



SURFACE VEHICLE STANDARD

J2271M™

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Superseding J2271M JUN2004

Ship Systems and Equipment - Part Standard for Studs -
Continuous and Double End (Metric)

RATIONALE

SAE J2271M differs from the more recently developed American National Standard ASME B18.31.1M – Metric Continuous and Double End Metric Studs. In most cases there are studs covered by ASME B18.31.1M that are more readily available and can be interchangeably substituted for the J2271M studs. In addition, the references to SAE J121 and J123 in J2271M have been superseded by ASTM specifications and ASTM F568M has been cancelled without replacement although ISO 898-1 covers similar materials. ASME B18.18.3M referenced in J2271M had been superseded by ASME B18.18 and Category 2 is applicable unless another category is specified by the purchaser.

It is recommended that ASME B18.31.1M be used for new design. However, it is considered important that the J2271M standard be available for reference to support those applications where it has been used. The Part Identification Numbers (PINs) in J2271M may have been used on drawings and users may need to refer to this part standard to identify the characteristics of the studs.

STABILIZED NOTICE

This document has been declared "Stabilized" by the SAE Ship Systems Fasteners Committee and will no longer be subjected to periodic reviews for currency. Users are responsible for verifying references and continued suitability of technical requirements. As indicated in the Rationale, newer technology exists.

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Documents

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1. **Scope**

1.1 Purpose—This SAE Parts Standard provides dimensional and quality assurance requirements for M6 through M36 metric sizes of studs in the following configurations in materials needed for ship system applications:

- a. Continuous thread studs in M thread profile.
- b. Double end studs—clamping type (also called bolt-studs) where both ends are of the same thread series but different lengths (M thread profile).

1.1.1 A complete inch companion to this document is provided in SAE J2271.

1.2 Field of Application—These studs are primarily for use in ship systems and equipment. The continuous thread studs and the constant strength double end studs are configurations particularly suited to applications which are subject to high shock requirements.

1.3 Configurations and Part Identification Numbers—Figure 1 identifies the type and body configurations of the studs covered by the standard. The part numbering system provides a unique identification number for each stud configuration. The part identification number identifies thread type, diameter, type of stud and body diameter, length of the stud, and material including coating, where applicable.

2. **References**

2.1 Applicable Publications—The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the latest issue of all documents shall apply.

NOTE—Contracts invoking this document may establish an effective date for the referenced documents

2.1.1 SAE PUBLICATIONS—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE AMS 2487—Anodic Treatment of Titanium and Titanium Alloys

SAE AS1701—Lubricant, Solid Dry Film

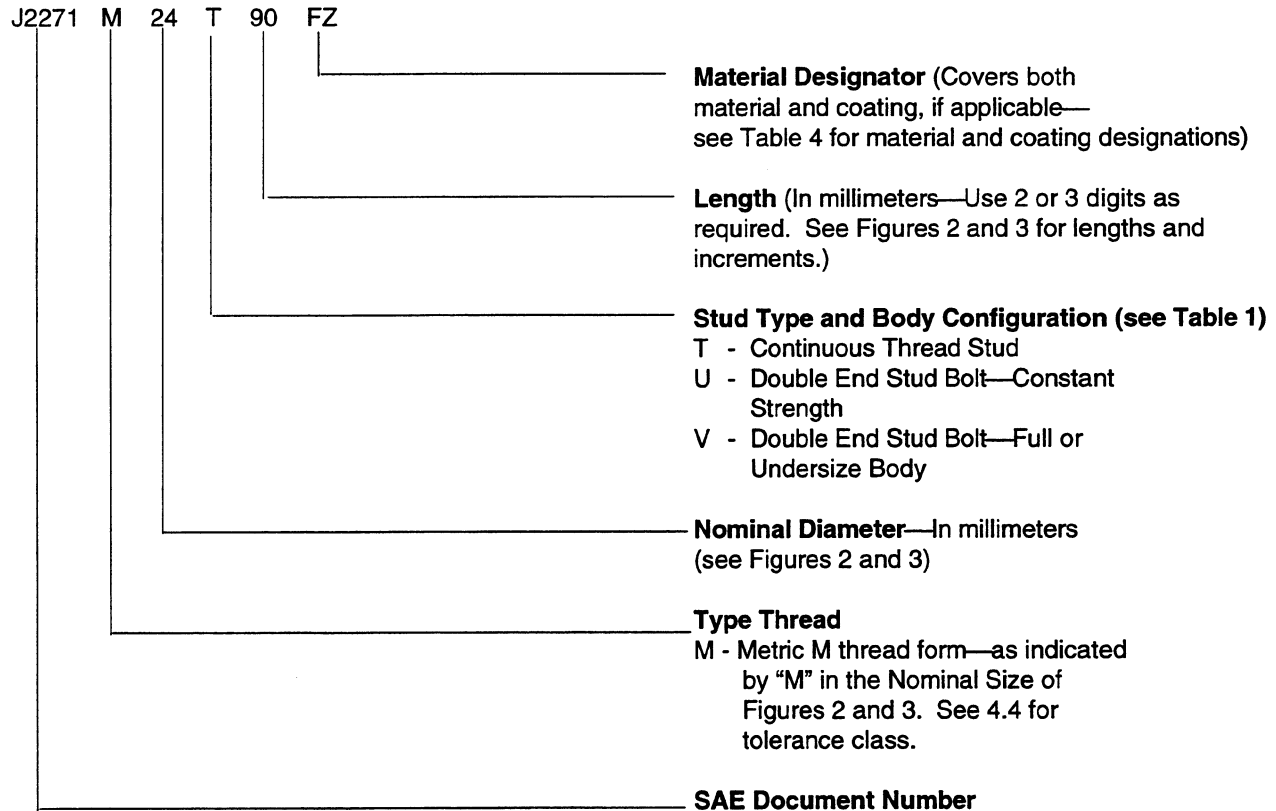
SAE J121—Decarburization in Hardened and Tempered Fasteners, Recommended Practice

SAE J123—Surface Discontinuities of Bolts, Screws, and Studs in Fatigue Applications

SAE J2270—Ship Systems and Equipment—Threaded Fasteners—Inspection, Test, and Installation Requirements

SAE J2271—Ship Systems and Equipment—Part Standard for Studs—Continuous and Double End (Inch Series)

PART NUMBERING SYSTEM:



The part number shown above is for a 90 mm long ASTM F 568 zinc-plated medium carbon steel M24 X 3 metric stud with continuous threads.

FIGURE 1—PART IDENTIFICATION NUMBERS (PINs) FOR CONTINUOUS AND DOUBLE END STUDS (METRIC)

2.1.2 ASME PUBLICATIONS—Available from ASME, 345 East 47th Street, New York, NY 10017-2392.

ASME B1.3M—Screw Thread Gaging Systems for Dimensional Acceptability—Inch and Metric Screw Threads (UN, UNR, UNJ, M and MJ)

ASME B1.13M—Metric Screw Threads—M Profile

ASME B18.18.3M—Inspection and Quality Assurance for Special Purpose Fasteners

2.1.3 ASTM PUBLICATIONS—Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM A 193/A 193M—Steel Bolting Materials for High-Temperature Service
ASTM B 633—Electrodeposited Coatings of Zinc on Iron and Steel
ASTM B 695—Coatings of Zinc Mechanically Deposited on Iron and Steel
ASTM F 468M—Nonferrous Bolts, Hex Cap Screws, and Studs for General Use
ASTM A 563M—Carbon and Alloy Steel Nuts (Metric)
ASTM F 568—Carbon and Alloy Steel Externally Threaded Metric Fasteners
ASTM F 738M—Stainless Steel Metric Bolts, Screws and Studs
ASTM F 1470—Standard Guide for Fastener Sampling for Specified Mechanical Properties and Performance Inspection

2.1.4 U.S. GOVERNMENT PUBLICATIONS—Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

QQ-N-286—Nickel-Copper-Aluminum Alloy, Wrought
MIL-L-46010—Lubricant, Solid Film, Heat Cured, Corrosion Inhibiting

2.1.5 DIN PUBLICATIONS—Deutsches Institute Fur Normung (DIN) publications are available from the American National Standards Institute, 11 West 42nd Street, New York, NY 10036-8002.

DIN 939—Studs—Threaded End—1.25d

2.2 **Order of Precedence**—In the event of a conflict between the text of this document and the 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.

3. **Definitions**

- 3.1 **Body Bound Stud**—A stud whose body is manufactured to specific close tolerances to ensure a tight or interference fit with the equipment being secured, and thus not covered by this document. Also identified as a finished, close body stud.
- 3.2 **Constant Strength Studs**—A stud where the stress area is essentially unchanged throughout the length of the stud. This can be achieved by the use of continuous threads or by providing an undersize body which has a cross-sectional area approximately equivalent to the stress area of the threads.
- 3.3 **Double End Studs**—Double end studs have threads on each end, typically with an unthreaded body in between.
- 3.4 **Full or Undersize Body Studs**—This category covers a wide range of body diameters that may be furnished when the body diameter is not of particular concern (see 4.2).
- 3.5 **Lot**—A lot of fasteners shall consist of one heat of material, of one type and style, of the same nominal size and length, and fabricated and heat treated in the same batch or by a continuous process under the same conditions as to time and temperature.
- 3.6 **Nut End**—The end or ends of the stud to be mated with a nut. (In some cases, stud-bolts which are designed for use with nuts on each end may be installed with one nut end acting as a set end.)
- 3.7 **Set End**—The end of the stud which is not intended for use with a nut, but is to be threaded into a piece of material or equipment. The set end is often secured with an anaerobic compound.