



**International
Standard**

ISO 19916-4

**Glass in building — Vacuum
insulating glass —**

Part 4:
**Pendulum impact testing and
classification**

*Verre dans la construction — Vitrage isolant à lame de vide —
Partie 4: Essai de choc au pendule et classification*

**First edition
2026-05**

Sample Document

get full document from standards.iteh.ai



COPYRIGHT PROTECTED DOCUMENT

© ISO 2026

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
4.1 General.....	2
4.2 Test requirements for mode of breakage Type B.....	2
4.3 Test requirements for mode of breakage Type C.....	3
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.....	4
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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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*.

A list of all parts in the ISO 19916 series can be found on the ISO website.

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 document is based on relevant parts of the test and classification methods described in ISO 29584:2015.

ISO 29584:2015 cannot be directly applied to vacuum insulating glass. In this document, vacuum insulating glass is categorised into two groups: Group 1 (with laminated glass or film-backed glass) in which no shear or opening can occur, and Group 2 (without laminated glass or film-backed glass) in which disintegration can 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.

Sample Document

get full document from standards.iteh.ai