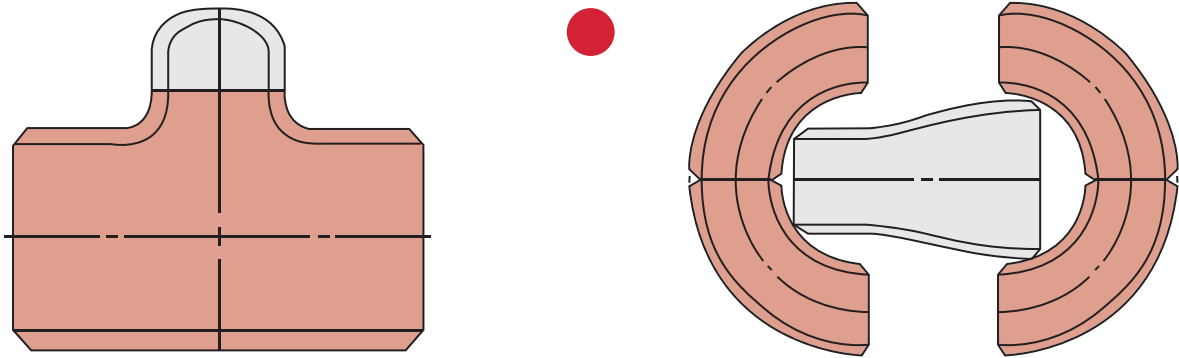


# CHU TEI FU TING CHENG HSING



CHU TEI FU PIPING FITTING MATERIAL CO., LTD.  
TING CHENG HSING ENTERPRISE CO., LTD.

## **INTRODUCTION**

一、COMPANY NAME :

CHU TEI FU PIPING FITTING MATERIAL CO., LTD.  
TING CHENG HSING ENTERPRISE CO., LTD.

二、ADDRESS : NO.40-1, HOZHUANG LN.,  
RENWU DIST., KAOHSIUNG  
CITY 814, TAIWAN

三、TELEPHONE - TEL : 002-886-7-6752078~9,  
002-886-7-3737696  
FAX : 002-886-7-6752036,  
002-886-7-3737698,3737827  
mail : chu-teifu@umail.hinet.net  
ting-cheng@umail.hinet.net

四、ESTABLISH DATE : 11/10/2005, 12/06/2000

五、PRODUCTS & SERVICE ITEMS : CARBON, STEEL, STAINLESS, STEEL,  
ALLOY STEEL, TITANIUM ALLOY,  
NICKEL ALLOY  
WELDING, SEAMLESS FITTINGS.

六、PRODUCE ABILITY : SEAMLESS (1/2"-36")  
WELD (1/2"-64")  
MITER (50"-102")  
THICKNESS (SCH5S-110MM)

七、EXPERIENCE : 1.FORMOSA PLASTICS CORPORATION.  
2.CHINA PETROLEUM CO., LTD  
3.CHINA STEEL CORPORATION.  
4.TAIWAN POWER CO.  
5.CHINA SHIP BUILDING CO.  
6.CHINA TECHNICAL CONSULTANT INCORPORATION.  
7.CHINA AMERICAN PETROCHEMICAL CO., LTD.  
8.CHENG CHEN, MACHINERY CO., LTD.

## APPLICABLE STANDARD

A234 : WPB, WPC, WP11, WP12, WP22, WP9, WP91, WP92

A420 : WPL6, WPL3

A860 : WPHY x 52 x 65 x 70

A403 : WP304, WP304L, WP304H, WP304LN, WP316, WP316L, WP316H, WP316LN

WP321, WP321H, WP347, WP347H, WP317, WP317L, WP317LN, WP310

A815 : UNS : S31803, S23750, S32760

B363 : T2

B366 : ALLOY 200/201, 400, 600, 625, 665, 800, 800H, 825

B366 : ALLOY 20, C276

JIS B2311 : FSGP PY-400

JIS B2312 : PG370, PT370, PT480

JIS B2312 : SUS 304/304L, SUS 316/316L, SUS 317/317L

JIS B2312 : SUS 321, SUS 347

JIS B2313 : PG370W, PT370W, PT480W

JIS B2313 : SUS 304W, SUS 304LW, SUS 316W, SUS 316LW

JIS B2313 : SUS 317W, SUS 317LW, SUS 321W, SUS 347W

# CHU TEI FU TING CHENG HSING

CHU TEI FU TING CHENG HSING PIPING FITTING MATERIAL CO., LTD.	(WPS、PQR) LIST	DOCUMENT NO.	T0601-6-0
		PAGE	2之3

MARKING SYMBOL	SPECIFICATION AND GRADE	WPS NO.	PQR NO.	PROCESS	WELDING MATERIAL
WPL3	(S)A333&A334 GR.3 (S)A203GR.D	SP9BC9B-1	QSP9BC9B-1	GTAW+SMAW	STG-3N(Solid) F7016-C2L-REV.1
WP304	(S)A312 TP304 (S)A240 TP304	SP8M8-1	QSP8M8-1	SMAW	E308
		SP8F8-1	QSP8F8-1	FCAW	E308LT1-1
		SP8T8-1	QSP8T8-1	GTAW	ER308
WP304H	(S)A312 TP304H (S)A240 TP304H	SP8M8-2	QSP8M8-1	SMAW	E308H
		SP8F8-2	QSP8F8-1	FCAW	E308LT1-1
		SP8T8-3	QSP8T8-1	GTAW	ER308
WP304L	(S)A312 TP304L (S)A240 TP304L	SP8M8-1	QSP8M8-1	SMAW	E308L
		SP8F8-1	QSP8F8-1	FCAW	E308LT1-1
		SP8T8-2	QSP8T8-1	GTAW	ER308L
WP316	(S)A312 TP316 (S)A240 TP316	SP8M8-3	QSP8M8-1	SMAW	E316
		SP8F8-3	QSP8F8-1	FCAW	E316LT1-1
		SP8T8-4	QSP8T8-1	GTAW	ER316
WP316L	(S)A312 TP316L (S)A240 TP316L	SP8M8-5	QSP8M8-1	SMAW	E316L
		SP8F8-5	QSP8F8-1	FCAW	E316LT1-1
		SP8T8-6	QSP8T8-1	GTAW	ER316L
WP317	(S)A312 TP317 (S)A240 TP317	SP8M8-6	QSP8M8-1	SMAW	E317
		SP8F8-6	QSP8F8-1	FCAW	E317LT1-1
		SP8T8-7	QSP8T8-1	GTAW	ER317
WP317L	(S)A312 TP317L (S)A240 TP317L	SP8M8-8	QSP8M8-1	SMAW	E317L
		SP8F8-8	QSP8F8-1	FCAW	E317LT1-1
		SP8T8-9	QSP8T8-1	GTAW	ER317L

# CHU TEI FU TING CHENG HSING

CHU TEI FU TING CHENG HSING PIPING FITTING MATERIAL CO., LTD.	(WPS、PQR) LIST	DOCUMENT NO.	T0601-6-0
		PAGE	3之3

MARKING SYMBOL	SPECIFICATION AND GRADE	WPS NO.	PQR NO.	PROCESS	WELDING MATERIAL
WP321	(S)A312 TP321 (S)A240 TP321	SP8M8-9	QSP8M8-1	SMAW	E347
		SP8F8-9	QSP8F8-1	FCAW	E347LT-1
		SP8T8-10	QSP8T8-1	GTAW	ER347
WP347	(S)A312 TP347 (S)A240 TP347	SP8AM8A-1	QSP8AM8A-1	SMAW	E347
		SP8AF8A-1	QSP8AF8A-1	FCAW	E347LT-1
		SP8AT8A-1	QSP8AT8A-1	GTAW	ER347
ALLOY 625	B366 N06625 WPNCMC	SP43M43-1	QSP43M43-1	SMAW	WEL AC-112
		SP43T43-1	QSP43T43-1	GTAW	WEL TIG-625
ALLOY C276	B366 N10276 C276	SP44T44-1	SP44T44-1	GTAW	

# CHU TEI FU TING CHENG HSING

## Butt-Welding Fittings-Nominal Wall Thickness

Material : Carbon Steel, Stainless Steel, Alloy Steel, Titanium Alloy.

(in millimeters)

Nominal Pipe Size (in inches)	Outside Diameter		Nominal Wall Thickness								
	JIS M/M	ASTM M/M	Sch 5S	Sch 10S	Sch 10	Sch 20S	SGP	Sch 40S	STD	Sch 30	Sch 40
½	21.7	21.3	1.65	2.11	2.11	2.50	2.8	2.77	2.77	2.41	2.77
¾	27.2	26.7	1.65	2.11	2.11	2.50	2.8	2.87	2.87	2.41	2.78
1	34.0	33.4	1.65	2.77	2.77	3.00	3.2	3.38	3.38	2.9	3.38
1¼	42.7	42.2	1.65	2.77	2.77	3.00	3.5	3.56	3.56	2.97	3.56
1½	48.6	48.3	1.65	2.77	2.77	3.00	3.5	3.68	3.68	3.18	3.68
2	60.5	60.3	1.65	2.77	2.77	3.50	3.8	3.91	3.91	3.18	3.91
2½	76.3	73.0	2.11	3.05	3.05	3.50	4.2	5.16	5.16	4.78	5.16
3	89.1	88.9	2.11	3.05	3.05	4.00	4.2	5.49	5.49	4.78	5.49
3½	101.6	101.6	2.11	3.05	3.05	4.00	4.2	5.74	5.74	4.78	5.74
4	114.3	114.3	2.11	3.05	3.05	4.00	4.5	6.02	6.02	4.78	6.02
5	139.8	141.3	2.77	3.40	3.40	5.00	4.5	6.55	6.55	-	6.55
6	165.2	168.3	2.77	3.40	3.40	5.00	5.0	7.11	7.11	-	7.11
8	216.3	219.1	2.77	3.76	3.76	6.35	5.8	8.18	8.18	7.04	8.18
10	267.4	273.0	3.40	4.19	4.19	6.35	6.6	9.27	9.27	7.8	9.27
12	318.5	323.8	3.96	4.57	4.57	6.35	6.9	9.52	9.52	8.38	10.31
14	355.6		3.96	4.78	6.35	7.92	7.9	9.52	9.52	9.53	11.13
16	406.4		4.19	4.78	6.35	7.92	7.9	9.52	9.52	9.53	12.70
18	457.0		4.19	4.78	6.35	7.92	7.9	9.52	9.52	11.13	14.27
20	508.0		4.78	5.54	6.35	9.52	7.9	9.52	9.52	12.7	15.06
22	559		4.78	5.54	6.35	9.52	7.9	9.52	9.52	12.7	15.87
24	610		5.54	6.35	6.35	9.52	7.9	9.52	9.52	14.27	17.48
26	660		5.54	6.35	7.92	12.70	-	9.52	9.52	-	17.48
28	711		5.54	6.35	7.92	12.70	-	9.52	9.52	15.88	17.48
30	762		6.35	7.92	7.92	12.70	-	9.52	9.52	15.88	17.48
32	813		-	7.92	7.92	12.70	-	9.52	9.52	15.88	17.48
34	864		-	7.92	7.92	12.70	-	9.52	9.52	15.88	17.48
36	914		-	7.92	7.92	12.70	-	9.52	9.52	15.88	19.05
38	965		-	7.92	7.92	12.70	-	9.52	9.52	-	19.05
40	1016		-	9.50	9.50	14.3	-	9.52	9.52	-	26.2
42	1067		-	9.50	9.50	14.3	-	9.52	9.52	-	26.2
44	1118		-	9.50	9.50	14.3	-	9.52	9.52	-	26.2
46	1168		-	9.50	9.50	14.3	-	9.52	9.52	-	26.2
48	1219		-	9.50	9.50	14.3	-	9.52	9.52	-	26.2

ANSI B36.10, B36.19

## Butt-Welding Fittings-Nominal Wall Thickness

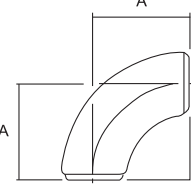
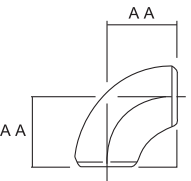
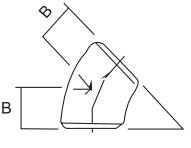
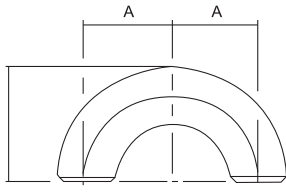
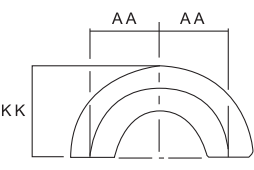
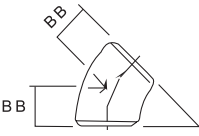
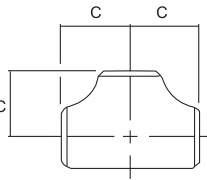
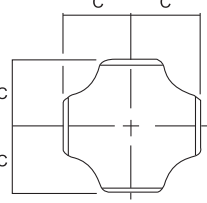
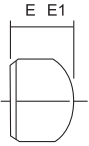
Material : Carbon Steel, Stainless Steel, Alloy Steel, Titanium Alloy.

(in millimeters)

Nomianal Wall Thickness								Outside Diameter		Nominal Pipe Size (in inches)
XS	Sch 60	Sch 80	Sch 100	Sch 120	Sch 140	Sch 160	XXS	ASTM M/M	JIS M/M	
3.73	-	3.73	-	-	-	4.75	7.47	21.3	21.7	½
3.91	-	3.91	-	-	-	5.54	7.82	26.7	27.2	¾
4.55	-	4.55	-	-	-	6.35	9.09	33.4	34.0	1
4.85	-	4.85	-	-	-	6.35	9.70	42.2	42.7	1¼
5.08	-	5.08	-	-	-	7.14	10.16	48.3	48.6	1½
5.54	-	5.54	-	-	-	8.71	11.07	60.3	60.5	2
7.01	-	7.01	-	-	-	9.52	14.02	73.0	76.3	2½
7.62	-	7.62	-	-	-	11.13	15.24	88.9	89.1	3
8.08	-	8.08	-	-	-	—	16.15	101.6	101.6	3½
8.56	-	8.56	-	11.13	-	13.49	17.12	114.3	114.3	4
9.53	-	9.53	-	12.70	-	15.88	19.05	141.3	139.8	5
10.97	-	10.97	-	14.27	-	18.24	21.95	168.3	165.2	6
12.70	10.31	12.70	15.06	18.26	20.62	23.01	22.22	219.1	216.3	8
12.70	12.7	15.06	18.26	21.44	25.40	28.58	25.40	273.1	267.4	10
12.70	14.27	17.48	21.44	25.40	28.58	33.32	25.40	323.9	318.5	12
12.70	15.09	19.05	23.83	27.79	31.75	36.71	-	355.6	-	14
12.70	16.66	21.44	26.19	30.96	36.52	40.46	-	406.4	-	16
12.70	19.05	23.82	29.36	34.92	39.67	45.25	-	457.0	-	18
12.70	20.62	26.19	32.54	38.10	44.45	49.99	-	508.0	-	20
12.70	22.23	28.58	34.92	41.28	47.62	53.98	-	559	-	22
12.70	24.61	30.93	38.89	46.02	52.37	59.51	-	610	-	24
12.70	-	-	-	-	-	-	-	660	-	26
12.70	-	-	-	-	-	-	-	711	-	28
12.70	-	-	-	-	-	-	-	762	-	30
12.70	-	-	-	-	-	-	-	813	-	32
12.70	-	-	-	-	-	-	-	864	-	34
12.70	-	-	-	-	-	-	-	914	-	36
12.70	-	-	-	-	-	-	-	965	-	38
12.70	-	-	-	-	-	-	-	1016	-	40
12.70	-	-	-	-	-	-	-	1067	-	42
12.70	-	-	-	-	-	-	-	1118	-	44
12.70	-	-	-	-	-	-	-	1168	-	46
12.70	-	-	-	-	-	-	-	1219	-	48

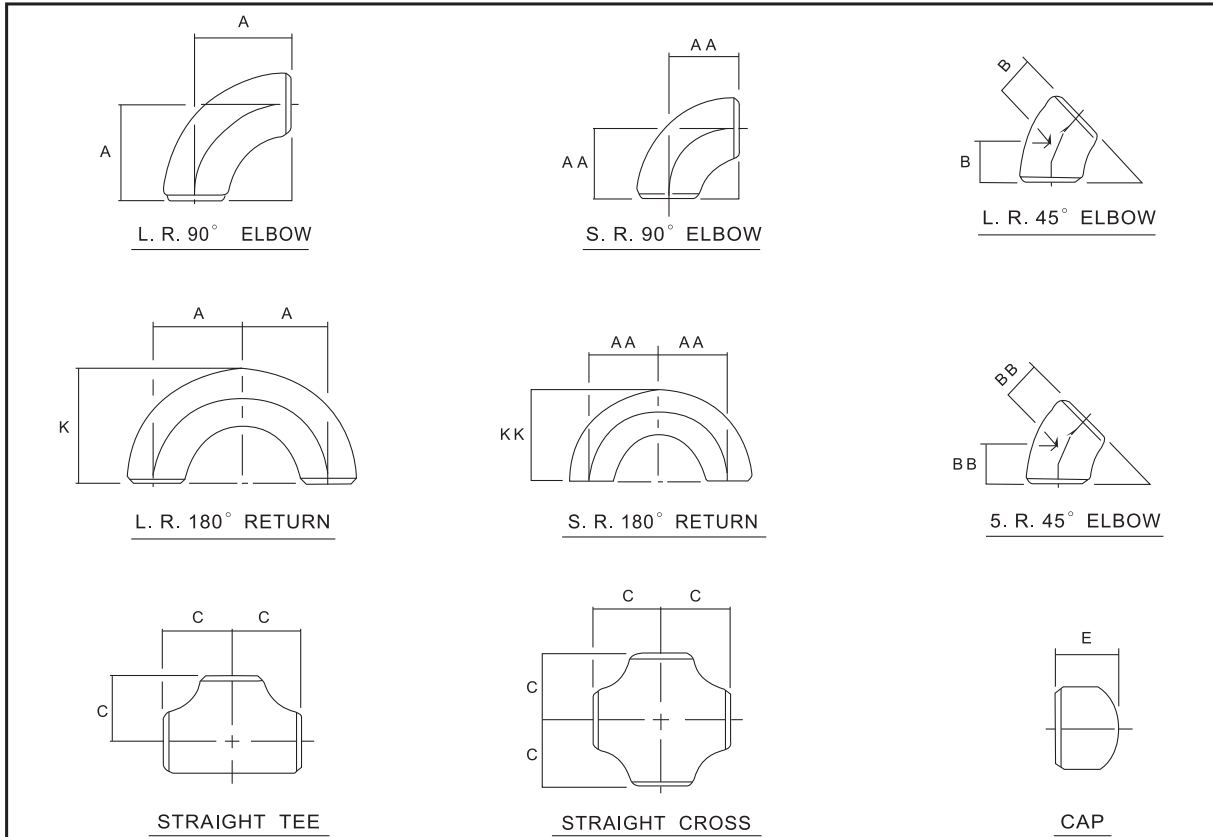
ANSI B36.10, B36.19

## Butt-Welding Fittings

									
L. R. 90° ELBOW	S. R. 90° ELBOW	L. R. 45° ELBOW							
									
L. R. 180° RETURN	S. R. 180° RETURN	5. R. 45° ELBOW							
									
STRAIGHT TEE	STRAIGHT CROSS	CAP							
Material : Carbon Steel, Stainless Steel, Alloy Steel, Titanium Alloy.									
NPS	A	AA	B	BB	C	E	E1	K	KK
½"	38.0	-	16.0	-	25.0	25.0	25.4	48.0	-
¾"	38.0	-	19.0	-	29.0	25.0	25.4	51.0	-
1"	38.0	25.0	22.0	-	38.0	38	38.1	56.0	41.0
1¼"	47.6	31.8	19.7	13.2	47.6	38.1	38.1	69.0	53.2
1½"	57.0	38.0	29.0	16.0	57.0	38	38.1	83.0	62.0
2"	76.0	51.0	35.0	21.0	64.0	38	44.5	106.0	81.0
2½"	95.0	64.0	44.0	26.3	76.0	38	50.8	132.0	100.0
3"	114.0	76.0	51.0	31.6	86.0	51.0	63.5	159.0	121.0
4"	152.0	102.0	64.0	42.1	105.0	64.0	76.2	210.0	159.0
5"	190.5	78.9	127.0	52.6	123.8	76.2	88.9	260.4	196.9
6"	229.0	152.0	95.0	63.1	143.0	89.0	101.6	313.0	237.0
8"	305.0	203.0	127.0	84.2	178.0	102.0	127	414.0	313.0
10"	381.0	254.0	159.0	105.2	216.0	127.0	152.4	518.0	391.0
12"	457.0	305.0	190.0	126.2	254.0	152.0	177.8	619.0	467.0
14"	533.0	356.0	222.0	147.3	279.0	165.0	190.5	711.0	533.0
16"	610.0	406.0	254.0	168.3	305.0	178.0	203.2	813.0	610.0
18"	686.0	457.0	286.0	189.4	343.0	203.0	228.6	914.0	686.0
20"	762.0	508.0	318.0	210.4	381.0	229.0	254	1016.0	762.0
22"	838.2	558.8	347.2	231.5	419.0	254.0	279.4	1117.6	838.2
24"	914.0	610.0	381.0	253.0	432.0	267.0	304.8	1219.0	914.0
ANSI : B16.9, B16.28, MSS SP-43, MSS SP-75									
JIS : B2311, B2312, B2313									



## Butt-Welding Fittings



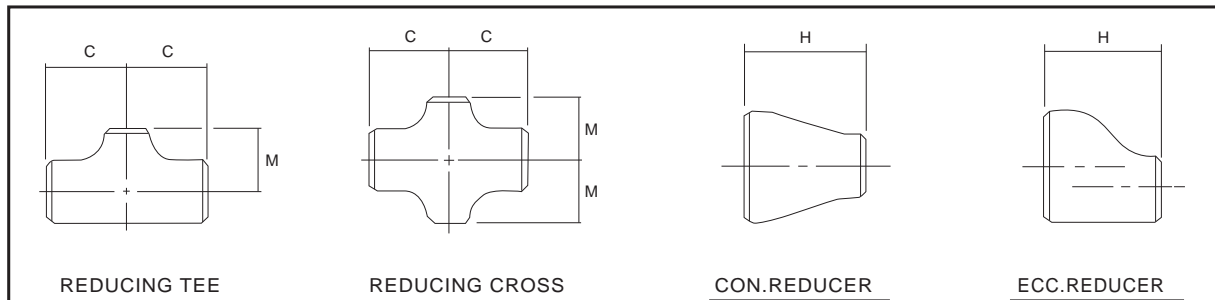
Material : Carbon Steel, Stainless Steel, Alloy Steel, Titanium Alloy.

NPS	A	AA	B	BB	C	E		
26"	991	660	406	274	495	267		
28"	1067	711.2	438	295	521	267		
30"	1143	762	470	316	559	267		
32"	1219	812.8	502	338	597	267		
34"	1295	863.6	533	359	635	267		
36"	1372	914.4	565	379	673	267		
38"	1448	965.2	600	401	711	305		
40"	1524	1016	632	422	749	305		
42"	1600	1066.8	660	443	762	305		
44"	1676	1117.6	695	464	813	343		
46"	1753	1168.4	727	485	851	343		
48"	1829	1219.2	759	506	889	343		

ANSI : B16.9, B16.28, MSS SP-43, MSS SP-75

JIS : B2311, B2312, B2313

## Butt-Welding Fittings



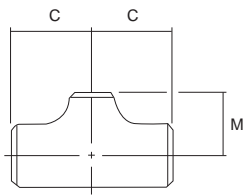
Material : Carbon Steel, Stainless Steel, Alloy Steel, Titanium Alloy.

NPS	RED.	C	M	H	NPS	RED.	C	M	H	NPS	RED.	C	M	H	
3/4"	1/2"	29.0	29.0	38.0	10"	8"	216.0	203.0	178.0	24"	20"	432.0	432.0	508.0	
1"	3/4"	38.0	38.0	51.0		6"	216.0	194.0	178.0		18"	432.0	419.0	508.0	
	1/2"	38.0	38.0	51.0		4"	216.0	184.0	178.0		16"	432.0	406.0	508.0	
1/4"	1"	47.6	47.6	50.8	12"	10"	254.0	241.0	203.0	26"	14"	432.0	406.0	-	
	3/4"	47.6	47.6	50.8		8"	254.0	229.0	203.0		12"	432.0	397.0	-	
	1/2"	47.6	47.6	50.8		6"	254.0	219.0	203.0		10"	432.0	384.0	-	
1 1/2"	1"	57.0	57.0	64.0	14"	12"	279.0	270.0	330.0	28"	24"	495.0	483.0	610.0	
	3/4"	57.0	57.0	64.0		10"	279.0	257.0	330.0		20"	495.0	457.0	610.0	
	1/2"	57.0	57.0	64.0		8"	279.0	248.0	330.0		18"	495.0	444.0	610.0	
2"	1 1/2"	64.0	60.0	76.0	16"	6"	279.0	238.0	330.0	30"	16"	495.0	432.0	-	
	1"	64.0	51.0	76.0		14"	305.0	305.0	356.0		14"	495.0	432.0	-	
	3/4"	64.0	44.0	76.0		12"	305.0	295.0	356.0		12"	495.0	432.0	-	
2 1/2"	2"	76.0	70.0	89.0	18"	10"	305.0	283.0	356.0	32"	26"	521.0	521.0	610.0	
	1 1/2"	76.0	67.0	89.0		8"	305.0	273.0	356.0		24"	521.0	508.0	610.0	
	1"	76.0	57.0	89.0		6"	305.0	264.0	-		20"	521.0	483.0	610.0	
3"	2 1/2"	86.0	83.0	89.0	20"	16"	343.0	330.0	381.0	34"	18"	521.0	470.0	610.0	
	2"	86.0	76.0	89.0		14"	343.0	330.0	381.0		16"	521.0	457.0	-	
	1 1/2"	86.0	73.0	89.0		12"	343.0	321.0	381.0		14"	521.0	457.0	-	
4"	3"	105.0	98.0	102.0	22"	10"	343.0	308.0	381.0	36"	12"	521.0	448.0	-	
	2 1/2"	105.0	95.0	102.0		8"	343.0	298.0	-		28"	559.0	546.0	610	
	2"	105.0	89.0	102.0		18"	381.0	368.0	508.0		26"	559.0	546.0	610	
5"	1 1/2"	105.0	66.0	102.0	24"	16"	381.0	356.0	508.0	38"	24"	559.0	533.0	610	
	4"	123.8	117.5	127.0		14"	381.0	356.0	508.0		20"	559.0	508.0	610	
	3"	123.8	114.3	127.0		12"	381.0	346.0	508.0		18"	559.0	495.0	-	
6"	2 1/2"	123.8	111.1	127.0	26"	10"	381.0	333.0	-	40"	16"	559.0	483.0	-	
	5"	143.0	137.0	140.0		8"	381.0	324.0	-		14"	559.0	483.0	-	
	4"	143.0	130.0	140.0		20"	419.0	406.0	508.0		12"	559.0	473.0	-	
8"	3"	143.0	124.0	140.0	28"	18"	419.0	394.0	508.0	42"	10"	559.0	460.0	-	
	2 1/2"	143.0	121.0	140.0		16"	419.0	381.0	508.0						
	6"	178.0	168.0	152.0		14"	419.0	381.0	508.0						
	5"	178.0	162.0	152.0		12"	419.0	381.0	508.0						
	4"	178.0	156.0	152.0		10"	419.0	359.0	508.0						

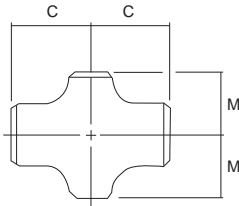
ANSI : B16.9, B16.28, MSS SP-43, MSS SP-75

JIS : B2311, B2312, B2313

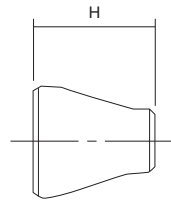
## Butt-Welding Fittings



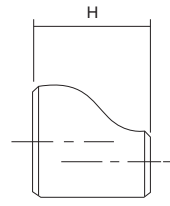
REDUCING TEE



REDUCING CROSS



CON.REDUCER



ECC.REDUCER

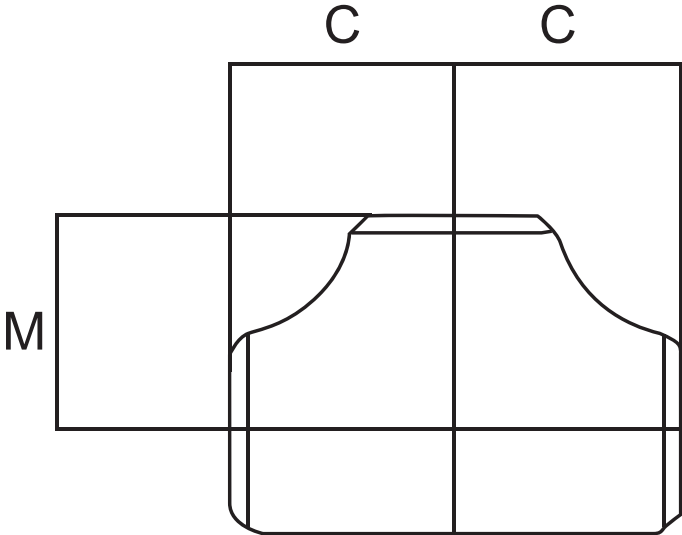
Material : Carbon Steel, Stainless Steel, Alloy Steel, Titanium Alloy.

NPS	RED.	C	M	H	NPS	RED.	C	M	H	NPS	RED.	C	M	H
32"	32"	597.0	584.0	610.0	38"	36"	711.0	711.0	610.0	44"	42"	813.0	762.0	610.0
	30"	597.0	572.0	610.0		34"	711.0	698.0	610.0		40"	813.0	749.0	610.0
	28"	597.0	572.0	610.0		32"	711.0	686.0	610.0		38"	813.0	737.0	610.0
	26"	597.0	559.0	610.0		30"	711.0	673.0	610.0		36"	813.0	724.0	610.0
	24"	597.0	533.0	610.0		28"	711.0	648.0	610.0		34"	813.0	724.0	610.0
	20"	597.0	521.0	-		26"	711.0	648.0	610.0		32"	813.0	711.0	610.0
34"	32"	635.0	622.0	610.0	24"	711.0	635.0	-	30"	813.0	711.0	610.0		
	30"	635.0	610.0	610.0	40"	38"	749.0	749.0	610.0	46"	44"	851.0	800.0	711.0
	28"	635.0	597.0	610.0		36"	749.0	737.0	610.0		42"	851.0	787.0	711.0
	26"	635.0	597.0	610.0		34"	749.0	724.0	610.0		40"	851.0	755.0	711.0
	24"	635.0	584.0	610.0		32"	749.0	711.0	610.0		38"	851.0	762.0	711.0
	20"	635.0	559.0	610.0		30"	749.0	698.0	610.0		36"	851.0	762.0	711.0
36"	34"	673.0	660.0	610.0		28"	749.0	673.0	610.0		34"	851.0	749.0	711.0
	32"	673.0	648.0	610.0	26"	749.0	673.0	610.0	32"	851.0	762.0	711.0		
	30"	673.0	635.0	610.0	24"	749.0	660.0	610.0	30"	851.0	737.0	711.0		
	28"	673.0	622.0	610.0	42"	40"	762.0	711.0	610.0	48"	46"	889.0	838.0	711.0
	26"	673.0	622.0	610.0		38"	762.0	711.0	610.0		44"	889.0	838.0	711.0
	24"	673.0	610.0	610.0		36"	762.0	711.0	610.0		42"	889.0	813.0	711.0
20"	673.0	584.0	610.0	34"		762.0	711.0	610.0	40"		889.0	813.0	711.0	
				32"		762.0	711.0	610.0	38"		889.0	813.0	711.0	
				30"		762.0	711.0	610.0	36"		889.0	787.0	711.0	
				28"	762.0	698.0	610.0	34"	889.0	787.0	711.0			
				26"	762.0	698.0	610.0	32"	889.0	787.0	711.0			
				24"	762.0	660.0	610.0	30"	889.0	762.0	711.0			

ANSI : B16.9, B16.28, MSS SP-43, MSS SP-75

JIS : B2311, B2312, B2313

Butt-Welding Fittings

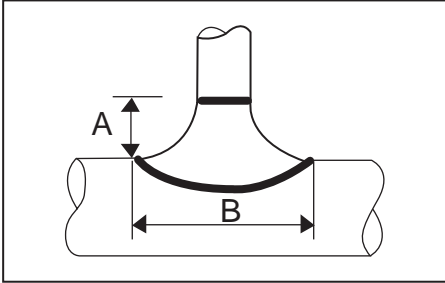


**STRAIGHT TEE**

Material : Carbon Steel, Stainless Steel, Alloy Steel, Titanium Alloy.

NPS	C	M	NPS	C	M
50"	930	930	70"	1330	1330
52"	970	970	72"	1370	1370
54"	1010	1010	74"	1410	1410
56"	1050	1050	76"	1450	1450
58"	1090	1090	78"	1490	1490
60"	1130	1130	80"	1530	1530
62"	1170	1170	82"	1570	1570
64"	1210	1210	84"	1610	1610
66"	1250	1250	86"	1650	1650
68"	1290	1290	88"	1690	1690

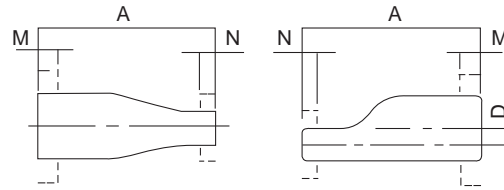
Butt-Welding Fittings



Sweepolet

Run Size Inches	Outlet Size Inches	Dimensions Inches	
		*A	B
6 to 42	1 1/4	2	3
6 to 42	1 1/2	2	4
6 to 42	2	2 1/2	4
6 to 42	3	3	5 1/2
6 to 42	4	3	6 1/2
10 to 42	6	4	11
12 to 42	8	4	13
16 to 42	10	4	16
16 to 42	12	4	18
20 to 42	14	4 1/2	20
24 to 42	16	4 1/2	24
24 to 42	18	5	25
24 to 42	20	5 1/2	26
30 to 42	24	6	32

## SWAGE NIPPLE



COCENTRIC

ECCENTRIC

Material : Carbon Steel, Stainless Steel, Alloy Steel, Titanium Alloy, Steel

NPS	D	L	M	N	NPS	D	L	M	N
1/2" x 1/4"	3.8	70	13	10	3" x 1/2"	33.8	203	26	13
1/2" x 3/8"	2.1	70	13	10	3" x 3/4"	31.1	203	26	14
3/4" x 1/4"	6.5	76	14	10	3" x 1"	27.8	203	26	17
3/4" x 3/8"	4.8	76	14	10	3" x 1-1/4"	23.4	203	26	17
3/4" x 1/2"	2.7	76	14	13	3" x 1-1/2"	20.3	203	26	17
1 x 1/2"	6.1	89	17	13	3" x 2"	14.3	203	26	18
1 x 3/4"	2.7	89	17	14	3" x 2-1/2"	8.0	203	26	24
1-1/4" x 1/2"	10.5	102	17	13	4" x 1/2"	46.5	229	28	13
1-1/4" x 3/4"	7.8	102	17	14	4" x 3/4"	43.8	229	28	14
1-1/4" x 1"	4.4	102	17	17	4" x 1"	40.5	229	28	17
1-1/2" x 1/2"	13.5	114	17	13	4" x 1-1/4"	36.1	229	28	17
1-1/2" x 3/4"	10.8	114	17	14	4" x 1-1/2"	33.0	229	28	17
1-1/2" x 1"	7.5	114	17	17	4" x 2"	27.0	229	28	18
1-1/2" x 1-1/4"	3.1	114	17	17	4" x 2-1/2"	20.7	229	28	24
2" x 1/2"	19.5	165	18	13	4" x 3"	12.7	229	28	26
2" x 3/4"	16.8	165	18	14	6" x 1/2"	73.5	304	31	13
2" x 1"	13.5	165	18	17	6" x 3/4"	70.8	304	31	14
2" x 1-1/4"	9.1	165	18	17	6" x 1"	67.5	304	31	17
2" x 1-1/2"	6.0	165	18	17	6" x 1-1/4"	63.1	304	31	17
2-1/2" x 1/2"	25.9	178	24	13	6" x 1-1/2"	60.0	304	31	17
2-1/2" x 3/4"	23.2	178	24	14	6" x 2"	54.0	304	31	18
2-1/2" x 1"	19.8	178	24	17	6" x 2-1/2"	47.6	304	31	24
2-1/2" x 1-1/4"	15.4	178	24	17	6" x 3"	39.7	304	31	26
2-1/2" x 1-1/2"	12.4	178	24	17	6" x 4"	27.0	304	31	28
2-1/2" x 2"	6.4	178	24	18					

1.WHERE THREAD. THE WALL THICKNESS SHALL BE MIN. SCH.80 FOR NOM. PIPE SIZE 2" SMALLER.

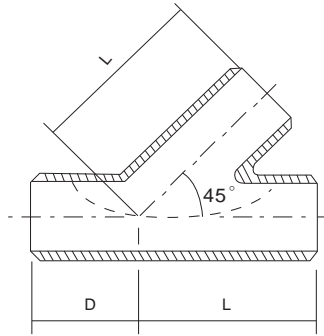
2.THREAD DIMENSION "M" & "N" SHALL BE ACCORDANCE WITH ASME. 81.20.1 NPT HANDTIHT ENGAGEMENT PLUS WRENCH MAKEUP LENGTH UNLESS OTHER WISE

3.SWAGE NIPPLES ARE AVAILABLE IN CONCENTRIC & ECCENTRIC STYLES IN STANDARD WITH ENDS PREPARED AS FOOLLOWS:

PLE/TSE. PSE/TLE. BLE/PSE. BLE/BSE. BSE/TLE. PLE/BSE. TBE . PBE . BBE

4.DIMENSION "L" IS BASED ON MSS SP-95.

## Butt-Welding Fittings



45° LATERALS STRAIGHT (BUTT WELD)

Material : Carbon Steel, Stainless Steel

DIMENSIONS SHOWN ARE IN MILLIMETERS

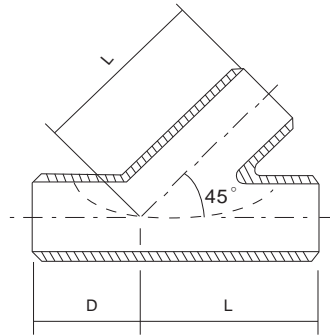
SIZE			L	D
2"	x	2"	203.2	63.5
2½"	x	2½"	241.3	63.5
3"	x	3"	254.0	76.2
4"	x	4"	304.6	76.2
5"	x	5"	342.9	88.9
6"	x	6"	368.3	88.9
8"	x	8"	444.5	114.3
10"	x	10"	520.7	127.0
12"	x	12"	622.3	139.7
14"	x	14"	685.8	152.4
16"	x	16"	762.0	165.1
18"	x	18"	812.0	177.8
20"	x	20"	889.0	203.2
24"	x	24"	1029.0	228.6

NOTES : 1.END FINISH AS PER ASME B16.25

2.TOLERANCES ACCORDING TO MANUFACTURE'S ST'D.

3.100% RADIOGRAPHY OF WELDED COMPONENTS.

## Butt-Welding Fittings



45° LATERALS STRAIGHT (BUTT WELD)

Material : Carbon Steel, Stainless Steel

DIMENSIONS SHOWN ARE IN MILLIMETERS

SIZE	L	D	SIZE	L	D
2½" x 2"	241.3	63.5	14" x 12"	685.8	152.4
3" x 2"	254.0	76.2	14" x 10"	685.8	152.4
4" x 3"	304.6	76.2	14" x 8"	685.8	152.4
4" x 2½"	304.6	76.2	14" x 6"	685.8	152.4
4" x 2"	304.6	76.2	16" x 14"	762.0	165.1
5" x 4"	342.9	88.9	16" x 12"	762.0	165.1
5" x 3"	342.9	88.9	16" x 10"	762.0	165.1
5" x 2½"	342.9	88.9	16" x 8"	762.0	165.1
6" x 5"	368.3	88.9	18" x 16"	812.8	177.8
6" x 4"	368.3	88.9	18" x 14"	812.8	177.8
6" x 3"	368.3	88.9	18" x 12"	812.8	177.8
8" x 6"	444.5	114.3	18" x 10"	812.8	177.8
8" x 5"	444.5	114.3	20" x 18"	889.0	203.2
8" x 4"	444.5	114.3	20" x 16"	889.0	203.2
10" x 8"	520.7	127.0	20" x 14"	889.0	203.2
10" x 6"	520.7	127.0	20" x 12"	889.0	203.2
10" x 5"	520.7	127.0	24" x 22"	1028.7	228.6
12" x 10"	622.3	139.7	24" x 20"	1028.7	228.6
12" x 8"	622.3	139.7	24" x 18"	1028.7	228.6
12" x 6"	622.3	139.7	24" x 16"	1028.7	228.6

NOTES : 1.END FINISH AS PER ASME B16.25

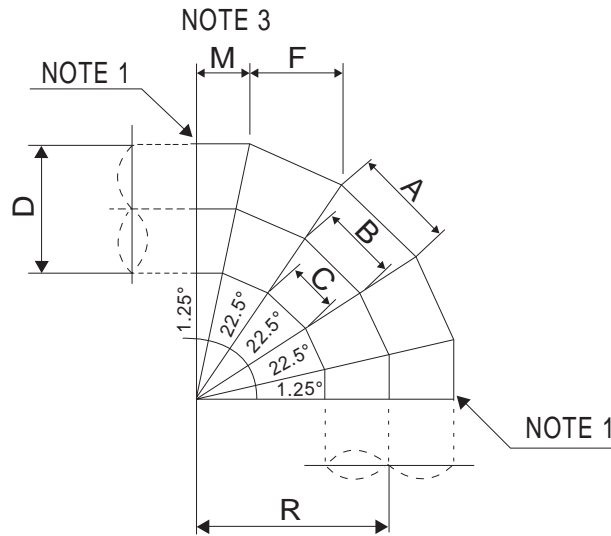
2.TOLERANCES ACCORDING TO MANUFACTURE'S ST'D.

3.100% RADIOGRAPHY OF WELDED COMPONENTS.



# CHU TEI FU TING CHENG HSING

## Butt-Welding Fittings



### 90°MITER (5 PIECE .4 WELD)

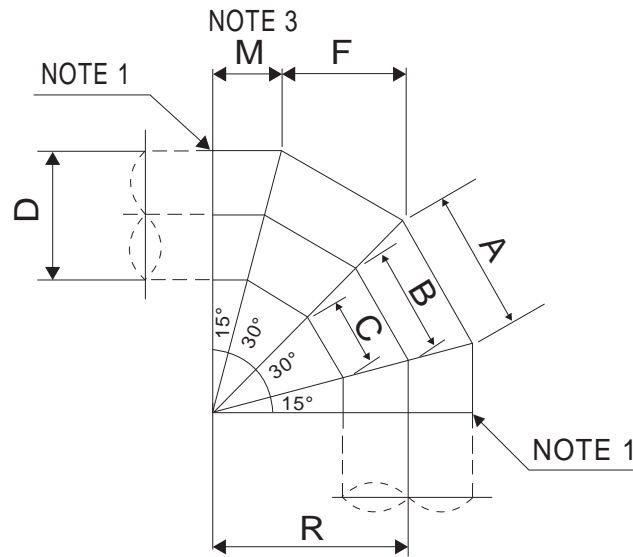
DIMENSIONS SHOWN ARE IN MILLIMETERS

NOM. SIZE (IN)	OUT DIA. (MM)	R =						R =					
		R	A	B	C	M	F	R	A	B	C	M	F
50°	1270	1270	758	505	253	379	700	1905	1010	758	505	505	933
52°	1321	1321	788	526	263	394	728	1982	1050	788	526	526	971
54°	1372	1372	818	546	273	409	756	2058	1090	818	546	546	1009
56°	1422	1422	848	566	283	424	784	2133	1130	848	566	566	1047
58°	1473	1473	878	586	293	439	812	2210	1170	878	586	586	1086
60°	1524	1524	908	606	303	454	840	2286	1210	908	606	606	1123
62°	1575	1576	938	626	313	469	868	2363	1250	938	626	626	1161
64°	1626	1626	968	646	323	484	896	2439	1290	968	646	646	1199
66°	1676	1676	998	666	333	499	924	2514	1330	998	666	666	1237
68°	1727	1727	1028	686	343	514	952	2591	1370	1028	686	686	1275
70°	1778	1778	1058	706	353	529	980	2667	1410	1058	706	706	1313
72°	1829	1829	1088	726	363	544	1008	2744	1450	1088	726	726	1351
74°	1880	1880	1118	746	373	559	1036	2820	1490	1118	746	746	1389
76°	1930	1930	1148	766	383	574	1064	2895	1530	1148	766	766	1427
78°	1981	1981	1178	786	393	589	1092	2972	1570	1178	786	786	1465
80°	2032	2032	1208	806	403	604	1120	3048	1610	1208	806	806	1503
82°	2083	2083	1238	826	413	619	1148	3125	1650	1238	826	826	1541
84°	2134	2134	1268	846	423	634	1176	3201	1690	1268	846	846	1579
86°	2184	2184	1298	866	433	649	1204	3276	1730	1298	866	866	1617
88°	2235	2235	1328	886	443	664	1232	3353	1770	1328	886	886	1655

NOTES : 1.WELDING END SHALL BE BEVELLED IN ACCORDANCE WITH ASME B16.25  
 2.THE MAXIMUM ALLOWABLE INTERNAL PRESSURE SHALL BE DETERMINED IN ACCORDANCE WITH PARA. 304.2.3 ASME B31.3  
 3.IN CASE LARGER VALUES OF M THAN THOSE TABULATED ARE REQUIRED PER PARA. 304.2.3(C)ASME B31.3. THIS DRAWING SHALL BE MODIFIED ACCORDINGLY.

# CHU TEI FU TING CHENG HSING

## Butt-Welding Fittings



### 90°MITER (4 PIECE .3 WELD)

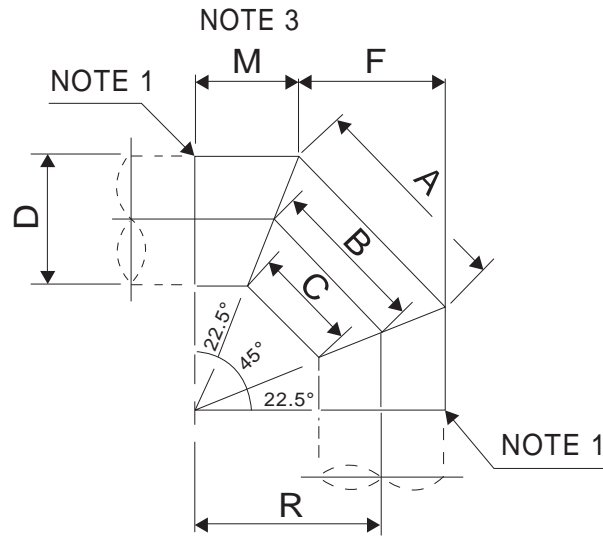
DIMENSIONS SHOWN ARE IN MILLIMETERS

NOM. SIZE (IN)	OUT DIA. (MM)	R =						R =					
		R	A	B	C	M	F	R	A	B	C	M	F
50°	1270	1270	1020	681	340	510	885	1905	1362	1020	681	681	1180
52°	1321	1321	1062	708	354	531	920	1982	1416	1062	708	708	1227
54°	1372	1372	1103	735	368	552	955	2058	1470	1103	735	735	1274
56°	1422	1422	1144	762	382	573	990	2133	1524	1144	762	762	1321
58°	1473	1473	1185	789	396	594	1025	2210	1578	1185	789	789	1368
60°	1524	1524	1226	816	410	615	1060	2286	1632	1226	816	816	1415
62°	1575	1576	1267	843	424	636	1095	2363	1686	1267	843	843	1462
64°	1626	1626	1308	870	438	657	1130	2439	1740	1308	870	870	1509
66°	1676	1676	1349	897	452	678	1165	2514	1794	1349	897	897	1556
68°	1727	1727	1390	924	466	699	1200	2591	1848	1390	924	924	1603
70°	1778	1778	1431	951	480	720	1235	2667	1902	1431	951	951	1650
72°	1829	1829	1472	978	494	741	1270	2744	1956	1472	978	978	1697
74°	1880	1880	1513	1005	508	762	1305	2820	2010	1513	1005	1005	1744
76°	1930	1930	1554	1032	522	783	1340	2895	2064	1554	1032	1032	1791
78°	1981	1981	1595	1059	536	804	1375	2972	2118	1595	1059	1059	1838
80°	2032	2032	1636	1086	550	825	1410	3048	2172	1636	1086	1086	1885
82°	2083	2083	1677	1113	546	846	1445	3125	2226	1677	1113	1113	1932
84°	2134	2134	1717	1140	578	867	1480	3201	2280	1717	1140	1140	1979
86°	2184	2184	1757	1167	592	888	1515	3276	2334	1757	1167	1167	2025
88°	2235	2235	1798	1194	606	909	1550	3353	2388	1798	1194	1194	2072

NOTES : 1.WELDING END SHALL BE BEVELLED IN ACCORDANCE WITH ASME B16.25  
 2.THE MAXIMUM ALLOWABLE INTERNAL PRESSURE SHALL BE DETERMINED IN ACCORDANCE WITH PARA. 304.2.3 ASME B31.3  
 3.IN CASE LARGER VALUES OF M THAN THOSE TABULATED ARE REQUIRED PER PARA. 304.2.3(C)ASME B31.3. THIS DRAWING SHALL BE MODIFIED ACCORDINGLY.

# CHU TEI FU TING CHENG HSING

## Butt-Welding Fittings



### 90°MITER (3 PIECE .2 WELD)

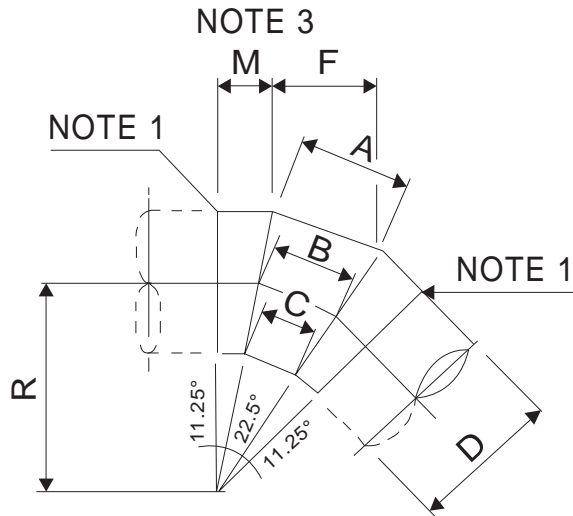
DIMENSIONS SHOWN ARE IN MILLIMETERS

NOM. SIZE (IN)	OUT DIA. (MM)	R =						R =					
		R	A	B	C	M	F	R	A	B	C	M	F
50°	1270	1270	1578	1052	526	789	1115	1905	2104	1578	1052	1052	1487
52°	1321	1321	1641	1094	547	821	1161	1982	2189	1641	1094	1094	1548
54°	1372	1372	1704	1136	568	853	1207	2058	2274	1704	1136	1136	1609
56°	1422	1422	1767	1178	589	885	1253	2133	2359	1767	1178	1178	1670
58°	1473	1473	1830	1220	610	917	1299	2210	2444	1830	1220	1220	1731
60°	1524	1524	1892	1262	631	949	1345	2286	2529	1892	1262	1262	1792
62°	1575	1575	1956	1304	652	981	1391	2363	2614	1956	1304	1304	1853
64°	1626	1626	2018	1346	673	1013	1437	2439	2699	2018	1346	1346	1914
66°	1676	1676	2082	1388	694	1045	1483	2514	2784	2082	1388	1388	1975
68°	1727	1727	2145	1430	715	1077	1529	2591	2869	2145	1430	1430	2036
70°	1778	1778	2208	1472	736	1109	1575	2667	2954	2208	1472	1472	2097
72°	1829	1829	2270	1514	757	1141	1621	2744	3039	2270	1514	1514	2158
74°	1880	1880	2234	1556	778	1173	1667	2820	3124	2234	1556	1556	2219
76°	1930	1930	2397	1597	799	1205	1712	2895	3209	2397	1597	1597	2280
78°	1981	1981	2460	1640	820	1237	1759	2972	3294	2460	1640	1640	2341
80°	2032	2032	2523	1681	841	1269	1805	3048	3379	2523	1681	1681	2402
82°	2083	2083	2585	1723	861	1300	1851	3125	3464	2585	1723	1723	2463
84°	2134	2134	2648	1766	882	1332	1897	3201	3549	2648	1766	1766	2524
86°	2184	2184	2712	1807	903	1364	1942	3276	3633	2712	1807	1807	2584
88°	2235	2235	2774	1848	924	1396	1988	3353	3718	2774	1848	1848	2645

NOTES : 1.WELDING END SHALL BE BEVELLED IN ACCORDANCE WITH ASME B16.25  
 2.THE MAXIMUM ALLOWABLE INTERNAL PRESSURE SHALL BE DETERMINED IN ACCORDANCE WITH PARA. 304.2.3 ASME B31.3  
 3.IN CASE LARGER VALUES OF M THAN THOSE TABULATED ARE REQUIRED PER PARA. 304.2.3(C)ASME B31.3. THIS DRAWING SHALL BE MODIFIED ACCORDINGLY.

# CHU TEI FU TING CHENG HSING

## Butt-Welding Fittings



### 45°MITER (3 PIECE .2 WELD)

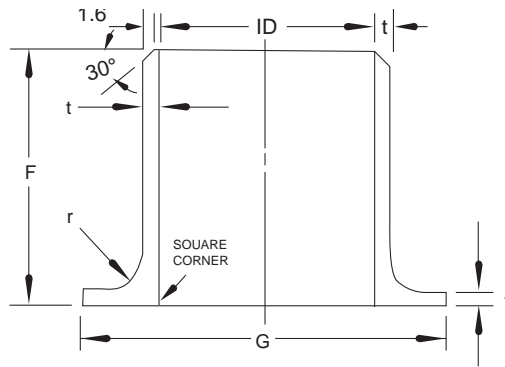
DIMENSIONS SHOWN ARE IN MILLIMETERS

NOM. SIZE (IN)	OUT DIA. (MM)	R =						R =					
		R	A	B	C	M	F	R	A	B	C	M	F
50°	1270	1270	758	505	253	379	700	1905	1010	758	505	505	933
52°	1321	1321	788	526	263	394	728	1982	1050	788	526	526	971
54°	1372	1372	818	546	273	409	756	2058	1090	818	546	546	1009
56°	1422	1422	848	566	283	424	784	2133	1130	848	566	566	1047
58°	1473	1473	878	586	293	439	812	2210	1170	878	586	586	1085
60°	1524	1524	908	606	303	454	840	2286	1210	908	606	606	1123
62°	1575	1575	938	626	313	469	868	2363	1250	938	626	626	1161
64°	1626	1626	968	646	323	484	896	2439	1290	968	646	646	1199
66°	1676	1676	998	666	333	499	924	2514	1330	998	666	666	1237
68°	1727	1727	1028	686	343	514	952	2591	1370	1028	686	686	1275
70°	1778	1778	1058	706	353	529	980	2667	1410	1058	706	706	1313
72°	1829	1829	1088	726	363	544	1008	2744	1450	1088	726	726	1351
74°	1880	1880	1118	746	373	559	1036	2820	1490	1118	746	746	1389
76°	1930	1930	1148	766	383	574	1064	2895	1530	1148	766	766	1427
78°	1981	1981	1178	786	393	589	1092	2972	1570	1178	786	786	1465
80°	2032	2032	1208	806	403	604	1120	3048	1610	1208	806	806	1503
82°	2083	2083	1238	826	413	619	1148	3125	1650	1238	826	826	1541
84°	2134	2134	1268	846	423	634	1176	3201	1690	1268	846	846	1579
86°	2184	2184	1298	866	433	649	1204	3276	1730	1298	866	866	1617
88°	2235	2235	1328	886	443	664	1232	3353	1770	1328	886	886	1655

NOTES : 1.WELDING END SHALL BE BEVELLED IN ACCORDANCE WITH ASME B16.25  
 2.THE MAXIMUM ALLOWABLE INTERNAL PRESSURE SHALL BE DETERMINED IN ACCORDANCE WITH PARA. 304.2.3 ASME B31.3  
 3.IN CASE LARGER VALUES OF M THAN THOSE TABULATED ARE REQUIRED PER PARA. 304.2.3(C)ASME B31.3. THIS DRAWING SHALL BE MODIFIED ACCORDINGLY.

# CHU TEI FU TING CHENG HSING

## Butt-Welding Fittings



### Stub Ends

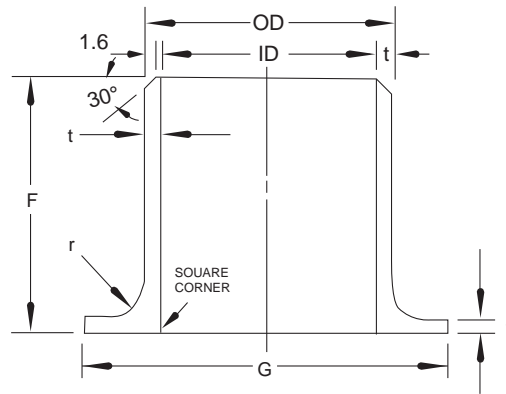
JIS 10K

(in millimeters)

Nominal Pipe Size	Outside Diameter OD	Sch 10S		Sch 20S		Sch 40S		F	G	r
		ID	t	ID	t	ID	t			
½	21.7	17.5	2.1	16.7	2.5	16.1	2.8	30	51	3.2
¾	27.2	23.0	2.1	22.2	2.5	21.4	2.9	30	56	3.2
1	34.0	28.4	2.8	28.0	3.0	27.2	3.4	50	67	3.2
1¼	42.7	37.1	2.8	36.7	3.0	35.5	3.6	50	76	4.8
1½	48.6	43.0	2.8	42.6	3.0	41.2	3.7	50	81	6.4
2	60.5	54.9	2.8	53.5	3.5	52.7	3.9	50	96	7.9
2½	76.3	70.3	3.0	69.3	3.5	65.9	5.2	50	116	7.9
3	89.1	83.1	3.0	81.1	4.0	78.1	5.5	50	126	9.5
3½	101.6	95.6	3.0	93.6	4.0	90.2	5.7	50	136	9.5
4	114.3	108.3	3.0	106.3	4.0	102.3	6.0	50	151	11.1
5	139.8	133.0	3.4	129.8	5.0	126.6	6.6	50	182	11.1
6	165.2	158.4	3.4	155.2	5.0	151.0	7.1	50	212	12.7
8	216.3	208.3	4.0	203.3	6.5	199.9	8.2	65	262	12.7
10	267.4	259.4	4.0	254.4	6.5	248.8	9.3	65	324	12.7
12	318.5	309.5	4.5	305.5	6.5	297.9	10.3	65	368	12.7

# CHU TEI FU TING CHENG HSING

## Butt-Welding Fittings



### Stub Ends

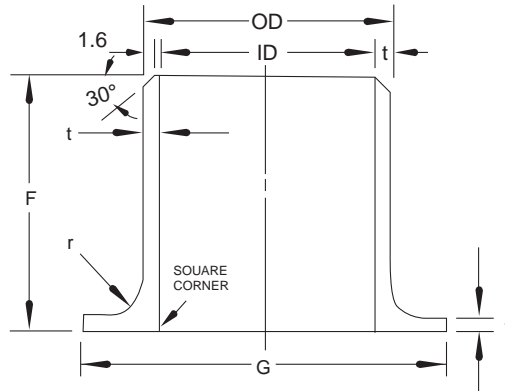
JPI-7S-15-84

(in millimeters)

Nominal Pipe Siz	Outside Diameter OD	Sch 5S		Sch 10S		Sch 20S		Sch 40S		F	G	r
		ID	t	ID	t	ID	t	ID	t			
½	21.7	18.4	1.65	17.5	2.1	16.7	2.5	16.1	2.8	50	35	3.2
¾	27.2	23.9	1.65	23.0	2.1	22.2	2.5	21.4	2.9	50	43	3.2
1	34.0	30.7	1.65	28.4	2.8	28.0	3.0	27.2	3.4	50	51	3.2
1¼	42.7	39.4	1.65	37.1	2.8	36.7	3.0	35.5	3.6	50	64	4.8
1½	48.6	45.3	1.65	43.0	2.8	42.6	3.0	41.2	3.7	50	73	6.4
2	60.5	57.2	1.65	54.9	2.8	53.5	3.5	52.7	3.9	65	92	7.9
2½	76.3	72.1	2.10	70.3	3.0	69.3	3.5	65.9	5.2	65	105	7.9
3	89.1	84.9	2.10	83.1	3.0	81.1	4.0	78.1	5.5	65	127	9.5
3½	101.6	97.4	2.10	95.6	3.0	93.6	4.0	90.2	5.7	75	140	9.5
4	114.3	110.1	2.10	108.3	3.0	106.3	4.0	102.3	6.0	75	157	11.1
5	139.8	134.2	2.80	133.0	3.4	129.8	5.0	126.6	6.6	75	186	11.1
6	165.2	159.6	2.80	158.4	3.4	155.2	5.0	151.0	7.1	90	216	12.7
8	216.3	210.7	2.80	208.3	4.0	203.3	6.5	199.9	8.2	100	270	12.7
10	267.4	260.6	3.40	259.4	4.0	254.4	6.5	248.8	9.3	125	324	12.7
12	318.5	310.5	4.00	309.5	4.5	305.5	6.5	297.9	10.3	150	381	12.7

# CHU TEI FU TING CHENG HSING

## Butt-Welding Fittings



### Stub Ends

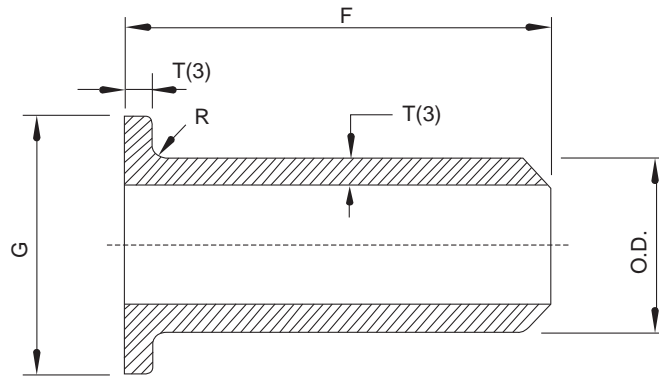
ANSI B16.9, MSS SP-43

(in inches)

Nominal Pipe Siz	Outside Diameter OD	Wall thickness T				Dia of Lap (G)	Length F		Radius R	
		5S	10S	40S	80S		ANSI	MSS	Type A (MAX.)	Type B (MAX.)
½	0.840	0.065	0.083	0.109	0.147	1.375	3.0	2.0	0.13	0.03
¾	1.050	0.065	0.089	0.113	0.154	1.688	3.0	2.0	1.13	0.03
1	1.315	0.065	0.109	0.133	0.179	2.000	4.0	2.0	0.13	0.03
1¼	1.660	0.065	0.109	0.140	0.191	2.500	4.0	2.0	0.19	0.03
1½	1.900	0.065	0.109	0.145	0.200	2.875	4.0	2.0	0.25	0.03
2	2.375	0.065	0.109	0.154	0.218	3.625	6.0	2.5	0.31	0.03
2½	2.875	0.083	0.120	0.203	0.276	4.125	6.0	2.5	0.31	0.03
3	3.500	0.083	0.120	0.216	0.300	5.000	6.0	2.5	0.38	0.03
4	4.500	0.083	0.120	0.237	0.337	6.188	6.0	3.0	0.44	0.03
5	5.563	0.109	0.134	0.258	0.375	7.313	8.0	3.0	0.44	0.06
6	6.625	0.109	0.134	0.280	0.432	8.500	8.0	3.5	0.50	0.06
8	8.625	0.109	0.148	0.322	0.500	10.625	8.0	4.0	0.50	0.06
10	10.750	0.134	0.165	0.365	0.500	12.750	10.0	5.0	0.50	0.06
12	12.750	0.156	0.180	0.375	0.500	15.000	10.0	6.0	0.50	0.06
14	14.000	0.156	0.188	-	-	16.250	12.0	6.0	0.50	0.06
16	16.000	0.165	0.188	-	-	18.500	12.0	6.0	0.50	0.06
18	18.000	0.165	0.188	-	-	21.000	12.0	6.0	0.50	0.06
20	20.000	0.188	0.218	-	-	23.000	12.0	6.0	0.50	0.06
22	22.000	0.188	0.218	-	-	25.250	12.0	-	0.50	0.06
24	24.000	0.218	0.250	-	-	27.250	12.0	6.0	0.50	0.06

# CHU TEI FU TING CHENG HSING

## Butt-Welding Fittings



DIMENSIONS SHOWN ARE IN MILLIMETERS

NPS	O.D	F	G	R <sup>(1)</sup>
26	660	200	711	12.7
28	711	200	762	12.7
30	762	200	813	12.7
32	813	200	864	12.7
34	864	200	921	12.7
36	914	200	972	12.7
38	965	200	1022	12.7
40	1016	200	1080	12.7
42	1067	200	1130	12.7
44	1118	200	1181	12.7
46	1168	200	1235	12.7
48	1219	200	1289	12.7

Notes:

1. THE DIMENSIONS "R" ARE BASED ON LAP JOINT FL'G ASME B16.5
2. MATERIALS SEE JOB MATERIAL SPEC.
3. THE MINIMUM LAP THICKNESS SHALL NOT LESS THAN NOMIAL PIPE WALL THICKNESS.



# CHU TEI FU TING CHENG HSING

## A 234/A 234M-06a Chemical Requirements

Non : 1 — All requirements are maximum unless otherwise indicate  
 Non : 2 — Where an ellipsis(···)appears in this table, there is no requirement.

Grade and Marking Symbol A	Composition, %									
	Carbon	Manganese	Phospho- rus.max	Sulfur, max	Silicon	Chromium	Molybdenum	Nickel	Copper	Others
WPB	0.30 max	0.29-1.06	0.050	0.058	0.10min	0.40 max	0.15 max	0.40 max	0.40max	Vanadium 0.08 max
WPC	0.35 max	0.29-1.06	0.050	0.058	0.10min	0.40 max	0.15 max	0.40 max	0.40max	Vanadium 0.08 max
WP1	0.28 max	0.30-0.90	0.045	0.045	0.10-0.50	···	0.44-0.65	···	···	···
WP12 CL1, WP12 CL2	0.05-0.20	0.30-0.80	0.045	0.045	0.60max	0.080-1.25	0.44-0.65	···	···	···
WP11 CL1	0.05-0.15	0.30-0.60	0.030	0.030	0.50-1.00	1.00-1.50	0.44-0.65	···	···	···
WP11 CL2, WP11 CL3	0.05-0.20	0.30-0.80	0.040	0.040	0.50-1.00	1.00-1.50	0.44-0.65	···	···	···
WP22 CL1, WP22 CL3	0.05-0.15	0.30-0.60	0.040	0.040	0.50max	1.90-2.60	0.87-1.13	···	···	···
WP5 CL1, WP5 CL3	0.15max	0.30-0.60	0.040	0.030	0.5max	4.0-6.0	0.44-0.65	···	···	···
WP9 CL1, WP9 CL3	0.15max	0.30-0.60	0.030	0.030	1.00max	8.0-10.0	0.90-1.10	···	···	···
WP91	0.08-0.12	0.30-0.60	0.020	0.010	0.20-0.50	8.0-9.5	0.85-1.05	0.40 max	···	Vanadium 0.18-0.25 Columbium.0.06-0.10 Nitrogen 0.03-0.07 Aluminum 0.02 max<
WP911	0.09-0.13	0.30-0.60	0.020	0.010	0.010-0.50	8.5-9.5	0.90-1.10	0.40 max	···	Vanadium 0.18-0.25 Columbium.0.06-0.10 Nitrogen 0.04-0.09 Aluminum 0.04 max Boron 0.0003-0.006 Tungsin 0.90-1.10<

A When fittings are of welded construction, the grade and marking symbol shown above shall be supplemented by letter “W” .

B Fittings made from bar or plate may have 0.35 max carbon.

C Fittings made from forgings may have 0.35 max carbon and 0.35 max silicon with no minimum.

D For each reduction of 0.01% below the specified carbon maximum. An increase of 0.06% manganese above the specified maximum will be permitted, up to maximum of 1.35%

E The sum of Copper, Nickel, Chromium, and Molybdenum shall not nexceed 1.00%.

F The sum of Chromium and Molybdenum shall not exceed 0.32%.

G Applies both to heat and product analyses.

WP91 Titanium 0.01 max  
Zirconium 0.01 max  
WP911 Titanium 0.01 max  
Zirconium 0.01 max

# CHU TEI FU TING CHENG HSING

## A 234/A 234M-06a Tensile Requirements

Non : 1 – Where an ellipsis(···)appears in this table, there is no requirement.

Grade and Marking Symbol	WPB	WPC, WP11 CL2 WP12 CL2	WPI	WP11 CL1	WP11 CL3	WP91	WP911	WP12 CL1
				WP22 CL1	WP22 CL3			
Tensile strength, range ksi [MPa]	60-95 [415-655]	70-95 [485-655]	55-80 [380-550]	60-85 [415-585]	75-100 [520-690]	85-110 [585-760]	90-120 [620-840]	60-85 [415-585]
Yield strength. Min. ksi [MPa] (0.2 % offset or 0.5 % extension-under-load)	35[240]	40[275]	30[205]	30[205]	45[310]	60[415]	64[440]	32[220]

### Elongation Requirements

#### Grades

	WP91, and WP911		WP91 WP911	
	Longi- tudinal	Trans- verse	Longi- tudinal	Trans- verse
Elonaton :				
Standard round specimen, or small proportional specimen, min % in 4D	22	14	···	···
Rectangular specimen for wall thickness 5/16 in.[7.94mm]and over, and for all small sizes tested in full section: min % in 2 in. [50min]	30	20A	···	···
Rectangular specimen for wall thickness less than 5/16 in.[7.94 mm]; min % in 2 in.[50mm](1/2 in.[12.7-mm]wide specimen)	B	B	···	···

- A WPB and WPC fittings manufactured form plate shall have a minimum elongation of 17%.
- B For each 1/32 in.[0.79 mm] decrease in wall thickness below 5/16 in. [7.94 mm], a deduction of 1.5% for longitudinal and 1.0% for transverse from the values shown above is permitted. The following table gives the minimum value for various wall thicknesses.

## A 403/A 403M-06 Chemical Requirements

OTE : 1—Where an ellipsis(···)appears in this table, there is no requirement.

WP	Composition, %										
	C	Mn	P	S	Si	Ni	Cr	Mo	Ti	N <sub>2</sub> C	Others
304	0.08	2.00	0.045	0.030	1.00	8.0-11.0	18.0-20.0	...	...	...	...
304H	0.04-0.10	2.00	0.045	...	1.00	8.0-11.0	18.0-20.0	...	...	...	...
304L	0.030	2.00	0.045	...	1.00	8.0-12.0	18.0-20.0	...	...	...	...
304LN	0.030	2.00	0.045	...	1.00	8.0-11.0	18.0-20.0	...	...	0.10-0.16	...
304N	0.08	2.00	0.045	...	1.00	8.0-11.0	18.0-20.0	...	...	0.10-0.16	...
309	0.20	2.00	0.045	...	1.00	12.0-15.0	22.0-24.0	...	...	...	...
310S	0.08	2.00	0.045	...	1.00	19.0-22.0	24.0-26.0	...	...	...	...
316	0.08	2.00	0.045	...	1.00	10.0-14.0	16.0-18.0	2.00-3.00	...	...	...
316H	0.04-0.10	2.00	0.045	...	1.00	10.0-14.0	16.0-18.0	2.00-3.00	...	...	...
316LN	0.030	2.00	0.045	...	1.00	10.0-13.0	16.0-18.0	2.00-3.00	...	0.10-0.16	...
316L	0.030	2.00	0.045	...	1.00	10.0-14.0	16.0-18.0	2.00-3.00	...	...	...
316N	0.08	2.00	0.045	...	1.00	10.0-13.0	16.0-18.0	2.00-3.00	...	0.10-0.16	...
317	0.08	2.00	0.045	0.030	1.00	11.0-15.0	18.0-20.0	3.0-4.0	...	0.10-0.16	...
317L	0.030	2.00	0.045	0.030	1.00	11.0-15.0	18.0-20.0	3.0-4.0	...	...	...
321	0.08	2.00	0.045	0.030	1.00	9.0-12.0	17.0-19.0	...	F	...	...
321H	0.04-0.10	2.00	0.045	0.030	1.00	9.0-12.0	17.0-19.0	...	G	...	...
347	0.08	2.00	0.045	0.030	1.00	9.0-12.0	17.0-19.0	...	...	...	...
347H	0.04-0.10	2.00	0.045	0.030	1.00	9.0-12.0	17.0-19.0	...	...	...	H

See Section 14 for marking requirements.

Maximum, unless otherwise indicated.

The method of analysis for nitrogen shall be a matter of agreement between the purchaser and manufacturer.

For small diameter or thin walls, or both, where many drawing passes are required, a carbon maximum of 0.040% is necessary in grades TP 304L and TP 316L. Small outside diameter tubes are defined as those less than 0.500 in. [12.7 mm] in outside diameter and light wall tubes as those less than 0.049 in. [1.24mm] in average wall thickness.

On pierced tubing, the nickel may be 11.0-16.0%

The titanium content shall be not less than five times the carbon content and not more than 0.70%

The titanium content shall be not less than four times the carbon content and not more than 0.70%

The columbium plus tantalum content shall be not less than ten times the carbon content and not more than 1.00%

The columbium plus tantalum content shall be not less than eight times the carbon content and not more than 1.00%

Columbium plus tantalum, 0.10-0.30%; vanadium, 0.10-0.30%

## A 403/A 403M-06 Tensile Requirements

WP	Yield Strength, min, Ksi [Mpa]	Tensile Strength, min, Ksi [Mpa]
304,304LN,304H, 310S,316,316LN,316H, 317,317L,321,321H 347,347H,348,348H	30 [205]	75 [515]
304L,316L	25 [170]	70 [485]
304N,316N,	35 [240]	80 [550]

Elongation Requirements

	Longitudinal	Transverse
Standard round specimen, or small proportional specimen, or strip-type specimen, minimum % in 4D		

# CHU TEI FU TING CHENG HSING

## A 420/A 420M-06 Chemical Requirements

Note : 1—All requirements are maximum unless otherwise indicated.

Note : 2—Where an ellipsis(...)appears in this talbe,there is no requirement.

Grade <sup>A</sup>	Composition, %										
	C	Mn	P	S	Si	Ni	Cr	Mo	Cu	Co	V
WPL6	0.30	0.50-1.35	0.035	0.040	0.15-0.40	0.40	0.30	0.12	0.40	0.02	0.08
WPL3 <sup>C</sup>	0.20	0.31-0.64	0.05	0.05	0.13-0.37	3.2-3.8			...		

<sup>A</sup> When fittings are of welded construction, the symbols above shall be supplemented by the letter “W”

<sup>B</sup> For each reduction of 0.01% carbon below 0.30%, an increase of 0.05% manganese above 1.06% will be permitted to a maximum of 1.35% manganese.

<sup>C</sup> Fittings made from forgings may have 1.35% max manganese.

<sup>D</sup> Fittings made from plate or forgings may have 0.09% max manganese.

<sup>E</sup> Fittings made from plate may have 0.98% max manganese.

## A 420/A 420M Tensile Requirements

Non : 1—Where an ellipsis(...)appears in this table, there is no requirement.

Requirement	Grade							
	WPL6				WPL3			
Tensile strength, min ksi[Mpa]	60[415]-95[655]				65[450]-90[620]			
Yield strength, min ksi[Mpa]	35[240]				35[240]			
Elongation Requirements	Grades							
	WPL6		WPL9		WPL3		WPL8	
	Longi- tudinal	Trans- verse	Longi- tudinal	Trans- verse	Longi- tudinal	Trans- verse	Longi- tudinal	Trans- verse
Standard round specimen, or small proportional specimen, min % in 4D	22	12	...	...	22	14	...	...
Rectangular specimen for wall thickness 5/16 in.17.94mm and over, and for all small sizes tested in full section; min % in 2 in. or 50 mm	30	16.5	...	...	30	20	...	...
Rectangular specimen for wall thickness less than 5/16 in 17.94mm; min % in 2 in or 50 mm (1/2-in [12.7-mm] wide specimen)	A	A	...	...	A	A	...	...

<sup>A</sup> For each 1/32 in. [0.79mm] decrease in wall thickness below 5/16 in. [7.94mm], a deduction of 1.5% (grades WPL6, WPL9, and WPL3) or 1.25%(WPL8)for longitudinal and 1.0% (grades WPL6, WPL9 and WPL3) for transverse from the values shown above is permitted.The following table gives the minimum value for various wall thicknesses.

# CHU TEI FU TING CHENG HSING

## Nickel Alloys

Tubing and Pipe : Manufactured to ASTM and ASME Division I Section II Requirements, as applicable

ALLOY		200	400	600	625	800	825	C276	ALLOY20	665
UNS. NO.		N02200	N04400	N06600	N06625	N08800	N08825	N10276	N08020	N10665
<b>Elements</b>										
<b>Nickel</b>	(Ni)	99.0 min(a)	63.0 min	72.0 min(a)	58.0 min(a)	30.0-35.0	38.0-46.0	Bal.	32.0-38.0	Bal.
<b>Chromium</b>	(Cr)			14.0-17.0	20.0-23.0	19.0-23.0	19.5-23.5	14.5-16.5	19.0-21.0	1.0 max
<b>Iron</b>	(Fe)	0.40 max	2.5 max	6.0-10.0	5.0 max	39.5 min	22.0 min	4.0-7.0	Bal.	2.0 max
<b>Molybdenum</b>	(Mo)				8.0-10.0		2.5-3.5	15.0-17.0	2.0-3.0	26.0-30.0
<b>Titanium, max</b>	(Ti)				0.40	0.15-0.60	0.6-1.2			
<b>Aluminum, max</b>	(Al)				0.4	0.15-0.60	0.2			
<b>Cobalt, max</b>	(Co)				1.0			2.5		1.0
<b>Tungsten</b>	(W)							3.0-4.5		
<b>Vanadium, max</b>	(V)							0.35		
<b>Copper, max</b>	(Cu)	0.25	28.0-34.0	0.5	0.75	0.75	1.5-3.0		3.00-4.00	
<b>Manganese, Max</b>	(Mn)	0.35	2.0	1.0	0.50	1.5	1.0	1.0	2.00	1.0
<b>Niobium(b)(c)</b>	(Nb)				3.15-4.15				8xC-1.0	
<b>Carbon, max</b>	(C)	0.15	0.3	0.15	0.10	0.10	0.05	0.010	0.07	0.02
<b>Nitrogen, max</b>	(N)									
<b>Silicon, max</b>	(Si)	0.35	0.5	0.5	0.50	1.0	0.5	0.08	1.00	0.10
<b>Sulfur, max</b>	(S)	0.01	0.024	0.015	0.015	0.015	0.03	0.03	0.035	0.03
<b>Phosphorous, max</b>	(P)				0.015			0.04	0.045	0.04

(a)Plus Cobalt

(b)Plus Tantalum

(c)also known as Columbium(Cb)

## Duplex Alloys

Tubing : manufactured to ASTM A789 and ASME SA789 requirements.

Pipe : manufactured to ASTM A790 and ASME SA790 requirements.

UNS NO.		S31803	S32205	S32750	S32760
<b>Elements</b>					
<b>Carbon, max.</b>	(C)	0.030	0.030	0.030	0.030
<b>Manganese, max.</b>	(Mn)	2.0	2.00	1.2	1.00
<b>Phosphorous, max.</b>	(P)	0.030	0.030	0.035	0.030
<b>Sulfur, max.</b>	(S)	0.020	0.020	0.020	0.010
<b>Silicon, max</b>	(Si)	1.0	1.00	0.8	1.00
<b>Chromium</b>	(Cr)	21.0-23.0	22.0-23.0	24.0-26.0	24.00-26.00
<b>Nickel</b>	(Ni)	4.50-6.50	4.50-6.5	6.0-8.0	6.0-8.0
<b>Molybdenum</b>	(Mo)	2.50-3.50	3.0-3.5	3.0-5.0	3.0-4.0
<b>Nitrogen</b>	(N)	0.08-0.20	0.14-0.20	0.24-0.32	0.20-0.30
<b>Tungsten</b>	(W)	...	...	...	0.50-1.00
<b>Copper, max.</b>	(Cu)	...	...	...	0.50-1.00

# CHU TEI FU TING CHENG HSING

## *Stainless, Duplex and Nickel Alloys*

Annealed Condition, -20° F to +100° F

	ALLOYS	* Tensile Strength		* Yield Strength		Elongation	Modulus of Elasticity	Mean Coefficient of Thermal Expansion <sup>B</sup>	Thermal Conductivity
		(psi)	(MPa)	.2% OFFSET (psi)	(Mpa)	In 2 Inches			
<b>Duplex Alloys</b>	S31803	90,000	(620)	65,000	(450)	20			
	S32750	116,000	(800)	80,000	(550)	15	27.5	7.6	
	S32760	109,000	(750)	80,000	(550)	25			
<b>Nickel</b>	N02200	55,000 <sup>A</sup>	(380) <sup>A</sup>	15,000 <sup>A</sup>	(105) <sup>A</sup>	35 <sup>A</sup>			487
<b>Alloys</b>									
	N04400	70,000 <sup>A</sup>	(480) <sup>A</sup>	28,000 <sup>A</sup>	(195) <sup>A</sup>	35 <sup>A</sup>	26.0	7.7	151
	N06600	80,000	(550)	35,000	(240)	30			103
	N06625	120,000	(827)	60,000	(414)	30	30.0	7.1	68
	N08800	75,000	(520)	30,000	(205)	30			
	N08825	85,000	(586)	35,000	(241)	30	28.0	7.7	77
	N10276	100,000	(690)	41,000	(283)	40	29.0	6.2	71
	N08020	80,000	(551)	35,000	(240)	30			
	N08904	71,000	(490)	31,000	(215)	35			
	N10665	110,000	(760)	51,000	(350)	40			

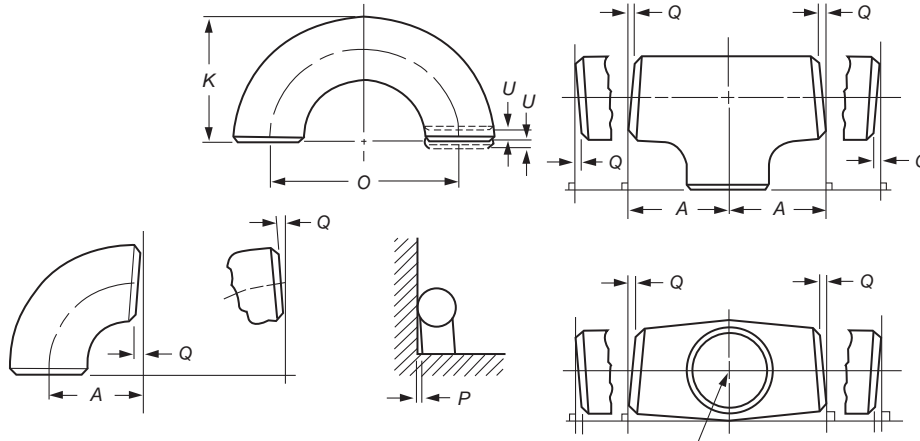
\* Tensile, Yield Strengths and Elongation Are Minimums

<sup>A</sup> Annealed Condition

<sup>B</sup> 32-212° F



# CHU TEI FU TING CHENG HSING



**Table 2 Tolerances**

All Fittings [Notes (1) and (2)]		Center-to-End Dimensions of				180 deg Returns			
Nominal Pipe Size (NPS)	DN	Outside Diameter at Bevel, D	Inside Diameter at End	99 deg and 45 deg Elbows and Tees, A, B, C, M	Overall Length of Reducers and Lap Joint Stub Ends, F, H	Overall Length of Caps, E	Center-to-Center Dimension, O	Back-to-Face Dimension, K	Alignment of Ends, U
		[Notes (3) and (4)]	[Notes (3) and (5)]						
½ to 2½	16-65	+1.6, -0.8	0.8	2	2	3	6	6	1
3 to 3½	80-90	1.6	1.6	2	2	3	6	6	1
4	100	1.6	1.6	2	2	3	6	6	1
5 to 8	125-200	+2.4, -1.6	1.6	2	2	6	6	6	1
10 to 18	250-450	+4.0, -3.2	3.2	2	2	6	10	6	2
20 to 24	500-600	+6.4, -4.8	4.8	2	2	6	10	6	2
26 to 30	650-750	+6.4, -4.8	4.8	3	5	10	...	...	...
32 to 48	800-1200	+6.4, -4.8	4.8	5	5	10	...	...	...

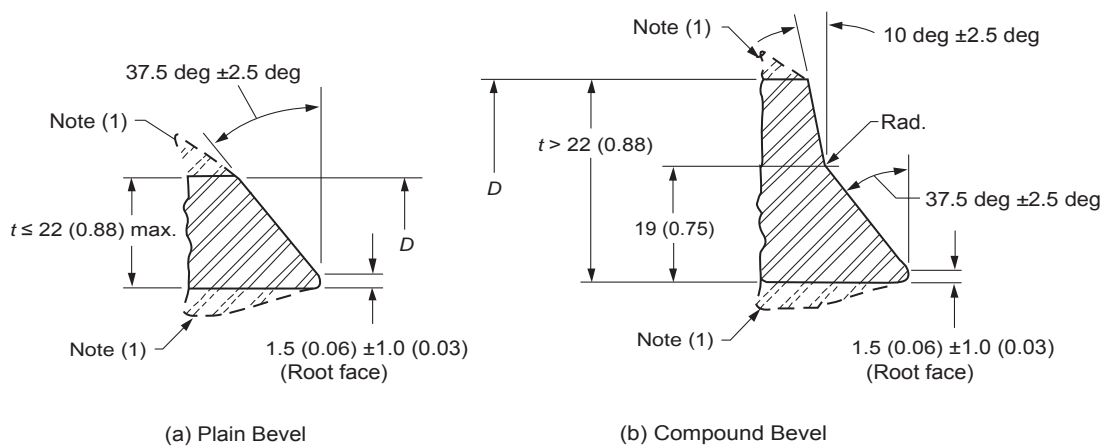
Nominal Pipe Size (NPS)	DN	Lap Joint Stub Ends [Note (6)]			Angularity Tolerances			
		Outside Diameter of Lap, G	Fillet Radius of Lap, R	Lap Thickness	Nominal Pipe Size (NPS)	DN	Off Angle, Q	Off Plance, P
½ to 2½	15-65	+0, -1	+0, -1	+1.6, -0	½ to 4	15-100	1	2
3 to 3½	80-90	+0, -1	+0, -1	+1.6, -0	5 to 8	125-200	2	4
4	100	+0, -1	+0, -2	+1.6, -0	10 to 12	250-300	3	5
5 to 8	125-200	+0, -1	+0, -2	+1.6, -0	14 to 16	350-400	3	6
10 to 18	250-450	+0, -2	+0, -2	+3.2, -0	18 to 24	450-600	4	10
20 to 24	500-600	+0, -2	+0, -2	+3.2, -0	26 to 30	650-750	5	10
26 to 30	650-750	...	...	...	32 to 42	800-1050	5	13
32 to 48	800-1200	...	...	...	44 to 48	1100-1200	5	19

**GENERAL NOTES :**

- (a) For reference, see Table 2 Illustration on page 6.
- (b) All dimensions are in millimeters.
- (c) Tolerances are equal plus and minus except as noted.

**NOTES :**

- (1) The inside diameter and the nominal wall thicknesses at ends are to be specified by the purchaser.
- (2) A minimum wall thickness of 87.5% applies unless the purchaser specifies a different wall thickness tolerance. See Fig. 1, Note (1)(a).
- (3) Out-of-round is the sum of absolute values of plus and minus tolerances.
- (4) 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.
- (5) Unless otherwise specified by the purchaser, these tolerances apply to the nominal inside diameter, which equals the difference between the nominal outside diameter and twice the nominal wall thickness.
- (6) See Table 10 for limiting dimensions of outside diameter of barrel.



**Table 1 Welding Bevels and Root Face**

Nominal Wall Thickness, $t$	END Preparation
Less than $x$ [Note (2)]	Cut square or slightly chamfer, at manufacturer' option (not illustrated)
$x$ to 22 (0.88), inclusive	Plain bevel as in sketch (a) above
More than 22 (0.88)	Compound bevel as in sketch (b) above

**GENERAL NOTES:**

- (a) Dimensions in parentheses are in inches.
- (b) Other dimensions are in millimeters.

**NOTES:**

- (1) See para. 8 and Fig. 1 for transition contours.
- (2)  $x = 5$  (0.19) for carbon steel or ferritic alloy steel and 3 (0.12) for austenitic alloy steel.

grades of steel will be directly proportional to the tensile properties of the various grades; see para 2.1. Therefore, it is necessary to test only a single material grade in a representative fitting to prove the design of the fitting.

**10 PRODUCTION TESTS**

Hydrostatic testing of wrought fittings is not required by this Standard. All fittings shall be capable of withstanding, without leakage or impairment of serviceability, a hydrostatic test pressure required by the applicable piping code for seamless pipe of material equivalent to

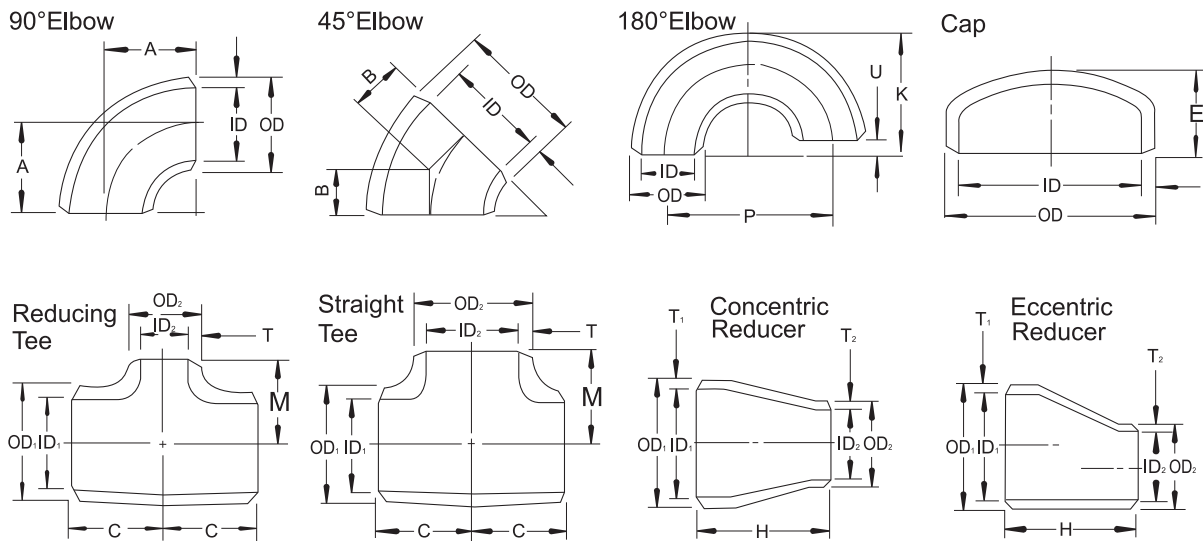
the fitting material, and of the size and wall thickness the fitting marking identifies.

**11 TOLERANCES**

Tolerances for fittings are shown in Tables 2 and I1, and apply to the nominal dimensions given in Tables 3 through 12 and Tables I2 through I11. Where given in the tables, the minimum and maximum dimensions are based on these tolerances. The listings with decimals do not imply precision measurement, such as use of vernier, micrometer, electronic readout equipment, etc.

# CHU TEI FU TING CHENG HSING

## JIS Dimensional Tolerance



## SteelButt-Welding Pipe Fittings For Ordinary Use

JIS B2311

(in millimeters)

Type of Pipe Fitting		Nominal Diameter				
		½ - 2½	3 - 4	5 - 8	10 - 18	20
		Tolerance				
ALL Pipe Fittings	(OD)	±2	±2.5	±3.5	+5 -4.5	+6.4 -4.8
	(ID)	±2	±2.5	±3.5	±4.5	±4.8
	(T)	+Not specified -15%				
90° Elbow 45° Elbow	(A,B)	±2.0		±3.2		
180° Elbow	(P)	±6.4		±9.5		-
	(K)	±6.4				-
	(U)	1.6		3.2		-
Reducer	(H)	±2.0		±3.2		
Tee	(C,M)	±2.0		±3.2		
Cap	(E)	±3.2		±6.4		

## SteelButt-Welding Pipe Fittings For Special Use

JIS B2312

(in millimeters)

Type of Pipe Fitting		Nominal Diameter				
		½ - 2½	3 - 4	5 - 8	10 - 18	20
		Tolerance				
ALL Pipe Fittings	(OD)	+1.6 -0.8	±1.6	+2.4 -1.6	+4 -3.2	+6.4 -4.8
	(ID)	±0.8	±1.6		±3.2	±4.8
	(T)	+Not specified -12.5%				
90° Elbow 45° Elbow	(A,B)	±1.6		±2.4		
180° Elbow	(P)	±6.4		±9.5		
	(K)	±6.4				-
	(U)	1.6		3.2		
Reducer	(H)	±1.6		±2.4		
Tee	(C,M)	±1.6		±2.4		
Cap	(E)	±3.2		±6.4		

# CHU TEI FU TING CHENG HSING

## JIS Dimensional Tolerance

### Steel Plate Butt-Welding Pipe Fittings

JIS B2313

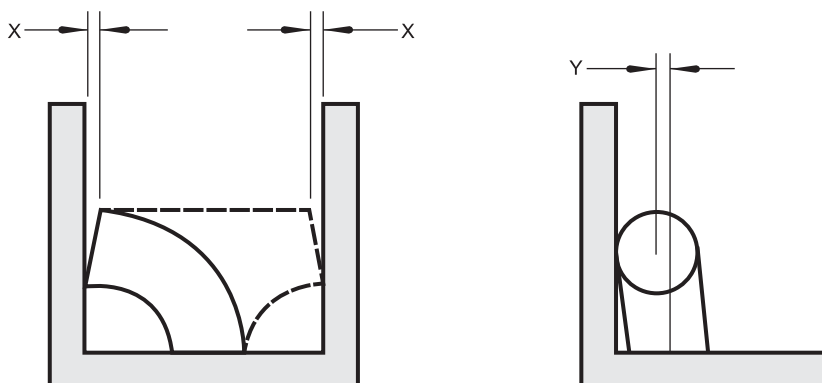
(in millimeters)

Type of Pipe Fitting		Nominal Diameter						
		½-2½	3-4	5-8	10-18	20-24	26-30	32-48
		Tolerance						
ALL Pipe Fittings	(OD)	+1.6 -0.8	±1.6	+2.4 -1.6	+4 -3.2	+6.4 -4.8		
	(ID)	±0.8	±1.6		±3.2	±4.8		
	(T)	+Not specified -12.5%						
90° Elbow 45° Elbow	(A,B)	±1.6		±2.4		±3.2	±4.8	
180° Elbow	(P)	±6.4		±9.5	-			
	(K)	±6.4			-			
	(U)	1.6		3.2	-			
Reducer	(H)	±1.6		±2.4		±4.8		
Tee	(C,M)	±1.6		±2.4		±3.2	±4.8	
Cap	(E)	-					±0.5%	

### Right Angle For Shaft-Center Of Pipe Fittings

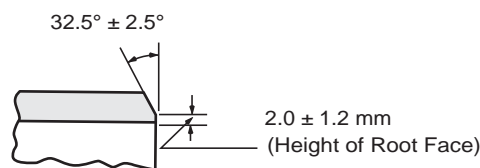
(in millimeters)

ITEM	Type of Pipe Fitting	Nominal Diameter							
		½-4	5-8	10-12	14-16	18-24	26-30	32-48	44-48
		Tolerance							
Off Angle (X)	All Pipe Fittings	0.8	1.6	2.4		3.2	4.8		
Off Plane (Y)		1.6	3.2	4.8	6.4	9.5		12.7	19.1



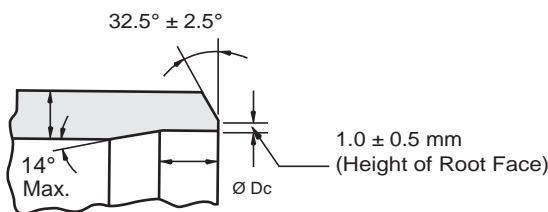
## JIS Welding End Preparations

### Steel Butt-Welding Pipe Fittings For Ordinary Use

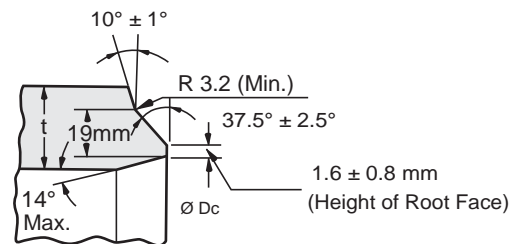


### Steel Butt-Welding Pipe Fittings For Special Use

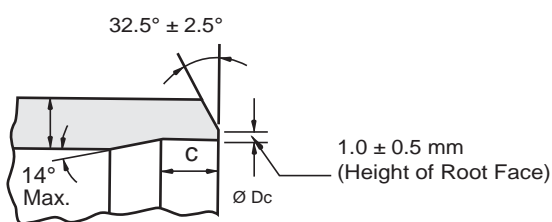
A. In the Case Where  $t$  Is 22.4mm or Less



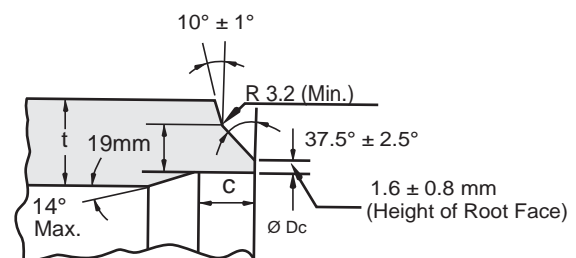
B. In the Case Where  $t$  Is Over 22.4mm



C. In the Case Where  $t$  Is 22.4mm or Less



D. In the Case Where  $t$  Is Over 22.4mm



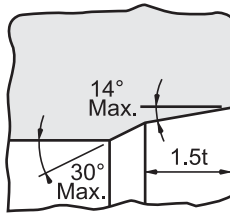
Where  $t$  : nominal wall thickness  
 DC : diameter of machining bore  
 C : length of machining bore

#### Remarks

1. Diameter (Dc) and length (C) of machining bore and dimensional tolerances shall be agreed between parties concerned.
2. Relieving of machining bore may be performed by providing an inclination of 14° or less from the end face to the limits for 1.5 times the wall thickness, or after cutting to the cylindrical surface to the length of machining bore, providing an inclination of 14° or less to the limits above-indicated, and beyond that portion machining with an inclination of 45° or less

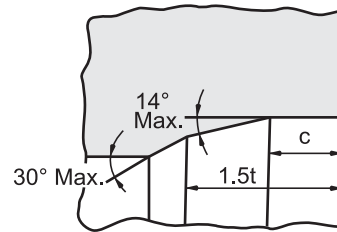
# CHU TEI FU TING CHENG HSING

For Types A and B of Bevel Shape



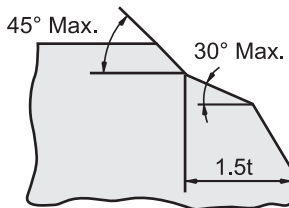
In the figure,  
t: nominal wall thickness

For Types C and D of Bevel Shape



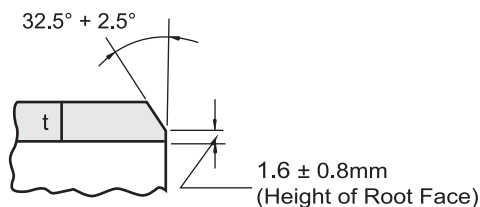
In the figure,  
t: nominal wall thickness  
c: length of machining bore

Relieving for outside diameter may be performed by providing an inclination of 30° or less from the end face to the limits for 1.5 times the wall thickness, and beyond that portion machining with an inclination of 45° or less.

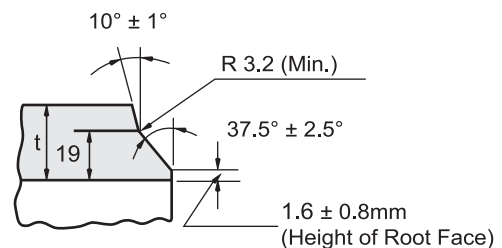


In the figure,  
t: nominal wall thickness

## Steel Plate Butt-Welding Pipe Fittings



Where.  $t \leq 22.4$  mm



Where.  $t > 22.4$  mm

**Remark :** 1.The shape and dimensions of the special bevel ends are referred to the reference clause stated in JIS B 2312

# CHU TEI FU TING CHENG HSING

## MSS SP-43 Dimensional Tolerance

(in inches)

Nominal Pipe Size	All Fittings		90° Elbows 45° Elbows Tees	Reducers Lap Joint Stub Ends	180° Returns			Caps
	Outside(1) Diameter at Welding End	Wall Thickness	Center-to- End Dimension A,B,C,M	Overall Length F,H	Center-to- Center Dimension O	Back-to- Face Dimension K	Alignment of Ends U	Overall Length E
½-1½	±0.03	Not less than 87½% of nominal thickness	±0.06	±0.06	±0.25	±0.25	±0.03	±0.12
2-3½	±0.03		±0.06	±0.06	±0.25	±0.25	±0.03	±0.12
4	±0.03		±0.06	±0.06	±0.25	±0.25	±0.03	±0.12
5-8	+0.06 -0.03		±0.06	±0.06	±0.25	±0.25	±0.03	±0.25
10-18	+0.09 -0.03		±0.09	±0.09	±0.38	±0.25	±0.06	±0.25
20-24	+0.12 -0.03		±0.09	±0.09	±0.38	±0.25	±0.06	±0.25

Nominal Pipe Size	All Fittings		Lap Joint (Stub Ends)	
	Outside(1) Diameter at Welding End	Wall Thickness	Fillet(2) Radius Of Lap A	Outside Diameter of Lap G
½-1½	±0.03	Not less than 87½% of nominal thickness	+0 -0.03	+0 -0.03
2-3½	±0.03		+0 -0.03	+0 -0.03
4	±0.03		+0 -0.06	+0 -0.03
5-8	+0.06 -0.03		+0 -0.06	+0 -0.03
10-18	+0.09 -0.03		+0 -0.06	+0 -0.06
20-24	+0.12 -0.03		+0 -0.06	+0 -0.06

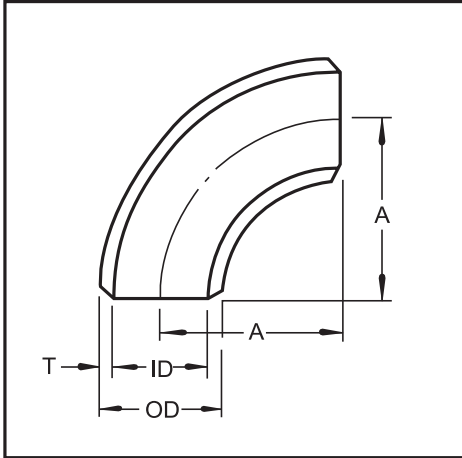
● Notes :

- (1) Out of roundness is the vector sum of the plus and minus tolerance.
- (2) Fillet B radius is the maximum.

# CHU TEI FU TING CHENG HSING

## Approx Weight Estimate Equation

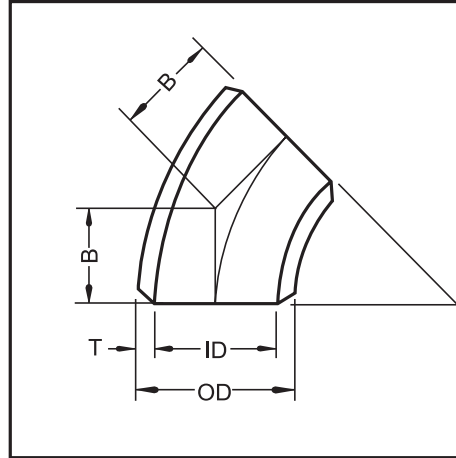
### 90° Elbow



$$AW = 3.8699 \times A \times T \times (OD - T) \times 10^{-5}$$

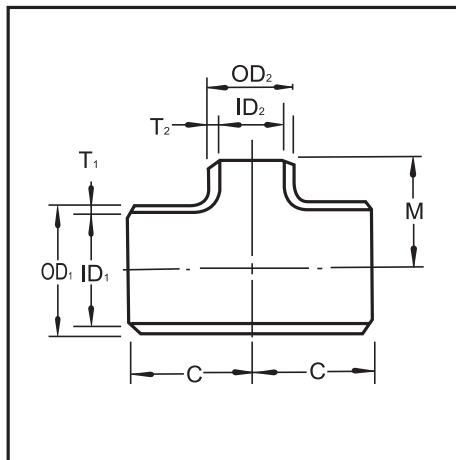
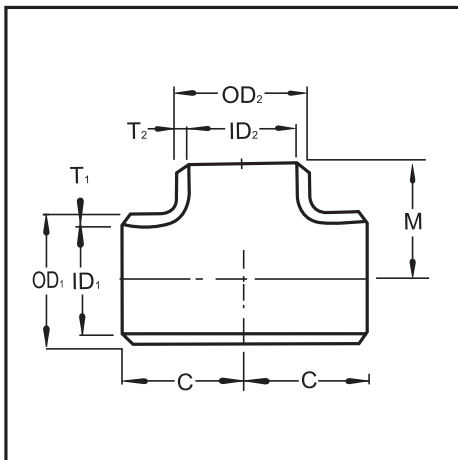
AW : Approx Wieght(Unit:Kgs)  
T : Wall Thickness(mm)  
OD : Outside Diameter(mm)  
A : Radius(mm)

### 45° Elbow



$$AW = 1.9350 \times A \times T \times (OD - T) \times 10^{-5}$$

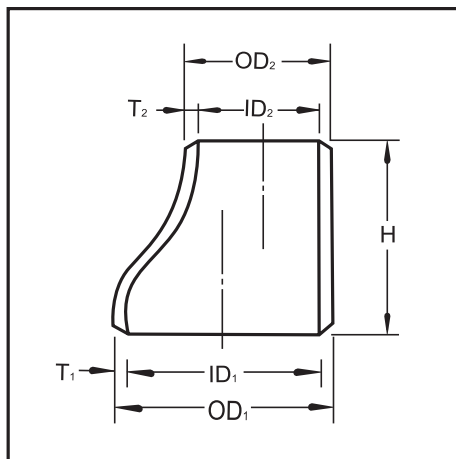
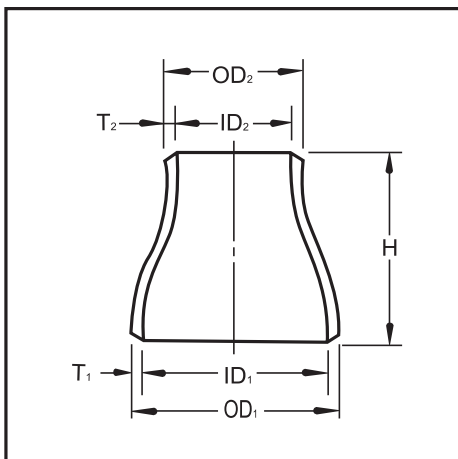
AW : Approx Wieght(Unit:Kgs)  
T : Wall Thickness(mm)  
OD : Outside Diameter(mm)  
A : Radius(mm)



### Tee

$$AW = 2.4649 \left\{ 2CT_1(OD_1 - T_1) + T_2(OD_2 - T_2) \left( M - \frac{OD_1}{2} \right) \right\} \times 10^{-5}$$

AW : Approx Weight (Unit : kgs)  
T<sub>1</sub> : Wall Thickness (mm)  
OD<sub>1</sub> : Outside Diameter (mm)  
T<sub>2</sub> : Wall Thickness(mm)  
OD<sub>2</sub> : Outside Diameter (mm)  
C : Center to End Diameter (mm)  
M : Center to End Diameter (mm)



### Reducer

$$AW = 2.4649 \times H \times T \times \left( \frac{OD_1 + OD_2}{2} - T \right) \times 10^{-5}$$

AW : Approx Weight (Unit : kgs)  
T : Wall Thickness (mm)  
OD<sub>1</sub> : Outside Diameter (mm)  
OD<sub>2</sub> : Outside Diameter (mm)  
H : Length (mm)



# CHU TEI FU TING CHENG HSING

## Butt Welding Fittings Approx Weight List

### 90° Elobws

LONG

SHORT

(UNIT;Kgs)

Nominal Pipe Size	SGP	STD	S40	XS	S80	XXS	S160	SGP	STD	S40	XS	S80	XXS	S160	Nominal Pipe Size
½	0.08	0.08	0.08	0.10	0.10	-	-	-	-	-	-	-	-	-	½
¾	0.10	0.11	0.11	0.14	0.14	-	-	-	-	-	-	-	-	-	¾
1	0.15	0.16	0.16	0.20	0.20	0.36	0.25	0.10	0.11	0.11	0.14	0.14	-	-	1
1¼	0.26	0.26	0.26	0.35	0.35	0.64	0.42	0.17	0.18	0.18	0.23	0.23	-	-	1¼
1½	0.35	0.37	0.37	0.50	0.50	0.93	0.65	0.24	0.25	0.25	0.33	0.33	-	-	1½
2	0.64	0.66	0.66	0.90	0.90	1.69	1.33	0.43	0.44	0.44	0.60	0.60	1.13	0.89	2
2½	1.12	1.37	1.37	1.79	1.79	3.43	2.33	0.75	0.91	0.91	1.19	1.19	2.19	1.49	2½
3	1.58	2.04	2.04	2.74	2.74	5.25	3.83	1.05	1.36	1.36	1.83	1.83	3.49	2.55	3
4	2.91	3.84	3.84	5.36	5.36	10.2	8.02	1.94	2.56	2.56	3.58	3.58	6.79	2.35	4
5	4.49	6.48	6.48	9.13	9.13	17.6	14.7	2.99	4.32	4.32	6.09	6.09	11.8	9.79	5
6	7.09	9.94	9.94	15.0	15.0	29.1	24.2	4.73	6.63	6.63	10.0	10.0	19.5	16.2	6
8	14.4	20.1	20.1	30.5	30.5	51.4	53.2	9.61	13.4	13.4	20.3	20.3	34.3	35.5	8
10	25.4	35.4	35.4	47.7	57.0	82.0	103	16.9	23.6	23.6	31.8	38.0	61.0	68.6	10
12	38.1	52.0	57.0	68.7	94.0	130	171	25.4	34.6	38.0	45.8	63.0	87.0	114	12
14	56.7	67.9	79.1	89.9	133	-	236	37.8	45.3	53.0	60.0	89.0	-	158	14
16	74.3	89.0	118	118	195	-	350	49.5	59.1	79.0	78.3	130	-	234	16
18	94.2	113	169	150	275	-	495	62.8	75.3	113	99.9	183	-	330	18
20	116	140	220	186	373	-	676	77.7	93.1	147	124	249	-	451	20
22	141	169	-	225	493	-	886	94.1	113	-	150	329	-	591	22
24	168	202	366	268	636	-	1160	112	135	244	179	424	-	773	24
26	198	237	-	315	-	-	-	132	158	-	210	-	-	-	26
28	230	276	-	367	-	-	-	154	184	-	245	-	-	-	28
30	264	316	-	421	-	-	-	176	211	-	281	-	-	-	30
32	301	361	654	480	-	-	-	201	241	436	320	-	-	-	32
34	340	408	739	543	-	-	-	227	272	493	362	-	-	-	34
36	380	457	904	608	-	-	-	253	304	603	405	-	-	-	36
38	425	510	-	679	-	-	-	283	340	-	453	-	-	-	38
40	471	565	-	753	-	-	-	314	377	-	502	-	-	-	40
42	518	622	-	828	-	-	-	346	416	-	554	-	-	-	42
44	570	684	-	912	-	-	-	380	456	-	608	-	-	-	44
46	623	748	-	997	-	-	-	415	499	-	665	-	-	-	46
48	677	814	-	1085	-	-	-	452	543	-	724	-	-	-	48

### 180° Elobws

LONG

SHORT

(UNIT;Kgs)

Nominal Pipe Size	SGP	STD	S40	XS	S80	XXS	S160	SGP	STD	S40	XS	S80	XXS	S160	Nominal Pipe Size
½	0.16	0.16	0.16	0.20	0.20	-	-	-	-	-	-	-	-	-	½
¾	0.21	0.22	0.22	0.28	0.28	-	-	-	-	-	-	-	-	-	¾
1	0.30	0.32	0.32	0.40	0.40	0.72	0.50	0.20	0.22	0.22	0.28	0.28	-	-	1
1¼	0.51	0.52	0.52	0.70	0.70	1.28	0.84	0.34	0.36	0.36	0.46	0.46	-	-	1¼
1½	0.70	0.74	0.74	1.00	1.00	1.86	1.30	0.48	0.50	0.50	0.66	0.66	-	-	1½
2	1.28	1.32	1.32	1.80	1.80	3.38	2.66	0.86	0.88	0.88	1.20	1.20	2.26	1.78	2
2½	2.24	2.74	2.74	3.58	3.58	6.86	4.66	1.50	1.82	1.82	2.38	2.38	4.38	2.98	2½
3	3.16	4.08	4.08	5.48	5.48	10.5	7.66	2.10	2.72	2.72	3.66	3.66	6.98	5.10	3
4	5.83	7.68	7.68	10.7	10.7	20.4	16.1	3.88	5.12	5.12	7.16	7.16	13.6	10.7	4
5	8.98	13.0	13.0	18.3	18.3	35.2	29.4	5.98	8.64	8.64	12.2	12.2	23.5	19.6	5
6	14.2	19.9	19.9	30.0	30.0	58.2	48.4	9.46	13.3	13.3	20.0	20.0	39.0	32.4	6
8	28.8	40.2	40.2	61.0	61.0	103	106	19.2	26.8	26.8	40.6	40.6	68.6	71.0	8
10	50.8	70.8	70.8	95.4	114	164	206	33.8	47.2	47.2	63.6	76.0	122	138	10
12	76.2	104	114	137	188	260	342	50.8	69.2	76.0	91.6	126	174	228	12
14	114	136	158	180	266	-	472	75.6	90.6	106	120	178	-	316	14
16	149	178	236	236	390	-	700	99.0	118	158	156	260	-	468	16
18	189	226	338	300	550	-	990	125	150	226	199	366	-	660	18
20	232	280	440	372	746	-	1352	155	186	294	248	498	-	902	20
22	282	338	-	450	986	-	1772	188	226	-	300	658	-	1182	22
24	336	404	732	536	1272	-	2320	224	270	488	358	848	-	1546	24

# CHU TEI FU TING CHENG HSING

## Butt Welding Fittings Approx Weight List

### 45° Elobws

LONG

SHORT

(UNIT;Kgs)

Nominal Pipe Size	SGP	STD	S40	XS	S80	XXS	S160	SGP	STD	S40	XS	S80	XXS	S160	Nominal Pipe Size
½	0.04	0.04	0.04	0.05	0.05	-	-	-	-	-	-	-	-	-	½
¾	0.05	0.06	0.06	0.07	0.07	-	-	-	-	-	-	-	-	-	¾
1	0.08	0.08	0.08	0.10	0.10	0.18	0.13	0.05	0.06	0.06	0.07	0.07	-	-	1
1¼	0.13	0.13	0.13	0.18	0.18	0.32	0.21	0.09	0.09	0.09	0.12	0.12	-	-	1¼
1½	0.18	0.19	0.19	0.25	0.25	0.47	0.33	0.12	0.13	0.13	0.17	0.17	-	-	1½
2	0.32	0.33	0.33	0.45	0.45	0.85	0.67	0.22	0.22	0.22	0.30	0.30	0.57	0.45	2
2½	0.60	0.69	0.69	0.90	0.90	1.72	1.17	0.38	0.46	0.46	0.60	0.60	1.10	0.75	2½
3	0.79	1.02	1.02	1.37	1.37	2.63	1.92	0.53	0.68	0.68	0.92	0.92	1.75	1.28	3
4	1.46	1.92	1.92	2.68	2.68	5.09	4.01	0.97	1.28	1.28	1.79	1.79	3.40	2.68	4
5	2.25	3.24	3.24	4.57	4.57	8.80	7.35	1.50	2.16	2.16	3.05	3.05	5.88	4.90	5
6	3.55	4.97	4.97	7.50	7.50	14.5	12.1	2.36	3.32	3.32	5.00	5.00	9.75	8.10	6
8	7.20	10.1	10.1	15.3	15.3	25.7	26.6	4.80	6.71	6.71	10.2	10.2	17.2	17.8	8
10	12.7	17.7	17.7	23.9	28.5	41.0	51.5	8.46	11.8	11.8	15.9	19.0	30.5	34.3	10
12	19.0	26.0	28.5	34.4	47.0	65.0	85.5	12.7	17.3	19.0	22.9	31.5	43.5	57.0	12
14	28.4	34.0	40.1	45.0	66.5	-	118	18.0	22.6	26.5	30.0	44.5	-	79.0	14
16	37.2	44.5	59.0	59.0	97.5	-	175	24.0	29.5	39.2	39.2	65.0	-	117	16
18	47.1	56.5	84.5	75.0	138	-	247	31.0	37.6	56.5	50.0	91.5	-	165	18
20	58.3	70.0	110	93.0	187	-	338	38.0	46.6	73.5	62.0	124	-	225	20
22	70.5	84.5	-	113	257	-	443	47.0	56.5	-	75.0	164	-	295	22
24	84.1	101	183	134	318	-	580	56.0	67.3	122	89.5	212	-	386	24
26	99.0	119	-	158	-	-	-	66.0	79.1	-	105	-	-	-	26
28	115	138	-	184	-	-	-	77.0	92.0	-	122	-	-	-	28
30	132	158	-	211	-	-	-	87.0	105	-	140	-	-	-	30
32	150	180	327	240	-	-	-	101	120	218	160	-	-	-	32
34	170	204	369	272	-	-	-	114	136	246	181	-	-	-	34
36	190	228	452	304	-	-	-	127	152	301	202	-	-	-	36
38	212	255	-	339	-	-	-	142	170	-	226	-	-	-	38
40	235	282	-	376	-	-	-	157	189	-	251	-	-	-	40
42	259	311	-	414	-	-	-	173	208	-	277	-	-	-	42
44	285	342	-	456	-	-	-	190	228	-	304	-	-	-	44
46	312	374	-	498	-	-	-	208	250	-	332	-	-	-	46
48	339	407	-	542	-	-	-	226	272	-	362	-	-	-	48

### CAPS

(UNIT;Kgs)

Nominal Pipe Size	SGP	STD	S40	XS	S80	XXS	S160	Nominal Pipe Size	SGP	STD	S40	XS	S80	XXS	S160
½	0.03	0.04	0.04	0.05	0.05	-	-	18	21.2	25.5	41.5	34.1	69.0	-	131
¾	0.04	0.05	0.05	0.07	0.07	-	-	20	26.4	31.8	54.1	42.5	93.7	-	179
1	0.08	0.11	0.11	0.15	0.15	-	-	22	31.5	38.8	-	51.7	116	-	219
1¼	0.11	0.14	0.14	0.20	0.20	-	-	24	36.6	45.1	90.1	60.1	160	-	307
1½	0.15	0.17	0.17	0.24	0.24	0.50	0.35	26	41.0	50.5	-	67.3	-	-	-
2	0.23	0.24	0.24	0.33	0.33	0.68	0.54	28	45.5	56.2	-	74.9	-	-	-
2½	0.34	0.42	0.42	0.57	0.57	1.13	0.77	30	50.3	62.1	-	82.8	-	-	-
3	0.51	0.67	0.67	0.92	0.92	1.92	1.40	32	55.4	68.4	126	91.2	-	-	-
4	0.88	1.17	1.17	1.68	1.68	3.51	2.76	34	60.8	75.0	138	100	-	-	-
5	1.29	1.90	1.90	2.73	2.73	5.82	4.85	36	66.4	81.9	164	109	-	-	-
6	1.99	2.83	2.83	4.38	4.38	9.38	7.81	38	76.8	94.7	-	126	-	-	-
8	3.61	5.11	5.11	7.91	7.91	14.7	15.2	40	83.0	102	-	137	-	-	-
10	6.33	8.92	8.92	12.2	16.4	25.7	28.9	42	90.0	110	-	147	-	-	-
12	9.43	13.1	13.1	17.4	26.4	36.4	47.7	44	103	126	-	167	-	-	-
14	13.2	15.9	18.6	21.2	34.9	-	61.2	46	109	134	-	179	-	-	-
16	16.6	20.0	26.7	26.7	49.0	-	130	48	116	143	-	191	-	-	-

# CHU TEI FU TING CHENG HSING

## Butt Welding Fittings Approx Weight List

### TEES

(UNIT;Kgs)

Nominal Pipe Size	SGP	STD	S40	XS	S80	XXS	S160	Nominal Pipe Size	SGP	STD	S40	XS	S80	XXS	S160
½ x ½	0.09	0.09	0.09	0.11	0.11	-	-	20 x 20	86.6	104	204	138	353	-	631
¾ x ¾	0.13	0.13	0.13	0.17	0.17	-	-	18	84.2	101	188	134	306	-	528
½	0.12	0.12	0.12	0.16	0.16	-	-	16	82.1	98.4	181	131	294	-	508
1 x 1	0.24	0.25	0.25	0.32	0.32	-	-	14	81.1	97.2	178	129	289	-	491
¾	0.23	0.24	0.24	0.30	0.30	-	-	22 x 22	106	126	-	167	453	-	835
½	0.22	0.23	0.23	0.29	0.29	-	-	20	103	123	-	163	386	-	740
1¼ x 1¼	0.42	0.43	0.43	0.56	0.56	-	-	18	101	120	-	159	373	-	696
1	0.39	0.40	0.40	0.53	0.53	-	-	16	98.9	117	-	156	354	-	656
1½ x 1½	0.58	0.61	0.61	0.81	0.81	-	-	24 x 24	116	139	299	185	548	-	1012
1¼	0.56	0.59	0.59	0.78	0.78	-	-	22	115	138	-	183	503	-	922
1	0.53	0.56	0.56	0.74	0.74	-	-	20	114	136	268	181	467	-	843
¾	0.51	0.53	0.53	0.70	0.70	-	-	18	111	133	249	177	418	-	769
2 x 2	0.86	0.88	0.88	1.20	1.20	-	-	26 x 26	147	176	-	234	-	-	-
1½	0.80	0.82	0.82	1.11	1.11	-	-	24	144	172	-	229	-	-	-
1¼	0.77	0.79	0.79	1.07	1.07	-	-	22	141	169	-	225	-	-	-
1	0.73	0.75	0.75	1.01	1.01	-	-	20	138	166	-	211	-	-	-
2½ x 2½	1.42	1.74	1.74	2.28	2.28	4.20	3.63	28 x 28	161	192	-	256	-	-	-
2	1.31	1.56	1.56	2.06	2.06	3.56	3.56	26	157	189	-	251	-	-	-
1½	1.25	1.51	1.51	1.98	1.98	3.40	3.40	24	153	184	-	244	-	-	-
1¼	1.22	1.48	1.48	1.94	1.94	-	-	22	151	182	-	242	-	-	-
3 x 3	1.87	2.41	2.41	3.25	3.25	7.00	5.87	30 x 30	190	228	-	304	-	-	-
2½	1.79	2.29	2.29	3.07	3.07	9.49	5.45	28	188	226	-	301	-	-	-
2	1.68	2.12	2.12	2.85	2.85	5.17	5.17	26	185	222	-	296	-	-	-
1½	1.62	2.06	2.06	2.77	2.77	-	-	24	182	218	-	291	-	-	-
4 x 4	3.13	4.12	4.12	5.77	5.77	12.8	9.76	32 x 32	208	259	-	331	-	-	-
3	2.92	3.83	3.83	5.33	5.33	11.4	9.05	30	203	244	-	325	-	-	-
2½	2.84	3.71	3.71	5.15	5.15	11.3	7.74	28	200	240	-	319	-	-	-
2	2.72	3.53	3.53	4.94	4.94	9.01	7.30	26	199	238	-	317	-	-	-
5 x 5	4.53	6.54	6.54	9.20	9.20	20.2	22.2	34 x 34	246	295	-	393	-	-	-
4	4.30	6.13	6.13	8.63	8.63	19.0	15.3	32	243	292	-	389	-	-	-
3	4.08	5.83	5.83	8.19	8.19	17.9	14.7	30	238	290	-	380	-	-	-
2½	4.00	5.71	5.71	8.01	8.01	-	14.3	28	236	288	-	377	-	-	-
6 x 6	6.84	9.58	9.58	14.5	14.5	28.4	31.4	36 x 36	276	331	-	441	-	-	-
5	6.45	9.08	9.08	13.6	13.6	27.1	24.3	34	271	329	-	434	-	-	-
4	6.23	8.67	8.67	13.0	13.0	25.8	23.2	32	269	326	-	431	-	-	-
3	6.01	8.38	8.38	12.6	12.6	23.7	22.5	30	264	323	-	422	-	-	-
8 x 8	12.8	17.9	17.9	27.1	27.1	51.4	50.7	38 x 38	308	370	-	493	-	-	-
6	11.9	16.6	16.6	25.2	25.2	48.1	47.6	36	306	367	-	489	-	-	-
5	11.5	16.1	16.1	24.3	24.3	46.8	46.1	34	302	362	-	481	-	-	-
4	11.3	15.7	15.7	23.7	23.7	45.6	45.0	32	298	357	-	476	-	-	-
10 x 10	21.8	30.4	30.4	41.0	60.8	96.7	96.7	40 x 40	342	411	-	547	-	-	-
8	20.4	28.5	28.5	38.9	51.9	89.7	89.7	38	340	408	-	543	-	-	-
6	19.5	27.2	27.2	37.0	50.0	80.9	80.9	36	335	402	-	536	-	-	-
5	19.2	26.8	26.8	36.2	49.2	79.6	79.6	34	331	397	-	529	-	-	-
12 x 12	32.0	43.6	58.4	57.7	95.8	155	155	42 x 42	352	422	-	562	-	-	-
10	30.4	41.6	55.2	55.2	90.5	146	146	40	350	420	-	559	-	-	-
8	29.0	39.7	53.1	53.1	77.1	139	139	38	348	418	-	557	-	-	-
6	28.1	38.4	51.2	51.2	75.2	136	136	36	346	416	-	554	-	-	-
14 x 14	44.7	53.5	83.2	70.9	129	-	201	44 x 44	396	475	-	633	-	-	-
12	42.7	51.9	79.4	68.8	123	-	192	42	394	473	-	630	-	-	-
10	41.2	49.9	76.1	69.3	108	-	184	40	389	467	-	623	-	-	-
8	40.0	48.2	63.7	64.5	103	-	178	38	385	462	-	616	-	-	-
16 x 16	55.2	66.1	110	87.7	173	-	334	46 x 46	434	521	-	695	-	-	-
14	54.2	64.9	95.2	86.1	158	-	280	44	432	519	-	691	-	-	-
12	52.7	63.1	91.4	83.6	152	-	263	42	427	513	-	683	-	-	-
10	51.2	61.3	88.1	81.2	147	-	255	40	423	507	-	676	-	-	-
18 x 18	70.0	83.9	156	111	253	-	470	48 x 48	474	569	-	759	-	-	-
16	67.9	81.4	135	108	228	-	416	46	472	566	-	755	-	-	-
14	66.9	80.2	132	106	223	-	375	44	470	564	-	751	-	-	-
12	65.4	78.3	128	104	217	-	368	42	462	555	-	739	-	-	-

# CHU TEI FU TING CHENG HSING

## Butt Welding Fittings Approx Weight List

### REDUCERS

(UNIT;Kgs)

Nominal Pipe Size	SGP	STD	S40	XS	S80	XXS	S160	Nominal Pipe Size	SGP	STD	S40	XS	S80
¾ x ½	0.06	0.06	0.06	0.08	0.08	-	-	22 x 20	52.1	62.4	-	82.9	181
1 x ¾	0.11	0.12	0.12	0.15	0.15	0.25	0.19	18	49.5	59.4	-	78.9	172
	0.10	0.11	0.11	0.14	0.14	0.22	0.17	16	47.0	56.4	-	74.8	164
1¼ x 1	0.16	0.16	0.16	0.21	0.21	0.35	0.25	24 x 22	57.1	68.4	-	91.0	215
	0.15	0.15	0.15	0.19	0.19	0.31	0.23	20	54.8	65.7	119	87.3	206
	0.13	0.14	0.14	0.18	0.18	-	-	18	52.6	63.0	114	83.8	197
1½ x 1¼	0.24	0.25	0.25	0.33	0.33	0.57	0.43	26 x 24	74.5	89.4	-	119	-
	0.21	0.22	0.22	0.30	0.30	0.50	0.38	22	71.5	85.8	-	114	-
	0.20	0.21	0.21	0.27	0.27	0.45	0.35	20	68.5	82.1	-	109	-
2 x 1½	0.37	0.38	0.38	0.51	0.51	0.91	0.75	28 x 26	80.6	96.6	-	129	-
	0.35	0.36	0.36	0.48	0.48	0.85	0.70	24	77.5	93.0	-	124	-
	0.31	0.33	0.33	0.44	0.44	0.77	0.64	22	74.5	89.4	-	119	-
2½ x 2	0.60	0.73	0.73	0.95	0.95	1.68	1.20	30 x 28	86.6	104	-	138	-
	0.55	0.67	0.67	0.87	0.87	1.51	1.08	26	83.6	100	-	133	-
	0.52	0.64	0.64	0.83	0.83	1.42	1.02	24	80.6	96.6	-	129	-
3 x 2½	0.73	0.94	0.94	1.25	1.25	2.25	1.71	32 x 30	92.6	111	-	148	-
	0.66	0.85	0.85	1.13	1.13	2.01	1.57	28	89.6	108	-	143	-
	0.62	0.79	0.79	1.04	1.04	1.83	1.44	26	86.6	104	-	138	-
4 x 3	1.10	1.45	1.45	2.02	2.01	3.65	3.00	34 x 32	98.7	118	-	158	-
	1.04	1.37	1.37	1.90	1.90	3.41	2.76	30	95.6	115	-	153	-
	0.97	1.27	1.27	1.76	1.76	3.11	2.58	28	92.6	111	-	148	-
5 x 4	1.74	2.50	2.50	3.52	3.52	6.47	5.59	36 x 34	105	126	-	167	-
	1.58	2.27	2.27	3.18	3.18	5.78	5.30	32	102	122	-	163	-
	1.50	2.16	2.16	3.02	3.02	5.46	4.70	30	98.7	118	-	158	-
6 x 5	2.55	3.57	3.57	5.38	5.38	9.89	8.63	38 x 36	112	133	-	177	-
	2.36	3.30	3.30	4.96	4.96	8.98	7.88	34	108	129	-	172	-
	2.18	3.04	3.04	4.56	4.56	8.21	7.21	32	105	126	-	167	-
8 x 6	4.17	5.71	5.71	8.63	8.63	14.3	15.0	40 x 38	117	140	-	187	-
	3.87	5.40	5.40	8.14	8.14	13.4	14.0	36	114	137	-	182	-
	3.67	5.10	5.10	7.68	7.68	12.6	13.1	34	111	133	-	177	-
10 x 8	6.87	9.58	9.58	12.9	15.4	24.3	27.5	42 x 40	123	147	-	196	-
	6.32	8.78	8.78	11.8	14.2	22.1	25.1	38	120	144	-	192	-
	6.06	8.42	8.42	11.3	13.5	21.1	23.9	36	117	140	-	187	-
12 x 10	9.97	13.6	14.7	18.0	24.8	34.3	44.6	44 x 42	129	155	-	206	-
	9.29	12.7	13.7	16.7	22.7	31.7	41.0	40	126	151	-	201	-
	8.69	11.8	12.8	15.6	21.4	29.4	38.0	38	123	147	-	196	-
14 x 12	21.2	25.4	29.5	33.6	49.8	-	88.5	46 x 44	157	189	-	252	-
	19.7	23.6	27.4	31.2	46.1	-	81.6	42	154	185	-	246	-
	18.3	21.8	25.4	28.9	42.2	-	74.7	40	150	180	-	241	-
16 x 14	25.9	31.0	41.1	41.1	67.7	-	121	48 x 46	164	197	-	263	-
	24.1	29.6	39.2	39.2	65.0	-	116	44	161	193	-	257	-
	22.4	27.8	36.8	36.8	60.8	-	108	42	157	189	-	252	-
18 x 16	31.5	37.8	56.2	50.1	91.4	-	165						
	29.8	35.7	53.0	47.4	86.4	-	155						
	27.7	33.2	51.0	44.0	83.0	-	149						
20 x 18	47.0	56.4	88.4	74.9	150	-	-						
	44.7	53.5	83.9	71.1	142	-	-						
	42.4	50.8	79.6	67.4	136	-	-						