



Designation: A 455/A 455M – 01

Standard Specification for Pressure Vessel Plates, Carbon Steel, High-Strength Manganese¹

This standard is issued under the fixed designation A 455/A 455M; 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 high-tensile strength carbon-manganese steel plates intended for welded pressure vessels.

1.2 This material is usually made to a semi-killed or capped deoxidation practice. However, at the purchaser's or the producer's option, the material may be made silicon-killed or aluminum-killed.

1.3 The maximum thickness of plates furnished under this specification shall be $\frac{3}{4}$ in. [20 mm].

1.4 For plates produced from coil, the additional requirements, including additional testing requirements and the reporting of additional test results, of Specification A 20/A 20M apply.

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.

2. Referenced Documents

2.1 ASTM Standards:

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

3. General Requirements and Ordering Information

3.1 Material supplied to this material specification shall conform to Specification A 20/A 20M. These requirements outline the testing and retesting methods and procedures, permissible variations in dimensions, and mass, quality and repair of defects, marking, loading, etc.

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

3.3 In addition to the basic requirements, two supplementary requirements are available to meet end use requirements as follows:

3.3.1 Simulated post-weld heat treatment of test coupons, and

3.3.2 Bend test.

3.4 The purchaser is referred to the listed supplementary requirements in this specification and to the detailed requirements in Specification A 20/A 20M.

3.5 Coiled product is excluded from qualification to this specification until it is decoiled, leveled, and cut to length. Plate produced from coil means plate that has been cut to individual lengths from a coiled product and is furnished without heat treatment. The processor decoils, levels, cuts to length, and marks the product. Except as allowed by Section 6 in Specification A 20/A 20M, the processor is responsible for performing and certifying all tests, examinations, repairs, inspections, and operations not intended to affect the properties of the material. For plate produced from coils, the results of the tests performed shall be reported for each qualifying coil. See Note 1

NOTE 1—Additional requirements regarding plate produced from coil are described in Specification A 20/A 20M.

3.6 If the requirements of this specification are in conflict with the requirements of Specification A 20/A 20M, the requirements of this specification shall prevail.

4. Heat Treatment

4.1 Plates are normally supplied in the as-rolled condition. The plates may be ordered normalized or stress relieved, or both.

5. Chemical Requirements

5.1 The steel shall conform to the chemical requirements shown in Table 1.

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, 2001. Published September 2001. Originally published as A455 – 61 T. Last previous edition A 455/A 445M – 90 (2001).

² For ASME Boiler and Pressure Vessel Code applications, see related Specification SA-455/SA-455M in Section II of that Code.

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