



**SLOVENSKI STANDARD
SIST EN 17530:2022**

01-julij-2022

Železniške naprave - Notranja zasteklitev za železniška vozila

Railway applications - Interior glazing for rail vehicles

Bahnanwendungen - Innenverglasung für Schienenfahrzeuge

Applications ferroviaires - Vitrage intérieure pour véhicules ferroviaires

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Železniška vozila na splošno / Railway rolling stock in general

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Railway applications - Interior glazing for rail vehicles

Applications ferroviaires - Vitrage intérieur pour
véhicules ferroviairesBahnanwendungen - Innenverglasung für
Schienenfahrzeuge

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COMITÉ EUROPÉEN DE NORMALISATION
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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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EN 17530:2022 (E)**European foreword**

This document (EN 17530:2022) has been prepared by Technical Committee CEN/TC 256 “Railway applications”, the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by November 2022, and conflicting national standards shall be withdrawn at the latest by November 2022.

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.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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1 Scope

This document specifies the functional, performance, and quality requirements for the interior glazing of rail vehicles including type testing, routine testing, and inspection methods.

This document applies to all rail vehicles.

Determination of the size, shape, orientation and position of interior glazing is outside the scope of this document.

This document does not specify requirements for the interfaces between the interior glazing and the vehicle. Accordingly, this document does not address issues relating to installation and structural integrity.

This document does not apply to interior glazing with a surface less than 0,02 m² and also emergency device casings (e.g. cover sheets for emergency hammers, passenger alarm systems, etc).

This document does not apply to materials other than glass.

For safety reasons, where the use of a specific type of glass is required, this shall be set out in the technical specification or defined in national rules.

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 12150-1:2015+A1:2019, *Glass in building - Thermally toughened soda lime silicate safety glass - Part 1: Definition and description* (standards.iteh.ai)

EN ISO 12543-5:2011, *Glass in building - Laminated glass and laminated safety glass - Part 5: Dimensions and edge finishing (ISO 12543-5:2011)* [SIST EN 17530:2022](https://standards.iteh.ai/catalog/standards/sist/5cbbb36c-59c4-4342-8265-1061e77b4735/sist-en-17530-2022)

EN 15152, *Railway applications - Windscreens for trains* <https://standards.iteh.ai/catalog/standards/sist/5cbbb36c-59c4-4342-8265-1061e77b4735/sist-en-17530-2022>

EN 16584-1, *Railway applications - Design for PRM use - General requirements - Part 1: Contrast*

EN 45545-1, *Railway applications - Fire protection on railway vehicles - Part 1: General*

EN 45545-2, *Railway applications - Fire protection on railway vehicles - Part 2: Requirements for fire behavior of materials and components*

ISO 3538, *Road vehicles — Safety glazing materials — Test methods for optical properties*

ISO 3917:2016, *Road vehicles — Safety glazing materials — Test methods for resistance to radiation, high temperature, humidity, fire and simulated weathering*

ISO 7892, *Vertical building elements — Impact resistance tests — Impact bodies and general test procedures*

EN 572-2:2012, *Glass in building - Basic soda lime silicate glass products - Part 2: Float glass*

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3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 15152, EN 45545-1 and the following apply.

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

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

3.1

draught screen

glazing used to separate passenger areas from vestibules and doorways

3.2

gangway area glazing

glazing located at the articulated assembly allowing movement between rail vehicles

3.3

display

hardware device or system that shows text and/or graphical information to the user

[SOURCE: EN 16186-3:2016+A1:2018, 3.8, modified – Note 1 to entry has been deleted]

3.4

banister infill panel

glazing used to fill the space between the handrail and the stairs

3.5

balustrade

infill glazing protecting the edge of a stair, landing or floor that may otherwise be open to passengers

3.6

mirror

glazing material used for the purpose of reflecting images

3.7

monolithic glass

single layer of glass that is constructed from material that has a consistent thickness throughout

3.8

laminated glass

glazing material consisting of two or more layers of glass held together by one or more interlayers

[SOURCE: ISO 3536:2016, 2.3]

3.9

toughened glass

glazing material consisting of a single layer of glass which has been subjected to special thermal or chemical treatment to increase its mechanical strength and to condition its fragmentation upon shattering

[SOURCE: ISO 3536:2016, 2.2, modified – “Safety” has been deleted and “after shatter” has been replaced by “upon shattering”]

3.10**technical specification**

document describing specific parameters and/or product requirements as an addition to the requirements of this document

[SOURCE EN 15551:2017, 3.16]

3.11**glazing**

transparent item used for the interior of railway vehicles constructed from glazing material

3.12**glazing material**

material that allows the transmission of light

3.13**partition screen**

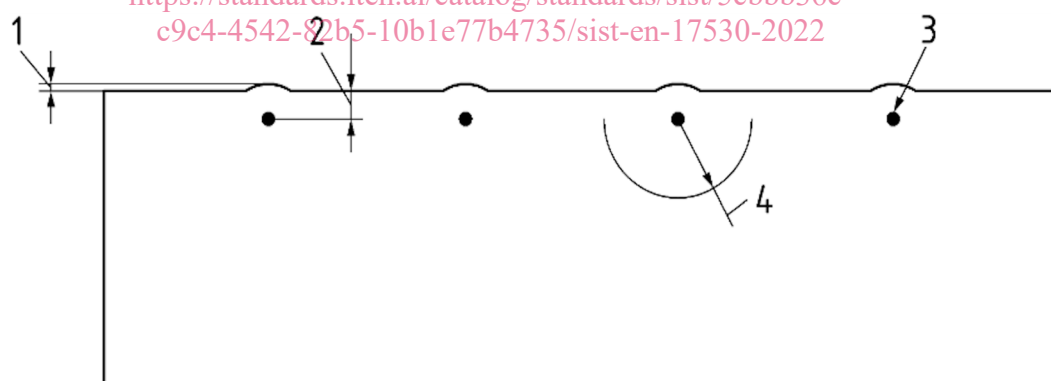
glazing used within passenger areas to separate or partition different passenger areas

4 Dimensions and tolerances**4.1 Monolithic glass**

The nominal thicknesses and thickness tolerances for a single sheet of glass are those given in the relevant product standards (see EN 12150-1:2015+A1:2019, Clause 4). The thickness of a pane shall be determined as for the basic product.

The measurement shall be taken at the centres of the 4 sides, and away from the area of any tong marks (see Figure 1), which may be present.

The tolerance values applied to the width (B) and length (H) for monolithic glass are shown in Table 1.

**Key**

- 1 deformation
- 2 maximum of 20 mm
- 3 tong mark
- 4 100 mm radius maximum arc of optical distortion

Figure 1 — Tong marks

Table 1 — Tolerances on width, B , and length, H

Nominal dimension of side, B or H (mm)	Tolerance (mm)	
	nominal glass thickness, ≤ 6	nominal glass thickness, > 6
$0 < B$ or $H \leq 500$	$\pm 1,5$	$\pm 2,0$
$500 < B$ or $H \leq 1\ 000$	$\pm 1,5$	$\pm 2,0$
$1\ 000 < B$ or $H \leq 1\ 500$	$\pm 2,0$	$\pm 2,5$
$1\ 500 < B$ or $H \leq 2\ 000$	$\pm 2,5$	$\pm 3,0$
$2\ 000 < B$ or $H \leq 3\ 000$	$\pm 3,0$	$\pm 4,0$
$> 3\ 000$	$\pm 4,0$	$\pm 5,0$

4.2 Laminated glass

For laminated glass, each panel shall be compliant with the requirements of 4.1. According the nominal thickness d the associated tolerances shall be in accordance with EN ISO 12543-5:2011 (Clause 4).

4.3 Flatness

Flatness for monolithic glass shall be according to EN 12150-1:2015+A1:2019, 6.3.

Flatness for laminated glass shall be defined in technical specification, otherwise bow shall be less than or equal to 2 mm/m.

5 Functional requirements

5.1 General

For safety reasons where the use of a specific type of glass is required, this shall be set out in technical specification or defined in national rules.

5.2 Interior glazing test requirements

5.2.1 General

NOTE A summary of tests is given in Annex C.

5.2.2 Type tests

The interior glazing design shall be validated by satisfactory completion of the assessments and tests for:

- dimensions (see Clause 4);
- appearance (see 6.1);
- optical distortion, if required in the technical specification (see 6.2.1);
- transmittance, if required in the technical specification (see 6.2.2);
- hard object impact (see 7.1.1);
- soft body test, if required in the technical specification (see 7.1.2);

- fragmentation (7.2);
- ageing (see 8.1).

5.2.3 Routine tests

Routine testing shall be undertaken during production on all interior glazing for:

- dimensions (see Clause 4);
- appearance (see 6.1);
- optical distortion, if required in the technical specification (see 6.2.1);
- fragmentation (see 7.2).

Periodicity shall be determined in the technical specification.

5.3 Marking

5.3.1 Interior glazing

The interior glazing shall have a permanent marking that contains, as a minimum, the following information:

- name or logo of glazing supplier;
- date of manufacturing: month and the last two numerals of the year or a code by which this information can be identified;
- type of glass used, e.g. L = laminated, T = toughened;

The marking shall be visible regardless of the installation method used.

The minimum height of characters shall be 4 mm.

The positioning and colour of the marking should be defined in the technical specification.

5.3.2 Display cover glazing

The glazing used for covering displays shall have a permanent marking that contains the following information:

- date of manufacturing: month and the last two numerals of the year or a code by which this information can be identified;
- optionally, name or logo of the glazing supplier, if it does not obscure the information provided.

5.4 Service requirements

Interior glazing shall comply with the requirements set out in EN 45545-2.

Interior glazing shall comply with the contrast requirements set out in EN 16584-1.

Interior glazing shall be designed to withstand normal operational conditions.

NOTE 1 The operational conditions include induced static and dynamic loads, the environmental conditions include temperature and humidity.

NOTE 2 Typically, reference is made to EN 50125-1 temperature classes T1, T2 or T3.