

Aerospace series - Environmental testing - High dynamic abrasion, mar, scratch and punch test in cabin interior

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 4864:2020 sisaldab Euroopa standardi EN 4864:2020 ingliskeelset teksti.	This Estonian standard EVS-EN 4864:2020 consists of the English text of the European standard EN 4864:2020.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
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English Version

**Aerospace series - Environmental testing - High dynamic  
abrasion, mar, scratch and punch test in cabin interior**

Série aérospatiale - Essais d'environnement - Abrasion  
haute dynamique, éraflures, rayures et essai de  
poinçonnement en cabine intérieure

Luft- und Raumfahrt - Umweltprüfung - Dynamische  
Prüfung von Abrieb- und Verschleiß, Kratz- Rill- und  
Schlagbeanspruchung im  
Flugzeuginnenraum/Kabinenbereich

This European Standard was approved by CEN on 4 October 2020.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
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EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

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## European foreword

This document (EN 4864:2020) 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 document has received the approval of the National Associations and the Official Services of the member countries of ASD-STAN, prior to its presentation to CEN.

This document shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2021, and conflicting national standards shall be withdrawn at the latest by June 2021.

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

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

## 1 Scope

This document provides a series of standard testing methods to determine the resistance of flat or curved surfaces against abrasion, scratch or punch under high dynamics as may occur for example by manually operating actuators or due to impacts of materials like shoes, cases, bags and other common objects of everyday's usage inside an aircraft cabin. The method is also suitable to test the resistance of a surface against all other high dynamic strains.

## 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 4860, *Aerospace series — Environmental testing — Test Xb: Abrasion of markings, letterings, surfaces and materials caused by rubbing of fingertips and hands* <sup>1)</sup>

EN 60068-1, *Environmental testing — Part 1: General and guidance*

EN ISO 2409, *Paints and varnishes — Cross-cut test*

ISO 4649, *Rubber, vulcanized or thermoplastic — Determination of abrasion resistance using a rotating cylindrical drum device* <sup>2)</sup>

## 3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <http://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

## 4 General description

The surface under test shall be once or repeatedly stressed by the rubbing, scratch, abrasion or punch movement of a test head. The test head/tip should be defined by the relevant specification in dependence of the specific test application, but should be defined in terms of material, hardness, roughness and shape as well as the movement angle to obtain reproducible test conditions. Depending on the relevant specification, an additional fabric and/or test medium could be used for testing.

The scratch movement shall start with an impact motion by lowering the tip onto the surface automatically in a reproducible fashion, and a further slide motion with one direction then the test tip shall be lifted and moved back to the initial impact point with a further one-direction slide, repeating this cyclic motion for certain times. The abrasion movement shall start with lowering the tip for the first time, followed by a reciprocating sliding motion for certain times. The punch movement shall be generated by a pneumatic cylinder with a certain force at one direction onto the sample surface.

<sup>1)</sup> Published as ASD-STAN Standard at the date of publication of this standard by AeroSpace and Defence industries Association of Europe — Standardization (ASD-STAN), <http://www.asd-stan.org/>.

<sup>2)</sup> Published by: ISO International Organization for Standardization <http://www.iso.ch/>.