SAE Aerospace
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AEROSPACE STANDARD

SAE AS18280/2 | REV. A

Issued 2000-09
Revised 2006-06
Reaffirmed 2013-01

Superseding AS18280/2

Sleeves, Internally or Externally Swaged or Welded, 24° Cone Flareless Fitting, 3000 psi

RATIONALE

AS18280/2A has been reaffirmed to comply with the SAE five-year review policy.

1. SCOPE:

1.1 Scope:

This SAE Aerospace Standard (AS) establishes the requirements for internally or externally swaged or welded sleeves or tube end adapters for use with 24° cone flareless fluid connection fittings per AS18280.

1.2 Classification:

Sleeves and tube end adapters shall be furnished in the types and styles designated by the applicable AS and other engineering standard drawings. This specification is intended to serve as a procurement specification for the fittings described herein and in Section 6.

2. REFERENCES:

2.1 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.

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2.1.1 SAE Publications: Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

AS1576	FIttings, Welded, Hydraulic, Titanium and Corrosion Resistant Steel, 3000 psi Hydraulic
AS4459	Fittings, Tube, Fluid System, 3000 Psig Maximum, Permanently Attached, Specification for
AS5148	Assembly, Installation and Torque for Flareless and Straight Thread Fluid Fittings and Tube Assemblies
AS18280	Fittings, 24° Cone Flareless, Fluid Connection, 3000 psi
AMS 5659	Steel, Corrosion Resistant, Bars, Wire, Forgings, Rings, and Extrusions 15Cr 4.5Ni 0.30Cb 3.5Cu, Consumable Electrode Melted, Solution Heat Treated, Precipitation Hardenable
AMS-QQ-A-225/9	Aluminum Alloy 7075, Bar, Rod, Wire and Special Shapes; Rolled, Drawn or Cold Finished
AMS 2700	Passivation Treatments for Corrosion Resistant Steel

2.1.2 ASQ Publications: Available from American Society for Quality, 600 North Plankinton Avenue, Milwaukee, WI 53203, Tel: 800-248-1946 (North America) or +1-414-272-8575 (International), www.asq.org.

ASQ Z1.4	Sampling Procedures and Tables for Inspection by Attributes

3. TECHNICAL REQUIREMENTS:

3.1 Material:

Fittings shall be fabricated of materials listed in Table 1 and in compliance with requirements in this specification or as specified on the applicable part standard drawing.

TABLE 1 - Materials

Permanent Connection	Material	Form	Specification	Alloy & Temper	Material Code
Externally swaged	See AS4459	-	-	-	-
Weld 3000 psi	See AS1576	-	-	-	-
Internally swaged	Aluminum alloy	Bars, rods	AMS-QQ-A-225/9	7075-T73	None
	Corrosion resistant steel		AMS 5659	15-5PH	None

3.2 Design and Fabrication:

The design and fabrication of the tube joints shall be in accordance with the permanent fitting specifications AS1576 and AS4459 and the applicable drawings. The sleeves when assembled to tubing are intended to mate with the 24° cone flareless fitting end of AS18280.

3.3 Finish:

See AS18280.

3.4 Identification of Product:

See AS18280.

3.5 Performance:

The sleeves and tube end unions when assembled to tubing with fittings per AS18280 shall meet the performance requirements of AS18280 and the following additional requirements.

3.5.1 Joint Strength: This requirement applies to internally swaged corrosion resistant steel sleeves on 21-6-9 CRES tubing with wall thicknesses in accordance with AS18280. The test assembly when assembled at minimum torque shall withstand the loads as specified in Table 2 without slippage of the sleeve on the tubing or cracking of the sleeve when tested at room temperature per 4.1.3.

TABLE 2 - Minimum Joint Strength of Internally Swaged Sleeves, CRES Tubing, 3000 psi

Nominal Tube Size in 0.062 Increments	03	04	05	06	08	10	12	16	20
Tube Wall Thickness [inch]	.016	.016	.020	.020	.026	.033	.039	.052	.030
Joint Strength [lb]	800	1300	1800	2500	4200	6200	8800	10,000	9500

3.6 Workmanship:

See AS18280.

4. QUALITY ASSURANCE PROVISIONS:

The quality assurance provisions shall be in accordance with the applicable portions of AS18280 with the following additional requirements.

4.1 Qualification Inspection:

The sleeves shall be subjected to a joint strength test per 4.1.3.

4.1.1 Test Samples: The test samples for the joint strength test shall be as specified in Table 3.

TABLE 3 - Test Samples for Qualification Inspection Tests

Test	Requirement Paragraph	Test Procedure Paragraph	Fitting Description	Material	Quantity Each
Joint Strength	3.5.1	4.1.3	Sleeve	All	6

4.1.2 Assembly of Sleeves: Sleeve and adapter intallations shall be in accordance with the processes established by the manufacturer or user and meet performance requirements of AS18280.

4.1.3 Joint Strength Test Procedure: The test specimen shall be mounted in a tensile test machine and strained to rupture at a speed of 0.15 in/min ± 0.04 in/min. No internal pressure shall be applied during the test. The test shall be conducted at room temperature.

4.2 Quality Conformance Inspection:

4.2.1 Sampling: Sampling for the joint strength test shall be performed in accordance with ASQ Z1.4, Inspection Level S-3, with an AQL of 4.0%.