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PIPE CATALOGUE

A106 Seamless Pressure Pipe

Wheatland Tube is a leading producer of A106 seamless pipe for major refineries, petro-chemical plants, power plants, ship building operations and other facilities that transport fluids and gases which reach high temperature and pressure levels.

Our A106 Seamless Pressure Pipe comes in hot-dip galvanized, where we set the industry standard, and our exclusive Blue Diamond® finish, pickled and oiled, or bare. All are available in plain end or threads only, and threaded and coupled.

Wheatland's A106 Seamless Pressure Pipe is produced to ASTM and ASME specifications, in grades B and C. All of our products are finished in the U.S.

We produce sizes from 1/8" to 2" in schedules 40, 80, 160 and double extra heavy. Our products are suitable for bending, flanging, forming and welding.

Why Wheatland's BLUE DIAMOND A106 is so Exceptional

Wheatland's BLUE DIAMOND seamless, high-temperature pipe exceeds ASTM A106 requirements.

- Both ends of every pipe are machined square, then lightly chamfered on their inside and outside edges.
- Each pipe is individually sprayed 360°.
- BLUE DIAMOND coating offers superior surface protection, is fully compatible with nipple manufacturers' cutting oils and it's easily strippable.
- The coating on every length of BLUE DIAMOND pipe is *individually* heat cured to deter rust.
- Each length of pipe is stenciled in bright yellow with the specification number, grade, test pressure, length, size and heat number.

Documented Quality Assurance

Wheatland Tube has a complete quality assurance program with documented process control procedures. Our quality assurance manual is available for your audit. We apply statistical process control procedures to verify adherence to specification and our own more stringent internal quality standards. All our seamless meets both grades B and C. The Quality Management System complies with the requirements of the Pressure Equipment Directive (PED).



Hydrostatic and Nondestructive Electric Testing

Hydrostatic inspection test pressure is 2500 psi for sizes NPS 2 and under. Test pressure shall be maintained for a minimum of 5 seconds.

When specified by the purchaser, pipe may be tested by the nondestructive electric test in lieu of the hydrostatic test.

Bending Test (Cold) for NPS 2 and Under

	Degree Of Bend	Diameter of Mandrel
Standard	90°	12 x pipe O.D.
Close Coiling	180°	8 x pipe O.D.

Specifications/Requirements

Threaded Pipe:

Threads comply with ANSI Standard B 1.20.1

Couplings:

Couplings comply with API specifications 5L

Tensile Requirements

Yield Strength, min	40,000 psi
Tensile Strength, min	70,000 psi
Elongation in 2"	30% minimum

All of our facilities have quality systems in place. At a minimum, they're registered to ISO 9001:2008 Quality Management Systems.



GÜRMAL VANA MAKİNA SANAYİ TİC.LTD.ŞTİ.
GELECEĞİNİZ BİZİM İÇİN ÖNEMLİ ...



Seamless Pressure Pipe Grades B & C

Plain End Dimensions Schedules 40 & 80

Nominal Size	O.D. Inches	Schedule 40		Schedule 80	
		Wall	Weight, Lb/Ft	Wall	Weight, Lb/Ft
1/8	0.405	0.068	0.24	0.095	0.31
1/4	0.540	0.088	0.43	0.119	0.54
3/8	0.675	0.091	0.57	0.126	0.74
1/2	0.840	0.109	0.85	0.147	1.09
3/4	1.050	0.113	1.13	0.154	1.48
1	1.315	0.133	1.68	0.179	2.17
1 1/4	1.660	0.140	2.27	0.191	3.00
1 1/2	1.900	0.145	2.72	0.200	3.63
2	2.375	0.154	3.66	0.218	5.03

Plain End Dimensions Schedules 160 & XXS

Nominal Size	O.D. Inches	Schedule 160		Schedule XXS	
		Wall	Weight, Lb/Ft	Wall	Weight, Lb/Ft
1/8	0.405	N/A	N/A	N/A	N/A
1/4	0.540	N/A	N/A	N/A	N/A
3/8	0.675	N/A	N/A	N/A	N/A
1/2	0.840	0.188	1.31	0.294	1.72
3/4	1.050	0.219	1.95	0.308	2.44
1	1.315	0.250	2.85	0.358	3.66
1 1/4	1.660	0.250	3.77	0.382	5.22
1 1/2	1.900	0.281	4.86	0.400	6.41
2	2.375	N/A	N/A	N/A	N/A



ASTM A106 CAPABILITY CHART

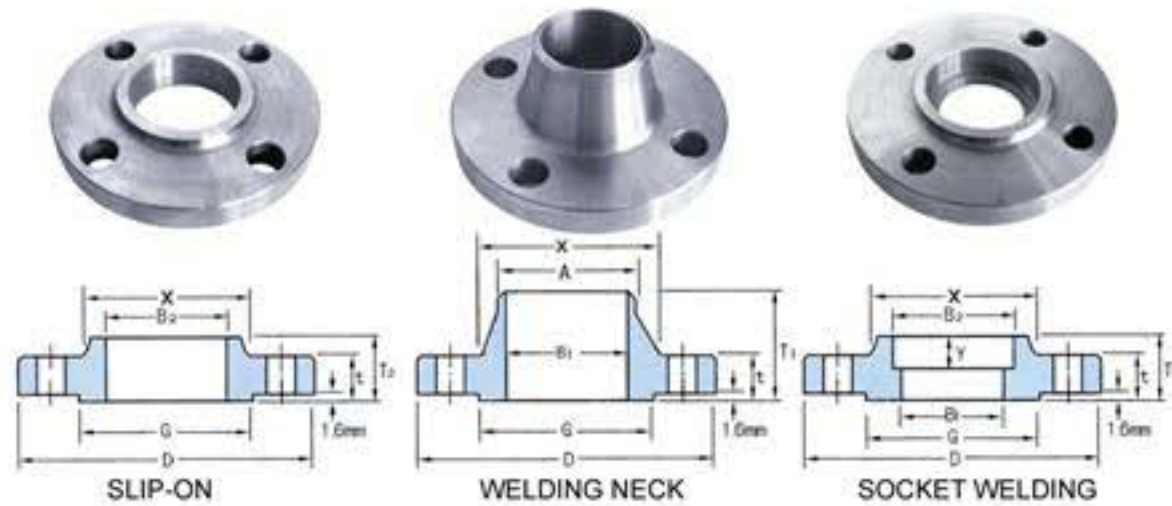
SIZE	GRADE (B C)	DIMENSIONS	LENGTH	TOLERANCES (OD Wall)	P.E.	T.O.	T&C	Blue Diamond	Available Finishes (Bare P&O Galv)	Stencil
1/8" SCH 40	X X	0.405 x 0.068	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
1/8" SCH 80	X X	0.405 x 0.095	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
1/4" SCH 40	X X	0.540 x 0.088	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
1/4" SCH 80	X X	0.540 x 0.119	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
3/8" SCH 40	X X	0.675 x 0.091	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
3/8" SCH 80	X X	0.675 x 0.126	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
1/2" SCH 40	X X	0.840 x 0.109	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
1/2" SCH 80	X X	0.840 x 0.147	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
1/2" SCH 160	X X	0.840 x 0.188	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
1/2" SCH XX	X X	0.840 x 0.294	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
3/4" SCH 40	X X	1.050 x 0.113	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
3/4" SCH 80	X X	1.050 x 0.154	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
3/4" SCH 160	X X	1.050 x 0.219	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
3/4" SCH XX	X X	1.050 x 0.308	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
1" SCH 40	X X	1.315 x 0.133	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
1" SCH 80	X X	1.315 x 0.179	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
1" SCH 160	X X	1.315 x 0.250	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
1" SCH XX	X X	1.315 x 0.358	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
1 1/4" SCH 40	X X	1.660 x 0.140	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
1 1/4" SCH 80	X X	1.660 x 0.191	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
1 1/4" SCH 160	X X	1.660 x 0.250	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
1 1/4" SCH XX	X X	1.660 x 0.382	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
1 1/2" SCH 40	X X	1.900 x 0.145	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
1 1/2" SCH 80	X X	1.900 x 0.200	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
1 1/2" SCH 160	X X	1.900 x 0.281	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
1 1/2" SCH XX	X X	1.900 x 0.400	17' / 24'	+/- 0.015" +20%/-12.5%	X	X	X	X	X X X	X
2" SCH 40	X X	2.375 x 0.154	17' / 24'	+/- 0.031" +20%/-12.5%	X	X	X	X	X X X	X
2" SCH 80	X X	2.375 x 0.218	17' / 24'	+/- 0.031" +20%/-12.5%	X	X	X	X	X X X	X

1. 2" size with P.E. is beveled
2. Hydro testing is 2500 lbs. for 5 seconds
3. Stencil is yellow on Blue Diamond / Black on galvanized / bare pickled finishes



FLANGE CATALOGUE

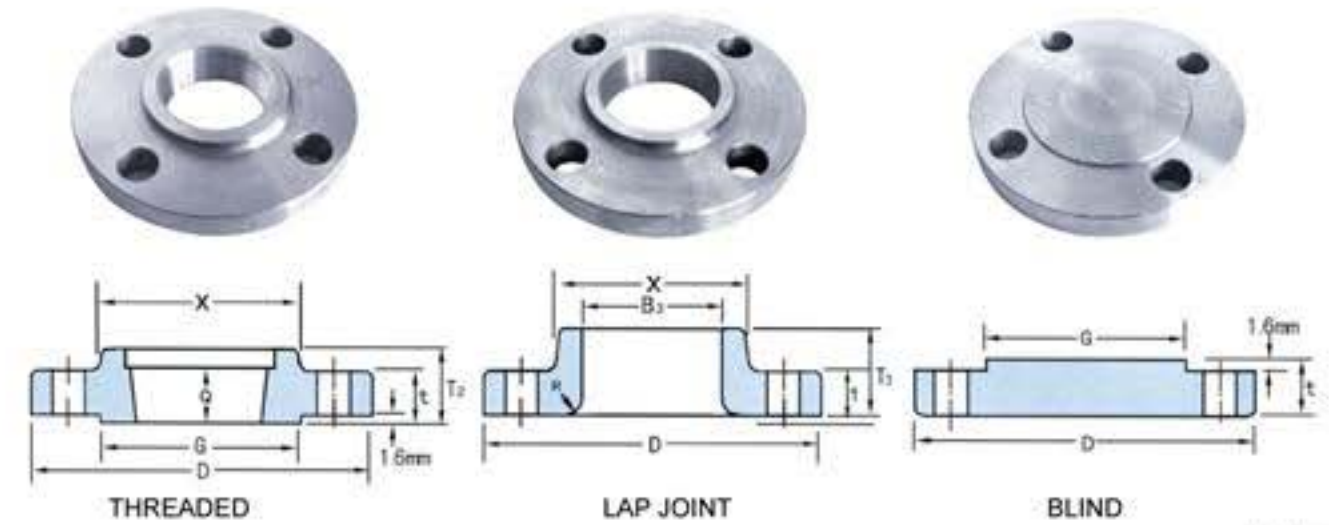
■ CLASS 150 FLANGES



ANSI B16.5 STEEL FLANGES

Unit:mm

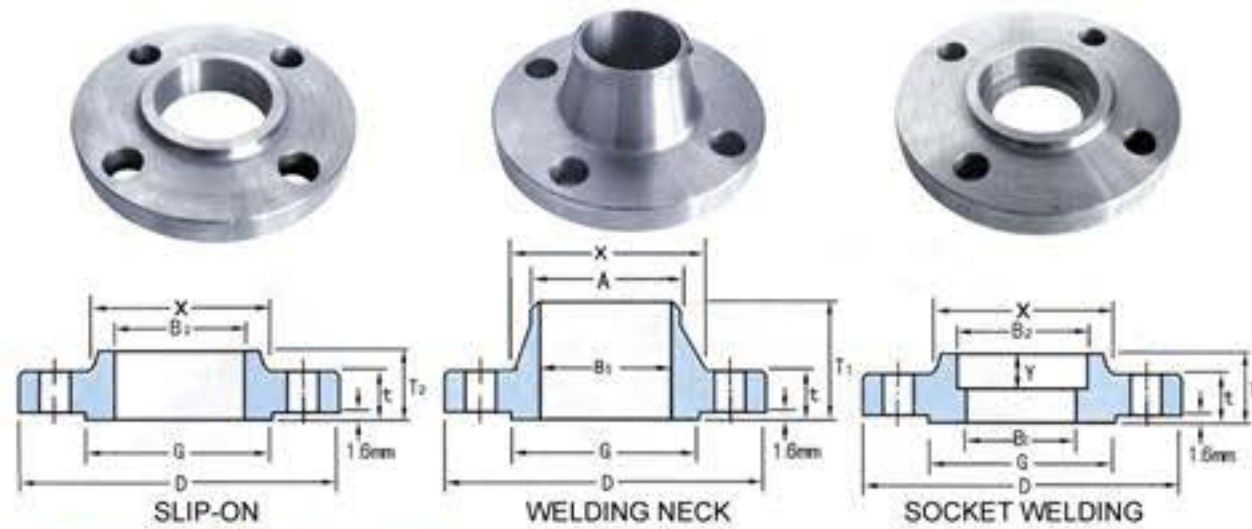
Nominal Pipe Size	Outside Diam	O.D. of Raised Face	Diam at Base of Hub	Thickness	BORE			LENGTH THRU HUB			Diam of Hub at Bevel	Radius of Fillet	Thread Length
					Welding Neck Socket Welding	Slip-on Socket Welding	Lap Joint	Welding Neck	Slip-on Threaded Socket Welding	Lap Joint			
					B ₁	B ₂	B ₃	T ₁	T ₂	T ₃			
1/2	89	35.1	30.2	11.2	15.7	22.4	22.9	47.8	15.7	15.7	21.3	3.0	15.7
3/4	99	42.9	38.1	12.7	20.8	27.7	28.2	52.3	15.7	15.7	26.7	3.0	15.7
1	108	50.8	49.3	14.2	26.7	34.5	35.1	55.6	17.5	17.5	33.5	3.0	17.5
1 1/4	117	63.5	58.7	15.7	35.1	43.2	43.7	57.2	20.6	20.6	42.2	4.8	20.6
1 1/2	127	73.2	65.0	17.5	40.9	49.5	50.0	62.0	22.4	22.4	48.3	6.4	22.4
2	152	91.9	77.7	19.1	52.6	62.0	62.5	63.5	25.4	25.4	60.5	7.9	25.4
2 1/2	178	104.6	90.4	22.4	62.7	74.7	75.4	69.9	28.4	28.4	73.2	7.9	28.4
3	191	127.0	108.0	23.9	78.0	90.7	91.4	69.9	30.2	30.2	88.9	9.7	30.2
3 1/2	216	139.7	122.2	23.9	90.2	103.4	104.1	71.4	31.8	31.8	101.6	9.7	31.8
4	229	157.2	134.9	23.9	102.4	116.1	116.8	76.2	33.3	33.3	114.3	11.2	33.3
5	254	185.7	163.6	23.9	128.3	143.8	144.5	88.9	36.6	36.6	141.2	11.2	36.6
6	279	215.9	192.0	25.4	154.2	170.7	171.5	88.9	39.6	39.6	168.4	12.7	39.6
8	343	269.7	246.1	28.4	202.7	221.5	222.3	101.6	44.5	44.5	219.2	12.7	44.5
10	406	323.9	304.8	30.2	254.5	276.4	277.4	101.6	49.3	49.3	273.1	12.7	49.3
12	483	381.0	365.3	31.8	304.8	327.2	328.2	114.3	55.6	55.6	323.9	12.7	55.6
14	533	412.8	400.1	35.1	336.6	359.2	360.2	127.0	57.2	79.2	355.6	12.7	57.2
16	597	469.9	457.2	36.6	387.1	410.5	411.2	127.0	63.5	87.4	406.4	12.7	63.5
18	635	533.4	505.0	39.6	438.2	461.8	462.3	139.7	68.3	96.8	457.2	12.7	68.3
20	699	584.2	558.8	42.9	489.0	513.1	514.4	144.5	73.2	103.1	508.0	12.7	73.2
24	813	692.2	663.4	47.8	590.6	616.0	616.0	152.4	82.6	111.3	609.6	12.7	82.6



Unit:mm

Nominal Pipe Size		DRILLING			BOLTING				APPROXIMATE WEIGHT				
	Depth of Socket	Bolt Circle Diam	Number of Holes	Diam of Holes	Diam of Bolt (inch)	Machine Bolt Length	Stud Bolt Length		Welding Neck	Slip-on and Threaded	LapJoint	Blind	Socket Welding
							Raised Face	Raised Face					
1/2	9.7	60.5	4	15.7	1/2	50.8	57.2	-	0.92	0.51	0.51	0.51	0.52
3/4	11.2	69.9	4	15.7	1/2	50.8	63.5	-	0.92	0.90	0.90	0.90	0.93
1	12.7	79.2	4	15.7	1/2	57.2	63.5	76.2	1.40	0.90	0.93	0.95	0.95
1 1/4	14.2	88.9	4	15.7	1/2	57.2	69.9	82.6	1.45	1.40	1.40	1.40	1.48
1 1/2	15.7	98.6	4	15.7	1/2	63.5	69.9	82.6	1.81	1.81	1.81	1.80	1.50
2	17.5	120.7	4	19.1	5/8	69.9	82.6	95.3	2.80	2.30	2.38	2.64	2.50
2 1/2	19.1	139.7	4	19.1	5/8	76.2	88.9	101.6	4.28	3.43	3.60	4.06	3.55
3	20.6	152.4	4	19.1	5/8	76.2	88.9	101.6	5.18	4.00	4.04	5.00	4.15
3 1/2	22.4	171.8	8	19.1	5/8	76.2	88.9	101.6	5.50	5.00	5.00	5.90	5.50
4	23.9	190.5	8	19.1	5/8	76.2	88.9	101.6	7.32	5.90	5.96	7.70	6.50
5	23.9	215.9	8	22.4	3/4	82.6	95.3	108.0	8.91	6.80	6.80	9.10	7.10
6	26.9	241.3	8	22.4	3/4	82.6	101.6	114.3	11.26	8.80	8.60	12.00	9.90
8	31.8	298.5	8	22.4	3/4	89.9	108.0	120.7	18.00	13.60	13.60	20.40	15.80
10	33.3	362.0	12	25.4	7/8	101.6	114.3	127.0	25.00	19.50	19.50	31.80	23.00
12	39.6	431.8	12	25.4	7/8	101.6	120.7	133.4	39.98	29.03	29.03	49.90	33.90
14	41.4	476.3	12	28.4	1	114.3	133.4	146.1	55.00	41.00	47.60	67.40	46.50
16	44.5	539.8	16	28.4	1	114.3	133.4	146.1	64.41	45.00	63.50	81.60	51.70
18	49.3	577.9	16	31.8	1 1/8	127.0	146.1	158.8	74.84	59.00	72.60	99.80	67.90
20	54.1	635.0	20	31.8	1 1/8	139.7	158.8	171.5	89.36	75.00	88.50	129.00	94.50
24	63.5	749.3	20	35.1	1 1/4	152.4	171.5	184.2	119.66	99.80	125.00	195.00	115.20

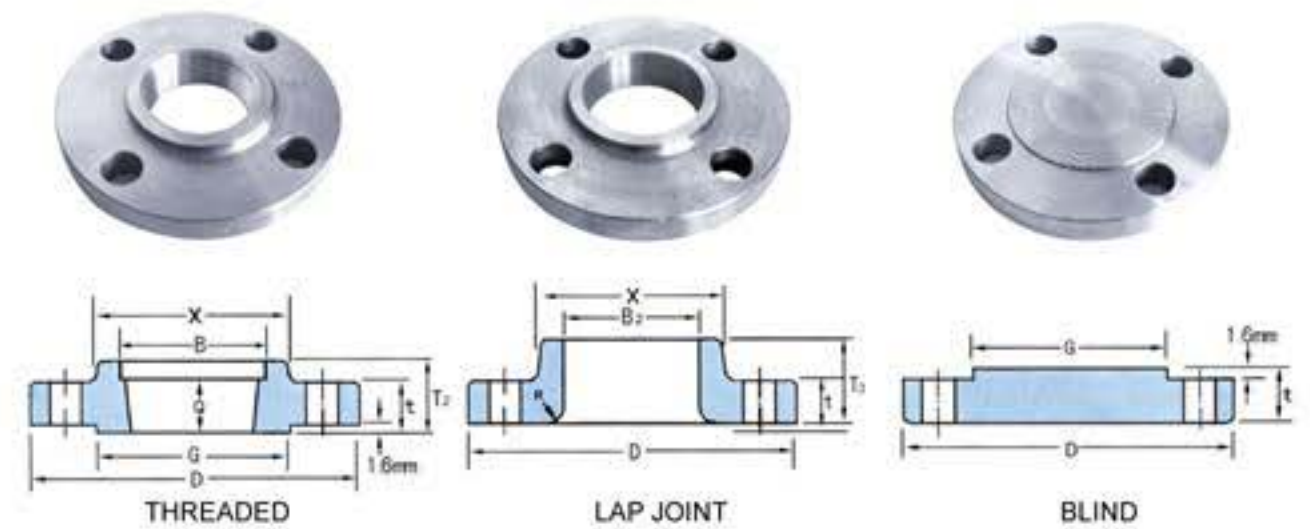
■ CLASS 300 FLANGES



ANSI B16.5 STEEL FLANGES

Unit:mm

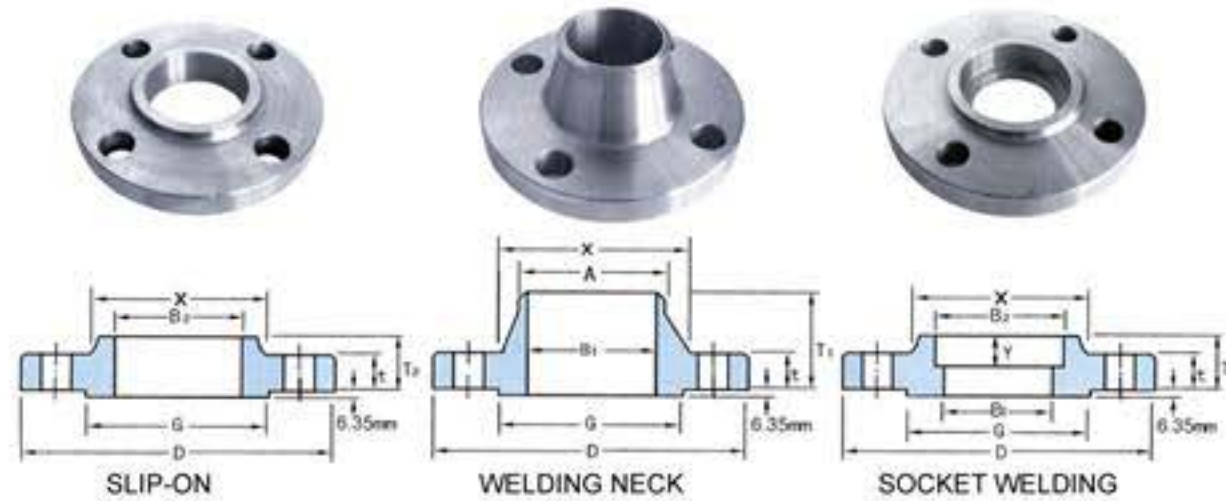
Nominal Pipe Size	Outside Diam	Diam at Base of Hub	O.D. of Raised Face	Thick- ness	BORE				LENGTH THRU HUB			Diam of Hub at Bevel	Radius of Fillet	Thread Length
					Welding Neck Socket Welding	Slip-on Socket Welding	Lap Joint	Counter Bore Min. Threaded Min.	Welding Neck	Slip-on Threaded Socket Welding	Lap Joint			
	D	X	G	t	B ₁	B ₂	B ₃	B	T ₁	T ₂	T ₃	A	R	Q
1/2	95	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	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	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	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	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	84.1	91.9	22.1	52.6	62.0	62.5	63.5	69.9	33.3	33.3	60.5	7.9	28.4
2 1/2	191	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	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	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	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	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	206.2	215.9	36.6	154.2	170.7	171.5	171.5	98.6	52.6	52.3	168.4	12.7	46.0
8	381	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	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	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	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	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	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	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	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



Unit:mm

Nominal Pipe Size	Depth of Socket	DRILLING			BOLTING				APPROXIMATE WEIGHT				
		Bolt Circle Diam	Number of Holes	Diam of Holes	Diam of Bolt (inch)	Machine Bolt Length	Stud Bolt Length		Welding Neck	Slip-on and Threaded	LapJoint	Blind	Socket Welding
	Raised Face						Raised Face	Ring Joint					
1/2	9.7	66.5	4	15.7	1/2	57.2	63.5	76.2	0.9	0.9	0.9	0.9	0.93
3/4	11.2	82.6	4	19.1	5/8	63.5	76.2	88.9	1.4	1.4	1.4	1.4	1.45
1	12.7	88.9	4	19.1	5/8	63.5	76.2	88.9	1.8	1.5	1.5	1.5	1.55
1 1/4	14.2	98.6	4	19.1	5/8	69.9	82.6	95.3	2.3	1.8	1.8	2.8	1.9
1 1/2	15.7	114.3	4	22.4	3/4	76.2	88.9	101.6	3.2	2.7	2.7	2.8	2.8
2	17.5	127.0	8	19.1	5/8	76.2	88.9	101.6	4.1	3.2	3.2	3.6	3.4
2 1/2	19.1	149.4	8	22.4	3/4	82.6	101.6	114.3	5.4	4.5	4.5	5.4	4.9
3	20.6	168.1	8	22.4	3/4	88.9	108.0	120.7	7.32	5.9	5.9	7.3	6.5
3 1/2	22.4	184.2	8	22.4	3/4	95.3	108.0	127.0	8.2	7.72	7.72	9.53	8.4
4	23.9	200.2	8	22.4	3/4	95.3	114.3	127.0	11.3	10.13	10.13	12.2	10.9
5	23.9	235.0	8	22.4	3/4	108.0	120.7	133.4	15.47	13.00	13.00	16.00	14.00
6	26.9	269.7	12	22.4	3/4	108.0	120.7	139.7	20.00	17.7	17.7	22.7	19.4
8	31.8	330.2	12	25.4	7/8	120.7	139.7	152.4	30.48	26.3	26.3	36.7	29.3
10	33.3	387.4	16	28.4	1	139.7	158.8	171.5	43.74	38.7	41.3	56.7	41.4
12	39.6	450.9	16	31.8	1 1/8	146.1	171.5	184.2	64.41	52.2	63.5	83.9	59.6
14	41.4	514.4	20	31.8	1 1/8	158.8	177.8	190.5	88.3	75.0	86.2	113.0	
16	44.5	571.5	20	35.1	1 1/4	165.1	190.5	203.2	115.0	94.0	113.0	139.25	
18	49.3	628.7	24	35.1	1 1/4	171.5	196.9	209.6	145.0	113.0	135.0	179.0	
20	54.1	685.8	24	35.1	1 1/4	184.2	203.2	222.3	181.0	143.0	168.0	229.0	
24	63.5	812.8	24	41.1	1 1/2	203.2	228.6	254.0	263.0	260.0	265.0	358.0	

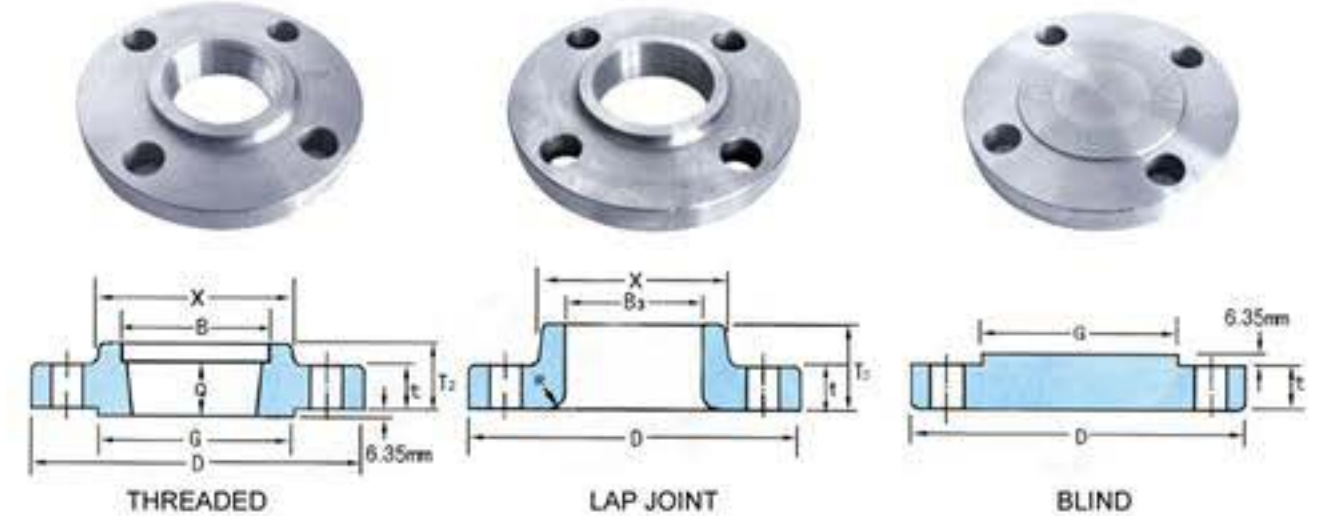
■ CLASS 600 FLANGES



ANSI B16.5 STEEL FLANGES

Unit:mm

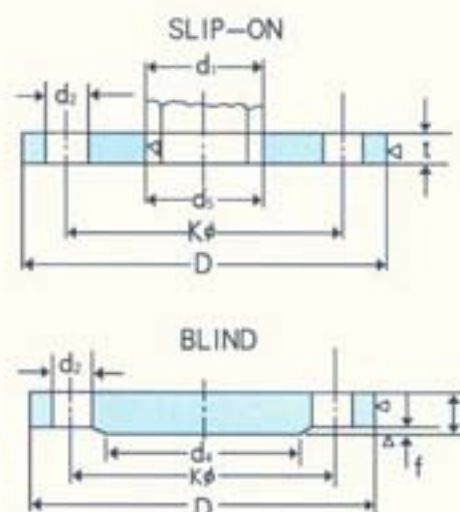
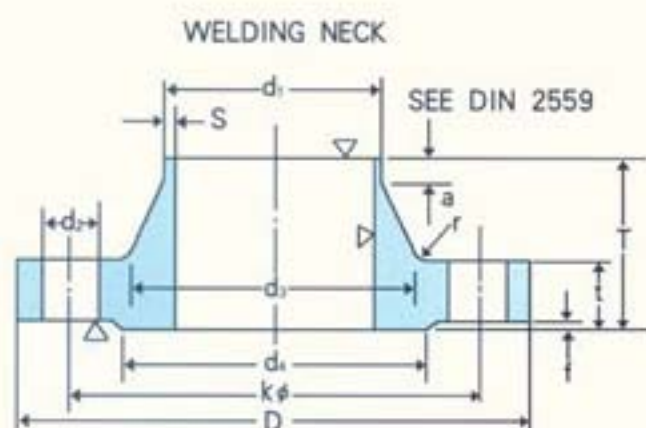
Nominal Pipe Size	Outside Diam	Diam at Base of Hub	O.D. of Raised Face	Thick- ness	BORE				LENGTH THRU HUB			Diam of Hub at Bevel	Radius of Fillet	Thread Length
					Welding Neck Socket Welding	Slip-on Socket Welding	Lap Joint	Counter Bore Min. Threaded Min.	Welding Neck	Slip-on Threaded Socket Welding	Lap Joint			
	D	X	G	t	B ₁	B ₂	B ₃	B	T ₁	T ₂	T ₃	A	R	Q
1/2	95	38.1	35.1	14.2	To be specified by purchaser	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		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		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		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		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		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		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		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	66.45		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



Unit:mm

Nominal Pipe Size	Depth of Socket	DRILLING			BOLTING				APPROXIMATE WEIGHT				
		Bolt Circle Diam	Number of Holes	Diam of Holes	Diam of Bolt (inch)	Machine Bolt Length	Stud Bolt Length		Welding Neck	Slip-on and Threaded	LapJoint	Blind	Socket Welding
	Raised Face						Raised Face	Ring Joint					
1/2	9.7	66.5	4	15.7	1/2	76.2	69.9	76.2	1.36	0.98	0.98	0.98	0.98
3/4	11.2	82.6	4	19.1	5/8	88.9	82.6	88.9	1.8	1.4	1.4	1.4	1.43
1	12.7	88.9	4	19.1	5/8	88.9	82.6	88.9	2.0	2.0	2.0	2.0	2.11
1 1/4	14.2	98.6	4	19.1	5/8	95.3	88.9	95.3	2.8	2.7	2.7	2.72	3.03
1 1/2	15.7	114.3	4	22.4	3/4	108.0	101.6	108.0	3.8	3.8	3.8	3.8	3.88
2	17.5	127.0	8	19.1	5/8	108.0	101.6	108.0	5.44	4.1	4.1	4.6	4.37
2 1/2	19.1	149.4	8	22.4	3/4	120.7	114.3	120.7	8.2	5.9	5.9	6.81	6.36
3	20.6	168.1	8	22.4	3/4	127.0	120.7	127.0	10.43	7.3	7.3	9.1	7.51
3 1/2	22.4	184.2	8	25.4	7/8	139.7	133.4	139.7	12.0	9.53	9.4	13.2	10.5
4	23.9	215.9	8	25.4	7/8	146.1	139.7	146.1	19.05	17.0	17.0	18.61	16.1
5	23.9	266.7	8	28.4	1	165.1	158.8	165.1	31.0	29.0	29.0	30.87	30.3
6	26.9	292.1	12	28.4	1	171.5	165.1	171.5	36.77	36.32	36.0	39.04	38.72
8	31.8	349.3	12	31.8	1 1/8	190.5	184.2	196.9	55.0	52.0	52.0	64.0	48.2
10	33.3	431.8	16	35.1	1 1/4	215.9	209.6	215.9	90.0	80.36	88.53	104.9	86.4
12	39.6	489.0	20	35.1	1 1/4	222.3	215.9	222.3	110.0	97.61	109.0	134.0	106.2
14	41.4	527.1	20	38.1	1 3/8	235.0	228.6	235.0	157.5	117.6	131.7	161.0	
16	44.5	603.3	20	41.1	1 1/2	254.0	247.7	254.0	218.4	186.2	181.6	239.3	
18	49.3	654.1	20	44.5	1 5/8	273.1	266.7	273.1	252.0	216.1	212.9	301.9	
20	54.1	723.9	24	44.5	1 5/8	285.8	279.4	292.1	313.3	277.9	274.2	388.2	
24	63.5	838.2	24	50.8	1 7/8	330.2	323.6	336.9	443.4	397.7	393.2	567.0	

6BAR DIN 2573 SLIP-ON FLANGES DIN 2527 BLIND FLANGES DIN 2631 WELDING NECK FLANGES

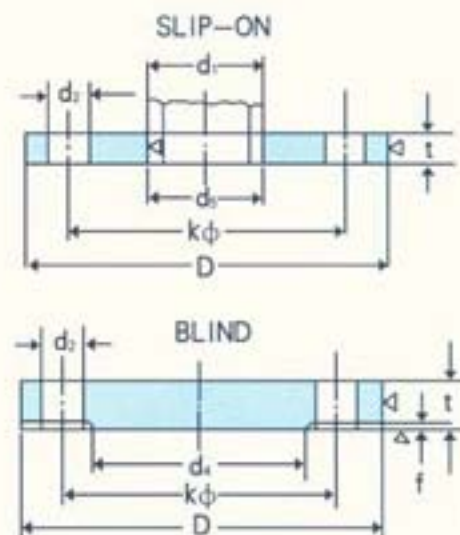
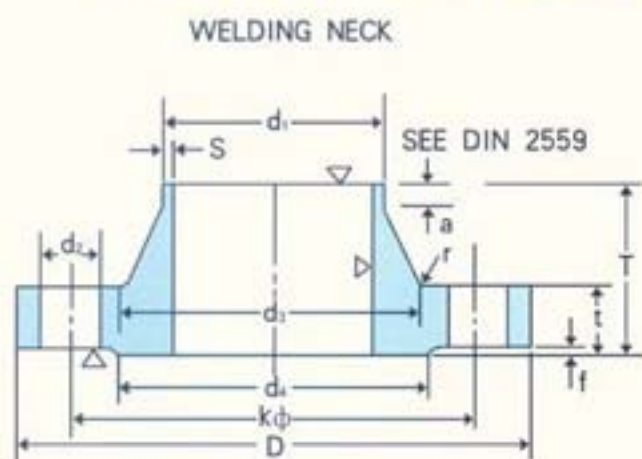


Unit:mm

Bore		Common Dimension						Hub				Raised Face		Drilling				Approx. Weight(kg)	
Nominal Bore	d ₁	D	t			K	T	d ₃	s	r	a ≈	d ₄	f	Number of Bolt	Dia.of Bolt		d ₂	DIN 2573	DIN 2631
			Welding Neck	Slip-on	Blind														
10	14 17.2")	75	12	12	12	50	28	22 26	1.8	4	6	35	2	4	M10	—	11.5	0.036	0.335
15	20 21.3")	80	12	12	12	55	30	28 30	2.0	4	6	40	2	4	M10	—	11.5	0.410	0.392
20	25 26.9")	90	14	14	14	65	32	35 38	2.3	4	6	50	2	4	M10	—	11.5	0.600	0.592
25	30 33.7")	100	14	14	14	75	35	40 42	2.6	4	6	60	2	4	M10	—	11.5	0.740	0.747
32	38 42.4")	120	14	16	14	90	35	50 55	2.6	6	6	70	2	4	M12	(1/2")	14	1.19	1.05
40	44.5 48.3")	130	14	16	14	100	38	58 62	2.6	6	7	80	3	4	M12	(1/2")	14	1.39	1.18
50	57 60.3")	140	14	16	14	110	38	70 74	2.9	6	8	90	3	4	M12	(1/2")	14	1.53	1.34
65	76.1")	160	14	16	14	130	38	88	2.9	6	9	110	3	4	M12	(1/2")	14	1.89	1.67
80	88.9")	190	16	18	16	150	42	102	3.2	8	10	128	3	4	M16	(5/8")	18	2.98	2.71
100	108 114.3")	210	16	18	16	170	45	122 130	3.6	8	10	148	3	4	M16	(5/8")	18	3.46	3.24
125	133 139.7")	240	18	20	18	200	48	148 155	4.0	8	10	178	3	8	M16	(5/8")	18	4.60	4.49
150	159 168.3")	265	18	20	18	225	48	172 184	4.5	10	12	202	3	8	M16	(5/8")	18	5.22	5.15
200	216 219.1")	320	20	22	20	280	55	230 236	5.9	10	15	258	3	8	M16	(5/8")	18	7.15	7.78
250	267 273")	375	22	24	22	335	60	282 290	6.2	12	15	312	3	12	M16	(5/8")	18	9.61	10.8
300	318 323.9")	440	22	24	22	395	62	335 342	7.1	12	15	365	4	12	M20	(3/4")	23	12.6	14.0
350	355.6") 368	490	22	26	22	445	62	385	7.1	12	15	415	4	12	M20	(3/4")	23	15.6	16.1
400	406.4") 419	540	22	28	22	495	65	438	7.1	12	15	455	4	16	M20	(3/4")	23	18.4	18.3
500	508") 521	645	24	30	24	600	68	538	7.1	12	15	570	4	20	M20	(3/4")	23	24.5	24.6
600	609.6") 622	755	24			705	70	640	7.1	12	16	670	5	20	M24	(7/8")	27		
700	711.2") 720	860	24			810	70	740	7.1	12	16	775	5	24	M24	(7/8")	27		
800	812.8") 820	975	24			920	70	842	7.1	12	16	880	5	24	M27	(1")	30		
900	914.4") 920	1075	26			1020	70	942	7.1	12	16	980	5	24	M27	(1")	30		
1000	1016") 1020	1175				1120	70	1045	7.1	16	16	1080	5	28	M27	(1")	30		

NOTE: * Out side diameter of pipe complies with ISO recommendation R64

10BAR DIN 2576 SLIP-ON FLANGES DIN 2527 BLIND FLANGES DIN 2632 WELDING NECK FLANGES

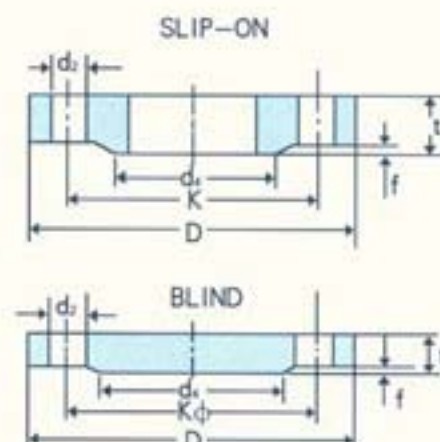
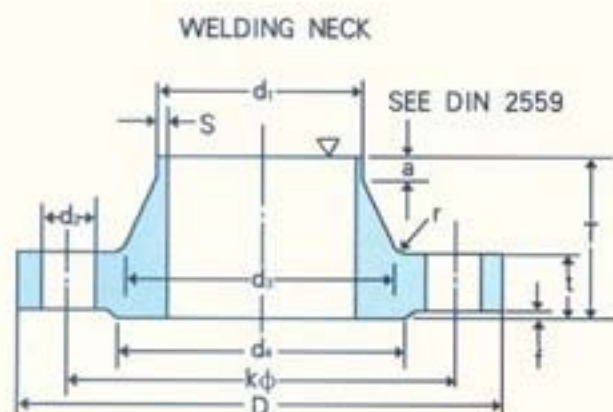


Unit:mm

Bore		Common Dimension						Hub				Raised Face		Drilling			Approx Weight (kg)	
Nominal Bore	d ₁	D	t			K	T	d ₃	s	r	a ≈	d ₄	f	Number of Bolt	Dia. of Bolt	d ₂	DIN 2576	DIN 2632
10	14 (17.2")	90	14	14	14	60	35	25 28	1.8	4	6	40	2	4	M12 (1/2")	14	0.613	0.580
15	20 (21.3")	95	14	14	14	65	35	30 32	2.0	4	6	45	2	4	M12 (1/2")	14	0.675	0.648
20	25 (26.9")	105	16	16	16	75	38	38 40	2.3	4	6	58	2	4	M12 (1/2")	14	0.947	0.952
25	30 (33.7")	115	16	16	16	85	38	42 45	2.6	4	6	68	2	4	M12 (1/2")	14	1.14	1.14
32	38 (42.4")	140	16	16	16	100	40	52 56	2.6	6	6	78	2	4	M16 (5/8")	18	1.66	1.69
40	44.5 (48.3")	150	16	16	16	110	42	60 64	2.6	6	7	88	3	4	M16 (5/8")	18	1.89	1.86
50	57 (60.3")	165	18	18	18	125	45	72 75	2.9	6	8	102	3	4	M16 (5/8")	18	2.51	2.53
65	76.1")	185	18	18	18	145	45	90	2.9	6	10	122	3	4	M16 (5/8")	18	3.00	3.06
80	88.9")	200	20	20	20	160	50	105	3.2	8	10	138	3	4	M16 (5/8")	18	3.79	3.70
100	108 (114.3")	220	20	20	20	180	52	125 131	3.6	8	12	158	3	8	M16 (5/8")	18	4.20	4.62
125	133 (139.7")	250	22	22	22	210	55	150 156	4.0	8	12	188	3	8	M16 (5/8")	18	5.71	6.30
150	159 (168.3")	285	22	22	22	240	55	175 184	4.5	10	12	212	3	8	M20 (3/4")	23	6.72	7.75
200	216 (219.1")	340	24	24	24	295	62	232 235	5.9	10	16	268	3	8	M20 (3/4")	23	9.50	11.3
250	267 (273")	395	26	26	26	350	68	285 292	6.3	12	16	320	3	12	M20 (3/4")	23	12.5	14.7
300	318 (323.9")	445	26	26	28	400	68	335 344	7.1	12	16	370	4	12	M20 (3/4")	23	14.4	17.6
350	355.6") 368	505	26	28	30	460	68	385	7.1	12	16	430	4	16	M20 (3/4")	23	20.6	21.4
400	406.4") 419	565	26	32	32	515	72	440	7.1	12	16	482	4	16	M24 (7/8")	27	27.9	26.1
500	508") 521	670	28	38	34	620	75	542	7.1	12	16	585	4	20	M24 (7/8")	27	41.1	34.7
600	609.6") 622	780	28			725	80	642	7.1	12	18	685	5	20	M27 (1")	30		
700	711.2") 720	895	30			840	80	745	8.0	12	18	800	5	24	M27 (1")	30		
800	812.8") 820	1015	32			950	90	850	8.0	12	18	905	5	24	M30 (1 1/8")	33		
900	914.4") 920	1115	34			1050	95	950	10.0	12	20	1005	5	28	M30 (1 1/8")	33		
1000	1016") 1020	1230	34			1160	95	1052	10.0	16	20	1110	5	28	M33 (1 1/4")	36		

NOTE: * Out side diameter of pipe complies with ISO recommendation R64

16BAR DIN 2543 SLIP-ON FLANGES DIN 2527 BLIND FLANGES DIN 2633 WELDING NECK FLANGES



Unit:mm

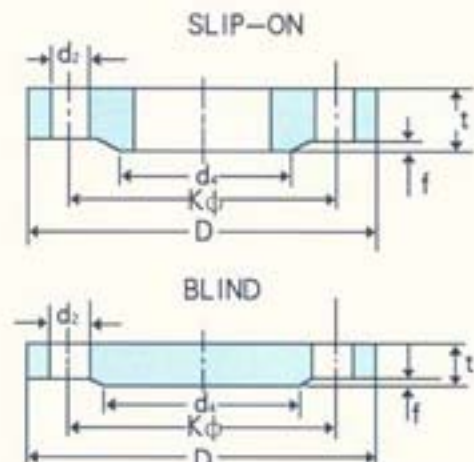
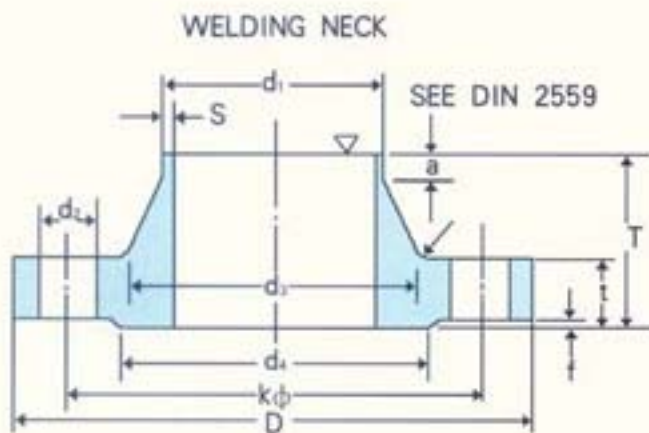
Bore		Common Dimension						Hub				Raised Face		Drilling			Approx Weight (Kg)	
Nominal Bore	d ₁	D	Welding Neck	Slip-on (No-Hub)	Blind	K	T	d ₃	s	r	a ≈	d ₄	f	Number of Bolt	Dia. of Bolt	d ₂	DIN 2543	DIN 2633
10	14 (17.2")	90	14		14	60	35	25 28	1.8	4	6	40	2	4	M12 (1/2")	14	0.63	0.580
15	20 (21.3")	95	14	14	14	65	35	30 32	2.0	4	6	45	2	4	M12 (1/2")	14	0.72	0.648
20	25 (26.9")	105	16	16	16	75	38	38 40	2.3	4	6	58	2	4	M12 (1/2")	14	1.01	0.952
25	30 (33.7")	115	16	16	16	85	38	42 45	2.6	4	6	68	2	4	M12 (1/2")	14	1.23	1.14
32	38 (42.4")	140	16	16	16	100	40	52 56	2.6	6	6	78	2	4	M16 (5/8")	18	1.80	1.69
40	44.5 (48.3")	150	16	16	16	110	42	60 64	2.6	6	7	88	3	4	M16 (5/8")	18	2.09	1.86
50	57 (60.3")	165	18	18	18	125	45	72 75	2.9	6	8	102	3	4	M16 (5/8")	18	2.88	2.53
65	76.1")	185	18	18	18	145	45	90	2.9	6	10	122	3	4	M16 (5/8")	18	3.66	3.06
80	88.9")	200	20	20	20	160	50	105	3.2	8	10	138	3	8	M16 (5/8")	18	4.77	3.70
100	108 (114.3")	220	20	20	20	180	52	125 131	3.6	8	12	158	3	8	M16 (5/8")	18	5.65	4.62
125	133 (139.7")	250	22	22	22	210	55	150 156	4.0	8	12	188	3	8	M16 (5/8")	18	8.42	6.30
150	159 (168.3")	285	22	22	22	240	55	175 184	4.5	10	12	212	3	8	M20 (3/4")	23	10.4	7.75
200	216 (219.1")	340	24	24	24	295	62	232 235	5.9	10	16	268	3	12	M20 (3/4")	23	16.1	11.0
250	267 (273")	405	26	26	26	355	70	285 292	6.3	12	16	320	3	12	M24 (7/8")	27	24.9	15.6
300	318 (323.9")	460	28	28	28	410	78	338 344	7.1	12	16	378	4	12	M24 (7/8")	27	35.1	22.0
350	355.6")	520	30	30	30	470	82	390	8.0	12	16	438	4	16	M24 (7/8")	27	47.8	28.7
400	406.4")	580	32	32	32	525	85	445	8.0	12	16	490	4	16	M27 (1")	30	63.5	36.3
500	508")	715	34	36	34	650	90	548	8.0	12	16	610	4	20	M30 (1 1/8")	33	102.0	59.3
600	609.6")	840	36	40		770	95	652	8.8	12	18	725	5	20	M33 (1 1/4")	36		
700	711.2")	910	36			840	100	755	8.8	12	18	795	5	24	M33 (1 1/4")	36		
800	812.8")	1025	38			950	105	855	10.0	12	20	900	5	24	M36 (1 3/8")	39		
900	914.4")	1125	40			1050	110	955	10.0	12	20	1000	5	28	M36 (1 3/8")	39		
1000	1016")	1255	42			1170	120	1058	10.0	16	20	1115	5	28	M39 (1 1/2")	42		

NOTE: * Out side diameter of pipe complies with ISO recommendation R64

25BAR DIN 2544 SLIP-ON FLANGES

DIN 2527 BLIND FLANGES

DIN 2634 WELDING NECK FLANGES



Unit:mm

Bore		Common Dimension					Hub				Raised Face		Drilling				Approx. Weight (kg)		
Nominal Bore	d ₁	D	t			K	T	d ₂	s	r	a ≈	d ₄	f	Number of Bolt	Dia. of Bolt		d ₃	DIN 2544	DIN 2634
			Welding Neck	Slip-on (No-Hub)	Blind														
10	14 17.2')	90	16		16	60	35	25 28	1.8	4	6	40	2	4	M12	(1/2")	14	0.72	0.661
15	20 21.3')	95	16	16	16	65	38	30 32	2.0	4	6	45	2	4	M12	(1/2")	14	0.81	0.746
20	25 26.9')	105	18	18	18	75	40	38 40	2.3	4	6	58	2	4	M12	(1/2")	14	1.24	1.06
25	30 33.7')	115	18	18	18	85	40	42 46	2.6	4	6	68	2	4	M12	(1/2")	14	1.38	1.29
32	38 42.4')	140	18	18	18	100	42	52 56	2.6	6	6	78	2	4	M16	(5/8")	18	2.03	1.88
40	44.5 48.3')	150	18	18	18	110	45	60 64	2.6	6	7	88	3	4	M16	(5/8")	18	2.35	2.34
50	57 60.3')	165	20	20	20	125	48	72 75	2.9	6	8	102	3	4	M16	(5/8")	18	3.20	2.82
65	76.1')	185	22	22	22	145	52	90	2.9	6	10	122	3	8	M16	(5/8")	18	4.29	3.74
80	88.9')	200	24	24	24	160	58	105	3.2	8	12	138	3	8	M16	(5/8")	18	5.88	4.75
100	108 114.3')	235	24	24	24	190	65	128 134	3.6	8	12	162	3	8	M20	(3/4")	23	7.54	6.52
125	133 139.7')	270	26	26	26	220	68	155 162	4.0	8	12	188	3	8	M24	(7/8")	27	10.8	9.07
150	159 168.3')	300	28	28	28	250	75	182 192	4.5	10	12	218	3	8	M24	(7/8")	27	14.5	11.8
200	216 219.1')	360	30	30	30	310	80	240 244	6.3	10	16	278	3	12	M24	(7/8")	27	22.3	17.0
250	267 273')	425	32	32	32	370	88	292 298	7.1	12	18	335	3	12	M27	(1")	30	33.5	24.4
300	318 323.9')	485	34	34	34	430	92	345 352	8.0	12	18	395	4	16	M27	(1")	30	46.3	31.2
350	355.6')	555	38	38	38	490	100	398	8.0	12	20	450	4	16	M30	(1 1/8")	33	68.0	45.0
400	406.4')	620	40	40	40	550	110	452	8.8	12	20	505	4	16	M33	(1 1/4")	36	89.7	58.7
500	508')	730	44	44	44	660	125	558	10.0	12	20	615	4	20	M33	(1 1/4")	36	138.0	86.1
600	609.6')	845	46			770	125	660	11.0	12	20	720	5	20	M36	(1 3/8")	39		101.0
700	721.2')	960	46			875	125	760	12.5	12	20	820	5	24	M39	(1 1/2")	42		134.0
800	812.8')	1085	50			990	135	865	14.2	12	22	930	5	24	M45	(1 3/4")	48		183.0
900	914.4')	1185	54			1090	145	968	16.0	12	24	1030	5	28	M45	(1 3/4")	48		232.0
1000	1016')	1320	58			1210	155	1070	17.5	16	24	1140	5	28	M52	(2")	56		302.0

NOTE: * Out side diameter of pipe complies with ISO recommendation R64

BUTT WELDING FITTINGS CATALOGUE

■ STEEL BUTT-WELDING PIPE FITTING



90° ELBOW LR



90° ELBOW SR



45° ELBOW LR



90° ELBOW SR



STRAIGHT TEE



REDUCING TEE



ECCENTRIC REDUCER



CONCENTRIC REDUCER



CAP



180° ELBOW SR



180° ELBOW LR



S.S ELBOW

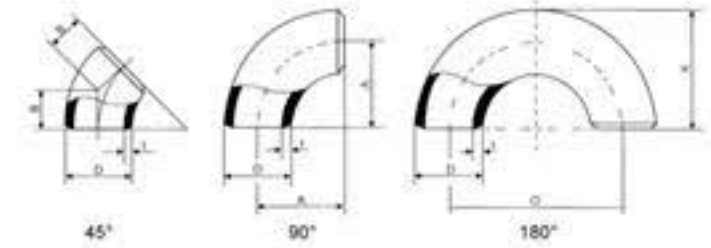


S.S. REDUCER



S.S. TEE

Elbows Long Radius ASME/ANSI B16.9



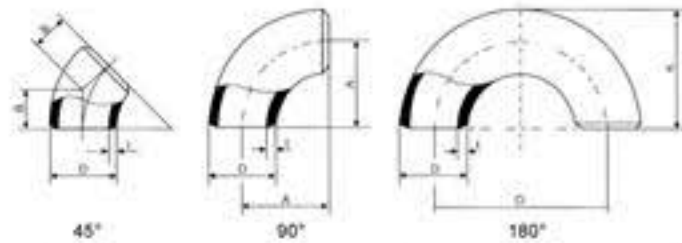
Nominal Pipe Size Inch	Dimensions		
	Outside Diameter at Bevel D		Center to End A/B Center to Center O Back to Face K mm
	inch	mm	
1/2	0.840	21.3	A=38.1 B=15.7 O=76.2 K=47.8
3/4	1.050	26.7	A=38.1 B=19.1 O=76.2 K=50.8
1	1.315	33.4	A=38.1 B=22.4 O=76.2 K=55.6
1 1/4	1.660	42.2	A=47.8 B=25.4 O=95.3 K=69.9
1 1/2	1.900	48.3	A=57.2 B=28.4 O=114.3 K=82.6
2	2.375	60.3	A=76.2 B=35.1 O=152.4 K=106.4
2 1/2	2.875	73.0	A=95.3 B=44.5 O=190.5 K=131.8
3	3.500	88.9	A=114.3 B=50.8 O=228.6 K=158.8

Sch.No	Wall Thickness t		Approx Weight		
	t		45° kg	90° kg	180° kg
	inch	mm			
Std/40 XS/80	0.109 0.147	2.77 3.73	0.04 0.05	0.08 0.10	0.16 0.20
Std/40 XS/80	0.113 0.154	2.87 3.91	0.04 0.05	0.08 0.10	0.16 0.20
Std/40 XS/80 160	0.133 0.179 0.250	3.38 4.55 6.35	0.08 0.10 0.13	0.15 0.19 0.25	0.30 0.38 0.50
Std/40 XS/80 160	0.140 0.191 0.250	3.56 4.85 6.35	0.13 0.17 0.21	0.25 0.33 0.42	0.25 0.66 0.84
Std/40 XS/80 160 XXS	0.145 0.200 0.281 0.400	3.68 5.08 7.14 10.15	0.18 0.25 0.33 0.43	0.36 0.49 0.65 0.86	0.72 0.98 1.30 1.72
Std/40 XS/80 160 XXS	0.154 0.218 0.344 0.438	3.91 5.54 8.74 11.07	0.33 0.45 0.67 0.81	0.65 0.90 1.33 1.61	1.30 1.80 2.66 3.22
Std/40 XS/80 160 XXS	0.203 0.276 0.375 0.552	5.16 7.01 9.53 14.02	0.65 0.86 1.12 1.53	1.29 1.71 2.23 3.05	2.58 3.42 4.46 6.10
Std/40 XS/80 160 XXS	0.216 0.300 0.438 0.600	5.49 7.62 11.13 15.24	1.02 1.37 1.92 2.49	2.03 2.74 3.83 4.97	4.06 5.48 7.66 9.94

Elbows

Long Radius

ASME/ANSI B16.9

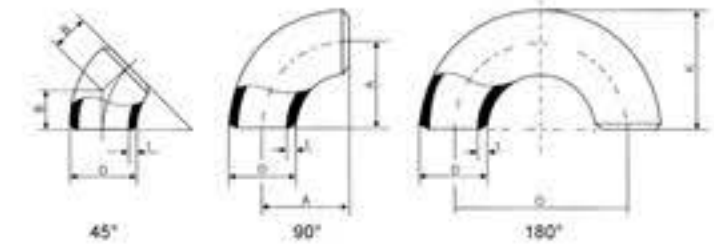


Nominal Pipe Size Inch	Dimensions		Center to End A/B Center to Center O Back to Face K mm	Wall Thickness t		Approx. Weight			
	Outside Diameter at Bevel D			Sch No.	t		45° kg	90° kg	180° kg
	inch	mm			inch	mm			
4	4.500	114.3	A=152.4 B=63.5 O=304.8 K=209.6	Std/40 XS/80 120 160 XXS	0.237 0.337 0.438 0.531 0.674	6.02 8.56 11.13 13.49 17.12	1.93 2.67 3.39 4.02 4.91	3.85 5.34 6.78 8.03 9.82	7.70 10.7 13.6 16.1 19.6
5	5.563	141.3	A=190.5 B=79.2 O=381.0 K=261.9	Std/40 XS/80 120 160 XXS	0.258 0.375 0.500 0.625 0.750	6.55 9.53 12.70 15.88 19.05	3.26 4.64 6.05 7.35 8.60	6.51 9.27 12.1 14.7 17.2	13.0 18.5 24.2 29.4 34.4
6	6.625	168.3	A=228.6 B=95.3 O=457.2 K=312.7	Std/40 XS/80 120 160 XXS	0.280 0.432 0.562 0.719 0.864	7.11 10.97 14.27 18.26 21.95	5.05 7.65 9.75 12.1 14.2	10.1 15.3 19.5 24.2 28.4	20.2 30.6 39.0 48.4 56.4
8	8.625	219.1	A=304.8 B=127.0 O=609.6 K=414.3	20 30 Std/40 60 XS/80 100 120 140 XXS 160	0.250 0.277 0.322 0.406 0.500 0.594 0.719 0.812 0.875 0.906	6.35 7.04 8.18 10.31 12.70 15.09 18.26 20.62 22.23 23.01	7.95 8.80 10.2 12.7 15.5 18.2 21.7 24.2 25.9 26.7	15.9 17.6 20.4 25.4 30.9 36.3 43.3 48.3 51.7 53.3	31.8 35.2 40.8 50.8 61.8 72.6 86.6 96.6 103 107
10	10.750	273.0	A=381.0 B=158.8 O=762.0 K=517.7	20 30 Std/40 XS/60 80 100 120 140/XXS 160	0.250 0.307 0.365 0.500 0.594 0.719 0.844 1.000 1.125	6.35 7.80 9.27 12.70 15.09 18.26 21.44 25.40 28.58	12.5 15.3 18.1 24.4 28.7 34.3 39.8 46.4 51.5	25.0 30.5 36.1 48.8 57.3 68.6 79.5 92.8 103	50.0 61.0 72.2 97.6 115 137 159 186 206

Elbows

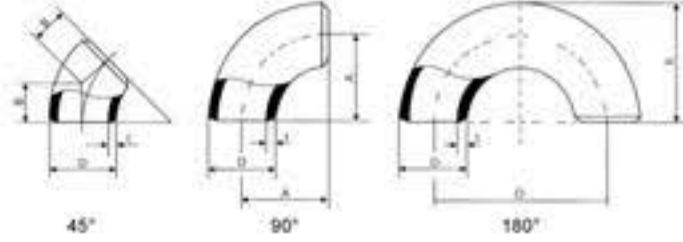
Long Radius

ASME/ANSI B16.9



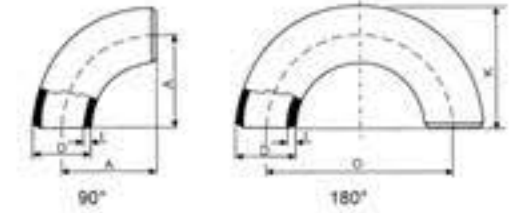
Nominal Pipe Size Inch	Dimensions			Wall Thickness: t			Approx. Weight		
	Outside Diameter at Bevel: D		Center to End A/B Center to Center: O Back to Face: K mm	Sch. No.	t		45° kg	90° kg	180° kg
	inch	mm			inch	mm			
12	12.750	323.9	A=457.2 B=190.5 O=914.4 K=619.3	20 30 Std 40 XS 60 80 100 120/XXS 140 160	0.250 0.330 0.375 0.406 0.500 0.562 0.688 0.844 1.000 1.125 1.312	6.35 8.38 9.53 10.31 12.70 14.27 17.48 21.44 25.40 28.58 33.32	17.9 23.4 26.6 28.7 35.0 39.1 47.4 57.5 67.0 74.5 85.5	35.7 46.8 53.1 57.8 70.0 78.2 94.7 115 134 149 171	71.4 93.6 106 115 140 156 189 230 268 298 342
14	14.000	355.6	A=533.4 B=222.3 O=1066.8 K=711.2	10 20 Std/30 40 XS 60 80 100 120 140 160	0.250 0.312 0.375 0.438 0.500 0.594 0.750 0.938 1.094 1.250 1.406	6.35 7.92 9.53 11.13 12.70 15.09 19.05 23.83 27.79 31.75 35.71	22.9 28.5 34.1 39.6 45.0 53.0 66.0 81.5 94.0 106 118	45.8 56.9 68.1 79.2 90.0 106 132 163 188 212 236	91.6 114 136 158 180 212 264 326 376 424 472
16	16.000	406.4	A=609.6 B=254.0 O=1219.2 K=812.8	10 20 Std/30 XS/40 60 80 100 120 140 160	0.250 0.312 0.375 0.500 0.656 0.844 1.031 1.219 1.438 1.594	6.35 7.92 9.53 12.70 16.66 21.44 26.19 30.96 36.53 40.49	30.0 37.3 44.7 59.0 76.5 97.5 118 137 160 175	60.0 74.5 89.3 118 153 195 235 274 319 350	120 149 179 236 306 390 470 548 638 700

Elbows
Long Radius
ASME/ANSI B16.9



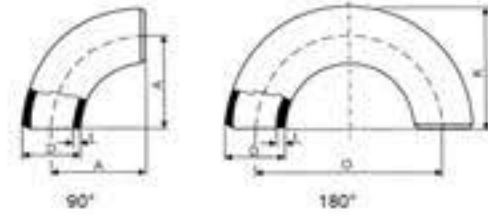
Nominal Pipe Size Inch	Dimensions			Wall Thickness,t			Approx. Weight		
	Outside Diameter at Bevel D		Center to End A/B Center to Center O Back to Face K mm	Sch.No.	t		45° kg	90° kg	180° kg
	Inch	mm			Inch	mm			
18	18.000	457.0	A=685.8 B=285.8 O=1371.6 K=914.4	10 20 Std 30 XS 40 60 80 100 120 140 160	0.250 0.312 0.375 0.438 0.500 0.562 0.750 0.938 1.156 1.375 1.562 1.781	6.35 7.92 9.53 11.13 12.70 14.27 19.05 23.83 29.36 34.93 39.67 45.24	38.1 47.3 56.5 66.0 75.0 84.0 111 137 167 196 220 246	76.1 94.5 113 132 150 168 222 274 334 392 440 492	152 189 226 264 300 336 444 548 668 784 880 984
20	20.000	508.0	A=762.0 B=317.5 O=1524.0 K=1016.0	10 Std/20 XS/30 40 60 80 100 120 140 160	0.250 0.375 0.500 0.594 0.812 1.031 1.281 1.500 1.750 1.969	6.35 9.53 12.70 15.09 20.62 26.19 32.54 38.10 44.54 50.01	47.0 70.0 93.0 110 149 186 229 264 305 338	94.0 140 186 219 297 372 457 528 609 676	188 280 372 438 594 744 914 1056 1216 1352
22	22.000	559.0	A=838.2 B=342.9 O=1676.4 K=1117.6	10 Std/20 XS/30 60 80 100 120 140 160	0.250 0.375 0.500 0.875 1.125 1.375 1.625 1.875 2.125	6.35 9.54 12.70 22.23 28.58 34.93 41.28 47.63 53.98	57.0 85.0 113 194 246 297 347 395 443	114 170 225 387 492 594 694 790 885	228 340 450 774 984 1188 1388 1580 1770

Elbows
Long Radius
ASME/ANSI B16.9



Nominal Pipe Size Inch	Dimensions		Center to End A/B Center to Center O Back to Face K mm	Wall Thickness t		Approx. Weight			
	Outside Diameter at Bevel D			Sch. No.	t		45° kg	90° kg	180° kg
	inch	mm			inch	mm			
24	24.000	610.0	A=914.4 B=381.0 O=1828.8 K=1219.2	10 Std/20 XS 30 40 60 80 100 120 140 160	0.250 0.375 0.500 0.562 0.688 0.969 1.219 1.531 1.812 2.062 2.344	6.35 9.53 12.70 14.27 17.48 24.61 30.96 38.89 46.02 52.37 59.54	68 101 135 151 183 255 317 393 460 515 580	136 202 269 301 366 510 634 786 919 1033 1160	272 404 538 602 732 1020 1268 1572 1838 2060 2320
26	26.000	660.0	A=990.6 B=406.4	10 Std XS/20	0.312 0.375 0.500	7.92 9.53 12.70	99 199 158	198 238 316	
28	28.000	711.0	A=1066.8 B=438.2	10 Std XS/20 30	0.312 0.375 0.500 0.625	7.92 9.53 12.70 15.88	115 138 184 228	230 276 367 456	
30	30.000	762.0	A=1143.0 B=469.9	10 Std XS/20 30	0.312 0.375 0.500 0.625	7.92 9.53 12.70 15.88	132 159 211 262	264 318 421 524	
32	32.000	813.0	A=1219.2 B=501.7	10 Std XS/20 30 40	0.312 0.375 0.500 0.625 0.688	7.92 9.53 12.70 15.88 17.48	151 181 240 299 328	301 362 480 597 656	
34	34.000	864.0	A=1295.4 B=533.4	10 Std XS/20 30 40	0.312 0.375 0.500 0.625 0.688	7.92 9.53 12.70 15.88 17.48	170 204 271 338 371	340 408 542 675 742	
36	36.000	914.0	A=1371.6 B=565.2	10 Std XS/20 30 40	0.312 0.375 0.500 0.625 0.750	7.92 9.53 12.70 15.88 19.05	191 229 304 379 453	381 458 608 758 906	

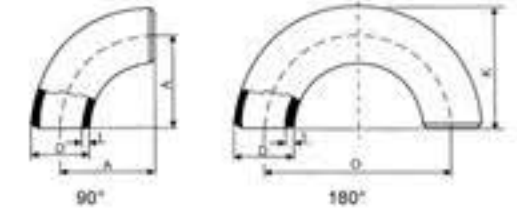
Elbows
Short Radius
ASME/ANSI B16.28



Nominal Pipe Size Inch	Dimensions		
	Outside Diameter at Bevel D		Center to End A/B Center to Center O Back to Face K
	inch	mm	mm
1	1.315	33.4	A=25.4 O=50.8 K=41.1
1 1/4	1.660	42.2	A=31.8 O=63.5 K=52.3
1 1/2	1.900	48.3	A=38.1 O=76.2 K=62.0
2	2.375	60.3	A=50.8 O=101.6 K=81.0
2 1/2	2.875	73.0	A=63.5 O=127.0 K=100.1
3	3.500	88.9	A=76.2 O=152.4 K=120.7
4	4.500	114.3	A=101.6 O=203.2 K=158.8
5	5.563	141.3	A=127.0 O=254.0 K=196.9

Wall Thickness t			Approx. Weight	
Sch. No.	t		90° kg	180° kg
	inch	mm		
Std/40	0.133	3.38	0.10	0.20
XS/80	0.179	4.55	0.13	0.26
160	0.250	6.35	0.17	0.34
XXS	0.358	9.09	0.22	0.44
Std/40	0.140	3.56	0.17	0.34
XS/80	0.191	4.85	0.22	0.44
160	0.250	6.35	0.28	0.56
XXS	0.382	9.70	0.39	0.78
Std/40	0.145	3.68	0.24	0.48
XS/80	0.200	5.08	0.32	0.64
160	0.281	7.14	0.43	0.86
XXS	0.400	10.15	0.57	1.14
Std/40	0.154	3.91	0.43	0.86
XS/80	0.218	5.54	0.60	1.20
160	0.344	8.74	0.89	1.78
XXS	0.438	11.07	1.07	2.14
Std/40	0.203	5.16	0.86	1.72
XS/80	0.276	7.01	1.14	2.28
160	0.375	9.53	1.49	2.98
XXS	0.552	14.02	2.03	4.06
Std/40	0.218	5.49	1.35	2.70
XS/80	0.300	7.62	1.83	3.66
160	0.438	11.13	2.56	5.12
XXS	0.600	15.24	3.31	6.62
Std/40	0.237	6.02	2.57	5.14
XS/80	0.337	8.56	3.56	7.12
120	0.438	11.13	4.52	9.04
160	0.531	13.49	5.35	10.70
XXS	0.674	17.12	6.54	13.08
Std/40	0.258	6.55	4.34	8.68
XS/80	0.375	9.53	6.18	12.40
120	0.500	12.70	8.04	16.10
160	0.625	15.88	9.80	19.60
XXS	0.750	19.05	11.45	22.90

Elbows
Short Radius
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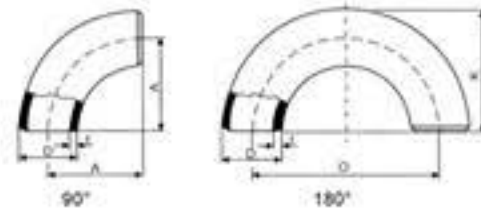
Nominal Pipe Size Inch	Dimensions		
	Outside Diameter at Bevel D		Center to End A Center to Center O Back to Face K
	inch	mm	mm
6	6.625	168.3	A=152.4 O=304.8 K=236.5
8	8.625	219.1	A=203.2 O=406.4 K=312.7
10	10.750	273.0	A=254.0 O=508.0 K=390.7
12	12.750	323.9	A=304.8 O=609.6 K=466.9

Wall Thickness t			Approx. Weight	
Sch. No.	t		90° kg	180° kg
	inch	mm		
Std/40	0.280	7.11	6.77	13.5
XS/80	0.432	10.97	10.2	20.4
120	0.582	14.27	13.0	26.0
160	0.719	18.26	16.2	32.4
XXS	0.864	21.95	19.0	38.0
20	0.250	6.35	10.6	21.2
30	0.277	7.04	11.8	23.6
Std/40	0.322	8.18	13.6	27.2
60	0.406	10.31	16.9	33.8
XS/80	0.500	12.70	20.9	41.8
100	0.594	15.09	24.2	48.4
120	0.719	18.26	28.8	57.6
140	0.812	20.62	32.2	64.4
160	0.906	23.01	35.5	71.0
XXS	0.875	22.23	34.4	68.8
20	0.250	6.35	16.7	33.4
30	0.307	7.80	20.4	40.8
Std/40	0.365	9.27	24.1	48.2
XS/80	0.500	12.70	32.5	65.0
80	0.594	15.09	38.2	76.4
100	0.719	18.26	45.7	91.4
120	0.844	21.44	53.0	106.0
140/XXS	1.000	25.40	61.9	124.0
160	1.125	28.58	68.7	137.0
20	0.250	6.35	23.8	47.6
30	0.330	8.38	31.2	62.4
Std	0.375	9.53	35.4	70.8
40	0.406	10.31	38.2	76.4
60	0.562	14.27	52.2	104.0
XS	0.500	12.70	46.7	93.4
80	0.688	17.48	63.1	126.0
100	0.844	21.44	76.5	153.0
120/XXS	1.000	25.40	89.5	179.0
140	1.125	28.58	99.6	199.0
160	1.312	33.32	114.0	228.0

Elbows

Short Radius

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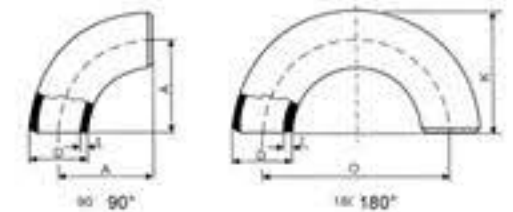
Nominal Pipe Size Inch	Dimensions		
	Outside Diameter at Bevel D		Center to End A/B Center to Center O Back to Face K
	inch	mm	mm
14	14.000	355.6	A=355.6 O=711.2 K=533.4
16	16.000	406.4	A=406.4 O=812.8 K=609.6
18	18.000	457.0	A=457.2 O=914.4 K=685.8
20	20.000	508.0	A=508.0 O=1016.0 K=762.0

Wall Thickness: t			Approx. Weight	
Sch No	t		90° kg	180° kg
	inch	mm		
10	0.250	6.35	30.6	61.2
20	0.312	7.92	37.9	75.8
Std/30	0.375	9.53	45.4	90.8
40	0.438	11.13	52.8	106
XS	0.500	12.70	60.0	120
60	0.594	15.09	70.6	141
80	0.750	19.05	88.3	177
100	0.938	23.83	109	218
120	1.094	27.79	125	250
140	1.250	31.75	142	284
160	1.406	35.71	157	314
10	0.250	6.35	40.0	80.0
30	0.312	7.92	49.7	99.0
Std/30	0.375	9.53	59.5	119
XS/40	0.500	12.70	78.7	157
60	0.656	16.66	102	204
80	0.844	21.44	130	260
100	1.031	26.19	157	314
120	1.219	30.96	183	366
140	1.438	36.53	213	426
160	1.594	40.49	233	466
10	0.250	6.35	50.7	101
20	0.312	7.92	63.0	126
Std	0.375	9.53	75.6	151
30	0.438	11.13	87.9	176
40	0.562	14.27	112	224
60	0.750	19.05	148	296
XS	0.500	12.70	100	200
80	0.938	23.83	183	366
100	1.156	29.36	222	444
120	1.375	34.93	261	522
140	1.562	39.67	293	586
160	1.781	45.24	330	660
10	0.250	6.35	62.7	123
Std/20	0.375	9.53	83.4	167
XS/30	0.500	12.70	124	248
40	0.594	15.09	146	292
60	0.812	20.62	198	396
80	1.031	26.19	248	496
100	1.281	32.54	304	608
120	1.500	38.10	352	704
140	1.750	44.45	405	810
160	1.909	50.01	451	902

Elbows

Short Radius

ASME/ANSI B16.28



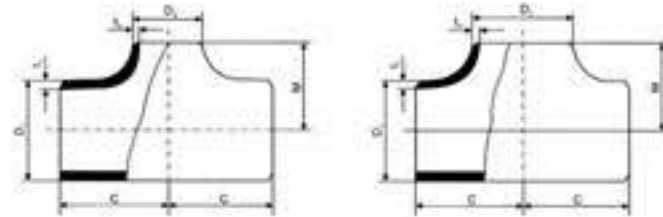
Nominal Pipe Size Inch	Dimensions		
	Outside Diameter at Bevel D		Center to End A/B Center to Center O Back to Face K
	inch	mm	mm
22	22.000	559	A=558.8 O=1117.6 K=838.2
24	24.000	610	A=609.6 O=1219.2 K=914.4

Wall Thickness: T			Approx. Weight	
Sch No	t		90° kg	180° kg
	inch	mm		
10	0.250	6.35	75.9	152
Std/20	0.375	9.53	113	226
XS/30	0.500	12.70	150	300
60	0.875	22.23	258	516
80	1.125	28.58	328	656
100	1.375	34.93	396	792
120	1.625	41.28	462	924
140	1.875	47.63	527	1054
160	2.125	53.98	590	1180
10	0.250	6.35	90.5	181
Std/20	0.375	9.53	135	270
30	0.562	14.27	201	402
40	0.688	17.48	244	488
60	0.969	24.61	340	680
XS	0.500	12.70	179	358
80	1.219	30.96	423	846
100	1.531	38.89	524	1048
120	1.812	46.02	612	1224
140	2.062	52.37	689	1378
160	2.344	59.54	773	1546

Nominal Pipe Size Inch	Outside Diameter at Bevel D (mm)	Center to End A (mm)
38	965	A=1443 A1=965
40	1016	A=1524 A1=1016
42	1067	A=1601 A1=1067
44	1118	A=1677 A1=1118
46	1168	A=1752 A1=1168
48	1219	A=1829 A1=1219
52	1321	A=1982 A1=1321
58	1473	A=2209.8 A1=1473

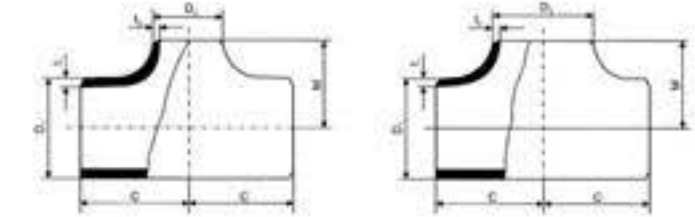
Nonstandard Elbows				
Sch No	Wall Thickness: T		LR	SR
	t			
	inch	mm		
Std	0.375	9.53	536	357
XS	0.5	12.7	680.7	453.4
Std	0.375	9.53	594	396
XS	0.5	12.7	754.4	502.9
Std	0.375	9.53	656	437
XS	0.5	12.7	833	554.99
Std	0.375	9.53	720	480
XS	0.5	12.7	914.4	609.6
Std	0.375	9.53	786	524
XS	0.5	12.7	998.2	665.5
Std	0.375	9.53	657	571
XS	0.5	12.7	1088.3	725
Std	0.375	9.53	1520.3	1013.5
XS	0.5	12.7	1286.9	857.9
Std	0.375	9.53	1890.1	1260.1
XS	0.5	12.7	1600.1	1066.7

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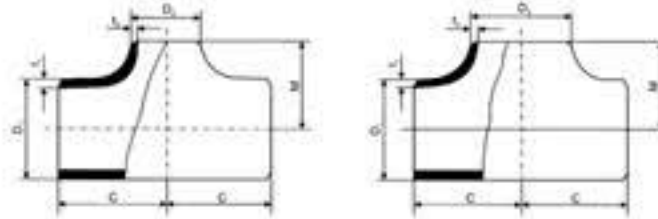
Nominal Pipe Size Inch	Dimensions				Wall Thickness - Approx. Weight																	
	Outside Diameter at Bevel D1/D2		Center to End		Sch. 20.						Sch. 30.						Std.					
	D1 mm	D2 mm	C mm	M mm	ti mm	tz mm	kg	ti mm	tz mm	kg	ti mm	tz mm	kg	ti mm	tz mm	kg	ti mm	tz mm	kg	ti mm	tz mm	kg
1 1/2 x 1 1/2	48.3	48.3	57.2	57.2	-	-	-	-	-	-	3.68	3.68	0.92	3.68	3.68	0.92	-	-	-	-	-	-
2 x 3/4	60.3	26.7	83.5	44.5	-	-	-	-	-	-	3.91	2.87	1.49	3.91	2.87	1.49	-	-	-	-	-	-
x1		33.4	63.5	50.8	-	-	-	-	-	-	3.38	1.49		3.38	1.49		-	-	-	-	-	-
x1 1/4		42.2	63.5	57.2	-	-	-	-	-	-	3.56	1.49		3.56	1.49		-	-	-	-	-	-
x1 1/2		48.3	63.5	60.5	-	-	-	-	-	-	3.68	1.49		3.68	1.49		-	-	-	-	-	-
x2		60.3	63.5	63.5	-	-	-	-	-	-	3.91	1.49		3.91	1.49		-	-	-	-	-	-
2 1/2 x 1	73.0	33.4	76.2	57.2	-	-	-	-	-	-	5.16	3.38	2.68	5.16	3.38	2.68	-	-	-	-	-	-
x1 1/4		42.2	76.2	63.5	-	-	-	-	-	-	3.56	2.68		3.56	2.68		-	-	-	-	-	-
x1 1/2		48.3	76.2	66.5	-	-	-	-	-	-	3.68	2.68		3.68	2.68		-	-	-	-	-	-
x2		60.3	76.2	69.9	-	-	-	-	-	-	3.91	2.68		3.91	2.68		-	-	-	-	-	-
x2 1/2		73.0	76.2	76.2	-	-	-	-	-	-	5.16	2.68		5.16	2.68		-	-	-	-	-	-
3 x 1 1/4	88.9	42.2	85.9	69.9	-	-	-	-	-	-	5.49	3.56	3.75	5.49	3.56	3.75	-	-	-	-	-	-
x1 1/2		48.3	85.9	73.2	-	-	-	-	-	-	3.68	3.75		3.68	3.75		-	-	-	-	-	-
x2		60.3	85.9	76.2	-	-	-	-	-	-	3.91	3.75		3.91	3.75		-	-	-	-	-	-
x2 1/2		73.0	85.9	82.6	-	-	-	-	-	-	5.16	3.75		5.16	3.75		-	-	-	-	-	-
x3		88.9	85.9	85.9	-	-	-	-	-	-	5.49	3.75		5.49	3.75		-	-	-	-	-	-
4 x 1 1/2	114.3	48.3	104.6	85.9	-	-	-	-	-	-	6.02	3.68	6.50	6.02	3.68	6.50	-	-	-	-	-	-
x2		60.3	104.6	88.9	-	-	-	-	-	-	3.91	6.50		3.91	6.50		-	-	-	-	-	-
x2 1/2		73.0	104.6	95.3	-	-	-	-	-	-	5.16	6.50		5.16	6.50		-	-	-	-	-	-
x3		88.9	104.6	98.6	-	-	-	-	-	-	5.49	6.50		5.49	6.50		-	-	-	-	-	-
x4		114.3	104.6	104.6	-	-	-	-	-	-	6.02	6.50		6.02	6.50		-	-	-	-	-	-
5 x 2	141.3	60.3	124.0	104.6	-	-	-	-	-	-	6.55	3.91	10.00	6.55	3.91	10.00	-	-	-	-	-	-
x2 1/2		73.0	124.0	108.0	-	-	-	-	-	-	5.16	10.00		5.16	10.00		-	-	-	-	-	-
x3		88.9	124.0	111.3	-	-	-	-	-	-	5.49	10.00		5.49	10.00		-	-	-	-	-	-
x4		114.3	124.0	117.3	-	-	-	-	-	-	6.02	10.00		6.02	10.00		-	-	-	-	-	-
x5		141.3	124.0	124.0	-	-	-	-	-	-	6.55	10.00		6.55	10.00		-	-	-	-	-	-
6 x 2 1/2	168.3	73.0	142.7	120.7	-	-	-	-	-	-	7.11	5.16	13.50	7.11	5.16	13.50	-	-	-	-	-	-
x3		88.9	142.7	124.0	-	-	-	-	-	-	5.49	13.50		5.49	13.50		-	-	-	-	-	-
x4		114.3	142.7	130.0	-	-	-	-	-	-	6.02	13.50		6.02	13.50		-	-	-	-	-	-
x5		141.3	142.7	136.7	-	-	-	-	-	-	6.55	14.00		6.55	14.00		-	-	-	-	-	-
x6		168.3	142.7	142.7	-	-	-	-	-	-	7.11	14.00		7.11	14.00		-	-	-	-	-	-
8 x 4	219.1	114.3	177.8	155.4	-	-	-	-	-	-	8.18	6.02	24.50	8.18	6.02	24.50	-	-	-	-	-	-
x5		141.3	177.8	162.1	-	-	-	-	-	-	6.55	24.50		6.55	24.50		-	-	-	-	-	-
x6		168.3	177.8	168.1	-	-	-	-	-	-	7.11	24.50		7.11	24.50		-	-	-	-	-	-
x8		219.1	177.8	177.8	6.35	6.35	23.00	7.04	7.04	24.00	8.18	24.50		8.18	24.50	10.31	10.31	31.80				

Straight and Reducing Outlet Tees ASME/ANSI B16.9



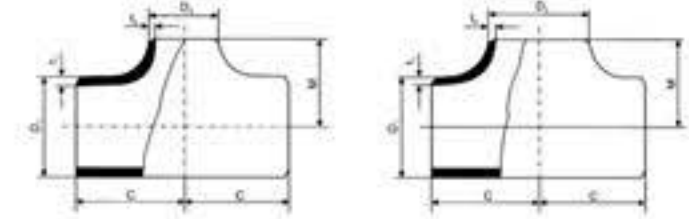
Wall Thickness - Approx. Weight																					Nominal Pipe Size (NPS)
XS			Sch.80			Sch.100			Sch.120			Sch.140			Sch.160			XXS			
t1 mm	t2 mm	kg	t1 mm	t2 mm	kg	t1 mm	t2 mm	kg	t1 mm	t2 mm	kg	t1 mm	t2 mm	kg	t1 mm	t2 mm	kg	t1 mm	t2 mm	kg	inch
5.08	5.08	1.27	5.08	5.08	1.27	-	-	-	-	-	-	-	-	-	7.14	7.14	1.79	10.15	10.15	2.54	1 1/2x1 1/2
5.54	3.91	2.15	5.54	3.91	2.15	-	-	-	-	-	-	-	-	-	8.74	5.56	3.18	11.07	7.62	4.00	2x3/4
	4.55	2.15		4.55	2.15	-	-	-	-	-	-	-	-	-		6.35	3.18		9.09	4.00	x1
	4.85	2.15		4.85	2.15	-	-	-	-	-	-	-	-	-		6.35	3.18		9.70	4.00	x1 1/4
	5.08	2.15		5.08	2.15	-	-	-	-	-	-	-	-	-		7.14	3.18		10.15	4.00	x1 1/2
	5.54	2.15		5.54	2.15	-	-	-	-	-	-	-	-	-		8.74	3.18		11.07	4.00	x2
7.01	4.55	2.95	7.01	4.55	2.95	-	-	-	-	-	-	-	-	-	9.53	6.35	3.58	14.02	9.09	4.00	2 1/2x1
	4.85	2.95		4.85	2.95	-	-	-	-	-	-	-	-	-		6.35	3.58		9.70	4.15	x1 1/4
	5.08	2.95		5.08	2.95	-	-	-	-	-	-	-	-	-		7.14	3.58		10.15	4.20	x1 1/2
	5.54	2.95		5.54	2.95	-	-	-	-	-	-	-	-	-		8.74	3.58		11.07	4.20	x2
	7.01	2.95		7.01	2.95	-	-	-	-	-	-	-	-	-		9.53	3.58		14.02	4.50	x2 1/2
7.62	4.85	4.29	7.62	4.85	4.29	-	-	-	-	-	-	-	-	-	11.13	6.35	5.65	15.24	9.70	6.25	3x1 1/4
	5.08	4.29		5.08	4.29	-	-	-	-	-	-	-	-	-		7.14	5.75		10.15	6.30	x1 1/2
	5.54	4.29		5.54	4.29	-	-	-	-	-	-	-	-	-		8.74	5.85		11.07	6.35	x2
	7.01	4.29		7.01	4.29	-	-	-	-	-	-	-	-	-		9.53	6.15		14.02	6.60	x2 1/2
	7.62	4.29		7.62	4.29	-	-	-	-	-	-	-	-	-		11.13	6.58		15.24	7.10	x3
8.56	5.08	7.65	8.56	5.08	7.65	-	-	-	-	-	-	-	-	-	13.49	7.14	10.80	17.12	10.15	14.50	4x1 1/2
	5.54	7.65		5.54	7.65	-	-	-	-	-	-	-	-	-		8.74	10.80		11.07	14.50	x2
	7.01	7.65		7.01	7.65	-	-	-	-	-	-	-	-	-		9.53	10.80		14.02	14.50	x2 1/2
	7.62	7.65		7.62	7.65	-	-	-	-	-	-	-	-	-		11.13	11.10		15.24	14.50	x3
	8.56	7.65		8.56	7.65	-	-	-	11.13	11.13	9.0	-	-	-		13.49	11.80		17.12	15.00	x4
9.53	5.54	13.50	9.53	5.54	13.50	-	-	-	-	-	-	-	-	-	15.88	8.74	23.00	19.05	11.07	27.20	5x2
	7.01	13.50		7.01	13.50	-	-	-	-	-	-	-	-	-		9.53	23.00		14.02	27.20	x2 1/2
	7.62	13.50		7.62	13.50	-	-	-	-	-	-	-	-	-		11.13	23.00		15.24	27.70	x3
	8.56	13.50		8.56	13.50	-	-	-	12.70	11.13	17.50	-	-	-		13.49	23.00		17.12	28.80	x4
	9.53	13.50		9.53	13.50	-	-	-	-	12.70	17.50	-	-	-		15.88	23.00		19.05	29.90	x5
10.97	7.01	19.30	10.97	7.01	19.30	-	-	-	-	-	-	-	-	-	18.26	9.53	30.90	21.95	14.02	34.80	6x2 1/2
	7.62	19.30		7.62	19.30	-	-	-	-	-	-	-	-	-		11.13	30.90		15.24	34.80	x3
	8.56	19.30		8.56	19.30	-	-	-	14.27	11.13	24.00	-	-	-		13.49	32.70		17.12	34.80	x4
	9.53	19.30		9.53	19.30	-	-	-	-	12.70	24.00	-	-	-		15.88	32.70		19.05	35.60	x5
	10.97	19.30		10.97	19.30	-	-	-	-	14.27	24.00	-	-	-		18.26	39.50		21.95	35.60	x6
12.70	8.56	34.70	12.70	8.56	34.70	-	-	-	18.26	11.13	43.20	-	-	-	23.01	13.49	51.00	22.23	17.12	50.40	8x4
	9.53	34.70		9.53	34.70	-	-	-	-	12.70	43.20	-	-	-		15.88	55.60		19.05	50.40	x5
	10.97	34.70		10.97	34.70	-	-	-	-	14.27	49.50	-	-	-		18.26	55.60		21.95	51.30	x6
	12.70	34.70		12.70	34.70	15.09	15.09	43.50	-	18.26	49.50	20.62	20.62	54.00		23.01	58.00		22.23	55.50	x8

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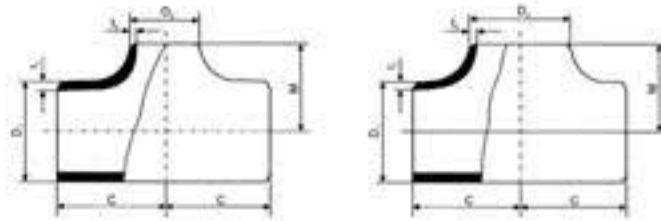
Nominal Pipe Size (NPS)	Dimensions				Wall Thickness - Approx. Weight															
	Outside Diameter at Bevel D1/D2		Center to End		Sch.20			Sch.30			Std			Sch.40			Sch.60			
	D1 mm	D2 mm	C mm	M mm	t1 mm	t2 mm	kg	t1 mm	t2 mm	kg	t1 mm	t2 mm	kg	t1 mm	t2 mm	kg	t1 mm	t2 mm	kg	
Inch																				
10X4	237.0	114.3	215.9	184.2	-	-	-	-	-	-	9.27	8.02	39.60	9.27	6.02	39.60	-	-	-	
X5		141.3	215.9	190.5	-	-	-	-	-	-		6.55	39.60		6.55	39.60	-	-	-	
X6		168.3	215.9	193.5	-	-	-	-	-	-		7.11	39.60		7.11	39.60	-	-	-	
X8		219.1	215.9	203.2	6.35	6.35	33.20	7.80	7.04	38.60		8.18	39.60		8.18	39.60	12.70	10.31	53.60	
X10		273.0	215.9	215.9		6.35	34.70		7.80	38.60		9.27	41.30		9.27	41.00		12.70	58.40	
12X5	323.9	141.3	254.0	215.9	-	-	-	-	-	-	9.53	6.55	63.00	10.31	6.55	67.20	-	-	-	
X6		168.3	254.0	218.9	-	-	-	-	-	-		7.11	63.00		7.11	67.20	-	-	-	
X8		219.1	254.0	228.6	6.35	6.35	41.20	8.38	7.04	54.80		8.18	63.00		8.18	67.20	14.27	10.31	77.50	
X10		273.0	254.0	241.3		6.35	43.40		7.80	56.60		9.27	63.00		9.27	70.00		12.70	95.00	
X12		323.9	254.0	254.0		6.35	43.40		8.38	56.60		9.53	65.00		10.31	70.50		14.27	95.00	
14X6	355.6	168.3	279.4	238.3	-	-	-	-	-	-	9.53	7.11	82.80	11.13	7.11	100.00	-	-	-	
X8		219.1	279.4	247.7	7.92	6.35	78.30	9.53	7.04	82.60		8.18	82.80		8.18	100.00	15.09	10.31	127.10	
X10		273.0	279.4	257.0		6.35	78.30		7.80	82.60		9.27	82.80		9.27	100.00		12.70	127.10	
X12		323.9	279.4	269.7		6.35	80.60		8.38	85.00		9.53	85.00		10.31	105.00		14.27	135.00	
X14		355.6	279.4	279.4		7.92	80.60		9.53	85.00		9.53	85.00		11.31	105.00		15.09	135.00	
16X6	406.4	168.3	304.8	263.7	-	-	-	-	-	-	9.53	7.11	106.50	12.70	7.11	125.50	-	-	-	
X8		219.1	304.8	273.1	7.92	6.35	98.00	9.53	7.04	106.50		8.18	106.50		8.18	125.50	16.66	10.31	160.30	
X10		273.0	304.8	282.4		6.35	98.00		7.80	106.50		9.27	106.50		9.27	125.50		12.70	162.80	
X12		323.9	304.8	295.1		6.35	100.00		8.38	106.50		9.53	106.50		10.31	129.80		14.27	172.90	
X14		355.6	304.8	304.8		7.92	100.00		9.53	110.00		9.53	110.00		11.13	129.80		15.09	172.90	
X16		406.4	304.8	304.8		7.92	100.00		9.53	110.00		9.53	110.00		12.70	129.80		16.66	180.50	

Straight and Reducing Outlet Tees ASME/ANSI B16.9



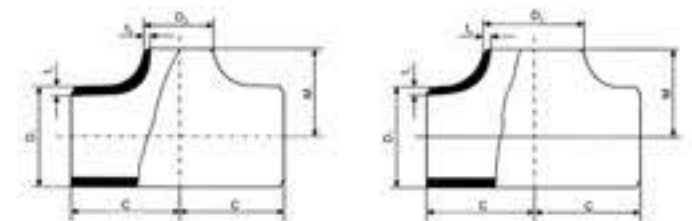
Wall Thickness t - Approx. Weight																						Nominal Pipe Size (NPS)
XS			Sch.80			Sch.100			Sch.120			Sch.140			Sch.160			XXS				
t1 mm	t2 mm	kg	t1 mm	t2 mm	kg	t1 mm	t2 mm	kg	t1 mm	t2 mm	kg	t1 mm	t2 mm	kg	t1 mm	t2 mm	kg	t1 mm	t2 mm	kg	inch	
12.70	8.56	53.50	15.09	8.56	59.70	-	-	-	21.44	11.13	71.30	-	-	-	28.58	13.49	85.00	25.40	17.12	79.30	10X4	
	9.53	53.50		9.53	59.70	-	-	-		12.70	71.30	-	-	-		15.88	91.30		19.05	79.30	X5	
	10.97	54.50		10.97	59.70	-	-	-		14.27	81.70	-	-	-		18.26	102.20		21.95	90.90	X6	
	12.70	58.40		12.70	65.80	18.26	15.09	73.50		18.26	88.50	25.40	20.62	95.00		23.01	113.00		22.23	90.90	X8	
	12.70	58.40		15.09	67.50		18.26	74.00		21.44	93.00		25.40	98.50		28.58	129.3		25.40	98.50	X10	
12.70	9.53	74.80	17.48	9.53	85.40	-	-	-	25.40	12.70	102.60	-	-	-	33.32	15.88	140.30	25.40	19.05	119.50	12X5	
	10.97	74.80		10.97	85.40	-	-	-		14.27	102.60	-	-	-		18.26	140.30		21.95	119.50	X6	
	12.70	74.80		12.70	85.40	21.44	15.09	122.50		18.26	131.20	28.58	20.62	140.00		23.01	152.30		22.23	129.10	X8	
	12.70	78.00		15.09	106.20		18.26	124.90		21.44	140.90		25.40	158.00		28.58	163.50		25.40	150.00	X10	
	12.70	78.00		17.48	115.00		21.44	136.20		25.40	150.00		28.58	176.50		33.32	183.80		25.40	150.00	X12	
12.70	10.97	103.80	19.05	10.97	141.90	-	-	-	27.79	14.27	205.00	-	-	-	35.71	18.26	250.00	-	-	-	14X6	
	12.70	103.80		12.70	141.90	23.83	15.09	195.00		18.26	220.00	31.75	20.62	230.00		23.01	250.00	-	-	-	X8	
	12.70	103.80		15.09	160.00		18.26	195.00		21.44	220.00		25.40	245.00		28.58	265.00	-	-	-	X10	
	12.70	108.90		17.48	162.30		21.44	206.00		25.40	235.00		28.58	255.00		33.32	270.00	-	-	-	X12	
	12.70	108.90		19.05	162.30		23.83	206.00		27.79	235.00		31.75	255.00		35.71	270.00	-	-	-	X14	
12.70	10.97	130.50	21.44	10.97	163.90	-	-	-	30.96	14.27	265.40	-	-	-	40.49	18.26	320.80	-	-	-	16X6	
	12.70	130.50		12.70	163.90	26.19	15.09	229.80		18.26	265.40	36.53	20.62	295.00		23.01	322.00	-	-	-	X8	
	12.70	130.50		15.09	163.90		18.26	229.80		21.44	280.00		25.40	300.00		28.58	330.50	-	-	-	X10	
	12.70	134.00		17.48	181.60		21.44	258.20		25.40	280.00		28.58	310.00		33.32	340.00	-	-	-	X12	
	12.70	135.50		19.05	195.00		23.83	266.50		27.79	295.00		31.75	340.00		35.71	360.00	-	-	-	X14	
	12.70	138.50		21.44	195.00		26.19	270.60		30.96	295.00		36.53	360.00		40.49	389.00	-	-	-	X16	

Straight and Reducing Outlet Tees ASME/ANSI B16.9



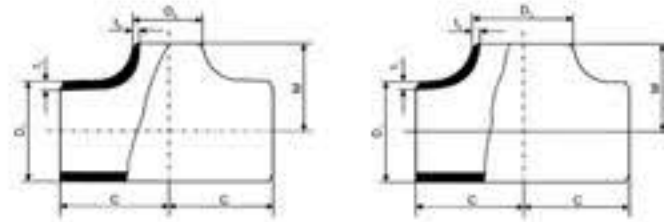
Nominal Size Inch	Dimensions		Sch. No.	Approx Weight (kg)	Sch. No.	Approx Weight (kg)
	Outside Diameter at Bevel D1 D2(mm)	Center to End C M(mm)				
18x18	457x457	343X343	Std	105.4	XS	130.8
X18	X406	X330	Std	102.1	XS	126.8
X14	X356	X330	Std	100.6	XS	124.9
X12	X321	X321	Std	98.7	XS	122.6
X10	X270	X308	Std	96.4	XS	119.6
X8	X217	X295	Std	94.3	XS	117.1
20X20	508X508	381X381	Std	130.4	XS	159.7
X18	X457	X368	Std	126.8	XS	157.5
X16	X406	X356	Std	123.7	XS	153.6
X14	X356	X356	Std	122.2	XS	151.8
X12	X324	X346	Std	120.3	XS	149.4
X10	X273	X333	Std	119.3	XS	148.2
X8	X219	X324	Std	118.3	XS	146.9
22x22	559X559	419X419	Std	158.2	XS	196.6
X20	X508	X406	Std	154.1	XS	191.6
X18	X457	X394	Std	150.7	XS	187.3
X16	X406	X381	Std	147.4	XS	183.2
X14	X356	X381	Std	145.9	XS	181.3
X12	X324	X371	Std	144.0	XS	179.0
X10	X237	X359	Std	141.7	XS	178.7
24x24	610X610	432X432	Std	175.3	XS	218.0
X22	X559	X432	Std	173.4	XS	215.6
X20	X508	X419	Std	168.8	XS	210.8
X18	X457	X406	Std	166.1	XS	206.6

Straight and Reducing Outlet Tees ASME/ANSI B16.9



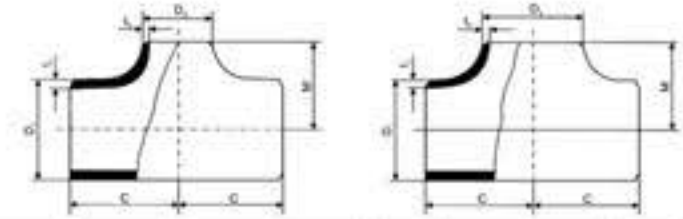
Nominal Size Inch	Dimensions		Sch. No.	Approx Weight (kg)	Sch. No.	Approx Weight (kg)
	Outside Diameter at Bevel D1 D2(mm)	Center to End C M(mm)				
24X18	610X406	432X406	Std	164.6	XS	204.7
X14	X356	X406	Std	163.1	XS	202.8
X12	X324	X397	Std	161.3	XS	200.6
X10	X273	X384	Std	158.9	XS	197.6
26X26	660X660	495X495	Std	221.8	XS	275.9
X24	X610	X483	Std	217.2	XS	270.2
X22	X559	X470	Std	212.8	XS	264.7
X20	X508	X457	Std	208.8	XS	257.3
X18	X457	X444	Std	205.1	XS	255.2
X16	X406	X432	Std	202.0	XS	251.3
X14	X356	X432	Std	200.5	XS	249.4
X12	X324	X422	Std	198.6	XS	247.1
28X28	711X711	521X521	Std	249.7	XS	310.7
X26	X660	X521	Std	247.2	XS	307.6
X24	X610	X508	Std	242.4	XS	301.7
X22	X559	X495	Std	238.0	XS	296.2
X20	X508	X483	Std	234.1	XS	291.4
X18	X451	X470	Std	230.5	XS	286.9
X16	X406	X457	Std	227.3	XS	282.8
X14	X356	X457	Std	225.8	XS	280.9
X12	X324	X448	Std	224.0	XS	278.7
30X30	762X762	559X559	Std	287.5	XS	357.9
X28	X711	X546	Std	282.1	XS	351.2
X26	X660	X546	Std	279.6	XS	348.1

Straight and Reducing Outlet Tees ASME/ANSI B16.9



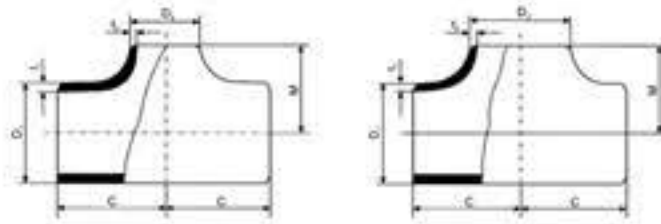
Nominal Size Inch	Dimensions		Sch No.	Approx Weight (kg)	Sch No.	Approx Weight (kg)
	Outside Diameter at Bevel D1 D2(mm)	Center to End C M(mm)				
30X24	762X610	559X533	Std	274.9	XS	342.2
X22	X559	X521	Std	270.7	XS	336.9
X20	X508	X508	Std	266.7	XS	331.9
X18	X457	X495	Std	263.0	XS	327.4
X16	X406	X483	Std	259.9	XS	323.5
X14	X356	X483	Std	258.4	XS	321.6
X12	X324	X473	Std	256.5	XS	319.3
X10	X273	X480	Std	249.0	XS	316.3
32X32	813X813	597X597	Std	328.0	XS	408.5
X30	X762	X584	Std	322.3	XS	401.3
X28	X711	X572	Std	317.1	XS	394.9
X26	X660	X572	Std	314.6	XS	391.8
X24	X610	X559	Std	309.9	XS	385.8
X22	X559	X546	Std	305.5	XS	380.3
X20	X508	X533	Std	301.4	XS	375.3
X18	X457	X521	Std	297.9	XS	371.0
X16	X406	X508	Std	294.7	XS	367.0
X14	X356	X508	Std	293.2	XS	365.1
34X34	864X864	635X635	Std	371.2	XS	462.4
X32	X813	X622	Std	365.1	XS	454.7
X30	X762	X610	Std	359.5	XS	447.8
X28	X711	X597	Std	354.2	XS	441.1
X26	X660	X597	Std	351.7	XS	438.0
X24	X610	X584	Std	346.9	XS	432.1

Straight and Reducing Outlet Tees ASME/ANSI B16.9



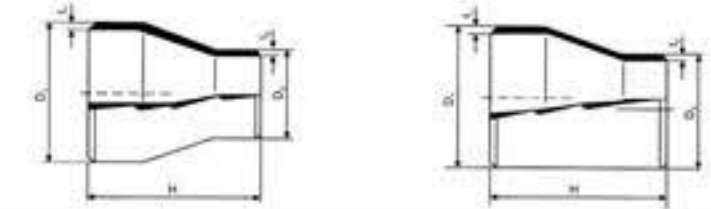
Nominal Size Inch	Outside Diameter at Bevel D1 D2(mm)		Center to End C M(mm)	Sch No.	Approx Weight (kg)	Sch No.	Approx Weight (kg)
34X22	864X559	635X572	Std	342.7	XS	426.8	
X20	X508	X559	Std	338.7	XS	421.8	
X18	X457	X546	Std	335.1	XS	417.3	
X16	X406	X533	Std	331.8	XS	413.3	
36X36	914X914	673X673	Std	416.7	XS	519.2	
X34	X864	X660	Std	410.3	XS	511.1	
X32	X813	X648	Std	404.4	XS	503.8	
X30	X762	X635	Std	398.6	XS	496.6	
X28	X711	X622	Std	393.2	XS	519.9	
X26	X660	X622	Std	390.7	XS	516.7	
X24	X610	X610	Std	386.2	XS	511.1	
X22	X559	X597	Std	381.8	XS	502.9	
X20	X508	X584	Std	377.7	XS	500.5	
X18	X457	X572	Std	374.2	XS	496.2	
X16	X406	X559	Std	371.0	XS	492.1	
38X38	965X965	711X711	Std	465.3	XS	579.7	
X36	X914	X711	Std	461.8	XS	575.4	
X34	X864	X698	Std	455.1	XS	568.3	
X32	X813	X686	Std	449.1	XS	559.5	
X30	X762	X673	Std	443.1	XS	552.1	
X28	X711	X648	Std	435.1	XS	542.1	
X26	X660	X648	Std	432.6	XS	538.9	
X24	X610	X635	Std	427.8	XS	533.0	
X22	X559	X622	Std	423.4	XS	527.5	
38X20	965X508	711X610	Std	419.5	XS	424.1	
X18	X457	X597	Std	415.9	XS	419.6	
40X40	1016X1016	749X749	Std	516.4	XS	643.6	
X38	X965	X749	Std	512.8	XS	639.1	
X36	X914	X737	Std	502.6	XS	620.5	
X34	X864	X724	Std	499.3	XS	612.2	
X32	X813	X711	Std	489.9	XS	604.3	
X30	X762	X698	Std	487.0	XS	596.9	
X28	X711	X673	Std	479.0	XS	586.9	
X26	X660	X673	Std	476.5	XS	583.8	
X24	X610	X660	Std	471.7	XS	577.9	
X22	X559	X648	Std	467.5	XS	572.6	
X20	X508	X635	Std	463.5	XS	567.6	
X18	X457	X622	Std	459.9	XS	563.1	
42X42	1067X1067	762X762	Std	546.9	XS	681.7	
X40	X1016	X711	Std	528.3	XS	658.5	
X38	X968	X711	Std	525.8	XS	655.3	
X36	X914	X711	Std	522.9	XS	651.8	
X34	X864	X711	Std	520.3	XS	648.1	
X32	X813	X711	Std	517.6	XS	645.2	
X30	X762	X711	Std	514.9	XS	641.8	
X28	X711	X698	Std	509.6	XS	635.1	
X26	X660	X698	Std	507.1	XS	632.0	
X24	X610	X660	Std	497.9	XS	620.6	

Straight and Reducing Outlet Tees ASME/ANSI B16.9



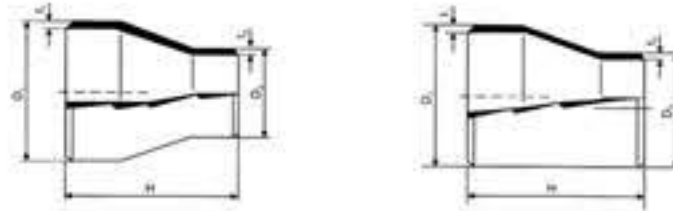
Nominal Size	Outside Diameter at Bevel	Center to End	Sch. No.	Approx Weight	Sch. No.	Approx Weight
Inch	D1 D2(mm)	C M(mm)		(kg)		(kg)
42X22	1067X559	762X660	Std	496.0	XS	618.2
X20	X508	X660	Std	494.1	XS	615.8
X18	X457	X648	Std	490.6	XS	611.5
X16	X406	X635	Std	487.4	XS	607.5
44X44	1118X1118	813X762	Std	598.3	XS	745.9
X42	X1067	X762	Std	595.3	XS	742.1
X40	X1016	X749	Std	588.4	XS	733.4
X38	X965	X737	Std	582.1	XS	725.6
X36	X914	X724	Std	576.0	XS	720.0
X34	X864	X724	Std	573.5	XS	714.9
X32	X813	X711	Std	567.9	XS	708.0
X30	X762	X711	Std	565.6	XS	705.1
X28	X711	X698	Std	560.7	XS	698.9
X26	X660	X698	Std	558.6	XS	696.3
X24	X610	X698	Std	556.5	XS	693.7
X22	X559	X686	Std	552.5	XS	688.7
X20	X508	X686	Std	550.6	XS	686.3
46X46	1168X1168	851X800	Std	655.8	XS	817.7
X44	X1118	X800	Std	652.6	XS	813.7
X42	X1067	X787	Std	645.3	XS	804.5
X40	X1016	X775	Std	638.7	XS	796.3
X38	X965	X762	Std	632.1	XS	788.1
X36	X914	X762	Std	629.5	XS	784.7
X34	X864	X749	Std	623.6	XS	777.4

Concentric & Eccentric Reducers ASME/ANSI B16.9



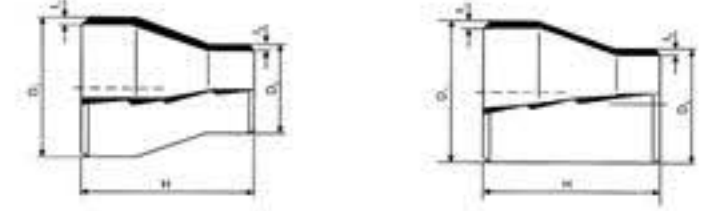
Nominal Pipe Size (NPS)	Dimensions			Wall Thickness-Approx. Weight														
	Outside Diameter at Bevel: D1 /D2		End to End	Sch 20			Sch 30			Std			Sch.40			Sch 60		
	inch	D1 mm	D2 mm	H mm	t1 mm	t2 mm	kg	t1 mm	t2 mm	kg	t1 mm	t2 mm	kg	t1 mm	t2 mm	kg	t1 mm	t2 mm
1X3/4	33.4	26.7	50.8	-	-	-	-	-	-	3.38	2.87	0.14	3.38	2.87	0.14	-	-	-
1 1/2X3/4	48.3	26.7	63.5	-	-	-	-	-	-	3.68	2.87	0.22	3.68	2.87	0.22	-	-	-
X1		33.4	63.5	-	-	-	-	-	-		3.38	0.24		3.38	0.24	-	-	-
X1 1/4		42.2	63.5	-	-	-	-	-	-		3.56	0.26		3.56	0.26	-	-	-
2X1	60.3	33.4	76.2	-	-	-	-	-	-	3.91	3.38	0.37	3.91	3.38	0.37	-	-	-
X1 1/4		42.2	76.2	-	-	-	-	-	-		3.56	0.39		3.56	0.39	-	-	-
X1 1/2		48.3	76.2	-	-	-	-	-	-		3.68	0.41		3.68	0.41	-	-	-
2 1/2X1 1/4	73.0	42.2	88.9	-	-	-	-	-	-	5.16	3.56	0.67	5.16	3.56	0.67	-	-	-
X1 1/2		48.3	88.9	-	-	-	-	-	-		3.68	0.68		3.68	0.68	-	-	-
X2		60.3	88.9	-	-	-	-	-	-		3.91	0.73		3.91	0.73	-	-	-
3X1 1/2	88.9	48.3	88.9	-	-	-	-	-	-	5.49	3.68	0.86	5.49	3.68	0.86	-	-	-
X2		60.3	88.9	-	-	-	-	-	-		3.91	0.91		3.91	0.91	-	-	-
X2 1/2		73.0	88.9	-	-	-	-	-	-		5.16	0.98		5.16	0.98	-	-	-
4X2	114.3	60.3	101.6	-	-	-	-	-	-	6.02	3.91	1.44	6.02	3.91	1.44	-	-	-
X2 1/2		73.0	101.6	-	-	-	-	-	-		5.16	1.52		5.16	1.52	-	-	-
X3		88.9	101.6	-	-	-	-	-	-		5.49	1.59		5.49	1.59	-	-	-
5X2 1/2	141.3	73.0	127.0	-	-	-	-	-	-	8.55	5.16	2.51	8.55	5.16	2.51	-	-	-
X3		88.9	127.0	-	-	-	-	-	-		5.49	2.60		5.49	2.60	-	-	-
X4		114.3	127.0	-	-	-	-	-	-		6.02	2.72		6.02	2.72	-	-	-
6X3	168.3	88.9	139.7	-	-	-	-	-	-	7.11	5.49	3.63	7.11	5.49	3.63	-	-	-
X4		114.3	139.7	-	-	-	-	-	-		6.02	3.72		6.02	3.72	-	-	-
X5		141.3	139.7	-	-	-	-	-	-		6.55	3.93		6.55	3.93	-	-	-
8X4	219.1	114.3	152.4	-	-	-	-	-	-	8.18	6.02	5.95	8.18	6.02	5.95	-	-	-
X5		141.3	152.4	-	-	-	-	-	-		6.55	6.08		6.55	6.08	-	-	-
X6		168.3	152.4	-	-	-	-	-	-		7.11	6.31		7.11	6.31	-	-	-
10X5	273.0	141.3	177.8	-	-	-	-	-	-	9.27	6.55	9.90	9.27	6.55	9.90	-	-	-
X6		168.3	177.8	-	-	-	-	-	-		7.11	10.10		7.11	10.10	-	-	-
X8		219.1	177.8	6.35	6.35	7.89	7.80	7.04	9.62		8.18	10.50		8.18	10.50	12.70	10.31	-
12X6	323.9	168.3	203.2	-	-	-	-	-	-	9.53	7.11	14.10	10.31	7.11	16.50	-	-	-
X8		219.1	203.2	6.35	6.35	10.70	8.38	7.04	14.00		8.18	14.60		8.18	17.20	14.27	10.31	23.50
X10		273.0	203.2		6.35	11.10		7.80	14.60		9.27	15.20		9.27	17.80		12.70	24.30
14X8	355.6	219.1	330.2	7.92	6.35	23.10	9.53	7.04	27.60	9.53	8.18	26.00	11.13	8.18	32.10	15.90	10.31	43.10
X10		273.0	330.2		6.35	24.20		7.80	29.00		9.27	27.40		9.27	33.70		12.70	45.10
X12		323.9	330.2		6.35	25.60		8.38	30.60		9.53	28.80		10.31	35.60		14.27	47.70
16X8	406.4	219.1	355.6	7.92	6.35	27.70	9.53	7.04	33.20	9.53	8.18	31.90	12.70	8.18	43.90	16.66	10.31	56.80
X10		273.0	355.6		6.35	28.80		7.80	34.50		9.27	33.10		9.27	45.70		12.70	59.00
X12		323.9	355.6		6.35	29.90		8.38	35.80		9.53	34.30		10.31	47.40		14.27	61.40
X14		355.6	355.6		7.92	30.50		9.53	36.50		9.53	35.20		11.13	48.30		15.90	62.50

Concentric & Eccentric Reducers ASME/ANSI B16.9



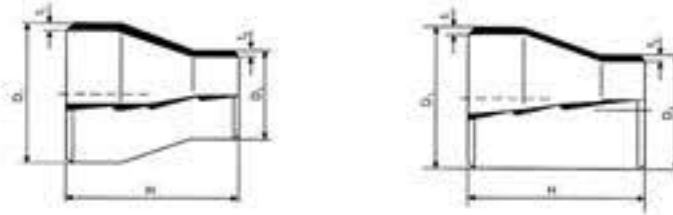
Wall Thickness-Approx. Weight																					Nominal Pipe Size (NPS)
XS			Sch.80			Sch.100			Sch.120			Sch.140			Sch.160			XXS			
t1 mm	t2 mm	kg	t1 mm	t2 mm	kg	t1 mm	t2 mm	kg	t1 mm	t2 mm	kg	t1 mm	t2 mm	kg	t1 mm	t2 mm	kg	t1 mm	t2 mm	kg	inch
4.55	3.91	0.17	4.55	3.91	0.17	-	-	-	-	-	-	-	-	-	6.35	5.56	0.22	-	-	-	1X3/4
5.08	3.91	0.27	5.08	3.91	0.27	-	-	-	-	-	-	-	-	-	7.14	5.56	0.51	10.15	7.82	0.67	1 1/2X3/4
	4.55	0.31		4.55	0.31	-	-	-	-	-	-	-	-	-		6.35	0.55		9.09	0.73	X1
	4.85	0.33		4.85	0.33	-	-	-	-	-	-	-	-	-		6.35	0.60		9.70	0.79	X1 1/4
5.54	4.55	0.45	5.54	4.55	0.45	-	-	-	-	-	-	-	-	-	8.74	6.35	0.94	11.07	9.09	1.14	2X1
	4.85	0.53		4.85	0.53	-	-	-	-	-	-	-	-	-		6.35	0.99		9.70	1.20	X1 1/4
	5.08	0.54		5.08	0.54	-	-	-	-	-	-	-	-	-		7.14	1.04		10.15	1.26	X1 1/2
7.01	4.85	0.79	7.01	4.85	0.79	-	-	-	-	-	-	-	-	-	9.53	6.35	1.52	14.02	9.70	2.07	2 1/2X1 1/4
	5.08	0.86		5.08	0.86	-	-	-	-	-	-	-	-	-		7.14	1.53		10.15	2.10	X1 1/2
	5.54	0.94		5.54	0.94	-	-	-	-	-	-	-	-	-		8.74	1.65		11.07	2.25	X2
7.62	5.08	1.04	7.62	5.08	1.04	-	-	-	-	-	-	-	-	-	11.13	7.14	2.12	15.24	10.15	2.78	3X1 1/2
	5.54	1.18		5.54	1.18	-	-	-	-	-	-	-	-	-		8.74	2.23		11.07	2.90	X2
	7.01	1.29		7.01	1.29	-	-	-	-	-	-	-	-	-		9.53	2.40		14.02	3.12	X2 1/2
8.56	5.54	1.78	8.56	5.54	1.78	-	-	-	-	-	-	-	-	-	13.49	8.74	3.97	17.12	11.07	4.85	4X2
	7.01	2.01		7.01	2.01	-	-	-	-	-	-	-	-	-		9.53	4.21		14.02	5.14	X2 1/2
	7.62	2.13		7.62	2.13	-	-	-	-	-	-	-	-	-		11.13	4.38		15.24	5.35	X3
9.53	7.01	3.30	9.53	7.01	3.30	-	-	-	-	-	-	-	-	-	15.88	9.53	6.68	19.05	14.02	8.02	5X2 1/2
	7.62	3.55		7.62	3.55	-	-	-	-	-	-	-	-	-		11.13	7.10		15.24	8.31	X3
	8.56	3.78		8.56	3.78	-	-	-	12.70	11.13	6.09	-	-	-		13.49	7.14		17.12	8.68	X4
10.97	7.62	5.04	10.97	7.62	5.04	-	-	-	-	-	-	-	-	-	18.26	11.13	9.93	21.95	15.24	11.60	6X3
	8.56	5.45		8.56	5.45	-	-	-	14.27	11.13	8.20	-	-	-		13.49	10.22		17.12	12.00	X4
	9.53	5.72		9.53	5.72	-	-	-	12.70	8.65	-	-	-	-		15.88	10.78		19.05	12.60	X5
12.70	8.56	8.44	12.70	8.56	8.44	-	-	-	18.26	11.13	14.00	-	-	-	23.01	13.49	17.30	22.23	17.12	16.70	8X4
	9.53	8.85		9.53	8.85	-	-	-	12.70	14.40	-	-	-	-		15.88	17.80		19.05	17.20	X5
	10.97	9.26		10.97	9.26	-	-	-	14.27	15.00	-	-	-	-		18.26	18.40		21.95	17.90	X6
12.70	9.53	13.00	15.09	9.53	17.60	-	-	-	21.44	12.70	24.40	-	-	-	28.58	15.88	31.60	25.40	19.05	28.40	10X5
	10.97	13.50		10.97	17.90	-	-	-	14.27	24.90	-	-	-	-		18.26	32.20		21.95	29.00	X6
	12.70	14.20		12.70	18.10	18.26	15.09	21.70	18.26	25.10	25.40	20.62	29.30		23.01	32.50		22.23	29.30	X8	
12.70	10.97	18.40	17.48	10.97	27.30	-	-	-	25.40	14.27	38.70	-	-	-	33.32	18.26	49.40	25.40	21.95	38.70	12X6
	12.70	19.10		12.70	28.40	21.44	15.09	34.40	18.26	40.20	28.58	20.62	44.80		23.01	51.40		22.23	40.20	X8	
	12.70	19.80		15.09	29.50	18.26	35.70	21.44	41.70	25.40	46.30	28.58	53.30		25.40	41.70		25.40	41.70	X10	
12.70	12.70	34.90	19.05	12.70	53.70	23.83	15.09	66.30	27.79	18.26	76.30	31.75	20.62	86.70	35.71	23.01	95.70	-	-	-	14X8
	12.70	36.10		15.09	56.30	18.26	69.50	21.44	80.10	25.40	90.40	28.58	100.40		28.58	100.40	-	-	-	X10	
	12.70	37.70		17.48	59.50	21.44	73.30	25.40	84.50	28.58	95.40	33.32	106.00		33.32	106.00	-	-	-	X12	
12.70	12.70	42.60	21.44	12.07	72.40	26.19	15.09	87.20	30.96	18.26	101.80	36.53	20.62	118.60	40.49	23.01	130.10	-	-	-	16X8
	12.70	43.70		15.09	75.30	18.26	90.60	21.44	105.80	25.40	123.30	28.58	135.30		28.58	135.30	-	-	-	X10	
	12.70	45.00		17.48	78.20	21.44	94.10	25.40	109.90	28.58	128.10	33.32	140.50		33.32	140.50	-	-	-	X12	
	12.70	46.30		19.05	79.70	23.83	95.90	27.79	111.90	31.75	130.50	35.71	143.10		35.71	143.10	-	-	-	X14	

Concentric & Eccentric Reducers ASME/ANSI B16.9



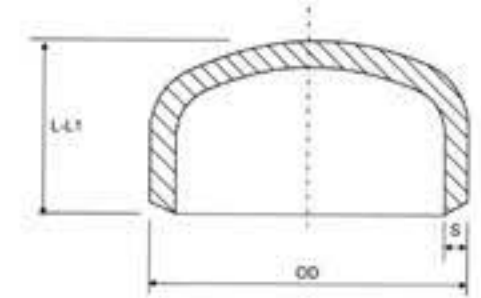
Nominal Size inch	Outside Diameter of Bevel D1 D2(mm)	End to End H(mm)	Sch.No.	Approx Weight (kg)	Sch.No.	Approx Weight (kg)
18X16	457X406	381	Std	40.5	XS	51.5
X14	X356	381	Std	38.12	XS	48.5
X12	X324	381	Std	36.7	XS	46.6
X10	X273	381	Std	34.3	XS	43.5
20X18	508X457	508	Std	60.4	XS	76.7
X18	X406	508	Std	57.2	XS	72.67
X14	X356	508	Std	54.1	XS	68.7
X12	X324	508	Std	52.0	XS	66.2
22X20	559X508	508	Std	66.8	XS	84.8
X18	X457	508	Std	63.6	XS	80.8
X16	X406	508	Std	60.4	XS	76.7
X14	X356	508	Std	57.3	XS	72.8
24X22	610X559	508	Std	73.2	XS	93.0
X20	X508	508	Std	70.0	XS	88.9
X18	X457	508	Std	66.8	XS	84.8
X16	X406	508	Std	63.6	XS	80.8
26X24	660X610	610	Std	95.4	XS	121.2
X22	X559	610	Std	91.6	XS	116.4
X20	X508	610	Std	87.8	XS	111.5
X18	X457	610	Std	84.0	XS	106.6
28X26	711X660	610	Std	103.1	XS	130.9
X24	X610	610	Std	99.3	XS	126.1
X20	X508	610	Std	91.6	XS	116.4
X18	X457	610	Std	87.8	XS	111.5
30X28	762X711	610	Std	108.0	XS	137.2
X26	X660	610	Std	106.9	XS	135.8
X24	X610	610	Std	103.1	XS	131.0
X20	X508	610	Std	95.5	XS	121.3
32X30	813X762	610	Std	118.4	XS	150.4
X28	X711	610	Std	114.6	XS	145.5
X26	X660	610	Std	110.7	XS	140.6
X24	X610	610	Std	101.0	XS	135.9
34X32	864X813	610	Std	126.1	XS	160.1
X30	X762	610	Std	122.3	XS	155.2
X26	X660	610	Std	114.6	XS	145.5
X24	X610	610	Std	110.8	XS	140.7
36X34	914X864	610	Std	133.7	XS	169.8
X32	X813	610	Std	129.8	XS	164.9
X30	X762	610	Std	126.0	XS	160.1
X26	X660	610	Std	118.3	XS	150.3

Concentric & Eccentric Reducers ASME/ANSI B16.9



Nominal Size Inch	Outside Diameter of Bevel D1 D2(mm)	End to End H(mm)	Sch No.	Approx Weight (kg)	Sch No.	Approx Weight (kg)
38X36	985X914	610	Std	141.3	XS	179.4
X34	X864	610	Std	137.5	XS	174.6
X32	X813	610	Std	133.7	XS	169.8
X30	X762	610	Std	129.8	XS	164.9
X28	X711	610	Std	126.0	XS	160.0
X26	X667	610	Std	122.7	XS	155.8
40 X38	1016X965	610	Std	148.9	XS	189.1
X36	X914	610	Std	145.1	XS	184.3
X34	X864	610	Std	141.3	XS	179.5
X32	X813	610	Std	137.5	XS	174.6
X30	X762	610	Std	133.7	XS	169.8
42X40	1067X1016	610	Std	156.6	XS	198.9
X38	X965	610	Std	152.8	XS	194.0
X36	X914	610	Std	148.9	XS	189.1
X34	X864	610	Std	145.1	XS	184.4
X32	X813	610	Std	141.3	XS	179.5
X30	X762	610	Std	137.5	XS	174.6
44X42	1118X1067	610	Std	164.3	XS	208.6
X40	X1016	610	Std	160.4	XS	203.7
X38	X965	610	Std	165.6	XS	198.9
X36	X914	610	Std	152.8	XS	194.0
46X44	1168X1118	610	Std	171.9	XS	218.3
X42	X1067	711	Std	195.8	XS	248.7
X40	X1016	711	Std	191.4	XS	243.0
X38	X965	711	Std	186.9	XS	237.4
48X46	1219X1168	711	Std	209.1	XS	265.6
X44	X1118	711	Std	204.8	XS	260.1
X42	X1067	711	Std	200.3	XS	254.4
X40	X1016	711	Std	195.8	XS	248.7

CAPS ASME/ANSI B16.9



OD	L	L1	DIA	S=SCHEDULE												
				STD	XS	10	20	30	40	60	80	100	120	140	160	XXS
21.3	25.9	25.9	1/2"	2.77	3.73	-	-	-	2.77	-	3.73	-	-	-	4.75	7.47
26.7	31.7	31.7	3/4"	2.87	3.91	-	-	-	2.87	-	3.91	-	-	-	5.54	7.82
33.4	38.1	38.1	1"	3.38	4.55	-	-	-	3.38	-	4.55	-	-	-	6.35	9.09
42.4	38.1	38.1	1-1/4"	3.56	4.85	-	-	-	3.56	-	4.85	-	-	-	6.35	9.70
48.3	38.1	38.1	1-1/2"	3.68	5.08	-	-	-	3.68	-	5.08	-	-	-	7.14	10.16
60.3	38.1	44.4	2"	3.91	5.54	-	-	-	3.91	-	5.54	-	-	-	8.71	11.07
73.0	38.1	50.8	2-1/2"	5.16	7.01	-	-	-	5.16	-	7.01	-	-	-	9.52	14.02
88.9	50.8	63.5	3"	5.49	7.62	-	-	-	5.49	-	7.62	-	-	-	11.12	15.24
101.6	63.5	76.2	3-1/2"	5.74	8.08	-	-	-	5.74	-	8.08	-	-	-	-	-
114.3	63.5	76.2	4"	6.02	8.56	-	-	-	6.02	-	8.56	-	11.12	-	13.49	17.12
141.3	76.2	88.9	5"	6.55	9.52	-	-	-	6.55	-	9.52	-	12.70	-	15.87	19.05
168.3	88.9	101.6	6"	7.11	10.97	-	-	-	7.11	-	10.97	-	14.27	-	18.24	21.94
219.1	101.6	127.0	8"	8.18	12.70	-	6.35	7.04	8.18	10.30	12.70	15.06	18.24	20.62	23.01	22.22
273.0	127.0	152.4	10"	9.27	12.70	-	6.35	7.80	9.27	12.70	15.06	18.24	21.41	25.40	28.57	26.40
323.8	152.4	177.8	12"	9.52	12.70	-	6.35	8.38	10.31	14.30	17.45	21.41	25.40	28.57	33.32	26.40
355.6	165.1	190.5	14"	9.52	12.70	6.35	7.92	9.52	11.12	15.10	19.05	23.80	27.76	31.75	35.71	-
406.4	177.8	203.2	16"	9.52	12.70	6.35	7.92	9.52	12.70	16.70	21.41	26.19	30.94	36.52	40.46	-
457.2	203.2	228.6	18"	9.52	12.70	6.35	7.92	11.12	14.27	19.05	23.80	29.36	34.92	39.67	45.24	-
508.0	228.6	254.0	20"	9.52	12.70	6.35	9.52	12.70	15.06	20.60	26.19	32.54	38.10	44.45	49.99	-
558.8	254.0	279.4	22"	9.52	12.70	6.35	9.52	12.70	-	-	-	-	-	-	-	-
609.6	266.7	304.8	24"	9.52	12.70	6.35	9.52	14.25	17.45	24.60	30.94	38.89	46.2	52.37	59.51	-
660.4	266.7	266.7	26"	9.52	12.70	7.92	12.70	-	-	-	-	-	-	-	-	-
711.2	266.7	266.7	28"	9.52	12.70	7.92	12.70	15.88	-	-	-	-	-	-	-	-
762.0	266.7	266.7	30"	9.52	12.70	7.92	12.70	15.88	-	-	-	-	-	-	-	-
812.8	266.7	266.7	32"	9.52	12.70	7.92	12.70	15.88	17.45	-	-	-	-	-	-	-
863.6	266.7	266.7	34"	9.52	12.70	7.92	12.70	15.88	17.45	-	-	-	-	-	-	-
914.4	266.7	266.7	36"	9.52	12.70	7.92	12.70	15.88	19.05	-	-	-	-	-	-	-

SOCKET WELDING FITTINGS CATALOGUE

■ HIGH PRESSURE FORGED STEEL PIPE FITTING

THREADED FITTING:



45° ELBOW



90° ELBOW



COUPLING



CROSS



HALF COUPLING



HEX HEAD BUSHING



HEX HEAD PLUG



HEX NIPPLE



OUTLET



SQUARE HEAD PLUG



STREET ELBOW



TEE

SOCKET WELDING FITTING:



45° ELBOW



90° ELBOW



COUPLING



CROSS



HALF COUPLING



OUTLET

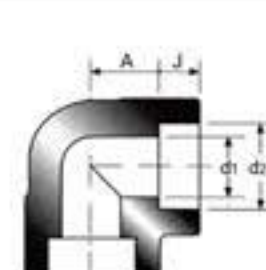


TEE

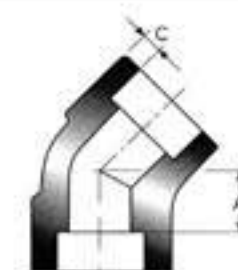


UNION

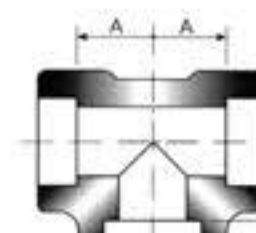
■ SOCKET WELDING FITTING



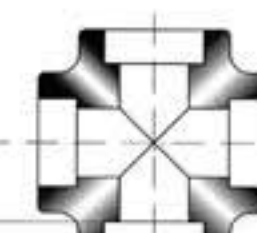
90° Elbow



45° Elbow



Tee



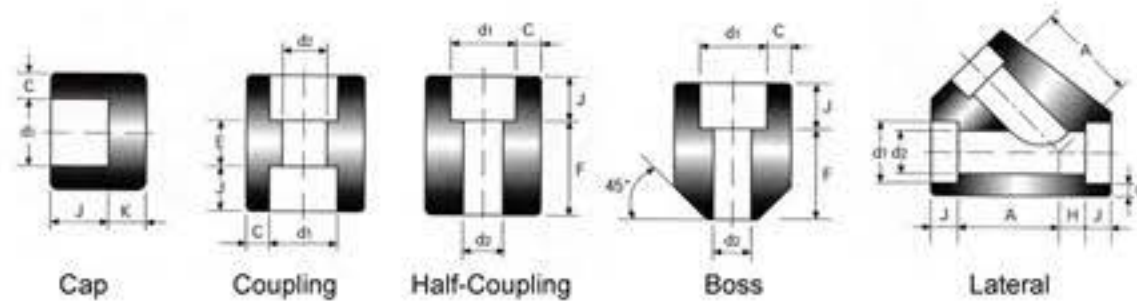
Cross

SOCKET WELDING FITTING

GB/T 14383, SH3410, ASME B16.11

Nominal Pipe Size		Depth of Socket	Wall Thickness			Center to Bottom of Socket					
						A					
			C min			90° Elbow, Tee, Cross			45° Elbow		
DN	NPS	J min	SCH80 3000	SCH160 6000	XXS 9000	SCH80 3000	SCH160 6000	XXS 9000	SCH80 3000	SCH160 6000	XXS 9000
6	1/8	10	3.2	3.5	---	11	11	---	8	8	---
8	1/4	10	3.3	4.0	---	11	14	---	8	8	---
10	3/8	10	4.0	4.4	---	14	16	---	8	11	---
15	1/2	10	4.5	6.0	9.5	16	19	25	11	13	16
20	3/4	13	5.0	7.0	10.0	19	22	28	13	14	19
25	1	13	5.6	8.0	11.5	22	27	32	14	18	21
32	1 1/4	13	6.3	8.0	12.0	27	32	35	18	21	22
40	1 1/2	13	6.4	9.0	13.0	32	38	38	21	25	25
50	2	16	7.0	11.0	14.0	38	41	54	25	29	28
65	2 1/2	16	8.9	12.5	---	41	57	---	29	32	---
80	3	16	10.0	13.8	---	57	64	---	32	35	---
100	4	19	10.0	---	---	67	---	---	41	---	---

SOCKET WELDING FITTING

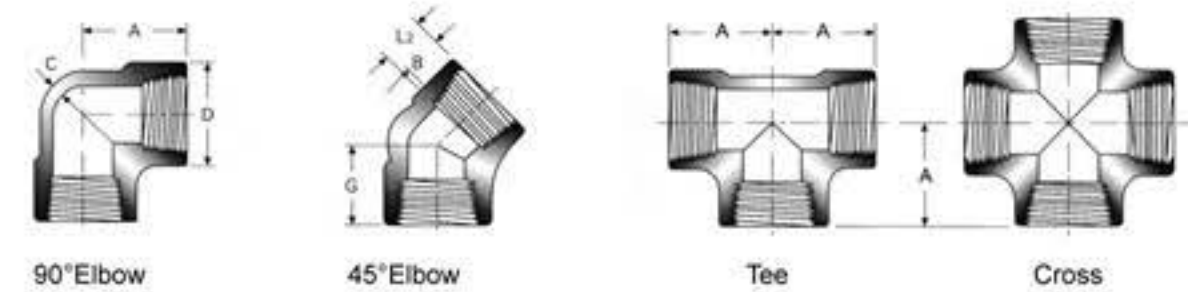


SOCKET WELDING FITTING

GB/T 14383, SH3410, ASME B16.11

Nominal Pipe Size		Depth of Socket	Wall Thickness			End Wall Thickness of Caps			Laying length		Center to Bottom of Socket			
									Couplings	Half-coupling Boss	Laterals			
			C min			K min					E	F	A	
DN	NPS	J min	SCH80 3000	SCH160 6000	XXS 9000	SCH80 3000	SCH160 6000	XXS 9000	SCH80 3000 SCH160 6000 XXS 9000	SCH80 3000 SCH160 6000 XXS 9000	SCH80 3000	SCH160 6000	SCH80 3000	SCH160 6000
6	1/8	10	3.2	3.5	---	5.0	6.5	---	6.4	16	---	---	---	---
8	1/4	10	3.3	4.0	---	5.0	6.5	---	6.4	16	32	---	8	---
10	3/8	10	4.0	4.4	---	5.0	6.5	---	6.4	19	37	---	8(10)	---
15	1/2	10	4.5	6.0	9.5	6.5	8.0	11.0	10(13)	22(24)	41	51	11(10)	13(11)
20	3/4	13	5.0	7.0	10.0	7.0	9.0	12.5	10(13)	24(25)	51	60	13(11)	14(13)
25	1	13	5.6	8.0	11.5	9.5	11.0	14.0	13(17)	29(31)	60	71	14(13)	18(16)
32	1 1/4	13	6.3	8.0	12.0	10.0	12.0	14.5	13(17)	30(32)	71	81	18(16)	21(17)
40	1 1/2	13	6.4	9.0	13.0	10.5	13.5	16.0	13(17)	32(34)	81	98	21(17)	25(21)
50	2	16	7.0	11.0	14.0	12.5	16.5	19.0	19(23)	41(43)	98	120(152)	25(21)	29(32)
65	2 1/2	16	8.9	12.5	---	16.0	19.5	---	19(24)	43(45)	(151)	---	(30)	---
80	3	16	10.0	13.8	---	19.0	23.0	---	19(24)	45(47)	(184)	---	(57)	---
100	4	19	10.0	---	---	22.0	28.5	---	19	48	---	---	---	---

THREADED FITTING

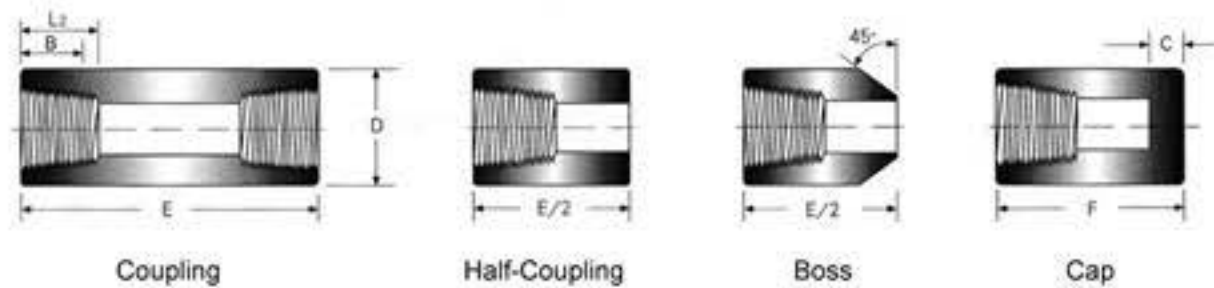


THREADED FITTING

GB/T 14626, ASME B16.11

Nominal Pipe Size		90° Elbow, Tee, Cross			45° Elbow			All Fittings							
		Center to End			Center to End			Outside Diameter of Band		minimum Wall Thickness			Length of Thread Min		
		A			G			D		C			B		
DN	NPS	SCH80 2000	SCH160 3000	XXS 6000	SCH80 2000	SCH160 3000	XXS 6000	SCH80 2000	SCH160 3000	XXS 6000	SCH80 2000	SCH160 3000	XXS 6000	B	L2
6	1/8	21	21	25	17	17	19	22	22	25	3.18	3.18	6.35	6.4	6.7
8	1/4	21	25	28	17	19	22	22	25	33	3.18	3.30	6.60	8.1	10.2
10	3/8	25	28	33	19	22	25	25	33	38	3.18	3.51	6.98	9.1	10.4
15	1/2	28	33	38	22	25	28	33	38	46	3.18	4.09	8.15	10.9	13.6
20	3/4	33	38	44	25	28	33	38	46	56	3.18	4.32	8.53	12.7	13.9
25	1	38	44	51	28	33	35	46	56	62	3.68	4.98	9.93	14.7	17.3
32	1 1/4	44	51	60	33	35	43	56	62	75	3.89	5.28	10.59	17.0	18.0
40	1 1/2	51	60	64	35	43	44	62	75	84	4.01	5.56	11.07	17.8	18.4
50	2	60	64	83	43	44	52	75	84	102	4.27	7.14	12.09	19.0	19.2
65	2 1/2	76	83	95	52	52	64	92	102	121	5.61	7.65	15.29	23.6	28.9
80	3	86	95	106	64	64	79	109	121	146	5.99	8.84	16.64	25.9	30.5
100	4	106	114	114	79	79	79	146	152	152	6.55	11.18	18.67	27.7	33.0

■ THREADED FITTING

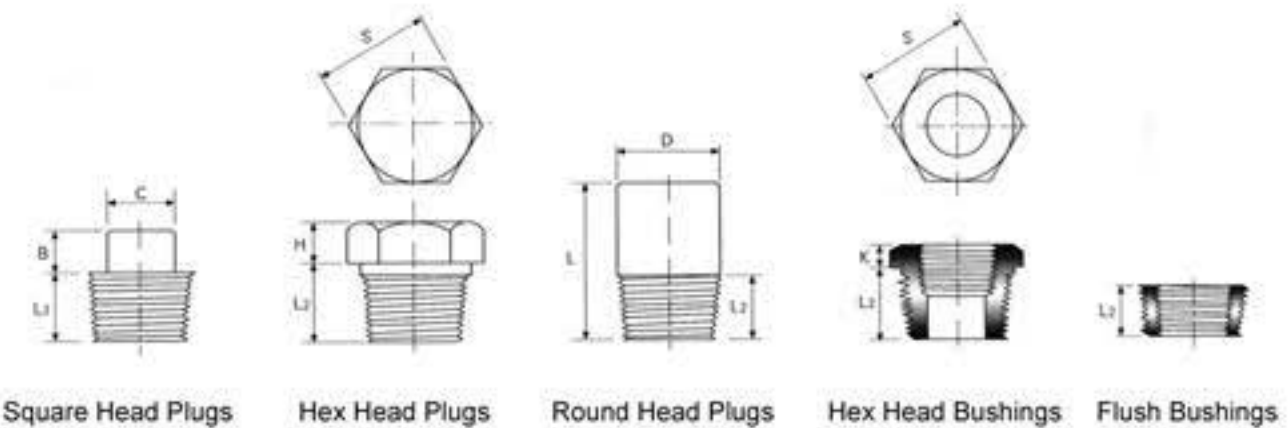


THREADED FITTING

GB/T 14626, ASME B16.11

Nominal Pipe Size		Couplings,Boss	Caps				All Fittings			
		End to End	End to End		End Wall Thickness		Outside Diameter		Length of Thread	
		E	F		C min		D			
DN	NPS	SCH160, XXS 3000, 6000	SCH160 3000	XXS 6000	SCH160 3000	XXS 6000	SCH160 3000	XXS 6000	B	L2
6	1/8	32	19	—	4.8	—	16	22	6.4	6.7
8	1/4	35	25	27	4.8	6.4	19	25	8.1	10.2
10	3/8	38	25	27	4.8	6.4	22	32	9.1	10.4
15	1/2	48	32	33	6.4	7.9	28	38	10.9	13.6
20	3/4	51	37	38	6.4	7.9	35	44	12.7	13.9
25	1	60	41	43	9.7	11.2	44	57	14.7	17.3
32	1 1/4	67	44	46	9.7	11.2	57	64	17.0	18.0
40	1 1/2	79	44	48	11.2	12.7	64	76	17.8	18.4
50	2	86	48	51	12.7	15.7	76	92	19.0	19.2
65	2 1/2	92	60	64	15.7	19.0	92	108	23.6	28.9
80	3	108	65	68	19.0	22.4	108	127	25.9	30.5
100	4	121	68	75	22.4	28.4	140	159	27.7	33.0

■ THREADED FITTING

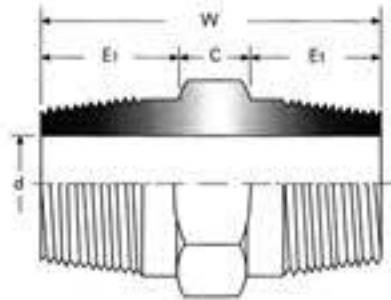


THREADED FITTING

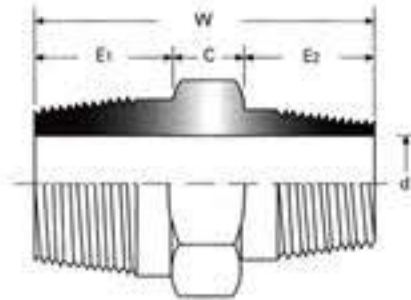
GB/T 14626, ASME B16.11

Nominal Pipe Size		Length	Square Head Plugs		Round Head Plugs		Hex Plugs and Bushings		
			Height of Square	Width Flats	Nominal Diameter of Head	Length	Width Flats (Nominal)	Hex Height	
								K min	H min
DN	NPS	L2 min	B min	C min	D	L min	S	K min	H min
6	1/8	10	6	7	10	35	11	—	6
8	1/4	11	6	10	14	41	16	3	6
10	3/8	13	8	11	18	41	18	4	8
15	1/2	14	10	14	21	44	22	5	8
20	3/4	16	11	16	27	44	27	5	10
25	1	19	13	21	33	51	36	6	10
32	1 1/4	21	14	24	43	51	46	7	14
40	1 1/2	21	16	28	48	51	50	8	16
50	2	22	17	32	60	64	65	9	18
65	2 1/2	27	19	36	73	70	75	10	19
80	3	28	21	41	89	70	90	10	21
100	4	32	25	65	114	76	115	13	25

HEXAGONAL NIPPLE



Straight Hexagonal Nipple

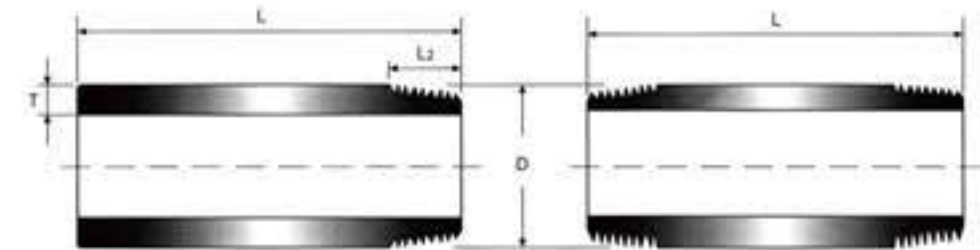


Reducing Hexagonal Nipple

HEXAGONAL NIPPLE

Nominal Pipe Size		Size					
DN	NPS	C	E1	E2	W	D	
						Sch80	Sch160
6	1/8	6	10	---	26	5	4
8	1/4	8	15	---	36	7	6
8 X 6	1/4 X 1/8	8	15	10	31	5	4
10	3/8	8	16	---	40	10	8
10 X 8	3/8 X 1/4	8	16	15	39	7	6
15	1/2	8	20	---	48	13	10
15 X 10	1/2 X 3/8	8	20	18	44	10	8
15 X 8	1/2 X 1/4	8	20	15	43	7	6
20	3/4	10	21	---	52	18	14
20 X 15	3/4 X 1/2	10	21	20	49	10	10
20 X 10	3/4 X 3/8	10	21	16	47	7	8
25	1	10	25	---	60	23	19
25 X 20	1 X 3/4	10	25	21	56	18	14
25 X 15	1 X 1/2	10	25	20	55	13	10
32	1 1/4	12	25	---	62	31	28
32 X 25	1 1/4 X 1	12	25	25	62	23	19
32 X 20	1 1/4 X 3/4	12	25	21	58	18	14
32 X 15	1 1/4 X 1/2	12	25	20	57	13	10
40	1 1/2	16	26	---	68	36	32
40 X 32	1 1/2 X 1 1/4	16	26	25	67	31	28
40 X 25	1 1/2 X 1	16	26	21	67	23	19
40 X 20	1 1/2 X 3/4	16	26	20	63	18	14
40 X 15	1 1/2 X 1/2	16	26	20	62	13	10
50	2	18	27	---	72	47	40
50 X 40	2 X 1 1/2	18	27	26	71	36	32
50 X 32	2 X 1 1/4	18	27	25	70	31	28
50 X 25	2 X 1	18	27	21	70	23	19
50 X 20	2 X 3/4	18	27	20	68	18	14
50 X 15	2 X 1/2	18	27	20	65	13	10
65	2 1/2	20	38	---	96	57	51
65 X 50	2 1/2 X 2	20	38	27	85	47	40
65 X 40	2 1/2 X 1 1/2	20	38	26	84	36	32
65 X 32	2 1/2 X 1 1/4	20	38	25	83	31	28
65 X 25	2 1/2 X 1	20	38	25	83	23	19
65 X 20	2 1/2 X 3/4	20	38	21	79	18	14
80	3	20	40	---	100	70	63
80 X 65	3 X 2 1/2	20	40	38	98	57	51
80 X 50	3 X 2	20	40	27	87	47	40
80 X 40	3 X 1 1/2	20	40	26	86	36	32
80 X 32	3 X 1 1/4	20	40	25	85	31	28
80 X 25	3 X 1	20	40	25	85	23	19

NIPPLE



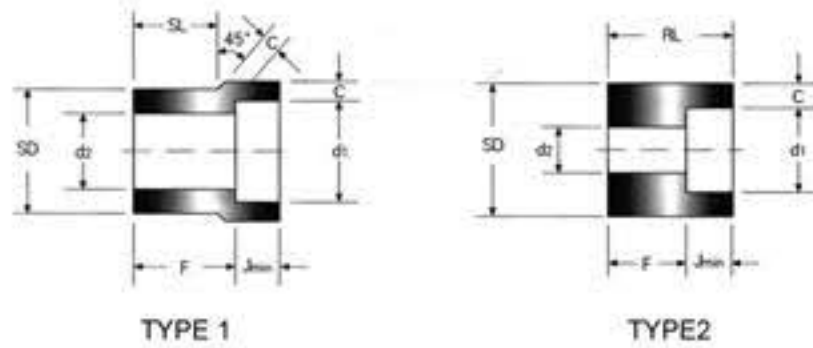
Nipple(POE/TOE)

Nipple(TBE)

NIPPLE

Nominal Pipe Size		Outside Diameter of Pipe	Length of Thread	End to End	Wall Thickness of Pipe
DN	NPS	D	L2 min	L	T
6	1/8	10.3	9.5	75, 100, 150	SCH80, SCH160
8	1/4	13.7	11.0		
10	3/8	17.1	12.5		
15	1/2	21.3	14.5		
20	3/4	26.7	16.0		
25	1	33.4	19.0		
32	1 1/4	42.2	20.5		
40	1 1/2	48.3	20.5		
50	2	60.3	22.0		
65	2 1/2	73.0	27.0		
80	3	88.9	28.5		
100	4	114.3	32.0		

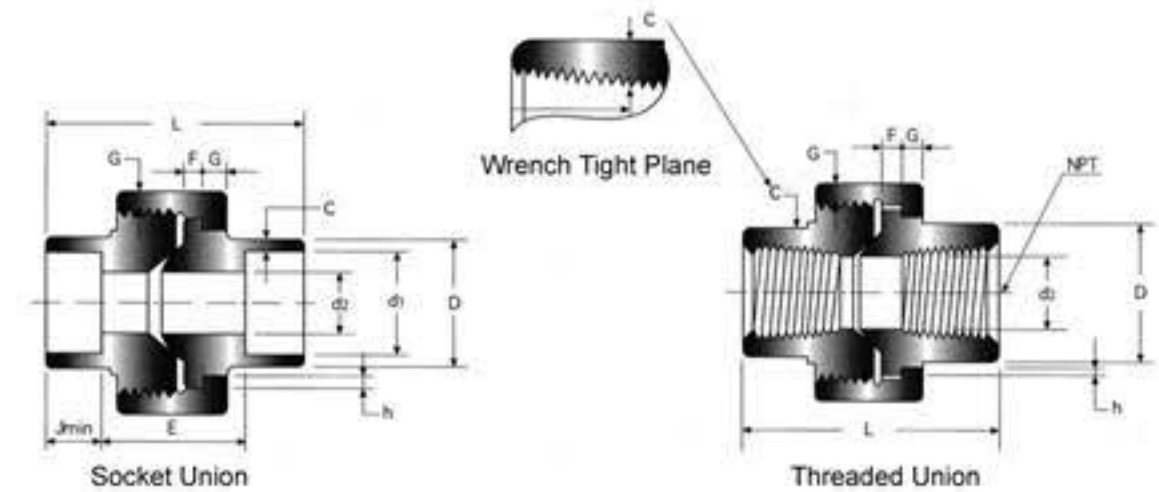
SOCKET WELDING REDUCER INSERT



SOCKET WELDING REDUCER FITTING MSS SP-79

Nominal Pipe Size	Type		Socket DIA	Shank DIA	Bore		Laying Length		Wall		Length			
					d ₁	d ₂	F		C min		SL		RL min	
NPS	3M	6M	d ₁	SD	3M	6M	3M	6M	3M	6M	3M	6M	3M	6M
3/8x1/4	1	1	14.3	17.1	9.2	6.4	19.1	21.3	3.8	4.6	14.2	15.7	---	---
1/2x3/8	1	1	17.7	21.3	12.5	9.1	20.6	23.1	4.0	5.0	15.7	15.7	---	---
1/2x1/4	1	1	14.3		9.2	6.4	20.6	20.6	3.8	4.6	15.7	15.7	---	---
3/4x1/2	1	1	21.9		15.8	11.8	22.4	25.4	4.7	6.0	17.5	19.1	---	---
3/4x3/8	2	1	17.7	26.7	12.5	9.1	15.7	22.4	4.0	5.0	---	19.1	27.0	---
3/4x1/4	2	2	14.3		9.2	6.4	17.5	22.4	3.8	4.6	---	---	27.0	32.0
1x3/4	1	1	27.3	33.4	20.9	15.5	23.9	28.5	4.9	7.0	19.1	20.6	---	---
1x1/2	2	1	21.9		15.8	11.8	15.7	28.5	4.7	6.0	---	20.6	28.5	---
1x3/8	2	2	17.7		12.5	9.1	17.5	22.4	4.0	5.0	---	---	28.5	33.3
1x1/4	2	2	14.3		9.2	6.4	19.1	23.9	3.8	4.6	---	---	28.5	33.3
1 1/4x1	1	1	34.0	42.2	26.6	20.7	25.4	30.2	5.7	7.9	20.6	22.4	---	---
1 1/4x3/4	2	2	27.3		20.9	15.5	17.5	20.6	4.9	7.0	---	---	31.8	34.8
1 1/4x1/2	2	2	21.9		15.8	11.8	19.1	22.4	4.7	6.0	---	---	31.8	34.8
1 1/4x3/8	2	2	17.7		12.5	9.1	20.6	23.9	4.0	5.0	---	---	31.8	34.8
1 1/4x1/4	2	2	14.3		9.2	6.4	22.4	25.4	3.8	4.6	---	---	31.8	34.8
1 1/2x1 1/4	1	1	42.8	48.3	35.1	29.5	28.5	35.1	6.1	7.9	22.4	25.4	---	---
1 1/2x1	2	2	34.0		26.6	20.7	17.5	29.2	5.7	7.9	---	---	33.3	39.6
1 1/2x3/4	2	2	27.3		20.9	15.5	19.1	25.4	4.9	7.0	---	---	33.3	39.6
1 1/2x1/2	2	2	21.9		15.8	11.8	20.6	26.9	4.7	6.0	---	---	33.3	39.6
1 1/2x3/8	2	2	17.7		12.5	9.1	22.4	28.5	4.0	5.0	---	---	33.3	39.6
2x1 1/2	1	1	48.9	60.3	40.9	34.0	31.8	38.9	6.4	8.9	25.4	28.7	---	---
2x1 1/4	2	2	42.8		35.1	29.5	20.6	23.9	6.1	7.9	---	---	38.1	41.2
2x1	2	2	34.0		26.6	20.7	22.4	25.4	5.7	7.9	---	---	38.1	41.2
2x3/4	2	2	27.3		20.9	15.5	23.9	26.9	4.9	7.0	---	---	38.1	41.2
2x1/2	2	2	21.9		15.8	11.8	25.4	28.5	4.7	6.0	---	---	38.1	41.2
2 1/2x2	1	1	61.4	73.0	52.5	42.9	46.0	42.7	6.9	10.9	38.1	31.8	---	---
2 1/2x1 1/2	2	2	48.9		40.9	34.0	35.1	35.1	6.4	8.9	---	---	53.9	53.9
2 1/2x1 1/4	2	2	42.8		35.1	29.5	36.6	36.6	6.1	7.9	---	---	53.9	53.9
2 1/2x1	2	2	34.0		26.6	20.7	38.1	38.1	5.7	7.9	---	---	53.9	53.9
2 1/2x3/4	2	2	27.3		20.9	15.5	39.6	38.1	4.9	7.0	---	---	53.9	53.9
3x2 1/2	1	1	74.1	88.9	62.7	54.0	38.1	57.2	8.8	11.9	38.1	44.5	---	---
3x2	2	2	61.4		52.5	42.9	25.4	31.8	6.9	10.9	---	---	47.5	53.9
3x1 1/2	2	2	48.9		40.9	34.0	28.5	31.8	6.4	8.9	---	---	47.5	53.9
3x1 1/4	2	2	42.8		35.1	29.5	30.2	31.8	6.1	7.9	---	---	47.5	53.9
3x1	2	2	34.0		26.6	20.7	31.8	31.8	5.7	7.9	---	---	47.5	53.9
4x3	2	2	90.0	114.3	77.9	---	33.3	54.0	9.5	13.9	---	---	60.5	71.0
4x2 1/2	2	2	74.1		62.7	---	38.1	54.0	8.8	12.5	---	---	60.5	71.0
4x2	2	2	61.4		52.5	---	38.1	54.0	6.9	11.0	---	---	60.5	71.0
4x1 1/2	2	2	48.9		40.9	---	41.2	57.0	6.4	8.9	---	---	60.5	71.0
4x1 1/4	2	2	42.8		35.1	---	42.9	57.0	6.1	7.9	---	---	60.5	71.0

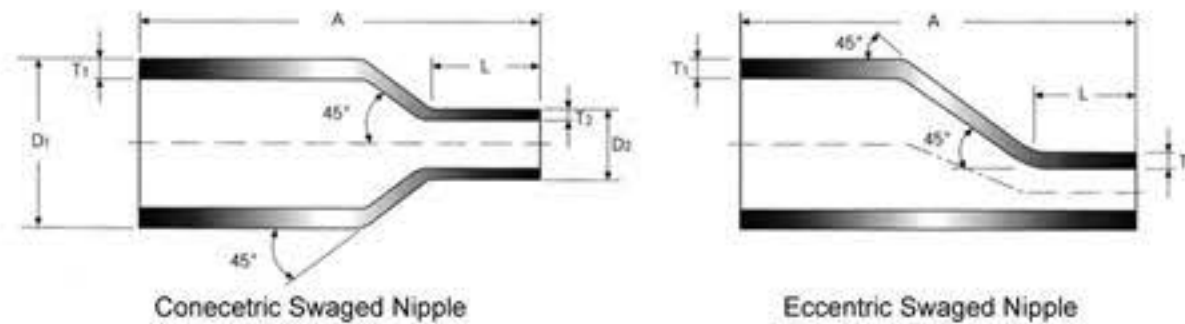
UNION OF SOCKET-WELDING & THREADED



UNION OF SOCKET-WELDING & THREADED MSS SP-83

Nominal Pipe Size		End DIA		Wall		Nut	Threads Per inch	Male Flange	Bearin	Length Assem Nominal	Laying Length	Bore
		D min		C min		G min	H	F min	h min	L	E	d _r
DN	NPS	Socket	Thread	Socket	Thread						G min	H
6	1/8	21.8	14.7	3.2	2.5	3.2	16	3.2	1.3	41.4		
8	1/4	21.8	19.1	3.3	3.1	3.2	16	3.2	1.3	41.4	21	10.9
10	3/8	25.9	22.9	3.5	3.2	3.5	14	3.5	1.5	46	24	13.9
15	1/2	31.2	27.7	4.1	3.8	3.7	14	3.7	1.5	49	24	17.5
20	3/4	37.1	33.5	4.3	4.0	4.1	11	4.1	1.8	57	29	22.2
25	1	45.5	41.4	5.0	4.6	4.5	11	4.6	1.9	57	30	28.4
32	1 1/4	54.9	50.6	5.3	4.9	5.2	10	5.4	2.2	71.1	37	36.5
40	1 1/2	61.5	57.2	5.6	5.1	5.6	10	5.9	2.3	76.5	38	42.4
50	2	75.2	70.1	6.1	5.6	6.4	10	6.6	2.7	86.1	39	53.9
65	2 1/2	91.7	85.3	7.7	7.1	7.1	8	7.5	3.1	102.4	56	65.3
80	3	109.2	102.4	8.3	7.7	8.0	8	8.3	3.6	109	59	79.9

SWAGED NIPPLE

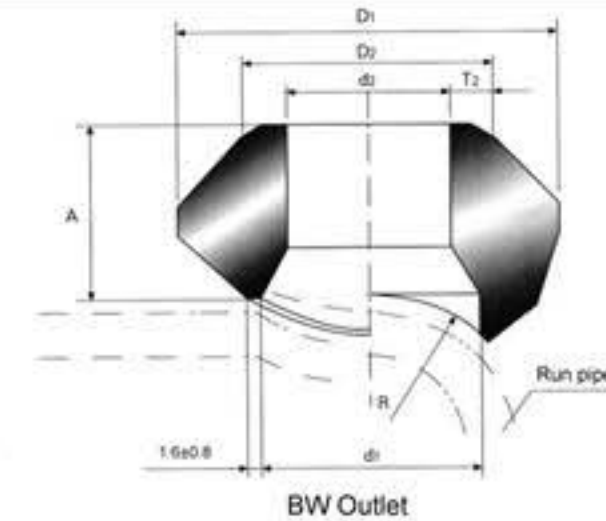


SWAGED NIPPLE MSS SP-95

Nominal Pipe Size		Outside Diameter		Length of Small Thread	End to End
DN	NPS	D ₁	D ₂	L min	A
8X6	1/4X1/8	13.7	10.3	20	57
10X6	3/8X1/8	17.1	10.3	20	64
10X8	3/8X1/4	17.1	13.7	20	64
15X6	1/2X1/8	21.3	10.3	20	70
15X8	1/2X3/8	21.3	13.7	20	70
15X10	1/2X1/4	21.3	17.1	20	70
20X6	3/4X1/8	26.7	10.3	20	76
20X8	3/4X1/4	26.7	13.7	20	76
20X10	3/4X3/8	26.7	17.1	22	76
20X15	3/4X1/2	26.7	21.3	22	76
25X6	1X1/8	33.4	10.3	20	89
25X8	1X1/4	33.4	13.7	20	89
25X10	1X3/8	33.4	17.1	22	89
25X15	1X1/2	33.4	21.3	22	89
25X20	1X3/4	33.4	26.7	22	89
32X6	1 1/4X1/8	42.2	10.3	20	102
32X8	1 1/4X1/4	42.2	13.7	20	102
32X10	1 1/4X3/8	42.2	17.1	22	102
32X15	1 1/4X1/2	42.2	21.3	22	102
32X20	1 1/4X3/4	42.2	26.7	25	102
32X25	1 1/4X1	42.2	33.4	25	102
40X6	1 1/2X1/8	48.3	10.3	22	114
40X8	1 1/2X1/4	48.3	13.7	20	114
40X10	1 1/2X3/8	48.3	17.1	22	114
40X15	1 1/2X1/2	48.3	21.3	25	114
40X20	1 1/2X3/4	48.3	26.7	25	114
40X25	1 1/2X1	48.3	33.4	25	114
40X32	1 1/2X1 1/4	48.3	42.2	25	114
50X6	2X1/8	60.3	10.3	20	165
50X8	2X1/4	60.3	13.7	22	165
50X10	2X3/8	60.3	17.1	22	165
50X15	2X1/2	60.3	21.3	25	165
50X20	2X3/4	60.3	26.7	30	165
50X25	2X1	60.3	33.4	30	165
50X32	2X1 1/4	60.3	42.2	30	165
50X40	2X1 1/2	60.3	48.3	30	165

Nominal Pipe Size		Outside Diameter		Length of Small Thread	End to End
DN	NPS	D ₁	D ₂	L min	A
65X6	2½X1/8	73.0	10.3	22	178
65X8	2½X1/4	73.0	13.7	22	178
65X10	2½X3/8	73.0	17.1	22	178
65X15	2½X1/2	73.0	21.3	25	178
65X20	2½X3/4	73.0	26.7	25	178
65X25	2½X1	73.0	33.4	30	178
65X32	2½X1¼	73.0	42.2	30	178
65X40	2½X1½	73.0	48.3	40	178
65X50	2½X2	73.0	60.3	40	178
80X6	3X1/8	88.9	10.3	22	203
80X8	3X1/4	88.9	13.7	22	203
80X10	3X3/8	88.9	17.1	22	203
80X15	3X1/2	88.9	21.3	25	203
80X20	3X¾	88.9	26.7	25	203
80X25	3X1	88.9	33.4	30	203
80X32	3X1¼	88.9	42.2	30	203
80X40	3X1½	88.9	48.3	40	203
80X50	3X2	88.9	60.3	40	203
80X65	3X2½	88.9	73.0	40	203
100X8	4X1/4	114.3	13.7	25	229
100X10	4X3/8	114.3	17.1	25	229
100X15	4X1/2	114.3	21.3	25	229
100X20	4X¾	114.3	26.7	30	229
100X25	4X1	114.3	33.4	30	229
100X32	4X1¼	114.3	42.2	40	229
100X40	4X1½	114.3	48.3	40	229
100X50	4X2	114.3	60.3	45	229
100X65	4X2½	114.3	73.0	45	229
100X80	4X3	114.3	88.9	45	229
100X90	4X3½	114.3	101.6	45	229

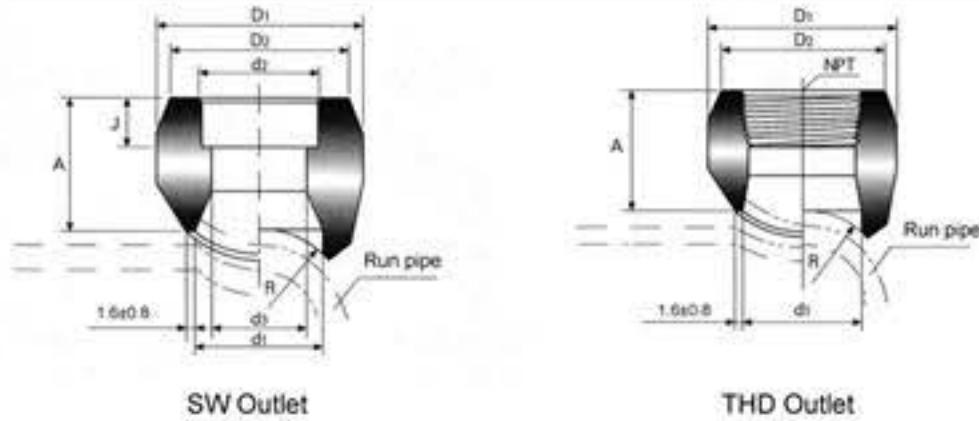
BW OUTLET



BW OUTLET MSS SP-97, GB/T 19326-2003

Nominal Pipe Size of Run Pipe		Nominal Pipe Size of Branch		Face of Fitting to Crotch			Outside Diameter of Fitting			Cut Hole Diameter		
DN	NPS	DN	NPS	A			D ₁ min			d ₁		
				STD	XS	SCH160	STD	XS	SCH160	STD	XS	SCH160
8 ~ 900	1/4 ~ 36	6	1/8	16	16	---	24	24	---	16	16	---
10 ~ 900	3/8 ~ 36	8	1/4	16	16	---	26	26	---	16	16	---
15 ~ 900	1/2 ~ 36	10	3/8	19	19	---	30	30	---	19	19	---
20 ~ 900	3/4 ~ 36	15	1/2	19	19	28	36	36	36	24	24	14
25 ~ 900	1 ~ 36	20	3/4	22	22	32	43	43	46	30	30	19
32 ~ 900	1 1/4 ~ 36	25	1	27	27	38	55	55	51	38	36	25
40 ~ 900	1 1/2 ~ 36	32	1 1/4	32	32	44	66	66	63	45	45	33
50 ~ 900	2 ~ 36	40	1 1/2	33	33	51	74	74	71	51	51	38
65 ~ 900	2 1/2 ~ 36	50	2	38	38	55	90	90	82	65	65	43
80 ~ 900	3 ~ 36	65	2 1/2	41	41	62	104	104	98	76	76	54
90 ~ 900	3 1/2 ~ 36	80	3	44	44	73	124	124	122	93	93	73
100 ~ 900	4 ~ 36	90	3 1/2	48	48	---	138	138	---	113	113	---
125 ~ 900	5 ~ 36	100	4	51	51	84	154	154	154	120	120	98
150 ~ 900	6 ~ 36	125	5	57	57	94	187	187	188	141	141	122
200 ~ 900	8 ~ 36	150	6	60	78	105	213	227	222	170	170	146
250 ~ 900	10 ~ 36	200	8	70	99	---	265	292	---	220	220	---
300 ~ 900	12 ~ 36	250	10	78	94	---	323	325	---	275	265	---
350 ~ 900	14 ~ 36	300	12	86	103	---	379	381	---	325	317	---
400 ~ 900	16 ~ 36	350	14	89	100	---	411	416	---	357	351	---
450 ~ 900	18 ~ 36	400	16	94	106	---	465	468	---	408	403	---
500 ~ 900	20 ~ 36	450	18	97	111	---	522	525	---	459	455	---
550 ~ 900	22 ~ 36	500	20	102	119	---	573	584	---	508	509	---
650 ~ 900	26 ~ 36	600	24	118	140	---	690	708	---	614	612	---

■ SW OUTLETS/THD OUTLET



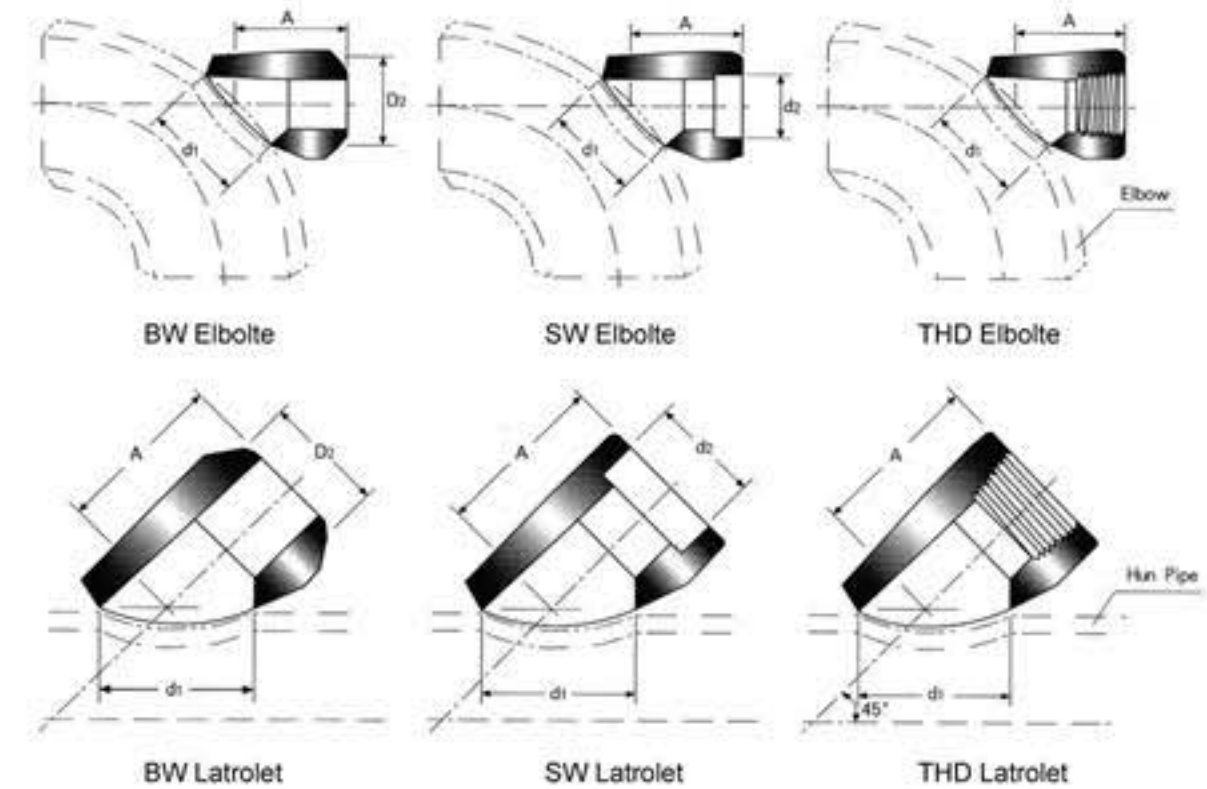
SW OUTLET MSS SP-97, GB/T 19326-2003

Nominal Pipe Size of Run Pipe		Nominal Pipe Size of Branch		Face of Fitting to Crotch		Outside Diameter of Fitting		Outside DIA at End of Fitting		Cut Hole Diameter	
DN	NPS	DN	NPS	A		D1 min		D2 min		d1	
				3000	6000	3000	6000	3000	6000	3000	6000
8-900	1/4-36	6	1/8	20	---	27	---	22	---	16	---
10-900	3/8-36	8	1/4	20	---	27	---	22	---	16	---
15-900	1/2-36	10	3/8	23	---	30	---	26	---	19	---
20-900	3/4-36	15	1/2	26	34	38	47	33	42	24	19
25-900	1-36	20	3/4	29	38	47	53	39	48	30	25
32-900	1 1/4-36	25	1	35	42	56	63	48	58	36	33
40-900	1 1/2-36	32	1 1/4	35	43	66	74	58	67	45	38
50-900	2-36	40	1 1/2	37	45	75	83	64	77	51	49
65-900	2 1/2-36	50	2	40	53	90	104	77	93	65	59
80-900	3-36	65	2 1/2	41	---	105	---	94	---	76	---
100-900	4-36	80	3	46	---	124	---	114	---	94	---
125-900	5-36	100	4	49	---	154	---	140	---	121	---

THD OUTLET MSS SP-97, GB/T 19326-2003

Nominal Pipe Size of Run Pipe		Nominal Pipe Size of Branch		Face of Fitting to Crotch		Outside Diameter of Fitting		Outside DIA at End of Fitting		Cut Hole Diameter	
DN	NPS	DN	NPS	A		D1 min		D2 min		d1	
				3000	6000	3000	6000	3000	6000	3000	6000
8-900	1/4-36	6	1/8	19	---	27	---	22	---	16	---
10-900	3/8-36	8	1/4	19	---	27	---	22	---	16	---
15-900	1/2-36	10	3/8	21	---	30	---	25	---	19	---
20-900	3/4-36	15	1/2	25	32	38	45	33	42	24	19
25-900	1-36	20	3/4	27	37	47	52	39	48	30	25
32-900	1 1/4-36	25	1	23	40	56	63	48	58	36	33
40-900	1 1/2-36	32	1 1/4	33	41	66	72	58	67	45	38
50-900	2-36	40	1 1/2	35	43	75	83	64	77	51	49
65-900	2 1/2-36	50	2	38	52	90	104	77	93	65	59
80-900	3-36	65	2 1/2	46	---	105	---	94	---	76	---
100-900	4-36	80	3	51	---	124	---	114	---	94	---
125-900	5-36	100	4	57	---	154	---	140	---	121	---

■ ELBOLET AND LATROLET



ELBOLTES AND LATROLET

Nominal Pipe Size of Run Pipe		Nominal Pipe Size of Branch		Face of Fitting to Crotch				Cut Hole Diameter			
				BW		SW and THD		BW		SW and THD	
DN	NPS	DN	NPS	A				d ₁			
				STD. XS	SCH160	3000	6000	STD. XS	SCH160	3000	6000
20 ~ 900	3/4 ~ 36	15	1/2	45	50	45	50	31	30	31	30
25 ~ 900	1 ~ 36	20	3/4	50	58	50	58	42	40	42	40
32 ~ 900	1 1/4 ~ 36	25	1	60	70	60	70	54	50	54	50
40 ~ 900	1 1/2 ~ 36	32	1 1/4	68	76	68	76	61	58	61	58
50 ~ 900	2 ~ 36	40	1 1/2	75	83	75	83	76	66	76	66
65 ~ 900	2 1/2 ~ 36	50	2	90	98	90	98	90	83	90	83
80 ~ 900	3 ~ 36	65	2 1/2	95	105	---	---	100	95	---	---
100 ~ 900	4 ~ 36	80	3	120	130	---	---	132	115	---	---
125 ~ 900	5 ~ 36	100	4	140	150	---	---	168	150	---	---
200 ~ 900	8 ~ 36	150	6	195	210	---	---	238	225	---	---
250 ~ 900	10 ~ 36	200	8	220	---	---	---	338	---	---	---
300 ~ 900	12 ~ 36	250	10	270	---	---	---	432	---	---	---
350 ~ 900	14 ~ 36	300	12	290	---	---	---	498	---	---	---