



# SLOVENSKI STANDARD

## SIST EN 544:2011

01-oktober-2011

Nadomešča:  
SIST EN 544:2006

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### Bitumenske skodle, ojačene z mineralnimi in/ali sintetičnimi materiali - Specifikacije 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

Ta slovenski standard je istoveten z: EN 544:2011

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

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 544**

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## 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 European Standard was approved by CEN on 26 May 2011.

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**EN 544:2011 (E)****Foreword**

This document (EN 544:2011) 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 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of an identical text or by endorsement, at the latest by December 2011, and conflicting national standards shall be withdrawn at the latest by March 2013.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 544:2005.

This document 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).

For relationship with EU Directive(s) 89/106/EEC, see informative Annex ZA, which is an integral part of this document.

Annex C provides details of significant technical changes between this European Standard and the previous edition.

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

## Introduction

The performance of a roof covering manufactured from these products depends not only on the properties of the product as specified in this European 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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**EN 544:2011 (E)****1 Scope**

This European Standard 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 evaluation of conformity.

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

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

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 referenced documents are indispensable for the application 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, *Flexible sheets for waterproofing — Bitumen sheets for roof waterproofing — Determination of flow resistance at elevated temperature*

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

[949457a0f511/sist-en-544-2011](https://standards.iteh.ai/catalog/standards/sist/6b4c309d-04e3-423a-af78-949457a0f511/sist-en-544-2011)

EN 1297, *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, *Flexible sheets for waterproofing — Bitumen sheets for roof waterproofing — Determination of adhesion of granules*

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

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

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

EN 13501-5, *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.

#### 3.1

##### shingle

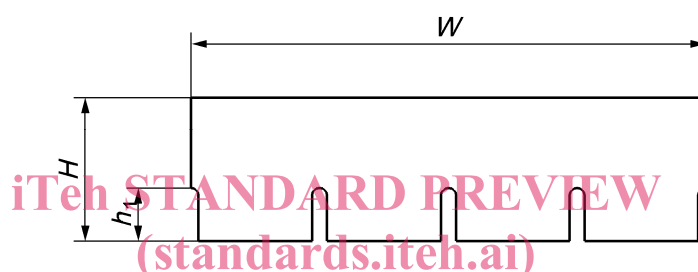
reinforced flat bitumen material, of a global rectangular shape, of width  $W$  and height  $H$ , having or not bitumen adhesive points or areas

NOTE 1 This material can have a solid part and several tabs.

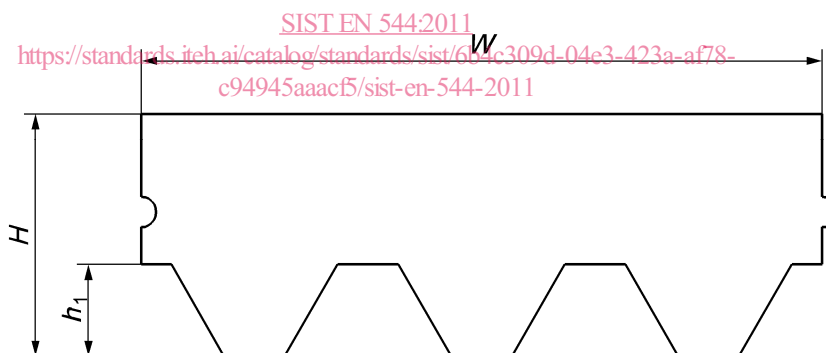
NOTE 2 These tabs can be rectangular and separated by slits of height  $h_1$  (see Figure 1).

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

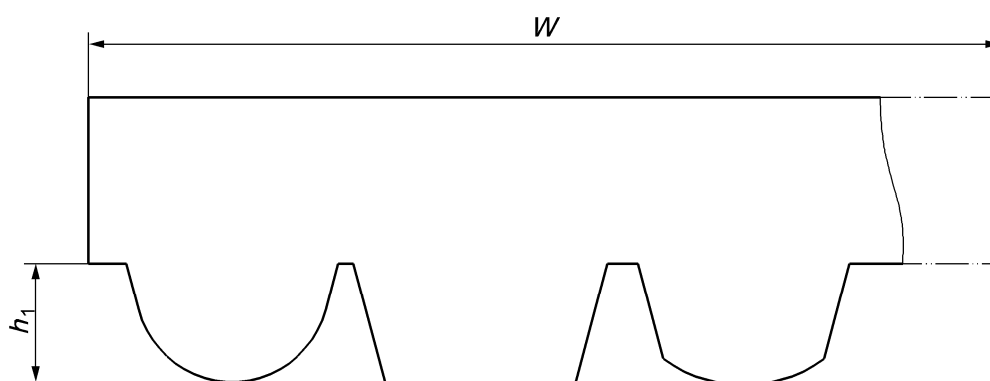
NOTE 4 In case of multilayer shingles, the layers are bonded by an adhesive and the overlapping of the lower layer by the upper layer in the visible part will amount to a minimum of 40 %.



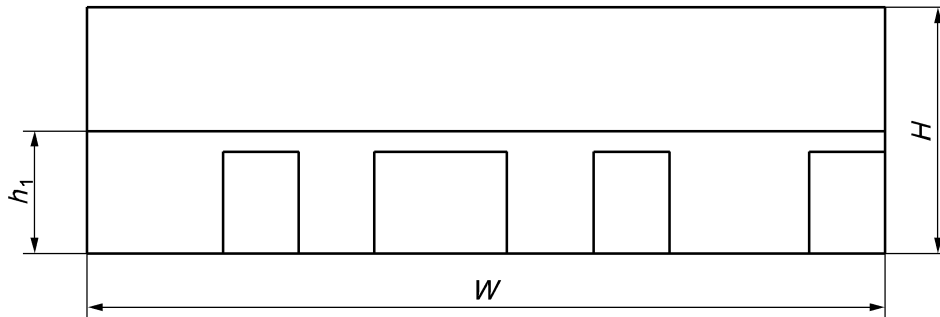
a) example of monolayer shingle



b) example of monolayer shingle



c) example of monolayer shingle



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

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**3.4****reinforcement**

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

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**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 system****3.9.1****adhesive point; strip**

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

**3.9.2****self adhesive area**

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

**3.10****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

**3.11****guiding tab or cuts**

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

**3.12****blister**

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

**3.13****production batch**

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

**3.14****(MLV) manufacturer's limiting value**

value stated by the manufacturer to be met during testing

NOTE The manufacturer's limiting value can be a minimum or a maximum value according to statements made under product characteristics of this European Standard.

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**4 Requirements****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/m<sup>2</sup>, in case of monolayer shingle and 1 500 g/m<sup>2</sup> 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.

**EN 544:2011 (E)****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:

- $\pm 3$  mm on width  $W$ ;
- $\pm 3$  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.

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**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 requirement only applies to materials intended to be nailed.

**4.4 Durability****4.4.1 Water absorption**

Measured under the test conditions described in 6.4.3, the increase in mass shall be less than 2 % for each test piece.

**4.4.2 Resistance to UV radiation**

Measured under the test conditions described in 6.4.4, there shall be no cracking or fissuring.