



Standard Specification for Seamless Carbon Steel Boiler Tubes for High-Pressure Service¹

This standard is issued under the fixed designation A 192/A 192M; 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.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope *

1.1 This specification² covers minimum-wall-thickness, seamless carbon steel boiler and superheater tubes for high-pressure service.

1.2 The tubing sizes and thicknesses usually furnished to this specification are ½ in. to 7 in. [12.7 to 177.8 mm] outside diameter and 0.085 to 1.000 in. [2.2 to 25.4 mm], inclusive, in minimum wall thickness. Tubing having other dimensions may be furnished, provided such tubes comply with all other requirements of this specification.

1.3 Mechanical property requirements do not apply to tubing smaller than ⅛ in. [3.2 mm] inside diameter or 0.015 in. [0.4 mm] thickness.

1.4 The values stated in either inch-pound units or SI units are to be regarded separately as standard. Within the text, the SI units are shown in brackets. The values stated in each system are not exact equivalents; therefore, each system must be used independently of the other. Combining values from the two systems may result in nonconformance with the specification. The inch-pound units shall apply unless the “M” designation of this specification is specified in the order.

2. Referenced Documents

2.1 ASTM Standards:

A 450/A 450M Specification for General Requirements for Carbon, Ferritic Alloy, and Austenitic Alloy Steel Tubes³

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 Quantity (feet, metres, or number of lengths),
- 3.1.2 Name of material (seamless tubes),

- 3.1.3 Manufacture (hot-finished or cold-finished),
- 3.1.4 Size (outside diameter and minimum wall thickness),
- 3.1.5 Length (specific or random),
- 3.1.6 Optional requirements (Section 8),
- 3.1.7 Test report required (see section on Certification of Specification A 450/A 450M),
- 3.1.8 Specification designation, and
- 3.1.9 Special requirements.

4. General Requirements

4.1 Material furnished under this specification shall conform to the applicable requirements of the current edition of Specification A 450/A 450M, unless otherwise provided herein.

5. Manufacture

5.1 Tubes shall be made by the seamless process and shall be either hot-finished or cold-finished, as specified.

6. Heat Treatment

6.1 Hot-finished tubes need not be heat treated. Cold-finished tubes shall be heat treated after the final cold-finishing at a temperature of 1200°F [650°C] or higher.

7. Chemical Composition

7.1 The steel shall conform to the following requirements as to chemical composition:

Carbon, %	0.06–0.18
Manganese, %	0.27–0.63
Phosphorus, max, %	0.035
Sulfur, max, %	0.035
Silicon, max, %	0.25

7.2 Supplying an alloy grade of steel that specifically requires the addition of any element other than those listed in 7.1 is not permitted.

8. Product Analysis

8.1 When requested on the purchase order, a product analysis shall be made by the supplier from one tube per 100 pieces for sizes over 3 in. [76.2 mm] and one tube per 250 pieces for sizes 3 in. [76.2 mm] and under; or when tubes are identified by heat, one tube per heat shall be analyzed. The chemical

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² For ASME Boiler and Pressure Vessel Code applications see related Specification SA-192 in Section II of that Code.

³ Annual Book of ASTM Standards, Vol 01.01.

