

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS5042D

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STEEL SHEET AND STRIP Low Carbon - Forming

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1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. **FORM:** Sheet, strip and plate.
3. **APPLICATION:** Primarily for drawn and formed parts requiring a material of fair ductility.
4. **COMPOSITION:**

Check Analysis
Under Min or Over Max

Carbon	0.15 max	---	0.03
Manganese	0.30 - 0.50	0.03	0.03
Phosphorus	0.040 max	---	0.01
Sulfur	0.050 max	---	0.01

5. **CONDITION:** (a) Cold rolled and oiled, conforming to the following hardness requirements:

Nominal Thickness Inch	Hardness
0.187 and under	Rockwell B 52-64
Over 0.187	Rockwell B 45-64

Acceptability of material less than 0.080 in. in thickness shall be based on conformance to one of the following requirements as applicable:

Nominal Thickness Inch	Hardness (Equivalent to Rockwell B 52-64)
0.008 to 0.013 incl	Vickers (1 kg. load) 95-115
Over 0.013 to 0.025 incl	Superficial Rockwell 15T 77-82
Over 0.025 to 0.054 incl	Superficial Rockwell 30T 51-60
Over 0.054 to 0.079 incl	Rockwell F 86-94

(b) Sheet and strip shall withstand, without cracking, bending at room temperature flat on itself with axis of bend parallel to direction of rolling.

6. **QUALITY:** Material shall be uniform in quality and condition, clean, sound, smooth, and free from foreign materials and from internal and external defects detrimental to fabrication or to performance of parts. Material in which defects are revealed during fabrication will be subject to rejection.

Section 1.1 of the SAE Technical Board rules provides that: "All technical reports, including standards prepared and practices recommended, are advisory only. Their use by one engaged in industry or trade is entirely voluntary. There is no agreement to adhere to a standard or recommended practice, and no commitment to carry out or to 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."

7. **TOLERANCES:** Unless otherwise specified, tolerances shall conform to the latest issue of AMS 2332 as applicable. Thickness and width tolerances shall be as specified below:

- (a) Thickness - Table I
- (b) Width - Table III

8. **REPORTS:** (a) Unless otherwise specified, the vendor of material shall furnish with each shipment three copies of a notarized report showing the results of tests to determine conformance to the requirements of this specification, or stating that the chemical composition and physical properties of the material conform to the requirements specified. This report shall include the purchase order number, material specification number, size and quantity.

(b) Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a notarized report showing the purchase order number, material specification number, 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 certification that the material conforms, or shall include copies of laboratory reports showing results of tests to determine conformance.

9. **IDENTIFICATION:** Shall be according to paragraph (a) below, unless purchaser permits the methods in paragraph (b):

(a) Each plate, sheet and strip shall be marked, in the respective location indicated below, with AMS 5042D and nominal thickness in inches. The characters shall be not less than 3/8 in. in height and shall be applied using a suitable marking fluid. The marking fluid used shall be capable of being removed in hot alkaline cleaning solution without rubbing. The characters shall be legible upon receipt of material by purchaser, shall be sufficiently stable to withstand ordinary handling, and shall not interfere with welding procedures:

(1) Plate, Flat Sheet and Flat Strip - Shall be marked in lengthwise rows of characters recurring at intervals not greater than 2 ft., the rows being spaced not more than 12 in. apart and alternately staggered.

(2) Coiled Sheet and Strip - Shall be marked near the outside end of the coil.

(b) When purchaser permits, each plate, sheet, and strip may be marked near one end, coils being marked near the outside end, with the purchase order number, AMS 5042D, and nominal thickness in inches, using any suitable marking fluid. As an alternative method, individual pieces and bundles shall have attached a metal tag stamped with the above information or shall be boxed and the box marked with the same information. The marking shall be legible upon receipt of material by purchaser.

10. **REJECTIONS:** Material not conforming to this specification or to authorized modifications will be subject to rejection. Unless otherwise stipulated, rejected material and parts will be returned to vendor at vendor's expense, unless purchaser receives, within three weeks of notification of rejection, other instructions for disposition.