

INTERNATIONAL STANDARD

ISO
7176-9

First edition
1988-11-15



INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
ORGANISATION INTERNATIONALE DE NORMALISATION
МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

Wheelchairs —

Part 9 :
Climatic tests for electric wheelchairs

iTeh STANDARD PREVIEW

Fauteuils roulants —

(standards.iteh.ai)

Partie 9 : Essais climatiques pour fauteuils roulants électriques

<https://standards.iteh.ai/catalog/standards/sist/bd03260a-6d7f-4ce2-b903-d6a6b25012d7/iso-7176-9-1988>

Reference number
ISO 7176-9: 1988 (E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 7176-9 was prepared by Technical Committee ISO/TC 173, *Technical systems and aids for disabled or handicapped persons*.

<https://standards.iteh.ai/catalog/standards/sist/bd03260a-6d7f-4ce2-b903-60a9250126/ISO-7176-9-1988>

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

Wheelchairs —

Part 9 : Climatic tests for electric wheelchairs

0 Introduction

ISO 7176 at present consists of the following parts :

- Part 1 : Determination of static stability.
- Part 2 : Determination of dynamic stability of electric wheelchairs.
- Part 3 : Determination of efficiency of brakes.
- Part 4 : Determination of energy consumption of electric wheelchairs.
- Part 5 : Determination of overall dimensions, mass and turning space.
- Part 6 : Determination of maximum speed, acceleration and retardation of electric wheelchairs.
- Part 7 : Determination of seating dimensions — Definitions and measuring methods.
- Part 8 : Static, impact and fatigue strength for manual wheelchairs.
- Part 9 : Climatic tests for electric wheelchairs.
- Part 10 : Determination of obstacle-climbing ability of electric wheelchairs.
- Part 11 : Test dummies.
- Part 13 : Determination of coefficient of friction of test surfaces.
- Part 14 : Power and controls.

1 Scope and field of application

This part of ISO 7176 specifies methods for testing the effects of rain on the functioning of electric wheelchairs used outdoors and the effects of temperature changes on the functioning of wheelchairs taken outdoors after a period indoors.

This part of ISO 7176 does not cover the effects of splashes from puddles, nor the resistance to corrosion.

2 References

- ISO 554, *Standard atmospheres for conditioning and/or testing — Specifications.*
- ISO 6440, *Wheelchairs — Nomenclature, terms and definitions.*
- ISO 7930, *Wheelchairs — Type classification based on appearance characteristics.*
- IEC Publication 68-2-14, *Basic environmental testing procedures — Test N : Change of temperature.*
- IEC Publication 529 (1976), *Classification of degrees of protection provided by enclosures.*

3 Definitions

For the purposes of this part of ISO 7176, the definitions given in ISO 6440 apply.

4 Principle

After preconditioning, the wheelchair is exposed to environments that are standardized in the field of electric power equipment and the correct functioning of the wheelchair is checked.

5 Test wheelchair

- 5.1 The wheelchair shall be fully equipped for normal use.
- 5.2 The batteries (accumulators) shall have at least 75 % of their nominal capacity at the start of the tests.
- 5.3 The wheelchair shall, immediately prior to each test, have been conditioned for at least 24 h in standard atmosphere 23/50 according to ISO 554.

6 Test procedures

6.1 Effects of rain

Perform the test in accordance with clause 8.3 in IEC Publication 529 (1976).

Immediately before the test, operate the wheelchair and check the following functions in accordance with the appropriate International Standards :

- a) speed control;
- b) brakes;
- c) steering control;
- d) any other electrical apparatus fitted to the wheelchair by the manufacturer.

Immediately after the test, operate the wheelchair again and recheck functions a) to d) above according to the appropriate International Standards. Note any functional changes.

6.2 Effects of changes of temperature with specified rate of change

The tests shall be conducted for two different temperature ranges, one range representing operating conditions and the other representing storage conditions.

The tests shall be performed in accordance with IEC Publication 68-2-14, test Nb at the 1 °C per minute rate of change.

6.2.1 Operating conditions

Leave the wheelchair in the test chamber at -25 °C for 3 h and then at + 50 °C for 3 h. Immediately before the test and within 5 min after removal of the wheelchair from the chamber to standard atmosphere 23/50 according to ISO 554, check the following functions in accordance with the appropriate International Standards :

- a) speed control;
- b) brakes;
- c) steering control;
- d) any other electrical apparatus fitted to the wheelchair by the manufacturer.

Note any functional changes. Repeat the complete test with the temperatures in reverse order, i.e. + 50 °C for 3 h followed by - 25 °C for 3 h. Before making a final check on functions a) to d) above, leave the wheelchair in standard atmosphere 23/50 according to ISO 554 for at least 24 h.

6.2.2 Storage conditions

Leave the wheelchair in the test chamber at -40 °C for 3 h and then at + 65 °C for 3 h.

After a recovery period of at least 24 h in standard atmosphere 23/50 according to ISO 554, recheck functions a) to d) of 6.2.1. Note any functional changes.

7 Test report

The test report shall contain the following information :

- a) a reference to this part of ISO 7176;
- b) the product type and type designation (see ISO 7930);
- c) the name and address of the manufacturer;
- d) a photograph of the wheelchair equipped as during the tests;
- e) the name and address of the test institution;
- f) the changes in behaviour as specified in 6.1 and 6.2, together with any evidence of damage to the wheelchair.

UDC 615.478.32 : 62-83 : 620.193.2

Descriptors : wheel chairs, tests, environmental tests.

Price based on 2 pages
