AS/NZS 4024.1503:2014
ISO 13849-1:2006
ISO 13849-1:2006/Cor.1:2009

AS/NZS 4024.1503:2014

Australian/New Zealand Standard™

Safety of machinery

Part 1503: Safety-related parts of control systems—General principles for design

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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.
This Standard was published on 30 June 2014.

The following are represented on Committee SF-041:

Australian Chamber of Commerce and Industry
Australian Industry Group
Australian Manufacturing Workers Union
Department of Mines and Petroleum, WA
Department of the Premier and Cabinet, SA
Engineers Australia
Federal Chamber of Automotive Industries
Human Factors and Ergonomics Society of Australia
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Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

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For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

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.

This Standard was issued in draft form for comment as DR AS/NZS 4024.1503.

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First published as AS/NZS 4024.1503:2014.

ISBN 978 1 74342 756 9

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 specify the characteristics of safety-related parts of control systems (SRP/CS). The characteristics include the performance level required for carrying out safety functions. This Standard applies to all types of technology and energy used (electrical, hydraulic, pneumatic, mechanical, etc.). The performance levels, together with the appropriate category, or the category selection alone (specified in AS 4024.1501), may be used.

Performance levels require a determination of the probability of dangerous failure, and this is considered to be a more comprehensive indicator of functional safety.

In Australia, the use of categories of safety-related parts of control systems is becoming more widely understood and there will be a transition period (as occurred in Europe) to allow practitioners time to work with and understand the probabilistic approach described in this Standard. It is envisaged that on completion of the work of JWG 1 of ISO TC 199 and IEC TC 44, combining ISO 13849-1:2006 and IEC 62061, the resulting unified Standard will replace both AS 4024.1501 and AS/NZS 4024.1503, in the next revision of the AS(/NZS) 4024 series.

This Standard is identical with, and has been reproduced from ISO 13849-1:2006, *Safety of machinery—Safety-related parts of control systems*, Part 1: *General principles for design*, and its Corrigendum 1 (2009), which has been added at the end of the source text.

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

(a) In the source text ‘this part of ISO 13849’ 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	
12100	Safety of machinery—Basic concepts, general principles for design	4024	Safety of machinery
12100-1	Part 1: Basic terminology, methodology	4024.1201	Part 1201: General principles for design—Risk assessment and risk reduction
12100-2	Part 2: Technical principles	4024.1201	Part 1201: General principles for design—Risk assessment and risk reduction
		AS	
13849	Safety of machinery—Safety-related parts of control systems	4024	Safety of machinery
13849-2	Part 2: Validation	4024.1502	Part 1502: Design of safety related parts of control systems—Validation

		AS/NZS 4024	Safety of machinery
14121	Safety of machinery—Principles of risk assessment	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.