

Aerospace series - Tempered float glass plies for  
aircraft applications - Technical specification

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 3001:2019 sisaldab Euroopa standardi EN 3001:2019 ingliskeelset teksti.	This Estonian standard EVS-EN 3001:2019 consists of the English text of the European standard EN 3001:2019.
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.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 05.06.2019.	Date of Availability of the European standard is 05.06.2019.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile [standardiosakond@evs.ee](mailto:standardiosakond@evs.ee).

ICS 49.045

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English Version

**Aerospace series - Tempered float glass plies for aircraft  
applications - Technical specification**

Série aéronautique - Plis de verre renforcés pour  
applications aéronautiques - Spécification technique

Luft- und Raumfahrt - Vorgespannte Floatglasscheiben  
für Luftfahrzeuganwendungen - Technische  
Lieferbedingungen

This European Standard was approved by CEN on 14 January 2019.

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.

CEN members are the national standards bodies of 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 United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## European foreword

This document (EN 3001:2019) 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 December 2019, and conflicting national standards shall be withdrawn at the latest by December 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.

## 1 Scope

This document specifies the requirements for tempered soda-lime float glass plies which are made from annealed glass either of the universally available type or of high light transmission type. The annealed glass is manufactured by a continuous process for general use.

The plies are tempered by either a thermal or chemical process.

The tempered glass is used mainly for cockpit glazing.

## 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 2155-5, *Aerospace series — Test methods for transparent materials for aircraft glazing — Part 5: Determination of visible light transmission*

EN 2155-6, *Aerospace series — Test methods for transparent materials for aircraft glazing — Part 6: Determination of optical defects* <sup>1)</sup>

EN 2155-8, *Aerospace series — Test methods for transparent materials for aircraft glazing — Part 8: Determination of optical distortion*

EN 2155-9, *Aerospace series — Test methods for transparent materials for aircraft glazing — Part 9: Determination of haze*

EN 9133, *Aerospace series — Quality Management Systems — Qualification Procedure for Aerospace Standard Products*

EN 3861, *Aerospace series — Non-metallic materials — Glass transparencies — Material standard — Thermally tempered soda lime float glass*

EN 3862, *Aerospace series — Non-metallic materials — Glass transparencies — Material standard — Chemically tempered soda lime float glass*

EN 3863, *Aerospace series — Non-metallic materials — Glass transparencies — Test methods — Determination of flatness*

EN 3864, *Aerospace series — Non-metallic materials — Glass transparencies — Test methods — Determination of modulus of rupture*

EN 3865, *Aerospace series — Stress/optical measurement of tempered glass — Test method* <sup>2)</sup>

EN 3866, *Aerospace series — Non-metallic materials — Glass transparencies — Test methods — Determination of ream and surface ripple*

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<sup>1)</sup> Published as ASD-STAN Prestandard 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> In preparation at the date of publication of this standard.

EN ISO 489, *Plastics — Determination of refractive index*

ISO 1183-1, *Plastics — Methods for determining the density of non-cellular plastics — Part 1: Immersion method, liquid pycnometer method and titration method*

ISO 7991, *Glass — Determination of coefficient of mean linear thermal expansion*

### 3 Terms and definitions

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

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

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

#### 3.1

##### **universally available float glass**

universally available float glass is the standard annealed soda-lime glass manufactured by the float process on a bath of tin

#### 3.2

##### **high light transmission float glass**

high light transmission float glass differs from universally available float glass only by its low iron content, giving it high light transmission extending into the near infra-red

#### 3.3

##### **tempered glass**

this is a glass in which a compression layer has been induced at the surfaces either by thermal or chemical means

#### 3.4

##### **batch**

a batch is a quantity of production glass plies, tempered as a group under the same process conditions

#### 3.5

##### **effective diameter of non-circular defects**

the effective diameter of an optical defect is the arithmetic mean of the maximum and minimum dimensions

### 4 Required characteristics

#### 4.1 Composition

The glass is of the soda-lime type. The iron content of high light transmission glass shall be such that the integrated white light transmission and transmission at 800 nm is in accordance with the material standards EN 3861 and EN 3862.

#### 4.2 Material

Materials according to EN 3861 and EN 3862, shall have been made by the float process.