AS/NZS 4024.1903:2014
EN 894-3:2000+A1:2008

AS/NZS 4024.1903:2014

Australian/New Zealand Standard™

Safety of machinery

Part 1903: Displays, controls, actuators and signals—Ergonomic requirements for the design of displays and control actuators—Control actuators

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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 4 June 2014 and on behalf of the Council of Standards New Zealand on 24 April 2014.
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The following are represented on Committee SF-041:

Australian Chamber of Commerce and Industry
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Australian Manufacturing Workers Union
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Federal Chamber of Automotive Industries
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Australian/New Zealand Standard™

Safety of machinery

Part 1903: Displays, controls, actuators and signals—Ergonomic requirements for the design of displays and control actuators—Control actuators

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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 4024.1903—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 give guidance on the selection, design and location of control actuators so that they are adapted to the requirements of the operators, are suitable for the task in question and take account of the circumstances of their use. It applies to manual control actuators used in equipment for occupational and private use.

This Standard is identical with, and has been reproduced from EN 894-3:2000, *Safety of machinery—Ergonomics requirements for the design of displays and control actuators*, Part 3: *Control actuators*, and its Amendment 1 (2008). 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:

Reference to International Standard		*Australian/New Zealand Standard*	
EN		AS/NZS	
292	Safety of machinery—Basic concepts, general principles for design	4024	Safety of machinery
292-1	Part 1: Basic terminology, methodology	4024.1201	Part 1201: General principles for design—Risk assessment and risk reduction
292-2	Part 2: Technical principles and specifications	4024.1201	Part 1201: General principles for design—Risk assessment and risk reduction
		AS	
574	Safety of machinery—Two hand control devices—Functional aspects—Principles for design	4024.2601	Part 2601: Design of controls, interlocks and guarding—Two-hand control devices—Functional aspects and design principles
		AS/NZS	
614	Safety of machinery—Ergonomic design principles		
614-1	Part 1: Terminology and general principles	4024.1401	Part 1401: Ergonomic principles—Design principles—Terminology and general principles

EN		AS/NZS	
894	Safety of machinery—Ergonomics requirements for the design of displays and control actuators		
894-1	Part 1: General principles for human interactions with displays and control actuators	4024.1901	Part 1901: Displays, controls, actuators and signals—Ergonomic requirements for the design of displays and control actuators—General principles for human interactions with displays and control actuators
894-2	Part 2: Displays	4024.1902	Part 1902: Displays, controls, actuators and signals—Ergonomic requirements for the design of displays and control actuators—Displays
1050	Safety of machinery—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.

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AUSTRALIAN/NEW ZEALAND STANDARD

Safety of machinery

Part 1903:
Displays, controls, actuators and signals—Ergonomic requirements for the design of displays and control actuators—Control actuators

1 Scope

This European Standard gives guidance on the selection, design and location of control actuators so that they are adapted to the requirements of the operators, are suitable for the control task in question and take account of the circumstances of their use.

It applies to manual control actuators used in equipment for occupational and private use. It is particularly important to observe the recommendations in this European Standard where operating a control actuator may lead to injury or damage to health, either directly or as a result of a human error.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references subsequent amendments to, or revisions of, any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 292-1, Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology.

EN 292-2, Safety of machinery - Basic concepts, general principles for design - Part 2: Technical principles and specifications.

EN 574, Safety of machinery - Two hand control devices -Functional aspects – Principles for design

EN 614-1, Safety of machinery - Ergonomic design principles - Part 1: Terminology and general principles.

EN 894 – 1, Safety of machinery - Ergonomics requirements for the design of displays and control actuators - Part 1: General principles for human interactions with displays and control actuators.

EN 894 – 2, Safety of machinery - Ergonomics requirements for the design of displays and control actuators - Part 2: Displays.

prEN 1005-3, Safety of machinery - Human physical strength - Part 3: Recommended force limits for machinery operation

EN 1050, Safety of machinery - Risk assessment.

ISO 447 Machine tools - Direction of operation of controls.

IEC 6044 Man-machine interface (MMI) - Actuating principles.

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply:

3.1
control actuator
the part of the control actuating system that is directly actuated by the operator, e.g. by applying pressure [EN 894-1]