

ENGINEERING INFORMATION - STEEL PIPE DATA



19.9

Shaded area indicates change Rev. 4-99

Commercial wrought steel pipe data

Note 1: The letters “s”, “x”, and “xx” in the column of Schedule Numbers indicate Standard, Extra Strong, and Double Extra Strong Pipe, respectively.

Note 2: The values shown in square feet for the Transverse Internal Area also represent the volume in cubic feet per foot of pipe length.

| Nominal pipe size | Outside diameter (D) | Schedule number | Wall thickness (t) | Inside diameter (d) | Area of metal (a) | Transverse internal area | | Moment of inertia (I) | Weight of pipe | Weight of Water | External surface | Section modulus |
|-------------------|----------------------|-----------------|--------------------|---------------------|-------------------|--------------------------|--------------------------|----------------------------|-----------------|-------------------------|-------------------------|-------------------|
| inches | inches | (see note 1) | inches | inches | square inches | square inches | square feet (see note 2) | inch ⁴ to power | pounds per foot | pounds per foot of pipe | sq. ft per foot of pipe | ($\frac{I}{D}$) |
| 1/8 | 0.405 | 40s | .068 | .269 | .0720 | .0568 | .00040 | .00106 | .244 | .025 | .106 | .00523 |
| | | 80x | .095 | .215 | .0925 | .0364 | .00025 | .00122 | .314 | .016 | .106 | .00602 |
| 1/4 | 0.540 | 40s | .088 | .364 | .1250 | .1041 | .00072 | .00331 | .424 | .045 | .141 | .01227 |
| | | 80x | .119 | .302 | .1574 | .0716 | .00050 | .00377 | .535 | .031 | .141 | .01395 |
| 3/8 | 0.675 | 40s | .091 | .493 | .1670 | .1910 | .00133 | .00729 | .567 | .083 | .178 | .02160 |
| | | 80x | .126 | .423 | .2173 | .1405 | .00098 | .00862 | .738 | .061 | .178 | .02554 |
| 1/2 | 0.840 | 40s | .109 | .622 | .2503 | .3040 | .00211 | .01709 | .850 | .132 | .220 | .04780 |
| | | 80x | .147 | .546 | .3200 | .2340 | .00163 | .02008 | 1.087 | .102 | .220 | .04780 |
| | | 160 | .187 | .466 | .3836 | .1706 | .00118 | .02212 | 1.300 | .074 | .220 | .05267 |
| | | ...xx | .294 | .252 | .5043 | .0500 | .00035 | .02420 | 1.714 | .022 | .220 | .05762 |
| 3/4 | 1.050 | 40s | .113 | .824 | .3326 | .5330 | .00371 | .03704 | 1.130 | .231 | .275 | .07055 |
| | | 80x | .154 | .742 | .4335 | .4330 | .00300 | .04479 | 1.473 | .188 | .275 | .08531 |
| | | 160 | .218 | .614 | .5698 | .2961 | .00206 | .05269 | 1.940 | .128 | .275 | .10036 |
| | | ...xx | .308 | .434 | .7180 | .1480 | .00103 | .05792 | 2.440 | .064 | .275 | .11032 |
| 1 | 1.315 | 40s | .133 | 1.049 | .4939 | .8640 | .00600 | .08734 | 1.678 | .375 | .344 | .13280 |
| | | 80x | .179 | .957 | .6388 | .7190 | .00499 | .10560 | 2.171 | .312 | .344 | .16060 |
| | | 160 | .250 | .815 | .8365 | .5217 | .00362 | .12510 | 2.840 | .230 | .344 | .19030 |
| | | ...xx | .358 | .599 | 1.0760 | .2820 | .00196 | .14050 | 3.659 | .122 | .344 | .21360 |
| 1-1/4 | 1.660 | 40s | .140 | 1.380 | .6685 | 1.4950 | .01040 | .19470 | 2.272 | .649 | .435 | .23460 |
| | | 80x | .191 | 1.278 | .8815 | 1.2830 | .00891 | .24180 | 2.996 | .555 | .435 | .29130 |
| | | 160 | .250 | 1.160 | 1.1070 | 1.0570 | .00734 | .28390 | 3.764 | .458 | .435 | .34210 |
| | | ...xx | .382 | .896 | 1.5340 | .6300 | .00438 | .34110 | 5.214 | .273 | .435 | .41100 |
| 1-1/2 | 1.900 | 40s | .145 | 1.610 | .7995 | 2.0360 | .01414 | .30990 | 2.717 | .882 | .497 | .32620 |
| | | 80x | .200 | 1.500 | 1.0680 | 1.7670 | .01225 | .39120 | 3.631 | .765 | .497 | .41180 |
| | | 160 | .281 | 1.338 | 1.4290 | 1.4060 | .00976 | .48240 | 4.862 | .608 | .497 | .50780 |
| | | ...xx | .400 | 1.100 | 1.8850 | .9500 | .00660 | .56780 | 6.408 | .420 | .497 | .59770 |
| 2 | 2.375 | 40s | .154 | 2.067 | 1.0750 | 3.3550 | .02330 | .66570 | 3.652 | 1.450 | .622 | .56060 |
| | | 80x | .218 | 1.939 | 1.4770 | 2.9530 | .02050 | .86790 | 5.022 | 1.280 | .622 | .73090 |
| | | 160 | .343 | 1.689 | 2.1900 | 2.2410 | .01556 | 1.16200 | 7.440 | .970 | .622 | .97900 |
| | | ...xx | .436 | 1.503 | 2.6560 | 1.7740 | .01232 | 1.31100 | 9.029 | .770 | .622 | 1.10400 |
| 2-1/2 | 2.875 | 40s | .203 | 2.469 | 1.7040 | 4.7880 | .03322 | 1.53000 | 5.790 | 2.070 | .753 | 1.06400 |
| | | 80x | .276 | 2.323 | 2.2540 | 4.2380 | .02942 | 1.92400 | 7.660 | 1.870 | .753 | 1.33900 |
| | | 160 | .375 | 2.125 | 2.9450 | 3.5460 | .02463 | 2.35300 | 10.010 | 1.540 | .753 | 1.63800 |
| | | ...xx | .552 | 1.771 | 4.0280 | 2.4640 | .01710 | 2.87100 | 13.700 | 1.070 | .753 | 1.99700 |
| 3 | 3.500 | 40s | .216 | 3.068 | 2.2280 | 7.3930 | .05130 | 3.01700 | 7.580 | 3.200 | .916 | 1.72400 |
| | | 80x | .300 | 2.900 | 3.0160 | 6.6050 | .04587 | 3.89400 | 10.250 | 2.860 | .916 | 2.22500 |
| | | 160 | .437 | 2.626 | 4.2050 | 5.4160 | .03761 | 5.03200 | 14.320 | 2.350 | .916 | 2.87600 |
| | | ...xx | .600 | 2.300 | 5.4660 | 4.1550 | .02885 | 5.99300 | 18.580 | 1.800 | .916 | 3.42400 |
| 3-1/2 | 4.000 | 40s | .226 | 3.548 | 2.6800 | 9.8860 | .06870 | 4.78800 | 9.110 | 4.290 | 1.047 | 2.39400 |
| | | 80x | .318 | 3.364 | 3.6780 | 8.8880 | .06170 | 6.28000 | 12.510 | 3.840 | 1.047 | 3.14000 |
| 4 | 4.500 | 40s | .237 | 4.026 | 3.1740 | 12.7300 | .08840 | 7.23300 | 10.790 | 5.500 | 1.178 | 3.21400 |
| | | 80x | .337 | 3.826 | 4.4070 | 11.5000 | .07986 | 9.61000 | 14.980 | 4.980 | 1.178 | 4.27100 |
| | | 120 | .437 | 3.626 | 5.5780 | 10.3300 | .07170 | 11.65000 | 19.000 | 4.470 | 1.178 | 5.17800 |
| | | 160 | .531 | 3.438 | 6.6210 | 9.2800 | .06450 | 13.27000 | 22.510 | 4.020 | 1.178 | 5.89800 |
| 5 | 5.563 | ...xx | .674 | 3.152 | 8.1010 | 7.8000 | .05420 | 15.28000 | 27.540 | 3.380 | 1.178 | 6.79100 |
| | | 40s | .258 | 5.047 | 4.3000 | 20.0100 | .13900 | 15.16000 | 14.620 | 8.670 | 1.456 | 5.45100 |
| | | 80x | .375 | 4.813 | 6.1120 | 18.1900 | .12630 | 20.67000 | 20.780 | 7.880 | 1.456 | 7.43100 |
| | | 120 | .500 | 4.563 | 7.9530 | 16.3500 | .11360 | 25.73000 | 27.100 | 7.090 | 1.456 | 9.25000 |
| 6 | 6.625 | 160 | .625 | 4.313 | 9.6960 | 14.6100 | .10150 | 30.03000 | 32.960 | 6.330 | 1.456 | 10.79600 |
| | | ...xx | .750 | 4.063 | 11.3400 | 12.9700 | .09010 | 33.63000 | 38.550 | 5.610 | 1.456 | 12.09000 |
| | | 40s | .280 | 6.065 | 5.5810 | 28.8900 | .20060 | 28.14000 | 18.970 | 12.510 | 1.734 | 8.50000 |
| | | 80x | .432 | 5.761 | 8.4050 | 26.0700 | .18100 | 40.49000 | 28.570 | 11.290 | 1.734 | 12.22000 |
| 8 | 8.625 | 120 | .562 | 5.501 | 10.7000 | 23.7700 | .16500 | 49.61000 | 36.400 | 10.300 | 1.734 | 14.98000 |
| | | 160 | .718 | 5.189 | 13.3200 | 21.1500 | .14690 | 58.97000 | 45.300 | 9.160 | 1.734 | 17.81000 |
| | | ...xx | .864 | 4.897 | 15.6400 | 18.8400 | .13080 | 66.33000 | 53.160 | 8.160 | 1.734 | 20.02000 |
| | | 20 | .250 | 8.125 | 6.5700 | 51.8500 | .36010 | 57.72000 | 22.360 | 22.470 | 2.258 | 13.39000 |
| 8 | 8.625 | 30 | .277 | 8.071 | 7.2600 | 51.1600 | .35530 | 63.35000 | 24.700 | 22.170 | 2.258 | 14.69000 |
| | | 40s | .322 | 7.981 | 8.4000 | 50.0300 | .34740 | 72.49000 | 28.550 | 21.700 | 2.258 | 16.81000 |
| | | 60 | .406 | 7.813 | 10.4800 | 47.9400 | .33290 | 88.73000 | 35.640 | 20.770 | 2.258 | 20.58000 |
| | | 80x | .500 | 7.625 | 12.7600 | 45.6600 | .31710 | 105.70000 | 43.390 | 19.780 | 2.258 | 24.51000 |
| | | 100 | .593 | 7.439 | 14.9600 | 43.4600 | .30180 | 121.30000 | 50.870 | 18.830 | 2.258 | 28.14000 |
| | | 120 | .718 | 7.189 | 17.8400 | 40.5900 | .28190 | 140.50000 | 60.630 | 17.590 | 2.258 | 32.58000 |
| | | 140 | .812 | 7.001 | 19.9300 | 38.5000 | .26730 | 153.70000 | 67.760 | 16.680 | 2.258 | 35.65000 |
| | | ...xx | .875 | 6.875 | 21.3000 | 37.1200 | .25780 | 162.00000 | 72.420 | 16.100 | 2.258 | 37.56000 |
| 160 | .906 | 6.813 | 21.9700 | 36.4600 | .25320 | 165.90000 | 74.690 | 15.800 | 2.258 | 38.48000 | | |