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**Technical systems and aids for disabled  
or handicapped persons — Wheelchair  
tiedown and occupant-restraint  
systems —**

**Part 5:  
Systems for specific wheelchairs**

*Assistances et aides techniques pour les personnes invalides ou  
handicapées — Systèmes d'attache du fauteuil roulant et de retenue de  
l'occupant —*

*Partie 5: Systèmes pour fauteuils roulants particuliers*



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## Foreword

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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 10542-5 was prepared by Technical Committee ISO/TC 173, *Technical systems and aids for disabled or handicapped persons*, Subcommittee SC 1, *Wheelchairs*.

ISO 10542 consists of the following parts, under the general title *Technical systems and aids for disabled or handicapped persons — Wheelchair tiedown and occupant-restraint systems*:

- Part 1: Requirements and test methods for all systems
- Part 2: Four-point strap-type tiedown systems
- Part 3: Docking-type tiedown systems
- Part 4: Clamping tiedown systems
- Part 5: Systems for specific wheelchairs

## Introduction

Providing effective crash protection for wheelchair-seated occupants of motor vehicles generally requires the installation and use of equipment to tie down the wheelchair and restrain the occupant of the wheelchair. ISO 10542-1 establishes general requirements and test methods for wheelchair tiedown and occupant restraint systems (WTORS) that are designed for use with a wide range of wheelchairs and adult occupants. This part of ISO 10542 establishes additional or alternative requirements for WTORS that are intended to be used with specific makes and models of wheelchairs. The belt-type occupant restraints may attach to the wheelchair such that occupant-restraint loads will be transferred through the wheelchair. This part of ISO 10542 applies to WTORS intended for use with children whose mass is greater than 22 kg, in addition to WTORS intended for use by adults. Children whose mass is less than 22 kg should be transferred from their wheelchairs into appropriate child restraint systems intended for use in vehicles.

The provisions of ISO 10542-1 apply, except as amended and supplemented by this part of ISO 10542. ISO 10542-1 and this part of ISO 10542 place particular emphasis on design requirements, performance requirements, and associated test methods with regard to the performance of WTORS for forward-facing wheelchairs and occupants in frontal impacts. Because this part of ISO 10542 addresses WTORS intended for use with specific makes and models of wheelchairs, the 48-km/h frontal impact test is conducted with a specific make or model of wheelchair, rather than with a surrogate wheelchair specified in ISO 10542-1. As such, the performance of both the WTORS and wheelchair are evaluated as a total system.

Transportation-related requirements for wheelchairs that are suitable for adult occupant seating during motor vehicle transportation are specified in ISO 7176-19.

# Technical systems and aids for disabled or handicapped persons — Wheelchair tiedown and occupant-restraint systems —

## Part 5: Systems for specific wheelchairs

### 1 Scope

This part of ISO 10542 specifies test methods as well as requirements for design and performance, for instructions and warnings to installers and users, and for product marking and labelling of wheelchair tiedown and occupant restraint systems (WTORS).

It applies only to WTORS that are intended to be used with particular makes and models of wheelchairs when used as a forward-facing seat by a passenger or a driver of a motor vehicle.

This part of ISO 10542 applies to WTORS intended for use with manual or powered wheelchairs, including scooters with three or more wheels, intended for use by children or adults of mass equal to or greater than 22 kg.

This part of ISO 10542 applies primarily to complete WTORS, but portions of this International Standard can also be applied to components and subassemblies sold separately and for replacement parts.

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

ISO 10542-1:2001, *Technical systems and aids for disabled or handicapped persons — Wheelchair tiedown and occupant-restraint systems — Part 1: Requirements and test methods for all systems*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 10542-1:2001, with the exception of 3.5, and the following apply.

#### 3.1

##### **anthropomorphic test device**

##### **ATD**

articulated physical analogue used to represent a wheelchair occupant in a test

#### 3.2

##### **child**

person having a mass equal to or greater than 22 kg and less than 36 kg

[ECE R44]