

INCH-POUND

MIL-DTL-8783B

6 JULY 1998

SUPERSEDING

MIL-C-8783A

27 October 1959

DETAIL SPECIFICATION

CLAMP, HOSE, FLAT BAND 500 °F, GENERAL SPECIFICATION FOR

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers flat band, T-bolt latch clamps and flat band, quick-release latch clamps used in various aircraft installations of duct, hose and tubing.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in section 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications and standards. The following specifications and standards form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Defense Supply Center, Columbus, DSCC-VAI, 3990 East Broad Street, Columbus, OH 43216-5000, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 4730

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

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SPECIFICATIONS

FEDERAL

GGG-G-17 - Gages, General Purpose

DEPARTMENT OF DEFENSE

MIL-DTL-8783/1 - Clamp, Hose, Flat Band 500 °F
MIL-W-6858 - Welding, Resistance: Spot and Seam

STANDARDS

DEPARTMENT OF DEFENSE

MIL-STD-130 - Identification Marking of U.S. Military Property

(Unless otherwise indicated, copies of the above specifications and standards are available from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS are the issues of the documents cited in the solicitation (see 6.2).

AMERICAN NATIONAL STANDARDS INSTITUTE

ANSI/ASQC-Z1.4 - Sampling Procedures and Tables for Inspection by Attributes (DoD adopted)

(Application for copies of ANSI publications should be addressed to the American National Standards Institute, 11 West 42nd Street, New York, NY 10036.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS

ASTM A967 - Standard Specification for Chemical Passivation Treatments for Stainless Steel Parts (DoD adopted)

(Application for copies of ASTM publications should be addressed to the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.)

SOCIETY OF AUTOMOTIVE ENGINEERS

AMS 5518	-	Steel, Corrosion Resistant, Sheet and Strip 18Cr - 8Ni (SAE30301) Cold Rolled, 150ksi (1034MPa) Tensile Strength (DoD adopted)
AMS 5732	-	Steel, Corrosion and Heat Resistant, Bars, Wire, Forgings, Tubing, and Rings 15Cr - 25.5Ni - 1.2Mo - 2.1Ti - 0.006B - 0.30V Consumable Electrode Melted 1800 Degrees F (982 Degrees C) Solution and Precipitation Heat Treated (DoD adopted)
AMS 5737	-	Steel, Corrosion and Heat Resistant, Bars, Wire, Forgings, Tubing, and Rings 15Cr - 25.5Ni - 1.2Mo - 2.1Ti - 0.006B - 0.30V Consumable Electrode Melted 1650 Degrees F (899 Degrees C) Solution and Precipitation Heat Treated (DoD adopted)
AMS 5901	-	Steel Sheet, Strip, and Plate, Corrosion Resistant 18Cr - 8Ni (SAE30301) Solution Heat Treated (DoD adopted)
AMS 7479	-	Bolts and Screw, Steel, Corrosion and Heat Treated 1650 Degrees F Solution Heat Treated Precipitation Heat Treated Before Roll Threaded (DoD adopted)
AS8879	-	Screw Threads - UNJ Profile, Inch

(Application for copies of SAE publications should be addressed to Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096-0001.)

2.4 Order of Precedence. In the event of a conflict between the text of this document and the references cited herein (except for the related associated specifications or specification sheets), 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. REQUIREMENTS

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

3.2 Qualification. The flat band hose clamps furnished under this specification shall be products that are authorized by the qualifying activity for listing on the applicable qualified products list before contract award (see 4.3 and 6.3).

3.3 Materials. Materials shall be as identified herein. Materials not specified shall be selected by the contractor and shall be subject to all provisions of this specification.

3.3.1 Clamp bands. Clamp bands shall be manufactured of type 301, one-half hard corrosion-resistant steel conforming to AMS 5518.

3.3.2 Trunnions. Trunnions shall be manufactured to type 301, annealed corrosion-resistant steel conforming to AMS 5901.

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3.3.3 Bolts. Bolts shall be corrosion-resistant type steel (AMS 5732 or AMS 5737) conforming to AS7479 and capable of withstanding a tensile load of 3180 pounds minimum, without permanent deformation or loss of function. The heat-treat range may be accordingly altered.

3.3.4 Nuts. Nuts shall be corrosion-resistant type steel (AMS 5732 or AMS 5737) conforming to AS7479 and shall be capable of withstanding a tensile load of 3630 pounds minimum, without permanent deformation or loss of function.

3.3.5 Threads. The class of threads shall be 3A and 3B, respectively, for the bolt and the nut in accordance with AS8879.

3.3.6 Tongue. The tongue shall be the same width, thickness, and material as the clamp band specified in 3.3.1.

3.3.7 Recycled, recovered, or environmentally preferable material. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

3.4 Component parts. The latch of the quick-release type shall be positive locking but easily released when the nut is backed off. All component parts of quick-release clamps shall remain as an assembly during installation or removal. T-bolt type clamps may require removal of latch components, such as the nut.

3.5 Design and construction. Clamps shall be of a design to permit easy installation and removal in confined places. Design shall require the bolt-type element to be an integral load-carrying member. A permanently attached tongue shall be provided to insure that the clamp will exert a bearing pressure throughout the complete circumference.

3.5.1 Welding. All resistance (spot) welding shall be done as specified in MIL-W-6858, class B.

3.6 Minimum adjustment range. A clamp for any given size shall have sufficient adjustment available in the assembled condition so that an applied torque of 25 + 5 pound-inch will tighten it uniformly around the full periphery of solid rounds or steel tubes. The rounds and tubes shall have outside diameters to the maximum and minimum dimensions specified on MIL-DTL-8783/1, when tested as specified in 4.5.2.

3.7 Sizes and dimensions. The sizes and dimensions shall conform to MIL-DTL-8783/1. Envelope dimensions of the tightening device are applicable when the clamp is in the tightened positions on the minimum and maximum size solid round or tube.

3.8 Protective treatment. Corrosion-resistant steel components shall be passivated as specified in ASTM A967.

3.9 Load Deflection. The maximum deflection shall be 0.15 inch when tested in accordance with 4.5.3.

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3.9.1 Tensile load. The minimum tensile load of all sizes of clamps shall be 2250 pounds at a temperature of 500 °F, when tested as specified in 4.5.4.

3.10 Identification of product. Each clamp shall be marked with the part number in accordance with MIL-STD-130. The manufacturer's name or trademark shall be placed on the clamp, printed parallel to edges of the band. The markings shall consist of characters 0.063 inch to 0.188 inch high. Markings shall not cause any disfigurement or damage.

3.11 Workmanship. Clamps shall be uniform in quality and free from burrs, sharp edges, cracks, inclusions and other defects which may adversely affect its functioning and service life.

4. VERIFICATION

4.1 Classification of inspections. The inspection requirements specified herein are classified as follows:

- a. Qualification inspection (see 4.3).
- b. Conformance inspection (see 4.4).

4.2 Inspection and tests. The inspection and tests specified herein are intended to verify that the items produced meet or exceed the performance requirements specified.

4.3 Qualification inspection. Qualification inspection shall consist of all of the tests of this specification.

4.3.1 Sampling instructions. The qualification test samples shall consist of three clamps of the -41 or -41R size. Samples shall be plainly identified by securely attached durable tags marked with the information specified below and shall be forwarded to the activity responsible for qualification (see 6.3).

Sample for qualification tests

CLAMP, HOSE, FLAT BAND, 500 °F

Part No.

Manufacturer's Part No. and CAGE Code

Name of Manufacturer

Submitted by (name) (date) for qualification tests in accordance with MIL-DTL-8783B under authorization (reference letter of authorization).

4.4 Conformance inspection. The conformance inspection shall consist of the following tests as specified under 4.5:

- a. Examination of product (4.5.1)
- b. Minimum adjustment range (4.5.2)
- c. Load deflection (4.5.3)

d. Tensile load (4.5.4)

4.4.1 Inspection lot. An inspection lot shall consist of clamps of the same size and type produced under the same manufacturing conditions and submitted for inspection at the same time. The unit of inspection shall be one clamp.

4.4.2 Sampling for conformance tests. A random sample shall be selected from each inspection lot in accordance with ANSI/ASQC Z1.4, Inspection Level L-4. The allowable number of defects shall be as specified in the contract (see 6.2).

4.4.3 Resubmitted inspection lots. Paragraph 6.4 of ANSI/ASQC Z1.4 shall apply, except that a resubmitted inspection lot shall be inspected by the contractor under the supervision of the Government inspector using tightened inspection. Before an inspection lot is resubmitted, full particulars concerning the cause of previous rejection and the action taken to correct the defects found in the inspection lot shall be maintained by the contractor and provided to government inspector when specified.

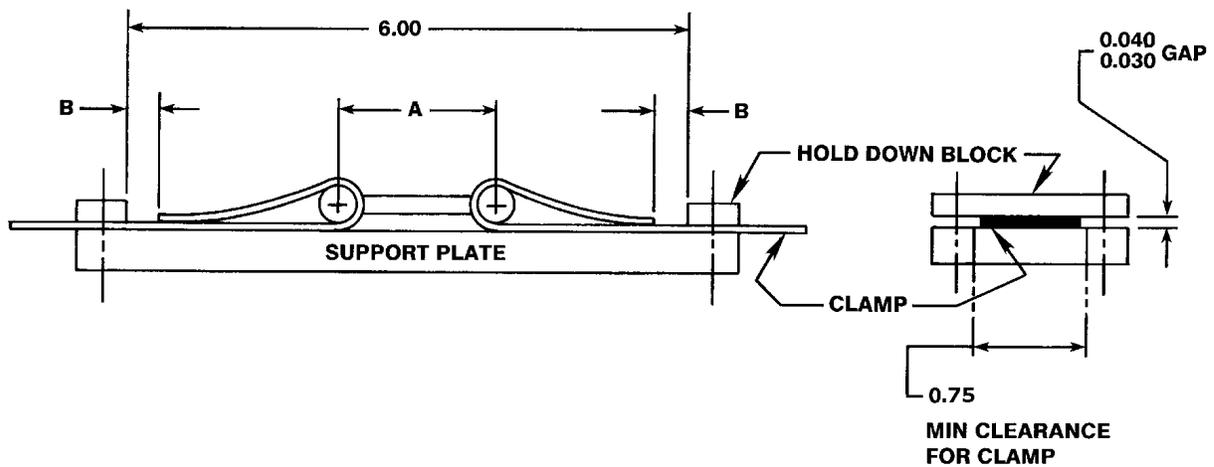
4.5 Tests.

4.5.1 Examination of product. Each clamp submitted for acceptance under contract shall be visually examined to determine conformance with the requirements of this specification not covered by test and with respect to workmanship and dimensions specified on the applicable specification sheet.

4.5.2 Minimum adjustment range. Solid rounds or steel tubes having outside diameters equal to the minimum extended diameter, +1 percent -0, and maximum compressed diameter, +0, -1 percent, specified on MIL-DTL-8783/1, shall be used to measure the adjustment range. The clamp shall be tightened with an applied torque of 25 + 5 pound-inch on the maximum size solid round or tube. It shall not be possible to insert a thickness (feeler) gage 0.028 inch thick by 0.312 inch wide, conforming to GGG-G-17 type VIII, as applicable, between the clamp and the round or tube. The clamp shall be removed and installed in the same manner on the minimum size solid round or tube and the test repeated to determine conformance with 3.6.

4.5.3 Load deflection. Load deflection data shall be obtained by a straight tensile test on a clamp which has been cut apart in the band opposite the latching element. The cut clamp shall be carefully straightened from the circular form to provide a straight test specimen. The distance between the T-bolt head and the trunnion shall be the same as when the clamp was tightened on the minimum size round or tube in accordance with 4.5.2. A gage length of 10 inches shall be used, and a supporting plate may be employed to maintain the clamp assembly in a straight line and to prevent possible malfunction of the latching element (see figure 1). The maximum allowable deflection between the loads of 150 pounds and 1500 pounds shall be as specified in 3.9.

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1. Dimensions in inches.

- A. This distance determined from assembly on min bar or tube in accordance with 4.5.2.
- B. Center clamp on plate by making these dimensions equal within 0.06.

FIGURE 1. Test setup.

4.5.4 Band tensile load. The tensile load test shall be conducted on the same or similar specimens used in the load deflection test (4.5.3). The tensile load shall be as specified in 3.9.1.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature which may be helpful, but is not mandatory.)

6.1 Intended use. These are military unique clamps that require strict adherence to military requirements. The clamps are for use in military aircraft installation in making duct or tube connections and in other applications requiring a flat metallic band with an adjustment feature. The clamps meet the strict temperature range of -65 °F to 500 °F, which complies with detailed military requirements. These clamps are not intended for use in pressurized lines carrying combustibles.

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6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number and date of this specification.
- b. Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.).
- c. Part number.
- d. Quantity required.
- e. Specify the allowable number of defects.
- f. Packaging requirements (see 5.1).

6.3 Qualification. With respect to products requiring qualification, awards will be made only for products which are, at the time of award of contract, qualified for inclusion in qualified Products List, QPL-8783, whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or purchase orders for the products covered by this specification. Information pertaining to qualification of products may be obtained from the Commander, Defense Supply Center, Columbus, DSCC-VAI, 3990 East Broad Street, Columbus, OH 43216-5000.

6.4 MS cross reference. Former military standard (MS) number cross reference to MIL-DTL-8783 specification sheet number:

MIL-DTL-8783/1	MS21920
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The military standard (MS) part numbers have been retained.

6.5 Subject term (Keyword) listing.

Trunnions

6.6 Changes from the previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

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CONCLUDING MATERIAL

Custodians:
Air Force - 99
Army - AT

Preparing activity:
DLA-CC

(Project 4730-0860)

Review activities:
Air Force - 82
Army - AV, MI

