

INCH-POUND

MIL-DTL-8783C

30 July 1999

~~SUPERSEDING~~

MIL-DTL-8783B

6 July 1998

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

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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
MIL-N-7873 - Nut, Self-Locking, 1,200 °F

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/NCSL Z540-1 - Calibration Laboratories and Measuring and Test Equipment, General Requirements.

(Application for copies should be addressed to the American National Standard 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.)

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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)
AS7479	-	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 with corrosion-resistant steel.

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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 MIL-N-7873 and shall be capable of withstanding a tensile load of 3180 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.

* 3.9.1 Tensile load. The minimum tensile load of all sizes of clamps shall be 2250 pounds when tested as specified in 4.5.4.

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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 Test equipment and inspection facilities. Test and measuring equipment and inspection facilities of sufficient accuracy, quality, and quantity to permit performance of the required inspection shall be established and maintained by the contractor. The establishment and maintenance of a calibration system to control the accuracy of the measuring and test equipment (i.e. Industry Standard, Military Standard, etc.) shall be in accordance with ANSI/NCSL Z540 -1 or equivalent.

* 4.2 Classifications of inspection. The inspection requirements specified herein are classified as follows:

- a. Qualification inspection (see 4.3).
- b. Conformance inspection (see 4.4.1).
 1. Sampling tests (see 4.4.1.1)
 2. Periodic control tests (see 4.4.1.2)

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 be performed at a laboratory acceptable to the Government on sample units produced with equipment and procedures used in production.

* 4.3.1 Samples for qualification. Samples for qualification shall be representative of the products proposed to be furnished to the Government. 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-8783 under authorization (reference letter of authorization).

* 4.3.2 Inspection routine. The sample(s) shall be subjected to the inspections specified in table I.

* 4.3.3 Failures. One or more failures shall be cause for refusal to grant qualification approval.

* 4.3.4 Retention of qualification. To retain qualification, the contractor shall verify in coordination with the qualifying activity the capability of manufacturing products which meet the performance requirements of this specification. Refer to the qualifying activity for the guidelines necessary to retain qualification to this specification. The contractor shall immediately notify the qualifying activity at any time the inspection data indicates failure of the qualified product to meet the performance requirements of this specification.

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TABLE I. Inspection table.

Title	Requirement	Inspection	Qualification	Quality conformance	
				Sampling tests (Lot acceptance)	Periodic control tests
Examination of product	3.7, 3.10, 3.11	4.5.1	X	X	
Minimum adjustment range	3.6	4.5.2	X	X	
Load deflection <u>1/</u>	3.9	4.5.3	X		X
Band tensile load <u>1/</u>	3.9.1	4.5.4	X		X

1/ Destructive test.

* 4.4 Inspection of product for delivery. Inspection of product for delivery shall consist of Sampling tests.

* 4.4.1 Conformance inspection.

* 4.4.1.1 Sampling tests. Sampling tests shall consist of the inspections specified in table I. These tests shall be performed on a production lot basis. Random samples shall be selected to form an inspection sample. If one or more defects are found in the inspection sample, then the production lot shall be screened for that particular defect and defects removed. A second inspection sample shall be selected from the production lot and all sampling tests again performed. If one or more defects are found in the second inspection sample, the production lot shall be rejected and shall not be supplied to this specification.

* 4.4.1.1.1 Production lot. A production lot shall consist of clamps of the same size and type manufactured on the same production line(s) by means of the same production technique, materials, controls, and design during the same continuous production run.

* 4.4.1.1.2 Inspection sample. The inspection sample shall be product selected at random from the production lot without regard to quality and shall be the size specified in table II.

*

TABLE II. Inspection sample.

Production lot size	Accept on zero sample size
1 to 8	All
9 to 90	8
91 to 150	12
151 to 280	19
281 to 500	21
501 to 1,200	27
1,201 to 3,200	35
3,201 to 10,000	38
10,001 to 35,000	46

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- * 4.4.1.2 Periodic control tests. Periodic control tests shall consist of the inspections specified in table I and shall be made on three clamps which have been subjected to and passed the Sampling tests. Periodic control tests shall be performed once every 26 calendar weeks. Parts shall be as representative as possible of the production lots for the time period that they represent (for example, parts shall be from different lots, different production dates, etc.). Parts tested must be from actual production lots and are not to be built just for testing. Manufacturers are not required to do Periodic control testing if there has been no production during the period covered by the testing. If there has been no production for a period of two years, the qualifying activity has the option of requiring the manufacturer to build parts to perform periodic control tests.
- * 4.4.1.2.1 Nonconformance. If a sample fails to pass any periodic control test, the manufacturer shall immediately notify the qualifying activity and cognizant inspection activity of such failure and take corrective action on the materials or processes, or both, as warranted, and on all units of product which can be corrected and which were manufactured under essentially the same conditions, with essentially the same materials and processes, and which are considered subject to the same failure. Acceptance and shipment of the product shall be discontinued until corrective action, acceptable to the qualifying activity has been taken. After the corrective action has been taken, periodic control tests shall be repeated on additional samples (all inspections, or the inspection which the original sample failed, at the option of the qualifying activity). Sampling tests (and periodic control tests if applicable) inspection may be reinstated; however, final acceptance shall be withheld until the periodic control test has shown that the corrective action was successful. In the event of failure after inspection, information concerning the failure and corrective action taken shall be furnished to the cognizant inspection activity and the qualifying activity.
- * 4.4.1.2.2 Disposition of test specimens. Test specimens which have been subjected to periodic control tests shall not be delivered on a contract or purchase order.

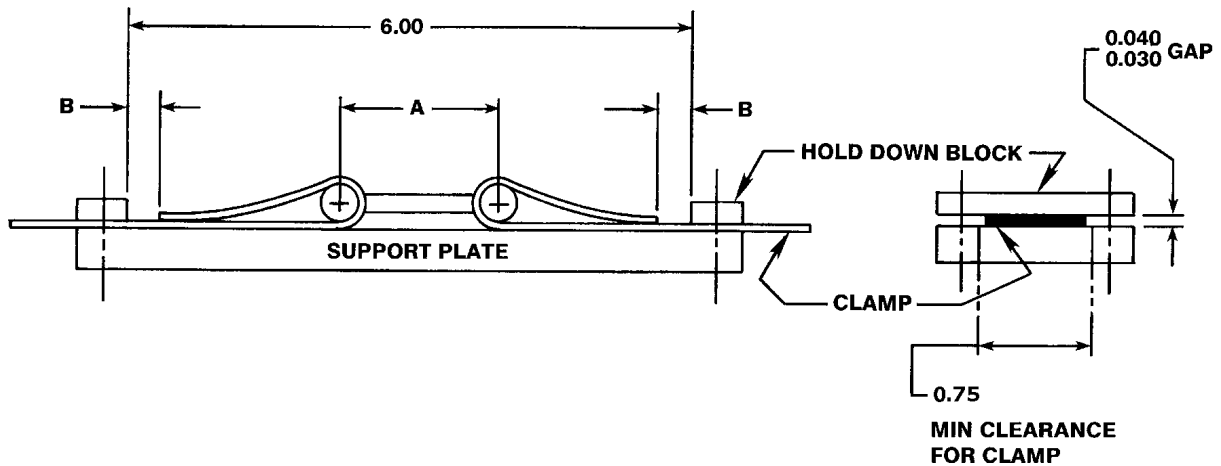
4.5 Tests.

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 2.1).
- c. Part number.
- d. Quantity required.
- * e. 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

The military standard (MS) part numbers have been retained.

6.5 Subject term (Keyword) listing.

Trunnion

6.6 Changes from the previous issue. The margins of this specification are marked with asterisks to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

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CONCLUDING MATERIAL

Custodians:

Air Force - 99
Army - AT
DLA - CC

Preparing activity:

DLA - CC

(Project 4730-1049)

Review activities:

Air Force - 82
Army - AV, MI

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7, and send to preparing activity.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:

1. DOCUMENT NUMBER
MIL-DTL-8783

2. DOCUMENT DATE (YYYYMMDD)
990730

3. DOCUMENT TITLE

Clamp, Hose Flat Bend 500 °F, General Specification For

4. NATURE OF CHANGE (*Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.*)

5. REASON FOR RECOMMENDATION
6. SUBMITTER

a. NAME (*Last, First Middle Initial*)

b. ORGANIZATION

c. ADDRESS (*Include Zip Code*)

d. TELEPHONE (*Include Area Code*)
(1) Commercial
(2) DSN
(*If applicable*)

7. DATE SUBMITTED
(YYYYMMDD)

8. PREPARING ACTIVITY DLA-CC

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COMMANDER
DEFENSE SUPPLY CENTER COLUMBUS

b. TELEPHONE (*Include Area Code*)
(1) Commercial (2) DSN
(614) 692-0538 850-0538

c. ADDRESS (*Include Zip Code*)
DSCC-VAI
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