Designation: A 581/A581M – 95b (Reapproved 2000)

Standard Specification for Free-Machining Stainless Steel Wire and Wire Rods[1]

This standard is issued under the fixed designation A 581/A581M; 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 cold-finished wire and hot-finished wire rods in coils. Wire rods are a semi-finished product primarily for the manufacture of wire. Wire includes rounds, squares, hexagons and special shapes in the more commonly used types of stainless free-machining steels designed especially for optimum machinability and for general corrosion and high temperature service.

NOTE 1—For wire other than those of the free-machining types, see Specification A 580/A 580M.

1.2 The values stated in either inch-pound units or SI (metric) units are to be regarded separately as standards: within the text and tables, 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.

1.3 Unless the order specifies the applicable "M" specification designation, the material shall be furnished to the inch-pound units.

2. Referenced Documents

2.1 *ASTM Standards:*

A 555/A555M Specification for General Requirements for Stainless Steel Wire and Wire Rods[2]

A 580/A580M Specification for Stainless Steel Wire[2]

A 751 Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products[2]

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

2.2 *SAE Standard:*

J 1086 Practice for Numbering Metals and Alloys (UNS)[4]

3. Ordering Information

3.1 It is the responsibility of the purchaser to specify all requirements that are necessary for material ordered under this specification. Such requirements may include, but are not limited to, the following:

3.1.1 Quantity (weight),

3.1.2 Name of material (stainless steel),

3.1.3 Condition (see Section 5),

3.1.4 Finish (see Section 7),

3.1.5 Applicable dimensions including size, thickness, width, and length or coil diameter (inside, or outside diameter), and coil weights,

3.1.6 Cross section (round, square, etc.),

3.1.7 Type or UNS designation (Table 1),

3.1.8 ASTM designation (Specification A 581/A 581M) and date of issue, and

3.1.9 Exceptions to the specification or special requirements.

NOTE 2—A typical ordering description is as follows: 5000 lb [2000 kg] stainless steel wire, annealed, ¼in. [6.5 mm] round, coils, Type 303, ASTM Specification A 581/A 581M dated . End use: machined valve parts.

4. Chemical Composition

4.1 The steel shall conform to the requirements as to chemical composition specified in Table 1.

4.2 Methods and practices relating to chemical analysis required by this specification shall be in accordance with Test Methods, Practices, and Terminology A 751.

5. Condition

5.1 Cold-finished wire may be furnished in one of the conditions listed in Table 2.

5.2 Wire rods may be furnished in the as-hot-rolled or as-hot-rolled and annealed condition.

6. Mechanical Requirements

6.1 Wire products shall conform to the mechanical test requirements specified in Table 3.

[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 A01.17 on Flat Stainless Steel 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 Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096.