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| STN | **Spojovacie súčiastky. Neelektrolyticky nanášané povlaky zo zinkových mikrolamiel (ISO 10683: 2014).** | **STN EN ISO 10683**<br><br>02 1014 |
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Fasteners - Non-electrolytically applied zinc flake coatings (ISO 10683:2014)

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. 09/14

Obsahuje: EN ISO 10683:2014, ISO 10683:2014

Oznámením tejto normy sa ruší
STN EN ISO 10683 (02 1014) z júla 2002

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN ISO 10683

May 2014

ICS 21.060.01; 25.220.40

Supersedes EN ISO 10683:2000

English Version

# Fasteners - Non-electrolytically applied zinc flake coatings (ISO 10683:2014)

Fixations - Revêtements non électrolytiques de zinc lamellaire (ISO 10683:2014)

Verbindungselemente - Nichtelektrolytisch aufgebrachte Zinklamellenüberzüge (ISO 10683:2014)

This European Standard was approved by CEN on 17 April 2014.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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

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# Foreword

This document (EN ISO 10683:2014) has been prepared by Technical Committee ISO/TC 2 “Fasteners” in collaboration with Technical Committee CEN/TC 185 “Fasteners” 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of an identical text or by endorsement, at the latest by November 2014, and conflicting national standards shall be withdrawn at the latest by November 2014.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 10683:2000.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

**Endorsement notice**

The text of ISO 10683:2014 has been approved by CEN as EN ISO 10683:2014 without any modification.

INTERNATIONAL STANDARD

**ISO 10683**

Second edition
2014-05-15

# Fasteners — Non-electrolytically applied zinc flake coatings

*Fixations — Revêtements non électrolytiques de zinc lamellaire*

Reference number
ISO 10683:2014(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).

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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 meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 2, *Fasteners*, SC 14, *Surface coatings*.

This second edition cancels and replaces the first edition (ISO 10683:2000). The main technical changes are the following:

— wider application to all types of fasteners and all parties involved, see Introduction, Clause 1, 4.1, 4.3, Clause 7 and Annex A;

— full description of zinc flake coating systems, see 4.1, 4.2 and A.1.2;

— definitions related to coatings for fasteners moved to the new standard ISO 1891-2;

— detailed specification in relation with hexavalent chromium;

— detailed specification concerning pre-treatment in relation with internal hydrogen embrittlement, see 4.4;

— precedence of corrosion resistance over thickness, see 5.2 and 5.3;

— extended range of properties for coatings and related test methods (including Kesternich test, thickness and weight determination, torque/tension relationship, determination of hexavalent chromium), see 5.3, 7.3, 7.7, 7.8 and A.2;

— consideration related to bulk handling, automatic processes, storage and transport, see 5.4 and A.4;

— alternatives for gaugeability and assemblability/mountability, see 6.2.2;

— revised arrangement of tests to be carried out for each lot, for in-process control or when specified, see Clause 8;

— revised designation for coating systems and addition of labelling, see Clause 9;

— consideration related to design aspects and assembly of coated fasteners, see new Annex A;

— detailed specification for coating thickness and thread clearance for ISO metric threads, moved to new Annex B;

— precise control of corrosivity for the salt spray cabinet for coated fasteners, see new Annex C.

# Introduction

The revision of ISO 10683:2000 was made in order to define the relevant requirements on zinc flake coated fasteners (coating systems with and without hexavalent chromium) for all parties involved in the fastener field, i.e. chemical suppliers, coaters, fastener manufacturers, distributors and end users. It covers all types of fasteners, i.e. fasteners with ISO metric thread, fasteners with non-ISO metric thread (including thread forming, ASME inch 60° screw thread, etc.) and non-threaded fasteners (including washers, pins, clips, etc.). It also provides basic advice for the design and use of coated fasteners in assembly.

**INTERNATIONAL STANDARD** **ISO 10683:2014(E)**

# Fasteners — Non-electrolytically applied zinc flake coatings

## 1 Scope

This International Standard specifies requirements for non-electrolytically applied zinc flake coatings for steel fasteners. It applies to coatings:

— with or without hexavalent chromium;

— with or without top coat;

— with or without lubricant (integral lubricant and/or subsequently added lubricant).

National regulations for the restriction or prohibition of certain chemical elements should be taken into account in the countries or regions concerned.

It applies to bolts, screws, studs and nuts with ISO metric thread, to fasteners with non-ISO metric thread, and to non-threaded fasteners such as washers, pins, clips, etc.

NOTE Coatings in accordance with this International Standard are especially used for high strength fasteners (≥1 000 MPa) to avoid risk of internal hydrogen embrittlement (see 4.4).

Information for design and assembly of coated fasteners is given in Annex A.

This International Standard does not specify requirements for such fastener properties as weldability or paintability. It does not apply to mechanically applied zinc coatings.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1463, *Metallic and oxide coatings — Measurement of coating thickness — Microscopical method*

ISO 1502, *ISO general-purpose metric screw threads — Gauges and gauging*

ISO 1891-2, *Fasteners — Terminology — Part 2: Vocabulary and definitions for coatings*[1)]

ISO 3269, *Fasteners — Acceptance inspection*

ISO 3613:2010, *Metallic and other inorganic coatings — Chromate conversion coatings on zinc, cadmium, aluminium-zinc alloys and zinc-aluminium alloys — Test methods*

ISO 6988, *Metallic and other non organic coatings — Sulfur dioxide test with general condensation of moisture*

ISO 8991, *Designation system for fasteners*

ISO 9227:2012, *Corrosion tests in artificial atmospheres — Salt spray tests*

ISO 16047, *Fasteners — Torque/clamp force testing*



1) To be published.