

RICON[®]

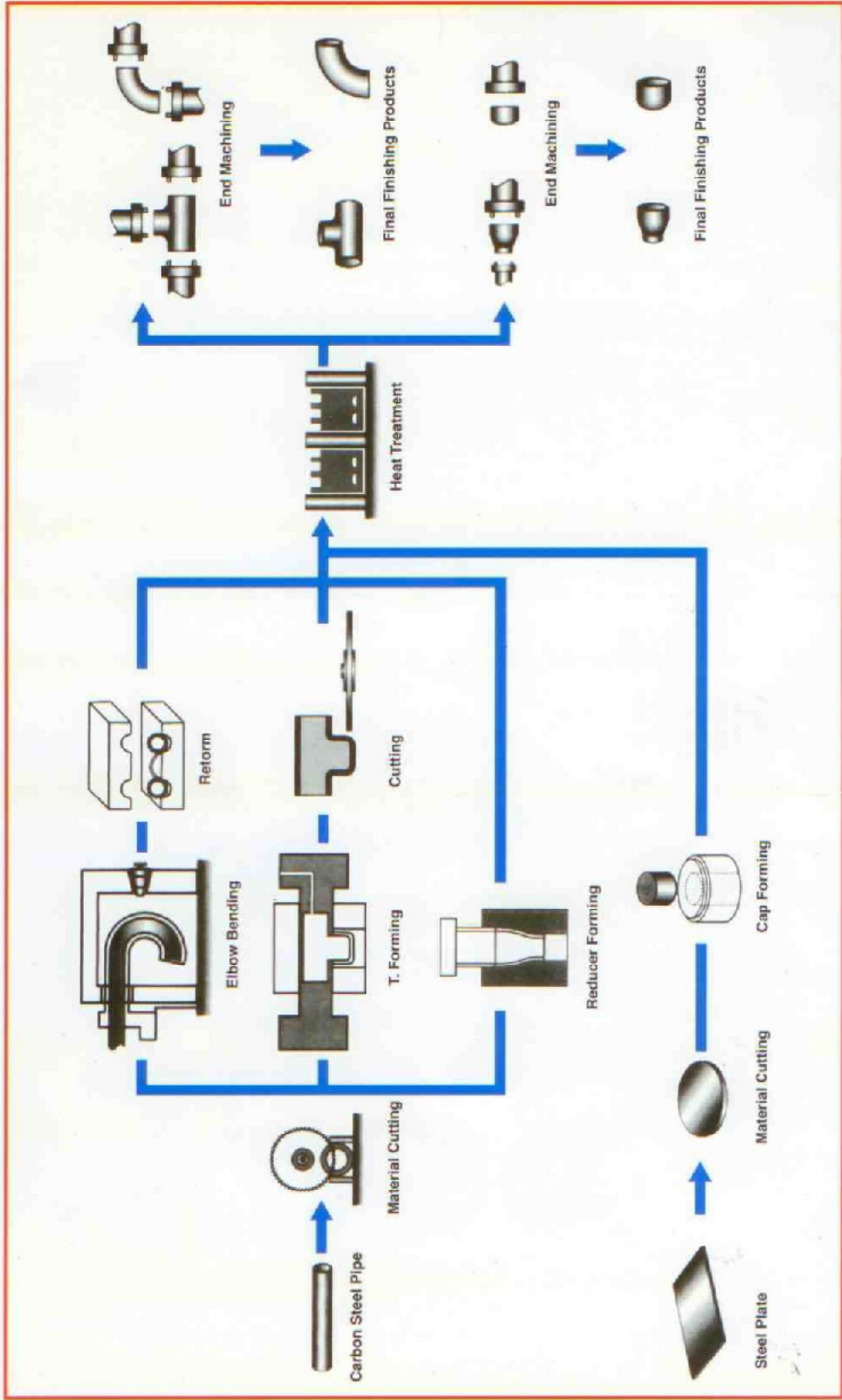
STEEL BUTT - WELDING PIPE FITTINGS

ELBOW - TEE - REDUCER - CAP

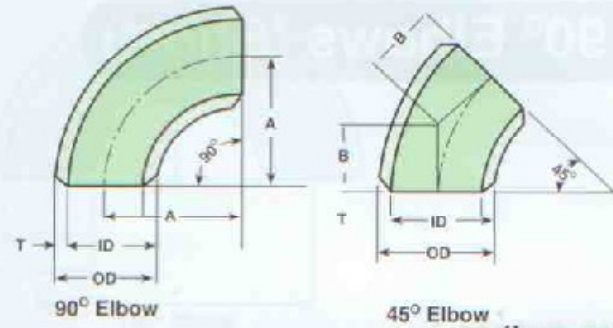


RICON[®]

MANUFACTURING PROCESS



90° Elbows (Long)
45° Elbows (Long)

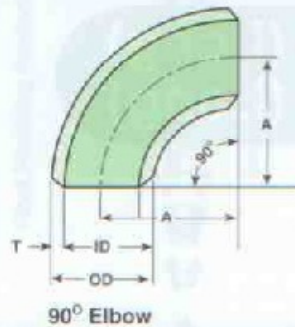


JIS B 2311

(in mm)

Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Center To End		Approx Weight (kg)	
				A	B	90°	45°
½	21.7	16.1	2.8	38.1	15.8	0.078	0.039
¾	27.2	21.6	2.8	38.1	15.8	0.100	0.050
1	34.0	27.6	3.2	38.1	15.8	0.146	0.073
1¼	42.7	35.7	3.5	47.6	19.7	0.252	0.126
1½	48.6	41.6	3.5	57.2	23.7	0.350	0.175
2	60.5	52.9	3.8	76.2	31.6	0.634	0.317
2½	76.3	67.9	4.2	95.3	39.5	1.12	0.559
3	89.1	80.7	4.2	114.3	47.3	1.58	0.790
3½	101.6	93.2	4.2	133.4	55.3	2.11	1.06
4	114.3	105.3	4.5	152.4	63.1	2.91	1.46
5	139.8	130.8	4.5	190.5	78.9	4.49	2.25
6	165.2	155.2	5	228.6	94.7	7.09	3.54
8	216.3	204.7	5.8	304.8	126.3	14.4	7.20
10	267.4	254.2	6.6	381	157.8	25.4	12.7
12	318.5	304.7	6.9	457.2	189.4	38.1	19.0
14	355.6	339.8	7.9	533.4	220.9	56.7	28.4
16	406.4	390.6	7.9	609.6	252.5	74.3	37.1
18	457.2	441.4	7.9	685.8	284.1	94.2	47.1
20	508	492.2	7.9	762	315.6	116	58.3
24	609.6	-	-	914.4	378.7	168	84.1

90° Elbows (Short)

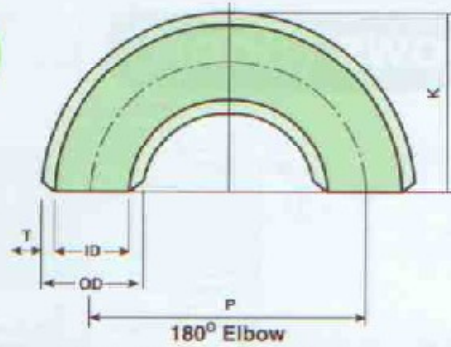


JIS B 2311

(in mm)

Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Center To End A	Approx Weight (kg)
½	21.7	16.1	2.8	-	-
¾	27.2	21.6	2.8	-	-
1	34	27.6	3.2	25.4	0.097
1¼	42.7	35.7	3.5	31.8	0.169
1½	48.6	41.6	3.5	38.1	0.233
2	60.5	52.9	3.8	50.8	0.423
2½	76.3	67.9	4.2	63.5	0.745
3	89.1	80.7	4.2	76.2	1.05
3½	101.6	93.2	4.2	88.9	1.41
4	114.3	105.3	4.5	101.6	1.94
5	139.8	130.8	4.5	127	2.99
6	165.2	155.2	5	152.4	4.73
8	216.3	204.7	5.8	203.2	9.61
10	267.4	254.2	6.6	254.0	16.9
12	318.5	304.7	6.9	304.8	16.9
14	355.6	339.8	7.9	355.6	37.8
16	406.4	390.6	7.9	406.4	49.5
18	457.2	441.4	7.9	457.2	62.8
20	508	492.2	7.9	508	77.7
24	609.6	-	-	609.6	112

180° Elbows (Long)

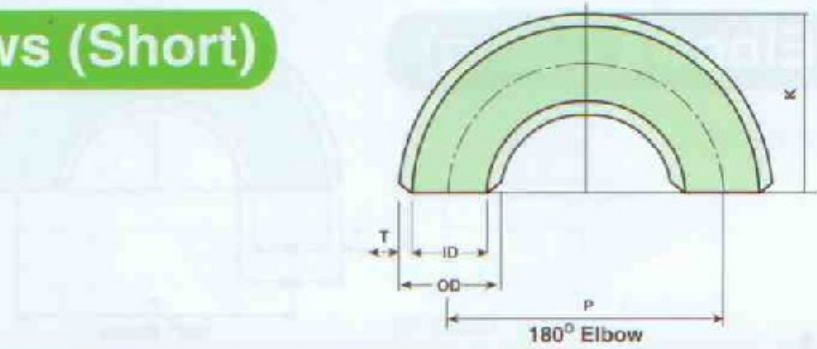


JIS B 2311

(in mm)

Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Center To Center P	Back To Face K	Approx Weight (kg)
½	21.7	16.1	2.8	76.2	49	0.156
¾	27.2	21.6	2.8	76.2	51.7	0.201
1	34	27.6	3.2	76.2	55.1	0.292
1¼	42.7	35.7	3.5	95.2	69	0.505
1½	48.6	41.6	3.5	114.4	81.5	0.700
2	60.5	52.9	3.8	152.4	106.5	1.27
2½	76.3	67.9	4.2	190.6	133.5	2.24
3	89.1	80.7	4.2	228.6	158.9	3.16
3½	101.6	93.2	4.2	266.8	184.2	4.22
4	114.3	105.3	4.5	304.8	209.6	5.83
5	139.8	130.8	4.5	381	260.4	8.98
6	165.2	155.2	5.0	457.2	311.2	14.2
8	216.3	204.7	5.8	609.6	413	28.8
10	267.4	254.2	6.6	762	514.7	50.8
12	318.5	304.7	6.9	914.4	616.5	-
14	355.6	339.8	7.9	1,066.8	711.2	-
16	406.4	390.6	7.9	1,219.2	812.8	-
18	457.2	441.4	7.9	-	-	-
20	508	492.2	7.9	-	-	-
24	609.6	-	-	-	-	-

180° Elbows (Short)

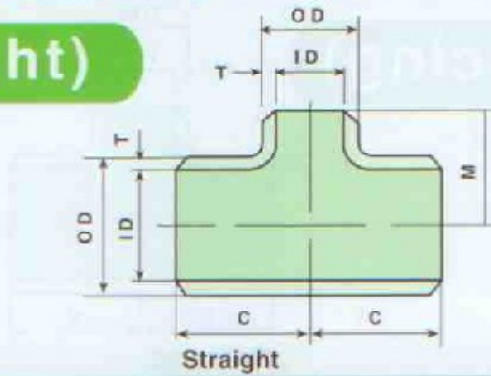


JIS B 2311

(in mm)

Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Center To Center P	Back To Face K	Approx Weight (kg)
1	34	27.6	3.2	50.8	42.4	0.195
1½	42.7	35.7	3.5	63.6	53.2	0.338
1½	48.6	41.6	3.5	76.2	62.4	0.466
2	60.5	52.9	3.8	101.6	81.1	0.845
2½	76.3	67.9	4.2	127	101.7	1.49
3	89.1	80.7	4.2	152.4	120.8	2.11
3½	101.6	93.2	4.2	177.8	139.7	2.82
4	114.3	105.3	4.5	203.2	158.8	3.89
5	139.8	130.8	4.5	254	196.9	5.99
6	165.2	155.2	5.0	304.8	235	9.45
8	216.3	204.7	5.8	406.4	311.4	19.2
10	267.4	254.2	6.6	508	387.7	33.8
12	318.5	304.7	6.9	609.6	464.1	-
14	355.6	339.8	7.9	711.2	533.4	-
16	406.4	390.6	7.9	812.8	609.6	-
18	457.2	441.4	7.9	-	-	-
20	508	492.2	7.9	-	-	-

Tees (Straight)



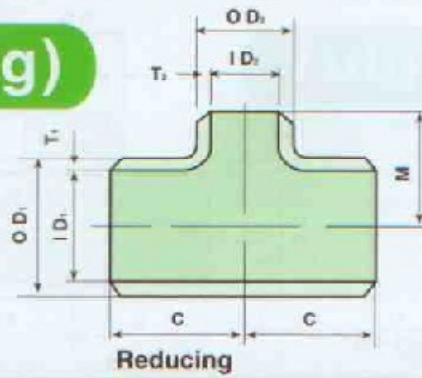
JIS B 2311

(in mm)

Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Center To End		Approx Weight (kg)
				Run	Outlet	
½	21.7	16.1	2.8	25.4	25.4	0.085
¾	27.2	21.6	2.8	28.6	28.6	0.122
1	34	27.6	3.2	38.1	38.1	0.236
1¼	42.7	35.7	3.5	47.6	47.6	0.411
1½	48.6	41.6	3.5	57.2	57.2	0.573
2	60.5	52.9	3.8	63.5	63.5	0.851
2½	76.3	67.9	4.2	76.2	76.2	1.42
3	89.1	80.7	4.2	85.7	85.7	1.87
3½	101.6	93.2	4.2	95.3	95.3	2.37
4	114.3	105.3	4.5	104.8	104.8	3.13
5	139.8	130.8	4.5	123.8	123.8	4.53
6	165.2	155.2	5.0	142.9	142.9	6.84
8	216.3	204.7	5.8	177.8	177.8 (145)	12.8
10	267.4	254.2	6.6	215.9	215.9 (180)	21.8
12	318.5	304.7	6.9	254	254 (200)	32.0
14	355.6	339.8	7.9	279.4	279.4 (230)	44.7
16	406.4	390.6	7.9	304.8	304.8 (260)	55.2
18	457.2	441.4	7.9	342.9	342.9 (290)	70.0
20	508	492.2	7.9	381	381 (320)	86.6
22	558.8	543.0	7.9	419.1	419.1	106
24	609.6	593.6	7.9	431.8	431.8	116

STEEL BUTT-WELDING PIPE FITTINGS

Tees (Reducing)

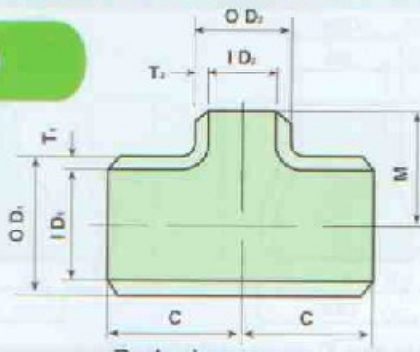


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(in mm)

Nominal Pipe Size	Run			Outlet			Center To End	
	Outside Diameter OD ₁	Inside Diameter ID ₁	Wall Thickness T ₁	Outside Diameter OD ₂	Inside Diameter ID ₂	Wall Thickness T ₂	Run C	Outlet M
¾ x ¾ x ½	27.2	21.6	2.8	21.7	16.1	2.8	28.6	28.6
1 x 1 x ¾	34.0	27.6	3.2	27.2	21.6	2.8	38.1	38.1
1 x 1 x ½	34.0	27.6	3.2	21.7	16.1	2.8	38.1	38.1
1¼ x 1¼ x 1	42.7	35.7	3.5	34	27.6	3.2	47.6	47.6
1¼ x 1¼ x ¾	42.7	35.7	3.5	27.2	21.6	2.8	47.6	47.6
1¼ x 1¼ x ½	42.7	35.7	3.5	21.7	16.1	2.8	47.6	47.6
1½ x 1½ x 1¼	48.6	41.6	3.5	42.7	35.7	3.5	57.2	57.2
1½ x 1½ x 1	48.6	41.6	3.5	34	27.6	3.2	57.2	57.2
1½ x 1½ x ¾	48.6	41.6	3.5	27.2	21.6	2.8	57.2	57.2
1½ x 1½ x ½	48.6	41.6	3.5	21.7	16.1	2.8	57.2	57.2
2 x 2 x 1½	60.5	52.9	3.8	48.6	41.6	3.5	63.5	60.3
2 x 2 x 1¼	60.5	52.9	3.8	42.7	35.7	3.5	63.5	57.2
2 x 2 x 1	60.5	52.9	3.8	34	27.6	3.2	63.5	50.8
2 x 2 x ¾	60.5	52.9	3.8	27.2	21.6	2.8	63.5	44.5
2½ x 2½ x 2	76.3	67.9	4.2	60.5	52.9	3.8	76.2	69.9
2½ x 2½ x 1½	76.3	67.9	4.2	48.6	41.6	3.5	76.2	66.7
2½ x 2½ x 1¼	76.3	67.9	4.2	42.7	35.7	3.5	76.2	63.5
2½ x 2½ x 1	76.3	67.9	4.2	34	27.6	3.2	76.2	57.2
3 x 3 x 2½	89.1	80.7	4.2	76.3	67.9	4.2	85.7	82.6
3 x 3 x 2	89.1	80.7	4.2	60.5	52.9	3.8	85.7	76.2
3 x 3 x 1½	89.1	80.7	4.2	48.6	41.6	3.5	85.7	73
3 x 3 x 1¼	89.1	80.7	4.2	42.7	35.7	3.5	85.7	69.9
3½ x 3½ x 3	101.6	93.2	4.2	89.1	80.7	4.2	95.3	92.1
3½ x 3½ x 2½	101.6	93.2	4.2	76.3	67.9	4.2	95.3	88.9
3½ x 3½ x 2	101.6	93.2	4.2	60.5	52.9	3.8	95.3	82.6
3½ x 3½ x 1¼	101.6	93.2	4.2	48.6	41.6	3.5	95.3	79.4
4 x 4 x 3½	114.3	105.3	4.5	101.6	93.2	4.5	104.8	101.6
4 x 4 x 3	114.3	105.3	4.5	89.1	80.7	4.2	104.8	98.4
4 x 4 x 2½	114.3	105.3	4.5	76.3	67.9	4.2	104.8	95.3
4 x 4 x 2	114.3	105.3	4.5	60.5	52.9	3.8	104.8	88.9
4 x 4 x 1½	114.3	105.3	4.5	48.6	41.6	3.5	104.8	85.7
5 x 5 x 4	139.8	130.8	4.5	114.3	105.3	4.5	123.8	117.5
5 x 5 x 3½	139.8	130.8	4.5	101.6	93.2	4.5	123.8	114.3
5 x 5 x 3	139.8	130.8	4.5	89.1	80.7	4.2	123.8	111.1
5 x 5 x 2½	139.8	130.8	4.5	76.3	67.9	4.2	123.8	108
5 x 5 x 2	139.8	130.8	4.5	60.5	52.9	3.8	123.8	104.8

Tees (Reducing)



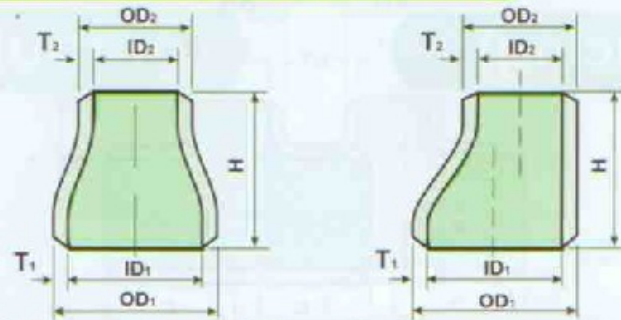
JIS B 2311

Reducing

(in mm)

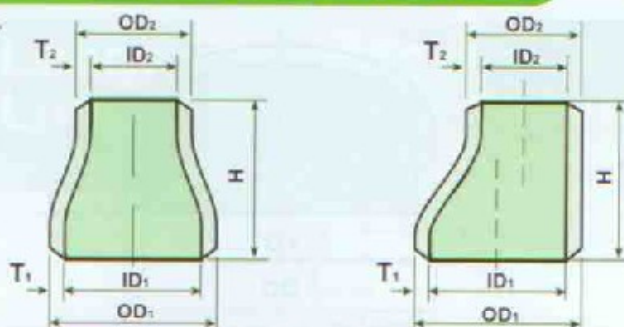
Nominal Pipe Size	Run			Outlet			Center To End	
	Outside Diameter OD ₁	Inside Diameter ID ₁	Wall Thickness T ₁	Outside Diameter OD ₂	Inside Diameter ID ₂	Wall Thickness T ₂	Run C	Outlet M
6 x 6 x 5	165.2	155.2	5.0	139.8	130.8	4.5	142.9	136.5
6 x 6 x 4	165.2	155.2	5.0	114.3	105.3	4.5	142.9	130.2
6 x 6 x 3½	165.2	155.2	5.0	101.6	93.2	4.5	142.9	127
6 x 6 x 3	165.2	155.2	5.0	89.1	80.7	4.2	142.9	123.8
6 x 6 x 2½	165.2	155.2	5.0	76.3	67.9	4.2	142.9	120.7
8 x 8 x 6	216.3	204.7	5.8	165.2	155.2	5.0	177.8	168.3
8 x 8 x 5	216.3	204.7	5.8	139.8	130.8	4.5	177.8	161.9
8 x 8 x 4	216.3	204.7	5.8	114.3	105.3	4.5	177.8	155.6
8 x 8 x 3½	216.3	204.7	5.8	101.6	93.2	4.5	177.8	152.4
10 x 10 x 8	267.4	254.2	6.6	216.3	204.7	5.8	215.9	203.2
10 x 10 x 6	267.4	254.2	6.6	165.2	155.2	5.0	215.9	193.7
10 x 10 x 5	267.4	254.2	6.6	139.8	130.8	4.5	215.9	190.5
10 x 10 x 4	267.4	254.2	6.6	114.3	105.3	4.5	215.9	184.2
12 x 12 x 10	318.5	304.7	6.9	267.4	254.2	6.6	254	241.3
12 x 12 x 8	318.5	304.7	6.9	216.3	204.7	6.6	254	228.6
12 x 12 x 6	318.5	304.7	6.9	165.2	155.2	6.6	254	219.1
12 x 12 x 5	318.5	304.7	6.9	139.8	130.8	6.6	254	215.9
14 x 14 x 12	355.6	339.8	7.9	318.5	304.7	6.9	279.4	269.9
14 x 14 x 10	355.6	339.8	7.9	267.4	254.2	6.6	279.4	257.2
14 x 14 x 8	355.6	339.8	7.9	216.3	204.7	5.8	279.4	247.7
14 x 14 x 6	355.6	339.8	7.9	165.2	155.2	5.0	279.4	238.1
16 x 16 x 14	406.4	390.6	7.9	355.6	339.8	7.9	304.8	304.8
16 x 16 x 12	406.4	390.6	7.9	318.5	304.7	6.9	304.8	295.3
16 x 16 x 10	406.4	390.6	7.9	267.4	254.2	6.6	304.8	282.6
18 x 18 x 16	457.2	441.4	7.9	406.4	390.6	7.9	342.9	330.2
18 x 18 x 14	457.2	441.4	7.9	355.6	339.8	7.9	342.9	330.2
18 x 18 x 12	457.2	441.4	7.9	318.5	304.7	6.9	342.9	320.7
20 x 20 x 18	508	492.2	7.9	457.2	441.4	7.9	381	368.3
20 x 20 x 16	508	492.2	7.9	406.4	390.6	7.9	381	355.6
20 x 20 x 14	508	492.2	7.9	355.6	339.8	7.9	381	355.6
22 x 22 x 20	558.8	543.0	7.9	508.0	492.2	7.9	419.1	406.4
22 x 22 x 18	558.8	543.0	7.9	457.2	441.4	7.9	419.1	393.7
22 x 22 x 16	558.8	543.0	7.9	406.4	360.6	7.9	419.1	381
24 x 24 x 22	609.6	593.8	7.9	558.8	543.0	7.9	431.8	431.8
24 x 24 x 20	609.6	593.8	7.9	508	492.2	7.9	431.8	431.8
24 x 24 x 18	609.6	593.8	7.9	457.2	441.4	7.9	431.8	419.1

Reducers (Concentric and Eccentric)



JIS B 2311 Reducers Concentric Reducers Eccentric (in mm)

Nominal Pipe Size	Large End			Small End			End To End H
	Outside Diameter OD ₁	Inside Diameter ID ₁	Wall Thickness T ₁	Outside Diameter OD ₂	Inside Diameter ID ₂	Wall Thickness T ₂	
¼ x ½	27.2	21.6	2.8	21.7	16.1	2.8	38.1
1 x ¾	34	27.6	3.2	27.2	21.6	2.8	50.8
1 x ½	34	27.6	3.2	21.7	16.1	2.8	50.8
1¼ x 1	42.7	35.7	3.5	34	27.6	3.2	50.8
1¼ x ¾	42.7	35.7	3.5	27.2	21.6	2.8	50.8
1¼ x ½	42.7	35.7	3.5	21.7	16.1	2.8	50.8
1½ x 1¼	48.6	41.6	3.5	42.7	35.7	3.5	63.5
1½ x 1	48.6	41.6	3.5	34	27.6	3.2	63.5
1½ x ¾	48.6	41.6	3.5	27.2	21.6	2.8	63.5
1½ x ½	48.6	41.6	3.5	21.7	16.1	2.8	63.5
2 x 1½	60.5	52.9	3.8	48.6	41.6	3.5	76.2
2 x 1¼	60.5	52.9	3.8	42.7	35.7	3.5	76.2
2 x 1	60.5	52.9	3.8	34	27.6	3.2	76.2
2 x ¾	60.5	52.9	3.8	27.2	21.6	2.8	76.2
2½ x 2	76.3	67.9	4.2	60.5	52.9	3.8	88.9
2½ x 1½	76.3	67.9	4.2	48.6	41.6	3.5	88.9
2½ x 1¼	76.3	67.9	4.2	42.7	35.7	3.5	88.9
2½ x 1	76.3	67.9	4.2	34	27.6	3.2	88.9
3 x 2½	89.1	80.7	4.2	76.3	67.9	4.2	88.9
3 x 2	89.1	80.7	4.2	60.5	52.9	3.8	88.9
3 x 1½	89.1	80.7	4.2	48.6	41.6	3.5	88.9
3 x 1¼	89.1	80.7	4.2	42.7	35.7	3.5	88.9
3½ x 3	101.6	93.2	4.2	89.1	80.7	4.2	101.6
3½ x 2½	101.6	93.2	4.2	76.3	67.9	4.2	101.6
3½ x 2	101.6	93.2	4.2	60.5	52.9	3.8	101.6
3½ x 1½	101.6	93.2	4.2	48.6	41.6	3.5	101.6
4 x 3½	114.3	105.3	4.5	101.6	93.2	4.2	101.6
4 x 3	114.3	105.3	4.5	89.1	80.7	4.2	101.6
4 x 2½	114.3	105.3	4.5	76.3	67.9	4.2	101.6
4 x 2	114.3	105.3	4.5	60.5	52.9	3.8	101.6
4 x 1½	114.3	105.3	4.5	48.6	41.6	3.5	101.6
5 x 4	139.8	130.8	4.5	114.3	105.3	4.5	127
5 x 3½	139.8	130.8	4.5	101.6	93.2	4.2	127
5 x 3	139.8	130.8	4.5	89.1	80.7	4.2	127
5 x 2½	139.8	130.8	4.5	76.3	67.9	4.2	127
5 x 2	139.8	130.8	4.5	60.5	52.9	3.8	127
6 x 5	165.2	155.2	5.0	139.8	130.8	4.5	139.7
6 x 4	165.2	155.2	5.0	114.3	105.3	4.5	139.7
6 x 3½	165.2	155.2	5.0	101.6	93.2	4.2	139.7
6 x 3	165.2	155.2	5.0	89.1	80.7	4.2	139.7
6 x 2½	165.2	155.2	5.0	76.3	67.9	4.2	139.7



JIS B 2311

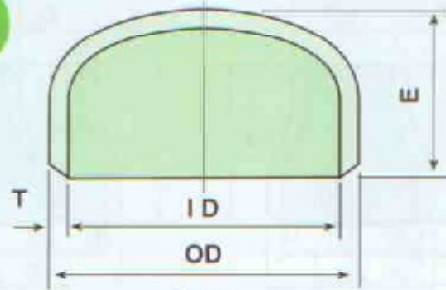
Reducers Concentric

Reducers Eccentric

(in mm)

Nominal Pipe Size	Large End			Small End			End To End H
	Outside Diameter OD ₁	Inside Diameter ID ₁	Wall Thickness T ₁	Outside Diameter OD ₂	Inside Diameter ID ₂	Wall Thickness T ₂	
8 x 6	216.3	204.7	5.8	165.2	155.2	5.0	152.4
8 x 5	216.3	204.7	5.8	139.8	130.8	4.5	152.4
8 x 4	216.3	204.7	5.8	114.3	105.3	4.5	152.4
8 x 3½	216.3	204.7	5.8	101.6	93.2	4.2	152.4
8 x 3	216.3	204.7	5.8	89.1	80.7	4.2	152.4
10 x 8	267.4	254.2	6.6	216.3	204.7	5.8	177.8
10 x 6	267.4	254.2	6.6	165.2	155.2	5.0	177.8
10 x 5	267.4	254.2	6.6	139.8	130.8	4.5	177.8
10 x 4	267.4	254.2	6.6	114.3	105.3	4.5	177.8
12 x 10	318.5	304.7	6.9	267.4	254.2	6.6	203.2
12 x 8	318.5	304.7	6.9	216.3	204.7	5.8	203.2
12 x 6	318.5	304.7	6.9	165.2	155.2	5.0	203.2
12 x 5	318.5	304.7	6.9	139.8	130.8	4.5	203.2
14 x 12	355.6	339.8	7.9	318.5	304.7	6.9	330.2
14 x 10	355.6	339.8	7.9	267.4	254.2	6.6	330.2
14 x 8	355.6	339.8	7.9	216.3	204.7	5.8	330.2
14 x 6	355.6	339.8	7.9	165.2	155.2	5.0	330.2
16 x 14	406.4	390.6	7.9	355.6	339.8	7.9	355.6
16 x 12	406.4	390.6	7.9	318.5	304.7	6.9	355.6
16 x 10	406.4	390.6	7.9	267.4	254.2	6.6	355.6
16 x 8	406.4	390.6	7.9	216.3	204.7	5.8	355.6
18 x 16	457.2	441.4	7.9	406.4	390.6	7.9	381
18 x 14	457.2	441.4	7.9	355.6	339.8	7.9	381
18 x 12	457.2	441.4	7.9	318.5	304.7	6.9	381
18 x 10	457.2	441.4	7.9	267.4	254.2	6.6	381
20 x 18	508	492.2	7.9	457.2	441.4	7.9	508
20 x 16	508	492.2	7.9	406.4	390.6	7.9	508
20 x 14	508	492.2	7.9	355.6	339.8	7.9	508
20 x 12	508	492.2	7.9	318.5	304.7	6.9	508
22 x 20	558.8	543.0	7.9	508	492.2	7.9	508
22 x 18	558.8	543.0	7.9	457.2	441.4	7.9	508
22 x 16	558.8	543.0	7.9	406.4	390.6	7.9	508
22 x 14	558.8	543.0	7.9	355.6	339.8	7.9	508
24 x 22	609.6	593.8	7.9	558.8	543.0	7.9	508
24 x 20	609.6	593.8	7.9	508	492.2	7.9	508
24 x 18	609.6	593.8	7.9	457.2	441.4	7.9	508
24 x 16	609.6	593.8	7.9	406.4	390.6	7.9	508

Caps



JIS B 2311

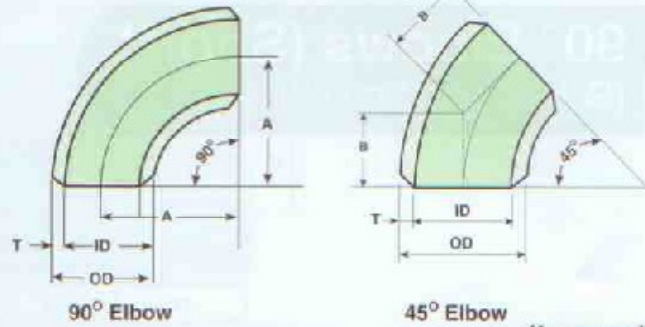
Caps

(in mm)

Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Length E	Approx Weight (kg)
½	-	-	-	-	-
¾	-	-	-	-	-
1	34	27.6	3.2	38.1	-
1¼	42.7	35.7	3.5	38.1	-
1½	48.6	41.6	3.5	38.1	-
2	60.5	52.9	3.8	38.1	0.228
2½	76.3	67.9	4.2	38.1	0.339
3	89.1	80.7	4.2	50.8	0.507
3½	101.6	93.2	4.2	63.5	0.706
4	114.3	105.3	4.5	63.5	0.877
5	139.8	130.8	4.5	76.2	1.29
6	165.2	155.2	5.0	88.9	1.99
8	216.3	204.7	5.8	101.6	3.61
10	267.4	254.2	6.6	127	6.33
12	318.5	304.7	6.9	152.4	9.43
14	355.6	339.8	7.9	165.1	13.2
16	406.4	390.6	7.9	177.8	16.6
18	457.2	441.4	7.9	203.2	21.2
20	508	492.4	7.9	228.6	26.4
24	-	-	-	-	-

STEEL BUTT-WELDING PIPE FITTINGS

90° Elbows (Long)
45° Elbows (Long)
 (Sch 40 and Sch 80)



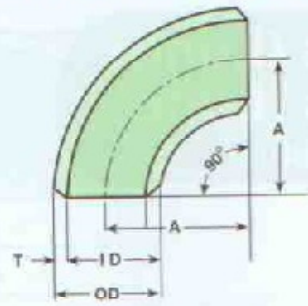
JIS B 2312

(in mm)

Nominal Pipe Size	Outside Diameter OD	SCH 40		SCH 80		Center To End		Approx Weight (kg)	
		Inside Diameter ID	Wall Thickness T	Inside Diameter ID	Wall Thickness T	A	B	SCH 40	SCH 80
½	21.7	16.1	2.8	14.3	3.7	38.1	15.8	0.078 (0.039)	0.099 (0.049)
¾	27.2	21.4	2.9	19.4	3.9	38.1	15.8	0.103 (0.052)	0.134 (0.067)
1	34.0	27.2	3.4	25.0	4.5	38.1	15.8	0.154 (0.077)	0.196 (0.098)
1¼	42.7	35.5	3.6	32.9	4.9	47.6	19.7	0.260 (0.130)	0.341 (0.170)
1½	48.6	41.2	3.7	38.4	5.1	57.2	23.7	0.368 (0.184)	0.492 (0.246)
2	60.5	52.7	3.9	49.5	5.5	76.2	31.6	0.652 (0.326)	0.891 (0.445)
2½	76.3	65.9	5.2	62.3	7.0	95.3	39.5	1.37 (0.683)	1.79 (0.895)
3	89.1	78.1	5.5	73.9	7.6	114.3	47.3	2.04 (1.02)	2.74 (1.37)
3½	101.6	90.2	5.7	85.4	8.1	133.4	55.3	2.82 (1.01)	3.91 (1.95)
4	114.3	102.3	6	97.1	8.6	152.4	63.1	3.84 (1.92)	5.36 (2.68)
5	139.8	126.6	6.6	120.8	9.5	190.5	78.9	6.48 (3.24)	9.13 (4.57)
6	165.2	151	7.1	143.2	11	228.6	94.7	9.94 (4.97)	15.0 (7.50)
8	216.3	199.9	8.2	190.9	12.7	304.8	126.3	20.1 (10.1)	30.5 (15.3)
10	267.4	248.8	9.3	237.2	15.1	381	157.8	35.4 (17.7)	56.2 (23.9)
12	318.5	297.9	10.3	283.7	17.4	457.2	189.4	56.2	92.7 (34.4)
14	355.6	333.4	11.1	317.6	19	533.4	220.9	79.0	132.0 (45.0)
16	406.4	381	12.7	363.6	21.4	609.6	252.5	118.0	194.0
18	457.2	428.6	14.3	409.6	23.8	685.8	284.1	168.0	274.0
20	508.0	477.8	15.1	455.6	26.2	762	315.6	220.0	372.0
24	609.6	-	-	-	-	-	-	-	-

90° Elbows (Short)

(Sch 40 and Sch 80)



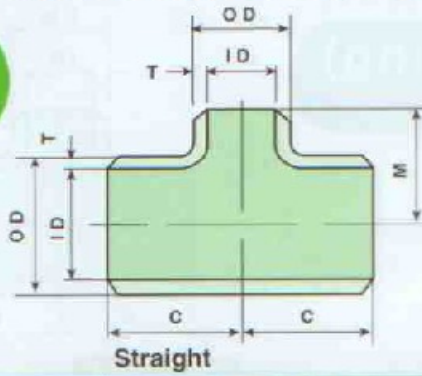
90° Elbow

(in mm)

JIS B 2312

Nominal Pipe Size	Outside Diameter OD	SCH 40		SCH 80		Center To End A
		Inside Diameter ID	Wall Thickness T	Inside Diameter ID	Wall Thickness T	
½	21.7	16.1	2.8	14.3	3.7	-
¾	27.2	21.4	2.9	19.4	3.9	-
1	34.0	27.2	3.4	25.0	4.5	25.4
1¼	42.7	35.5	3.6	32.9	4.9	31.8
1½	48.6	41.2	3.7	38.4	5.1	38.1
2	60.5	52.7	3.9	49.5	5.5	50.8
2½	76.3	65.9	5.2	62.3	7.0	63.5
3	89.1	78.1	5.5	73.9	7.6	76.2
3½	101.6	90.2	5.7	85.4	8.1	88.9
4	114.3	102.3	6	97.1	8.6	101.6
5	139.8	126.6	6.6	120.8	9.5	127
6	165.2	151	7.1	143.2	11	152.4
8	216.3	199.9	8.2	190.9	12.7	203.2
10	267.4	248.8	9.3	237.2	15.1	254
12	318.5	297.9	10.3	283.7	17.4	304.8
14	355.6	333.4	11.1	317.6	19	355.6
16	406.4	381	12.7	363.6	21.4	406.4
18	457.2	428.6	14.3	409.6	23.8	457.2
20	508.0	477.8	15.1	455.6	26.2	508
24	609.6	590.6	9.5	584.2	12.7	609.6

Tees (Straight)
Sch 40 and Sch 80



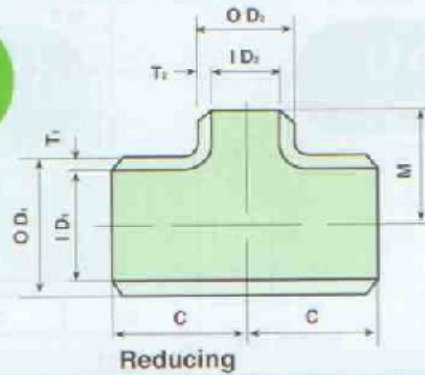
JIS B 2312

(in mm)

Nominal Pipe Size	SCH 40			SCH 80			Center To End	
	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Run C	Outlet M
½	21.7	16.1	2.8	21.7	14.3	3.7	25.4	25.4
¾	27.2	21.4	2.9	27.2	19.4	3.9	28.6	28.6
1	34.0	27.2	3.4	34.0	25.0	4.5	38.1	38.1
1¼	42.7	35.5	3.6	42.7	32.9	4.9	47.6	47.6
1½	48.6	41.2	3.7	48.6	38.4	5.1	57.2	57.2
2	60.5	52.7	3.9	60.5	49.5	5.5	63.5	63.5
2½	76.3	65.9	5.2	76.3	62.3	7.0	76.2	76.2
3	89.1	78.1	5.5	89.1	73.9	7.6	85.7	85.7
3½	101.6	90.2	5.7	101.6	85.4	8.1	95.3	95.3
4	114.3	102.3	6.0	114.3	97.1	8.6	104.8	104.8
5	139.8	126.6	6.6	139.8	120.8	9.5	123.8	123.8
6	165.2	151	7.1	165.2	143.2	11	142.9	142.9
8	216.3	199.9	8.2	216.3	190.9	12.7	177.8	177.8
10	267.4	248.8	9.3	267.4	237.2	15.1	215.9	215.9
12	318.5	297.9	10.3	318.5	283.7	17.4	254	254
14	355.6	333.4	11.1	355.6	317.6	19	279.4	279.4
16	406.4	381	12.7	406.4	363.6	21.4	304.8	304.8
18	457.2	428.6	14.3	457.2	409.6	23.8	342.9	342.9
20	508	477.8	15.1	508	455.6	26.2	381	381
22	558.8	539.8	9.5	558.8	533.4	12.7	491.1	491.1
24	609.6	590.6	9.5	609.6	584.2	12.7	431.8	431.8

STEEL BUTT-WELDING PIPE FITTINGS

Tees (Reducing) Sch 40



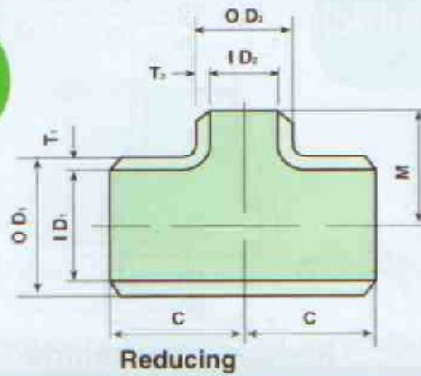
JIS B 2312

(in mm)

Nominal Pipe Size	Run			Outlet			Center To End	
	Outside Diameter OD ₁	Inside Diameter ID ₁	Wall Thickness T ₁	Outside Diameter OD ₂	Inside Diameter ID ₂	Wall Thickness T ₂	Run C	Outlet M
½ x ½ x ½	27.2	21.4	2.9	21.7	16.1	2.8	28.6	28.6
1 x 1 x ½	34.0	27.2	3.4	27.2	21.4	2.9	38.1	38.1
1 x 1 x ¼	34.0	27.2	3.4	21.7	16.1	2.8	38.1	38.1
1½ x 1½ x 1	42.7	35.5	3.6	34.0	27.2	3.4	47.6	47.6
1½ x 1½ x ¾	42.7	35.5	3.6	27.2	21.4	2.9	47.6	47.6
1½ x 1½ x ½	42.7	35.5	3.6	21.7	16.1	2.8	47.6	47.6
1½ x 1½ x 1¼	48.6	41.2	3.7	42.7	35.5	3.6	57.2	57.2
1½ x 1½ x 1	48.6	41.2	3.7	34	27.2	3.4	57.2	57.2
1½ x 1½ x ¾	48.6	41.2	3.7	27.2	21.4	2.9	57.2	57.2
1½ x 1½ x ½	48.6	41.2	3.7	21.7	16.1	2.8	57.2	57.2
2 x 2 x 1½	60.5	52.7	3.9	48.6	41.2	3.7	63.5	60.3
2 x 2 x 1¼	60.5	52.7	3.9	42.7	35.5	3.6	63.5	57.2
2 x 2 x 1	60.5	52.7	3.9	34	27.2	3.4	63.5	50.8
2 x 2 x ¾	60.5	52.7	3.9	27.2	21.4	2.8	63.5	44.5
2½ x 2½ x 2	76.3	65.9	5.2	60.5	52.7	3.9	76.2	69.9
2½ x 2½ x 1½	76.3	65.9	5.2	48.6	41.2	3.7	76.2	66.7
2½ x 2½ x 1¼	76.3	65.9	5.2	42.7	35.5	3.6	76.2	63.5
2½ x 2½ x 1	76.3	65.9	5.2	34	27.2	3.4	76.2	57.2
3 x 3 x 2½	89.1	78.1	5.5	76.3	65.9	5.2	85.7	82.6
3 x 3 x 2	89.1	78.1	5.5	60.5	52.7	3.9	85.7	76.2
3 x 3 x 1½	89.1	78.1	5.5	48.6	41.2	3.7	85.7	73
3 x 3 x 1¼	89.1	78.1	5.5	42.7	35.5	3.6	85.7	69.9
3½ x 3½ x 3	101.6	90.2	5.7	89.1	78.1	5.5	95.3	92.1
3½ x 3½ x 2½	101.6	90.2	5.7	76.3	65.9	5.2	95.3	88.9
3½ x 3½ x 2	101.6	90.2	5.7	60.5	52.7	3.9	95.3	82.6
3½ x 3½ x 1½	101.6	90.2	5.7	48.6	41.2	3.7	95.3	79.4
4 x 4 x 3	114.3	102.3	6	89.1	78.1	5.5	104.8	98.4
4 x 4 x 2½	114.3	102.3	6	76.3	65.9	5.2	104.8	95.3
4 x 4 x 2	114.3	102.3	6	60.5	52.7	3.9	104.8	88.9
4 x 4 x 1½	114.3	102.3	6	48.6	41.2	3.7	104.8	85.7
5 x 5 x 4	139.8	126.6	6.6	114.3	102.3	6	123.8	117.5
5 x 5 x 3½	139.8	126.6	6.6	101.6	90.2	5.7	123.8	114.3
5 x 5 x 3	139.8	126.6	6.6	89.1	78.1	5.5	123.8	111.1
5 x 5 x 2½	139.8	126.6	6.6	76.3	65.9	5.2	123.8	108
5 x 5 x 2	139.8	126.6	6.6	60.5	52.7	3.9	123.8	104.8
6 x 6 x 5	165.2	151	7.1	139.8	126.6	6.6	142.9	136.5
6 x 6 x 4	165.2	151	7.1	114.3	102.3	6	142.9	130.2
6 x 6 x 3½	165.2	151	7.1	101.6	90.2	5.7	142.9	127.0
6 x 6 x 3	165.2	151	7.1	89.1	78.1	5.5	142.9	123.8
6 x 6 x 2½	165.2	151	7.1	76.3	65.9	5.2	142.9	120.7

STEEL BUTT-WELDING PIPE FITTINGS

Tees (Reducing) Sch 40



JIS B 2312

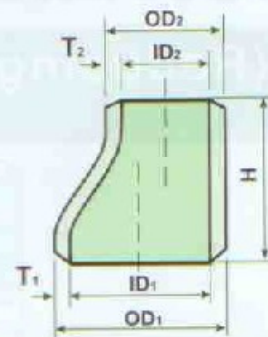
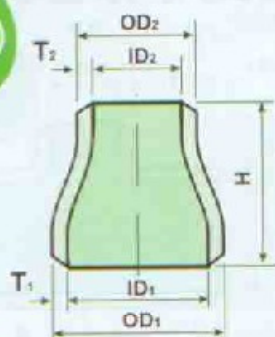
Reducing

(in mm)

Nominal Pipe Size	Run			Outlet			Center To End	
	Outside Diameter OD ₁	Inside Diameter ID ₁	Wall Thickness T ₁	Outside Diameter OD ₂	Inside Diameter ID ₂	Wall Thickness T ₂	Run C	Outlet M
8 x 8 x 6	216.3	199.9	8.2	165.2	151	7.1	177.8	168.3
8 x 8 x 5	216.3	199.9	8.2	139.8	126.6	6.6	177.8	161.9
8 x 8 x 4	216.3	199.9	8.2	114.3	102.3	6	177.8	155.6
8 x 8 x 3½	216.3	199.9	8.2	101.6	90.2	5.7	177.8	152.4
10 x 10 x 8	267.4	248.8	9.3	216.3	199.9	8.2	215.9	203.2
10 x 10 x 6	267.4	248.8	9.3	165.2	151	7.1	215.9	193.7
10 x 10 x 5	267.4	248.8	9.3	139.8	126.6	6.6	215.9	190.5
12 x 12 x 10	318.5	297.9	10.3	267.4	248.8	9.3	254	241.3
12 x 12 x 8	318.5	297.9	10.3	216.3	199.9	8.2	254	228.6
12 x 12 x 6	318.5	297.9	10.3	165.2	151	7.1	254	219.1
14 x 14 x 12	355.6	333.4	11.1	318.5	297.9	10.3	279.4	269.9
14 x 14 x 10	355.6	333.4	11.1	267.4	248.8	9.3	279.4	257.2
14 x 14 x 8	355.6	333.4	11.1	216.3	199.9	8.2	279.4	247.7
16 x 16 x 14	406.4	381	12.7	355.6	333.4	11.1	304.8	304.8
16 x 16 x 12	406.4	381	12.7	318.5	297.9	10.3	304.8	295.3
16 x 16 x 10	406.4	381	12.7	267.4	248.8	9.3	304.8	282.6
18 x 18 x 16	457.2	428.6	14.3	406.4	381	12.7	342.9	330.2
18 x 18 x 14	457.2	428.6	14.3	355.6	333.4	11.1	342.9	330.2
18 x 18 x 12	457.2	428.6	14.3	318.5	297.9	10.3	342.9	320.7
20 x 20 x 18	508	477.8	15.1	457.2	428.6	14.3	381	368.3
20 x 20 x 16	508	477.8	15.1	406.4	381	12.7	381	355.6
20 x 20 x 14	508	477.8	15.1	355.6	333.4	11.1	381	355.6
22 x 22 x 20	558.8	539.8	9.5	508.0	489.0	9.5	419.1	406.3
22 x 22 x 18	558.8	539.8	9.5	457.2	438.2	9.5	419.1	393.7
22 x 22 x 16	558.8	539.8	9.5	406.4	387.4	9.5	419.1	381
24 x 24 x 22	609.6	609.6	9.5	558.8	539.8	9.5	431.8	431.8
24 x 24 x 20	609.6	609.6	9.5	508	489.0	9.5	431.8	431.8
24 x 24 x 18	609.6	609.6	9.5	457.2	438.2	9.5	431.8	419.1

**Reducers
(Concentric and Eccentric)**

Sch 40



JIS B 2312

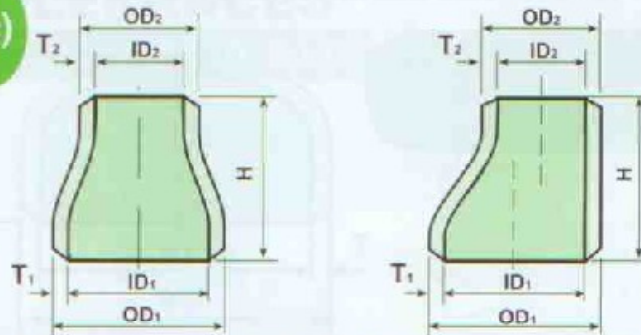
Reducers Concentric

Reducers Eccentric (in mm)

Nominal Pipe Size	Large End			Small End			End To End H
	Outside Diameter OD ₁	Inside Diameter ID ₁	Wall Thickness T ₁	Outside Diameter OD ₂	Inside Diameter ID ₂	Wall Thickness T ₂	
¾ x ½	27.2	21.4	2.9	21.7	16.1	2.8	38.1
1 x ¾	34	27.2	3.4	27.2	21.4	2.9	50.8
1 x ½	34	27.2	3.4	21.7	16.1	2.8	50.8
1½ x 1	42.7	35.5	3.6	34	27.2	3.4	50.8
1½ x ¾	42.7	35.5	3.6	27.2	21.4	2.9	50.8
1½ x ½	42.7	35.5	3.6	21.7	16.1	2.8	50.8
1½ x 1½	48.6	41.2	3.7	42.7	35.5	3.6	63.5
1½ x 1	48.6	41.2	3.7	34	27.2	3.4	63.5
1½ x ¾	48.6	41.2	3.7	27.2	21.4	2.9	63.5
1½ x ½	48.6	41.2	3.7	21.7	16.1	2.8	63.5
2 x 1½	60.5	52.7	3.9	48.6	41.2	3.7	76.2
2 x 1	60.5	52.7	3.9	42.7	35.5	3.6	76.2
2 x ¾	60.5	52.7	3.9	34	27.2	3.4	76.2
2 x ½	60.5	52.7	3.9	27.2	21.4	2.9	76.2
2½ x 2	76.3	65.9	5.2	60.5	52.7	3.9	88.9
2½ x 1½	76.3	65.9	5.2	48.6	41.2	3.7	88.9
2½ x 1	76.3	65.9	5.2	42.7	35.5	3.6	88.9
2½ x ¾	76.3	65.9	5.2	34	27.2	3.4	88.9
3 x 2½	89.1	78.1	5.5	76.3	65.9	5.2	88.9
3 x 2	89.1	78.1	5.5	60.5	52.7	3.9	88.9
3 x 1½	89.1	78.1	5.5	48.6	41.2	3.7	88.9
3 x 1	89.1	78.1	5.5	42.7	35.5	3.6	88.9
3½ x 3	101.6	90.2	5.7	89.1	78.1	5.5	101.6
3½ x 2½	101.6	90.2	5.7	76.3	65.9	5.2	101.6
3½ x 2	101.6	90.2	5.7	60.5	52.7	3.9	101.6
3½ x 1½	101.6	90.2	5.7	48.6	41.2	3.7	101.6
4 x 3½	114.3	102.3	6.0	101.6	90.2	5.7	101.6
4 x 3	114.3	102.3	6.0	89.1	78.1	5.5	101.6
4 x 2½	114.3	102.3	6.0	76.3	65.9	5.2	101.6
4 x 2	114.3	102.3	6.0	60.5	52.7	3.9	101.6
4 x 1½	114.3	102.3	6.0	48.6	41.2	3.7	101.6
5 x 4	139.8	126.6	6.6	114.3	102.3	6	127
5 x 3½	139.8	126.6	6.6	101.6	90.2	5.7	127
5 x 3	139.8	126.6	6.6	89.1	78.1	5.5	127
5 x 2½	139.8	126.6	6.6	76.3	65.9	5.2	127
5 x 2	139.8	126.6	6.6	60.5	52.7	3.9	127

**Reducers
(Concentric and Eccentric)**

Sch 40



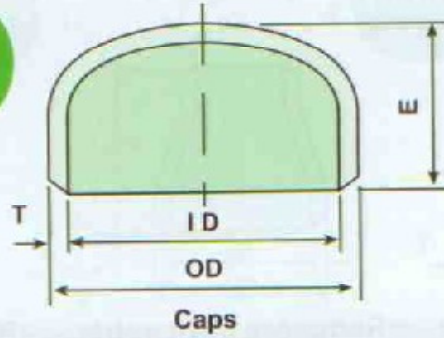
JIS B 2312

Reducers Concentric

Reducers Eccentric (in mm)

Nominal Pipe Size	Large End			Small End			End To End H
	Outside Diameter OD ₁	Inside Diameter ID ₁	Wall Thickness T ₁	Outside Diameter OD ₂	Inside Diameter ID ₂	Wall Thickness T ₂	
6 x 5	165.2	151	7.1	139.8	126.6	6.6	139.7
6 x 4	165.2	151	7.1	114.3	102.3	6	139.7
6 x 3½	165.2	151	7.1	101.6	90.2	5.7	139.7
6 x 3	165.2	151	7.1	89.1	78.1	5.5	139.7
6 x 2½	165.2	151	7.1	76.3	65.9	5.2	139.7
8 x 6	216.3	199.9	8.2	165.2	151	7.1	152.4
8 x 5	216.3	199.9	8.2	139.8	126.6	6.6	152.4
8 x 4	216.3	199.9	8.2	114.3	102.3	6	152.4
8 x 3½	216.3	199.9	8.2	101.6	90.2	5.7	152.4
10 x 8	267.4	248.8	9.3	216.3	199.9	8.2	177.8
10 x 6	267.4	248.8	9.3	165.2	151	7.1	177.8
10 x 5	267.4	248.8	9.3	139.8	126.6	6.6	177.8
10 x 4	267.4	248.8	9.3	114.3	102.3	6	177.8
12 x 10	318.5	297.9	10.3	267.4	248.8	9.3	203.2
12 x 8	318.5	297.9	10.3	216.3	199.9	8.2	203.2
12 x 6	318.5	297.9	10.3	165.2	151	7.1	203.2
12 x 5	318.5	297.9	10.3	139.8	126.6	6.6	203.2
14 x 12	355.6	333.4	11.1	318.5	297.9	10.3	330.2
14 x 10	355.6	333.4	11.1	267.4	248.8	9.3	330.2
14 x 8	355.6	333.4	11.1	216.3	199.9	8.2	330.2
14 x 6	355.6	333.4	11.1	165.2	151	7.1	330.2
16 x 14	406.4	381	12.7	355.6	333.4	11.1	355.6
16 x 12	406.4	381	12.7	318.5	297.9	10.3	355.6
16 x 10	406.4	381	12.7	267.4	248.8	9.3	355.6
16 x 8	406.4	381	12.7	216.3	199.9	8.2	355.6
18 x 16	457.2	428.6	14.3	406.4	381	12.7	381
18 x 14	457.2	428.6	14.3	355.6	333.4	11.1	381
18 x 12	457.2	428.6	14.3	318.5	297.9	10.3	381
18 x 10	457.2	428.6	14.3	267.4	248.8	9.3	381
20 x 18	508	477.8	15.1	457.2	428.6	14.3	508
20 x 16	508	477.8	15.1	406.4	381	12.7	508
20 x 14	508	477.8	15.1	355.6	333.4	11.1	508
20 x 12	508	477.8	15.1	318.5	297.9	10.3	508
22 x 20	558.8	539.8	9.5	508.0	489.0	9.5	508
22 x 18	558.8	539.8	9.5	457.2	438.2	9.5	508
22 x 16	558.8	539.8	9.5	406.4	387.4	9.5	508
22 x 14	558.8	539.8	9.5	355.6	336.6	9.5	508
24 x 22	609.6	590.6	9.5	558.8	539.8	9.5	508
24 x 20	609.6	590.6	9.5	508	489.0	9.5	508
24 x 18	609.6	590.6	9.5	457.2	438.2	9.5	508
24 x 16	609.6	590.6	9.5	406.4	387.4	9.5	508

Caps
(Sch 40)



JIS B 2312

Caps

(in mm)

Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Length E	Approx Weight (kg)
1/2	-	-	-	-	-
3/4	-	-	-	-	-
1	34	27.2	3.4	-	0.109
1 1/4	42.7	35.5	3.6	-	0.145
1 1/2	48.6	41.2	3.7	-	0.171
2	60.5	52.7	3.9	44.5	0.234
2 1/2	76.3	65.9	5.2	50.8	0.420
3	89.1	78.1	5.5	63.5	0.664
3 1/2	101.6	-	-	-	-
4	114.3	102.3	6.0	76.2	1.170
5	139.8	126.6	6.6	88.9	1.90
6	165.2	151.0	7.1	101.6	2.83
8	216.3	199.9	8.2	127.0	5.11
10	267.4	248.8	9.3	152.4	8.92
12	318.5	297.9	10.3	177.8	14.10
14	355.6	333.4	11.1	190.5	18.60
16	406.4	381.0	12.7	203.2	26.70
18	457.2	428.6	14.3	228.6	41.50
20	508	477.8	15.1	254.0	54.10
24	-	-	-	-	-

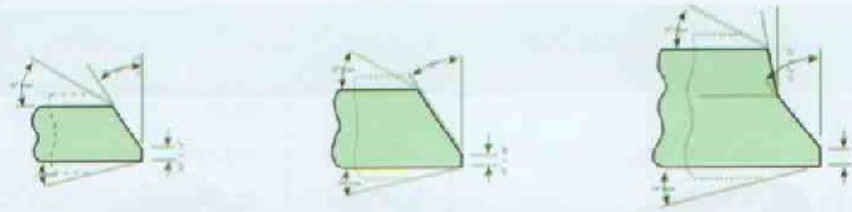
DIMENSIONAL TOLERANCES PIPE FITTINGS

JIS B 2311

JIS B 2312

T ≥ 19.0

T > 19.0



JIS B 2311

(in mm)

All Fittings			90° and 45° Elbows		Tees	Reducers	Caps	180° Elbows		
Nominal Pipe Size	Outside Diameter at Bevel OD	Inside Diameter at End ID	Wall Thickness T	Center To End Dimension A, B	Center To End Dimension C, M	Over all Length H	Over all Length E	Center To Center Dimension P	Center To Face Dimension K	Align-ment of Ends U
½ - 2½	±2	±2		±3	±3	±3	±5	±8		2
3 - 4	±2.5	±2.5								
5 - 8	±3.5	±3.5	+ Not Specified -15%						±8	
10 - 18	±5	±5		±5	±5	±5	±8	±12		4
20	±7	±7								

JIS B 2312

(in mm)

All Fittings			90° and 45° Elbows		Tees	Reducers	Caps	180° Elbows		
Nominal Pipe Size	Outside Diameter at Bevel OD	Inside Diameter at End ID	Wall Thickness T	Center To End Dimension A, B	Center To End Dimension C, M	Over all Length H	Over all Length E	Center To Center Dimension P	Center To Face Dimension K	Align-ment of Ends U
½ - 2½	+ 1.6 - 0.8	±0.8								
3 - 4	±1.6	±1.6	+ Not Specified -12.5%	±1.6	±1.6	±1.6	±3.2	±6.4		1.6
5 - 8	+2.4 -1.6	±1.6						±6.4		
10 - 18	+4 -3.2	±3.2		+2.4	±2.4	±2.4	±6.4	±9.5		3.2
20	+6.4 -4.8	±4.8								

ASTM			JIS		KS	
PIPE	PLATE	FORGINGS	PIPE	PLATE	PIPE	PLATE
A 120	A 283 gr, A	-	SGP	SS41	SPP	SB41
A 53A	A 242	-	STPG35	SM41 B	SPPS35	SWS41B
A 53B	A 242	-	STPG38	SM41 B	SPPS38	SWS41B
A 53B	A 242	-	STPG42	SM41 B	SPPS42	SWS41B
-	-	-	STS35	SM35	SPPH35	-
-	-	-	STS38	SM42	SPPS38	SBB42
-	-	-	STS42	SM42	SPPS42	SBB42
-	-	-	STS49	SM49	SPPS49	SBB49
A 106A	A 285-B	A 105-1	STPT35	SB45	SPHT45	SBB45
A 106B	A 515-55	A 105-11	STPT38	SB42	SPHT38	SBB42
A 106B	A 515-60	-	STPT42	SB42	SPHT42	SBB42
A 106C	A 515-70	-	STPT49	SB49	SPHT49	SBB49
A 335P1	A 204-B	A 181 -F1	STPA11	-	SPA11	-
A 335P12	A 387-B	A181 -F12	STPA21	-	SPA21	-
A 335P11	A 397-C	A 181 -F11	STPA23	-	SPA23	-
A 335P22	A 387-D	A 181 -F22	STPA24	-	SPA24	-
A 335P5	A 357	A 181 -F5	STPA25	-	SPA25	-
A 335P9	-	A 181 -F9	STPA26	-	SPA26	-
A 312TP304	A 240	A 182-F304	SUS27TP	SUS27	STS304TP	STSF304
A 312TP304L	A 240	A 182-F304L	SUS28TP	SUS28	STS3042LTP	STSF304L
A 312TP310	A 240	A 182-F310	SUS42TP	SUS42	STS310STP	STSF310
A 312TP321	A 240	A 182-F321	SUS29TP	SUS29	STS321TP	STSF321
A 312TP347	A 240	A 182-F347	SUS43TP	SUS43	STS347TP	STSF347
A 312TP316	A 240	A 182-F316	SUS32TP	SUS32	STS316TP	STSF316
A 312TP316L	A 240	A 182-F316L	SUS33TP	SUS33	STS316LTP	STSF316L
A 333 1	A 300-1	-	STPL39	-	SPLT39	-
A 333 3	300-3	-	STPL46	-	SPLT46	-
A 83	A 285-B	-	STB30	-	STH30	-
A 83	A 285-B	-	STB33	-	STH33	-
A 83	A 285-B	-	STB35	-	STH35	-
A 219A1	A 515-60	-	STB42	SB42	STH42	SBB42
A 209T1	A 204-B	-	STBA11	-	STHA11	-
A 209T1	A 204-B	-	STBA12	-	STHA12	-
A 213T12	A 387-B	-	STBA21	-	STHA21	-
A 213T11	A 387-C	-	STBA23	-	STHA23	-
A 213T22	A 387-D	-	STBA24	-	STHA24	-
A 213T5	A 357	-	STBA25	-	STHA25	-
A 213T9	-	-	STBA26	-	STHA26	-