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**Rolling bearings - Ceramic cylindrical rollers - Boundary
dimensions, geometrical product specifications(GPS) and
tolerance values**

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Foreword

This document was drafted in accordance with the rules given in GB/T 1.1-2020

"Directives for standardization - Part 1: Rules for the structure and drafting of standardizing documents".

This document identically adopts ISO 12297-2:2018 "Rolling bearings - Cylindrical rollers - Part 2: Boundary dimensions, geometrical product specifications (GPS) and tolerance values for ceramic rollers".

The following minimal editorial changes have been made to this document:

- the standard's name is changed to "Rolling bearings - Ceramic cylindrical rollers - Boundary dimensions, geometrical product specifications (GPS) and tolerance values".

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The issuing authority shall not be held responsible for identifying any or all such patent rights.

This document was proposed by China Machinery Industry Federation.

This document shall be under the jurisdiction of National Technical Committee on Rolling Bearings of Standardization Administration of China (SAC/TC 98).

The drafting organizations of this document: Luoyang Bearing Research Institute Co., Ltd., Changshu Great Wall Bearing Co., Ltd., Guochuang (Luoyang) Bearing Industry Technology Research Institute Co., Ltd., Jiangsu Lixing General Steel Ball Co., Ltd.

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Rolling bearings - Ceramic cylindrical rollers - Boundary dimensions, geometrical product specifications (GPS) and tolerance values

1 Scope

This document specifies the dimensional and geometric properties, nominal dimensions and tolerance values of finished silicon nitride cylindrical rollers for rolling bearings.

This document is applicable to the production, inspection and acceptance of ceramic cylindrical rollers for rolling bearings.

Annexes A and B give the specifications and grouping principles of roller diameter and roller length respectively. Annex B also gives roller length tolerances.

Annex C gives examples of roller imperfection types and inspection methods.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4288, Geometrical Product Specifications (GPS) - Surface texture: Profile method - Rules and procedures for the assessment of surface texture

NOTE: GB/T 10610-2009, Geometrical product specifications (GPS) - Surface texture: Profile

method - Rules and procedures for the assessment of surface texture (ISO 4288:1996, IDT)

ISO 26602, Fine ceramics (advanced ceramics, advanced technical ceramics) -
Silicon nitride materials for rolling bearing balls and rollers

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

The terminology databases used in the standardization work maintained by ISO and IEC can be found at the following URLs:

- ISO online browsing platform: <https://www.iso.org/obp>;

Annex A

(informative)

Roller diameter gauge value and grouping principle

A.1 Terminology explanation

A.1.1 The term explanations given in A.1.2~A.1.6 help to better understand the terms used in this appendix.

A.1.2 Roller diameter gauge: the difference between the average diameter of the roller diameter gauge batch (see A.1.3) and the nominal diameter of the roller. This quantity is one quantity in a defined series.

NOTE 1: Each roller diameter gauge is an integral multiple of the roller diameter gauge value

spacing (see A.1.4) determined according to the roller grade (see 3.1).

NOTE 2: The combination of roller diameter gauge, roller grade and roller nominal diameter can

be used as the most accurate roller size specification for users when ordering.

A.1.3 Roller diameter gauge lot: A batch of rollers with the same roller grade (see 3.1) and nominal size and the average diameter of a single flat roller within the same roller diameter gauge (see A.1.2).

A.1.4 Interval of roller diameter gauge, IGD_w: the allowable mean diameter of roller diameter gauge lot (see A.1.5) after the average amount.

NOTE: The roller diameter gauge and the gauge interval are determined through negotiation

between the user and the supplier.

A.1.5 Mean diameter of roller diameter gauge lot, D_{wML} : The average value of D_{wmpx} measured in the roller diameter gauge lot (see A.1.3).

NOTE: See Table 1 for D_{wmpx} .

A.1.6 Variation of roller diameter in a single plane, VD_{wsp} : The difference between the largest and smallest single diameter of a roller in a single radial plane.

NOTE: See GB/T 6930-2002, 05.05.04.

A.2 Roller diameter gauge and grouping principle

See Figure A.1 for the relationship between the roller diameter gauge lot with a roller diameter gauge of $+1\mu m$ and their diameter gauges.

Annex B

(informative)

Roller length tolerance, gauge and grouping principles

B.1 Terminology explanation

B.1.1 The term explanations given in B.1.2~B.1.6 help to better understand the terms used in this appendix.

B.1.2 Roller length gauge: the difference between the average length of the roller length gauge lot (see B.1.3) and the nominal length of the roller. This quantity is one quantity in a defined series.

NOTE: Each roller length gauge is an integer multiple of the roller length gauge interval determined

according to a certain roller nominal length.

B.1.3 Roller length gauge lot: a lot of rollers whose average roller length is within the same roller length gauge (see B.1.2).

B.1.4 Interval of roller length gauge, IGL_w : the divided value of the allowable mean length of roller length gauge lot (see B.1.5).

B.1.5 Mean length of roller length gauge lot, L_{wML} : In a roller length gauge lot (see B.1.3), the arithmetic mean of the average length of the longest roller and the shortest roller.