

<b>STN</b>	<b>Tepelne spracovateľné ocele, legované ocele a automatové ocele Časť 5: Nitridačné ocele (ISO 683-5: 2017)</b>	<b>STN EN ISO 683-5</b>  42 0931
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Heat treatable steels, alloy steels and free-cutting steels - Part 5: Nitriding steels (ISO 683-5:2017)

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 08/21

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EN ISO 683-5

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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  
nituration (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.



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EUROPÄISCHES KOMITEE FÜR NORMUNG

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

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## 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*

**EN ISO 683-5:2021 (E)**

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*

# INTERNATIONAL STANDARD

**ISO**  
**683-5**

Second edition  
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## Heat treatable steels, alloy steels and free-cutting steels —

### Part 5: Nitriding steels

*Aciers pour traitement thermique, aciers alliés et aciers pour  
décolletage —*

*Partie 5: Aciers pour nitruration*



Reference number  
ISO 683-5:2017(E)

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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](http://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](http://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](http://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.

# 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*

**ISO 683-5:2017(E)**

ISO 4948-1, *Steels — Classification — Part 1: Classification of steels into unalloyed and alloy steels based on chemical composition*

ISO 4948-2, *Steels — Classification — Part 2: Classification of unalloyed and alloy steels according to main quality classes and main property or application characteristics*

ISO/TS 4949, *Steel names based on letter symbols*

ISO 4967, *Steel — Determination of content of non-metallic inclusions — Micrographic method using standard diagrams*

ISO 6506-1, *Metallic materials — Brinell hardness test — Part 1: Test method*

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

ISO 6929, *Steel products — Vocabulary*

ISO 7788, *Steel — Surface finish of hot-rolled plates and wide flats — Delivery requirements*

ISO 9443, *Heat-treatable and alloy steels — Surface quality classes for hot-rolled round bars and wire rods — Technical delivery conditions*

ISO/TR 9769, *Steel and iron — Review of available methods of analysis*

ISO 10474, *Steel and steel products — Inspection documents*

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

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**