

Australian/New Zealand Standard™

## Wheelchairs

### Part 9: Climatic tests for electric wheelchairs



## **AS/NZS ISO 7176.9:2013**

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 23 July 2013 and on behalf of the Council of Standards New Zealand on 5 August 2013. This Standard was published on 30 August 2013.

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The following are represented on Committee ME-067:

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Australian Rehabilitation on Assistive Technology  
Bus and Coach Association of New Zealand  
Consumer Federation Australia  
Department of Family and Communities (SA)  
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*This Standard was issued in draft form for comment as DR AS/NZS ISO 7176.9.*

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### Part 9: Climatic tests for electric wheelchairs

Originated in Australia as AS 3696.9—1990.  
Jointly revised and designated as AS/NZS 3696.9:2008.  
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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 3696.9:2008, *Wheelchairs*, Part 9: *Climatic tests for electric wheelchairs (ISO 7176-9:2001, MOD)*.

The objective of this Standard is to specify requirements and test methods to determine the effects of rain, dust, condensation and the effects of changes of temperature on the basic functioning of electrically powered wheelchairs, including scooters, intended to carry one person, with a maximum speed not exceeding 15 km/h.

This Standard is identical with, and has been reproduced from, ISO 7176-9:2009, *Wheelchairs*, Part 9: *Climatic tests for electric wheelchairs*.

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 ISO
7176 Wheelchairs	7176 Wheelchairs
7176-11 Part 11: Test dummies	7176.11 Part 11: Test dummies
7176-26 Part 26: Vocabulary	7176.26 Part 26: Vocabulary
	AS/NZS
7176-22 Part 22: Set-up procedures	3696 Wheelchairs
	3696.22 Part 22: Set-up procedures
IEC	AS
60529 Degrees of protection provided by enclosures (IP Code)	60529 Degrees of protection provided by enclosures (IP Code)

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

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## FOREWORD

Significant technical changes from the second edition are that the climatic tests are carried out in a specified sequence, the cold operating conditions test is repeated (to cause a build-up of condensation within enclosures) and inspection is carried out following the water spray test to confirm that creepage and clearance distances will remain acceptable. In addition, the effects of dust are now included in the scope of this International Standard, although requirements are under consideration.

## INTRODUCTION

Wheelchairs can be used or stored in adverse environmental conditions which could severely affect their functioning, sometimes to the extent of being dangerous. The tests specified in this part of ISO 7176 have been developed to determine whether, and to what extent, wheelchairs are vulnerable to environmental conditions. Operation is tested in conditions which simulate use in some of the wider climatic variations experienced around the world.

The wheelchair electrical system might be exposed to liquids, including salt water. Since the effects of salt water contamination are difficult to evaluate, the immunity of the system is assessed on the basis of exposure to a fresh water spray.

## AUSTRALIAN/NEW ZEALAND STANDARD

**Wheelchairs****Part 9:  
Climatic tests for electric wheelchairs****1 Scope**

This part of ISO 7176 specifies requirements and test methods to determine the effects of rain, dust, condensation and the effects of changes of temperature on the basic functioning of electrically powered wheelchairs, including scooters, intended to carry one person, with a maximum speed not exceeding 15 km/h.

This part of ISO 7176 does not include requirements for resistance to corrosion.

**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 7176-11, *Wheelchairs — Test dummies*

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

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

ISO 7176-26, *Wheelchairs — Vocabulary*

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

IEC 60601-1, *Medical electrical equipment — Part 1: General requirements for basic safety and essential performance*

**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****standard ambient conditions**

environmental conditions of  $20\text{ °C} \pm 5\text{ °C}$  and relative humidity of  $60\% \pm 20\%$

**3.2****enclosure**

housing affording the type and degree of protection suitable for the intended application

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