



Standard Specification for Pressure Vessel Plates, Low-Carbon Manganese- Molybdenum-Columbium Alloy Steel, for Moderate and Lower Temperature Service¹

This standard is issued under the fixed designation A735/A735M; 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 low-carbon manganese-molybdenum-columbium alloy steel plates for piping components and welded pressure vessels.

1.2 Four different classes are covered, which provide various tensile strength properties. A Charpy V-notch energy absorption requirement of 20 ft-lbf [27J] at -50°F [-45°C] is specified for all grades.

1.2.1 *Classes 1 and 2* provide minimum yield strength levels of 65 ksi [450 MPa] and 70 ksi [485 MPa] respectively. Both classes can be provided in the as-rolled condition or in the quenched-and-tempered condition.

1.2.2 *Class 3* provides a minimum yield strength level of 75 ksi [515 MPa]. This grade can be provided in the as-rolled and precipitation heat-treated condition or in the quenched-and-tempered condition.

1.2.3 *Class 4* provides a yield strength level of 80 ksi [550 MPa] in the as-rolled and precipitation heat-treated condition.

1.3 Current practice limits plate thickness furnished under this specification. The individual manufacturer should be consulted on size and thickness limitations.

1.4 Welding procedures are of fundamental importance and must be such as not to adversely affect the properties of the material, especially in the heat-affected zone. It is presupposed that welding procedures will be suitable for the materials being welded.

1.5 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 the specification.

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.

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2. Referenced Documents

2.1 ASTM Standards:²

A20/A20M Specification for General Requirements for Steel Plates for Pressure Vessels

A435/A435M Specification for Straight-Beam Ultrasonic Examination of Steel Plates

A577/A577M Specification for Ultrasonic Angle-Beam Examination of Steel Plates

A578/A578M Specification for Straight-Beam Ultrasonic Examination of Rolled Steel Plates for Special Applications

3. General Requirements and Ordering Information

3.1 Material supplied to this material specification shall conform to Specification A20/A20M. These requirements outline the testing and retesting methods and procedures, permitted variations in dimensions, and mass, quality and repair of defects, marking, loading, and ordering information.

3.2 In addition to the basic requirements of this specification, certain supplementary requirements are available when additional control, testing, or examination is required to meet end use requirements. The purchaser is referred to the listed supplementary requirements in this specification and to the detailed requirements in Specification A20/A20M.

3.3 Coils are excluded from qualification to this specification until they are processed into finished plates. Plates produced from coil means plates that have been cut to individual lengths from coil. The processor directly controls, or is responsible for, the operations involved in the processing of coils into finished plates. Such operations include decoiling, leveling, cutting to length, testing, inspection, conditioning, heat treatment (if applicable), packaging, marking, loading for shipment, and certification.

NOTE 1—For plates produced from coil and furnished without heat treatment or with stress relieving only, three test results are reported for

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.

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