INTERNATIONAL STANDARD

ISO 8271

Second edition
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Door leaves — Determination of the resistance to hard body impact

Vantaux de portes — Détermination de la résistance au choc de corps dur

Reference number
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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 8271 was prepared by Technical Committee CEN/TC 33, *Doors, windows, shutters, building hardware and curtain walling* (as EN 950:1999) and was adopted, under a special "fast-track procedure", by Technical Committee ISO/TC 162, *Doors and windows* in parallel with its approval by the ISO member bodies.

This second edition cancels and replaces the first edition (ISO 8271:1985) which has been technically revised.

Throughout the text of this document, read "... this European Standard ..." to mean "... this International Standard ...".

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 supersedes EN 85:1980.

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of an identical text or by endorsement, at the latest by February 2000, and conflicting national standards shall be withdrawn at the latest by February 2000.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 standard is one of a series of standards for doors.

This standard has been prepared taking into account ISO 8271 and EN 85.

1 Scope

This standard applies to all door leaves.

The standard specifies the method to be used to determine the damage caused to a door leaf by the impact of a hard body.

> NOTE : Such impacts, that might reasonably be expected from contact with small objects or parts of larger objects such as corners on furniture or footwear, can produce local surface failures affecting both strength and appearance. The kind of damage caused by impact can vary with the material used in the door construction.

2 Apparatus

2.1 Supports

Rigid supports to support the longer edges of the door leaf in a stable manner, when mounted horizontally.

2.2 Impact Equipment

A (50 ± 1) mm diameter steel ball of known weight, and appropriate release tower.

2.3 Measuring equipment

A dial or digital gauge accurate to 0,01 mm mounted at the centre of a 50 mm long and 12 mm wide reference bar.

A steel ruler accurate to 0,5 mm.

3 Test specimens

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

4 Procedure

Mount the door leaf horizontally, with rigid supports under the long edges resting on a solid base.

Select one of the four aiming patterns shown in figure 1 such that the theoretically weakest point is included, and mark the 15 impact points on the surface of the door leaf. Any glazed area shall be omitted from the test, thereby reducing the number of impact points.

Impact points in the topmost row or rows of the aiming pattern shall also be omitted where the height of the door leaf is less than 2000 mm. The test area is not extended where the height is more than 2000 mm.

NOTE 1 : To facilitate the setting out of the aiming pattern, templates can be made for standard sized door leaves in accordance with figure 1. Holes of approximately 8 mm diameter are drilled in the centres of the numbered rectangles so that a marker pen can be used to indicate the selected aiming pattern onto the face of the door leaf.

Position the release tower vertically over each of the impact points in turn, and drop the steel ball from a height, measured from its underside to the surface of the door leaf, which corresponds to the required impact energy.

Where a permanent imprint is left by any impact, after 30 min measure the maximum depth of the indentation to the nearest 0,1 mm, the maximum diameter of the indentation to the nearest 1,0 mm and the maximum diameter of the cracking area to the nearest 1,0 mm.

NOTE 2 : Where impacts occur at points where the surface is uneven, e.g. at mouldings, a more general assessment of damage is permitted.

Repeat the procedure for the other face of the door leaf only if the door construction is not symmetrical.

5 Expression of results

Record :

- the measurement of indentation depth and diameter, and the diameter of cracking at each impact point ;

- calculation of the mean values and the coefficient of variation of the depths of indentations ;

- calculation of the mean values and the coefficient of variation of the diameters ~~or lengths~~ of cracks.

6 Test report

The test report shall contain the following information :

a) reference to this standard ;

b) all necessary details to identify the door leaf ;

c) all relevant details concerning the type, specified dimensions, materials, form and construction of the door leaf ;

d) position and size of any glazed areas omitted from the test ;

e) laboratory storage and testing conditions ;

f) the number and position of impact points used ;

g) the impact energy in joules applied in the test ;

h) the results expressed as in clause 5 ;