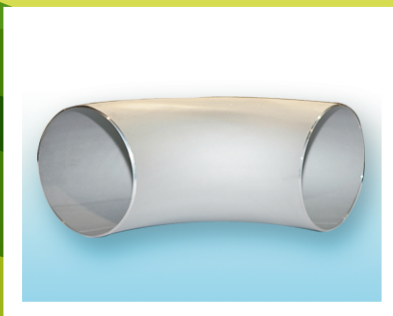
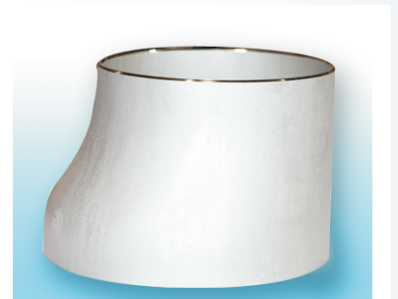


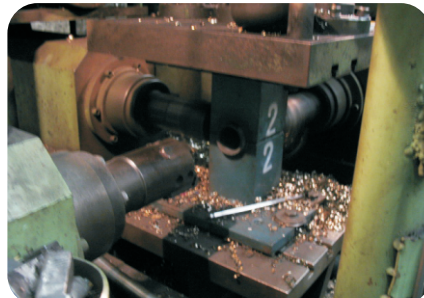
우리는
품질 그리고 납기를 사랑합니다.
We Loved Quality & Delivery.



MANUFACTURING SEQUENCE OF BUTT-WELDING FITTINGS



FORMING — ELBOWS — COLD FORMING
TEES — COLD BULGE FORMING
REDUCERS & CAPS — COLD FORMING



4
HEAT
TREATMENT



5
BEVELING
MACHINE



6
PICKLING

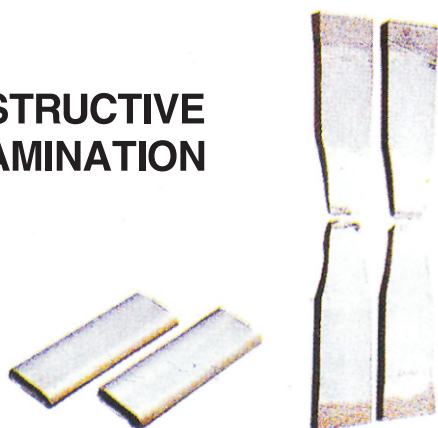
7
FINAL
INSPECTION

8
MARKING

9
STORAGING

QUALITY ASSURANCE SYSTEM

DESTRUCTIVE EXAMINATION



UNIVERSAL TEST MACHINE



PORTATBLE HARDNESS TESTER

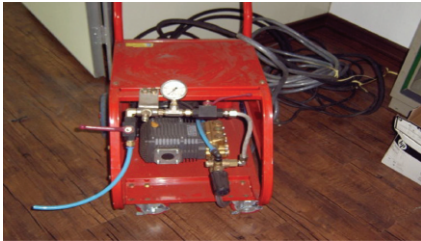


IMPACT TESTER

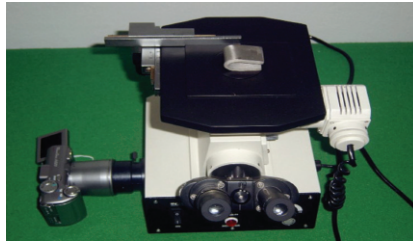


HARDNESS TESTER

HYDROSTATIC AND BURSTING TEST



HYDROSTATIC TESTING MACHINE



MICRO SCOPE



MINIMUM THERMOMETER



FERRITE SCOPE



R.T

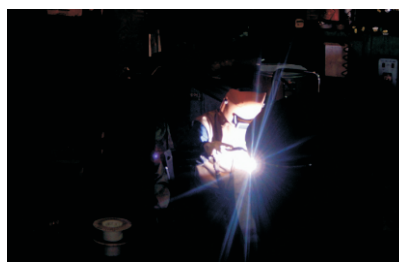


R.T

OFF ANGLE & OFF PLANE CHECKING OF DIMENSION



R.T



WELDING



PMI Tester



PMI



THICKNESS GAUGE

APPLICABLE SPECIFICATIONS

KS : KOREAN INDUSTRIAL STANDARDS

- KS B 1541** STEEL BUTT-WELDING PIPE FITTINGS.
- KS B 1543** STEEL PLATE BUTT-WELDING PIPE FITTINGS.

JIS : JAPANESE INDUSTRIAL STANDARDS

- JIS B 2312** STEEL BUTT-WELDING PIPE FITTINGS.
- JIS B 2313** STEEL PLATE BUTT-WELDING PIPE FITTINGS.

ASTM : AMERICAN SOCIETY FOR TESTING AND MATERIALS

- ASTM A 182** FORGED OR ROLLED ALLOY-STEEL PIPE FLANGES, FORGED FITTINGS, AND VALVES AND PARTS FOR HIGH-TEMPERATURE SERVICE.
- ASTM A 403** WROUGHT AUSTENITIC STAINLESS STEEL PIPE FITTINGS.
- ASTM A 420** PIPING FITTINGS OF WROUGHT CARBON STEEL AND ALLOY STEEL FOR LOW-TEMPERATURE SERVICE.
- ASTM A 815** WROUGHT FERRITIC, FERRITIC / AUSTENITIC, AND MARTENSITIC STAINLESS STEEL PIPING FITTINGS.
- ASTM A 860** WROUGHT HIGH-STRENGTH LOW-ALLOY STEEL BUTT WELDING FITTINGS.
- ASTM B 366** FACTORY-MADE WROUGHT NICKEL AND NICKEL ALLOY FITTINGS.

MSS : MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY

- MSS SP-25** STANDARD MARKINGS SYSTEM FOR VALVES, FITTINGS, FLANGES AND UNIONS.
- MSS SP-43** WROUGHT STAINLESS STEEL BUTT WELDING FITTINGS.
- MSS SP-44** STEEL PIPE LINE FLANGES.
- MSS SP-75** SPECIFICATION FOR HIGH TEST WROUGHT BUTT-WELDING FITTINGS.
- MSS SP-87** FACTORY-MADE BUTT-WELDING FITTINGS FOR CLASS 1 NUCLEAR PIPING APPLICATIONS.

ASME : AMERICAN SOCIETY OF MECHANICAL ENGINEERS

- ASME B 16.9** FACTORY-MADE WROUGHT STEEL BUTT-WELDING FITTINGS.
- ASME B 16.25** BUTT-WELDING ENDS.
- ASME B 36.10** WELDED AND SEAMLESS WROUGHT STEEL PIPE.
- ASME B 36.19** STAINLESS STEEL PIPE.
- ASME SECTION II** MATERIALS.
- ASME SECTION III** RULES FOR CONSTRUCTION OF NUCLEAR FACILITY COMPONENTS.
- ASME SECTION V** NONDESTRUCTIVE EXAMINATION.
- ASME SECTION VIII** RULES FOR CONSTRUCTION OF PRESSURE VESSELS.
- ASME SECTION IX** WELDING AND BRAZING QUALIFICATIONS.

OTHER SPECIFICATION NOT MENTIONED ABOVE IS ALSO AVAILABLE UPON REQUEST BY CUSTOMER.

KS/JIS

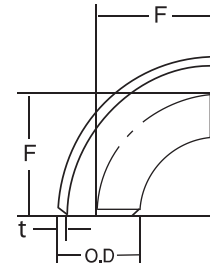
STAINLESS STEEL BUTT-WELDING FITTINGS

CONTENTS

90° ELBOW (LONG, SHORT)	- 12
40° ELBOW (LONG)	- 14
TEE (STRAIGHT, REDUCING)	- 15
REDUCER (CONCENTRIC, ECCENTRIC)	- 20
180° ELBOW (LONG)	- 23
CAP	- 24

STAINLESS STEEL BUTT-WELDING FITTINGS

90° ELBOW (LONG)



KS B1541 / B1543
JIS B2312 / B2313

UNIT : mm

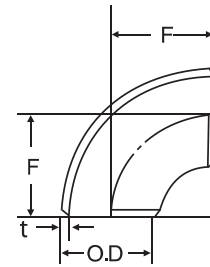
UNIT : KG

NOMINAL PIPE SIZE	OUTSIDE DIAMETER (O.D)	WALL THICKNESS(t)				CENTER TO END F	WEIGHT			
		SCH 5s	SCH 10s	SCH 20s	SCH 40		SCH 5s	SCH 10s	SCH 20s	SCH 40
15	21.7	1.65	2.1	2.5	2.8	38.1	0.05	0.06	0.07	0.08
20	27.2	1.65	2.1	2.5	2.9	38.1	0.06	0.08	0.09	0.10
25	34.0	1.65	2.8	3.0	3.4	38.1	0.08	0.13	0.14	0.15
32	42.7	1.65	2.8	3.0	3.6	47.6	0.12	0.21	0.22	0.26
40	48.6	1.65	2.8	3.0	3.7	57.2	0.17	0.28	0.30	0.37
50	60.5	1.65	2.8	3.5	3.9	76.2	0.29	0.48	0.59	0.65
65	76.3	2.10	3.0	3.5	5.2	95.3	0.57	0.81	0.94	1.36
80	89.1	2.10	3.0	4.0	5.5	114.3	0.81	1.14	1.51	2.03
90	101.6	2.10	3.0	4.0	5.7	133.4	1.08	1.53	2.02	2.82
100	114.3	2.10	3.0	4.0	6.0	152.4	1.39	1.97	2.60	3.83
125	139.8	2.80	3.4	5.0	6.6	190.5	2.83	3.42	4.97	6.48
150	165.2	2.80	3.4	5.0	7.1	228.6	4.02	4.87	7.09	9.93
200	216.3	2.80	4.0	6.5	8.2	304.8	7.05	10.02	16.09	20.14
250	267.4	3.40	4.0	6.5	9.3	381.0	13.20	15.50	25.00	35.40
300	318.5	4.00	4.5	6.5	10.3	457.2	22.30	25.00	35.90	56.20
350	355.6	4.00	4.8	7.9	11.1	533.4	29.00	34.80	56.70	79.00
400	406.4	4.20	4.8	7.9	12.7	609.6	39.90	45.50	74.30	118.00
450	457.2	4.20	4.8	7.9	14.3	685.8	50.50	57.70	94.20	169.00
500	508.0	4.80	5.5	9.5	15.1	762.0	71.30	81.50	139.70	219.60
550	558.8	4.80	5.5	9.5	15.1	838.2	86.30	98.80	169.30	266.40
600	609.6	5.50	6.4	9.5	17.4	914.4	117.60	136.70	201.80	364.80
650	660.4	5.5	7.9	12.7	17.4	990.6	138.10	197.70	315.50	429.10
700	711.2	5.5	7.9	12.7	17.4	1,066.8	160.30	229.50	366.40	498.60
750	762.0	6.4	7.9	12.7	17.4	1,143.0	214.00	263.60	421.10	573.30
800	812.8	6.4	7.9	12.7	17.4	1,219.2	243.60	300.10	479.60	653.30
850	863.8	6.4	7.9	12.7	17.4	1,295.4	275.10	339.00	542.00	738.40
900	914.4	6.4	7.9	12.7	19.0	1,371.6	308.60	380.30	608.10	903.40
950	965.2	6.4	7.9	12.7	19.0	1,447.8	344.00	423.90	678.10	1,007.70
1,000	1,016.0	6.4	9.5	14.3	26.2	1,524.0	381.20	564.20	845.20	1,530.10
1,050	1,066.8	6.4	9.5	14.3	26.2	1,600.2	420.50	622.30	932.40	1,689.10
1,100	1,117.6	6.4	9.5	14.3	26.2	1,676.4	461.60	683.20	1,024.00	-
1,150	1,168.4	6.4	9.5	14.3	26.2	1,752.6	504.60	747.00	1,119.80	-
1,200	1,219.2	6.4	9.5	14.3	26.2	1,828.8	549.60	813.70	1,220.00	-
1,250	1,270.0	6.4	9.5	14.3	26.2	1,905.0	596.50	883.20	1,324.40	-
1,300	1,320.8	6.4	9.5	14.3	26.2	1,981.2	645.20	955.50	1,433.10	-
1,350	1,371.6	6.4	9.5	14.3	26.2	2,057.4	696.00	1,030.70	1,546.00	-
1,400	1,422.4	6.4	9.5	14.3	26.2	2,133.6	748.60	1,108.80	1,663.30	-
1,450	1,473.2	6.4	9.5	14.3	26.2	2,209.8	803.10	1,189.60	1,784.90	-
1,500	1,524.0	6.4	9.5	14.3	26.2	2,286.0	859.60	1,273.40	1,910.70	-

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 49, 53.

STAINLESS STEEL BUTT-WELDING FITTINGS

90° ELBOW (SHORT)



KS B1541 / B1543
JIS B2312 / B2313

UNIT : mm

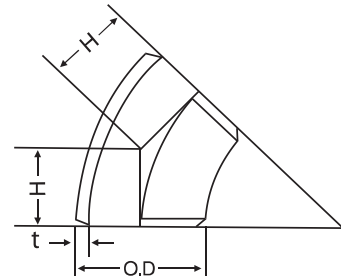
UNIT : KG

NOMINAL PIPE SIZE	OUTSIDE DIAMETER (O.D)	WALL THICKNESS(t)				CENTER TO END	WEIGHT			
		SCH 5s	SCH 10s	SCH 20s	SCH 40	F	SCH 5s	SCH 10s	SCH 20s	SCH 40
25	34.0	1.65	2.8	3.0	3.4	25.4	0.05	0.09	0.09	0.10
32	42.7	1.65	2.8	3.0	3.6	31.8	0.08	0.14	0.15	0.17
40	48.6	1.65	2.8	3.0	3.7	38.1	0.11	0.19	0.20	0.25
50	60.5	1.65	2.8	3.5	3.9	50.8	0.19	0.32	0.39	0.43
65	76.3	2.10	3.0	3.5	5.2	63.5	0.38	0.54	0.63	0.91
80	89.1	2.10	3.0	4.0	5.5	76.2	0.54	0.76	1.00	1.36
90	101.6	2.10	3.0	4.0	5.7	88.9	0.72	1.02	1.34	1.88
100	114.3	2.10	3.0	4.0	6.0	101.6	0.93	1.31	1.74	2.56
125	139.8	2.80	3.4	5.0	6.6	127.0	1.89	2.28	3.31	4.32
150	165.2	2.80	3.4	5.0	7.1	152.4	2.68	3.25	4.73	6.62
200	216.3	2.80	4.0	6.5	8.2	203.2	4.70	6.68	10.73	13.42
250	267.4	3.40	4.0	6.5	9.3	254.0	8.80	10.40	16.70	23.60
300	318.5	4.00	4.5	6.5	10.3	304.8	14.80	16.70	23.90	37.50
350	355.6	4.00	4.8	7.9	11.1	355.6	19.40	23.20	37.80	52.60
400	406.4	4.20	4.8	7.9	12.7	406.4	26.60	30.30	49.50	78.70
450	457.2	4.20	4.8	7.9	14.3	457.2	33.70	38.40	62.80	112.10
500	508.0	4.80	5.5	9.5	15.1	508.0	47.50	54.40	93.10	146.40
550	558.8	4.80	5.5	9.5	15.1	558.8	57.50	65.80	112.90	177.60
600	609.6	5.50	6.4	9.5	17.4	609.6	78.40	91.10	134.50	243.20
650	660.4	5.5	7.9	12.7	17.4	660.4	92.10	131.80	210.30	286.10
700	711.2	5.5	7.9	12.7	17.4	711.2	106.90	153.00	244.30	332.40
750	762.0	6.4	7.9	12.7	17.4	762.0	142.70	175.80	280.70	382.20
800	812.8	6.4	7.9	12.7	17.4	812.8	162.40	200.10	319.80	435.50
850	863.8	6.4	7.9	12.7	17.4	863.8	183.50	226.10	361.40	492.40
900	914.4	6.4	7.9	12.7	19.0	914.4	205.70	253.50	405.40	602.30
950	965.2	6.4	7.9	12.7	19.0	965.2	229.30	282.60	452.00	671.80
1,000	1,016.0	6.4	9.5	14.3	26.2	1,016.0	254.20	376.10	563.50	1,020.10
1,050	1,066.8	6.4	9.5	14.3	26.2	1,066.8	280.30	414.90	621.60	1,126.10
1,100	1,117.6	6.4	9.5	14.3	26.2	1,117.6	307.70	455.50	682.70	-
1,150	1,168.4	6.4	9.5	14.3	26.2	1,168.4	336.40	498.00	746.60	-
1,200	1,219.2	6.4	9.5	14.3	26.2	1,219.2	366.40	542.50	813.30	-
1,250	1,270.0	6.4	9.5	14.3	26.2	1,270.0	397.60	588.80	882.90	-
1,300	1,320.8	6.4	9.5	14.3	26.2	1,320.8	430.20	637.00	955.40	-
1,350	1,371.6	6.4	9.5	14.3	26.2	1,371.6	464.00	687.10	1,030.70	-
1,400	1,422.4	6.4	9.5	14.3	26.2	1,422.4	499.10	739.20	1,108.90	-
1,450	1,473.2	6.4	9.5	14.3	26.2	1,473.2	535.40	793.10	1,189.90	-
1,500	1,524.0	6.4	9.5	14.3	26.2	1,524.0	573.10	848.90	1,273.80	-

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 49, 53.

STAINLESS STEEL BUTT-WELDING FITTINGS

45° ELBOW (LONG)



KS B1541 / B1543
JIS B2312 / B2313

UNIT : mm

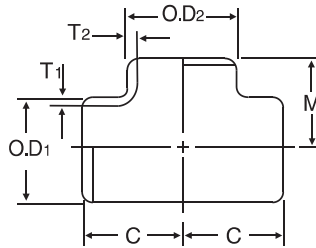
UNIT : KG

NOMINAL PIPE SIZE	OUTSIDE DIAMETER (O.D)	WALL THICKNESS(t)				CENTER TO END H	WEIGHT			
		SCH 5s	SCH 10s	SCH 20s	SCH 40		SCH 5s	SCH 10s	SCH 20s	SCH 40
15	21.7	1.65	2.1	2.5	2.8	15.8	0.02	0.03	0.04	0.04
20	27.2	1.65	2.1	2.5	2.9	15.8	0.03	0.04	0.05	0.06
25	34.0	1.65	2.8	3.0	3.4	15.8	0.04	0.06	0.07	0.08
32	42.7	1.65	2.8	3.0	3.6	19.7	0.06	0.10	0.11	0.13
40	48.6	1.65	2.8	3.0	3.7	23.7	0.09	0.14	0.15	0.18
50	60.5	1.65	2.8	3.5	3.9	31.6	0.14	0.24	0.30	0.33
65	76.3	2.10	3.0	3.5	5.2	39.5	0.29	0.41	0.47	0.68
80	89.1	2.10	3.0	4.0	5.5	47.3	0.41	0.57	0.75	1.02
90	101.6	2.10	3.0	4.0	5.7	55.3	0.54	0.76	1.01	1.41
100	114.3	2.10	3.0	4.0	6.0	63.1	0.70	0.96	1.30	1.92
125	139.8	2.80	3.4	5.0	6.6	78.9	1.42	1.71	2.49	3.24
150	165.2	2.80	3.4	5.0	7.1	94.7	2.01	2.43	3.54	4.97
200	216.3	2.80	4.0	6.5	8.2	126.3	3.53	5.01	8.05	10.10
250	267.4	3.40	4.0	6.5	9.3	157.8	6.62	7.77	12.50	17.70
300	318.5	4.00	4.5	6.5	10.3	189.4	11.10	12.50	17.90	28.10
350	355.6	4.00	4.8	7.9	11.1	220.9	14.40	17.30	28.50	40.00
400	406.4	4.20	4.8	7.9	12.7	252.5	19.90	22.70	37.30	59.00
450	457.2	4.20	4.8	7.9	14.3	284.1	25.20	28.70	47.30	84.50
500	508.0	4.80	5.5	9.5	15.1	315.6	35.50	41.10	70.00	105.00
550	558.8	4.80	5.5	9.5	15.1	347.2	43.00	49.80	85.00	133.50
600	609.6	5.50	6.4	9.5	17.4	378.7	59.00	68.00	101.00	183.00
650	660.4	5.5	7.9	12.7	17.4	410.3	70	99	158	215
700	711.2	5.5	7.9	12.7	17.4	441.9	81	115	183	250
750	762.0	6.4	7.9	12.7	17.4	473.4	106	132	210	288
800	812.8	6.4	7.9	12.7	17.4	505.0	121	150	240	328
850	863.8	6.4	7.9	12.7	17.4	536.6	136	170	271	371
900	914.4	6.4	7.9	12.7	19.0	568.1	153	191	304	453
950	965.2	6.4	7.9	12.7	19.0	599.7	171	212	339	505
1,000	1,016.0	6.4	9.5	14.3	26.2	631.2	189	235	376	560
1,050	1,066.8	6.4	9.5	14.3	26.2	662.8	207	259	311	452
1,100	1,117.6	6.4	9.5	14.3	26.2	694.4	225	285	342	-
1,150	1,168.4	6.4	9.5	14.3	26.2	725.9	244	312	374	-
1,200	1,219.2	6.4	9.5	14.3	26.2	757.5	272	339	407	-
1,250	1,270.0	6.4	9.5	14.3	26.2	788.9	291	336	435	-
1,300	1,320.8	6.4	9.5	14.3	26.2	820.4	311	393	462	-
1,350	1,371.6	6.4	9.5	14.3	26.2	852.2	336	420	489	-
1,400	1,422.4	6.4	9.5	14.3	26.2	883.6	358	457	516	-
1,450	1,473.2	6.4	9.5	14.3	26.2	915.4	384	484	541	-
1,500	1,524.0	6.4	9.5	14.3	26.2	946.9	401	501	569	-

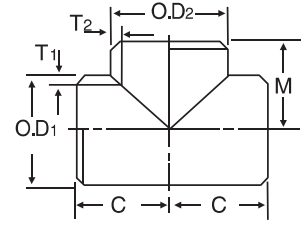
FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 49, 53.

STAINLESS STEEL BUTT-WELDING FITTINGS

TEE (STRAIGHT & REDUCING)



UNIT : mm



UNIT : KG

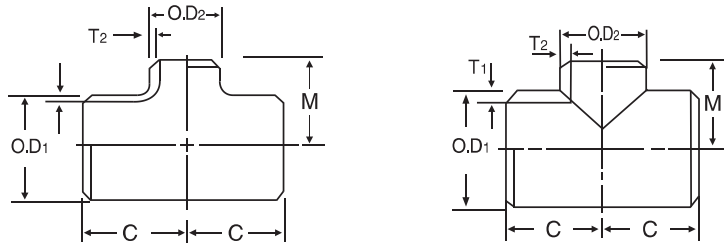
KS B1541 / B1543
JIS B2312 / B2313

NOMINAL PIPE SIZE	OUTSIDE DIAMETER		WALL THICKNESS(t)						CENTER TO END		WEIGHT		
			SCH 10s		SCH 20s		SCH 40		C	M	SCH 10s	SCH 20s	SCH 40
			T ₁	T ₂	T ₁	T ₂	T ₁	T ₂					
15 × 15	21.7	21.7	2.1	2.1	2.5	2.5	2.8	2.8	25.4	25.4	0.07	0.08	0.09
20 × 20	27.2	27.2	2.1	2.1	2.5	2.5	2.9	2.9	28.6	28.6	0.09	0.11	0.13
20 × 15	27.2	21.7	2.1	2.1	2.5	2.5	2.9	2.8	28.6	28.6	0.07	0.10	0.12
25 × 25	34.0	34.0	2.8	2.8	3.0	3.0	3.4	3.4	38.1	38.1	0.21	0.22	0.25
25 × 20	34.0	27.2	2.8	2.1	3.0	2.5	3.4	2.9	38.1	38.1	0.19	0.21	0.23
25 × 15	34.0	21.7	2.8	2.1	3.0	2.5	3.4	2.8	38.1	38.1	0.18	0.20	0.22
32 × 32	42.7	42.7	2.8	2.8	3.0	3.0	3.6	3.6	47.6	47.6	0.34	0.36	0.42
32 × 25	42.7	34.0	2.8	2.8	3.0	3.0	3.6	3.4	47.6	47.6	0.32	0.34	0.40
32 × 20	42.7	27.2	2.8	2.1	3.0	2.5	3.6	2.9	47.6	47.6	0.30	0.32	0.38
32 × 15	42.7	21.7	2.8	2.1	3.0	2.5	3.6	2.8	47.6	47.6	0.29	0.31	0.36
40 × 40	48.6	48.6	2.8	2.8	3.0	3.0	3.7	3.7	57.2	57.2	0.47	0.50	0.60
40 × 32	48.6	42.7	2.8	2.8	3.0	3.0	3.7	3.6	57.2	57.2	0.45	0.48	0.58
40 × 25	48.6	34.0	2.8	2.8	3.0	3.0	3.7	3.4	57.2	57.2	0.43	0.46	0.55
40 × 20	48.6	27.2	2.8	2.1	3.0	2.5	3.7	2.9	57.2	57.2	0.40	0.44	0.53
40 × 15	48.6	21.7	2.8	2.1	3.0	2.5	3.7	2.8	57.2	57.2	0.39	0.42	0.51
50 × 50	60.5	60.5	2.8	2.8	3.5	3.5	3.9	3.9	63.5	63.5	0.64	0.79	0.87
50 × 40	60.5	48.6	2.8	2.8	3.5	3.0	3.9	3.7	63.5	60.3	0.60	0.73	0.81
50 × 32	60.5	42.7	2.8	2.8	3.5	3.0	3.9	3.6	63.5	57.2	0.58	0.70	0.79
50 × 25	60.5	34.0	2.8	2.8	3.5	3.0	3.9	3.4	63.5	50.8	0.55	0.67	0.74
50 × 20	60.5	27.2	2.8	2.1	3.5	2.5	3.9	2.9	63.5	44.5	0.45	0.59	0.68
65 × 65	76.3	76.3	3.0	3.0	3.5	3.5	5.2	5.2	76.2	76.2	1.03	1.20	1.74
65 × 50	76.3	60.5	3.0	2.8	3.5	3.5	5.2	3.9	76.2	69.9	0.95	1.11	1.56
65 × 40	76.3	48.6	3.0	2.8	3.5	3.0	5.2	3.7	76.2	66.7	0.92	1.05	1.51
65 × 32	76.3	42.7	3.0	2.8	3.5	3.0	5.2	3.6	76.2	63.5	0.90	1.03	1.48
65 × 25	76.3	34.0	3.0	2.8	3.5	3.0	5.2	3.4	76.2	57.2	0.87	1.00	1.44
80 × 80	89.1	89.1	3.0	3.0	4.0	4.0	5.5	5.5	85.7	85.7	1.35	1.78	2.41
80 × 65	89.1	76.3	3.0	3.0	4.0	3.5	5.5	5.2	85.7	82.6	1.30	1.68	2.29
80 × 50	89.1	60.5	3.0	2.8	4.0	3.5	5.5	3.9	85.7	76.2	1.22	1.59	2.12
80 × 40	89.1	48.6	3.0	2.8	4.0	3.0	5.5	3.7	85.7	73.0	1.18	1.53	2.06
80 × 32	89.1	42.7	3.0	2.8	4.0	3.0	5.5	3.6	85.7	69.9	1.16	1.51	2.03
100 × 100	114.3	114.3	3.0	3.0	4.0	4.0	6.0	6.0	104.8	104.8	2.12	2.80	4.12
100 × 80	114.3	89.1	3.0	3.0	4.0	4.0	6.0	5.5	104.8	98.4	1.99	2.68	3.83
100 × 65	114.3	76.3	3.0	3.0	4.0	3.5	6.0	5.2	104.8	95.3	1.93	2.52	3.71
100 × 50	114.3	60.5	3.0	2.8	4.0	3.5	6.0	3.9	104.8	88.9	1.85	2.44	3.53
100 × 40	114.3	48.6	3.0	2.8	4.0	3.0	6.0	3.7	104.8	85.7	1.82	2.38	3.47
125 × 125	139.8	139.8	3.4	3.4	5.0	5.0	6.6	6.6	123.8	123.8	3.45	5.01	6.54
125 × 100	139.8	114.3	3.4	3.0	5.0	4.0	6.6	6.0	123.8	117.5	3.22	4.63	6.13
125 × 80	139.8	89.1	3.4	3.0	5.0	4.0	6.6	5.5	123.8	111.1	3.09	4.49	5.83
125 × 65	139.8	76.3	3.4	3.2	5.0	3.5	6.6	5.2	123.8	108.0	3.04	4.35	5.71
125 × 50	139.8	60.5	3.4	2.8	5.0	3.5	6.6	3.9	123.8	104.8	2.97	4.29	5.56

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 49, 53.

STAINLESS STEEL BUTT-WELDING FITTINGS

TEE



KS B1541 / B1543
JIS B2312 / B2313

UNIT : mm

UNIT : KG

NOMINAL PIPE SIZE	OUTSIDE DIAMETER		WALL THICKNESS(t)						CENTER TO END		WEIGHT		
			SCH 10s		SCH 20s		SCH 40		C	M	SCH 10s	SCH 20s	SCH 40
			T ₁	T ₂	T ₁	T ₂	T ₁	T ₂					
150 × 150	165.2	165.2	3.4	3.4	5.0	5.0	7.1	7.1	142.9	142.9	4.70	6.84	9.58
150 × 125	165.2	139.8	3.4	3.4	5.0	5.0	7.1	6.6	142.9	136.5	4.49	6.54	9.08
150 × 100	165.2	114.3	3.4	3.0	5.0	4.0	7.1	6.0	142.9	130.2	4.27	6.16	8.67
150 × 80	165.2	89.1	3.4	3.0	5.0	4.0	7.1	5.5	142.9	123.8	4.14	5.99	8.38
150 × 65	165.2	76.3	3.4	3.0	5.0	3.5	7.1	5.2	142.9	120.7	4.08	5.88	8.25
200 × 200	216.3	216.3	4.0	4.0	6.5	6.5	8.2	8.2	177.8	177.8	8.91	14.30	17.90
200 × 150	216.3	165.2	4.0	3.4	6.5	5.0	8.2	7.1	177.8	168.3	8.26	13.10	16.60
200 × 125	216.3	139.8	4.0	3.4	6.5	5.0	8.2	6.6	177.8	161.9	8.06	12.90	16.10
200 × 100	216.3	114.3	4.0	3.0	6.5	4.0	8.2	6.0	177.8	155.6	7.84	12.50	15.70
200 × 90	216.3	101.6	4.0	3.0	6.5	4.0	8.2	5.7	177.8	152.4	7.80	12.40	15.60
250 × 250	267.4	267.4	4.0	4.0	6.5	6.5	9.3	9.3	215.9	215.9	13.40	21.50	30.40
250 × 200	267.4	216.3	4.0	4.0	6.5	6.5	9.3	8.2	215.9	203.2	12.70	20.40	28.50
250 × 150	267.4	165.2	4.0	3.4	6.5	5.0	9.3	7.1	215.9	193.7	12.00	19.20	27.20
250 × 100	267.4	114.3	4.0	3.0	6.5	4.0	9.3	6.0	215.9	184.2	11.60	18.60	26.40
300 × 300	318.5	318.5	4.5	4.5	6.5	6.5	10.3	10.3	254.0	254.0	21.00	30.10	47.20
300 × 250	318.5	267.4	4.5	4.0	6.5	6.5	10.3	9.3	254.0	241.3	19.80	28.80	44.60
300 × 200	318.5	216.3	4.5	4.0	6.5	6.5	10.3	8.2	254.0	228.6	19.10	27.70	42.70
300 × 150	318.5	165.2	4.5	3.4	6.5	5.0	10.3	7.1	254.0	219.1	18.50	26.60	41.40
300 × 125	318.5	139.8	4.5	3.4	6.5	5.0	10.3	6.6	254.0	215.9	18.30	26.30	41.00
350 × 350	355.6	355.6	4.8	4.8	7.9	7.9	11.1	11.1	279.4	279.4	27.30	44.80	62.40
350 × 300	355.6	318.5	4.8	4.5	7.9	6.5	11.1	10.3	279.4	269.9	25.80	43.20	59.80
350 × 250	355.6	267.4	4.8	4.0	7.9	6.5	11.1	9.3	279.4	257.2	24.70	41.00	57.30
350 × 200	355.6	216.3	4.8	4.0	7.9	6.5	11.1	8.2	279.4	247.7	23.70	39.70	42.00
350 × 150	355.6	165.2	4.8	3.4	7.9	5.0	11.1	7.1	279.4	238.1	22.60	38.00	54.50
400 × 400	406.4	406.4	4.8	4.8	7.9	7.9	12.7	12.7	304.8	304.8	33.80	55.20	87.70
400 × 350	406.4	355.6	4.8	4.8	7.9	7.9	12.7	11.1	304.8	304.8	33.20	54.20	84.70
400 × 300	406.4	318.5	4.8	4.5	7.9	6.5	12.7	10.3	304.8	295.3	32.20	51.90	82.30
400 × 250	406.4	267.4	4.8	4.0	7.9	6.5	12.7	9.3	304.8	282.6	31.00	50.60	79.80
400 × 200	406.4	216.3	4.8	4.0	7.9	6.5	12.7	8.2	304.8	273.1	30.40	49.70	78.10
400 × 150	406.4	165.2	4.8	3.4	7.9	5.0	12.7	7.1	304.8	263.5	29.80	48.50	76.80
450 × 450	457.2	457.2	4.8	4.8	7.9	7.9	14.3	14.3	342.9	342.9	42.70	70.00	125.00
450 × 400	457.2	406.4	4.8	4.8	7.9	7.9	14.3	12.7	342.9	330.2	40.10	67.50	120.10
450 × 350	457.2	355.6	4.8	4.8	7.9	7.9	14.3	11.1	342.9	330.2	38.40	64.70	115.00
450 × 300	457.2	318.5	4.8	4.5	7.9	6.5	14.3	10.3	342.9	320.7	36.80	62.00	114.00
450 × 250	457.2	267.4	4.8	4.0	7.9	6.5	14.3	9.3	342.9	308.0	35.30	59.40	112.00
500 × 500	508.0	508.0	5.5	5.5	9.5	9.5	15.1	15.1	381.0	381.0	60.60	103.80	163.10
500 × 450	508.0	457.2	5.5	4.8	9.5	7.9	15.1	14.3	381.0	368.3	58.00	98.90	157.60
500 × 400	508.0	406.4	5.5	4.8	9.5	7.9	15.1	12.7	381.0	355.6	56.70	96.80	152.30
500 × 350	508.0	355.6	5.5	4.8	9.5	7.9	15.1	11.1	381.0	355.6	56.10	95.80	149.40
500 × 300	508.0	318.5	5.5	4.5	9.5	6.5	15.1	10.3	381.0	346.1	55.10	93.60	147.00
500 × 250	508.0	267.4	5.5	4.0	9.5	6.5	15.1	9.3	381.0	333.4	53.97	92.27	144.49
500 × 200	508.0	216.3	5.5	4.0	9.5	6.5	15.1	8.2	381.0	323.9	53.37	91.30	142.73
550 × 550	558.8	558.8	5.5	5.5	9.5	9.5	15.1	15.1	419.0	419.0	106.00	126.00	198.00
550 × 500	558.8	508.0	5.5	5.5	9.5	9.5	15.1	15.1	419.0	406.0	103.00	123.00	193.00
550 × 450	558.8	457.2	5.5	4.8	9.5	8.0	15.1	14.3	419.0	394.0	101.00	120.00	188.00
550 × 400	558.8	406.4	5.5	4.8	9.5	8.0	15.1	12.7	419.0	381.0	89.90	117.00	183.00
550 × 350	558.8	355.6	5.5	4.8	9.5	8.0	15.1	11.1	419.0	381.0	95.40	114.00	178.00
550 × 300	558.8	323.8	5.5	4.6	9.5	6.5	15.1	10.3	419.0	371.0	91.60	111.00	176.90
550 × 250	558.8	273.1	5.5	4.2	9.5	6.5	15.1	9.3	419.0	359.0	89.60	108.00	124.40

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 49, 53.

STAINLESS STEEL BUTT-WELDING FITTINGS

KS B1541 / B1543
JIS B2312 / B2313

UNIT : mm

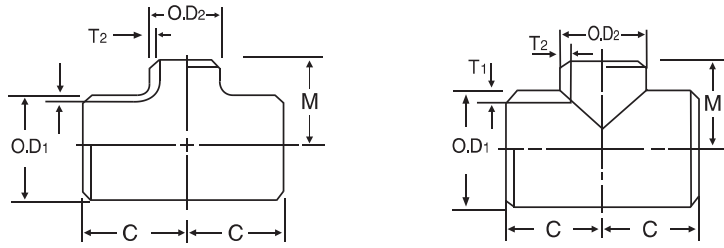
UNIT : KG

NOMINAL PIPE SIZE	OUTSIDE DIAMETER		WALL THICKNESS(t)						CENTER TO END		WEIGHT		
			SCH 10s		SCH 20s		SCH 40		C	M	SCH 10s	SCH 20s	SCH 40
			T ₁	T ₂	T ₁	T ₂	T ₁	T ₂					
RUN×OUTLET	O.D ₁	O.D ₂	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂	C	M	SCH 10s	SCH 20s	SCH 40
600 × 600	609.6	609.6	6.4	6.4	9.5	9.5	17.5	15.1	431.0	431.0	94.0	139.0	248.0
600 × 550	609.6	558.8	6.4	5.5	9.5	9.5	17.5	15.1	431.0	431.0	91.0	137.0	246.0
600 × 500	609.6	508.0	6.4	5.5	9.5	9.5	17.5	15.1	431.0	431.0	91.0	136.0	243.0
600 × 450	609.6	457.2	6.4	4.8	9.5	8.0	17.5	14.3	431.0	419.0	88.0	131.0	238.0
600 × 400	609.6	406.4	6.4	4.8	9.5	8.0	17.5	12.7	431.0	406.0	87.0	129.0	233.0
600 × 350	609.6	355.6	6.4	4.6	9.5	8.0	17.5	11.1	431.0	406.0	86.0	128.0	230.0
600 × 300	609.6	323.8	6.4	4.6	9.5	6.5	17.5	10.3	431.0	397.0	85.0	126.0	227.0
600 × 250	609.6	273.1	6.4	4.2	9.5	6.5	17.5	9.3	431.0	384.0	84.0	125.0	225.0
650 × 650	660.4	660.4	7.9	7.9	12.7	9.5	17.5	17.5	495.0	495.0	147.0	226.0	320.0
650 × 600	660.4	609.6	7.9	6.4	12.7	9.5	17.5	15.1	495.0	483.0	140.0	222.0	308.0
650 × 550	660.4	558.8	7.9	5.5	12.7	9.5	17.5	15.1	495.0	470.0	136.0	219.0	303.0
650 × 500	660.4	508.0	7.9	5.5	12.7	9.5	17.5	15.1	495.0	457.0	134.0	216.0	298.0
650 × 450	660.4	457.2	7.9	4.8	12.7	8.0	17.5	14.3	495.0	444.0	132.0	211.0	292.0
650 × 400	660.4	406.4	7.9	4.8	12.7	8.0	17.5	12.7	495.0	432.0	131.0	209.0	287.0
650 × 350	660.4	355.6	7.9	4.8	12.7	8.0	17.5	11.1	495.0	432.0	130.0	208.0	284.0
650 × 300	660.4	323.8	7.9	4.6	12.7	6.5	17.5	10.3	495.0	422.0	129.0	205.0	282.0
700 × 700	711.2	711.2	7.9	7.9	12.7	9.5	17.5	17.5	521.0	521.0	165.0	255.0	361.0
700 × 650	711.2	660.4	7.9	7.9	12.7	9.5	17.5	15.1	521.0	521.0	164.0	253.0	352.0
700 × 600	711.2	609.6	7.9	6.4	12.7	9.5	17.5	15.1	521.0	508.0	157.0	249.0	346.0
700 × 550	711.2	558.8	7.9	5.5	12.7	9.5	17.5	15.1	521.0	495.0	153.0	246.0	340.0
700 × 500	711.2	508.0	7.9	5.5	12.7	9.5	17.5	14.3	521.0	483.0	151.0	243.0	334.0
700 × 450	711.2	457.2	7.9	4.8	12.7	8.0	17.5	12.7	521.0	470.0	149.0	238.0	328.0
700 × 400	711.2	406.4	7.9	4.8	12.7	8.0	17.5	11.1	521.0	457.0	148.0	236.0	323.0
700 × 350	711.2	355.6	7.9	4.8	12.7	8.0	17.5	10.3	521.0	457.0	147.0	235.0	321.0
700 × 300	711.2	323.8	7.9	4.6	12.7	6.5	17.5	9.3	521.0	448.0	146.0	233.0	318.0
750 × 750	762.0	762.0	7.9	7.9	12.7	9.5	17.5	17.5	559.0	559.0	190.0	294.0	416.0
750 × 700	762.0	711.2	7.9	7.9	12.7	9.5	17.5	17.5	559.0	546.0	187.0	289.0	408.0
750 × 650	762.0	660.4	7.9	7.9	12.7	9.5	17.5	17.5	559.0	546.0	185.0	287.0	405.0
750 × 600	762.0	609.6	7.9	6.4	12.7	9.5	17.5	15.1	559.0	533.0	179.0	284.0	393.0
750 × 550	762.0	558.8	7.9	5.5	12.7	9.5	17.5	15.1	559.0	521.0	175.0	280.0	387.0
750 × 500	762.0	508.0	7.9	5.5	12.7	9.5	17.5	15.1	559.0	508.0	173.0	277.0	382.0
750 × 450	762.0	457.2	7.9	4.8	12.7	8.0	17.5	14.3	559.0	495.0	170.0	272.0	377.0
750 × 400	762.0	406.4	7.9	4.8	12.7	8.0	17.5	12.7	559.0	483.0	169.0	270.0	372.0
750 × 350	762.0	355.6	7.9	4.8	12.7	8.0	17.5	11.1	559.0	483.0	168.0	269.0	369.0
750 × 300	762.0	323.8	7.9	4.6	12.7	6.5	17.5	10.3	559.0	473.0	168.0	267.0	366.0
750 × 250	762.0	273.1	7.9	4.2	12.7	6.5	17.5	9.3	559.0	460.0	166.0	266.0	364.0
800 × 800	812.8	812.8	7.9	7.9	12.7	9.5	17.5	17.5	597.0	597.0	217.0	335.0	475.0
800 × 750	812.8	762.0	7.9	7.9	12.7	9.5	17.5	17.5	597.0	584.0	213.0	330.0	467.0
800 × 700	812.8	711.2	7.9	7.9	12.7	9.5	17.5	17.5	597.0	572.0	210.0	326.0	459.0
800 × 650	812.8	660.4	7.9	7.9	12.7	9.5	17.5	17.5	597.0	572.0	208.0	324.0	456.0
800 × 600	812.8	609.6	7.9	6.4	12.7	9.5	15.1	15.1	597.0	559.0	202.0	320.0	388.0
800 × 550	812.8	558.8	7.9	5.5	12.7	9.5	15.1	15.1	597.0	546.0	198.0	317.0	383.0
800 × 500	812.8	508.0	7.9	5.5	12.7	9.5	15.1	15.1	597.0	533.0	196.0	314.0	378.0
800 × 450	812.8	457.2	7.9	4.8	12.7	8.0	14.3	14.3	597.0	521.0	193.0	309.0	354.0
800 × 400	812.8	406.4	7.9	4.8	12.7	8.0	12.7	12.7	597.0	508.0	192.0	307.0	312.0
800 × 350	812.8	355.6	7.9	4.8	12.7	8.0	11.1	11.1	597.0	508.0	191.0	306.0	271.0

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 49, 53.

STAINLESS STEEL BUTT-WELDING FITTINGS

TEE



KS B1541 / B1543
JIS B2312 / B2313

UNIT : mm

UNIT : KG

NOMINAL PIPE SIZE	OUTSIDE DIAMETER		WALL THICKNESS(t)						CENTER TO END		WEIGHT		
			SCH 10s		SCH 20s		SCH 40		C	M	SCH 10s	SCH 20s	SCH 40
			T ₁	T ₂	T ₁	T ₂	T ₁	T ₂					
850 × 850	863.6	863.6	7.9	7.9	12.7	9.5	17.5	17.5	635.0	635.0	245.0	379.0	538.0
850 × 800	863.6	812.8	7.9	7.9	12.7	9.5	17.5	17.5	635.0	622.0	241.0	374.0	529.0
850 × 750	863.6	762.0	7.9	7.9	12.7	9.5	17.5	17.5	635.0	610.0	238.0	370.0	521.0
850 × 700	863.6	711.2	7.9	7.9	12.7	9.5	17.5	17.5	635.0	597.0	234.0	365.0	513.0
850 × 650	863.6	660.4	7.9	7.9	12.7	9.5	17.5	17.5	635.0	597.0	233.0	363.0	509.0
850 × 600	863.6	609.6	7.9	6.4	12.7	9.5	17.5	15.1	635.0	584.0	226.0	360.0	497.0
850 × 550	863.6	558.8	7.9	5.5	12.7	9.5	17.5	15.1	635.0	572.0	222.0	356.0	492.0
850 × 500	863.6	508.0	7.9	5.5	12.7	9.5	17.5	15.1	635.0	559.0	220.0	353.0	487.0
850 × 450	863.6	457.2	7.9	4.8	12.7	8.0	17.5	14.3	635.0	546.0	218.0	348.0	481.0
850 × 400	863.6	406.4	7.9	4.8	12.7	8.0	17.5	12.7	635.0	533.0	216.0	346.0	476.0
900 × 900	914.4	914.4	7.9	7.9	12.7	9.5	19.0	17.5	673.0	673.0	276.0	426.0	648.0
900 × 850	914.4	863.6	7.9	7.9	12.7	9.5	19.0	17.5	673.0	660.0	271.0	420.0	638.0
900 × 800	914.4	812.8	7.9	7.9	12.7	9.5	19.0	17.5	673.0	648.0	268.0	416.0	630.0
900 × 750	914.4	762.0	7.9	7.9	12.7	9.5	19.0	17.5	673.0	635.0	264.0	411.0	622.0
900 × 700	914.4	711.2	7.9	7.9	12.7	9.5	19.0	17.5	673.0	622.0	260.0	407.0	614.0
900 × 650	914.4	660.4	7.9	7.9	12.7	9.5	19.0	17.5	673.0	622.0	259.0	405.0	610.0
900 × 600	914.4	609.6	7.9	6.4	12.7	9.5	19.0	15.1	673.0	610.0	252.0	401.0	598.0
900 × 550	914.4	558.8	7.9	5.5	12.7	9.5	19.0	15.1	673.0	597.0	248.0	398.0	593.0
900 × 500	914.4	508.0	7.9	5.5	12.7	9.5	19.0	15.1	673.0	584.0	246.0	395.0	588.0
900 × 450	914.4	457.2	7.9	4.8	12.7	8.0	19.0	14.3	673.0	572.0	244.0	390.0	582.0
900 × 400	914.4	406.4	7.9	4.8	12.7	8.0	19.0	12.7	673.0	559.0	242.0	388.0	577.0
950 × 950	965.2	965.2	7.9	7.9	12.7	9.5	19.0	19.0	711.0	711.0	308.0	475.0	731.0
950 × 850	965.2	914.4	7.9	7.9	12.7	9.5	19.0	19.0	711.0	711.0	305.0	472.0	726.0
950 × 800	965.2	863.6	7.9	7.9	12.7	9.5	19.0	17.5	711.0	698.0	301.0	467.0	709.0
950 × 750	965.2	812.8	7.9	7.9	12.7	9.5	19.0	17.5	711.0	686.0	297.0	462.0	700.0
950 × 700	965.2	762.0	7.9	7.9	12.7	9.5	19.0	17.5	711.0	673.0	293.0	458.0	691.0
950 × 650	965.2	711.2	7.9	7.9	12.7	9.5	19.0	17.5	711.0	648.0	288.0	451.0	680.0
950 × 600	965.2	660.4	7.9	7.9	12.7	9.5	19.0	17.5	711.0	648.0	286.0	449.0	676.0
950 × 550	965.2	609.6	7.9	5.5	12.7	9.5	19.0	15.1	711.0	635.0	278.0	445.0	664.0
950 × 500	965.2	558.8	7.9	5.5	12.7	9.5	19.0	15.1	711.0	622.0	276.0	442.0	658.0
950 × 450	965.2	508.0	7.9	5.5	12.7	9.5	19.0	15.1	711.0	610.0	274.0	439.0	654.0
950 × 400	965.2	457.2	7.9	4.8	12.7	8.0	19.0	14.3	711.0	597.0	271.0	434.0	648.0
1000 × 1000	1016.0	1016.0	9.5	7.9	14.3	9.5	26.2	26.2	749.0	749.0	400.0	586.0	1,112.0
1000 × 950	1016.0	956.2	9.5	7.9	14.3	9.5	26.2	19.0	749.0	749.0	398.0	582.0	1,063.0
1000 × 900	1016.0	914.4	9.5	7.9	14.3	9.5	26.2	19.0	749.0	737.0	393.0	577.0	1,054.0
1000 × 850	1016.0	863.6	9.5	7.9	14.3	9.5	26.2	17.5	749.0	724.0	389.0	572.0	1,036.0
1000 × 800	1016.0	812.8	9.5	7.9	14.3	9.5	26.2	17.5	749.0	711.0	385.0	567.0	1,027.0
1000 × 750	1016.0	762.0	9.5	7.9	14.3	9.5	26.2	17.5	749.0	698.0	381.0	562.0	1,019.0
1000 × 700	1016.0	711.2	9.5	7.9	14.3	9.5	26.2	17.5	749.0	673.0	376.0	556.0	1,007.0
1000 × 650	1016.0	660.4	9.5	7.9	14.3	9.5	26.2	17.5	749.0	673.0	374.0	554.0	1,003.0
1000 × 600	1016.0	609.6	9.5	6.4	14.3	9.5	26.2	15.1	749.0	660.0	368.0	550.0	991.0
1000 × 550	1016.0	558.8	9.5	5.5	14.3	9.5	26.2	15.1	749.0	648.0	364.0	547.0	986.0
1000 × 500	1016.0	508.0	9.5	5.5	14.3	9.5	26.2	15.1	749.0	635.0	362.0	544.0	981.0
1000 × 450	1016.0	457.2	9.5	4.8	14.3	8.0	26.2	14.3	749.0	622.0	359.0	539.0	975.0

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 49, 53.

STAINLESS STEEL BUTT-WELDING FITTINGS

KS B1541 / B1543
JIS B2312 / B2313

UNIT : mm

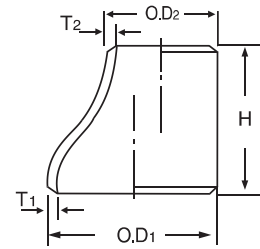
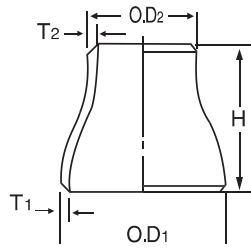
UNIT : KG

NOMINAL PIPE SIZE	OUTSIDE DIAMETER		WALL THICKNESS(t)						CENTER TO END		WEIGHT		
			SCH 10s		SCH 20s		SCH 40		C	M	SCH 10s	SCH 20s	SCH 40
			T ₁	T ₂	T ₁	T ₂	T ₁	T ₂					
RUN×OUTLET	O.D ₁	O.D ₂	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂	C	M	SCH 10s	SCH 20s	SCH 40
1050 × 1050	1066.8	1066.8	9.5	9.5	14.3	14.3	26.2	26.2	762.0	711.0	421.0	631.0	1,144.0
1050 × 1000	1066.8	1016.0	9.5	9.5	14.3	14.3	26.2	26.2	762.0	711.0	419.0	628.0	1,138.0
1050 × 950	1066.8	965.2	9.5	7.9	14.3	9.5	26.2	19.0	762.0	711.0	410.0	605.0	1,103.0
1050 × 900	1066.8	914.4	9.5	7.9	14.3	9.5	26.2	19.0	762.0	711.0	409.0	603.0	1,099.0
1050 × 850	1066.8	863.6	9.5	7.9	14.3	9.5	26.2	17.5	762.0	711.0	407.0	601.0	1,089.0
1050 × 800	1066.8	812.8	9.5	7.9	14.3	9.5	26.2	17.5	762.0	711.0	405.0	599.0	1,085.0
1050 × 750	1066.8	762.0	9.5	7.9	14.3	9.5	26.2	17.5	762.0	711.0	403.0	597.0	1,081.0
1050 × 700	1066.8	711.2	9.5	7.9	14.3	9.5	26.2	17.5	762.0	698.0	400.0	592.0	1,073.0
1050 × 650	1066.8	660.4	9.5	7.9	14.3	9.5	26.2	17.5	762.0	698.0	398.0	590.0	1,070.0
1050 × 600	1066.8	609.6	9.5	6.4	14.3	9.5	26.2	15.1	762.0	660.0	389.0	583.0	1,052.0
1050 × 550	1066.8	558.8	9.5	5.5	14.3	9.5	26.2	15.1	762.0	660.0	387.0	582.0	1,050.0
1050 × 500	1066.8	508.0	9.5	5.5	14.3	9.5	26.2	15.1	762.0	660.0	386.0	580.0	1,047.0
1050 × 450	1066.8	457.2	9.5	4.8	14.3	9.5	26.2	14.3	762.0	648.0	383.0	577.0	1,042.0
1050 × 400	1066.8	406.4	9.5	4.8	14.3	8.0	26.2	12.7	762.0	635.0	382.0	573.0	1,037.0
1100 × 1100	1117.6	1117.6	9.5	9.5	14.3	14.3	26.2	26.2	813.0	762.0	475.0	711.0	1,289.0
1100 × 1050	1117.6	1066.8	9.5	9.5	14.3	14.3	26.2	26.2	813.0	762.0	472.0	708.0	1,283.0
1100 × 1000	1117.6	1060.0	9.5	9.5	14.3	14.3	26.2	26.2	813.0	749.0	469.0	702.0	1,273.0
1100 × 950	1117.6	965.2	9.5	7.9	14.3	9.5	26.2	19.0	813.0	737.0	455.0	672.0	1,225.0
1100 × 900	1117.6	914.4	9.5	7.9	14.3	9.5	26.2	19.0	813.0	724.0	451.0	667.0	1,215.0
1100 × 850	1117.6	863.6	9.5	7.9	14.3	9.5	26.2	17.5	813.0	724.0	449.0	665.0	1,206.0
1100 × 800	1117.6	812.8	9.5	7.9	14.3	9.5	26.2	17.5	813.0	711.0	446.0	661.0	1,198.0
1100 × 750	1117.6	762.0	9.5	7.9	14.3	9.5	26.2	17.5	813.0	711.0	444.0	659.0	1,195.0
1100 × 700	1117.6	711.2	9.5	7.9	14.3	9.5	26.2	17.5	813.0	698.0	441.0	655.0	1,188.0
1100 × 650	1117.6	660.4	9.5	7.9	14.3	9.5	26.2	17.5	813.0	698.0	440.0	654.0	1,185.0
1100 × 600	1117.6	609.6	9.5	6.4	14.3	9.5	26.2	15.1	813.0	698.0	435.0	652.0	1,177.0
1100 × 550	1117.6	558.8	9.5	5.5	14.3	9.5	26.2	15.1	813.0	686.0	431.0	649.0	1,172.0
1100 × 500	1117.6	508.0	9.5	5.5	14.3	9.5	26.2	15.1	813.0	686.0	431.0	647.0	1,169.0
1150 × 1150	1168.4	1168.4	9.5	9.5	14.3	14.3	26.2	26.2	851.0	800.0	520.0	780.0	1,415.0
1150 × 1100	1168.4	1117.6	9.5	9.5	14.3	14.3	26.2	26.2	851.0	800.0	518.0	776.0	1,408.0
1150 × 1050	1168.4	1066.8	9.5	9.5	14.3	14.3	26.2	26.2	851.0	787.0	512.0	768.0	1,392.0
1150 × 1000	1168.4	1016.0	9.5	9.5	14.3	14.3	26.2	26.2	851.0	775.0	507.0	760.0	1,377.0
1150 × 950	1168.4	965.2	9.5	7.9	14.3	9.5	26.2	19.0	851.0	762.0	495.0	732.0	1,334.0
1150 × 900	1168.4	914.4	9.5	7.9	14.3	9.5	26.2	19.0	851.0	762.0	493.0	730.0	1,330.0
1150 × 850	1168.4	863.6	9.5	7.9	14.3	9.5	26.2	17.5	851.0	749.0	489.0	725.0	1,316.0
1150 × 800	1168.4	812.8	9.5	7.9	14.3	9.5	26.2	17.5	851.0	749.0	488.0	723.0	1,312.0
1150 × 750	1168.4	762.0	9.5	7.9	14.3	9.5	26.2	17.5	851.0	737.0	484.0	719.0	1,305.0
1150 × 700	1168.4	711.2	9.5	7.9	14.3	9.5	26.2	17.5	851.0	737.0	483.0	717.0	1,301.0
1150 × 650	1168.4	660.4	9.5	7.9	14.3	9.5	26.2	17.5	851.0	737.0	481.0	716.0	1,298.0
1150 × 600	1168.4	609.6	9.5	6.4	14.3	9.5	26.2	15.1	851.0	724.0	475.0	712.0	1,286.0
1150 × 550	1168.4	558.8	9.5	5.5	14.3	9.5	26.2	15.1	851.0	724.0	472.0	710.0	1,284.0
1200 × 1200	1219.2	1219.2	9.5	7.9	14.3	14.3	26.2	26.2	889.0	838.0	558.0	852.0	1,546.0
1200 × 1150	1219.2	1168.4	9.5	7.9	14.3	14.3	26.2	26.2	889.0	838.0	555.0	848.0	1,538.0
1200 × 1100	1219.2	1117.6	9.5	7.9	14.3	14.3	26.2	26.2	889.0	838.0	553.0	844.0	1,531.0
1200 × 1050	1219.2	1066.8	9.5	7.9	14.3	14.3	26.2	26.2	889.0	831.0	549.0	837.0	1,519.0
1200 × 1000	1219.2	1016.0	9.5	7.9	14.3	14.3	26.2	26.2	889.0	813.0	544.0	827.0	1,500.0
1200 × 950	1219.2	965.2	9.5	7.9	14.3	9.5	26.2	19.0	889.0	813.0	542.0	801.0	1,460.0
1200 × 900	1219.2	914.4	9.5	7.9	14.3	9.5	26.2	19.0	889.0	813.0	540.0	798.0	1,455.0
1200 × 850	1219.2	863.6	9.5	7.9	14.3	9.5	26.2	17.5	889.0	787.0	533.0	791.0	1,435.0
1200 × 800	1219.2	812.8	9.5	7.9	14.3	9.5	26.2	17.5	889.0	787.0	531.0	788.0	1,431.0
1200 × 750	1219.2	762.0	9.5	7.9	14.3	9.5	26.2	17.5	889.0	787.0	530.0	786.0	1,427.0
1200 × 700	1219.2	711.2	9.5	7.9	14.3	9.5	26.2	17.5	889.0	762.0	525.0	780.0	1,415.0
1200 × 650	1219.2	660.4	9.5	7.9	14.3	9.5	26.2	17.5	889.0	762.0	523.0	788.0	1,412.0
1200 × 600	1219.2	609.6	9.5	6.4	14.3	9.5	26.2	15.1	889.0	762.0	518.0	777.0	1,404.0
1200 × 550	1219.2	558.8	9.5	5.5	14.3	9.5	26.2	15.1	889.0	737.0	513.0	772.0	1,396.0

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 49, 53.

STAINLESS STEEL BUTT-WELDING FITTINGS

REDUCER (CONCENTRIC & ECCENTRIC)



KS B1541 / B1543
JIS B2312 / B2313

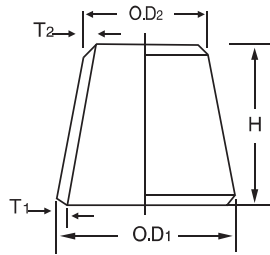
UNIT : mm

UNIT : KG

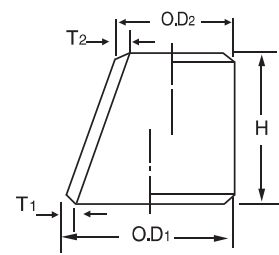
NOMINAL PIPE SIZE	OUTSIDE DIAMETER		WALL THICKNESS(t)						CENTER TO END	WEIGHT		
	RUN×OUTLET	O.D ₁	O.D ₂	SCH 10s		SCH 20s		SCH 40		H	SCH 10s	SCH 20s
T ₁				T ₂	T ₁	T ₂	T ₁	T ₂				
20 × 15	27.2	21.7	2.1	2.1	2.5	2.5	2.9	2.8	38.1	0.04	0.05	0.06
25 × 20	34.0	27.2	2.8	2.1	3.0	2.5	3.4	2.9	50.8	0.10	0.10	0.12
25 × 15	34.0	21.7	2.8	2.1	3.0	2.5	3.4	2.8	50.8	0.09	0.09	0.11
32 × 25	42.7	34.0	2.8	2.8	3.0	3.0	3.6	3.4	50.8	0.13	0.13	0.16
32 × 20	42.7	27.2	2.8	2.1	3.0	2.5	3.6	2.9	50.8	0.11	0.12	0.14
32 × 15	42.7	21.7	2.8	2.1	3.0	2.5	3.6	2.8	50.8	0.10	0.11	0.13
40 × 32	48.6	42.7	2.8	2.8	3.0	3.0	3.7	3.6	63.5	0.19	0.20	0.24
40 × 25	48.6	34.0	2.8	2.8	3.0	3.0	3.7	3.4	63.5	0.17	0.18	0.22
40 × 20	48.6	27.2	2.8	2.1	3.0	2.5	3.7	2.9	63.5	0.16	0.17	0.20
40 × 15	48.6	21.7	2.8	2.1	3.0	2.5	3.7	2.8	63.5	0.14	0.15	0.18
50 × 40	60.5	48.6	2.8	2.8	3.5	3.0	3.9	3.7	76.2	0.27	0.34	0.37
50 × 32	60.5	42.7	2.8	2.8	3.5	3.0	3.9	3.6	76.2	0.26	0.32	0.35
50 × 25	60.5	34.0	2.8	2.8	3.5	3.0	3.9	3.4	76.2	0.24	0.29	0.32
50 × 20	60.5	27.2	2.8	2.1	3.5	2.5	3.9	2.9	76.2	0.21	0.25	0.29
65 × 50	76.3	60.5	3.0	2.8	3.5	3.5	5.2	3.9	88.9	0.43	0.50	0.72
65 × 40	76.3	48.6	3.0	2.8	3.5	3.0	5.2	3.7	88.9	0.40	0.46	0.66
65 × 32	76.3	42.7	3.0	2.8	3.5	3.0	5.2	3.6	88.9	0.38	0.43	0.61
65 × 25	76.3	34.0	3.0	2.8	3.5	3.0	5.2	3.4	76.2	0.29	0.34	0.49
80 × 65	89.1	76.3	3.0	3.0	4.0	3.5	5.5	5.2	88.9	0.53	0.69	0.93
80 × 50	89.1	60.5	3.0	2.8	4.0	3.5	5.5	3.9	88.9	0.48	0.63	0.85
80 × 40	89.1	48.6	3.0	2.8	4.0	3.0	5.5	3.7	88.9	0.44	0.58	0.78
90 × 80	101.6	89.1	3.0	3.0	4.0	4.0	5.7	5.5	101.6	0.70	0.91	1.28
90 × 65	101.6	76.3	3.0	3.0	4.0	3.5	5.7	5.3	101.6	0.66	0.85	1.22
90 × 50	101.6	60.5	3.0	2.8	4.0	3.5	5.7	3.9	101.6	0.61	0.80	1.16
90 × 40	101.6	48.6	3.0	2.8	4.0	3.0	5.7	3.7	101.6	0.57	0.76	1.11
90 × 32	101.6	42.7	3.0	2.8	4.0	3.0	5.7	3.6	101.6	0.52	0.72	1.06
100 × 80	114.3	89.1	3.0	3.0	4.0	4.0	6.0	5.5	101.6	0.75	0.99	1.45
100 × 65	114.3	76.3	3.0	3.0	4.0	3.5	6.0	5.2	101.6	0.71	0.93	1.37
100 × 50	114.3	60.5	3.0	2.8	4.0	3.5	6.0	3.9	101.6	0.66	0.86	1.27
100 × 40	114.3	48.6	3.0	2.8	4.0	3.0	6.0	3.7	101.6	0.60	0.79	1.12
125 × 100	139.8	114.3	3.4	3.0	5.0	4.0	6.6	6.0	127.0	1.32	1.92	2.50
125 × 80	139.8	89.1	3.4	3.0	5.0	4.0	6.6	5.5	127.0	1.20	1.74	2.27
125 × 65	139.8	76.3	3.4	3.0	5.0	3.5	6.6	5.2	127.0	1.15	1.66	2.16
125 × 50	139.8	60.5	3.4	2.8	5.0	3.5	6.6	3.9	127.0	1.03	1.49	1.93
150 × 125	165.2	139.8	3.4	3.4	5.0	5.0	7.1	6.6	139.7	1.75	2.55	3.57
150 × 100	165.2	114.3	3.4	3.0	5.0	4.0	7.1	6.0	139.7	1.62	2.36	3.30
150 × 80	165.2	89.1	3.4	3.0	5.0	4.0	7.1	5.5	139.7	1.50	2.18	3.04
150 × 65	165.2	76.3	3.4	3.0	5.0	3.5	7.1	5.2	139.7	1.37	1.99	2.78
200 × 150	216.3	165.2	4.0	3.4	6.5	5.0	8.2	7.1	152.4	2.85	4.57	5.71
200 × 125	216.3	139.8	4.0	3.4	6.5	5.0	8.2	6.6	152.4	2.70	4.33	5.40
200 × 100	216.3	114.3	4.0	3.0	6.5	6.5	8.2	6.0	152.4	2.56	4.10	5.10
200 × 90	216.3	101.6	4.0	3.0	6.5	4.0	8.2	5.7	152.4	2.33	3.72	4.64

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 49, 53.

STAINLESS STEEL BUTT-WELDING FITTINGS



UNIT : mm



UNIT : KG

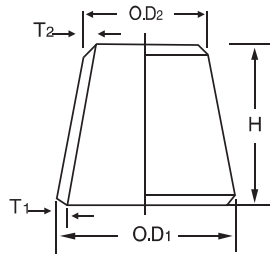
KS B1541 / B1543
JIS B2312 / B2313

NOMINAL PIPE SIZE	OUTSIDE DIAMETER		WALL THICKNESS(t)						CENTER TO END	WEIGHT		
	O.D ₁	O.D ₂	SCH 10s		SCH 20s		SCH 40		H	SCH 10s	SCH 20s	SCH 40
			T ₁	T ₂	T ₁	T ₂	T ₁	T ₂				
250 × 200	267.4	216.3	4.0	4.0	6.5	6.5	9.3	8.2	177.8	4.17	6.70	9.48
250 × 150	267.4	165.2	4.0	3.4	6.5	5.0	9.3	7.1	177.8	3.72	5.98	8.44
250 × 125	267.4	139.8	4.0	3.4	6.5	5.0	9.3	6.6	177.8	3.50	5.61	7.92
250 × 100	267.4	114.3	4.0	3.0	6.5	4.0	9.3	6.0	177.8	3.28	5.25	7.40
300 × 250	318.5	267.4	4.5	4.0	6.5	6.5	10.3	9.3	203.2	6.50	9.33	14.58
300 × 200	318.5	216.3	4.5	4.0	6.5	6.5	10.3	8.2	203.2	5.93	8.49	13.26
300 × 150	318.5	165.2	4.5	3.4	6.5	5.0	10.3	7.1	203.2	5.35	7.66	11.95
300 × 125	318.5	139.8	4.5	3.4	6.5	5.0	10.3	6.6	203.2	5.06	7.25	11.29
350 × 300	355.6	318.5	4.8	4.5	7.9	6.5	11.1	10.3	330.2	12.98	21.16	29.45
350 × 250	355.6	267.4	4.8	4.0	7.9	6.5	11.1	9.3	330.2	11.98	19.52	27.14
350 × 200	355.6	216.3	4.8	4.0	7.9	6.5	11.1	8.2	330.2	10.98	17.88	24.83
350 × 150	355.6	165.2	4.8	3.4	7.9	5.0	11.1	7.1	330.2	9.99	16.24	22.52
400 × 350	406.4	355.6	4.8	4.8	7.9	7.9	12.7	11.1	355.6	15.83	25.84	41.00
400 × 300	406.4	318.5	4.8	4.5	7.9	6.5	12.7	10.3	355.6	15.05	24.55	38.93
400 × 250	406.4	267.4	4.8	4.0	7.9	6.5	12.7	9.3	355.6	13.97	22.78	36.09
400 × 200	406.4	216.3	4.8	4.0	7.9	6.5	12.7	8.2	355.6	12.90	21.01	33.25
450 × 400	457.2	406.4	4.8	4.8	7.9	7.9	14.3	12.7	381.0	19.25	31.45	56.07
450 × 350	457.2	355.6	4.8	4.8	7.9	7.9	14.3	11.1	381.0	18.10	29.57	52.66
450 × 300	457.2	318.5	4.8	4.5	7.9	6.5	14.3	10.3	381.0	17.27	28.19	50.17
450 × 250	457.2	267.4	4.8	4.0	7.9	6.5	14.3	9.3	381.0	16.12	26.29	46.73
500 × 450	508.0	457.2	5.5	4.8	9.5	7.9	15.1	14.3	508.0	32.86	56.28	88.39
500 × 400	508.0	406.4	5.5	4.8	9.5	7.9	15.1	12.7	508.0	31.11	53.26	83.59
500 × 350	508.0	355.8	5.5	4.8	9.5	7.9	15.1	11.1	508.0	29.37	50.25	78.81
500 × 300	508.0	318.5	5.5	4.5	9.5	6.5	15.1	10.3	508.0	28.08	48.03	75.28
550 × 500	558.8	508.0	5.5	5.5	9.5	9.5	15.1	15.1	508.0	36.36	62.32	98.00
550 × 450	558.8	457.2	5.5	4.8	9.5	8.0	15.1	14.3	508.0	34.61	59.30	93.20
550 × 400	558.8	406.4	5.5	4.8	9.5	8.0	15.1	12.7	508.0	32.86	56.28	88.39
550 × 350	558.8	355.5	5.5	4.8	9.5	8.0	15.1	11.1	508.0	31.10	53.25	83.58
600 × 550	609.6	558.8	6.4	5.5	9.5	9.5	17.5	15.1	508.0	46.30	68.36	124.18
600 × 500	609.6	508.0	6.4	5.5	9.5	9.5	17.5	15.1	508.0	44.27	65.34	118.61
600 × 450	609.6	457.2	6.4	4.8	9.5	8.0	17.5	14.3	508.0	42.23	62.32	113.05
600 × 400	609.6	406.4	6.4	4.8	9.5	8.0	17.5	12.7	508.0	40.20	59.30	107.48
650 × 600	660.4	609.6	7.9	6.4	12.7	9.5	17.5	15.1	609.6	74.44	118.75	162.38
650 × 550	660.4	558.8	7.9	5.5	12.7	9.5	17.5	15.1	609.6	71.43	113.91	155.70
650 × 500	660.4	508.0	7.9	5.5	12.7	9.5	17.5	15.1	609.6	68.41	109.06	149.02
650 × 450	660.4	457.2	7.9	4.8	12.7	8.0	17.5	14.3	609.6	65.39	104.21	142.34
700 × 650	711.2	660.4	7.9	7.9	12.7	12.7	17.5	15.1	609.6	80.47	128.45	175.73
700 × 600	711.2	609.6	7.9	6.4	12.7	9.5	17.5	15.1	609.6	77.46	123.60	169.05
700 × 550	711.2	558.8	7.9	5.5	12.7	9.5	17.5	15.1	609.6	74.44	118.75	162.38
700 × 500	711.2	508.0	7.9	5.5	12.7	9.5	17.5	14.3	609.6	71.43	113.91	155.70
700 × 450	711.2	457.2	7.9	4.8	12.7	8.0	17.5	12.7	609.6	68.41	109.06	149.02
750 × 700	762.0	711.2	7.9	7.9	12.7	12.7	17.5	17.5	609.6	86.50	138.14	189.09
750 × 650	762.0	660.4	7.9	7.9	12.7	12.7	17.5	17.5	609.6	83.49	133.30	182.41
750 × 600	762.0	609.6	7.9	6.4	12.7	9.5	17.5	15.1	609.6	80.47	128.45	175.73
750 × 550	762.0	558.8	7.9	5.5	12.7	9.5	17.5	15.1	609.6	77.46	123.60	169.05
750 × 500	762.0	508.0	7.9	5.5	12.7	9.5	17.5	15.1	609.6	74.44	118.75	162.38
800 × 750	812.8	762.0	7.9	7.9	12.7	12.7	17.5	17.5	609.6	92.53	147.84	202.45
800 × 700	812.8	711.2	7.9	7.9	12.7	12.7	17.5	17.5	609.6	89.52	142.99	195.77
800 × 650	812.8	660.4	7.9	7.9	12.7	12.7	17.5	17.5	609.6	86.50	138.14	189.09
800 × 600	812.8	609.6	7.9	6.4	12.7	9.5	17.5	15.1	609.6	83.49	133.30	182.41

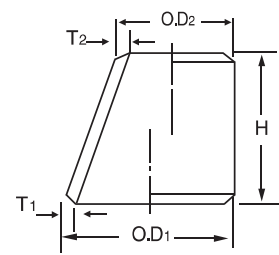
FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 49, 53.

STAINLESS STEEL BUTT-WELDING FITTINGS

REDUCER



UNIT : mm



UNIT : KG

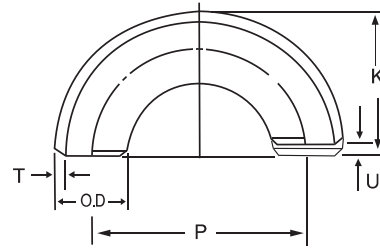
KS B1541 / B1543
JIS B2312 / B2313

NOMINAL PIPE SIZE	OUTSIDE DIAMETER		WALL THICKNESS(t)						CENTER TO END	WEIGHT			
	O.D ₁	O.D ₂	SCH 10s		SCH 20s		SCH 40			H	SCH 10s	SCH 20s	SCH 40
			T ₁	T ₂	T ₁	T ₂	T ₁	T ₂					
850 × 800	863.6	812.8	7.9	7.9	12.7	12.7	17.5	17.5	609.6	98.56	157.53	215.81	
850 × 750	863.6	762.0	7.9	7.9	12.7	12.7	17.5	17.5	609.6	95.55	152.68	209.13	
850 × 700	863.6	711.2	7.9	7.9	12.7	12.7	17.5	17.5	609.6	92.53	147.84	202.45	
850 × 650	863.6	660.4	7.9	7.9	12.7	12.7	17.5	17.5	609.6	89.52	142.99	195.77	
850 × 600	863.6	609.6	7.9	6.4	12.7	9.5	17.5	15.1	609.6	86.50	138.14	189.09	
900 × 850	914.4	863.6	7.9	7.9	12.7	12.7	19.0	17.5	609.6	104.59	167.22	248.38	
900 × 800	914.4	812.8	7.9	7.9	12.7	12.7	19.0	17.5	609.6	101.58	162.38	241.13	
900 × 750	914.4	762.0	7.9	7.9	12.7	12.7	19.0	17.5	609.6	98.56	157.53	233.88	
900 × 700	914.4	711.2	7.9	7.9	12.7	12.7	19.0	17.5	609.6	95.55	152.68	226.63	
900 × 650	914.4	660.4	7.9	7.9	12.7	12.7	19.0	17.5	609.6	92.53	147.84	219.37	
900 × 600	914.4	609.6	7.9	6.4	12.7	9.5	19.0	15.1	609.6	89.52	142.99	212.12	
900 × 500	914.4	508.0	7.9	5.5	12.7	9.5	19.0	15.1	609.6	83.49	133.30	197.62	
950 × 900	965.2	914.4	7.9	7.9	12.7	12.7	19.0	19.0	609.6	110.62	176.92	—	
950 × 850	965.2	863.6	7.9	7.9	12.7	12.7	19.0	17.5	609.6	107.61	172.07	—	
950 × 800	965.2	812.8	7.9	7.9	12.7	12.7	19.0	17.5	609.6	104.59	167.22	—	
950 × 750	965.2	762.0	7.9	7.9	12.7	12.7	19.0	17.5	609.6	101.58	162.38	—	
950 × 700	965.2	711.2	7.9	7.9	12.7	12.7	19.0	17.5	609.6	98.56	157.53	—	
950 × 650	965.2	660.4	7.9	7.9	12.7	12.7	19.0	17.5	609.6	95.55	152.68	—	
1000 × 950	1016.0	965.2	9.5	7.9	14.3	12.7	26.2	19.0	609.6	140.05	209.78	—	
1000 × 900	1016.0	914.4	9.5	7.9	14.3	12.7	26.2	19.0	609.6	136.42	204.32	—	
1000 × 850	1016.0	863.6	9.5	7.9	14.3	12.7	26.2	17.5	609.6	132.80	198.86	—	
1000 × 800	1016.0	812.8	9.5	7.9	14.3	12.7	26.2	17.5	609.6	129.17	193.41	—	
1000 × 750	1016.0	762.0	9.5	7.9	14.3	12.7	26.2	17.5	609.6	125.55	187.95	—	
1050 × 1000	1066.8	1016.0	9.5	9.5	14.3	14.3	26.2	26.2	609.6	147.30	220.70	—	
1050 × 950	1066.8	965.2	9.5	7.9	14.3	12.7	26.2	19.0	609.6	143.68	215.24	—	
1050 × 900	1066.8	914.4	9.5	7.9	14.3	12.7	26.2	19.0	609.6	140.05	209.78	—	
1050 × 850	1066.8	863.6	9.5	7.9	14.3	12.7	26.2	17.5	609.6	136.42	204.32	—	
1050 × 800	1066.8	812.8	9.5	7.9	14.3	12.7	26.2	17.5	609.6	132.80	198.86	—	
1050 × 750	1066.8	762.0	9.5	7.9	14.3	12.7	26.2	17.5	609.6	129.17	193.41	—	
1100 × 1050	1117.6	1066.8	9.5	9.5	14.3	14.3	26.2	26.2	609.6	154.55	231.61	—	
1100 × 1000	1117.6	1016.0	9.5	9.5	14.3	14.3	26.2	26.2	609.6	150.93	226.15	—	
1100 × 950	1117.6	965.2	9.5	7.9	14.3	12.7	26.2	19.0	609.6	147.30	220.70	—	
1100 × 900	1117.6	914.4	9.5	7.9	14.3	12.7	26.2	19.0	609.6	143.68	215.24	—	
1150 × 1100	1168.4	1117.6	9.5	9.5	14.3	14.3	26.2	26.2	711.2	188.77	282.95	—	
1150 × 1050	1168.4	1066.8	9.5	9.5	14.3	14.3	26.2	26.2	711.2	184.54	276.58	—	
1150 × 1000	1168.4	1016.0	9.5	9.5	14.3	14.3	26.2	26.2	711.2	180.31	270.21	—	
1150 × 950	1168.4	965.2	9.5	7.9	14.3	12.7	26.2	19.0	711.2	176.08	263.85	—	
1200 × 1150	1219.2	1168.4	9.5	9.5	14.3	14.3	26.2	26.2	711.2	197.23	295.68	—	
1200 × 1100	1219.2	1117.6	9.5	9.5	14.3	14.3	26.2	26.2	711.2	193.00	289.31	—	
1200 × 1050	1219.2	1066.8	9.5	9.5	14.3	14.3	26.2	26.2	711.2	188.77	282.95	—	
1200 × 1000	1219.2	1016.0	9.5	9.5	14.3	14.3	26.2	26.2	711.2	184.54	276.58	—	

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 49, 53.

STAINLESS STEEL BUTT-WELDING FITTINGS

180° ELBOW (LONG)



KS B1541 / B1543
JIS B2312 / B2313

UNIT : mm

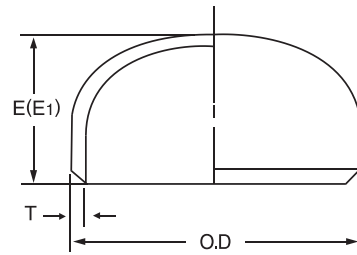
UNIT : KG

NOMINAL PIPE SIZE	OUTSIDE DIAMETER (O.D)	WALL THICKNESS(t)			CENTER TO END	BACK TO FACE	WEIGHT		
		SCH 10s	SCH 20s	SCH 40	P	K	SCH 10s	SCH 20s	SCH 40
15	21.7	2.1	2.5	2.8	76.2	49.0	0.12	0.15	0.02
20	27.2	2.1	2.5	2.9	76.2	51.7	0.16	0.18	0.21
25	34.0	2.8	3.0	3.4	76.2	55.1	0.26	0.31	0.31
32	42.7	2.8	3.0	3.6	95.2	69.0	0.43	0.53	0.53
40	48.6	2.8	3.0	3.7	114.4	81.5	0.58	0.61	0.75
50	60.5	2.8	3.5	3.9	152.4	106.5	0.99	1.16	1.32
65	76.3	3.0	3.5	5.2	190.6	133.5	1.65	1.89	2.77
80	89.1	3.0	4.0	5.5	228.6	158.9	2.29	3.02	4.10
90	101.6	3.0	4.0	5.7	266.8	184.2	3.08	4.04	5.67
100	114.3	3.0	4.0	6.0	304.8	209.6	3.96	5.23	7.72
125	139.8	3.4	5.0	6.6	381.0	260.4	6.87	9.99	13.02
150	165.2	3.4	5.0	7.1	457.2	311.2	9.79	14.30	19.98
200	216.3	4.0	6.5	8.2	609.6	413.0	20.10	32.40	40.40
250	267.4	4.0	6.5	9.3	762.0	514.7	31.20	50.30	71.20
300	318.5	4.5	6.5	10.3	914.4	616.5	52.10	72.60	114.00
350	355.6	4.8	7.9	11.1	1,066.8	711.2	69.20	113.80	160.20
400	406.4	4.8	7.9	12.7	1,219.2	812.8	90.60	149.00	239.20
450	457.2	4.8	7.9	14.3	1,371.6	914.4	117.00	191.10	341.10
500	508.2	5.5	9.5	15.1	1,524.0	1,016.0	165.40	283.40	445.40
550	558.8	5.5	9.5	15.9	1,676.4	1,117.6	200.30	343.50	568.30
600	609.6	6.4	9.5	17.5	1,828.8	1,219.2	275.10	409.40	744.10

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 49, 53.

STAINLESS STEEL BUTT-WELDING FITTINGS

CAP



KS B1541 / B1543
JIS B2312 / B2313

UNIT : mm

UNIT : KG

NOMINAL PIPE SIZE	OUTSIDE DIAMETER (O.D)	WALL THICKNESS(t)			OVER ALL LENGTH		LIMITED WALL THICKNESS	WEIGHT		
		SCH 10s	SCH 20s	SCH 40	E	E1	T	SCH 10s	SCH 20s	SCH 40
15	21.7	2.1	2.5	2.8	25.4	—	—	0.03	0.03	0.04
20	27.2	2.1	2.5	2.9	25.4	—	—	0.04	0.04	0.05
25	34.0	2.8	3.0	3.4	38.1	—	—	0.09	0.10	0.11
32	42.7	2.8	3.0	3.6	38.1	—	—	0.11	0.12	0.14
40	48.6	2.8	3.0	3.7	38.1	—	—	0.13	0.14	0.17
50	60.5	2.8	3.5	3.9	38.1	44.5	5.5	0.17	0.21	0.24
65	76.3	3.0	3.5	5.2	38.1	50.8	7.0	0.23	0.28	0.42
80	89.1	3.0	4.0	5.5	50.8	63.5	7.6	0.37	0.48	0.67
90	101.6	3.0	4.0	5.7	63.5	76.2	8.1	0.55	0.70	1.13
100	114.3	3.0	4.0	6.0	63.5	76.2	8.6	0.59	0.78	1.17
125	139.8	3.4	5.0	6.6	76.2	88.9	9.5	0.99	1.44	1.90
150	165.2	3.4	5.0	7.1	88.9	101.6	11.0	1.39	1.99	2.83
200	216.3	4.0	6.5	8.2	101.6	127.0	12.7	2.38	4.05	5.11
250	267.4	4.0	6.5	9.3	127.0	152.4	12.7	4.13	6.23	8.92
300	318.5	4.5	6.5	10.3	152.4	177.8	12.7	6.39	8.89	13.10
350	355.6	4.8	7.9	11.1	165.1	190.5	12.7	7.99	13.20	18.60
400	406.4	4.8	7.9	12.7	177.8	203.2	12.7	10.10	16.70	26.70
450	457.2	4.8	7.9	14.3	203.2	228.6	12.7	12.90	21.30	41.50
500	508.0	5.5	9.5	15.1	228.6	254.0	12.7	18.50	31.80	51.30
550	558.8	5.5	9.5	15.1	254.0	254.0	—	22.60	38.80	65.80
600	609.6	6.4	9.5	17.4	266.7	305.0	—	30.10	45.10	84.20
650	660.4	7.9	12.7	17.4	267.0	305.0	12.7	41.90	67.30	100.00
700	711.2	7.9	12.7	17.4	267.0	305.0	12.7	46.60	74.90	110.80
750	762.0	7.9	12.7	17.4	267.0	305.0	12.7	51.60	82.90	122.10
800	812.8	7.9	12.7	17.4	267.0	305.0	12.7	56.80	91.30	134.00
850	863.6	7.9	12.7	17.4	267.0	305.0	12.7	62.30	100.10	146.50
900	914.4	7.9	12.7	19.0	267.0	305.0	12.7	68.00	109.30	174.20
950	965.2	7.9	12.7	19.0	305.0	305.0	12.7	78.60	126.30	—
1,000	1016.0	9.5	14.3	26.2	305.0	305.0	12.7	102.20	153.90	—
1,050	1066.8	9.5	14.3	26.2	305.0	305.0	12.7	110.20	165.90	—
1,100	1117.6	9.5	14.3	26.2	343.0	305.0	12.7	125.00	178.40	—
1,150	1168.4	9.5	14.3	26.2	343.0	305.0	12.7	133.80	191.40	—
1,200	1219.2	9.5	14.3	26.2	343.0	305.0	12.7	142.90	204.80	—

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 49, 53.

* THE BACK-TO-FACE DIMENSION OF CAP SHALL BE E, IF THE BASIC WALL THICKNESS IS NOT MORE THE "LIMITED WALL THICKNESS" AND (THE BACK TO FACE DIMENSION OF CAP SHALL BE) E1, IF IT EXCEEDS "LIMITED WALL THICKNESS."



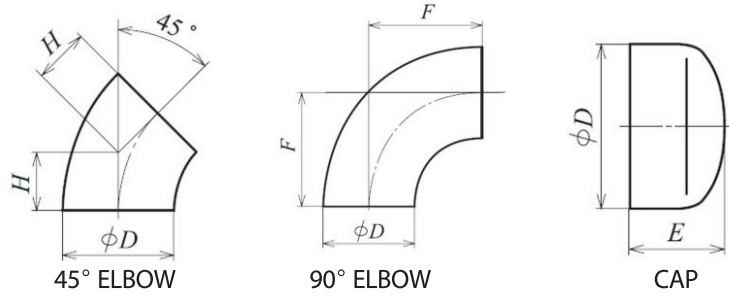
STAINLESS STEEL BUTT-WELDING FITTINGS FOR LIGHT GAUGE

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TEE(STRAIGHT, REDUCING)	- 27
REDUCER(CONCENTRIC, ECCENTRIC)	- 29
STUB END	- 30

STAINLESS STEEL BUTT-WELDING FITTINGS

ELBOW CAP



JIS B2309

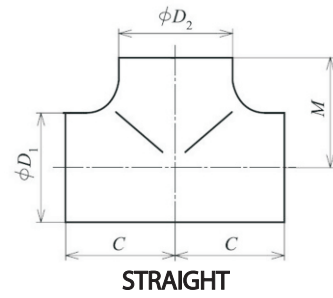
UNIT : mm

NOMINAL PIPE SIZE (SU)	OUTSIDE DIAMETER (O.D)	WALL THICKNESS (T)	CENTER TO END			BACK TO END
			45° ELBOW	90° ELBOW		CAP
			LONG	LONG	SHORT	
			H	F	F	E
20	22.22	1.0	15.8	38.1	28.6	12.0
25	28.58	1.0	15.8	38.1	28.6	13.0
30	34.0	1.2	15.8	38.1	25.4	38.1
40	42.7	1.2	19.7	47.6	31.8	38.1
50	48.6	1.2	23.7	57.2	38.1	38.1
60	60.5	1.5	31.6	76.2	50.8	38.1
75	76.3	1.5	39.5	95.3	63.5	38.1
80	89.1	2.0	47.3	114.3	76.2	50.8
100	114.3	2.0	63.1	152.4	101.6	63.5
125	139.8	2.0	78.9	190.5	127.0	76.2
150	165.2	3.0	94.7	228.6	152.4	88.9
200	216.3	3.0	126.3	304.8	203.2	101.6
250	267.4	3.0	157.8	381.0	254.0	127.0
300	318.5	3.0	189.4	457.2	304.8	152.4

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 51,54.

STAINLESS STEEL BUTT-WELDING FITTINGS

TEE



JIS B2309

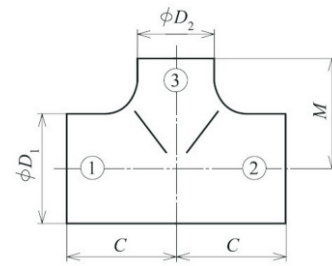
UNIT : mm

NOMINAL PIPE SIZE(SU)	WALL THICKNESS(T)	OUTSIDE DIAMETER(O.D)		CENTER TO END	
		O.D ₁	O.D ₂	C	M
20	1.0	22.22	22.22	25.0	25.0
25	1.0	28.58	28.58	28.0	28.0
30	1.2	34.0	34.0	38.1	38.1
40	1.2	42.7	42.7	47.6	47.6
50	1.2	48.6	48.6	57.2	57.2
60	1.5	60.5	60.5	63.5	63.5
75	1.5	76.3	76.3	76.2	76.2
80	2.0	89.1	89.1	85.7	85.7
100	2.0	114.3	114.3	104.8	104.8
125	2.0	139.8	139.8	123.8	123.8
150	3.0	165.2	165.2	142.9	142.9
200	3.0	216.3	216.3	177.8	177.8
250	3.0	267.4	267.4	215.9	215.9
300	3.0	318.5	318.5	254.0	254.0

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 51,54.

STAINLESS STEEL BUTT-WELDING FITTINGS

TEE



REDUCER

JIS B2309

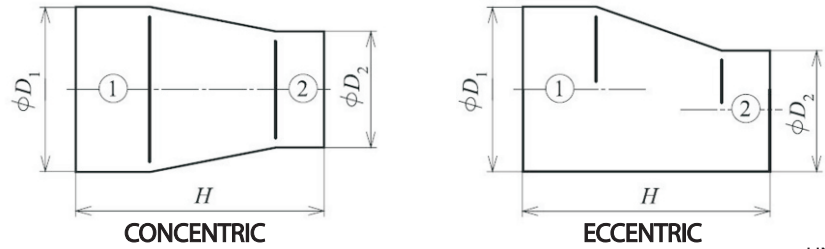
UNIT : mm

NOMINAL PIPE SIZE(SU) ①×②×③	OUTSIDE DIAMETER(O.D)		CENTER TO END	
	O.D ₁	O.D ₂	C	M
25×25×20	28.58	22.22	28.0	28.0
30×30×25	34.0	28.58	35.0	35.0
30×30×20	34.0	22.22	35.0	35.0
40×40×30	42.7	34.0	47.6	47.6
40×40×25	42.7	28.58	46.0	46.0
40×40×20	42.7	22.22	46.0	46.0
50×50×40	48.6	42.7	57.2	57.2
50×50×30	48.6	34.0	57.2	57.2
50×50×25	48.6	28.58	54.0	54.0
60×60×50	60.5	48.6	63.5	60.3
60×60×40	60.5	42.7	63.5	57.2
60×60×30	60.5	34.0	63.5	50.8
75×75×60	76.3	60.5	76.2	69.9
75×75×50	76.3	48.6	76.2	66.7
75×75×40	76.3	42.7	76.2	63.5
75×75×30	76.3	34.0	76.2	57.2
80×80×75	89.1	76.3	85.7	82.6
80×80×60	89.1	60.5	85.7	76.2
80×80×50	89.1	48.6	85.7	73.0
80×80×40	89.1	42.7	85.7	69.9
100×100×80	114.3	89.1	104.8	98.4
100×100×75	114.3	76.3	104.8	95.3
100×100×60	114.3	60.5	104.8	88.9
100×100×50	114.3	48.6	104.8	85.7
125×125×100	139.8	114.3	123.8	117.5
125×125×80	139.8	89.1	123.8	111.1
125×125×75	139.8	76.3	123.8	108.0
125×125×60	139.8	60.5	123.8	104.8
150×150×125	165.2	139.8	142.9	136.5
150×150×100	165.2	114.3	142.9	130.2
150×150×80	165.2	89.1	142.9	123.8
150×150×75	165.2	76.3	142.9	120.7
200×200×150	216.3	165.2	177.8	168.3
200×200×125	216.3	139.8	177.8	161.9
200×200×100	216.3	114.3	177.8	155.6
200×200×80	216.3	89.1	177.8	152.4
250×250×200	267.4	216.3	215.9	203.2
250×250×150	267.4	165.2	215.9	193.7
250×250×125	267.4	139.8	215.9	190.5
250×250×100	267.4	114.3	215.9	184.2
300×300×250	318.5	267.4	254.0	241.2
300×300×200	318.5	216.3	254.0	228.6
300×300×150	318.5	165.2	254.0	219.1
300×300×125	318.5	139.8	254.0	215.9

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 51,54.

STAINLESS STEEL BUTT-WELDING FITTINGS

REDUCER



JIS B2309

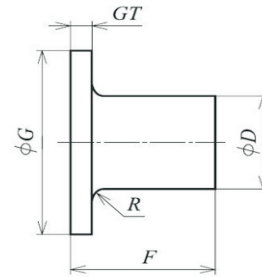
UNIT : mm

NOMINAL PIPE SIZE(SU) ①×②×③	OUTSIDE DIAMETER(O.D)		END TO END
	O.D ₁	O.D ₂	H
25× 20	28.58	22.22	38.1
30× 25	34.0	28.58	50.8
30× 20	34.0	22.22	50.8
40× 30	42.7	34.0	50.8
40× 25	42.7	28.58	50.8
40× 20	42.7	22.22	50.8
50× 40	48.6	42.7	63.5
50× 30	48.6	34.0	63.5
50× 25	48.6	28.58	63.5
60× 50	60.5	48.6	76.2
60× 40	60.5	42.7	76.2
60× 30	60.5	34.0	76.2
75× 60	76.3	60.5	88.9
75× 50	76.3	48.6	88.9
75× 40	76.3	42.7	88.9
80× 75	89.1	76.3	88.9
80× 60	89.1	60.5	88.9
80× 50	89.1	48.6	88.9
100× 80	114.3	89.1	101.6
100× 75	114.3	76.3	101.6
100× 60	114.3	60.5	101.6
125× 100	139.8	114.3	127.0
125× 80	139.8	89.1	127.0
125× 75	139.8	76.3	127.0
150× 125	165.2	139.8	139.7
150× 100	165.2	114.3	139.7
150× 80	165.2	89.1	139.7
200× 150	216.3	165.2	152.4
200× 125	216.3	139.8	152.4
200× 100	216.3	114.3	152.4
250× 200	267.4	216.3	177.8
250× 150	267.4	165.2	177.8
250× 125	267.4	139.8	177.8
300× 250	318.5	267.4	203.2
300× 200	318.5	216.3	203.2
300× 150	318.5	165.2	203.2

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 51,54.

STAINLESS STEEL BUTT-WELDING FITTINGS

STUB END



JIS B2309

UNIT : mm

NOMINAL PIPE SIZE (SU)	OUT DIAMETER (O.D)	WALL THICKNESS (T)	LENGTH	DIAMETER OF FAP(φG)			THICKNESS OF LAP	RADIUS OF FILLET(R)	
				F	5K	10K		20K	GT
20	22.22	1.0	30	44	51	51	2.1	3	1.5
25	28.58	1.0	30	49	56	56	2.1	3	1.5
30	34.00	1.2	50	59	67	67	2.8	3	1.5
40	42.70	1.2	50	70	76	76	2.8	4	2.0
50	48.60	1.2	50	75	81	81	2.8	4	2.0
60	60.50	1.5	50	85	96	96	2.8	4	2.0
75	76.30	1.5	50	110	116	116	3.0	5	2.5
80	89.10	2.0	50	121	126	132	3.0	5	2.5
100	114.30	2.0	50	141	151	160	3.0	5	2.5
125	139.80	2.0	50	176	182	195	3.4	6	3.0
150	165.20	3.0	50	206	212	230	3.4	6	3.0
200	216.30	3.0	65	252	262	275	4.0	6	3.0
250	267.40	3.0	65	317	324	345	4.0	6	3.0
300	318.50	3.0	65	360	368	395	4.5	9	3.0

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 51,54.

ASME

STAINLESS STEEL BUTT - WELDING FITTINGS

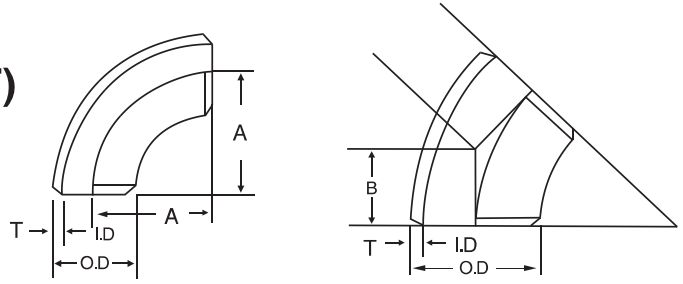
CONTENTS

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REDUCER (CONCENTRIC, ECCENTRIC)	- 33
180° ELBOW (LONG, SHORT), CAP	- 36
TEE (STRAIGHT, REDUCING)	- 37

STAINLESS STEEL BUTT-WELDING FITTINGS

90° ELBOW (LONG & SHORT)

45° ELBOW (LONG)



ASME B16.9
ASME B36.19

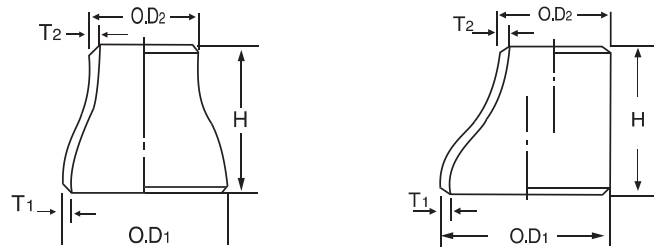
UNIT: INCH

NOMINAL PIPE SIZE	OUTSIDE DIAMETER (O.D.)	CENTER TO END			SCH5s		SCH10s		SCH40s	
		LONG		SHORT	T	I.D.	T	I.D.	T	I.D.
		A	B	A						
1/2	0.840	1.50	0.62	—	0.065	0.710	0.083	0.674	0.109	0.622
3/4	1.050	1.50	0.62	—	0.065	0.920	0.083	0.884	0.113	0.824
1	1.315	1.50	0.88	1.00	0.065	1.185	0.109	1.097	0.133	1.049
1 1/4	1.660	1.88	1.00	1.25	0.065	1.530	0.109	1.442	0.140	1.380
1 1/2	1.900	2.25	1.12	1.50	0.065	1.770	0.109	1.682	0.145	1.610
2	2.375	3.00	1.38	2.00	0.065	2.245	0.109	2.157	0.154	2.067
2 1/2	2.875	3.75	1.75	2.50	0.083	2.709	0.120	2.635	0.203	2.469
3	3.500	4.50	2.00	3.00	0.083	3.334	0.120	3.260	0.216	3.068
3 1/2	4.000	5.25	2.25	3.50	0.083	3.834	0.120	3.760	0.226	3.548
4	4.500	6.00	2.50	4.00	0.083	4.417	0.120	4.260	0.237	4.026
5	5.563	7.50	3.12	5.00	0.109	5.345	0.134	5.295	0.258	5.047
6	6.625	9.00	3.75	6.00	0.109	6.407	0.134	6.357	0.280	6.065
8	8.625	12.00	5.00	8.00	0.109	8.407	0.148	8.329	0.322	7.981
10	10.750	15.00	6.25	10.00	0.134	10.482	0.165	10.420	0.365	10.020
12	12.750	18.00	7.50	12.00	0.156	12.438	0.180	12.390	0.375	12.000
14	14.000	21.00	8.75	14.00	0.156	13.688	0.188	13.624	—	—
16	16.000	24.00	10.00	16.00	0.165	15.670	0.188	15.624	—	—
18	18.000	27.00	11.25	18.00	0.165	17.670	0.188	17.624	—	—
20	20.000	30.00	12.50	20.00	0.188	19.624	0.218	19.564	—	—
22	22.000	33.00	13.50	22.00	0.188	21.624	0.218	21.564	—	—
24	24.000	36.00	15.00	24.00	0.218	23.564	0.250	23.500	—	—
26	26.000	39.00	16.00	26.00	0.218	25.56	0.312	25.34	0.375	25.25
28	28.000	42.00	17.25	28.00	0.218	27.56	0.312	27.37	0.375	27.25
30	30.000	45.00	18.50	30.00	0.250	29.500	0.312	29.37	0.375	29.25
32	32.000	48.00	18.64	32.00	0.250	31.500	0.312	31.380	0.375	31.250
34	34.000	51.00	19.88	34.00	0.250	33.500	0.312	33.380	0.375	33.250
36	36.000	54.00	22.37	36.00	0.250	35.500	0.312	35.380	0.375	35.250
38	38.000	57.00	23.61	38.00	0.250	37.500	0.312	38.380	0.375	37.250
40	40.000	60.00	24.85	40.00	0.250	39.500	0.312	39.380	0.375	39.250
42	42.000	63.00	26.00	42.00	0.250	41.500	0.312	41.376	0.375	41.252
44	44.000	66.00	27.38	44.00	0.250	43.500	0.312	43.376	0.375	43.252
46	46.000	69.00	28.62	46.00	0.250	45.500	0.312	45.376	0.375	45.252
48	48.000	72.00	29.88	48.00	0.250	47.500	0.312	47.376	0.375	47.252
50	50.000	75.00	31.06	50.00	0.250	49.500	0.312	49.376	0.375	49.252
52	52.000	78.00	32.30	52.00	0.250	51.500	0.312	51.376	0.375	51.252
54	54.000	81.00	33.55	54.00	0.250	53.500	0.312	53.376	0.375	53.252
56	56.000	84.00	34.79	56.00	0.250	55.500	0.312	55.376	0.375	55.252
58	58.000	87.00	36.04	58.00	0.250	57.500	0.312	57.376	0.375	57.252
60	60.000	90.00	37.25	60.00	0.250	59.500	0.312	59.376	0.375	59.252

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 52, 55.

STAINLESS STEEL BUTT-WELDING FITTINGS

REDUCER (CONCENTRIC & ECCENTRIC)



ASME B16. 9
ASME B36.19

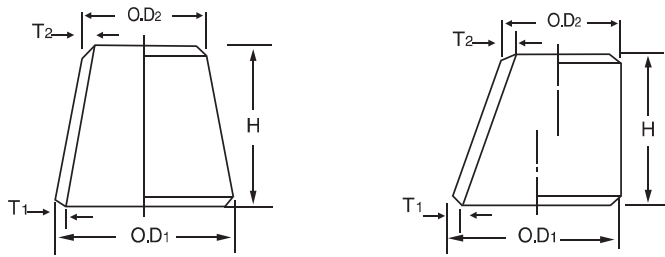
UNIT : INCH

NOMINAL PIPE SIZE	OUTSIDE DIAMETER		END TO END H	WALL THICKNESS(t)							
				SCH 5s		SCH 10s		SCH 40s		SCH 80s	
	O.D ₁	O.D ₂		T ₁	T ₂	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂
3/4 × 1/2	1.050	0.840	1.50	0.065	0.065	0.083	0.083	0.113	0.109	0.154	0.147
1 × 3/4	1.315	1.050	2.00	0.065	0.065	0.109	0.083	0.133	0.113	0.179	0.154
1 × 1/2	1.315	0.840	2.00	0.065	0.065	0.109	0.083	0.133	0.109	0.179	0.147
1 1/4 × 1	1.660	1.315	2.00	0.065	0.065	0.109	0.109	0.140	0.133	0.191	0.179
1 1/4 × 3/4	1.660	1.050	2.00	0.065	0.065	0.109	0.083	0.140	0.113	0.191	0.154
1 1/4 × 1/2	1.660	0.840	2.00	0.065	0.065	0.109	0.083	0.140	0.109	0.191	0.147
1 1/2 × 1 1/4	1.990	1.660	2.50	0.065	0.065	0.109	0.109	0.145	0.140	0.200	0.191
1 1/2 × 1	1.990	1.315	2.50	0.065	0.065	0.109	0.109	0.145	0.133	0.200	0.179
1 1/2 × 3/4	1.990	1.050	2.50	0.065	0.065	0.109	0.083	0.145	0.113	0.200	0.154
1 1/2 × 1/2	1.990	0.840	2.50	0.065	0.065	0.109	0.083	0.145	0.109	0.200	0.147
2 × 1 1/2	2.375	1.900	3.00	0.065	0.065	0.109	0.109	0.154	0.145	0.218	0.200
2 × 1 1/4	2.375	1.660	3.00	0.065	0.065	0.109	0.109	0.154	0.140	0.218	0.191
2 × 1	2.375	1.315	3.00	0.065	0.065	0.109	0.109	0.154	0.133	0.218	0.179
2 × 3/4	2.375	1.050	3.00	0.065	0.065	0.109	0.083	0.154	0.113	0.218	0.154
2 1/2 × 2	2.875	2.375	3.50	0.083	0.065	0.120	0.109	0.203	0.154	0.276	0.218
2 1/2 × 1 1/2	2.875	1.900	3.50	0.083	0.065	0.120	0.109	0.203	0.145	0.276	0.200
2 1/2 × 1 1/4	2.875	1.660	3.50	0.083	0.065	0.120	0.109	0.203	0.140	0.276	0.191
2 1/2 × 1	2.875	1.315	3.50	0.083	0.065	0.120	0.109	0.203	0.133	0.276	0.179
3 × 2 1/2	3.500	2.875	3.50	0.083	0.083	0.120	0.120	0.216	0.203	0.300	0.276
3 × 2	3.500	2.375	3.50	0.083	0.065	0.120	0.109	0.216	0.154	0.300	0.218
3 × 1 1/2	3.500	1.900	3.50	0.083	0.065	0.120	0.109	0.216	0.145	0.300	0.200
3 × 1 1/4	3.500	1.660	3.50	0.083	0.065	0.120	0.109	0.216	0.140	0.300	0.191
3 1/2 × 3	4.000	3.500	4.00	0.083	0.083	0.120	0.120	0.226	0.216	0.318	0.300
3 1/2 × 2 1/2	4.000	2.875	4.00	0.083	0.083	0.120	0.120	0.226	0.203	0.318	0.276
3 1/2 × 2	4.000	2.375	4.00	0.083	0.065	0.120	0.109	0.226	0.154	0.318	0.218
3 1/2 × 1 1/2	4.000	1.900	4.00	0.083	0.065	0.120	0.109	0.226	0.145	0.318	0.200
3 1/2 × 1 1/4	4.000	1.660	4.00	0.083	0.065	0.120	0.109	0.226	0.140	0.318	0.191
4 × 3 1/2	4.500	4.000	4.00	0.083	0.083	0.120	0.120	0.237	0.226	0.337	0.318
4 × 3	4.500	3.500	4.00	0.083	0.083	0.120	0.120	0.237	0.216	0.337	0.300
4 × 2 1/2	4.500	2.875	4.00	0.083	0.083	0.120	0.120	0.237	0.203	0.337	0.276
4 × 2	4.500	2.375	4.00	0.083	0.065	0.120	0.109	0.237	0.154	0.337	0.218
4 × 1 1/2	4.500	1.900	4.00	0.083	0.065	0.120	0.109	0.237	0.145	0.337	0.200
5 × 4	5.563	4.500	5.00	0.109	0.083	0.134	0.120	0.258	0.237	0.375	0.337
5 × 3 1/2	5.563	4.000	5.00	0.109	0.083	0.134	0.120	0.258	0.226	0.375	0.318
5 × 3	5.563	3.500	5.00	0.109	0.083	0.134	0.120	0.258	0.216	0.375	0.300
5 × 2 1/2	5.563	2.875	5.00	0.109	0.083	0.134	0.120	0.258	0.203	0.375	0.276
5 × 2	5.563	2.375	5.00	0.109	0.065	0.134	0.109	0.258	0.154	0.375	0.218
6 × 5	6.625	5.563	5.50	0.109	0.109	0.134	0.134	0.280	0.258	0.432	0.375
6 × 4	6.625	4.500	5.50	0.109	0.083	0.134	0.120	0.280	0.237	0.432	0.337
6 × 3 1/2	6.625	4.000	5.50	0.109	0.083	0.134	0.120	0.280	0.226	0.432	0.318
6 × 3	6.625	3.500	5.50	0.109	0.083	0.134	0.120	0.280	0.216	0.432	0.300
6 × 2 1/2	6.625	2.875	5.50	0.109	0.083	0.134	0.120	0.280	0.203	0.432	0.276

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 52, 55.

STAINLESS STEEL BUTT-WELDING FITTINGS

REDUCER



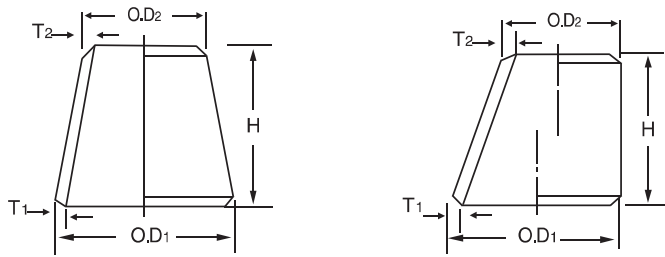
ASME B16. 9
ASME B36.19

UNIT : INCH

NOMINAL PIPE SIZE	OUTSIDE DIAMETER		END TO END H	WALL THICKNESS(t)							
				SCH 5s		SCH 10s		SCH 40s		SCH 80s	
	O.D1	O.D2		T1	T2	T1	T2	T1	T2	T1	T2
8 × 6	8.625	6.625	6.00	0.109	0.109	0.148	0.134	0.322	0.280	0.500	0.432
8 × 5	8.625	5.563	6.00	0.109	0.109	0.148	0.134	0.322	0.258	0.500	0.375
8 × 4	8.625	4.500	6.00	0.109	0.083	0.148	0.120	0.322	0.237	0.500	0.337
8 × 3 ^{1/2}	8.625	4.000	6.00	0.109	0.083	0.148	0.120	0.322	0.226	0.500	0.318
10 × 8	10.750	8.625	7.00	0.134	0.109	0.165	0.148	0.365	0.322	0.500	0.500
10 × 6	10.750	6.625	7.00	0.134	0.109	0.165	0.134	0.365	0.280	0.500	0.432
10 × 5	10.750	5.563	7.00	0.134	0.109	0.165	0.134	0.365	0.258	0.500	0.375
10 × 4	10.750	4.500	7.00	0.134	0.083	0.165	0.120	0.365	0.237	0.500	0.337
12 × 10	12.750	10.750	8.00	0.156	0.134	0.180	0.165	0.375	0.365	0.500	0.500
12 × 8	12.750	8.625	8.00	0.156	0.109	0.180	0.148	0.375	0.322	0.500	0.500
12 × 6	12.750	6.625	8.00	0.156	0.109	0.180	0.134	0.375	0.280	0.500	0.432
12 × 5	12.750	5.562	8.00	0.156	0.109	0.180	0.134	0.375	0.258	0.500	0.375
14 × 12	14.000	12.750	13.00	0.156	0.156	0.188	0.180	-	-	-	-
14 × 10	14.000	10.750	13.00	0.156	0.134	0.188	0.165	-	-	-	-
14 × 8	14.000	8.625	13.00	0.156	0.109	0.188	0.148	-	-	-	-
14 × 6	14.000	6.625	13.00	0.156	0.109	0.188	0.134	-	-	-	-
16 × 14	16.000	14.000	14.00	0.165	0.156	0.188	0.188	-	-	-	-
16 × 12	16.000	12.750	14.00	0.165	0.156	0.188	0.180	-	-	-	-
16 × 10	16.000	10.750	14.00	0.165	0.134	0.188	0.165	-	-	-	-
16 × 8	16.000	8.625	14.00	0.165	0.109	0.188	0.148	-	-	-	-
18 × 16	18.000	16.000	15.00	0.165	0.165	0.188	0.188	-	-	-	-
18 × 14	18.000	14.000	15.00	0.165	0.156	0.188	0.188	-	-	-	-
18 × 12	18.000	12.750	15.00	0.165	0.156	0.188	0.180	-	-	-	-
18 × 10	18.000	10.750	15.00	0.165	0.134	0.188	0.165	-	-	-	-
20 × 18	20.000	18.000	20.00	0.188	0.165	0.218	0.188	-	-	-	-
20 × 16	20.000	16.000	20.00	0.188	0.165	0.218	0.188	-	-	-	-
20 × 14	20.000	14.000	20.00	0.188	0.156	0.218	0.188	-	-	-	-
20 × 10	20.000	12.750	20.00	0.188	0.156	0.218	0.180	-	-	-	-
22 × 20	22.000	20.000	20.00	0.188	0.188	0.218	0.218	-	-	-	-
22 × 18	22.000	18.000	20.00	0.188	0.165	0.218	0.188	-	-	-	-
22 × 16	22.000	16.000	20.00	0.188	0.165	0.218	0.188	-	-	-	-
22 × 14	22.000	14.000	20.00	0.188	0.156	0.218	0.188	-	-	-	-
24 × 22	24.000	22.000	20.00	0.218	0.188	0.250	0.218	-	-	-	-
24 × 20	24.000	20.000	20.00	0.218	0.188	0.250	0.218	-	-	-	-
24 × 18	24.000	18.000	20.00	0.218	0.165	0.250	0.188	-	-	-	-
24 × 16	24.000	16.000	20.00	0.218	0.165	0.250	0.188	-	-	-	-
30 × 24	30.000	24.000	24.00	0.250	0.218	0.312	0.250	-	-	-	-
30 × 22	30.000	22.000	24.00	0.250	0.188	0.312	0.218	-	-	-	-
30 × 20	30.000	20.000	24.00	0.250	0.188	0.312	0.218	-	-	-	-

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 52, 55.

STAINLESS STEEL BUTT-WELDING FITTINGS



ASME B16. 9
ASME B36.19

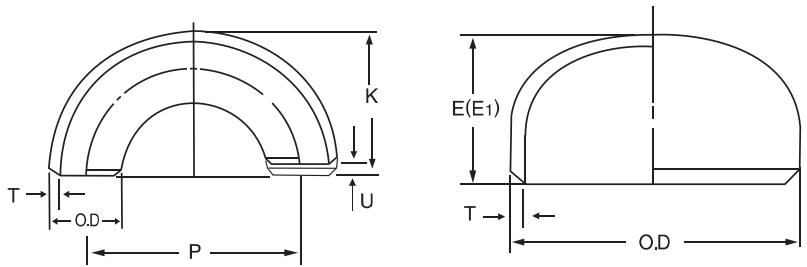
UNIT : INCH

NOMINAL PIPE SIZE	OUTSIDE DIAMETER		END TO END H	WALL THICKNESS(t)							
				SCH 5s		SCH 10s		SCH 40s		SCH 80s	
	O.D1	O.D1		T ₁	T ₂	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂
32 × 30	32.000	30.000	24.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
32 × 28	32.000	28.000	24.000	0.250	0.218	0.312	0.312	0.375	0.375	0.500	0.500
32 × 26	32.000	26.000	24.000	0.250	0.218	0.312	0.312	0.375	0.375	0.500	0.500
32 × 24	32.000	24.000	24.000	0.250	0.218	0.312	0.250	0.375	0.375	0.500	0.500
34 × 32	34.000	32.000	24.000	0.250	0.250	0.312	0.375	0.375	0.375	0.500	0.500
34 × 30	34.000	30.000	24.000	0.250	0.250	0.312	0.375	0.375	0.375	0.500	0.500
34 × 28	34.000	28.000	24.000	0.250	0.218	0.312	0.375	0.375	0.375	0.500	0.500
34 × 26	34.000	26.000	24.000	0.250	0.218	0.312	0.375	0.375	0.375	0.500	0.500
34 × 24	34.000	24.000	24.000	0.250	0.218	0.312	0.375	0.375	0.375	0.500	0.500
36 × 34	36.000	34.000	24.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
36 × 32	36.000	32.000	24.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
36 × 30	36.000	30.000	24.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
36 × 28	36.000	28.000	24.000	0.250	0.218	0.312	0.312	0.375	0.375	0.500	0.500
36 × 26	36.000	26.000	24.000	0.250	0.218	0.312	0.312	0.375	0.375	0.500	0.500
36 × 24	36.000	24.000	24.000	0.250	0.218	0.312	0.250	0.375	0.375	0.500	0.500
36 × 20	36.000	20.000	24.000	0.250	0.188	0.312	0.218	0.375	0.375	0.500	0.500
38 × 36	38.000	36.000	24.000	0.250	0.250	0.312	0.375	0.375	0.375	0.500	0.500
38 × 34	38.000	34.000	24.000	0.250	0.250	0.312	0.375	0.375	0.375	0.500	0.500
38 × 32	38.000	32.000	24.000	0.250	0.250	0.312	0.375	0.375	0.375	0.500	0.500
38 × 30	38.000	30.000	24.000	0.250	0.250	0.312	0.375	0.375	0.375	0.500	0.500
38 × 28	38.000	28.000	24.000	0.250	0.218	0.312	0.375	0.375	0.375	0.500	0.500
38 × 26	38.000	26.000	24.000	0.250	0.218	0.312	0.375	0.375	0.375	0.500	0.500
40 × 38	40.000	38.000	24.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
40 × 36	40.000	36.000	24.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
40 × 34	40.000	34.000	24.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
40 × 32	40.000	32.000	24.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
40 × 30	40.000	30.000	24.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
42 × 40	42.000	40.000	24.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
42 × 38	42.000	38.000	24.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
42 × 36	42.000	36.000	24.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
42 × 34	42.000	34.000	24.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
42 × 32	42.000	32.000	24.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
42 × 30	42.000	30.000	24.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
44 × 42	44.000	42.000	24.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
44 × 40	44.000	40.000	24.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
44 × 38	44.000	38.000	24.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
44 × 36	44.000	36.000	24.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
46 × 44	46.000	44.000	28.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
46 × 42	46.000	42.000	28.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
46 × 40	46.000	40.000	28.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
46 × 38	46.000	38.000	28.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
48 × 46	48.000	46.000	28.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
48 × 44	48.000	44.000	28.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
48 × 42	48.000	42.000	28.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500
48 × 40	48.000	40.000	28.000	0.250	0.250	0.312	0.312	0.375	0.375	0.500	0.500

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 52, 55.

STAINLESS STEEL BUTT-WELDING FITTINGS

180° ELBOW (LONG & SHORT) CAP



ASME B16.9
ASME B36.19

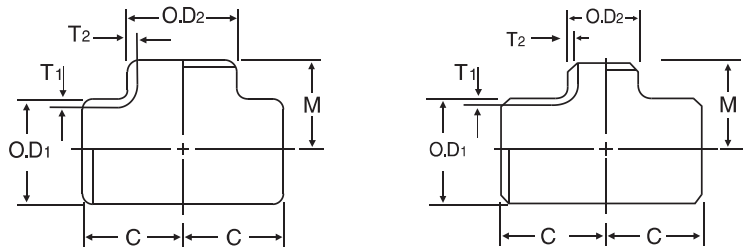
UNIT : INCH

NOMINAL PIPE SIZE	OUTSIDE DIAMETER (O.D.)	WALL THICKNESS(t)				LENGTH E	LIMITING WALL THICKNESS FOR LENGTH E	LENGTH E ₁	180° ELBOWS			
		SCH5s	SCH10s	SCH40s	SCH80s				LONG		SHORT	
									P	K	P	K
1/2	0.840	0.065	0.083	0.109	0.147	1.00	0.18	1.00	3.00	1.88	—	—
3/4	1.050	0.065	0.083	0.113	0.154	1.00	0.15	1.00	3.00	1.88	—	—
1	1.315	0.065	0.109	0.133	0.179	1.50	0.18	1.50	3.00	2.19	2.00	1.62
1 1/4	1.660	0.065	0.109	0.140	0.191	1.50	0.19	1.50	3.75	2.75	2.50	2.06
1 1/2	1.900	0.065	0.109	0.145	0.200	1.50	0.20	1.50	4.50	3.25	3.00	2.44
2	2.375	0.065	0.109	0.154	0.218	1.50	0.22	1.75	6.00	4.19	4.00	3.19
2 1/2	2.875	0.083	0.120	0.203	0.276	1.50	0.28	2.00	7.50	5.19	5.00	3.94
3	3.500	0.083	0.120	0.216	0.300	2.00	0.30	2.50	9.00	6.25	6.00	4.75
3 1/2	4.000	0.083	0.120	0.226	0.318	2.50	0.32	3.00	10.50	7.25	7.00	5.50
4	4.500	0.083	0.120	0.237	0.337	2.50	0.34	3.00	12.00	8.25	8.00	6.25
5	5.563	0.109	0.134	0.258	0.375	3.00	0.38	3.50	15.00	10.31	10.00	7.75
6	6.625	0.109	0.134	0.280	0.432	3.50	0.43	4.00	18.00	12.31	12.00	9.31
8	8.625	0.109	0.148	0.322	0.500	4.00	0.50	5.00	24.00	16.31	16.00	12.31
10	10.750	0.134	0.165	0.365	0.500	5.00	0.50	6.00	30.00	20.38	20.00	15.38
12	12.750	0.156	0.180	0.375	0.500	6.00	0.50	7.00	36.00	24.38	24.00	18.38
14	14.000	0.156	0.188	—	—	6.50	0.50	7.50	42.00	28.00	28.00	21.00
16	16.000	0.165	0.188	—	—	7.00	0.50	8.00	48.00	32.00	32.00	24.00
18	18.000	0.165	0.188	—	—	8.00	0.50	9.00	54.00	36.00	36.00	27.00
20	20.000	0.188	0.218	—	—	9.00	0.50	10.00	60.00	40.00	40.00	30.00
22	22.000	0.188	0.218	—	—	10.00	0.50	10.00	66.00	44.00	44.00	33.00
24	24.000	0.218	0.250	—	—	10.50	0.50	12.00	72.00	48.00	48.00	36.00
30	30.000	0.250	0.312	—	—	10.50	—	—	—	—	—	—

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 52, 55.

STAINLESS STEEL BUTT-WELDING FITTINGS

TEE (STRAIGHT & REDUCING)



ASME B16. 9
ASME B36.19

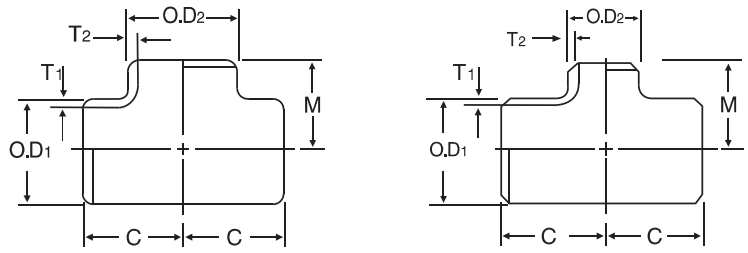
UNIT : INCH

NOMINAL PIPE SIZE	OUTSIDE DIAMETER		CENTER TO END		SCH 5s		SCH 10s		SCH 40s		SCH 80s	
			C	M	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂
RUN×OUTLET	O.D ₁	O.D ₂										
1/2 × 1/2	0.840	0.840	1.00	1.00	0.065	0.065	0.083	0.083	0.109	0.109	0.147	0.147
1/2 × 3/8	0.840	0.675	1.00	1.00	-	-	0.083	0.065	0.109	0.091	0.147	0.126
1/2 × 1/4	0.840	0.540	1.00	1.00	-	-	0.083	0.065	0.109	0.088	0.147	0.119
3/4 × 3/4	1.050	1.050	1.12	1.12	0.065	0.065	0.083	0.083	0.113	0.113	0.154	0.154
3/4 × 1/2	1.050	1.840	1.12	1.12	0.065	0.065	0.083	0.083	0.113	0.109	0.154	0.147
3/4 × 3/8	1.050	0.675	1.12	1.12	-	-	0.083	0.065	0.113	0.091	0.154	0.126
1 × 1	1.315	1.315	1.50	1.50	0.065	0.065	0.109	0.109	0.133	0.133	0.179	0.179
1 × 3/4	1.315	1.050	1.50	1.50	0.065	0.065	0.109	0.083	0.133	0.113	0.179	0.154
1 × 1/2	1.315	0.840	1.50	1.50	0.065	0.065	0.109	0.083	0.133	0.109	0.179	0.147
1 1/4 × 1 1/4	1.660	1.660	1.88	1.88	0.065	0.065	0.109	0.109	0.140	0.140	0.191	0.191
1 1/4 × 1	1.660	1.315	1.88	1.88	0.065	0.065	0.109	0.109	0.140	0.133	0.191	0.179
1 1/4 × 3/4	1.660	1.050	1.88	1.88	0.065	0.065	0.109	0.083	0.140	0.113	0.191	0.154
1 1/4 × 1/2	1.660	0.840	1.88	1.88	0.065	0.065	0.109	0.083	0.140	0.109	0.191	0.147
1 1/2 × 1 1/2	1.900	1.900	2.25	2.25	0.065	0.065	0.109	0.109	0.145	0.145	0.200	0.200
1 1/2 × 1 1/4	1.900	1.660	2.25	2.25	0.065	0.065	0.109	0.109	0.145	0.140	0.200	0.191
1 1/2 × 1	1.900	1.315	2.25	2.25	0.065	0.065	0.109	0.109	0.145	0.133	0.200	0.179
1 1/2 × 3/4	1.900	1.050	2.25	2.25	0.065	0.065	0.109	0.083	0.145	0.113	0.200	0.154
1 1/2 × 1/2	1.900	1.840	2.25	2.25	0.065	0.065	0.109	0.083	0.145	0.109	0.200	0.147
2 × 2	2.375	2.375	2.50	2.50	0.065	0.065	0.109	0.109	0.154	0.154	0.218	0.218
2 × 1 1/2	2.375	1.900	2.50	2.38	0.065	0.065	0.109	0.109	0.154	0.145	0.218	0.200
2 × 1 1/4	2.375	1.660	2.50	2.25	0.065	0.065	0.109	0.109	0.154	0.140	0.218	0.191
2 × 1	2.375	1.315	2.50	2.00	0.065	0.065	0.109	0.109	0.154	0.133	0.218	0.179
2 × 3/4	2.375	1.050	2.50	1.75	0.065	0.065	0.109	0.083	0.154	0.113	0.218	0.154
2 1/2 × 2 1/2	2.875	2.875	3.00	3.00	0.083	0.083	0.120	0.120	0.203	0.203	0.276	0.276
2 1/2 × 2	2.875	2.375	3.00	2.75	0.083	0.065	0.120	0.109	0.203	0.154	0.276	0.218
2 1/2 × 1 1/2	2.875	1.900	3.00	2.62	0.083	0.065	0.120	0.109	0.203	0.145	0.276	0.200
2 1/2 × 1 1/4	2.875	1.660	3.00	2.50	0.083	0.065	0.120	0.109	0.203	0.140	0.276	0.191
2 1/2 × 1	2.875	1.315	3.00	2.25	0.083	0.065	0.120	0.109	0.203	0.133	0.276	0.179
3 × 3	3.500	3.500	3.38	3.38	0.083	0.083	0.120	0.120	0.216	0.216	0.300	0.300
3 × 2 1/2	3.500	2.875	3.38	3.25	0.083	0.083	0.120	0.120	0.216	0.203	0.300	0.276
3 × 2	3.500	2.375	3.38	3.00	0.083	0.065	0.120	0.109	0.216	0.154	0.300	0.218
3 × 1 1/2	3.500	1.900	3.38	2.88	0.083	0.065	0.120	0.109	0.216	0.145	0.300	0.200
3 × 1 1/4	3.500	1.660	3.38	2.75	0.083	0.065	0.120	0.109	0.216	0.140	0.300	0.191
3 1/2 × 3 1/2	4.000	4.000	3.75	3.75	0.083	0.083	0.120	0.120	0.226	0.226	0.318	0.318
3 1/2 × 3	4.000	3.500	3.75	3.62	0.083	0.083	0.120	0.120	0.226	0.216	0.318	0.300
3 1/2 × 2 1/2	4.000	2.875	3.75	3.50	0.083	0.083	0.120	0.120	0.226	0.203	0.318	0.276
3 1/2 × 2	4.000	2.375	3.75	3.25	0.083	0.065	0.120	0.109	0.226	0.154	0.318	0.218
3 1/2 × 1 1/2	4.000	1.900	3.75	3.12	0.083	0.065	0.120	0.109	0.226	0.145	0.318	0.200

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 52, 55.

STAINLESS STEEL BUTT-WELDING FITTINGS

TEE



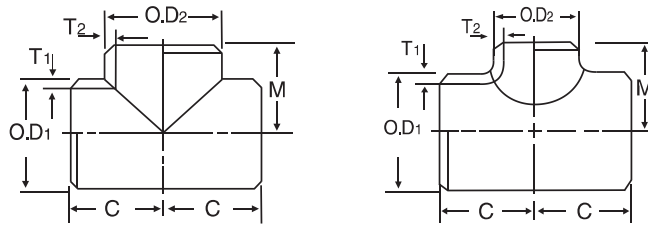
ASME B16. 9
ASME B36.19

UNIT : INCH

NOMINAL PIPE SIZE	OUTSIDE DIAMETER		CENTER TO END		SCH 5s		SCH 10s		SCH 40s		SCH 80s	
			C	M	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂
RUN×OUTLET	O.D ₁	O.D ₂										
4 × 4	4.500	4.500	4.12	4.12	0.083	0.083	0.120	0.120	0.237	0.237	0.337	0.337
4 × 3 ^{1/2}	4.500	4.000	4.12	4.00	0.083	0.083	0.120	0.120	0.237	0.226	0.337	0.318
4 × 3	4.500	3.500	4.12	3.88	0.083	0.083	0.120	0.120	0.237	0.216	0.337	0.300
4 × 2 ^{1/2}	4.500	2.875	4.12	3.75	0.083	0.083	0.120	0.120	0.237	0.203	0.337	0.276
4 × 2	4.500	2.375	4.12	3.50	0.083	0.065	0.120	0.109	0.237	0.154	0.337	0.218
4 × 1 ^{1/2}	4.500	1.900	4.12	3.38	0.083	0.065	0.120	0.109	0.237	0.145	0.337	0.200
5 × 5	5.563	5.563	4.88	4.88	0.109	0.109	0.134	0.134	0.258	0.258	0.375	0.375
5 × 4	5.563	4.500	4.88	4.62	0.109	0.083	0.134	0.120	0.258	0.237	0.375	0.337
5 × 3 ^{1/2}	5.563	4.000	4.88	4.50	0.109	0.083	0.134	0.120	0.258	0.226	0.375	0.318
5 × 3	5.563	3.500	4.88	4.38	0.109	0.083	0.134	0.120	0.258	0.216	0.375	0.300
5 × 2 ^{1/2}	5.563	2.875	4.88	4.25	0.109	0.083	0.134	0.120	0.258	0.203	0.375	0.276
5 × 2	5.563	2.375	4.88	4.12	0.109	0.065	0.134	0.109	0.258	0.154	0.375	0.218
6 × 6	6.625	6.625	5.62	5.62	0.109	0.109	0.134	0.134	0.280	0.280	0.432	0.432
6 × 5	6.625	5.563	5.62	5.35	0.109	0.109	0.134	0.134	0.280	0.258	0.432	0.375
6 × 4	6.625	4.500	5.62	5.12	0.109	0.083	0.134	0.120	0.280	0.237	0.432	0.337
6 × 3 ^{1/2}	6.625	4.000	5.62	5.00	0.109	0.083	0.134	0.120	0.280	0.226	0.432	0.318
6 × 3	6.625	3.500	5.62	4.88	0.109	0.083	0.134	0.120	0.280	0.216	0.432	0.300
6 × 2 ^{1/2}	6.625	2.875	5.62	4.75	0.109	0.083	0.134	0.120	0.280	0.203	0.432	0.276
8 × 8	8.625	8.625	7.00	7.00	0.109	0.109	0.148	0.148	0.322	0.322	0.500	0.500
8 × 6	8.625	6.625	7.00	6.62	0.109	0.109	0.148	0.134	0.322	0.280	0.500	0.432
8 × 5	8.625	5.563	7.00	6.38	0.109	0.109	0.148	0.134	0.322	0.258	0.500	0.375
8 × 4	8.625	4.500	7.00	6.12	0.109	0.083	0.148	0.120	0.322	0.237	0.500	0.337
8 × 3 ^{1/2}	8.625	4.000	7.00	6.00	0.109	0.083	0.148	0.120	0.322	0.226	0.500	0.318
10 × 10	10.750	10.750	8.50	8.50	0.134	0.134	0.165	0.165	0.365	0.365	0.500	0.500
10 × 8	10.750	8.625	8.50	8.00	0.134	0.109	0.165	0.148	0.365	0.322	0.500	0.500
10 × 6	10.750	6.625	8.50	7.62	0.134	0.109	0.165	0.134	0.365	0.280	0.500	0.432
10 × 5	10.750	5.563	8.50	7.50	0.134	0.109	0.165	0.134	0.365	0.258	0.500	0.375
10 × 4	10.750	4.500	8.50	7.25	0.134	0.083	0.165	0.120	0.365	0.237	0.500	0.337
12 × 12	12.750	12.750	10.00	10.00	0.156	0.156	0.180	0.180	0.375	0.375	0.500	0.500
12 × 10	12.750	10.750	10.00	9.50	0.156	0.134	0.180	0.165	0.375	0.365	0.500	0.500
12 × 8	12.750	8.625	10.00	9.00	0.156	0.109	0.180	0.148	0.375	0.322	0.500	0.500
12 × 6	12.750	6.625	10.00	8.62	0.156	0.109	0.180	0.134	0.375	0.280	0.500	0.432
12 × 5	12.750	5.563	10.00	8.50	0.156	0.109	0.180	0.134	0.375	0.258	0.500	0.375
14 × 14	14.000	14.000	11.00	11.00	0.156	0.156	0.188	0.188	-	-	-	-
14 × 12	14.000	12.750	11.00	10.62	0.156	0.156	0.188	0.180	-	-	-	-
14 × 10	14.000	10.750	11.00	10.12	0.156	0.134	0.188	0.165	-	-	-	-
14 × 8	14.000	8.625	11.00	9.75	0.156	0.109	0.188	0.148	-	-	-	-
14 × 6	14.000	6.625	11.00	9.38	0.156	0.109	0.188	0.134	-	-	-	-

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 52, 55.

STAINLESS STEEL BUTT-WELDING FITTINGS



ASME B16. 9
ASME B36.19

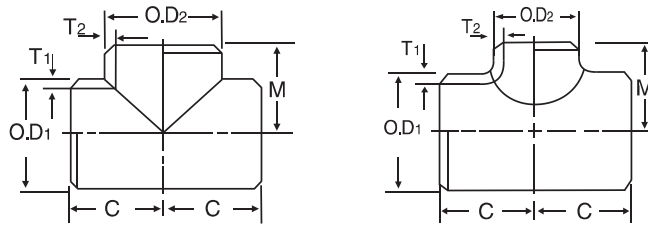
UNIT : INCH

NOMINAL PIPE SIZE	OUTSIDE DIAMETER		CENTER TO END		SCH 5s		SCH 10s		SCH 40s		SCH 80s	
			C	M	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂
RUN×OUTLET	O.D ₁	O.D ₂										
16 × 16	16.000	16.000	12.00	12.00	0.165	0.165	0.188	0.188	-	-	-	-
16 × 14	16.000	14.000	12.00	12.00	0.165	0.156	0.188	0.188	-	-	-	-
16 × 12	16.000	12.750	12.00	11.62	0.165	0.156	0.188	0.180	-	-	-	-
16 × 10	16.000	10.750	12.00	11.12	0.165	0.134	0.188	0.165	-	-	-	-
16 × 8	16.000	8.625	12.00	10.75	0.165	0.109	0.188	0.148	-	-	-	-
16 × 6	16.000	6.625	12.00	10.38	0.165	0.109	0.188	0.134	-	-	-	-
18 × 18	18.000	18.000	13.50	13.50	0.165	0.165	0.188	0.188	-	-	-	-
18 × 16	18.000	16.000	13.50	13.00	0.165	0.165	0.188	0.188	-	-	-	-
18 × 14	18.000	14.000	13.50	13.00	0.165	0.156	0.188	0.188	-	-	-	-
18 × 12	18.000	12.750	13.50	12.62	0.165	0.156	0.188	0.180	-	-	-	-
18 × 10	18.000	10.750	13.50	12.12	0.165	0.134	0.188	0.165	-	-	-	-
18 × 8	18.000	8.625	13.50	11.75	0.165	0.109	0.188	0.148	-	-	-	-
20 × 20	20.000	20.000	15.00	15.00	0.188	0.188	0.218	0.218	-	-	-	-
20 × 18	20.000	18.000	15.00	14.50	0.188	0.165	0.218	0.188	-	-	-	-
20 × 16	20.000	16.000	15.00	14.00	0.188	0.165	0.218	0.188	-	-	-	-
20 × 14	20.000	14.000	15.00	14.00	0.188	0.156	0.218	0.188	-	-	-	-
20 × 12	20.000	12.750	15.00	13.62	0.188	0.156	0.218	0.180	-	-	-	-
20 × 10	20.000	10.750	15.00	13.12	0.188	0.134	0.218	0.165	-	-	-	-
20 × 8	20.000	8.625	15.00	12.75	0.188	0.109	0.218	0.148	-	-	-	-
22 × 22	22.000	22.000	16.50	16.50	0.188	0.188	0.218	0.218	-	-	-	-
22 × 20	22.000	20.000	16.50	16.00	0.188	0.188	0.218	0.218	-	-	-	-
22 × 18	22.000	18.000	16.50	15.50	0.188	0.165	0.218	0.188	-	-	-	-
22 × 16	22.000	16.000	16.50	15.00	0.188	0.165	0.218	0.188	-	-	-	-
22 × 14	22.000	14.000	16.50	15.00	0.188	0.156	0.218	0.188	-	-	-	-
22 × 12	22.000	12.750	16.50	14.62	0.188	0.156	0.218	0.180	-	-	-	-
22 × 10	22.000	10.750	16.50	14.12	0.188	0.134	0.218	0.165	-	-	-	-
24 × 24	24.000	24.000	17.00	17.00	0.218	0.218	0.250	0.250	-	-	-	-
24 × 22	24.000	22.000	17.00	17.00	0.218	0.188	0.250	0.218	-	-	-	-
24 × 20	24.000	20.000	17.00	17.00	0.218	0.188	0.250	0.218	-	-	-	-
24 × 18	24.000	18.000	17.00	16.50	0.218	0.165	0.250	0.188	-	-	-	-
24 × 16	24.000	16.000	17.00	16.00	0.218	0.165	0.250	0.188	-	-	-	-
24 × 14	24.000	14.000	17.00	16.00	0.218	0.156	0.250	0.188	-	-	-	-
24 × 12	24.000	12.750	17.00	15.62	0.218	0.156	0.250	0.180	-	-	-	-
24 × 10	24.000	10.750	17.00	15.12	0.218	0.134	0.250	0.165	-	-	-	-
26 × 26	26.000	26.000	19.48	19.48	0.218	0.218	0.311	0.311	0.374	0.374	0.500	0.500
26 × 24	26.000	24.000	19.48	19.01	0.218	0.218	0.311	0.250	0.374	0.374	0.500	0.500
26 × 22	26.000	22.000	19.48	18.50	0.218	0.188	0.311	0.218	0.374	0.374	0.500	0.500
26 × 20	26.000	20.000	19.48	17.99	0.218	0.188	0.311	0.218	0.374	0.374	0.500	0.500
26 × 18	26.000	18.000	19.48	17.48	0.218	0.164	0.311	0.188	0.374	0.374	0.500	0.500
26 × 16	26.000	16.000	19.48	17.00	0.218	0.164	0.311	0.188	0.374	0.374	0.500	0.500
26 × 14	26.000	14.000	19.48	17.00	0.218	0.155	0.311	0.188	0.374	0.374	0.500	0.500
26 × 12	26.000	12.000	19.48	17.00	0.218	0.155	0.311	0.179	0.374	0.374	0.500	0.500

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 52, 55.

STAINLESS STEEL BUTT-WELDING FITTINGS

TEE



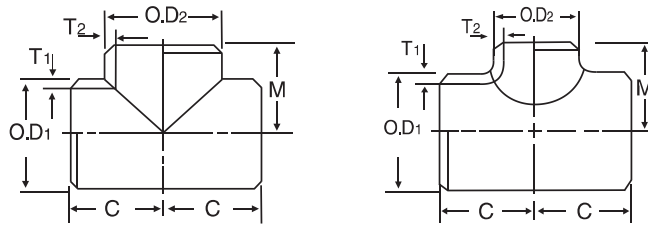
ASME B16. 9
ASME B36.19

UNIT : INCH

NOMINAL PIPE SIZE	OUTSIDE DIAMETER		CENTER TO END		SCH 5s		SCH 10s		SCH 40s		SCH 80s	
			C	M	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂
RUN×OUTLET	O.D ₁	O.D ₂										
28 × 28	28.000	28.000	20.51	20.51	0.218	0.218	0.311	0.311	0.374	0.374	-	-
28 × 26	28.000	26.000	20.51	20.51	0.218	0.218	0.311	0.311	0.374	0.374	-	-
28 × 24	28.000	24.000	20.51	20.00	0.218	0.218	0.311	0.250	0.374	0.374	-	-
28 × 22	28.000	22.000	20.51	19.50	0.218	0.188	0.311	0.218	0.374	0.374	-	-
28 × 20	28.000	20.000	20.51	19.01	0.218	0.188	0.311	0.218	0.374	0.374	-	-
28 × 18	28.000	18.000	20.51	18.50	0.218	0.164	0.311	0.188	0.374	0.374	-	-
28 × 16	28.000	16.000	20.51	17.49	0.218	0.164	0.311	0.188	0.374	0.374	-	-
28 × 14	28.000	14.000	20.51	17.49	0.218	0.155	0.311	0.188	0.374	0.374	-	-
28 × 12	28.000	12.000	20.51	17.64	0.218	0.155	0.311	0.179	0.374	0.374	-	-
30 × 30	30.000	30.000	22.00	22.00	0.250	0.250	0.311	0.311	0.374	0.374	-	-
30 × 28	30.000	28.000	22.00	22.02	0.250	0.218	0.311	0.311	0.374	0.374	-	-
30 × 26	30.000	26.000	22.00	22.06	0.250	0.218	0.311	0.311	0.374	0.374	-	-
30 × 24	30.000	24.000	22.00	22.98	0.250	0.218	0.311	0.250	0.374	0.374	-	-
30 × 22	30.000	22.000	22.00	20.51	0.250	0.188	0.311	0.218	0.374	0.374	-	-
30 × 20	30.000	20.000	22.00	20.00	0.250	0.188	0.311	0.218	0.374	0.374	-	-
30 × 18	30.000	18.000	22.00	19.50	0.250	0.164	0.311	0.188	0.374	0.374	-	-
30 × 16	30.000	16.000	22.00	19.01	0.250	0.164	0.311	0.188	0.374	0.374	-	-
30 × 14	30.000	14.000	22.00	19.01	0.250	0.155	0.311	0.188	0.374	0.374	-	-
30 × 12	30.000	12.000	22.00	18.62	0.250	0.155	0.311	0.179	0.374	0.374	-	-
30 × 10	30.000	10.000	22.00	18.11	0.250	0.133	0.311	0.165	0.374	0.374	-	-
32 × 32	32.000	32.000	23.50	23.50	0.250	0.250	0.311	0.311	0.374	0.374	-	-
32 × 30	32.000	30.000	23.50	22.92	0.250	0.250	0.311	0.311	0.374	0.374	-	-
32 × 28	32.000	28.000	23.50	22.51	0.250	0.218	0.311	0.311	0.374	0.374	-	-
32 × 26	32.000	26.000	23.50	22.51	0.250	0.218	0.311	0.311	0.374	0.374	-	-
32 × 24	32.000	24.000	23.50	22.00	0.250	0.218	0.311	0.250	0.374	0.374	-	-
32 × 22	32.000	22.000	23.50	21.49	0.250	0.188	0.311	0.218	0.374	0.374	-	-
32 × 20	32.000	20.000	23.50	20.98	0.250	0.188	0.311	0.218	0.374	0.374	-	-
32 × 18	32.000	18.000	23.50	20.51	0.250	0.164	0.311	0.188	0.374	0.374	-	-
32 × 16	32.000	16.000	23.50	20.00	0.250	0.164	0.311	0.188	0.374	0.374	-	-
32 × 14	32.000	14.000	23.50	20.00	0.250	0.155	0.311	0.188	0.374	0.374	-	-
34 × 34	34.000	34.000	25.00	25.00	-	0.250	0.311	0.311	0.374	0.374	-	-
34 × 32	34.000	32.000	25.00	24.48	-	0.250	0.311	0.311	0.374	0.374	-	-
34 × 30	34.000	30.000	25.00	24.00	-	0.250	0.311	0.311	0.374	0.374	-	-
34 × 28	34.000	28.000	25.00	23.50	-	0.218	0.311	0.311	0.374	0.374	-	-
34 × 26	34.000	26.000	25.00	23.50	-	0.218	0.311	0.311	0.374	0.374	-	-
34 × 24	34.000	24.000	25.00	22.99	-	0.218	0.311	0.250	0.374	0.374	-	-
34 × 22	34.000	22.000	25.00	22.51	-	0.188	0.311	0.218	0.374	0.374	-	-
34 × 20	34.000	20.000	25.00	22.00	-	0.188	0.311	0.218	0.374	0.374	-	-
34 × 18	34.000	18.000	25.00	21.49	-	0.164	0.311	0.188	0.374	0.374	-	-
34 × 16	34.000	16.000	25.00	20.98	-	0.164	0.311	0.188	0.374	0.374	-	-

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 52, 55.

STAINLESS STEEL BUTT-WELDING FITTINGS



ASME B16. 9
ASME B36.19

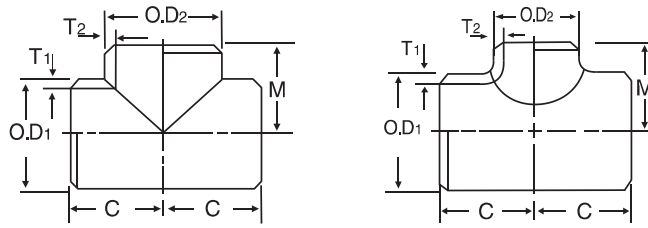
UNIT : INCH

NOMINAL PIPE SIZE	OUTSIDE DIAMETER		CENTER TO END		SCH 5s		SCH 10s		SCH 40s		SCH 80s	
			C	M	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂
RUN×OUTLET	O.D ₁	O.D ₂										
36 × 36	36.000	36.000	26.49	26.49	-	0.250	0.311	0.311	0.374	0.374	-	-
36 × 34	36.000	34.000	26.49	25.98	-	0.250	0.311	0.311	0.374	0.374	-	-
36 × 32	36.000	32.000	26.49	25.51	-	0.250	0.311	0.311	0.374	0.374	-	-
36 × 30	36.000	30.000	26.49	25.00	-	0.250	0.311	0.311	0.374	0.374	-	-
36 × 28	36.000	28.000	26.49	24.49	-	0.218	0.311	0.311	0.374	0.374	-	-
36 × 26	36.000	26.000	26.49	24.49	-	0.218	0.311	0.311	0.374	0.374	-	-
36 × 24	36.000	24.000	26.49	24.01	-	0.218	0.311	0.250	0.374	0.374	-	-
36 × 22	36.000	22.000	26.49	23.50	-	0.188	0.311	0.218	0.374	0.374	-	-
36 × 20	36.000	20.000	26.49	22.99	-	0.188	0.311	0.218	0.374	0.374	-	-
36 × 18	36.000	18.000	26.49	22.51	-	0.164	0.311	0.188	0.374	0.374	-	-
36 × 16	36.000	16.000	26.49	22.00	-	0.164	0.311	0.188	0.374	0.374	-	-
38 × 38	38.000	38.000	27.99	27.99	-	0.250	-	0.311	0.374	0.374	-	-
38 × 36	38.000	36.000	27.99	27.99	-	0.250	-	0.311	0.374	0.374	-	-
38 × 34	38.000	34.000	27.99	27.50	-	0.250	-	0.311	0.374	0.374	-	-
38 × 32	38.000	32.000	27.99	27.00	-	0.250	-	0.311	0.374	0.374	-	-
38 × 30	38.000	30.000	27.99	26.49	-	0.250	-	0.311	0.374	0.374	-	-
38 × 28	38.000	28.000	27.99	25.51	-	0.218	-	0.311	0.374	0.374	-	-
38 × 26	38.000	26.000	27.99	25.51	-	0.218	-	0.311	0.374	0.374	-	-
38 × 24	38.000	24.000	27.99	25.00	-	0.218	-	0.250	0.374	0.374	-	-
38 × 22	38.000	22.000	27.99	24.48	-	0.188	-	0.218	0.374	0.374	-	-
38 × 20	38.000	20.000	27.99	24.01	-	0.188	-	0.218	0.374	0.374	-	-
38 × 18	38.000	18.000	27.99	23.50	-	0.164	-	0.188	0.374	0.374	-	-
40 × 40	40.000	40.000	29.49	29.49	-	0.250	-	0.311	0.374	0.374	-	-
40 × 38	40.000	38.000	29.49	29.49	-	0.250	-	0.311	0.374	0.374	-	-
40 × 36	40.000	36.000	29.49	29.01	-	0.250	-	0.311	0.374	0.374	-	-
40 × 34	40.000	34.000	29.49	28.50	-	0.250	-	0.311	0.374	0.374	-	-
40 × 32	40.000	32.000	29.49	27.99	-	0.250	-	0.311	0.374	0.374	-	-
40 × 30	40.000	30.000	29.49	27.48	-	0.250	-	0.311	0.374	0.374	-	-
40 × 28	40.000	28.000	29.49	26.49	-	0.218	-	0.311	0.374	0.374	-	-
40 × 26	40.000	26.000	29.49	26.49	-	0.218	-	0.311	0.374	0.374	-	-
40 × 24	40.000	24.000	29.49	25.98	-	0.218	-	0.250	0.374	0.374	-	-
40 × 22	40.000	22.000	29.49	25.51	-	0.188	-	0.218	0.374	0.374	-	-
40 × 20	40.000	20.000	29.49	25.00	-	0.188	-	0.218	0.374	0.374	-	-
40 × 18	40.000	18.000	29.49	24.49	-	0.164	-	0.188	0.374	0.374	-	-
42 × 42	42.000	42.000	30.00	27.99	-	0.250	-	0.311	-	-	-	-
42 × 40	42.000	40.000	30.00	27.99	-	0.250	-	0.311	-	-	-	-
42 × 38	42.000	38.000	30.00	27.99	-	0.250	-	0.311	-	-	-	-
42 × 36	42.000	36.000	30.00	27.99	-	0.250	-	0.311	-	-	-	-
42 × 34	42.000	34.000	30.00	27.99	-	0.250	-	0.311	-	-	-	-
42 × 32	42.000	32.000	30.00	27.99	-	0.250	-	0.311	-	-	-	-
42 × 30	42.000	30.000	30.00	27.99	-	0.250	-	0.311	-	-	-	-
42 × 28	42.000	28.000	30.00	27.48	-	0.218	-	0.311	-	-	-	-
42 × 26	42.000	26.000	30.00	27.48	-	0.218	-	0.311	-	-	-	-
42 × 24	42.000	24.000	30.00	25.98	-	0.218	-	0.250	-	-	-	-
42 × 22	42.000	22.000	30.00	25.98	-	0.188	-	0.218	-	-	-	-
42 × 20	42.000	20.000	30.00	25.98	-	0.188	-	0.218	-	-	-	-
42 × 18	42.000	18.000	30.00	25.51	-	0.164	-	0.188	-	-	-	-
42 × 16	42.000	16.000	30.00	25.00	-	0.164	-	0.188	-	-	-	-

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 52, 55.

STAINLESS STEEL BUTT-WELDING FITTINGS

TEE



ASME B16. 9
ASME B36.19

UNIT : INCH

NOMINAL PIPE SIZE	OUTSIDE DIAMETER		CENTER TO END		SCH 5s		SCH 10s		SCH 40s		SCH 80s	
			C	M	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂	T ₁	T ₂
RUN×OUTLET	O.D ₁	O.D ₂										
44 × 44	44.000	44.000	32.00	30.00	-	0.250	-	0.311	-	-	-	-
44 × 42	44.000	42.000	32.00	30.00	-	0.250	-	0.311	-	-	-	-
44 × 40	44.000	40.000	32.00	29.49	-	0.250	-	0.311	-	-	-	-
44 × 38	44.000	38.000	32.00	29.01	-	0.250	-	0.311	-	-	-	-
44 × 36	44.000	36.000	32.00	28.50	-	0.250	-	0.311	-	-	-	-
44 × 34	44.000	34.000	32.00	28.50	-	0.250	-	0.311	-	-	-	-
44 × 32	44.000	32.000	32.00	27.99	-	0.250	-	0.311	-	-	-	-
44 × 30	44.000	30.000	32.00	27.99	-	0.250	-	0.311	-	-	-	-
44 × 28	44.000	28.000	32.00	27.92	-	0.218	-	0.311	-	-	-	-
44 × 26	44.000	26.000	32.00	27.92	-	0.218	-	0.311	-	-	-	-
44 × 24	44.000	24.000	32.00	27.92	-	0.218	-	0.250	-	-	-	-
44 × 22	44.000	22.000	32.00	27.00	-	0.188	-	0.218	-	-	-	-
44 × 20	44.000	20.000	32.00	27.00	-	0.188	-	0.218	-	-	-	-
46 × 46	46.000	46.000	33.50	31.49	-	0.250	-	0.311	-	-	-	-
46 × 44	46.000	44.000	33.50	31.49	-	0.250	-	0.311	-	-	-	-
46 × 42	46.000	42.000	33.50	30.98	-	0.250	-	0.311	-	-	-	-
46 × 40	46.000	40.000	33.50	30.62	-	0.250	-	0.311	-	-	-	-
46 × 38	46.000	38.000	33.50	30.00	-	0.250	-	0.311	-	-	-	-
46 × 36	46.000	36.000	33.50	30.00	-	0.250	-	0.311	-	-	-	-
46 × 34	46.000	34.000	33.50	29.49	-	0.250	-	0.311	-	-	-	-
46 × 32	46.000	32.000	33.50	29.49	-	0.250	-	0.311	-	-	-	-
46 × 30	46.000	30.000	33.50	29.01	-	0.250	-	0.311	-	-	-	-
46 × 28	46.000	28.000	33.50	29.01	-	0.218	-	0.311	-	-	-	-
46 × 26	46.000	26.000	33.50	29.01	-	0.218	-	0.311	-	-	-	-
46 × 24	46.000	24.000	33.50	28.50	-	0.218	-	0.250	-	-	-	-
46 × 22	46.000	22.000	33.50	28.50	-	0.188	-	0.218	-	-	-	-
48 × 48	48.000	48.000	35.00	35.00	-	0.250	-	0.311	-	-	-	-
48 × 46	48.000	46.000	35.00	35.00	-	0.250	-	0.311	-	-	-	-
48 × 44	48.000	44.000	35.00	35.00	-	0.250	-	0.311	-	-	-	-
48 × 42	48.000	42.000	35.00	32.00	-	0.250	-	0.311	-	-	-	-
48 × 40	48.000	40.000	35.00	32.00	-	0.250	-	0.311	-	-	-	-
48 × 38	48.000	38.000	35.00	32.00	-	0.250	-	0.311	-	-	-	-
48 × 36	48.000	36.000	35.00	30.98	-	0.250	-	0.311	-	-	-	-
48 × 34	48.000	34.000	35.00	30.98	-	0.250	-	0.311	-	-	-	-
48 × 32	48.000	32.000	35.00	30.98	-	0.250	-	0.311	-	-	-	-
48 × 30	48.000	30.000	35.00	30.00	-	0.250	-	0.311	-	-	-	-
48 × 28	48.000	28.000	35.00	30.00	-	0.218	-	0.311	-	-	-	-
48 × 26	48.000	26.000	35.00	30.00	-	0.218	-	0.311	-	-	-	-
48 × 24	48.000	24.000	35.00	29.01	-	0.218	-	0.250	-	-	-	-
48 × 22	48.000	22.000	35.00	29.01	-	0.188	-	0.218	-	-	-	-

FOR DIMENSIONAL TOLERANCES AND BEVEL DETAILS, SEE PAGE 52, 55.

STUB END

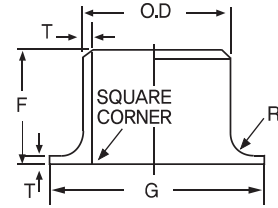
STAINLESS STEEL
BUTT - WELDING FITTINGS

CONTENTS

JIS (5K, 10K)	- 44
JPI	- 45
MSS, ASME	- 46

STAINLESS STEEL BUTT-WELDING FITTINGS

STUB END (JIS)



JIS B2312

UNIT : INCH

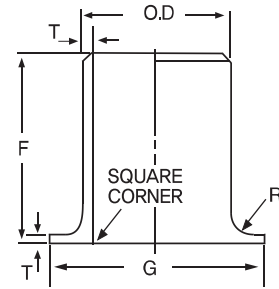
UNIT : KG

NOMINAL PIPE SIZE	OUTSIDE DIAMETER (O.D)	WALL THICKNESS(t)			G		F	R (MAX.)	WEIGHT		
		SCH10s	SCH20s	SCH40s	5K	10K			SCH10s	SCH20s	SCH40s
1/2	21.7	2.1	2.5	2.8	44	51	30	3	0.06	0.07	0.08
3/4	27.2	2.1	2.5	2.9	49	56	30	3	0.07	0.09	0.10
1	34.0	2.8	3.0	3.4	59	67	50	3	0.17	0.18	0.21
1 1/4	42.7	2.8	3.0	3.6	70	76	50	4	0.22	0.23	0.28
1 1/2	48.6	2.8	3.0	3.7	75	81	50	4	0.24	0.26	0.32
2	60.5	2.8	3.5	3.9	85	96	50	4	0.31	0.38	0.42
2 1/2	76.3	3.0	3.5	5.2	110	116	50	5	0.43	0.50	0.78
3	89.1	3.0	4.0	5.5	121	126	50	5	0.48	0.64	0.87
4	114.3	3.0	4.0	6.0	141	151	50	5	0.61	0.82	1.20
5	139.8	3.4	5.0	6.6	176	182	50	6	0.88	1.28	1.68
6	165.2	3.4	5.0	7.1	206	212	50	6	1.08	1.57	2.21
8	216.3	4.0	6.5	8.2	252	262	65	6	1.94	3.12	3.93
10	267.4	4.0	6.5	9.3	317	324	65	6	2.53	4.08	5.80
12	318.5	4.5	6.5	10.3	360	368	65	9	3.25	4.67	7.34
14	355.6	4.8	7.9	11.1	403	413	150	9	7.65	12.60	17.70
16	406.4	4.8	7.9	12.7	463	475	150	9	9.05	14.90	24.00
18	457.2	4.8	7.9	14.3	523	530	150	9	10.30	17.00	30.70
20	508.0	5.5	7.9	15.1	573	585	150	9	13.30	22.90	36.40
22	558.8	5.5	9.5	15.9	630	640	150	9	14.80	25.50	40.60
24	609.6	6.4	9.5	17.5	680	690	150	9	18.70	27.70	50.80

MINIMUM LAP THICKNESS SHALL NOT BE LESS THAN NOMINAL WALL THICKNESS.
DIMENSIONS TO BE CONFORM TO DAE KYUNG STANDARDS.

STAINLESS STEEL BUTT-WELDING FITTINGS

STUB END (JPI)



JPI-7S-15-70

UNIT : INCH

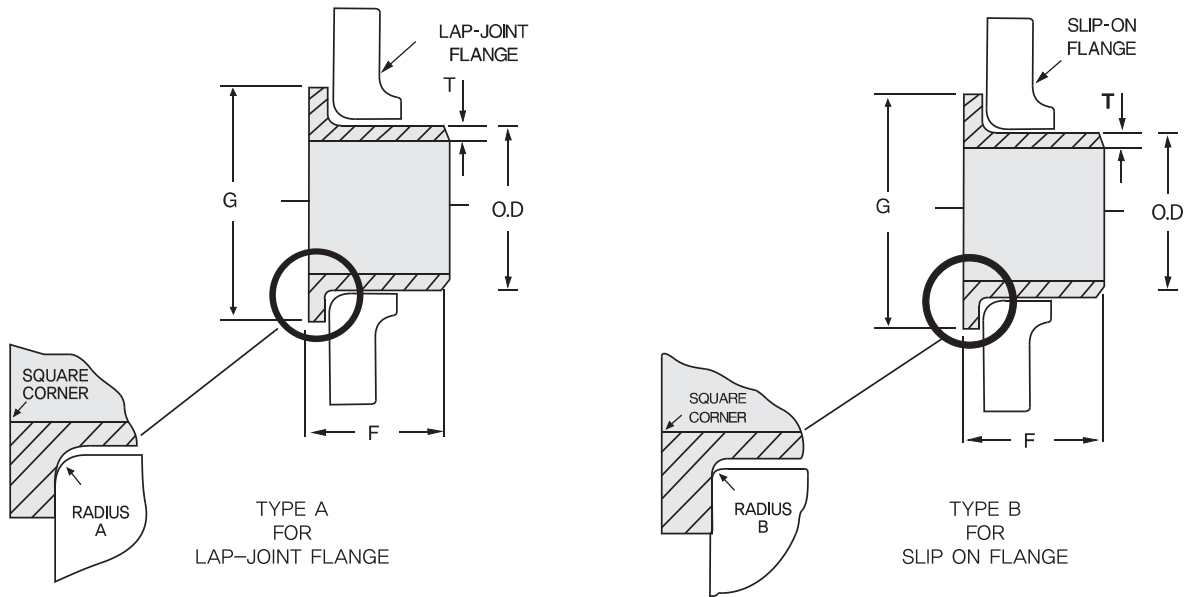
UNIT : KG

NOMINAL PIPE SIZE	OUTSIDE DIAMETER (O.D)	WALL THICKNESS(t)			G	F	R (MAX.)	WEIGHT		
		SCH10s	SCH20s	SCH40s				SCH10s	SCH20s	SCH40s
1/2	21.7	2.1	2.5	2.8	35	50	3.2	0.08	0.09	0.11
3/4	27.2	2.1	2.5	2.9	43	50	3.2	0.09	0.10	0.15
1	34.0	2.8	3.0	3.4	51	50	3.2	0.14	0.15	0.19
1 1/4	42.7	2.8	3.0	3.6	64	50	4.8	0.21	0.22	0.26
1 1/2	48.6	2.8	3.0	3.7	73	50	6.4	0.25	0.27	0.38
2	60.5	2.8	3.5	3.9	92	65	7.9	0.38	0.47	0.54
2 1/2	76.3	3.0	3.5	5.2	105	65	7.9	0.47	0.57	0.80
3	89.1	3.0	4.0	5.5	127	65	9.5	0.64	0.85	1.14
4	114.3	3.0	4.0	6.0	157	75	11.1	0.98	1.31	1.82
5	139.8	3.4	5.0	6.6	186	75	11.1	1.24	1.82	2.54
6	165.2	3.4	5.0	7.1	216	90	12.7	1.95	2.87	3.82
8	216.3	4.0	6.5	8.2	270	100	12.7	3.11	5.05	5.90
10	267.4	4.0	6.5	9.3	324	125	12.7	4.87	7.92	10.44
12	318.5	4.5	6.5	10.3	381	150	12.7	7.12	11.60	15.00
14	355.6	4.8	7.9	11.1	413	150	12.7	7.65	12.60	17.70
16	406.4	4.8	7.9	12.7	470	150	12.7	9.00	14.30	23.70
18	457.2	4.8	7.9	14.3	533	150	12.7	11.00	17.50	31.50
20	508.0	5.5	7.9	15.1	584	150	12.7	13.30	22.90	36.40
22	558.8	5.5	9.5	15.9	641	150	12.7	14.80	25.50	40.60
24	609.6	6.4	9.5	17.5	692	150	12.7	19.10	28.00	51.20

MINIMUM LAP THICKNESS SHALL NOT BE LESS THAN NOMINAL WALL THICKNESS.
 DIMENSIONS TO BE CONFORM TO DAE KYUNG STANDARDS.
 14" AND LAGER SIZE ARE REFER TO MSS SP-43.

STAINLESS STEEL BUTT-WELDING FITTINGS

STUB END (MSS)



MSS SP-43/ASME B16.9

UNIT : INCH

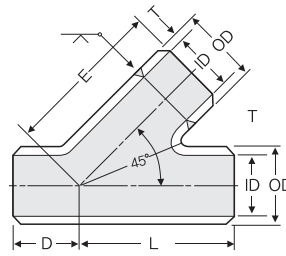
UNIT : KG

NOMINAL PIPE SIZE	OUTSIDE DIAMETER (O.D.)	WALL THICKNESS(t)			OUTSIDE DIAMETER OF LAP(G)	LENGTH(F)		Radius of fillet		WEIGHT		
		SCH10s	SCH20s	SCH40s		ANSI	MSS	TYPE A (MAX.)	TYPE B (MAX.)	SCH10s	SCH20s	SCH40s
1/2	0.840	0.083	0.098	0.109	1.375	3.0	2.0	0.13	0.03	0.06	0.11	0.12
3/4	1.050	0.083	0.098	0.112	1.688	3.0	2.0	0.13	0.03	0.08	0.15	0.16
1	1.315	0.109	0.118	0.133	2.000	4.0	2.0	0.13	0.03	0.13	0.18	0.24
1 1/4	1.660	0.109	0.118	0.140	2.500	4.0	2.0	0.19	0.03	0.17	0.26	0.34
1 1/2	1.900	0.109	0.118	0.144	2.875	4.0	2.0	0.25	0.03	0.21	0.37	0.45
2	2.375	0.109	0.137	0.153	3.625	6.0	2.5	0.31	0.03	0.33	0.53	0.74
2 1/2	2.875	0.120	0.137	0.203	4.125	6.0	2.5	0.31	0.03	0.44	0.79	1.06
3	3.500	0.120	0.157	0.216	5.000	6.0	2.5	0.38	0.03	0.57	1.13	1.50
4	4.500	0.120	0.157	0.237	6.188	6.0	3.0	0.44	0.03	0.87	1.81	2.52
5	5.563	0.134	0.196	0.257	7.313	8.0	3.0	0.44	0.06	1.21	2.53	3.60
6	6.625	0.134	0.196	0.279	8.500	8.0	3.5	0.50	0.06	1.64	3.72	5.57
8	8.625	0.148	0.255	0.322	10.625	8.0	4.0	0.50	0.06	2.65	5.89	10.12
10	10.750	0.165	0.255	0.364	12.750	10.0	5.0	0.50	0.06	4.38	10.42	13.95
12	12.750	0.180	0.255	0.405	15.000	10.0	6.0	0.50	0.06	6.74	14.95	19.93
14	14.000	0.188	0.314	0.438	16.250	12.0	6.0	0.50	0.06	7.73	15.46	20.62
16	16.000	0.188	0.314	0.500	18.500	12.0	6.0	0.50	0.06	9.00	17.98	23.98
18	18.000	0.188	0.314	0.561	21.000	12.0	6.0	0.50	0.06	10.50	21.00	28.00
20	20.000	0.218	0.374	0.594	23.000	12.0	6.0	0.50	0.06	13.50	23.30	31.70
22	22.000	0.218	0.374	0.594	25.250	12.0	6.0	0.50	0.06	18.90	-	-
24	24.000	0.250	0.374	0.688	27.250	12.0	6.0	0.50	0.06	18.90	28.41	37.88

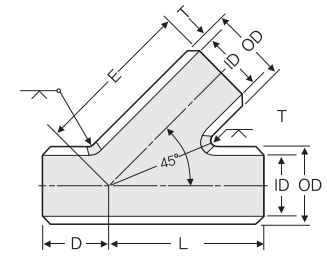
FOR BEVER DETAILS, SEE PAGE 39.
 FOR DIMENSIONAL TOLERANCES SEE PAGE 41.
 MINIMUM LAP THICKNESS SHALL NOT BE LESS THAN NOMINAL WALL THICKNESS.
 CONTACT FACES OF STUB ENDS SHALL HAVE A MODIFIED SPIRAL OR CONCENTRIC SERRATION.

STEEL BUTT-WELDING FITTINGS

Lateral (STD, X-S)



Type A



Type B

UNIT : INCH

NOMINAL PIPE SIZE	TYPE	OUTSIDE DIAMETER (O.D)	STD					X-S				
			E & L	D	T	ID	WT(kg)	E & L	D	T	ID	WT(kg)
1	B	1.315	5.75	1.75	0.133	1.049	0.77	6.50	2.00	1.179	0.957	1.13
1 1/4	B	1.660	6.25	1.75	0.140	1.380	1.09	7.25	2.25	0.191	1.278	1.72
1 1/2	B	1.900	7.00	2.00	0.145	1.610	1.45	8.50	2.50	0.200	1.500	2.45
2	A/B	2.375	8.00	2.50	0.154	2.067	2.27	* 8.00 * * 9.00	2.50	0.218	1.939	3.40
2 1/2	B	2.875	9.50	2.50	0.203	2.469	4.17	10.50	2.50	0.276	2.323	6.15
3	B	3.500	10.00	3.00	0.216	3.068	5.72	11.00	3.00	0.300	2.900	8.53
3 1/2	B	4.000	11.50	3.00	0.226	3.548	7.80	12.50	3.00	0.318	3.364	11.61
4	A/B	4.500 (114.3)	12.00 (304.8)	3.00 (76.2)	0.237 (6.02)	4.026 (102.3)	9.43	* 12.00 * * 13.50	3.00	0.337	3.826	14.88
5	B	5.562	13.50	3.50	0.258	5.047	14.24	15.00	3.50	0.375	4.813	22.59
6	A/B	6.625	14.50	3.50	0.280	6.065	19.23	* 14.50 * * 17.50	* 3.50 * * 4.00	0.432	5.761	35.83
8	B	8.625	17.50	4.50	0.322	7.981	34.47	20.50	5.00	0.500	7.625	63.50
10	B	10.750	20.50	5.00	0.365	10.020	56.25	24.00	5.50	0.500	9.750	96.63
12	B	12.750	24.50	5.50	0.375	12.000	81.65	27.50	6.00	0.500	11.750	123.83
14	B	14.000	27.00	6.00	0.375	13.250	98.88	31.00	6.50	0.500	13.000	154.22
16	B	16.000	30.00	6.50	0.375	15.250	124.74	34.50	7.50	0.500	15.000	196.41
18	B	18.000	32.00	7.00	0.375	17.250	147.87	37.50	8.00	0.500	17.000	238.59
20	B	20.000	35.00	8.00	0.375	19.250	179.63	40.50	8.50	0.500	19.000	284.86
24	B	24.000	40.50	9.00	0.375	23.250	246.76	47.50	10.00	0.500	23.000	400.08

• * A TYPE * * B TYPE

DIMENSION TOLERANCE

CONTENTS

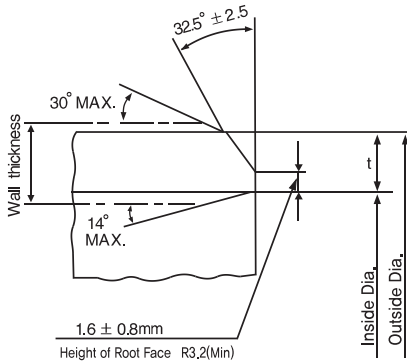
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KS/JIS WELDING END PREPARATION

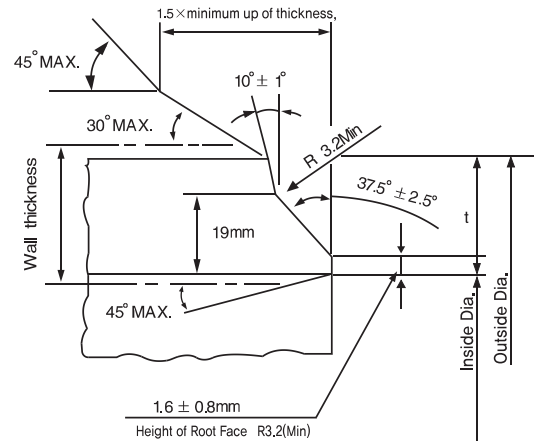
(KS B1541, 1543/JIS B2312, 2313)

STAINLESS BUTT-WELDING PIPE FITTING FOR ORDINARY USE

A. In the case Where, $t \leq 22.4\text{mm}$

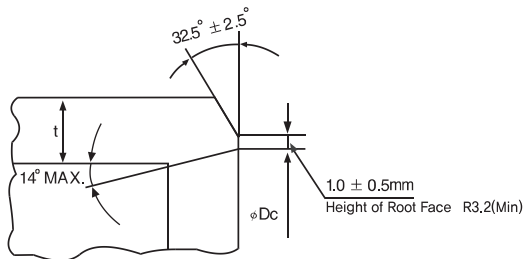


B. In the case Where, $t \leq 22.4\text{mm}$

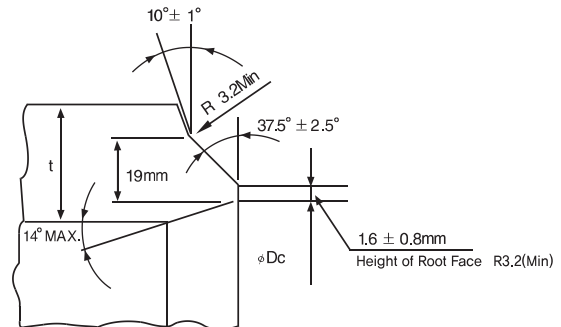


STAINLESS BUTT-WELDING PIPE FITTINGS FOR SPECIAL USE

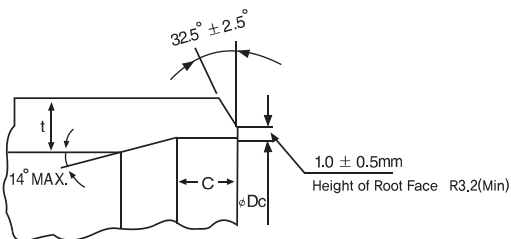
A. In the case Where, $t \leq 22.4\text{mm}$



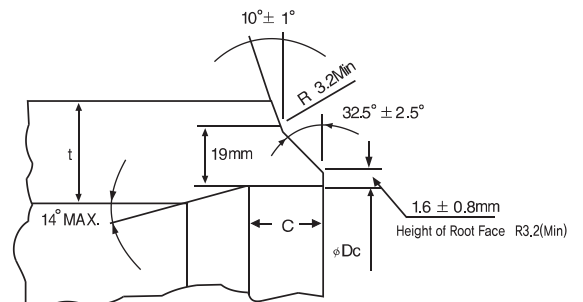
B. In the case Where, $t > 22.4\text{mm}$



C. In the case Where, $t \leq 22.4\text{mm}$



D. In the case Where, $t > 22.4\text{mm}$

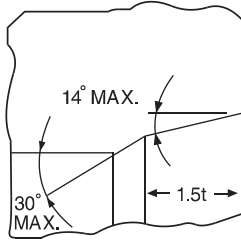


Where t : nominal wall thickness
 D_c : diameter of machining bore
 C : length of machining bore

•REMARK

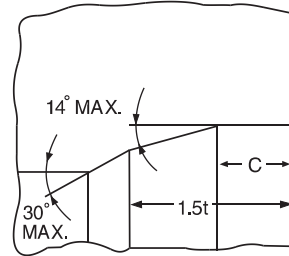
1. Diameter (D_c) and length (C) of machining bore and dimensional tolerances shall be as agreed between parties concerned.
2. Relieving of machining bore may be performed by providing an inclination of 14° or less from the end face to the limits of 1.5times the wall thickness, or after cutting to the cylindrical surface to the length of machining bore, providing an inclination of 14° or less to limits above-indicated, and beyond that portion machining with an inclination of 30° or less.

For Type A and B Bevel Shape



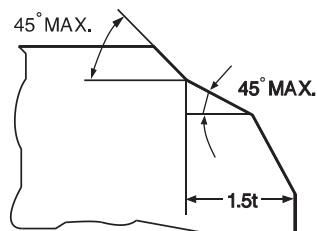
in the figure,
t:nominal Wall thickness

For Type C and D 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 of 1.5 times the wall thickness, and beyond that portion machining with an inclination of 45° or less.

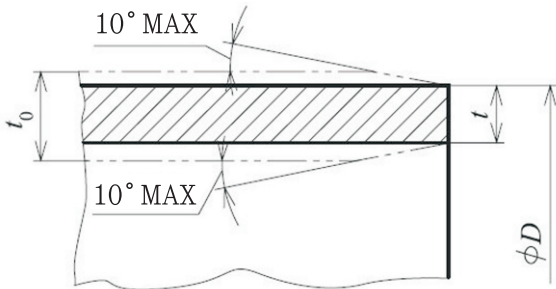


in the figure,
t:nominal Wall thickness

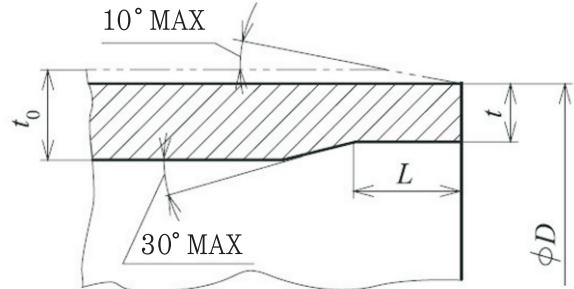
JIS WELDING END PREPARATION

(JIS B 2309)

1) PLANE END



INTERNAL ROTATION LENGTH : NO



INTERNAL ROTATION LENGTH : YES

t_0 : ACTUAL THICKNESS OF PIPE FITTINGS

O.D : OUTSIDE DIAMETER

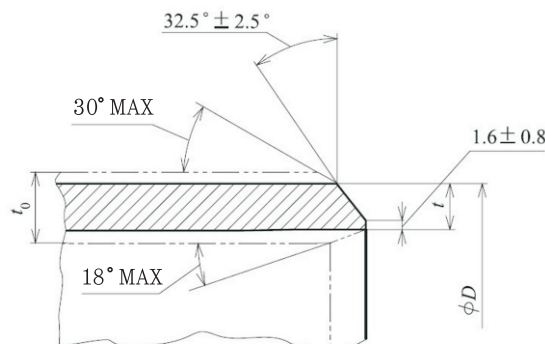
L : INTERNAL ROTATION LENGTH

UNIT : mm

ITEM	NOMINAL PIPE SIZE(SU)								
	20~60	75	80	100	125	150	200	250	300
INTERNAL ROTATION LENGTH(L)	-	OVER 3		OVER 4			OVER 5		

2) BEVEL END

Note : END PREPARATIONS CONFORMING TO CUSTOMER SPECIFICATIONS WILL BE SPECIALLY MANUFACTURED UPON CONSULTATION.

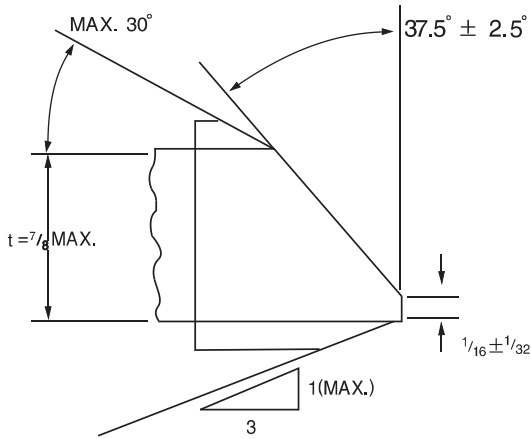


T : THICKNESS

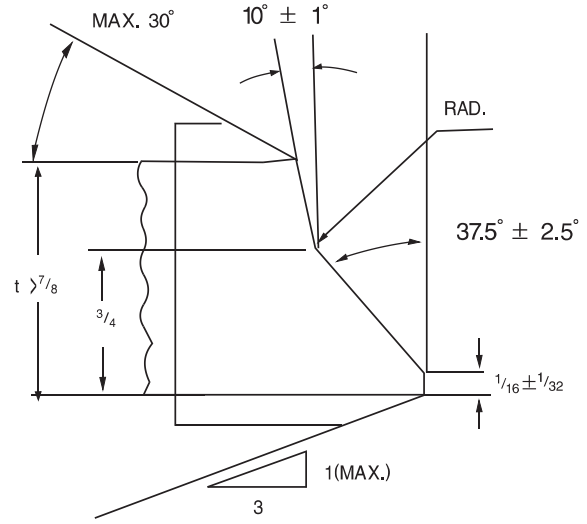
t_0 : ACTUAL THICKNESS OF PIPE FITTINGS

OD : OUTSIDE DIAMETER

ASME WELDING END PREPARATION (ASME B16.9)



(a) Plain Bevel



(b) Compound Bevel

NOMINAL PIPE WALL THICKNESS (t)	END PREPARATION
LESS THAN X *	CUT SQUARE OR SLIGHTLY CHAMFER, AT MFR'S OPTION.
X * TO 7/8 INCH	PLAIN BEVEL AS IN SKETCH "A" ABOVE
MORE THAN 7/8	COMPOUND BEVEL AS IN SKETCH "B" ABOVE

X* (=) 3/16 for carbon steel, ferritic alloy steel or wrought iron :
1/8 for austenitic alloy steel

- Notes : 1. End preparations are in accordance with ASME B16.9.
2. End preparations conforming to customer specifications will be specially manufactured upon consultation.

HYDROSTATIC TEST

Butt-Welding Fittings can with stand a hydrostatic pressure test determined by the following equation :

$$P = \frac{2st}{D}$$

Where,

P=Hydrostatic test pressure, psi

s= 60% of the specifice minimum yield strength for carbon and alloy steel, psi or

50% of the specified minimum yield strength for austenitic stainless steel, psi

t=Nominal wall thickness, in of designated Schedule number

D=Outside diameter at bevel, in

KS/JIS DIMENSIONAL TOLERANCE

(KS B1541, 1543/JIS B 2312, 2313)

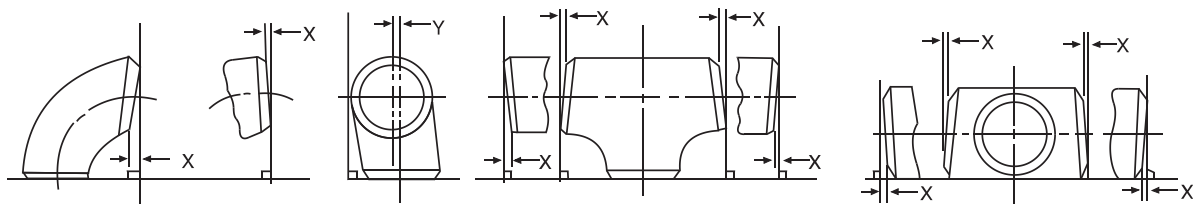
1) DIMENSIONAL TOLERANCE

TYPE OF PIPE FITTING		NOMINAL DIAMETER						
		1/2 - 2 1/2	3 - 4	5 - 8	10 - 18	20 - 24	26 - 30	32 - 48
		TOLERANCE						
ALL PIPE FITTING	(O,D)	+1.6 -0.8	± 1.6	+2.4 -1.6	+ 4 -3.2		+6.4 -4.8	
	(I,D)	± 0.8	± 1.6		± 3.2		± 4.8	
	(T)	+NOT SPECIFIED -12.5%						
90° ELBOW 45° ELBOW	(F,H)		± 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,E _i)	± 3.2		± 6.4			—	
OUTSIDE OF END PERIPHERAL LENGTH			—				± 0.5%	

2) RIGHT ANGLE FOR SHAFT-CENTER OF PIPE FITTING

UNIT : INCH

ITEM	TYPE OF PIPE FITTING	NOMINAL DIAMETER								
		A	15 - 100	125 - 200	250 - 300	350 - 400	450 - 600	650 - 750	800 - 1050	1100 - 1200
		B	1/2 - 4	5 - 8	10 - 12	14 - 16	18 - 24	26 - 30	32 - 42	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 DIMENSIONAL TOLERANCE

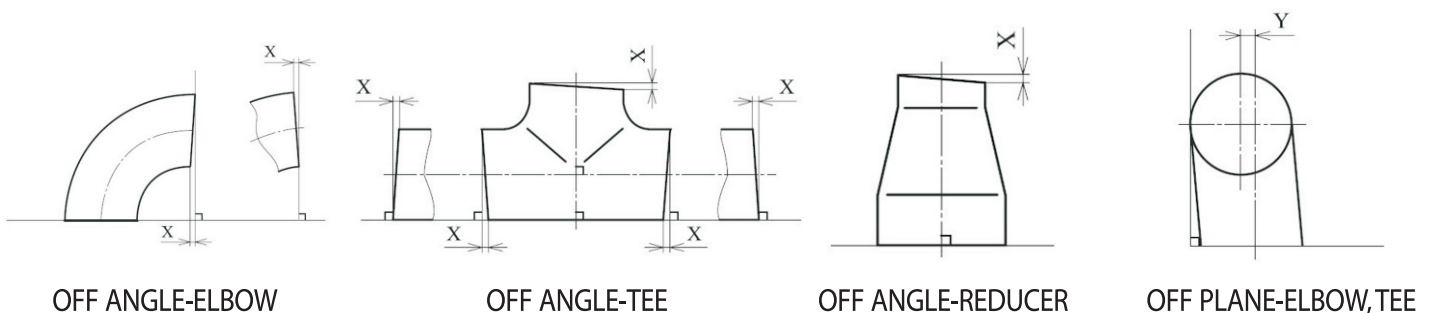
(JIS B 2309)

1) STAINLESS STEEL BUTT-WELDING PIPE FITTINGS FOR ORDINARY USE AND STEEL PLATE BUTT-WELDING PIPE FITTINGS.

UNIT : mm

TYPE OF PIPE FITTING		NOMINAL PIPE SIZE(SU)													
		20	25	30	40	50	60	75	80	100	125	150	200	250	300
		TOLERANCE													
ALL PIPE FITTING	O.D	±0.30	±0.34	±0.43	±0.49	±0.60	±0.76	±0.89	±1.14	±1.40	±1.65	±2.16	±2.67	±3.18	
	T	+0.3 -0.12	+0.36 -0.12			+0.45 -0.15			+0.5 -0.3			+0.5 -0.4			
	OUTSIDE OF END	+NOT SPECIFIED -0.2	+NOT SPECIFIED -0.24			+NOT SPECIFIED -0.3			+NOT SPECIFIED -0.4			+NOT SPECIFIED -0.45			
90° ELBOW	F, H	±0.8											±1.2		
45° ELBOW		±0.8											±1.2		
REDUCER	H	±0.8											±1.2		
TEE	C, M	±0.8											±1.2		
CAP	E	±3.2							±6.4						
STUB END	BODY	±0.30	±1.6					±2.4			±3.2			±4.0	
	F	±0.8											±1.2		
	G	0 -0.8											0 -1.6		
	GT	+1.6 -0.2	±1.6							0					

2) RIGHT ANGLE FOR SHAFT-CENTER OF PIPE FITTING



UNIT : mm

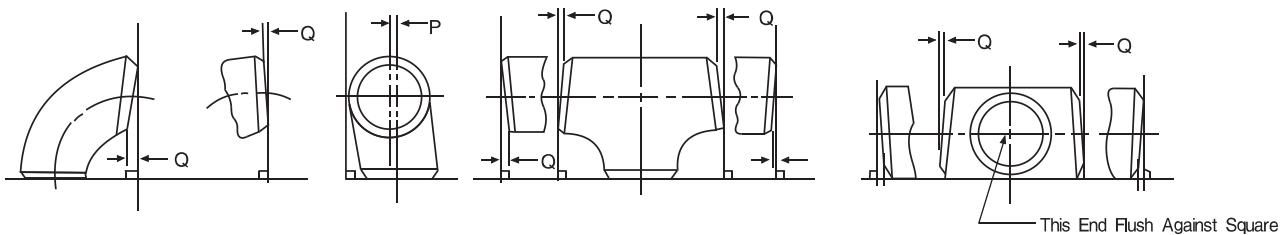
ITEM	TYPE OF PIPE FITTING	NOMINAL PIPE SIZE(SU)		
		20~100	125~200	250~300
		TOLERANCE		
OFF ANGLE(X)	ELBOW, REDUCER, TEE	0.5	1.0	1.2
OFF PLANE(Y)	ELBOW, TEE	1.0	2.0	2.4

ASME DIMENSIONAL TOLERANCE (ASME B16.9, B16.28)

1) DIMENSIONAL TOLERANCE

NOMINAL PIPE SIZE	ALL FITTINGS			90° AND 45° ELBOWS	TEES	REDUCERS	CAPS	180° RETURNS					
	OUTSIDE DIAMETER AT BEVEL O.D	INSIDE DIAMETER AT END I.D	WALL THICKNESS T	CENTER-TO-END DIMENSION A, B	CENTER-TO-END DIMENSION C, M	END TO END H	BACK TO FACE E	CENTER-TO-CENTER DIMENSION P	CENTER-TO-CENTER DIMENSION K	ALIGNMENT OF ENDS U			
1/2 - 2 1/2	± 1/16 - 1/32	± 1/32	NOT LESS THAN 87 1/2 % OF NOMINAL THICKNESS	± 1/16	± 1/16	± 1/16	± 1/8	± 1/4	± 1/4	± 1/32			
3 - 4	± 1/16	± 1/16											
5 - 8	+ 3/32 - 1/16												
10 - 18	+ 5/32 - 1/8	± 1/8					± 3/32	± 3/32	± 3/32		± 1/4	± 3/8	± 1/16
20 - 24	+ 1/4 - 3/16	± 3/16											
26 - 30							± 3/16	± 3/16					
32 - 48													

2) RIGHT ANGLE FOR SHAFT-CENTER OF PIPE FITTING



UNIT : inch

ITEM	NOMINAL PIPE SIZE							
	1/2 - 4	5 - 8	10 - 12	14 - 16	18 - 24	26 - 30	32 - 42	44 - 48
	TOLERANCE							
OFF ANGLE(Q)	1/32	1/16	3/32		1/8	3/16	3/16	3/16
OFF ANGLE(P)	1/16	1/8	3/16	1/4	3/8	3/8	1/2	3/4

MSS SP-43 DIMENSIONAL TOLERANCE

UNIT : inch

NOMINAL PIPE SIZE	ALL FITTINGS		90° ELBOW 45° ELBOW TEE	REDUCERS LAP JOINT STUB END	180° RETURNS			CAPS
	OUTSIDE(1) DIAMETER AT WELDING END	WALL THICKNESS	CENTER- TO-END DIMENSION A, B, C, M	ALL OVER LENGTH F, H	CENTER-TO CENTER DIMENSION O	BACK-TO FACE DIMENSION K	ALIGNMENT OF ENDS U	ALL OVER LENGTH E
1/2 - 1 1/2	± 0.03	NOT LESS THAN 87 1/2 % OF NOMINAL THICKNESS	± 0.06	± 0.06	± 0.25	± 0.25	± 0.03	± 0.12
2 - 3 1/2	± 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

UNIT : inch

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
1/2 - 1 1/2	± 0.03	NOT LESS THAN 87 1/2 % OF NOMINAL THICKNESS	+ 0 - 0.03	+ 0 - 0.03
2 - 3 1/2	± 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.

REFERENCES

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MATERIALS SPECIFICATIONS FOR BUTT-WELDING FITTINGS

ASTM MATERIALS

MARKING SYMBOLS	MATERIALS	UNS Designation	FORM	CHEMICAL COMPOSITION(MAX)						
				MAX. or RANGE (UNLESS OTHERWISE INDICATED)						
				C	SI	Mn	P	S	Ni	
A403	WP304	A312 GR. TP304 A240 TYPE 304	S30400		0.08	1.00	2.00	0.045	0.030	8.00 - 11.00
	WP304H	A312 GR. TP304H A240 TYPE 304H	S30409		0.04 - 0.10	1.00	2.00	0.045	0.030	8.00 - 11.00
	WP304L	A312 GR. TP304L A240 TYPE 304L	S30403		0.03	1.00	2.00	0.045	0.030	8.00 - 12.00
	WP309	A312 GR. TP309S A240 TYPE 309S	S30908		0.20	1.00	2.00	0.045	0.030	12.00 - 15.00
	WP310S	A312 GR. TP310 A240 TYPE 310S	S31008		0.08	1.00	2.00	0.045	0.030	19.00 - 22.00
	WP316	A312 GR. TP316 A240 TYPE 316	S31600		0.08	1.00	2.00	0.045	0.030	10.00 - 14.00
	WP316H	A312 GR. TP316H A240 TYPE 316H	S31609		0.04 - 0.10	1.00	2.00	0.045	0.030	10.00 - 14.00
	WP316L	A312 GR. TP316L A240 TYPE 316L	S31603		0.030	1.00	2.00	0.045	0.030	10.00 - 14.00
	WP317L	A312 GR. TP317L A240 TYPE 317L	S31703		0.030	1.00	2.00	0.045	0.030	11.00 - 15.00
	WP321	A312 GR. TP321 A240 TYPE 321	S32100		0.08	1.00	2.00	0.045	0.030	9.00 - 12.00
	WP321H	A312 GR. TP321H A240 TYPE 321H *	S32109		0.04 - 0.10	1.00	2.00	0.045	0.030	9.00 - 12.00
	WP347	A312 GR. TP347 A240 TYPE 347	S34700		0.08	1.00	2.00	0.045	0.030	9.00 - 12.00
	WP347H	A312 GR. TP347H A240 TYPE 347H	S34709		0.04 - 0.10	1.00	2.00	0.045	0.030	9.00 - 12.00
A815	S31803	A790 S31803 A240 S31803			0.030	1.00	2.00	0.030	0.020	4.50 - 6.50
	S32750	A790 S32750 A240 S32750			0.030	0.80	1.20	0.035	0.020	6.00 - 8.00
	S32760	A790 S32760 A240 S32760			0.030	1.00	1.00	0.030	0.010	6.00 - 8.00
	S32205	A790 S32205 A240 S32205			0.030	1.00	2.00	0.030	0.020	4.50 - 6.50
B366	WPN	B161 B162	N02200	P PL	0.150	0.35	0.35		0.010	99.0 Min
	WPNC	B165 B127	N04400	P PL	0.030	0.50	2.00		0.024	63.0 Min
	WPHC22	B619, B622 B575	N06022	P PL	0.150	0.08	0.50	0.020	0.020	Remainder
	WPNCMC	B444, B705 B443	N06625	P PL	0.100	0.50	0.50	0.015	0.015	58.0 Min
	WP20CB	B464, B729 B463	N08020	P PL	0.070	1.00	2.00	0.045	0.035	32.0 - 38.0
	WPNIC10	B407, B514 B409	N08810	P PL	0.05-0.1	1.00	1.50		0.015	30.0 - 35.0
	WPNICMC	B423, B705 B424	N08825	P PL	0.050	0.50	1.00		0.030	38.0 - 46.0
	WP904L	B673, B677 B625	N08904	P PL	0.020	1.00	2.00	0.045	0.035	23.0 - 28.0
	WPHC276	B619, B622 B575	N10276	P PL	0.010	0.08	1.00	0.040	0.030	Remainder

- ASTERISKS (*) DENOTE THAT THE CARBON CONTENT SHALL BE 0.04 TO 0.10%.
- DAGGERS(+) DENOTE THAT MINIMUM TENSILE STRENGTH SHALL BE 65,000 PSI(488 MPA) AND THAT THE MINIMUM YIELD STRENGTH SHALL BE 25,000 PSI(172 MPA).

				TENSILE STRENGTH		YIELD STRENGTH		LONGITUDINAL ELONGATION IN 2 IN.(50MM)	MARKING SYMBOLS
				MIN, or RANGE					
Cr	Mo	Ti	OTHER ELEMENTS	KSI	MPA	KSI	MPA	%	
18.00 - 20.00	-	-	-	75	515	30	205	28	WP304
18.00 - 20.00	-	-	-	75	515	30	205	28	WP304H
18.00 - 20.00	-	-	-	70	485	25	170	28	WP304L
22.00 - 24.00	-	-	-	75	515	30	205	28	WP309
24.00 - 26.00	-	-	-	75	515	30	205	28	WP310S
16.00 - 18.00	2.00 - 3.00	-	-	75	515	30	205	28	WP316
16.00 - 18.00	2.00 - 3.00	-	-	75	515	30	205	28	WP316H
16.00 - 18.00	2.00 - 3.00	-	-	70	485	25	170	28	WP316L
16.00 - 18.00	3.00 - 4.00	-	-	75	515	30	205	28	WP317L
18.00 - 20.00	-	5 * (C+N ₂)-0.70	-	75	515	30	205	28	WP321
17.00 - 19.00	-	4 * (C+N ₂)-0.70	-	75	515	30	205	28	WP321H
17.00 - 19.00	-	-	Cb 10 * C min, 1.1 max	75	515	30	205	28	WP347
17.00 - 19.00	-	-	Cb 8 * C min, 1.1 max	75	515	30	205	28	WP347H
21.00 - 23.00	2.50 - 3.50	-	N 0.08 - 0.20	90	620	65	450	20	S31803
24.00 - 26.00	3.00 - 5.00	-	N 0.24 - 0.32 Cu 0.5	116-140	800-965	80	550	15	S32750
24.00 - 26.00	3.00 - 4.00	-	N 0.20-0.30 Cu 0.50-1.00 W 0.50-1.00 Cr+3.3 Mo+16N=40min.	109-130	750-895	80	550	25	S32760
22.00 - 23.00	3.00 - 3.50	-	N 0.14 - 0.20	95	655	65	450	20	S32205
	-	-	Cu 0.25, Fe 0.4	5"이하) 55 6"이상) 55	380 380	15 12	105 80	35 40	WPN
	-	-	Cu 28.0 - 34.0, Fe 2.5	5"이하) 70 6"이상) 70	480 480	28 25	195 170	35 35	WPNC
20.00 - 22.50	12.50 - 14.50	-	Fe 2.0-6.0, W 2.5-3.5, Co 2.5, V 0.35	100	690	45	310	45	WPHC22
20.00 - 23.00	8.00 - 10.00	0.40	Cb+Ta 3.15-4.15, Co 1.0, Fe 5.0, Al 0.4	120	827	60	414	30	WPNCMC
19.00 - 21.00	2.00 - 3.00	-	Cu 3.0-4.0, Nb+Ta 8*C-1.0, Fe-remainder	80	550	35	240	30	WP20CB
19.00 - 23.00	-	0.15 - 0.60	Fe 39.5, Cu 0.75, Al 0.15-0.60	65	450	25	170	30	WPNIC10
19.50 - 23.50	2.50 - 3.50	0.60 - 1.20	Fe 22.0min, Cu 1.5-3.0, Al 0.2	Hot) 75 Cold) 85	517 586	25 35	172 241	30 30	WPNICMC
19.00 - 23.00	4.00 - 5.00	-	Cu 1.0-2.0, Fe-remainder	71	490	31	220	35	WP904L
14.50 - 16.50	15.00 - 17.00	-	Fe 4.0-7.0, W 3.0-4.5, Co 2.5, V 0.35	100	690	41	283	40	WPHC276

- THE YIELD STRENGTH SHALL BE DETERMINED BY THE OFFSET METHOD AT 0.2% LIMITING PERMANENT SET IN ACCORDANCE WITH ASTM A370 SPECIFICATION. AN ALTERNATIVE METHOD OF DETERMINING YIELD STRENGTH MAY BE BASED ON A TOTAL EXTENSION UNDER LOAD OF 0.5%.
- THE BASIC MINIMUM ELONGATION FOR WALLS 3/16(7.94MM). AND OVER IN THICKNESS SHALL BE DETERMINED ACCORDING TO STRIP TESTS: ALL SMALL SIZES ARE TESTED IN THEIR FULL SECTION.
 - P DENOTES PIPE, PL DENOTES PLATE.

KS/JIS MATERIALS SPECIFICATIONS FOR BUTT – WELDING FITTINGS

MARKING SYMBOLS	JIS CODE NUMBER & MATERIALS	CHEMICAL COMPOSITION(%)						
		MAX. or Range(UNLESS OTHERWISE INDICATED)						
		C	Si	Mn	P	S	Ni	Cr
SUS304	G3459 SUS 304TP	0.08	1.00	2.00	0.045	0.030	8.00 - 11.00	18.00 - 20.00
SUS304H	SUS 304HTP	0.04 - 0.10	0.75	2.00	0.040	0.030	8.00 - 11.00	18.00 - 20.00
SUS304L	SUS 304LTP	0.03	1.00	2.00	0.045	0.030	9.00 - 13.00	18.00 - 20.00
SUS310S	SUS 310STP	0.08	1.50	2.00	0.040	0.030	19.00 - 22.00	24.00 - 26.00
SUS316	SUS 316TP	0.08	1.00	2.00	0.045	0.030	10.00 - 14.00	16.00 - 18.00
SUS316H	SUS 316HTP	0.04 - 0.10	0.75	2.00	0.030	0.030	11.00 - 14.00	16.00 - 18.00
SUS316L	SUS 316LTP	0.03	1.00	2.00	0.045	0.030	12.00 - 16.00	16.00 - 18.00
PL380	G3460 STPL 380	0.25	0.35	1.35	0.035	0.035	-	-
PL450	STPL 450	0.18	0.10 - 0.35	0.30 - 0.60	0.030	0.030	3.20 - 3.80	-
	G3101 SS400	-	-	-	0.050	0.050	-	-
SM400B	G3106 SM 400B	0.20	0.35	0.60 - 1.50	0.035	0.035	-	-
SM490B	SM 490B	0.18	0.55	1.65	0.035	0.035	-	-
SB410	G3103 SB 410	0.24	0.14 - 0.40	0.90	0.030	0.030	-	-
SB450	SB 450	0.28	0.15 - 0.40	0.90	0.030	0.030	-	-

		TENSILE STRENGTH		YIELD STRENGTH		LONGITUDINAL ELONGATION IN 2 IN.(50MM)		REDUCTION OF AREA	HARDNESS (HB)	MARKING SYMBOL
		MIN. or RANGE								
Mo	OTHER ELEMENTS	KSI	MPA	KSI	MPA	TEST PIECE NO	%			
-	-	75	520	30	205	11,12 5	35 25	-	-	SUS304
-	-	75	520	30	205	11,12 5	35 25	-	-	SUS304H
-	-	70	480	25	175	11,12 5	35 25	-	-	SUS304L
-	-	75	520	30	205	11,12 5	35 25	-	-	SUS310S
2.00 - 3.00	-	75	520	30	205	11,12 5	35 25	-	-	SUS316
2.00 - 3.00	-	75	520	30	205	11,12 5	35 25	-	-	SUS316H
2.00 - 3.00	-	70	480	25	175	11,12 5	35 25	-	-	SUS316L
-	-	55	380	30	205	11,12 5	35 25	-	-	PL380
-	-	65	450	36	245	11,12 5	30 20	-	-	PL450
-	-	58 - 74	400 - 510	36	245	5 1A	21 17	-	-	SS400
-	-	58 - 74	400 - 510	36	245	5 1A	23 18	-	-	SM400B
-	-	71 - 88	490 - 610	47	325	5 1A	22 17	-	-	SM490B
-	-	59 - 80	410 - 550	33	225	1A 10	21 25	-	-	SB410
-	-	65 - 86	450 - 590	36	245	1A 10	19 23	-	-	SB450

COMPARISON OF ASTM SPECIFICATION AND SIMILAR STANDARDS

STEEL COMPOSITION	ASTM SPECIFICATION AND GRADE				KS SPECIFICATION AND GRADE		
	MARKING SYMBOL	PIPE	PLATE	FORGING	MARKING SYMBOL	PIPE	PLATE
CARBON STEEL	-	A120	A283 - A	-	SPP	SPP	SB 41
	-	A53 - B	A284	-	PS38(W),PS38,PT38(W),PT38	SPPS38	SWS41B
	-	A53 - B	A284	-	PS42(W),PS42,PT42(W),PT42	SPPS42	SWS41B
	WPB	A106 - B	A515 - 60 or 70 A515 - 60 or 70	A105	HT38, HT38(W)	SPHT38	SBB42
	WPC	A106 - C	A515 - 70 A516 - 70	A105	HT42, HT42(W) HT49, HT49(W)	SPHT42 SPLT49	SBB42 SBB49
LOW TEMPERATURE STEEL	WPL 6	A333 AND A334 - 6	A516 - 60	A350 - LF2	PL 39	STPL 39	SLAL 39
	WPL 3	A333 AND 334 - 3	A203 - D	A350 - LF3	-	-	-
	WPL 9	A333 AND 334 - 9	A203 - A	A350 - LF9	-	-	-
ALLOY STEEL	WP 1	A335 - P1	A204 - B	A182 - F1	PA 12, FA 12	SPA12	SBB46M
	WP 12	A335 - P12	A387 - 12	A182 - F12	PA 22, FA 22	SPA22	SCMV2
	WP 11	A335 - P11	A387 - 11	A182 - F11	PA 23, FA 23	SPA23	SCMV3
	WP 22	A335 - P22	A387 - 22	A182 - F22	PA 24, FA 24	SPA24	SCMV4
	WP 5	A335 - P5	A387 - 5	A182 - F5	PA 25, FA 25	SPA25	SCMV6
	WP 7	A335 - P7	A387 - 7	A182 - F7	-	-	-
	WP 9	A335 - P9	A387 - 9	A182 - F9	-	-	-
	WP 91	A335 - P91	A387 - P91	A182 - F91	-	-	-
STAINLESS STEEL	WP304	A312 - TP304	A240 - Type 304	A182 - F304	STS304, STS304W, STS304F	STS304TP	STS304
	WP304H	A312 - TP304H	A240 - Type 304H	A182 - F304H	-	-	-
	WP304L	A312 - TP304L	A240 - Type 304L	A182 - F304L	STS304L, STS304LW, STS304LF	STS304LTP	STS304L
	WP309	A312 - TP309	A240 - Type 309S	-	STS309S, STS309SW, STS309SF	STS309STP	STS309S
	WP310	A312 - TP310	A240 - Type 310S	A182 - F310	STS310S, STS310SW, STS310SF	STS310STP	STS310S
	WP316	A312 - TP316	A240 - Type 316	A182 - F316	STS316, STS316W, STS316F	STS316TP	STS316
	WP316H	A312 - TP316H	A240 - Type 316H	A182 - F316H	STS316H, STS316HF	STS316HTP	-
	WP316L	A312 - TP316L	A240 - Type 316L	A182 - F316L	STS316L, STS316LW, STS316LF	STS316LTP	STS316L
	WP317L	A312 - TP317L	A240 - Type 317L	A182 - F317L	STS317L, STS317LW	STS317LTP	STS317L
	WP321	A312 - TP321	A240 - Type 321	A182 - F321	STS321, STS321W, STS321F	STS321TP	STS321
	WP321H	A312 - TP321H	A240 - Type 321H	A182 - F321H	-	-	-
	WP347	A312 - TP347	A240 - Type 347	A182 - F347	STS347, STS347W, STS347F	STS347TP	STS347
	WP347H	A312 - TP347H	A240 - Type 347H	A182 - F347H	STS347H, STS347HF	STS347HTP	-

JIS SPECIFICATION AND GRADE			B.S SPECIFICATION AND GRADE	DIN SPECIFICATION AND GRADE	STEEL COMPOSITION
MARKING SYMBOL	PIPE	PLATE	PIPE	PIPE	
FSGP or SGP	SGP(STPY400)	SS400	1387 - M	2440 - ST33 - 1	Carbon Steel
PG370(W),PS370(W),PT370(W),PT370	STPG370	SM41B	3602 - ERW 23	1626 - ST37	Carbon Steel
PG410(W),PS410(W),PT410(W),PT410	STPG410	SM41B	3602 - ERW 27	-	Carbon Steel
PS 370, PT370(W)	STPT370	SB42	3602 - Steel 23	17175 - ST35.8	Carbon Steel
PS 410, PT410(W)	STPT410	SB42	3602 - Steel 27	17175 - ST45.8	Carbon Steel
PS 480, PT480(W)	STPT480	SB49	3602 - Steel 35	-	Carbon Steel
PL380 (W)	STPL380	-	3603 - Steel 27 LT 30	-	Carbon Steel
PL450 (W)	STPL450	-	3603 - Steel 503 LT 100	-	3 1/2 % Ni Steel
PL690 (W)	STPL690	-	-	-	2% Ni - 1% Cu Steel
PA12(W), FA 12	STPA12	-	-	17175 - 15 Mo3	Carbon Molybdenum Steel
PA22(W), FA 22	STPA22	-	3603 - HF620	17175 - 13 Cr Mo44	1% Cr - 1/2 % Molybdenum Steel
PA23(W), FA 23	STPA23	-	3603 - HF621	-	1 1/4 % Cr - 1/2 % Molybdenum Steel
PA24(W), FA 24	STPA24	SCMV4	3603 - HF622.27	17175 - 10 Cr Mo910	2 1/4 % Cr - 1% Molybdenum Steel
PA25(W), FA 25	STPA25	-	3603 - HF625	-	5% Cr - 1/2 % Molybdenum Steel
	-	-	-	-	7% Cr - 1/2 % Molybdenum Steel
PA26(W), 26 FA	STPA26	-	-	-	9% Cr - 1% Molybdenum Steel
	-	-	-	-	9% Cr - 1% Mo - 0.2% V+cb+N
SUS304, SUS304W, SUS304F	SUS304TP	SUS304	3605 - 801	17440 - X5 Cr Ni189	18% Cr - 8% Ni Steel
SUS304H, SUS304HF	SUS304HTP	-	3605 - 811	-	18% Cr - 8% Ni - (0.04 - 0.10)% C Steel
SUS304L, SUS304LW	SUS304LTP	SUS304L	3605 - 811L	17440 - X2 Cr Ni189	18% Ni - 0.035% C Steel
SUS309S, SUS309SW, SUS309SF	SUS309STP	SUS309S	-	-	22% Cr - 12% Ni Steel
SUS310S, SUS310SW, SUS310SF	SUS310STP	SUS310S	3605 - 805S	-	25% Cr - 20% Ni Steel
SUS316, SUS316W, SUS316F	SUS316TP	SUS316	3605 - 845	17440 - X5 Cr Ni Mo1810	18% Cr - 8% Ni - Mo Steel
SUS316H, SUS316HF	SUS316HTP	-	3605 - 855	-	18% Cr - 8% Ni - Mo(0.04 - 0.10)% C Steel
SUS316L, SUS316L	SUS316LTP	SUS316L	3605 - 845L	17440 - X2 Cr Ni Mo1810	18% Cr - 8% Ni - Mo - 0.035% C Steel
SUS317L	SUS317LTP	SUS317L	-	-	18% Cr - 12% Ni - 3.5% Mo - Low C
SUS321, SUS321W, SUS321F	SUS321TP	SUS321	3605 - 822Ti	17440 - X10 Cr Ni Ti189	18% Cr - 8% Ni - Ti Steel
SUS321H, SUS321HF	SUS321HTP	-	3605 - 832Ti	-	18% Cr - 8% Ni - Ti - (0.04-0.10)% C Steel
SUS347, SUS347W, SUS347F	SUS347TP	SUS347	3605 - 822Nb	17440 - X1 Cr Ni Nb189	18% Cr - 8% Ni - Cb+Ta Steel
SUS347H, SUS347HF	SUS347HTP	-	3605 - 832Nb	-	18% Cr - 8% Ni - Cb - Ta(0.04+0.10)% C Steel

WALL THICKNESS OF WELDED AND SEAMLESS PIPE

ASME B36.10

NOMINAL PIPE SIZE		OUTSIDE DIAMETER		NOMINAL WALL THICKNESS							
INCH (B)	MM (A)	KS (JIS)	ASME	SPP (SGP)	SCH 5S	SCH 10S	SCH 10	SCH 20S	SCH 20	SCH 30	SCH 40S
1/8	6	10.50	10.29	-	-	1.24	-	1.5	-	-	1.73
1/4	8	13.80	13.72	-	-	1.65	-	2.0	-	-	2.24
3/8	10	17.30	17.14	-	-	1.65	-	2.0	-	-	2.31
1/2	15	21.70	21.34	2.8	1.65	2.11	-	2.5	-	-	2.77
3/4	20	27.20	26.67	2.8	1.65	2.11	-	2.5	-	-	2.87
1	25	34.00	33.40	3.2	1.65	2.77	-	3.0	-	-	3.38
1 1/4	32	42.70	42.16	3.5	1.65	2.77	-	3.0	-	-	3.56
1 1/2	40	48.60	48.26	3.5	1.65	2.77	-	3.0	-	-	3.68
2	50	60.50	60.32	3.8	1.65	2.77	-	3.5	-	-	3.91
2 1/2	65	76.30	73.02	4.2	2.11	3.05	-	3.5	-	-	5.16
3	80	89.10	88.90	4.2	2.11	3.05	-	4.0	-	-	5.49
3 1/2	90	101.60	101.60	4.2	2.11	3.05	-	4.0	-	-	5.74
4	100	114.30	114.30	4.5	2.11	3.05	-	4.0	-	-	6.02
5	125	139.80	141.30	4.5	2.77	3.40	-	5.0	-	-	6.55
6	150	165.20	168.30	5.0	2.77	3.40	-	5.0	-	-	7.11
8	200	216.30	219.08	5.8	2.77	3.76	-	6.5	6.35	7.04	8.18
10	250	267.40	273.05	6.6	3.40	4.19	-	6.5	6.35	7.80	9.27
12	300	318.50	323.80	6.9	3.96	4.57	-	6.5	6.35	8.38	9.52
14	350	355.60	355.60	7.9	3.96	4.78	6.35	8.0	7.92	9.52	* 9.52
16	400	406.40	406.40	7.9	4.19	4.78	6.35	8.0	7.92	9.52	* 9.52
18	450	457.20	457.20	7.9	4.19	4.78	6.35	8.0	7.92	11.12	* 9.52
20	500	508.00	508.00	7.9	4.78	5.54	6.35	9.5	9.52	12.70	* 9.52
22	550	558.80	558.80	-	4.78	5.54	6.35	-	9.52	12.70	* 9.52
24	600	609.60	609.60	-	5.54	6.35	6.35	-	9.52	14.27	* 9.52
26	650	660.40	660.40	-	-	* 7.92	7.92	-	12.70	-	* 9.52
28	700	711.20	711.20	-	-	* 7.92	7.92	-	12.70	15.88	* 9.52
30	750	762.00	762.00	-	6.35	* 7.92	7.92	-	12.70	15.88	* 9.52
32	800	812.80	812.80	-	-	* 7.92	7.92	-	12.70	15.88	* 9.52
34	850	863.60	863.60	-	-	* 7.92	7.92	-	12.70	15.88	* 9.52
36	900	914.40	914.40	-	-	* 7.92	7.92	-	12.70	15.88	* 9.52
38	950	965.20	965.20	-	-	* 7.92	-	-	-	-	* 9.52
40	1000	1016.00	1016.00	-	-	* 7.92	-	-	-	-	* 9.52
42	1050	1066.80	1066.80	-	-	* 7.92	-	-	-	-	* 9.52
44	1100	1117.60	1117.60	-	-	* 7.92	-	-	-	-	* 9.52
46	1150	1168.40	1168.40	-	-	* 7.92	-	-	-	-	* 9.52
48	1200	1219.20	1219.20	-	-	* 7.92	-	-	-	-	* 9.52

• DIMENSIONS TO BE CONFORM TO KS TO JIS ASTM SPECIFICATIONS.

• ASTERISKS(*) DENOTE DAE KYUNG STANDARDS AS NO INTERNATIONALLY RECOGNIZED STANDARDS FOR THESE THICKNESS WALL HAVE BEEN ESTABLISHED.

(T)											NOMINAL PIPE SIZE
STD	SCH 40	SCH 60	SCH 80S	X-5	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	XX-5	
1.73	1.73	2.20	2.41	2.41	2.41	-	-	-	3.15	4.83	1/8
2.24	2.24	2.40	3.02	3.02	3.02	-	-	-	3.68	6.05	1/4
2.31	2.31	2.80	3.20	3.20	3.20	-	-	-	4.01	6.40	3/8
2.77	2.77	3.20	3.73	3.73	3.73	-	-	-	4.78	7.47	1/2
2.87	2.87	3.40	3.91	3.91	3.91	-	-	-	5.56	7.82	3/4
3.38	3.38	3.90	4.55	4.55	4.55	-	-	-	6.35	9.09	1
3.56	3.56	4.50	4.85	4.85	4.85	-	-	-	6.35	9.70	1 1/4
3.68	3.68	4.50	5.08	5.08	5.08	-	-	-	7.14	10.16	1 1/2
3.91	3.91	4.90	5.54	5.54	5.54	-	-	-	8.74	11.07	2
5.16	5.16	6.00	7.01	7.01	7.01	-	-	-	9.52	14.02	2 1/2
5.49	5.49	6.60	7.62	7.62	7.62	-	-	-	11.12	15.24	3
5.74	5.74	7.00	8.08	8.08	8.08	-	-	-	-	-	3 1/2
6.02	6.02	7.10	8.56	8.56	8.56	-	11.12	-	13.49	17.12	4
6.55	6.55	8.10	9.53	9.53	9.53	-	12.70	-	15.88	19.05	5
7.11	7.11	9.30	10.97	10.97	10.97	-	14.27	-	18.26	21.94	6
8.18	8.18	10.31	12.70	12.70	12.70	15.09	18.26	20.62	23.01	22.22	8
9.27	9.27	12.70	12.70	12.70	15.09	18.26	21.44	25.40	28.58	25.40	10
9.52	10.31	14.27	12.70	12.70	17.48	21.44	25.40	28.58	33.32	25.40	12
9.52	11.13	15.09	* 12.70	12.70	19.05	23.83	27.79	31.75	35.71	-	14
9.52	12.70	16.66	* 12.70	12.70	21.44	26.19	30.96	36.52	40.49	-	16
9.52	14.27	19.05	* 12.70	12.70	23.82	29.36	34.92	39.67	45.24	-	18
9.52	15.09	20.62	* 12.70	12.70	26.19	32.54	38.10	44.45	50.01	-	20
9.52	-	22.22	* 12.70	12.70	28.58	34.92	41.28	47.62	53.98	-	22
9.52	17.48	24.61	* 12.70	12.70	30.96	38.89	46.02	52.37	59.54	-	24
9.52	-	-	* 12.70	12.70	-	-	-	-	-	-	26
9.52	-	-	* 12.70	12.70	-	-	-	-	-	-	28
9.52	-	-	* 12.70	12.70	-	-	-	-	-	-	30
9.52	17.48	-	* 12.70	12.70	-	-	-	-	-	-	32
9.52	17.48	-	* 12.70	12.70	-	-	-	-	-	-	34
9.52	19.05	-	* 12.70	12.70	-	-	-	-	-	-	36
9.52	-	-	* 12.70	12.70	-	-	-	-	-	-	38
9.52	-	-	* 12.70	12.70	-	-	-	-	-	-	40
9.52	-	-	* 12.70	12.70	-	-	-	-	-	-	42
9.52	-	-	* 12.70	12.70	-	-	-	-	-	-	44
9.52	-	-	* 12.70	12.70	-	-	-	-	-	-	46
9.52	-	-	* 12.70	12.70	-	-	-	-	-	-	48

BUTT-WELDING FITTINGS APPROX WEIGHT

• 90° ELBOW

UNIT : kg

Nominal Pipe Size	Long							Short						
	SGP	STD	S 40	X - S	S 80	XX - S	S 160	SGP	STD	S 40	X - S	S 80	XX - S	S 160
1/2	0.08	0.08	0.08	0.10	0.10	0.15	0.12	-	-	-	-	-	-	-
3/4	0.10	0.11	0.11	0.14	0.14	0.22	0.13	-	-	-	-	-	-	-
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	0.22	0.17
1 1/4	0.26	0.26	0.26	0.35	0.35	0.64	0.42	0.17	0.18	0.18	0.23	0.23	0.39	0.28
1 1/2	0.35	0.37	0.37	0.50	0.50	0.93	0.65	0.24	0.25	0.25	0.33	0.33	0.57	0.43
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 1/2	1.12	1.29	1.29	1.79	1.79	3.43	2.33	0.75	0.91	0.91	1.19	1.19	2.19	1.46
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
4	2.91	3.84	3.84	5.36	5.36	10.20	8.02	1.94	2.56	2.56	3.58	3.58	6.79	5.35
5	4.49	6.48	6.48	9.13	9.13	17.60	14.70	2.99	4.32	4.32	6.09	6.09	11.80	9.79
6	7.09	9.94	9.94	15.00	15.00	29.10	24.20	4.73	6.63	6.63	10.00	10.00	19.50	16.20
8	14.40	20.10	20.10	30.50	30.50	51.40	53.20	9.61	13.40	13.40	20.30	20.30	34.30	35.50
10	25.40	35.40	35.40	57.00	57.00	92.80	103.00	16.90	23.60	23.60	31.80	38.00	61.00	68.60
12	38.10	52.00	57.00	94.00	68.70	134.00	171.00	25.40	34.60	38.00	45.80	63.00	89.50	114.00
14	56.70	67.90	79.10	133.00	89.90	-	236.00	37.80	45.30	53.00	60.00	89.00	-	158.00
16	74.30	89.00	118.00	195.00	195.00	-	350.00	49.50	59.10	79.00	78.30	130.00	-	234.00
18	94.20	113.00	169.00	275.00	275.00	-	495.00	62.80	75.30	113.00	99.90	183.00	-	330.00
20	116.00	140.00	220.00	373.00	373.00	-	676.00	77.70	93.10	147.00	124.00	249.00	-	451.00
22	141.00	169.00	267.00	493.00	493.00	-	886.00	94.10	113.00	178.00	150.00	329.00	-	591.00
24	168.00	202.00	366.00	636.00	636.00	-	1160.00	112.00	135.00	244.00	179.00	424.00	-	773.00
26	198.00	237.00	430.00	315.00	-	-	-	132.00	158.00	287.00	210.00	-	-	-
28	230.00	276.00	500.00	367.00	-	-	-	154.00	184.00	334.00	245.00	-	-	-
30	264.00	316.00	575.00	421.00	-	-	-	176.00	211.00	383.00	281.00	-	-	-
32	301.00	361.00	654.00	480.00	-	-	-	201.00	241.00	436.00	320.00	-	-	-
34	340.00	408.00	739.00	543.00	-	-	-	227.00	272.00	493.00	362.00	-	-	-
36	380.00	457.00	904.00	608.00	-	-	-	253.00	304.00	603.00	405.00	-	-	-
38	425.00	510.00	-	679.00	-	-	-	283.00	340.00	-	453.00	-	-	-
40	471.00	565.00	-	753.00	-	-	-	314.00	377.00	-	502.00	-	-	-
42	518.00	622.00	-	828.00	-	-	-	346.00	416.00	-	554.00	-	-	-
44	570.00	684.00	-	912.00	-	-	-	380.00	456.00	-	608.00	-	-	-
46	623.00	748.00	-	997.00	-	-	-	415.00	499.00	-	665.00	-	-	-
48	677.00	814.00	-	1085.00	-	-	-	452.00	543.00	-	724.00	-	-	-
50	735.00	884.00	-	1178.00	-	-	-	490.00	589.00	-	786.00	-	-	-
52	796.00	956.00	-	1305.00	-	-	-	530.00	637.00	-	870.00	-	-	-
54	857.00	1031.00	-	1375.00	-	-	-	572.00	688.00	-	917.00	-	-	-
56	926.00	1109.00	-	1480.00	-	-	-	616.00	740.00	-	976.00	-	-	-
58	991.00	1190.00	-	1588.00	-	-	-	661.00	794.00	-	1059.00	-	-	-
60	1060.00	1274.00	-	1700.00	-	-	-	707.00	849.00	-	1133.00	-	-	-

• 45° ELBOW

UNIT : kg

Nominal Pipe Size	Long						
	SGP	STD	S40	X - S	S80	XX - S	S160
1/2	0.04	0.04	0.04	0.05	0.05	-	-
3/4	0.05	0.06	0.06	0.07	0.07	-	-
1	0.08	0.08	0.08	0.10	0.10	0.18	0.13
1 1/4	0.13	0.13	0.13	0.18	0.18	0.32	0.21
1 1/2	0.18	0.19	0.19	0.25	0.25	0.47	0.33
2	0.32	0.33	0.33	0.45	0.45	0.85	0.67
2 1/2	0.60	0.69	0.69	0.90	0.90	1.72	1.17
3	0.79	1.02	1.02	1.37	1.37	2.63	1.92
4	1.46	1.92	1.92	2.68	2.68	5.09	4.01
5	2.25	3.24	3.24	4.57	4.57	8.80	7.35
6	3.55	4.97	4.97	7.50	7.50	1.72	12.10
8	7.20	10.10	10.10	15.30	15.30	2.63	26.60
10	12.70	17.70	17.70	23.90	28.50	5.09	51.50
12	19.00	26.00	28.50	34.40	47.00	8.80	85.50
14	28.40	34.00	40.10	45.00	66.50	14.50	118.00
16	37.20	44.50	59.00	59.00	97.50	25.70	175.00
18	47.10	56.50	84.50	75.50	138.00	41.00	247.00
20	58.30	70.00	110.00	93.00	187.00	65.00	338.00
22	70.50	84.50	-	113.00	257.00	-	443.00
24	84.10	101.00	183.00	134.00	318.00	-	580.00
26	99.00	119.00	-	158.00	-	-	-
28	115.00	138.00	-	184.00	-	-	-
30	132.00	158.00	-	211.00	-	-	-
32	150.00	180.00	327.00	240.00	-	-	-
34	170.00	204.00	369.00	272.00	-	-	-
36	190.00	228.00	452.00	304.00	-	-	-
38	212.00	255.00	-	339.00	-	-	-
40	235.00	282.00	-	376.00	-	-	-
42	259.00	311.00	-	414.00	-	-	-
44	285.00	342.00	-	456.00	-	-	-
46	312.00	374.00	-	498.00	-	-	-
48	339.00	407.00	-	542.00	-	-	-

• CAP

UNIT : kg

Nominal Pipe Size	SGP	STD	S40	X - S	S80	XX - S	S160
1/2	0.03	0.04	0.04	0.05	0.05	0.10	0.05
3/4	0.04	0.05	0.05	0.07	0.07	0.13	0.09
1	0.08	0.11	0.11	0.15	0.15	0.29	0.20
1 1/4	0.11	0.14	0.14	0.20	0.20	0.39	0.25
1 1/2	0.15	0.17	0.17	0.24	0.24	0.50	0.35
2	0.23	0.24	0.24	0.33	0.33	0.68	0.54
2 1/2	0.34	0.42	0.42	0.57	0.57	1.33	0.77
3	0.51	0.67	0.67	0.92	0.92	2.18	1.40
4	0.88	1.17	1.17	1.68	1.68	3.80	2.76
5	1.29	1.90	1.90	2.73	2.73	6.22	4.85
6	1.99	2.83	2.83	4.38	4.38	9.85	7.81
8	3.61	5.11	5.11	7.91	7.91	16.40	15.20
10	6.33	8.92	8.92	12.20	16.40	28.35	28.90
12	9.43	13.10	13.10	17.40	26.40	39.40	47.70
14	13.20	15.90	18.60	21.20	34.90	-	61.20
16	16.60	20.00	26.70	26.70	49.00	-	92.80
18	21.20	25.50	41.50	34.10	69.00	-	131.00
20	26.40	31.80	54.10	42.50	93.70	-	179.00
22	31.50	38.80	61.40	51.70	116.00	-	219.00
24	36.60	45.10	90.10	60.10	160.00	-	307.00
26	41.00	50.50	92.30	67.30	-	-	-
28	45.50	56.20	103.00	74.90	-	-	-
30	50.30	62.10	114.00	82.80	-	-	-
32	55.40	68.40	126.00	91.20	-	-	-
34	62.30	75.40	138.00	100.00	-	-	-
36	68.00	81.90	164.00	109.00	-	-	-
38	79.00	94.70	-	126.00	-	-	-
40	95.00	102.00	-	137.00	-	-	-
42	98.00	110.00	-	147.00	-	-	-
44	103.00	126.00	-	167.00	-	-	-
46	111.00	134.00	-	179.00	-	-	-
48	118.00	143.00	-	191.00	-	-	-

BUTT-WELDING FITTINGS APPROX WEIGHT

• TEE

UNIT : kg

NOMINAL PIPE SIZE	SGP	STD	S40	X - S	S80	XX - S	S160
1/2 × 1/2	0.09	0.09	0.09	0.11	0.11	0.17	0.12
3/4 × 3/4	0.13	0.13	0.13	0.17	0.17	0.26	0.21
3/4 × 1/2	0.12	0.12	0.12	0.16	0.16	0.24	0.19
1 × 1	0.24	0.25	0.25	0.32	0.32	0.53	0.41
1 × 3/4	0.23	0.24	0.24	0.30	0.30	0.49	0.38
1 × 1/2	0.22	0.23	0.23	0.29	0.29	0.47	0.37
1 1/4 × 1 1/4	0.42	0.43	0.43	0.56	0.56	0.95	0.69
1 1/4 × 1	0.39	0.40	0.40	0.53	0.53	0.89	0.65
1 1/4 × 3/4	0.37	0.37	0.37	0.48	0.48	0.84	0.62
1 1/4 × 1/2	0.36	0.36	0.36	0.47	0.47	0.81	0.59
1 1/2 × 1 1/2	0.58	0.61	0.61	0.81	0.81	1.40	1.07
1 1/2 × 1 1/4	0.56	0.59	0.59	0.78	0.78	1.35	1.01
1 1/2 × 1	0.53	0.56	0.56	0.74	0.74	1.28	0.97
1 1/2 × 3/4	0.51	0.53	0.53	0.70	0.70	1.21	0.92
1 1/2 × 1/2	0.49	0.51	0.51	0.67	0.67	1.17	0.90
2 × 2	0.86	0.88	0.88	1.20	1.20	2.16	1.78
2 × 2 1/2	0.80	0.82	0.82	1.11	1.11	2.00	1.63
2 × 1 1/4	0.77	0.79	0.79	1.07	1.07	1.91	1.56
2 × 1	0.73	0.74	0.75	1.01	1.01	1.81	1.50
2 × 1 3/4	0.70	0.71	0.71	0.98	0.98	1.76	1.45
2 1/2 × 2 1/2	1.42	1.74	1.74	2.28	2.28	3.92	2.86
2 1/2 × 2	1.31	1.56	1.56	2.06	2.06	3.56	2.64
2 1/2 × 1 1/2	1.25	1.51	1.51	1.98	1.98	3.40	2.48
2 1/2 × 1 1/4	1.22	1.48	1.48	1.94	1.94	3.32	2.42
2 1/2 × 1	1.18	1.36	1.36	1.80	1.80	3.22	2.36
3 × 3	1.87	2.41	2.41	3.25	3.25	5.90	4.55
3 × 2 1/2	1.79	2.29	2.29	3.07	3.07	5.53	4.23
3 × 2	1.68	2.12	2.12	2.85	2.85	5.18	4.02
3 × 1 1/2	1.62	2.06	2.06	2.77	2.77	5.03	3.87
3 × 1 1/4	1.60	2.02	2.02	2.74	2.74	4.95	3.80
4 × 4	3.13	4.12	4.12	5.77	5.77	10.60	8.50
4 × 3	2.92	3.83	3.83	5.33	5.22	9.76	7.92
4 × 2 1/2	2.84	3.71	3.71	5.15	5.15	9.39	7.56
4 × 2	2.72	3.53	3.53	4.4	4.94	9.02	7.34
4 × 1 1/2	2.66	3.48	3.48	4.83	4.83	8.87	7.23
5 × 5	4.53	6.54	6.54	9.20	9.20	17.30	14.80
5 × 4	4.30	6.13	6.13	8.63	8.63	16.10	13.70
5 × 3	4.08	5.83	5.83	8.19	8.19	15.30	13.00
5 × 2 1/2	4.00	5.71	5.71	8.01	8.01	15.00	12.80
5 × 2	3.90	5.58	5.58	7.92	7.92	14.70	12.50
6 × 6	6.84	9.58	9.58	14.50	14.00	27.20	23.30
6 × 5	6.45	9.08	9.08	13.60	13.60	25.60	21.90
6 × 4	6.23	8.67	8.67	13.00	13.00	24.50	20.90
6 × 3	6.01	8.38	8.38	12.60	12.60	23.70	20.10
6 × 2 1/2	5.92	8.36	8.36	12.50	12.50	23.30	19.80
8 × 8	12.80	17.90	17.90	27.10	27.10	45.70	47.20
8 × 6	11.90	16.60	16.60	25.20	25.20	43.00	43.50
8 × 5	11.50	16.10	16.10	24.30	24.30	41.40	42.10
8 × 4	11.30	15.70	15.70	23.70	23.70	41.00	40.30
10 × 10	21.80	30.40	30.40	41.00	49.00	79.20	80.00
10 × 8	20.40	28.50	28.50	38.90	45.80	54.40	81.40
10 × 6	19.50	27.20	27.20	37.00	43.90	71.50	78.50
10 × 5	19.20	26.80	26.80	36.20	43.10	70.00	77.00
10 × 4	18.90	26.80	26.80	36.20	42.50	68.90	76.30
12 × 12	32.00	43.60	48.70	57.70	79.20	113.00	143.00
12 × 10	30.40	41.60	45.30	55.20	74.80	107.00	135.00
12 × 8	29.00	39.70	42.50	53.10	71.40	102.00	128.00
12 × 6	28.10	38.40	42.00	51.20	69.50	100.00	125.00
12 × 5	27.80	38.70	41.70	51.20	68.70	98.30	124.00
14 × 14	44.70	53.50	62.40	70.90	104.00	-	186.00
14 × 12	42.70	51.90	60.20	68.80	100.00	-	179.00
14 × 10	41.20	49.90	57.60	66.30	95.90	-	174.00
14 × 8	40.00	48.20	55.80	64.50	92.90	-	168.00
14 × 6	39.00	47.10	54.50	62.60	91.00	-	164.00
16 × 16	55.20	66.10	88.00	87.70	145.00	-	260.00
16 × 14	54.20	64.90	86.00	86.10	140.00	-	255.00
16 × 12	52.70	63.10	84.00	83.60	136.00	-	248.00
16 × 10	51.20	61.30	82.00	81.20	132.00	-	241.00
16 × 8	49.40	59.80	79.00	80.00	129.00	-	235.00
16 × 6	48.50	58.50	77.00	77.80	127.00	-	230.00

NOMINAL PIPE SIZE	SGP	STD	S40	X - S	S80	XX - S	S160
18 × 18	70.00	83.90	125.00	111.00	204.00	-	356.00
18 × 16	67.90	81.40	121.00	108.00	197.00	-	352.00
18 × 14	66.90	80.20	119.00	106.00	194.00	-	344.00
18 × 12	65.40	78.30	117.00	104.00	189.00	-	337.00
18 × 10	63.40	76.90	114.00	102.00	186.00	-	329.00
20 × 20	86.60	104.00	163.00	138.00	277.00	-	502.00
20 × 18	84.20	101.00	158.00	134.00	268.00	-	488.00
20 × 16	82.10	98.40	154.00	131.00	262.00	-	475.00
20 × 14	81.10	97.20	152.00	129.00	258.00	-	469.00
20 × 12	79.20	96.00	150.00	127.00	254.00	-	462.00
20 × 10	77.60	94.00	147.00	125.00	250.00	-	452.00
20 × 8	76.30	92.10	145.00	123.00	245.00	-	444.00
22 × 22	106.00	126.00	198.00	167.00	365.00	-	657.00
22 × 20	103.00	123.00	193.00	163.00	356.00	-	640.00
22 × 18	101.00	120.00	188.00	159.00	347.00	-	624.00
22 × 16	98.90	117.00	183.00	156.00	340.00	-	610.00
24 × 24	116.00	139.00	252.00	185.00	438.00	-	800.00
24 × 22	115.00	138.00	249.00	183.00	432.00	-	790.00
24 × 20	114.00	136.00	247.00	181.00	427.00	-	782.00
24 × 18	111.00	133.00	241.00	177.00	418.00	-	764.00
26 × 26	147.00	176.00	319.00	234.00	-	-	-
26 × 24	144.00	172.00	312.00	229.00	-	-	-
26 × 22	141.00	169.00	308.00	225.00	-	-	-
26 × 20	138.00	166.00	302.00	221.00	-	-	-
28 × 28	165.00	198.00	359.00	264.00	-	-	-
28 × 26	163.00	197.00	356.00	261.00	-	-	-
28 × 24	160.00	193.00	350.00	256.00	-	-	-
28 × 22	157.00	190.00	347.00	252.00	-	-	-
30 × 30	190.00	228.00	414.00	304.00	-	-	-
30 × 28	188.00	226.00	406.00	301.00	-	-	-
30 × 26	185.00	222.00	356.00	396.00	-	-	-
30 × 24	182.00	218.00	350.00	291.00	-	-	-
32 × 32	217.00	259.00	474.00	347.00	-	-	-
32 × 30	213.00	256.00	466.00	341.00	-	-	-
32 × 28	209.00	252.00	458.00	335.00	-	-	-
32 × 26	208.00	250.00	455.00	333.00	-	-	-
34 × 34	246.00	295.00	535.00	393.00	-	-	-
34 × 32	243.00	292.00	526.00	389.00	-	-	-
34 × 30	238.00	290.00	518.00	380.00	-	-	-
34 × 28	236.00	288.00	511.00	377.00	-	-	-
36 × 36	276.00	331.00	656.00	441.00	-	-	-
36 × 34	271.00	329.00	645.00	434.00	-	-	-
36 × 32	269.00	326.00	636.00	431.00	-	-	-
36 × 30	264.00	323.00	627.00	422.00	-	-	-
38 × 38	308.00	370.00	-	493.00	-	-	-
38 × 36	306.00	367.00	-	489.00	-	-	-
38 × 34	302.00	362.00	-	481.00	-	-	-
38 × 32	298.00	357.00	-	476.00	-	-	-
40 × 40	342.00	411.00	-	547.00	-	-	-
40 × 38	340.00	408.00	-	543.00	-	-	-
40 × 36	335.00	402.00	-	536.00	-	-	-
40 × 34	331.00	397.00	-	529.00	-	-	-
42 × 42	352.00	422.00	-	562.00	-	-	-
42 × 40	350.00	420.00	-	559.00	-	-	-
42 × 38	348.00	418.00	-	557.00	-	-	-
42 × 36	346.00	416.00	-	554.00	-	-	-
44 × 44	396.00	475.00	-	633.00	-	-	-
44 × 42	394.00	473.00	-	630.00	-	-	-
44 × 40	389.00	467.00	-	623.00	-	-	-
44 × 38	385.00	462.00	-	616.00	-	-	-
46 × 46	434.00	521.00	-	695.00	-	-	-
46 × 44	432.00	519.00	-	691.00	-	-	-
46 × 42	427.00	513.00	-	683.00	-	-	-
46 × 40	423.00	507.00	-	676.00	-	-	-
48 × 48	474.00	569.00	-	759.00	-	-	-
48 × 46	472.00	566.00	-	755.00	-	-	-
48 × 44	470.00	564.00	-	751.00	-	-	-
48 × 42	462.00	555.00	-	739.00	-	-	-

BUTT-WELDING FITTINGS APPROX WEIGHT

• REDUCER

UNIT : kg

NOMINAL PIPE SIZE	SGP	STD	S40	X - S	S80	XX - S	S160
3/4 × 1/2	0.06	0.06	0.06	0.08	0.08	-	-
1 × 3/4	0.11	0.12	0.12	0.15	0.15	0.25	0.19
1 × 1/2	0.10	0.11	0.11	0.14	0.14	0.22	0.17
1 1/2 × 1	0.16	0.16	0.16	0.21	0.21	0.35	0.25
1 1/4 × 3/4	0.15	0.15	0.15	0.19	0.19	0.31	0.23
1 1/4 × 1/2	0.13	0.14	0.14	0.18	0.18	-	-
1 1/2 × 1 3/4	0.24	0.25	0.25	0.33	0.33	0.57	0.43
1 1/2 × 1	0.21	0.22	0.22	0.30	0.30	0.50	0.38
1 1/2 × 1 3/4	0.20	0.21	0.21	0.27	0.27	0.45	0.35
1 1/2 × 1/2	0.18	0.18	0.18	0.24	0.24	0.40	0.32
2 × 1 1/2	0.37	0.38	0.38	0.51	0.51	0.91	0.75
2 × 1 1/4	0.35	0.36	0.36	0.48	0.48	0.85	0.70
2 × 1	0.31	0.33	0.33	0.44	0.44	0.77	0.64
2 × 3/4	0.29	0.30	0.30	0.40	0.40	0.69	0.58
2 1/2 × 2	0.60	0.73	0.73	0.95	0.95	1.68	1.20
2 1/2 × 2 1/2	0.55	0.67	0.67	0.87	0.87	1.51	1.08
2 1/2 × 1 1/4	0.52	0.64	0.64	0.83	0.83	1.42	1.02
2 1/2 × 1	0.48	0.56	0.56	0.73	0.73	1.23	0.93
3 1/2 × 2 1/2	0.73	0.94	0.94	1.25	1.25	2.25	1.71
3 × 2	0.66	0.85	0.85	1.13	1.13	2.01	1.57
3 × 1 1/2	0.62	0.79	0.79	1.04	1.04	1.83	1.44
3 × 1 1/4	0.59	0.75	0.75	1.00	1.00	1.74	1.37
4 × 3	1.10	1.45	1.45	2.02	2.02	3.65	3.00
4 × 2 1/2	1.04	1.37	1.37	1.90	1.90	3.41	2.76
4 × 2	0.97	1.27	1.27	1.76	1.76	3.11	2.58
4 × 1 1/2	0.91	1.19	1.19	1.64	1.64	2.89	2.41
5 × 4	1.74	2.50	2.50	3.52	3.52	6.47	5.59
5 × 3	1.58	2.27	2.27	3.18	3.18	5.78	5.30
5 × 2 1/2	1.50	2.16	2.16	3.02	3.02	5.46	4.70
5 × 2	1.41	2.03	2.03	2.85	2.85	5.12	4.43
6 × 5	2.55	3.57	3.57	5.38	5.38	9.89	8.63
6 × 4	2.36	3.30	3.30	4.96	4.96	8.98	7.88
6 × 3	2.18	3.04	3.04	4.56	4.56	8.21	7.21
6 × 2 1/2	2.09	2.94	2.94	4.38	4.38	7.88	6.80
8 × 6	4.17	5.71	5.71	8.63	8.63	14.30	15.00
8 × 5	3.87	5.40	5.40	8.14	8.14	13.40	14.00
8 × 4	3.67	5.10	5.10	7.68	7.68	12.60	13.10
10 × 8	6.87	9.58	9.58	12.90	15.40	24.30	27.50
10 × 6	6.32	8.78	8.78	11.80	14.20	22.10	25.10
10 × 5	6.06	8.42	8.42	11.30	14.50	21.10	23.90
10 × 4	5.80	8.20	8.20	11.00	14.00	20.50	22.60
12 × 10	9.97	13.60	14.70	18.00	24.80	35.00	44.60
12 × 8	9.29	12.70	13.70	16.70	22.70	33.00	41.00
12 × 6	8.69	11.80	12.80	15.60	21.40	32.00	38.00
12 × 5	8.39	11.70	12.60	15.30	20.60	31.00	36.40
14 × 12	21.20	25.40	29.50	33.60	49.80	-	88.50
14 × 10	19.70	23.60	27.40	31.20	46.10	-	81.60
14 × 8	18.30	21.80	25.40	28.90	42.20	-	74.70
14 × 6	16.90	20.30	23.60	26.80	39.10	-	68.30
16 × 14	25.90	31.00	41.10	41.10	67.70	-	121.00
16 × 12	24.10	29.50	39.20	39.20	65.00	-	116.00
16 × 10	22.40	27.80	36.80	36.80	60.80	-	108.00
16 × 8	21.70	26.20	34.50	34.50	56.60	-	99.90
18 × 16	31.50	37.80	56.20	50.10	91.40	-	165.00
18 × 14	29.80	35.70	53.00	47.40	86.40	-	155.00
18 × 12	27.70	33.20	51.70	44.00	83.00	-	149.00
18 × 10	27.10	32.70	48.40	43.20	78.50	-	140.00
20 × 18	47.00	56.40	88.40	74.90	150.00	-	-
20 × 16	44.70	53.50	83.90	71.10	142.00	-	-
20 × 14	42.40	50.80	79.60	67.40	136.00	-	233.00
20 × 12	40.80	49.20	76.90	65.10	130.00	-	-

NOMINAL PIPE SIZE	SGP	STD	S40	X - S	S80	XX - S	S160
22 × 22	52.10	62.40	98.00	82.90	181.00	-	-
22 × 18	49.50	59.40	93.20	78.90	172.00	-	-
22 × 16	47.00	56.40	98.40	74.80	164.00	-	-
22 × 14	45.30	54.30	83.60	72.10	156.00	-	-
24 × 22	57.10	68.40	124.00	91.00	215.00	-	-
24 × 20	54.80	65.70	119.00	87.30	206.00	-	-
24 × 18	52.60	63.00	114.00	83.80	197.00	-	-
24 × 16	50.40	60.50	109.00	80.30	185.00	-	-
26 × 24	74.50	89.40	162.00	119.00	-	-	-
26 × 22	71.50	85.80	155.00	114.00	-	-	-
26 × 20	68.50	82.10	148.00	109.00	-	-	-
26 × 18	66.30	79.50	142.00	106.00	-	-	-
28 × 26	80.60	96.60	175.00	129.00	-	-	-
28 × 24	77.50	93.00	168.00	124.00	-	-	-
28 × 22	74.50	89.40	162.00	119.00	-	-	-
28 × 20	72.40	88.80	155.00	115.00	-	-	-
30 × 28	86.60	104.00	188.00	138.00	-	-	-
30 × 26	83.60	100.00	182.00	133.00	-	-	-
30 × 24	80.60	96.60	175.00	129.00	-	-	-
30 × 22	78.50	94.20	168.00	125.00	-	-	-
32 × 30	92.60	111.00	202.00	148.00	-	-	-
32 × 28	89.60	108.00	195.00	143.00	-	-	-
32 × 24	86.60	104.00	188.00	138.00	-	-	-
32 × 22	84.60	102.00	184.00	135.00	-	-	-
34 × 32	98.70	118.00	215.00	158.00	-	-	-
34 × 30	95.60	115.00	208.00	153.00	-	-	-
34 × 28	92.60	111.00	205.00	148.00	-	-	-
34 × 26	90.70	109.00	200.00	145.00	-	-	-
36 × 34	104.60	125.60	250.00	167.30	-	-	-
36 × 32	101.60	122.00	243.00	162.40	-	-	-
36 × 30	98.60	118.40	238.00	157.60	-	-	-
36 × 28	95.60	114.70	234.00	152.80	-	-	-
38 × 36	112.00	133.00	-	177.00	-	-	-
38 × 34	108.00	129.00	-	172.00	-	-	-
38 × 32	105.00	126.00	-	167.00	-	-	-
38 × 30	103.00	124.00	-	165.00	-	-	-
40 × 38	117.00	140.00	-	187.00	-	-	-
40 × 36	114.00	137.00	-	182.00	-	-	-
40 × 34	111.00	133.00	-	177.00	-	-	-
40 × 32	109.00	131.00	-	174.00	-	-	-
42 × 40	123.00	147.00	-	196.00	-	-	-
42 × 38	120.00	144.00	-	192.00	-	-	-
42 × 36	117.00	140.00	-	187.00	-	-	-
42 × 34	115.00	138.00	-	184.00	-	-	-
44 × 42	129.00	155.00	-	206.00	-	-	-
44 × 40	126.00	151.00	-	201.00	-	-	-
44 × 38	123.00	147.00	-	196.00	-	-	-
44 × 36	121.00	146.00	-	194.00	-	-	-
46 × 44	157.00	189.00	-	252.00	-	-	-
46 × 42	154.00	185.00	-	246.00	-	-	-
46 × 40	150.00	180.00	-	241.00	-	-	-
46 × 38	148.00	178.00	-	194.00	-	-	-
48 × 46	164.00	197.00	-	263.00	-	-	-
48 × 44	161.00	193.00	-	257.00	-	-	-
48 × 42	157.00	189.00	-	252.00	-	-	-
48 × 40	155.00	186.00	-	248.00	-	-	-

BUTT-WELDING FITTINGS APPROX WEIGHT

• STAILNESS STEEL FITTINGS

UNIT : kg

NOMINAL PIPE SIZE	90° Elbows(L)			90° Elbows(S)			Tee			Reducurs			Cap		
	Sch 5s	Sch 10s	Sch 20s	Sch 5s	Sch 10s	Sch 20s	Sch 5s	Sch 10s	Sch 20s	Sch 5s	Sch 10s	Sch 20s	Sch 5s	Sch 10s	Sch 20s
1/2	0.05	0.06	0.07	-	-	-	0.05	0.07	0.08	-	-	-	0.02	0.03	0.03
3/4	0.05	0.06	0.09	-	-	-	0.07	0.10	0.11	0.03	0.04	0.05	0.03	0.04	0.04
1	0.08	0.13	0.14	0.05	0.08	0.09	0.12	0.20	0.22	0.06	0.09	0.10	0.05	0.09	0.10
1 1/2	0.12	0.20	0.22	0.08	0.13	0.15	0.20	0.33	0.36	0.07	0.12	0.13	0.07	0.11	0.12
1 1/4	0.17	0.28	0.30	0.11	0.19	0.20	0.30	0.46	0.50	0.11	0.18	0.20	0.08	0.13	0.14
2	0.29	0.47	0.59	0.19	0.31	0.39	0.38	0.63	0.79	0.16	0.27	0.34	0.10	0.17	0.21
2 1/2	0.55	0.79	0.94	0.37	0.52	0.63	0.71	1.00	1.18	0.30	0.43	0.50	0.16	0.23	0.28
3	0.81	1.16	1.51	0.54	0.77	1.00	0.96	1.38	1.78	0.37	0.52	0.69	0.25	0.37	0.48
4	1.40	2.00	2.60	0.93	1.33	1.74	1.50	2.15	2.80	0.56	0.80	1.04	0.41	0.59	0.78
5	2.83	3.46	4.97	1.89	2.31	3.31	2.85	3.48	5.01	1.09	1.33	1.92	0.81	0.99	1.44
6	4.06	4.96	7.09	2.71	3.31	4.73	3.89	4.75	6.83	1.46	1.78	2.55	1.13	1.39	1.99
8	7.07	9.55	15.90	4.71	6.37	10.70	6.26	8.43	14.30	2.01	2.72	4.56	1.76	2.38	4.05
10	13.50	16.60	25.00	9.01	11.10	16.70	11.50	14.20	21.50	3.66	4.49	6.77	3.35	4.13	6.23
12	22.40	25.80	35.70	15.00	17.20	23.90	18.80	21.60	30.70	5.88	6.78	9.40	5.54	6.39	8.89
14	28.80	34.60	56.90	19.20	23.10	37.80	22.70	27.30	44.80	10.80	13.00	21.20	6.62	7.99	13.20
16	39.80	45.30	74.50	26.50	30.20	49.50	29.60	33.70	55.20	13.90	15.80	25.90	8.82	10.10	16.70
18	50.40	57.40	94.50	33.60	38.30	62.80	37.40	42.70	70.00	17.20	19.20	29.80	11.30	12.90	21.30
20	71.00	82.10	142.00	47.30	54.70	95.00	52.80	61.00	104.00	28.60	33.10	56.00	16.00	18.50	31.80
22	85.90	99.50	170.00	57.30	66.30	114.00	63.80	74.10	126.20	31.70	36.70	62.50	17.50	22.60	38.80
24	118.00	136.00	202.00	79.00	90.40	135.00	81.40	93.90	139.40	40.20	46.00	68.60	26.20	30.10	45.10

• LAP JOINT STUB-END

UNIT : kg

Type Thick Size	ASME			MSS			JIS				JPI			
	Sch 5s	Sch 10s	Sch 40s	Sch 5s	Sch 10s	Sch 40s	Sch 5s	Sch 10s	Sch 20s	Sch 40s	Sch 5s	Sch 10s	Sch 20s	Sch 40s
1/2	0.06	0.08	0.11	0.04	0.06	0.07	0.04	0.05	0.07	0.07	0.04	0.06	0.06	0.07
3/4	0.09	0.11	0.15	0.06	0.08	0.10	0.05	0.07	0.08	0.09	0.06	0.08	0.09	0.10
1	0.14	0.24	0.29	0.08	0.13	0.16	0.10	0.17	0.18	0.20	0.08	0.13	0.14	0.16
1 1/2	0.19	0.31	0.40	0.10	0.17	0.22	0.13	0.21	0.23	0.27	0.10	0.17	0.19	0.22
1 1/4	0.22	0.37	0.48	0.12	0.21	0.27	0.14	0.24	0.25	0.31	0.12	0.21	0.23	0.27
2	0.41	0.68	0.95	0.20	0.33	0.47	0.18	0.30	0.38	0.42	0.20	0.33	0.43	0.47
2 1/2	0.60	0.86	1.41	0.31	0.44	0.74	0.30	0.43	0.49	0.73	0.31	0.44	0.53	0.74
3	0.80	0.96	2.02	0.40	0.57	1.01	0.34	0.48	0.64	0.87	0.40	0.57	0.76	1.01
4	1.05	1.51	2.91	0.60	0.87	1.68	0.43	0.61	0.81	1.21	0.60	0.87	1.12	1.68
5	2.20	2.69	5.09	0.98	1.21	2.28	0.72	0.87	1.28	1.68	0.98	1.21	1.73	2.28
6	2.64	3.23	6.12	1.34	1.64	3.37	0.88	1.07	1.57	2.21	1.34	1.64	2.41	3.37
8	3.47	4.69	10.00	1.96	2.65	5.67	1.36	1.94	3.12	3.92	1.95	2.78	4.47	5.61
10	6.47	7.95	17.30	3.57	4.38	9.55	2.15	2.53	4.08	5.80	3.51	4.13	6.65	9.45
12	9.13	10.40	21.30	5.85	6.74	13.80	2.89	3.25	4.67	7.34	5.81	6.52	9.38	14.70
14	11.70	14.10	-	6.42	7.73	-	-	-	-	-	-	-	-	-
16	14.30	16.30	-	7.91	9.00	-	-	-	-	-	-	-	-	-
18	16.40	18.70	-	9.24	10.50	-	-	-	-	-	-	-	-	-
20	20.80	24.10	-	11.70	13.50	-	-	-	-	-	-	-	-	-
22	23.10	26.70	-	16.50	18.90	-	-	-	-	-	-	-	-	-
24	29.00	33.40	-	16.50	18.90	-	-	-	-	-	-	-	-	-

PIPE & PLATE DIMENSION AND WEIGHT LIST

STAINLESS STEEL PLATE

UNIT : kg

SIZE ITEM T	1,000×2,000 (3.3×6.6)			1,219×2,438 (4×8)			1,524×3,048 (5×10)		
	STS 304	STS 316,310S	STS 430	STS 304	STS 316,310S	STS 430	STS 304	STS 316,310S	STS 430
0.3	4.76	4.79	4.62	7.07	7.11	6.86	11.05	11.1	10.7
0.4	6.35	6.38	6.16	9.43	9.49	9.15	14.73	14.8	14.3
0.5	7.93	7.98	7.70	11.78	11.9	11.4	18.42	18.5	17.9
0.6	9.52	9.58	9.24	14.14	14.2	13.7	22.10	22.2	21.5
0.7	11.10	11.2	10.80	16.49	16.6	16.0	25.79	25.9	25.0
0.8	12.69	12.8	12.3	18.85	19.0	18.3	29.47	29.7	28.6
0.9	14.28	14.4	13.8	21.21	21.3	20.6	33.15	33.4	32.2
1.0	15.86	16.0	15.4	23.56	23.7	22.9	36.84	37.1	35.8
1.2	19.03	19.2	18.5	28.27	28.5	27.5	44.20	44.5	42.9
1.5	23.79	23.9	23.1	35.34	35.6	34.3	55.25	55.6	53.7
2	31.72	31.9	30.8	47.12	47.4	45.8	73.67	74.1	71.5
2.5	39.65	39.9	38.5	58.90	59.3	57.2	92.09	92.7	89.4
3	47.58	47.9	46.2	70.68	71.1	68.6	110.51	111	107
5	63.44	63.8	61.6	94.24	94.9	91.5	147.34	148	143
4.5	71.37	71.8	69.3	106.02	107	103	165.76	167	161
5	79.30	79.8	77.0	117.80	119	114	184.18	185	179
6	95.16	95.8	92.4	141.36	142	137	221.02	222	215
7	111.02	112	108	164.92	166	160	257.85	259	250
8	126.88	128	123	188.48	190	183	294.69	297	286
9	142.74	144	139	212.04	213	206	331.52	334	322
10	158.60	160	154	235.60	237	229	368.36	371	358
12	190.32	192	185	282.72	285	275	442.03	445	429
15	237.90	239	231	353.40	356	343	552.54	556	537
18	258.48	287	277	424.08	427	412	663.05	667	644
20	317.20	319	308	471.20	474	458	736.72	741	715
25	396.50	399	385	589.00	593	572	920.90	927	894
30	475.80	479	462	706.80	711	686	1,105.10	1,110	1,070

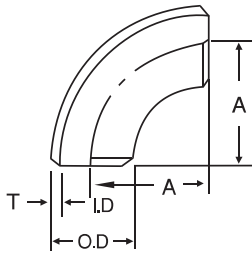
STAINLESS STEEL PIPE

UNIT : kg

N.P.S		O.D	NOMINAL WALL THICKNESS													
A	B		SCH 5S		SCH 10S		SCH 20S		SCH 40		SCH 80		SCH 120		SCH 160	
		T	WEIGHT KG/M	T	WEIGHT KG/M	T	WEIGHT KG/M	T	WEIGHT KG/M	T	WEIGHT KG/M	T	WEIGHT KG/M	T	WEIGHT KG/M	
6	1/8	10.5	1.0	0.234	1.2	0.275	1.5	0.333	1.7	0.369	2.4	0.479	-	-	-	-
8	1/4	13.8	1.2	0.373	1.65	0.499	2.0	0.582	2.2	0.629	3.0	0.799	-	-	-	-
10	3/8	17.3	1.2	0.476	1.65	0.637	2.0	0.755	2.3	0.851	3.2	1.11	-	-	-	-
15	1/2	21.7	1.65	0.816	2.1	1.02	2.5	1.18	2.8	1.31	3.7	1.64	-	-	4.7	1.97
20	3/4	27.2	1.65	1.04	2.1	1.30	2.5	1.52	2.9	1.74	3.9	2.24	-	-	5.5	2.94
25	1	34.0	1.65	1.32	2.8	2.15	3.0	2.29	3.4	2.57	4.5	3.27	-	-	6.4	4.36
32	1 1/4	42.7	1.65	1.67	2.8	2.76	3.0	2.94	3.6	3.47	4.9	4.57	-	-	6.4	5.73
40	1 1/2	48.6	1.65	1.91	2.8	3.16	3.0	3.37	3.7	4.10	5.1	5.47	-	-	7.1	7.29
50	2	60.5	1.65	2.39	2.8	3.98	3.5	4.92	3.9	5.44	5.5	7.46	-	-	8.7	11.1
65	2 1/2	76.3	2.1	3.84	3.0	5.42	3.5	6.28	5.2	9.12	7.0	12.0	-	-	9.5	15.6
80	3	89.1	2.1	4.51	3.0	6.37	4.0	8.39	5.5	11.3	7.6	15.3	-	-	11.1	21.4
90	3 1/2	101.6	2.1	5.15	3.0	7.29	4.0	9.63	5.7	13.5	8.1	18.7	-	-	12.7	27.8
100	4	114.3	2.1	5.81	3.0	8.23	4.0	10.9	6.0	16.0	8.6	22.4	11.1	28.2	13.5	33.6
125	5	139.8	2.8	9.46	3.4	11.4	5.0	16.6	6.6	21.7	9.5	30.5	12.7	39.8	15.9	48.6
150	6	165.2	2.8	11.2	3.4	13.6	5.0	19.8	7.1	27.7	11.0	41.8	14.3	53.2	18.2	66.0
200	8	216.3	2.8	14.7	4.0	20.9	6.5	33.6	8.2	42.1	12.7	63.8	18.2	88.9	23.0	110
250	10	267.4	3.4	23.1	4.0	26.0	6.5	41.8	9.3	59.2	15.1	93.9	21.4	130	28.6	168
300	12	318.5	4.0	31.0	4.5	34.8	6.5	50.0	10.3	78.3	17.4	129	25.4	184	33.3	234

APPROX WEIGHT ESTIMATE EQUATION

90° ELBOW



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

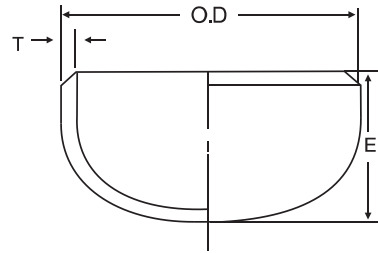
AW : Approx Weight(Unit: kgs)

T : Wall Thickness(mm)

O.D : Outside Diameter(mm)

A : Radius(mm)

CAP



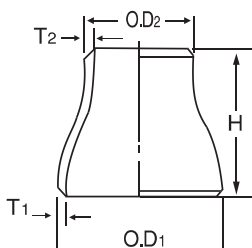
$$AW = 7.85 \times \frac{\pi}{4} (O.D + E)^2 \times T \times 10^{-6}$$

AW : Approx Weight(Unit: kgs)

T : Wall Thickness(mm)

E : End to End(mm)

REDUCER



$$AW = 2.4649 \times H \times T \times$$

$$\left(\frac{O.D_1 + O.D_2}{2} - T \right) \times 10^{-5}$$

AW : Approx Weight(Unit: kgs)

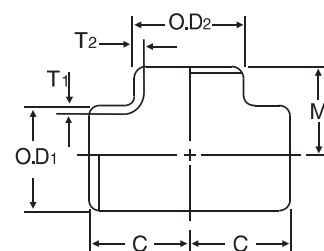
T : Wall Thickness(mm)

O.D₁ : Outside Diameter(mm)

O.D₂ : Outside Diameter(mm)

H : Length(mm)

TEE



$$AW = 2.4649 \left\{ 2CT_1(O.D_1 - T_1) + T_2(O.D_2 - T_2) \left(M - \frac{O.D_1}{2} \right) \right\} \times 10^{-5}$$

AW : Approx Weight(Unit: kgs)

T₁ : Wall Thickness(mm)

O.D₁ : Outside Diameter(mm)

T₂ : Wall Thickness(mm)

O.D₂ : Outside Diameter(mm)

C : Center to end Diameter(mm)

M : Center to end Diameter(mm)

우리는 언제나 당신과 함께 합니다.

We are Always be With You.

See or No See.

