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AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard

AMS 5120J

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STEEL STRIP
0.68 - 0.80C (SAE 1074)

UNS G1074C

1. SCOPE:

1.1 Form: This specification covers a carbon steel in the form of strip.

1.2 Application: Primarily for heat treated springs, spring pins, shims, spacers, and other applications where spring temper 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 shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2232 - Tolerances, Carbon Steel Sheet, Strip, and Plate
MAM 2232 - Tolerances, Metric, 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 and Forging Stock

2.2 ASTM Publications: Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 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 U.S. Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.3.1 Military Standards:

MIL-STD-163 - Steel Mill Products, Preparation for Shipment and Storage

3. TECHNICAL REQUIREMENTS:

3.1 Composition: Shall conform to the following percentages by weight, determined by wet chemical methods in accordance with ASTM E350 or by spectrochemical or other analytical methods approved by purchaser:

	min		max
Carbon	0.68	-	0.80
Manganese	0.50	-	0.80
Silicon	0.10	-	0.30
Phosphorus	--		0.040
Sulfur	--		0.050

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

3.2 Condition: Strip shall be supplied in the following condition; hardness shall be determined in accordance with ASTM A370:

3.2.1 0.063 In. (1.60 mm) and Under in Nominal Thickness: Cold rolled and annealed having hardness not higher than 85 HRB, or equivalent.

3.2.2 Over 0.063 In. (1.60 mm) in Nominal Thickness: Cold rolled and annealed, or hot rolled, annealed, and descaled having hardness not higher than 85 HRB, or equivalent.

3.3 Properties: Strip shall conform to the following requirements; hardness and bend tests shall be performed in accordance with ASTM A370:

3.3.1 Decarburization:

3.3.1.1 Specimens: Shall be the full thickness of the strip. Recommended specimen size is 1 x 4 in. (25 x 100 mm).

3.3.1.2 Procedure: Specimens shall be hardened by austenitizing and quenching; preferably, they shall not be tempered but, if tempered, the tempering temperature shall be higher than 300°F (150°C). During heat treatment, specimens shall be protected by suitable atmosphere or medium or by suitable plating to prevent carburization or further decarburization. Protective plating, if used, shall then be removed and a portion of the specimen shall be ground to a depth of 0.050 in. (1.25 mm) or one-half thickness, whichever is less. At least three Rockwell hardness readings shall be taken on each prepared step and each group of readings averaged.

3.3.1.3 Allowance: Strip shall show no layer of complete decarburization, determined microscopically at a magnification not exceeding 100X. It shall also be free from partial decarburization to the extent that the difference in hardness between the original surface and the portion ground as in 3.3.1.2 shall be not greater than 2 units on the Rockwell Superficial 30N scale.

3.3.2 Bending: Strip shall withstand, without cracking, bending at room temperature through an angle of 180 deg around a diameter equal to twice the nominal thickness of the strip with the axis of bend parallel to the direction of rolling. If the bend cannot be made with the axis parallel to the direction of rolling, bending shall be done with the axis perpendicular to the direction of rolling around a diameter equal to the nominal thickness of the strip.

3.4 Quality: Strip, 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 strip.

3.5 Tolerances: Shall conform to all applicable requirements of AMS 2232 or MAM 2232.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of strip shall supply all samples for vendor's tests 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 sample and to perform any confirmatory testing deemed necessary to ensure that the strip 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 testsand shall be performed on each heat or lot as applicable.

4.3 Sampling: Shall be in accordance with AMS 2370.

4.4 Reports:

4.4.1 The vendor of strip shall furnish with each shipment a report showing the results of tests for chemical composition of each heat and for hardness of each lot. This report shall include the purchase order number, heat number, AMS 5120J, size, and quantity.

4.4.2 The vendor of finished or semi-finished parts shall furnish with each shipment a report showing the purchase order number, AMS 512ØJ, contractor or other direct supplier of strip, part number, and quantity. When strip for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of strip to determine conformance to the requirements of this specification and shall include in the report either a statement that the strip conforms or copies of laboratory reports showing the results of tests to determine conformance.