SLOVENSKI STANDARD
SIST EN 13583:2012

01-september-2012

Nadomešča:
SIST EN 13583:2001

Hidroizolacijski trakovi - Bitumenski, polimerni in elastomerni trakovi za tesnjenje streh - Ugotavljanje odpornosti proti toči

Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Determination of hail resistance

Abdichtungsbahnen - Bitumen-, Kunststoff- und Elastomerbahnen für Dachabdichtungen - Bestimmung des Widerstandes gegen Hagelschlag

Feuilles souples d'étanchéité - Feuilles bitumineuses, plastiques et élastomériques d'étanchéité de toiture - Détermination de la résistance à l'impact de la grêle

Ta slovenski standard je istoveten z: **EN 13583:2012**

ICS:

91.060.20	Strehe	Roofs
91.100.50	Veziva. Tesnilni materiali	Binders. Sealing materials

SIST EN 13583:2012 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13583

July 2012

ICS 91.100.50

Supersedes EN 13583:2001

English Version

Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Determination of hail resistance

Feuilles souples d'étanchéité - Feuilles bitumineuses, plastiques et élastomériques d'étanchéité de toiture - Détermination de la résistance à l'impact de la grêle

Abdichtungsbahnen - Bitumen-, Kunststoff- und Elastomerbahnen für Dachabdichtungen - Bestimmung des Widerstandes gegen Hagelschlag

This European Standard was approved by CEN on 7 April 2012.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 13583:2012) has been prepared by Technical Committee CEN/TC 254 “Flexible sheets for waterproofing”, the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2013, and conflicting national standards shall be withdrawn at the latest by January 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 13583:2001.

The following is a list of significant technical changes since the last edition:

— definition of EPS board as soft support;

— definition of sandpaper for use on hard support;

— new definition of v_d damaging velocity;

— indications regarding calibration.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies the determination of the resistance of flexible sheets for roofing to hail using a test for puncture by simulated hail.

This European Standard may also be applied for waterproofing.

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.

EN 826, *Thermal insulating products for building applications — Determination of compression behaviour*

EN 1849-1, *Flexible sheets for waterproofing — Determination of thickness and mass per unit area — Part 1: Bitumen sheets for roof waterproofing*

EN 1849-2, *Flexible sheets for waterproofing — Determination of thickness and mass per unit area — Part 2: Plastic and rubber sheets*

prEN 10025-2:2011, *Hot rolled products of structural steels — Part 2: Technical delivery conditions for non-alloy structural steels* [1)]

EN 13163, *Thermal insulation products for buildings — Factory made products of expanded polystyrene (EPS) — Specification*

EN 13416, *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Rules for sampling*

EN 13956:2005, *Flexible sheet for waterproofing — Plastic and rubber sheets for roof waterproofing — Definitions and characteristics*

ISO 6344-1:1998, *Coated abrasives — Grain size analysis — Part 1: Grain size distribution test*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13956:2005 and the following apply.

NOTE EN 13956:2005 gives the definitions for “sampling”, “sample”, “test piece”, “test specimen”.

3.1
surface
upper side of the sheet, as used in situ; it is usually the inside of the roll

3.2
damaging velocity
v_d
determined velocity of the ball rounded to the next integer in m/s, which has caused perforation in maximum 1 out of 5 shots

1) Under preparation

3.3
test area
area of the test specimen inside the opening (200 ± 2) mm diameter of the ballast plate

4 Principle

The test specimen is shot on the surface by a plastic ball of defined material and size. The support is made of steel or expanded polystyrene. The velocity of the ball before impact can be varied. The ball can be shot in vertical direction or in horizontal direction.

5 Apparatus

The apparatus (see Figure 1) consists of parts indicated in 5.1 to 5.8.

5.1 Stable support; the apparatus and support shall be placed and installed in such a way that influences on the test results e.g. by spring effect will be avoided.

5.2 Pneumatic drive by which the velocity of the ball is controlled by the loading pressure which is shown by a manometer.

5.3 Photo cell/cells with time measuring device to measure the effective velocity of the ball within (± 0,5) m/s (see Figure 1) at a distance of (300 to 400) mm from the surface of the test specimen.

5.4 Plastic ball made of polyamide (PA 6.6) with a mass of (38,5 ± 0,5) g, a diameter of (40,0 ± 0,5) mm and with a smooth and defect free surface.

5.5 Mounting device for the test specimen (see Figure 2) to allow hard or soft support.

5.6 Hard support which consists of a steel plate of (500 ± 2) mm × (300 ± 2) mm × (20,0 ± 0,5) mm as ground plate steel, specification according to prEN 10025-2:2011, steel grade S235, quality JR, on which sand paper is laid with the following specification (see Figure 2 a)):

- material: silicium-carbide;
- grain: P120 (ISO 6344-1:1998);
- carrier: C paper 135 g/m² – 145 g/m²;
- application of grain: electrostatic spread;
- binder: full synthetic resin bonded, water-resistant.

The sandpaper shall be placed (machine direction) crosswise to the machine direction of the roofing sheet specimen.

The steel plate shall have a temperature of (10 ± 2) °C.

5.7 Soft support which consists of a steel plate as described in 5.6 but without cooling on which an expanded polystyrene panel is laid with the following specifications (see Figure 2 b)):

- standard expanded polystyrene according to EN 13163;
- cut surfaces;
- size of (500 ± 2) mm × (250 ± 2) mm;
- thickness (20,0 ± 0,5) mm
- compressive stress CS(10) (≥ 100 kPa to ≤ 110 kPa) (EN 826).

5.8 Ballast steel plate of (500 ± 2) mm × (300 ± 2) mm × (20,0 ± 0,5) mm with a circular opening of (200 ± 2 mm) diameter in the centre (see Figure 2).

5.9 Device for the verification of a possible perforation (see Figure 3) with a testing area of at least 30 mm in diameter.

6 Sampling and preparation of test specimens

6.1 Sampling

Samples shall be taken in accordance with EN 13416.

6.2 Preparation of test specimens

The test specimens shall be taken from the whole width of the roll.

The test specimens are conditioned at least 24 h at (23 ± 2) °C and (50 ± 10) % relative humidity before the test.

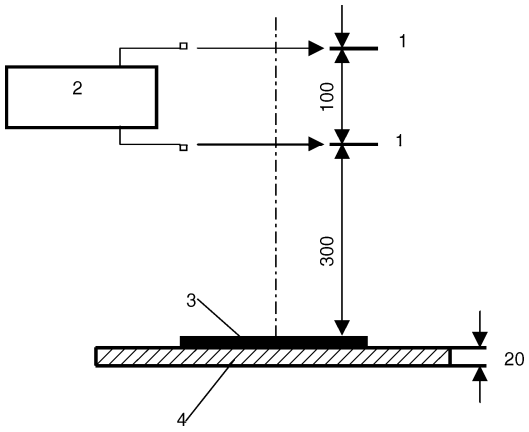
7 Calibration

The test equipment for speed measurement has to be calibrated according to an appropriate method in a range from 10 m/s to 40 m/s.

8 Procedure

The test specimen is placed with the surface up on the support. The ballast plate with the opening of (200 ± 2) mm is put on top of the specimen. The test specimen has to cover the opening with an excess of at least 25 mm (Figure 2). The test area of the specimen is fully in contact with a cooling device e.g. melting ice, cool pack. The temperature of the cooling device shall be (0 ± 2) °C. After (180 ± 30) s the cooling device is removed from the test area and within (5 ± 2) s the test is conducted. The polyamide ball has to hit the surface of the test specimen in the centre of the test area.

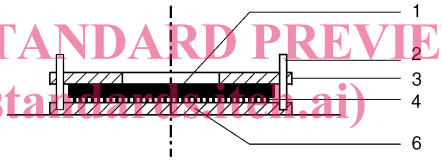
Dimensions in millimetres



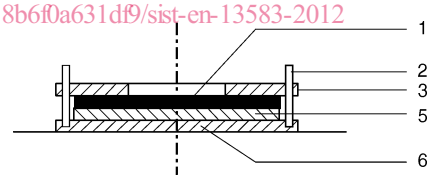
Key

1 light beam
2 timing chronometry
3 test specimen
4 steel plate

Figure 1 — Testing device (example)



a) **Hard support**



b) **Soft support**

Key

1 test specimen
2 guide pin
3 ballast steel plate
4 sand paper
5 expanded polystyrene panel
6 steel plate

Figure 2 — Support with test specimen