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Wheelchair seating —

Part 4: Seating systems for use in motor vehicles

Sièges de fauteuils roulants —

Partie 4: Systèmes d'assise dans les véhicules à moteurs



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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 2.

The main task of technical committees is to prepare International Standards. 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 document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 16840-4 was prepared by Technical Committee ISO/TC 173, *Assistive products for persons with disability*, Subcommittee SC 1, *Wheelchairs*.

ISO 16840 consists of the following parts, under the general title *Wheelchair seating*:

- *Part 1: Vocabulary, reference axis convention and measures for body segments, posture and postural support surfaces*
- *Part 2: Determination of physical and mechanical characteristics of devices intended to manage tissue integrity — Seat cushions*
- *Part 3: Determination of static, impact and repetitive load strengths for postural support devices*
- *Part 4: Seating systems for use in motor vehicles*

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Introduction

Transportation safety research has demonstrated that the design of the vehicle seat, the occupant restraints and seat compartment in motor vehicles play a vital role in protecting the occupant in the event of a crash. For some wheelchair users, it is not feasible to transfer to the seat provided by the vehicle manufacturer and they must remain seated in their wheelchair while travelling in a vehicle. ISO 7176-19 provides a means of evaluating the design and frontal crashworthiness performance of complete wheelchairs when used as forward-facing seats in motor vehicles. However, it is common practice that a seating system from one manufacturer and a wheelchair base from another manufacturer be used to form the complete wheelchair. Wheelchair seating systems may also be intended for use on multiple models of wheelchair bases. For this reason, there is a need to be able to evaluate the design and performance of wheelchair seating systems independent of the commercial wheelchair bases on which they may be installed. This part of ISO 16840 provides a means of assessing frontal impact crashworthiness of seating systems without the host wheelchair by using a surrogate wheelchair base.

Manufacturers may choose to not test customized variations of a given seating system. The manufacturer may test a representative variation of the seating system and it is for the manufacturer to document how the results of this test would apply to the limitations in use and instructions for use supplied with the product.

This part of ISO 16840 is intended to encourage safer motor vehicle transportation of wheelchair users by increasing the availability of wheelchair seating systems that comply with basic principles of occupant protection. This part of ISO 16840 should not be used to deny or limit wheelchair user access to motor vehicle transportation.

Currently this part of ISO 16840 addresses only complete wheelchair seating systems and the test requirements are representative of frontal impact conditions. However, future versions may address testing of the individual components of the seating system as well as other directions of impact such as side or rear.