INTERNATIONAL STANDARD

ISO 7176-6

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Wheelchairs —

Part 6:
Determination of maximum speed, acceleration and deceleration of electric wheelchairs

Fauteuils roulants —

Partie 6: Détermination de la vitesse, de l'accélération et du ralentissement maximaux des fauteuils roulants électriques

Reference number
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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 7176 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 7176-6 was prepared by Technical Committee ISO/TC 173, *Technical systems and aids for disabled or handicapped persons*, Subcommittee SC 1, *Wheelchairs*.

This second edition cancels and replaces the first edition (ISO 7176-6:1988), clauses and tables of which have been technically revised.

ISO 7176 consists of the following parts, under the general title *Wheelchairs*:

- *Part 1: Determination of static stability*
- *Part 2: Determination of dynamic stability of electric wheelchairs*
- *Part 3: Determination of effectiveness of brakes*
- *Part 4: Energy consumption of electric wheelchairs and scooters for determination of theoretical distance range*
- *Part 5: Determination of overall dimensions, mass and turning space*
- *Part 6: Determination of maximum speed, acceleration and deceleration of electric wheelchairs*
- *Part 7: Measurement of seating and wheel dimensions*
- *Part 8: Requirements and test methods for static, impact and fatigue strengths*
- *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 control systems for electric wheelchairs — Requirements and test methods*
- *Part 15: Requirements for information disclosure, documentation and labelling*

- *Part 16: Resistance to ignition of upholstered parts — Requirements and test methods*
- *Part 22: Set-up procedures*

The following parts are also on the work programme:

- *Part 19: Wheeled mobility devices for use in motor vehicles*
- *Part 21: Electromagnetic compatibility of electrically powered wheelchairs and motorized scooters — Requirements and test methods*
- *Part 23: Requirements and test methods for attendant-operated stair-climbing devices*
- *Part 24: User-operated stair-climbing devices — Requirements and test methods*
- *Part 25: Requirements and test methods for batteries and their chargers for powered wheelchairs and motorized scooters*

Introduction

Maximum speed, acceleration and deceleration can be important factors in the selection of the most appropriate wheelchair for individual people.

Maximum speed can have an influence on whether a wheelchair may be used on footpaths, on roads, or both, depending upon local legislation. Some people's main concern may be to travel as fast as possible, whereas other people may be apprehensive of higher speeds. In addition, other tests in the ISO 7176 series may require the determination of maximum speed in order to carry out their procedures.

Maximum acceleration and deceleration are primarily of concern with regard to the comfort of the user, where high values can be very disturbing and lead to postural stability problems.

These tests specify a consistent method of determining maximum values of speed, acceleration and deceleration to provide comparable results.

Wheelchairs —

Part 6:
Determination of maximum speed, acceleration and deceleration of electric wheelchairs

1 Scope

This part of ISO 7176 specifies test methods for determining the maximum speed, acceleration and deceleration of electrically powered wheelchairs, including scooters, intended to carry one person, with a maximum nominal speed not exceeding 15 km/h (4,167 m/s).

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 7176. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 7176 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 6440, *Wheelchairs — Nomenclature, terms and definitions*

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

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

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

3 Terms and definitions

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

4 Apparatus

4.1 Instrumentation that may need to be added to the test dummy, in which case its mass shall not exceed 5 % of the total dummy mass.

4.2 Horizontal test plane made up of a rigid, flat, horizontal surface of sufficient size to conduct the tests and with a coefficient of friction sufficient to allow only wheel slippage during performance of the tests.

NOTE The floor of a typical large building used for manufacturing or indoor leisure with, for example, a concrete, asphalt or wooden floor is acceptable.