

ASTM - A179/A179M

Standard Specification for Seamless Cold-Drawn Low-Carbon Steel Heat-Exchanger and Condenser Tubes

This specification covers minimum-wall-thickness, seamless cold-drawn low-carbon steel tubes for tubular heat exchangers, condensers, and similar heat transfer apparatus.

This specification covers tubes 1/8 to 3 in. [3.2 to 76.2 mm], inclusive, in outside diameter.

Note- (Tubing smaller in outside diameter and having a thinner wall than indicated in this specification is available. Mechanical property requirements do not apply to tubing smaller than 1/8 in. [3.2 mm] in outside diameter or with a wall thickness under 0.015 in. [0.4 mm].)

A. Heat Treatment

1. Tubes shall be heat treated after the final cold draw pass at a temperature of 1200°F [650°C] or higher.

B. Chemical Composition

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

Table 1

	Composition, %
Carbon	0.06-0.18
Manganese	0.27-0.63
Phosphorus, max	0.035
Sulfur, max	0.035

C. Tensile Requirements :-

The material shall conform to the requirements as to tensile properties given in Table 2.

D. Elongation :-

The minimum longitudinal elongation in 2 in. [50 mm] given in Table 2.

Table 2

Tensile strength, min, (MPa)	Yield strength, min, (MPa)	Elongation, min, %
325	180	35

E. Hardness Requirements

1. The tubes shall have a hardness number not exceeding 72 HRB.

F. Mechanical Tests Required 1.

Flattening Test.

2. Flaring Test.
3. Flange Test.
4. Hardness Test.
5. Hydrostatic Test.

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