

MECHANICAL TUBE SPECIFICATIONS

| ROUND (in inches) Nominal decimal for ordering gauge | | | | | | | | | | | | | | | | | | |
|--|--------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-----------|-----------|-----------|-----------|-----------|
| Outside Diameter | Equiv. Sizes | 22 .028 | 20 .035 | 19 .042 | 18 .049 | 17 .058 | 16 .065 | 15 .072 | 14 .083 | 13 .095 | 12 .109 | 11 .120 | 10 .134 | 9 .148 | 8 .165 | 7 .180 | 6 .203 | 5 .220 |
| .500 | | .1413 | .1740 | .2056 | .2362 | .2740 | .3023 | | | | | | | | | | | |
| .625 | | .1787 | .2207 | .2618 | .3017 | .3516 | .3891 | | | | | | | | | | | |
| .706 | 1/2" EMT | .2029 | .2511 | .2981 | .3441 | .4018 | .4454 | | | | | | | | | | | |
| .750 | | .2161 | .2675 | .3179 | .3672 | .4291 | .4760 | .5218 | | | | | | | | | | |
| .815 | 1/2" IMC | .2356 | .2918 | .3471 | .4012 | .4694 | .5211 | .5719 | .6495 | | | | | | | | | |
| .870 | | .2520 | .3124 | .3718 | .4300 | .5035 | .5594 | .6142 | | | | | | | | | | |
| .875 | | .2535 | .3143 | .3740 | .4327 | .5066 | .5628 | .6181 | | | | | | | | | | |
| .922 | 3/4" EMT | .2676 | .3319 | .3951 | .4573 | .5357 | .5955 | .6542 | .7444 | | | | | | | | | |
| .980 | | .2850 | .3535 | .4211 | .4877 | .5717 | .6358 | .6989 | .7959 | | | | | | | | | |
| .995 | | .2894 | .3592 | .4279 | .4955 | .5810 | .6462 | .7104 | .8092 | .9140 | | | | | | | | |
| 1.000 | | .2909 | .3611 | .4301 | .4981 | .5841 | .6497 | .7143 | .8136 | | | | | | | | | |
| 1.029 | | .2996 | .3719 | .4431 | .5133 | .6020 | .6698 | .7366 | .8394 | .9485 | | | | | | | | |
| 1.050 | 3/4" NPS | .3059 | .3798 | .4526 | .5243 | .6151 | .6844 | .7527 | .8580 | .9699 | | | | | | | | |
| 1.125 | | .3284 | .4078 | .4862 | .5636 | .6616 | .7365 | .8105 | .9245 | | | | | | | | | |
| 1.163 | 1" EMT | | .4220 | .5033 | .5835 | .6851 | .7629 | .8397 | .9583 | 1.0846 | | | | | | | | |
| 1.187 | | | .5141 | .5961 | .7000 | .7796 | | | | | | | | | | | | |
| 1.250 | | | .4546 | .5424 | .6291 | .7391 | .8234 | .9067 | 1.0354 | 1.1730 | 1.3295 | 1.4496 | 1.5986 | | | | | |
| 1.290 | 1" IMC | | .5603 | .6500 | .7639 | .8512 | .9375 | 1.0709 | 1.2136 | 1.3761 | 1.5009 | 1.6559 | | | | | | |
| 1.315 | 1" NPS | | .4789 | .5716 | .6631 | .7794 | .8686 | .9567 | 1.0931 | 1.2390 | 1.4052 | 1.5329 | 1.6917 | | | | | |
| 1.375 | | | .5014 | .5985 | .6946 | .8166 | .9103 | 1.0029 | 1.1464 | | | | | | | | | |
| 1.500 | | | .5481 | .6546 | .7600 | .8941 | .9971 | 1.0991 | 1.2573 | 1.4268 | 1.6208 | 1.7703 | 1.9567 | | | | | |
| 1.510 | 1 1/4" EMT | | .5519 | .6591 | .7653 | .9003 | 1.0041 | 1.1068 | 1.2661 | 1.4370 | 1.6325 | 1.7831 | 1.9711 | | | | | |
| 1.625 | | | .5949 | .7107 | .8255 | .9716 | 1.0840 | 1.1953 | 1.3682 | 1.5538 | 1.7665 | 1.9306 | 2.1358 | | | | | |
| 1.638 | 1 1/4" IMC | | | .7166 | .8323 | .9796 | 1.0930 | 1.2053 | 1.3797 | 1.5670 | 1.7816 | 1.9473 | 2.1544 | | | | | |
| 1.660 | 1 1/4" NPS | .4885 | .6080 | .7264 | .8439 | .9933 | 1.1083 | 1.2223 | 1.3992 | 1.5893 | 1.8072 | 1.9755 | 2.1859 | | | | | |
| 1.690 | | | | | | | 1.1291 | 1.2453 | 1.4258 | 1.6198 | 1.8422 | 2.0140 | 2.2289 | | | | | |
| 1.740 | 1 1/2" EMT | | .6379 | .7624 | .8858 | 1.0429 | 1.1639 | 1.2838 | 1.4702 | 1.6706 | 1.9005 | 2.0781 | 2.3005 | | | | | |
| 1.750 | | | .6417 | .7669 | .8910 | 1.0491 | 1.1708 | 1.2915 | 1.4791 | | | | | | | | | |
| 1.764 | | | .6469 | .7731 | .8983 | 1.0578 | 1.1806 | 1.3023 | 1.4915 | | | | | | | | | |
| 1.875 | | | | | | | 1.2577 | 1.3877 | 1.5900 | 1.8077 | 2.0578 | 2.2513 | 2.4939 | | | | | |
| 1.883 | 1 1/2" IMC | | | .8266 | .9607 | 1.1315 | 1.2632 | 1.3939 | 1.5971 | 1.8158 | 2.0671 | 2.2616 | 2.5054 | 2.7450 | | | | |
| 1.900 | 1 1/2" NPS | | .6978 | .8342 | .9696 | 1.1421 | 1.2750 | 1.4070 | 1.6122 | 1.8331 | 2.0869 | 2.2834 | 2.5297 | 2.7719 | 3.0603 | | | |
| 1.968 | 50MM | | .7232 | .8647 | 1.0052 | 1.1842 | 1.3223 | | | | | | | | | | | |
| 2.000 | | | .7352 | .8791 | 1.0220 | 1.2041 | 1.3445 | 1.4839 | 1.7009 | 1.9346 | 2.2034 | 2.4117 | 2.6730 | 2.9301 | | | | |
| 2.197 | 2" EMT | | | .9676 | 1.1251 | 1.3262 | 1.4814 | 1.6356 | 1.8757 | 2.1347 | 2.4330 | 2.6644 | 2.9552 | 3.2418 | | | | |
| 2.360 | 2" IMC | | | | 1.2105 | 1.4273 | 1.5947 | 1.7610 | 2.0203 | 2.3002 | 2.6229 | 2.8735 | 3.1887 | 3.4996 | | | | |
| 2.375 | 2" NPS | | | 1.0475 | 1.2184 | 1.4366 | 1.6051 | 1.7726 | 2.0336 | 2.3155 | 2.6404 | 2.8927 | 3.2101 | 3.5234 | 3.8981 | 4.2236 | 4.7134 | 5.0681 |
| 2.500 | | | | | 1.2839 | 1.5141 | 1.6920 | 1.8688 | 2.1445 | 2.4424 | 2.7860 | 3.0531 | 3.3892 | 3.7211 | 4.1186 | | | |
| 2.750 | | | | | | | | 2.0612 | 2.3663 | 2.6963 | 3.0773 | 3.3738 | 3.7473 | 4.1167 | | | | |
| 2.857 | 2 1/2" IMC | | | | | | | 2.1436 | 2.4613 | 2.8049 | 3.2020 | 3.5110 | 3.9006 | 4.2860 | 4.7483 | 5.1511 | | |
| 2.875 | 2 1/2" NPS | | | | | | | 2.1574 | 2.4773 | 2.8232 | 3.2230 | 3.5341 | 3.9264 | 4.3144 | 4.7800 | 5.1857 | 5.7984 | 6.2440 |
| 3.000 | | | | | | | | 2.2536 | 2.5882 | 2.9502 | 3.3686 | 3.6945 | 4.1054 | 4.5122 | 5.0005 | 5.4262 | 6.0697 | 6.5380 |
| 3.476 | 3" IMC | | | | | | | 2.6200 | 3.0105 | 3.4336 | 3.9233 | 4.3051 | 4.7873 | 5.2653 | 5.8401 | 6.3422 | 7.1026 | 7.6575 |
| 3.500 | 3" NPS | | | | | | 2.3868 | 2.6385 | 3.0318 | 3.4579 | 3.9512 | 4.3359 | 4.8217 | 5.3033 | 5.8824 | 6.3883 | 7.1547 | 7.7139 |
| 3.971 | 3 1/2" IMC | | | | | | | | 3.4497 | 3.9363 | 4.5000 | 4.9401 | 5.4963 | 6.0484 | 6.7132 | 7.2946 | 8.1768 | 8.8216 |
| 4.000 | 3 1/2" NPS | | | | | | | 3.0233 | 3.4754 | 3.9657 | 4.5338 | 4.9773 | 5.5379 | 6.0943 | 6.7644 | 7.3504 | 8.2398 | 8.8898 |
| 4.466 | 4" IMC | | | | | | | 3.3820 | 3.8889 | 4.4390 | 5.0768 | 5.5750 | 6.2054 | 6.8316 | 7.5863 | 8.2471 | 9.2510 | 9.9857 |
| 4.500 | 4" NPS | | | | | | | 3.4081 | 3.9191 | 4.4735 | 5.1164 | 5.6187 | 6.2541 | 6.8854 | 7.6463 | 8.3125 | 9.3248 | 10.0657 |
| 5.000 | 4 1/2" NPS | | | | | | | | | 4.9813 | 5.6990 | 6.2601 | 6.9704 | 7.6764 | 8.5282 | 9.2746 | | |

Typical Mechanical Properties Achieved For Galvanized Tube Products:
 40,000 psi yield/45,000 psi tensile
 45,000 psi yield/48,000 psi tensile
 50,000 psi yield/55,000 psi tensile
Higher mechanical properties available on request



16100 S. Lathrop Ave., Harvey, IL 60426
800-882-5543 - Mechanical Sales Department
www.alliedtube.com/mechanical

SHAPES *Square tubing is available as round-to-square, weld-in-corner, or both.

| | Size | RTS* | WIC* | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | |
|-----------------|-------------|------|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | | | | .035 | .042 | .049 | .058 | .065 | .072 | .083 | .095 | .109 | .120 | .134 | .148 | .165 | .180 | .203 | .220 | .238 | |
| SQUARE | .625 | X | | .2810 | .3333 | .3841 | .4476 | .4954 | | | | | | | | | | | | | |
| | .709 | X | | .3211 | .3813 | .4401 | | | | | | | | | | | | | | | |
| | .750 | X | | .3406 | .4047 | .4675 | .5463 | .6060 | .6644 | .7535 | | | | | | | | | | | |
| | .813 | X | | .3706 | .4407 | .5095 | .5960 | .6617 | .7261 | .8246 | | | | | | | | | | | |
| | .875 | X | | .4001 | .4762 | .5509 | .6449 | .7166 | .7869 | .8947 | | | | | | | | | | | |
| | 1.000 | X | | .4597 | .5476 | .6342 | .7436 | .8271 | .9094 | 1.0359 | | | | | | | | | | | |
| | 1.250 | X | X | .5788 | .6905 | .8009 | .9409 | 1.0483 | 1.1543 | 1.3183 | 1.4934 | 1.6927 | | | | | | | | | |
| | 1.500 | X | X | .6979 | .8334 | .9677 | 1.1383 | 1.2695 | 1.3993 | 1.6007 | 1.8166 | 2.0635 | 2.2538 | | | | | | | | |
| | 1.625 | | X | | | | | | 1.3801 | 1.5218 | 1.7419 | 1.9782 | 2.2490 | 2.4580 | | | | | | | |
| | 1.750 | | X | | | | | | | 1.6443 | 1.8831 | 2.1398 | 2.4344 | 2.6621 | | | | | | | |
| | 1.875 | X | X | | | | | | | | | 2.6198 | | | | | | | | | |
| | 2.000 | X | X | | | | | | 1.7118 | 1.8893 | 2.1655 | 2.4631 | 2.8053 | 3.0704 | 3.4031 | 3.7304 | 4.1208 | 4.4586 | 4.9848 | 5.3297 | 5.7074 |
| | 2.188 | | X | | | | | | | | | | | 3.7451 | | | | | | | |
| | 2.250 | X | X | | | | | | | 2.1343 | 2.4479 | 2.7863 | 3.1762 | 3.4787 | 3.8590 | 4.2340 | 4.6822 | | | | |
| | 2.500 | X | X | | | | | | | 2.3792 | 2.7303 | 3.1095 | 3.5470 | 3.8870 | 4.3150 | 4.7376 | 5.2436 | | | | |
| | 3.000 | X | | | | | | | | | 3.2951 | 3.7560 | 4.2888 | 4.7036 | 5.2268 | 5.7447 | 6.3664 | | | | |
| 3.150 | X | | | 1.7766 | 2.0680 | 2.4408 | 2.7291 | 3.0162 | 3.4646 | 3.9500 | 4.5113 | 4.9486 | 5.5004 | | | | | | | | |
| 4.000 | X | | | | | | | | | 4.4246 | 5.0490 | 5.7723 | 6.3368 | 7.0506 | 7.7590 | 8.6121 | 9.3582 | | | | |
| FLAT SIDED OVAL | .750x1.000 | | | .3319 | .3951 | .4573 | .5357 | .5955 | .6542 | | | | | | | | | | | | |
| | 1.500x1.000 | | | .4789 | .5716 | .6631 | .7794 | .8686 | .9567 | | | | | | | | | | | | |
| | 1.750x1.125 | | | .5519 | .6591 | .7653 | .9003 | 1.0041 | 1.1068 | 1.2661 | | | | | | | | | | | |
| | 2.000x1.094 | | | .6080 | .7264 | .8439 | .9933 | 1.1083 | 1.2223 | | | | | | | | | | | | |
| | 2.250x1.313 | | | .6978 | .8342 | .9696 | 1.1421 | 1.2750 | 1.4070 | 1.6122 | 1.8331 | | | | | | | | | | |
| | 2.375x1.625 | | | | | 1.1251 | 1.3262 | 1.4814 | | | | | | | | | | | | | |
| | 2.750x1.630 | | | | | 1.2184 | 1.4366 | 1.6051 | 1.7726 | 2.0336 | | | | | | | | | | | |
| 3.000x5.301 | | | | | | | | | | | 4.4134 | 5.0476 | 5.5429 | 6.1696 | 6.7922 | 7.5426 | 8.1996 | 9.1976 | | | |
| RECTANGLE | .625x1.125 | | | .4001 | .4762 | .5509 | .6449 | .7166 | | | | | | | | | | | | | |
| | .750x1.500 | | | .5192 | .6191 | .7176 | .8423 | .9377 | | | | | | | | | | | | | |
| | .875x1.917 | | | .6483 | .7740 | .8983 | | | | | | | | | | | | | | | |
| | 1.000x1.750 | | | .6383 | .7620 | .8843 | 1.0396 | 1.1589 | | | | | | | | | | | | | |
| | 1.000x2.000 | | | .6979 | .8334 | .9677 | 1.1383 | 1.2695 | 1.3993 | 1.6007 | | | | | | | | | | | |
| | 1.500x2.000 | | | .8169 | .9763 | 1.1344 | 1.3356 | 1.4906 | | | | | | | | | | | | | |
| | 1.500x2.500 | | | | | 1.3011 | 1.5330 | 1.7118 | 1.8893 | 2.1655 | 2.4631 | 2.8053 | 3.0704 | | | | | | | | |
| | 1.500x3.000 | | | | | | 1.9330 | 2.1343 | 2.4479 | 2.7863 | 3.1762 | 3.4787 | 3.8590 | | | | | | | | |
| | 1.500x3.500 | | | | | 1.6345 | 1.9277 | 2.1541 | 2.3792 | 2.7303 | 3.1095 | 3.5470 | 3.8870 | 4.3150 | | | | | | | |
| | 1.625x3.000 | | | | | | | 1.9883 | 2.1955 | 2.5185 | 2.8671 | 3.2689 | 3.5808 | | | | | | | | |
| | 2.000x3.000 | | | | | | | 2.1541 | 2.3792 | 2.7303 | 3.1095 | 3.5470 | 3.8870 | 4.3150 | 4.7376 | 5.2436 | 5.6835 | 6.3462 | 6.8268 | 7.3270 | |
| | 2.000x4.000 | | | | | | | | | 3.2951 | 3.7560 | 4.2888 | 4.7036 | 5.2268 | 5.7447 | 6.3664 | | | | | |
| | 2.000x5.000 | | | | | | | | | 3.8599 | 4.4025 | 5.0305 | 5.5202 | 6.1387 | 6.7519 | 7.4892 | | | | | |
| | 2.000x6.000 | | | | | | | | | 4.4248 | 5.0490 | 5.7723 | 6.3368 | 7.0506 | 7.7590 | 8.6121 | | | | | |
| | 2.360x4.720 | | | | | | | | | | 4.4542 | 5.0899 | 5.5855 | 6.2117 | 6.8324 | | | | | | |
| 3.000x4.000 | | | | | | | | | | 4.4025 | 5.0305 | 5.5202 | 6.1387 | 6.7519 | 7.4892 | 8.1333 | | | | | |

CARBON STEEL CHEMICAL PROPERTIES:

| | 1008 Steel (16 gauge and lighter) | 1010 Steel (15 gauge and heavier) | 1015 Steel (15 gauge and heavier) | 1022 Steel (15 gauge and heavier) |
|-------------------|---|---|---|---|
| Carbon max. % | 0.10 | 0.13 | 0.18 | 0.23 |
| Manganese max. % | 0.50 | 0.60 | 0.60 | 1.00 |
| Phosphorus max. % | 0.030 | 0.030 | 0.030 | 0.030 |
| Sulphur max. % | 0.035 | 0.035 | 0.035 | 0.035 |

All steel tube products... are manufactured per ASTM-A500. Please inquire about our ability to meet ASTM-A513 and other tube specifications.

Other Specification Parameters

- **ID Flash:** Not to exceed wall thickness or 3/32", whichever is less. Please inquire about special ID control requirements.
- **Eddy Current Testing:** Available for select sizes.
- **Cut length:** All products will be shipped with a mill punch cut unless alternate end finish is specifically ordered.
- **Bending Radius (Minimum Centerline):**
-2 1/2 to 3 times the outside diameter (round).
-3 1/2 to 5 times the outside dimension (shapes).

TOLERANCES ACHIEVED:

| STANDARD O.D. TOLERANCES | | LENGTH TOLERANCES | |
|------------------------------|-----------|---|-----------|
| Round | Tolerance | Length | Tolerance |
| .500 thru 1.510 | ±.005 | Under 5' | ±1/16" |
| 1.625 thru 2.000 | ±.010 | 5' - 15' | ±1/8" |
| 2.197 thru 4.500 | ±.015 | 16' - 19' | ±1/4" |
| 5.000 | ±.020 | 20' - 40'*** | ±1/2" |
| Square and Rectangle | ±.010 | *Must be cut off-line. | |
| <i>Except:</i> | | Closer length tolerances available upon request. | |
| 1x1 & Smaller | ±.005 | | |
| 1.500 x 3.000 | ±.020 | | |
| 2.000 x 3.000 | ±.015 | | |
| 2.000 x 4.000 | ±.015 | ***sizes 2.875 - 5.000 can be run up to 40' long. | |
| 2.000 x 5.000 | ±.030 | | |
| 2.360 x 4.720 | ±.030 | | |
| 2.000 x 6.000 13ga & 14ga | ±.060 | | |
| 2.000 x 6.000 12ga & heavier | ±.040 | | |
| 3.000 x 3.000 | ±.015 | | |
| 3.000 x 4.000 | ±.030 | | |
| 4.000 x 4.000 | ±.020 | | |
| Oval Sizes | ±.015 | | |