

FED. SUPPLY CLASS

5305

1. SCOPE

- 1.1 Scope. This specification covers the requirements for the procurement of integral O-ring, self-sealing machine screws including self-locking screws referred to herein as assembled screws.
- 1.2 Classification. Integral O-ring, self-sealing machine screws shall be of the following type, styles and compositions (see 6.2):
- Type I – Panhead
 - Style 1 – Cross-recessed
 - Style 2 – Slotted
 - Composition A – Silicone rubber O-ring
 - Composition B – Fluorosilicone rubber O-ring

- 1.2.1 Sizes. Screws shall be classified by nominal size or basic screw diameter as specified in ASME B18.6.3.

2. APPLICABLE DOCUMENTS

- 2.1 Issues of documents. The following documents, of the issue in effect on date of invitation forbids or request for proposal, form a part of the specification to the extent specified herein.

SPECIFICATIONS

Federal

~~QQ-S-763~~ — ~~Steel Bars, Wire, Shapes and Forgings, Corrosion-Resisting~~
~~ZZ-R-765~~ — ~~Rubber, Silicone~~
 MIL-STD-2073/1 Standard Practice for Military Packaging
 A-A-59588 Rubber, Silicone

Military

MIL-PRF-5606 Hydraulic Fluid, Petroleum Base; Aircraft, Missile, and Ordnance
 MIL-DTL-18240 Fasteners, Externally Threaded, 250 °F, Self-Locking Element For
 MIL-DTL-25988 Rubber, Fluorosilicone Elastomer, Oil- and Fuel-Resistant, Sheets, Strips, Molded Parts, and Extruded Shapes

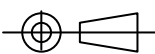
STANDARDS

Federal

FED-STD-H28 Screw-Thread Standards for the Federal Service

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THE INITIAL RELEASE OF THIS DOCUMENT SUPERSEDES MIL-S-82496, REVISION A.

THIRD ANGLE PROJECTION 	CUSTODIAN NATIONAL AEROSPACE STANDARDS COMMITTEE	REVISION 1
PROCUREMENT SPECIFICATION NONE	TITLE SCREWS, MACHINE, SELF-SEALING, INTEGRAL O-RING	CLASSIFICATION SPECIFICATION NAS 82496 SHEET 1 OF 8

Military

MIL-STD-129

Marking for Shipment and Storage

(Copies of specifications, standards, drawings, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2

Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on the date of the invitation for bids or the request for proposal shall apply.

American Society for Quality

ANSI/ASQ Z1.4

Sampling Procedures And Tables For Inspection By Attributes

(Copies can be obtained from the American Society for Quality, 600 North Plankinton Ave., Milwaukee, WI 53203
www.asq.org.)

ASTM International

ASTM A493

Stainless and Heat-Resisting Steel for Cold Heading and Cold Forging-Bar and Wire

ASTM A581/A581M

Free-Machining Stainless and Heat-Resisting Steel Wire

ASTM A582/A582M

Free-Machining Stainless and Heat-Resisting Steel Bars, Hot-Rolled or Cold-Finished

ASTM D3951

Standard Practice for Commercial Packaging

ASTM D471

Standard Test Fluids; Hydrocarbon

(Copies can be obtained from ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA, 19428-2959 USA www.astm.org)

ASME International

ASME B18.6.3

Machine Screws and Machine Screw Nuts

(Copies can be obtained from ASME, Three Park Ave., New York, NY 10016-5990 www.asme.org)

Aerospace Industries Association of America (AIA/NAS)

NASM3212

Screws, Machine, Pan Head, Cross-Recessed, Self-Sealing, Integral Silicone O-Ring, Plain and Self-Locking

NASM3213

Screws, Machine, Pan Head, Cross-Recessed, Self-Sealing, Integral Fluorosilicone O-Ring, Plain and Self-Locking

NASM15981

Fasteners, Externally Threaded, Self-Locking Design and Usage Limitations for

(Copies can be obtained from the Aerospace Industries Association, 1000 Wilson Blvd., Suite 1700, Arlington, VA 22209 www.aia-aerospace.org)

SAE International

AIR4127

Steel: Chemical Composition and Hardenability

AMS2700

Passivation Treatments for CRES

AMS-QQ-S-763

Steel Bars, Wire, Shapes and Forgings, Corrosion Resisting

(Copies can be obtained from SAE International, 400 Commonwealth Dr., Warrendale, PA 15096-0001
www.sae.org)

(Technical society and technical association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies).

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3. REQUIREMENTS

- 3.1 Preproduction sample. Unless otherwise specified in the contract (see 6.2), a preproduction sample of the assembled screws is required and shall be manufactured using the methods and procedures proposed for production. The sample shall be tested as specified in Section 4 for the purpose of determining that, prior to starting production, the contractor's production methods are capable of producing assembled screws that comply with the technical requirements of this specification (see 4.4.1).
- 3.2 Design and construction. The screws shall have an annular recess in the underside of the head designed to retain a molded elastomer sealing O-ring as an integral part of the assembled screw in accordance with the applicable NAS sheet (NASM3212, NASM3213) or drawing (see 6.4).
- 3.3 Materials
- 3.3.1 Screw. Materials for screws shall be in accordance with 3.3.1.1 or 3.3.1.2. The material composition shall be within the check analysis tolerances for standard stainless and heat resisting steels in accordance with AIR4127. The minimum ultimate tensile strength shall be 75,000 PSI.
- 3.3.1.1 CRES. Unless otherwise specified in the contract (see 6.2), CRES screws shall be manufactured from material conforming to Class 304, 305 or 316 per ~~QQ-S-763~~ AMS-QQ-S-763, or Type 304, 305, 316, 384 or XM-7 per ASTM A 493.
- 3.3.1.2 Non-magnetic steel. When specified in the contract (see 6.2), screws shall be manufactured from nonmagnetic steel conforming to Class 302, Condition A or B per ~~QQ-S-763~~ AMS-QQ-S-763; Type 302, annealed per ASTM A493; Type 303, Condition A or B per ASTM A581/A581M or Type 303, Condition A per ASTM A582/A582M.
- 3.3.2 O-ring. Sealing O-rings shall be Composition A or B as specified in the contract (see 6.2).
- 3.3.2.1 Composition A. Composition A sealing O-rings shall be Grade 60 silicone rubber in accordance with Class 2a or 2b per ~~ZZ-R-765~~ A-A-59588; and shall be resistant to ~~Type IV petroleum base oil per TT-S-735~~ IRM 901 oil per ASTM D 471.
- 3.3.2.2 Composition B. Composition B sealing O-rings shall be Grade 60 fluorosilicone rubber in accordance with Type I, Class 1 per MIL-DTL-25988 and shall be resistant to MIL-PRF-5606 hydraulic fluid and ~~Type III fuel per TT-S-735~~ Reference Fuel B per ASTM D 471.
- 3.3.3 Self-locking element. When self-locking screws are specified in the contract (see 6.2), the self-locking element shall be a non-metallic element in accordance with MIL-DTL-18240 and NASM15981.
- 3.4 Dimensions and tolerances. Unless otherwise specified on the applicable NAS sheet or drawing (see 6.2), dimensions and tolerances of the screws after finishing shall be in accordance with ASME B18.6.3.
- 3.5 Threads. Threads shall be in accordance with FED-STD-H28, Class 2A, UNC or UNF series, as specified in the contract (see 6.2).
- 3.6 Head recess
- 3.6.1 Cross-recessed. The style 1, cross-recessed head design shall be in accordance with the dimensions of Type I cross-recessed pan head machine screws of ASME B18.6.3.
- 3.6.2 Slotted. The style 2, slotted head design shall be in accordance with the dimensions of slotted pan head machine screws of ASME B18.6.3.
- 3.7 Protective finish. The screws shall be passivated in accordance with AMS2700, Method 1, Class 4, prior to assembly with O-rings.

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