



AEROSPACE MATERIAL SPECIFICATION

AMS5045™**REV. L**

Issued 1945-07
Reaffirmed 2013-10
Revised 2024-12

Superseding AMS5045K

Steel, Sheet and Strip
0.25 Carbon, Maximum (SAE 1020)
Hard Temper
(Composition similar to UNS G10200)

RATIONALE

AMS5045L is the result of a Five-Year Review and update of the specification. The revision updates the Title to include the common name, clarifies composition reporting (see 3.1.1), and updates the exceptions and prohibition requirements (see 4.4.2 and 8.5).

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 stamped parts requiring strength imparted by rolling rather than 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 International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AMS2232 Tolerances, Carbon Steel, Sheet, Strip, and Plate

AMS2259 Chemical Check Analysis Limits, Wrought Low-Alloy and Carbon Steels

AMS2370 Quality Assurance Sampling and Testing, Carbon and Low-Alloy Steel Wrought Products and Forging Stock

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For more information on this standard, visit
<https://www.sae.org/standards/content/AMS5045L/>

AMS2807 Identification, Carbon and Low-Alloy Steels, Corrosion- and Heat-Resistant Steels and Alloys, Sheet, Strip, Plate, and Aircraft Tubing

AS7766 Terms Used in Aerospace Metals Specifications

2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM A370 Mechanical Testing of Steel Products

ASTM A751 Chemical Analysis of Steel Products

ASTM E140 Hardness Conversion Tables for Metals Relationship Among Brinell Hardness, Vickers Hardness, Rockwell Hardness, Superficial Hardness, Knoop Hardness, Scleroscope Hardness, and Leeb Hardness

2.3 Definitions

Terms used in AMS are defined in AS7766.

3. TECHNICAL REQUIREMENTS

3.1 Composition

Composition shall conform to the percentages by weight shown in Table 1, determined in accordance with ASTM A751 or by other analytical methods acceptable to the purchaser.

Table 1 - Composition

Element	Min	Max
Carbon	--	0.25
Manganese	0.30	0.60
Phosphorus	--	0.035
Sulfur	--	0.040

3.1.1 The producer may test for any element not listed in Table 1 and include this analysis in the report of 4.5. Reporting of any element not listed in the composition table is not a basis for rejection unless limits of acceptability are specified by the purchaser.

3.1.2 Check Analysis

Composition variations shall meet the applicable requirements of AMS2259.

3.2 Condition

Product shall be cold rolled.

3.3 Properties

The product shall conform to the following requirements:

3.3.1 Hardness

Hardness shall be as shown in Table 2, or equivalent (see 8.2), determined in accordance with ASTM A370.

Table 2 - Hardness

Nominal Thickness Inches	Nominal Thickness Millimeters	Hardness
0.006 to 0.013, incl	0.15 to 0.33, incl	90 to 94 HR15T
Over 0.013 to 0.037, incl	Over 0.33 to 0.94, incl	76 to 83 HR30T
Over 0.037 to 0.069, incl	Over 0.94 to 1.75, incl	90 to 102 HRB
Over 0.069	Over 1.75	84 to 96 HRB

3.4 Quality

The product, as received by the 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

Tolerances shall conform to all applicable requirements of AMS2232.

3.6 Exceptions

Any exceptions shall be authorized by the purchaser and reported as in 4.4.2.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for Inspection

The producer of the product shall supply all samples for the producer's tests and shall be responsible for the performance of all required tests. The 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

Sampling and testing shall be in accordance with AMS2370.

4.4 Reports

4.4.1 The producer of the product shall furnish with each shipment a report showing the producer's identity, the results of tests for composition of each heat, and the results of tests for hardness of each lot. The report shall state that the product conforms to the other technical requirements and shall include the purchase order number, heat and lot numbers, AMS5045L, size, and quantity.

4.4.2 When material produced to this specification has exceptions to the technical requirements listed in Section 3, the report shall contain a statement "This material is certified as AMS5045L(EXC) because of the following exceptions:" and the specific exceptions shall be listed (see 5.1).

4.5 Resampling and Retesting

Resampling and retesting shall be in accordance with AMS2370.