

Australian/New Zealand Standard™

Wheelchairs

Part 3: Determination of effectiveness of brakes



AS/NZS ISO 7176.3:2015

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee ME-067, Assistive Technology Products for Persons with Disability. It was approved on behalf of the Council of Standards Australia on 9 July 2015 and on behalf of the Council of Standards New Zealand on 21 July 2015. This Standard was published on 12 August 2015.

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Australian Rehabilitation and Assistive Technology Association
Bus and Coach Association of New Zealand
Commercial Vehicle Industry Association of Australia
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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee, ME-067 Assistive Technology Products for Persons with Disability, to supersede AS/NZS 3696.3:2008.

The objective of this standard is to specify test methods for the measurement of the effectiveness of brakes of wheelchairs, including scooters, intended to carry one person, with a maximum speed not exceeding 15 km/h. It also specifies operational requirements for brakes and disclosure requirements for the manufacturer.

This Standard is identical with, and has been reproduced from, ISO 7176-3:2012, *Wheelchairs, Part 3: Determination of effectiveness of brakes*.

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

- (a) In the source text 'this part of ISO 7176' should read 'this Australian/New Zealand standard'.
- (b) 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:

| <i>Reference to International Standard</i> | <i>Australian/New Zealand Standard</i> |
|--|---|
| ISO | AS/NZS |
| 7176 Wheelchairs | 3696 Wheelchairs |
| 7176-6 Part 6: Determination of maximum speed, acceleration and deceleration of electric wheelchairs | 3696.6 Part 6: Determination of maximum speed, acceleration and retardation of electric wheelchairs |
| 7176-11 Part 11: Test dummies | 3696.11 Part 11: Test dummies |
| 7176-13 Part 13: Determination of coefficient of friction of test surfaces | 3696.13 Part 13: Determination of coefficient of friction of test surfaces |
| | AS/NZS ISO |
| 7176 Wheelchairs | 7176 Wheelchairs |
| 7176-26 Part 26: Vocabulary | 7176.26 Part 26: Vocabulary |

Only normative references that have been adopted as Australian or Australian/New Zealand Standard have been listed.

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

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INTRODUCTION

The performance of a wheelchair's brakes can be critical for safety. The tests specified in this part of ISO 7176 determine the ability of a wheelchair to stop in a safe manner on level ground and on a slope, and determine the ability of a wheelchair to remain stationary when parked on a slope.

AUSTRALIAN/NEW ZEALAND STANDARD

Wheelchairs**Part 3:
Determination of effectiveness of brakes****1 Scope**

This part of ISO 7176 specifies test methods for the measurement of the effectiveness of brakes of manual wheelchairs and electrically powered wheelchairs, including scooters, intended to carry one person, with a maximum speed not exceeding 15 km/h. It also specifies disclosure requirements for the manufacturer.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 7176-6, *Wheelchairs — Part 6: Determination of maximum speed, acceleration and deceleration of electric wheelchairs*

ISO 7176-11, *Wheelchairs — Part 11: Test dummies*

ISO 7176-13, *Wheelchairs — Part 13: Determination of coefficient of friction of test surfaces*

ISO 7176-15, *Wheelchairs — Part 15: Requirements for information disclosure, documentation and labelling*

ISO 7176-22, *Wheelchairs — Part 22: Set-up procedures*

ISO 7176-26, *Wheelchairs — Part 26: Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 7176-26 and the following apply.

3.1**tipping**

rotational movement of the wheelchair that occurs when the vertical projection of the centre of mass of the occupied wheelchair moves outside of a polygon connecting the ground contact points of all the running wheels

Note 1 to entry: The instant at which the wheelchair starts to tip is reached when the forces become zero under all uphill running wheels (i.e. there is only force through one side of the polygon). See ISO 7176-1 for more details.

3.2**sliding**

movement of the wheelchair across the test surface where there is a difference in velocity between the test surface and the braked wheel rolling surface

4 Principle

A number of wheelchair braking operations are carried out and the resulting responses of the wheelchair are measured and observed.