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AEROSPACE MATERIAL SPECIFICATION

AMS 5527A

Issued 10-1-50
Revised 10-1-82

UNS K63198

STEEL SHEET, STRIP, AND PLATE, CORROSION AND HEAT RESISTANT 20Cr - 9Ni - 1.4Mo - 1.4W - 0.4(Cb + Ta) - 0.2Ti Hot Rolled and Stress Relieved

This specification has been declared "NONCURRENT" by the Aerospace Materials Division, SAE, as of 10-1-82. It is recommended, therefore, that this specification not be specified for new designs.

This cover sheet should be attached to the "A" revision of the subject specification.

This specification is under the jurisdiction of AMS Committee "F".

AERONAUTICAL MATERIAL SPECIFICATION

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

AMS 5527A
Issued 10-1-50
Revised 11-1-54

STEEL SHEET AND STRIP, CORROSION AND HEAT RESISTANT
20Cr - 9Ni - 1.4Mo - 1.4W - 0.4(Cb+Ta) - 0.2Ti
Hot Rolled and Stress Relieved

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 and assemblies such as tank shells, doublers, bulkhead rings, tail pipes, and exhaust cones, requiring high strength up to 1000 F and oxidation resistance up to 1600 F.

4. COMPOSITION:

		Check Analysis Under Min	Check Analysis Over Max
Carbon	0.28 - 0.35	0.02	0.02
Manganese	0.75 - 1.50	0.04	0.04
Silicon	0.30 - 0.80	0.05	0.05
Phosphorus	0.040 max	--	0.005
Sulfur	0.030 max	--	0.005
Chromium	18.00 - 21.00	0.25	0.25
Nickel	8.00 - 11.00	0.15	0.15
Molybdenum	1.00 - 1.75	0.05	0.05
Tungsten	1.00 - 1.75	0.05	0.05
Columbium + Tantalum	0.25 - 0.60	0.05	0.05
Titanium	0.10 - 0.35	0.00	0.05
Copper	0.50 max	--	0.03

5. CONDITION:

5.1 Sheet: Hot rolled or cold finished, stress relieved, and descaled having a ø surface appearance as close as possible to a commercial corrosion resistant steel No. 2D finish; actual acceptance and rejection standards shall be as agreed upon by purchaser and vendor.

5.2 Strip: Cold finished, stress relieved, and descaled (No. 1 Strip Finish).

5.3 Plate: Hot rolled, stress relieved, and descaled.

6. TECHNICAL REQUIREMENTS:

6.1 Stress Relief Heat Treatment: Material shall be heated to 1200 F ± 25 and air cooled.

6.2 Tensile Properties: Material 0.250 in. and under in thickness shall conform to the following requirements:

Tensile Strength, psi	125,000 min
Yield Strength at 0.2% Offset or at 0.0102 in. in 2 in. Extension Under Load (E = 29,000,000), psi	90,000 min
Elongation, % in 2 in.	12 min

6.2.1 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.

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 axis of bend parallel ø to the direction of rolling.

Nominal Thickness Inch	Angle deg, min	Bend Factor
0.126 and under	90	1
Over 0.126 to 0.250, incl	90	2

7. QUALITY: The product 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 ø 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 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 tensile and bending requirements of this specification. This report shall include the purchase order 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 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.