

---

---

**Rolling bearings — Radial bearings,  
retaining slots — Dimensions and  
tolerances**

*Roulements — Roulements radiaux, encoches de retenue —  
Dimensions et tolérances*

STANDARDSISO.COM : Click to view the full PDF of ISO 20515:2007



**PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

STANDARDSISO.COM : Click to view the full PDF of ISO 20515:2007



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2007

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

## 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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 20515 was prepared by Technical Committee ISO/TC 4, *Rolling bearings*.

STANDARDSISO.COM : Click to view the full PDF of ISO 20515:2007

[STANDARDSISO.COM](http://STANDARDSISO.COM) : Click to view the full PDF of ISO 20515:2007

# Rolling bearings — Radial bearings, retaining slots — Dimensions and tolerances

## 1 Scope

This International Standard specifies dimensions and tolerances of retaining slots to be used for outer rings of single-row angular contact ball bearings, four-point-contact ball bearings and radial cylindrical roller bearings. The retaining slots are not suitable for use in the outer rings of sealed and shielded radial ball bearings, nor in the outer rings of radial cylindrical roller bearings without ribs.

## 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 15, *Rolling bearings — Radial bearings — Boundary dimensions, general plan*

ISO 1132-1, *Rolling bearings — Tolerances — Part 1: Terms and definitions*

ISO 5593, *Rolling bearings — Vocabulary*

ISO 15241, *Rolling bearings — Symbols for quantities*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1132-1, ISO 5593 and the following apply.

### 3.1

#### **retaining slot**

angled slot in an outer ring at the intersection of the outside surface and the face of the ring

NOTE The slot is to provide a simple means of preventing rotation of the outer ring of a bearing.

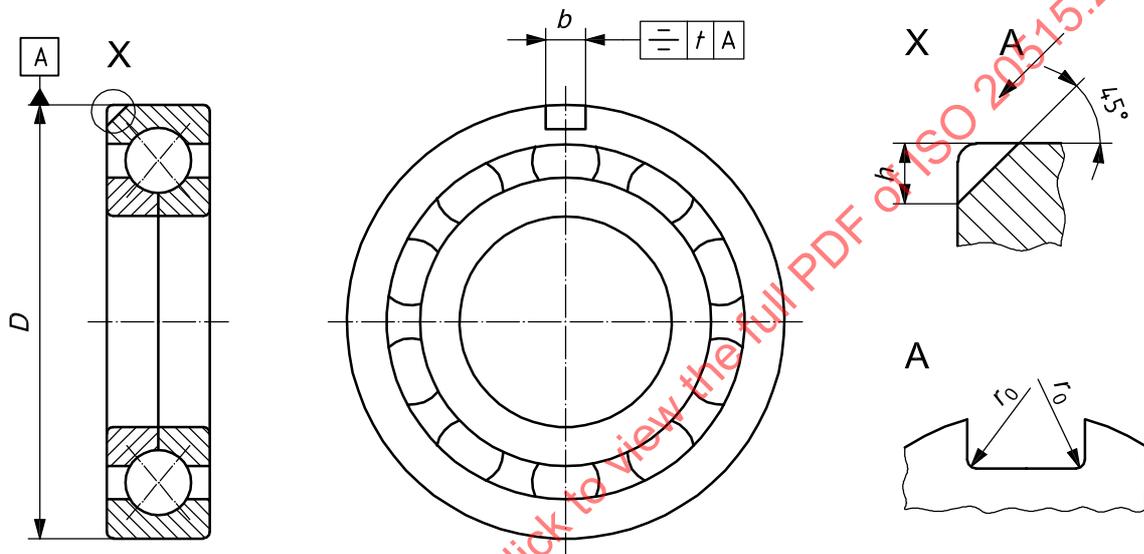
## 4 Symbols

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

The symbols (except those for tolerances) shown in Figure 1, and the values given in Tables 1 to 5 denote nominal dimensions unless specified otherwise.

NOTE Figure 1 shows an example of a retaining slot in a four-point-contact ball bearing.

- $b$  retaining slot width
- $D$  outside diameter of outer ring
- $h$  retaining slot depth
- $r_0$  fillet radius at bottom of retaining slot
- $t$  retaining slot symmetry tolerance
- $\Delta_{bs}$  deviation of a single retaining slot width
- $\Delta_{hs}$  deviation of a single retaining slot depth



NOTE Optionally two diametrically opposed retaining slots may be provided.

Figure 1 — Retaining slot in radial bearing

## 5 Dimensions

### 5.1 General

The dimensions for retaining slots in single-row angular contact ball bearings and four-point-contact ball bearings of diameter series 0, 2, 3 and 4, and radial cylindrical roller bearings of dimension series 10, 02E, 22E, 03E, 23E and 04, are given in Tables 1 and 2 respectively.

The diameter series and dimension series referred to in Tables 1 and 2 are those defined in ISO 15.

NOTE For radial cylindrical roller bearings of dimension series 02E, 22E, 03E and 23E, the E signifies that they are of a design having reinforced roller and cage assembly and increased radial load carrying capacity.

## 5.2 Single-row angular contact ball bearings and four-point-contact ball bearings

Table 1 — Diameter series 0, 2, 3 and 4

Dimensions in millimetres

D	Diameter series											
	0			2			3			4		
	<i>h</i>	<i>b</i>	<i>r</i> <sub>0</sub> max.	<i>h</i>	<i>b</i>	<i>r</i> <sub>0</sub> max.	<i>h</i>	<i>b</i>	<i>r</i> <sub>0</sub> max.	<i>h</i>	<i>b</i>	<i>r</i> <sub>0</sub> max.
40	—	—	—	2,5	3,5	0,5	—	—	—	—	—	—
47	2,5	3,5	0,5	3	4,5	0,5	3,5	4,5	0,5	—	—	—
50	—	—	—	3	4,5	0,5	—	—	—	—	—	—
52	3	3,5	0,5	3	4,5	0,5	3,5	4,5	0,5	3,5	4,5	0,5
55	3	3,5	0,5	—	—	—	—	—	—	—	—	—
56	—	—	—	—	—	—	3,5	4,5	0,5	—	—	—
58	3	3,5	0,5	3	4,5	0,5	—	—	—	—	—	—
62	3,5 <sup>a</sup>	4,5 <sup>a</sup>	0,5	3,5	4,5	0,5	3,5	4,5	0,5	3,5	4,5	0,5
65	—	—	—	3,5	4,5	0,5	—	—	—	—	—	—
68	3,5	4,5	0,5	—	—	—	3,5	4,5	0,5	—	—	—
72	—	—	—	3,5	4,5	0,5	3,5	4,5	0,5	3,5	4,5	0,5
75	4 <sup>a</sup>	5,5 <sup>a</sup>	0,5	—	—	—	4	5,5	0,5	—	—	—
80	4 <sup>a</sup>	5,5 <sup>a</sup>	0,5	4	5,5	0,5	4	5,5	0,5	4	5,5	0,5
85	—	—	—	4	5,5	0,5	—	—	—	—	—	—
90	4	5,5	0,5	4	5,5	0,5	4	5,5	0,5	4	5,5	0,5
95	4	5,5	0,5	—	—	—	—	—	—	—	—	—
100	5 <sup>a</sup>	6,5 <sup>a</sup>	0,5	5	6,5	0,5	5	6,5	0,5	5	6,5	0,5
110	5	6,5	0,5	5	6,5	0,5	5	6,5	0,5	5	6,5	0,5
115	5	6,5	0,5	—	—	—	—	—	—	—	—	—
120	—	—	—	6,5	6,5	0,5	8,1	6,5	1	8,1	6,5	1
125	5	6,5	0,5	6,5	6,5	0,5	—	—	—	—	—	—
130	5	6,5	0,5	6,5	6,5	0,5	8,1	6,5	1	8,1	6,5	1
140	5	6,5	0,5	8,1 <sup>a</sup>	6,5	1 <sup>a</sup>	8,1	6,5	1	8,1	6,5	1
145	5	6,5	0,5	—	—	—	—	—	—	—	—	—
150	6,5	6,5	0,5	8,1	6,5	1	10,1	8,5	2	10,1	8,5	2
160	6,5	6,5	0,5	8,1	6,5	1	10,1	8,5	2	10,1	8,5	2
170	6,5	6,5	0,5	8,1	6,5	1	10,1	8,5	2	—	—	—
180	6,5	6,5	0,5	10,1	8,5	2	11,7	10,5	2	11,7	10,5	2
190	—	—	—	10,1	8,5	2	11,7	10,5	2	11,7	10,5	2
200	8,1	6,5	1	10,1	8,5	2	11,7	10,5	2	11,7	10,5	2

Table 1 (continued)

Dimensions in millimetres

D	Diameter series											
	0			2			3			4		
	h	b	r <sub>0</sub> max.	h	b	r <sub>0</sub> max.	h	b	r <sub>0</sub> max.	h	b	r <sub>0</sub> max.
210	8,1	6,5	1	—	—	—	—	—	—	11,7	10,5	2
215	—	—	—	11,7	10,5	2	11,7	10,5	2	—	—	—
225	8,1	6,5	1	—	—	—	11,7	10,5	2	11,7	10,5	2
230	—	—	—	11,7	10,5	2	—	—	—	—	—	—
240	10,1	8,5	2	—	—	—	11,7	10,5	2	11,7	10,5	2
250	—	—	—	11,7	10,5	2	—	—	—	11,7	10,5	2
260	11,7	10,5	2	—	—	—	11,7	10,5	2	11,7	10,5	2
270	—	—	—	11,7	10,5	2	—	—	—	—	—	—
280	11,7	10,5	2	—	—	—	12,7	10,5	2	12,7	10,5	2
290	11,7	10,5	2	12,7	10,5	2	—	—	—	—	—	—
300	—	—	—	—	—	—	12,7	10,5	2	—	—	—
310	12,7	10,5	2	12,7	10,5	2	—	—	—	12,7	10,5	2
320	—	—	—	12,7	10,5	2	12,7	10,5	2	—	—	—
340	12,7	10,5	2	12,7	10,5	2	12,7	10,5	2	12,7	10,5	2
360	12,7	10,5	2	12,7	10,5	2	12,7	10,5	2	12,7	10,5	2
380	—	—	—	—	—	—	12,7	10,5	2	12,7	10,5	2
400	12,7	10,5	2	12,7	10,5	2	12,7	10,5	2	12,7	10,5	2
420	15	12,5	2,5	—	—	—	15	12,5	2,5	15	12,5	2,5
440	—	—	—	15	12,5	2,5	—	—	—	15	12,5	2,5
460	15	12,5	2,5	—	—	—	15	12,5	2,5	15	12,5	2,5
480	15	12,5	2,5	15	12,5	2,5	—	—	—	15	12,5	2,5
500	—	—	—	15	12,5	2,5	15	12,5	2,5	—	—	—

<sup>a</sup> These values are not suitable for single-row angular contact ball bearings and four-point-contact ball bearings with a contact angle of less than 35°.

## 5.3 Radial cylindrical roller bearings

Table 2 — Dimension series 10, 02E, 22E, 03E, 23E and 04

Dimensions in millimetres

D	Dimension series											
	10			02E, 22E			03E, 23E			04		
	h	b	r <sub>0</sub> max.	h	b	r <sub>0</sub> max.	h	b	r <sub>0</sub> max.	h	b	r <sub>0</sub> max.
47	—	—	—	2,5	3,5	0,5	—	—	—	—	—	—
52	—	—	—	2,5	3,5	0,5	2,5	3,5	0,5	—	—	—
62	2,5	3,5	0,5	3	4,5	0,5	3	4,5	0,5	—	—	—
68	2,5	3,5	0,5	—	—	—	—	—	—	—	—	—
72	—	—	—	3,5	4,5	0,5	4	5,5	0,5	5	6,5	0,5
75	3	4,5	0,5	—	—	—	—	—	—	—	—	—
80	3	4,5	0,5	4	5,5	0,5	4	5,5	0,5	5	6,5	0,5
85	—	—	—	4	5,5	0,5	—	—	—	—	—	—
90	4	5,5	0,5	4	5,5	0,5	5	6,5	0,5	5	6,5	0,5
95	4	5,5	0,5	—	—	—	—	—	—	—	—	—
100	4	5,5	0,5	4	5,5	0,5	5	6,5	0,5	6,5	6,5	0,5
110	4	5,5	0,5	5	6,5	0,5	6,5	6,5	0,5	6,5	6,5	0,5
115	4	5,5	0,5	—	—	—	—	—	—	—	—	—
120	—	—	—	5	6,5	0,5	6,5	6,5	0,5	6,5	6,5	0,5
125	5	6,5	0,5	5	6,5	0,5	—	—	—	—	—	—
130	5	6,5	0,5	5	6,5	0,5	8,1	6,5	1	6,5	6,5	0,5
140	6,5	6,5	0,5	6,5	6,5	0,5	8,1	6,5	1	8,1	6,5	1
145	6,5	6,5	0,5	—	—	—	—	—	—	—	—	—
150	6,5	6,5	0,5	6,5	6,5	0,5	8,1	6,5	1	8,1	6,5	1
160	6,5	6,5	0,5	6,5	6,5	0,5	8,1	6,5	1	8,1	6,5	1
170	6,5	6,5	0,5	8,1	6,5	1	8,1	6,5	1	—	—	—
180	6,5	6,5	0,5	8,1	6,5	1	10,1	8,5	2	10,1	8,5	2
190	—	—	—	8,1	6,5	1	10,1	8,5	2	10,1	8,5	2
200	8,1	6,5	1	8,1	6,5	1	11,7	10,5	2	11,7	10,5	2
210	8,1	6,5	1	—	—	—	—	—	—	12,7	10,5	2
215	—	—	—	10,1	8,5	2	11,7	10,5	2	—	—	—
225	10,1	8,5	2	—	—	—	11,7	10,5	2	12,7	10,5	2
230	—	—	—	10,1	8,5	2	—	—	—	—	—	—
240	10,1	8,5	2	—	—	—	11,7	10,5	2	12,7	10,5	2
250	—	—	—	11,7	10,5	2	—	—	—	12,7	10,5	2
260	11,7	10,5	2	—	—	—	11,7	10,5	2	12,7	10,5	2
270	—	—	—	11,7	10,5	2	—	—	—	—	—	—
280	11,7	10,5	2	—	—	—	12,7	10,5	2	15	12,5	2,5
290	11,7	10,5	2	12,7	10,5	2	—	—	—	—	—	—
300	—	—	—	—	—	—	15	12,5	2,5	—	—	—