



AEROSPACE STANDARD

AS1650™

REV. F

Issued	1992-03
Reaffirmed	2005-06
Revised	2018-10

Superseding AS1650E

Coupling Assembly, Threadless, Flexible,
Fixed Cavity, Self-Bonding, Procurement Specification

RATIONALE

Revise pressure surge test fixture in Figure 7 and clarify allowable leakage description for the vibration test in 4.6.3.3.3.

1. SCOPE

This SAE Aerospace Standard (AS) defines the requirements for a threadless, flexible, self-bonding coupling assembly which, when installed on machined fixed-cavity ferrules, provides a flexible connection for joining tubing and components in aircraft fuel, vent, or other systems. This assembled coupling, hereafter referred to as the assembly, is designed for use from -65 to +400 °F and at 125 psig nominal operating pressure.

AS1650 was not designed for the new certification requirements for flammable leakage zones and fuel tanks for lightning protection and assembly redundancy. As such, their use and installation may require additional efforts and equipment to support new FAA CFR compliance. The AS7510 flexible coupling should be the preferred coupling for use in flammable leakage zones and fuel tanks that require service life and functionality for lightning protection and part redundancy.

1.1 Product Classification

The coupling assemblies shall be of the integral electrical bonding type.

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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Technical Report, please visit
<http://standards.sae.org/AS1650>**

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 +1 724-776-4970 (outside USA), www.sae.org.

AMS3331	Elastomer: Fluorosilicone Rubber (FVMQ), Fuel and Oil Resistant, 65 - 75 Shore A Hardness, for Products in Fuel Systems/Lubricating Oils
AMS-WW-T-700	Tube, Aluminum and Aluminum Alloy, Drawn, Seamless, General Specification for
AMS-WW-T-700/6	Tube, Aluminum Alloy, Drawn, Seamless, 6061
AS568	Aerospace Size Standard for O-Rings
AS1651	Assembled Coupling, Threadless - Flexible, Fixed Cavity, Self-Bonding, Envelope Dimensions
AS1652	Coupling Assembly, Threadless - Flexible, Fixed Cavity, Self-Bonding
AS1653	Male Ferrule, Threadless - Flexible, Fixed Cavity, Self-Bonding, Swaged
AS1654	Sleeve, Threadless - Flexible, Fixed Cavity, Self-Bonding
AS1655	Coupling Body, Threadless - Flexible, Fixed Cavity, Self-Bonding
AS1656	Fitting End, Threadless - Flexible, Fixed Cavity, Self-Bonding, Male and Female Design Standard
AS4060	Tube Fitting Swaged Joint, Roller Expander Manual Process, Requirements for
AS4734	Male Ferrule, Threadless - Flexible, Fixed Cavity, Self-Bonding, Butt Welded
AS4735	Female Ferrule, Threadless - Flexible, Fixed Cavity, Self-Bonding, Swaged
AS4736	Female Ferrule, Threadless - Flexible, Fixed Cavity, Self-Bonding, Butt Welded
AS25281	Clamp, Loop, Plastic, Wire Support
ARP9013	Statistical Product Acceptance Requirements

2.1.2 U.S. Government Publications

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

MIL-HDBK-831	Preparation of Test Reports
MIL-PRF-680	Degreasing Solvent (Stoddard Solvent)
MIL-PRF-7024	Calibrating Fluids, Aircraft Fuel System Components
MIL-R-25988/1	Rubber, Fluorosilicone Elastomer, Oil & Fuel Resistant, O-Rings, Class 1, Grade 70
MIL-STD-129	Military Marking for Shipment and Storage
MIL-STD-130	Identification Marking of U.S. Military Property

MIL-STD-464	Electromagnetic Environmental Effects Requirements for Systems
MIL-STD-810	Environmental Engineering Considerations and Laboratory Tests
MIL-STD-889	Dissimilar Metals
VV-P-236	Petrolatum, Technical

2.1.3 NAS Publications

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

NAS1787	Clamp, Tube Mounting
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2.1.4 Uniform Classification Committee Publications

Available from Uniform Classification Committee, 202 Chicago Union Station, Chicago, IL 60606.

Uniform Freight Classification Rules

2.1.5 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM B117	Standard Practice for Operating Salt Spray (Fog) Apparatus
ASTM D471	Standard Test Method for Rubber Property – Effect of Liquids
ASTM D1193	Standard Specification for Reagent Water
ASTM D6211	Standard Specification for Fully-Formulated Propylene Glycol-Base Engine Coolant for Heavy-Duty Engines

2.1.6 PRI Publications

Available from Performance Review Institute, 161 Thorn Hill Road, Warrendale, PA 15086-7527, Tel: 724-772-1616, www.pri-network.org.

AC7112	Nadcap Requirements for Fluid System Components
AC7112/3	Nadcap Audit Criteria for Couplings and Formed Sheet Metal Products
PD1100	Nadcap - Program Requirements
PD2001	Qualified Product Management Council Procedures for Qualified Products Group
PD2101	Aerospace Quality Assurance, Product Standard, Qualification Procedures, Fluid Systems

2.1.7 ANSI Accredited Publications

Copies of these documents are available online at <http://webstore.ansi.org/>.

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