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# International Standard



# 582

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

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## Rolling bearings — Metric series — Chamfer dimension limits

*Roulements — Séries métriques — Dimensions limites des arrondis*

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**Descriptors** : bearings, rolling bearings, bevelling, shafts (machine elements), dimensions, limits

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 582 was developed by Technical Committee ISO/TC 4, *Rolling bearings*, and was circulated to the member bodies in September 1978.

It has been approved by the member bodies of the following countries :

Australia	Hungary	Romania
Austria	India	South Africa, Rep. of
Belgium	Italy	Sweden
Brazil	Japan	Switzerland
Canada	Korea, Dem. P. Rep. of	United Kingdom
Chile	Korea, Rep. of	USA
China	Libyan Arab Jamahiriya	USSR
Czechoslovakia	Mexico	Yugoslavia
France	Netherlands	
Germany, F. R.	Poland	

No member body expressed disapproval of the document.

This second edition cancels and replaces the first edition (i.e. ISO 582-1972).

# Rolling bearings — Metric series — Chamfer dimension limits

## 0 Introduction

**0.1** In order to ensure that rolling bearing chamfers are compatible with the dimensions of parts which come into contact with the rolling bearings, values of the chamfer dimension limits, of which the minimum limit is of primary interest to the bearing user and application designer, are required.

This minimum limit is of importance when referring to International Standards giving the boundary dimensions of rolling bearings. At present, however, several of these publications give only nominal values of chamfer dimensions and, when revised, they will consequently be amended in this respect. Until such publications are thus revised, the relationship between nominal chamfer dimensions and minimum limits is given as an annex, to this International Standard. The annex does not form an integral part of this International Standard.

**0.2** The purpose of this International Standard is to achieve interchangeability of rolling bearings, by specifying the limits of the chamfer dimensions, and to minimize the risk of incompatibility in bearing applications.

## 1 Scope and field of application

This International Standard specifies the chamfer dimension limits of metric series rolling bearing rings for which boundary dimensions are given in other International Standards. Requirements for the maximum limits of the corresponding shaft and housing fillet radii are also given.

It does not apply to chamfers for which dimensions are not specified, or for which other dimension limits are specified in other International Standards.

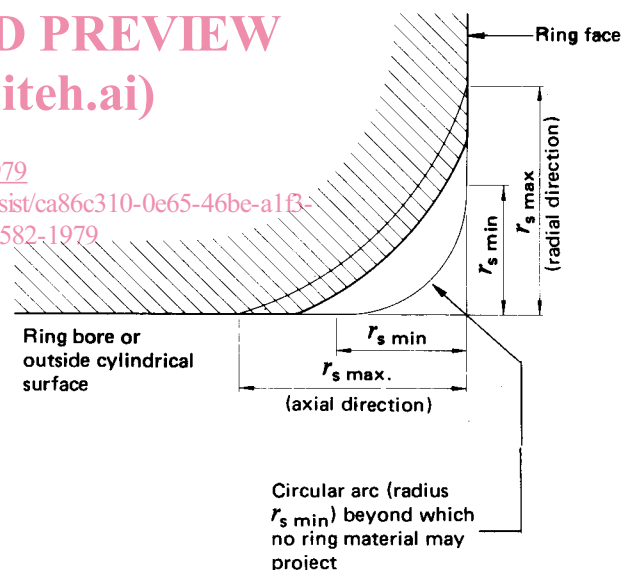
## 2 Definitions

**2.1 radial direction chamfer dimension (of a bearing ring)** : The distance between the imaginary sharp ring corner and the intersection of the chamfer surface and the ring face.

**2.2 axial direction chamfer dimension (of a bearing ring)** : The distance between the imaginary sharp ring corner

and the intersection of the chamfer surface and the bore or outside cylindrical surface of the ring.

## 3 Symbols



$d$	= bearing bore diameter, nominal
$D$	= bearing outside diameter, nominal
$r_{s \min}$	= smallest permissible single chamfer dimension (minimum limit)
$r_{s \max}$	= largest permissible single chamfer dimension (maximum limit)
$r_{as \max}$	= largest permissible single shaft and housing fillet radius

**NOTE** — The exact shape of the chamfer surface is not specified, but its contour in an axial plane shall not be allowed to project beyond the imaginary circular arc, of radius  $r_{s \min}$ , tangential to the ring face and the bore or outside cylindrical surface of the ring (see figure).

4 Chamfer dimension limits

Table 1 — Radial bearings except tapered roller bearings

Dimensions in millimetres

$r_s \text{ min}^*$	$d$		$r_s \text{ max}^{**}$	
	>	≤	radial direction	axial direction
0,05	—	—	0,1	0,2
0,08	—	—	0,16	0,3
0,1	—	—	0,2	0,4
0,15	—	—	0,3	0,6
0,2	—	—	0,5	0,8
0,3	— 40	40 —	0,6 0,8	1 1
0,6	— 40	40 —	1 1,3	2 2
1	— 50	50 —	1,5 1,9	3 3
1,1	— 120	120 —	2 2,5	3,5 4
1,5	— 120	120 —	2,3 3	4 5
2	— 80 220	80 220 —	3 3,5 3,8	4,5 5 6
2,1	— 280	280 —	4 4,5	6,5 7
2,5	— 100 280	100 280 —	3,8 4,5 5	6 6 7
3	— 280	280 —	5 5,5	8 8
4	—	—	6,5	9
5	—	—	8	10
6	—	—	10	13
7,5	—	—	12,5	17
9,5	—	—	15	19
12	—	—	18	24
15	—	—	21	30
19	—	—	25	38

\* See clause 5 for maximum shaft and housing fillet radii.

\*\* For bearings with a width of 2 mm or less the  $r_s \text{ max}$  values for the radial direction apply also in the axial direction.

Table 2 — Tapered roller bearings

Dimensions in millimetres

Cone ( $d$ ) or cup ( $D$ ) back face chamfer				
$r_s \text{ min}^*$	$d$ or $D$		$r_s \text{ max}$	
	>	≤	radial direction	axial direction
0,3	— 40	40 —	0,7 0,9	1,4 1,6
0,6	— 40	40 —	1,1 1,3	1,7 2
1,0	— 50	50 —	1,6 1,9	2,5 3
1,5	— 120 250	120 250 —	2,3 2,8 3,5	3 3,5 4
2	— 120 250	120 250 —	2,8 3,5 4	4 4,5 5
2,5	— 120 250	120 250 —	3,5 4 4,5	5 5,5 6
3	— 120 250 400	120 250 400 —	4 4,5 5 5,5	5,5 6,5 7 7,5
4	— 120 250 400	120 250 400 —	5 5,5 6 6,5	7 7,5 8 8,5
5	— 180	180 —	6,5 7,5	8 9
6	— 180	180 —	7,5 9	10 11

\* See clause 5 for maximum shaft and housing fillet radii.

Table 3 — Thrust bearings

NOTE — The limits given in table 3 apply to :

- a) back face/outside cylindrical surface chamfer of housing washer;
- b) back face/bore surface chamfer of shaft washer of single direction bearings; and
- c) face/bore surface chamfers of central shaft washer of double direction bearings.

Dimensions in millimetres

$r_s \text{ min}^*$	$r_s \text{ max}$ radial and axial direction
0,05	0,1
0,08	0,16
0,1	0,2
0,15	0,3
0,2	0,5
0,3	0,8
0,6	1,5
1	2,2
1,1	2,7
1,5	3,5
2	4,5
2,1	5,5
3	6,5
4	8
5	10
6	12,5
7,5	15
9,5	18
12	21
15	25
19	

\* See clause 5 regarding maximum shaft and housing fillet radii.

## 5 Shaft and housing fillet radii

The largest single shaft and housing fillet radius ( $r_{as \text{ max}}$ ) should not exceed the smallest permissible single chamfer dimension of the corresponding ring or washer corner ( $r_{s \text{ min}}$ ). If it is also desirable to accommodate bearings having dimensions in accordance with earlier International Standards and Recommendations, they should not exceed the values which were given in ISO 582-1972. Information regarding these values is given in the annex.

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## Annex

### Comparison between nominal dimensions and minimum limits

#### A.0 Introduction

This annex gives the relationship between nominal chamfer dimensions, given in International Standards and Recommendations which have not yet been revised to show minimum chamfer dimension limits, and the applicable minimum limits.

#### A.1 Comparison tables

**Table 4 — Radial bearings, except tapered roller bearings, and thrust bearings**

Dimensions in millimetres

$r_{nom}$	$r_{s\ min}$
0,1	0,05
0,15	0,08
0,2	0,1
0,3	0,15
0,4	0,2
0,5	0,3
1	0,6
1,5	1
2	1,1
2,5	1,5
3	2
3,5	2,1*
4	3
5	4
6	5
8	6
10	7,5
12	9,5
15	12
18	15
22	19

\* In ISO 582-1972 the  $r_{s\ min}$  values were 1 mm and 2 mm respectively.

If it is desirable to accommodate bearings having dimensions in accordance with earlier International Standards and Recommendations, the shaft or housing fillet radius should not exceed these smaller values.

**Table 5 — Tapered roller bearings**

Dimensions in millimetres

$r_{nom}$	Cone back face chamfer		Cup back face chamfer	
	$r_{s\ min}$	$r_{s\ min}^*$ (ISO 582-1972)	$r_{s\ min}$	$r_{s\ min}^*$ (ISO 582-1972)
0,5	0,3	0,3	0,3	0,3
1,5	0,6	0,6	0,6	0,6
2	1	1	1	1
2,5	1,5	1,5	1,5	1,5
3,5	2	2	2	2
4	2,5	2,5	2,5	2,5
5	3	3	3	3
6	4	4	4	4
6	5	5	5	5

\* If it is desirable to accommodate bearings having dimensions in accordance with earlier International Standards and Recommendations, the shaft or housing fillet radius should not exceed these values.

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