



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

GB/Z 30661.1-2021

**Wheelchair seating - Part 1: Vocabulary, reference axis
convention and measures for body segments, posture and
postural support surfaces**

轮椅车座椅 第1部分：身体部位、体位及体位支撑面的词汇、基准轴规则和测量

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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" Drafting. This document is Part 1 of GB/T 30661. GB/T 30661 has released the following parts.

- 1.Vocabulary, datum axis rules and measurement of body parts, postures and posture supporting surfaces;
- 2.Determination of the physical and mechanical characteristics of the device for maintaining the integrity of the tissue;
- 3.Determination of static, impact and fatigue strength of postural support devices. This document is equivalent to adopting ISO 16840-1.2006 "Wheelchair Seat Part

1.Vocabulary of body parts, body position and body position support surface, Datum Axis Rules and Measurements", the document type is adjusted from ISO standards to my country's guiding technical documents. This document adds a chapter "Normative Reference Documents". This document has made the following minimal editorial changes.

---Added Appendix NA (informative);

---Added the Chinese pinyin index. Please note that some of the contents of this document may involve patents, and the issuing agency of this document is not responsible for identifying patents. This document was proposed by the Ministry of Civil Affairs of the People's Republic of China. This document is under the jurisdiction of the National Standardization Technical Committee for Rehabilitation and Special Equipment for the Disabled (SAC/TC148). Drafting organizations of this document. National Rehabilitation Assistive Devices Research Center, National Rehabilitation Assistive Devices Quality Supervision and Inspection Center, Foshan Dongfang Medical Equipment Factory Co., Ltd., Shanghai Hubang Intelligent Rehabilitation Equipment Co., Ltd., Zhejiang Qianxi Vehicle Industry Co., Ltd. The main drafters of this document. Yan Heping, Gu Huiru, Zhao Cishun, Zhao Jianrong, Yan Wei, Yao Xiangjiang.

For decades, the research and development of wheelchair seat systems has become a branch of rehabilitation services. Can be equipped for wheelchair users Install wheelchair seat system products that can improve body support, motion control, or prevent injury. At the same time, it can also perform body and sitting positions for the user Measure the size and related information in the state, and provide the direction, position and linear size of the seat support surface. However, currently the terms and definitions of clinical measurement used in the human sitting state are different, and there is a lack of unified information describing the sitting posture of the occupant. And the terms and definitions of the parameters of the seat support surface, and these information and parameters are important for medical staff, researchers, manufacturers, users and consumers. It is very useful when providing or choosing a wheelchair seat device. This document specifies the methods used to describe and quantify the occupant's human body measurement, sitting posture measurement, and the spatial positioning and size of the seat support surface. Terms and definitions. This also makes it possible to systematically monitor changes in human sitting posture at any time. GB/T 30661 consists of the following three parts.

- 1.Vocabulary, datum axis rules and measurement of body parts, postures and posture

supporting surfaces;

2.Determination of the physical and mechanical characteristics of the device for maintaining the integrity of the tissue;

3.Determination of static, impact and fatigue strength of postural support devices.

Wheelchair seat part 1.body parts, Vocabulary of posture and posture supporting surface, Datum axis rules and measurements

1 Scope

GB/Z 30661.1-2021 establishes the language and the geometry for describing how a person sits in a wheelchair. For someone who cannot reposition themselves, the seating is not furniture but a clinical intervention: it holds the body in a posture that determines breathing, swallowing, the ability to use the hands, and whether pressure injuries develop. Prescribing it involves a clinician, a supplier and a manufacturer who may never meet, exchanging measurements and angles, and a seat-to-back angle or a pelvic position means nothing unless all three measure it from the same reference and call it the same thing. This part specifies the overall geometric coordinate system in which an occupant's sitting posture can be measured and recorded, together with the vocabulary and definitions for body segments, posture and postural support surfaces, and the conventions for the reference axes and the measurements taken against them. It applies to the parts of a wheelchair that provide postural support. As a GB/Z it is a guiding technical document rather than a requirement standard. Under CCS Y14, it is written for rehabilitation engineers and seating clinicians, for wheelchair and seating manufacturers, and for the assessment services that specify equipment for individual users.

This document applies to the part of the seat that provides postural support on wheelchairs. This document stipulates.

- a) The overall geometric coordinate system, which can measure and record the sitting posture information of the occupant on the wheelchair;
- b) Terms and definitions used to describe the sitting posture and body measurement of the occupant;
- c) The terms used to describe the size, position and orientation of the seat support surface (these elements are combined to form a human body support system) and definition. This document does not make specific provisions on the measurement method of the occupant's sitting posture, nor does it make any definition of dynamic physiological movements (such as body flexion and extension). This document also applies to seat support system devices other than wheelchair vehicles.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

The following terms and definitions apply to this document.

- 3.1 Absoluteangle Represents the angle of the reference plane of each body part or supporting surface relative to the space position of the gravity coordinate system.
- 3.2 Bodycentreline A vertical line projected on the mid-sagittal plane of the human body and visible on the mid-frontal plane.
- 3.3 Bodysegmentline The straight line between two designated marking points on the body (which can be obtained by palpation or calculation) is used to determine the angular position of various parts of the human body.
- 3.4 Contact surface The surface of the seat support structure that is in contact with the occupant's body.
- 3.5 Depth The linear dimension of the seat support surface measured on a line parallel to the reference surface of the seat support surface along the Y-axis direction (see Figure 1).