



BSI Standards Publication

## Operating forces — Test method

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Part 1: Windows

## National foreword

This British Standard is the UK implementation of EN 12046-1:2020. It supersedes BS EN 12046-1:2003, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/538/1, Windows and doors.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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© The British Standards Institution 2020  
Published by BSI Standards Limited 2020

ISBN 978 0 580 51880 5

ICS 91.060.50; 91.190

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 August 2020.

### Amendments/corrigenda issued since publication

Date	Text affected
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EUROPEAN STANDARD

EN 12046-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2020

ICS 91.060.50; 91.190

Supersedes EN 12046-1:2003

English Version

## Operating forces - Test method - Part 1: Windows

Forces de manoeuvre - Méthode  
d'essai - Partie 1 : Fenêtre

Bedienkräfte - Prüfverfahren - Teil 1: Fenster

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

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## European foreword

This document (EN 12046-1:2020) 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of an identical text or by endorsement, at the latest by February 2021, and conflicting national standards shall be withdrawn at the latest by February 2021.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 12046-1:2003.

This document is one of a series of standards for 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 specifies the test method for determining the force required when engaging or releasing the hardware of a window and when commencing the movement of a casement or sash, in both opening and closing directions.

This document is applicable to all types of openable windows where the movement is a manual operation.

This document is applicable to products of any frame material.

## 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 12519, *Windows and pedestrian doors — Terminology*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12519 and the following 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>

### 3.1 manual operating forces

manual operating forces indicate the force needed to manual operate windows

### 3.2 linear motion

movement of casement, sash or hardware in a straight line when acted upon by an operating force; also movement through an arc of which the radius is large in proportion to the length of the arc

### 3.3 rotary motion

movement, usually of hardware but also applicable to a casement or sash, in a circular path when acted upon by an operating torque, e.g. the turning action of the bow of a key

### 3.4 sash weight

weight of the opening or closing sash including its infill (e.g. glazing)

## 4 Principle of test

The principle consists of measuring the minimum static force or torque required:

- to release or lock the hardware (locks or handles);
- to commence opening of the casement or sash;
- to continue opening/ closing of the sash (in the case of vertical sliding windows);
- to complete closing of the casement or sash.

Upon the clients request the tests may be performed on sashes/casements only to be opened for cleaning or maintenance mode of operation.