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МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

Tapered roller bearings — Inch series — Tolerances

Roulements à rouleaux coniques — Séries «inch» — Tolérances

Reference number
ISO 578 : 1987 (E)

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.

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. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 578 was prepared by Technical Committee ISO/TC 4, *Rolling bearings*.

This second edition cancels and replaces the first edition (ISO 578 : 1973). In this second edition tolerances have been incorporated for the effective width of tapered roller bearing sub-units, tolerance class 4; consequently, additions have been made to clauses 3 and 4 of the first edition (clauses 4 and 5 in the second edition). This second edition also replaces the tolerances for inch series bearings specified in ISO 2349; the tolerances for metric series bearings specified in ISO 2349 have already been incorporated in ISO 492. This second edition together with ISO 492 therefore cancel and replace ISO 2349 : 1973.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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Tapered roller bearings — Inch series — Tolerances

1 Scope and field of application

This International Standard specifies the tolerances for boundary dimensions and running accuracy of tapered roller bearings of the inch series, tolerance classes 4 (normal tolerance), 3, 0 and 00. In addition, it gives tolerances for the effective width of tapered rolling bearing sub-units, tolerance class 4.

Chamfer dimension limits are given in ISO 1123.

2 References

ISO 286, *ISO system of limits and fits.*[1]

ISO 1123, *Tapered roller bearings — Inch series — Chamfer dimension limits.*

ISO 1132, *Rolling bearings — Tolerances — Definitions.*

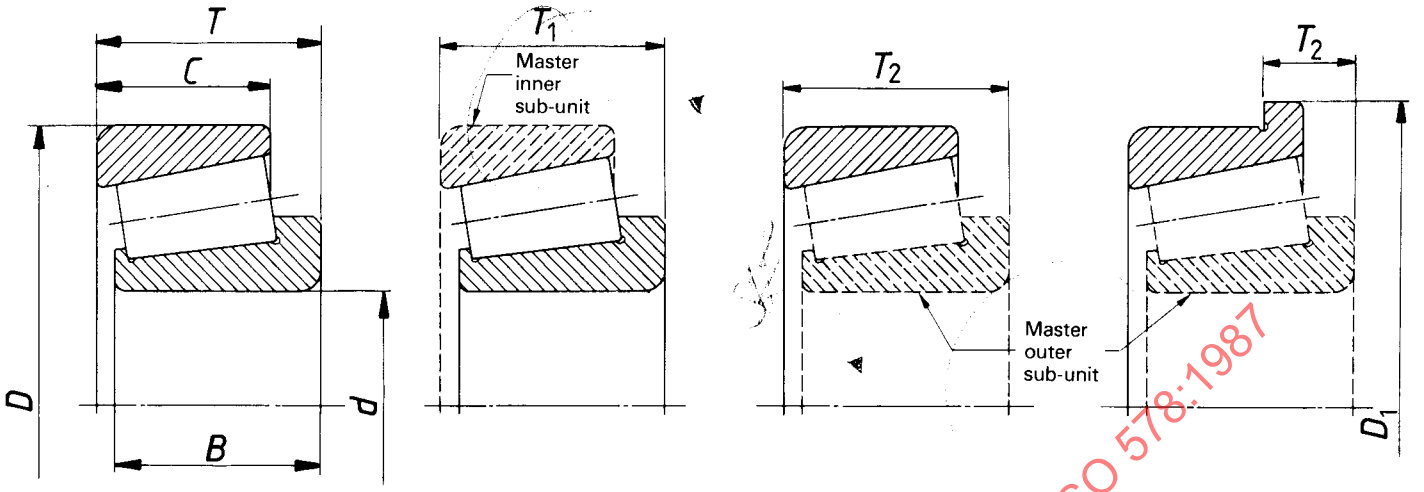
ISO 5593, *Rolling bearings — Vocabulary.*

3 Definitions

Definitions of the concepts to which the tolerances specified in this International Standard apply are given in ISO 1132 and ISO 5593.

1) At present at the stage of draft. (Revision of ISO/R 286 : 1962.)

4 Symbols



d = bearing bore diameter, nominal

Δ_{ds} = deviation of a single bore diameter

D = bearing outside diameter, nominal

Δ_{Ds} = deviation of a single outside diameter

D_1 = outer ring flange outside diameter, nominal

B = inner ring width, nominal

Δ_{Bs} = deviation of a single inner ring width

C = outer ring width, nominal

Δ_{Cs} = deviation of a single outer ring width

T = bearing width, nominal

Δ_{Ts} = deviation of the actual bearing width

T_1 = effective width of inner sub-unit, nominal

Δ_{T1s} = deviation of the actual effective width of inner sub-unit

T_2 = effective width of outer sub-unit, nominal

Δ_{T2s} = deviation of the actual effective width of outer sub-unit

K_{ia} = radial runout of assembled bearing inner ring

K_{ea} = radial runout of assembled bearing outer ring

S_{ia} = assembled bearing inner ring face (backface) runout with raceway

S_{ea} = assembled bearing outer ring face (backface) runout with raceway

5 Tolerances

5.1 Inner ring bore, inner ring width and bearing width

Table 1

Tolerance class	d		Δ_{ds}		Δ_{Bs}		Δ_{Ts}	
	over	incl.	high	low	high	low	high	low
	in		Values in 0.000 1 in					
4	0	3	+ 5	0	+ 30	− 100	+ 80	0
	(3)	4	+ 10	0	+ 30	− 100	+ 80	0
	(4)	6	+ 10	0	+ 30	− 100	+ 140	− 100
3	0	6	+ 5	0	+ 30	− 100	+ 80	− 80
0	0	6	+ 5	0	+ 30	− 100	+ 80	− 80
00	0	6	+ 3	0	+ 30	− 100	+ 80	− 80
	mm		µm					
4	0	76,2	+ 13	0	+ 76	− 254	+ 203	0
	(76,2)	101,6	+ 25	0	+ 76	− 254	+ 203	0
	(101,6)	152,4	+ 25	0	+ 76	− 254	+ 356	− 254
3	0	152,4	+ 13	0	+ 76	− 254	+ 203	− 203
0	0	152,4	+ 13	0	+ 76	− 254	+ 203	− 203
00	0	152,4	+ 8	0	+ 76	− 254	+ 203	− 203

NOTE — The cage may project beyond the bearing width.

5.2 Outer ring outside diameter, outer ring width and assembled bearing runouts

Table 2

Tolerance class	D		Δ_{Ds}		Δ_{Cs}		K_{ia} K_{ea}	S_{ia} S_{ea}
	over	incl.	high	low	high	low	max.	max.
	in		Values in 0.000 1 in					
4	0	12	+ 10	0	+ 20	− 100	20	20
	(12)	14	+ 20	0	+ 20	− 100	20	20
3	0	12	+ 5	0	+ 20	− 100	3	3
	(12)	14	+ 10	0	+ 20	− 100	7	7
0	0	12	+ 5	0	+ 20	− 100	1.5	1.5
00	0	10.5	+ 3	0	+ 20	− 100	0.75	0.75
	mm		µm					
4	0	304,8	+ 25	0	+ 51	− 254	51	51
	(304,8)	355,6	+ 51	0	+ 51	− 254	51	51
3	0	304,8	+ 13	0	+ 51	− 254	8	8
	(304,8)	355,6	+ 25	0	+ 51	− 254	18	18
0	0	304,8	+ 13	0	+ 51	− 254	4	4
00	0	266,7	+ 8	0	+ 51	− 254	2	2

NOTE — The tolerance for the outside diameter of an outer ring flange, D_1, is h9 (see ISO 286).

5.3 Effective width of sub-unit, tolerance class 4 (normal tolerance class)

Table 3

d		Δ_{T1s}		Δ_{T2s}	
over	incl.	high	low	high	low
in		Values in 0.000 1 in			
—	4	+ 40	0	+ 40	0
(4)	6	+ 60	− 60	+ 80	− 40
mm		µm			
—	101,6	+ 102	0	+ 102	0
(101,6)	152,4	+ 152	− 152	+ 203	− 102