SLOVENSKI STANDARD
SIST EN 10113-3:1997

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Vroļ e valjani izdelki iz varivih drobnozrnatih konstrukcijskih jekel - 3. del: Dobavni pogoji za termomehansko valjana jekla

Hot-rolled products in weldable fine grain structural steels - Part 3: Delivery conditions for thermomechanical rolled steels

Warmgewalzte Erzeugnisse aus schweißgeeigneten Feinkornbaustählen - Teil 3: Lieferbedingungen für thermomechanisch gewalzte Stähle

Produits laminés a chaud en aciers de construction soudable a grains fins - Partie 3: Conditions de livraison des aciers obtenus par laminage thermomécanique

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77.140.10 Jekla za toplotno obdelavo Heat-treatable steels

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

English version

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CEN

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

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Contents list

Foreword

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

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of an identical text or by endorsement, at the latest by September 1993, and conflicting national standards shall be withdrawn at the latest by September 1993.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.

1 Scope

Part 3 of this European Standard, in addition to part 1, specifies requirements for flat products with nominal thickness ≤ 63 mm and long products with nominal thickness ≤ 150 mm of hot-rolled weldable fine grain structural steel in the thermomechanical rolled condition in the grades and qualities given in table 1 (chemical composition) and tables 3, 4 and 5 (mechanical properties).

2 Normative references

The normative references as given in EN 10113 part 1 shall apply.

3 Definitions

The definitions given in EN 10113 part 1 shall apply.

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 and quality of the steel (see tables 1 - 5);

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

The dimensions and tolerances shall be in accordance with the relevant European Standards and EURONORMS (see 2.2 of EN 10113 part 1).

5.2 Mass of steel

The mass of steel shall comply with EN 10113 part 1.

6 Classification of qualities; designation

6.1 Classification of qualities

The steel grades S275 and S355 of part 3 of this European Standard are non-alloy quality steels and the steel grades S420 and S460 of part 3 of this European Standard are alloy special steels according to EN 10020.

6.2 Designation

The designation shall be in accordance with EN 10113 part 1.

Example: Thermomechanical rolled steel with a specified minimum yield strength at ambient temperature of 355 N/mm², and with a specified minimum impact value at -50 °C:

Steel EN 10113-3 S355ML

7 Technical requirements

7.1 Steel manufacturing process

The steel manufacturing process shall be in accordance with EN 10113 part 1.
Option 1.

7.2 Delivery condition

The products shall be supplied in the thermomechanical rolled condition as defined in clause 3.

7.3 Chemical composition

7.3.1 The chemical composition determined by ladle analysis shall comply with the specified values of table 1.

7.3.2 The values for permissible deviations of the product analysis from the specified limits of the ladle analysis are as specified in table 1 of EN 10113 part 1. The

manufacturer shall inform the purchaser at the time of the enquiry and order which of the alloying elements appropriate to the steel grade required will be deliberately added to the material to be delivered.

7.3.3 If agreed at the time of the enquiry and order the maximum carbon equivalent values, based on the ladle analysis, given in table 2 shall apply.
Option 2.

NOTE: As a consequence of the lower carbon content and carbon equivalent values the material in the delivery condition M has improved weldability properties.

7.4 Mechanical properties

7.4.1 General

Under the inspection and testing conditions as specified in clause 8 and in the delivery condition as specified in 7.2 the mechanical properties shall comply with the values given in tables 3, 4 and 5.

7.4.2 Impact test

The verification of the impact energy value shall be carried out in accordance with EN 10113 part 1.
Option 4.
Option 5.

7.5 Technological properties

7.5.1 Weldability

Weldability shall be in accordance with EN 10113 part 1.

7.5.2 Formability

NOTE: Recommendations regarding cold forming are laid down in ECCS IC 2.

7.5.2.1 Hot forming

Hot forming shall not be undertaken.

NOTE: The products ordered and supplied in the thermomechanical rolled condition are not suitable for hot forming.

7.5.2.2 Cold forming

7.5.2.2.1 Flangeability

If specified at the time of the enquiry and order plate, sheet, strip and wide flats ordered and supplied in the thermomechanical rolled condition with a nominal thickness ≤ 12 mm shall be suitable for flanging without cracking with the following minimum bend radii:

-- 2 times the nominal thickness with the axis of the bend in transverse direction and 2,5 times the nominal thickness in longitudinal direction for the steel grades S275 and S355;
-- 4 times the nominal thickness with the axis of the bend in transverse direction and 5 times the nominal thickness in longitudinal direction for the steel grades S420 and S460.

Option 11.

7.5.2.2.2 Roll forming

If specified at the time of the enquiry and order plate and strip with a nominal thickness ≤ 8 mm shall be suitable for the production of sections through cold rolling (for example according to EURONORM 162), with the same minimum bend radii as given in 7.5.2.2.1.
Option 12.

NOTE: The products suitable for roll forming are also suitable for the manufacture of cold-finished square and rectangular hollow sections.

7.5.3 Other requirements

7.5.3.1 If specified at the time of the enquiry and order the grades S275 and S355 shall be suitable for hot-dip zinc coating and shall comply with the relevant product quality requirements.
Option 7.

7.5.3.2 If agreed at the time of the enquiry and order the material shall be suitable for slitting of heavy sections.
Option 15.

7.6 **Surface finish**

The surface finish shall be in accordance with EN 10113 part 1.
Option 8.