



AEROSPACE STANDARD

AS85449™**REV. C**

Issued 2003-08
Reaffirmed 2015-07
Revised 2025-05

Superseding AS85449B

Clamp Assembly, Saddle Type, Cushioned,
General Specification For

RATIONALE

Retention of QML Accreditation note 4.3.3 removed as the retention requirement is specified in OP1107.

1. SCOPE

1.1 Application

This SAE Aerospace Standard (AS) defines the requirements for saddle-type clamps. Tests and criteria noted do not indicate any specific areas of application or usage. Supplemental testing may be necessary to determine suitability for specific environments and applications.

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.

AMS-QQ-S-763 Steel, Corrosion Resistant, Bars, Wire, Shapes, and Forgings

AS9138 Aerospace Series - Quality Management Systems Statistical Product Acceptance Requirements

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Full document details: SAE AS85449C

For more information on this standard, visit
<https://www.sae.org/standards/content/AS85449C/>

Documents

Standard, visit Sharing Hub

2.1.2 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.

ASTM A686 Standard Specification for Tool Steel, Carbon

ASTM D1149 Standard Test Method for Rubber Deterioration – Cracking in an Ozone Controlled Environment

ASTM D3182 Standard Practice for Rubber Materials Equipment and Procedures for Mixing Standard Compounds and Preparing Standard Vulcanized Sheets

ASTM D3951 Standard Practice for Commercial Packaging

2.1.3 NAS Publications

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

NAS1149 Washer, Flat

2.1.4 PRI Publications

Available from Performance Review Institute, 161 Thorn Hill Road, Warrendale, PA 15086-7527, Tel: 724-772-1616, <https://www.p-r-i.org/>.

AC7112/3 Nadcap Audit Criteria for Fluid Distribution Systems, Couplings and Formed Sheet Metal Components Including Loop and Saddle Clamps

PD1100 Nadcap Program Requirements

2.1.5 U.S. Government Publications

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

MIL-STD-1916 DoD Preferred Methods for Acceptance of Product

2.2 Related Publications

The following publications are provided for information purposes only and are not a required part of this SAE Technical Report.

2.2.1 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.

AMS2700 Passivation of Corrosion Resistant Steels

AMS3224 Nitrile-Butadiene Rubber Fuel, Fire, and Ozone Resistant 65 - 75

AMS3253 Ethylene Propylene Rubber Phosphate Ester Resistant 65 - 75

AMS3310 Elastomer: Silicone Rubber (MQ/VMQ) Flame Retardant, Low Smoke Density, Low Smoke Toxicity, High Strength, 65 - 75 Durometer Type A Hardness For Products in Pressurized Aircraft Compartment Interiors

AMS3316 Elastomer: Silicone Rubber (MQ/VMQ), Fiberglass Fabric Reinforced, 65 to 75 Shore A Hardness

AMS3652	Polytetrafluoroethylene (PTFE) Film Non-Critical Grade
AMS3660	Polytetrafluoroethylene (PTFE) Moldings, General Purpose Grade, As Sintered
AMS5510	Steel, Corrosion- and Heat-Resistant, Sheet, Strip, and Plate 18Cr - 10.5Ni - 0.40Ti (SAE 30321) Solution Heat Treated
AS478	Identification Marking Methods
AS5763	Clamp Assembly, Saddle Type, Cushioned, Fuel and Petroleum Based Hydraulic Fluid
AS85449/1	Clamp Assembly, Saddle Type, Cushioned, Fuel and Petroleum Based Hydraulic Fluid
AS85449/2	Clamp Assembly, Saddle Type, Cushioned, Phosphate Ester Fluid Resistant
AS85449/3	Clamp Assembly, Saddle Type, Cushioned, High Temperature
AS85449/4	Clamp Assembly, Saddle Type, Cushioned, PTFE
AS85449/5	Clamp Assembly, Saddle Type, Cushioned, Fire Resistance, Low Smoke Density and Toxicity

2.2.2 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.

ASME Y14.5M Dimensioning and Tolerances

2.2.3 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.

ASTM D624 Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers

3. TECHNICAL REQUIREMENTS

3.1 Standard Sheets

The individual item requirements shall be as specified herein and in accordance with the applicable specification sheets. In the event of conflict between the requirements of this specification and the standard sheet, the requirements of the standard sheet shall govern.

3.2 Performance Requirement

Clamps supplied in accordance with this document shall be representative of products which have been subjected to and which have successfully passed the performance testing requirements specified in this standard.

3.2.1 Manufacturer Accreditation

A manufacturer producing a product in conformance to this procurement specification shall be accredited in accordance with the requirements of PD1100 and AC7112/3 and shall be listed in a Nadcap Qualified Manufacturers List (QML). The QML is available at www.eAuditNet.com.

Users shall regulate source approval by any internal standard qualifying documentations or similar means.

3.3 Materials

Clamp band material and cushioning material shall be as specified on the applicable standard sheet.

3.4 Design and Construction

The design and construction of the clamp shall be as specified herein and in accordance with the applicable standard sheets.

3.4.1 Dimensions and Tolerances

Dimensions and tolerances shall be as specified on the applicable standard sheet.

3.5 Performance

Clamp cushions, clamp bands, and clamp assemblies shall perform satisfactorily when subjected to the applicable tests specified in this specification and the applicable standard sheets.

3.5.1 Clamp Cushion Performance

3.5.1.1 Physical Properties

When tested in accordance with 4.5.3.1, cushion material must meet the physical property requirements specified in the applicable cushion material specification.

3.5.1.2 Compression Set

The average compression set value of three cushion material specimens shall not exceed the value specified in the applicable cushion material specification (see 4.5.3.2).

3.5.1.3 Flammability

The cushion material shall be tested for flammability in accordance with the applicable cushion material specification sheet and as specified herein (see 4.5.3.3).

3.5.1.4 Titanium Compatibility

When tested in accordance with 4.5.3.4, there shall be no evidence of cracking or pitting of the titanium tubing when observed with a 5 to 10 power magnifying glass.

3.5.2 Clamp Assembly Performance

3.5.2.1 Vibration

When tested in accordance with 4.5.4.1, no clamp shall exhibit any evidence of cushion separation or other deterioration. There shall be no cracking or separation of metal components. The transmissibility ratio shall be recorded.

3.5.2.2 Ozone Resistance

(When specified on applicable material specification sheet.) When tested in accordance with 4.5.4.2, no clamp shall exhibit any evidence of cracking visible to the unaided eye, or distortion of the cushion material.

3.5.2.3 Thermal Shock

When tested in accordance with 4.5.4.3, the clamps shall exhibit no evidence of cracking, tackiness, or degradation of the cushion material.