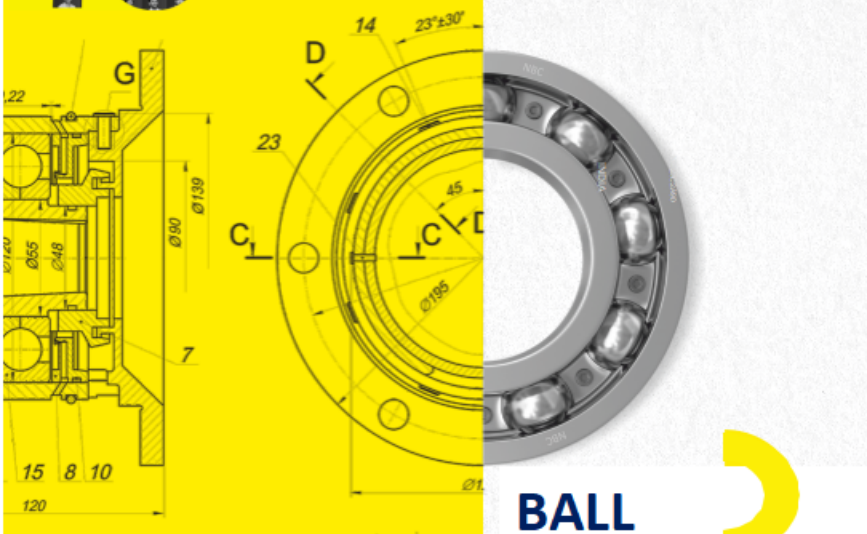
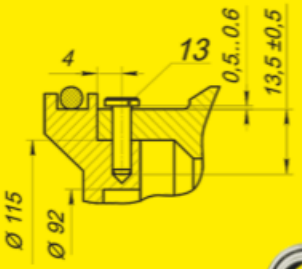
CELEBRATING 75 YEARS

CK BIRLA GROUP

nbc flexible solutions





BALL BEARINGS

Technical Data

2 WHEELERS | 3 WHEELERS | 4 WHEELERS | TRACTORS | LCV, HCV | INDUSTRIES | RAILWAYS

nbc

About National Engineering Industries Ltd. (NBC Bearings)

A symbol of dependability and flexible engineering solutions, NBC Bearings is the brand of National Engineering Industries. Founded in 1946, National Engineering Industries Ltd (NEI) is India's leading bearings manufacturer and exporter, renowned for excellence in quality and delivery. In 2021, NBC bearings completed 75 years of its incorporation.

Headquartered in Jaipur, Having started with 30,000 bearings in 19 sizes in 1946, NBC has evolved to manufacture over 200 million bearings each year offering in 2300+ variants to serve a host of customers in India and over 30 other countries across five continents in automotive, railways and industrial segments. NBC also serves the Indian aftermarket through a countrywide network of 550+ authorized stockists and thousands of retailers.

Award & Recognitions :

NBC has been the recipient of several award and accolades for its quality consciousness and manufacturing prowess. Most prominent being the coveted Deming Grand Prize which is the highest honour in quality awarded to a company for excellence in Total Quality Management (TQM). NBC bearings is the only bearing manufacturer to win both - The Deming Application Award and The Deming Grand Prize Award.

The award is given by the Japanese Union of Scientists and Engineers (JUSE) to companies for demonstrating practicing TQM in the areas of production, customer service, safety, human resource, corporate social responsibility, environment, etc. NBC stands committed to an endless journey of continuous improvement through TQM.

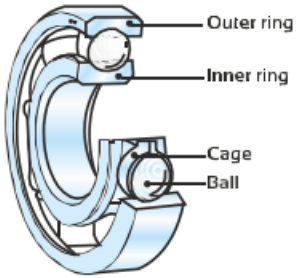
Technical Data – Ball Bearing

15.1 Deep Groove Ball Bearing

The deep groove ball bearing are non- separable bearings. These bearings can take radial & axial load and can run at high speed. They are available as plain or sealed bearings. The bearings are economically prized and hence most widely used. The bearings are available in metric and inch series. Angular misalignment capability of these bearings are very limited, hence while mounting bearing positioned must be perfectly aligned in housing and shaft.

Minimum load of P/Cr >0.01 is required for these bearings for smooth and slippage free operation.

The ball bearing consists of inner ring, outer ring ball, cage & seals.



Equivalent load rating

For bearings under dynamic load, use following condition and formula

Load ratio	Equivalent dynamic load
$\frac{F_a}{F_r} \leq e$	$P = F_r$
$\frac{F_a}{F_r} > e$	$P = XF_r + YF_a$

Where

P = Equivalent dynamic bearing load for combined load (N)

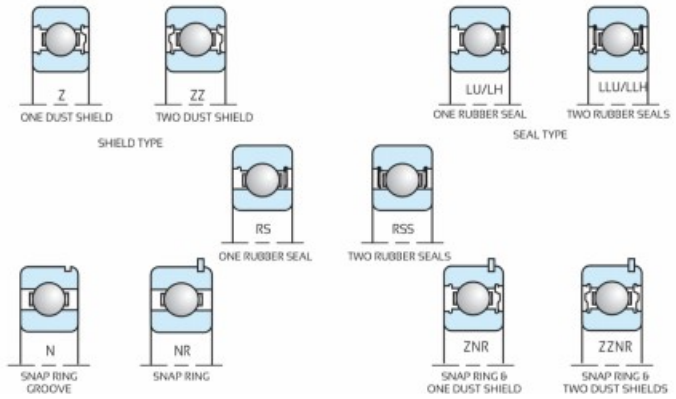
F_a = Axial dynamic bearing load (N)

F_r Radial dynamic bearing load (N)

Single row deep groove ball bearing with shield / seal

The bearings are with non- contact shield (Z) and contact type of rubber seals (RS, LU, LH).These are most commonly used rubber seals. Apart from these seals new design rubber seals were developed specific to applications. Depending upon the application requirement, seals/shield is fixed on one side or both side. The bearings are also available with groove (N) on outer diameter and snap ring (R) for axial locating.

Different variants are shown below:



Note: Design variants & seals option are available for all types of bearings. For more information contact NEI sales/ technical cell.

Guidelines are given below for selection of seals based on operating conditions

	Sealed Type						Shielded Type
	RS	LB	LU	LH	LH1	LV	Z
Construction	Rubber seal is affixed in outer ring seal groove & seal lip is in contact with inner ring outerdiameter.	Rubber seal is affixed in outer ring seal groove & seal lip is aligned with V-groove on inner ring surface with labyrinth clearance	Rubber seal is affixed in outer ring seal groove & seal lip is in contact with inner ring v-groove.	Basic construction same as LU type, but specially designed lip on edge of seal prevents penetration by foreign matter, low torque construction.	Basic construction same as LH type. Additionally vent hole provided to evacuate vaccum from bearing.	3 - Lip design.Rubber seal is affixed in outer ring seal groove & seal lip is in contact with inner ring v-groove, 3rd lip is in contact with inner ring outer diameter.	Metal shield plate is affixed to outsidering, normally Inner ring incorporates a V-groove and labyrinth clearance.
Torque	Contact Type	Non Contact Type	Contact Type	Contact Type	Contact Type	Contact Type	Non Contact Type
Dust Proofing	Medium	Low	High	Medium	Medium	High	Low
Water Proofing	Good	Better than Z Type	Very Good	Good	Good	Excellent	Good
	Very Good	Poor	Very Good	Very Good	Very Good	Excellent	Poor

Note : Seals material will be selected based on operating temperature.

Note: For other detailed information on seals/shield contact NEI Technical Cell.

Double row deep groove ball bearing

Double row ball bearings are available in 62 & 63 series.

The load carrying Capacity of these bearings are more than single row. The bore and outer diameter dimensions are same. Width is slightly bigger than single row.

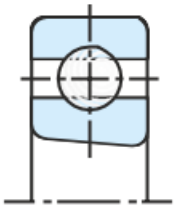
TMB Ball Bearing

TMB ball bearings have the same boundary dimensions as standard deep groove ball bearings, but have undergone a special heat treatment that considerably extends wear life. These bearings were especially effective in countering reduced wear life due to the effects of infiltration of dust and other foreign matter.

TMB 62 series bearings can be used in place of standard 63 series bearings enabling lighter weight, more compact designs. For dimensional specifications and other detailed information about TMB ball bearings contact engineering.

Single Row Deep groove Radial Ball Bearing with Tapered Bore

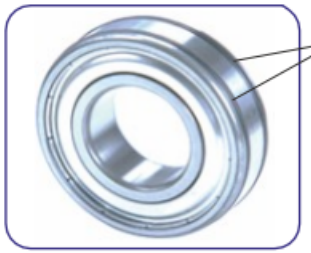
The single row radial ball bearings with tapered bore are identical to single row radial ball bearings except that these have tapered bore which is used for easier mounting and for the adjustment of radial clearance. Dimensions of tapered bore diameter refer to small bore.



SINGLE ROW RADIAL BALL BEARING WITH TAPER BORE

Creep prevention deep groove ball bearing

The dimensional boundary are the same as plain bearings. In the circumference of outside diameter there is groove in which the 'O' rings are placed. The 'O ring' is in contact with the inside of the housing inner diameter. This contact prevent rotation of bearing inside housing. It is used in assemblies where tight fit between bearing OD and housing inner diameter is not possible.



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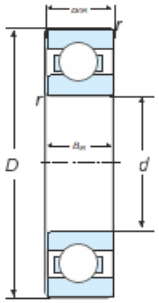
Single Row Deep Groove Ball Bearing (Metric series)

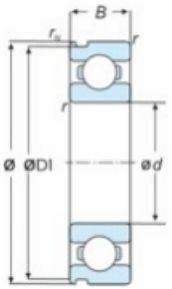


Open type

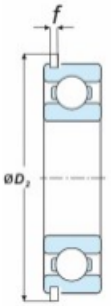
Shielded type (ZZ)

Sealed type (contact & non contact)

Low torque seal



With snap ring groove



With snap ring

Dynamic equivalent radial load

$P_r = XF_r \quad YF_a$

F_a / C_{or}	e	$F_a/F_r \le e$ X	$F_a/F_r \le e$ Y	$F_a/F_r > e$ X	$F_a/F_r > e$ Y
0.172	0.19				2.30
0.345	0.22				1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30	1	0	0.56	1.45
2.07	034				1.31
3.45	0.38				1.15
5.17	0.42				1.04
6.89	0.44				1.00

Static equivalent radial load

Por =0,6Fr+0,5Fa

when Por<Fr use Por=Fr

Boundry Dimensions					Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Numbers								Mass (Kg)
					Dynamic	Static	Dynamic	Static												
mm					KN		Kgf		KN	rpm										
d	D	B_{IR}	B_{OR}	r_{smin}	C_r	C_{or}	C_r	C_{or}	C_u	Grease	Oil	Open type	Shield Type		Sealed Bearings*				Snap Ring Groove	Snap Ring	
															Non Contact Type	Low Torque Type	Contact Type				
10	26	8	8	0.3	4.55	1.96	464	200	0.17	29000	34000	**6000**	Z	ZZ	-	-	RS	RSS	-	-	0.019
10	30	9	9	0.6	5.98	2.64	610	269	0.22	25000	30000	**6200**	Z	ZZ	-	LH	RS	RSS	N	NR	0.032
10	28	8	8	0.3	5.1	2.39	520	244	0.19	24000	29000	**N1566**	-	-	-	-	-	RSS	-	-	0.026
12	35	11	11	0.3	6.78	3.32	691	339	0.26	23000	27000	**6300**	Z	ZZ	-	LH	LU	LLU	-	-	0.053
12	24	6	6	0.3	2.89	1.46	295	149	0.10	27000	32000	**6901**	-	-	-	-	RS	RSS	-	-	0.011
12	28	8	8	0.3	5.1	2.39	520	244	0.19	26000	30000	**6001**	Z	ZZ	-	-	LUAX2	-	-	-	0.021
12	32	10	10	0.6	6.9	3.1	704	316	0.26	22000	26000	**6201**	Z	ZZ	-	LH	LUAX2	RSS	N1	NR	0.038
12	32	14	14	0.6	62	2.7	6322	275	0.26	22000	26000	**62201**	Z	-	-	-	-	RSS	-	-	0.05
12	37	12	12	1	9.7	4.2	989	428	0.35	20000	24000	**6301**	Z	ZZ	-	LH	LU	LLU	-	-	0.061
12	40	12	12	1	11.4	5	1162	510	0.42	18000	21000	**613963**	-	-	-	-	-	-	-	-	0.072

Note: 1.* All types of seals options can be made available, for more information contact us.
2. For snap groove & ring details contact NEI technical cell

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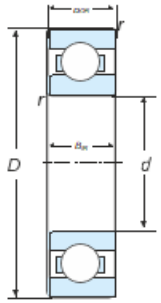
Single Row Deep Groove Ball Bearing (Metric series)

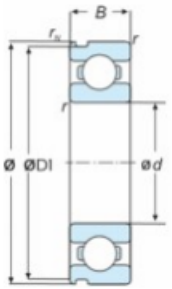


Open type

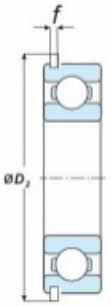
Shielded type (ZZ)

Sealed type (contact & non contact)

Low torque seal



With snap ring groove



With snap ring

Dynamic equivalent radial load

$P_r = XF_r \quad YF_a$

F_a/C_{or}	e	$F_a/F_r \le e$ X	$F_a/F_r \le e$ Y	$F_a/F_r > e$ X	$F_a/F_r > e$ Y
0.172	0.19				2.30
0.345	0.22				1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30	1	0	0.56	1.45
2.07	034				1.31
3.45	0.38				1.15
5.17	0.42				1.04
6.89	0.44				1.00

Static equivalent radial load

Por =0,6Fr+0,5Fa

when Por<Fr use Por=Fr

Boundry Dimensions					Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Numbers								Mass (Kg) (Approx)
mm					Dynamic KN	Static KN	Dynamic Kgf	Static Kgf	KN	rpm				Sealed Bearings*				Snap Ring Groove	Snap Ring	
d	D	B_{IR}	B_{OR}	r_{smin}	C_r	C_{or}	C_r	C_{or}	C_u	Grease	Oil	Open type	Shield Type		Non Contact Type	Low Torque Type	Contact Type			
15	28	7	7	0.3	4.1	2.06	418	210	0.13	24000	28000	6902	Z	-	-	-	RS	RSS	-	-	0.018
15	32	9	9	0.3	5.6	2.84	571	290	0.20	22000	26000	6002	Z	ZZ	-	LLH	LU/LUA	LLU	-	-	0.035
15	32	8	8	0.3	5.6	2.84	571	290	0.20	22000	26000	16002	-	-	-	-	-	-	-	-	0.025
15	35	11	11	0.6	7.75	3.6	790	367	0.30	19000	23000	6202	Z	ZZ	-	-	LU	LLUA/LLVA	-	-	0.052
15	35	14	14	0.6	7.7	3.7	785	377	0.30	22000	25000	62202	-	-	-	-	-	RSS	-	-	0.06
15	35	11	11	0.6	7.64	3.72	779	379	0.29	24000	27000	6202C	-	-	-	-	-	LLWA	-	-	0.044
15	42	13	13	1	11.4	5.54	1162	565	0.45	17000	21000	6302	Z	ZZ	-	-	RS	RSS	-	-	0.084
16	42	13	13	1	9.6	4.55	979	464	0.37	17000	21000	BB1002	-	-	-	-	-	-	-	-	0.084

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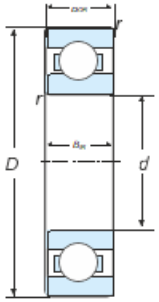
Single Row Deep Groove Ball Bearing (Metric series)

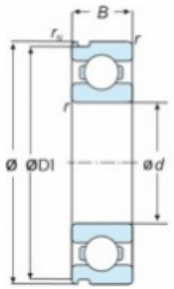


Open type

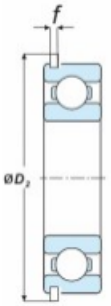
Shielded type (ZZ)

Sealed type (contact & non contact)

Low torque seal



With snap ring groove



With snap ring

Dynamic equivalent radial load

$P_r = XF_r \quad YF_a$

F_a / C_{or}	e	$\frac{F_a}{F_r} \le e$ X	$\frac{F_a}{F_r} \le e$ Y	$\frac{F_a}{F_r} > e$ X	$\frac{F_a}{F_r} > e$ Y
0.172	0.19				2.30
0.345	0.22				1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30	1	0	0.56	1.45
2.07	034				1.31
3.45	0.38				1.15
5.17	0.42				1.04
6.89	0.44				1.00

Static equivalent radial load

$P_{or} = 0.6F_r + 0.5F_a$

when $P_{or} < F_r$ use $P_{or} = F_r$

Boundry Dimensions					Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Numbers								Mass (Kg) (Approx)
					Dynamic	Static	Dynamic	Static						Sealed Bearings*				Snap Ring Groove	Snap Ring	
mm					KN		Kgf		KN	rpm		Open type	Shield Type	Non Contact Type	Low Torque Type	Contact Type				
d	D	B_{IR}	B_{OR}	r_{smin}	C_r	C_{or}	C_r	C_{or}	C_u	Grease	Oil									
17	30	7	7	0.3	4.65	2.58	474	263	0.17	20000	24000	**6903**	-	-	-	-	-	-	-	0.016
17	35	8	8	0.3	6.8	3.35	693	342	0.25	20000	24000	**16003**	-	-	-	-	-	-	-	0.032
17	35	10	10	0.3	6.8	3.35	693	342	0.25	20000	24000	**6003**	Z	ZZ	-	LLHA	LU	LLU	-	0.039
17	40	12	12	0.6	9.6	4.6	979	469	0.38	18000	21000	**6203**	Z	ZZ	-	LLHA	LUAX2	LLU	-	0.065
17	40	12	12	0.6	10.5	5.2	1071	530	0.43	18000	21000	**6203C**	-	-	-	LLHA	LU	LLVA	N1	-	0.061
17	40	16	16	0.6	9.6	4.6	979	469	0.43	16000	18000	**62203**	-	-	-	-	-	RSS	-	-	0.09
17	42	12	12	0.6	11.6	5.7	1183	581	0.43	18000	21000	**6203A/42**	-	-	-	LH	LU	-	-	-	0.078
17	47	14	14	1	13.5	6.55	1377	668	0.55	16000	19000	**6303**	Z	ZZ	-	LLHA	LU	LLWA/LLVA	-	-	0.116
17	40	12	12	0.6	9.6	4.6	979	469	0.38	18000	21000	**6203SPL**	-	-	-	-	-	LLV	-	-	0.068
17	47	14	14	1	13.5	6.55	1377	668	0.55	19000	21000	**6303A**	-	-	-	-	-	LLWA	-	-	0.105

Note: 1.* All types of seals options can be made available, for more information contact us.
2. For snap groove & ring details contact NEI technical cell

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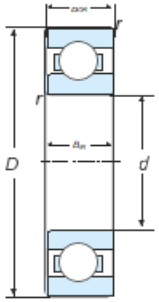
Single Row Deep Groove Ball Bearing (Metric series)

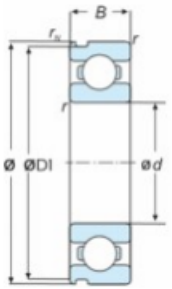


Open type

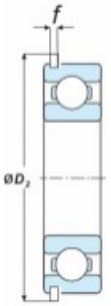
Shielded type (ZZ)

Sealed type (contact & non contact)

Low torque seal



With snap ring groove



With snap ring

Dynamic equivalent radial load

$P_r = XF_r \quad YF_a$

F_a/C_{or}	e	$F_a/F_r \le e$ X	$F_a/F_r \le e$ Y	$F_a/F_r > e$ X	$F_a/F_r > e$ Y
0.172	0.19				2.30
0.345	0.22				1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30	1	0	0.56	1.45
2.07	034				1.31
3.45	0.38				1.15
5.17	0.42				1.04
6.89	0.44				1.00

Static equivalent radial load

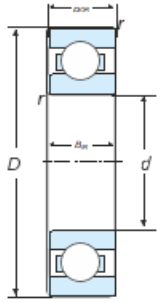
Por =0,6Fr+0,5Fa

when Por<Fr use Por=Fr

Boundry Dimensions					Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Numbers								Mass (Kg)
					Dynamic	Static	Dynamic	Static						Sealed Bearings*						
mm					KN		Kgf		KN	rpm		Open type	Shield Type		Non Contact Type	Low Torque Type	Contact Type		Snap Ring Groove	Snap Ring	(Approx)
d	D	B_{IR}	B_{OR}	r_{smin}	C_r	C_{or}	C_r	C_{or}	C_u	Grease	Oil									
18	56	16	16	1.1	20.7	10.4	2111	1060	0.84	13000	15000	**63/18**	-	-	-	-	-	LLU	-	-	0.196
20	32	9	9	0.3	4	2.47	408	252	0.15	21000	23000	**6904/32**	-	-	-	LLH	-	RSS	-	-	0.026
20	37	9	9	0.3	6.4	3.7	653	377	0.12	18000	20000	**6904**	-	-	-	-	-		-	-	0.036
20	42	8	8	0.3	7.4	4	755	408	0.21	16000	18000	**16004**	-	-	-	-	-		-	-	0.049
20	42	9	9	0.6	8.65	4.5	882	459	0.32	15000	18000	**98204**	-	-	-	-	-		-	-	0.052
20	42	12	12	0.6	9.4	5.05	959	515	0.36	18000	21000	**6004**	Z	ZZ	-	LH/LLH	LU	LLU	-	-	0.069
20	47	14	14	1	13.7	6.7	1397	683	0.56	16000	18000	**6204**	Z	ZZ	-	LLHA	LU/LUA	LLU/RSS	N	-	0.114
20	47	14	14	1	12.8	6.5	1305	663	0.44	16000	18000	**6204M**	-	-	-	-	-	-	N	-	0.105
20	47	16	16	1	13.7	6.7	1397	683	0.56	16000	18000	**6204/2B**	Z	ZZ	-	LLHA	-	-	-	-	0.11
20	47	15.88	15.88	0.6	13.7	6.7	1397	683	0.56	16000	18000	**BB1003**	-	-	-	-	-	-	-	-	0.12

nbc flexible solutions

Single Row Deep Groove Ball Bearing (Metric series)

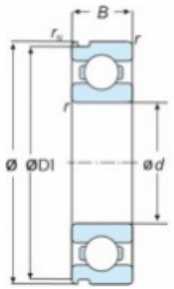


Open type

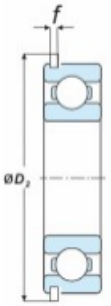
Shielded type (ZZ)

Sealed type (contact & non contact)

Low torque seal



With snap ring groove



With snap ring

Dynamic equivalent radial load

$P_r = XF_r \quad YF_a$

F_a/C_{or}	e	$F_a/F_r \le e$ X	$F_a/F_r \le e$ Y	$F_a/F_r > e$ X	$F_a/F_r > e$ Y
0.172	0.19				2.30
0.345	0.22				1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30	1	0	0.56	1.45
2.07	034				1.31
3.45	0.38				1.15
5.17	0.42				1.04
6.89	0.44				1.00

Static equivalent radial load

Por =0.6Fr+0.5Fa

when Por<Fr use Por=Fr

Boundry Dimensions					Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Numbers								Mass (Kg) (Approx)
mm					Dynamic KN	Static KN	Dynamic Kgf	Static Kgf	KN	rpm				Sealed Bearings*				Snap Ring Groove	Snap Ring	
d	D	B_{IR}	B_{OR}	r_{smin}	C_r	C_{or}	C_r	C_{or}	C_u	Grease	Oil	Open type	Shield Type		Non Contact Type	Low Torque Type	Contact Type			
20	47	18	18	1	12.8	6.7	1305	683	0.56	11000	16000	62204	-	-	-	-	-	-	-	0.14
20	50	14	14	1	13.7	6.7	1397	683	0.56	16000	18000	1838002	-	-	-	-	-	-	-	0.125
20	52	15	15	1.1	15.9	7.85	1621	800	0.66	14000	17000	6304	Z	ZZ	-	-	RS	RSS	N	0.147
20	52	15	15	1.1	18.1	9	1846	918	0.75	14000	17000	6304M	-	-	-	-	-	-	-	0.142
20	55	11	11	1.1	15.9	7.85	1621	800	0.55	14000	17500	20x55x11	-	-	-	-	-	-	-	0.136
20	56	17	17	1.1	20.5	10.2	2090	1040	0.86	13000	15000	20x56x17	-	-	-	-	-	-	N	0.19
20	62	16	16	1	23.4	12.2	2386	1244	1.02	10000	12000	BB1063	-	ZZ	-	-	-	-	-	0.254
20	42	12	12	0.6	9.4	5.05	959	515	0.36	18000	21000	N1344	-	-	-	-	-		-	0.067
20	47	16	16	1	14.68	7.16	1497	730	0.60	16000	18000	N1389	-	-	-	-	-	LLUA	-	0.112
20	52	14	14	1	18.1	9	1846	918	0.75	14000	17000	SP6304M	-	-	-	-	-		-	0.138

Note: 1.* All types of seals options can be made available, for more information contact us.

2. For snap groove & ring details contact NEI technical cell

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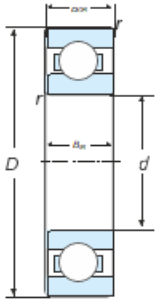
Single Row Deep Groove Ball Bearing (Metric series)

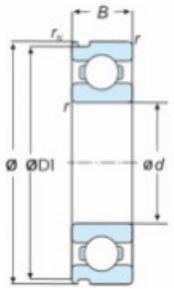


Open type

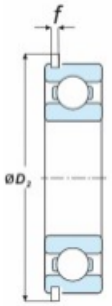
Shielded type (ZZ)

Sealed type (contact & non contact)

Low torque seal



With snap ring groove



With snap ring

Dynamic equivalent radial load

$P_r = XF_r \quad YF_a$

F_a / C_{or}	e	$\frac{F_a}{F_r} \le e$ X	$\frac{F_a}{F_r} \le e$ Y	$\frac{F_a}{F_r} > e$ X	$\frac{F_a}{F_r} > e$ Y
0.172	0.19				2.30
0.345	0.22				1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30	1	0	0.56	1.45
2.07	034				1.31
3.45	0.38				1.15
5.17	0.42				1.04
6.89	0.44				1.00

Static equivalent radial load

Por =0,6Fr+0,5Fa

when Por<Fr use Por=Fr

Boundry Dimensions					Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Numbers								Mass (Kg) (Approx)
					Dynamic	Static	Dynamic	Static												
mm					KN		Kgf		KN	rpm										
d	D	B_{IR}	B_{OR}	r_{smin}	C_r	C_{or}	C_r	C_{or}	C_u	Grease	Oil	Open type	Shield Type		Sealed Bearings*				Snap Ring Groove	Snap Ring	
															Non Contact Type	Low Torque Type	Contact Type				
20	52	15	15	1.1	18.1	9	1846	918	0.75	14000	17000	**G1361**	-	-	-	-	-	LLUA	-	-	0.153
20	52	15	15	1.1	18.1	9	1846	918	0.75	14000	17000	**N1426**	-	-	-	-	-		-	-	0.142
20	52	15	15	1.1	18.1	9	1846	918	0.75	16000	18000	**6304MA**	-	-	-	-	-	LLUA	-	-	0.11
22	52	15	15	1	15.9	7.85	1621	800	0.76	19000	21000	**6304/22**	-	-	-	-	-	-	-	-	0.13
22	52	15	15	1	18.2	9	1851	921	0.75	18000	20000	**6304/22M**	-	-	-	-	-	LLU	-	-	0.141
22	56	16	16	1.1	20.7	10.4	2111	1060	0.87	13000	15000	**63/22**	-	-	-	-	-	-	-	-	0.164
22	44	12	12	0.6	9.4	5.15	959	525	0.36	17000	20000	**60/22**	-	-	-	-	-	LLV	-	-	0.074
22	50	14	14	1	15.18	7.95	1548	811	0.51	14000	17000	**62/22**	-	-	-	-	-		-	-	0.114
22	52	15	15	1.1	18.1	9	1846	918	0.76	18000	20000	**G1360**	-	-	-	-	-	LLUA	-	-	0.142
22	52	15	15	1.1	18.1	9	1846	918	0.76	18000	20000	**N1360**	-	-	-	-	-	-	-	-	0.136
22	56	11.5	11.5	1.5/1	16.6	9.5	1693	969	0.70	13000	15000	**N1422**	-	-	-	-	-	-	-	-	0.135

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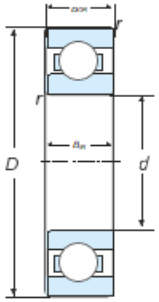
Single Row Deep Groove Ball Bearing (Metric series)

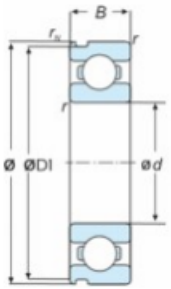


Open type

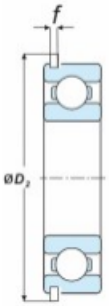
Shielded type (ZZ)

Sealed type (contact & non contact)

Low torque seal



With snap ring groove



With snap ring

Dynamic equivalent radial load

$P_r = XF_r \quad YF_a$

F_a / C_{or}	e	$\frac{F_a}{F_r} \le e$ X	$\frac{F_a}{F_r} \le e$ Y	$\frac{F_a}{F_r} > e$ X	$\frac{F_a}{F_r} > e$ Y
0.172	0.19				2.30
0.345	0.22				1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30	1	0	0.56	1.45
2.07	034				1.31
3.45	0.38				1.15
5.17	0.42				1.04
6.89	0.44				1.00

Static equivalent radial load

Por =0.6Fr+0.5Fa

when Por<Fr use Por=Fr

Boundry Dimensions					Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Numbers								Mass (Kg) (Approx)
					Dynamic	Static	Dynamic	Static						Sealed Bearings*				Snap Ring Groove	Snap Ring	
mm					KN		Kgf		KN	rpm		Open type	Shield Type	Non Contact Type	Low Torque Type	Contact Type				
d	D	B_{IR}	B_{OR}	r_{smin}	C_r	C_{or}	C_r	C_{or}	C_u	Grease	Oil									
25	42	9	9	0.3	7.05	4.55	719	464	0.28	16000	19000	**6905**	-	-	-	-	-	-	-	0.042
25	47	8	8	0.3	8.35	5.1	851	520	0.32	15000	18000	**16005**	-	-	-	-	-	-	-	0.06
25	47	12	12	0.6	10	5.85	1020	597	0.39	15000	18000	**6005**	Z	ZZ	-	LLH	-	RSS/LLUA1	N	NR	0.088
25	52	9	9	0.6	11.6	6.5	1183	663	0.45	14000	17000	**98205**	-	-	-	-	-	-	-	-	0.085
25	52	15	15	1	14	7.85	1428	800	0.57	13000	15000	**6205**	Z	ZZ	-	-	LU	LLU/LLUA	N	NR	0.129
25	52	18	18	1	14.1	7.8	1438	795	0.57	13000	15000	**62205**	-	-	-	-	-	-	-	-	0.16
25	52	12	12	0.6	15.2	18.05	1550	1841	0.63	9000	15000	**420205**	-	-	-	-	-	-	-	-	0.1
25	52	15	15	1	17.6	9.3	1795	948	0.76	13000	15000	**6205C**	Z	-	-	-	-	LLU/LLUA	N	-	0.128
25	56	15	15	1.1	17.7	9.5	1805	969	0.75	16000	18000	**25X56X15**	Z	-	-	-	-	-	-	-	0.162
25	62	12	12	0.6	19.5	11.3	1988	1152	0.83	13500	16000	**1838001**	-	-	-	-	-	-	-	-	0.176

Note: 1.* All types of seals options can be made available, for more information contact us.
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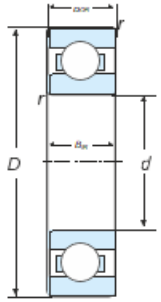
Single Row Deep Groove Ball Bearing (Metric series)

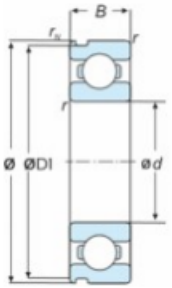


Open type

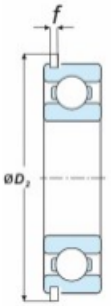
Shielded type (ZZ)

Sealed type (contact & non contact)

Low torque seal



With snap ring groove



With snap ring

Dynamic equivalent radial load

$P_r = XF_r \quad YF_a$

F_a / C_{or}	e	$F_a/F_r \le e$ X	$F_a/F_r \le e$ Y	$F_a/F_r > e$ X	$F_a/F_r > e$ Y
0.172	0.19				2.30
0.345	0.22				1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30	1	0	0.56	1.45
2.07	034				1.31
3.45	0.38				1.15
5.17	0.42				1.04
6.89	0.44				1.00

Static equivalent radial load

Por =0,6Fr+0,5Fa

when Por<Fr use Por=Fr

Boundry Dimensions					Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Numbers								Mass (Kg)
					Dynamic	Static	Dynamic	Static						Sealed Bearings*				Snap Ring Groove	Snap Ring	(Approx)
mm					KN		Kgf		KN	rpm		Open type	Shield Type		Non Contact Type	Low Torque Type	Contact Type			
d	D	B_{IR}	B_{OR}	r_{smin}	C_r	C_{or}	C_r	C_{or}	C_u	Grease	Oil									
25	62	17	17	1.1	21.2	10.9	2162	1111	0.91	12000	14000	**6305**	Z	ZZ	-	-	LU	LLU	N	NR	0.225
25	62	14	14	0.2	16	10.3	1632	1050	0.68	6700	11400	**6007/25**	-	-	-	-	-	-	-	-	0.211
25	62	17	17	1.5	23.6	12.1	2406	1234	1.02	16000	18000	**6305CS**	Z	-	-	-	-	LLU/LLUA	NX	-	0.225
25	68	12	12	0.6	20.4	11.1	2080	1132	0.89	14000	15000	**N1287**	-	-	-	-	-	-	-	-	0.234
25	72	17	17	1.1	21.2	10.9	2162	1111	0.89	12000	14000	**SP72X25XI7**	-	-	-	-	-	-	-	-	0.37
25	72	19	19	2	27.1	14.5	2763	1479	1.19	7700	13100	**6306/25**	-	-	-	-	LU	LLU	N	-	0.365
25	52	15	15	1	18.1	9	1846	918	0.76	13000	15000	**G1362**	-	-	-	-	-	-	-	-	0.128
25	52	20.6	20.6	1	21.3	14.7	2172	1499	1.13	7300	9800	**5205**	-	-	-	-	-	-	-	-	0.168
25	52	23.6	23.6	1	21.3	14.7	2172	1499	1.13	7300	9800	**W5205**	-	-	-	-	-	LLU	NX	-	0.21
25	56	15	15	1	17.8	9.5	1815	969	0.75	12500	14500	**N1468**	-	-	-	-	-	-	-	-	0.152

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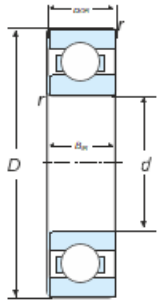
Single Row Deep Groove Ball Bearing (Metric series)

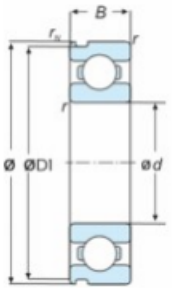


Open type

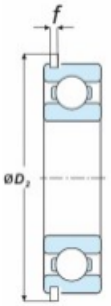
Shielded type (ZZ)

Sealed type (contact & non contact)

Low torque seal



With snap ring groove



With snap ring

Dynamic equivalent radial load

$P_r = XF_r \quad YF_a$

F_a/C_{or}	e	$F_a/F_r \le e$ X	$F_a/F_r \le e$ Y	$F_a/F_r > e$ X	$F_a/F_r > e$ Y
0.172	0.19				2.30
0.345	0.22				1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30	1	0	0.56	1.45
2.07	034				1.31
3.45	0.38				1.15
5.17	0.42				1.04
6.89	0.44				1.00

Static equivalent radial load

Por =0.6Fr+0.5Fa

when Por<Fr use Por=Fr

Boundry Dimensions					Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Numbers								Mass (Kg) (Approx)
					Dynamic	Static	Dynamic	Static						Sealed Bearings*				Snap Ring Groove	Snap Ring	
mm					KN		Kgf		KN	rpm		Open type	Shield Type	Non Contact Type	Low Torque Type	Contact Type				
d	D	B_{IR}	B_{OR}	r_{smin}	C_r	C_{or}	C_r	C_{or}	C_u	Grease	Oil									
25	62	17	17	0.3	23.6	12.1	2406	1234	1.02	12000	14000	**G1332**	-	-	-	-	-	-	-	0.229
25	62	17	17	1.1	26.3	13.5	2682	1377	1.12	12000	14000	**N1366**	-	-	-	-	-	-	-	0.224
25	62	17	17	1.8	23.6	12.1	2406	1234	1.02	12000	14000	**N1332**	-	-	-	-	LH1A	LLH1/LLH1A	NX	-	0.229
25	62	19	19	0.4	23.6	12.1	2406	1234	1.02	12000	14000	**N1415**	-	-	-	-	-	LLU	NX	-	0.253
25	64	17	17	0.5	22.3	11.5	2274	1173	0.98	11500	13500	**N1464**	-	-	-	-	-	-	-	-	0.26
25	68	18	18	0.3	26.7	14	2723	1428	1.16	11000	13000	**G1335**	-	-	-	-	-	-	-	-	0.312
25	68	18	18	0.3	26.7	14	2723	1428	1.16	11000	13000	**63/25LLUNX**	-	-	-	-	-	LLU	NX	-	0.302
25	80	21	21	1.5	33	17.6	3365	1795	1.47	10000	12000	**6405**	-	-	-	-	LU	-	-	-	0.536
25.5	72	19	19	1.1	27.1	14.5	2763	1479	1.19	10000	12000	**872489**	-	-	-	-	-	-	-	-	0.363

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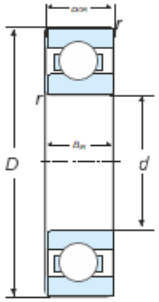
Single Row Deep Groove Ball Bearing (Metric series)

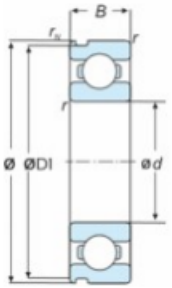


Open type

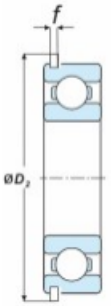
Shielded type (ZZ)

Sealed type (contact & non contact)

Low torque seal



With snap ring groove



With snap ring

Dynamic equivalent radial load

$P_r = XF_r \quad YF_a$

F_a/C_{or}	e	$F_a/F_r \le e$		$F_a/F_r > e$	
		X	Y	X	Y
0.172	0.19				2.30
0.345	0.22				1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30	1	0	0.56	1.45
2.07	034				1.31
3.45	0.38				1.15
5.17	0.42				1.04
6.89	0.44				1.00

Static equivalent radial load

Por =0,6Fr+0,5Fa

when Por<Fr use Por=Fr

Boundry Dimensions					Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Numbers								Mass (Kg) (Approx)
mm					Dynamic KN	Static KN	Dynamic Kgf	Static Kgf	KN	rpm				Sealed Bearings*				Snap Ring Groove	Snap Ring	
d	D	B_{IR}	B_{OR}	r_{smin}	C_r	C_{or}	C_r	C_{or}	C_u	Grease	Oil	Open type	Shield Type		Non Contact Type	Low Torque Type	Contact Type			
28	58	16	16	1	17.9	9.75	1825	994	0.74	12000	14000	**62/28**	-	-	-	LLH/LLHA	-	LLU	N	NR	0.171
28	68	18	18	1.1	26.7	14	2723	1428	1.18	11000	13000	**63/28**	-	-	-	-	LU	LLU	N	NR	0.293
28	68	17	17	1.1	26.7	14	2723	1428	1.18	11000	13000	**SP63/28**	-	-	-	-	-	-	-	-	0.254
28	72	18	18	1.5	25.7	15.4	2621	1570	1.13	9800	11000	**72x28x18**	-	-	-	-	-	-	-	-	0.35
28	72	18	18		22.2	14.6	2264	1489	0.98	9800	11000	**BB1087**	-	-	-	-	-	-	-	-	0.36
30	47	9	9	0.3	7.24	4.9	738	500	0.29	14000	17000	**6906**	-	-	-	-	-	-	-	-	0.05
30	55	13	13	1	13.2	8.3	1346	846	0.54	13000	15000	**6006**	Z	ZZ	LBRA	LLHA	LU	LLU	N	NR	0.116
30	55	11	11	1	13.2	8.3	1346	846	0.54	13000	15000	**SP6006**	-	-	-	-	-	-	-	-	0.1
30	55	9	9	0.3	11.2	7.35	1142	749	0.37	13000	15000	**16006**	-	-	-	-	-	-	-	-	0.091
30	62	16	16	1	19.5	11.3	1988	1152	0.82	11000	13000	**6206**	Z	ZZ	-	LLH	RS	RSS	N	NR	0.201

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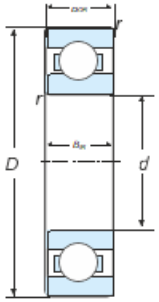
Single Row Deep Groove Ball Bearing (Metric series)

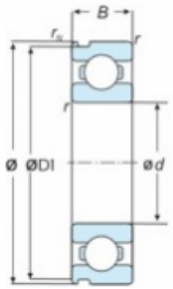


Open type

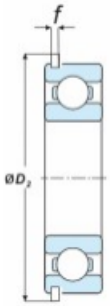
Shielded type (ZZ)

Sealed type (contact & non contact)

Low torque seal



With snap ring groove



With snap ring

Dynamic equivalent radial load

$P_r = XF_r \quad YF_a$

F_a / C_{or}	e	$F_a/F_r \le e$ X	$F_a/F_r \le e$ Y	$F_a/F_r > e$ X	$F_a/F_r > e$ Y
0.172	0.19				2.30
0.345	0.22				1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30	1	0	0.56	1.45
2.07	034				1.31
3.45	0.38				1.15
5.17	0.42				1.04
6.89	0.44				1.00

Static equivalent radial load

Por =0,6Fr+0,5Fa

when Por<Fr use Por=Fr

Boundry Dimensions					Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Numbers								Mass (Kg) (Approx)
mm					Dynamic KN	Static KN	Dynamic Kgf	Static Kgf	KN	rpm										
d	D	B_{IR}	B_{OR}	r_{smin}	C_r	C_{or}	C_r	C_{or}	C_u	Grease	Oil	Open type	Shield Type		Sealed Bearings*			Snap Ring Groove	Snap Ring	
															Non Contact Type	Low Torque Type	Contact Type			
30	62	16	16	1	23.4	12.8	2386	1305	1.03	11000	13000	6206C	-	-	-	-	LU	-	-	0.195
30	62	20	20	1	19.5	11.3	1988	1152	1.03	7500	13000	62206	-	-	-	-	-	-	-	0.25
30	62	14	14	1	20.6	11.3	2101	1152	0.87	7500	13000	420206	-	-	-	-	-	-	-	0.18
30	72	19	19	1.1	27.1	14.5	2763	1479	1.19	10000	12000	6306	Z	ZZ	LLBR	LLH	LU	LLU	N	NR	0.334
30	72	19	19	1.1	32.57	17.28	3321	1762	1.45	10000	12000	6306C	-	-	-	-	-	-	-	-	0.331
30	72	17	17	1.1	29.7	16.7	3029	1703	1.36	12000	14000	420306	-	-	-	-	-	-	-	-	0.3
30	72	21	21	1.1	32.57	17.28	3321	1762	1.45	15000	16000	N1345	-	-	-	-	-	LLU	N	-	0.35
30	90	23	23	1.5	40.6	22.8	4140	2325	1.84	7800	9200	6406	-	-	-	-	-	-	N	NR	0.698
30	56	12	12	1.5/1.0	16.6	9.5	1693	969	0.69	13000	15000	N1530	-	-	-	-	-	-	-	-	0.108
30	56	13.5	13.5	1.5/1.0	16.6	9.5	1693	969	0.69	13000	15000	N1626	-	-	-	-	-	-	-	-	0.12
30	62	15	15	1.5/1.0	17.8	11	1815	1122	0.75	11000	13000	N1424	-	-	-	-	-	-	-	-	0.186

Note: 1.* All types of seals options can be made available, for more information contact us.

2. For snap groove & ring details contact NEI technical cell

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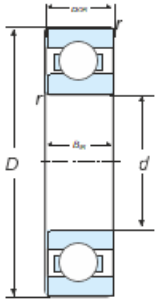
Single Row Deep Groove Ball Bearing (Metric series)

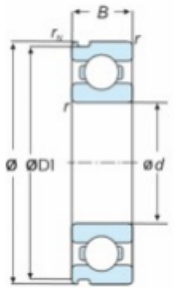


Open type

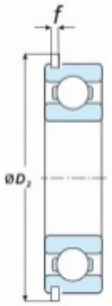
Shielded type (ZZ)

Sealed type (contact & non contact)

Low torque seal



With snap ring groove



With snap ring

Dynamic equivalent radial load

$P_r = XF_r \quad YF_a$

F_a/C_{or}	e	$F_a/F_r \le e$ X	$F_a/F_r \le e$ Y	$F_a/F_r > e$ X	$F_a/F_r > e$ Y
0.172	0.19				2.30
0.345	0.22				1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30	1	0	0.56	1.45
2.07	034				1.31
3.45	0.38				1.15
5.17	0.42				1.04
6.89	0.44				1.00

Static equivalent radial load

Por =0,6Fr+0,5Fa

when Por<Fr use Por=Fr

Boundry Dimensions					Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Numbers								Mass (Kg) (Approx)
					Dynamic	Static	Dynamic	Static						Sealed Bearings*				Snap Ring Groove	Snap Ring	
mm					KN		Kgf		KN	rpm		Open type	Shield Type		Non Contact Type	Low Torque Type	Contact Type			
d	D	B_{IR}	B_{OR}	r_{smin}	C_r	C_{or}	C_r	C_{or}	C_u	Grease	Oil									
30	62	16	16	1	19.5	11.3	1988	1152	0.82	11000	13000	N1624	-	-	-	-	-	LLH1	N	-	0.198
30	72	19	19	1.1	32.57	17.28	3321	1762	1.45	10000	12000	N1392	-	-	-	-	-	LLU	N	-	0.328
34.99	72	15	18.5	1.5	25.7	15.3	2621	1560	1.12	9800	11000	BB1103	-	-	-	-	-	-	-	-	0.3
35	62	9	9	0.3	11.7	8.2	1193	836	0.42	12000	14000	16007	-	-	-	-	-	-	-	-	0.11
35	62	14	14	0.5	16	10.3	1632	1050	0.66	12000	14000	6007	Z	ZZ	-	-	RS	RSS	N	NR	0.154
35	62	14	14	0.5	16	10.3	1632	1050	0.66	12000	14000	6007SPL	-	-	-	-	-	RSS	-	-	0.154
35	72	17	17	1.1	25.7	15.3	2621	1560	1.12	9800	11000	6207	Z	ZZ	-	-	LU	LLU	N	NR	0.28
35	72	17	17	1.5	25.7	15.3	2621	1560	1.12	9800	11000	6207RO	-	-	-	-	-	-	-	-	0.286
35	72	23	23	1.1	25.5	15.2	2600	1550	1.12	6300	11000	62207	-	-	-	-	-	-	-	-	0.39
35	80	21	21	1.5	33.4	19.2	3406	1958	1.51	8800	10000	6307	Z	ZZ	LLBR	LLH/LLH1	LU	LLU	N	NR	0.457

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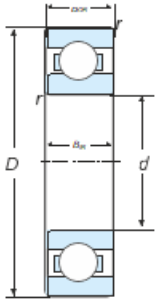
Single Row Deep Groove Ball Bearing (Metric series)

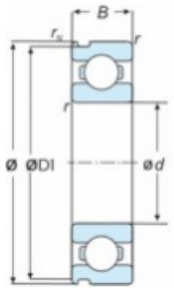


Open type

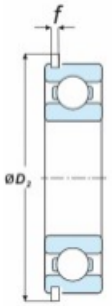
Shielded type (ZZ)

Sealed type (contact & non contact)

Low torque seal



With snap ring groove



With snap ring

Dynamic equivalent radial load

$P_r = XF_r \quad YF_a$

F_a/C_{or}	e	$F_a/F_r \le e$ X	$F_a/F_r \le e$ Y	$F_a/F_r > e$ X	$F_a/F_r > e$ Y
0.172	0.19				2.30
0.345	0.22				1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30	1	0	0.56	1.45
2.07	034				1.31
3.45	0.38				1.15
5.17	0.42				1.04
6.89	0.44				1.00

Static equivalent radial load

Por =0.6Fr+0.5Fa

when Por<Fr use Por=Fr

Boundry Dimensions					Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Numbers								Mass (Kg) (Approx)
mm					Dynamic KN	Static KN	Dynamic Kgf	Static Kgf	KN	rpm				Sealed Bearings*				Snap Ring Groove	Snap Ring	
d	D	B_{IR}	B_{OR}	r_{smin}	C_r	C_{or}	C_r	C_{or}	C_u	Grease	Oil	Open type	Shield Type		Non Contact Type	Low Torque Type	Contact Type			
35	80	26	21	1.5	33.4	19.2	3406	1958	1.51	8800	10000	SP6307	-	-	-	-	-	LLU	-	-	0.483
35	80	21	21	1.5	33.4	19.2	3406	1958	1.51	8800	10000	CR-6307	-	-	-	-	-	LLU	-	-	0.445
35	100	25	25	1.5	48.3	27.8	4925	2835	2.25	7800	9100	6407	-	-	-	-	-	-	-	-	0.925
35	72	15	15	1.5	20	13.8	2039	1407	0.88	9800	11000	N1201	-	-	-	-	-	-	-	-	0.277
35	72	21	21	1.1	28.3	16	2886	1632	1.25	9800	11000	N1485	-	-	-	-	-	LLH1A	N	-	0.335
35	80	21	21	1.5	33.4	19.2	3406	1958	1.51	8800	10000	CR-6307	-	-	-	-	-	LLU		-	0.46
35	85	23	23	1.5	36.83	21.3	3756	2172	1.70	8500	9800	N1206LLU	-	-	-	-	-	LLU		-	0.623
35	90	25	25	1.5	44.5	26.2	4538	2672	2.13	8300	9500	N1412	-	-	-	-	-	LLU		-	0.697
36	64	12	12	1.5/1.0	17.9	11.1	1825	1132	0.74	12000	14000	N1506	-	-	-	-	-	-	-	-	0.133
40	58	12	12	0.6	10.3	7.91	1049	807	0.45	11000	13000	N1305	-	-	-	-	-	-	-	-	0.084

Note: 1.* All types of seals options can be made available, for more information contact us.

2. For snap groove & ring details contact NEI technical cell

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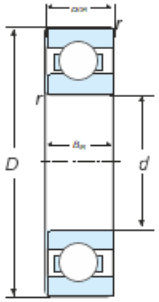
Single Row Deep Groove Ball Bearing (Metric series)

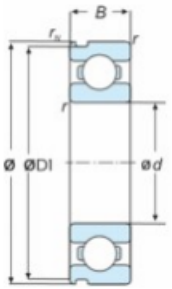


Open type

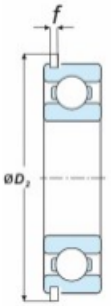
Shielded type (ZZ)

Sealed type (contact & non contact)

Low torque seal



With snap ring groove



With snap ring

Dynamic equivalent radial load

$P_r = XF_r \quad YF_a$

F_a/C_{or}	e	$F_a/F_r \le e$ X	$F_a/F_r \le e$ Y	$F_a/F_r > e$ X	$F_a/F_r > e$ Y
0.172	0.19				2.30
0.345	0.22				1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30	1	0	0.56	1.45
2.07	034				1.31
3.45	0.38				1.15
5.17	0.42				1.04
6.89	0.44				1.00

Static equivalent radial load

Por =0,6Fr+0,5Fa

when Por<Fr use Por=Fr

Boundry Dimensions					Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Numbers								Mass (Kg)
mm					Dynamic KN	Static KN	Dynamic Kgf	Static Kgf	KN	rpm				Sealed Bearings*				Snap Ring Groove	Snap Ring	(Approx)
d	D	B_{IR}	B_{OR}	r_{smin}	C_r	C_{or}	C_r	C_{or}	C_u	Grease	Oil	Open type	Shield Type		Non Contact Type	Low Torque Type	Contact Type			
40	62	12	12	0.6	13.7	10	1397	1020	0.59	10000	12000	**6908**	-	-	-	-	-	-	-	0.11
40	68	9	9	0.3	11.1	8.55	1132	872	4.60	10000	12000	**16008**	-	-	-	-	-	-	-	0.13
40	68	15	15	1	16.8	11.5	1713	1173	0.71	10000	12000	**6008**	-	ZZ	-	-	-	LLU	N	NR	0.195
40	80	18	18	1.1	29.1	18	2967	1835	1.27	8700	10000	**6208**	Z	ZZ	-	LLHA	LU	LLU	N	NR	0.357
40	80	18	18	1.1	29.1	18	2967	1835	1.27	8700	10000	**6208K**	-	-	-	-	-	-	-	-	0.363
40	85	18	18	1.1	29.1	18	2967	1835	1.26	11000	12000	**40X85X18**	-	-	-	-	-	-	NX	NXR	0.467
40	90	23	23	1.5	40.6	22.9	4140	2335	1.84	7800	9200	**6308**	Z	ZZ	-	LLH	RSS/LU	LLU	N	NR	0.599
40	90	23	23	1.5	44.3	26	4517	2651	2.11	7800	9200	**6308C**	-	-	-	-	-	LLU	-	-	0.62
40	90	23	23	1.5	40.6	22.9	4140	2335	2.11	7800	9200	**6308RO**	-		-	-	-		-	-	0.665
40	90	23	23	1.5	51	28	5200	2855	2.37	11000	13000	**N1334**	-	-	-	-	-	-	N	-	0.538

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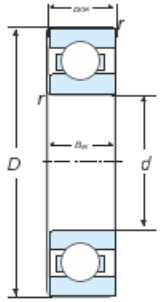
Single Row Deep Groove Ball Bearing (Metric series)

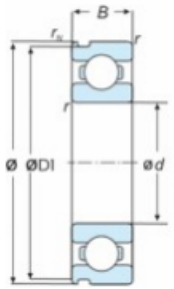


Open type

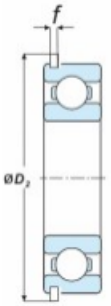
Shielded type (ZZ)

Sealed type (contact & non contact)

Low torque seal



With snap ring groove



With snap ring

Dynamic equivalent radial load

$P_r = XF_r \quad YF_a$

F_a/C_{or}	e	$F_a/F_r \le e$ X	$F_a/F_r \le e$ Y	$F_a/F_r > e$ X	$F_a/F_r > e$ Y
0.172	0.19				2.30
0.345	0.22				1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30	1	0	0.56	1.45
2.07	034				1.31
3.45	0.38				1.15
5.17	0.42				1.04
6.89	0.44				1.00

Static equivalent radial load

Por =0.6Fr+0.5Fa

when Por<Fr use Por=Fr

Boundry Dimensions					Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Numbers								Mass (Kg)
					Dynamic	Static	Dynamic	Static												
mm					KN		Kgf		KN	rpm										
d	D	B_{IR}	B_{OR}	r_{smin}	C_r	C_{or}	C_r	C_{or}	C_u	Grease	Oil	Open type	Shield Type		Sealed Bearings*				Snap Ring Groove	Snap Ring	
															Non Contact Type	Low Torque Type	Contact Type				
40	110	27	27	2	61.9	38	6312	3875	3.07	7000	8200	**6408**	-	-	-	-	-	-	N	NR	1.21
40	100	25	25	1.5	53	32	5404	3263	2.57	7400	8400	**N1451**	-	-	-	-	-	-	-	-	0.897
42.03	90	23	23	0.6/1.5	40.7	24	4150	2447	1.87	7800	9200	**N1270**	-	-	-	RSS	-	-	N	-	0.548
45	75	16	16	1	21	15.1	2141	1540	0.93	9200	11000	**6009**	Z	ZZ	-	-	-	LLU/LLUA	N	NR	0.237
45	75	12	12	1	21	15.1	2141	1540	0.93	9200	11000	**SP6009**	-	-	-	-	-	-	-	-	0.2
45	85	19	19	1.1	32.7	20.5	3334	2090	1.44	7800	9200	**6209**	Z	ZZ	-	-	LU	LLU	N	NR	0.4
45	85	19	19	1.1	32.7	20.5	3334	2090	1.44	7800	9200	**6209K**	-	-	-	-		-	-	-	0.41
45	100	25	25	15	53	32	5404	3263	2.54	7000	8200	**6309**	Z	ZZ	-	LLH/LLHA	-	LLU	N	NR	0.825
45	120	29	29	1.1	71.5	44.4	7291	4527	3.58	6300	7400	**6409**	-	-	-	-	-	-	-	-	1.55
45	68	12	12	0.6	14.11	10.86	1439	1107	0.62	4000	5500	**6909**	-	-	-	-	LUA	LLUA		-	0.126

Note: 1.* All types of seals options can be made available, for more information contact us.

2. For snap groove & ring details contact NEI technical cell

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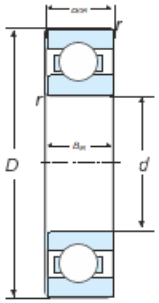
Single Row Deep Groove Ball Bearing (Metric series)

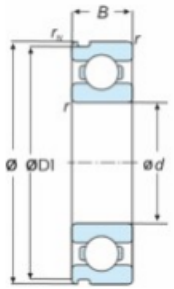


Open type

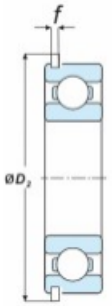
Shielded type (ZZ)

Sealed type (contact & non contact)

Low torque seal



With snap ring groove



With snap ring

Dynamic equivalent radial load

$P_r = XF_r \quad YF_a$

F_a/C_{or}	e	$F_a/F_r \le e$ X	$F_a/F_r \le e$ Y	$F_a/F_r > e$ X	$F_a/F_r > e$ Y
0.172	0.19				2.30
0.345	0.22				1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30	1	0	0.56	1.45
2.07	034				1.31
3.45	0.38				1.15
5.17	0.42				1.04
6.89	0.44				1.00

Static equivalent radial load

Por =0,6Fr+0,5Fa

when Por<Fr use Por=Fr

Boundry Dimensions					Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Numbers								Mass (Kg)
					Dynamic	Static	Dynamic	Static						Sealed Bearings*				Snap Ring Groove	Snap Ring	(Approx)
mm					KN		Kgf		KN	rpm		Open type	Shield Type		Non Contact Type	Low Torque Type	Contact Type			
d	D	B_{IR}	B_{OR}	r_{smin}	C_r	C_{or}	C_r	C_{or}	C_u	Grease	Oil									
50	80	10	10	0.6	132	11.3	13460	1152	0.61	8400	9800	16010	-	-	-	-	-	-	-	0.19
50	80	16	16	1	21.8	16.6	2223	1693	0.99	8400	9800	6010	Z	-	-	-	LU	LLU/LLUA	N	NR	0.262
50	90	20	20	1.1	35	23.2	3569	2366	1.58	7100	8300	6210	Z	ZZ	-	LLHA	LU	LLU	N	NR	0.457
50	90	20	20	1.1	35	23.2	3569	2366	1.58	7100	8300	6210K	-	-	-	-	-	-	-	-	0.46
50	110	27	27	2	61.9	38	6312	3875	3.02	6400	7500	6310	Z	-	LBRA	-	LU	LLU	N	NR	1.065
50	130	31	31	2.1	92.28	55.13	9410	5622	3.40	5700	6700	6410	-	-	-	-	-	-	-	-	1.9
55	80	13	13	1	15.9	13.3	1621	1356	0.73	8200	9600	6911	-	ZZ	-	-	-	-	-	-	0.19
55	90	18	18	1.1	28.3	21.3	2886	2172	1.29	7700	9000	6011	-	-	-	-	-	LLU	-	-	0.39
55	100	21	21	1.5	43.4	29.3	4425	2988	2.00	6400	7600	6211	Z	ZZ	-	-	LU	LLU	N	NR	0.597
55	100	21	21	1.5	43.4	29.3	4425	2988	2.00	6400	7600	6211RO	-	-	-	-	-	-	-	-	0.607

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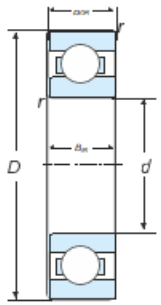
Single Row Deep Groove Ball Bearing (Metric series)

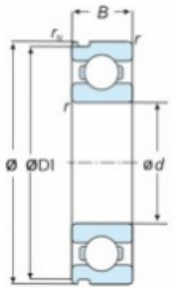


Open type

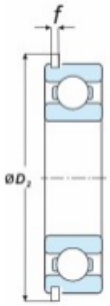
Shielded type (ZZ)

Sealed type (contact & non contact)

Low torque seal



With snap ring groove



With snap ring

Dynamic equivalent radial load

$P_r = XF_r \quad YF_a$

F_a/C_{or}	e	$F_a/F_r \le e$ X	$F_a/F_r \le e$ Y	$F_a/F_r > e$ X	$F_a/F_r > e$ Y
0.172	0.19				2.30
0.345	0.22				1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30	1	0	0.56	1.45
2.07	034				1.31
3.45	0.38				1.15
5.17	0.42				1.04
6.89	0.44				1.00

Static equivalent radial load

Por =0.6Fr+0.5Fa

when Por<Fr use Por=Fr

Boundry Dimensions					Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Numbers								Mass (Kg) (Approx)
					Dynamic	Static	Dynamic	Static												
mm					KN		Kgf		KN	rpm										
d	D	B_{IR}	B_{OR}	r_{smin}	C_r	C_{or}	C_r	C_{or}	C_u	Grease	Oil	Open type	Shield Type		Sealed Bearings*				Snap Ring Groove	Snap Ring	
															Non Contact Type	Low Torque Type	Contact Type				
55	100	21	21	1.5	43.4	29.3	4425	2988	2.00	6400	7600	6211K	-	ZZ	-	-	-	-	-	-	0.607
55	120	29	29	2	71.5	44.4	7291	4527	3.53	5800	6800	6311	Z	ZZ	-	-	LU	LLU	-	-	1.372
55	130	31	31	1.5	87.8	52.4	8953	5343	4.42	9000	10000	N1336	-	-	LLBA	-	-	-	-	-	1.79
55	140	33	33	2.1	93.55	56.5	9539	5761	3.90	5200	6100	6411	-		-	-	-	-	-	-	2.3
60	85	13	13	1	16.4	14.2	1672	1448	0.70	7600	8900	6912	-	-	-	-	-	RSS	-	-	0.19
60	95	18	18	1.1	31.66	24.22	3228	2470	1.19	7000	8300	6012	-	-	-	-	-	-	-	-	0.414
60	95	11	11	0.6	20	17.5	2039	1784	0.96	6000	7000	16012	-	-	-	-	-	-	-	-	0.285
60	110	22	22	1.5	47.7	32.9	4864	3355	2.21	6000	7000	6212	Z	ZZ	-	-	LU	LLU	N	NR	0.769
60	110	22	22	1.5	47.7	32.9	4864	3355	2.21	6000	7000	6212RO	-	-	-	-	-	-	-	-	0.769
60	110	22	22	1.5	47.7	32.9	4864	3355	2.21	6000	7000	6212K	-	ZZ	-	-	-	-	-	-	0.769

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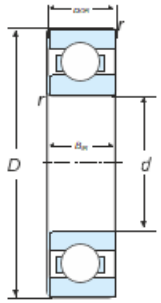
Single Row Deep Groove Ball Bearing (Metric series)

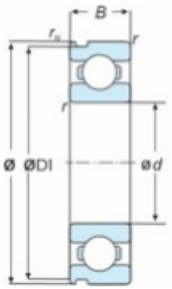


Open type

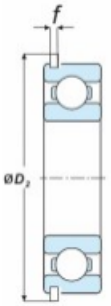
Shielded type (ZZ)

Sealed type (contact & non contact)

Low torque seal



With snap ring groove



With snap ring

Dynamic equivalent radial load

$P_r = XF_r \quad YF_a$

F_a / C_{or}	e	$\frac{F_a}{F_r} \le e$ X	$\frac{F_a}{F_r} \le e$ Y	$\frac{F_a}{F_r} > e$ X	$\frac{F_a}{F_r} > e$ Y
0.172	0.19				2.30
0.345	0.22				1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30	1	0	0.56	1.45
2.07	034				1.31
3.45	0.38				1.15
5.17	0.42				1.04
6.89	0.44				1.00

Static equivalent radial load

Por =0,6Fr+0,5Fa

when Por<Fr use Por=Fr

Boundry Dimensions					Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Numbers								Mass (Kg) (Approx)
mm					Dynamic KN	Static KN	Dynamic Kgf	Static Kgf	KN	rpm				Sealed Bearings*				Snap Ring Groove	Snap Ring	
d	D	B_{IR}	B_{OR}	r_{smin}	C_r	C_{or}	C_r	C_{or}	C_u	Grease	Oil	Open type	Shield Type		Non Contact Type	Low Torque Type	Contact Type			
60	130	31	31	2.1	81.8	52	8341	5302	4.09	5400	6300	**6312**	Z	ZZ	-	-	-	-	-	1.689
60	150	35	35	2.1	109.2	70.3	11135	7168	4.43	4800	5700	**6412**	-		-	-	-	-	-	2.8
65	90	13	13	1	20	17.5	2039	1784	0.95	5000	6000	**6913**	-	-	-	-	-	-	-	0.216
65	100	18	18	1.5	30.5	25.2	3110	2570	1.46	6500	7700	**6013**	Z	-	-	LLH	-	LLU/LLUA	-	NR	0.425
65	100	11	11	0.6	20.4	18.6	2080	1897	0.45	5000	6000	**16013**	-	-	-	-	-	-	-	-	0.297
65	120	23	23	1.5	57.2	40.1	5833	4089	2.71	5500	6500	**6213**	Z	ZZ	-	-	-	-	N	NR	0.98
65	125	23	23	1.5	57.2	40.1	5833	4089	2.69	5500	6500	**6213/125**	-	ZZ	-	-	-	RSS/LLU	-	-	1.17
65	140	33	33	2.1	92.1	59.8	9391	6098	4.68	4900	5800	**6313**	Z	ZZ	-	-	LU	LLU	-	NR	2.091
65	90	13	13	1.6	20	17.5	2039	1784	0.96	5000	6000	**N1364**	-	-	-	-	-	-	-	-	0.208
65	100	23.7	23.7	1.5	26.8	21.8	2733	2223	1.37	5000	6000	**N1264**	-	-	-	RSSA1	-	-	-	-	0.625

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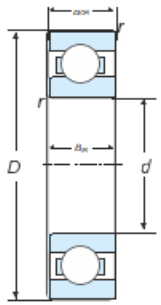
Single Row Deep Groove Ball Bearing (Metric series)

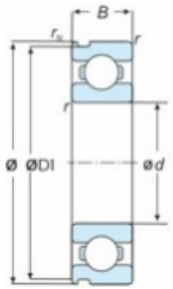


Open type

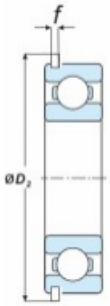
Shielded type (ZZ)

Sealed type (contact & non contact)

Low torque seal



With snap ring groove



With snap ring

Dynamic equivalent radial load

$P_r = XF_r \quad YF_a$

F_a/C_{or}	e	$F_a/F_r \le e$ X	$F_a/F_r \le e$ Y	$F_a/F_r > e$ X	$F_a/F_r > e$ Y
0.172	0.19				2.30
0.345	0.22				1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30	1	0	0.56	1.45
2.07	034				1.31
3.45	0.38				1.15
5.17	0.42				1.04
6.89	0.44				1.00

Static equivalent radial load

Por =0,6Fr+0,5Fa

when Por<Fr use Por=Fr

Boundry Dimensions					Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Numbers								Mass (Kg) (Approx)
mm					Dynamic KN	Static KN	Dynamic Kgf	Static Kgf	KN	rpm										
d	D	B_{IR}	B_{OR}	r_{smin}	C_r	C_{or}	C_r	C_{or}	C_u	Grease	Oil	Open type	Shield Type		Sealed Bearings*				Snap Ring Groove	Snap Ring	
															Non Contact Type	Low Torque Type	Contact Type				
70	100	16	16	1	23.7	21.1	2417	2152	1.16	6500	7700	**6914**	-	-	-	-	-	-	-	-	0.334
70	110	20	20	1.1	38	30.8	3875	3141	1.83	6100	7100	**6014**	-	-	-	-	-	LLUA	N	NR	0.587
70	125	24	24	1.5	62.2	44.1	6343	4497	2.97	5100	6000	**6214**	-	-	-	-	-	-	-	-	1.056
70	150	35	35	2.1	104.13	68.04	10618	6938	5.32	4600	5400	**6314**	-	ZZ	-	-	-	-	-	-	2.61
70	110	13	13	0.6	27.9	25	2844	2551	1.38	6000	7000	**16014**	-	-	-	-	-	-	-	-	0.44
75	115	20	20	1.1	40.18	33.18	4097	3383	1.95	5700	6700	**6015**	-	ZZ	-	-	-	RSS	-	-	0.649
75	130	25	25	1.5	62.1	44.9	6332	4578	3.19	4800	5600	**6215**	-	-	-	-	-	-	-	-	1.139
75	130	25	25	1.5	66.1	49.5	6740	5048	3.19	4800	5600	**6215K**	-	-	-	-	-	-	-	-	1.2
75	160	37	37	2.1	113.21	76.97	11544	7849	6.00	4300	5000	**6315**	-	-	-	-	-	RSS	-	-	3.13
80	125	22	22	1.1	47.54	39.79	4848	4057	2.35	5300	6200	**6016**	-	ZZ	-	-	-	-	-	-	0.85

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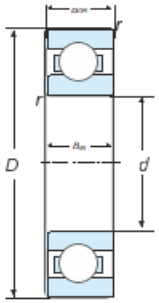
Single Row Deep Groove Ball Bearing (Metric series)

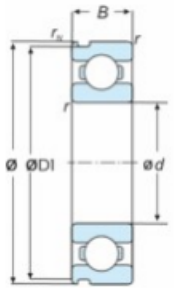


Open type

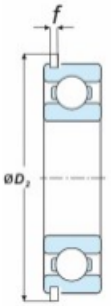
Shielded type (ZZ)

Sealed type (contact & non contact)

Low torque seal



With snap ring groove



With snap ring

Dynamic equivalent radial load

$P_r = XF_r \quad YF_a$

F_a/C_{or}	e	$F_a/F_r \le e$ X	$F_a/F_r \le e$ Y	$F_a/F_r > e$ X	$F_a/F_r > e$ Y
0.172	0.19				2.30
0.345	0.22				1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30	1	0	0.56	1.45
2.07	034				1.31
3.45	0.38				1.15
5.17	0.42				1.04
6.89	0.44				1.00

Static equivalent radial load

Por =0,6Fr+0,5Fa

when Por<Fr use Por=Fr

Boundry Dimensions					Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Numbers								Mass (Kg)
mm					Dynamic KN	Static KN	Dynamic Kgf	Static Kgf	KN	rpm										
d	D	B_{IR}	B_{OR}	r_{smin}	C_r	C_{or}	C_r	C_{or}	C_u	Grease	Oil	Open type	Shield Type		Sealed Bearings* Non Contact Type	Sealed Bearings* Low Torque Type	Sealed Bearings* Contact Type		Snap Ring Groove	Snap Ring	(Approx)
80	140	26	26	2	71.55	54.3	7296	5537	3.84	4500	5300	**6216**	-	-	-	-	-	-	-	-	1.4
80	170	39	39	2.1	122.7	86.5	12512	8820	6.72	4000	4700	**6316**	-	ZZ	-	-	-	RSS	-	-	3.59
80	125	22	22	1.1	47.6	40	4854	4079	2.35	5200	6100	**6016**	-	-	-	-	-	LLU	-	-	0.861
80	150	28	28	2	83.5	64	8514	6526	4.19	4200	5000	**N1390**	-	-	-	-	-	-	-	-	1.972
85	130	22	22	2	47.3	40.15	4823	4094	2.34	4200	5000	**6017**	-	-	-	-	-	-	-	-	0.92
85	150	28	28	2	83.2	64	8484	6526	4.17	4200	5000	**6217**	-	-	-	-	-	-	-	-	1.8
85	150	28	28	2	83.2	64	8484	6526	4.17	4200	5000	**6217K**	-	-	-	-	-	-	-	-	1.8
85	180	41	41	3	132.42	96.59	13503	9849	7.48	3800	4500	**6317**	-	ZZ	-	-	-	-	-	-	4.23
90	140	24	24	1.5	58	49.8	5914	5078	2.94	4700	5600	**6018**	-	-	-	-	-	-	-	-	1.02
90	160	30	30	2	96.0	71.46	9787	7287	4.25	4000	4700	**6218**	-	-	-	-	-	-	-	-	0
90	190	43	43	3	142.33	107.23	14513	10934	8.28	3600	4200	**6318**	-	ZZ	-	-	-	-	-	-	4.91

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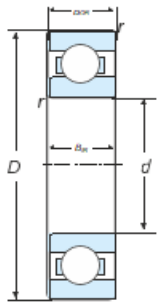
Single Row Deep Groove Ball Bearing (Metric series)

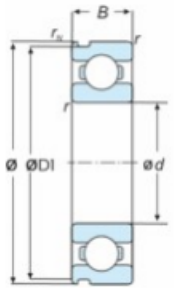


Open type

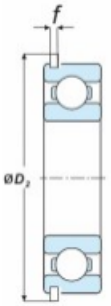
Shielded type (ZZ)

Sealed type (contact & non contact)

Low torque seal



With snap ring groove



With snap ring

Dynamic equivalent radial load

$P_r = XF_r \quad YF_a$

F_a/C_{or}	e	$F_a/F_r \le e$ X	$F_a/F_r \le e$ Y	$F_a/F_r > e$ X	$F_a/F_r > e$ Y
0.172	0.19				2.30
0.345	0.22				1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30	1	0	0.56	1.45
2.07	034				1.31
3.45	0.38				1.15
5.17	0.42				1.04
6.89	0.44				1.00

Static equivalent radial load

Por =0.6Fr+0.5Fa

when Por<Fr use Por=Fr

Boundry Dimensions					Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Numbers								Mass (Kg)
					Dynamic	Static	Dynamic	Static						Sealed Bearings*				Snap Ring Groove	Snap Ring	(Approx)
mm					KN		Kgf		KN	rpm		Open type	Shield Type	Non Contact Type	Low Torque Type	Contact Type				
d	D	B_{IR}	B_{OR}	r_{smin}	C_r	C_{or}	C_r	C_{or}	C_u	Grease	Oil									
95	145	24	24	1.5	60	53.8	6118	5486	2.92	4500	5300	**6019**	-	-	-	-	-	-	-	1.08
95	200	45	45	3	156.36	121.98	15944	12438	9.12	3300	3900	**6319**	-	-	-	-	-	-	-	5.67
100	150	24	24	1.5	64.46	56.13	6573	5724	3.11	4200	5000	**6020**	-	ZZ	-	-	-	-	-	1.15
100	180	34	34	2.1	122.14	92.72	12455	9455	6.30	3500	4200	**6220**	-	-	-	-	-	-	-	3.14
100	215	47	47	3	172.65	140.4	17605	14316	11.01	3200	3700	**6320**	-	ZZ	-	-	-	-	-	7
100	150	16	16	1	45	45	4589	4589	2.00	4000	5000	**16020M**	-	-	-	-	-	-	-	1
105	160	26	26	2	71.9	63.36	7332	6461	3.57	4000	4700	**6021**	-	-	-	-	-	-	-	1..59
105	225	49	49	3	240	154	24473	15703	7.70	2900	3500	**6321**	-	-	-	-	-	-	-	8.05
110	170	28	28	2	81.8	72.8	8341	7423	4.30	3800	4500	**6022**	-	-	-	-	-	-	-	1.9
110	200	38	38	2.1	110.82	100.43	11300	10241	7.06	3200	3800	**6222**	-	-	-	-	-	-	-	4.36

Note: 1.* All types of seals options can be made available, for more information contact us.
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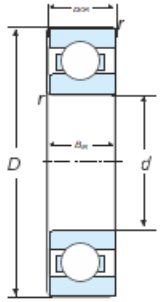
Single Row Deep Groove Ball Bearing (Metric series)

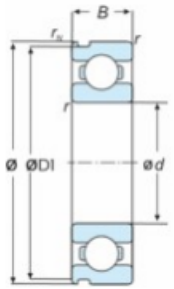


Open type

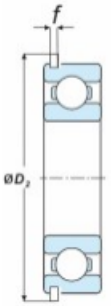
Shielded type (ZZ)

Sealed type (contact & non contact)

Low torque seal



With snap ring groove



With snap ring

Dynamic equivalent radial load

$P_r = XF_r \quad YF_a$

F_a/C_{or}	e	$F_a/F_r \le e$ X	$F_a/F_r \le e$ Y	$F_a/F_r > e$ X	$F_a/F_r > e$ Y
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0.345	0.22				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	034				1.31
3.45	0.38				1.15
5.17	0.42				1.04
6.89	0.44				1.00

Static equivalent radial load

Por =0,6Fr+0,5Fa

when Por<Fr use Por=Fr

Boundry Dimensions					Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Numbers								Mass (Kg)
					Dynamic	Static	Dynamic	Static						Sealed Bearings*				Snap Ring Groove	Snap Ring	(Approx)
mm					KN		Kgf		KN	rpm		Open type	Shield Type	Non Contact Type	Low Torque Type	Contact Type				
d	D	B_{IR}	B_{OR}	r_{smin}	C_r	C_{or}	C_r	C_{or}	C_u	Grease	Oil									
110	240	50	50	3	204.9	178.3	20894	18181	14.13	2900	3400	**6322**	- -	-	-	- -		-	-	8
120	215	40	40	2.1	155	131	15805	13358	8.87	2900	3400	**6224**	- -	-	-	- -		-	-	5.3
120	260	55	55	3	207	185	21108	18864	16.35	2600	3100	**6324**	- -	-	-	- -		-	-	12.4
120	180	19	19	1	63	63.5	6424	6475	3.20	3500	4000	**16024M**	- -	-	-	- -		-	-	2
130	230	40	40	3	167	146	17029	14888	7.78	2700	3100	**6226**	- -	-	-	- -		-	-	5.82
130	280	58	58	4	229	214	23351	21822	9.80	2300	2700	**6326**	- -	-	-	- -		-	-	15.2
140	250	42	42	3	179.1	167	18263	17029	9.64	2500	2900	**6228**	- -	-	-	- -		-	-	7.68
150	320	65	65	4	278	284	28348	28959	13.1	2000	2300	**6330 C3**	- -	-	-	- -		-	-	21.4
150	225	35	35	2.1	132	125	13460	12746	5.50	2700	3200	**6030M**	- -	-	-	- -		-	-	5.5
150	270	45	45	3	182	205	18559	20904	7.90	2200	2600	**6230**	- -	-	-	- -		-	-	9.67

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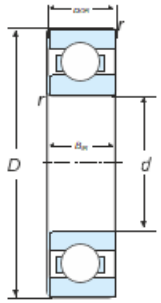
Single Row Deep Groove Ball Bearing (Metric series)

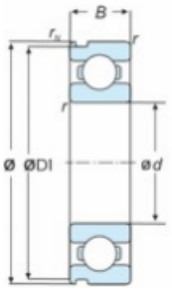


Open type

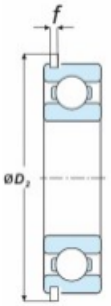
Shielded type (ZZ)

Sealed type (contact & non contact)

Low torque seal



With snap ring groove



With snap ring

Dynamic equivalent radial load

$P_r = XF_r \quad YF_a$

F_a / C_{or}	e	$F_a/F_r \le e$ X	$F_a/F_r \le e$ Y	$F_a/F_r > e$ X	$F_a/F_r > e$ Y
0.172	0.19				2.30
0.345	0.22				1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30	1	0	0.56	1.45
2.07	034				1.31
3.45	0.38				1.15
5.17	0.42				1.04
6.89	0.44				1.00

Static equivalent radial load

Por =0.6Fr+0.5Fa

when Por<Fr use Por=Fr

Boundry Dimensions					Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Numbers								Mass (Kg)
					Dynamic	Static	Dynamic	Static						Sealed Bearings*				Snap Ring Groove	Snap Ring	(Approx)
mm					KN		Kgf		KN	rpm		Open type	Shield Type		Non Contact Type	Low Torque Type	Contact Type			
d	D	B_{IR}	B_{OR}	r_{smin}	C_r	C_{or}	C_r	C_{or}	C_u	Grease	Oil									
160	240	38	38	2.1	143	144	14582	14684	5.65	2500	3000	**6032M13**	-	-	-	-	-	-	-	-	6
160	240	25	25	1.5	95	105	9687	10707	4.68	2500	3000	**16032M**	-	-	-	-	-	-	-	-	4
170	310	52	52	4	228	239	23249	24371	9.60	2000	2300	**6234C3**	-	-	-	-	-	-	-	-	15.4
170	260	42	42	2.1	161	160	16417	16315	7.55	2300	2800	**6034**	-	-	-	-	-	-	-	-	7.8
180	280	46	46	2.1	189	199	19272	20292	8.31	2300	2700	**6036M**	-	-	-	-	-	-	-	-	10.5
190	340	55	55	4	269	300	27430	30591	8.3	1550	2000	**6239**	-	-	-	-	-	-	-	-	22.2
200	250	24	24	1.5	76	100	7750	10197	3.37	2300	3000	**61840**	-	-	-	-	-	-	-	-	2.75
200	360	58	58	4	250	300	25493	30591	12.6	1650	1900	**6240M**	-	-	-	-	-	-	-	-	27
220	400	65	65	4	275	340	28042	34670	13.67	1500	1800	**6244**	-	-	-	-	-	-	-	-	30.4
240	360	56	56	3	250	310	25493	31611	11.45	1700	1900	**6048MB**	-	-	-	-	-	-	-	-	21

Note: 1.* All types of seals options can be made available, for more information contact us.

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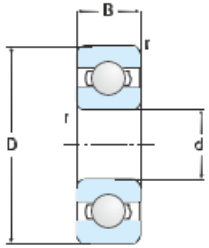
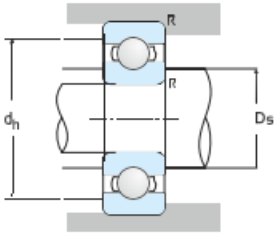
Single Row Deep Groove Ball Bearing (Inch series)





Dynamic equivalent radial load

$P_r = XF_r + YF_a$

F_a / C_{or}				
0.172	0.19			2.30
0.345	0.22			1.99
0.689	0.26			1.71
1.03	0.28			1.55
1.38	0.30			1.45
2.07	034			1.31
3.45	0.38			1.15
5.17	0.42			1.04
6.89	0.44			1.00

Static equivalent radial load

$P_{or} = 0.6F_r + 0.5F_a$

when $P_{or} < F_r$ use $P_{or} = F_r$

Boundry Dimensions				Basic Load Rating				Bearing Number	Fatigue Load Limit	Limiting Speed		Abutment and Fillet Dimension (mm)			Mass (Kg) (Approx.)
				Dynamic	Static	Dynamic	Static								
mm/inch				KN		Kgf			KN	rpm					
d	D	B	rmin	Cr	Cor	Cr	Cor		Cu	Grease	Oil	d_h	Ds	R	
9.525	222.3	5.556	0.40	2.49	1.11	254	113	S3	0.11	32000	44000	12.7	18.3	0.3	0.01
0.3750	0.8750	0.2188	0.02												
12.7	28.56	6.35	0.40	4.03	2.01	411	205	S5	0.15	23500	27000	17.5	23.8	0.3	0.019
0.5000	1.1250	0.2500	0.02												
	33.33	9.525	0.80	6.1	2.75	622	280	LS5	0.16	20000	24000	17.5	29.5	0.5	0.037
	1.313	0.375	0.03												
15.88	34.93	7.145	0.80	5.55	2.86	566	292	S7	0.21	19000	23000	20.6	28.6	0.5	0.033
0.6250	1.3750	0.2813	0.03												
	39.68	11.11	0.80	9.6	4.55	979	464	LS7	0.25	19000	23000	21.1	34.8	0.5	0.059
	1.5625	0.4375	0.03												
	46.03	15.88	1.60	11.6	5.65	1183	576	MS7	0.12	16000	18000	23.1	39.6	1.1	0.12
	1.8125	0.6250	0.06												
19.05	41.26	7.938	0.80	7.38	4.0	753	408	S8	0.29	16000	18000	26.2	35.7	0.5	0.047
0.7500	1.6250	0.3125	0.03												
	47.61	14.29	1.60	13.7	6.65	1397	678	LS8	0.28	15000	18000	25.9	41.1	1.1	0.11
	1.8750	0.5625	0.06												
	50.78	17.46	1.60	15.9	7.85	1621	800	MS8	0.45	14500	17000	26.9	43.7	1.1	0.122
	2.0000	0.6875	0.06												

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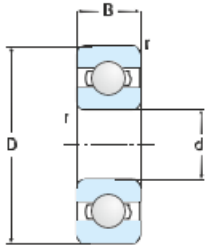
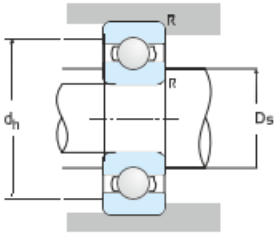
Single Row Deep Groove Ball Bearing (Inch series)





Dynamic equivalent radial load

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1.38	0.30			1.45
2.07	034			1.31
3.45	0.38			1.15
5.17	0.42			1.04
6.89	0.44			1.00

Static equivalent radial load

$P_{or} = 0.6F_r + 0.5F_a$

when $P_{or} < F_r$ use $P_{or} = F_r$

Boundry Dimensions				Basic Load Rating				Bearing Number	Fatigue Load Limit	Limiting Speed		Abutment and Fillet Dimension (mm)			Mass (Kg) (Approx.)
				Dynamic	Static	Dynamic	Static								
mm/inch				KN		Kgf			KN	rpm					
d	D	B	rmin	Cr	Cor	Cr	Cor		Cu	Grease	Oil	dh	Ds	R	
34.93	76.18	17.46	1.60	20.8	13.3	2121	1356	**LS12 1/2**	0.98	10000	12000	46	68.3	1.1	0.367
1.3750	3.0000	0.6875	0.06												
	88.88	22.23	2.40	37.2	22.05	3793	2248	**MSI2 1/2**	1.58	8600	10000	47.8	76.2	1.6	0.639
	3.2500	0.8750	0.09												
38.1	82.53	19.05	2.40	25.7	16	2621	1632	**LS13**	1.15	9000	10000	49.3	73.4	1.6	0.446
1.500	3.2500	0.7500	0.09												
	95.23	23.81	2.40	47.7	26.7	4864	2723	**MS13**	1.44	8000	9500	50.8	82.6	1.6	0.761
	3.7500	0.9375	0.09												
41.28	88.88	19.05	2.40	27.5	18.1	2804	1846	**LS13 1/2**	1.31	8500	10000	54.1	n.11	1.6	0.535
1.6250	3.5000	0.7500	0.09												
	101.6	23.81	2.40	48.3	277.5	4925	28297	**MS13 1/2**	1.49	7600	9000	56.6	88.1	1.6	0.862
	4.000	0.9375	0.09												
44.45	95250	20.64	2.40	35	23.2	3569	2366	**LS14**	2.20	8000	9500	572	87.1	1.6	0.654
1.7500	3.7500	0.8125	0.09												
	108	26.99	2.40	56.25	32.7	5736	3334	**MS14**	1.76	7000	8300	59.4	93.7	1.6	1.084
	4.2500	1.0625	0.09												

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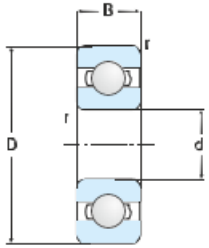
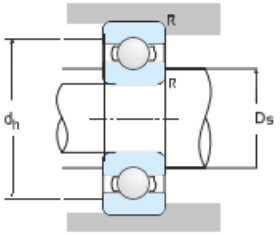
Single Row Deep Groove Ball Bearing (Inch series)





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2.07	034			1.31
3.45	0.38			1.15
5.17	0.42			1.04
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Static equivalent radial load

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Boundry Dimensions				Basic Load Rating				Bearing Number	Fatigue Load Limit	Limiting Speed		Abutment and Fillet Dimension (mm)			Mass (Kg) (Approx.)
				Dynamic	Static	Dynamic	Static								
mm/inch				KN		Kgf			KN	rpm					
d	D	B	rmin	Cr	Cor	Cr	Cor		Cu	Grease	Oil	dh	Ds	R	
47.63	101.6	20.64	2.40	48.7	31.2	4966	3181	**LS14 1/2**	2.25	7800	9200	63.5	92.2	1.6	0.71
1.8750	4.0000	0.8125	0.09												
	114.3	26.99	2.40	62.1	38.5	6332	3926	**MS14 1/2**	2.08	6700	8000	65	100.1	1.6	1.24
	4.5000	1.0625	0.09												
50.8	101.6	20.64	2.40	48.7	31.2	4966	3181	**LS15**	2.26	7800	9200	63.5	92.2	1.6	0.671
2.0000	4.0000	0.8125	0.09												
	114.3	26.99	2.40	62.1	38.5	6332	3926	**MS15**	2.08	6700	8000	65	100.1	1.6	1.189
	4.5000	1.0625	0.09												

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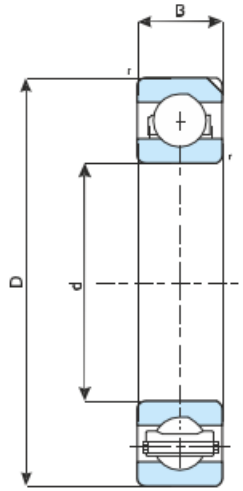
Special Bearing

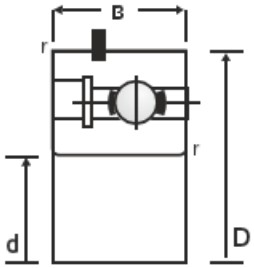
Notch (locating slot) on outer ring side face



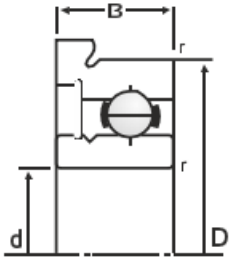
Boundary Dimensions				Basic Load Rating				Fatigue Load Limit	Bearing Number	Mass Kg (Approx.)
				Dynamic	Static	Dynamic	Static			
mm				KN		Kgf		KN		
d	D	B	r min	Cr	Co	Cr	Co	Cu		
240	440	72	4	350	465	3840	47416	12	**6240M**	51
280	380	46	2.1	236	310	2589	31611	16.3	**61956**	15
320	400	38	2.1	168	240	1843	24473	6	**61864M**	12
300	420	74	4	370	550	4059	56084	17.1	**6064**	49
630	920	128	10	816	176	8952	17947	40	**60/630**	280
670	980	136	7.5	765	1730	8392	176408	45.3	**60/670C3**	351

Special Bearing

Insert Ball Bearings



BB1004



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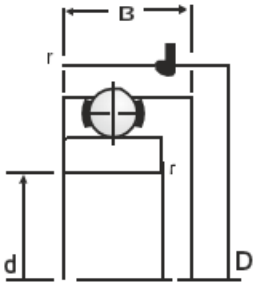
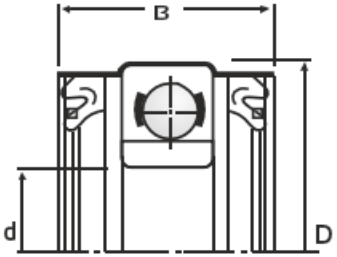
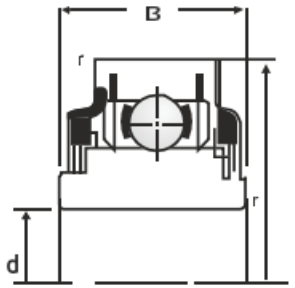


BB1014



BB1019



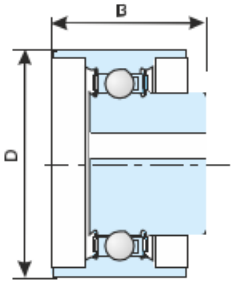
BB1005

Boundary Dimensions				Basic Load Rating				Limiting Speed		Bearing Number
				Dynamic	Static	Dynamic	Static			
mm				KN		Kgf		rpm		
d	D	B	r min	Cr	Co	Cr	Co	Grease	Oil	
25	52	18	1.5	11.5	6.2	1173	632	13000	15000	**BB1004**
25	52	18	1	11.5	6.2	1173	632	13000	15000	**BB1016**
25	65	21.5	2	21.3	9.8	2172	999	12000	14000	**BB1014**
40	82	50	-	29.1	17.2	2967	1754	700	10000	**BB1019**
45	85	27	1.6	32.5	19.8	3314	2019	7800	9200	**BB1005**

Special Bearing

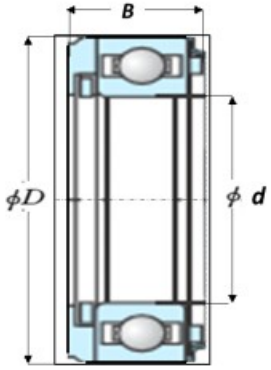
Belt Tensioners

Boundary Dimensions			Basic Load Rating				Fatigue Load Limit	Bearing Number
			Dynamic	Static	Dynamic	Static		
mm			KN		Kgf		KN	
d	D	B	Cr	Co	Cr	Co	Cu	
-	51	30.4	9.4	5.05	959	515	3.620	**JPU51-15**
-	51	32	10.1	5.85	1030	597	3.520	**BB1079**



Clutch Release Bearing

Boundary Dimensions			Basic Load Rating				Bearing Number
			Dynamic	Static	Dynamic	Static	
mm			KN		Kgf		
d	D	B	Cr	Co	Cr	Co	
28.2	55.6	32	-	-	-	-	**FCR44-36**
28.2	50	32	-	-	-	-	**FCR44-36-1**
45	86.6	28	32.7	20.5	3334	2090	**1888451**
50	91.6	29	35	23.2	3569	2366	**1888180**
50	81.6	25	21.8	16.6	2223	1693	**306445C**
50	81.6	21	21.8	16.6	2223	1693	**SP306445C**
65	101.6	27	30.5	25.2	3110	2570	**CR1002**
65	100	23.7	26.8	21.8	2733	2223	**N1264**



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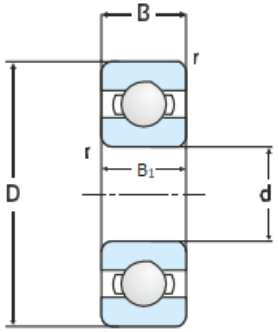
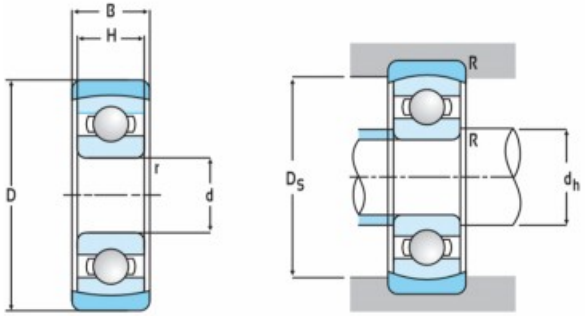
Special Bearing

Special DGBB with difference in width of Inner and Outer Ring

Boundary Dimensions					Basic Load Rating (KN)				Fatigue Load Limit	Limiting Speed		Bearing Number
					Dynamic	Static	Dynamic	Static				
mm					KN		Kgf		KN	rpm		
d	D	B	B_1	r min.	Cr	Co	Cr	Co	Cu	Grease	Oil	
35	72	18.5	15	-	25.7	154	2621	15703	1.12	9800	11000	BB1103
22	22	18.5	15	-	207	104	21108	10605	0.88	14000	17000	63/225PL



Single Row Externally Aligning Ball Bearing



Boundary Dimensions					Basic Load Rating (KN)				Fatigue Load Limit	Limiting Speed		Bearing Number	Abutment and Fitment			Mass Kg. (Approx.)
					Dynamic	Static	Dynamic	Static								
mm / inch					KN		Kgf		KN	rpm			mm/ inch			
d	D	B	H	r	Cr	Co	Cr	Co	Cu	Grease	Oil		D_a	d_h	R	
44.45	117.45	28.575	26.988	2.4	56.25	32.7	5735.81	3334.42	2.63	6500	900	M5N14	110	59.4	1.6	1.7
1.75	4.625	1.125	1.0625	0.09									4.33	2.34	0.06	

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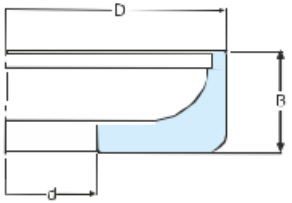
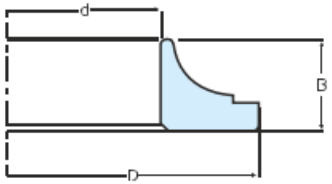
Special Bearing Races

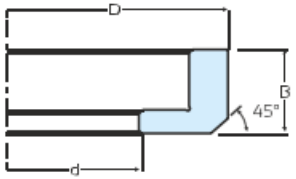
Bearing Races	d	D	B
BB1006	27	45	10.5
BB1030	27.8	46.2	8
BB1031	27.8	47.2	8



Bearing Races	d	D	B
BB1007	24.2	39	8.65
BB1058	25	48	5.5
BB1059	30	48	5.5

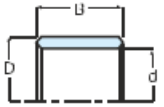


Bearing Races	d	D	B
BB1008	32	42.3	8

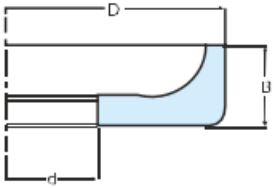


Special Bearing Races

Bearing Races	d	D	B
BB1009	17.04	20.05	14.1
RB5005	22.03	28.0	12
R35003	23.29	31.79	9.63
RB5004	38.10	47.63	19.18



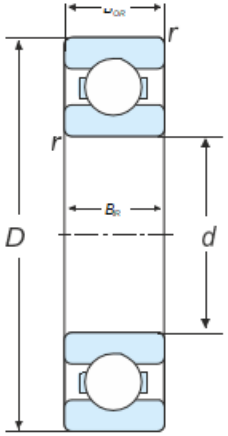
Bearing Races	d	D	B
BB1060	31	48	5.5
BB1061	26	48	5.5



Special Bearing

EMB Bearings for Electric Vehicle

Boundary Dimensions					Dynamic	Static	Dynamic	Static	Limiting Speed (rpm)	Bearing Number	Seals/ Shields	Mass Kg
mm					KN		Kgf					
d	D	B_{IR}	B_{OR}	r_{smin}	C_r	C_{or}	C_r	C_{or}	Grease		Non-Contact Type	(Approx.)
30	62	16	16	1	19.5	11.3	1988	1152	14000	EMB 6206	ZZ	0.201
40	68	15	15	1	16.8	11.5	1713	1172	15000	EMB 6008	LLBRA	0.195
	80	18	18	1.1	29.1	18	2966	1835	14000	EMB 6208	ZZ	0.357
45	75	16	16	1	21	15.1	2141	1539	15000	EMB 6009	LLBRA	0.237
	100	25	25	1.5	37.2	26.3	3792	2981	19000	EMB 6309	LBRA	0.825
50	90	20	20	1.1	35	23.2	3568	2365	14000	EMB 6210	--	0.457
60	95	18	18	1.1	20	17.5	2039	1784	15000	EMB 6012	LLBRA	0.414



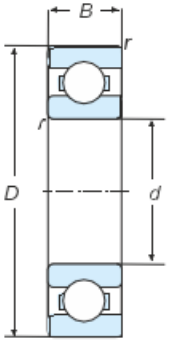
Open type

Sensor Integrated Bearings

Boundary Dimensions					Dynamic	Static	Dynamic	Static	Limiting Speed (rpm)	Bearing Number	Mass	Feature
mm					KN		Kgf				Kg	
d	D	B_{IR}	B_{Total}	r_{smin}	C_r	C_{or}	C_r	C_{or}	Grease		(Approx.)	
30	62	16	25	1	19.5	11.3	1988	1152	14000	SIB 6206	0.201	Speed & Direction
25	62	17	26	1.1	21.2	10.9	2161	1111	12000	SIB 6305	0.225	Temprature Speed & Direction

Note: B (Total) : Width of bearing + sensor unit

Miniature Ball Bearings / Extra Small Ball Bearing



Open type

Shielded type

Contact sealed type

Dynamic equivalent radial load

$P_r = XF_r + YF_a$

F_a / C_{or}		F		—	
0.172	0.19				2.30
0.345	0.22				1.99
0.689	0.26				1.71
1.03	0.28				1.55
1.38	0.30			0.56	1.45
2.07	034				1.31
3.45	0.38				1.15
5.17	0.42				1.04
6.89	0.44				1.00

Static equivalent radial load

Por =0.6Fr+0.5Fa

when Por<Fr use Por=Fr

Boundry Dimensions				Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Numbers					Mass (Kg) (Approx.)
				Dynamic	Static	Dynamic	Static		rpm							
mm				KN		Kgf		KN	Grease	Oil	Open Type		Shielded Type		Contact Type	
d	D	B	r	C_r	C_{or}	C_r	C_{or}	C_u								
4	13	5	0.3	1.30	0.49	133	49	0.024	42000	49000	**624**	-	ZZ	-	LLU	0.0032
	11	4	0.3	1.30	0.49	133	49	0.024	45000	52000	**694**	-	-	-	LLU	0.0032
5	16	5	0.4	1.73	0.67	177	68	0.027	37000	44000	**625**	-	ZZ	-	LLU	0.0047
6	19	6	0.4	2.33	0.89	238	91	0.052	34000	40000	**626**	-	ZZ	-	RSS	0.00805
7	19	6	0.4	2.24	0.91	228	93	0.053	34000	40000	**607**	-	ZZ	-	RSS	0.0075
	22	7	0.4	3.28	1.38	335	141	0.070	32000	37000	**627**	-	ZZ	-	RSS	0.0121
	22	7	0.4	3.30	1.37	337	140	0.07	32000	37000	**608**	-	ZZ	-	RSS	0.0113
	24	8	0.4	3.33	1.42	340	145	0.079	31000	36000	**628**	-	ZZ	-	RSS	0.017
9	24	7	0.3	3.68	1.65	342	146	0.087	31000	36000	**609**	-	-	-	-	0.0147
	26	8	0.4	4.57	1.98	466	202	0.091	30000	35000	**629**	-	ZZ	-	RSS	0.019

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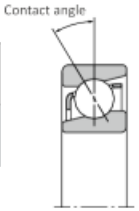
15.2 Angular Contact Ball Bearings

Angular contact ball bearings are non -separable bearings. The design of raceway curvature is such that balls makes contact with both the raceway at a particular angle oblique to the radial plane. The contact angle is defined as the angle between the line joining the point of contact between the raceway and ball at the radial plane. In addition to the radial loads, because of contact angle, these bearings can also support axial load. The axial load carrying capacity of these bearings increases as the contact angle increases. Due to lower shoulder, number balls can be accommodated in these bearings. This increases the radial load carrying capacity

Single row angular contact bearing can support axial load in one direction only. To counter axial load from other direction two single row bearings are adjusted depending upon the direction of axial force. To transfer load acting on the bearing, they are manufactured by different contact angles as given below.

Contact Angle	15°	30°	40°
Suffix Code	C	-	B



Single row Angular contact Braring arrangement (Duplex)

Bearing arrangement		Description
Standard		Available in series 70, 72, 72B, 73, 73B. Contact angles are with 30 & 40 deg. The bearings are available in nylon, brass and steel cage.

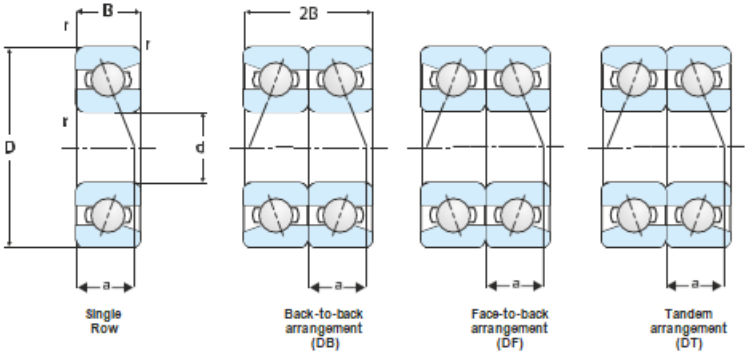
Bearing arrangement		Description
Back to back (DB)		In this arrangement load lines diverge form bearing axis. Along with radial load can accommodate axial load in both the directions. Can adjust tilting moments
Face to face (DF)		In this arrangement load lines converge towards bearing axis. Along with radial load can accommodate axial load in either directions. Can adjust tilting moments.
Tandem (DT)		In this arrangement load lines are parallel. Can accommodate radial load and single direction axial loads.

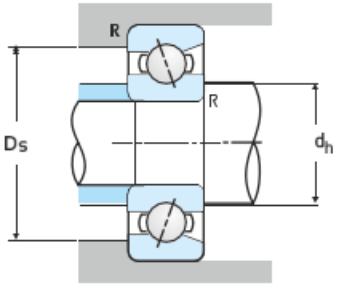
Double Row Angular

Double row angular contact ball bearings consists of inner, outer rings, ball and cage assemblies with sheet steel or polyamide cage. The bearings are available in open and sealed designs. Bearing can support radial and axial loads in both the directions due to the raceway geometry and the two rows of balls.

Double row angular contact bearing design is similar to single row. Design is based on back to back arrangement. They can support load in both the direction. Because of the second row the load carrying capacity is enhanced. The contact angle is 25°. The bearings are available in shield and rubber seals.

Single Row Angular Contact Ball Bearing (Metric Series)





Dynamic equivalent radial load

= +

Contact angle		Single DT				DB, DF			
		Fa / Fr ≤ e		Fa / Fr > e		Fa / Fr ≤ e		Fa / Fr > e	
		X	Y	X	Y	X	Y	X	Y
30°	0.80	1	0	0.39	0.76	1	0.78	0.63	1.24
40°	1.14	1	0	0.35	0.57	1	0.55	0.57	0.93

Static equivalent radial load

$P_{or} = X_o F_r + Y_o F_a$

Contact angle	Single DT		DB, DF	
	X_o	Y_o	X_o	Y_o
30°	0.5	0.33	1	0.66
40°	0.5	0.26	1	0.52

For single and DT arrangement

When $P_{or} < F_r$ use $P_{or} = F_r$

Boundry Dimensions					Basic Load Rating				Bearing Number	Fatigue Load Limit	Limiting Speed		Abutment & Fitment details			Load Center	Mass (Kg) (Approx.)
					Dynamic	Static	Dynamic	Static									
mm					KN		Kgf			KN	rpm		mm			mm	
d	D	B	2B	r min	Cr	Co	Cr	Co		Cu	Grease	Oil	D_s max.	d_h min.	R max.	a	
10	30	9	18	0.3	5.0	2.52	510	257	**7200B**	0.171	25000	25000	23.5	12.5	0.3	9	0.023
12	32	10	20	0.6	7.0	3.65	714	372	**7201B**	0.242	22000	25000	27.5	14.5	0.6	14	0.036
15	35	11	22	0.6	7.94	4.29	810	438	**7202B**	0.287	18000	25000	30.5	19.5	0.6	16	0.05
17	40	12	24	0.6	1.00	5.5	102	561	**7203**	0.368	15000	21000	35	22	1	14.5	0.064
20	47	14	28	1	1.33	7.6	136	775	**7204**	0.51	14000	18000	41	26	1	17	0.1
25	52	15	30	1	14.8	9.4	1510	959	**7205B**	0.59	12000	16000	46.5	30.5	1	24	0.13
30	62	16	32	1	20.5	13.5	2091	1377	**7206B**	0.97	11000	14000	56.5	35.5	1	27.5	0.2
30	72	19	38	1.1	31.1	19.3	3172	1969	**7306B**	1.5	9600	13000	65	37	1	31.5	0.35
35	72	17	34	1.1	27.1	18.4	2764	1877	**7207**	1.3	8600	11000	65	42	1	24	281
35	80	21	42	1.5	38.3	24.4	3907	2489	**7307B**	1.73	8400	11000	71.5	43.5	1.5	34.5	0.47

Note:Bearing number with suffix 'B' is for angle 40 Deg.& without suffix is 30 Deg.
Load rating are given for single row, for DB,DF & DT consult NEI engineering

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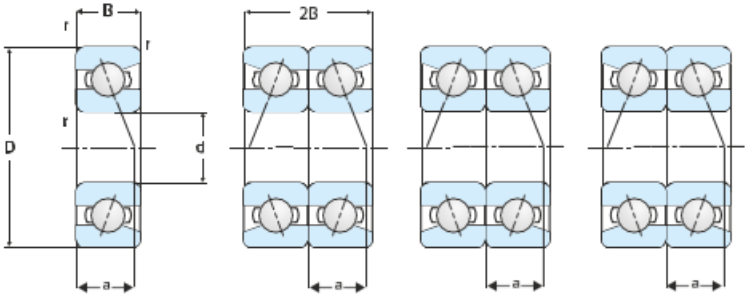
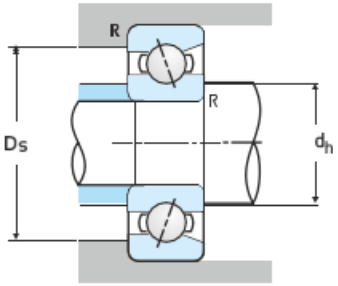
Single Row Angular Contact Ball Bearing (Metric Series)





Dynamic equivalent radial load

= +

Contact angle		Single DT				DB, DF			
		Fa / Fr ≤ e		Fa / Fr >e		Fa / Fr e		Fa / Fr >e	
		X	Y	X	Y	X	Y	X	Y
30°	0.80	1	0	0.39	0.76	1	0.78	0.63	1.24
40°	1.14	1	0	0.35	0.57	1	0.55	0.57	0.93

Static equivalent radial load

$P_{or} = X_o F_r + Y_o F_a$

Contact angle	Single DT		DB, DF	
	X_o	Y_o	X_o	Y_o
30°	0.5	0.33	1	0.66
40°	0.5	0.26	1	0.52

For single and DT arrangement

When $P_{or} < F_r$ use $P_{or} = F_r$

Boundry Dimensions					Basic Load Rating				Bearing Number	Fatigue Load Limit	Limiting Speed		Abutment & Fitment details			Load Center	Mass (Kg) (Approx.)
					Dynamic	Static	Dynamic	Static									
mm					KN		Kgf			KN	rpm		mm			mm	
d	D	B	2B	r min	Cr	Co	Cr	Co		Cu	Grease	Oil	D_s max.	d_h min.	R max.	a	
40	90	23	46	1.5	46.5	29.5	4743	3009	**7308**	2.22	6900	9200	81.5	48.5	1	30.5	0.625
40	80	18	36	1.1	34.5	23.9	3519	2438	**7208B**	1.61	8300	11000	73	47	1	34	0.38
45	85	19	38	1.1	33.9	24.8	3458	2530	**7209B**	1.79	7400	9900	78	52	1	37	0.47
45	100	25	50	1.5	59.6	39.6	6079	4039	**7309B**	289	6600	8900	91.5	53.5	1.5	43	O.84
50	110	27	54	2	69.3	47.2	7069	4814	**7310**	36	5600	7500	100	60	1	36.5	1.09
50	90	20	40	1.1	37.4	28.6	3815	2917	**7210B**	1.94	6700	9000	83	57	1	39.5	0.5
55	100	21	42	1.5	46.3	36.1	4723	3682	**7211B**	2.54	6100	8200	91.5	63.5	1.5	43	0.61
60	110	22	44	1.5	56.1	44.4	5722	4529	**7212**	3.1	5300	7000	101.5	68.5	1	36	0.765
65	120	23	46	1.5	63.6	52.6	6487	5365	**7213B**	3.56	5200	7000	111.5	73.5	1.5	50.5	0.98

Note:Bearing number with suffix 'B' is for angle 40 Deg. & without suffix is 30 Deg.
Load rating are given for single row, for DB,DF & DT consult NEI engineering

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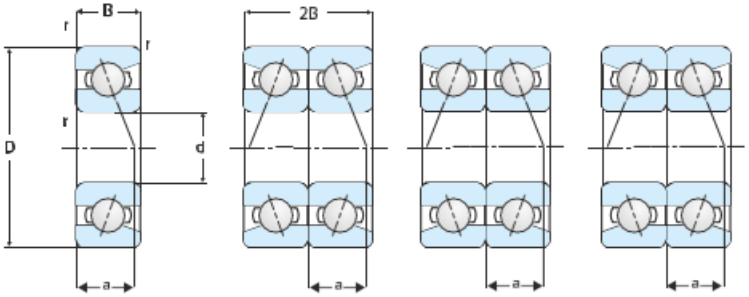
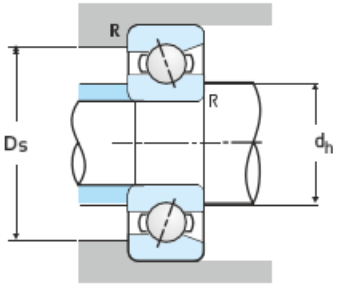
Single Row Angular Contact Ball Bearing (Metric Series)





Dynamic equivalent radial load

= +

Contact angle		Single DT				DB, DF			
		Fa / Fr ≤ e		Fa / Fr >e		Fa / Fr e		Fa / Fr >e	
		X	Y	X	Y	X	Y	X	Y
30°	0.80	1	0	0.39	0.76	1	0.78	0.63	1.24
40°	1.14	1	0	0.35	0.57	1	0.55	0.57	0.93

Static equivalent radial load

$P_{or} = X_o F_r + Y_o F_a$

Contact angle	Single DT		DB, DF	
	X_o	Y_o	X_o	Y_o
30°	0.5	0.33	1	0.66
40°	0.5	0.26	1	0.52

For single and DT arrangement

When $P_{or} < F_r$ use $P_{or} = F_r$

Boundry Dimensions					Basic Load Rating				Bearing Number	Fatigue Load Limit	Limiting Speed		Abutment & Fitment details			Load Center	Mass (Kg) (Approx.)
					Dynamic	Static	Dynamic	Static									
mm					KN		Kgf			KN	rpm		mm			mm	
d	D	B	2B	r min	Cr	Co	Cr	Co		Cu	Grease	Oil	D_s max.	d_h min.	R max.	a	
110	240	50	100	3	206	180	21006	18355	**7322BM**	12.2	3800	4400	226	117	2.5	99	9.9
170	310	52	104	4	267	325	27226	33140	**7234BM**	10.8	2450	2750	292	188	3	139	17.8
170	360	72	144	4	343	435	34976	44357	**7334BM**	17.8	2400	2700	343	188	3	147	37
180	320	52	104	4	325	328	27022	33446	**7236BM**	12	2400	2700	302	198	3	131	18.2
200	310	51	102	2.1	264	331	26920	33752	**7040BM**	14	1550	2200	298	212	2	99	14.9

Note:Bearing number with suffix 'B' is for angle 40 Deg. & without suffix is 30 Deg.
Load rating are given for single row, for DB,DF & DT consult NEI engineering

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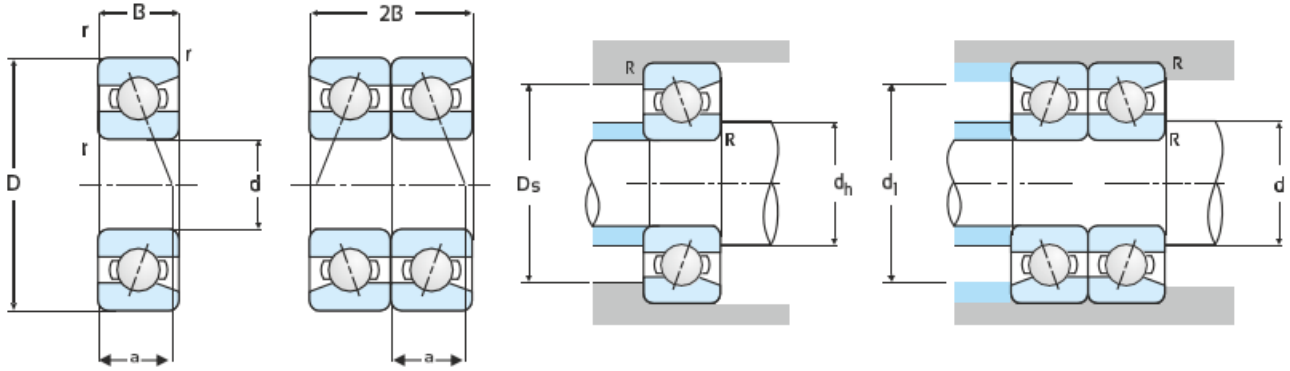
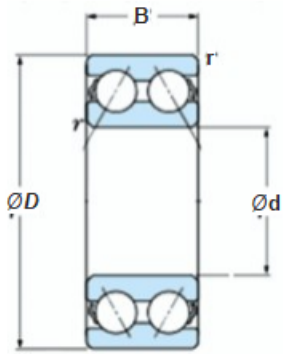
Single Row Angular Contact Ball Bearing (Inch series)



Boundry Dimensions				Basic Load Rating				Bearing Number	Fatigue Load Limit	Limiting Speed		Abutment & Fitment details			Load Center	Mass (Kg) (Approx.)
				Dynamic	Static	Dynamic	Static									
mm/ inch				KN		Kgf			KN	rpm		mm			mm	
d	D	B	r min	Cr	Co	Cr	Co		Cu	Grease	Oil	D_s max.	d_h min.	R max.	a	
82.550	152.362	26.988	2.4	88.4	801	9014	81678	LSI9 1/2 ACD	33.6	2600	3500	134	100	2	73.6	2.27
3.500	6.000	1.063	0.09													
82.550	152.362	53.975	2.4	176.8	155.8	18028	15736	N4711C	6.55	2600	3500	140	100	2	73.6	4.54
3.500	6.000	2.125	0.09													

Double Row Angular Contact Bearing



Equivalent radial load dynamic $P_r = XF_r + YF_a$

e	$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
	X	Y	X	Y
0.68	1	0.92	0.67	1.41

Static equivalent radial load $P_{or} = F_r + 0.76F_a$

Boundary Dimensions				Basic Load Rating				Fatigue Load Limit	Bearing Number	Mass (Kg.) Approx
				Dynamic	Static	Dynamic	Static			
mm				KN		Kgf		KN		
d	D	B	$r_{(min)}$	Cr	Cor	Cr	Cor	Cu		
10	30	14	0.6	7.35	4.2	749	428	0.21	**3200**	0.05
12	32	15.9	0.6	10.1	5.6	1030	571	0.245	**3201**	0.06
	32	15.9	0.6	10.1	5.6	1030	571	0.245	**3201ZZ**	0.06
15	42	19	1	17.5	11.9	1784	1213	0.43	**3302**	0.13
	35	15.9	0.6	11.8	7.1	1203	724	0.31	**3202**	0.07
	35	15.9	0.6	11.8	7.1	1203	724	0.31	**3202ZZ**	0.07
17	47	222	1	21.7	17.1	2213	1744	0.52	**3303**	0.15
	40	17.5	0.6	14.9	92	1519	9381	0.39	**3203**	0.09
	40	17.5	0.6	14.9	92	1519	9381	0.39	**3203ZZ**	0.09
20	47	20.6	1	19.7	12.5	2009	1275	0.58	**3204**	0.16
	47	20.6	1	19.7	12.5	2009	1275	0.58	**3204ZZ**	0.16
	52	222	1	22.1	13.4	2254	1366	0.69	**3304**	0.22
25	52	20.6	1	20.5	13.4	2090	1366	0.71	**3205**	0.2

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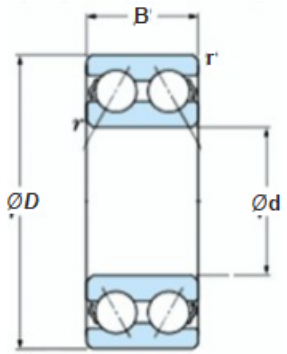
Double Row Angular Contact Bearing



Equivalent radial load dynamic $P_r = XF_r + YF_a$

e	$\frac{F_a}{F_r} \leqq e$		$\frac{F_a}{F_r} > e$	
	X	Y	X	Y
0.68	1	0.92	0.67	1.41

Static equivalent radial load $P_{or} = F_r + 0.76F_a$

Boundary Dimensions				Basic Load Rating				Fatigue Load Limit	Bearing Number	Mass (Kg) Approx.
				Dynamic	Static	Dynamic	Static			
mm				KN		Kgf		KN		
d	D	B	$r_{(min)}$	Cr	Cor	Cr	Cor	Cu		
30	62	23.8	1	29.4	21.5	2998	2192	0.93	**3206**	0.29
35	72	27	1.1	39.3	28.5	4007	2906	1.33	**3207**	0.44
40	80	30.2	1.1	44.9	33.5	4578	3416	1.84	**3208**	0.58
	90	36.5	1.5	59.2	43	6037	4385	2.1	**3308**	0.95
45	85	30.2	1.1	47.2	45.5	4813	4640	1.8	**3209**	0.7
	100	39.7	1.5	87.1	74.4	8882	7587	2.72	**3309**	1.37
50	90	30.2	1.1	53.2	43.5	5425	4436	2.11	**3210**	0.66
	110	44.4	2	88.5	67	9024	6832	3.41	**3310**	1.93
55	100	33.3	1.5	56.7	49.4	5782	5037	2.31	**3211**	0.14
60	110	36.5	1.5	74.4	63.2	7587	6445	3.42	**3212**	0.15
55	120	49.2	2	112	86	14421	8769	3.9	**3311**	2.7
60	130	54	2.1	135	98	13766	9993	4.5	**3312**	3.0
65	140	58.7	2.1	137	110	13970	11217	5.85	**3313**	4.1

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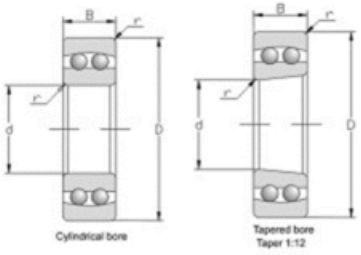
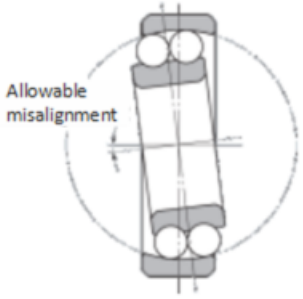
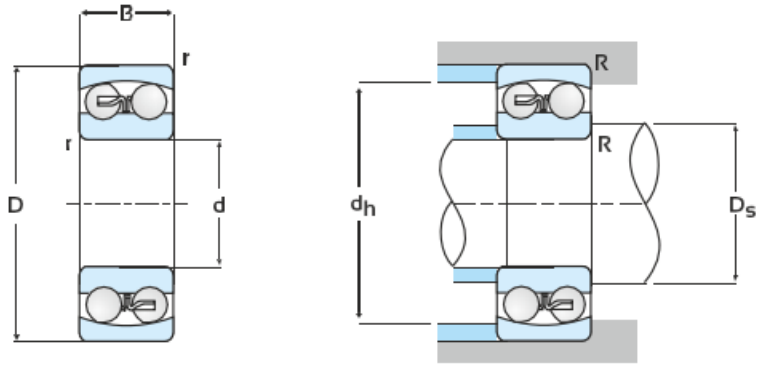
15.3 Self - Aligning Ball Bearing

In a self-aligning bearing, outer ring has a single spherical raceway with its center of curvature in line with the bearing axis and the inner ring has two raceways. The bearings support radial and limited axial loading. This allows the axis of the inner ring, balls and cage to deflect around the bearing center to correct misalignment caused between housing and shaft . In case of misalignment, the ball, cage and inner ring can swivel with respect to outer race. The bearings are available with straight bore and tapered bore. In some cases the ball slightly protrude from the bearing face. For more details contact NEI engineering.





Self Aligning Ball Bearing



Boundry Dimensions				Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Number	Abutment and Fillet Dimensions			Mass Kg. (Approx.)
				Dynamic	Static	Dynamic	Static								
mm				KN		Kgf		KN	rpm			mm			
d	D	B	r min	Cr	Co	Cr	Co	Cu	Grease	Oil		d_h min.	Ds max.	R max.	
12	32	14	0.6	5.55	1.25	566	127	0.12	22000	26000	**2201**	16	28	0.6	0.052
17	40	12	0.6	8.1	7.3	826	744	0.12	14000	17000	**1203**	21	36	1	0.72
20	47	14	1	7.65	3.18	780	324	0.16	13000	15000	**1204**	25	42	1	0.114
20	52	15	1.1	9.6	4.02	979	410	0.20	11000	13000	**1304**	27	46	1	0.158
25	62	17	1.1	18.1	4.9	1846	500	0.30	9100	11000	**1305**	32	55	1	0.263
25	52	15	1	12.1	3.3	1234	337	0.20	11000	13000	**1205**	30	47	1	0.138
25	52	18	I	12.6	3.56	1288	363	0.20	12000	14000	**2205**	30	47	1	0.18
25	62	24	1.1	24.5	6.48	2498	661	0.40	9500	12000	**2305**	31.5	55.5	1	0.35
30	62	16	1	15.6	4.65	1591	474	0.28	9200	11000	**1206**	36	56	1	0.231
30	72	19	1.1	21.2	6.2	2162	632	0.38	7700	9100	**1306**	37	65	1	0.395
30	72	19	1.1	21.5	7.75	2192	790	0.38	8500	11000	**1306K**	36.5	65.5	I	0.39
30	62	20	1	15.3	4.55	1560	464	0.29	10000	12000	**2206**	35	57	1	0.66
30	72	27	1.1	31.5	8.68	3212	885	0.54	8000	10000	**2306**	36.5	65.5	1	0.5
35	80	21	1.5	25.49	7.94	2599	810	0.48	7500	9500	**1307**	43	72	1.5	0.53

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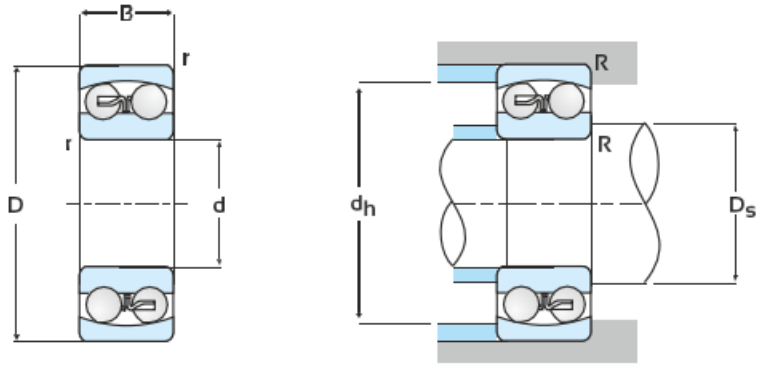
Self Aligning Ball Bearing



Boundry Dimensions				Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Number	Abutment and Fillet Dimensions			Mass Kg. (Approx.)
				Dynamic	Static	Dynamic	Static								
mm				KN		Kgf		KN	rpm			mm			
d	D	B	r min	Cr	Co	Cr	Co	Cu	Grease	Oil		d_h min.	Ds max.	R max.	
40	80	18	1.1	19.7	6.7	2009	683	0.39	7100	8400	**1208**	47	73	1	0.417
40	90	23	1.5	29.5	9.5	3008	969	0.58	6700	8500	**1308K**	48	82	1.5	0.72
40	80	23	1.1	22.8	7.38	2325	753	0.39	7500	9000	**2208K**	46.5	73.5	1	0.53
40	90	33	1.5	45.2	13.2	4609	1346	0.80	6300	8000	**2308**	48	82	1.5	0.9
40	90	33	1.5	45.7	13.6	4660	1387	0.80	6300	8000	**2308K**	48	82	1.5	0.9
45	85	19	2	21.9	7.35	2233	749	0.45	6400	7500	**1209**	52	78	1	0.481
45	100	25	1.5	38	12.8	3875	1305	0.77	6000	7500	**1309K**	53	92	1.5	0.957
45	85	23	1.1	23.3	8.15	2376	831	0.39	7100	8500	**2209K**	51.5	78.5	I	0.52
45	100	36	1.5	55	16.2	5608	1652	1.01	5600	7100	**2309**	53	92	1.5	1.3
45	100	36	1.5	55	16.2	5608	1652	1.02	5600	7100	**2309K**	53	92	1.5	1.3
45	100	25	1.5	38.4	12.9	3916	1315	0.78	6000	7500	**1309**	53	92	1.5	0.96
50	110	40	2	64.5	19.8	6577	2019	1.23	5000	6300	**2310**	59	101	2	1.6
50	110	40	2	64.5	19.8	6577	2019	1.23	5000	6300	**2310K**	59	101	2	1.6
55	100	21	2	26.8	10	2733	1020	0.61	5300	6200	**1211**	63.5	91.5	1.5	0.703

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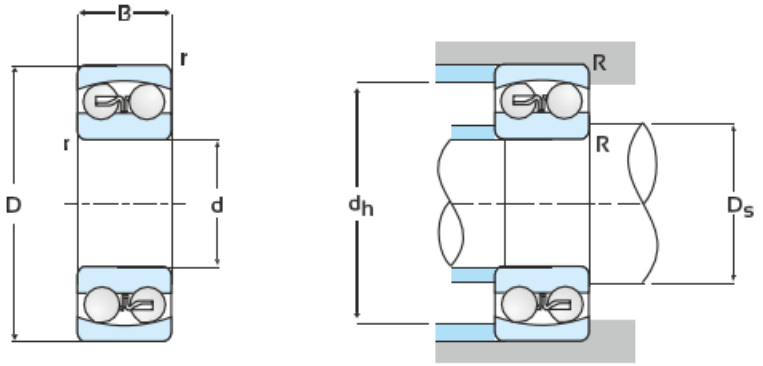
Self Aligning Ball Bearing



Boundry Dimensions				Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Number	Abutment and Fillet Dimensions			Mass Kg. (Approx.)
				Dynamic	Static	Dynamic	Static								
mm				KN		Kgf		KN	rpm			mm			
d	D	B	r min	Cr	Co	Cr	Co	Cu	Grease	Oil		d_h min.	Ds max.	R max.	
55	100	25	1.5	26.7	9.9	2723	1010	0.76	6000	7011	**2211K**	63	92	1.5	0.75
55	120	43	2	76.5	19.8	7801	2019	1.47	4800	6000	**2311K**	64	111	2	2.1
55	120	43	2	76.6	23.9	7811	2437	1.47	4800	6000	**2311**	64	111	2	2.1
60	110	22	1.5	30.5	11.5	3110	1173	0.71	5300	6300	**1212**	68	102	1.5	0.82
60	110	22	1.5	30.5	11.5	3110	1173	0.71	5300	6300	**1212K**	68	102	1.5	0.82
65	120	23	1.5	30.9	12.5	3151	1275	0.77	4800	6000	**1213K**	73	112	1.5	0.92
65	140	48	2	96.6	32.5	9850	3314	1.97	3800	4800	**2313**	76	129	2	3.2
65	140	48	2	96.6	32.5	9850	3314	1.97	3800	4800	**2313K**	76	129	2	3.2
70	150	51	2.1	110	37.5	11217	3824	2.20	3600	4500	**2314**	81	139	2	3.9
75	130	25	1.5	38.7	16	3946	1632	0.94	3900	4600	**1215**	83.5	121.5	1.5	1.46
75	130	31	1.5	44.2	18	4507	1835	1.06	4300	5300	**2215K**	83	122	1.5	1.72
80	140	26	2	39.7	17.1	4048	1744	0.98	4000	5000	**1216K**	89	131	2	1.7
80	170	58	2.1	137	48.5	13970	4946	2.69	3200	4000	**2316**	91	159	2	6.3
85	150	28	2	44.8	20.5	4568	2090	1.17	3800	4500	**1217K**	94	14	2	2.095
85	180	60	3	140	53.4	14276	5445	2.27	3000	3800	**2317**	98	167	2.5	7.3
100	180	34	2.1	69.3	29.9	7067	3049	1.54	3200	3800	**1220K**	111	169	2	3.8

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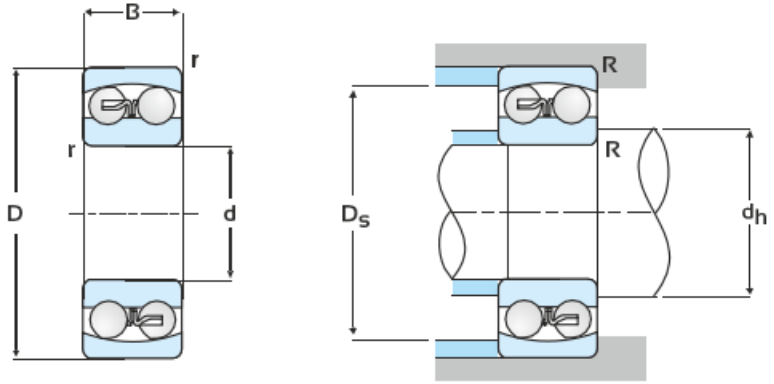
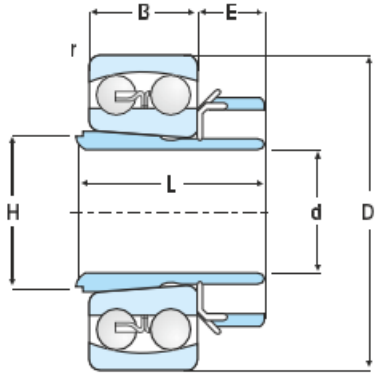
Self Aligning Ball Bearing (Inch Series)

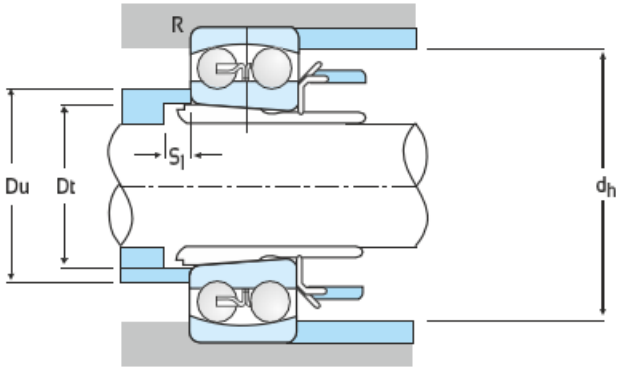


Boundry Dimensions				Basic Load Rating				Fatigue Load Limit	Limiting Speed		Bearing Number	Abutment and Fillet Dimensions			Mass Kg. (Approx.)
				Dynamic	Static	Dynamic	Static								
mm / inch				KN		Kgf		KN	rpm			mm			
d	D	B	r min	Cr	Co	Cr	Co	Cu	Grease	Oil		d_h min.	Ds max.	R max.	
31.750 (1.250)	69.850 (2.750)	17.460 (0.688)	1.6 (0.06)	19.15	5.750	1953	586	0.26	10700	14500	UL512V	45 (1.77)	61.2 (2.41)	1.6 (0.06)	0.324

Self Aligning Ball Bearing With Sleeve

Double Row Self Aligning Ball Bearings with Taper Clamping Sleeve & Nut





Boundry Dimensions							Basic Load Rating				Fatigue load limit	Limiting Speed		Bearing	Abutment and Fillet Dimensions					Mass Kg. (Approx.)
							Dynamic	Static	Dynamic	Static										
mm							KN		Kgf		KN	rpm			mm					
d	D	B	L	E	H	r	C_r	C_{or}	C_r	C_{or}	Cu	Grease	Oil		Dt max.	Du max.	d_h min.	Si min.	R max.	
20	52	15	26	8	26	1	12.1	3.3	1234	337	0.20	11000	13000	**1205K**	28	33	46	5	0.5	0.25
25.4	62	16	34	11.2	30.96	1	15.6	4.65	1591	474	0.27	9200	11000	**1206K**	35	39	56	9	0.5	0.347
31.75	80	18	38	12.4	40.08	2	19.7	6.55	2009	668	0.40	7100	8400	**1208K**	46	52	70	10	1	0.68
38.1	85	19	40	12.4	46.83	2	21.9	7.35	2233	749	0.44	6400	7500	**1209K**	54	57	75	11	1	0.753
50.8	100	21	46	13.6	57.15	2	26.8	10	2733	1020	0.60	5300	6200	**1211K**	63	69	88	13.5	1	1.08
63.5	130	25	56	15.3	76.71	2	38.7	16	3946	1632	0.93	3900	4600	**1215K**	81	93	118	18	1	2.354

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15.4 Generation Hub Units for Wheel Application

The Generation hub unit is a double-row ball bearing with a one-piece outer ring and a split or two-piece inner ring. It is greased, sealed and adjusted for long life. The Generation hub units are compact and simpler to mount. It is one of the most used wheel

Lubrication

The objective of lubrication is to form a film of oil on rolling or sliding surface to prevent the metals from making direct contact with each other, Lubrication has the following effects:

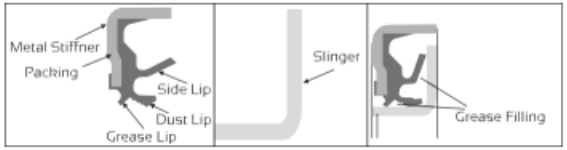
1. Reduces friction and wear.
2. Extends Bearing life.
3. Prevents rusting.
4. Prevents penetration of foreign matter.

Fretting wear particularly tends to occur on the raceway of DRAC Bearing during transport of finished automobiles. Therefore the fretting resistance property of Lubricant should be taken into account while selecting lubricant for DRAC Bearings.

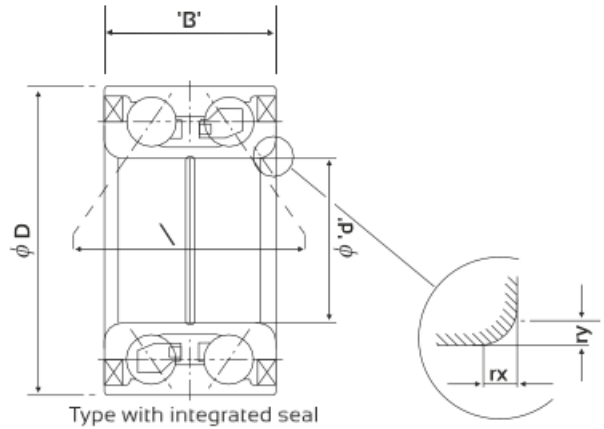
Characteristics	Resists fretting, enhances protection against rust
Maker	Nippon Oil Japan
Name	PYRONOC Universal N6B/N6C
Thickener	Urea
Base Oil	Mineral Oil
Working Temperature	-30 to 150 C
Colour	Cream
Remarks	Fretting Resistance Excellent Recommended grease for Passenger Cars

Seals

A special Low torque high performance (LTHP) seal on both sides of the DRAC Bearing prevent water ingress in the bearing and have low torque. It consists of 3-lips - Grease Lip, Dust Lip and Side Lip. A stainless Steel Slinger is added to the 3-lip seal sliding part, which dramatically enhances rust resistance of the sliding part of the lips. Side lip is added for improving the sealing performance.



Wheel Application : Double Row Angular Contact Sealed Bearings - GEN1 Ball Type



Type with integrated seal

GEN 1

GEN1 Hub mounted

Boundary Dimensions					Distance Between Pressure Cone Apexes	Basic Load Rating				Fatigue Load Limit	Bearing Number	Mass Kg (Approx.)
						Dynamic	Static	Dynamic	Static			
mm						KN		Kgf		KN		
d	D	B	$r_{x\,(min)}$	$r_{y\,(min)}$	mm	Cr	Cor	Cr	Cor	Cu		
22	48	37	3.5	2.5	40.3	26.6	21.6	2712	2203	1.2	AUN1528-2LLX2	0.32
25	52	42	3.5	2.5	50.3	33.6	27	3426	2753	1.4	AU1109-2LLX2	0.366
25	55	48	2.5	2.5	62.9	34	29	3467	2957	1.5	AU0504-11LXUL588	0.499
28	58	44	3.5	2.5	53	39.3	32	4007	3263	1.7	AU1105-2LLX2	0.47
28	58	33	3.5	2.5	40.3	36.9	31.3	3763	3192	1.7	AUN1527-2LLX2	0.38
35	61.8	40	3.5	3.5	54.7	35	34	3569	3467	1.8	AU1103M-2LLX2	0.422

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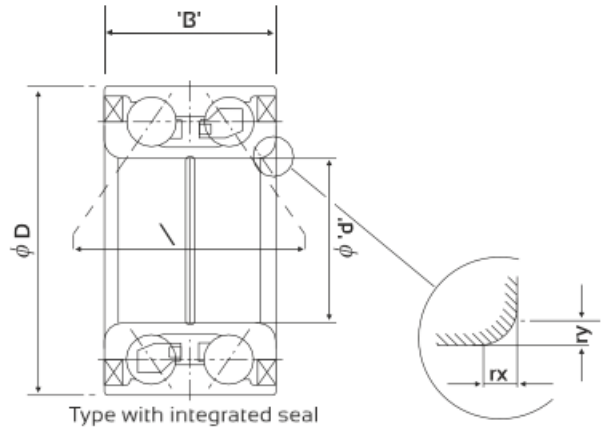
Wheel Application : Double Row Angular Contact Sealed Bearings - GEN1 Ball Type



Type with integrated seal

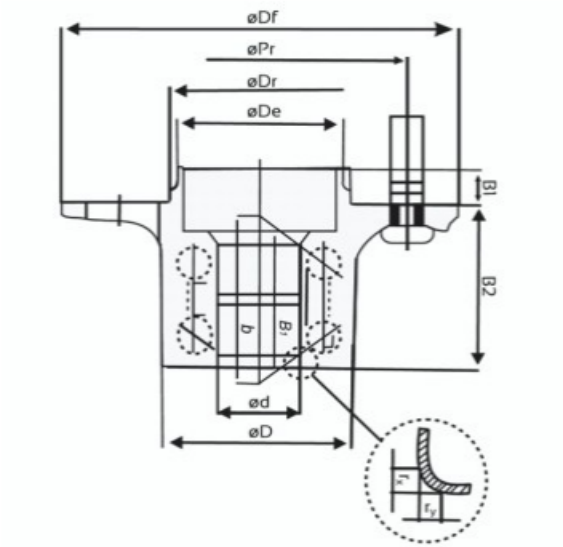
GEN 1

GEN1 Hub mounted

Boundary Dimensions					Distance Between Pressure Cone Apexes	Basic Load Rating				Fatigue Load Limit	Bearing Number	Mass Kg (Approx.)
mm						Dynamic	Static	Dynamic	Static			
						KN		Kgf		KN		
d	D	B	$r_{x\,(min)}$	$r_{y\,(min)}$	mm	Cr	Cor	Cr	Cor	Cu		
35	68	37	3.5	3.5	52.6	45.9	43.1	4680	4395	2.3	AU1101-2LLX2	0.535
36	68	33	3.5	3.5	52.6	45.9	43.1	4680	4395	2.3	AUII07-2LLX2	0.47
37	72	37	2.5	2.5	53.1	56.2	52	5731	5302	2.8	AU0727-14L UL588	0.63
37	72	37	2.5	2.5	53.1	56.2	52	5731	5302	2.8	AU0754-2LXUL588	0.624
37	72	37	2.5	2.5	53.1	56.2	52	5731	5302	2.8	AU0727-15LXUL588	0.628

Wheel Application : Double Row Angular Contact Sealed Bearings - GEN 2 Ball Type

GEN 2 ball type



Boundry Dimensions											Distance Between Pressure Cone Apexes	Basic load rating (Single row)				Fatigue load limit	Bearing Number	No.of Hub bolts	Mass Kg
												Dynamic	Static	Dynamic	Static				
mm												KN		Kgf		KN			
d	D	B1	B2	B_1	Df	Dw	Db	Pb	rx min.	ry min.	min.	Cr	Cor	Cr	Cor	Cu			(reference)
28	64	18	49.5	40	134	60	64	14.3	3.5	2.5	49.7	26.2	16.5	2672	1683	1.947	BB1072	4	1.64

15.4.3 Wheel application Generation 3 Hub unit

3rd Generation Wheel Hub Bearing Units

Automotive OEM's are looking for compact, capable, light weight and reliable solutions for new model launch. Traditional wheel bearings were using more parts, more sub-assembly time and were difficult to mount. The Gen 3 wheel bearing is an integrated and modular solution for wheel ends.

NEI developed 3rd Generation wheel bearings which are highly integrated units with a brake disc mounting flange, bearing and wheel mount flange that guarantee highest running accuracy. The bearing clamping force (Preload) is applied and controlled via a specially formed shoulder, resulting in a maintenance free design.

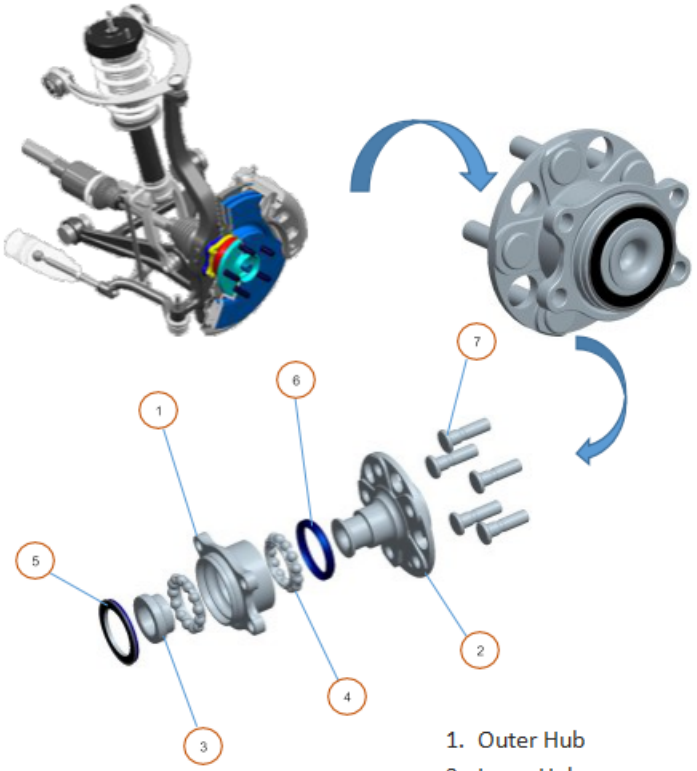
Double flange design and integrated approach reduces total cost of mounting the assembly in the vehicle. Reduced function and overall bearing life caused by incorrect mounting influences are finally eliminated with this Gen 3 bearing development.

It is also possible to provide integrated speed sensors required for signal of ABS/ESP suspension control.

Benefits:-

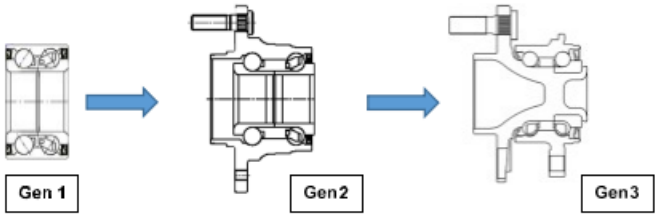
1. Integrated wheel speed sensor control e.g. ABS
2. Sealed and lubricated for life
3. "Plug in" for the vehicle. Preloaded and preassembled to precise high quality standards.
4. Reduced installation complexity.
5. High precision brake disc and wheel guidance.
6. Long service life.
7. Zero maintenance cost
8. Low life cycle cost.

Generation 3 Wheel Hub Bearings



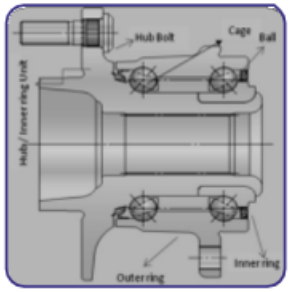
1. Outer Hub
2. Inner Hub
3. Separate Inner
4. Ball Cage Assembly
5. Inboard Seal
6. Outboard Seal
7. Hub Bolts

Evolution in Wheel Hub Bearings



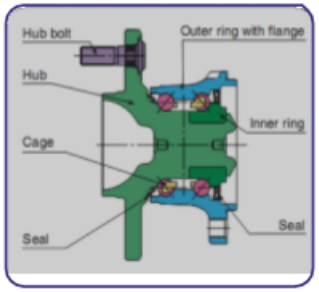
Types of Gen 3 Bearings

Driven Wheel



Splines in Hub inner bore get engaged with splined hub shaft to drive/move the vehicle along with supporting vehicle weight.

Non - Driven Wheel



Inner Ring Rotating type non driven bearing. Only supports vehicle weight

Why Gen 3 Bearings?

Below table shows comparison of Hub unit bearings based on required characteristics. Gen-3 bearing is superior when compared to most of the required characteristics of Hub Unit bearings.

Characteristics	Items	GEN 1	GEN 2	GEN 3
		DRIVEN/ NON - DRIVEN	NON - DRIVEN	DRIVEN/ NON - DRIVEN
		Inner Ring Rotation	Outer Ring Rotation	Inner Ring Rotation
Functionality	Load Capacity	++ +	++	++
	Seizure resistance	+++	+++	+++
Compactness	Axle weight	+	+++	+++
	Cross -section space	+	+	+++
	Width space	+	+++	+++
Reliability	With Seals	+++	+++	+++
	Preload range under motion	+	++	+++
	Reliability in service	+	++	+++
Maintenance	Preload Management	+	++	+++
	Mounting & Serviceability	+	++	+++
	Knuckle material applicability	+	++ (Light alloys)	++ (Light alloys)

Note: Superiority Ranking order +++ > ++ > +

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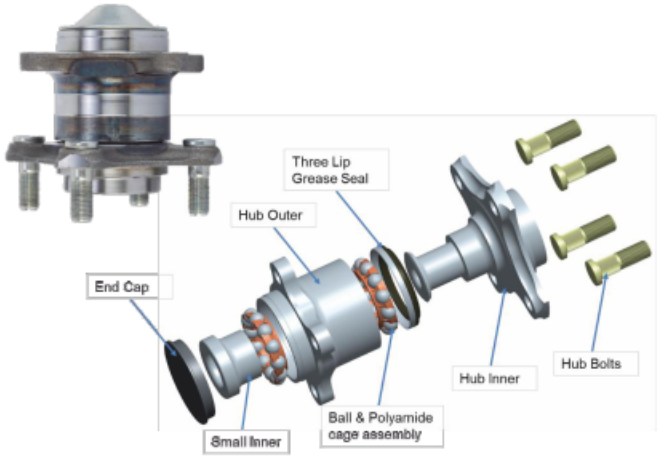
GEN -3 Non Driven Wheel Hub Unit



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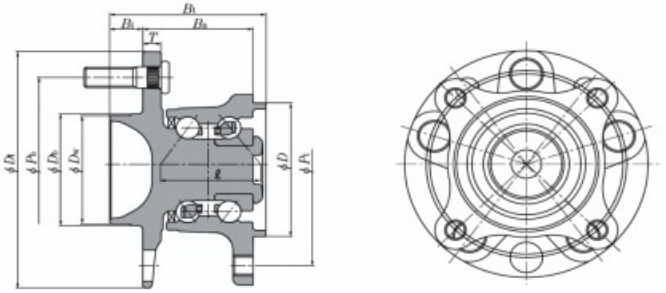
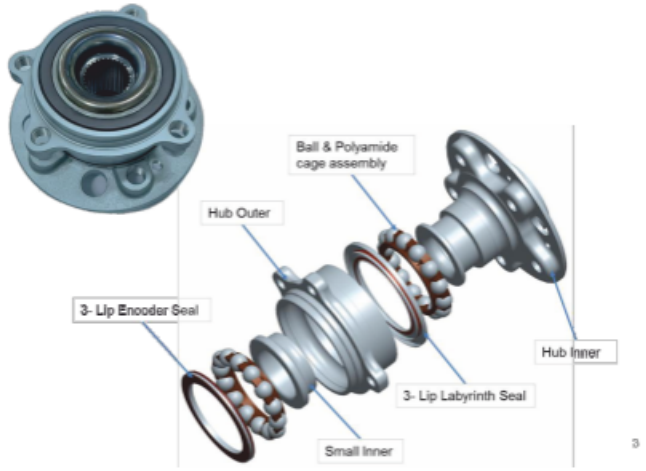


Project / Customer	Main Dimensions (MM)										Nos of Hub Bolts	No of Tap hole in outer	Mass (KG)
	Dw	D	Db	Ba	T	Bi	Bt	Pb	Pt	Df			
N1271	54	62	62	60	10	15	87.5	100	~90	120	4	4	2.0

GEN -3 Driven Wheel Hub Unit



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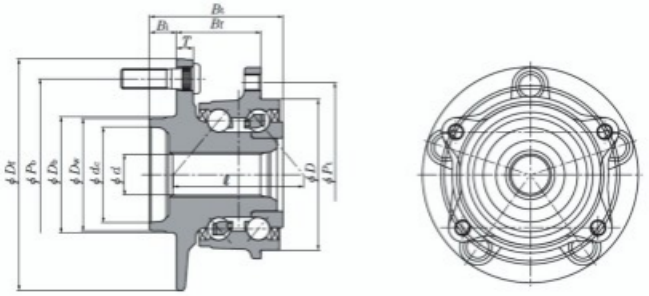

Project / Customer	Main Dimensions (MM)												Nos of Hub Bolts	No of Tap hole in outer	Mass (KG)
	d	dc	Dw	D	Db	Bt	Bf	T	Bi	Pb	Pt	Df			
N1379	26	59	66.5	98	69	91.5	57	17	17	112	116	148	NA (5 tap Holes)	4	3.5

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15.4 Generation Hub Units for Wheel Application

The Generation hub unit is a double row ball bearing with a one-piece outer ring and a two-piece inner ring. It is greased, sealed and adjusted for long life. The Generation hub units are compact and simpler to mount. It is one of the most used wheel

Lubrication

The objective of lubrication is to form a film of oil on rolling or sliding surface to prevent the metals from making direct contact with each other, Lubrication has the following effects:

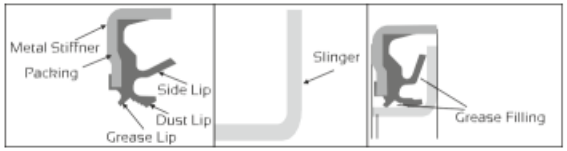
1. Reduces friction and wear.
2. Extends Bearing life.
3. Prevents rusting.
4. Prevents penetration of foreign matter.

Fretting wear particularly tends to occur on the raceway of DRAC Bearing during transport of finished automobiles. Therefore the fretting resistance property of Lubricant should be taken into account while selecting lubricant for DRAC Bearings.

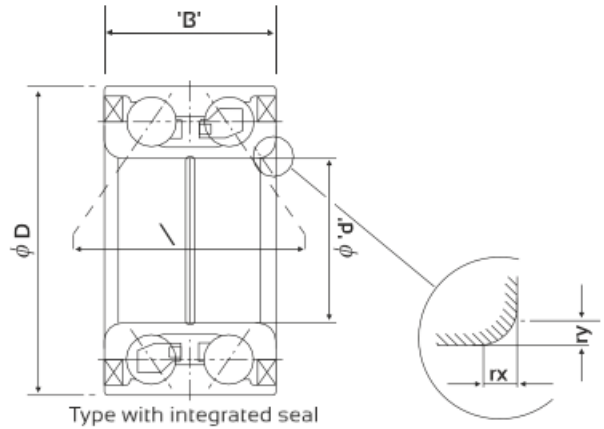
Characteristics	Resists fretting, enhances protection against rust
Maker	Nippon Oil Japan
Name	PYRONOC Universal N6B/N6C
Thickener	Urea
Base Oil	Mineral Oil
Working Temperature	-30 to 150 C
Colour	Cream
Remarks	Fretting Resistance Excellent Recommended grease for Passenger Cars

Seals

A special Low torque high performance (LTHP) seal on both sides of the DRAC Bearing prevent water ingress in the bearing and have low torque. It consists of 3-lips - Grease Lip, Dust Lip and Side Lip. A stainless Steel Slinger is added to the 3-lip seal sliding part, which dramatically enhances rust resistance of the sliding part of the lips. Side lip is added for improving the sealing performance.



Wheel Application : Double Row Angular Contact Sealed Bearings - GEN1 Ball Type



Type with integrated seal

GEN 1

GEN1 Hub mounted

Boundary Dimensions					Distance Between Pressure Cone Apexes	Basic Load Rating				Fatigue Load Limit	Bearing Number	Mass Kg (Approx.)
						Dynamic	Static	Dynamic	Static			
mm						KN		Kgf		KN		
d	D	B	$r_{x\,(min)}$	$r_{y\,(min)}$	mm	Cr	Cor	Cr	Cor	Cu		
22	48	37	3.5	2.5	40.3	26.6	21.6	2712	2203	1.2	AUN1528-2LLX2	0.32
25	52	42	3.5	2.5	50.3	33.6	27	3426	2753	1.4	AU1109-2LLX2	0.366
25	55	48	2.5	2.5	62.9	34	29	3467	2957	1.5	AU0504-11LXUL588	0.499
28	58	44	3.5	2.5	53	39.3	32	4007	3263	1.7	AU1105-2LLX2	0.47
28	58	33	3.5	2.5	40.3	36.9	31.3	3763	3192	1.7	AUN1527-2LLX2	0.38
35	61.8	40	3.5	3.5	54.7	35	34	3569	3467	1.8	AU1103M-2LLX2	0.422

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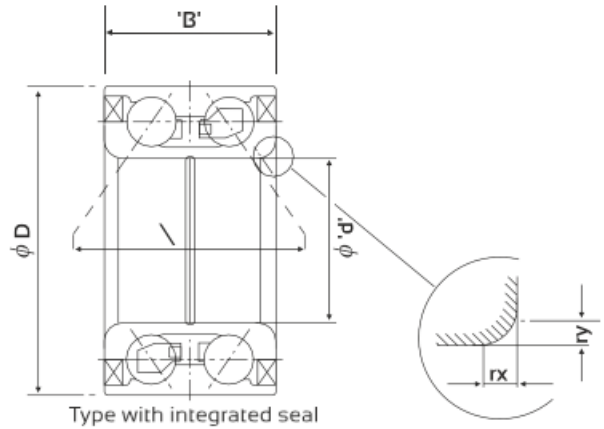
Wheel Application : Double Row Angular Contact Sealed Bearings - GEN1 Ball Type



Type with integrated seal

GEN 1

GEN1 Hub mounted

Boundary Dimensions					Distance Between Pressure Cone Apexes	Basic Load Rating				Fatigue Load Limit	Bearing Number	Mass Kg (Approx.)
						Dynamic	Static	Dynamic	Static			
mm						KN		Kgf		KN		
d	D	B	$r_{x\,(min)}$	$r_{y\,(min)}$	mm	Cr	Cor	Cr	Cor	Cu		
35	68	37	3.5	3.5	52.6	45.9	43.1	4680	4395	2.3	AU1101-2LLX2	0.535
36	68	33	3.5	3.5	52.6	45.9	43.1	4680	4395	2.3	AUII07-2LLX2	0.47
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37	72	37	2.5	2.5	53.1	56.2	52	5731	5302	2.8	AU0727-15LXUL588	0.628

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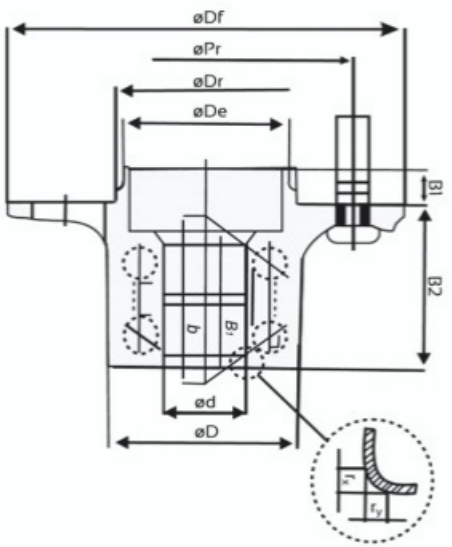
Wheel Application : Double Row Angular Contact Sealed Bearings - GEN 2 Ball Type

GEN 2 ball type



Boundry Dimensions											Distance Between Pressure Cone Apexes	Basic load rating (Single row)				Fatigue load limit	Bearing Number	No.of Hub bolts	Mass Kg
												Dynamic	Static	Dynamic	Static				
mm												KN		Kgf		KN			
d	D	B1	B2	B_1	Df	Dw	Db	Pb	rx min.	ry min.	min.	Cr	Cor	Cr	Cor	Cu			(reference)
28	64	18	49.5	40	134	60	64	14.3	3.5	2.5	49.7	26.2	16.5	**2672**	**1683**	1.947	**BB1072**	4	1.64

15.4.3 Wheel application Generation 3 Hub unit

3rd Generation Wheel Hub Bearing Units

Automotive OEM's are looking for compact, capable, light weight and reliable solutions for new model launch. Traditional wheel bearings were using more parts, more sub-assembly time and were difficult to mount. The Gen 3 wheel bearing is an integrated and modular solution for wheel ends.

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Benefits:-

1. Integrated wheel speed sensor control e.g. ABS
2. Sealed and lubricated for life
3. "Plug in" for the vehicle. Preloaded and preassembled to precise high quality standards.
4. Reduced installation complexity.
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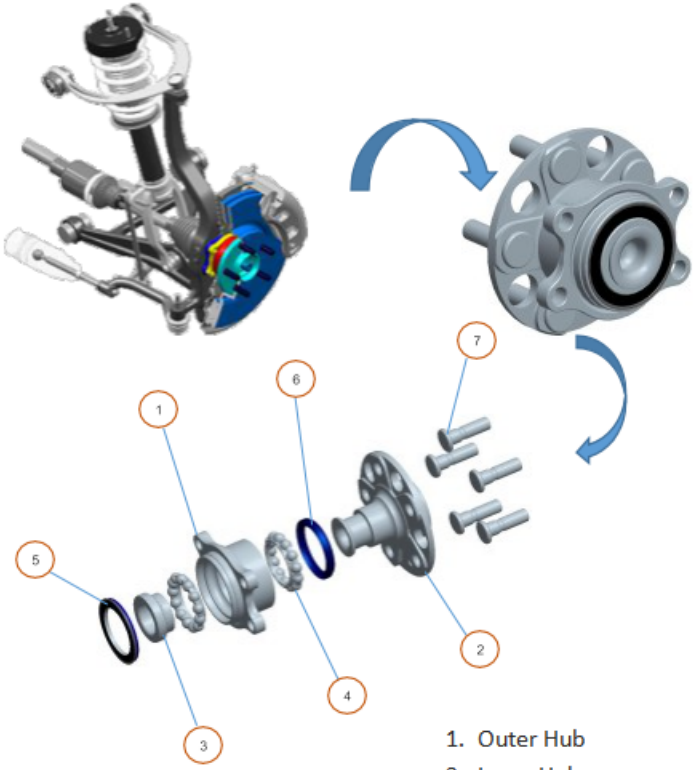
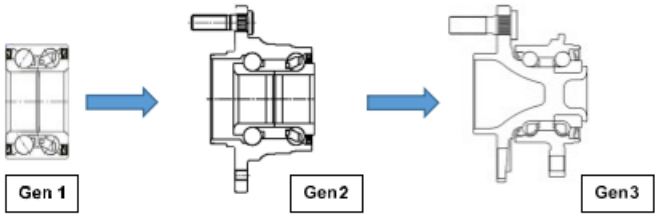
6. Long service life.
7. Zero maintenance cost
8. Low life cycle cost.

Generation 3 Wheel Hub Bearings



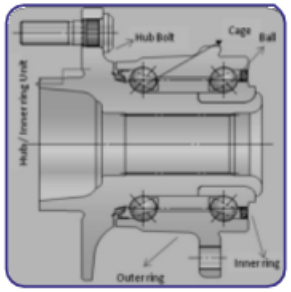
1. Outer Hub
2. Inner Hub
3. Separate Inner
4. Ball Cage Assembly
5. Inboard Seal
6. Outboard Seal
7. Hub Bolts

Evolution in Wheel Hub Bearings



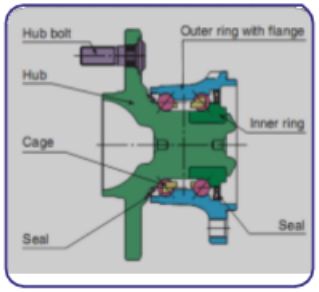
Types of Gen 3 Bearings

Driven Wheel



Splines in Hub inner bore get engaged with splined hub shaft to drive/move the vehicle along with supporting vehicle weight.

Non - Driven Wheel



Inner Ring Rotating type non driven bearing. Only supports vehicle weight

Why Gen 3 Bearings?

Below table shows comparison of Hub unit bearings based on required characteristics. Gen-3 bearing is superior when compared to most of the required characteristics of Hub Unit bearings.

Characteristics	Items	GEN 1	GEN 2	GEN 3
		DRIVEN/ NON - DRIVEN	NON - DRIVEN	DRIVEN/ NON - DRIVEN
		Inner Ring Rotation	Outer Ring Rotation	Inner Ring Rotation
Functionality	Load Capacity	++ +	++	++
	Seizure resistance	+++	+++	+++
Compactness	Axle weight	+	+++	+++
	Cross -section space	+	+	+++
	Width space	+	+++	+++
Reliability	With Seals	+++	+++	+++
	Preload range under motion	+	++	+++
	Reliability in service	+	++	+++
Maintenance	Preload Management	+	++	+++
	Mounting & Serviceability	+	++	+++
	Knuckle material applicability	+	++ (Light alloys)	++ (Light alloys)

Note: Superiority Ranking order +++ > ++ > +

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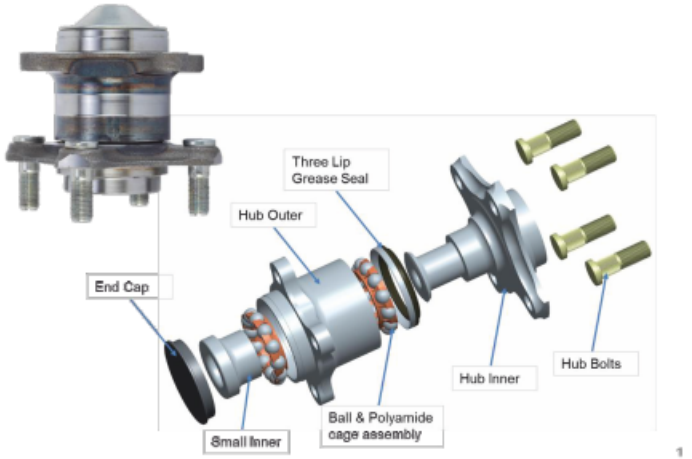
GEN -3 Non Driven Wheel Hub Unit



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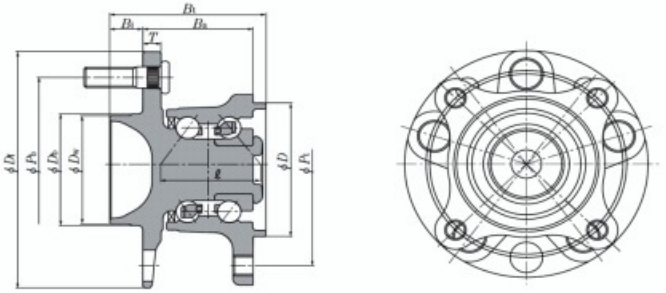
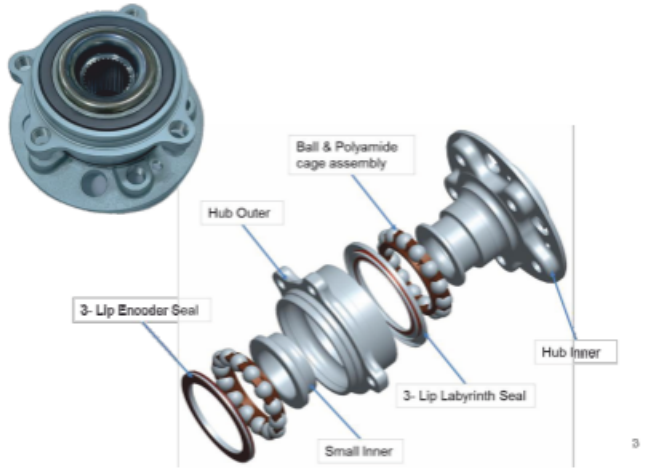
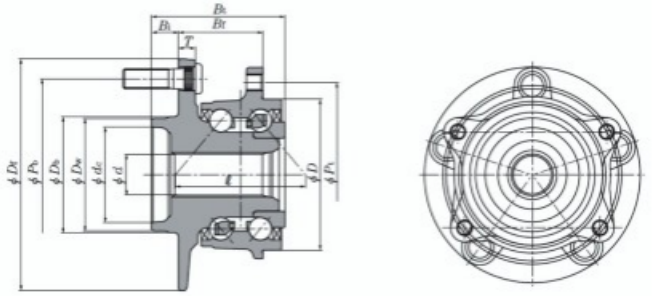


Project / Customer	Main Dimensions (MM)										Nos of Hub Bolts	No of Tap hole in outer	Mass (KG)
	Dw	D	Db	Ba	T	Bi	Bt	Pb	Pt	Df			
N1271	54	62	62	60	10	15	87.5	100	~90	120	4	4	2.0

GEN -3 Driven Wheel Hub Unit



3



Project / Customer	Main Dimensions (MM)												Nos of Hub Bolts	No of Tap hole in outer	Mass (KG)
	d	dc	Dw	D	Db	Bt	Bf	T	Bi	Pb	Pt	Df			
N1379	26	59	66.5	98	69	91.5	57	17	17	112	116	148	NA (5 tap Holes)	4	3.5

nbc flexible solutions