SAE Aerospace
An SAE International Group

AEROSPACE STANDARD

SAE AS7456

Issued 1991-02
Reaffirmed 2006-05

Superseding AMS 7456H

Studs, Steel, Low Alloy
Heat Treated, Roll Threaded

FSC 5307

RATIONALE

This document has been reaffirmed to comply with the SAE 5-year Review policy.

1. SCOPE:

1.1 Type:

This procurement specification covers aircraft quality studs made from a low alloy steel of the type identified under the Unified Numbering System as UNS G87400, and of a series of room temperature tensile strengths ranging from 125 000 psi to 185 000 psi.

1.2 Application:

Primarily for aerospace propulsion system applications in light alloys where good strength is required and the part is protected against corrosion.

1.3 Safety - Hazardous Materials:

While the materials, methods, applications, and processes described or referenced in this specification may involve the use of hazardous materials, this specification does not address the hazards which may be involved in such use. It is the sole responsibility of the user to ensure familiarity with the safe and proper use of any hazardous materials and to take necessary precautionary measures to ensure the health and safety of all personnel involved.

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: **http://www.sae.org**

2. REFERENCES:

2.1 Applicable Documents:

The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other documents shall be the issue in effect on the date of the purchase order.

2.1.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

2.1.1.1 Aerospace Material Specifications:

AMS 2640	Magnetic Particle Inspection
AMS 2750	Pyrometry
AMS 6322	Steel Bars, and Forgings, 0.50Cr-0.55Ni-0.25Mo (0.38-0.43C) (SAE 8740)
AMS 6327	Steel Bars and Forgings, 0.50Cr-0.55Ni-0.25Mo (0.38-0.43C) (SAE 8740), Heat Treated, 125000 psi Tensile Strength

2.1.1.2 Aerospace Standards:

AS3062	Bolts, Screws, and Studs, Screw Thread Requirements
AS3063	Bolts, Screws, and Studs, Geometric Control Requirements

2.1.2 U.S. Government Publications: Available from Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

2.1.2.1 Military Specification:

MIL-S-8879	Screw Threads, Controlled Radius Root With Increased Minor Diameter; General Specification For

2.1.2.2 Military Standards:

MIL-STD-105	Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-1312	Fasteners, Test Methods
MIL-STD-2073-1	DOD Materiel, Procedures for Development and Application of Packaging Requirements

2.1.3 ASTM Publications: Available from ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.

ASTM E 8	Tension Testing of Metallic Materials

2.1.4 ANSI Publication: Available from American National Standards Institute, 1430 Broadway, New York, NY 10018.

ANSI/ASME B46.1	Surface Texture (Surface Roughness, Waviness, and Lay)

2.2 Definitions:

PRODUCTION INSPECTION LOT: Shall be all finished parts of the same part number, made from a single heat of alloy, heat treated at the same time to the same specified condition, produced as one continuous run, and submitted for vendor's inspection at the same time.

2.3 Unit Symbols:

A	-	ampere
°	-	degree, angle
°F	-	degree Fahrenheit
h	-	hour
in	-	inch
in^2	-	square inch
min	-	minute of time
%	-	percent (1% = 1/100)
lbf	-	pounds force
psi	-	pounds force per square inch
sp gr	-	specific gravity

3. TECHNICAL REQUIREMENTS:

3.1 Material:

Shall be AMS 6322 or AMS 6327 steel, unless otherwise specified on the part drawing.

3.2 Design:

Finished (completely manufactured) parts shall conform to the following requirements:

3.2.1 Dimensions: The dimensions of finished parts, after all processing, including plating, shall conform to the part drawing. Dimensions apply after plating but before coating with dry film lubricants.

3.2.2 Surface Texture: Surface texture of finished parts, prior to plating or coating, shall conform to the requirements as specified on the part drawing, determined in accordance with ANSI/ASME B46.1.

3.2.3 Threads: Screw thread UNJ profile and dimensions shall be in accordance with MIL-S-8879, unless otherwise specified on the part drawing. Tolerances for pitch diameter of stud end threads shall be as specified on the part drawing. The special stud end thread requirements shall be in accordance with AS3062 for the following requirements:

a. Lead and half-angle variations
b. Taper
c. Out-of-roundness
d. Stud lead threads
e. Stud thread runout