Australian/New Zealand Standard™

Hoists for the transfer of disabled persons—Requirements and test methods





#### AS/NZS ISO 10535:2011

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee ME-067, Mobility Appliances for People with Disabilities. It was approved on behalf of the Council of Standards Australia on 6 December 2011 and on behalf of the Council of Standards New Zealand on 1 December 2011. This Standard was published on 20 December 2011.

The following are represented on Committee ME-067:

Assistive Technology Suppliers Australasia Association of Consultants in Access Australia Australian Rehabilitation and Assistive Technology Association Bus and Coach Association of New Zealand Consumers Federation of Australia Department of Family and Communities, SA Engineers Australia Independent Living Centres Australia Medical Aids Subsidy Scheme (MASS) New Zealand Transport Agency Novita Children's Services Occupational Therapy Australia Queensland Health Royal Perth Hospital TAD Australia The Commercial Vehicle Industry Association of Australia Therapeutic Goods Administration WorkCover New South Wales

## Keeping Standards up-to-date

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 Standards may also be withdrawn.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.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at www.saiglobal.com.au or Standards New Zealand web site at www.standards.co.nz and looking up the relevant Standard in the on-line catalogue.

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 ISO 10535.

# Australian/New Zealand Standard™

# Hoists for the transfer of disabled persons—Requirements and test methods

Originated in Australia as AS 2569.2—1987. Previous edition AS ISO 10535—2002. Jointly revised and designated AS/NZS ISO 10535:2011.

#### **COPYRIGHT**

© Standards Australia Limited/Standards New Zealand

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher, unless otherwise permitted under the Copyright Act 1968 (Australia) or the Copyright Act 1994 (New Zealand).

Jointly published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001 and by Standards New Zealand, Private Bag 2439, Wellington 6140.

This is a preview. Click here to purchase the full publication.

### **PREFACE**

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee ME-067, Mobility Appliances for People with Disabilities to supersede AS ISO 10535—2002, *Hoists for the transfer of disabled persons—Requirements and test methods*.

The objective of this Standard is to update AS ISO 10535 to harmonize with the latest ISO edition of that Standard. Safety and performance requirements of hoists to assist in the transfer of people are critical to minimize the risk of harm during activities when both the person being transferred and others are vulnerable to serious injury.

This Standard is identical with, and has been reproduced from ISO 10535:2006, *Hoists for the transfer of disabled persons—Requirements and test methods*.

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

- (a) Its number appears on the cover and title page while the International Standard number appears only on the cover.
- (b) In the source text 'this International Standard' should read 'this Australian/New Zealand Standard'.
- (c) 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	
IEC 60529	Degrees of protection provided by enclosures (IP Code)	AS 60529	Degrees of protection provided by enclosures (IP Code)
60601 60601-1 60601-1-2	Medical electrical equipment Part 1: General requirements for basic safety and essential performance Part 1-2: General requirements for basic safety and essential performance—Collateral standard: Electromagnetic compatibility— Requirements and tests	AS/NZS 3200* 3200.1.0 3200.1.2	Medical electrical equipment Part 1.0: General requirements for safety—Parent Standard Part 1.2: General requirements for safety—Collateral Standard: Electromagnetic compatibility— Requirements and tests
61000 61000-3-2	Electromagnetic compatibility (EMC) Part 3-2: Limits—Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)	61000 61000.3.2	Part 3.2: Limits—Limits for harmonic current emissions (equipment input current ≤16 A per phase) (IEC 61000-3-2, Ed.3.0 (2005) MOD)
61000-3-3	Part 3-3: Limits—Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection	61000.3.3	Part 3.3: Limits—Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current (≤16 A per phase and not subject to conditional connection (IEC 61000-3-3, Ed. 1.2 (2005) MOD)

<sup>\*</sup> At time of publication, AS/NZS 3200 reflects the 2nd Edition of ISO 60601. It is anticipated a future revision will mirror ISO 60601 3rd Edition and this (ISO 60601 3rd Edition) should be used until that revision of AS/NZS 3200.

This is a preview. Click here to purchase the full publication.

IEC 61000-4-3	Part 4-3: Testing and measurement techniques—Radiated, radio-frequency, electromagnetic field immunity test	AS/NZS 61000.4.3	Part 4.3: Testing and measurement techniques—Radiated, radio-frequency, electromagnetic field immunity test
ISO			
14971	Medical devices—Application of risk management to medical devices	4810 4810.1	Medical devices—Risk management Part 1: Application of risk analysis
		AS/NZS ISO	
9999	Technical aids for persons with disabilities—Classification and terminology	9999	Assistive products for persons with disability—Classification and terminology
EN		AS	
614	Safety of machinery—Ergonomic design principles	4024	Safety of machinery
614-1	Part 1: Terminology and general principles	4024.140	1 Part 1401: Ergonomic principles— Design principles—Terminology and general principles
853	Rubber hoses and hose assemblies— Wire braid reinforced hydraulic type—Specification	3791	Hydraulic hose
854	Rubber hoses and hose assemblies— Textile reinforced hydraulic type— Specification	3791	Hydraulic hose
		AS EN	
12182	Technical aids for disabled persons— General requirements and test methods	12182	Technical aids for disabled persons— General requirements and test methods

Only international references that have been adopted as Australian or Australian/New Zealand Standards have been listed.

# CONTENTS

	Pa	age
1	Scope	1
2	Normative references	1
3	Terms and definitions	2
4	General requirements and test methods	7
4.1	General requirements	7
4.2	General test methods	7
4.3	Safety requirements	
4.4	Requirements for body-support units	
4.5 4.6	Central suspension point	
4.0 4.7	Performance	
4.8	Rate (velocity) of lifting and lowering	
4.9	Operating forces/torques	18
4.10	Durability	
4.11	Hydraulic components	
4.12 4.13	Pneumatic componentsInformation supplied by the manufacturer	
4.13	••	
5	Mobile hoists — Specific requirements and test methods	
5.1	General requirements	
5.2 5.3	Static strengthStatic stability	
5.4	Immobilizing device (brakes)	
5.5	Moving forces	
5.6	Instructions for use	
6	Standing and/or raising hoists — Specific requirements and test methods	32
6.1	General requirements	32
6.2	Static strength	
6.3	Static stability	
6.4	Immobilizing device (brakes)	
6.5	Moving forces	
6.6 6.7	DurabilityInstructions for use	
-		
7	Stationary hoists — Specific requirements and test methods	. 35
7.1 7.2	General requirements	
7.2 7.3	Specific safety requirementsStatic strength (free-standing stationary hoists only)	
7.3 7.4	Static stability (free-standing stationary hoists only)	
7.5	Static strength for all other stationary hoists	37
7.6	Instructions for use	
8	Non-rigid body-support units — Specific requirements and test methods	38
8.1	General requirements	
8.2	Requirements for material and seams of the non-rigid body-support unit	38
8.3	Test methods for non-rigid body-support unit	
8.4	Information supplied by the manufacturer	38
9	Rigid body-support units — Specific requirements and test methods	39

#### Page 9.1 9.2 9.3 Information supplied by the manufacturer......40 9.4 Bathtub hoists — Specific requirements and test methods........................41 10 10.1 General requirements .......41 General test methods ......41 10.2 10.3 Safety requirements 42 10.4 10.5 10.6 Rate (velocity) of lifting and lowering .......42 10.7 10.8 10.9 Durability.......43 10.10 Static strength and stability .......43 10.11 10.12 10.13 Non-rigid body-support units ......44 10.14 10.15 Information supplied by the manufacturer......45 10.16

## INTRODUCTION

It appears from studies that the nursing and caring profession involves many physically burdening factors in the caring for and nursing of disabled persons. A hoist offers a safe means of supportive lifting and moving, either assisted or independently.