



AEROSPACE MATERIAL SPECIFICATION

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

AMS 5062C
Superseding AMS 5062B

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STEEL, LOW CARBON

1. SCOPE:

- 1.1 Form: This specification covers low-carbon steel in the form of bars, forgings, mechanical tubing, sheet, strip, plate, and forging stock.
- 1.2 Application: Parts for which a wide latitude in composition is permissible from the service standpoint and requiring no particular strength or hardness other than that inherent in steel of this type. Care is required in welding in the event that carbon and manganese approach the maximum limits.

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 2253 - Tolerances, Carbon and Alloy Steel Tubing
AMS 2259 - Chemical Check Analysis Limits, Wrought Low-Alloy
and Carbon Steel
AMS 2350 - Standards and Test Methods
AMS 2370 - Quality Assurance Sampling of Carbon and Low-Alloy
Steels, Wrought Products Except Forgings and Forging Stock
AMS 2372 - Quality Assurance Sampling of Carbon and Low-Alloy Steels,
Forgings and Forging Stock
AMS 2808 - Identification, Forgings

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

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:

SAE Technical Board rules provide that: "All technical reports, including standards, specifications, and practices recommended, are advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. There is no agreement to adhere to any SAE standard or recommended practice, and no commitment to conform to or be guided by any technical report. In formulating and approving technical reports, the Board and its Committees will not investigate or consider patents which may apply to the subject matter. Prospective users of the report are responsible for protecting themselves against liability for infringement of patents."

	min	max
Carbon	--	0.25
Manganese	--	1.00
Phosphorus	--	0.040
Sulfur	--	0.050

- 3.1.1 Check Analysis: Composition variations shall meet the requirements of AMS 2259, paragraph titled "Carbon Steels" as applicable to the form supplied.
- 3.2 Condition: The product shall be supplied in the following condition:
- 3.2.1 Bars and Mechanical Tubing 2.50 In. (63.5 mm) and Under in OD or Distance Between Parallel Sides: Cold finished.
- 3.2.2 Bars and Mechanical Tubing Over 2.50 In. (63.5 mm) in OD or Distance Between Parallel Sides: Hot finished and normalized or otherwise heat treated to produce optimum machinability.
- 3.2.3 Forgings: Normalized or otherwise heat treated to produce optimum machinability.
- 3.2.4 Sheet, Strip, and Plate: As rolled.
- 3.2.5 Forging Stock: As ordered by the forging manufacturer.
- 3.3 Quality: The product shall be uniform in quality and condition, clean, sound, and free from foreign materials, and, consistent with the type of steel involved, from internal and external imperfections detrimental to fabrication or to performance of parts.
- 3.4 Sizes: Except when exact lengths or multiples of exact lengths are ordered, bars and tubing will be acceptable in mill lengths of 6 - 20 ft (1.8 - 6.1 m) but not more than 10% of any shipment shall be supplied in lengths shorter than 10 ft (3 m).
- 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 Tubing: AMS 2253.
- 3.5.3 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 the following:
- 4.3.1 Bars, Mechanical Tubing, Sheet, Strip, and Plate: AMS 2370.
- 4.3.2 Forgings and Forging Stock: AMS 2372.

4.4 Reports:

- 4.4.1 The vendor of the product shall furnish with each shipment three copies of a report of the results of tests for chemical composition of each heat in the shipment. This report shall include the purchase order number, heat number, material specification number and its revision letter, size, and quantity from each heat. If forgings are supplied, the part number and the size and melt source of stock used to make the forgings shall also be included.
- 4.4.2 The vendor of finished or semi-finished parts shall furnish with each shipment three copies of a report showing the purchase order number, material specification number and its revision letter, contractor or other direct supplier of material, part number, and quantity. When material for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of material to determine conformance to the requirements of this specification, and shall include in the report a statement that the material conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.
- 4.5 Resampling and Retesting: Shall be in accordance with AMS 2370 or AMS 2372, as applicable.

5. PREPARATION FOR DELIVERY:

5.1 Identification: The product shall be identified as follows:

5.1.1 Bars and Tubing: Individual pieces or bundles shall have attached a metal or plastic tag embossed with the purchase order number, AMS 5062C, and nominal size or shall be boxed and the box marked with the same information.

5.1.2 Forgings: In accordance with AMS 2808.

5.1.3 Sheet, Strip, and Plate: Each sheet, strip, and plate shall be marked as in 5.1.3.1 unless purchaser permits a method from 5.1.3.2.

5.1.3.1 Each sheet, strip, and plate shall be marked on one face, in the respective location indicated below, with AMS 5062C, manufacturer's identification, and nominal thickness. The characters shall be of such size as to be clearly legible, shall be applied using a suitable marking fluid, and shall be capable of being removed in hot alkaline cleaning solution without rubbing. The markings shall have no deleterious effect on the material or its performance and shall be sufficiently stable to withstand normal handling.

5.1.3.1.1 Flat Strip 6 In. (152 mm) and Under in Width: Shall be marked in one or more lengthwise rows of characters recurring at intervals not greater than 3 ft (914 mm).

5.1.3.1.2 Flat Sheet, Flat Strip Over 6 In. (152 mm) in Width, and Plate: Shall be marked in lengthwise rows of characters recurring at intervals not greater than 3 ft (914 mm), the rows being spaced not more than 6 in. (152 mm) apart and alternately staggered.

5.1.3.1.3 Coiled Sheet and Strip: Shall be marked near the outside end of the coil. The inside end of the coil shall also be marked or shall have a tag or label attached and marked with the information of 5.1.3.1.

5.1.3.2 When purchaser permits, each sheet, strip, and plate may be marked near one end, coils being marked near the outside end, with AMS 5062C, manufacturer's identification, and nominal thickness, using any suitable marking fluid. As an alternative method, individual pieces and bundles shall have attached a metal or plastic tag embossed with the above information or shall be boxed and the box marked with the same information.

5.1.4 Forging Stock: As agreed upon by purchaser and vendor.

5.2 Protective Treatment: The product shall be coated with a suitable corrosion-preventive compound prior to shipment.