

AERONAUTICAL

Cancelled

AMS 4929

MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc.

485 Lexington Ave., New York 17, N.Y.

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Revised

TITANIUM ALLOY

5.4Al - 1.4Cr - 1.3Fe - 1.25Mo

Annealed - 135,000 psi Yield

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.
2. **FORM:** Bars,
3. **APPLICATION:** Primarily for parts requiring light weight, good corrosion resistance, and moderate strength up to 750 F.
4. **COMPOSITION:** The product shall conform to the following:

Check Analysis
Under Min or Over Max

Aluminum	4.75 - 6.00	0.40	0.40
Chromium	0.80 - 2.00	0.15	0.15
Iron	0.90 - 1.70	0.15	0.15
Molybdenum	0.80 - 1.70	0.15	0.15
Total Fe + Cr + Mo	3.30 - 4.70	--	--
Oxygen, if determined	0.20 max	--	--
Carbon	0.10 max	--	0.04
Nitrogen	0.07 max	--	0.02
Hydrogen	0.0125 max	--	0.0020
Other Impurities, total	0.40 max (1)	--	--
Titanium	remainder		

(1) Need not be reported

5. **CONDITION:** Hot finished, annealed, and descaled, unless otherwise specified.
6. **TECHNICAL REQUIREMENTS:** Material shall conform to the following requirements, and shall be capable of meeting these requirements after being heated to any temperature up to 1200 F for 30 min. in air, cooled in air, and descaled.
 - 6.1 **Tensile Properties:** These properties apply when the rate of strain is maintained at 0.003 - 0.007 in. per in. per min. through the yield strength and then is increased so as to produce failure in approximately one additional minute. When a dispute occurs between purchaser and vendor over the yield strength value, a referee test shall be performed on a test machine having a strain-rate pacer, using a rate of 0.005 in. per in. per min. through the yield strength. These properties apply for section thicknesses 3 in. and under; properties for heavier sections shall be as agreed upon by purchaser and vendor.

Tensile Strength, psi

145,000 min

Yield Strength at 0.2% Offset or at 0.0214 in.

135,000 min

in 2 in. Extension Under Load (E = 15,500,000) psi

Elongation, % in 4D

10 min

Reduction of Area, %

25 min



Documents

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- 6.2 Hardness: Not higher than Rockwell C 39 or equivalent.
7. QUALITY: Material shall be produced by multiple melting under vacuum using consumable electrode practice, unless otherwise permitted, and 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.
8. TOLERANCES: Unless otherwise specified, diameter or thickness tolerances shall conform to the latest issue of AMS 2241, Table II.
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 for tensile properties of each size from each heat. This report shall include the purchase order number, heat number, material specification number, size, quantity from each heat, and specific annealing treatment used.
- 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 Unless otherwise specified, each bar 0.25 in. and over in diameter, or equivalent, shall be marked with manufacturer's identification, nominal size, heat number, and AMS 4929. The characters shall be of such size as to be clearly legible, shall be applied recurring at intervals not exceeding 2 ft using a suitable marking fluid and shall not be obliterated by normal handling.
- 10.2 Bars less than 0.25 in. in diameter shall be stamped or tagged with heat number, nominal size, and AMS 4929.
11. REJECTIONS: Material not conforming to this specification or to authorized modifications will be subject to rejection.