

## Australian/New Zealand Standard™

### Safety of machinery

### Part 1601: Design of controls, interlocks and guarding—Guards— General requirements for the design and construction of fixed and movable guards

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## **AS/NZS 4024.1601:2014**

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. This Standard was published on 30 June 2014.

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The following are represented on Committee SF-041:

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Department of the Premier and Cabinet, SA  
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*This Standard was issued in draft form for comment as DR AS/NZS 4024.1601.*

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### **Part 1601: Design of controls, interlocks and guarding—Guards— General requirements for the design and construction of fixed and movable guards**

Originated in Australia as part of AS 4024.1(Int)—1992.  
Previous edition AS 4024.1601—2006.  
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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, to supersede AS 4024.1601—2006.

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 specify general requirements for the design and construction of guards provided primarily to protect persons from mechanical hazards. Attention is drawn to the use of guards to minimize exposure to non-mechanical hazards. The requirements are applicable if fixed and moveable guards are used.

This Standard does not cover those parts of guards which actuate interlocking devices. These are covered in AS/NZS 4024.1602. This Standard does not provide requirements for special systems relating specifically to mobility or the ability to lift loads like rollover protective structures (ROPS) and falling-object protective structures (FOPS).

This Standard is identical with, and has been reproduced from EN 953:1997, *Safety of machinery—Guards—General requirements for the design and construction of fixed and movable guards*, and its Amendment 1 (2009). The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 A1.

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

- (a) In the source text ‘this European Standard’ 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:

<i>Reference to International Standard</i>	<i>Australian/New Zealand Standard</i>
EN	AS/NZS
349 Safety of machinery—Minimum gaps to avoid crushing of parts of the human body	4024 Safety of machinery 4024.1803 Part 1803: Safety distances and safety gaps—Minimum gaps to prevent crushing of parts of the human body
626 Safety of machinery—Reduction of risks to health from hazardous substances emitted by machinery	
626-1 Part 1: Principles and specifications for machinery manufacturers	4024.1302 Part 1302: Risk assessment—Reduction of risks to health from hazardous substances emitted by machinery—Principles and specifications for machinery manufacturers
1088 Safety of machinery—Interlocking devices associated with guards—Principles for design and selection	4024.1602 Part 1602: Interlocking devices associated with guards—Principles for design and selection
	AS
60204 Safety of machinery—Electrical equipment of machines	60204 Safety of machinery—Electrical equipment of machines
60204-1 Part 1: General requirements (IEC 60204-1:2005, modified)	60204.1 Electrical equipment of machines—General requirements (IEC 60204-1, Ed. 5 (FDIS) MOD)

EN ISO	AS/NZS
12100 Safety of machinery—Basic concepts, general principles for design	
12100-1 Part 1: Basic terminology, methodology (ISO 12100-2:2003)	4024.1201 Part 1201: General principles for design—Risk assessment and risk reduction
12100-2 Part 2: Technical principles (ISO 12100-2:2003)	4024.1201 Part 1201: General principles for design—Risk assessment and risk reduction
13857 Safety of machinery—Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2008)	4024.1801 Part 1801: Safety distances to prevent danger zones being reached by upper and lower limbs
14121 Safety of machinery—Risk assessment	4024 Safety of machinery
14121-1 Part 1: Principles (ISO 14121-1:2007)	4024.1201 Part 1201: General principles for design—Risk assessment and risk reduction

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the annex to which they apply. A ‘normative’ annex is an integral part of a Standard, whereas an ‘informative’ annex is only for information and guidance.

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## AUSTRALIAN/NEW ZEALAND STANDARD

**Safety of machinery**

Part 1601:

Design of controls, interlocks and guarding—Guards—General requirements for the design and construction of fixed and movable guards

**Introduction**

This European Standard specifies general principles for the design and construction of guards, both fixed and movable. It is intended for use by manufacturers, designers, standards makers and other interested parties.

**A1** This document is a type B standard as stated in EN ISO 12100-1.

The provisions of this document can be supplemented or modified by a type C standard.

NOTE For machines which are covered by the scope of a type C standard and which have been designed and built according to the provisions of that standard, the provisions of that type C standard take precedence over the provisions of this type B standard. **A1**

In accordance with the requirements laid down in **A1** EN ISO 12100-1 **A1** and **A1** EN ISO 12100-2 **A1** the machine designer shall identify the hazards present at a machine, carry out a risk assessment and reduce risk by design before considering safeguarding techniques.

**1 Scope**

This European Standard specifies general requirements for the design and construction of guards provided primarily to protect persons from mechanical hazards.

The standard applies primarily to machines which are manufactured after the date of issue of this standard.

Attention is drawn to the use of guards to minimise exposure to non-mechanical hazards.

The requirements are applicable if fixed and movable guards are used. The standard does not cover those parts of guards which actuate interlocking devices. These are covered in EN 1088.

This standard does not provide requirements for special systems relating specifically to mobility and ability to lift loads like rollover protective structures (ROPS) and falling-object protective structures (FOPS).

**2 Normative references**

**A1** The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies. **A1**

**A1** *deleted text* **A1**

EN 349, *Safety of machinery – Minimum gaps to avoid crushing of parts of the human body*

EN 626-1, *Safety of machinery – Reduction of risks to health from hazardous substances emitted by machinery – Part 1: Principles and specifications for machinery manufacturers*

**A1** *deleted text* **A1**

EN 1088, *Safety of machinery – Interlocking devices associated with guards – Principles for design and selection*