

Windows and doors — Resistance to repeated opening and closing — Test method

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British Standard

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 11 and a back cover.

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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 - Prüverfahren

This European Standard was approved by CEN on 22 January 2000.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Foreword

This European Standard 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of an identical text or by endorsement, at the latest by August 2000, and conflicting national standards shall be withdrawn at the latest by August 2000.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

This draft standard describes one of the test methods that are called up in the product standards for windows and doors.

No existing European Standard will be superseded.

Introduction

The test method described in this standard provides information on mechanical durability and not on durability related to environmental erosion or corrosion of the materials or their finishes.

1 Scope

This standard specifies the method to be used to determine the mechanical durability of doorsets and the opening parts of windows after a defined number of operating cycles.

It applies, whatever their construction materials and operating systems, to any window or any door in the form of complete assemblies in normal operating conditions.

The parts concerned in the testing are the frame, the opening elements (including any secondary elements) and all essential hardware, including operating devices. It does not include any additional fasteners such as pegstays or cabin hooks, nor any independently installed restrictor.

In this standard, it is assumed that the operating cycle imparts movement to ancillary items such as hinges, stays, balances and other mechanisms.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

prEN 12046-1:1996	Operating forces - Test method - Part 1: Windows
prEN 12046-2:1999	Operating forces - Test method - Part 2: Doors

3 Definitions

For the purposes of this standard the following definitions apply:

3.1 cycle: Set of operations involving the opening of a casement, sash or leaf, including the release of any fasteners fitted, moving open to the required extent, returning to the closed position and the re-engaging of any fasteners.

3.2 operating device: Item of hardware enabling user to release and move a casement or leaf.

3.3 operating equipment: Part of test apparatus used to activate the operating device.

3.4 reference velocity: When casements, sashes or leaves are moved by linear movement, the reference velocity is the actual velocity of the moving parts. When leaves or casements are moved by rotation, the reference velocity is that which can be measured on the closing edge of the member to which is attached the operating device used to carry out the test. Reference velocity is measured in metres per second (m/s)

3.5 rest time: Time in seconds of a stationary period, either between two changes of direction of movement or between two cycles.

3.6 datum points: Measurement reference points located at 50 mm from each corner of any casement, sash or door leaf on any joint between moving elements.

4 Principles of test

4.1 General

The test specimen has its fasteners released, its casement, sash or leaf is opened to the required resting position, is brought to the closed position and its fasteners secured again before a final rest. This cycle is repeated for the specified number of times or until failure occurs. The duration of each cycle depends upon the stroke (itself depending upon the mode of operation of the specimen), upon the reference velocity, and upon the operations carried out during a cycle (see figures 1 and 2).

NOTE If the test specimen can be operated in more than one mode, e.g. tilt and turn, each may be tested completely and separately on the same specimen, the more frequent mode being addressed first, or the two modes may be tested alternately in a continuous cycle.

4.1.1 Stroke

Side hung casements and leaves are operated from the closed position to an open position of $90^\circ \pm 10^\circ$, or to the stopping position of the restrictor or closing device if this occurs at less than 90° . For other modes of operation, casements, sashes or leaves are operated from the closed position to the full opened position unless specified otherwise. However the stopping position shall not be less than 60 % of the fully open position.

Unless otherwise specified, dynamic forces shall be applied at both ends of the stroke.

4.1.2 Reference velocity

If the casement, sash or leaf is manually operated, the reference velocity shall be $(0,5 \pm 0,05)$ m/s if the moving part has a mass not exceeding 400 kg, and $(0,2 \pm 0,02)$ m/s if the moving part has a mass exceeding 400 kg, unless, for special purposes, the velocity is defined by the relevant standard.

If the casement, sash or leaf is mechanically operated during either a part or the whole of the cycle, and if the velocity is adjustable, the reference velocity shall be set as defined above. If not adjustable, the reference velocity shall be the actual velocity allowed by the system.