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Designation: A 564/A 564M – 02a

Standard Specification for Hot-Rolled and Cold-Finished Age-Hardening Stainless Steel Bars and Shapes[1]

This standard is issued under the fixed designation A 564/A 564M; 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[2] covers bars and shapes of age-hardening stainless steels. Hot-finished or cold-finished rounds, squares, hexagons, bar shapes, angles, tees, and channels are included; these shapes may be produced by hot rolling, extruding, or forging. Billets or bars for reforging may be purchased to this specification.

1.2 These steels are generally used for parts requiring corrosion resistance and high strength at room temperature, or at temperatures up to 600°F [315°C]; 700°F [370°C] for Type 632. They are suitable for machining in the solution-annealed condition after which they may be age-hardened to the mechanical properties specified in Section 7 without danger of cracking or distortion. Type XM-25 is machinable in the as-received fully heat treated condition.

1.3 Types 631 and 632 contain a large amount of ferrite in the microstructure and can have low ductility in forgings and larger diameter bars. Applications should be limited to small diameter bar.

1.4 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.

1.5 Unless the order specifies an "M'' designation, the material shall be furnished to inch-pound units.

NOTE 1—For forgings, see Specification A 705/A 705M.
NOTE 2—For billets and bars for forging see Specification A 314.

2. Referenced Documents

2.1 *ASTM Standards:*

A 314 Specification for Stainless Steel Billets and Bars for Forging[3]
A 370 Test Methods and Definitions for Mechanical Testing of Steel Products[3]
A 484/A484M Specification for General Requirements for Stainless Steel Bars, Billets, and Forgings[3]
A 705/A705M Specification for Age-Hardening, Stainless Steel Forgings[3]
A 751 Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products[3]
E 527 Practice for Numbering Metals and Alloys (UNS)[4]

2.2 *Other Documents:*

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

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 Type or UNS designation (Table 1),
3.1.3 Specific melt type when required,
3.1.4 Heat treated condition (5.1),
3.1.5 Transverse properties when required (7.6),
3.1.6 Finish (Specification A 484/A 484M),
3.1.7 Surface preparation of shapes (5.2.1),
3.1.8 Size, or applicable dimension including diameter, thickness, width, length, etc.,
3.1.9 Preparation for delivery (Specification A 484/A 484M),
3.1.10 Special requirements (refer to 7.4 and 8.3),
3.1.11 Marking requirements (Specification A 484/A 484M), and
3.1.12 ASTM designation and date of issue if other than that currently published.

[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] For ASME Boiler and Pressure Vessel Code applications, see related Specification SA-564/SA-564M in Section II of that Code.

[3] *Annual Book of ASTM Standards*, Vol 01.03.
[4] *Annual Book of ASTM Standards*, Vol 01.01.
[5] Available from Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096.

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

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