AS ISO 13649:2025
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Australian STANDARD®

STANDARDS Australia

Earth-moving machinery — Fire prevention guidance



AS ISO 13649:2025

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The following are represented on Committee ME-063:

- Australasian Institute of Mining and Metallurgy
- Australian Industry Group
- Construction and Mining Equipment Industry Group
- Department of Primary Industries and Regional Development
- Engineers Australia
- Forestry Corporation of NSW
- Institute of Instrumentation, Control and Automation Australia
- Minerals Council of Australia
- Resources Safety & Health Queensland
- SafeWork NSW
- The University of Queensland
- Victorian WorkCover Authority (WorkSafe Victoria)

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How to read this Standard

This page explains the meaning of the language and structure of this Standard.

Refer to Standards Australia's Standardisation Guide 006 for more details about drafting rules.

Australian and Australian/New Zealand Standards are voluntary unless they are referenced in legislation or called up in contracts.

Requirements

To conform to a Standard, all requirements in the Standard need to be met.

A requirement is any statement in the Standard which uses the word "shall".

Recommendations, permissions and possibilities

The following words are commonly used in Standards, but statements using them do not have to be followed to conform to the Standard:

(a) "should" means that something is recommended.

(b) "may" means that something is permitted.

(c) "can" means that something is possible.

Structure of Standards

A Standard always has the following parts:

(i) The Preface states who developed the Standard, what the Standard is aiming to do, and how it relates to other documents.

(ii) The Scope states what the Standard is about, what it covers and what it does not cover.

(iii) The Normative references clause lists other documents that are referenced in the Standard as part of requirements.

(iv) The Terms and definitions clause defines important terms to help with understanding the Standard.

A Standard may also include other parts, such as the following:

(1) A normative appendix sets additional requirements that need to be conformed to.

(2) An informative appendix provides additional information or guidance. An informative appendix provides additional information or guidance. They usually do not contain requirements. If an informative appendix does contain requirements, the Standard will explain when those requirements apply.

(3) A Bibliography lists documents referenced in the Standard but not as part of requirements.

Many Standards include notes. Notes provide recommendations and/or guidance only. They never contain requirements.

Preface

This Standard was prepared by the Standards Australia Committee ME-063, Earthmoving Equipment.

The objective of this document is to provide guidance on protective measures for consideration in fire risk reduction through machine design and operation and maintenance instructions for earth-moving machinery, as defined in AS ISO 6165:2023, during their intended use.

NOTE The information in this document presumes that fire hazards for the normal applications anticipated for the machine family by the machine manufacturer have been analysed. This analysis can be done as part of the ISO 12100 machine risk assessment or as a separate fire hazard risk assessment conducted in accordance with ISO 12100 or ISO 19353:2019 Clauses 5.1, 5.2, 5.3 and 5.4.

This document also provides the basic concept of fire hazards and examples of typical fuel sources and ignition sources found in earth-moving machinery and earth-moving machinery applications.

This document is identical with and has been reproduced from ISO 13649:2024, *Earth-moving machinery — Fire prevention guidance.*

As this document has been reproduced from an international document, a full point substitutes for a comma when referring to a decimal marker.

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The terms “normative” and “informative” are used in Standards to define the application of the appendices or annexes to which they apply. A “normative” appendix or annex is an integral part of a Standard, whereas an “informative” appendix or annex is only for information and guidance.

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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 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).

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. 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.

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

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.

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NOTES

Australian Standard®

Earth-moving machinery — Fire prevention guidance

1 Scope

This document provides guidance on protective measures for consideration in fire risk reduction through machine design and operation and maintenance instructions for earth-moving machinery, as defined in ISO 6165, during their intended use.

NOTE The information in this document presumes that fire hazards for the normal applications anticipated for the machine family by the machine manufacturer have been analysed. This analysis can be done as part of the ISO 12100 machine risk assessment or as a separate fire hazard risk assessment conducted in accordance with ISO 12100 or ISO 19353:2019, 5.1, 5.2, 5.3 and 5.4.

This document also provides the basic concept of fire hazards and examples of typical fuel sources and ignition sources found in earth-moving machinery and earth-moving machinery applications.

This document does not cover all specific aspects of fire prevention for battery electric powertrains (e.g. fire prevention for batteries, battery management systems) due to the evolving development of such technology. However, the guidance in this document can still be beneficial. Additional guidance can also be found in the ISO 14990 series and ISO/DIS 23285.[1]

This document does not cover the additional risks for machines operating in potentially explosive atmospheres.

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 12100, *Safety of machinery — General principles for design — Risk assessment and risk reduction*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12100, and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
explosive atmosphere
atmospheres containing substances or gases at concentrations that will burn or explode if ignited

[SOURCE: ISO/TR 19591:2018, 3.112]

3.2
fire prevention
measures to prevent the outbreak of a fire and/or to limit its effects

[SOURCE: ISO 8421-1:1987, 1.21]

[1] Under preparation. Stage at the time of publication: ISO/DIS 23285:2024

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