INTERNATIONAL STANDARD

ISO 9381

Second edition
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Hinged or pivoted doors — Determination of the resistance to static torsion

Portes battantes ou pivotantes — Détermination de la résistance à la torsion statique

Reference number
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 9381 was prepared by Technical Committee CEN/TC 33, *Doors, windows, shutters, building hardware and curtain walling* (as EN 948:1999) 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 9381:1989) 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 replaces EN 129:1984.

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 9381 and EN 129 and supersedes EN 129.

Introduction

For manufacturers of door leaves whose products are not sold as part of a doorset, 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 vertically hinged or pivoted doors.

The standard specifies the method to be used to determine the permanent deformation caused when static stress in torsion is applied to an open door leaf fixed in its own door frame as part of a doorset.

> NOTE : Such torsional stresses that might reasonably be expected, such as in attempts to free a door which sticks, should neither damage nor impair the performance of a door.

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

2 Apparatus

2.1 Test surround

The surround in which the test 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 Loading equipment

A suitable device with weights or a controlled and calibrated ram, accurate to 2 %.

2.3 Measuring equipment

A dial or digital gauge accurate to 0,01 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.

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

Without any vertical restraint, position the door leaf at an angle of (90 ± 5)° to the plane of the frame, and fix the top lockside corner at a point (50 ± 5) mm from each edge of the door leaf.

To take up any slack in the hinges, carefully apply a preload of (200 ± 4) N, horizontally and normal to the plane of the leaf at the lower lockside corner, at a point (50 ± 5) mm from each edge of the door leaf. Maintain this load for (60 ± 5) s. Remove the load and after (60 ± 5) s measure, to the nearest 0,1 mm, the location of the lower corner of the door leaf at the loading position (see figure 1).

To the same loading point apply a static load *F* and maintain for (300 ± 5) s. Measure the maximum deformation under load to the nearest 0,1 mm. Remove the load and after (180 ± 5) s repeat the measurement at the lower corner of the door leaf.

All loads shall be carefully applied and removed in maximum 100 N, accurate to 2 % increments and over a minimum of 1 s for each increment, or the equivalent rate if continous, in order to avoid dynamic effects.

5 Expression of results

Record :

- the deformation under load *F* and the residual deformation of the door leaf as expressed by the difference in the measurements at the lower corner of the door leaf before the application of load *F* and (180 ± 5) s after the removal of this load.

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) laboratory storage and testing conditions ;

f) the load *F*, in newtons, applied in the test ;

g) the results expressed as in clause 5 ;

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

i) name of testing laboratory ;

j) date of test.

Dimensions in millimetres

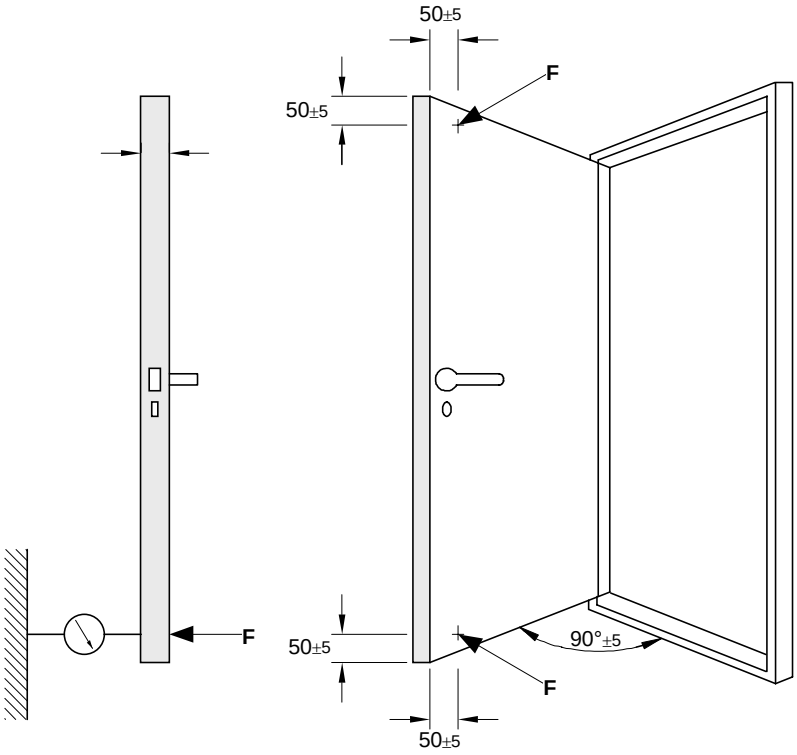

Figure 1

ICS 91.060.50

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