AS/NZS 4024.1303:2014
ISO/TR 14121-2:2012

AS/NZS 4024.1303:2014

Australian/New Zealand Standard™

# Safety of machinery

# Part 1303: Risk assessment—Practical guidance and examples of methods



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This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee SF-041, General Principles for the Guarding of Machinery. It was approved on behalf of the Council of Standards Australia on 5 June 2014 and on behalf of the Council of Standards New Zealand on 24 April 2014.
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We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

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# PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee SF-041, General Principles for the Guarding of Machinery.

It is emphasized that this Standard is part of the AS(/NZS) 4024.1 series and it is imperative that it is used in conjunction with other applicable parts of the series. A complete listing of all current parts of the AS(/NZS) 4024.1 series can be found at the Standards Australia website <www.standards.org.au> and in AS/NZS 4024.1100, *Safety of machinery*, Part 1100: *Application Guide*.

The objective of this Standard is to give practical guidance on conducting risk assessment for machinery in accordance with AS/NZS 4024.1201, and describe various methods and tools for each step of the process. It gives examples of different approaches for risk reduction on a wide variety of machinery.

This Standard is identical with, and has been reproduced from ISO/TR 14121-2:2012, *Safety of machinery—Risk assessment*, Part 2: *Practical guidance and examples of methods*.

As this Standard is reproduced from an International Technical Report, the following applies:

(a) In the source text 'this Technical Report' should read 'this Australian/New Zealand Standard'.

(b) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

| *Reference to International Standard* | | *Australian/New Zealand Standard* | |
|---|---|---|---|
| ISO | | AS/NZS | |
| | | 4024 | Safety of machinery |
| 12100 | Safety of machinery—General principles for design—Risk assessment and risk reduction | 4024.1201 | Part 1201: General principles for design—Risk assessment and risk reduction |

The term 'informative' has been used in this Standard to define the application of the annex to which it applies. An 'informative' annex is only for information and guidance.

CONTENTS

# INTRODUCTION

The purpose of risk assessment is to identify hazards, and to estimate and evaluate risks so that they can be reduced. There are many methods and tools available for this purpose and several are described in this document. The method or tool chosen will largely be a matter of industry, company or personal preference. The choice of a specific method or tool is less important than the process itself. The benefits of risk assessment come from the discipline of the process rather than the precision of the results: as long as a systematic approach is taken to get from hazard identification to risk reduction and all the elements of risk are considered.

Adding protective/risk reduction measures to a design can increase costs and can restrict the facility of use of the machine if added after a design has been finalized or the machinery itself has already been built. Changes to machinery are generally less expensive and more effective at the design stage, so it is advantageous to perform risk assessment during machinery design.

It can be useful to review the risk assessment when the design has been finalised, when a prototype exists and after experience of the use of the machinery.

Apart from the risk assessment made at the design stage, during construction and commissioning, the principles and methods presented in this document can also be applied to existing machinery during revision or modification of machinery or at any time for the purpose of assessing existing machinery, for example, in the case of mishaps or malfunctions.

AUSTRALIAN/NEW ZEALAND STANDARD

# Safety of machinery

## Part 1303:
## Risk assessment—Practical guidance and examples of methods

## 1 Scope

This Technical Report gives practical guidance on conducting risk assessment for machinery in accordance with ISO 12100 and describes various methods and tools for each step in the process. It gives examples of different measures that can be used to reduce risk and is intended to be used for risk assessment on a wide variety of machinery in terms of complexity and potential for harm. Its intended users are those involved in the design, installation or modification of machinery (for example, designers, technicians or safety specialists).

Annex A provides a specific example for a risk assessment and a risk reduction process.

## 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 12100:2010, *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.

**3.1**
**manufacturer**
**supplier**
entity (for example, designer, manufacturer, contractor, installer, integrator) who provides equipment or services associated with machinery or parts of machinery.

Note to entry: A user can also act in the capacity of a supplier to himself.

## 4 Preparation for risk assessment

### 4.1 General

The objectives and scope for any risk assessment should be defined at the outset.

The risk assessment based on ISO 12100 covers the whole machinery, including the control system of the machinery and should be carried out by the manufacturer.

NOTE See Clause 1 for suggested uses/users of risk assessment.