



# AEROSPACE STANDARD

AS5148™

REV. A

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Superseding AS5148

(R) Assembly, Installation, and Torque for Flareless and  
Straight Thread Fluid Fittings and Tube Assemblies

## RATIONALE

Note added to Table 10 to clarify torque values used when installing steel or titanium fittings in an aluminum port (boss).

### 1. SCOPE

This SAE Aerospace Standard (AS) describes the assembly, installation, and torque values for flareless and straight thread fluid fittings and tube assemblies.

#### 1.1 Product Classification

This procedure covers the assembly and installation of the following:

- a. Flareless fittings, bite type sleeves and components with NAS1760 fitting ends (see Section 3)
- b. Bulkhead fittings (see Section 4)
- c. Straight thread boss fittings (see Section 5)

### 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 International, 400 Commonwealth Drive, Warrendale, PA 15096-0001 Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), [www.sae.org](http://www.sae.org).

AMS-G-4343	Grease, Pneumatic Systems
AS1790	Nut, Fitting, Retained, Lightweight
AS1792	Nut, Fitting, Lightweight, Flareless
AS3208	Packing, Preformed – AMS7276, Seal,

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AS3209	Packing, Preformed – AMS7276, O-Ring
AS3581	Packing, Preformed – O-Ring Seal AMS7259
AS4375	Fitting End, Flareless, Design Standard
AS4377	Fitting End, Bulkhead, Flareless, Design Standard
AS5202	Port or Fitting End, Internal Straight Thread, Design Standard
AS5863	Fitting End, 24° Cone, Flareless, Fluid Connection, Design Standard
AS5864	Fitting End, Bulkhead, 24° Cone, Flareless, Fluid Connection, Design Standard
AS9385	Packing, Preformed, AMS7267, O-Ring
AS21921	Nut, Sleeve, Coupling, Flareless
AS21922	Sleeve, Coupling, Flareless
AS28778	O-Ring, Straight Thread Tube Fitting Boss Molded from AMS-P-5510 Rubber
AS33514	Fitting End, Standard Dimensions for Flareless Tube Connection and Gasket Seals
AS33515	Fitting End, Standard Dimensions for Bulkhead Flareless Tube Connections
AS33931	Packing, Preformed, Straight Thread Tube Fitting Boss, Hydraulic, -65 °F to +275 °F

## 2.2 U.S. Government Publications

Copies of these documents are available online at <http://quicksearch.dla.mil>.

AN924	Nut, Tube, Bulkhead and Universal Fitting
AN960	Washer, Flat
VV-P-236	Petrolatum, Technical

## 2.3 NAS Publications

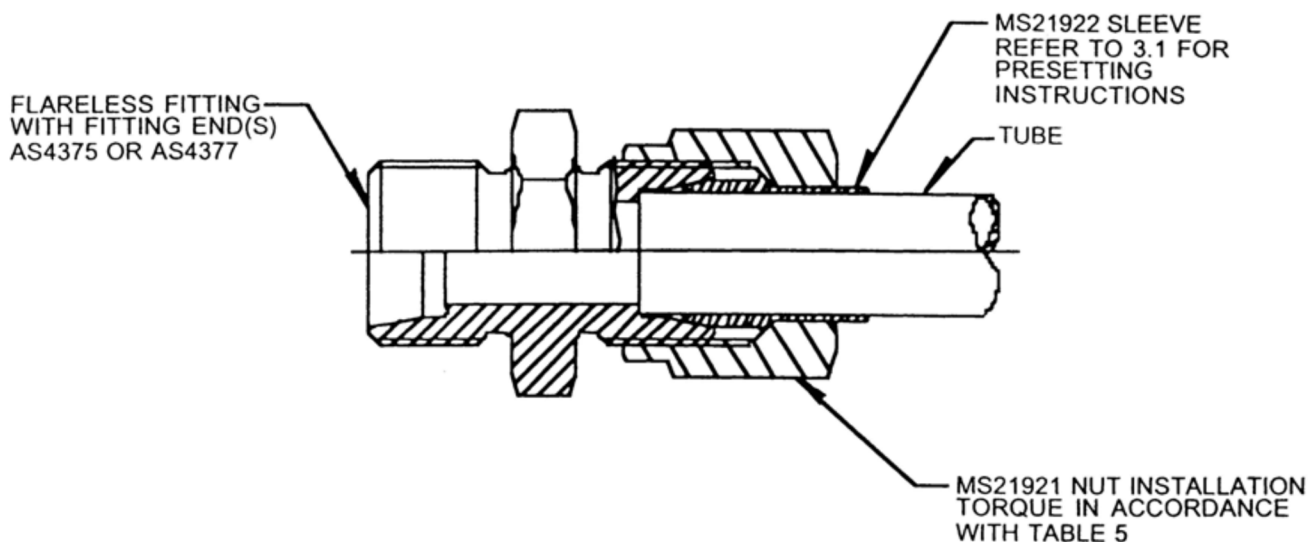
Available from Aerospace Industries Association, 1000 Wilson Boulevard, Suite 1700, Arlington, VA 22209-3928, Tel: 703-358-1000, [www.aia-aerospace.org](http://www.aia-aerospace.org).

NAS1149	Washer, Flat
NAS1760	Fitting End, Flareless Acorn, Standard Dimensions for

## 3. FLARELESS TUBE FITTINGS AND BITE TYPE SLEEVE (FIGURE 1)

### 3.1 Presetting of Bite Type Sleeve

- 3.1.1 Sleeves must be preset on tubing prior to assembly. Sleeve presetting may be accomplished by machine or by hand on aluminum, 304 1/8H corrosion resistant steel or annealed corrosion resistant steel tube.



**Figure 1 - Bite type flareless sleeve tube assembly**

### 3.1.2 Tube End Preparation

Tube ends shall be cut square within 0.5 degrees and burrs removed from inside and outside of tube end. The break or chamfer on either the outside or inside corner shall not exceed 25% of the thickness of the tube wall.

### 3.1.3 Machine Presetting

3.1.3.1 Use the appropriate dies for the sleeve size to be preset on the tube.

3.1.3.2 Use machine preset forces recommended by the manufacturer and/or sufficient to produce a satisfactory preset (see 3.1.5).

3.1.3.3 The sleeve and working surfaces of the tooling shall be lubricated with the approved system lubricant (see Table 1).

**Table 1 - Thread lubricant selection**

Application	Appropriate Lubricant
Coolant (Ethylene Glyco)	None
Coolant (Silicate Esters)	None
Engine Fuel	System Fluid
Engine Lubricant (Petroleum Base)	System Fluid
Engine Lubricant (Phosphate Base)	System Fluid
Hydraulic (Petroleum Base)	System Fluid
Hydraulic (Phosphate Base)	System Fluid
Oxygen	None
Pneumatic	AMS-G-4343 Grease
Vacuum	None
Water	VV-P-236 Petrolatum