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TARNETINGIMUSED

Hot rolled products of structural steels - Part 2:
Technical delivery conditions for non-alloy structural
steels

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 10025-2:2019 sisaldab Euroopa standardi prEN 10025-2, EN 10025-2:2019 ingliskeelset teksti.	This Estonian standard EVS-EN 10025-2:2019 consists of the English text of the European standard prEN 10025-2, EN 10025-2:2019.
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English Version

Hot rolled products of structural steels - Part 2: Technical
delivery conditions for non-alloy structural steels

Produits laminés à chaud en aciers de construction -
Partie 2 : Conditions techniques de livraison pour les
aciers de construction non alliés

Warmgewalzte Erzeugnisse aus Baustählen - Teil 2:
Technische Lieferbedingungen für unlegierte
Baustähle

This European Standard was approved by CEN on 16 June 2019.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 10025-2:2019) has been prepared by Technical Committee CEN/TC 459/SC 3 “Structural steels other than reinforcement”, the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by February 2020 and conflicting national standards shall be withdrawn at the latest by February 2020.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 10025-2:2004.

This document consists of the following parts, under the general title *Hot rolled products of structural steels*:

- *Part 1: General technical delivery conditions*
- *Part 2: Technical delivery conditions for non-alloy structural steels*
- *Part 3: Technical delivery conditions for normalized/normalized rolled weldable fine grain structural steels*
- *Part 4: Technical delivery conditions for thermomechanical rolled weldable fine grain structural steels*
- *Part 5: Technical delivery conditions for structural steels with improved atmospheric corrosion resistance*
- *Part 6: Technical delivery conditions for flat products of high yield strength structural steels in the quenched and tempered condition*

For a short transition period, there will be a coexistence of EN 10025-1:2004 with EN 10025-2:2019 to EN 10025-6:2019, since the new EN 10025-1 has to fulfil the requirements of the CPR and will therefore be published later. For this short transition period up-to-the publication of the next edition of part 1 the following is to be taken into account for EN 10025-1:2004:

- a) all dated and undated references to EN 10025-1:2004 to EN 10025-6:2004 are unchanged to this version with following exception: In 9.2.2.1 the references are 8.3.1 and 8.3.2 instead of 8.4.1 and 8.4.2;
- b) Clauses 5, 12 and 13 of EN 10025-1:2004 are no longer relevant.

The main changes with respect to the previous edition are listed below:

- a) part 2 is now a stand-alone standard for technical delivery conditions including the preparation of samples and test pieces, the test methods, the marking, labelling and packaging and the drawings;
- b) for applications under the CPR, this document and part 1 are used together;
- c) requirements for elements not defined were added to 7.2.1 and 7.2.2;
- d) Option 33 was added, Options 9 and 21 were deleted;
- e) Si-content in 7.2.5 was changed;
- f) 7.4.3 concerning hot-dip zinc coating was modified;

- g) key to Figure A.1 was updated;
- h) steel grade S450 was deleted and steel grades S460 and S500 were added;
- i) Annex B concerning the corresponding EURONORMS was deleted;
- j) references were updated and the document was editorially revised.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Republic of North Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This document specifies the technical delivery conditions for flat and long products as well as semi-finished products which are meant for further processing to flat and long products of hot rolled non-alloy quality steels in the grades and qualities given in Tables 1 to 5 (chemical composition) and Tables 6 to 8 (mechanical properties) in the usual delivery conditions as given in 6.3. Three engineering steels are also specified in this document (see Tables 2 and 4) (chemical composition) and Table 7 (mechanical properties). This document does not apply to structural hollow sections (see EN 10210-1 and EN 10219-1) and tubes.

The technical delivery conditions apply to:

- thicknesses ≥ 3 mm and ≤ 150 mm for long products of steel grade S460JR, J0, J2, K2 and S500J0;
- thicknesses ≤ 400 mm for flat products of qualities JR, J0, J2 and K2;
- thicknesses ≤ 250 mm for flat and long products of all other grades and qualities.

The steels specified in this document are not intended to be heat treated except products delivered in the delivery condition +N. Stress relieving is accepted. Products delivered in +N condition can be hot formed and/or normalized after delivery (see Clause 3).

This document foresees that semi-finished products which are to be converted to rolled finished products conforming to this document are the subject of special agreements at the time of the order. The chemical compositions are also agreed to at the time of the order; the values are within the limits of Tables 1 and 2.

For certain grades and product forms suitability for particular applications are specified at the time of the order (see 7.4.2, 7.4.3 and Table 9).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1011-2, *Welding — Recommendations for welding of metallic materials — Part 2: Arc welding of ferritic steels*

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

EN 10020:2000, *Definition and classification of grades of steel*

EN 10021, *General technical delivery conditions for steel products*

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

EN 10025-1, *Hot rolled products of structural steels — Part 1: General technical delivery conditions*

EN 10027-1, *Designation systems for steels — Part 1: Steel names*

EN 10027-2, *Designation systems for steels — Part 2: Numerical system*

EN 10029, *Hot-rolled steel plates 3 mm thick or above — Tolerances on dimensions and shape*

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, *Continuously hot-rolled strip and plate/sheet cut from wide 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 10056-1, *Structural steel equal and unequal leg angles — Part 1: 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 and steel wide flats 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*
- EN 10067, *Hot rolled bulb flats — Dimensions and tolerances on shape, dimensions and mass*
- EN 10079, *Definition of steel products*
- EN 10160, *Ultrasonic testing of steel flat product of thickness equal or greater than 6 mm (reflection method)*
- EN 10163-1, *Delivery requirements for surface condition of hot-rolled steel plates, wide flats and sections — Part 1: General requirements*
- EN 10163-2, *Delivery requirements for surface condition of hot-rolled steel plates, wide flats and sections — Part 2: Plate and wide flats*
- EN 10163-3, *Delivery requirements for surface condition of hot-rolled steel plates, wide flats and sections — Part 3: Sections*
- EN 10164, *Steel products with improved deformation properties perpendicular to the surface of the product — Technical delivery conditions*
- EN 10168, *Steel products — Inspection documents — List of information and description*
- EN 10204, *Metallic products — Types of inspection documents*
- EN 10279, *Hot rolled steel channels — Tolerances on shape, dimensions and mass*
- EN 10306, *Iron and steel — Ultrasonic testing of H beams with parallel flanges and IPE beams*
- EN 10308, *Non destructive testing — Ultrasonic testing of steel bars*
- EN 10315, *Routine method for analysis of high alloy steel by X-ray Fluorescence Spectrometry (XRF) by using a near by technique*
- CR 10320, *Optical emission analysis of low alloy steels (routine method) — Method for determination of C, Si, S, P, Mn, Cr, Ni and Cu*
- CEN/TR 10347, *Guidance for forming of structural steels in processing*
- EN 10363, *Continuously hot-rolled patterned steel strip and plate/sheet cut from wide strip — Tolerances on dimensions and shape*
- EN 10365, *Hot rolled steel channels, I and H sections — Dimensions and masses*

EN ISO 148-1, *Metallic materials — Charpy pendulum impact test — Part 1: Test method (ISO 148-1)*

EN ISO 377, *Steel and steel products — Location and preparation of samples and test pieces for mechanical testing (ISO 377)*

EN ISO 2566-1, *Steel — Conversion of elongation values — Part 1: Carbon and low alloy steels (ISO 2566)*

EN ISO 6892-1:2016, *Metallic materials — Tensile testing — Part 1: Method of test at room temperature (ISO 6892-1:2016)*

EN ISO 9443, *Surface quality classes for hot-rolled bars and wire rod (ISO 9443)*

EN ISO 14284, *Steel and iron — Sampling and preparation of samples for the determination of chemical composition (ISO 14284)*

EN ISO 14713-2:2009, *Zinc coatings — Guidelines and recommendations for the protection against corrosion of iron and steel in structures — Part 2: Hot dip galvanizing (ISO 14713-2:2009)*

EN ISO 15350, *Steel and iron — Determination of total carbon and sulfur content — Infrared absorption method after combustion in an induction furnace (routine method) (ISO 15350)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 10079 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

normalized rolled

+N

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

Note 1 to entry: 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.

3.2

as-rolled

+AR

conventional hot rolling without any normalized rolling or thermomechanical rolling and/or heat treatment like normalizing or quenching

3.3

thermomechanical rolling

+M

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

Note 1 to entry: 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.

Note 2 to entry: In some publications the word TMCP (Thermomechanical Control Process) is also used.