AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
29 West 39th Street
New York City

AMS 5536

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Revised

ALLOY SHEET, CORROSION AND HEAT RESISTANT
Nickel Base - 22Cr - 1.5Co - 9Mo - 0.6W - 18.5Fe

1. ACKNOWLEDGMENT: A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.

2. APPLICATION: Primarily for parts such as welded nozzle diaphragm assemblies, burner liner parts, tail pipes, exhaust cone assemblies and other parts requiring oxidation resistance up to 2200 F, and relatively high strength above 1500 F.

3. COMPOSITION:

		Check Analysis Under Min	Check Analysis Over Max
Carbon	0.05 - 0.15	0.01	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	20.50 - 23.00	0.25	0.25
Cobalt	0.50 - 2.50	0.05	0.05
Molybdenum	8.00 - 10.00	0.10	0.10
Tungsten	0.20 - 1.00	0.04	0.04
Iron	17.00 - 20.00	0.20	0.20
Nickel	remainder	--	--

4. CONDITION: Unless otherwise specified, material shall be hot rolled, solution heat treated and descaled, having a surface appearance as close as possible to a commercial corrosion resistant steel No. 1 finish; actual acceptance and rejection standards shall be as agreed upon by purchaser and vendor.

5. TECHNICAL REQUIREMENTS:

5.1 Heat Treatment: Material shall be solution heat treated by heating to 2150 F ± 25, holding at heat for not more than 30 min. and cooling in air.

5.2 Tensile Properties:

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

5.2.1 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.

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5.3 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	Angle degrees, min	Bend Factor
Under 0.050	180	1
0.050 and over	180	2

5.4 Stress-Rupture Test at 1500 F: Material shall be capable of meeting the following requirements:

5.4.1 A tensile test specimen, maintained at 1500 F ± 5 while an axial load of 15,000 psi is applied continuously shall not rupture in less than 24 hours. The test shall be continued, after the 24 hr, until the specimen ruptures, either maintaining the same load or increasing the load to not over 25,000 psi as necessary to produce rupture. In either case, the elongation after rupture, measured at room temperature, shall be not less than 10% in 2 inches.

6. 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.

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

8. REPORTS:

8.1 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 lot to determine conformance to the tensile and bending requirements of this specification. This report shall include the purchase order number, lot number, material specification number, nominal thickness, size, and quantity from each lot. A lot shall be considered to be any number of individual furnace heats of approximately the same composition which are processed as a unit.

8.2 Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a 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 statement that the material conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.