

ENGINEERING INFORMATION - CIRCUMFERENCES AND AREAS OF CIRCLES



19.3

Shaded area indicates change Rev. 4-99

Measurements in inches

| Dia. | Circum. | Area | Dia. | Circum. | Area | Dia. | Circum. | Area | Dia. | Circum. | Area |
|-------|----------|---------|-------|---------|---------|------|---------|--------|------|---------|--------|
| 1/64 | .04909 | .00019 | 3/4 | 11.781 | 11.045 | 1/4 | 38.485 | 117.86 | 1/2 | 98.960 | 779.31 |
| 1/32 | .09818 | .00077 | 13/16 | 11.977 | 11.416 | 1/2 | 39.270 | 122.72 | 3/4 | 99.746 | 791.73 |
| 3/64 | .14726 | .00173 | 7/8 | 12.174 | 11.793 | 3/4 | 40.055 | 127.68 | 32 | 100.531 | 804.25 |
| 1/16 | .19635 | .00307 | 15/16 | 12.370 | 12.177 | 13 | 40.841 | 132.73 | 1/4 | 101.316 | 816.86 |
| 3/32 | .29452 | .00690 | 4 | 12.566 | 12.566 | 1/4 | 41.626 | 137.89 | 1/2 | 102.102 | 829.58 |
| 1/8 | .39270 | .01227 | 1/16 | 12.763 | 12.962 | 1/2 | 42.412 | 143.14 | 3/4 | 102.887 | 842.39 |
| 5/32 | .49087 | .01917 | 1/8 | 12.959 | 13.364 | 3/4 | 43.197 | 148.49 | 33 | 103.673 | 855.30 |
| 3/16 | .58905 | .02761 | 3/16 | 13.155 | 13.772 | 14 | 43.982 | 153.94 | 1/4 | 104.458 | 868.31 |
| 7/32 | .68722 | .03758 | 1/4 | 13.352 | 14.186 | 1/4 | 44.768 | 159.48 | 1/2 | 105.243 | 881.41 |
| 1/4 | .78540 | .04909 | 5/16 | 13.548 | 14.607 | 1/2 | 45.553 | 165.13 | 3/4 | 106.029 | 894.62 |
| 9/32 | .88357 | .06213 | 3/8 | 13.744 | 15.033 | 3/4 | 46.338 | 170.87 | 34 | 106.814 | 907.92 |
| 5/16 | .98175 | .07670 | 7/16 | 13.941 | 15.466 | 15 | 47.124 | 176.71 | 1/4 | 107.600 | 921.32 |
| 11/32 | 1.07990 | .09281 | 1/2 | 14.137 | 15.904 | 1/4 | 47.909 | 182.65 | 1/2 | 108.385 | 934.82 |
| 3/8 | 1.17810 | .11045 | 9/16 | 14.334 | 16.349 | 1/2 | 48.695 | 188.69 | 3/4 | 109.170 | 948.42 |
| 13/32 | 1.27630 | .12962 | 5/8 | 14.530 | 16.800 | 3/4 | 49.480 | 194.83 | 35 | 109.956 | 962.11 |
| 7/16 | 1.37440 | .15033 | 11/16 | 14.726 | 17.257 | 16 | 50.265 | 201.06 | 1/4 | 110.741 | 975.91 |
| 15/32 | 1.47260 | .17257 | 3/4 | 14.923 | 17.721 | 1/4 | 51.051 | 207.39 | 1/2 | 111.527 | 989.80 |
| 1/2 | 1.57080 | .19635 | 13/16 | 15.119 | 18.190 | 1/2 | 51.836 | 213.82 | 3/4 | 112.312 | 1003.8 |
| 17/32 | 1.66900 | .22166 | 7/8 | 15.315 | 18.665 | 3/4 | 52.622 | 220.35 | 36 | 113.097 | 1017.9 |
| 9/16 | 1.76710 | .24850 | 15/16 | 15.512 | 19.147 | 17 | 53.407 | 226.98 | 1/4 | 113.883 | 1032.1 |
| 19/32 | 1.86530 | .27688 | 5 | 15.708 | 19.635 | 1/4 | 54.192 | 233.71 | 1/2 | 114.668 | 1046.3 |
| 5/8 | 1.96350 | .30680 | 1/16 | 15.904 | 20.129 | 1/2 | 54.978 | 240.53 | 3/4 | 115.454 | 1060.7 |
| 21/32 | 2.06170 | .33824 | 1/8 | 16.101 | 20.629 | 3/4 | 55.763 | 247.45 | 37 | 116.239 | 1075.2 |
| 11/16 | 2.15980 | .37122 | 3/16 | 16.297 | 21.135 | 18 | 56.549 | 254.47 | 1/4 | 117.024 | 1089.8 |
| 23/32 | 2.25800 | .40574 | 1/4 | 16.493 | 21.648 | 1/4 | 57.334 | 261.59 | 1/2 | 117.810 | 1104.5 |
| 3/4 | 2.35620 | .44179 | 5/16 | 16.690 | 22.166 | 1/2 | 58.119 | 268.80 | 3/4 | 118.596 | 1119.2 |
| 25/32 | 2.45440 | .47937 | 3/8 | 16.886 | 22.691 | 3/4 | 58.905 | 276.12 | 38 | 119.381 | 1134.1 |
| 13/16 | 2.55250 | .51849 | 7/16 | 17.082 | 23.221 | 19 | 59.690 | 283.53 | 1/4 | 120.166 | 1149.1 |
| 27/32 | 2.65070 | .55914 | 1/2 | 17.279 | 23.758 | 1/4 | 60.476 | 291.04 | 1/2 | 120.951 | 1164.2 |
| 7/8 | 2.74890 | .60132 | 9/16 | 17.475 | 24.301 | 1/2 | 61.261 | 298.65 | 3/4 | 121.737 | 1179.3 |
| 29/32 | 2.84710 | .64504 | 5/8 | 17.671 | 24.850 | 3/4 | 62.046 | 306.35 | 39 | 122.522 | 1194.6 |
| 15/16 | 2.94520 | .69029 | 11/16 | 17.868 | 25.406 | 20 | 62.832 | 314.16 | 1/4 | 123.308 | 1210.0 |
| 31/32 | 3.04340 | .73708 | 3/4 | 18.064 | 25.967 | 1/4 | 63.617 | 322.06 | 1/2 | 124.093 | 1225.4 |
| 1 | 3.14160 | .78540 | 13/16 | 18.261 | 26.535 | 1/2 | 64.403 | 330.06 | 3/4 | 124.878 | 1241.0 |
| 1/16 | 3.33790 | .88660 | 7/8 | 18.457 | 27.109 | 3/4 | 65.188 | 338.16 | 40 | 125.664 | 1256.6 |
| 1/8 | 3.53430 | .99400 | 15/16 | 18.653 | 27.688 | 21 | 65.973 | 346.36 | 1/4 | 126.449 | 1272.4 |
| 3/16 | 3.73060 | 1.10750 | 6 | 18.850 | 28.274 | 1/4 | 66.759 | 354.66 | 1/2 | 127.235 | 1288.2 |
| 1/4 | 3.92700 | 1.22720 | 1/8 | 19.242 | 29.465 | 1/2 | 67.544 | 363.05 | 3/4 | 128.020 | 1304.2 |
| 5/16 | 4.12330 | 1.35300 | 1/4 | 19.635 | 30.680 | 3/4 | 68.330 | 371.54 | 41 | 128.805 | 1320.3 |
| 3/8 | 4.31970 | 1.48490 | 3/8 | 20.028 | 31.919 | 22 | 69.115 | 380.13 | 1/4 | 129.591 | 1336.4 |
| 7/16 | 4.51600 | 1.62300 | 1/2 | 20.420 | 33.183 | 1/4 | 69.900 | 388.82 | 1/2 | 130.376 | 1352.7 |
| 1/2 | 4.71240 | 1.76710 | 5/8 | 20.813 | 34.472 | 1/2 | 70.686 | 397.61 | 3/4 | 131.161 | 1369.0 |
| 9/16 | 4.90870 | 1.91750 | 3/4 | 21.206 | 35.785 | 3/4 | 71.471 | 406.49 | 42 | 131.947 | 1385.4 |
| 5/8 | 5.10510 | 2.07390 | 7/8 | 21.598 | 37.122 | 23 | 72.257 | 415.48 | 1/4 | 132.732 | 1402.0 |
| 11/16 | 5.30140 | 2.23650 | 7 | 21.991 | 38.485 | 1/4 | 73.042 | 424.56 | 1/2 | 133.518 | 1418.6 |
| 3/4 | 5.49780 | 2.40530 | 1/8 | 22.384 | 39.871 | 1/2 | 73.827 | 433.74 | 3/4 | 134.303 | 1435.4 |
| 13/16 | 5.69410 | 2.58020 | 1/4 | 22.776 | 41.282 | 3/4 | 74.613 | 443.01 | 43 | 135.088 | 1452.2 |
| 7/8 | 5.89050 | 2.76120 | 3/8 | 23.169 | 42.718 | 24 | 75.398 | 452.39 | 1/4 | 135.874 | 1469.1 |
| 15/16 | 6.08680 | 2.94830 | 1/2 | 23.562 | 44.179 | 1/4 | 76.184 | 461.86 | 1/2 | 136.659 | 1486.2 |
| 2 | 6.28320 | 3.14160 | 5/8 | 23.955 | 45.664 | 1/2 | 76.969 | 471.44 | 3/4 | 137.445 | 1503.3 |
| 1/16 | 6.47950 | 3.34100 | 3/4 | 24.347 | 47.173 | 3/4 | 77.754 | 481.11 | 44 | 138.230 | 1520.5 |
| 1/8 | 6.67590 | 3.54660 | 7/8 | 24.740 | 48.707 | 25 | 78.540 | 490.87 | 1/4 | 139.015 | 1537.9 |
| 3/16 | 6.87220 | 3.75830 | 8 | 25.133 | 50.265 | 1/4 | 79.325 | 500.74 | 1/2 | 139.801 | 1555.3 |
| 1/4 | 7.06860 | 3.97610 | 1/8 | 25.525 | 51.849 | 1/2 | 80.111 | 510.71 | 3/4 | 140.586 | 1572.8 |
| 5/16 | 7.26490 | 4.20000 | 1/4 | 25.918 | 53.456 | 3/4 | 80.896 | 520.77 | 45 | 141.372 | 1590.4 |
| 3/8 | 7.46130 | 4.43010 | 3/8 | 26.311 | 55.088 | 26 | 81.681 | 530.93 | 1/4 | 142.157 | 1608.2 |
| 7/16 | 7.65760 | 4.66640 | 1/2 | 26.704 | 56.745 | 1/4 | 82.467 | 541.19 | 1/2 | 142.942 | 1626.0 |
| 1/2 | 7.85400 | 4.90870 | 5/8 | 27.096 | 58.426 | 1/2 | 83.252 | 551.55 | 3/4 | 143.728 | 1643.9 |
| 9/16 | 8.05030 | 5.15720 | 3/4 | 27.489 | 60.132 | 3/4 | 84.038 | 562.00 | 46 | 144.513 | 1661.9 |
| 5/8 | 8.24670 | 5.41190 | 7/8 | 27.882 | 61.862 | 27 | 84.823 | 572.56 | 1/4 | 145.299 | 1680.0 |
| 11/16 | 8.44300 | 5.67270 | 9 | 28.274 | 63.617 | 1/4 | 85.608 | 583.21 | 1/2 | 146.084 | 1698.2 |
| 3/4 | 8.63940 | 5.93960 | 1/8 | 28.667 | 65.397 | 1/2 | 86.394 | 593.96 | 3/4 | 146.869 | 1716.5 |
| 13/16 | 8.83570 | 6.21260 | 1/4 | 29.060 | 67.201 | 3/4 | 87.179 | 604.81 | 47 | 147.655 | 1734.9 |
| 7/8 | 9.03210 | 6.49180 | 3/8 | 29.452 | 69.029 | 28 | 87.965 | 615.75 | 1/4 | 148.440 | 1753.5 |
| 15/16 | 9.22840 | 6.77710 | 1/2 | 29.845 | 70.882 | 1/4 | 88.750 | 626.80 | 1/2 | 149.226 | 1772.1 |
| 3 | 9.42480 | 7.06860 | 5/8 | 30.238 | 72.760 | 1/2 | 89.535 | 637.94 | 3/4 | 150.011 | 1790.8 |
| 1/16 | 9.62110 | 7.36620 | 3/4 | 30.631 | 74.662 | 3/4 | 90.321 | 649.18 | 48 | 150.796 | 1809.6 |
| 1/8 | 9.81750 | 7.66990 | 7/8 | 31.023 | 76.589 | 29 | 91.106 | 660.52 | 1/4 | 151.582 | 1828.5 |
| 3/16 | 10.01400 | 7.97980 | 10 | 31.416 | 78.540 | 1/4 | 91.892 | 671.96 | 1/2 | 152.367 | 1847.5 |
| 1/4 | 10.21000 | 8.29580 | 1/4 | 32.201 | 82.516 | 1/2 | 92.677 | 683.49 | 3/4 | 153.153 | 1866.5 |
| 5/16 | 10.40700 | 8.61790 | 1/2 | 32.987 | 86.590 | 3/4 | 93.462 | 695.13 | 49 | 153.938 | 1885.7 |
| 3/8 | 10.60300 | 8.94620 | 3/4 | 33.772 | 90.763 | 30 | 94.248 | 706.86 | 1/4 | 154.723 | 1905.0 |
| 7/16 | 10.79900 | 9.28060 | 11 | 34.558 | 95.033 | 1/4 | 95.033 | 718.69 | 1/2 | 155.509 | 1924.4 |
| 1/2 | 10.99600 | 9.62110 | 1/4 | 35.343 | 99.402 | 1/2 | 95.819 | 730.62 | 3/4 | 156.294 | 1943.9 |
| 9/16 | 11.19200 | 9.96780 | 1/2 | 36.128 | 103.870 | 3/4 | 96.604 | 742.64 | 50 | 157.080 | 1963.5 |