
Stroji za zemeljska dela - Funkcijska varnost - 3. del: Okoljske in preskusne zahteve za elektronske in električne komponente, uporabljene v delih krmilnega sistema, ki so povezani z varnostjo (ISO 19014-3:2018)

Earth-moving machinery - Functional safety - Part 3: Environmental performance and test requirements of electronic and electrical components used in safety-related parts of the control system (ISO 19014-3:2018)

Erdbaumaschinen - Sicherheit - Teil 3: Umweltaanforderungen und Testanforderungen von elektronischen und elektrischen Komponenten von sicherheitsrelevanten Steuerungssystemen (ISO 19014-3:2018)

Engins de terrassement - Sécurité - Partie 3: Exigences environnementales de performance et de test de composants électroniques et électriques utilisés dans les parties du système de commande liées à la sécurité (ISO 19014-3:2018)

Ta slovenski standard je istoveten z: EN ISO 19014-3:2018

ICS:

53.100 Stroji za zemeljska dela Earth-moving machinery

SIST EN ISO 19014-3:2019 **en,fr,de**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 19014-3:2019](https://standards.iteh.ai/catalog/standards/sist/9a9a3e3d-8459-4f30-abd6-386e9c7ae041/sist-en-iso-19014-3-2019)

<https://standards.iteh.ai/catalog/standards/sist/9a9a3e3d-8459-4f30-abd6-386e9c7ae041/sist-en-iso-19014-3-2019>

EUROPEAN STANDARD

EN ISO 19014-3

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2018

ICS 53.100

English Version

Earth-moving machinery - Functional safety - Part 3:
Environmental performance and test requirements of
electronic and electrical components used in safety-related
parts of the control system (ISO 19014-3:2018)

Engins de terrassement - Sécurité fonctionnelle - Partie
3: Exigences pour la performance environnementale et
l'essai des composants électroniques et électriques
utilisés dans les parties relatives à la sécurité du
système de commande (ISO 19014-3:2018)

Erdbaumaschinen - Sicherheit - Teil 3:
Umweltanforderungen und Testanforderungen von
elektronischen und elektrischen Komponenten von
sicherheitsrelevanten Steuerungssystemen (ISO
19014-3:2018)

This European Standard was approved by CEN on 8 September 2018.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, 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: Rue de la Science 23, B-1040 Brussels

Contents	Page
European foreword.....	3

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 19014-3:2019](https://standards.iteh.ai/catalog/standards/sist/9a9a3e3d-8459-4f30-abd6-386e9c7ae041/sist-en-iso-19014-3-2019)
<https://standards.iteh.ai/catalog/standards/sist/9a9a3e3d-8459-4f30-abd6-386e9c7ae041/sist-en-iso-19014-3-2019>

European foreword

This document (EN ISO 19014-3:2018) has been prepared by Technical Committee ISO/TC 127 "Earth-moving machinery" in collaboration with Technical Committee CEN/TC 151 "Construction equipment and building material machines - Safety" 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 2019, and conflicting national standards shall be withdrawn at the latest by April 2019.

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.

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

iTeh STANDARD PREVIEW

The text of ISO 19014-3:2018 has been approved by CEN as EN ISO 19014-3:2018 without any modification.

[SIST EN ISO 19014-3:2019](https://standards.iteh.ai/catalog/standards/sist/9a9a3e3d-8459-4f30-abd6-386e9c7ae041/sist-en-iso-19014-3-2019)

<https://standards.iteh.ai/catalog/standards/sist/9a9a3e3d-8459-4f30-abd6-386e9c7ae041/sist-en-iso-19014-3-2019>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 19014-3:2019

<https://standards.iteh.ai/catalog/standards/sist/9a9a3e3d-8459-4f30-abd6-386e9c7ae041/sist-en-iso-19014-3-2019>

INTERNATIONAL
STANDARD

ISO
19014-3

First edition
2018-09

**Earth-moving machinery —
Functional safety —**

Part 3:

**Environmental performance and
test requirements of electronic and
electrical components used in safety-
related parts of the control system**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Engins de terrassement — Sécurité fonctionnelle —

*Partie 3: Exigences pour la performance environnementale et l'essai
des composants électroniques et électriques utilisés dans les parties
relatives à la sécurité du système de commande*



Reference number
ISO 19014-3:2018(E)

© ISO 2018

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN ISO 19014-3:2019](https://standards.iteh.ai/catalog/standards/sist/9a9a3e3d-8459-4f30-abd6-386e9c7ae041/sist-en-iso-19014-3-2019)

<https://standards.iteh.ai/catalog/standards/sist/9a9a3e3d-8459-4f30-abd6-386e9c7ae041/sist-en-iso-19014-3-2019>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2018

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
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Functional status classifications	2
4.1 Class A.....	2
4.2 Class B.....	2
4.3 Class C.....	2
4.4 Class D.....	2
5 Tests and requirements	2
5.1 General.....	2
5.2 Dust.....	3
5.2.1 Purpose.....	3
5.2.2 Test method.....	3
5.3 Chemical resistance.....	3
5.3.1 Purpose.....	3
5.3.2 Test method.....	3
5.4 Salt spray.....	4
5.4.1 Purpose.....	4
5.4.2 Test method.....	4
5.5 Pressure wash.....	4
5.5.1 Purpose.....	4
5.5.2 Test method.....	4
5.6 Random vibration.....	4
5.6.1 Purpose.....	4
5.6.2 Test method.....	4
5.7 Operating shock.....	5
5.7.1 Purpose.....	5
5.7.2 Test method.....	5
5.8 Temperature cycles.....	6
5.8.1 Purpose.....	6
5.8.2 Test method.....	6
5.9 Thermal shock.....	7
5.9.1 Purpose.....	7
5.9.2 Test method.....	7
5.10 Humidity cycles.....	7
5.10.1 Purpose.....	7
5.10.2 Test method.....	8
5.11 Overvoltage condition.....	8
5.11.1 Purpose.....	8
5.11.2 Test method.....	8
5.12 Undervoltage condition (reset behaviour at voltage drop).....	8
5.12.1 Purpose.....	8
5.12.2 Test method.....	8
5.13 Electromagnetic compatibility.....	8
5.13.1 Purpose.....	8
5.13.2 Test method.....	8
5.14 Reverse polarity.....	9
5.14.1 Purpose.....	9
5.14.2 Test method.....	9
Annex A (informative) Test checklist	10

Bibliography **11**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 19014-3:2019

<https://standards.iteh.ai/catalog/standards/sist/9a9a3e3d-8459-4f30-abd6-386e9c7ae041/sist-en-iso-19014-3-2019>

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 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.

This document was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*, Subcommittee SC 2, *Safety, ergonomics and general requirements*.

This first edition of ISO 19014-3, together with ISO 19014-1, ISO 19014-2, ISO 19014-4 and ISO/TS 19014-5, cancels and replaces ISO 15998, which has been technically revised.

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

- details added to existing test requirements;
- additional electrical and environmental tests.

A list of all parts in the ISO 19014-series can be found on the ISO website. At the time of publication of this document, Part 2, *Design and evaluation of safety-related machine control systems*, Part 4, *Design and evaluation of software and transmission for safety related parts of the control system*, and Part 5, *Tables of performance levels*, are under development.

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.