AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS 5506

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Revised

STEEL SHEET AND STRIP, CORROSION AND MODERATE HEAT RESISTANT 13Cr (0.30-0.40C) (SAE 51420)

1. ACKNOWLEDGMENT: A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.

2. FORM: Sheet, strip, and plate.

3. APPLICATION: Primarily for parts such as snap rings and flat springs requiring corrosion resistance and oxidation resistance up to 800 F.

4. COMPOSITION:

		Check Analysis Under Min or Over Max	
Carbon	0.30 - 0.40	0.02	0.02
Manganese	1.00 max	--	0.03
Silicon	1.00 max	--	0.05
Phosphorus	0.040 max	--	0.005
Sulfur	0.030 max	--	0.005
Chromium	12.00 - 14.00	0.15	0.15
Nickel	0.50 max	--	0.03
Molybdenum	0.50 max	--	0.03

5. CONDITION:

5.1 Sheet: Hot rolled, annealed, and descaled (No. 1 Finish).

5.2 Strip: Cold rolled, annealed, and descaled (No. 1 Strip Finish).

5.3 Plate: Hot rolled, annealed, and descaled.

6. TECHNICAL REQUIREMENTS:

6.1 Tensile Properties:

Tensile Strength, psi	100,000 max
Elongation, % in 2 in.	
Thickness, up to 0.030 in.	12 min
0.030 and over	15 min

6.1.1 For widths 9 in. and over, tensile test specimens shall be taken with the axis perpendicular to the direction of rolling. For widths less than 9 in., tensile test specimens shall be taken with the axis parallel to the direction of rolling.

6.2 Hardenability: Material 1/2 in. and less in thickness and 1/2 in. thick specimens from heavier material shall be capable of meeting the following test:

6.2.1 Specimens shall be heated to 1825 F ± 10, held at heat for 25 min. and cooled in air. Hardness of such specimens shall be not lower than Rockwell C 50.

6.3 Bending: Material shall withstand, without cracking, bending at room temperature through the angle indicated below around a diameter equal to the bend factor times the nominal thickness of the material, with axes of bends both perpendicular and parallel to the direction of rolling:

Nominal Thickness Inch	Angle degrees, min	Bend Factor
0.375 and under	180	2
Over 0.375 to 0.500, incl	180	3

7. QUALITY: Material shall be uniform in quality and condition, clean, sound, and free from foreign materials and from internal and external defects detrimental to fabrication or to performance of parts.

8. TOLERANCES: Unless otherwise specified, tolerances shall conform to the latest issue of AMS 2242 as applicable.

9. REPORTS:

9.1 Unless otherwise specified, 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 and the results of tests on each thickness from each heat to determine conformance to the tensile, hardenability and bending requirements of this specification. This report shall include the purchase order number, heat number, material specification number, thickness, size, and quantity from each heat.

9.2 Unless otherwise specified, 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, 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.

10. IDENTIFICATION: Unless otherwise specified, each plate, sheet, and strip shall be marked, in the respective location indicated below, with AMS 5506, manufacturer's identification, and nominal thickness in inches. The characters shall be not less than 3/8 in. in height, shall be applied using a suitable marking fluid, and shall be capable of being removed in hot alkaline cleaning solution without rubbing. The characters shall be sufficiently stable to withstand ordinary handling.

10.1 Plate, Flat Sheet, and Flat Strip Over 6 in. in Width: Shall be marked in lengthwise rows of characters, recurring at intervals not greater than 2 ft, the rows being spaced not more than 3 in. apart and alternately staggered.

10.2 Flat Strip 6 in. and Under in Width: Shall be marked near one end.