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

GB/T 24637.1-2020

**Geometrical product specifications (GPS) - General concepts -
Part 1: Model for geometrical specification and verification**

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Foreword

GB/T 24637 "General Concept of Product Geometric Technical Specifications (GPS)" is divided into 4 parts.

--- Part 1. Geometry specification and inspection model;

--- Part 2. Basic principles, specifications, operation set and uncertainty;

--- Part 3. The measured elements;

--- Part 4. Quantification of GPS deviations of geometric features.

This part is part 1 of GB/T 24637.

This section was drafted in accordance with the rules given in GB/T 1.1-2009.

This part replaces GB /Z 24637.1-2009 "Product Geometrical Technical Specifications (GPS) General Concept Part 1. Geometrical Specifications and

Compared with GB /Z 24637.1-2009, the main technical changes are as follows.

--- Added surface model, attribute of ideal element, size parameter, skeleton element, shape, essence, size element, linear size element,

Angle dimension element, actual element, component element, derived element, extracted element, filter element, reconstruction element, reconstruction, simplification, change

Terms such as change, change curve, etc.; delete the terms such as the constant of ideal elements, the actual surface of the workpiece, bounded elements, unbounded elements;

Changed skin model, geometric elements, ideal elements, non-ideal elements, nominal elements, fitting elements, filtering, combination, characteristics, essence

Definitions of terms such as features, deviations, and constant categories (see Chapter 3, Chapter 3 of the.2009 edition);

--- Removed the purpose of the model not directly used as a standard method for determining the geometric characteristics of the workpiece (see 4.2 in the.2009 edition);

- Added "Relationship between Geometric Elements" (see 6.4);
- Added "refactoring" content (see 8.1.8);
- Added the content of "transformation" (see 8.3);
- Revised the content of "Inspection" (see Chapter 10, Chapter 10 of the.2009 edition);
- Added informative Appendix E "Constant Categories".

This part uses the redrafting method to modify and adopt ISO 17450-1..2011) "Geometric Technical Specifications of Products (GPS) General Concept No. 1

Part. Models for geometric specifications and inspection. "

1) The ISO 17450-1..2011 modified and adopted in this part cancels and replaces ISO 14660-1..1999 (GB/T 18780.1-2002).

The technical differences between this part and ISO 17450-1..2011 and the reasons are as follows.

--- With regard to normative quotation documents, this part has been adjusted with technical differences to adapt to my country's technical conditions and adjustments

The situation is reflected in Chapter 2 "Regulatory Reference Documents", with specific adjustments as follows.

* Replaced ISO /IEC Guide99 with JJF1001.

The following editorial changes have been made in this section.

--- Modified the error of Figure 1b), deleted the original Figure 3b).

This part is proposed and managed by the National Product Geometry Technical Standardization Technical Committee (SAC/TC240).

This section was drafted by. China Machine Productivity Promotion Center, Zhengzhou University, Hexagon Measuring Technology (Qingdao) Co., Ltd., Beijing Automotive Co., Ltd.

1 Scope

This part of GB/T 24637 provides a model for geometric specifications and inspection, defines the corresponding concepts, and also gives the model

The mathematical basis of related concepts defines the general terminology of the geometrical elements of the workpiece.

The purpose of this section to define the basic concepts of the GPS system is.

--- Provides clear GPS language applied in design, manufacturing, and inspection;

- Identify elements, features and rules to provide a basis for GPS specifications;
- Provides a complete symbolic language marked with GPS specifications;
- Provide simplified symbols by defining default rules;
- Provides consistent rules for inspection.

This section applies to models in product geometric specifications and inspection.

2 Normative references

The following documents are essential for the application of this document. For dated references, only the dated version applies to this article

Pieces. For the cited documents without date, the latest version (including all amendments) applies to this document.

JJF1001 General Measurement Terms and Definitions

3 Terms and definitions

The terms and definitions defined by JJF1001 and the following apply to this document.

3.1

Real surface

A set of elements that actually exist and separate the entire workpiece from the surrounding media.

3.2

Surface model

A model representing the physical limit set of virtual or actual artifacts.

Note 1. The model is applicable to all closed surfaces.

Note 2. The surface model allows the definition of single elements, feature sets and/or partial features. The entire product is modeled by a set of surface models corresponding to each workpiece.

3.2.1

Nominal model

Workpiece model with ideal shape defined by the designer.

Note. The nominal model expresses the design intent.

3.2.2

Non-ideal surface model

Skin model

The physical interface model of the workpiece and its surrounding environment.

Note. See Chapter 5.

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