



Standard Specification for Steel Bars, Carbon, Hot-Wrought, Special Quality, Mechanical Properties¹

This standard is issued under the fixed designation A 675/A 675M; 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 specification² covers hot-wrought special quality carbon steel bars and bar size shapes produced to mechanical property requirements and intended for general constructional applications.

1.2 The bars are available in nine strength grades designated 45, 50, 55, 60, 65, 70, 75, 80, and 90 [310, 345, 380, 415, 450, 485, 515, 550, and 620] corresponding to the minimum ultimate tensile strength in ksi [MPa]. The chemical composition is selected by the manufacturer to develop the required mechanical properties.

1.3 Hot-wrought special quality carbon steel bars subject to mechanical property requirements are hot wrought in straight lengths only. Sections and sizes available are covered in Specification A 29/A 29M.

1.4 Some applications may require one or more of the available designations shown under Supplementary Requirements.

NOTE 1—Merchant-quality hot-wrought carbon steel bars subject to mechanical property requirements are covered in Specification A 663/A 663M.

1.5 The values stated in either inch-pound units or SI units are to be regarded separately as the standard. Within the text, the SI units are shown in brackets. The values stated in each system are not equivalents, therefore each system must be used independently of the other. Combining values from the two systems may result in nonconformance with the specification.

2. Referenced Documents

2.1 ASTM Standards:

A 29/A 29M Specification for Steel Bars, Carbon and Alloy,

Hot-Wrought and Cold-Finished, General Requirements for³

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

A 663/A 663M Specification for Steel Bars, Carbon, Merchant Quality, Mechanical Properties³

E 290 Test Method for Semi-Guided Bend Test for Ductility of Metallic Materials

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *special quality*—Special quality bars are used when end use, method of fabrication, or subsequent processing treatment requires quality characteristics not available in merchant quality. Typical applications involve bending or machining for general constructional uses. Some end uses or fabricating procedures can necessitate one or more requirements which are described in the Supplementary Requirements.

4. Ordering Information

4.1 Orders for material under this specification should include the following information:

4.1.1 Quantity (weight or number of pieces),

4.1.2 Name of material (hot-wrought special quality bars),

4.1.3 Dimensions, including length,

4.1.4 Cross section (round, square, hexagon, equal leg angle, etc.),

4.1.5 Specification designation and date of issue,

4.1.6 Grade designation (Table 1),

4.1.7 Leaded steel, if required (6.2),

4.1.8 Copper bearing steel, if required (6.3),

4.1.9 Test report, if required (Section 10),

4.1.10 Supplementary Requirements or special requirements if required, and

4.1.11 Application and processing.

NOTE 2—A typical ordering description is as follows: 10 000 lb, [5000

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.

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² For ASME Boiler and Pressure Vessel Code applications see related Specification SA 675 in Section II of that Code.

³ 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.

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