

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 199

ROLLING BEARINGS
THRUST BALL BEARINGS WITH FLAT SEATS
NORMAL TOLERANCES

1st EDITION
June 1961

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Printed in Switzerland

Also issued in French and Russian. Copies to be obtained through the national standards organizations.

BRIEF HISTORY

The ISO Recommendation R 199, *Rolling Bearings. Thrust Ball Bearings with Flat Seats—Normal Tolerances*, was drawn up by Technical Committee ISO/TC 4, *Ball and Roller Bearings*, the Secretariat of which is held by the Sveriges Standardiseringskommission (SIS).

Technical Committee ISO/TC 4 discussed the question dealt with by this ISO Recommendation at the following meetings:

third meeting, held in Göteborg, in September 1953,
fourth meeting, held in Madrid, in May 1955,
sixth meeting, held in Naples, in June 1958,
seventh meeting, held in Berlin, in October 1959.

At the first meeting of the Technical Committee, Sub-Committee No. 1 was appointed to assist the ISO/TC 4 Secretariat in preparatory work and in drawing up proposals. The Sub-Committee, composed of the following Member Bodies: France, Italy, Sweden, Switzerland, United Kingdom and U.S.A., discussed this Draft ISO Recommendation at its fourth meeting, held in Göteborg in September 1953.

At the third meeting of the Technical Committee, Working Group No. 4 was appointed to assist the ISO/TC 4 Secretariat in drawing up proposals regarding tolerances. The Working Group, composed of the following Member Bodies: France, Germany, Italy, Sweden, United Kingdom and U.S.A., held the following meetings:

first meeting, in Madrid, in May 1955,
second meeting, in Vienna, in September 1956,
fourth meeting, in Berlin, in October 1959.

On 11 July 1958, the Draft ISO Recommendation (No. 156 – Chapter 2) was distributed to all the ISO Members and was approved, subject to some modifications, by the following Member Bodies:

Australia	Hungary	Spain
Austria	India	Sweden
Brazil	Italy	Switzerland
Burma	Japan	United Kingdom
Canada	Netherlands	U.S.A.
Czechoslovakia	Poland	U.S.S.R.
France	Portugal	Yugoslavia
Germany	Romania	

No Member Body opposed the approval of the Draft.

The Draft ISO Recommendation was then submitted to the ISO Council, which decided, in June 1961, to accept it as an ISO RECOMMENDATION.

ROLLING BEARINGS
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1. The normal tolerances permitted for thrust ball bearings with flat seats are given in Tables 1 and 2 below.

2. The following symbols are used in the tables:

d = Bore diameter of shaft washer of single and double direction thrust ball bearings,

D = Outside diameter of housing washer.

Table 1

Nominal bore diameter d		Shaft washer		All washers
		Deviations from bore diameter d^*		Raceway run-out with face of washer**
Over	Incl.	Low	High	Maximum
mm	mm	μ	μ	μ
—	18	— 8	+ 6	10
(18)	30	— 10	+ 8	10
(30)	50	— 12	+ 10	10
(50)	80	— 15	+ 13	10
(80)	120	— 20	+ 16	15
(120)	180	— 25	+ 18	15
(180)	250	— 30	+ 22	20
(250)	315	— 35	+ 25	25
(315)	400	— 40	+ 29	30
(400)	500	— 45	+ 33	30
(500)	630	— 50	+ 35	35
(630)	800	— 75	+ 38	40
(800)	1 000	— 100	+ 42	45
(1 000)	1 250	— 125	+ 48	50

Table 2

Housing washer			
Outside diameter D		Deviations from outside diameter D^*	
Over	Incl.	High	Low
mm	mm	μ	μ
(10)	18	0	— 11
(18)	30	0	— 13
(30)	50	0	— 16
(50)	80	0	— 19
(80)	120	0	— 22
(120)	180	0	— 25
(180)	250	0	— 30
(250)	315	0	— 35
(315)	400	0	— 40
(400)	500	0	— 45
(500)	630	0	— 50
(630)	800	0	— 75
(800)	1 000	0	— 100
(1 000)	1 250	0	— 125
(1 250)	1 600	0	— 160

* The values are valid for two-point measurements only.

** The values for double direction bearings refer to the nominal bore diameter of corresponding single direction bearing.