

IRON BAR, SHEET, STRIP, AND PLATE, COMMERCIALY PURE
Hot Rolled, Annealed

This specification has been declared NONCURRENT by the Carbon and Low Alloy Steels and Specialty Steels and Alloys Committee, Aerospace Materials Division, as of March 29, 1979. It is recommended that this specification not be specified for new designs.

This cover sheet should be attached to the "A" revision of the subject specification.

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AEROSPACE MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
TWO PENNSYLVANIA PLAZA, NEW YORK, N.Y. 10001

AMS 7706A
Superseding AMS 7706

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1. SCOPE:

- 1.1 Form: This specification covers commercially pure iron in the form of bar, strip, and plate.
- 1.2 Application: Primarily for use in direct current devices requiring high electrical conductivity, high magnetic saturation and permeability, and low magnetic retentivity, and where deep drawing or formability is required.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications (AMS) shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

- 2.1 SAE Publications: Available from Society of Automotive Engineers, Inc., Two Pennsylvania Plaza, New York, New York 10001.

2.1.1 Aerospace Material Specifications:

AMS 2231 - Tolerances, Carbon Steel Bars
AMS 2232 - Tolerances, Carbon Steel Sheet, Strip, and Plate
AMS 2259 - Chemical Check Analysis Limits, Wrought Low Alloy and Carbon Steels
AMS 2350 - Standards and Test Methods
AMS 2370 - Quality Assurance Sampling of Carbon and Low Alloy Steels, Wrought Products Except Forgings

- 2.2 ASTM Publications: Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

ASTM A370 - Mechanical Testing of Steel Products
ASTM E350 - Chemical Analysis of Carbon Steel, Low-Alloy Steel, Silicon Electrical Steel, Ingot Iron, and Wrought Iron

- 2.3 Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, Pennsylvania 19120.

2.3.1 Federal Standards:

Federal Test Method Standard No. 151 - Metals; Test Methods

3. TECHNICAL REQUIREMENTS:

- 3.1 Composition: Shall conform to the following percentages by weight, determined by wet chemical methods in accordance with ASTM E350, by spectrographic methods in accordance with Federal Test Method Standard No. 151, Method 112, or by other approved analytical methods:

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	min	max
Carbon + Manganese + Silicon + Phosphorus + Sulfur	--	0.10
Phosphorus	--	0.010
Sulfur	--	0.030
Copper	--	0.15
Iron		remainder

3.1.1 Check Analysis: Composition variations shall meet the requirements of AMS 2259, paragraph titled "Carbon Steels".

3.2 Condition: Hot rolled, annealed, and descaled.

3.3 Properties: The product shall conform to the following requirements; hardness and tensile testing shall be performed in accordance with ASTM A370:

3.3.1 Tensile Properties:

Tensile Strength, max	50,000 psi (345 MPa)
Yield Strength at 0.2% Offset, max	35,000 psi (241 MPa)
Elongation in 2 in. (50.8 mm) or 4D, min	35%

3.3.2 Hardness: Shall be as follows or equivalent:

3.3.2.1 Bars: Not higher than 60 HRB.

3.3.2.2 Sheet, Strip, and Plate:

Nominal Thickness		Hardness max
Inch	(Millimeters)	
Up to 0.078, excl	(Up to 1.98, excl)	60 HRB
0.078 and over	(1.98 and over)	55 HRB

3.3.3 Magnetic Properties and Bending and Forming Requirements: Shall be as agreed upon by purchaser and vendor.

3.4 Quality: The product shall be uniform in quality and condition, clean, sound, and free from foreign materials and from internal and external imperfections detrimental to fabrication or to performance of parts.

3.5 Tolerances: Unless otherwise specified, tolerances shall conform to all applicable requirements of the following:

3.5.1 Bars: AMS 2231.

3.5.2 Sheet, Strip, and Plate: AMS 2232.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of the product shall supply all samples and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.4. Purchaser reserves the right to perform such confirmatory testing as he deems necessary to assure that the product conforms to the requirements of this specification.

4.2 Classification of Tests: Tests to determine conformance to all technical requirements of this specification are classified as acceptance or routine control tests.

4.3 Sampling: Shall be in accordance with AMS 2370. A lot is defined as all material of the same nominal thickness from the same heat which was processed and tested at one time.