

AERONAUTICAL MATERIAL SPECIFICATIONS

AMS 5742

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SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York 17, N.Y.

Revised

ALLOY, CORROSION AND HEAT RESISTANT Iron Base - 20.5Cr - 32Ni - 1.1Ti

1. ACKNOWLEDGMENT: A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.
2. FORM: Bars, forgings, and forging stock.
3. APPLICATION: Primarily for parts and assemblies requiring both corrosion and oxidation resistance and where such parts may require welding during fabrication. Parts and assemblies requiring oxidation resistance up to approximately 2000 F, but useful at the higher temperatures only when stresses are low.

4. COMPOSITION:

Carbon	0.10 max
Manganese	1.5 max
Silicon	1.0 max
Sulfur	0.03 max
Chromium	19.0 - 22.0
Nickel Cobalt	30.0 - 34.0
Cobalt, if determined	1.0 max
Titanium	0.75 - 1.5
Copper	0.50
Iron	remainder

5. CONDITION:

- 5.1 Rounds 2.5 in. and Less in Diameter: Cold finished and annealed.
- 5.2 Rounds Over 2.5 in. in Diameter: Hot finished and annealed. They may be turned, and shall be turned when specified.
- 5.3 Squares and Rectangles: Hot finished and annealed.
- 5.4 Forgings: Stress relieved by heating uniformly to 1825 F $\pm$ 25, holding at heat for 2 hr, and cooling in air.
- 5.5 Forging Stock: As ordered by the forging manufacturer.

6. TECHNICAL REQUIREMENTS:

- 6.1 Hardness: Shall be not higher than Brinell 190 or equivalent.
7. QUALITY: Material shall be uniform in quality and condition, clean, sound, and free from foreign materials and from internal and external imperfections detrimental to fabrication or to performance of parts.



Documents

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8. TOLERANCES: Unless otherwise specified, tolerances shall conform to the latest issue of AMS 2261 as applicable and as specified below:

8.1 Diameter (Rounds 2.5 in and Less in Diameter): Table II or VI as applicable.

8.2 Diameter (Rounds Over 2.5 in. in Diameter): Table IV.

8.3 Thickness and Width: Table IV.

8.4 Straightness: 6.2 or 6.3 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. This report shall include the purchase order number, heat number, material specification number, size, and quantity from each heat. If forgings are supplied, the part number and size of stock used to make the forgings shall also be included.

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.

10. IDENTIFICATION:

10.1 Bars: Individual pieces or bundles shall have attached a metal tag stamped with the purchase order number, AMS 5742, nominal size, and heat number, or shall be boxed and the box marked with the same information. In addition to the above identification, bars 0.5 in. and over in diameter or distance between parallel sides shall be stamped with the heat number within 2 in. of one end.

10.2 Forgings: Shall be identified in accordance with the latest issue of AMS 2808.

11. REJECTIONS: Material not conforming to this specification or to authorized modifications will be subject to rejection.