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

**Part 3:
Test methods for evaluation of
performance under temperature
differences**

Verre dans la construction — Vitrage isolant à lame de vide —

*Partie 3: Méthodes d'essai pour l'évaluation des performances en cas
de différences de température*

[ISO 19916-3:2021](https://standards.iteh.ai/catalog/standards/iso/14497383-00df-4329-9559-07655b00a3b7/iso-19916-3-2021)

<https://standards.iteh.ai/catalog/standards/iso/14497383-00df-4329-9559-07655b00a3b7/iso-19916-3-2021>



iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[ISO 19916-3:2021](https://standards.iteh.ai/catalog/standards/iso/14497383-00df-4329-9559-07655b00a3b7/iso-19916-3-2021)

<https://standards.iteh.ai/catalog/standards/iso/14497383-00df-4329-9559-07655b00a3b7/iso-19916-3-2021>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2021

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
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	1
4 Test method.....	2
4.1 Principle.....	2
4.2 Test specimens.....	2
4.2.1 Number of specimens.....	2
4.2.2 Size of specimens.....	2
4.2.3 Design of specimens.....	2
4.3 Apparatus.....	2
4.4 Procedures.....	4
4.4.1 General.....	4
4.4.2 Measurement of <i>U</i> -value.....	5
4.4.3 Setting of thermocouples.....	5
4.4.4 Installation of specimens.....	6
4.4.5 Temperature profile.....	7
4.4.6 Determination of heat transfer coefficient.....	8
4.4.7 Requirements.....	8
5 Test report.....	9
Annex A (informative) Guideline for the test apparatus.....	10
Annex B (informative) Stress induced in the glass sheets of vacuum insulating glass under temperature differences.....	12
Bibliography.....	24

[ISO 19916-3:2021](https://standards.iteh.ai/catalog/standards/iso/14497383-00df-4329-9559-07655b00a3b7/iso-19916-3-2021)

<https://standards.iteh.ai/catalog/standards/iso/14497383-00df-4329-9559-07655b00a3b7/iso-19916-3-2021>

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*, Subcommittee SC 1, *Product considerations*.

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.

Glass in building — Vacuum insulating glass —

Part 3: Test methods for evaluation of performance under temperature differences

1 Scope

This document specifies test methods for evaluation of performance of vacuum insulating glass samples with rigid edge seal when subjected to temperature differences between the glass sheets.

This document is not applicable to vacuum insulating glass samples with flexible edge seal.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 19916-1, *Glass in building — Vacuum insulating glass — Part 1: Basic specification of products and evaluation methods for thermal and sound insulating performance*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 19916-1 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

heat transfer control board

board placed in a test chamber for reducing air flow around the vacuum insulating glass specimen

3.2

rigid edge seal

edge seal that prevents lateral relative movement between the glass sheets at the edge of the sheets where the seal is formed, made from a rigid material such as glass or metal

3.3

flexible edge seal

edge seal structure allowing lateral movement between the two glass sheets