**ASTM A 834 Common Requirements Standard for Iron Castings for General Industrial Use**

This specification also covers a group of supplementary requirements which may be applicable herein. These are provided for use when additional testing or inspection is desired individually by the purchaser in the order.

1. **Ordering Information**

   The purchase order for castings ordered under this specification shall stipulate the applicable material specification, iron, and any options or additions to the basic requirements, including the supplementary requirements.

2. **Tensile Requirements**

   The individual product specifications vary as to whether tension tests are required. For this reason, and to determine specific requirements, the individual product specification shall be reviewed. When required, tension tests shall be in accordance with Test Methods E 8.

3. **Chemical Requirements**

   3.1 The individual product specifications vary as to whether chemical analysis is required. To determine specific requirements, the individual product specification should be reviewed.

   3.2 Sampling shall be conducted in accordance with Test Method E 59. Spectrographic or other methods such as Methods E 30 and E 351 may be used for chemical analysis. In the event of a dispute regarding chemical analysis, Methods E 351 and E 30 shall be used for referee purposes.

   3.3 The chemical analysis for total carbon shall be made on chilled pencil-type specimens or 32 in. (0.8 mm) thick cut from test coupons. Drillings are not reliable because of a probable loss of graphite.

   3.4 Chemical analysis results shall be rounded, in accordance with Practice E 29, to the nearest value in the table of chemical requirements.

   3.5 A product analysis may be made by the purchaser from material representing each heat.
made on representative material. Samples for carbon analysis shall be taken no closer than ¼ the practice in 5.3, except where the size or shape of the casting does not permit such sampling. The chemical determined shall meet the requirements specified in the applicable specification for the grade involved.

4. Workmanship, Finish, and Appearance

All castings shall be made in a workman-like manner and shall conform to the dimensions on the drawings furnished before manufacture is started. If the pattern is supplied by the purchaser, the dimensions of the pattern.

5. Sampling

5.1 A lot shall consist of one of the following:

5.1 All the metal from a single heating in a batch-type melting furnace.

5.2 All the metal poured from two or more batch-type melting furnaces into a single ladle or a

5.3 All the metal poured from a continuous melting furnace for a given period of time between changes in conditions, or aim-for chemistry, or 4 h, whichever is the shorter period.

5.4 The purchaser may agree to extend the 4-h time period to 8 h if the manufacturer can demonstrate sufficient to warrant such an extension.

6. Inspection

6.1 All tests and inspections required by this specification shall be performed by the manufacturer or other reliable services have been contracted for by the manufacturer. Complete records of all tests and inspections shall be made available to the purchaser.

6.2 The manufacturer shall afford the purchaser’s inspector all reasonable facilities necessary to produce and furnish in accordance with the applicable specification. Foundry inspection shall be unnecessary with the manufacturer’s operations.

6.3 When agreed upon between manufacturer and purchaser, test specimens or unbroken test bars from the test saved for a period of 3 months after date of the test report.

6.4 When unbroken test bars are reprocessed with castings for rehearing, test specimens described in 9.3.

6.5 The purchaser reserves the right to perform any inspections set forth in the specification necessary to assure that supplies and services conform to the prescribed requirements.
7. Repair

Any repair shall be made in accordance with the requirements of the individual specification for the type of repair involved.

8. Rejection and Rehearing

Castings which fail to conform to the requirements specified when inspected or tested by the purchaser or supplier shall be rejected. Rejection shall be reported to the manufacturer or supplier promptly and in writing. In case of dissatisfaction with test results, the manufacturer or supplier may make claim for a rehearing.

9. Packaging and Package Marking

9.1 Unless otherwise specified in the contract or purchase order, cleaning, preservation, and packaging of castings shall be in accordance with the manufacturer’s commercial practice. Packing and marking shall also be adequate to ensure acceptance and safe delivery by the carrier for the mode of transportation employed.

9.2 Government Procurement —When specified in the contract or purchase order, marking for shipment shall be in accordance with the requirements of Fed. Std. No. 123 for civil agencies and MIL-STD-129 for military activities.

10. Quality Assurance

10.1 The surface of the casting shall be free of adhering sand, scale, cracks, and hot tears as determined by visual examination. Other surface discontinuities shall meet the visual acceptance standards specified in the order. Other visual standards may be used to define acceptable surface discontinuities and if discontinuities shall be removed and their removal verified by visual examination of the resultant cavities.

When additional inspection is desired, Supplementary Requirements S1, S2, or S3 may be specified.

SUPPLEMENTARY REQUIREMENTS

Supplementary requirements shall be applied only when specified by the purchaser. Details shall be agreed upon by the manufacturer and purchaser. The specified tests shall be performed at the time of shipment of the castings.

S1. Magnetic Particle Examination

S1.1 Castings shall be examined for surface discontinuities by magnetic particle examination in accordance with Practice E 709. The extent of examination and the basis for acceptance shall be agreed upon by the manufacturer and purchaser.

S2. Radiographic Examination
S2.1 Castings shall be examined for internal defects by means of X-rays or gamma rays. For with Guide E 94, and types and degrees of discontinuities considered shall be judged by Reference Radiographs 802. The extent of examination and basis for acceptance shall be agreed upon between the manufacturer and purchaser.

S3. Liquid Penetrant Examination

S3.1 Castings shall be examined for surface discontinuities by means of liquid penetrant examination in accordance with Practice E 165. Areas to be inspected, methods and types of liquid penetrant and basis for acceptance shall be agreed upon between the manufacturer and purchaser.

S4. Certification

S4.1 The manufacturer’s certification shall be furnished to the purchaser stating that the material was manufactured, inspected in accordance with the material specification, including the year and any supplementary or additional requirements imposed by the purchase order.

S4.2 A signature is not required on the certification or test report. However, the document shall clearly identify the submitting the certification and the authorized agent of the manufacturer who certified the test results. In the absence of a signature, the organization submitting the certification is responsible for its content.

S4.3 The test report shall be furnished within 5 working days of shipment of the castings.

S5. Prior Approval of Major Repairs

S5.1 Major repairs as defined and agreed upon between the manufacturer and purchaser shall be subject to the prior approval of the purchaser.

S6. Marking

S6.1 The manufacturer’s name or identification mark and the part identification number shall be cast or stamped on the castings. When further specified, lot numbers shall be marked on individual castings.

S6.2 When the castings are of such size that individual marking is impracticable, they shall be grouped by part lot number and placed in a container. The container shall be marked with the required identification.

S7. Hardness Test

S7.1 Hardness measurements at specified locations on the castings shall be made in accordance with the requirements reported.