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

GB/T 37161-2018

**Gears -- Evaluation of instruments for measurement of
individual gears**

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Table of Contents

Foreword

1 Scope

2 Normative references

3 terms, definitions and symbols

Foreword

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

This standard uses the translation method equivalent to ISO 18653.2003 "Evaluation of Gear and Gear Measuring Instruments".

The documents of our country that have a consistent correspondence with the international documents referenced in this standard are as follows.

--- GB/T 10095.1-2008 Precision of cylindrical gears - Part 1. Definitions and permissible values

(ISO 1328-1.1995, IDT)

--- GB /Z 18620.3-2008 Specification for the implementation of cylindrical gears - Part 3. Gear blanks, shaft center distance and axis parallelism

Inspection (ISO /T R10064-3.1996, IDT)

---GB/T 18779.1-2002 Product geometry specification (GPS) Measurement and inspection of workpieces and measuring equipment - Part 1

Points. Rules for passing or failing to pass the specification (eqv, ISO 14253-1.1998)

---GB/T 27025-2008 General requirements for testing and calibration laboratory capabilities (ISO /IEC 17025.2005, IDT)

This standard is proposed and managed by the National Gear Standardization Technical Committee (SAC/TC52).

This standard was drafted. Zhengzhou Machinery Research Institute Co., Ltd., Zhengzhou High-end Equipment and Information Industry Technology Research Institute Co., Ltd., Zhongshan

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1 Scope

This standard specifies the evaluation method for measuring the gear involute, spiral, pitch and radial runout. It is also suitable for direct measurement.

The amount of radial runout and the instrument using the indexing method to calculate the radial runout. In addition, the evaluation method of the tooth thickness measuring instrument is recommended, including

Evaluation method for measurement uncertainty using calibration templates. This standard does not include calibration of laboratory samples that require ISO /IEC 17025 approval.

Requirements; not as acceptance specifications for product gears (see ISO 1328-1, ISO 1328-2, ISO /T R10064-1 and ISO /T R10064-2);

Not applicable to the assessment of product gear measurement uncertainty (see ISO /T R10064-5 for this assessment).

2 Normative references

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

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

ISO 1328-1 - Determination of the accuracy of cylindrical gears - Part 1 . Definitions and permissible values for the deviation of the flanks on the same side (Cylindrical

gears-ISO systemofflanktoleranceclassification-Part
1.Definitionsandallowablevaluesofdevia-

Tionsrelevanttoflanksofgearteeth)

ISO /T R10064-3 - Cylinders for the inspection of cylindrical gears - Part 3. Examination of gear blanks, shaft center distance and axis parallelism

(Cylindricalgears-Codeofinspectionpractice-Part 3. Recommendationsrelativetogearblanks,
Shaftcentredistanceandparalelismofaxes)

ISO /T R10064-5 - Specification for the implementation of cylindrical gears - Part 5.
Evaluation of gear measuring instruments (Cylindrical

gears-Codeofinspectionpractice-Part
5.Recommendationsrelativetoevaluationofgearmeasuring

Instruments)

ISO 14253-1 Technical Specifications for Product Geometrics (GPS) - Measurements -
Measurements - Part 1

Qualified or unqualified decision rules

[Geometrical products specifications (GPS) - Inspection by measurement of

workpieces and measuring equipment - Part

1. Decision rules for proving conformance or non-conform-

ance with specifications]

General requirements for ISO /IEC 17025 testing and calibration laboratory capabilities
(General requirements for the competence of

Testing and calibration laboratories)

3 terms, definitions and symbols

The following terms, definitions, and symbols (see Table 1) apply to this document.

Note 1. The relevant definitions in this standard are consistent with ISO 1122-1, ISO
1328-1, ISO 1328-2 and ISO /T R10064-1.

Note 2. The terms, definitions and symbols used in this standard may be different from the
terms, definitions and symbols in other standards. Users should fully understand that they
are in this standard.

The meaning of quasi-middle.

3.1

Accuracy

The proximity between the measured value and the approved reference (or calibration)
value.