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

GB/T 16671-2018

Replacing GB/T 16671-2009

**Geometrical product specifications (GPS) -- Geometrical
tolerancing -- Maximum material requirement (MMR), least
material requirement (LMR) and reciprocity requirement (RPR)**

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3 Figure A.4, Figure A.6, Figure A.7, Figure A.10 and Figure A.11).

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Foreword

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

This standard replaces GB/T 16671-2009 Product Geometric Specification (GPS) Geometric tolerance maximum entity requirements, minimum entity

Requirements and Reversible Requirements, the main technical changes compared with GB/T 16671-2009 are as follows.

--- Add reference document information and further interpretation for terms and definitions;

--- Increase the scope of the size elements applicable to this standard.

This standard uses the redrafting method to modify the use of ISO 2692:2014 "product geometry specification (GPS) geometric tolerance maximum

Body Requirements (MMR), Minimum Entity Requirements (LMR), and Reversible Requirements (RPR).

There are technical differences between this standard and ISO 2692:2014, and the terms involved in these differences have been passed on the outer margins of the margins.

The vertical single line (-) is marked. The corresponding technical differences and their reasons are as follows.

---About the normative reference documents, this standard has made technical adjustments to adapt to China's technical conditions, adjustments

The situation is reflected in Chapter 2, "Regulatory Citations", and the specific adjustments are as follows.

* Replace ISO 1101:2012 with GB/T 1182-2018 modified to international standards.

This standard has made the following editorial changes.

--- Informative Appendix C, change the matrix model of ISO 14638:1995 used in the original standard to the new moment of ISO 14638:2015

Matrix model.

This standard is proposed and managed by the National Technical Committee for Standardization of Geometrical Specifications (SAC/TC240).

This standard was drafted. China Machine Productivity Promotion Center, Kuanzhi Automobile Co., Ltd., Beijing Automobile Co., Ltd., Shanghai Automotive Group

Technology Center of Co., Ltd., SAIC-GM-Wuling Automobile Co., Ltd., Zhengzhou University, Omnex (Shanghai) Consulting Co., Ltd., Xi'an

Jiaotong University, Dai Keyi (Beijing) Technology Co., Ltd., Hexagon Measurement Technology (Qingdao) Co., Ltd., Carl Zeiss (Shanghai) Management Co., Ltd.

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1 Scope

This standard specifies the terms and definitions of the maximum entity requirements, minimum entity requirements and reversible requirements, basic provisions, pattern representation methods and

Application example. These requirements apply only to dimension elements.

This standard applies to situations where workpiece dimensions and geometric tolerances are related to each other to meet their specific functions, such as meeting part assembly (most

Large entity requirements), minimum wall thickness (minimum entity requirements), but maximum entity requirements and minimum entity requirements also apply to other functional requirements.

Considering the correlation between dimensions and geometrical elements, when using the maximum entity requirement, minimum entity requirement or reversible requirement,

The principle of independence as defined in GB/T 4249 no longer applies.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this

document.

GB/T 1182-2018 Geometrical Product Specifications (GPS) Geometric tolerance shape, orientation, position and runout tolerance

(ISO 1101:2017, IDT)

GB/T 18780.2-2003 Technical specification for geometrical quantities (GPS) - Geometrical elements - Part 2. Description of cylindrical and conical surfaces

Take the center line, the extraction center plane of the parallel plane, and extract the local dimensions of the features (ISO 14660-2:1999, IDT)

ISO 5459:2011 Geometrical Product Specifications (GPS) Geometric Tolerance Benchmarks and Benchmark Systems [Geometrical product

Specifications (GPS)-Geometrical tolerancing-Datums and datum systems]

ISO 14405-1:2010 Geometrical Product Specifications (GPS) Geometrical tolerances Part 1. Linear dimensions [Geometrical

Product specifications (GPS)-Dimensional tolerancing-Part 1. Linear sizes]

ISO 17450-1:2011 Geometrical Product Specifications (GPS) Geometrical tolerances Part 1. Geometric specification and validated models

[Geometrical product specifications (GPS)-General concepts-Part 1. Model for geometrical specification and verification]

3 Terms and definitions

GB/T 18780.2-2003, ISO 5459:2011, ISO 14405-1:2010, ISO 17450-1:2011 and the following terms

And definitions apply to this document.

3.1

Component integral feature

A geometric element that belongs to the actual surface of the workpiece or to the surface model.

Note 1. The constituent elements define the features themselves, such as the surface of the workpiece.

Note 2. Quoted from ISO 17450-1:2011, definition 3.3.5.

3.2

Size element feature of size

Linear size element feature of linear size

A geometric element with one or more essential features, only one of its essential characteristics can be used as a variable parameter, and the rest is "single

Part of the parameter family and adhere to the single constraint attribute of this parameter.

Note 1. Quoted from ISO 17450-1:2011, definition 3.3.1.5.1. For the "single parameter family" and "single constraint attribute", see also ISO 22432:2011,

Meaning 3.2.5.1.1.1 and 3.2.5.1.1.2.

Example 1. A single cylindrical hole or axis is a linear dimension element whose linear dimension is its diameter.

Example 2. Two relatively parallel flat surfaces are linear sized features whose linear dimension is the distance between the two parallel planes.

3.3

Export feature derived feature

The geometric elements that do not actually exist on the actual surface of the workpiece are not the nominal components.

Note 1. The derived features can be obtained from the nominal, fitted or extracted features. Can be called a nominal derived feature, a fitted derived feature, or an extraction guide

Out of the elements.

Note 2. The types of derived features include the center point, centerline, and center plane defined from one or more components.

Note 3. Quoted from ISO 17450-1:2011, definition 3.3.6.

Example 1. The centerline of a cylinder is the derived feature taken from the component of the cylindrical surface. The axis of the nominal cylinder is the nominal derived element.

Example 2. The center plane of two relatively parallel flat surfaces is the derived element obtained from the two parallel flat surfaces, which can constitute a constituent element.

These two

The center plane of a relatively parallel plane is a nominal derived element.

3.4

Maximum entity state maximum material condition

MMC

When the local dimension of the extracted component of the dimension element is at the