

1. SCOPE

- 1.1 **Scope.** This specification establishes the requirements for materials, construction, heat treatment, surface texture, protective finish, and quality control of positive locking quick release pins, single acting.
- 1.2 **Classification.** Single acting – a push on the release button retracts the lacking mechanism. The locking element(s) can be depressed only when the release element is actuated (Figure 1).

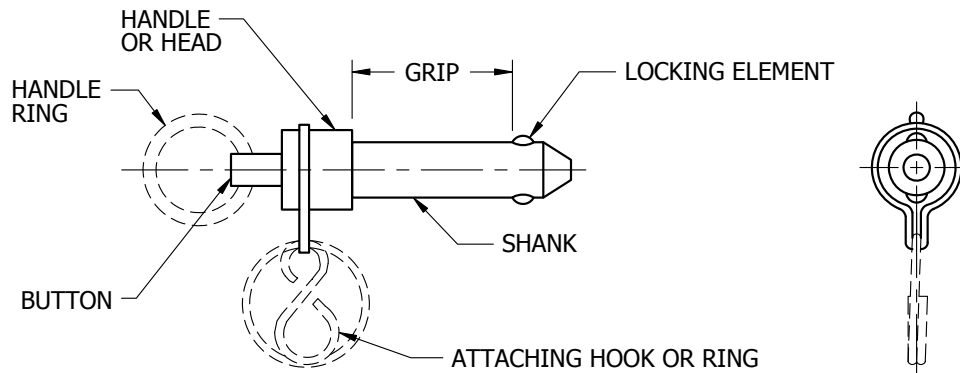


FIGURE 1 – PIN, QUICK-RELEASE, POSITIVE LOCKING, SINGLE-ACTING

2. APPLICABLE DOCUMENTS

2.1 Government documents

- 2.1.1 **Specifications and standards.** The following specifications and standards of the issue in effect on date of invitation for bids shall form a part of this specification to the extent specified herein.

SPECIFICATIONS

Federal

- QQ-A-200/8 — Aluminum Alloy Bar, Rod, Shapes, Tube and Wire, Extruded, 6061
 QQ-A-225/5 — Aluminum Alloy Bar, Rod, and Wire; Rolled, Drawn, or Cold Finished, 2017
 QQ-A-225/6 — Aluminum Alloy Bar, Rod, and Wire; Rolled, Drawn, or Cold Finished, 2024
 QQ-A-226/9 — Aluminum Alloy Bar, Rod, Wire, and Special Shapes; Rolled, Drawn, or Cold Finished, 7075
 QQ-S-763 — Steel Bars, Wire, Shapes, and Forgings, Corrosion-Resisting
 QQ-W-423 — Wire, Steel, Corrosion-Resisting
 QQ-W-470 — Wire, Steel, Carbon, Spring, Music

Copies can be obtained from the Department of Defense Single Stock Point (DODSSP). <http://dodssp.daps.dla.mil>

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THIRD ANGLE PROJECTION	CUSTODIAN NATIONAL AEROSPACE STANDARDS COMMITTEE	REVISION 1
PROCUREMENT SPECIFICATION NONE	TITLE PIN, QUICK RELEASE, POSITIVE LOCKING, SINGLE ACTING, METRIC, PROCUREMENT SPECIFICATION FOR	CLASSIFICATION SPECIFICATION DA0161 SHEET 1 OF 10

Military

MIL-DTL-5541	Chemical Conversion Coatings on Aluminum and Aluminum Alloys
MIL-T-6732	Tubing: Chrome-Nickel-Molybdenum (8630) Steel Seamless
MIL-T-6735	Tubing: Chrome-Molybdenum (4135) Steel, Seamless, Aircraft Quality
MIL-T-6736	Tubing: Chrome-Molybdenum (4130) Steel, Seamless and Welded, Aircraft Quality
MIL-S-6758	Steel: Chrome-Molybdenum (4130) Bars and Reforging Stock, Aircraft Quality
MIL-A-8625	Anodic Coatings, for Aluminum and Aluminum Alloys
MIL-PRF-23827	Grease, Aircraft and Instrument, Gear and Actuator Screw

STANDARDS

Military

MIL-STD-129	Marking for Shipment and Storage
MIL-STD-810	Environmental Test Methods

Copies can be obtained from the Department of Defense Single Stock Point (DODSSP). <http://dodssp.daps.dla.mil>

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Other publications

ASTM International

ASTM A108	Steel Bars, Carbon, Cold-Finished, Standard Quality
ASTM A228/A228M	Standard Specification for Steel Wire, Music Spring Quality
ASTM A313/A313M	Standard Specification for Stainless Steel Spring Wire
ASTM A380	Cleaning and Descaling Stainless Steel Parts, Equipment and Systems
ASTM A580/A580M	Standard Specification for Stainless Steel Wire
ASTM A582/A582M	Free-Machining Stainless and Heat-Resisting Steel Bars, Hot-Rolled or Cold-Finished

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

SAE International

AMS-QQ-A-200/8	Aluminum Alloy Bar, Rod, Shapes, Tube and Wire, Extruded, 6061
AMS-QQ-A-225/5	Aluminum Alloy Bar, Rod, and Wire; Rolled, Drawn, or Cold Finished, 2017
AMS-QQ-A-225/6	Aluminum Alloy Bar, Rod, and Wire; Rolled, Drawn, or Cold Finished, 2024
AMS-QQ-A-225/9	Aluminum Alloy Bar, Rod, Wire, and Special Shapes; Rolled, Drawn, or Cold Finished, 7075
AMS-QQ-P-416	Plating, Cadmium (Electrodeposited)
AMS-QQ-S-763	Steel Bars, Wire, Shapes, and Forgings, Corrosion-Resisting
AMS2759	Heat Treatment of Steels (Aerospace Practice, Process For)
AMS2770	Heat Treatment of Aluminum Alloys
AMS5520	Steel Sheet, Strip and Plate, Corrosion and Moderate Heat Resistant 15Cr - 7.1Ni - 2.5Mo - 1.1Al
AMS5643	Steel Bars, Forgings Tubing and Rings, Corrosion Resistant 16Cr - 4.0Ni - .30(Cb+Ta) - 4.0Cu
AMS5657	Steel, Corrosion and Moderate Heat Resistant 15Cr - 7.1Ni - 2.5Mo - 1.1Al
AMS5673	Steel Wire, Corrosion Resistant 17Cr - 7.1Ni - 1.1Al Precipitation Hardenable, Spring Temper
AMS5678	Steel, Corrosion Resistant, Wire 17Cr - 7.1Ni - 1.1Al Cold Drawn, Precipitation-Hardenable (UNS S17700)
AMS-T-6735	Tubing, Chrome-Molybdenum, 4135 Steel, Seamless Aircraft Quality
AMS-T-6736	Tubing, Chrome-Molybdenum (4130 or 8630) Steel, Seamless and Welded
AMS-S-6758	Steel: Chrome-Molybdenum (4130) Bars and Reforging Stock, Aircraft Quality

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

Aerospace Industries Association

NA0157-NA0158	Pin, Quick Release, Self-Retaining, Positive Locking, Single Acting, "T" Handle, Metric
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Copies can be obtained from the Aerospace Industries Association, 1000 Wilson Blvd., Suite 1700, Arlington, VA 22209. www.aia-aerospace.org

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Documents

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ASME

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

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

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

American Welding Society

AWS D17.1/D17.1M Specification for Fusion Welding for Aerospace Applications - 2nd Edition

Copies can be obtained from the American Welding Society, 550 NW LeJeune Road, Miami, FL 33126. www.aws.org

3. REQUIREMENTS

3.1 Material. The material used shall be as specified in applicable paragraphs.

3.1.1 Head and handle. Head and handle shall be fabricated of aluminum alloy per ~~QQ-A-225/5~~ AMS-QQ-A-225/5, ~~QQ-A-225/6~~ AMS-QQ-A-225/6, ~~QQ-A-226/9~~ AMS-QQ-A-225/9, or extruded 6061-T6 aluminum alloy per ~~QQ-A-200/8~~ AMS-QQ-A-200/8; 8630 steel per ~~MIL-T-6732~~ AMS-T-6736 or 4130 steel per ~~MIL-S-6758~~ AMS-S-6758; CRES per ASTM A582/A582M or ~~QQ-S-763~~ AMS-QQ-S-763; or carbon steel per ASTM A108. Heads fabricated of CRES or steel alloy may be of one-piece or multiple-piece construction. When multiple piece construction is used, the handle must be completely welded to the head. Welding shall be in accordance with ~~MIL-W-8611~~ AWS D17.1/D17.1M.

3.1.2 Wire form bails. Wire form bails shall be of steel or CRES, with steel bails on steel and aluminum heads, CRES bails on CRES heads.

3.1.3 Attaching link. A steel or CRES attaching link shall be provided for securing the pin to the equipment in which it is used, with steel attaching link for steel and aluminum heads, CRES for CRES heads.

3.1.4 Shanks. Shanks shall be made of aircraft quality steel in accordance with ~~MIL-S-6758~~ AMS-S-6758, ~~MIL-T-6735~~ AMS-T-6735 or ~~MIL-T-6736~~ AMS-T-6736, or CRES in accordance with AMS5520, AMS5643 or AMS5657. Heat treatment shall be in accordance with AMS2759.

3.1.4.1 Welded shanks. Welded CRES tubing may be used for shank provided the welding material is the same chemical composition and hardness as the tubing. The tubing shall be drawn after welding.

3.1.5 Spindles. Spindles are to conform with the same requirements as shanks (see 3.1.4).

3.1.6 Springs. Springs shall be of high carbon steel bright music wire per ~~QQ-W-470~~ ASTM A228/A228M or, for "C" coded (CRES) shanks, per ~~QQ-W-423~~ ASTM A313/A313M, ASTM A580/A580M or ~~AMS5673~~ AMS5678.

3.1.7 Locking elements. Locking elements shall be of CRES per ~~QQ-S-763~~ AMS-QQ-S-763, Class 440C, heat treated to 54-64 HRC.

3.2 Treatment and finish

3.2.1 Heat treatment. Heat treatment shall conform to AMS2759 for steel or AMS2770 for aluminum alloy to meet the strength requirements of this specification.

3.2.2 Protective finish. All steel parts other than CRES shall be cadmium plated per AMS-QQ-P-416, Type II, Class 2 (8-14 µm thick). CRES parts shall be passivated in accordance with ASTM A380, and shall show no evidence of copper blush when treated with a slightly acidulated solution of copper sulfate. Aluminum handle shall be black anodize.

3.2.3 Anodizing. All aluminum alloy parts which are anodized shall be anodized per MIL-A-8625.

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