



**SLOVENSKI STANDARD**  
**oSIST prEN ISO 683-5:2021**

**01-marec-2021**

---

**Toplotno obdelana, legirana in avtomatna jekla - 5. del: Jekla za nitridiranje (ISO 683-5:2017)**

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

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

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

<https://standards.iteh.ai/catalog/standards/sist/38cd9995-dd9d-4499-9173-9667a66f36/osist-pr-en-iso-683-5-2021>

**Ta slovenski standard je istoveten z: prEN ISO 683-5**

---

**ICS:**

77.140.10	Jekla za toplotno obdelavo	Heat-treatable steels
77.140.20	Visokokakovostna jekla	Stainless steels

**oSIST prEN ISO 683-5:2021**

**en,fr,de**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[oSIST prEN ISO 683-5:2021](#)

<https://standards.iteh.ai/catalog/standards/sist/38cd9995-dd9d-4499-9173-96f2a66fdc36/osist-pren-iso-683-5-2021>

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**prEN ISO 683-5**

January 2021

ICS 77.140.10; 77.140.20

Will supersede 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 draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 459/SC 5.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

**Warning** : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



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

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

Contents	Page
European foreword.....	3

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[oSIST prEN ISO 683-5:2021](https://standards.iteh.ai/catalog/standards/sist/38cd9995-dd9d-4499-9173-96f2a66fdc36/osist-pren-iso-683-5-2021)  
<https://standards.iteh.ai/catalog/standards/sist/38cd9995-dd9d-4499-9173-96f2a66fdc36/osist-pren-iso-683-5-2021>

## 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 prEN 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 document is currently submitted to the CEN Enquiry.

This document will supersede EN 10085:2001.

### Endorsement notice

The text of ISO 683-5:2017 has been approved by CEN as prEN 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, Steels 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 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 10160, Ultrasonic testing of steel flat product of thickness equal or greater than 6 mm (reflection method)

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

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[oSIST prEN ISO 683-5:2021](#)

<https://standards.iteh.ai/catalog/standards/sist/38cd9995-dd9d-4499-9173-96f2a66fdc36/osist-pren-iso-683-5-2021>

# INTERNATIONAL STANDARD

# ISO 683-5

Second edition  
2017-07

---

---

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

### Part 5: Nitriding steels

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

**iTeh STANDARD PREVIEW**  
*Partie 5: Aciers pour nitruration*  
**(standards.iteh.ai)**

[oSIST prEN ISO 683-5:2021](https://standards.iteh.ai/catalog/standards/sist/38cd9995-dd9d-4499-9173-96f2a66fdc36/osist-pren-iso-683-5-2021)

<https://standards.iteh.ai/catalog/standards/sist/38cd9995-dd9d-4499-9173-96f2a66fdc36/osist-pren-iso-683-5-2021>



Reference number  
ISO 683-5:2017(E)

© ISO 2017

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[oSIST prEN ISO 683-5:2021  
https://standards.iteh.ai/catalog/standards/sist/38cd9995-dd9d-4499-9173-96f2a66fdc36/osist-pren-iso-683-5-2021](https://standards.iteh.ai/catalog/standards/sist/38cd9995-dd9d-4499-9173-96f2a66fdc36/osist-pren-iso-683-5-2021)



### **COPYRIGHT PROTECTED DOCUMENT**

© ISO 2017, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Ch. de Blandonnet 8 • CP 401  
CH-1214 Vernier, Geneva, Switzerland  
Tel. +41 22 749 01 11  
Fax +41 22 749 09 47  
copyright@iso.org  
www.iso.org



# Contents

Page

<b>Foreword</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>2</b>
<b>4 Classification and designation</b> .....	<b>3</b>
4.1 Classification.....	3
4.2 Designation.....	3
<b>5 Information to be supplied by the purchaser</b> .....	<b>3</b>
5.1 Mandatory information.....	3
5.2 Options/supplementary or special requirements.....	3
5.3 Ordering example.....	4
<b>6 Manufacturing process</b> .....	<b>4</b>
6.1 General.....	4
6.2 Deoxidization.....	4
6.3 Heat treatment and surface condition at delivery.....	4
6.3.1 Normal condition at delivery.....	4
6.3.2 Particular heat-treatment condition.....	4
6.3.3 Particular surface conditions.....	4
6.4 Traceability of the cast.....	4
<b>7 Requirements</b> .....	<b>4</b>
7.1 Chemical composition, hardness and mechanical properties.....	4
7.1.1 General.....	4
7.1.2 Chemical composition.....	5
7.1.3 Mechanical properties.....	5
7.2 Machinability.....	5
7.3 Cold shearability.....	5
7.4 Grain size.....	5
7.5 Non-metallic inclusions.....	5
7.5.1 Microscopic inclusions.....	5
7.5.2 Macroscopic inclusions.....	5
7.6 Internal soundness.....	5
7.7 Surface quality.....	5
7.8 Decarburization.....	6
7.9 Shape, dimensions and tolerances.....	6
<b>8 Inspection</b> .....	<b>6</b>
8.1 Testing procedures and types of documents.....	6
8.2 Frequency of testing.....	7
8.3 Specific inspection and testing.....	7
8.3.1 Verification of the hardness and mechanical properties.....	7
8.3.2 Visual and dimensional inspection.....	7
<b>9 Test methods</b> .....	<b>7</b>
9.1 Chemical analysis.....	7
9.2 Hardness and mechanical tests.....	7
9.2.1 Hardness.....	7
9.2.2 Mechanical tests.....	7
9.2.3 Impact test.....	7
9.3 Retests.....	8
<b>10 Marking</b> .....	<b>8</b>
<b>Annex A (normative) Ruling sections for mechanical properties</b> .....	<b>18</b>
<b>Annex B (normative) Supplementary or special requirements</b> .....	<b>22</b>

## ISO 683-5:2017(E)

<b>Annex C (informative) Designation of steels given in this document and of comparable grades covered in various designation systems</b> .....	<b>24</b>
<b>Annex D (informative) Dimensional standards applicable to products complying with this document</b> .....	<b>25</b>
<b>Bibliography</b> .....	<b>26</b>

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[oSIST prEN ISO 683-5:2021](https://standards.iteh.ai/catalog/standards/sist/38cd9995-dd9d-4499-9173-96f2a66fdc36/osist-pren-iso-683-5-2021)  
<https://standards.iteh.ai/catalog/standards/sist/38cd9995-dd9d-4499-9173-96f2a66fdc36/osist-pren-iso-683-5-2021>

## 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.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[oSIST prEN ISO 683-5:2021](#)

<https://standards.iteh.ai/catalog/standards/sist/38cd9995-dd9d-4499-9173-96f2a66fdc36/osist-pren-iso-683-5-2021>