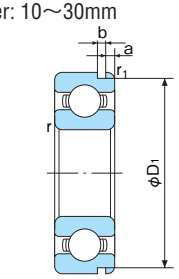
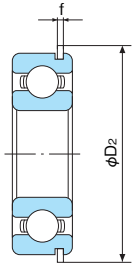
■ Deep-groove Ball Bearings

With snap ring groove / With snap ring / Shield type with snap ring

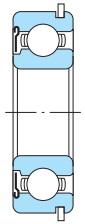
Bore Diameter: 10～30mm



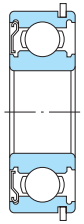
With snap ring groove (N)



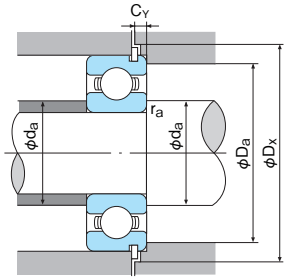
With snap ring (NR)



Shield type with snap ring (ZNR)



Shield type with snap ring (ZENR)



■Dynamic equivalent radial load
Pr=XFr+YFa

■Static equivalent radial load
Larger value of following to be used:
Por=0.6Fr+0.5Fa
Por=Fr

$\frac{f_0 Fa}{Cor}$	e	$\frac{Fa}{Fr} \leqq e$		$\frac{Fa}{Fr} > e$	
		X	Y	X	Y
0.172	0.19				2.30
0.345	0.22	1	0	0.56	1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30	1	0	0.56	1.45
2.07	0.34				1.31
3.45	0.38				1.15
5.17	0.42	1	0	0.56	1.04
6.89	0.44				1.00

1N=0.102kgf

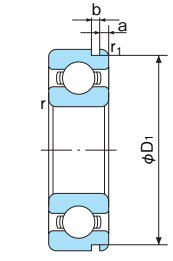
Boundary dimensions (mm)					Dimensions of snap ring groove and snap ring (mm)					Bearing No.(1)			Basic dynamic load rating Cr (N)	Basic static load rating Cor (N)	Factor fo	Limiting speed (min-1)		Abutment and fillet dimensions (mm)					Mass (kg)	Bearing No.
d	D	B	r (min)	r1 (min)	D1 (max)	a (max)	b (min)	D2 (max)	f (max)							Grease lubrication	Oil lubrication	da (min)	Da (max)	Dx (min)	ra (max)	CY (max)		
10	22	6	0.3	0.3	20.8	1.05	0.8	24.8	0.7	6900N	6900NR	6900ZENR	2490	1130	14.0	33000	38000	12	20	25.5	0.3	1.5	0.010	6900N
	30	9	0.6	0.5	28.17	2.06	1.35	34.7	1.12	6200N	6200NR	6200ZENR	5100	2390	13.2	25000	30000	15	25	35.5	0.6	2.9	0.032	6200N
	35	11	0.6	0.5	33.17	2.06	1.35	39.7	1.12	6300N	6300NR	6300ZENR	8100	3450	11.3	23000	27000	15	30	40.5	0.6	2.9	0.053	6300N
12	24	6	0.3	0.3	22.8	1.05	0.8	26.8	0.7	6901N	6901NR	6901ZENR	2700	1320	14.5	30000	36000	14	22	27.5	0.3	1.5	0.012	6901N
	28	8	0.3	0.3	26.7	1.35	0.93	31	0.85	6001N	6001NR	6001ZENR	5100	2390	13.5	28000	32000	14	26	31.5	0.3	1.9	0.024	6001N
	32	10	0.6	0.5	30.15	2.06	1.35	36.7	1.12	6201N	6201NR	6201ZENR	6800	3050	12.3	22000	28000	17	27	37.5	0.6	2.9	0.037	6201N
	37	12	1	0.5	34.77	2.06	1.35	41.3	1.12	6301N	6301NR	6301ZENR	9750	4250	11.2	20000	24000	18	31	42	1	2.9	0.060	6301N
15	28	7	0.3	0.3	26.7	1.3	0.95	30.8	0.85	6902N	6902NR	6902ZENR	4300	2250	14.3	26000	31000	17	26	31.5	0.3	1.8	0.017	6902N
	32	9	0.3	0.3	30.15	2.06	1.35	36.7	1.12	6002N	6002NR	6002ZENR	5600	2840	13.9	24000	28000	17	30	37.5	0.3	2.9	0.033	6002N
	35	11	0.6	0.5	33.17	2.06	1.35	39.7	1.12	6202N	6202NR	6202ZENR	7650	3700	13.1	20000	24000	20	30	40.5	0.6	2.9	0.045	6202N
	42	13	1	0.5	39.75	2.06	1.35	46.3	1.12	6302N	6302NR	6302ZENR	11400	5400	12.3	17000	21000	21	36	47	1	2.9	0.082	6302N
17	30	7	0.3	0.3	28.7	1.3	0.95	32.8	0.85	6903N	6903NR	6903ZENR	4600	2550	14.7	24000	29000	19	28	33.5	0.3	1.8	0.019	6903N
	35	10	0.3	0.3	33.17	2.06	1.35	39.7	1.12	6003N	6003NR	6003ZENR	6000	3250	14.3	22000	26000	19	33	40.5	0.3	2.9	0.041	6003N
	40	12	0.6	0.5	38.1	2.06	1.35	44.6	1.12	6203N	6203NR	6203ZENR	9550	4800	13.1	18000	21000	22	35	45.5	0.6	2.9	0.065	6203N
	47	14	1	0.5	44.6	2.46	1.35	52.7	1.12	6303N	6303NR	6303ZENR	13600	6550	12.3	16000	19000	23	41	53.5	1	3.3	0.115	6303N
20	32	7	0.3	0.3	30.7	1.3	0.95	34.8	0.85	6804N	6804NR	6804ZENR	4000	2640	15.5	22000	26000	22	30	35.5	0.3	1.8	0.020	6804N
	37	9	0.3	0.3	35.7	1.7	0.95	39.8	0.85	6904N	6904NR	6904ZENR	6350	3700	14.8	19000	23000	22	35	40.5	0.3	2.3	0.037	6904N
	42	12	0.6	0.5	39.75	2.06	1.35	46.3	1.12	6004N	6004NR	6004ZENR	9400	5000	13.9	18000	21000	24	38	47	0.6	2.9	0.069	6004N
	47	14	1	0.5	44.6	2.46	1.35	52.7	1.12	6204N	6204NR	6204ZENR	12800	6600	13.1	16000	18000	26	41	53.5	1	3.3	0.106	6204N
	52	15	1.1	0.5	49.73	2.46	1.35	57.9	1.12	6304N	6304NR	6304ZENR	15900	7900	12.4	14000	17000	27	45	58.5	1	3.3	0.144	6304N
22	50	14	1	0.5	47.6	2.46	1.35	55.7	1.12	62/22N	62/22NR	62/22ZNR	13900	6950	13.1	14000	17000	28	44	56.5	1	3.3	0.120	62/22N
	56	16	1.1	0.5	53.6	2.46	1.35	61.7	1.12	63/22N	63/22NR	63/22ZNR	18400	9250	12.4	13000	16000	29	49	62.5	1	3.3	0.176	63/22N
25	37	7	0.3	0.3	35.7	1.3	0.95	39.8	0.85	6805N	6805NR	6805ZENR	4300	2940	16.0	18000	22000	27	35	40.5	0.3	1.8	0.023	6805N
	42	9	0.3	0.3	40.7	1.7	0.95	44.8	0.85	6905N	6905NR	6905ZENR	7000	4500	15.3	16000	20000	27	40	45.5	0.3	2.3	0.044	6905N
	47	12	0.6	0.5	44.6	2.06	1.35	52.7	1.12	6005N	6005NR	6005ZENR	10100	5850	14.5	15000	18000	29	43	53.5	0.6	2.9	0.078	6005N
	52	15	1	0.5	49.73	2.46	1.35	57.9	1.12	6205N	6205NR	6205ZENR	14000	7900	13.9	13000	16000	31	46	58.5	1	3.3	0.128	6205N
	62	17	1.1	0.5	59.61	3.28	1.9	67.7	1.7	6305N	6305NR	6305ZENR	23600	12100	12.2	12000	14000	32	55	68.5	1	4.6	0.232	6305N
28	58	16	1	0.5	55.6	2.46	1.35	63.7	1.12	62/28N	62/28NR	62/28ZENR	17900	9750	13.1	12000	14000	34	52	64.5	1	3.3	0.175	62/28N
	68	18	1.1	0.5	64.82	3.28	1.9	74.6	1.7	63/28N	63/28NR	63/28ZNR	26800	14000	12.4	11000	13000	35	61	76	1	4.6	0.287	63/28N
30	42	7	0.3	0.3	40.7	1.3	0.95	44.8	0.85	6806N	6806NR	6806ZENR	5350	3800	16.4	15000	18000	32	40	45.5	0.3	1.8	0.027	6806N
	47	9	0.3	0.3	45.7	1.7	0.95	49.8	0.85	6906N	6906NR	6906ZENR	7250	5000	15.8	14000	17000	32	45	50.5	0.3	2.3	0.047	6906N
	55	13	1	0.5	52.6	2.08	1.35	60.7	1.12	6006N	6006NR	6006ZENR	13200	8300	14.8	13000	15000	35	50	61.5	1	2.9	0.113	6006N
	62	16	1	0.5	59.61	3.28	1.9	67.7	1.7	6206N	6206NR	6206ZENR	19500	11300	13.9	11000	13000	36	56	68.5	1	4.6	0.199	6206N
	72	19	1.1	0.5	68.81	3.28	1.9	78.6	1.7	6306N	6306NR	6306ZENR	26700	15000	13.2	10000	12000	37	65	80	1	4.6	0.346	6306N

Note: (1) Bearing No. ZE means one shield type, two shields type is also available.
Remark: Dimensions of snap ring groove and snap ring are shown on pages 45 to 48.

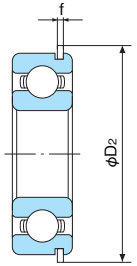
■ Deep-groove Ball Bearings

With snap ring groove / With snap ring / Shield type with snap ring

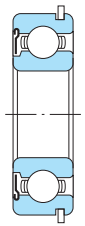
Bore Diameter: 32～60mm



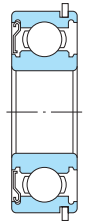
With snap ring groove (N)



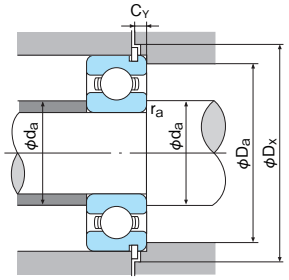
With snap ring (NR)



Shield type with snap ring (ZNR)



Shield type with snap ring (ZENR)



■Dynamic equivalent radial load
Pr=XFr+YFa

■Static equivalent radial load
Larger value of following to be used:
Por=0.6Fr+0.5Fa
Por=Fr

$\frac{f_0 Fa}{Cor}$	e	$\frac{Fa}{Fr} \leqq e$		$\frac{Fa}{Fr} > e$	
		X	Y	X	Y
0.172	0.19				2.30
0.345	0.22	1	0	0.56	1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30	1	0	0.56	1.45
2.07	0.34				1.31
3.45	0.38				1.15
5.17	0.42	1	0	0.56	1.04
6.89	0.44				1.00

1N=0.102kgf

Boundary dimensions (mm)					Dimensions of snap ring groove and snap ring (mm)					Bearing No.(1)			Basic dynamic load rating Cr (N)	Basic static load rating Cor (N)	Factor fo	Limiting speed (min-1)		Abutment and fillet dimensions (mm)						Mass (kg)	Bearing No.
d	D	B	r (min)	r1 (min)	D1 (max)	a (max)	b (min)	D2 (max)	f (max)							Grease lubrication	Oil lubrication	da (min)	Da (max)	Dx (min)	ra (max)	CY (max)		
32	65	17	1	0.5	62.6	3.28	1.9	70.7	1.7	62/32N	62/32NR	62/32ZNR	22400	13100	13.6	11000	12000	38	59	71.5	1	4.6	0.230	62/32N
	75	20	1.1	0.5	71.83	3.28	1.9	81.6	1.7	63/32N	63/32NR	63/32ZNR	30000	16200	12.7	9500	11000	39	68	83	1	4.6	0.382	63/32N
35	47	7	0.3	0.3	45.7	1.3	0.95	49.8	0.85	6807N	6807NR	6807ZENR	4750	3800	16.4	14000	16000	37	45	50.5	0.3	1.8	0.030	6807N
	55	10	0.6	0.5	53.7	1.7	0.95	57.8	0.85	6907N	6907NR	6907ZENR	10400	7150	15.6	12000	15000	39	51	58.5	0.6	2.3	0.075	6907N
	62	14	1	0.5	59.61	2.08	1.9	67.7	1.7	6007N	6007NR	6007ZENR	16000	10300	14.8	12000	14000	40	57	68.5	1	3.4	0.150	6007N
	72	17	1.1	0.5	68.81	3.28	1.9	78.6	1.6	6207N	6207NR	6207ZENR	25700	15300	13.8	9800	11000	42	65	80	1	4.6	0.288	6207N
	80	21	1.5	0.5	76.81	3.28	1.9	86.6	1.6	6307N	6307NR	6307ZENR	33500	19100	13.2	8800	10000	44	71	88	1.5	4.6	0.457	6307N
40	52	7	0.3	0.3	50.7	1.3	0.95	54.8	0.85	6808N	6808NR	6808ZENR	5950	4900	16.2	12000	14000	42	50	55.5	0.3	1.8	0.034	6808N
	62	12	0.6	0.5	60.7	1.7	0.95	64.8	0.85	6908N	6908NR	6908ZENR	13700	9950	15.8	11000	13000	44	58	65.5	0.6	2.3	0.110	6908N
	68	15	1	0.5	64.82	2.49	1.9	74.6	1.7	6008N	6008NR	6008ZENR	16800	11500	15.3	10000	12000	45	63	76	1	3.8	0.186	6008N
	80	18	1.1	0.5	76.81	3.28	1.9	86.6	1.7	6208N	6208NR	6208ZENR	29100	17900	14.0	8700	10000	47	73	88	1	4.6	0.366	6208N
	90	23	1.5	0.5	86.79	3.28	2.7	96.5	2.46	6308N	6308NR	6308ZENR	40500	24100	13.2	7800	9200	49	81	98	1.5	5.9	0.633	6308N
45	58	7	0.3	0.3	56.7	1.3	0.95	60.8	0.85	6809N	6809NR	6809ZENR	5350	4900	16.1	11000	13000	47	56	61.5	0.3	1.8	0.042	6809N
	68	12	0.6	0.5	66.7	1.7	0.95	70.8	0.85	6909N	6909NR	6909ZENR	14100	10900	16.1	10000	12000	49	64	72	0.6	2.3	0.124	6909N
	75	16	1	0.5	71.83	2.49	1.9	81.6	1.7	6009N	6009NR	6009ZENR	20900	15200	15.3	9200	11000	50	70	83	1	3.8	0.239	6009N
	85	19	1.1	0.5	81.81	3.28	1.9	91.6	1.7	6209N	6209NR	6209ZENR	32500	20500	14.1	7800	9300	52	78	93	1	4.6	0.407	6209N
	100	25	1.5	0.5	96.8	3.28	2.7	106.5	2.46	6309N	6309NR	6309ZENR	53000	32000	13.1	7000	8200	54	91	108	1.5	5.4	0.833	6309N
50	65	7	0.3	0.3	63.7	1.3	0.95	67.8	0.85	6810N	6810NR	6810ZENR	6400	5800	16.1	10000	12000	52	63	68.5	0.3	1.8	0.054	6810N
	72	12	0.6	0.5	70.7	1.7	0.95	74.8	0.85	6910N	6910NR	6910ZENR	14500	11700	16.1	9500	11000	54	68	76	0.6	2.3	0.127	6910N
	80	16	1	0.5	76.81	2.49	1.9	86.6	1.7	6010N	6010NR	6010ZENR	21800	16600	15.6	8500	10000	55	75	88	1	3.8	0.252	6010N
	90	20	1.1	0.5	86.79	3.28	2.7	96.5	2.46	6210N	6210NR	6210ZENR	35000	23200	14.4	7100	8600	57	83	98	1	5.4	0.463	6210N
	110	27	2	0.5	106.81	3.28	2.7	116.6	2.46	6310N	6310NR	6310ZENR	62000	38100	13.1	6400	7500	60	100	118	2	5.4	1.07	6310N
55	72	9	0.3	0.3	70.7	1.7	0.95	74.8	0.85	6811N	6811NR	6811ZNR	8800	8100	16.2	8700	10000	57	70	76	0.3	2.3	0.085	6811N
	80	13	1	0.5	77.9	2.1	1.3	84.4	1.12	6911N	6911NR	6911ZNR	16000	13200	16.2	8200	9600	60	75	86	1	2.9	0.180	6911N
	90	18	1.1	0.5	86.79	2.87	2.7	96.5	2.46	6011N	6011NR	6011ZENR	28300	21300	15.4	7700	9000	61	84	98	1	5	0.375	6011N
	100	21	1.5	0.5	96.8	3.28	2.7	106.5	2.46	6211N	6211NR	6211ZENR	43500	29300	14.4	6400	7700	64	91	108	1.5	5.4	0.607	6211N
	120	29	2	0.5	115.21	4.06	3.1	129.7	2.82	6311N	6311NR	6311ZENR	71500	44500	13.1	5800	6800	65	110	131.5	2	6.5	1.37	6311N
60	78	10	0.3	0.3	76.2	1.7	1.3	82.7	1.12	6812N	6812NR	6812ZNR	11500	10600	16.3	8000	9500	62	76	84	0.3	2.5	0.110	6812N
	85	13	1	0.5	82.9	2.1	1.3	89.4	1.12	6912N	6912NR	6912ZNR	15200	13500	16.5	7600	9000	65	80	91	1	2.9	0.195	6912N
	95	18	1.1	0.5	91.82	2.87	2.7	101.6	2.46	6012N	6012NR	6012ZENR	29400	23200	15.5	7100	8500	66	89	103	1	5	0.403	6012N
	110	22	1.5	0.5	106.81	3.28	2.7	116.6	2.46	6212N	6212NR	6212ZENR	52500	36000	14.3	6000	7100	69	101	118	1.5	5.4	0.783	6212N
	130	31	2.1	0.5	125.22	4.06	3.1	139.7	2.82	6312N	6312NR	6312ZENR	82000	52000	13.2	5400	6300	72	118	141.5	2	6.5	1.70	6312N

Note: (1) Bearing No. ZE means one shield type, two shields type is also available.
Remark: Dimensions of snap ring groove and snap ring are shown on pages 45 to 48.