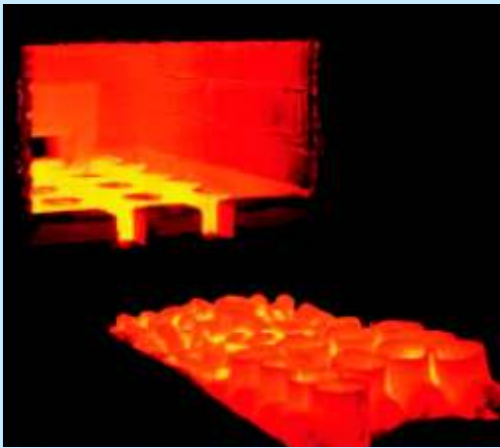
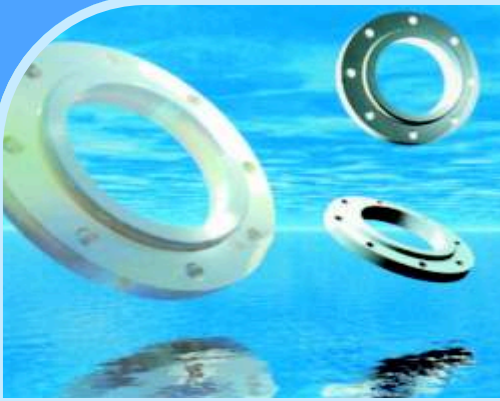




Topaz **Piping** Industries

Getting it Right, First Time, On Time, Everytime

Talking Piping ? Talk to us !





TOPAZ PIPING INDUSTRIES, today, is able to fulfill the services of the total piping accessories i.e. Pipe Fittings, Flanges and Pipes to the client's specification and to the international standards and codes. The supplies can be in bulk or any given small quantity, the dispatches are from ex-stock (Subject to availability) or within the minimum / shortest delivery period with part quantities distributed as per the clients requirement of piping needs and Materials viz. Carbon steel, Stainless Steel, Low Temperature Carbon Steel, Alloy Steel Steam Boiler Quality, Plus "Exotic" materials i.e. various grade Nickel, Monel, incoloy, Hastelloy, Inconel, Cupronickel & Titanium.

PRODUCT RANGE

PIPES

Types : SEAMLESS & WELDED

Sizes : (in various Schedules)

1/2"NB to 24" NB. (Seamless) & 1/2"NB to 72"NB. (ERW / SPIRAL)

Standards :

ASTM A 106 GR A / B / C

A 335 GR P 1, P 5, P 9, P11, P 12, P 22, P 91.

ASTM A 333 GR 3, GR 6.

ASTM A 334 Gr.1, Gr6, A161, A200,

ASTM A 312 GR. TP 304, 304L, 321, 347, 316, 316L, 316 Ti, 409.

API 5, A 5 AX, 5L, 5LX, X 46, X 51 & X 60,

IS 1239, 3589 (BLACK GR 330 & GR 410) SAW 672

Dimensions :

ANSI B 36.10 & B 36.19

PIPE FITTINGS

Elbows, Tees, Reducers, Caps, Return Bends, Crosses, Couplings, Stubends, O'Lets, Nipples etc.

Type : SEAMLESS, WELDED & FORGED (Socket Weld & Screwed)

Size : (in all sizes and Schedules)

(I) SEAMLESS & WELDED

Products	(SIZE) Seamless	(SIZE) WELDED
Elbows	2" NB to 24" NB	2" NB to 64" NB
Reducers	2" NB to 24" NB	2" NB to 100" NB
Tees	2" NB to 20" NB	2" NB to 60" NB
Caps	2" NB to 24" NB	2" NB to 100" NB
Stubends	2" NB to 24" NB	2" NB to 48" NB
Return Bends	2" NB to 12" NB	2" NB to 32" NB
Cross	2" NB to 12" NB	2" NB to 32" NB

(II) FORGED (SW & SCREWED)

Size : 1/2" NB TO 4" NB. (in various class)

Standards :

ASTMA 105

A 182 F-304 / 304L / 316 / 316L / 321

ASTMA 350 LF 1, LF 2, LF 3

ASTMA 182 F 5, F9, F11, F22, IS2062, IS 1239, IS 3589

ASTMA 234. WPA, WPB, WPC, WP 1, WP 5, WP 9, WP 11, WP 12, WP 22.

ASTMA 420 WPL 3, WPL 6,

ASTMA 403 WP 304 / 304L / 316L / 316 Ti / 321 / 347.

Dimensions :

ANSI B 16.11, B16.9, B 16.28, B 2.1, NPT, MSS-SP-43, MSS SP-48, MSS-SP-97, B 36.10.

FLANGES

Slip on, Weldneck, Blind, Lapjoint, Spectacle, Socketweld, Screwed, Threaded Ring Joint, Orifice.

Types : FORGED and PLATE

Sizes :

1/2" NB to 48" NB. CLASS - 150 Lbs to 2500 Lbs.

Standards :

ASTM A 105

A 182 F 304 / 304 L / 316 / 316 L / 316 Ti / 321 / 347

ASTM A 350 LF 1, LF 2, LF 3,

ASTM A 182 GR F 1, F 5, F9, F 11, F 12, F 22

Dimensions :

ANSI B 16.5, BS 1560. BS 10, BS 4504, IS 6392, B-2.1 NPT, API, DIN, JIS.

ANSI / ASME-B-16.47-series A (API-605) & series B (MSS SP 44)

SPECIALISED PIPING PRODUCTS

(I) PIPING SPOOLS : (CLADDED / NON-CLADDED)

Spoofs are a combination of various piping accessories / components such as pipes, fittings, flanges, valves, gaskets, fasteners etc. The products are fabricated based on designs and technical calculations by CAD/CAM and are fully compliant with the customer's engineering piping layouts, drawings and isometrics.

Spoofs are also fabricated and supplied as Clad (Bimetallic), which is an alternative to Solid High Alloy Piping products or plain Carbon Steel, with an inhibition treatment. The use of such products is economically advantageous for handling **Corrosive fluids** and high **pressure transportation lines**.

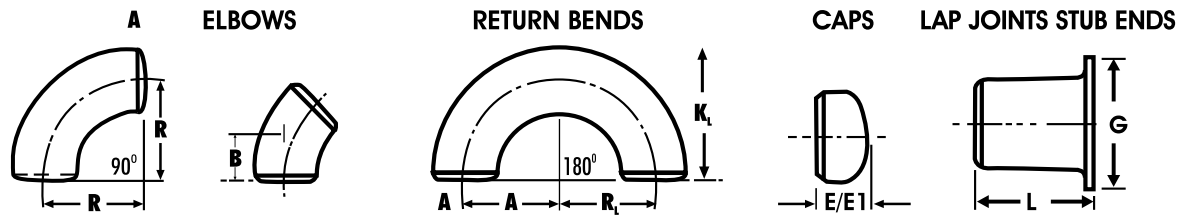
(II) JACKETED FITTINGS :

Special piping conditions : We fabricate the typical pipes, pipe fittings and jacketed profiles where the temperatures are to be maintained during process and transportation.

Critical Applications :

The above Piping Products are Designed, Processed (Hot / Cold), Manufactured / Fabricated by taking into consideration, Special Critical Conditions of Technical Quality Parameters (Nace, High Tensile - High Yield Strength, Stress Corrosion Cracking - SCC, Intergranular Corrosion - IGC, Hydrogen Sulphide Cracking - HSC, Hydrogen Induced Cracking - HIC, Heat Treatment, Annealing, Pickling, Passivation etc) Tested (Physically, Chemically & Hydraulically) & packed for Transportation in accordance to the Relevant Technical Specifications and Standards such as ASME, ASTM, ANSI, API, ISO DIN, BS, JIS, MSS, Steam Boiler, etc, governing the same.

DIMENSIONS OF BUTT WELDING FITTINGS TO ANSI B 16.9 / MSS SP 43



NOM BORE	PIPE OD	RADIUS 'R'		B (1.5 D)	K	E/E1	G	LENGTH 'L'	
		1D	1.5 D					MSS SP 43	ANSI B 16.9
½	21.3	12.7	38.1	15.9	48	25.4	34.9	50.8	76.2
¾	26.7	19.05	38.1	19.0	51	25.4	42.8	50.8	76.2
1	33.4	25.4	38.1	22.2	56	38.1	50.8	50.8	101.6
1 ¼	42.2	31.75	47.6	25.0	70	38.1	63.5	50.8	101.6
1 ½	48.3	38.1	57.15	28.6	83	38.1	73.0	50.8	101.6
2	60.3	50.8	76.2	35.0	106	44*	92.0	63.5	152.4
2 ½	73.0	63.5	95.25	44.0	132	51*	106	63.5	152.4
3	88.9	76.2	114.3	50.8	159	64*	127.0	63.5	152.4
3 ½	101.6	88.9	133.35	57.2	184	76*	139.7	76.2	152.4
4	114.3	101.6	152.4	63.5	210	76*	157.2	76.2	152.4
5	141.3	127.0	190.5	79.4	262	89*	185.7	76.2	203.2
6	168.3	152.4	228.6	95.3	313	102*	218	88.9	203.2
8	219.1	203.2	304.8	127.0	414	127*	270.0	101.6	203.2
10	373.1	254.0	381.0	158.7	518	152*	324.0	127.0	254.0
12	323.9	304.8	457.2	190.5	619	178*	381.0	152.4	254.0
14	355.6	355.6	533.4	222.2	711	191*	412.8	152.4	305.0
16	406.4	406.4	609.6	254.0	813	203*	470.0	152.4	305.0

NOM BORE	PIPE OD	RADIUS 'R'		B (1.5 D)	K	E/E1	G	LENGTH 'L'	
		1D	1.5 D					MSS SP 43	ANSI B 16.9
18	457.2	457.2	685.8	285.7	914	229*	533.4	152.4	305.0
20	508.0	508.0	762.0	317.6	1016	254*	584.2	152.4	305.0
22	558.8	558.38	838.2	343.0	1118	254*	641.4	152.4	305.0
24	609.6	609.6	914.4	381.0	1219	305*	692.2	152.4	305.0
26	660.0	660.0	991.0	405.0	--	267.0	--	--	--
28	711.0	771.0	1067.0	438.0	--	267.0	--	--	--
30	762.0	762.0	1143.0	470.0	--	267.0	--	--	--
32	813.0	813.0	1219.0	502.0	--	267.0	--	--	--
34	864.0	864.0	1295.0	533.0	--	267.0	--	--	--
36	914.0	914.0	1372.0	565.0	--	267.0	--	--	--
38	965.0	965.0	1448.0	600.0	--	305.0	--	--	--
40	1016.0	1016.0	1524.0	632.0	--	305.0	--	--	--
42	1067.0	1067.0	1600.0	660.0	--	305.0	--	--	--
44	1118.0	1118.0	1676.0	695.0	--	343.0	--	--	--
46	1168.0	1168.0	1753.0	727.0	--	343.0	--	--	--
48	1219.0	1219.0	1829.0	759.0	--	343.0	--	--	--
--	--	--	--	--	--	--	--	--	--

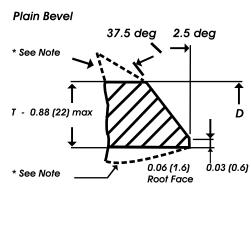
* All dimensions are in mm

ENDS PREPARATION AS PER ANSI B 16.9

NORMAL WALL THICKNESS (t)	END PREPARATION
Less the X*	Cut square or slightly chamfer, at mfr's option
X* to 0.88 incl. (22)	Plain bevel as in sketch "A"
More than 0.88 (22)	Compound bevel as in sketch "B"

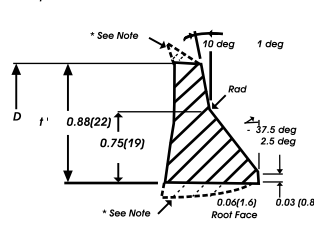
X* = 0.19 (5) for Carbon Steel or Ferritic Alloy Steel and 0.12 (4) for Austenitic Alloy Steel

SKETCH "A"

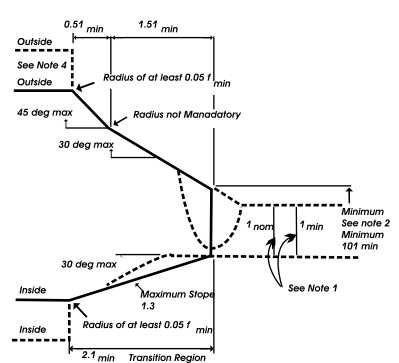


SKETCH "B"

Compound Bevel

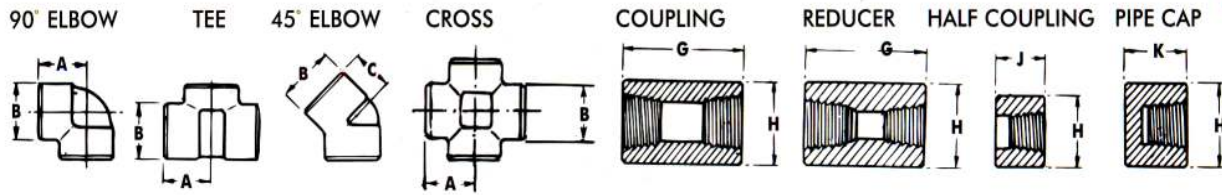


TRANSITION CONTOUR



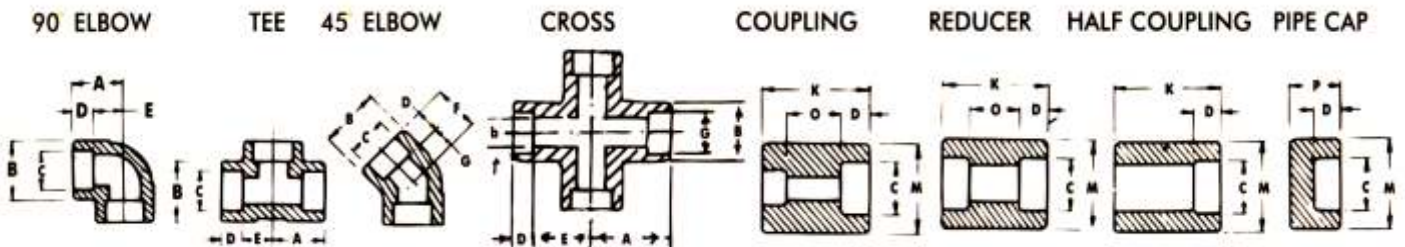
- The value t min. is whichever of the following is applicable:
 - the minimum ordered wall thickness of the pipe;
 - 0.875 times the nominal wall thickness of pipe ordered to a pipe schedule wall thickness which has as under tolerance of 12.5%
 - The maximum thickness at the end of the component is:
 - the greater of t min + 0.15 in. (4 mm) or, 1.15 t min. when ordered on a minimum wall basis
 - the greater of t min. + 0.15 in. (4 mm) or 1.10 t nom. When ordered on a nominal wall basis.
 - Weld bevel is shown for illustrations only
 - Where transitions using maximum slope do not intersect outside surface, as shown by phantom outline, maximum slopes shown or alternate radii shown in phantom outlines shall be used
 - Dimension is parenthesis are in millimeters. Other are in inches.
- Note : 2. The shape of cap shall be ellipsoidal
 Note (2) of specification ANSI B 16.9 for cap E1 & E2 to be consider.
 Length E1 applies for thickness greater than that given in column "Limiting Wall Thickness" for NPS 24 (DN 600) and Smaller. For NPS 26 (DN 650) and larger, length E1 shall be by agreement between manufacturer and purchaser.
E1 Height

DIMENSIONS IN M.M. OF SCREWED FITTINGS TO ANSI B 16.11 THREAD TO ANSI B 2.1



NOM BORE	PIPE O.D.	3000 LBS SERIES									6000 LBS SERIES							
		T	A	B	C	L	G	H	J	K	A	B	C	L	G	H	J	K
1/8	10.29	5.0	21	22	17	6.7	32	16	16	19	25	25	19	6.7	32	22	16	
1/4	13.72	5.0	25	25	19	10.2	35	19	17.5	25	29	33	22	10.2	35	25	17.5	27
3/8	17.15	5.0	29	33	22	10.4	38	22	19	25	33	38	25	10.4	38	32	19	27
1/2	21.34	6.5	33	38	25	13.6	48	28	24	32	38	46	28	13.6	48	38	24	33
3/4	26.67	6.5	38	46	28	13.9	51	35	25.5	37	44	56	33	13.9	51	44	25.5	38
1	33.40	9.5	44	56	33	17.3	60	44	30	41	51	62	35	17.3	60	57	30	43
1-1/4	42.16	9.5	51	62	35	18.0	67	57	33.5	44	60	75	43	18.0	67	64	33.5	46
1-1/2	48.26	11.2	60	75	43	18.4	79	64	39.5	44	64	84	44	18.4	79	76	39.5	48
2	60.32	12.5	64	84	44	19.2	86	76	43	48	83	102	52	19.2	86	92	43	51
2-1/2	73.02	16	83	102	52	28.9	92	92	46	60	95	121	64	28.9	92	108	43	64
3	88.90	19	95	121	64	30.5	108	108	54	65	106	146	79	30.5	108	127	54	68
4	114.30	22	114	152	79	33.0	121	140	60.5	68	114	152	79	33.0	121	159	60.5	75

DIMENSIONS IN M.M. OF SOCKET WELD FITTINGS TO ANSI B 16.11



NOM BORE	PIPE O.D.	3000 LABS SERIES & 6000 LBS SERIES										3000		P
												6000		
		A	B	C	D	E	F	K	G	3000	6000	H	O	
1/8	10.29	19.5	17.16	10.8	9.5	10	16.5	25.5	7	6.80	4.0	25.5	6.5	14.3
		21.5	17.56			12	18.5		9					
1/4	13.72	19.5	20.80	14.2	9.5	10	16.5	25.5	7	9.25	6.35	25.5	6.5	14.3
		21.5	22.16			12	18.5		9					
3/8	17.15	21.5	24.60	17.6	9.5	12	16.5	25.5	7	12.55	9.15	27.0	6.5	14.3
		24.5	26.02			15	18.5		9					
1/2	21.34	23.5	29.98	21.8	9.5	14	19.0	28.5	9.5	15.80	11.75	32.0	9.5	15.9
		26.5	32.54			17	22.0		12.5					
3/4	26.67	30.0	35.74	27.2	12.5	17.5	24.0	34.5	11.5	20.95	15.55	36.5	9.5	18.9
		33.0	37.40			20.5	27.0		14.5					
1	33.40	33.0	43.86	33.9	12.5	20.5	24.5	37.5	12.0	26.65	20.70	41.0	12.5	22.1
		37.0	45.68			24.5	28.5		16.0					
1-1/4	42.16	37.5	53.26	42.7	12.5	25.0	28.0	37.5	15.5	35.05	29.45	42.5	12.5	22.1
		41.5	55.24			29.0	32.0		19.5					
1-1/2	48.26	42.5	59.88	48.8	12.5	28.0	31.0	37.5	18.5	40.85	33.95	44.5	12.5	23.7
		46.5	61.90			34.0	35.0		22.5					
2	60.32	52.0	73.28	61.2	16	36	39.5	51.0	23.5	52.50	42.85	57.0	19	28.7
		56.0	75.56			40	43.5		27.5					
2-1/2	73.02	54.5	89.24	73.9	16	38.5	42.0	51.0	26.0	62.70	-	59.0	19	-
		59.5	91.2			46.5	47		31.0					
3	88.90	70.5	106.40	89.80	16	54.5	46.0	51.0	30.0	77.90	-	60.5	19	-
		75.5	109.34			59.5	50		34.0					
4	114.30	85.0	133.90	115.20	19	66.0	57.5	57.0	38.5	102.25	-	67.0	19	-
		90.0	137.08			71.0	62.5		43.5					

Note : For 6000 lbs socket weld / 3000 lbs screwed fittings, forgings of one size higher will be supplied

ANSI PIPE SCHEDULE SI-UNITS (METRIC)



OD's = mm
Wall thickness = mm
Weight = kg/m (plain end mass)

Dimension and weights of pipes to
ANSI / ASME
B 36.10 and B 36.19

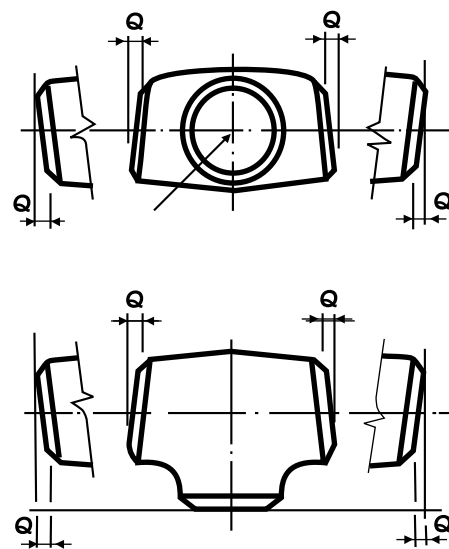
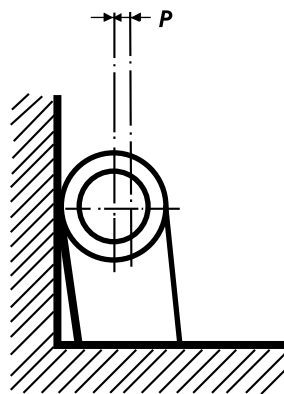
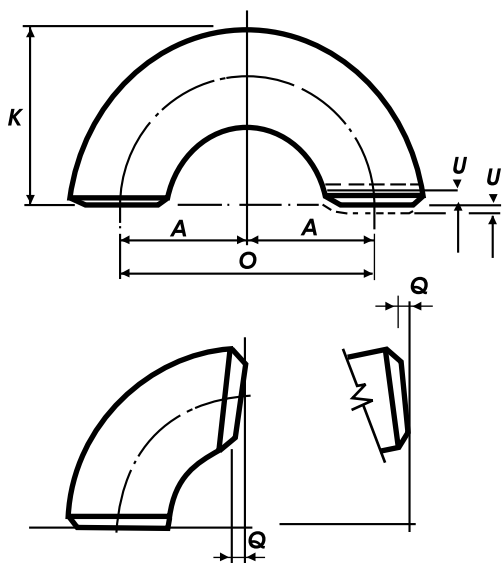
For 5 S, 10S, 40 S, 80S : Figures are based on Austentic Steel

Nominal Pipe size Inches	OD mm	S C H E D U L E S																
		5 S	10 S	10	20	30	STD	40 S	40	60	XS	80 S	80	100	120	140	160	XXS
		T H I C K N E S S / W E I G H T																
1/8	10.30		1.24 0.28	1.24 0.28		1.45 0.32	1.73 0.37	1.73 0.36	1.73 0.37		2.41 0.47	2.41 0.48	2.41 0.47					
1/4	13.70		1.65 0.51	1.65 0.48		1.85 0.54	2.24 0.63	2.24 0.63	2.24 0.63		3.02 0.80	3.02 0.82	3.02 0.80					
3/8	17.10		1.65 0.64	1.65 0.53		1.85 0.7	2.31 0.84	2.31 0.86	2.31 0.84		3.20 1.10	3.20 1.12	3.20 1.10					
1/2	21.30	1.65 0.82	2.11 1.01	2.11 1.04		2.41 1.12	2.77 1.27	2.77 1.30	2.77 1.27		3.73 1.62	3.73 1.65	3.73 1.62				4.78 1.95	7.47 2.55
3/4	26.70	1.65 1.04	2.11 1.31	2.11 1.28		2.41 1.44	2.87 1.69	2.87 1.71	2.87 1.69		3.91 2.20	3.91 2.24	3.91 2.20				5.56 2.90	7.82 3.64
1	33.40	1.65 1.33	2.77 2.13	2.77 2.09		2.9 2.18	3.38 2.50	3.38 2.55	3.38 2.50		4.55 3.24	4.55 3.29	4.55 3.24				6.35 4.24	9.09 5.45
1 1/4	42.20	1.65 1.68	2.77 2.76	2.77 2.7		2.97 2.87	3.56 3.39	3.56 3.46	3.56 3.39		4.85 4.47	4.85 4.56	4.85 4.47				6.35 5.61	9.70 7.77
1 1/2	48.30	1.65 1.95	2.77 3.17	2.77 3.11		3.18 3.53	3.68 4.05	3.68 4.13	3.68 4.05		5.08 5.41	5.08 5.51	5.08 5.41				7.14 7.25	10.15 9.56
2	60.30	1.65 2.44	2.77 4.01	2.77 3.93		3.18 4.48	3.91 5.44	3.91 5.54	3.91 5.44		5.54 7.48	5.54 7.63	5.54 7.48				8.74 11.11	11.07 13.44
2 1/2	73.00	2.11 3.77	3.05 5.36	3.05 5.26		4.78 8.04	5.16 8.63	5.16 8.81	5.16 8.63		7.01 11.41	7.01 11.64	7.01 11.41				9.53 14.92	14.02 20.39
3	88.90	2.11 4.60	3.05 6.59	3.05 6.45		4.78 9.92	5.49 11.52	5.49 11.52	5.49 11.52		7.62 15.27	7.62 15.59	7.62 15.27				11.13 21.35	15.24 27.68
3 1/2	101.60	2.11 5.29	3.05 7.55	3.05 7.4		4.78 11.41	5.74 13.57	5.74 13.82	5.74 13.57		8.08 18.63	8.08 19.01	8.08 18.63					
4	114.30	2.11 5.96	3.05 8.52	3.05 8.36		4.78 12.91	6.02 16.07	6.02 16.40	6.02 16.07		8.56 22.32	8.56 22.77	8.56 22.32	11.13 28.32			13.49 33.54	17.12 41.03
5	141.30	2.77 9.67	3.40 11.82	3.4 11.57			6.55 21.77	6.55 22.20	6.55 21.77		9.53 30.97	9.53 31.59	9.53 30.97		12.70 40.28		15.88 49.11	19.05 57.43
6	168.30	2.77 11.55	3.40 14.13	3.4 13.84			7.11 28.26	7.11 28.83	7.11 28.26		10.97 42.56	10.97 43.42	10.97 42.56		14.27 54.20		18.26 67.56	21.95 79.22
8	219.10	2.77 15.09	3.76 20.37	3.76 19.96	6.35 33.31	7.04 36.81	8.18 42.55	8.18 43.39	8.18 42.55	10.31 53.08	12.70 64.64	12.70 65.95	12.70 64.64	15.09 75.92	18.26 90.44	20.62 100.92	23.01 111.27	22.23 107.92
10	273.10	3.40 23.08	4.19 28.34	4.19 27.76	6.35 41.77	7.80 51.03	9.27 60.31	9.27 61.52	9.27 60.31	12.70 81.55	12.70 81.55	12.70 83.19	12.70 96.01	15.09 114.75	18.26 133.06	21.44 155.15	25.40 172.33	25.40 155.15
12	323.90	3.96 31.89	4.57 36.73	4.57 36.00	6.35 49.73	7.92 65.20	9.53 73.88	9.53 75.52	10.31 79.73	14.27 108.96	12.70 97.46	12.70 99.43	12.70 132.08	17.48 159.91	21.44 186.97	25.40 208.14	28.58 238.76	33.32 186.97
14	355.60	3.96 36.06	4.78 42.14	6.35 54.69	7.92 67.90	9.53 81.33	9.73 81.33		11.13 94.55	15.09 126.71	12.70 107.39		19.05 158.10	23.83 194.96	27.79 224.65	31.75 253.56	35.71 281.70	
16	406.40	4.19 42.41	4.78 48.26	6.35 62.64	7.92 77.83	9.53 93.27	9.53 93.27		12.70 123.30	16.66 160.12	12.70 123.30		21.44 203.53	26.19 245.56	30.96 286.64	36.53 333.19	40.49 365.70	
18	457.00	4.19 47.77	4.78 54.36	6.35 70.57	7.92 87.71	11.13 122.38	9.53 105.16		14.27 155.80	19.05 205.74	12.70 139.15		23.88 254.55	29.36 309.62	34.93 363.56	39.67 408.26	45.24 459.37	
20	508.00	4.78 60.46	5.54 70.00	6.35 78.55	9.53 117.15	12.70 155.12	9.53 117.15		15.09 183.42	20.62 247.83	12.70 155.12		26.19 311.17	32.54 381.53	38.10 441.49	44.45 508.11	50.01 564.81	
22	559.00	4.78 66.57	5.54 77.06	6.35 86.54	9.53 129.13	12.70 171.09	9.53 129.13			22.23 294.25	12.70 171.09		28.58 373.83	34.93 451.42	41.28 527.02	47.63 600.63	53.98 672.26	
24	610.00	5.54 84.16	6.35 96.37	6.35 94.53	9.53 141.12	14.27 209.64	9.53 141.12		17.48 255.41	24.61 355.26	12.70 187.06		30.95 442.08	38.89 547.71	46.02 640.03	52.37 720.15	59.94 808.22	
26	660.00			7.92 127.36	12.70 202.70		9.53 152.87				12.70 202.72							
28	711.00			7.92 137.32	12.70 218.69	15.88 271.21	9.53 164.85				12.70 218.69							
30	762.00	6.35 120.72	7.92 150.36	7.92 147.28	12.70 234.67	15.88 292.18	9.53 176.84				12.70 234.67							
32	813.00			7.92 157.24	12.70 250.64	15.88 312.15	9.53 188.82		17.48 342.91		12.70 250.64							
34	864.00			7.92 167.20	12.70 266.61	15.88 332.12	9.53 200.31		17.48 364.90		12.70 266.61							
36	914.00			7.92 176.96	12.70 282.27	15.88 351.70	9.53 212.56		19.05 420.42		12.70 282.27							
38	965.00						9.53 224.54				12.70 298.24							
40	101.00						9.53 236.53				12.70 314.22							
42	1067.00						9.53 248.52				12.70 330.19							
44	1118.00						9.53 260.50				12.70 346.16							
46	1168.00						9.53 272.25				12.70 351.82							
48	1219.00						9.53 284.24				12.7 377.79							



DIMENSIONAL TOLERANCES AS PER ANSI B 16.9 / B 16.28 / MSS SP-43 / MSS SP-75.

ALL FITTINGS								90° / 60° / 45° / 30° ENBOWS AND TEES			REDUCERS			180° RETURNS						CAPS			ANGULARITY TOLERANCE					
Nominal Pipe Size Inch.	Outside Diameter at Bevel		Inside Diameter at End		Wall Thickness			Center to End Dimension			Overall Lenght			Center To Center Dimension		Back to Face Dimension		Alignment of Ends		Overall Length			Nominal Pipe Size Inch.	Off Angle		Off Plane		
	D				T			A,B,C,M			H			O		K		U		E/E1				Q		P		
	(1)B 16.9 [Note1,6]	MSS SP 75	(2)B 16.9 [Note1,7]	MSS SP 75	B 16.9 [Note7]	MSS SP 43	MSS SP 75	B 16.9	MSS SP 43	MSS SP 75	B 16.9	MSS SP 43	MSS SP 75	B 16.9	MSS SP 43	B 16.9	MSS SP 43	B 16.9	MSS SP 43	B 16.9	MSS SP 43	MSS SP 75	B 16.9	MSS SP 75	B 16.9	MSS SP 75		
½"to2½"	+ 1.6		±0.8					From½"	From¾"		From½"	From¾"	16"to	From½"	From¾"	From½"	From¾"	From½"	From¾"	From½"	From¾"		From½"	±1	16"to	±2	16"to	
	-0.8							to 24"	to 8"		to 24"	to 8"	to 8"	to 24"	to 24"	to 8"	to 8"	to 4"	to 4"	to 4"	to 4"		5"to 8"	±2	24"	±4	24"	
		±0.79	±1.6																				10"to 12"	±2		±5	±6.4	
																								14"to16"	±3		±6	
3"to4"	±1.6			From 16" to 36"	Not Less Than 87.5% of Nominal Thk.					From 16"																		
5"to8"	±2.4	+ 1.59		From 16" to 36"	Not Less Than 87.5% of Nominal Thk.			From26"		± 2.4																		
10"to18"	+ 4	+ 2.38	±3.2	± 24	87.5% of Nomin Thk.			16"to	± 3	From10"	From26"		From26"	From10"	From10"			From10"	From10"	From5"		From16"			± 2.4		± 12.7	
20"to48"	+ 6	+ 3.17	±4.8	From38"				26"to	From32"	From38"	From26"	± 2.38	38"to	OUT OF ROUNDNESS MSSSP75(3)						From	From	26"	32"to42"	± 5	± 3.2	± 13	± 19	

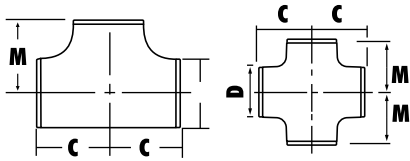


1. Out of round is the sum of absolute values of plus and minus tolerance.
2. The inside diameter at ends and the nominal wall thickness are to be specified by the purchaser.
3. Out of roundness tolerances shall be the difference between the max. dia. measured on any radial cross-section.
4. All dimension are in millimeters except nominal pipe size which are in inches.
5. Tolerance are equal plus & minus except as noted.
6. This tolerance may not apply in localized areas of Formed Fittings where increased wall thickness is required to meet design requirements of para 2.2 of ANSI B.16.9
7. Inside diameter & Nominal wall thickness are to be specified by the purchaser.

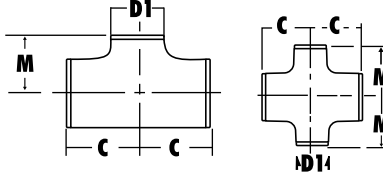


DIMENSIONS OF BUTT WELDING FITTINGS TO ANSI B 16.9 (up to 48") / MSS SP 43 (up to 24")

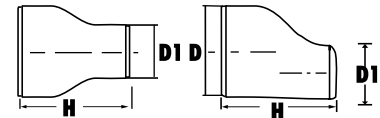
EQUAL TEE & CROSS



UNEQUAL TEE & CROSS



CONCENTRIC & ECCENTRIC REDUCERS

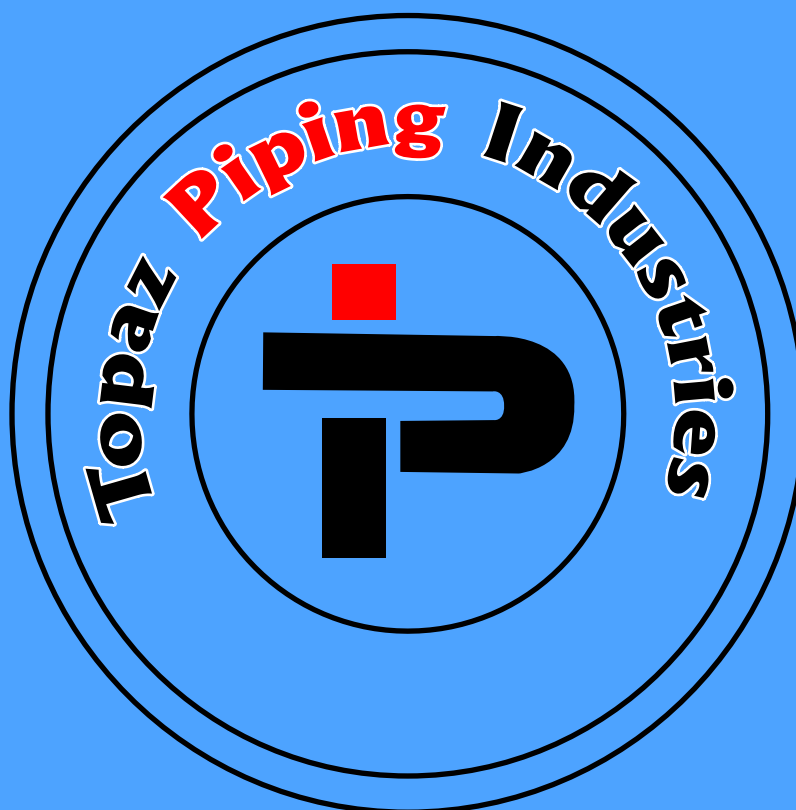


Nominal Pipe Size	Center to End Run	Center to End Branch	Length	Nominal Pipe Size	Center to End Run	Center to End Branch	Length	Nominal Pipe Size	Center to End Run	Center to End Branch	Length	Nominal Pipe Size	Center to End Run	Center to End Branch	Length	Nominal Pipe Size	Center to End Run	Center to End Branch	Length	Nominal Pipe Size	Center to End Run	Center to End Branch	Length								
D x D1	C	M	H	D x D1	C	M	H	D x D1	C	M	H	D x D1	C	M	H	D x D1	C	M	H	D x D1	C	M	H								
1x1	38	38		5x5	124	124	-	18x18	343	343	-	30x30	559	559	-	38x38	711	711	-	44x44	813	762	-								
1x½	38	38	51	5x2	124	105	127	18x16	343	330	381	30x28	559	546	610	38x36	711	711	610	44x42	813	762	610								
1x¾	38	38	51	5x2½	124	108	127	18x14	343	330	381	30x26	559	546	610	38x34	711	698	610	44x40	813	749	610								
1¼x1¼	48	48	51	5x3	124	111	127	18x12	343	321	381	30x24	559	533	610	38x32	711	686	610	44x38	813	737	610								
1¼x½	48	48	51	5x3½	124	114	127	18x10	343	308	381	30x22	559	521	610	38x30	711	673	610	44x36	813	724	610								
1¼x¾	48	48	51	5x4	124	117	127	18x8	343	298	(381)	30x20	559	(508)	(610)	38x28	711	648	610	44x34	813	724	(610)								
1¾x1	48	48	51	6x6	143	143	-	20x20	381	381	-	30x18	559	(495)	(610)	38x26	711	648	610	44x32	813	711	(610)								
1½x1½	57	57	-	6x2½	143	121	140	20x18	381	368	508	30x16	559	(483)	(610)	38x24	711	635	(610)	44x30	813	711	(610)								
1½x½	57	57	64	6x3	143	124	140	20x16	381	356	508	30x14	559	(483)	(610)	38x22	711	622	(610)	44x28	813	698	(610)								
1½x¾	57	57	64	6x3½	143	127	140	20x14	381	356	508	30x12	559	(473)	(610)	38x20	711	610	(610)	44x26	813	698	(610)								
1½x1	57	57	64	6x4	143	130	140	20x12	381	346	508	30x10	559	460	(610)	38x18	711	597	(610)	44x24	813	698	(610)								
1½x1¼	57	57	64	6x5	143	137	140	20x10	381	333	(508)	32x32	597	597	-	40x40	749	749	-	44x22	813	686	(610)								
2x2	64	64	-	8x8	178	178	-	20x8	381	324	(508)		32x30	597	584	610	40x38	749	749	610	44x20	813	686	(610)							
2x¾	64	44	76	8x6	178	168	152	22x22	419	419	-	32x28	597	572	610	40x36	749	737	610	46x46	851	800	-								
2x1	64	51	76	8x5	178	162	152	22x20	419	406	508	32x26	597	572	610	40x34	749	724	610	46x44	851	800	711								
2x1¼	64	57	76	8x4	178	156	152	22x18	419	394	508	32x24	597	559	610	40x32	749	711	610	46x42	851	787	711								
2x1½	64	60	76	8x3½	178	152	152	22x16	419	381	508	32x22	597	546	(610)	40x30	749	698	610	46x40	851	775	711								
2½x2½	76	76	-	10x10	216	216	-	22x14	419	381	508	32x20	597	533	(610)	40x28	749	673	(610)	46x38	851	762	711								
2½x1	76	57	89	10x8	216	203	178	22x12	419	371	(508)	32x18	597	521	(610)	40x26	749	673	(610)	46x36	851	762	(711)								
2½x1¼	76	64	89	10x6	216	194	178	22x10	419	359	(508)	32x16	597	508	(610)	40x24	749	660	(610)	46x34	851	749	(711)								
2½x1½	76	67	89	10x5	216	191	178	24x24	432	432	-	32x14	597	508	(610)	40x22	749	648	(610)	46x32	851	749	(711)								
2½x2	76	70	89	10x4	216	184	178	24x22	432	432	508	34x34	635	635	-	40x20	749	635	(610)	46x30	851	737	(711)								
3x3	86	86	-	12x12	254	254	-	24x20	432	432	508	34x32	635	622	610	40x18	749	622	(610)	46x28	851	737	(711)								
3x1¼	86	70	89	12x10	254	241	203	24x18	432	419	508	34x30	635	610	610	42x42	762	711	-	46x26	851	737	(711)								
3x1½	86	73	89	12x8	254	229	203	24x16	432	406	508	34x28	635	597	610	42x40	762	711	610	46x24	851	724	(711)								
3x2	86	76	89	12x6	254	219	203	24x14	432	406	(508)	34x26	635	597	610	42x38	762	711	610	46x22	851	724	(711)								
3x2½	86	83	89	12x5	254	216	203	24x12	432	397	(508)	34x24	635	584	(610)	42x36	762	711	610	48x48	889	838	-								
3½x3½	95	95	-	14x14	279	279	-	24x10	432	384	(508)	34x22	635	572	(610)	42x34	762	711	610	48x46	889	838	711								
3½x1½	95	79	102	14x12	279	270	330	26x26	495	495	-	34x20	635	559	(610)	42x32	762	711	610	48x44	889	838	711								
3½x2	95	83	102	14x10	279	257	330	26x24	495	483	610	34x18	635	546	(610)	42x30	762	711	610	48x42	889	813	711								
3½x2½	95	89	102	14x8	279	248	330	26x22	495	470	610	34x16	635	533	(610)	42x28	762	698	(610)	48x40	889	813	711								
3½x3	95	92	102	14x6	279	238	330	26x20	495	457	610	36x36	673	673	-	42x26	762	698	(610)	48x38	889	813	(711)								
4x4	105	105	-	16x16	305	305	-	26x18	495	444	610	36x34	673	660	610	42x24	762	660	(610)	48x36	889	787	(711)								
4x1½	105	86	102	16x14	305	305	356	26x16	495	432	(610)	36x32	673	648	610	42x22	762	660	(610)	48x34	889	787	(711)								
4x2	105	89	102	16x12	305	295	356	26x14	495	432	(610)	36x30	673	635	610	42x20	762	660	(610)	48x32	889	787	(711)								
4x2½	105	95	102	16x10	305	283	356	26x12	495	422	(610)	36x28	673	622	610	42x18	762	648	(610)	48x30	889	762	(711)								
4x3	105	98	102	16x8	305	273	356	28x28	521	521	-	36x26	673	622	610	42x16	762	635	(610)	48x28	889	762	(711)								
4x3½	105	102	102	16x6	305	264	(356)	28x26	521	521	610	36x24	673	610	(610)					48x26	889	762	(711)								
								28x24	521	508	610	36x22	673	597	(610)					48x24	889	737	(711)								
								28x22	521	495	610	36x20	673	584	(610)					48x22	889	737	(711)								
								28x20	521	483	610	36x18	673	572	(610)																
								28x18	521	470	(610)	36x16	673	592	(610)																
								28x16	521	457	(610)																				
								28x14	521	457	(610)																				
								28x12	521	448	(610)																				

- Figures in brackets are as per the manufacturer standard.
- Outlet dimension M for run sizes NPS 14 (DN 350) and larger is recommended but not required.

Topaz Piping Industries

Manufacturers and Exporters of
Pipe Fittings, Flanges & Piping Spools and stockists of Pipes



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