

**Titanium and Titanium Alloy, Bars (Rolled or Forged)
and Reforging Stock, Aircraft Quality**

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1. SCOPE:**1.1 Scope:**

This specification covers aircraft quality, commercially pure titanium and alpha, alpha-beta and beta titanium alloy rolled or forged bar and reformatting stock products.

1.2 Classification:

Products shall be of the following compositions, as specified (See 6.2 and Table 9).

Commercially pure titanium

Ti-CP-70

Alpha titanium alloys

Ti-5Al-2.5Sn

Ti-5Al-2.5Sn (ELI)

6Al-2Cb-1Ta-0.8Mo

8Al-1Mo-1V

Alpha-Beta titanium alloy

Ti-3Al-2.5V

Ti-6Al-4V

Ti-6Al-4V (ELI)

Ti-6Al-6V-2Sn

Ti-6Al-2Sn-4Zr-2Mo

Ti-6Al-2Sn-4Zr-6Mo

Ti-7Al-4Mo

Beta titanium alloy

Ti-8Mo-8V-2Fe-3Al

Ti-11.5Mo-6Zr-4.5Sn

Ti-3Al-8V-6Cr-4Mo-4Zr

Ti-13V-11Cr-3Al

1.3 Condition:

- 1.3.1 Bars (6.1.1):** Products shall be hot-worked, with or without subsequent cold finishing, and shall be supplied in one of the following heat treated conditions in accordance with Tables 2, 3 and 4, as specified (See 6.2).

1.3.1 (Continued):

Condition A - Annealed

Condition DA - Duplex annealed.

Condition ST - Solution treated.

Condition STA - Solution treated and aged. (When multiple STA conditions are specified for a given alloy, as in Table 4, the applicable aging temperature shall be added in parenthesis as a suffix).

1.3.2 Heat Treatment: Heat treatments shall be accomplished in accordance with MIL-H-81200. Requirements for heat treatments not listed in this specification shall be as agreed upon by the user and contractor or producer.

1.3.3 Reforging Stock (6.1.2): Products shall be furnished in the condition ordered by the forging manufacturer (See 6.2).

1.4 Finish:

Products shall be furnished in the following surface finishes, as ordered (See 6.2). When no surface finish is specified, Surface Finish I shall apply. When permitted by purchaser, product to be machined all over may have an oxygen rich layer, provided such layer is removable within the machining allowance for the part.

1.4.1 Surface Finish I: Ground, machined or otherwise descaled and pickled free of alpha case and other harmful surface contamination, and suitable for ultrasonic inspection.

1.4.2 Surface Finish II: Centerless ground, machined or otherwise specially prepared surface free of alpha case and other harmful surface contamination, and suitable for ultrasonic inspection by the immersion method.

2. APPLICABLE DOCUMENTS:

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale PA 15096-0001 or www.sae.org.

AMS 2241	Tolerances - Corrosion and Heat Resistant Steel, Bar and Wire
AMS 2249	Chemical Check Analysis Limits - Titanium and Titanium Alloys
AMS 2631	Ultrasonic Inspection of Titanium Alloys
AMS 2643	Structural Examination of Titanium Alloys, Chemical Etch, Inspection Procedure
ARP 982	Minimizing Stress-Corrosion in Wrought Titanium Alloy Products