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

GB/T 30661.12-2024

**Wheelchair seating - Part 12: Envelopment and immersion
characterization of seat cushions using a dual semispherical
indenter**

(English Translation)

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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 for standardization documents" Drafting.

This document is Part 12 of GB/T (Z) 30661 Wheelchair Seats. GB/T (Z) 30661 has been published in the following parts.

- Part 1: Vocabulary, reference axis rules and measurement of body parts, body positions and body support surfaces;
- Part 2: Determination of physical and mechanical properties of devices for maintaining tissue integrity - Seat cushions;
- Part 3: Determination of static, impact and fatigue strength of body support devices;
- Part 4: Seat systems for use in motor vehicles;
- Part 6: Simulated use and determination of changes in seat cushion performance;
- Part 9: Guidelines for seat interface pressure distribution;
- Part 10: Flame retardancy requirements and test methods for body support devices;
- Part 11: Determination of perspiration dissipation characteristics of seat cushions;

--- Part 12: Testing of seat cushion wrapping and sinking characteristics using a double hemisphere loader;

--- Part 13: Determination of lateral stability of seat cushions.

This document is modified to adopt ISO 16840-12:2021 "Wheelchair seats - Part 12: Testing of seat cushions and covers using a double hemisphere load body" Trapped in Characteristics.

The technical differences between this document and ISO 16840-12:2021 and their reasons are as follows.

--- ISO 1302 (see 4.1) has been replaced by the normative reference ISO 21920-1 to adapt to my country's technical conditions and improve operability.

Acting nature.

Introduction

Wheelchair Seats is a standard that ensures the performance and quality of wheelchair seats and accurately provides these performance and quality to relevant parties.

The users of chairs and cars want to know the performance and quality of the products, the manufacturers want to know how to achieve better quality, and the inspection agencies want to know how to achieve better quality.

Know how to inspect the product. Because the Wheelchair Seat is too long, and the parties using the document generally only need part of it.

Since the content is not updated synchronously, it is compiled in parts and is intended to consist of the following parts.

--- Part 1: Vocabulary, reference axis rules and measurement of body parts, body positions and body support surfaces;

--- Part 2: Determination of physical and mechanical properties of devices for maintaining tissue integrity - Seat cushions;

--- Part 3: Determination of static, impact and fatigue strength of body support devices;

--- Part 4: Seat systems for use in motor vehicles;

--- Part 6: Simulated use and determination of changes in seat cushion performance;

--- Part 9: Guidelines for seat interface pressure distribution;

--- Part 10: Flame retardancy requirements and test methods for body support devices;

--- Part 11: Determination of perspiration dissipation characteristics of seat cushions;

--- Part 12: Testing of seat cushion wrapping and sinking characteristics using a double

hemisphere loader;

--- Part 13: Determination of lateral stability of seat cushions;

--- Part 14: Concepts related to the control of external forces to maintain tissue integrity;

--- Part 15: Selection, placement and fixing of flexible body support devices in seats.

Part 1 and Part 14 are definitions of terms, Part 2, Part 3, Part 10 and Part 12 are wheelchair seat cushions.

Part 4 is for special purpose requirements, and Part 6, Part 11, and Part 13 are mainly related to seat performance.

Test methods, Part 9 provides evaluation information, and Part 15 is about flexible body support devices.

This document provides details of the test apparatus (loading body) and the method for measuring the "performance" of wheelchair pads, intended to be used for the purpose of immersion and packing.

Reduces local pressure areas (by effectively supporting more tissue). When the contact area between the support surface and the body part is increased, the coverage is maximized.

This document provides a method to quantify the amount of body penetration into the seat cushion and covering surface. Alternatively, the test method and test result data can provide solutions for other seat cushion structures and seat configurations, such as strategic pressure unloading.

Problems with using devices that measure the forces between the body and the supporting surface (e.g., pressure mapping systems) have led to the use of instrumented pressure. There are not many such load sensors, but these sensors are of high quality, good repeatability and high precision, so they have high reliability.

During the test, the pressure distribution on the surface of the load body is evaluated using several load body sizes and loads.

The hips are positioned at different elevations to simulate and record pressures at the ischial tuberosities of the pelvis, the larger bony protuberances, and along the curve of the hips.

The readings, changes or lack of changes at these different positions indicate the interaction of forces between the cushion and the body and the extent to which the cushion covers and protects the tissues.

ability.

For example, unlike foam or other more resilient homogeneous surfaces, a fluid-filled

cushion with the ability to transfer material between cells can Distribute the load to maintain a consistent interface pressure, as the interface pressure increases with immersion depth.

The amount of load variation that a seat cushion allows for, represents variations in the size and weight of the occupant or occupants.

By size, it represents the changes in size and shape, such as the changes in the mass, body shape and hip size of the user of a saddle that is about 410mm wide.

The total width of the load remains unchanged, but the size of the hemisphere will change. The load used in this document is approximately 50% of the users, not it is intended to characterize the wrapping or sinking characteristics under higher load conditions and does not evaluate the load-bearing capacity of the seat cushion.

The test methods described in this document may not be suitable for all cushions; therefore, the tester is responsible for determining which methods are appropriate for the cushion structure and its use.

Wheelchair seats - Part 12: Use of double hemispheres Loading test seat cushion wrapping and sinking characteristics

1 Scope

This document specifies the test facilities and methods for characterizing the sinking and wrapping characteristics of wheelchair seat cushions using a load cell equipped with a pressure sensor.

and information release requirements.

This document specifies the characterization of products that are expected to maintain tissue integrity and provides standardized testing for other wheelchair seats.

carrier.

This document does not provide information on cushion performance for specific user requirements, nor is it intended to describe the performance of cushions under heavy loads.

The entry characteristics and weight-bearing capacity of the seat cushion.

This document includes the production methods of 220mm loading body and 255mm loading body. This document also gives the dimensions of 380mm loading body.

Inch, used as an extended method to simulate obese passengers.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document.