SLOVENSKI STANDARD
SIST EN 505:2013

01-maj-2013

Nadomešča:
SIST EN 505:2000

Pločevina za prekrivanje streh - Specifikacije za povsem podprte strešne plošče iz jeklene pločevine

Roofing products from metal sheet - Specification for fully supported roofing products of steel sheet

Dachdeckungsprodukte aus Metallblech - Festlegungen für vollflächig unterstützte Bedachungselemente aus Stahlblech

Produits de couverture en tôle métallique - Spécification pour les produits de couverture en feuille d'acier totalement supportés

Ta slovenski standard je istoveten z: **EN 505:2013**

ICS:

77.140.50	Ploščati jekleni izdelki in polizdelki	Flat steel products and semi-products
91.060.20	Strehe	Roofs

SIST EN 505:2013 **en,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 505

March 2013

ICS 77.140.50; 91.060.20

Supersedes EN 505:1999

English Version

Roofing products from metal sheet - Specification for fully supported roofing products of steel sheet

Produits de couverture en tôle métallique - Spécification pour les produits de couverture en feuille d'acier totalement supportés

Dachdeckungsprodukte aus Metallblech - Spezifikation für vollflächig unterstützte Dachdeckungsprodukte aus Stahlblech

This European Standard was approved by CEN on 5 February 2013.

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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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 United Kingdom.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 505:2013: E

Contents

Page

Foreword

This document (EN 505:2013) 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 September 2013, and conflicting national standards shall be withdrawn at the latest by September 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 505:1999.

In comparison to the previous edition, the following sections were changed or added: Clause 2, Clause 3, 4.3.1, Annex B, B.3.2, Table C.1, Table C.2 and Annex D.

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.

Introduction

Figure 1 indicates the position of this European Standard in the CEN framework of standards concerning roofing product of metal.

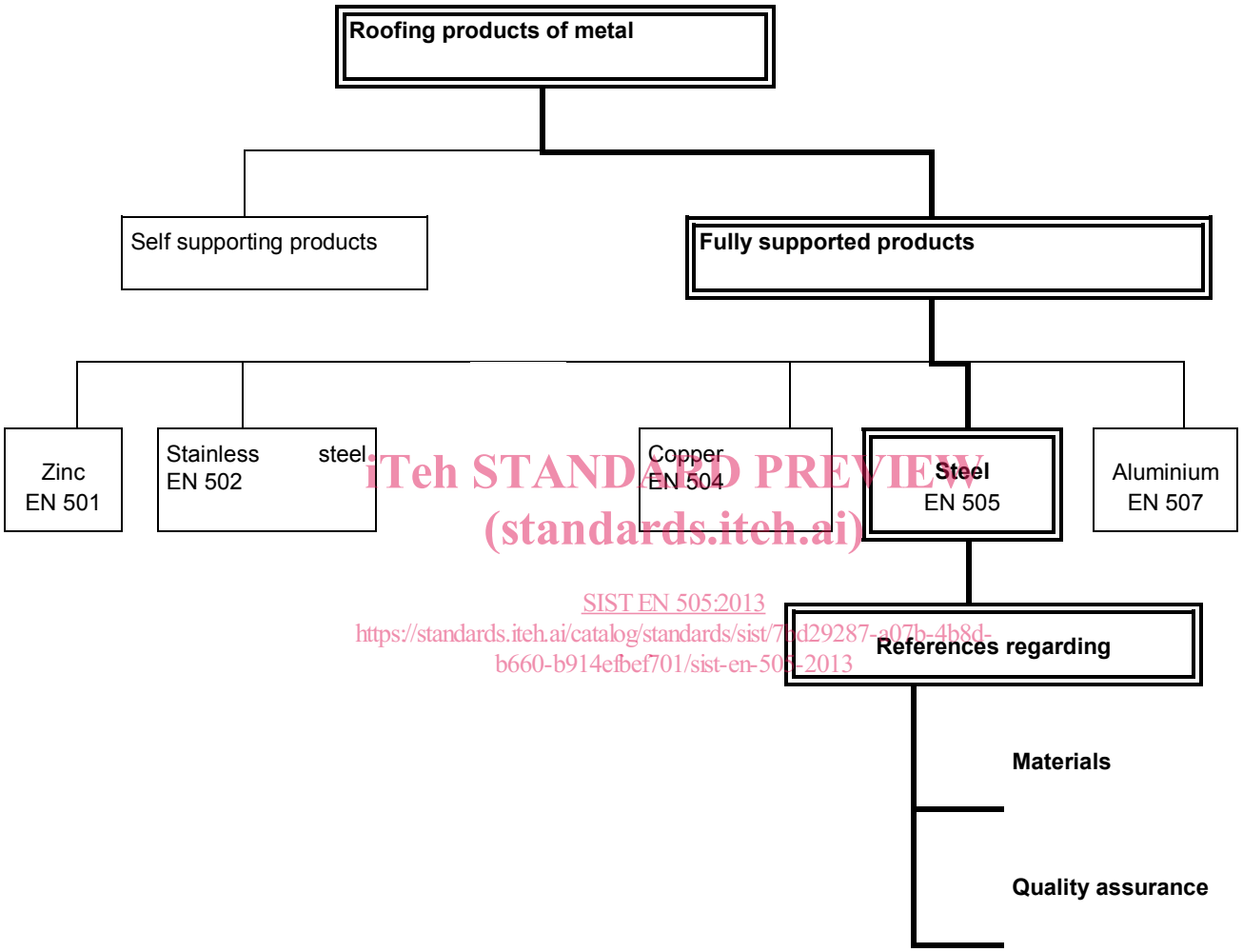

Figure 1 — Framework of standards

In this European Standard, the performance of the product has been defined in terms of a number of type tests.

The performance of a roof constructed with these products depends not only on the properties of the product as it is required by this European Standard, but also on the design, construction and performance of the roof as a whole in relation to the environment and conditions of use.

Metallic coated steel sheet can be easily fabricated. It can be sheared, punched, pressed, drawn, folded, roll-formed without difficulty within the given limits of the properties listed in the respective material specifications.

Coil coated sheet can be fabricated like metallic coated steel sheet in most applications, but minimum bend radii, design of forming tools, process temperature etc are chosen according to material properties.

1 Scope

This European Standard specifies requirements for roofing products used for assembly into coverings for pitched roofs, made from metallic coated steel sheet with or without additional organic coatings.

The European Standard establishes general characteristics, definitions and labelling for the products, together with requirements for the materials from which the products can be manufactured. It is intended to be used either by manufacturers to ensure that their products comply with the requirements or by purchasers to verify that the products comply before they are despatched from the factory. It specifies the requirements for products which enable them to meet all normal service conditions. Products can be prefabricated or semiformed products as well as strip, coil and sheet for on-site-formed applications (e.g. standing-seam and clip fixroofs).

The European Standard applies to all discontinuously laid and fully supported roofing products made of steel sheets. No requirements for supporting construction, design of roof system and execution of connections and flashings are included.

NOTE The European Standard deals partly with flat products, partly with formed (prefabricated) products. Requirements for preformed self-supporting products are given in EN 508-1.

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 508-1, *Roofing products from metal sheet — Specification for self-supporting products of steel, aluminium or stainless steel sheet — Part 1: Steel*

EN 1427, *Bitumen and bituminous binders — Determination of the softening point — Ring and Ball method*

EN 10079:2007, *Definition of steel products*

EN 10143, *Continuously hot-dip metal coated steel sheet and strip — Tolerances on dimensions and shape*

EN 10169, *Continuously organic coated (coil coated) steel flat products — Technical delivery conditions*

EN 10204, *Metallic products — Types of inspection documents*

EN 10346, *Continuously hot-dip coated steel flat products — Technical delivery conditions*

EN ISO 6270-1, *Paints and varnishes — Determination of resistance to humidity — Part 1: Continuous condensation (ISO 6270-1)*

EN ISO 6988, *Metallic and other non-organic coatings — Sulfur dioxide test with general condensation of moisture (ISO 6988)*

EN ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests (ISO 9227)*

3 Terms, definitions, symbols, units and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 10079:2007 and the following apply.

3.1.1
hot-dip zinc coated steel sheet (type Z)
product obtained by continuously hot-dip zinc coating cold reduced strips of either low carbon steel for cold forming to EN 10346 or steel of structural quality to EN 10346

3.1.2
hot-dip zinc-aluminium coated steel sheet (type ZA)
product obtained by continuously hot-dip coating cold reduced strips of low carbon steel for cold forming steel or steel of structural quality on a production line using an alloy consisting of:

— 5 % aluminium (mass fraction);

— 95 % zinc (mass fraction);

— small amounts of mischmetal

Note 1 to entry: EN 10346 refers to this type of steel.

3.1.3
hot-dip aluminium-zinc coated steel sheet (type AZ)
product obtained by continuously hot-dip coating cold reduced strips of low carbon steel for cold forming or steel of structural quality on a production line using an alloy consisting of:

— 55 % aluminium (mass fraction);

— 1,5 % silicon (mass fraction);

— balance zinc

Note 1 to entry: EN 10346 refers to this type of steel.

3.1.4
hot-dip aluminium-coated steel sheet (type A)
product obtained by continuously hot-dip aluminium coating cold reduced strips of low carbon steel for cold forming or steel of structural quality on a continuous production line

Note 1 to entry: See Annex A.

3.1.5
organic coated steel sheet
product obtained by factory application of paint by roller or spray processes, or factory applied organic film, on substrates of type Z, type ZA, type AZ or type A coated steel sheet

Note 1 to entry: EN 10169 refers to this type of coated steel.

3.1.6
multilayer coated steel sheet
product obtained by continuously coating on both sides hot-dip zinc coated cold reduced strips of low carbon steel for cold forming or steel of structural qualities with one or multiple applications of thermoplastic asphalt compounds and subsequent lamination of a metal foil with or without decorative painting

Note 1 to entry: See Annex B.

Note 2 to entry: Minimum thickness of coating 1,5 mm.

3.1.7
fully supported
installation conditions such that the bottom flat portions of the product are supported by a continuous construction

3.2 Symbols and abbreviated terms

Z	Hot-dip zinc coated steel
ZA	Hot-dip zinc/aluminium coated steel
AZ	Hot-dip aluminium/zinc coated steel
A	Hot-dip aluminium coated steel
ML	Multilayer coated steel
AY	Acrylic paint coating
SP	Polyester paint coating
SP-SI	Silicone-modified polyester paint coating
PVDF	Polyvinylidenefluoride paint coating
PVF(F)	Polyvinylfluoride-film coating
PVC(P)	Polyvinylchloride (plastisol)-coating, applied by coil coating process.
PUR	Polyurethane paint coating
SP-PA	Polyamid-modified polyester paint coating
EXAMPLES	
Z275 PVDF	PVDF paint coating, applied to steel sheet with hot-dip zinc coating. Nominal zinc coating mass 275 g/m^2 total both sides.
Z275	Hot-dip zinc coating, nominal coating mass 275 g/m^2 total both sides.
ZA255	Hot-dip 5 % Al-Zn alloy-coating, nominal coating mass 255 g/m^2 total both sides.
AZ185	Hot-dip 55 % Al-Zn alloy-coating, nominal coating mass 185 g/m^2 total both sides.

4 Requirements

4.1 General

The product shall be manufactured from materials complying with 4.2.

The supplier of the materials is responsible for carrying out the tests necessary to verify that the materials supplied to the manufacturer comply with the requirements and should provide appropriate inspection documents (according to EN 10204) on request.

NOTE The symbols and abbreviations that are used to designate the steel grade, the type and mass of the metallic coating are those of the standards referred to in Clause 2.

A permanent quality control system shall be adopted by the manufacturer.[1)]

1) For example, a Quality Management System based on EN ISO 9000.

4.2 Materials

4.2.1 Steel

All steel grades in EN 10346 are suitable for fabrication of fully supported roofing products, either in an industrial process or by an on-site-process. Depending on processing conditions and/or requested mechanical properties, higher steel grades may be chosen according to the grade values given in the respective material standards.

4.2.2 Nominal metallic coating

The minimum nominal metallic coating mass depends on geographic and climatic conditions and shall be chosen from Table 1. The metallic coating mass shall be the sum of the coating masses on both sides in grams per square metre measured and with tolerances as specified in the appropriate standard.

NOTE The minimum nominal metallic coating masses specified in some countries in their regulations or codes of practice are listed in Annex C.

Table 1 — Nominal metallic coating masses

Hot-dip coating type	Coating designation	
	with organic coating	without organic coating
Zinc type Z	Z200 Z225 Z275	Z275 Z350 Z450
5 % Al-Zn type ZA	ZA200 ZA255	ZA255 ZA300
55 % Al-Zn type AZ	AZ150	AZ150 AZ185
Aluminium-coating type A	A195	A230

4.2.3 Organic coatings

The main weather resistant organic coatings suitable for application to metallic coated steel substrates are given in Table 2.

Table 2 — Factory applied organic coatings

Type of coating		Designation
Factory applied coatings	Acrylic Polyester Silicone-modified polyester Polyvinylidene fluoride Polyvinyl chloride (Plastisol) Polyurethane Polyamide-modified polyester Multicoat polyvinylidenefluoride Multicoat polyurethane	AY SP SP-SI PVDF PVC (P) PUR SP-PA - -
Factory applied laminated film	Polyvinylfluoride	PVF (F)

The reverse side coating should be chosen as appropriate, it being required for handling, storage and for corrosion protection in some conditions. Performance requirements and test methods for organic coated steel are given in EN 10169.

NOTE No requirements are given for coatings which are applied after the product is formed. Where appropriate the tests in EN 10169 can be used.

Special coatings or films may be applied to the reverse side to reduce the dripping of moisture caused by condensation.

4.3 Products

4.3.1 Mechanical properties

Mechanical properties for steel grades shall be in accordance with the appropriate references in Table 3.

Table 3 — Steel grades

Grades	Reference
Hot-dip galvanised steel sheet and strip (type Z) :	
— forming grades	EN 10346
— structural grades	EN 10346
Aluminium coated steel sheet and strip (type A)	Annex A
Multilayer coated steel sheet and strip	Annex B
Continuously hot-dip zinc-aluminium coated steel sheet and strip (type ZA)	EN 10346
Continuously hot-dip aluminium-zinc coated steel sheet and strip (type AZ)	EN 10346

If special processing operations or service conditions necessitate the use of other grades, or higher coating mass, or special surface finish, this shall be specified at the time of ordering. In this case, the full designation of material should be used as given in the respective material standard/specification.

No short designations are listed for post-fabrication painted or organic coated steel sheet, as these combinations should be specified in detail at the time of ordering.

4.3.2 Dimensions and tolerances

4.3.2.1 Flat products

Dimensional tolerances shall be in accordance with EN 10143.

The minimum nominal thickness (including metallic coatings but excluding organic coatings) shall be as follows: