



DRAFT International Standard

ISO/DIS 19916-4

Glass in building — Vacuum insulating glass —

Part 4: Pendulum impact testing and classification

ICS: 81.040.20

ISO/TC 160

Secretariat: **BSI**

Voting begins on:
2025-05-01

Voting terminates on:
2025-07-24

This document is circulated as received from the committee secretariat.

THIS DOCUMENT IS A DRAFT CIRCULATED FOR COMMENTS AND APPROVAL. IT IS THEREFORE SUBJECT TO CHANGE AND MAY NOT BE REFERRED TO AS AN INTERNATIONAL STANDARD UNTIL PUBLISHED AS SUCH.

IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY ON OCCASION HAVE TO BE CONSIDERED IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

RECIPIENTS OF THIS DRAFT ARE INVITED TO SUBMIT, WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT PATENT RIGHTS OF WHICH THEY ARE AWARE AND TO PROVIDE SUPPORTING DOCUMENTATION.

Reference number
ISO/DIS 19916-4:2025(en)

Full document details: 25/30475195 DC

© ISO 2025



Documents

Document Sharing Hub



COPYRIGHT PROTECTED DOCUMENT

© ISO 2025

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Test requirements	2
5 Test method	3
5.1 Test apparatus	3
5.2 Calibration of test apparatus	3
5.3 Test specimens	3
5.3.1 General	3
5.3.2 Dimensions of the test specimens	3
5.3.3 Number of test specimens	3
5.3.4 Preparation of the test specimens	3
5.4 Impact test procedure	3
6 Classification	4
6.1 Drop height class	4
6.2 Mode of breakage	4
6.3 Performance classification	5
7 Test report	5
Annex A (normative) Fragmentation test of tempered glass in the VIG	7
Annex B (informative) Examples of performance classification	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.

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 of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 160, Glass in building.

ISO 19916 consists of the following parts, under the general title Glass in building — Vacuum insulating glass:

- Part 1: Basic specification of products and evaluation methods for thermal and sound insulating performance
- Part 3: Test methods for evaluation of performance under temperature differences
- Part 4: Pendulum impact testing and classification

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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 for vacuum insulating glass has been prepared referring to ISO 29584: 2015 Glass in building — Pendulum impact testing and classification of safety glass.

ISO 29584:2015 cannot be directly applied to vacuum insulating glass as the product may consist of laminated glass and tempered glass which could result in different mode of breakage. In this standard, vacuum insulating glass is categorised into two groups i.e. Group 1 (with laminated glass or film-backed glass) in which no shear or opening may occur and Group 2 (without laminated glass or film-backed glass) in which disintegration might occur when broken after impact. Performance classification is given for Group 1 as two panes separated by a vacuum layer and for Group 2 as the complete vacuum insulating glass.

