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# NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA



# GB/T 8069-2024

Replacing GB/T 8069-1998

## Geometrical product specifications (GPS)-Functional gauges

产品几何技术规范（GPS） 功能量规

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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 replaces GB/T 8069-1998 "Functional Gauges". Compared with GB/T 8069-1998, except for structural adjustments and editorial changes, In addition, the main technical changes are as follows.

a) The scope of application of the standard has been changed (see Chapter 1, Chapter 1 of the 1998 edition);

b) The definition of "functional gauge" has been changed (see 3.1, 3.1 of the 1998 edition);

c) Added the definition of "Entity Function Gauge" (see 3.1.1);

d) Added the definition of "digital function gauge" (see 3.1.2);

e) Deleted "General Provisions" and incorporated the corresponding contents into "Operational Specification Design of Functional Gauges", "Inspection and Conformity of Functional Gauges" and "General Provisions of Functional Gauges".

"Determination of conformity of the work under test" and "Determination of conformity of the work under test" (see Chapters 4, 5, 6, and Chapter 5 of the 1998 edition);

f) Change "form and position tolerance" to "geometric tolerance" (see C.2, Chapter 4 of the 1998 edition);

g) Change "fundamental deviation" to "limit deviation" (see C.2, Chapter 4 of the 1998 edition);

h) "Basic size" is changed to "nominal size" and the corresponding symbols are changed (see C.2, Chapter 4 of the 1998 edition);

i) Added "Main types of physical function gauge detection parts" (see Table C.2);

j) The requirement for unindicated tolerance grade for linear dimensions of functional gauges has been deleted (see 8.2.5 of the 1998 edition);

k) The provisions on marking, packaging and certification of functional gauges have been deleted (see 9.7 to 9.10 of the 1998 edition).

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

This document is proposed and coordinated by the National Technical Committee for Standardization of Product Geometry Technical Specifications (SAC/TC240).

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This document was first issued in 1987, revised for the first time in 1998, and this is the second revision.

Geometric Product Specification (GPS) Functional Gauge

## 1 Scope

This document specifies the design of functional gauges and their operating specifications, the inspection, conformity determination and arbitration of functional gauges, and the Conformity determination and arbitration.

This document applies to the design and application of physical and digital functional gauges. Some unmarked maximum physical/minimum physical requirements It is used as a reference for the design and application of inspection equipment according to the geometric tolerance requirements.



## 2 Normative references

GB/T 1182

GB/T 16671

GB/T 17851

GB/T 18779.1

GB/T 18779.3

GB/T 18779.6

## 3 Terms and definitions

The terms and definitions defined in GB/T 1182, GB/T 16671, GB/T 17851 and GB/T 18779.6 and the following terms and definitions apply to this document.

### 3.1 Functional gauge functionalgauge

When the maximum and minimum material requirements are applied to the measured feature and/or the reference feature, they are used to determine the actual contour of the measured feature.

Whether the measuring instrument exceeds the boundaries required by the specification (maximum entity effective boundary or minimum entity effective boundary).

Note 1.Functional gauges are divided into physical functional gauges and digital functional gauges according to the type of standard instrument.

Note 2.In practical applications, there are also some measuring instruments that can reflect the role of functional gauges, as well as comprehensive measuring instruments that are not used for correlation measurement requirements.

Tools, such as partial templates, inspection fixtures, center line position measuring instruments, flush difference measuring instruments and gap measuring instruments, etc.

**3.1.1**

A functional gauge that physically embodies the boundaries of specification requirements.

Note 1 to entry. Physical function gauges are used to verify situations where the maximum physical requirements apply to the measured element and/or the reference element.

Note 2.There is a dual relationship between the shape of the detection part in the physical function gauge and the measured element.