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**Rolling bearings — Needle roller  
bearing track rollers — Boundary  
dimensions, geometrical product  
specifications (GPS) and tolerance  
values**

*Roulements — Roulements à aiguilles, galets de roulement —  
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](http://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](http://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 on 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 the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html). (standards.iteh.ai)

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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](http://www.iso.org/members.html).

This third edition cancels and replaces the second edition (ISO 7063:2003), which has been technically revised. The main changes compared to the previous edition are as follows:

- Terms, definitions, symbols and dimensional tolerance indications in figures and tables have been revised according to rules of geometrical product specification (GPS) system.

This corrected version of ISO 7063:2018 incorporates the following correction:

- [Figure 2](#) has been corrected.

## Introduction

This document is a machine element geometry standard as defined in the geometrical product specification (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.

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# Rolling bearings — Needle roller bearing track rollers — Boundary dimensions, geometrical product specifications (GPS) and tolerance values

## 1 Scope

This document specifies dimensional characteristics, nominal boundary dimensions and tolerance values for needle roller bearing track rollers, yoke and stud types.

## 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 5593, *Rolling bearings — Vocabulary*

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

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

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## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1101, ISO 5593, ISO 14405-1, and ISO/TS 17863 apply.

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

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

## 4 Symbols

To express that the ISO/GPS system, ISO 8015, is applied, the dimensional characteristics shall be included in the technical product documentation (for example, on the drawing). The dimensional specifications associated to these characteristics are described in [Table 1](#), [Figure 1](#) and [Figure 2](#).

Descriptions for symbols are in accordance with GPS terminology.

A tolerance value associated to a characteristic is symbolised by  $t$  followed by the symbol for the characteristic, for example  $t_{\Delta D_{mp}}$ .

In this document, the ISO default specification operator for size is in accordance with ISO 14405-1, i.e. the two-point size is valid.

Table 1 — Symbols for nominal dimensions, characteristics and specification modifiers

Symbol for nominal dimension (size and distance) <sup>a</sup>	Symbol for characteristic <sup>a</sup>	GPS symbol and specification modifier <sup>b,c</sup>	Description <sup>d</sup>	Reference
$B$	—	—	Nominal inner ring width	<a href="#">Figure 1</a>
	$\Delta B_s$	(LP)	Deviation of a two-point size of inner ring width from its nominal size	<a href="#">Figure 1</a>
$B_1$	—	(GN)	Distance from face of stud to face of side washer (minimum circumscribed distance)	<a href="#">Figure 2</a>
$B_2$	—	—	Nominal distance from face of side washer to face of stud on side with thread	<a href="#">Figure 2</a>
	$\Delta B_2$	—	Deviation of distance from face of side washer to face of stud on side with thread	<a href="#">Figure 2</a>
$B_3$	—	—	Nominal distance from face of side washer to centre of radial lubrication hole on stud	<a href="#">Figure 2</a>
$C$	—	—	Nominal outer ring width	<a href="#">Figures 1 and 2</a>
	$\Delta C_s$	(LP)	Deviation of a two-point size of outer ring width from its nominal size	<a href="#">Figures 1 and 2</a>
$C_1$	—	—	Nominal distance from face of outer ring to face of side washer	<a href="#">Figure 2</a>
$d$	—	—	Nominal bore diameter	<a href="#">Figure 1</a>
	$\Delta d_{mp}$	(LP)(SD) ACS	Deviation of a mid-range size (out of two-point sizes) of bore diameter in any cross-section from its nominal size	<a href="#">Figure 1</a>
$d_1$	—	—	Nominal stud diameter	<a href="#">Figure 2</a>
	$\Delta d_{1s}$	(LP)	Deviation of a two-point size of stud diameter from its nominal size	<a href="#">Figure 2</a>
$D$	—	—	Nominal outside diameter	<a href="#">Figures 1 and 2</a>
	$\Delta D_{mp}$	(LP)(SD) ACS	<b>Cylindrical outside diameter:</b> deviation of a mid-range size (out of two-point sizes) of outside diameter in any cross-section from its nominal size	<a href="#">Figures 1 and 2</a>
		(LP)(SD) ACS (SX)	<b>Crowned outside diameter:</b> deviation of the maximum of mid-range sizes (out of two-point sizes in any cross-section) of a crowned outer ring from its nominal size	<a href="#">Figures 1 and 2</a>
$G \times P$	—	—	Nominal thread diameter ( $G$ ) and thread pitch ( $P$ )	<a href="#">Figure 2</a>
$l_G$	—	—	Nominal length of thread on stud	<a href="#">Figure 2</a>
	$r_s$	—	Single chamfer dimension on outer ring	<a href="#">Figures 1 and 2</a>
	$r_{1s}$	—	Single chamfer dimension on inner ring	<a href="#">Figure 1</a>

<sup>a</sup> Symbols as defined in ISO 15241 except for the format used.

<sup>b</sup> Symbols as defined in ISO 1101 and ISO 14405-1.

<sup>c</sup> Specification modifier (LP) shall not be indicated on a drawing if the two-point size is applied for both specified limits.

<sup>d</sup> Description based on ISO 1101, ISO 5459 and ISO 14405-1.

<sup>e</sup> Symbols for direction of gravity G, fixed parts FP and movable parts MP, according to ISO/TS 17863 and specific flagnotes; see [Figures 1 and 2](#).



Table 1 (continued)

Symbol for nominal dimension (size and distance) <sup>a</sup>	Symbol for characteristic <sup>a</sup>	GPS symbol and specification modifier <sup>b,c</sup>	Description <sup>d</sup>	Reference
	Kea	$\textcircled{\text{LP}}$ $\textcircled{\text{SR}}$ SCS $\textcircled{\text{LA}}$	<p><b>Yoke type track roller:</b> Range of two-point sizes of section height between inner ring bore surface and outer ring outside surface in a specific cross section perpendicular to datum, i.e. axis, established from the inner ring bore surface</p>	<a href="#">Figure 1</a>
			<p><b>Stud type track roller:</b> Range of two-point sizes of section height between needle roller diameter surface and outer ring outside surface in a specific cross section perpendicular to datum, i.e. axis, established from surface of stud diameter <math>d_1</math></p>	<a href="#">Figure 2</a>
<p><sup>a</sup> Symbols as defined in ISO 15241 except for the format used.</p> <p><sup>b</sup> Symbols as defined in ISO 1101 and ISO 14405-1.</p> <p><sup>c</sup> Specification modifier <math>\textcircled{\text{LP}}</math> shall not be indicated on a drawing if the two-point size is applied for both specified limits.</p> <p><sup>d</sup> Description based on ISO 1101, ISO 5459 and ISO 14405-1.</p> <p><sup>e</sup> Symbols for direction of gravity G, fixed parts FP and movable parts MP, according to ISO/TS 17863 and specific flagnotes; see <a href="#">Figures 1</a> and <a href="#">2</a>.</p>				

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