

AS 4024.1—1996

Australian Standard[®]

Safeguarding of machinery

Part 1: General principles

This Australian Standard was prepared by Committee SF/41, General Principles for the Guarding of Machinery. It was approved on behalf of the Council of Standards Australia on 23 February 1996 and published on 5 July 1996.

The following interests are represented on Committee SF/41:

Australian Manufacturing Workers Union
Department for Industrial Affairs
Department of Employment, Vocational Education, Training and Industrial Relations, Qld
Electricity Supply Association of Australia
Ergonomics Society of Australia
Federal Chamber of Automotive Industries
Health and Safety Organisation, Vic.
Metal Trades Industry Association of Australia
National Safety Council of Australia
Safety Institute of Australia
Tractor and Machinery Association of Australia
University of Melbourne
WorkCover Authority of N.S.W.
Worksafe Western Australia

Review of Australian Standards. To keep abreast of progress in industry, Australian Standards are subject to periodic review and are kept up to date by the issue of amendments or new editions as necessary. It is important therefore that Standards users ensure that they are in possession of the latest edition, and any amendments thereto.

Full details of all Australian Standards and related publications will be found in the Standards Australia Catalogue of Publications; this information is supplemented each month by the magazine 'The Australian Standard', which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn Standards.

Suggestions for improvements to Australian Standards, addressed to the head office of Standards Australia, are welcomed. Notification of any inaccuracy or ambiguity found in an Australian Standard should be made without delay in order that the matter may be investigated and appropriate action taken.

AS 4024.1—1996

Australian Standard[®]

Safeguarding of machinery

Part 1: General principles

PREFACE

This Standard was prepared by the Standards Australia Committee SF/41 on General Principles for the Safeguarding of Machinery as a revision of AS 4024.1(Int)—1992, *Safeguarding of machinery, Part 1: General principles*.

During the preparation of this Standard the Committee retained the concepts provided in BS 5304, *Code of practice for safety of machinery* and considered a number of documents emanating from the International Standards Organization Committee on Safety of Machinery.

It is intended that this Standard contain the general underlying principles for the safety of machine systems in general, whilst leaving requirements unique to a particular type of machine in a Standard covering the guarding of that class of machine. Therefore, within the Standard, emphasis has been placed on the principles of risk control relative to the hazards associated with machine systems in general, without regard to a specific type. In this way, it is hoped that engineers, designers and other persons who may be required to design, build, or evaluate the effectiveness of machine safety systems, will be able to apply the principles to many applications not specifically included herein. Particular emphasis has been placed on the selection of appropriate safeguarding methods.

The content of the Standard is presented in a logical sequence, starting with the basic principles to be followed and leading to hazard recognition and risk assessment.

The Sections dealing with the selection of risk control measures, machine and control system design and safeguarding introduce a hierarchy of guarding, which become increasingly stringent as the perceived risk increases.

All phases of machine life are considered and sections dealing with installation and maintenance are included because during these phases, the risk of injury is frequently higher than that experienced during normal production phases. The importance of safe working practices as part of the overall machine system is emphasized.

The Standard applies ergonomic principles to machinery and workplace design, with the intended result that this will lead to improved safety and operational efficiency.

Developments are constantly being introduced and experience being gained. This not only serves to counter the dangers associated with new technologies and manufacturing methods but also to improve the safety of traditional types of machinery. Users of this Standard should therefore make themselves aware of any new codes of practice which may be published from time to time and any other relevant new developments.

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

CONTENTS

	<i>Page</i>
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE	7
1.2 OBJECTIVE	7
1.3 APPLICATION	7
1.4 REFERENCED AND RELATED DOCUMENTS	7
1.5 DEFINITIONS	8
SECTION 2 GENERAL GUIDANCE	
2.1 PRINCIPLES OF MACHINE SAFETY	10
2.2 EXISTING MACHINERY	10
2.3 SELECTION OF RISK CONTROL METHODS	10
2.4 PHASES OF MACHINE LIFE	10
2.5 CONSULTATION	11
SECTION 3 THE APPLICATION OF ERGONOMICS TO THE SAFE USE OF MACHINE SYSTEMS	
3.1 GENERAL	12
3.2 ANTHROPOMETRY	12
3.3 HUMAN PERFORMANCE	14
3.4 HUMAN ERROR	16
3.5 THE WORKING ENVIRONMENT	17
SECTION 4 IDENTIFICATION OF HAZARDS	
4.1 DANGERS FROM MACHINERY	18
4.2 MECHANICAL HAZARDS	18
4.3 NON-MECHANICAL HAZARDS	28
SECTION 5 RISK ASSESSMENT	
5.1 RISK ASSESSMENT	30
5.2 INFORMATION FOR RISK ASSESSMENT	32
5.3 DETERMINATION OF THE LIMITS OF MACHINE SYSTEM	32
5.4 HAZARD IDENTIFICATION	32
5.5 RISK ESTIMATION	33
5.6 RISK EVALUATION	36
5.7 ACHIEVEMENT OF RISK REDUCTION OBJECTIVES	36
5.8 COMPARISON OF RISK	37
SECTION 6 MACHINERY DESIGN	
6.1 GENERAL	38
6.2 ELIMINATION OF HAZARDS BY DESIGN	38
6.3 CONTROL DEVICES AND SYSTEMS	41
6.4 INDICATORS	47
6.5 CLUTCHES	47
6.6 BRAKING SYSTEM	47
6.7 SAFETY CATCHES, OVERRUN, RUN-BACK AND FALL-BACK PROTECTION DEVICES	49
6.8 SUSPENDED EQUIPMENT	49

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-