



# METRIC AEROSPACE STANDARD

MA3375™

REV. D

Issued	1981-06
Reaffirmed	2006-05
Revised	2018-05

Superseding MA3375C

(R) Studs, Corrosion and Heat Resistant Steel, UNS S66286  
Tensile Strength 900 MPa, Procurement Specification, Metric  
FSC 5307

## RATIONALE

Section 2.2 definitions deleted, AS6416 added, Spec throughout document updated, sections 3.7.1.1, 3.7.2.1, and 3.7.2.3 changed, Figures 1 through 6 redrawn for clarity.

### 1. SCOPE

#### 1.1 Type

This document covers metric studs made from a corrosion and heat resistant, age hardenable iron base alloy of the type identified under the Unified Numbering System as UNS S66286. The following specification designations and their properties are covered:

MA3375	900 MPa minimum ultimate tensile strength at room temperature
MA3375-1	900 MPa minimum ultimate tensile strength at room temperature 480 MPa stress-rupture strength at 650 °C
MA3375-2	900 MPa minimum ultimate tensile strength at room temperature 590 MPa minimum ultimate shear strength at room temperature

#### 1.1.1 Two types of studs are covered as follows:

Type I - Studs with stud end thread having special oversize pitch diameter and lead thread with undersize pitch diameter, while nut end thread is standard size

Type II - Studs with stud end thread and nut end thread standard size

### 1.2 Application

Primarily for aerospace propulsion system applications where a good combination of strength and resistance to corrosion are required. MA3375 studs are intended for use where the coefficient of expansion of the stud is more compatible for use in aluminum or magnesium alloys. MA3375-1 studs are intended for use at elevated temperatures in corrosion resistant steel parts. MA3375-2 studs are intended for studs loaded in shear.

1.2.1 Type I studs are intended for torque driving into aluminum or magnesium alloy tapped hole by interference fit assembly of stud end thread in accordance with MAP1670 studding practice.

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- 1.2.2 Type II studs are intended for studding magnesium or aluminum alloys, and steel or corrosion resistant steel parts by locking the assembled stud end threads in the boss to resist rotation by an auxiliary method; for example:
- By use of locking keys (individual or ring supported) driven into the assembled stud and boss threads parallel to thread axis.
  - By use of serrated lock ring driven into assembled stud boss so that internal serrations engage the stud serrated shank and external serrations broach the boss counterbore.

### 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.

## 2. REFERENCES

### 2.1 Applicable Documents

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

#### 2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), [www.sae.org](http://www.sae.org).

AMS2700	Passivation of Corrosion Resistant Steels
AMS2759/3	Heat Treatment Precipitation-Hardening Corrosion-Resistant and Maraging Steel Parts
AMS5731	Steel, Corrosion and Heat Resistant, Bars, Wire, Forgings, Tubing, and Rings 15Cr 25.5Ni 1.2Mo 2.1Ti 0.006B 0.30V, Consumable Electrode Melted, 1800°F (982°C) Solution Heat Treated
AMS5732	Steel, Corrosion and Heat Resistant, Bars, Wire, Forgings, Tubing and Rings 15Cr 25.5Ni 1.2Mo 2.1Ti 0.006B 0.30V Consumable Electrode Melted 1800° (982°C) Solution and Precipitation Heat Treated
AMS5734	Steel, Corrosion and Heat Resistant, Bars, Wire, Forgings, and Tubing 15Cr 25.5Ni 1.2Mo 2.1Ti 0.006B 0.30V, Consumable Electrode Melted, 1650°F (899°C) Solution Heat Treated
AMS5737	Steel, Corrosion and Heat Resistant, Bars, Wire, Forgings and Tubing 15Cr 25.5Ni 1.2Mo 2.1Ti 0.006B 0.30V, Consumable Electrode Melted, 1650°F (899°C), Solution and Precipitation Heat Treated
AS3062	Bolts, Screws, and Studs, Screw Thread Requirements
AS3063	Bolts, Screws, and Studs, Geometric Control Requirements
AS6416	Bolts, Screws, Studs and Nuts, Definitions for Design, Testing and Procurement
MA1370	Screw Threads - MJ Profile, Metric
MA1518	Bolts, Screws and Nuts - External Wrenching, Metric Threads - Design Parameters for
MA1520	Areas for Calculating Stress or Load Values for Metric MJ Externally Threaded Fasteners

MA1566 Gaging Practice and Gage Requirements for MJ Metric Screw Threads

MAP1670 Studs, Installation Practice for Interference Fit, Metric

### 2.1.2 AIA Publications

Available from Aerospace Industries Association, 1000 Wilson Boulevard, Suite 1700, Arlington, VA 22209-3928, Tel: 703-358-1000, [www.aia-aerospace.org](http://www.aia-aerospace.org).

NASM1312-6 Fastener Test Methods, Method 6, Hardness

NASM1312-8 Fastener Test Methods, Method 8, Tensile Strength

NASM1312-10 Fastener Test Methods, Method 10, Stress Rupture

NASM1312-12 Fastener Test Methods, Method 12, Thickness of Metallic Coatings

NASM1312-13 Fastener Test Methods, Method 3, Double Shear Test

### 2.1.3 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, [www.astm.org](http://www.astm.org).

ASTM D3951 Commercial Packaging

ASTM E8/E8M Tension Testing of Metallic Materials

ASTM E112 Determining Average Grain Size

ASTM E139 Conducting Creep, Creep-Rupture, and Stress-Rupture Test of Metallic Materials

ASTM E140 Standard Hardness Conversion Tables for Metals

ASTM E1417/E1417M Liquid Penetrant Examination

### 2.1.4 ASME Publications

Available from ASME, P.O. Box 2900, 22 Law Drive, Fairfield, NJ 07007-2900, Tel: 800-843-2763 (U.S./Canada), 001-800-843-2763 (Mexico), 973-882-1170 (outside North America), [www.asme.org](http://www.asme.org).

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

## 2.2 Definitions

Refer to AS6416.

## 2.3 Unit Symbols

°C degree Celsius

°F degree Fahrenheit

mm millimeter

cm<sup>3</sup> cubic centimeter

g gram (mass)

h hour