



SLOVENSKI STANDARD
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Vročje valjana obešala iz nelegiranih jekel - 1. del: Tehnični dobavni pogoji

Hot rolled sheet piling of non alloy steels - Part 1: Technical delivery conditions

Warmgewalzte Spundbohlen aus legierten Stählen - Teil 1: Technische Lieferbedingungen

Palplanches laminées a chaud en aciers non alliés - Partie 1: Conditions techniques de livraison

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ICS:

77.140.45	Nelegirana jekla	Non-alloyed steels
77.140.70	Jekleni profili	Steel profiles

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EUROPEAN STANDARD

EN 10248-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 1995

ICS 77.140.70

Descriptors: iron and steel products, hot rolled products, sheet piling, steels, unalloyed steels, chemical composition, grades : quality, classifications, designation, mechanical properties, weldability, surface condition, tests, inspection, marking

English version

Hot rolled sheet piling of non alloy steels - Part 1: Technical delivery conditions

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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

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Foreword

This European Standard was prepared by SC4 "Sheet piling" of Technical Committee ECISS/TC10 "Structural steels - Qualities" the secretariat of which is held by NNI.

EN 10248 is composed of two parts :

- Part 1 : Technical delivery conditions,
- Part 2 : Tolerances on shape and dimensions.

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of an identical text or by endorsement, at the latest by December 1995, and conflicting national standards shall be withdrawn at the latest by December 1995.

According to the CEN/CENELEC Internal Regulations, the 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, United Kingdom.

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1 Scope

This part of this European Standard specifies the requirements for hot rolled non alloy steel sheet piling in respect of its chemical composition, mechanical properties and conditions of delivery.

The products specified are for general, structural and civil engineering works.

Requirements in respect of tolerances on shape and dimensions are specified in Part 2 of this European Standard.

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.

- EN 10002-1 Metallic materials - Tensile testing - Part 1 : Method of test (at ambient temperature).
- EN 10020 Definition and classification of grades of steel.
- EN 10021 General technical delivery requirements for steel and steel products.
- EN 10027-1 Designation system for steel - Part 1 : Steel names, principal symbols.
- EN 10027-2 Designation system for steel - Part 2 : Steel numbers.
- EN 10079 Definition of steel products.
- EN 10248-2 Hot rolled sheet piling of non alloy steels - Part 2 : Tolerances on shape and dimensions
- EN 10204 Metallic products - Types of inspection documents.
- ECISS/IC 10 Designation system for steel - Additional symbols for steel names.
- EU 18 ¹⁾ Selection and preparation of samples and test pieces for steel and iron and steel products.
- EU 168 ¹⁾ Iron and steel products - Inspection documents, content

3 Definitions

For the purpose of this European Standard, the definitions in EN 10020, EN 10021 and EN 10079 shall apply.

NOTE : EN 10020 applies with respect to non alloy steel definition with the exception of copper content (see 7.3.2).

¹⁾ Until these EURONORMS are transformed into European Standards, they may be either implemented as referenced in this European Standard or the corresponding national standards given in annex B may be implemented in their place.

4 Information to be supplied by the purchaser

4.1 General

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

- a) details of the product form, length, quantity and any further processing work that is required, e.g. surface treatment,
- b) the designation of the product (in accordance with 6.2),
- c) whether products have to be submitted to inspection and testing and if inspection and testing is required, which type of inspection and which inspection document is required (see 8.1.2).

Where non specific choice is made by the purchaser concerning a) and b) the supplier shall refer back to the purchaser.

NOTE : It is recommended that the manufacturer be informed by the purchaser at the time of the order, if the purchaser intends to carry out any surface treatment on the product after delivery.

4.2 Options

A number of options are specified in clause 10. In the event that the purchaser does not indicate a requirement to implement any of these options, the product shall be supplied in accordance with the basic specification. (standards.iteh.ai)

5 Mass of steel

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

6 Classification and designation

6.1 Classification

This European Standard specifies six steel grades which are classified as non-alloyed steels according to EN 10020.

6.2 Designation

6.2.1 Steel names ²⁾ are assigned to steel grades in tables 1 and 2 in accordance with EN 10027-1 and IC 10. Steel numbers are allocated to steel grades in accordance with EN 10027-2.

6.2.2 The products covered by this European Standard shall be designated in the following sequence :

- a) the name of the product, i.e. "Sheet piling",
- b) the number of this European Standard, i.e. EN 10248,
- c) the steel name or number.

²⁾ Former national designations (steel names) are listed in annex C

EXAMPLE : Sheet piling EN10248-S320GP or Sheet piling EN 10248-1.0046
Indicating a sheet piling product in accordance with EN 10248 made of steel S320GP (steel number 1.0046).

7 Technical requirements

7.1 Steel manufacturing process

7.1.1 The steel manufacturing process shall be at the manufacturer's option. Where specified at the time of the enquiry and order, the steel manufacturing process shall be reported to the purchaser.

Option 1, see 10.2.

7.1.2 The method of deoxidation shall be at the option of the manufacturer, except that rimming steel shall not be permitted.

7.2 Delivery condition

Unless otherwise agreed, sheet piles shall be delivered in the as rolled condition.

Option 2, see 10.3.

7.3 Chemical composition

7.3.1 The upper limits applicable for both the ladle and the product analysis shall comply with the values given in table 1.

7.3.2 Where specified at the time of the enquiry and order, the copper content can be between 0,20 % and 0,35 % or 0,35 % and 0,50 %.

Option 3, see 10.4.

7.3.3 A maximum carbon equivalent value (CEV) based on the ladle analysis may be agreed at the time of the enquiry and order. The carbon equivalent value shall be determined according to the following formula :

$$CEV = C + \frac{Mn}{6} + \frac{Cr+Mo+V}{5} + \frac{Ni+Cu}{15}$$

Where a carbon equivalent value is agreed the content of the elements in the carbon equivalent formula shall be reported in the inspection document (see 8.8).

Option 4, see 10.5.

7.4 Mechanical properties

7.4.1 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 relevant requirements of table 2.

7.4.2 If agreed at the time of the enquiry and order, all steel grades shall be supplied with specified impact properties.

Option 5, See 10.6.

7.5 Technological properties

7.5.1 Weldability

7.5.1.1 In general, steel sheet pile grades are suitable for arc welding.

7.5.1.2 Steels specified in this European Standard do not have unlimited suitability for the various welding processes, since the behaviour of a steel during and after welding depends not only on the material, but also on the dimensions and shape and on the manufacturing and service conditions of the components.

NOTE 1 : With increasing product thickness, increasing strength level and increasing carbon equivalent value the occurrence of cold cracking in the welded zone forms the main risk. Cold cracking is caused by the following factors in combination :

- a) the amount of diffusible hydrogen in the weld metal,
- b) brittle structure of the heat affected zone,
- c) significant tensile stress concentrations in the welded joint.

NOTE 2 : When using recommendations in any relevant National Standard, the recommended welding conditions and the various welding ranges of the steel grades may be determined depending on the product thickness, the applied welding energy, the design requirements, the electrode efficiency, the welding process and the weld metal properties.

NOTE 3 : For high stress welded constructions, steels with appropriate properties may be agreed at the time of the enquiry and order.

Option 4, see 10.5

7.5.2 Other requirements

Where specified at the time of the enquiry and order, the suitability and the relevant product quality requirements for hot dip zinc coating may be agreed.

Option 6, see 10.7.

Where specified at the time of the enquiry and order, the interlock strength may be agreed ³⁾.

Option 7, see 10.8.

7.6 Surface finish

7.6.1 The material shall be sound and free from any surface flaws which might preclude its use for the purpose for which it is intended.

7.6.2 Repair by grinding and/or welding is permitted, provided that :

- a) after the elimination of the defect and before welding the thickness shall not be less than 80 % of the nominal thickness,
- b) the sum of the areas repaired by welding shall not be more than 2 % of the surface area of the sheet pile under inspection,
- c) the overthickness of the fillet weld shall be ground flush with the surface of the sheet pile,

³⁾ Both the specified value of the interlock strength and the relevant test method shall be agreed.