
**Rolling bearings — Needle roller
bearings with drawn cup and without
inner ring — Boundary dimensions,
geometrical product specifications
(GPS) and tolerance values**

*Roulements — Douilles à aiguilles sans bague intérieure —
Dimensions d'encombrement, spécification géométrique des produits
(GPS) et valeurs de tolérance*



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 4, *Rolling bearings*, Subcommittee SC 5, *Needle, cylindrical and spherical roller bearings*.

This fifth edition cancels and replaces the fourth edition (ISO 3245:2015), which has been technically revised.

The main changes are as follows:

- [Figure 1 a\)](#) has been updated;
- the symbol for characteristic ΔF_{ws} has been replaced with ΔF_{wgn} ;
- [Annex B](#) on measuring and verification methods has been added.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document is a machine element geometry standard as defined in the geometrical product specification system (GPS system) as presented in matrix model of ISO 14638.

The fundamental rules of ISO/GPS given in ISO 8015 apply to this document and the default decision rules given in ISO 14253-1 apply to specifications made in accordance with this document, unless otherwise indicated.

The connection between functional requirements, measuring technique and measuring uncertainty is always intended to be considered. For measurement uncertainty, it is intended that ISO 14253-2 be considered.

Recommended values for the tolerances for shaft raceway and housing bore are given in [Annex A](#).

Guidelines for measurement and verification of the specific characteristic of needle roller bearings with drawn cup and without inner ring are given in [Annex B](#).

Rolling bearings — Needle roller bearings with drawn cup and without inner ring — Boundary dimensions, geometrical product specifications (GPS) and tolerance values

1 Scope

This document specifies the boundary dimensions and preferred dimensions to be used for drawn cup needle roller bearings without inner ring as well as the minimum chamfer dimension limits. This document also specifies the closed end thickness dimensions for bearings with one closed end.

In addition, this document specifies dimensional tolerances for the needle roller complement bore diameter and tolerances for the drawn cup width.

2 Normative references

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

ISO 5593, *Rolling bearings — Vocabulary*

ISO 10579, *Geometrical product specifications (GPS) — Dimensioning and tolerancing — Non-rigid parts*

ISO 14405-1, *Geometrical product specifications (GPS) — Dimensional tolerancing — Part 1: Linear sizes*

ISO/TS 17863, *Geometrical product specification (GPS) — Tolerancing of moveable assemblies*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5593, ISO 14405-1 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

constraint diameter

D_{1c}

diameter of the feature used in constraint condition to evaluate ΔF_{wgn} characteristics

Note 1 to entry: It corresponds to the diameter of the master ring gauge in [Annex B](#).

4 Symbols

For the purposes of this document, the symbols given in ISO 15241 and the following apply.

Descriptions for symbols are in accordance to GPS terminology. The dimensional specifications are described in [Table 1](#) and [Figure 1](#).