

MIL-I-11695C(MR)

9 April 1969

SUPERSEDING

MIL-I-11695B(MR)

1 May 1963

MILITARY SPECIFICATION

IRON, MAGNETIC: BAR, SHEET, AND STRIP

1. SCOPE

1.1 Scope. This specification covers one composition of magnetic iron bar, sheet, and strip (see 6.1).

1.2 Classification.

1.2.1 Form. The iron is classified in the following forms, as specified (see 6.2):

Bar
Sheet
Strip

1.2.2 Finish. The iron is furnished in the following finishes, as specified (see 6.2):

Hot rolled
Cold rolled

2. APPLICABLE DOCUMENTS

2.1 The following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

STANDARDS

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-129 - Marking for Shipment and Storage

FEDERAL

Fed. Test Method Std. No. 151 - Metals; Test Methods

FSC - 9510

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(Copies of specifications, standards, drawing, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer).

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) STANDARDS:

- A 34-62 Methods of Testing Magnetic Materials
- A 341-64 Methods of Test for Normal Induction and Hysteresis of Magnetic Materials

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103).

3. REQUIREMENTS

3.1 Chemical composition. The iron shall meet the composition as shown in table I. A certified ladle analysis of each heat shall be furnished by the supplier. The iron is not subject to check analysis.

Table I. Chemical composition

Element	Percent maximum
Carbon, manganese, phosphorous, sulfur, and silicon, total	0.10
Phosphorous	0.01
Sulfur	0.03
Copper	0.15

3.2 Dimensions and tolerances. The dimensions and tolerances shall be as specified in the invitation for bids, contract, or order (see 6.2).

3.3 Identification marking. The iron shall be marked for identification as specified in the invitation for bids, contract, or order (see 6.2).

3.4 Workmanship. Bar, sheet, and strip material shall be clean and free from harmful defects such as laminations, segregations, pipe, surface defects and other defects which would detrimentally affect the material for the use intended.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.2 Lot. Unless otherwise specified in the contract or order, a lot shall consist of all material of the same heat, the same form, and the same cross sectional dimensions which is submitted for inspection at the same time.

4.3 Examination.

4.3.1 Unless otherwise specified in the contract or order, bar, sheet and strip samples shall be randomly selected from each lot in accordance with MIL-STD-105, inspection level II and examined to insure conformance with the requirements for dimension and tolerance (see 3.2), identification marking (see 3.3), and workmanship (see 3.4). The acceptable quality level (AQL) related to percent defective shall be equal to 1.5.

4.3.2 Preparation for shipment. Prior to shipment, examination shall be made to determine conformance to section 5.

4.4 Tests.

4.4.1 Chemical analysis. Chemical analysis shall be conducted in accordance with method 111 or 112 of Fed. Test Method Std. No. 151. In case of dispute, the analysis by method 111 shall be the basis for acceptance or rejection (see 3.1).

4.5 Rejection and retest. Unless otherwise specified in the contract or order, rejection and retests or resubmittal of rejected lots shall be in accordance with the general section of Fed. Test Method Std. No. 151.

5. PREPARATION FOR DELIVERY

5.1 Preservation and packaging. Unless otherwise specified in the contract or order, preservation and packaging shall be in accordance with level C.

5.1.1 Level C. Cleaning, drying, preservation and packaging shall be in accordance with manufacturer's commercial practice.

5.2 Packing. Unless otherwise specified in the contract or order, packing shall be in accordance with level C.

5.2.1 Level C. Packing shall be in accordance with commercial practice adequate to insure acceptance and safe delivery by the carrier for the mode of transportation employed.

5.3 Marking. Unless otherwise specified, marking for shipment shall be in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. The magnetic iron material is intended for use as pole pieces, plates, armatures, core material, etc.

6.2 Ordering data. Purchasers should exercise any desired options offered herein, and procurement documents should specify the following:

- (a) Title, number, and date of this specification.
- (b) Form (see 1.2.1).
- (c) Finish (see 1.2.2).
- (d) Dimensions and tolerances (see 3.2).
- (e) Identification marking (see 3.3).

6.3 Magnetic properties. The magnetic properties, shown in tables II and III, determined in accordance with ASTM methods A 34 and A 341, are typical for this material after annealing at 1700°F.

Table II. Hysteresis loss

Maximum inductance gausses	Typical hysteresis loss, ergs per cycle per cubic centimeter
10,000	2,800

Table III. Electrical resistance

Typical resistance by micohn, Cm	Temperature degrees Centigrade
10.7	25 \pm 2

Custodian

Army - MR

Preparing activity:

Army - MR

Review activities:

Army - MU, WC

Project No. 9510-A004

User activities:

Army - MI