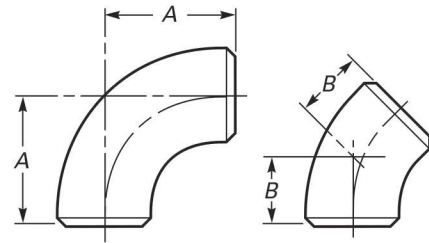


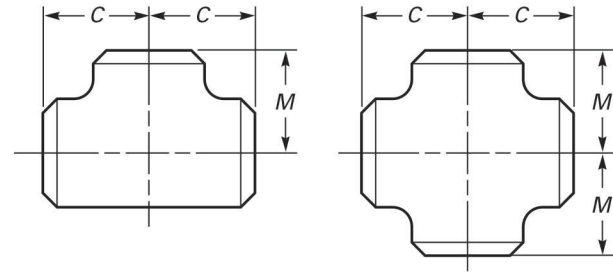
Dimensions of 3D Elbows



Nominal Pipe Size (NPS)	Outside Diameter at Bevel	Center-to-End	
		90-deg Elbows, A	45-deg Elbows, B
3/4	26.7	57	24
1	33.4	76	31
1 1/4	42.2	95	39
1 1/2	48.3	114	47
2	60.3	152	63
2 1/2	73.0	190	79
3	88.9	229	95
3 1/2	101.6	267	111
4	114.3	305	127
5	141.3	381	157
6	168.3	457	189
8	219.1	610	252
10	273.0	762	316
12	323.8	914	378
14	355.6	1 067	441
16	406.4	1 219	505
18	457.0	1 372	568
20	508.0	1 524	632
22	559.0	1 676	694
24	610.0	1 829	757
26	660.0	1 981	821
28	711.0	2 134	883
30	762.0	2 286	964
32	813.0	2 438	1 010
34	864.0	2 591	1 073
36	914.0	2 743	1 135
38	965.0	2 896	1 200
40	1 016.0	3 048	1 264
42	1 067.0	3 200	1 326
44	1 118.0	3 353	1 389
46	1 168.0	3 505	1 453
48	1 219.0	3 658	1 516

GENERAL NOTE: All dimensions are in millimeters.

Dimensions of Straight Tees and Crosses



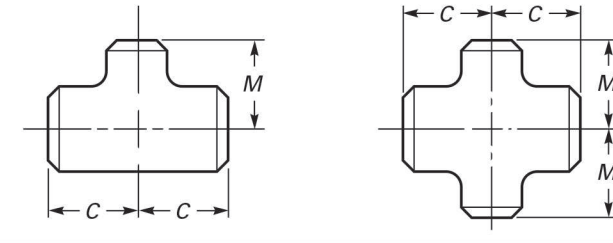
Nominal Pipe Size (NPS)	Outside Diameter at Bevel	Center-to-End	
		Run, C	Outlet, M [Notes (1) and (2)]
1/2	21.3	25	25
3/4	26.7	29	29
1	33.4	38	38
1 1/4	42.2	48	48
1 1/2	48.3	57	57
2	60.3	64	64
2 1/2	73.0	76	76
3	88.9	86	86
3 1/2	101.6	95	95
4	114.3	105	105
5	141.3	124	124
6	168.3	143	143
8	219.1	178	178
10	273.0	216	216
12	323.8	254	254
14	355.6	279	279
16	406.4	305	305
18	457.0	343	343
20	508.0	381	381
22	559.0	419	419
24	610.0	432	432
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	914.0	673	673
38	965.0	711	711
40	1 016.0	749	749
42	1 067.0	762	711
44	1 118.0	813	762
46	1 168.0	851	800
48	1 219.0	889	838

GENERAL NOTE: All dimensions are in millimeters.

NOTES:

- (1) Outlet dimension M for NPS 26 and larger is recommended but not required.
- (2) Dimensions applicable to crosses NPS 24 and smaller.

Dimensions of Reducing Outlet Tees and Reducing Outlet Crosses



Nominal Pipe Size (NPS)	Outside Diameter at Bevel		Center-to-End	
	Run	Outlet	Run, C	Outlet, M [Note (1)]
1/2 x 1/2 x 3/8	21.3	17.3	25	25
1/2 x 1/2 x 1/4	21.3	13.7	25	25
3/4 x 3/4 x 1/2	26.7	21.3	29	29
3/4 x 3/4 x 3/8	26.7	17.3	29	29
1 x 1 x 3/4	33.4	26.7	38	38
1 x 1 x 1/2	33.4	21.3	38	38
1 1/4 x 1 1/4 x 1	42.2	33.4	48	48
1 1/4 x 1 1/4 x 3/4	42.2	26.7	48	48
1 1/4 x 1 1/4 x 1/2	42.2	21.3	48	48
1 1/2 x 1 1/2 x 1 1/4	48.3	42.2	57	57
1 1/2 x 1 1/2 x 1	48.3	33.4	57	57
1 1/2 x 1 1/2 x 3/4	48.3	26.7	57	57
1 1/2 x 1 1/2 x 1/2	48.3	21.3	57	57
2 x 2 x 1 1/2	60.3	48.3	64	60
2 x 2 x 1 1/4	60.3	42.2	64	57
2 x 2 x 1	60.3	33.4	64	51
2 x 2 x 3/4	60.3	26.7	64	44
2 1/2 x 2 1/2 x 2	73.0	60.3	76	70
2 1/2 x 2 1/2 x 1 1/2	73.0	48.3	76	67
2 1/2 x 2 1/2 x 1 1/4	73.0	42.2	76	64
2 1/2 x 2 1/2 x 1	73.0	33.4	76	57
3 x 3 x 2 1/2	88.9	73.0	86	83
3 x 3 x 2	88.9	60.3	86	76
3 x 3 x 1 1/2	88.9	48.3	86	73
3 x 3 x 1 1/4	88.9	42.2	86	70
3 1/2 x 3 1/2 x 3	101.6	88.9	95	92
3 1/2 x 3 1/2 x 2 1/2	101.6	73.0	95	89
3 1/2 x 3 1/2 x 2	101.6	60.3	95	83
3 1/2 x 3 1/2 x 1 1/2	101.6	48.3	95	79
4 x 4 x 3 1/2	114.3	101.6	105	102
4 x 4 x 3	114.3	88.9	105	98
4 x 4 x 2 1/2	114.3	73.0	105	95
4 x 4 x 2	114.3	60.3	105	89
4 x 4 x 1 1/2	114.3	48.3	105	86
5 x 5 x 4	141.3	114.3	124	117
5 x 5 x 3 1/2	141.3	101.6	124	114
5 x 5 x 3	141.3	88.9	124	111
5 x 5 x 2 1/2	141.3	73.0	124	108
5 x 5 x 2	141.3	60.3	124	105
6 x 6 x 5	168.3	141.3	143	137
6 x 6 x 4	168.3	114.3	143	130
6 x 6 x 3 1/2	168.3	101.6	143	127
6 x 6 x 3	168.3	88.9	143	124
6 x 6 x 2 1/2	168.3	73.0	143	121
8 x 8 x 6	219.1	168.3	178	168
8 x 8 x 5	219.1	141.3	178	162
8 x 8 x 4	219.1	114.3	178	156
8 x 8 x 3 1/2	219.1	101.6	178	152
10 x 10 x 8	273.0	219.1	216	203
10 x 10 x 6	273.0	168.3	216	194
10 x 10 x 5	273.0	141.3	216	191
10 x 10 x 4	273.0	114.3	216	184
12 x 12 x 10	323.8	273.0	254	241
12 x 12 x 8	323.8	219.1	254	229
12 x 12 x 6	323.8	168.3	254	219
12 x 12 x 5	323.8	141.3	254	216
14 x 14 x 12	355.6	323.8	279	270
14 x 14 x 10	355.6	273.0	279	257
14 x 14 x 8	355.6	219.1	279	248
14 x 14 x 6	355.6	168.3	279	238