

AS 3856.1:2021



STANDARDS  
Australia



# Hoists and ramps for people with disabilities — Vehicle mounted

Part 1: Product requirements



currently in preview, click buy full version

AS 3856.1:2021

This Australian Standard ® was prepared by ME-067. It was approved on behalf of the Council of Standards Australia on 15 April 2021.

This Standard was published on 30 April 2021.

The following are represented on Committee ME-067:

- Assistive Technology Suppliers Australasia
- Australian Nursing and Midwifery Federation
- Australian Rehabilitation & Assistive Technology Association
- Heavy Vehicle Industry Australia
- Independent Living Centres Australia
- Medical Aids Subsidy Scheme (Australia)
- National Disability Insurance Agency (Australia)
- Novita Children's Services (Australia)
- Occupational Therapy Australia
- Royal Perth Hospital

This Standard was issued in draft form for comment as DR AS 3856.1:2020.

#### **Keeping Standards up-to-date**

Ensure you have the latest versions of our publications and keep up-to-date about Amendments, Rulings, Withdrawals, and new projects by visiting:

[www.standards.org.au](http://www.standards.org.au)

ISBN 978 1 76113 298 8

# Hoists and ramps for people with disabilities — Vehicle mounted

## Part 1: Product requirements

Originated as AS 3865.1—1991.  
Jointly revised and redesignated as AS/NZS 3856.1—1998.  
Revised and redesignated as AS 3856.1:2021.

© Standards Australia Limited 2021

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 (Cth).

## Preface

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee ME-067, Assistive Technology, to supersede AS/NZS 3856.1:1998, *Hoists and ramps for people with disabilities — Vehicle mounted, Part 1: Product requirements*.

The objective of this document is to provide persons concerned with the manufacture of hoists and ramps and their fitting onto vehicles, community transport organizers, regulatory authorities and operators with minimum design and performance specifications for hoists and ramps intended to be fitted on vehicles.

This document requires products to be tested in their fully assembled condition, both before and after fitment to a vehicle.

The document covers ramps as well as hoists because some hoisting appliances deploy a platform which forms a ramp or a set of ramps during the operating cycle.

The document covers only those appliances which are necessarily attached to a vehicle during their use. The types of appliances which are placed next to a vehicle for hoisting a person into the vehicle are covered in AS/NZS ISO 10535:2011.

While it is recognized that operators of vehicle fitted hoists and ramps may or may not be in the company of an attendant, the requirements in the document do not cover all requirements for the sole operation of an appliance by an operator, self-operated appliances usually being tailored to their specific needs.

The term 'normative' is used in Standards to define the application of the appendix to which it applies. A 'normative' appendix is an integral part of a Standard.

# Contents

Preface .....	ii
<b>1 Scope and general</b> .....	<b>1</b>
1.1 Scope .....	1
1.2 Normative references .....	1
1.3 Terms and definitions .....	1
<b>2 Types of appliances</b> .....	<b>2</b>
<b>3 General requirements</b> .....	<b>3</b>
<b>4 Type A, Type B, Type C and Type D ramps and hoists</b> .....	<b>4</b>
4.1 Material, design and construction requirements .....	4
4.2 Enclosure integrity .....	4
4.3 Hydraulic equipment .....	4
4.4 Manually operated folding mechanisms .....	4
4.5 Control systems .....	4
<b>5 Type A and B appliances</b> .....	<b>6</b>
5.1 Design and construction requirements .....	6
5.2 Performance requirements .....	7
5.2.1 Uncontrolled descent under gravity .....	7
5.2.2 Deflection .....	7
5.2.3 Static strength .....	7
5.2.4 Speed .....	7
5.2.5 Acceleration .....	7
5.2.6 Durability .....	7
<b>6 Type C appliances</b> .....	<b>8</b>
6.1 Design and construction requirements .....	8
6.2 Performance requirements .....	8
6.2.1 Static Strength .....	8
6.2.2 Durability .....	8
<b>7 Type D and E appliances</b> .....	<b>8</b>
7.1 General .....	8
7.2 Performance requirements .....	9
7.2.1 Type D appliances .....	9
7.2.2 Type E appliances .....	9
<b>8 Information disclosure requirements</b> .....	<b>9</b>
8.1 General .....	9
8.2 Labelling .....	10
8.3 Pre-sale information .....	10
8.4 Operator information .....	10
<b>Appendix A (normative) Test for performance of a platform under simulated failure of operating power or equipment</b> .....	<b>11</b>
<b>Appendix B (normative) Test for platform deflection</b> .....	<b>14</b>
<b>Appendix C (normative) Platform strength test</b> .....	<b>16</b>
<b>Appendix D (normative) Tests for dynamic durability, and measurement of speed and acceleration</b> .....	<b>18</b>
<b>Appendix E (normative) Ramp strength test</b> .....	<b>20</b>
<b>Appendix F (normative) Temperature cycling test</b> .....	<b>22</b>
<b>Appendix G (normative) Electrical safety tests</b> .....	<b>26</b>
<b>Bibliography</b> .....	<b>31</b>

NOTES

Currently in preview, click buy full version

# Australian Standard®

## Hoists and ramps for people with disabilities — Vehicle mounted

### Part 1: Product requirements

## 1 Scope and general

### 1.1 Scope

This document specifies requirements for the design, performance and installation of hoists and ramps for use by people with disabilities in accessing ADR compliant motor vehicles.

This document does not apply to devices for hoisting unoccupied mobility devices into or onto a vehicle.

Specific elements of the document are relevant to portable hoists or ramps not permanently fitted to the vehicle.

### 1.2 Normative references

For the purposes of this document, the following terms and definitions apply.

AS 3696.13, *Wheelchairs, Part 13: Determination of coefficient of friction of test surfaces*

AS 3856.2 *Hoists and ramps for people with disabilities — Vehicle mounted Part 2: Installation requirements*

AS ISO 14971, *Medical devices — Application of risk management to medical devices*

AS/NZS ISO 7176.14, *Wheelchairs, Part 14: Power and control systems for electrically powered wheelchairs and scooters — Requirements and test methods*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 62262, *Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)*

UN R10, *United Nations Regulation No. 10: Uniform provisions concerning the approval of vehicles with regard to electromagnetic compatibility*

### 1.3 Terms and definitions

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

#### 1.3.1

##### **appliance**

hoist, ramp or platform

#### 1.3.2

##### **braking**

action of force being applied to slow or stop a moving mechanism

#### 1.3.3

##### **deploy**

move an appliance from a stored position to an operating position

#### 1.3.4

##### **edge barrier**

barrier attached to the side edges of a platform or ramp extending above the surface of the platform or ramp