AS 4024.1801—2006

Australian Standard™

Safety of machinery

Part 1801: Safety distances to prevent danger zones being reached by the upper limbs

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 26 April 2006.
This Standard was published on 29 June 2006.

The following are represented on Committee SF-041:

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
Institution of Instrumentation, Control and Automation Australia
National Electrical and Communications Association
National Safety Council of Australia
Office of the Australian Safety and Compensation Council
Safety Institute of Australia
The University of Melbourne
Tractor and Machinery Association of Australia
Victorian WorkCover Authority

This Standard was issued in draft form for comment as DR 05449.

Australian Standard™

Safety of machinery

Part 1801: Safety distances to prevent danger zones being reached by the upper limbs

Originally as part of AS 4024.1(Int)—1992.
Previous edition part of AS 4024.1—1996.
Revised in part and redesignated as AS 4024.1801—2006.

Published by Standards Australia GPO Box 476, Sydney, NSW 2001, Australia

ISBN 0 7337 7421 0

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 dealing with the safety of machinery originating within the European Community. 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, to maintain consistency with previous editions of AS 4024, and other, machine-specific Australian Standards currently under development.

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

CONTENTS

Page

FOREWORD

According to AS 4024.1201, machinery is considered safe if it is probable that the machinery can continue to be operated, adjusted, maintained, dismantled and disposed of under the conditions of its intended use without causing injury or damaging human health. Ways of achieving this include—

(a) risk reduction by design;

(b) safeguarding measures;

(c) information for use (signals, signs, instructions);

(e) safety measures taken by the users (safe working procedures, organizational means with respect to safety); and

(d) personal protective equipment.

Means and measures to achieve safety have to reflect the balance between—

(i) the benefit of reduced risk, and

(ii) the loss of other benefits needed to achieve this.

The balance should provide an adequate level of safety for the particular risk.

One method of eliminating or reducing risks caused by machinery is to make use of safety distances preventing danger zones from being reached by the upper limbs.

In specifying safety distances, a number of aspects have to be taken into consideration, such as—

(A) reach situations occurring when machinery is being used;

(B) reliable surveys of anthropometric data, taking into account ethnic groups likely to be found in the workplace concerned;

(C) biomechanical facts, such as compression and stretching of parts of the body and limits of joint rotation; and

(D) technical and practical aspects.

If these aspects were further developed, the current state of the art, reflected in this Standard, could be improved.

STANDARDS AUSTRALIA

Australian Standard
Safety of machinery

Part 1801: Safety distances to prevent danger zones being reached by the upper limbs

1 SCOPE

This Standard establishes values for safety distances to prevent danger zones being reached by the upper limbs of persons of 3 years of age and above. The distances apply when adequate safety can be achieved by distances alone.

NOTE: These safety distances will not provide sufficient protection against certain hazards, for example radiation and emission of substances. For such hazards, additional or other measures need to be taken.

The safety distances protect those persons who try to reach danger zones without additional aid and under the conditions specified for the different reaching situations.

This Standard need not be applied to machinery which is covered by certain electrical standards in which specific testing procedures are laid down, for example using the test finger.

For certain applications there are justifiable reasons to deviate from these safety distances. Standards dealing with these applications indicate how an adequate level of safety can be achieved.

2 OBJECTIVE

The objective of this Standard is to enable designers, manufacturers, suppliers, employers and users of machinery to minimize risks to the health and safety of employees and others working with or otherwise near machinery by providing safety distances to prevent entry to danger zone by the upper limbs.

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
4024.1301 Part 1301: Risk assessment—Principles for risk assessment

4 DEFINITIONS

For the purpose of this Standard, the definitions given in AS 4024.1201 and those below apply.

4.1 Protective structure

Physical obstruction which restricts the movement of the body or part of it.

NOTE: For example, a guard or part of a machine.

4.2 Safety distance

Minimum distance a protective structure is to be placed from a danger zone.