AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
29 West 39th Street
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AMS 5511

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Revised

STEEL, SHEET AND STRIP - CORROSION AND HEAT RESISTANT
18Cr - 8Ni
Extra Low Carbon

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 both corrosion and heat resistance up to 800 F, and especially where such parts and assemblies require welding during fabrication.

4. COMPOSITION:

		Check Analysis Under Min	Check Analysis Over Max
Carbon	0.030 max	--	0.005
Manganese	2.00 max	--	0.04
Silicon	1.00 max	--	0.05
Phosphorus	0.040 max	--	0.005
Sulfur	0.030 max	--	0.005
Chromium	18.00 - 20.00	0.20	0.20
Nickel	8.00 - 11.00	0.15	0.15
Molybdenum	0.50 max	--	0.03
Copper	0.50 max	--	0.03

5. CONDITION:

5.1 Sheet: Cold rolled, solution heat treated, and pickled. (No. 2D Finish),

5.2 Strip: Cold rolled, solution heat treated, and pickled. (No. 1 Strip Finish),

5.3 Plate: Hot rolled, solution heat treated, and pickled.

6. TECHNICAL REQUIREMENTS:

6.1 Physical Properties:

Tensile Strength, psi	100,000 max
Elongation, % in 2 in.	40 min

Note: 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.

6.2 Bending: Material shall withstand, without cracking, bending at room temperature through the angle indicated below around a diameter equal to 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
0.249 and under	180
Over 0.249 to 0.749, incl	90

6.3 Embrittlement: Material shall be capable of meeting the following test:

6.3.1 Test specimens, after being heated at 1200 F for 2 hr and air cooled, shall withstand immersion for 48 hrs in a boiling aqueous solution containing 100 g of $CuSO_4 \cdot 5H_2O$ and 100 ml of H_2SO_4 (sp gr 1.84) per liter of solution under a reflux condenser, without evidence of intercrystalline surface attack. After such immersion, the specimens shall withstand bending as in 6.2.

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 for sheet and strip 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 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.

9.2 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: Unless otherwise specified, each sheet, strip, and plate shall be marked with AMS 5511, manufacturer's identification, and nominal thickness in inches. The characters shall be not less than 0.375 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.