

FED. SUPPLY CLASS

4730

1. SCOPE

- 1.1 Scope. This specification covers a light weight series of flared rigid tube connector fittings for use in high temperature, high pressure pneumatic and hydraulic systems, fuel systems, cryogenic systems and other aircraft or missile applications.
- 1.2 Classification. Fittings shall be furnished in the types and styles designated by the applicable NAS detail drawings.

2. APPLICABLE DOCUMENTS

- 2.1 The following publications, of the issue in effect on date of invitation for bids, shall form a part of this specification to the extent specified herein:

2.1.1 Specifications.

Industry

SAE International

AS5272	Lubricant, Solid Film, Heat Cured, Corrosion Inhibiting, Procurement Specification
AS8879	Screw Threads – UNJ Profile, Inch, Controlled Radius Root with Increased Minor Diameter
AMS-QQ-A-225/6	Aluminum Alloy, 2024, Bar, Rod, and Wire; Rolled, Drawn, or Cold Finished
AMS-WW-T-700/4	Tube, Aluminum Alloy, Drawn, Seamless, 5052
AMS2759	Heat Treatment of Steel Parts, General Requirements
AMS2770	Heat Treatment of Wrought Aluminum Alloy Parts

Copies can be obtained from SAE International, 400 Commonwealth Dr., Warrendale, PA 15096-0001.

www.sae.org

Military Specifications

MIL-STD-810	Environmental Engineering Considerations and Laboratory Tests
MIL-PRF-5606	Hydraulic Fluid, Petroleum Base; Aircraft, Missile, and Ordnance
MIL-T-8606	Tubing, Steel, Corrosion Resistant (18-8 Stabilized)
MIL-A-8625	Anodic Coatings, for Aluminum and Aluminum Alloys
MIL-S-18732	Steel Bars, Alloy, Corrosion Resistant (16CR-2N1) Aircraft Quality

Copies can be obtained from the Department of Defense Single Stock Point (DODSSP).

<http://dodssp.daps.dla.mil>

2.1.2 Standards.

Industry

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ASTM International

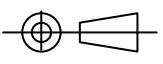
ASTM E 18	Standard Test Methods for Rockwell Hardness of Metallic Materials
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Copies can be obtained from ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959. www.astm.org

American Society for Quality

ASQ Z1.4	Sampling Procedures and Tables for Inspection by Attributes
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Copies can be obtained from the American Society for Quality, 600 North Plankinton Ave., Milwaukee, WI 53203. www.asq.org

THIRD ANGLE PROJECTION		CUSTODIAN		REVISION	
		NATIONAL AEROSPACE STANDARDS COMMITTEE		4	
PROCUREMENT SPECIFICATION	NONE	TITLE		CLASSIFICATION SPECIFICATION	
		FITTINGS, RIGID TUBE CONNECTOR, FLARED TUBE		④	



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Military Standards

MIL-STD-171 Finishing of Metal and Wood Surfaces

Copies can be obtained from the Department of Defense Single Stock Point (DODSSP).
<http://dodssp.daps.dla.mil>

2.1.3 Drawings.

Industry

SAE International

AS4330 Tubing, Flared, Standard Dimensions for, Design Standard
AS21919 Clamp, Loop Type, Cushioned Support
AS33583 Tubing End, Double Flare, Standard Dimensions for

Copies can be obtained from SAE International, 400 Commonwealth Dr., Warrendale, PA 15096-0001.
www.sae.org

Military

MS21919 Clamp, Loop Type, Cushioned, Support

Copies can be obtained from the Department of Defense Single Stock Point (DODSSP).
<http://dodssp.daps.dla.mil>

Aerospace Industries Association

NAS591 Coupling, Rigid Tube Connector, Aluminum
NAS592 Ring, Rigid Tube Connector, Aluminum
NAS593 Nut, Rigid Tube Connector, Aluminum
NAS594 Coupling, Rigid Tube Connector, Corrosion Resistant Steel
NAS595 Ring, Rigid Tube Connector, Corrosion Resistant Steel
NAS596 Nut, Rigid Tube Connector, Corrosion Resistant Steel
NAS652 Coupling, Rigid Tube Bulkhead Connector
NAS1367 Fittings, Coated Lubricant and Sealant

Copies can be obtained from the Aerospace Industries Association, 1000 Wilson Blvd., Suite 1700, Arlington, VA 22209. www.aia-aerospace.org

3. REQUIREMENTS

3.1 Material. Fittings shall be fabricated of materials listed in Table I as specified on the applicable NAS drawing.

TABLE I – MATERIALS

MATERIAL		SPECIFICATION	DESIGN ULTIMATE STRESS	
ALUMINUM ALLOY ~~1a/~~	2024-T851, ROLLED, DRAWN OR COLD FINISHED, BAR OR ROD	AMS-QQ-A-225/6	66 KSI AT 70 ± 10 °F	25 KSI (APPROX) AT 350 °F
CRES	431, BAR OR ROD	MIL-S-18732 COND. A	200 KSI AT 70 ± 10 °F	120 KSI (ESTIMATED) AT 700 °F

~~1a/ — 2024 T6 fitting assemblies may be supplied as alternates to the materials shown until existing stocks are depleted.~~

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Full document details: AIA NAS597 2012

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1000 WILSON BLVD.
ARLINGTON, VA 22209

THIS DRAWING SUPERSEDES ALL ANTECEDENT STANDARD DRAWINGS FOR THE SAME
PRODUCT AND SHALL BECOME EFFECTIVE NO LATER THAN SIX MONTHS FROM THE LAST
REVISION DATE.

FORM 09-01

3.1.1 Heat Treatment.

3.1.1.1 CRES. CRES fittings shall be heat treated to 200-230 KSI in accordance with specification AMS2759. Hardness readings shall be 40 HRC minimum.

3.1.1.2 Aluminum Alloy. Heat treatment shall be in accordance with specification AMS2770.

3.2 Design and Dimensions. The design and dimensions of the fittings shall be in accordance with the applicable NAS standard detail drawing.

3.2.1 Shape and Form Restrictions. Abrupt reductions of section shall be avoided. Small external sections adjoining relatively heavy body sections shall be shaded into the heavier sections by means of ample fillets. Sharp corners or inadequate fillets, excessive undercuts or excessive grooves at the junction of such small sections with large sections of fittings shall be considered cause for rejection.

3.3 Threads. Threads shall conform to specification AS8879.

3.4 Torque.

3.4.1 Installation Wrench Torque. Fitting assemblies shall not leak or blowoff when tightened to the minimum and maximum installation wrench torques specified in Table II, and tested in accordance with 4.6.2.1.1 and 4.6.2.1.2. Leakage or blowoff shall not occur during any phase of the testing, nor shall the fittings exhibit any roughness, seizure or galling during any of the assembly or disassembly operations.

3.4.2 Overtightened Wrench Torque. Fitting assemblies shall not leak or blowoff when overtightened and tested in accordance with 4.6.2.1.3.

3.4.3 Tube Turning Torque During Assembly. The tendency for the tube to turn during assembly shall not exceed the "tube turning torque" values of Table II.

3.5 Impulse. Fitting assemblies shall not leak or fail during any phase of the impulse tests specified in 4.6.2.2, 4.6.2.2.1, and 4.6.2.2.2.

3.6 Pressure. Fitting assemblies shall indicate no signs of leakage, distortion or burst when subjected to the test pressures of Figures 1 and 2 at room and elevated temperatures, and tested in accordance with 4.6.2.3.

3.7 Vibration. Fitting assemblies shall perform satisfactorily without failure when subjected to the tests specified in 4.6.2.4.

3.8 Finish.

3.8.1 CRES. Fittings made from CRES shall be passivated per MIL-S-5002.

3.8.2 Aluminum Alloy. Fittings made from aluminum alloy shall be anodized per MIL-A-8625.

3.8.3 Lubrication. All fittings except the rings shall be provided with a dry film lubricant per AS5272.

3.9 Identification of Product. All fittings shall be permanently marked with the applicable NAS part number and manufacturer's name or trade mark.

3.10 Weight. The maximum weight of fittings shall not exceed the values shown on the applicable NAS drawings.

3.11 Workmanship. Fittings shall be free from cracks, laps, seams, burrs, longitudinal and spiral tool marks or any other defects which may detrimentally affect their suitability for the service intended. The finished fittings shall be clean, dry and free from grease, oil or any other foreign matter.

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