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Superseding AS39631

Universal Joint, Antifriction Bearings

FSC 3010

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1. SCOPE:

1.1 Scope:

This specification covers anti-friction bearing universal joints for intermittent and continuous operation suitable for use in military applications.

1.2 Classification:

The universal joints shall be of the sizes as specified in table I.

2. APPLICABLE DOCUMENTS:

- 2.1 The following specifications and standards, of the issue in effect on date of invitation for bids, shall form a part of this specification:

SPECIFICATIONS

FEDERAL

QQ-P-416	Plating, Cadmium (Electro-deposited)
PPP-B-585	Boxes, Wood, Wirebound
PPP-B-591	Boxes, Fiberboard, Wood-Cleated
PPP-B-601	Boxes, Wood, Cleated-Plywood
PPP-B-621	Boxes, Wood, Nailed and Lock-Corner
PPP-B-636	Boxes, Fiber
PPP-T-60	Tape; Pressure Sensitive Adhesive, Waterproof - for packaging and Sealing

MILITARY

JAN-P-100	Packaging and Packing for Overseas Shipment, General Specification
MIL-P-116	Preservation, Methods of
MIL-B-138	Boxes, Wood, Fiberboard-Lined for Overseas Shipment (for Weight of Contents Not Exceeding 500 Pounds)
MIL-G-3278	Grease; Aircraft and Instruments (for Low and High Temperatures)
MIL-B-4229	Boxes; Paperboard, Metal-Stayed
MIL-I-6866	Inspection, Penetrant Method of
MIL-I-6868	Inspection Process, Magnetic Particle
MIL-A-8625	Anodic Coatings, for Aluminum and Aluminum Alloys
MIL-B-10377	Box, Wood Cleated, Veneer, Paper Overlaid
MIL-L-10547	Liners, Case, Waterproof
MIL-C-16232	Coatings, Phosphate, Heavy (Manganese and Zinc Type) and Phosphate Treating Solutions

2.1 (Continued):

STANDARDS

FEDERAL

FED. TEST METHOD STD. NO. 151 Metals; Test Methods

MILITARY

MIL-STD-105	Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-129	Marking for Shipment and Storage
MIL-STD-130	Identification Marking of U.S. Military Property
MS24312	Universal Joint, Antifriction Bearing, Round Hub
MS24313	Universal Joint, Antifriction Bearing, Flange Hub
MS24314	Universal Joint, Antifriction Bearing, External Spline
MS24315	Coupling, Flange, Round Hub
MS24316	Coupling - Keyway, Flange, Round Hub

(Copies of specifications, standards, drawings, and publications required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications:

The following document forms a part of this specification. Unless otherwise indicated, the issue in effect on date of invitation for bids shall apply.

NAS 516 Fittings - Lubricator 1/8 Inch Drive, Flush Type

(Copies of NAS publications may be obtained from Aircraft Industries Association of America Inc., 610 Shoreham Building, Washington 5, D.C.)

3. REQUIREMENTS:

3.1 Preproduction sample:

Prior to beginning quantity production, preproduction samples shall be subjected to preproduction testing (see 4.2.1 and 6.2).

3.2 Materials:

The materials used in the manufacture of anti-friction bearing universal joints and flange hubs shall be of the highest quality and entirely suitable for the purpose. The material shall be open-hearth or electric-furnace process steel.

- 3.2.1 Material defects: Steels shall be free from pipes, cracks, seams, inclusions, or other discontinuities detrimental to the operation or life expectancy of the parts (see 4.4.2.).

3.3 Design and construction:

- 3.3.1 Dimensions and weights: Dimensions and weights shall be as specified in Standards MS24312, MS24313, MS24314, MS24315, and MS24316.
- 3.3.2 Assembly: The joints shall be assembled with cross assembly and bearings locked into place to prevent disassembly of the finished joint.
- 3.3.3 Hardness: The hub section of the joints and flange hubs shall not exceed a Rockwell Hardness of C-40.
- 3.3.4 Plating: Unless otherwise specified, all external steel parts of the joint or flange hubs, except the spline end of MS24314 joints, shall be cadmium plated in accordance with Specification QQ-P-416, Type I, Class 2. All external aluminum parts of the joint or flange hub shall be anodized in accordance with the requirements of Specification MIL-A-8625. The spline ends of MS24314 joints shall be phosphate coated in accordance with Type I, of Specification MIL-C-16232.
- 3.3.5 Lubrication: Unless otherwise specified, the bearings of the joints shall be lubricated with grease conforming to Specification MIL-G-3278. Relubrication of the bearings shall be provided for by utilizing lubricator fittings conforming to Standard NAS 516. Adequate sealing for lubricant retention and prevention of contamination shall be provided.

3.4 Performance:

- 3.4.1 Angularity: The joints shall be operable to an angle of not less than 25 degrees measured between the axis of the hubs.
- 3.4.2 Tightness: The moment of force required to move one end of the joint through a minimum angle of 25 degrees shall be no more than 1.0 pound-inch.
- 3.4.3 Torsional, end, and side play: The torsional play in the joint shall be no more than the pertinent limit shown in table I. Maximum end and side play shall be 0.0024 and 0.0056 inch, respectively.