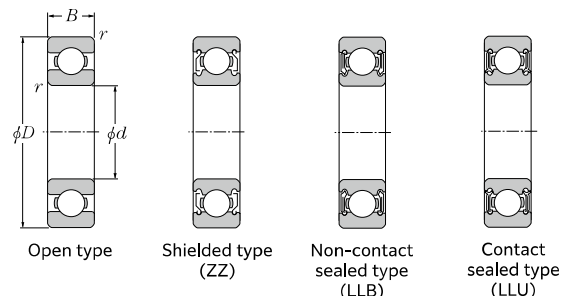


Deep Groove Ball Bearings

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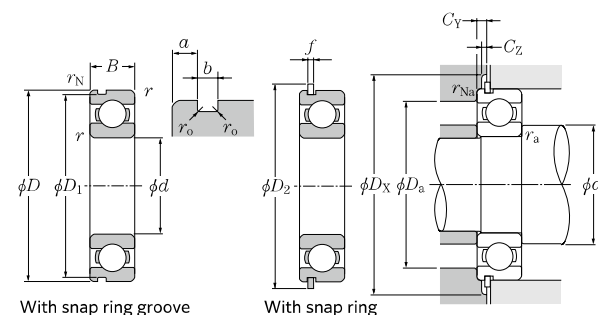
d 65 ~ 85mm

Boundary dimensions			Basic load rating		Fatigue load limit	Factor	Allowable speed			Bearing number		
mm			dynamic	static	kN		min ⁻¹					
d	D	B	r_{Ns} Min.	r_{Ns} Min.	C_r	C_{0r}	C_u	f_0	Grease Open type, ZZ, LLB Oil Open type, Z, LB LLU LU	Open type	Shielded or sealed type ²⁾ (See drawings)	
65	85	10	0.6	0.5	12.8	11.0	0.730	16.2	7 400	8 700	4 100	6813 ZZ LLB LLU
	90	13	1	0.5	19.3	16.1	1.07	16.6	7 000	8 200	4 000	6913 ZZ LLB LLU
	100	11	0.6	—	22.7	18.7	1.26	16.5	6 500	7 700	—	16013 — — —
	120	18	1.1	0.5	34.0	25.2	1.83	15.8	6 500	7 700	3 900	6013 ZZ LLB LLU
	140	23	1.5	0.5	63.5	40.0	3.15	14.4	5 500	6 500	3 600	6213 ZZ LLB LLU
	160	33	2.1	0.5	103	60.0	4.60	13.2	4 900	5 800	3 300	6313 ZZ LLB LLU
70	90	10	0.6	0.5	13.4	11.9	0.795	16.1	6 900	8 100	3 800	6814 ZZ LLB LLU
	100	16	1	0.5	26.3	21.2	1.45	16.3	6 500	7 700	3 700	6914 ZZ LLB LLU
	110	13	0.6	—	27.0	22.6	1.52	16.5	6 100	7 100	—	16014 — — —
	120	20	1.1	0.5	42.0	31.0	2.30	15.6	6 100	7 100	3 600	6014 ZZ LLB LLU
	140	25	1.5	0.5	69.0	44.0	3.45	14.5	5 100	6 000	3 400	6214 ZZ LLB LLU
	160	35	2.1	0.5	115	68.0	5.10	13.2	4 600	5 400	3 100	6314 ZZ LLB LLU
75	95	10	0.6	0.5	13.9	12.9	0.855	16.0	6 400	7 600	3 600	6815 ZZ LLB LLU
	105	16	1	0.5	27.0	22.6	1.52	16.5	6 100	7 200	3 500	6915 ZZ LLB LLU
	115	13	0.6	—	27.6	24.0	1.60	16.6	5 700	6 700	—	16015 — — —
	125	20	1.1	0.5	44.0	33.5	2.44	15.8	5 700	6 700	3 300	6015 ZZ LLB LLU
	140	25	1.5	0.5	73.5	49.5	3.80	14.7	4 800	5 600	3 200	6215 ZZ LLB LLU
	160	37	2.1	0.5	126	77.0	5.55	13.2	4 300	5 000	2 900	6315 ZZ LLB LLU
80	100	10	0.6	0.5	14.0	13.3	0.885	16.0	6 000	7 100	3 400	6816 ZZ LLB LLU
	110	16	1	0.5	27.6	24.0	1.59	16.6	5 700	6 700	3 200	6916 ZZ LLB LLU
	125	14	0.6	—	28.1	25.1	1.64	16.4	5 300	6 200	—	16016 — — —
	140	22	1.1	0.5	53.0	40.0	2.91	15.6	5 300	6 200	3 100	6016 ZZ LLB LLU
	160	26	2	0.5	80.5	53.0	3.95	14.6	4 500	5 300	3 000	6216 ZZ LLB LLU
	170	39	2.1	0.5	136	86.5	6.05	13.3	4 000	4 700	2 700	6316 ZZ LLB LLU
85	200	48	3	—	181	125	8.20	12.3	3 600	4 200	—	6416 — — —
	110	13	1	0.5	20.7	19.0	1.26	16.2	5 700	6 700	3 100	6817 ZZ LLB LLU
	120	18	1.1	0.5	35.5	29.6	1.99	16.4	5 400	6 300	3 000	6917 ZZ LLB LLU
	130	14	0.6	—	28.7	26.2	1.68	16.4	5 000	5 900	—	16017 — — —
	140	22	1.1	0.5	55.0	43.0	3.00	15.8	5 000	5 900	2 900	6017 ZZ LLB LLU
	150	28	2	0.5	92.0	64.0	4.60	14.7	4 200	5 000	2 800	6217 ZZ LLB LLU
85	180	41	3	0.5	147	97.0	6.55	13.3	3 800	4 500	2 600	6317 ZZ LLB LLU

1) Smallest allowable dimension for chamfer dimension r . 2) This bearing number is for double sealed and double shielded type bearings, but single sealed and single shielded type are also available. B-28

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Dynamic equivalent radial load
 $P_r = X F_r + Y F_a$

$f_0 \cdot F_a$ C_{0r}	e	$\frac{F_a}{F_r} \leq e$	$\frac{F_a}{F_r} > e$	
0.172	0.19	X	Y	2.30
0.345	0.22			1.99
0.689	0.26			1.71
1.03	0.28			1.55
1.38	0.30	1	0	1.45
2.07	0.34			1.31
3.45	0.38			1.15
5.17	0.42			1.04
6.89	0.44			1.00

Static equivalent radial load

$P_{0r} = 0.6 F_r + 0.5 F_a$
When $P_{0r} < F_r$ use $P_{0r} = F_r$.

Bearing number		Snap ring groove dimensions				Snap ring dimensions		Installation-related dimensions								Mass ⁵⁾
Groove / Snap ring ³⁾ (See drawings)		mm				mm		mm								kg
		D ₁ Max.	a Max.	b Min.	r _o Max.	D ₂ Max.	f Max.	Min.	d _a Max. ⁴⁾	D _a Max.	D _X (approx.)	C _Y Max.	C _Z Min.	r _{as} Max.	r _{Nas} Max.	(approx.)
N	NR	82.9	1.7	1.3	0.4	89.4	1.12	69	70	81	91	2.5	1.2	0.6	0.5	0.128
N	NR	87.9	2.1	1.3	0.4	94.4	1.12	70	71.5	85	96	2.9	1.2	1	0.5	0.206
—	—	—	—	—	—	—	—	69	—	96	—	—	—	0.6	—	0.307
N	NR	96.8	2.87	2.7	0.6	106.5	2.46	71.5	74	93.5	108	5	2.5	1	0.5	0.421
N	NR	115.21	4.06	3.1	0.6	129.7	2.82	73	80.5	112	131.5	6.5	2.9	1.5	0.5	0.99
N	NR	135.23	4.9	3.1	0.6	149.7	2.82	76	86	129	152	7.3	2.9	2	0.5	2.08
—	—	—	—	—	—	—	—	76	—	149	—	—	—	2	—	3.3
N	NR	87.9	1.7	1.3	0.4	94.4	1.12	74	75.5	86	96	2.5	1.2	0.6	0.5	0.137
N	NR	97.9	2.5	1.3	0.4	104.4	1.12	75	77.5	95	106	3.3	1.2	1	0.5	0.334
—	—	—	—	—	—	—	—	74	—	106	—	—	—	0.6	—	0.441
N	NR	106.81	2.87	2.7	0.6	116.6	2.46	76.5	80.5	103.5	118	5	2.5	1	0.5	0.604
N	NR	120.22	4.06	3.1	0.6	134.7	2.82	78	85	117	136.5	6.5	2.9	1.5	0.5	1.07
N	NR	145.24	4.9	3.1	0.6	159.7	2.82	81	92.5	139	162	7.3	2.9	2	0.5	2.52
—	—	—	—	—	—	—	—	83	—	167	—	—	—	2.5	—	4.83
N	NR	92.9	1.7	1.3	0.4	99.4	1.12	79	80	91	101	2.5	1.2	0.6	0.5	0.145
N	NR	102.6	2.5	1.3	0.4	110.7	1.12	80	82.5	100	112	3.3	1.2	1	0.5	0.353
—	—	—	—	—	—	—	—	79	—	111	—	—	—	0.6	—	0.464
N	NR	111.81	2.87	2.7	0.6	121.6	2.46	81.5	85.5	108.5	123	5	2.5	1	0.5	0.649
N	NR	125.22	4.06	3.1	0.6	139.7	2.82	83	90.5	122	141.5	6.5	2.9	1.5	0.5	1.18
N	NR	155.22	4.9	3.1	0.6	169.7	2.82	86	99	149	172	7.3	2.9	2	0.5	3.02
—	—	—	—	—	—	—	—	88	—	177	—	—	—	2.5	—	5.72
N	NR	97.9	1.7	1.3	0.4	104.4	1.12	84	85	96	106	2.5	1.2	0.6	0.5	0.154
N	NR	107.6	2.5	1.3	0.4	115.7	1.12	85	88	105	117	3.3	1.2	1	0.5	0.373
—	—	—	—	—	—	—	—	84	—	121	—	—	—	0.6	—	0.597
N	NR	120.22	2.87	3.1	0.6	134.7	2.82	86.5	91.5	118.5	136.5	5.3	2.9	1	0.5	0.854
N	NR	135.23	4.9	3.1	0.6	149.7	2.82	89	95.5	131	152	7.3	2.9	2	0.5	1.4
N	NR	163.65	5.69	3.5	0.6	182.9	3.1	91	105	159	185	8.4	3.1	2	0.5	3.59
—	—	—	—	—	—	—	—	93	—	187	—	—	—	2.5	—	6.76
N	NR	107.6	2.1	1.3	0.4	115.7	1.12	90	91	105	117	2.9	1.2	1	0.5	0.27
N	NR	117.6	3.3	1.3	0.4	125.7	1.12	91.5	94	113.5	127	4.1	1.2	1	0.5	0.536
—	—	—	—	—	—	—	—	89	—	126	—	—	—	0.6	—	0.626
N	NR	125.22	2.87	3.1	0.6	139.7	2.82	91.5	97	123.5	141.5	5.3	2.9	1	0.5	0.89
N	NR	145.24	4.9	3.1	0.6	159.7	2.82	94	103	141	162	7.3	2.9	2	0.5	1.79
N	NR	173.66	5.69	3.5	0.6	192.9	3.1	98	112	167	195	8.4	3.1	2.5	0.5	4.23

3) Sealed and shielded bearings are also available. 4) This dimension applies to sealed and shielded bearings. 5) Does not include bearings with snap rings. B-29