



AEROSPACE MATERIAL SPECIFICATION	AMS7287™	REV. A
	Issued 2012-08 Revised 2022-09	
Superseding AMS7287		
(R) Fluorocarbon Elastomer (FKM) High Temperature/HTS Oil Resistant/Fuel Resistant Low Compression Set/70 to 80 Hardness, Low Temperature Tg -22 °F (-30 °C), for Seals in Oil/Fuel/Specific Hydraulic Systems		

RATIONALE

Update to latest AMS7xxx template.

1. SCOPE

1.1 Form

This specification covers a high temperature, compression set, and fluid resistant fluorocarbon (FKM) elastomer in the form of molded O-rings, molded compression seals, molded O-ring cord, and molded-in-place gaskets for aeronautical and aerospace applications. For sheet, strip, tubing, extrusions, and molded shapes, use the AMS3384 specification.

1.2 Application

These products are expected to be suitable for use in contact with air and a wide variety of fuels, lubricants, specific hydraulic fluids, and a variety of gas turbine engine lubricants, including higher thermo-oxidative stability (HTS) lubricants, including those conforming to MIL-PRF-23699 Class HTS, MIL-PRF-7808 Grade 4, MIL-PRF-83282, and AS5780 Class HPC; however, usage is not limited to such applications. This material type has a typical service temperature range of -40 to +400 °F (-40 to +204 °C). These products are not suitable for use in phosphate ester based hydraulic fluids. Each application should be considered individually. It is the responsibility of the user to determine that this specification is appropriate for the environments (temperature range, fluids exposure, etc.) in which it is sought to be used.

1.3 Order of Precedence

Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained. This specification is in addition to and in no way limiting, superseding, or abrogating any contractual obligation as required by the applicable procurement document. In the event of conflict in requirements, the order of precedence shall be:

1. Procurement document or contractual agreement and all statutory and regulatory requirements (excluding this document).
2. Applicable purchaser's drawing or SAE ASXXXX parts standard.
3. Specification referenced on the drawing.

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4. This document.
5. All specifications referenced in this document.

1.4 Safety - Hazardous Materials

While the materials, methods, applications, and processes described or referenced in this specification may involve the use of hazardous materials, this specification does not address the hazards which may be involved in such use. It is the sole responsibility of the user to ensure familiarity with the safe and proper use of any hazardous materials and to take necessary precautionary measures to ensure the health and safety of all personnel involved.

2. APPLICABLE DOCUMENTS

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

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.

AMS2817	Packaging and Identification of Molded Elastomeric Seals and Sealing Components
AMS3085	Fluid, Reference for Testing AS5780 HPC Class (Polyol) Resistant Material (Also Known as Eastman Reference Oil 300)
AIR851	O-Ring Tension Testing Calculations
ARP5316	Storage of Elastomer Seals and Seal Assemblies Which Include an Elastomer Element Prior to Hardware Assembly
AS568	Aerospace Size Standard for O-Rings
AS5752	Aerospace - Visual Inspection Standard for Elastomeric Sealing Elements Other Than O-rings
AS5780	Specification for Aero and Aero-Derived Gas Turbine Engine Lubricants
AS6414	Manufacturing Processing Requirements for Molded Elastomer Components Used in Aerospace Applications
AS6837	Required O-Ring Sizes for Quality Conformance Testing
AS83485	O-Ring Molded from AMS7287 Material

2.2 U.S. Government Publications

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

MIL-PRF-7808	Performance Specification Lubricating Oil, Aircraft Turbine Engine, Synthetic Base
MIL-PRF-83282	Performance Specification: Hydraulic Fluid, Fire Resistant, Synthetic Hydrocarbon Base, Metric, NATO Code Number H-537

2.3 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 D297	Standard Test Methods for Rubber Products—Chemical Analysis
ASTM D395	Standard Test Methods for Rubber Property—Compression Set
ASTM D471	Standard Test Method for Rubber Property—Effect of Liquids
ASTM D573	Standard Test Method for Rubber—Deterioration in an Air Oven
ASTM D1329	Standard Test Method for Evaluating Rubber Property—Retraction at Lower Temperatures (TR Test)
ASTM D1414	Standard Test Methods for Rubber O-Rings
ASTM D1418	Standard Practice for Rubber and Rubber Latices - Nomenclature
ASTM D2240	Standard Test Method for Rubber Property—Durometer Hardness
ASTM D7426	Standard Test Method for Assignment of the DSC Procedure for Determining Tg of a Polymer or an Elastomeric Compound

2.4 ISO Publications

Available from International Organization for Standardization, ISO Central Secretariat, 1, ch. de la Voie-Creuse, CP 56, CH-1211 Geneva 20, Switzerland, Tel: +41 22 749 01 11, www.iso.org.

ISO 3601-1	Fluid Power Systems - O-Rings - Part 1: Dimensions and Tolerances
ISO 3601-3	Fluid Power Systems - O-Rings - Part 3: Quality Acceptance Criteria

2.5 PRI Publications

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

PD2000	Procedures for an Industry Qualified Product Management Process
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3. TECHNICAL REQUIREMENTS

3.1 Material

Shall be prepared from ingredients as shall be necessary to achieve the requirements detailed in this standard and shall be a compound, based on a fluorocarbon elastomer as designated by ASTM D1418 FKM Type 3, suitably cured to produce product meeting the requirements of 3.2. Material used shall be based on 100% virgin fluorocarbon elastomer. No reprocessed or non-fluorocarbon polymer as designated by ASTM D1418 FKM Type 3 is acceptable.

3.2 Properties

The material shall conform to Table 1. Calculations of tensile strength and elongation may be made in accordance with AIR851. Material shall be tested on AS83485-214 O-rings to determine the qualification properties.