

# AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.  
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## AMS5770 B

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ALLOY, CORROSION AND HEAT RESISTANT  
Iron Base - 20Cr - 20Ni - 20Co - 4W - 4Mo - 4(Cb+Ta)  
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, forgings, and forging stock.
3. APPLICATION: Primarily for 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	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 Grain Size: Shall be an average of 1 or finer in accordance with grain size chart in ASTM E19-46.

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