

INTERNATIONAL STANDARD

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Rolling bearings — Radial internal clearance

Roulements — Jeu interne radial



Reference number
ISO 5753:1991(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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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.

International Standard ISO 5753 was prepared by Technical Committee ISO/TC 4, *Rolling bearings*, Sub-Committee SC 4, *Tolerances*.

This second edition cancels and replaces the first edition (ISO 5753:1981), which has been technically revised.

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Rolling bearings — Radial internal clearance

1 Scope

This International Standard specifies values of radial internal clearance for

- radial contact groove ball bearings, except those for insert bearings, which are given in ISO 9628;
- double row self-aligning ball bearings;
- cylindrical roller bearings;
- needle roller bearings; and
- double row self-aligning roller bearings.

Values are given for all five types of bearing with cylindrical bore, and also for the self-aligning bearings with tapered bore.

The values given apply to non-preloaded bearings and of a design such that they can take purely radial load.

Depending on bearing design and measuring method, some scatter of the results of repeated measurements may be experienced. Manufacturers are expected to take such scatter into consideration by applying correspondingly reduced manufacturing tolerances.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard

are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1132:1980, *Rolling bearings — Tolerances — Definitions*.

ISO 6979:1982, *Needle roller bearings — Heavy series — Dimensions and tolerances*.

ISO 9628:—¹⁾, *Rolling bearings — Insert bearings and eccentric locking collars*.

3 Definitions

For the purposes of this International Standard, the definitions given in ISO 1132 apply. For the convenience of users of this International Standard, the following definition is reproduced.

3.1 radial internal clearance: G_r (bearing capable of taking purely radial load, non-preloaded): The arithmetical mean of the radial distances through which one of the rings may be displaced relative to the other, from one eccentric extreme position to the diametrically opposite extreme position, in different angular directions and without being subjected to any external load. The mean value includes displacements with the rings in different angular positions relative to each other and with the set of rolling elements in different angular positions in relation to the rings.

NOTE 1 At each limiting eccentric position of the rings in relation to each other, their relative axial position, and the position of the rolling elements relative to the raceways, are to be such that the one ring has actually assumed the extreme eccentric position in relation to the other ring.

4 Radial internal clearance values

4.1 Radial contact groove ball bearings

See table 1.

Table 1 — Radial contact groove ball bearings with cylindrical bore

Clearance values in micrometres

Bore diameter <i>d</i> mm		Group 2		Group N		Group 3		Group 4		Group 5	
over	incl.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
2,5	6	0	7	2	13	8	23	—	—	—	—
6	10	0	7	2	13	8	23	14	29	20	37
10	18	0	9	3	18	11	25	18	33	25	45
18	24	0	10	5	20	13	28	20	36	28	48
24	30	1	11	5	20	13	28	23	41	30	53
30	40	1	11	6	20	15	33	28	46	40	64
40	50	1	11	6	23	18	36	30	51	45	73
50	65	1	15	8	28	23	43	38	61	55	90
65	80	1	15	10	30	25	51	46	71	65	105
80	100	1	18	12	36	30	58	53	84	75	120
100	120	2	20	15	41	36	66	61	97	90	140
120	140	2	23	18	48	41	81	71	114	105	160
140	160	2	23	18	53	46	91	81	130	120	180
160	180	2	25	20	61	53	102	91	147	135	200
180	200	2	30	25	71	63	117	107	163	150	230
200	225	2	35	25	85	75	140	125	195	175	265
225	250	2	40	30	95	85	160	145	225	205	300
250	280	2	45	35	105	90	170	155	245	225	340
280	315	2	55	40	115	100	190	175	270	245	370
315	355	3	60	45	125	110	210	195	300	275	410
355	400	3	70	55	145	130	240	225	340	315	460
400	450	3	80	60	170	150	270	250	380	350	510
450	500	3	90	70	190	170	300	280	420	390	570
500	560	10	100	80	210	190	330	310	470	440	630
560	630	10	110	90	230	210	360	340	520	490	690
630	710	20	130	110	260	240	400	380	570	540	760
710	800	20	140	120	290	270	450	430	630	600	840
800	900	20	160	140	320	300	500	480	700	670	940
900	1 000	20	170	150	350	330	550	530	770	740	1 040
1 000	1 120	20	180	160	380	360	600	580	850	820	1 150
1 120	1 250	20	190	170	410	390	650	630	920	890	1 260

NOTE — These values are not valid for insert bearings; refer to ISO 9628.