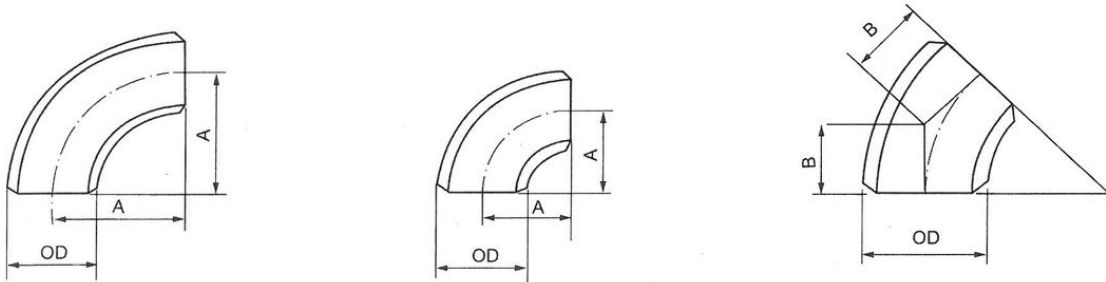


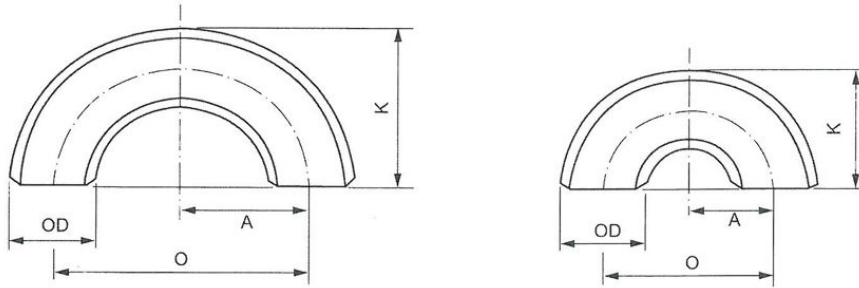
Wrought Steel Butt Welding Fittings (ASME) Long and Short Radius Elbows



ASME B16.9, B16.28

Nominal Pipe Size (NPS)	Outside Diameter at Bevel OD		Center-to-End							
			90 Elbows A				45 Elbows B			
			Long Radius		Short Radius		Long Radius		Short Radius	
			IN	MM	IN	MM	IN	MM	IN	MM
1/2	0.84	21.3	1.5	38	-	-	0.62	16	-	-
3/4	1.05	26.7	1.12	29	-	-	0.44	11	-	-
1	1.32	33.4	1.5	38	1	25	0.88	22	0.41	10
1 1/4	1.66	42.2	1.88	48	1.25	32	1	25	0.52	13
1 1/2	1.9	48.3	2.25	57	1.5	38	1.12	29	0.62	16
2	2.38	60.3	3	76	2	51	1.38	35	0.83	21
2 1/2	2.88	73.0	3.75	95	2.5	64	1.75	44	1.04	26
3	3.5	88.9	4.5	114	3	76	2	51	1.24	32
3 1/2	4	101.6	5.25	133	3.5	89	2.25	57	1.45	37
4	4.5	114.3	6	152	4	102	2.5	64	1.66	42
5	5.56	141.3	7.5	190	5	127	3.12	79	2.07	53
6	6.62	168.3	9	229	6	152	3.75	95	2.50	63
8	8.62	219.1	12	305	8	203	5	127	3.31	84
10	10.75	273.0	15	381	10	254	6.25	159	4.14	105
12	12.75	323.8	18	457	12	305	7.5	190	4.97	126
14	14	355.6	21	533	14	356	8.75	222	5.80	147
16	16	406.4	24	610	16	406	10	254	6.63	168
18	18	457	27	686	18	457	11.25	286	7.46	189
20	20	508	30	762	20	508	12.5	318	8.28	210
22	22	559	33	838	22	559	13.5	343	9.11	232
24	24	610	36	914	24	610	15	381	9.94	253
26	26	660	39	991	26	660	16	405	10.77	274
28	28	711	42	1067	28	711	17.25	438	11.60	295
30	30	762	45	1143	30	762	18.5	470	12.43	316
32	32	813	48	1219	32	813	19.75	502	14.89	378
34	34	864	51	1295	34	864	21	533	14.08	358
36	36	914	54	1372	36	914	22.25	565	14.91	379
38	38	965	57	1448	38	965	23.62	600	15.74	400
40	40	1016	60	1524	40	1016	24.88	632	16.57	421
42	42	1067	63	1600	42	1067	26	660	17.40	442
44	44	1118	66	1676	44	1118	27.38	695	18.23	463
46	46	1168	69	1753	46	1168	28.62	727	19.05	484
48	48	1219	72	1829	48	1219	29.88	759	19.88	505

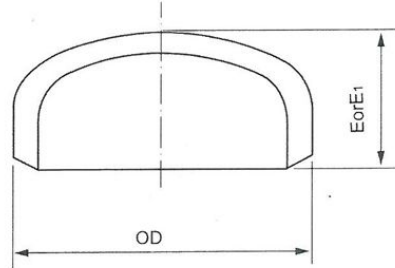
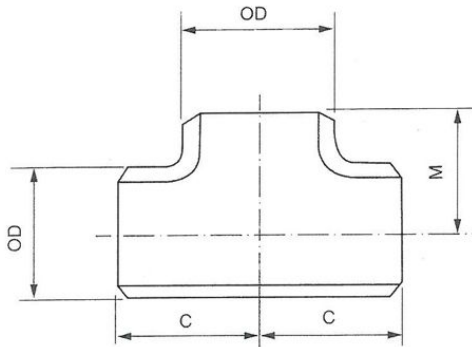
Wrought Steel Buttwelding Fittings (ASME) Long and Short Radius Returns



ASME B16.9, B16.28

Nominal Pipe Size (NPS)	Outside Diameter at Bevel OD		Center-to-End				End-to-End			
			180 Returns O				180 Returns K			
			Long Radius		Short Radius		Long Radius		Short Radius	
			IN	MM	IN	MM	IN	MM	IN	MM
1/2	0.84	21.3	3	76	-	-	1.88	48	-	-
3/4	1.05	26.7	2.25	57	-	-	1.69	43	-	-
1	1.32	33.4	3	76	2	51	2.19	56	1.62	41
1 1/4	1.66	42.2	3.75	95	2.5	64	2.75	70	2.06	52
1 1/2	1.9	48.3	4.5	114	3	76	3.25	83	2.44	62
2	2.38	60.3	6	152	4	102	4.19	106	3.19	81
2 1/2	2.88	73.0	7.5	190	5	127	5.19	132	3.94	100
3	3.5	88.9	9	229	6	152	6.25	159	4.75	121
3 1/2	4	101.6	10.5	267	7	178	7.25	184	5.5	140
4	4.5	114.3	12	305	8	203	8.25	210	6.25	159
5	5.56	141.3	15	381	10	254	10.31	262	7.75	197
6	6.62	168.3	18	457	12	305	12.31	313	9.31	237
8	8.62	219.1	24	610	16	406	16.31	414	12.31	313
10	10.75	273.0	30	762	20	508	20.38	518	15.38	391
12	12.75	323.8	36	914	24	610	24.38	619	18.38	467
14	14	355.6	42	1067	28	711	28	711	21	533
16	16	406.4	48	1219	32	813	32	813	24	610
18	18	457	54	1372	36	914	36	914	27	686
20	20	508	60	1524	40	1016	40	1016	30	762
22	22	559	66	1676	44	1118	44	1118	33	838
24	24	610	72	1829	48	1219	48	1219	36	914

Wrought Steel Buttwelding Fittings (ASME) Straight Tees and Caps



ASME B16.9,

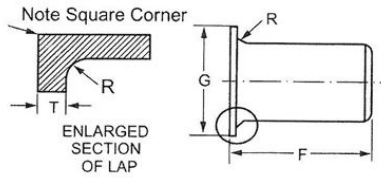
Nominal Pipe Size (NPS)	Outside Diameter at Bevel OD		Center-to-End				End-to-End					
			Straight Tees				Caps					
			C		M(1)		Length (2) E		Limiting Wall Thickness for Length "E"		Length (3) E1	
			IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
1/2	0.84	21.3	1	25	1	25	1	25	0.18	4.57	1	25
3/4	1.05	26.7	1.12	29	1.12	29	1	25	0.15	3.81	1	25
1	1.32	33.4	1.5	38	1.5	38	1.5	38	0.18	4.57	1.5	38
1 1/4	1.66	42.2	1.88	48	1.88	48	1.5	38	0.19	4.83	1.5	38
1 1/2	1.9	48.3	2.25	57	2.25	57	1.5	38	0.2	5.08	1.5	38
2	2.38	60.3	2.5	64	2.5	64	1.5	38	0.22	5.59	1.75	44
2 1/2	2.88	73	3	76	3	76	1.5	38	0.28	7.11	2	51
3	3.5	88.9	3.38	86	3.38	86	2	51	0.3	7.62	2.5	64
3 1/2	4	101.6	3.75	95	3.75	95	2.5	64	0.32	8.13	3	76
4	4.5	114.3	4.12	105	4.12	105	2.5	64	0.34	8.64	3	76
5	5.56	141.3	4.88	124	4.88	124	3	76	0.38	9.65	3.5	89
6	6.62	168.3	5.62	143	5.62	143	3.5	89	0.43	10.92	4	102
8	8.62	219.1	7	178	7	178	4	102	0.5	12.7	5	127
10	10.75	273	8.5	216	8.5	216	5	127	0.5	12.7	6	152
12	12.75	323.8	10	254	10	254	6	152	0.5	12.7	7	178
14	14	355.6	11	279	11	279	6.5	165	0.5	12.7	7.5	191
16	16	406.4	12	305	12	305	7	178	0.5	12.7	8	203
18	18	457.2	13.5	343	13.5	343	8	203	0.5	12.7	9	229
20	20	508	15	381	15	381	9	229	0.5	12.7	10	254
22	22	558.8	16.5	419	16.5	419	10	254	0.5	12.7	10	254
24	24	609.6	17	432	17	432	10.5	267	0.5	12.7	12	305
26	26	660.4	19.5	495	19.5	495	10.5	267	-	-	-	-
28	28	711.2	20.2	521	20.2	521	10.5	267	-	-	-	-
30	30	762	22	559	22	559	10.5	267	-	-	-	-
32	32	812.8	23.5	597	23.5	597	10.5	267	-	-	-	-
34	34	863.6	25	635	25	635	10.5	267	-	-	-	-
36	36	914.4	26.5	673	26.5	673	10.5	267	-	-	-	-
38	38	965.2	28	711	28	711	12	305	-	-	-	-
40	40	1016	29.5	749	29.5	749	12	305	-	-	-	-
42	42	1066.8	30	762	28	711	12	305	-	-	-	-
44	44	1117.6	32	813	30	762	13.5	343	-	-	-	-
46	46	1168.4	33.5	851	31.5	800	13.5	343	-	-	-	-
48	48	1219.2	35	889	33	838	13.5	343	-	-	-	-

NOTES:

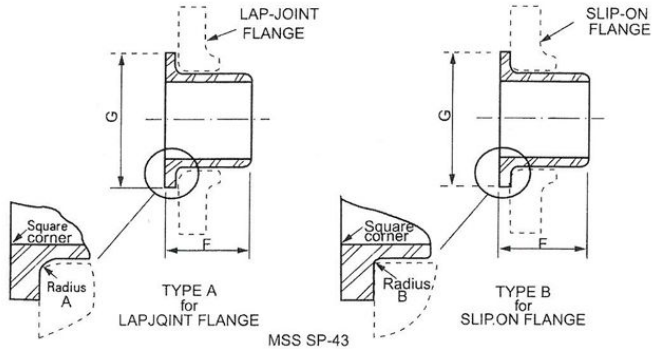
- (1) Outlet dimension M for NPS 26 and larger is recommended but not required.
- (2) Length E applies for thickness not exceeding that given in column "Limiting Wall Thickness for Length E"
- (3) Length E1 applies for thickness greater than that given in column "Limiting Wall Thickness for Length E" for NPS 24 and smaller.

Wrought Steel Butt Welding Fittings (ASME)

Lap Joint Stub Ends



ASME B16.9

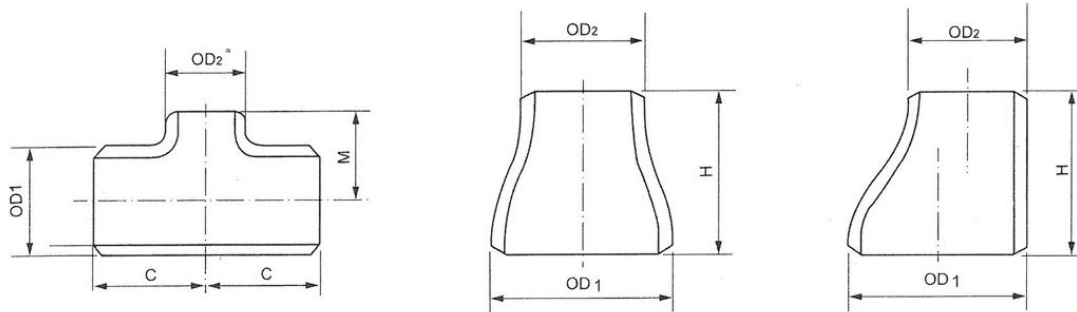


ASME B16.9 MSS SP-43

Nominal Pipe Size (NPS)	Outside Diameter at Bevel OD		Outside Diameter of Barrel				Diameter of Lap G (Nominal & Max)	
			Max		Min			
	IN	MM	IN	MM	IN	MM	IN	MM
1/2	0.84	21.3	0.896	22.8	0.809	20.5	1.38	35
3/4	1.05	26.7	1.106	28.1	1.019	25.9	1.69	43
1	1.32	33.4	1.376	35	1.284	32.6	2	51
1 1/4	1.66	42.2	1.716	43.6	1.629	41.4	2.5	64
1 1/2	1.9	48.3	1.965	49.9	1.869	47.5	2.88	73
2	2.38	60.3	2.456	62.4	2.344	59.5	3.62	92
2 1/2	2.88	73.0	2.966	75.3	2.844	72.2	4.12	106
3	3.5	88.9	3.596	91.3	3.469	88.1	5	127
3 1/2	4	101.6	4.096	104	3.969	100.8	5.5	140
4	4.5	114.3	4.593	116.7	4.469	113.5	6.19	157
5	5.56	141.3	5.683	144.3	5.532	140.5	7.31	185
6	6.62	168.3	6.743	171.3	6.594	167.5	8.5	218
8	8.62	219.1	8.743	222.1	8.594	218.3	10.62	270
10	10.75	273.0	10.913	277.2	10.719	272.3	12.75	324
12	12.75	323.8	12.913	328	12.719	323.1	15	381
14	14	355.6	14.17	359.9	13.969	354.8	16.25	413
16	16	406.4	16.18	411	15.969	405.6	18.5	470
18	18	457	18.19	462	17.969	456	21	533
20	20	508	20.24	514	19.969	507	23	584
22	22	559	22.24	565	21.969	558	25.25	641
24	24	610	24.24	616	23.969	609	27.25	692

Nominal Pipe Size (NPS)	Length F				Radius R			
	ASME Long		ASME Short & MSS		MSS Type A & ASME (Nominal & Max)		MSS Type B (Max)	
	IN	MM	IN	MM	IN	MM	IN	MM
1/2	3	76	2	51	0.12	3	0.03	0.8
3/4	3	76	2	51	0.12	3	0.03	0.8
1	4	102	2	51	0.12	3	0.03	0.8
1 1/4	4	102	2	51	0.19	5	0.03	0.8
1 1/2	4	102	2	51	0.25	6	0.03	0.8
2	6	152	2.5	64	0.31	8	0.03	0.8
2 1/2	6	152	2.5	64	0.31	8	0.03	0.8
3	6	152	2.5	64	0.38	10	0.03	0.8
3 1/2	6	152	3	76	0.38	10	0.03	0.8
4	6	152	3	76	0.44	11	0.03	0.8
5	8	203	3	76	0.44	11	0.06	1.5
6	8	203	3.5	89	0.5	13	0.06	1.5
8	8	203	4	102	0.5	13	0.06	1.5
10	10	254	5	127	0.5	13	0.06	1.5
12	10	254	6	152	0.5	13	0.06	1.5
14	12	305	6	152	0.5	13	0.06	1.5
16	12	305	6	152	0.5	13	0.06	1.5
18	12	305	6	152	0.5	13	0.06	1.5
20	12	305	6	152	0.5	13	0.06	1.5
22	12	305	6	152	0.5	13	0.06	1.5
24	12	305	6	152	0.5	13	0.06	1.5

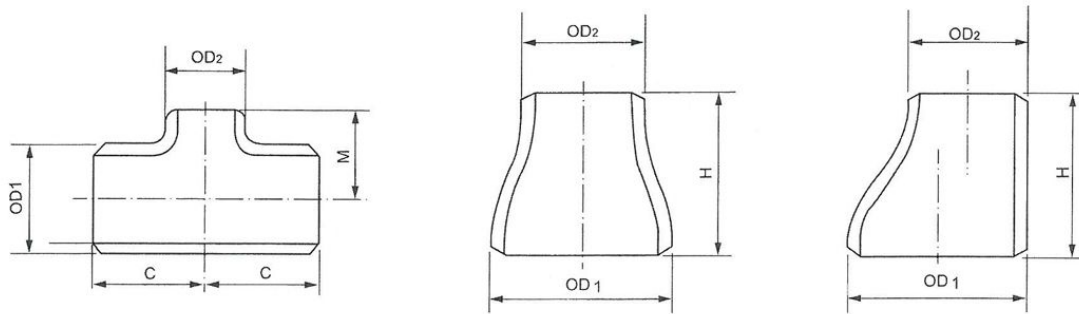
**Wrought Steel Butt Welding Fittings (ASME)
Reducing Tees and Concentric & Eccentric Reducers**



ASME B16.9

Nominal Pipe Size (NPS)	Outside Diameter at Bevel				Center-to-End				End-to-End	
	OD1		OD2		C		M		H	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
3/4 x 1/2	1.05	26.7	0.84	21.3	1.12	29	1.12	29	1.5	38
1 x 3/4	1.32	33.4	1.05	26.7	1.5	38	1.5	38	2	51
1 x 1/2	1.32	33.4	0.84	21.3	1.5	38	1.5	38	2	51
1 1/4 x 1	1.66	42.2	1.32	33.4	1.88	48	1.88	48	2	51
1 1/4 x 3/4	1.66	42.2	1.05	26.7	1.88	48	1.88	48	2	51
1 1/4 x 1/2	1.66	42.2	0.84	21.3	1.88	48	1.88	48	2	51
1 1/2 x 1 1/4	1.9	48.3	1.66	42.2	2.25	57	2.25	57	2.5	64
1 1/2 x 1	1.9	48.3	1.32	33.4	2.25	57	2.25	57	2.5	64
1 1/2 x 3/4	1.9	48.3	1.05	26.7	2.25	57	2.25	57	2.5	64
1 1/2 x 1/2	1.9	48.3	0.84	21.3	2.25	57	2.25	57	2.5	64
2 x 1 1/2	2.38	60.3	1.9	48.3	2.5	64	2.38	60	3	76
2 x 1 1/4	2.38	60.3	1.66	42.2	2.5	64	2.25	57	3	76
2 x 1	2.38	60.3	1.32	33.4	2.5	64	2	51	3	76
2 x 3/4	2.38	60.3	1.05	26.7	2.5	64	1.75	44	3	76
2 x 1/2	2.38	60.3	0.84	21.3	2.5	64	*	*	3	76
2 1/2 x 2	2.88	73	2.38	60.3	3	76	2.75	70	3.5	89
2 1/2 x 1 1/2	2.88	73	1.9	48.3	3	76	2.62	67	3.5	89
2 1/2 x 1 1/4	2.88	73	1.66	42.2	3	76	2.5	64	3.5	89
2 1/2 x 1	2.88	73	1.32	33.4	3	76	2.25	57	3.5	89
2 1/2 x 3/4	2.88	73	1.05	26.7	3	76	*	*	3.5	89
2 1/2 x 1/2	2.88	73	0.84	21.3	3	76	*	*	3.5	89
3 x 2 1/2	3.5	88.9	2.88	73	3.38	86	3.25	83	3.5	89
3 x 2	3.5	88.9	2.38	60.3	3.38	86	3	76	3.5	89
3 x 1 1/2	3.5	88.9	1.9	48.3	3.38	86	2.88	73	3.5	89
3 x 1 1/4	3.5	88.9	1.66	42.2	3.38	86	2.75	70	3.5	89
3 x 1	3.5	88.9	1.32	33.4	3.38	86	*	*	3.5	89
3 x 3/4	3.5	88.9	1.05	26.7	3.38	86	*	*	3.5	89
3 x 1/2	3.5	88.9	0.84	21.3	3.38	86	*	*	3.5	89
3 1/2 x 3	4	101.6	3.5	88.9	3.75	95	3.62	92	4	102
3 1/2 x 2 1/2	4	101.6	2.88	73	3.75	95	3.5	89	4	102
3 1/2 x 2	4	101.6	2.38	60.3	3.75	95	3.25	83	4	102
3 1/2 x 1 1/2	4	101.6	1.9	48.3	3.75	95	3.12	79	4	102
3 1/2 x 1 1/4	4	101.6	1.66	42.2	3.75	95	*	*	4	102
4 x 3 1/2	4.5	114.3	4	101.6	4.12	105	4	102	4	102
4 x 3	4.5	114.3	3.5	88.9	4.12	105	3.88	98	4	102
4 x 2 1/2	4.5	114.3	2.88	73	4.12	105	3.75	95	4	102
4 x 2	4.5	114.3	2.38	60.3	4.12	105	3.5	89	4	102
4 x 1 1/2	4.5	114.3	1.9	48.3	4.12	105	3.38	86	4	102
4 x 1 1/4	4.5	114.3	1.66	42.2	4.12	105	*	*	4	102
4 x 1	4.5	114.3	1.32	33.4	4.12	105	*	*	4	102

Wrought Steel Buttwelding Fittings (ASME) Reducing Tees and Concentric & Eccentric Reducers



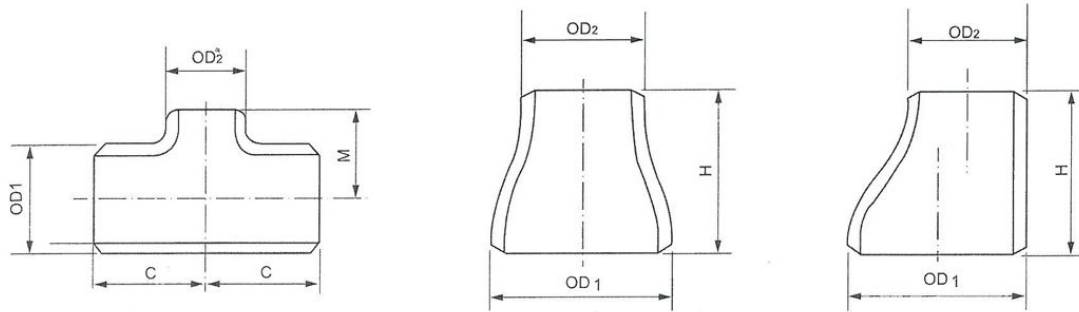
ASME B16.9

Nominal Pipe Size (NPS)	Outside Diameter at Bevel				Center-to-End				End-to-End	
	OD1		OD2		C		M (1)		H	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
5 × 4	5.56	141.3	4.5	114.3	4.88	124	4.62	117	5	127
5 × 3½	5.56	141.3	4	101.6	4.88	124	4.5	114	5	127
5 × 3	5.56	141.3	3.5	88.9	4.88	124	4.38	111	5	127
5 × 2½	5.56	141.3	2.88	73	4.88	124	4.25	108	5	127
5 × 2	5.56	141.3	2.38	60.3	4.88	124	4.12	105	5	127
5 × 1½	5.56	141.3	1.9	48.3	4.88	124	*	*	5	127
5 × 1¼	5.56	141.3	1.66	42.2	4.88	124	*	*	5	127
6 × 5	6.62	168.3	5.56	141.3	5.62	143	5.38	137	5.5	140
6 × 4	6.62	168.3	4.5	114.3	5.62	143	5.12	130	5.5	140
6 × 3½	6.62	168.3	4	101.6	5.62	143	5	127	5.5	140
6 × 3	6.62	168.3	3.5	88.9	5.62	143	4.88	124	5.5	140
6 × 2½	6.62	168.3	2.88	73	5.62	143	4.75	121	5.5	140
6 × 2	6.62	168.3	2.38	60.3	5.62	143	*	*	5.5	140
8 × 6	8.62	219.1	6.62	168.3	7	178	6.62	168	6	152
8 × 5	8.62	219.1	5.56	141.3	7	178	6.38	162	6	152
8 × 4	8.62	219.1	4.5	114.3	7	178	6.12	156	6	152
8 × 3½	8.62	219.1	4	101.6	7	178	6	152	6	152
8 × 3	8.62	219.1	3.5	88.9	7	178	*	*	6	152
10 × 8	10.75	273	8.62	219.1	8.5	216	8	203	7	178
10 × 6	10.75	273	6.62	168.3	8.5	216	7.62	194	7	178
10 × 5	10.75	273	5.56	141.3	8.5	216	7.5	191	7	178
10 × 4	10.75	273	4.5	114.3	8.5	216	7.25	184	7	178
10 × 3	10.75	273	3.5	88.9	8.5	216	*	*	7	178
12 × 10	12.75	323.8	10.75	273	10	254	9.5	241	8	203
12 × 8	12.75	323.8	8.62	219.1	10	254	9	229	8	203
12 × 6	12.75	323.8	6.62	168.3	10	254	8.62	219	8	203
12 × 5	12.75	323.8	5.56	141.3	10	254	8.5	216	8	203
12 × 4	12.75	323.8	4.5	114.3	10	254	*	*	8	203
14 × 12	14	355.6	12.75	323.8	11	279	10.62	270	13	330
14 × 10	14	355.6	10.75	273	11	279	10.12	257	13	330
14 × 8	14	355.6	8.62	219.1	11	279	9.75	248	13	330
14 × 6	14	355.6	6.62	168.3	11	279	9.38	238	13	330
14 × 5	14	355.6	5.56	141.3	11	279	*	*	13	330
16 × 14	16	406.4	14	355.6	12	305	12	305	14	356
16 × 12	16	406.4	12.75	323.8	12	305	11.62	295	14	356
16 × 10	16	406.4	10.75	273	12	305	11.12	283	14	356
16 × 8	16	406.4	8.62	219.1	12	305	10.75	273	14	356
16 × 6	16	406.4	6.62	168.3	12	305	10.38	264	14	356
18 × 16	18	457	16	406.4	13.5	343	13	330	15	381

NOTE:

(1) Outlet dimensions M for run sizes NPS 14 and larger is recommended but not required.

Wrought Steel Buttwelding Fittings (ASME) Reducing Tees and Concentric & Eccentric Reducers



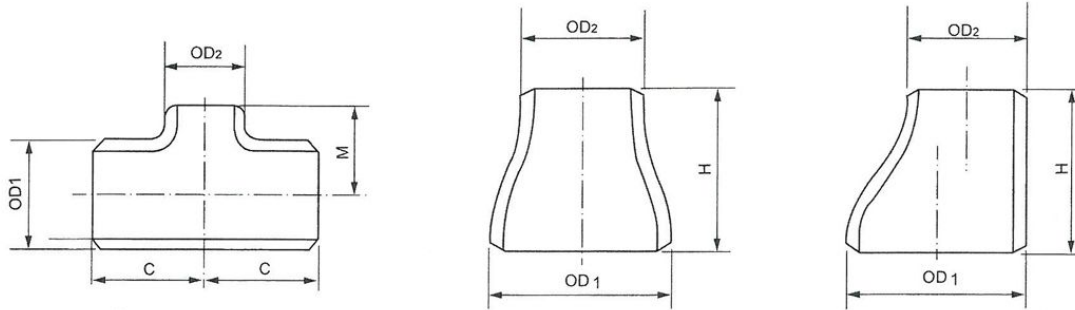
ASME B16.9

Nominal Pipe Size (NPS)	Outside Diameter at Bevel				Center-to-End				End-to-End	
	OD1		OD2		C		M (1)		H	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
18 × 14	18	457	14	355.6	13.5	343	13	330	15	381
18 × 12	18	457	12.75	323.8	13.5	343	12.62	321	15	381
18 × 10	18	457	10.75	273	13.5	343	12.12	308	15	381
18 × 8	18	457	8.62	219.1	13.5	343	11.75	298	15	381
20 × 18	20	508	18	457.2	15	381	14.5	368	20	508
20 × 16	20	508	16	406.4	15	381	14	356	20	508
20 × 14	20	508	14	355.6	15	381	14	356	20	508
20 × 12	20	508	12.75	323.8	15	381	13.62	346	20	508
20 × 10	20	508	10.75	273	15	381	13.12	333	20	508
20 × 8	20	508	8.62	219.1	15	381	12.75	324	20	508
22 × 20	22	559	20	508	16.5	419	16	406	20	508
22 × 18	22	559	18	457.2	16.5	419	15.5	394	20	508
22 × 16	22	559	16	406.4	16.5	419	15	381	20	508
22 × 14	22	559	14	355.6	16.5	419	15	381	20	508
22 × 12	22	559	12.75	323.8	16.5	419	14.62	371	20	508
22 × 10	22	559	10.75	273	16.5	419	14.12	359	20	508
24 × 22	24	610	22	558.8	17	432	17	432	20	508
24 × 20	24	610	20	508	17	432	17	432	20	508
24 × 18	24	610	18	457.2	17	432	16.5	419	20	508
24 × 16	24	610	16	406.4	17	432	16	406	20	508
24 × 14	24	610	14	355.6	17	432	16	406	20	508
24 × 12	24	610	12.75	323.8	17	432	15.62	397	20	508
24 × 10	24	610	10.75	273	17	432	15.12	384	20	508
26 × 24	26	660	24	609.6	19.5	495	19	483	24	610
26 × 22	26	660	22	558.8	19.5	495	18.5	470	24	610
26 × 20	26	660	20	508	19.5	495	18	457	24	610
26 × 18	26	660	18	457.2	19.5	495	17.5	444	24	610
26 × 16	26	660	16	406.4	19.5	495	17	432	24	610
26 × 14	26	660	14	355.6	19.5	495	17	432	24	610
26 × 12	26	660	12.75	323.8	19.5	495	16.62	422	24	610
28 × 26	28	711	26	660.4	20.5	521	20.5	521	24	610
28 × 24	28	711	24	609.6	20.5	521	20	508	24	610
28 × 22	28	711	22	558.8	20.5	521	19.5	495	24	610
28 × 20	28	711	20	508	20.5	521	19	483	24	610
28 × 18	28	711	18	457.2	20.5	521	18.5	470	24	610
28 × 16	28	711	16	406.4	20.5	521	18	457	24	610
28 × 14	28	711	14	355.6	20.5	521	18	457	24	610
28 × 12	28	711	12.75	323.8	20.5	521	17.62	448	24	610
30 × 28	30	762	28	711.2	22	559	21.5	546	24	610

NOTE:

(1) Outlet dimensions M for run sizes NPS 14 and larger is recommended but not required.

Wrought Steel Buttwelding Fittings (ASME) Reducing Tees and Concentric & Eccentric Reducers



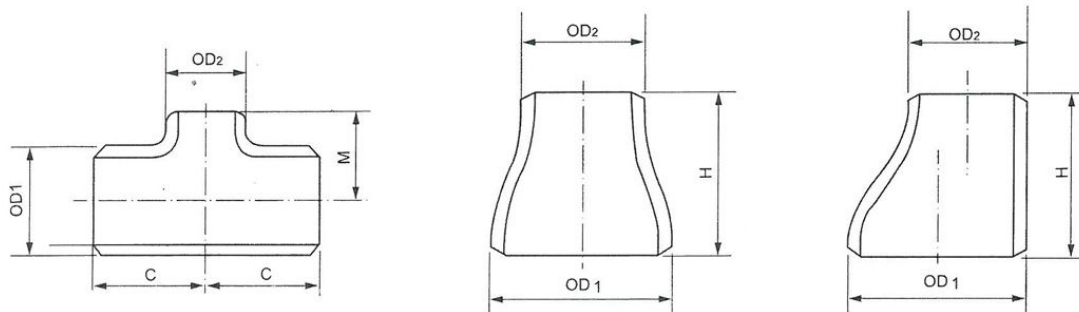
ASME B16.9

Nominal Pipe Size (NPS)	Outside Diameter at Bevel				Center-to-End				End-to-End	
	OD1		OD2		C		M (1)		H	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
30 × 26	30	762	26	660.4	22	559	21.5	546	24	610
30 × 24	30	762	24	609.6	22	559	21	533	24	610
30 × 22	30	762	22	558.8		559	20.5	521	24	610
30 × 20	30	762	20	508	22	559	20	508	24	610
30 × 18	30	762	18	457.2	22	559	19.5	495	24	610
30 × 16	30	762	16	406.4	22	559	19	483	24	610
30 × 14	30	762	14	355.6	22	559	19	483	24	610
30 × 12	30	762	12.75	323.8	22	559	18.62	473	24	610
30 × 10	30	762	10.75	273	22	559	18.12	460	24	610
32 × 30	32	813	30	762	23.5	597	23	584	24	610
32 × 28	32	813	28	711.2	23.5	597	22.5	572	24	610
32 × 26	32	813	26	660.4	23.5	597	22.5	572	24	610
32 × 24	32	813	24	609.6	23.5	597	22	559	24	610
32 × 22	32	813	22	558.8	23.5	597	21.5	546	24	610
32 × 20	32	813	20	508	23.5	597	21	533	24	610
32 × 18	32	813	18	457.2	23.5	597	20.5	521	24	610
32 × 16	32	813	16	406.4	23.5	597	20	508	24	610
32 × 14	32	813	14	355.6	23.5	597	20	508	24	610
34 × 32	34	864	32	812.8	25	635	24.5	622	24	610
34 × 30	34	864	30	762	25	635	24	610	24	610
34 × 28	34	864	28	711.2	25	635	23.5	597	24	610
34 × 26	34	864	26	660.4	25	635	23.5	597	24	610
34 × 24	34	864	24	609.6	25	635	23	584	24	610
34 × 22	34	864	22	558.8	25	635	22.5	572	24	610
34 × 20	34	864	20	508	25	635	22	559	24	610
34 × 18	34	864	18	457.2	25	635	21.5	546	24	610
34 × 16	34	864	16	406.4	25	635	21	533	24	610
36 × 34	36	914	34	863.6	26.5	673	26	660	24	610
36 × 32	36	914	32	812.8	26.5	673	25.5	648	24	610
36 × 30	36	914	30	762	26.5	673	25	635	24	610
36 × 28	36	914	28	711.2	26.5	673	24.5	622	24	610
36 × 26	36	914	26	660.4	26.5	673	24.5	622	24	610
36 × 24	36	914	24	609.6	26.5	673	24	610	24	610
36 × 22	36	914	22	558.8	26.5	673	23.5	597	24	610
36 × 20	36	914	20	508	26.5	673	23	584	24	610
36 × 18	36	914	18	457.2	26.5	673	22.5	572	24	610
36 × 16	36	914	16	406.4	26.5	673	22	559	24	610
38 × 36	38	965	36	914.4	28	711	28	711	24	610
38 × 34	38	965	34	863.6	28	711	27.5	698	24	610

NOTE:

(1) Outlet dimensions M for run sizes NPS 14 and larger is recommended but not required.

Wrought Steel Buttwelding Fittings (ASME) Reducing Tees and Concentric & Eccentric Reducers



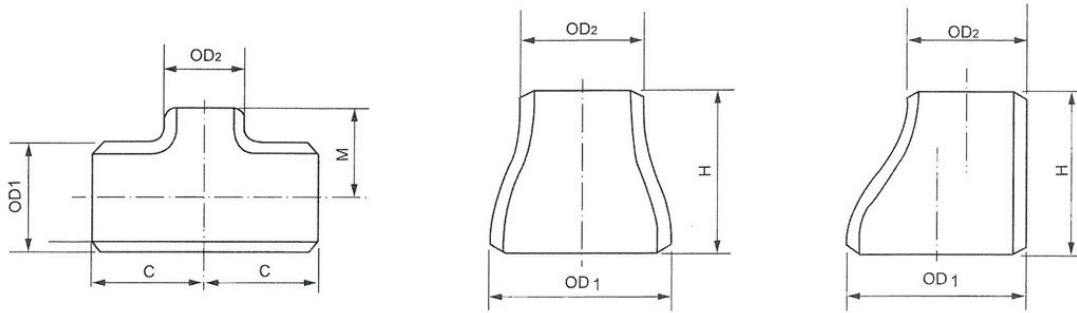
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Nominal Pipe Size (NPS)	Outside Diameter at Bevel				Center-to-End				End-to-End	
	OD1		OD2		C		M (1)		H	
	N	MM	IN	MM	IN	MM	IN	MM	IN	MM
38 × 32	38	965	32	812.8	28	711	27	686	24	610
38 × 30	38	965	30	762	28	711	26.5	673	24	610
38 × 28	38	965	28	711.2	28	711	25.5	648	24	610
38 × 26	38	965	26	660.4	28	711	25.5	648	24	610
38 × 24	38	965	24	609.6	28	711	25	635	24	610
38 × 22	38	965	22	558.8	28	711	24.5	622	24	610
38 × 20	38	965	20	508	28	711	24	610	24	610
38 × 18	38	965	18	457.2	28	711	23.5	597	24	610
40 × 38	40	1016	38	965.2	29.5	749	29.5	749	24	610
40 × 36	40	1016	36	914.4	29.5	749	29	737	24	610
40 × 34	40	1016	34	863.6	29.5	749	28.5	724	24	610
40 × 32	40	1016	32	812.8	29.5	749	28	711	24	610
40 × 30	40	1016	30	762	29.5	749	27.5	698	24	610
40 × 28	40	1016	28	711.2	29.5	749	26.5	673	24	610
40 × 26	40	1016	26	660.4	29.5	749	26.5	673	24	610
40 × 24	40	1016	24	609.6	29.5	749	26	660	24	610
40 × 22	40	1016	22	558.8	29.5	749	25.5	648	24	610
40 × 20	40	1016	20	508	29.5	749	25	635	24	610
40 × 18	40	1016	18	457.2	29.5	749	24.5	622	24	610
42 × 40	42	1067	40	1016	30	762	28	711	24	610
42 × 38	42	1067	38	965.2	30	762	28	711	24	610
42 × 36	42	1067	36	914.4	30	762	28	711	24	610
42 × 34	42	1067	34	863.6	30	762	28	711	24	610
42 × 32	42	1067	32	812.8	30	762	28	711	24	610
42 × 30	42	1067	30	762	30	762	28	711	24	610
42 × 28	42	1067	28	711.2	30	762	27.5	698	24	610
42 × 26	42	1067	26	660.4	30	762	27.5	698	24	610
42 × 24	42	1067	24	609.6	30	762	26	660	24	610
42 × 22	42	1067	22	558.8	30	762	26	660	24	610
42 × 20	42	1067	20	508	30	762	26	660	24	610
42 × 18	42	1067	18	457.2	30	762	25.5	648	24	610
42 × 16	42	1067	16	406.4	30	762	25	635	24	610
44 × 42	44	1118	42	1066.8	32	813	30	762	24	610
44 × 40	44	1118	40	1016	32	813	29.5	749	24	610
44 × 38	44	1118	38	965.2	32	813	29	737	24	610
44 × 36	44	1118	36	914.4	32	813	28.5	724	24	610
44 × 34	44	1118	34	863.6	32	813	28.5	724	24	610
44 × 32	44	1118	32	812.8	32	813	28	711	24	610
44 × 30	44	1118	30	762	32	813	28	711	24	610

NOTE:

(1) Outlet dimensions M for run sizes NPS 14 and larger is recommended but not required.

Wrought Steel Buttwelding Fittings (ASME) Reducing Tees and Concentric & Eccentric Reducers



ASME B16.9

Nominal Pipe Size (NPS)	Outside Diameter at Bevel				Center-to-End				End-to-End	
	OD1		OD2		C		M (1)		H	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
44 × 28	44	1118	28	711.2	32	813	27.5	698	24	610
44 × 26	44	1118	26	660.4	32	813	27.5	698	24	610
44 × 24	44	1118	24	609.6	32	813	27.5	698	24	610
44 × 22	44	1118	22	558.8	32	813	27	686	24	610
44 × 20	44	1118	20	508	32	813	27	686	24	610
46 × 44	46	1168	44	1117.6	33.5	851	31.5	800	28	711
46 × 42	46	1168	42	1066.8	33.5	851	31	787	28	711
46 × 40	46	1168	40	1016	33.5	851	30.5	775	28	711
46 × 38	46	1168	38	965.2	33.5	851	30	762	28	711
46 × 36	46	1168	36	914.4	33.5	851	30	762	28	711
46 × 34	46	1168	34	863.6	33.5	851	29.5	749	28	711
46 × 32	46	1168	32	812.8	33.5	851	29.5	749	28	711
46 × 30	46	1168	30	762	33.5	851	29	737	28	711
46 × 28	46	1168	28	711.2	33.5	851	29	737	28	711
46 × 26	46	1168	26	660.4	33.5	851	29	737	28	711
46 × 24	46	1168	24	609.6	33.5	851	28.5	724	28	711
46 × 22	46	1168	22	558.8	33.5	851	28.5	724	28	711
48 × 46	48	1219	46	1168.4	35	889	33	838	28	711
48 × 44	48	1219	44	1117.6	35	889	33	838	28	711
48 × 42	48	1219	42	1066.8	35	889	32	813	28	711
48 × 40	48	1219	40	1016	35	889	32	813	28	711
48 × 38	48	1219	38	965.2	35	889	32	813	28	711
48 × 36	48	1219	36	914.4	35	889	31	787	28	711
48 × 34	48	1219	34	863.6	35	889	31	787	28	711
48 × 32	48	1219	32	812.8	35	889	31	787	28	711
48 × 30	48	1219	30	762	35	889	30	762	28	711
48 × 28	48	1219	28	711.2	35	889	30	762	28	711
48 × 26	48	1219	26	660.4	35	889	30	762	28	711
48 × 24	48	1219	24	609.6	35	889	29	737	28	711
48 × 22	48	1219	22	558.8	35	889	29	737	28	711

NOTES

(1) Outlet dimensions M for run sizes NPS 14 and larger is recommended but not required.