SLOVENSKI STANDARD
SIST EN 10219-1:1998

01-avgust-1998

Hladno oblikovani varjeni votli konstrukcijski profili iz nelegiranih in drobnozrnatih jekel - 1. del: Tehnični dobavni pogoji

Cold formed welded structural hollow sections of non-alloy and fine grain steels - Part 1: Technical delivery requirements

Kaltgefertigte geschweißte Hohlprofile für den Stahlbau aus unlegierten Baustählen und aus Feinkornbaustählen - Teil 1: Technische Lieferbedingungen

Profils creux pour la construction formés a froid en aciers de construction non alliés et a grains fins - Partie 1: Conditions techniques de livraison

Ta slovenski standard je istoveten z: **EN 10219-1:1997**

ICS:

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

SIST EN 10219-1:1998 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 10219-1

August 1997

ICS 77.140.70; 91.080.10

Descriptors: steel construction, metal sections, hollow profils, cold rolled products, structural steels, unalloyed steels, quality classes, grades:quality, chemical composition, mechanical properties, delivery condition, weldability, surface condition, inspection, mechanical tests, marking, fine grain steel

English version

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This European Standard was approved by CEN on 1997-06-22. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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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

Foreword

This European Standard has been prepared by Technical Committee ECISS/TC 10 "Structural steels - Qualities", the secretariat of which is held by NNI.

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 February 1998, and conflicting national standards shall be withdrawn at the latest by February 1998.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This part of this European Standard specifies the technical delivery requirements for cold formed welded structural hollow sections of circular, square or rectangular form and applies to structural hollow sections formed cold without subsequent heat treatment.

The specified requirements apply to non-alloy quality steel, fine grain non-alloy quality steel and fine grain alloy special steels as defined in EN 10020.

The grades, chemical composition and mechanical properties for the non-alloy quality steels are given in annex A.

The grades, chemical composition and mechanical properties for the fine grain non-alloy quality and alloy special steels are given in annex B.

The products specified in this part of this European Standard are intended for use in construction.

> NOTE: A range of steel grades is specified in this European Standard and the user should select the grade appropriate to the intended use and service conditions. The grades and mechanical properties of the finished hollow sections are compatible with those in EN 10025 and EN 10113 and some of those in EN 10149.

Requirements for tolerances, dimensions and sectional properties are contained in Part 2 of this European Standard (EN 10219-2).

This European standard does not apply to products covered by the following European Standards:

EN 10025	Hot-rolled products of non-alloy structural steels: Technical delivery conditions
EN 10113	Hot-rolled products in weldable fine grain structural steels
EN 10149	Hot-rolled flat products made of high yield strength steels for cold forming
EN 10155	Structural steels with improved atmospheric corrosion resistance: Technical delivery conditions.
EN 10210	Hot finished structural hollow sections of non-alloy and fine grain structural steels
EN 10225	Weldable structural steels for fixed offshore structures

2 Normative references

This part of 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 part of 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 287-1	Approval testing of welders - Fusion welding Part 1: Steels
EN 288-1	Specification and approval of welding procedures for metallic materials Part 1: General rules for fusion welding
EN 288-2	Specification and approval of welding procedures for metallic materials Part 2: Welding procedure specification for arc welding
EN 288-3	Specification and approval of welding procedures for metallic materials Part 3: Welding procedure tests for arc welding of steels
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 iron products
EN 10027-1	Designation systems for steel Part 1: Steel names, principal symbols
EN 10027-2	Designation systems for steel Part 2: Steel numbers
EN 10045-1	Metallic materials - Charpy impact test Part 1: Test method
EN 10052	Vocabulary of heat treatment terms for ferrous products
EN 10204	Metallic products - Types of inspection documents

EN 10219-2	Cold formed welded structural hollow sections of non-alloy and fine grain steels Part 2: Tolerances, dimensions and sectional properties
EN 10246-3[1)]	Non-destructive testing of steel tubes Part 3: Automatic eddy current testing of seamless and welded (except submerged arc welded) steel tubes for the detection of imperfections
EN 10246-5[1)]	Non-destructive testing of steel tubes Part 5: Automatic full peripheral magnetic transducer/flux leakage testing of seamless and welded (except submerged arc welded) ferromagnetic steel tubes for the detection of longitudinal imperfections
EN 10246-8[1)]	Non-destructive testing of steel tubes Part 8: Automatic ultrasonic testing of the weld seam of electric resistance and induction welded steel tubes for the detection of longitudinal imperfections
EN 10246-9[1)]	Non-destructive testing of steel tubes Part 9: Automatic ultrasonic testing of the weld seam of submerged arc-welded steel tubes for the detection of longitudinal and/or transverse imperfections.
EN 10246-10[1)]	Non-destructive testing of steel tubes Part 10: Radiographic testing of the weld seam of submerged arc-welded steel tubes for the detection of imperfections
EN 10266[1)]	Steel tubes, fittings and steel structural hollow sections - Symbols and definitions of terms for use in product standards
EN ISO 377	Selection and preparation of samples and test pieces for steel and iron products (ISO 377:1997)
EN ISO 9001	Quality systems - Model for quality assurance in design/development, production, installation and servicing (ISO 9001:1994)

[1)] In preparation, until this document is published as a European Standard, a corresponding national standard should be agreed at the time of enquiry and order.

EN ISO 9002	Quality systems - Model for quality assurance in production, installation and servicing (ISO 9002:1994)
EURONORM 103[2)]	Micrographic determination of ferritic or austenitic grain size of steel
EURONORM 168[2)]	Iron and steel products - Inspection documents - Contents

Information Circular No. 2 Weldable fine-grained structural steels - Recommendations for processing, in particular for welding

CR 10260 Designation system for steel: Additional symbols for steel names

ISO 2566-1	Steel - Conversion of elongation values Part 1 : Carbon and low alloy steels
ISO 14284	Steel and iron - Sampling and preparation of samples for the determination of chemical composition

3 Definitions

For the purpose of this European Standard, the following definitions apply in addition to or where different from those in EN 10020, EN 10021, EN 10052, EN 10204 and EN 10266.

3.1 cold forming: A process where the main forming is done at ambient temperature.

3.2 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.

[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 D to this part of this European Standard.

3.3 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. Subsequent heating above 580 °C may lower the strength values.

NOTE: 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 Classification and designation

4.1 Classification

4.1.1 Within the strength grades of the non-alloy steels given in annex A, three qualities JR, J0 and J2 are specified. These differ in respect of specified impact requirements, limits on values of various elements with particular reference to sulfur and phosphorus and the inspection and testing requirements.

In accordance with the classification system in EN 10020, S235 is a non-alloy base steel all other steel grades in annex A are non-alloy quality steels.

4.1.2 Within the strength grades of the fine grain steels given in annex B, four qualities N, NL, M and ML are specified. These differ in respect of the carbon, sulfur and phosphorus content and low temperature impact properties.

In accordance with the classification system in EN 10020 steel grades S275 and S355 are non-alloy quality steels and steel grades S420 and S460 are alloy special steels.

4.2 Designation

4.2.1 For the products covered by this European Standard the steel names are allocated in accordance with EN 10027-1 and CR 10260; the steel numbers are allocated in accordance with EN 10027-2.

NOTE: For a list of corresponding former national designations, see annex E, table E.1.

4.2.2 For non-alloy steel structural hollow sections the designation shall consist of:

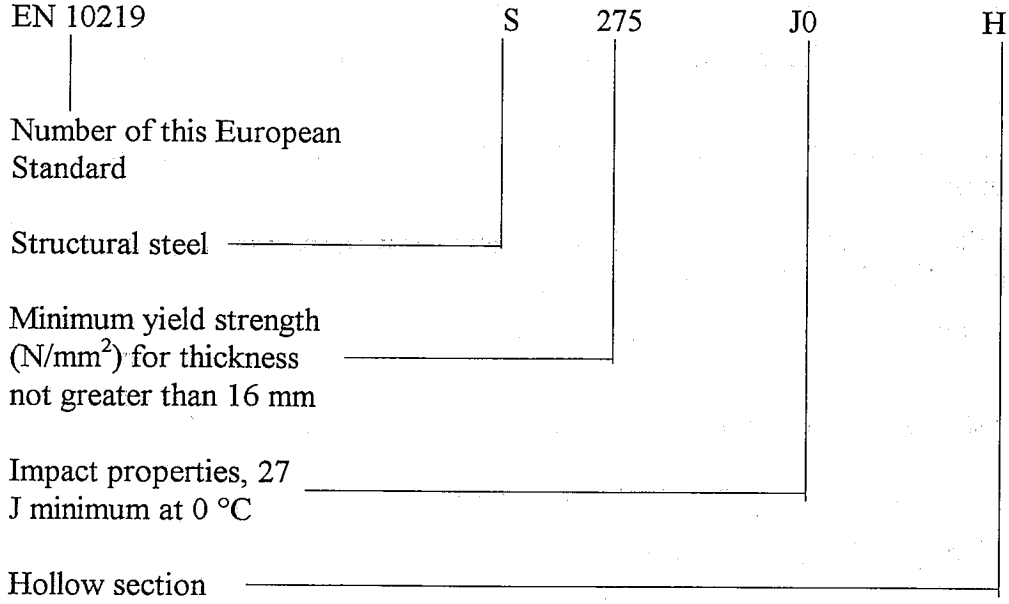
- the number of this European Standard (EN 10219);
- the capital letter S for structural steel;
- the indication of the minimum specified yield strength for thicknesses ≤ 16 mm expressed in N/mm^2;
- the capital letters JR for the qualities with specified impact properties at room temperature; or,
- the capital letter J and a number 0 or 2 for the qualities with specified impact properties at 0 °C and -20 °C respectively;
- the capital letter H to indicate hollow sections.

4.2.3 For fine grain steel structural hollow sections the designation shall consist of:

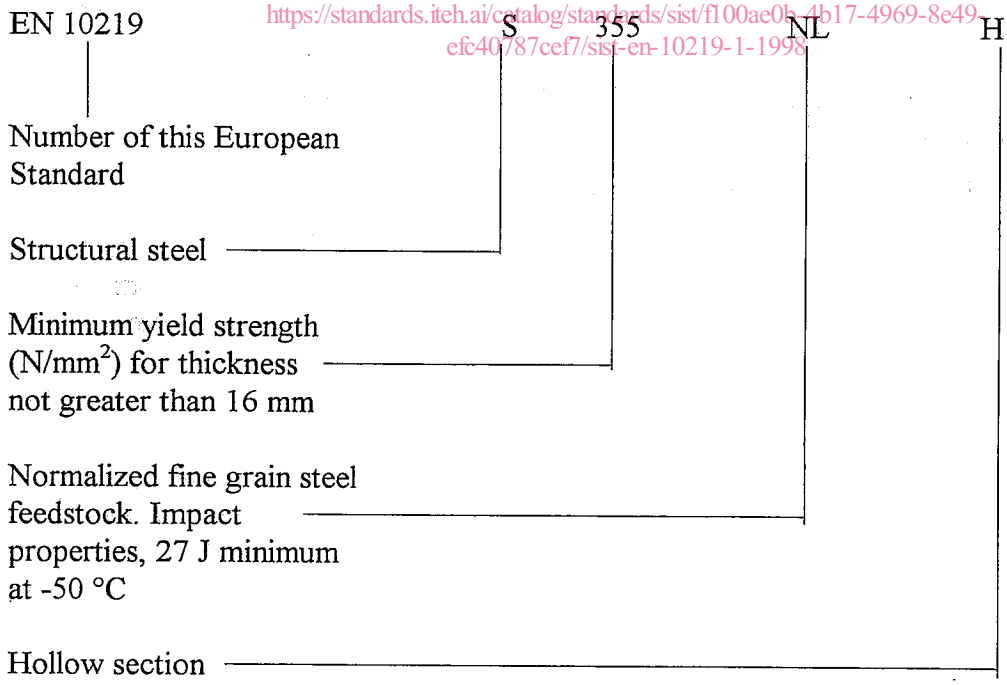
- the number of this European Standard (EN 10219);
- the capital letter S for structural steel;
- the indication of the minimum specified yield strength for thicknesses ≤ 16 mm expressed in N/mm^2;
- the capital letter N to indicate normalized or normalized rolled feedstock material, (see 6.3);
- the capital letter M to indicate thermomechanically-rolled feedstock material (see 6.3);
- the capital letter L for the qualities with specified minimum values of impact energy at a temperature of -50 °C;
- the capital letter H to indicate hollow sections.

4.2.4 The product shall be designated as illustrated by the following examples:

Example 1



Example 2



5 Information to be supplied by the purchaser

5.1 Mandatory information

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

a) The quantity (mass or total length);

b) The type of length and length range or length (see EN 10219-2);

c) details of the product form;

CFCHS = cold formed welded circular hollow section

CFRHS = cold formed welded square or rectangular hollow section

d) the designation (see 4.2);

e) the dimensions (see EN 10219-2);

f) the options required (see 5.2);

g) the type of inspection document required (see 7.2 and tables 2 and 3).

5.2 Options

A number of options are specified in this part of this European Standard which are listed below with appropriate clause references. In the event that the purchaser does not indicate his wish to implement any of these options at the time of enquiry and order the tubes shall be supplied in accordance with the basic specification.

1.1 Product analysis shall be carried out (see 6.6.1).

1.2 A maximum carbon equivalent value in accordance with table A.2 shall be provided for non-alloy grades (see 6.6.2).

1.3 The Cr, Cu, Mo, Ni, Ti and V cast analysis contents shall be reported in the inspection certificate or inspection report for non-alloy grades (see 6.6.2).

1.4 A maximum carbon equivalent value in accordance with table B.3 shall be provided for fine grain steels S275, S355 and S420 (see 6.6.3).

1.5 The ladle analysis limits for grade S460 (see 6.6.3) shall be:

$V + Nb + Ti \leq 0{,}22$ %; and

$Mo + Cr \leq 0.30$ %.