



Standard Specification for Stainless Steel Spring Wire¹

This standard is issued under the fixed designation A313/A313M; 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 U.S. Department of Defense.

1. Scope*

1.1 This specification covers austenitic, austenitic-ferritic, and age-hardenable stainless steel round spring wire intended especially for the manufacture of springs.

1.2 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

1.3 Unless the order specifies an “M” designation, the material shall be furnished to inch-pound units.

2. Referenced Documents

2.1 ASTM Standards:²

[A555/A555M Specification for General Requirements for Stainless Steel Wire and Wire Rods](#)

[A751 Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products](#)

[E527 Practice for Numbering Metals and Alloys in the Unified Numbering System \(UNS\)](#)

2.2 Society of Automotive Engineers Standard:³

[J 1086 Numbering Metals and Alloys](#)

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),

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-Rolled and Wrought Stainless Steel.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from Society of Automotive Engineers (SAE), 400 Commonwealth Dr., Warrendale, PA 15096-0001, <http://www.sae.org>.

3.1.2 Name of material (stainless steel spring wire),

3.1.3 Finish (see [8.1](#)),

3.1.4 Dimension (diameter),

3.1.5 Type designation ([Table 1](#)),

3.1.6 ASTM designation and date of issue,

3.1.7 Tensile strength level, when applicable ([Table 11](#) and [Table 12](#)),

3.1.8 Supplementary requirements for government procurement, and

3.1.9 Special requirements.

NOTE 1—A typical ordering description is as follows:

2000 lb (1000 kg) Stainless Steel Spring Wire, cold-drawn Class 1, bright finish, 0.032-in. (0.82 mm) diameter, in 100-lb (50 kg) 16-in. (0.4 m) coils, Type 302 to ASTM A313, dated ____.

4. General Requirements for Delivery

4.1 In addition to the requirements of this specification, all requirements of the current edition of Specification [A555/A555M](#) shall apply. Failure to comply with the general requirements of Specification [A555/A555M](#) constitutes non-conformance with this specification.

5. Manufacture

5.1 Types 302 Class 1, 304, 305, 316, 321, 347, UNS S20230, and Grades S20430 and XM-28 shall be cold drawn to produce the required mechanical properties.

5.2 Type 631, Type 302 Class 2, and Grade XM-16 shall be furnished in the cold-drawn condition ready for fabrication. Following fabrication Type 631 and Grade XM-16 shall be age or precipitation hardened to produce their maximum strength properties. The tensile strengths to be obtained following the prescribed heat treatment are shown in [Table 2](#) and [Table 3](#) for hardened wire. Type 302 Class 2 shall be stress relieved following fabrication and meet the requirements shown in [Table 4](#). The nominal as-drawn tensile strengths are provided as a guide for the spring manufacturer.

5.3 Grade S30151 shall be either cold drawn or cold drawn and heat treated to produce the required mechanical properties.

6. Chemical Composition

6.1 The steel shall conform to the requirements as to chemical composition prescribed in [Table 1](#).

*A Summary of Changes section appears at the end of this standard