



Designation: **A874/A874M – 98 (Reapproved 2022)**

Standard Specification for Ferritic Ductile Iron Castings Suitable for Low-Temperature Service¹

This standard is issued under the fixed designation A874/A874M; 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 ductile iron castings suitable for service at temperatures of -40°F [-40°C] and above.

1.2 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in nonconformance with the standard.

1.3 The following precautionary statement pertains only to the test methods portion, Section 11, of this specification: *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

A247 Test Method for Evaluating the Microstructure of Graphite in Iron Castings

E8/E8M Test Methods for Tension Testing of Metallic Materials

E30 Test Methods for Chemical Analysis of Steel, Cast Iron,

Open-Hearth Iron, and Wrought Iron (Withdrawn 1995)³

E59 Practice for Sampling Steel and Iron for Determination of Chemical Composition (Withdrawn 1996)³

E94/E94M Guide for Radiographic Examination Using Industrial Radiographic Film

E165/E165M Practice for Liquid Penetrant Testing for General Industry

E351 Test Methods for Chemical Analysis of Cast Iron—All Types

E562 Test Method for Determining Volume Fraction by Systematic Manual Point Count

E689 Reference Radiographs for Ductile Iron Castings

E709 Guide for Magnetic Particle Testing

3. Ordering Information

3.1 Orders for material under this specification shall include the following applicable information:

3.1.1 Drawing, catalog number, or part identification,

3.1.2 Quantity (weight or number of pieces),

3.1.3 ASTM designation and year of issue,

3.1.4 Marking instructions (see Section 15),

3.1.5 Place of inspection (see 13.1),

3.1.6 Limits on residual elements (see 5.2),

3.1.7 Visual and dimensional acceptance standard (see 7.1),

3.1.8 Sampling plan (see Section 9), and

3.1.9 Supplementary requirements.

4. Materials and Manufacture

4.1 Castings may be supplied either as cast or heat treated and shall have essentially a ferritic structure that contains no massive carbides.

5. Chemical Composition

5.1 The iron shall conform to the requirements for chemical composition shown in Table 1.

5.2 By agreement between the manufacturer and purchaser, analysis may be required and limits established for elements not specified in Table 1.

¹ This specification is under the jurisdiction of ASTM Committee A04 on Iron Castings and is the direct responsibility of Subcommittee A04.02 on Malleable and Ductile Iron Castings.

Current edition approved Oct. 1, 2022. Published October 2022. Originally approved in 1989. Last previous edition approved in 2018 as A874/A874M – 98 (2018)^{ε1}. DOI: 10.1520/A0874_A0874M-98R22.

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.

³ The last approved version of this historical standard is referenced on www.astm.org.