

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS 5526

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Revised

STEEL SHEET AND STRIP, CORROSION AND HEAT RESISTANT 20Cr - 9Ni - 1.4Mo - 1.4W - 0.4Cb - 0.4Ti

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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:** Parts and assemblies, such as welded nozzle diaphragm assemblies, tail pipes and exhaust cones, requiring high strength up to 1350 F and oxidation resistance up to 1600F.

4. **COMPOSITION:**

Check Analysis			
Under Min or Over Max			
Carbon	0.26 - 0.36	0.00	0.00
Manganese	0.75 - 1.5	0.04	0.04
Silicon	0.30 - 0.80	0.05	0.05
Phosphorus	0.040 max	--	0.005
Sulfur	0.030 max	--	0.005
Chromium	18.00 - 22.00	0.25	0.25
Nickel	8.00 - 10.00	0.10	0.10
Molybdenum	1.00 - 1.75	0.05	0.05
Tungsten	1.00 - 1.75	0.05	0.05
Columbium	0.20 - 0.55	0.05	0.05
Titanium	0.20 - 0.55	0.05	0.05
Copper	0.50 max	--	0.03

5. **CONDITION:** Unless otherwise specified, the material shall be furnished in the following condition:
 - (a) Sheet.- Hot rolled, annealed and pickled (No. 1 Finish).
 - (b) Strip.- Cold rolled, annealed and pickled (No. 1 Strip Finish).
 - (c) Plate.- Hot rolled, annealed and pickled.
6. **TECHNICAL REQUIREMENTS:** (a) Physical Properties.- Material shall conform to the following requirements:

Tensile Strength, psi	125,000 max
Elongation, % in 2 in.	30 min

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

Section 7C of the SAE Technical Board rules provides that: "All technical reports, including standards, approved and practices recommended, are advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. There is no agreement to adhere to SAE standard or recommended practice, and no commitment to form to or be guided by any technical report. In formulating and approving technical report, 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."

(b) 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:

<u>Nominal Thickness</u> <u>Inch</u>	<u>Angles, Degrees</u> <u>Min</u>	<u>Bend Factor</u>
Under 0.050	180	1
0.050 and Over	90	2

7. QUALITY: The product 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 for sheet and strip shall conform to the latest issue of AMS 2242 as applicable.
9. REPORTS: (a) Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a notarized 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 physical property 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.

 (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 the results of tests to determine conformance.
10. IDENTIFICATION: (a) Unless otherwise specified, each sheet, strip and plate shall be marked with AMS 5526, 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 markings shall have no deleterious effect on the material or its performance. The characters shall be sufficiently stable to withstand ordinary handling.

 (1) Plate, flat sheet, and flat strip over 6 in. in width shall be marked in rows of recurring characters with rows parallel to the direction of rolling and spaced approximately 3 in. apart with alternate rows staggered.

 (2) Flat strip 6 in. and under in width shall be marked near one end.

 (3) Coiled sheet and strip shall be marked near the outside end of the coil, and, if practicable, near the inside end also.