MOUNTING PROCEDURE OF SELF-ALIGNING BALL BEARING

RKB BEARING INDUSTRIES SWITZERLAND

The ball bearings manufactured by RKB come in many designs, dimensions and series. They are conceived to withstand combined loads and high speeds, covering most requirements in a number of standard and special industrial applications.

All RKB ball bearings are made from high quality materials and undergo special heat treatments for superior performance. Available in open or closed version, they are low-maintenance, which makes them an irreplaceable cost-effective solution in many cases.

MOUNTING PROCEDURE

The self-aligning ball bearing with tapered bore are fixed directly on the tapered shaft, or on the cylindrical shaft by means of an adapter sleeve or pressure sleeve.
Before mounting, the bearing bore and the seating surfaces of the shaft and sleeve must be cleaned. Also, no mounting paste or similar lubricants should be used. In fact, although a light layer of lubricating film would certainly reduce friction, facilitating assembly, during operation it would be gradually pressed, coming out.

In this way the seat would no longer be blocked, the ring or the bush would begin to move and the homologous surfaces would wear out (creep).
The bearing mounting on a shaft tapered seat or tapered sleeve is performed by ***controlling the internal radial clearance reduction.***

Accessories

RKB offers a comprehensive range of accessories for locating bearings on shafts. Adapter sleeves, withdrawal sleeves, lock nuts, clips and locking devices are some of the most common accessories we can provide to facilitate bearing mounting and dismounting.

As a general rule, if the bearing is mounted correctly the outer ring must be able to rotate freely opposing a slight resistance during its oscillation (fig.1).

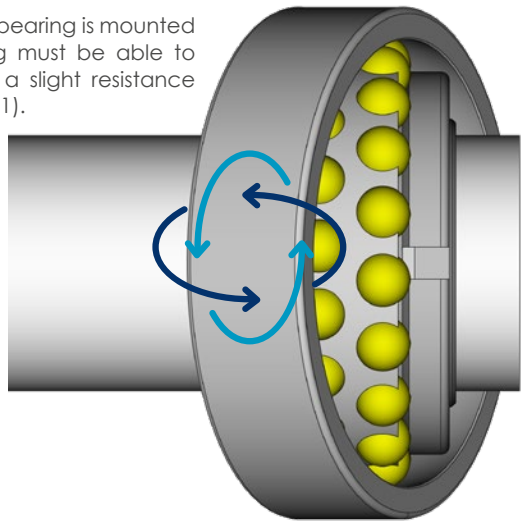

Figure 1

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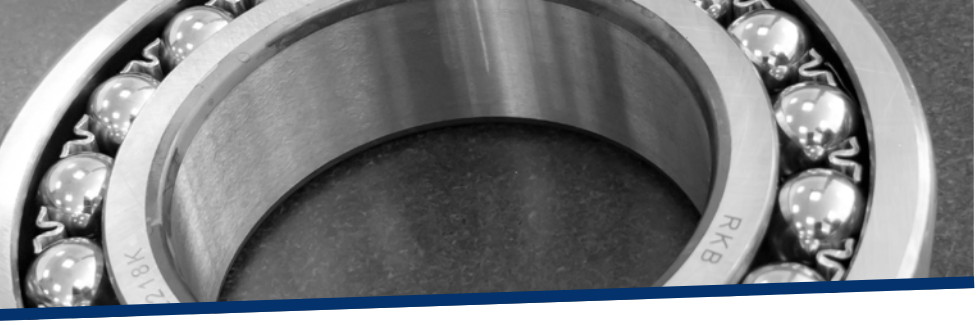
ENGINEERED IN SWITZERLAND
TECHNOLOGICAL BEARINGS



RKB BEARING INDUSTRIES SWITZERLAND

d [mm]		Radial clearance [µm]							
		C2		CN		C3		C4	
over	incl.	min.	max.	min.	max.	min.	max.	min.	max.
2.5	6	1	8	5	15	10	20	15	25
6	10	2	9	6	17	12	25	19	33
10	14	2	10	6	19	13	26	21	35
14	18	3	12	8	21	15	28	23	37
18	24	4	14	10	23	17	30	25	39
24	30	5	16	11	24	19	35	29	46
30	40	6	18	13	29	23	40	34	53
40	50	6	19	14	31	25	44	37	57
50	65	7	21	16	36	30	50	45	69
65	80	8	24	18	40	35	60	54	83
80	100	9	27	22	48	42	70	64	96
100	120	10	31	25	56	50	83	75	114
120	140	10	38	30	68	60	100	90	135
140	150	-	-	-	-	70	120	-	-
15	180	-	-	-	-	80	130	-	-
180	200	-	-	-	-	90	150	-	-
200	220	-	-	-	-	100	165	-	-
220	240	-	-	-	-	110	180	-	-

Tab.1: Radial internal clearance of self-aligning ball bearings with cylindrical borebore

d [mm]		Radial clearance [µm]							
		C2		CN		C3		C4	
over	incl.	min.	max.	min.	max.	min.	max.	min.	max.
18	24	7	17	13	26	20	33	28	42
24	30	9	20	15	28	23	39	33	50
30	40	12	24	19	35	29	46	40	59
40	50	14	27	22	39	33	52	45	65
50	65	18	32	27	47	41	61	56	80
65	80	23	39	35	57	50	75	69	98
80	100	29	47	42	68	62	90	84	116
100	120	35	56	50	81	75	108	100	139

Tab.2: Radial internal clearance of self-aligning ball bearings with tapered bore

d [mm]		Radial internal clearance reduction [mm]		Minimun radial internal clearance after mounting [µm]		
				CN	C3	C4
over	incl.	min.	max.	min.	min.	min.
18	24	7	14	6	12	19
24	30	8	15	7	13	24
30	40	10	19	9	16	27
40	50	12	21	10	18	31
50	65	15	26	12	21	35
65	80	19	31	16	26	44
		0	0	0	0	0
80	100	23	37	19	31	53
100	120	28	45	23	36	63

Tab.3: Radial internal clearance reduction for self-aligning ball bearings with tapered bore

REDUCTION OF THE RADIAL INTERNAL CLEARANCE

During the insertion of the bearing on the tapered shaft, the inner ring expands and consequently the radial internal clearance of the bearing (see fig. A) tends to gradually reduce. The reduction of the bearing radial internal clearance is achieved by the difference between the radial internal clearance before and after the mounting.

Its initial value must be measured immediately before assembly (see fig. B) by the thickness gauge (see fig. C); subsequently, during the assembly phase on the tapered shaft, it is necessary to check it at regular intervals, until the desired radial internal clearance value is reached (see Tab.3).

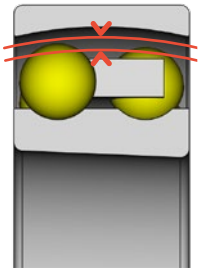


Figure A

Figure C

Figure B

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