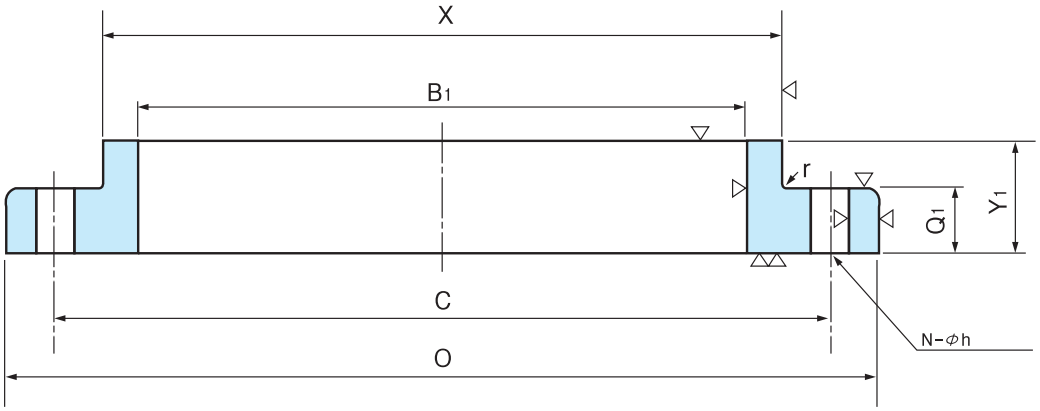
Unit : mm

Nominal Pipe Size	COMMON DIMENSIONS				Diameter of Hub at Bevel		THICKNESS				LENGTH THRU HUB			
	Outside Diameter of Flange		Diameter at Base of Hub				Welding Neck		Slip-On		Welding Neck		Slip-On	
	O		X		H		Q		Q1		Y		Y1	
	mm.	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
26	870.0	34-1/4	723.9	28-1/2	660.4	26	50.8	2	50.8	2	127.0	5	85.7	3-3/8
28	927.1	36-1/2	781.1	30-3/4	711.2	28	52.4	2-1/16	52.4	2-1/16	128.6	5-1/16	87.3	3-7/16
30	984.3	38 3/4	831.9	32-3/4	762.0	30	54.0	2-1/8	54.0	2-1/8	130.2	5-1/8	88.9	3-1/2
32	1060.5	41-3/4	889.0	35	812.8	32	57.2	2-1/4	57.2	2-1/4	133.4	5-1/4	92.1	3-5/8
34	1111.3	43-3/4	939.8	37	863.6	34	58.8	2-5/16	58.8	2-5/16	134.9	5-5/16	93.7	3-11/16
36	1168.4	46	997.0	39-1/4	914.4	36	60.3	2-3/8	60.3	2-3/8	136.5	5-3/8	95.3	3-3/4
38	1238.3	48-3/4	1060.5	41-3/4	965.2	38	60.3	2-3/8	60.3	2-3/8	136.5	5-3/8	95.3	3-3/4
40	1289.1	50-3/4	1111.3	43-3/4	1016.0	40	63.5	2-1/2	63.5	2-1/2	139.7	5-1/2	98.4	3-7/8
42	1346.2	53	1168.4	46	1066.8	42	66.7	2-5/8	66.7	2-5/8	142.9	5-5/8	101.6	4
44	1403.4	55-1/4	1219.2	48	1117.6	44	66.7	2-5/8	66.7	2-5/8	142.9	5-5/8	101.6	4
46	1454.2	57-1/4	1270.0	50	1168.4	46	68.3	2-11/16	68.3	2-11/16	144.5	5-11/16	103.2	4-1/16
48	1511.3	59-1/2	1327.2	52-1/4	1219.2	48	69.9	2-3/4	69.9	2-3/4	146.1	5-3/4	104.8	4-1/8
50	1568.5	61-3/4	1378.0	54-1/4	1270.0	50	69.9	2-3/4	69.9	2-3/4	146.1	5-3/4	104.8	4-1/8
52	1625.6	64	1435.1	56-1/2	1320.8	52	73.0	2-7/8	73.0	2-7/8	149.2	5-7/8	108.0	4-1/4
54	1682.8	66-1/4	1492.3	58-3/4	1371.6	54	76.2	3	76.2	3	152.4	6	111.1	4-3/8
60	1854.2	73	1657.4	65-1/4	1524.0	60	79.4	3-1/8	79.4	3-1/8	155.6	6-1/8	114.3	4-1/2
66	2032.0	80	1816.1	71-1/2	1676.4	66	85.7	3-3/8	85.7	3-3/8	161.9	6-3/8	123.8	4-7/8
72	2197.1	86-1/2	1993.9	78-1/2	1828.8	72	88.9	3-1/2	88.9	3-1/2	165.1	6-1/2	127.0	5
84	2533.7	99-3/4	2298.7	90-1/2	2133.6	84	98.4	3-7/8	98.4	3-7/8	174.6	6-7/8	136.5	5-3/8
96	2876.6	113-1/4	2609.9	102-3/4	2438.4	96	108.0	4-1/4	108.0	4-1/4	184.2	7-1/4	146.1	5-3/4

Notes :

Properly there is no Steel Flange Standard of this designation, the term "CLASS 125" being precisely applicable to a Cast Iron Standard under ANSI B16.1.
These flanges are used for connections to cast steel valves, pumps or other equipment, having flanged ends made to Cast Iron Standard dimensions.
These flanges are identical with Class E of AWWA C207 For machining tolerances see ANSI B16.5.

TAYLOR FLANGES CLASS-125

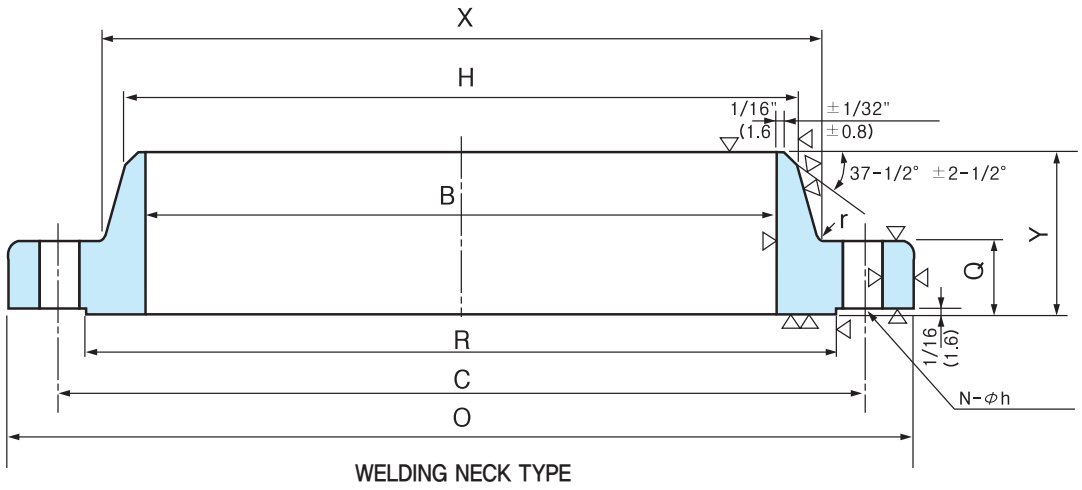


SLIP-ON TYPE

DIN 2627 PN 400

Unit : mm

Nominal Pipe Size	INSIDE DIAMETER			DRILLING TEMPLATE				Fillet Radius		APPROX WEIGHT	
	Welding Neck	Slip-On		Bolt Circle Diameter		Number Of Holes	Diam, of Holes			Welding Neck	Slip-On
	B	B1		C		N	h				
		mm	in	mm	in			mm	in	kg	kg
26	To be specified by Purchaser	666.8	26-1/4	806.5	31-3/4	24	1-3/8	9.5	3/8	118	107
28		717.6	28-1/4	863.6	34	28	1-3/8	9.5	3/8	134	122
30		768.4	30-1/4	914.4	36	28	1-3/8	9.5	3/8	154	138
32		819.2	32-1/4	977.9	38-1/2	28	1-5/8	9.5	3/8	186	170
34		870.0	34-1/4	1028.7	40-1/2	32	1-5/8	9.5	3/8	200	181
36		920.8	36-1/4	1085.9	42-3/4	32	1-5/8	9.5	3/8	225	204
38		971.6	38-1/4	1149.4	45-1/4	32	1-5/8	9.5	3/8	259	240
40		1022.4	40-1/4	1200.2	47-1/4	36	1-5/8	9.5	3/8	281	259
42		1073.2	42-1/4	1257.3	49-1/2	36	1-5/8	9.5	3/8	322	295
44		1124.0	44-1/4	1314.5	51-3/4	40	1-5/8	9.5	3/8	340	313
46		1174.8	46-1/4	1365.3	53-3/4	40	1-5/8	9.5	3/8	363	331
48		1225.6	48-1/4	1422.4	56	44	1-5/8	9.5	3/8	395	363
50		1276.4	50-1/4	1479.6	58-1/4	44	1-7/8	11.1	7/16	408	376
52		1327.2	52-1/4	1536.7	60-1/2	44	1-7/8	11.1	7/16	454	417
54		1378.0	54-1/4	1593.9	62-3/4	44	1-7/8	11.1	7/16	499	465
60		1530.4	60-1/4	1759.0	69-1/4	52	1-7/8	11.1	7/16	612	567
66		1682.8	66-1/4	1930.4	76	52	1-7/8	11.1	7/16	805	737
72		1835.2	72-1/4	2095.5	82-1/2	60	1-7/8	11.1	7/16	953	873
84		2140.0	84-1/4	2425.7	95-1/2	64	2-1/8	15.9	5/8	1281	1179
96		2444.8	96-1/4	2755.9	108-1/2	68	2-3/8	22.2	7/8	1724	1486



WELDING NECK TYPE

WELDING NECK, SLIP-ON AND BLIND

Unit : mm

Nominal Pipe Size	COMMON DIMENSIONS						COMMON DIMENSIONS						LENGTH THRU HUB			
	Outside Diameter of Flange		O.D Raised Face		Diameter at Base of Hub		Welding Neck		Slip-On		Blind		Welding Neck		Slip-On	
	O		R		X		Q		Q1		Q_2		Y		Y_1	
	mm.	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
26	800.1	31-1/2	736.6	29	701.7	27-5/8	34.9	1-3/8	34.9	1-3/8	47.6	1-7/8	85.7	3-3/8	69.9	2-3/4
28	850.9	33-1/2	787.4	31	752.5	29-5/8	34.9	1-3/8	34.9	1-3/8	50.8	2	85.7	3-3/8	69.9	2-3/4
30	908.1	35-3/4	844.6	33-1/4	809.6	31-7/8	34.9	1-3/8	34.9	1-3/8	54.0	2-1/8	92.1	3-5/8	69.9	2-3/4
32	958.9	37-3/4	895.4	35-1/4	860.4	33-7/8	34.9	1-3/8	34.9	1-3/8	57.2	2-1/4	92.1	3-5/8	69.9	2-3/4
34	1022.4	40-1/4	949.3	37-3/8	911.2	35-7/8	38.1	1-1/2	44.5	1-3/4	60.3	2-3/8	95.3	3-3/4	85.7	3-3/8
36	1073.2	42-1/4	1000.1	39-3/8	962.0	37-7/8	38.1	1-1/2	44.5	1-3/4	63.5	2-1/2	95.3	3-3/4	85.7	3-3/8
38	1124.0	44-1/4	1050.9	41-3/8	1012.8	39-7/8	44.5	1-3/4	50.8	2	66.7	2-5/8	104.8	4-1/8	95.3	3-3/4
40	1174.8	46-1/4	1101.7	43-3/8	1063.6	41-7/8	44.5	1-3/4	50.8	2	69.9	2-3/4	104.8	4-1/8	101.6	4
42	1244.6	49	1162.1	45-3/4	1120.8	44-1/8	50.8	2	60.3	2-3/8	73.0	2-7/8	114.3	4-1/2	111.1	4-3/8
44	1295.4	51	1212.9	47-3/4	1171.6	46-1/8	50.8	2	60.3	2-3/8	76.2	3	114.3	4-1/2	111.1	4-3/8
46	1346.2	53	1263.7	49-3/4	1222.4	48-1/8	50.8	2	60.3	2-3/8	79.4	3-1/8	114.3	4-1/2	117.5	4-5/8
48	1397.0	55	1314.5	51-3/4	1273.2	50-1/8	57.2	2-1/4	66.7	2-5/8	85.7	3-3/8	123.8	4-7/8	123.8	4-7/8
50	1447.8	57	1365.3	53-3/4	1324.0	52-1/8	57.2	2-1/4	66.7	2-5/8	85.7	3-3/8	123.8	4-7/8	123.8	4-7/8
52	1511.3	59-1/2	1422.4	56	1378.0	54-1/4	66.7	2-5/8	76.2	3	92.1	3-5/8	136.5	5-3/8	136.5	5-3/8
54	1562.1	61-1/2	1473.2	58	1428.8	56-1/4	66.7	2-5/8	76.2	3	92.1	3-5/8	136.5	5-3/8	136.5	5-3/8
60	1714.5	67-1/2	1625.6	64	1581.2	62-1/4	69.9	2-3/4	79.4	3-1/8	101.6	4	146.1	5-3/4	149.2	5-7/8
66	1866.9	73-1/2	1778.0	70	1739.9	68-1/2	79.4	3-1/8	101.6	4	111.1	4-3/8	155.6	6-1/8	174.6	6-7/8
72	2032.0	80	1943.1	76-1/2	1892.3	74-1/2	92.1	3-5/8	127.0	5	120.7	4-3/4	168.3	6-5/8	203.2	8
84	2387.6	94	1289.2	90-1/8	2235.2	88	76.2	3	127.0	5	139.7	5-1/2	177.8	7	215.9	8-1/2
96	2692.4	106	2594.0	102-1/8	2540.0	100	88.9	3-1/2	127.0	5	155.6	6-1/8	190.5	7-1/2	228.6	9

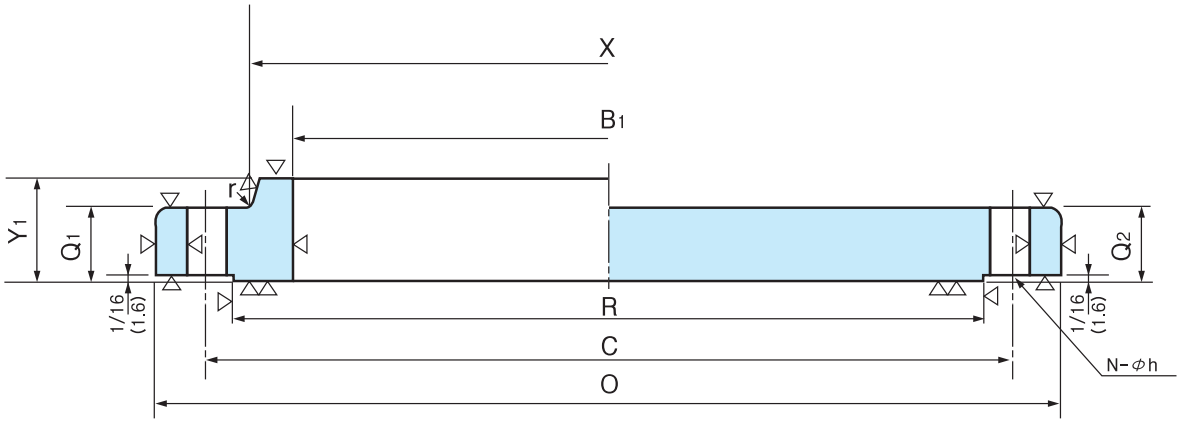
Notes :

(1) This designation applies to flanges formerly listed as "150lb at 750" F.

(2) Pressure rating;-175psi at -20° F to 650° F; or 150psi at 750° F.

(3) When applied to Welding Neck flanges, these ratings are based on inside diameters of pipe or shell as listed in "Nominal Size" column, and pipe or shell thicknesses ranging from 3/8" to 5/8".

TAYLOR FLANGES CLASS-175



WELDING NECK, SLIP-ON AND BLIND

Unit : mm

Nominal Pipe Size	Diameter of Hub at Bevel		INSIDE DIAMETER			DRILLING TEMPLATE				Fillet Radius		APPROX WEIGHT		
			Welding Neck	Slip-On		Bolt Circle Diameter		Number Of Holes	Diam. of Holes			Welding Neck	Slip-On	Blind
	H		B	B_1		C		N	h	r				
	mm.	in.		mm	in.	mm.	in.			mm.	in.	kg	kg	kg
26	660.4	26	To be specified by Purchaser	666.8	26-1/4	758.8	29-7/8	28	7/8	9.5	3/8	54	48	184
28	711.2	28		717.6	28-1/4	809.6	31-7/8	28	7/8	9.5	3/8	59	52	222
30	762.0	30		768.4	30-1/4	866.8	34-1/8	36	7/8	9.5	3/8	68	59	268
32	812.8	32		819.2	32-1/4	917.6	36-1/8	36	7/8	9.5	3/8	73	64	318
34	863.6	34		870.0	34-1/4	974.7	38-3/8	36	1	9.5	3/8	88	91	381
36	914.4	36		920.8	36-1/4	1025.5	40-3/8	36	1	9.5	3/8	93	95	440
38	965.2	38		971.6	38-1/4	1076.3	42-3/8	36	1	9.5	3/8	111	113	510
40	1016.0	40		1022.4	40-1/4	1127.1	44-3/8	40	1	9.5	3/8	116	122	590
42	1066.8	42		1073.2	42-1/4	1190.6	46-7/8	40	1-1/8	9.5	3/8	154	166	680
44	1117.6	44		1124.0	44-1/4	1241.4	48-7/8	40	1-1/8	9.5	3/8	163	172	771
46	1168.4	46		1174.8	46-1/4	1292.2	50-7/8	40	1-1/8	9.5	3/8	170	186	873
48	1219.2	48		1225.6	48-1/4	1343.0	52-7/8	44	1-1/8	9.5	3/8	195	209	1009
50	1270.0	50		1276.4	50-1/4	1393.8	54-7/8	44	1-1/8	9.5	3/8	204	218	1089
52	1320.8	52		1327.2	52-1/4	1454.2	57-1/4	44	1-1/4	9.5	3/8	254	272	1270
54	1371.6	54		1378.0	54-1/4	1505.0	59-1/4	44	1-1/4	9.5	3/8	263	281	1360
60	1454.0	60		1530.4	60-1/4	1657.4	65-1/4	48	1-1/4	9.5	3/8	308	331	1814
66	1676.4	66		1682.8	66-1/4	1809.8	71-1/4	56	1-1/4	6.4	1/4	376	454	2347
72	1828.8	72		1835.2	72-1/4	1974.9	77-3/4	64	1-1/4	12.7	1/2	488	635	3016
84	2133.6	84		2140.0	84-1/4	2324.1	91-1/2	72	1-3/8	12.7	1/2	703	1021	–
96	2438.4	96		2444.8	96-1/4	2628.9	103-1/2	88	1-3/8	12.7	1/2	885	1179	–

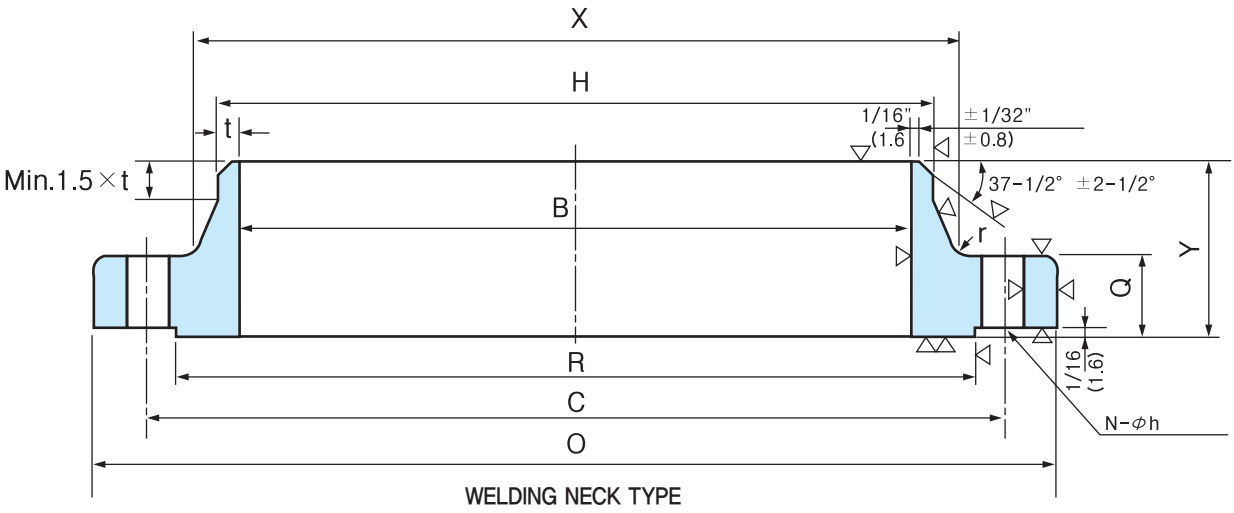
Notes :

(4) When applied to Slip-on flanges, ratinges are based on outside diameters of pipe or shell as listed in "Nominal Size" column. Bored slip to over nominal O.D pipe, any larger bore will affect the pressure rating.

(5) These flanges have been designed in accordance with "Modern Flange Design" (Taylor Forge Bulletin 722) and hence they comply in all respects with the current ASME Code.

(6) For machining tolerances see ANSI Standard B16.5.

TAYLOR FLANGES CLASS-250



WELDING NECK AND SLIP-ON

Unit : mm

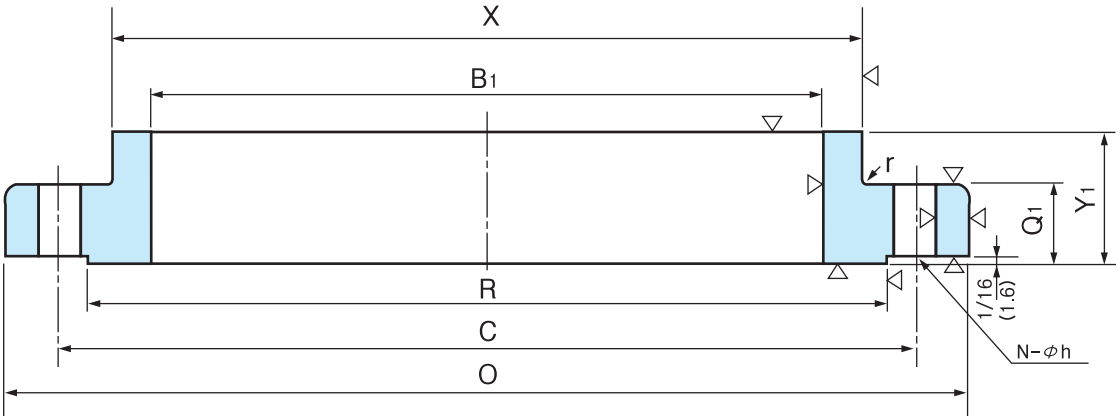
Nominal Pipe Size	COMMON DIMENSIONS						COMMON DIMENSIONS						LENGTH THRU HUB	
	Outside Diameter of Flange		O.D Raised Face		Diameter at Base of Hub		Welding Neck		Slip-On		Blind		Welding Neck	
	O		R		X		Q		Q1		Q_2		Y	
	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
26	971.6	38-1/4	823.9	32-7/16	774.7	30-1/2	71.5	2-13/16	71.5	2-13/16	147.7	5-13/16	120.7	4-3/4
28	1035.1	40-3/4	887.4	34-15/16	838.2	33	74.6	2-15/16	74.6	2-15/16	150.8	5-15/16	127.0	5
30	1092.2	43	944.6	37-3/16	895.4	35-1/4	76.2	3	76.2	3	152.4	6	127.0	5
32	1149.4	45-1/4	1001.7	39-7/16	952.5	37-1/2	79.4	3-1/8	79.4	3-1/8	155.6	6-1/8	130.2	5-1/8
34	1206.5	47-1/2	1052.5	41-7/16	1003.3	39-1/2	82.6	3-1/4	82.6	3-1/4	158.8	6-1/4	133.4	5-1/4
36	1270.0	50	1109.7	43-11/16	1054.1	41-1/2	85.7	3-3/8	85.7	3-3/8	161.9	6-3/8	136.5	5-3/8
38	1327.2	52-1/4	1160.5	45-11/16	1104.9	43-1/2	87.3	3-7/16	87.3	3-7/16	163.5	6-7/16	139.7	5-1/2
40	1384.3	54-1/2	1217.6	47-15/16	1162.1	45-3/4	90.5	3-9/16	90.5	3-9/16	166.7	6-9/16	139.7	5-1/2
42	1447.8	57	1281.1	50-7/16	1212.9	47-3/4	93.7	3-11/16	93.7	3-11/16	176.2	6-15/16	142.9	5-5/8
44	1505.0	59-1/4	1338.3	52-11/16	1263.7	49-3/4	95.3	3-3/4	95.3	3-3/4	177.8	7	146.1	5-3/4
46	1562.1	61-1/2	1395.4	54-15/16	1314.5	51-3/4	98.4	3-7/8	98.4	3-7/8	181.0	7-1/8	149.2	5-7/8
48	1651.0	65	1484.3	58-7/16	1371.6	54	101.6	4	101.6	4	184.2	7-1/4	152.4	6

Notes :

Properly there is no Steel Flange Standard of this designation, the term "Class 250" being pecisely applicable to a Cast Iron Standard under ANSI B16b. They are ordinarily used for flanged connections to cast steel valves and equipment made to Class 250 Cast Iron Standard dimensions and we recommend their use only for such purposes.

For machining tolerances see ANSI Standard B16.5

TAYLOR FLANGES CLASS-250



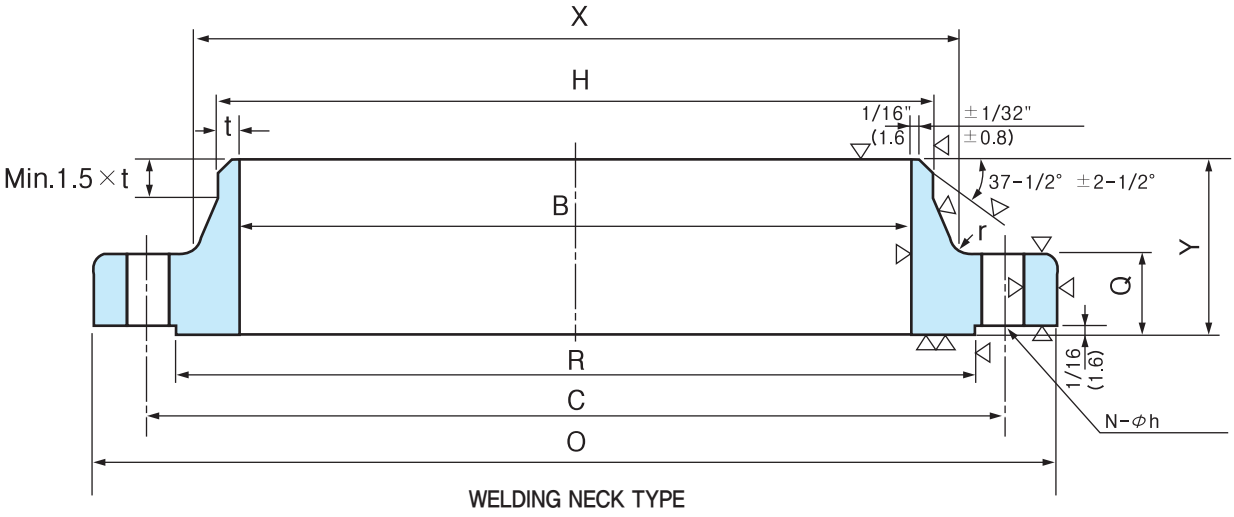
SLIP-ON TYPE

WELDING NECK AND SLIP-ON

Unit : mm

Nominal Pipe Size	Diameter of Hub at Bevel		INSIDE DIAMETER			DRILLING TEMPLATE				Fillet Radius		APPROX WEIGHT	
			Welding Neck	Slip-On		Bolt Circle Diameter		Number Of Holes	Diam, of Holes			Welding Neck	Slip-On
	H		B	B_1		C		N	h	r			
	mm.	in.		mm	in.	mm.	in.			mm.	in.	kg	kg
26	660.4	26	To be specified by Purchaser	666.8	26-1/4	876.3	34-1/2	28	1-7/8	9.5	3/8	241	241
28	711.2	28		717.6	28-1/4	939.8	37	28	1-7/8	9.5	3/8	286	291
30	762.0	30		768.4	30-1/4	997.0	39-1/4	28	1-7/8	9.5	3/8	319	323
32	812.8	32		819.2	32-1/4	1054.1	41-1/2	28	1-7/8	9.5	3/8	359	364
34	863.6	34		870.0	34-1/4	1104.9	43-1/2	28	1-7/8	9.5	3/8	400	405
36	914.4	36		920.8	36-1/4	1168.4	46	32	2-1/8	9.5	3/8	441	441
38	965.2	38		971.6	38-1/4	1219.2	48	32	2-1/8	9.5	3/8	478	478
40	1016.0	40		1022.4	40-1/4	1276.4	50-1/4	36	2-1/8	9.5	3/8	523	534
42	1066.8	42		1073.2	42-1/4	1339.9	52-3/4	36	2-1/8	15.9	5/8	603	591
44	1117.6	44		1124.0	44-1/4	1397.0	55	36	2-1/8	19.1	3/4	648	636
46	1168.4	46		1174.8	46-1/4	1454.2	57-1/4	40	2-1/8	22.2	7/8	694	682
48	1219.2	48		1225.6	48-1/4	1543.1	60-3/4	40	2-1/8	38.1	1-1/2	830	819

TAYLOR FLANGES CLASS-350



WELDING NECK TYPE

WELDING NECK, SLIP-ON AND BLIND

Unit : mm

Nominal Pipe Size	COMMON DIMENSIONS						COMMON DIMENSIONS						LENGTH THRU HUB			
	Outside Diameter of Flange		O.D Raised Face		Diameter at Base of Hub		Welding Neck		Slip-On		Blind		Welding Neck		Slip-On	
	O		R		X		Q		Q1		Q_2		Y		Y_1	
	mm.	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
26	831.9	32-3/4	749.3	29-1/2	708.0	27-7/8	63.5	2-1/2	63.5	2-1/2	69.9	2-3/4	127.0	5	114.3	4-1/2
28	882.7	34-3/4	800.1	31-1/2	758.8	29-7/8	63.5	2-1/2	63.5	2-1/2	73.0	2-7/8	127.0	5	114.3	4-1/2
30	939.8	37	857.3	33-3/4	816.0	32-1/8	66.7	2-5/8	66.7	2-5/8	76.2	3	133.4	5-1/4	120.7	4-3/4
32	990.6	39	908.1	35-3/4	866.8	34-1/8	69.9	2-3/4	69.9	2-3/4	82.6	3-1/4	139.7	5-1/2	127.0	5
34	1041.4	41	958.9	37-3/4	917.6	36-1/8	73.0	2-7/8	73.0	2-7/8	85.7	3-3/8	146.1	5-3/4	130.2	5-1/8
36	1111.3	43-3/4	1022.4	40-1/4	977.9	38-1/2	79.4	3-1/8	79.4	3-1/8	92.1	3-5/8	155.6	6-1/8	142.9	5-5/8
38	1162.1	45-3/4	1073.2	42-1/4	1028.7	40-1/2	79.4	3-1/8	79.4	3-1/8	95.3	3-3/4	155.6	6-1/8	142.9	5-5/8
40	1212.9	47-3/4	1124.0	44-1/4	1079.5	42-1/2	82.6	3-1/4	82.6	3-1/4	101.6	4	158.8	6-1/4	149.2	5-7/8
42	1270.0	50	1181.1	46-1/2	1136.7	44-3/4	88.9	3-1/2	88.9	3-1/2	104.8	4-1/8	165.1	6-1/2	155.6	6-1/8
44	1339.9	52-3/4	1241.4	48-7/8	1187.5	46-3/4	95.3	3-3/4	95.3	3-3/4	111.1	4-3/8	171.5	6-3/4	171.5	6-3/4
46	1390.7	54-3/4	1292.2	50-7/8	1238.3	48-3/4	108.0	4-1/4	108.0	4-1/4	120.7	4-3/4	184.2	7-1/4	184.2	7-1/4
48	1441.5	56-3/4	1343.0	52-7/8	1289.1	50-3/4	108.0	4-1/4	108.0	4-1/4	120.7	4-3/4	184.2	7-1/4	184.2	7-1/4
50																
52	1562.1	61-1/2	1454.2	57-1/4	1397.0	55	108.0	4-1/4					190.5	7-1/2		
54	1612.9	63-1/2	1505.0	59-1/4	1447.8	57	114.3	4-1/2	120.7	4-3/4			196.9	7-3/4	209.6	8-1/4
60	1765.3	69-1/2	1657.4	65-1/4	1600.2	63	114.3	4-1/2	127.0	5			203.2	8	215.9	8-1/2
66	1955.8	77	1838.3	72-3/8	1778.0	70	101.6	4					215.9	8-1/2		
72	2108.2	83	1990.7	78-3/8	1930.4	76	101.6	4					228.6	9		
84	2451.1	96-1/2	2324.1	91-1/2	2260.6	89	127.0	5					254.0	10		
96	2775.0	109-1/4	2638.4	103-7/8	2571.8	101-1/4	158.8	6-1/4					285.8	11-1/4		

Notes :

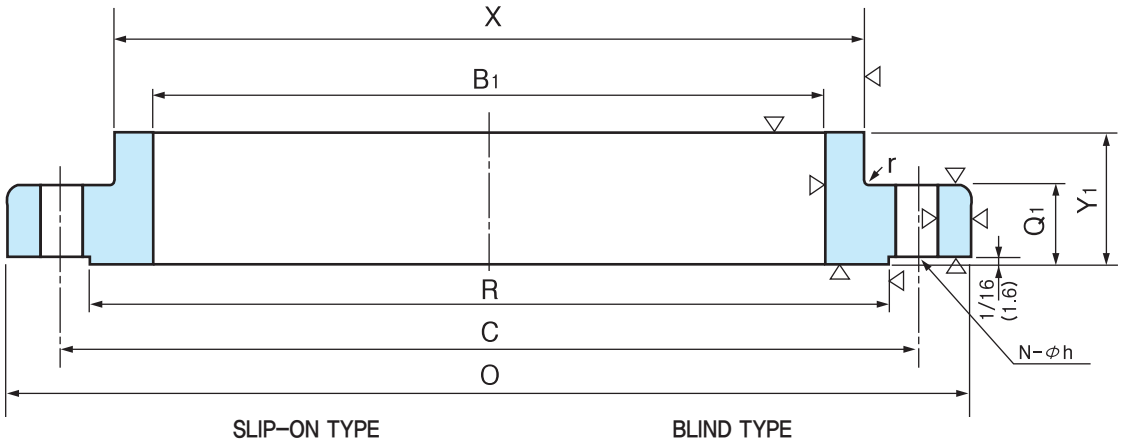
(1) Can be furnished. Class 350 flanges in thicknesses over 3 are of ASTM A105 steel.

(2) Pressure rating-350 psi at-20F to 650F, or 300psi at 750F.

(3) This designation applies to flanges formerly listed as "300lb. at 750" F Class 350 flanges are designed in accordance with "Modern Flange Design" (Taylor Forge Bulletin 502) and hence comply in all respects with the current ASME Boiler and Pressure vessel Code.

(4) Sizes are nominal inside diameters of pipe or shell used with Welding Neck flanges, and nominal outside diameters of pipe of shell used with Slip-On flanges.

TAYLOR FLANGES CLASS-350



WELDING NECK, SLIP-ON AND BLIND

Unit : mm

Nominal Pipe Size	Diameter of Hub at Bevel		INSIDE DIAMETER			DRILLING TEMPLATE				Fillet Radius		APPROX WEIGHT		
			Welding Neck	Slip-On		Bolt Circle Diameter		Number Of Holes	Diam. of Holes			Welding Neck	Slip-On	Blind
	H		B	B1		C		N	h	r				
	mm.	in.		mm	in.	mm.	in.			mm.	in.	kg	kg	kg
26	660.4	26	To be specified by Purchaser	666.8	26-1/4	777.9	30-5/8	28	1-1/8	9.5	3/8	111	102	263
28	711.2	28		717.6	28-1/4	828.7	32-5/8	28	1-1/8	9.5	3/8	118	113	340
30	762.0	30		768.4	30-1/4	885.8	34-7/8	32	1-1/8	9.5	3/8	138	134	404
32	812.8	32		819.2	32-1/4	936.6	36-7/8	36	1-1/8	9.5	3/8	154	147	476
34	863.6	34		870.0	34-1/4	987.4	38-7/8	40	1-1/8	9.5	3/8	170	161	556
36	914.4	36		920.8	36-1/4	1054.1	41-1/2	40	1-1/4	9.5	3/8	218	211	680
38	965.2	38		971.6	38-1/4	1104.9	43-1/2	40	1-1/4	9.5	3/8	231	222	771
40	1016.0	40		1022.4	40-1/4	1155.7	45-1/2	44	1-1/4	9.5	3/8	245	240	896
42	1066.8	42		1073.2	42-1/4	1212.9	47-3/4	48	1-1/4	9.5	3/8	290	281	1009
44	1117.6	44		1124.0	44-1/4	1276.4	50-1/4	44	1-3/8	11.1	7/16	345	345	1191
46	1168.4	46		1174.8	46-1/4	1327.2	52-1/4	48	1-3/8	11.1	7/16	399	399	1338
48	1219.2	48		1225.6	48-1/4	1378.0	54-1/4	48	1-3/8	11.1	7/16	417	417	1497
50														
52	1320.8	52		1327.2	52-1/4	1492.3	58-3/4	52	1-1/2	12.7	1/2	488	–	–
54	1371.6	54		1378.0	54-1/4	1543.1	60-3/4	52	1-1/2	12.7	1/2	544	522	–
60	1524.0	60		1530.4	60-1/4	1695.5	66-3/4	60	1-1/2	12.7	1/2	601	658	–
66	1676.4	66		1682.8	66-1/4	1879.6	74	60	1-5/8	12.7	1/2	760	–	–
72	1828.8	72		1835.2	72-1/4	2032.0	80	72	1-5/8	12.7	1/2	839	–	–
84	2133.6	84		2140.0	84-1/4	2368.6	93-1/4	80	1-3/4	12.7	1/2	1338	–	–
96	2438.4	96		2444.8	96-1/4	2686.1	105-3/4	84	1-7/8	15.9	5/8	1928	–	–

(5) When applied to Welding Neck flanges, these rating are based on inside diameters of pipe or shell as listed in "Nominal Size" column and pipe or shell thicknesses ranging from "1/2 to 1".
When applied to Slip-On flanges, ratings are based on outside diameters of pipe or shell as listed in "Nominal Size" column. Bored to slip over nominal OD pipe, any larger bore will affect the pressure rating.
These flanges have been designed in accordance with "Modern Flange Design" (Taylor Forge Bulletin 722) and hence they comply in all respects with the current ASME Code.
(6) For machining tolerances see ANSI Standard B16.5.

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