INTERNATIONAL STANDARD

ISO 1288-4

First edition
2016-02-15

Glass in building — Determination of the bending strength of glass —

Part 4: Testing of channel shaped glass

Verre dans la construction — Détermination de la résistance du verre à la flexion —

Partie 4: Essais sur verre profilé

Reference number
ISO 1288-4:2016(E)

© ISO 2016



COPYRIGHT PROTECTED DOCUMENT

© ISO 2016, Published in Switzerland

All rights reserved. Unless otherwise specified, 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
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword ... **iv**

1 Scope ... **1**

2 Normative references ... **1**

3 Terms and definitions ... **1**

4 Symbols ... **2**

5 Apparatus ... **2**
5.1 Testing machine ... 2
5.2 Measuring instruments ... 3

6 Sample ... **3**
6.1 Number of specimens ... 3
6.2 Specimen dimensions ... 3
6.3 Specimen condition ... 3

7 Procedure ... **4**
7.1 Determination of dimensions of each specimen ... 4
7.2 Bending test ... 4

8 Evaluation ... **5**

9 Test report ... **5**

Annex A (informative) **Properties of channel shaped glass** ... **7**

Bibliography ... **8**

© ISO 2016 – All rights reserved

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*.

ISO 1288 consists of the following parts, under the general title *Glass in building — Determination of the bending strength of glass*:

— *Part 1: Fundamentals of testing glass*

— *Part 2: Coaxial double ring test on flat specimens with large test surface areas*

— *Part 3: Test with specimen supported at two points (four point bending)*

— *Part 4: Testing of channel shaped glass*

— *Part 5: Coaxial double ring test on flat specimens with small test surface areas*

 © ISO 2016 – All rights reserved

Glass in building — Determination of the bending strength of glass —

Part 4:
Testing of channel shaped glass

1 Scope

This part of ISO 1288 specifies a method for determining the bending strength (defined as the profile bending strength) of wired or unwired channel shaped glass for use in buildings.

The limitations of this part of ISO 1288 are described in ISO 1288-1.

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 1288-1, *Glass in building — Determination of the bending strength of glass — Part 1: Fundamentals of testing glass*

NOTE ISO TC 160 SC1 is still not certain as to whether there is a need for a standard on the product "Wired or unwired channel shaped glass".

3 Terms and definitions

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

3.1
profile bending strength
quotient of the maximum bending moment and the section modulus of a channel shaped glass

Note 1 to entry: Due to sideways movement of the flanges of the channel shaped profile in the bending test, the specimens break almost exclusively at the transition from web to flange (i.e. not at the extreme edge of the flange or the face of the web). Consequently, the profile bending strength is not the glass strength, but rather a value representing the strength of the profile.

© ISO 2016 – All rights reserved

4 Symbols

B	width of web	m
F_{max}	maximum force NOTE Where the bending rollers are not firmly attached to the testing machine, but are laid on the specimen, the force resulting from their weight is added to the maximum measured force.	N
G	specimen's own weight	N
h_F	thickness of flange	m
h_W	thickness of web	m
H	height of flange	m
L_s	distance between supporting rollers	m
M_{bB}	maximum bending moment	Nm
P_{bB}	profile bending strength	Pa
Z	section modulus	m^3
Z_F	section modulus with flanges in tension	m^3
Z_W	section modulus with web in tension	m^3

5 Apparatus

5.1 Testing machine

The bending test shall be carried out using a suitable bending testing machine, which shall incorporate the following features.

a) The stressing of the specimen shall be capable of being applied from zero up to a maximum value in a manner which minimizes shock and is stepless.

b) The stressing device shall be capable of the specified rate of stressing.

c) The testing machine shall incorporate a load measuring device with a limit of error of ±2,0 % within the measuring range.

d) The supporting rollers and the bending rollers (see Figure 2) shall have a diameter of 50 mm and a length of not less than 550 mm. All the rollers shall be free to rotate.

e) The air bags (see Figure 2) shall have an overall dimension of 310 mm × 1 020 mm × 200 mm and shall have a safe working pressure not less than 100 kPa. The air bags shall be pressurized to 70 kPa for channel shaped glass with a nominal width up to 300 mm and 50 kPa for channel shaped glass with a nominal width over 300 mm.

f) The spreader plates (see Figure 2) shall have dimensions of 300 mm × 1 000 mm and be sufficiently robust to adequately transmit the force into the air bags.

© ISO 2016 – All rights reserved