

AERONAUTICAL MATERIAL SPECIFICATION

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

AMS 5770 A

Issued 7-1-48

Revised 6-15-50

ALLOY, CORROSION AND HEAT RESISTANT

Iron Base - 20Cr - 20Ni - 20Co - 4W - 4Mo - 4Cb

Solution and Precipitation Treated

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. FORM: Bars, billets, and forgings.
3. APPLICATION: Parts and assemblies, such as turbine rotors, shafts, buckets, and bolts, requiring high strength up to 1500 F and oxidation resistance up to 1800 F.
4. COMPOSITION:

Check Analysis Under Min or Over Max

Carbon	0.38 - 0.48	0.00	0.00
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	19.00 - 22.00	0.25	0.25
Nickel	18.50 - 21.50	0.20	0.20
Cobalt	18.50 - 21.50	0.10	0.10
Molybdenum	3.50 - 4.50	0.10	0.10
Tungsten	3.50 - 4.50	0.05	0.05
Columbium + Tantalum	3.50 - 4.50	--	0.03
Copper	0.50 max	--	--
Iron	remainder	--	--

5. CONDITION:
- 5.1 Bars: Cold finished, solution and precipitation heat treated.
- 5.2 Forgings: Solution and precipitation heat treated.
- 5.3 Forging Stock: As ordered by the forging manufacturer.

6. TECHNICAL REQUIREMENTS:

- 6.1 Heat Treatment: Bars and forgings shall be solution heat treated by heating to $2200\text{ F} + 20$, holding at that temperature for not less than one hour, followed by quenching in water, and shall then be precipitation heat treated by heating to $1400\text{ F} + 10$, holding at that temperature for not less than 10 hours followed by air cooling.
- 6.2 Hardness: Bars and forgings shall have hardness of Brinell 248 - 331 or equivalent.
- 6.3 Stress-Rupture Test at 1350 F: Specimens taken from bars and forgings shall be capable of meeting the following requirements:

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