A.M.
INDUSTRIES

INDEX

Page

2. Company Profile 3
3. Product Range 4
4. Stainless Steel 304 / 316 Properties 5
5. Stainless Steel 310 Properties 6
6. Duplex Steel Properties 7
7. Applications of Stainless Steel 8
8. Size and Weight Chart for Pipes .....

9. FLANGES B 16.5

Class 150 Flanges 12
Class 300 Flanges 14
Class 600 Flanges 16
Class 900 Flanges 18
Class 1500 Flanges 20
Class 2500 Flanges 22

10. RING TYPE JOINT TOLERANCES 24

11. ORIFICE FLANGES

Class 300 Flanges 26
Class 400 Flanges 28
Class 600 Flanges 30
Class 900 Flanges 32
Class 1500 Flanges 33
Class 2500 Flanges 34

12. FLANGES B 16.47/48 SERIES A & B

Class 150 Series A Flanges 35
Class 300 Series A Flanges 36
Class 400 Series A Flanges 38
Class 600 Series A Flanges 40
Class 900 Series A Flanges 42
Class 75 Series B Flanges 44
Class 150 Series B Flanges 45
Class 300 Series B Flanges 46
Class 400 Series B Flanges 47
Class 600/900 Series B Flanges 48

13. S/W FITTINGS

Standard Dimensions for Socket Weld Fittings 49
Standard Dimension for Threaded Fittings 50

14. BUTT-WELD FITTINGS

90Degree Long Radius Elbow 54
90Degree Short Radius Elbow 56
45Degree Elbow 58
180Degree Elbow 60
Concentric & Eccentric Reducers 62
Equal and Unequal Tees 68
Caps 74
Tolerance for Butt-weld Fittings 76

COMPANY PROFILE

A M Industries is an establishment since **2009,** is a force to reckon within the field of importing, exporting, stockholding and supplying of Stainless Steel, Carbon Steel, Alloy Steel, Duplex Stainless Steel in all Shape of Tubes, Sheets, Pipes, Plates, Round Bar, Pipe Fittings, Flanges etc.

A M Industries has drawn together under one roof of the total spectrum of trading, stockholding and processing activities in stainless steel, carbon steel, m.s., alloy steel, in the shape of pipes, tubes, rods, sheets, plates, wires, angles, coils, strips and the entire range of Pipe Fittings such as BW / SW / Screwed / Forged & Compression Type with Ferrules such as elbow, tees, reducers, stubends, flanges, unions, caps, nipples, couplings, elbowlets, weldolets, nuts & bolts, studs & washers etc.

Right product for the right requirement at the right price and at the right time, i.e. rather than a mere supplier of the product we take utmost efforts in understanding the client's requirement, identifying the right product at the right price.

OUR PRODUCT RANGE

We are one of the leading manufacturer, Importer, Exporter and suppliers of Stainless Steel, Carbon Steel & Alloy steel in the shape of Pipes, tubes, Rods, Sheets, Plates, Wires, Angles, Channels, Coils, Strips and the entire range of Pipe Fittings in the followings grades of materials.

Stainless Steel : Grade TP-304,304L, 304H, 316, 316L, 316h, 316TI, 317, 317l, 321, 347, 309, 310, 314, 409M, 409, 410 etc. in all required sizes & specifications.

Duplex : S 32205, S 32750, S 32101.

Nickel Base Alloys : Inconel, Monel, Nickel, Hastalloy, Titanium - 904L.

Carbon Steel Pipe : ASTM A-106 GR. A, B&C, A-333, GR.I & 6, A-53 GR. A&B, ASTM A-210 GR, A-1, BS 3059, PART IM, SA 179, PART I I S 3589 GF 330, 410, etc.

Alloy Steel Pipe : ASTM, A-335GR.P1, P5, P11, P12, P22, Plate. ASTM A-387 GR - 11,12,22.

Boiler Quality Plate : SA. 515 / 516 GR. 60, 70 & IS 2002

Non-Ferrous : CUPRONICKEL - 70 -30 & 90 - 10. COPPER, BRASS, ALUMINIUM, Metals in all shapes & sizes.

Pipe Fittings : B/W, S/W, SRD, Forged & Compressed type with ferrules such as ELBOW TEES, REDUCERS, STUBENDS FLANGES, UNIONS, CAPS, NIPPLES, COUPLING, ELBOWLETS, WELDO-LETS, NUTS, BOLTS, STUDS, WASHERS, & GASKETS etc. as per ASTM. A - 105, A - 181, A - 182, A - 194, A - 234 WPB, A - 350 LF - 2, A - 403 WP, as per dimension ANSI B-16.9, B -16.11 & 16.28 etc.

Ferrule Fittings : In single ferrule, double ferrule the shape of CONNECTER UNION, RED UNION, UNION TEE, UNION ELBOW, BULK HEAD UNION CROSS etc. Nickel Alloys, 904L.

STAINLESS STEEL

TYPES 304 AND 304L

S.S.Type 304 is low carbon (0.08% max) version of the 18.8. It's physical and mechanical properties as well as corrosion, oxidation and forming charecteristics are similar to Type 302. It is available to us in the same sixth temperature range as Type 302 in the annealed conditions. It has slightly lower strength than the Type 302 due to low carbon content. Type 304 finds extensive usage in welding applications because the low carbon permits some exposure in the carbide presipitation range of 800^0 F – 1500^0 F. It may require annealed conditions.

Type 304 has a carbon content of 0.03% or less. Composition is labeled 304L for "Low carbon" or 304 E for "Extra – low carbon". This alloy can be used in the welded condition without becoming susceptible to intergranular corrosion.

(Severe corrosive conditions or when operating temperature exceeds 800^0 F, Types 321, 347 or 348 should be considered.) Types 304L have an oxidation resistance upto 1650^0 F for continuous service, and upto 1500^0 F for continuous heating is required.

Type 305 is essentially Type 302 with 2 to 3 % higher nickel for less hardening properties, because of this property, it is works well in drawing applications. No magnetic properties are found if the material is cold formed.

The maximum operating temperature for oxidation resistance service is about 1650^0 F, and intermittent service is about 1500^0 F.

TYPES 309 AND 309S

Types 309 and 309 S contains 25% chromium, 12% nickel and are known as heat resistant stainless steels. In Type 309S, the carbon content is limited to 0.08% which is more suited for welded services over Type 309.

Types 309 and 309S are more resistant to marine atmospheres over Type 304.

Types 309 and 309S have oxidation resistance upto 2000^0 F for continuous service, and upto 1800^0 F for intermittent service.

TYPES 310 AND 310S

Type 310 and 310S contains 25% chromium and 20% nickel and work well at high temperature. Since they have lower thermal expansion they warp less when heated.

Type 310S with 0.08% carbon (maximum) is ideally used in the welded condition.

These grades are resistant to carbon.

TYPES 316, 316L AND 316TI

Types 316 has molybedenum improving pitting, hence provides excellent elevated temperature tensile strengths.

Type 316 is more resistant to atmospheric and other mild environments over Type 304. It is resistant to dilute solutions (i.e. 1-5%) of sulphuric acid upto 120^0 F. However, in certain oxidizing acids, Type 316 is less resistant than Type 304.

Type 316L has the same composition as Type 316 except the carbon content is below 0.03%. Its general resistance and other properties closely correspond to those of Type 316.

The use of 316L is recommended when exposure in the carbide precipitation range is unavoidable and annealing after welding is not practical. It is noted that prolonged exposure in the range of 800^0 F - 1500^0 F the material becomes brittle. In such instances grades such as 321, 347 or 348 is recommended.

TYPE 321

Type 321 is basic Type 304 with added titanium in an amount atleast 5 times the carbon plus nitrogen contents. Type 321 is corrosable when heated within the carbide precipitation range.

Type 321 has better high temperature operating range over Type 304 or 304L and is generally used for parts which are intermittently heated upto 1500^0 F for continuous service, the alloy is good upto 1650^0 F.

GENERAL INFORMATION:

Type 309, 310 & Type 314, austenitic stainless steels are typically used for elevated temperature applications. Their high chromium and nickel contents provides comparable corrosion resistance, superior resistance to oxidation and retention to room temperature strength than the common austenitic alloys like Type 304. The alloys are available in plates, sheet, and strip pipe, rod & fittings.

GENERAL FEATURES

- Oxidation resistance upto 2000^0 F
- Moderates strength at high temperatures
- Resistance to hot corrosion
- Low magnetic permeability
- Strength & toughness at cryogenic temperatures availability

PHYSICAL PROPERTIES

Density	:	0.284lb/cu.in
	:	7860 kg/m3
MELTING RANGE	:	2470-2555^0 F
	:	1355-1400^0 C

MECHANICAL PROPERTIES: Typical room temp. Mechanical Properties, Annealed.

ULTIMATE TENSILE STRENGTH

PSI	:	80,000
0.2% Offset yield strength, psi	:	35,000
Elongation, in 2", %	:	52
Reduction of area, %	:	72
Hardness, Rockwell B	:	75-85

FORMING : Forming of Type 310 is similar to type 309 and may be easily drawn or stamped.

FORGING : Forge at temperatures between 2000^0 F and 2200^0 F.

ANNEALING : Annealed between 1900^0 F and 2100^0 F. Water quenching heavy sections & air cooling lighter sections, stress reliving between 400^0 F and 750^0 F.

CORROSION : This grade possesses excellent corrosion resistance & withstands scaling at temperatures upto 2000^0 F. Its corrosion resistance property reaches it's maximum in the annealed condition.

DUPLEX STAINLESS STEEL

General Characteristics

Austenitic - ferritic stainless steel also referred to as duplex stainless steels,possesses beneficial properties of ferritic and austenitic steels. High content of chromium and nitrogen, these steels offer good resistance to uniform corrosion. The duplex microstructure contributes to the high strength and high resistance to stress and corrosion cracking.

Chemical Composition

The typical chemical compositiong of Duplex. The chemical composition may differ slightly between different national standards.

CHEMICAL COMPOSITION

	International Steel No.		Chemical Composition % Typical values					
	EN	ASTM	C	N	Cr	Ni	Mo	Others
DUPLEX	1.4162	S 32101	0.03	0.22	21	1.5	0.3	5 Min
	1.4362	S 32304	0.02	0.10	23	4.8	0.3	-
	1.4462	S 32205	0.02	0.17	22	5.7	3.1	-
	1.4501	S 32760	0.02	0.25	25	7.0	3.8	W.Cu
	1.4410	S 32750	0.02	0.27	25	7.0	4.0	-

CHARACTERISTIC PROPERTIES

- Good resistance to uniform corrosion.
- Good resistance to pitting and crevice corrosion.
- High resistance to stress corrosion cracking and corrosion fatigue.
- High mechanical strength.
- Good erosion resistance.
- High energy absorption.
- Low thermal expansion.

APPLICATIONS OF SS 310 & OTHER HEAT RESISTANT MATERIALS

High Alloy Stainless Steels generally have excellent Elevated Temperature Strength along with resistance to deformation and environmental attack, hence they are widely used in the Heat Treatment Industry for Furnace parts.

1) Radiant tubes
2) Fans
3) Rotators & oven linings
4) Refractory Support
5) Rollers
6) Baskets & Trays to hold small parts
7) Tube Hangars
8) Burner parts
9) Conveyor Belts
10) Recuperators & Air pre-heaters
11) Reactor Vessels & Pressure Vessels
12) Tanks
13) Furnaces

This Grade are used in chemical process industry since concentrated Acid, Ammonia & Sulphur-dioxide is used. In the food processing industry they use Acetic & Citric Acid, hence stainless steel is required.

APPLICATIONS

- Pulp & Paper Industry
- Desalination Plants
- Fuel-gas Cleaning
- Rotors, impellers & Shafts
- Seawater systems
- Fire walls & Blast walls on offshore platforms
- Water Heaters
- Bridges
- Components for structural Design
- Storage Tanks
- Pressure Vessels
- Heat exchangers
- Cargo tanks & pipe systems in chemical tankers
- Coal gas compressor
- Rectisol oxygen services

PIPES

Standard Dimensions

NPS inches	N.D.	O.D. mm	10	20	30	STD	40	60	XS	80	100	120	140	160	XXS
3/8	10	17.1	1.65	-	1.85	2.31	2.31	-	3.2	3.2	-	-	-	-	-
1/2	15	21.34	2.11	-	2.41	2.77	2.77	-	3.73	3.73	-	-	-	4.77	7.47
3/4	20	26.67	2.11	-	2.41	2.87	2.87	-	3.91	3.91	-	-	-	5.56	7.82
1	25	33.4	2.77	-	2.9	3.38	3.38	-	4.55	4.55	-	-	-	6.35	9.09
1.1/4	32	42.16	2.77	-	2.97	3.56	3.56	-	4.85	4.85	-	-	-	6.35	9.7
1.1/2	40	48.26	2.77	-	3.18	3.68	3.68	-	5.08	5.08	-	-	-	7.14	10.16
2	50	60.32	2.77	-	3.18	3.91	3.91	-	5.54	5.54	-	-	-	8.74	11.07
2.1/2	65	73.02	3.05	-	4.78	5.16	5.16	-	7.01	7.01	-	-	-	9.52	14.02
3	80	88.9	3.05	-	4.78	5.49	5.49	-	7.62	7.62	-	-	-	11.12	15.24
3.1/2	90	101.6	3.05	-	4.78	5.74	5.74	-	8.08	8.08	-	-	-	-	16.15
4	100	114.3	3.05	-	4.78	6.02	6.02	-	8.56	8.56	-	11.12	-	13.49	17.12
5	125	141.3	3.4	-	-	6.55	6.55	-	9.52	9.52	-	12.7	-	15.87	19.05
6	150	168.3	3.4	-	-	7.11	7.11	-	10.97	10.97	-	14.27	-	18.26	21.95
8	200	219.1	3.76	6.35	7.04	8.18	8.18	10.31	12.7	12.7	15.08	18.26	20.63	23.01	22.22
10	250	273	4.19	6.35	7.8	9.27	9.27	12.7	12.7	15.08	18.26	21.44	25.4	28.57	25.4
12	300	323.9	4.57	6.35	8.38	9.52	10.31	14.27	12.7	17.47	21.44	25.4	28.57	33.32	25.4
14	350	355.6	6.35	7.92	9.53	9.52	11.12	15.09	12.7	19.05	23.82	27.79	31.75	35.71	-
16	400	406.4	6.35	7.92	9.53	9.52	12.7	16.66	12.7	21.44	26.19	30.96	36.52	40.49	-
18	450	457.2	6.35	7.92	11.13	9.52	14.27	19.05	12.7	23.82	29.36	34.92	39.67	45.24	-
20	500	508	6.35	9.53	12.7	9.52	15.08	20.62	12.7	26.19	32.54	38.1	44.45	50.01	-
22	550	558.8	6.35	9.53	12.7	9.52	15.87	22.22	12.7	28.57	34.92	41.27	47.62	53.97	-
24	600	609.6	6.35	9.53	12.7	9.52	17.47	24.61	12.7	30.96	38.89	46.02	52.37	59.54	-
26	650	660.4	7.92	12.7	-	9.52	-	-	12.7	-	-	-	-	-	-
28	700	711.2	7.92	12.7	15.88	9.52	-	-	12.7	-	-	-	-	-	-
30	750	762	7.92	12.7	15.88	9.52	-	-	12.7	-	-	-	-	-	-
32	800	812.8	7.92	12.7	15.88	9.52	17.47	-	12.7	-	-	-	-	-	-
34	850	863.6	7.92	12.7	15.88	9.52	17.47	-	12.7	-	-	-	-	-	-
36	900	914.4	7.92	12.7	15.88	9.52	19.05	-	12.7	-	-	-	-	-	-
40	1000	1016	-	-	-	9.53	-	-	12.7	-	-	-	-	-	-

photograph of a group of flanges

FLANGES

A Flange is made up of Mild Steel, Alloy Steel & Stainless Steel. Design to connect section of Pipe or Joint Pipe to Pressure Vessels, Valves, Pumps or any other integral Flange Assembly.

Flanges are joint to each other by bolting or welding or threading.

SIZE : Nominal Pipe - 1/2", 3/4", 1", 11/4", 11/2", 2", 21/2", 3" upto 12mm NB:15, 20, 25, 32, 40, 50, 65, 80 upto 300mm NB.

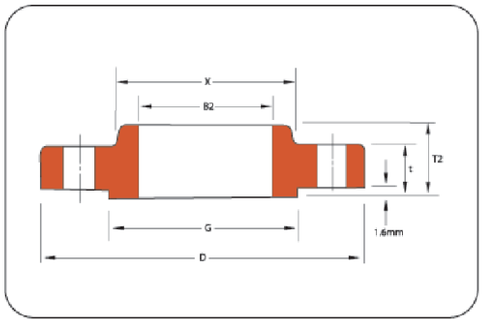
TYPE : Slip-on, Weld-Neck, Blind, Socket-Weld, Threaded, Lap-Joint (Stud-end), Ring Joint, Threaded, Reducing & Orifice.

STD : As per ASA B 16.5 Class for 150Lbs., 300Lbs., 900Lbs., 1500Lbs. & 2500Lbs.,As per DIN.ND - 6 - 2631 (85 PSI), ND 10 - 2632 (142 PSI) ND - 16 - 2633 (228 PSI), ND 402635 (569 PSI).

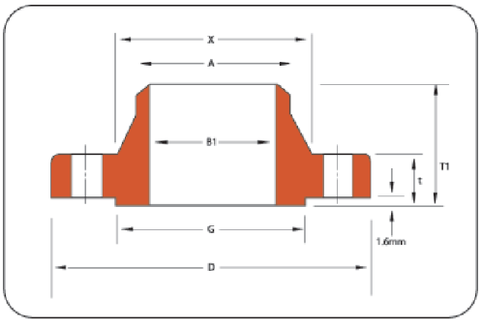
MATERIALS : As per ASTM A 105 (High temperature Service) As per ASTM A 181 (General Service) Carbon Steel Grade. ASTM A 182 for High Temperature Service for SS 304 & SS 316.

DIMENSION : As per ANSI B 16.5 for Forged Steel Flange.

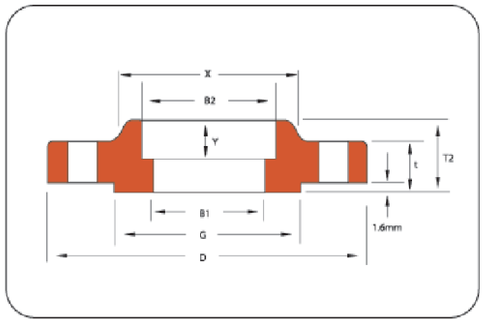
CLASS 150 FLANGES



SLIP - ON



WELDING NECK



SOCKET WELDING

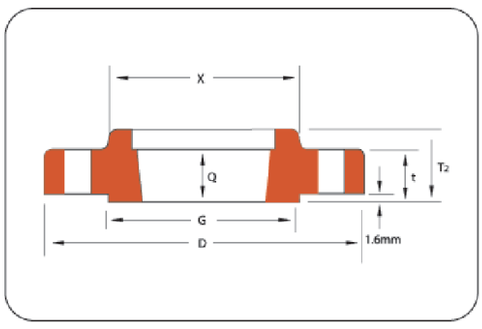
ANSI B 16.5 FORGED FLANGES

Unit : mm

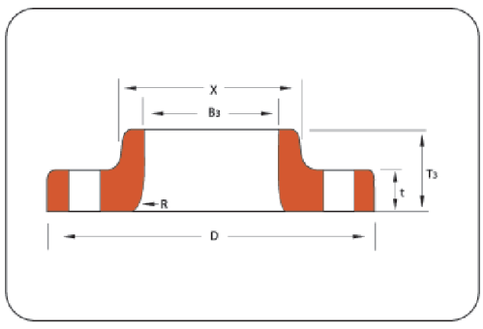
					BORE			LENGTH THRU HUB					
Nominal Pipe Size	Outside Dia.	Dia. at Base of Hub	O.D. of Raised Face	Thickness	Welding Neck Socket Welding	Slip - on Socket Welding	Lap Joint	Welding Neck	Slip - on Threaded Socket Welding	Lap Joint	Dia. Of Hub at Bevel	Radius of Fillet	Thread Length
	D	X	G	t	B1	B2	B3	T1	T2	T3	A	R	Q
½	89.0	30.2	35.1	11.2	15.7	22.4	22.9	47.8	15.7	15.7	21.3	3.0	15.7
¾	99.0	38.1	42.9	12.7	20.8	27.7	28.2	52.3	15.7	15.7	26.7	3.0	15.7
1	108.0	49.3	50.8	14.2	26.7	34.5	35.1	55.6	17.5	17.5	33.5	3.0	17.5
1 ¼	117.0	58.7	63.5	15.7	35.1	43.2	43.7	57.2	20.6	20.6	42.2	4.8	20.6
1 ½	127.0	65.0	73.2	17.5	40.9	49.5	50.0	62.0	22.4	22.4	48.3	6.4	22.4
2	152.0	77.7	91.9	19.1	52.6	62.0	62.5	63.5	25.4	25.4	60.5	7.9	25.4
2 ½	178.0	90.4	104.6	22.4	62.7	74.7	75.4	69.9	28.4	28.4	73.2	7.9	28.4
3	191.0	108.0	127.0	23.9	78.0	90.7	91.4	69.9	30.2	30.2	88.9	9.7	30.2
3 ½	216.0	122.2	139.7	23.9	90.2	103.4	104.1	71.4	31.8	31.8	101.6	9.7	31.8
4	229.0	134.9	157.2	23.9	102.4	116.1	116.8	76.2	33.3	33.3	114.3	11.2	33.3
5	254.0	163.6	185.7	23.9	128.3	143.8	144.5	88.9	36.6	36.6	141.2	11.2	36.6
6	279.0	192.0	215.9	25.4	154.2	170.7	171.5	88.9	39.6	39.6	168.4	12.7	39.6
8	343.0	246.1	269.7	28.4	202.7	221.5	222.3	101.6	44.5	44.5	219.2	12.7	44.5
10	406.0	304.8	323.9	30.2	254.5	276.4	277.4	101.6	49.3	49.3	273.1	12.7	49.3
12	483.0	365.3	381.0	31.8	304.8	327.2	328.2	114.3	55.6	55.6	323.9	12.7	55.6
14	533.0	400.1	412.8	35.1	336.6	359.2	360.2	127.0	57.2	79.2	355.6	12.7	57.2
16	597.0	457.2	469.9	36.6	387.4	410.5	411.2	127.0	63.5	87.4	406.4	12.7	63.5
18	635.0	505.0	533.4	39.6	438.2	461.8	462.3	139.7	68.3	96.8	457.2	12.7	68.3
20	699.0	558.8	584.2	42.9	489.0	513.1	514.4	144.5	73.2	103.1	508.0	12.7	73.2
24	813.0	663.4	692.2	47.8	590.6	616.0	616.0	152.4	82.6	111.3	609.0	12.7	82.6

NOTE :

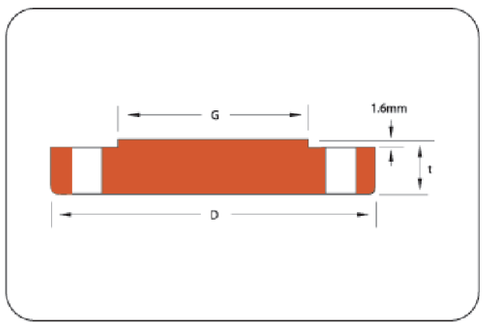
1} For the inside diameter of pipes (corresponding to 'Bore' (B1) of Welding Neck Flanges), refer to page 9.
2} Class 150 flanges except Lap Joint will be furnished with 0.06" (1.6mm) raised face, which is included in 'Thickness' (t) and 'Length through Hub' (T_1), (T_2).
3} For Slip-on, Threaded, Socket Welding and Lap Joint Flanges, the Hubs cab be shaped either vertical from base to top or tapered within the limits of 7 degrees.



THREADED



LAP JOINT



BLIND

Unit : mm

DRILLING						BOLTING			APPROXIMATE WEIGHT									
Number	Depth	Bolt	Number	Dia.	Dia.	Machine	Stud Bolt											
Pipe	of	Circle	of	of	of	Bolt	Length		Welding		Slip - on		Lap		Blind		Socket	
Size	Socket	Dia.	Holes	Holes	Bolts	Length	Raised	Ring	Neck		and		Joint				Welding	
					(inch)	Raised	Face	Joint			Threaded							
	Y					Face			Kg.	lb	Kg.	lb	Kg.	lb	Kg.	lb	Kg.	lb
½	9.7	60.5	4	15.7	1/2	50.8	57.2	--	0.51	1.10	0.47	1.00	0.51	1.00	0.47	1.00	0.47	1.00
3/4	11.2	69.9	4	15.7	1/2	50.8	63.5	--	0.73	1.60	0.58	1.30	0.64	1.40	0.63	1.40	0.59	1.30
1	12.7	79.2	4	15.7	1/2	57.2	63.5	76.2	1.07	2.40	0.86	1.90	0.93	1.80	0.94	2.10	0.87	1.90
1¼	14.2	88.9	4	15.7	1/2	57.2	69.9	82.6	1.40	3.10	1.08	2.40	1.16	2.00	1.23	2.70	1.11	2.40
1½	15.7	98.6	4	15.7	1/2	63.5	69.9	82.6	1.81	4.00	1.41	3.10	1.51	3.30	1.62	3.60	1.45	3.20
2	17.5	120.7	4	19.1	5/8	69.9	82.6	95.3	2.59	5.70	2.26	5.00	2.38	5.20	2.64	5.80	2.33	5.00
2½	19.1	139.7	4	19.1	5/8	76.2	88.9	101.6	4.28	9.40	3.43	7.60	3.60	7.90	4.06	9.00	3.55	7.80
3	20.6	152.4	4	19.1	5/8	76.2	88.9	101.6	5.18	11.40	3.87	8.50	4.04	8.90	4.90	10.80	4.02	8.90
3½	22.4	177.8	8	19.1	5/8	76.2	88.9	101.6	5.45	12.00	4.99	11.00	4.99	11.00	5.90	13.00	4.99	11.00
4	23.9	190.5	8	19.1	5/8	76.2	88.9	101.6	7.32	16.10	5.75	12.70	5.96	13.00	7.41	16.30	5.99	13.20
5	23.9	215.9	8	22.4	3/4	82.6	95.3	108.0	8.91	19.60	6.22	13.70	6.44	14.00	8.76	19.30	6.68	14.70
6	26.9	241.3	8	22.4	3/4	82.6	101.6	114.3	11.26	24.80	7.38	16.30	7.59	16.70	11.31	24.90	7.99	17.60
8	31.8	298.5	8	22.4	3/4	88.9	108.0	120.7	17.68	39.00	12.36	27.30	12.66	27.90	19.92	43.90	13.29	29.30
10	33.3	362.0	12	25.4	7/8	101.6	114.3	127.0	24.79	54.70	17.10	37.70	16.78	37.00	29.39	64.80	19.50	43.00
12	39.6	431.8	12	25.4	7/8	101.6	120.7	133.4	38.98	85.90	27.68	61.00	28.30	62.40	43.70	96.30	29.03	64.00
14	41.4	476.3	12	28.4	1.0	114.3	133.4	146.1	51.71	114.00	35.20	77.60	41.50	91.50	59.42	140.00	38.56	85.00
16	44.5	539.8	16	28.4	1.0	114.3	133.4	146.1	64.41	142.00	42.18	93.00	52.98	116.80	77.11	170.00	44.49	98.00
18	49.3	577.9	16	31.8	1.1/8	127.0	164.1	158.1	74.84	165.00	49.71	109.60	59.00	130.00	94.80	209.00	54.43	120.00
20	54.1	635.0	20	31.8	1.1/8	139.7	158.8	171.5	89.36	197.00	65.50	140.00	72.12	159.00	123.38	272.00	70.31	155.00
24	63.5	749.3	20	35.1	1.1/4	152.4	171.5	184.2	119.66	263.80	90.50	199.50	99.02	218.30	188.24	415.00	95.25	210.00

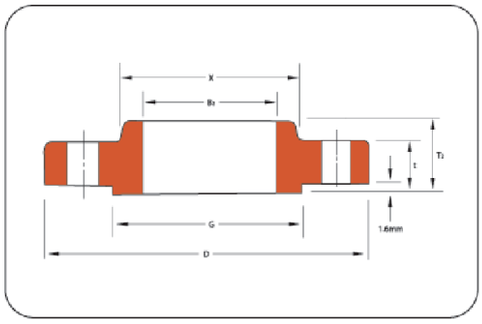
NOTE :

4} Blind Flanges may be made with the same hub as that used for Slip-on Flanges or without hub.

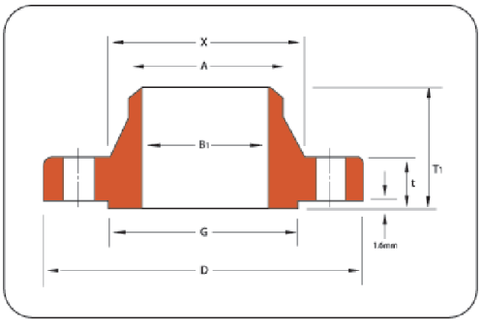
5} The gasket surface and backside (bearing surface for bolting) are made parallel within 1 degree to accomplish parallelism, spot facing is carried out according to MSS SP - 9, without reducing thickness (t)

6} Depth of socket (Y) is covered by ANSI B16.5 only in sizes through 3 inch, over 3 inch is at the manufacturer's option

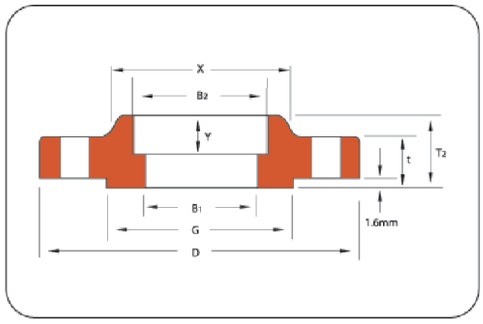
CLASS 300
FLANGES



SLIP - ON



WELDING NECK



SOCKET WELDING

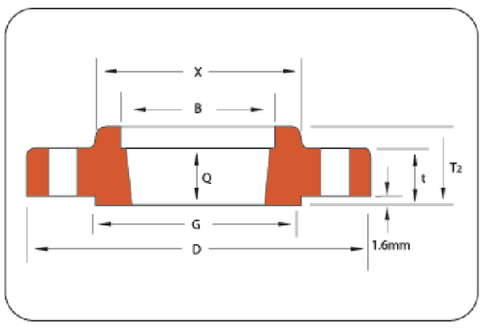
ANSI B 16.5 FORGED FLANGES

Unit : mm

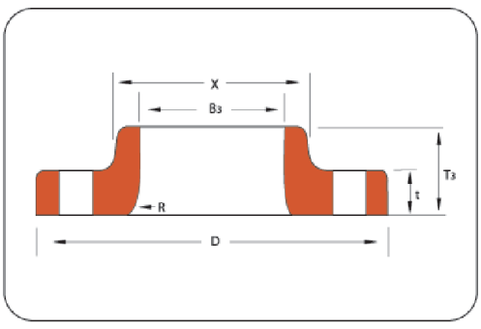
					BORE				LENGTH THRU HUB						
Nominal Pipe Size	Outside Dia.	Dia. at Base of Hub	O.D. of Raised Face	Thickness	Welding Neck Socket Welding	Slip-on Socket Welding	Lap Joint	Counter Bore Min Threaded	Welding Neck	Slip-on Threaded Socket Welding	Lap Joint	Dia. Of Hub at Bevel	Radius of Fillet	Thread Length
	D	X	G	t	B1	B2	B3	B	T1	T2	T3	A	R	Q
1/2	95.0	38.1	35.1	14.2	15.7	22.4	22.9	23.6	52.3	22.4	22.4	21.3	3.0	15.7
3/4	117.0	47.8	42.9	15.7	20.8	27.7	28.2	29.0	57.2	25.4	25.4	26.7	3.0	15.7
1	124.0	53.8	50.8	17.5	26.7	34.5	35.1	35.8	62.0	26.9	26.9	33.5	3.0	17.5
1.1/4	133.0	63.5	63.5	19.1	35.1	43.2	43.7	44.5	65.0	26.9	26.9	42.2	4.8	20.6
1.1/2	155.0	69.9	73.2	20.6	40.9	49.5	50.0	50.5	68.3	30.2	30.2	48.3	6.4	22.4
2	165.0	84.1	91.9	22.4	52.6	62.0	62.5	63.5	69.9	33.3	33.3	60.5	7.9	28.4
2.1/2	191.0	100.1	104.6	25.4	62.7	74.7	75.4	76.2	76.2	38.1	38.1	73.2	7.9	31.8
3	210.0	117.3	127.0	28.4	78.0	90.7	91.4	92.2	79.2	42.9	42.9	88.9	9.7	31.8
3.1/2	229.0	133.4	139.7	30.2	90.2	103.4	104.1	104.9	81.0	44.5	44.5	101.6	9.7	36.6
4	254.0	146.1	157.2	31.8	102.4	116.1	116.8	117.6	85.9	47.8	47.8	114.3	11.2	36.6
5	279.0	177.8	185.7	35.1	128.3	143.8	144.5	144.5	98.6	50.8	50.8	141.2	11.2	42.9
6	318.0	206.2	215.9	36.6	154.2	170.7	171.5	171.5	98.6	52.3	52.3	168.4	12.7	46.0
8	381.0	260.4	269.7	41.1	202.7	221.5	222.3	222.3	111.3	62.0	62.0	219.2	12.7	50.8
10	445.0	320.5	323.9	47.8	254.5	276.4	277.4	276.4	117.3	66.5	95.3	273.1	12.7	55.6
12	521.0	374.7	381.0	50.8	304.8	327.2	328.2	328.7	130.0	73.2	101.6	323.9	12.7	60.5
14	584.0	425.5	412.8	53.8	336.6	359.2	360.2	360.4	142.7	76.2	111.3	355.6	12.7	63.5
16	648.0	482.6	469.9	57.2	387.4	410.5	411.2	411.2	146.1	82.6	120.7	406.4	12.7	68.3
18	711.0	533.4	533.4	60.5	438.2	461.8	462.3	462.0	158.8	88.9	130.0	457.2	12.7	69.9
20	775.0	587.2	584.2	63.5	489.0	513.1	514.4	512.8	162.1	95.3	139.7	508.0	12.7	73.2
24	914.0	701.5	692.2	69.9	590.6	616.0	616.0	614.4	168.1	106.4	152.4	609.6	12.7	82.6

NOTE :

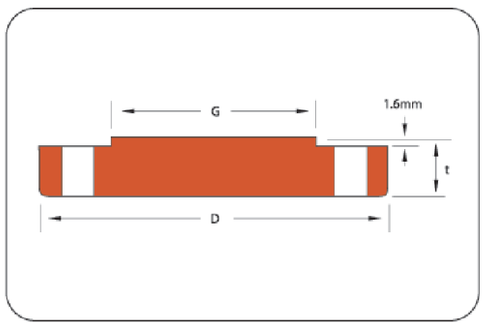
1} For the inside diameter of pipes (corresponding to 'Bore' (B1) of Welding Neck Flanges), refer to page 9.
2} Class 300 flanges except Lap Joint will be furnished with 0.06" (1.6mm) raised face, which is included in 'Thickness' (t) and 'Length through Hub' (T_1), (T_2).
3} For Slip-on, Threaded, Socket Welding and Lap Joint Flanges, the Hubs cab be shaped either vertical from base to top or tapered within the limits of 7 degrees.



THREADED



LAP JOINT



BLIND

Unit : mm

DRILLING						BOLTING			APPROXIMATE WEIGHT									
Nominal Pipe Size	Depth of Socket	Bolt Circle Dia.	Number of Holes	Dia. of Holes	Dia. of Bolts (inch)	Machine Bolt Length	Stud Bolt Length		Welding Neck		Slip - on and Threaded		Lap Joint		Blind		Socket Welding	
	Y					Face	Face	Joint	Kg.	lb	Kg.	lb	Kg.	lb	Kg.	lb	Kg.	lb
1/2	9.7	66.5	4.0	15.7	1/2	57.2	63.5	76.2	0.78	1.70	0.62	1.40	0.61	1.30	0.62	1.40	0.62	1.40
3/4	11.2	82.6	4.0	19.1	5/8	63.5	76.2	88.9	1.34	3.00	1.15	2.50	1.15	2.50	1.16	2.50	1.19	2.60
1	12.7	88.9	4.0	19.1	5/8	63.5	76.2	88.9	1.64	3.60	1.39	3.10	1.38	3.00	1.42	3.00	1.44	3.20
1.1/4	14.2	98.6	4.0	19.1	5/8	69.9	82.6	95.3	2.06	4.50	1.67	3.70	1.66	3.70	1.79	3.90	1.73	3.80
1.1/2	15.7	114.3	4.0	22.4	3/4	76.2	88.9	101.6	3.06	6.70	2.53	5.60	2.52	5.60	2.68	5.90	2.62	5.80
2	17.5	127.0	8.0	19.1	5/8	76.2	88.9	101.6	3.40	7.50	2.80	6.20	2.79	6.20	3.09	6.80	2.94	6.50
2.1/2	19.1	149.4	8.0	22.4	3/4	82.6	101.6	114.3	5.31	11.70	4.25	9.40	4.22	9.30	4.75	10.50	4.49	9.90
3	20.6	168.1	8.0	22.4	3/4	88.9	108.0	120.7	7.32	16.10	5.81	12.80	5.78	12.70	6.79	14.90	6.20	13.70
3.1/2	22.4	184.2	8.0	22.4	3/4	95.3	108.0	127.0	8.17	18.00	7.72	17.00	7.72	17.00	9.35	21.00		
4	23.9	200.2	8.0	22.4	3/4	95.3	114.3	127.0	11.30	24.90	10.13	22.30	10.07	22.20	12.00	26.50		
5	23.9	235.0	8.0	22.4	3/4	108.0	120.7	133.4	15.12	33.30	12.58	27.70	12.52	27.60	15.96	35.20		
6	26.9	269.7	12.0	22.4	3/4	108.0	120.7	139.7	19.68	43.40	16.04	35.40	15.95	35.20	21.20	46.70		
8	31.8	330.2	12.0	25.4	7/8	120.7	139.7	152.4	30.48	67.20	24.50	54.00	24.37	53.70	34.60	76.30		
10	33.3	387.4	16.0	28.4	1	139.7	158.8	171.5	43.74	96.40	34.16	75.30	39.92	88.00	55.34	122.00		
12	39.6	450.9	16.0	31.8	1.1/8	146.1	171.5	184.2	64.41	142.00	51.26	113.00	58.70	129.40	78.90	174.00		
14	41.4	514.4	20.0	31.8	1.1/8	158.8	177.8	190.5	88.30	194.70	72.12	159.00	83.46	184.00	107.05	236.00		
16	44.5	571.5	20.0	35.1	1.1/4	165.1	190.5	203.2	112.94	249.00	90.40	199.30	106.14	234.00	139.25	307.00		
18	49.3	628.7	24.0	35.1	1.1/4	171.5	196.9	209.6	138.34	305.00	109.00	240.30	133.95	295.30	176.90	396.00		
20	54.1	685.8	24.0	35.1	1.1/4	184.2	203.2	222.3	167.37	369.00	136.00	300.00	157.65	347.60	223.17	492.00		
24	63.5	812.8	24.0	41.1	1.1/2	203.2	228.6	254.0	235.41	519.00	204.00	449.70	240.40	530.00	342.00	754.00		

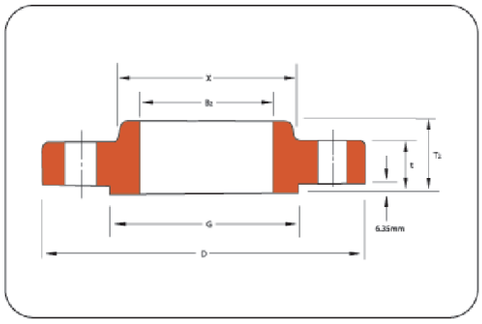
NOTE :

4} Blind Flanges may be made with the same hub as that used for Slip-on Flanges or without hub.

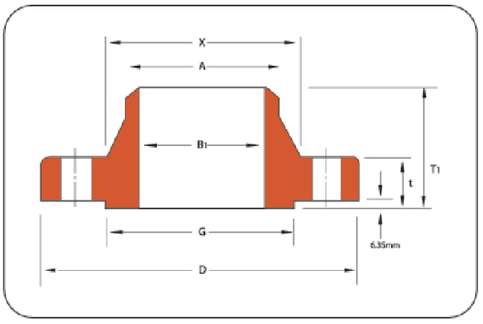
5} The gasket surface and backside (bearing surface for bolting) are made parallel within 1 degree to accomplish parallelism, spot facing is carried out according to MSS SP - 9, without reducing thickness (t)

6} Depth of socket (Y) is covered by ANSI B16.5 only in sizes through 3 inch, over 3 inch is at the manufacturer's option

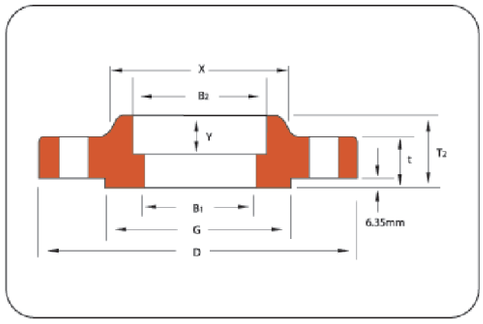
CLASS 600
FLANGES



SLIP - ON



WELDING NECK



SOCKET WELDING

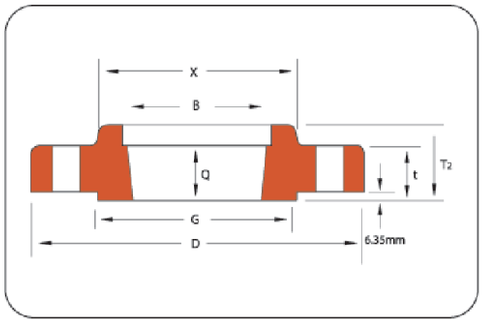
ANSI B 16.5 FORGED FLANGES

Unit : mm

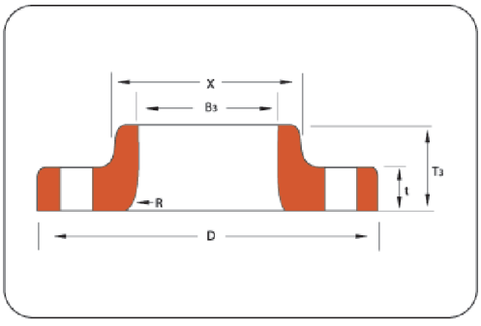
						BORE			LENGTH THRU HUB						
Nominal Pipe Size	Outside Dia.	Dia. at Base of Hub	O.D.of Raised Face	Thickness	Welding Neck Socket Welding	Slip-on Socket Welding	Lap Joint	Counter Bore Min Threaded Min	Welding Neck	Slip-on Threaded Socket Welding	Lap Joint	Diam, Of Hub at Bevel	Radius of Fillet	Thread Length
	D	X	G	t	B1	B2	B3	B	T1	T2	T3	A	R	Q
1/2	95	38.1	35.1	14.2		22.4	22.9	23.6	52.3	22.4	22.4	21.3	3.0	15.7
3/4	117	47.8	42.9	15.7		27.7	28.2	29.0	57.2	25.4	25.4	26.7	3.0	15.7
1	124	53.8	50.8	17.5	See	34.5	35.1	35.8	62.0	26.9	26.9	33.5	3.0	17.5
1.1/4	133	63.5	63.5	20.6	Notes	43.2	43.7	44.5	66.5	28.4	28.4	42.2	4.8	20.6
1.1/2	155	69.9	73.2	22.4	(1)	49.5	50.0	50.5	69.9	31.8	31.8	48.3	6.4	22.4
2	165	84.1	91.9	25.4	to be	62.0	62.5	63.5	73.2	36.6	36.6	60.5	7.9	28.4
2.1/2	191	100.1	104.6	28.4	specified	74.7	75.4	76.2	79.2	41.1	41.1	73.2	7.9	31.8
3	210	117.3	127.0	31.8	by	90.7	91.4	92.2	82.6	46.0	46.0	88.9	9.7	35.1
3.1/2	229	133.4	139.7	35.1	purchaser	103.4	104.1	104.9	85.9	49.3	49.3	101.6	9.7	39.6
4	273	152.4	157.2	38.1		116.1	116.8	117.6	101.6	53.8	53.8	114.3	11.2	41.1
5	330	189.0	185.7	44.5		143.8	144.5	144.5	114.3	60.5	60.5	141.2	11.2	47.8
6	356	222.3	215.9	47.8		170.7	171.5	171.5	117.3	66.5	66.5	168.4	12.7	50.8
8	419	273.1	269.7	55.6		221.5	222.3	222.3	133.4	76.2	76.2	219.2	12.7	57.2
10	508	342.9	323.9	63.5		276.4	277.4	276.4	152.4	85.9	111.3	273.1	12.7	65.0
12	559	400.1	381.0	66.5		327.2	328.2	328.7	155.4	91.9	117.3	323.9	12.7	69.9
14	603	431.8	412.8	69.9		359.2	360.2	360.4	165.1	93.7	127.0	355.6	12.7	73.2
16	686	495.3	469.9	76.2		410.5	411.2	411.2	177.8	106.4	139.7	406.4	12.7	77.7
18	743	546.1	533.4	82.6		461.8	462.3	462.0	184.2	117.3	152.4	457.2	12.7	79.2
20	813	609.6	584.2	88.9		513.1	514.4	512.8	190.5	127.0	165.1	508.0	12.7	82.6
24	940	717.6	692.2	101.6		616.0	616.0	614.4	203.2	139.7	184.2	609.6	12.7	91.9

NOTE :

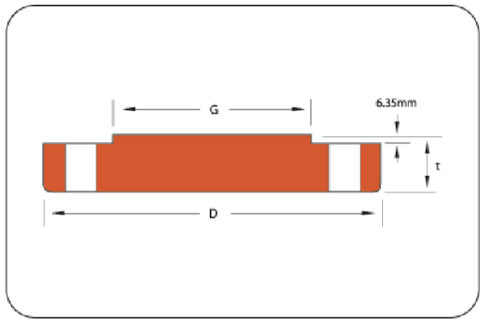
1} For the inside diameter of pipes (corresponding to 'Bore' (B1) of Welding Neck Flanges), refer to page 9.
2} Class 600 flanges except Lap Joint will be furnished with 0.25" raised face, which is not included in 'Thickness' (t) and 'Length through Hub' (T_1), (T_2).
3} For Slip-on, Threaded, Socket Welding and Lap Joint Flanges, the Hubs cab be shaped either vertical from base to top or tapered within the limits of 7 degrees.



THREADED



LAP JOINT



BLIND

Unit : mm

DRILLING					BOLTING				APPROXIMATE WEIGHT									
Nominal	Depth	Bolt	Number	Dia.	Dia.	Stub	Bolt	Length	Welding		Slip - on		Lap		Blind		Socket	
Pipe	of	Circle	of	of	of	0.25"	Male	Ring	Neck		and		Joint				Welding	
Size	Socket	Dia.	Holes	Holes	Bolts	Raised	Female	Joint			Threaded							
					(inch)	Face	Tongue-											
	Y						Groove		Kg.	lb	Kg.	lb	Kg.	lb	Kg.	lb	Kg.	lb
1/2	9.7	66.5	4	15.7	1/2	76.2	69.9	76.2	0.90	2.00	0.91	2.00	0.80	1.80	0.91	2.00	0.91	2.00
3/4	11.2	82.6	4	19.1	5/8	88.9	82.6	88.9	1.59	3.50	1.40	3.00	1.36	3.00	1.40	3.00	1.36	3.00
1	12.7	88.9	4	19.1	5/8	88.9	82.6	88.9	1.90	4.00	1.70	3.70	1.59	3.50	1.81	4.00	1.81	4.00
1.1/4	14.2	98.6	4	19.1	5/8	95.3	88.9	95.3	2.49	5.50	2.27	5.00	2.04	4.50	2.40	5.30	2.60	5.70
1.1/2	15.7	114.3	4	22.4	3/4	108.0	101.6	108.0	3.63	8.00	3.10	6.80	2.94	6.50	3.40	7.50	3.18	7.00
2	17.5	127.0	8	19.1	5/8	108.0	101.6	108.0	4.54	10.00	3.63	8.00	3.63	8.00	4.40	9.70	3.90	8.60
2.1/2	19.1	149.4	8	22.4	3/4	120.7	114.3	120.7	6.35	14.00	5.44	12.00	4.99	11.00	6.80	15.00	5.90	13.00
3	20.6	168.1	8	22.4	3/4	127.0	120.7	127.0	8.16	18.00	7.26	16.00	6.35	14.00	8.90	19.60	7.40	16.30
3.1/2	22.4	184.2	8	25.4	7/8	139.7	133.4	139.7	11.80	26.00	9.53	21.00	9.08	20.00	13.17	29.00		
4	23.9	215.9	8	25.4	7/8	146.1	139.7	146.1	16.78	37.00	14.97	33.00	14.06	31.00	18.60	41.00		
5	23.9	266.7	8	28.4	1	165.1	158.8	165.1	30.87	68.00	28.50	62.80	27.50	60.60	30.84	68.00		
6	26.9	292.1	12	28.4	1	171.5	165.1	171.5	36.77	80.00	36.32	80.00	35.38	78.00	38.00	83.80		
8	31.8	349.3	12	31.8	1.1/8	190.5	184.2	196.9	50.80	112.00	44.00	97.00	50.80	112.00	62.20	137.00		
10	33.3	431.8	16	35.1	1.1/4	215.9	209.6	215.9	86.26	190.00	76.20	168.00	74.00	163.00	102.00	224.90		
12	39.6	489.0	20	35.1	1.1/4	222.3	215.9	222.3	102.51	226.00	97.52	215.00	108.86	240.00	132.00	291.00		
14	41.4	527.1	20	38.1	1.3/8	235.0	228.6	235.0	121.56	268.00	102.00	224.80	111.00	244.70	158.00	348.30		
16	44.5	603.3	20	41.1	1.1/2	254.0	247.7	254.0	177.06	290.00	149.82	330.20	165.71	365.30	224.73	495.40		
18	49.3	654.1	20	44.5	1.5/8	273.1	266.7	273.1	215.65	475.40	180.10	412.30	194.00	427.70	285.00	628.30		
20	54.1	723.9	24	44.5	1.5/8	285.8	279.4	292.1	267.86	590.50	231.54	510.50	258.78	570.50	365.00	804.70		
24	63.5	838.2	24	50.8	1.7/8	330.2	323.9	336.6	372.00	820.00	330.00	725.50	362.00	798.00	533.45	1176.00		

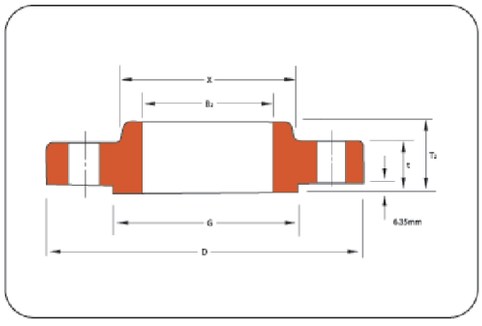
NOTE :

4} Blind Flanges may be made with the same hub as that used for Slip-on Flanges or without hub.

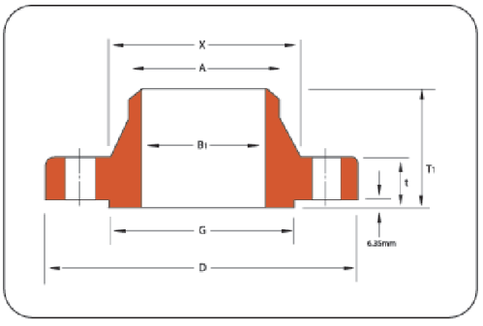
5} The gasket surface and backside (bearing surface for bolting) are made parallel within 1 degree to accomplish parallelism, spot facing is carried out according to MSS SP - 9, without reducing thickness (t)

6} Depth of socket (Y) is covered by ANSI B16.5 only in sizes through 3 inch, over 3 inch is at the manufacturer's option

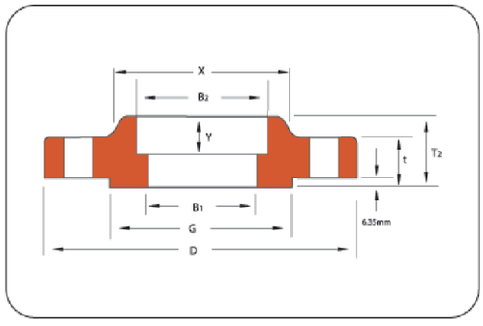
CLASS 900
FLANGES



SLIP - ON



WELDING NECK



SOCKET WELDING

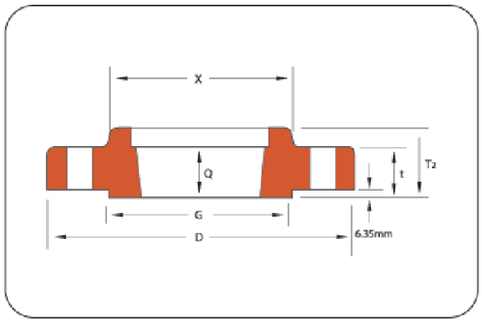
ANSI B 16.5 FORGED FLANGES

Unit : mm

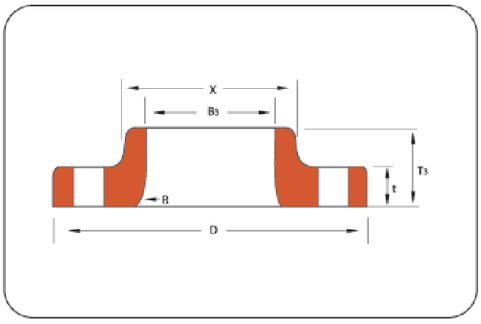
						BORE				LENGTH THRU HUB					
Nominal Pipe Size	Outside Dia.	Dia. at Base of Hub	O.D.of Raised Face	Thickness	Welding Neck Socket Welding	Slip-on Socket Welding	Lap Joint	Counter Bore Min Threaded Min	Welding Neck	Slip-on Threaded Socket Welding	Lap Joint	Dia. Of Hub at Bevel	Radius of Fillet	Thread Length
	D	X	G	t	B1	B2	B3	B	T1	T2	T3	A	R	Q
1/2	120.7	38.1	34.9	22.3		22.4	22.9	23.6	60.3	31.8	31.8	21.3	3.2	22.2
3/4	130.2	44.5	42.9	25.4		27.7	28.2	29.0	69.9	34.9	34.9	26.7	3.2	25.4
1	149.2	52.4	50.8	28.6	See	34.5	35.1	35.8	73.0	41.3	41.3	33.5	3.2	28.6
1.1/4	158.8	63.5	63.5	28.6	Notes	43.2	43.7	44.5	73.0	41.3	41.3	42.2	4.8	30.2
1.1/2	177.8	69.9	73.0	31.8	(1)	49.5	50.0	50.5	82.6	44.5	44.5	48.3	6.4	31.8
2	215.9	104.8	92.1	38.1	to be	62.0	62.5	63.5	101.6	57.2	57.2	60.5	7.9	38.1
2.1/2	244.5	123.5	104.8	41.3	specified	74.7	75.4	76.2	104.8	63.5	63.5	73.2	7.9	47.6
3	241.3	127.0	127.0	38.1	by	90.7	91.4	92.2	101.6	54.0	54.0	88.9	9.5	41.3
4	292.1	158.8	157.2	44.5	purchaser	116.1	116.8	117.6	114.3	69.9	69.9	114.3	11.1	47.6
5	349.3	190.5	185.7	50.8		143.8	144.5	144.5	127.0	79.4	79.4	141.2	11.1	54.0
6	381.0	235.0	215.9	55.6		170.7	171.5	171.5	139.7	85.7	85.7	168.4	12.7	57.2
8	469.9	298.5	269.9	63.5		221.5	222.3	222.3	161.9	101.6	114.3	219.2	12.7	63.5
10	546.1	368.3	323.9	69.9		276.4	277.4	276.4	184.2	108.0	127.0	273.1	12.7	71.4
12	609.6	419.1	381.0	79.4		327.2	328.2	328.7	200.0	117.5	142.9	323.9	12.7	76.2
14	641.4	450.9	412.8	85.8		359.2	360.2	360.4	212.7	130.2	155.6	355.6	12.7	82.6
16	704.9	508.0	469.9	88.9		410.5	411.2	411.2	215.9	133.4	165.1	406.4	12.7	85.7
18	787.4	565.2	533.4	101.6		461.8	462.3	462.0	228.6	152.4	190.5	457.2	12.7	88.9
20	857.3	622.3	584.2	108.0		513.1	514.4	512.8	247.7	158.8	209.6	508.0	12.7	92.1
24	1041.4	749.3	692.2	139.7		616.0	616.0	614.4	292.1	203.2	266.7	609.6	12.7	101.6

NOTE :

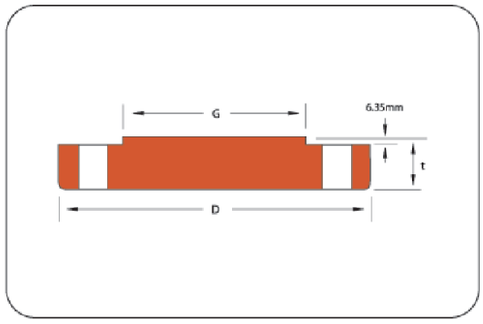
1} For the inside diameter of pipes (corresponding to 'Bore' (B1) of Welding Neck Flanges), refer to page 9.
2} Class 900 flanges except Lap Joint will be furnished with 0.25" raised face, which is not included in 'Thickness' (t) and 'Length through Hub' (T_1), (T_2).
3} For Slip-on, Threaded, Socket Welding and Lap Joint Flanges, the Hubs cab be shaped either vertical from base to top or tapered within the limits of 7 degrees.



THREADED



LAP JOINT



BLIND

Unit : mm

DRILLING						BOLTING			APPROXIMATE WEIGHT									
Nominal Pipe Size	Depth of Socket	Bolt Circle Dia.	Number of Holes	Dia. of Holes	Dia. of Bolts (inch)	Stub 1/4" Raised Face	Bolt Male Female Tongue	Length Ring Joint -	Welding Neck STD		Slip-on and Threaded		Lap Joint		Blind		Socket Welding	
	Y						Groove		Kg.	lb	Kg.	lb	Kg.	lb	Kg.	lb	Kg.	lb
1/2	--	82.6	4.0	22.2	3/4	4	3.3/4	4	1.89	--	1.75	--	1.72	--	1.78	--	--	--
3/4	--	88.9	4.0	22.2	3/4	4.1/4	4	4.1/4	2.57	--	2.34	--	2.29	--	2.42	--	--	--
1	--	101.6	4.0	25.4	7/8	4.3/4	4.1/2	4.3/4	3.73	--	3.44	--	3.37	--	3.57	--	--	--
1.1/4	--	111.1	4.0	25.4	7/8	4.3/4	4.1/2	4.3/4	4.32	--	3.92	--	3.82	--	4.15	--	--	--
1.1/2	--	123.8	4.0	28.6	1	5.1/4	5	5.1/4	5.95	--	5.38	--	5.26	--	5.77	--	--	--
2	--	165.1	8.0	25.4	7/8	5.1/2	5.1/4	5.3/4	11.01	--	9.87	--	9.66	--	10.08	--	--	--
2.1/2	--	190.5	8.0	28.6	1	6	5.3/4	6.1/4	15.17	--	13.37	--	13.44	--	14.00	--	--	--
3	--	190.5	8.0	25.4	7/8	5.1/2	5.1/4	5.3/4	13.62	--	11.63	--	11.27	--	13.11	--	--	--
4	--	235.0	8.0	31.8	1.1/8	6.1/2	6.1/4	6.3/4	22.38	--	19.79	--	19.27	--	22.18	--	--	--
5	--	279.4	8.0	34.9	1.1/4	7.1/4	7	7.1/2	35.81	--	32.00	--	31.36	--	36.55	--	--	--
6	--	317.5	12.0	31.8	1.1/8	7.1/2	7.1/4	7.1/2	47.04	--	41.17	--	40.34	--	47.48	--	--	--
8	--	393.7	12.0	38.1	1.3/8	8.1/2	8.1/4	8.3/4	80.14	--	70.82	--	72.76	--	82.56	--	--	--
10	--	469.9	16.0	38.1	1.3/8	9	8..3/4	9.1/4	118.44	--	100.71	--	106.09	--	122.75	--	--	--
12	--	533.4	20.0	38.1	1.3/8	9.3/4	9.1/2	10	156.58	--	133.01	--	141.67	--	173.56	--	--	--
14	--	558.8	20.0	41.3	1.1/2	10.1/2	10.1/4	11	178.83	--	153.41	--	162.72	--	206.46	--	--	--
16	--	616.0	20.0	44.5	1.5/8	11	10.3/4	11.1/2	214.64	--	185.05	--	199.91	--	259.54	--	--	--
18	--	685.8	20.0	50.8	1.7/8	12.3/4	12.1/2	13.1/4	290.05	--	258.72	--	280.32	--	367.54	--	--	--
20	--	749.3	20.0	54.0	2	13.1/2	13.1/4	14	359.22	--	317.40	--	351.45	--	464.36	--	--	--
24	--	901.7	20.0	66.7	2.1/2	17	16.3/4	17.3/4	658.52	--	605.55	--	672.92	--	876.30	--	--	--

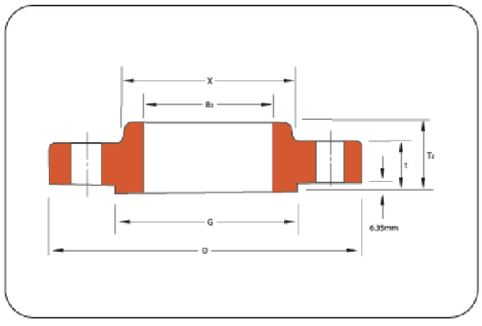
NOTE :

4} Blind Flanges may be made with the same hub as that used for Slip-on Flanges or without hub.

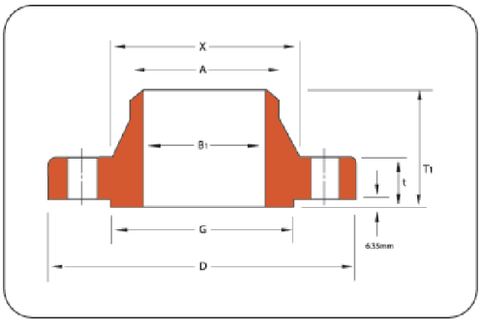
5} The gasket surface and backside (bearing surface for bolting) are made parallel within 1 degree to accomplish parallelism, spot facing is carried out according to MSS SP - 9, without reducing thickness (t)

6} Dimensions of sizes 1/2" through 2.1/2" are the same as for Class 1500 Flanges.

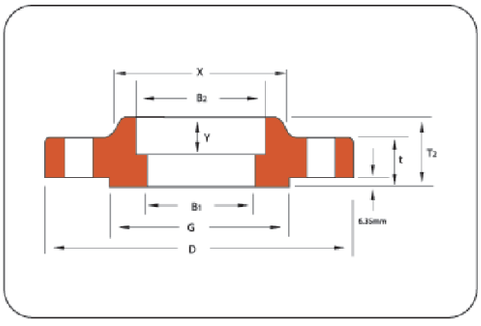
CLASS 1500
FLANGES



SLIP - ON



WELDING NECK



SOCKET WELDING

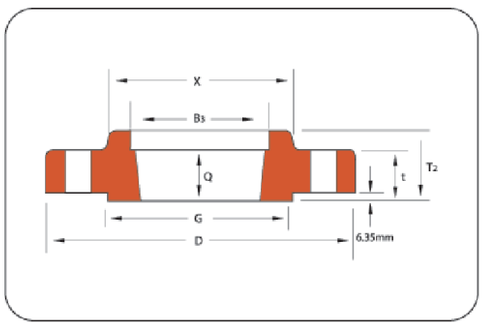
ANSI B 16.5 FORGED FLANGES

Unit : mm

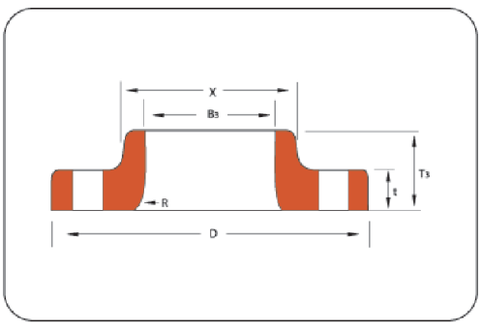
						BORE			LENGTH THRU HUB					
Nominal Pipe Size	Outside Dia.	Dia. at Base of Hub	O.D. of Raised Face	Thickness	Welding Neck Socket Welding	Slip-on Socket Welding	Lap Joint	Counter Bore Min	Welding Neck	Slip-on Threaded Socket Welding	Lap Joint	Dia. Of Hub at Bevel	Radius of Fillet	Thread Length
	D	X	G	t	B1	B2	B3	B	T1	T2	T3	A	R	Q
1/2	120.7	38.1	34.9	22.3		22.4	22.9	23.6	60.3	31.8	31.8	21.3	3.2	22.2
3/4	130.2	44.5	42.9	25.4	See	27.7	28.2	29.0	69.9	34.9	34.9	26.7	3.2	25.4
1.0	149.2	52.4	50.8	28.6	Notes	34.5	35.1	35.8	73.0	41.3	41.3	33.5	3.2	28.6
1.1/4	158.8	63.5	63.5	28.6	(1)	43.2	43.7	44.5	73.0	41.3	41.3	42.2	4.8	30.2
1.1/2	177.8	69.9	73.0	31.8	to be	49.5	50.0	50.5	82.6	44.5	44.5	48.3	6.4	31.8
2.0	215.9	104.8	92.1	38.1	specified	62.0	62.5	63.5	101.6	57.2	57.2	60.5	7.9	38.1
2.1/2	244.5	123.8	104.8	41.3	by	74.7	75.4	76.2	104.8	63.5	63.5	73.2	7.9	47.6
3.0	266.7	133.4	127.0	47.7	purchaser	90.7	91.4	92.2	117.5	73.0	73.0	88.9	9.5	50.8
4.0	311.2	161.9	157.2	54.0		116.1	116.8	117.6	123.8	90.5	90.5	114.3	11.1	57.2
5.0	374.7	196.9	185.7	73.1		143.8	144.5	144.5	155.6	104.8	104.8	141.2	11.1	63.5
6.0	393.7	228.6	215.9	82.6		170.7	171.5	171.5	171.5	119.1	119.1	168.4	12.7	69.9
8.0	482.6	292.1	269.9	92.1		221.5	222.3	222.3	212.7	142.9	142.9	219.2	12.7	76.2
10.0	584.2	368.3	323.9	108.0		276.4	277.4	276.4	254.0	158.8	177.8	273.1	12.7	84.1
12.0	673.1	450.9	381.0	123.9		327.2	328.2	328.7	282.6	181.0	219.1	323.9	12.7	92.1
14.0	749.3	495.3	412.8	133.4		359.2	360.2	360.4	298.5	--	241.3	355.6	12.7	--
16.0	825.5	552.5	469.9	146.1		410.5	411.2	411.2	311.2	--	260.4	406.4	12.7	--
18.0	914.4	596.9	533.4	162.0		461.8	462.3	462.0	327.0	--	276.2	457.2	12.7	--
20.0	984.3	641.4	584.2	177.8		513.1	514.4	512.8	355.6	--	292.1	508.0	12.7	--
24.0	1168.4	762.0	692.2	203.2		616.0	616.0	614.4	406.4	--	330.2	609.6	12.7	--

NOTE :

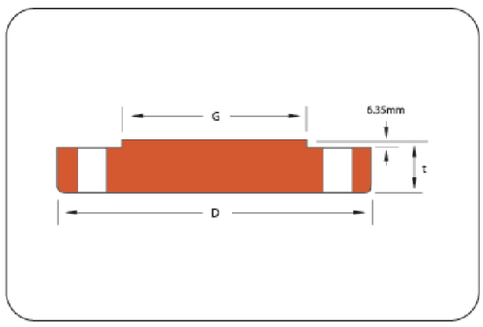
1} For the inside diameter of pipes (corresponding to 'Bore' (B1) of Welding Neck Flanges), refer to page 9.
2} Class 1500 flanges except Lap Joint will be furnished with 0.25"raised face, which is not included in 'Thickness' (t) and 'Length through Hub' (T_1), (T_2).
3} For Slip-on, Threaded, Socket Welding and Lap Joint Flanges, the Hubs cab be shaped either vertical from base to top or tapered within the limits of 7 degrees.



THREADED



LAP JOINT



BLIND

Unit : mm

DRILLING					BOLTING				APPROXIMATE WEIGHT									
Nominal Pipe Size	Depth of Socket	Bolt Circle Dia.	Number of Holes	Dia. of Holes	Dia. of Bolts (inch)	Stub 1/14" Raised Face	Bolt Male Female Tongue-Groove	Length Ring Joint	Welding Neck STD		Slip-on and Threaded		Lap Joint		Blind		Socket Welding	
	Y								Kg.	lb	Kg.	lb	Kg.	lb	Kg.	lb	Kg.	lb
1/2	9.5	82.6	4.0	22.2	3/4	4.0	3.3/4	4	1.89	--	1.75	--	1.72	--	1.78	--	1.79	--
3/4	11.1	88.9	4.0	22.2	3/4	4.1/4	4	4.1/4	2.57	--	2.34	--	2.29	--	2.42	--	2.40	--
1	12.7	101.6	4.0	25.4	7/8	4.3/4	4.1/2	4.3/4	3.73	--	3.44	--	3.37	--	3.57	--	3.54	--
1.1/4	14.3	111.1	4.0	25.4	7/8	4.3/4	4.1/2	4.3/4	4.32	--	3.92	--	3.82	--	4.15	--	4.05	--
1.1/2	15.9	123.8	4.0	28.6	1	5.1/4	5	5.1/4	5.95	--	5.38	--	5.26	--	5.77	--	5.55	--
2	17.5	165.1	8.0	25.4	7/8	5.1/2	5.1/4	5.3/4	11.00	--	9.87	--	9.66	--	11.00	--	10.17	--
2.1/2	19.1	190.5	8.0	28.6	1	6.0	5.3/4	6.1/4	15.17	--	11.30	--	13.44	--	14.00	--	14.21	--
3	-	203.2	8.0	31.8	1.1/8	6.3/4	6.1/2	7	19.90	--	17.94	--	17.57	--	19.19	--	--	--
4	-	241.3	8.0	34.9	1.1/4	7.1/2	7.1/4	7.3/4	29.78	--	27.84	--	27.31	--	30.00	--	--	--
5	-	292	8.0	41.3	1.1/2	9.1/2	9.1/4	9.3/4	56.55	--	51.93	--	51.25	--	58.53	--	--	--
6	-	317.5	12.0	38.1	1.3/8	10.0	9.3/4	10.1/4	67.37	--	61.16	--	60.27	--	71.96	--	--	--
8	-	393.7	12.0	44.5	1.5/8	11.1/4	11	11.3/4	114.53	--	103.27	--	102.02	--	121.72	--	--	--
10	-	482.6	12.0	50.8	1.7/8	13.1/4	13	13.1/2	199.29	--	175.57	--	180.79	--	210.93	--	--	--
12	-	571.5	16.0	54.0	2	14.3/4	14.1/2	15.1/4	297.41	--	264.25	--	284.49	--	316.42	--	--	--
14	-	635.0	16.0	60.3	2.1/4	16.0	15.3/4	16.3/4	391.80	--	--	--	384.39	--	420.96	--	--	--
16	-	704.9	16.0	66.7	2.1/2	17.1/2	17.1/4	18.1/2	497.15	--	--	--	493.73	--	558.84	--	--	--
18	-	774.7	16.0	73.0	2.3/4	19.1/4	19	20.1/4	646.52	--	--	--	637.35	--	761.75	--	--	--
20	-	831.9	16.0	79.4	3	21.0	20.3/4	22.1/4	789.07	--	--	--	765.43	--	965.67	--	--	--
24	-	990.6	16.0	92.1	3.1/2	24.0	23.3/4	25.1/2	1252.51	--	--	--	1222.13	--	1559.15	--	--	--

NOTE :

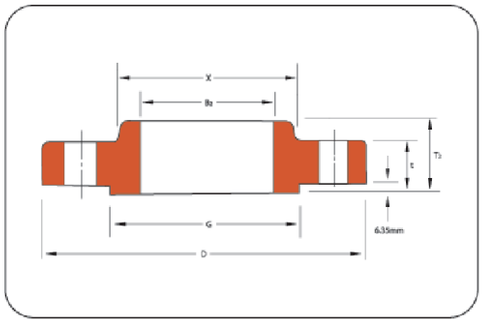
4} Blind Flanges may be made with the same hub as that used for Slip-on Flanges or without hub.

5} The gasket surface and backside (bearing surface for bolting) are made parallel within 1 degree to accomplish parallelism and facing is carried out according to MSS SP - 9, without reducing thickness (t)

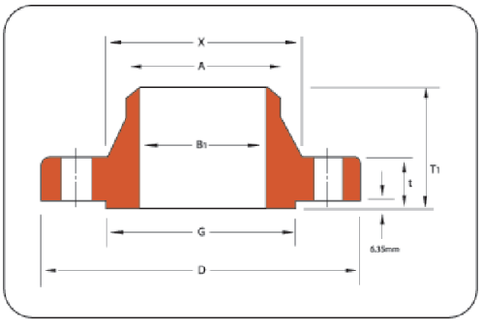
6} Dimensions of sizes 1/2" through 2.1/2" are the same as for Class 900 Flanges.

7} Depth of Socket (Y) is covered in ANSI B16.5 only for sizes through 2.1/2". Over 2.1/2 inch is at the manufacturer's option.

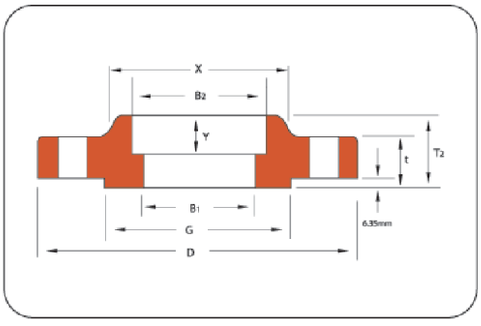
CLASS 2500
FLANGES



SLIP - ON



WELDING NECK



SOCKET WELDING

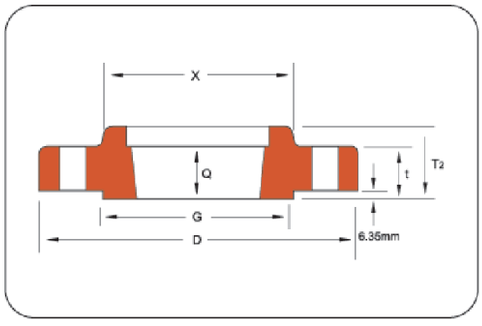
ANSI B 16.5 FORGED FLANGES

Unit : mm

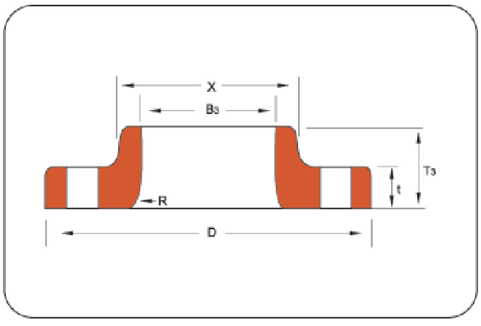
						BORE				LENGTH THRU HUB					
Nominal Pipe Size	Outside Dia.	Dia. at Base of Hub	O.D.of Raised Face	Thickness	Welding Neck Socket Welding	Slip-on Socket Welding	Lap Joint	Counter Bore Min Threaded Min	Welding Neck	Slip-on Threaded Socket Welding	Lap Joint	Dia. Of Hub at Bevel	Radius of Fillet	Thread Length
	D	X	G	t	B1	B2	B3	B	T1	T2	T3	A	R	Q
1/2	133.4	42.9	34.9	30.2		22.4	22.9	23.6	73.0	39.7	39.7	21.3	3.2	28.6
3/4	139.7	50.8	42.9	31.8		27.7	28.2	29.0	79.4	42.9	42.9	26.7	3.2	31.8
1	158.8	57.2	50.8	35.0	See	34.5	35.1	35.8	88.9	47.6	47.6	33.5	3.2	34.9
1.1/4	184.2	73.0	63.5	38.1	Notes	43.2	43.7	44.5	95.3	52.4	52.4	42.2	4.8	38.1
1.1/2	203.2	79.4	73.0	44.5	1	49.5	50.0	50.5	111.1	60.3	60.3	48.3	6.4	44.5
2	235.0	95.3	92.1	50.8	to be	62.0	62.5	63.5	127.0	69.9	69.9	60.5	7.9	50.8
2.1/2	266.7	114.3	104.8	57.2	specified	74.7	75.4	76.2	142.9	79.4	79.4	73.2	7.9	57.2
3	304.8	133.4	127.0	66.7	by	90.7	91.4	92.2	168.3	92.1	92.1	88.9	9.5	63.5
4	355.6	165.1	157.2	76.2	purchaser	116.1	116.8	117.6	190.5	108.0	108.0	114.3	11.1	69.9
5	419.1	203.2	185.7	92.1		143.8	144.5	144.5	228.6	130.2	130.2	141.2	11.1	76.2
6	482.6	235.0	215.9	108.0		170.7	171.5	171.5	273.1	152.4	152.4	168.4	12.7	82.6
8	552.5	304.8	269.9	127.0		221.5	222.3	222.3	317.5	177.8	177.8	219.2	12.7	95.3
10	673.1	374.7	323.9	165.1		276.4	277.4	276.4	419.1	228.6	228.6	273.1	12.7	108.0
12	762.0	441.3	381.0	184.2		327.2	328.2	328.7	463.6	254.0	254.0	323.9	12.7	120.7

NOTE :

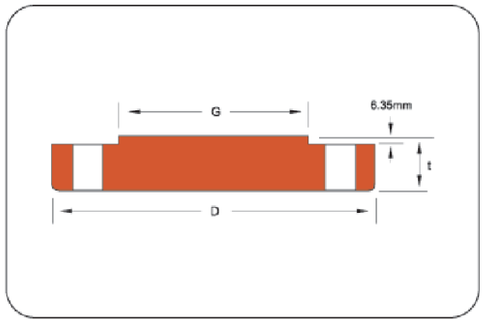
1} For the inside diameter of pipes (corresponding to 'Bore' (B1) of Welding Neck Flanges), refer to page 9.
2} Class 2500 flanges except Lap Joint will be furnished with 0.25"raised face, which is not included in 'Thickness' (t) and 'Length through Hub' (T_1), (T_2).
3} For Slip-on, Threaded, Socket Welding and Lap Joint Flanges, the Hubs cab be shaped either vertical from base to top or tapered within the limits of 7 degrees.



THREADED



LAP JOINT



BLIND

Unit : mm

DRILLING						BOLTING			APPROXIMATE WEIGHT									
Nominal Pipe Size	Depth of Socket	Bolt Circle Dia.	Number of Holes	Dia. of Holes	Dia. of Bolts (inch)	Stub 1/14" Raised Face	Bolt Male Female Tongue-Groove	Length Ring Joint	Welding Neck STD		Slip-on and Threaded		Lap Joint		Blind		Socket Welding	
	Y								Kg	lb	Kg	lb	Kg	lb	Kg	lb	Kg	lb
1/2	9.6	88.9	4	22.2	3/4	4.3/4	4.1/2	4.3/4	2.97	--	2.96	--	2.93	--	3.00	--	3.02	--
3/4	11.1	95.3	4	22.2	3/4	4.3/4	4.1/2	4.3/4	3.74	--	3.46	--	3.41	--	3.52	--	3.54	--
1	12.7	108.0	4	25.4	7/8	5.1/4	5	5.1/4	5.27	--	4.85	--	4.78	--	5.12	--	4.97	--
1.1/4	14.3	130.2	4	28.6	1.0	5.3/4	5.1/2	6	7.80	--	7.16	--	7.06	--	7.53	--	7.33	--
1.1/2	16.0	146.1	4	31.8	1.1/8	6.1/2	6.1/4	6.3/4	10.94	--	10.04	--	9.91	--	10.44	--	10.28	--
2	17.5	171.5	8	28.6	1.0	6.3/4	6.1/2	7	16.24	--	14.85	--	14.64	--	15.59	--	15.25	--
2.1/2	19.0	196.9	8	31.8	1.1/8	7.1/2	7.1/4	7.3/4	23.79	--	21.52	--	21.25	--	22.68	--	22.20	--
3	--	228.6	8	34.9	1.1/4	8.1/2	8.1/4	8.3/4	36.19	--	32.65	--	32.26	--	34.86	--	--	--
4	--	273.1	8	41.3	1.1/2	9.3/4	9.1/2	10.1/4	55.23	--	49.85	--	49.29	--	54.01	--	--	--
5	--	323.9	8	47.6	1.3/4	11.1/2	11.1/4	12.1/4	92.27	--	83.15	--	82.44	--	90.87	--	--	--
6	--	368.3	8	54.0	2.0	13.1/2	13.1/4	14	142.42	--	128.07	--	127.12	--	141.49	--	--	--
8	--	438.2	12	54.0	2.0	15	14.3/4	15.1/2	213.86	--	188.01	--	186.68	--	214.65	--	--	--
10	--	539.8	12	66.7	2.1/2	19	18.3/4	20	407.26	--	355.52	--	353.61	--	411.28	--	--	--
12	--	619.1	12	73.0	2.3/4	21	20.3/4	22	577.96	--	504.83	--	502.29	--	592.96	--	--	--

NOTE :

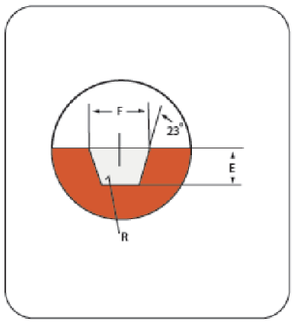
4} Blind Flanges may be made with the same hub as that used for Slip-on Flanges or without hub.

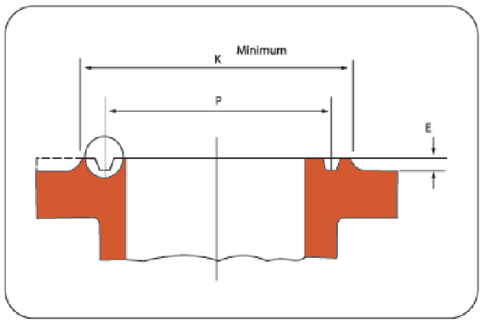
5} The gasket surface and backside (bearing surface for bolting) are made parallel within 1 degree to accomplish parallelism, spot facing is carried out according to MSS SP - 9, without reducing thickness (t).

DIMENSIONS OF RING-JOINT FACINGS

Dimensions in inches

NOMINAL PIPE SIZE							GROOVE DIMENSIONS					DIAMETER OF RAISED PORTION K				
150	300	400	600	900	1500	2500	GROOVE	PITCH			RADUS		300			
PSI	PSI	PSI	PSI	PSI	PSI	PSI	NUMBER	DIAMETER	DEPTH	WIDTH	AT	150	400	900	1500	2500
								P	E	F	BOTTOM	PSI	600	PSI	PSI	PSI
											R		PSI			
-	1/2	-	1/2	-	-		R11	1.11/32	7/32	9/32	1/32	-	2	-	-	-
-	-	-	-	-	1/2	-	12	1.9/16	1/4	11/32	1/32	-	-	2.3/8	2.3/8	-
-	3/4	-	.3/4	-	-	1/2	13	1.11/16	1/4	11/32	1/32	-	2.1/2	-	-	2.9/16
1	-	-	-	-	3/4	-	14	1.3/4	1/4	11/32	1/32	-	-	2.5/8	2.5/8	-
-	-	-	-	-	-	-	15	1.7/8	1/4	11/32	1/32	2.1/2	-	-	-	-
-	1	-	1	-	1	3/4	16	2	1/4	11/32	1/32	-	2.3/4	2.13.16	2.13/16	2.7/8
1.1/4	-	-	-	-	-	-	17	2.1/4	1/4	11/32	1/32	2.7/8	-	-	-	-
-	1.1/4	-	1.1/4	-	1.1/4	1	18	2.3/8	1/4	11/32	1/32	-	3.1/8	3.3/16	3.3/16	3.1/4
1.1/2	-	-	-	-	-	-	19	2.9/16	1/4	11/32	1/32	3.1/4	-	-	-	-
-	1.1/2	-	1.1/2	-	1.1/2	-	20	2.11/16	1/4	11/32	1/32	-		3.5/8	3.5/8	-
-	-	-	-	-	-	1.1/4	21	2.27/32	5/16	15/32	1/32	-	-	-	-	4
2	-	-	-	-	-	-	22	3.1/4	1/4	11/32	1/32	4	-	-	-	-
-	2	-	2	-	-	1.1/2	23	3.1/4	5/16	15/32	1/32	-	4.1/4	-	-	4.1/2
-	-	-	-	-	2	-	24	3.3/4	5/16	15/32	1/32	-	-	4.7/8	4.7/8	-
2.1/2	-	-	-	-	-	-	25	4	1/4	11/32	1/32	4.3/4	-	-	-	-
-	2.1/2	-	2.1/2	-	-	2	26	4	5/16	15/32	1/32	-	5	-	-	5.1/4
-	-	-	-	-	2.1/2	-	27	4.1/4	5/16	15/32	1/32	-	-	-	5.3/8	-
-	-	-	-	-	-	2.1/2	28	4.3/8	3/8	17/32	1/16	-	-	-	-	5.7/8
3	-	-	-	-	-	-	29	4.1/2	1/4	11/32	1/32	5.1/4	-	-	-	-
-	-	-	-	-	-	-	30	4.5/8	5/16	15/32	1/32	-	-	-	-	-
-	3	-	3	3	-	-	31	4.7/8	5/16	15/32	1/32	-	5.3/4	6.1/8	-	-
-	-	-	-	-	-	3	32	5	3/8	17/32	1/16	-	-	-	-	6.5/8
3.1/2	-	-	-	-	-	-	33	5.3/16	1/4	11/32	1/32	6.1/16	-	-	-	-
-	3.1/2	-	3.1/2	-	-	-	34	5.3/16	5/16	15/32	1/32	-	6.1/4	-	-	-
-	-	-	-	-	3	-	35	5.3/8	5/16	15/32	1/32	-	-	-	6.5/8	-
4	-	-	-	-	-	-	36	5.7/8	1/4	11/32	1/32	6.3/4	-	-	-	-
-	4	4	4	4	-	-	37	5.7/8	5/16	15/32	1/32	-	6.7/8	7.1/8	-	-
-	-	-	-	-	-	4	38	6.3/16	7/16	21/32	1/16	-	-	-	-	8
-	-	-	-	-	4	-	39	6.3/8	5/16	15/32	1/32	-	-	-	7.5/8	-
5	-	-	-	-	-	-	40	6.3/4	1/4	11/32	1/32	7.5/8	-	-	-	-
-	5	5	5	5	-	-	41	7.1/8	5/16	15/32	1/32	-	8.1/4	8.1/2	-	-
-	-	-	-	-	-	5	42	7.1/2	1/2	25/32	1/16	-	-	-	-	9.1/2
6	-	-	-	-	-	-	43	7.5/8	1/4	11/32	1/32	8.5/8	-	-	-	-
-	-	-	-	-	5	-	44	7.5/8	5/16	15/32	1/32	-	-	-	9	-
-	6	6	6	6	-	-	45	8.5/16	5/16	15/32	1/32	-	9.1/2	9.1/2	-	-





TOLERANCES

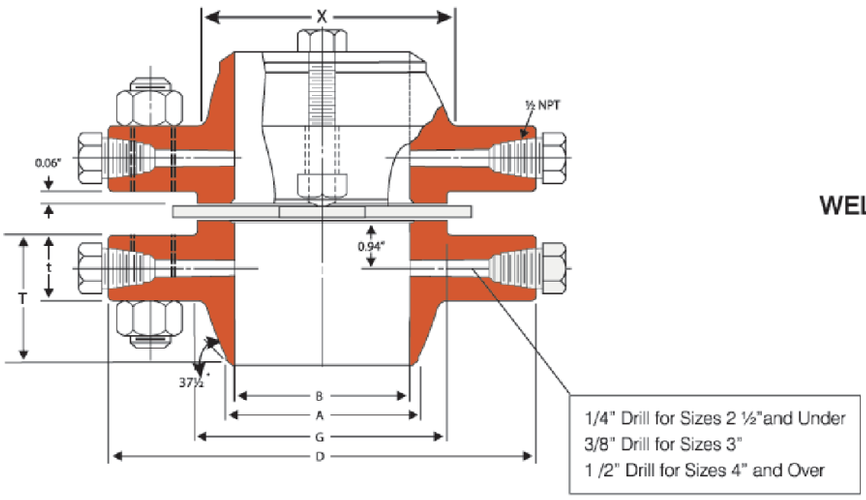
E(depth)+ 1/64
- 0

F(width)±.008
P(pitch diameter) ± *0.005*
R(radius at bottom)Max
23°(angle)±½° C

Dimensions in inches

NOMINAL PIPE SIZE							GROOVE DIMENSIONS					DIAMETER OF RAISED PORTION K				
150	300	400	600	900	1500	2500	GROOVE	PITCH			RADIUS		300			
PSI	PSI	PSI	PSI	PSI	PSI	PSI	NUMBER	DIAMETER	DEPTH	WIDTH	AT	150	400	900	1500	2500
								P	E	F	BOTTOM	PSI	600	PSI	PSI	PSI
											R		PSI			
-	-	-	-	-	6	-	R-46	8.5/16	3/8	17/32	1/16	-	-	-	9.3/4	-
-	-	-	-	-	-	6	47	9	1/2	25/32	1/16	-	-	-	-	11
8	-	-	-	-	-	-	48	9.3/4	1/4	11/32	1/32	10	-	-	-	-
-	8	8	8	8	-	-	49	10.5/8	5/16	15/32	1/32	-	11.7/8	12.1/8	-	-
-	-	-	-	-	8	-	50	10.5/8	7/16	21.32	1/16	-	-	-	12.1/2	-
-	-	-	-	-	-	8	51	11	9/16	29/32	1/16	-	-	-	-	13
10	-	-	-	-	-	-	52	12	1/4	11/32	21/32	13	-	-	-	-
-	10	10	10	10	-	-	53	12.3/4	5/16	15/32	1/32	-	14	-	-	-
-	-	-	-	-	10	-	54	12.3/4	7/16	21/32	1/16	-	-	-	14.5/8	-
-	-	-	-	-	-	10	55	13.1/2	11/16	1.3/16	3/32	-	-	-	-	16
12	-	-	-	-	-	-	56	15	1/4	11/32	1/32	16	-	-	-	-
-	12	12	12	12	-	-	57	15	5/16	15/32	1/32	-	16	16.1/2	-	-
-	-	-	-	-	12	-	58	15	9/16	29/32	1/16	-	-	-	17.1/4	-
14	-	-	-	-	-	-	59	15.5/8	1/4	11/32	1/32	16	-	11/32	-	-
-	-	-	-	-	-	12	60	16	11/16	1.5/16	3/32	-	-	19	-	19
-	14	14	14	-	-	-	61	16.1/2	5/16	15/32	1/32	-	18	-	-	-
-	-	-	-	14	-	-	62	16.1/2	7/16	21/32	1/16	-	-	18.3/8	-	-
-	-	-	-	-	14	-	63	16.1/2	5/8	1.1/16	3/32	-	-	-	19.1/4	-
16	-	-	-	-	-	-	64	17.7/8	1/4	11/32	1/32	19	-	-	-	-
-	16	16	16	-	-	-	65	18.1/2	5/16	15/32	1/32	-	20	-	-	-
-	-	-	-	16	-	-	66	18.1/2	7/16	21/32	1/16	-	-	20.5/8	-	-
-	-	-	-	-	16	-	67	18.1/2	11/16	1.3/16	3/32	-	-	-	21.1/2	-
18	-	-	-	-	-	-	68	20.3/8	1/4	11/32	1/32	21	-	-	-	-
-	18	18	18	-	-	-	69	21	5/16	15/32	1/32	-	22	-	-	-
-	-	-	-	18	-	-	70	21	1/2	25/32	1/16	-	-	23.3/8	-	-
-	-	-	-	-	18	-	71	21	11'16	1.3/18	3/32	-	-	-	24.1/8	-
20	-	20	-	-	-	-	72	22	1/4	11/33	1/32	23	-	-	-	-
-	20	-	20	-	-	-	73	23	3/8	17/32	1/16	-	25	-	-	-
-	-	-	-	20	-	-	74	23	1/2	25/32	1/16	-	-	25.1/2	-	-
-	-	-	-	-	20	-	75	23		1	3/32	-	-	-	26	-
24	-	-	-	-	-	-	76	26				28	-	-	-	-
-	24	24	24	-	-	-	77	27				-	29	-	-	-
-	-	-	-	24	-	-	78	27				-	-	30	-	-
-	-	-	-	-	24	-	79	27				-	-	-	31	-

CLASS 300
ORIFICE FLANGES



WELDING NECK (RAISED FACE)

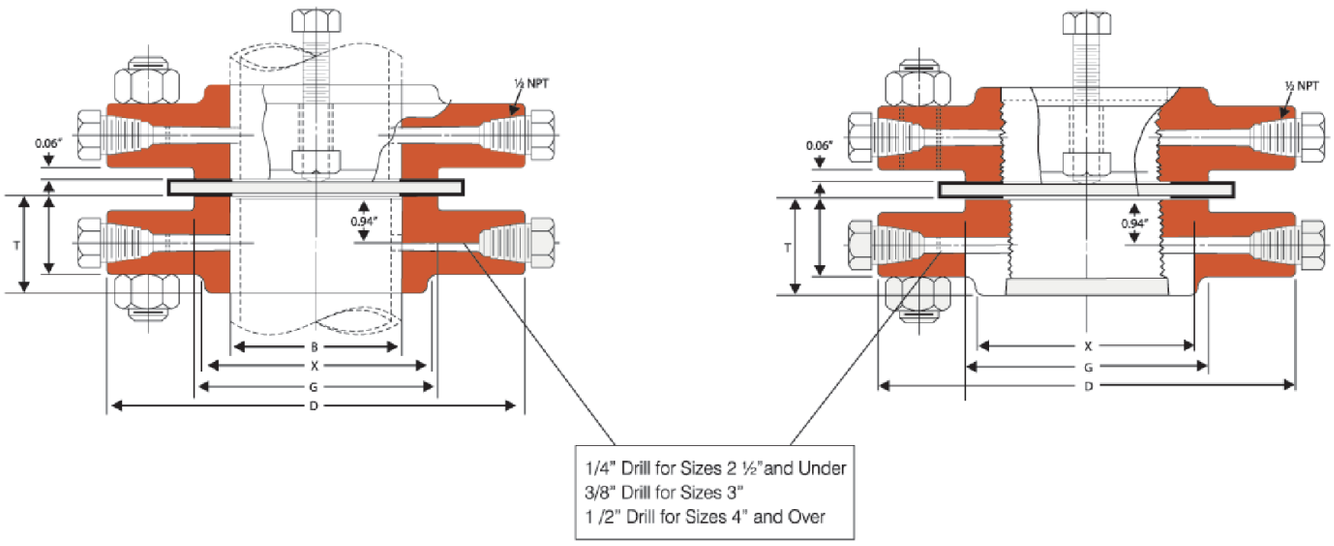
ANSI B 16.36 FORGED FLANGES

Dimensions in inches

Nominal	Outside	Thickness	Dia. of	Diam.of	Diam. Of	LENGTH THRU HUB (T)		BORE (B)	
Pipe	Diam. Of	of	Hub	Raised	Hub at	Welding	Slip-on &	Welding	Slip-on
Size	Flange	FLANGE (t)	at Base	Face	Bevel	Neck	Threaded	Neck	
		Raised				Raised	Raised		
	D	Face	X	G	A	Face	Face		
1	4.88	1.50	2.12	2.00	1.32	3.25	1.88	1.05	1.36
1. ¼	5.25	1.50	2.50	2.50	1.66	3.31	1.81	1.38	1.70
1. ½	6.12	1.50	2.75	2.88	1.90	3.38	1.88	1.61	1.95
2	6.50	1.50	3.31	3.62	2.38	3.38	1.94	2.07	2.44
2. ½	7.50	1.50	3.94	4.12	2.88	3.50	2.00	2.47	2.94
3	8.25	1.50	4.62	5.00	3.50	3.50	2.06	3.07	3.57
4	10.00	1.50	5.75	6.19	4.50	3.62	2.12	4.03	4.57
5	11.00	1.50	7.00	7.31	5.56	4.00	2.12	5.05	5.66
6	12.50	1.50	8.12	8.50	6.63	3.94	2.12	6.07	6.72
8	15.00	1.62	10.25	10.62	8.63	4.38	2.44	7.98	8.72
10	17.50	1.88	12.62	12.75	10.75	4.62	2.62	10.02	10.88
12	20.50	2.00	14.75	15.00	12.75	5.12	2.88	12.00	12.88
14	23.00	2.12	16.75	16.25	14.00	5.62	3.00	13.25	14.14
16	25.50	2.25	19.00	18.50	16.00	5.75	3.25	15.25	16.16
18	28.00	2.38	21.00	21.00	18.00	6.25	3.50	17.25	18.18
20	30.50	2.50	23.12	23.00	20.00	6.38	3.75	19.25	20.20
	36.00	2.75	27.62	27.25	24.00	6.62	4.19	23.25	24.25

NOTE :

1} For the 'Bore' (B) of Welding Neck Flanges other than Standard Wall Thickness, refer to page 9.
2} Class 300 Welding Neck Flanges of sizes 24" and smaller will be bore to match Standard Wall Thickness of Pipe, unless otherwise specified.
3} Class 300 Orifice flanges will be furnished with 0.06" raised face, which is included in 'Thickness' (t) and 'Length through Hub' (T).



Dimensions in inches

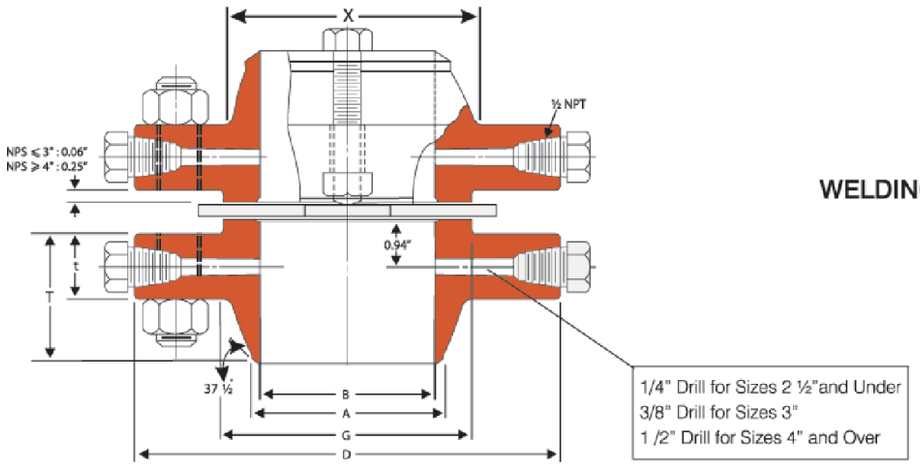
Nominal	Pitch	Ring	DEPTH OF	JACK SCREW		DRILLING TEMPLATE			
Pipe	Dia. of	Number	JACK	SIZE	Dia. of	Number	Dia. Of	Dia. Of	Length of
Size	Ring and		SCREW SLOT		Bolt	of Bolts	Stud	Bolt	Stud Blolts
	Groove		Raised	Raised	Circle		Bolts	Holes	Raised
	P		Face	Face					Face
1	2.000	R16	0.38		3.50	4	5/8	0.69	5.50
1.¼	2.375	R18	0.38		3.88	4	5/8	0.69	6.00
1.½	2.688	R20	0.50		4.50	4	¾	0.81	6.00
2	3.250	R23	0.38	Jack Screw	5.00	8	5/8	0.69	6.00
2½	4.000	R26	0.50	sizes for	5.88	8	¾	0.81	6.00
3	4.875	R31	0.50	1" thru 24"	6.62	8	¾	0.81	6.00
4	5.875	R37	0.50	are those as	7.88	8	¾	0.81	6.00
5	7.125	R41	0.50	shown for	9.25	8	¾	0.88	6.00
6	8.312	R45	0.50	length and	10.62	12	¾	0.88	6.00
8	10.625	R49	0.62	diameter	13.00	12	7/8	1.00	6.25
10	12.750	R53	0.75	of bolts	15.25	16	1	1.12	6.50
12	15.000	R57	0.88		17.75	16	1 1/8	1.25	7.00
14	16.500	R61	0.88		20.25	20	1 1/8	1.25	7.25
16	18.500	R65	1.00		22.50	20	1¼	1.38	7.75
18	21.000	R69	1.00		24.75	24	1¼	1.38	8.00
20	23.000	R73	1.00		27.00	24	1¼	1.38	8.50
24	27.250	R77	1.25		32.00	24	1½	1.62	9.50

NOTE :

4} Bolt lengths for raised face flanges include allowance for orifice and gasket thickness of 0.25" for sizes 4 - 12 and 0.38" for sizes 14 - 24.

5} Unless otherwise specified, unions of 1" thru 24" furnished with carbon steel regular square headed bolts with semi finished American Standard heavy series hex nuts.

CLASS 400
ORIFICE FLANGES



WELDING NECK (RAISED FACE)

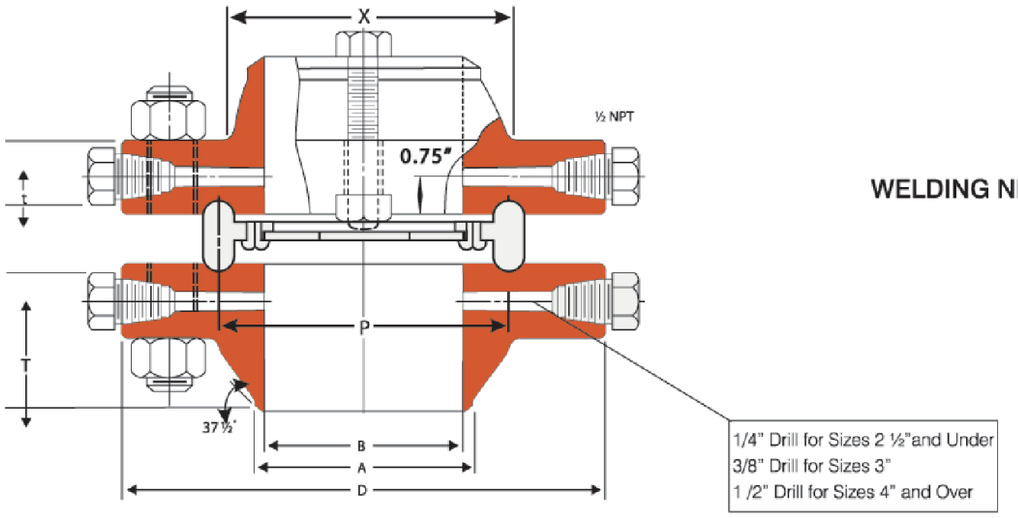
ANSI B 16.36 FORGED FLANGES

Dimensions in inches

Nominal	Outside	Thickness of		Dia. of	Dia. of	Dia. Of	LENGTH THRU HUB (T)				BORE (B)	
Pipe	Dia. Of	FLANGE (t)		Hub	Raised	Hub at	Welding Neck		Slip on & Threaded			
Size	Flange	Raised	Ring	at Base	Face	Bevel	Raised	Ring	Raised	Ring	Welding	Slip on
	D	Face	Joint	X	G	A	Face	Joint	Face	Joint	Neck	
1	4.88	1.50	1.25	2.12	2.00	1.32	3.25	3.00	1.88	1.62		1.36
1.¼	5.25	1.50	1.25	2.50	2.50	1.66	3.31	3.06	1.81	1.56		1.70
1.½	6.12	1.50	1.25	2.75	2.88	1.90	3.38	3.12	1.88	1.62		1.95
2	6.50	1.50	1.25	3.31	3.62	2.38	3.38	3.12	1.94	1.69	See	2.44
2.½	7.50	1.50	1.25	3.94	4.12	2.88	3.50	3.25	2.00	1.75	Note (1)	2.94
3	8.25	1.50	1.25	4.62	5.00	3.50	3.50	3.25	2.06	1.81	to be	3.57
4	10.00	1.38	1.38	5.75	6.19	4.50	3.50	3.50	2.00	2.00	Specified	4.57
5	11.00	1.50	1.50	7.00	7.31	5.56	4.00	4.00	2.12	2.12	Purchaser	5.66
6	12.50	1.62	1.62	8.12	8.50	6.63	4.06	4.06	2.25	2.25		6.72
8	15.00	1.88	1.88	10.25	10.62	8.63	4.62	4.62	2.69	2.69		8.72
10	17.50	2.12	2.12	12.62	12.75	10.75	4.88	4.88	2.88	2.88		10.88
12	20.50	2.25	2.25	14.75	15.00	12.75	5.38	5.38	3.12	3.12		12.88
14	23.00	2.39	2.38	16.75	16.25	14.00	5.88	5.88				14.14
16	25.50	2.50	2.50	19.00	18.50	16.00	6.00	6.00				16.16
18	28.00	2.62	2.62	21.00	21.00	18.00	6.50	6.50				18.18
20	30.50	2.75	2.75	23.12	23.00	20.00	6.62	6.62				20.20
24	36.00	3.00	3.00	27.62	27.25	24.00	6.88	6.88				22.22

NOTE :

1} For the inside diameter of pipes (corresponding to 'Bore' (B) of Welding Neck Flanges, refer to page 9.
2} Class 400 flanges of sizes 3" and smaller will be furnished with 0.06" raised face, which is included in 'Thickness' (t) and 'Length through Hub' (T). The 0.25" raised face for sizes 4" and larger is not included in (t) and (T).
3} Each union includes two carbon steel jack screw bolts with hex nuts.



WELDING NECK (RING - TYPE JOINT)

Dimensions in inches

	PITCH		DEPTH OF		JACK SCREW			DRILLING TEMPLATE				
Nominal	Dia.of		SCREW SLOT		SIZE	Ring	Dia.of	Number	Dia.of	Dia.of	Length of	
Pipe	Ring and	Ring	Raised	Ring	Raised	Joint	Bolt	of Bolts	Stud	Bolt	Stud Bolts	
Size	Groove	Number	Face	Joint	Face		Circle		Bolt	Holes	Raised	Ring
	P										Face	Joint
1	2.000	R16	0.38	0.25	5/8x4.00	5/8x4.75	3.50	4	5/8	0.69	5.00	5.75
1¼	2.375	R18	0.38	0.25	5/8x4.00	5/8x4.75	3.88	4	5/8	0.69	5.00	4.75
1½	2.688	R20	0.50	0.25	¾ x4.25	¾ x5.00	4.50	4	¾	0.81	5.25	6.00
2	3.250	R23	0.38	0.25	5/8x4.00	5/8x4.75	5.00	8	5/8	0.69	5.00	6.00
2½	4.000	R26	0.50	0.25	¾ x4.25	¾ x5.00	5.88	8	¾	0.81	5.25	6.25
3	4.875	R31	0.50	0.25	¾ x4.25	¾ x5.00	6.62	8	¾	0.81	5.25	6.25
4	5.875	R37	0.25	0.62	¾ x3.00	¾ x4.00	7.88	8	7/8	1.00	5.50	6.00
5	7.125	R41	0.25	0.62	¾ x3.00	¾ x4.00	9.25	8	7/8	1.00	5.75	6.25
6	8.312	R45	0.50	0.88	1x3.50	1x4.00	10.62	12	7/8	1.00	6.25	6.50
8	10.625	R49	0.50	0.88	1x3.50	1x4.50	13.00	12	1	1.12	6.75	7.25
10	12.750	R53	0.50	0.88	1x4.00	1x4.50	15.25	16	1 1/8	1.25	7.50	8.00
12	15.000	R57	0.50	0.88	1x4.00	1x5.00	17.75	16	1¼	1.38	8.00	8.50
14	16.500	R61	0.50	0.88	1x4.25	1x5.00	20.25	20	1¼	1.38	8.25	9.00
16	18.500	R65	0.50	0.88	1x4.25	1x5.00	22.50	20	1 3/8	1.50	8.75	9.25
18	21.000	R69	0.50	0.88	1x4.50	1x5.00	24.75	24	1 3/8	1.50	9.25	9.50
20	23.000	R73	0.50	0.88	1x4.75	1x5.50	27.00	24	1½	1.62	9.75	10.25
24	27.250	R77	0.50	0.88	1x5.00	1x6.00	32.00	24	1¾	1.88	11.00	11.25

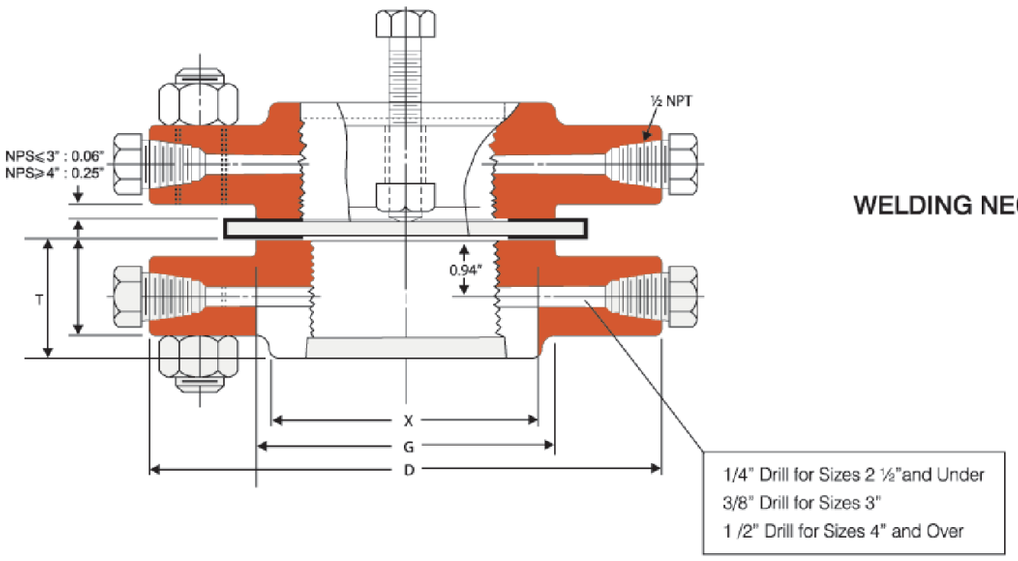
NOTE :

4} Unless otherwise specified, raised face unions are furnished with alloy bolt studs per ASTM A193 Grade B7 with American Standard heavy series hexnuts ASTM A194 Class 2H.

5} On ring joint flanges having a groove depth 0.375" and less, the distance from the center line of the tap hole to the flange is 0.750". When the depth of groove is 0.438" or greater, changes in drill size or method of drilling are necessary.

6} Bolt lengths for raised face flanges include allowance for orifice and gasket thickness of 0.25" or sizes 4-12 & 0.38" for sizes 14-24. Bolt length for ring-type joint flanges include allowance of 0.62" for sizes 4-10, 0.75"for sizes 12-18 & 0.88" for size 20.

CLASS 600
ORIFICE FLANGES



WELDING NECK (RAISED FACE)

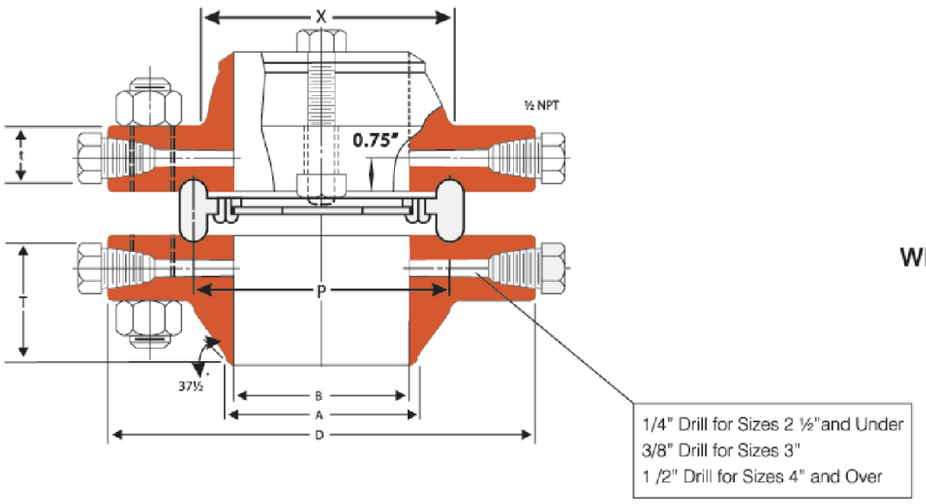
ANSI B 16.36 FORGED FLANGES

Dimensions in inches

Nominal	Outside	Thickness of		Diam.of	Diam.of	Diam. Of	LENGTH THRU HUB (T)				BORE (B)	
Pipe	Diam. Of	FLANGE (t)		Hub	Raised	Hub at	Welding Neck		Slip-on & Threaded			
Size	Flange	Raised	Ring	at Base	Face	Bevel	Raised	Ring	Raised	Ring	Welding	Slip on
	D	Face	Joint	X	G	A	Face	Joint	Face	Joint	Neck	
1	4.88	1.50	1.25	2.12	2.00	1.32	3.25	3.00	1.88	1.62		1.36
1.¼	5.25	1.50	1.25	2.50	2.50	1.66	3.31	3.06	1.81	1.56		1.70
1.½	6.12	1.50	1.25	2.75	2.88	1.90	3.38	3.12	1.88	1.62		1.95
2	6.50	1.50	1.25	3.31	3.62	2.38	3.38	3.12	1.94	1.69	See	2.44
2.½	7.50	1.50	1.25	3.94	4.12	2.88	3.50	3.25	2.00	1.75	Note (1)	2.94
3	8.25	1.50	1.25	4.62	5.00	3.50	3.50	3.25	2.06	1.81	to be	3.57
4	10.75	1.50	1.50	6.00	6.19	4.50	4.00	4.00	2.12	2.12	Specified	4.57
5	13.00	1.75	1.75	7.44	7.31	5.56	4.50	4.50	2.38	2.38	Purchaser	5.66
6	14.00	1.88	1.88	8.75	8.50	6.63	4.62	4.62	2.62	2.62		6.72
8	16.50	2.19	2.19	10.75	10.62	8.63	5.25	5.25	3.00	3.00		8.72
10	20.00	2.50	2.50	13.50	12.75	10.75	6.00	6.00	3.38	3.38		10.88
12	22.00	2.62	2.62	15.75	15.00	12.75	6.12	6.12	3.62	3.62		12.88
14	23.75	2.75	2.75	17.00	16.25	14.00	6.50	6.50				
16	27.00	3.00	3.00	19.50	18.50	16.00	7.00	7.00				
18	29.25	3.25	3.25	21.50	21.00	18.00	7.25	7.25				
20	32.00	3.50	3.50	24.00	23.00	20.00	7.50	7.50				
24	37.00	4.00	4.00	28.25	27.25	24.00	8.00	8.00				

NOTE :

1} For the inside diameter of pipes (corresponding to 'Bore' (B) of Welding Neck Flanges, refer to page 9.
2} Class 600 flanges of sizes 3" and smaller will be furnished with 0.06" raised face, which is included in 'Thickness' (t) and 'Length through Hub' (T).
3} Each union includes two carbon steel jack screw bolts with hex nuts.



WELDING NECK (RING - TYPE JOINT)

Dimensions in inches

	PITCH		DEPTH OF		JACK SCREW			DRILLING TEMPLATE					
Nominal	Diam.of		SCREW SLOT		SIZE					Diam.of		Length of	
Pipe	Ring and	Ring	Raised	Ring	Raised	Ring	Diam.of	Number	Diam.of	Bolt Holes		Stud Bolts	
Size	Groove	Number	Face	Joint	Face	Joint	Bolt	of Bolts	Stud	RF	RTJ	Raised	Ring
							Circle		Bolt			Face	Joint
1	2.000	R16	0.38	0.50	5/8x4.00	5/8x4.75	3.50	4	5/8	0.69	0.75	5.00	5.75
1¼	2.375	R18	0.38	0.25	5/8x4.00	5/8x4.75	3.88	4	5/8	0.69	--	5.00	5.75
1½	2.688	R20	0.50	0.25	5/8 x4.25	¾ x5.00	4.50	4	¾	0.81	0.88	5.25	6.00
2	3.250	R23	0.38	0.25	5/8x4.00	5/8x4.75	5.00	8	5/8	0.69	0.75	5.00	6.00
2½	4.000	R26	0.50	0.25	¾ x4.25	¾ x5.00	5.88	8	¾	0.81	0.88	5.25	6.25
3	4.875	R31	0.50	0.25	¾ x4.25	¾ x5.00	6.62	8	¾	0.81	0.88	5.25	6.25
4	5.875	R37	0.25	0.62	¾ x3.00	¾ x4.00	8.50	8	7/8	1.00	1.00	6.00	6.50
5	7.125	R41	0.25	0.62	¾ x3.50	¾ x4.50	10.50	8	1	1.12	1.12	5.50	7.00
6	8.312	R45	0.50	0.88	1x3.50	1x4.50	11.50	12	1	1.12	1.12	7.00	7.50
8	10.625	R49	0.50	0.88	1x4.00	1x.4.75	13.75	12	1⅛	1.25	1.25	7.75	8.25
10	12.750	R53	0.50	0.88	1x4.00	1x.5.00	17.00	16	1¼	1.38	1.38	8.75	9.25
12	15.000	R57	0.50	0.88	1x4.50	1x5.00	19.25	20	1¼	1.38	1.38	9.00	9.50
14	16.500	R61	0.50	0.88	1x.5.00	1x5.50	20.75	20	1⅜	1.50	1.50	9.50	10.00
16	18.500	R65	0.50	0.88	1x5.00	1x5.50	23.75	20	1½	1.62	1.62	10.25	10.75
18	21.000	R69	0.50	0.88	1x5.00	1x5.75	25.75	20	1⅝	1.75	1.75	11.00	11.50
20	23.000	R73	0.50	0.88	1x6.00	1.5/8	28.50	24	1⅝	1.75	1.75	11.75	12.50
24	27.250	R77	0.50	0.88	1x.600	1x7.00	33.00	24	1⅞	2.00	2.00	13.25	13.50

NOTE :

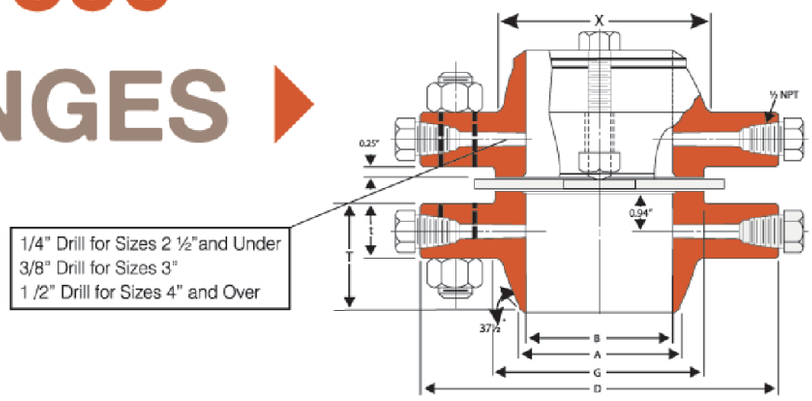
4} Unless otherwise specified, raised face unions are furnished with alloy bolt studs per ASTM A193 Grade B7 with American Standard heavy series hex nuts ASTM A194 Class 2H.

5} On ring joint flanges having a groove depth 0.375" and less, the distance from the center line of the tap hole to the flange face is 0.750". When the depth of groove is 0.438" or greater, changes in drill size or method of drilling are necessary.

6} Bolt lengths for raised face flanges include allowance for orifice and gasket thickness of 0.25" or sizes 4-12 & 0.38" for sizes 14-24. Bolt length for ring-type joint flanges include allowance of 0.62" for sizes 4-10, 0.75"for sizes 12-18 & 0.88" for size 20.

CLASS 900 - 1500
ORIFICE FLANGES

WELDING NECK (RAISED FACE)



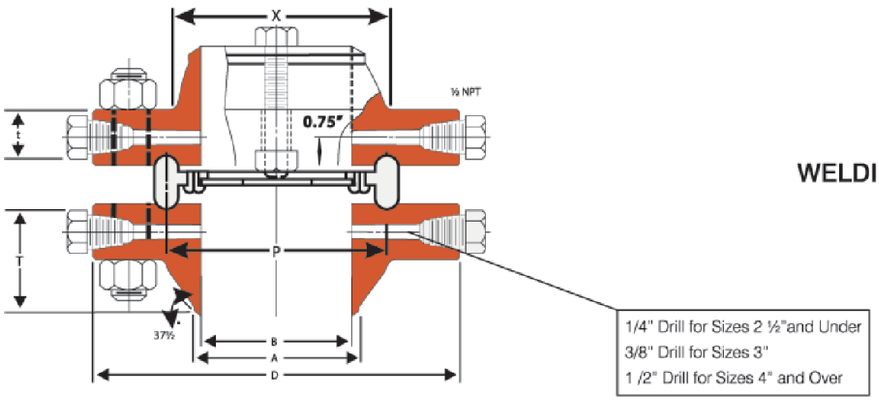
ANSI B 16.36 FORGED FLANGES

Dimensions in inches

Nominal	Outside	THICKNESS OF		Diam. Of	Diam. Of	Diam. Of	LENGTH THRU HUB (T)				BORE (B)	
Pipe	Diam.of	FLANGE (t)		Hub at	Raised	Hub at	Welding Neck		Slip-on Threaded		Welding	Slip-on
Size	Flange	Raised	Ring	Base	Face	Bevel	Raised	Ring	Raised	Ring	Neck	
	D	Face	Joint	X	G	A	Face	Joint	Face	Joint		
Class 900												
3	9.50	1.50	1.50	5.00	5.00	3.50	4.00	4.00	2.12	2.12		3.57
4	11.50	1.75	1.75	6.25	6.19	4.50	4.50	4.50	2.75	2.75		4.57
5	13.75	2.00	2.00	7.50	7.31	5.56	5.00	5.00	3.12	3.12	To be	5.66
6	15.00	2.19	2.19	9.25	8.50	6.63	5.50	5.50	3.38	3.38	specified	6.72
8	18.50	2.50	2.50	11.75	10.62	8.63	6.38	6.38	4.00	4.00	purchaser	8.72
10	21.50	2.75	2.57	14.50	12.75	10.75	7.25	7.25	4.25	4.25		10.88
12	24.00	3.12	3.12	16.50	15.00	12.75	7.88	7.88	4.62	4.62		12.88
14	25.25	3.38		17.75	16.25	14.00	8.38					
16	27.75	3.50		20.00	18.50	16.00	8.50					
18	31.00	4.00		22.25	21.00	18.00	9.00					
20	33.75	4.25		24.50	23.00	20.00	9.75					
24	41.00	5.50		29.50	27.25	24.00	11.50					
Class 1500												
1	5.88	1.50	1.50	2.06	2.00	1.32	3.25	3.25	1.88	1.75		1.36
1¼	6.25	1.38	1.38	2.50	2.50	1.66	2.88	2.88	1.88	1.75		1.70
1½	7.00	1.50	1.50	2.75	2.88	1.90	3.50	3.50	1.88	1.75		1.95
2	8.50	1.50	1.50	4.12	3.62	2.38	4.00	4.00	2.25	2.25	To be	2.44
2½	9.62	1.62	1.62	4.88	4.12	2.88	4.12	4.12	2.50	2.50	specified	2.94
3	10.50	1.88	1.88	5.25	5.00	3.50	4.62	4.62	2.88	2.88	purchaser	3.57
4	12.25	2.12	2.12	6.38	6.19	4.50	4.88	4.88	3.56	3.56		4.57
5	14.75	2.88	2.88	7.75	7.31	5.56	6.12	4.12	4.12	4.12		5.66
6	15.50	3.25	3.25	9.00	8.50	6.63	6.75	6.75	4.69	4.69		6.72
8	19.00	3.62	3.62	11.50	10.62	8.63	8.38	8.38	5.62	5.62		8.72
10	23.00	4.25	4.25	14.50	12.75	10.75	10.00	10.00	6.25	6.25		10.88
12	26.50	4.88	4.88	17.75	15.00	12.75	11.12	11.12	7.12	7.12		12.88
14	29.50	5.25		19.50	16.25	14.00	11.75					
16	32.50	5.75		21.75	18.50	16.00	12.25					
18	36.00	6.38		23.50	21.00	18.00	12.88					
20	38.75	7.00		25.25	23.00	20.00	14.00					
24	46.00	8.00		33.00	27.25	24.00	16.00					

NOTE :

1} For the inside diameter of pipes (corresponding to 'Bore' (B) of Welding Neck Flanges, refer to page 9.
2} Class 900 dimensions of sizes 1" through 2.1/2" are the same as for Class 1500.
3} Class 900 and 1500 is not included in 'Thickness' (t) and 'Length through Hub' (T).
4} Each union includes two carbon steel jack screw bolts with hex nuts.



WELDING NECK (RING - TYPE JOINT)

Dimensions in inches

Nominal Pipe Size	Pitch Diam.of Ring and Groove P	Ring Number	DEPTH OF JACK SCREW SLOT Raised Face	DEPTH OF JACK SCREW SLOT Ring Joint	JACK SCREW SIZE Raised Face	JACK SCREW SIZE Ring Joint	Diam.of Bolt Circle	DRILLING TEMPLATE Number of Bolts	Diam.of Stud Bolts	Diam.of Bolt Holes	Length of Stud Bolts Raised Face	Length of Stud Bolts Ring Joint
Class 900												
3	4.875	R31	0.38	0.62	¾1x3.50	¾1x4.00	7.50	8	7/8	1.00	6.00	6.50
4	5.875	R37	0.38	0.62	¾1x3.50	¾1x4.50	9.25	8	1 1/8	1.25	7.00	7.50
5	7.125	R41	0.38	0.62	¾1x3.50	¾1x4.50	11.00	8	1¼	1.38	7.50	8.00
6	8.312	R45	0.62	0.88	1x4.50	1x4.75	12.50	12	1 1/8	1.25	7.75	8.25
8	10.625	R49	0.62	0.88	1x4.50	1x5.00	15.50	12	1 3/8	1.50	9.00	9.50
10	12.750	R53	0.62	0.88	1x4.50	1x5.25	18.50	16	1 3/8	1.50	9.50	10.00
12	15.000	R57	0.62	0.88	1x4.50	1x5.50	21.00	20	1 3/8	1.50	10.25	10.75
14							22.00	20	1½	1.62	11.00	
16							24.25	20	1 5/8	1.75	11.50	
18							27.00	20	1 7/8	2.00	13.00	
20							29.50	20	2	2.12	14.00	
24							35.50	20	2½	2.62	17.50	
Class 1500												
1	2.000	R16	0.25	0.50	5/8 x3.00	5/8 x3.50	4.00	4	7/8	1.00	6.00	6.25
1¼	2.375	R18	0.25	0.50	5/8 x.3.00	5/8 x3.50	4.38	4	7/8	1.00	5.50	5.75
1½	2.688	R20	0.25	0.50	5/8x.3.00	5/8 x3.50	4.88	4	1	1.12	6.25	6.50
2	3.750	R24	0.25	0.50	5/8x.3.00	5/8 x4.00	6.50	8	7/8	1.00	6.00	6.50
2½	4.250	R27	0.25	0.50	5/8 x.3.00	5/8x4.00	7.50	8	1	1.12	6.50	7.00
3	5.375	R35	0.38	0.62	5/8x.3.50	3/4x4.50	8.00	8	1 1/8	1.25	7.25	7.75
4	6.375	R39	0.38	0.62	¾ x3.50	¾ x4.50	9.50	8	1¼	1.38	8.00	8.50
5	7.625	R44	0.38	0.62	¾ x3.50	¾ x4.50	11.50	8	1½	1.62	9.75	10.25
6	8.312	R46	0.62	0.88	1x6.00	1x6.50	12.50	12	1 3/8	1.50	10.50	11.00
8	10.625	R50	0.62	0.88	1x6.50	1x6.50	15.50	12	1 5/8	1.75	11.75	12.50
10	12.750	R54	0.62	0.88	1x6.50	1x7.00	19.00	12	1 7/8	2.00	13.50	14.25
12	15.000	R58	0.62	0.88	1x6.50	1x8.00	22.50	16	2	2.12	15.00	16.00
14							25.00	16	2¼	2.38	16.25	
16							27.75	16	2½	2.62	17.75	
18							30.50	16	2¾	2.88	19.75	
20							32.75	16	3	3.12	21.50	
24							39.00	16	3½	3.62	24.50	

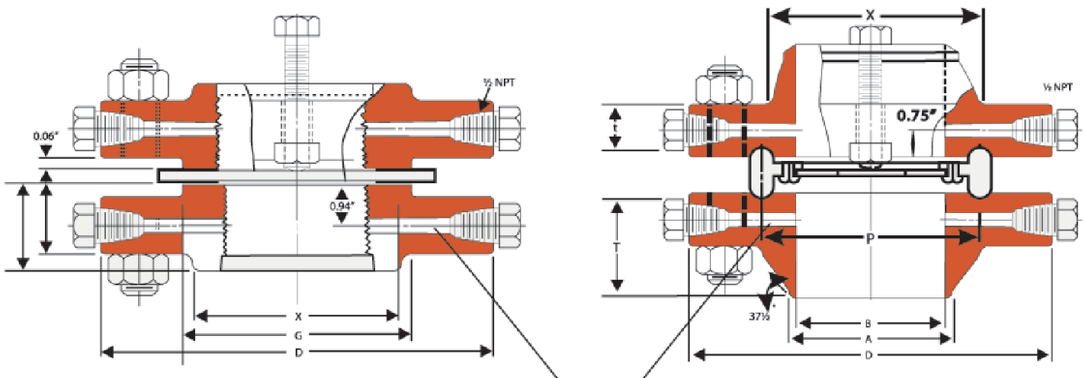
NOTE :

5} Unless otherwise specified, raised face unions are furnished with alloy bolt studs per ASTM A193 Grade B7 with American Standard heavy series hex nuts ASTM A194 Class 2H.

6} On ring joint flanges having a groove depth 0.375" and less, the distance from the center line of the tap hole to the flange face is 0.750". When the depth of groove is 0.438" or greater, changes in drill size or method of drilling are necessary.

7} Bolt lengths for raised face flanges include allowance for orifice and gasket thickness of 0.25" or sizes 4-12 & 0.38" for sizes 14-24. Bolt length for ring-type joint flanges include allowance of 0.62" for sizes 4-10, 0.75" for sizes 12-18 & 0.88" for size 20.

CLASS 2500
ORIFICE FLANGES



WELDING NECK (RAISED FACE)

WELDING NECK (RING - TYPE JOINT)

ANSI B 16.36 FORGED FLANGES

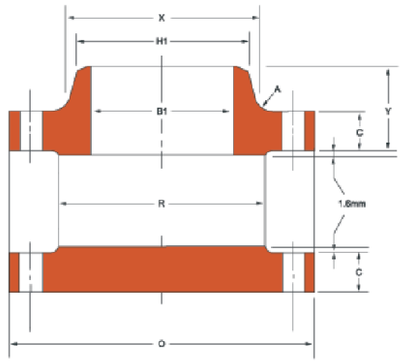
Dimensions in inches

Nominal	O.D.of	O.D.of	Thickness	Length	Dia. of	Dia. of	Bore	Ring	Ring	DRILLING TEMPLATE				LENGTH OF	
Pipe	Flange	Raised	Off	Thru	Hub	Hub at		Type	Number	Dia. of	Number	Dia. of	Dia. of	STUD BOLTS	
Size	Face	Face		Hub		Bevel		Joint		Bolt	of Holes	Holes	Bolt	Raised	Ring
			Min					Pitch Dia.		Circle				Face	Joint
	D	G	t	T	X	A	B	P							
1	6.25	2.00	1.50	3.62	2.25	1.32		2.375	R18	4.25	4	1.00	7/8	6.00	6.25
1½	8.00	2.88	1.75	4.38	3.12	1.90	See	3.250	R23	5.75	4	1.25	1⅛	7.00	7.50
2	9.25	3.62	2.00	5.00	3.75	2.38	Note(1)	4.000	R26	6.75	8	1.12	1	7.25	7.75
2½	10.50	4.12	2.25	5.62	4.50	2.88	to be	4.375	R28	7.75	8	1.25	1⅛	8.00	8.50
3	12.00	5.00	2.62	6.62	5.25	3.50	Specified	5.000	R32	9.00	8	1.38	1¼	9.00	9.50
4	14.00	6.19	3.00	7.50	6.50	4.50	purchaser			10.75	8	1.62	1½	10.25	
6	19.00	8.50	4.25	10.75	9.25	6.63				14.50	8	2.12	2	13.75	
8	21.75	10.62	5.00	12.50	12.00	8.63				17.25	12	2.12	2	15.25	
10	26.50	12.75	6.50	16.60	14.75	10.75				21.25	12	2.62	2½	19.25	
12	30.00	15.00	7.25	18.25	17.38	12.75				24.38	12	2.88	2¾	21.25	

NOTE :

1} For the inside diameter of pipes (corresponding to 'Bore' (B) of Welding Neck Flanges, refer to page 9.
2} Class 2500 flanges will be furnished with 0.25" raised face, which is included in 'Thickness' (t) & 'Length through Hub' (T).
3} Each union includes two carbon steel jack screw bolts with hex nuts.
4} Unless otherwise specified, raised face unions are furnished with alloy bolt studs per ASTM A193 Grade B7 with American Standard heavy series hex nuts ASTM A194 Class 2H.
5} On ring joint flanges having a groove depth 0.75" and less, the distance from the center line of the tap hole to the flange face is 0.75". When the depth of groove is 0.438" or greater, changes in drill size or method of drilling are necessary.
6} Class 2500 Slip - on flanges are not covered by ANSI B 16.5.
7} Bolt lengths for raised face flanges include allowance for orifice and gasket thickness of 0.25" or sizes 4-12 & 0.38" for sizes 14-24. Bolt length for ring-type joint flanges include allowance of 0.62" for sizes 4-10, 0.75" for sizes 12-18 & 0.88" for size 20.

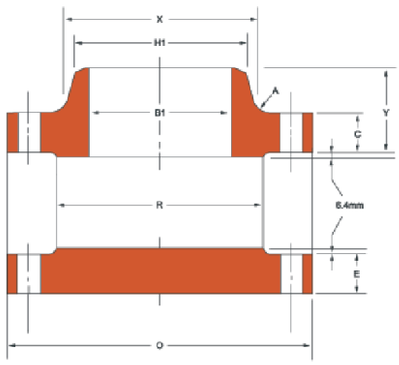
150 LB/SQ.IN
WELDING NECK FLANGES



ASME B 16.47 SERIES A

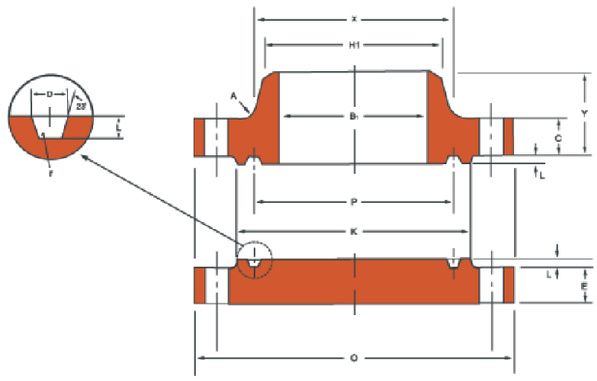
Pipe Size	Flange Dimensions			Hub Dimen.	Drilling			Raised Face Dia.	Fillet Radius (min)	Approx. Weight	
	OD of Flange	Thickness of Flange	Length Thru Hub	OD Large End Hub	No. of Bolt Holes	Dia. of Bolt Holes	Dia. of Bolt Circle				
	O	C	Y	X				R	A		
in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm		Radius in. mm	Welding Neck kg	Blind kg
26,00 660,4	34,25 870,0	2,63 66,7	4,69 119,1	26,62 676,1	24	1,38 35,1	31,75 806,5	29,50 749,3	0,38 9,7	147	306
28,00 711,2	36,50 927,1	2,75 69,8	4,88 123,9	28,62 726,9	28	1,38 35,1	34,00 863,6	31,50 800,1	0,44 11,2	163	363
30,00 762,0	38,75 984,3	2,88 73,1	5,32 135,1	30,75 781,1	28	1,38 35,1	36,00 914,4	33,75 857,3	0,44 11,2	190	430
32,00 812,8	41,75 1060,5	3,12 79,2	5,63 142,9	32,75 831,9	28	1,62 41,1	38,50 977,9	36,00 914,4	0,44 11,2	238	537
34,00 863,6	43,75 1111,3	3,19 81	5,82 147,8	34,75 882,7	32	1,62 41,1	40,50 1028,7	38,00 965,2	0,50 12,7	255	600
36,00 914,4	46,00 1168,4	3,5 88,8	6,13 155,6	36,75 933,5	32	1,62 41,1	42,75 1085,9	40,25 1022,4	0,50 12,7	302	730
38,00 965,2	48,75 1238,3	3,38 85,8	6,13 155,6	39,00 990,6	32	1,62 41,1	45,25 1149,4	42,25 1073,2	0,50 12,7	342	792
40,00 1016,0	50,75 1289,1	3,5 88,8	6,38 162	41,00 1041,4	36	1,62 41,1	47,00 1200,2	44,25 1124,0	0,50 12,7	366	893
42,00 1066,8	53,00 1346,2	3,75 95,2	6,69 169,9	43,00 1092,2	36	1,62 41,1	49,50 1257,3	47,00 1193,8	0,50 12,7	419	1044
44,00 1117,6	55,25 1403,4	3,94 100	6,94 176,2	45,00 1143,0	40	1,62 41,1	51,75 1314,5	49,00 1244,6	0,50 12,7	459	1190
46,00 1168,4	57,25 1454,2	4 101,5	7,25 184,1	47,12 1196,8	40	1,62 41,1	53,75 1365,3	51,00 1295,4	0,50 12,7	500	1299
48,00 1219,2	59,50 1544,3	4,19 106,4	7,5 189,7	49,12 1247,6	44	1,62 41,1	56,00 1422,4	53,50 1358,9	0,50 12,7	552	1470
50,00 1270,0	61,75 1568,5	4,32 109,7	7,94 201,6	51,25 1301,8	44	1,88 47,8	58,25 1479,6	55,50 1409,7	0,50 12,7	592	1615
52,00 1320,8	64,00 1625,6	4,5 114,2	8,19 208	53,25 1352,6	44	1,88 47,8	60,50 1536,7	57,50 1460,5	0,50 12,7	660	1817
54,00 1371,6	66,25 1682,8	4,69 119,1	8,44 214,3	55,25 1403,4	44	1,88 47,8	62,75 1593,9	59,50 1511,3	0,50 12,7	726	2031
56,00 1422,4	68,75 1746,3	4,82 122,4	8,94 227	57,38 1457,5	48	1,88 47,8	65,00 1651,0	62,00 1574,8	0,50 12,7	805	2244
58,00 1473,2	71,00 1803,4	5 126,9	9,19 233,4	59,38 1508,3	48	1,88 47,8	67,25 1708,2	64,00 1625,6	0,50 12,7	884	2491
60,00 1524,0	73,00 1854,2	5,13 130,2	9,38 238,2	61,38 1559,1	52	1,88 47,8	69,25 1759,0	66,0 1676,4	0,50 12,7	930	2697

300 LB/SQ.IN
WELDING NECK FLANGES



ASME B 16.47 SERIES A

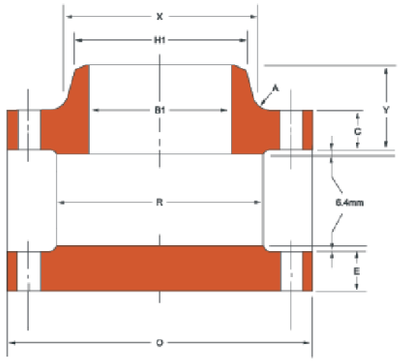
Pipe Size	Flange Dimensions				Dimen. of Hub	Drilling			Approx. Weight	
	OD of Flange	Thickness of Flange Weld-Neck	Thickness of Blind Flange	Length Thru Hub	OD Large End Hub	No. of Bolt Holes	Dia. of Bolt Holes	Dia. of Bolt Circle		
	O	C	E	Y	X					
in. mm	in. mm	in. mm	in. mm	in. mm	in. mm		in. mm	in.mm	Welding-Neck kg	Blind kg
26.000 660.4	38.25 971,6	3,50 88,9	3,88 98,6	7,62 193,5	28,62 726,9	28	1,88 47,8	34,50 876,3	304	534
28,00 711,2	40,75 1035,1	3,75 95,3	4,12 104,6	8,12 206,2	30,81 782,6	28	2,00 50,8	37,00 939,8	362	645
30,00 762,0	43,00 1092,2	4,00 101,6	4,38 111,3	8,62 218,9	32,94 836,7	28	2,12 53,8	39,25 997,0	415	760
32,00 812,8	45,25 1149,4	45,25 108,0	4,56 115,8	9,12 231,6	35,00 889,0	28	2,12 53,8	41,50 1054,1	478	885
34,00 863,6	47,50 1206,5	4,38 111,3	4,81 122,2	9,50 241,3	37,19 944,6	28	2,12 53,8	43,50 1104,9	538	1035
36,00 914,4	50,00 1270,0	4,50 114,3	5,06 128,5	9,88 251,0	39,38 1000,3	32	2,12 53,8	46,00 1168,4	604	1205
38,00 965,2	47,50 1206,5	4,88 124,0	4,88 124,0	8,12 206,2	39,50 1000,3	32	1,88 47,8	44,00 1117,6	406	1055
40,00 1016,0	50,00 1270,0	5,12 130,0	5,12 130,0	8,50 215,9	41,50 1054,1	32	2,00 50,8	46,25 1174,8	473	1229
42,00 1066,8	52,00 1320,8	5,25 133,4	5,52 133,4	8,81 223,8	43,62 1107,9	32	2,00 50,8	48,25 1225,6	513	1366
44,00 1117,6	54,50 1384,3	5,50 139,7	5,50 139,7	9,19 233,4	45,62 1158,7	32	2,00 50,8	48,25 1225,6	586	1569
46,00 1168,4	56,75 1441,5	5,75 146,1	5,75 146,1	9,62 244,3	47,75 1212,9	36	2,12 53,8	52,75 1339,9	648	1776
48,00 1219,2	59,50 1511,3	6,00 152,4	6,00 152,4	10,12 256,0	49,88 1267,0	28	2,38 60,5	55,25 1403,4	768	2043
50,00 1270,0	61,75 1568,5	6,19 157,2	6,25 158,8	10,56 268,2	52,00 1320,8	32	2,38 60,5	57,50 1460,5	897	2500
52,00 1320,8	63,75 1619,3	6,38 162,1	6,44 163,6	10,88 276,4	54,00 1371,6	32	2,38 60,5	59,50 1511,3	694	2143
54,00 1371,6	67,00 1701,8	6,69 169,9	6,75 171,5	11,38 289,1	56,12 1524,4	28	2,62 66,5	62,25 1581,2	1086	2900
56,00 1422,4	69,00 1752,6	6,88 174,8	6,94 176,3	11,75 298,5	58,25 1479,6	32	2,62 66,5	64,25 1632,0	882	2674
58,00 1473,2	71,00 1803,4	7,00 177,8	7,12 180,8	12,06 306,3	60,25 1530,4	32	2,62 66,5	66,25 168,8	928	2913
60,00 1524,0	74,25 1886,0	7,31 185,7	7,44 189,0	12,56 319,0	62,38 1584,5	32	2,88 73,2	69,00 1752,6	1408	3940



ASME B 16.47 SERIES A

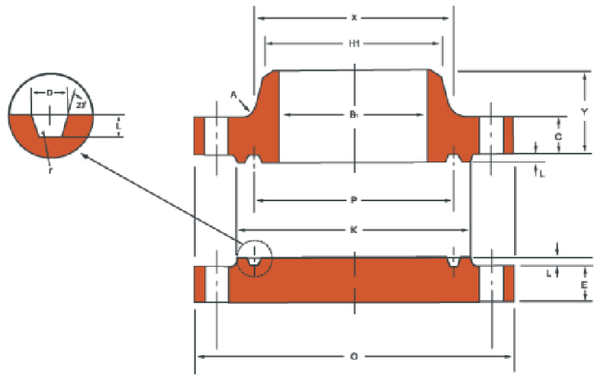
Pipe Size	Raised Face Dia.	Fillet Radius (min)	Facing Dimensions					Groove Fillet Radius
			Ring Type Joint					
			Facing Dia	Depth of Groove	Pitch Dia.	Width of Groove	Ring No.	
	R	A	K	L	P	D	A	r
in. mm	in. mm	Radius in.mm	in. mm	in. mm	in. mm	in. mm	Ring no.	Radius in.mm
26.000	29,50	0,38	31,88	0,50	29,50	0,78	R93	0,06
660.4	749,3	9,7	809,8	12,7	749,3	19,8		1,5
28,00	31,50	0,44	33,88	0,50	31,50	0,78	R94	0,06
711,2	800,1	11,2	860,6	12,7	800,1	19,8		1,5
30,00	33,75	0,44	36,12	0,50	33,75	0,78	R95	0,06
762,0	857,3	11,2	917,4	12,7	857,3	19,8		1,5
32,00	36,00	0,44	38,75	0,56	36,00	0,91	R96	0,06
812,8	914,4	11,2	984,3	14,3	914,4	23,0		1,5
34,00	38,00	0,50	40,75	0,56	38,00	0,91	R97	0,06
863,6	965,2	12,7	1035,1	14,3	965,2	23,0		1,5
36,00	40,25	0,50	43,00	0,56	40,25	0,91	R98	0,06
914,4	1022,4	12,7	1092,2	14,3	1022,4	23,0		1,5
38,00	40,25	0,50	–	–	–	–	–	–
965,2	1085,9	12,7	–	–	–	–	–	–
40,00	42,75	0,50	–	–	–	–	–	–
1016,0	1085,9	12,7	–	–	–	–	–	–
42,00	44,75	0,50	–	–	–	–	–	–
1066,8	1136,7	12,7	–	–	–	–	–	–
44,00	47,00	0,50	–	–	–	–	–	–
1117,6	1193,8	12,7	–	–	–	–	–	–
46,00	49,00	0,50	–	–	–	–	–	–
1168,4	1244,6	12,7	–	–	–	–	–	–
48,00	51,25	0,50	–	–	–	–	–	–
1219,2	1301,8	12,7	–	–	–	–	–	–
50,00	53,50	0,50	–	–	–	–	–	–
1270,0	1358,9	12,7	–	–	–	–	–	–
52,00	55,50	0,50	–	–	–	–	–	–
1320,8	1409,7	12,7	–	–	–	–	–	–
54,00	57,75	0,50	–	–	–	–	–	–
1371,6	1466,9	12,7	–	–	–	–	–	–
56,00	59,75	0,50	–	–	–	–	–	–
1422,4	1517,7	12,7	–	–	–	–	–	–
58,00	62,00	0,50	–	–	–	–	–	–
1473,2	1574,8	12,7	–	–	–	–	–	–
60,00	64,00	0,50	–	–	–	–	–	–
1524,0	1625,6	12,7	–	–	–	–	–	–

400 LB/SQ.IN
WELDING NECK FLANGES



ASME B 16.47 SERIES A

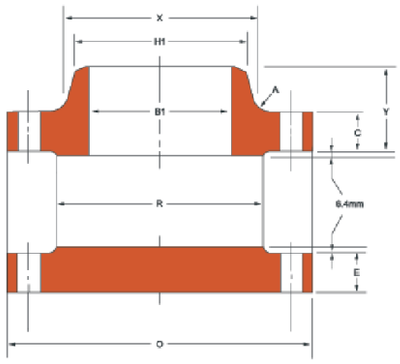
Pipe Size	Flange Dimensions				Dimen. of Hub	Drilling			Approx. Weight	
	OD of Flange	Thickness of Flange Weld-Neck	Thickness of Blind Flange	Length Thru Hub	OD Large End Hub	No. of Bolt Holes	Dia. of Bolt Holes	Dia. of Bolt Circle		
	O	C	E	Y	X					
in. mm	in. mm	in. mm	in. mm	in. mm	in. mm		in. mm	in.mm	Welding-Neck kg	Blind kg
26.000 660.4	38.25 971,6	3,50 88,9	3,88 98,6	7,62 193,5	28,62 726,9	28	1,88 47,8	34,50 876,3	304	534
28,00 711,2	40,75 1035,1	3,75 95,3	4,12 104,6	8,12 206,2	30,81 782,6	28	2,00 50,8	37,00 939,8	362	645
30,00 762,0	43,00 1092,2	4,00 101,6	4,38 111,3	8,62 218,9	32,94 836,7	28	2,12 53,8	39,25 997,0	415	760
32,00 812,8	45,25 1149,4	45,25 108,0	4,56 115,8	9,12 231,6	35,00 889,0	28	2,12 53,8	41,50 1054,1	478	885
34,00 863,6	47,50 1206,5	4,38 111,3	4,81 122,2	9,50 241,3	37,19 944,6	28	2,12 53,8	43,50 1104,9	538	1035
36,00 914,4	50,00 1270,0	4,50 114,3	5,06 128,5	9,88 251,0	39,38 1000,3	32	2,12 53,8	46,00 1168,4	604	1205
38,00 965,2	47,50 1206,5	4,88 124,0	4,88 124,0	8,12 206,2	39,50 1000,3	32	1,88 47,8	44,00 1117,6	406	1055
40,00 1016,0	50,00 1270,0	5,12 130,0	5,12 130,0	8,50 215,9	41,50 1054,1	32	2,00 50,8	46,25 1174,8	473	1229
42,00 1066,8	52,00 1320,8	5,25 133,4	5,52 133,4	8,81 223,8	43,62 1107,9	32	2,00 50,8	48,25 1225,6	513	1366
44,00 1117,6	54,50 1384,3	5,50 139,7	5,50 139,7	9,19 233,4	45,62 1158,7	32	2,00 50,8	48,25 1225,6	586	1569
46,00 1168,4	56,75 1441,5	5,75 146,1	5,75 146,1	9,62 244,3	47,75 1212,9	36	2,12 53,8	52,75 1339,9	648	1776
48,00 1219,2	59,50 1511,3	6,00 152,4	6,00 152,4	10,12 256,0	49,88 1267,0	28	2,38 60,5	55,25 1403,4	768	2043
50,00 1270,0	61,75 1568,5	6,19 157,2	6,25 158,8	10,56 268,2	52,00 1320,8	32	2,38 60,5	57,50 1460,5	897	2500
52,00 1320,8	63,75 1619,3	6,38 162,1	6,44 163,6	10,88 276,4	54,00 1371,6	32	2,38 60,5	59,50 1511,3	694	2143
54,00 1371,6	67,00 1701,8	6,69 169,9	6,75 171,5	11,38 289,1	56,12 1524,4	28	2,62 66,5	62,25 1581,2	1086	2900
56,00 1422,4	69,00 1752,6	6,88 174,8	6,94 176,3	11,75 298,5	58,25 1479,6	32	2,62 66,5	64,25 1632,0	882	2674
58,00 1473,2	71,00 1803,4	7,00 177,8	7,12 180,8	12,06 306,3	60,25 1530,4	32	2,62 66,5	66,25 168,8	928	2913
60,00 1524,0	74,25 1886,0	7,31 185,7	7,44 189,0	12,56 319,0	62,38 1584,5	32	2,88 73,2	69,00 1752,6	1408	3940



ASME B 16.47 SERIES A

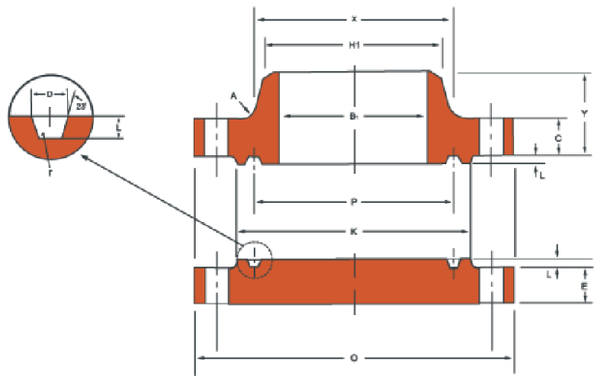
Pipe Size	Raised Face Dia.	Fillet Radius (min)	Facing Dimensions					Groove Fillet Radius
			Ring Type Joint					
			Facing Dia	Depth of Groove	Pitch Dia.	Width of Groove	Ring No.	
	R	A	K	L	P	D	A	r
in. mm	in. mm	Radius in.mm	in. mm	in. mm	in. mm	in. mm	Ring no.	Radius in.mm
26.000	29,50	0,44	31,88	0,50	29,50	0,78	R93	0,06
660.4	749,3	11,2	809,8	12,7	749,3	19,8		1,5
28,00	31,50	0,50	33,88	0,50	31,50	0,78	R94	0,06
711,2	800,1	12,7	860,6	12,7	800,1	19,8		1,5
30,00	33,75	0,50	36,12	0,50	33,75	0,78	R95	0,06
762,0	857,3	12,7	917,4	12,7	857,3	19,8		1,5
32,00	36,00	0,50	38,75	0,56	36,00	0,91	R96	0,06
812,8	914,4	12,7	984,3	14,3	914,4	23,0		1,5
34,00	38,00	0,56	40,75	0,56	38,00	0,91	R97	0,06
863,6	965,2	14,2	1035,1	14,3	965,2	23,0		1,5
36,00	40,25	0,56	43,00	0,56	40,25	0,91	R98	0,06
914,4	1022,4	14,2	1092,2	14,3	1022,4	23,0		1,5
38,00	40,75	0,56	–	–	–	–	–	–
965,2	1035,1	14,2	–	–	–	–	–	–
40,00	43,00	0,56	–	–	–	–	–	–
1016,0	1092,2	14,2	–	–	–	–	–	–
42,00	45,00	0,56	–	–	–	–	–	–
1066,8	1143,0	14,2	–	–	–	–	–	–
44,00	47,25	0,56	–	–	–	–	–	–
1117,6	1200,2	14,2	–	–	–	–	–	–
46,00	49,50	0,56	–	–	–	–	–	–
1168,4	1257,3	14,2	–	–	–	–	–	–
48,00	51,50	0,56	–	–	–	–	–	–
1219,2	1308,1	14,2	–	–	–	–	–	–
50,00	53,62	0,56	–	–	–	–	–	–
1270,0	1361,9	14,2	–	–	–	–	–	–
52,00	55,62	0,56	–	–	–	–	–	–
1320,8	1412,7	14,2	–	–	–	–	–	–
54,00	57,88	0,56	–	–	–	–	–	–
1371,6	1470,2	14,2	–	–	–	–	–	–
56,00	60,12	0,56	–	–	–	–	–	–
1422,4	1527,0	14,2	–	–	–	–	–	–
58,00	62,12	0,56	–	–	–	–	–	–
1473,2	1577,8	14,2	–	–	–	–	–	–
60,00	64,38	0,56	–	–	–	–	–	–
1524,0	1635,3	14,2	–	–	–	–	–	–

600 LB/SQ.IN
WELDING NECK FLANGES



ASME B 16.47 SERIES A

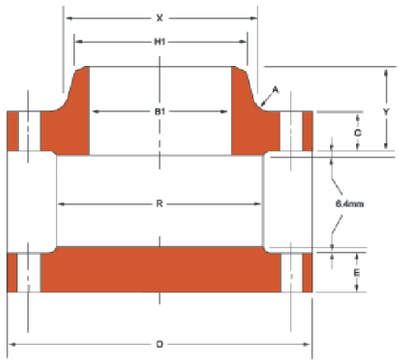
Pipe Size	Flange Dimensions				Dimen. of Hub	Drilling			Approx. Weight	
	OD of Flange	Thickness of Flange Weld-Neck	Thickness of Blind Flange	Length Thru Hub	OD Large End Hub	No. of Bolt Holes	Dia. of Bolt Holes	Dia. of Bolt Circle		
	O	C	E	Y	X					
in. mm	in. mm	in. mm	in. mm	in. mm	in. mm		in. mm	in. mm	Welding - Neck kg	Blind kg
26.000 660.4	40 1016	4,25 108	4,94 125,5	8,75 222,3	29,44 747,8	28	2 50,8	36 914,4	427	740
28,00 711,2	42,25 1073,2	4,38 111,3	5,19 131,8	9,25 235	31,62 803,1	28	2,12 53,8	38 965,2	479	869
30,00 762,0	44,5 1130,3	4,5 114,3	5,5 139,7	9,75 247,7	33,94 862,1	28	2,12 53,8	40,25 1022,4	545	1030
32,00 812,8	47 1193,8	4,62 117,3	5,81 147,6	10,25 260,4	36,12 917,4	28	2,38 60,5	42,5 1079,5	610	1204
34,00 863,6	49 1244,6	4,75 120,7	6,06 153,9	10,62 269,7	38,31 973,1	28	2,38 60,5	44,5 1130,3	666	1371
36,00 914,4	51,75 1314,5	4,88 124	6,38 162,1	11,12 282,4	40,62 1031,7	28	2,62 66,5	47 1192,8	755	1600
38,00 965,2	50 1270	6 152,4	6,12 4	10 254	40,25 1022,4	28	2,38 60,5	45,75 1162,1	640	1447
40,00 1016,0	52 1320,8	6,25 125,8	6,38 162,1	10,38 263,7	42,25 1073,2	32	2,38 60,5	47,75 1212,9	683	1620
42,00 1066,8	55,25 1403,4	6,62 168,1	6,75 171,5	11 279,4	44,38 1127,3	28	2,62 66,5	50,5 1282,7	754	1948
44,00 1117,6	57,25 1454,2	6,81 173	7 177,8	11,38 289,1	46,5 1181,1	32	2,62 66,5	52,5 1333,5	903	2100
46,00 1168,4	59,5 1511,3	7,06 179,3	7,31 185,7	11,81 300	48,62 1234,9	32	2,62 66,5	54,75 1390,7	1054	2450
48,00 1219,2	62,75 1593,9	7,44 189	7,69 195,3	12,44 314,7	50,75 1289,1	32	2,88 73,2	57,5 1460,5	1200	2850
50,00 1270,0	65,75 1670,1	7,75 196,9	8 203,2	12,94 328,7	52,88 1343,2	28	3,12 79,2	60 1524	1363	3233
52,00 1320,8	67,75 1720,9	8 203,2	8,25 209,6	13,25 336,6	54,88 1394	32	3,12 79,2	62 1574,8	1466	3570
54,00 1371,6	70 1778	8,25 209,6	8,56 217,4	13,75 349,3	57 1447,8	32	3,12 79,2	64,25 1632	1605	3968
56,00 1422,4	73,00 1854,2	8,56 217,4	8,88 225,6	14,25 362,0	59,12 1501,6	32	3,38 85,9	66,75 1695,5	1709	4450
58,00 1473,2	75,00 1905,0	8,75 223,3	9,12 231,6	14,56 3369,8	61,12 1552,4	32	3,38 85,9	68,75 1746,3	1916	4850
60,00 1524,0	78,50 1993,9	9,19 233,4	9,56 242,8	15,31 388,9	63,38 1609,9	28	3,62 91,9	71,75 1822,5	2300	5598



ASME B 16.47 SERIES A

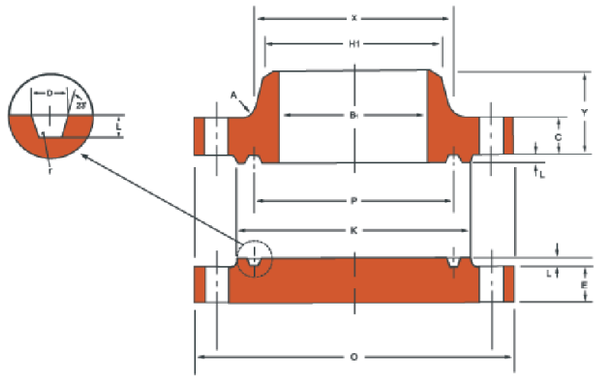
Pipe Size	Raised Face Dia.	Fillet Radius (min)	Facing Dimensions					Groove Fillet Radius
			Ring Type Joint					
			Facing Dia	Depth of Groove	Pitch Dia.	Width of Groove	Ring No.	
	R	A	K	L	P	D	A	r
in. mm	in. mm	Radius in. mm	in. mm	in. mm	in. mm	in. mm	Ring no.	Radius in. mm
26.000	29,50	0,50	31,88	0,50	29,50	0,78	R93	0,06
660.4	749,3	12,7	809,8	12,7	49,3	19,8		1,5
28,00	31,50	0,50	33,88	0,50	31,50	0,78	R94	0,06
711,2	800,1	12,7	860,6	12,7	800,1	19,8		1,5
30,00	33,75	0,50	36,12	0,50	33,75	0,78	R95	0,06
762,0	857,3	12,7	917,4	12,7	857,3	19,8		1,5
32,00	36,00	0,50	38,75	0,56	36,00	0,91	R96	0,06
812,8	914,4	12,7	984,3	14,3	914,4	23,0		1,5
34,00	38,00	0,56	40,75	0,56	38,00	0,91	R97	0,06
863,6	965,2	14,2	1035,1	14,3	965,2	23,0		1,5
36,00	40,25	0,56	43,00	0,56	40,25	0,91	R98	0,06
914,4	1022,4	14,2	1092,2	14,3	1022,4	23,0		1,5
38,00	41,50	0,56	–	–	–	–	–	–
965,2	1054,1	14,2	–	–	–	–	–	–
40,00	43,75	0,56	–	–	–	–	–	–
1016,0	1111,3	14,2	–	–	–	–	–	–
42,00	46,00	0,56	–	–	–	–	–	–
1066,8	1168,4	14,2	–	–	–	–	–	–
44,00	48,25	0,56	–	–	–	–	–	–
1117,6	1225,6	14,2	–	–	–	–	–	–
46,00	50,25	0,56	–	–	–	–	–	–
1168,4	1276,4	14,2	–	–	–	–	–	–
48,00	52,50	0,56	–	–	–	–	–	–
1219,2	1333,5	14,2	–	–	–	–	–	–
50,00	54,50	0,56	–	–	–	–	–	–
1270,0	1384,3	14,2	–	–	–	–	–	–
52,00	56,50	0,56	–	–	–	–	–	–
1320,8	1435,1	14,2	–	–	–	–	–	–
54,00	58,75	0,56	–	–	–	–	–	–
1371,6	1492,3	14,2	–	–	–	–	–	–
56,00	60,75	0,62	–	–	–	–	–	–
1422,4	1543,1	15,7	–	–	–	–	–	–
58,00	63,00	0.62	–	–	–	–	–	–
1473,2	1600	15,7	–	–	–	–	–	–
60,00	65,25	0,62	–	–	–	–	–	–
1524,0	1657,4	15,7	–	–	–	–	–	–

900 LB/SQ.IN
WELDING NECK FLANGES



ASME B 16.47 SERIES A

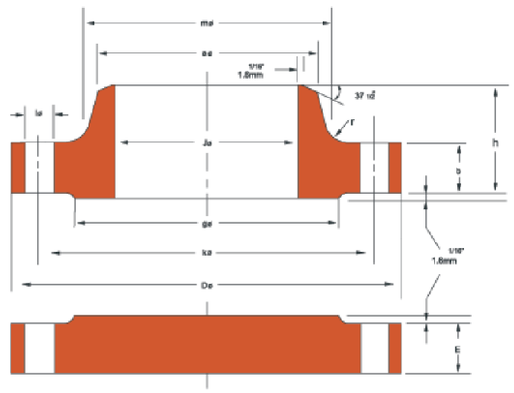
Pipe Size	Flange Dimensions				Dimen. of Hub	Drilling			Approx. Weight	
	OD of Flange	Thickness of Flange Weld-Neck	Thickness of Blind Flange	Length Thru Hub	OD Large End Hub	No. of Bolt Holes	Dia. of Bolt Holes	Dia. of Bolt Circle		
	O	C	E	Y	X					
in. mm	in. mm	in. mm	in. mm	in. mm	in. mm		in. mm	in.mm	Welding-Neck kg	Blind kg
26.000 660.4	42,75 1085,9	5,50 139,7	6,31 160,3	11,25 285,8	30,50 774,7	20	2,88 73,2	37,50 952,5	692	1060
28,00 711,2	46,00 1168,4	5,62 142,7	6,75 171,5	11,75 298,5	32,75 831,9	20	3,12 79,2	40,25 1022,4	822	1306
30,00 762,0	48,50 1231,9	5,88 149,4	7,18 182,4	12,25 311,2	35,00 889,0	20	3,12 79,2	42,75 1085,9	962	1565
32,00 812,8	51,75 1314,5	6,25 158,8	7,62 193,5	13,00 330,2	37,25 946,2	20	3,38 85,9	45,50 1155,7	1155	1885
34,00 863,6	55,00 1397,0	6,50 165,1	8,06 204,7	13,75 349,3	39,62 1006,3	20	3,62 91,9	48,25 1225,6	1348	2250
36,00 914,4	57,50 1460,5	6,75 171,5	8,44 214,4	14,25 362,0	41,88 1063,8	20	3,62 91,9	50,75 1289,1	1541	2595
38,00 965,2	57,50 1460,5	7,50 190,5	8,50 215,9	13,88 352,6	42,25 1073,2	20	3,62 91,9	50,75 1289,1	1537	2610
40,00 1016,0	59,50 1511,3	7,75 196,9	8,81 223,8	14,31 363,5	44,38 1127,3	24	3,62 91,9	52,75 1339,9	1643	2870
42,00 1066,8	61,50 1562,1	8,12 206,2	9,12 231,6	14,62 371,3	46,31 1176,3	24	3,62 91,9	54,75 1390,7	1798	3195
44,00 1117,6	64,88 1648,0	8,44 214,4	9,56 242,8	15,38 390,7	48,62 1234,9	24	3,88 98,6	57,62 1463,5	1952	3720
46,00 1168,4	68,25 1733,6	8,88 225,6	10,06 255,5	16,18 411,0	50,88 1292,4	24	4,12 104,6	60,50 1536,7	2107	4579
48,00 1219,2	70,25 1784,4	9,19 233,4	10,38 263,7	16,50 417,5	52,88 1343,2	32	4,12 104,6	62,50 1587,5	2260	4730



ASME B 16.47 SERIES A

Pipe Size	Raised Face Dia.	Fillet Radius (min)	Facing Dimensions					Groove Fillet Radius
			Ring Type Joint					
			Facing Dia	Depth of Groove	Pitch Dia.	Width of Groove	Ring No.	
	R	A	K	L	P	D	A	r
in. mm	in. mm	Radius in.mm	in. mm	in. mm	in. mm	in. mm	Ring no.	Radius in.mm
26.000	29,50	0,44	32,75	0,69	29,50	1,19	R100	0,09
660.4	749,3	11,2	831,9	17,5	749,3	30,2		2,3
28,00	31,50	0,50	35,00	0,69	31,50	1,31	R101	0,09
711,2	800,1	12,7	889,0	17,5	800,1	33,3		2,3
30,00	33,75	0,50	37,25	0,69	33,75	1,31	R102	0,09
762,0	857,3	12,7	946,2	17,5	857,3	33,3		2,3
32,00	36,00	0,50	39,50	0,69	36,00	1,31	R103	0,09
812,8	914,4	12,7	1003,3	17,5	914,4	33,3		2,3
34,00	38,00	0,56	42,00	0,81	38,00	1,44	R104	0,09
863,6	965,2	14,2	1066,8	20,6	965,2	36,5		2,3
36,00	40,25	0,56	44,25	0,81	40,25	1,44	R105	0,09
914,4	1022,4	14,2	1124,0	20,6	1022,4	36,5		2,3
38,00	43,25	0,75	–	–	–	–	–	–
965,2	1098	19,1	–	–	–	–	–	–
40,00	45,75	0,81	–	–	–	–	–	–
1016,0	1162,1	20,6	–	–	–	–	–	–
42,00	47,75	0,81	–	–	–	–	–	–
1066,8	1212,9	20,6	–	–	–	–	–	–
44,00	50,00	0,88	–	–	–	–	–	–
1117,6	1270,0	22,4	–	–	–	–	–	–
46,00	52,50	0,88	–	–	–	–	–	–
1168,4	1333,5	22,4	–	–	–	–	–	–
48,00	54,50	0,94	–	–	–	–	–	–
1219,2	1384,3	23,9	–	–	–	–	–	–

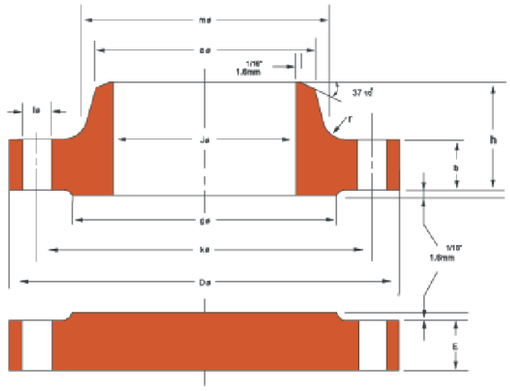
75 LB/SQ.IN
WELDING NECK & BLIND FLANGES



ASME B 16.47 SERIES B

Pipe		Flange Dimensions				Hub			Raised Face	Drilling Template			Approx Weight	Approx Weight
Nom. Size	OD	D	E	b	h	a	m	r	g		l	k		
DN	in.mm	in.mm	in.mm	in.mm	in.mm	in.mm	in.mm	in.mm	in.mm	Number	in.mm	in.mm	Weld-Necking Kg	Blind Kg
26"	26 660,4	30 762,0	1,31 33,3	1,25 31,7	2,25 57,1	26,06 661,9	26,62 676,1	0,31 7,9	27,75 704,9	36	0,75 19,1	28,5 723,9	40	116
28"	28 711,2	32 812,8	1,31 33,3	1,25 31,7	2,38 60,4	28,06 712,7	28,62 726,9	0,31 7,9	29,75 755,7	40	0,75 19,1	30,5 774,7	44	132
30"	30 762,0	34 863,6	1,31 33,3	1,25 31,7	2,5 63,4	30,06 763,5	30,62 777,7	0,31 7,9	31,75 806,5	44	0,75 19,1	32,5 825,5	48	150
32"	32 812,8	36 914,4	1,44 36,6	1,32 33,5	2,69 68,3	32,06 814,3	32,62 828,5	0,31 7,9	33,75 857,3	48	0,75 19,1	34,5 876,3	54	177
34"	34 863,6	38 965,2	1,50 38,1	1,32 33,5	2,82 71,6	34,06 865,1	34,62 879,2	0,31 7,9	35,75 908,1	52	0,75 19,1	36,5 927,1	59	196
36"	36 914,4	40,69 1033,5	1,67 42,4	1,38 35	3,32 84,3	36,06 915,9	36,81 935,0	0,38 9,7	38 965,2	40	0,88 22,4	39,06 992,1	78	236
38"	38 965,2	42,69 1084,3	1,75 44,5	1,44 36,5	3,44 87,3	38,06 966,7	38,81 985,8	0,38 9,7	40 1016,0	40	0,88 22,4	41,06 1042,9	85	271
40"	40 1016,0	44,69 1135,1	1,75 44,5	1,44 36,5	3,56 90,3	40,06 1017,5	40,81 1036,6	0,38 9,7	42 1066,8	44	0,88 22,4	43,06 1093,7	93	346
42"	42 1066,8	46,69 1185,9	1,88 47,8	1,5 38	3,69 93,7	42,06 1068,3	42,81 1087,4	0,38 9,7	44 1117,6	48	0,88 22,4	45,06 1144,5	100	407
44"	44 1117,6	49,25 1251,0	1,94 49,3	1,63 41,3	4,06 103	44,06 1119,1	44,88 1140,0	0,38 9,7	46,25 1174,8	36	1,00 25,4	47,38 1203,5	113	484
46"	46 1168,4	51,25 1301,8	2,00 50,8	1,69 42,9	4,19 106,4	46,06 1169,9	46,88 1190,8	0,38 9,7	48,25 1225,6	40	1,00 25,4	49,38 1254,3	127	539
48"	48 1219,2	53,25 1352,6	2,12 53,8	1,75 44,4	4,32 109,7	48,06 1220,7	48,88 1241,6	0,38 9,7	50,25 1275,4	44	1,00 25,4	51,38 1305,1	141	598
50"	50 1270,0	55,25 1403,4	2,18 55,4	1,82 46,2	4,5 114,2	50,06 1271,5	50,94 1293,9	0,38 9,7	52,25 1327,2	44	1,00 25,4	53,38 1355,9	153	684
52"	52 1320,8	57,38 1457,5	2,25 57,2	1,82 46,2	4,69 119,1	52,06 1322,3	52,94 1344,7	0,38 9,7	54,25 1378,0	48	1,00 25,4	55,50 1409,7	160	758
54"	24 1371,6	59,38 1508,3	2,38 60,5	1,88 47,7	4,88 123,9	54,06 1373,1	55,00 1397,0	0,38 9,7	56,25 1428,8	48	1,00 25,4	57,50 1460,5	177	837
56"	56 1422,4	62,00 1574,8	2,44 62,0	1,94 49,2	5,25 133,3	56,06 1423,9	57,12 1450,8	0,44 11,2	58,50 1485,9	40	1,12 28,4	59,88 1521,0	198	959
58"	58 1473,2	64,00 1625,6	2,50 63,5	2 50,7	5,38 136,6	58,06 1474,7	59,12 1501,6	0,44 11,2	60,50 1536,7	44	1,12 28,4	61,88 1571,8	218	1046
60"	60 1524,0	66,00 1676,4	2,62 66,5	2,13 54	5,63 142,9	60,06 1525,5	61,12 1552,4	0,44 11,2	62,50 1587,5	44	1,12 28,4	63,88 1622,6	245	1137

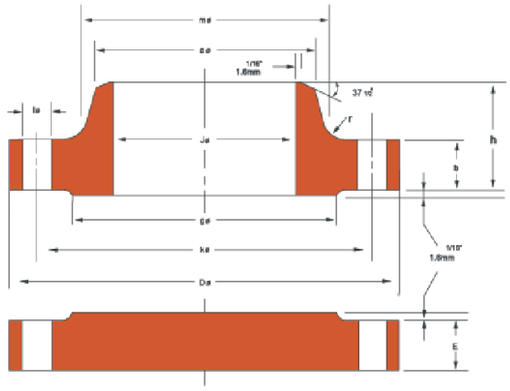
150 LB/SQ.IN
WELDING NECK & BLIND FLANGES



ASME B 16.47 SERIES B

Pipe		Flange Dimensions				Hub			Raised Face	Drilling Template			Approx Weight	Approx Weight
Nom. Size	OD	D	E	b	h	a	m	r	g		l	k		
DN	in.mm	in.mm	in.mm	in.mm	in.mm	in.mm	in.mm	in.mm	in.mm	Number	in.mm	in.mm	Weld-Necking Kg	Blind Kg
26"	26 660,4	30,94 785,9	1,75 44,5	1,56 39,5	3,44 87,3	26,06 661,9	26,94 684,3	0,38 9,7	28 711,2	36	0,88 22,4	29,31 744,5	63	165
28"	28 711,2	32,94 836,7	1,88 47,8	1,69 42,9	3,69 93,7	28,06 712,7	28,94 735,1	0,38 9,7	30 762,0	40	0,88 22,4	31,31 795,3	74	200
30"	30 762,0	34,94 887,5	2,00 50,8	1,69 42,9	3,88 98,5	30,06 763,5	31 787,4	0,38 9,7	32 812,8	44	0,88 22,4	33,31 846,1	80	226
32"	32 812,8	37,06 941,3	2,12 53,8	1,75 44,4	4,19 106,4	32,06 814,3	33,06 839,7	0,38 9,7	34 863,6	48	0,88 22,4	35,44 900,2	92	263
34"	34 863,6	39,56 1004,8	2,25 57,2	1,88 47,7	4,28 108,6	34,06 865,1	35,12 892,0	0,38 9,7	36,25 920,8	40	1,00 25,4	37,69 957,3	113	320
36"	36 914,4	41,62 1057,1	2,31 58,7	2 50,7	4,56 115,7	36,06 915,9	37,19 944,6	0,38 9,7	38,25 971,6	44	1,00 25,4	39,75 1009,7	129	374
38"	38 965,2	44,25 1124,0	2,50 63,5	2,06 52,2	4,82 122,4	38,12 968,2	39,25 997,0	0,38 9,7	40,25 1022,4	40	1,12 28,4	42,12 1069,8	150	434
40"	40 1016,0	46,25 1174,8	2,62 66,5	2,13 54	5 126,9	40,12 1019,0	41,31 1049,3	0,38 9,7	42,5 1079,5	44	1,12 28,4	44,12 1120,6	162	489
42"	42 1066,8	48,25 1225,6	2,69 68,3	2,25 57,1	5,19 131,8	42,12 1069,8	43,38 1101,9	0,44 11,2	44,5 1130,3	48	1,12 28,4	46,12 1171,4	184	560
44"	44 1117,6	50,25 1276,4	2,81 71,4	2,32 58,9	5,32 135,1	44,12 1120,6	45,38 1152,7	0,44 11,2	46,5 1181,1	52	1,12 28,4	48,12 1222,2	192	626
46"	46 1168,4	52,81 1341,4	2,94 74,7	2,38 60,4	5,63 142,9	46,12 1171,4	47,44 1205,0	0,44 11,2	48,62 1234,9	40	1,25 31,8	50,56 1284,2	224	709
48"	48 1219,2	54,81 1392,2	3,06 77,7	2,5 63,4	5,82 147,8	48,12 1222,2	49,5 1257,3	0,44 11,2	50,75 1289,1	44	1,25 31,8	52,56 1335,0	231	799
50"	50 1270,0	56,51 1435,4	3,18 80,8	2,63 66,7	6 152,3	50,12 1273,0	51,50 1308,1	0,44 11,2	52,75 1339,9	48	1,25 31,8	54,56 1385,8	263	899
52"	52 1320,8	58,81 1493,8	3,31 84,1	2,69 68,3	6,13 155,6	52,12 1323,8	53,56 1360,4	0,44 11,2	54,75 1390,7	52	1,25 31,8	56,56 1436,6	285	985
54"	24 1371,6	61,00 1549,4	3,44 87,4	2,75 69,8	6,32 160,5	54,12 1374,6	55,62 1412,7	0,44 11,2	56,75 1441,5	56	1,25 31,8	58,75 1492,3	287	1081
56"	56 1422,4	63,00 1600,2	3,56 90,4	2,82 71,6	6,5 165	56,12 1425,4	57,69 1465,3	0,56 14,2	58,75 1492,3	60	1,25 31,8	60,75 1543,1	323	1181
58"	58 1473,2	65,94 1674,9	3,68 93,5	2,88 73,1	6,82 173,2	58,12 1476,2	59,69 1516,1	0,56 14,2	60,75 1543,1	48	1,38 35,1	63,44 1611,4	384	1322
60"	60 1524,0	67,94 1725,7	3,81 96,8	2,94 74,6	7 177,7	60,12 1527,0	61,81 1570,0	0,56 14,2	63,00 1600,2	52	1,38 35,1	65,44 1662,2	388	1430

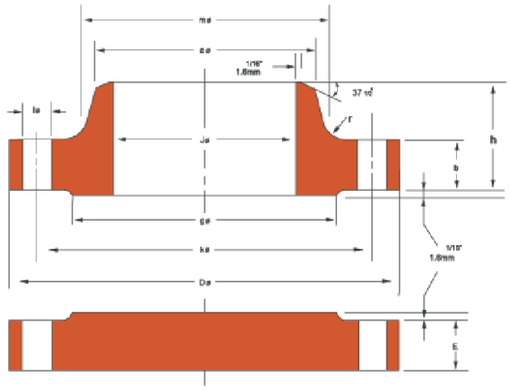
300 LB/SQ.IN
WELDING NECK & BLIND FLANGES



ASME B 16.47 SERIES B

Pipe		Flange Dimensions				Hub			Raised Face	Drilling Template			Approx Weight	Approx Weight
Nom. Size	OD	D	E	b	h	a	m	r	g		l	k		
DN	in.mm	in.mm	in.mm	in.mm	in.mm	in.mm	in.mm	in.mm	in.mm	Number	in.mm	in.mm	Weld-Necking Kg	Blind Kg
26"	26 660,4	34,12 866,6	3,50 88,9	3,44 87,3	5,63 142,9	26,19 665,2	27,62 701,5	0,56 14,2	29 736,6	32	1,38 35,1	31,62 803,1	181	404
28"	28 711,2	36,25 920,8	3,50 88,9	3,44 97,3	5,82 147,8	28,19 716,0	29,75 755,7	0,56 14,2	31 787,4	36	1,38 35,1	33,75 857,3	203	457
30"	30 762,0	39 990,6	3,69 93,7	3,63 92,1	6,16 156,4	30,25 768,4	32 812,8	0,56 14,2	33,25 844,6	36	1,50 38.1	36,25 920,8	268	555
32"	32 812,8	41,5 1054,1	4,06 103,1	4 101,5	6,56 166,5	32,25 819,2	34 863,6	0,62 15,7	35,5 901,7	32	1,62 41,1	38,5 977,9	330	693
34"	34 863,6	43,62 1107,9	4,06 103,1	4 101,5	6,75 171,4	34,25 870,0	36,12 917,4	0,62 15,7	37,5 952,5	36	1,62 41,1	40,62 1031,7	357	765
36"	36 914,4	46,12 1171,4	4,06 103,1	4 101,5	7,06 179,2	36,25 920,8	38 965,2	0,62 15,7	39,75 1009,7	32	1,75 44,5	42,88 1089,2	405	858
38"	38 965,2	48,12 1222,2	4,38 111,3	4,32 109,7	7,5 190,4	38,25 971,6	40,00 1016,0	0,62 15,7	41,75 1060,5	36	1,75 44,5	44,88 1140,0	416	1005
40"	40 1016,0	50,12 1273,0	4,56 115,8	4,5 114,2	7,75 196,8	40,25 1022,4	42 1066,8	0,62 15,7	43,88 1114,6	40	1,75 44,5	46,88 1190,8	450	1132
42"	42 1066,8	52,5 1333,5	4,69 119,1	4,63 117,5	8 203,1	42,31 1074,7	44 1117,6	0,62 15,7	46 1168,4	36	1,88 47,8	49 1244,6	502	1280
44"	44 1117,6	54,5 1384,3	5 127,0	4,94 125,4	8,38 212,8	44,31 1125,5	46,19 1173,2	0,62 15,7	48 1219,2	40	1,88 47,8	51 1295,4	552	1466
46"	46 1168,4	57,5 1460,5	5,12 130,1	5 126,9	8,69 220,7	46,31 1176,3	48,38 1228,9	0,62 15,7	50 1270,0	36	2,00 50,8	53,75 1365,3	650	1657
48"	48 1219,2	59,5 1511,3	5,31 134,9	5 126,9	8,75 222,2	48,31 1227,1	50,31 1227,9	0,62 15,7	52,25 1327,2	40	2,00 50,8	57,75 1416,1	731	1772
50"	50 1270,0	61,50 1562,1	5,50 139,7	5,38 136,6	9,19 233,4	50,31 1277,9	52,38 1330,5	0,62 15,7	54,25 1378,0	44	2,00 50,8	57,75 1466,9	760	2029
52"	52 1320,8	63,50 1612,9	5,68 144,3	5,56 141,1	9,5 241,2	52,31 1328,7	54,44 1328,8	0,62 15,7	56,25 1428,8	48	2,00 58,8	59,75 1517,7	800	2230
54"	24 1371,6	65,88 1673,4	5,88 149,4	5,32 135,1	9,38 238,2	54,31 1379,5	56,50 1435,1	0,62 15,7	58,25 1479,6	48	2,00 50,8	62,12 1577,8	898	2310
56"	56 1422,4	69,50 1765,3	6,18 157,0	6 152,3	10,5 266,6	56,31 1430,3	58,81 1493,8	0,69 17,5	60,50 1536,	36	2,38 60,5	65,00 1651,0	1143	2891
58"	58 1473,2	71,94 1827,3	6,38 162,1	6 152,3	10,75 27,3	58,31 1481,1	60,94 1547,9	0,69 17,5	62,75 1593,9	40	2,38 60,5	67,44 1713,0	127	3093
60"	60 1524,0	73,94 1878,0	6,56 166,6	5,88 149,3	10,63 296,9	60,31 1531,9	62,94 1598,7	0,69 17,5	65,00 1651,0	40	2,38 60,5	69,44 1763,8	1311	3213

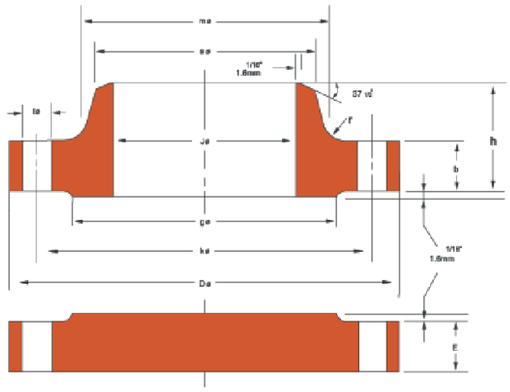
400 LB/SQ.IN
WELDING NECK & BLIND FLANGES



ASME B 16.47 SERIES B

Pipe		Flange Dimensions				Hub			Raised Face	Drilling Template			Approx Weight	Approx Weight
Nom. Size	OD	D	E	b	h	a	m	r	g		l	k		
DN	in.mm	in.mm	in.mm	in.mm	in.mm	in.mm	in.mm	in.mm	in.mm	Number	in.mm	in.mm	Weld-Necking Kg	Blind Kg
26"	26 660,4	33,5 850,9	3,5 88,9	3,5 88,9	5,88 149,4	26 660,4	27,12 688,8	0,44 11,2	28 711,2	28	1,5 38,1	30,75 781,1	176	398
28"	28 711,2	36 914,4	3,75 95,3	3,75 95,3	6,25 158,8	28 711,2	29,12 739,6	0,5 12,7	30 762,0	24	1,62 41,1	33 838,2	216	492
30"	30 762,0	38,25 971,6	4 101,6	4 101,6	6,99 177,5	30 762,0	31,25 793,8	0,5 12,7	32,25 819,2	28	1,62 41,1	35,25 895,4	253	592
32"	32 812,8	40,75 1035,1	4,25 108,0	4,25 108,0	7,06 179,3	32 812,8	33,25 844,6	0,5 12,7	34,38 973,3	28	1,75 44,5	37,5 952,5	300	714
34"	34 863,6	42,75 1085,9	4,38 111,3	4,38 111,3	7,38 187,5	34 863,6	35,38 898,7	0,56 14,2	36,5 927,1	32	1,75 44,5	39,5 1003,3	327	810
36"	36 914,4	45,5 1155,7	4,69 119,1	4,69 119,1	7,88 200,2	36 914,4	37,5 952,5	0,56 14,2	38,62 980,9	28	1,88 47,8	42 1066,8	402	982

600/900 LB/SQ.IN
WELDING NECK & BLIND FLANGES



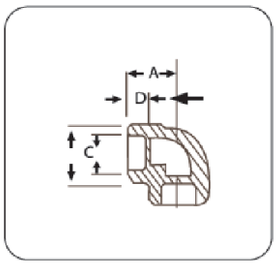
600# ASME B 16.47 SERIES B

Pipe		Flange Dimensions				Hub			Raised Face	Drilling Template			Approx Weight	Approx Weight
Nom. Size	OD	D	E	b	h	a	m	r	g		l	k		
DN	in.mm	in.mm	in.mm	in.mm	in.mm	in.mm	in.mm	in.mm	in.mm	Number	in.mm	in.mm	Weld-Necking Kg	Blind Kg
26"	26 660,4	35 889,0	4,38 111,3	4,38 111,3	7,12 180,8	26 660,4	27,12 688,8	0,5 12,7	28,62 726,6	28	1,75 44,5	31,75 806,5	267	534
28"	28 711,2	37,5 952,5	4,56 115,8	4,56 115,8	7,5 190,5	28 711,2	29,62 752,3	0,5 12,7	30.88 784,4	28	1,88 47,8	34 863,6	326	637
30"	30 762,0	49,25 1022,4	5 127,0	4,94 125,5	8,06 204,7	30 762,0	31,75 806,5	0,5 12,7	33,12 841,2	28	2,00 50,8	36,5 927,1	402	793
32"	32 812,8	42,75 1085,9	5,31 134,9	5,12 130,0	8,5 215,9	32 812,8	33,58 860,6	0,5 12,7	35,25 895,4	28	2,12 53,8	38,75 984,3	462	925
34"	34 863,6	45,75 1162,1	5,68 144,3	5,56 141,2	9,19 233,4	34 863,6	36 914,4	0,56 14,2	37,5 952,5	24	2,38 60,5	41,5 1054,1	582	1150
36"	36 914,4	47,75 1212,9	5,94 150,9	5,75 146,1	9,56 242,8	36 914,4	38,12 968,2	0,56 14,2	39,75 1009,7	28	2,38 60,5	43,5 1104,9	627	1290

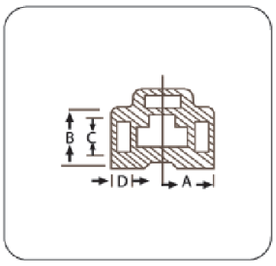
900# ASME B 16.47 SERIES B

Pipe		Flange Dimensions				Hub			Raised Face	Drilling Template			Approx Weight	Approx Weight
Nom. Size	OD	D	E	b	h	a	m	r	g		l	k		
DN	in.mm	in.mm	in.mm	in.mm	in.mm	in.mm	in.mm	in.mm	in.mm	Number	in.mm	in.mm	Weld-Necking Kg	Blind Kg
26"	26 660,4	40,25 1022,4	6,06 153,9	5,31 134,9	10,19 258,8	26 660,4	29,25 743,0	0,44 11,2	30 762,0	20	2,62 66,5	35,5 901,7	564	993
28"	28 711,2	43,5 1104,9	6,56 166,6	5,81 147,6	10,88 276,4	28 711,2	31,38 797,1	0,5 12,7	32,25 819,2	20	2,88 73,2	38,25 971,6	706	1256
30"	30 762,0	46,5 1181,1	6,93 176,0	6,12 155,4	11,38 289,1	30 762,0	33,5 850,9	0,5 12,7	34,5 876,3	20	3,12 79,2	40,75 1035,1	833	1516
32"	32 812,8	48,75 1238,3	7,31 185,7	6,31 160,3	11,94 303,3	32 812,8	35,75 908,1	0,5 12,7	36,5 927,1	20	3,12 79,2	43 1092,2	919	1757
34"	34 863,6	51,75 1314,5	7,68 195,1	6,75 171,5	12,56 319,0	34 863,6	37,88 962,2	0,56 14,2	39 990,6	20	3,38 85,9	45,5 1155,7	1105	2080
36"	36 914,4	53 1346,2	7,94 201,7	6,81 173,0	12,81 325,4	36 914,4	40 1016,0	0,56 14,2	40,5 1028,7	24	3,12 79,2	47,25 1200,2	1124	2256

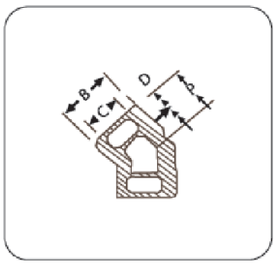
SOCKETWELD FITTINGS



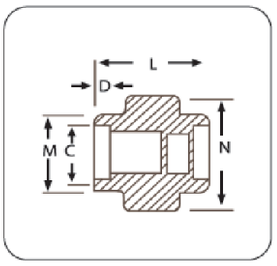
90 ELBOW



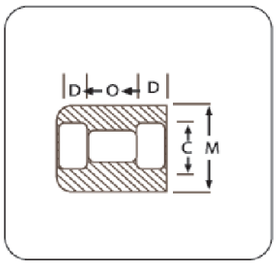
TEE



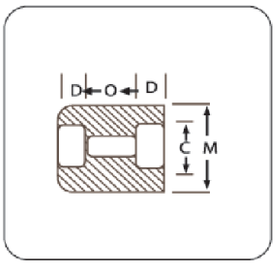
45 ELBOW



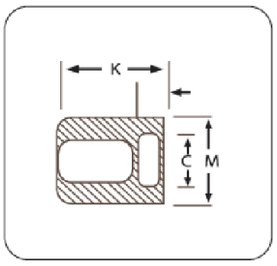
UNION



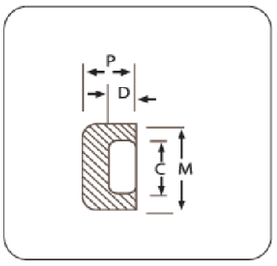
COUPLING



REDUCER



HALF COUPLING



PIPE CAP

Standard Dimensions

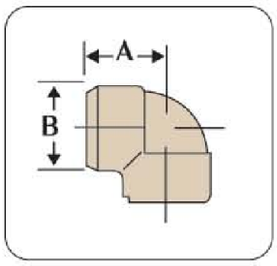
NOM		3000 LBS.							COMMON FACTORS						6000 LBS.				
Bore	O.D.	A max.	B max.	K	J	L	M	N	P	Q	C min.	D min.	O max.	O max.	A	B	M	K	N
1/8"	10.3	22	18.5	26	16	40	17.3	32	15	10	10.7	10	5	8	22	22	20	25	46
1/4"	13.7	22	22	26	18	43	21.2	32	15	10	14.1	10	5	8	27	25	24	25	51
3/8"	17.2	25	25	26	19	48	25.4	36	16.5	10	17.6	10	3	9	27	28	28	26	60
1/2"	21.3	27	32	30	21	51	31	41	16.5	10	21.7	10	6	13	31	34	34	31	72
3/4"	26.7	34	38	36	24	57	37	50	19.5	13	27	13	6	13	37	42	41	35	80
1"	33.4	37	46	40	25	65	45.2	60	22.5	13	33.8	13	9	17	42	50	50	40	94
1 1/4"	42.2	42	56	40	29	70	55	70	22.5	13	42.6	13	9	17	47	59	58	41	100
1 1/2"	48.3	47	62	40	30	79	61.4	78	24	13	48.7	13	9	17	53	67	66	43	122
2"	60.3	56	75	52	37	89	75	95	29	13	61.2	16	15	23	29	84	83	55	-
2 1/2"	73.02	60	92	52	48	114	91.3	125	32	16	73.8	16	14	24	-	102	-	56	-
3"	89.00	76	110	52	51	127	108.8	140	35	16	89.8	16	14	24	-	121	-	58	-
4"	114.50	88	137	58	-	150	136.9	-	32	16	115.5	19	14	24	-	152	-	64	-

THREADED FITTINGS

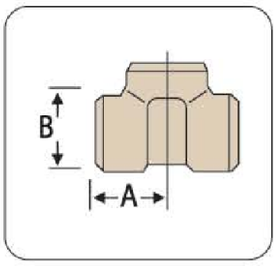
Standard Dimensions

Nominal Pipe Size		Inch	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
		mm	3.2	6.4	9.5	12.7	19.0	25.4	31.7	38.1	50.8	63.5	76.2	101.6
	A	mm	25.4	25.4	28.6	35.0	38.1	44.4	47.6	50.8	63.5	63.5	69.9	76.2
Centre to Face	B	mm	20.6	20.6	24.6	28.6	33.3	38.1	44.4	50.8	60.3	76.2	85.7	106.3
Cap Length	C	mm	17.46	17.46	19.05	22.23	25.4	26.99	30.16	31.75	38.10	38.10	44.45	47.63
Out Side	D	mm	19.0	22.2	25.4	31.7	38.1	44.5	57.2	63.5	76.2	92.1	108.0	139.7
Diameter	E	mm	22.2	22.2	25.4	33.3	38.1	46.02	55.5	62.0	75.4	92.0	109.5	146.0
Socket Bore	F	mm	10.7	14.1	17.5	21.7	27.0	33.8	42.5	48.0	61.1	74.0	89.8	115.4
	MIN	mm	9.5	9.5	9.5	9.5	12.7	12.7	12.7	12.7	15.9	15.9	15.9	19.0
Depth of Socket	G MAX	mm	9.5	9.5	11.1	12.7	14.3	15.9	17.5	19.0	22.2	22.2	25.4	28.6
	H MAX	mm	9.5	9.5	11.1	12.7	14.3	15.9	17.5	19.0	22.2	28.6	35.0	39.7
Centre of Socket	J	mm	11.1	11.1	13.5	15.8	19.0	22.2	27.0	31.7	38.1	41.2	57.1	66.6
Back face	K	mm	8.0	8.0	8.0	11.1	12.7	14.3	17.4	20.6	25.4	28.6	31.7	41.2
Centre to face	L	mm	17.46	19.0	19.0	22.2	25.4	28.6	33.3	35.0	42.8	52.4	63.5	79.3
Wall Thikness min.		mm	30.18	3.30	3.51	4.09	4.27	4.98	5.28	5.54	6.05	7.65	8.31	9.35
		mm	6.45	8.86	12.14	15.42	20.55	26.26	34.67	40.51	52.12	61.95	77.17	101.50

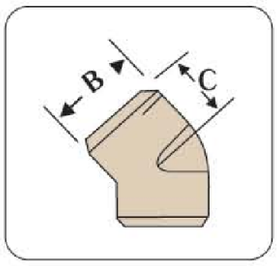
Nominal Pipe Size		Inch	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
		mm	3.2	6.4	9.5	12.7	19.0	25.4	31.7	38.1	50.8	63.5	76.2	101.6
	A	mm	31.7	35.0	38.1	47.6	50.8	60.3	66.7	79.4	85.7	92.1	108.0	120.7
Centre to Face	B	mm	15.9	17.5	19.0	23.8	25.4	30.2	33.3	39.7	42.9	46.0	54.0	60.3
Cap Length	C	mm	19.0	25.4	25.4	31.7	36.5	41.3	44.5	44.5	47.6	60.3	65.1	68.3
Out Side	D	mm	20.6	24.6	28.6	33.3	38.1	44.4	50.8	60.3	63.5	82.5	95.2	14.3
Diameter	E	mm	15.9	19.0	22.2	28.6	35.0	44.5	57.2	63.5	76.2	92.1	108.0	139.7
Socket Bore	F	mm	22.2	25.4	33.3	38.1	46.0	55.5	62.0	75.4	84.1	101.6	120.6	152.4
	G	mm	6.35	8.13	9.14	10.92	12.70	14.73	17.02	17.78	19.05	23.67	25.81	27.79
Depth of Socket	H	mm	17.5	19.0	22.2	25.4	28.6	33.3	35.0	42.8	43.6	52.4	63.5	79.3



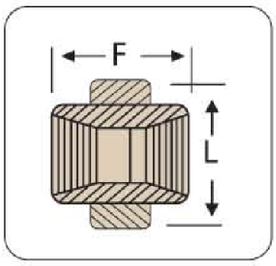
90 ELBOW



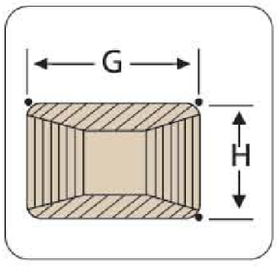
TEE



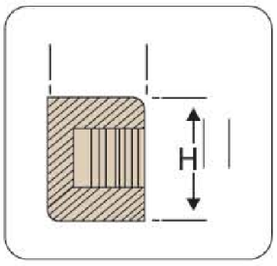
45 ELBOW



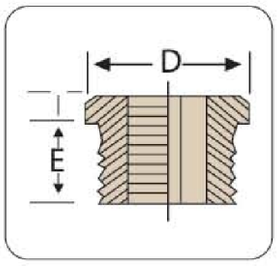
UNION



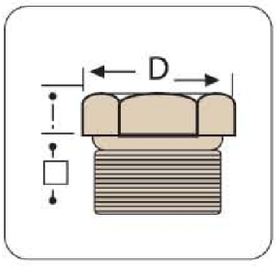
COUPLING



REDUCER



PLUG



HEX PLUG

	NOM	3000 LBS.						COMMON FACTORS						6000 LBS.					
Bore	O.D.	A	B	C	G	H	K	D	E	F	I	J	L	A	B	C	G	H	K
1/8"	10.3	21	22	17	32	16	19	1	10	40	-	6	-	25	25	19	32	22	-
1/4"	13.7	25	25	19	35	19	25	16	1	43	3	6	32	29	33	22	35	25	27
3/8"	17.2	29	33	22	38	22	25	17.5	13	48	4	8	38	33	38	25	38	32	27
1/2"	21.3	33	38	25	48	29	32	22	15	51	5	8	46	38	46	29	48	38	33
3/4"	26.7	38	46	29	51	35	37	27	16	57	6	10	51	44	56	33	51	44	38
1"	33.4	44	56	33	60	44	41	35	19	64	6	10	60	51	62	35	60	57	43
1 1/4"	42.2	51	62	35	67	57	44	44.5	21	70	7	14	72	60	75	43	67	64	46
1 1/2"	48.3	60	75	43	79	64	44	51	21	79	8	16	80	64	84	44	79	76	48
2"	60.3	64	84	45	86	76	48	63.5	22	88	9	17	94	83	102	52	86	92	51
2 1/2"	73.02	83	102	52	92	92	60	76	27	118	10	21	122	95	121	64	92	108	64
3"	89.00	95	121	64	108	108	65	89	29	121	10	65	140	106	146	79	108	127	68
4"	114.50	114	152	79	140	140	68	117.5	32	150	13	25	180	114	152	79	121	159	75

BUTTWELD FITTINGS

MATERIAL & SPECIFICATION

1) Stainless Steel Pipe Fitting Specification:

ASTM A 403 & A182 - SMO6-254, 904L, 317L, 304L, 316L, 321H, 347H.

2) Duplex Pipe Fitting Specification:

Duplex SS BE.03 - ASTM A790, A815 - S318031 WP410, ASTM A744, A790 with UNS S31200, S31260, S3204, S32550, S32750, S32760.

3) Carbon Steel Pipe Fitting (IBR & Non IBR) Specification:

A234 - WPA, WPB, WPC & ASTM A105.

4) Alloy Steel Pipe Fitting Specification:

ASTM A335, A234, A182 - WP1 WP 51 / WP 91 / WP 12 / WP 22 / WP 91.

5) Inconel & Monel Pipe Fitting Specification:

Inconel 600 / 601 / 625 - SB 366, ASTM B 366 WPNC, Monel - 400.

6) Cupro Nickel Pipe Fitting Specification:

90 / 10 CuNi UNS C 70600, 70 /30 CuNi UNS C 71500.

7) Titanium Pipe Fitting Specification:

Titanium Commercially Pure Grade 1 & 2, confirming to ASTM B - 337 Gr.2 / ASTM B - 265 Gr.2 / ASTM B - 363 Gr. WPT2.

Product Range :

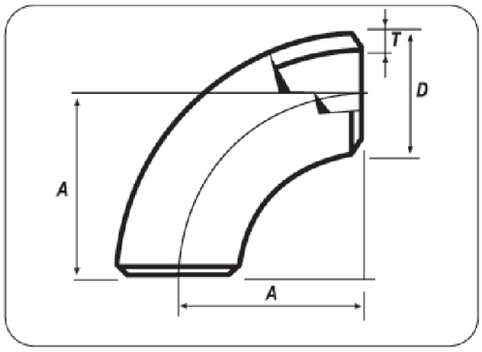
Pipe, Pipes fitting like Elbow, Tee, Reducer, Stubend, Collar, Cap & Flange.

90° ELBOWS
LONG RADIUS

Øn	Øe		SCH STD		SCH X S		SCH XXS		SCH 10		SCH 20		SCH 30	
Nominal	Outside	Center	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight
Pipe Size	Diameter	to End	Thickness		Thickness		Thickness		Thickness		Thickness		Thickness	
in.	m/m	m/m		Kg		Kg		Kg		Kg		Kg		Kg
			m/m		m/m		m/m		m/m		m/m		m/m	
	D	A	T		T		T		T		T		T	
1/2"	21	38	2.77	0.07	3.73	0.09	7.47	0.18						
3/4"	27	29	2.87	0.08	3.91	0.10	7.82	0.21						
1"	33	38	3.38	0.15	4.55	0.19	9.09	0.30						
1 1/4"	42	48	3.56	0.27	4.85	0.36	9.70	0.5						
1 1/2"	48	57	3.68	0.40	5.08	0.53	10.16	0.80						
2 "	60	76	3.91	0.67	5.54	0.90	11.07	1.65						
2 1/2"	73	95	5.16	1.30	7.01	1.68	14.02	3.20						
3"	89	114	5.49	2.08	7.62	2.65	15.24	5.10						
3 1/2 "	102	133	5.74	2.92	8.08	3.96								
4"	114	152	6.02	3.95	8.56	5.40	17.12	10.40						
5"	141	190	6.55	6.67	9.53	9.34	19.05	17.24						
6"	168	229	7.11	10.40	10.97	15.50	21.95	31.80						
8"	219	305	8.18	20.90	12.70	31.30	22.22	55.00			6.35	16.65	7.04	13.50
10"	273	381	9.27	37.00	12.70	49.40	25.40	98.65			6.35	26.20	7.80	32.00
12"	324	457	9.53	54.00	12.70	71.20	25.40	140.00			6.35	37.50	8.38	49.00
14"	356	533	9.53	69.30	12.70	91.50			6.35	48.00	7.92	59.60	9.53	69.70
16"	406	610	9.53	91.20	12.70	120.00			6.35	62.70	7.92	78.30	9.53	91.30
18"	457	686	9.53	116.00	12.70	153.00			6.35	79.40	7.92	99.20	11.13	138.30
20"	508	762	9.53	143.30	12.70	190.30			6.35	98.50	9.53	143.60	12.70	190.00
22"	559	838	9.53	174.50	12.70	230.50			6.35	119.60	9.53	174.30	12.70	230.20
24"	610	914	9.53	207.00	12.70	274.50			6.35	142.00	9.53	207.50	14.27	315.00

photograph of a 90 degree elblow long radius

sample drawing of a 90 degree elbow long radius



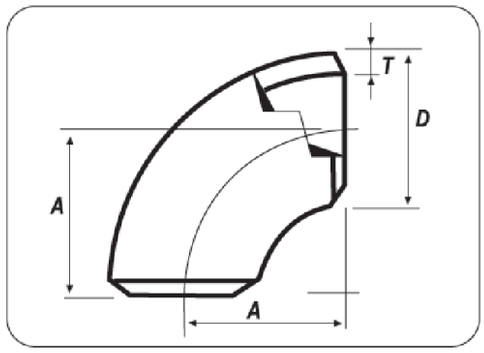
SCH 40		SCH 60		SCH 80		SCH 100		SCH 120		SCH 140		SCH 160		Øn
Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Nominal Pipe Size
	Kg		Kg		Kg		Kg		Kg		Kg		Kg	in.
m/m		m/m		m/m		m/m		m/m		m/m		m/m		
T		T		T		T		T		T		T		
2.77	0.07			3.73	0.09							4.78	0.11	1/2"
2.87	0.08			3.91	0.1							5.56	0.13	3/4"
3.38	0.15			4.55	0.19							6.35	0.24	1"
3.56	0.27			4.85	0.36							6.35	0.40	1 1/4"
3.68	0.4			5.08	0.53							7.14	0.70	1 1/2"
3.91	0.67			5.54	0.90							8.74	1.50	2 "
5.16	1.30			7.01	1.68							9.53	2.27	2 1/2"
5.49	2.08			7.62	2.65							11.13	4.10	3"
5.74	2.92			8.08	3.96									3 1/2 "
6.02	3.95			8.56	5.40			11.13	7.20			13.49	8.60	4"
6.55	6.67			9.53	9.34			12.70	12.70			15.88	15.47	5"
7.11	10.40			10.97	15.50			14.27	21.10			18.26	28.00	6"
8.18	20.90	10.31	26.50	12.70	31.30	15.09	38.90	18.26	46.05	20.62	51.47	23.01	56.72	8"
9.27	37.00	12.70	49.40	15.09	60.30	18.26	72.70	21.44	84.55	25.40	98.65	28.58	109.70	10"
10.31	60.00	14.27	82.20	17.48	99.40	21.44	121.00	25.40	140.00	28.58	161.30	33.32	182.42	12"
11.13	83.10	15.09	111.50	19.05	138.70	23.83	172.00	27.79	197.60	31.75	223.00	35.71	246.50	14"
12.70	120.00	16.66	161.30	21.44	204.00	26.19	246.50	30.96	227.50	36.53	334.00	40.49	365.90	16"
14.27	176.00	19.05	232.60	23.83	287.60	29.39	350.50	34.93	412.00	39.67	460.50	45.29	519.00	18"
15.09	229.80	20.62	311.00	26.19	391.00	32.54	478.00	38.10	554.60	44.45	638.30	50.01	716.00	20"
		22.22	406.30	28.58	516.40	34.92	623.00	41.28	728.00	47.63	828.70	53.98	838.00	22"
17.48	384.00	24.61	535.00	30.96	664.50	38.89	825.00	46.02	964.00	52.37	1100.00	59.54	1250.00	24"

90° ELBOWS
SHORT RADIUS

Øn	Øe		SCH STD		SCH X S		SCH XXS		SCH 10		SCH 20		SCH 30	
Nominal	Outside	Center	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight
Pipe Size	Diameter	to End	Thickness		Thickness		Thickness		Thickness		Thickness		Thickness	
in.	m/m	m/m		Kg		Kg		Kg		Kg		Kg		Kg
			m/m		m/m		m/m		m/m		m/m		m/m	
	D	A	T		T		T		T		T		T	
1"	33	25	3.38	0.10	4.55	0.13	9.09	0.19						
1 1/4"	42	32	3.56	0.18	4.85	0.24	9.70	0.43						
1 1/2"	48	38	3.68	0.25	5.08	0.34	10.16	0.55						
2 "	60	51	3.91	0.44	5.54	0.62	11.07	1.10						
2 1/2"	73	64	5.16	0.86	7.01	1.14	14.02	1.90						
3"	89	76	5.49	1.38	7.62	1.85	15.24	3.40						
3 1/2 "	102	89	5.74	1.92	8.08	2.60								
4"	114	102	6.02	2.60	8.56	3.60	17.12	6.60						
5"	141	127	6.55	4.40	9.53	6.20	19.05	13.53						
6"	168	152	7.11	6.85	10.97	10.30	21.95	21.33						
8"	219	203	8.18	13.70	12.70	20.60	22.22	39.50			6.35	11.20	7.04	12.30
10"	273	254	9.27	24.50	12.70	32.80	25.40	75.60			6.35	17.50	7.80	21.30
12"	324	305	9.53	36.00	12.70	47.00	25.40	87.60			6.35	25.00	8.38	32.80
14"	356	356	9.53	46.20	12.70	61.20			6.35	32.00	7.92	39.80	9.53	46.20
16"	406	406	9.53	61.00	12.70	80.10			6.35	42.00	7.92	52.20	9.53	61.00
18"	457	457	9.53	77.50	12.70	102.00			6.35	53.20	7.92	66.20	11.13	92.20
20"	508	508	9.53	96.00	12.70	126.30			6.35	65.50	9.53	96.00	12.70	126.00
22"	559	559	9.53	117.50	12.70	154.00			6.35	79.80	9.53	117.50	12.70	154.00
24"	610	610	9.53	138.50	12.70	183.50			6.35	95.00	9.53	138.60	14.27	210.30

photograph of a 90 degree elbow short radius

sample drawing of a 90 degree elbow short radius



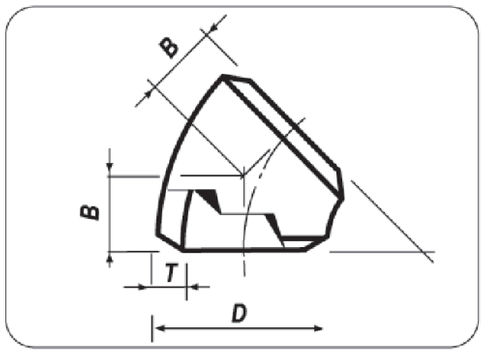
SCH 40		SCH 60		SCH 80		SCH 100		SCH 120		SCH 140		SCH 160		Øn
Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Nominal Pipe Size
	Kg		Kg		Kg		Kg		Kg		Kg		Kg	in.
m/m		m/m		m/m		m/m		m/m		m/m		m/m		
T		T		T		T		T		T		T		
3.38	0.01			4.55	0.13							6.35	0.15	1"
3.56	0.18			4.85	0.24							6.35	0.31	1 1/4"
3.68	0.25			5.08	0.34							7.14	0.43	1 1/2"
3.91	0.44			5.54	0.62							8.74	0.92	2 "
5.16	0.86			7.01	1.14							9.53	1.38	2 1/2"
5.49	1.38			7.62	1.85							11.13	2.60	3"
5.74	1.92			8.08	2.60									3 1/2 "
6.02	2.60			8.56	3.60			11.13	4.50			13.49	5.35	4"
6.55	4.40			9.53	6.20			12.70	9.10			15.88	11.40	5"
7.11	6.85			10.97	10.30			14.27	14.60			18.26	18.20	6"
8.18	13.70	10.31	18.00	12.70	20.60	15.09	25.50	18.26	33.50	20.62	36.80	23.01	40.57	8"
9.27	24.50	12.70	32.90	15.09	40.20	18.26	47.90	21.44	64.80	25.40	75.60	28.58	83.95	10"
10.31	40.00	14.27	54.90	17.48	66.20	21.44	80.10	25.40	87.60	28.58	93.70	33.32	111.82	12"
11.13	55.40	15.09	74.40	19.05	92.70	23.83	114.30	27.79	130.00	31.75	146.50	35.71	162.00	14"
12.70	80.10	16.66	107.50	21.44	136.00	26.19	164.50	30.96	190.30	36.53	221.80	40.49	242.50	16"
14.27	117.50	19.05	155.20	23.83	191.60	29.39	233.50	34.93	272.50	39.67	306.00	45.24	344.50	18"
15.09	153.40	20.62	207.30	26.19	260.70	32.54	319.30	38.10	368.00	44.45	422.90	50.01	476.00	20"
		22.22	270.80	28.58	344.20	34.92	415.40	41.28	485.00	47.63	552.00	53.98	625.00	22"
17.48	256.00	24.61	356.50	30.96	444.00	38.89	550.00	46.02	641.50	52.37	732.50	59.54	833.00	24"

45° ELBOWS

Øn	Øe		SCH STD		SCH X S		SCH XXS		SCH 10		SCH 20		SCH 30	
Nominal	Outside	Center	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight
Pipe Size	Diameter	to End	Thickness		Thickness		Thickness		Thickness		Thickness		Thickness	
in.	m/m	m/m		Kg		Kg		Kg		Kg		Kg		Kg
			m/m		m/m		m/m		m/m		m/m		m/m	
	D	A	T		T		T		T		T		T	
1/2"	21	16	2.77	0.03	3.73	0.04	7.47	0.08						
3/4"	27	11	2.87	0.04	3.91	0.05	7.82	0.10						
1"	33	22	3.38	0.07	4.55	0.09	9.09	0.14						
1 1/4"	42	25	3.56	0.13	4.85	0.17	9.70	0.24						
1 1/2"	48	29	3.68	0.19	5.08	0.25	10.16	0.37						
2 "	60	35	3.91	0.32	5.54	0.40	11.07	0.78						
2 1/2"	73	44	5.16	0.60	7.01	0.80	14.02	1.50						
3"	89	51	5.49	0.97	7.62	1.25	15.24	2.47						
3 1/2 "	102	57	5.74	1.35	8.08	1.86								
4"	114	64	6.02	1.95	8.56	2.66	17.12	5.05						
5"	141	79	6.55	3.31	9.53	4.63	19.05	8.40						
6"	168	95	7.11	5.31	10.97	7.57	21.95	15.40						
8"	219	127	8.18	10.30	12.70	15.40	22.22	26.60			6.35	8.20	7.04	9.10
10"	273	159	9.27	18.30	12.70	24.40	25.40	47.90			6.35	13.20	7.80	15.90
12"	324	190	9.53	27.00	12.70	35.50	25.40	68.60			6.35	18.80	8.38	24.60
14"	356	222	9.53	34.50	12.70	45.40			6.35	24.00	7.92	29.80	9.53	34.50
16"	406	254	9.53	44.10	12.70	59.30			6.35	31.20	7.92	39.00	9.53	45.20
18"	457	286	9.53	57.50	12.70	76.00			6.35	39.50	7.92	49.30	11.13	69.20
20"	508	318	9.53	71.00	12.70	94.00			6.35	49.50	9.53	71.50	12.70	94.00
22"	559	343	9.53	86.50	12.70	114.30			6.35	59.50	9.53	87.00	12.70	114.50
24"	610	381	9.53	103.00	12.70	137.00			6.35	71.00	9.53	103.60	14.27	157.50

photograph of a 45 degree elblow

sample drawing of a 45 degree elbow



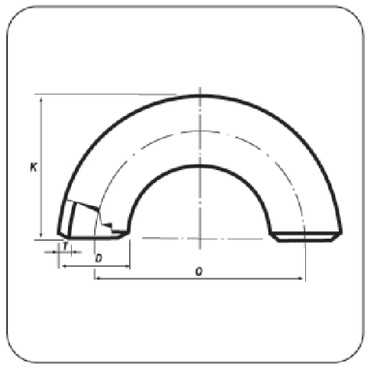
SCH 40		SCH 60		SCH 80		SCH 100		SCH 120		SCH 140		SCH 160		Øn
Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Nominal
Thickness		Thickness		Thickness		Thickness		Thickness		Thickness		Thickness		Pipe Size
	Kg		Kg		Kg		Kg		Kg		Kg		Kg	in.
m/m		m/m		m/m		m/m		m/m		m/m		m/m		
T		T		T		T		T		T		T		
2.77	0.03			3.73	0.04							4.78	0.05	1/2"
2.87	0.04			3.91	0.05							5.56	0.06	3/4"
3.38	0.07			4.55	0.09							6.35	0.11	1"
3.56	0.13			4.85	0.17							6.35	0.19	1 1/4"
3.68	0.19			5.08	0.25							7.14	0.33	1 1/2"
3.91	0.32			5.54	0.4							8.74	0.71	2 "
5.16	0.60			7.01	0.8							9.53	1.1	2 1/2"
5.49	0.97			7.62	1.25							11.13	1.8	3"
5.74	1.35			8.08	1.86									3 1/2 "
6.02	1.95			8.56	2.66			11.13	3.50			13.49	4.20	4"
6.55	3.31			9.53	4.63			12.70	6.15			15.88	7.46	5"
7.11	5.13			10.97	7.57			14.27	10.2			18.26	13.70	6"
8.18	10.30	10.31	13.30	12.70	15.40	15.09	19.10	18.26	22.60	20.62	23.43	23.01	24.80	8"
9.27	18.30	12.70	24.20	15.09	30.10	18.26	36.00	21.44	41.30	25.40	47.90	28.58	53.70	10"
10.31	30.00	14.27	41.10	17.48	49.70	21.44	60.50	25.40	68.60	28.58	79.10	33.32	90.00	12"
11.13	41.50	15.09	55.80	19.05	69.30	23.83	85.30	27.79	97.50	31.75	111.00	35.71	123.00	14"
12.70	59.30	16.66	80.50	21.44	102.00	26.19	123.50	30.96	143.50	36.53	167.00	40.49	183.00	16"
14.27	88.00	19.05	116.30	23.83	143.50	29.39	175.00	34.93	205.00	39.67	230.50	45.24	259.00	18"
15.09	114.50	20.62	155.30	26.19	195.20	32.54	329.40	38.10	277.00	44.45	318.50	50.01	357.50	20"
		22.22	203.00	28.58	258.00	34.92	311.50	41.28	363.00	47.63	414.00	53.98	469.00	22"
17.48	192.20	24.61	267.30	30.96	332.00	38.89	412.70	46.02	481.50	52.37	550.00	59.54	625.00	24"

180° RETURN
LONG RADIUS

Øn	Øe			SCH STD		SCH X S		SCH XXS		SCH 10		SCH 20		SCH 30	
Nominal	Outside	Center	Back to	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight
Pipe Size	Diameter	to center	Face	Thickness		Thickness		Thickness		Thickness		Thickness		Thickness	
in.	m/m	m/m	m/m		Kg		Kg		Kg		Kg		Kg		Kg
				m/m		m/m		m/m		m/m		m/m		m/m	
	D	O	K	T		T		T		T		T		T	
1/2"	21	76	48	2.77	0.15	3.73	0.18	7.47	0.37						
3/4"	27	57	43	2.87	0.16	3.91	0.20	7.82	0.43						
1"	33	76	56	3.38	0.31	4.55	0.38	9.09	0.62						
1 1/4"	42	95	70	3.56	0.55	4.85	0.73	9.70	1.00						
1 1/2"	48	114	83	3.68	0.81	5.08	1.07	10.16	1.61						
2 "	60	152	106	3.91	1.35	5.54	1.81	11.07	3.32						
2 1/2"	73	191	132	5.16	2.62	7.01	3.38	14.02	6.43						
3"	89	229	159	5.49	4.18	7.62	5.33	15.24	10.25						
3 1/2 "	102	267	184	5.74	5.87	8.08	7.96								
4"	114	305	210	6.02	7.94	8.56	10.85	17.12	20.90						
5"	141	381	262	6.55	13.40	9.53	18.76	19.05	34.64						
6"	168	457	313	7.11	20.90	10.97	31.14	21.95	63.90						
8"	219	610	414	8.18	42.00	12.70	62.88	22.22	110.50			6.35	33.45	7.04	27.20
10"	273	762	518	9.27	74.40	12.70	99.25	25.40	198.20			6.35	52.70	7.80	64.30
12"	324	914	619	9.53	108.50	12.70	143.05	25.40	281.30			6.35	75.40	8.38	98.40
14"	356	1067	711	9.53	139.30	12.70	183.84			6.35	96.44	7.92	119.80	9.53	140.10
16"	406	1219	813	9.53	183.20	12.70	241.10			6.35	125.98	7.92	157.30	9.53	183.40
18"	457	1372	914	9.53	233.10	12.70	307.40			6.35	159.53	7.92	199.30	11.13	277.90
20"	508	1524	1016	9.53	287.90	12.70	382.34			6.35	197.90	9.53	288.50	12.70	381.80
22"	559	1676	1118	9.53	350.60	12.70	463.10			6.35	240.30	9.53	350.27	12.70	462.50
24"	610	1829	1219	9.53	415.90	12.70	551.50			6.35	285.30	9.53	416.90	14.27	632.90

photograph of a 180 degree elbow long radius

sample drawing of a 180 degree return long radius



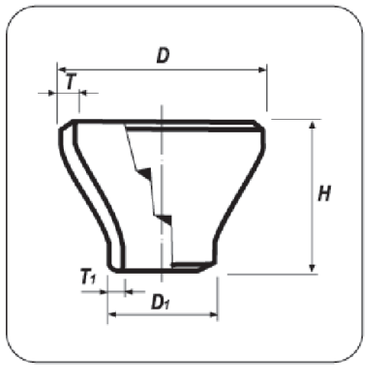
SCH 40		SCH 60		SCH 80		SCH 100		SCH 120		SCH 140		SCH 160		Øn
Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Nominal
Thickness		Thickness		Thickness		Thickness		Thickness		Thickness		Thickness		Pipe Size
	Kg		Kg		Kg		Kg		Kg		Kg		Kg	in.
m/m		m/m		m/m		m/m		m/m		m/m		m/m		
T		T		T		T		T		T		T		
2.77	0.15			3.73	0.18							4.78	0.22	1/2"
2.87	0.16			3.91	0.2							5.56	0.27	3/4"
3.38	0.31			4.55	0.38							6.35	0.49	1"
3.56	0.55			4.85	0.73							6.35	0.81	1 1/4"
3.68	0.81			5.08	1.07							7.14	1.41	1 1/2"
3.91	1.35			5.54	1.81							8.74	3.10	2 "
5.16	2.62			7.01	3.38							9.53	4.60	2 1/2"
5.49	4.18			7.62	5.33							11.13	8.30	3"
5.74	5.87			8.08	7.96									3 1/2 "
6.02	7.94			8.56	10.85			11.13	14.50			13.49	17.30	4"
6.55	13.40			9.53	18.76			12.70	25.50			15.88	31.10	5"
7.11	20.90			10.97	31.14			14.27	42.40			18.26	56.30	6"
8.18	42.00	10.31	53.30	12.70	62.88	15.09	78.20	18.26	92.60	20.62	103.40	23.01	114.00	8"
9.27	74.40	12.70	99.30	15.09	121.20	18.26	146.10	21.44	169.90	25.40	198.20	28.58	220.40	10"
10.31	120.60	14.27	165.20	17.48	199.70	21.44	243.10	25.40	281.30	28.58	324.10	33.32	366.50	12"
11.53	167.00	15.09	224.00	19.05	278.70	23.83	345.60	27.79	397.00	31.75	448.00	35.71	495.30	14"
12.70	241.10	16.66	324.10	21.44	409.90	26.19	495.30	30.96	457.10	36.53	671.00	40.49	735.20	16"
14.27	353.60	19.05	467.40	23.83	577.80	29.39	704.20	34.93	827.80	39.67	995.30	45.24	1042.80	18"
15.09	461.70	20.62	624.90	26.19	785.60	32.54	960.40	38.10	1114.30	44.45	1282.50	50.01	1438.60	20"
		22.22	816.40	28.58	1037.60	34.92	1251.70	41.28	1462.70	47.63	1665.00	53.96	1683.70	22"
17.48	771.50	24.61	1075.00	30.96	1335.00	38.89	1657.60	46.02	1937.00	52.37	2210.00	59.54	2511.00	24"

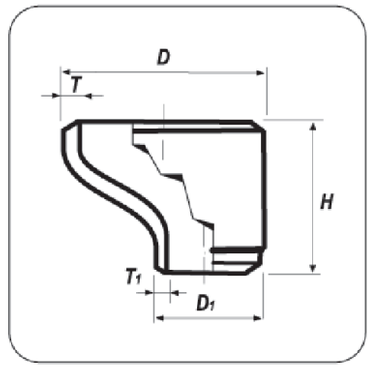
CONCENTRIC & ECCENTRIC REDUCERS

Øn	Øe		SCH STD		SCH X S		SCH XXS		SCH 10		SCH 20		SCH 30	
Nominal	Outside		Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight
Pipe Size	Diameter	Length	Thickness		Thickness		Thickness		Thickness		Thickness		Thickness	
in.	m/m	m/m		Kg		Kg		Kg		Kg		Kg		Kg
			m/m		m/m		m/m		m/m		m/m		m/m	
	D D1	H	T T1		T T1		T T1		T T1		T T		T T1	
3/4 X 1/2	26 X 21	38	2.87 X 2.77	0.04	3.91 X 3.73	0.06	7.82 X 7.47	0.10						
1 X 1/2	33 X 21	51	3.38 X 2.77	0.13	4.55 X 3.73	0.16	9.09 X 7.47	0.26						
X 3/4	X 27	51	X 2.87	0.12	X 3.91	0.15	X 7.82	0.25						
1 1/4 X 1/2	42 X 21	51	3.56 X 2.77	0.18	4.85 X 3.73	0.23	9.70 X 7.47	0.40						
X 3/4	X 27	51	X 2.87	0.17	X 3.91	0.22	X 7.82	0.39						
X 1	X 33	51	X 3.38	0.16	X 4.55	0.21	X 9.09	0.38						
1 1/2 X 1/2	48 X 21	64	3.68 X 2.77	0.28	5.08 X 3.73	0.37	10.16 X 7.47	0.65						
X 3/4	X 27	64	X 2.87	0.27	X 3.91	0.36	X 7.82	0.63						
X 1	X 33	64	X 3.38	0.26	X 4.55	0.34	X 9.09	0.60						
X 1 1/4	X 42	64	X 3.56	0.24	X 4.85	0.32	X 9.70	0.57						
2 X 1/2	60 X 21	76	3.91 X 2.77	0.42	5.54 X 3.73	0.58	11.07 X 7.47	1.03						
X 3/4	X 27	76	X 2.87	0.41	X 3.91	0.55	X 7.82	0.99						
X 1	X 33	76	X 3.38	0.40	X 4.55	0.54	X 9.09	0.97						
X 1 1/4	X 42	76	X 3.56	0.37	X 4.85	0.51	X 9.70	0.92						
X 1 1/2	X 48	76	X 3.68	0.37	X 5.08	0.51	X 10.16	0.92						
2 1/2 X 1	73 X 33	89	5.16 X 3.38	0.76	7.01 X 4.55	0.99	14.02 X 9.09	1.78						
X 1 1/4	X 42	89	X 3.56	0.74	X 4.85	0.95	X 9.70	1.70						
X 1 1/2	X 48	89	X 3.68	0.71	X 5.08	0.92	X 10.16	1.65						
X 2	X 60	89	X 3.91	0.70	X 5.54	0.89	X 11.07	1.6						
3 X 1	89 X 33	89	5.49 X 3.38	0.99	7.62 X 4.55	1.34	15.24 X 9.09	2.91						
X 1 1/4	X 42	89	X 3.56	0.96	X 4.85	1.3	X 9.70	2.35						
X 1 1/2	X 48	89	X 3.68	0.92	X 5.08	1.24	X 10.16	2.26						
X 2	X 60	89	X 3.91	0.89	X 5.54	1.21	X 11.07	2.19						
X 2 1/2	X 73	89	X 5.16	0.86	X 7.01	1.17	X 14.02	2.11						
3 1/2 X 1	102 X 33	102	5.74 X 3.38	1.54	8.08 X 4.55	2.13								
X 11/4	X 42	102	X 3.56	1.54	X 4.85	2.13								
X 1 1/2	X 48	102	X 3.68	1.56	X 5.06	2.07								
X 2	X 60	102	X 3.91	1.47	X 5.54	2.04								
X 2 1/2	X 73	102	X 5.16	1.44	X 7.01	2.00								
X 3	X 89	102	X 5.49	1.41	X 7.62	1.95								
4 X 1	114 X 33	102	6.02 X 3.38	1.61	80.56 X 4.55	2.22	17.12 X 9.09	4.08						
X 1 1/4	X 42	102	X 3.56	1.58	X 4.85	2.19	X 9.70	4.02						
X 1 1/2	X 48	102	X 3.68	1.54	X 5.08	2.13	X 10.16	3.91						
X 2	X 60	102	X 3.91	1.48	X 5.54	2.04	X 11.07	3.71						
X 2 1/2	X 73	102	X 5.16	1.44	X 7.01	2.00	X 14.02	3.67						
X 3	X 89	102	X 5.49	1.41	X 7.62	1.95	X 15.24	3.57						
X 3 1/2	X 102	102	X 5.74	1.41	X 8.08	1.95								

photograph of a reducer

sample drawing of reducers.

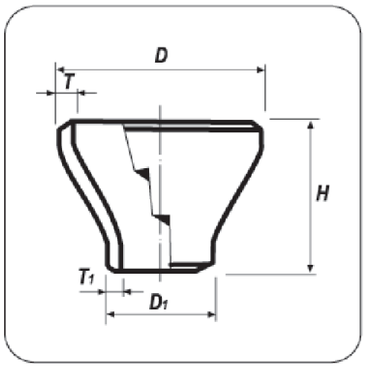


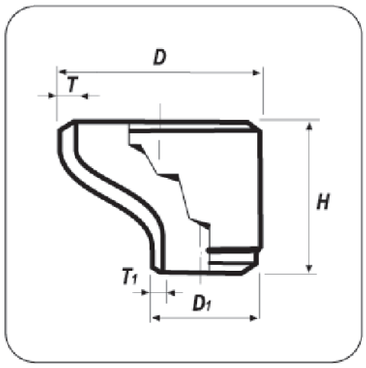


SCH 40		SCH 60		SCH 80		SCH 100		SCH 120		SCH 140		SCH 160		Øn
Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Nominal Pipe Size
	Kg		Kg		Kg		Kg		Kg		Kg		Kg	in.
m/m		m/m		m/m		m/m		m/m		m/m		m/m		
T T1		T T1		T T1		T T1		T T1		T T1		T T1		
2.87 X 2.77	0.04			3.91 X 3.73	0.06							5.56 X 4.78	0.07	3/4 X 1/2
3.38 X 2.71	0.13			4.55 X 3.73	0.16							6.35 X 4.78	0.20	1 X 1/2
X 2.87	0.12			X 3.91	0.15							X 5.56	0.21	X 3/4
3.56 X 2.77	0.18			4.85 X 3.73	0.23							6.35 X 4.78	0.29	1 1/4 X 1/2
X 2.87	0.17			X 3.91	0.15							X 5.56	0.28	X 3/4
X 3.38	0.16			X 4.55	0.21							X 6.35	0.27	X 1
3.68 X 2.77	0.26			5.08 X 3.73	0.37							7.14 X 4.78	0.49	1 1/2 X 1/2
X 2.87	0.027			X 3.91	0.36							X 5.56	0.48	X 3/4
X 3.38	0.26			X 4.55	0.34							X 6.35	0.46	X 1
X 3.56	0.24			X 4.85	0.32							X 6.35	0.43	X 1 1/4
3.91 X 2.77	0.42			5.54 X 3.73	0.58							8.74 X 4.78	0.85	2 X 1/2
X 2.87	0.41			X 3.91	0.55							X 5.56	0.82	X 3/4
X 3.38	0.40			X 4.55	0.54							X 6.35	0.8	X 1
X 3.56	0.37			X 4.85	0.51							X 6.35	0.75	X 1 1/4
X 3.68	0.37			X 5.08	0.51							X 7.14	0.75	X 1 1/2
5.16 X 3.38	0.76			7.01 X 4.55	0.99							9.53 X 6.35	1.29	2 1/2 X 1
X 3.56	0.74			X 4.85	0.96							X 6.35	1.25	X 1 1/4
X 3.68	0.71			X 5.08	0.92							X 7.14	1.21	X 1 1/2
X 3.91	0.70			X 5.54	0.89							X 8.74	1.17	X 2
5.49 X 3.38	0.99			7.62 X 4.56	1.34							11.13 X 6.35	1.66	3 X 1
X 3.56	0.96			X 4.85	1.3							X 6.35	1.81	X 1 1/4
X 3.68	0.92			X 5.06	1.24							X 7.14	1.73	X 1 1/2
X 3.91	0.89			X 5.54	1.21							X 8.74	1.68	X 2
X 5.16	0.86			X 7.01	1.17							X 9.53	1.63	X 2 1/2
5.74 X 3.38	1.54			8.08 X 4.56	2.13									3 1/2 X 1
X 3.56	1.54			X 4.85	2.13									X 11/4
X 3.68	1.50			X 5.08	2.07									X 1 1/2
X 3.91	1.47			X 5.54	2.04									X 2
X 5.16	1.44			X 7.01	2.00									X 2 1/2
X 5.49	1.41			X 7.62	1.95									X 3
6.02 X 3.38	1.61			8.56 X 4.55	2.22							13.49 X 6.35	3.33	4 X 1
X 3.56	1.58			X 4.85	2.19							X 6.35	3.28	X 1 1/4
X 3.68	1.54			X 5.08	2.13							X 7.14	3.2	X 1 1/2
X 3.91	1.48			X 5.54	2.04							X 8.74	3.06	X 2
X 5.16	1.44			X 7.01	2.00							X 9.53	3.00	X 2 1/2
X 5.49	1.41			X 7.62	1.95							X 11.13	2.92	X 3
X 5.74	1.41			X 8.08	1.95									X 3 1/2

CONCENTRIC & ECCENTRIC REDUCERS

Øn	Øe		SCH STD		SCH X S		SCH XXS		SCH 10		SCH 20		SCH 30	
Nominal	Outside		Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight
Pipe Size	Diameter	Length	Thickness		Thickness		Thickness		Thickness		Thickness		Thickness	
in.	m/m	m/m		Kg		Kg		Kg		Kg		Kg		Kg
			m/m		m/m		m/m		m/m		m/m		m/m	
	D D1	H	T T1		T T1		T T1		T T1		T T1		T T1	
5 X 2	141 X 60	127	6.55 X 3.91	2.1	9.53 X 5.54	2.98	19.05 X11.07	5.54						
X 2 1/2	X 73	127	X 5.16	2.06	X 7.01	2.92	X 14.02	5.43						
X 3	X 89	127	X 5.49	2.00	X 7.62	2.84	X 15.24	5.27						
X 3 1/3	X 102	127	X 5.74	1.93	X 8.08	2.73								
X 4	X 114	127	X 6.02	1.93	X 8.56	2.73	X 17.12	5.08						
6 X 2	168 X 60	140	7.11 X 3.91	3.17	10.97 X 5.54	4.77	21.95 X 11.07	8.88						
X 2 1/2	X 73	140	X 5.16	3.07	X 7.01	4.62	X 14.02	8.61						
X 3	X 89	140	X 5.49	2.98	X 7.62	4.48	X 15.24	8.34						
X 3 1/3	X 102	140	X 5.74	2.98	X 8.08	4.48								
X 4	X 114	140	X 6.02	2.82	X 8.56	4.25	X 17.12	7.91						
X 5	X 141	140	X 6.55	2.78	X 9.53	4.19	X 19.05	7.90						
8 X 3	219 X 89	152	8.18 X 5.49	5.06	12.70 X 7.62	7.70	22.22 X 15.24	12.83						
X 3 1/2	X 102	152	X 5.74	5.06	X 8.08	7.70								
X 4	X 114	152	X 6.02	4.92	X 8.56	7.47	X 17.12	12.46						
X 5	X 141	152	X 6.55	4.83	X 9.53	7.33	X 19.05	12.23						
X 6	X 168	152	X 7.11	4.68	X 10.97	7.11	X 21.95	11.86						
10 X 4	273 X 114	178	9.27 X 6.02	9.73	12.70 X 8.56	13.15	25.40 X 17.12	25.00						
X 5	X 141	178	X 6.55	9.51	X 9.53	12.84	X 19.05	24.42						
X 6	X 168	178	X 7.11	8.82	X 10.97	11.93	X 21.95	22.68						
X 8	X 219	178	X 8.18	8.46	X 12.70	11.44	X 22.22	21.75			6.35 X 6.35	5.85	7.80 X 7.04	7.16
12 X 4	324 X 114	203	9.53 X 6.02	14.12	12.70 X 8.56	18.63	25.40 X 17.12	35.73						
X 5	X 141	203	X 6.55	13.57	X 9.53	17.91	X 19.05	34.32						
X 6	X 168	203	X 7.11	13.02	X 10.97	17.17	X 21.95	32.93						
X 8	X 219	203	X 8.18	12.18	X 12.70	16.08	X 22.22	30.83			6.35 X 6.35	8.21	8.38 X 7.04	10.75
X 10	X 273	203	X 9.27	11.63	X 12.70	15.35	X 25.40	29.43			X 6.35	7.83	X 7.80	10.26
14 X 6	356 X 168	330	9.53 X 7.11	22.81	12.70X10.97	30.14								
X 8	X 219	330	X 8.18	22.49	X 12.70	29.72					7.92 X 6.35	18.83	9.53 X 7.04	22.49
X 10	X 273	330	X 9.27	22.17	X 12.70	29.30					X 6.35	18.56	X 7.80	22.17
X 12	X 324	330	X 9.53	21.86	X 12.70	28.88					X 6.35	18.30	X 8.38	21.86
16 X 6	406 X 168	356	9.53 X 7.11	29.83	12.70X10.97	39.43								
X 8	X 219	356	X 8.18	28.34	X 12.70	37.46					7.92 X 6.35	23.69	9.53 X 7.04	29.83
X 10	X 273	356	X 9.27	27.96	X 12.70	36.96					X 6.35	23.38	X 7.80	27.96
X 12	X 324	356	X 9.53	27.60	X 12.70	36.48					X 6.35	27.07	X 8.38	27.6
X 1	X 356	356	X 9.53	27.22	X 12.70	35.98			6.35 x 6.35	18.28	X 7.92	22.76	X 8.38	27.22
18 X 8	457 X 219	381	9.53 X 8.18	37.30	12.70X12.70	49.40					7.92 X 6.35	37.30	11.13 X 7.04	49.40
X 10	X 273	381	X 9.27	36.40	X 12.70	48.20					X 6.35	36.40	X 7.80	48.20
X 12	X 324	381	X 9.53	35.60	X 12.70	47.10					X 6.35	35.60	X 8.38	47.10



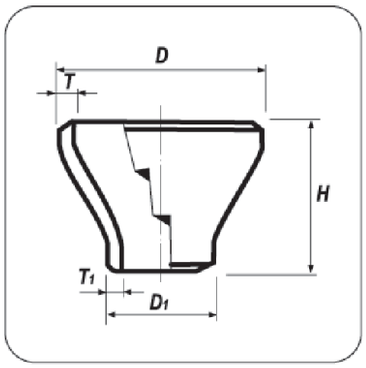


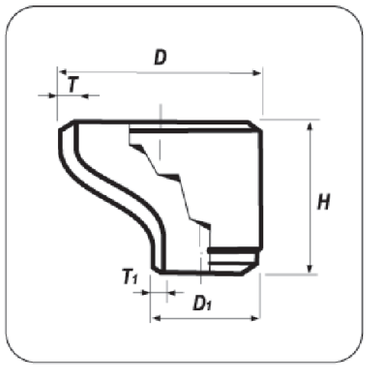
SCH 40		SCH 60		SCH 80		SCH 100		SCH 120		SCH 140		SCH 160		Øn
Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness		Wall Thickness	Weight	Wall Thickness	Weight	Nominal Pipe Size
	Kg		Kg		Kg		Kg		Kg		Kg		Kg	in.
m/m		m/m		m/m		m/m		m/m		m/m		m/m		
T T1		T T1		T T1		T T1		T T1		T T1		T T1		
6.55 X 3.91	2.10			9.53 X 5.54	2.96							15.88 X 8.74	4.75	5 X 2
X 5.16	2.06			X 7.01	2.92							X 9.53	4.64	X 2 1/2
X 5.49	2.00			X 7.62	2.84							X 11.13	4.5	X 3
X 5.74	1.93			X8.08	2.73									X 3 1/3
X 6.02	1.93			X 8.56	2.73			12.70 X 11.13	3.56			X 13.49	4.51	X 4
7.11 X 3.91	3.17			10.97 X 5.54	4.77							18.26 X 8.74	7.57	6 X 2
X 5.16	3.07			X 7.01	4.62							X 9.53	7.34	x 2 1/2
X 5.49	2.98			X 7.62	4.48							X 11.13	7.11	X 3
X 5.74	2.98			X 8.08	4.48									X 3 1/3
X 6.02	2.82			X 8.56	4.25			14.27 X 11.13	5.42			X 13.49	6.74	X 4
X 6.55	2.78			X 9.59	4.19			X 12.70	5.34			X 15.88	6.65	X 5
8.18 X 5.49	5.06			12.70 X 7.62	7.70							23.01 X 11.13	13.24	8 X 3
X 5.74	5.06			X 8.08	7.70									X 3 1/2
X 6.02	4.92			X 8.56	7.47			18.26 X 11.13	10.43			X 13.49	12.85	X 4
X 6.55	4.83			X 9.53	7.33			X 12.70	10.25			X 15.88	12.62	X 5
X 7.11	4.68			X 10.97	7.11			X 14.27	9.93			X 18.26	12.23	X 6
9.27 X 6.02	9.75			15.09 X 8.56	15.10			21.44 X 11.13	21.42			28.58 X 13.49	45.64	10 X 4
X 6.55	9.51			X 9.53	15.09			X 12.70	20.92			X 15.88	43.85	X 5
X 7.11	8.82			X 10.97	14.02			X 14.27	19.43			X 18.26	42.06	X 6
X 8.18	8.46	12.70 X 10.31	12.8	X 12.70	13.44	18.26 X 15.09	16.07	X 18.26	18.63	25.40 X 20.62	21.75	X 23.01	39.38	X 8
9.53 X 6.02	15.25			17.48 X 8.56	25.21			25.40 X 11.13	35.73			33.32 X 13.49	45.64	12 X 4
X 6.55	14.65			X 9.53	24.23			X 12.70	34.32			X 15.88	43.85	X 5
X 7.11	14.05			X 10.97	23.24			X 14.27	32.93			X 18.26	42.06	X 6
X 8.18	13.16	14.27 X 10.31	17.97	X 12.70	21.75	21.44 X 15.09	26.35	X 18.26	30.83	28.58 X 20.62	33	X 23.01	39.38	X 8
X 10.31	12.56	X 12.70	17.16	X 15.09	20.76	X 18.26	25.14	X 21.44	29.43	X 25.40	31.5	X 28.58	37.59	X 10
11.13 X 7.11	26.49			19.05 X 10.97	44.37			27.79 X 14.27	62.99			35.71 X 18.26	79.05	14 X 6
X 8.18	26.12	15.09 X 10.31	35	X 12.7	43.75	23.83 X 15.09	53.9	X 18.26	62.12	31.75 X 20.62	70.17	X 23.01	77.96	X 8
X 9.27	25.75	X 12.70	34.51	X 15.09	43.14	X 18.26	53.14	X 21.44	61.24	X 25.40	69.18	X 28.58	76.86	X 10
X 10.31	25.39	X 14.27	3402	X 17.48	42.52	X 21.44	52.37	X 25.40	60.37	X 28.58	68.20	X 33.32	75.76	X 12
12.70 X 7.11	37.46			21.44 X 10.97	65.00			30.98 X 14.27	91.59			40.49 X 18.26	116.77	16 X 6
X 8.18	37.46	16.66 X 10.31	48.64	X 12.70	61.75	26.19 X 15.09	74.61	X 18.26	87.00	36.53 X 50.62	101.21	X 23.01	110.94	X 8
X 9.27	36.96	X 12.70	48.00	X 15.09	60.94	X 18.26	73.63	X 21.44	85.87	X 25.40	99.88	X 28.58	109.48	X 10
X 10.31	36.48	X 14.27	47.36	X 17.48	61.12	X 21.44	72.64	X 25.40	84.72	X28.58	98.55	X 33.32	108.10	X 12
X 11.13	35.38	X 15.09	46.72	X 19.05	59.32	X 23.83	71.86	X 27.79	83.58	X 31.75	97.21	X 35.71	106.56	X 1
14.27 X 8.18	53.60	19.05 X 10.31	74.60	23.83 X 12.70	90.60	29.36 X 15.09	109.80	34.93 X 18.26	128.90	39.67 X 20.62	144.40	45.24 X 23.01	162.90	18 X 8
X 9.27	52.40	X 12.70	72.90	X 15.09	88.50	X 18.26	107.26	X 21.44	125.90	X 25.40	141.00	X 28.58	159.00	X 10
X 10.31	51.20	X 14.27	71.10	X 17.48	86.40	X 21.44	104.80	X 25.40	122.90	X 28.58	157.70	X 33.32	155.30	X 12

CONCENTRIC & ECCENTRIC REDUCERS

Øn	Øe		SCH STD		SCH X S		SCH XXS		SCH 10		SCH 20		SCH 30	
Nominal	Outside		Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight
Pipe Size	Diameter	Length	Thickness		Thickness		Thickness		Thickness		Thickness		Thickness	
in.	m/m	m/m		Kg		Kg		Kg		Kg		Kg		Kg
			m/m		m/m		m/m		m/m		m/m		m/m	
	D D1	H	T T1		T T1		T T1		T T1		T T1		T T1	
X 14	X 356	381	X 9.53	34.70	X 12.70	45.90			6.35 X 6.35	34.70	X 7.92	34.70	X 9.53	45.90
X 16	X 406	381	X 9.53	33.8	X 12.70	44.80			X 6.35	33.80	X 7.92	33.80	X 9.53	44.80
20 X 8	508 X 219	508	9.53 X 8.18	55.00	12.70 X 12.70	72.90					9.53 X 6.35	55.00	12.70 X 7.04	72.90
X 10	X 273	508	X 9.27	54.00	X 12.70	71.60					X 6.35	54.00	X 7.80	71.60
X 12	X 324	508	X 9.53	53.10	X 12.70	70.30					X 6.35	53.10	X 8.38	70.30
X 14	X 356	508	X 9.53	52.20	X 12.70	69.00			6.35 X 6.35	52.20	X 7.92	52.20	X 9.53	69.00
X 16	X 406	508	X 9.53	51.20	X 12.70	67.80			X 6.35	51.20	X 7.92	51.20	X 9.53	67.80
X 18	X 457	508	X 9.53	50.20	X 12.70	66.50			X 6.35	50.20	X 7.92	50.20	X 11.13	66.50
22 X 10	559 X 273	508	9.53 X 9.27	60.70	12.70 X 12.70	80.40					9.53 X 6.35	60.70	12.70 X 7.80	80.40
X 12	X 324	508	X 9.53	59.60	X 12.70	79.00					X 6.35	59.60	X 8.38	79.00
X 14	X 356	508	X 9.53	58.60	X 12.70	77.60			6.35 X 6.35	58.60	X 7.92	58.60	X 9.53	77.60
X 16	X 406	508	X 9.53	57.50	X 12.70	76.20			X 6.35	57.50	X 7.92	57.50	X 9.53	76.20
X 18	X 457	508	X 9.53	56.40	X 12.70	74.70			X 6.35	56.40	X 7.92	56.40	X 11.13	74.70
X 20	X 508	508	X 9.53	55.30	X 12.70	73.30			X 6.35	55.3	X 9.53	55.30	X 12.70	73.30
24 X 10	610 X 273	508	9.53 X 9.27	67.50	12.70 X 12.70	89.40					9.53 X 6.35	67.50	14.27 X 7.80	100.20
X 12	X 324	508	X 9.53	66.30	X 12.70	87.90					X 6.35	66.30	X 8.38	98.50
X 14	X 356	508	X 9.53	65.20	X 12.70	86.30			6.35 X 6.35	65.20	X 7.92	65.20	X 9.53	96.80
X 16	X 406	508	X 9.53	64.00	X 12.70	84.80			X 6.35	64.00	X 7.92	64.00	X 9.53	95.00
X 18	X 457	508	X 9.53	62.80	X 12.70	83.30			X 6.35	62.80	X 7.92	62.80	X 11.13	93.30
X 20	X 508	508	X 9.53	61.60	X 12.70	81.70			X 6.35	61.60	X 9.53	61.60	X 12.70	91.60
X 22	X 559	508	X 9.53	60.50	X 12.70	80.20			X 6.35	60.50	X 9.53	60.5	X 12.70	89.90

photograph of reducers

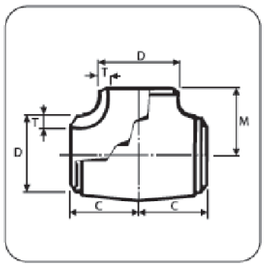


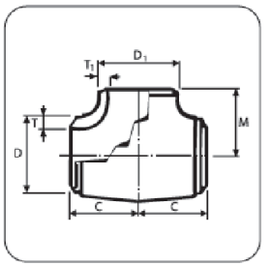


SCH 40		SCH 60		SCH 80		SCH 100		SCH 120		SCH 140		SCH 160		Øn
Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Nominal Pipe Size
	Kg		Kg		Kg		Kg		Kg		Kg		Kg	in.
m/m		m/m		m/m		m/m		m/m		m/m		m/m		
T T1		T T1		T T1		T T1		T T1		T T1		T T1		
X 11.13	49.90	X 15.09	69.40	X 19.05	84.30	X 23.83	102.00	X 27.79	119.90	X 31.75	134.30	X 35.71	151.50	X 14
X 12.70	48.60	X 16.66	67.70	X 21.44	82.20	X 26.19	99.60	X 30.96	116.90	X 36.53	131.00	X 40.49	147.70	X 16
15.09 X 8.18	81.40	20.62 X 10.31	116.40	26.19 X 12.70	146.20	32.54 X 15.09	179.20	38.10 X 18.26	207.40	44.45 X 20.62	238.70	50.01 X 23.01	265.3	20 X 8
X 9.27	84.70	X 12.70	114.40	X 15.09	138.00	X 18.26	176.00	X 21.44	203.70	X 25.40	234.50	X 28.58	260.6	X 10
X 10.31	83.20	X 14.27	112.30	X 17.48	141.00	X21.44	172.90	X 25.40	200.00	X 28.58	230.30	X 33.32	256	X 12
X 11.13	81.60	X 15.09	110.30	X19.05	138.50	X 23.83	169.80	X 27.79	196.50	X 31.75	226.00	X 35.71	251.3	X 14
X 12.70	80.00	X 16.66	108.30	X 21.44	135.10	X 26.19	166.60	X 30.95	192.80	X 36.53	221.90	X 40.49	246.7	X 16
X 14.27	78.60	X 19.05	106.20	X 23.83	133.40	X 29.36	163.50	X 34.93	189.20	X 39.67	217.70	X 45.24	242	X 18
	95.00	22.22 X 15.09	138.20	28.58 X 15.09	175.60	34.92 X 18.26	212.00	41.28 X 21.44	247.50	47.63 X 25.40	282.10	53.98 X 28.58	315.80	22 X 10
	93.40	X 14.27	135.70	X 17.48	172.50	X 21.44	208.30	X 25.40	243.20	X 28.58	291.60	X 33.32	310.20	X 12
	91.80	X 15.09	133.30	X 19.05	169.50	X 23.83	204.60	X 27.79	238.80	X 31.75	272.20	X 35.71	304.50	X 14
	90.00	X 16.66	130.90	X 21.44	166.40	X 26.19	200.10	X 30.96	234.50	X 36.53	267.30	X 40.49	299.00	X 16
	88.40	X 19.05	128.40	X 23.83	163.30	X 29.36	197.00	X 34.93	230.00	X 39.67	262.30	X 45.24	293.60	X 18
	86.70	X 20.62	126.00	X 26.19	160.20	X 32.54	193.40	X 38.10	225.80	X 44.45	257.40	X 50.01	288.00	X 20
17.48 X 9.27	118.00	24.61 X 12.70	169.80	30.96 X 15.09	211.30	38.89 X 18.26	261.80	46.02 X 21.44	305.90	52.37 X 25.40	344.20	59.54 X 28.58	386.30	24 X 10
X 10.31	116.00	X 14.27	166.90	X 17.48	207.70	X 21.44	257.30	X 25.40	300.60	X 28.58	338.30	X 33.32	379.60	X 12
X 11.31	114.00	X 15.09	164.00	X 19.05	204.00	X 23.83	252.80	X 27.79	295.40	X 31.75	332.30	X 35.71	373.00	X 14
X 12.70	112.00	X 16.66	161.00	X 21.44	200.40	X 26.19	248.20	X 30.96	290.00	X 36.53	326.40	X 40.49	366.30	X 16
X 14.27	109.80	X 19.05	158.00	X 23.83	197.70	X 29.36	243.70	X 34.93	284.80	X 39.67	320.40	X 45.24	359.60	X 18
X 15.09	107.90	X 20.62	155.20	X 26.19	193.00	X 32.54	239.20	X 38.10	279.50	X 44.45	314.50	X 50.01	353.00	X 20
X 15.88	105.80	X 22.22	152.30	X 28.58	189.40	X 34.92	234.70	X 41.28	274.30	X 47.63	308.6	X 53.98	346.3	X 22

EQUAL TEES &
REDUCING TEES

Øn	Øe			SCH STD		SCH X S		SCH XXS		SCH 10		SCH 20		SCH 30	
Nominal	Outside	center to end run	center to end branch	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight
Pipe Size	Diameter			Thickness		Thickness		Thickness		Thickness		Thickness		Thickness	
in.	m/m	m/m	m/m		Kg		Kg		Kg		Kg		Kg		Kg
				m/m		m/m		m/m		m/m		m/m		m/m	
	D D1	C	M	T T1		T T1		T T1		T T1		T T1		T T1	
1/2	21 X 21	25	25	2.77 X 2.77	0.11	3.73 X 3.73	0.14	7.47 X 7.47	0.25						
3/4 X 1/2	27 X 21	28	28	2.87 X 2.77	0.15	3.91 X 3.73	0.21	7.82 X 7.47	0.24						
X 3/4	X 27	28	28	X 2.87	0.16	X 3.91	0.21	X 7.82	0.33						
1 X 1/2	33 X 21	38	38	3.38 X 2.77	0.30	4.55 X 3.73	0.40	9.09 X 7.47	0.64						
X 3/4	X 27	38	38	X 2.87	0.30	X 3.91	0.40	X 7.82	0.65						
X 1	X 33	38	38	X 3.38	0.32	X 4.55	0.41	X 9.09	0.69						
1 1/4 X 1/2	42 X 21	48	48	3.56 X 2.77	0.52	4.85 X 3.73	0.70	9.70 X 7.47	0.97						
X 3/4	X 27	48	48	X 2.87	0.54	X 3.91	0.72	X 7.82	1.02						
X 1	X 33	48	48	x 3.38	0.54	X 4.55	0.72	X 9.09	1.04						
X 1 1/4	X 42	48	48	X 3.56	0.57	X 4.85	0.76	X 9.70	1.10						
1 1/2 X 1/2	48 X 21	57	57	3.68 X 2.77	0.70	5.08 X 3.73	0.99	10.16 X 7.47	1.64						
X 3/4	X 27	57	57	X 2.87	0.74	X 3.91	1.06	X 7.82	1.76						
X 1	X 33	57	57	X 3.38	0.74	X 4.55	1.06	X 9.09	1.84						
X 1 1/4	X 42	57	57	X 3.56	0.76	X 4.85	1.06	X 9.70	1.88						
X 1 1/2	X 48	57	57	X 3.68	0.80	X 5.08	1.08	X 10.16	2.00						
2 X 1/2	60 X 21	64	44	3.91 X 2.77	1.03	5.54 X 3.73	1.44	11.07 X 7.47	1.94						
X 3/4	X 27	64	44	X 2.87	1.10	X 3.91	1.54	X 7.82	2.07						
X 1	X 33	64	51	X 3.38	1.12	X 4.55	1.54	X 9.09	2.20						
X 1 1/4	X 42	64	57	X 3.56	1.12	X 4.85	1.54	X 9.70	2.49						
X 1 1/2	X 48	64	60	X 3.68	1.14	X 5.08	1.57	X 10.16	2.54						
X 2	X 60	64	64	X 3.91	1.17	X 5.54	1.67	X 11.07	2.70						
2 1/2 X 1	73 X 33	76	57	5.16 X 3.38	2.13	7.01X 4.55	2.75	14.02 X 9.09	3.61						
X 1 1/4	X 42	76	64	X 3.56	2.17	X 4.85	2.80	X 9.70	3.88						
X 1 1/2	X 48	76	67	X 3.68	2.20	X 5.08	2.86	X 10.16	4.05						
X 2	X 60	76	70	X 3.91	2.20	X 5.54	2.95	X 11.07	4.14						
X 2 1/2	X 73	76	76	X 5.16	2.28	X 7.01	3.05	X 14.02	4.40						
3 X 1	89 X 33	86	70	5.49 X 3.38	2.68	7.62 X 4.55	3.69	15.24 X 9.09	4.73						
X 1 1/4	X 42	86	70	X 3.56	2.73	X 4.85	3.69	X 9.70	5.17						
X 1 1/2	X 48	86	73	X 3.68	2.73	X 5.08	3.76	X 10.16	5.55						
X 2	X 60	86	76	X 3.91	2.88	X 5.54	3.90	X 11.07	5.80						
X 2 1/2	X 73	86	83	X 5.16	2.93	X 7.01	4.09	X 14.02	5.93						
X 3	X 89	86	86	X 5.49	3.05	X 7.62	4.24	X 15.24	6.30						
3 1/2 X1	102 X 33	95	79	5.74 X 3.38	3.98	8.08 X 4.55	4.30								
X 1 1/4	X 42	95	79	X 3.56	4.02	X 4.85	4.35								
X 1 1/2	X 48	95	79	X 3.68	4.39	X 5.08	4.76								
X 2	X 60	95	83	X 3.91	4.71	X 5.54	5.11								
X 2 1/2	X 73	95	89	X 5.16	4.93	X 7.01	5.34								
X 3	X 89	95	92	X 5.49	5.03	X 7.62	5.46								
X 3 1/2	X 102	95	95	X 5.74	5.35	X 8.08	5.80								

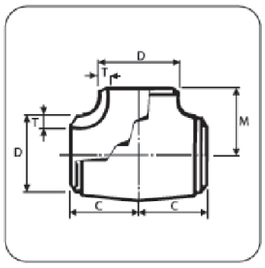


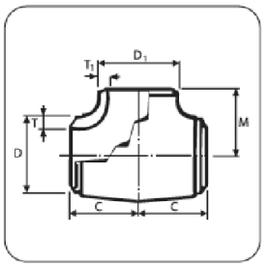


SCH 40		SCH 60		SCH 80		SCH 100		SCH 120		SCH 140		SCH 160		Øn
Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness		Wall Thickness	Weight	Wall Thickness	Weight	Nominal Pipe Size
	Kg		Kg		Kg		Kg		Kg		Kg		Kg	in.
m/m		m/m		m/m		m/m		m/m		m/m		m/m		
T T1		T T1		T T1		T T1		T T1		T T1		T T1		
2.77 X 2.77	0.11			3.73 X 3.73	0.14							4.78 X 4.78	0.22	1/2
2.87 X 2.77	0.15			3.91 X 3.73	0.21							5.56 X 4.78	0.21	3/4 X 1/2
X 2.87	0.16			X 3.91	0.21							X 5.56	0.28	X 3/4
3.38 X 2.77	0.30			4.55 X 3.73	0.40							6.35 X 4.78	0.54	1 X 1/2
X 2.87	0.30			X 3.91	0.40							X 5.56	0.55	X 3/4
X 3.38	0.32			X 4.55	0.41							X 6.35	0.58	X 1
3.56 X 2.77	0.52			4.85 X 3.73	0.70							6.35 X 4.78	0.71	1 1/4 X 1/2
X 2.87	0.54			X 3.91	0.72							X 5.56	0.74	X 3/4
x 3.38	0.54			X 4.55	0.72							X 6.35	0.76	X 1
X 3.56	0.57			X 4.85	0.76							X 6.35	0.80	X 1 1/4
3.68 X 2.77	0.70			5.08 X 3.73	0.99							7.14 X 4.78	1.48	1 1/2 X 1/2
X 2.87	0.74			X 3.91	1.06							X 5.56	1.59	X 3/4
X 3.38	0.74			X 4.55	1.06							X 6.35	1.66	X 1
X 3.56	0.76			X 4.85	1.06							X 6.35	1.69	X 1 1/4
X 3.68	0.80			X 5.08	1.08							X 7.14	1.80	X 1 1/2
3.91 X 2.77	1.03			5.54 X 3.73	1.44							8.74 X 4.78	1.76	2 X 1/2
X 2.87	1.10			X 3.91	1.54							X 5.56	1.88	X 3/4
X 3.38	1.12			X 4.55	1.54							X 6.35	2.00	X 1
X 3.56	1.12			X 4.85	1.54							X 6.35	2.21	X 1 1/4
X 3.68	1.14			X 5.08	1.57							X 7.14	2.26	X 1 1/2
X 3.91	1.17			X 5.54	1.67							X 8.74	2.40	X 2
5.16 X 3.38	2.13			7.01X 4.55	2.75							9.35 X 6.35	2.63	2 1/2 X 1
X 3.56	2.17			X 4.85	2.80							X 6.35	2.82	X 1 1/4
X 3.68	2.20			X 5.08	2.86							X 7.14	2.95	X 1 1/2
X 3.91	2.20			X 5.54	2.95							X 8.74	3.00	X 2
X 5.16	2.28			X 7.01	3.05							X 9.53	4.10	X 2 1/2
5.49 X 3.38	2.68			7.62 X 4.55	3.69							11.13 X 6.35	4.55	3 X 1
X 3.56	2.73			X 4.85	3.69							X 6.35	4.70	X 1 1/4
X 3.68	2.73			X 5.08	3.76							X 7.14	5.23	X 1 1/2
X 3.91	2.88			X 5.54	3.90							X 8.74	5.69	X 2
X 5.16	2.93			X 7.01	4.09							X 9.53	5.84	X 2 1/2
X 5.49	3.05			X 7.62	4.24							X 11.14	5.98	X 3
5.74 X 3.38	3.98			8.08 X 4.55	4.30									3 1/2 X1
X 3.56	4.02			X 4.85	4.35									X 1 1/4
X 3.68	4.39			X 5.08	4.76									X 1 1/2
X 3.91	4.71			X 5.54	5.11									X 2
X 5.16	4.93			X 7.01	5.34									X 2 1/2
X 5.49	5.03			X 7.62	5.46									X 3
X 5.74	5.35			X 8.08	5.80									X 3 1/2

EQUAL TEES & REDUCING TEES

Øn	Øe			SCH STD		SCH X S		SCH XXS		SCH 10		SCH 20		SCH 30	
Nominal	Outside	center to end run	center to end branch	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight
Pipe Size	Diameter			Thickness		Thickness		Thickness		Thickness		Thickness		Thickness	
in.	m/m	m/m	m/m		Kg		Kg		Kg		Kg		Kg		Kg
				m/m		m/m		m/m		m/m		m/m		m/m	
	D D1	C	M	T T1		T T1		T T1		T T1		T T1		T T1	
4 X 1	114 X 33	105	86	6.02 X 3.38	4.67	8.56 X 4.55	6.86	17.12 X 9.09	6.96						
X 1 1/4	X 42	105	86	X 3.56	4.89	X 4.85	6.96	X 9.70	7.28						
X 1 1/2	X 48	105	86	X 3.68	4.96	X 5.08	7.06	X 10.16	8.03						
X 2	X 60	105	89	X 3.91	4.96	X 5.54	7.06	X 11.07	8.78						
X 2 1/2	X 73	105	95	X 5.16	4.96	X 7.01	7.16	X 14.02	9.42						
X 3	X 89	105	98	X 5.49	5.17	X 7.62	7.36	X 15.24	9.85						
X 3 1/2	X 102	105	102	X 5.74	5.17	X 8.08	7.36								
X 4	X 114	105	105	X 6.02	5.17	X 8.56	7.36	X 17.12	10.70						
5 X 2	141 X 60	124	105	6.55 X 3.91	7.39	9.53 X 5.54	10.75	19.05 X 11.07	15.48						
X 2 1/2	X 73	124	108	X 5.16	7.59	X 7.01	11.02	X 14.02	16.92						
X 3	X 89	124	111	X 5.49	7.77	X 7.62	11.29	X 15.24	18.16						
X 3 1/2	X 102	124	114	X 5.74	7.85	X 8.08	11.40								
X 4	X 114	124	117	X 6.02	7.97	X 8.56	11.57	X 17.12	19.40						
X 5	X 141	124	124	X 6.55	8.36	X 9.53	12.12	X 19.05	20.63						
6 X 2	168 X 60	143	121	7.11 X 3.91	10.80	10.97 X 5.54	16.30	21.95 X 11.07	20.88						
X 2 1/2	X 73	143	121	X 5.16	10.94	X 7.01	16.48	X 14.02	23.03						
X 3	X 89	143	124	X 5.49	11.18	X 7.62	17.46	X 15.24	25.18						
X 3 1/2	X 102	143	127	X 5.74	11.31	X 8.08	17.60								
X 4	X 114	143	130	X 6.02	11.31	X 8.56	17.80	X 17.12	28.25						
X 5	X 141	143	137	X 6.55	12.32	X 9.53	18.86	X 19.05	28.86						
X 6	X 168	143	143	X 7.11	12.32	X 10.97	18.86	X 21.95	30.70						
8 X 3	219 X 89	178	152	8.18 X 5.49	19.35	12.70 X 7.62	23.18	22.22 X 15.24	37.05						
X 3 1/2	X 102	178	152	X 5.74	19.75	X 8.08	25.34								
X 4	X 114	178	156	X 6.02	20.10	X 8.56	27.20	X 17.12	43.48						
X 5	X 141	178	162	X 6.55	20.49	X 9.53	28.43	X 19.05	45.45						
X 6	X 168	178	168	X 7.11	21.05	X 10.97	29.05	X 21.95	46.44						
X 8	X 219	178	178	X 8.18	22.87	X 12.70	30.90	X 22.22	49.40						
10 X 3	273 X 89	216	184	9.27 X 5.49	27.34	12.70 X 7.62	36.23	25.40 X 15.24	63.83						
X 4	X 114	216	184	X 6.02	29.89	X 8.56	39.61	X 17.12	69.79						
X 5	X 141	216	191	X 6.55	32.08	X 9.53	42.51	X 19.05	74.89						
X 6	X 168	216	194	X 7.11	33.54	X 10.97	44.44	X 21.95	78.30						
X 8	X 219	216	203	X 8.18	34.27	X 12.70	41.41	X 22.22	80.00			6.35 X 6.35	29.24	7.80 X 7.04	30.10
X10	X 273	216	216	X 9.27	36.45	X 12.70	48.30	X 25.40	85.10			X 6.35	31.10	X 7.80	32.35
12 X 4	324 X 114	254	216	9.53 X 6.04	41.93	12.70 X 8.56	54.44	25.40 X 17.12	84.64						
X 5	X 140	254	216	X 6.55	45.84	X 9.53	59.52	X 19.05	92.54						
X 6	X 168	254	219	X 7.11	49.20	X 10.97	63.88	X 21.95	99.31						
X 8	X 219	254	229	X 8.18	51.43	X 12.70	66.78	X 22.22	103.83			6.35 X 6.35	38.92	8.38 X 7.04	42.30
X 10	X 273	254	241	X 9.27	52.55	X 12.70	68.23	X 25.40	106.08			X 6.35	39.77	X 7.80	43.15
X 12	X 324	254	254	X 9.53	55.90	X 12.70	72.58	X 25.40	112.85			X 6.35	42.30	X 8.30	45.70

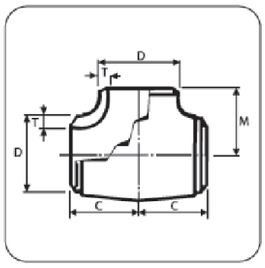


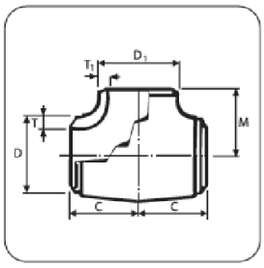


SCH 40		SCH 60		SCH 80		SCH 100		SCH 120		SCH 140		SCH 160		Øn
Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness		Wall Thickness	Weight	Wall Thickness	Weight	Nominal Pipe Size
	Kg		Kg		Kg		Kg		Kg		Kg		Kg	in.
m/m		m/m		m/m		m/m		m/m		m/m		m/m		
T T1		T T1		T T1		T T1		T T1		T T1		T T1		
6.02 X 3.38	4.67			8.56 X 4.55	6.86							13.49 X 6.35	6.11	4 X 1
X 3.56	4.89			X 4.85	6.96							X 6.35	6.40	X 1 1/4
X 3.68	4.96			X 5.08	7.06							X 7.14	7.05	X 1 1/2
X 3.91	4.96			X 5.54	7.06							X 8.74	7.71	X 2
X 5.16	4.96			X 7.01	7.16							X 9.53	8.28	X 2 1/2
X 5.49	5.17			X 7.62	7.36							X 11.13	8.65	X 3
X 5.74	5.17			X 8.08	7.36									X 3 1/2
X 6.02	5.17			X 8.56	7.36			11.13 X 11.13	8.94			X 13.49	9.40	X 4
6.55 X 3.91	7.39			9.53 X 5.54	10.75							15.88 X 8.74	12.57	5 X 2
X 5.16	7.59			X 7.01	11.02							X 9.53	13.74	X 2 1/2
X 5.49	7.77			X 7.62	11.29							X 11.13	14.74	X 3
X 5.74	7.85			X 8.08	11.40									X 3 1/2
X 6.02	7.97			X 8.56	11.57			12.70 X 11.13	13.80			X 13.49	15.57	X 4
X 6.55	8.36			X 9.53	12.12			X 12.7	14.68			X 15.88	16.75	X 5
7.11 X 3.91	10.80			10.97 X 5.54	16.30							18.26 X 8.74	17.82	6 X 2
X 5.16	10.94			X 7.01	16.48							X 9.53	19.65	X 2 1/2
X 5.49	11.18			X 7.62	17.46							X 11.13	21.49	X 3
X 5.74	11.31			X 8.08	17.60									X 3 1/2
X 6.02	11.31			X 8.56	17.80			14.27 X 11.13	19.60			X 13.49	24.11	X 4
X 6.55	12.32			X 9.53	18.86			X 12.70	20.03			X 15.88	24.63	X 5
X 7.11	12.32			X 10.97	18.86			X 14.27	21.30			X 18.26	26.20	X 6
8.18 X 5.49	19.35			12.70 X 7.62	23.18							23.01 X 11.13	38.40	8 X 3
X 5.74	19.75			X 8.08	25.34									X 3 1/2
X 6.02	20.10			X 8.56	27.20			18.26 X 11.13	37.36			X 13.49	45.06	X 4
X 6.55	20.49			X 9.53	28.43			X 12.70	39.06			X 15.88	47.11	X 5
X 7.11	21.05			X 10.97	29.05			X 14.27	39.91			X 18.26	48.13	X 6
X 8.18	22.87	10.31 X 10.31	26.30	X 12.70	30.90			X 18.26	42.45	20.62 X 20.62	44.30	X 23.01	51.20	X 8
9.27 X 5.49	27.34			15.09 X 7.62	45.27							28.58 X 11.13	70.92	10 X 3
X 6.02	29.89			X 8.56	49.49			21.44 X 11.13	60.15			X 13.49	77.54	X 4
X 6.55	32.08			X 9.53	53.11			X 12.70	66.31			X 15.88	83.21	X 5
X 7.11	33.54			X 10.97	55.53			X 14.27	69.33			X 18.26	86.99	X 6
X 8.18	34.27	12.70 X 10.31	45.41	X 12.70	56.73	18.26 X 15.09	61.43	X 18.26	70.83	25.40 X 20.62	80.00	X 23.01	88.88	X 8
X 9.27	36.45	X 12.70	48.30	X 15.09	60.35	X 18.26	65.35	X 21.44	75.35	X 25.40	85.10	X 28.58	94.55	X10
10.31 X 6.02	41.93			17.48 X 8.56	68.33		82.50	25.40 X 11.13	84.64			33.32 X 13.49	115.43	12 X 4
X 6.55	45.84			X 9.53	74.71		90.20	X 12.70	92.54			X 15.88	126.20	X 5
X 7.11	49.20			X 10.97	80.17		96.80	X 14.27	99.31			X 18.26	135.44	X 6
X 8.18	51.43	14.27 X 10.31	66.01	X 12.70	83.82	21.44 X 15.09	101.20	X 18.26	103.83	28.58 X 20.62	130.00	X 23.01	141.59	X 8
X 9.27	52.55	X 12.70	67.45	X 15.09	85.64	X 18.26	103.40	X 21.44	106.08	X 25.40	132.83	X 28.58	144.67	X 10
X 10.31	55.90	X 14.27	71.75	X 17.48	91.10	X 21.44	110.00	X 25.40	118.85	X 28.58	141.30	X 33.32	153.90	X 12

EQUAL TEES &
REDUCING TEES

Øn	Øe			SCH STD		SCH X S		SCH XXS		SCH 10		SCH 20		SCH 30	
Nominal	Outside	center to end run	center to end branch	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight
Pipe Size	Diameter			Thickness		Thickness		Thickness		Thickness		Thickness		Thickness	
in.	m/m	m/m	m/m		Kg		Kg		Kg		Kg		Kg		Kg
				m/m		m/m		m/m		m/m		m/m		m/m	
	D D1	C	M	T T1		T T1	C	T T1		T T1		T T1		T T1	
14 X 6	356 X 168	279	238	9.53 X 7.11	57.49	12.70 X 10.97	64.46								
X 8	X 219	279	248	X 8.18	61.69	X 12.70	69.17					7.92 X 6.35	54.21	9.53 X 7.04	
X 10	X 273	279	257	X 9.27	64.50	X 12.70	72.32					X 6.35	56.68	X 7.80	
X 12	X 324	279	270	X 9.53	65.90	X 12.70	73.89					X 6.35	57.91	X 8.38	
X 14	X 356	279	279	X 9.53	70.10	X 12.70	76.80					X 6.35	61.60	X 8.38	
16 X 6	406 X 168	305	264	9.53 X 7.11	6.5.44	12.70 X 10.97	72.20						65.44		
X 8	X 219	305	273	X 8.18	71.55	X 12.70	86.60					7.92 X 6.35	71.55	9.53 X 7.04	71.55
X 10	X 273	305	283	X 9.27	76.78	X 12.70	92.93					X 6.35	76.78	X 7.80	76.78
X 12	X 324	305	295	X 9.53	80.27	X 12.70	97.16					X 6.35	80.27	X 8.38	80.27
X 14	X 356	305	305	X 9.53	82.02	X 12.70	99.27			6.35 X 6.35	82.02	X 7.92	82.02	X 9.53	82.02
X 16	X 406	305	305	X 9.53	87.25	X 12.70	105.60			6.35 X 6.35	87.25	X 7.92	87.25	X 9.53	87.25
18 X 8	457 X 219	343	298	9.53 X 8.18	105.45	12.70 X 12.70	124.70					7.92 X 6.35	105.45	11.13 X 7.04	105.45
X 10	X 273	343	308	X 9.27	105.45	X 12.70	124.70					X 6.35	105.45	X 7.80	105.45
X 12	X 324	343	321	X 9.53	107.05	X 12.70	184.00					X 6.35	107.05	X 8.38	107.05
X 14	X 356	343	330	X 9.53	107.05	X 12.70	184.00			6.35 X 6.35	107.05	X 7.92	107.05	X 9.53	107.05
X 16	X 406	343	330	X 9.53	107.05	X 12.70	184.00			X 6.35	107.05	X 7.92	107.05	X 9.53	107.05
X 18	X 457	343	343	X 9.53	107.05	X 12.70	184.00			X 6.35	107.05	X 7.92	107.05	X 9.53	107.05
20 X 8	508 X 219	381	324	9.53 X 8.18	128.70	12.70 X 12.70	160.00					9.53 X 6.35	128.70	12.70 X 7.04	128.70
X 10	X 273	381	333	X 9.27	128.70	X 12.70	160.00					X 6.35	128.70	X 7.80	128.70
X 12	X 324	381	346	X 9.53	128.70	X 12.70	160.00					X 6.35	128.70	X 8.38	128.70
X 14	X 356	381	356	X 9.53	129.60	X 12.70	176.00			6.35 X 6.35	129.60	X 7.92	129.60	X 9.53	129.60
X 16	X 406	381	356	X 9.53	129.60	X 12.70	176.00			X 6.35	129.60	X 7.92	129.60	X 9.53	129.60
X 18	X 457	381	368	X 9.53	129.60	X 12.70	176.00			X 6.35	129.60	X 7.92	129.60	X 11.13	129.60
X 20	X 508	381	381	X 9.53	129.60	X 12.70	176.00			X 6.35	129.60	X 9.53	129.60	X 11.13	129.60
22 X 10	559 X 273	419	359	9.53 X 9.27	154.30	12.70 X 12.70	203.70					9.53 X 6.35	154.30	12.70 X 7.04	154.30
X 12	X 324	419	371	X 9.53	154.30	X 12.70	203.70					X 6.35	154.30	X 8.38	154.30
X 14	X 356	419	381	X 9.53	154.30	X 12.70	203.70			6.35 X 6.35	154.30	X 6.35	154.30	X 9.53	154.30
X 16	X 406	419	381	X 9.53	163.90	X 12.70	203.70			X 6.35	163.90	X 7.92	163.90	X 9.53	167.20
X 18	X 457	419	394	X 9.53	163.90	X 12.70	203.70			X 6.35	163.90	X 7.92	163.90	X 11.13	198.00
X 20	X 508	419	406	X 9.53	163.90	X 12.70	203.70			X 6.35	163.90	X 7.92	163.90	X 12.70	198.00
X 22	X 559	419	419	X 9.53	163.90	X 12.70	203.70			X 6.35	163.90	X 9.53	163.90	X 12.70	198.00
24 X 10	610 X 273	432	384	9.53 X 9.27	172.80	12.70 X 12.70	204.50					9.53 X 6.35	172.80	14.27 X 7.04	204.50
X 12	X 324	432	397	X 9.53	172.80	X 12.70	204.50					X 6.35	172.80	X 8.38	204.50
X 14	X 356	432	406	X 9.53	172.80	X 12.70	204.50			6.35 X 6.35	172.80	X 7.92	172.80	X 9.53	204.50
X 16	X 406	432	406	X 9.53	172.80	X 12.70	204.50			X 6.35	172.80	X 7.92	172.80	X 9.53	204.50
X 18	X 457	432	419	X 9.53	186.30	X 12.70	232.00			X 6.35	186.30	X 7.92	186.30	X 11.13	236.80
X 20	X 508	432	432	X 9.53	186.30	X 12.70	232.00			X 6.35	186.30	X 9.53	186.30	X 12.70	236.80
X 22	X 559	432	432	X 9.53	186.30	X 12.70	232.00			X 6.35	186.30	X 9.53	186.30	X 12.70	236.80
X 24	X 610	432	432	X 9.53	186.30	X 12.70	232.00			X 6.35	186.30	X 9.53	186.30	X 12.70	236.80





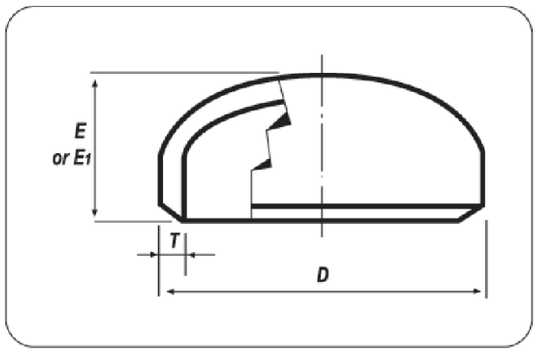
SCH 40		SCH 60		SCH 80		SCH 100		SCH 120		SCH 140		SCH 160		Øn
Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness		Wall Thickness	Weight	Wall Thickness	Weight	Nominal Pipe Size
	Kg		Kg		Kg		Kg		Kg		Kg		Kg	in.
m/m		m/m		m/m		m/m		m/m		m/m		m/m		
T T1		T T1		T T1		T T1		T T1		T T1		T T1		
11.13 X 7.11	60.03			19.05 X 10.97	103.82			27.79 X 14.27	103.63			35.71 X 18.26	164.99	14 X 6
X 8.18	64.42	15.09 X 10.31	90.12	X 12.70	111.41	23.83 X 15.09	130.77	X 18.26	140.19	31.75 X 20.62	157.44	X 23.01	177.06	X 8
X 9.27	67.35	X 12.70	94.21	X 15.09	116.48	X 18.26	136.72	X 21.44	146.76	X 25.40	164.59	X 28.58	185.11	X 10
X 10.31	68.81	X 14.27	96.26	X 17.48	119.00	X 21.44	136.69	X 25.40	149.75	X 28.58	168.17	X 33.32	189.13	X 12
X 11.13	73.20	X 15.09	102.40	X 19.05	126.60	X 23.83	148.60	X 27.79	159.30	X 31.75	178.90	X 35.71	201.20	X 14
12.70 X 7.11	79.20			21.44 X 10.97	132.83			30.96 X 14.27	161.85			40.49 X 18.26	214.35	16 X 6
X 8.18	86.60	16.66 X 10.31	115.71	X 12.70	145.23	26.19 X 15.09	163.43	X 18.26	176.96	36.53 X 20.62	203.73	X 23.01	234.36	X 8
X 9.27	92.93	X 12.70	124.17	X 15.09	155.85	X 18.26	175.39	X 21.44	189.91	X 25.40	218.64	X 28.58	251.50	X 10
X 10.31	97.19	X 14.27	129.82	X 17.48	162.94	X 21.44	183.36	X 25.40	198.54	X 28.58	228.58	X 33.32	262.94	X 12
X 11.13	99.27	X 15.09	132.64	X 19.05	166.48	X 23.83	187.35	X 27.79	202.86	X 31.75	233.55	X 35.71	243.30	X 14
X 12.70	105.60	X 16.66	141.10	X 21.44	177.10	X 26.19	199.30	X 30.96	215.80	X 36.53	248.45	X 40.49	285.80	X 16
14.27 X 8.18	124.70	19.05 X 10.31	168.50	23.83 X 12.70	211.60	29.36 X 15.09	259.40	34.93 X 18.26	306.80	39.67 X 20.62	358.30	45.24 X 23.01	408.30	18 X 8
X 9.27	124.70	X 12.70	168.50	X 15.09	211.60	X 18.26	259.40	X 21.44	306.80	X 25.40	358.30	X 28.58	408.30	X 10
X 10.31	167.84	X 14.27	184.04	X 17.48	233.92	X 21.44	306.80	X 25.40	306.80	X 28.58	358.30	X 33.32	408.30	X 12
X 11.13	167.84	X 15.09	184.04	X 19.05	233.92	X 23.83	306.80	X 27.79	306.80	X 31.75	358.30	X 35.71	408.30	X 14
X 12.70	167.84	X 16.66	184.04	X 21.44	233.92	X 26.19	306.80	X 30.96	306.80	X 36.53	358.30	X 40.49	408.30	X 16
X 14.27	167.84	X 19.05	184.04	X 23.83	233.92	X 29.36	306.80	X 34.93	338.60	X 39.67	385.90	X 45.24	431.90	X 18
15.09 X 8.18	160.00	20.62 X 10.31	221.40	26.19 X 12.70	281.30	32.54 X 15.09	339.50	38.10 X 18.26	396.50	44.45 X 20.62	395.50	50.01 X 23.01	465.60	20 X 8
X 9.27	160.00	X 12.70	221.40	X 15.09	281.30	X 18.26	339.50	X 21.44	396.50	X 25.40	395.50	X 28.58	465.60	X 10
X 10.31	160.00	X 14.27	221.40	X 17.48	306.20	X 21.44	339.50	X 25.40	396.50	X 28.58	443.20	X 33.32	498.70	X 12
X 11.13	160.00	X 15.09	246.00	X 19.05	306.20	X 23.83	379.30	X 27.79	379.30	X 31.75	443.20	X 35.71	498.70	X 14
X 12.70	218.00	X 16.66	246.00	X 21.44	306.20	X 26.19	379.30	X 30.96	379.30	X 36.53	443.20	X 40.49	498.70	X 16
X 14.27	224.30	X 19.05	246.00	X 23.83	306.20	X 29.36	379.30	X 34.93	379.30	X 39.67	443.20	X 45.24	498.70	X 18
X 15.09	224.30	X 20.62	246.00	X 26.19	306.20	X 32.54	379.30	X 38.10	453.90	X 44.45	510.70	X 50.01	573.20	X 20
		22.22 X 12.70	343.50	28.58 X 15.09	442.70	34.92 X 18.26	539.00	41.28 X 21.44	640.30	47.63 X 25.40	740.40	53.98 X 28.58	743.80	22 X 10
		X 14.27	343.50	X 17.48	442.70	X 21.44	539.00	X 25.40	640.30	X 28.58	740.40	X 33.32	743.80	X 12
		X 15.09	343.50	X 19.05	442.70	X 23.83	539.00	X 27.79	640.30	X 31.75	740.40	X 35.71	743.80	X 14
		X 16.66	357.00	X 21.44	468.00	X 26.19	580.00	X 30.96	683.00	X 36.53	795.00	X 40.49	912.00	X 16
		X 19.05	357.00	X 23.83	468.00	X 29.36	580.00	X 34.93	683.00	X 39.67	795.00	X 45.24	912.00	X 18
		X 20.62	357.00	X 26.19	468.00	X 32.54	580.00	X 38.10	683.00	X 44.45	795.00	X 50.01	912.00	X 20
		X 22.22	357.00	X 28.58	468.00	X 34.92	580.00	X 41.28	683.00	X 47.63	795.00	X 53.98	912.00	X 22
17.48 X 9.27	218.60	24.61 X 12.70	278.00	30.96 X 15.09	323.30	38.89 X 18.26	455.00	46.02 X 21.44	660.00	52.37 X 25.40	681.50	59.54 X 28.58	745.00	24 X 10
X 10.31	218.60	X 14.27	278.00	X 17.48	323.30	X 21.44	502.00	X 25.40	681.50	X 28.58	702.00	X 33.32	781.50	X 12
X 11.13	220.30	X 15.09	305.20	X 19.05	350.60	X 23.83	532.30	X 27.79	716.80	X 31.75	745.00	X 35.71	817.30	X 14
X 12.70	220.30	X 16.66	305.20	X 21.44	350.60	X 26.19	584.00	X 30.96	725.20	X 36.53	752.00	X 40.49	845.00	X 16
X 14.27	277.40	X 19.05	336.60	X 23.83	380.50	X 29.36	584.00	X 34.93	745.30	X 39.67	781.50	X 45.24	870.00	X 18
X 15.09	280.00	X 20.62	390.00	X 26.19	434.40	X 32.54	653.00	X 38.10	760.00	X 44.45	871.30	X 50.01	913.00	X 20
		X 22.22	467.00	X 28.58	535.00	X 34.92	653.00	X 41.28	790.00	X 47.63	845.00	X 53.98	940.50	X 22
X 17.48	409.00	X 24.61	478.00	X 30.96	545.00	X 38.89	665.00	X 46.02	813.90	X 52.37	852.50	X 59.54	980.70	X 24

CAPS

Øn	Øe			SCH STD		SCH X S		SCH XXS		SCH 10		SCH 20		SCH 30	
Nominal	Outside			Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight	Wall	Weight
Pipe Size	Diameter	Length	Length	Thickness		Thickness		Thickness		Thickness		Thickness		Thickness	Peso
in.	m/m	m/m	m/m		Kg		Kg		Kg		Kg		Kg		Kg
				m/m		m/m		m/m		m/m		m/m		m/m	
	D	E (4)	E1	T		T		T		T		T		T	
1/2"	21	25	25	2.77	0.03	3.73	0.04	7.47	0.06						
3/4"	27	25	25	2.87	0.05	3.91	0.06	7.82	0.10						
1"	33	38	38	3.38	0.10	4.55	0.13	9.09	0.20						
1 1/4"	42	38	38	3.56	0.18	4.85	0.24	9.70	0.37						
1 1/2"	48	38	38	3.68	0.22	5.08	0.30	10.16	0.45						
2 "	60	38	44	3.91	0.26	5.54	0.33	11.07	0.65						
2 1/2"	73	38	51	5.16	0.38	7.01	0.53	14.02	1.35						
3"	89	51	64	5.49	0.61	7.62	0.86	15.24	1.83						
3 1/2 "	102	64	76	5.74	1.19	8.08	1.58								
4"	114	64	76	6.02	1.33	8.56	1.76	17.12	3.50						
5"	141	76	89	6.55	1.99	9.52	2.64	19.05	5.02						
6"	168	89	102	7.11	3.00	10.97	4.40	21.95	8.53						
8"	219	102	127	8.18	5.43	12.70	7.46	22.22	13.50			6.35	5.43	7.04	5.43
10"	273	127	152	9.27	8.63	12.70	11.85	25.40	23.56			6.35	8.63	7.80	8.63
12"	324	152	178	9.53	12.13	12.70	16.65	25.40	30.96			6.35	12.13	8.38	12.13
14"	356	165	191	9.53	14.42	12.70	19.80			6.35	14.42	7.92	14.42	9.53	14.42
16"	406	178	203	9.53	18.86	12.70	25.89			6.35	18.86	7.92	18.86	9.53	18.86
18"	457	203	229	9.53	27.65	12.70	36.52			6.35	27.65	7.92	27.65	11.13	36.52
20"	508	229	254	9.53	35.60	12.70	46.98			6.35	35.60	9.53	35.60	12.701	46.98
22"	559	254	254	9.53	39.00	12.70	56.60			6.35	39.00	9.53	39.00	12.70	56.60
24"	610	267	305	9.53	46.00	12.70	64.60			6.35	46.00	9.53	46.00	14.27	78.70

photograph of a Cap

sample drawings of a cap

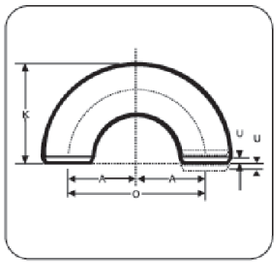
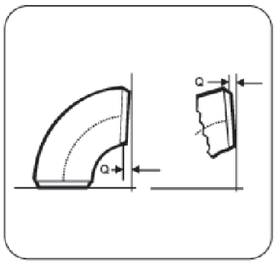
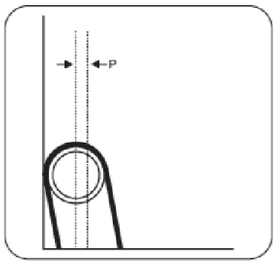
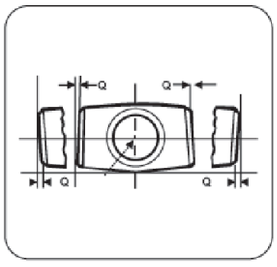
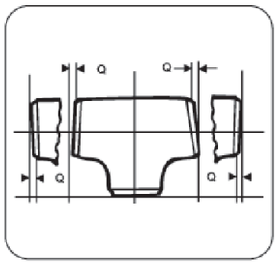


SCH 40		SCH 60		SCH 80		SCH 100		SCH 120		SCH 140		SCH 160		Øn
Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Wall Thickness	Weight	Nominal Pipe Size
	Kg		Kg		Kg		Kg		Kg		Kg		Kg	in.
m/m		m/m		m/m		m/m		m/m		m/m		m/m		
T		T				T		T		T		T		
2.77	0.03			3.73	0.04							4.78	0.05	1/2"
2.87	0.05			3.91	0.06							5.56	0.08	3/4"
3.38	0.10			4.55	0.13							6.35	0.15	1"
3.56	0.18			4.85	0.24							6.35	0.28	1 1/4"
3.68	0.22			5.08	0.3							7.14	0.34	1 1/2"
3.91	0.26			5.54	0.33							8.78	0.50	2 "
5.16	0.38			7.01	0.53							9.53	0.97	2 1/2"
5.49	0.61			7.62	0.86							11.13	1.52	3"
5.74	1.19			8.08	1.58									3 1/2 "
6.02	1.33			8.56	1.76			11.13	2.50			13.49	3.00	4"
6.55	1.99			9.53	2.64			12.70	3.65			15.88	4.10	5"
7.11	3.00			10.97	4.40			14.27	6.14			18.26	7.50	6"
8.18	5.43	10.31	6.70	12.70	7.46	15.09	9.72	18.26	11.90	20.62	13.50	23.01	13.50	8"
9.27	8.63	12.70	11.85	15.09	13.85	18.26	20.47	21.44	19.64	25.40	23.56	28.58	23.56	10"
10.31	13.25	14.27	19.45	17.48	23.40	21.44	25.80	25.40	30.96	28.58	36.12	33.32	36.12	12"
11.31	17.07	15.09	25.14	19.05	32.80	23.83	36.36	27.79	41.99	31.75	45.92	35.71	52.48	14"
12.70	22.30	16.66	30.87	21.44	42.88	26.19	51.45	30.96	60.03	36.53	68.60	40.49	77.20	16"
14.27	38.75	19.05	46.14	23.83	58.72	29.39	73.40	34.93	83.88	39.67	94.37	45.24	104.85	18"
15.09	56.55	20.62	80.45	26.19	94.22	32.54	120.50	38.10	120.70	44.45	151.70	50.01	169.00	20"
		22.22	86.30	28.58	126.00	34.92	153.00	41.28	155.00	47.63	211.00	53.98	242.00	22"
17.48	96.50	24.61	118.10	30.96	150.00	38.89	184.70	46.02	184.80	52.37	252.00	59.54	286.00	24"

TOLERANCE

TOLERANCE IN MM

All Fitings				90 & 45 deg. tees & elbows	Reducers	Caps	180 Deg. Returns			Nominal Pipe Size	Angularity Tol.	
Nominal Pipe Size (NPS)	Outside (1) Diameter at Bevel	Inside (2) Diameter at End	Wall (2) Thickness	Center to End Dimension	Overall Length	Overall Length	Center to Center Dimension	Back to Face Dimension	Alignment of Ends		Off Angle	Off Plane
	D		T	A,B,C,M	H	E	O	K	U		Q	P
1/2" to 2 1/2"	±1	±0.8	Not less than 87.5% of nominal thickness	±2	±2	±4	±7	±7	±1	1/2" to 4"	±1	±2
3" to 3 1/2"	±1	±1.6		±2	±2	±4	±7	±7	±1	5" to 8"	±2	±4
4"	+2-1	±1.6		±2	±2	±4	±7	±7	±1	10" to 12"	±3	±5
5" to 6"	+3-1	±1.6		±2	±2	±7	±7	±7	±1	14" to 16"	±3	±7
8"	±2	±1.6		±2	±2	±7	±7	±7	±1	18" to 24"	±4	±10
10"	+4-3	±3.2		±2	±2	±7	±10	±7	±2	26" to 30"	±5	±10
12" to 18"	+4-3	±3.2		±3	±3	±7	±10	±7	±2	32" to 42"	±5	±13
20" to 24"	+6-5	±4.8		±3	±3	±7	±10	±7	±2	44" to 48"	±5	±20
26" to 30"	+7-5	±4.8		±3	±3	±10	—	—	—	—	—	—
32" to 48"	+7-5	±4.8		±5	±5	±10	—	—	—	—	—	—

TOLERANCE IN INCHES

All Fitings				90 & 45 deg. tees & elbows	Reducers	Caps	180 Deg. Returns			Nominal Pipe Size	Angularity Tol.	
Nominal Pipe Size (NPS)	Outside (1) Diameter at Bevel	Inside (2) Diameter at End	Wall (2) Thickness	Center to End Dimension	Overall Length	Overall Length	Center to Center Dimension	Back to Face Dimension	Alignment of Ends		Off Angle	Off Plane
	D		T	A,B,C,M	H	E	O	K	U		Q	P
1/2 to 2 1/2	$^{+0.06}_{-0.03}$	±0.03	Not less than 87.5% of nominal thickness	±0.03	±0.03	±0.12	±0.25	±0.25	±0.03	1/2 to 4	0.03	0.06
3 to 3 1/2	±0.06	±0.06		±0.06	±0.06	±0.12	±0.25	±0.25	±0.03	5 to 8	0.06	0.12
4	±0.06	±0.06		±0.06	±0.06	±0.12	±0.25	±0.25	±0.03	10 to 12	0.09	0.19
5 to 8	$^{+0.09}_{-0.06}$	±0.06		±0.06	±0.06	±0.25	±0.25	±0.25	±0.03	14 to 16	0.09	0.25
10 to 18	$^{+0.16}_{-0.12}$	±0.12		±0.09	±0.09	±0.25	±0.38	±0.25	±0.06	18 to 24	0.12	0.38
20 to 24	$^{+0.25}_{-0.19}$	±0.19		±0.09	±0.09	±0.25	±0.38	±0.25	±0.06	26 to 30	0.19	0.38
26 to 30	$^{+0.25}_{-0.19}$	±0.19		±0.12	±0.19	±0.38	—	—	—	32 to 42	0.19	0.50
32 to 48	$^{+0.25}_{-0.19}$	±0.19		±0.19	±0.19	±0.38	—	—	—	44 to 48	0.19	0.75

All dimensions are inches

(1) Out-of-round is the sum of absolute values of plus and minus tolerance.
(2) The inside diameter at ends and the nominal wall thicknesses are to be specified by the purchaser.

Reg. Add. : #305 Amrutvel CHS, 3rd Floor, 160/B Angrewadi V.P. Road, Mumbai - 400 004.

Admin Off. : 37/A, 2nd Carpenter Street, Off. Nanubhai Desai Road, Mumbai - 400004.

Factory Add. : Plot No.404 B/2, Chinchghar Road Kudus, Taluka Wada, Dist. Thane - 421312

Tel No. : 91-22-67439124 / 66595468.

Fax No. : 91-22-23861664.

Email : sales@am-industries.com | info@am-industries.com

Website : www.am-industries.com