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First edition
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Wheelchairs —

Part 8:

Requirements and test methods for static,
impact and fatigue strengths

Fauteuils roulants —

Partie 8: Prescriptions et méthodes d'essai pour la résistance statique, la résistance aux chocs et la résistance à la fatigue



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.

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.

International Standard ISO 7176-8 was prepared by Technical Committee ISO/TC 173, *Technical Systems and Aids for Disabled or Handicapped Persons*, Subcommittee SC 1, *Wheelchairs*.

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 the efficiency of brakes*
- Part 4: *Determination of energy consumption of electric wheelchairs and scooters*
- Part 5: *Determination of overall dimensions, mass and turning space*
- Part 6: *Determination of maximum speed, acceleration and retardation of electric wheelchairs*
- Part 7: *Method of 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 the 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: *Requirements and test methods for resistance to ignition of upholstered parts*
- Part 17: *Serial interface for electric wheelchair controllers*
- Part 18: *Stair traversing devices*
- Part 19: *Wheeled mobility devices for use in motor vehicles*
- Part 20: *Determination of the performance of stand-up type wheelchairs*
- Part 21: *Requirements and test methods for electromagnetic compatibility of powered wheelchairs and motorized scooters.*
- Part 22: *Set up procedure for adjustable wheelchairs.*

Parts 17 to 22 are included in the work programme, but at early stages.

NOTE A technical report will also be made available giving a simplified explanation of these parts of ISO 7176.

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Introduction

This part of ISO 7176 calls for the use of procedures that may be injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the manufacturer or test house from legal obligations relating to health and safety at any stage.

Many wheelchairs have adjustable components and/or alternative parts. Where there is an obligation to ensure that all variations conform to this part of ISO 7176, it is for those commissioning the tests to decide which configurations should be tested.

However, there is also a need to be able to make comparisons between different products; a reference configuration that gives a basis for such comparisons is specified.

It is anticipated that all parts of this International Standard will continue to be developed and future revisions may include the results of ongoing work in the following areas:

- the fatigue testing of electrically powered wheelchairs, and in particular, the speed and size of obstacle of the two-drum test machine;
- requirements for wheelchairs where the mass of the user exceeds 100 kg;
- development of the design recommendations in annex B to normative requirements;
- development of more precisely defined failure criteria, and, in particular, a tracking test to determine if any test damage is acceptable (see annex E);
- consideration whether the fatigue test requirements should be revised for manual wheelchairs intended for 'active users' and fitted with very small castors;
- a more precisely defined set up procedure for the reference configuration of adjustable wheelchairs as given in ISO 7176-22, which is under preparation;
- further development of the test dummies to improve the way in which they load the backs of test wheelchairs, and in particular to improve their suitability for use with wheelchairs with low backrests.