

AERONAUTICAL MATERIAL SPECIFICATION

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

AMS 5721

Issued 7-1-48

Revised

STEEL, CORROSION AND HEAT RESISTANT 20Cr - 9Ni - 1.3Mo - 1.3W - Cb - Ti

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.
2. **FORM:** Bars up to and including 1.5 in. in diameter or distance between parallel sides.
3. **APPLICATION:** Parts, such as bolts, dowels and fittings, for use up to 1250 F.
4. **COMPOSITION:**

Check Analysis Under Min or 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 - 1.60	0.05	0.05
Tungsten	1.00 - 1.70	0.05	0.05
Columbium + Tantalum	0.25 - 0.60	0.05	0.05
Titanium	0.20 - 0.50	0.05	0.05
Tantalum, if determined (0.3xCb) max		--	--
Copper	0.50 max	--	0.03

5. **CONDITION:** Unless otherwise specified, bars shall be hot rolled, with final rolling done at a temperature not lower than 1200 F, and stress relieved at not lower than 1200 F for not less than 4 hours.

6. **TECHNICAL REQUIREMENTS:**

- 6.1 **Physical Properties:** Bars shall conform to the following requirements:

Tensile Strength, psi	120,000 min
Yield Strength at 0.2% offset or at 0.0109 inch in 2 in. extension under load, psi	100,000 min
Elongation, % in 4D	18 min
Reduction of Area, %	35 min
Hardness, Brinell	269-321

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 shall conform to the latest issue of AMS 2241 as applicable to hot finished.



Documents

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9. REPORTS:

- 9.1 Unless otherwise specified, the vendor of bars shall furnish with each shipment three copies of a notarized report of the results of tests for chemical composition and physical properties of each heat in the shipment. This report shall include the purchase order number, heat number, material specification number, 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 bars, part number, and quantity. When bars for making parts are produced or purchased by the parts vendor, that vendor shall inspect each lot of bars to determine conformance to the requirements of this specification, and shall include in the report a certification that the bars conform, or shall include copies of laboratory reports showing the results of tests to determine conformance.
10. IDENTIFICATION: Individual pieces or bundles shall have attached a metal tag stamped with the purchase order number, AMS 5721, nominal size, and heat number, or shall be boxed and the box marked with the same information. In addition to the above identification, bars 1 in. and over in diameter or distance between parallel sides shall be stamped with the heat number within 2 in. of one end.
11. REJECTIONS: Material not conforming to this specification or to authorized modifications will be subject to rejection. Unless otherwise stipulated, rejected material and parts will be returned to vendor at vendor's expense, unless purchaser receives, within three weeks of notification of rejection, other instructions for disposition.