BRITISH STANDARD

BS EN
949:1999

Windows and curtain walling, doors, blinds and shutters — Determination of the resistance to soft and heavy body impact for doors

The European Standard EN 949:1998 has the status of a British Standard

ICS 91.060.50

National foreword

This British Standard is the English language version of EN 949:1998.

The UK participation in its preparation was entrusted to Technical Committee B/538, Doors, windows, shutters, hardware and curtain walling, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

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

This British Standard forms part of a package of standards on doors which will not become fully effective until all standards in the package have been published and any superseded standards have been withdrawn. The date of withdrawal for national standards will be agreed within CEN and will be notified.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled "International Standards Correspondence Index", or by using the "Find" facility of the BSI Standards Electronic Catalogue.

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Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 4, an inside back cover and a back cover.

This British Standard, having been prepared under the direction of the Sector Committee for Building and Civil Engineering, was published under the authority of the Standards Committee and comes into effect on 15 May 1999

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EUROPEAN STANDARD
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EN 949

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ICS 91.060.50

Supersedes EN 162:1985

Descriptors: windows, doors, blinds, closures, tests, mechanical strength, shock resistance

English version

Windows and curtain walling, doors, blinds and shutters — Determination of the resistance to soft and heavy body impact for doors

Fenêtres et façades-rideaux, portes, stores et fermetures — Détermination de la résistance au choc de corps mou et lourd pour les portes

Fenster, Türen, Dreh- und Rolläden, Vorhangfassaden — Ermittlung der Widerstandsfähigkeit von Türen gegen Aufprall eines weichen und schweren Stoßkörpers

This European Standard was approved by CEN on 26 November 1998.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Ref. No. EN 949:1998 E

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 33, Doors, windows, shutters and building hardware, the Secretariat of which is held by AFNOR.

This European Standard replaces EN 162:1985.

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 1999, and conflicting national standards shall be withdrawn at the latest by December 1999.

This standard is one of a series of standards for doors. The test method relates to performance requirements to be published in EN 1192, *Doors — Mechanical strength — Requirements and classification*.

This standard has been prepared taking into account ISO 8270 and EN 162.

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.

Introduction

For manufacturers of door leaves whose products are not sold as part of a known doorset, or where such door leaves can be used in a sliding door assembly, provision is made for claiming compliance with the relevant requirements by the testing of such door leaves in a typical frame. Nevertheless, the fact that a particular door leaf meets with the relevant requirements in this way does not necessarily mean that a door assembly incorporating that door leaf will meet the requirements.

1 Scope

This European standard applies to all doors.

The standard specifies the method to be used to determine the damage caused by striking with a soft and heavy body, the face of a closed door leaf fixed in its own door frame as part of a doorset.

NOTE Such forces that might reasonably be expected from impacts by human bodies and substantial objects with similar characteristics should neither damage, nor impair the normal performance of, a door.

The method may also be used in respect of a door leaf submitted for test in a frame which the manufacturer considers appropriate to and typical for the intended utilization.

2 Apparatus

2.1 *Test surround*, a surround in which the specimen is tested, which shall be sufficiently rigid to withstand the test load without deflecting to an extent likely to influence the test result.

2.2 *Impact equipment*, impact body of total mass $(30 \pm 0{,}6)$kg, consisting of a spherical leather bag of diameter approximately 350 mm, containing dry sand of apparent density approximately 1500 kg/m^3 which passes through a sieve of 2 mm mesh.

Wires, pulleys, release hook and suitable heightregulating devices.

2.3 *Measuring equipment*, a dial or digital gauge accurate to 0,01 mm, mounted at the centre of a reference bar capable of spanning the width of the door leaf.

3 Test specimens

Test specimens shall be stored and tested in a nondestructive environment within the ranges of 15 °C to 30 °C and 25 % to 75 % relative humidity.

Doors which are designed to be glazed, shall be supplied for testing with all glazing carried out in accordance with the door manufacturer's specification.

4 Procedure

The door leaf to be tested shall be closed and where applicable secured in accordance with its normal operating mode.

NOTE 1 In its normal operating mode a door leaf can be unsecured, or secured by latch, lock, bolt or other means.

Identify the impact point. This shall occur at the centre of the door leaf. Where the impact point coincides with the handle, this shall be removed.

With the reference bar, measure any deviation in flatness across the width of the door leaf at the height of the impact point, to the nearest 0,1 mm.

Suspend the impact body as shown in Figure 1 so that at rest it makes light contact with the surface of the door leaf and so that its centre of gravity is positioned on a line perpendicular to the door leaf at its centre. Raise the impact body so that the drop height h, with a tolerance of $\pm$10 mm, corresponds to the required impact energy. Release the impact body such that it strikes the door leaf at the impact point.

NOTE 2 Repetition of this operation will necessitate re-shaping of the impact body.

Repeat the measurement of deviation in flatness across the width of the door leaf at the height of the impact point, to the nearest 0,1 mm.

5 Expression of results

Record:

— the residual deformation in flatness, across the width at the height of the impact point.

6 Test report

The test report shall contain the following information:

a) reference to this European Standard;

b) all necessary details to identify the doorset or door leaf;

c) all relevant details concerning the type, specified dimensions, materials, form and construction of the doorset or door leaf, including the position of hardware;

d) full details of the frame and hardware supplied if the assembly is not a doorset;

e) the position and size of any glazed or panelled areas;

f) laboratory storage and testing conditions;

g) the face or faces tested and number of impacts applied to each face;

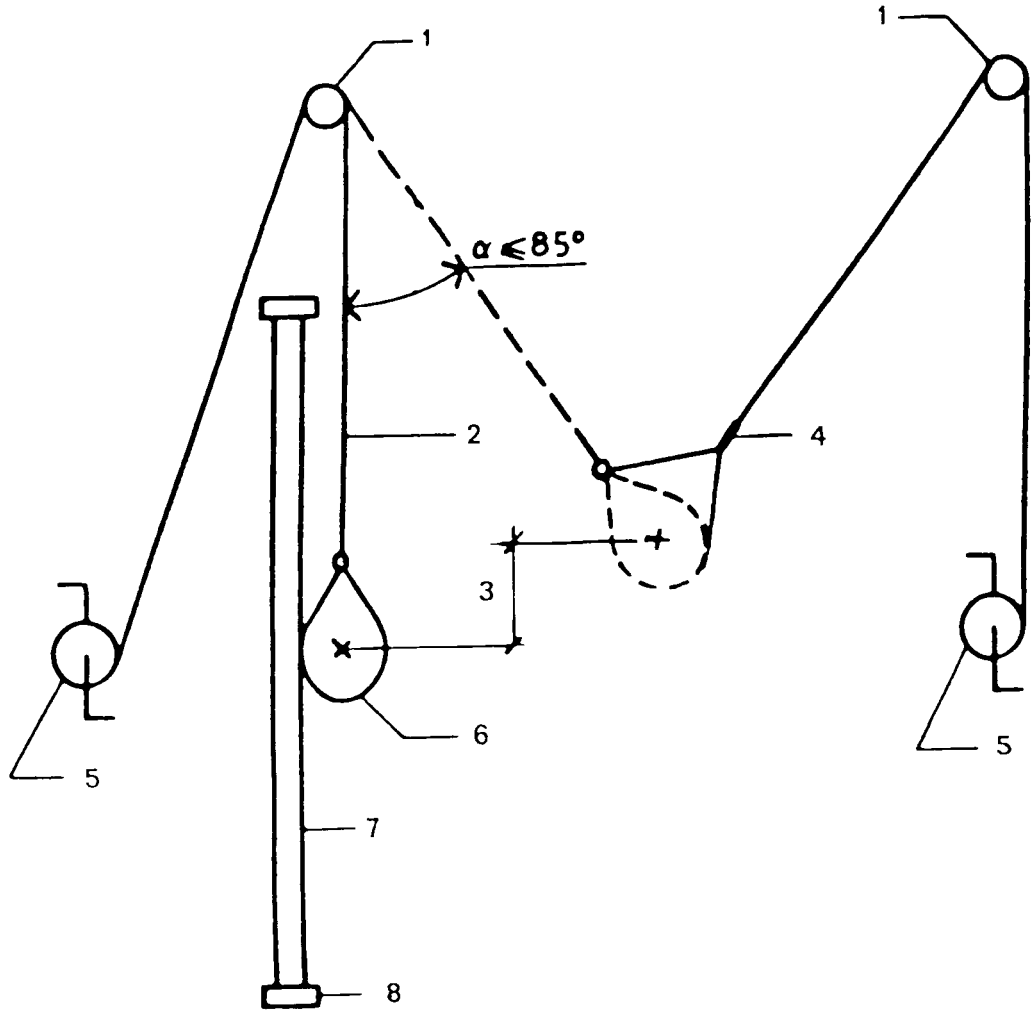
h) the impact energy in joules;

i) the results expressed as in clause **5**;

j) details of any damage that appeared during the test;

k) name of testing laboratory;

l) date of test.



1 pulley;
2 wire;
3 drop height, $h \pm 10$ mm;
4 release hook;
5 regulating device;
6 impact body;
7 doorset;
8 test rig.

Figure 1 — Apparatus for soft and heavy body impact test and test principle

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