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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/Z 18029.4-2021

**Wheelchairs - Part 4: Energy consumption of electric
wheelchairs and scooters for determination of theoretical
distance range**

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foreword

This document is in accordance with the provisions of GB/T 1:1-2020 "Guidelines for Standardization Work Part 1: Structure and Drafting Rules of Standardization Documents"

drafted:

This document is part 4 of GB/T 18029 "Wheelchair Vehicles": GB/T 18029 consists of the following parts:

- Part 1: Determination of static stability;
- Part 2: Determination of dynamic stability of electric wheelchairs;
- Part 3: Determination of braking performance;
- Part 4: Determination of theoretical energy consumption of electric wheelchairs and electric scooters;
- Part 5: Determination of dimensions, mass and operating space;
- Part 6: Determination of the maximum speed, acceleration and deceleration of electric wheelchairs;
- Part 7: Measurement of seat and wheel dimensions;
- Part 8: Requirements and test methods for static strength, impact strength and fatigue strength;
- Part 9: Electric wheelchair climatic test method;
- Part 10: Determination of the obstacle-surmounting ability of electric wheelchairs;
- Part 11: Test dummies;
- Part 13: Determination of the coefficient of friction of the test surface;

- Part 14: Requirements and test methods for power and control systems for electric wheelchairs and electric scooters;
- Part 15: Requirements for information release, document issuance and identification;
- Part 16: Flame retardancy of postural fixation devices;
- Part 19: Wheeled mobile devices that can be used as motor vehicle seats;
- Part 21: Electromagnetic compatibility requirements and test methods for electric wheelchairs, electric mobility scooters and battery chargers;
- Part 22: Adjustment procedures;
- Part 26: Terminology;
- Part 28: Requirements and test methods for stair climbing appliances:

This document replaces GB/T 18029:4-2009 "Determination of Theoretical Energy Consumption of Electric Wheelchairs and Electric Mobility Vehicles", and GB/T 18029:4-

Compared with:2009, except for structural adjustment and editorial changes, the main technical changes are as follows:

- Added the formula for calculating the energy consumption per unit mileage of electric wheelchairs in the test procedure (see 7:1);
- Increased the relevant content of the manipulation test (see 7:2):

This document is equivalent to ISO 7176-4:2008 "Wheelchairs - Part 4: Measurement of theoretical energy consumption of electric wheelchairs and electric mobility scooters"

The document type is adjusted from ISO standard to my country's guiding technical document:

The following editorial changes have been made to this document:

- Added formula number and column item introduction in Chapter 6:

Please note that some content of this document may be patented: The issuing agency of this document assumes no responsibility for identifying patents:

Introduction

According to the document user principle, GB/T 18029 "Wheelchair Vehicles" stipulates that wheelchair users, manufacturers, testing institutions and other relevant parties should pay attention

requirements for the design, performance, testing, infrastructure, and information release of wheelchair vehicles: GB/T 18029 is intended to consist of 22 parts:

- Part 1: Determination of static stability;
 - Part 2: Determination of dynamic stability of electric wheelchairs;
 - Part 3: Determination of braking performance;
 - Part 4: Determination of theoretical energy consumption of electric wheelchairs and electric scooters;
 - Part 5: Determination of dimensions, mass and operating space;
 - Part 6: Determination of the maximum speed, acceleration and deceleration of electric wheelchairs;
 - Part 7: Measurement of seat and wheel dimensions;
 - Part 8: Requirements and test methods for static strength, impact strength and fatigue strength;
 - Part 9: Electric wheelchair climatic test method;
 - Part 10: Determination of the obstacle-surmounting ability of electric wheelchairs;
 - Part 11: Test dummies;
 - Part 13: Determination of the coefficient of friction of the test surface;
 - Part 14: Requirements and test methods for power and control systems for electric wheelchairs and electric scooters;
 - Part 15: Requirements for information release, document issuance and identification;
 - Part 16: Flame retardancy of postural fixation devices;
 - Part 19: Wheeled mobile devices that can be used as motor vehicle seats;
 - Part 21: Electromagnetic compatibility requirements and test methods for electric wheelchairs, electric scooters and battery chargers;
 - Part 22: Adjustment procedures;
 - Part 25: Batteries and chargers for electric wheelchairs;
 - Part 26: Terminology;
 - Part 28: Requirements and test methods for stair climbing appliances;
 - Part 30: Wheelchair test methods and requirements for changing the occupant's posture:
- Among them, Part 26 is the term; Part 11, Part 13 stipulates the infrastructure requirements for wheelchair testing; Part 22 stipulates
- Sets test preparation requirements; Part 15 sets out information release requirements;
- Parts 1, 3, 5, 7, 8

Part, Part 10, Part 16 specifies the general requirements and test methods for all wheelchairs (including manual and electric); Part 2,

Part 4, Part 6, Part 9, Part 14, Part 21, Part 25 set out the requirements and

Test methods; Parts 19, 28, and 30 specify requirements for special functional wheelchairs:

The driving distance of an electric wheelchair is affected by energy consumption and battery status: Energy consumption is affected by many factors, such as ambient temperature, total weight and weight

volume distribution, terrain, road surface and tires: Batteries are affected by certain factors, such as temperature, age, number of charges and discharges: therefore,

The test results made in accordance with the provisions of this document cannot be used as a basis for deriving the exact actual driving distance of a specific wheelchair and user: Of course

However, the results of this test can be used as a basis for comparisons between different wheelchairs under similar test conditions:

The driving style of the wheelchair also affects the driving distance, and the singleness of the theoretical distance cannot fully reflect the performance of the wheelchair: This article

The article provides two methods of electric wheelchair and electric scooter to measure theoretical distance: These values are for ease of use on wheelchairs and known machines

Compare the fuel consumption of motor vehicles:

Wheelchairs Part 4: Electric Wheelchairs and

Determination of theoretical energy consumption of electric scooter

1 Scope

This document describes a method for measuring the theoretical driving distance of electric wheelchairs (including electric mobility scooters), i.e: measuring the energy

consumption and the rated battery capacity of the wheelchair battery:

This method is applicable for indoor and outdoor movement with a maximum speed of 15km/h and a specified occupant mass within the scope of ISO 7176-11:

moving electric wheelchairs: This document requires the inclusion of inspection reports and information releases:

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text: Among them, dated citations