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BS ISO 29584:2015



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Glass in building — Pendulum impact testing and classification of safety glass

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 160, *Glass in building*, Subcommittee SC 2, *Use considerations*.

This first edition cancels and replaces ISO/TS 29584:2012, which has been technically revised.

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Introduction

Accidental human impact with glass panes can be a source of injury. The classification of glass in terms of its ability to withstand impact and the consequences of the glass breaking under such impact has been considered in many countries. The use of a soft body impactor to represent a human body has enabled regulators, code officials and other control organizations to specify glazing that reduces the risk of cutting and piercing injuries.

This International Standard has been prepared as a means of detailing the differences and similarities in pendulum impact tests for the classification of safety glass.

The traditional impactor has been a lead shot-filled leather bag. This has been found to suffer from ageing or shape change and variability in the energy transfer into the test piece if not properly maintained. It has been found that there can be wide variation in the supporting frame or sub-frame.

During their work, CEN /TC 129/WG 13 examined some of the problems associated with the lead shot-filled leather bag impactor and the supporting frame. CEN/TC 129/WG 13 prepared EN 12600 that uses an impactor consisting of steel masses and two tyres.

The primary objectives in developing the new impactor for the evaluation of safety glass can be summarized as follows:

a) elimination of the differences between

   1) taped and un-taped lead shot bags and

   2) lead shot bags and bags filled with sand or glass beads;

b) ageing of lead shot bag;

c) elimination of the use of lead shot;

d) harmonization of national impact test methods.

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Glass in building — Pendulum impact testing and classification of safety glass

1 Scope

The purpose of this International Standard is to evaluate, by means of soft body impactors, safe breakage characteristics of glazing products intended to reduce cutting and piercing injuries to persons through accidental impact.

This International Standard examines test methods currently employed to determine the pendulum impact performance of safety glass. Use of the methodologies in this International Standard improves the reproducibility of test results and gives a common basis of classification. The aim is for the performance of glass products manufactured and tested in various countries to be better understood and more consistent.

Two types of soft body impactors are defined. The traditional shot bag impactor is detailed both in terms of manufacture and maintenance in an attempt to overcome problems associated with such impactors becoming misshapen. The twin tyre impactor is also detailed.

The test equipment, excluding the impactor, is also described. A method of calibrating the test frame is given. The benefit of calibrating the test equipment is the increased reproducibility of the test results.

Classification of glass products is also detailed. The classification system allows information on the following to be given:

a) the maximum drop height at which the glass either did not break or broke safely, i.e. in a manner similar to laminated glass or toughened glass;

b) the manner in which the glass would break, i.e. as toughened glass, laminated glass, annealed glass, irrespective of whether or not the glass was broken during the test;

c) the maximum drop height at which the glass either did not break or broke safely, i.e. in a manner similar to laminated glass.

This International Standard does not specify the intended use of the products, but provides a method of classification in terms of the performance of the materials being tested. The impact energy used for the various levels of classification are designed to provide the intended user or the legislator with the information to assist in defining the level of safety and protection required relative to the intended location at which the selected safety glass is to be used.

2 Normative references

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

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

ISO 2408, *Steel wire ropes for general purposes — Minimum requirements*

ISO 4251-1, *Tyres (ply rating marked series) and rims for agricultural tractors and machines — Part 1: Tyre designation and dimensions, and approved rim contours*

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