



SLOVENSKI STANDARD
SIST EN 10147:1997

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Kontinuirno vroče cinkana pločevina in trakovi iz konstrukcijskega jekla - Tehnični dobavni pogoji

Continuously hot-dip zinc coated structural steel sheet and strip - Technical delivery conditions

Kontinuierlich feuerverzinktes Blech und Band-Baustähle - Technische Lieferbedingungen

Tôles et bandes en acier de construction galvanisées a chaud en continue - Conditions techniques de livraison

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ICS:

77.140.50	Ploščati jekleni izdelki in polizdelki	Flat steel products and semi-products
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Descriptors : Iron and steel products, metal plates, steel strips, structural steels, unalloyed steels, hot dip galvanizing, continuous coating, delivery condition, designation, classification, inspection, tests, marking

English version

Continuously hot-dip zinc coated structural steel
sheet and strip - Technical delivery conditions

Tôles et bandes en acier de
construction galvanisées à chaud en
continue - Conditions techniques de
livraison

Kontinuierlich feuerverzinktes Blech-
und Band-Baustähle - Technische
Lieferbedingungen

This European Standard was approved by CEN on 1991-11-30
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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.

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Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg,
Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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

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Foreword

This EN has been prepared by ECISS/TC27 'Surface coated steel flat products', the Secretariat of which is held by Normenausschuss Eisen und Stahl (FES) im DIN.

It supersedes EURONORM 147 (1979) - Continuous hot-dip zinc coated unalloyed steel sheet and coil with specified minimum yield strengths for structural purposes; Quality standard -.

The European Committee for Iron and Steel Standardization (ECISS) has allocated TC27 the task of transforming EURONORM 147-79 into a European Standard (EN 10 147).

This European standard EN 10 147 was approved by CEN on 1991-09-30

In accordance with the requirements of the CEN Internal Regulations, the following countries are bound to adopt this European standard:

Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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1 Scope

1.1 This European Standard specifies requirements for continuously hot-dip zinc coated flat products in thicknesses $\leq 3,0$ mm made of the steels given in table 1. The thickness is the final thickness of the delivered product after zinc coating. This European Standard applies to strip of all widths and to sheets cut from it (≥ 600 mm width) and cut lengths (< 600 mm width).

The types of coating, coating masses and coating finishes available, and surface qualities are given in tables 2 to 4 (see also subclauses 5.2 to 5.4).

1.2 If agreed at the time of ordering, this European Standard may also be applied to continuously hot-dip zinc coated flat products in thicknesses $> 3,0$ mm. In this case, the mechanical property, adhesion of coating and surface condition requirements shall also be agreed at the time of ordering.

1.3 The products covered by this European Standard are suitable for applications where the minimum yield strength values and resistance to corrosion are of prime importance. Corrosion protection afforded by the coating is directly proportional to the mass of coating (see also 5.2.2).

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1.4 This European Standard ~~is not applicable to~~ (standards.iteh.ai)

- continuously hot-dip zinc coated low carbon steel sheet and strip for cold forming (see EN 10 142); SIST EN 10147:1997
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- electrolytic zinc coated flat steel products (see EURONORM 152);
- continuously organic coated flat steel products (see EURONORM 169).

2 Normative references

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

EN 10 002-1	Metallic materials - Tensile test. Part 1. Test method
EN 10 020	Definition and classification of grades of steel
EN 10 021 ¹⁾	General technical delivery conditions for steel and steel products
EN 10 079 ¹⁾	Definition of steel products
EN 10 204 ¹⁾	Steel and steel products; inspection documents
EURONORM 12 ²⁾	Bend test for steel sheet and strip less than 33 mm thick
EURONORM 27 ²⁾	Designation of steels
EURONORM 148 ²⁾	Continuous hot-dip zinc coated unalloyed mild steel sheet and coil with specified minimum yield strengths for structural purposes; tolerances on dimension and shape

3 Definitions

For the purposes of this European Standard the following definitions apply in addition to the definitions in EN 10 020, EN 10 021, EN 10 079 and EN 10 204:

3.1 hot-dip zinc coating: Application of zinc coating by immersing the prepared products in molten zinc. In this case, wide strip of steel is continuously hot-dip coated; the zinc content of the bath shall be at least 99 %.

3.2 coating mass: Total mass including both surfaces (in g/m²).

1) At present at the stage of draft.

2) Until they are transformed into European Standards, either the EURONORMS listed or the corresponding national standards in annex B of this European Standard may be applied.

4 Designation

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

- a) Type of product (e.g. strip, sheet or cut length).
- b) Number of this standard (EN 10 147).
- c) Full designation of the steel grades (e.g. Fe E 250 G, see table 1).

NOTE: The designations in table 1 are formed in accordance with EURONORM 27 (1974). This EURONORM is currently being transformed into a European Standard (EN 10 027 Part 1). A change of the designations for the steel grades covered by EN 10 147 is also planned.

- d) Letter indicating the type of coating:

Z Zinc coating
ZF Zinc-iron alloy coating

- e) Number denoting the mass of coating (e.g. 275 = 275 g/m² including both surfaces, see table 4).
- f) Letter denoting the coating finish (N, M or R, see tables 2 and 3).
- g) Letter denoting the surface quality (A, B, or C, see tables 2 and 3).
- h) Letter denoting the surface treatment (C, O, CO or U, see subclause 5.5). <https://standards.iteh.ai/catalog/standards/sist/d3bc60ea-9883-4df8-bfc5-b3f2c6b4cfl6/sist-en-10147-1997>

Examples:

Designation of strip made of steel Fe E 250 G, zinc coating (Z), coating mass 275 g/m² (275), coating finish normal spangle (N), surface quality A; surface treatment chemical passivation (C):

Strip EN 10 147 - Fe E 250 G Z275 NA - C

Designation of sheet made of steel Fe E 320 G, zinc-iron alloy coating (ZF), coating mass 100 g/m² (100), coating finish regular R, surface quality B; surface treatment oiled (O):

Sheet EN 10 147 - Fe E 320 G ZF100 RB - O

4.2 Where appropriate, additional information to the designation as specified in 4.1 shall be given to describe clearly the desired delivery requirements (see clause 12).

5 Classification of grades and types of delivery

5.1 Steel grades

Table 1 gives a summary of the steel grades available.

Table 1: Steel grades and mechanical properties of steels (for thicknesses 3 mm)

Steel grade	Yield strength	Tensile strength	Elongation
	ReH N/mm ² min.	R _m N/mm ² min.	A ₈₀ % min ¹⁾
Fe E 220 G	220	300	20
Fe E 250 G	250	330	19
Fe E 280 G	280	360	18
Fe E 320 G	320	390	17
Fe E 350 G	350	420	16
Fe E 550 G	550	560	

1) For product thickness $\leq 0,7$ mm (including zinc coating) the minimum elongation values (A₈₀) shall be reduced by 2 units.

5.2 Coatings

5.2.1 Zinc (Z) or zinc-iron alloy (ZF) coatings as given in tables 2 and 3 are applicable for the products.

5.2.2 The available coating masses given in tables 2 and 3 may be supplied. Other coating masses shall be agreed separately at the time of ordering.

Thicker zinc coatings limit the formability and weldability of the products. Therefore, the forming and weldability requirements should be taken into account when ordering the coating mass.

5.2.3 If agreed at the time of ordering, different coating masses on each surface may be supplied for the hot-dip zinc coated flat products. The two surfaces may have a different appearance as a result of the manufacturing process.

5.3 Coating finish (see tables 2 and 3)

5.3.1 Normal spangle (N)

This finish is obtained when the zinc coating is left to solidify normally. Either no spangle or zinc crystals of different sizes and brightness appear depending on the galvanizing conditions. The quality of the coating is not affected by this.

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NOTE: If a pronounced spangle is desired, this shall be indicated specially at the time of ordering.

5.3.2 Minimized spangle (M)

The surface has minimized spangles obtained by influencing the solidification process in a specific way. The finish may be ordered if the normal spangle (see 5.3.1) does not satisfy the surface appearance requirements.

5.3.3 Regular zinc-iron alloy coating (R)

This coating results from heat treatment in which iron diffuses through the zinc. The surface has a uniform matt grey appearance.

5.4 Surface quality (see tables 2 and 3 and subclause 6.6)

5.4.1 As coated surface (A)

Imperfections such as small pits, variations in spangle size, dark spots, stripe marks and light passivation stains are permissible. Stretch levelling breaks or zinc run-off marks may appear.

5.4.2 Improved surface (B)

Surface quality B is obtained by skin passing.

With this surface quality, small imperfections such as stretch levelling breaks, skin pass marks, scratches, indentations, spangle structure and zinc run-off marks and light passivation marks are permissible. The surface has no pits.

5.4.3 Best quality surface (C)

Surface quality C is obtained by skin passing.

The better surface shall not impair the uniform appearance of a high-class paint finish. The other surface shall have at least the characteristics of surface quality B (see 5.4.2).

Table 2: Available coatings, finishes and surface qualities for zinc coatings (Z)

Steel grade	Coating designation 1) 2)	Coating finish			
		N		M	
		Surface qualities ²⁾			
		A	A	B	C
All	Z100	X	X	X	X
	Z140	X	X	X	X
	Z200	X	X	X	X
	Z225	X	X	X	X
	Z275	X	X	X	X
	Z350	X	X	-	-
	(Z450)	(X)	-	-	-
	(Z600) ³⁾	(X)	-	-	-

1) See also 5.2.2.

2) The coating designations and surface qualities given in brackets are available on agreement.

3) Not for steel grade Fe E 550 G.