



## ASTM A500 Structural Tubing Hollow Structural Sections



**C**ompare your Structural Tubing Needs to the large variety of sizes and shapes that Leavitt Tube has to offer.

Round? Square or rectangular? What size? What wall thickness? What length? How quickly do you need it? Match your Structural Tubing needs with Leavitt Tube Company's capabilities and you'll agree with customers everywhere . . . we're unsurpassed when it comes to supplying structural tubing. That's because we've led the way for more than 40 years in the quality manufacturing of structural tubing . . . from agri-business and commercial construction applications to boat trailers and material handling equipment. We have the shapes, sizes and wall thicknesses you want most. We have standard-sized structural tubing available to fill your immediate requirements. If what we stock doesn't meet your needs, we can produce your custom order on one of our three structural tubing mills.

The Leavitt Tube Company produces Structural Tubing in rounds, with diameters of 2.875 to 9.625 ; in squares from 1.5 x 1.5 to 10 x 10 ; and in rectangles from 1 x 3 to 8 x 12 ; in wall thicknesses from 14 gauge (0.083 ) to 0.500 . It is supplied with superior surface cleanliness, thus permitting more efficient processing and fabrication. You can order our quality structural tubing with confidence knowing that it will always meet ASTM A500 standards. We also offer Flash Controlling when and where it is required. Structural Tubing is just one of many fine tubular products available from Leavitt Tube Company: "The Tube People," where we're making quality tubing for leading products used in homes, business and industry.



# ASTM A500 Structural Tubing

## Leavitt Tube Company puts extra quality into Structural Tubing

### Material

Prime hot rolled steel coils, purchased directly from mill sources are used by Leavitt Tube Company to manufacture Structural Tubing. In addition to the chemical requirements shown in the above table (top left of page), Leavitt Tube Company specifies limits on residual elements. This makes the steel that we purchase superior for Structural Tube production.

### Slitting

Slitting of our mill coils is achieved using our precision in-house slitting equipment. Coils are selected from our on-hand hot rolled steel inventory.

### Forming and Welding

The flat, slit coil is gradually and progressively formed into a round shape as it enters the welder. The steel edges are then joined by our electric resistance high frequency induction welding process to produce the highest quality weld.

### Sizing and Shaping

With our in-line continuous system, the welded tube then moves through a cooling section and then a set of sizing rolls which cold work it to the ordered diameter. For square or rectangular tubing, the sizing section is equipped with special rolls which progressively form the round tube into the desired shape.

### End Finishing and Cutting

Tubes are cut to any practical length up to a plant maximum of 80' by either flying saw-cut or punch cutting. Ends can be finished by dedimpling and/or deburring depending on size, gauge, and customer requirements.

### Quality Assurance

In addition to routine on-the-mill-inspection, our finished tubing is examined and tested in one of our three Quality Assurance Labs. A sample of each lot of tubing (tubes of the same size and thickness made from the same heat) is tested in-house for tensile requirements. These test results are the basis of the mill test report supplied to our customers.

## ASTM A500 TABLES

| CHEMICAL REQUIREMENTS                        |               |                  |
|--|---------------|------------------|
| Composition, Percent                         |               |                  |
| Element                                      | Heat Analysis | Product Analysis |
| Carbon, Max.                                 | 0.26          | 0.30             |
| Manganese, Max.                              | 1.35          | 1.40             |
| Phosphorus, Max.                             | 0.035         | 0.045            |
| Sulfur, Max.                                 | 0.035         | 0.045            |
| Copper, when copper steel is specified, Min. | 0.20          | 0.18             |

| ELONGATION              |                                      |         |
|-------------------------|--------------------------------------|---------|
| Wall Thickness in. (mm) | Elongation in 2 in. (50.8 mm) min. % |         |
|                         | Grade B                              | Grade C |
| 0.180 (4.57) and over   | 23                                   | 21      |
| 0.165 (4.19)            | 22                                   | 21      |
| 0.148 (3.76)            | 21                                   | 21      |
| 0.134 (3.40)            | 20                                   | 21      |
| 0.120 (3.05)            | 19.5                                 | 21      |
| 0.109 (2.77)            | 19                                   | *       |
| 0.095 (2.41)            | 18                                   | *       |
| 0.083 (2.11)            | 17                                   | *       |

\*Inquire With Us

| Specified Mill Length Tolerances for Round, Square and Rectangular Structural Tubing |                          |           |   |           |
|--|--------------------------|-----------|---|-----------|
|  | 22 ft. (6.7 m) and Under |           | Over 22 ft. to 44 ft. (6.7 to 13.4m), incl. |           |
|  | Over                     | Under     | Over  | Under     |
| Length Tolerance for specified mill length, in. (mm)                                 | 1/2 (12.7)               | 1/4 (6.4) | 3/4 (19.0)                                  | 1/4 (6.4) |

| Twist Tolerances for Square and Rectangular Structural Tubing |                             |                          |
|---|-----------------------------|--------------------------|
| Specified Dimension of Longest Side, in. (mm)                 | Maximum Twist in 3 ft., in. | Maximum Twist in 1 m, mm |
| 1/2 (38.1) and under  | 0.050                       | 1.39                     |
| Over 1/2 to 2 1/2 (38.1 to 63.5), incl.                       | 0.062                       | 1.72                     |
| Over 2 1/2 to 4 (63.5 to 101.6), incl.                        | 0.075                       | 2.09                     |
| Over 4 to 6 (101.6 to 152.4), incl.                           | 0.087                       | 2.42                     |
| Over 6 to 8 (152.4 to 203.2), incl.                           | 0.100                       | 2.78                     |
| Over 8 (203)  | 0.112                       | 3.11                     |

| Outside Dimension Tolerances for Square and Rectangular Structural Tubing |                                     |
|---|-------------------------------------|
| Largest Outside Dimension, across flats, in. (mm)                         | Tolerance,* plus and minus in. (mm) |
| 2 1/2 (63.5) and under  | 0.020 (0.51)                        |
| Over 2 1/2 to 3 1/2 (63.5 to 88.9), incl.                                 | 0.025 (0.64)                        |
| Over 3 1/2 to 5 1/2 (88.9 to 139.7), incl.                                | 0.030 (0.76)                        |
| Over 5 1/2 (139.7)  | ±1%                                 |

\*Tolerances include allowance for convexity or concavity. For rectangular sections, the tolerance calculated for the larger flat dimension shall also apply to the smaller flat dimension. This tolerance may be increased 50 percent when applied to the smaller dimension, if the ratio of cross-sectional dimensions is between 1.5 and 3, and 100 percent when the ratio exceeds 3.

| Outside Dimension Tolerances for Round Structural Tubing |                                  |
|--|----------------------------------|
| O.D. Range   | Tolerance in % of Specified O.D. |
| 1.900" and Smaller                                       | ± 0.5%                           |
| 2.000" and Larger  | ± 0.75%                          |

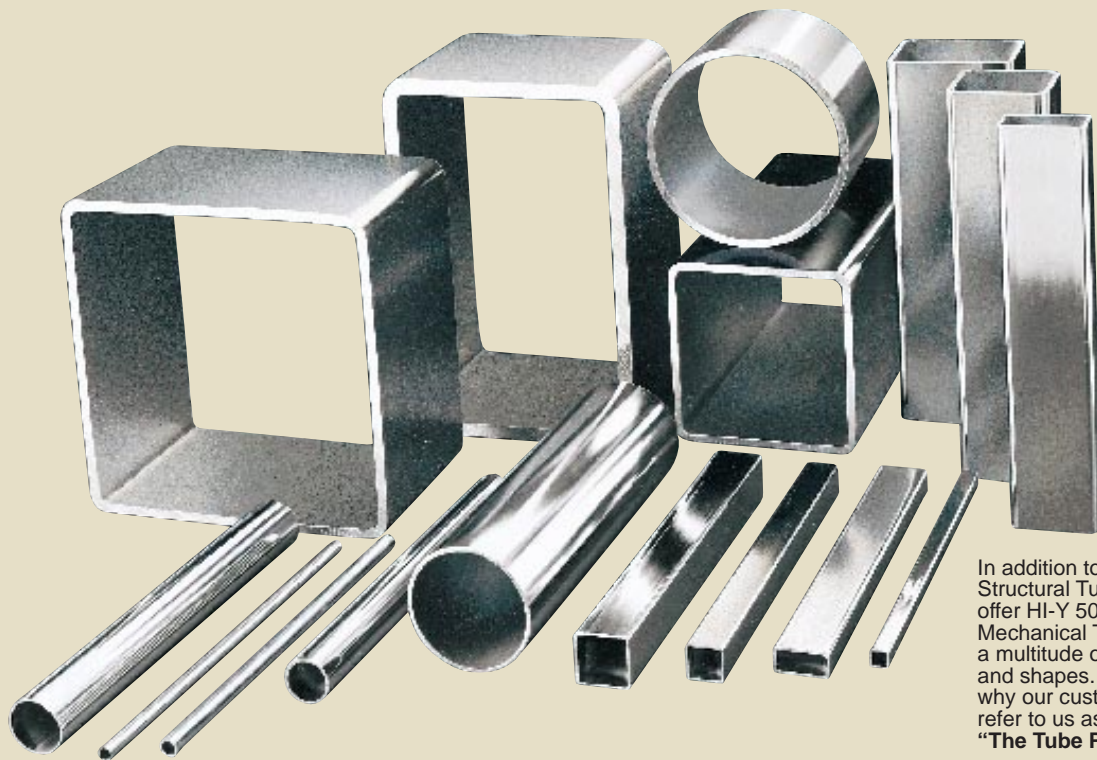
Note: Outside diameter measurements must be made at least 2" in from either end of the tubing.

|   |
|---|
| <b>CORNER RADIUS:</b><br>Sizes: Max. = 3 x nominal wall thickness                             |
| <b>STRAIGHTNESS:</b><br>Sizes: Max. = .025 per ft.  |
| <b>SQUARENESS OF SIDES:</b><br>Adjacent sides may deviate from 90° by a tolerance of ±2° max. |

Note: Must be measured at least 2" in from either end of the tubing.







In addition to Structural Tubing, we offer HI-Y 50 Pipe and Mechanical Tubing in a multitude of sizes and shapes. This is why our customers refer to us as - "The Tube People".

## Leavitt Tube Company — More facilities, capabilities and care

More product capacity ... our in-house steel coil and complete tubular products inventory ... our own slitting lines ... complete tube cutting and precision end finishing ... flash controlling ... our own interstate fleet of trucks ... huge in-plant shipping capacity ... on-line, real-time computerization ... a coast to coast sales network ... and the tubing industry's most modern metallurgical laboratories and quality assurance testing facilities.

In well-equipped, well-staffed labs, Leavitt Tube Company Structural Tubing is fully tested to meet ASTM A500 standards.

Care in manufacture, quality control, testing and even packaging is necessary to produce tubular products of the exact properties and dimensions needed to meet industry standards. Nobody knows this better than Leavitt Tube Company, because we are one of the largest producers of tubing, from 1/4" to 12-3/4" O.D., in the industry. Your decision to use our ASTM A500 Structural Tubing may depend on a number of variables, such as design, cost and application. We can help you make that decision by specifying the exact tubing to meet your requirements. Contact any of "The Tube People" at Leavitt Tube Company for more information.



**The Tube People**

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