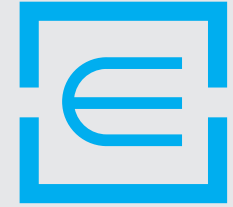




THREE ONE

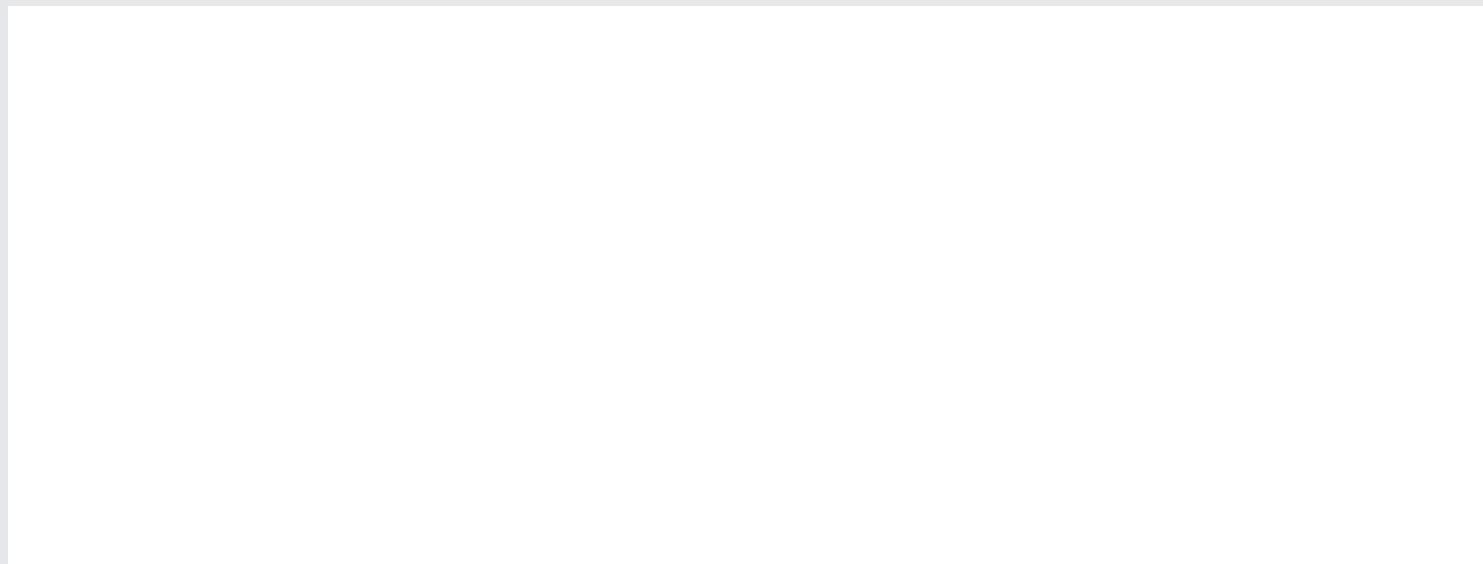


Engtex

Engtex Sdn Bhd

Lot 36 , Jalan BRP 9/2B , Putra Industrial Park ,
Bukit Rahman Putra , 47000 Sungai Buloh , Selangor Darul Ehsan
Tel : 603-6140 1111 Fax : 603-6140 1919
website : www.engtex.com.my

Authorised Dealer:



CARBON STEEL BUTT WELDED FITTINGS



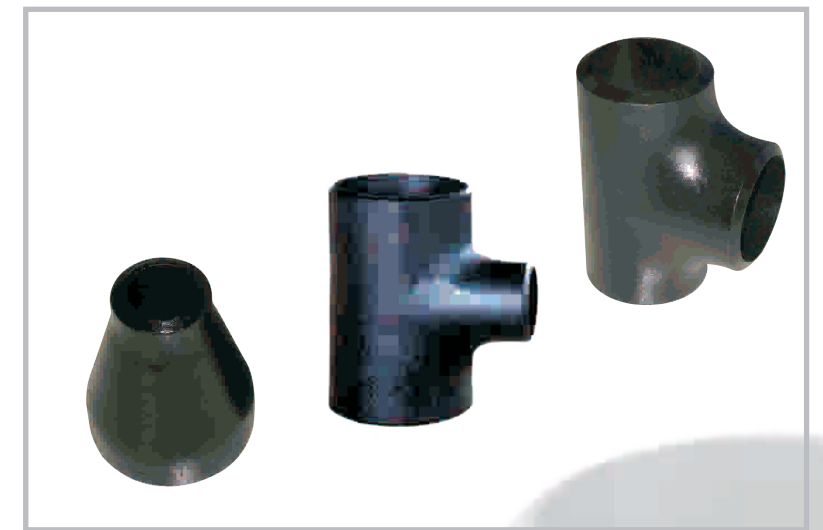
PRODUCT IS MANUFACTURED IN AN ISO 9001 & ISO 14001 CERTIFIED COMPANY



THREE ONE



CARBON STEEL BUTT WELDED FITTINGS [➔](#)





CARBON STEEL BUTT WELDED FITTINGS



CARBON STEEL BUTT WELDED FITTINGS

AMERICAN STANDARD PIPE FITTING

BUTT-WELDED PIPE FITTING JISB2311



Standard: ANSI/ASME B16.9/B16.2B

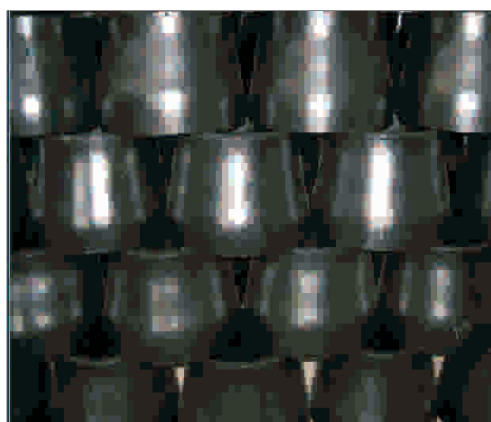
Wall thickness : SCH40,SCH80

Size: 1/2 " -24 "

Material: ASTM A234 WBP

Product range: Elbow LR, 45/90/180DEG.
Tee Stright,Cap
Reducer Concentric/Eccentric

Coating: Shining black paint



JAPANESE STANDARD PIPE FITTING

BUTT-WELDED PIPE FITTING JISB2311



Standard: JISB2311

Wall thickness : SGP

Size: 1/2 " -24 "

Material: JIS G3452

Product range: Elbow LR,45/90/180DEG
Tee Stright,Cap
Reducer Concentric/Eccentric

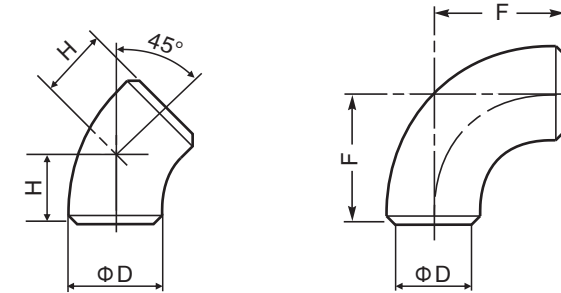
Coating: Rust-proof Oil, Galvanized



WROUGHT CARBON STEEL WALL THICKNESS STANDARDS

NOMINAL PIPE SIZE		NOMINAL WALL THICKNESS																NOMINAL PIPE SIZE	
A	B	NOMINAL WALL THICKNESS																A	B
		JIS(1)	DIN(2)	SCH10	SCH20	SCH30	STD	SCH40	SCH60	XS	SCH80	SCH100	SCH120	SCH140	SCH160	XXS			
15	1/2"	2.8	2.0	2.11	-	2.41	2.77	2.77	-	3.73	3.73	-	-	-	4.78	7.47	15	1/2"	
20	3/4"	2.8	2.3	2.11	-	2.41	2.87	2.87	-	3.91	3.91	-	-	-	5.56	7.82	20	3/4"	
25	1"	3.2	2.6	2.77	-	2.90	3.38	3.38	-	4.55	4.55	-	-	-	6.35	9.09	25	1"	
32	1 1/4"	3.5	2.6	2.77	-	2.97	3.56	3.56	-	4.85	4.85	-	-	-	6.35	9.70	32	1 1/4"	
40	1 1/2"	3.5	2.6	2.77	-	3.18	3.68	3.68	-	5.08	5.08	-	-	-	7.14	10.15	40	1 1/2"	
50	2"	3.8	2.9	2.77	-	3.18	3.91	3.91	-	5.54	5.54	-	-	-	8.74	11.07	50	2"	
65	2 1/2"	4.2	2.9	3.05	-	4.78	5.16	5.16	-	7.01	7.01	-	-	-	9.53	14.02	66	2 1/2"	
80	3"	4.2	3.2	3.05	-	4.78	5.49	5.49	-	7.62	7.62	-	-	-	11.13	15.24	80	3"	
90	3 1/2"	4.2	-	3.05	-	4.78	5.74	5.74	-	8.08	8.08	-	-	-	-	-	90	3 1/2"	
100	4"	4.5	3.6	3.05	-	4.78	6.02	6.02	-	8.56	8.56	-	11.13	-	13.49	17.12	100	4"	
125	5"	4.5	4.0	3.40	-	-	6.55	6.55	-	9.53	9.53	-	12.70	-	15.99	19.05	125	5"	
150	6"	5.0	4.5	3.40	-	-	7.11	7.11	-	10.97	10.97	-	14.27	-	18.26	21.95	150	6"	
200	8"	5.8	6.3	3.76	-	6.35	7.04	7.04	-	12.70	12.70	-	18.26	-	23.01	28.23	200	8"	
250	10"	6.6	6.3	4.19	-	6.35	7.80	7.80	-	12.70	12.70	-	21.44	-	26.58	33.32	250	10"	
300	12"	6.9	7.1	4.57	-	6.35	8.38	8.38	-	12.70	12.70	-	25.40	-	31.75	39.67	300	12"	
350	14"	7.9	8.0	6.35	-	7.92	9.53	9.53	-	12.70	12.70	-	30.96	-	38.89	48.27	350	14"	
400	16"	7.9	8.8	6.35	-	7.92	9.53	9.53	-	12.70	12.70	-	36.53	-	45.24	56.42	400	16"	
450	18"	7.9	10.0	6.35	-	7.92	11.13	11.13	-	12.70	12.70	-	44.45	-	54.98	68.27	450	18"	
500	20"	7.9	11.0	6.35	-	7.92	12.70	12.70	-	12.70	12.70	-	50.01	-	62.70	78.54	500	20"	
550	22"	-	-	6.35	-	7.92	12.70	12.70	-	12.70	12.70	-	55.98	-	69.67	87.19	550	22"	
600	24"	-	12.5	6.35	-	7.92	14.27	14.27	-	12.70	12.70	-	62.70	-	78.54	98.26	600	24"	
650	26"	-	-	7.92	-	-	12.70	-	-	12.70	-	-	70.01	-	87.19	108.26	650	26"	
700	28"	-	12.5	7.92	-	-	12.70	-	-	12.70	-	-	78.54	-	98.26	122.00	700	28"	
750	30"	-	-	7.92	-	-	12.70	-	-	12.70	-	-	87.19	-	108.26	138.26	750	30"	
800	32"	-	12.5	7.92	-	-	15.88	15.88	-	12.70	-	-	98.26	-	122.00	156.42	800	32"	
850	34"	-	-	7.92	-	-	15.88	15.88	-	12.70	-	-	111.3	-	138.26	177.12	850	34"	
900	36"	-	12.5	7.92	-	-	15.88	15.88	-	12.70	-	-	127.0	-	159.99	200.78	900	36"	
950	38"	-	-	-	-	-	15.88	15.88	-	12.70	-	-	142.7	-	182.6	227.12	950	38"	
1000	40"	-	12.5	-	-	-	17.48	17.48	-	12.70	-	-	160.2	-	206.2	259.67	1000	40"	
1050	42"	-	-	-	-	-	-	-	-	12.70	-	-	177.12	-	230.1	297.12	1050	42"	
1100	44"	-	-	-	-	-	-	-	-	12.70	-	-	195.0	-	254.0	330.12	1100	44"	
1150	46"	-	-	-	-	-	-	-	-	12.70	-	-	214.4	-	280.1	364.12	1150	46"	
1200	48"	-	-	-	-	-	-	-	-	12.70	-	-	238.8	-	309.1	400.12	1200	48"	

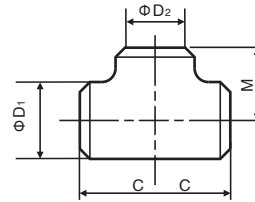
ELBOW 45°, 90° (L/R,S/R)



JISB2311-1997

NOMINAL DIAMETER		OUTSIDE DIAMETER D	DIMENSION FROM THE CENTER LINE TO THE END FACE			APPROX. WEIGHT(KG)		
A	B		45° ELBOWS H	90° ELBOWS F		45° ELBOWS	90° ELBOWS	
			LONG	LONG	SHORT	LONG	LONG	SHORT
15	1/2"	21.7	15.80	38.10	-	0.039	0.078	-
20	3/4"	27.2	15.80	38.10	-	0.050	0.100	-
25	1"	34	15.80	38.10	25.40	0.073	0.146	0.097
32	1 1/4"	42.7	19.70	47.60	31.80	0.126	0.252	0.168
40	1 1/2"	48.6	23.70	57.20	38.10	0.175	0.350	0.233
50	2"	60.5	31.60	76.20	50.80	0.317	0.634	0.423
61	2 1/2"	76.3	39.50	95.30	63.50	0.560	1.120	0.750
80	3"	89.1	47.30	114.30	76.20	0.790	1.580	1.050
90	3 1/2"	101.6	55.30	133.40	88.90	1.060	2.110	1.410
100	4"	114.3	63.10	152.40	101.60	1.460	2.910	1.940
125	5"	139.8	78.90	190.50	127.00	2.250	4.490	2.990
150	6"	165.2	94.70	228.60	152.40	3.550	7.090	4.730
200	8"	216.3	126.30	304.80	203.20	7.200	14.40	9.600
250	10"	267.4	157.80	381.00	254.00	12.70	25.40	16.93
300	12"	318.5	189.40	457.20	304.80	19.06	38.10	25.40
350	14"	355.6	220.90	533.40	355.60	28.35	56.70	37.80
400	15"	406.4	252.50	609.80	406.40	37.15	74.30	49.58
450	18"	457.2	284.10	685.80	457.20	47.10	94.20	62.79
500	20"	508.0	315.60	762.00	508.00	59.00	117.00	78.00
550	22"	558.8	347.20	838.20	558.80	71.00	141.00	94.00
600	24"	609.6	378.70	914.40	609.60	84.00	168.00	112.00
650	26"	660.4	410.30	990.60	660.40	99.00	198.00	132.00
700	28"	711.2	441.90	1066.80	711.20	115.00	229.00	153.00
750	30"	762.0	473.40	1143.00	762.00	132.00	264.00	176.00
800	32"	812.8	505.00	1219.20	812.80	150.70	300.00	200.00
850	34"	863.6	536.60	1295.40	863.60	169.00	338.00	225.00
900	36"	914.4	568.10	1371.60	914.40	180.00	360.00	240.00
950	38"	965.2	599.70	1447.80	965.20	212.00	424.00	283.00
1000	40"	1016.0	631.20	1524.00	1016.00	235.00	470.00	313.00
1050	42"	1066.8	662.80	1600.20	1066.80	259.00	518.00	345.00
1100	44"	1117.6	694.40	1676.40	1117.60	284.00	569.00	379.00
1150	46"	1168.4	725.90	1752.60	1168.40	311.00	622.00	-
1200	48"	1219.2	757.50	1828.8	1219.2	-	-	-

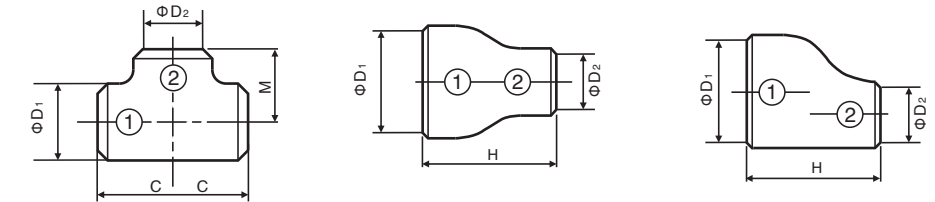
EQUAL TEE



JISB2311-1997

NOMINAL DIAMETER		OUTSIDE DIAMETER		DIMENSION FROM THE CENTER LINE TO THE END FACE		APPROX. WEIGHT (KG)
A	B	D ₁	D ₂	C	M	
15	1/2	21.70	21.70	25.40	25.40	0.12
20	3/4	27.20	27.20	28.60	28.60	0.17
25	1	34.00	34.00	38.10	38.10	0.32
32	1 1/4	42.70	42.70	47.60	47.60	0.56
40	1 1/2	48.60	48.60	57.20	57.20	0.76
50	2	60.50	60.50	63.50	63.50	1.16
65	2 1/2	76.30	76.30	76.20	76.20	1.94
80	3	89.10	89.10	85.70	85.70	2.55
90	3 1/2	101.60	101.60	95.30	95.30	3.23
100	4	114.30	114.30	104.80	104.80	4.27
125	5	139.80	139.80	123.80	123.80	6.17
150	6	165.20	165.20	142.90	142.90	9.32
200	8	216.30	216.30	177.80	177.80	17.50
250	10	267.40	267.40	215.90	215.90	29.70
300	12	318.50	318.50	254.00	254.00	32.00
350	14	355.60	355.60	279.40	279.40	44.70
400	16	406.40	406.40	304.80	304.80	55.20
450	18	457.20	457.20	342.90	342.90	70.00
500	20	503.00	503.00	381.00	381.00	86.60
550	22	558.80	558.80	419.10	419.10	106.00
600	24	609.60	609.60	431.80	431.80	116.00
650	26	660.40	660.40	495.30	495.30	147.00
700	28	711.20	711.20	520.70	520.70	165.00
750	30	762.00	762.00	558.80	558.80	190.00
800	32	812.80	812.80	596.90	596.90	217.00
850	34	863.60	863.60	635.00	635.00	245.00
900	36	814.40	814.40	673.10	673.10	276.00
950	38	965.20	965.20	711.20	711.20	308.00
1000	40	1016.00	1016.00	749.30	749.30	342.00
1050	42	1056.80	1056.80	762.00	711.20	351.00
1100	44	117.60	117.60	812.80	762.00	395.00
1150	46	1168.40	1168.40	850.90	800.10	433.00
1200	48	1219.20	1219.20	889.00	838.20	474.00

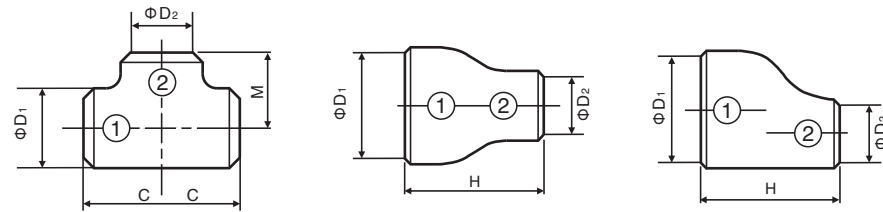
REDUCING TEE



JISB2311-1997

NOMINAL DIAMETER ①x②		OUTSIDE DIAMETER		OVERALL LENGTH H	DIMENSION FROM THE CENTER LINE TO THE END FACE		APPROX. WEIGHT (KG)	
A	B	D ₁	D ₂		C	M	TESS	REDUCERS
20X15	3/4X1/2	27.20	21.70	38.10	28.60	28.6	0.16	0.057
25X20	1X3/4	34.00	27.20	50.80	38.10	38.10	0.30	0.110
25X15	1X1/2	34.00	21.70	50.80	38.10	38.10	0.20	0.09
32X25	1 1/4X1	42.70	34.00	50.80	47.60	47.60	0.53	0.154
32X20	1 1/4X3/4	42.70	27.20	50.80	47.60	47.60	0.50	0.140
32X15	1 1/4X1/2	42.70	21.70	50.80	47.60	47.60	0.49	0.130
40X32	1 1/2X1 1/4	48.60	42.70	63.50	57.20	57.20	0.76	0.232
40X25	1 1/2X1	48.60	34.00	63.50	57.20	57.20	0.72	0.206
40X20	1 1/2X3/4	48.60	27.20	63.50	57.20	57.20	0.68	0.191
40X15	1 1/2X1/2	48.60	21.70	63.50	57.20	57.20	0.67	0.180
50X40	2X1 1/2	60.50	48.60	76.20	63.50	60.30	1.08	0.364
50X32	2X1 1/4	60.50	42.70	76.20	63.50	57.20	1.04	0.344
50X25	2X1	60.50	34.00	76.20	63.50	50.80	0.90	0.345
50X20	2X3/4	60.50	27.20	76.20	63.50	44.50	0.95	0.290
65X50	2 1/2X2	76.30	60.50	88.90	76.20	69.90	1.78	0.594
65X40	2 1/2X1 1/2	76.30	48.60	88.90	76.20	66.70	1.70	0.548
65X32	2 1/2X1 1/4	76.30	42.70	88.90	76.20	63.50	1.67	0.548
65X25	2 1/2X1	76.30	34.00	88.90	76.20	57.20	1.61	0.480
80X65	3X2 1/2	89.10	76.30	88.90	85.70	82.60	2.44	0.725
80X50	3X2	89.10	60.50	88.90	85.70	76.20	2.28	0.058
80X40	3X1 1/2	89.10	48.60	88.90	85.70	73.00	2.21	0.511
80X32	3X1 1/4	89.10	42.70	88.90	85.70	69.90	2.14	0.290
90X80	3 1/2X3	101.60	89.10	101.60	95.30	92.10	3.12	0.961
90X65	3 1/2X2 1/2	101.60	76.30	101.60	95.30	88.90	3.01	0.890
90X50	3 1/2X2	101.60	60.50	101.60	95.30	82.60	2.85	0.825
90X40	3 1/2X1 1/2	101.60	48.60	101.60	95.30	79.40	2.77	0.771
90X32	3 1/2X1 1/4	101.60	42.70	101.60	-	-	-	0.740
100X90	4X3 1/2	114.30	101.60	101.60	104.80	101.60	4.09	1.170
100X80	4X3	114.30	89.10	101.60	104.80	98.40	3.95	1.100

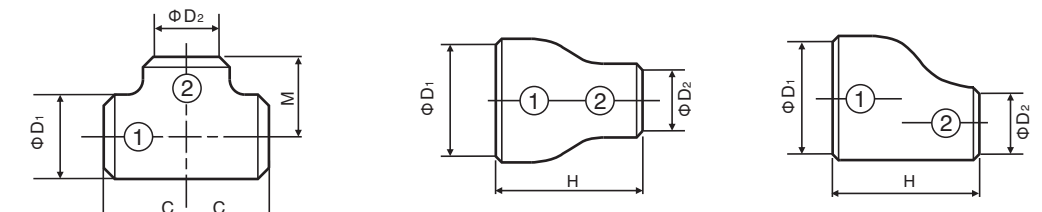
REDUCING TEE



JISB2311-1997

NOMINAL DIAMETER ①x②		OUTSIDE DIAMETER		OVERALL LENGTH H	DIMENSION FROM THE CENTER LINE TO THE END FACE		APPROX.WEIGHT(KG)	
A	B	D ₁	D ₂		C	M	TESS	REDUCERS
100X65	4X2 1/2	114.30	76.30	101.60	104.80	95.30	3.87	1.04
100X50	4X2	114.30	60.50	101.60	104.80	88.90	3.71	0.967
100X40	4X1 1/2	114.30	48.60	101.60	104.80	85.70	3.63	0.94
125X100	5X4	139.80	114.30	127.00	123.80	117.50	5.86	1.74
125X90	5X3 1/2	139.80	101.60	127.00	123.80	114.30	5.68	1.55
125X80	5X3	139.80	89.10	127.00	123.80	111.10	5.56	1.56
125X65	5X2 1/2	139.80	76.30	127.00	123.80	108.00	5.45	1.50
125X50	5X2	139.80	60.50	127.00	123.80	104.80	5.32	1.41
150X125	6X5	165.20	139.80	139.70	142.90	136.50	8.60	2.55
150X100	6X4	165.20	114.30	139.70	142.90	130.20	8.49	2.45
150X90	6X3 1/2	165.20	101.60	139.70	142.90	127.00	8.31	2.27
150X80	6X3	165.20	89.10	139.70	142.90	123.80	8.18	2.10
150X65	6X2 1/2	165.20	76.30	139.70	142.90	120.70	8.08	2.09
200X150	8X6	216.30	165.20	152.40	177.80	168.30	16.20	4.10
200X125	8X5	216.30	139.80	152.40	177.80	161.90	15.70	3.87
200X100	8X4	216.30	114.30	152.40	177.80	155.60	15.40	3.67
200X90	8X3 1/2	216.30	101.60	152.40	177.80	152.40	15.20	3.56
250X200	10X8	267.40	216.30	177.80	215.90	203.20	27.80	6.67
250X150	10X6	267.40	165.20	177.80	215.90	193.70	26.60	6.58
250X125	10X5	267.40	139.80	177.80	215.90	190.50	26.10	6.06
250X100	10X4	267.40	114.30	177.80	215.90	184.20	25.80	5.90
300X250	12X10	318.50	267.40	203.20	254.00	241.30	41.50	9.97
300X200	12X8	318.50	216.30	203.20	254.00	228.60	39.60	9.28
300X150	12X6	318.50	165.20	203.20	254.00	219.10	36.30	8.69
300X125	12X5	318.50	139.80	203.20	254.00	215.90	37.70	8.39
350X300	14X12	355.60	318.50	330.20	279.40	269.90	42.70	21.20
350X250	14X10	355.60	267.40	330.20	279.40	257.20	41.20	19.70
350X200	14X8	355.60	216.30	330.20	279.40	247.70	40.00	18.30
350X150	14X6	355.60	165.20	330.20	279.40	238.10	39.00	16.90

REDUCING TEE



JISB2311-1997

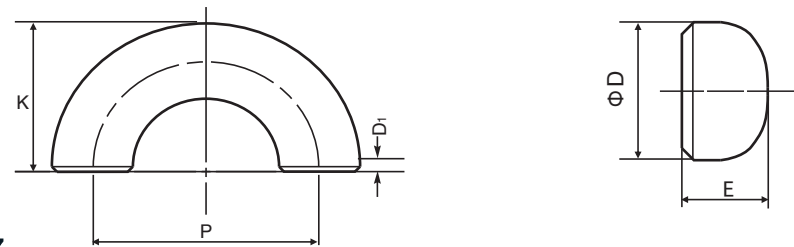
NOMINAL DIAMETER ①x②		OUTSIDE DIAMETER		OVERALL LENGTH H	DIMENSION FROM THE CENTER LINE TO THE END FACE		APPROX.WEIGHT(KG)	
A	B	D ₁	D ₂		C	M	TESS	REDUCERS
400X350	16X14	406.40	355.60	355.60	304.80	304.80	54.20	25.90
400X300	16X12	406.40	318.50	355.60	304.80	295.30	52.20	24.70
400X250	16X10	406.40	267.40	355.60	304.80	282.60	50.70	23.20
400X200	16X8	406.40	216.30	355.60	304.80	273.10	49.40	21.80
400X150	16X6	406.40	165.20	-	304.80	263.50	48.50	20.50
450X400	18X16	457.20	406.40	381.00	342.90	330.20	57.90	31.50
450X350	18X14	457.20	355.60	381.00	342.90	330.20	66.90	29.80
450X300	18X12	457.20	318.50	381.00	342.90	320.70	64.90	28.80
450X250	18X10	457.20	267.40	381.00	342.90	308.00	63.40	27.10
500X450	20X18	508.00	457.20	508.00	381.00	368.30	84.20	47.90
500X400	20X16	508.00	406.40	508.00	381.00	355.60	82.10	44.70
500X350	20X14	508.00	355.60	508.00	381.00	355.60	81.10	42.50
500X300	20X12	508.00	318.50	508.00	381.00	346.10	79.10	40.80
500X250	20X10	508.00	267.40	-	381.00	333.40	77.60	39.70
500X200	20X8	508.00	216.30	-	381.00	323.90	76.50	38.50
550X500	22X20	558.80	508.80	508.00	419.10	406.40	103.00	52.20
550X450	22X18	558.80	457.20	508.00	419.10	393.70	101.00	49.70
500X400	22X16	558.80	406.40	508.00	419.10	381.00	96.90	47.50
550X350	22X14	558.80	355.60	508.00	-	-	-	46.10
600X550	24X22	609.60	558.80	508.00	431.80	431.80	115.00	57.10
600X500	24X20	609.60	508.00	508.00	431.80	431.80	114.00	54.30
600X450	24X18	609.60	457.20	508.00	431.80	419.10	111.00	52.70
600X400	24X16	609.60	406.40	508.00	-	-	-	50.80
650X600	26X24	660.40	609.60	609.60	495.30	482.60	144.00	74.50
650X550	26X22	660.40	558.80	609.60	495.30	469.90	141.00	69.74
650X500	26X20	660.40	508.00	609.60	495.30	457.20	138.00	68.80
650X450	26X18	660.40	457.20	609.60	-	-	-	66.30
700X650	28X26	711.20	660.40	609.60	520.70	520.70	164.00	80.50
700X600	28X24	711.20	609.60	609.60	520.70	508.00	161.00	77.70
700X500	28X22	711.20	558.80	609.60	520.70	495.30	158.00	75.00
700X500	28X20	711.20	508.00	609.60	-	-	-	72.40
750X700	30X28	762.00	711.20	609.60	558.80	546.10	188.00	89.60
750X650	30X26	762.00	660.40	609.60	558.80	546.10	185.00	88.314
750X600	30X24	762.00	609.60	609.60	558.80	533.40	182.00	84.12
750X550	30X22	762.00	558.80	609.60	558.80	-	-	76.52
800X750	32X30	812.80	762.00	609.60	596.90	584.20	213.00	92.60
800X700	32X28	812.80	711.20	609.60	596.90	571.50	210.00	80.30



CARBON STEEL BUTT WELDED FITTINGS

THREE ONE

ELBOW AND CAP



JISB2311-1997

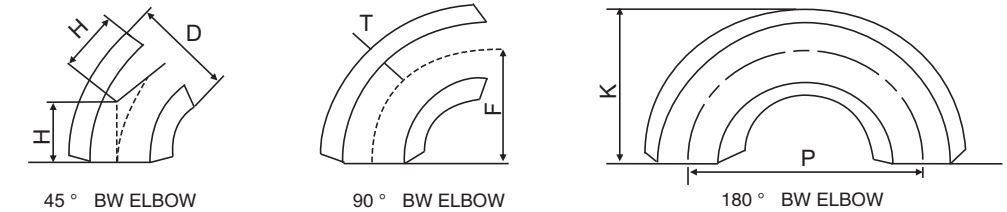
NOMINAL DIAMETER		OUTSIDE DIAMETER D	CENTERLINE DIMENSION		DIMENSION FROM THE CENTER LINE TO THE END FACE			QPPROX.WEIGHT(KG)		
			180° ELBOWS P		180° ELBOWS K		CAPS E	180° ELBOWS K		CAPS (KG)
A	B	LONG	SHORT	LONG	SHORT	LONG		SHORT	LONG	
15	1/2	21.70	76.20	-	49.00	-	25.40	0.156	-	0.046
20	3/4	27.20	76.20	-	51.70	-	25.40	0.200	-	0.058
25	1	34.00	76.20	50.80	55.10	42.40	38.10	0.292	0.195	0.098
32	1 1/4	42.70	85.20	63.60	69.00	53.20	38.10	0.504	0.336	0.139
40	1 1/2	48.60	114.40	76.20	81.50	62.40	38.10	0.700	0.467	0.160
50	2	60.50	152.40	101.60	106.50	81.10	38.10	1.268	0.845	0.225
65	2 1/2	75.30	190.60	127.00	133.50	101.70	38.10	2.24	1.49	0.300
80	3	89.10	228.60	152.40	158.90	120.80	50.80	3.16	2.11	0.400
90	3 1/2	101.60	266.80	177.80	184.20	139.70	63.50	4.22	2.81	0.704
100	4	114.30	304.80	203.20	209.60	158.80	63.50	5.82	3.88	0.870
125	5	139.80	381.00	254.00	260.40	196.90	76.20	8.98	5.99	1.300
150	6	165.20	457.20	304.80	311.20	235.00	88.90	14.18	9.45	2.050
200	8	216.30	609.60	406.40	413.00	311.40	101.60	28.80	19.20	3.640
250	10	347.30	762.00	508.00	514.70	387.70	127.00	50.80	33.86	6.460
300	12	318.50	814.40	609.60	616.50	464.10	152.40	76.20	50.79	9.700
350	14	355.60	1066.80	711.20	711.20	533.40	165.10	113.40	75.59	13.260
400	16	406.40	1219.20	812.80	812.80	609.60	177.80	148.60	99.06	16.660
450	18	457.20	-	-	-	-	203.20	-	-	21.470
500	20	508.00	-	-	-	-	228.60	-	-	27.020



CARBON STEEL BUTT WELDED FITTINGS

THREE ONE

ELBOW



ASME B16.9

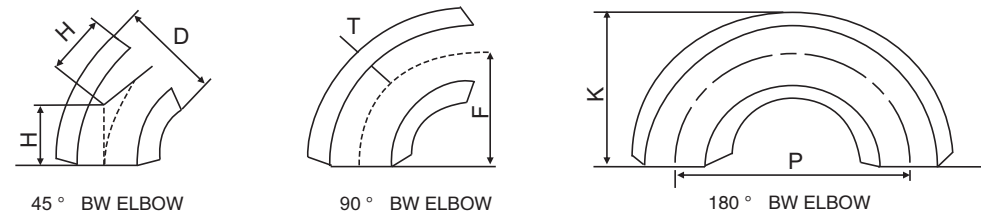
NOMINAL PIPE SIZE Inch	DIMENSIONS			SCH.NO.	WALL THICKNESS t		APPROX.WEIGHT 90° KG
	OUTSIDE DIAMETER AT BEVEL: D		CENTER TO END: A/B CENTER TO CENTER: O FACE TO FACE: K mm		Inch	mm	
	Inch	mm			Inch	mm	
1/2	0.840	21.3	A=38.1 B=15.7 O=76.2 K=47.8	5S 10S Std/40 40S XS/80 80S 160 XXS	0.065 0.083 0.109 0.147 0.188 0.294	1.65 2.11 2.77 3.73 4.78 7.47	0.05 0.06 0.08 0.10 0.12 0.15
3/4	1.050	26.7	A=38.1 B=19.1 O=76.2 K=50.8	5S 10S Std/40 40S XS/80 80S 160 XXS	0.065 0.083 0.113 0.154 0.219 0.308	1.65 2.11 2.87 3.91 5.56 7.82	0.06 0.08 0.11 0.14 0.17 0.22
1	1.315	33.4	A=38.1 B=22.4 O=76.2 K=55.6	5S 10S Std/40 40S XS/80 80S 160 XXS	0.065 0.109 0.133 0.179 0.250 0.358	1.65 2.77 3.38 4.55 6.35 9.09	0.08 0.13 0.16 0.20 0.25 0.26
1 1/4	1.660	42.2	A=47.8 B=25.4 O=95.3 K=69.9	5S 10S Std/40 40S XS/80 80S 160 XXS	0.065 0.109 0.140 0.191 0.250 0.385	1.65 2.77 3.56 4.85 6.35 9.70	0.21 0.24 0.26 0.35 0.42 0.64
1 1/2	1.900	48.3	A=57.2 B=28.4 O=114.3 K=82.6	5S 10S Std/40 40S XS/80 80S 160 XXS	0.065 0.109 0.145 0.200 0.281 0.400	1.65 2.77 3.68 5.08 7.14 10.15	0.17 0.26 0.37 0.50 0.65 0.93
2	3.375	60.3	A=76.2 B=35.1 O=152.4 K=106.4	5S 10S Std/40 40S XS/80 80S 160 XXS	0.065 0.109 0.154 0.218 0.344 0.436	1.65 2.77 3.91 5.54 8.74 11.07	0.28 0.45 0.66 0.90 1.33 1.61
2 1/2	2.875	73.0	A=95.3 B=44.5 O=190.5 K=131.8	5S 10S Std/40 40S XS/80 80S 160 XXS	0.083 0.120 0.203 0.276 0.375 0.552	2.11 3.05 5.16 7.01 9.53 14.02	0.55 0.80 1.29 1.79 2.33 3.43
3	3.500	88.9	A=114.3 B=50.8 O=228.6 K=158.8	5S 10S Std/40 40S XS/80 80S 160 XXS	0.083 0.120 0.216 0.300 0.438 0.600	2.11 3.05 5.49 7.62 11.13 15.24	0.80 1.17 2.04 2.74 3.83 5.25
4	4.500	114.3	A=152.4 B=63.5 O=304.8 K=209.6	5S 10S Std/40 40S XS/80 80S 120 160 XXS	0.083 0.120 0.237 0.337 0.438 0.531 0.674	2.11 3.05 6.02 8.56 11.13 13.49 17.12	1.39 2.03 3.85 5.36 6.78 8.03 10.2
5	5.563	141.3	A=190.5 B=79.2 O=381.0 K=261.9	5S 10S Std/40 40S XS/80 80S 120 160 XXS	0.109 0.134 0.258 0.375 0.500 0.625 0.750	2.79 3.40 6.55 9.53 12.70 15.88 19.05	2.82 3.45 6.51 9.27 12.1 14.7 17.6



CARBON STEEL BUTT WELDED FITTINGS

THREE ONE

ELBOW



ASME B16.9

NOMINAL PIPE SIZE Inch	DIMENSIONS		CENTER TO END:A/B CENTER TO CENTER:O FACE TO FACE:K mm	SCH.NO.	WALL THICKNESS		APPROX.WEIGHT 90° KG
	OUTSIDE DIAMETER AT BEVEL:D				t		
	Inch	mm			Inch	mm	
6	6.625	168.3	A=228.6 B=95.3 O=475.2 K=312.7	5S	0.109	2.77	4.10
				10S	0.134	3.40	4.96
				Std/40 40S	0.280	7.11	10.10
				XS/80 80S	0.432	10.97	15.30
				120	0.562	14.27	19.50
				160	0.719	18.26	24.20
XXS	0.864	21.95	29.10				
8	8.625	219.1	A=304.8 B=127.0 O=609.6 K=414.3	5S	0.109	2.77	7.15
				10S	0.148	3.76	9.65
				20	0.250	6.35	15.90
				30	0.277	7.04	17.60
				Std/40 40S	0.322	8.18	20.40
				60	0.406	10.31	25.40
				XS/80 80S	0.500	12.70	30.90
				100	0.594	15.09	36.30
				120	0.719	18.26	43.30
				140	0.812	20.62	48.30
				160	0.906	23.01	53.30
				XXS	0.875	22.23	51.70
10	10.750	273.0	A=381.0 B=158.8 O=762.0 K=517.7	5S	0.134	3.40	13.70
				10S	0.165	4.19	16.70
				20	0.250	6.35	25.00
				30	0.307	7.80	30.50
				Std/40 40S	0.365	9.27	36.10
				XS/80 80S	0.500	12.70	48.80
				80	0.594	15.09	57.30
				100	0.719	18.26	68.60
				120	0.844	21.44	79.50
				140/XXS	1.000	25.40	92.80
				160	1.125	28.58	103.00
				12	12.750	323.9	A=457.8 B=190.5 O=914.4 K=619.3
10S	0.180	4.57	26.10				
20	0.250	6.35	35.70				
30	0.330	8.38	46.80				
Std/40S	0.375	9.53	53.10				
40	0.406	10.31	57.80				
XS/80S	0.500	12.70	70.00				
60	0.562	14.27	78.20				
80	0.688	17.48	94.70				
100	0.844	21.44	115.00				
120/XXS	1.000	25.40	134.00				
140	1.125	28.58	149.00				
160	1.312	33.32	171.00				
14	14.000	355.6	A=533.4 B=222.3 O=1066.8 K=711.2	5S	0.156	3.96	30.80
				10S	0.188	4.78	36.90
				10	0.250	6.35	45.80
				20	0.312	7.92	56.90
				Std/30	0.375	9.53	68.10
				40	0.438	11.13	79.20
				XS	0.500	12.70	90.00
				60	0.594	15.09	106.00
				80	0.750	19.05	132.00
				100	0.938	23.83	163.00
				120	1.094	27.79	188.00
				140	1.250	31.75	212.00
160	1.406	35.71	236.00				

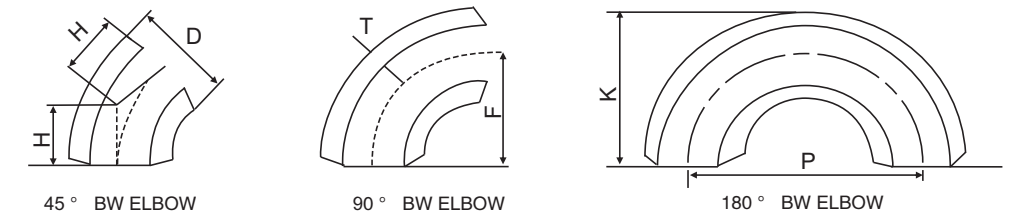
Note: The bevel can be made according to the special requirements of the customers



CARBON STEEL BUTT WELDED FITTINGS

THREE ONE

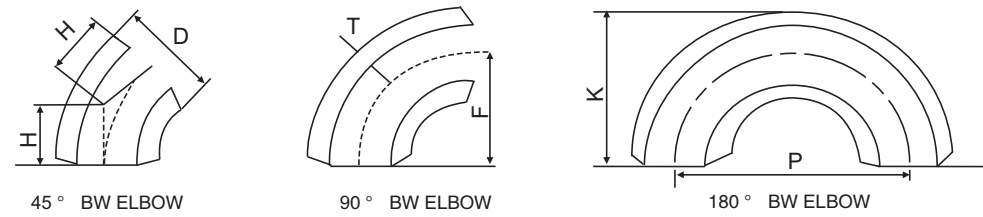
ELBOW



ASME B16.9

NOMINAL PIPE SIZE Inch	DIMENSIONS		CENTER TO END:A/B CENTER TO CENTER:O FACE TO FACE:K mm	SCH.NO.	WALL THICKNESS		APPROX.WEIGHT 90° KG
	OUTSIDE DIAMETER AT BEVEL:D				t		
	Inch	mm			Inch	mm	
16	16.000	406.4	A=609.6 B=254.0 O=1219.2 K=812.8	5S	0.165	4.19	39.90
				10S	0.188	4.78	45.50
				10	0.250	6.35	60.00
				20	0.312	7.92	74.50
				Std/30	0.375	9.53	89.50
				XS/40	0.500	12.70	118.00
				60	0.656	16.66	153.00
				80	0.844	21.44	195.00
				100	1.031	26.19	235.00
				120	1.219	30.96	274.00
				140	1.438	36.53	319.00
				160	1.594	40.49	350.00
18	18.000	457.0	A=685.9 B=285.8 O=1371.6 K=914.4	5S	0.165	4.19	50.50
				10S	0.188	4.78	57.70
				10	0.250	6.35	76.10
				20	0.312	7.92	94.50
				30	0.438	11.13	113.00
				Std	0.375	9.53	132.00
				XS	0.500	12.70	150.00
				40	0.562	14.27	168.00
				60	0.750	19.05	222.00
				80	0.938	23.83	274.00
				100	1.156	29.36	334.00
				120	1.375	34.93	392.00
140	1.562	39.67	440.00				
160	1.781	45.24	495.00				
20	20.000	508.0	A=762.0 B=317.5 O=1524.0 K=1016.0	5S	0.188	4.78	71.30
				10S	0.218	5.54	81.50
				10	0.250	6.35	94.00
				20	0.375	9.53	140.00
				Std/20	0.500	12.70	186.00
				XS/30	0.594	15.09	220.00
				40	0.812	20.62	297.00
				60	0.812	20.62	297.00
				80	1.031	26.19	372.00
				100	1.281	32.54	457.00
				120	1.500	38.10	528.00
				140	1.750	44.45	609.00
160	1.969	50.01	676.00				
22	22.000	559.0	A=838.2 B=342.9 O=1676.4 K=1117.6	5S	0.188	4.78	86.30
				10S	0.218	5.54	98.80
				10	0.250	6.35	114.00
				20	0.375	9.53	170.00
				Std/20	0.500	12.70	225.00
				XS/30	0.594	15.09	287.00
				60	0.875	22.23	387.00
				80	1.125	28.58	493.00
				100	1.375	34.93	594.00
				120	1.625	41.28	694.00
				140	1.875	47.63	790.00
				160	2.125	53.98	886.00

Note: The bevel can be made according to the special requirements of the customers

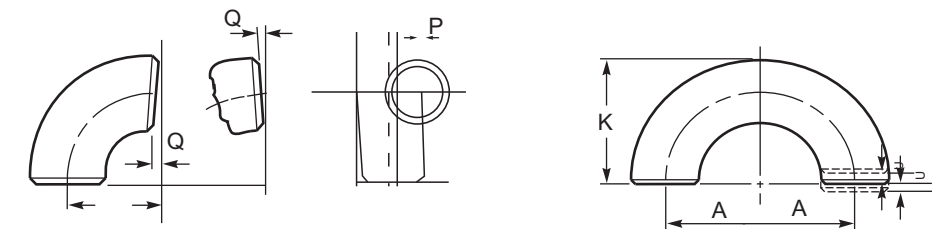


ASME B16.9

NOMINAL PIPE SIZE INCH	DIMENSIONS		CENTER TO END:A/B CENTER TO CENTER:O FACE TO FACE:K mm	SCH.NO.	WALL THICKNESS		APPROX.WEIGHT 90° Kg
	OUTSIDE DIAMETER AT BEVEL:D				t		
	Inch	mm				Inch	
24	24.000	610.0	A=914.4 B=381.0 O=1828.8 K=1219.2	5S	0.218	5.54	118.00
				10S	0.250	6.35	137.00
				10	0.250	6.35	136.00
				Std/20	0.375	9.53	202.00
				XS	0.500	12.00	269.00
				30	0.562	14.27	301.00
				40	0.688	17.48	366.00
				60	0.969	24.61	510.00
				80	1.219	30.96	634.00
				100	1.531	38.89	786.00
120	1.812	46.02	919.00				
140	2.062	52.37	1033.00				
160	2.344	59.34					
26	26.000	660.0	A=990.6 B=406.4	10	0.312	7.92	198.00
				Std	0.375	9.53	238.00
				XS/20	0.500	12.70	316.00
28	28.000	711.0	A=1066.8 B=469.9	10	0.312	7.92	230.00
				Std	0.375	9.53	276.00
				XS/20	0.500	12.70	367.00
30	0.625	15.88	456.00				
30	30.000	762.0	A=1143.0 B=469.9	5S	0.250	6.35	264.00
				10S	0.312	7.92	318.00
				10	0.312	7.92	421.00
				Std	0.375	9.53	421.00
				XS/20	0.500	12.70	524.00
30	0.625	15.88					
32	32.000	813.0	A=1219.2 B=501.7	10	0.312	7.92	301.00
				Std	0.375	9.53	362.00
				XS/20	0.500	12.70	480.00
				30	0.625	15.88	597.00
40	0.688	17.48	656.00				
32	32.000	813.0	A=1219.2 B=501.7	10	0.312	7.92	301.00
				Std	0.375	9.53	362.00
				XS/20	0.500	12.70	480.00
				30	0.625	15.88	597.00
40	0.688	17.48	656.00				
34	34.000	864.0	A=1295.4 B=533.4	10	0.312	7.92	340.00
				Std	0.375	9.53	408.00
				XS/20	0.500	12.70	543.00
				30	0.625	15.88	675.00
40	0.688	17.48	742.00				
36	36.000	914.0	A=1371.6 B=565.2	10	0.312	7.92	381.00
				Std	0.375	9.53	458.00
				XS/20	0.500	12.70	608.00
				30	0.625	15.88	758.00
40	0.750	19.05	906.00				
38	38.000	965.0	A=1147.8 B=600.0	Std/40	0.375	9.53	510.00
				XS/80	0.500	12.70	679.00
40	40.000	1016.0	A=1524.0 B=632.0	Std/40	0.312	9.53	570.00
				XS/80	0.375	12.70	757.00
42	42.000	1067.0	A=1600.0 B=660.0	Std/40	0.312	9.53	629.00
				XS/80	0.375	12.70	836.00
44	44.000	1118.0	A=1676.4 B=695.0	Std/40	0.312	9.53	691.00
				XS/40	0.375	12.70	918.00
46	46.000	1168.4	A=1752.6 B=717.1	Std/40	0.312	9.53	753.00
				XS/80	0.375	12.70	1003.00
48	48.000	1219.2	A=1828.8 B=756.8	Std/40	0.312	9.53	822.00
				XS/80	0.375	12.70	1092.00

Kinds	Nominal Pipe Size (in)	JIS B2311				ASME/ANSI B 16.9 B 16.28					
		inspeacion contents	3-4	5-8	10-18	20-24	3-4	5-8	10-18	20-24	
All Fittings	Outside diameter at bevel D	±2.0	±2.5	±3.5	±5.0 -4.5	+6.4 -4.8	+1.52 -0.76	±1.52	+2.29 -1.52	+4.06 -3.05	+6.35 -4.83
	inside diameter at end	±2.0	±2.5	±3.5	±4.5	±4.8	±0.76	±1.52	±1.52	±3.05	±4.83
	Wall Thickness(T)	-15%				-12.5%					
Elbows Tees	Center to face(ABC/M)	±2.0		±3.2		±1.52		±2.29			
Reducers	Length(H)	±2.0		±3.2							
Caps	Overall length(E)	±3.2		±6.5		±3.05		±6.35			
Returns	Center to center(P)	±6.4		±9.5		±6.35		±9.65			
	Back to face(K)	±6.4				±6.35					
	Deflection of face to face(U)	1.6		3.2		±0.76		±1.52			

Tolerances:mm

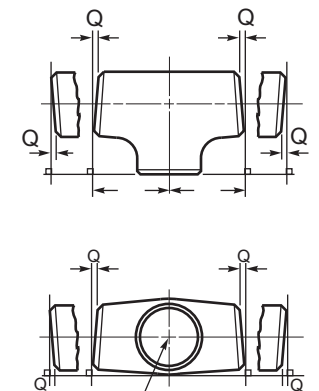


ASME/ANSI B16.9 B16.28

Angularity Tolerance		
Nominal Pipe Size	Off Angle	Off Plane
(IN)	Q	P
1/2 to 4	0.76	1.52
5 to 8	1.52	3.05
10 to 12	2.29	4.83
14 to 16	2.29	6.35
18 to 24	3.05	9.65

JIS B2311

Angularity Tolerance		
Nominal Pipe Size	Off Angle	Off Plane
(IN)	Q	P
to 4	0.8	1.6
5 to 8	1.6	3.2
10 to 12	2.4	4.8
14 to 16	2.4	6.4
18 to 24	3.2	9.5

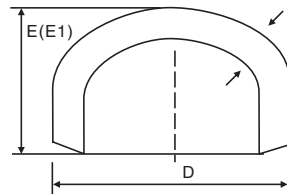




CARBON STEEL BUTT WELDED FITTINGS

THREE ONE

CAP



ASME B16.9

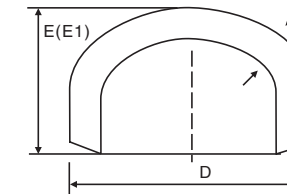
NOMINAL PIPE SIZE Inch	DIMENSIONS					WALL THICKNESS			APPROX. WEIGHT KG						
	OUTSIDE DIAMETER AT BEVEL:D		LENGTH:E mm	LIMIT OF THICKNESS mm	LENGTH:E mm	SCH.NO.	t								
	Inch	mm					Inch	mm							
8	8.625	219.1	101.6	12.7	12.7	5S	0.109	2.77	1.76						
						10S	0.148	3.76	2.50						
						STD/40 40S	0.322	8.18	5.19						
						XS80 80S	0.500	12.70	8.05						
						20	0.250	6.35							
						60	0.406	10.31							
						100	0.594	15.09	11.60						
						120	0.719	18.26	15.20						
						140	0.812	20.62	15.20						
						160	0.906	23.01	14.70						
						XXS	0.875								
						10	10.750	273.0	127.0	12.7	152.4	5S	0.134	3.404	3.35
10S	0.165	4.191	4.14												
80/80S 60	0.500	12.70	16.80												
STD/40 40S	0.365	9.271	9.15												
XS	0.594	15.09	12.50												
20	0.250	6.35													
100	0.719	18.26													
120	0.844	21.44	23.90												
140/XXS	1.000	25.40	25.70												
160	1.125	28.58	28.90												
12	12.750	323.9	152.4	12.7	177.8							5S	0.156	3.96	5.47
												10S	0.180	4.572	6.50
						STD/40S	0.375	9.53	13.30						
						XS80S	0.500	12.70	17.70						
						20	0.250	6.36	9.43						
						40	0.406	10.31	14.00						
						80	0.688	14.27	26.40						
						100	0.844	17.48							
						120	1.000	21.44							
						140	1.125	28.58	36.40						
						160	1.312	33.32	47.70						
						14	14.000	355.6	165.1	12.7	190.5	5S	0.156	3.96	5.66
10S	0.188	4.78	15.90												
STD	0.375	9.53	15.90												
20	0.312	7.92	18.60												
40	0.438	11.13	21.20												
XS	0.500	12.70	26.70												
60	0.594	15.09	34.90												
80	0.750	19.05	35.20												
100	0.938	23.825													
120	1.094	27.79	99.00												
140	1.250	31.75													
160	1.406	35.71	61.20												
16	16.000	406.4	177.8	12.7	203.2	5S	0.165	4.19	6.60						
						10S	0.188	4.78	7.53						
						STD	0.375	9.53	20.00						
						XS/40	0.500	12.70	26.70						
						20	0.312	7.92	12.50						
						60	0.656	16.66	49.00						
						80	0.844	21.44	49.10						
						100	1.031	26.19	111.00						
						120	1.219	30.96							
						140	1.438	36.53	130.00						
						160	1.594	40.48							
						18	18.000	457.0	203.2	12.7	228.6	5S	0.165	4.19	7.52
10S	0.188	4.78	8.58												
STD	0.375	9.53	25.60												
XS	0.500	12.70	34.10												
20	0.312	7.92	21.20												
40	0.562	14.27	41.40												
60	0.750	19.05													
80	0.938	23.83													
100	1.156	29.36	69.10												
120	1.375	34.93													
140	1.562	39.67	125.00												
160	1.781	45.24													



CARBON STEEL BUTT WELDED FITTINGS

THREE ONE

CAP



ASME B16.9

NOMINAL PIPE SIZE Inch	DIMENSIONS					WALL THICKNESS			APPROX. WEIGHT KG						
	OUTSIDE DIAMETER AT BEVEL:D		LENGTH:E mm	LIMIT OF THICKNESS mm	LENGTH:E mm	SCH.NO.	t								
	Inch	mm					Inch	mm							
20	20.000	508.0	228.6	12.7	254.0	5S	0.168	4.27	10.10						
						10S	0.218	5.54	11.70						
						STD/20	0.375	9.53	31.90						
						XS	0.500	12.70	42.50						
						40	0.594	15.09	54.10						
						60	0.812	20.62	54.10						
						80	1.031	26.19	93.70						
						100	1.281	32.54	136.00						
						120	1.500	38.10							
						140	1.750	44.45							
						160	1.969	50.01	179.00						
						22	22.000	559.0	254.0	12.7	254.0	5S	0.188	4.78	12.10
10S	0.218	5.54	22.60												
STD/20	0.375	9.53	38.80												
XS	0.500	12.70	51.70												
60	0.875	22.23													
80	1.125	28.58	116.00												
100	1.375	34.93													
120	1.625	41.28	168.00												
140	1.875	47.63													
160	2.125	53.98	219.00												
24	24.000	610.0	266.7	12.7	304.8							5S	0.218	5.54	45.10
												10S	0.250	6.34	60.10
						STD/20	0.375	9.53	90.10						
						XS	0.500	12.70							
						40	0.688	17.48							
						60	0.969	24.61	160.00						
						80	1.219	30.96							
						100	1.531	38.89							
						120	1.812	46.02	307.00						
						140	2.062	52.37							
						160	2.344	59.54							
						26	26.000	660.0	266.7	-	-	STD	0.375	9.53	50.50
						XS	0.500	12.70	67.30						
28	28.000	711.0	266.7	-	-	STD	0.375	9.53	56.20						
						XS	0.500	12.70	74.90						
30	30.000	762.0	266.7	-	-	5S	0.260	6.35							
						10S	0.312	7.92							
						STD	0.375	9.53	62.10						
						XS	0.500	12.70	82.80						
32	32.000	813.0	266.7	-	-	STD	0.375	9.53	68.40						
						XS	0.688	17.48	126.00						
						40	0.500	12.70	91.20						
34	34.000	864.0	266.7	-	-	STD	0.375	9.53	75.00						
						XS	0.500	12.70	100.00						
						40	0.688	17.48	138.00						
36	36.000	914.0	266.7	-	-	STD	0.375	9.53	81.90						
						XS	0.500	12.70	109.00						
						40	0.750	19.05	164.00						
38	38.000	965.2	304.8	-	-	STD	0.375	9.53	94.70						
						XS	0.500	12.70	126.00						
40	40.000	1016.0	304.8	-	-	STD	0.375	9.53	102.00						
						XS	0.500	12.70	137.00						
42	42.000	1066.8	304.8	-	-	STD	0.375	9.53	110.00						
						XS	0.500	12.70	147.00						
44	44.000	1117.6	342.9	-	-	STD	0.375	9.53	126.00						
						XS	0.500	12.70	167.00						
46	46.000	1168.4	342.9	-	-	STD	0.375	9.53	134.00						
						XS	0.500	12.70	179.00						
48	48.000	1219.2	342.9	-	-	STD	0.375	9.53	143.00						
						XS	0.500	12.70	191.00						

