SLOVENSKI STANDARD
SIST EN 10271:2000

01-april-2000

Elektrolizno s cinkom in nikljem (ZN) prevleļ eni ploģļ ati jekleni izdelki - Tehniļ ni dobavni pogoji

Electrolytically zinc-nickel (ZN) coated steel flat products - Technical delivery conditions

Flacherzeugnisse aus Stahl mit elektrolytisch abgeschiedenen Zink-Nickel (ZN)-Überzügen - Technische Lieferbedingungen

Produits plats en acier, revetus de zinc-nickel (ZN) par voie électrolytique - Conditions techniques de livraison

Ta slovenski standard je istoveten z: **EN 10271:1998**

ICS:

77.140.50	Ploģļ ati jekleni izdelki in polizdelki	Flat steel products and semi-products

SIST EN 10271:2000 **en**

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 10271

November 1998

ICS 77.140.50

Descriptors: steel products, metal plates, cold rolled products, coated metal, galvanizing, nickel coatings, electrodeposited coatings, designation, chemical composition, grades: quality, mechanical properties, surface treatment, inspection, tests, marking

English version

Electrolytically zinc-nickel (ZN) coated steel flat products - Technical delivery conditions

Produits plats en acier, revêtus de zinc-nickel (ZN) par voie électrolytique - Conditions techniques de livraison

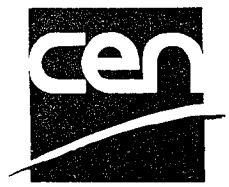
Flacherzeugnisse aus Stahl mit elektrolytisch abgeschiedenen Zink-Nickel (ZN)-Überzügen - Technische Lieferbedingungen

This European Standard was approved by CEN on 5 November 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.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Contents

Foreword

This European Standard has been prepared by Technical Committee ECISS/TC 27 "Surface coated flat products -Qualities, dimensions, tolerances and specific tests", the secretariat of which is held by DIN.

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 May 1999, and conflicting national standards shall be withdrawn at the latest by May 1999.

ECISS/TC 27 met on 1996-11-26 in Düsseldorf and agreed on the text for submission of this draft European Standard to Formal Vote. The following countries were represented in that meeting: Austria, Belgium, France, Germany, Netherlands and United Kingdom.

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.

1 Scope

1.1 This European Standard specifies requirements for continuously electrolytic zinc-nickel coated cold rolled flat products of low carbon steels suitable for cold forming according to table 1 and table 2 in rolled widths ≥ 600 mm and thicknesses from 0,35 mm up to and including 3 mm, delivered as strip (in coil form), sheet, slit strip or cut lengths obtained from slit strip or sheet. The coating is composed of Zn with a Ni-content of 10,5 % to 13 %.

1.2 This European Standard may also be applied to the coating requirements of continuously electrolytic zinc-nickel coated cold rolled flat products of

a) steels according to EN 10139 (cold rolled strip in rolled widths < 600 mm),

b) other types of low carbon steel for cold forming,

c) steels normally characterized by minimum yield strength values in addition to formability parameters, e. g.

- steels with high yield strength and improved formability according to EN 10268 or other microalloyed steels,
- rephosphorized steels and bake-hardening steels,
- general purpose structural steels.

1.3 By special agreement at the time of ordering this European Standard may be applied to the coating requirements of continuously electrolytic zinc-nickel coated hot-rolled steel flat products (e.g. according to EN 10025, EN 10111, EN 10149-1 to EN 10149-3 etc.).

1.4 The coating masses, surface qualities and surface finishes are given in 5.9, 5.11 and table 3. As the mass of the zinc-nickel coating applied is relatively small, the material is not intended to withstand outside exposure without further chemical treatment and painting.

1.5 This European Standard is not applicable to

- hot-dip zinc coated steel strip and sheet (see EN 10142 and EN 10147),

- electrolytically zinc coated cold rolled flat products (see EN 10152),

- continuously hot-dip aluminium-silicon (AS) coated steel strip and sheet (see EN 10154).

- continuously organic coated steel flat products (see EN 10169),

- continuously hot-dip zinc-aluminium (ZA) coated steel strip and sheet (see EN 10214),

- continuously hot-dip aluminium-zinc (AZ) coated steel strip and sheet (see EN 10215).

2 Normative References

This European Standard incorporates by dated or undated reference provisions from other publications. These normative reference 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 draft European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

ENV 606	Bar coded transport and handling labels for steel products
EN 10002-1	Metallic materials - Tensile testing - Part 1: Method of testing (at ambient temperature) "including Addendum AC1:1990"
EN 10002-2	Metallic materials - Tensile testing - Part 2: Verification of the force measuring system of the tensile testing machines
EN 10002-4	Metallic materials - Tensile testing - Part 4: Verification of extensometers used in uniaxial testing
EN 10020	Definition and classification of grades of steel
EN 10021	General technical delivery requirements for steel and iron products
EN 10027-1	Designation systems for steels - Part 1: Steel names, principal symbols
EN 10027-2	Designation systems for steels - Part 2: Numerical system
EN 10079	Definition of steel products
EN 10130	Cold rolled low carbon steel flat products for cold forming - Technical delivery conditions

EN 10131	Cold-rolled non-coated flat products in low carbon steel for cold forming - tolerances on dimensions and shape
EN 10139	Cold rolled uncoated low carbon steel strip for cold forming - Technical delivery conditions
EN 10204	Metallic products - Types of inspection documents (includes amendment A1:1995)
EN 10268	Cold-rolled flat products made of high yield strength steels for cold forming - General technical delivery conditions
CR 10260	ECISS IC 10- Designation systems for steel - Additional symbols for steel names
EURONORM 12 (1955)[1)]	Bend test for steel sheet and strip less than 3 mm thick
ISO 10113	Metallic materials - Sheet and strip - Determination of plastic strain ratio
ISO 10275	Metallic materials - Sheet and strip - Determination of tensile strain hardening exponent

3 Definitions

For the purposes of this European Standard the following definition applies in addition to the definitions in EN 10020, EN 10021, EN 10079 and EN 10204.

3.1 Electrolytic zinc-nickel coating (ZN): Application of a zinc-nickel coating by electrolysis on a suitably prepared steel surface from an aqueous salt solution by the use of an electric current.

NOTE: Flat products may have a zinc-nickel coating on one or both surfaces. If both surfaces are zinc-nickel coated, a different coating thickness may be applied on each side (this process being referred to as differential zinc-nickel coating).

[1)] Until they are transformed into European Standards, either the EURONORMS referred to or the corresponding national standards may be applied.

4 Designation

4.1 The steel names are allocated in accordance with EN 10027-1 and CR 10260 - the steel numbers are allocated in accordance with EN 10027-2.

4.2 The products covered by this European Standard shall be designated as follows in the order given:

a) Type of product (e. g. strip, sheet, cut length),
b) Number of this standard (EN 10271),
c) Steel name or steel number and symbol for the type of electrolytically coating (see table 1 and table 2),
d) Numbers denoting the minimum coating thickness on each surface (e. g. 50/50 = minimum coating thickness of 5,0 µm on each surface, see table 3, 5.9.2, 5.9.4 and 5.9.5).
e) Letters A or B indicating the surface quality (see 5.11.2).
f) Letters denoting the surface treatment (see 5.12 and table 4).

Example 1: Designation of strip made of steel DC03+ZN, (1.0347+ZN), electrolytically zinc-nickel coated with a nominal thickness of 5,0 µm on each surface (50/50), surface quality A, surface treatment oiled (O):

Strip EN 10271-DC03+ZN50/50-A-O

or

Strip EN 10271-1.0347+ZN50/50-A-O

Example 2: Designation of sheet made of steel DC05+ZN (1.0312+ZN), electrolytically zinc-nickel coated with a nominal thickness of 5,0 µm on one surface and of 2,0 µm on the other surface (50/20), surface quality B, surface treatment oiled (O).

Sheet EN 10271-DC05+ZN50/20-B-O

or

Sheet EN 10271-1.0312+ZN50/20-B-O

4.3 Where appropriate, additional information to the designation as specified in 4.2 shall be given to describe clearly the delivery requirements (see clause 10).

5 Requirements

5.1 General

The requirements according to 5.2 to 5.5 and 5.13 apply to the steel substrates given in table 1 and table 2.

For other steels used as substrate for electrolytically deposited coatings of zinc-nickel (see 1.2 and 1.3) the requirements shall be based on the appropriate quality standard for the non-coated steel product.

5.2 Steelmaking and manufacturing processes

Unless otherwise agreed at the time of ordering, the steelmaking and manufacturing processes are left to the discretion of the manufacturer. The purchaser shall be informed of these processes, if he requires it.

5.3 Deoxidation

The method of deoxidation shall be in accordance with that specified in table 1 and table 2.

5.4 Chemical composition

The chemical composition based on ladle analysis shall be as given in table 1 and table 2.

5.5 Delivery condition

The steel substrates are normally supplied in the skin-passed condition. By agreement at the time of the enquiry and order non skin-passed products may be supplied.

5.6 Choice of properties

The products covered by this European Standard shall comply with the requirements of table 1 and table 2. By agreement they may be delivered as suitable for making a particular part; in this case a maximum percentage of scrap may be agreed and acceptance on the basis of mechanical properties is not applicable.

5.7 Mechanical properties

5.7.1 The mechanical properties are given in table 1 and table 2.

NOTE: The properties in table 2 are those specified for cold rolled non-coated low carbon steel flat products according to EN 10130 with the exception of the R_e, A_{80} and n_{90} values for the grades DC04+ZN, DC05+ZN and DC06+ZN which have been altered with respect to the influence of the electrolytical treatment on those properties.

The mechanical properties are valid for the period specified in table 1 and table 2 from the date on which the products are made available. The date of availability shall be notified to the purchaser with reasonable prior notice compatible with the validity of the mechanical properties. Prolonged storage of products of grade DC01+ZN could result in some change in the mechanical properties leading to a reduction in formability.

5.7.2 The tensile test shall be carried out according to the relevant standards for the substrate (e.g. location of samples). The tensile test values apply to transverse samples and relate to the test piece cross-section without zinc-nickel coating.

Testing shall be carried out after coating. Double side coated products shall be tested with coating, single side coated products shall have the coating removed before testing.