

Innovating the piping industry

# BUTTWELD PIPE FITTINGS DIMENSION



Creative Piping Solutions (CPS) is a trusted name in the industry, backed by over three decades of expertise in manufacturing pipe fittings, flanges, forged fittings, and fabrication works. Our unwavering commitment to quality, innovation, and sustainability enables us to deliver world-class products at competitive prices, meeting the diverse needs of our global clientele.

# 3uttweld Pipe Fittings

NOTE: ANSI B16.9, MSS-SP-43

Buttweld fittings in duplex and other special alloys are available from stock and throughout our worldwide network of suppliers.

Concentric and eccentric reducers, equal and reducing tees, 45° and 90° elbows, caps and stub ends are all part of the comprehensive range of buttweld fittings carried by Creative Piping Solutions.

Manufacturing include dual grades 304/304L, 316/316L and 321/321H austenitic stainless steel, A234 WPB as well as other material grades in sizes 15 NB (1/2") to 400 NB (16") in SCH 10S, SCH 40S and SCH 80S. Larger sizes and heavier schedules, such as SCH 160 or XXS, are readily available through our worldwide network.



#### Material and Manufacturing Standards

The manufacture of welding fittings is governed by industry standards established by such associations as 1) the American Society for Testing and Materials (ASTM): 2) the American National Standards Institute (ANSI): 3) the Manufacturer's Standardization Society of the Valve and Fittings Industry (MSS): 4) the Pipe Fabrication Institute (PFI): and 5) the Canadian Standards Association (CSA). They cover specifications for materials, methods of manufacture, dimensions and quality control procedures. All CPS welding fittings conform to one or more of these standards.

#### ASTM STANDARDS

CPS carbon steel welding fittings are manufactured from seamless steel tubing and furnished in accordance with ASTM Standard A-234, with material specifications in accordance with ASTM A-106, Grade B, for fittings made from pipe; ASTM A-515, Grade 65 or 70, for fittings made from plate.

CPS alloy steel welding fittings are furnished in accordance with ASTM standard A-234, with materials specification including A-335, Grade P1, carbon-molybdenum, and Grade P12, P11, P22, P5, P7; P9 chrome molybdenum, for fittings made from pipe.

ASTM A-204 Grade B, carbon molybdenum, and ASTM A-387 Grades 12, 11, 22, 5, 7, 9 chrome molybdenum for fittings made from plate.

CPS welding fittings are also available in accordance with ASTM specification A-420 covering low-temperature service, down to -150°F (-101°C).

CPS stainless steel welding fittings are manufactured and available in the following types: 304, 304L, 316, 316L and 347. They are furnished in accordance with ASTM Standard A-403, with material specifications to ASTM A-312 covering fittings made from pipe, and A-240 for fittings made from plate. Refer to CPS catalogue "Stainless Steel Welding Fittings."

#### ANSI, MSS, ASME and CSA Standards

ASME/ANSI and MSS standards govern fitting dimensions and tolerances, ASME/ANSI B16.9 "Wrought Steel Buttwelding Fittings", si the basic standard. It covers steel butt-welding fittings sizes NPS 1/2 through NPS 48 (DN 15 through DN 1200).

Other ASME/ANSI and MSS standards, written to supplement B16.9, are as follows:

ASME/ANSI B16.25: Butt-welding Ends

ASME/ANSI B16.28: Butt-welding short radius elbows and returns

MSS SP-43: Light-wall stainless steel fittings, NPS 3/4 through NPS 24 (DN 20 through DN 600)

MSS SP-75: High Test Wrought Welding Fittings

The following codes and standards influence the manufacture of welding fittings, where applicable.

ASME/ANSI B31.1: Power piping

ASME/ANSI B31.3: Petroleum refinery piping

ASME/ANSI B31.4: Liquid petroleum transportation piping system

ASME/ANSI B31.5: Refrigeration piping

ASME/ANSI B31.8: Gas transmission and distribution piping systems ANSI/ASME B36.10M: Welded and seamless wrought steel pipe

ANSI/ASME B36.19M: Stainless steel pipe

CSA Z183: Oil pipe line transportation systems

CSA Z184: Gas pipe line systems

CAN3-Z245.11-M91: Requirements for wrought steel butt welding

fittings ASME: Boiler and pressure vessel code

#### SPECIAL METALS

**High Test Steel.** High test pipe line welding fittings, conforming to CSA Standard CAN3-Z245.11 or MSS SP-75, are available with physical properties to match pipe with \*42,000, 46,000, 52,000, 60,000, 65,000, and over p.s.i. minimum yield strengths.

Other Ferrous Alloys. Fittings are available manufactured from ASTM alloy specifications other than those listed in the "ASTM Standards" above.

**Non-Ferrous Metals.** Fittings of relatively common metals, such as aluminum, nickel, copper, etc., can be readily furnished; production is limited only be availability of raw materials. The same is true of less common metals, such as the various grades of Hastelloy, Inconel, Incoloy, Monel, Alloy-20, rare types of stainless steel and other unusual analyses.

\*Equals 290, 317, 359, 414, 448 Mpa, respectively.

#### METRIC EQUIVALENTS

The International System (SI) metric equivalent of British units are shown throughout this catalogue.

NPS (Nominal Pipe Size) = DN, ▲ (Nominal Diameter)
Operating Pressure Class = PN, ▲ (Pressure Number)

1 inch = 25.4 millimetres = 0.4536 kilograms = 0.06895 bars

1 psi, stress = 0.006895 megapascals (MPa)

#### ELBOWS



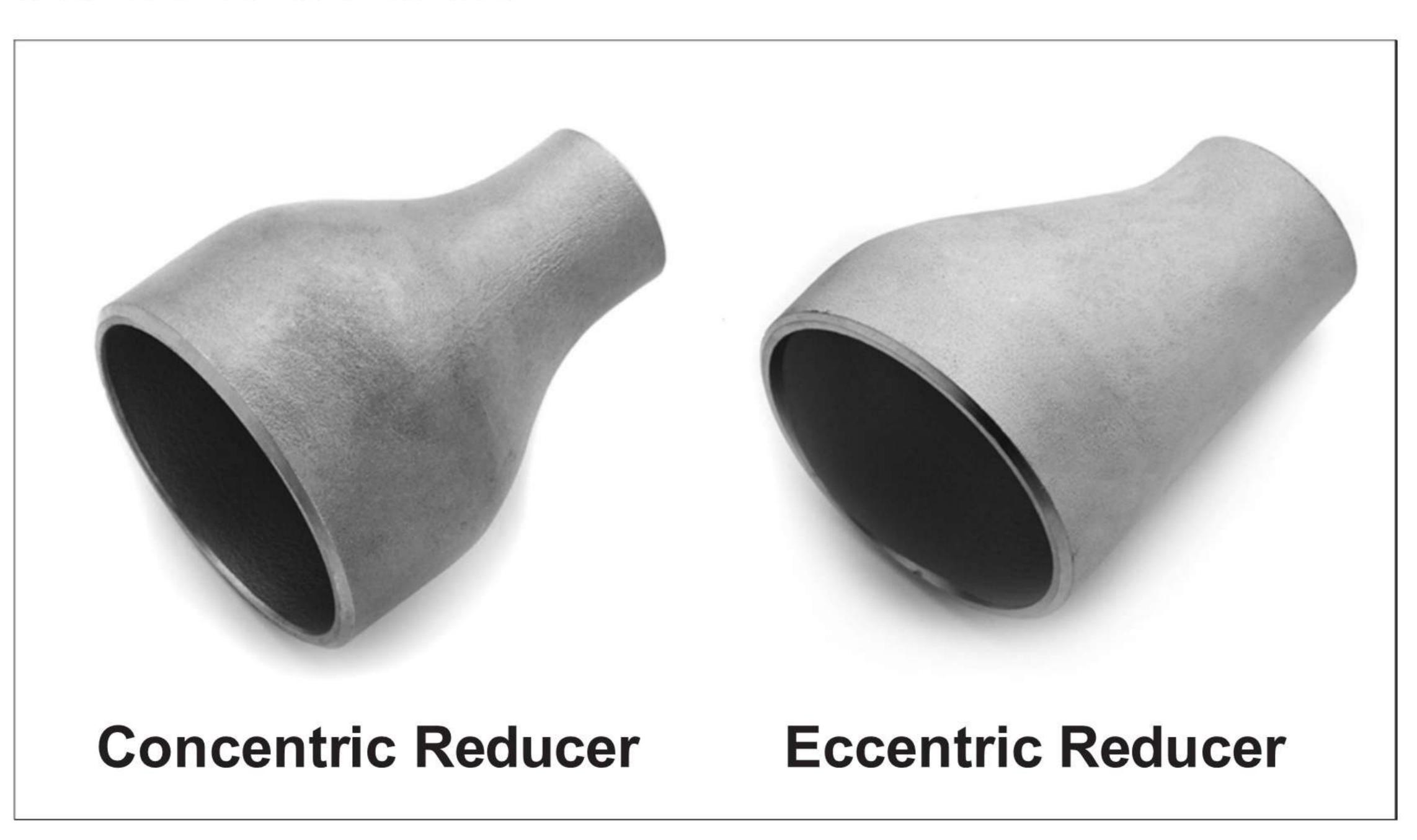
#### TES



#### STUB ENDS



#### REDUCERS



CAP



# Buttweld Fittings

A pipe fitting is defined as a part used in a piping system, to change direction or function, which is mechanically joined to the system.

Probably the simplest way to achieve this would be to bend the pipe in the direction required, but this process will stretch and thin the outer wall whilst thickening and wrinkling the inner wall. This results in flow resistance and accelerated wall erosion.

A second method sometimes used is a mitre joint, where pipes are cut to the correct angle and welded together to achieve the desired change. Whilst the cross-sectional area and wall thickness are maintained, a great deal of efficiency is lost due to friction and turbulence resulting from the severe changes in direction. For example, a single-mitre bend offers about six times the resistance of a swept elbow.

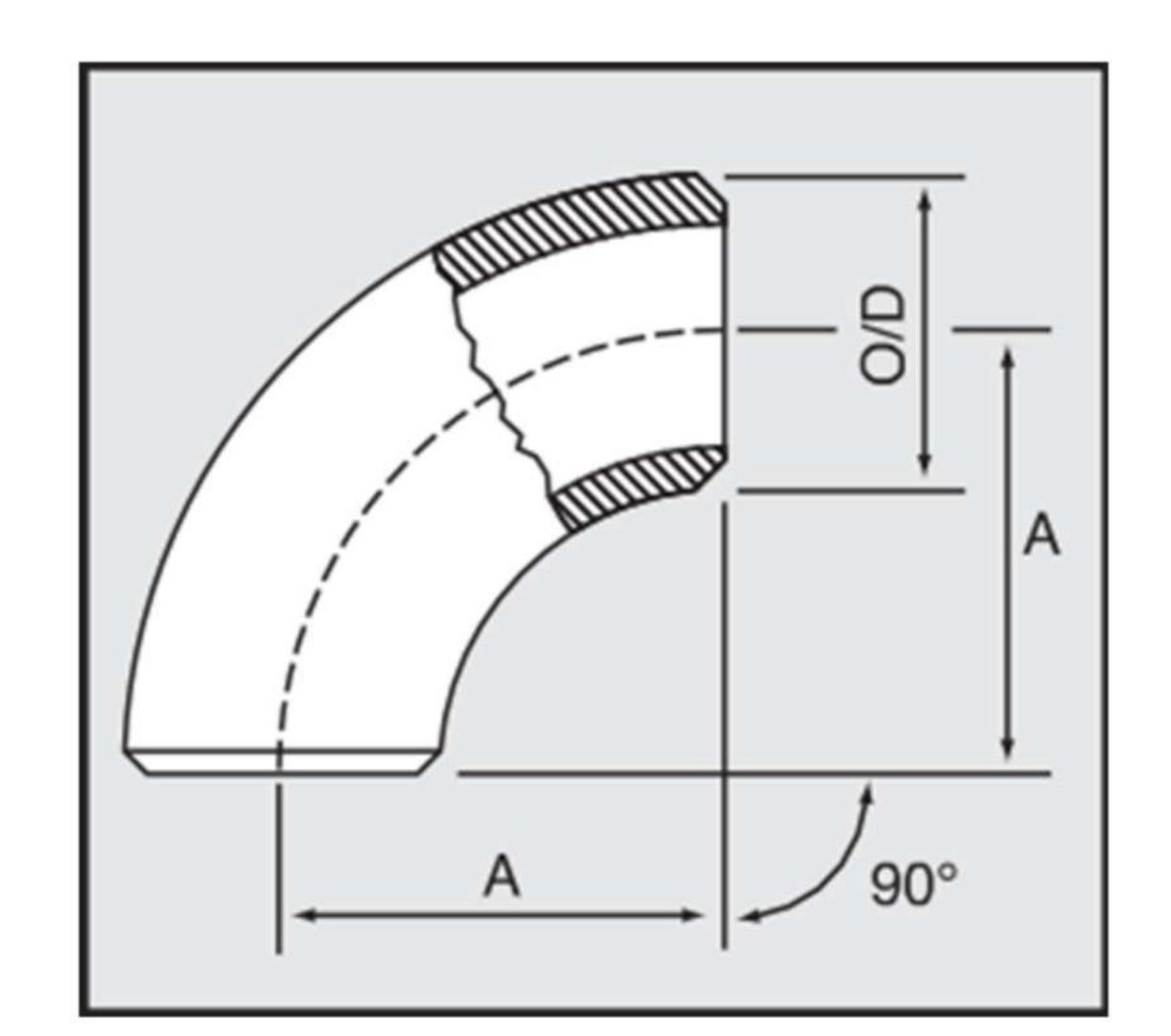
For these reasons swept fittings are preferred on most piping systems, particularly where internal pressure, flow and corrosion are of major consideration.

## TYPES AND APPLICATIONS OF BUTTWELD FITTINGS

A piping system using buttweld fittings has many inherent advantages over other forms.

- Welding a fitting to the pipe means it is permanently leakproof.
- The continuous metal structure formed between pipe and fitting adds strength to the system.
- Smooth inner surface and gradual directional changes reduce pressure losses and turbulence and minimize the action of corrosion and erosion.
- A welded system utilizes a minimum of space.

#### 90° ELBOWS



The function of a 90° elbow is to change direction or flow in a piping system.

Elbows are split into three groups which define the distance over which they change direction, expressed as a function of the distance from the centre line of one

end to the opposite face. This is known as the centre to face distance and is equivalent to the radius through which the elbow is bent.

#### Long Radius Elbow

The most common is the long radius (LR) elbow where the centre to face dimension is always 1-1/2 times the nominal pipe size of the elbow.

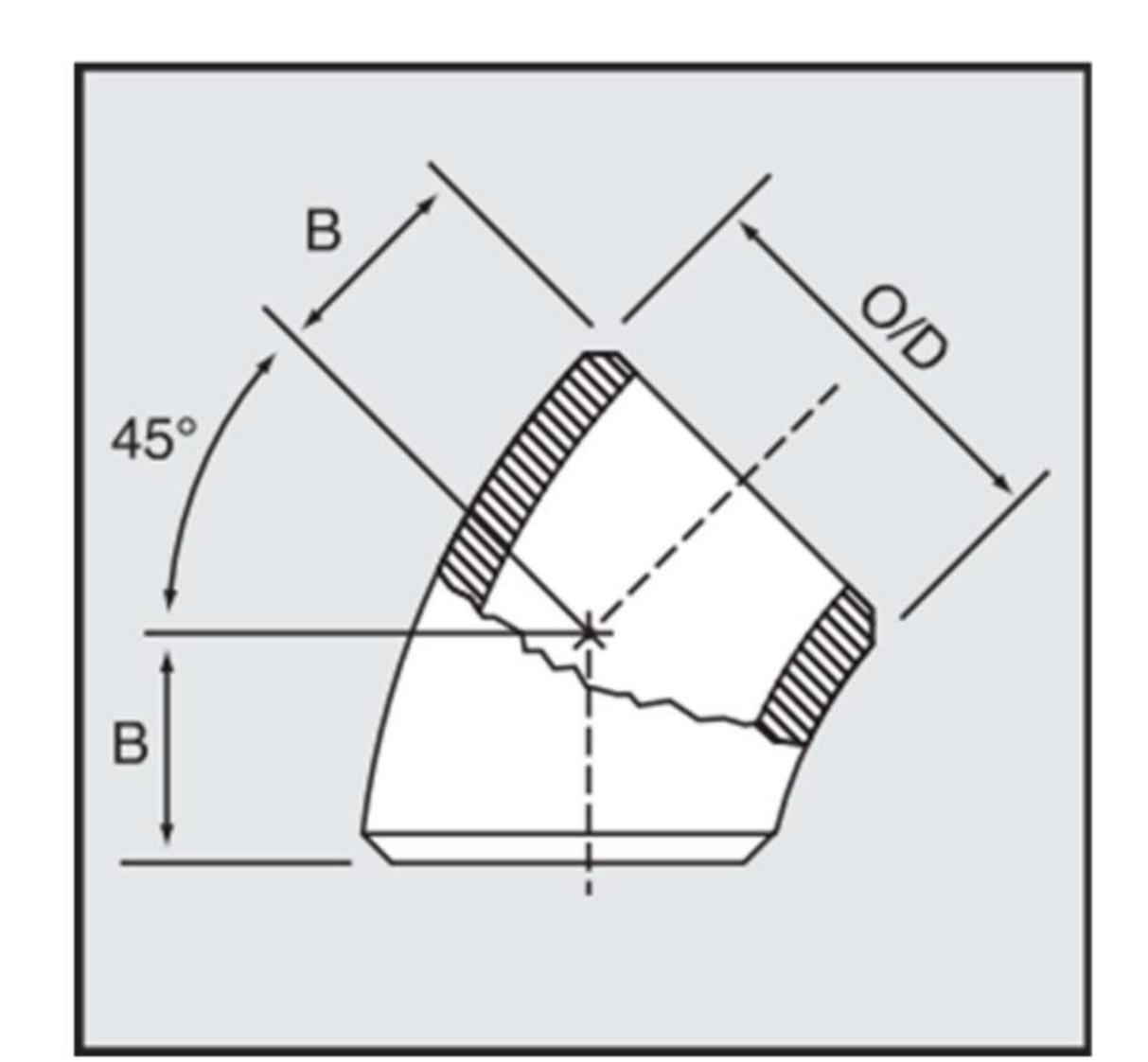
#### **Short Radius Elbow**

In this case the centre to face dimension is the same as the nominal pipe size of the elbow.

#### Extra Long Radius

This is where the centre to face dimension is longer than the standard long radius type. The most common of these is where the centre to face dimension is three times the nominal size. i.e. 3D.

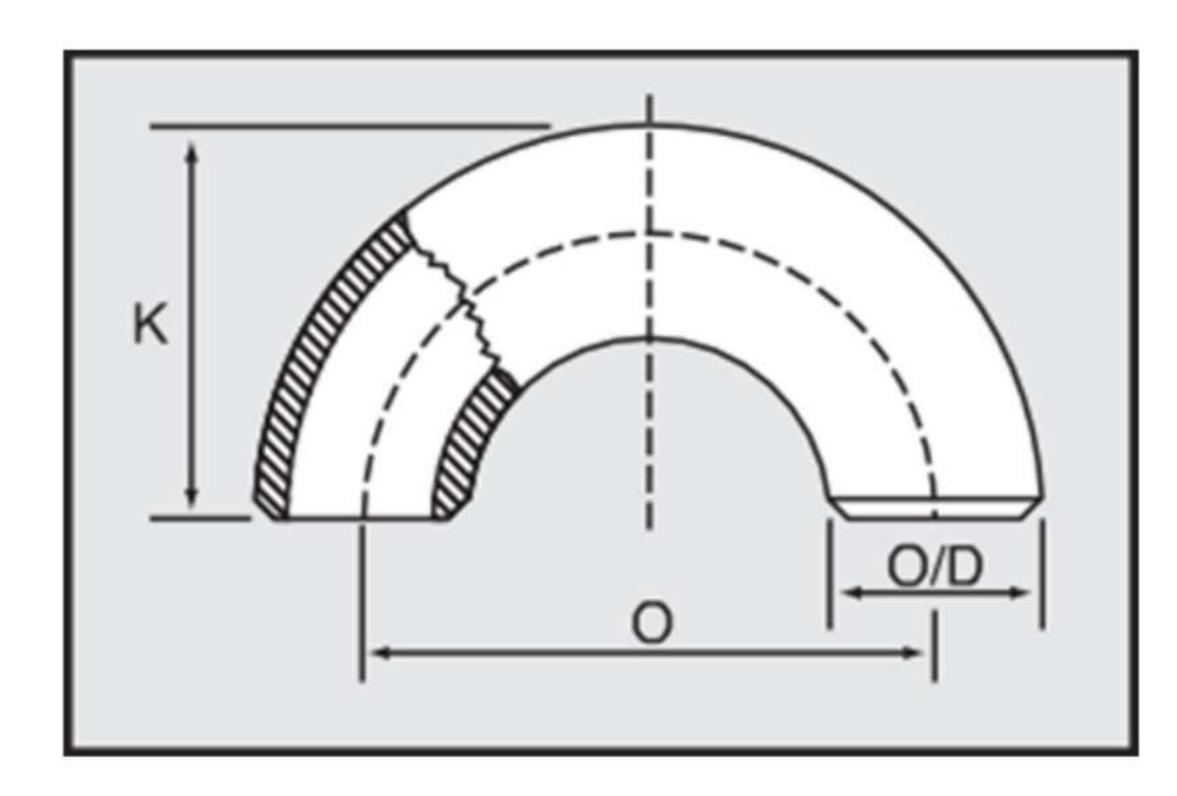
#### 45° ELBOWS



The function of a 45° elbow is the same as a 90° elbow, but the measurement of dimensions, however, is different to that of the 90° elbow. The radius of a 45° elbow is the same as the radius of the 90° LR elbow where 'R' equals 1-1/2 x D. However, the centre to face

dimension is not equivalent to the radius as in 90° LR elbows. This is measured from each face to the point of intersection of the centre lines perpendicular to each other. This is due to the smaller degree of bend.

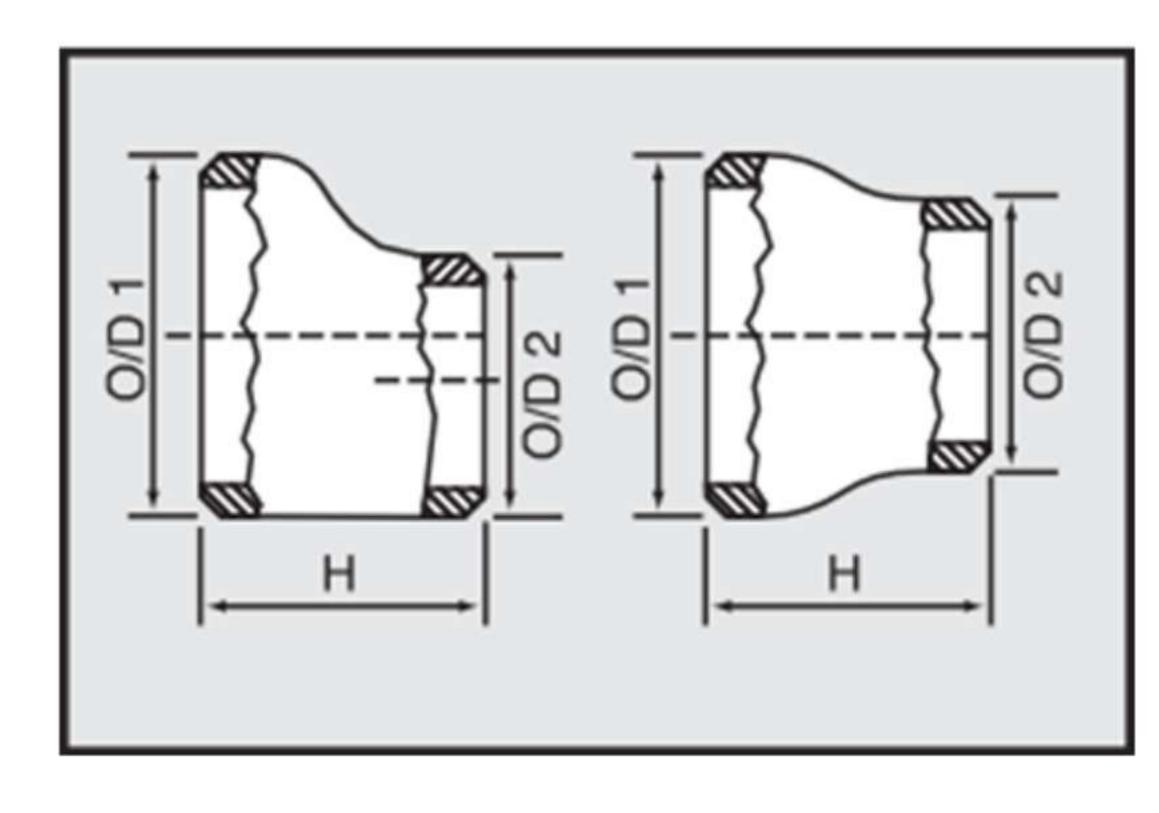
#### 180° RETURN BENDS



The function of a 180° return bend is to change direction of flow through 180° and there are two basic types, long radius and short radius. Both types have a centre to centre dimension double the

matching 90° elbows. The primary application for these fittings is in heater coils and heat exchangers, boilers etc.

#### ECCENTRIC AND CONCENTRIC REDUCERS

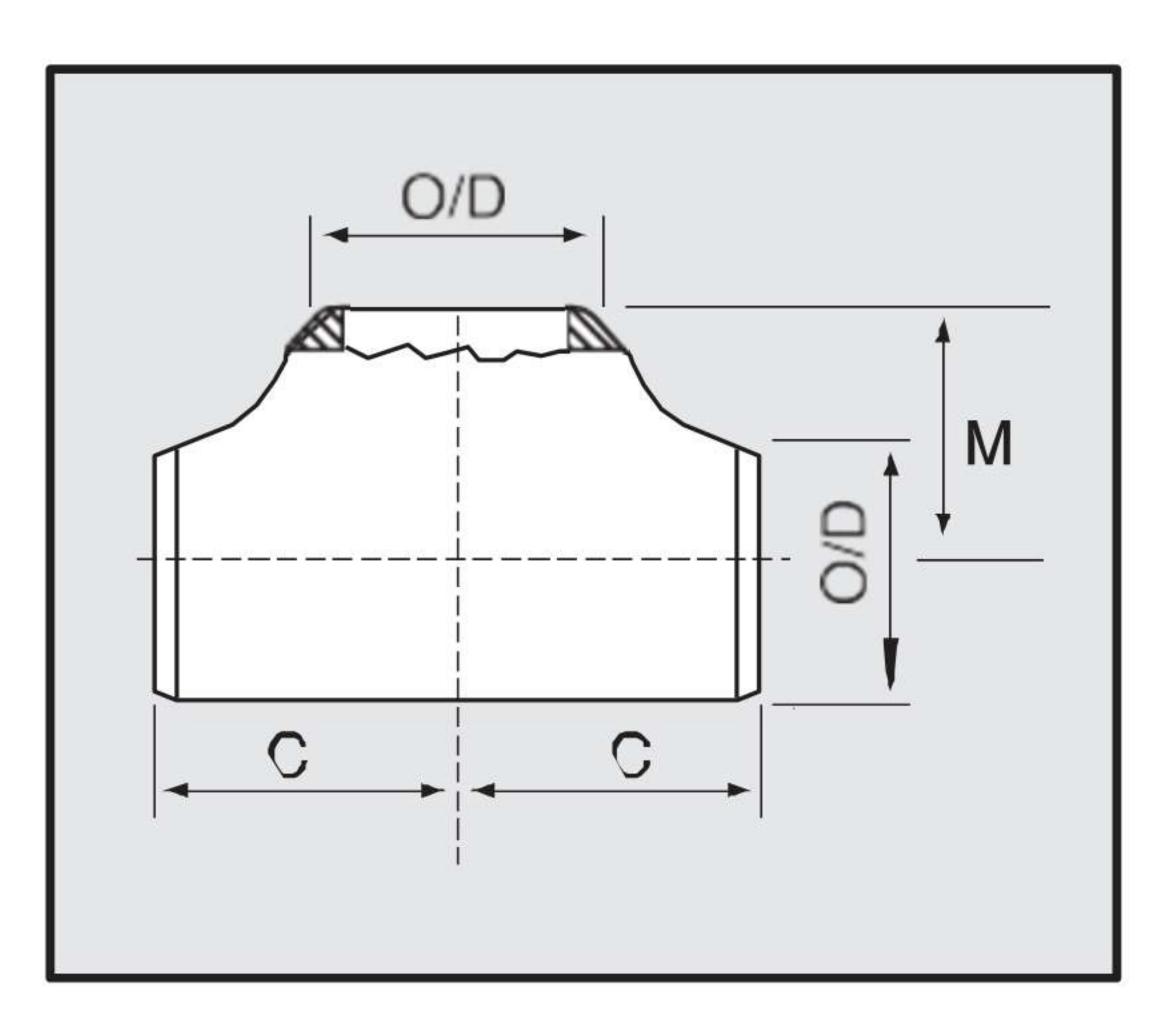


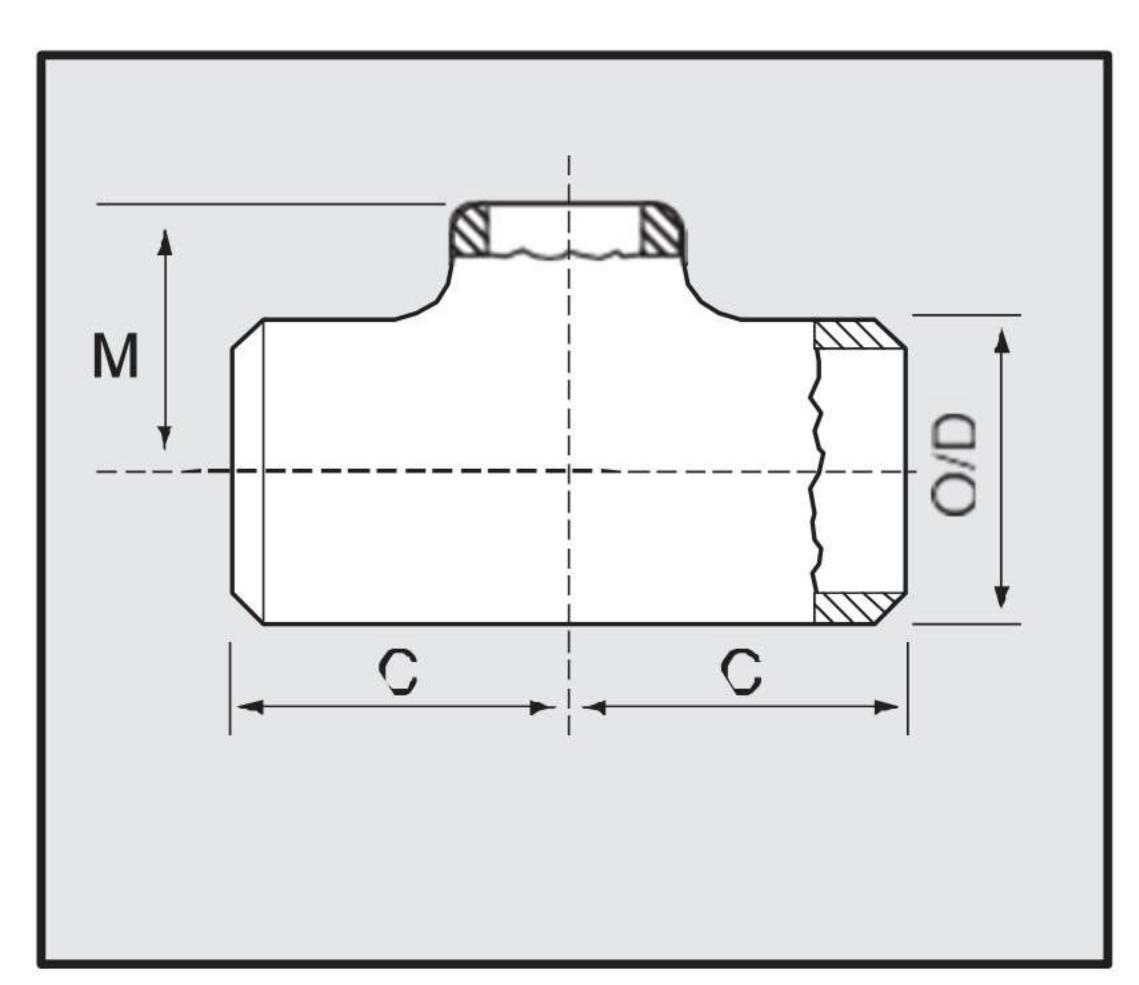
The function of both types of reducer is to reduce the line from a larger to a smaller pipe size, this obviously results in an increased flow pressure. With the eccentric reducer the smaller outlet end is off centre

to the larger end enabling it to line up with one side of the inlet and not with the other.

The concentric reducer is so manufactured that both inlet and outlet ends are on a common centre line. The concentric reducer is easier and less expensive to produce but does not allow quite the same versatility as the eccentric reducer. The lengths of both types are fixed by manufacturing standards.

#### EQUAL AND REDUCING TEES

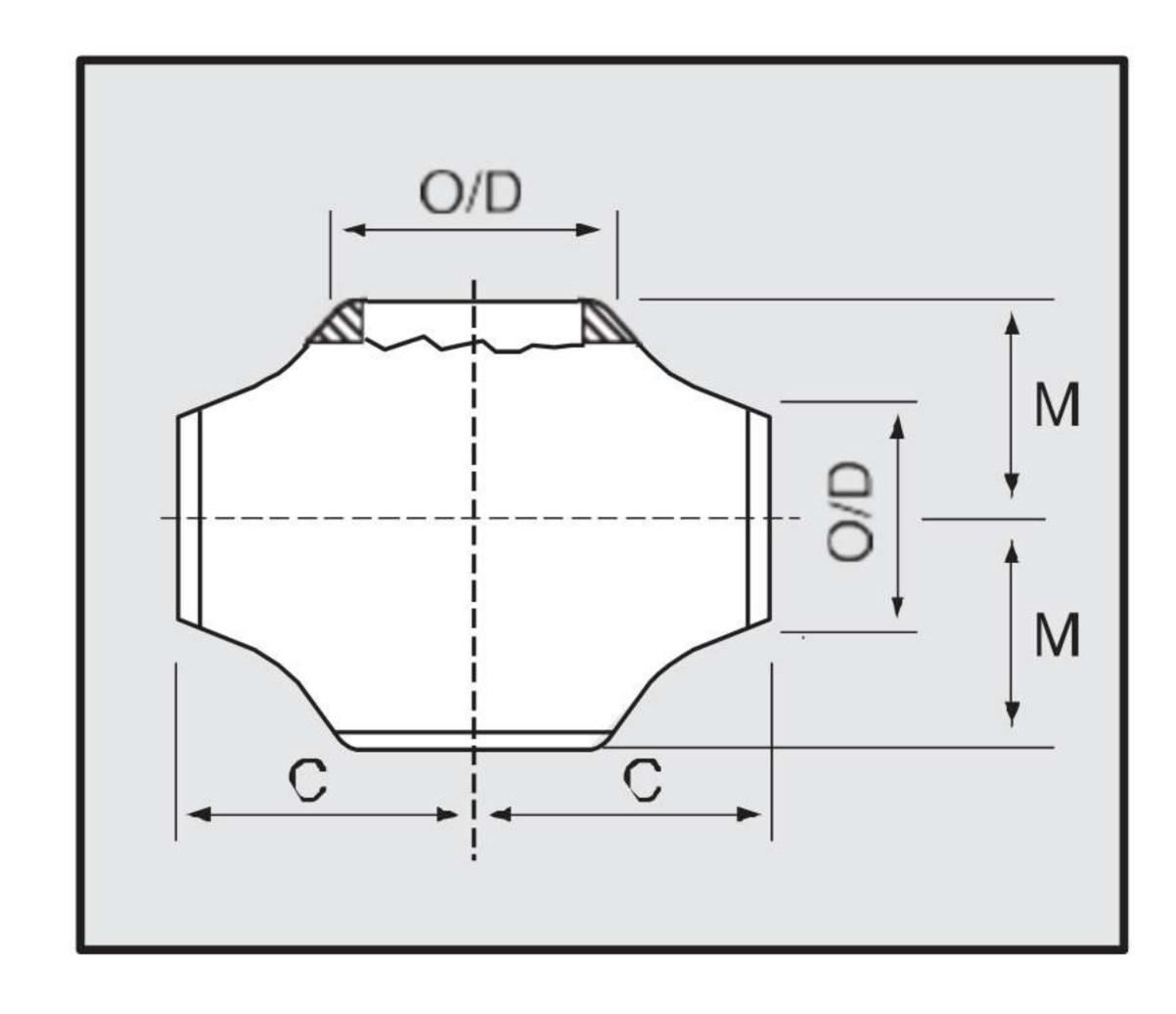


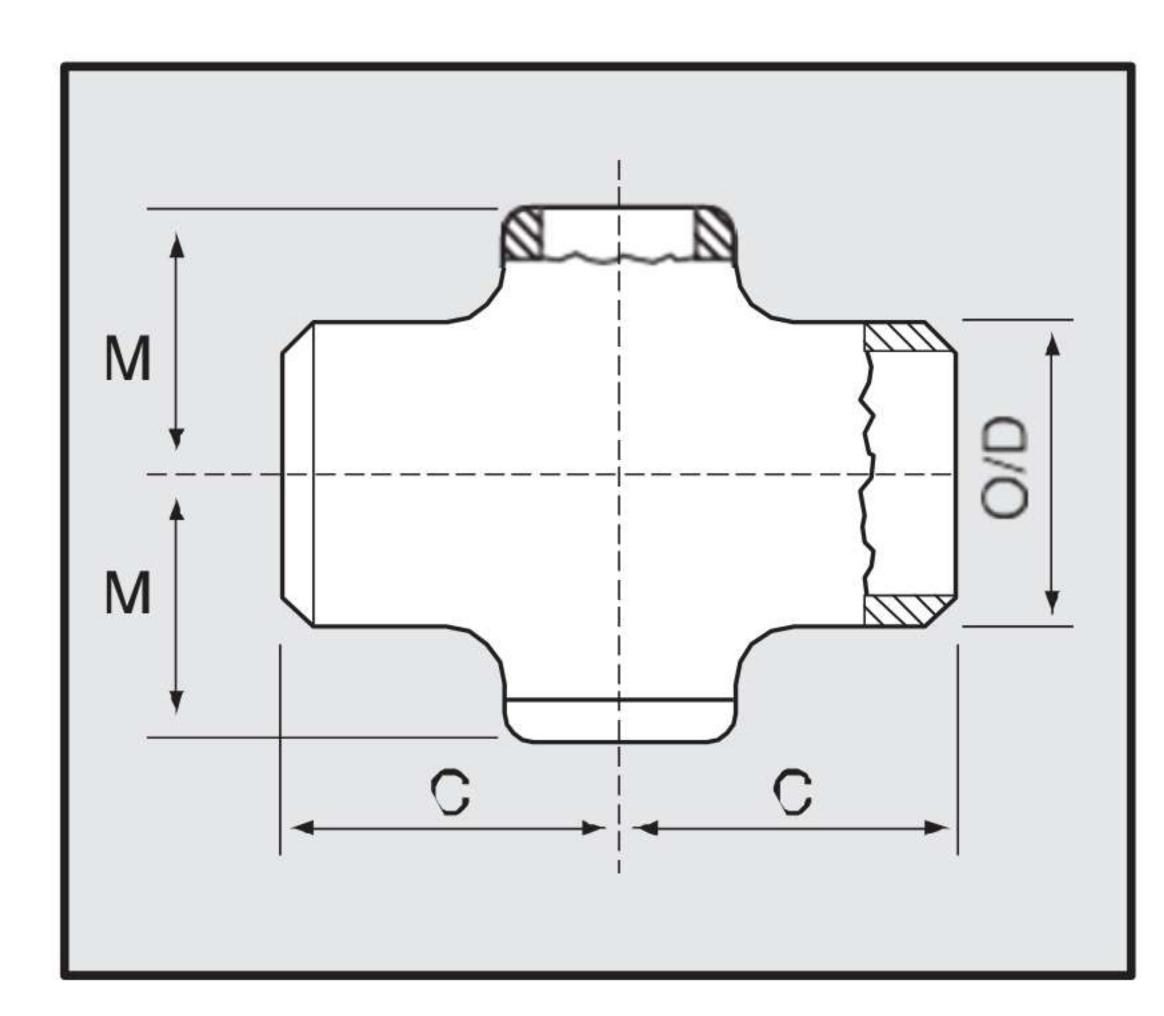


The function of a tee is to permit flow at 90° to the main direction of flow. The main flow passes through the 'run' whilst the 90° outlet is known as the 'branch'. The equal tee is manufactured with all three outlets being the same size.

The reducing tee is manufactured with the branch outlet smaller than the run to obtain the desired flow and pressure through the system.

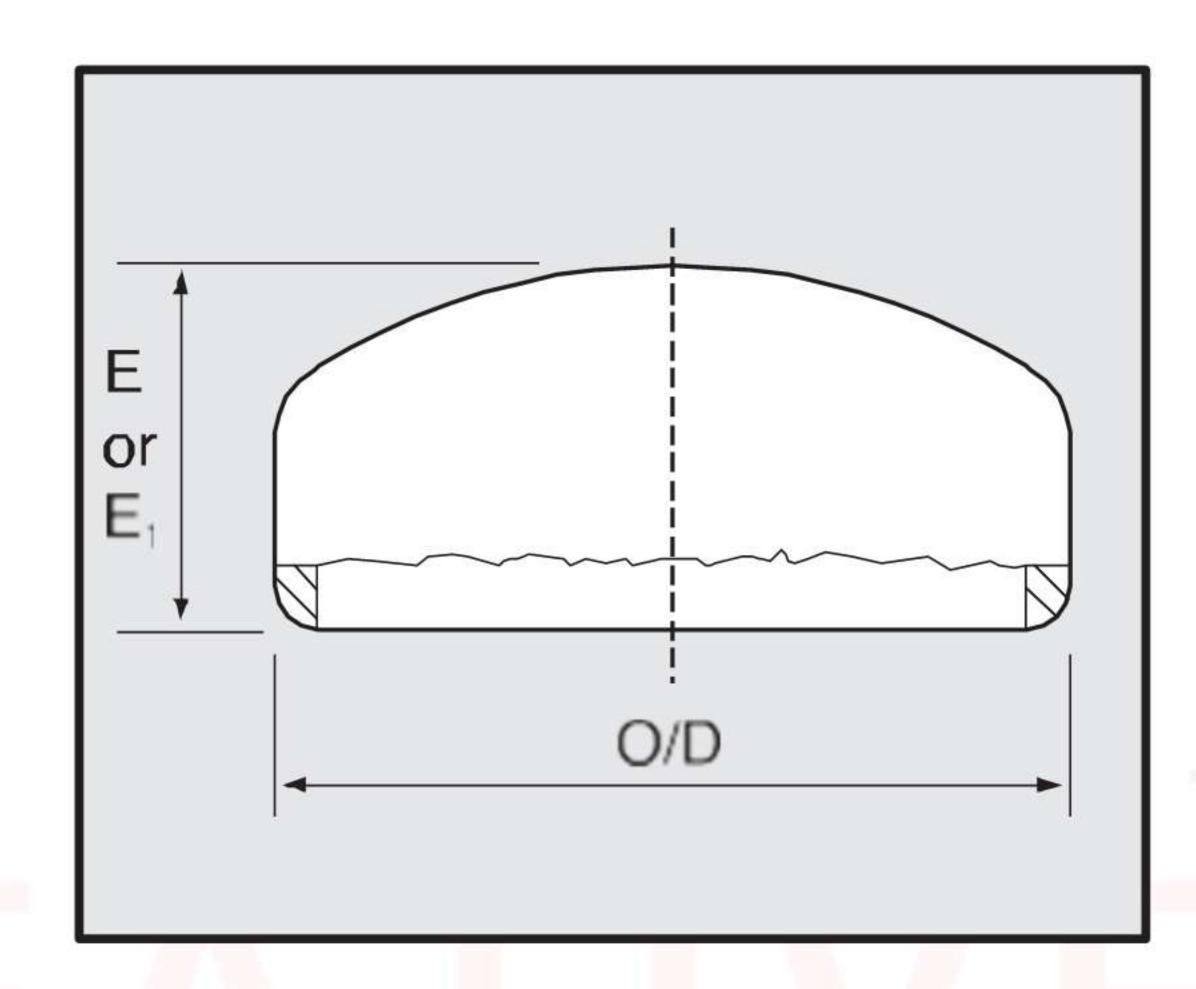
#### EQUAL AND REDUCING CROSSES





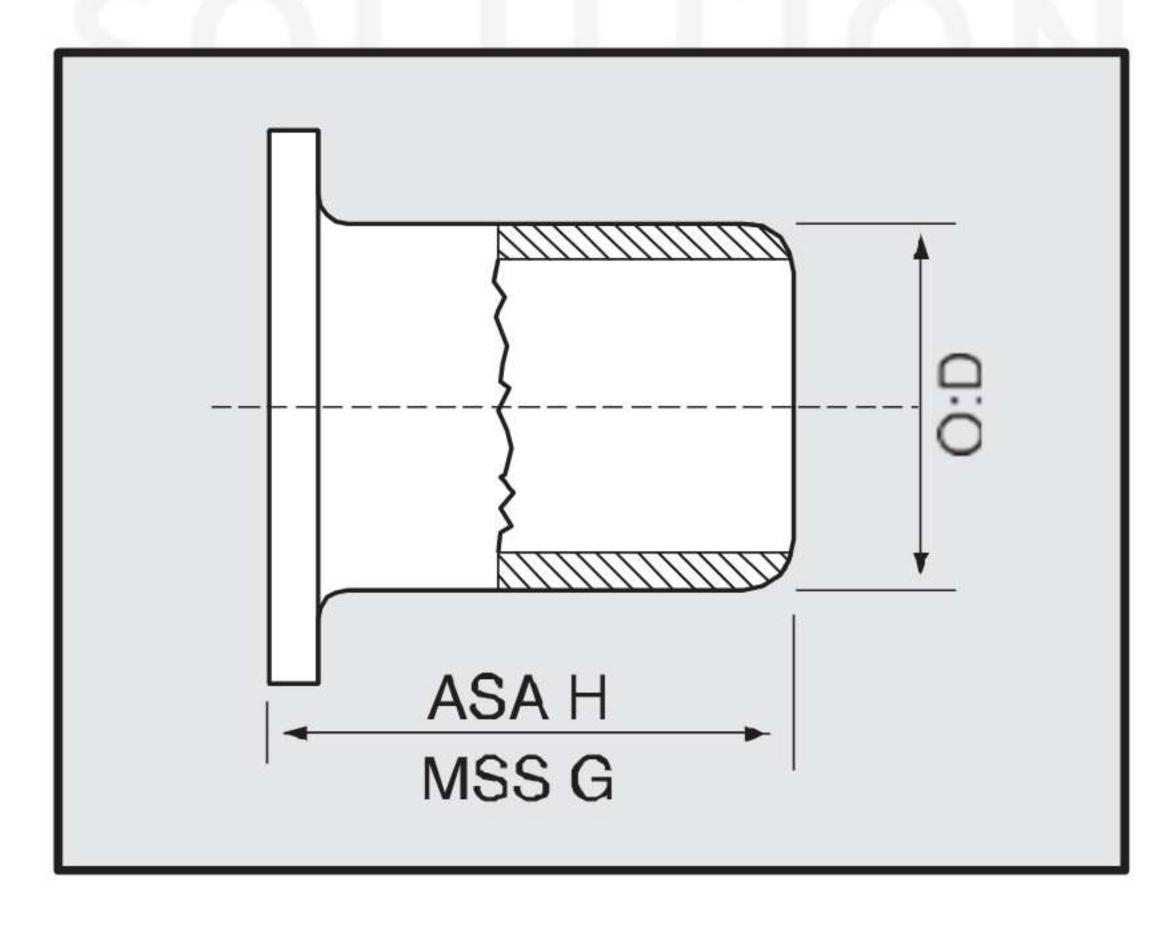
The function of a cross is similar to that of a tee with the exception of providing two 90° outlets opposite each other. Equal crosses have all four outlets of equal size. Reducing crosses have branches that are smaller in size to that of the run to obtain the desired flow and pressure through the system.

#### **CAPS**



The function of an end cap is to block off the end of a line in piping systems. This is achieved by placing the end cap over the open line and welding around the joint.

#### STUB ENDS

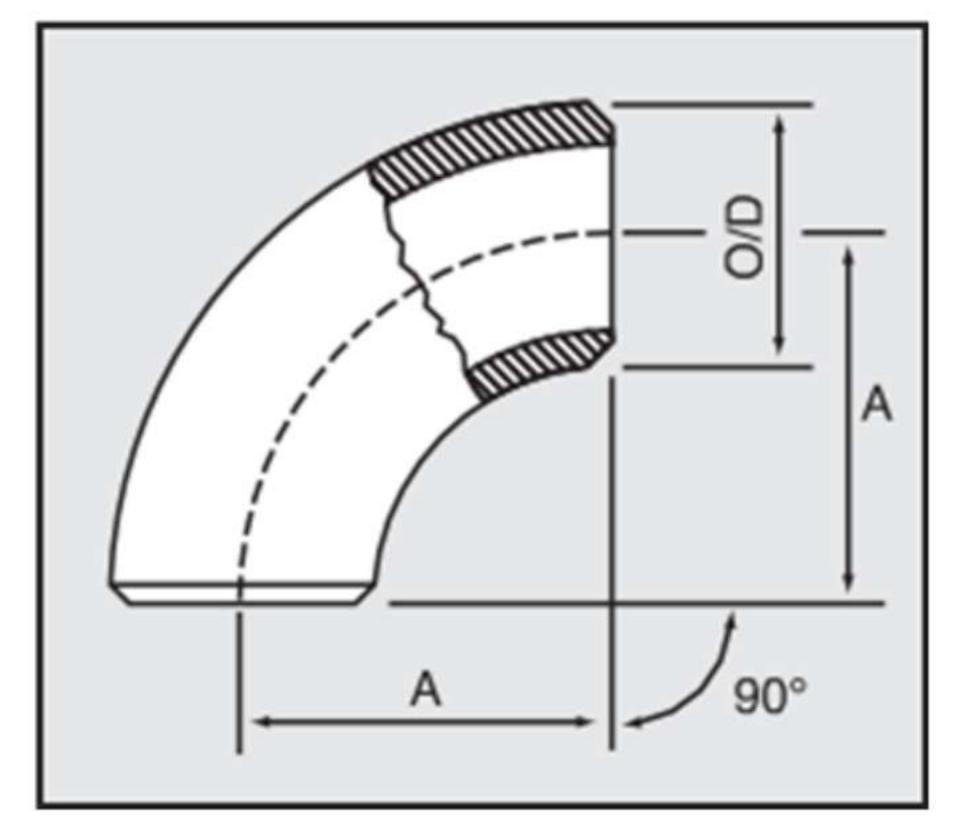


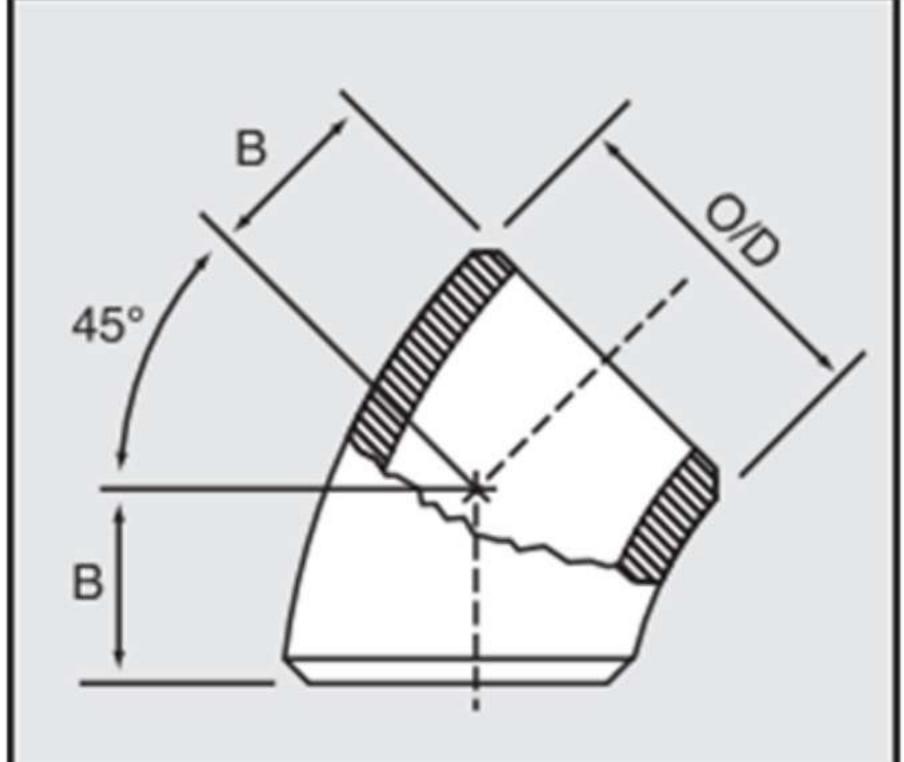
A stub end and its associated slip-on flange allows quick disconnection of the particular section involved as well as easy alignment of mating flanges. Stub ends are installed in pairs and mated together with two slip-on

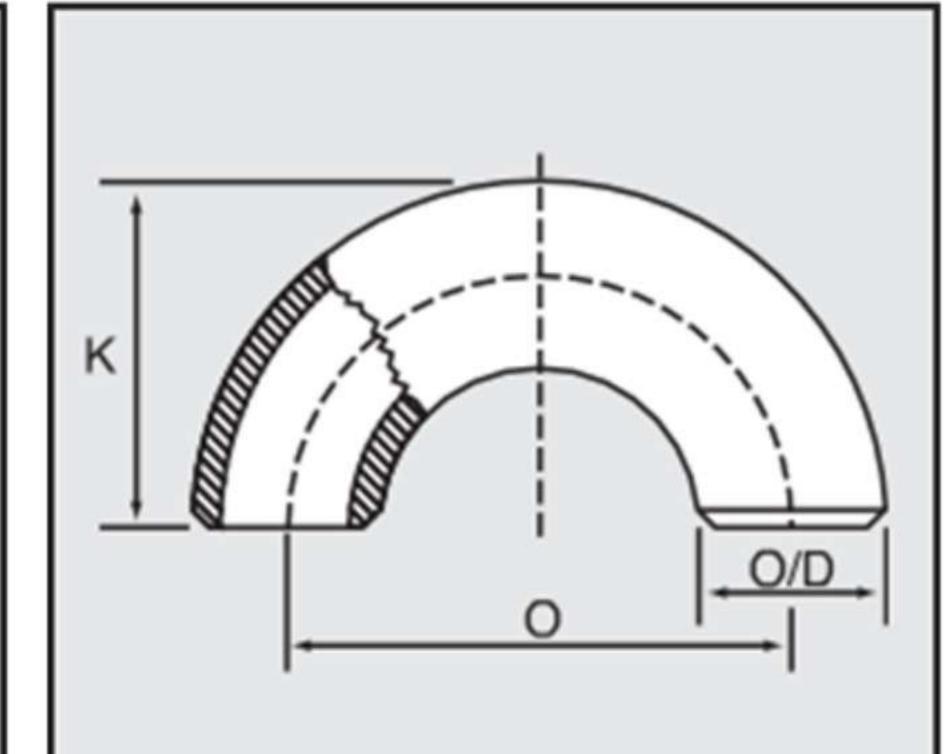
flanges. The surface of the stub end has a phonographic serrated gasket surface which prevents leakage at the joint.

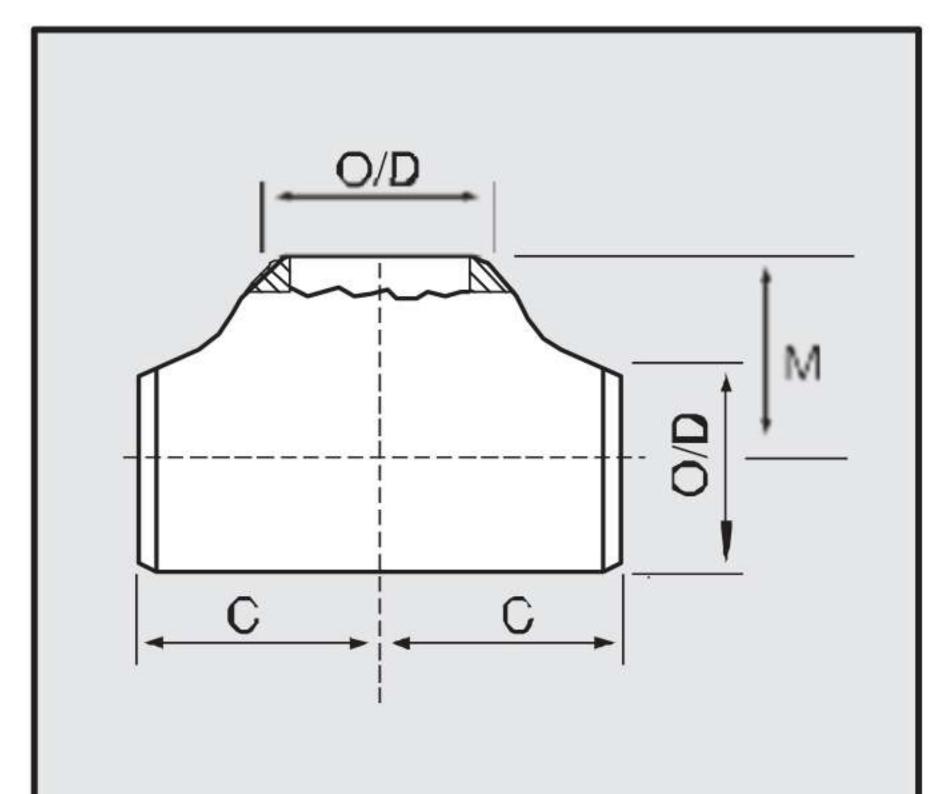
There are two basic types of stub end, ANSI types A & B long barrel, and M.S.S. types short barrel. Under certain design criteria such as temperature or pressure, it is not acceptable to have the joint between stub end and pipe in close proximity with the flange joint, in these applications ANSI types are used.

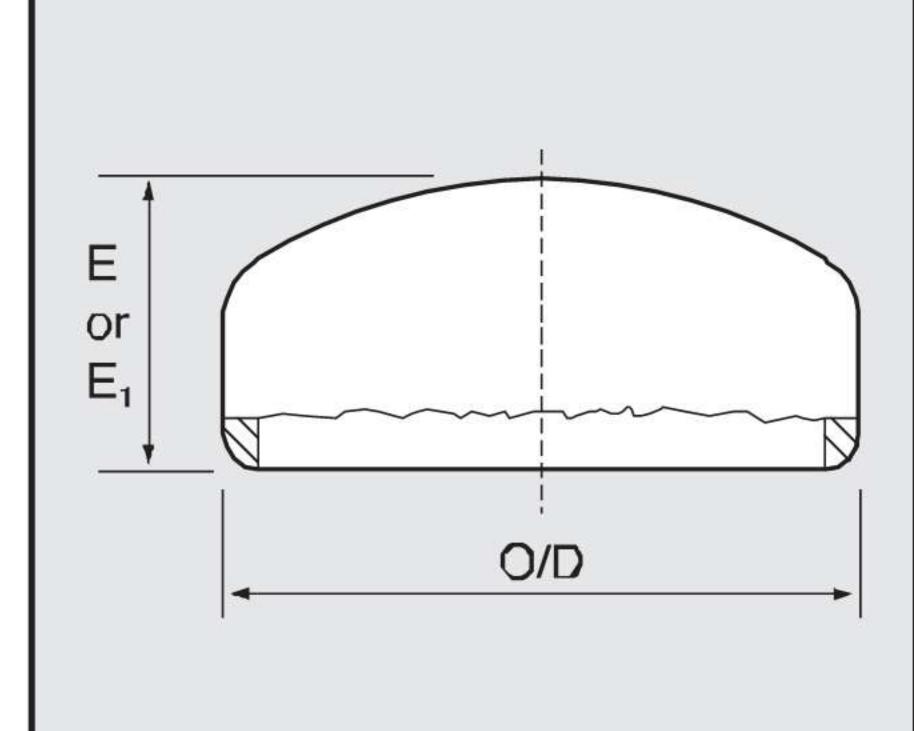
Type A stub ends are used with lap joint flanges. Type B stub ends are used with slip-on flanges.







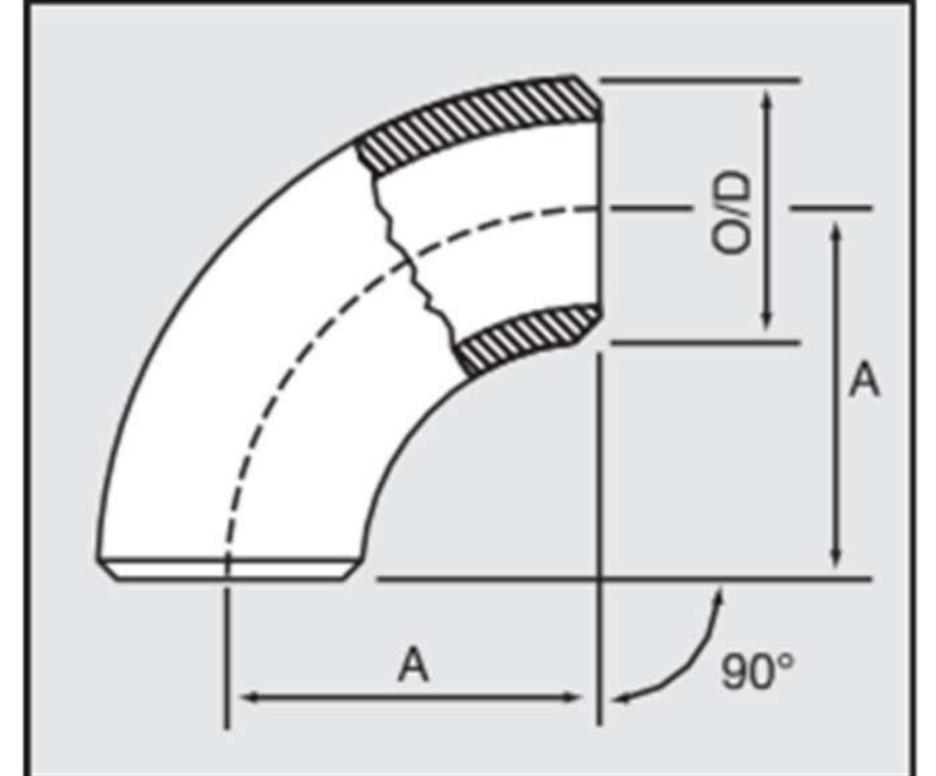


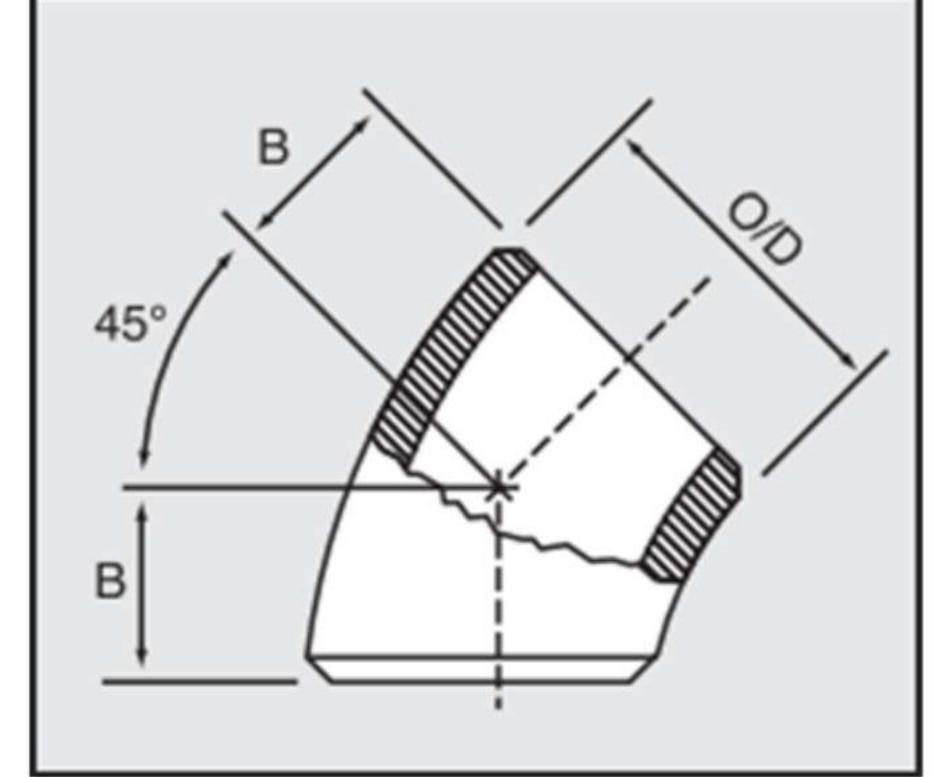


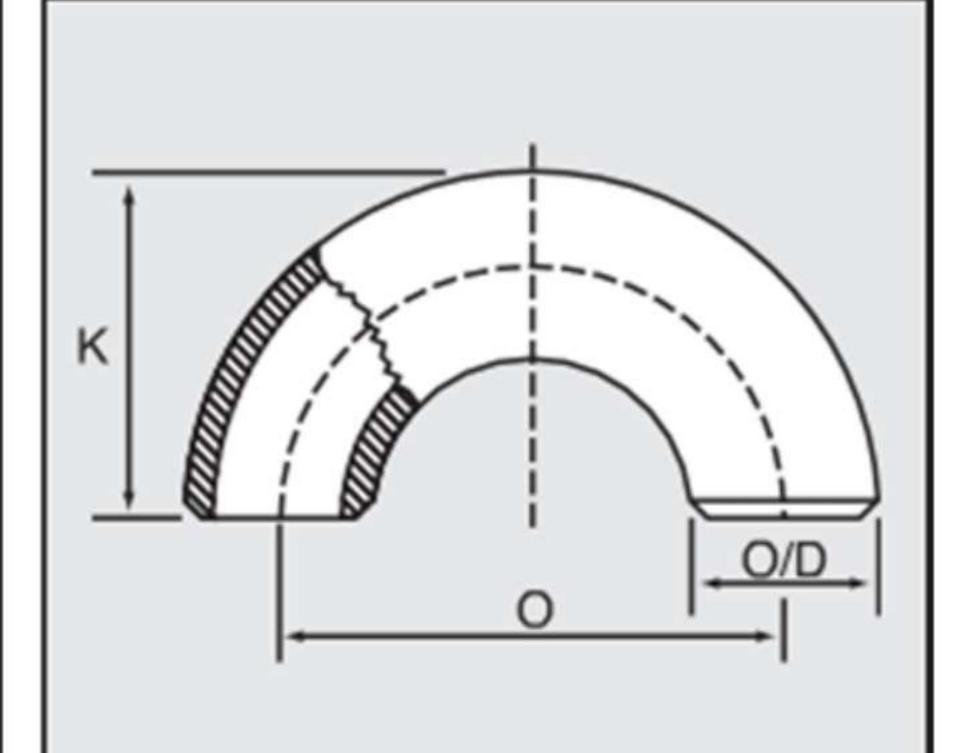
Nomir	nal Size	WT SCH		° LR BOW		° LR 30W		° SR BOW	180	° LR ELE	BOW	Equ	al Tee		Ca	os	
mm	inch		A	Weight	В	Weight	A	Weight	0	K	Weight	C and M	Weight	Et	Limiting	E <sub>1</sub> ‡	Weight
		5S		0.05		0.03		-			0.11		0.09				0.04
		10S		0.06		0.03		-			0.12		0.10				0.04
15	1/2	40S	38	0.08	16	0.04		-	76	48	0.15	25	0.10	25	4.57	25	0.05
	1/2	80S	30	0.10	10	0.05		-	70	10	0.19		0.14	23	1.57	23	0.05
		160		0.13		0.07		n <u></u> :			0.24		0.17				0.06
) ·		XXS		0.21		0.11		-			0.34		0.27				0.10
		5S		0.06		0.03					0.14		0.10				0.05
		10S		0.07		0.03		-			0.18		0.13				0.05
20*	3/4*	40S	38	0.09	19	0.04			76	51	0.20	29	0.17	25	3.81	25	0.06
		80S		0.11		0.05		-		R 37/15-17	0.22		0.20				0.06
		160		0.16		0.07		-			0.30		0.29				0.09
		XXS		0.23		0.11					0.40		0.41				0.13
		5S		0.09		0.05		0.08			0.22		0.18				0.08
		10S		0.14		0.09		0.10			0.27		0.29				0.09
25	1	40S	38	0.16	22	0.11	25	0.12	76	56	0.30	38	0.30	38	4.57	38	0.13
		80S		0.22		0.14		0.17			0.42		0.39				0.13
<b>■</b> 3		160		0.30		0.20		0.24			0.60		0.54		=======================================		0.18
<u> </u>		XXS		0.44		0.28		0.35		***	0.78		0.77			1)	0.26
■ 3		5S		0.14		0.09		0.14			0.34		0.34				0.09
		10S 40S		0.23		0.11		0.17			0.45		0.50				0.13
32	1-1/4	80S	48	0.25	25	0.17	32	0.20	95	70	0.60	48	0.60	38	4.83	38	0.17
		160		0.40		0.23		0.29				0.70	0.00				0.18
		XXS		0.80		0.35		0.57			1.28		1.36				0.25
		5S		0.17		0.11		0.20			0.48		0.43				0.10
		10S		0.17		0.17		0.22			0.60		0.68				0.14
		40S		0.40		0.23		0.29			0.81		0.86				0.23
40	1-1/2	80S	57	0.51	29	0.29	38	0.40	114	83	1.02	57	1.02	38	5.08	38	0.25
		160		0.72		0.40		0.56			1.40		1.43				0.34
		XXS		1.03		0.57		0.80			1.80	14	2.05				0.49
		5S		0.29		0.14		0.29			0.80		0.55				0.16
		10S		0.51		0.25		0.37			1.05		0.85				0.17
		40S		0.71		0.40		0.51	4	400	1.32		1.29				0.27
50	2	80S	76	0.91	35	0.51	51	0.70	152	106	1.92	64	1.59	38	5.59	44	0.34
		160		1.43		0.80		1.10			2.80		2.50				0.53
		XXS		1.82		1.03		1.41			3.40		3.18				0.68
		5S		0.68		0.34		0.57			1.20		0.98				0.23
		10S		0.85		0.48		0.62			1.59		1.41				0.25
65	2 1/2	40S	OF	1.36	11	0.77	61	1.02	100	122	2.52	76	2.20	20	711	<b>E</b> 1	0.45
65	2-1/2	80S	95	1.82	44	1.00	64	1.31	190	190 132	3.42	76	3.14	38	7.11	.1 51	0.51
		160		2.47		1.34		1.76			4.60		4.26				0.67
S.		XXS		3.64		1.99		2.62			6.20		6.27				1.02

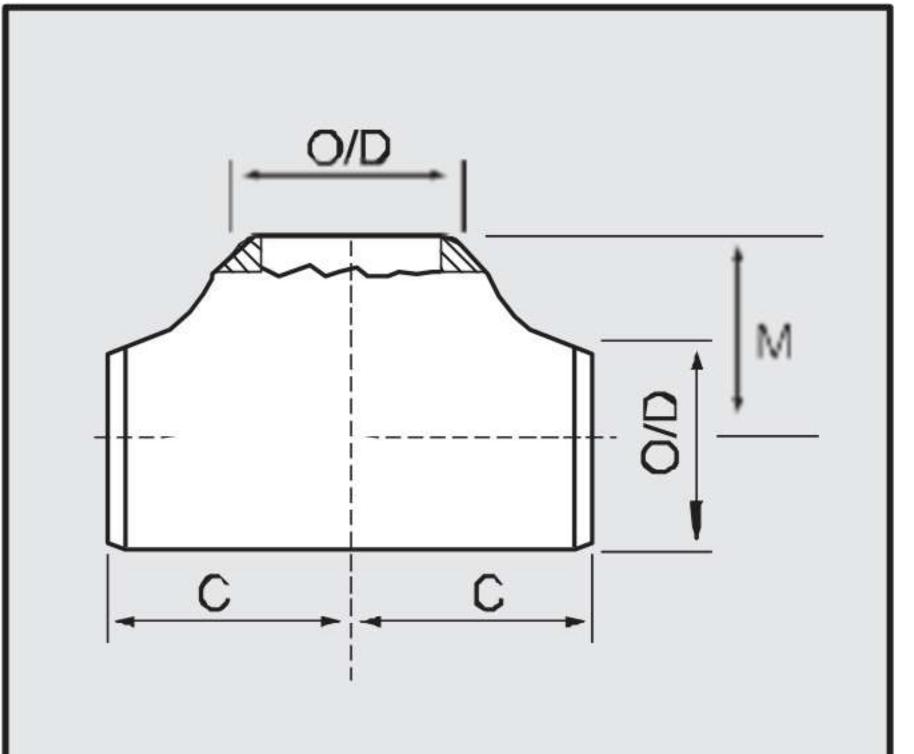
NOTE: Weights and dimensions listed above are a guide only. Dimensions in mm. Weights in kg.

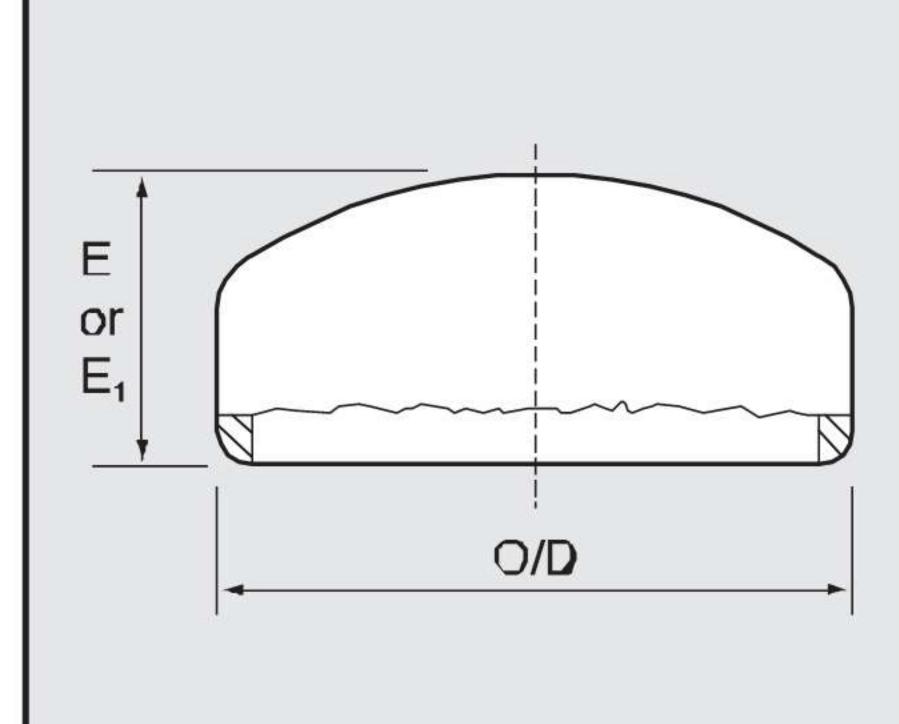
- \* There are 2 possible dimensions for this size, refer to ANSI B16.9
- † Length E applies for thickness not exceeding that given in column "Limiting Wall Thickness"
- ‡ Length E1 applies for thickness greater than that given in column "Limiting Wall Thickness"







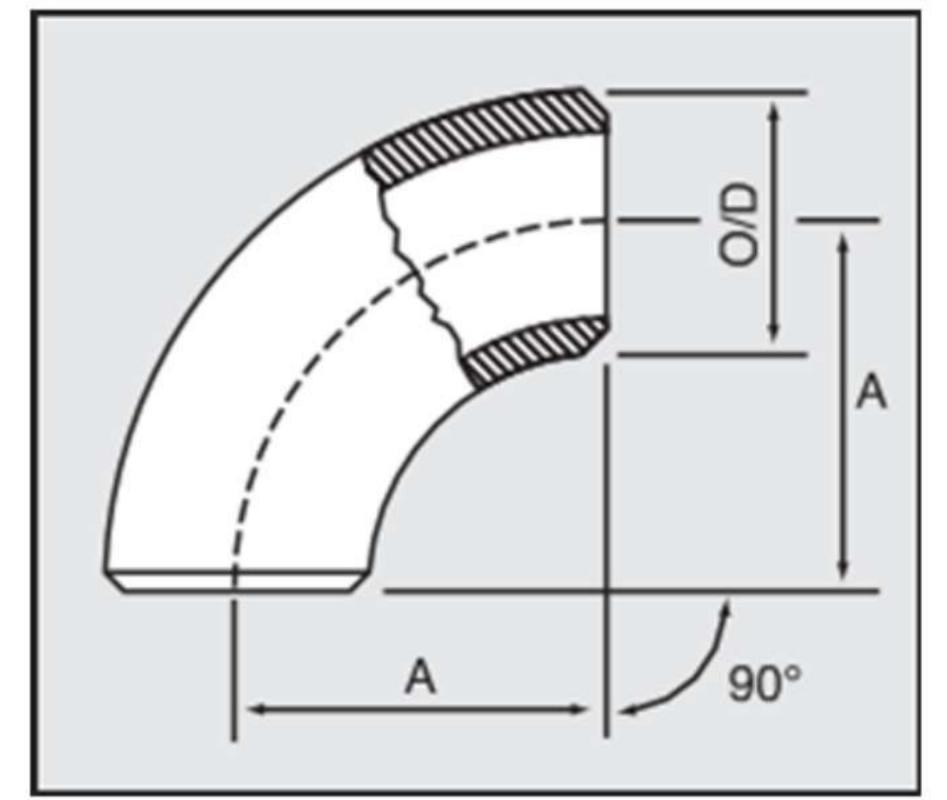


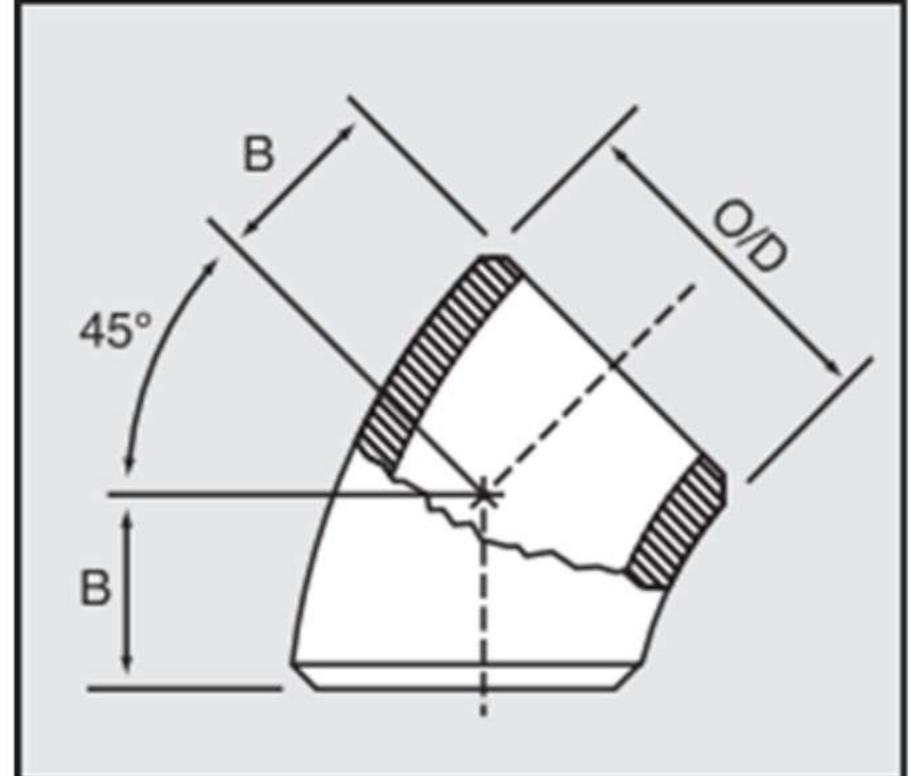


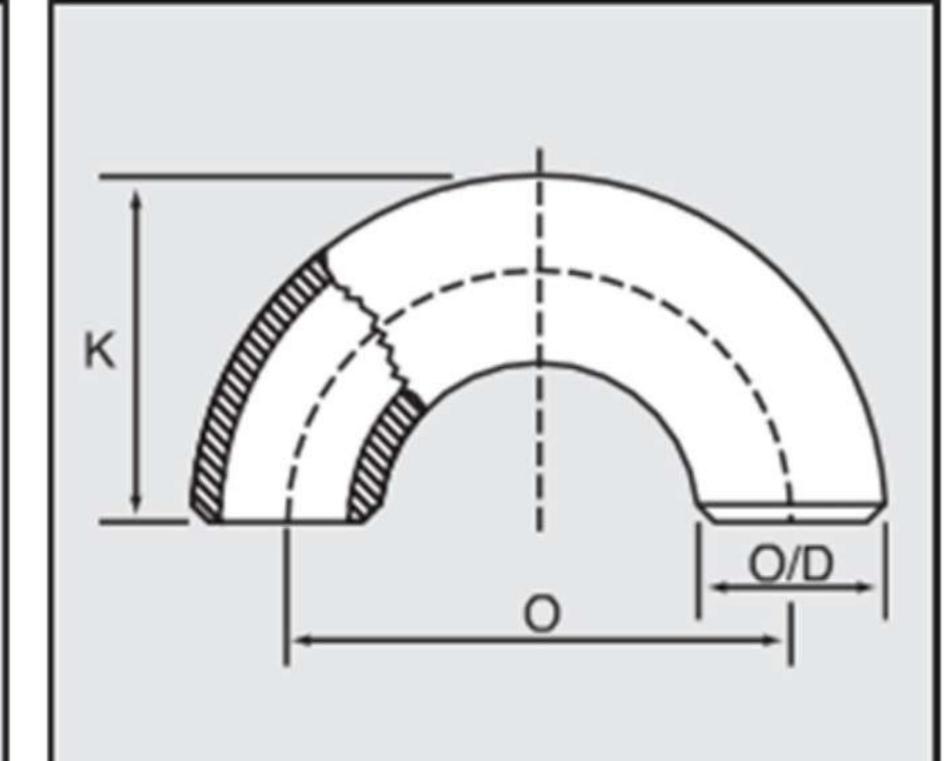
Nomir	al Size	WT SCH		° LR 30W		° LR 30W		° SR BOW	180°	LRELE	30W	Equ	al Tee		Ca	ps	
mm	inch		A	Weight	В	Weight	A	Weight	0	K	Weight	C and M	Weight	Εt	Limiting Wall	E <sub>1</sub> ‡	Weight
		5S		0.91		0.48		0.80			2.00		1.55				0.39
		10S		1.22		0.63		0.99			2.40		1.77				0.40
80	2	40S	114	2.19	51	1.08	76	1.50	229	159	4.50	86	3.32	51	7.62	64	0.71
		80S	TTT	2.98	JI	1.50	70	1.91	229	133	5.88	00	4.45	JI	7.02	UT	0.85
		160		4.35		2.18		2.77			8.20		6.50				1.23
		XXS		5.96		3.01		3.82			11.00		8.91				1.70
		5S		1.19		0.53		1.07			3.20		2.50				0.55
		10S		1.70		0.75		1.39			4.00		2.67				0.57
90	3 - 1/2	40S	133	2.84	57	1.42	89	2.06	267	184	5.80	95	4.09	64	8.13	76	1.02
		80S		4.00		2.00		2.43			7.92		5.45				1.14
		160		8		-					-						
		XXS		8.00		4.00		4.86			WOR		10.91				2.27
		5S		1.50		0.75		1.42			3.68		3.27				0.57
		10S		2.16		1.08		1.72	3		4.44		3.47				0.65
100	4	40S	152	4.18	64	2.09	102	3.13	305	210	6.00	105	5.29	64	8.64	76	1.22
		80S		6.20		3.10		4.12			12.36		7.73				1.61
		160		9.79		4.94		6.46			19.80		12.21				2.52
		XXS	J=-	12.39		6.20	<del></del>	8.24			24.80		15.45				3.22
		5S		2.95		1.48		2.25			7.60		5.91				0.91
		10S		3.64		1.82		2.78			8.52	00 124 9.43	6.11			89	1.02
127	5	40S	190	6.88	79	3.44	127	5.29	381	262	15.00			76	9.65		1.85
		80S	9.60 16.04		4.80		7.32			18.90		11.36				2.56	
		160 XXS				7.96 9.60		12.15			30.00		18.98 22.73				4.26
				19.21		2.27		14.64 3.52			980		7.82				5.12 1.25
		5S 10S		4.55 5.45		2.73		4.16			12.00		8.09				1.25
		40S		10.91		5.45		7.95			18.00		11.02				3.24
150	6	80S	229	16.36	95	8.18	152	11.82	457	313	33.60	143	13.64	89	10.92	102	4.55
		160		27.16		9.49		19.62			52.00		22.64				7.27
		XXS		32.73		16.36		23.64			60.00		27.27				9.09
		5S		7.86		3.93	11	7.02			16.00		14.09				2.05
		10S		10.68		5.34		8.01			21.48		15.68				2.50
		40S		21.59		10.80		17.09	E		40.80		20.95				5.68
200	8	80S	305	33.18	127	16.59	203	24.91	610	414	71.40	178	28.18	102	12.70	127	7.45
		160		60.00		29.20		45.08	5		118.00		50.91				13.47
	-	XXS		57.73		29.03		49.55			122.00		49.09				10.35
		5S		14.55		7.27		12.45			36.00		25.00				4.32
		10S		19.55		9.77		15.91			51.28		26.82				4.91
		40S		38.64		19.32		28.64			79.80		35.45				9.23
250	10	80S	381	51.82	159	25.91	254	45.36	<b>−</b> 762	518	104.00	216	50.00	127	12.70	0 152	12.41
		160		116.36		57.73		101.82			220.00		112.27				27.92
		XXS				-					-		-				8(===)

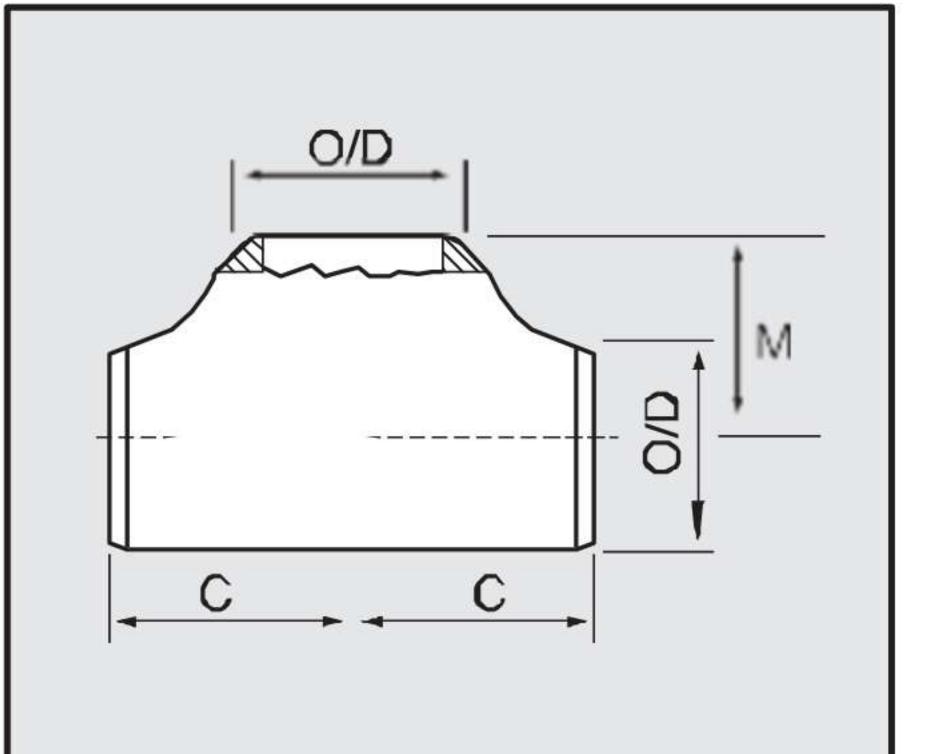
NOTE: Weights and dimensions listed above are a guide only. Dimensions in mm. Weights in kg.

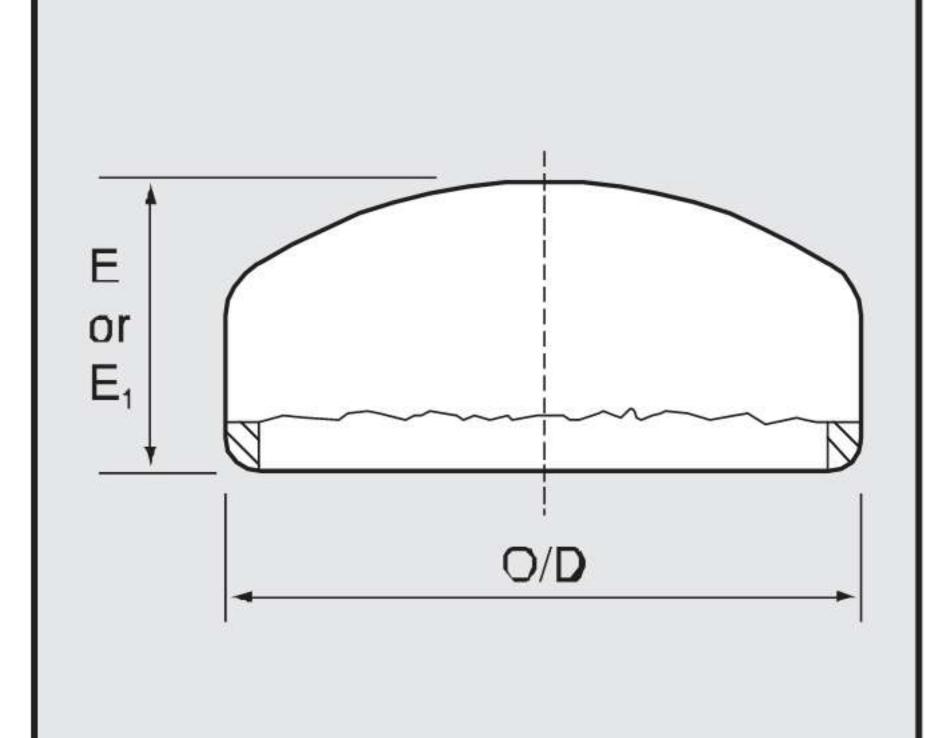
- \* There are 2 possible dimensions for this size, refer to ANSI B16.9
- † Length E applies for thickness not exceeding that given in column "Limiting Wall Thickness"
- ‡ Length E1 applies for thickness greater than that given in column "Limiting Wall Thickness"







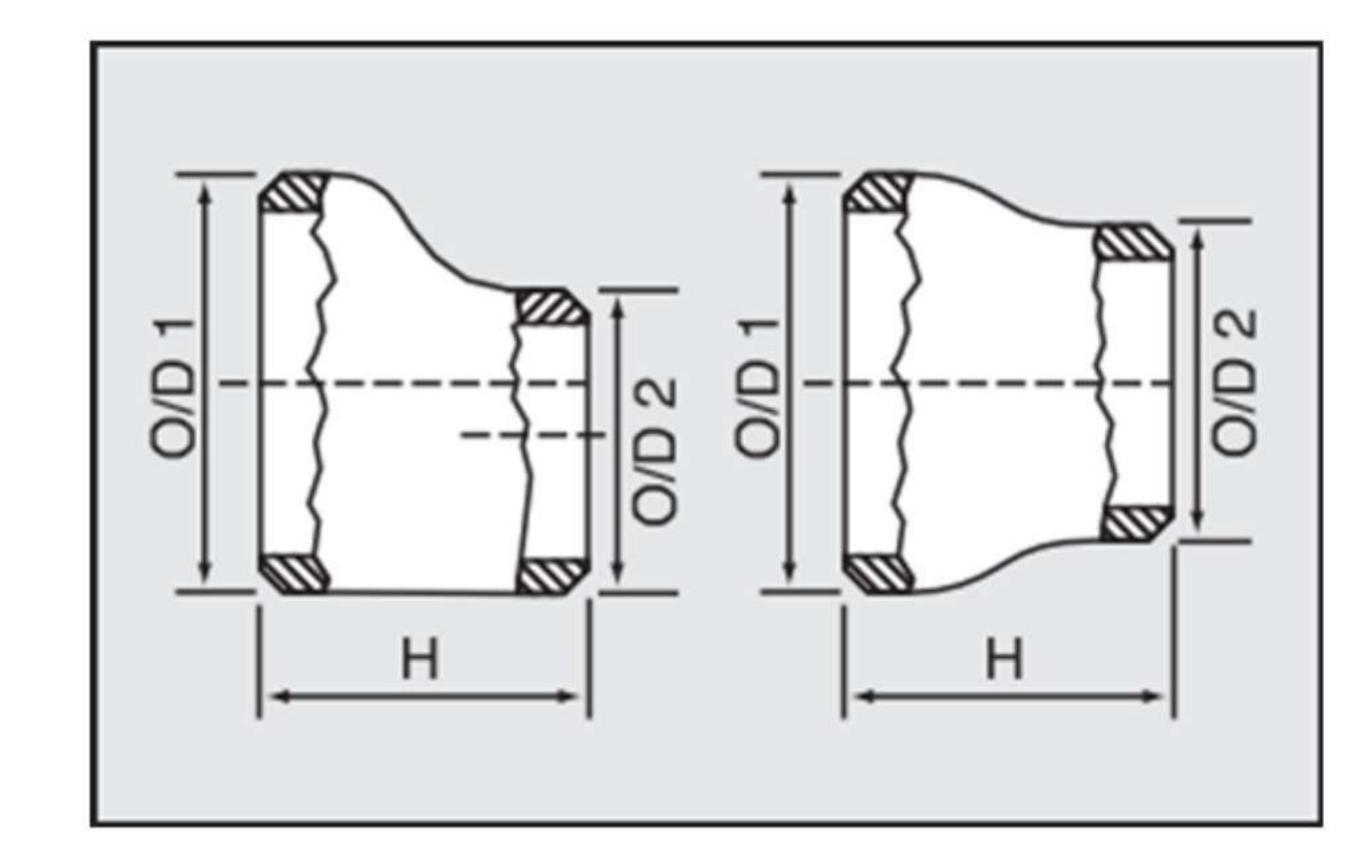


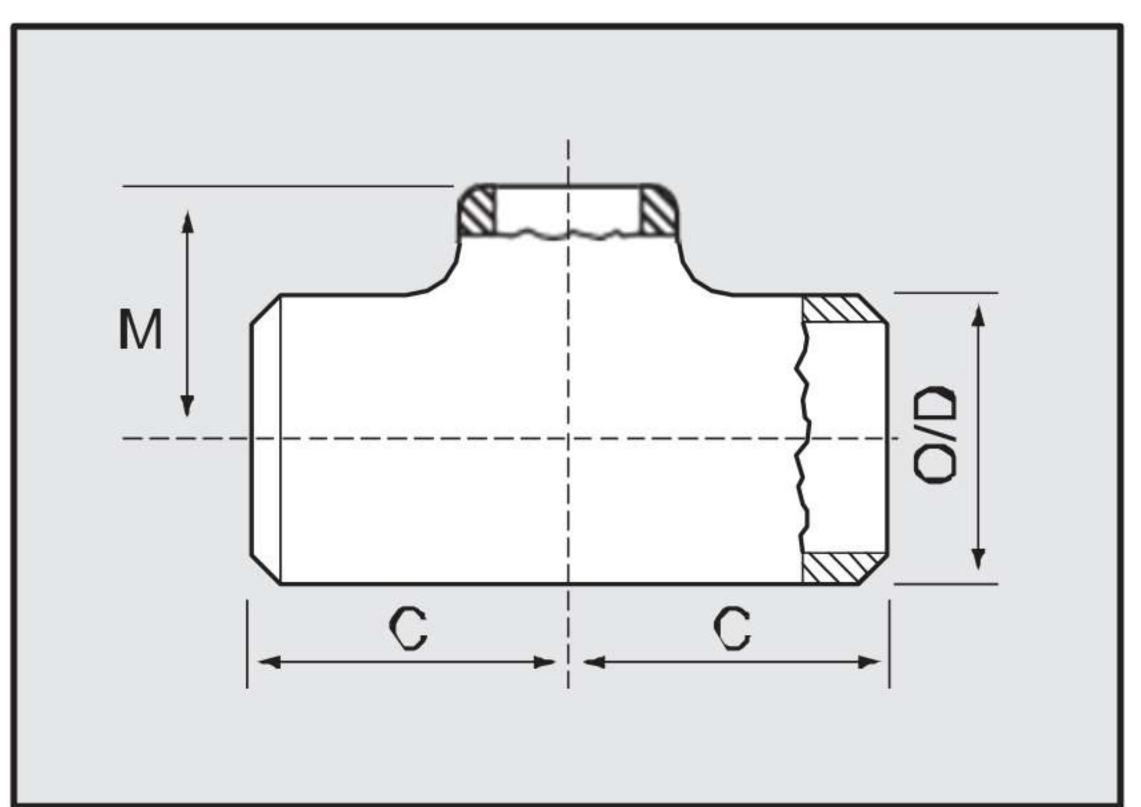


Nomin	al Size	WT SCH		LR 30W		° LR BOW		° SR 30W	180	° LR ELE	30W	Equa	al Tee		Ca	ps	
mm	inch		A	Weight	В	Weight	Α	Weight	0	K	Weight	C and M	Weight	Et	Limiting	E,‡	Weight
300	12	5S 10S 40S 80S 160 XXS	457	23.18 27.27 59.55 79.55 208.18	190	11.59 13.64 29.77 39.77 104.09	305	15.91 18.18 36.36 56.82 148.64	914	619	52.00 59.04 121.00 151.00 348.00	254	37.73 39.55 62.27 84.09 220.00	152	12.70	178	6.36 6.55 13.09 16.64 43.18
350	14	5S 10S 40S 80S 160 XXS	533	30.91 36.36 70.45 93.64 -	222	15.45 18.18 35.23 46.82 -	356	20.00 23.64 45.91 61.36 -	1067	711	72.00 81.00 164.00 - -	279	40.45 48.64 79.55 95.45 -	165	12.70	191	7.73 8.18 16.23 21.82 -
400	16	5S 10S 40S 80S 160 XXS	610	45.45 47.73 91.82 122.27 -	254	22.73 23.86 45.91 60.91 -	406	29.55 30.91 59.55 79.55 -	1219	813	94.00 105.00 224.00 400.00 -	305	52.27 59.09 100.00 120.45 -	178	12.70	203	13.64 14.55 22.05 29.55 -
450	18	5S 10S 40S 80S 160 XXS	686	56.82 60.00 122.27 159.09 -	286	28.41 30.00 59.55 79.55	457	36.82 39.09 79.55 103.64 -	1372	914	WOR WOR WOR -	343	67.73 76.82 130.00 156.36 -	203	12.70	229	17.27 18.00 27.00 36.00 -
500	20	5S 10S 40S 80S 160 XXS	762	75.00 100.00 150.00 199.55 -	318	37.50 50.00 75.00 99.55 -	508	48.64 65.00 97.73 129.55 -	1524	1016	WOR WOR WOR -	381	77.73 103.64 162.73 195.45 -	229	12.70	254	25.00 27.27 34.09 40.00 -
550	22	5S 10S 40S 80S 160 XXS	838	99.40 163.03 163.03 - -	343	49.70 81.13 81.13 104.87 -	559	61.06 73.02 120.83 156.29 -	1676	1118	WOR WOR WOR -	419	84.72 101.35 170.07 217.46 -	254	12.70	254	WOR WOR WOR -
600	24	5S 10S 40S 80S 160 XXS	919	127.27 140.91 210.91 - -	381	63.64 70.45 105.45 140.00 -	610	82.73 91.82 137.27 182.27 -	1829	1219	WOR WOR WOR -	432	135.45 155.91 226.36 272.73 -	267	12.70	305	34.09 34.55 44.55 61.36 -

NOTE: Weights and dimensions listed above are a guide only. Dimensions in mm. Weights in kg.

- \* There are 2 possible dimensions for this size, refer to ANSI B16.9
- † Length E applies for thickness not exceeding that given in column "Limiting Wall Thickness"
- ‡ Length E1 applies for thickness greater than that given in column "Limiting Wall Thickness"



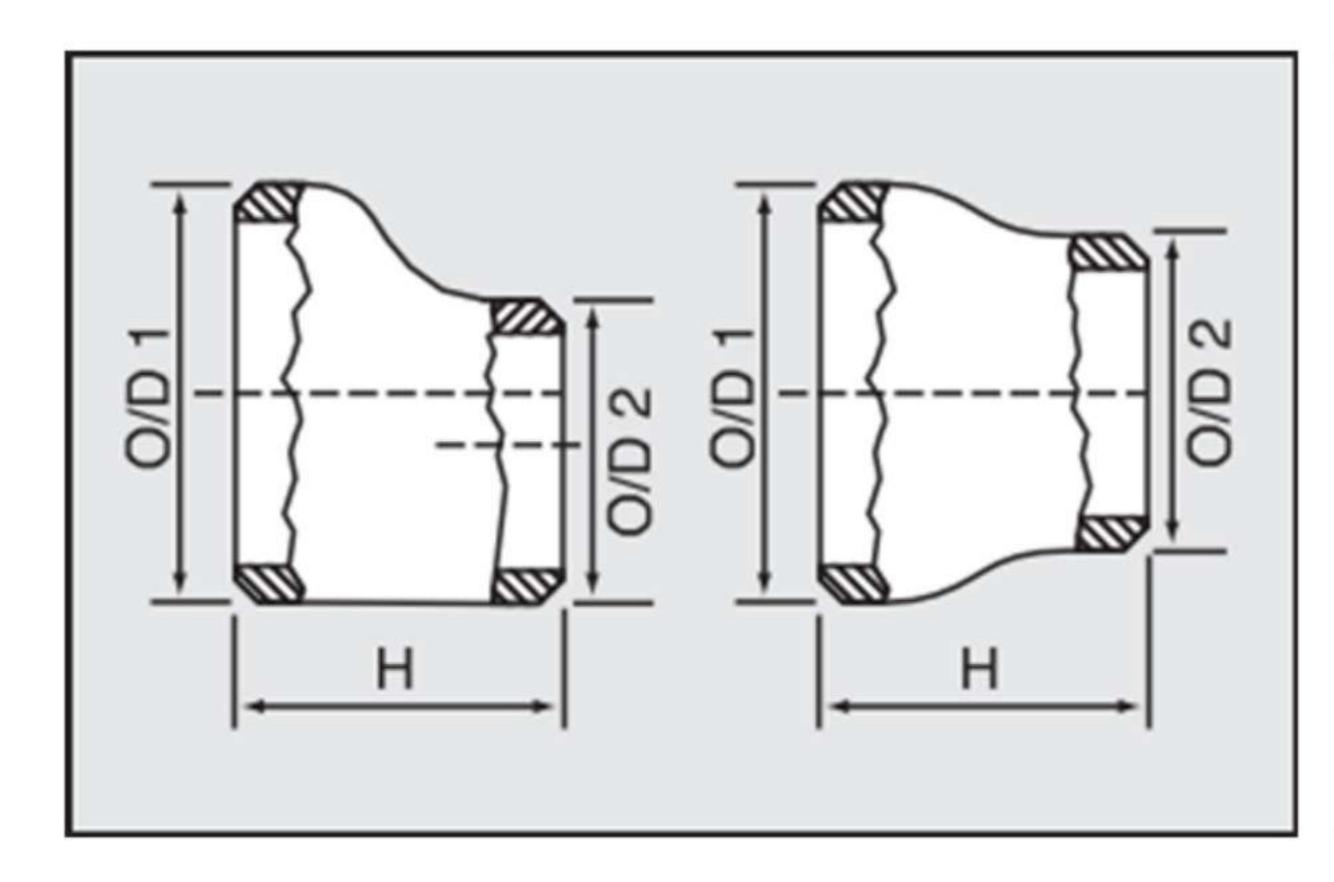


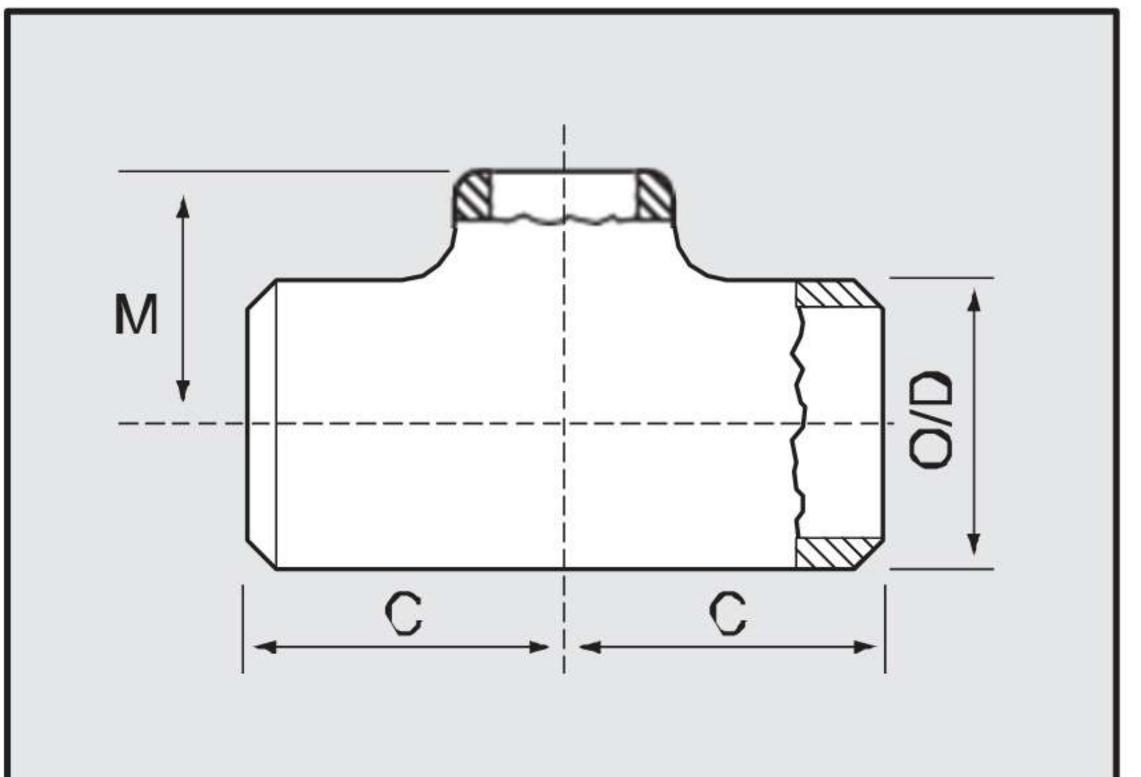
Nomir	nal Size	WT SCH	and E	centric ccentric ucers	Re	ducing	Tees					
mm OD1 X OD2	inch OD1 X OD2		Н	Weight	C	M	Weight					
		5S		0.08			0.09					
		10S		0.10			0.11					
20 15	2/4 \/ 1/2	40S	20	0.14	20	20	0.15					
20 X 15	3/4 X 1/2	80S	38	0.18	29	29	0.18					
		160		0.25			0.26					
		XXS		0.36			0.37					
		5S		0.07			0.16					
		10S		0.12			0.25					
2F V 1F	1 \/ 1 / 2	40S		0.15	20	20	0.26					
25 X 15	1 X 1/2	80S	51	0.20	38	38	0.34					
		160		0.26			0.47					
		XXS		0.40			0.68					
		5S		0.08			0.16					
		10S		0.13			0.25					
2F V 20	1 1/ 2/4	40S		0.16	20	20	0.27					
25 X 20	1 X 3/4	80S	51	0.22	38	38	0.35					
		160		0.28			0.49					
		XXS		0.45			0.70					
		5S		0.30			0.10					
							10S		0.44			0.18
22 V 20	1 1 / A V 2 / A	40S	<b>E</b> 1	0.52	10	10	0.22					
32 X 20	1-1/4 X 3/4	80S	51	0.60	48	48	0.25					
		160		0.79			0.33					
		XXS		1.20			0.51					
		5S		0.10			0.31					
		10S		0.18			0.45					
32 X 25	1_1/1 V 1	40S	51	0.22	48	48	0.53					
	1-1/4 X 1	80S	31	0.27	40	40	0.61					
		160		0.37			0.80					
		XXS		0.54			1.23					
		5S		0.11			0.37					
		10S		0.18			0.59					
40 V 20	1_1/2 V 2/4	40S	61	0.24	<b>F</b> 7	<b></b>	0.74					
40 X 20	1-1/2 X 3/4	80S	64	0.32	57	57	0.88					
		160		0.45			1.23					
		XXS		0.65			1.76					

Nomir	nal Size	WT	and Ed	centric ccentric ucers	Red	ducing	Tees
mm OD1 X OD2	inch OD1 X OD2		Н	Weight	C	M	Weight
		5S		0.11			0.38
		10S		0.20			0.60
40 V 25	1 1/2 V 1	40S	61	0.26	<b>5</b> 7	<b>5</b> 7	0.76
40 X 25	1-1/2 X 1	80S	64	0.34	57	57	0.90
		160		0.47			1.26
		XXS		0.67	22		1.80
		5S		0.12			0.39
		10S		0.21			0.61
40 V 22	1 1/2 V 1 1/4	40S	61	0.28	<b>5</b> 7	<b>F</b> 7	0.78
40 X 32	1-1/2 X 1-1/4	80S	64	0.36	57	57	0.92
		160		0.51			1.29
		XXS		0.73			1.84
		5S		0.15			0.46
		10S		0.25			0.72
EU ^ 30	2 \ 2/4	40S	76	0.36	61	11	1.09
50 X 20	2 X 3/4	80S	76	0.50	64	44	1.35
		160		0.79			2.12
		XXS		1.01			2.70
		5S		0.17			0.47
		10S		0.28			0.73
E0 V 2E	2 V 1	40S	76	0.40	61	<b>E</b> 1	1.10
50 X 25	2 X 1	80S	76	0.54	64	51	1.37
		160		0.84			2.15
		XXS		1.07			2.74
		5S		0.19			0.49
		10S		0.31			0.76
50 X 40	2 X 1-1/2	40S	76	0.45	64	60	1.15
30 A 70	Z /\ 1-1/Z	80S		0.59	UT	00	1.43
		160		0.93			2.25
		XXS		1.18			2.86
		5S		0.25			0.83
		10S		0.38			1.20
65 X 25	2-1/2 X 1	40S	89	0.65	76	57	1.87
03 A 23	∠-1/∠ <b>∧</b> 1	80S	09	0.87	70	3/	2.66
		160		1.18			3.62
		XXS		1.75	,		5.33

NOTE: Weights and dimensions listed above are a guide only. Dimensions in mm. Weights in kg.

<sup>\*</sup> There are 2 possible dimensions for this size, refer to ANSI B16.9



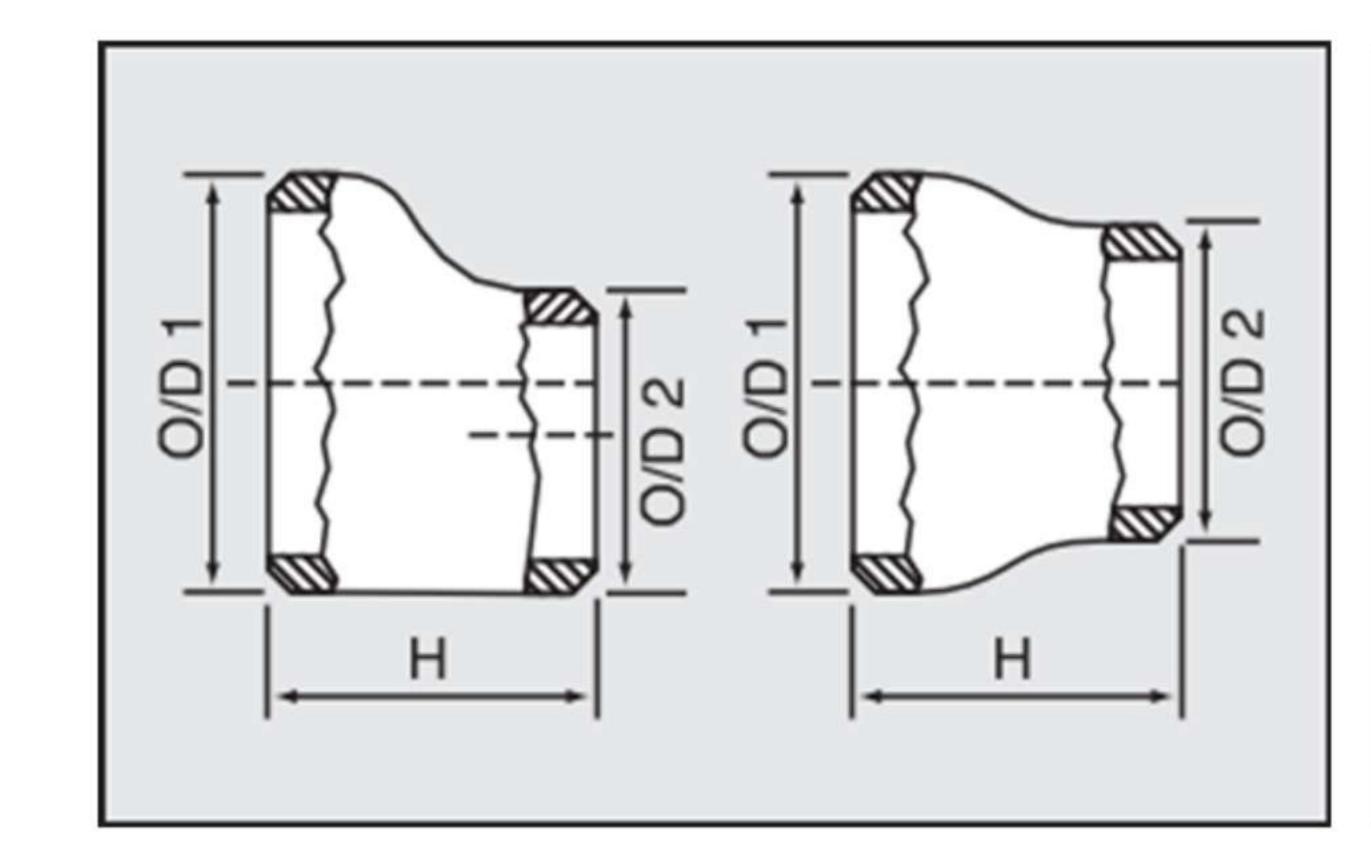


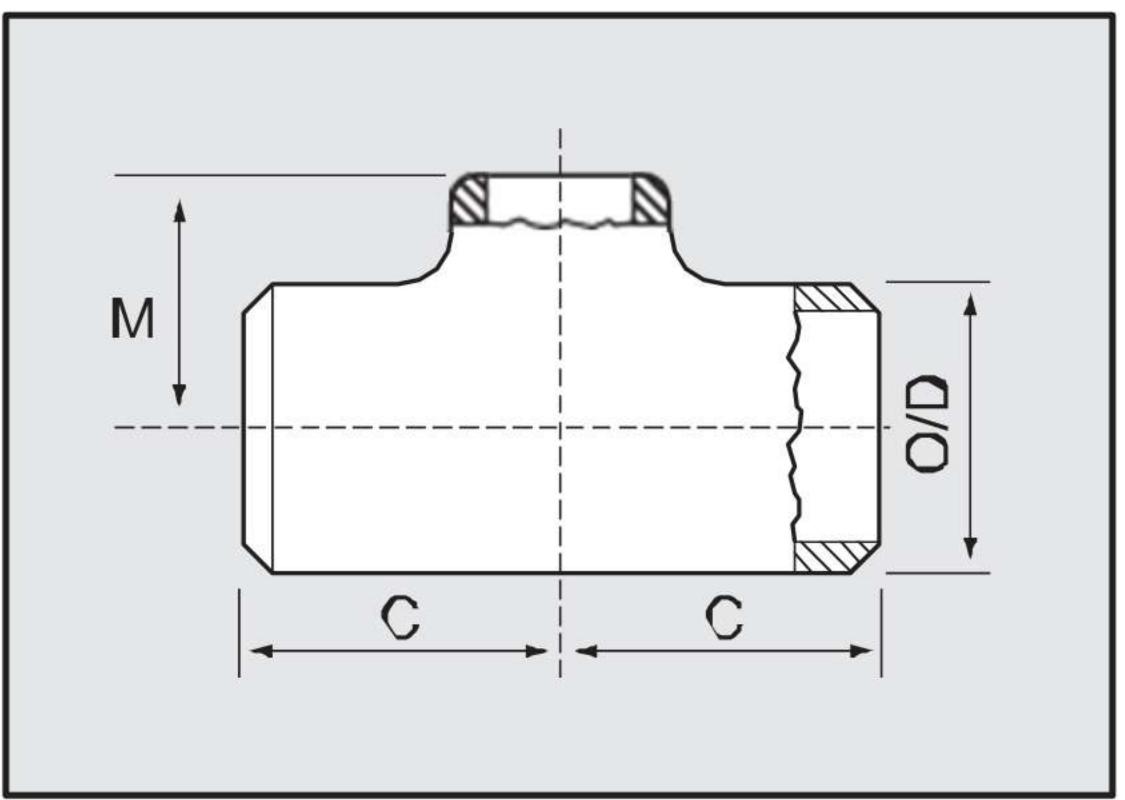
Nomir	nal Size	WT SCH	and Ed	centric ccentric ucers	Re	ducing	Tees
mm OD1 X OD2	inch OD1 X OD2		Н	Weight	C	M	Weight
		5S		0.30			0.86
		10S		0.45			1.24
6E V 10	2 1/2 V 1 1/2	40S	90	0.76	76	67	1.94
65 X 40	2-1/2 X 1-1/2	80S	89	0.94	76	67	2.76
		160		1.27			3.75
		XXS		1.88	15		5.52
		5S		0.32			0.88
		10S		0.47			1.27
64 V E0	2 1/2 V 2	40S	00	0.80	76	70	1.98
64 X 50	2-1/2 X 2	80S	89	1.03	76	70	2.82
		160		1.39			3.84
		XXS		2.05			5.65
		5S		0.35			1.33
		10S		0.51			1.52
00 1/ 10	2 1 1 /2	40S		0.94	0.0	70	2.85
80 X 40	3 X 1-1/2	80S	89	1.21	86	73	3.83
		160		1.75			5.59
		XXS		2.42			7.66
		5S		0.38			1.36
		10S		0.55			1.56
00 V F0	2 V 2	40S	00	1.00	06	76	2.92
80 X 50	3 X 2	80S	89	1.30	86	76	3.92
		160		1.88			5.72
		XXS		2.59			7.84
		5S		0.41			1.39
		10S		0.59			1.60
90 V CE	2 V 2 1/2	40S	00	1.08	06	02	2.99
80 X 65	3 X 2-1/2	80S	89	1.49	86	83	4.01
		160		2.16			5.85
		XXS		2.98			8.02
		5S		0.48			2.75
		10S		0.68			2.91
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	40S	100	1.36	105	0.0	4.44
100 X 65	4 X 1-1/2	80S	102	1.90	105	86	6.49
		160		2.98			10.25
		XXS		3.80			12.98

Nomir	nal Size	WT SCH	and Ed	entric ecentric ucers	Red	ducing	Tees
mm OD1 X OD2	inch OD1 X OD2		H	Weight	C	M	Weight
		5S		0.55			2.78
		10S		0.79			2.95
100 1/ 50	4 \	40S	400	1.58	405	00	4.49
100 X 50	4 X 2	80S	102	1.96	105	89	6.57
		160		3.07			10.38
		XXS		3.92			13.14
		5S		0.58			2.81
		10S		0.83			2.98
100 V 65	1 V 2 1/2	40S	102	1.66	105	OF	4.55
100 X 65	4 X 2-1/2	80S	102	2.20	105	95	6.65
		160		3.45			10.50
		XXS		4.39			13.29
		5S		0.61			2.88
		10S		0.87			3.05
100 V 00	1 V 2	40S	102	1.75	105	00	4.65
100 X 80	4 X 3	80S	102	2.34	105	98	6.80
		160		3.67			10.74
		XXS		4.67			13.60
		5S		1.20			5.08
		10S		1.45			5.25
125 X 080	5 X 3	40S	127	2.86	124	111	8.11
123 / 000	J / J	80S	12/	3.89	127	111	9.77
		160		6.45			16.32
		XXS		7.77			19.55
		5S		1.25			5.32
		10S		1.50			5.50
125 X 100	5 X 4	40S	127	2.99	124	117	8.49
123 / 100		80S	12/	4.14	121	11/	10.23
		160		6.87			17.08
		XXS		8.28			20.45
		5S		1.51			6.65
		10S		1.82			6.88
150 X 80	6 X 3	40S	140	3.99	143	124	11.96
130 / 00		80S	1.0	5.52	1 13		11.59
		160		9.17			19.24
		XXS		11.05			23.18

NOTE: Weights and dimensions listed above are a guide only. Dimensions in mm. Weights in kg.

<sup>\*</sup> There are 2 possible dimensions for this size, refer to ANSI B16.9



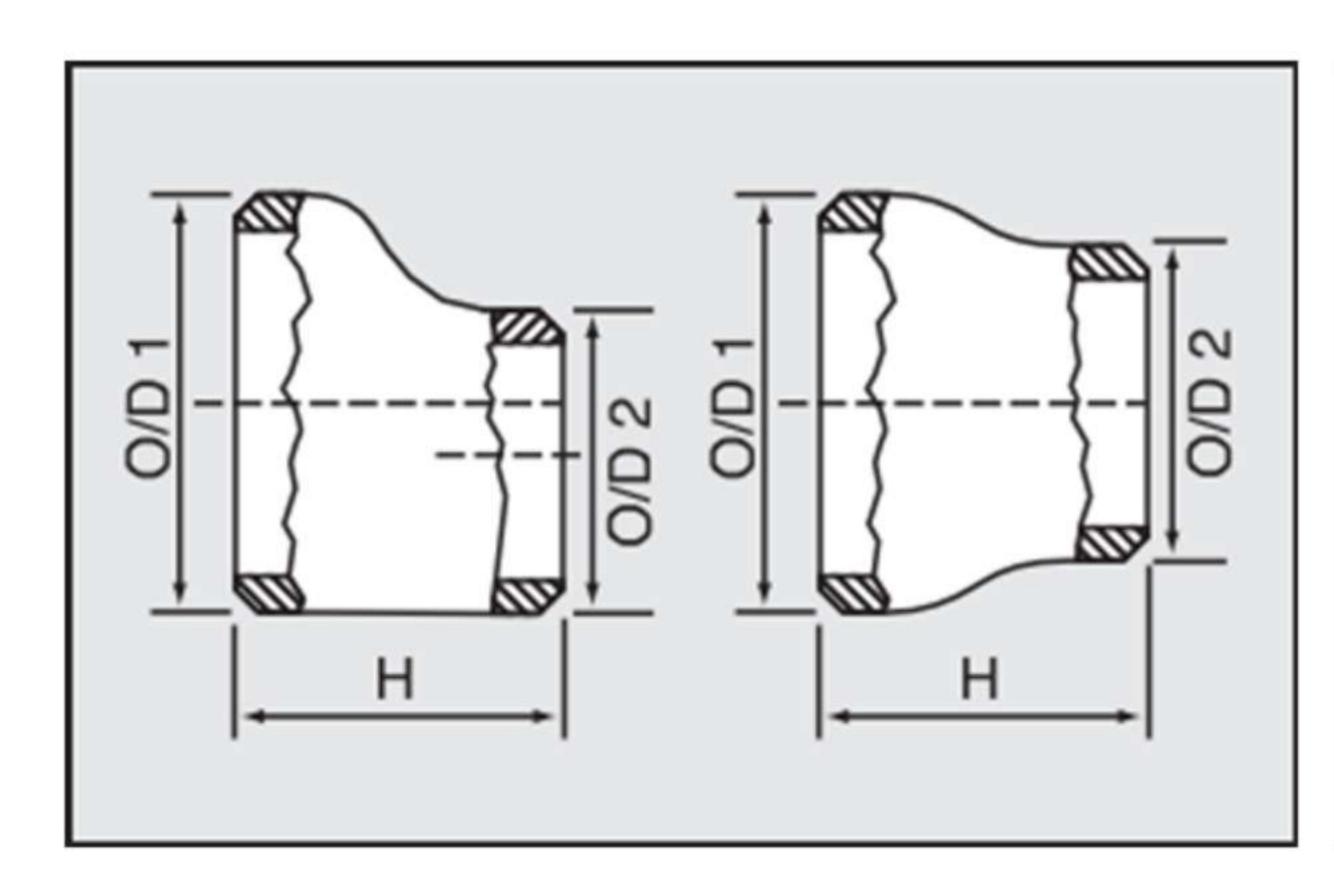


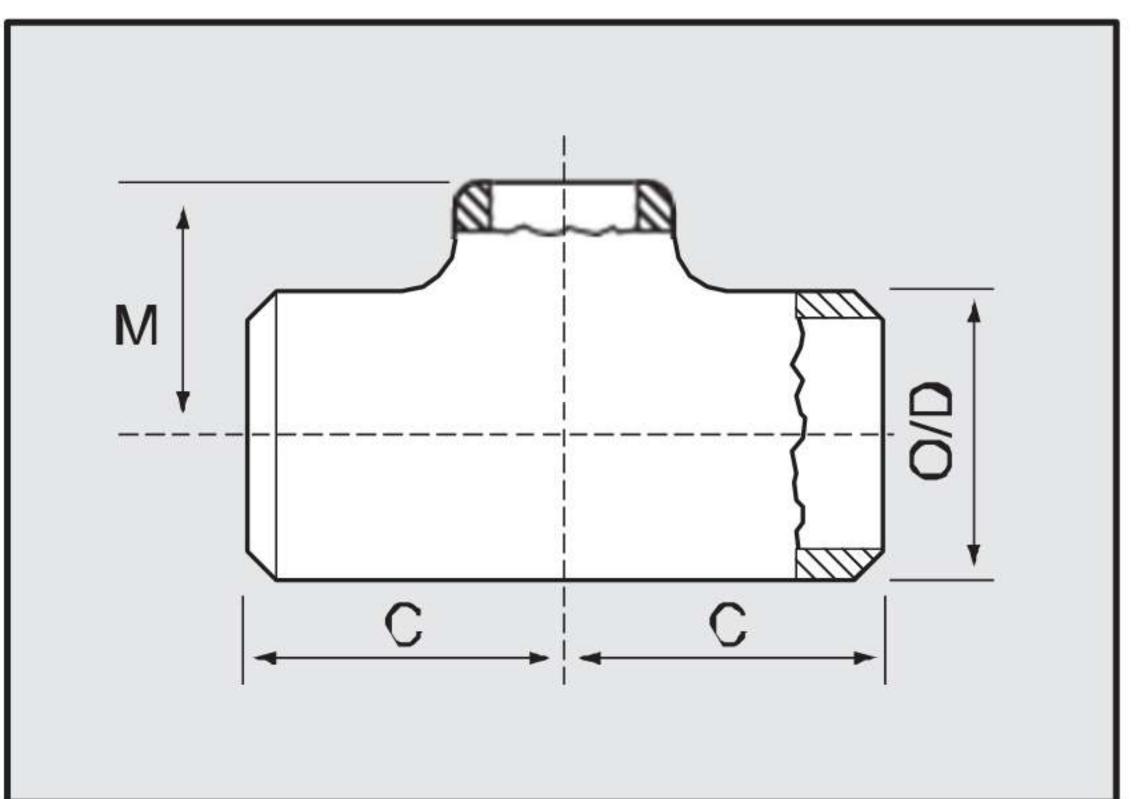
Nomir	nal Size	WT	and E	centric ccentric ucers	Re	ducing	Tees
mm OD1 X OD2	inch OD1 X OD2		Н	Weight	C	M	Weight
		5S		1.55			6.88
		10S		1.96			7.12
150 V 100	6 V 1	40S	140	4.09	1/12	120	9.70
150 X 100	6 X 4	80S	140	5.97	143	130	12.00
		160		9.91			19.92
		XXS		11.95			24.00
		5S		1.64			7.04
		10S		2.02			7.28
150 X 125	6 X 5	40S	140	4.31	143	137	9.92
130 X 123	0 / 3	80S	THU	6.27	143	137	12.27
		160		10.40			20.37
		XXS		12.54			24.55
		5S		2.16			12.12
		10S		3.02			13.49
200 X 100	8 X 4	40S	152	6.56	178	156	18.02
200 X 100	0 1	80S	132	9.25	170	130	24.24
		160		16.75			43.77
		XXS		16.20			42.23
		5S		2.21			12.40
		10S		3.09			13.80
200 X 125	8 X 5	40S	152	6.72	178	162	18.44
200 X 123	0 / 3	80S	132	9.69	170	102	24.80
		160		17.50			44.77
		XXS		16.96			43.18
		5S		2.30			12.68
		10S		3.20			14.11
200 X 150	8 X 6	40S	152	6.96	178	168	18.86
200 X 130	0 7 0	80S	132	10.15	1/0	100	25.36
		160		18.32			45.91
		XXS		17.75			44.18
		5S		3.79			21.25
		10S		4.74			23.25
250 X 100	10 X 4	40S	178	10.54	216	184	30.14
230 V 100	TOVA	80S	1/0	12.58	210		42.50
		160		28.32			95.45
		XXS		_			-

Nomir	nal Size	WT	and Ed	entric centric ucers	Red	ducing	Гees
mm OD1 X OD2	inch OD1 X OD2		H	Weight	C	M	Weight
		5S		3.92			21.50
		10S		4.90			23.06
250 14 25	40 V E	40S	470	10.89	246	404	30.49
250 X 125	10 X 5	80S	178	14.27	216	191	43.00
		160		32.09			96.36
		XXS					
		5S		4.01			22.00
		10S		5.01			23.60
250 V 150	10 V 6	40S	170	11.15	216	104	31.20
250 X 150	10 X 6	80S	178	14.82	216	194	44.00
		160		33.32			98.64
		XXS		: <b>-</b> :			_
		5S		4.17			22.50
	55	10S		5.21			24.14
250 v 200	10 1/ 0	40S	170	11.58	216	104	31.91
250 x 200	10 x 8	80S	178	15.61	216	194	45.00
		160	N	35.05			100.91
		XXS					<u>.</u> .
		5S		6.37			32.45
		10S		7.45			34.01
300 X 150	12 X 6	40S	203	15.51	254	219	53.64
200 V 120	12 / 0	80S	203	20.19	254	219	72.27
		160		52.73			189.09
		XXS		-			-
		5S		6.57			33.20
		10S		7.69			34.80
300 X 200	12 X 8	40S	203	16.02	254	229	54.55
300 X 200	12 / 0	80S	203	20.94	257	229	74.09
		160		54.55			193.64
		XXS					-
		5S		6.83			33.95
		10S		8.00			35.59
300 X 250	12 X 10	40S	203	16.67		241	55.91
300 A 230	17 \ 10	80S	203	21.68		<b>∠</b> ¬1	75.45
		160		56.36			197.73
		XXS					37° <b>—</b>

NOTE: Weights and dimensions listed above are a guide only. Dimensions in mm. Weights in kg.

<sup>\*</sup> There are 2 possible dimensions for this size, refer to ANSI B16.9



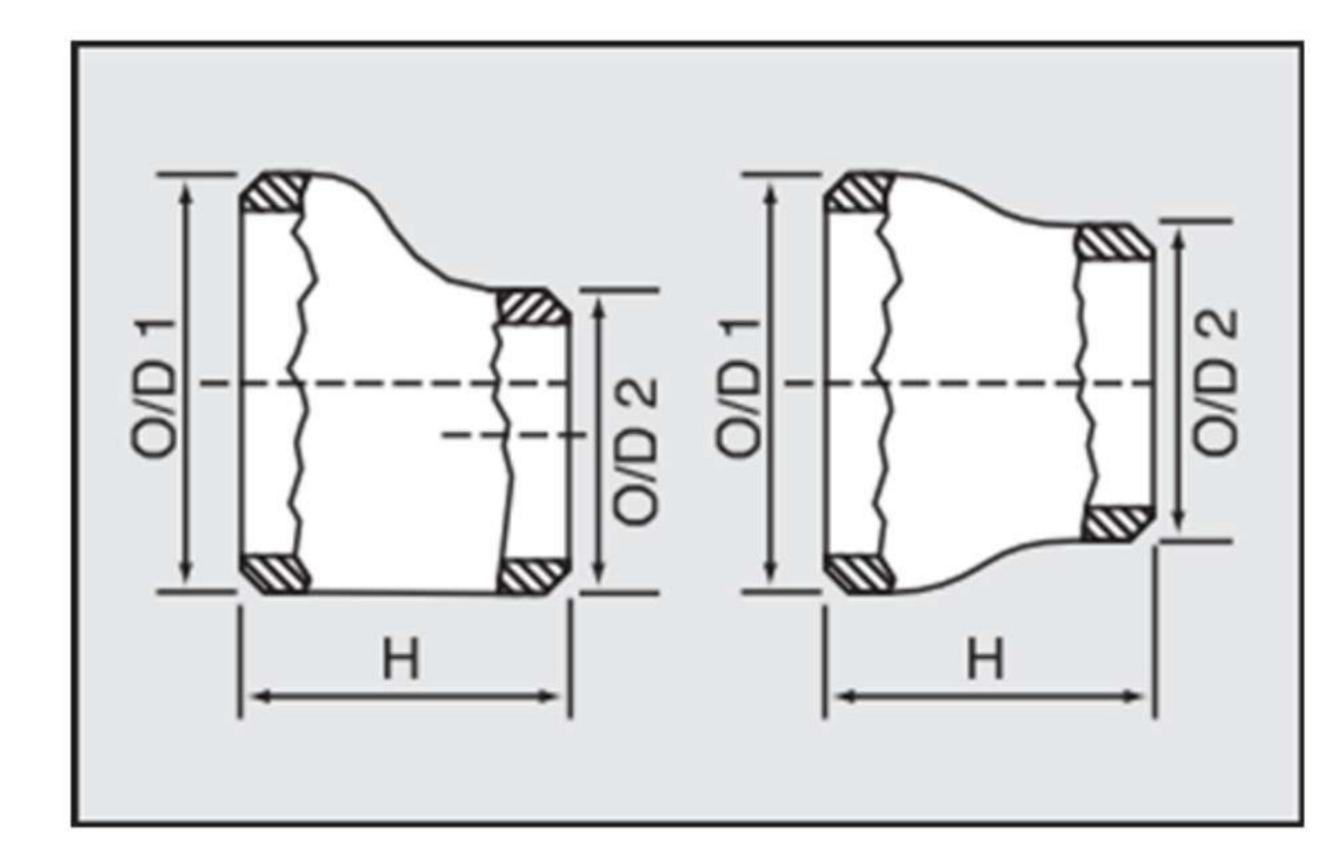


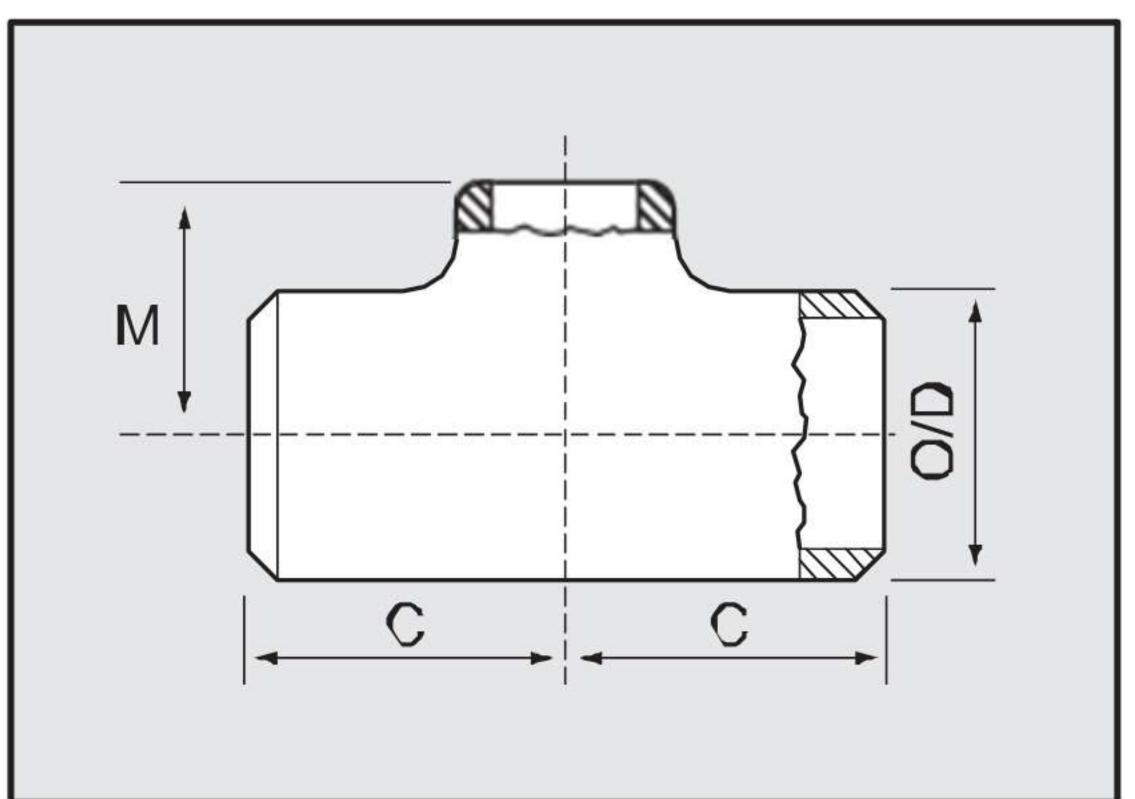
Nomir	nal Size	WT SCH	and Ed	centric ccentric ucers	Red	ducing	Tees
mm OD1 X OD2	inch OD1 X OD2		H	Weight	C	M	Weight
		5S		10.81			34.39
		10S		13.18			41.34
350 X 150	14 X 6	40S	330	26.36	279	238	67.27
330 X 130	1470	80S	330	35.37	2/9	230	80.91
		160		<u></u>			_
		XXS		_			_
		5S		11.41			34.79
		10S		13.91			41.83
350 X 200	14 X 8	40S	330	27.83	279	248	68.18
330 A 200	14 7 0	80S	330	36.92	2/9	240	81.82
		160		-			-
		XXS		-			-
		5S		11.84			35.60
		10S		14.44		7/	42.80
2E0 V 2E0	14 10	40S	220	28.89	270	257	70.00
350 X 250	14 X 10	80S	330	38.82	279	257	84.09
		160					
		XXS		_			-,
		5S		12.56			36.41
		10S		15.32			43.77
2F0 V 200	1111	40S	220	30.65	270	270	71.36
350 X 300	14 X 12	80S	330	40.44	279	270	85.91
		160		_			_
		XXS		-			_
		5S		14.72			44.43
		10S		16.73			50.00
400 V 200	1 C V O	40S	256	33.46	205	272	85.00
400 X 200	16 X 8	80S	356	44.31	305	273	102.27
		160		( <del></del> )			
		XXS		-			
		5S		15.62			44.95
		10S		17.75			50.91
400 1/ 050	46 1/ 40	40S	256	35.51	1 305	202	85.91
400 X 250	16 X 10	80S	356	46.36		283	103.64
		160					(T-17) 
		XXS		-			-

Nomir	nal Size	WT SCH	and Ed	entric centric ucers	Red	ducing	rees
mm OD1 X OD2	inch OD1 X OD2			Weight	C	M	Weight
		5S		16.18			45.91
		10S		18.39			51.82
400 V 200	16 V 10	40S	256	36.78	205	205	87.73
400 X 300	16 X 12	80S	356	47.73	305	295	105.91
		160		-			
		XXS		_			_
		5S		16.58			46.82
		10S		18.85			53.18
400 V 250	16 V 14	40S	256	37.69	205	205	90.00
400 X 350	16 X 14	80S	356	49.09	305	305	108.18
		160		-			-
		XXS		_			-
		<b>5</b> S		18.54			57.27
		10S		21.06			65.00
450 V 250	10 V 10	40S	201	42.13	2/2	200	110.45
450 X 250	18 X 10	80S	381	54.55	343	308	132.73
		160		-			·
		XXS		.—			-
		5S		18.94			58.18
		10S		21.52			65.91
450 X 300	18 X 12	40S	381	43.05	343	321	111.82
730 A 300	10 / 12	80S	201	57.27	STS	<b>JZ1</b>	134.55
		160					-
		XXS		_			-
		5S		19.31			59.55
		10S		21.95			67.27
450 X 350	18 X 14	40S	381	43.89	343	330	114.09
730 A 330	10 11	80S	301	57.73	J <sub>1</sub> J	330	137.73
		160					_
		XXS		-			<del>=</del>
		5S		19.84			60.91
		10S		22.55			69.09
450 Y 400	18 X 16	40S	381	45.09	2/12	330	116.82
450 X 400	10 V 10	80S	201	59.09	343	JJ0	140.45
		160		==			
		XXS		=			-

NOTE: Weights and dimensions listed above are a guide only. Dimensions in mm. Weights in kg.

<sup>\*</sup> There are 2 possible dimensions for this size, refer to ANSI B16.9





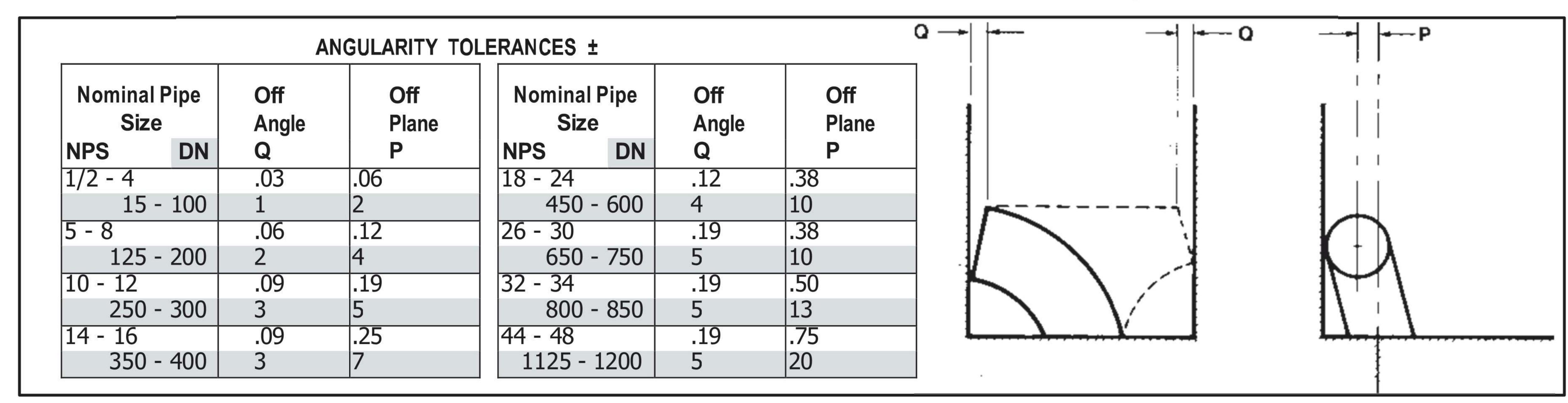
Nomir	nal Size	WT SCH	and Ed	centric ccentric ucers	Re	ducing	Tees
mm OD1 X OD2	inch OD1 X OD2		H	Weight	C	M	Weight
		5S		32.50			65.91
		10S		32.50			87.73
E00 V 200	20 V 12	40S	E00	65.00	201	246	138.18
500 X 300	20 X 12	80S	508	85.91	381	346	165.91
		160		-			_
		XXS		1_			_
		5S		32.95			66.82
		10S		38.23			89.09
500 X 350	20 X 14	40S	508	65.91	381	356	140.00
300 X 330	20 X 14	80S	300	87.27	201	330	168.18
		160					_
		XXS					_
		5S		33.18			68.18
		10S		38.49			90.91
500 X 400	20 X 16	40S	508	66.36	381	356	143.18
300 X 400	20 X 10	80S	300	88.64	201	330	171.82
		160	ā	(i <b></b> )			-
		XXS		3. <del></del>			-
		5S		34.32			70.00
		10S		26.17			93.18
500 X 450	20 X 18	40S	508	68.64	381	368	146.36
		80S		90.00	501		175.91
		160		-			-
		XXS		-			-
		5S		WOR			WOR
		10S		36.01			WOR
550 X 350	22 X 14	40S	508	59.08	419	381	WOR
		80S		76.97			WOR
		160		<b>-</b>			
		XXS					-
		5S		WOR			78.00
		10S		38.01			130.23
550 X 400	22 X 16	40S	508	62.40	419	381	130.23
		80S		81.25	419		169.22
		160		-			-
		XXS		** <b></b>			-

Nomir	nal Size	WT SCH	Concentric and Eccentric Reducers		Reducing Tees		
mm OD1 X OD2	inch OD1 X OD2		Н	Weight	C	M	Weight
		5S		WOR			78.47
		10S	S 508 S	WOR	419	394	131.14
	22 V 10	40S		WOR			131.14
550 X 450	22 X 18	80S		WOR			170.74
		160		-			-
		XXS		_			_
		5S		WOR			78.94
		10S		42.01			132.06
550 X 500	22 X 20	40S	508	68.94	419	406	132.06
330 X 300	22 / 20	80S	300	89.80	713	400	172.88
		160		-			) <u> </u>
		XXS		-			_
		5S		44.55		406	116.36
	24 X 16	10S		44.55	432		134.09
600 X 400		40S	508	76.82			194.55
000 A 400		80S		102.73			234.55
		160		•			-
		XXS		: <b>-</b>			A -
		5S		45.45	432	419	119.09
	10S 24 X 18 80S 160	10S	508	45.45			137.27
600 X 450		40S		78.64			199.09
		80S		104.55			240.00
		160		-			-
		XXS		-			-
		5S		46.82	432	432	121.82
	24 X 20	10S		46.82			140.00
600 X 500		40S	508	81.36			203.64
		80S		106.36			245.45
		160		(1 <u></u>			-
		XXS		11			-
600 X 550	24 X 22	5S	508	WOR	432	432	98.59
		10S		52.91			141.16
		40S		75.53			141.16
		80S		98.36			184.53
		160		-			_
		XXS		_			-

#### DIMENSIONS & TOLERANCES

All Fittings				90° & 45° Elbows Tees Crosses Laterals	Caps		180° Return	1S	Lap-Joint Stub Ends and Reducers		Lap-Joint	StubEnds	
NPS	Outside <sup>1</sup> Diameter at Bevel O.D.	Inside Diameter at End i.D.	Wall Thickness	Center to End A,B,C,M	Overall Length E	Center to Center H	Back to Face K	Parallelity of Planes of Ends		Outside Diameter of Lap G	Thickness of Lap	Fillet Radius of Lap R	Outside Diameter of Barrel
1/2 - 2 1/2	+.06 03	±.03		±.06	±.12	±.25	±.25	±.03	±.06	+0 03	+.06 -0	+0 03	
15 - 65	士1	±8		±2	±4	±7	±7	士1	±2	+0 -1	+2 -0	+0 -1	
3 - 3 1/2	±.06	±.06		±.06	±.12	±.25	±.25	±.03	±.06	+0 03	+.06 -0	+0 03	
80 - 90	±1	±1.6		±2	±4	±7	±7	<b>±1</b>	±2	+0 -1	+2 -0	+0 -1	
4	±.06	±.06		±.06	±.12	±.25	±.25	±.03	±.06	+0 03	+.06 -0	+0 06	
100		±1.6	less	±2	±4	±7	<b>±</b> 7	士1	±2			+0 -2	
5 - 6	+.09 06	±.06	hickr	±.06	±.25	±.25	±.25	±.03	±.06	+0 03	+.06 -0	+0 06	
125 - 150	+3 -1	±1.6	nal t	±2	±7	±7	±7	±1	±2	+0 -1		+0 -2	
8	+.09 06	±.06	Jom.	±.06	±.25	±.25	±.25	±.03	±.06	+0 03	+.06 -0	+0 06	
200	±2	±1.6	% Of I	±2	<b>±</b> 7	±7	±7	<b>±1</b>	1.0	172.1		+0 -2	
10	+.16 12	±.12	1/2%	±.09	±.25	±.38	±.25	±.06	±.09	+0 06	+.06 -0	+0 06	
250	+4 -3	±3.2	8	±2	±7	±10	±7	±2	±2			+0 -2	
12 - 18	+.16 12	±.12	than	±.09	±.25	.38	±.25	±.06	±.09	+0 06	+.06 -0	+0 06	
300 - 450	+4 -3	±3.2	less	±3	<b>±</b> 7	±10	±7	±2	1.3	+0 2	+2 -0	+0 -2	
20 - 24	±.25 19	±.19	Not	±.09	±.25	±.38	±.25	±.06	±.09	+0 06	+.06 -0	+0 06	
500 - 600		±4.8		±3	±7	±10	±7	±2	±3			+0 -2	
26 - 30	+.25 19	±.19		+.12	+.38				±.19				21.
650 - 750		±4.8		±3	±10				±5				page
32 - 48	±.25 19	±.19		±.19	±.38				±.19				유 :
800 - 1200	+7 -5	±4.8		±5	±10				±5				Refe

# ANGULARITY TOLERANCES, ASME/ANSI B16.9

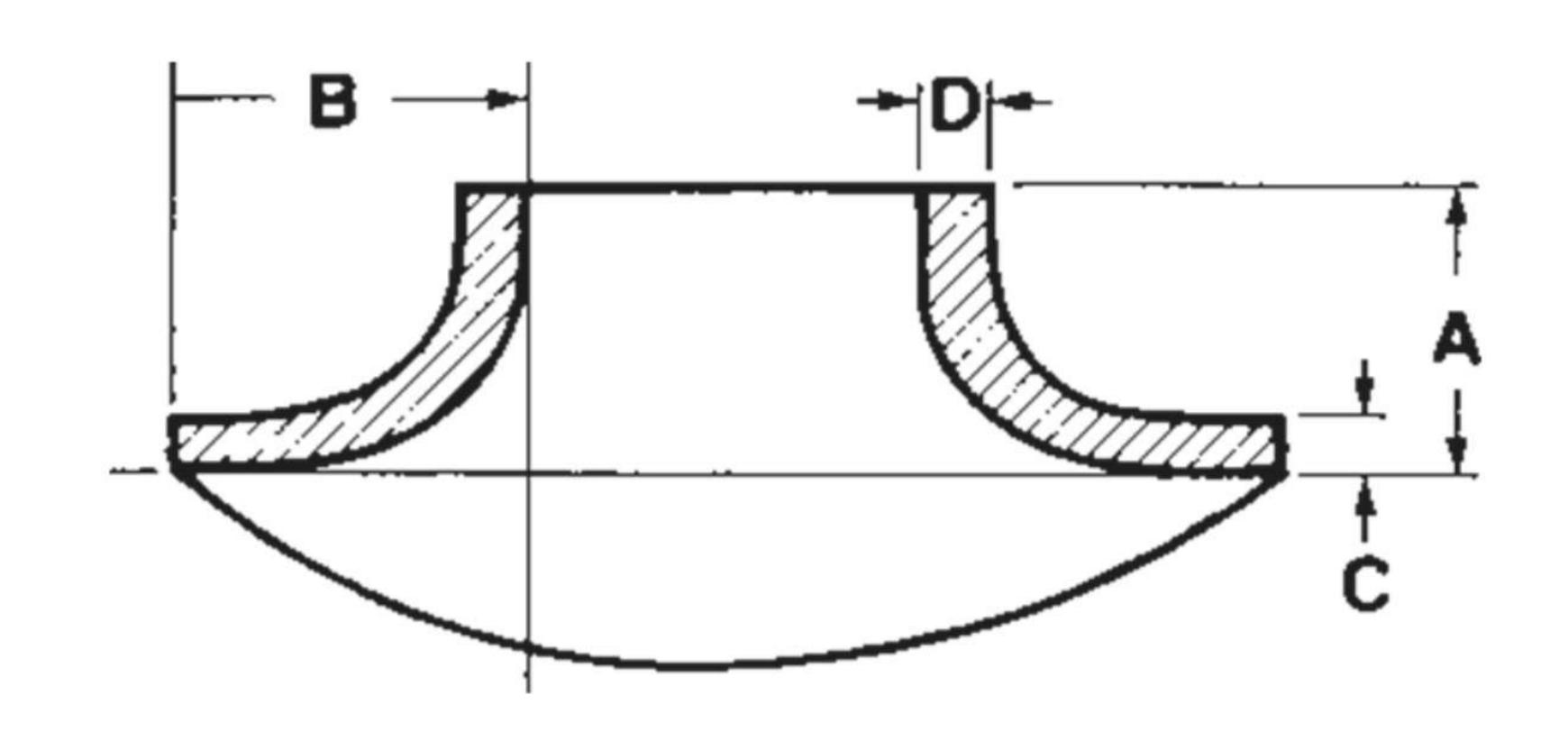


<sup>\*</sup>For design and dimensions of buttwelding ends see page 24.

INCHES

SADDLES

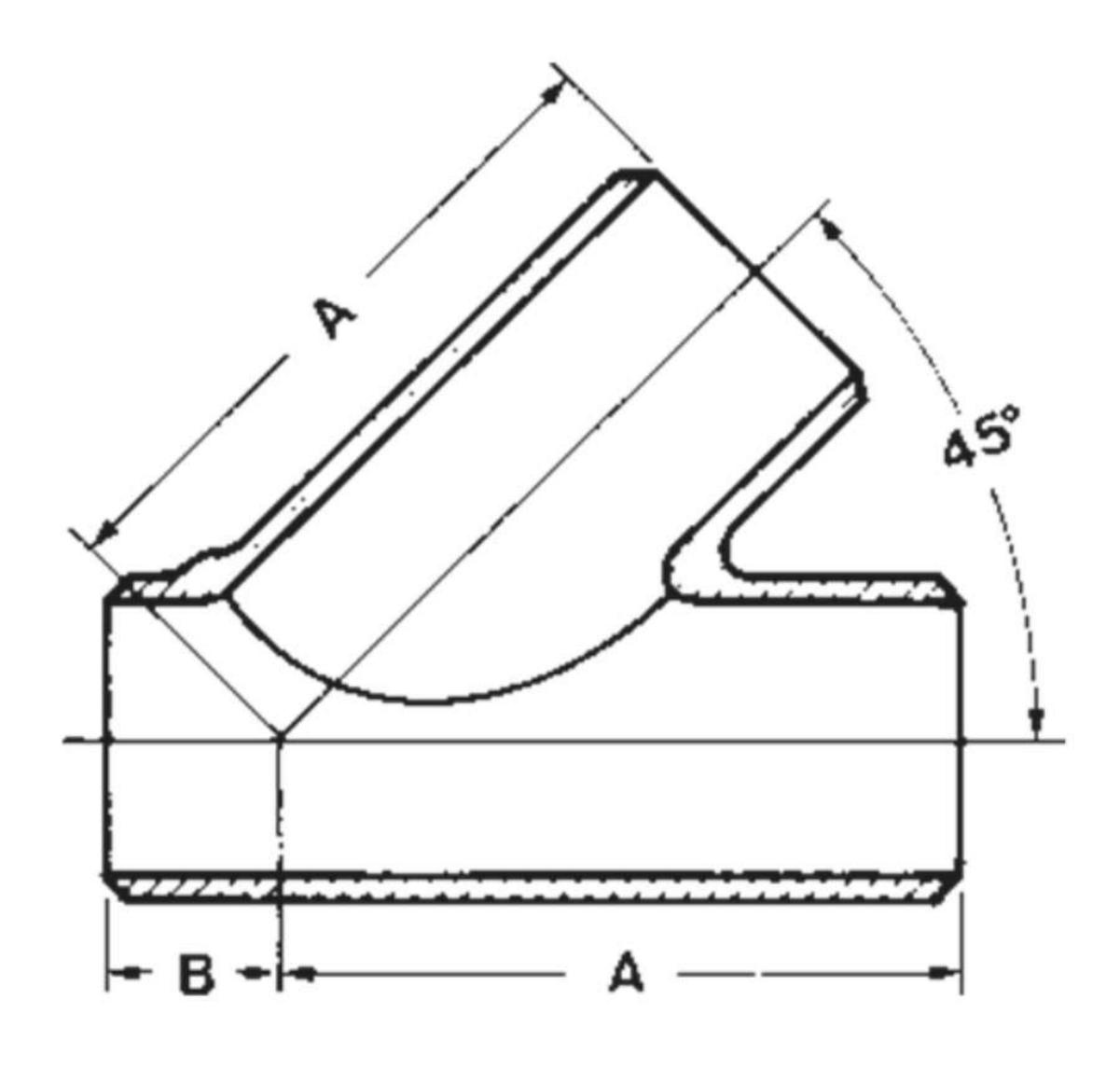
Carbon and ferritic alloy steel, ASTM A-234, A-515 Gr. 70 A-106 Gr. B



NPS         NPS         A         B         C         D           1/4         1/4 - 48         .63         .75         .19         .22           6         6 - 1200         16         19         4.8         5.6           1/2         1/2 - 48         .81         .88         .19         .22           15         15 - 1200         21         22         4.8         5.6           3/4         3/4 - 48         .81         1.25         .19         .22           20         20 - 1200         21         32         4.8         5.6           1         1 - 48         .88         1.31         .19         .22	Annrov
DN         DN         Company of the product of the pro	Approx. Weight
1/4       1/4 - 48       .63       .75       .19       .22         6       6 - 1200       16       19       4.8       5.6         1/2       1/2 - 48       .81       .88       .19       .22         15       15 - 1200       21       22       4.8       5.6         3/4       3/4 - 48       .81       1.25       .19       .22         20       20 - 1200       21       32       4.8       5.6	
6     6 - 1200     16     19     4.8     5.6       1/2     1/2 - 48     .81     .88     .19     .22       15     15 - 1200     21     22     4.8     5.6       3/4     3/4 - 48     .81     1.25     .19     .22       20     20 - 1200     21     32     4.8     5.6	
1/2       1/2 - 48       .81       .88       .19       .22         15       15 - 1200       21       22       4.8       5.6         3/4       3/4 - 48       .81       1.25       .19       .22         20       20 - 1200       21       32       4.8       5.6	.5
15     15 - 1200     21     22     4.8     5.6       3/4     3/4 - 48     .81     1.25     .19     .22       20     20 - 1200     21     32     4.8     5.6	.23
3/4       3/4 - 48       .81       1.25       .19       .22         20       20 - 1200       21       32       4.8       5.6	.5
20 20 - 1200 21 32 4.8 5.6	.23 7E
	.75
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 0
	1.0
	.45
1 1/7 1 1.25	1.0 .45
1 1/2     1 1/2 - 48     1.50     1.75     .25     .31       40     40 - 1200     38     44     6.4     7.9	2.0
2     2 - 48     1.50     2.00     .25     .31       50     50 - 1200     38     51     6.4     7.9	3.0
	1.35
2 1/2     2 1/2 - 48     1.63     2.13     .28     .31       65     65 - 1200     41     54     7.1     7.9	4.0 1.80
3     3 - 48     1.50     2.25     .31     .41       80     80 - 1200     38     57     7.9     10.4	5.0 2.25
3 1/2     3 1/2 - 48     1.75     2.25     .31     .41       90     90 - 1200     44     57     7.9     10.4	6.0 2.70
4 4 - 48 1.75 2.50 .38 .38	7.0
100   100 - 1200   44   530	3.15
5 5 - 48 2.00 3.00 .38 .44	12.0
125   125 - 1200   51   76   9.7   11.2	5.40
6 6 - 48 2.50 3.75 .44 .50	22.0
150   150 - 1200   64   95   11.2   12.7	10
8 8 - 48 2.75 4.25 .50	33.0
200 - 1200   70   108   112   127	15
10 10 49 50 50	45.0
250   250 - 1200   76   127   11.2   12.7	20
12 12 - 48 3 50 5 50 50	57.0
300   300 - 1200   89   140   11.2   12.7	26
14 14 - 48 6 00 50	76
350 350 - 1200 102 152 11.2 12.7	34
16         16 - 48         4.00         7.50         .44         .56	107
400   10   10   10   100   100   1100	48
18     18 - 48     4.25     8.00     .50     .63	152
450 450 - 1200 108 203 12.7 16.0	69
20 20 - 48 5.25 8.00 .50 .63	163
500 500 - 1200 133 203 12.7 16.0	73
24 24 - 48 6.00 9.50 .50 .63	248
600 600 - 1200 152 241 12.7 16.0	112

Saddles are used to reinforce intersecting welded junctions and are not intended to be used as pressure containing fittings. A vent hole prevents pressure build-up of welding gasses between saddle and header. Saddles are made from welding grade seamless steel, and are fully normalized.

INCHES	POUNDS



# WELDING LATERALS

Standard Weight and Extra Strong
Carbon and ferritic alloy steel, stainless steel

			STANDARDV	VEIGHT	EXTRA STRONG			
NPS D	DN	A	B	Approx. Weight	A	В	Approx. Weight	
1		5.75	1.75	1.85	6.50	2.00	2.75	
	25	146	45	.83	165	51	1.24	
1 1/4		6.25	1.75	2.60	7.25	2.25	4.10	
	32	159	45	1.17	184	57	1.85	
1 1/2		7.00	2.00	3.45	8.50	2.50	5.35	
	40	178	51	1.55	216	64	2.41	
2		8.00	2.50	4.95	9.00	2.50	7.80	
	50	203	64	2.23	229	64	3.51	
2 1/2		9.50	2.50	9.5	10.50	2.50	13.7	
	65	241	64	4.28	267	64	6.17	
3		10.00	3.00	12.0	11.00	3.00	19.2	
	80	245	76	5.40	279	76	8.6	
3 1/2		11.50	3.00	17.7	12.50	3.00	26.	
	90	292	76	8	318	76	12	
4		12.00	3.00	19.5	13.50	3.00	34.6	
	100	305	76	9	343	76	16	
5		13.50	3.50	29.2	15.00	3.50	51.4	
	125	343	89	13	381	89	23	
6		14.50	3.50	41.7	17.50	4.00	82.3	
	150	368	89	19	445	102	37	
8		17.50	4.50	77.5	20.50	5.00	135	
	200	445	114	35	521	127	61	
10		20.50	5.00	13	24.00	5.50	199	
	250	521	127	59	610	140	90	
12		24.50	5.50	190	27.50	6.00	279	
	300	622	140	86	699	152	126	
14		27.00	6.00	225	31.00	6.50	344	
	350	686	152	101	787	165	155	
16		30.00	6.50	290	34.50	7.50	432	
	400	762	165	131	876	191	194	
18		32.00	7.00	340	37.50	8.00	551	
	450	813	178	153	953	203	248	
20		35.00	8.00	412	40.50	8.50	637	
	500		203	185	1029	216	287	
24		40.50	9.00	554	47.50	10.00	903	
	600	1029	229	249	1207	254	406	

Laterals are fabricated from Grade B standard and extra strong seamless pipe.

The working pressure of any fabricated Lateral must be rated at only 40% of the allowable working pressure established for the pipe from which the lateral is made. Dimensions and price of 100% strength laterals will be furnished on request.

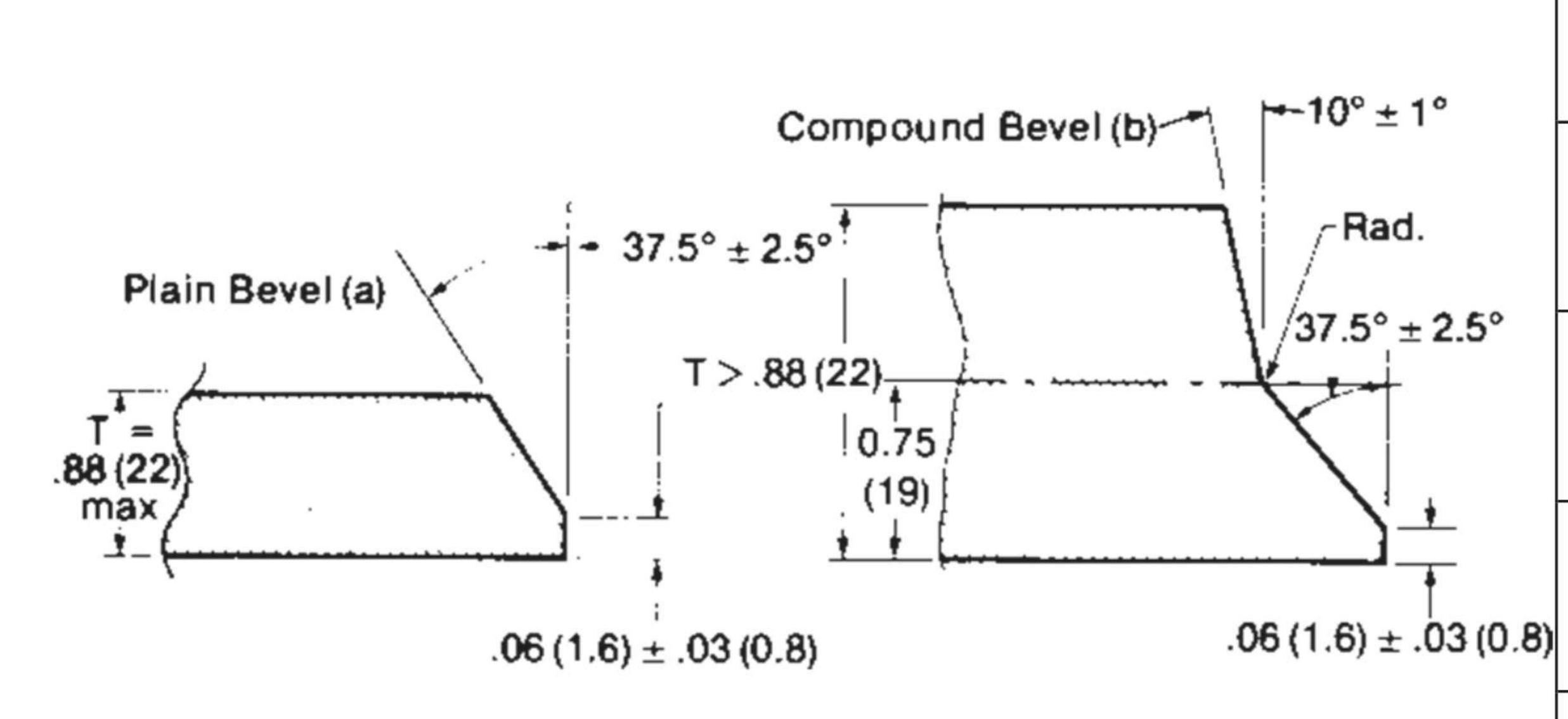
Laterals are also available in other materials, sizes and/or wall thicknesses.

\*Reducing laterals can be supplied with the same center-to-end dimensions as shown above.

#### **BUTT WELDING ENDS**

### ASME/ANSI B16.9

For fittings with wall thickness equal to that of the pipe to which they are to be



End Preparation
Cut square or slightly camfer, at mfr's option
Plain bevel as in sketch (a).
Compound bevel as in sketch (b).

 $x^* = 0.19$  (5) for carbon steel or ferritic alloy steel and 0.12 (4) for austenitic alloy steel.

Millimetres in brackets.

# SIZE RANGES ASME/ANSI B16.9

The following size ranges of Welding Fittings are covered by ANSI B16.9. "Steel Butt-Welding Fittings."
90° Long Radius Elbows
45° Long Radius Elbows
90° Long Radius Reducing Elbows2" to 24" incl.
Tees, Straight and Reducing Outlets
Crosses, Straight and Reducing Outlets
Welding Caps
Lap-Joint Stub Ends1/2" to 24" incl.
Welding Reducers
Long Radius Return Bends



#### Head Office:

Ground Floor Shop No. 8/12, Plot No. 25/33, Ardeshirdadi Street, C. P. Tank, Girgaon, Mumbai-400004 Maharashtra, India

#### Maharashtra Factory Unit-I

Plot Number 1776, Road Number 22, Steel Market Kalamboli, Panvel, Navi Mumbai-410218 Maharashtra, India

#### **Gujarat Unit-II**

Plot No.12, Jorajina Muada Post, Talod, Sabarkantha-383215 Gujarat-India

#### **Gujarat Uni-III**

Unit-II plot no. 275/276 horizon industrial park nh 48, at bamangam, tal karjan kandari karjan vadodara gujarat 391210 India

www.creativepiping.com | +918591195895 | sale@creativepiping.com