



SLOVENSKI STANDARD
oSIST prEN 544:2020
01-september-2020

**Bitumenske skodle, ojačene z mineralnimi in/ali sintetičnimi materiali -
Specifikacije za proizvod in preskusne metode**

Bitumen shingles with mineral and/or synthetic reinforcements - Product specification and test methods

Bitumenschindeln mit mineralhaltiger Einlage und/oder Kunststoffeinlage - Produktspezifikation und Prüfverfahren

Bardeaux bitumés avec armature minérale et/ou synthétique - Spécifications des produits et méthodes d'essai

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91.100.50	Veziva. Tesnilni materiali	Binders. Sealing materials

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 544

July 2020

ICS 91.100.50

Will supersede EN 544:2011

English Version

Bitumen shingles with mineral and/or synthetic reinforcements - Product specification and test methods

Bardeaux bitumés avec armature minérale et/ou
synthétique - Spécifications des produits et méthodes
d'essai

Bitumenschindeln mit mineralhaltiger Einlage
und/oder Kunststoffeinlage - Produktspezifikation und
Prüfverfahren

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 128.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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 CEN-CENELEC Management Centre has the same status as the official versions.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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prEN 544:2020 (E)

European foreword

This document (prEN 544:2020) 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 NBN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 544:2011.

In comparison with the previous edition, the technical modifications that have been made are detailed in Annex C.

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

For relationship with EU Regulation(s), see informative Annex ZA, which is an integral part of this document.

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Introduction

The performance of a roof covering manufactured from these products depends not only on the properties of the product as specified in this document, 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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prEN 544:2020 (E)**1 Scope**

This document specifies the properties, performance and methods of test of the finished bitumen shingles prior to them being laid on the roof.

It also includes rules for marking, labelling and provides a clause for assessment and verification of constancy of performance (AVCP).

This document does not include design requirements, installation techniques and roof system performance.

This document applies to bitumen shingles where the watertightness of the system is ensured by overlapping, by different adhesive systems or a combination of these, according to manufacturer's installation instructions, intended to be laid as covering for pitched roofs and/or wall cladding.

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

This document covers shingles with a minimum mass of bitumen of 1 300 g/m² in case of monolayer shingles and 1 500g/m² in case of multilayer shingle.

In case of multilayer shingles each layer need to have the same type of reinforcement and same type of coating (ref. to Clause 8).

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.

EN 1110:2010, *Flexible sheets for waterproofing - Bitumen sheets for roof waterproofing - Determination of flow resistance at elevated temperature*

ENV 1187, *Test methods for external fire exposure to roofs*

EN 1297:2004, *Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Method of artificial ageing by long term exposure to the combination of UV radiation, elevated temperature and water*

EN 12039:2016, *Flexible sheets for waterproofing - Bitumen sheets for roof waterproofing - Determination of adhesion of granules*

EN 12310-1:1999, *Flexible sheets for waterproofing - Part 1: Bitumen sheets for waterproofing - Determination of resistance to tearing (nail shank)*

EN 12311-1:1999, *Flexible sheets for waterproofing - Part 1: Bitumen sheets for roof waterproofing - Determination of tensile properties*

EN 13501-1:2018, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*

EN 13501-5:2016, *Fire classification of construction products and building elements - Part 5: Classification using data from external fire exposure to roofs tests*

3 Terms and definitions

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

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

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

3.1

shingle

reinforced flat bitumen material, of a global rectangular shape, of width W and height H , having or not bitumen adhesive points or areas

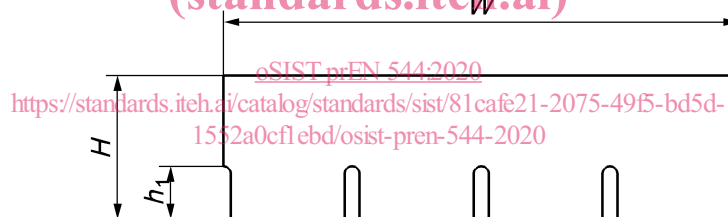
Note 1 to entry: This material can have a solid part and several tabs.

Note 2 to entry: These tabs can be rectangular and separated by slits of height h_1 (see Figure 1).

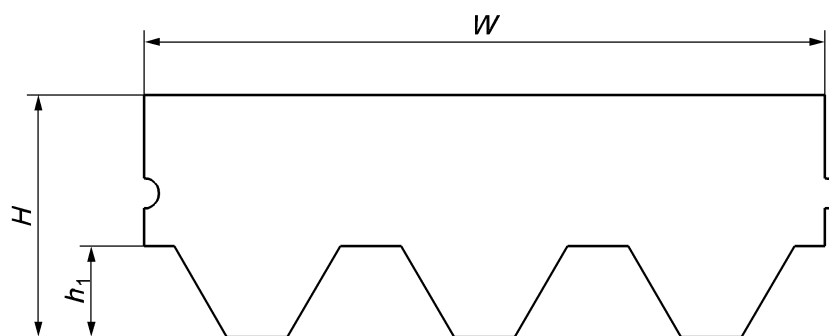
Note 3 to entry: This material can be composed out of one layer (monolayer shingle) or several layer (multilayer or laminated shingles).

Note 4 to entry: In case of multilayer shingles, the layers are bonded by an adhesive and the overlapping of the lower layer by the upper layer in the visible part will amount to a minimum of 40 %.

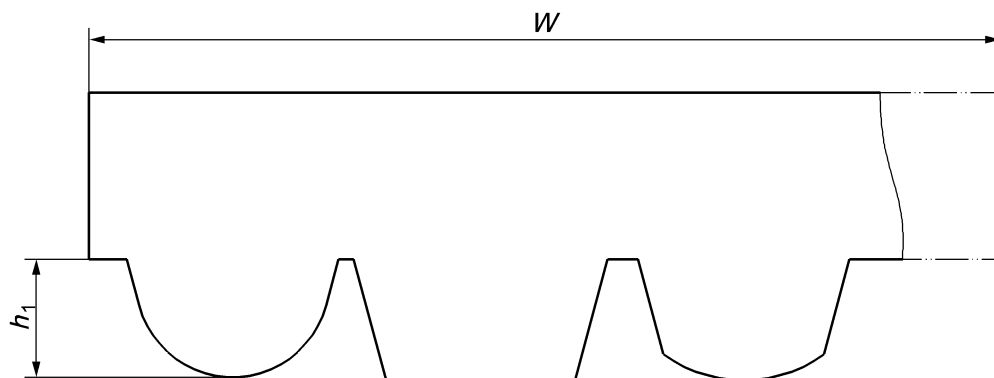
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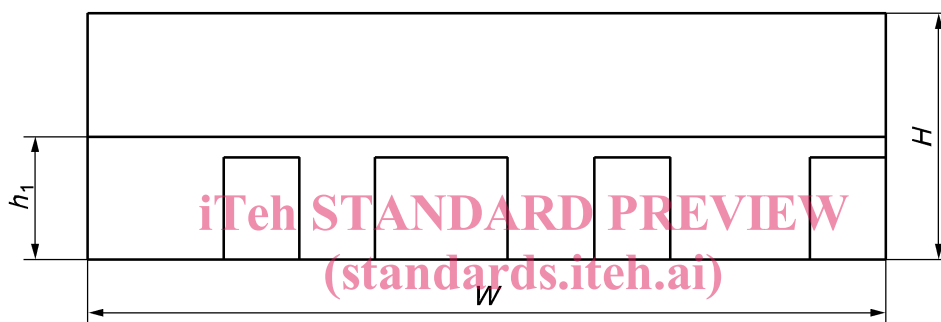
a) Example of monolayer shingle



b) Example of monolayer shingle



c) Example of monolayer shingle



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d) Example of multilayer shingle

Key H height W width h_1 height of slits**Figure 1 — Different shapes of shingles****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

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**mass of bitumen**

bitumen or modified bitumen (in general all material soluble in the test described in 6.2) used for impregnation, coating and adhesive if any

3.7**upperside surfacing**

factory-applied protection of the face of the material exposed to the weather provided by, for example, mineral granules, flakes of 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**adhesive point; strip**

point, or continuous or discontinuous strip, intended to ensure the adhesion of the tabs after installation on the roof

3.10**self-adhesive area**

self-adhesive area intended to ensure adhesion of the tabs to the lower course of shingles to contribute to water tightness

3.11**protection strip**

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

3.12**guiding tab or cuts**

small extension/indentations or cuts at the edge of the shingle to allow for proper alignment during application

3.13**blister**

elevation of the surface of varied contour and dimensions, with a cavity beneath it

3.14**production batch**

amount of product manufactured to the same specification within a maximum period of 24 h for each production line

3.15**manufacturer's limiting value****MLV**

value stated by the manufacturer to be met during testing

Note 1 to entry: The manufacturer's limiting value can be a minimum or a maximum value according to statements made under product characteristics of this document.

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4 Characteristics

4.1 Materials

4.1.1 Mass of bitumen

When measured according to 6.2, the minimum mass of bitumen shall be 1 300 g/m², in case of monolayer shingle and 1 500 g/m² in case of multilayer shingle.

4.1.2 Upperside surfacing

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 protect the bitumen from UV radiation.

4.1.3 Underside surfacing

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

4.2 Geometrical properties

4.2.1 Shapes

The overall dimensions ignoring any guiding tabs and indents, when measured according to 6.3, shall be as follows:

— Width W : maximum 1 200 mm;

— Height H : minimum 250 mm.

The tolerances on dimensions W and H (see Figure 1) declared by the manufacturers, measured in accordance with 6.3.2 and 6.3.3, shall be:

— ± 3 mm on width W ;

— ± 3 mm on height H .

4.2.2 Surface of overlapping

The minimum surface of overlapping of multilayer shingles in the visible part should be 40 %.

4.3 Mechanical properties

4.3.1 Tensile strength

Measured under the test conditions described in 6.4.1, the minimum tensile strength shall be as shown in Table 1.

Table 1 — Minimum tensile strength

In the direction of the shingle width or direction of fabrication	600 N / 50 mm
In the direction of the shingle height or perpendicular to the direction of fabrication	400 N / 50 mm

4.3.2 Nail shank tear resistance

Measured under the test conditions described in 6.4.2, the minimum value of the tear resistance shall be 100 N.

This characteristic only applies to materials intended to be nailed.

4.4 Durability

4.4.1 Resistance to UV radiation

Measured under the test conditions described in 6.4.3, there shall be no cracking or fissuring.

4.4.2 Resistance to blistering

Resistance to blistering test is only relevant for shingles with other reinforcement than type 3, type 4, type 6 or type 7 (see 8.1).

Measured under the test conditions described in 6.4.4, there shall not be any blisters on the shingle surface.

4.4.3 Flow resistance at elevated temperature

Measured under the test conditions described in 6.4.5, the flow resistance shall be less than or equal to 2 mm for each test piece.

4.4.4 Adhesion of mineral granules or flakes of slate

Where the top surface of the shingle is protected with embedded mineral granules, the granule adhesion shall be determined in accordance with 6.4.6.

Each value shall be below the manufacturer's limited value (maximum value) and shall not exceed 2,5 g.

4.4.5 Resistance to peeling for metal-surfaced shingles

Measured under the test conditions described in 6.4.7, the resistance shall be at least 0,2 N/mm for each test piece.

4.5 Fire performance

4.5.1 Reaction to fire

This characteristic shall be declared when subject to regulatory requirements and may be declared otherwise. When declared, the reaction to fire shall be tested and classified in accordance with 6.5.1.

4.5.2 External fire performance

This characteristic shall be declared when subject to regulatory requirements and may be declared otherwise. When declared, the external fire performance shall be assessed according to 6.5.2.

5 Sampling

5.1 General

5.1.1 Cutting of test pieces

The test pieces shall be taken from different shingles chosen at random.