AEROSPACE MATERIAL SPECIFICATION

AMS5042	REV. M

Issued	1940-03
Revised	2003-12
Noncurrent	2009-08
Reaf. Nonc.	2013-09

Superseding AMS5042L

Steel, Sheet and Strip
0.15 Carbon, Maximum
Forming Grade

RATIONALE

AMS5042M has been reaffirmed to comply with the SAE five-year review policy.

NONCURRENT NOTICE

This specification has been declared “NONCURRENT” by the Aerospace Materials Division, SAE, as of August 2009. It is recommended, therefore, that this specification not be specified for new designs.

“NONCURRENT” refers to those specifications which have previously been widely used and which may be required for production or processing of existing designs in the future. The Aerospace Materials Division, however, does not recommend these specifications for future use in new designs. “NONCURRENT” specifications are available from SAE upon request.

Similar but not necessarily identical products are covered in the following specifications. However, this listing is provided for information only and does not constitute authority to substitute these specifications for the “NONCURRENT” specification

ASTM A109 / A109M Steel, Strip, Carbon (0.25 Maximum Percent), Cold-Rolled

ASTM A1008 / A1008M Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: **http://www.sae.org**

SAE values your input. To provide feedback on this Technical Report, please visit
http://www.sae.org/technical/standards/AMS5042M

1. SCOPE:

1.1 Form:

This specification covers a carbon steel in the form of sheet and strip.

1.2 Application:

These products have been used typically for drawn and formed parts requiring a steel of moderate ductility, but usage is not limited to such applications.

2. APPLICABLE DOCUMENTS:

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001 or www.sae.org.

AMS 2232	Tolerances, Carbon Steel Sheet, Strip, and Plate
AMS 2259	Chemical Check Analysis Limits, Wrought Low-Alloy and Carbon Steels
AMS 2370	Quality Assurance Sampling and Testing, Carbon and Low-Alloy Steel Wrought Products and Forging Stock
AMS 2807	Identification, Carbon and Low-Alloy Steels, Corrosion and Heat-Resistant Steels and Alloys, Sheet, Strip, Plate, and Aircraft Tubing

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 or www.astm.org.

ASTM A 370	Mechanical Testing of Steel Products
ASTM E 350	Chemical Analysis of Carbon Steel, Low-Alloy Steel, Silicon Electrical Steel, Ingot Iron, and Wrought Iron

3. TECHNICAL REQUIREMENTS:

3.1 Composition:

Shall conform to the percentages by weight shown in Table 1, determined by wet chemical methods in accordance with ASTM E 350, by spectrochemical methods, or by other analytical methods acceptable to purchaser.

TABLE 1 - Composition

Element	min	max
Carbon	--	0.15
Manganese	0.30	0.60
Phosphorus	--	0.035
Sulfur	--	0.040

3.1.1 Check Analysis: Composition variations shall meet the applicable requirements of AMS 2259.

3.2 Condition:

Product shall be supplied skin rolled.

3.3 Properties:

The product shall conform to the following requirements; hardness and bend tests shall be performed in accordance with ASTM A 370:

3.3.1 Hardness: Shall be as shown in Table 2, or equivalent (See 8.2).

TABLE 2 - Hardness

Nominal Thickness Inch	Nominal Thickness Millimeters	Hardness
0.009 to 0.014, incl	0.23 to 0.36, incl	95 to 115 HV (1 kg load)
Over 0.014 to 0.027, incl	Over 0.36 to 0.69, incl	77 to 82 HR15T
Over 0.027 to 0.059, incl	Over 0.69 to 1.50, incl	51 to 60 HR30T
Over 0.059 to 0.089, incl	Over 1.50 to 2.26, incl	86 to 94 HRF
Over 0.089 to 0.187, incl	Over 2.26 to 4.75, incl	52 to 64 HRB
Over 0.187	Over 4.75	45 to 64 HRB

3.3.2 Bending: The product shall withstand, without cracking, bending at room temperature flat on itself with axis of bend parallel to the direction of rolling.

3.4 Quality:

The product, as received by purchaser, shall be uniform in quality and condition, sound, and free from foreign materials and from imperfections detrimental to usage of the product.

3.5 Tolerances:

Shall conform to all applicable requirements of AMS 2232.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:

The vendor of the product shall supply all samples for vendor's tests and shall be responsible for the performance of all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the product conforms to specified requirements.

4.2 Classification of Tests:

Tests for all technical requirements are acceptance tests and shall be performed on each heat or lot as applicable.

4.3 Sampling and Testing:

Shall be in accordance with AMS 2370.

4.4 Reports:

The vendor of the product shall furnish with each shipment a report showing the results of tests for composition of each heat and the the hardness of each lot and stating that the product conforms to the other technical requirements. This report shall include the purchase order number, heat and lot numbers, AMS 5042L, size, and quantity.

4.5 Resampling and Retesting:

Shall be in accordance with AMS 2370.

5. PREPARATION FOR DELIVERY:

5.1 Identification:

Shall be in accordance with AMS 2807.