AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS 5528

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

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 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 1900 F ± 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:

Tensile Strength, psi	150,000 max
Yield Strength at 0.2% Offset or at 0.0078 in. in 2 in. Extension Under Load (E = 29,000,000), psi	55,000 max
Elongation, % in 2 in.	20 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 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 the nominal thickness of the material, with axes of bends both perpendicular and parallel to the direction of rolling.

Nominal Thickness Inch	Type of Bend	Angle degrees, 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 F ± 25 for 1-1/2 hr and cooling to 60 F or lower, followed by aging at 1050 F ± 10 for 1-1/2 hr and cooling.

6.4.1 Tensile Properties:

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.		
Thickness:	0.036 in. and under	6 min
	Over 0.036 in.	7 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 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 test 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 requirements of Section 6. This report shall include the purchase order number, heat number, material specification number, thickness, size, and quantity from each heat.