

تأمین لوله‌های فولادی کربن استیل طبق ضخامت و استانداردهای زیر:

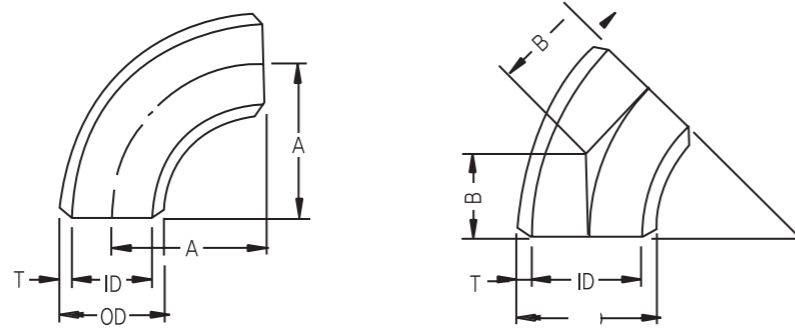
ANSI/ASME B 36.10 AND 36.19

Nominal pipe size index	OD mm	10	20	30	SGP	STD	40	60	XS	80
1/8	10.3	-	-	-	-	1.73	1.73	-	2.41	2.41
1/4	13.7	-	-	-	-	2.24	2.24	-	3.02	3.02
3/8	17.1	-	-	-	-	2.31	2.31	-	3.2	3.2
1/2	21.3	-	-	-	2.8	2.77	2.77	-	3.73	3.73
3/4	26.7	-	-	-	2.8	2.87	2.87	-	3.91	3.91
1	33.4	-	-	-	3.2	3.38	3.38	-	4.55	4.55
1-1/4	42.2	-	-	-	3.5	3.56	3.56	-	4.85	4.85
1-1/2	48.3	-	-	-	3.5	3.68	3.68	-	5.08	5.08
2	60.3	-	-	-	3.8	3.91	3.91	-	5.54	5.54
2-1/2	73	-	-	-	4.2	5.16	5.16	-	7.01	7.01
3	88.9	-	-	-	4.2	5.49	5.49	-	7.62	7.62
3-1/2	101.6	-	-	-	4.2	5.74	5.74	-	8.08	8.08
4	114.3	-	-	-	4.5	6.02	6.02	-	8.56	8.56
5	141.3	-	-	-	4.5	6.55	6.55	-	9.53	9.53
6	168.3	-	-	-	5	7.11	7.11	-	10.97	10.97
8	219.1	-	6.35	7.04	5.8	8.18	8.18	10.31	12.7	12.7
10	273.1	-	6.35	7.8	6.6	9.27	9.27	12.7	12.7	15.09
12	323.9	-	6.35	8.38	6.9	9.53	10.31	14.27	12.7	17.48
14	355.6	6.35	7.92	9.53	7.9	9.53	11.13	15.09	12.7	19.05
16	406.4	6.35	7.92	9.53	7.9	9.53	12.7	16.66	12.7	21.44
18	457.2	6.35	7.92	11.13	7.9	9.53	14.27	19.05	12.7	23.88
20	508	6.35	9.53	12.7	7.9	9.53	15.09	20.62	12.7	26.19
22	559	6.35	9.53	12.7	-	9.53	-	22.23	12.7	28.58
24	610	6.35	9.53	14.27	-	9.53	17.48	24.61	12.7	30.96
26	660	7.92	12.7	-	-	9.53	-	-	12.7	-
28	711	7.92	12.7	15.88	-	9.53	-	-	12.7	-
30	762	7.92	12.7	15.88	-	9.53	-	-	12.7	-
32	813	7.92	12.7	15.88	-	9.53	17.48	-	12.7	-
34	864	7.92	12.7	15.88	-	9.53	17.48	-	12.7	-
36	914	7.92	12.7	15.88	-	9.53	19.5	-	12.7	-
38	965	-	-	-	-	9.53	-	-	12.7	-
40	1016	-	-	-	-	9.53	-	-	12.7	-
42	1067	-	-	-	-	9.53	-	-	12.7	-
44	1118	-	-	-	-	9.53	-	-	12.7	-
46	1168	-	-	-	-	9.53	-	-	12.7	-
48	1219	-	-	-	-	9.53	-	-	12.7	-

تأمین لوله‌های فولادی کربن استیل طبق ضخامت و استانداردهای زیر:

ANSI/ASME B 36.10 AND 36.19

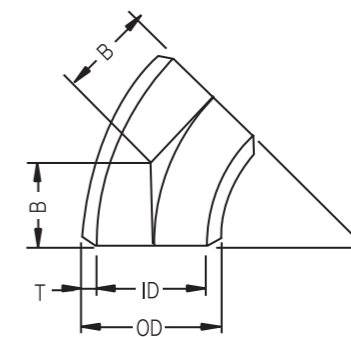
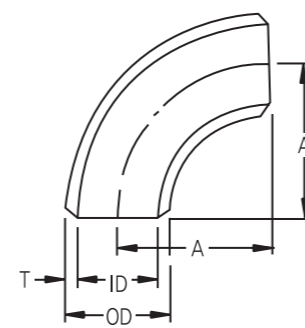
Nominal pipe size index	OD mm	100	120	140	160	XXS	5S	10S	40S	80S
1/8	10.3	-	-	-	-	-	-	1.24	1.73	2.41
1/4	13.7	-	-	-	-	-	-	1.65	2.24	3.02
3/8	17.1	-	-	-	-	-	-	1.65	2.31	3.2
1/2	21.3	-	-	-	4.78	7.47	1.65	2.11	2.77	3.73
3/4	26.7	-	-	-	5.56	7.82	1.65	2.11	2.87	3.91
1	33.4	-	-	-	6.35	9.09	1.65	2.77	3.38	4.55
1-1/4	42.2	-	-	-	6.35	9.7	1.65	2.77	3.56	4.85
1-1/2	48.3	-	-	-	7.14	10.15	1.65	2.77	3.68	5.08
2	60.3	-	-	-	8.47	11.07	1.65	2.77	3.91	5.54
2-1/2	73	-	-	-	9.53	14.02	2.11	3.05	5.16	7.01
3	88.9	-	-	-	11.13	15.24	2.11	3.05	5.49	7.62
3-1/2	101.6	-	-	-	-	-	2.11	3.05	5.74	8.08
4	114.3	-	11.13	-	13.49	17.12	2.11	3.05	6.02	8.56
5	141.3	-	12.7	-	15.88	19.05	2.77	3.4	6.55	9.53
6	168.3	-	14.27	-	18.26	21.95	2.77	3.4	7.11	10.97
8	219.1	15.09	18.26	20.62	23.01	22.23	2.77	3.76	8.18	12.7
10	273.1	18.26	21.44	25.4	28.58	25.4	3.4	4.19	9.27	12.7
12	323.9	21.44	25.4	28.58	33.32	25.4	3.96	4.57	9.53	12.7
14	355.6	23.83	27.79	31.75	35.71	-	3.96	4.78	9.53	12.7
16	406.4	26.19	30.96	36.53	40.49	-	4.19	4.78	9.53	12.7
18	457	29.36	34.93	39.67	45.24	-	4.19	4.78	9.53	12.7
20	508	32.54	38.1	44.45	50.01	-	4.78	5.54	9.53	12.7
22	559	34.93	41.28	47.63	53.98	-	4.78	5.54	9.53	12.7
24	610	38.89	46.02	52.37	59.54	-	5.54	6.35	9.53	12.7
26	660	-	-	-	-	-	-	-	-	-
28	711	-	-	-	-	-	-	-	-	-
30	762	-	-	-	-	-	6.35	7.92	9.53	12.7
32	813	-	-	-	-	-	-	-	-	-
34	864	-	-	-	-	-	-	-	-	-
36	914	-	-	-	-	-	-	-	-	-
38	965	-	-	-	-	-	-	-	-	-
40	1016	-	-	-	-	-	-	-	-	-
42	1067	-	-	-	-	-	-	-	-	-
44	1118	-	-	-	-	-	-	-	-	-
46	1168	-	-	-	-	-	-	-	-	-
48	1219	-	-	-	-	-	-	-	-	-



90° Elbow (Long,Short)
45° Elbow (Long)

ASME B16.9&JIS B2311

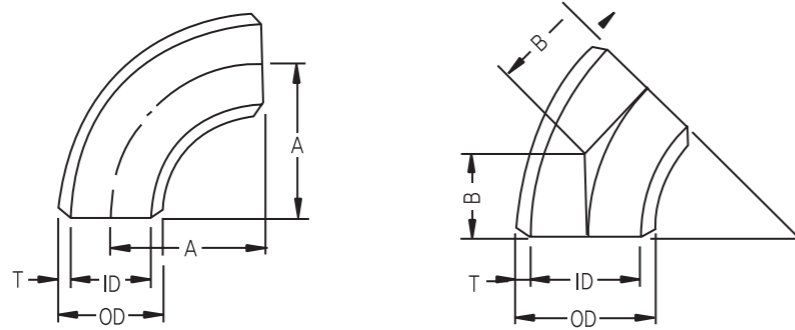
Nominal pipe Size	outside Diameter O.D	Center to End			SGP					STD				
		Long		Short	T	I.D	W (Long)	W (Short)	W (45°long)	T	I.D	W (Long)	W (Short)	W (45°long)
		A	B	A										
1/2	21.3	38	16	-	2.8	16.1	0.08	-	0.04	2.77	15.8	0.08	-	0.04
3/4	26.7	38	19	-	2.8	21.6	0.10	-	0.05	2.87	21.0	0.11	-	0.06
1	33.4	38	22	25	3.2	27.6	0.15	0.10	0.08	3.38	26.6	0.16	0.11	0.08
1-1/4	42.2	48	25	32	3.5	35.7	0.26	0.17	0.13	3.56	35.1	0.26	0.18	0.13
1-1/2	48.3	57	29	38	3.5	41.6	0.35	0.24	0.18	3.68	40.9	0.37	0.25	0.19
2	60.3	76	35	51	3.8	52.9	0.64	0.43	0.32	3.91	52.5	0.66	0.44	0.33
2-1/2	73.0	95	44	64	4.2	67.9	1.12	0.75	0.60	5.16	62.7	1.29	0.91	0.69
3	88.9	114	51	76	4.2	80.7	1.58	1.05	0.79	5.49	77.9	2.04	1.36	1.02
3-1/2	101.6	133	57	89	4.2	93.2	-	-	-	5.74	90.1	-	-	-
4	114.3	152	64	102	4.5	105.3	2.91	1.94	1.46	6.02	102.3	3.84	2.56	1.92
5	141.3	190	79	127	4.5	130.8	4.49	2.99	2.25	6.55	128.2	6.48	4.32	3.24
6	168.3	229	95	152	5.0	155.2	7.09	4.73	3.55	7.11	154.1	9.94	6.63	4.97
8	219.1	305	127	203	5.8	204.7	14.40	9.61	7.20	8.18	202.7	20.10	13.40	10.10
10	273.0	381	159	254	6.6	254.2	25.40	16.90	12.70	9.27	254.5	35.40	23.60	17.70
12	323.8	457	190	305	6.9	304.7	38.10	25.40	19.00	9.53	304.7	52.00	34.60	26.00
14	355.6	533	222	356	7.9	339.8	56.70	37.80	28.40	9.53	336.5	67.90	45.30	34.00
16	406.4	610	254	406	7.9	390.6	74.30	49.50	37.20	9.53	387.3	89.00	59.10	44.50
18	457.0	686	286	457	7.9	441.4	94.20	62.80	47.10	9.53	437.9	113.00	75.30	56.50
20	508.0	762	318	508	7.9	492.2	116.00	77.70	58.30	9.53	488.9	140.00	93.10	70.00
22	559.0	838	343	559	-	-	141.00	94.10	70.50	9.53	539.9	169.00	113.00	84.50
24	610.0	914	381	610	-	-	168.00	112.00	84.10	9.53	590.9	202.00	135.00	101.00
26	660.0	991	406	-	-	-	198.00	132.00	99.00	9.53	640.9	237.00	158.00	119.00
28	711.0	1067	438	-	-	-	230.00	154.00	115.00	9.53	691.9	276.00	184.00	138.00
30	762.0	1143	470	-	-	-	264.00	176.00	132.00	9.53	742.9	316.00	211.00	158.00
32	813.0	1219	502	-	-	-	301.00	201.00	150.00	9.53	793.9	361.00	241.00	180.00
34	864.0	1295	533	-	-	-	340	227	170	9.53	844.9	408	272	204
36	914	1372	565	-	-	-	380	253	190	9.53	894.9	457	304	228
38	965	1448	600	-	-	-	425	283	212	9.53	945.9	510	340	255
40	1016	1524	632	-	-	-	471	314	235	9.53	996.9	565	377	282
42	1067	1600	660	-	-	-	518	346	259	9.53	1047.9	622	416	311
44	1118	1676	695	-	-	-	570	380	285	9.53	1098.9	684	456	342
46	1168	1753	727	-	-	-	623	415	312	9.53	1148.9	748	499	374
48	1219	1829	759	-	-	-	677	452	339	9.53	1199.9	814	543	407



90° Elbow (Long,Short)
45° Elbow (Long)

ASME B16.9&JIS B2311

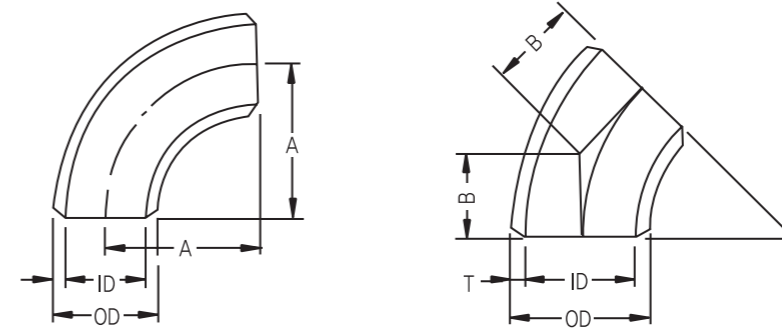
Nominal pipe Size	outside Diameter O.D	Center to End			Sch40					X-S				
		Long		Short	T	I.D	W (Long)	W (Short)	W (45°long)	T	I.D	W (Long)	W (Short)	W (45°long)
		A	B	A										
1/2	21.3	38	16	-	2.77	15.8	0.08	-	0.04	3.73	13.8	0.10	-	0.05
3/4	26.7	38	19	-	2.87	21.0	0.11	-	0.06	3.91	18.9	0.14	-	0.07
1	33.4	38	22	25	3.38	26.6	0.16	0.11	0.08	4.55	24.3	0.20	0.14	0.10
1-1/4	42.2	48	25	32	3.56	35.1	0.26	0.18	0.13	4.85	32.5	0.35	0.23	0.18
1-1/2	48.3	57	29	38	3.68	40.9	0.37	0.25	0.19	5.08	38.1	0.50	0.33	0.25
2	60.3	76	35	51	3.91	52.5	0.66	0.44	0.33	5.54	49.2	0.90	0.60	0.45
2-1/2	73.0	95	44	64	5.16	62.7	1.29	0.91	0.69	7.01	59.0	1.79	1.19	0.90
3	88.9	114	51	76	5.49	77.9	2.04	1.36	1.02	7.62	73.7	2.74	1.83	1.37
3-1/2	101.6	133	57	89	5.74	90.1	-	-	-	8.08	85.4	-	-	-
4	114.3	152	64	102	6.02	102.3	3.84	2.56	1.92	8.56	97.2	5.36	3.58	2.68
5	141.3	190	79	127	6.55	128.2	6.48	4.32	3.24	9.53	122.2	9.13	6.09	4.57
6	168.3	229	95	152	7.11	154.1	9.94	6.63	4.97	10.97	146.4	15.00	10.00	7.50
8	219.1	305	127	203	8.18	202.7	20.10	13.40	10.10	12.70	193.7	30.50	20.30	15.30
10	273.0	381	159	254	9.27	254.5	35.40	23.60	17.70	12.70	247.6	47.70	31.80	23.90
12	323.8	457	190	305	10.31	303.2	57.00	38.00	28.50	12.70	298.4	68.70	45.80	34.40
14	355.6	533	222	356	11.13	333.3	79.10	53.00	40.10	12.70	330.2	89.90	60.00	45.00
16	406.4	610	254	406	12.70	381.0	188.00	79.00	59.00	12.70	381.0	118.00	78.30	59.00
18	457.0	686	286	457	14.27	428.5	169.00	113.00	84.50	12.70	431.6	150.00	99.90	75.50
20	508.0	762	318	508	15.09	477.8	220.00	147.00	110.00	12.70	482.6	186.00	124.00	93.00
22	559.0	838	343	559	-	-	267.00	178.00	-	12.70	533.6	225.00	150.00	113.00
24	610.0	914	381	610	17.48	575.0	366.00	244.00	183.00	12.70	584.6	268.00	179.00	134.00
26	660.0	991	406	-	-	-	430.00	287.00	-	12.70	634.6	315.00	210.00	158.00
28	711.0	1067	438	-	-	-	500.00	334.00	-	12.70	685.6	367.00	245.00	184.00
30	762.0	1143	470	-	-	-	375.00	383.00	-	12.70	736.6	421.00	281.00	211.00
32	813.0	1219	502	-	17.48	778.0	654.00	436.00	327.00	12.70	787.6	480.00	320.00	240.00
34	864.0	1295	533	-	17.48	829	739	493	369	12.7	838.6	543	362	272
36	914	1372	565	-	19.05	875.9	904	603	452	12.7	888.6	608	405	304
38	965	1448	600	-	-	-	-	-	-	12.7	939.6	679	453	339
40	1016	1524	632	-	-	-	-	-	-	12.7	990.6	753	502	376
42	1067	1600	660	-	-	-	-	-	-	12.7	1041.6	828	554	414
44	1118	1676	695	-	-	-	-	-	-	12.7	1092.6	912	608	456
46	1168	1753	727	-	-	-	-	-	-	12.7	1142.6	997	665	498
48	1219	1829	759	-	-	-	-	-	-	12.7	1193.6	1085	724	542



90° Elbow (Long,Short)
45° Elbow (Long)

ASME B16.9&JIS B2311

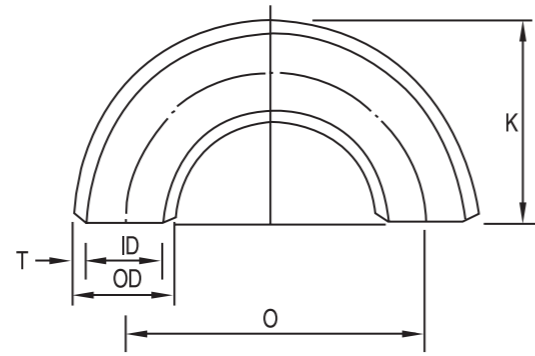
Nominal pipe Size	outside Diameter O.D	Center to End			Sch 80				
		Long		Short	T	I.D	W (Long)	W (Short)	W (45° long)
		A	B	A					
1/2	21.3	38	16	-	3.73	13.8	0.10	-	0.05
3/4	26.7	38	19	-	3.91	18.9	0.14	-	0.07
1	33.4	38	22	25	4.55	24.3	0.20	0.14	0.10
1-1/4	42.2	48	25	32	4.85	32.5	0.35	0.23	0.18
1-1/2	48.3	57	29	38	5.08	38.1	0.50	0.33	0.25
2	60.3	76	35	51	5.54	49.2	0.90	0.60	0.45
2-1/2	73.0	95	44	64	7.01	59.0	1.79	1.19	0.90
3	88.9	114	51	76	7.62	73.7	2.74	1.83	1.37
3-1/2	101.6	133	57	89	8.08	85.4	-	-	-
4	114.3	152	64	102	8.56	97.2	5.36	3.58	2.68
5	141.3	190	79	127	9.53	122.2	9.13	6.09	4.57
6	168.3	229	95	152	10.97	146.4	15.00	10.00	7.50
8	219.1	305	127	203	12.70	193.7	30.50	20.30	15.30
10	273.0	381	159	254	15.09	242.8	57.00	38.00	28.50
12	323.8	457	190	305	17.48	288.8	94.00	63.00	47.00
14	355.6	533	222	356	19.05	317.5	133.00	89.00	66.50
16	406.4	610	254	406	21.44	363.5	195.00	130.00	97.50
18	457.0	686	286	457	23.83	409.3	275.00	183.00	138.00
20	508.0	762	318	508	26.19	455.6	373.00	249.00	187.00
22	559.0	838	343	559	28.58	501.8	493.00	329.00	257.00
24	610.0	914	381	610	30.96	548.1	636.00	424.00	318.00
26	660.0	991	406	-	-	-	-	-	-
28	711.0	1067	438	-	-	-	-	-	-
30	762.0	1143	470	-	-	-	-	-	-
32	813.0	1219	502	-	-	-	-	-	-
34	864.0	1295	533	-	-	-	-	-	-
36	914	1372	565	-	-	-	-	-	-
38	965	1448	600	-	-	-	-	-	-
40	1016	1524	632	-	-	-	-	-	-
42	1067	1600	660	-	-	-	-	-	-
44	1118	1676	695	-	-	-	-	-	-
46	1168	1753	727	-	-	-	-	-	-
48	1219	1829	759	-	-	-	-	-	-



90° Elbow (Long,Short)
45° Elbow (Long)

ASME B16.9&JIS B2311

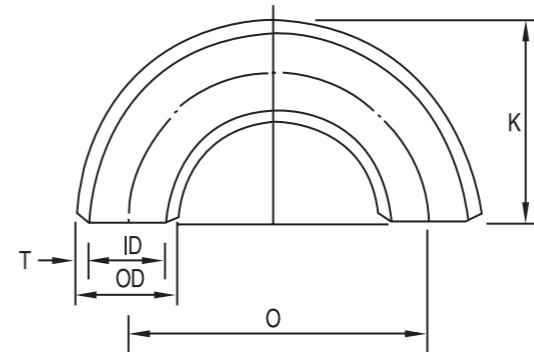
pipe Size	outside Diameter O.D	Center to End			Sch160					XX-S				
		Long		Short	T	I.D	W (Long)	W (Short)	W (45° long)	T	I.D	W (Long)	W (Short)	W (45° long)
		A	B	A										
	21.3	38	16	-	4.78	11.17	0.12	-	-	7.47	6.4	0.15	-	-
	26.7	38	19	-	5.56	15.6	0.13	-	-	7.82	11.1	0.22	-	-
	33.4	38	22	25	6.35	20.7	0.25	0.17	0.13	9.09	15.2	0.36	0.22	0.18
	42.2	48	25	32	6.35	29.5	0.42	0.28	0.21	9.70	22.8	0.64	0.39	0.32
	48.3	57	29	38	7.14	34.0	0.65	0.43	0.33	10.15	28.0	0.93	0.57	0.47
	60.3	76	35	51	8.74	42.8	1.33	0.89	0.67	11.07	38.2	1.69	1.13	0.85
	73.0	95	44	64	9.53	53.9	2.33	1.46	1.17	14.02	45.0	3.43	2.19	1.72
	88.9	114	51	76	11.13	66.6	-	-	-	15.24	58.4	-	-	-
	101.6	133	57	89	-	-	3.83	2.55	1.92	-	-	5.25	3.49	2.63
	114.3	152	64	102	13.49	87.3	8.02	2.35	4.01	17.2	80.1	10.20	6.79	5.09
	141.3	190	79	127	15.88	109.5	14.70	9.79	7.35	19.05	103.2	17.60	11.80	8.80
	168.3	229	95	152	18.26	131.8	24.20	16.20	12.10	21.95	124.4	29.10	19.50	14.50
	219.1	305	127	203	23.01	173.1	53.20	35.50	26.60	22.23	174.6	51.40	34.30	25.70
	273.0	381	159	254	28.58	215.8	103.00	68.60	51.50	25.40	222.2	82.00	61.00	41.00
	323.8	457	190	305	33.32	257.2	171.00	114.00	85.50	25.40	273.0	134.00	89.50	65.00
	355.6	533	222	356	35.71	284.2	236.00	158.00	118.00	-	-	-	-	-
	406.4	610	254	406	40.49	325.4	350.00	234.00	175.00	-	-	-	-	-
	457.0	686	286	457	45.24	366.5	495.00	330.00	247.00	-	-	-	-	-
	508.0	762	318	508	50.01	408.0	676.00	451.00	338.00	-	-	-	-	-
	559.0	838	343	559	53.98	451.0	886.00	591.00	443.00	-	-	-	-	-
	610.0	914	381	610	59.54	490.9	1160.00	773.00	580.00	-	-	-	-	-
	660.0	991	406	-	-	-	-	-	-	-	-	-	-	-
	711.0	1067	438	-	-	-	-	-	-	-	-	-	-	-
	762.0	1143	470	-	-	-	-	-	-	-	-	-	-	-
	813.0	1219	502	-	-	-	-	-	-	-	-	-	-	-
	864.0	1295	533	-	-	-	-	-	-	-	-	-	-	-
	914	1372	565	-	-	-	-	-	-	-	-	-	-	-
	965	1448	600	-	-	-	-	-	-	-	-	-	-	-
	1016	1524	632	-	-	-	-	-	-	-	-	-	-	-
	1067	1600	660	-	-	-	-	-	-	-	-	-	-	-
	1118	1676	695	-	-	-	-	-	-	-	-	-	-	-
	1168	1753	727	-	-	-	-	-	-	-	-	-	-	-
	1219	1829	759	-	-	-	-	-	-	-	-	-	-	-



180° Elbow (Long)

ASME B16.9&JIS B2311

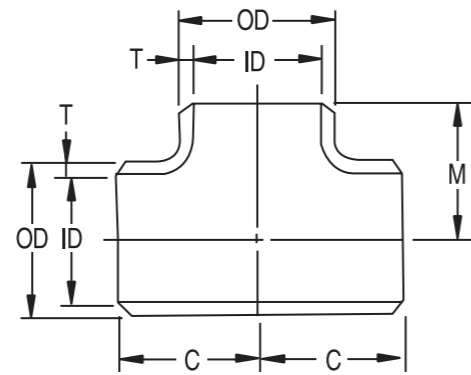
Nominal pipe Size	outside Diameter O.D	Long		Short		SGP			STD			Sch40			X-S		
		O	K	O	K	T	I.D	W(kg)	T	I.D	W(kg)	T	I.D	W(kg)	T	I.D	W(kg)
1/2	21.3	76	48	-	-	2.8	16.1	-	2.77	15.8	0.15	2.77	15.8	0.15	3.73	13.8	0.20
3/4	26.7	76	51	-	-	2.8	21.6	-	2.87	21.0	0.15	2.87	21.0	0.15	3.91	18.9	0.20
1	33.4	76	56	51	41	3.2	27.6	-	3.38	26.6	0.31	3.38	26.6	31.29	4.55	24.3	0.40
1-1/4	42.2	95	70	64	52	3.5	35.7	-	3.56	35.1	0.53	3.56	35.1	0.53	4.85	32.5	0.69
1-1/2	48.3	114	83	76	62	3.5	41.6	-	3.68	40.9	0.76	3.68	40.9	0.76	5.08	38.1	1.01
2	60.3	152	106	102	81	3.8	52.9	-	3.91	52.5	1.36	3.91	52.5	1.36	5.54	49.2	1.87
2-1/2	73.0	190	132	127	100	4.2	67.9	-	5.16	62.7	2.70	5.16	62.7	2.70	7.01	59.0	3.58
3	88.9	229	159	152	121	4.2	80.7	-	5.49	77.9	4.24	5.49	77.9	4.24	7.62	73.7	5.76
3-1/2	101.6	267	184	178	140	4.2	93.2	-	5.74	90.1	5.94	5.74	90.1	5.94	8.08	85.4	8.20
4	114.3	305	210	203	159	4.5	105.3	-	6.02	102.3	8.07	6.02	102.3	8.07	8.56	97.2	11.24
5	141.3	381	262	254	197	4.5	130.8	-	6.55	128.2	13.69	6.55	128.2	13.69	9.53	122.2	19.41
6	168.3	457	313	305	237	5.0	155.2	-	7.11	154.1	21.31	7.11	154.1	21.31	10.97	146.4	32.02
8	219.1	610	414	406	313	5.8	204.7	-	8.18	202.7	42.63	8.18	202.7	42.63	12.70	193.7	64.85
10	273.0	762	518	508	391	6.6	254.2	-	9.27	254.5	75.74	9.27	254.5	75.74	12.70	247.6	101.59
12	323.8	914	619	610	467	6.9	304.7	-	9.53	304.7	111.57	10.31	303.2	119.73	12.70	298.4	146.95
14	355.6	1067	711	711	533	7.9	339.8	-	9.53	336.5	143.32	11.13	333.3	166.00	12.70	330.2	188.68
16	406.4	1219	813	813	610	7.9	390.6	-	9.53	387.3	187.77	12.70	381.0	247.64	12.70	381.0	247.64
18	457.0	1372	914	914	686	7.9	441.4	-	9.53	437.9	238.57	14.27	428.5	353.77	12.70	431.6	314.77
20	508.0	1524	1016	1016	762	7.9	492.2	-	9.53	488.9	292.99	15.09	477.8	459.00	12.70	482.6	388.24
22	559.0	1676	1118	1118	838	-	-	-	9.53	539.9	355.59	-	-	-	12.70	533.6	471.70
24	610.0	1829	1219	1219	914	-	-	-	9.53	590.9	424.53	17.48	575.0	767.42	12.70	584.6	564.22



180° Elbow (Long)

ASME B16.9&JIS B2311

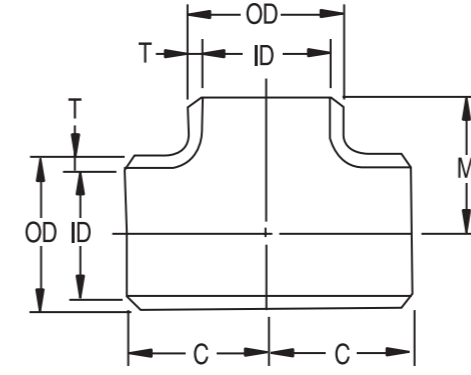
Nominal pipe Size	outside Diameter O.D	Long		Short		Sch80			Sch160			XX-S		
		O	K	O	K	T	I.D	W(kg)	T	I.D	W(kg)	T	I.D	W(kg)
1/2	21.3	76	48	-	-	3.73	13.8	0.20	4.78	11.7	0.26	7.47	6.4	0.41
3/4	26.7	76	51	-	-	3.91	18.9	0.20	5.56	15.6	0.31	7.82	11.1	0.45
1	33.4	76	56	51	41	4.55	24.3	0.40	6.35	20.7	0.53	9.09	15.2	0.68
1-1/4	42.2	95	70	64	52	4.85	32.5	0.69	6.35	29.5	0.87	9.70	22.8	1.21
1-1/2	48.3	114	83	76	62	5.08	38.1	1.01	7.14	34.0	1.36	10.15	28.0	1.79
2	60.3	152	106	102	81	5.54	49.2	1.87	8.74	42.8	2.68	11.07	38.2	3.35
2-1/2	73.0	190	132	127	100	7.01	59.0	3.58	9.53	53.9	4.67	14.02	45.0	6.39
3	88.9	229	159	152	121	7.62	73.7	5.76	11.13	66.6	8.02	15.24	58.4	10.34
3-1/2	101.6	267	184	178	140	8.08	85.4	8.20	-	-	-	-	-	14.96
4	114.3	305	210	203	159	8.56	97.2	11.24	13.49	87.3	16.87	17.12	80.1	20.59
5	141.3	381	262	254	197	9.53	122.2	19.41	15.88	109.5	30.84	19.05	103.2	36.19
6	168.3	457	313	305	237	10.97	146.4	32.02	18.26	131.8	50.79	21.95	124.4	59.41
8	219.1	610	414	406	313	12.70	193.7	64.85	23.01	173.1	111.57	22.23	174.6	108.85
10	273.0	762	518	508	391	15.09	242.8	119.73	28.58	215.8	215.89	25.40	222.2	-
12	323.8	914	619	610	467	17.48	288.8	198.65	33.32	257.2	360.12	25.40	273.0	-
14	355.6	1067	711	711	533	19.05	317.5	278.48	35.71	284.2	495.28	-	-	-
16	406.4	1219	813	813	610	21.44	363.5	408.20	40.49	325.4	733.86	-	-	-
18	457.0	1372	914	914	686	23.83	409.3	575.11	45.24	366.5	1088.54	-	-	-
20	508.0	1524	1016	1016	762	26.19	455.6	781.03	50.01	408.0	1516.70	-	-	-
22	559.0	1676	1118	1118	838	28.58	501.8	-	53.98	451.0	-	-	-	-
24	610.0	1829	1219	1219	914	30.96	548.1	1333.46	59.54	490.9	2504.55	-	-	-



Tee(straight)

ASME B16.9&JIS B2311

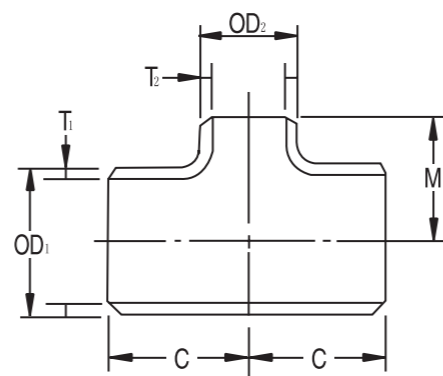
Nominal pipe Size	outside Diameter O.D	Center to End		SGP			STD			Sch40			X-S		
		Run C	Outlet M	T	I.D	W(kg)	T	I.D	W(kg)	T	I.D	W(kg)	T	I.D	W(kg)
1/2	21.3	25	25	2.8	16.1	0.09	2.77	15.8	0.09	2.77	15.8	0.09	3.73	13.8	0.11
3/4	26.7	29	29	2.8	21.6	0.13	2.87	21.0	0.13	2.87	21.0	0.13	3.91	18.9	0.17
1	33.4	38	38	3.2	27.6	0.24	3.38	26.6	0.25	3.38	26.6	0.25	4.55	24.3	0.32
1-1/4	42.2	48	48	3.5	35.7	0.42	3.56	35.1	0.43	3.56	35.1	0.43	4.85	32.5	0.56
1-1/2	48.3	57	57	3.5	41.6	0.58	3.68	40.9	0.61	3.68	40.9	0.61	5.08	38.1	0.81
2	60.3	64	64	3.8	52.9	0.86	3.91	52.5	0.88	3.91	52.5	0.88	5.54	49.2	1.2
2-1/2	73.0	76	76	4.2	67.9	1.42	5.16	62.7	1.74	5.16	62.7	1.74	7.01	59.0	2.28
3	88.9	86	86	4.2	80.7	1.87	5.49	77.9	2.41	5.49	77.9	2.41	7.62	73.7	3.25
3-1/2	101.6	95	95	4.2	93.2	-	5.74	90.1	-	5.74	90.1	-	8.08	85.4	-
4	114.3	105	105	4.5	105.3	3.13	6.02	102.3	4.12	6.02	102.3	4.12	8.56	97.2	5.77
5	141.3	124	124	4.5	130.8	4.53	6.55	128.2	6.54	6.55	128.2	6.54	9.53	122.2	9.2
6	168.3	143	143	5	155.2	6.84	7.11	154.1	9.54	7.11	154.1	9.58	10.97	146.4	14.5
8	219.1	178	178	5.8	204.7	12.8	8.18	202.7	17.9	8.18	202.7	17.9	12.70	193.7	27.1
10	273.0	216	216	6.6	254.2	21.8	9.27	254.5	30.4	9.27	254.5	30.4	12.70	247.6	41
12	323.8	254	254	6.9	304.7	32	9.53	304.7	43.6	10.31	303.2	48.7	12.70	298.4	57.7
14	355.6	279	279	7.9	339.8	44.7	9.53	336.5	53.5	11.13	333.3	62.4	12.70	330.2	70.9
16	406.4	305	305	7.9	390.6	55.2	9.53	387.3	66.1	12.70	381.0	88	12.70	381.0	87.7
18	457.0	343	343	7.9	441.4	70	9.53	437.9	83.9	14.27	428.5	125	12.70	431.6	111
20	508.0	381	381	7.9	492.2	86.6	9.53	488.9	104	15.09	477.8	163	12.70	482.6	138
22	559.0	419	419	-	-	106	9.53	539.9	126	-	-	198	12.70	533.6	167
24	610.0	432	432	-	-	116	9.53	590.9	139	17.48	575.0	252	12.70	584.6	185
26	660.0	495	495	-	-	147	9.53	640.9	176	-	-	319	12.70	634.6	234
28	711.0	521	521	-	-	165	9.53	691.9	198	-	-	359	12.70	685.6	264
30	762.0	559	559	-	-	190	9.53	742.9	228	-	-	414	12.70	736.6	304
32	813.0	597	597	-	-	217	9.53	793.9	259	17.48	778.0	474	12.70	787.6	347
34	864.0	635	635	-	-	246	9.53	844.9	295	17.48	829.0	535	12.70	838.6	393
36	914	673	673	-	-	276	9.53	894.9	331	19.05	875.9	656	12.7	888.6	441
38	965	711	711	-	-	308	9.53	945.9	370	-	-	-	12.7	939.6	493
40	1016	749	749	-	-	342	9.53	996.9	411	-	-	-	12.7	990.6	562
42	1067	762	711	-	-	352	9.53	1047.9	422	-	-	-	12.7	1041.6	547
44	1118	813	762	-	-	396	9.53	1098.9	475	-	-	-	12.7	1092.6	633
46	1168	851	800	-	-	434	9.53	1148.9	521	-	-	-	12.7	1142.6	695
48	1219	889	838	-	-	474	9.53	1199.9	569	-	-	-	12.7	1193.6	759



Tee(straight)

ASME B16.9&JIS B2311

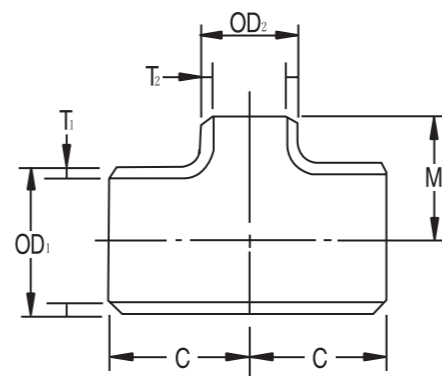
Nominal pipe Size	outside Diameter O.D	Center to End		Sch80			Sch160			XX-S		
		Run C	Outlet M	T	I.D	W(kg)	T	I.D	W(kg)	T	I.D	W(kg)
1/2	21.3	25	25	3.73	13.8	0.11	4.78	11.7	0.12	7.47	6.4	0.17
3/4	26.7	29	29	3.91	18.9	0.17	5.56	15.6	0.21	7.82	11.1	0.26
1	33.4	38	38	4.55	24.3	0.32	6.35	20.7	0.41	9.09	15.2	0.53
1-1/4	42.2	48	48	4.85	32.5	0.56	6.35	29.5	0.69	9.70	22.8	0.95
1-1/2	48.3	57	57	5.08	38.1	0.81	7.14	34.0	1.07	10.15	28.0	1.4
2	60.3	64	64	5.54	49.2	1.2	8.74	42.8	1.78	11.07	38.2	2.16
2-1/2	73.0	76	76	7.01	59.0	2.28	9.53	53.9	2.86	14.02	45.0	3.92
3	88.9	86	86	7.62	73.7	3.25	11.13	66.6	4.55	15.24	58.4	5.9
3-1/2	101.6	95	95	8.08	85.4	-	-	-	-	-	-	-
4	114.3	105	105	8.56	97.2	5.77	13.49	87.3	8.5	17.12	80.1	10.6
5	141.3	124	124	9.53	122.2	9.2	15.88	109.5	14.8	19.05	103.2	17.3
6	168.3	143	143	10.97	146.4	14.5	18.26	131.8	23.3	21.95	124.4	27.2
8	219.1	178	178	12.70	193.7	27.1	23.01	173.1	47.2	22.23	174.6	45.7
10	273.0	216	216	15.09	242.8	49	28.58	215.8	88	25.40	222.2	79.2
12	323.8	254	254	17.48	288.8	79.2	33.32	257.2	143	25.40	273.0	113
14	355.6	279	279	19.05	317.5	104	35.71	284.2	186	-	-	-
16	406.4	305	305	21.44	363.5	145	40.49	325.4	260	-	-	-
18	457.0	343	343	23.83	409.3	204	45.24	366.5	356	-	-	-
20	508.0	381	381	26.19	455.6	277	50.01	408.0	502	-	-	-
22	559.0	419	419	28.58	501.8	365	53.98	451.0	657	-	-	-
24	610.0	432	432	30.96	548.1	438	59.54	490.9	800	-	-	-
26	660.0	495	495	-	-	-	-	-	-	-	-	-
28	711.0	521	521	-	-	-	-	-	-	-	-	-
30	762.0	559	559	-	-	-	-	-	-	-	-	-
32	813.0	597	597	-	-	-	-	-	-	-	-	-
34	864.0	635	635	-	-	-	-	-	-	-	-	-
36	914	673	673	-	-	-	-	-	-	-	-	-
38	965	711	711	-	-	-	-	-	-	-	-	-
40	1016	749	749	-	-	-	-	-	-	-	-	-
42	1067	762	711	-	-	-	-	-	-	-	-	-
44	1118	813	762	-	-	-	-	-	-	-	-	-
46	1168	851	800	-	-	-	-	-	-	-	-	-
48	1219	889	838	-	-	-	-	-	-	-	-	-



Tee(Reducing)

ASME B16.9&JIS B2311

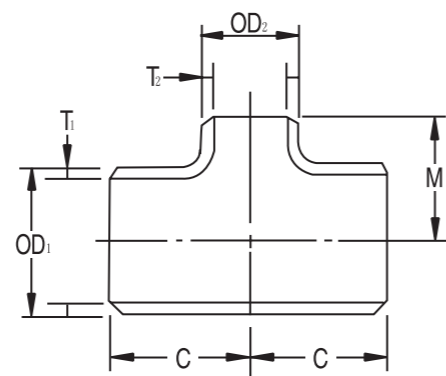
Nominal Pipe Size	Outside Diameter		Center to End		SGP			STD			Sch40		
	OD1	OD2	Run C	Outlet M	T1	T2	W(kg)	T1	T2	W(kg)	T1	T2	W(kg)
3/4 X 3/4 X 1/2	26.7	21.3	29	29	2.8	2.8	0.12	2.87	2.77	0.12	2.87	2.77	0.12
1 X 1 X 3/4	33.4	26.7	38	38	3.2	2.8	0.23	3.38	2.87	0.24	3.38	2.87	0.24
1 X 1 X 1/2	33.4	21.3	38	38	3.2	2.8	0.22	3.38	2.77	0.23	3.38	2.77	0.23
1-1/4 X 1-1/4 X 1	42.2	33.4	48	48	3.5	3.2	0.39	3.56	3.38	0.4	3.56	3.38	0.4
1-1/4 X 1-1/4 X 3/4	42.2	26.7	48	48	3.5	2.8	0.37	3.56	2.87	0.37	3.56	2.87	0.37
1-1/2 X 1-1/2 X 1-1/4	48.3	42.2	57	57	3.5	3.5	0.56	3.68	3.56	0.59	3.68	3.56	0.59
1-1/2 X 1-1/2 X 1	48.3	33.4	57	57	3.5	3.2	0.53	3.68	3.38	0.56	3.68	3.38	0.56
1-1/2 X 1-1/2 X 3/4	48.3	26.7	57	57	3.5	2.8	0.51	3.68	2.87	0.53	3.68	2.87	0.53
2 X 2 X 1-1/2	60.3	48.3	64	60	3.8	3.5	0.8	3.91	3.68	0.82	3.91	3.68	0.82
2 X 2 X 1-1/4	60.3	42.2	64	57	3.8	3.5	0.77	3.91	3.56	0.79	3.91	3.56	0.79
2 X 2 X 1	60.3	33.4	64	51	3.8	3.2	0.73	3.91	3.38	0.75	3.91	3.38	0.75
2-1/2 X 2-1/2 X 2	73	60.3	76	70	4.2	3.8	1.31	5.16	3.91	1.56	5.16	3.91	1.56
2-1/2 X 2-1/2 X 1-1/2	73	48.3	76	67	4.2	3.5	1.25	5.16	3.68	1.51	5.16	3.68	1.51
2-1/2 X 2-1/2 X 1-1/4	73	42.2	76	64	4.2	3.5	1.22	5.16	3.56	1.48	5.16	3.56	1.48
3 X 3 X 2-1/2	88.9	73	86	83	4.2	4.2	1.79	5.49	5.16	2.29	5.49	5.16	2.29
3 X 3 X 2	88.9	60.3	86	76	4.2	3.8	1.68	5.49	3.91	2.12	5.49	3.91	2.12
3 X 3 X 1-1/2	88.9	48.3	86	73	4.2	3.5	1.62	5.49	3.68	2.06	5.49	3.68	2.06
3-1/2 X 3-1/2 X 3	101.6	88.9	95	92	4.2	4.2	-	5.74	5.49	-	5.74	5.49	-
3-1/2 X 3-1/2 X 2-1/2	101.6	73	95	89	4.2	4.2	-	5.74	5.16	-	5.74	5.16	-
3-1/2 X 3-1/2 X 2	101.6	60.3	95	83	4.2	3.8	-	5.74	3.91	-	5.74	3.91	-
3-1/2 X 3-1/2 X 1-1/2	101.6	48.3	95	79	4.2	3.5	-	5.74	3.68	-	5.74	3.68	-
4 X 4 X 3-1/2	114.3	101.6	105	102	4.5	4.2	-	6.02	5.74	-	6.02	5.74	-
4 X 4 X 3	114.3	88.9	105	98	4.5	4.2	2.92	6.02	5.49	3.83	6.02	5.49	3.83
4 X 4 X 2-1/2	114.3	73	105	95	4.5	4.2	2.84	6.02	5.16	3.71	6.02	5.16	3.71
4 X 4 X 2	114.3	60.3	105	89	4.5	3.8	2.72	6.02	3.91	3.53	6.02	3.91	3.53
5 X 5 X 4	141.3	114.3	124	117	4.5	4.5	4.3	6.55	6.02	6.13	6.55	6.02	6.13



Tee(Reducing)

ASME B16.9&JIS B2311

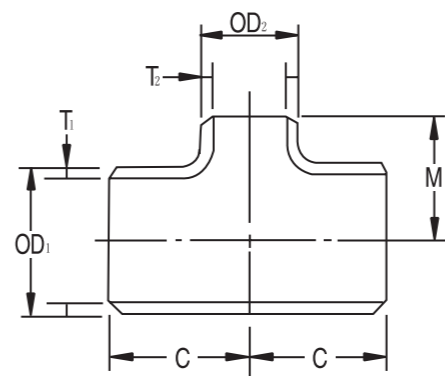
Nominal Pipe Size	Outside Diameter		Center to End		X-S			Sch80			Sch160			XX-S		
	OD1	OD2	Run C	Outlet M	T1	T2	W(kg)	T1	T2	W(kg)	T1	T2	W(kg)	T1	T2	W(kg)
3/4 X 3/4 X 1/2	26.7	21.3	29	29	3.91	3.73	0.16	3.91	3.73	0.16	5.56	4.78	0.19	7.82	7.47	0.24
1 X 1 X 3/4	33.4	26.7	38	38	4.55	3.91	0.3	4.55	3.91	0.3	6.35	5.56	0.38	9.09	7.82	0.49
1 X 1 X 1/2	33.4	21.3	38	38	4.55	3.73	0.26	4.55	3.73	0.26	6.35	4.78	0.37	9.09	7.47	0.47
1-1/4 X 1-1/4 X 1	42.2	33.4	48	48	4.85	4.55	0.53	4.85	4.55	0.53	6.35	6.35	0.65	9.7	9.09	0.89
1-1/4 X 1-1/4 X 3/4	42.2	26.7	48	48	4.85	3.91	0.48	4.85	3.91	0.48	6.35	5.56	0.62	9.7	7.82	0.84
1-1/2 X 1-1/2 X 1-1/4	48.3	42.2	57	57	5.08	4.85	0.78	5.08	4.85	0.78	7.14	6.35	1.01	10.15	9.7	1.35
1-1/2 X 1-1/2 X 1	48.3	33.4	57	57	5.08	4.55	0.74	5.08	4.55	0.74	7.14	6.35	0.97	10.15	9.09	1.28
1-1/2 X 1-1/2 X 3/4	48.3	26.7	57	57	5.08	3.91	0.7	5.08	3.91	0.7	7.14	5.56	0.92	10.15	7.82	1.21
2 X 2 X 1-1/2	60.3	48.3	64	60	5.54	5.08	1.11	5.54	5.08	1.11	8.74	7.14	1.63	11.07	10.15	2
2 X 2 X 1-1/4	60.3	42.2	64	57	5.54	4.85	1.07	5.54	4.85	1.07	8.74	6.35	1.56	11.07	9.7	1.91
2 X 2 X 1	60.3	33.4	64	51	5.54	4.55	1.01	5.54	4.55	1.01	8.74	6.35	1.5	11.07	9.09	1.81
2-1/2 X 2-1/2 X 2	73	60.3	76	70	7.01	5.54	2.06	7.01	5.54	2.06	9.53	8.74	2.64	14.02	11.07	3.56
2-1/2 X 2-1/2 X 1-1/2	73	48.3	76	67	7.01	5.08	1.98	7.01	5.08	1.98	9.53	7.14	2.48	14.02	10.15	3.4
2-1/2 X 2-1/2 X 1-1/4	73	42.2	76	64	7.01	4.85	1.94	7.01	4.85	1.94	9.53	6.35	2.42	14.02	9.7	3.32
3 X 3 X 2-1/2	88.9	73	86	83	7.62	7.01	3.07	7.62	7.01	3.07	11.13	9.53	4.23	15.24	14.02	5.53
3 X 3 X 2	88.9	60.3	86	76	7.62	5.54	2.85	7.62	5.54	2.85	11.13	8.74	4.02	15.24	11.07	5.18
3 X 3 X 1-1/2	88.9	48.3	86	73	7.62	5.08	2.77	7.62	5.08	2.77	11.13	7.14	3.87	15.24	10.15	5.03
3-1/2 X 3-1/2 X 3	101.6	88.9	95	92	8.08	7.62	-	8.08	7.62	-	-	11.13	-	-	15.24	-
3-1/2 X 3-1/2 X 2-1/2	101.6	73	95	89	8.08	7.01	-	8.08	7.01	-	-	9.53	-	-	14.02	-
3-1/2 X 3-1/2 X 2	101.6	60.3	95	83	8.08	5.54	-	8.08	5.54	-	-	8.74	-	-	11.07	-
3-1/2 X 3-1/2 X 1-1/2	101.6	48.3	95	79	8.08	5.08	-	8.08	5.08	-	-	7.14	-	-	10.15	-
4 X 4 X 3-1/2	114.3	101.6	105	102	8.56	8.08	-	8.56	8.08	-	13.49	-	-	17.12	-	-
4 X 4 X 3	114.3	88.9	105	98	8.56	7.62	5.33	8.56	7.62	5.33	13.49	11.13	7.92	17.12	15.24	9.76
4 X 4 X 2-1/2	114.3	73	105	95	8.56	7.01	5.15	8.56	7.01	5.15	13.49	9.53	7.56	17.12	14.02	9.39
4 X 4 X 2	114.3	60.3	105	89	8.56	5.54	4.94	8.56	5.54	4.94	13.49	8.74	7.34	17.12	11.07	9.02
5 X 5 X 4	141.3	114.3	124	117	9.53	8.56	8.63	9.53	8.56	8.63	15.88	13.49	13.7	19.05	17.12	16.1



Tee(Reducing)

ASME B16.9&JIS B2311

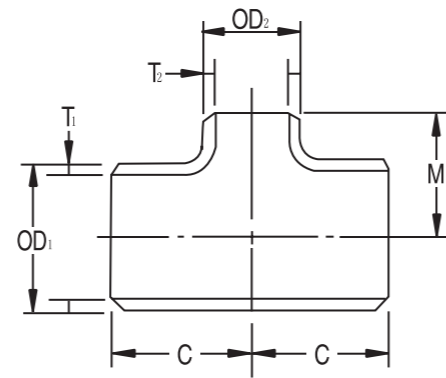
Nominal Pipe Size	Outside Diameter		Center to End		SGP			STD			Sch40		
	OD1	OD2	Run C	Outlet M	T1	T2	W(kg)	T1	T2	W(kg)	T1	T2	W(kg)
5 X 5 X 3-1/2	141.3	101.6	124	114	4.5	4.2	-	6.55	5.74	-	6.55	5.74	-
5 X 5 X 3	141.3	88.9	124	111	4.5	4.2	4.08	6.55	5.49	5.83	6.55	5.49	5.83
5 X 5 X 2-1/2	141.3	73	124	108	4.5	4.2	4	6.55	5.16	5.71	6.55	5.16	5.71
6 X 6 X 5	168.3	141.3	143	137	5	4.5	6.45	7.11	6.55	9.08	7.11	6.55	9.08
6 X 6 X 4	168.3	114.3	143	130	5	4.5	6.23	7.11	6.02	8.67	7.11	6.02	8.67
6 X 6 X 3-1/2	168.3	101.6	143	127	5	4.2	-	7.11	5.74	-	7.11	5.74	-
6 X 6 X 3	168.3	88.9	143	124	5	4.2	6.01	7.11	5.49	8.38	7.11	5.49	8.38
8 X 8 X 6	219.1	168.3	178	168	5.8	5	11.9	8.18	7.11	16.6	8.18	7.11	16.6
8 X 8 X 5	219.1	141.3	178	162	5.8	4.5	11.5	8.18	6.55	16.1	8.18	6.55	16.1
8 X 8 X 4	219.1	114.3	178	156	5.8	4.5	11.3	8.18	6.02	15.7	8.18	6.02	15.7
10 X 10 X 8	273	219.1	216	203	6.6	5.8	20.4	9.27	8.18	28.5	9.27	8.18	28.5
10 X 10 X 6	273	168.3	216	194	6.6	5	19.5	9.27	7.11	27.2	9.27	7.11	27.2
10 X 10 X 5	273	141.3	216	191	6.6	4.5	19.2	9.27	6.55	26.8	9.27	6.55	26.8
12 X 12 X 10	323.8	273	254	241	6.9	6.6	30.4	9.53	9.27	41.6	10.31	9.27	45.3
12 X 12 X 8	323.8	219.1	254	229	6.9	5.8	29	9.53	8.18	39.7	10.31	8.18	42.5
12 X 12 X 6	323.8	168.3	254	219	6.9	5	28.1	9.53	7.11	38.4	10.31	7.11	42
14 X 14 X 12	355.6	323.8	279	270	7.9	6.9	42.7	9.53	9.53	51.9	11.13	10.31	60.2
14 X 14 X 10	355.6	273	279	257	7.9	6.6	41.2	9.53	9.27	49.9	11.13	9.27	57.6
14 X 14 X 8	355.6	219.1	279	248	7.9	5.8	40	9.53	8.18	48.2	11.13	8.18	55.8
16 X 16 X 14	406.4	355.6	305	305	7.9	7.9	54.2	9.53	9.53	64.9	12.7	11.13	86
16 X 16 X 12	406.4	323.8	305	295	7.9	6.9	52.7	9.53	9.53	63.1	12.7	10.31	84
16 X 16 X 10	406.4	273	305	283	7.9	6.9	51.2	9.53	9.27	61.3	12.7	9.27	82
18 X 18 X 16	457	406.4	343	330	7.9	7.9	67.9	9.53	9.53	81.4	14.27	12.7	121
18 X 18 X 14	457	355.6	343	330	7.9	7.9	66.9	9.53	9.53	80.2	14.27	11.13	119
18 X 18 X 12	457	323.8	343	321	7.9	6.9	65.4	9.53	9.53	78.3	14.27	10.31	117
20 X 20 X 18	508	457	381	368	7.9	7.9	84.2	9.53	9.53	101	15.09	14.27	158



Tee(Reducing)

ASME B16.9&JIS B2311

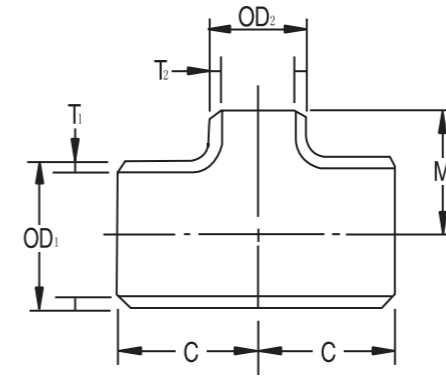
Nominal Pipe Size	Outside Diameter		Center to End		X-S			Sch80			Sch160			XX-S		
	OD1	OD2	Run C	Outlet M	T1	T2	W(kg)	T1	T2	W(kg)	T1	T2	W(kg)	T1	T2	W(kg)
5 X 5 X 3-1/2	141.3	101.6	124	114	9.53	8.08	-	9.53	8.08	-	15.88	-	-	19.05	-	-
5 X 5 X 3	141.3	88.9	124	111	9.53	7.62	8.19	9.53	7.62	8.19	15.88	11.13	13	19.05	15.24	15.3
5 X 5 X 2-1/2	141.3	73	124	108	9.53	7.01	8.01	9.53	7.01	8.01	15.88	9.53	12.8	19.05	14.02	15
6 X 6 X 5	168.3	141.3	143	137	10.97	9.53	13.6	10.97	9.53	13.6	18.26	15.88	21.9	21.95	19.05	25.6
6 X 6 X 4	168.3	114.3	143	130	10.97	8.56	13	10.97	8.56	13	18.26	13.49	20.8	21.95	17.12	24.5
6 X 6 X 3-1/2	168.3	101.6	143	127	10.97	8.08	-	10.97	8.08	-	18.26	-	-	21.95	-	-
6 X 6 X 3	168.3	88.9	143	124	10.97	7.62	12.6	10.97	7.62	12.6	18.26	11.13	20.1	21.95	15.24	23.7
8 X 8 X 6	219.1	168.3	178	168	12.7	10.97	25.2	12.7	10.97	25.2	23.01	18.26	43.5	22.23	21.95	43
8 X 8 X 5	219.1	141.3	178	162	12.7	9.53	24.3	12.7	9.53	24.3	23.01	15.88	42.1	22.23	19.05	41.4
8 X 8 X 4	219.1	114.3	178	156	12.7	8.56	23.7	12.7	8.56	23.7	23.01	13.49	40.3	22.23	17.12	41
10 X 10 X 8	273	219.1	216	203	12.7	12.7	38.9	15.09	12.7	45.8	28.58	23.01	81.4	25.4	22.23	54.4
10 X 10 X 6	273	168.3	216	194	12.7	10.97	37	15.09	10.97	43.9	28.58	18.26	78.5	25.4	21.95	71.5
10 X 10 X 5	273	141.3	216	191	12.7	9.53	36.2	15.09	9.53	43.1	28.58	15.88	77	25.4	19.05	70
12 X 12 X 10	323.8	273	254	241	12.7	12.7	55.2	17.48	15.09	74.8	33.32	28.58	135	25.4	25.4	107
12 X 12 X 8	323.8	219.1	254	229	12.7	12.7	53.1	17.48	12.7	71.4	33.32	23.01	128	25.4	22.23	102
12 X 12 X 6	323.8	168.3	254	219	12.7	10.97	51.2	17.48	10.97	69.5	33.32	18.26	125	25.4	21.95	100
14 X 14 X 12	355.6	323.8	279	270	12.7	12.7	68.8	19.05	17.48	100	35.71	33.32	179	-	25.4	-
14 X 14 X 10	355.6	273	279	257	12.7	12.7	66.3	19.05	15.09	95.9	35.71	28.58	174	-	25.4	-
14 X 14 X 8	355.6	219.1	279	248	12.7	12.7	64.5	19.05	12.7	92.9	35.71	23.01	168	-	22.23	-
16 X 16 X 14	406.4	355.6	305	305	12.7	12.7	86.1	21.44	19.05	140	40.49	35.71	255	-	-	-
16 X 16 X 12	406.4	323.8	305	295	12.7	12.7	83.6	21.44	17.48	136	40.49	33.32	248	-	25.4	-
16 X 16 X 10	406.4	273	305	283	12.7	12.7	81.2	21.44	15.09	132	40.49	28.58	241	-	25.4	-
18 X 18 X 16	457	406.4	343	330	12.7	12.7	108	23.83	21.44	197	45.24	40.49	352	-	-	-
18 X 18 X 14	457	355.6	343	330	12.7	12.7	106	23.83	19.05	194	45.24	35.71	344	-	-	-
18 X 18 X 12	457	323.8	343	321	12.7	12.7	104	23.83	17.48	189	45.24	33.32	337	-	25.4	-
20 X 20 X 18	508	457	381	368	12.7	12.7	134	26.19	23.83	268	50.01	45.24	488	-	-	-



Tee(Reducing)

ASME B16.9&JIS B2311

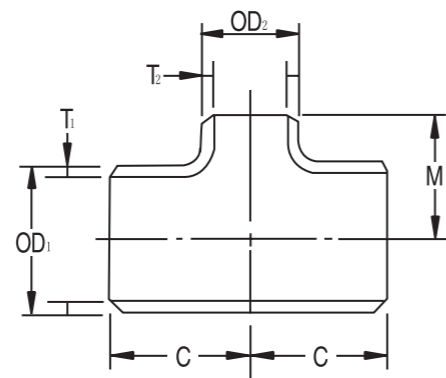
Nominal Pipe Size	Outside Diameter		Center to End		SGP			STD			Sch40		
	OD1	OD2	Run C	Outlet M	T1	T2	W(kg)	T1	T2	W(kg)	T1	T2	W(kg)
20 X 20 X 16	508	406.4	381	356	7.9	7.9	82.1	9.53	9.53	98.4	15.09	12.7	154
20 X 20 X 14	508	355.6	381	356	7.9	7.9	81.1	9.53	9.53	97.2	15.09	11.13	152
22 X 22 X 20	559	508	419	406	-	-	103	9.53	9.53	123	-	15.09	193
22 X 22 X 18	559	457	419	394	-	-	101	9.53	9.53	120	-	14.27	188
22 X 22 X 16	559	406.4	419	381	-	-	98.9	9.53	9.53	117	-	12.7	183
24 X 24 X 22	610	559	432	432	-	-	115	9.53	9.53	138	17.48	-	249
24 X 24 X 20	610	508	432	432	-	-	114	9.53	9.53	136	17.48	15.09	247
24 X 24 X 18	610	457	432	419	-	-	111	9.53	9.53	133	17.48	14.27	241
26 X 26 X 22	660	559	495	470	-	-	141	9.53	9.53	169	-	-	308
26 X 26 X 18	660	457	495	444	-	-	-	9.53	9.53	-	-	14.27	-
26 X 26 X 16	660	406.4	495	432	-	-	-	9.53	9.53	-	-	12.7	-
28 X 28 X 24	711	610	521	508	-	-	160	9.53	9.53	193	-	17.48	350
28 X 28 X 20	711	508	521	483	-	-	-	9.53	9.53	-	-	15.09	-
28 X 28 X 18	711	457	521	470	-	-	-	9.53	9.53	-	-	14.27	-
30 X 30 X 26	762	660	559	546	-	-	185	9.53	9.53	222	-	-	356
30 X 30 X 22	762	559	559	521	-	-	-	9.53	9.53	-	-	-	-
30 X 30 X 20	762	508	559	508	-	-	-	9.53	9.53	-	-	15.09	-
32 X 32 X 28	813	711	597	559	-	-	209	9.53	9.53	252	17.48	17.48	458
32 X 32 X 24	813	610	597	546	-	-	-	9.53	9.53	-	17.48	17.48	-
32 X 32 X 22	813	559	597	559	-	-	-	9.53	9.53	-	17.48	17.48	-
34 X 34 X 30	864	762	635	610	-	-	238	9.53	9.53	290	17.48	-	518
34 X 34 X 26	864	660	635	597	-	-	-	9.53	9.53	-	17.48	-	-
34 X 34 X 22	864	559	635	572	-	-	-	9.53	9.53	-	17.48	-	-
36 X 36 X 32	914	813	673	648	-	-	269	9.53	9.53	326	19.05	17.48	636
36 X 36 X 28	914	711	673	622	-	-	-	9.53	9.53	-	19.05	-	-
36 X 36 X 24	914	610	673	610	-	-	-	9.53	9.53	-	19.05	17.48	-



Tee(Reducing)

ASME B16.9&JIS B2311

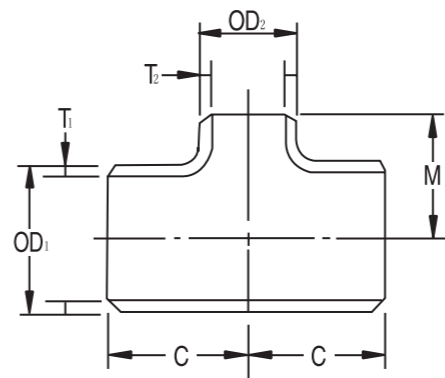
Nominal Pipe Size	Outside Diameter		Center to End		X-S			Sch80			Sch160			XX-S		
	OD1	OD2	Run C	Outlet M	T1	T2	W(kg)	T1	T2	W(kg)	T1	T2	W(kg)	T1	T2	W(kg)
20 X 20 X 16	508	406.4	381	356	12.7	12.7	131	26.19	21.44	262	50.01	40.49	475	-	-	-
20 X 20 X 14	508	355.6	381	356	12.7	12.7	129	26.19	19.05	258	50.01	35.71	469	-	-	-
22 X 22 X 20	559	508	419	406	12.7	12.7	163	28.58	26.19	356	53.98	50.01	640	-	-	-
22 X 22 X 18	559	457	419	394	12.7	12.7	159	28.58	23.83	347	53.98	45.24	624	-	-	-
22 X 22 X 16	559	406.4	419	381	12.7	12.7	156	28.58	21.44	340	53.98	40.49	610	-	-	-
24 X 24 X 22	610	559	432	432	12.7	12.7	183	30.96	28.58	432	59.54	53.98	790	-	-	-
24 X 24 X 20	610	508	432	432	12.7	12.7	181	30.96	26.19	427	59.54	50.01	782	-	-	-
24 X 24 X 18	610	457	432	419	12.7	12.7	177	30.96	23.83	418	59.54	45.24	764	-	-	-
26 X 26 X 22	660	559	495	470	12.7	12.7	225	-	28.58	-	-	53.98	-	-	-	-
26 X 26 X 18	660	457	495	444	12.7	12.7	-	-	23.83	-	-	45.24	-	-	-	-
26 X 26 X 16	660	406.4	495	432	12.7	12.7	-	-	21.44	-	-	40.49	-	-	-	-
28 X 28 X 24	711	610	521	508	12.7	12.7	256	-	30.96	-	-	59.54	-	-	-	-
28 X 28 X 20	711	508	521	483	12.7	12.7	-	-	26.19	-	-	50.01	-	-	-	-
28 X 28 X 18	711	457	521	470	12.7	12.7	-	-	23.83	-	-	45.24	-	-	-	-
30 X 30 X 26	762	660	559	546	12.7	12.7	296	-	-	-	-	-	-	-	-	-
30 X 30 X 22	762	559	559	521	12.7	12.7	-	-	28.58	-	-	53.98	-	-	-	-
30 X 30 X 20	762	508	559	508	12.7	12.7	-	-	26.19	-	-	50.01	-	-	-	-
32 X 32 X 28	813	711	597	559	12.7	12.7	335	-	-	-	-	-	-	-	-	-
32 X 32 X 24	813	610	597	546	12.7	12.7	-	-	30.96	-	-	59.54	-	-	-	-
32 X 32 X 22	813	559	597	559	12.7	12.7	-	-	28.58	-	-	53.98	-	-	-	-
34 X 34 X 30	864	762	635	610	12.7	12.7	380	-	-	-	-	-	-	-	-	-
34 X 34 X 26	864	660	635	597	12.7	12.7	-	-	-	-	-	-	-	-	-	-
34 X 34 X 22	864	559	635	572	12.7	12.7	-	-	28.58	-	-	53.98	-	-	-	-
36 X 36 X 32	914	813	673	648	12.7	12.7	431	-	-	-	-	-	-	-	-	-
36 X 36 X 28	914	711	673	622	12.7	12.7	-	-	-	-	-	-	-	-	-	-
36 X 36 X 24	914	610	673	610	12.7	12.7	-	-	30.96	-	-	59.54	-	-	-	-



Tee(Reducing)

ASME B16.9&JIS B2311

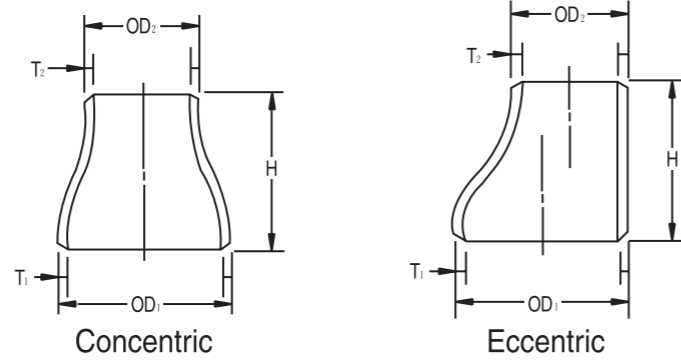
Nominal Pipe Size	Outside Diameter		Center to End		SGP			STD			Sch40		
	OD1	OD2	Run C	Outlet M	T1	T2	W(kg)	T1	T2	W(kg)	T1	T2	W(kg)
38 X 38 X 34	965	864	711	698	-	-	302	9.53	9.53	362	-	17.48	-
38 X 38 X 30	965	762	711	673	-	-	-	9.53	9.53	-	-	-	-
38 X 38 X 26	965	660	711	648	-	-	-	9.53	9.53	-	-	-	-
40 X 40 X 36	1016	914	749	737	-	-	335	9.53	9.53	402	-	19.05	-
40 X 40 X 32	1016	813	749	711	-	-	-	9.53	9.53	-	-	17.48	-
40 X 40 X 28	1016	711	749	673	-	-	-	9.53	9.53	-	-	-	-
42 X 42 X 38	1067	965	762	711	-	-	348	9.53	9.53	418	-	-	-
42 X 42 X 34	1067	864	762	711	-	-	-	9.53	9.53	-	-	17.48	-
42 X 42 X 30	1067	762	762	711	-	-	-	9.53	9.53	-	-	-	-
44 X 44 X 40	1118	1016	813	749	-	-	389	9.53	9.53	467	-	-	-
44 X 44 X 36	1118	914	813	724	-	-	-	9.53	9.53	-	-	19.05	-
44 X 44 X 32	1118	813	813	711	-	-	-	9.53	9.53	-	-	17.48	-
46 X 46 X 42	1168	1067	851	787	-	-	427	9.53	9.53	513	-	-	-
46 X 46 X 38	1168	965	851	762	-	-	-	9.53	9.53	-	-	-	-
46 X 46 X 34	1168	864	851	749	-	-	-	9.53	9.53	-	-	17.48	-
48 X 48 X 44	1219	1118	889	838	-	-	470	9.53	9.53	564	-	-	-
48 X 48 X 40	1219	1016	889	813	-	-	-	9.53	9.53	-	-	-	-
48 X 48 X 36	1219	914	889	787	-	-	-	9.53	9.53	-	-	19.05	-



Tee(Reducing)

ASME B16.9&JIS B2311

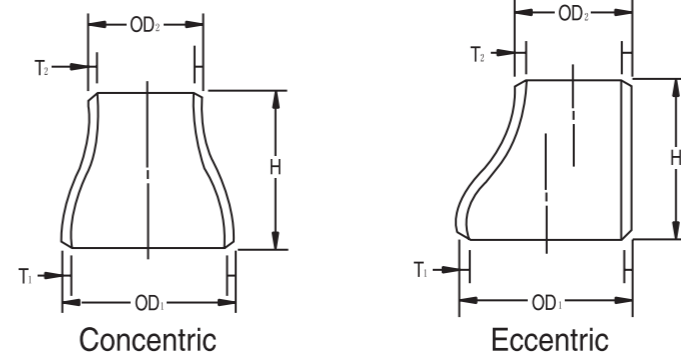
Nominal Pipe Size	Outside Diameter		Center to End		X-S			Sch80			Sch160			XX-S		
	OD1	OD2	Run C	Outlet M	T1	T2	W(kg)	T1	T2	W(kg)	T1	T2	W(kg)	T1	T2	W(kg)
38 X 38 X 34	965	864	711	698	12.7	12.7	481	-	-	-	-	-	-	-	-	-
38 X 38 X 30	965	762	711	673	12.7	12.7	-	-	-	-	-	-	-	-	-	-
38 X 38 X 26	965	660	711	648	12.7	12.7	-	-	-	-	-	-	-	-	-	-
40 X 40 X 36	1016	914	749	737	12.7	12.7	536	-	-	-	-	-	-	-	-	-
40 X 40 X 32	1016	813	749	711	12.7	12.7	-	-	-	-	-	-	-	-	-	-
40 X 40 X 28	1016	711	749	673	12.7	12.7	-	-	-	-	-	-	-	-	-	-
42 X 42 X 38	1067	965	762	711	12.7	12.7	557	-	-	-	-	-	-	-	-	-
42 X 42 X 34	1067	864	762	711	12.7	12.7	-	-	-	-	-	-	-	-	-	-
42 X 42 X 30	1067	762	762	711	12.7	12.7	-	-	-	-	-	-	-	-	-	-
44 X 44 X 40	1118	1016	813	749	12.7	12.7	623	-	-	-	-	-	-	-	-	-
44 X 44 X 36	1118	914	813	724	12.7	12.7	-	-	-	-	-	-	-	-	-	-
44 X 44 X 32	1118	813	813	711	12.7	12.7	-	-	-	-	-	-	-	-	-	-
46 X 46 X 42	1168	1067	851	787	12.7	12.7	683	-	-	-	-	-	-	-	-	-
46 X 46 X 38	1168	965	851	762	12.7	12.7	-	-	-	-	-	-	-	-	-	-
46 X 46 X 34	1168	864	851	749	12.7	12.7	-	-	-	-	-	-	-	-	-	-
48 X 48 X 44	1219	1118	889	838	12.7	12.7	751	-	-	-	-	-	-	-	-	-
48 X 48 X 40	1219	1016	889	813	12.7	12.7	-	-	-	-	-	-	-	-	-	-
48 X 48 X 36	1219	914	889	787	12.7	12.7	-	-	-	-	-	-	-	-	-	-



Reducer

ASME B16.9&JIS B2311

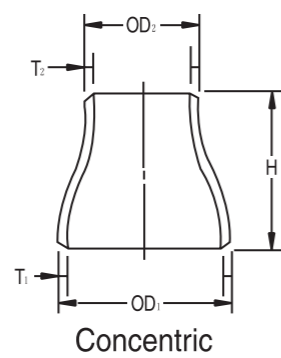
Nominal Pipe Size	Outside Diameter		End to End H	SGP			STD			Sch40			X-S		
	OD1	OD2		T1	T2	W(kg)	T1	T2	W(kg)	T1	T2	W(kg)	T1	T2	W(kg)
3/4 X 1/2	26.7	21.3	38	2.8	2.8	0.06	2.87	2.77	0.06	2.87	2.77	0.06	3.91	3.73	0.08
1 X 3/4	33.4	26.7	51	3.2	2.8	0.11	3.38	2.87	0.12	3.38	2.87	0.12	4.55	3.91	0.15
1 X 1/2	33.4	21.3	51	3.2	2.8	0.10	3.38	2.77	0.11	3.38	2.77	0.11	4.55	3.73	0.14
1-4/1 X 1	42.2	33.4	51	3.5	3.2	0.16	3.56	3.38	0.16	3.56	3.38	0.16	4.85	4.55	0.21
1-1/4 X 3/4	42.2	26.7	51	3.5	2.8	0.15	3.56	2.87	0.15	3.56	2.87	0.15	4.85	3.91	0.19
1-1/4 X 1/2	42.2	21.3	51	3.5	2.8	0.13	3.56	2.77	0.14	3.56	2.77	0.14	4.85	3.73	0.18
1-1/2 X 1-1/4	48.3	42.2	64	3.5	3.5	0.24	3.68	3.56	0.25	3.68	3.56	0.25	5.08	4.85	0.33
1-1/2 X 1	48.3	33.4	64	3.5	3.2	0.21	3.68	3.38	0.22	3.68	3.38	0.22	5.08	4.55	0.30
1-1/2 X 3/4	48.3	26.7	64	3.5	2.8	0.20	3.68	2.87	0.21	3.68	2.87	0.21	5.08	3.91	0.27
2 X 1-1/2	60.3	48.3	76	3.8	3.5	0.37	3.91	3.68	0.38	3.91	3.68	0.38	5.54	5.08	0.51
2 X 1-1/4	60.3	42.2	76	3.8	3.5	0.35	3.91	3.56	0.36	3.91	3.56	0.36	5.54	4.85	0.48
2 X 1	60.3	33.4	76	3.8	3.2	0.31	3.91	3.38	0.33	3.91	3.38	0.33	5.54	4.55	0.44
2 X 3/4	60.3	26.7	76	3.8	2.8	0.29	3.91	2.87	0.30	3.91	2.87	0.30	5.54	3.91	0.40
2-1/2 X 2	73	60.3	89	4.2	3.8	0.60	5.16	3.91	0.73	5.16	3.91	0.73	7.01	5.54	0.95
2-1/2 X 1-1/2	73	48.3	89	4.2	3.5	0.55	5.16	3.68	0.67	5.16	3.68	0.67	7.01	5.08	0.87
2-1/2 X 1-1/4	73	42.2	89	4.2	3.5	0.52	5.16	3.56	0.64	5.16	3.56	0.64	7.01	4.85	0.83
2-1/2 X 1	73	33.4	89	4.2	3.2	0.48	5.16	3.38	0.56	5.16	3.38	0.56	7.01	4.55	0.73
3 X 2-1/2	88.9	73	89	4.2	4.2	0.73	5.49	5.16	0.94	5.49	5.16	0.94	7.62	7.01	1.25
3 X 2	88.9	60.3	89	4.2	3.8	0.66	5.49	3.91	0.85	5.49	3.91	0.85	7.62	5.54	1.13
3 X 1-1/2	88.9	48.3	89	4.2	3.5	0.62	5.49	3.68	0.79	5.49	3.68	0.79	7.62	5.08	1.04
3 X 1-1/4	88.9	42.2	89	4.2	3.5	0.59	5.49	3.56	0.75	5.49	3.56	0.75	7.62	4.85	1.00
3-1/2 X 3	101.6	88.9	102	4.2	4.2	-	5.74	5.49	-	5.74	5.49	-	8.08	7.62	-
3-1/2 X 2-1/2	101.6	73	102	4.2	4.2	-	5.74	5.16	-	5.74	5.16	-	8.08	7.01	-
3-1/2 X 2	101.6	60.3	102	4.2	3.8	-	5.74	3.91	-	5.74	3.91	-	8.08	5.54	-
3-1/2 X 1-1/2	101.6	48.3	102	4.2	3.5	-	5.74	3.68	-	5.74	3.68	-	8.08	5.08	-
4 X 3-1/2	114.3	101.6	102	4.5	4.2	-	6.02	5.74	-	6.02	5.74	-	8.56	8.08	-



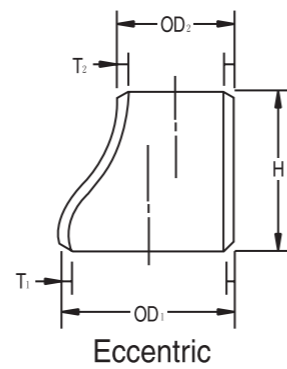
Reducer

ASME B16.9&JIS B2311

Nominal Pipe Size	Outside Diameter		End to End H	Sch80			Sch160			XX-S		
	OD1	OD2		T1	T2	W(kg)	T1	T2	W(kg)	T1	T2	W(kg)
3/4 X 1/2	26.7	21.3	38	3.91	3.73	0.08	5.56	4.78	-	7.82	7.47	-
1 X 3/4	33.4	26.7	51	4.55	3.91	0.15	6.35	5.56	0.19	9.09	7.82	0.25
1 X 1/2	33.4	21.3	51	4.55	3.73	0.14	6.35	4.78	0.17	9.09	7.47	0.22
1-4/1 X 1	42.2	33.4	51	4.85	4.55	0.21	6.35	6.35	0.25	9.7	9.09	0.35
1-1/4 X 3/4	42.2	26.7	51	4.85	3.91	0.19	6.35	5.56	0.23	9.7	7.82	0.31
1-1/4 X 1/2	42.2	21.3	51	4.85	3.73	0.18	6.35	4.78	-	9.7	7.47	-
1-1/2 X 1-1/4	48.3	42.2	64	5.08	4.85	0.33	7.14	6.35	0.43	10.15	9.7	0.57
1-1/2 X 1	48.3	33.4	64	5.08	4.55	0.30	7.14	6.35	0.38	10.15	9.09	0.50
1-1/2 X 3/4	48.3	26.7	64	5.08	3.91	0.27	7.14	5.56	0.35	10.15	7.82	0.45
2 X 1-1/2	60.3	48.3	76	5.54	5.08	0.51	8.74	7.14	0.75	11.07	10.15	0.91
2 X 1-1/4	60.3	42.2	76	5.54	4.85	0.48	8.74	6.35	0.70	11.07	9.7	0.85
2 X 1	60.3	33.4	76	5.54	4.55	0.44	8.74	6.35	0.64	11.07	9.09	0.77
2 X 3/4	60.3	26.7	76	5.54	3.91	0.40	8.74	5.56	0.58	11.07	7.82	0.69
2-1/2 X 2	73	60.3	89	7.01	5.54	0.95	9.53	8.74	1.20	14.02	11.07	1.68
2-1/2 X 1-1/2	73	48.3	89	7.01	5.08	0.87	9.53	7.14	1.08	14.02	10.15	1.51
2-1/2 X 1-1/4	73	42.2	89	7.01	4.85	0.83	9.53	6.35	1.02	14.02	9.7	1.42
2-1/2 X 1	73	33.4	89	7.01	4.55	0.73	9.53	6.35	0.93	14.02	9.09	1.23
3 X 2-1/2	88.9	73	89	7.62	7.01	1.25	11.13	9.53	1.71	15.24	14.02	2.25
3 X 2	88.9	60.3	89	7.62	5.54	1.13	11.13	8.74	1.57	15.24	11.07	2.01
3 X 1-1/2	88.9	48.3	89	7.62	5.08	1.04	11.13	7.14	1.44	15.24	10.15	1.83
3 X 1-1/4	88.9	42.2	89	7.62	4.85	1.00	11.13	6.35	1.37	15.24	9.7	1.74
3-1/2 X 3	101.6	88.9	102	8.08	7.62	-	-	11.13	-	-	15.24	-
3-1/2 X 2-1/2	101.6	73	102	8.08	7.01	-	-	9.53	-	-	14.02	-
3-1/2 X 2	101.6	60.3	102	8.08	5.54	-	-	8.74	-	-	11.07	-
3-1/2 X 1-1/2	101.6	48.3	102	8.08	5.08	-	-	7.14	-	-	10.15	-
4 X 3-1/2	114.3	101.6	102	8.56	8.08	-	13.49	-	-	-	17.12	-



Concentric

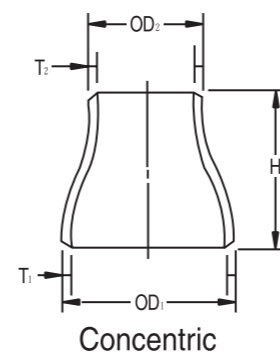


Eccentric

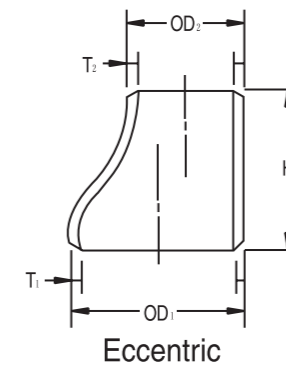
Reducer

ASME B16.9&JIS B2311

Nominal Pipe Size	Outside Diameter		End to End	SGP			STD			Sch40			X-S		
	OD1	OD2	H	T1	T2	W(kg)	T1	T2	W(kg)	T1	T2	W(kg)	T1	T2	W(kg)
4 X 3	114.3	88.9	102	4.5	4.2	1.10	6.02	5.49	1.45	6.02	5.49	1.45	8.56	7.62	2.02
4 X 2-1/2	114.3	73	102	4.5	4.2	1.04	6.02	5.16	1.37	6.02	5.16	1.37	8.56	7.01	1.90
4 X 2	114.3	60.3	102	4.5	3.8	0.97	6.02	3.91	1.27	6.02	3.91	1.27	8.56	5.54	1.76
5 X 4	141.3	114.3	127	4.5	4.5	1.74	6.55	6.02	2.50	6.55	6.02	2.50	9.53	8.56	3.52
5 X 3-1/2	141.3	101.6	127	4.5	4.2	-	6.55	5.74	-	6.55	5.74	-	9.53	8.08	-
5 X 3	141.3	88.9	127	4.5	4.2	1.58	6.55	5.49	2.27	6.55	5.49	2.27	9.53	7.62	3.18
5 X 2-1/2	141.3	73	127	4.5	4.2	1.50	6.55	5.16	2.16	6.55	5.16	2.16	9.53	7.01	3.02
6 X 5	168.3	141.3	140	5	4.5	2.55	7.11	6.55	3.57	7.11	6.55	3.57	10.97	9.53	5.38
6 X 4	168.3	114.3	140	5	4.5	2.36	7.11	6.02	3.30	7.11	6.02	3.30	10.97	8.56	4.96
6 X 3-1/2	168.3	101.6	140	5	4.2	-	7.11	5.74	-	7.11	5.74	-	10.97	8.08	-
6 X 3	168.3	88.9	140	5	4.2	2.18	7.11	5.49	3.04	7.11	5.49	3.04	10.97	7.62	4.56
6 X 2-1/2	168.3	73	140	5	4.2	2.09	7.11	5.16	2.94	7.11	5.16	2.94	10.97	7.01	4.38
8 X 6	219.1	168.3	152	5.8	5	4.17	8.18	7.11	5.71	8.18	7.11	5.71	12.7	10.97	8.63
8 X 5	219.1	141.3	152	5.8	4.5	3.87	8.18	6.55	5.40	8.18	6.55	5.40	12.7	9.53	8.14
8 X 4	219.1	114.3	152	5.8	4.5	3.67	8.18	6.02	5.10	8.18	6.02	5.10	12.7	8.56	7.68
8 X 3-1/2	219.1	101.6	152	5.8	4.2	-	8.18	5.74	-	8.18	5.74	-	12.7	8.08	-
10 X 8	273	219.1	178	6.6	5.8	6.87	9.27	8.18	9.58	9.27	8.18	9.58	12.7	12.7	12.90
10 X 6	273	168.3	178	6.6	5	6.32	9.27	7.11	8.78	9.27	7.11	8.78	12.7	10.97	11.80
10 X 5	273	141.3	178	6.6	4.5	6.06	9.27	6.55	8.42	9.27	6.55	8.42	12.7	9.53	11.30
10 X 4	273	114.3	178	-	-	5.80	9.27	6.02	8.20	9.27	6.02	8.20	12.7	8.56	11.00
12 X 10	323.8	273	203	6.9	6.6	9.97	9.53	9.27	13.60	10.31	9.27	14.70	12.7	12.7	18.00
12 X 8	323.8	219.1	203	6.9	5.8	9.29	9.53	8.18	12.70	10.31	8.18	13.70	12.7	12.7	16.70
12 X 6	323.8	168.3	203	6.9	5	8.69	9.53	7.11	11.80	10.31	7.11	12.80	12.7	10.97	15.60
12 X 5	323.8	141.3	203	6.9	4.5	8.39	9.53	6.55	11.70	10.31	6.55	12.60	12.7	9.53	15.30
14 X 12	355.6	323.8	330	7.9	6.9	21.20	9.53	9.53	25.40	11.13	10.31	29.50	12.7	12.7	33.60
14 X 10	355.6	273	330	7.9	6.6	19.70	9.53	9.27	23.60	11.13	9.27	27.40	12.7	12.7	31.20



Concentric



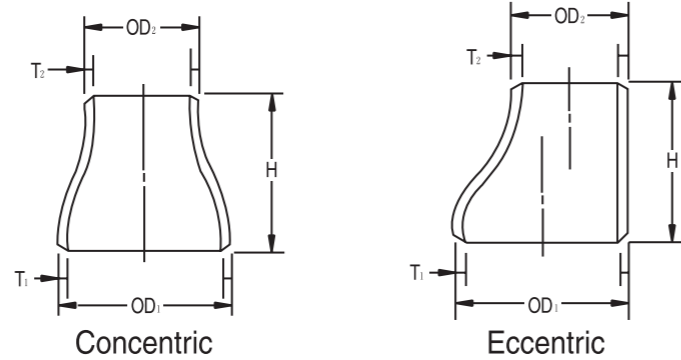
Eccentric



Reducer

ASME B16.9&JIS B2311

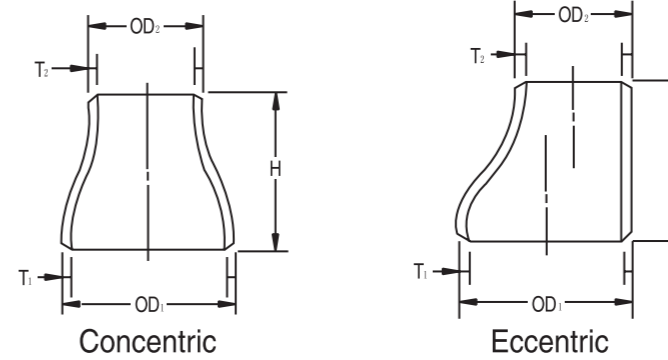
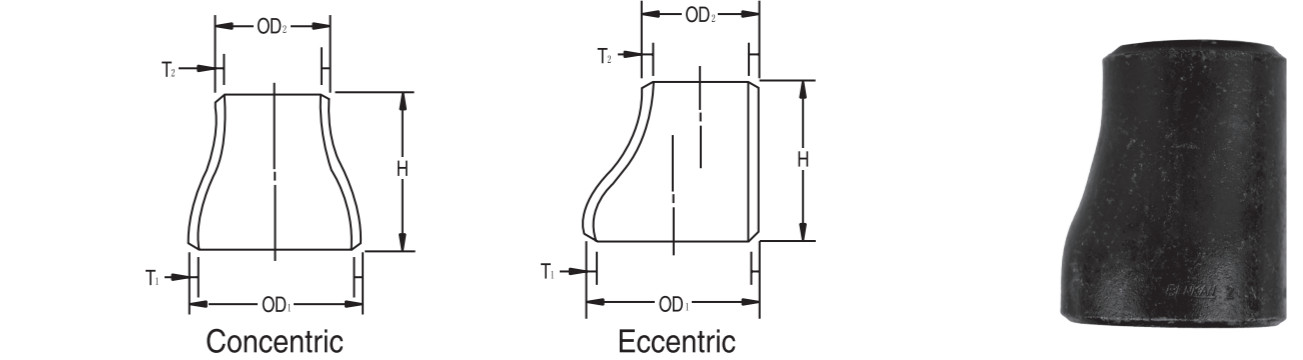
Nominal Pipe Size	Outside Diameter		End to End	Sch80			Sch160			XX-S		
	OD1	OD2	H	T1	T2	W(kg)	T1	T2	W(kg)	T1	T2	W(kg)
4 X 3	114.3	88.9	102	8.56	7.62	2.02	13.49	11.13	3.00	17.12	15.24	3.65
4 X 2-1/2	114.3	73	102	8.56	7.01	1.90	13.49	9.53	2.67	17.12	14.02	3.41
4 X 2	114.3	60.3	102	8.56	5.54	1.76	13.49	8.87	2.58	17.12	11.07	3.11
5 X 4	141.3	114.3	127	9.53	8.56	3.52	15.88	3.49	5.59	19.05	17.12	6.47
5 X 3-1/2	141.3	101.6	127	9.53	8.08	-	15.88	-	-	19.05	-	-
5 X 3	141.3	88.9	127	9.53	7.62	3.18	15.88	11.03	5.30	19.05	15.24	5.78
5 X 2-1/2	141.3	73	127	9.53	7.01	3.02	15.88	9.53	4.70	19.05	14.02	5.46
6 X 5	168.3	141.3	140	10.97	9.53	5.38	18.26	15.88	8.63	21.95	19.05	9.89
6 X 4	168.3	114.3	140	10.97	8.56	4.96	18.26	13.49	7.88	21.95	17.12	8.98
6 X 3-1/2	168.3	101.6	140	10.97	8.08	-	18.26	-	-	21.95	-	-
6 X 3	168.3	88.9	140	10.97	7.62	4.56	18.26	11.13	7.21	21.95	15.24	8.21
6 X 2-1/2	168.3	73	140	10.97	7.01	4.38	18.26	9.53	6.80	21.95	14.02	7.88
8 X 6	219.1	168.3	152	12.7	10.97	8.63	23.01	18.26	15.00	22.23	21.95	14.30
8 X 5	219.1	141.3	152	12.7	9.53	8.14	23.01	15.88	14.00	22.23	19.05	13.40
8 X 4	219.1	114.3	152	12.7	8.56	7.68	23.01	13.49	13.10	22.23	17.12	12.60
8 X 3-1/2	219.1	101.6	152	12.7	8.08	-	23.01	-	-	22.23	-	-
10 X 8	273	219.1	178	15.09	12.7	15.40	28.58	23.01	27.50	25.4	22.23	24.30
10 X 6	273	168.3	178	15.09	10.97	14.20	28.58	18.26	25.10	25.4	21.95	22.10
10 X 5	273	141.3	178	15.09	9.53	14.50	28.58	15.88	23.90	25.4	19.05	21.10
10 X 4	273	114.3	178	15.09	8.56	14.00	28.58	13.49	22.60	25.4	17.12	20.50
12 X 10	323.8	273	203	17.48	15.09	24.80	33.32	28.58	44.60	25.4	25.4	35.00
12 X 8	323.8	219.1	203	17.48	12.7	22.70	33.32	23.01	41.00	25.4	22.23	33.00
12 X 6	323.8	168.3	203	17.48	10.97	21.40	33.32	18.26	38.00	25.4	21.95	32.00
12 X 5	323.8	141.3	203	17.48	9.53	20.60	33.32	15.88	36.40	25.4	19.05	31.00
14 X 12	355.6	323.8	330	19.05	17.48	49.80	35.71	33.32	88.50	-	25.4	-
14 X 10	355.6	273	330	19.05	15.09	46.10	35.71	28.58	81.60	-	25.4	-



Reducer

ASME B16.9&JIS B2311

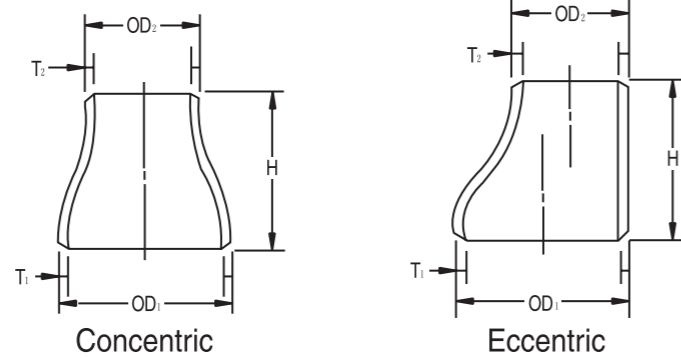
Nominal Pipe Size	Outside Diameter		End to End H	SGP			STD			Sch40			X-S		
	OD1	OD2		T1	T2	W(kg)	T1	T2	W(kg)	T1	T2	W(kg)	T1	T2	W(kg)
14 X 8	355.6	219.1	330	7.9	5.8	18.30	9.53	8.18	21.80	11.13	8.18	25.40	12.7	12.7	28.90
16 X 14	406.4	355.6	356	7.9	7.9	25.90	9.53	9.53	31.00	12.70	11.13	41.10	12.7	12.7	41.10
16 X 12	406.4	323.8	356	7.9	6.9	24.10	9.53	9.53	29.60	12.70	10.31	39.20	12.7	12.7	39.20
16 X 10	406.4	273	356	7.9	6.6	22.40	9.53	9.27	27.80	12.70	9.27	36.80	12.7	12.7	36.80
18 X 16	457	406.4	381	7.9	7.9	31.50	9.53	9.53	37.80	14.27	12.70	56.20	12.7	12.7	50.10
18 X 14	457	355.6	381	7.9	7.9	29.80	9.53	9.53	35.70	14.27	11.13	53.00	12.7	12.7	47.40
18 X 12	457	323.8	381	7.9	6.9	27.70	9.53	9.53	33.20	14.27	10.31	51.70	12.7	12.7	44.00
20 X 18	508	457	508	7.9	7.9	47.00	9.53	9.53	56.40	15.09	14.27	88.40	12.7	12.7	74.90
20 X 16	508	406.4	508	7.9	7.9	44.70	9.53	9.53	53.50	15.09	12.70	83.90	12.7	12.7	71.10
20 X 14	508	355.6	508	7.9	7.9	42.40	9.53	9.53	50.80	15.09	11.13	79.60	12.7	12.7	67.40
22 X 20	559	508	508	-	-	52.1	9.53	9.53	62.40	-	15.09	98.00	12.7	12.7	82.90
22 X 18	559	457	508	-	-	49.50	9.53	9.53	59.40	-	14.27	93.20	12.7	12.7	78.90
22 X 16	559	406.4	508	-	-	47.00	9.53	9.53	56.40	-	12.70	98.40	12.7	12.7	74.80
24 X 22	610	559	508	-	-	57.10	9.53	9.53	68.40	17.48	-	124.00	12.7	12.7	91.00
24 X 20	610	508	508	-	-	54.80	9.53	9.53	65.70	17.48	15.09	119.00	12.7	12.7	87.30
24 X 18	610	457	508	-	-	52.60	9.53	9.53	63.00	17.48	14.27	114.00	12.7	12.7	83.80
26 X 22	660	559	610	-	-	71.50	9.53	9.53	85.80	-	-	155.00	12.7	12.7	114.00
26 X 18	660	457	610	-	-	66.30	9.53	9.53	79.50	-	14.27	142.00	12.7	12.7	106.00
26 X 16	660	406.4	-	-	-	-	9.53	9.53	-	-	12.70	-	12.7	12.7	-
28 X 24	711	610	610	-	-	77.50	9.53	9.53	93.00	-	17.48	168.00	12.7	12.7	124.00
28 X 20	711	508	610	-	-	72.40	9.53	9.53	88.80	-	15.09	155.00	12.7	12.7	115.00
28 X 18	711	457	610	-	-	-	9.53	9.53	-	-	14.27	-	12.7	12.7	-
30 X 26	762	660	610	-	-	83.60	9.53	9.53	100.00	-	-	182.00	12.7	12.7	133.00
30 X 22	762	559	-	-	-	78.50	9.53	9.53	94.20	-	-	168.00	12.7	12.7	125.00
30 X 20	762	508	610	-	-	-	9.53	9.53	-	-	15.09	-	12.7	12.7	-
32 X 28	813	711	610	-	-	89.60	9.53	9.53	108.00	17.48	-	195.00	12.7	12.7	143.00



Reducer

ASME B16.9&JIS B2311

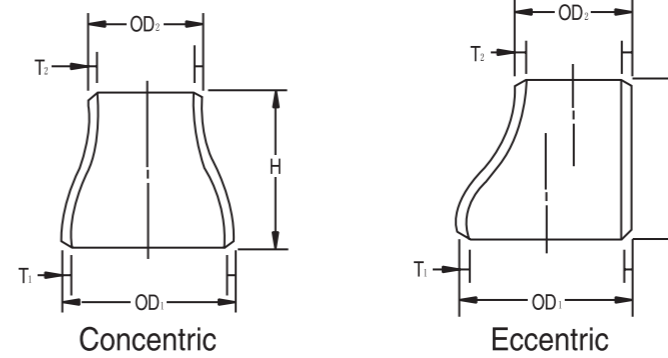
Nominal Pipe Size	Outside Diameter		End to End H	Sch80			Sch160			XX-S		
	OD1	OD2		T1	T2	W(kg)	T1	T2	W(kg)	T1	T2	W(kg)
14 X 8	355.6	219.1	330	19.05	12.70	42.20	35.71	23.01	74.70	-	22.23	-
16 X 14	406.4	355.6	356	21.44	19.05	67.70	40.49	35.71	121.00	-	-	-
16 X 12	406.4	323.8	356	21.44	17.48	65.00	40.49	33.32	116.00	-	25.4	-
16 X 10	406.4	273	356	21.44	15.09	60.80	40.49	28.58	108.00	-	25.4	-
18 X 16	457	406.4	381	23.83	21.44	91.40	45.24	40.49	165.00	-	-	-
18 X 14	457	355.6	381	23.83	19.05	86.40	45.24	35.71	155.00	-	-	-
18 X 12	457	323.8	381	23.83	17.48	83.00	45.24	33.32	149.00	-	25.4	-
20 X 18	508	457	508	26.19	23.83	150.00	50.01	45.24	-	-	-	-
20 X 16	508	406.4	508	26.19	21.44	142.00	50.01	40.49	-	-	-	-
20 X 14	508	355.6	508	26.19	19.05	136.00	50.01	35.71	233.00	-	-	-
22 X 20	559	508	508	28.58	26.19	181.00	53.98	50.01	-	-	-	-
22 X 18	559	457	508	28.58	23.83	172.00	53.98	45.24	-	-	-	-
22 X 16	559	406.4	508	28.58	21.44	164.00	53.98	40.49	-	-	-	-
24 X 22	610	559	508	30.96	28.58	215.00	59.54	53.98	-	-	-	-
24 X 20	610	508	508	30.96	26.19	206.00	59.54	50.01	-	-	-	-
24 X 18	610	457	508	30.96	23.83	197.00	59.54	45.24	-	-	-	-
26 X 22	660	559	610	-	28.58	-	-	53.98	-	-	-	-
26 X 18	660	457	610	-	23.83	-	-	45.24	-	-	-	-
26 X 16	660	406.4	-	-	21.44	-	-	40.49	-	-	-	-
28 X 24	711	610	610	-	30.96	-	-	59.54	-	-	-	-
28 X 20	711	508	610	-	26.19	-	-	50.01	-	-	-	-
28 X 18	711	457	610	-	23.83	-	-	45.24	-	-	-	-
30 X 26	762	660	610	-	-	-	-	-	-	-	-	-
30 X 22	762	559	-	-	28.58	-	-	53.98	-	-	-	-
30 X 20	762	508	610	-	26.19	-	-	50.01	-	-	-	-
32 X 28	813	711	610	-	-	-	-	-	-	-	-	-



Reducer

ASME B16.9&JIS B2311

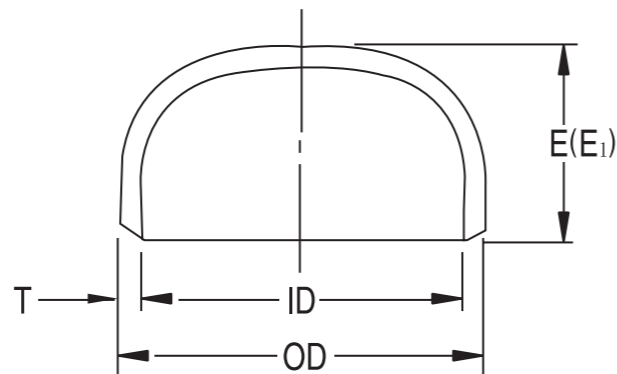
Nominal Pipe Size	Outside Diameter		End to End H	SGP			STD			Sch40			X-S		
	OD1	OD2		T1	T2	W(kg)	T1	T2	W(kg)	T1	T2	W(kg)	T1	T2	W(kg)
32 X 24	813	610	610	-	-	84.60	9.53	9.53	102.00	17.48	17.48	184.00	12.7	12.7	135.00
32 X 22	813	559	-	-	-	-	9.53	9.53	-	17.48	-	-	12.7	12.7	-
34 X 30	864	762	610	-	-	95.60	9.53	9.53	115.00	17.48	-	208.00	12.7	12.7	153.00
34 X 26	864	660	610	-	-	90.70	9.53	9.53	109.00	17.48	-	200.00	12.7	12.7	145.00
34 X 22	864	559	-	-	-	-	9.53	9.53	-	17.48	-	-	12.7	12.7	-
36 X 32	914	813	610	-	-	101.60	9.53	9.53	122.00	19.05	17.48	243.00	12.7	12.7	162.40
36 X 28	914	711	-	-	-	95.60	9.53	9.53	114.70	19.05	-	234.00	12.7	12.7	152.80
36 X 24	914	610	610	-	-	-	9.53	9.53	-	19.05	17.48	-	12.7	12.7	-
38 X 34	965	864	610	-	-	108.00	9.53	9.53	129.00	-	17.48	-	12.7	12.7	172.00
38 X 30	965	762	610	-	-	103.00	9.53	9.53	124.00	-	-	-	12.7	12.7	165.00
38 X 26	965	660	610	-	-	-	9.53	9.53	-	-	-	-	12.7	12.7	-
40 X 36	1016	914	610	-	-	114.00	9.53	9.53	137.00	-	19.05	-	12.7	12.7	182.00
40 X 32	1016	813	610	-	-	109.00	9.53	9.53	131.00	-	17.48	-	12.7	12.7	174.00
40 X 28	1016	711	-	-	-	-	9.53	9.53	-	-	-	-	12.7	12.7	-
42 X 38	1067	965	610	-	-	120.00	9.53	9.53	144.00	-	-	-	12.7	12.7	192.00
42 X 34	1067	864	610	-	-	115.00	9.53	9.53	138.00	-	17.48	-	12.7	12.7	184.00
42 X 30	1067	762	610	-	-	-	9.53	9.53	-	-	-	-	12.7	12.7	-
44 X 40	1118	1016	610	-	-	123.00	9.53	9.53	147.00	-	-	-	12.7	12.7	196.00
44 X 36	1118	914	610	-	-	-	9.53	9.53	-	-	19.05	-	12.7	12.7	-
44 X 32	1118	813	-	-	-	-	9.53	9.53	-	-	17.48	-	12.7	12.7	-
46 X 42	1168	1067	711	-	-	150.00	9.53	9.53	180.00	-	-	-	12.7	12.7	241.00
46 X 38	1168	965	711	-	-	-	9.53	9.53	-	-	-	-	12.7	12.7	-
46 X 34	1168	864	-	-	-	-	9.53	9.53	-	-	17.48	-	12.7	12.7	-
48 X 44	1219	1118	711	-	-	161.00	9.53	9.53	193.00	-	-	-	12.7	12.7	257.00
48 X 40	1219	1016	711	-	-	155.00	9.53	9.53	186.00	-	-	-	12.7	12.7	248.00
48 X 36	1219	914	-	-	-	-	9.53	9.53	-	-	19.05	-	12.7	12.7	-



Reducer

ASME B16.9&JIS B2311

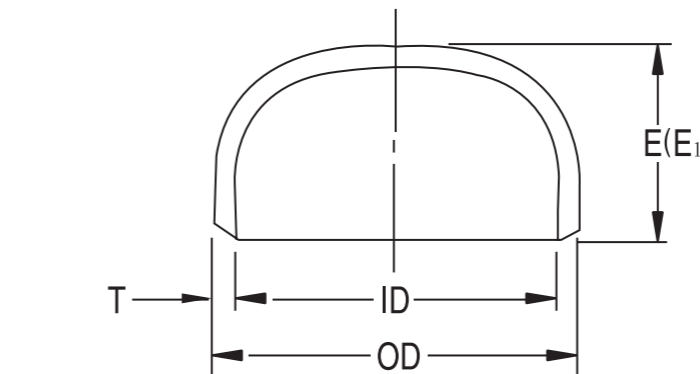
Nominal Pipe Size	Outside Diameter		End to End H	Sch80			Sch160			XX-S		
	OD1	OD2		T1	T2	W(kg)	T1	T2	W(kg)	T1	T2	W(kg)
32 X 24	813	610	610	-	30.96	-	-	59.54	-	-	-	-
32 X 22	813	559	-	-	28.58	-	-	53.98	-	-	-	-
34 X 30	864	762	610	-	-	-	-	-	-	-	-	-
34 X 26	864	660	610	-	-	-	-	-	-	-	-	-
34 X 22	864	559	-	-	28.58	-	-	53.98	-	-	-	-
36 X 32	914	813	610	-	-	-	-	-	-	-	-	-
36 X 28	914	711	-	-	-	-	-	-	-	-	-	-
36 X 24	914	610	610	-	30.96	-	-	59.54	-	-	-	-
38 X 34	965	864	610	-	-	-	-	-	-	-	-	-
38 X 30	965	762	610	-	-	-	-	-	-	-	-	-
38 X 26	965	660	610	-	-	-	-	-	-	-	-	-
40 X 36	1016	914	610	-	-	-	-	-	-	-	-	-
40 X 32	1016	813	610	-	-	-	-	-	-	-	-	-
40 X 28	1016	711	-	-	-	-	-	-	-	-	-	-
42 X 38	1067	965	610	-	-	-	-	-	-	-	-	-
42 X 34	1067	864	610	-	-	-	-	-	-	-	-	-
42 X 30	1067	762	610	-	-	-	-	-	-	-	-	-
44 X 40	1118	1016	610	-	-	-	-	-	-	-	-	-
44 X 36	1118	914	610	-	-	-	-	-	-	-	-	-
44 X 32	1118	813	-	-	-	-	-	-	-	-	-	-
46 X 42	1168	1067	711	-	-	-	-	-	-	-	-	-
46 X 38	1168	965	711	-	-	-	-	-	-	-	-	-
46 X 34	1168	864	-	-	-	-	-	-	-	-	-	-
48 X 44	1219	1118	711	-	-	-	-	-	-	-	-	-
48 X 40	1219	1016	711	-	-	-	-	-	-	-	-	-
48 X 36	1219	914	-	-	-	-	-	-	-	-	-	-



Cap

ASME B16.9&JIS B2311

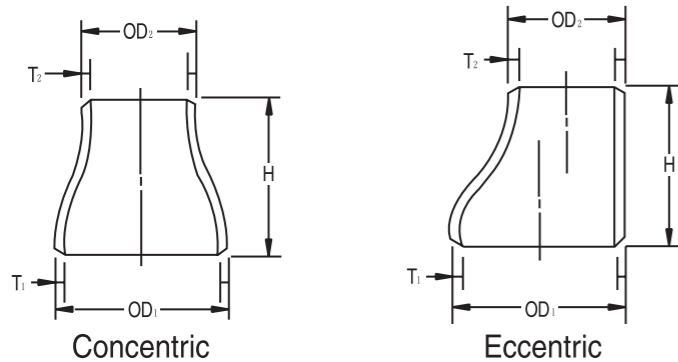
Nominal pipe Size	outside Diameter O.D	Length E	Limiting Wall Thickness for Length E	Length E1	SGP			STD			Sch40		
					T	I.D	W(kg)	T	I.D	W(kg)	T	I.D	W(kg)
1/2	21.3	25	4.57	25	2.8	16.1	0.03	2.77	15.8	0.04	2.77	15.8	0.04
3/4	26.7	25	3.81	25	2.8	21.6	0.04	2.87	21	0.05	2.87	21	0.05
1	33.4	38	4.57	38	3.2	27.6	0.08	3.38	26.6	0.11	3.38	26.6	0.11
1-1/4	42.2	38	4.83	38	3.5	35.7	0.11	3.56	35.1	0.14	3.56	35.1	0.14
1-1/2	48.3	38	5.08	38	3.5	41.6	0.15	3.68	40.9	0.17	3.68	40.9	0.17
2	60.3	38	5.59	44	3.8	52.9	0.23	3.91	52.5	0.24	3.91	52.5	0.24
2-1/2	73.0	38	7.11	51	4.2	67.9	0.34	5.16	62.7	0.42	5.16	62.7	0.42
3	88.9	51	7.62	64	4.2	80.7	0.51	5.49	77.9	0.67	5.49	77.9	0.67
3-1/2	101.6	64	8.13	76	4.2	93.2	-	5.74	90.1	-	5.74	90.1	-
4	114.3	64	8.64	76	4.5	105.3	0.88	6.02	102.3	1.17	6.02	102.3	1.17
5	141.3	76	9.65	89	4.5	130.8	1.29	6.55	128.2	1.9	6.55	128.2	1.9
6	168.3	89	10.92	102	5	155.2	1.99	7.11	154.1	2.83	7.11	154.1	2.83
8	219.1	102	12.7	127	5.8	204.7	3.61	8.18	202.7	5.11	8.18	202.7	5.11
10	273.0	127	12.7	152	6.6	254.2	6.33	9.27	254.5	8.92	9.27	254.5	8.92
12	323.8	152	12.7	178	6.9	304.7	9.43	9.53	304.7	13.1	10.31	303.2	13.1
14	355.6	165	12.7	191	7.9	339.8	13.2	9.53	336.5	15.9	11.13	333.3	18.6
16	406.4	178	12.7	203	7.9	390.6	16.6	9.53	387.3	20	12.7	381	26.7
18	457.0	203	12.7	229	7.9	441.4	21.2	9.53	437.9	25.5	14.27	428.5	41.5
20	508.0	229	12.7	254	7.9	492.2	26.4	9.53	488.9	31.8	15.09	477.8	54.1
22	559.0	254	12.7	254	-	-	31.5	9.53	539.9	38.8	-	-	61.4
24	610.0	267	12.7	305	-	-	36.6	9.53	590.9	45.1	17.48	575	90.1
26	660.0	267	-	-	-	-	41	9.53	640.9	50.5	-	-	92.3
28	711.0	267	-	-	-	-	45.5	9.53	691.9	56.2	-	-	103
30	762.0	267	-	-	-	-	50.3	9.53	742.9	62.1	-	-	114
32	813.0	267	-	-	-	-	55.4	9.53	793.9	68.4	17.48	77.8	126
34	864.0	267	-	-	-	-	62.3	9.53	844.9	75	17.48	829	138
36	914	267	-	-	-	-	68	9.53	894.9	81.9	19.05	875.9	164
38	965	305	-	-	-	-	79	9.53	945.9	94.7	-	-	-
40	1016	305	-	-	-	-	95	9.53	996.9	102	-	-	-
42	1067	305	-	-	-	-	98	9.53	1047.9	110	-	-	-
44	1118	343	-	-	-	-	103	9.53	1098.9	126	-	-	-
46	1168	343	-	-	-	-	111	9.53	1148.9	134	-	-	-
48	1219	343	-	-	-	-	118	9.53	1199.9	143	-	-	-



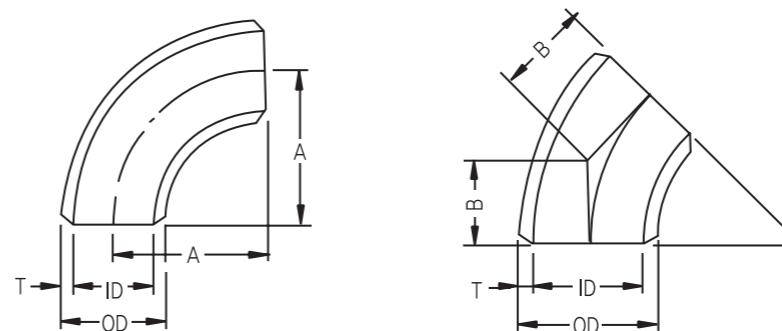
Cap

ASME B16.9&JIS B2311

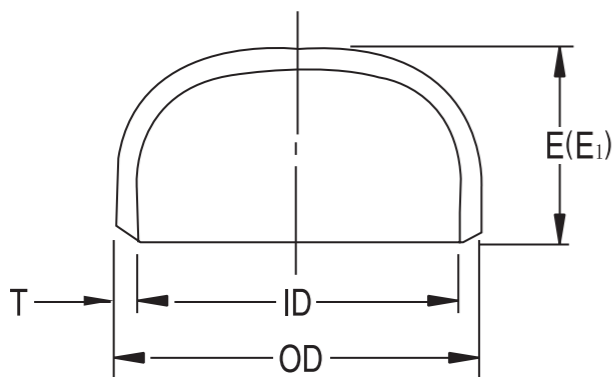
Nominal pipe Size	outside Diameter O.D	Length E	Limiting Wall Thickness for Length E	Length E1	X-S			Sch80			Sch160			XX-S		
					T	I.D	W(kg)	T	I.D	W(kg)	T	I.D	W(kg)	T	I.D	W(kg)
1/2	21.3	25	4.57	25	3.73	13.8	0.05	3.73	13.8	0.05	4.78	11.7	0.06	7.47	6.4	0.1
3/4	26.7	25	3.81	25	3.91	18.9	0.07	3.91	18.9	0.07	5.56	15.6	0.09	7.82	11.1	0.13
1	33.4	38	4.57	38	4.55	24.3	0.15	4.55	24.3	0.15	6.35	20.7	0.2	9.09	15.2	0.29
1-1/4	42.2	38	4.83	38	4.85	32.5	0.2	4.85	32.5	0.2	6.35	29.5	0.25	9.7	22.8	0.39
1-1/2	48.3	38	5.08	38	5.08	38.1	0.24	5.08	38.1	0.24	7.14	34	0.35	10.15	28	0.5
2	60.3	38	5.59	44	5.54	49.2	0.33	5.54	49.2	0.33	8.74	42.8	0.54	11.07	38.2	0.68
2-1/2	73.0	38	7.11	51	7.01	59	0.57	7.01	59	0.57	9.53	53.9	0.77	14.02	45	1.33
3	88.9	51	7.62	64	7.62	73.7	0.92	7.62	73.7	0.92	11.13	66.6	1.4	15.24	58.4	2.18
3-1/2	101.6	64	8.13	76	8.08	85.4	-	8.08	85.4	-	-	-	-	-	-	-
4	114.3	64	8.64	76	8.56	97.2	1.68	8.56	97.2	1.68	13.49	87.3	2.76	17.12	80.1	3.8
5	141.3	76	9.65	89	9.53	122.2	2.73	9.53	122.2	2.73	15.88	109.5	4.85	19.05	103.2	6.22
6	168.3	89	10.92	102	10.97	146.4	4.38	10.97	146.4	4.38	18.26	131.8	7.81	21.95	124.4	9.85
8	219.1	102	12.7	127	12.7	193.7	7.91	12.7	193.7	7.91	23.01	173.1	15.2	22.23	174.6	16.4
10	273.0	127	12.7	152	12.7	247.6	12.2	15.09	242.8	16.4	28.58	215.8	28.9	25.4	222.2	28.35
12	323.8	152	12.7	178	12.7	298.4	17.4	17.48	288.8	26.4	33.32	257.2	47.7	25.4	273	39.4
14	355.6	165	12.7	191	12.7	330.2	21.2	19.05	317.5	34.9	35.71	284.2	61.2	-	-	-
16	406.4	178	12.7	203	12.7	381	26.7	21.44	363.5	49	40.49	325.4	92.8	-	-	-
18	457.0	203	12.7	229	12.7	431.6	34.1	23.83	409.3	69	45.24	366.5	131	-	-	-
20	508.0	229	12.7	254	12.7	482.6	42.5	26.19	455.6	93.7	50.01	408	179	-	-	-
22	559.0	254	12.7	254	12.7	533.6	51.7	28.58	501.8	116	53.98	451	219	-	-	-
24	610.0	267	12.7	305	12.7	584.6	60.1	30.96	548.1	160	59.54	490.9	307	-	-	-
26	660.0	267	-	-	12.7	634.6	67.3	-	-	-	-	-	-	-	-	-
28	711.0	267	-	-	12.7	685.6	74.9	-	-	-	-	-	-	-	-	-
30	762.0	267	-	-	12.7	736.6	82.8	-	-	-	-	-	-	-	-	-
32	813.0	267	-	-	12.7	787.6	91.2	-	-	-	-	-	-	-	-	-
34	864.0	267	-	-	12.7	838.6	100	-	-	-	-	-	-	-	-	-
36	914	267	-	-	12.7	888.6	109	-	-	-	-	-	-	-	-	-
38	965	305	-	-	12.7	939.6	126	-	-	-	-	-	-	-	-	-
40	1016	305	-	-	12.7	990.6	137	-	-	-	-	-	-	-	-	-
42	1067	305	-	-	12.7	1041.6	147	-	-	-	-	-	-	-	-	-
44	1118	343	-	-	12.7	1092.6	167	-	-	-	-	-	-	-	-	-
46	1168	343	-	-	12.7	1142.6	179	-	-	-	-	-	-	-	-	-
48	1219	343	-	-	12.7	1193.6	191	-	-	-	-	-	-	-	-	-



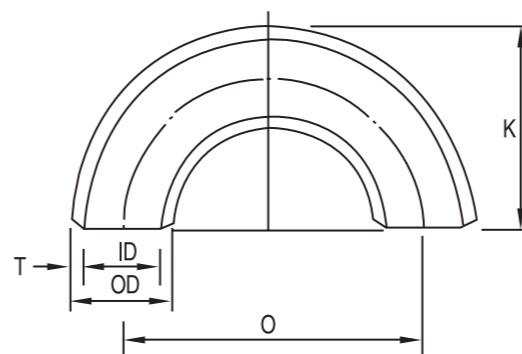
Reducer



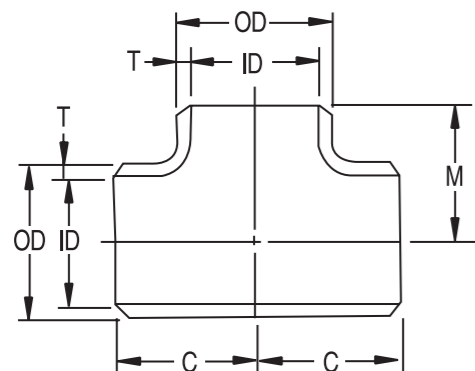
**90° Elbow (Long,Short)
45° Elbow (Long)**



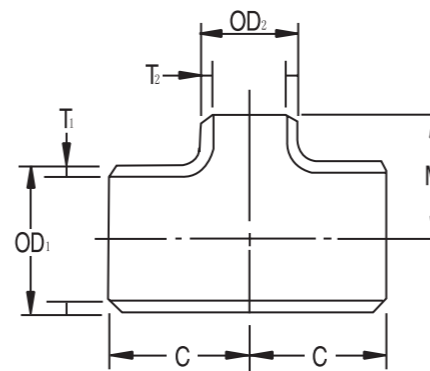
Cap



180° Elbow (Long)



Tee(straight)



Tee(Reducing)