

SLOVENSKI STANDARD

SIST EN 10113-1:1997

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Vroče valjani izdelki iz varivih drobnnozrnatih konstrukcijskih jekel - 1. del: Splošni dobavni pogoji

Hot-rolled products in weldable fine grain structural steels - Part 1: General delivery conditions

Warmgewalzte Erzeugnisse aus schweißgeeigneten Feinkornbaustählen - Teil 1: Allgemeine Lieferbedingungen

Produits laminés a chaud en aciers de construction soudables a grains fins - Partie 1: Conditions générales de livraison

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ICS:

77.140.10 Jekla za toplotno obdelavo Heat-treatable steels

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EUROPEAN STANDARD

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NORME EUROPÉENNE

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Descriptors: Iron and steel products, hot rolled products, structural steels, welded construction, delivery, designation, quality classes, chemical composition, grades, quality, mechanical properties, inspection, tests, marking

English version

**Hot-rolled products in weldable fine grain
structural steels - Part 1 : General delivery
conditions**

iTeh STANDARD PREVIEW

Produits laminés à chaud en aciers de
construction soudable à grains fins - Partie 1:
Conditions générales de livraison

Warmgewalzte Erzeugnisse aus schweißgeeigneten
Feinkornbaustählen - Teil 1: Allgemeine
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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.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Contents list

0	Foreword	page 3
1	Scope	4
2	Normative references	4
3	Definitions	7
4	Information to be supplied by the purchaser	8
4.1	General	8
4.2	Options	9
5	Dimensions, mass and tolerances	9
5.1	Dimensions and tolerances	9
5.2	Mass of steel	9
6	Classification of qualities; designation	9
6.1	Classification of qualities	9
6.2	Designation	10
7	Technical requirements	10
7.1	Steel manufacturing process	10
7.2	Delivery condition	10
7.3	Chemical composition	11
7.4	Mechanical properties	11
7.5	Technological properties	12
7.6	Surface finish	14
7.7	Internal defects	14
8	Inspection and testing	14
8.1	General	14
8.2	Sampling	15
8.3	Test units	15
8.4	Verification of chemical composition	15
8.5	Mechanical tests	15
8.6	Test methods	16
8.7	Retests and resubmission for testing	18
8.8	Inspection documents	18
9	Marking for flat and long products	18
10	Complaints after delivery	19
11	Options	19
11.1	All products	19
11.2	Flat products	19
11.3	Long products	20
Annex A	(normative) Location of samples and test pieces (see EURONORM 18)	22
Annex B	(informative) List of national standards which correspond with EURONORMS referenced	26
Annex C	(informative) List of corresponding former designations	27



Foreword

This European Standard has been drawn up by ECISS/TC 10 "Structural steel - Qualities" whose secretariat is held by NNI.

This European Standard replaces Euronorm 113-72 "Special quality weldable structural steel grades and quality. General provisions".

The Technical Committee ECISS/TC 10 met in June 1991 in Brussels and agreed on the text for circulation for formal vote within CEN. The following countries were represented in that meeting: Austria, Belgium, Denmark, Finland, France, Germany, Italy, Luxembourg, Netherlands, Spain, Sweden and UK.

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 September 1993, and conflicting national standards shall be withdrawn at the latest by September 1993.

This European Standard has been adopted and in accordance with the CEN/CENELEC Internal Regulations, following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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1 Scope

1.1 This European Standard specifies requirements for long products and flat products of hot-rolled weldable fine grain structural quality and special steels. Part 1 of this European Standard specifies the general delivery conditions. Part 2 of this European Standard specifies the delivery conditions for normalized steels in the grades and qualities given in table 1 (chemical composition) and tables 3 and 4 (mechanical properties) of part 2.

NOTE: Whenever normalized is mentioned, normalized rolled is also covered (see 7.2 of part 2).

Part 3 of this European Standard specifies the delivery conditions for thermomechanical rolled steels in the grades and qualities given in table 1 (chemical composition) and tables 3 and 4 (mechanical properties) of part 3.

The steels specified in this European Standard are especially intended for use in heavily loaded parts of welded structures such as, bridges, flood gates, storages tanks, water supply tanks, etc., for service at ambient and low temperatures.

SIST EN 10113-1:1997

1.2 This European Standard does not apply to products for which other Euronorms exist or European Standards dealing with steels for general structural applications are being prepared:

- Hot-rolled products of non-alloy structural steels - (see EN 10025).
- Semi-finished products for forging in general purpose structural steels - (see Euronorm 30).
- Weathering steels for structural purposes - (see EN 10155).
- Plates and wide flats made of weldable fine-grained structural steels in the quenched and tempered condition - (see prEN 10137).
- Flat products in high yield strength steels for cold forming - wide flats, sheet/plate, wide and narrow strip - (see prEN 10149).
- Steels for shipbuilding - normal and high strength qualities - (see Euronorm 156).
- Hot finished structural hollow sections (see prEN 10210-1).

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in

the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

2.1 General standards

EN 10020	Definition and classification of grades of steel
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	Definitions of steel products
EN 10163	Delivery requirements for surface condition of hot-rolled steel plates, wide flats and sections -- Part 1: General requirements; Part 2: Plates and wide flats; Part 3: Sections
EN 10204	Metallic products -- Types of inspection documents
EN 10021	General technical delivery requirements for steel and iron products
prEN 10052	¹⁾ Vocabulary of heat treatment terms for ferrous products
EURONORM 162 (1981)	²⁾ Cold-rolled sections -- Technical conditions of delivery
EURONORM 168 (1986)	²⁾ Iron and steel products -- Inspection documents -- Contents
ECCS IC 2 (1983)	²⁾ Weldable fine-grained structural steels -- Recommendations for processing, in particular for welding
ECISS IC 10	Designation systems for steel -- Additional symbols for steel names

2.2 Standards on dimensions and tolerances

EN 10029	Hot-rolled plates 3 mm thick or above -- Tolerances on dimensions, shape and mass
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1) Draft is under discussion.

2) Until these EURONORMS are transformed into European Standards, they can either be implemented or reference made to the corresponding national standards, the list of which is given in Annex B to this European Standard.

Page 6
EN 10113-1:1993

EN 10051		Continuously hot-rolled uncoated sheet and strip of non-alloy and alloy steels -- Tolerances on dimensions and shape
prEN 10034	¹⁾	Structural steel I and H sections -- Tolerances on shape and dimensions
prEN 10056-2	¹⁾	Structural steel equal and unequal leg angles -- Tolerances on shape and dimensions
EURONORM 19	(1957) ²⁾	IPE beams: parallel-flanged beams
EURONORM 24	(1962) ²⁾	Standard beams and channel sections -- Tolerances
EURONORM 48	(1984) ²⁾	Specification for hot-rolled narrow steel strip -- Tolerances on dimensions, shape and mass
EURONORM 53	(1962) ²⁾	Wide-flanged beams with parallel flanges
EURONORM 54	(1980) ²⁾	Small hot-rolled steel channels
EURONORM 55	(1980) ²⁾	Hot-rolled equal flange tees with radiused root and toes in steel
EURONORM 56	(1977) ²⁾ ³⁾	Hot-rolled equal angles (with radiused root and toes)
EURONORM 57	(1978) ²⁾ ³⁾	Hot-rolled unequal angles (with radiused root and toes)
EURONORM 58	(1978) ²⁾	Hot-rolled flats for general purposes
EURONORM 59	(1978) ²⁾	Hot-rolled square bars for general purposes
EURONORM 60	(1977) ²⁾	Hot-rolled round bars for general purposes
EURONORM 61	(1982) ²⁾	Hot-rolled steel hexagons
EURONORM 65	(1980) ²⁾	Hot-rolled round steel bars for screws and rivets
EURONORM 66	(1967) ²⁾	Hot-rolled half-rounds and flattened half-rounds
EURONORM 67	(1978) ²⁾	Hot-rolled bulb flats
EURONORM 91	(1981) ²⁾	Hot-rolled wide flats - Tolerances on dimensions, shape and mass

- 1) Draft is under discussion.
- 2) Until these EURONORMS are transformed into European Standards, they can either be implemented or reference made to the corresponding national standards, the list of which is given in Annex B to this European Standard.
- 3) EURONORM 56 and 57 are added because they contain the nominal dimensions.

2.3

Standards on testing

EN 10002-1	Metallic materials -- Tensile testing -- Part 1: Method of test (at ambient temperature)
EN 10045-1	Metallic materials -- Charpy impact test -- Part 1: Test method
EN 10164	Steel products with improved deformation properties perpendicular to the surface of the product -- Technical delivery conditions
EURONORM 18 (1979) ²⁾	Selection and preparation of samples and test pieces for steel and iron and steel products
EURONORM 103 (1971) ²⁾	Microscopic determination of the ferritic and austenitic grain size of steel
EURONORM 160 (1985) ²⁾	Manual ultrasonic testing of plate in thicknesses ≥ 6 mm (reflection method)
EURONORM 186 (1987) ²⁾	Ultrasonic testing of broad flanged beams with parallel flanges and IPE beams
ISO 2566/1 (1984)	Steel -- Conversion of elongation values -- Part 1: Carbon and low alloy steels

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3

Definitions

For the purposes of this European Standard the following definitions apply.

3.1 Non-alloy quality steel and alloy special steel as defined in EN 10020.

3.2 Long products and flat products (plate, sheet, narrow strip, wide strip and wide flats) as defined in EN 10079.

3.3 Heat treatment terms as defined in prEN 10052.

3.4 Fine grained steels: steels with fine grain structure with a equivalent index of ferritic grain size ≥ 6 determined in accordance with EURONORM 103.

2) Until these EURONORMS are transformed into European Standards, they can either be implemented or reference made to the corresponding national standards, the list of which is given in Annex B to this European Standard.

3.5 Normalizing rolling: a rolling process in which the final deformation is carried out in a certain temperature range leading to a material condition equivalent to that obtained after normalizing so that the specified values of the mechanical properties are retained even after normalizing.

The abbreviated form of this delivery condition is N.

NOTE: In international publications for both the normalizing rolling, as well as the thermomechanical rolling, the expression "controlled rolling" may be found. However in view of the different applicability of the products a distinction of the terms is necessary.

3.6 Thermomechanical rolling: a rolling process in which the final deformation is carried out in a certain temperature range leading to a material condition with certain properties which cannot be achieved or repeated by heat treatment alone.

The abbreviated form of this delivery condition is M.

NOTE 1: Subsequent heating above 580 °C may lower the strength values. If temperatures above 580 °C are needed reference shall be made to the supplier.

NOTE 2: Thermomechanical rolling leading to the delivery condition M can include processes with an increasing cooling rate with or without tempering including self-tempering but excluding direct quenching and quenching and tempering.

4 Information to be supplied by the purchaser

4.1 General

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

- a) details of the product form and relevant quantities;
- b) reference to this European Standard;
- c) nominal dimensions and tolerances (see 5.1);

- d) the grade, quality and delivery condition of the steel
(see parts 2 and 3 of this European Standard);
- e) the type of inspection document (see 8.8).

Where no specific choice is made by the purchaser concerning points a, b, c, d and e the supplier shall refer back to the purchaser.

4.2 Options

A number of options is specified in clause 11. In the event that the purchaser does not indicate his wish to implement any of these options, the supplier shall supply in accordance with the basic specification.

5 Dimensions, mass and tolerances

5.1 Dimensions and tolerances

Dimensions and tolerances shall be in accordance with the relevant European Standards and EURONORMS (see 2.2).

5.2 Mass of steel

The calculated mass shall be determined using a volumetric mass of 7,85 kg/dm³.

6 Classification of qualities; designation

6.1 Classification of qualities

6.1.1 Classification

Classification shall be in accordance with parts 2 and 3 of this European Standard which specify steel grades that are non-alloy quality steels or alloy special steels according to EN 10020.

6.1.2 Grades and qualities

The steel designations for flat products and long products specified in parts 2 and 3 of this European Standard are subdivided in grades on the basis of the minimum specified yield strength at ambient temperature. All the grades can be delivered in the following qualities as specified at the time of the enquiry and order:

- with specified minimum values of impact energy at temperatures not lower than -20 °C;
- with specified minimum values of impact energy at temperatures not lower than -50 °C.