



METRIC AEROSPACE STANDARD	MA4368™	REV. A
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	Superseding MA4368	
Nut, Plain, Round - Spanner Wrenching, Shaft Mounted, UNS S66286, Procurement Specification For, Metric		
FSC 5310		

RATIONALE

This document has been determined to contain basic and stable technology which is not dynamic in nature.

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1. SCOPE:

1.1 Type:

This procurement specification covers aircraft quality metric spanner nuts for retaining shaft mounted parts. Nuts are made from a corrosion and heat resistant age hardenable iron base alloy of the type identified under the Unified Numbering System as UNS S66286, and silver plated. Thread shear proof strength at room temperature is 450 MPa.

1.2 Application:

Primarily for aerospace propulsion system applications to retain parts on shafts where a good resistance to relaxation is required.

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-2410	Plating, Silver, Nickel Strike, High Bake
AMS-2411	Plating, Silver, For High Temperature Applications
AMS-2645	Fluorescent Penetrant Inspection
AMS-2759/3	Heat Treatment of Precipitation Hardening Corrosion Resistant and Maraging Steel Parts

2.1.1.1 (Continued):

AMS-5731	Steel Bars, Forgings, Tubing, and Rings, Corrosion and Heat Resistant, 15Cr - 25.5Ni - 1.2Mo - 2.1Ti - 0.006B - 0.30V, Consumable Electrode Melted, 980°C (1800°F) Solution Heat Treated
AMS-5732	Steel Bars, Wire, Forgings, Tubing, and Rings, Corrosion and Heat Resistant, 15Cr - 25.5Ni - 1.2Mo - 2.1Ti - 0.006B - 0.30V, Consumable Electrode Melted, 980°C (1800°F) Solution and Precipitation Heat Treated
AMS-5734	Steel Bars, Forgings, and Tubing, Corrosion and Heat Resistant, 15Cr - 25.5Ni - 1.2Mo - 2.1Ti - 0.006B - 0.30V, Consumable Electrode Melted, 900°C (1650°F) Solution Heat Treated
AMS-5737	Steel Bars, Wire, Forgings, and Tubing, Corrosion and Heat Resistant, 15Cr - 25.5Ni - 1.2Mo - 2.1Ti - 0.006B - 0.30V, Consumable Electrode Melted, 900°C (1650°F) Solution and Precipitation Heat Treated

2.1.1.2 Aerospace Standards:

MA1370	Screw Threads - MJ Profile, Metric
MA1566	Gaging Practice and Gage Requirements

2.1.2 ASTM Publication: Available from ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.

ASTM E 112 - Determining Average Grain Size

2.1.3 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)

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

2.1.4.1 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

3. TECHNICAL REQUIREMENTS:

3.1 Material:

Shall be AMS-5731 or AMS-5734 solution heat treated stock or AMS-5732 or AMS-5737 steel, as 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.
 - 3.2.1.1 Bearing Surface Perpendicularity: Shall be as specified on the part drawing relative to the thread pitch cylinder axis.
 - 3.2.1.2 Geometric Tolerances: Part features shall be within the geometric tolerance specified on the part drawing when tested by conventional measuring methods.
- 3.2.2 Surface Texture: Surface texture of finished parts, prior to plating, shall conform to the requirements as specified on the part drawing, determined in accordance with ANSI/ASME B46.1.
- 3.2.3 Threads: Metric screw thread MJ profile and dimensions in accordance with MA1370.
 - 3.2.3.1 Countersink: The entering end of the thread at the bearing surface and the opposite end of the thread shall be countersunk as specified on the part drawing.
 - 3.2.3.2 Plated Threads: Unless otherwise specified on the part drawing, thread dimensions prior to plating shall meet the before coating thread limits for the standard G coating allowance. After coating, the material limits for standard MJ threads with H allowance shall apply.

3.3 Fabrication:

- 3.3.1 Blanks: Blanks shall be machined sufficiently to remove surface defects.
- 3.3.2 Heat Treatment: Threaded blanks made from AMS-5731 or AMS-5734 solution heat treated stock shall, before finishing the bearing surface, be heat treated as follows:
 - 3.3.2.1 Heating Equipment: Shall be in accordance with AMS-2759/3.
 - 3.3.2.2 Solution Heat Treatment: Formed blanks of AMS-5731 or AMS-5734, before threading and finishing the bearing surface, shall be solution heat treated at 980°C for AMS-5731 or 900°C for AMS-5734 in accordance with AMS-2759/3.
 - 3.3.2.3 Precipitation Heat Treatment: All blanks, before finishing the bearing surface except those of AMS-5732 and AMS-5737, shall be precipitation heat treated in accordance with AMS-2759/3.
- 3.3.3 Bearing Surface: Bearing surface shall be finish machined on the heat treated and threaded blanks to produce the perpendicularity and surface texture requirements as in 3.2.1.1 and 3.2.2.