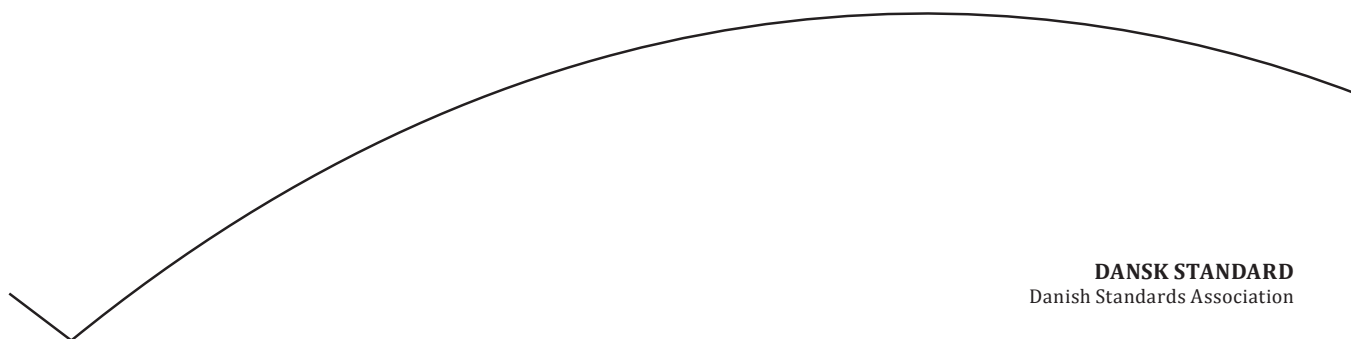




Varmvalsede produkter af konstruktionsstål – Del 2: Tekniske leveringsbetingelser for ulegerede konstruktionsstål

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



DANSK STANDARD
Danish Standards Association

Göteborg Plads 1
DK-2150 Nordhavn

Tel: +45 39 96 61 01

Tel: +45 39 96 61 01

dansk.standard@ds.dk

www.ds.dk

DS/EN 10025-2:2019

København

DS projekt: M252683

ICS: 77.140.10; 77.140.45; 77.140.50

Første del af denne publikations betegnelse er:

DS/EN, hvilket betyder, at det er en europæisk standard, der har status som dansk standard.

Denne publikations overensstemmelse er:

IDT med: EN 10025-2:2019

DS-publikationen er på engelsk.

Denne publikation erstatter: [DS/EN 10025-2:2004](#)

DS-publikationstyper

Dansk Standard udgiver forskellige publikationstyper.

Typen på denne publikation fremgår af forsiden.

Der kan være tale om:

Dansk standard

- standard, der er udarbejdet på nationalt niveau, eller som er baseret på et andet lands nationale standard, eller
- standard, der er udarbejdet på internationalt og/eller europæisk niveau, og som har fået status som dansk standard

DS-information

- publikation, der er udarbejdet på nationalt niveau, og som ikke har opnået status som standard, eller
- publikation, der er udarbejdet på internationalt og/eller europæisk niveau, og som ikke har fået status som standard, fx en teknisk rapport, eller
- europæisk præstandard

DS-håndbog

- samling af standarder, eventuelt suppleret med informativt materiale

DS-hæfte

- publikation med informativt materiale

Til disse publikationstyper kan endvidere udgives

- tillæg og rettelserblade

DS-publikationsform

Publikationstyperne udgives i forskellig form som henholdsvis

- fuldtekstpublikation (publikationen er trykt i sin helhed)
- godkendelsesblad (publikationen leveres i kopi med et trykt DS-omslag)
- elektronisk (publikationen leveres på et elektronisk medie)

DS-betegnelse

Alle DS-publikationers betegnelse begynder med DS efterfulgt af et eller flere præfikser og et nr., fx **DS 383**, **DS/EN 5414** osv. Hvis der efter nr. er angivet et **A** eller **Cor**, betyder det, enten at det er et **tillæg** eller et **rettelsesblad** til hovedstandard, eller at det er indført i hovedstandard.

DS-betegnelse angives på forsiden.

Overensstemmelse med anden publikation:

Overensstemmelse kan enten være IDT, EQV, NEQ eller MOD

- **IDT:** Når publikationen er identisk med en given publikation.
- **EQV:** Når publikationen teknisk er i overensstemmelse med en given publikation, men præsentationen er ændret.
- **NEQ:** Når publikationen teknisk eller præsentationsmæssigt ikke er i overensstemmelse med en given standard, men udarbejdet på baggrund af denne.
- **MOD:** Når publikationen er modificeret i forhold til en given publikation.

EUROPEAN STANDARD

EN 10025-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2019

ICS 77.140.10; 77.140.45; 77.140.50

Supersedes EN 10025-2:2004

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.

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 CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

European foreword	4
1 Scope	6
2 Normative references	6
3 Terms and definitions	8
4 Classification and designation	9
4.1 Classification	9
4.1.1 Main quality classes	9
4.1.2 Grades and qualities	9
4.2 Designation	9
5 Information to be supplied by the purchaser	10
5.1 Mandatory information	10
5.2 Options	10
6 Manufacturing process	10
6.1 Steel making process	10
6.2 Deoxidation	10
6.3 Delivery conditions	11
7 Requirements	11
7.1 General	11
7.2 Chemical composition	11
7.3 Mechanical properties	12
7.3.1 General	12
7.3.2 Impact properties	12
7.3.3 Improved deformation properties perpendicular to the surface	13
7.4 Technological properties	13
7.4.1 Weldability	13
7.4.2 Formability and flame straightening	13
7.4.3 Hot-dip zinc-coating	14
7.4.4 Machinability	15
7.5 Surface properties	15
7.5.1 Strip	15
7.5.2 Plates and wide flats	15
7.5.3 Sections	15
7.5.4 Bars and rods	15
7.6 Internal soundness	15
7.7 Dimensions, tolerances on dimensions and shape, mass	15
8 Inspection	16
8.1 Type of inspection and inspection document	16
8.2 Content of inspection document	16
8.3 Tests to be carried out for specific inspection	17
9 Frequency of testing and preparation of samples and test pieces	17
9.1 Frequency of testing	17
9.1.1 Chemical analysis	17
9.1.2 Mechanical tests	17
9.2 Preparation of samples and test pieces	18
9.2.1 Selection and preparation of samples for chemical analysis	18
9.2.2 Location of samples and orientation of test pieces for mechanical tests	18
9.2.3 Preparation of test pieces for mechanical tests	18
9.3 Identification of samples and test pieces	19
10 Test methods	19
10.1 Chemical analysis	19
10.2 Mechanical tests	19

10.2.1	Tensile test.....	19
10.2.2	Impact test.....	19
10.3	Ultrasonic testing.....	20
10.4	Retests.....	20
11	Marking, labelling, packaging.....	20
12	Complaints.....	21
13	Options.....	21
Annex A (normative) Location of samples and test pieces		36
Annex B (informative) List of Options of EN 10025-2 to –6.....		39
Bibliography.....		41

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.

Hot rolled products of structural steels –

Part 2: Technical delivery conditions for non-alloy structural steels

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 10025-2:2019(EN)

[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)*