
**Rolling bearings — Cylindrical
rollers —**

Part 1:
**Boundary dimensions, geometrical
product specifications (GPS) and
tolerance values for steel rollers**

Roulements — Rouleaux cylindriques —

*Partie 1: Dimensions d'encombrement, spécification géométrique des
produits (GPS) et valeurs de tolérance pour rouleaux en acier*



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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 first edition of ISO 12297-1 cancels and replaces ISO 12297:2012, which has been technically revised.

The main changes are as follows:

- the geometrical product specification (GPS) system has been introduced into the document;
- the document was revised editorially.

A list of all parts in the ISO 12297 series can be found on the ISO website.

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 described in the framework document of ISO 14638^[10].

The fundamental rules of ISO GPS given in ISO 8015^[5] apply to this document and the default decision rules given in ISO 14253-1^[8] apply to specifications made in accordance with this document, unless otherwise indicated.

The connection between functional requirements, measuring technique and measuring uncertainty are always intended to be considered. For measurement uncertainty, ISO 14253-2^[9] is considered.

Rolling bearings — Cylindrical rollers —

Part 1:

Boundary dimensions, geometrical product specifications (GPS) and tolerance values for steel rollers

1 Scope

This document specifies nominal boundary dimensions, geometrical product specifications (GPS) and tolerance values for finished steel cylindrical rollers for rolling bearings. The maximum roller diameter is 40 mm.

[Annexes A](#) and [B](#) give the sorting principles for roller diameter and roller length tolerances and gauges, respectively.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1101, *Geometrical product specifications (GPS) — Geometrical tolerancing — Tolerances of form, orientation, location and run-out*

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

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

ISO 15241, *Rolling bearings — Symbols for physical quantities*

ISO 21204, *Geometrical product specifications (GPS) — Transition specification*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1101, ISO 4288, ISO 14405-1, ISO 15241, ISO 21204 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

roller diameter gauge

amount by which the *mean diameter of the roller diameter gauge lot* ([3.5](#)) can differ from the nominal roller diameter, this amount being one of an established series

Note 1 to entry: Each roller diameter gauge is a whole multiple of the *interval of roller diameter gauge* ([3.3](#)) established for the roller grade in question.

Note 2 to entry: A roller diameter gauge, in combination with the roller grade and nominal roller diameter, should be considered as the most exact roller size specification to be used by the customer for ordering purposes.