# SLOVENSKI STANDARD
# SIST EN 13115:2020

**01-oktober-2020**

**Nadomešča:**
**SIST EN 13115:2002**

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**Okna - Klasifikacija mehanskih lastnosti - Navpične obremenitve, torzija in sile pri uporabi**

Windows - Classification of mechanical properties - Racking, torsion and operating forces

Fenster - Klassifizierung mechanischer Eigenschaften - Vertikallasten, Verwindung und Bedienkräfte



Fenêtres - Classification des propriétés mécaniques - Charge verticale, torsion et efforts de manoeuvre



**Ta slovenski standard je istoveten z:** **EN 13115:2020**

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**ICS:**

| | | |
|---|---|---|
| 91.060.50 | Vrata in okna | Doors and windows |

**SIST EN 13115:2020** **en,fr,de**

EUROPEAN STANDARD

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# EN 13115

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ICS 91.060.50

Supersedes EN 13115:2001

English Version

# Windows - Classification of mechanical properties - Racking, torsion and operating forces

Fenêtres - Classification des propriétés mécaniques - Charge verticale, torsion et efforts de manoeuvre

Fenster - Klassifizierung mechanischer Eigenschaften - Vertikallasten, Verwindung und Bedienkräfte

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

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## European foreword

This document (EN 13115:2020) has been prepared by Technical Committee CEN/TC 33 “Doors, windows, shutters, building hardware and curtain walling”, the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by February 2021, and conflicting national standards shall be withdrawn at the latest by February 2021.

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.

This document supersedes EN 13115:2001.

This document is part of a series of standards dedicated to windows.

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 means of classifying the performance of opening windows according to their strength in resisting, where appropriate, racking load, static torsion and their manual operating forces. Special aspects such as those of burglar resistance are not covered.[1)]

# 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 14608, *Windows — Determination of the resistance to racking*

EN 14609, *Windows — Determination of the resistance to static torsion*

EN 12046-1, *Operating forces — Test method — Part 1: Windows*

EN 12519, *Windows and pedestrian doors — Terminology*

# 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12519 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 https://www.iso.org/obp/ui



# 4 Classification criteria

## 4.1 General

After testing, according to the type of window construction as indicated below, the test specimen shall remain functional in relation to its operating forces (see 4.2). The specimen shall not suffer such damage or deformation, including breakage or loosening of hardware, joints or weather sealing systems, as would render it unfit for its purpose.

## 4.2 Operating forces

Opening windows shall be tested in accordance with EN 12046-1. Tables 1 and 2 list the forces and/or torques to be sustained for the various classes. The highest average value (force/torque) defines the overall classification.

1) Effects on other criteria, such as air permeability, are not addressed by EN 13115.

**Table 1 — Classification of operating forces – excluding vertical sliding windows**

| Maximum window operating forces | | Maximum hardware operating forces | | | Classification of operating forces |
|---|---|---|---|---|---|
| | | Lever handles (hand operated) | | Finger operated | |
| > 100 N | AND | > 100 N or > 10 Nm | AND | > 50 N or > 5 Nm | **Class 0** |
| ≤ 100 N | | ≤ 100 N or ≤ 10 Nm | | ≤ 50 N or ≤ 5 Nm | **Class 1** |
| ≤ 30 N | | ≤ 30 N or ≤ 5 Nm | | ≤ 20 N or ≤ 2 Nm | **Class 2** |

**Table 2 — Classification of operating forces – vertical sliding windows only**

| Maximum force to start motion (N) | | Maximum force to operate (N) | | Maximum hardware operating forces | | | Classification of operating forces |
|---|---|---|---|---|---|---|---|
| | | | | Lever handles (hand operated) | | Finger operated | |
| ≤ 90 | AND | ≤ 75 | AND | ≤ 30 N or ≤ 5 Nm | AND | ≤ 20 N or ≤ 2 Nm | **Class E** |
| ≤ 120 | | ≤ 100 | | ≤ 100 N or ≤ 10 Nm | | ≤ 50 N or ≤ 5 Nm | **Class D** |
| ≤ 150 | | ≤ 125 | | ≤ 100 N or ≤ 10 Nm | | ≤ 50 N or ≤ 5 Nm | **Class C** |
| ≤ 180 | | ≤ 150 | | ≤ 100 N or ≤ 10 Nm | | ≤ 50 N or ≤ 5 Nm | **Class B** |
| > 180 | | > 150 | | > 100 N or > 10 Nm | | > 50 N or > 5 Nm | **Class A** |



NOTE For vertical sliding windows, the operating forces reflect the use of two hands to operate the sash.

## 4.3 Racking and static torsion

### 4.3.1 Resistance to racking load

All types of openable windows shall be tested in accordance with EN 14608.

Table 3 lists the forces to be sustained for the various classes.

### 4.3.2 Resistance to static torsion

All types of openable windows excluding sliding windows shall be tested in accordance with EN 14609.

Table 3 lists the forces to be sustained for the various classes.

### 4.3.3 Classification for racking and static torsion

All types of openable windows excluding sliding windows shall be subjected, separately, to tests for racking, static torsion and operating forces.

Sliding windows shall be subjected, separately, to tests for racking and operating forces only.

Secondary sashes/casements, only to be opened for cleaning ormaintenance mode of operation shall be tested to 100 N only for racking loads in the case of sliding sashes and for racking loads and static torsion in the case of all other opening casements.

The lowest average value (force) defines the overall classification.

**Table 3 — Classification for racking and static torsion[2] (mechanical strength)**



| Test | Resistance to: | Class 0 | Class 1 | Class 2 | Class 3 | Class 4 |
|---|---|---|---|---|---|---|
| Racking Test | racking | < 200 N | 200 N | 400 N | 600 N | 800 N |
| Static Torsion Test | static torsion | < 200 N | 200 N | 250 N | 300 N | 350 N |



2) To qualify for a particular class, the requirements of both tests, where relevant, are satisfied.