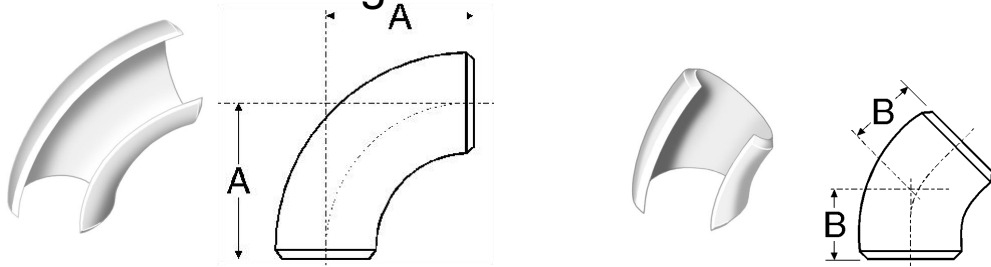


90° and 45° Long Radius Elbows - ANSI B16.9



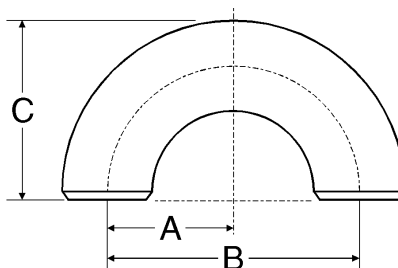
Dimensions (based on ASME/ANSI B16.9) and example weights for long radius elbows

| Nominal Pipe Size | Common | | 90° Elbow | | | 45° Elbow | | |
|-------------------|-------------|------|-------------|------|----------------------|-------------|-----|----------------------|
| | OD at Bevel | | Dimension A | | 40S/STD ¹ | Dimension B | | 40S/STD ¹ |
| | in | mm | in | mm | kg/piece | in | mm | kg/piece |
| 1/2 | 0.84 | 21 | 1.50 | 38 | 0.08 | 0.62 | 16 | 0.04 |
| 3/4 | 1.05 | 27 | 1.50 | 38 | 0.10 | 0.75 | 19 | 0.05 |
| 1 | 1.32 | 33 | 1.50 | 38 | 0.15 | 0.88 | 22 | 0.07 |
| 1 1/4 | 1.66 | 42 | 1.88 | 48 | 0.25 | 1.00 | 25 | 0.12 |
| 1 1/2 | 1.90 | 48 | 2.25 | 57 | 0.36 | 1.12 | 29 | 0.18 |
| 2 | 2.38 | 60 | 3.00 | 76 | 0.65 | 1.38 | 35 | 0.32 |
| 2 1/2 | 2.88 | 73 | 3.75 | 95 | 1.29 | 1.75 | 44 | 0.64 |
| 3 | 3.50 | 89 | 4.50 | 114 | 2.02 | 2.00 | 51 | 1.01 |
| 3 1/2 | 4.00 | 102 | 5.25 | 133 | 2.83 | 2.25 | 57 | 1.41 |
| 4 | 4.50 | 114 | 6.00 | 152 | 3.84 | 2.50 | 64 | 1.92 |
| 5 | 5.56 | 141 | 7.50 | 190 | 6.51 | 3.12 | 79 | 3.25 |
| 6 | 6.62 | 168 | 9.00 | 229 | 10.1 | 3.75 | 95 | 5.05 |
| 8 | 8.62 | 219 | 12.00 | 305 | 20.3 | 5.00 | 127 | 10.15 |
| 10 | 10.75 | 273 | 15.00 | 381 | 36.0 | 6.25 | 159 | 18.0 |
| 12 | 12.75 | 324 | 18.00 | 457 | 53.0 | 7.50 | 190 | 26.5 |
| 14 | 14.00 | 356 | 21.00 | 533 | 68.0 | 8.75 | 222 | 34.0 |
| 16 | 16.00 | 406 | 24.00 | 610 | 89.2 | 10.00 | 254 | 44.6 |
| 18 | 18.00 | 457 | 27.00 | 686 | 113.0 | 11.25 | 286 | 56.5 |
| 20 | 20.00 | 508 | 30.00 | 762 | 140.0 | 12.50 | 318 | 70.0 |
| 22 | 22.00 | 559 | 33.00 | 838 | 170.0 | 13.50 | 343 | 85.0 |
| 24 | 24.00 | 610 | 36.00 | 914 | 202.0 | 15.00 | 381 | 101.0 |
| 26 | 26.00 | 660 | 39.00 | 991 | 241.4 | 16.00 | 406 | 120.5 |
| 28 | 28.00 | 711 | 42.00 | 1067 | 279.9 | 17.25 | 438 | 140.0 |
| 30 | 30.00 | 762 | 45.00 | 1143 | 321.3 | 18.50 | 470 | 160.5 |
| 32 | 32.00 | 813 | 48.00 | 1219 | 365.6 | 19.75 | 502 | 183.0 |
| 34 | 34.00 | 864 | 51.00 | 1295 | - | 21.00 | 533 | - |
| 36 | 36.00 | 914 | 54.00 | 1372 | 462.7 | 22.25 | 565 | 231.0 |
| 38 | 38.00 | 965 | 57.00 | 1448 | - | 23.62 | 600 | - |
| 40 | 40.00 | 1016 | 60.00 | 1524 | 571.3 | 24.88 | 632 | 285.5 |
| 42 | 42.00 | 1067 | 63.00 | 1600 | 629.8 | 26.00 | 660 | 315.0 |
| 44 | 44.00 | 1118 | 66.00 | 1676 | - | 27.38 | 695 | - |
| 46 | 46.00 | 1168 | 69.00 | 1753 | - | 28.62 | 727 | - |
| 48 | 48.00 | 1219 | 72.00 | 1829 | - | 29.88 | 759 | - |

Notes

- Dimensions quoted in mm are 'Nominal' values from B16.9 (i.e. rounded equivalents of the inch dimensions). Refer to ASME/ANSI B16.9 for additional 'Max' and 'Min' metric dimensions.
- For tolerances see page 6-2.
- 1 Weights are approximate and based on manufacturers' data (where available) for Schedule 40S/Standard fittings. See page 6-6 for further information.

180° Long Radius Returns - ANSI B16.9



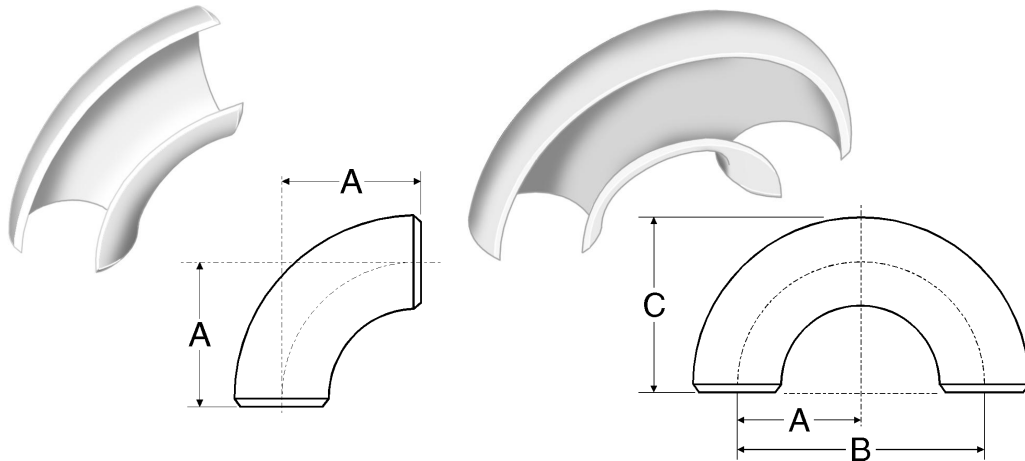
Dimensions (based on ASME/ANSI B16.9) and example weights for long radius returns

| Nominal Pipe Size | Common | | 180° Return | | | | 40S/STD ¹ |
|-------------------|--|-----|-------------|------|-------------|------|----------------------|
| | OD at Bevel | | Dimension B | | Dimension C | | |
| | in | mm | in | mm | in | mm | kg/piece |
| 1/2 | 0.84 | 21 | 3.00 | 76 | 1.88 | 48 | 0.16 |
| 3/4 ¹ | 1.05 | 27 | 3.00 | 76 | 2.00 | 51 | 0.20 |
| 1 | 1.32 | 33 | 3.00 | 76 | 2.19 | 56 | 0.30 |
| 1 1/4 | 1.66 | 42 | 3.75 | 95 | 2.75 | 70 | 0.50 |
| 1 1/2 | 1.90 | 48 | 4.50 | 114 | 3.25 | 83 | 0.72 |
| 2 | 2.38 | 60 | 6.00 | 152 | 4.19 | 106 | 1.30 |
| 2 1/2 | 2.88 | 73 | 7.50 | 191 | 5.19 | 132 | 2.58 |
| 3 | 3.50 | 89 | 9.00 | 229 | 6.25 | 159 | 4.04 |
| 3 1/2 | 4.00 | 102 | 10.50 | 267 | 7.25 | 184 | 5.66 |
| 4 | 4.50 | 114 | 12.00 | 305 | 8.25 | 210 | 7.68 |
| 5 | 5.56 | 141 | 15.00 | 381 | 10.31 | 262 | 13.02 |
| 6 | 6.62 | 168 | 18.00 | 457 | 12.31 | 313 | 20.02 |
| 8 | 8.62 | 219 | 24.00 | 610 | 16.31 | 414 | 40.6 |
| 10 | 10.75 | 273 | 30.00 | 762 | 20.38 | 518 | 72.0 |
| 12 | 12.75 | 324 | 36.00 | 914 | 24.38 | 619 | 106.0 |
| 14 | 14.00 | 356 | 42.00 | 1067 | 28.00 | 711 | 136.0 |
| 16 | 16.00 | 406 | 48.00 | 1219 | 32.00 | 813 | 178.4 |
| 18 | 18.00 | 457 | 54.00 | 1372 | 36.00 | 914 | 226.0 |
| 20 | 20.00 | 508 | 60.00 | 1524 | 40.00 | 1016 | 280.0 |
| 22 | 22.00 | 559 | 66.00 | 1676 | 44.00 | 1118 | 340.0 |
| 24 | 24.00 | 610 | 72.00 | 1829 | 48.00 | 1219 | 404.0 |
| 26-48 | Long radius returns are not specified for these pipe sizes | | | | | | |

Notes

- For NPS 3/4 the fitting may be furnished with the following dimensions:
B = 2.25 in (57 mm nominal)
C = 1.69 in (43 mm nominal)
- Dimension A = One half of dimension B
- Dimensions quoted in mm are 'Nominal' values from B16.9 (i.e. rounded equivalents of the inch dimensions).
- 1 Weights are approximate and based on manufacturers' data (where available) for Schedule 40S/Standard fittings. See page 6-6 for further information.

Short Radius Elbows and Returns - ANSI B16.28



Dimensions (based on ASME/ANSI B16.28) and example weights for short radius elbows and returns

| Nominal Pipe Size | Common | | 90° Elbow | | | 180° Return | | | | |
|----------------------|---|-----|-----------|-----|----------------------|-------------|------|-----------|-----|----------------------|
| | OD | | Dimension | | 40S/STD ¹ | Dimension | | Dimension | | 40S/STD ¹ |
| | in | mm | A | A | kg/piece | B | B | C | C | kg/piece |
| 1 | 1.32 | 33 | 1.00 | 25 | 0.12 | 2.00 | 51 | 1.62 | 41 | 0.24 |
| 1 1/4 | 1.66 | 42 | 1.25 | 32 | 0.20 | 2.50 | 64 | 2.06 | 52 | 0.40 |
| 1 1/2 | 1.90 | 48 | 1.50 | 38 | 0.29 | 3.00 | 76 | 2.44 | 62 | 0.48 |
| 2 | 2.38 | 60 | 2.00 | 51 | 0.51 | 4.00 | 102 | 3.19 | 81 | 1.02 |
| 2 1/2 | 2.88 | 73 | 2.50 | 64 | 1.02 | 5.00 | 127 | 3.94 | 100 | 2.04 |
| 3 | 3.50 | 89 | 3.00 | 76 | 1.50 | 6.00 | 152 | 4.75 | 121 | 3.00 |
| 3 1/2 | 4.00 | 102 | 3.50 | 89 | 2.06 | 7.00 | 178 | 5.50 | 140 | 4.12 |
| 4 | 4.50 | 114 | 4.00 | 102 | 3.12 | 8.00 | 203 | 6.25 | 159 | 6.24 |
| 5 | 5.56 | 141 | 5.00 | 127 | 5.28 | 10.00 | 254 | 7.75 | 197 | 10.6 |
| 6 | 6.62 | 168 | 6.00 | 152 | 7.94 | 12.00 | 305 | 9.31 | 237 | 15.9 |
| 8 | 8.62 | 219 | 8.00 | 203 | 17.1 | 16.00 | 406 | 12.31 | 313 | 35.5 |
| 10 | 10.75 | 273 | 10.00 | 254 | 28.6 | 20.00 | 508 | 15.38 | 391 | 57.2 |
| 12 | 12.75 | 324 | 12.00 | 305 | 36.3 | 24.00 | 610 | 18.38 | 467 | 72.6 |
| 14 | 14.00 | 356 | 14.00 | 356 | 45.8 | 28.00 | 711 | 21.00 | 533 | 91.6 |
| 16 | 16.00 | 406 | 16.00 | 406 | 59.4 | 32.00 | 813 | 24.00 | 610 | 118.8 |
| 18 | 18.00 | 457 | 18.00 | 457 | 79.4 | 36.00 | 914 | 27.00 | 686 | 158.8 |
| 20 | 20.00 | 508 | 20.00 | 508 | 97.5 | 40.00 | 1016 | 30.00 | 762 | 195 |
| 22 | 22.00 | 559 | 22.00 | 559 | - | 44.00 | 1118 | 33.00 | 838 | - |
| 24 | 24.00 | 610 | 24.00 | 610 | 137 | 48.00 | 1219 | 36.00 | 914 | 274 |
| 26 - 48 | Short radius returns are not specified for these pipe sizes | | | | | | | | | |

Notes

- Dimension A = One half of dimension B
- Dimensions quoted in mm are 'Nominal' values from B16.28 (i.e. rounded equivalents of the inch dimensions).
- 1 Weights are approximate and based on manufacturers' data (where available) for Schedule 40S/Standard fittings. See page 6-6 for further information.