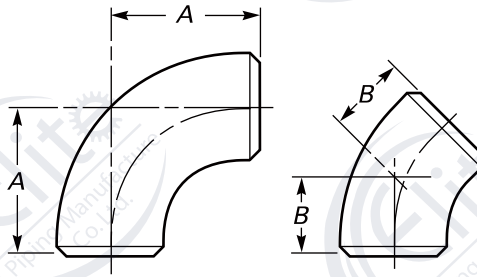
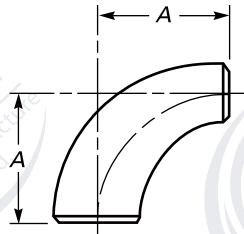


# Dimensions of Long Radius Elbows



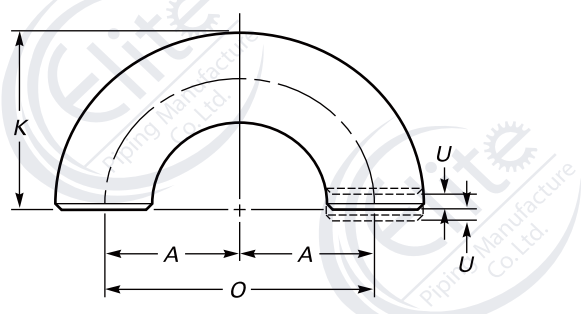
Nominal Pipe Size (NPS)	Outside Diameter at Bevel, mm (in.)	Center-to-End, mm (in.)	
		90-deg Elbows, A	45-deg Elbows, B
1/2	21.3 (0.84)	38 (1.50)	16 (0.62)
3/4	26.7 (1.05)	38 (1.50)	19 (0.75)
1	33.4 (1.32)	38 (1.50)	22 (0.88)
1 1/4	42.2 (1.66)	48 (1.88)	25 (1.00)
1 1/2	48.3 (1.90)	57 (2.25)	29 (1.12)
2	60.3 (2.38)	76 (3.00)	35 (1.38)
2 1/2	73.0 (2.88)	95 (3.75)	44 (1.75)
3	88.9 (3.50)	114 (4.50)	51 (2.00)
3 1/2	101.6 (4.00)	133 (5.25)	57 (2.25)
4	114.3 (4.50)	152 (6.00)	64 (2.50)
5	141.3 (5.56)	190 (7.50)	79 (3.12)
6	168.3 (6.62)	229 (9.00)	95 (3.75)
8	219.1 (8.62)	305 (12.00)	127 (5.00)
10	273.0 (10.75)	381 (15.00)	159 (6.25)
12	323.8 (12.75)	457 (18.00)	190 (7.50)
14	355.6 (14.00)	533 (21.00)	222 (8.75)
16	406.4 (16.00)	610 (24.00)	254 (10.00)
18	457.0 (18.00)	686 (27.00)	286 (11.25)
20	508.0 (20.00)	762 (30.00)	318 (12.50)
22	559.0 (22.00)	838 (33.00)	343 (13.50)
24	610.0 (24.00)	914 (36.00)	381 (15.00)
26	660.0 (26.00)	991 (39.00)	406 (16.00)
28	711.0 (28.00)	1 067 (42.00)	438 (17.25)
30	762.0 (30.00)	1 143 (45.00)	470 (18.50)
32	813.0 (32.00)	1 219 (48.00)	502 (19.75)
34	864.0 (34.00)	1 295 (51.00)	533 (21.00)
36	914.0 (36.00)	1 372 (54.00)	565 (22.25)
38	965.0 (38.00)	1 448 (57.00)	600 (23.62)
40	1 016.0 (40.00)	1 524 (60.00)	632 (24.88)
42	1 067.0 (42.00)	1 600 (63.00)	660 (26.00)
44	1 118.0 (44.00)	1 676 (66.00)	695 (27.38)
46	1 168.0 (46.00)	1 753 (69.00)	727 (28.62)
48	1 219.0 (48.00)	1 829 (72.00)	759 (29.88)

# Dimensions of Long Radius Reducing Elbows



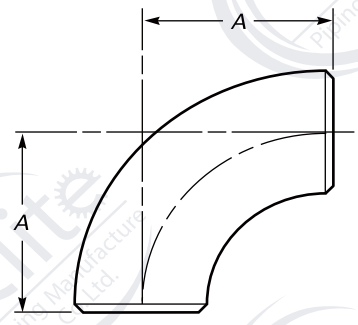
Nominal Pipe Size (NPS)	Outside Diameter at Bevel, mm (in.)		Center-to-End, A, mm (in.)	Nominal Pipe Size (NPS)	Outside Diameter at Bevel, mm (in.)		Center-to-End, A, mm (in.)
	Large End	Small End			Large End	Small End	
2 × 1½	60.3 (2.38)	48.3 (1.90)	76 (3.00)	10 × 8	273.0 (10.75)	219.1 (8.62)	381 (15.00)
2 × 1¼	60.3 (2.38)	42.2 (1.66)	76 (3.00)	10 × 6	273.0 (10.75)	168.3 (6.62)	381 (15.00)
2 × 1	60.3 (2.38)	33.4 (1.32)	76 (3.00)	10 × 5	273.0 (10.75)	141.3 (5.56)	381 (15.00)
2½ × 2	73.0 (2.88)	60.3 (2.38)	95 (3.75)	12 × 10	323.8 (12.75)	273.0 (10.75)	457 (18.00)
2½ × 1½	73.0 (2.88)	48.3 (1.90)	95 (3.75)	12 × 8	323.8 (12.75)	219.1 (8.62)	457 (18.00)
2½ × 1¼	73.0 (2.88)	42.2 (1.66)	95 (3.75)	12 × 6	323.8 (12.75)	168.3 (6.62)	457 (18.00)
3 × 2½	88.9 (3.50)	73.0 (2.88)	114 (4.50)	14 × 12	355.6 (14.00)	323.8 (12.75)	533 (21.00)
3 × 2	88.9 (3.50)	60.3 (2.38)	114 (4.50)	14 × 10	355.6 (14.00)	273.0 (10.75)	533 (21.00)
3 × 1½	88.9 (3.50)	48.3 (1.90)	114 (4.50)	14 × 8	355.6 (14.00)	219.1 (8.62)	533 (21.00)
3½ × 3	101.6 (4.00)	88.9 (3.50)	133 (5.25)	16 × 14	406.4 (16.00)	355.6 (14.00)	610 (24.00)
3½ × 2½	101.6 (4.00)	73.0 (2.88)	133 (5.25)	16 × 12	406.4 (16.00)	323.8 (12.75)	610 (24.00)
3½ × 2	101.6 (4.00)	60.3 (2.38)	133 (5.25)	16 × 10	406.4 (16.00)	273.0 (10.75)	610 (24.00)
4 × 3½	114.3 (4.50)	101.6 (4.00)	152 (6.00)	18 × 16	457.0 (18.00)	406.4 (16.00)	686 (27.00)
4 × 3	114.3 (4.50)	88.9 (3.50)	152 (6.00)	18 × 14	457.0 (18.00)	355.6 (14.00)	686 (27.00)
4 × 2½	114.3 (4.50)	73.0 (2.88)	152 (6.00)	18 × 12	457.0 (18.00)	323.8 (12.75)	686 (27.00)
4 × 2	114.3 (4.50)	60.3 (2.38)	152 (6.00)	18 × 10	457.0 (18.00)	273.0 (10.75)	686 (27.00)
5 × 4	141.3 (5.56)	114.3 (4.50)	190 (7.50)	20 × 18	508.0 (20.00)	457.0 (18.00)	762 (30.00)
5 × 3½	141.3 (5.56)	101.6 (4.00)	190 (7.50)	20 × 16	508.0 (20.00)	406.4 (16.00)	762 (30.00)
5 × 3	141.3 (5.56)	88.9 (3.50)	190 (7.50)	20 × 14	508.0 (20.00)	355.6 (14.00)	762 (30.00)
5 × 2½	141.3 (5.56)	73.0 (2.88)	190 (7.50)	20 × 12	508.0 (20.00)	323.8 (12.75)	762 (30.00)
				20 × 10	508.0 (20.00)	273.0 (10.75)	762 (30.00)
6 × 5	168.3 (6.62)	141.3 (5.56)	229 (9.00)	24 × 22	610.0 (24.00)	559.0 (22.00)	914 (36.00)
6 × 4	168.3 (6.62)	114.3 (4.50)	229 (9.00)	24 × 20	610.0 (24.00)	508.0 (20.00)	914 (36.00)
6 × 3½	168.3 (6.62)	101.6 (4.00)	229 (9.00)	24 × 18	610.0 (24.00)	457.0 (18.00)	914 (36.00)
6 × 3	168.3 (6.62)	88.9 (3.50)	229 (9.00)	24 × 16	610.0 (24.00)	406.4 (16.00)	914 (36.00)
8 × 6	219.1 (8.62)	168.3 (6.62)	305 (12.00)	24 × 14	610.0 (24.00)	355.6 (14.00)	914 (36.00)
8 × 5	219.1 (8.62)	141.3 (5.56)	305 (12.00)	24 × 12	610.0 (24.00)	323.8 (12.75)	914 (36.00)
8 × 4	219.1 (8.62)	114.3 (4.50)	305 (12.00)	...	...	...	...

## Dimensions of Long Radius Returns



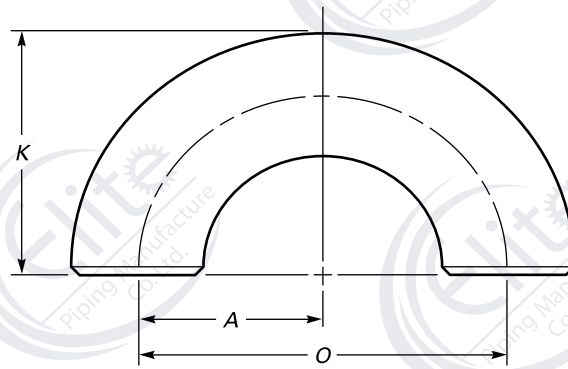
Nominal Pipe Size (NPS)	Outside Diameter at Bevel, mm (in.)	Center-to-Center, O, mm (in.)	Back-to-Face, K, mm (in.)
1/2	21.3 (0.84)	76 (3.00)	48 (1.88)
3/4	26.7 (1.05)	76 (3.00)	51 (2.00)
1	33.4 (1.32)	76 (3.00)	56 (2.19)
1 1/4	42.2 (1.66)	95 (3.75)	70 (2.75)
1 1/2	48.3 (1.90)	114 (4.50)	83 (3.25)
2	60.3 (2.38)	152 (6.00)	106 (4.19)
2 1/2	73.0 (2.88)	190 (7.50)	132 (5.19)
3	88.9 (3.50)	229 (9.00)	159 (6.25)
3 1/2	101.6 (4.00)	267 (10.50)	184 (7.25)
4	114.3 (4.50)	305 (12.00)	210 (8.25)
5	141.3 (5.56)	381 (15.00)	262 (10.31)
6	168.3 (6.62)	457 (18.00)	313 (12.31)
8	219.1 (8.62)	610 (24.00)	414 (16.31)
10	273.0 (10.75)	762 (30.00)	518 (20.38)
12	323.8 (12.75)	914 (36.00)	619 (24.38)
14	355.6 (14.00)	1 067 (42.00)	711 (28.00)
16	406.4 (16.00)	1 219 (48.00)	813 (32.00)
18	457.0 (18.00)	1 372 (54.00)	914 (36.00)
20	508.0 (20.00)	1 524 (60.00)	1 016 (40.00)
22	559.0 (22.00)	1 676 (66.00)	1 118 (44.00)
24	610.0 (24.00)	1 829 (72.00)	1 219 (48.00)

## Dimensions of Short Radius Elbows



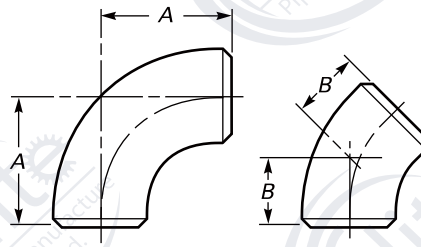
Nominal Pipe Size (NPS)	Outside Diameter at Bevel, mm (in.)	Center-to-End, A, mm (in.)
1	33.4 (1.32)	25 (1.00)
1 1/4	42.2 (1.66)	32 (1.25)
1 1/2	48.3 (1.90)	38 (1.50)
2	60.3 (2.38)	51 (2.00)
2 1/2	73.0 (2.88)	64 (2.50)
3	88.9 (3.50)	76 (3.00)
3 1/2	101.6 (4.00)	89 (3.50)
4	114.3 (4.50)	102 (4.00)
5	141.3 (5.56)	127 (5.00)
6	168.3 (6.62)	152 (6.00)
8	219.1 (8.62)	203 (8.00)
10	273.0 (10.75)	254 (10.00)
12	323.8 (12.75)	305 (12.00)
14	355.6 (14.00)	356 (14.00)
16	406.4 (16.00)	406 (16.00)
18	457.0 (18.00)	457 (18.00)
20	508.0 (20.00)	508 (20.00)
22	559.0 (22.00)	559 (22.00)
24	610.0 (24.00)	610 (24.00)

# Dimensions of Short Radius 180-deg Returns



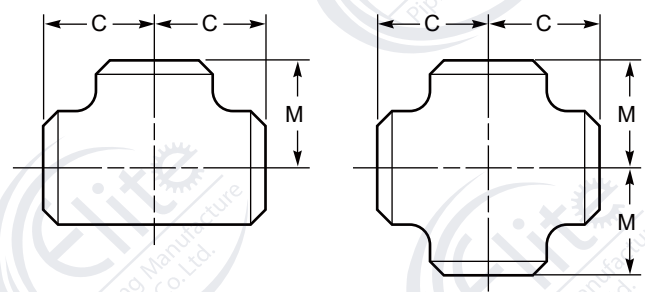
Nominal Pipe Size (NPS)	Outside Diameter at Bevel, mm (in.)	Center-to-Center, O, mm (in.)	Back-to-Face, K, mm (in.)
1	33.4 (1.32)	51 (2.00)	41 (1.62)
1¼	42.2 (1.66)	64 (2.50)	52 (2.06)
1½	48.3 (1.90)	76 (3.00)	62 (2.44)
2	60.3 (2.38)	102 (4.00)	81 (3.19)
2½	73.0 (2.88)	127 (5.00)	100 (3.94)
3	88.9 (3.50)	152 (6.00)	121 (4.75)
3½	101.6 (4.00)	178 (7.00)	140 (5.50)
4	114.3 (4.50)	203 (8.00)	159 (6.25)
5	141.3 (5.56)	254 (10.00)	197 (7.75)
6	168.3 (6.62)	305 (12.00)	237 (9.31)
8	219.1 (8.62)	406 (16.00)	313 (12.31)
10	273.0 (10.75)	508 (20.00)	391 (15.38)
12	323.8 (12.75)	610 (24.00)	467 (18.38)
14	355.6 (14.00)	711 (28.00)	533 (21.00)
16	406.4 (16.00)	813 (32.00)	610 (24.00)
18	457.0 (18.00)	914 (36.00)	686 (27.00)
20	508.0 (20.00)	1 016 (40.00)	762 (30.00)
22	559.0 (22.00)	1 118 (44.00)	838 (33.00)
24	610.0 (24.00)	1 219 (48.00)	914 (36.00)

# Dimensions of 3D Radius Elbows



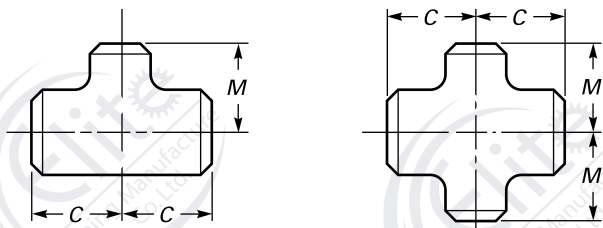
Nominal Pipe Size (NPS)	Outside Diameter at Bevel, mm (in.)	Center-to-End, mm (in.)	
		90-deg Elbows, A	45-deg Elbows, B
3/4	26.7 (1.05)	57 (2.25)	24 (0.94)
1	33.4 (1.32)	76 (3.00)	31 (1.25)
1 1/4	42.2 (1.66)	95 (3.75)	39 (1.56)
1 1/2	48.3 (1.90)	114 (4.50)	47 (1.88)
2	60.3 (2.38)	152 (6.00)	63 (2.50)
2 1/2	73.0 (2.88)	190 (7.50)	79 (3.12)
3	88.9 (3.50)	229 (9.00)	95 (3.75)
3 1/2	101.6 (4.00)	267 (10.50)	111 (4.38)
4	114.3 (4.50)	305 (12.00)	127 (5.00)
5	141.3 (5.56)	381 (15.00)	157 (6.19)
6	168.3 (6.62)	457 (18.00)	189 (7.44)
8	219.1 (8.62)	610 (24.00)	252 (9.94)
10	273.0 (10.75)	762 (30.00)	316 (12.44)
12	323.8 (12.75)	914 (36.00)	378 (14.88)
14	355.6 (14.00)	1 067 (42.00)	441 (17.38)
16	406.4 (16.00)	1 219 (48.00)	505 (19.88)
18	457.0 (18.00)	1 372 (54.00)	568 (22.38)
20	508.0 (20.00)	1 524 (60.00)	632 (24.88)
22	559.0 (22.00)	1 676 (66.00)	694 (27.31)
24	610.0 (24.00)	1 829 (72.00)	757 (29.81)
26	660.0 (26.00)	1 981 (78.00)	821 (32.31)
28	711.0 (28.00)	2 134 (84.00)	883 (34.75)
30	762.0 (30.00)	2 286 (90.00)	946 (37.25)
32	813.0 (32.00)	2 438 (96.00)	1 010 (39.75)
34	864.0 (34.00)	2 591 (102.00)	1 073 (42.25)
36	914.0 (36.00)	2 743 (108.00)	1 135 (44.69)
38	965.0 (38.00)	2 896 (114.00)	1 200 (47.25)
40	1 016.0 (40.00)	3 048 (120.00)	1 264 (49.75)
42	1 067.0 (42.00)	3 200 (126.00)	1 326 (52.19)
44	1 118.0 (44.00)	3 353 (132.00)	1 389 (54.69)
46	1 168.0 (46.00)	3 505 (138.00)	1 453 (57.19)
48	1 219.0 (48.00)	3 658 (144.00)	1 516 (59.69)

# Dimensions of Straight Tees and Crosses



Nominal Pipe Size (NPS)	Outside Diameter at Bevel, mm (in.)	Center-to-End, mm (in.)	
		Run, <i>C</i>	Outlet, <i>M</i>
1/2	21.3 (0.84)	25 (1.00)	25 (1.00)
3/4	26.7 (1.05)	29 (1.12)	29 (1.12)
1	33.4 (1.32)	38 (1.50)	38 (1.50)
1 1/4	42.2 (1.66)	48 (1.88)	48 (1.88)
1 1/2	48.3 (1.90)	57 (2.25)	57 (2.25)
2	60.3 (2.38)	64 (2.50)	64 (2.50)
2 1/2	73.0 (2.88)	76 (3.00)	76 (3.00)
3	88.9 (3.50)	86 (3.38)	86 (3.38)
3 1/2	101.6 (4.00)	95 (3.75)	95 (3.75)
4	114.3 (4.50)	105 (4.12)	105 (4.12)
5	141.3 (5.56)	124 (4.88)	124 (4.88)
6	168.3 (6.62)	143 (5.62)	143 (5.62)
8	219.1 (8.62)	178 (7.00)	178 (7.00)
10	273.0 (10.75)	216 (8.50)	216 (8.50)
12	323.8 (12.75)	254 (10.00)	254 (10.00)
14	355.6 (14.00)	279 (11.00)	279 (11.00)
16	406.4 (16.00)	305 (12.00)	305 (12.00)
18	457.0 (18.00)	343 (13.50)	343 (13.50)
20	508.0 (20.00)	381 (15.00)	381 (15.00)
22	559.0 (22.00)	419 (16.50)	419 (16.50)
24	610.0 (24.00)	432 (17.00)	432 (17.00)
26	660.0 (26.00)	495 (19.50)	495 (19.50)
28	711.0 (28.00)	521 (20.50)	521 (20.50)
30	762.0 (30.00)	559 (22.00)	559 (22.00)
32	813.0 (32.00)	597 (23.50)	597 (23.50)
34	864.0 (34.00)	635 (25.00)	635 (25.00)
36	914.0 (36.00)	673 (26.50)	673 (26.50)
38	965.0 (38.00)	711 (28.00)	711 (28.00)
40	1 016.0 (40.00)	749 (29.50)	749 (29.50)
42	1 067.0 (42.00)	762 (30.00)	711 (28.00)
44	1 118.0 (44.00)	813 (32.00)	762 (30.00)
46	1 168.0 (46.00)	851 (33.50)	800 (31.50)
48	1 219.0 (48.00)	889 (35.00)	838 (33.00)

# Dimensions of Reducing Outlet Tees and Reducing Outlet Crosses



Nominal Pipe Size (NPS)	Outside Diameter at Bevel, mm (in.)		Center-to-End, mm (in.)	
	Run	Outlet	Run, C	Outlet, M
1/2 x 1/2 x 3/8	21.3 (0.84)	17.3 (0.68)	25 (1.00)	25 (1.00)
1/2 x 1/2 x 1/4	21.3 (0.84)	13.7 (0.54)	25 (1.00)	25 (1.00)
3/4 x 3/4 x 1/2	26.7 (1.05)	21.3 (0.84)	29 (1.12)	29 (1.12)
3/4 x 3/4 x 3/8	26.7 (1.05)	17.3 (0.68)	29 (1.12)	29 (1.12)
1 x 1 x 3/4	33.4 (1.32)	26.7 (1.05)	38 (1.50)	38 (1.50)
1 x 1 x 1/2	33.4 (1.32)	21.3 (0.84)	38 (1.50)	38 (1.50)
1 1/4 x 1 1/4 x 1	42.2 (1.66)	33.4 (1.32)	48 (1.88)	48 (1.88)
1 1/4 x 1 1/4 x 3/4	42.2 (1.66)	26.7 (1.05)	48 (1.88)	48 (1.88)
1 1/4 x 1 1/4 x 1/2	42.2 (1.66)	21.3 (0.84)	48 (1.88)	48 (1.88)
1 1/2 x 1 1/2 x 1 1/4	48.3 (1.90)	42.2 (1.66)	57 (2.25)	57 (2.25)
1 1/2 x 1 1/2 x 1	48.3 (1.90)	33.4 (1.32)	57 (2.25)	57 (2.25)
1 1/2 x 1 1/2 x 3/4	48.3 (1.90)	26.7 (1.05)	57 (2.25)	57 (2.25)
1 1/2 x 1 1/2 x 1/2	48.3 (1.90)	21.3 (0.84)	57 (2.25)	57 (2.25)
2 x 2 x 1 1/2	60.3 (2.38)	48.3 (1.90)	64 (2.50)	60 (2.38)
2 x 2 x 1 1/4	60.3 (2.38)	42.2 (1.66)	64 (2.50)	57 (2.25)
2 x 2 x 1	60.3 (2.38)	33.4 (1.32)	64 (2.50)	51 (2.00)
2 x 2 x 3/4	60.3 (2.38)	26.7 (1.05)	64 (2.50)	44 (1.75)
2 1/2 x 2 1/2 x 2	73.0 (2.88)	60.3 (2.38)	76 (3.00)	70 (2.75)
2 1/2 x 2 1/2 x 1 1/2	73.0 (2.88)	48.3 (1.90)	76 (3.00)	67 (2.62)
2 1/2 x 2 1/2 x 1 1/4	73.0 (2.88)	42.2 (1.66)	76 (3.00)	64 (2.50)
2 1/2 x 2 1/2 x 1	73.0 (2.88)	33.4 (1.32)	76 (3.00)	57 (2.25)
3 x 3 x 2 1/2	88.9 (3.50)	73.0 (2.88)	86 (3.38)	83 (3.25)
3 x 3 x 2	88.9 (3.50)	60.3 (2.38)	86 (3.38)	76 (3.00)
3 x 3 x 1 1/2	88.9 (3.50)	48.3 (1.90)	86 (3.38)	73 (2.88)
3 x 3 x 1 1/4	88.9 (3.50)	42.2 (1.66)	86 (3.38)	70 (2.75)
3 1/2 x 3 1/2 x 3	101.6 (4.00)	88.9 (3.50)	95 (3.75)	92 (3.62)
3 1/2 x 3 1/2 x 2 1/2	101.6 (4.00)	73.0 (2.88)	95 (3.75)	89 (3.50)
3 1/2 x 3 1/2 x 2	101.6 (4.00)	60.3 (2.38)	95 (3.75)	83 (3.25)
3 1/2 x 3 1/2 x 1 1/2	101.6 (4.00)	48.3 (1.90)	95 (3.75)	79 (3.12)
4 x 4 x 3 1/2	114.3 (4.50)	101.6 (4.00)	105 (4.12)	102 (4.00)
4 x 4 x 3	114.3 (4.50)	88.9 (3.50)	105 (4.12)	98 (3.88)
4 x 4 x 2 1/2	114.3 (4.50)	73.0 (2.88)	105 (4.12)	95 (3.75)
4 x 4 x 2	114.3 (4.50)	60.3 (2.38)	105 (4.12)	89 (3.50)
4 x 4 x 1 1/2	114.3 (4.50)	48.3 (1.90)	105 (4.12)	86 (3.38)

# Dimensions of Reducing Outlet Tees and Reducing Outlet Crosses

Nominal Pipe Size (NPS)	Outside Diameter at Bevel, mm (in.)		Center-to-End, mm (in.)	
	Run	Outlet	Run, C	Outlet, M
5 × 5 × 4	141.3 (5.56)	114.3 (4.50)	124 (4.88)	117 (4.62)
5 × 5 × 3½	141.3 (5.56)	101.6 (4.00)	124 (4.88)	114 (4.50)
5 × 5 × 3	141.3 (5.56)	88.9 (3.50)	124 (4.88)	111 (4.38)
5 × 5 × 2½	141.3 (5.56)	73.0 (2.88)	124 (4.88)	108 (4.25)
5 × 5 × 2	141.3 (5.56)	60.3 (2.38)	124 (4.88)	105 (4.12)
6 × 6 × 5	168.3 (6.62)	141.3 (5.56)	143 (5.62)	137 (5.38)
6 × 6 × 4	168.3 (6.62)	114.3 (4.50)	143 (5.62)	130 (5.12)
6 × 6 × 3½	168.3 (6.62)	101.6 (4.00)	143 (5.62)	127 (5.00)
6 × 6 × 3	168.3 (6.62)	88.9 (3.50)	143 (5.62)	124 (4.88)
6 × 6 × 2½	168.3 (6.62)	73.0 (2.88)	143 (5.62)	121 (4.75)
8 × 8 × 6	219.1 (8.62)	168.3 (6.62)	178 (7.00)	168 (6.62)
8 × 8 × 5	219.1 (8.62)	141.3 (5.56)	178 (7.00)	162 (6.38)
8 × 8 × 4	219.1 (8.62)	114.3 (4.50)	178 (7.00)	156 (6.12)
8 × 8 × 3½	219.1 (8.62)	101.6 (4.00)	178 (7.00)	152 (6.00)
10 × 10 × 8	273.0 (10.75)	219.1 (8.62)	216 (8.50)	203 (8.00)
10 × 10 × 6	273.0 (10.75)	168.3 (6.62)	216 (8.50)	194 (7.62)
10 × 10 × 5	273.0 (10.75)	141.3 (5.56)	216 (8.50)	191 (7.50)
10 × 10 × 4	273.0 (10.75)	114.3 (4.50)	216 (8.50)	184 (7.25)
12 × 12 × 10	323.8 (12.75)	273.0 (10.75)	254 (10.00)	241 (9.50)
12 × 12 × 8	323.8 (12.75)	219.1 (8.62)	254 (10.00)	229 (9.00)
12 × 12 × 6	323.8 (12.75)	168.3 (6.62)	254 (10.00)	219 (8.62)
12 × 12 × 5	323.8 (12.75)	141.3 (5.56)	254 (10.00)	216 (8.50)
14 × 14 × 12	355.6 (14.00)	323.8 (12.75)	279 (11.00)	270 (10.62)
14 × 14 × 10	355.6 (14.00)	273.0 (10.75)	279 (11.00)	257 (10.12)
14 × 14 × 8	355.6 (14.00)	219.1 (8.62)	279 (11.00)	248 (9.75)
14 × 14 × 6	355.6 (14.00)	168.3 (6.62)	279 (11.00)	238 (9.38)
16 × 16 × 14	406.4 (16.00)	355.6 (14.00)	305 (12.00)	305 (12.00)
16 × 16 × 12	406.4 (16.00)	323.8 (12.75)	305 (12.00)	295 (11.62)
16 × 16 × 10	406.4 (16.00)	273.0 (10.75)	305 (12.00)	283 (11.12)
16 × 16 × 8	406.4 (16.00)	219.1 (8.62)	305 (12.00)	273 (10.75)
16 × 16 × 6	406.4 (16.00)	168.3 (6.62)	305 (12.00)	264 (10.38)
18 × 18 × 16	457 (18.00)	406.4 (16.00)	343 (13.50)	330 (13.00)
18 × 18 × 14	457 (18.00)	355.6 (14.00)	343 (13.50)	330 (13.00)
18 × 18 × 12	457 (18.00)	323.8 (12.75)	343 (13.50)	321 (12.62)
18 × 18 × 10	457 (18.00)	273.0 (10.75)	343 (13.50)	308 (12.12)
18 × 18 × 8	457 (18.00)	219.1 (8.62)	343 (13.50)	298 (11.75)
20 × 20 × 18	508 (20.00)	457.0 (18.00)	381 (15.00)	368 (14.50)
20 × 20 × 16	508 (20.00)	406.4 (16.00)	381 (15.00)	356 (14.00)
20 × 20 × 14	508 (20.00)	355.6 (14.00)	381 (15.00)	356 (14.00)



# Dimensions of Reducing Outlet Tees and Reducing Outlet Crosses

Nominal Pipe Size (NPS)	Outside Diameter at Bevel, mm (in.)		Center-to-End, mm (in.)	
	Run	Outlet	Run, C	Outlet, M
20 × 20 × 12	508 (20.00)	323.8 (12.75)	381 (15.00)	346 (13.62)
20 × 20 × 10	508 (20.00)	273.0 (10.75)	381 (15.00)	333 (13.12)
20 × 20 × 8	508 (20.00)	219.1 (8.62)	381 (15.00)	324 (12.75)
22 × 22 × 20	559 (22.00)	508.0 (20.00)	419 (16.50)	406 (16.00)
22 × 22 × 18	559 (22.00)	457.0 (18.00)	419 (16.50)	394 (15.50)
22 × 22 × 16	559 (22.00)	406.4 (16.00)	419 (16.50)	381 (15.00)
22 × 22 × 14	559 (22.00)	355.6 (14.00)	419 (16.50)	381 (15.00)
22 × 22 × 12	559 (22.00)	323.8 (12.75)	419 (16.50)	371 (14.62)
22 × 22 × 10	559 (22.00)	273.0 (10.75)	419 (16.50)	359 (14.12)
24 × 24 × 22	610 (24.00)	559.0 (22.00)	432 (17.00)	432 (17.00)
24 × 24 × 20	610 (24.00)	508.0 (20.00)	432 (17.00)	432 (17.00)
24 × 24 × 18	610 (24.00)	457.0 (18.00)	432 (17.00)	419 (16.50)
24 × 24 × 16	610 (24.00)	406.4 (16.00)	432 (17.00)	406 (16.00)
24 × 24 × 14	610 (24.00)	355.6 (14.00)	432 (17.00)	406 (16.00)
24 × 24 × 12	610 (24.00)	323.8 (12.75)	432 (17.00)	397 (15.62)
24 × 24 × 10	610 (24.00)	273.0 (10.75)	432 (17.00)	384 (15.12)
26 × 26 × 24	660 (26.00)	610.0 (24.00)	495 (19.50)	483 (19.00)
26 × 26 × 22	660 (26.00)	559.0 (22.00)	495 (19.50)	470 (18.50)
26 × 26 × 20	660 (26.00)	508.0 (20.00)	495 (19.50)	457 (18.00)
26 × 26 × 18	660 (26.00)	457.0 (18.00)	495 (19.50)	444 (17.50)
26 × 26 × 16	660 (26.00)	406.4 (16.00)	495 (19.50)	432 (17.00)
26 × 26 × 14	660 (26.00)	355.6 (14.00)	495 (19.50)	432 (17.00)
26 × 26 × 12	660 (26.00)	323.8 (12.75)	495 (19.50)	422 (16.62)
28 × 28 × 26	711 (28.00)	660.0 (26.00)	521 (20.50)	521 (20.50)
28 × 28 × 24	711 (28.00)	610.0 (24.00)	521 (20.50)	508 (20.00)
28 × 28 × 22	711 (28.00)	559.0 (22.00)	521 (20.50)	495 (19.50)
28 × 28 × 20	711 (28.00)	508.0 (20.00)	521 (20.50)	483 (19.00)
28 × 28 × 18	711 (28.00)	457.0 (18.00)	521 (20.50)	470 (18.50)
28 × 28 × 16	711 (28.00)	406.4 (16.00)	521 (20.50)	457 (18.00)
28 × 28 × 14	711 (28.00)	355.6 (14.00)	521 (20.50)	457 (18.00)
28 × 28 × 12	711 (28.00)	323.8 (12.75)	521 (20.50)	448 (17.62)
30 × 30 × 28	762 (30.00)	711.0 (28.00)	559 (22.00)	546 (21.50)
30 × 30 × 26	762 (30.00)	660.0 (26.00)	559 (22.00)	546 (21.50)
30 × 30 × 24	762 (30.00)	610.0 (24.00)	559 (22.00)	533 (21.00)
30 × 30 × 22	762 (30.00)	559.0 (22.00)	559 (22.00)	521 (20.50)
30 × 30 × 20	762 (30.00)	508.0 (20.00)	559 (22.00)	508 (20.00)
30 × 30 × 18	762 (30.00)	457.0 (18.00)	559 (22.00)	495 (19.50)
30 × 30 × 16	762 (30.00)	406.4 (16.00)	559 (22.00)	483 (19.00)
30 × 30 × 14	762 (30.00)	355.6 (14.00)	559 (22.00)	483 (19.00)

# Dimensions of Reducing Outlet Tees and Reducing Outlet Crosses

Nominal Pipe Size (NPS)	Outside Diameter at Bevel, mm (in.)		Center-to-End, mm (in.)	
	Run	Outlet	Run, C	Outlet, M
30 × 30 × 12	762 (30.00)	323.8 (12.75)	559 (22.00)	473 (18.62)
30 × 30 × 10	762 (30.00)	273.0 (10.75)	559 (22.00)	460 (18.12)
32 × 32 × 30	813 (32.00)	762.0 (30.00)	597 (23.50)	584 (23.00)
32 × 32 × 28	813 (32.00)	711.0 (28.00)	597 (23.50)	572 (22.5)
32 × 32 × 26	813 (32.00)	660.0 (26.00)	597 (23.50)	572 (22.50)
32 × 32 × 24	813 (32.00)	610.0 (24.00)	597 (23.50)	559 (22.00)
32 × 32 × 22	813 (32.00)	559.0 (22.00)	597 (23.50)	546 (21.50)
32 × 32 × 20	813 (32.00)	508.0 (20.00)	597 (23.50)	533 (21.00)
32 × 32 × 18	813 (32.00)	457.0 (18.00)	597 (23.50)	521 (20.50)
32 × 32 × 16	813 (32.00)	406.4 (16.00)	597 (23.50)	508 (20.00)
32 × 32 × 14	813 (32.00)	355.6 (14.00)	597 (23.50)	508 (20.00)
34 × 34 × 32	864 (34.00)	813.0 (32.00)	635 (25.00)	622 (24.50)
34 × 34 × 30	864 (34.00)	762.0 (30.00)	635 (25.00)	610 (24.00)
34 × 34 × 28	864 (34.00)	711.0 (28.00)	635 (25.00)	597 (23.50)
34 × 34 × 26	864 (34.00)	660.0 (26.00)	635 (25.00)	597 (23.50)
34 × 34 × 24	864 (34.00)	610.0 (24.00)	635 (25.00)	584 (23.00)
34 × 34 × 22	864 (34.00)	559.0 (22.00)	635 (25.00)	572 (22.50)
34 × 34 × 20	864 (34.00)	508.0 (20.00)	635 (25.00)	559 (22.00)
34 × 34 × 18	864 (34.00)	457.0 (18.00)	635 (25.00)	546 (21.50)
34 × 34 × 16	864 (34.00)	406.4 (16.00)	635 (25.00)	533 (21.00)
36 × 36 × 34	914 (36.00)	864.0 (34.00)	673 (26.50)	660 (26.00)
36 × 36 × 32	914 (36.00)	813.0 (32.00)	673 (26.50)	648 (25.50)
36 × 36 × 30	914 (36.00)	762.0 (30.00)	673 (26.50)	635 (25.00)
36 × 36 × 28	914 (36.00)	711.0 (28.00)	673 (26.50)	622 (24.50)
36 × 36 × 26	914 (36.00)	660.0 (26.00)	673 (26.50)	622 (24.50)
36 × 36 × 24	914 (36.00)	610.0 (24.00)	673 (26.50)	610 (24.00)
36 × 36 × 22	914 (36.00)	559.0 (22.00)	673 (26.50)	597 (23.50)
36 × 36 × 20	914 (36.00)	508.0 (20.00)	673 (26.50)	584 (23.00)
36 × 36 × 18	914 (36.00)	457.0 (18.00)	673 (26.50)	572 (22.50)
36 × 36 × 16	914 (36.00)	406.4 (16.00)	673 (26.50)	559 (22.00)
38 × 38 × 36	965 (38.00)	914.0 (36.00)	711 (28.00)	711 (28.00)
38 × 38 × 34	965 (38.00)	864.0 (34.00)	711 (28.00)	698 (27.50)
38 × 38 × 32	965 (38.00)	813.0 (32.00)	711 (28.00)	686 (27.00)
38 × 38 × 30	965 (38.00)	762.0 (30.00)	711 (28.00)	673 (26.50)
38 × 38 × 28	965 (38.00)	711.0 (28.00)	711 (28.00)	648 (25.50)
38 × 38 × 26	965 (38.00)	660.0 (26.00)	711 (28.00)	648 (25.50)
38 × 38 × 24	965 (38.00)	610.0 (24.00)	711 (28.00)	635 (25.00)
38 × 38 × 22	965 (38.00)	559.0 (22.00)	711 (28.00)	622 (24.50)
38 × 38 × 20	965 (38.00)	508.0 (20.00)	711 (28.00)	610 (24.00)
38 × 38 × 18	965 (38.00)	457.0 (18.00)	711 (28.00)	597 (23.50)

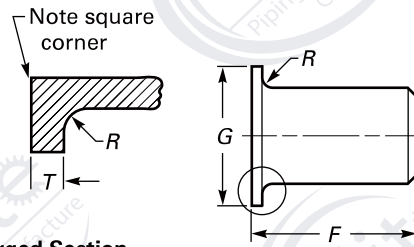
# Dimensions of Reducing Outlet Tees and Reducing Outlet Crosses

Nominal Pipe Size (NPS)	Outside Diameter at Bevel, mm (in.)		Center-to-End, mm (in.)	
	Run	Outlet	Run, C	Outlet, M
40 × 40 × 38	1 016 (40.00)	965.0 (38.00)	749 (29.50)	749 (29.50)
40 × 40 × 36	1 016 (40.00)	914.0 (36.00)	749 (29.50)	737 (29.00)
40 × 40 × 34	1 016 (40.00)	864.0 (34.00)	749 (29.50)	724 (28.50)
40 × 40 × 32	1 016 (40.00)	813.0 (32.00)	749 (29.50)	711 (28.00)
40 × 40 × 30	1 016 (40.00)	762.0 (30.00)	749 (29.50)	698 (27.50)
40 × 40 × 28	1 016 (40.00)	711.0 (28.00)	749 (29.50)	673 (26.50)
40 × 40 × 26	1 016 (40.00)	660.0 (26.00)	749 (29.50)	673 (26.50)
40 × 40 × 24	1 016 (40.00)	610.0 (24.00)	749 (29.50)	660 (26.00)
40 × 40 × 22	1 016 (40.00)	559.0 (22.00)	749 (29.50)	648 (25.50)
40 × 40 × 20	1 016 (40.00)	508.0 (20.00)	749 (29.50)	635 (25.00)
40 × 40 × 18	1 016 (40.00)	457.0 (18.00)	749 (29.50)	622 (24.50)
42 × 42 × 40	1 067 (42.00)	1 016.0 (40.00)	762 (30.00)	711 (28.00)
42 × 42 × 38	1 067 (42.00)	965.0 (38.00)	762 (30.00)	711 (28.00)
42 × 42 × 36	1 067 (42.00)	914.0 (36.00)	762 (30.00)	711 (28.00)
42 × 42 × 34	1 067 (42.00)	864.0 (34.00)	762 (30.00)	711 (28.00)
42 × 42 × 32	1 067 (42.00)	813.0 (32.00)	762 (30.00)	711 (28.00)
42 × 42 × 30	1 067 (42.00)	762.0 (30.00)	762 (30.00)	711 (28.00)
42 × 42 × 28	1 067 (42.00)	711.0 (28.00)	762 (30.00)	698 (27.50)
42 × 42 × 26	1 067 (42.00)	660.0 (26.00)	762 (30.00)	698 (27.50)
42 × 42 × 24	1 067 (42.00)	610.0 (24.00)	762 (30.00)	660 (26.00)
42 × 42 × 22	1 067 (42.00)	559.0 (22.00)	762 (30.00)	660 (26.00)
42 × 42 × 20	1 067 (42.00)	508.0 (20.00)	762 (30.00)	660 (26.00)
42 × 42 × 18	1 067 (42.00)	457.0 (18.00)	762 (30.00)	648 (25.50)
42 × 42 × 16	1 067 (42.00)	406.4 (16.00)	762 (30.00)	635 (25.00)
44 × 44 × 42	1 118 (44.00)	1 067.0 (42.00)	813 (32.00)	762 (30.00)
44 × 44 × 40	1 118 (44.00)	1 016.0 (40.00)	813 (32.00)	749 (29.50)
44 × 44 × 38	1 118 (44.00)	965.0 (38.00)	813 (32.00)	737 (29.00)
44 × 44 × 36	1 118 (44.00)	914.0 (36.00)	813 (32.00)	724 (28.50)
44 × 44 × 34	1 118 (44.00)	864.0 (34.00)	813 (32.00)	724 (28.50)
44 × 44 × 32	1 118 (44.00)	813.0 (32.00)	813 (32.00)	711 (28.00)
44 × 44 × 30	1 118 (44.00)	762.0 (30.00)	813 (32.00)	711 (28.00)
44 × 44 × 28	1 118 (44.00)	711.0 (28.00)	813 (32.00)	698 (27.50)
44 × 44 × 26	1 118 (44.00)	660.0 (26.00)	813 (32.00)	698 (27.50)
44 × 44 × 24	1 118 (44.00)	610.0 (24.00)	813 (32.00)	698 (27.50)
44 × 44 × 22	1 118 (44.00)	559.0 (22.00)	813 (32.00)	686 (27.00)
44 × 44 × 20	1 118 (44.00)	508.0 (20.00)	813 (32.00)	686 (27.00)
46 × 46 × 44	1 168 (46.00)	1 118.0 (44.00)	851 (33.50)	800 (31.50)
46 × 46 × 42	1 168 (46.00)	1 067.0 (42.00)	851 (33.50)	787 (31.00)
46 × 46 × 40	1 168 (46.00)	1 016.0 (40.00)	851 (33.50)	775 (30.50)
46 × 46 × 38	1 168 (46.00)	965.0 (38.00)	851 (33.50)	762 (30.00)

# Dimensions of Reducing Outlet Tees and Reducing Outlet Crosses

Nominal Pipe Size (NPS)	Outside Diameter at Bevel, mm (in.)		Center-to-End, mm (in.)	
	Run	Outlet	Run, C	Outlet, M
46 × 46 × 36	1 168 (46.00)	914.0 (36.00)	851 (33.50)	762 (30.00)
46 × 46 × 34	1 168 (46.00)	864.0 (34.00)	851 (33.50)	749 (29.50)
46 × 46 × 32	1 168 (46.00)	813.0 (32.00)	851 (33.50)	749 (29.50)
46 × 46 × 30	1 168 (46.00)	762.0 (30.00)	851 (33.50)	737 (29.00)
46 × 46 × 28	1 168 (46.00)	711.0 (28.00)	851 (33.50)	737 (29.00)
46 × 46 × 26	1 168 (46.00)	660.0 (26.00)	851 (33.50)	737 (29.00)
46 × 46 × 24	1 168 (46.00)	610.0 (24.00)	851 (33.50)	724 (28.50)
46 × 46 × 22	1 168 (46.00)	559.0 (22.00)	851 (33.50)	724 (28.50)
48 × 48 × 46	1 219 (48.00)	1 168.0 (46.00)	889 (35.00)	838 (33.00)
48 × 48 × 44	1 219 (48.00)	1 118.0 (44.00)	889 (35.00)	838 (33.00)
48 × 48 × 42	1 219 (48.00)	1 067.0 (42.00)	889 (35.00)	813 (32.00)
48 × 48 × 40	1 219 (48.00)	1 016.0 (40.00)	889 (35.00)	813 (32.00)
48 × 48 × 38	1 219 (48.00)	965.0 (38.00)	889 (35.00)	813 (32.00)
48 × 48 × 36	1 219 (48.00)	914.0 (36.00)	889 (35.00)	787 (31.00)
48 × 48 × 34	1 219 (48.00)	864.0 (34.00)	889 (35.00)	787 (31.00)
48 × 48 × 32	1 219 (48.00)	813.0 (32.00)	889 (35.00)	787 (31.00)
48 × 48 × 30	1 219 (48.00)	762.0 (30.00)	889 (35.00)	762 (30.00)
48 × 48 × 28	1 219 (48.00)	711.0 (28.00)	889 (35.00)	762 (30.00)
48 × 48 × 26	1 219 (48.00)	660.0 (26.00)	889 (35.00)	762 (30.00)
48 × 48 × 24	1 219 (48.00)	610.0 (24.00)	889 (35.00)	737 (29.00)
48 × 48 × 22	1 219 (48.00)	559.0 (22.00)	889 (35.00)	737 (29.00)

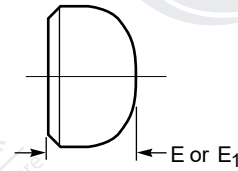
# Dimensions of Lap Joint Stub Ends



Enlarged Section of Lap

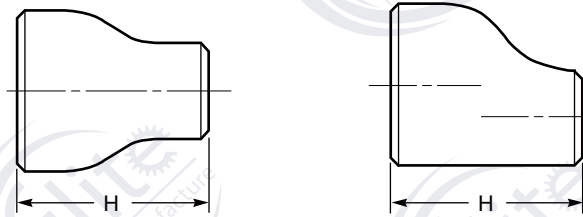
Nominal Pipe Size (NPS)	Outside Diameter of Barrel, mm (in.)		Long Pattern Length, F, mm (in.)	Short Pattern Length, F, mm (in.)	Radius of Fillet, R, mm (in.)	Diameter of Lap, G, mm (in.)
	Max.	Min.				
1/2	22.8 (0.896)	20.5 (0.809)	76 (3.00)	51 (2.00)	3 (0.12)	35 (1.38)
3/4	28.1 (1.106)	25.9 (1.019)	76 (3.00)	51 (2.00)	3 (0.12)	43 (1.69)
1	35.0 (1.376)	32.6 (1.284)	102 (4.00)	51 (2.00)	3 (0.12)	51 (2.00)
1 1/4	43.6 (1.716)	41.4 (1.629)	102 (4.00)	51 (2.00)	5 (0.19)	64 (2.50)
1 1/2	49.9 (1.965)	47.5 (1.869)	102 (4.00)	51 (2.00)	6 (0.25)	73 (2.88)
2	62.4 (2.456)	59.5 (2.344)	152 (6.00)	64 (2.50)	8 (0.31)	92 (3.62)
2 1/2	75.3 (2.966)	72.2 (2.844)	152 (6.00)	64 (2.50)	8 (0.31)	105 (4.12)
3	91.3 (3.596)	88.1 (3.469)	152 (6.00)	64 (2.50)	10 (0.38)	127 (5.00)
3 1/2	104.0 (4.096)	100.8 (3.969)	152 (6.00)	76 (3.00)	10 (0.38)	140 (5.50)
4	116.7 (4.593)	113.5 (4.469)	152 (6.00)	76 (3.00)	11 (0.44)	157 (6.19)
5	144.3 (5.683)	140.5 (5.532)	203 (8.00)	76 (3.00)	11 (0.44)	186 (7.31)
6	171.3 (6.743)	167.5 (6.594)	203 (8.00)	89 (3.50)	13 (0.50)	216 (8.50)
8	222.1 (8.743)	218.3 (8.594)	203 (8.00)	102 (4.00)	13 (0.50)	270 (10.62)
10	277.2 (10.913)	272.3 (10.719)	254 (10.00)	127 (5.00)	13 (0.50)	324 (12.75)
12	328.0 (12.913)	323.1 (12.719)	254 (10.00)	152 (6.00)	13 (0.50)	381 (15.00)
14	359.9 (14.170)	354.8 (13.969)	305 (12.00)	152 (6.00)	13 (0.50)	413 (16.25)
16	411.0 (16.180)	405.6 (15.969)	305 (12.00)	152 (6.00)	13 (0.50)	470 (18.50)
18	462.0 (18.190)	456.0 (17.969)	305 (12.00)	152 (6.00)	13 (0.50)	533 (21.00)
20	514.0 (20.240)	507.0 (19.969)	305 (12.00)	152 (6.00)	13 (0.50)	584 (23.00)
22	565.0 (22.240)	558.0 (21.969)	305 (12.00)	152 (6.00)	13 (0.50)	641 (25.25)
24	616.0 (24.240)	609.0 (23.969)	305 (12.00)	152 (6.00)	13 (0.50)	692 (27.25)

# Dimensions of Caps



Nominal Pipe Size (NPS)	Outside Diameter at Bevel, mm (in.)	Length, E, mm (in.)	Limiting Wall Thickness for Length, E, mm (in.)	Length, E <sub>1</sub> , mm (in.)
1/2	21.3 (0.84)	25 (1.00)	4.57 (0.18)	25 (1.00)
3/4	26.7 (1.05)	25 (1.00)	3.81 (0.15)	25 (1.00)
1	33.4 (1.32)	38 (1.50)	4.57 (0.18)	38 (1.50)
1 1/4	42.2 (1.66)	38 (1.50)	4.83 (0.19)	38 (1.50)
1 1/2	48.3 (1.90)	38 (1.50)	5.08 (0.20)	38 (1.50)
2	60.3 (2.38)	38 (1.50)	5.59 (0.22)	44 (1.75)
2 1/2	73.0 (2.88)	38 (1.50)	7.11 (0.28)	51 (2.00)
3	88.9 (3.50)	51 (2.00)	7.62 (0.30)	64 (2.50)
3 1/2	101.6 (4.00)	64 (2.50)	8.13 (0.32)	76 (3.00)
4	114.3 (4.50)	64 (2.50)	8.64 (0.34)	76 (3.00)
5	141.3 (5.56)	76 (3.00)	9.65 (0.38)	89 (3.50)
6	168.3 (6.62)	89 (3.50)	10.92 (0.43)	102 (4.00)
8	219.1 (8.62)	102 (4.00)	12.70 (0.50)	127 (5.00)
10	273.0 (10.75)	127 (5.00)	12.70 (0.50)	152 (6.00)
12	323.8 (12.75)	152 (6.00)	12.70 (0.50)	178 (7.00)
14	355.6 (14.00)	165 (6.50)	12.70 (0.50)	191 (7.50)
16	406.4 (16.00)	178 (7.00)	12.70 (0.50)	203 (8.00)
18	457.0 (18.00)	203 (8.00)	12.70 (0.50)	229 (9.00)
20	508.0 (20.00)	229 (9.00)	12.70 (0.50)	254 (10.00)
22	559.0 (22.00)	254 (10.00)	12.70 (0.50)	254 (10.00)
24	610.0 (24.00)	267 (10.50)	12.70 (0.50)	305 (12.00)
26	660.0 (26.00)	267 (10.50)	...	...
28	711.0 (28.00)	267 (10.50)	...	...
30	762.0 (30.00)	267 (10.50)	...	...
32	813.0 (32.00)	267 (10.50)	...	...
34	864.0 (34.00)	267 (10.50)	...	...
36	914.0 (36.00)	267 (10.50)	...	...
38	965.0 (38.00)	305 (12.00)	...	...
40	1 016.0 (40.00)	305 (12.00)	...	...
42	1 067.0 (42.00)	305 (12.00)	...	...
44	1 118.0 (44.00)	343 (13.50)	...	...
46	1 168.0 (46.00)	343 (13.50)	...	...
48	1 219.0 (48.00)	343 (13.50)	...	...

# Dimensions of Reducers



Nominal Pipe Size (NPS)	Outside Diameter at Bevel, mm (in.)		End-to-End, H, mm (in.)	Nominal Pipe Size (NPS)	Outside Diameter at Bevel, mm (in.)		End-to-End, H, mm (in.)
	Large End	Small End			Large End	Small End	
3/4 x 1/2	26.7 (1.05)	21.3 (0.84)	38 (1.50)				
3/4 x 3/8	26.7 (1.05)	17.3 (0.68)	38 (1.50)	5 x 4	141.3 (5.56)	114.3 (4.50)	127 (5.00)
1 x 3/4	33.4 (1.32)	26.7 (1.05)	51 (2.00)	5 x 3 1/2	141.3 (5.56)	101.6 (4.00)	127 (5.00)
1 x 1/2	33.4 (1.32)	21.3 (0.84)	51 (2.00)	5 x 3	141.3 (5.56)	88.9 (3.50)	127 (5.00)
				5 x 2 1/2	141.3 (5.56)	73.0 (2.88)	127 (5.00)
1 1/4 x 1	42.2 (1.66)	33.4 (1.32)	51 (2.00)	5 x 2	141.3 (5.56)	60.3 (2.38)	127 (5.00)
1 1/4 x 3/4	42.2 (1.66)	26.7 (1.05)	51 (2.00)				
1 1/4 x 1/2	42.2 (1.66)	21.3 (0.84)	51 (2.00)	6 x 5	168.3 (6.62)	141.3 (5.56)	140 (5.50)
				6 x 4	168.3 (6.62)	114.3 (4.50)	140 (5.50)
1 1/2 x 1 1/4	48.3 (1.90)	42.2 (1.66)	64 (2.50)	6 x 3 1/2	168.3 (6.62)	101.6 (4.00)	140 (5.50)
1 1/2 x 1	48.3 (1.90)	33.4 (1.32)	64 (2.50)	6 x 3	168.3 (6.62)	88.9 (3.50)	140 (5.50)
1 1/2 x 3/4	48.3 (1.90)	26.7 (1.05)	64 (2.50)	6 x 2 1/2	168.3 (6.62)	73.0 (2.88)	140 (5.50)
1 1/2 x 1/2	48.3 (1.90)	21.3 (0.84)	64 (2.50)				
				8 x 6	219.1 (8.62)	168.3 (6.62)	152 (6.00)
2 x 1 1/2	60.3 (2.38)	48.3 (1.90)	76 (3.00)	8 x 5	219.1 (8.62)	141.3 (5.56)	152 (6.00)
2 x 1 1/4	60.3 (2.38)	42.2 (1.66)	76 (3.00)	8 x 4	219.1 (8.62)	114.3 (4.50)	152 (6.00)
2 x 1	60.3 (2.38)	33.4 (1.32)	76 (3.00)	8 x 3 1/2	219.1 (8.62)	101.6 (4.00)	152 (6.00)
2 x 3/4	60.3 (2.38)	26.7 (1.05)	76 (3.00)				
				10 x 8	273.0 (10.75)	219.1 (8.62)	178 (7.00)
2 1/2 x 2	73.0 (2.88)	60.3 (2.38)	89 (3.50)	10 x 6	273.0 (10.75)	168.3 (6.62)	178 (7.00)
2 1/2 x 1 1/2	73.0 (2.88)	48.3 (1.90)	89 (3.50)	10 x 5	273.0 (10.75)	141.3 (5.56)	178 (7.00)
2 1/2 x 1 1/4	73.0 (2.88)	42.2 (1.66)	89 (3.50)	10 x 4	273.0 (10.75)	114.3 (4.50)	178 (7.00)
2 1/2 x 1	73.0 (2.88)	33.4 (1.32)	89 (3.50)				
				12 x 10	323.8 (12.75)	273.0 (10.75)	203 (8.00)
3 x 2 1/2	88.9 (3.50)	73.0 (2.88)	89 (3.50)	12 x 8	323.8 (12.75)	219.1 (8.62)	203 (8.00)
3 x 2	88.9 (3.50)	60.3 (2.38)	89 (3.50)	12 x 6	323.8 (12.75)	168.3 (6.62)	203 (8.00)
3 x 1 1/2	88.9 (3.50)	48.3 (1.90)	89 (3.50)	12 x 5	323.8 (12.75)	141.3 (5.56)	203 (8.00)
3 x 1 1/4	88.9 (3.50)	42.2 (1.66)	89 (3.50)				
				14 x 12	355.6 (14.00)	323.8 (12.75)	330 (13.00)
3 1/2 x 3	101.6 (4.00)	88.9 (3.50)	102 (4.00)	14 x 10	355.6 (14.00)	273.0 (10.75)	330 (13.00)
3 1/2 x 2 1/2	101.6 (4.00)	73.0 (2.88)	102 (4.00)	14 x 8	355.6 (14.00)	219.1 (8.62)	330 (13.00)
3 1/2 x 2	101.6 (4.00)	60.3 (2.38)	102 (4.00)	14 x 6	355.6 (14.00)	168.3 (6.62)	330 (13.00)
3 1/2 x 1 1/2	101.6 (4.00)	48.3 (1.90)	102 (4.00)				
3 1/2 x 1 1/4	101.6 (4.00)	42.2 (1.66)	102 (4.00)	16 x 14	406.4 (16.00)	355.6 (14.00)	356 (14.00)
				16 x 12	406.4 (16.00)	323.8 (12.75)	356 (14.00)
4 x 3 1/2	114.3 (4.50)	101.6 (4.00)	102 (4.00)	16 x 10	406.4 (16.00)	273.0 (10.75)	356 (14.00)
4 x 3	114.3 (4.50)	88.9 (3.50)	102 (4.00)	16 x 8	406.4 (16.00)	219.1 (8.62)	356 (14.00)
4 x 2 1/2	114.3 (4.50)	73.0 (2.88)	102 (4.00)				
4 x 2	114.3 (4.50)	60.3 (2.38)	102 (4.00)	18 x 16	457 (18.00)	406.4 (16.00)	381 (15.00)
4 x 1 1/2	114.3 (4.50)	48.3 (1.90)	102 (4.00)	18 x 14	457 (18.00)	355.6 (14.00)	381 (15.00)

# Dimensions of Reducers

Nominal Pipe Size (NPS)	Outside Diameter at Bevel, mm (in.)		End-to-End, H, mm (in.)	Nominal Pipe Size (NPS)	Outside Diameter at Bevel, mm (in.)		End-to-End, H, mm (in.)
	Large End	Small End			Large End	Small End	
18 × 12	457 (18.00)	323.8 (12.75)	381 (15.00)				
18 × 10	457 (18.00)	273.0 (10.75)	381 (15.00)	36 × 34	914 (36.00)	864 (34.00)	610 (24.00)
				36 × 32	914 (36.00)	813 (32.00)	610 (24.00)
20 × 18	508 (20.00)	457.0 (18.00)	508 (20.00)	36 × 30	914 (36.00)	762 (30.00)	610 (24.00)
20 × 16	508 (20.00)	406.4 (16.00)	508 (20.00)	36 × 26	914 (36.00)	660 (26.00)	610 (24.00)
20 × 14	508 (20.00)	355.6 (14.00)	508 (20.00)	36 × 24	914 (36.00)	610 (24.00)	610 (24.00)
20 × 12	508 (20.00)	323.8 (12.75)	508 (20.00)				
				38 × 36	965 (38.00)	914 (36.00)	610 (24.00)
22 × 20	559 (22.00)	508.0 (20.00)	508 (20.00)	38 × 34	965 (38.00)	864 (34.00)	610 (24.00)
22 × 18	559 (22.00)	457.0 (18.00)	508 (20.00)	38 × 32	965 (38.00)	813 (32.00)	610 (24.00)
22 × 16	559 (22.00)	406.4 (16.00)	508 (20.00)	38 × 30	965 (38.00)	762 (30.00)	610 (24.00)
22 × 14	559 (22.00)	355.4 (14.00)	508 (20.00)	38 × 28	965 (38.00)	711 (28.00)	610 (24.00)
				38 × 26	965 (38.00)	660 (26.00)	610 (24.00)
24 × 22	610 (24.00)	559.0 (22.00)	508 (20.00)				
24 × 20	610 (24.00)	508.0 (20.00)	508 (20.00)	40 × 38	1 016 (40.00)	965 (38.00)	610 (24.00)
24 × 18	610 (24.00)	457.0 (18.00)	508 (20.00)	40 × 36	1 016 (40.00)	914 (36.00)	610 (24.00)
24 × 16	610 (24.00)	406.4 (16.00)	508 (20.00)	40 × 34	1 016 (40.00)	864 (34.00)	610 (24.00)
				40 × 32	1 016 (40.00)	813 (32.00)	610 (24.00)
26 × 24	660 (26.00)	610.0 (24.00)	610 (24.00)	40 × 30	1 016 (40.00)	762 (30.00)	610 (24.00)
26 × 22	660 (26.00)	559.0 (22.00)	610 (24.00)				
26 × 20	660 (26.00)	508.0 (20.00)	610 (24.00)	42 × 40	1 067 (42.00)	1 016 (40.00)	610 (24.00)
26 × 18	660 (26.00)	457.0 (18.00)	610 (24.00)	42 × 38	1 067 (42.00)	965 (38.00)	610 (24.00)
				42 × 36	1 067 (42.00)	914 (36.00)	610 (24.00)
28 × 26	711 (28.00)	660.0 (26.00)	610 (24.00)	42 × 34	1 067 (42.00)	864 (34.00)	610 (24.00)
28 × 24	711 (28.00)	610.0 (24.00)	610 (24.00)	42 × 32	1 067 (42.00)	813 (32.00)	610 (24.00)
28 × 20	711 (28.00)	508.0 (20.00)	610 (24.00)	42 × 30	1 067 (42.00)	762 (30.00)	610 (24.00)
28 × 18	711 (28.00)	457.0 (18.00)	610 (24.00)				
				44 × 42	1 118 (44.00)	1 067 (42.00)	610 (24.00)
30 × 28	762 (30.00)	711.0 (28.00)	610 (24.00)	44 × 40	1 118 (44.00)	1 016 (40.00)	610 (24.00)
30 × 26	762 (30.00)	660.0 (26.00)	610 (24.00)	44 × 38	1 118 (44.00)	965 (38.00)	610 (24.00)
30 × 24	762 (30.00)	610.0 (24.00)	610 (24.00)	44 × 36	1 118 (44.00)	914 (36.00)	610 (24.00)
30 × 20	762 (30.00)	508.0 (20.00)	610 (24.00)				
				46 × 44	1 168 (46.00)	1 118 (44.00)	711 (28.00)
32 × 30	813 (32.00)	762.0 (30.00)	610 (24.00)	46 × 42	1 168 (46.00)	1 067 (42.00)	711 (28.00)
32 × 28	813 (32.00)	711.0 (28.00)	610 (24.00)	46 × 40	1 168 (46.00)	1 016 (40.00)	711 (28.00)
32 × 26	813 (32.00)	660.0 (26.00)	610 (24.00)	46 × 38	1 168 (46.00)	965 (38.00)	711 (28.00)
32 × 24	813 (32.00)	610.0 (24.00)	610 (24.00)				
				48 × 46	1 219 (48.00)	1 168 (46.00)	711 (28.00)
34 × 32	864 (34.00)	813.0 (32.00)	610 (24.00)	48 × 44	1 219 (48.00)	1 118 (44.00)	711 (28.00)
34 × 30	864 (34.00)	762.0 (30.00)	610 (24.00)	48 × 42	1 219 (48.00)	1 067 (42.00)	711 (28.00)
34 × 26	864 (34.00)	660.0 (26.00)	610 (24.00)	48 × 40	1 219 (48.00)	1 016 (40.00)	711 (28.00)
34 × 24	864 (34.00)	610.0 (24.00)	610 (24.00)				