



# SURFACE VEHICLE STANDARD

**J2656™****NOV2016**Issued 2003-09  
Revised 2016-11

Superseding J2565 JAN2010

**Fastener Part Standard - Hexagon Socket, Square Head, and Slotted Headless  
Set Screws - Inch Dimensioned**

## RATIONALE

Section 2: Added and deleted reference documents.

Figure 1: Field 8 Designator A deleted; Designator AH added; Designator B revised to note MIL-DTL-13924; Designator M4 deleted; Designator M added; Designator X3, X6, Y3 and Y6 deleted. Designator X added; Designator Z revised to note the option of ZA or ZC; Designator ZA and ZC added; Designator Z1, Z2, Z3 and Z4 deleted; Designator F added; Designator N added; Designator S added.

Table 1: Updated to reflect hardness requirements for non-ferrous set screws (ASTM F3042).

Section 4: Revised coating notes due to coating changes. Reference document/requirements of F3042 added. Added six dot self-locking marking requirements for set screws greater than 3/8 inch.

Section 5: Revised Black Oxide Caution Statement.

## 1. SCOPE

This SAE Part Standard covers selected inch dimensioned set screws manufactured in accordance with American Society for Mechanical Engineers dimensional standards. This SAE standard covers material most often used in ship systems and equipment but its use may be applied wherever fasteners of the covered materials are used. This standard permits the fasteners to be identified and ordered by a part identification number (PIN) as defined in this document.

### 1.1 Purpose

The purpose of this document is to assist the designer and other personnel in providing requirements and PINs for the most commonly used set screws for ship systems and equipment. A PIN is normally required for all military applications and provides a useful means of communicating set screw requirements to suppliers and manufacturers in a very succinct manner.

### 1.2 Set Screw PINs

This document provides PINs that can be used to identify set screws covered by this standard. The fasteners covered by this standard are manufactured in general accordance with materials and processes identified in standards issued by ASTM. The PIN identifies the thread form, type of head, type of drive, nominal diameter, special features (plating, locking elements), nominal length and fastener material.

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### 1.3 Procurement Specification 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 that 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. Certain elements and their compounds are considered hazardous or toxic materials by the United States (US) Environmental Protection Agency (EPA) and Occupational Safety and Health Agency (OSHA.) Users of these materials should consider special disposal and human exposure requirements in Title 40, Protection of the Environment, from the Code of Federal Regulations, and the special handling requirements invoked in Title 29, Occupational, Safety and Health, from the Code of Federal Regulations, respectively, and others as applicable. State and Local regulations may also apply. Some of the examples of certain elements and compounds are the following: mercury, boron, chromium, lead, silver, barium, cadmium and selenium.

## 2. REFERENCES

### 2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

#### 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).

SAE AMS2412 Plating, Silver Copper Strike, Low Bake

SAE AMS2487 Anodic Treatment of Titanium and Titanium Alloys - Solution pH 12.4 Maximum

SAE AMS2488 Anodic Treatment - Titanium and Titanium Alloys - Solution pH 13 or Higher

SAE AS1701 Lubricant, Solid Film

SAE J2270 Ship Systems and Equipment - Threaded Fasteners - Inspection, Test, and Installation Guidance

SAE J2280 Ship Systems and Equipment - Fasteners - Selection and Identification Requirements

#### 2.1.2 AIA Publication

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).

NAS1283 Fasteners, Male Threaded, Self-Locking

#### 2.1.3 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 B1.1 Unified Inch Screw Threads (UN and UNR Thread Form)

ASME B18.3 Socket Cap, Shoulder, and Set Screws, Hex and Spline Keys (Inch Series)

ASME B18.6.2 Slotted Head Cap Screws, Square Head Set Screws, and Slotted Headless Set Screws (Inch Series)

ASME B18.12 Glossary of Terms for Mechanical Fasteners

ASME B18.18 Quality Assurance for Fasteners

#### 2.1.4 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 A342/A342M   | Standard Test Methods for Permeability of Weakly Magnetic Materials                                 |
| ASTM A380/A380M   | Cleaning, Descaling and Passivation of Stainless Steel Parts, Equipment, and Systems                |
| ASTM A453/A453M   | High-Temperature Bolting, with Expansion Coefficients Comparable to Austenitic Stainless Steels     |
| ASTM B580         | Anodic Oxide Coatings on Aluminum                                                                   |
| ASTM F788/F788M   | Surface Discontinuities of Bolts, Screws, and Studs, Inch and Metric Series                         |
| ASTM F880         | Stainless Steel Socket, Square Head, and Slotted Headless-Set Screws                                |
| ASTM F912         | Alloy Steel Socket Set Screws                                                                       |
| ASTM F1136/F1136M | Zinc/Aluminum Corrosion Protective Coatings for Fasteners                                           |
| ASTM F1470        | Fastener Sampling for Specified Mechanical Properties and Performance Inspection                    |
| ASTM F1789        | Terminology for F16 Mechanical Fasteners                                                            |
| ASTM F1941/F1941M | Electrodeposited Coatings on Mechanical Fasteners, Inch and Metric                                  |
| ASTM F2833        | Corrosion Protective Fastener Coatings with Zinc Rich Base Coat and Aluminum Organic/Inorganic Type |
| ASTM F3042        | Nonferrous Hex Socket, Slotted Headless, and Square Head Set Screws                                 |

#### 2.1.5 U. S. Government Publications

Copies of these documents are available online at <http://quicksearch.dla.mil>.

|               |                                                  |
|---------------|--------------------------------------------------|
| MIL-DTL-13924 | Coating, Oxide, Black, For Ferrous Materials     |
| MIL-DTL-16232 | Phosphate Coating, Heavy, Manganese or Zinc Base |
| MIL-DTL-83488 | Coating, Aluminum, High Purity                   |

#### 2.1.6 International Standards Publications (ISO)

Available from the American National Standards Institute (ANSI) at [www.ansi.org](http://www.ansi.org) or from the ISO national member for your country. A list of members and their contact information is available at [www.iso.org/iso/home/store](http://www.iso.org/iso/home/store)

|           |                                                              |
|-----------|--------------------------------------------------------------|
| ISO 10683 | Fasteners - Non-Electrolytically Applied Zinc Flake Coatings |
| ISO 16047 | Fasteners - Torque/clamp force testing                       |

### 3. DEFINITIONS

For definition or terms used in this standard see ASME B18.12 and ASTM F1789. In event of a conflict, the definitions in ASME B18.12 take precedence.

#### 3.1 PIN

Represents part identification number. Part Identification Numbers (PINs) are identified in Figure 1



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## 4. SET SCREW REQUIREMENTS

### 4.1 SAE Set Screw Standards

This set screw part standard utilizes ASME dimensional standards for set screws and primarily ASTM standards for materials.

### 4.2 Part Identification Numbers (PINs) for Selected Set Screws

PINs are provided herein for selected set screws for the purpose of common logistics parts identification between designers, fastener manufacturers, construction and repair activities, and equipment operators. PINs are provided for only those set screw configurations and materials most likely to be needed for ship systems and equipment. Figure 1 provides PINs for selected set screws. The PIN consists of a number of fields in order as identified in Figure 1. (There are no blank spaces in the PIN.) The next to last field in the PIN, field 7, designates the set screw material. Table 1 lists the material designators for field 7 of the PIN along with the chemical and mechanical properties of the material.

### 4.3 Dimensional Requirements for Set Screws

The dimensional requirements for a particular set screw configuration are to be as shown in ASME B18.3 and ASME B18.6.2 for inch dimensioned set screws.

#### 4.3.1 Lengths of Set Screws

Length tolerances for inch dimensioned set screws shall be in accordance with ASME B18.3 and ASME B18.6.2 as applicable.

#### 4.3.2 Diameters of Set Screws

Diameters shall be restricted to those identified in ASME B18.3 and ASME B18.6.2 as applicable.

#### 4.3.3 Thread Types and Fits

Thread types and fits shall be restricted to those identified in Field 2 of Figure 1. For screws in accordance with ASME B18.3 the basic diameters per ASME B1.1 (Class 3A GO) shall apply to the finished fastener whether coated or not coated. Some screw diameters may require undersize threads prior to coating in order to meet 3A GO gage requirements. For screws in accordance with ASME B18.6.2 the threads shall be Class 2A in accordance with ASME B1.1. For screws with additive finish, the size limits of Class 2A apply before coating, and the thread after coating is subject to acceptance using a basic Class 3A size GO thread gage.