



Standard Specification for Cold-Formed Welded and Seamless High-Strength, Low- Alloy Structural Tubing with Improved Atmospheric Corrosion Resistance¹

This standard is issued under the fixed designation A 847; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification covers cold-formed welded and seamless high-strength, low-alloy round, square, rectangular, or special shaped structural tubing for welded, riveted, or bolted construction of bridges and buildings and for general structural purposes where high strength and enhanced atmospheric corrosion resistance are required (Note 1). The atmospheric corrosion resistance of this steel in most environments is substantially better than carbon steel with or without copper addition (Note 2). When properly exposed to the atmosphere, this steel can be used bare (unpainted) for many applications. When this steel is used in welded construction, the welding procedure shall be suitable for the steel and the intended service.

1.2 This tubing is produced in welded sizes with a maximum periphery of 64 in. (1626 mm) and a maximum wall of 0.625 in. (15.88 mm), and in seamless with a maximum periphery of 32 in. (813 mm) and a maximum wall of 0.500 in. (12.70 mm). Tubing having other dimensions may be furnished provided such tubing complies with all other requirements of this specification.

1.3 The values stated in inch-pound units are to be regarded as the standard.

NOTE 1—Products manufactured to this specification may not be suitable for those applications where low temperature notch toughness properties may be important, such as dynamically loaded elements in welded structures, etc.

NOTE 2—For methods of estimating the atmospheric corrosion resistance of low alloy steels see Guide G 101 or actual data.

2. Referenced Documents

2.1 ASTM Standards:

A 370 Test Methods and Definitions for Mechanical Testing of Steel Products²

A 700 Practices for Packaging, Marking, and Loading Methods for Steel Products for Domestic Shipment³

¹ This specification is under the jurisdiction of ASTM Committee A-1 on Steel, Stainless Steel, and Related Alloys and is the direct responsibility of Subcommittee A01.09 on Carbon Steel Tubular Products.

Current edition approved June 10, 1999. Published July 1999. Originally published as A 847 – 85. Last previous edition A 847 – 99.

² Annual Book of ASTM Standards, Vol 01.03.

³ Annual Book of ASTM Standards, Vol 01.05.

A 751 Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products²

G 101 Guide For Estimating the Atmospheric Corrosion Resistance of Low-Alloy Steels⁴

3. Ordering Information

3.1 Orders for material under this specification should include the following, as required, to describe the desired material adequately:

3.1.1 ASTM specification number,

3.1.2 Quantity (feet, metres, or number of lengths),

3.1.3 Name of material (cold-formed tubing),

3.1.4 Method of manufacture (welded or seamless),

3.1.5 Size (outside diameter and nominal wall thickness for round tubing and the outside dimensions and nominal wall thickness for square and rectangular tubing),

3.1.6 Length (specific or random, see 10.3),

3.1.7 End condition (see 14.2),

3.1.8 Burr removal (see 14.2),

3.1.9 Certification (see Section 17),

3.1.10 End use, and

3.1.11 Special requirements.

4. Process

4.1 The steel shall be made by one or more of the following processes: open hearth, basic oxygen, or electric furnace.

5. Manufacture

5.1 The tubing shall be made by a welded or seamless process.

5.2 Welded tubing shall be made from flat-rolled steel by the electric-resistance welding or electric-fusion welding process. The longitudinal butt joint shall be welded across its thickness in such a manner that the structural design strength of the tubing section is assured.

5.2.1 Structural tubing welded by the electric-resistance method is normally furnished without removal of inside flash.

5.3 The tubing may be stress relieved or annealed, as is considered necessary by the tubing manufacturer, to conform to the requirements of this specification.

⁴ Annual Book of ASTM Standards, Vol 03.02.