



Standard Specification for Seamless and Welded Austenitic Stainless Steel Sanitary Tubing¹

This standard is issued under the fixed designation A 270; 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 specification covers grades of seamless and welded austenitic stainless steel sanitary tubing intended for use in the dairy and food industry and having special surface finishes. Pharmaceutical quality may be requested, as a supplementary requirement.

1.2 This specification covers tubes in sizes up to and including 12 in. (304.8 mm) in outside diameter.

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

1.4 Optional supplementary requirements are provided, and when one or more of these are desired, each shall be so stated in the order.

2. Referenced Documents

2.1 ASTM Standards:

A 262 Practices for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels²

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

A 480/A 480M Specification for General Requirements for Flat Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip²

A 967 Specification for Chemical Passivation Treatments for Stainless Steel Parts²

E 527 Practice for Numbering Metals and Alloys (UNS)³

2.2 ASME Standard:

B46.1 Surface Texture (Surface Roughness, Waviness, and Lay)⁴

2.3 Other Standard:

SAE J1086 Practice for Numbering Metals and Alloys (UNS)⁵

¹ This specification is under the jurisdiction of ASTM Committee A01 on Steel, Stainless Steel, and Related Alloys, and is the direct responsibility of Subcommittee A01.10 on Stainless and Alloy Steel Tubular Products.

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² Annual Book of ASTM Standards, Vol 01.03.

³ Annual Book of ASTM Standards, Vol 01.01.

⁴ Available from ASME International, Three Park Avenue, New York, NY 10016–5990.

⁵ Available from Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096.

3. Terminology

3.1 Definition:

3.1.1 *roughness average, Ra, n*—arithmetic average surface roughness normally reported in microinches or microns; a measurement of surface roughness usually performed by moving a stylus in a straight line along the surface, although other methods may be used.

4. Ordering Information

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

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

4.1.2 Name of material (seamless or welded tubes),

4.1.3 Size (outside diameter and average wall thickness),

4.1.4 Length (specific or random),

4.1.5 Surface finish (Section 14),

4.1.6 Optional requirements (product analysis, see Section 9; hydrostatic or nondestructive electric test, see Section 11).

4.1.7 Test report required (Certification Section of Specification A 450/A 450M),

4.1.8 Specification designation,

4.1.9 Special requirements, and

4.2 Any supplementary requirements.

5. General Requirements

5.1 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.

6. Manufacture

6.1 The tubes shall be made by the seamless or welded process.

6.2 At the manufacturer's option, tubing may be furnished either hot finished or cold finished.

7. Heat Treatment

7.1 All material shall be furnished in the heat-treated condition. The heat treatment procedure, except for N08926 and N08367, shall consist of heating the material to a minimum temperature of 1900°F (1040°C) and quenching in water or