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Superseding AS1553

Performance Standard for
Tube Support Loop-Cushioned Clamp

RATIONALE

AS1553A has been reaffirmed to comply with the SAE five-year review policy.

1. SCOPE:

This standard covers heat and corrosion resistant steel loop clamps with a woven steel wire cushion that is attached to the clamp by spot welding and is intended for use in applications up to 1200 °F (649 °C).

1.1 Purpose:

To establish the performance requirements for loop clamps with a woven steel wire cushion.

2. 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 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

AMS 5510 Sheet, Strip, and Plate - 18Cr, 10Ni, 0.40Ti
AMS 5697 Wire - 19Cr, 9Ni Braiding

AS3268 Sleeve Half-Reinforcing, Tube
AS3269 Sleeve Half-Reinforcing, Tube

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<http://www.sae.org/technical/standards/AS1553A>**

2.2 U.S. Government Publications:

Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

MIL-H-5606 Hydraulic Fluid, Petroleum Base, Aircraft, Missile and Ordnance
MIL-T-6845 Tubing, Steel, Corrosion-Resisting (304), Aerospace Vehicle Hydraulic System, 1/8 Hard Condition

MIL-STD-105 Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-810 Environmental Test Methods

3. GENERAL REQUIREMENTS:

3.1 Materials:

- 3.1.1 Clamp Material: Bands for clamps shall be formed from corrosion and heat resistant steel conforming to AMS 5510.
- 3.1.2 Cushion Material: Cushions shall be braided or woven from 0.005 to 0.010 wire conforming to AMS 5697 to form a liner meeting the dimensions specified on the drawing.

3.2 Design and Construction:

- 3.2.1 Sizes and Dimensions: The sizes and dimensions shall be as specified on the applicable drawing. Clamps shall be formed through a minimum of 270° of the mandrel circumference. Normal spring back of the clamp from this formed condition will be acceptable.
- 3.2.2 Construction: Woven cushion shall be permanently attached to clamp by spot welding.

3.3 Finish:

All surfaces shall have a smooth finish, free from burrs and sharp edges. The insides of the clamp band shall be rolled or provided with a radius to eliminate sharp edges which would cut the cushion or mark tubing.

3.4 Identification of Products:

Each clamp shall be marked in accordance with the requirements of the drawing.

3.5 Performance:

The clamps shall meet the performance requirements specified in Section 4.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Classification of Tests:

The inspection and testing of clamp assemblies shall be classified as follows:

- a. Quality Conformance Tests
- b. Qualification Tests

4.2 Quality Conformance Tests:

Quality conformance tests shall be conducted in accordance with MIL-STD-105 and shall consist of:

- a. Acceptance Tests
- b. Periodic Control Tests

4.2.1 Acceptance Tests: The following acceptance test shall be performed on clamp assemblies selected at random from each inspection lot. An inspection lot shall consist of all clamps of a particular size made under essentially the same conditions and presented for inspection at the same time. Unless otherwise noted, inspection sample size shall be in accordance with MIL-STD-105, Inspection Level II of table titled "Sample Size Code Letters" for ordinary inspection. The acceptance quality level (AQL) shall be as specified in Table 1.

- a. Examination of product; see 4.4.1.
- b. Closure test; see 4.4.2.
- c. Weld test; see 4.4.3. Weld inspection plan shall be based on a sample level of one-half of 1% (0.005) per inspection lot.

TABLE 1 - Classification of Defects, Sampling Plan

Inspection	AQL (percent defective) Major	AQL (percent defective) Minor
Examination of product	1.0	4.0
a. Dimensions		
1. Loop diameter (max)	X	
2. Width (min)	X	
3. Thickness (min)	X	
4. Centerline of loop to centerline of screw hole (min)	X	
5. All other dimensions		X
b. Workmanship and marking		X
c. Materials	X	
d. Closure test	X	

4.2.2 Periodic Control Test: Periodic control test shall consist of vibration test as defined in 4.4.4, except testing shall be performed at room temperature only. Testing shall be performed on sizes and intervals as agreed upon between vendor and purchaser. If failure occurs in this test, the qualification test must be repeated for the size clamp that failed.

4.3 Qualification Tests:

The qualification of clamp assemblies shall consist of the following performance tests. Successful completion of testing on one particular size may when agreed upon between vendor and purchaser provide acceptance for other sizes based on similarity of construction and manufacture.

- a. Examination of product; see 4.4.1.
- b. Closure test; see 4.4.2.
- c. Vibration test; see 4.4.4.