

Definicije jeklenih izdelkov

Definition of steel products

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Definition of steel products

Définition des produits en acier

Begriffsbestimmungen für Stahlerzeugnisse

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee ECISS/TC 6.

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Foreword

This document (prEN 10079:2005) has been prepared by Technical Committee ECISS/TC 6 “Steels - Definition and classification”, the secretariat of which is held by BSI.

This document is currently submitted to the CEN Enquiry.

This Standard cancels and replaces EN 10079: 1992, which has been technically revised.

Annex A is normative, annexes B, and C are informative.

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Introduction

There are various classification systems existing in Europe but this European Standard only deals with definitions for steel products manufactured by or used in the steel industry or by its customers. For example Annex B provides guidance on the definition systems used in the former European Coal and Steel Community (ECSC) Treaty as well as the Statistical office of the European Communities and of the Harmonised Commodity Description and Coding System.

The entries that are presented in this European Standard have been ordered systematically, and have been grouped by steel products according to:

- their shape and dimensions e.g. flat products, long products, heavy sections;
- their appearance and surface condition e.g. coated flat products, bright products.

This European Standard also contains an alphabetical index, which has been included at the end of this document.

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1 Scope

This European Standard defines terms for steel products according to:

- a) their shape and dimensions;
- b) their appearance and surface condition.

NOTE 1 Although the products are generally defined independently of their end uses or manufacturing processes, it has sometimes been necessary to make reference to these criteria.

NOTE 2 All dimensions given in this European Standard are nominal.

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 39, *Loose steel tubes for tube and coupler scaffolds — Technical delivery conditions.*

EN 10017, *Steel rod for drawing and/or cold rolling — Dimensions and tolerances.*

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

EN 10024, *Hot rolled taper flange I sections — Tolerances on shape and dimensions.*

EN 10029, *Hot rolled steel plates 3 mm thick and above; tolerances on dimensions, shape and mass.*

EN 10034, *Structural steel I and H sections; tolerances on shape and dimensions.*

EN 10048, *Hot rolled narrow steel strip; tolerances on dimensions and shape.*

EN 10051, *Continuous hot-rolled uncoated plate, sheet and strip of non-alloy and alloy steels — Tolerances on dimensions and shape.*

EN 10055, *Hot rolled steel equal flange tees with radiused root and toes — Dimensions and tolerances on shape and dimensions.*

EN 10056-2, *Structural steel equal and unequal leg angles — Part 2: Tolerances on shape and dimensions.*

EN 10058, *Hot rolled flat steel bars for general purposes — Dimensions and tolerances on shape and dimensions.*

EN 10059, *Hot rolled square steel bars for general purposes — Dimensions and tolerances on shape and dimensions.*

EN 10060, *Hot rolled round steel bars for general purposes — Dimensions and tolerances on shape and dimensions.*

EN 10061, *Hot rolled hexagon steel bars for general purposes — Dimensions and tolerances on shape and dimensions.*

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EN 10162, *Cold rolled steel sections — Technical delivery conditions — Dimensional and cross-sectional tolerances.*

EN 10067, *Hot rolled bulb flats — Dimensions and tolerances on shape, dimensions and mass.*

EN 10080, *Steel for the reinforcement of concrete — Weldable reinforcing steel — General.*

EN 10092-1, *Hot rolled spring steel flat bars — Part 1: Flat bars — Dimensions and tolerances on shape and dimensions.*

EN 10092-2, *Hot rolled spring steel flat bars — Part 2: Ribbed and grooved spring leaves — Dimensions and tolerances on shape and dimensions.*

EN 10106, *Cold rolled non-oriented electrical steel sheet and strip delivered in the fully processed state.*

prEN 10107:2003, *Grain-oriented electrical steel sheet and strip delivered in the fully processed state.*

EN 10108, *Round steel rod for cold heading and cold extrusion — Dimensions and tolerances.*

EN 10126, *Cold rolled electrical non-alloyed steel sheet and strip delivered in the semi-processed state.*

prEN 10131:2002, *Cold rolled uncoated low carbon and high yield strength steel flat products for cold forming — Tolerances on dimensions and shape.*

prEN 10138-1:2005, *Prestressing steels — Part 1: General requirements.*

prEN 10140:2003, *Cold rolled narrow steel strip — Tolerances on dimensions and shape.*

prEN 10143:2004, *Continuously hot-dip coated steel sheet and strip — Tolerances on dimensions and shape.*

EN 10165, *Cold rolled electrical alloyed steel sheet and strip delivered in the semi-processed state.*

EN 10202, *Cold reduced tinmill products — Electrolytic tinplate and electrolytic chromium/chromium oxide coated steel.*

EN 10205, *Cold reduced blackplate in coil form for the production of tinplate or electrolytic chromium/chromium oxide coated steel.*

EN 10208-1, *Steel pipes for pipelines for combustible fluids — Technical delivery conditions — Part 1: Pipes of requirement class A.*

EN 10208-2, *Steel pipes for pipelines for combustible fluids — Technical delivery conditions — Part 2: Pipes of requirement class B.*

prEN 10210-2:2003, *Hot finished structural hollow sections of non-alloy and fine grain structural steels — Part 2: Tolerances, dimensions and sectional properties.*

EN 10216-1, *Seamless steel tubes for pressure purposes — Technical delivery conditions — Part 1: Non-alloy steel tubes with specified room temperature properties.*

EN 10216-2, *Seamless steel tubes for pressure purposes — Technical delivery conditions — Part 2: Non-alloy and alloy steel tubes with specified elevated temperature properties.*

EN 10216-3, *Seamless steel tubes for pressure purposes — Technical delivery conditions — Part 3: Alloy fine grain steel tubes.*

EN 10216-4, *Seamless steel tubes for pressure purposes — Technical delivery conditions — Part 4: Non-alloy and alloy steel tubes with specified low temperature properties.*

EN 10216-5, *Seamless steel tubes for pressure purposes — Technical delivery conditions — Part 5: Stainless steel tubes.*

EN 10217-1, *Welded steel tubes for pressure purposes — Technical delivery conditions — Part 1: Non-alloy steel tubes with specified room temperature properties.*

EN 10217-2, *Welded steel tubes for pressure purposes — Technical delivery conditions — Part 2: Electric welded non-alloy and alloy steel tubes with specified elevated temperature properties.*

EN 10217-3, *Welded steel tubes for pressure purposes — Technical delivery conditions — Part 3: Alloy fine grain steel tubes.*

EN 10217-4, *Welded steel tubes for pressure purposes — Technical delivery conditions — Part 4: Electric welded non-alloy steel tubes with specified low temperature properties.*

EN 10217-5, *Welded steel tubes for pressure purposes — Technical delivery conditions — Part 5: Submerged arc welded non-alloy and alloy steel tubes with specified elevated temperature properties.*

EN 10217-6, *Welded steel tubes for pressure purposes — Technical delivery conditions — Part 6: Submerged arc welded non-alloy steel tubes with specified low temperature properties.*

prEN 10217-7:1998, *Welded steel tubes for pressure purposes — Technical delivery conditions — Part 7: Stainless steel tubes.*

EN 10218-2, *Steel wire and wire products — General — Part 2: Wire dimensions and tolerances.*

prEN 10219-2: 2003, *Cold formed welded structural hollow sections of non-alloy and fine grain steels — Part 2: Tolerances, dimensions and sectional properties.*

EN 10220, *Seamless and welded steel tubes — Dimensions and masses per unit length.*

EN 10224, *Non-alloy steel tubes and fittings for the conveyance of aqueous liquids including water for human consumption — Technical delivery conditions.*

EN 10248-2, *Hot rolled sheet piling of non alloy steels — Part 2: Tolerances on shape and dimensions.*

EN 10249-2, *Cold formed sheet piling of non alloy steels — Part 2: Tolerances on shape and dimensions.*

EN 10250-1, *Open die steel forgings for general engineering purposes — Part 1: General requirements.*

EN 10255, *Non-alloy steel tubes suitable for welding and threading — Technical delivery conditions.*

EN 10278, *Dimensions and tolerances of bright steel products*

EN 10279, *Hot rolled steel channels — Tolerances on shape, dimension and mass.*

EN 10296-1, *Welded circular steel tubes for mechanical and general engineering purposes — Technical delivery conditions — Part 1: Non-alloy and alloy steel tubes.*

prEN 10296-2: 2001, *Welded circular steel tubes for mechanical and general engineering purposes — Technical delivery conditions — Part 2: Stainless steel tubes.*

EN 10297-1, *Seamless circular steel tubes for mechanical and general engineering purposes — Technical delivery conditions — Part 1: Non-alloy and alloy steel tubes.*

prEN 10297-2: 2001, *Seamless circular steel tubes for mechanical and general engineering purposes — Technical delivery conditions — Part 2: Stainless steel tubes.*

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EN 10305-1, *Steel tubes for precision applications — Technical delivery conditions — Part 1: Seamless cold drawn tubes.*

EN 10305-2, *Steel tubes for precision applications — Technical delivery conditions — Part 2: Welded cold drawn tubes.*

EN 10305-3, *Steel tubes for precision applications — Technical delivery conditions — Part 3: Welded cold sized tubes.*

EN 10305-4, *Steel tubes for precision applications — Technical delivery conditions — Part 4: Seamless cold drawn tubes for hydraulic and pneumatic power systems.*

EN 10305-5, *Steel tubes for precision applications — Technical delivery conditions — Part 5: Welded and cold sized square and rectangular tubes.*

prEN 10305-6, *Steel tubes for precision applications — Technical delivery conditions — Part 6: Welded cold drawn tubes for hydraulic and pneumatic power systems.*

EN 10312, *Welded stainless steel tubes for the conveyance of aqueous liquids including water for human consumption — Technical delivery conditions.*

EURONORM 19:57, *IPE beams; I-beams with parallel flange facings.*

EURONORM 53:62, *Hot-rolled broad flanged I-beams (wide-flanged I-beams) with parallel flange facings.*

EURONORM 54:80, *Hot-rolled small U-beams.*

EURONORM 91: 81, *Hot-rolled wide flats; permissible deviations for dimension, form and weight.*

EN ISO 1127, *Stainless steel tubes —Dimensions, tolerances and conventional masses per unit length (ISO 1127: 1996).*

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3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply:

- 3.1**
liquid steel ¹⁾
steel in the liquid state ready for pouring and obtained from the melting of raw materials
- 3.2**
ingots and semi finished products ²⁾
- 3.2.1**
ingots
products obtained by pouring liquid steel into moulds of a shape appropriate to the subsequent processing ³⁾ into semi finished products, or flat or long products, generally by hot rolling or forging

1) See **B.1.2**.

2) See **B.1.3** and **B.1.4**.

3) In the case of ingots remelted by the vacuum arc of electroslag process, the products are obtained by melting, in a mould of appropriate shape, steel electrodes that have been previously cast, forged or rolled.

NOTE The shape generally resembles a truncated pyramid or truncated cone; the side surfaces may be corrugated and the corners more or less rounded. Depending on subsequent conversion requirements, ingots may be dressed and/or hot scarfed or cropped without altering their status as "ingots".

According to the cross section a distinction is made between the following:

3.2.1.1 Ingots having a cross section that may be square, rectangular (of width up to twice the thickness), polygonal, round, oval or shaped according to the profile to be rolled

3.2.1.2 Slab ingots of rectangular cross section of width twice the thickness or over

3.2.2

semi finished products ⁴⁾

products obtained by:

— continuous casting that may or may not be followed by rolling, forging or cutting;

— pressure casting;

— rolling, forging or cutting of ingots or large section continuous cast products and generally intended for conversion into flat or long products by hot rolling or forging, or for the manufacture of forgings.

NOTE The cross sections may be of various shapes (see **3.2.2.1** to **3.2.2.5**); the cross sectional dimensions are constant along the length with wider tolerances than those of the corresponding flat or long products and side corners more or less rounded. The side surfaces are sometimes slightly convex or concave, retaining rolling, forging or continuous casting marks and may be partly or totally dressed to remove surface defects, e.g. by cutting tool, torch or grinding.

3.2.2.1

semi finished products of square cross section

semi finished products with sides of 50mm or over, generally described as blooms if the sides are greater than 200mm, or as billets if smaller.

NOTE These dimensions may be less for certain types of steel, e.g. high speed steels. 2-821a-

3.2.2.2

semi finished products of rectangular cross section

semi finished products of cross section area $2\,500\text{ mm}^2$ or over of width up to twice the thickness, generally described as blooms if the cross section area is greater than $40\,000\text{ mm}^2$, or as billets if smaller

3.2.2.3

flat semi finished products

products of thickness generally 50 mm or over of width twice the thickness or over, generally described as slabs

3.2.2.4

round semi finished products ⁵⁾

continuously cast or forged semi finished products of circular cross section

3.2.2.5

blanks for sections

semi finished products intended for the manufacture of sections that have been preformed for that purpose

NOTE 1 The cross section area is generally over $2\,500\text{ mm}^2$

4) See **B.1.5** and **B.2.2**.

5) See **B.1.4** and **B.2.2.2**.

NOTE 2 In many countries the long products in question are obtained by rolling semi finished products of square or rectangular cross section.

3.3 flat products

3.3.1 general

products having almost rectangular cross sections, the width being much greater than the thickness

NOTE The surfaces are generally smooth except for certain products, e.g. floor plates, that show regular raised or indented surface patterns.

3.3.2 uncoated flat products

flat products without any coating or surface treatment

NOTE Flat products that have received a simple coating for the purpose of protection from corrosion or mechanical damage, e.g. passivation, organic coatings, paper, oil, lacquer etc. are defined as uncoated flat products.

3.3.2.1 hot rolled uncoated flat products

flat products manufactured by hot rolling semi finished products, more rarely by hot rolling ingots

NOTE Hot rolled flat products include those that have been given a very light cold rolling pass, normally less than 5 % reduction, known as a "skin pass" or "dressing pass".

3.3.2.1.1 wide flat

flat product of width over 150 mm up to and including 1 250 mm and thickness generally over 4 mm, always supplied in lengths, i.e. not coiled, and the edges are square i.e. hot rolled on the four sides (or in box passes)

3.3.2.1.2 plate and sheet ⁶⁾

flat rolled product, the edges being allowed to deform freely, supplied flat and generally in square or rectangular shapes with a width of 600 mm or over; but also in any other shape, e.g. circular or according to a design sketch

NOTE 1 The edges may be as rolled or sheared, flame cut or chamfered. The product may also be delivered pre-curved. Hot rolled plate and sheet are defined as:

— sheet: thickness up to 3 mm;

— plate: thickness 3 mm or over.

NOTE 2 Plate and sheet may be produced:

a) directly on a reversing mill; This product is generally known as quarto plate, or by cutting from a parent plate rolled on a reversing mill;

b) by cutting from hot rolled wide strip; This product is generally known as hot rolled sheet or plate.

6) See **B.2.3**.

3.3.2.1.3**strip**

hot rolled flat product that immediately after the final rolling pass or after pickling or continuous annealing, is wound into a regular coil

NOTE 1 As rolled, strip has slightly convex edges, but may also be supplied with sheared edges or slit from wider strip.

NOTE 2 Hot rolled strip is further defined as:

- a) hot rolled wide strip: width 600 mm or over;
- b) hot rolled slit wide strip: rolling width 600 mm or over, slit to widths up to 600 mm before supply;
- c) hot rolled narrow strip: rolling width up to 600 mm.

NOTE 3 After decoiling and transverse cutting, hot rolled strip may be supplied as cut lengths or sheet.

3.3.2.2**cold rolled uncoated flat products**

uncoated flat products that have undergone a reduction in cross-section of 25 % or over by cold rolling

NOTE For flat products of rolling width up to 600 mm and for certain qualities of special steel, levels of reduction of cross-section less than 25 % may be included.

3.3.2.2.1**plate and sheet**

cold rolled flat product, the edges being allowed to deform freely, supplied flat and generally in square or rectangular shapes with a width of 600 mm or over, but also in any other shape, e.g. circular or according to a design sketch

NOTE The edges may be as rolled sheared, flame cut or chamfered.

3.3.2.2.2**strip**

cold rolled flat product that immediately after the final rolling pass, or after pickling or continuous annealing, is wound into a regular coil

NOTE 1 As rolled, strip has slightly convex edges, but may also be supplied with sheared edges or slit from wider strip.

NOTE 2 Cold rolled strip is further defined as:

- a) cold rolled wide strip: width 600 mm or over;
- b) cold rolled slit wide strip: rolling width 600 mm or over, slit to widths up to 600 mm before supply;
- c) cold rolled narrow strip: rolling width up to 600 mm.

NOTE 3 After decoiling and cutting to length, cold rolled strip may be supplied as cut lengths or sheet.

3.3.3**electrical steels 7)**

steels characterised by their magnetic properties and are intended for the manufacture of electrical transformers and motors

NOTE 1 They are supplied in the form of cold rolled sheet or strip, generally less than 2 mm thick and of width up to and including 1 500 mm.

7) See **B.1.6**.