

Australian Standard™

Safety of machinery

**Part 1401: Ergonomic principles—
Design principles—Terminology and
general principles**



This Australian Standard was prepared by Committee SF-041, General Principles for the Guarding of Machinery. It was approved on behalf of the Council of Standards Australia on 21 April 2006.
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Australian Chamber of Commerce and Industry
Australian Electrical and Electronic Manufacturers Association
Department for Administration and Information Services, SA
Department of Consumer and Employment Protection, WorkSafe Division, WA
Department of Primary Industries, Mine Safety, NSW
Engineers Australia
Federal Chamber of Automotive Industries
Human Factors and Ergonomics Society of Australia
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PREFACE

This Standard was prepared by the Standards Australia Committee SF-041 General Principles for the Guarding of Machinery, as a revision (in part) of AS 4024.1—1996, *Safeguarding of machinery, Part 1: General principles*.

During its work, the Committee considered a number of Standards originating within the European Community in the field of safety of machinery. Many of these European Standards are being adopted virtually unchanged as International Standards by the International Organization for Standardization (ISO) and the Committee has agreed to continue to use material emanating from both CEN and ISO in this new edition. This action will maintain consistency with previous editions of AS 4024.1 and other machine-specific Australian Standards.

This edition has been published as a series of Parts rather than the single Standard previously published as AS 4024.1. In doing this, the Committee has cleared the way for simple revisions in the future. When a new edition of a relevant Standard becomes available at the international level, it will be adopted and published within the framework of AS 4024 with a minimum delay, so ensuring continued international alignment.

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

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FOREWORD

Ergonomically designed work systems enhance safety, effectiveness and efficiency, improve human working and living conditions, and counteract adverse effects on human health and performance. Good ergonomic design therefore exerts a favourable influence on the work system, and on the reliability of the human being within it.

In this Standard the term ‘ergonomics’ refers to a multidisciplinary field of science and its application. In applying ergonomics to the design of work systems it is important to take human capabilities skills, limitations and needs into account when exploring the interaction between people, technology and work environment.

The work system is derived from a concept that combines the operators, work equipment (including machinery), work space, work environment, work process work task, the management and organization and interactions between them. It can vary in complexity from a workshop with a single operator using hand-held equipment to a process plant and its operators.

Work equipment is only one component of the work system and should not be considered in isolation. Good design starts with the operator and takes into account how the operator is expected to interact with the work equipment and how the work equipment fits into the system as a whole. This is particularly important the more the work equipment is interdependent on other components of the system.

STANDARDS AUSTRALIA

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1 SCOPE

This Standard establishes the ergonomics principles to be followed during the process of design of work equipment and in particular, machinery. Although the principles in this Standard are orientated towards equipment for occupational use, they are applicable also to equipment for private use.

This Standard applies to the interactions between the operator and the work equipment when installing, operating, adjusting, maintaining, cleaning, repairing or transporting equipment and outlines the principles to be followed in taking the health and safety of the operator fully into account.

The ergonomic principles given in this Standard fully apply to all ranges of individual ability. Information on dimensions will need to be interpreted to suit the intended population.

2 OBJECTIVE

The objective of this Standard is to enable designers, manufacturers, suppliers, employers and users of machinery to minimize the risks to the health and safety of employees and others working with or otherwise near machinery by providing principles for ergonomic design and general ergonomic principles for their use.

3 REFERENCED DOCUMENTS

The following documents are referred to in this Standard.

AS

- 4024 Safety of machinery
- 4024.1201 Part 1201: General principles—Basic terminology and methodology
- 4024.1202 Part 1202: General principles—Technical principles
- 4024.1702 Part 1702: Human body measurements—Principles for determining the dimensions required for whole body access into machinery
- 4024.1703 Part 1703: Human body measurements—Principles for determining the dimensions required for access openings
- 4024.1901 Part 1901: Displays, controls, actuators and signals—Ergonomic requirements for the design of display and control actuators—General principles for human interactions with display and control actuators
- 4024.1902 Part 1902: Displays, controls, actuators and signals—Ergonomic requirements for the design of displays and control actuators—Displays
- 4024.1903 Part 1903: Displays, controls, actuators and signals—Ergonomic requirements for the design of displays and control actuators—Control actuators

4 DEFINITIONS

For the purpose of this Standard, the following definitions apply.