SLOVENSKI STANDARD
SIST EN 10292:2001

01-november-2001

Jekleni trakovi in tanka ploļ evina s poveļ ano napetostjo teļ enja s povrġino, zaġļ iteno po postopkih vroļ ega omakanja ï Tehniļ ni dobavni pogoji

Continuously hot-dip coated strip and sheet of steels with higher yield strength for cold forming - Technical delivery conditions

Kontinuierlich schmelztauchveredeltes Band und Blech aus Stählen mit hoher Streckgrenze zum Kaltumformen - Technische Lieferbedingungen

Bandes et tôles en aciers a haute limite d'élasticité revetues en continu par immersion a chaud pour formage a froid - Conditions techniques de livraison

Ta slovenski standard je istoveten z: **EN 10292:2000**

ICS:

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

SIST EN 10292:2001 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 10292

April 2000

ICS 77.140.50

English version

Continuously hot-dip coated strip and sheet of steels with higher yield strength for cold forming - Technical delivery conditions

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This European Standard was approved by CEN on 1 April 2000.

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 October 2000, and conflicting national standards shall be withdrawn at the latest by October 2000.

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

This European Standard specifies requirements for continuously hot-dip zinc (Z), zinc-iron alloy (ZF), zinc-aluminium alloy (ZA), aluminium-zinc alloy (AZ) and aluminium-silicon alloy (AS) coated flat products made of steels with higher yield strength for cold forming (see Tables 1 and 3) with thicknesses up to and including 3,0 mm unless otherwise agreed. The thickness is the final thickness of the delivered product after 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 products covered by this European Standard are mainly used where cold formability and corrosion resistance for a defined minimum yield strength are the most important factors.

2 Normative references

This European Standard incorporates by dated or undated reference provisions from other publications. These normative references are cited at the appropriate points in the text and the publications are listed hereafter. 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. In the case of undated references, the most recent edition of the publications referred to applies (including amendments).

ENV 606, *Bar coded transport and handling labels for steel products*

EN 10002-1, *Metallic materials - Tensile testing - Part 1: Method of test (at ambient temperature)*

EN 10020, *Definition and classification of grades of steel*

EN 10021, *General technical delivery requirements for steel and steel products*

EN 10027-1, *Designation systems for steel - Part 1: Steel names, principal symbols*

EN 10027-2, *Designation systems for steel - Part 2: Numerical system*

EN 10079, *Definition of steel products*

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

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

CR 10260, *Designation systems for steel - Additional symbols*

EURONORM 12[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*

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1) Until it is transformed into an European Standard, either EURONORM 12 or the corresponding national standard may be applied.

ISO 10275, *Metallic materials - Sheet and strip - Determination of tensile strain hardening exponent*

ISO 14284, *Steel and iron - Sampling and preparation of samples for the determination of chemical composition*

3 Terms and definitions

For the purposes of this Standard the following terms and definitions apply in addition to the terms and definitions in EN 10020, EN 10021, EN 10079 and EN 10204:

3.1
hot-dip zinc coating (Z, ZF)
application of a zinc coating by immersing the prepared products in a molten bath containing a zinc content of at least 99%

3.2
hot-dip zinc-aluminium alloy coating (ZA)
application of a zinc-aluminium coating by immersing the prepared products in a molten bath which is composed of zinc, approximately 5% aluminium and small amounts of mischmetal

3.3
hot-dip aluminium-zinc alloy coating (AZ)
application of an aluminium-zinc coating by immersing the prepared products in a molten bath which is composed of 55% aluminium, 1,6% silicon and the balance zinc

3.4
hot-dip aluminium-silicon alloy coating (AS)
application of an aluminium-silicon coating by immersing the prepared products in a molten bath which is composed of aluminium and 8% to 11% silicon

NOTE In the present cases, the wide strip is continuously hot-dip coated in a bath the composition of which is given in 3.1 to 3.4.

3.5
coating mass
total mass of coating including both surfaces of the product (expressed in grams per square metre)

3.6
bake-hardening steels (B)
steels that demonstrate an increase in proof strength following heating in the region of 170°C for 20 min

3.7
rephosphorized steels (P)
steels that contain up to 0,12% P and achieve the required proof strength levels

3.8
low alloy/micro-alloyed steels (LA)
steels containing one or more of alloys Nb, Ti and V to achieve required proof strength levels

3.9
interstitiell free steels (Y)
steel whose composition is controlled to achieve improved *r*- and *n*-values

4 Classification and designation

4.1 Classification

The steel grades according to this European Standard are classified according to their minimum yield strength at room temperature.

4.2 Designation

4.2.1 Steel names

For the steel grades covered by this European Standard, the steel names as given in Tables 1 and 3 are allocated in accordance with EN 10027-1 and CR 10260.

NOTE Letters „LA (low alloy)“ are not covered by CR 10260 but are taken from EN 10268.

4.2.2 Steel numbers

For the steel grades covered by this European Standard, the steel numbers as given in Tables 1 and 3 are allocated in accordance with EN 10027-2 and CR 10260.

5 Information to be supplied by the purchaser

5.1 Mandatory information

The following information shall be supplied by the purchaser at the time of enquiry and order:

a) the quantity to be delivered,

b) the type of product (strip, sheet, cut length),

c) the number of the dimensional standard (EN 10143),

d) the nominal dimensions and the tolerances on dimensions and shape and, if applicable, letters denoting relevant special tolerances,

e) the term „steel“,

f) number of this standard (EN 10292),

g) steel name or steel number and symbol for the type of hot-dip coating as given in Tables 1 and 3,

h) number designating the nominal mass of coating (e.g. 080 = 80 g/m² including both surfaces, see Table 4),

i) in case of hot-dip zinc coated products, letter denoting the coating finish (N, M or R, see Tables 5 and 6 and 7.4),

j) letter denoting the surface quality (A, B or C, see 7.5),

k) letter denoting the surface treatment (C, O, CO, S, P or U, see 7.6),

l) the method of determining the BH_2-value (see 8.5.3).

EXAMPLE 1 sheet, delivered with dimensional tolerances according to EN 10143 with a nominal thickness of 0,70 mm, ordered with special thickness tolerances (S), nominal width 1200 mm, ordered with special width tolerances (S), nominal length 2500 mm, ordered with special flatness tolerances (FS), made of steel H300LAD+AS080-C-CO (1.0932+AS080-C-CO) according to EN 10292.

1 sheet EN 10143-0,70Sx1200Sx2500FS
steel EN 10292-H300LAD+AS080-C-CO

or

1 sheet EN 10143-0,70Sx1200Sx2500FS
steel EN 10292-1.0932-AS080-C-CO

5.2 Options

A number of options are specified in this European Standard and listed below. If the purchaser does not indicate his wish to implement one of these options, the supplier shall supply in accordance with the basis specification of this European Standard (see 5.1).

a) Any verification of the product analysis (see 7.1.2),

b) Any steel products suitable for the manufacture of a specific part (see 7.2.2),

c) Any coating masses different from those of Table 4 (see 7.3.2),

d) Any special requirements for different coating masses on each surface (see 7.3.3),

e) Any hot-dip zinc coated products with pronounced spangle (see 7.4.1.1),

f) Any special requirements for a maximum Fe-Al-Si alloy layer mass occuring during hot-dip aluminium-silicon coating (see 7.4.5),

g) Any products supplied free from coil breaks (see 7.7),

h) Any maximum or minimum value for the coating mass per product surface (see 7.9.2),

i) Notification of which surface has been inspected (see 7.11.1),

j) Any testing for compliance with the requirements of this standard (see 8.1.1 and 8.1.2),

k) Any supply of an inspection document and type of document (see 8.7),

l) Any marking desired by branding of the products (see 9.2),

m) Any requirements for packing (see clause 10).

6 Manufacturing process

The processes used in steelmaking and manufacture of the products are left to the discretion of the manufacturer.

7 Requirements

7.1 Chemical composition

7.1.1 Cast analysis

The chemical composition determined by cast analysis shall be in accordance with the requirements given in Table 1.

Table 1 - Chemical composition (cast analysis)

Designation			% by mass							
Steel grade		Symbols for the type of the available hot-dip coatings	C max.	Si max.	Mn max.	P max.	S max.	Al min.	Ti[b] max.	Nb[b] max.
Steel name[a]	Steel number									
H180YD	1.0921	+Z, +ZF, +ZA, +AZ, +AS	0,01	0,10	0,70	0,06	0,025	0,02	0,12	-
H180BD	1.0354	+Z, +ZF, +ZA, +AZ, +AS	0,04	0,50	0,70	0,06	0,025	0,02	-	-
H220YD	1.0923	+Z, +ZF, +ZA, +AZ, +AS	0,01	0,10	0,90	0,08	0,025	0,02	0,12	-
H220PD	1.0358	+Z, +ZF, +ZA, +AZ, +AS	0,06	0,50	0,70	0,08	0,025	0,02	-	-
H220BD	1.0353	+Z, +ZF, +ZA, +AZ, +AS								
H260YD	1.0926	+Z, +ZF, +ZA, +AZ, +AS	0,01	0,10	1,60	0,10	0,025	0,02	0,12	-
H260PD	1.0431	+Z, +ZF, +ZA, +AZ, +AS	0,08	0,50	0,70	0,10	0,025	0,02	-	-
H260BD	1.0433	+Z, +ZF, +ZA, +AZ, +AS								
H260LAD	1.0929	+Z, +ZF, +ZA, +AZ, +AS	0,10	0,50	0,60	0,025	0,025	0,015	0,15	0,09
H300PD	1.0443	+Z, +ZF, +ZA, +AZ, +AS	0,10	0,50	0,70	0,12	0,025	0,02	-	-
H300BD	1.0445	+Z, +ZF, +ZA, +AZ, +AS								
H300LAD	1.0932	+Z, +ZF, +ZA, +AZ, +AS	0,10	0,50	1,00	0,025	0,025	0,015	0,15	0,09
H340LAD	1.0933	+Z, +ZF, +ZA, +AZ, +AS	0,10	0,50	1,00	0,025	0,025	0,015	0,15	0,09
H380LAD	1.0934	+Z, +ZF, +ZA, +AZ, +AS	0,10	0,50	1,40	0,025	0,025	0,015	0,15	0,09
H420LAD	1.0935	+Z, +ZF, +ZA, +AZ, +AS	0,10	0,50	1,40	0,025	0,025	0,015	0,15	0,09

[a] ***H*** cold rolled flat products of high strength for cold forming; ***nnn*** minimum proof strength, $R_{p0,2}$, N/mm²; ***B*** bake-hardened; ***P*** rephosphorized; ***Y*** interstitiell free; ***LA*** low alloy (micro-alloyed); ***D*** intended for hot-dip coating.

[b] These additional elements may be used individually or in combination where they appear in the definition of the steel the composition limits indicated. Vanadium and boron may also be added. The sum of the contents of these 4 dispersoidal elements shall not exceed 0,22 % however.
Bake-hardening steels and rephosphorized steels may also contain these 4 elements up to max. 0,22% by mass.

7.1.2 Product analysis

If a product analysis is agreed at the time of enquiry and order, the permitted deviations from the values of the ladle analysis given in Table 1 shall be in accordance with the requirements given in Table 2.