

# RICON®

## STEEL BUTT-WELDING PIPE FITTINGS

ELBOW | TEE | REDUCER | CAP



# MAXIMUM PRESSURE

Material : Carbon Steel

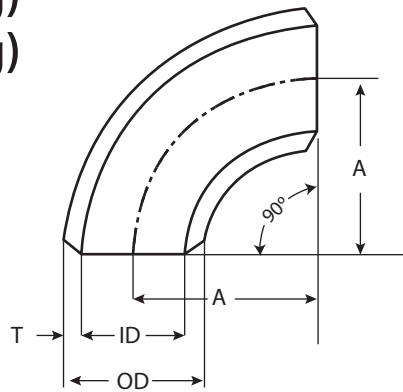
Pressure Nominal (Mpa)	Diameter Nominal																			
	10	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
≤ 1.6	2.5	3	3	3	3	3.5	3.5	4	4	4	4	4.5	5	6	7	7	8	8	8	9
2.5	2.5	3	3	3	2	3.5	3.5	4	4	4	4	4.5	5	6	7	7	8	8	9	10
4.0	2.5	3	3	3	3	3.5	3.5	4	4	4.5	5	5.5	7	8	9	10	11	12	13	15
6.4	3	3	3	3.5	3.5	3.5	4	4.5	5	6	7	8	9	11	12	14	16	17	19	22
10.0	3	3.5	3.5	4	4.5	4.5	5	6	7	8	9	10	13	15	18	20	22			
16.0	4	4.5	5	5	6	6	7	8	9	11	13	15	19	24	26	30	34			
20.0	4	4.5	5	6	6	7	8	9	11	13	15	18	22	28	32	36				
4.0T	3.5	4	4	4.5	5	5	5.5													

Thickness (mm)

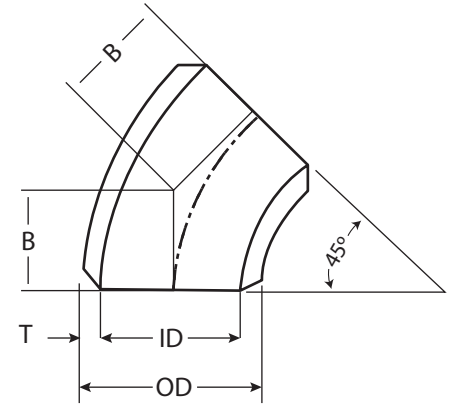


**90° Elbows (Long)**  
**45° Elbows (Long)**

JIS B 2311



• 90° Elbow



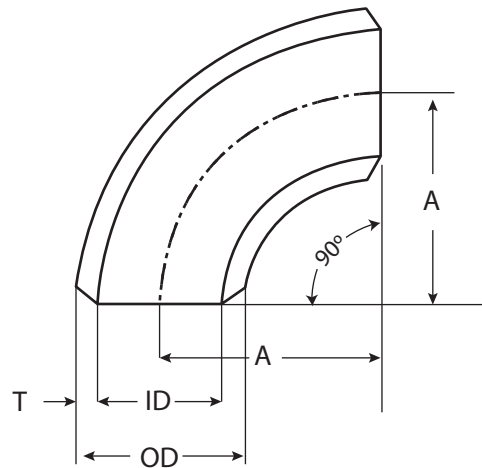
• 45° Elbow

(in mm)

Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Center To End		Approx Weight (kg)	
				A	B	90°	45°
1/2	21.7	16.1	2.8	38.1	15.8	0.078	0.039
3/4	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
1 1/4	42.7	35.7	3.5	47.6	19.7	0.252	0.126
1 1/2	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
2 1/2	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
3 1/2	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	5.0	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	381.0	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	508.0	492.2	7.9	762.0	315.6	116.0	58.3
24	609.6	-	-	914.4	378.7	168.0	84.1

## 90° Elbows (Long)

JIS B 2311

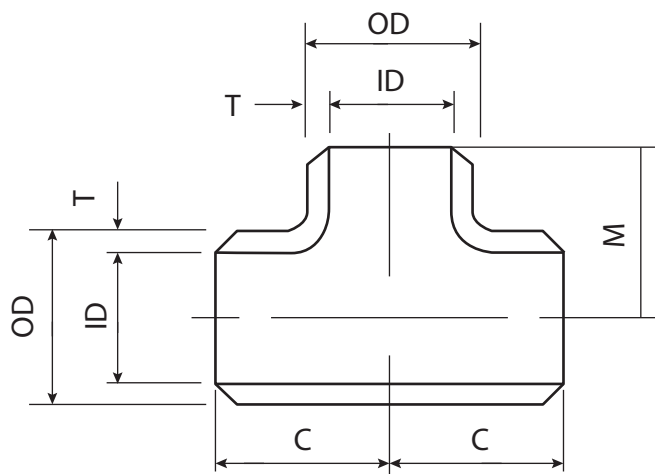


(in mm)

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	34.0	27.6	3.2	25.4	0.097
1 ¼	42.7	35.7	3.5	31.8	0.169
1 ½	48.6	41.6	3.5	38.1	0.233
2	60.5	52.9	3.8	50.8	0.423
2 ½	76.3	67.9	4.2	63.5	0.745
3	89.1	80.7	4.2	76.2	1.05
3 ½	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	127.0	2.99
6	165.2	155.2	5.0	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	508.0	492.2	7.9	508.0	77.7
24	609.6	-	-	609.6	112.0

## Tees (Straight)

JIS B 2311

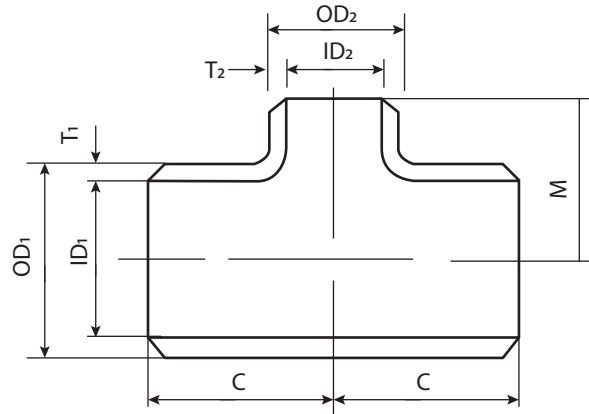


(in mm)

Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Center To End		Approx Weight (kg)
				Run	Outlet	
1/2	21.7	16.1	2.8	25.4	25.4	0.085
3/4	27.2	21.6	2.8	28.6	28.6	0.122
1	34.0	27.6	3.2	38.1	38.1	0.236
1 1/4	42.7	35.7	3.5	47.6	47.6	0.411
1 1/2	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
2 1/2	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
3 1/2	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	254.0	254.0 (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	508.0	492.2	7.9	381.0	381.0 (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

## Tees (Reducing)

JIS B 2311

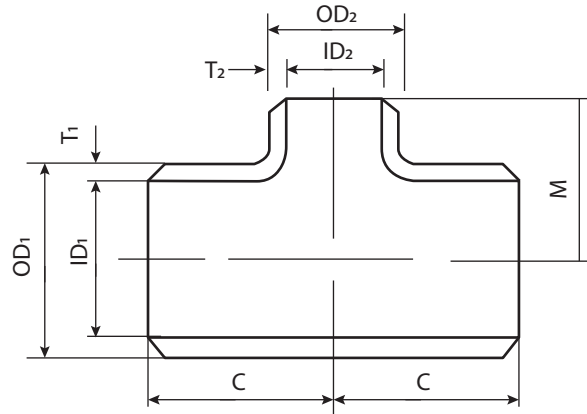


(in mm)

Nominal Pipe Size	Run			Outlet			Center To End	
	Outside Diameter OD1	Inside Diameter ID1	Wall Thickness T1	Outside Diameter OD2	Inside Diameter ID2	Wall Thickness T2	Run C	Outlet M
3/4 x 3/4 x 1/2	27.2	21.6	2.8	21.7	16.1	2.8	28.6	28.6
1 x 1 x 3/4	34.0	27.6	3.2	27.2	21.6	2.8	38.1	38.1
1 x 1 x 1/2	34.0	27.6	3.2	21.7	16.1	2.8	38.1	38.1
1 1/4 x 1 1/4 x 1	42.7	35.7	3.5	34.0	27.6	3.2	47.6	47.6
1 1/4 x 1 1/4 x 3/4	42.7	35.7	3.5	27.2	21.6	2.8	47.6	47.6
1 1/4 x 1 1/4 x 1/2	42.7	35.7	3.5	21.7	16.1	2.8	47.6	47.6
1 1/2 x 1 1/2 x 1 1/4	48.6	41.6	3.5	42.7	35.7	3.5	57.2	57.2
1 1/2 x 1 1/2 x 1	48.6	41.6	3.5	34.0	27.6	3.2	57.2	57.2
1 1/2 x 1 1/2 x 3/4	48.6	41.6	3.5	27.2	21.6	2.8	57.2	57.2
1 1/2 x 1 1/2 x 1/2	48.6	41.6	3.5	21.7	16.1	2.8	57.2	57.2
2 x 2 x 1 1/2	60.5	52.9	3.8	48.6	41.6	3.5	63.5	60.3
2 x 2 x 1 1/4	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	34.0	27.6	3.2	63.5	50.8
2 x 2 x 3/4	60.5	52.9	3.8	27.2	21.6	2.8	63.5	44.5
2 1/2 x 2 1/2 x 2	76.3	67.9	4.2	60.5	52.9	3.8	76.2	69.9
2 1/2 x 2 1/2 x 1 1/2	76.3	67.9	4.2	48.6	41.6	3.5	76.2	66.7
2 1/2 x 2 1/2 x 1 1/4	76.3	67.9	4.2	42.7	35.7	3.5	76.2	63.5
2 1/2 x 2 1/2 x 1	76.3	67.9	4.2	34.0	27.6	3.2	76.2	57.2
3 x 3 x 2 1/2	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 1 1/2	89.1	80.7	4.2	48.6	41.6	3.5	85.7	73.0
3 x 3 x 1 1/4	89.1	80.7	4.2	42.7	35.7	3.5	85.7	69.9
3 1/2 x 3 1/2 x 3	101.6	93.2	4.2	89.1	80.7	4.2	95.3	92.1
3 1/2 x 3 1/2 x 2 1/2	101.6	93.2	4.2	76.3	67.9	4.2	95.3	88.9
3 1/2 x 3 1/2 x 2	101.6	93.2	4.2	60.5	52.9	3.8	95.3	82.6
3 1/2 x 3 1/2 x 1 1/2	101.6	93.2	4.2	48.6	41.6	3.5	95.3	79.4
4 x 4 x 3 1/2	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 2 1/2	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 1 1/2	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 3 1/2	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 2 1/2	139.8	130.8	4.5	76.3	67.9	4.2	123.8	108.0
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

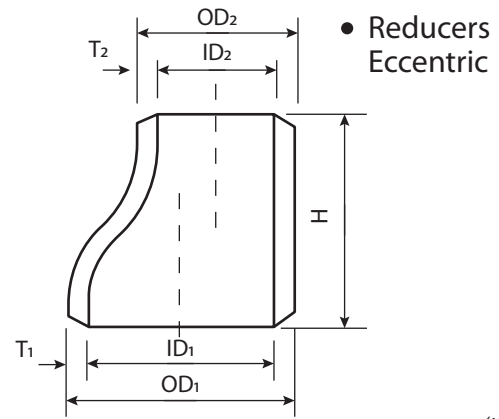
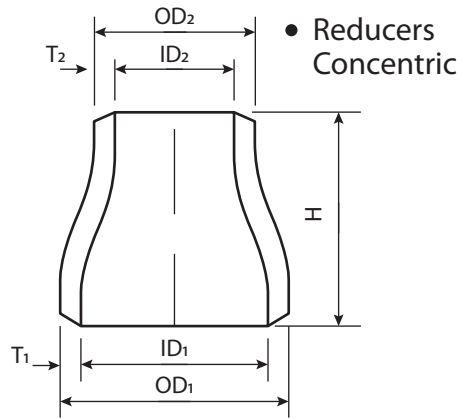


(in mm)

Nominal Pipe Size	Run			Outlet			Center To End	
	Outside Diameter OD1	Inside Diameter ID1	Wall Thickness T1	Outside Diameter OD2	Inside Diameter ID2	Wall Thickness T2	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	127.0
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	254.0	241.3
12 x 12 x 8	318.5	304.7	6.9	216.3	204.7	6.6	254.0	228.6
12 x 12 x 6	318.5	304.7	6.9	165.2	155.2	6.6	254.0	219.1
12 x 12 x 5	318.5	304.7	6.9	139.8	130.8	6.6	254.0	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	508.0	492.2	7.9	457.2	441.4	7.9	381.0	368.3
20 x 20 x 16	508.0	492.2	7.9	406.4	390.6	7.9	381.0	355.6
20 x 20 x 14	508.0	492.2	7.9	355.6	339.8	7.9	381.0	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	381.0
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	508.0	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**

JIS B 2311



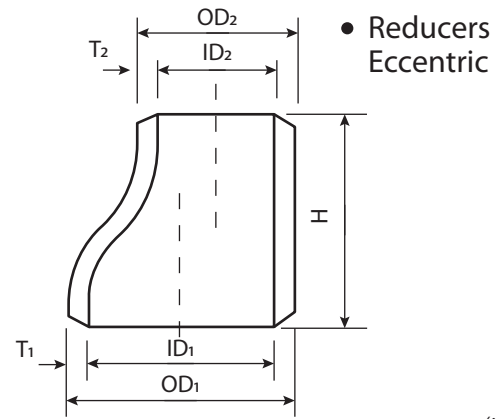
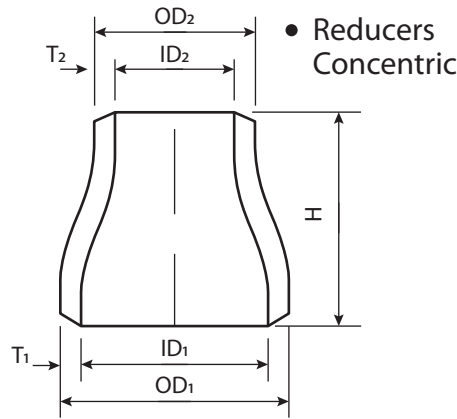
(in mm)

Nominal Pipe Size	Large End			Small End			End To End H
	Outside Diameter OD <sub>1</sub>	Inside Diameter ID <sub>1</sub>	Wall Thickness T <sub>1</sub>	Outside Diameter OD <sub>2</sub>	Inside Diameter ID <sub>2</sub>	Wall Thickness T <sub>2</sub>	
3/4 x 1/2	27.2	21.6	2.8	21.7	16.1	2.8	38.1
1 x 3/4	34.0	27.6	3.2	27.2	21.6	2.8	50.8
1 x 1/2	34.0	27.6	3.2	21.7	16.1	2.8	50.8
1 1/4 x 1	42.7	35.7	3.5	34.0	27.6	3.2	50.8
1 1/4 x 3/4	42.7	35.7	3.5	27.2	21.6	2.8	50.8
1 1/4 x 1/2	42.7	35.7	3.5	21.7	16.1	2.8	50.8
1 1/2 x 1 1/4	48.6	41.6	3.5	42.7	35.7	3.5	63.5
1 1/2 x 1	48.6	41.6	3.5	34.0	27.6	3.2	63.5
1 1/2 x 3/4	48.6	41.6	3.5	27.2	21.6	2.8	63.5
1 1/2 x 1/2	48.6	41.6	3.5	21.7	16.1	2.8	63.5
2 x 1 1/2	60.5	52.9	3.8	48.6	41.6	3.5	76.2
2 x 1 1/4	60.5	52.9	3.8	42.7	35.7	3.5	76.2
2 x 1	60.5	52.9	3.8	34.0	27.6	3.2	76.2
2 x 3/4	60.5	52.9	3.8	27.2	21.6	2.8	76.2
2 1/2 x 2	76.3	67.9	4.2	60.5	52.9	3.8	88.9
2 1/2 x 1 1/2	76.3	67.9	4.2	48.6	41.6	3.5	88.9
2 1/2 x 1 1/4	76.3	67.9	4.2	42.7	35.7	3.5	88.9
2 1/2 x 1	76.3	67.9	4.2	34.0	27.6	3.2	88.9
3 x 2 1/2	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 1 1/2	89.1	80.7	4.2	48.6	41.6	3.5	88.9
3 x 1 1/4	89.1	80.7	4.2	42.7	35.7	3.5	88.9
3 1/2 x 3	101.6	93.2	4.2	89.1	80.7	4.2	101.6
3 1/2 x 2 1/2	101.6	93.2	4.2	76.3	67.9	4.2	101.6
3 1/2 x 2	101.6	93.2	4.2	60.5	52.9	3.8	101.6
3 1/2 x 1 1/2	101.6	93.2	4.2	48.6	41.6	3.5	101.6
4 x 3 1/2	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 2 1/2	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 1 1/2	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	127.0
5 x 3 1/2	139.8	130.8	4.5	101.6	93.2	4.2	127.0
5 x 3	139.8	130.8	4.5	89.1	80.7	4.2	127.0
5 x 2	139.8	130.8	4.5	76.3	67.9	4.2	127.0
5 x 2	139.8	130.8	4.5	60.5	52.9	3.8	127.0
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 3 1/2	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 2 1/2	165.2	155.2	5.0	76.3	67.9	4.2	139.7



**Reducers**

JIS B 2311

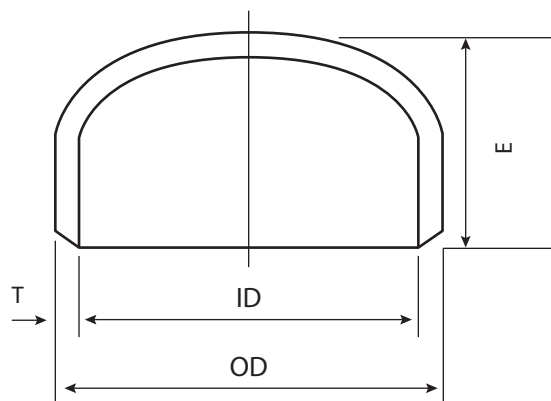


(in mm)

Nominal Pipe Size	Large End			Small End			End To End H
	Outside Diameter OD <sub>1</sub>	Inside Diameter ID <sub>1</sub>	Wall Thickness T <sub>1</sub>	Outside Diameter OD <sub>2</sub>	Inside Diameter ID <sub>2</sub>	Wall Thickness T <sub>2</sub>	
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	381.0
18 x 14	457.2	441.4	7.9	355.6	339.8	7.9	381.0
18 x 12	457.2	441.4	7.9	318.5	304.7	6.9	381.0
18 x 10	457.2	441.4	7.9	267.4	254.2	6.6	381.0
20 x 18	508.0	492.2	7.9	457.2	441.4	7.9	508.0
20 x 16	508.0	492.2	7.9	406.4	390.6	7.9	508.0
20 x 14	508.0	492.2	7.9	355.6	339.8	7.9	508.0
20 x 12	508.0	492.2	7.9	318.5	304.7	6.9	508.0
22 x 20	558.8	543.0	7.9	508.0	492.2	7.9	508.0
22 x 18	558.8	543.0	7.9	457.2	441.4	7.9	508.0
22 x 16	558.8	543.0	7.9	406.4	390.6	7.9	508.0
22 x 14	558.8	543.0	7.9	355.6	339.8	7.9	508.0
24 x 22	609.6	593.8	7.9	558.8	543.0	7.9	508.0
24 x 20	609.6	593.8	7.9	508.0	492.2	7.9	508.0
24 x 18	609.6	593.8	7.9	457.2	441.4	7.9	508.0
24 x 16	609.6	593.8	7.9	406.4	390.6	7.9	508.0

## Caps

JIS B 2311

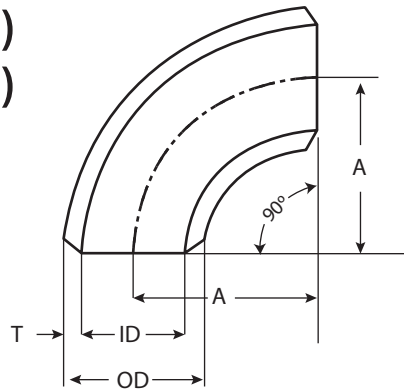


(in mm)

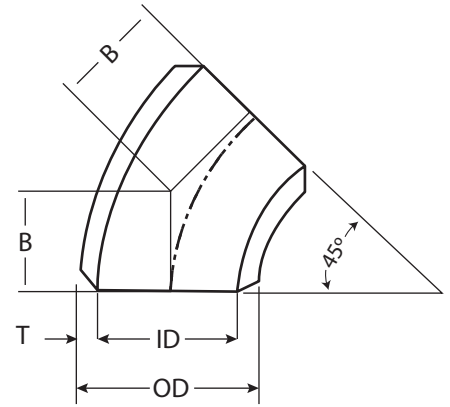
Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Length E	Approx Weight (kg)
1/2	-	-	-	-	-
3/4	-	-	-	-	-
1	34.0	27.6	3.2	38.1	-
1 1/4	42.7	35.7	3.5	38.1	-
1 1/2	48.6	41.6	3.5	38.1	-
2	60.5	52.9	3.8	38.1	0.228
2	76.3	67.9	4.2	38.1	0.339
3 1/2	89.1	80.7	4.2	50.8	0.507
3	101.6	93.2	4.2	63.5	0.706
4 1/2	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	127.0	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	508.0	492.4	7.9	228.6	26.4
24	-	-	-	-	-

**90° Elbows (Long)**  
**45° Elbows (Long)**

Sch 40 and Sch 80  
JIS B 2312



• 90° Elbow



• 45° Elbow

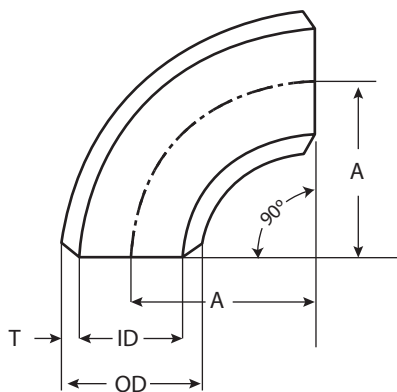
(in mm)

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
1/2	21.7	16.1	2.8	14.3	3.7	38.1	15.8	(0.039) 0.078	0.099 (0.049)
3/4	27.2	21.4	2.9	19.4	3.9	38.1	15.8	(0.052) 0.103	0.134 (0.067)
1	34.0	27.2	3.4	25.0	4.5	38.1	15.8	(0.077) 0.154	0.196 (0.098)
1 1/4	42.7	35.5	3.6	32.9	4.9	47.6	19.7	(0.130) 0.260	0.341 (0.170)
1 1/2	48.6	41.2	3.7	38.4	5.1	57.2	23.7	(0.184) 0.368	0.492 (0.246)
2	60.5	52.7	3.9	49.5	5.5	76.2	31.6	(0.326) 0.652	0.891 (0.445)
2	76.3	65.9	5.2	62.3	7.0	95.3	39.5	(0.683) 1.37	1.79 (0.895)
3 1/2	89.1	78.1	5.5	73.9	7.6	114.3	47.3	(1.02) 2.04	2.74 (1.37)
3	101.6	90.2	5.7	85.4	8.1	133.4	55.3	(1.01) 2.82	3.91 (1.95)
4 1/2	114.3	102.3	6.0	98.1	8.6	152.4	63.1	(1.92) 3.84	5.36 (2.68)
5	139.8	126.6	6.6	120.8	9.5	190.5	78.9	(3.24) 6.48	9.13 (4.57)
6	165.2	151.0	7.1	143.2	11.0	228.6	94.7	(4.97) 9.94	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	381.0	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	19.0	533.4	220.9	79.0	132.0 (45.0)
16	406.4	381.0	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	762.0	315.6	220.0	372.0
24	609.6	-	-	-	-	-	-	-	-

## 90° Elbows (Short)

Sch 40 and Sch 80

JIS B 2312



• 90° Elbow

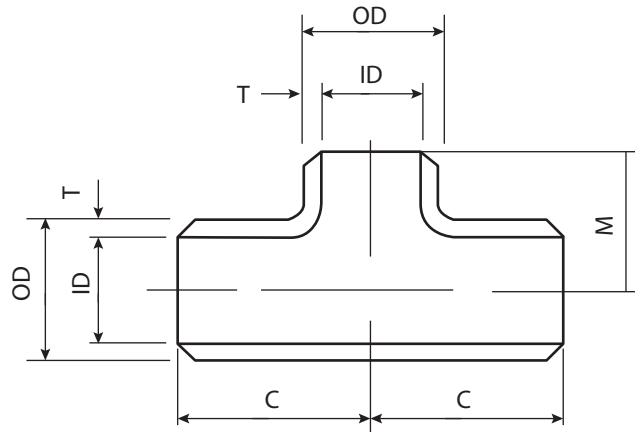
(in mm)

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	
1/2	21.7	16.1	2.8	14.3	3.7	-
3/4	27.2	21.4	2.9	19.4	3.9	-
1	34.0	27.2	3.4	25.0	4.5	25.4
1 1/4	42.7	35.5	3.6	32.9	4.9	31.8
1 1/2	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
2 1/2	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
3 1/2	101.6	90.2	5.7	85.4	8.1	88.9
4	114.3	102.3	6.0	97.1	8.6	101.6
5	139.8	126.6	6.6	120.8	9.5	127.0
6	165.2	151.0	7.1	143.2	11.0	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	254.0
12	318.5	297.9	10.3	283.7	17.4	304.8
14	355.6	333.4	11.1	317.6	19.0	355.6
16	406.4	381.0	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	508.0
24	609.6	590.6	9.5	584.2	12.7	609.6

**Tees (Straight)**

Sch 40 and Sch 80

JIS B 2312

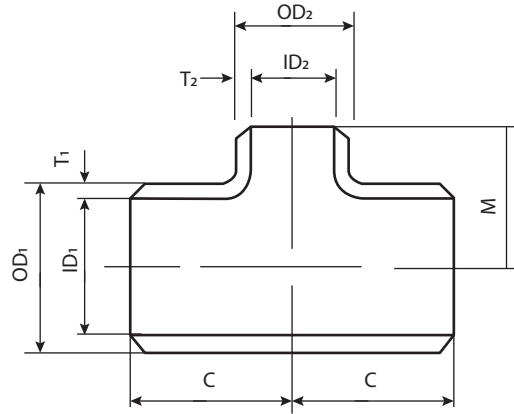


(in mm)

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
1/2	21.7	16.1	2.8	21.7	14.3	3.7	25.4	25.4
3/4	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
1 1/4	42.7	35.5	3.6	42.7	32.9	4.9	47.6	47.6
1 1/2	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
2 1/2	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
3 1/2	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	151.0	7.1	165.2	143.2	11.0	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	254.0	254.0
14	355.6	333.4	11.1	355.6	317.6	19.0	279.4	279.4
16	406.4	381.0	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	508.0	477.8	15.1	508.0	455.6	26.2	381.0	381.0
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

**Tees (Reducing)**

Sch 40  
JIS B 2312



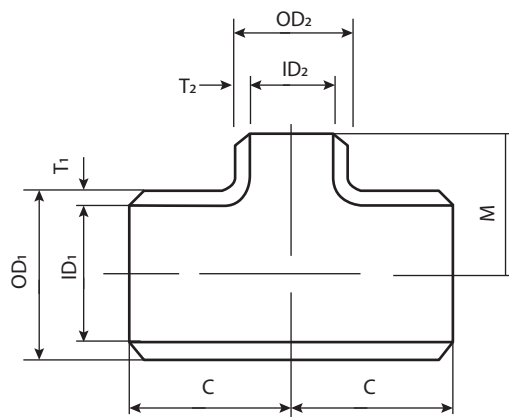
(in mm)

Nominal Pipe Size	Run			Outlet			Center To End	
	Outside Diameter OD <sub>1</sub>	Inside Diameter ID <sub>1</sub>	Wall Thickness T <sub>1</sub>	Outside Diameter OD <sub>2</sub>	Inside Diameter ID <sub>2</sub>	Wall Thickness T <sub>2</sub>	Run C	Outlet M
¾ x ¾ x ½	27.2	21.4	2.9	21.7	16.1	2.8	28.6	28.6
1 x 1 x ¾	34.0	27.2	3.4	27.2	21.4	2.9	38.1	38.1
1 x 1 x ½	34.0	27.2	3.4	21.7	16.1	2.8	38.1	38.1
1¼ x 1¼ x 1	42.7	35.5	3.6	34.0	27.2	3.4	47.6	47.6
1¼ x 1¼ x ¾	42.7	35.5	3.6	27.2	21.4	2.9	47.6	47.6
1¼ x 1¼ 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	34.0	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	34.0	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	34.0	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	73.0
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	6.0	89.1	78.1	5.5	104.8	98.4
4 x 4 x 2½	114.3	102.3	6.0	76.3	65.9	5.2	104.8	95.3
4 x 4 x 2	114.3	102.3	6.0	60.5	52.7	3.9	104.8	88.9
4 x 4 x 1½	114.3	102.3	6.0	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	6.0	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	108.0
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	151.0	7.1	139.8	126.6	6.6	142.9	136.5
6 x 6 x 4	165.2	151.0	7.1	114.3	102.3	6.0	142.9	130.2
6 x 6 x 3½	165.2	151.0	7.1	101.6	90.2	5.7	142.9	127.0
6 x 6 x 3	165.2	151.0	7.1	89.1	78.1	5.5	142.9	123.8
6 x 6 x 2½	165.2	151.0	7.1	76.3	65.9	5.2	142.9	120.7

## Tees (Reducing)

Sch 40

JIS B 2312



(in mm)

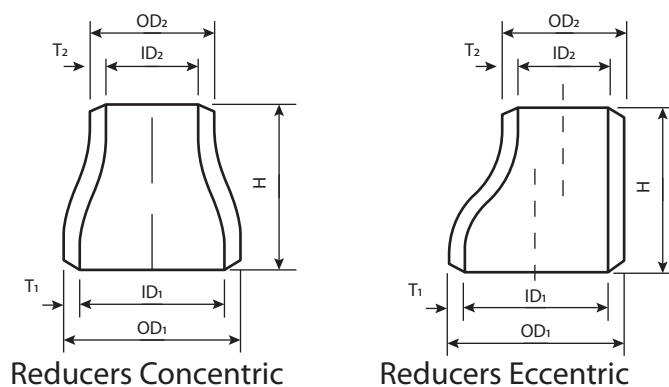
Nominal Pipe Size	Run			Outlet			Center To End	
	Outside Diameter OD <sub>1</sub>	Inside Diameter ID <sub>1</sub>	Wall Thickness T <sub>1</sub>	Outside Diameter OD <sub>2</sub>	Inside Diameter ID <sub>2</sub>	Wall Thickness T <sub>2</sub>	Run C	Outlet M
8 x 8 x 6	216.3	199.9	8.2	165.2	151.0	7.1	177.8	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	6.0	177.8	155.6
8 x 8 x 3 ½	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	151.0	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	254.0	241.3
12 x 12 x 8	318.5	297.9	10.3	216.3	199.9	8.2	254.0	228.6
12 x 12 x 6	318.5	297.9	10.3	165.2	151.0	7.1	254.0	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	381.0	12.7	355.6	333.4	11.1	304.8	304.8
16 x 16 x 12	406.4	381.0	12.7	318.5	297.9	10.3	304.8	295.3
16 x 16 x 10	406.4	381.0	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	381.0	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	508.0	477.8	15.1	457.2	428.6	14.3	381.0	368.3
20 x 20 x 16	508.0	477.8	15.1	406.4	381.0	12.7	381.0	355.6
20 x 20 x 14	508.0	477.8	15.1	355.6	333.4	11.1	381.0	355.6
22 x 22 x 20	558.8	539.8	9.5	508.0	489.0	9.5	419.1	406.4
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	381.0
24 x 24 x 22	609.6	690.6	9.5	558.8	539.8	9.5	431.8	431.8
24 x 24 x 20	609.6	690.6	9.5	508.0	489.0	9.5	431.8	431.8
24 x 24 x 18	609.6	690.6	9.5	457.2	438.2	9.5	431.8	419.1

## Reducers

Concentric and Eccentric

Sch 40

JIS B 2312



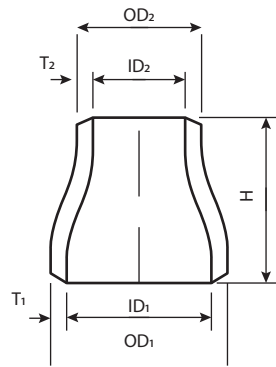
(in mm)

Nominal Pipe Size	Large End			Small End			End To End H
	Outside Diameter OD <sub>1</sub>	Inside Diameter ID <sub>1</sub>	Wall Thickness T <sub>1</sub>	Outside Diameter OD <sub>2</sub>	Inside Diameter ID <sub>2</sub>	Wall Thickness T <sub>2</sub>	
3/4 x 1/2	27.2	21.4	2.9	21.7	16.1	2.8	38.1
1 x 3/4	34.0	27.2	3.4	27.2	21.4	2.9	50.8
1 x 1/2	34.0	27.2	3.4	21.7	16.1	2.8	50.8
1 1/4 x 1	42.7	35.5	3.6	34.0	27.2	3.4	50.8
1 1/4 x 3/4	42.7	35.5	3.6	27.2	21.4	2.9	50.8
1 1/4 x 1/2	42.7	35.5	3.6	21.7	16.1	2.8	50.8
1 1/2 x 1 1/4	48.6	41.2	3.7	42.7	35.5	3.6	63.5
1 1/2 x 1	48.6	41.2	3.7	34.0	27.2	3.4	63.5
1 1/2 x 3/4	48.6	41.2	3.7	27.2	21.4	2.9	63.5
1 1/2 x 1/2	48.6	41.2	3.7	21.7	16.1	2.8	63.5
2 x 1 1/2	60.5	52.7	3.9	48.6	41.2	3.7	76.2
2 x 1 1/4	60.5	52.7	3.9	42.7	35.5	3.6	76.2
2 x 1	60.5	52.7	3.9	34.0	27.2	3.4	76.2
2 x 3/4	60.5	52.7	3.9	27.2	21.4	2.9	76.2
2 1/2 x 2	76.3	65.9	5.2	60.5	52.7	3.9	88.9
2 1/2 x 1 1/2	76.3	65.9	5.2	48.6	41.2	3.7	88.9
2 1/2 x 1 1/4	76.3	65.9	5.2	42.7	35.5	3.6	88.9
2 1/2 x 1	76.3	65.9	5.2	34.0	27.2	3.4	88.9
3 x 2 1/2	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 1 1/2	89.1	78.1	5.5	48.6	41.2	3.7	88.9
3 x 1 1/4	89.1	78.1	5.5	42.7	35.5	3.6	88.9
3 1/2 x 3	101.6	90.2	5.7	89.1	78.1	5.5	101.6
3 1/2 x 2 1/2	101.6	90.2	5.7	76.3	65.9	5.2	101.6
3 1/2 x 2	101.6	90.2	5.7	60.5	52.7	3.9	101.6
3 1/2 x 1 1/2	101.6	90.2	5.7	48.6	41.2	3.7	101.6
4 x 3 1/2	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 2 1/2	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 1 1/2	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	6.0	127.0
5 x 3 1/2	139.8	126.6	6.6	101.6	90.2	5.7	127.0
5 x 3	139.8	126.6	6.6	89.1	78.1	5.5	127.0
5 x 2 1/2	139.8	126.6	6.6	76.3	65.9	5.2	127.0
5 x 2	139.8	126.6	6.6	60.5	52.7	3.9	127.0

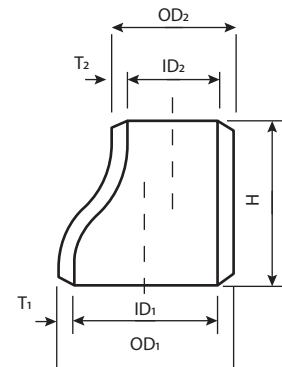


## Reducers

Concentric and Eccentric  
Sch 40  
JIS B 2312



Reducers Concentric



Reducers Eccentric

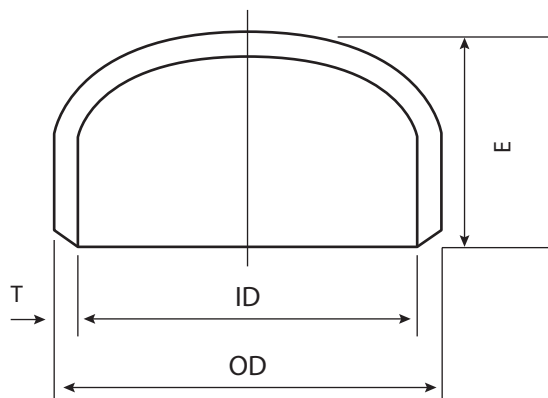
(in mm)

Nominal Pipe Size	Large End			Small End			End To End H
	Outside Diameter OD <sub>1</sub>	Inside Diameter ID <sub>1</sub>	Wall Thickness T <sub>1</sub>	Outside Diameter OD <sub>2</sub>	Inside Diameter ID <sub>2</sub>	Wall Thickness T <sub>2</sub>	
6 x 5	165.2	151.0	7.1	139.8	126.6	6.6	139.7
6 x 4	165.2	151.0	7.1	114.3	102.3	6.0	139.7
6 x 3½	165.2	151.0	7.1	101.6	90.2	5.7	139.7
6 x 3	165.2	151.0	7.1	89.1	78.1	5.5	139.7
6 x 2½	165.2	151.0	7.1	76.3	65.9	5.2	139.7
8 x 6	216.3	199.9	8.2	165.2	151.0	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	6.0	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	151.0	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	6.0	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	151.0	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	151.0	7.1	330.2
16 x 14	406.4	381.0	12.7	355.6	333.4	11.1	355.6
16 x 12	406.4	381.0	12.7	318.5	297.9	10.3	355.6
16 x 10	406.4	381.0	12.7	267.4	248.8	9.3	355.6
16 x 8	406.4	381.0	12.7	216.3	199.9	8.2	355.6
18 x 16	457.2	428.6	14.3	406.4	381.0	12.7	381.0
18 x 14	457.2	428.6	14.3	355.6	333.4	11.1	381.0
18 x 12	457.2	428.6	14.3	318.5	297.9	10.3	381.0
18 x 10	457.2	428.6	14.3	267.4	248.8	9.3	381.0
20 x 18	508.0	477.8	15.1	457.2	428.6	14.3	508.0
20 x 16	508.0	477.8	15.1	406.4	381.0	12.7	508.0
20 x 14	508.0	477.8	15.1	355.6	333.4	11.1	508.0
20 x 12	508.0	477.8	15.1	318.5	297.9	10.3	508.0
22 x 20	558.8	539.8	9.5	508.0	489.0	9.5	508.0
22 x 18	558.8	539.8	9.5	457.2	438.2	9.5	508.0
22 x 16	558.8	539.8	9.5	406.4	387.4	9.5	508.0
22 x 14	558.8	539.8	9.5	355.6	336.6	9.5	508.0
24 x 22	609.6	590.6	9.5	558.8	539.8	9.5	508.0
24 x 20	609.6	590.6	9.5	508.0	489.0	9.5	508.0
24 x 18	609.6	590.6	9.5	457.2	438.2	9.5	508.0
24 x 16	609.6	590.6	9.5	406.4	387.4	9.5	508.0

## Caps

Sch 40

JIS B 2312

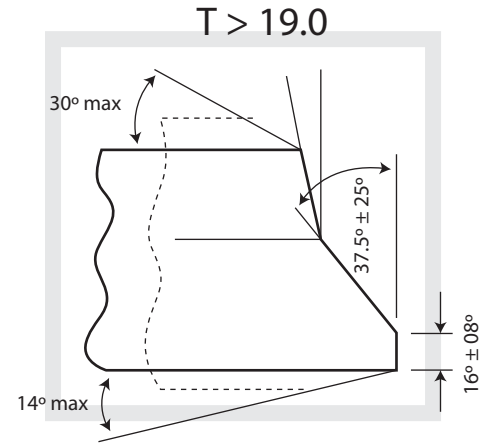
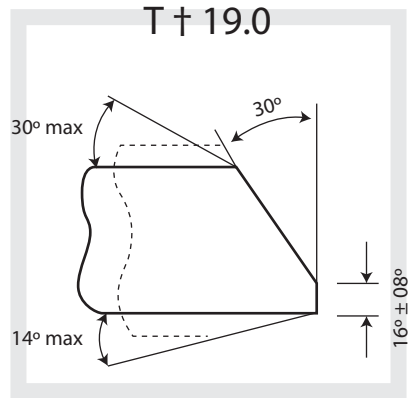
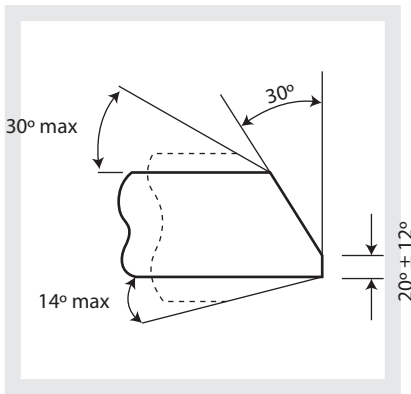


(in mm)

Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Length E	Approx Weight (kg)
1/2	-	-	-	-	-
3/4	-	-	-	-	-
1	34.0	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	76.3	65.9	5.2	50.8	0.420
3 1/2	89.1	78.1	5.5	63.5	0.664
3	101.6	-	-	-	-
4 1/2	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	508.0	477.8	15.1	254.0	54.10
24	-	-	-	-	-

## DIMENSIONAL TOLERANCES

JIS B 2311

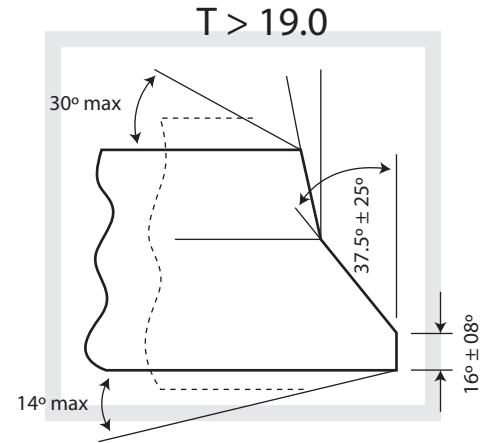
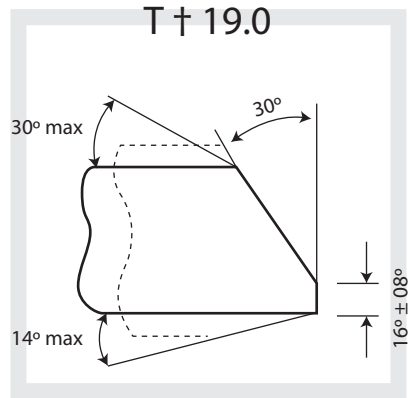
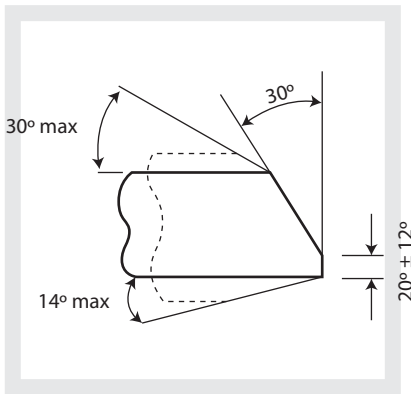


(in mm)

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	Alignment of Ends U
1/2 - 2 1/2	± 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								

## DIMENSIONAL TOLERANCES

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	Alignment of Ends U
1/2 - 2 1/2	+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		
5 - 8	+2.4	±1.6						± 6.4		1.6
	-1.6									
10 - 18	+4	± 3.2					± 6.4			
	-3.2									
20	+6.4	± 4.8								
	-4.8									





**Distributor:**

SMA/RICON/FITTING/19/001