AS 20474.1:2025

Australian STANDARD®

STANDARDS Australia

Earth-moving machinery — Safety

Part 1: General requirements (ISO 20474-1:2017, MOD)



AS 20474.1:2025

This Australian Standard® was prepared by ME-063, Earthmoving Equipment. It was approved on behalf of Standards Australia's Standards Development and Accreditation Committee on 30 May 2025.

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The following are represented on Committee ME-063:

Australasian Institute of Mining & Metallurgy
Australian Industry Group
Construction and Mining Equipment Industry Group
Department of Regional NSW
Engineers Australia
Engineers Australia/Mining Electrical and Mining Mechanical Engineering Society
Institute of Instrumentation, Control & 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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Earth-moving machinery — Safety

Part 1: General requirements (ISO 20474-1:2017, MOD)

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Preface

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

The objective of this document is to specify the general safety requirements for earth-moving machinery as defined in AS ISO 6165. It is also applicable to machine attachments, and to derivative machinery designed primarily for equipment used to excavate, load, transport, drill, spread, compact or trench earth, rock, and other materials.

This document deals with significant hazards, hazardous situations and events relevant to the earth-moving machinery within its scope. It specifies the appropriate technical measures for eliminating or reducing risks arising from relevant hazards, hazardous situations or events during commissioning, operation and maintenance.

It is intended to be used in conjunction with the other parts of AS 20474, which give the provisions that are specific to particular machine families.

This document is an adoption with national modifications and has been reproduced from ISO 20474-1:2017, *Earth-moving machinery — Safety — Part 1: General requirements*. The modifications are set out in national variations boxes which give instructions where the ISO text is to be modified for use in Australia. Due to ISO copyright policy it is not possible to directly modify the ISO content.

Appendix ZA, which has been added at the end of the source text, provides an informative overview of operator-protective structures standards for different earth-moving machines in Australian conditions.

A modified text adoption, rather than an identical adoption of ISO 20474-1, has been chosen in order to provide further clarity and guidance on specific aspects of earthmoving machinery safety in Australia. This is to account for Australian incident history, current practice, as well as Australia's relatively high level of earthmoving machinery health and safety expectations.

Where a future revision of ISO 20474-1 adequately reflects Australian conditions and health and safety expectations, this modified adoption will be withdrawn and replaced with a direct adoption of this revision of ISO 20474-1.

The AS 20474 series is intended to be the primary source of guidance for designers, manufacturers, importers, suppliers, end-users and maintainers in relation to the safety of earthmoving machinery in Australia.

A list of all parts in the AS 20474 series can be found in the Standards Australia online catalogue.

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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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 Technical Specification 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.

This Standard is a modified adoption of an International Standard. It makes changes to the international text.

The changes to the international text are shown in boxes in the text. These boxes have the heading "National Variations".

To use this Standard in Australia/New Zealand, the changes in the national variation boxes need to be followed.

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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).

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 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

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

This second edition cancels and replaces the first edition (ISO 20474-1:2008), which has been technically revised with the following changes:

— normative references have been updated;

— references to national and regional provisions in the withdrawn ISO/TS 20474-14 have been deleted;

— new safety requirements and protective measures have been added, including the normative annexes, requirements for elevating operator's stations, for lifting devices used in object handling and for earth-moving machinery used underground in non-explosive atmospheres.

It is intended to be used in conjunction with the other parts of ISO 20474.

A list of all parts in the ISO 20474 series, published under the general title, *Earth-moving machinery — Safety,* can be found on the ISO website.

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Introduction

This document is a type-C standard as stated in ISO 12100.

The machinery concerned and the extent to which hazards, hazardous situations or hazardous events are covered are indicated in the Scope of this document.

When requirements of this type-C standard are different from those which are stated in type-A or B standards, the requirements of this type-C standard take precedence over the requirements of the other standards for machines that have been designed and built according to the requirements of this type-C standard.

ISO 20474 provides acceptable safety requirements for earth-moving machinery. This standard does not necessarily provide requirements to meet all national and regional regulatory provisions, e.g. Japan does not allow object handling with earth-moving machinery.

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Australian Standard®

Earth-moving machinery — Safety

Part 1: General requirements (ISO 20474-1:2017, MOD)

1 Scope

This document specifies the general safety requirements for earth-moving machinery as defined in ISO 6165, each of these requirements being common to two or more earth-moving machine families. It is also applicable to machine attachments, and to derivative machinery designed primarily for equipment used to excavate, load, transport, drill, spread, compact or trench earth, rock, and other materials.

It is intended to be used in conjunction with the other parts of ISO 20474, which give the provisions that are specific to particular machine families. Those specific requirements take precedence over the requirements of this document for the machines concerned. For multipurpose machinery, all of those parts of ISO 20474 whose requirements cover the functions and applications of such machines are applicable.

EXAMPLE For a compact loader also used as a trencher, the relevant requirements of ISO 20474-1, ISO 20474-3 and ISO 20474-10 are applicable.

This document deals with all significant hazards, hazardous situations and events relevant to the earth-moving machinery within its scope (see Annex A) when used as intended or under conditions of misuse reasonably foreseeable by the manufacturer. It specifies the appropriate technical measures for eliminating or reducing risks arising from relevant hazards, hazardous situations or events during commissioning, operation and maintenance.

Specific requirements related to autonomous machines are covered in ISO 17757.

NATIONAL VARIATIONS

Delete “ISO 17757” and *replace* with “AS 17757”.

This document is not applicable to machines manufactured before the date of its publication.

NATIONAL VARIATIONS

Add the following text:

This Australian modified adoption of ISO 20474-1 is not intended to restrict innovation, nor to set unreasonable expectations where there may be specific reasons for non-conformance. Where a specific non-conformance to this standard is identified, a risk-based approach is recommended to determine whether the non-conformance presents a significant risk to health and safety and any appropriate mitigating controls required.

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.

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