



Designation: A921/A921M – 93 (Reapproved 2022)

Standard Specification for Steel Bars, Microalloy, Hot-Wrought, Special Quality, for Subsequent Hot Forging¹

This standard is issued under the fixed designation A921/A921M; 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 hot-wrought, special quality microalloyed carbon steel bars intended for use as hot forging stock. The bars shall be hot-wrought, as-wrought, unless thermal treatment is necessary to ensure cold shearability.

1.2 The bars shall be furnished to chemical composition only. Chemical composition is based on standard carbon steel grades modified to include microalloying elements such as columbium (niobium), vanadium, or molybdenum. Desired mechanical properties are developed in the subsequent hot forging and controlled cooling operations.

1.3 Sections and sizes of bar steel available are covered in Specification [A29/A29M](#).

1.4 Supplementary Requirements S1 to S6 are provided for use when additional controls or requirements are desired. These shall apply only when specified on the purchase order.

1.5 The values stated in either inch-pound units or SI units are to be regarded separately as standard. Within the text and tables, SI units are shown in brackets. 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.

1.6 Unless the order specifies the applicable “M” specification designation, the material shall be furnished to the inch-pound units.

1.7 *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.*

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 [A01.15](#) on Bars.

Current edition approved March 1, 2022. Published April 2022. Originally approved in 1993. Last previous edition approved in 2016 as A921/A921M – 93(2016). DOI: 10.1520/A0921_A0921M-93R22.

2. Referenced Documents

2.1 *ASTM Standards:*²

[A29/A29M](#) Specification for General Requirements for Steel Bars, Carbon and Alloy, Hot-Wrought

[A576](#) Specification for Steel Bars, Carbon, Hot-Wrought, Special Quality

[A788/A788M](#) Specification for Steel Forgings, General Requirements

[E45](#) Test Methods for Determining the Inclusion Content of Steel

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *microalloyed steels*—microalloyed steels are carbon steels to which small quantities of certain elements are added in order to enhance mechanical properties. This enhancement of mechanical properties results from control of the temperature and cooling rate during the final hot-working process.

4. Ordering Information

4.1 Orders for material supplied to this specification should include the following, as required, to describe adequately the desired material:

4.1.1 Quantity (weight or number of bars),

4.1.2 Name of material (hot-rolled microalloyed steel bars),

4.1.3 Dimensions,

4.1.4 ASTM specification number and date of issue,

4.1.5 Grade designation or chemical composition limits (see [8.1 – 8.5](#)),

4.1.6 Type (see [7.1](#)) to designate grain refiner,

4.1.7 Additions to the specification and Supplementary Requirements, if required, and,

4.1.8 End use.

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.