



Standard Specification for Wrought High-Strength Low-Alloy Steel Butt-Welding Fittings¹

This standard is issued under the fixed designation A 860/A 860M; 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 wrought high-strength low-alloy steel butt-welding fittings of seamless and electric fusion-welded construction covered by the latest revisions of ANSI B16.9, ANSI 16.28, and MSS-SP-75. Butt-welding fittings differing from these ASME and MSS standards shall be furnished in accordance with Supplementary Requirement S58 of Specification A 960. These fittings are for use in high-pressure gas and oil transmission and distribution systems.

1.2 Optional supplementary requirements are provided for fittings when a greater degree of examination is desired. One or more of the supplementary requirements may be specified in the order.

1.3 This specification does not cover cast-welding fittings or fittings machined from castings.

1.4 The values stated in either inch-pound units or SI units are to be regarded separately as standard. Within the text, the SI units are shown in brackets. The values stated in each system are not exact equivalents; therefore, each system must be used independently of the other. Combining values from the two systems may result in nonconformance with this specification. Unless the order specifies the applicable “M” specification designation (SI units), the material shall be furnished to inch-pound units.

2. Referenced Documents

2.1 ASTM Standards:

A 530/A 530M Specification for General Requirements for Specialized Carbon and Alloy Steel Pipe²

A 960 Specification for Common Requirements for Wrought Steel Piping Fittings²

2.2 AWS Standard:

AWS 5.18 Specification for Carbon Steel Metals for Gas Shielded Arc Welding³

2.3 ASME Boiler and Pressure Vessel Code:⁴
Section V, Nondestructive Examination
Section VIII, Division 1, Pressure Vessels

3. Ordering Information

3.1 In addition to the requirements of Specification A 960, the following ordering information applies:

3.1.1 Grade Symbol,

3.1.2 Requirements for certification of test report.

4. General Requirements

4.1 Product furnished to this specification shall conform to the requirements of Specification A 960, including any supplementary requirements that are indicated in the purchase order. Failure to comply with the general requirements of Specification A 960 constitutes nonconformance with this specification. In case of conflict between the requirements of this specification and Specification A 960, this specification shall prevail.

5. Materials and Manufacture

5.1 The material for fittings shall be fully killed fine-grain material made by a melting process that is intended to produce rounded, well dispersed, fine sulphide inclusions, that promote good notch toughness, assists in the resistance to hydrogen induced cracking, and for weldability suitable for field welding.

5.2 Starting materials shall consist of plate, sheet, forgings, forging quality bar, and seamless or fusion-welded tubular products with filler metal added. The chemical composition shall conform to Table 1.

5.3 A starting material that specifically requires the addition of any element beyond those listed in Table 1 is not permitted. This does not preclude the use of deoxidizers.

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 A01.22 on Steel Forgings and Wrought Fittings for Piping Applications and Bolting Materials for Piping and Special Purpose Applications.

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² Annual Book of ASTM Standards, Vol 01.01.

³ Available from American Welding Society, 550 N. W. Lajeune Rd., Miami, FL 33135.

⁴ Available from American Society of Mechanical Engineers, 345 E. 47th St., New York, NY 10017.