INTERNATIONAL STANDARD

ISO 16936-1

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Glass in building — Forced-entry security glazing —

Part 1: Test and classification by repetitive ball drop

Verre dans la construction — Vitrages de sécurité contre infractions —

Partie 1: Essai et classification par balle lancée répétée

Reference number
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Contents

Page

1 Scope **1**
2 Normative references **1**
3 Terms and definitions **1**
4 Sampling **2**
5 Apparatus **2**
6 Required characteristics **3**
7 Test method **3**
8 Classification and designation **5**
9 Test report **5**
10 Marking **6**
Annex A (informative) **Testing by repetitive ball drop at extreme temperatures** **7**
Bibliography **8**

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 16936-1 was prepared by Technical Committee ISO/TC 160, *Glass in building*, Subcommittee SC 2, *Use considerations*.

ISO 16936 consists of the following parts, under the general title *Glass in building — Forced-entry security glazing*:

— *Part 1: Test and classification by repetitive ball drop*

— *Part 2: Test and classification by repetitive impact of a hammer and axe at room temperature*

— *Part 3: Test and classification by manual attack*

— *Part 4: Test and classification by pendulum impact under thermally and fire stressed conditions*

Introduction

This part of ISO 16936 assesses security-glazing products that are more familiarly known as “anti-vandal”, “anti-bandit” and “detention” glazing products. Because there is no single test that will cover the wide range of resistances to attack, four separate test methods are provided to assess the forced entry resistant properties of security glazing. It is not intended that any particular test method be associated with the terms “anti-vandal” or “anti-bandit”, since these terms can be only loosely defined and there is considerable overlap in their definition.

It is important that security glazing products be installed in a frame which can give appropriate resistance to impact and which also provides a suitable support for the security-glazing product. It is important that cutouts and holes in security glazing products be avoided where possible, as these can affect the resistance of the product.

The test method specified in this part of ISO 16936 does not reproduce the conditions of real human attack, but is intended to give a classification of comparative resistance.

Glass in building — Forced-entry security glazing —

Part 1:
Test and classification by repetitive ball drop

1 Scope

This part of ISO 16936 specifies requirements and a test method for security glazing designed to resist impacts of a hard body by delaying access of objects and/or persons to a protected space for a short period of time. This part of ISO 16936 classifies security-glazing products into categories of resistance to repetitive impacts of a steel sphere.

In this part of ISO 16936, the categories of resistance have not been assigned to special applications. Glazing classification should be specified on an individual basis for every application.

This part of ISO 16936 deals with mechanical resistance to impact only. Other properties can also be important.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 48:1994, *Rubber, vulcanized or thermoplastic — Determination of hardness (hardness between 10 IRHD and 100 IRHD)*

ISO 6508-1, *Metallic materials — Rockwell hardness test — Part 1: Test method (scales A, B, C, D, E, F, G, H, K, N, T)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
action of force
deliberate action on the part of a person made with the intention of creating a hole in the security glazing product, by the use of manually held implements or by the use of thrown objects

3.2
asymmetric construction
product in which, from both outer surfaces, the sequence of glass panes, plastic glazing sheet material and interlayer(s) by type, thickness, finish and/or general characteristics is different

3.3
category of resistance
classification of the capability of a security-glazing product to resist actions of force

3.4
protected space
space protected against access by the completed installation