

AERONAUTICAL MATERIAL SPECIFICATIONS

AMS 5528A

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STEEL SHEET AND STRIP, CORROSION RESISTANT 17Cr - 7Ni - 1Al

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. FORM: Sheet, strip, and plate.
3. APPLICATION: Primarily for parts requiring corrosion resistance and high strength up to 600 F, and where such parts may require welding during fabrication.
4. COMPOSITION:

		Check Analysis	
		Under	Min or Over Max
Carbon	0.09 max	--	0.01
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	16.00 - 18.00	0.20	0.20
Nickel	6.50 - 7.75	0.10	0.10
Aluminum	0.75 - 1.50	0.10	0.10

5. CONDITION: Solution heat treated at 1950 F \pm 25.
 - 5.1 Sheet: Cold rolled, solution heat treated, and descaled (No. 2D Finish).
 - 5.2 Strip: Cold rolled, solution heat treated, and descaled (No. 1 Strip Finish).
 - 5.3 Plate: Hot rolled, solution heat treated, and descaled.

6. TECHNICAL REQUIREMENTS:

6.1 Tensile Properties:

Nominal Thickness Inch	Tensile Strength psi, max	Yield Strength at 0.2% Offset or at Extension Indicated (E = 29,000,000)		Elongation % in 2 in. min
		psi, max	Extension Under Load in. in 2 in.	
0.005 to 0.010, incl	150,000	65,000	0.0085	20
Over 0.010	150,000	55,000	0.0078	20

Section 7C of the SAE Technical Board rules provides that: "All technical reports, including standards approved and practices recommended, and no commitment to conform to or be guided by any technical report. There is no assurance that the Board and its Committees will not investigate or consider patents which may apply to the subject matter. Prospective users of the report.

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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 Hardness: Shall be not higher than Rockwell B 92 or equivalent.

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 ϕ the nominal thickness of the material, with axis of bend parallel to the direction of rolling.

Nominal Thickness Inch	Type of Bend	Angle deg, min	Bend Factor
0.187 and under	Free Bend	180	1
0.187 and under	V-Block	135	1
Over 0.187 to 0.275, incl	Free Bend	180	3
Over 0.187 to 0.275, incl	V-Block	135	3

6.4 Properties After Heat Treatment: Material shall conform to the following requirements after heating at $1400\text{ F} \pm 25$ for 1-1/2 hr, cooling to $55\text{ F} \pm 5$ within 1 hr, holding at that temperature for not less than 30 min., followed by heating rapidly to $1050\text{ F} \pm 10$, holding at that temperature for 1-1/2 hr, and cooling.

6.4.1 Tensile Properties: Applicable to material 0.005 in. and over in thickness.

ϕ Tensile Strength, psi	180,000 min
Yield Strength at 0.2% Offset or at 0.0143 in. in 2 in. Extension Under Load ($E = 29,000,000$), psi	150,000 min
Elongation, % in 2 in.	
Nominal Thickness, in. 0.005 to 0.010, incl	4 min
Over 0.010 to 0.019, incl	5 min
Over 0.019	6 min

6.4.1.1 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.

6.4.2 Hardness: Shall be not lower than Rockwell C 38 or equivalent.

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 to performance of parts.

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