

---

**Toplotno obdelana jekla, legirana in avtomatna jekla - 17. del: Jekla za kroglične in valjčne ležaje (ISO 683-17:2023)**

Heat-treated steels, alloy steels and free-cutting steels - Part 17: Ball and roller bearing steels (ISO 683-17:2023)

Für eine Wärmebehandlung bestimmte Stähle, legierte Stähle und Automatenstähle - Teil 17: Wälzlagerstähle (ISO 683-17:2023)

Aciers pour traitement thermique, aciers alliés et aciers pour décolletage - Partie 17: Aciers pour roulements (ISO 683-17:2023)

**Ta slovenski standard je istoveten z: EN ISO 683-17:2023**

**SIST EN ISO 683-17:2023**

<https://standards.sist.net/catalog/standards/sist/92d80187-91ed-439c-b537-4b52f603dc28/sist-en-iso-683-17-2023>

**ICS:**

21.100.20	Kotalni ležaji	Rolling bearings
77.140.10	Jekla za toplotno obdelavo	Heat-treatable steels
77.140.20	Visokokakovostna jekla	Stainless steels

**SIST EN ISO 683-17:2023**

**en,fr,de**



EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

EN ISO 683-17

October 2023

ICS 21.100.20; 77.140.10

Supersedes EN ISO 683-17:2014

English Version

Heat-treated steels, alloy steels and free-cutting steels -  
Part 17: Ball and roller bearing steels (ISO 683-17:2023)

Aciers pour traitement thermique, aciers alliés et  
aciers pour décolletage - Partie 17: Aciers pour  
roulements (ISO 683-17:2023)

Für eine Wärmebehandlung bestimmte Stähle, legierte  
Stähle und Automatenstähle - Teil 17: Wälzlagerstähle  
(ISO 683-17:2023)

This European Standard was approved by CEN on 5 September 2023.

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, Türkiye and United Kingdom.

Document Preview

[SIST EN ISO 683-17:2023](https://standards.iteh.ai/catalog/standards/sist/92db0187-91ed-459e-b557-4b52fe03dc28/sist-en-iso-683-17-2023)

<https://standards.iteh.ai/catalog/standards/sist/92db0187-91ed-459e-b557-4b52fe03dc28/sist-en-iso-683-17-2023>



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 Standards**  
**(<https://standards.iteh.ai>)**  
**Document Preview**

[SIST EN ISO 683-17:2023](https://standards.iteh.ai/catalog/standards/sist/92db0187-91ed-459e-b557-4b52fe03dc28/sist-en-iso-683-17-2023)

<https://standards.iteh.ai/catalog/standards/sist/92db0187-91ed-459e-b557-4b52fe03dc28/sist-en-iso-683-17-2023>

## European foreword

This document (EN ISO 683-17:2023) has been prepared by Technical Committee ISO/TC 17 "Steel" in collaboration with 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 April 2024, and conflicting national standards shall be withdrawn at the latest by April 2024.

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 ISO 683-17:2014.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

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, Türkiye and the United Kingdom.

**Endorsement notice**  
(<https://standards.iteh.ai>)

The text of ISO 683-17:2023 has been approved by CEN as EN ISO 683-17:2023 without any modification.

SIST EN ISO 683-17:2023

<https://standards.iteh.ai/catalog/standards/sist/92db0187-91ed-459e-b557-4b52fe03dc28/sist-en-iso-683-17-2023>



# INTERNATIONAL STANDARD

**ISO  
683-17**

Fourth edition  
2023-09

---

---

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

### Part 17: Ball and roller bearing steels

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

*Partie 17: Aciers pour roulements*

iTeh Standards  
(<https://standards.iteh.ai>)  
Document Preview

[SIST EN ISO 683-17:2023](https://standards.iteh.ai/catalog/standards/sist/92db0187-91ed-459e-b557-4b52fe03dc28/sist-en-iso-683-17-2023)

<https://standards.iteh.ai/catalog/standards/sist/92db0187-91ed-459e-b557-4b52fe03dc28/sist-en-iso-683-17-2023>



Reference number  
ISO 683-17:2023(E)

© ISO 2023

# iTeh Standards (<https://standards.iteh.ai>) Document Preview

SIST EN ISO 683-17:2023

<https://standards.iteh.ai/catalog/standards/sist/92db0187-91ed-459e-b557-4b52fe03dc28/sist-en-iso-683-17-2023>



## **COPYRIGHT PROTECTED DOCUMENT**

© ISO 2023

All rights reserved. Unless otherwise specified, or required in the context of its implementation, 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  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland



# 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>2</b>
4.1 Classification	2
4.2 Designation	2
<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
<b>6 Manufacturing process</b>	<b>3</b>
6.1 General	3
6.2 Deoxidation, vacuum degassing and hydrogen removal	4
6.3 Heat-treatment and surface condition at delivery	4
6.3.1 Heat-treatment condition	4
6.3.2 Particular surface conditions	4
6.3.3 Traceability of the cast	4
<b>7 Requirements</b>	<b>4</b>
7.1 General	4
7.2 Chemical composition	4
7.3 Hardenability	4
7.4 Hardness	5
7.5 Microstructure	5
7.5.1 Austenitic grain size of case-hardening and induction-hardening bearing steels	5
7.5.2 Spheroidization and distribution of carbides	5
7.5.3 Structure of case-hardening steels in the condition +FP	5
7.6 Non-metallic inclusions	5
7.6.1 Microscopic inclusions	5
7.6.2 Macroscopic inclusions	5
7.7 Internal soundness	5
7.8 Surface quality	5
7.9 Shape, dimensions and tolerances	6
<b>8 Inspection</b>	<b>6</b>
8.1 Testing procedures and types of inspection documents	6
8.2 Frequency of testing	6
8.3 Specific inspection and testing	6
8.3.1 Verification of the hardenability and hardness	6
8.3.2 Inspection of the surface quality	6
8.3.3 Dimensional and shape inspection	7
<b>9 Test methods</b>	<b>7</b>
9.1 Chemical analysis	7
9.2 Hardness and hardenability tests	7
9.2.1 Hardness	7
9.2.2 Verification of hardenability	7
9.2.3 Retests	7
<b>10 Marking</b>	<b>7</b>
<b>Annex A (normative) Supplementary or special requirements</b>	<b>19</b>
<b>Annex B (informative) Designations of the steels given in <a href="#">Tables 3, 5</a> and <a href="#">6</a> and of comparable grades covered in various designation systems</b>	<b>22</b>

iTeh Standards  
(<https://standards.iteh.ai>)  
Document Preview

[SIST EN ISO 683-17:2023](https://standards.iteh.ai/catalog/standards/sist/92db0187-91ed-459e-b557-4b52fe03dc28/sist-en-iso-683-17-2023)

<https://standards.iteh.ai/catalog/standards/sist/92db0187-91ed-459e-b557-4b52fe03dc28/sist-en-iso-683-17-2023>

## 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 document 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)).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at [www.iso.org/patents](http://www.iso.org/patents). ISO shall not be held responsible for identifying any or all such patent rights.

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

For an explanation of 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 [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*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 459/SC 5, *Steels for heat treatment, alloy steels, free-cutting steels and stainless steels*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fourth edition cancels and replaces the third edition (ISO 683-17:2014), which has been technically revised.

The main changes are as follows:

- induction hardening steel 50CrMo4 and stainless steel X30CrMoN15-1 were added;
- requirements for Ca and Ti content have been added for through-hardening bearing steels;
- requirements for O content have been further restricted for through-hardening and induction-hardening bearing steels;
- option for H content for premium bearing steels has been added for through-hardening, case-hardening and induction-hardening bearing steels;
- option for verification of microscopic inclusions in [Table A.1](#) for through-hardening bearing steels has been revised.

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

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).