

Standard Forge

Manufacturer of Flanges & Fittings
www.standardforges.com



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Internationally Used Systems



DIN (Deutsche Industries Norm)

The most common and internationally used DIN-Standards:

DIN 50049	Documents on material testing
DIN 259	Threads corresponding to ISO 228
DIN 2999	Threads corresponding to ISO 7
DIN 2527	Blind flanges
DIN 2576	Plane welding flanges PN 10
DIN 2642F/G	Loose flanges PN 10 and collars
DIN 2633/35	Welding neck flanges PN 16-40
DIN 2605/09	Tube bends 3d (R=1.5 O.D)
DIN 2615	Tee



EN (European Standard)

EN 10204 defines the various types of inspection documents supplied to the purchaser for the delivery of iron and steel products. EN 10204, was approved by CEN on 1991-08-21.

The requirements in EN 10204/3.1B are the same als DIN 50049/3.1B. The new standard will be implemented in Europe and replace DIN 50049 step by step. Santrade's new purchase orders require inspection certificates 3.1B according to EN 10204.



ISO (International. Standardisation Organization)

The international. standardisation organization, ISO, has issued standards for tubes and tube fittings. The ISO system is predominant in Europe.

The following ISO standards ar of interest:

ISO 5251	Stainless steel butt welding fittings Bends, 1,5D/3d, 90° and 180° with and without straight ends, bends 5d, 90°, without straight ends, concentric and eccentric reducers, equal and reducing tees, end caps. Beveling of ends.
ISO 7	Pipe threads where pressure-tight joints are made on the threads.



ANSI (American National Standard Institute)

The American ANSI system (formerly ASA and USAS) is a national system but is used throughout the world, particularly in Latin and North America; and within certain industries, e.g. the petrochemical industry. It can therefore be regarded as an internationally applied system.

For most sizes, the differences between ANSI and ISO outside diameters are negligible, and do not have to be taken into account. There are, however, two ANSI diameters, 73.02 and 141.3 mm, which differ significantly from their ISO counterparts, 76.1 and 139.7 mm.

The following standards apply to pipe, tube and tube fittings:

ANSI B 16.9	Butt welding fittings, e.g. elbows 90° and returns 180°, long radius (correspond to ISO 3d), tees and crosses, concentric and eccentric reducers, end caps, lap joint stub ends.
ANSI B 16.28	Wrought steel butt welding short radius elbows and returns.
ANSI B.16.25	Butt welding ends, end preparations,
ANSI B 16.5	Pipe flanges.
ANSI B 16.11	Forged steel fittings socket-welding and threaded.
ANSI B 16.3	Malleable iron threaded fittings, class 150 and 300 lb,
ANSI B 2.1	Pipe threads.
ANSI B 36.10	Seamless and welded stainless steel pipe, 1/8" -48", Schedule 80, 160, STD, XS and XXS.
ANSI B 36,19	Seamless and welded stainless steel pipe 1/8" Schedule 5S, 10S, 40S and 80S. Nominal diameters, wall thicknesses and wall thickness tolerances.

MSS (Manufacturer's Standardisation Society)

MSS-SP (Standard Practices) is a manufacturing standard that is used internationally, although it was developed in the United States.

The most frequently used part of this standard for tube fittings is MSS-SP43, which covers light, stainless steel butt weldings fittings. With regard to dimensions, this standard corresponds to ANSI B 16.9, but with closer tolerances on the outside diameter.

Nace MR0175 (National Association of Corrosion Engineers)

This standard covers material requirements for sulfide stress cracking resistant metallic materials for oilfield equipment. Our SAF2205 (UNS 531803) is listed under table 1- duplex (austenitic/ferritic) materials for direct exposure to sour environments. Under the same section we should add SAF 2507 (UNS S32750). Ace to paragraph 3.9.4, added in January 90, the hardness for cold worked, solution annealed duplex materiel may not be greater than 34 HRC.



Internationally Used Systems



ASTM (American Society for Testing and Materials)

For materials and testing information the ANSI standards contain references to ASTM specifications. The following ASTM standards are used for stainless fittings.

ASTM Specification A182/A182M .

Forged or rolled alloy-steel pipe flanges, forged fittings, and valves and parts for high-temperature service.

Specific stipulation:

This standard covers tube fittings manufactured according to ANSI B16.5, a dimensional standard for flanges and flanged fittings, and ANSI B16.11, which covers forged socket welding and threaded fittings.

The material shall be forged as close as practicable to the specified shape and size. Forged and rolled bar may be used for small cylindrically shaped parts.

All austenitic and austenitic/ferritic forgings shall be furnished in the heat-treated condition. The heat treatment may be performed before machining.

This specification also covers fittings made in SAF2205.

Identification marks consisting of the manufacturer's symbol or name and the heat number, designation of service rating, specification number, steel grade and size shall be stamped on each forging. The marking confirms that the forging has been delivered in accordance with the specification.

ASTM Specification A403/A403M

Wrought austenitic stainless steel piping fittings.

Specific stipulation:

This specification covers two general classes, WP and CR, of wrought austenitic stainless steel fittings of seamless and welded construction covered by the latest revision of ANSI B16.9, ANSI B16.11, ANSI B16.28, MSS Standard Practice SP-79 and MSS standard practice SP-43.

Class WP. fittings are subdivided into three subclasses: Classes WP-S, WP-W, and WP-WX. They are manufactured to the requirements of ANSI B16.9, B16.11, B16.28, or MSS Standard Practice SP-79. Class WP-S fittings are manufactured from seamless product by a seamless method of manufacture (marked with class symbol WP-S); class WP-W fittings contain welds where the fitting, fabrication or construction welds have been radiographed (marked with class symbol WP-W); and class WP-WX fittings are those which contain welds where all welds have been radiographed (marked with class symbol WP-WX).

Class CR fittings are those manufactured to the requirements of MSS SP-43. Fittings according to class CR do not require non destructive testing. The material for fittings shall consist of forgings, bars, plates or seamless or welded tubular products. Fittings machined from bar shall be restricted to NPS 4 or smaller.

All fittings shall be furnished in the heat-treated condition. Fittings machined directly from solution annealed forgings and bar stock do not need to be resolution annealed. Hydrostatic testing is not required.

Each fitting shall be marked with the manufacturer's name or trademark, the schedule number or pressure rating, steel grade, class and size, and the heat number.

A certificate of compliance to the specification shall be the basis for approval.

ASTM Specification A815/A815M

Wrought ferritic, ferritic/austenitic and martensitic stainless steel piping fittings. This specification corresponds with ASTM A403 but covers also ferritic and ferritic/austenitic stainless steel.

UNS (Unified Numbering System for Metals and Alloys)

UNS is relatively new. It will replace AISI in the future. New materials are now listed under this number system. Most important for Sandvik are the following numbers:

UNS S 31803 = SAF 2205

UNS S 32304 = SAF 2304

UNS S 32750 = SAF 2507

UNS N 08904 = 2RK65

UNS N 08028 = SAN28

Material Chemical Composition

Code	Grade	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	Other
405	13Cr-0.2A1	≤ 0.08	≤ 1.00	≤ 1.00	≤ 0.040	≤ 0.030	-	≤ 0.6	11.50~14.50	-	A1 0.10~0.30
410	13Cr	≤ 0.15	≤ 1.00	≤ 1.00	≤ 0.040	≤ 0.030	-	≤ 0.6	11.50~13.50	-	-
430	17Cr	≤ 0.12	≤ 0.75	≤ 1.00	≤ 0.040	≤ 0.030	-	≤ 0.6	16.00~18.00	-	-
443	22Cr-1Cu	≤ 0.2	≤ 0.75	≤ 1.00	≤ 0.040	≤ 0.030	0.90~1.25	≤ 0.5	18.00~23.00	-	-
446	25Cr	≤ 0.2	≤ 0.75	≤ 1.50	≤ 0.040	≤ 0.030	-	≤ 0.5	23.0~30.0	-	N 0.10~0.25
329	25Cr-4Ni-1.5Mo	≤ 0.08	≤ 1.00	≤ 1.50	≤ 0.040	≤ 0.030	-	3.00~6.00	23.00~28.00	1.00~3.00	-
430A	17Cr-Ti	≤ 0.1	≤ 1.00	≤ 1.00	≤ 0.040	≤ 0.030	-	-	16.00~18.00	-	Ti ≥ 7xC%
303	18Cr-9Ni-S	≤ 0.15	≤ 1.00	≤ 2.00	≤ 0.20	≤ 0.15	-	8.00~10.00	17.00~19.00	-	-
304	19Cr-10Ni	≤ 0.08	≤ 1.00	≤ 2.00	≤ 0.040	≤ 0.030	-	8.00~11.00	18.00~20.00	-	-
316	17Cr-12Ni-2.5Mo	≤ 0.08	≤ 1.00	≤ 2.00	≤ 0.040	≤ 0.030	-	10.00~14.00	16.00~18.00	2.00~3.00	-
304H	H * C-19Cr-10Ni	0.04~0.10	≤ 0.75	≤ 2.00	≤ 0.040	≤ 0.030	-	8.00~11.00	18.00~20.00	-	-
316H	H * C-17Cr-12Ni2-5Mo	0.04~0.10	≤ 0.75	≤ 2.00	≤ 0.030	≤ 0.030	-	11.00~14.00	16.00~18.00	2.00~3.00	-
321H	H* C-18Cr-11Ni-Ti	0.04~0.10	≤ 0.75	≤ 2.00	≤ 0.030	≤ 0.030	-	9.00~13.00	17.00~20.00	-	Ti 4xC%~0.60
347H	H * C-18Cr-11Ni-Nb	0.04~0.10	≤ 1.00	≤ 2.00	≤ 0.030	≤ 0.030	-	9.00~13.00	17.00~20.00	-	Nb+Ta 8xC%~1.00
348H	H * C-18Cr-11Ni-Nb(Ta)	0.04~0.10	≤ 1.00	≤ 2.00	≤ 0.040	≤ 0.03	-	9.00~13.00	17.00~20.00	-	Nb+Ta 8xC%~1.00 Ta ≤ 0.10
304L	L*C-19Cr-11Ni	≤ 0.030	≤ 1.00	≤ 2.00	≤ 0.040	≤ 0.030	-	9.00~13.00	18.00~20.00	-	-
316L	L*C-17Cr-14Ni-25Mo	≤ 0.030	≤ 1.00	≤ 2.00	≤ 0.040	≤ 0.030	-	12.00~16.00	16.00~18.00	2.00~3.00	-
321	18Cr-11Ni-Ti	≤ 0.08	≤ 1.00	≤ 2.00	≤ 0.040	≤ 0.030	-	9.00~13.00	17.00~19.00	-	Ti ≥ 5XC%
347	18Cr-11Ni-Nb	≤ 0.08	≤ 1.00	≤ 2.00	≤ 0.040	≤ 0.030	-	9.00~13.00	17.00~19.00	-	Nb+Ta ≥ 10XC%
348	18Cr-11Ni-Nb(Ta)	≤ 0.08	≤ 1.00	≤ 2.00	≤ 0.040	≤ 0.030	-	9.00~13.00	17.00~20.00	-	Nb+Ta10XC%~1.00 Ta≤ 0.10
316 Cu	18Cr-12Ni-2Mo-2Cu	≤ .008	≤ 1.00	≤ 2.00	≤ 0.040	≤ 0.030	1.00~2.50	10.00~14.00	17.00~19.00	1.20~2.75	-
316CuL	L*C-18Cr-14Ni-2Mo-2Cu	≤ 0.030	≤ 1.00	≤ 2.00	≤ 0.040	≤ 0.030	1~2.50	12.00~16.00	17.00~19.00	1.20~2.75	-
317	19Cr-13Ni-3.5Mo	≤ 0.08	≤ 1.00	≤ 2.00	≤ 0.040	≤ 0.030	-	11.00~15.00	18.00~20.00	3.00~4.00	-
317L	L*C-19Cr-14Ni-3.5Mo	≤ 0.030	≤ 1.00	≤ 2.00	≤ 0.040	≤ 0.030	-	11.00~15.0	18.00~20.00	3.00~4.00	-
316B	18Cr-12Ni-2.5Mo-Ti	≤ 0.10	≤ 1.00	≤ 2.00	≤ 0.045	≤ 0.030	-	10.5~13.5	16.5~18.5	2.00~2.50	Ti=5XC%
KCP20	20Cr-30Ni-3.0 Mo-4Cu	≤ 0.07	≤ 1.00	≤ 2.00	≤ 0.040	≤ 0.030	3.00~4.00	28.00~30.00	19.00~21.00	2.00~3.00	Nb=10XC%
309S	23Cr-14Ni	≤ 0.15	≤ 1.00	≤ 2.00	≤ 0.040	≤ 0.030	-	12.00~15.00	22.00~24.00	-	-
310S	25Cr-20Ni	≤ 0.15	≤ 1.50	≤ 2.00	≤ 0.040	≤ 0.030	-	19.00~22.00	24.00~26.00	-	-

Mechanical Properties

MECHANICAL PROPERTIES - ASTM A182

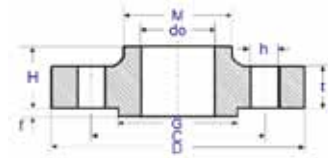
Symbol of class	Tensile Strength	Yield Strength	Elongation in 2in	Reduction of Area	Solution Temperature	Quenching Cool
	mm	N/mm ²	N/mm ²	%	°C	°C
F304	515(1)	205	30	50	1040	260
F304H	515(1)	205	30	50	1040	260
F304L	485(2)	170	30	50	1040	260
F304N	550	240	30(3)	50(4)	1040	260
F304LN	515(1)	205	30	50	1040	260
F309H	515(1)	205	30	50	1040	260
F310	515(1)	205	30	50	1040	260
F310H	515(1)	205	30	50	1040	260
F316	515(1)	205	30	50	1040	260
F316H	515(1)	205	30	50	1040	260
F316L	485(2)	170	30	50	1040	260
F316N	550	240	30(3)	50(4)	1040	260
F316LN	515(1)	205	30	50	1040	260
F317	515(1)	205	30	50	1040	260
F317L	485(2)	170	30	50	1040	260
F321	515(1)	205	30	50	1040	260
F321H	515(1)	205	30	50	1095	260
F347	515(1)	205	30	50	1040	260
F347H	515(1)	205	30	50	1095	260
F348	515(1)	205	30	50	1040	260
F348H	515(1)	205	30	50	1095	260

- Notes:
- (1) For sections over 5in. in thickness, the minimum tensile strenght shall be 485 MPa.
 - (2) For sections over 5in. in thickness, the minimum tensile strenght shall be 450 MPa.
 - (3) Longitudinal. The transverse elongation shall be 25% in 2in. min.
 - (3) Longitudinal. The transverse reduction of area shall be 45% min.



ANSI /ASTM STANDARD - 150# SORF

SLIP- ON FLANGE (RAISED FACE)



Nominal Pipe Size	Outside Dia. (mm)	Dia. of Bore (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Dia. at Base of Hub (mm)	Dia. of Raised Face (mm)	Height of Raised face (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx. Weight (KG)
	D	do	t	H	M	G	f		h	C	
1/2"	88.9	22.4	11.2	15.7	30.2	35.1	1.6	4	15.7	60.5	0.4
3/4"	98.6	27.7	12.7	15.7	38.1	42.9	1.6	4	15.7	69.9	0.6
1"	108.0	34.5	14.2	17.5	49.3	50.8	1.6	4	15.7	79.2	0.8
1.1/4"	117.3	43.2	15.7	20.6	58.7	63.5	1.6	4	15.7	88.9	1.0
1.1/2"	127.0	49.5	17.5	22.4	65.0	73.2	1.6	4	15.7	98.6	1.4
2"	152.4	62.0	19.1	25.4	77.7	91.9	1.6	4	19.1	120.7	2.1
2.1/2"	177.8	74.7	22.4	28.4	90.4	104.6	1.6	4	19.1	139.7	3.3
3"	190.5	90.7	23.9	30.2	108.0	127.0	1.6	4	19.1	152.4	3.9
3.1/2"	215.9	103.4	23.9	31.8	122.2	139.7	1.6	8	19.1	177.8	4.9
4"	228.6	116.1	23.9	33.3	134.9	157.2	1.6	8	19.1	190.5	5.4
5"	254.0	143.8	23.9	36.6	163.6	185.7	1.6	8	22.4	215.9	6.1
6"	279.4	170.7	25.4	39.6	192.0	215.9	1.6	8	22.4	241.3	7.5
8"	342.9	221.5	28.4	44.5	246.1	269.7	1.6	8	22.4	298.5	12.1
10"	406.4	276.4	30.2	49.3	304.8	323.9	1.6	12	25.4	362.0	16.5
12"	482.6	327.2	31.8	55.6	365.3	381.0	1.6	12	25.4	431.8	27.0
14"	533.4	359.2	35.1	57.2	400.1	412.8	1.6	12	28.4	476.2	35.0
16"	596.9	410.5	36.6	63.5	457.2	469.9	1.6	16	28.4	539.8	45.0
18"	635.0	461.8	39.6	68.3	505.0	533.4	1.6	16	31.8	577.9	49.0
20"	698.5	513.1	42.9	73.2	558.8	584.2	1.6	20	31.8	635.0	62.0
22"	749.3	564.4	46.0	79.4	609.6	641.2	1.6	20	35.1	692.1	85.0
24"	812.8	616.0	47.8	82.6	663.4	692.2	1.6	20	35.1	749.3	87.0

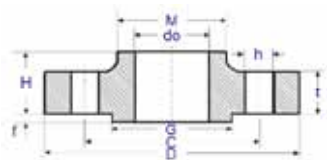
ANSI /ASTM STANDARD - 300# SORF

SLIP- ON FLANGE (RAISED FACE)

Nominal Pipe Size	Outside Dia. (mm)	Dia. of Bore (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Dia. at Base of Hub (mm)	Dia. of Raised Face (mm)	Height of Raised face (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx. Weight (KG)
	D	do	t	H	M	G	f		h	C	
1/2"	95.2	22.3	14.2	22.3	38.1	35.0	1.6	4	15.7	66.5	0.7
3/4"	117.3	27.7	15.7	25.4	47.7	42.9	1.6	4	19.0	82.5	1.2
1"	123.9	34.5	17.5	26.9	53.8	50.8	1.6	4	19.0	88.9	1.4
1.1/4"	133.3	43.2	19.0	26.9	63.5	63.5	1.6	4	19.0	98.5	1.7
1.1/2"	155.4	49.5	20.6	30.2	69.8	73.1	1.6	4	22.3	114.3	2.5
2"	165.1	62.0	22.3	33.2	84.0	91.9	1.6	8	19.0	127.0	2.9
2.1/2"	190.5	74.7	25.4	38.1	100.0	104.6	1.6	8	22.3	149.3	4.4
3"	209.5	90.7	28.4	42.9	117.3	127.0	1.6	8	22.3	168.1	5.6
3.1/2"	228.6	103.4	30.2	44.4	133.3	139.7	1.6	8	22.3	184.1	7.4
4"	254.0	116.1	31.7	47.7	146.0	157.2	1.6	8	22.3	200.1	10.0
5"	279.4	143.8	35.0	50.8	177.8	185.6	1.6	8	22.3	234.9	12.3
6"	317.5	170.7	36.5	52.3	206.2	215.9	1.6	12	22.3	269.7	15.6
8"	381.0	221.5	41.1	61.9	260.3	269.7	1.6	12	25.4	330.2	24.2
10"	444.5	276.3	47.7	66.5	320.5	323.8	1.6	16	28.4	387.3	34.1
12"	520.7	327.1	50.8	73.1	374.6	381.0	1.6	16	31.7	450.8	50.0
14"	584.2	359.1	53.8	76.2	425.4	412.7	1.6	20	31.7	514.3	70.0
16"	647.7	410.5	57.1	82.5	482.6	469.9	1.6	20	35.0	571.5	89.0
18"	711.2	461.8	60.4	88.9	533.4	533.4	1.6	24	35.0	628.6	109.0
20"	774.7	513.1	63.5	95.2	587.2	584.2	1.6	24	35.0	685.8	134.0
22"	838.2	564.4	66.7	101.6	641.2	641.2	1.6	24	41.1	742.9	168.0
24"	914.4	615.9	69.8	106.4	701.5	692.1	1.6	24	41.1	812.8	201.0

ANSI /ASTM STANDARD - 600# SORF

SLIP- ON FLANGE (RAISED FACE)



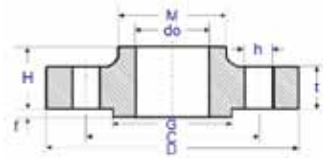
Nominal Pipe Size	Outside Dia. (mm)	Dia. of Bore (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Dia. at Base of Hub (mm)	Dia. of Raised Face (mm)	Height of Raised face (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx Weight (KG)
	D	do	t	H	M	G	f		h	C	
1/2"	95.3	22.4	14.2	22.4	38.1	35.1	6.4	4	15.7	66.5	0.8
3/4"	117.3	27.7	15.7	25.4	47.8	42.9	6.4	4	19.1	82.6	1.3
1"	124.0	34.5	17.5	26.9	53.8	50.8	6.4	4	19.1	88.9	1.6
1.1/4"	133.4	43.2	20.6	28.4	63.5	63.5	6.4	4	19.1	98.6	2.1
1.1/2"	155.4	49.5	22.4	31.8	69.9	73.2	6.4	4	22.4	114.3	3.0
2"	165.1	62.0	25.4	36.6	84.1	91.9	6.4	8	19.1	127.0	3.6
2.1/2"	190.5	74.7	28.4	41.1	100.1	104.6	6.4	8	22.4	149.4	5.3
3"	209.6	90.7	31.8	46.0	117.3	127.0	6.4	8	22.4	168.1	7.0
3.1/2"	228.6	103.4	35.1	49.3	133.4	139.7	6.4	8	25.4	184.2	9.0
4"	273.1	116.1	38.1	53.8	152.4	157.2	6.4	8	25.4	215.9	14.5
5"	330.2	143.8	44.5	60.5	189.0	185.7	6.4	8	28.4	266.7	25.0
6"	355.6	170.7	47.8	66.5	222.3	215.9	6.4	12	28.4	292.1	29.0
8"	419.1	221.5	55.6	76.2	273.1	269.7	6.4	12	31.8	349.3	44.0
10"	508.0	276.4	63.5	85.9	342.9	323.9	6.4	16	35.1	431.8	71.0
12"	558.8	327.2	66.5	91.9	400.1	381.0	6.4	20	35.1	489.0	85.0
14"	603.3	359.2	69.9	93.7	431.8	412.8	6.4	20	38.1	527.1	99.0
16"	685.8	410.5	76.2	106.4	495.3	469.9	6.4	20	41.1	603.3	142.0
18"	743.0	461.8	82.6	117.3	546.1	533.4	6.4	20	44.5	654.1	173.0
20"	812.8	513.1	88.9	127.0	609.6	584.2	6.4	24	44.5	723.9	220.0
22"	869.9	564.4	95.2	133.3	666.7	641.2	6.4	24	47.6	777.9	300.0
24"	939.8	616.0	101.6	139.7	717.6	692.2	6.4	24	50.8	838.2	312.0

ANSI /ASTM STANDARD - 900# SORF

SLIP- ON FLANGE (RAISED FACE)

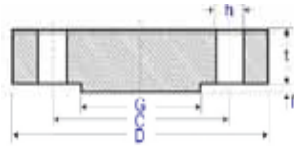
Nominal Pipe Size	Outside Dia. (mm)	Dia. of Bore (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Dia. at Base of Hub (mm)	Dia. of Raised Face (mm)	Height of Raised face (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx Weight (KG)
	D	do	t	H	M	G	f		h	C	
1/2"	120.6	22.3	22.3	31.7	38.1	35.0	6.4	4	22.3	82.5	1.8
3/4"	130.0	27.7	25.4	35.0	44.4	42.9	6.4	4	22.3	88.9	2.4
1"	149.3	34.5	28.4	41.1	52.3	50.8	6.4	4	25.4	101.6	3.5
1.1/4"	158.7	43.2	28.4	41.1	63.5	63.5	6.4	4	25.4	111.2	4.0
1.1/2"	177.8	49.5	31.7	44.5	69.8	73.1	6.4	4	28.4	123.9	5.4
2"	215.9	62.0	38.1	57.1	104.6	91.9	6.4	8	25.4	165.1	10.0
2.1/2"	244.3	74.7	41.1	63.5	123.9	104.6	6.4	8	28.4	190.5	14.0
3"	241.3	90.7	38.1	53.8	127.0	127.0	6.4	8	25.4	190.5	12.0
4"	292.1	116.1	44.4	69.8	158.7	157.2	6.4	8	31.7	234.9	20.0
5"	349.2	143.8	50.8	79.2	190.5	185.6	6.4	8	35.0	279.4	32.0
6"	381.0	170.7	55.6	85.8	234.9	215.9	6.4	12	31.7	317.5	42.0
8"	469.9	221.5	63.5	101.6	298.4	269.7	6.4	12	38.1	393.7	71.0
10"	546.1	276.3	69.8	107.9	368.3	323.8	6.4	16	38.1	469.9	101.0
12"	609.6	327.1	79.2	117.3	419.1	381.0	6.4	20	38.1	533.4	133.0
14"	641.3	359.1	85.8	130.0	450.8	412.7	6.4	20	41.1	558.8	153.0
16"	704.8	410.5	88.9	133.3	508.0	469.9	6.4	20	44.4	615.9	185.0
18"	787.4	461.8	101.6	152.4	565.1	533.4	6.4	20	50.8	685.8	258.0
20"	857.2	513.1	107.9	158.7	622.3	584.2	6.4	20	53.8	749.3	317.0
24"	1041.4	615.9	139.7	203.2	749.3	692.1	6.4	20	66.5	901.7	606.0

ANSI /ASTM STANDARD - 1500# SORF
SLIP- ON FLANGE (RAISED FACE)



Nominal Pipe Size	Outside Dia. (mm)	Dia. of Bore (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Dia. at Base of Hub (mm)	Dia. of Raised Face (mm)	Height of Raised face (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx. Weight (KG)
	D	do	t	H	M	G	f		h	C	
1/2"	120.6	22.3	22.3	31.7	38.1	35.0	6.4	4	22.3	82.5	1.8
3/4"	130.0	27.7	25.4	35.0	44.4	42.9	6.4	4	22.3	88.9	2.4
1"	149.3	34.5	28.4	41.1	52.3	50.8	6.4	4	25.4	101.6	3.5
1.1/4"	158.7	43.2	28.4	41.1	63.5	63.5	6.4	4	25.4	111.2	4.0
1.1/2"	177.8	49.5	31.7	44.5	69.8	73.1	6.4	4	28.4	123.9	5.4
2"	215.9	62.0	38.1	57.1	104.6	91.9	6.4	8	25.4	165.1	10.0
2.1/2"	244.3	74.7	41.1	63.5	123.9	104.6	6.4	8	28.4	190.5	14.0
3"	266.7	90.7	47.7	73.1	133.3	127.0	6.4	8	31.7	203.2	21.5
4"	311.1	116.1	53.8	90.5	162.0	157.2	6.4	8	35.0	241.3	33.2
5"	374.6	143.8	73.1	104.8	196.8	185.6	6.4	8	41.1	292.1	60.8
6"	393.7	170.7	82.5	119.1	228.6	215.9	6.4	12	38.1	317.5	74.8
8"	482.6	221.5	91.9	142.9	292.1	269.7	6.4	12	44.4	393.7	118.0
10"	584.2	276.3	107.9	158.7	368.3	323.8	6.4	12	50.8	482.6	197.0
12"	673.1	327.1	123.9	181.0	450.8	381.0	6.4	16	53.8	571.5	264.0
14"	749.3	359.1	133.3	241.3	495.3	412.7	6.4	16	60.4	635.0	404.0
16"	825.5	410.5	146.0	260.3	552.4	469.9	6.4	16	66.5	704.8	522.0
18"	914.4	461.8	162.0	276.2	596.9	533.4	6.4	16	73.1	774.7	669.0
20"	984.2	513.1	177.8	292.1	641.3	584.2	6.4	16	79.2	831.8	805.0
24"	1168.4	615.9	203.2	330.2	762.0	692.1	6.4	16	91.9	990.6	1326.0

ANSI /ASTM STANDARD - 150[#] BLRF
BLIND FLANGE (RAISED FACE)



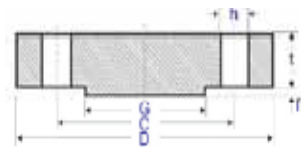
Nominal Pipe Size	Outside Dia. (mm)	Thickness Min. (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Dia. of Raised Face (mm)	Height of Raised face (mm)	Approx. Weight (KG)
	D	t		h	C	G	f	
1/2"	88.9	11.2	4	15.7	60.5	35.1	1.6	0.5
3/4"	98.6	12.7	4	15.7	69.9	42.9	1.6	0.7
1"	108.0	14.2	4	15.7	79.2	50.8	1.6	0.9
1.1/4"	117.3	15.7	4	15.7	88.9	63.5	1.6	1.2
1.1/2"	127.0	17.5	4	15.7	98.6	73.2	1.6	1.6
2"	152.4	19.1	4	19.1	120.7	91.9	1.6	2.5
2.1/2"	177.8	22.4	4	19.1	139.7	104.6	1.6	4.0
3"	190.5	23.9	4	19.1	152.4	127.0	1.6	4.9
3.1/2"	215.9	23.9	8	19.1	177.8	139.7	1.6	6.2
4"	228.6	23.9	8	19.1	190.5	157.2	1.6	7.0
5"	254.0	23.9	8	22.4	215.9	185.7	1.6	8.7
6"	279.4	25.4	8	22.4	241.3	215.9	1.6	11.3
8"	342.9	28.4	8	22.4	298.5	269.7	1.6	20.0
10"	406.4	30.2	12	25.4	362.0	323.9	1.6	29.0
12"	482.6	31.8	12	25.4	431.8	381.0	1.6	44.0
14"	533.4	35.1	12	28.4	476.2	412.8	1.6	59.0
16"	596.9	36.6	16	28.4	539.7	469.9	1.6	76.0
18"	635.0	39.6	16	31.8	577.8	533.4	1.6	94.0
20"	698.5	42.9	20	31.8	635.0	584.2	1.6	122.0
22"	749.3	46.0	20	35.1	692.1	641.2	1.6	161.0
24"	812.8	47.8	20	35.1	749.3	692.2	1.6	185.0

ANSI /ASTM STANDARD - 300[#] BLRF
BLIND FLANGE (RAISED FACE)

Nominal Pipe Size	Outside Dia. (mm)	Thickness Min. (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Dia. of Raised Face (mm)	Height of Raised face (mm)	Approx. Weight (KG)
	D	t		h	C	G	f	
1/2"	95.2	14.2	4	15.7	66.7	35.0	1.6	0.7
3/4"	117.3	15.7	4	19.0	82.5	42.9	1.6	1.2
1"	123.9	17.5	4	19.0	88.9	50.8	1.6	1.4
1.1/4"	133.3	19.0	4	19.0	98.4	63.5	1.6	1.8
1.1/2"	155.4	20.6	4	22.3	114.3	73.1	1.6	2.7
2"	165.1	22.3	8	19.0	127.0	91.9	1.6	3.2
2.1/2"	190.5	25.4	8	22.3	149.2	104.6	1.6	4.9
3"	209.5	28.4	8	22.3	168.3	127.0	1.6	7.0
3.1/2"	228.6	30.2	8	22.3	184.1	139.7	1.6	9.0
4"	254.0	31.7	8	22.3	200.0	157.2	1.6	12.0
5"	279.4	35.0	8	22.3	234.9	185.6	1.6	16.0
6"	317.5	36.5	12	22.3	269.9	215.9	1.6	21.0
8"	381.0	41.1	12	25.4	330.2	269.7	1.6	35.0
10"	444.5	47.7	16	28.4	387.3	323.8	1.6	54.0
12"	520.7	50.8	16	31.7	450.8	381	1.6	87.9
14"	584.2	53.8	20	31.7	514.3	412.7	1.6	105.0
16"	647.7	57.1	20	35.0	571.5	469.9	1.6	137.0
18"	711.2	60.4	24	35.0	628.6	533.4	1.6	175.0
20"	774.7	63.5	24	35.0	685.8	584.2	1.6	221.0
22"	838.2	66.7	24	41.1	742.9	641.2	1.6	290.0
24"	914.4	69.8	24	41.1	812.8	692.1	1.6	340.0

ANSI /ASTM STANDARD - 600# BLRF

BLIND FLANGE (RAISED FACE)



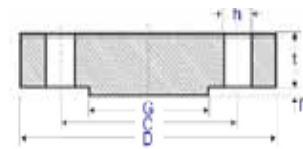
Nominal Pipe Size	Outside Dia. (mm)	Thickness Min. (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Dia. of Raised Face (mm)	Height of Raised face (mm)	Approx. Weight (KG)
	D	t		h	C	G	f	
1/2"	95.3	14.2	4	15.7	66.5	35.1	6.4	0.8
3/4"	117.3	15.7	4	19.1	82.6	42.9	6.4	1.3
1"	124.0	17.5	4	19.1	88.9	50.8	6.4	1.6
1.1/4"	133.4	20.6	4	19.1	98.6	63.5	6.4	2.3
1.1/2"	155.4	22.4	4	22.4	114.3	73.2	6.4	3.3
2"	165.1	25.4	8	19.1	127.0	91.9	6.4	4.2
2.1/2"	190.5	28.4	8	22.4	149.4	104.6	6.4	6.2
3"	209.6	31.8	8	22.4	168.1	127.0	6.4	8.5
3.1/2"	228.6	35.1	8	25.4	184.2	139.7	6.4	11.0
4"	273.1	38.1	8	25.4	215.9	157.2	6.4	18.0
5"	330.2	44.5	8	28.4	266.7	185.7	6.4	30.0
6"	355.6	47.8	12	28.4	292.1	215.9	6.4	36.0
8"	419.1	55.6	12	31.8	349.3	269.7	6.4	65.9
10"	508.0	63.5	16	35.1	431.8	323.9	6.4	98.0
12"	558.8	66.5	20	35.1	489.0	381.0	6.4	124.0
14"	603.3	69.9	20	38.1	527.1	412.8	6.4	151.0
16"	685.8	76.2	20	41.1	603.3	469.9	6.4	214.0
18"	743.0	82.6	20	44.5	654.1	533.4	6.4	272.0
20"	812.8	88.9	24	44.5	723.9	584.2	6.4	349.0
22"	869.9	95.2	24	47.6	777.9	641.2	6.4	454.0
24"	939.8	101.6	24	50.8	838.2	692.2	6.4	533.0

ANSI /ASTM STANDARD - 900# BLRF

BLIND FLANGE (RAISED FACE)

Nominal Pipe Size	Outside Dia. (mm)	Thickness Min. (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Dia. of Raised Face (mm)	Height of Raised face (mm)	Approx. Weight (KG)
	D	t		h	C	G	f	
1/2"	120.6	22.3	4	22.3	82.5	35.0	6.4	1.8
3/4"	130.1	25.4	4	22.3	88.9	42.9	6.4	2.5
1"	149.3	28.4	4	25.4	101.6	50.8	6.4	3.6
1.1/4"	158.7	28.4	4	25.4	111.2	63.5	6.4	4.2
1.1/2"	177.8	31.7	4	28.4	123.9	73.1	6.4	5.8
2"	215.9	38.1	8	25.4	165.1	91.9	6.4	11.0
2.1/2"	244.3	41.1	8	28.4	190.5	104.6	6.4	14.0
3"	241.3	38.1	8	25.4	190.5	127.0	6.4	13.1
4"	292.1	44.4	8	31.7	234.9	157.2	6.4	27.0
5"	349.2	50.8	8	35.0	279.4	185.6	6.4	36.5
6"	381.0	55.6	12	31.7	317.5	215.9	6.4	48.0
8"	469.9	63.5	12	38.1	393.7	269.7	6.4	83.0
10"	546.1	69.8	16	38.1	469.9	323.8	6.4	122.0
12"	609.6	79.2	20	38.1	533.4	381.0	6.4	173.0
14"	641.3	85.8	20	41.1	558.8	412.7	6.4	206.0
16"	704.8	88.9	20	44.4	615.9	469.9	6.4	259.0
18"	787.4	101.6	20	50.8	685.8	533.4	6.4	367.0
20"	857.2	107.9	20	53.8	749.3	584.2	6.4	463.0
24"	1041.4	139.7	20	66.5	901.7	692.1	6.4	876.0

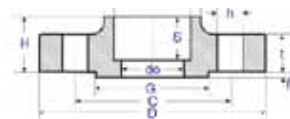
ANSI /ASTM STANDARD - 1500# BLRF
BLIND FLANGE (RAISED FACE)



Nominal Pipe Size	Outside Dia. (mm)	Thickness Min. (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Dia. of Raised Face (mm)	Height of Raised face (mm)	Approx. Weight (KG)
	D	t		h	C	G	f	
1/2"	120.6	22.3	4	22.3	82.5	35.0	6.4	1.8
3/4"	130.1	25.4	4	22.3	88.9	42.9	6.4	2.5
1"	149.3	28.4	4	25.4	101.6	50.8	6.4	3.6
1.1/4"	158.7	28.4	4	25.4	111.1	63.5	6.4	4.2
1.1/2"	177.8	31.7	4	28.4	123.8	73.1	6.4	5.8
2"	215.9	38.1	8	25.4	165.1	91.9	6.4	11.0
2.1/2"	244.3	41.1	8	28.4	190.5	104.6	6.4	14.0
3"	266.7	47.7	8	31.7	203.2	127.0	6.4	20.0
4"	311.1	53.8	8	35.0	241.3	157.2	6.4	30.0
5"	374.6	73.1	8	41.1	292.1	185.6	6.4	59.0
6"	393.7	82.5	12	38.1	317.5	215.9	6.4	72.0
8"	482.6	91.9	12	44.4	393.7	269.7	6.4	122.0
10"	584.2	107.9	12	50.8	482.6	323.8	6.4	210.0
12"	673.1	123.9	16	53.8	571.5	381.0	6.4	316.0
14"	749.3	133.3	16	60.4	635.0	412.7	6.4	420.0
16"	825.5	146.0	16	66.5	704.8	469.9	6.4	560.0
18"	914.4	162.0	16	73.1	774.7	533.4	6.4	760.0
20"	984.2	177.8	16	79.2	831.8	584.2	6.4	965.0
24"	1168.4	203.2	16	91.9	990.6	692.1	6.4	1558.0

ANSI /ASTM STANDARD - 150[#] SWRF

SOCKET WELD FLANGE (RAISED FACE)



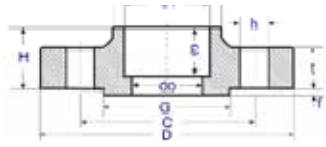
Nominal Pipe Size	Dia. of Bore (mm)		Outside Dia. (mm)	Bore of Socket (mm)	Depth of Socket (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Dia. at Base of Hub (mm)	Dia. of Raised Face (mm)	Height of Raised face (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx Weight (KG)
	Sch 40S/ STD	Sch 80S/ STD												
	do		D	d1	S	t	H	M	G	f		h	C	
1/2"	15.8	13.9	88.9	22.4	9.6	11.2	15.7	30.2	35.1	1.6	4	15.7	60.5	0.5
3/4"	20.9	18.8	98.6	27.7	11.1	12.7	15.7	38.1	42.9	1.6	4	15.7	69.9	0.6
1"	26.6	24.3	108.0	34.5	12.7	14.2	17.5	49.2	50.8	1.6	4	15.7	79.2	0.9
1.1/4"	35.1	32.5	117.3	43.2	14.2	15.7	20.6	58.7	63.5	1.6	4	15.7	88.9	1.1
1.1/2"	40.9	38.1	127.0	49.5	15.7	17.5	22.4	65.0	73.1	1.6	4	15.7	98.6	1.4
2"	52.5	49.3	152.4	62.0	17.5	19.1	25.4	77.7	91.9	1.6	4	19.1	120.7	2.1
2.1/2"	62.7	59.0	177.8	74.7	19.0	22.4	28.4	90.4	104.6	1.6	4	19.1	139.7	3.4
3"	77.9	73.7	190.5	90.7	20.6	23.9	30.2	108.0	127.0	1.6	4	19.1	152.4	3.9
3.1/2"	90.1	85.5	215.9	103.4	22.2	23.9	31.7	122.2	139.7	1.6	8	19.1	177.8	5.0
4"	102.3	97.2	228.6	116.1	23.8	23.9	33.3	134.9	157.2	1.6	8	19.1	190.5	5.9
5"	128.0	122.3	254.0	143.8	23.8	23.9	36.5	163.5	185.7	1.6	8	22.2	215.9	6.8
6"	154.1	146.3	279.4	170.7	27.0	25.4	39.7	192.1	215.9	1.6	8	22.2	241.3	8.6
8"	202.7	193.7	342.9	221.5	31.7	28.6	44.4	246.1	269.9	1.6	8	22.4	298.4	13.7
10"	254.4	247.7	406.4	276.3	33.3	30.2	49.2	304.8	323.8	1.6	12	25.4	361.9	19.6
12"	304.9	298.5	482.6	327.1	39.7	31.8	55.6	365.1	381.0	1.6	12	25.4	431.8	29.0
14"	336.6	330.2	533.4	359.1	41.3	34.9	57.1	400.0	412.7	1.6	12	28.6	476.2	41.0
16"	387.3	381.6	596.9	410.5	44.4	36.5	63.5	457.2	469.9	1.6	16	28.6	539.7	44.5
18"	438.1	431.8	635.0	461.8	49.2	39.7	68.3	504.8	533.4	1.6	16	31.7	577.8	59.0
20"	488.9	482.6	698.5	513.1	54.0	42.9	73.0	558.8	584.2	1.6	20	31.7	635.0	75.0
24"	590.5	584.2	812.8	615.9	63.5	47.6	82.5	663.6	692.1	1.6	20	34.9	749.3	99.0

ANSI /ASTM STANDARD - 300[#] SWRF

SOCKET WELD FLANGE (RAISED FACE)

Nominal Pipe Size	Dia. of Bore (mm)		Outside Dia. (mm)	Bore of Socket (mm)	Depth of Socket (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Dia. at Base of Hub (mm)	Dia. of Raised Face (mm)	Height of Raised face (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx Weight (KG)
	Sch 40S/ STD	Sch 80S/ STD												
	do		D	d1	S	t	H	M	G	f		h	C	
1/2"	15.8	13.9	95.2	22.4	9.6	14.2	22.3	38.1	35.1	1.6	4	15.7	66.5	0.9
3/4"	20.9	18.8	117.3	27.7	11.1	15.7	25.4	47.7	42.9	1.6	4	19.1	82.5	1.2
1"	26.6	24.3	123.9	34.5	12.7	17.5	26.9	53.8	50.8	1.6	4	19.1	88.9	1.4
1.1/4"	35.1	32.5	133.3	43.2	14.2	19.0	26.9	63.5	63.5	1.6	4	19.1	98.5	1.8
1.1/2"	40.9	38.1	155.4	49.5	15.7	20.6	30.2	69.8	73.1	1.6	4	22.3	114.3	2.6
2"	52.5	49.3	165.1	62.0	17.5	22.3	33.2	84.0	91.9	1.6	8	19.1	127.0	3.0
2.1/2"	62.7	59.0	190.5	74.7	19.0	25.4	38.1	100.0	104.6	1.6	8	22.3	149.3	4.4
3"	77.9	73.7	209.5	90.7	20.6	28.4	42.9	117.3	127.0	1.6	8	22.3	168.1	6.0
3.1/2"	90.1	85.5	228.6	103.4	22.3	30.2	44.4	133.3	139.7	1.6	8	22.3	184.1	7.7
4"	102.3	97.2	254.0	116.1	23.8	31.8	47.6	146.0	157.2	1.6	8	22.3	200.0	10.0

ANSI /ASTM STANDARD - 600[#] SWRF
SOCKET WELD FLANGE (RAISED FACE)



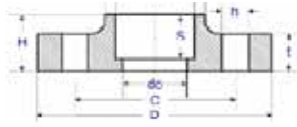
Nominal Pipe Size	Dia. of Bore (mm)		Outside Dia. (mm)	Bore of Socket (mm)	Depth of Socket (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Dia. at Base of Hub (mm)	Dia. of Raiced Face (mm)	Height of Raiced face (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx Weight (KG)
	Sch 40S/ STD	Sch 80S/ STD												
	do		D	d1	S	t	H	M	G	f		h	C	
1/2"	15.8	13.9	95.3	22.4	9.6	14.2	22.4	38.1	35.1	6.4	4	15.7	66.5	0.9
3/4"	20.9	18.8	117.3	27.7	11.1	15.7	25.4	47.8	42.9	6.4	4	19.1	82.6	1.3
1"	26.6	24.3	124.0	34.5	12.7	17.5	26.9	53.8	50.8	6.4	4	19.1	88.9	1.6
1.1/4"	35.1	32.5	133.4	43.2	14.2	20.6	28.4	63.5	63.5	6.4	4	19.1	98.6	2.1
1.1/2"	40.9	38.1	155.4	49.5	15.7	22.4	31.8	69.9	73.1	6.4	4	22.4	114.3	3.0
2"	52.5	49.3	165.1	62.0	17.5	25.4	36.6	84.1	91.9	6.4	8	19.1	127.0	3.7
2.1/2"	62.7	59.0	190.5	74.7	19.0	28.4	41.1	100.0	104.6	6.4	8	22.4	149.4	5.4
3"	77.9	73.7	209.6	90.7	20.6	31.8	46.0	117.3	127.0	6.4	8	22.4	168.1	7.1
3.1/2"	90.1	85.5	228.6	103.4	22.2	35.1	49.2	133.4	139.7	6.4	8	25.4	184.2	9.5

ANSI /ASTM STANDARD - 1500[#] SWRF
SOCKET WELD FLANGE (RAISED FACE)

Nominal Pipe Size	Dia. of Bore (mm)		Outside Dia. (mm)	Bore of Socket (mm)	Depth of Socket (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Dia. at Base of Hub (mm)	Dia. of Raiced Face (mm)	Height of Raiced face (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx Weight (KG)
	Sch 40S/ STD	Sch 80S/ STD												
	do		D	d1	S	t	H	M	G	f		h	C	
1/2"	15.8	13.9	120.6	22.4	9.6	22.3	31.7	38.1	35.1	6.4	4	22.3	82.5	1.8
3/4"	20.9	18.8	130.0	27.7	11.1	25.4	35.0	44.4	42.9	6.4	4	22.3	88.9	2.4
1"	26.6	24.3	149.3	34.5	12.7	28.4	41.1	52.3	50.8	6.4	4	25.4	101.6	3.5
1.1/4"	35.1	32.5	158.7	43.2	14.2	28.4	41.1	63.5	63.5	6.4	4	25.4	111.2	4.0
1.1/2"	40.9	38.1	177.8	49.5	15.7	31.7	44.5	69.8	73.1	6.4	4	28.4	123.9	5.4
2"	52.5	49.3	215.9	62.0	17.5	38.1	57.1	104.6	91.9	6.4	8	25.4	165.1	10.2
2.1/2"	62.7	59.0	244.3	74.7	19.0	41.1	63.5	123.9	104.6	6.4	8	28.4	190.5	13.9

ANSI /ASTM STANDARD - 150[#] SWFF

SOCKET WELD FLANGE (FLAT FACE)



Nominal Pipe Size	Dia. of Bore (mm)		Outside Dia. (mm)	Bore of Socket (mm)	Depth of Socket (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Dia. at Base of Hub (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx Weight (KG)
	Sch 40S/	Sch 80S/ STD										
	do		D	d1	S	t	H	M		h	C	
1/2"	15.8	13.9	88.9	22.4	9.6	11.2	15.7	30.2	4	15.7	60.5	0.5
3/4"	20.9	18.8	98.6	27.7	11.1	12.7	15.7	38.1	4	15.7	69.9	0.6
1"	26.6	24.3	108.0	34.5	12.7	14.2	17.5	49.2	4	15.7	79.2	0.9
1.1/4"	35.1	32.5	117.3	43.2	14.2	15.7	20.6	58.7	4	15.7	88.9	1.1
1.1/2"	40.9	38.1	127.0	49.5	15.7	17.5	22.4	65.0	4	15.7	98.6	1.4
2"	52.5	49.3	152.4	62.0	17.5	19.1	25.4	77.7	4	19.1	120.7	2.1
2.1/2"	62.7	59.0	177.8	74.7	19.0	22.4	28.4	90.4	4	19.1	139.7	3.4
3"	77.9	73.7	190.5	90.7	20.6	23.9	30.2	108.0	4	19.1	152.4	3.9
3.1/2"	90.1	85.5	215.9	103.4	22.2	23.9	31.7	122.2	8	19.1	177.8	5.0
4"	102.3	97.2	228.6	116.1	23.8	23.9	33.3	134.9	8	19.1	190.5	5.9
5"	128.0	122.3	254.0	143.8	23.8	23.9	36.5	163.5	8	22.2	215.9	6.8
6"	154.1	146.3	279.4	170.7	27.0	25.4	39.7	192.1	8	22.2	241.3	8.6
8"	202.7	193.7	342.9	221.5	31.7	28.6	44.4	246.1	8	22.4	298.4	13.7
10"	254.4	247.7	406.4	276.3	33.3	30.2	49.2	304.8	12	25.4	361.9	19.6
12"	304.9	298.5	482.6	327.1	39.7	31.8	55.6	365.1	12	25.4	431.8	29.0
14"	336.6	330.2	533.4	359.1	41.3	34.9	57.1	400.0	12	28.6	476.2	41.0
16"	387.3	381.6	596.9	410.5	44.4	36.5	63.5	457.2	16	28.6	539.7	44.5
18"	438.1	431.8	635.0	461.8	49.2	39.7	68.3	504.8	16	31.7	577.8	59.0
20"	488.9	482.6	698.5	513.1	54.0	42.9	73.0	558.8	20	31.7	635.0	75.0
24"	590.5	584.2	812.8	615.9	63.5	47.6	82.5	663.6	20	34.9	749.3	99.0

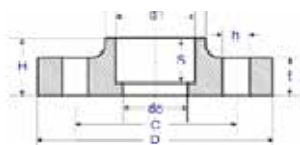
ANSI /ASTM STANDARD - 300[#] SWFF

SOCKET WELD FLANGE (FLAT FACE)

Nominal Pipe Size	Dia. of Bore (mm)		Outside Dia. (mm)	Bore of Socket (mm)	Depth of Socket (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Dia. at Base of Hub (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx Weight (KG)
	Sch 40S/	Sch 80S/ STD										
	do		D	d1	S	t	H	M		h	C	
1/2"	15.8	13.9	95.2	22.4	9.6	14.2	22.3	38.1	4	15.7	66.5	0.9
3/4"	20.9	18.8	117.3	27.7	11.1	15.7	25.4	47.7	4	19.1	82.5	1.2
1"	26.6	24.3	123.9	34.5	12.7	17.5	26.9	53.8	4	19.1	88.9	1.4
1.1/4"	35.1	32.5	133.3	43.2	14.2	19.0	26.9	63.5	4	19.1	98.5	1.8
1.1/2"	40.9	38.1	155.4	49.5	15.7	20.6	30.2	69.8	4	22.3	114.3	2.6
2"	52.5	49.3	165.1	62.0	17.5	22.3	33.2	84.0	8	19.1	127.0	3.0
2.1/2"	62.7	59.0	190.5	74.7	19.0	25.4	38.1	100.0	8	22.3	149.3	4.4
3"	77.9	73.7	209.5	90.7	20.6	28.4	42.9	117.3	8	22.3	168.1	6.0
3.1/2"	90.1	85.5	228.6	103.4	22.3	30.2	44.4	133.3	8	22.3	184.1	7.7
4"	102.3	97.2	254.0	116.1	23.8	31.8	47.6	146.0	8	22.3	200.0	10.0

ANSI /ASTM STANDARD - 600[#] SWFF

SOCKET WELD FLANGE (FLAT FACE)



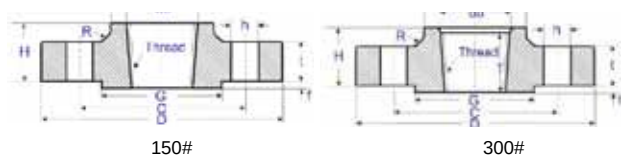
Nominal Pipe Size	Dia. of Bore (mm)		Outside Dia. (mm)	Bore of Socket (mm)	Depth of Socket (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Dia. at Base of Hub (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx Weight (KG)
	Sch 40S/	Sch 80S/ STD										
	do		D	d1	S	t	H	M		h	C	
1/2"	15.8	13.9	95.3	22.4	9.6	14.2	22.4	38.1	4	15.7	66.5	0.9
3/4"	20.9	18.8	117.3	27.7	11.1	15.7	25.4	47.8	4	19.1	82.6	1.3
1"	26.6	24.3	124.0	34.5	12.7	17.5	26.9	53.8	4	19.1	88.9	1.6
1.1/4"	35.1	32.5	133.4	43.2	14.2	20.6	28.4	63.5	4	19.1	98.6	2.1
1.1/2"	40.9	38.1	155.4	49.5	15.7	22.4	31.8	69.9	4	22.4	114.3	3.0
2"	52.5	49.3	165.1	62.0	17.5	25.4	36.6	84.1	8	19.1	127.0	3.7
2.1/2"	62.7	59.0	190.5	74.7	19.0	28.4	41.1	100.0	8	22.4	149.4	5.4
3"	77.9	73.7	209.6	90.7	20.6	31.8	46.0	117.3	8	22.4	168.1	7.1
3.1/2"	90.1	85.5	228.6	103.4	22.2	35.1	49.2	133.4	8	25.4	184.2	9.5

ANSI /ASTM STANDARD - 1500[#] SWFF

SOCKET WELD FLANGE (FLAT FACE)

Nominal Pipe Size	Dia. of Bore (mm)		Outside Dia. (mm)	Bore of Socket (mm)	Depth of Socket (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Dia. at Base of Hub (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx Weight (KG)
	Sch 40S/	Sch 80S/ STD										
	do		D	d1	S	t	H	M		h	C	
1/2"	15.8	13.9	120.6	22.4	9.6	22.3	31.7	38.1	4	22.3	82.5	1.8
3/4"	20.9	18.8	130.0	27.7	11.1	25.4	35.0	44.4	4	22.3	88.9	2.4
1"	26.6	24.3	149.3	34.5	12.7	28.4	41.1	52.3	4	25.4	101.6	3.5
1.1/4"	35.1	32.5	158.7	43.2	14.2	28.4	41.1	63.5	4	25.4	111.2	4.0
1.1/2"	40.9	38.1	177.8	49.5	15.7	31.7	44.5	69.8	4	28.4	123.9	5.4
2"	52.5	49.3	215.9	62.0	17.5	38.1	57.1	104.6	8	25.4	165.1	10.2
2.1/2"	62.7	59.0	244.3	74.7	19.0	41.1	63.5	123.9	8	28.4	190.5	13.9

ANSI /ASTM STANDARD - 150[#] THRF THREADED FLANGE (RAISED FACE)

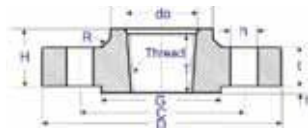


Nominal Pipe Size	Outside Dia. (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Dia. at Base of Hub (mm)	Thread Length (mm)	Dia. of Raised Face (mm)	Height of Raised face (mm)	Dia. of Bore (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx. Weight (KG)
D	t	H	M	T	G	f	do			h	C	
1/2"	88.9	11.2	15.7	30.2		35.1	1.6		4	15.7	60.5	0.4
3/4"	98.6	12.7	15.7	38.1		42.9	1.6		4	15.7	69.9	0.6
1"	108.0	14.2	17.5	49.3		50.8	1.6		4	15.7	79.2	0.8
1.1/4"	117.3	15.7	20.6	58.7		63.5	1.6		4	15.7	88.9	1.1
1.1/2"	127.0	17.5	22.4	65.0		73.2	1.6		4	15.7	98.6	1.4
2"	152.4	19.1	25.4	77.7		91.9	1.6		4	19.1	120.7	2.1
2.1/2"	177.8	22.4	28.4	90.4		104.6	1.6		4	19.1	139.7	3.3
3"	190.5	23.9	30.2	108.0		127.0	1.6	to be	4	19.1	152.4	3.9
3.1/2"	215.9	23.9	31.8	122.2		139.7	1.6	specified	8	19.1	177.8	4.8
4"	228.6	23.9	33.3	134.9		157.2	1.6	by end	8	19.1	190.5	5.3
5"	254.0	23.9	36.6	163.6		185.7	1.6	user	8	22.4	215.9	6.1
6"	279.4	25.4	39.6	192.0		215.9	1.6		8	22.4	241.3	7.6
8"	342.9	28.4	44.5	246.1		269.7	1.6		8	22.4	298.5	12.1
10"	406.4	30.2	49.3	304.8		323.9	1.6		12	25.4	362.0	16.5
12"	482.6	31.8	55.6	365.3		381.0	1.6		12	25.4	431.8	27.0
14"	533.4	35.1	57.2	400.1		412.8	1.6		12	28.4	476.3	35.0
16"	596.9	36.6	63.5	457.2		469.9	1.6		16	28.4	539.8	45.0
18"	635.0	39.6	68.3	505.0		533.4	1.6		16	31.8	577.9	49.0
20"	698.5	42.9	73.2	558.8		584.2	1.6		20	31.8	635.0	62.0
24"	812.8	47.8	82.6	663.4		692.1	1.6		20	35.1	749.3	87.0

ANSI /ASTM STANDARD - 300[#] THRF THREADED FLANGE (RAISED FACE)

Nominal Pipe Size	Outside Dia. (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Dia. at Base of Hub (mm)	Thread Length (mm)	Dia. of Raised Face (mm)	Height of Raised face (mm)	Dia. of Bore (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx. Weight (KG)
D	t	H	M	T	G	f	do			h	C	
1/2"	95.2	14.2	22.3	38.1	15.7	35.0	1.6	23.6	4	15.7	66.5	0.7
3/4"	117.3	15.7	25.4	47.7	15.7	42.9	1.6	29.0	4	19.0	82.5	1.2
1"	123.9	17.5	26.9	53.8	17.5	50.8	1.6	35.8	4	19.0	88.9	1.4
1.1/4"	133.3	19.0	26.9	63.5	20.5	63.5	1.6	44.4	4	19.0	98.5	1.7
1.1/2"	155.4	20.6	30.2	69.8	22.3	73.1	1.6	50.5	4	22.3	114.3	2.5
2"	165.1	22.3	33.2	84.0	28.4	91.9	1.6	63.5	8	19.0	127.0	2.9
2.1/2"	190.5	25.4	38.1	100.0	31.7	104.6	1.6	76.2	8	22.3	149.3	4.4
3"	209.5	28.4	42.9	117.3	31.7	127.0	1.6	92.2	8	22.3	168.1	5.9
3.1/2"	228.6	30.2	44.4	133.3	36.5	139.7	1.6	104.9	8	22.3	184.1	7.4
4"	254.0	31.7	47.7	146.0	36.5	157.2	1.6	117.6	8	22.3	200.1	10.0
5"	279.4	35.0	50.8	177.8	42.9	185.6	1.6	144.5	8	22.3	234.9	12.3
6"	317.5	36.5	52.3	206.2	45.9	215.9	1.6	171.4	12	22.3	269.7	15.6
8"	381.0	41.1	61.9	260.3	50.8	269.7	1.6	222.2	12	25.4	330.2	24.2
10"	444.5	47.7	66.5	320.5	55.6	323.8	1.6	276.3	16	28.4	387.3	34.1
12"	520.7	50.8	73.1	374.6	60.4	381.0	1.6	328.7	16	31.7	450.8	50.0
14"	584.2	53.8	76.2	425.4	63.5	412.7	1.6	360.4	20	31.7	514.3	70.0
16"	647.7	57.1	82.5	482.6	68.3	469.9	1.6	411.2	20	35.0	571.5	89.0
18"	711.2	60.4	88.9	533.4	69.8	533.4	1.6	462.0	24	35.0	628.6	109.0
20"	774.7	63.5	95.2	587.2	73.1	584.2	1.6	512.8	24	35.0	685.8	134.0
24"	914.4	69.8	106.4	701.5	82.5	692.1	1.6	614.4	24	41.1	812.8	201.0

ANSI /ASTM STANDARD - 600[#] THRF THREADED FLANGE (RAISED FACE)

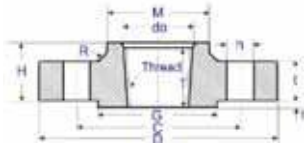


Nominal Pipe Size	Outside Dia. (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Dia. at Base of Hub (mm)	Thread Length (mm)	Dia. of Raised Face (mm)	Height of Raised face (mm)	Dia. of Bore (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx. Weight (KG)
	D	t	H	M	T	G	f	do		h	C	
1/2"	95.3	14.2	22.4	38.1	15.7	35.1	6.4	23.6	4	15.7	66.5	0.8
3/4"	117.3	15.7	25.4	47.8	15.7	42.9	6.4	29.0	4	19.1	82.6	1.3
1"	124.0	17.5	26.9	53.8	17.5	50.8	6.4	35.8	4	19.1	88.9	1.6
1.1/4"	133.4	20.6	28.4	63.5	20.6	63.5	6.4	44.4	4	19.1	98.6	2.1
1.1/2"	155.4	22.4	31.8	69.9	22.4	73.1	6.4	50.5	4	22.4	114.3	3.0
2"	165.1	25.4	36.6	84.1	28.4	91.9	6.4	63.5	8	19.1	127.0	3.7
2.1/2"	190.5	28.4	41.1	100.1	31.8	104.6	6.4	76.2	8	22.4	149.4	5.3
3"	209.6	31.8	46.0	117.3	35.1	127.0	6.4	92.2	8	22.4	168.1	7.0
3.1/2"	228.6	35.1	49.3	133.4	39.6	139.7	6.4	104.9	8	25.4	184.2	8.9
4"	273.1	38.1	53.8	152.4	41.1	157.2	6.4	117.6	8	25.4	215.9	15.0
5"	330.2	44.5	60.5	189.0	47.8	185.7	6.4	144.5	8	28.4	266.7	25.0
6"	355.6	47.8	66.5	222.3	50.8	215.9	6.4	171.5	12	28.4	292.1	29.0
8"	419.1	55.6	76.2	273.1	57.2	269.7	6.4	222.3	12	31.8	349.3	44.0
10"	508.0	63.5	85.9	342.9	65.0	323.9	6.4	276.4	16	35.1	431.8	71.0
12"	558.8	66.5	91.9	400.1	69.9	381.0	6.4	328.7	20	35.1	489.0	85.0
14"	603.3	69.9	93.7	431.8	73.2	412.8	6.4	360.4	20	38.1	527.1	99.0
16"	685.8	76.2	106.4	495.3	77.7	469.9	6.4	411.2	20	41.1	603.3	142.0
18"	743.0	82.6	117.3	546.1	79.2	533.4	6.4	462.0	20	44.5	654.1	173.0
20"	812.8	88.9	127.0	609.6	82.6	584.2	6.4	512.8	24	44.5	723.9	220.0
24"	939.8	101.6	139.7	717.6	91.9	692.1	6.4	614.4	24	50.8	838.2	312.0

ANSI /ASTM STANDARD - 900[#] THRF THREADED FLANGE (RAISED FACE)

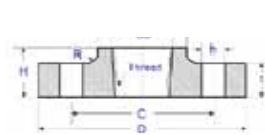
Nominal Pipe Size	Outside Dia. (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Dia. at Base of Hub (mm)	Thread Length (mm)	Dia. of Raised Face (mm)	Height of Raised face (mm)	Dia. of Bore (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx. Weight (KG)
	D	t	H	M	T	G	f	do		h	C	
1/2"	120.6	22.3	31.7	38.1	22.3	34.9	6.4	23.6	4	22.3	82.5	1.8
3/4"	130.0	25.4	35.0	44.4	25.4	42.9	6.4	29.0	4	22.3	88.9	2.3
1"	149.3	28.4	41.1	52.3	28.4	50.8	6.4	35.8	4	25.4	101.6	3.6
1.1/4"	158.7	28.4	41.1	63.5	30.2	63.5	6.4	44.4	4	25.4	111.2	4.1
1.1/2"	177.8	31.7	44.5	69.8	31.8	73.1	6.4	50.5	4	28.4	123.9	5.4
2"	215.9	38.1	57.1	104.6	38.1	91.9	6.4	63.5	8	25.4	165.1	10.0
2.1/2"	244.3	41.1	63.5	123.9	47.7	104.6	6.4	76.2	8	28.4	190.5	14.0
3"	241.3	38.1	53.8	127.0	41.1	127.0	6.4	92.2	8	25.4	190.5	12.0
4"	292.1	44.4	69.8	158.7	47.8	157.2	6.4	117.6	8	31.7	234.9	20.0
5"	349.2	50.8	79.2	190.5	53.8	185.6	6.4	144.5	8	35.0	279.4	32.0
6"	381.0	55.6	85.8	234.9	57.1	215.9	6.4	171.4	12	31.7	317.5	42.0
8"	469.9	63.5	101.6	298.4	63.5	269.7	6.4	222.2	12	38.1	393.7	71.0
10"	546.1	69.8	107.9	368.3	71.4	323.8	6.4	276.3	16	38.1	469.9	101.0
12"	609.6	79.4	117.3	419.1	76.2	381.0	6.4	328.7	20	38.1	533.4	133.0
14"	641.3	85.7	130.0	450.8	82.5	412.7	6.4	360.4	20	41.3	558.8	153.0
16"	704.8	88.9	133.3	508.0	85.9	469.9	6.4	411.2	20	44.4	618.9	185.0
18"	787.4	101.6	152.4	565.1	88.9	533.4	6.4	462.0	20	50.8	685.8	258.0
20"	857.2	107.9	158.7	622.3	91.9	584.2	6.4	512.8	20	54.0	749.3	317.0
24"	1041.4	139.7	203.2	749.3	101.6	692.1	6.4	614.4	20	66.5	901.7	606.0

ANSI /ASTM STANDARD - 1500TH THRF
THREADED FLANGE (RAISED FACE)

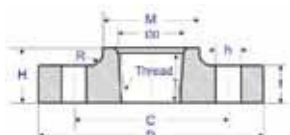


Nominal Pipe Size	Outside Dia. (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Dia. at Base of Hub (mm)	Thread Length (mm)	Dia. of Raised Face (mm)	Height of Raised face (mm)	Dia. of Bore (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx. Weight (KG)
	D	t	H	M	T	G	f	do		h	C	
1/2"	120.6	22.3	31.7	38.1	22.3	35.0	6.4	23.6	4	22.3	82.5	1.8
3/4"	130.0	25.4	35.0	44.4	25.4	42.9	6.4	29.0	4	22.3	88.9	2.3
1"	149.3	28.4	41.1	52.3	28.4	50.8	6.4	35.8	4	25.4	101.6	3.6
1.1/4"	158.7	28.4	41.1	63.5	30.2	63.5	6.4	44.4	4	25.4	111.2	4.0
1.1/2"	177.8	31.7	44.5	69.8	31.7	73.1	6.4	50.5	4	28.4	123.9	5.4
2"	215.9	38.1	57.1	104.6	38.1	91.9	6.4	63.5	8	25.4	165.1	10.0
2.1/2"	244.3	41.1	63.5	123.9	47.7	104.6	6.4	76.2	8	28.4	190.5	14.0
3"	266.7	47.7	73.1	133.3	50.8	127.0	6.4	92.2	8	31.7	203.2	18.0
4"	311.1	53.8	90.4	162.0	57.1	157.2	6.4	117.6	8	35.1	241.3	40.0
5"	374.6	73.1	104.6	196.8	63.5	185.6	6.4	144.5	8	41.1	292.1	52.0
6"	393.7	82.5	119.1	228.6	69.8	215.9	6.4	171.4	12	38.1	317.5	61.0
8"	482.6	91.9	142.7	292.1	76.2	269.7	6.4	222.2	12	44.4	393.7	103.0
10"	584.2	107.9	158.7	368.3	84.0	323.8	6.4	276.3	12	50.8	482.6	175.0
12"	673.1	123.9	180.8	450.8	91.9	381.0	6.4	328.7	16	53.8	571.5	264.0

ANSI /ASTM STANDARD - 150[#] THFF THREADED FLANGE (FLAT FACE)



150#



300#

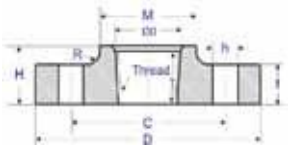


Nominal Pipe Size	Outside Dia. (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Dia. at Base of Hub (mm)	Thread Length (mm)	Dia. of Bore (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx. Weight (KG)
	D	t	H	M	T	do		h	C	
1/2"	88.9	11.2	15.7	30.2			4	15.7	60.5	0.4
3/4"	98.6	12.7	15.7	38.1			4	15.7	69.9	0.6
1"	108.0	14.2	17.5	49.3			4	15.7	79.2	0.8
1.1/4"	117.3	15.7	20.6	58.7			4	15.7	88.9	1.1
1.1/2"	127.0	17.5	22.4	65.0			4	15.7	98.6	1.4
2"	152.4	19.1	25.4	77.7			4	19.1	120.7	2.1
2.1/2"	177.8	22.4	28.4	90.4			4	19.1	139.7	3.3
3"	190.5	23.9	30.2	108.0		to be	4	19.1	152.4	3.9
3.1/2"	215.9	23.9	31.8	122.2		specified	8	19.1	177.8	4.8
4"	228.6	23.9	33.3	134.9		by end	8	19.1	190.5	5.3
5"	254.0	23.9	36.6	163.6		user	8	22.4	215.9	6.1
6"	279.4	25.4	39.6	192.0			8	22.4	241.3	7.6
8"	342.9	28.4	44.5	246.1			8	22.4	298.5	12.1
10"	406.4	30.2	49.3	304.8			12	25.4	362.0	16.5
12"	482.6	31.8	55.6	365.3			12	25.4	431.8	27.0
14"	533.4	35.1	57.2	400.1			12	28.4	476.3	35.0
16"	596.9	36.6	63.5	457.2			16	28.4	539.8	45.0
18"	635.0	39.6	68.3	505.0			16	31.8	577.9	49.0
20"	698.5	42.9	73.2	558.8			20	31.8	635.0	62.0
24"	812.8	47.8	82.6	663.4			20	35.1	749.3	87.0

ANSI /ASTM STANDARD - 300[#] THFF THREADED FLANGE (FLAT FACE)

Nominal Pipe Size	Outside Dia. (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Dia. at Base of Hub (mm)	Thread Length (mm)	Dia. of Bore (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx. Weight (KG)
	D	t	H	M	T	do		h	C	
1/2"	95.2	14.2	22.3	38.1	15.7	23.6	4	15.7	66.5	0.7
3/4"	117.3	15.7	25.4	47.7	15.7	29.0	4	19.0	82.5	1.2
1"	123.9	17.5	26.9	53.8	17.5	35.8	4	19.0	88.9	1.4
1.1/4"	133.3	19.0	26.9	63.5	20.5	44.4	4	19.0	98.5	1.7
1.1/2"	155.4	20.6	30.2	69.8	22.3	50.5	4	22.3	114.3	2.5
2"	165.1	22.3	33.2	84.0	28.4	63.5	8	19.0	127.0	2.9
2.1/2"	190.5	25.4	38.1	100.0	31.7	76.2	8	22.3	149.3	4.4
3"	209.5	28.4	42.9	117.3	31.7	92.2	8	22.3	168.1	5.9
3.1/2"	228.6	30.2	44.4	133.3	36.5	104.9	8	22.3	184.1	7.4
4"	254.0	31.7	47.7	146.0	36.5	117.6	8	22.3	200.1	10.0
5"	279.4	35.0	50.8	177.8	42.9	144.5	8	22.3	234.9	12.3
6"	317.5	36.5	52.3	206.2	45.9	171.4	12	22.3	269.7	15.6
8"	381.0	41.1	61.9	260.3	50.8	222.2	12	25.4	330.2	24.2
10"	444.5	47.7	66.5	320.5	55.6	276.3	16	28.4	387.3	34.1
12"	520.7	50.8	73.1	374.6	60.4	328.7	16	31.7	450.8	50.0
14"	584.2	53.8	76.2	425.4	63.5	360.4	20	31.7	514.3	70.0
16"	647.7	57.1	82.5	482.6	68.3	411.2	20	35.0	571.5	89.0
18"	711.2	60.4	88.9	533.4	69.8	462.0	24	35.0	628.6	109.0
20"	774.7	63.5	95.2	587.2	73.1	512.8	24	35.0	685.8	134.0
24"	914.4	69.8	106.4	701.5	82.5	614.4	24	41.1	812.8	201.0

ANSI /ASTM STANDARD - 600[#] THFF
THREADED FLANGE (FLAT FACE)



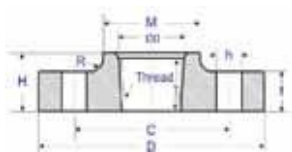
Nominal Pipe Size	Outside Dia. (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Dia. at Base of Hub (mm)	Thread Length (mm)	Dia. of Bore (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx. Weight (KG)
	D	t	H	M	T	do		h	C	
1/2"	95.3	14.2	22.4	38.1	15.7	23.6	4	15.7	66.5	0.8
3/4"	117.3	15.7	25.4	47.8	15.7	29.0	4	19.1	82.6	1.3
1"	124.0	17.5	26.9	53.8	17.5	35.8	4	19.1	88.9	1.6
1.1/4"	133.4	20.6	28.4	63.5	20.6	44.5	4	19.1	98.6	2.1
1.1/2"	155.4	22.4	31.8	69.9	22.4	50.5	4	22.4	114.3	3.0
2"	165.1	25.4	36.6	84.1	28.4	63.5	8	19.1	127.0	3.7
2.1/2"	190.5	28.4	41.1	100.1	31.8	76.2	8	22.4	149.4	5.3
3"	209.6	31.8	46.0	117.3	35.1	92.2	8	22.4	168.1	7.0
3.1/2"	228.6	35.1	49.3	133.4	39.6	104.9	8	25.4	184.2	8.9
4"	273.1	38.1	53.8	152.4	41.1	117.6	8	25.4	215.9	15.0
5"	330.2	44.5	60.5	189.0	47.8	144.5	8	28.4	266.7	25.0
6"	355.6	47.8	66.5	222.3	50.8	171.5	12	28.4	292.1	29.0
8"	419.1	55.6	76.2	273.1	57.2	222.3	12	31.8	349.3	44.0
10"	508.0	63.5	85.9	342.9	65.0	276.4	16	35.1	431.8	71.0
12"	558.8	66.5	91.9	400.1	69.9	328.7	20	35.1	489.0	85.0
14"	603.3	69.9	93.7	431.8	73.2	360.4	20	38.1	527.1	99.0
16"	685.8	76.2	106.4	495.3	77.7	411.2	20	41.1	603.3	142.0
18"	743.0	82.6	117.3	546.1	79.2	462.0	20	44.5	654.1	173.0
20"	812.8	88.9	127.0	609.6	82.6	512.8	24	44.5	723.9	220.0
24"	939.8	101.6	139.7	717.6	91.9	614.4	24	50.8	838.2	312.0

ANSI /ASTM STANDARD - 900[#] THFF
THREADED FLANGE (FLAT FACE)

Nominal Pipe Size	Outside Dia. (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Dia. at Base of Hub (mm)	Thread Length (mm)	Dia. of Bore (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx. Weight (KG)
	D	t	H	M	T	do		h	C	
1/2"	120.6	22.3	31.7	38.1	22.3	23.6	4	22.3	82.5	1.8
3/4"	130.0	25.4	35.0	44.4	25.4	29.0	4	22.3	88.9	2.3
1"	149.3	28.4	41.1	52.3	28.4	35.8	4	25.4	101.6	3.6
1.1/4"	158.7	28.4	41.1	63.5	30.2	44.4	4	25.4	111.2	4.1
1.1/2"	177.8	31.7	44.5	69.8	31.8	50.5	4	28.4	123.9	5.4
2"	215.9	38.1	57.1	104.6	38.1	63.5	8	25.4	165.1	10.0
2.1/2"	244.3	41.1	63.5	123.9	47.7	76.2	8	28.4	190.5	14.0
3"	241.3	38.1	53.8	127.0	41.1	92.2	8	25.4	190.5	12.0
4"	292.1	44.4	69.8	158.7	47.8	117.6	8	31.7	234.9	20.0
5"	349.2	50.8	79.2	190.5	53.8	144.5	8	35.0	279.4	32.0
6"	381.0	55.6	85.8	234.9	57.1	171.4	12	31.7	317.5	42.0
8"	469.9	63.5	101.6	298.4	63.5	222.2	12	38.1	393.7	71.0
10"	546.1	69.8	107.9	368.3	71.4	276.3	16	38.1	469.9	101.0
12"	609.6	79.4	117.3	419.1	76.2	328.7	20	38.1	533.4	133.0
14"	641.3	85.7	130.0	450.8	82.5	360.4	20	41.3	558.8	153.0
16"	704.8	88.9	133.3	508.0	85.9	411.2	20	44.4	618.9	185.0
18"	787.4	101.6	152.4	565.1	88.9	462.0	20	50.8	685.8	258.0
20"	857.2	107.9	158.7	622.3	91.9	512.8	20	54.0	749.3	317.0
24"	1041.4	139.7	203.2	749.3	101.6	614.4	20	66.5	901.7	606.0

ANSI /ASTM STANDARD - 1500[#] THFF

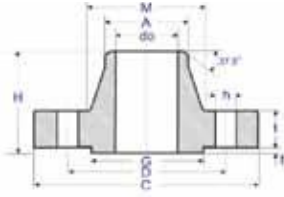
THREADED FLANGE (FLAT FACE)



Nominal Pipe Size	Outside Dia. (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Dia. at Base of Hub (mm)	Thread Length (mm)	Dia. of Bore (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx. Weight (KG)
	D	t	H	M	T	do		h	C	
1/2"	120.6	22.3	31.7	38.1	22.3	23.6	4	22.3	82.5	1.8
3/4"	130.0	25.4	35.0	44.4	25.4	29.0	4	22.3	88.9	2.3
1"	149.3	28.4	41.1	52.3	28.4	35.8	4	25.4	101.6	3.6
1.1/4"	158.7	28.4	41.1	63.5	30.2	44.4	4	25.4	111.2	4.0
1.1/2"	177.8	31.7	44.5	69.8	31.7	50.5	4	28.4	123.9	5.4
2"	215.9	38.1	57.1	104.6	38.1	63.5	8	25.4	165.1	10.0
2.1/2"	244.3	41.1	63.5	123.9	47.7	76.2	8	28.4	190.5	14.0
3"	266.7	47.7	73.1	133.3	50.8	92.2	8	31.7	203.2	18.0
4"	311.1	53.8	90.4	162.0	57.1	117.6	8	35.1	241.3	40.0
5"	374.6	73.1	104.6	196.8	63.5	144.5	8	41.1	292.1	52.0
6"	393.7	82.5	119.1	228.6	69.8	171.4	12	38.1	317.5	61.0
8"	482.6	91.9	142.7	292.1	76.2	222.2	12	44.4	393.7	103.0
10"	584.2	107.9	158.7	368.3	84.0	276.3	12	50.8	482.6	175.0
12"	673.1	123.9	180.8	450.8	91.9	328.7	16	53.8	571.5	264.0

ANSI /ASTM STANDARD - 150^{FF} WNRF

WELDED NECK FLANGE (RAISED FACE)



Nominal Pipe Size	Dia. of Bore (mm)			Outside Dia. (mm)	Thicknes s Min. (mm)	Length Thru. Hub (mm)	Outside Dia. of Neck (mm)	Dia. at Base of Neck (mm)	Dia. of Raise d Face (mm)	Height of Raise d Face (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx Weight (KG)
	Sch 10S	Sch 40S/ STD	Sch 80S/ STD											
	do			C	t	H	A	M	G	f		h	D	
1/2"	17.1	15.8	13.9	88.9	11.2	47.8	21.3	30.2	35.1	1.6	4	15.7	60.5	0.5
3/4"	22.5	20.9	18.8	98.6	12.7	52.3	26.7	38.1	42.9	1.6	4	15.7	69.9	0.7
1"	27.9	26.6	24.5	108.0	14.2	55.6	33.5	49.3	50.8	1.6	4	15.7	79.2	1.0
1.1/4"	36.6	35.1	32.5	117.3	15.7	57.2	42.2	58.7	63.5	1.6	4	15.7	88.9	1.4
1.1/2"	42.7	40.9	38.1	127.0	17.5	62.0	48.3	65.0	73.2	1.6	4	15.7	98.6	1.8
2"	54.9	52.7	49.5	152.4	19.1	63.5	60.5	77.7	91.9	1.6	4	19.1	120.7	2.6
2.1/2"	67.2	62.7	59.0	177.8	22.4	69.9	73.2	90.4	104.6	1.6	4	19.1	139.7	4.2
3"	82.9	77.9	73.7	190.5	23.9	69.9	88.9	108.0	127.0	1.6	4	19.1	152.4	5.0
3.1/2"	95.6	90.1	85.5	215.9	23.9	71.4	101.6	122.2	139.7	1.6	8	19.1	177.8	6.1
4"	108.3	102.3	97.2	228.6	23.9	76.2	114.3	134.9	157.2	1.6	8	19.1	190.5	7.0
5"	134.4	128.2	122.3	254.0	23.9	88.9	141.2	163.6	185.7	1.6	8	22.4	215.9	8.6
6"	161.6	154.2	146.3	279.4	25.4	88.9	168.4	192.0	215.9	1.6	8	22.4	241.3	10.6
8"	211.6	202.7	193.7	342.9	28.4	101.6	219.2	246.1	269.7	1.6	8	22.4	298.5	17.6
10"	264.6	254.5	247.7	406.4	30.2	101.6	273.1	304.8	323.8	1.6	12	25.4	362.0	24.0
12"	314.6	304.9	298.5	482.6	31.8	114.3	323.9	365.3	381.0	1.6	12	25.4	431.8	37.0
14"	346.0	336.6	330.2	533.4	35.1	127.0	355.6	400.1	412.8	1.6	12	28.4	476.3	49.0
16"	396.8	387.3	381.0	596.9	36.6	127.0	406.4	457.2	469.9	1.6	16	28.4	539.8	61.0
18"	447.6	438.1	431.8	635.0	39.6	139.7	457.2	505.0	533.4	1.6	16	31.8	577.9	68.0
20"	497.0	488.9	482.6	698.5	42.9	144.5	508.0	558.8	584.2	1.6	20	31.8	635.0	85.0
22"	547.7	539.7	533.4	749.3	46.0	149.2	558.8	609.6	641.2	1.6	20	35.1	692.1	102.0
24"	598.5	590.5	584.2	812.8	47.8	152.4	609.6	663.4	692.2	1.6	20	35.1	749.3	115.0

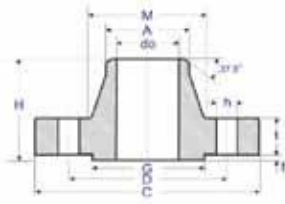
ANSI /ASTM STANDARD - 300[#] WNRF

WELDING NECK FLANGE (RAISED FACE)

Nominal Pipe Size	Dia. of Bore (mm)			Outside Dia. (mm)	Thicknes s Min. (mm)	Length Thru. Hub (mm)	Outside Dia. of Neck (mm)	Dia. at Base of Neck (mm)	Dia. of Raise d Face (mm)	Height of Raise d Face (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx Weight (KG)
	Sch 10S	Sch 40S/ STD	Sch 80S/ STD											
	do			C	t	H	A	M	G	f		h	D	
1/2"	17.1	15.8	13.9	95.2	14.2	52.3	21.3	38.1	35.0	1.6	4	15.7	66.5	0.8
3/4"	22.5	20.9	18.8	117.3	15.7	57.1	26.7	47.7	42.9	1.6	4	19.0	82.5	1.3
1"	27.9	26.6	24.5	123.9	17.5	62.0	33.5	53.8	50.8	1.6	4	19.0	88.9	1.6
1.1/4"	36.6	35.1	32.5	133.3	19.0	65.0	42.2	63.5	63.5	1.6	4	19.0	98.5	2.1
1.1/2"	42.7	40.9	38.1	155.4	20.6	68.3	48.3	69.8	73.1	1.6	4	22.3	114.3	3.0
2"	54.9	52.7	49.5	165.1	22.3	69.8	60.4	84.0	91.9	1.6	8	19.0	127.0	3.4
2.1/2"	67.2	62.7	59.0	190.5	25.4	76.2	73.1	100.0	104.6	1.6	8	22.3	149.3	5.2
3"	82.9	77.9	73.7	209.5	28.4	79.2	88.9	117.3	127.0	1.6	8	22.3	168.1	7.0
3.1/2"	95.6	90.1	85.5	228.6	30.2	81.0	101.6	133.3	139.7	1.6	8	22.3	184.1	8.7
4"	108.3	102.3	97.2	254.0	31.8	85.8	114.3	146.0	157.2	1.6	8	22.3	200.1	11.2
5"	134.4	128.2	122.3	279.4	35.0	98.5	141.2	177.8	185.6	1.6	8	22.3	234.9	16.0
6"	161.6	154.2	146.3	317.5	36.5	98.5	168.4	206.2	215.9	1.6	12	22.3	269.7	20.0
8"	211.6	202.7	193.7	381.0	41.1	111.2	219.2	260.3	269.7	1.6	12	25.4	330.2	30.0
10"	264.6	254.5	247.7	444.5	47.7	117.3	273.0	320.5	323.8	1.6	16	28.6	387.3	43.0
12"	314.6	304.9	298.5	520.7	50.8	130.0	323.8	374.6	381.0	1.6	16	31.7	450.8	62.0
14"	346.0	336.6	330.2	584.2	53.8	142.7	355.6	425.4	412.7	1.6	20	31.7	514.3	86.0
16"	396.8	387.3	381.0	647.7	57.1	146.0	406.4	482.6	469.9	1.6	20	35.0	571.5	106.0
18"	447.6	438.1	431.8	711.2	60.4	158.7	457.2	533.4	533.4	1.6	24	35.0	628.6	131.0
20"	497.0	488.9	482.6	774.7	63.5	162.0	508.0	587.2	584.2	1.6	24	35.0	685.8	158.0
22"	547.7	539.7	533.4	838.2	66.7	165.1	558.8	641.2	641.2	1.6	24	41.1	742.9	195.0
24"	598.5	590.5	584.2	914.4	69.8	168.1	609.6	701.5	692.1	1.6	24	41.1	812.8	230.0

ANSI /ASTM STANDARD - 600[#] WNRF

WELDED NECK FLANGE (RAISED FACE)



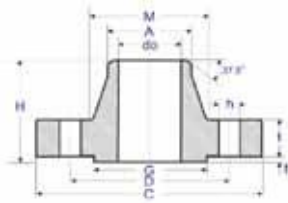
Nominal Pipe Size	Dia. of Bore (mm)			Outside Dia. (mm)	Thicknes s Min. (mm)	Length Thru. Hub (mm)	Outside Dia. of Neck (mm)	Dia. at Base of Neck (mm)	Dia. of Raise d Face (mm)	Height of Raise d Face (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx Weight (KG)
	Sch 10S	Sch 40S/ STD	Sch 80S/ STD											
	do			C	t	H	A	M	G	f		h	D	
1/2"	17.1	15.8	13.9	95.3	14.2	52.3	21.3	38.1	34.9	6.4	4	15.7	66.5	0.9
3/4"	22.5	20.9	18.8	117.3	15.7	57.2	26.7	47.8	42.9	6.4	4	19.1	82.6	1.5
1"	27.9	26.6	24.5	124.0	17.5	62.0	33.5	53.8	50.8	6.4	4	19.1	88.9	1.8
1.1/4"	36.6	35.1	32.5	133.4	20.6	66.5	42.2	63.5	63.5	6.4	4	19.1	98.6	2.5
1.1/2"	42.7	40.9	38.1	155.4	22.4	69.9	48.3	69.9	73.0	6.4	4	22.4	114.3	3.5
2"	54.9	52.7	49.5	165.1	25.4	73.2	60.5	84.1	92.1	6.4	8	19.1	127.0	4.4
2.1/2"	67.2	62.7	59.0	190.5	28.4	79.2	73.2	100.1	104.8	6.4	8	22.4	149.4	6.4
3"	82.9	77.9	73.7	209.6	31.8	82.6	88.9	117.3	127.0	6.4	8	22.4	168.1	8.6
3.1/2"	95.6	90.1	85.5	228.6	35.1	85.9	101.6	133.4	139.7	6.4	8	25.4	184.2	11.7
4"	108.3	102.3	97.2	273.1	38.1	101.6	114.3	152.4	157.2	6.4	8	25.4	215.9	18.0
5"	134.4	128.2	122.3	330.2	44.5	114.3	141.2	189.0	185.7	6.4	8	28.4	266.7	30.0
6"	161.6	154.2	146.3	355.6	47.8	117.3	168.4	222.3	215.9	6.4	12	28.4	292.1	35.0
8"	211.6	202.7	193.7	419.1	55.6	133.4	219.2	273.1	269.9	6.4	12	31.8	349.3	54.0
10"	264.6	254.5	247.7	508.0	63.5	152.4	273.1	342.9	323.8	6.4	16	35.1	431.8	87.0
12"	314.6	304.9	298.5	558.8	66.5	155.4	323.9	400.1	381.0	6.4	20	35.1	489.0	103.0
14"	346.0	336.6	330.2	603.3	69.9	165.1	355.6	431.8	412.8	6.4	20	38.1	527.1	122.0
16"	396.8	387.3	381.0	685.8	76.2	177.8	406.4	495.3	469.9	6.4	20	41.1	603.3	170.0
18"	447.6	438.1	431.8	743.0	82.6	184.2	457.2	546.1	533.4	6.4	20	44.5	654.1	204.0
20"	497.0	488.9	482.6	812.8	88.9	190.5	508.0	609.6	584.2	6.4	24	44.5	723.9	254.0
22"	547.7	539.7	533.4	869.9	95.2	196.8	558.8	666.7	641.2	6.4	24	47.6	777.9	281.0
24"	598.5	590.5	584.2	939.8	101.6	203.2	609.6	717.6	692.2	6.4	24	50.8	838.2	358.0

ANSI /ASTM STANDARD - 900[#] WNRF

WELDING NECK FLANGE (RAISED FACE)

Nominal Pipe Size	Dia. of Bore (mm)			Outside Dia. (mm)	Thicknes s Min. (mm)	Length Thru. Hub (mm)	Outside Dia. of Neck (mm)	Dia. at Base of Neck (mm)	Dia. of Raise d Face (mm)	Height of Raise d Face (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx Weight (KG)
	Sch 10S	Sch 40S/ STD	Sch 80S/ STD											
	do			C	t	H	A	M	G	f		h	D	
1/2"	17.1	15.8	13.9	120.6	22.3	60.4	21.3	38.1	35.0	6.4	4	22.3	82.5	2.3
3/4"	22.5	20.9	18.8	130.2	25.4	69.8	26.7	44.4	42.9	6.4	4	22.3	88.9	2.7
1"	27.9	26.6	24.5	149.3	28.4	73.1	33.4	52.3	50.8	6.4	4	25.4	101.6	4.1
1.1/4"	36.6	35.1	32.5	158.7	28.4	73.1	42.2	63.5	63.5	6.4	4	25.4	111.2	4.5
1.1/2"	42.7	40.9	38.1	177.8	31.7	82.5	48.3	69.8	73.1	6.4	4	28.4	123.9	5.9
2"	54.9	52.7	49.5	215.9	38.1	101.6	60.3	104.6	91.9	6.4	8	25.4	165.1	11.3
2.1/2"	67.2	62.7	59.0	244.3	41.1	104.6	73.0	123.9	104.6	6.4	8	28.4	190.5	16.3
3"	82.9	77.9	73.7	241.3	38.1	101.6	88.9	127.0	127.0	6.4	8	25.4	190.5	14.0
4"	108.3	102.3	97.2	292.1	44.4	114.3	114.3	158.7	157.2	6.4	8	31.7	234.9	23.0
5"	134.4	128.2	122.3	349.2	50.8	127.0	141.2	190.5	185.6	6.4	8	35.0	279.4	38.0
6"	161.6	154.2	146.3	381.0	55.6	139.7	168.4	234.9	215.9	6.4	12	31.7	317.5	48.0
8"	211.6	202.7	193.7	469.9	63.5	162.0	219.2	298.4	269.7	6.4	12	38.1	393.7	82.0
10"	264.6	254.5	247.7	546.1	69.8	184.1	273.0	368.3	323.8	6.4	16	38.1	469.9	119.0
12"	314.6	304.9	298.5	609.6	79.2	200.1	323.8	419.1	381.0	6.4	20	38.1	533.4	157.0
14"	346.0	336.6	330.2	641.3	85.8	212.8	355.6	450.8	412.7	6.4	20	41.1	558.8	180.0
16"	396.8	387.3	381.0	704.8	88.9	215.9	406.4	508.0	469.9	6.4	20	44.4	615.9	217.0
18"	447.6	438.1	431.8	787.4	101.6	228.6	457.2	565.1	533.4	6.4	20	50.8	685.8	298.0
20"	497.0	488.9	482.6	857.2	107.9	247.6	508.0	622.3	584.2	6.4	20	53.8	749.3	362.0
24"	598.5	590.5	584.2	1041.4	139.7	292.1	609.6	749.3	692.1	6.4	20	66.5	901.7	665.0

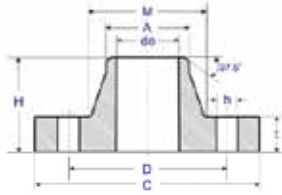
ANSI /ASTM STANDARD - 1500^{FF} WNRF
WELDED NECK FLANGE (RAISED FACE)



Nominal Pipe Size	Dia. of Bore (mm)			Outside Dia. (mm)	Thicknes s Min. (mm)	Length Thru. Hub (mm)	Outside Dia. of Neck (mm)	Dia. at Base of Neck (mm)	Dia. of Raise d Face (mm)	Height of Raise d Face (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx Weight (KG)
	Sch 10S	Sch 40S/ STD	Sch 80S/ STD											
	do			C	t	H	A	M	G	f		h	D	
1/2"	17.1	15.8	13.9	120.6	22.3	60.4	21.3	38.1	35.0	6.4	4	22.3	82.5	2.3
3/4"	22.5	20.9	18.8	130.2	25.4	69.8	26.7	44.4	42.9	6.4	4	22.3	88.9	2.7
1"	27.9	26.6	24.5	149.3	28.4	73.1	33.4	52.3	50.8	6.4	4	25.4	101.6	4.1
1.1/4"	36.6	35.1	32.5	158.7	28.4	73.1	42.2	63.5	63.5	6.4	4	25.4	111.2	4.5
1.1/2"	42.7	40.9	38.1	177.8	31.7	82.5	48.3	69.8	73.1	6.4	4	28.4	123.9	5.9
2"	54.9	52.7	49.5	215.9	38.1	101.6	60.3	104.6	91.9	6.4	8	25.4	165.1	11.3
2.1/2"	67.2	62.7	59.0	244.3	41.1	104.6	73.0	123.9	104.6	6.4	8	28.4	190.5	16.3
3"	82.9	77.9	73.7	266.7	47.7	117.3	88.9	133.3	127.0	6.4	8	31.7	203.2	21.8
4"	108.3	102.3	97.2	311.1	53.8	123.9	114.3	162.0	157.2	6.4	8	35.0	241.3	33.0
5"	134.4	128.2	122.3	374.6	73.1	155.4	141.2	196.8	185.6	6.4	8	41.1	292.1	59.0
6"	161.6	154.2	146.3	393.7	82.5	171.4	168.4	228.6	215.9	6.4	12	38.1	317.5	75.0
8"	211.6	202.7	193.7	482.6	91.9	212.8	219.2	292.1	269.7	6.4	12	44.4	393.7	125.0
10"	264.6	254.5	247.7	584.2	107.9	254.0	273.0	368.3	323.8	6.4	12	50.8	482.6	206.0
12"	314.6	304.9	298.5	673.1	123.9	282.4	323.8	450.8	381.0	6.4	16	53.8	571.5	313.0
14"	346.0	336.6	330.2	749.3	133.3	298.4	355.6	495.3	412.7	6.4	16	60.4	635.0	380.0
16"	396.8	387.3	381.0	825.5	146.0	311.1	406.4	552.4	469.9	6.4	16	66.5	704.8	485.0
18"	447.6	438.1	431.8	914.4	162.0	327.1	457.2	596.9	533.4	6.4	16	73.1	774.7	644.0
20"	497.0	488.9	482.6	984.2	177.8	355.6	508.0	641.3	584.2	6.4	16	79.2	831.8	775.0
24"	598.5	590.5	584.2	1168.4	203.2	406.4	609.6	762.0	692.1	6.4	16	91.9	990.6	1232.0

ANSI /ASTM STANDARD - 150[#] WNFF

WELDED NECK FLANGE (FLAT FACE)



Nominal Pipe Size	Sch 10S	Dia. of Bore (mm) Sch 40S/STD	Sch 80S/STD	Outside Dia. (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Outside Dia. of Neck (mm)	Dia. at Base of Neck (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx Weight (KG)
	do			C	t	H	A	M		h	D	
1/2"	17.1	15.8	13.9	88.9	11.2	47.8	21.3	30.2	4	15.7	60.5	0.5
3/4"	22.5	20.9	18.8	98.6	12.7	52.3	26.7	38.1	4	15.7	69.9	0.7
1"	27.9	26.6	24.5	108.0	14.2	55.6	33.5	49.3	4	15.7	79.2	1.0
1.1/4"	36.6	35.1	32.5	117.3	15.7	57.2	42.2	58.7	4	15.7	88.9	1.4
1.1/2"	42.7	40.9	38.1	127.0	17.5	62.0	48.3	65.0	4	15.7	98.6	1.8
2"	54.9	52.7	49.5	152.4	19.1	63.5	60.5	77.7	4	19.1	120.7	2.6
2.1/2"	67.2	62.7	59.0	177.8	22.4	69.9	73.2	90.4	4	19.1	139.7	4.2
3"	82.9	77.9	73.7	190.5	23.9	69.9	88.9	108.0	4	19.1	152.4	5.0
3.1/2"	95.6	90.1	85.5	215.9	23.9	71.4	101.6	122.2	8	19.1	177.8	6.1
4"	108.3	102.3	97.2	228.6	23.9	76.2	114.3	134.9	8	19.1	190.5	7.0
5"	134.4	128.2	122.3	254.0	23.9	88.9	141.2	163.6	8	22.4	215.9	8.6
6"	161.6	154.2	146.3	279.4	25.4	88.9	168.4	192.0	8	22.4	241.3	10.6
8"	211.6	202.7	193.7	342.9	28.4	101.6	219.2	246.1	8	22.4	298.5	17.6
10"	264.6	254.5	247.7	406.4	30.2	101.6	273.1	304.8	12	25.4	362.0	24.0
12"	314.6	304.9	298.5	482.6	31.8	114.3	323.9	365.3	12	25.4	431.8	37.0
14"	346.0	336.6	330.2	533.4	35.1	127.0	355.6	400.1	12	28.4	476.3	49.0
16"	396.8	387.3	381.0	596.9	36.6	127.0	406.4	457.2	16	28.4	539.8	61.0
18"	447.6	438.1	431.8	635.0	39.6	139.7	457.2	505.0	16	31.8	577.9	68.0
20"	497.0	488.9	482.6	698.5	42.9	144.5	508.0	558.8	20	31.8	635.0	85.0
22"	547.7	539.7	533.4	749.3	46.0	149.2	558.8	609.6	20	35.1	692.1	102.0
24"	598.5	590.5	584.2	812.8	47.8	152.4	609.6	663.4	20	35.1	749.3	115.0

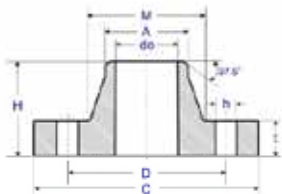
ANSI /ASTM STANDARD - 300[#] WNFF

WELDING NECK FLANGE (FLAT FACE)

Nominal Pipe Size	Sch 10S	Dia. of Bore (mm) Sch 40S/STD	Sch 80S/STD	Outside Dia. (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Outside Dia. of Neck (mm)	Dia. at Base of Neck (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx Weight (KG)
	do			C	t	H	A	M		h	D	
1/2"	17.1	15.8	13.9	95.2	14.2	52.3	21.3	38.1	4	15.7	66.5	0.8
3/4"	22.5	20.9	18.8	117.3	15.7	57.1	26.7	47.7	4	19.0	82.5	1.3
1"	27.9	26.6	24.5	123.9	17.5	62.0	33.5	53.8	4	19.0	88.9	1.6
1.1/4"	36.6	35.1	32.5	133.3	19.0	65.0	42.2	63.5	4	19.0	98.5	2.1
1.1/2"	42.7	40.9	38.1	155.4	20.6	68.3	48.3	69.8	4	22.3	114.3	3.0
2"	54.9	52.7	49.5	165.1	22.3	69.8	60.4	84.0	8	19.0	127.0	3.4
2.1/2"	67.2	62.7	59.0	190.5	25.4	76.2	73.1	100.0	8	22.3	149.3	5.2
3"	82.9	77.9	73.7	209.5	28.4	79.2	88.9	117.3	8	22.3	168.1	7.0
3.1/2"	95.6	90.1	85.5	228.6	30.2	81.0	101.6	133.3	8	22.3	184.1	8.7
4"	108.3	102.3	97.2	254.0	31.8	85.8	114.3	146.0	8	22.3	200.1	11.2
5"	134.4	128.2	122.3	279.4	35.0	98.5	141.2	177.8	8	22.3	234.9	16.0
6"	161.6	154.2	146.3	317.5	36.5	98.5	168.4	206.2	12	22.3	269.7	20.0
8"	211.6	202.7	193.7	381.0	41.1	111.2	219.2	260.3	12	25.4	330.2	30.0
10"	264.6	254.5	247.7	444.5	47.7	117.3	273.0	320.5	16	28.6	387.3	43.0
12"	314.6	304.9	298.5	520.7	50.8	130.0	323.8	374.6	16	31.7	450.8	62.0
14"	346.0	336.6	330.2	584.2	53.8	142.7	355.6	425.4	20	31.7	514.3	86.0
16"	396.8	387.3	381.0	647.7	57.1	146.0	406.4	482.6	20	35.0	571.5	106.0
18"	447.6	438.1	431.8	711.2	60.4	158.7	457.2	533.4	24	35.0	628.6	131.0
20"	497.0	488.9	482.6	774.7	63.5	162.0	508.0	587.2	24	35.0	685.8	158.0
22"	547.7	539.7	533.4	838.2	66.7	165.1	558.8	641.2	24	41.1	742.9	195.0
24"	598.5	590.5	584.2	914.4	69.8	168.1	609.6	701.5	24	41.1	812.8	230.0

ANSI /ASTM STANDARD - 600[#] WNFF

WELDED NECK FLANGE (FLAT FACE)



Nominal Pipe Size	Sch 10S	Dia. of Bore (mm) Sch 40S/ STD	Sch 80S/ STD	Outside Dia. (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Outside Dia. of Neck (mm)	Dia. at Base of Neck (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx Weight (KG)
	do			C	t	H	A	M		h	D	
1/2"	17.1	15.8	13.9	95.3	14.2	52.3	21.3	38.1	4	15.7	66.5	0.9
3/4"	22.5	20.9	18.8	117.3	15.7	57.2	26.7	47.8	4	19.1	82.6	1.5
1"	27.9	26.6	24.5	124.0	17.5	62.0	33.5	53.8	4	19.1	88.9	1.8
1.1/4"	36.6	35.1	32.5	133.4	20.6	66.5	42.2	63.5	4	19.1	98.6	2.5
1.1/2"	42.7	40.9	38.1	155.4	22.4	69.9	48.3	69.9	4	22.4	114.3	3.5
2"	54.9	52.7	49.5	165.1	25.4	73.2	60.5	84.1	8	19.1	127.0	4.4
2.1/2"	67.2	62.7	59.0	190.5	28.4	79.2	73.2	100.1	8	22.4	149.4	6.4
3"	82.9	77.9	73.7	209.6	31.8	82.6	88.9	117.3	8	22.4	168.1	8.6
3.1/2"	95.6	90.1	85.5	228.6	35.1	85.9	101.6	133.4	8	25.4	184.2	11.7
4"	108.3	102.3	97.2	273.1	38.1	101.6	114.3	152.4	8	25.4	215.9	18.0
5"	134.4	128.2	122.3	330.2	44.5	114.3	141.2	189.0	8	28.4	266.7	30.0
6"	161.6	154.2	146.3	355.6	47.8	117.3	168.4	222.3	12	28.4	292.1	35.0
8"	211.6	202.7	193.7	419.1	55.6	133.4	219.2	273.1	12	31.8	349.3	54.0
10"	264.6	254.5	247.7	508.0	63.5	152.4	273.1	342.9	16	35.1	431.8	87.0
12"	314.6	304.9	298.5	558.8	66.5	155.4	323.9	400.1	20	35.1	489.0	103.0
14"	346.0	336.6	330.2	603.3	69.9	165.1	355.6	431.8	20	38.1	527.1	122.0
16"	396.8	387.3	381.0	685.8	76.2	177.8	406.4	495.3	20	41.1	603.3	170.0
18"	447.6	438.1	431.8	743.0	82.6	184.2	457.2	546.1	20	44.5	654.1	204.0
20"	497.0	488.9	482.6	812.8	88.9	190.5	508.0	609.6	24	44.5	723.9	254.0
22"	547.7	539.7	533.4	869.9	95.2	196.8	558.8	666.7	24	47.6	777.9	281.0
24"	598.5	590.5	584.2	939.8	101.6	203.2	609.6	717.6	24	50.8	838.2	358.0

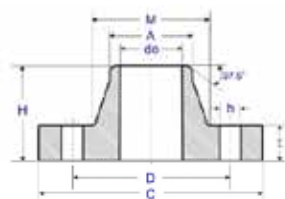
ANSI /ASTM STANDARD - 900[#] WNFF

WELDING NECK FLANGE (RAISED FACE)

Nominal Pipe Size	Sch 10S	Dia. of Bore (mm) Sch 40S/ STD	Sch 80S/ STD	Outside Dia. (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Outside Dia. of Neck (mm)	Dia. at Base of Neck (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx Weight (KG)
	do			C	t	H	A	M		h	D	
1/2"	17.1	15.8	13.9	120.6	22.3	60.4	21.3	38.1	4	22.3	82.5	2.3
3/4"	22.5	20.9	18.8	130.2	25.4	69.8	26.7	44.4	4	22.3	88.9	2.7
1"	27.9	26.6	24.5	149.3	28.4	73.1	33.4	52.3	4	25.4	101.6	4.1
1.1/4"	36.6	35.1	32.5	158.7	28.4	73.1	42.2	63.5	4	25.4	111.2	4.5
1.1/2"	42.7	40.9	38.1	177.8	31.7	82.5	48.3	69.8	4	28.4	123.9	5.9
2"	54.9	52.7	49.5	215.9	38.1	101.6	60.3	104.6	8	25.4	165.1	11.3
2.1/2"	67.2	62.7	59.0	244.3	41.1	104.6	73.0	123.9	8	28.4	190.5	16.3
3"	82.9	77.9	73.7	241.3	38.1	101.6	88.9	127.0	8	25.4	190.5	14.0
4"	108.3	102.3	97.2	292.1	44.4	114.3	114.3	158.7	8	31.7	234.9	23.0
5"	134.4	128.2	122.3	349.2	50.8	127.0	141.2	190.5	8	35.0	279.4	38.0
6"	161.6	154.2	146.3	381.0	55.6	139.7	168.4	234.9	12	31.7	317.5	48.0
8"	211.6	202.7	193.7	469.9	63.5	162.0	219.2	298.4	12	38.1	393.7	82.0
10"	264.6	254.5	247.7	546.1	69.8	184.1	273.0	368.3	16	38.1	469.9	119.0
12"	314.6	304.9	298.5	609.6	79.2	200.1	323.8	419.1	20	38.1	533.4	157.0
14"	346.0	336.6	330.2	641.3	85.8	212.8	355.6	450.8	20	41.1	558.8	180.0
16"	396.8	387.3	381.0	704.8	88.9	215.9	406.4	508.0	20	44.4	615.9	217.0
18"	447.6	438.1	431.8	787.4	101.6	228.6	457.2	565.1	20	50.8	685.8	298.0
20"	497.0	488.9	482.6	857.2	107.9	247.6	508.0	622.3	20	53.8	749.3	362.0
24"	598.5	590.5	584.2	1041.4	139.7	292.1	609.6	749.3	20	66.5	901.7	665.0

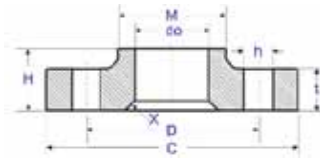
ANSI /ASTM STANDARD - 1500[#] WNFF

WELDED NECK FLANGE (FLAT FACE)



Nominal Pipe Size	Sch 10S	Dia. of Bore (mm) Sch 40S/ STD	Sch 80S/ STD	Outside Dia. (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Outside Dia. of Neck (mm)	Dia. at Base of Neck (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx Weight (KG)
	do			C	t	H	A	M		h	D	
1/2"	17.1	15.8	13.9	120.6	22.3	60.4	21.3	38.1	4	22.3	82.5	2.3
3/4"	22.5	20.9	18.8	130.2	25.4	69.8	26.7	44.4	4	22.3	88.9	2.7
1"	27.9	26.6	24.5	149.3	28.4	73.1	33.4	52.3	4	25.4	101.6	4.1
1.1/4"	36.6	35.1	32.5	158.7	28.4	73.1	42.2	63.5	4	25.4	111.2	4.5
1.1/2"	42.7	40.9	38.1	177.8	31.7	82.5	48.3	69.8	4	28.4	123.9	5.9
2"	54.9	52.7	49.5	215.9	38.1	101.6	60.3	104.6	8	25.4	165.1	11.3
2.1/2"	67.2	62.7	59.0	244.3	41.1	104.6	73.0	123.9	8	28.4	190.5	16.3
3"	82.9	77.9	73.7	266.7	47.7	117.3	88.9	133.3	8	31.7	203.2	21.8
4"	108.3	102.3	97.2	311.1	53.8	123.9	114.3	162.0	8	35.0	241.3	33.0
5"	134.4	128.2	122.3	374.6	73.1	155.4	141.2	196.8	8	41.1	292.1	59.0
6"	161.6	154.2	146.3	393.7	82.5	171.4	168.4	228.6	12	38.1	317.5	75.0
8"	211.6	202.7	193.7	482.6	91.9	212.8	219.2	292.1	12	44.4	393.7	125.0
10"	264.6	254.5	247.7	584.2	107.9	254.0	273.0	368.3	12	50.8	482.6	206.0
12"	314.6	304.9	298.5	673.1	123.9	282.4	323.8	450.8	16	53.8	571.5	313.0
14"	346.0	336.6	330.2	749.3	133.3	298.4	355.6	495.3	16	60.4	635.0	380.0
16"	396.8	387.3	381.0	825.5	146.0	311.1	406.4	552.4	16	66.5	704.8	485.0
18"	447.6	438.1	431.8	914.4	162.0	327.1	457.2	596.9	16	73.1	774.7	644.0
20"	497.0	488.9	482.6	984.2	177.8	355.6	508.0	641.3	16	79.2	831.8	775.0
24"	598.5	590.5	584.2	1168.4	203.2	406.4	609.6	762.0	16	91.9	990.6	1232.0

ANSI /ASTM STANDARD - 150[#] SOLJ
SLIP-ON LAP JOINT FLANGE

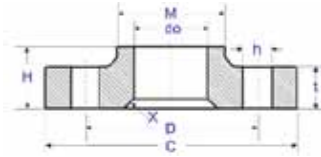


Nominal Pipe Size	Outside Dia. (mm)	Dia. of Bore (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Radius of Filler (mm)	Dia. at Base of Hub (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx Weight (KG)
	D	do	t	H	X	M		h	C	
1/2"	88.9	22.9	11.2	15.7	3.0	30.2	4	15.7	60.5	0.4
3/4"	98.6	28.2	12.7	15.7	3.0	38.1	4	15.7	69.9	0.6
1"	108.0	35.1	14.2	17.5	3.0	49.3	4	15.7	79.2	0.8
1.1/4"	117.3	43.7	15.7	20.6	4.8	58.7	4	15.7	88.9	1.0
1.1/2"	127.0	50.0	17.5	22.4	6.4	65.0	4	15.7	98.6	1.3
2"	152.4	62.5	19.1	25.4	7.9	77.7	4	19.1	120.7	2.0
2.1/2"	177.8	75.4	22.4	28.4	7.9	90.4	4	19.1	139.7	3.3
3"	190.5	91.4	23.9	30.2	9.7	108.0	4	19.1	152.4	3.8
3.1/2"	215.9	104.1	23.9	31.8	9.7	122.2	8	19.1	177.8	4.8
4"	228.6	116.8	23.9	33.3	11.2	134.9	8	19.1	190.5	5.3
5"	254.0	144.5	23.9	36.6	11.2	163.6	8	22.4	215.9	6.1
6"	279.4	171.5	25.4	39.6	12.7	192.0	8	22.4	241.3	7.4
8"	342.9	222.3	28.4	44.5	12.7	246.1	8	22.4	298.5	12.1
10"	406.4	277.4	30.2	49.3	12.7	304.8	12	25.4	362.0	16.4
12"	482.6	328.2	31.8	55.6	12.7	365.3	12	25.4	431.8	27.0
14"	533.4	360.2	35.1	79.2	12.7	400.1	12	28.4	476.3	35.0
16"	596.9	411.2	36.6	87.4	12.7	457.2	16	28.4	539.8	45.0
18"	635.0	462.3	39.6	96.8	12.7	505.0	16	31.8	577.9	49.0
20"	698.5	514.4	42.9	103.1	12.7	558.8	20	31.8	635.0	62.0
24"	812.8	616.0	47.8	111.3	12.7	663.4	20	35.1	749.3	87.0

ANSI /ASTM STANDARD - 300[#] SOLJ
SLIP-ON LAP JOINT FLANGE

Nominal Pipe Size	Outside Dia. (mm)	Dia. of Bore (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Radius of Filler (mm)	Dia. at Base of Hub (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx Weight (KG)
	D	do	t	H	X	M		h	C	
1/2"	95.2	22.9	14.2	22.3	3.0	38.1	4	15.7	66.5	0.7
3/4"	117.3	28.2	15.7	25.4	3.0	47.7	4	19.0	82.5	1.1
1"	123.9	35.0	17.5	26.9	3.0	53.8	4	19.0	88.9	1.4
1.1/4"	133.3	43.7	19.0	26.9	4.8	63.5	4	19.0	98.5	1.7
1.1/2"	155.4	50.0	20.6	30.2	6.4	69.8	4	22.3	114.3	2.5
2"	165.1	62.5	22.3	33.2	7.8	84.0	8	19.0	127.0	2.9
2.1/2"	190.5	75.4	25.4	38.1	7.8	100.0	8	22.3	149.3	4.3
3"	209.5	91.4	28.4	42.9	9.6	117.3	8	22.3	168.1	5.8
3.1/2"	228.6	104.1	30.2	44.4	9.6	133.3	8	22.3	184.1	7.3
4"	254.0	116.8	31.7	47.7	11.1	146.0	8	22.3	200.1	10.0
5"	279.4	144.5	35.0	50.8	11.1	177.8	8	22.3	234.9	12.2
6"	317.5	171.4	36.5	52.3	12.7	206.2	12	22.3	269.7	15.5
8"	381.0	222.2	41.1	61.9	12.7	260.3	12	25.4	330.2	24.1
10"	444.5	277.4	47.9	95.2	12.7	320.5	16	28.4	387.3	34.4
12"	520.7	328.2	50.8	101.6	12.7	374.6	16	31.7	450.8	51.0
14"	584.2	360.2	53.8	111.2	12.7	425.4	20	31.7	514.3	71.0
16"	647.7	411.2	57.1	120.6	12.7	482.6	20	35.0	571.5	90.0
18"	711.2	462.3	60.4	130.0	12.7	533.4	24	35.0	628.6	111.0
20"	774.7	514.3	63.5	139.7	12.7	587.2	24	35.0	685.8	137.0
24"	914.4	615.9	69.8	152.4	12.7	701.5	24	41.1	812.8	204.0

ANSI /ASTM STANDARD - 150[#] SOLJ
SLIP-ON LAP JOINT FLANGE



Nominal Pipe Size	Outside Dia. (mm)	Dia. of Bore (mm)	Thickness Min. (mm)	Length Thru. Hub (mm)	Radius of Filler (mm)	Dia. at Base of Hub (mm)	Number of Bolt Holes	Dia. of Bolt Holes (mm)	Dia. of Bolt Circle (mm)	Approx Weight (KG)
	D	do	t	H	X	M		h	C	
1/2"	95.3	22.9	14.2	22.4	3.0	38.1	4	15.7	66.5	0.8
3/4"	117.3	28.2	15.7	25.4	3.0	47.8	4	19.1	82.6	1.3
1"	124.0	35.1	17.5	26.9	3.0	53.8	4	19.1	88.9	1.5
1.1/4"	133.4	43.7	20.6	28.4	4.8	63.5	4	19.1	98.6	2.0
1.1/2"	155.4	50.0	22.4	31.8	6.4	69.9	4	22.4	114.3	2.9
2"	165.1	62.5	25.4	36.6	7.9	84.1	8	19.1	127.0	3.6
2.1/2"	190.5	75.4	28.4	41.1	7.9	100.1	8	22.4	149.4	5.3
3"	209.6	91.4	31.8	46.0	9.7	117.3	8	22.4	168.1	7.0
3.1/2"	228.6	104.1	35.1	49.3	9.7	133.4	8	25.4	184.2	9.0
4"	273.1	116.8	38.1	53.8	11.2	152.4	8	25.4	215.9	14.4
5"	330.2	144.5	44.5	60.5	11.2	189.0	8	28.6	266.7	24.3
6"	355.6	171.5	47.8	66.5	12.7	222.3	12	28.6	292.1	28.5
8"	419.1	222.3	55.6	76.2	12.7	273.1	12	31.8	349.3	43.1
10"	508.0	277.4	63.5	111.3	12.7	342.9	16	35.1	431.8	70.5
12"	558.8	328.2	66.5	117.3	12.7	400.1	20	35.1	489.0	87.0
14"	603.3	360.2	69.9	127.0	12.7	431.8	20	38.1	527.1	100.0
16"	685.8	411.2	76.2	139.7	12.7	495.3	20	41.1	603.3	145.0
18"	743.0	462.3	82.6	152.4	12.7	546.1	20	44.5	654.1	177.0
20"	812.8	514.4	88.9	165.1	12.7	609.6	24	44.5	723.9	225.0
24"	939.8	616.0	101.6	184.1	12.7	717.5	24	50.8	838.2	318.0

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