

# ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

## ISO RECOMMENDATION

### R 199



ROLLING BEARINGS

THRUST BALL BEARINGS WITH FLAT SEATS

TOLERANCES  
(standards.iten.ai)

PART 2

ISO/R 199-2:1968

<https://standards.iso.org/iso/number/199-2.html>

TOLERANCE CLASSES 6, 5 AND 4

<https://standards.iso.org/iso/number/199-2.html>

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ROLLING BEARINGS  
THRUST BALL BEARINGS WITH FLAT SEATS  
TOLERANCES  
PART 2  
TOLERANCE CLASSES 6, 5 AND 4

1. SCOPE

- 1.1 This ISO Recommendation applies to the tolerances of thrust ball bearings with flat seats
- tolerance classes 6 and 5 for bore diameters up to and including 1250 mm, given in Table 1, and
  - tolerance class 4 for bore diameters up to and including 800 mm, given in Table 2.
- 1.2 The housing washer outside diameter tolerances are those given for the normal tolerance class in ISO Recommendation R 199, *Rolling bearings – Thrust ball bearings with flat seats – Normal tolerances*.
- 1.3 The cylindrical bore diameter “not go side” tolerance limit does not necessarily apply within a distance of twice the nominal washer chamfer dimension from the washer face.

2. SYMBOL

The following symbol is used in the Tables :

$d$  = bore diameter of shaft washer of single and double direction thrust ball bearings.

## 3. TOLERANCES

TABLE 1 – Tolerance classes 6 and 5

Deviations in microns

Bore diameter <i>d</i> nominal millimetres		Shaft washer		All washers	
		Deviations from nominal bore diameter*		Raceway run-out with seat face of washer**	
				Class 6	Class 5
over	incl.	high	low	maximum	maximum
—	18	0	– 8	5	3
(18)	30	0	– 10	5	3
(30)	50	0	– 12	6	3
(50)	80	0	– 15	7	4
(80)	120	0	– 20	8	4
(120)	180	0	– 25	9	5
(180)	250	0	– 30	10	5
(250)	315	0	– 35	13	7
(315)	400	0	– 40	15	7
(400)	500	0	– 45	18	9
(500)	630	0	– 50	21	11
(630)	800	0	– 75	25	13
(800)	1000	0	– 100	30	15
(1000)	1250	0	– 125	35	18

\* These deviations are valid for two-point measurements only.

\*\* The run-out values for double direction bearings refer to the nominal bore diameter of corresponding single direction bearings.

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TABLE 2 – Tolerance class 4

Deviations in microns

Bore diameter <i>d</i> nominal millimetres		Shaft washer		All washers	
		Deviations from nominal bore diameter*		Raceway run-out with seat face of washer**	
				Class 4	
over	incl.	high	low	maximum	
—	18	0	– 7	2	
(18)	30	0	– 8	2	
(30)	50	0	– 10	2	
(50)	80	0	– 12	3	
(80)	120	0	– 15	3	
(120)	180	0	– 18	4	
(180)	250	0	– 22	4	
(250)	315	0	– 25	5	
(315)	400	0	– 30	5	
(400)	500	0	– 35	6	
(500)	630	0	– 40	7	
(630)	800	0	– 50	8	

\* These deviations are valid for two-point measurements only.

\*\* The run-out values for double direction bearings refer to the nominal bore diameter of corresponding single direction bearings.

## BRIEF HISTORY

The ISO Recommendation R 199/II, *Rolling bearings – Thrust ball bearings with flat seats – Tolerances – Part 2 – Tolerance classes 6, 5 and 4*, was drawn up by Technical Committee ISO/TC 4, *Rolling bearings*, the Secretariat of which is held by the Sveriges Standardiseringskommission (SIS).

Work on this question by the Technical Committee began in 1963 and led, in the same year, to the adoption of a Draft ISO Recommendation.

In March 1965, this Draft ISO Recommendation (No. 639) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Argentina	India	Switzerland
Austria	Italy	Turkey
Brazil	Japan	U.A.R.
Canada	Korea, Rep. of	United Kingdom
Chile	Netherlands	U.S.A.
Czechoslovakia	Poland	U.S.S.R.
France	Romania	Yugoslavia
Germany	Spain	
Hungary	Sweden	

No Member Body opposed the approval of the Draft.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in September 1968, to accept it as an ISO RECOMMENDATION.