



Standard Specification for Pressure Vessel Plates, Low-Carbon Age-Hardening Nickel- Copper-Chromium-Molybdenum-Columbium and Nickel- Copper-Manganese-Molybdenum-Columbium Alloy Steel¹

This standard is issued under the fixed designation A 736/A 736M; 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 specification² covers two grades of low-carbon age-hardening alloy steel plates for welded pressure vessels and piping components. The two grades are nickel-copper-chromium-molybdenum-columbium and nickel-copper-manganese-molybdenum-columbium steels.

1.2 Plates under this specification are available in three Classes, as follows:

1.2.1 *Class 1*—As-rolled and precipitation heat treated. Available in thicknesses of $\frac{3}{4}$ in. [20 mm] and under. Grade A, Class 1 has a minimum specified tensile strength of 90 ksi. Grade C, Class 1 has a minimum specified tensile strength of 100 ksi.

1.2.2 *Class 2*—Normalized and precipitation heat treated.

1.2.2.1 Available in Grade A only. Grade A has minimum specified tensile strength of 72 ksi for thinner plates and 65 and 60 ksi for thicker plates, with the minimum tensile strength dependent upon the plate thickness. The maximum thickness of Grade A, Class 2 is limited only by the capacity of the chemical composition and heat treatment to meet the specified mechanical property requirements; however, current practice usually limits the maximum thickness to 8 in. [200 mm].

1.2.3 *Class 3*—Quenched and precipitation heat treated.

1.2.3.1 Available as Grade A with a minimum specified tensile strength of 85 ksi for thinner plates and 75 and 70 ksi for thicker plates, with the minimum tensile strength dependent upon the plate thickness. The maximum thickness of Grade A, Class 3 plates is limited only by the capacity of the chemical composition and heat treatment to meet the specified mechanical property requirements; however, current practice usually limits the maximum thickness to 8 in. [200 mm].

1.2.3.2 Available as Grade C with a specified minimum tensile strength of 95 ksi for plates $\frac{3}{4}$ in. [20 mm] and under in

thickness and 90 ksi for plates over $\frac{3}{4}$ in. in thickness. The maximum thickness of Grade C, Class 3, plates is 2 in. [50 mm].

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 in inch-pound units.

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.

2. Referenced Documents

2.1 ASTM Standards:

A 20/A20M Specification for General Requirements for Steel Plates for Pressure Vessels³

A 435/A435M Specification for Straight-Beam Ultrasonic Examination of Steel Plates³

A 577/A577M Specification for Ultrasonic Angle-Beam Examination of Steel Plates³

A 578/A578M Specification for Straight-Beam Ultrasonic Examination of Plain and Clad Steel Plates for Special Applications³

3. General Requirements and Ordering Information

3.1 Plates supplied to this product specification shall conform to the requirements of Specification A 20/A 20M, which outlines the testing and retesting methods and procedures, permissible variations in dimensions and mass, quality and repair of defects, marking, loading, and so forth.

3.2 Specification A 20/A 20M also establishes the rules for ordering information that should be complied with when purchasing plates to this specification.

3.3 In addition to the basic requirements of this specification, certain supplementary requirements are available where additional control, testing, or examination is required to meet end use 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 A01.11 on Steel Plates for Boilers and Pressure Vessels.

Current edition approved Sept. 10, 2003. Published October 2003. Originally approved in 1976. Last previous edition approved in 2000 as A 736/A 736M – 88 (2000).

² For ASME Boiler and Pressure Vessel Code applications, see related Specification SA-736 in Section II of that Code.

³ *Annual Book of ASTM Standards*, Vol 01.04.

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

