Deep groove ball bearing

Deep groove ball bearings

HRB deep groove ball bearings are of non–separable type, in which the depth of the inner and outer ring grooves enables the bearings to accommodate radial loads, axial loads in either direction and combined loads, suitable at high speeds.

Single row basic design bearings

HRB manufactures different series of deep groove ball bearings of open basic design, shown Fig 1. There is no any special requirement of mounting and sealing for such bearings, widely used in machinery.

Bearings with shield(s) or seal(s)

In addition to open basic groove ball bearings, HRB also produces closed deep groove ball bearings to avoid independent relubrication as standard products to supply, i.e., with one shield (type Z), or two shields (type 2Z); with one seal (type RZ) or two seals (type 2RZ); RS1 and 2RS1 rubbing sealed bearings can be supplied as well. These bearings are filled with the correct quantity of grease while manufacturing, suitable for lower speeds. They must not be washed and relubricated before being mounted. This grease can keep bearings from rust and leaking. These bearings can serve many kinds of machines, especially suitable for poor enviroment which needs bearing to have self–sealed function. The quantity of grease is related to the bearing dimension and usage conditions, i.e., about 25 to 35% of the free space is filled with grease.

Bearings with snap ring groove and snap ring

HRB produces deep groove ball bearings with snap ring groove and snap ring in the outer ring (shown in Fig.5~8), which simplify the design of their housings, that is the bearing is located in the housing by snap ring. These bearings can be selected for the use of restricted space. The sizes of snap ring grooves and snap rings are listed in bearing tables.

Low noise bearings

HRB supplies low noise bearings, such as acceleration level low noise bearings with designation suffix Z1, Z2 and Z3, much lower with designation suffix Z4 to meet the silent requirement of air conditioner motors. High speed level low noise bearings can also be supplied, with designation suffix V1,V2 and V3. HRB can make more variances in every type deep groove ball bearings, on customer`s request. Various tolerance classes and vibration levels of these bearings can be provided as well.

Dimensions

The boundary dimensions of HRB deep groove ball bearings listed in bearing tables are in accordance with ISO15–1981. The dimensions of the snap ring grooves and snap rings are in conformity with ISO464–1976.

Fig. 1

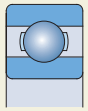
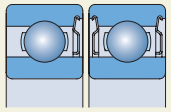
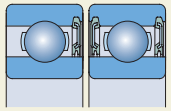


Fig. 2



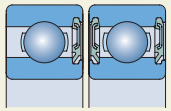
Z type 2Z type

Fig. 3



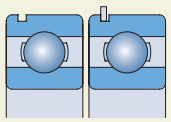
RZ type 2RZ type

Fig. 4



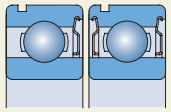
RS1 type 2RS1 type

Fig. 5



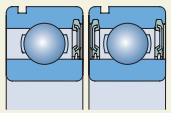
N type NR type

Fig. 6



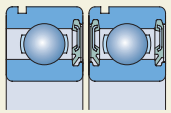
ZN type 2ZN type

Fig. 7



RZN type 2RZN type

Fig. 8



RS1N type 2RS1N type

Angular misalignment

Single row deep groove ball bearings have very limited capability to make self–alignment. The allowable angular misalignment between the inner and outer rings depends on the radial internal clearance of the running bearing, the bearing internal design and the forces and torques exering on it, while the max allowable angular error must be restricted in order to prevent from over stress arising. Because of the above–mentioned complicated relations among these factors, the exact value for the max angular misalignment can not be given, but under normal working conditions, it is usually between 2 and 10 minutes of radian. Precaution: the bearing noise level will be increased when the angular misalignment arise considerable between the inner and outer rings during bearings running.

Double row deep groove ball bearings can take 2 minutes of radian of angular misalignment. Large angular misalignment would increase the unacceptable load between the balls and grooves, so that bearing life is shortened.。

Tolerances

HRB standard deep groove ball bearings are made to normal tolerance class P0. And high precision products of tolerance classes P6, P5, P4 and P2 can also be supplied.

Internal clearance

HRB ordinary deep groove ball bearings have C0 group internal clearance. These products with radial internal clearance larger or small than the normal can also be available. HRB double row deep groove ball bearings are usually manufactured to normal level radial internal clearance. Among them back–to–back or face–to–face paired bearings are often supplied with two ways: less axial internal clearance with designation suffix CA, or light preload with designation suffix GA shown in Table Internal axial clearances and preloads for 60,62 and 63 series paired bearings are given in the below table.

Internal axial clearances and preloads for 60, 62 and 63 series paired bearings

Bore d		Internal axial clearance CA		Preload GA		
over	incl.	min	max	bearing series		
				60	62	63
mm		μm		N		
––	10	15	35	30	30	
10	18	20	40	50	50	100
18	30	25	45	100	100	100
30	50	35	55	100	100	100
50	80	40	70	200	200	350
80	120	50	80	300	400	600
120	180	60	100	500	700	900
180	250	70	110	800	1000	1200

On customers' request, the relevant data can be supplied for the large size bearings

Cages

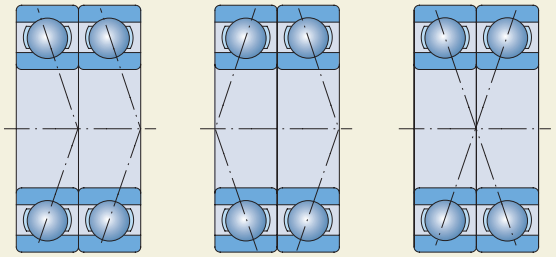
Bearings series	Pressed steel cage	Machined brass cage	Nylon 66 cage
––	bearing size(1)		
60	incl. 30	over 32	––
62	incl. 30	over 32	––
63	incl. 24	over 26	––
64	incl. 18	over 20	––
160	all	––	––
618	––	over 40	00~38
619	all		––
622	all		––
623	all		––

(1)The last two numbers in bearing designation

Usually deep groove ball bearings are fitted with a pressed ribbon cage, e.g.: nylon 66 or machined brass cages

Paired single row deep groove ball bearings

When the supporting capability of a single row deep groove ball bearing is not sufficient or a shaft has to be located in double directions with the same specified internal axial clearance, HRB can supply paired single row deep groove ball bearings on customer' s requirement. During manufacture, these bearings are matched in pairs so that an even load distribution will be obtained when mounted, in stead of using shims or other means to make adjustment. Depending on individual paired requirements, the following three arrangements of bearing pairs are available for different applications.



Tandem arrangement Suffix DT

Back–to–back arrangement, suffix DB

Face–to–face arrangement suffiex DF

In tandem arrangement, the load actions lines are parallel each other, so that the paired bearings can only carry axial loads in one direction which are distributed in each bearing. When any axial loads in the reverse direction need to be carried, a third bearing has to be added and adjusted against them.

In back–to–back arrangement, the load action lines diverge at the bearing axis, so that axial loads can be carried in either direction, but only by one bearing of the paired bearings. This arrangement is a more rigid bearing arrangement which can also take tilting moment.

In face–to–face arrangement, the load action lines converge at the bearing axis, so that axial loads can be carried in either direction, but only by one bearing of the paired bearings. This arrangement can not accommodate tilting moment. In order to ensure a defined position order of paired bearings for ready mounting, a symbol" V" is marked on the outer rings of each bearing pair. The bearing must be mounted in the order of its symbol" V" so as to achieve satisfied operation. These bearings are packaged in each defined pair for delivery.

Speeds of bearing pairs

The speeds given in bearing tables are only foe single bearings. The bearing pair can reach an operating speed, about 20% lower than the allowable operating speed of the single bearing.

Load carrying capacity of bearing pairs

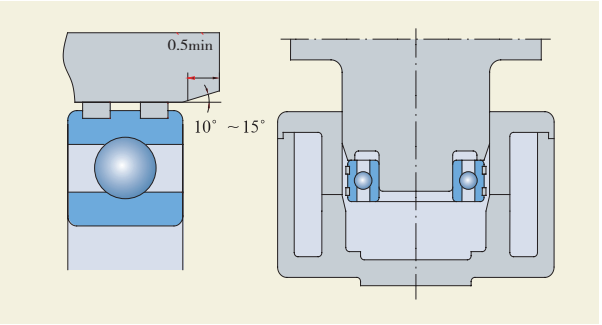
The basic dynamic load ratings and basic static load ratings given in bearing tables are only for single bearings. For bearing pairs, the basic dynamic load rating should be multiplied by 1.62, the basic static load rating multiplied by 2.

Expansion compensation for deep groove ball bearings

The boundary dimensions of these bearings are the same as relevant normal bearings, only additionally with circular grooves on the outer ring diameter surface which are filled with polymeric material of high expansion factor.

On design, the thermal expansion ratio of the polymeric material outside diameter must closely approach to that of the light metal bearing housing bore. Therefore, the bearings can be allowed greater expansion in wider temperature range without outer ring deformation when working in the light metal bearing housing.

While a deep groove ball bearing with expansion compensation is pressed into a bearing housing, never damage the polymeric material which is the key point. Hence, the inlet of the bearing housing bore has to be cornered 10 to 15° . And during mounting, tilting the bearing is not allowed; better to utilize the shown device to press it into the housing bore.



Heating or cooling mounting is not suitable for these bearings because the polymeric material would be spoiled. Additionally, the allowable load rating Cp (see bearing tables) of a bearing is decided on the basis of its outer ring strength. When selecting a bearing, the max load rating cannot be allowed to go beyond the Cp value.

In general, the C3 group internal clearance is adopted for the these bearings.

Double row deep groove ball bearings

The design of HRB double row deep groove ball bearings is similar to that of HRB single row deep groove ball bearings, without filling slot, so that they can carry axial loads in either direction.

Equivalent dynamic load

Deep groove ball bearings can generally carry radial and axial combined loads which have to be converted to equivalent dynamic load. The equivalent dynamic load not only depends on the ratio between the axial load and basic static load rating but also is under the influence of the radial internal clearance. The greater the radial internal clearance is, the greater the axial carrying ability becomes.

when $Fa/Fr > e$

$$P=XFr+YFa \qquad (KN)$$

when $Fa/Fr \leq e$

$$P=Fr \qquad (KN)$$

For back–to–back or face–to–face paired bearings

when $Fa/Fr > e$

$$P=0.75Fr+Y_2Fa \qquad (KN)$$

when $F_a/F_r \leqslant e$

$$P=F_r+Y_1F_a \quad (KN)$$

Where

P—equivalent dynamic load (KN)

F_r—radial load (KN)

F_a—axial load (KN)

X—radial load factor

Y, Y_1, Y_2–axial load factors (KN)

Equivalent static load

The equivalent static load is defined as that of hypothetical static load, which would have the same influence on the totally constant deformation magnitude of the contact portion between the rolling elements taking most of the loads, and the ring as actual loads if applied.

For single bearing or tandem paired bearings

$$P_0=0.6F_r+0.5F_a \quad (KN)$$

when $P_0<F_r$, $P_0=F_r$ (KN)

For back–to–back or face–to–face paired bearings

$$P_0=F_r+1.7F_a \quad (KN)$$

where P_0—equivalent static load (KN)

Radial load factor X and axial load factor Y for single row deep groove ball bearings.

Single bearing or tandem paired bearings

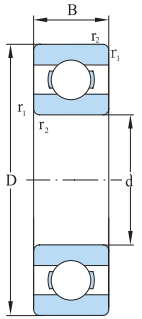
F_a/C_{or}	Normal clearance			C3 clearance			C4 clearance		
	e	X	Y	e	X	Y	e	X	Y
0.025	0.22	0.56	2.0	0.31	0.46	1.75	0.40	0.44	1.42
0.04	0.24	0.56	1.8	0.33	0.46	1.62	0.42	0.44	1.36
0.07	0.27	0.56	1.6	0.36	0.46	1.46	0.44	0.44	1.27
0.13	0.31	0.56	1.4	0.41	0.46	1.30	0.48	0.44	1.16
0.25	0.37	0.56	1.2	0.46	0.46	1.14	0.53	0.44	1.05
0.50	0.44	0.56	1.0	0.54	0.46	1.00	0.56	0.44	1.00

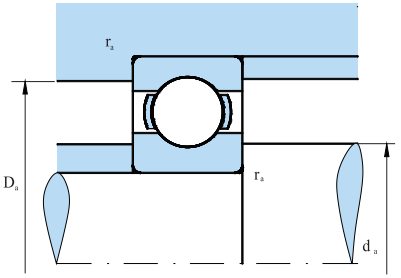
Calculation factors for single row deep groove ball bearings

Back–to–back or face–to–face paired bearings

F_a/C_{or}	e	Y_1	Y_2
0.03	0.32	2	2.8
0.1	0.4	1.55	2.2
0.25	0.47	1.3	1.85

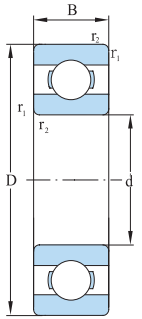
Deep groove ball bearings

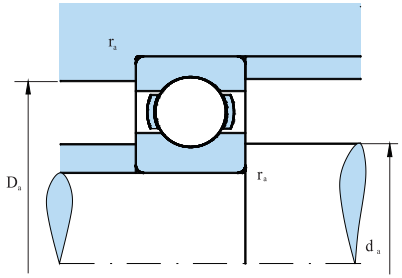




Designations	Boundary dimensions				Basic load ratings		Limiting speeds		Abutment and fillet dimensions			Mass
	d	D	B	$r_{1,2}$min	Cr	Cor	Grease	Oil	d_a min	D_a max	r_a max	
	mm				kN		r/min		min			kg
625	5	16	5	0.3	1.46	0.56	43000	50000	7	14	0.3	0.0051
635		19	6	0.3	2.24	0.863	36000	43000	7	17	0.3	0.009
606	6	17	6	0.3	2.19	0.865	38000	45000	8	15	0.3	0.0081
626		19	6	0.3	2.23	0.895	36000	43000	8	17	0.3	0.0083
636		22	7	0.3	3.3	1.35	32000	38000	8.6	19.4	0.3	0.013
607	7	19	6	0.3	2.24	0.895	38000	45000	9	17	0.3	0.0078
627		22	7	0.3	3.28	1.36	32000	38000	9	20	0.3	0.0124
637		26	6	0.3	3.34	1.35	30000	36000	9.6	23.4	0.3	0.024
608	8	22	7	0.3	3.28	1.36	36000	43000	10	20	0.3	0.0117
628		24	8	0.3	3.32	1.43	30000	36000	9.3	21	0.3	0.0172
638		28	9	0.3	3.53	1.94	28000	34000	10.6	25.4	0.3	0.027
609	9	24	7	0.3	3.32	1.43	32000	38000	11	22	0.3	0.0147
629		26	8	0.3	4.55	1.96	28000	34000	11	24	0.3	0.0194
639		30	10	0.6	5.1	2.23	24000	30000	12.6	25.8	0.3	0.034
61800 TN	10	19	5	0.3	1.83	0.924	36000	43000	12	17	0.3	0.0054
61900		22	6	0.3	1.95	0.75	34000	40000	12	20	0.3	0.01
6000		26	8	0.3	4.59	1.97	30000	36000	12	24	0.3	0.0197
6200		30	9	0.6	5.1	2.39	24000	30000	14	26	0.6	0.0317
6300		35	11	0.6	7.66	3.47	20000	26000	14	31	0.6	0.0551
61801 TN	12	21	5	0.3	1.91	1.04	32000	38000	14	19	0.3	0.0061
61901		24	6	0.3	2.25	0.98	30000	36000	14	22	0.3	0.011
6001		28	8	0.3	5.1	2.39	26000	32000	14	26	0.3	0.0215
16001		30	8	0.3	5.1	2.39	26000	32000	14	28	0.3	0.0192
6201		32	10	0.6	6.76	3.05	22000	28000	16	28	0.6	0.0366
6301		37	12	1	8.58	3.92	19000	24000	17	32	1	0.0633
61802 TN	15	24	5	0.3	2.08	1.26	28000	34000	17	22	0.3	0.0072
61802 TN		28	7	0.3	4.33	2.25	24000	30000	17	26	0.3	0.0155
61902		24	5	0.3	2.08	1.26	28000	34000	17	22	0.3	0.0072
6002		32	9	0.3	5.62	2.84	22000	28000	17	30	0.3	0.0308
6202		35	11	0.6	7.66	3.72	19000	24000	19	31	0.6	0.0452
6302			13	1	11.4	5.4	17000	20000	20	37	1	0.0827
61803TN	17	26	5	0.3	2.22	1.46	24000	30000	19	24	0.3	0.008

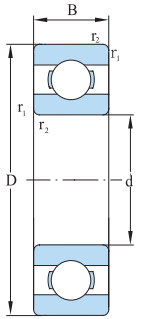
Deep groove ball bearings

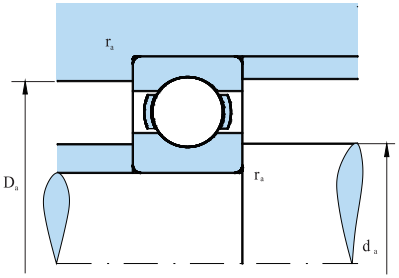




Designations	Boundary dimensions				Basic load ratings		Limiting speeds		Abutment and fillet dimensions			Mass
	d	D	B	$r_{1,2}$min	Cr	Cor	Grease	Oil	d_a min	D_a max	r_a max	
	mm				kN		r/min		min			kg
61903	17	30	7	0.3	4.6	2.55	22000	28000	19	28	0.3	0.0177
16003		35	8	0.3	6.5	3.36	19000	24000	19	33	0.3	0.0321
6003		35	10	0.3	6.5	3.36	19000	24000	19	33	0.3	0.0392
6203		40	12	0.6	10.3	4.79	17000	20000	21	36	0.6	0.0648
6303		47	14	1	13.5	6.55	16000	19000	22	42	1	0.116
6403		62	17	1.1	22.9	10.8	12000	15000	23.5	55.5	1	0.27
61804 TN	20	32	7	0.3	3.48	2.23	19000	24000	22	30	0.3	0.0181
61904		37	9	0.3	6.38	3.65	18000	22000	22	35	0.3	0.0377
16004		42	8	0.3	7.9	4.45	17000	20000	22	40	0.3	0.0506
6004		42	12	0.6	9.44	5.03	17000	20000	24	38	0.6	0.0698
6204		47	14	1	12.9	6.65	15000	18000	25	42	1	0.103
6304		52	15	1	16	7.88	13000	16000	26.5	45.5	1	0.146
6404		72	19	1	31.1	15.2	10000	13000	26.5	65.5	1	0.402
60/22	22	44	12	0.6	9.4	5.05	17000	20000	26	40	0.6	0.074
62/22		50	14	1	12.9	6.8	14000	16000	27	45	1	0.117
63/22		56	16	1.1	18.5	9.25	13000	16000	28.5	49.5	1	0.177
61805 TN	25	37	7	0.3	3.84	2.8	17000	20000	27	35	0.3	0.0218
61905		42	9	0.3	7.32	4.56	16000	19000	27	40	0.3	0.0433
16005		47	8	0.3	8.84	5.63	14000	17000	27	45	0.3	0.0583
6005		47	12	0.6	10.1	5.85	15000	18000	29	43	0.6	0.0804
6205		52	15	1	14	7.87	12000	15000	30	47	1	0.128
6305		62	17	1.1	22.5	11.5	11000	14000	31.5	55.5	1	0.227
6405		80	21	1.5	37.3	18.8	9000	11000	33	72	1.5	0.532
60/28	28	52	12	0.6	10.7	6.63	14000	16000	32	48	0.6	0.101
62/28		58	16	1	16.6	9.54	12000	14000	33	53	1	0.174
63/28		68	18	1.1	25	12.1	10000	13000	34.5	61.5	1	0.292
61806 TN	30	42	7	0.3	4.15	3.32	15000	18000	32	40	0.3	0.0255
61906		47	9	0.3	8.05	5.37	14000	17000	32	45	0.3	0.0486
16006		55	9	0.3	11.2	7.36	12000	15000	32	53	0.3	0.0885
6006		55	13	1	13.3	8.36	12000	15000	35	50	1	0.117
6206		62	16	1	19.5	11.3	10000	13000	35	57	1	0.203
6306		72	19	1.1	26.7	14.9	9000	11000	36.5	65.5	1	0.355

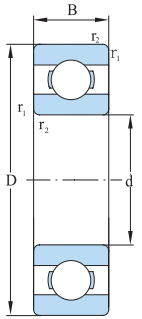
Deep groove ball bearings

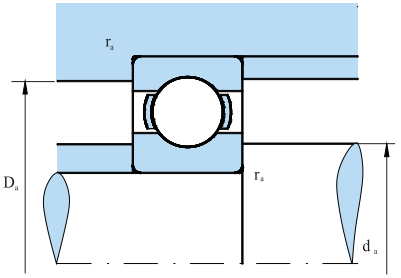




Designations	Boundary dimensions				Basic load ratings		Limiting speeds		Abutment and fillet dimensions			Mass
	d	D	B	$r_{1,2}$min	Cr	Cor	Grease	Oil	d_a min	D_a max	r_a max	
	mm				kN		r/min		min			kg
6406	30	90	23	1.5	47.3	24.5	8500	10000	38	82	1.5	0.731
60/32		58	13	1	13.3	8.39	12000	14000	37	53	1	0.129
62/32	32	65	17	1	21.2	12.5	10000	12000	37	60	1	0.231
63/32		75	20	1.1	29.9	17	9000	11000	38.5	68.5	1	0.392
61807 TN		47	7	0.3	4.29	3.6	13000	16000	37	45	0.3	0.0289
61907		55	10	0.6	9.54	6.83	11000	14000	39	51	0.6	0.0777
16007		62	9	0.3	13.1	9.12	10000	13000	37	60	0.3	0.11
6007	35	62	14	1	16	10.3	10000	13000	40	57	1	0.152
6207		72	17	1.1	25.6	15.5	9000	11000	41.5	65.5	1	0.285
6307		80	21	1.5	33.4	19.2	8500	10000	43	72	1.5	0.455
6407		100	25	1.5	55.3	31	7000	8500	43	92	1.5	0.925
61808 TN		52	7	0.3	4.52	4.1	11000	14000	42	50	0.3	0.0325
61908		62	12	0.6	12.2	8.9	10000	13000	44	58	0.6	0.114
16008		68	9	0.6	13.5	10	9500	12000	42	66	0.3	0.127
6008	40	68	15	1	16.8	11.6	9500	12000	45	63	1	0.189
6208		80	18	1.1	27.6	17.4	8500	10000	46.5	73.5	1	0.373
6308		90	23	1.5	40.8	24	7500	9000	48	82	1.5	0.641
6408		110	27	2	63.8	36.6	6700	8000	49	101	2	1.24
61809 TN		58	7	0.3	4.73	4.5	9500	12000	47	56	0.3	0.0408
61909		68	12	0.6	14.2	10.9	9000	11000	49	64	0.6	0.131
16009		75	10	0.6	15.6	12.2	9000	11000	49	71	0.6	0.167
6009	45	75	16	1	19.9	14	9000	11000	50	70	1	0.242
6209		85	19	1.1	31.2	20.4	7500	9000	51.5	78.5	1	0.42
6309		100	25	1.5	48.9	29.3	6700	8000	53	92	1.5	0.853
6409		120	29	2	72.9	42.6	6000	7000	54	111	2	1.56
61810 TN		65	7	0.3	4.93	4.94	9000	11000	52	63	0.3	0.0555
61910		72	12	0.6	14.6	11.7	8500	10000	54	68	0.6	0.139
16010		80	10	0.6	16.1	13.11	8500	10000	54	76	0.6	0.182
6010	50	80	16	1	20.7	15.4	8500	10000	55	75	1	0.262
6210		90	20	1.1	35.1	23.2	7000	8500	56.5	83.5	1	0.467
6310		110	27	2	57.6	35.3	6300	7500	59	101	2	1.1
6410		130	31	2.1	83.3	49.3	5300	6300	61	119	2	1.92

Deep groove ball bearings

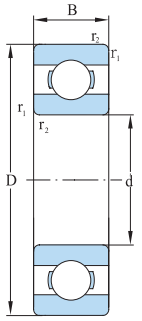


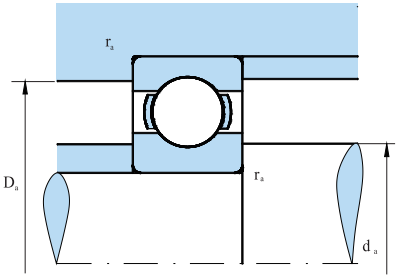


Designations	Boundary dimensions				Basic load ratings	
	d	D	B	$r_{1,2}$min	Cr	Cor
	mm				kN	
61811 TN	55	72	9	0.3	9.07	8.45
61911		80	13	1	18.9	15.1
16011		90	11	0.6	19.1	16.2
6011		90	18	1.1	26.7	20.1
6211		100	21	1.5	43.4	29.2
6311		120	29	2	71.6	44.8
6411		140	33	2.1	101	62.3
61812 TN	60	78	10	0.3	10.3	9.91
61912		85	13	1	19.4	16.2
16012		95	11	0.6	19.9	17.5
6012		95	18	1.1	30.2	23
6012 M		95	18	1.1	30.2	23
6212		110	22	1.5	47.8	32.9
6312		130	31	2.1	81.9	51.8
6412		150	35	2.1	109	70.1
61813 TN	65	85	10	0.6	10.8	10.7
61913		90	13	1	19.9	17.5
16013		100	11	0.6	20.7	18.6
6013		100	18	1.1	31.9	24.9
6013 M		100	18	1.1	31.9	24.9
6213		120	23	1.5	50.7	37.1
6313		140	33	2.1	92.8	59.7
6313 M		140	33	2.1	92.8	59.7
6413		160	37	2.1	118	78.6
61814 TN	70	90	10	0.6	11.2	11.5
61914		100	16	1	23.7	21.1
16014		110	13	0.6	24.3	22.5
6014		110	20	1.1	38.7	30.4
6014 M		110	20	1.1	38.7	30.4
6214		125	24	1.5	55.8	41.1
6314		150	35	2.1	104	68
6414		180	42	3	135	96.2

Limiting speeds		Abutment and fillet dimensions			Mass
Grease	Oil	d_a min	D_a max	r_a max	
r/min		min			kg
8500	10000	57	70	0.3	0.0806
8000	9500	60	75	1	0.18
7500	9000	59	86	0.6	0.267
7500	9000	61.5	83.5	1	0.382
6300	7500	63	92	1.5	0.609
5600	6700	64	111	2	1.35
5000	6000	66	129	2	2.3
7500	9000	62	76	0.3	0.101
7500	9000	65	80	1	0.193
6700	8000	64	91	0.6	0.285
6700	8000	66.5	88.5	1	0.399
6700	8000	66.5	88.5	1	0.497
6000	7000	68	102	1.5	0.804
5000	6000	71	119	2	1.71
4800	5600	71	139	2	2.78
7000	8500	69	81	0.6	0.127
6700	8000	70	85	1	0.206
6300	7500	69	96	0.6	0.303
6300	7500	71.5	93.5	1	0.416
6300	7500	71.5	93.5	1	0.553
5300	6300	73	112	1.5	1.04
4800	5600	76	129	2	2.11
5600	4800	76	129	2	2.11
4500	5300	76	149	2	3.36
6700	8000	74	86	0.6	0.135
6300	7500	75	95	1	0.342
6000	7000	74	106	0.6	0.447
6000	7000	76.5	103.5	1	0.586
6000	7000	76.5	103.5	1	0.757
5000	6000	78	117	1.5	1.12
4500	5300	81	139	2	2.55
3800	4500	83	167	2.5	4.95

Deep groove ball bearings

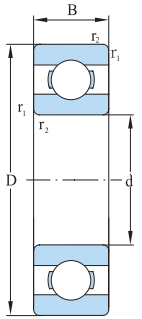


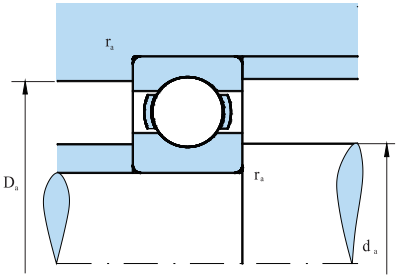


Designations	Boundary dimensions				Basic load ratings	
	d	D	B	$r_{1,2}$min	Cr	Cor
	mm				kN	
61815 TN	75	95	10	0.6	11.3	11.9
61915		105	16	1	23.4	22.5
16015		115	13	0.6	25	23.9
6015		115	20	1.1	40.3	33.2
6015 M		115	20	1.1	40.3	33.2
6215		130	25	1.5	60.8	45.4
6215 M		130	25	1.5	60.8	45.4
6315		160	37	2.1	113	77
6315 M		160	37	2.1	113	77
6415		190	45	3	153	114
61816 TN	80	100	10	0.6	11.6	12.7
61916		110	16	1	25	23.9
16016		125	14	0.6	31.9	29.7
6016		125	22	1.1	42.4	35.6
6016 M		125	22	1.1	42.4	35.6
6216		140	26	2	71.5	54.3
6316		170	39	2.1	123	86.5
6416		200	48	3	163	125
61817 TN	85	110	13	1	16	16.8
61917		120	18	1.1	31.9	29.7
16017		130	14	0.6	32.8	31.5
6017		130	22	1.1	47.3	40.1
6017 M		130	22	1.1	47.3	40.1
6217		150	28	2	77.2	59.3

Limiting speeds		Abutment and fillet dimensions			Mass
Grease	Oil	d_a min	D_a max	r_a max	
r/min		min			kg
6300	7500	79	91	0.6	0.143
6000	7000	80	100	1	0.362
5600	6700	79	111	0.6	0.471
5600	6700	81.5	108.5	1	0.617
5600	6700	81.5	108.5	1	0.804
4800	5600	83	122	1.5	1.2
4800	5600	83	122	1.5	1.45
4300	5000	86	149	2	3.05
4300	5000	86	149	2	3.77
3600	4300	88	177	2.5	6.8
6000	7000	84	96	0.6	0.152
5600	6700	85	105	1	0.382
5300	6300	84	121	0.6	0.606
5300	6300	86.5	118.5	1	0.858
5300	6300	86.5	118.5	1	1.08
4500	5300	89	131	2	1.45
3800	4500	91	159	2	3.61
3400	4000	93	187	2.5	8
5300	6300	90	105	1	0.268
5300	6300	91.5	113.5	1	0.525
5000	6000	89	126	0.6	0.63
5000	6000	91.5	123.5	1	0.88
5000	6000	91.5	123.5	1	1.12
4300	5000	94	141	2	1.83

Deep groove ball bearings

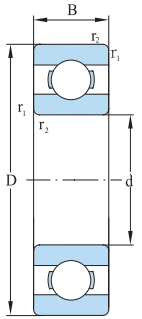


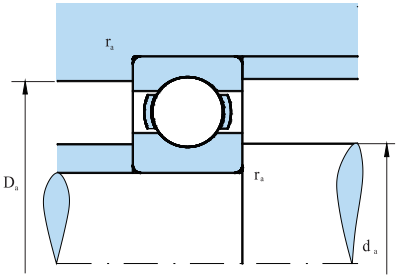


Designations	Boundary dimensions				Basic load ratings	
	d	D	B	$r_{1,2}$min	Cr	Cor
	mm				kN	
6217 M	85	150	28	2	77.2	59.3
6317		180	41	3	133	96.6
6417		210	52	4	174	137
61818 TN	90	115	13	1	16.5	18
61918		125	18	1.1	32.8	31.5
61918 M		125	18	1.1	32.8	31.5
16018		140	16	1	42.5	39.2
16018 M		140	16	1	42.5	39.2
6018		140	24	1.5	52.3	45.1
6018 M		140	24	1.5	52.3	45.1
6218		160	30	2	96.1	71.5
6318		190	43	3	143	107
6418		225	54	4	186	150
61819 TN	95	120	13	1	18.6	18.6
61919		130	18	1.1	33.7	33.3
16019		145	16	1	43.9	42
6019		145	24	1.5	58	50.1
6219 M		170	32	2.1	109	81.7
6219		170	32	2.1	109	81.7
6319		200	45	3	153	118
6419		240	55	4	203	170
6419 M		240	55	4	203	170
61820 TN	100	125	13	1	16.9	19.1
61920		140	20	1.1	43.9	42
61920 M		140	20	1.1	43.9	42
16020		150	16	1	46.3	44.8
6020		150	24	1.1	63.7	50.4
6020 M		150	24	1.1	63.7	50.4
6220		180	34	2.1	122	92.7
6320		215	47	3	173	140
6420		250	58	4	224	195
6420 M		250	58	4	224	195

Limiting speeds		Abutment and fillet dimensions			Mass
Grease	Oil	d_a min	D_a max	r_a max	
r/min		min			kg
4300	5000	94	141	2	1.91
3600	4300	98	167	2.5	4.3
3200	3800	101	194	3	9.5
5300	6300	95	110	1	0.282
5000	6000	96.5	118.5	1	0.559
5000	6000	96.5	118.5	1	0.68
4800	5600	95	135	1	0.845
4800	5600	95	135	1	0.941
4800	5600	98	132	1.5	1.16
4800	5600	98	132	1.5	1.39
3800	4500	99	151	2	2.18
3400	4000	103	177	2.5	5
3000	3600	106	209	3	11.5
5000	6000	100	115	1	0.295
4800	5600	101.5	123.5	1	0.586
4500	5300	100	140	1	0.884
4500	5300	103	137	1.5	1.18
3600	4300	106	159	2	3.26
3600	4300	106	159	2	2.64
3200	3800	108	187	2.5	5.78
3000	3500	113	222	3	13.4
3000	3500	113	222	3	13.4
4800	5600	105	120	1	0.308
4500	5300	106.5	133.5	1	0.786
4500	5300	106.5	133.5	1	0.96
4300	5000	105	145	1	0.912
4300	5000	108	142	1.5	1.22
4300	5000	108	169	2	1.4
3400	4000	111	169	2	3.15
3000	3600	113	202	2.5	7.11
2900	3400	118	232	3	12.8
2900	3400	118	232	3	15.4

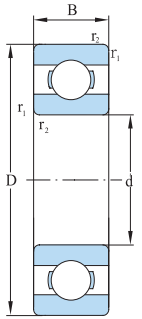
Deep groove ball bearings

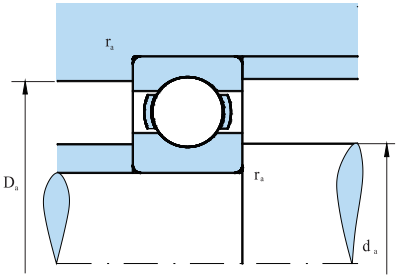




Designations	Boundary dimensions				Basic load ratings		Limiting speeds		Abutment and fillet dimensions			Mass
	d	D	B	$r_{1,2}$min	Cr	Cor	Grease	Oil	d_a min	D_a max	r_a max	
	mm				kN		r/min		min			kg
61821 TN	105	130	13	1	17.4	20.4	4500	5300	110	125	1	0.323
61921		145	20	1.1	46.3	44.8	4300	5000	111.5	138.5	1	0.805
16021		160	18	1	52	51	4000	4800	110	155	1	1.2
6021		160	26	2	69.8	61.2	4000	4800	114	151	2	1.56
6021 M		160	26	2	69.8	61.2	4000	4800	114	151	2	1.92
6221		190	36	2.1	133	104	3200	3800	116	179	2	3.82
6321		225	49	3	182	153	2800	3400	118	212	2.5	8.25
61822 TN	110	140	16	1	24.3	27.2	4300	5000	115	135	1	0.499
61922		150	20	1.1	47.8	47.7	4000	4800	116.5	143.5	1	0.84
16022		170	19	1	57.2	57	3800	4500	115	165	1	1.45
6022		170	28	2	75.1	67.3	3800	4500	119	161	2	1.96
6022 M		170	28	2	75.1	67.3	3800	4500	119	162	2	2.72
6222		200	38	2.1	144	117	3000	3600	121	189	2	4.45
6222 M		200	38	2.1	144	117	3000	3600	121	189	2	5.46
6322		240	50	3	203	180	2600	3200	123	227	2.5	9.55
61824 TN	120	150	16	1	25	26	3800	4500	125	145	1	0.54
61924		165	22	1.1	57.2	56.9	3600	4300	126.5	158.5	1	1.15
61924 M		165	22	1.1	57.2	56.9	3600	4300	126.5	158.5	1	1.54
16024		180	19	1	60.5	64	3400	4000	125	175	1	1.6
16024 M		180	19	1	60.5	64	3400	4000	125	171	1	1.82
6024		180	28	2	88.3	79.7	3400	4000	129	171	2	2.05
6024 M		180	28	2	88.3	79.7	3400	4000	129	171	2	2.68
6224		215	40	2.1	156	131	2800	3400	131	204	2	5.3
6224 M		215	40	2.1	156	131	2800	3400	131	204	2	6.33
6324		260	55	3	208	186	2400	3000	133	247	2.5	14.5
61826 TN	130	165	18	1.1	32.5	34	3600	4300	136.5	158.5	1	0.774
61926 M		180	24	1.5	69.4	70	3400	4000	138	172	1.5	1.92
61926		180	24	1.5	69.4	70	3400	4000	138	172	1.5	1.51
16026		200	22	1.1	79.3	81.5	3200	3800	136.5	193.5	1	2.42
16026 M		200	22	1.1	79.3	81.5	3200	3800	136.5	193.5	1	2.42
6026		200	33	2	102	93.9	3200	3800	139	191	2	3.16
6026 M		200	33	2	102	93.9	3200	3800	139	191	2	3.96

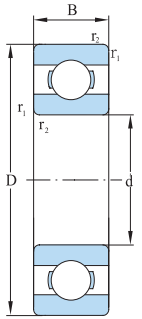
Deep groove ball bearings

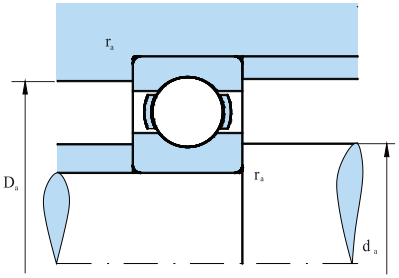




Designations	Boundary dimensions				Basic load ratings		Limiting speeds		Abutment and fillet dimensions			Mass
	d	D	B	$r_{1,2}$min	Cr	Cor	Grease	Oil	d_a min	D_a max	r_a max	
	mm				kN		r/min		min			kg
6226	130	230	40	3	166	148	2600	3200	143	217	2.5	6.14
6326		280	58	4	229	216	2200	2800	146	264	3	18
6326 M		280	58	4	229	216	2200	2800	146	264	3	18.3
61828 TN	140	175	18	1.1	34	36.5	3400	4000	146.5	168.5	1	0.828
61828 M		175	18	1.1	34	36.5	3400	4000	146.5	168.5	1	0.93
61928		190	24	1.5	71.2	74.6	3200	3800	148	182	1.5	1.6
16028		210	22	1.1	80.6	86.5	3000	3600	146.5	203.5	1	3.08
16028 M		210	22	1.1	80.6	86.5	3000	3600	146.5	203.5	1	2.5
6028		210	33	2	115	109	3000	3600	149	201	2	3.25
6028 M		210	33	2	115	109	3000	3600	149	201	2	3.89
6228		250	42	3	165	150	2400	3000	153	237	2.5	7.45
6228 M		250	42	3	165	150	2400	3000	153	237	2.5	9.44
6328		300	62	4	251	245	2000	2600	156	284	3	22
6328 M		300	62	4	251	245	2000	2600	156	284	3	22.3
61830 TN	150	190	20	1.1	42.5	44	3000	3600	156.5	183.5	1	1.12
61930		210	28	2	88.4	93	2800	3400	159	201	2	3.05
16030		225	24	1.1	92.3	98	2600	3200	156.5	218.5	1	3.15
6030		225	35	2.1	125	125	2600	3200	161	214	2	4.8
6030 M		225	35	2.1	125	125	2600	3200	161	214	2	5.01
6230		270	45	3	174	166	2000	2600	163	257	2.5	9.4
6230 M		270	45	3	174	166	2000	2600	163	257	2.5	11.8
6330		320	65	4	276	285	1900	2400	166	304	3	26
6330 M		320	65	4	276	285	1900	2400	166	304	3	26.4
61832 TN	160	200	20	1.1	44	48	2800	3400	166.5	193.5	1	1.19
61932		220	28	2	92.3	98	2600	3200	169	211	2	3.25
16032		240	25	1.5	99.5	108	2400	3000	168	232	1.5	3.7
16032 M		240	25	1.5	99.5	108	2400	3000	168	232	1.5	4.61
6032		240	38	2.1	143	143	2400	3000	171	229	2	5.9
6032 M		240	38	2.1	143	143	2400	3000	171	229	2	6.41
6232		290	48	3	186	186	1900	2400	173	277	2.5	14.5
6232 M		290	48	3	186	186	1900	2400	173	277	2.5	14.6
6332		340	68	4	312	285	1800	2200	176	324	3	29

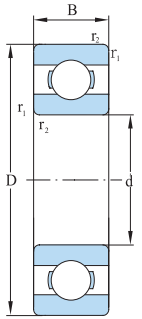
Deep groove ball bearings

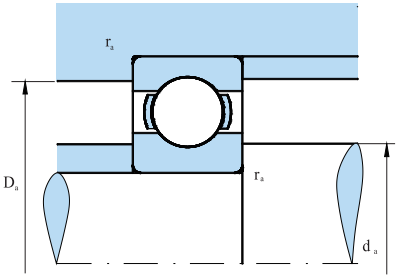




Designations	Boundary dimensions				Basic load ratings		Limiting speeds		Abutment and fillet dimensions			Mass
	d	D	B	$r_{1,2}$min	Cr	Cor	Grease	Oil	d_a min	D_a max	r_a max	
	mm				kN		r/min		min			kg
6332 M	160	340	68	4	312	285	1800	2200	176	324	3	31.1
61834 TN	170	215	22	1.1	54	58.5	2600	3200	176.5	208.5	1	1.56
61834 M		215	22	1.1	54	58.5	2600	3200	176.5	208.5	1	1.87
61934		230	28	2	93.6	106	2400	3000	179	221	2	3.4
61934 M		230	28	2	93.6	106	2400	3000	179	221	2	5.19
16034		260	28	1.5	119	129	2200	2800	178	252	1.5	5
16034 M		260	28	1.5	119	129	2200	2800	178	252	1.5	5.83
6034		260	42	2.1	168	173	2200	2800	181	249	2	7.9
6034 M		260	42	2.1	168	173	2200	2800	181	249	2	8.23
6234		310	52	4	212	224	1900	2400	186	294	3	17.5
6234 M		310	52	4	212	224	1900	2400	186	294	3	18.4
6334		360	72	4	312	340	1700	2000	186	344	3	34.5
6334 M		360	72	4	312	340	1700	2000	186	344	3	34.9
61836 TN	180	225	22	1.1	56	63	2400	3000	186.5	218.5	1	1.65
61936		250	33	2	119	134	2200	2800	189	241	2	5.05
61936 M		250	33	2	119	134	2200	2800	189	241	2	5.27
16036		280	31	2	138	146	2000	2600	189	271	2	6.6
6036		280	46	2.1	190	200	2000	2600	191	269	2	10.5
6036 M		280	46	2.1	190	200	2000	2600	191	269	2	10.7
6236		320	52	4	229	240	1800	2200	196	304	3	18.5
6336		380	75	4	351	405	1600	2000	196	364	3	42.5
61838 TN	190	240	24	1.5	67	73.5	2200	2800	198	232	1.5	2.12
61838 M		240	24	1.5	67	73.5	2200	2800	198	232	1.5	2.38
61938		260	33	2	117	134	2200	2800	199	251	2	5.25
61938 M		260	33	2	117	134	2200	2800	199	251	2	5.85
16038		290	31	2	148	166	2000	2600	199	281	2	7.9
16038 M		290	31	2	148	166	2000	2600	199	281	2	8.11
6038		290	46	2.1	195	216	2000	2600	201	279	2	11
6038 M		290	46	2.1	195	216	2000	2600	201	279	2	11.1
6238		340	55	4	255	280	1700	2000	206	324	3	23
6238 M		340	55	4	255	280	1700	2000	206	324	3	23.2
6338		400	78	5	371	430	1600	1900	210	380	4	49

Deep groove ball bearings

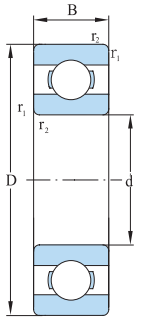


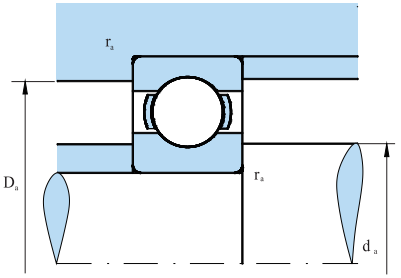


Designations	Boundary dimensions				Basic load ratings	
	d	D	B	$r_{1,2}$min	Cr	Cor
	mm				kN	
61840 M	200	250	24	1.5	76.1	102
61940		280	38	2.1	148	106
16040		310	34	2	168	190
16040 M		310	34	2	168	190
6040		310	51	2.1	216	245
6040 M		310	51	2.1	216	245
6240		360	58	4	270	310
61844 M	220	270	24	1.5	78	110
61944		300	38	2.1	151	180
61944 M		300	38	2.1	151	180
61944 X1M		309.5	38	2.1	151	180
16044		340	37	2.1	174	204
6044		340	56	3	247	290
6044 M		340	56	3	247	290
6244		400	65	4	296	365
61848 M	240	300	28	2	108	150
61948		320	38	2.1	159	200
61948 M		320	38	2.1	159	200
16048		360	37	2.1	178	220
6048		360	56	3	255	315
6048 M		360	56	3	255	315
6048 X1M		359.5	56	3	255	315
61852 M	260	320	28	2	111	163
61952		360	46	2.1	212	270
16052		400	44	3	238	310
6052		400	65	4	291	375
6052 M		400	65	4	291	375
61856 M	280	350	33	2	138	200
61956		380	46	2.1	216	285
61956 M		380	46	2.1	216	285
61956 X1M–1		390	46	4	216	285
61860 M	300	380	38	2.1	172	245

Limiting speeds		Abutment and fillet dimensions			Mass
Grease	Oil	d_a min	D_a max	r_a max	
r/min		min			kg
2200	2800	208	242	1.5	2.7
2000	2600	211	269	2	7.4
1900	2400	209	301	2	8.85
1900	2400	209	301	2	10.3
1900	2400	211	299	2	14
1900	2400	211	299	2	14.3
1700	2000	216	344	3	28
1900	2400	228	262	1.5	3
1900	2400	231	289	2	8
1900	2400	231	289	2	8.5
1900	2400	231	289.5	2	9.3
1800	2200	231	329	2	11.5
1800	2200	233	327	2.5	18.5
1800	2200	233	327	2.5	18.8
1500	1800	236	384	3	37
1800	2200	249	291	2	4.5
1800	2200	251	309	2	8.6
1800	2200	251	309	2	8.9
1700	2000	251	349	2	14.5
1700	2000	253	347	2.5	19.5
1700	2000	253	347	2.5	20.7
1700	2000	253	346.5	2.5	20.7
1700	2000	269	311	2	4.8
1600	1900	271	349	2	14.5
1500	1800	273	387	2.5	21.5
1500	1800	276	384	3	29.5
1500	1800	276	384	3	29.8
1600	1900	289	341	2	7.4
1500	1800	291	369	2	15.5
1500	1800	291	369	2	15.6
1500	1800	291	379	2	17.6
1400	1700	311	369	2	10.5

Deep groove ball bearings



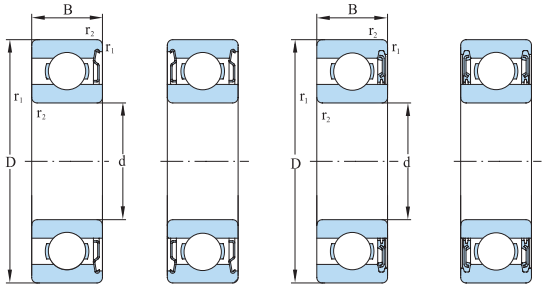


Designations	Boundary dimensions				Basic load ratings	
	d	D	B	$r_{1,2}$min	Cr	Cor
	mm				kN	
61864 M	320	400	38	2.1	172	255
61864		412	38	2.5	164	292
61964		440	56	3	214	395
6064		480	74	4	265	510
61968	340	460	56	3	282	420
61872	360	440	38	2.1	126	242
6072 F1		540	82	5	310	620
61876 F1	380	480	46	2.1	214	314
61976		520	65	4	266	550
61980 F3	400	540	65	4	273	582
6080 F1		600	90	5	370	780
61984 F1/C9	420	560	65	4	247	395
61984 F1		560	65	4	247	395
61988 F3	440	600	74	4	292	648
6088		650	94	6	390	880
61992 F3	460	620	74	4	299	678
619/500X3F1	500	660	75	5	304	716
60/500		720	100	6	415	1020
60/560N1MAS/C9	560	820	115	6	600	1500
160/800X2F1	800	1150	115	7.5	650	2080
618/850F1	850	1030	82	5	428	1303
618/1000F1	1000	1220	100	6	525	1720
618/1180F1	1180	1420	106	6	710	2580
618/1240X1	1240	1480	112	6	715	2660

Limiting speeds		Abutment and fillet dimensions			Mass
Grease	Oil	d_a min	D_a max	r_a max	
r/min		min			kg
1300	1600	311	389	2	11
1300	1600	332	400	2.5	12.7
1300	1600	333	427	2.5	24.9
1100	1400	336	464	3	50.3
1100	1400	353	447	2.5	27
1100	1400	351	429	2	12.2
1000	1300	380	520	4	64.7
1000	1300	391	469	2	19
1000	1300	396	504	3	39.8
950	1200	416	524	3	39.4
900	1100	420	580	4	86.5
900	1100	436	544	3	41.9
900	1100	436	544	3	41.9
900	1100	456	584	3	60.5
850	1000	466	624	5	108
850	1000	476	604	3	63
750	900	520	650	4	68.8
750	900	526	694	5	135
630	750	586	794	5	208
500	550	820	1130	6	427
450	530	870	1010	4	144
340	400	1026	1194	5	230
320	360	1206	1394	5	310
300	340	1266	1454	5	356

Deep groove ball bearing

with shield(s) or seal(s)



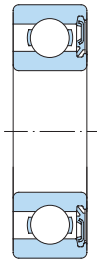
Z
With one shield

2Z
With two shields

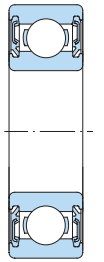
RZ
With one seal

2RZ
With two seals

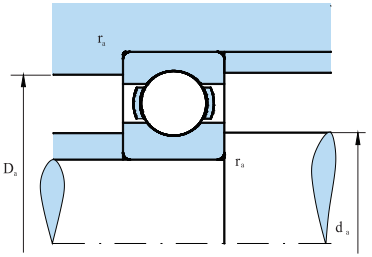
Designations						Boundary dimensions				Basic load ratings	
						d	D	B	$r_{1,2}$min	Cr	Cor
–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	mm				kN	
625–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	5	16	5	0.3	1.46	0.56
635–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		19	6	0.3	2.24	0.863
626–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	6	19	6	0.3	2.23	0.895
636–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		22	7	0.3	3.3	1.35
607–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	7	19	6	0.3	2.24	0.895
627–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		22	7	0.3	3.28	1.36
637–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		26	9	0.3	3.34	1.35
608–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	8	22	7	0.3	3.28	1.36
628–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		24	8	0.3	3.32	1.43
638–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		28	9	0.3	3.53	1.94
609–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	9	24	7	0.3	3.32	1.43
629–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		26	8	0.3	4.55	1.96
639–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		30	10	0.6	5.1	2.23
61800–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	10	19	5	0.3	1.83	0.924
61900–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		22	6	0.3	1.95	0.75
6000–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		26	8	0.3	4.59	1.97
6200–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		30	9	0.6	5.1	2.39
6300–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		35	11	0.6	7.66	3.47
61801–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	12	21	5	0.3	1.91	1.04
61901–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		24	6	0.3	2.25	0.98
6001–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		28	8	0.3	5.1	2.39
6201–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		32	10	0.6	6.76	3.05
6301–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		37	12	1	8.58	3.92
61802–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	15	24	5	0.3	2.08	1.26
61902–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		28	7	0.3	4.33	2.25
6002–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		32	9	0.3	5.62	2.84
6202–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		35	11	0.6	7.66	3.72
6302–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		42	13	1	11.4	5.4
61803–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	17	26	5	0.3	2.22	1.46
61903–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		30	7	0.3	4.6	2.55
6003–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		35	10	0.3	6.5	3.36
6203–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		40	12	0.6	10.3	4.79



RS1
With one seal



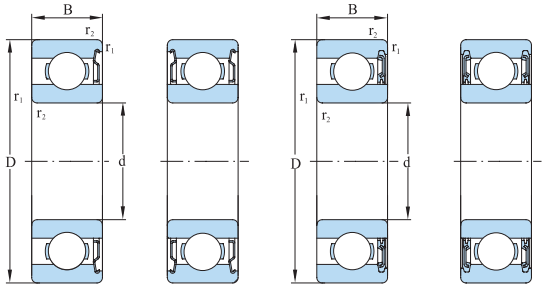
2RS1
With two seals



Limiting speeds			Abutment and fillet dimensions			Mass
Grease		Oil	$d_a$min	$D_a$max	$r_a$max	
2Z 2RZ	2RS1					
r/min			mm			kg
43000		50000	7	14	0.3	0.005
36000		43000	7	17	0.3	0.009
36000	22000	43000	8	17	0.3	0.0084
30000	20000	37000	8.6	19.4	0.3	0.013
43000	22000	50000	9	17	0.3	0.0078
32000	20000	38000	9	20	0.3	0.0126
27000	18000	33000	9.6	23.4	0.3	0.024
36000	20000	43000	10	20	0.3	0.0119
31000	18000	36000	9.3	21	0.3	0.0172
26000	16000	31000	10.6	25.4	0.3	0.027
32000	19000	38000	11	22	0.3	0.0148
28000	18000	34000	11	24	0.3	0.0193
23000	16000	29000	12.6	25.8	0.5	0.034
36000	20000	43000	12	17.5	0.3	0.0055
34000	19000	40000	12	20	0.3	0.01
30000	19000	36000	12	24	0.3	0.0197
24000	17000	30000	14	26	0.6	0.0317
20000	15000	26000	14	31	0.6	0.0548
32000	19000	38000	14	19	0.3	0.0063
30000	18000	36000	14	22	0.3	0.011
26000	17000	32000	14	26	0.3	0.0215
22000	15000	28000	16	28	0.6	0.0364
19000	14000	24000	17	32	1	0.0629
28000	17000	34000	17	22.5	0.3	0.0074
24000	16000	30000	17	26	0.3	0.0155
22000	14000	28000	17	30	0.3	0.0307
19000	13000	24000	19	31	0.6	0.0451
17000	12000	20000	20	37	1	0.0826
24000	16000	30000	19	24	0.3	0.0082
22000	14000	28000	19	28	0.3	0.0177
19000	13000	24000	19	33	0.3	0.0392
17000	12000	20000	21	36	0.6	0.0649

Deep groove ball bearing

with shield(s) or seal(s)



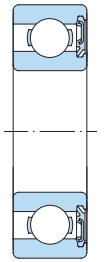
Z
With one shield

2Z
With two shields

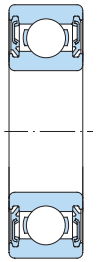
RZ
With one seal

2RZ
With two seals

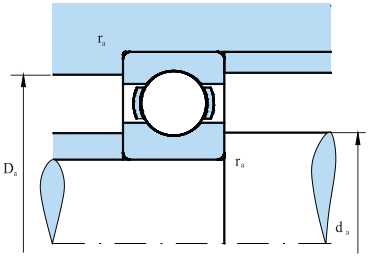
Designations						Boundary dimensions				Basic load ratings	
						d	D	B	$r_{1,2}$min	Cr	Cor
–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	mm				kN	
6303–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	17	47	14	1	13.5	6.55
61804–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	20	32	7	0.3	3.48	2.23
61904–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		37	9	0.3	6.38	3.65
6004–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		42	12	0.6	9.44	5.03
6204–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		47	14	1	12.99	6.65
6304–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		52	15	1.1	16	7.88
60/22–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	22	44	12	0.6	9.4	5.05
62/22–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		50	14	1	12.9	6.8
63/22–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		56	16	1.1	18.5	9.25
61805–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	25	37	7	0.3	3.84	2.8
61905–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		42	9	0.3	7.32	4.56
6005–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		47	12	0.6	10.1	5.85
6205–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		52	15	1	14	7.87
6305–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		62	17	1.1	22.5	11.6
60/28–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	28	52	12	0.6	10.7	6.63
62/28–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		58	16	1	16.6	9.54
63/28–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		68	18	1.1	25	12.1
61806–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	30	42	7	0.3	4.15	3.32
61906–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		47	9	0.3	8.05	5.37
6006–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		55	13	1	13.3	8.36
6206–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		62	16	1	19.5	11.3
6306–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		72	19	1.1	26.7	14.9
60/32–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	32	58	13	1	13.3	8.39
62/32–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		65	17	1	21.2	12.5
63/32–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		75	20	1.1	29.9	17
61807–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	35	47	7	0.3	4.29	3.6
61907–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		55	10	0.6	9.54	6.83
6007–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		62	14	1	16	10.3
6207–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		72	17	1.1	25.6	15.5
6307–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		80	21	1.5	33.4	19.2
61808–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	40	52	7	0.3	4.52	4.1
61908–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		62	12	0.6	12.2	8.9



RS1
With one seal



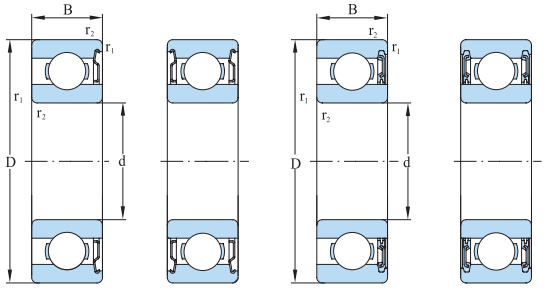
2RS1
With two seals



Limiting speeds			Abutment and fillet dimensions			Mass
Grease		Oil	$d_a$min	$D_a$max	$r_a$max	
2Z 2RZ	2RS1					
r/min			mm			kg
16000	11000	19000	22	42	1	0.116
19000	13000	24000	22	30	0.3	0.0178
18000	12000	22000	22	35	0.3	0.0377
17000	11000	20000	24	38	0.6	0.0693
15000	10000	18000	25	42	1	0.103
13000	9500	16000	26.5	45.5	1	0.146
17000	10000	20000	26	40	0.6	0.074
14000	9700	16000	27	45	1	0.117
13000	9200	16000	28.5	49.5	1	0.178
17000	11000	20000	27	35	0.3	0.022
16000	10000	19000	27	40	0.3	0.0434
15000	9500	18000	29	43	0.6	0.0804
12000	8500	15000	30	47	1	0.128
11000	7500	14000	31.5	55.5	1	0.227
14000	8400	16000	32	48	0.6	0.101
12000	8100	14000	33	53	1	0.174
10000	7400	13000	34.5	61.5	1	0.293
15000	9500	18000	32	40	0.3	0.026
14000	8500	17000	32	45	0.3	0.0488
12000	8000	15000	35	50	1	0.117
10000	7500	13000	35	57	1	0.203
9000	6300	11000	36.5	65.5	1	0.356
12000	7200	14000	37	53	1	0.129
10000	7100	12000	37	60	1	0.231
9000	6500	11000	38.5	68.5	1	0.392
13000	8000	16000	37	45	0.3	0.03
11000	7500	14000	39	51	0.6	0.0776
10000	7000	13000	40	57	1	0.152
9000	6300	11000	41.5	65.5	1	0.286
8500	6000	10000	43	72	1.5	0.456
11000	7500	14000	42	50	0.3	0.033
10000	6700	13000	44	58	0.6	0.114

Deep groove ball bearing

with shield(s) or seal(s)



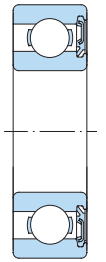
Z
With one shield

2Z
With two shields

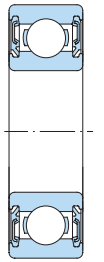
RZ
With one seal

2RZ
With two seals

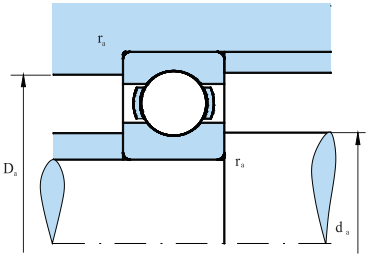
Designations						Boundary dimensions				Basic load ratings	
						d	D	B	$r_{1,2}$min	Cr	Cor
–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	mm				kN	
6008–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	40	68	15	1	16.8	11.6
6208–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		80	18	1.1	27.6	17.4
6308–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		90	23	1.5	40.8	24
61809–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	45	58	7	0.3	4.73	4.5
61809–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		68	12	0.6	14.2	10.9
6009–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		75	16	1	19.9	14
6209–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		85	19	1.1	31.2	20.4
6309–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		100	25	1.5	48.9	29.3
61810–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	50	65	7	0.3	4.93	4.94
61910–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		72	12	0.6	14.6	10.4
6010–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		80	16	1	20.7	15.4
6210–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		90	20	1.1	35.1	23.2
6310–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		110	27	2	57.5	35.3
61811–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	55	72	9	0.3	9.07	8.45
61911–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		80	13	1	18.9	15.1
6011–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		90	18	1.1	26.7	20.1
6211–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		100	21	1.5	43.4	29.2
6311–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		120	29	2	71.6	44.8
61812–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	60	78	10	0.3	10.3	9.91
61912–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		85	13	1	19.4	16.2
6012–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		95	18	1.1	30.2	23
6212–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		110	22	1.5	47.8	32.9
6312–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		130	31	2.1	81.9	51.8
61813–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	65	85	10	0.6	10.8	10.7
61913–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		90	13	1	19.9	17.5
6013–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		100	18	1.1	31.9	24.9
6213–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		120	23	1.5	50.7	37.1
6313–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		140	33	2.1	92.8	59.7
61814–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	70	90	10	0.6	11.2	11.5
61914–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		100	16	1	23.7	21.1
6014–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		110	20	1.1	38.7	30.4
6214–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		125	24	1.5	55.8	41.1



RS1
With one seal



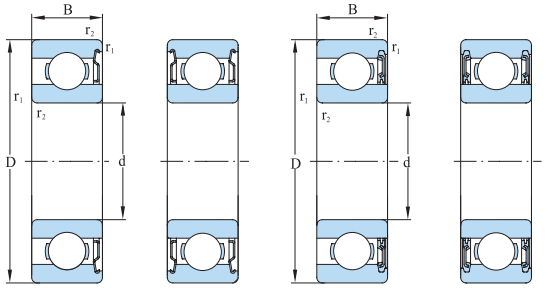
2RS1
With two seals



Limiting speeds			Abutment and fillet dimensions			Mass
Grease		Oil	$d_a$min	$D_a$max	$r_a$max	
2Z 2RZ	2RS1					
r/min			mm			kg
9500	6300	12000	45	63	1	0.189
8500	5600	10000	46.5	73.5	1	0.375
7500	5000	9000	48	82	1.5	0.645
9500	6700	12000	47	56	0.3	0.04
9000	6000	11000	49	64	0.6	0.131
9000	5600	11000	50	70	1	0.242
7500	5000	9000	51.5	78.5	1	0.423
6700	4500	8000	53	92	1.5	0.858
9000	6000	11000	52	63	0.3	0.052
8500	5600	10000	54	68	0.6	0.139
8500	5000	10000	55	75	1	0.262
7000	4800	8500	56.5	83.5	1	0.47
6300	4300	7500	59	101	2	1.1
8500	5300	10000	57	70	0.3	0.083
8000	5000	9500	60	75	1	0.18
7500	4500	9000	61.5	83.5	1	0.382
6300	4300	7500	63	92	1.5	0.612
5600	3800	6700	64	111	2	1.38
7500	4800	9000	62	76	0.3	0.106
7500	4500	9000	65	80	1	0.193
6700	4300	8000	66.5	88.5	1	0.399
6000	4000	7000	68	102	1.5	0.809
5000	3400	6000	71	119	2	1.72
7000	4500	8500	68.5	81	0.6	0.128
6700	4300	8000	70	85	1	0.206
6300	4000	7500	71.5	93.5	1	0.417
5300	3600	6300	73	112	1.5	1.05
4800	3200	5600	76	129	2	2.12
6700	4300	8000	73.5	86	0.6	0.137
6300	4000	7500	75	95	1	0.342
6000	3600	7000	76.5	103.5	1	0.59
5000	3400	6000	78	117	1.5	1.12

Deep groove ball bearing

with shield(s) or seal(s)



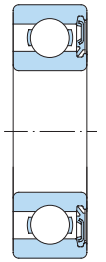
Z
With one shield

2Z
With two shields

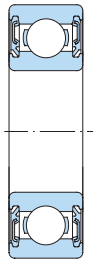
RZ
With one seal

2RZ
With two seals

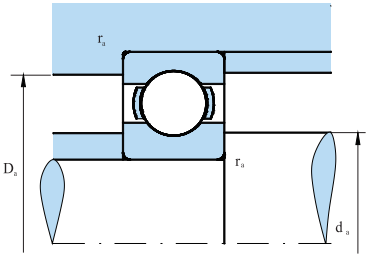
Designations						Boundary dimensions				Basic load ratings	
						d	D	B	$r_{1,2}$min	Cr	Cor
–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	mm				kN	
6314–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	70	150	35	2.1	104	68
61815–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		95	10	0.6	11.3	11.9
61915–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		105	16	1	23.4	22.5
6015–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	75	115	20	1.1	40.3	33.2
6215–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		130	25	1.5	60.8	45.4
6315–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		160	37	2.1	113	77
61816–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		100	10	0.6	11.6	12.7
61916–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		110	16	1	25	23.9
6016–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	80	125	22	1.1	42.4	35.6
6216–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		140	26	2	71.5	54.3
6316–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		170	39	2.1	123	86.5
61817–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		110	13	1	16	16.8
61917–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		120	18	1.1	31.9	29.7
6017–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	85	130	22	1.1	47.3	40.1
6217–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		150	28	2	77.2	59.3
6317–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		180	41	3	133	96.6
61818–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		115	13	1	16.5	18
61918–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		125	18	1	32.8	31.5
6018–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	90	140	24	1.5	52.8	45.1
6218–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		160	30	2	96.1	71.5
6318–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		190	43	3	143	107
61819–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		120	13	1	18.6	18.6
61919–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		130	18	1.1	33.7	33.3
6019–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	95	145	24	1.5	58	50.1
6219–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		170	32	2.1	109	81.7
6319–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		200	45	3	153	118
61820–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		125	13	1	16.9	19.1
61920–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		140	20	1.1	43.9	42
6020–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	100	150	24	1.5	63.7	50.4
6220–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		180	34	2.1	122	92.7
6320–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		215	47	3	173	140
61821–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	105	130	13	1	17.4	20.4



RS1
With one seal



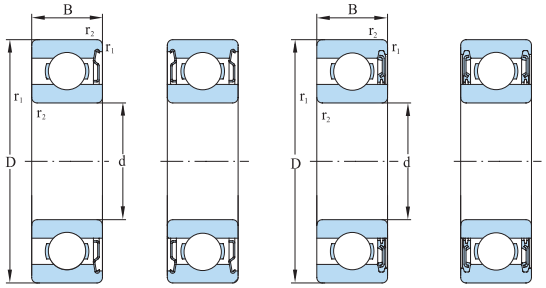
2RS1
With two seals



Limiting speeds			Abutment and fillet dimensions			Mass
Grease		Oil	$d_a$min	$D_a$max	$r_a$max	
2Z 2RZ	2RS1					
r/min			mm			kg
4500	3000	5300	81	139	2	2.56
6300	4000	7500	79	91	0.6	0.145
6000	3600	7000	80	100	1	0.364
5600	3400	6700	81.5	108.5	1	0.621
4800	3200	5600	83	122	1.5	1.2
4300	2800	5000	86	149	2	3.06
6000	3600	7000	84	96	0.6	0.154
5600	3400	6700	85	105	1	0.384
5300	3200	6300	86.5	118.5	1	0.862
4500	3000	5300	89	131	2	1.46
3800	2600	4500	91	159	2	3.62
5300	3400	6300	90	105	1	0.27
5300	3400	6300	91.5	113.5	1	0.527
5000	3000	6000	91.5	123.5	1	0.886
4300	2800	5000	94	141	2	1.84
3600	2400	4300	98	167	2.5	4.35
5300	3200	6300	95	110	1	0.3
5000	2900	6000	96.5	118.5	1	0.579
4800	2800	5600	98	132	1.5	1.19
3800	2600	4500	99	151	2	2.63
3400	2400	4000	103	177	2.5	5.87
5000	3000	6000	100	115	1	0.285
4800	2800	5600	101.5	123.5	1	0.554
4500	2800	5300	103	137	1.5	1.16
3600	2400	4300	106	159	2	2.19
3200	2300	3800	108	187	2.5	5.07
4800	3000	5600	105	120	1	0.313
4500	2600	5300	106.5	133.5	1	0.785
4300	2600	5000	108.5	142	1.5	1.15
3400	2400	4000	111	169	2	3.15
3000	2200	3600	113	202	2.5	7
4500	2800	5300	110	125	1	0.32

Deep groove ball bearing

with shield(s) or seal(s)



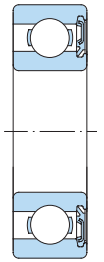
Z
With one shield

2Z
With two shields

RZ
With one seal

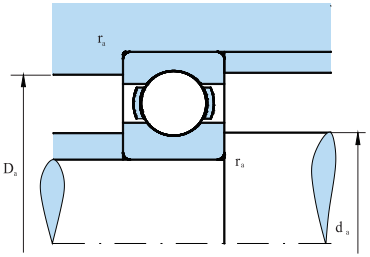
2RZ
With two seals

Designations						Boundary dimensions				Basic load ratings	
						d	D	B	$r_{1,2}$min	Cr	Cor
–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	mm				kN	
61921–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	105	145	20	1.1	46.3	44.8
6021–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		160	26	2	69.8	61.2
6221–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		190	36	2.1	133	104
6321–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		225	49	3	182	153
61822–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	110	140	16	1	24.3	27.2
61922–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		150	20	1.1	47.8	47.7
6022–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		170	28	2	75.1	67.3
6222–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		200	38	2.1	144	117
6322–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		240	50	3	203	180
61824–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	120	150	16	1	25	26
6024–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		180	28	2	88.3	79.7
6224–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		215	40	2.1	156	131
61826–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	130	165	18	1.1	32.5	34
6026–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		200	33	2	102	93.9
6226–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		230	40	3	156	132
61828–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	140	175	18	1.1	34	36.5
6028–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1		210	33	2	115	109
6030–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	150	225	35	2.1	125	125
6032–Z	–2Z	–RZ	–2RZ	–RS1	–2RS1	160	240	38	2.1	143	143



RS1
With one seal

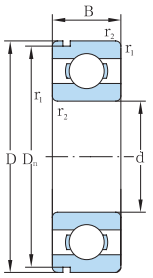
2RS1
With two seals



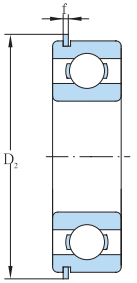
Limiting speeds			Abutment and fillet dimensions			Mass
Grease		Oil	$d_a$min	$D_a$max	$r_a$max	
2Z 2RZ	2RS1		mm			kg
r/min						
4300	2500	5000	111.5	138.5	1	0.816
4000	2400	4800	114	151	2	1.59
3200	2200	3800	116	179	2	3.7
2800	2100	3400	118	212	2.5	8.05
4300	2600	5000	115	135	1	0.6
4000	2400	4800	116.5	143.5	1	0.849
3800	2400	4500	119	161	2	1.96
3000	2000	3600	121	189	2	4.45
2600	1900	3200	123	227	2.5	9.54
3800	2400	4500	125	145	1	0.65
3400	2200	4000	129	171	2	2.05
2800	1900	3400	131	204	2	5.26
3600	2200	4300	136	158.5	1	0.93
3200	2000	3800	139	191	2	3.15
2600	1700	3200	143	217	2.5	5.8
3400	2000	4000	146.5	168.5	1	0.99
3000	1800	3600	149	201	2	3.35
2600	1700	3200	161	214	2	4.8
2400	1600	3000	171	229	2	5.9

Deep groove ball bearing

with snap ring groove,snap ring and or one shield

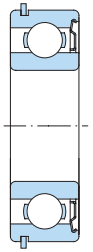


Z
With snap ring groove

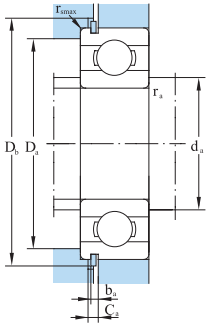


NR
With snap ring

ZN
With snap ring groove and one shield



ZNR
With snap ring groove and one shield

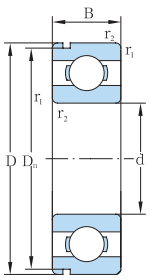


Designations				Boundary dimensions					Basic load ratings		Limiting speeds	
				d	D	B	$r_{1,2}$min	$r_s$min	Cr	Cor	Grease	Oil
N	NR	–ZN	–ZNR	mm					kN		r/min	
61900 N	NR	–ZN	–ZNR	10	22	6	0.3	0.3	1.95	0.75	34000	40000
6200 N	NR	–ZN	–ZNR		30	9	0.6	0.5	5.1	2.39	24000	30000
6300 N	NR	–ZN	–ZNR		35	11	0.6	0.5	7.66	3.47	20000	26000
61901 N	NR	–ZN	–ZNR	12	24	6	0.3	0.3	2.25	0.98	30000	36000
6001 N	NR	–ZN	–ZNR		28	8	0.3	0.3	5.1	2.39	36000	32000
6201 N	NR	–ZN	–ZNR		32	10	0.6	0.5	6.76	3.05	22000	28000
6301 N	NR	–ZN	–ZNR		37	12	1	0.5	8.58	3.92	19000	24000
61902 N	NR	–ZN	–ZNR	15	28	7	0.3	0.3	4.33	2.25	24000	30000
6002 N	NR	–ZN	–ZNR		32	9	0.3	0.3	5.62	2.84	22000	28000
6202 N	NR	–ZN	–ZNR		35	11	0.6	0.5	7.66	3.72	19000	24000
6302 N	NR	–ZN	–ZNR		42	13	1	0.5	11.4	5.4	17000	20000
61903 N	NR	–ZN	–ZNR	17	30	7	0.3	0.3	4.6	2.55	22000	28000
6003 N	NR	–ZN	–ZNR		35	10	0.3	0.3	6.5	3.36	19000	24000
6203 N	NR	–ZN	–ZNR		40	12	0.6	0.5	10.3	4.79	17000	20000
6303 N	NR	–ZN	–ZNR		47	14	1	0.5	13.5	6.55	16000	19000
6403 N	NR	–ZN	–ZNR		62	17	1.1	0.5	22.9	10.8	12000	15000
61804 N	NR	–ZN	–ZNR	20	32	7	0.3	0.3	3.48	2.23	19000	24000
61904 N	NR	–ZN	–ZNR		37	9	0.3	0.3	6.38	3.65	18000	22000
6004 N	NR	–ZN	–ZNR		42	12	0.6	0.5	9.44	5.03	17000	20000
6204 N	NR	–ZN	–ZNR		47	14	1	0.5	12.9	6.65	15000	18000
6304 N	NR	–ZN	–ZNR		52	15	1.1	0.5	16	7.88	13000	16000
6406 N	NR	–ZN	–ZNR		72	19	1.1	0.5	31.1	15.2	10000	13000
60/22 N	NR	–ZN	–ZNR	22	44	12	0.6	0.5	9.4	5.05	17000	20000
62/22 N	NR	–ZN	–ZNR		50	14	1	0.5	12.9	6.8	14000	16000
63/22 N	NR	–ZN	–ZNR		56	16	1.1	0.5	18.5	9.25	13000	16000
61805 N	NR	–ZN	–ZNR	25	37	7	0.3	0.3	3.84	2.8	17000	20000
61905 N	NR	–ZN	–ZNR		42	9	0.3	0.3	7.32	4.56	16000	19000
6005 N	NR	–ZN	–ZNR		47	12	0.6	0.5	10.1	5.85	15000	18000
6205 N	NR	–ZN	–ZNR		52	15	1	0.5	14	7.87	12000	15000
6305 N	NR	–ZN	–ZNR		62	17	1.1	0.5	22.5	11.6	11000	14000
6405 N	NR	–ZN	–ZNR		80	21	1.5	0.5	37.3	18.8	9000	11000
60/28 N	NR	–ZN	–ZNR	28	52	12	0.6	0.5	10.7	6.63	14000	16000

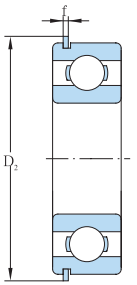
Snap			Snap ring groove dimensions				Abutment and fillet dimensions						Mass
designation	D_2 max	f	D_n max	b mix	a max	r_o max	d_a mix	D_a max	D_b mix	b_a mix	C_a max	r_a mix	
mm			mm				mm						kg
NR1022	24.8	0.7	20.8	0.8	1.05	0.2	12	20	26	1	1.7	0.3	0.0079
NR30	34.7	1.12	28.17	1.35	2.06	0.4	14	26	36	1.5	3.18	0.6	0.0308
NR35	39.7	1.12	33.17	1.35	2.06	0.4	14	31	41	1.5	3.18	0.6	0.0541
NR1024	26.8	0.7	22.8	0.8	1.05	0.2	14	22	28	1	1.7	0.3	0.0107
NR28	30.8	0.85	26.7	0.95	1.3	0.25	14	26	32	1.2	2.15	0.3	0.0211
NR32	36.7	1.12	30.15	1.35	2.06	0.4	16	28	38	1.5	3.18	0.6	0.0356
NR37	41.3	1.12	34.77	1.35	2.06	0.4	17	32	42	1.5	3.18	1	0.062
NR1028	30.8	0.85	26.7	0.95	1.3	0.25	17	26	32	1.2	2.15	0.3	0.0151
NR32	36.7	1.12	30.15	1.35	2.06	0.4	17	30	38	1.5	3.18	0.3	0.0298
NR35	39.7	1.12	33.17	1.35	2.06	0.4	19	31	41	1.5	3.18	0.6	0.0442
NR42	46.3	1.12	39.75	1.35	2.06	0.4	20	37	47	1.5	3.18	1	0.0812
NR1030	32.8	0.85	28.7	0.95	1.3	0.25	19	28	34	1.2	2.15	0.3	0.0173
NR35	39.7	1.12	33.17	1.35	2.06	0.4	19	33	41	1.5	3.18	0.3	0.0382
NR40	44.6	1.12	38.1	1.35	2.06	0.4	21	36	46	1.5	3.18	0.6	0.0636
NR47	52.7	1.12	44.6	1.35	2.46	0.4	22	42	54	1.5	3.58	1	0.114
NR62	67.7	1.7	55.61	1.9	3.28	0.6	23.5	55.5	69	2.2	4.98	1	0.0267
NR1032	34.8	0.85	30.7	0.95	1.3	0.25	22	30	36	1.2	2.15	0.3	0.0176
NR1037	39.8	0.85	35.7	0.95	1.7	0.25	22	35	41	1.2	2.55	0.3	0.0372
NR42	46.3	1.12	39.75	1.35	2.06	0.4	24	38	48	1.5	3.18	0.6	0.0683
NR47	52.7	1.12	44.6	1.35	2.46	0.4	25	42	54	1.5	3.58	1	0.102
NR52	57.9	1.12	49.73	1.35	2.46	0.4	26.5	45.5	59	1.5	3.58	1	0.144
NR72	78.6	1.7	68.81	1.9	3.28	0.6	26.5	65.5	80	2.2	4.98	1	0.397
NR44	48.3	1.12	41.75	1.35	2.06	0.4	26	40	49	1.5	3.18	0.6	0.0724
NR50	55.7	1.12	47.6	1.35	2.46	0.4	27	45	57	1.5	3.58	1	0.116
NR56	61.7	1.12	53.6	1.35	2.46	0.4	28.5	49.5	63	1.5	3.58	1	0.175
NR1037	39.8	0.85	35.7	0.95	1.3	0.25	27	35	41	1.2	2.15	0.3	0.0212
NR1042	44.8	0.85	40.7	0.95	1.7	0.25	27	40	46	1.2	2.55	0.3	0.0427
NR47	52.7	1.12	44.6	1.35	2.06	0.4	29	43	54	1.5	3.18	0.6	0.0786
NR52	57.9	1.12	49.73	1.35	2.46	0.4	30	47	59	1.5	3.58	1	0.126
NR62	67.7	1.7	59.61	1.9	3.28	0.6	31.5	55.5	69	2.2	4.98	1	0.224
NR80	86.6	1.7	76.81	1.9	3.28	0.6	33	72	88	2.2	4.98	1.5	0.526
NR52	57.9	1.12	49.73	1.35	2.06	0.4	32	48	59	1.5	3.18	0.6	0.0991

Deep groove ball bearing

with snap ring groove,snap ring and or one shield

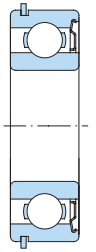


Z
With snap ring groove

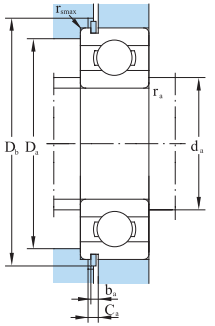


NR
With snap ring

ZN
With snap ring groove and one shield



ZNR
With snap ring groove and one shield

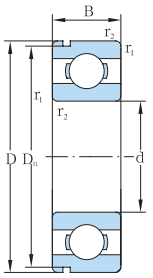


Designations				Boundary dimensions					Basic load ratings		Limiting speeds	
				d	D	B	$r_{1,2}$min	$r_s$min	Cr	Cor	Grease	Oil
N	NR	–ZN	–ZNR	mm					kN		r/min	
62/28 N	NR	–ZN	–ZNR	28	58	16	1	0.5	16.6	9.54	12000	14000
63/28 N	NR	–ZN	–ZNR		68	18	1.1	0.5	25	12.1	10000	7500
61806 N	NR	–ZN	–ZNR	30	42	7	0.3	0.5	4.15	3.32	15000	18000
61906 N	NR	–ZN	–ZNR		47	9	0.3	0.5	8.05	5.37	14000	17000
6006 N	NR	–ZN	–ZNR		55	13	1	0.5	13.3	8.36	12000	15000
6206 N	NR	–ZN	–ZNR		62	16	1	0.5	19.5	11.3	10000	13000
6306 N	NR	–ZN	–ZNR		72	19	1.1	0.5	26.7	14.9	9000	11000
6406 N	NR	–ZN	–ZNR		90	23	1.5	0.5	47.3	24.5	8500	10000
60/32 N	NR	–ZN	–ZNR	32	58	13	1	0.5	13.3	8.39	12000	14000
62/32 N	NR	–ZN	–ZNR		65	17	1	0.5	21.2	12.5	10000	12000
63/32 N	NR	–ZN	–ZNR		75	20	1.1	0.5	29.9	17	9000	10000
61807 N	NR	–ZN	–ZNR	35	47	7	0.3	0.5	4.29	3.6	13000	16000
61907 N	NR	–ZN	–ZNR		55	10	0.6	0.5	9.54	6.83	11000	14000
6007 N	NR	–ZN	–ZNR		62	14	1	0.5	16	10.3	10000	13000
6207 N	NR	–ZN	–ZNR		72	17	1.1	0.5	25.6	15.3	9000	11000
6307 N	NR	–ZN	–ZNR		80	21	1.5	0.5	33.4	19.2	8500	10000
6407 N	NR	–ZN	–ZNR		100	25	1.5	0.5	55.3	31	7000	8500
61808 N	NR	–ZN	–ZNR	40	52	7	0.3	0.3	4.52	4.1	11000	14000
61908 N	NR	–ZN	–ZNR		62	12	0.6	0.5	12.2	8.9	10000	13000
6008 N	NR	–ZN	–ZNR		68	15	1	0.5	16.8	11.6	9500	12000
6208 N	NR	–ZN	–ZNR		80	18	1.1	0.5	27.6	17.4	8500	10000
6308 N	NR	–ZN	–ZNR		90	23	1.5	0.5	40.8	24	7500	9000
6408 N	NR	–ZN	–ZNR		110	27	2	0.5	63.8	36.6	6700	8000
61809 N	NR	–ZN	–ZNR	45	58	7	0.3	0.3	4.73	4.5	9500	12000
61909 N	NR	–ZN	–ZNR		68	12	0.6	0.5	14.2	10.9	9000	11000
6009 N	NR	–ZN	–ZNR		75	16	1	0.5	19.9	14	9000	11000
6209 N	NR	–ZN	–ZNR		85	19	1.1	0.5	31.2	20.4	7500	9000
6309 N	NR	–ZN	–ZNR		100	25	1.5	0.5	48.9	29.3	6700	6700
6409 N	NR	–ZN	–ZNR		120	29	2	0.5	72.9	42.6	6000	6000
61810 N	NR	–ZN	–ZNR	50	65	7	0.3	0.3	4.93	4.94	9000	11000
61910 N	NR	–ZN	–ZNR		72	12	0.6	0.5	14.6	11.7	8500	10000
6010 N	NR	–ZN	–ZNR		80	16	1	0.5	20.7	15.4	8500	10000

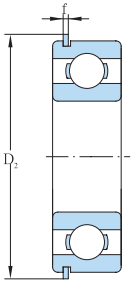
Snap			Snap ring groove dimensions				Abutment and fillet dimensions						Mass
designation	D_2 max	f	D_n max	b mix	a max	r_o max	d_a mix	D_a max	D_b mix	b_a mix	C_a max	r_a mix	
mm			mm				mm						kg
NR58	63.7	1.12	55.6	1.35	2.46	0.4	33	53	65	1.5	3.58	1	0.172
NR68	74.6	1.7	64.82	1.9	3.28	0.6	34.5	61.5	76	2.2	4.98	1	0.287
NR1042	44.8	0.85	40.7	0.95	1.3	0.25	34.5	40	46	1.2	2.15	0.3	0.0249
NR1047	49.8	0.85	45.7	0.95	1.7	0.25	32	45	51	1.2	2.55	0.3	0.0479
NR55	60.7	1.12	52.6	1.35	2.08	0.4	35	50	62	1.5	3.2	1	0.115
NR62	67.7	1.7	59.61	1.9	3.28	0.6	35	57	69	2.2	4.98	1	0.2
NR72	78.6	1.7	68.81	1.9	3.28	0.6	36.5	65.5	80	2.2	4.98	1	0.35
NR90	96.5	2.46	86.79	2.7	3.28	0.6	38	82	98	3	5.47	1.5	0.724
NR58	63.7	1.12	55.6	1.35	2.08	0.4	37	53	65	1.5	3.2	1	0.127
NR65	70.7	1.7	62.6	1.9	3.28	0.6	37	60	72	2.2	4.98	1	0.227
NR75	81.6	1.7	71.83	1.9	3.28	0.6	38.5	68.5	83	2.2	4.98	1	0.387
NR1047	49.8	0.85	45.7	0.95	1.3	0.25	37	45	51	1.2	2.15	0.3	0.0282
NR1055	57.8	0.8	53.7	0.95	1.7	0.25	39	51	59	1.2	2.55	0.6	0.0769
NR62	67.7	1.7	59.61	1.9	2.08	0.6	40	57	69	2.2	3.76	1	0.148
NR72	78.6	1.7	68.81	1.9	3.28	0.6	41.5	65.5	80	2.2	4.98	1	0.28
NR80	86.6	1.7	76.81	1.9	3.28	0.6	43	72	88	2.2	4.98	1.5	0.449
NR100	106.5	2.46	96.8	2.7	3.28	0.6	43	92	108	3	5.74	1.5	0.918
NR1052	54.8	0.85	50.7	0.95	1.3	0.25	42	50	56	1.2	2.15	0.3	0.0317
NR1062	64.8	0.85	60.7	0.95	1.7	0.25	44	58	66	1.2	2.55	0.6	0.113
NR68	74.6	1.7	64.82	1.9	2.49	0.6	45	63	76	2.2	4.19	1	0.184
NR80	86.6	1.7	76.81	1.9	3.28	0.6	46.5	73.5	88	2.2	4.98	1	0.367
NR90	96.5	2.46	86.79	2.7	3.28	0.6	48	82	98	3	5.74	1.5	0.632
NR110	116.6	2.46	106.81	2.7	3.28	0.6	49	101	118	3	5.74	2	1.23
NR1058	60.8	0.85	56.7	0.95	1.3	0.25	47	56	62	1.2	2.15	0.3	0.0399
NR1068	70.8	0.85	66.7	0.95	1.7	0.25	49	64	72	1.2	2.25	0.6	0.13
NR75	81.6	1.7	71.83	1.9	2.49	0.6	50	70	83	2.2	4.19	1	0.242
NR85	91.6	1.7	81.81	1.9	3.28	0.6	51.5	78.5	93	2.2	4.98	1	0.414
NR100	106.5	2.46	96.8	2.7	3.28	0.6	53	92	108	3	5.74	1.5	0.843
NR120	129.7	2.82	115.21	3.1	4.06	0.6	54	111	131	3.5	6.88	2	1.54
NR1065	67.8	0.85	63.7	0.95	1.3	0.25	52	63	69	1.2	2.15	0.3	0.0545
NR1072	74.8	0.85	70.7	0.95	1.7	0.25	54	68	76	1.2	2.55	0.6	0.138
NR80	86.6	1.7	76.81	1.9	2.45	0.6	55	75	88	2.2	4.19	1	0.256

Deep groove ball bearing

with snap ring groove,snap ring and or one shield

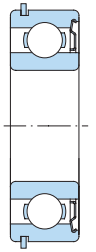


Z
With snap ring groove

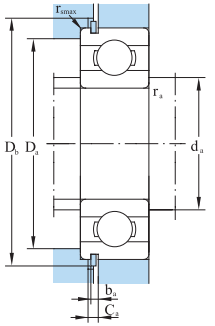


NR
With snap ring

ZN
With snap ring groove and one shield



ZNR
With snap ring groove and one shield

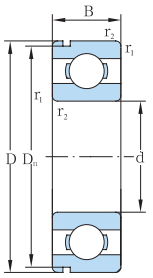


Designations				Boundary dimensions					Basic load ratings		Limiting speeds	
				d	D	B	$r_{1,2}$min	$r_s$min	Cr	Cor	Grease	Oil
N	NR	–ZN	–ZNR	mm					kN		r/min	
6210 N	NR	–ZN	–ZNR	50	90	20	1.1	0.5	35.1	23.2	7000	8500
6310 N	NR	–ZN	–ZNR		110	27	2	0.5	57.6	35.3	6300	7500
6410 N	NR	–ZN	–ZNR		130	31	2.1	0.5	83.3	49.3	5300	6300
61811 N	NR	–ZN	–ZNR	55	72	9	0.3	0.3	9.07	8.45	8500	10000
61911 N	NR	–ZN	–ZNR		80	13	1	0.5	18.9	15.1	8000	9500
6011 N	NR	–ZN	–ZNR		90	18	1.1	0.5	26.7	20.1	7500	9000
6211 N	NR	–ZN	–ZNR		100	21	1.5	0.5	43.4	29.2	6300	7500
6311 N	NR	–ZN	–ZNR		120	29	2	0.5	71.6	44.8	5600	6700
6411 N	NR	–ZN	–ZNR		140	33	2.1	0.5	101	62.3	5000	6000
61812 N	NR	–ZN	–ZNR	60	78	10	0.3	0.3	10.3	9.91	7500	9000
61912 N	NR	–ZN	–ZNR		85	13	1	0.5	19.4	16.2	7500	9000
6012 N	NR	–ZN	–ZNR		95	18	1.1	0.5	30.2	23	6700	8000
6212 N	NR	–ZN	–ZNR		110	22	1.5	0.5	47.8	32.9	6000	7000
6312 N	NR	–ZN	–ZNR		130	31	2.1	0.5	81.9	51.8	5000	6000
6412 N	NR	–ZN	–ZNR		150	35	2.1	0.5	109	70.1	4800	5600
61813 N	NR	–ZN	–ZNR	65	85	10	0.6	0.5	10.8	10.7	7000	8500
61913 N	NR	–ZN	–ZNR		90	13	1	0.5	19.9	17.5	6700	8000
6013 N	NR	–ZN	–ZNR		100	18	1.1	0.5	31.9	24.9	6300	7500
6213 N	NR	–ZN	–ZNR		120	23	1.5	0.5	50.7	37.1	5300	6300
6313 N	NR	–ZN	–ZNR		140	33	2.1	0.5	92.8	59.7	4800	5600
6413 N	NR	–ZN	–ZNR		160	37	2.1	0.5	118	78.6	4500	5300
61814 N	NR	–ZN	–ZNR	70	90	10	0.6	0.5	11.2	11.5	6700	8000
61914 N	NR	–ZN	–ZNR		100	16	1	0.5	23.7	21.1	6300	7500
6014 N	NR	–ZN	–ZNR		110	20	1.1	0.5	38.7	30.4	6000	7000
6214 N	NR	–ZN	–ZNR		125	24	1.5	0.5	55.8	41.1	5000	6000
6314 N	NR	–ZN	–ZNR		150	35	2.1	0.5	104	68	4500	5300
6414 N	NR	–ZN	–ZNR		180	42	3	0.5	135	96.2	3800	4500
61815 N	NR	–ZN	–ZNR	75	95	10	0.6	0.5	11.3	11.9	6300	7500
61915 N	NR	–ZN	–ZNR		105	16	1	0.5	23.4	22.5	6000	7000
6015 N	NR	–ZN	–ZNR		115	20	1.1	0.5	40.3	33.2	5600	6700
6215 N	NR	–ZN	–ZNR		130	25	1.5	0.5	60.8	45.4	4800	5600
6315 N	NR	–ZN	–ZNR		160	37	2.1	0.5	113	77	4300	5000

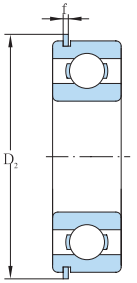
Snap			Snap ring groove dimensions				Abutment and fillet dimensions						Mass
Designation	D_2 max	f	D_n max	b mix	a max	r_o max	d_a mix	D_a max	D_b mix	b_a mix	C_a max	r_a mix	
mm			mm				mm						kg
NR90	96.5	2.46	96.79	2.7	3.28	0.6	56.5	83.5	98	3	5.74	1	0.458
NR110	116.6	2.46	106.81	2.7	3.28	0.6	59	101	118	3	5.74	2	1.09
NR130	139.7	2.82	125.22	3.1	4.06	0.6	61	119	141	3.5	6.88	2	1.9
NR1072	74.8	0.85	70.7	0.95	1.7	0.25	57	70	76	1.2	2.55	0.3	0.0795
NR1080	84.4	1.12	77.9	1.3	2.1	0.4	60	75	86	1.5	3.22	1	0.177
NR90	96.5	2.46	86.79	2.7	2.87	0.6	61.5	83.5	98	3	5.33	1	0.373
NR100	106.5	2.46	96.8	2.7	3.28	0.6	63	92	108	3	5.74	1.5	0.599
NR120	129.7	2.82	115.21	3.1	4.06	0.6	64	111	131	3.5	6.88	2	1.37
NR140	149.7	2.82	135.23	3.1	4.9	0.6	66	129	151	3.5	7.72	2	2.28
NR1078	82.7	1.12	76.2	1.3	1.7	0.4	62	76	84	1.5	2.82	0.3	0.0995
NR1085	89.4	1.12	82.9	1.3	2.1	0.4	65	80	91	1.5	3.22	1	0.19
NR95	101.6	2.46	91.82	2.7	2.87	0.6	66.5	88.5	103	3	5.33	1	0.389
NR110	116.6	2.46	106.81	2.7	3.28	0.6	68	102	118	3	5.74	1.5	0.793
NR130	139.7	2.82	125.22	3.1	4.06	0.6	71	119	141	3.5	6.88	2	1.69
NR150	159.7	2.82	145.24	3.1	4.9	0.6	71	139	162	3.5	7.72	2	2.75
NR1085	89.4	1.12	82.91	1.3	1.7	0.4	69	81	91	1.5	2.82	0.6	0.124
NR1090	94.4	1.12	87.9	1.3	2.1	0.4	70	85	96	1.5	3.22	1	0.203
NR100	106.5	2.46	96.8	2.7	2.87	0.6	71.5	93.5	108	3	5.33	1	0.406
NR120	129.7	2.82	115.21	3.1	4.06	0.6	73	112	131	3.5	6.88	1.5	1.02
NR140	149.7	2.82	135.33	3.1	4.9	0.6	76	129	151	3.5	7.72	2	2.08
NR160	169.7	2.82	155.22	3.1	4.9	0.6	76	149	172	3.5	7.72	2	3.33
NR1090	94.4	1.12	87.9	1.3	1.7	0.4	74	86	96	1.5	2.82	0.6	0.132
NR10100	104.4	1.12	97.9	1.3	2.5	0.4	75	95	106	1.5	3.62	1	0.339
NR110	116.6	2.46	106.81	2.7	2.87	0.6	76.5	103.5	118	3	5.33	1	0.574
NR125	134.7	2.82	120.22	3.1	4.06	0.6	78	117	136	3.5	6.88	1.5	1.1
NR150	159.7	2.82	145.24	3.1	4.9	0.6	81	139	162	3.5	7.72	2	2.52
NR180	192.9	3.1	173.66	3.5	5.69	0.6	83	167	195	3.5	8.79	2.5	4.9
NR1095	99.4	1.12	92.9	1.3	1.7	0.4	79	91	101	1.5	2.82	0.6	0.14
NR10105	110.7	1.12	102.6	1.3	2.5	0.4	80	100	112	1.5	3.62	1	0.364
NR115	121.6	2.46	111.81	2.7	2.87	0.6	81.5	108.5	123	3	5.33	1	0.605
NR130	139.7	2.82	125.22	3.1	4.06	0.6	83	122	141	3.5	6.88	1.5	1.17
NR160	169.7	2.82	155.22	3.1	4.9	0.6	86	149	172	3.5	7.72	2	3.02

Deep groove ball bearing

with snap ring groove,snap ring and or one shield

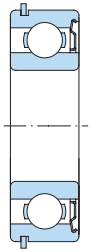


Z
With snap ring groove

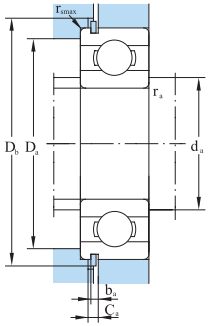


NR
With snap ring

ZN
With snap ring groove and one shield



ZNR
With snap ring groove and one shield

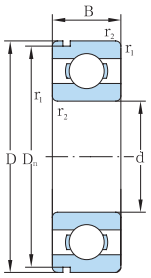


Designations				Boundary dimensions					Basic load ratings		Limiting speeds	
				d	D	B	$r_{1,2}$min	$r_s$min	Cr	Cor	Grease	Oil
N	NR	–ZN	–ZNR	mm					kN		r/min	
6415N	NR	–ZN	–ZNR	75	190	45	3	0.5	153	114	3600	4300
61816N	NR	–ZN	–ZNR	80	100	10	0.6	0.5	11.6	12.7	6000	7000
61916N	NR	–ZN	–ZNR		110	16	1	0.5	22	23.9	5600	6700
6016N	NR	–ZN	–ZNR		125	22	1.1	0.5	42.4	35.6	5300	6300
6216N	NR	–ZN	–ZNR		140	26	2	0.5	71.5	54.3	4500	5300
6216N	NR	–ZN	–ZNR		170	39	2.1	0.5	123	86.5	3800	4500
6416N	NR	–ZN	–ZNR		200	48	3	0.5	163	12.5	3400	4000
61817N	NR	–ZN	–ZNR	85	110	13	1	0.5	16	16.8	5300	6300
61917N	NR	–ZN	–ZNR		120	18	1.1	0.5	31.9	29.7	5300	6300
6017N	NR	–ZN	–ZNR		130	22	1.1	0.5	47.3	40.1	5000	6000
6217N	NR	–ZN	–ZNR		150	28	2	0.5	77.2	59.3	4300	5000
6317N	NR	–ZN	–ZNR		180	41	3	0.5	133	96.6	3600	4300
61818N	NR	–ZN	–ZNR	90	115	13	1	0.5	16.5	18	5300	6300
61918N	NR	–ZN	–ZNR		125	18	1.1	0.5	32.8	31.5	5000	6000
6018N	NR	–ZN	–ZNR		140	24	1.5	0.5	52.3	45.1	4800	5600
6218N	NR	–ZN	–ZNR		160	30	2	0.5	96.1	71.5	3800	4500
6318N	NR	–ZN	–ZNR		190	43	3	0.5	143	107	3400	4000
61819N	NR	–ZN	–ZNR	95	120	13	1	0.5	18.6	18.6	5000	6000
61919N	NR	–ZN	–ZNR		130	18	1.1	0.5	33.7	33.3	4800	5600
6019N	NR	–ZN	–ZNR		145	24	1.5	0.5	58	50.1	4500	5300
6219N	NR	–ZN	–ZNR		170	32	2.1	0.5	109	81.7	3600	4300
6319N	NR	–ZN	–ZNR		200	45	3	0.5	153	118	3200	3800
61820N	NR	–ZN	–ZNR	100	125	13	1	0.5	16.9	19.1	4800	5600
61920N	NR	–ZN	–ZNR		140	20	1.1	0.5	43.9	42	4500	5300
6020N	NR	–ZN	–ZNR		150	24	1.5	0.5	63.7	50.4	4300	5000
6220N	NR	–ZN	–ZNR		180	34	2.1	0.5	122	92.7	3400	4000
61821N	NR	–ZN	–ZNR	105	130	13	1	0.5	17.4	20.4	4500	5300
61921N	NR	–ZN	–ZNR		145	20	1.1	0.5	46.3	44.8	4300	5000
6021N	NR	–ZN	–ZNR		160	26	2	0.5	69.8	61.2	4000	4800
6221N	NR	–ZN	–ZNR		190	36	2.1	0.5	133	104	3200	3800
61822N	NR	–ZN	–ZNR	110	140	16	1	0.5	24.3	27.2	4300	5000
61922N	NR	–ZN	–ZNR		150	20	1.1	0.5	47.8	47.7	4000	4800

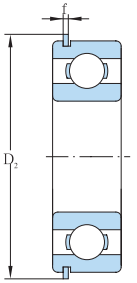
Snap			Snap ring groove dimensions				Abutment and fillet dimensions						Mass
Designation	D_2 max	f	D_n max	b mix	a max	r_o max	d_a mix	D_a max	D_b mix	b_a mix	C_a max	r_a mix	
mm			mm				mm						kg
NR190	202.9	3.1	183.64	3.5	5.69	0.6	88	177	205	3.5	8.79	2.5	6.75
NR10100	104.4	1.12	97.9	1.3	1.7	0.4	84	96	106	1.5	2.82	0.6	0.149
NR10110	115.7	1.12	107.6	1.3	2.5	0.4	85	105	117	1.5	3.62	1	0.378
NR125	134.7	2.82	120.22	3.1	2.87	0.6	86.5	118.5	136	3.5	5.69	1	0.836
NR140	149.7	2.82	135.23	3.1	4.9	0.6	89	131	151	3.5	7.72	2	1.42
NR170	182.9	3.1	163.65	3.5	5.69	0.6	91	159	185	3.5	8.79	2	3.56
NR200	212.9	3.1	193.65	3.5	5.69	0.6	93	187	215	3.5	8.79	2.5	7.96
NR10110	115.7	1.12	107.6	1.3	2.1	0.4	90	105	117	1.5	3.22	1	0.26
NR10120	125.7	1.12	117.6	1.3	3.3	0.4	91.5	113.5	127	1.5	4.42	1	0.529
NR130	139.7	2.82	125.22	3.1	2.87	0.6	91.5	123.5	141	3.5	5.69	1	0.857
NR150	159.7	2.82	145.24	3.1	4.9	0.6	94	141	162	3.5	7.72	2	1.81
NR180	192.9	3.1	173.66	3.5	5.69	0.6	98	167	195	4	8.79	2.5	4.25
NR10115	120.7	1.12	112.6	1.3	2.1	0.4	95	110	122	1.5	3.2	1	0.279
NR10125	130.7	1.12	122.6	1.3	3.3	0.4	96.5	118.5	132	1.5	4.42	1	0.556
NR140	149.7	2.82	135.23	3.1	3.71	0.6	98	132	152	3.5	6.53	1.5	1.13
NR160	169.7	2.82	155.22	3.1	4.9	0.6	99	151	172	3.5	7.72	2	2.15
NR190	202.9	3.1	183.64	3.5	5.69	0.6	103	177	205	4	8.79	2.5	4.95
NR10120	125.7	1.12	117.6	1.3	2.1	0.4	100	115	127	1.5	3.22	1	0.293
NR10130	135.7	1.12	127.6	1.3	3.3	0.4	101.5	123.5	137	1.5	4.42	1	0.584
NR145	154.7	2.82	140.23	3.1	3.71	0.6	103	137	157	3.5	6.53	1.5	1.16
NR170	182.9	3.1	163.65	3.5	5.69	0.6	106	159	185	4	8.79	2	2.61
NR200	212.9	3.1	193.65	3.5	5.69	0.6	108	187	215	4	8.79	2.5	5.73
NR10125	130.7	1.12	122.6	1.3	2.1	0.4	105	120	132	1.5	3.22	1	0.305
NR10140	145.7	1.7	137.6	1.9	3.3	0.6	106.5	133.5	147	2.2	5	1	0.782
NR150	159.7	2.82	145.24	3.1	3.71	0.6	108	142	162	3.5	6.53	1.5	1.19
NR180	192.9	3.1	173.66	3.5	5.69	0.6	111	169	195	4	8.79	2	3.11
NR10130	135.7	1.12	127.6	1.3	2.1	0.4	110	125	137	1.5	3.22	1	0.32
NR10145	150.7	1.7	142.6	1.9	3.3	0.6	111.5	138.5	152	2.2	5	1	0.802
NR160	169.7	2.82	155.22	3.1	3.71	0.6	114	151	172	3.5	6.53	2	1.54
NR190	202.9	3.1	183.64	3.5	5.69	0.6	116	179	205	4	8.79	2	3.78
NR10140	145.7	1.7	137.6	1.9	2.5	0.6	115	135	147	2.2	4.2	1	0.496
NR10150	155.7	1.7	147.6	1.9	3.3	0.6	116.5	143.5	157	2.2	5	1	0.837

Deep groove ball bearing

with snap ring groove,snap ring and or one shield



Z
With snap ring groove

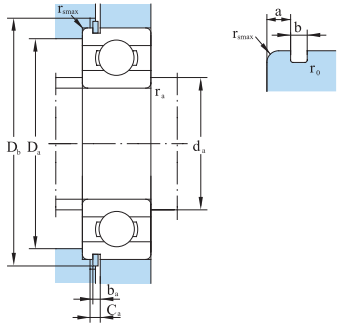


NR
With snap ring

ZN
With snap ring groove and one shield

Designations				Boundary dimensions					Basic load ratings		Limiting speeds	
				d	D	B	$r_{1,2}$min	$r_s$min	Cr	Cor	Grease	Oil
N	NR	–ZN	–ZNR	mm					kN		r/min	
6022N	NR	–ZN	–ZNR	110	170	28	2	0.5	75.1	67.3	3800	4500
6222N	NR	–ZN	–ZNR		200	38	2.1	0.5	144	117	3000	3600
61824N	NR	–ZN	–ZNR	120	150	16	1	0.5	25	26	3800	4500
61924N	NR	–ZN	–ZNR		165	22	1.1	0.5	57.2	56.9	3600	4300
6024N	NR	–ZN	–ZNR		180	28	2	0.5	88.3	79.7	3400	4000
61826N	NR	–ZN	–ZNR	130	165	18	1.1	0.5	32.5	34	3600	4300
61926N	NR	–ZN	–ZNR		180	24	1.5	0.5	69.4	70	3400	4000
6026N	NR	–ZN	–ZNR		200	33	2	0.5	102	93.9	3200	3800
61828N	NR	–ZN	–ZNR	140	175	18	1.1	0.5	34	36.5	3400	4000
61928N	NR	–ZN	–ZNR		190	24	1.5	0.5	71.2	74.6	3200	3800
61830N	NR	–ZN	–ZNR	150	190	20	1.1	0.5	42.5	44	3000	3600
61832N	NR	–ZN	–ZNR	160	200	20	1.1	0.5	44	48	2800	3400

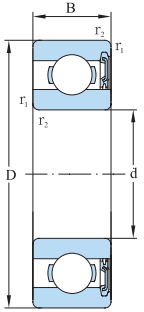
ZNR
With snap ring groove and one shield



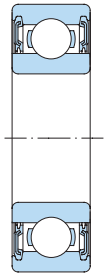
Snap			Snap ring groove dimensions				Abutment and fillet dimensions						Mass
Designation	D_2 max	f	D_n max	b mix	a max	r_o max	d_a mix	D_a max	D_b mix	b_a mix	C_a max	r_a mix	
mm			mm				mm						kg
NR170	182.9	3.1	163.65	3.5	3.71	0.6	119	161	185	4	6.81	2	1.93
NR200	212.9	3.1	193.65	3.5	5.69	0.6	121	189	215	4	8.79	2	4.41
NR10150	155.7	1.7	147.6	1.9	2.5	0.6	125	145	157	2.2	4.2	1	0.532
NR10165	171.5	1.7	161.8	1.9	3.7	0.6	126.5	158.5	173	2.2	5.4	1	1.14
NR10180	192.9	3.1	173.66	3.5	3.71	0.6	129	171	195	4	6.81	2	2.03
NR10165	171.5	1.7	161.8	1.9	3.3	0.6	136.5	158.5	173	2.2	5	1	0.77
NR10180	186.5	1.7	176.8	1.9	3.7	0.6	138	172	188	2.2	5.4	1.5	1.49
NR200	212.9	3.1	193.65	3.5	5.69	0.6	139	191	215	4	8.79	1	3.1
NR10175	181.5	1.7	171.8	1.9	3.3	0.6	146.5	168.5	183	2.2	5	1	0.82
NR10190	196.5	1.7	186.8	1.9	3.7	0.6	148	182	198	2.2	5.4	1.5	1.57
NR10191	196.5	1.7	186.8	1.9	3.3	0.6	156.5	183.5	198	2.2	5	0.6	1.1
NR10200	206.5	1.9	196.8	1.7	3.3	0.6	166.5	193.5	208	2.2	5	0.6	1.16

Deep groove ball bearing

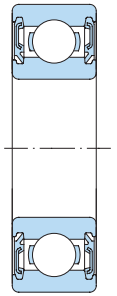
With one seal or two seals



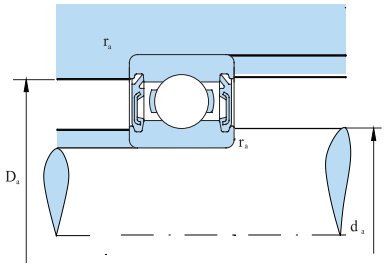
RZ
With one seal



2RZ
With two seals



2RS1
With two seals



Designations			Boundary dimensions				Basic load ratings	
			d	D	B	$r_{1,2}$min	Cr	Cor
–RZ	–2RZ	–2RS1	mm				kN	
62200–RZ	–2RZ	–2RS1	10	30	14	0.6	5.1	2.39
62300–RZ	–2RZ	–2RS1		35	17	0.6	7.66	3.47
62201–RZ	–2RZ	–2RS1	12	32	14	0.6	6.76	3.05
62301–RZ	–2RZ	–2RS1		37	17	1	8.58	3.92
62202–RZ	–2RZ	–2RS1	15	35	14	0.6	7.66	3.72
62302–RZ	–2RZ	–2RS1		42	17	1	11.4	5.43
62203–RZ	–2RZ	–2RS1	17	40	16	0.6	10.3	4.79
62303–RZ	–2RZ	–2RS1		47	19	1	13.5	5.78
62204–RZ	–2RZ	–2RS1	20	47	18	1	12.9	6.65
62304–RZ	–2RZ	–2RS1		52	21	1.1	16	7.88
62205–RZ	–2RZ	–2RS1	25	52	18	1	14	7.87
62305–RZ	–2RZ	–2RS1		62	24	1.1	22.6	11.5
62206–RZ	–2RZ	–2RS1	30	62	20	1	19.5	11.3
62306–RZ	–2RZ	–2RS1		72	27	1.1	26.7	14.9
62207–RZ	–2RZ	–2RS1	35	72	23	1.1	25.6	15.5
62307–RZ	–2RZ	–2RS1		80	31	1.5	33.4	19.2
62208–RZ	–2RZ	–2RS1	40	80	23	1.1	27.6	17.4
62308–RZ	–2RZ	–2RS1		90	33	1.5	40.8	24
62209–RZ	–2RZ	–2RS1	45	85	23	1.1	31.2	20.4
62309–RZ	–2RZ	–2RS1		100	36	1.5	48.9	29.3
62210–RZ	–2RZ	–2RS1	50	90	23	1.1	35.1	23.2
62310–RZ	–2RZ	–2RS1		110	40	2	57.6	35.3
62211–RZ	–2RZ	–2RS1	55	100	25	1.5	43.4	29.2
62311–RZ	–2RZ	–2RS1		120	43	2	71.6	44.8
62212–RZ	–2RZ	–2RS1	60	110	28	1.5	47.8	32.9
62312–RZ	–2RZ	–2RS1		130	46	2.1	81.9	51.8
62213–RZ	–2RZ	–2RS1	65	120	31	1.5	50.7	37.1
62313–RZ	–2RZ	–2RS1		140	48	2.1	92.8	59.7
62214–RZ	–2RZ	–2RS1	70	125	31	1.5	55.8	41.1
62314–RZ	–2RZ	–2RS1		150	51	2.1	104	68

Limiting speeds			Abutment and fillet dimensions			Mass
Grease		Oil	$d_a$min	$D_a$max	$r_a$max	
2Z 2RZ	2RS1		mm			kg
r/min						
24000	17000	30000	14	26	0.6	0.0489
20000	15000	26000	14	31	0.6	0.06
22000	15000	28000	16	28	0.6	0.0496
19000	14000	24000	17	32	1	0.07
19000	13000	24000	19	31	0.6	0.056
17000	12000	20000	20	37	1	0.11
17000	12000	20000	21	36	0.6	0.0845
16000	11000	19000	22	42	1	0.15
15000	10000	18000	25	42	1	0.13
13000	9500	16000	26.5	45.5	1	0.2
12000	8500	15000	30	47	1	0.153
11000	7500	14000	31.5	55.5	1	0.32
10000	7500	13000	35	57	1	0.249
9000	6300	11000	36.5	65.5	1	0.48
9000	6300	11000	41.5	65.5	1	0.378
8500	6000	10000	43	72	1.5	0.66
8500	5600	10000	46.5	73.5	1	0.472
7500	5000	9000	48	82	1.5	0.89
7500	5000	9000	51.5	78.5	1	0.49
6700	4500	8000	53	92	1.5	1.15
7000	4800	8500	56.5	83.5	1	0.526
6300	4300	7500	59	101	2	1.55
6300	4300	7500	63	92	1.5	0.7
5600	3800	6700	64	111	2	1.195
6000	4000	7000	68	102	1.5	0.998
5000	3400	6000	71	119	2	2.5
5300	3600	6300	73	129	1.5	1.37
4800	3200	5600	76	129	2	3
5000	3400	6000	78	117	1.5	1.41
4500	3000	5300	81	139	2	3.55