

SVENSK STANDARD

SS-EN ISO 683-5:2021

**Stål för värmebehandling, legerade stål och automatstål – Del 5:
Niturerstål (ISO 683-5:2017)**

**Heat treatable steels, alloy steels and free-cutting steels – Part 5:
Nitriding steels (ISO 683-5:2017)**



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Europastandarden EN ISO 683-5:2021 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN ISO 683-5:2021.

Denna standard ersätter SS-EN 10085, utgåva 1

The European Standard EN ISO 683-5:2021 has the status of a Swedish Standard. This document contains the official version of EN ISO 683-5:2021.

This standard supersedes the SS-EN 10085, edition 1

LÄSANVISNINGAR FÖR STANDARDER

I dessa anvisningar behandlas huvudprinciperna för hur regler och yttre begränsningar anges i standardiseringsprodukter.

Krav

Ett krav är ett uttryck i ett dokumentets innehåll som anger objektivet verifierbara kriterier som ska uppfyllas och från vilka ingen avvikelse tillåts om efterlevnad av dokumentet ska kunna åberopas. Krav uttrycks med hjälpverbet **ska** (eller **ska inte** för förbud).

Rekommendation

En rekommendation är ett uttryck i ett dokumentets innehåll som anger en valmöjlighet eller ett tillvägagångssätt som bedöms vara särskilt lämpligt utan att nödvändigtvis nämna eller utesluta andra. Rekommendationer uttrycks med hjälpverbet **bör** (eller **bör inte** för avrådanden).

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Instruktioner anges i imperativ form och används för att ange hur något görs eller utförs. De kan underordnas en annan regel, såsom ett krav eller en rekommendation. De kan även användas självständigt, och är då att betrakta som krav.

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En förklaring är ett uttryck i ett dokumentets innehåll som förmedlar information. En förklaring kan uttrycka tillåtelse, möjlighet eller förmåga. Tillåtelse uttrycks med hjälpverbet **får**. Inom standardiseringen saknas rekommenderad nekande motsats till hjälpverbet får, förbud uttrycks med **ska inte** enligt reglerna för krav. Möjlighet och förmåga uttrycks med hjälpverbet **kan** (eller motsatsen **kan inte**).

READING INSTRUCTIONS FOR STANDARDS

These instructions cover the main principles for the use of provisions and external constraints in standardization deliverables.

Requirement

A requirement is an expression, in the content of a document, that conveys objectively verifiable criteria to be fulfilled, and from which no deviation is permitted if conformance with the document is to be claimed. Requirements are expressed by the auxiliary **shall** (or **shall not** for prohibition).

Recommendation

A recommendation is an expression, in the content of a document, that conveys a suggested possible choice or course of action deemed to be particularly suitable, without necessarily mentioning or excluding others. Recommendations are expressed by the auxiliary **should** (or **should not** for dissuasion).

Instruction

An instruction is expressed in the imperative mood and is used in order to convey an action to be performed. It can be subordinated to another provision, such as a requirement or a recommendation. It can also be used independently and is then to be regarded as a requirement.

Statement

A statement is an expression, in the content of a document, that conveys information. A statement can express permission, possibility or capability. Permission is expressed by the auxiliary **may**. There is no recommended opposite expression for the auxiliary may in standardization, prohibition is expressed by the use of **shall not** in accordance with the rules for requirements. Possibility and capability are expressed by the auxiliary **can** (its opposite being **cannot**).

EUROPEAN STANDARD

EN ISO 683-5

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2021

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Supersedes EN 10085:2001

English Version

Heat treatable steels, alloy steels and free-cutting steels - Part 5: Nitriding steels (ISO 683-5:2017)

Aciers pour traitement thermique, aciers
alliés et aciers pour décolletage - Partie 5:
Aciers pour nitruration (ISO 683-5:2017)

Für eine Wärmebehandlung bestimmte
Stähle, legierte Stähle und Automatenstähle
- Teil 5: Nitrierstähle (ISO 683-5:2017)

This European Standard was approved by CEN on 9 May 2021.

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

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 17, *Steel*, Subcommittee SC 4, *Heat treatable and alloy steels*.

This second edition cancels and replaces the first edition (ISO 683-5:2014), of which it constitutes a minor revision.

The main changes compared to the previous edition are as follows:

- in the Scope, “see [5.2](#)” has been added as a cross reference;
- in [3.1](#), note 1 to entry has been revised;
- in [5.2](#), the ordering example has been moved into a new subclause, as [5.3](#);
- in [7.7.3](#), the surface class given has been changed from A to 1z2;
- in [9.2.3](#), the option for retesting has been revised;
- Figure 3 has been renamed as [Table 9](#);
- in [A.2.1](#), the cross references have been corrected to [A.2.2](#) to [A.2.4](#).

A list of all parts in the ISO 683 series can be found on the ISO website.

European foreword

The text of ISO 683-5:2017 has been prepared by Technical Committee ISO/TC 17 "Steel" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 683-5:2021 by Technical Committee CEN/TC 459/SC 5 "Steels for heat treatment, alloy steels, free-cutting steels and stainless steels" 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 November 2021, and conflicting national standards shall be withdrawn at the latest by November 2021.

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 10085:2001.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: 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 the United Kingdom.

Endorsement notice

The text of ISO 683-5:2017 has been approved by CEN as EN ISO 683-5:2021 without any modification.

The European steel numbers to the steel grades are to be found in informative Annex C.

The references to following European standards are given for information:

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

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

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 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 - Dimensions and tolerances on shape and dimensions*

EN 10061, *Hot rolled hexagon steel bars – Dimensions and tolerances on shape and dimensions*

EN 10108, *Round steel rod for cold heading and cold extrusion - Dimensions and tolerances*

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EN 10140, *Cold rolled narrow steel strip - Tolerances on dimensions and shape*

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

EN 10204, *Metallic products - Types of inspection documents*

EN 10308, *Non-destructive testing – Ultrasonic testing of steel bars*

Heat treatable steels, alloy steels and free-cutting steels —

Part 5: Nitriding steels

1 Scope

This document gives the technical delivery requirements for

- semi-finished products, e.g. blooms, billets, slabs (see note 1),
- bars (see note 1),
- wire rod,
- hot-rolled plates (see note 2), and
- hammer or drop forgings (see note 1)

manufactured from the nitriding steels listed in [Table 3](#) and supplied in one of the heat-treatment conditions given for the different types of products in [Table 1](#), rows 2 to 5, and in one of the surface conditions given in [Table 2](#).

The steels are generally intended for the fabrication of quenched and tempered and, subsequently, nitriding machine parts.

The requirements for mechanical properties given in this document are restricted to the sizes given in [Table 6](#).

NOTE 1 Hammer-forged semi-finished products (blooms, billets, slabs, etc.), seamless rolled rings and hammer-forged bars are in the following covered under semi-finished products or bars and not under the term “hammer and drop forgings”.

NOTE 2 The term “plate” includes in the following also wide flats unless otherwise stated.

In special cases, variations in these technical delivery requirements or additions to these requirements can form the subject of an agreement at the time of enquiry and order (see [5.2](#) and [Annex B](#)).

In addition to this document, the general technical delivery requirements of ISO 404 are applicable.

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.

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

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

ISO 404:2013, *Steel and steel products — General technical delivery requirements*

ISO 643, *Steels — Micrographic determination of the apparent grain size*

ISO 3887, *Steels — Determination of depth of decarburization*

ISO 4885, *Ferrous materials — Heat treatments — Vocabulary*