# Windows and doors - Resistance to repeated opening and closing - Test method



EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

| | |
|---|---|
| See Eesti standard EVS-EN 1191:2012 sisaldab Euroopa standardi EN 1191:2012 ingliskeelset teksti. | This Estonian standard EVS-EN 1191:2012 consists of the English text of the European standard EN 1191:2012. |
| 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 19.12.2012. | Date of Availability of the European standard is 19.12.2012. |
| 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.

ICS 91.060.50

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN 1191

December 2012

ICS 91.060.50

Supersedes EN 1191:2000

English Version

# Windows and doors - Resistance to repeated opening and closing - Test method

Fenêtres et portes - Résistance à l'ouverture et fermeture répétée - Méthode d'essai

Fenster und Türen - Dauerfunktionsprüfung - Prüfverfahren

This European Standard was approved by CEN on 27 October 2012.

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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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

**Management Centre: Avenue Marnix 17, B-1000 Brussels**



Ref. No. EN 1191:2012: E

# Contents

Page

**Foreword** ..... 4

**Introduction** ..... 5

**1 Scope** ..... 6

**2 Normative references** ..... 6

**3 Terms and definitions** ..... 7

**4 Test equipment** ..... 9
**4.1 Test rig** ..... 9
**4.2 Operating equipment** ..... 9
**4.3 Measuring equipment** ..... 9
**4.4 Velocity measurement** ..... 10

**5 Test requirements** ..... 10
**5.1 General** ..... 10
**5.2 Number of cycles** ..... 10
**5.3 Reference velocity** ..... 10
**5.4 Rest time** ..... 11
**5.5 Operation of the fastening systems** ..... 11

**6 Preparation for testing** ..... 12

**7 Test procedure** ..... 12
**7.1 Pre-test operation** ..... 12
**7.2 Initial measurements** ..... 13
**7.3 General cycle description** ..... 13
**7.4 Measurements and maintenance** ..... 14
**7.5 Stroke** ..... 15
**7.6 Special cases** ..... 15
**7.7 Final measurements** ..... 15

**8 Test results** ..... 15

**9 Test report** ..... 16

**Annex A** (normative) **Test procedures for Tilt and Turn, Tilt-First, Turn-Only or Tilt-Only windows and door-height windows** ..... 17
**A.1 Scope** ..... 17
**A.2 General** ..... 17
**A.3 Testing** ..... 17

**Annex B** (normative) **Test procedures for Sliding, Lift and Slide or Lift and Slide and Tilt windows and door-height windows** ..... 23
**B.1 Scope** ..... 23
**B.2 Terms and definitions** ..... 23
**B.3 General** ..... 24
**B.4 Testing** ..... 24

**Annex C** (normative) **Test procedures for Tilt and Slide windows and door-height windows** ..... 28
**C.1 Scope** ..... 28
**C.2 Terms and definitions** ..... 28
**C.3 General** ..... 29
**C.4 Testing** ..... 29

**Annex D** (normative) **Test procedures for Fold and Slide windows and door-height windows** ..... 34
**D.1 Scope** ..... 34

**D.2 General** ... **34**
**D.3 Testing** ... **34**

**Annex E** (normative) **Test procedures for horizontal or vertical pivot windows and door-height windows** ... **37**
**E.1 Scope** ... **37**
**E.2 Terms and definitions** ... **37**
**E.3 General** ... **38**
**E.4 Testing** ... **38**

**Annex F** (normative) **Test procedures for Vertical Sliding windows** ... **40**
**F.1 Scope** ... **40**
**F.2 Terms and definitions** ... **40**
**F.3 General** ... **41**
**F.4 Testing** ... **41**

**Annex G** (normative) **Test procedures for side-hung and top-hung windows, opening outwards (including reversible windows)** ... **43**
**G.1 Scope** ... **43**
**G.2 Terms and definitions** ... **43**
**G.3 General** ... **44**
**G.4 Testing** ... **44**

**Annex H** (normative) **Test procedures for side-hung pedestrian doorsets excluding power operated doors** ... **46**
**H.1 Scope** ... **46**
**H.2 Terms and definitions** ... **46**
**H.3 General** ... **47**
**H.4 Testing** ... **49**

**Annex I** (normative) **Test procedures for power-operated (automatic) side-hung single action pedestrian doorsets** ... **52**
**I.1 Scope** ... **52**
**I.2 Terms and definitions** ... **52**
**I.3 General** ... **52**
**I.4 Testing — Test order** ... **52**

**Bibliography** ... **54**

## Foreword

This document (EN 1191:2012) 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 June 2013, and conflicting national standards shall be withdrawn at the latest by June 2013.

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.

This document supersedes EN 1191:2000.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

The most important changes compared with the previous version EN 1191:2000 are:

— reference velocities for manually operation scaled according to weight;

— different velocities for translatory, rotatory and tilt movement;

— force level for operation of fastening system clearly described;

— more precise description of the testing cycles;

— minor mode of operation and cleaning and maintenance mode of operation defined;

— termination criteria incorporated;

— new normative Annexes A to I integrated (see Scope).

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

# Introduction

This European Standard describes one of the test methods that are called up in the product standards for windows and pedestrian doorsets.

The Annexes of this European Standard are to be in line with the relevant hardware standards but they are not direct copies of them.

## 1 Scope

This European Standard specifies the method to be used to determine the resistance to repeated opening and closing of windows and pedestrian doorsets when subjected to repeated opening and closing.

It applies to all construction materials and operating systems for any window or pedestrian doorset, including gaskets and building hardware, in normal operating conditions.

The parts concerned in the testing are the frame, the opening component (including any additional moving components e.g. an inactive sash/leaf) and all essential and directly involved building hardware, including operating devices, for example, the handle.

The testing does not include any hardware whose operation is not directly involved in the opening and closing of the moving components: added-on fastening systems such as peg-stays or cabin hooks or bolts, nor, unless specified, any independently installed stops (not connected to the complete assembly) such as a wall or ground-mounted stop.

NOTE 1 The Annexes provide more details on the testing procedures that may differ from the main part of this European Standard and are mandatory:

- Annex A applies to Tilt and Turn, Tilt-First, Turn-Only, or Tilt-Only windows and door-height windows;
- Annex B applies to Sliding, Lift and Slide or Lift and Slide and Tilt windows and door-height windows;
- Annex C applies to Tilt and Slide windows and door-height windows;
- Annex D applies to Fold and Slide windows and door-height windows;
- Annex E applies to horizontal and vertical pivot windows and door-height windows;
- Annex F applies to Vertical Sliding windows;
- Annex G applies to side-hung casements and top-hung windows, opening outwards (including reversible windows);
- Annex H applies to side-hung single and double action pedestrian doorsets excluding power operated doors;
- Annex I applies to power-operated (automatic) side-hung single action pedestrian doorsets.

NOTE 2 In this European Standard the term door-height window is used for windows that are used for the passage of pedestrians, i.e. as a pedestrian doorset.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 179, *Building hardware — Emergency exit devices operated by a lever handle or push pad, for use on escape routes — Requirements and test methods*

EN 1125, *Building hardware — Panic exit devices operated by a horizontal bar, for use on escape routes — Requirements and test methods*

EN 1154:1996,[1)] *Building hardware — Controlled door closing devices — Requirements and test methods*

EN 1158:1997,[2)] *Building hardware — Door coordinator devices — Requirements and test methods*

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

EN 12046-2, *Operating forces — Test method — Part 2: Doors*

EN 12217, *Doors — Operating forces — Requirements and classification*

EN 12400, *Windows and pedestrian doors — Mechanical durability — Requirements and classification*

EN 12519:2004, *Windows and pedestrian doors — Terminology*

EN 13115:2001, *Windows — Classification of mechanical properties — Racking, torsion and operating forces*

EN 14600:2005, *Doorsets and openable windows with fire resisting and/or smoke control characteristics — Requirements and classification*

EN 16005, *Powered operated pedestrian doorsets — Safety in use — Requirements and test methods*

prEN 16361, *Power operated pedestrian doors — Product standard, performance characteristics — Pedestrian doorsets, other than swing type, initially designed for installation with power operation without resistance to fire and smoke leakage characteristics*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12519:2004 and the following apply.

**3.1**
**moving component**
window sash or door leaf which is moved, opened or closed

**3.2**
**active moving component**
leaf of a multi-leafed window or door, intended to be moved first to provide opening

**3.3**
**inactive moving component**
leaf of a multi-leafed window or door, intended to be moved after the active leave

**3.4**
**mode of operation**
motion of the moving component as either translatory or rotary

Note 1 to entry: Some hardware systems allow for a combination of several modes of operation, for example, Tilt and Turn windows or folding windows which combine rotary and translatory operations.

**3.5**
**main mode of operation**
intended principal type of operation and distance or angular travel as specified by the manufacturer

1) This document is impacted by the stand-alone amendment EN 1154:1996/A1:2002.

2) This document is impacted by the stand-alone amendment EN 1158:1997/A1:2002.