



Designation: F620 – 06

Standard Specification for Alpha Plus Beta Titanium Alloy Forgings for Surgical Implants¹

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1. Scope*

1.1 This specification covers the requirements for alpha plus beta titanium alloy forgings for surgical implants when the material forged conforms to Specifications **F136** (UNS R56401), **F1295** (UNS R56700), or **F1472** (UNS R56400).

1.2 The values stated in inch-pound units are to be regarded as the standard. The SI equivalents in parentheses are for information only.

2. Referenced Documents

2.1 ASTM Standards:²

E8 Test Methods for Tension Testing of Metallic Materials

E10 Test Method for Brinell Hardness of Metallic Materials

E18 Test Methods for Rockwell Hardness of Metallic Materials

E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

E92 Test Method for Vickers Hardness of Metallic Materials

E165 Practice for Liquid Penetrant Examination for General Industry

E1409 Test Method for Determination of Oxygen and Nitrogen in Titanium and Titanium Alloys by the Inert Gas Fusion Technique

E1447 Test Method for Determination of Hydrogen in Titanium and Titanium Alloys by Inert Gas Fusion Thermal Conductivity/Infrared Detection Method

E2371 Test Method for Analysis of Titanium and Titanium Alloys by Atomic Emission Plasma Spectrometry

F67 Specification for Unalloyed Titanium, for Surgical Implant Applications (UNS R50250, UNS R50400, UNS R50550, UNS R50700)

F136 Specification for Wrought Titanium-6Aluminum-

4Vanadium ELI (Extra Low Interstitial) Alloy for Surgical Implant Applications (UNS R56401)

F601 Practice for Fluorescent Penetrant Inspection of Metallic Surgical Implants

F1295 Specification for Wrought Titanium-6Aluminum-7Niobium Alloy for Surgical Implant Applications (UNS R56700)

F1472 Specification for Wrought Titanium-6Aluminum-4Vanadium Alloy for Surgical Implant Applications (UNS R56400)

2.2 ASQC Standard:

CI Specifications of General Requirements for a Quality Program³

2.3 ISO Standard:

ISO 9001 Quality Management Systems⁴

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *lot*—the total number of forgings produced from the same heat under the same conditions at essentially the same time.

4. Ordering Information

4.1 Inquiries and orders for forgings under this specification shall include the following information:

4.1.1 Quantity, number of pieces,

4.1.2 ASTM designation and date of issue, material grade,

4.1.3 Condition,

4.1.4 Mechanical properties,

4.1.5 Finish,

4.1.6 Applicable dimensions or drawing number,

4.1.7 Special tests, if any, and

4.1.8 Other requirements.

5. Materials and Manufacture

5.1 Material for forgings shall be bars or wire fabricated in accordance with Specification **F136**, **F1295**, or **F1472**.

5.2 The material shall be forged by hammering, pressing, extruding, or upsetting and shall be processed, if practicable, so

¹ This specification is under the jurisdiction of ASTM Committee F04 on Medical and Surgical Materials and Devices and is the direct responsibility of Subcommittee F04.12 on Metallurgical Materials.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from American Society for Quality (ASQ), 600 N. Plankinton Ave., Milwaukee, WI 53203.

⁴ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036.

*A Summary of Changes section appears at the end of this standard.