



SLOVENSKI STANDARD
oSIST prEN 10205:2014
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Hladno valjani jekleni izdelki za embalažo - Črna pločevina

Cold reduced tinmill products - Blackplate

Kaltgewalzte Verpackungsblecherzeugnisse - Feinstblech

Aciers pour emballage laminés à froid - Fer noir

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Cold reduced tinmill products - Blackplate

Aciers pour emballage laminés à froid - Fer noir

Kaltgewalzte Verpackungsblecherzeugnisse - Feinstblech

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prEN 10205:2014 (E)

Foreword

This document (prEN 10205:2014) has been prepared by Technical Committee ECISS/TC 109 “Coated and uncoated flat products to be used for cold forming”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 10205:1991.

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1 Scope

This European Standard specifies requirements for blackplate product in the form of coils intended for direct use and mostly for the production of tinplate, electrolytically chromium / chromium oxide plate (ECCS) and electrolytically zinc coated plate.

Blackplate is specified in nominal thicknesses that are multiples of 0,005 mm from typical 0,10 mm up to 0,60mm.

This European Standard applies to coils in nominal minimum widths of 600 mm.

In addition to this standard the general technical delivery conditions of EN10021 apply.

NOTE Standard width coils for specific uses, e.g. tab stock, may be slit into narrow strip for supply in coil form.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 10020, Definition and classification of grades of steel

EN 10021, General technical delivery requirements for steel products

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

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

EN 10052, Vocabulary of heat treatment terms for ferrous products

EN 10079, Definition of steel products

EN 10204:2004, Metallic products - Types of inspection documents

CEN/TR 10261 Iron and steel - European standards for the determination of chemical composition

EN ISO 4288, Geometrical product specifications (GPS) — Surface texture: Profile method — Rules and procedures for the assessment of surface texture (ISO 4288)

EN ISO 6892-1, Metallic materials, Tensile testing, Part 1: Method of test at room temperature (ISO 6892-1)

3 Terms and definitions

In addition to terms defined in EN10079 and EN10052, for the purposes of this standard the following terms and definitions apply:

3.1

single reduced

term used to describe blackplate which has been reduced to the desired thickness in a cold-reduction mill and subsequently annealed and temper rolled mostly without a water-based lubricant.

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- 3.2 double reduced**
term used to describe blackplate which has been reduced to the desired thickness in a cold-reduction mill and subsequently annealed and temper rolled mostly with the help of a water-based lubricant to achieve a higher gage reduction.
- 3.3 temper rolling**
a secondary rolling process to obtain desired roughness and mechanical properties.
- 3.4 standard grade**
material that, having passed line inspection, is suitable under normal conditions of storage, not containing any defect that renders the material unsuitable for its intended use.
- 3.5 batch (box) annealing (BA)**
a process in which the cold reduced strip is heated in tight coil form, within a controlled atmosphere, for a pre-determined time/temperature cycle
- 3.6 continuous annealing(CA)**
a process in which cold reduced coils are unwound and heated in strip form within a controlled atmosphere for a pre-determined time/temperature cycle
- 3.7 surface appearance**
surface appearance of blackplate products determined by the surface characteristics of the steel.
- 3.8 finish**
finish of blackplate products determined by roughness average (Ra)
- 3.8.1 bright finish**
a finish resulting from the use of temper mill work rolls that have been ground to a high degree of polish
- 3.8.2 stone/fine stone finishes**
finishes characterized by a directional pattern, resulting from the use of final mill work rolls that have been ground to a lower degree of polish than those used for the bright finish
- 3.8.3 matt finish**
finish resulting from the use of final mill work rolls that have been shot blasted
- 3.9 coil**
a rolled flat strip product which is wound into regularly superimposed laps
- 3.10 Shape**
- 3.10.1 longitudinal (line) bow**
residual curvature in the strip remaining along the direction of rolling

3.10.2**transverse (cross) bow**

a mode of curvature in the sheet such that the distances between its edges parallel to the rolling direction is less than the sheet width

3.10.3**centre fullness (full centre, centre buckle)**

an intermittent vertical displacement occurring other than at the edge of the sheet or coil when the material is laid on a flat horizontal surface

3.10.4**edge camber**

the deviation of the coil from a straight line forming its chord

3.10.5**edge wave**

an intermittent vertical displacement occurring at the edge of a sheet or a sample from a coil when laid on a flat horizontal surface

3.11**feather edge (transverse thickness profile)**

the variation in thickness, characterized by a reduction of thickness close to the edges, at right angles to the rolling direction

3.12**burr**

metal displaced beyond the plane of the surface of the strip by shearing action. Blackplate is usually supplied with cut edges. Blackplate will then have burrs caused by cutting.

3.13**rolling width**

the width of the strip perpendicular to the rolling direction

3.14**consignment**

a quantity of material of the same specification made available for despatch at the same time

3.15**pallet**

base platform on which a coil is placed to facilitate ready transportation

3.16**sample unit**

750 m of coil for the purposes of sampling

3.17**line inspection**

the final inspection of the finished product performed by instruments and/or by visual examination at normal production line speeds

3.18**anvil effect**

the effect which a hard anvil can produce on the numerical hardness value obtained when a hardness test is performed on very thin sheet supported on such an anvil

3.19**mill edge**

Trimmed before temper rolling therefore leading to higher width tolerances

prEN 10205:2014 (E)**4 Classification and designation****4.1 Classification**

The classification of the relevant steel grades is according to EN 10020. Steel grades for cold reduced blackplate for the manufacturing of tinplate or ECCS are non alloy quality steels.

4.2 Designation

For the steel grades covered by this document, the steel names as given in the relevant tables are allocated in accordance with En 10027-1. TS grades are batch annealed grades and TH grades are continuous annealing grades. The steel numbers as given in the relevant tables are allocated in accordance with EN 10027-2.

5 Information to be supplied by the purchaser**5.1 Mandatory information**

The following information shall be given on the enquiry and order to assist the manufacturer in supplying the correct material:

- a) Quantity expressed in length or mass;
- b) description of the material (blackplate coil) ;
- c) dimensions (thickness and width);
- d) edge condition, see 6.4 (T for trimmed edges and M for mill edges);
- e) number of this European Standard (EN 10205);
- f) steel name or steel number (see Table 3);
- g) appearance (see 6.5);
- h) finish (see 6.5);
- i) surface condition (oiling), see 6.6;
- j) intended use of the material as stamping, drawing, beading, bending and assembly work such as joint forming, soldering and welding, surface coating (metallic and organic coating);
- k) dispatch and packaging conditions (see clause 14), e.g. inner diameter of coils, coil winding direction, maximum and minimum mass and/or outside diameter of coils;
- l) if required, standard designation for a test report 2.2 or an inspection certificate 3.1 or 3.2 in accordance with EN 10204:2004 (see 10.1).

5.2 Options

In addition to the information in 5.1 the purchaser shall provide further information to the supplier to ensure that the order requirements are consistent with the end use of the product.

The purchaser is responsible of the choice of grade, the supplier not always being aware to assess of the relevance of the purchaser's choice.

5.3 Ordering example

Example 1: 5 t blackplate coil, thickness 0,22 mm, rolling width 800 mm with trimmed edges in accordance with this European Standard of steel grade TS275, appearance A, stone finish with test report 2.2 according to EN 10204:2004 shall be designated:

5 t blackplate coil 0,22x800 EN 10205-TS275-A-ST, EN 10204:2004 – 2.2

5 t blackplate coil 0,22x800 EN 10205-1.0375-A-ST, EN 10204:2004 – 2.2

Example 2: 5 t blackplate coil, thickness 0,18 mm, rolling width 750 mm with trimmed edges in accordance with this European Standard of steel grade TH620, appearance B, stone finish, with inspection certificate 3.1 according to EN 10204:2004 shall be designated:

5 t blackplate coil 0,18x750 EN 10205-TH620-B-ST, EN 10204:2004 – 3.1

5 t blackplate coil 0,18x750 EN 10205-1.0374-B-ST, EN 10204:2004 – 3.1

NOTE The designation does not cover variations in all material properties.

6 Steelmaking process

6.1 General

The steelmaking process of blackplate is under the responsibility of the manufacturer with the exception that the steel is continuously cast and that the open hearth (Siemens-Martin) process shall not be employed (unless in combination with a secondary steelmaking or ladle refining process.) If specified at the time of order the steel making process shall be reported to the purchaser.

6.2 Chemical composition and deoxidation

If blackplate is used for food contact, the steel type shall be manufactured in accordance with food safety regulations. The purchaser should be aware of existing national regulations which may impose limitations on some elements.

NOTE Information on the types and chemical composition of steels for blackplate is provided in annex A.

All steels shall be fully killed.

6.3 Traceability of the cast.

Each product shall be traceable to the cast.

6.4 Mill edges/trimmed edges

If not specified otherwise at the time of enquiry and order the products shall be delivered with trimmed edges.

6.5 Surface characteristics.

If not specified otherwise at the time of enquiry and order, the material shall be delivered with surface appearance B and surface finish Stone.

Surface characteristics concern surface appearance (see Table 1) and surface finish (see Table 2).