
Bitumenske skodle, ojačene z mineralnimi in/ali sintetičnimi materiali

Bitumen shingles with mineral and/or synthetic reinforcements

Bitumenschindeln mit mineralhaltiger Einlage und/oder Kunststoffeinlage

Bardeaux bitumés avec armature minérale et/ou synthétique

Ta slovenski standard je istoveten z: EN 544:1998

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

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Descriptors: roofing, roofs, bituminous products, corrugated sheets, geometric characteristics, mechanical properties, physical properties, sampling, tests, classifications, marking, quality control

English version

Bitumen shingles with mineral and/or synthetic reinforcements

Bardeaux bitumés avec armature minérale et/ou
synthétique

Bitumenschindeln mit mineralhaltiger Einlage und/oder
Kunststoffeinlage

This European Standard was approved by CEN on 23 May 1998.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 128 "Roof covering products for discontinuous laying and products for wall cladding", the secretariat of which is held by IBN.

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of an identical text or by endorsement, at the latest by December 1998, and conflicting national standards shall be withdrawn at the latest by December 1998.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

According to the CEN/CENELEC Internal Regulations, the national standards organizations 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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1 Scope

This European Standard applies to bitumen shingles, small discontinuous materials, intended to be laid as covering for the fabrication of pitched roofs.

This European Standard applies only to bitumen shingles with a mineral reinforcement, synthetic reinforcement or a mixture of the two.

It specifies the properties, performance and methods of test of the finished product prior to it being laid on the roof.

Two classes of requirements are specified. The two classes have different requirements to adhesive surface, glass reinforcement mass, tensile strength, sliding temperature, and blistering temperature :

- Class 1 : Meeting all the European climatic requirements by its properties and performance.
- Class 2 : Meeting some of the European climatic requirements by its properties and performance.

In this standard and wherever possible, product performance is defined by calculations and a number of type tests.

The performance of a roof covering manufactured from these products depends not only on the properties of the product as specified in this standard, but also on the design, application and performance of the roof considered as a whole, in conjunction with the environment and conditions of use.

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2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revisions. For undated references the latest edition of the publication referred to applies.

EN 10002-2	Metallic materials - Tensile testing - Part 2 : Verification of the force measuring system of the tensile testing machines
prEN 1110	Flexible sheets for roofing - Bitumen sheets - Determination of slump properties at elevated temperature.
prEN 1297-1	Flexible sheets for roofing - Determination of resistance to UV and water ageing - part 1: Bitumen sheeting.
prEN 12039	Flexible sheets for roofing - Bitumen sheeting - Determination of loss of granules.
prEN 12310-1	Flexible sheets for roofing - Determination of nail shank tear resistance - Part 1: Bitumen sheets

prEN 12311-1 Flexible sheets for roofing - Determination of tensile properties - part 1:
Bitumen sheets.

3 Definitions

For the purposes of this standard, the following definitions apply :

3.1 shingle

Reinforced flat bitumen material, of a global rectangular shape, of length L and width l , having or not bitumen adhesive points. This material has a solid part and several tabs. These tabs may be rectangular and separated by slits of height h (see figure 1).

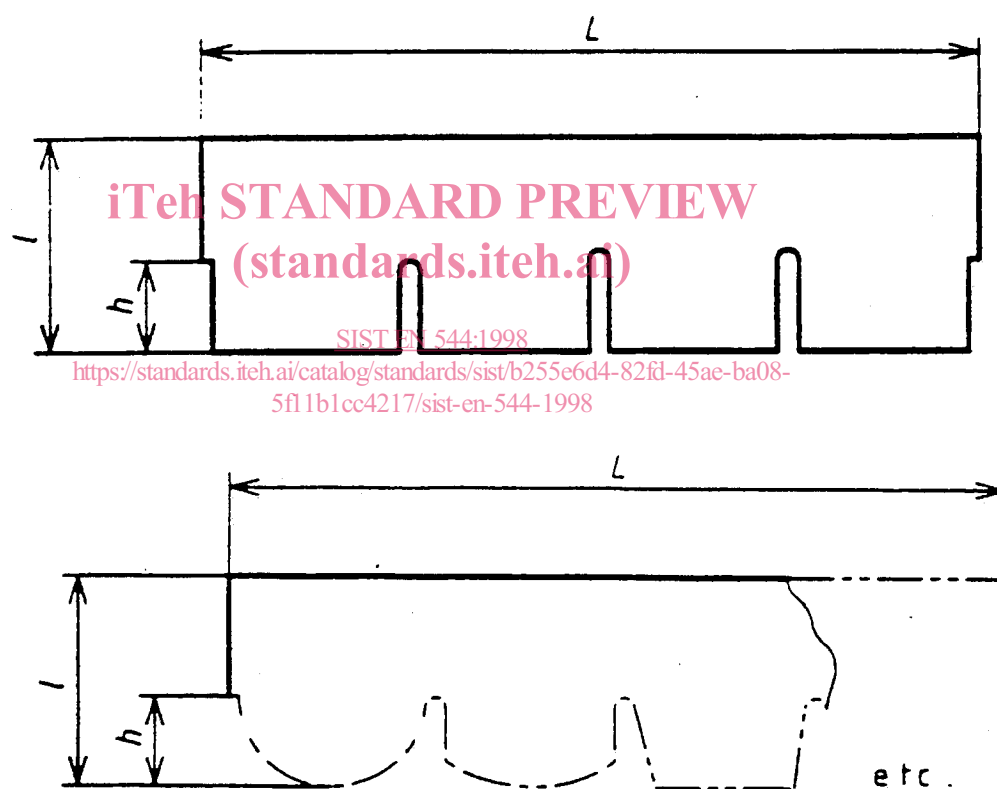


Figure 1 : Types of shingle tabs

3.2 tab

Part of the flat material separated by slits and intended to be visible on the roof.

3.3 slit

Gap separating the tabs, of constant width or special form.

3.4 reinforcement

Substance incorporated into the bitumen material ensuring its dimensional stability and mechanical resistance.

3.5 impregnation

Saturation of the reinforcement by bitumen.

3.6 coating mass

Bitumen or modified bitumen, containing or not fillers, applied to both faces of the reinforcement and intended to ensure watertightness.

3.7 upperside surfacing

Factory-applied protection of the face of the material exposed to the weather provided by, for example, mineral granules, slate or a metal foil.

3.8 underside surfacing

Factory-applied protection of the concealed underside of the material, either continuous or discontinuous, by means of sand, talc, paper, plastic film or any other material.

3.9 self-adhesive point; stripe

Point, continuous or discontinuous stripe, intended to ensure the adhesion of the tabs after laying on the roof.

3.10 self-adhesive area

Self-adhesive area intended to fix the tabs and ensure watertightness.

3.11 protection stripe

Plastic film or non-adhesive paper intended to prevent the self-adhesive points, stripes or areas from sticking prior to being laid on the roof.

3.12 guiding tab

Small extension on one end of a shingle corresponding with a similarly shaped indentation on the other end. The purpose is to allow for proper horizontal alignment during application.

4 Symbols

The code system using symbols for the identification of the material is described below :

4.1 Types of reinforcement

- type 3 : Glass tissue or grid ;
- type 4 : Glass non woven with or without longitudinal reinforcement by films or grid ;
- type 6 : Polyester non woven ;
- type 7 : Glass/polyester non woven ;
- type 9 : Other material of type to be specified.

4.2 Types of coating

- type X : Oxidized bitumen ;
- type E : Elastomer-modified bitumen ;
- type P : Plastomer-modified bitumen ;
- type S : Special mixture bitumen of type to be specified.

4.3 Types of surfacing

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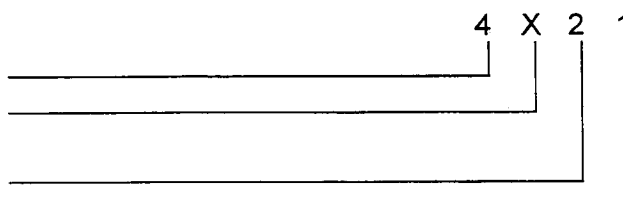
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Table 1 : Types of surfacing

Upperside	Underside
2 Slate granules	1 Sand, talc or other material in powder form
8 Metal foil	3 Plastic film adherent to the bitumen
9 Other material of type to be specified	4 Plastic film non-adherent to the bitumen and cold-peelable
	6 Plastic film adherent to the bitumen and non-adherent to the surface
	9 Other material of type to be specified.

4.4 Example

Bitumen shingle,
with glass non woven reinforcement,
made of oxidized bitumen,
auto-protected on the upper face
by granulates,
underside with sand



5 Requirements

5.1 Material

5.1.1 Reinforcement

Shingles shall have a reinforcement. This may be made of mineral fibres, synthetic fibres or a mixture of the two. If the reinforcement is made up of glass non woven, the mean value of the mass shall be :

Class 1 : 110 g/m² with no individual value \leq 100 g/m².

Class 2 : 100 g/m² with no individual value \leq 90 g/m².

5.1.2 Coating mass

The coating mass shall be an oxidized bitumen or a modified bitumen containing fillers which are not liable to alter the homogeneity of the mixture and which are water resistant.

In the case of reinforcement made of non woven glass fibres or synthetic fibres, this bitumen shall be compatible with sizing resins.

The minimum mass of pure or modified bitumen shall be 1300 g/m² for class 1 and class 2. For class 2, the adhesive surface shall be at least 15 % of the total surface area of the material.

5.1.3 Upperside surfacing

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The upperside surfacing shall be continuous, adhered to the bitumen and shall not reveal any bitumen which might spoil the appearance and durability of the product.

This upperside surfacing shall be opaque to UV radiation.

5.1.4 Underside surfacing

The anti-adhesion face of the underside shall be carried out by application of inert materials in powder form or a continuous film.

This application shall be such that the shingles may be removed individually from their packaging without being damaged.

5.2 Geometrical properties

5.2.1 Shapes

The overall dimensions exclusive guiding tabs shall be as follows :

- length L : maximum 1200 mm;

- width l : minimum 300 mm.

The limit deviations on dimensions L and I (see figure 1) declared by the manufacturers, measured in accordance with 7.1.2 and 7.1.3, shall be :

- ± 3 mm on length L ;
- ± 3 mm on width I .

5.2.2 Straightness

Under the test conditions defined in 7.1.4, the limit deviation e shall be ± 2 mm.

5.2.3 Squareness

Under the test conditions defined in 7.1.5, the distance d (see figure 5) shall be maximum 2 mm.

5.2.4 Slit dimensions

Measured under the conditions defined in 7.1.6, the maximum slit height shall be equal to $\frac{I - 50 \text{ mm}}{2}$ or to $\frac{I - 45 \text{ mm}}{2}$ if a minimum width of 15 mm is specified for the adhesive surface above the slit and in the zone of the least covering.

5.3 Mechanical properties

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5.3.1 Tensile strength

Measured under the test conditions described in 7.2.1, the minimum tensile strength shall be :

Table 2 : Minimum tensile strength

	Class 1	Class 2
In the direction of the shingle length or direction of fabrication	600 N	400 N
In the direction of the shingle width or perpendicular to the direction of fabrication	600 N	400 N

The minimum values are for a test piece width of 50 mm.

5.3.2 Resistance to tearing by nails

Measured under the test conditions described in 7.2.2, the minimum value shall be 100 N for both class 1 and class 2.