



Designation: A837/A837M – 17 (Reapproved 2022)

Standard Specification for Steel Forgings, Alloy, for Carburizing Applications¹

This standard is issued under the fixed designation A837/A837M; 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 specification covers alloy steel forgings for carburizing applications.

1.2 Forgings are considered weldable under proper conditions. Welding technique is of fundamental importance and it is presupposed that welding procedure and inspection shall be in accordance with approved methods for the class of material used.

1.3 This specification is expressed in both inch-pound units and in SI units. However, unless the order specifies the applicable *M* specification designation (SI units), the material shall be furnished to inch-pound units.

1.4 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system are not necessarily exact equivalents; therefore, to ensure conformance with the standard, each system shall be used independently of the other, and values from the two systems shall not be combined.

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

A275/A275M Practice for Magnetic Particle Examination of Steel Forgings

A388/A388M Practice for Ultrasonic Examination of Steel Forgings

A788/A788M Specification for Steel Forgings, General Requirements

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 A01.06 on Steel Forgings and Billets.

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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.

E527 Practice for Numbering Metals and Alloys in the Unified Numbering System (UNS)

3. Ordering Information

3.1 Instructions for purchasing forgings to this specification are to be in accordance with Specification A788/A788M.

3.2 In addition to the basic requirements of this specification, certain supplementary requirements are listed at the end of this specification. These supplementary requirements may be applicable when additional control, testing, or examination is required to meet end use requirements.

4. Heat Treatment

4.1 The forgings shall be given a normalize or normalize and temper heat treatment.

5. Machining

5.1 Rough machining before heat treatment may be performed at the option of the manufacturer.

6. Chemical Composition

6.1 The steel shall conform to the requirements for chemical composition prescribed in Table 1 unless otherwise modified in accordance with Supplementary Requirement S4.

7. Mechanical Properties

7.1 *Hardness:*

7.1.1 Maximum hardness of the forgings shall be 229 Brinell hardness.

7.1.2 Hardness tests shall be taken on prepared surfaces of the forging after machining to the purchaser's ordering requirements.

7.1.3 *Number and Location of Tests:*

7.1.3.1 For forgings not intended for gear applications, the number and location of hardness tests shall be by agreement between the purchaser and forger.

7.1.3.2 For gear applications on each forging 8 in. [200 mm] and over in diameter, four Brinell hardness tests shall be made on the outside surface of that portion of the forging on which teeth will be cut two tests being made on each end 180° apart, and the tests on the two ends shall be 90° apart. On each forging under 8 in. [200 mm] in diameter two Brinell hardness tests shall be made, one on each end 180° apart. On hollow,

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