

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

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steels

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 10025-2:2005 sisaldab Euroopa standardi EN 10025-2:2004 + AC:2005 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 25.01.2005 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on .

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 10025-2:2005 consists of the English text of the European standard EN 10025-2:2004 + AC:2005.

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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 1 April 2004.

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Foreword

This document (EN 10025-2:2004) has been prepared by Technical Committee ECISS/TC 10 "Structural steels - Grades and qualities", the secretariat of which is held by NEN.

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of an identical text or by endorsement, at the latest by May 2005, and conflicting national standards shall be withdrawn at the latest by May 2005.

This document supersedes EN 10025:1990 + A1:1993, *Hot rolled products of non-alloy structural steels - Technical delivery conditions*.

The titles of the other Parts of this European Standard are:

Part 1: General technical delivery conditions;

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.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of the EU Construction Products Directive (89/106/EEC). For relationship with the EU Construction Products Directive, see informative Annex ZA of EN 10025-1:2004.

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, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

Part 2 of this document, in addition to Part 1, specifies the technical delivery conditions for flat and long products and 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 2 to 6 (chemical composition) and Tables 7 to 9 (mechanical properties) in the delivery conditions as given in 6.3. Three engineering steels are also specified in this document (see Tables 3 and 5) (chemical composition) and Table 8 (mechanical properties). This document does not apply to structural hollow sections and tubes (see EN 10210-1 and EN 10219-1).

The technical delivery conditions apply to thicknesses ≥ 3 mm and ≤ 150 mm for long products of steel grade S450J0. The technical delivery conditions apply to thicknesses ≤ 250 mm for flat and long products of all other grades and qualities. In addition for flat products of qualities J2 and K2 the technical conditions apply to thicknesses ≤ 400 mm.

Products made of steel grades S185, E295, E335 and E360 cannot be CE marked.

The steels specified in this Part 2 are not intended to be heat treated except products delivered in delivery condition +N. Stress relief annealing is permitted (see also the NOTE in 7.3.1.1 of EN 10025-1:2004). Products delivered in +N condition can be hot formed and/or normalized after delivery (see Clause 3).

NOTE 1 Semi-finished products which are to be converted to rolled finished products conforming to this document should be the subject of special agreement at the time of the enquiry and order. The chemical composition can also be agreed at the time of the order, however the values should be within the limits of Tables 2 and 3.

NOTE 2 For certain grades and product forms suitability for particular applications may be specified at the time of the enquiry and order (see 7.4.2, 7.4.3 and Table 10).

2 Normative references

The following referenced documents are indispensable for the application 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.

2.1 General standards

EN 1011-2, *Welding – Recommendations for welding of metallic materials - Part 2: Arc welding of ferritic steels.*

EN 10020, *Definition and classification of grades of steel.*

EN 10025-1:2004, *Hot rolled products of structural steels - Part 1: General technical delivery conditions.*

EN 10027-1, *Designation systems for steels - Part 1: Steel names, principal symbols.*

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

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: Plates and wide flats.*

EN 10163-3, *Delivery requirements for surface condition of hot-rolled steel plates, wide flats and sections – Part 3: Sections.*

EN 10025-2:2004 (E)

EN 10164, *Steel products with improved deformation properties perpendicular to the surface of the product - Technical delivery conditions.*

EN 10221, *Surface quality classes for hot-rolled bars and rods - Technical delivery conditions.*

CR 10260, *Designation systems for steels - Additional symbols.*

2.2 Standards on dimensions and tolerances (see 7.7.1)

EN 10017, *Non-alloy steel rod for drawing and/or cold rolling – Dimensions and tolerances.*

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

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

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 uncoated plate, sheet and 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 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 10162, *Cold rolled steel sections - Technical delivery conditions - Dimensional and cross-sectional tolerances.*

EN 10279, *Hot rolled steel channels - Tolerances on shape and dimensions.*

2.3 Standards on testing

EN 10160, *Ultrasonic testing of steel flat product of thickness equal to or greater than 6 mm (reflection method)*.

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 ISO 643, *Steels – Micrographic determination of the apparent grain size (ISO 643:2003)*.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 10025-1:2004 and the following apply.

3.1

normalizing rolling

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 thermo-mechanical 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

delivery condition without any special rolling and/or heat treatment condition.

The abbreviated form of this delivery condition is +AR

3.3

thermomechanical rolling

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 Subsequent heating above 580 °C may lower the strength values. If temperatures above 580 °C are needed reference should 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.

NOTE 3 In some publications the word TMCP (Thermomechanical Control Process) is also used.

4 Classification and designation

4.1 Classification

4.1.1 Main quality classes

The steel grades specified in this document shall be classified as non-alloy quality steels according to EN 10020.