SLOVENSKI STANDARD
SIST EN 10130:1997

01-december-1997

Hladno valjani ploģļ ati izdelki iz malooglјiļ nih jekel za preoblikovanje v hladnem - Tehniļ ni dobavni pogoji

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

Kaltgewalzte Flacherzeugnisse aus weichen Stählen zum Kaltumformen - Technische Lieferbedingungen

Produits plats laminés a froid, en acier doux pour emboutissage au pliage a froid - Conditions techniques de livraison

Ta slovenski standard je istoveten z: **EN 10130:1991**

ICS:

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

SIST EN 10130:1997 **en**

EUROPEAN STANDARD

NORME EUROPEENNE

EUROPAISCHE NORM

EN 10130

March 1991

UDC : 669.14.018.26-122.2-418

Descriptors : Iron and steel products, cold rolled products, metal plates, low carbon steels, cold-working, cupping, folding, delivery condition, acceptance testing

English version

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

Produits plats laminés à froid, en acier doux pour emboutissage au pliage à froid - Conditions techniques de livraison

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This European Standard was approved by CEN on 1991-02-20
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.

 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, Denmark, 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

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Foreword

The European Committee for Iron and Steel Standardization (ECISS) authorized Technical Committee 13 (Secretariat : Belgium) to convert Euronorm 130-1977 "Cold rolled non-coated non-alloy mild steel flat products for cold forming - Quality standard" published by ECSC, to European Standard EN 10 130.

This European standard EN 10 130 was approved by CEN on 1991-02-20

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, Pörtugal, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This European Standard applies to cold-rolled non-coated 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 the 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 (EURONORM 106),
- semi-processed steel strip for the construction of magnetic circuits (EURONORMs 126 and 165),
- blackplate in sheet form (prEN 10 025),
- blackplate in coils (prEN 10 025),
- sheets for welded steel gas bottles (EURONORM 120),
- flat products in high yield strength steels for cold forming (EURONORM 149),
- cold rolled uncoated non alloy mild steel narrow strip for cold forming (EURONORM 139),
- cold rolled structural steels for general purposes

It is not applicable to flat products which are to be enamelled.

2 Normative References

EN 10 002/1 : 1990	Metallic materials - Tensile test Part 1. Method of test (at ambient temperature)
EN 10 002/2 : 1990	Part 2. Verification of the force measuring systems of the testing machine
EN 10 020 : 1988	Definition and classification of grades of steel
prEN 10 021 : 1990	General technical delivery requirements for steel and iron and steel products
prEN 10 079 : 1989	Definition of steel products
prEN 10 131 : 1989	Cold-rolled non-coated flat products in low carbon steel for cold forming Tolerances on dimensions and shape
prEN 10 204 : 1989	Steel and iron and steel products - Inspection documents

5.6 Mechanical properties

The mechanical properties given in table 2 apply only to skin-passed products (see 5.8). The mechanical properties are valid for the period specified in table 2 from the date on which the products are made available.

For non skin-passed products (see 5.8) the mechanical properties should be agreed at the time of enquiry and order.

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 Fe P 01 could result in some change in the mechanical properties leading to a reduction in formability.

5.7 Surface characteristics

5.7.1 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 the order.

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

5.7.2 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 which do not effect formability or the application of surface coatings are permitted.

- Surface quality B:
  the better surface shall be free of defects which might affect the uniform appearance of a quality paint or an electrolytic coating (see 5.9). The other surface shall at least conform to surface quality A. 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 should be taken into account by the purchaser and the percentage of admissible surface defects may be agreed at the time of the 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.

5.7.3 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 EURONORM 49.

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

Table 1. Surface finish and roughness values

Surface finish	Symbol	Roughness
Bright	b	$Ra \leq 0,4$ um
Semi-bright	g	$Ra \leq 0,9$ um
Normal	m	$0,6$ um $< Ra \leq 1,9$ um
Rough	r	$Ra > 1,6$ um

5.8 Stretcher strain marks

5.8.1 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 Fe P06 do not exhibit stretcher strain marks whether delivered skin passed or non-skin-passed.

5.8.2 Skin-passed products

The manufacturer shall ensure the absence of stretcher strain marks:

- for 6 months after products of grades Fe P03, Fe P04, and Fe P05 are made available, for surface appearances A and B,

- for 3 months after products of Fe P01 are made available for surface appearance B.

5.8.3 Non skin-passed products

- Stretcher strain marks are permitted in the condition of delivery and on drawn items.

5.9 Suitability for surface coating

The products may be required for metallic coating by the hot dip coating, or electrolytic coating process, or organic coating or other coating. When such a coating is intended, it shall be specified at the time of ordering.

5.10 Weldability

The material is specified as suitable for normal welding procedures. It is, however, desirable to state the welding procedure at the time of ordering but essential to do so in the case of gas welding.

5.11 Tolerances on shape and dimensions

Tolerances on shape and dimensions are given in European Standard EN 10 031 (in preparation).

6 TESTS

6.1 General

6.1.1 The purchaser shall specify at the time of the enquiry and order his requirements for

- type of inspection and testing : specific or non-specific, see EN 10 021 (in preparation);

- type of inspection document, see EN 10 204 (in preparation).

6.1.2 Specific inspection and testing shall be carried out in accordance with 6.2 to 6.6.

6.1.3 Specific inspection and testing may not be specified either for the product analysis or the surface finish.

6.2 Inspection units

The inspection unit is 30 t or a fraction of 30 t of products of the same grade and nominal thickness. When a coil exceeds 30 t it constitutes a single inspection unit, as do its products.

6.3 Number of tests

For each inspection unit a tensile test shall be carried out and where appropriate a determination of n and r (see table 2 and annexes A and B).

6.4 Sampling

The requirements of EURONORM 18 and EN 10 021 are supplemented by the following specific requirements.

For sheet and cut lengths the selection of products to be tested and the position of the samples in the products is left to the discretion of the inspection representative.

In the case of coil and slit coil, the sample should preferably be taken from the outer end.

If the width of the product permits, the test pieces for the tensile test shall be taken perpendicular to the direction of rolling.

6.5 Test methods

6.5.1 The products shall be tested in the condition of delivery.

The tests shall be carried out at ambient temperature.

6.5.2 The tensile test shall be carried out as described in EN 10 002 Part 1 using type 2 specimens (initial gauge length L_o = 80 mm, with b = 20 mm) as described in annex A of EN 10 002 Part 1.

6.5.3 Surface roughness measurement shall be determined in accordance with EURONROM 49.

6.5.4 The determination of plastic strain ratio r and tensile strain hardening component n shall be carried out in accordance with annexes A and B of this standard.

6.5.5 For the determination of the chemical composition the corresponding European Standards and Euronorms shall apply in cases of dispute.

6.6 Retests

The requirements of EN 10 021 shall apply.

For coils, in the event of the test results giving rise to dispute the samples for retests shall be taken at intervals of at least one lap but also at a maximum distance of 20 m from the appropriate end.

6.7 Inspection document

By agreement at the time of enquiry and order an inspection document chosen from those given in European Standard EN 10204 shall be supplied (see also 6.1.2).