SLOVENSKI STANDARD
SIST EN 508-1:2021

01-december-2021

Nadomešča:
SIST EN 508-1:2014

Pločevina za pokrivanje streh in oblaganje sten - Specifikacija za samonosilne proizvode iz jeklene, aluminijeve pločevine ali pločevine iz nerjavnega jekla - 1. del: Jeklo

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

Dachdeckungs- und Wandbekleidungsprodukte aus Metallblech - Spezifikation für selbsttragende Dachdeckungsprodukte aus Stahlblech, Aluminiumblech oder nichtrostendem Stahlblech - Teil 1: Stahl

Produits de couverture et de bardage en tôle métallique - Spécification pour les produits autoportants en tôle d'acier, d'aluminium ou d'acier inoxydable - Partie 1 : Acier

Ta slovenski standard je istoveten z: **EN 508-1:2021**

ICS:

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

SIST EN 508-1:2021 **en,fr,de**

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 508-1

October 2021

ICS 91.060.20

Supersedes EN 508-1:2014

English Version

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

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This European Standard was approved by CEN on 21 June 2021.

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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.

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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

Ref. No. EN 508-1:2021 E

Contents

Page

European foreword

This document (EN 508-1:2021) 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of an identical text or by endorsement, at the latest by April 2022, and conflicting national standards shall be withdrawn at the latest by April 2022.

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

This document supersedes EN 508-1:2014.

In comparison with EN 508-1:2014 the following technical changes have been made:

— the scope of the document has been extended to include cladding products;

— a reference has been added to ZM (hot dip zinc-magnesium) coating;

— the reference AZ with organic coating has been deleted;

— a bending requirement has been added;

— three grades have been added 390, 420 and 450;

— minimum nominal coating masses have been added for exterior applications;

— clarification of the tolerances about liner tray.

These changes or additions can be found in the following Clauses and subclauses: Clause 1; 3.2.4; 3.2.6; 3.2.7; 3.5; 4.1; 4.2.1; 4.2.2; 4.2.3; 4.3.3.1 and Annex C.

EN 508, *Roofing and cladding products from metal sheet - Specification for self-supporting products of steel, aluminium or stainless steel sheet* consists of the following parts:

— *Part 1: Steel*;

— *Part 2: Aluminium*;

— *Part 3: Stainless steel*.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

Figure 1 indicates the position of this document in the CEN framework of standards concerning roofing and cladding products of metal sheet.

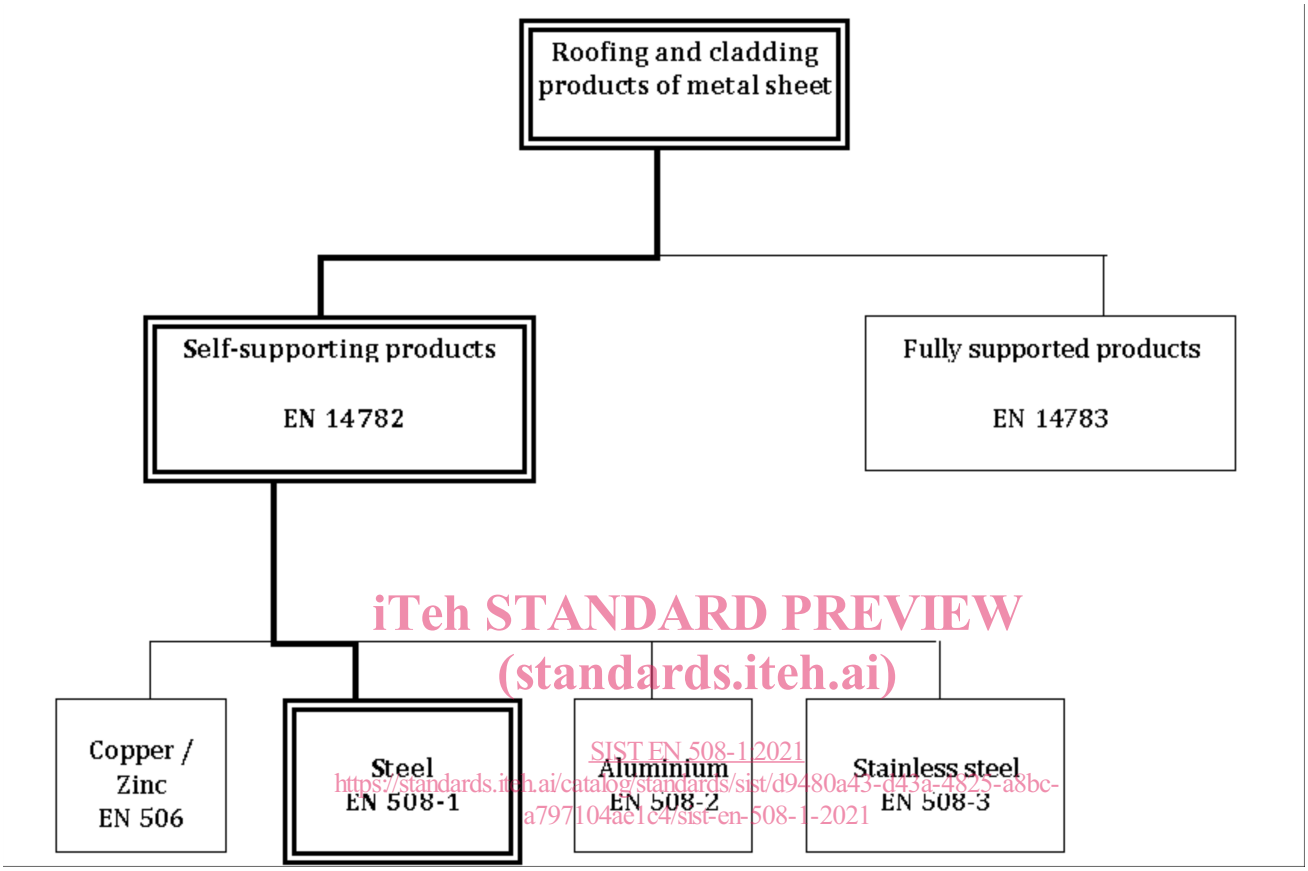


Figure 1 — Framework of standards

In this document, the performance of the product has been defined in terms of calculation and a number of type tests.

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

1 Scope

This part of EN 508 specifies requirements for self-supporting roofing, covering, wall cladding, lining, liner tray and tile products for discontinuous laying made from metallic coated steel sheet with or without additional organic coatings. Sheets intended to be used with insulation and membranes are also covered.

This document establishes general characteristics, definitions, classifications 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 when purchased before they are dispatched from the factory. It specifies the requirements for products which enable them to meet all normal service conditions.

This document applies to all discontinuously laid self-supporting external profiled sheets for roofing covering, wall cladding, lining, and liner trays, with the exception of tiles with a surface area less than 1 m^2 and produced by stamping. These profiled sheets are designed to keep wind, rain and snow out of the building and to transfer any resultant loads and infrequent maintenance loads to the structure.

This document does not cover products for structural purposes, i.e. it does cover products used in constructions of structural Class III (according to EN 1993-1-3), it does not cover products used in constructions of structural Classes I and II (according to EN 1993-1-3) intended to contribute to the global or partial stability of the building structure by providing racking resistance or resistance to permanent static loads (excluding self-weight of the metal sheet).

No requirements for supporting construction, design of roof, cladding, lining, tile system and execution of connections and flashings are included.

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

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

EN 10169:2010+A1:2012, *Continuously organic coated (coil coated) steel flat products - Technical delivery conditions*

EN 10346, *Continuously hot-dip coated steel flat products for cold forming - Technical delivery conditions*

EN 14782, *Self-supporting metal sheet for roofing, external cladding and internal lining - Product specification and requirements*

EN ISO 6270-1, *Paints and varnishes - Determination of resistance to humidity - Part 1: Condensation (single-sided exposure) (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 and abbreviations

3.1 General

For the purposes of this document, the terms and definitions given in EN 10169:2010+A1:2012 and the following apply.

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

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

3.1.1
self-supporting product
product which will, by virtue of its material and shape, support all applied loadings (e.g. snow, wind, foot traffic, insulation, membrane) and transmit these loadings to spaced structural supports

3.1.2
wall
if not otherwise specified, a vertical part of the envelop with a maximum inclination between 30° and 45°

3.1.3
roof
all elements of the envelope not covered by definition of a wall

3.2 Material definitions

3.2.1
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 or steel of structural quality

Note 1 to entry: See EN 10346.

3.2.2
hot-dip zinc-aluminum coated steel sheet, type ZA
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 zinc and approximately 5 % aluminium (nominal percentage by mass)

Note 1 to entry: See EN 10346.

3.2.3
hot-dip aluminum-zinc alloy 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 (nominal percentage by mass);

— 1,6 % silicon (nominal percentage by mass);

— the balance zinc.

Note 1 to entry: See EN 10346.

3.2.4
hot dip zinc-magnesium coated steel sheet, type ZM
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 of zinc-aluminium-magnesium

Note 1 to entry: The composition of the molten coating alloy is a sum of aluminium and magnesium from 1,5 % to 8 %, containing a minimum of 0,2 % magnesium and the balance zinc.

Note 2 to entry: For information on chemical composition and density, the manufacturer can be asked for advice.

Note 3 to entry: See EN 10346.

Note 4 to entry: The corrosion performance depends on the ZM composition.

3.2.5
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 steel or steel of structural quality on a production line

Note 1 to entry: See Annex A.

3.2.6
organic coated steel sheet
product obtained by factory application of paint by roller or spray processes, or factory application of laminated organic film, on substrates of type Z, type ZA, type ZM, or type A coated steel sheet

Note 1 to entry: EN 10169:2010+A1:2012 refers to this type of coated steel.

3.2.7
multilayer coated steel sheet
product obtained by continuously coating on both sides hot-dip metal coated (type Z, type ZA, type AZ, type ZM, or type A) cold reduced strips of low carbon steel for cold forming or steel of structural quality with one or multiple applications of thermoplastic asphalt compounds (minimum thickness 1,5 mm) and subsequent lamination of a metal foil with or without decorative painting

Note 1 to entry: See Annex B.

3.3 Profile definitions

3.3.1
trapezoidal profiled sheet
self-supporting sheet which is designed to allow it to be side and end lapped, the crowns of which may be rounded and, in addition, the crowns, webs and valleys may be stiffened

Note 1 to entry: See Figures 2, 3, 4 and 5.

Figure 2 — Part of typical trapezoidal profile

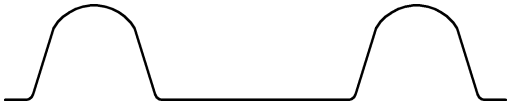


Figure 3 — Part of typical trapezoidal profile with rounded crowns

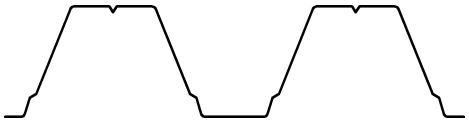
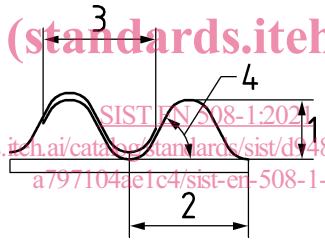


Figure 4 — Part of typical trapezoidal profile with stiffened crown and web

Figure 5 — Part of typical trapezoidal profile with stiffened valley

3.3.2
sinusoidal profiled sheet
self-supporting sheet which is designed to allow it to be side and end lapped, comprising a series of arc shaped crowns and valleys interconnected with tangential webs

Note 1 to entry: See Figure 6.



Key
1 depth
2 pitch
3 overlap
4 angle

Figure 6 — Part of typical sinusoidal profiled sheet

3.3.3
standing seam
concealed fix sheet
self-supporting sheet profiled in such a way that the fixings are hidden within the construction and are not exposed to the weather

Note 1 to entry: The profile shape is designed to allow the formation of side laps on site.

Note 2 to entry: As these types of roof covering or cladding products are used in proprietary roofing or cladding systems, no structural requirements are given within this part of EN 508.

Note 3 to entry: See Figures 7 and 8.

Note 4 to entry: These products are normally designed by testing.

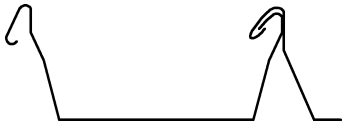


Figure 7 — Typical standing seam profile

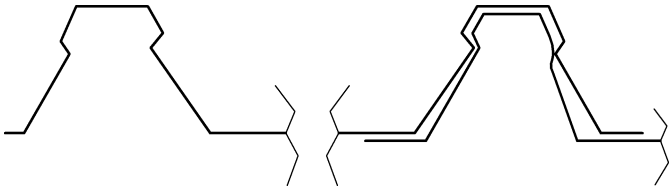


Figure 8 — Typical concealed fix profile

3.3.4
tile profile
part of typical tile profiled sheets that can allow the sheet to be side and/or end lapped

Note 1 to entry: The tile profile can include transverse steps.

Note 2 to entry: As these types of roof covering or cladding products are used in proprietary systems no structural requirements are given within this part of EN 508.

Note 3 to entry: See Figure 9 a), b) and c).

Note 4 to entry: These products are normally designed by testing.

a) b) c)

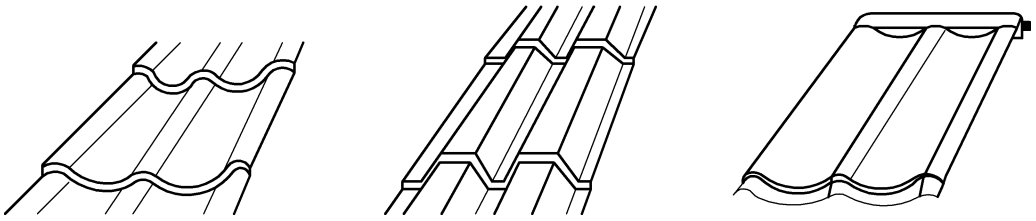
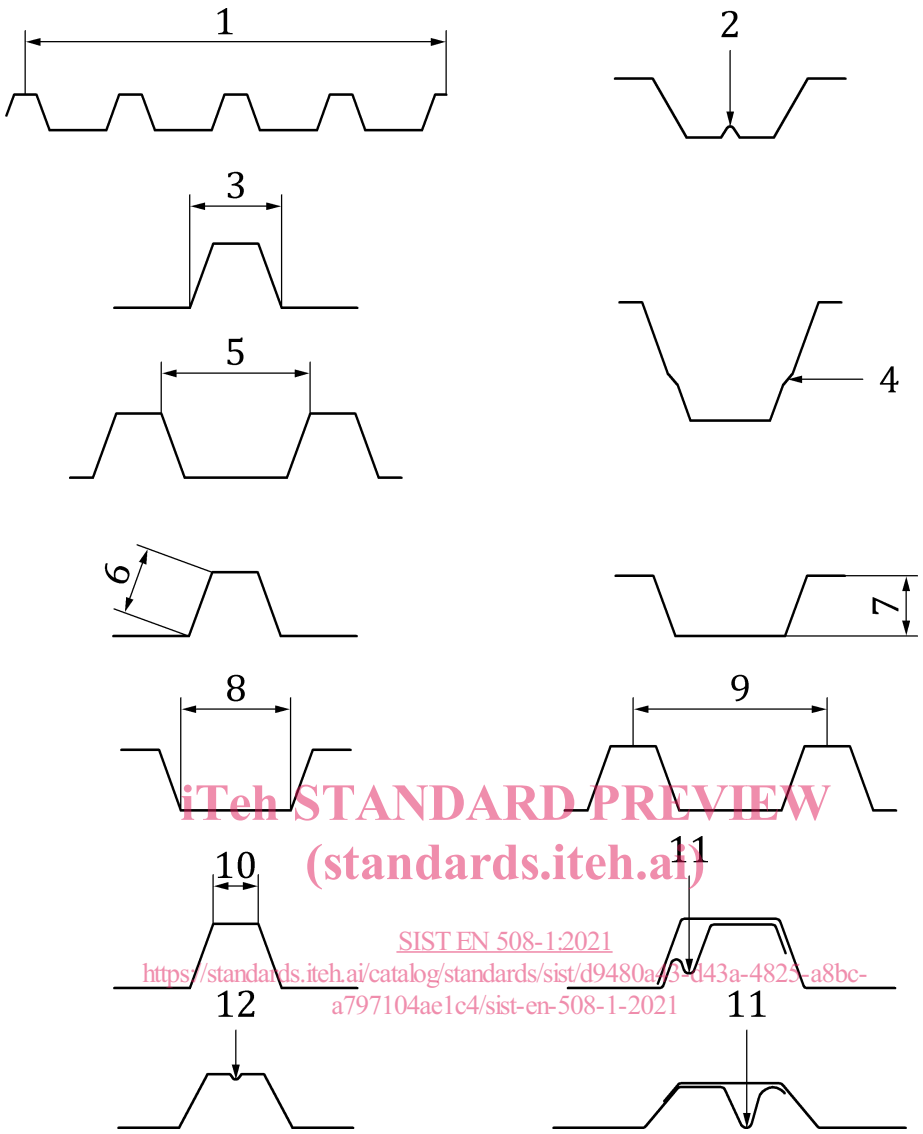


Figure 9 — Typical tile profiles

3.4 Product geometry

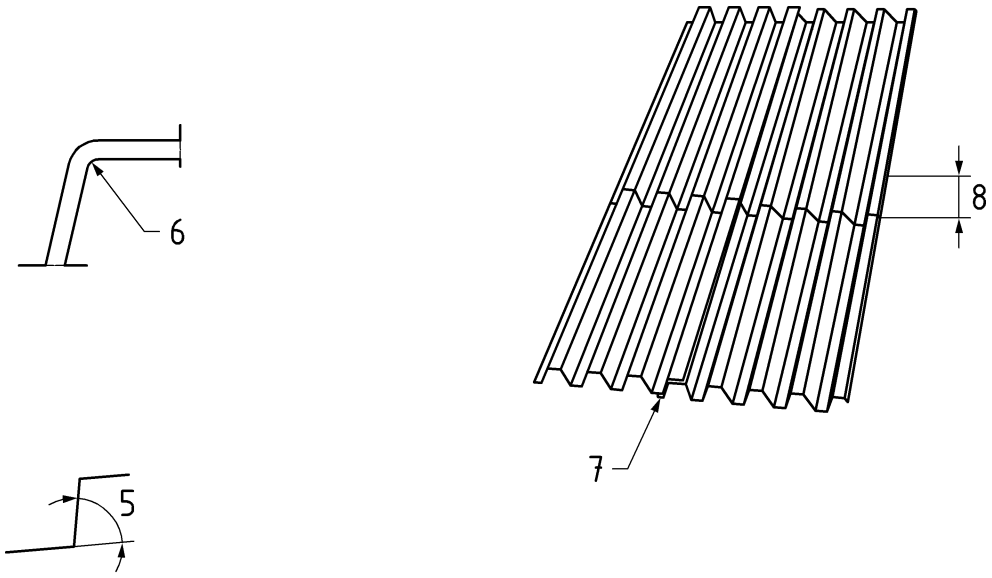
Note 1 to entry: The names for various parts of typical trapezoidal profiled sheets are given in Figures 10 and 11, with additional definitions for sinusoidal profiles in Figure 6 and tile profiles in Figure 12.



Key

1	cover width	7	depth
2	valley stiffener	8	valley
3	rib	9	pitch
4	web stiffener	10	crown
5	trough	11	drainage groove
6	web	12	crown stiffener

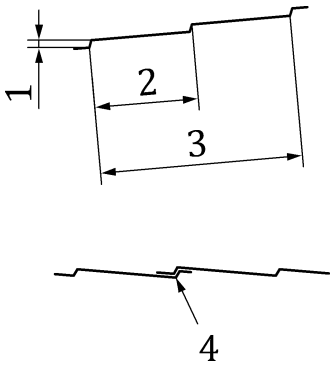
Figure 10 — Definitions of the parts of typical trapezoidal profiled sheets



Key

1 depth
2 pitch
3 overlap
4 angle
5 web angle
6 bend radius
7 side lap in principle the same on tiles
8 end lap

Figure 11 — Definitions of the parts of typical trapezoidal profiled sheets



Key

1 height of the step
2 length of the step
3 number of steps
4 end lap

Figure 12 — Definitions of the parts of typical tile

3.5 Symbols and abbreviations

For the purposes of this document, the following symbols and abbreviations apply.

Z	Hot-dip zinc coated steel
ZA	Hot-dip zinc-aluminium coated steel
ZM	Hot-dip zinc-magnesium coated steel
AZ	Hot-dip aluminium-zinc alloy coated steel
A	Hot-dip aluminium coated steel
ML	Multilayer coated steel
AY	Acrylic paint coating
SP	Polyester paint coating
SP-PI	Silicone-modified polyester paint coating
HDP	High durable polyester
PVDF	Polyvinylideenfluoride paint coating
PVC(P)	Polyvinylchloride (plastisol) coating, applied by coil coating process
PUR	Polyurethane paint coating
PUR-PA	Polyurethane-modified polyester paint coating
SP-PA	Polyamide-modified polyester paint coating
PVC(F)	Polyvinylchloride (plastisol) film coating
PVF(F)	Polyvinylfluoride film coating
PE(F)	Polyethylene film coating
PET(F)	Polyethylene terephthalate film coating
PP(F)	Polypropylene film coating

EXAMPLES

Z275 PVDF	PVDF paint coating, applied to steel sheet with continuously hot-dip zinc coating. Nominal 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 zinc-aluminium -coating, nominal coating mass 255 g/m^2 total, both sides.
AZ185	Hot-dip aluminium-zinc alloy-coating, nominal coating mass 185 g/m^2 total, both sides.
ZM 120	Hot-dip zinc-magnesium coating, nominal coating mass 120 g/m^2 total, both sides.

4 Requirements

4.1 General

The product shall be manufactured from materials complying with 4.2.

Bending radius should respect forming limits of the material to avoid cracks in the coating layers (metallic and organic) leading to premature corrosion. By default, internal forming radius should be at least 2 times the material thickness; others to be agreed with the coil supplier.

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 are to be used to designate the steel grade, the type and mass of the metallic coating are those of the standards referred to in Clause 2.

Product testing shall be provided to a defined schedule and carried out by the manufacturer or by an approved body or by independent third party. A permanent quality system shall be adopted by the manufacturer[1].

4.2 Materials

4.2.1 Materials for roll formed and brake pressed profiles

Material for self-supporting roll formed and brake pressed profiles shall be one of the grades of steel as specified in the appropriate material standard EN 10346 given in Table 1.

[1] e.g. quality management system based on EN ISO 9001.