
Aeronavtika - Statični elastomerni tesnilni elementi, brizgani, odporni proti fosfatnemu estru - Tehnična specifikacija

Aerospace series - Static seal elements elastomer, moulded, phosphate ester resistant - Technical specification

Luft- und Raumfahrt - Statische Dichtungen Elastomer, geformt, beständig gegen Phosphorsäureester - Technische Lieferbedingungen

Série aérospatiale - Joint d'étanchéité statique élastomère, moulé, résistant à l'ester phosphorique - Spécification technique

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49.080

Letalski in vesoljski
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components**SIST EN 6109:2018****en,fr,de**

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EUROPEAN STANDARD
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EN 6109

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English Version

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moulded, phosphate ester resistant - Technical
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This European Standard was approved by CEN on 19 February 2018.

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iTeh STANDARD PREVIEW

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 6109:2018) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2019, and conflicting national standards shall be withdrawn at the latest by February 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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EN 6109:2018 (E)

1 Scope

This European Standard defines the requirements for moulded elastomer seal elements for use in hydraulic systems using phosphate ester fluids for aerospace application. It shall be applied in conjunction with relevant material standards unless otherwise specified on the drawing, order, inspection schedule or contractual document.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 2751, *Aerospace series — Storage conditions for rubber products — Requirements for storage, cleaning and maintenance*¹⁾

EN 3445, *Aerospace series — Guidelines for the permissible storage life of rubber products*¹⁾

EN 6075, *Aerospace series — Static seal elements O-Ring ethylene-propylene, moulded, phosphate ester resistant (–55 °C to 107 °C) — Inch series*

EN 6076, *Aerospace series — Static seal elements O-Ring straight thread tube fitting boss, ethylene-propylene, moulded, phosphate ester resistant (–55 °C to 107 °C) — Inch series*

EN 6102, *Aerospace series — Fluid — Hydraulic — Phosphate ester-base — Fire resistant — Technical specification*¹⁾

EN 9102, *Aerospace series — Quality systems — First article inspection*
<https://standards.iteh.ai/catalog/standards/sist/1ddc11be-c111-4e89-8f0f-d2226f1659b/sist-en-6109-2018>

EN 9133, *Aerospace series — Quality management systems — Qualification procedure for aerospace standard parts*

EN 10204, *Metallic products — Types of inspection documents*

ISO 48, *Rubber, vulcanized or thermoplastic — Determination of hardness (hardness between 10 IRHD and 100 IRHD)*

ISO 188, *Rubber, vulcanized or thermoplastic — Accelerated ageing and heat resistance tests*

ISO 1817, *Rubber, vulcanized or thermoplastic — Determination of the effect of liquids*

ISO 2781, *Rubber, vulcanized or thermoplastic — Determination of density*

ISO 2859-1, *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

ISO 3601-3, *Fluid power systems — O-rings — Part 3: Quality acceptance criteria*

ISO 23529, *Rubber — General procedures for preparing and conditioning test pieces for physical test methods*

1) In preparation at the date of publication of this European Standard.

ASTM D 1414, *Standard test methods for rubber O-rings*²⁾

ASTM D 3677, *Standard test methods for rubber — Identification by infrared spectrophotometry*²⁾

ASTM E 1131, *Standard test method for compositional analysis by thermogravimetry*²⁾

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

acceptance testing

testing performed by the manufacturer to demonstrate that the product supplied is of the same type, form and quality as that supplied for qualification testing

3.2

batch of rubber compound

batch consisting of one or more rubber compounds of the same clearly specified composition, produced in one single production run with full trace ability

3.3

capability clause

certain requirements may be assured by the manufacturer on the basis of sufficient statistical test results, i.e. special testing of the respective characteristic per batch is not mandatory

3.4

First Article Inspection

FAI

first article inspection is used to demonstrate that all definitions are suitable for series production and ensure that the product complies with the drawings, standards and/or specifications

3.5

Individual Product Specification

IPS

individual information about a certain product of one manufacturer and its specific performance

3.6

Material Standard

MS

List of all requirements/data limits for qualification testing and in general for acceptance testing

3.7

manufacturer

company or organization manufacturing products

3.8

production batch

batch consisting, for the purpose of the present standard, of elastomeric products originating from the same batch of rubber compound and vulcanized under the same operating conditions at one time by the manufacturer

2) Published by: ASTM National (US) American Society for Testing and Materials. <http://www.astm.org/>

EN 6109:2018 (E)**3.9****purchaser**

body which purchases the product from a manufacturer or a supplier in accordance with the requirements of the user

Note 1 to entry: The purchaser may also be the user.

3.10**qualification**

process of demonstrating that the manufacturer and the product supplied are capable of fulfilling the specified requirements as laid down in the technical specification (TS) and the relevant MS

Note 1 to entry: The proof is given by the qualification testing.

3.11**qualification testing**

testing of representative samples manufactured in accordance with the series production requirements, manufactured with specified raw materials and a frozen process, to demonstrate compliance of the product with the requirements of the TS and the relevant MS

Note 1 to entry: These results are used to establish the IPS.

3.12**mandated body**

body who officially handle the qualification with the manufacturer

3.13**rubber compound**

homogenous mix of all the constituents of a rubber formulation, e.g. rubber gumstock, curing agents, accelerators, fillers

3.14**standard parts**

all detail parts as defined by a product standard

3.15**supplier**

company or organization supplying products (e.g. stockist)

Note 1 to entry: The supplier may also be the manufacturer.

3.16**Technical Specification****TS**

list of all requirements for qualification and acceptance testing including test frequency and test methods, marking, packing and shipping

3.17**user**

body which procures products used to manufacture aircraft components under relevant contractual responsibilities

4 Requirements

4.1 General requirements

4.1.1 Manufacturing schedule

The product shall be manufactured to reproducible quality and shall fulfill the requirements of the relevant MS, IPS and this TS. The manufacturer shall define the raw materials processes and inspections in a manufacturing schedule and present this to the mandated body/user upon request on occasion of qualification or audit. The mandated body/user shall treat any information contained in the schedule as confidential. Changes of the manufacturing schedule which may adversely affect the quality of the product must be stated by the manufacturer and shall be subject to written approval of the mandated body before first delivery. If necessary mandated body may define a re-qualification program prior to approval. The acceptance test certificate for the first delivery made after the approved changed manufacturing schedule shall contain a reference to the change.

4.1.2 Trace ability

Each individual product shall be traceable to the pre-materials at all stages of manufacture and delivery.

4.1.3 Freedom of defects

All products shall be free from irregularities not complying with the requirements of the MS, IPS and 4.2.2.6. Further irregularities prejudicial to the subsequent manufacture or use of products shall be the subject of further investigations with the manufacturer.

4.1.4 Workmanship

The product specified herein shall be processed as required in order to obtain the specified quality.

Any defects attributed to bad workmanship shall be cause for rejection of the specific delivery.

4.1.5 Hazardous constituents

For qualification the product has to fulfill the requirements, defined in the relevant MS.

For release the product has to fulfill the local requirements of the current health and safety/environmental protection laws of the countries of the purchaser/purchasers.

4.2 Technical requirements

4.2.1 Material

The product shall fulfill the requirements of the relevant MS/or IPS.

4.2.2 Specific

4.2.2.1 Test specimens

For the minimum number of test specimens, see Table 1 and Table 2.

Test specimens for qualification shall be O-Rings according to EN 6075 or EN 6076.

If not specified otherwise in the Table 1, the cross section of the test specimen shall be between 2,62 mm and 3,53 mm (0.103 inch to 0.139 inch) with an optional diameter.