



Standard Specification for Age-Hardening Stainless Steel Forgings¹

This standard is issued under the fixed designation A 705/A705M; 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.

1. Scope

1.1 This specification² covers age-hardening stainless steel forgings for general use.

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 independent of the other. Combining values from the two systems may result in nonconformance with the specification.

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

NOTE 1—Bar products are covered by Specification A 564/A 564M.

2. Referenced Documents

2.1 ASTM Standards:

A 370 Test Methods and Definitions for Mechanical Testing of Steel Products³

A 484/A484M Specification for General Requirements for Stainless Steel Bars, Billets, and Forgings⁴

A 564/A564M Specification for Hot-Rolled and Cold-Finished Age-Hardening Stainless Steel Bars and Shapes⁴

A 751 Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products³

E 527 Practice for Numbering Metals and Alloys (UNS)⁵

2.2 Other Documents:

SAE J 1086 Recommended Practice for Numbering Metals and Alloys (UNS)⁶

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 or number of pieces),

3.1.2 Name of material (age-hardening stainless steel forgings),

3.1.3 Dimensions, including prints or sketches,

3.1.4 Type or UNS designation (Table 1),

3.1.5 Heat treated condition (Section 5),

3.1.6 Transverse properties when required (7.4),

3.1.7 ASTM designation and date of issue, and

3.1.8 Special requirements (5.3, 5.4).

3.2 If possible the intended end use of the item should be given on the purchase order, especially when the item is ordered for a specific end use or uses.

NOTE 2—A typical ordering description is as follows: 5 age-hardening stainless steel forgings, Type 630, solution-annealed, ASTM Specification A 705 dated _____. End use: pump blocks for oil well equipment.

4. General Requirements

4.1 In addition to the requirements of this specification, all requirements of the current edition of Specification A 484/A 484M shall apply. Failure to comply with the general requirements of Specification A 484/A 484M, constitutes nonconformance with this specification.

5. Materials and Manufacture

5.1 Material for forgings shall consist of billets or bars, either forged, rolled or cast, or a section cut from an ingot. The cuts shall be made to the required length by a suitable process. This material may be specified to Specification A 564/A 564M.

5.2 The material shall be forged by hammering, pressing, rolling, extruding, or upsetting to produce a wrought structure throughout and shall be brought as nearly as possible to the finished shape and size by hot working.

¹ This specification is under the jurisdiction of ASTM Committee A-1 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 For ASME Boiler and Pressure Vessel Code applications see related Specification SA-705/SA-705M in Section II of that Code.

³ *Annual Book of ASTM Standards*, Vol 01.03.

⁴ *Annual Book of ASTM Standards*, Vol 01.05.

⁵ *Annual Book of ASTM Standards*, Vol 01.01.

⁶ Available from Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096.