

AERONAUTICAL MATERIAL SPECIFICATIONS

AMS 5552

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York 17, N.Y.

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Revised

ALLOY SHEET AND STRIP, CORROSION AND HEAT RESISTANT Iron Base - 20.5Cr - 32Ni - 1.1Ti

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 requiring oxidation resistance up to approximately 1800 F, but useful at the higher temperatures only when stresses are low, and where such parts may require welding during fabrication.

4. COMPOSITION:

Carbon	0.10 max
Manganese	1.50 max
Silicon	1.00 max
Sulfur	0.015 max
Chromium	19.0 - 22.0
Nickel	30.0 - 34.0
Cobalt, if determined	1.00 max
Titanium	0.75 - 1.50
Copper	0.50 max
Iron	remainder

- 4.1 Check Analysis: Composition variations shall meet the requirements of latest issue of AMS 2269.

5. CONDITION:

- 5.1 Sheet: Cold rolled, annealed, and descaled.
- 5.2 Strip: Cold rolled and annealed, and descaled if necessary.
- 5.3 Plate: Hot rolled, annealed, and descaled, unless otherwise specified.

6. TECHNICAL REQUIREMENTS:

6.1 Tensile Properties:

Tensile Strength, psi	80,000 to 105,000
Yield Strength, at 0.2% Offset or at 0.0061 in. in 2 in. Extension Under Load (E = 28,500,000) psi	30,000 min
Elongation, % in 2 in.	30 min

- 6.1.1 Yield strength and elongation requirements do not apply to material under 0.020 in. in thickness.

Section 8.3 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 intent to adhere to any SAE standard or recommended practice, and no commitment to conform to or be guided by any technical report. In formulating and applying technical reports, the 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."

6.1.2 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 Bending: Material shall withstand, without cracking, bending at room temperature through an angle of 180 deg around a diameter equal to the bend factor times the nominal thickness of the material, with axis of bend parallel to the direction of rolling.

Form	Nominal Thickness Inch	Bend Factor
Sheet	0.018 - 0.250, incl	1
Strip	0.125 and under	1
Plate	0.187 to 0.750, incl	2

6.3 Grain Size: Shall be not larger than the following when determined in accordance with ASTM E112-58T.

Form	Nominal Thickness Inch	Average Grain diameter, in.	ASTM Grain Size
Sheet	0.050 and under	0.0030	4.5
	Over 0.050 to 0.250, incl	0.0043	3.5
Strip	0.005 to 0.010, incl	0.0009	8.0
	0.010 to 0.125, incl	0.0030	4.5

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

8. TOLERANCES: Unless otherwise specified, tolerances shall conform to the latest issue of AMS 2262 as applicable.

8.1 Thickness: Table I, Table II, or Table III.

8.2 Width: 4.1, 4.2, or 4.3.

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 technical requirements of this specification. This report shall include the purchase order number, heat number, material specification number, thickness, size, and quantity from each heat.