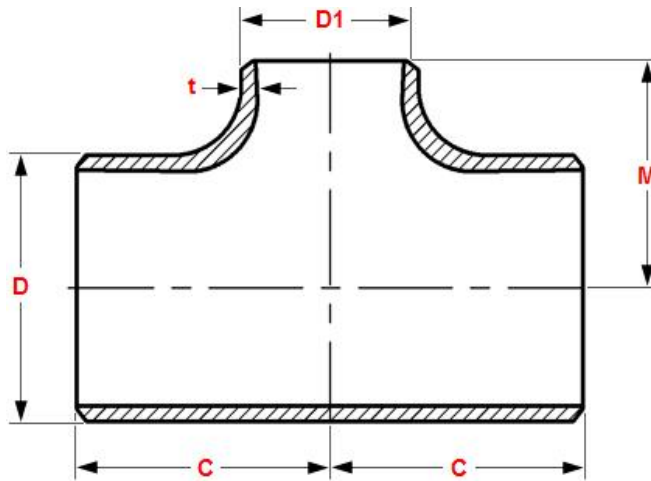
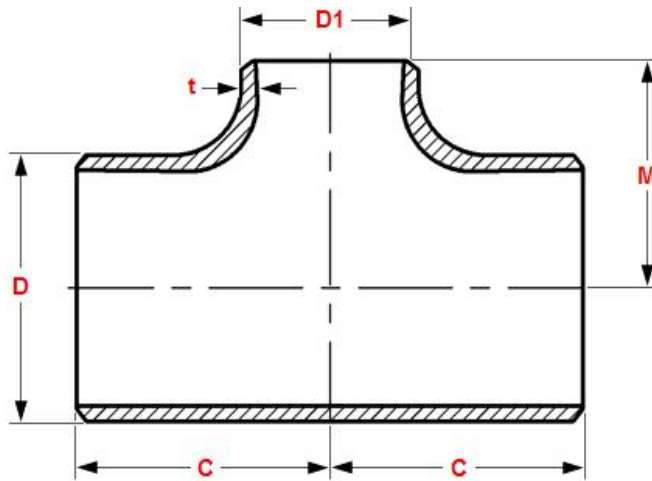


Dimensions of reducing tees and crosses - ASME B16.9



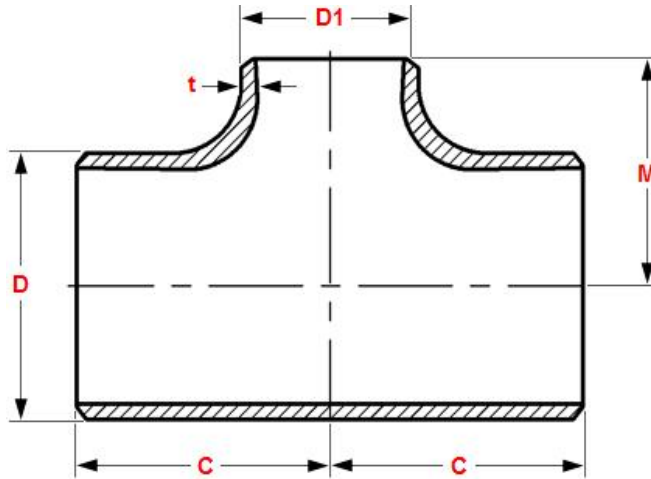
NPS	DN	OD, D	OD, D1	Center to End	
				Run, C	Outlet, M [Notes(1)]
1/2 × 3/8	15 × 10	21.3	17.1	25	25
1/2 × 1/4	15 × 8	21.3	13.7	25	25
3/4 × 1/2	20 × 15	26.7	21.3	29	29
3/4 × 3/8	20 × 10	26.7	17.1	29	29
1 × 3/4	25 × 20	33.4	26.7	38	38
1 × 1/2	25 × 15	33.4	21.3	38	38
1 1/4 × 1	32 × 25	42.2	33.4	48	48
1 1/4 × 3/4	32 × 20	42.2	26.7	48	48
1 1/4 × 1/2	32 × 15	42.2	21.3	48	48
1 1/2 × 1 1/4	40 × 32	48.3	42.2	57	57
1 1/2 × 1	40 × 25	48.3	33.4	57	57
1 1/2 × 3/4	40 × 20	48.3	26.7	57	57
1 1/2 × 1/2	40 × 15	48.3	21.3	57	57
2 × 1 1/2	50 × 40	60.3	48.3	64	60
2 × 1 1/4	50 × 32	60.3	42.2	64	57
2 × 1	50 × 25	60.3	33.4	64	51
2 × 3/4	50 × 20	60.3	26.7	64	44
2 1/2 × 2	65 × 50	73	60.3	76	70
2 1/2 × 1 1/2	65 × 40	73	48.3	76	67
2 1/2 × 1 1/4	65 × 32	73	42.2	76	64
2 1/2 × 1	65 × 25	73	33.4	76	57
3 × 2 1/2	80 × 65	88.9	73	86	83
3 × 2	80 × 50	88.9	60.3	86	76
3 × 1 1/2	80 × 40	88.9	48.3	86	73
3 × 1 1/4	80 × 32	88.9	42.2	86	70
3 1/2 × 3	90 × 80	101.6	88.9	95	92
3 1/2 × 2 1/2	90 × 65	101.6	73	95	89
3 1/2 × 2	90 × 50	101.6	60.3	95	83
3 1/2 × 1 1/2	90 × 40	101.6	48.3	95	79
4 × 3 1/2	100 × 90	114.3	101.6	105	102

Dimensions of reducing tees and crosses - ASME B16.9



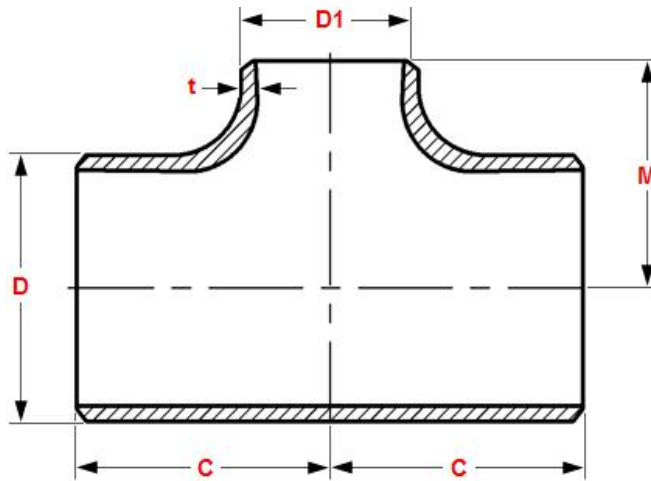
NPS	DN	OD, D	OD, D1	Center to End	
				Run, C	Outlet, M [Notes(1)]
4 × 3	100 × 80	114.3	88.9	105	98
4 × 2 ½	100 × 65	114.3	73	105	95
4 × 2	100 × 50	114.3	60.3	105	89
4 × 1 ½	100 × 40	114.3	48.3	105	86
5 × 4	125 × 100	141.3	114.3	124	117
5 × 3 ½	125 × 90	141.3	101.6	124	114
5 × 3	125 × 80	141.3	88.9	124	111
5 × 2 ½	125 × 65	141.3	73	124	108
5 × 2	125 × 50	141.3	60.3	124	105
6 × 5	150 × 125	168.3	141.3	143	137
6 × 4	150 × 100	168.3	114.3	143	130
6 × 3 ½	150 × 90	168.3	101.6	143	127
6 × 3	150 × 80	168.3	88.9	143	124
6 × 2 ½	150 × 65	168.3	73	143	121
8 × 6	200 × 150	219.1	168.3	178	168
8 × 5	200 × 125	219.1	141.3	178	162
8 × 4	200 × 100	219.1	114.3	178	156
8 × 3 ½	200 × 90	219.1	101.6	178	152
10 × 8	250 × 200	273	219.1	216	203
10 × 6	250 × 150	273	168.3	216	194
10 × 5	250 × 125	273	141.3	216	191
10 × 4	250 × 100	273	114.3	216	184
12 × 10	300 × 250	323.8	273	254	241
12 × 8	300 × 200	323.8	219.1	254	229
12 × 6	300 × 150	323.8	168.3	254	219
12 × 5	300 × 125	323.8	141.3	254	216
14 × 12	350 × 300	355.6	323.8	279	270
14 × 10	350 × 250	355.6	273	279	257
14 × 8	350 × 200	355.6	219.1	279	248
14 × 6	350 × 150	355.6	168.3	279	238

Dimensions of reducing tees and crosses - ASME B16.9



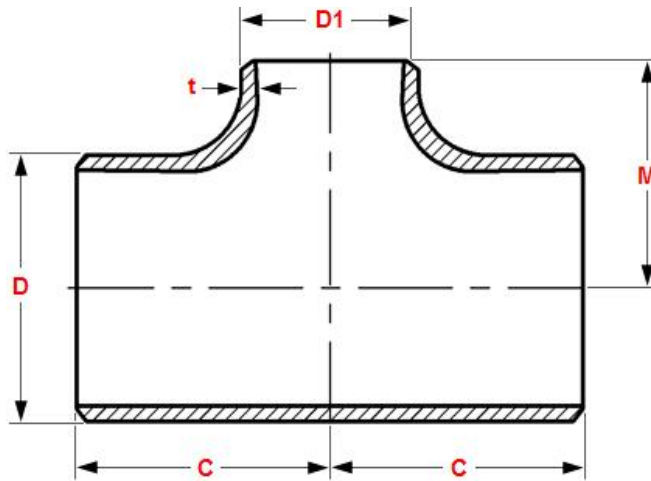
NPS	DN	OD, D	OD, D1	Center to End	
				Run, C	Outlet, M [Notes(1)]
16 × 14	400 × 350	406.4	355.6	305	305
16 × 12	400 × 300	406.4	323.8	305	295
16 × 10	400 × 250	406.4	273	305	283
16 × 8	400 × 200	406.4	219.1	305	273
16 × 6	400 × 150	406.4	168.3	305	264
18 × 16	450 × 400	457	406.4	343	330
18 × 14	450 × 350	457	355.6	343	330
18 × 12	450 × 300	457	323.8	343	321
18 × 10	450 × 250	457	273	343	308
18 × 8	450 × 200	457	219.1	343	298
20 × 18	500 × 450	508	457	381	368
20 × 16	500 × 400	508	406.4	381	356
20 × 14	500 × 350	508	355.6	381	356
20 × 12	500 × 300	508	323.8	381	346
20 × 10	500 × 250	508	273	381	333
20 × 8	500 × 200	508	219.1	381	324
22 × 20	550 × 500	559	508	419	406
22 × 18	550 × 450	559	457	419	394
22 × 16	550 × 400	559	406.4	419	381
22 × 14	550 × 350	559	355.6	419	381
22 × 12	550 × 300	559	323.8	419	371
22 × 10	550 × 250	559	273	419	359
24 × 22	600 × 550	610	559	432	432
24 × 20	600 × 500	610	508	432	432
24 × 18	600 × 450	610	457	432	419
24 × 16	600 × 400	610	406.4	432	406
24 × 14	600 × 350	610	355.6	432	406
24 × 12	600 × 300	610	323.8	432	397
24 × 10	600 × 250	610	273	432	384
26 × 24	650 × 600	660	610	495	483

Dimensions of reducing tees and crosses - ASME B16.9



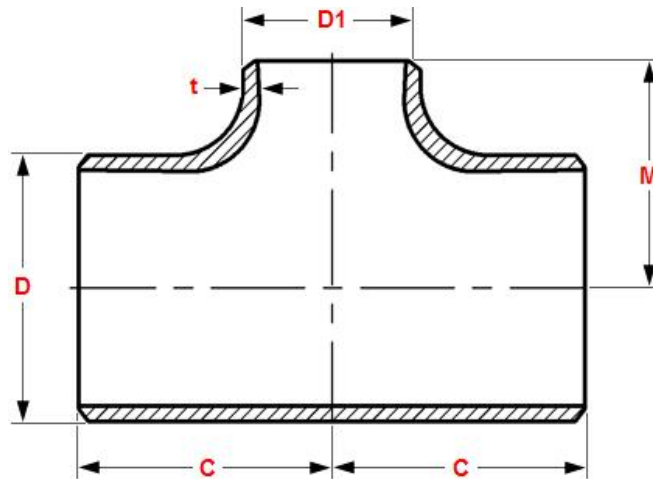
NPS	DN	OD, D	OD, D1	Center to End	
				Run, C	Outlet, M [Notes(1)]
26 × 22	650 × 550	660	559	495	470
26 × 20	650 × 500	660	508	495	457
26 × 18	650 × 450	660	457	495	444
26 × 16	650 × 400	660	406.4	495	432
26 × 14	650 × 350	660	355.6	495	432
26 × 12	650 × 300	660	323.8	495	422
28 × 26	700 × 650	711	660	521	521
28 × 24	700 × 600	711	610	521	508
28 × 22	700 × 550	711	559	521	495
28 × 20	700 × 500	711	508	521	483
28 × 18	700 × 450	711	457	521	470
28 × 16	700 × 400	711	406.4	521	457
28 × 14	700 × 350	711	355.6	521	457
28 × 12	700 × 300	711	323.8	521	448
30 × 28	750 × 700	762	711	559	546
30 × 26	750 × 650	762	660	559	546
30 × 24	750 × 600	762	610	559	533
30 × 22	750 × 550	762	559	559	521
30 × 20	750 × 500	762	508	559	508
30 × 18	750 × 450	762	457	559	495
30 × 16	750 × 400	762	406.4	559	483
30 × 14	750 × 350	762	355.6	559	483
30 × 12	750 × 300	762	323.8	559	473
30 × 10	750 × 250	762	273	559	460
32 × 30	800 × 750	813	762	597	584
32 × 28	800 × 700	813	711	597	572
32 × 26	800 × 650	813	660	597	572
32 × 24	800 × 600	813	610	597	559
32 × 22	800 × 550	813	559	597	546
32 × 20	800 × 500	813	508	597	533

Dimensions of reducing tees and crosses - ASME B16.9



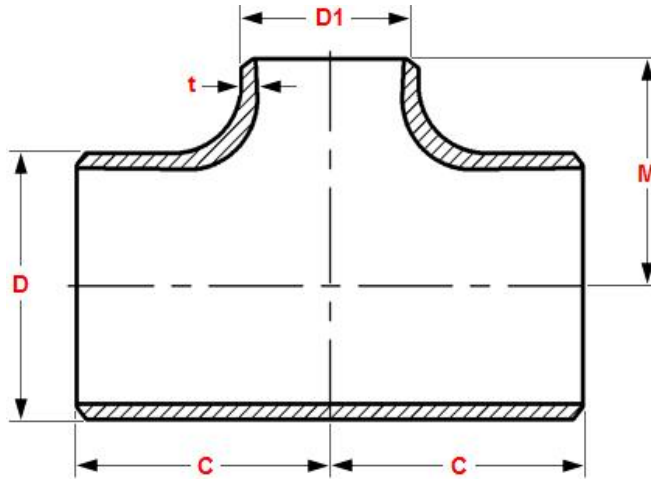
NPS	DN	OD, D	OD, D1	Center to End	
				Run, C	Outlet, M [Notes(1)]
32 × 18	800 × 450	813	457	597	521
32 × 16	800 × 400	813	406.4	597	508
32 × 14	800 × 350	813	355.6	597	508
34 × 32	850 × 800	864	813	635	622
34 × 30	850 × 750	864	762	635	610
34 × 28	850 × 700	864	711	635	597
34 × 26	850 × 650	864	660	635	597
34 × 24	850 × 600	864	610	635	584
34 × 22	850 × 550	864	559	635	572
34 × 20	850 × 500	864	508	635	559
34 × 18	850 × 450	864	457	635	546
34 × 16	850 × 400	864	406.4	635	533
36 × 34	900 × 850	914	864	673	660
36 × 32	900 × 800	914	813	673	648
36 × 30	900 × 750	914	762	673	635
36 × 28	900 × 700	914	711	673	622
36 × 26	900 × 650	914	660	673	622
36 × 24	900 × 600	914	610	673	610
36 × 22	900 × 550	914	559	673	597
36 × 20	900 × 500	914	508	673	584
36 × 18	900 × 450	914	457	673	572
36 × 16	900 × 400	914	406.4	673	559
38 × 36	950 × 900	965	914	711	711
38 × 34	950 × 850	965	864	711	698
38 × 32	950 × 800	965	813	711	686
38 × 30	950 × 750	965	762	711	673
38 × 28	950 × 700	965	711	711	648
38 × 26	950 × 650	965	660	711	648
38 × 24	950 × 600	965	610	711	635
38 × 22	950 × 550	965	559	711	622

Dimensions of reducing tees and crosses - ASME B16.9



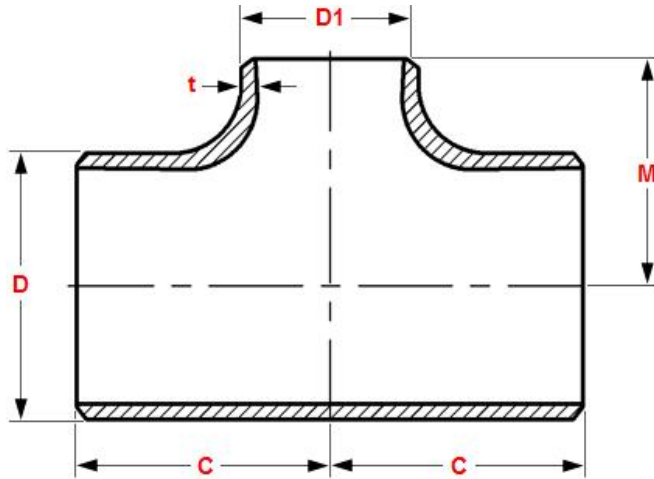
NPS	DN	OD, D	OD, D1	Center to End	
				Run, C	Outlet, M [Notes(1)]
38 × 20	950 × 500	965	508	711	610
40 × 38	1000 × 950	1016	965	749	749
40 × 36	1000 × 900	1016	914	749	737
40 × 34	1000 × 850	1016	864	749	724
40 × 32	1000 × 800	1016	813	749	711
40 × 30	1000 × 750	1016	762	749	698
40 × 28	1000 × 700	1016	711	749	673
40 × 26	1000 × 650	1016	660	749	673
40 × 24	1000 × 600	1016	610	749	660
40 × 22	1000 × 550	1016	559	749	648
40 × 20	1000 × 500	1016	508	749	635
40 × 18	1000 × 450	1016	457	749	622
42 × 40	1050 × 1000	1067	1016	762	711
42 × 38	1050 × 950	1067	968	762	711
42 × 36	1050 × 900	1067	914	762	711
42 × 34	1050 × 850	1067	864	762	711
42 × 32	1050 × 800	1067	813	762	711
42 × 30	1050 × 750	1067	762	762	711
42 × 28	1050 × 700	1067	711	762	698
42 × 26	1050 × 650	1067	660	762	698
42 × 24	1050 × 600	1067	610	762	660
42 × 22	1050 × 550	1067	559	762	660
42 × 20	1050 × 500	1067	508	762	660
42 × 18	1050 × 450	1067	457	762	648
42 × 16	1050 × 400	1067	406.4	762	635
44 × 42	1100 × 1050	1118	1067	813	762
44 × 40	1100 × 1000	1118	1016	813	749
44 × 38	1100 × 950	1118	965	813	737
44 × 36	1100 × 900	1118	914	813	724
44 × 34	1100 × 850	1118	864	813	724

Dimensions of reducing tees and crosses - ASME B16.9



NPS	DN	OD, D	OD, D1	Center to End	
				Run, C	Outlet, M [Notes(1)]
44 × 32	1100 × 800	1118	813	813	711
44 × 30	1100 × 750	1118	762	813	711
44 × 28	1100 × 700	1118	711	813	698
44 × 26	1100 × 650	1118	660	813	698
44 × 24	1100 × 600	1118	610	813	698
44 × 22	1100 × 550	1118	559	813	686
44 × 20	1100 × 500	1118	508	813	686
46 × 44	1150 × 1100	1168	1118	851	800
46 × 42	1150 × 1050	1168	1067	851	787
46 × 40	1150 × 1000	1168	1016	851	775
46 × 38	1150 × 950	1168	965	851	762
46 × 36	1150 × 900	1168	914	851	762
46 × 34	1150 × 850	1168	864	851	749
46 × 32	1150 × 800	1168	813	851	749
46 × 30	1150 × 750	1168	762	851	737
46 × 28	1150 × 700	1168	711	851	737
46 × 26	1150 × 650	1168	660	851	737
46 × 24	1150 × 600	1168	610	851	724
46 × 22	1150 × 550	1168	559	851	724
48 × 46	1200 × 1150	1219	1168	889	838
48 × 44	1200 × 1100	1219	1118	889	838
48 × 42	1200 × 1050	1219	1067	889	813
48 × 40	1200 × 1000	1219	1016	889	813
48 × 38	1200 × 950	1219	965	889	813
48 × 36	1200 × 900	1219	914	889	787
48 × 34	1200 × 850	1219	864	889	787
48 × 32	1200 × 800	1219	813	889	787
48 × 30	1200 × 750	1219	762	889	762
48 × 28	1200 × 700	1219	711	889	762
48 × 26	1200 × 650	1219	660	889	762

Dimensions of reducing tees and crosses - ASME B16.9



NPS	DN	OD, D	OD, D1	Center to End	
				Run, C	Outlet, M [Notes(1)]
48 × 24	1200 × 600	1219	610	889	737
48 × 22	1200 × 550	1219	559	889	737

Note:

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