SLOVENSKI STANDARD
oSIST prEN ISO 1288-4:2014

01-april-2014

Steklo v stavbah - Ugotavljanje upogibne trdnosti stekla - 4. del: Preskušanje profilnega stekla (ISO/DIS 1288-4:2014)

Glass in building - Determination of the bending strength of glass - Part 4: Testing of channel-shaped glass (ISO/DIS 1288-4:2014)

Glas im Bauwesen - Bestimmung der Biegefestigkeit von Glas - Teil 4: Prüfung von Profilbauglas (ISO/DIS 1288-4:2014)

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Verre dans la construction - Détermination de la résistance du verre à la flexion - Partie 4: Essais sur verre profilé (ISO/DIS 1288-4:2014)

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Ta slovenski standard je istoveten z: **prEN ISO 1288-4 rev**

ICS:

81.040.20	Steklo v gradbeništvu	Glass in building

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DRAFT INTERNATIONAL STANDARD

ISO/DIS 1288-4

ISO/TC **160**/SC **2**

Secretariat: **ANSI**

Voting begins on:
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Voting terminates on:
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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

ICS: 81.040.20

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ISO/CEN PARALLEL PROCESSING

This draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 1288 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 1288-4 was prepared by Technical Committee ISO/TC 160, *Glass in building*, Subcommittee SC 2, *Use considerations* in conjunction with Technical Committee CEN/TC 129, *Glass in building*.

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

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— *Part 1: Fundamentals of testing glass*

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

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— *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*

This Standard has been based on EN 1288-4 *Glass in building - Determination of the bending strength of glass" - Part 4 : Testing of channel shaped glass* prepared by Technical Committee CEN/TC 129 "Glass in building"/WG8 "Mechanical Strength".

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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Glass in building — Determination of the bending strength of glass — Part 4: Testing of channel shaped glass

1 Scope

This International Standard 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 this International Standard are described in ISO 1288-1.

ISO 1288-1 should be read in conjunction with this part of this International Standard.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 1288. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 1288 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

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ISO 48, *Rubber, vulcanised 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*

ISO 16293-1: *Glass in building – Basic soda lime silicate glass products – Part 1: Definitions and general physical and mechanical properties*

NOTE: ISO TC160 SC1 WG1 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 part of ISO 1288, the following terms and definitions apply.

3.1
profile bending strength
the quotient of the maximum bending moment and the section modulus of a channel shaped glass (EN 572-7)

NOTE 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.

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4 Symbols (and abbreviated terms)

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

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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 x 1020 mm x 200 mm and shall have a safe working pressure not less than 100 kPa. The air bags shall be pressurised to 70kPa 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 300 mm x 1000 mm and be sufficiently robust to adequately transmit the force into the air bags.

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5.2 Measuring instruments

The following measuring instruments are required:

- a measuring instrument enabling the web width, *B*, of the specimen to be measured to the nearest 1 mm and the flange height, *H*, of the specimen to be measured to the nearest 0,5 mm;

- a measuring instrument allowing the thickness of the specimen flange, h_F, and web, h_W, to be measured to the nearest 0,1 mm.

6 Sample

6.1 Number of specimens

The number of specimens to be tested shall be determined depending on the confidence limits required, especially with regard to estimating the extremes of the strength distribution (see ISO 1288-1 for a discussion of numbers of specimens).

6.2 Specimen dimensions

The dimensions of the specimen web, *B*, flange height, *H*, the web thickness, h_W, the flange thickness, h_F, and the angle between the web and the flanges, shall be within the tolerances specified for the product to be tested (in accordance with EN 572-7).

The length of the specimens shall be 2100 mm ± 5 mm.

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6.3 Specimen condition

The specimens shall be stored in the testing environment (see 7.2) for at least 4 h before being tested.

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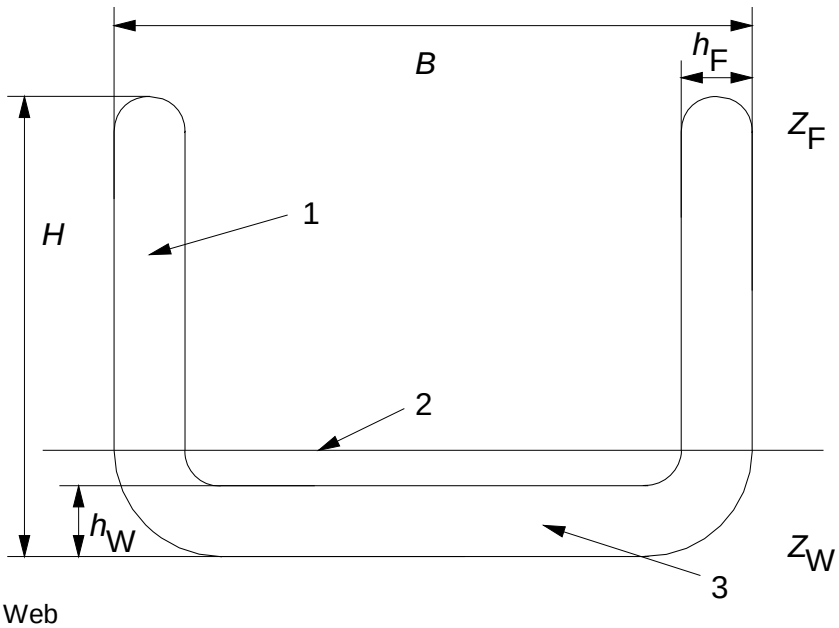

1 Flange
2 Principal axis3 Web

Figure 1 — Cross section of specimen

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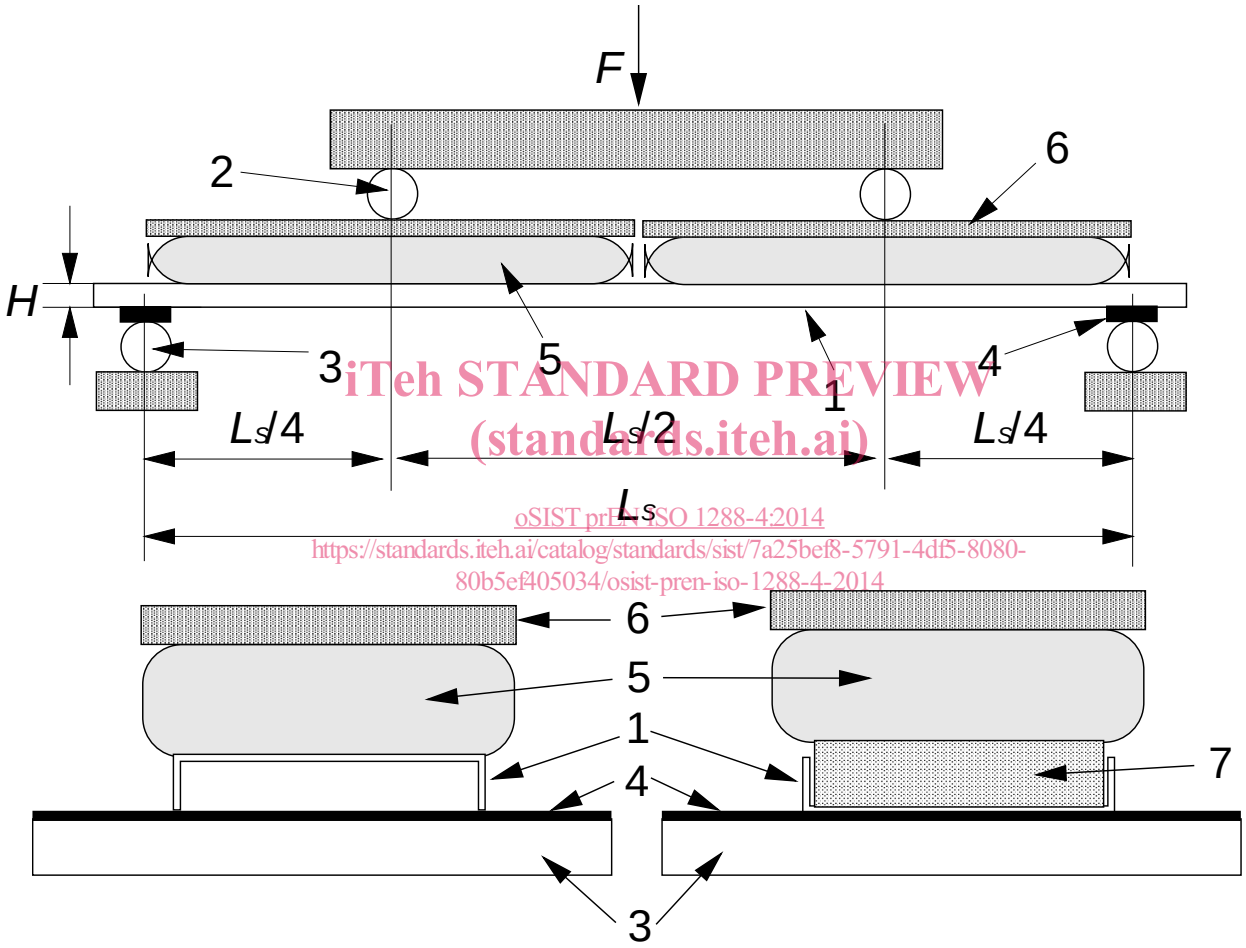
7 Procedure

7.1 Determination of dimensions of each specimen

The width of the web, *B*, the height of the flange, *H*, and the thickness of the flanges h_F shall be measured at the ends of the profiles and in the centre of the specimen. The web thickness, h_W, shall be measured only at the ends (see figure 1 and figure 2).

7.2 Bending test

The specimens shall be mounted as shown in figure 2.



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1	Specimen	4	Rubber pad
2	Bending roller	5	Air bag
3	Supporting roller	6	Spreader plate
L_s = 2000 mm ± 4 mm		7	Foam slab

Figure 2 : Arrangement of specimen in testing machine

Rubber strips, 6 mm thick and of hardness of not less than (40 ± 10) IRHD, (in accordance with ISO 48), shall be placed between the specimen and the supporting rollers.

When testing with the web in tension, a foam slab (expanded polystyrene or similar), not less than 1000 mm in length and of width 10 mm less than the internal space between the flanges, shall be placed under the air bag to prevent it applying load directly to the flanges.

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