

# INTERNATIONAL STANDARD

**ISO**  
**9380**

First edition  
1990-02-01

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## Doorsets — Repeated torsion test

*Blocs-portes — Essai de torsion répétée*

**iTeh STANDARD PREVIEW**  
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ISO 9380:1990

<https://standards.iteh.ai/catalog/standards/sist/226b7459-1bc9-4c01-92e9-38ba83e1438b/iso-9380-1990>



Reference number  
ISO 9380:1990(E)

## 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 9380 was prepared by Technical Committee ISO/TC 162, *Doors and windows*.

Annex A of this International Standard is for information only.

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## Doorsets — Repeated torsion test

### 1 Scope

This International Standard specifies the method to be used to determine the effect of repeated torsion on doorsets and their hardware.

It applies to all doorsets made of any materials with vertically hinged doorleaves in their normal operating condition for which they are designed and installed according to the manufacturer's recommendations as in a finished building, bearing in mind the test conditions defined below.

### 2 Principle

The doorleaf is opened to an angle of 90°. The free lower edge of the doorleaf on the lock side is subjected to a load while at the same time the free upper corner of the lock side of the doorleaf is fixed. The doorleaf is subjected to a dynamic load 2 500 times. The deformation in torsion is measured before and after the dynamic load of 2 500 cycles under a static load,  $F$ , of 100 N.

### 3 Apparatus

A surround for the specimen to be tested shall be prepared. This shall be stiff enough to withstand the test pressures without deflecting to an extent likely to impair jointing or to impose bending stresses on the specimen. When the installation conditions are known, the specimen shall be installed to simulate these, wherever practical, and otherwise installed in a way that ensures normal operating conditions.

### 4 Procedure

**4.1** Open the doorleaf to angle of 90° and fix the free upper corner of the lock side of the doorleaf at a point 50 mm from each edge of the doorleaf.

**4.2** Apply on the lower free corner of the doorleaf for a period of 5 min a static load,  $F$ , of 100 N at right-angles to its plane. Measure the deformation,  $f$ , under torsional load with an accuracy of  $\pm 0,1$  mm [see figure 1b)].

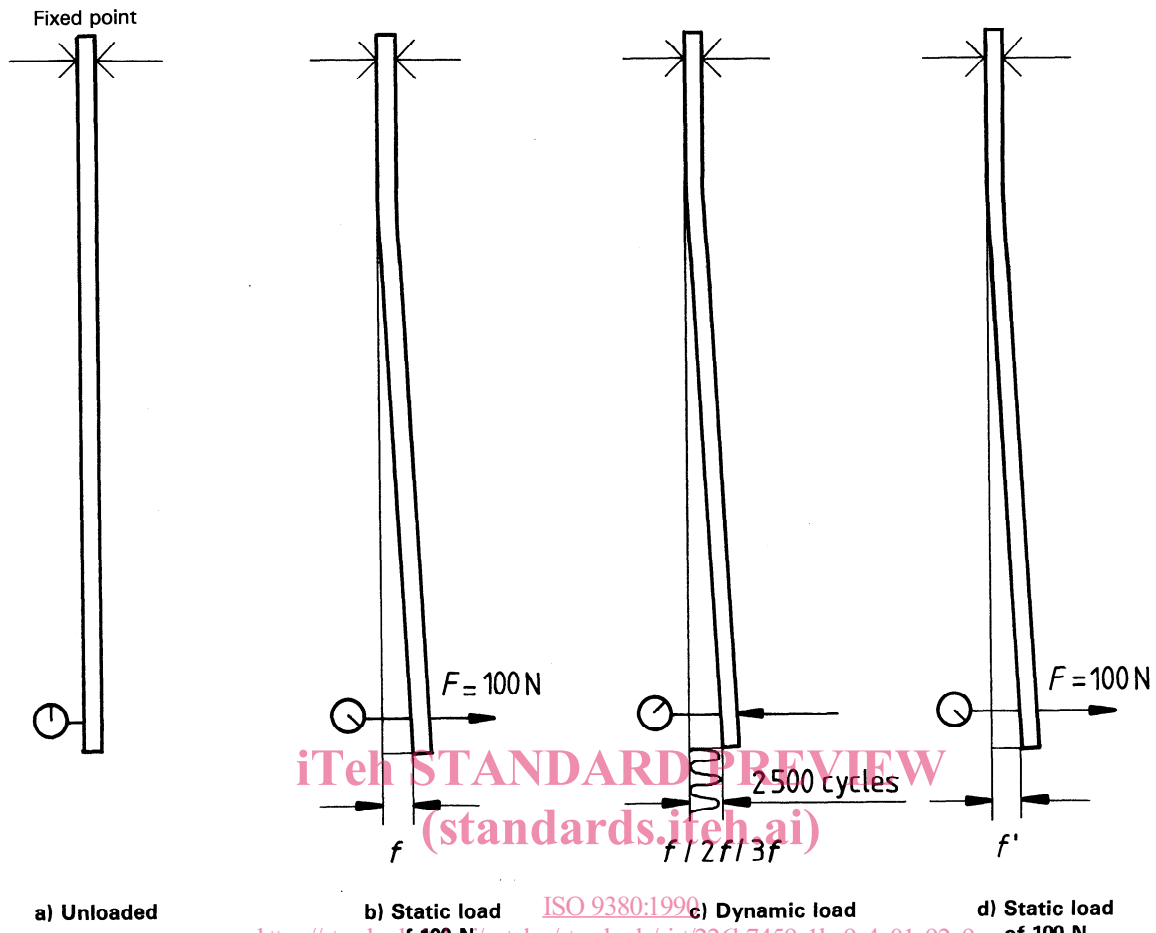
**4.3** Subject the doorleaf to torsion over 2 500 cycles by a force of varying frequency of 0,5 Hz applied at the lower free corner of the doorleaf (lock side), such that the measured deformation at the point of application varies sinusoidally from 0 to  $f$ , or from 0 to  $2f$ , or from 0 to  $3f$ , according to the performance requirements of the door [see figure 1c)].

**4.4** After a pause of 10 min, apply to the same point a static load,  $F$ , of 100 N for a period of 5 min as indicated in 4.2. Measure the deformation  $f'$  under torsional load with an accuracy of  $\pm 0,1$  mm [see figure 1d)].

### 5 Test report

The test report shall include the following information:

- the relevant details of type, dimensions, mass, form, construction of the doorset;
- the type of hardware and method of mounting in the doorset;
- the deformation  $f$  under load of 100 N before test;
- the deformation  $f'$  under load of 100 N after test;
- the applied deformation  $f$ ,  $2f$  or  $3f$ ;
- the change in stiffness of the doorset as indicated by the difference in deformation  $f - f'$  (absolute value);
- all relevant damage appearing during the test.



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Figure 1

**Annex A**  
**(informative)**

**Bibliography**

ISO 1804:1972, *Doors — Terminology*.

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**Descriptors:** doors, door frames, tests, torsion tests.

Price based on 3 pages

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