



SLOVENSKI STANDARD SIST EN 10130:2007

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Cold rolled low carbon steel flat products for cold forming - Technical delivery conditions

Kaltgewalzte Flacherzeugnisse aus weichen Stählen zum Kaltumformen - Technische Lieferbedingungen

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Produits plats laminés a froid, en acier a bas carbone pour formage a froid - Conditions techniques de livraison

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Ta slovenski standard je istoveten z: EN 10130:2006

ICS:

77.140.50 Ú[[z aak \ |^} as a^ \ as
][|ã a^ \ã Flat steel products and semi-products

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English Version

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This European Standard was approved by CEN on 28 October 2006.

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.

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CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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

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Foreword

This document (EN 10130:2006) has been prepared by Technical Committee ECISS/TC 13 “Flat products for cold working - Qualities, dimensions, tolerances and specific tests”, the secretariat of which is held by IBN/BIN.

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 June 2007, and conflicting national standards shall be withdrawn at the latest by June 2007.

This document supersedes EN 10130:1991 + A1:1998.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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1 Scope

This European Standard applies to cold rolled uncoated low carbon steel flat products in rolled widths equal to or over 600 mm for cold forming, with a minimum thickness of 0,35 mm and, unless otherwise agreed at the time of inquiry and order, equal to or less than 3 mm, delivered in sheet, coil, slit coil, or cut lengths obtained from slit coil or sheet.

It does not apply to cold rolled narrow strip (rolling width < 600 mm) nor to flat cold rolled products for which there is a specific standard, in particular the following:

- cold rolled non-grain oriented magnetic steel sheet and strip (EN 10106);
- semi-processed steel strip for the construction of magnetic circuits (EN 10126 and EN 10165);
- blackplate in coils (EN 10205);
- cold rolled flat products in high yield strength steels for cold forming (EN 10268);
- cold rolled uncoated non-alloy mild steel narrow strip for cold forming (EN 10139);
- cold rolled low carbon steel flat products for vitreous enamelling (EN 10209).

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2 Normative references

The following referenced documents are indispensable for the application 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 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 iron products*

EN 10027-1, *Designation systems for steels – Part 1: Steel names*

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

EN 10049, *Measurement of roughness average Ra and peak count RPc on metallic flat products*

EN 10079:1992, *Definition of steel products*

EN 10131, *Cold rolled uncoated and zinc or zinc-nickel electrolytically coated low carbon and high yield strength steel flat products for cold forming – Tolerances on dimensions and shape*

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

EN ISO 377, *Steel and steel products – Location and preparation of samples and test pieces for mechanical testing (ISO 377:1997)*

EN ISO 14284, *Steel and iron – Sampling and preparation of samples for the determination of chemical composition (ISO 14284:1996)*

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 Terms and definitions

For the purposes of this European Standard, the terms and definitions of the cold rolled flat products listed in clause 1 are those given in EN 10079:1992.

4 Designation

The steel names are in compliance with EN 10027-1; the steel numbers, with EN 10027-2.

The designation consists of the word "sheet", "coil", "slit coil" or "cut length", followed in order by:

- reference of this European Standard (EN 10130);
- steel name or the steel number (see Table 2);
- symbol concerning the surface quality (A for surface quality A or B for surface quality B);
- if applicable, the symbol relating to the surface finish (see Table 1).

EXAMPLE 1 Designation of sheet made of steel grade DC01 (1.0330), surface quality A, surface finish normal (m):

Sheet EN 10130–DC01–A–m

or

Sheet EN 10130–1.0330–A–m

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EXAMPLE 2 Designation of coil made of steel grade DC06 (1.0873), surface quality B, surface finish semi-bright (g):

Coil EN 10130–DC06–B–g

or

Coil EN 10130–1.0873–B–g

5 Requirements

5.1 Steelmaking and manufacturing processes

Unless otherwise agreed at the time of enquiry and order the steelmaking and manufacturing processes are left to the discretion of the manufacturer.

The purchaser shall be informed of these processes if he or she specifies.

5.2 Deoxidation

For grade DC01, the method of deoxidation shall be at the manufacturer's discretion. Grades DC03, DC04, DC05, DC06 and DC07 shall be aluminium fully killed.

5.3 Chemical composition

The chemical composition based on ladle analysis shall be as given in Table 2.

5.4 Delivery conditions

5.4.1 The products are normally supplied in the skin-passed condition, however if by agreement at the time of the enquiry and order, non-skin-passed products may be supplied.

5.4.2 The products are normally delivered oiled. In this case, both sides are corrosion protected by a layer of neutral non-drying oil, free of foreign bodies and uniformly spread in such a way that for 6 months starting from the availability at the manufacturer's works, the product will not show either corrosion or oil drying with respect to conditions of packing, transportation, handling and storage. The modification of the guarantee duration may be the subject of a special agreement.

The layer of oils shall be capable of being removed by alkaline solutions or normal solvents.

The choice of protective oils and oil quantities may be the subject of a special agreement.

If the purchaser does not require the surfaces to be oiled, this shall be clearly indicated at the time of enquiry and order.

If the conditions of transportation or storage are such that special protection against corrosion is required, the purchaser shall inform the manufacturer at the time of enquiry and order.

NOTE If the order is for non-oiled products, the manufacturer is not responsible for the risk of corrosion. The purchaser is also advised that there is a greater risk of the appearance of light scratches during handling, transportation, and application.

5.5 Mechanical properties

The mechanical properties given in Table 2 apply only to skin-passed products (see 5.7.2). The mechanical properties are valid for the period specified in Table 2 from the date on which the products are made available.

The validity of mechanical properties is not guaranteed for DC01 and is guaranteed for 6 months for DC03 to DC07, starting from the availability date at the manufacturer's works.

For non-skin-passed products (see 5.7.3) the mechanical properties shall be agreed at the time of enquiry and order.

The purchaser shall be notified of the date of availability with reasonable prior notice compatible with the validity of the mechanical properties. Prolonged storage of products of grade DC01 could result in some change in the mechanical properties leading to a reduction in formability.

5.6 Surface characteristics

5.6.1 General

The surface characteristics consist of the surface quality and the surface finish.

The surface quality and finish shall be specified by the purchaser at the time of enquiry and order.

For non-skin-passed products, surface quality B is not applicable and no requirement for a particular surface finish can be made.

5.6.2 Surface quality

The products are supplied with either of the surface qualities A or B.

— Surface quality A

Defects such as pores, slight indentations, small marks, minor scratches and slight colouring that do not effect formability or the application of surface coatings are permitted.

— Surface quality B

The better surface shall be free from defects which might affect the uniform appearance of a quality paint or an electrolytic coating (see 5.8). The other surface shall conform at least to surface quality A.

NOTE On the first wraps of the bore of a coil one must expect a mark coming from the first wrap's displacement in height.

In the case of delivery of coil and slit coil, the percentage of defects may be greater than in the case of delivery in sheet or cut lengths. This shall be taken into account by the purchaser and the percentage of admissible surface defects shall be agreed at the time of enquiry and order.

Unless otherwise agreed, a single surface of the product shall comply with the specified requirements. The other surface shall be such that during subsequent treatment it does not have a deleterious effect on the better surface.

5.6.3 Surface finish

The surface finish may be bright, semi-bright, normal or rough. In the absence of a requirement on the order, products shall be supplied with the normal finish.

The limiting figures for average surface roughness for the four types of finish are given in Table 1. The measurement shall be made in accordance with EN 10049.

By agreement at the time of enquiry and order, other ranges for surface roughness may be specified for specific and uses.

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Table 1 — Surface finish and roughness values

Surface finish	Symbol	Roughness (cut off: 0,8 mm)
Bright	b	$R_a \leq 0,4 \mu\text{m}$
Semi-bright	g	$R_a \leq 0,9 \mu\text{m}$
Normal	m	$0,6 \mu\text{m} < R_a \leq 1,9 \mu\text{m}$
Rough	r	$R_a > 1,6 \mu\text{m}$

NOTE: For measurements in sheet for automotive applications the cut off value 2,5 mm is also possible (see EN 10049), roughness ranges have than to be specified at the moment of enquiry and order.

5.7 Stretcher strain marks

5.7.1 General

All products are generally subjected to a light skin-pass after annealing at the manufacturer's works, to avoid the formation of stretcher strain marks during subsequent forming.

The tendency to form such marks may reappear a certain time after the skin-pass. It is therefore in the purchaser's interest to form the products as soon as possible.

Products of grade DC06 and DC07 do not exhibit stretcher strain marks, whether delivered skin-passed or non-skin-passed.