



# Slim Series

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## DEEP GROOVE BALL BEARINGS



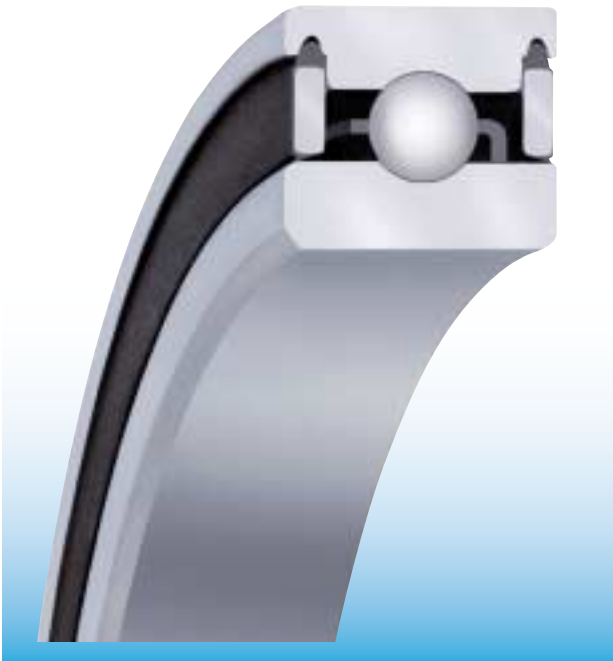
**KOYO SEIKO CO., LTD.**

CAT. NO.172E

# Slim Series DEEP GROOVE BALL BEARINGS

For size and weight reduction of equipment of OA facilities and various other machines. Series of slim type deep groove ball bearings to ISO standards.

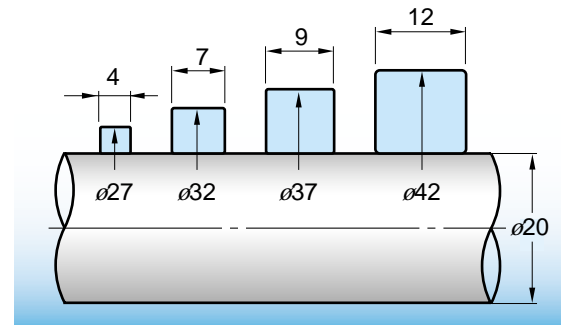
## Structures



Line-up of slim type ball bearings based on Koyo's reliable technologies and past experience.

### Comparison of bearing sizes

Bearing No.: 6704 6804 6904 6004



## Features

### Small size and light weight

In the most popular type of bearings, the 6000 series, the required space for their installation will be reduced to about 1/3.

### Low torque

Small cross-sectional area indicate that these bearings require low running torque. In addition, the 6700 bearing series incorporates particularly low-friction contact seals.

### Various sealing types

Wide choices are available in mounting methods and lubrication system, for shielded type, non-contact type sealed and contact type sealed bearing are provided.

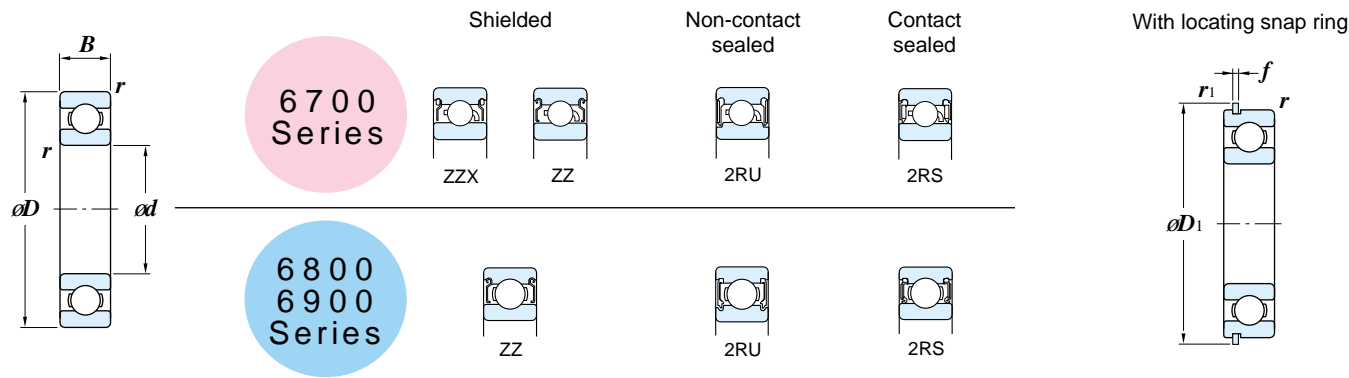
### Grease packed to meet your specific needs

The required quantity of general-purpose grease is packed in sealed bearings. Various types of grease are also available to meet the conditions of your specific applications. Representative types of grease and their applications are listed in Table 2.

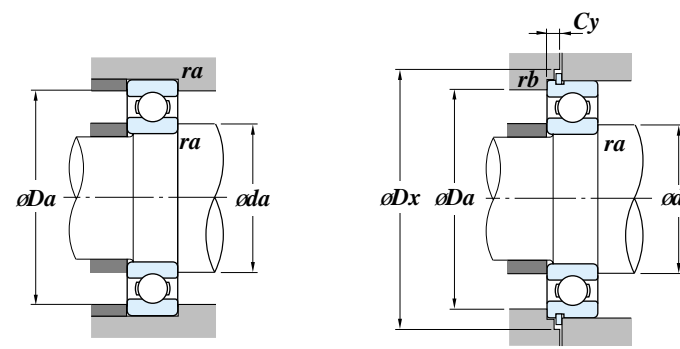
# Dimension Table

Boundary dimension

Series variation



Installation



Equivalent radial load

Dynamic equivalent radial load :  $P_r = XFr + YFa$  (For X and Y, see the Table below.)  
 Static equivalent radial load :  $P_0r = 0.6Fr + 0.5Fa$   
 (when  $P_0r < Fr$ ,  $P_0r = Fr$ )

Fa/Cor	e	Fa/Fr ≤ e		Fa/Fr > e	
		X	Y	X	Y
0.014	0.19	1	0	0.56	2.30
0.028	0.22				1.99
0.056	0.26				1.71
0.084	0.28				1.55
0.11	0.30				1.45
0.17	0.34				1.31
0.28	0.38				1.15
0.42	0.42				1.04
0.56	0.44				1.00

Boundary Dimensions (mm)					Basic Load Ratings (kN)		Limiting Speeds (rpm)			Bearing No.					Dimensions of Locating Snap Ring (mm)		Mounting Dimensions (mm)						(Ref.) Mass (kg)
d	D	B	r	r <sub>1</sub>	Cr	Cor	Grease lubrication		Oil lubrication	Open type	Shielded	Non-contact sealed	Contact sealed	With locating snap ring	D <sub>1</sub>	f	da	Da	Dx	Cy	ra	rb	(Open type)
			(min.)	(min.)			Open type (ZZX,ZZ,2RU)	(2RS)	Open type (ZZ)						(max.)	±0.05	(min.)	(max.)	(min.)	(max.)	(max.)	(max.)	
10	15	3	0.1	-	0.85	0.44	39000	25000	47000	<b>6700</b>	-	-	-	-	-	-	10.8	14.2	-	-	0.1	-	0.0015
	19	5	0.3	-	1.70	0.84	37000	22000	43000	<b>6800</b>	<b>6800 ZZ</b>	<b>6800 2RU</b>	<b>6800 2RS</b>	-	-	-	12	17	-	-	0.3	0.3	0.005
	22	6	0.3	0.3	2.70	1.25	34000	21000	41000	<b>6900</b>	<b>6900 ZZ</b>	<b>6900 2RU</b>	<b>6900 2RS</b>	<b>6900 NR</b>	24.8	0.65	12	20	25.5	1.5	0.3	0.3	0.010
12	18	4	0.2	-	0.92	0.53	34000	20000	41000	<b>6701</b>	<b>6701 ZZX</b>	<b>6701 2RU</b>	<b>6701 2RS</b>	-	-	-	13.6	16.4	-	-	0.2	-	0.003
	21	5	0.3	-	1.90	1.05	33000	20000	39000	<b>6801</b>	<b>6801 ZZ</b>	<b>6801 2RU</b>	<b>6801 2RS</b>	-	-	-	14	19	-	-	0.3	0.3	0.006
	24	6	0.3	0.3	2.90	1.45	31000	18000	36000	<b>6901</b>	<b>6901 ZZ</b>	<b>6901 2RU</b>	<b>6901 2RS</b>	<b>6901 NR</b>	26.8	0.65	14	22	27.5	1.5	0.3	0.3	0.011
15	21	4	0.2	-	0.93	0.58	29000	16000	35000	<b>6702</b>	<b>6702 ZZX</b>	<b>6702 2RU</b>	<b>6702 2RS</b>	-	-	-	16.6	19.4	-	-	0.2	-	0.004
	24	5	0.3	-	2.10	1.25	28000	16000	33000	<b>6802</b>	<b>6802 ZZ</b>	<b>6802 2RU</b>	<b>6802 2RS</b>	-	-	-	17	22	-	-	0.3	0.3	0.007
	28	7	0.3	0.3	4.30	2.25	26000	15000	30000	<b>6902</b>	<b>6902 ZZ</b>	<b>6902 2RU</b>	<b>6902 2RS</b>	<b>6902 NR</b>	30.8	0.8	17	26	31.5	1.9	0.3	0.3	0.017
17	23	4	0.2	-	0.99	0.66	27000	15000	32000	<b>6703</b>	<b>6703 ZZ</b>	<b>6703 2RU</b>	<b>6703 2RS</b>	-	-	-	18.6	21.4	-	-	0.2	-	0.005
	26	5	0.3	-	2.60	1.55	26000	14000	30000	<b>6803</b>	<b>6803 ZZ</b>	<b>6803 2RU</b>	<b>6803 2RS</b>	-	-	-	19	24	-	-	0.3	0.3	0.008
	30	7	0.3	0.3	4.60	2.55	23000	13000	28000	<b>6903</b>	<b>6903 ZZ</b>	<b>6903 2RU</b>	<b>6903 2RS</b>	<b>6903 NR</b>	33.2	0.8	19	28	33.5	1.9	0.3	0.3	0.018
20	27	4	0.2	-	1.05	0.73	23000	12000	27000	<b>6704</b>	<b>6704 ZZ</b>	<b>6704 2RU</b>	<b>6704 2RS</b>	-	-	-	21.6	25.4	-	-	0.2	-	0.006
	32	7	0.3	0.3	4.00	2.45	21000	12000	25000	<b>6804</b>	<b>6804 ZZ</b>	<b>6804 2RU</b>	<b>6804 2RS</b>	<b>6804 NR</b>	34.8	0.8	22	30	35.5	1.9	0.3	0.3	0.018
	37	9	0.3	0.3	6.35	3.70	19000	11000	23000	<b>6904</b>	<b>6904 ZZ</b>	<b>6904 2RU</b>	<b>6904 2RS</b>	<b>6904 NR</b>	39.8	0.8	22	35	40.5	2.3	0.3	0.3	0.036
25	32	4	0.2	-	1.10	0.84	19000	10000	22000	<b>6705</b>	<b>6705 ZZ</b>	<b>6705 2RU</b>	<b>6705 2RS</b>	-	-	-	26.6	30.4	-	-	0.2	-	0.006
	37	7	0.3	0.3	4.30	2.95	18000	10000	21000	<b>6805</b>	<b>6805 ZZ</b>	<b>6805 2RU</b>	<b>6805 2RS</b>	<b>6805 NR</b>	39.8	0.8	27	35	40.5	1.9	0.3	0.3	0.022
	42	9	0.3	0.3	7.00	4.55	16000	9300	19000	<b>6905</b>	<b>6905 ZZ</b>	<b>6905 2RU</b>	<b>6905 2RS</b>	<b>6905 NR</b>	44.8	0.8	27	40	45.5	2.3	0.3	0.3	0.041
30	37	4	0.2	-	1.15	0.95	16000	8800	19000	<b>6706</b>	<b>6706 ZZ</b>	<b>6706 2RU</b>	<b>6706 2RS</b>	-	-	-	31.6	35.4	-	-	0.2	-	0.008
	42	7	0.3	0.3	4.55	3.40	15000	8600	18000	<b>6806</b>	<b>6806 ZZ</b>	<b>6806 2RU</b>	<b>6806 2RS</b>	<b>6806 NR</b>	44.8	0.8	32	40	45.5	1.9	0.3	0.3	0.026
	47	9	0.3	0.3	7.25	5.00	14000	8200	17000	<b>6906</b>	<b>6906 ZZ</b>	<b>6906 2RU</b>	<b>6906 2RS</b>	<b>6906 NR</b>	49.8	0.8	32	45	50.5	2.3	0.3	0.3	0.045
35	47	7	0.3	0.3	4.75	3.85	13000	7400	16000	<b>6807</b>	<b>6807 ZZ</b>	<b>6807 2RU</b>	<b>6807 2RS</b>	<b>6807 NR</b>	49.8	0.8	37	45	50.5	1.9	0.3	0.3	0.030
	55	10	0.6	0.6	10.9	7.75	12000	6800	14000	<b>6907</b>	<b>6907 ZZ</b>	<b>6907 2RU</b>	<b>6907 2RS</b>	<b>6907 NR</b>	57.8	0.8	39	51	58.5	2.3	0.6	0.6	0.073
40	52	7	0.3	0.3	4.95	4.20	12000	6700	14000	<b>6808</b>	<b>6808 ZZ</b>	<b>6808 2RU</b>	<b>6808 2RS</b>	<b>6808 NR</b>	54.8	0.8	42	50	55.5	1.9	0.3	0.3	0.033
	62	12	0.6	0.6	13.7	9.95	11000	6100	13000	<b>6908</b>	<b>6908 ZZ</b>	<b>6908 2RU</b>	<b>6908 2RS</b>	<b>6908 NR</b>	64.8	0.8	44	58	65.5	2.3	0.6	0.6	0.112
45	58	7	0.3	0.3	6.20	5.40	11000	5900	13000	<b>6809</b>	<b>6809 ZZ</b>	<b>6809 2RU</b>	<b>6809 2RS</b>	<b>6809 NR</b>	60.8	0.8	47	56	61.5	1.9	0.3	0.3	0.040
	68	12	0.6	0.6	14.1	10.9	9700	5500	11000	<b>6909</b>	<b>6909 ZZ</b>	<b>6909 2RU</b>	<b>6909 2RS</b>	<b>6909 NR</b>	70.8	0.8	49	64	72	2.3	0.6	0.6	0.132
50	65	7	0.3	0.3	6.60	6.10	9600	5200	11000	<b>6810</b>	<b>6810 ZZ</b>	<b>6810 2RU</b>	<b>6810 2RS</b>	<b>6810 NR</b>	67.8	0.8	52	63	68.5	1.9	0.3	0.3	0.052
	72	12	0.6	0.6	14.5	11.7	9000	5000	11000	<b>6910</b>	<b>6910 ZZ</b>	<b>6910 2RU</b>	<b>6910 2RS</b>	<b>6910 NR</b>	74.8	0.8	54	68	76	2.3	0.6	0.6	0.133

## Dimension Stabilizing Treatment

When operating bearing over a long time at a temperature of over 120°C, normal heat treatment is insufficient to prevent dimension change.

Special heat treatment is required for stabilization of dimensions.

Table 1 shows codes and operating temperature range for special heat treatment.

Table 1 Dimension Stabilizing Treatment

Code	Operating Temperature Range
S0	Over 100°C up to 150°C
S1	Over 150°C up to 200°C
S2	Over 200°C up to 250°C

## Grease

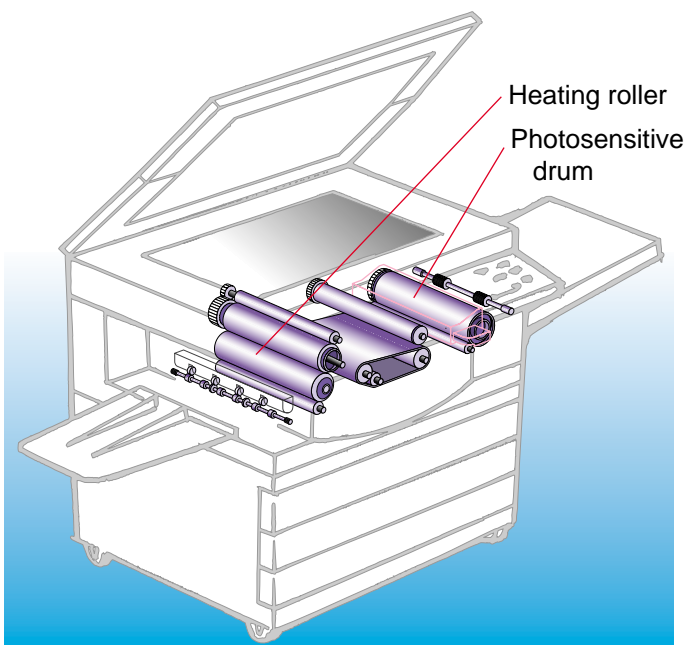
Table 2 shows typical grease for sealed or shielded bearings.

If bearings are to be operated under special conditions, please contact Koyo.

Table 2 Characteristics of Usual Grease and Its Application

Name of Grease	Maker	Thickener	Base Oil	Operating Temperature Range(°C)	Example of Application
ALVANIA 1	Showa Shell Sekiyu	Lithium soap	Mineral oil	- 20 to 80	Fishing reel
ALVANIA 2	Showa Shell Sekiyu	Lithium soap	Mineral oil	- 10 to 100	General purpose
MULTEMP SRL	Kyodo Yushi	Lithium soap	Ester oil	- 40 to 130	Wide operating temperature range
MOLYKOTE 44M	Dow Corning Toray Silicone	Lithium soap	Silicone oil	- 30 to 180	Heating roller of copying machine
BARRIERTA JFE552	NOK Clüber	Fluorinated polymer	Fluorinated oil	- 30 to 250	

## Application Example in Copying Machine



Slim series bearings are suitable for photosensitive drums, heating roller support, and other parts that require space-saving designs.



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