

Stainless Steel Tubing Shipped from Inventory

Eagle stocks both seamless and welded stainless steel tubing for a variety of applications requiring strength, corrosion resistance and/or heat resistance. Typical end uses include mechanical applications, architectural, heat exchangers, condensers, medical and instrumentation.



Seamless Stainless Steel Tubing

Eagle seamless stainless steel tubing is ordered to specifications that make the product versatile for general usage and capable of ready certification for more stringent requirements. These specifications ensure that mechanical property tests have been made, such as tensile, yield and elongation, as well as flaring, flanging, hardness, flattening, and hydrostatic or nondestructive electrical tests, etc.

Machining allowances are shown in Table 1-1 below.

Welded Stainless Steel Tubing

Eagle welded stainless steel tubing is also ordered to meet high quality standards for a multitude of end uses. Welded sizes up to and including 5" O.D. are certified to ASTM A-249/A-269 (average wall). This specification ensures that tensile, yield and elongation tests have been performed, in addition to flaring, flattening, flanging, hardness and hydrostatic or non-destructive electrical tests.

Welded and Drawn Tubing – available in a size range of .202" O.D. to 8" O.D. and wall thickness of .015" to 1".

Cold-rolled strip in long coils is rolled to tube form, then passed under the welding head, which melts the edges of the open seam to form a fusion weld. No filler metal or flux is used, and the weld bead is of the same analysis as the parent metal. All tubing is carefully inspected for weld porosity or other damaging faults before being approved for redrawing.

The welded tubing is then cold drawn in exactly the same way as seamless. As it undergoes repeated cold drawing and annealing it takes on the appearance and qualities of seamless tubing. The weld can be detected only by etching or by microscopic examination. Cold work and annealing cause the weld area to recrystallize with ductility and mechanical properties that are equivalent to the parent metal.

Cold Worked Annealed Tubing – available in a size range of 5/8" O.D. to 4" O.D. and wall thickness of .035" to .120".

This latest manufacturing method starts in the same manner as welded and drawn tubing. Cold-rolled strip is rolled into tube form and fusion welded without the addition of filler metal. It is then selectively cold worked in the weld area and given a full solution anneal, causing this area to recrystallize. With this controlled processing, the strength, ductility and corrosion resistance of the weld area is equal or superior to the parent metal. This similarity between parent and weld zone structures gives cold worked, annealed tubing uniformity and makes it ideally suited for condenser tube and other heat exchanger applications.

Cold worked annealed tubing meets the requirements of ASTM A-249 and tolerances of ASTM A-450. Required minimum mechanical properties – 75,000 psi Tensile Strength, 30,000 psi Yield Strength, and 35% elongation – are met in both the base metal and the weld area.

**Table 1-1
Clean up or Machining Allowances
for Round Tubing***

For Machined Parts Size, Outside Diameter, Inches	Machining Allowances on Diameter, Inches	
	Outside Diameter	Inside Diameter
Less than 3/32	0.008	0.008
3/32 ≤ 3/16	0.012	0.012
2/32 ≤ 1/2	0.015	0.015
1/2 ≤ 1-1/2	0.020	0.020
1-1/2 ≤ 3	0.040	0.040
3 ≤ 5-1/2	0.060	0.060
5-1/2 ≤ 8	0.080	0.080

* Note: The allowances in this table are nominal allowances which have been satisfactorily used for many applications but are not necessarily adequate for all tubular products and methods of machining. For example, when magnetic particle inspection or aircraft quality requirements are involved, greater allowances than those shown in the foregoing table should be used.