NRB INDUSTRIAL

PRODUCT PORTFOLIO

MOVING THE WHEELS OF INDUSTRY

ISO CERTIFICATION

CERTIFICATE

The Certification Body
of TÜV SÜD Management Service GmbH
certifies that

NRB Industrial Bearings Limited
Plot no B-18, B Block, Five Star MIDC Area, Shendra,
Aurangabad - 431154, Maharashtra
India

has established and applies
a Quality Management System for

Design, manufacturing of Bearings.
(with Product Design as per Chapter 8.3)

An audit was performed and has furnished proof
that the requirements according to

IATF 16949
First Edition 2016-10-01

are fulfilled.

Issue date: 2022-12-27
Expiry date: 2025-12-26
Certificate Registration No.: 12 111 48630 TMS
IATF Certificate No.: 0465060 / IATF UBI: 6CGSHH
Part of the certificate is an appendix.

Head of Certification Body
Munich, 2022-12-27

Page 1 of 2

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www.tuev-sued.de/certificate-validity-check

TÜV

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

CERTIFICATE

The Certification Body
of TÜV SÜD South Asia Private Limited
certifies that

NRB Industrial Bearings Limited
B-18, Five Star MIDC Area, Shendra,
Aurangabad - 431 154, Maharashtra, INDIA

including the sites and scope of application see enclosure

has implemented Energy Management System
in accordance with ISO 50001:2018
for the scope of

Design, manufacture & Supply of 1. Needle Bearings – solid race, cage guided & full Complement. 2. Needle Cages, Needle Thrust Bearings including thrust washers and combined needle bearings. 3. Track Rollers including cam followers with stud and without stud. 4. Bottom Roller bearings. 5. Rings and Sleeves. 6. Needle Rollers & Rollers. 7. Ball Bearings – deep groove, angular contact, self aligning and magneto type. 8. Wide Inner Ring Ball Bearings and Units (pillow blocks and flange type) 9. Cylindrical Roller Bearings. 10. Spherical Roller Bearings 11. Needle bushes.

The certificate is valid from 2021-08-09 until 2024-08-08
Subject to successful completion of annual periodic audits
The present status of this Certificate can be obtained on www.tuvsud.com/ww-in
Further clarifications regarding the scope of this certificate may be obtained by consulting the certification body

Certificate Registration No. 99 118 00033
Date of Initial certification : 2021-08-09
Issue Date: 2021-08-09 Rev. 00

Rahul Kale
Head of Certification Body
of TÜV SÜD South Asia Private Limited, Mumbai
Member of TÜV SÜD Group

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TÜV SÜD South Asia Pvt. Ltd. • TÜV SÜD House • Saki Naka • Andheri (East) • Mumbai – 400072 • Maharashtra • India

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CERTIFICATE

The Certification Body
of TÜV SÜD South Asia Private Limited
certifies that

NRB Industrial Bearings Limited
B-18, Five Star MIDC Area, Shendra,
Aurangabad - 431 154, Maharashtra, INDIA

including the sites and scope of application see enclosure

has implemented Occupational Health and Safety Management System
in accordance with ISO 45001:2018
for the scope of

Design, manufacture & supply of
1. Needle Bearings – solid race, cage guided & full Complement. 2. Needle Cages, Needle Thrust Bearings including thrust washers and combined needle bearings. 3.Track Rollers including cam followers with stud and without stud. 4. Bottom Roller bearings. 5. Rings and Sleeves. 6. Needle Rollers & Rollers. 7. Ball Bearings - deep groove, angular contact, self aligning and magneto type. 8. Wide Inner Ring Ball Bearings and Units (pillow blocks and flange type) 9. Cylindrical Roller Bearings. 10. Spherical Roller Bearings 11. Needle bushes.

The certificate is valid from 2021-07-28 until 2023-06-08
Subject to successful completion of annual periodic audits
The present status of this Certificate can be obtained on www.tuvsud.com/ww-in
Further clarifications regarding the scope of this certificate may be obtained by consulting the certification body

Certificate Registration No. 99 117 00725
Date of Initial certification : 2017-06-09
Issue Date: 2021-07-28 Rev. 01

Rahul Kale
Head of Certification Body
of TÜV SÜD South Asia Private Limited, Mumbai
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CERTIFICATE

The Certification Body
of TÜV SÜD South Asia Private Limited
certifies that

NRB Industrial Bearings Limited
Plot No. B-18, Five Star MIDC Area, Shendra,
Aurangabad - 431 154, Maharashtra, INDIA

including the sites and scope of application see enclosure

has implemented an Environmental Management System
in accordance with ISO 14001:2015
For Scope of

Design, manufacture & Supply of 1. Needle Bearings – solid race, cage guided & full Complement. 2. Needle Cages, Needle Thrust Bearings including thrust washers and combined needle bearings. 3. Track Rollers including cam followers with stud and without stud. 4. Bottom Roller bearings. 5. Rings and Sleeves. 6. Needle Rollers & Rollers. 7. Ball Bearings – deep groove, angular contact, self aligning and magneto type. 8. Wide Inner Ring Ball Bearings and Units (pillow blocks and flange type) 9. Cylindrical Roller Bearings. 10. Spherical Roller Bearings 11. Needle bushes.

The certificate is valid From 2020-06-09 until 2023-06-08
Subject to successful completion of annual periodic audits
The present status of this Certificate can be obtained on www.tuv-sud.in
Further clarifications regarding the scope of this certificate may be obtained by consulting the certification body

Certificate Registration No. 99 104 01062
Date of Initial certification : 2017-06-09

Certification Body
of TÜV SÜD South Asia Private Limited, Mumbai
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CERTIFICATE
OF CONFORMITY

The Certification Body
of TÜV SÜD South Asia Private Limited
certifies that

NRB Industrial Bearings Limited
B-18, Five Star MIDC Area, Shendra,
Aurangabad - 431154, Maharashtra, India

including the sites and scope of application see enclosure

has established
and applies Complaint Management System
in accordance with ISO 10002:2018
(Quality management - Customer Satisfaction - Guidelines for complaints handling in organizations)
for the scope of

Complaint Management System for Design, Manufacturing & Supply of Needle Roller, Needle Bearings, Solid race needle Bearing, Bearings components, Thrust Washers, Thrust Bearings, Inner Rings, Cylindrical roller Bearings, Ball Bearing, Angular contact ball Bearing, Needle bush Bearings

Further clarifications regarding the scope of this certificate and the applicability of the requirements based on ISO 10002:2018 may be obtained by consulting the certification body

The certificate is valid from 2022-06-29 until 2025-06-28
Certificate Registration No. TUV AS 101007
Issue Date: 2022-06-29 Rev. 00

Rahul Kale
Head of Certification Body
of TÜV SÜD South Asia Private Limited, Mumbai
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CERTIFICATE

The Certification Body
of TÜV SÜD Management Service GmbH
certifies that

NRB Industrial Bearings Limited
Plot no B-18, B Block, Five Star MIDC Area, Shendra,
Aurangabad - 431154, Maharashtra
India

has established and applies
a Quality Management System for

Design, Manufacturing and Sales of
NEEDLE ROLLER, NEEDLE BEARINGS, SOLID RACE NEEDLE BEARING, BEARINGS COMPONENTS, THRUST WASHERS, THRUST BEARINGS, INNER RINGS, CYLINDRICAL ROLLER BEARINGS, SPHERICAL ROLLER BEARINGS, BALL BEARING, WIDE INNER RACE BEARINGS & UNITS, BOTTOM ROLLER BEARINGS, CAM FOLLOWER & SOURCING AND SALE OF NEEDLE BUSHES.

An audit was performed. Order No. 4153294170.
Proof has been furnished that the requirements
according to

DIN EN ISO 9001:2015

are fulfilled.

The certificate is valid from 2022-12-27 until 2025-12-26.
Certificate Registration No.: 12 100 48630 TMS.

Head of Certification Body
Munich, 2022-12-27

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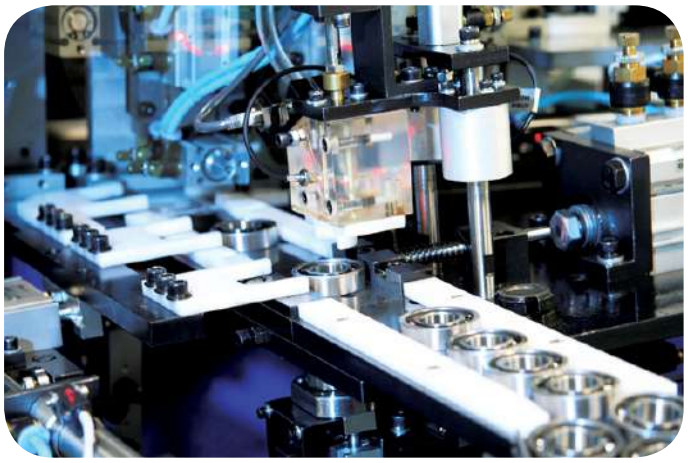
Why NRB Industrial Bearings?

NRB Industrial Bearings Limited, headquartered in Fort, Mumbai, is India's Leading Manufacturer of wide range ball and roller bearing solutions for the industrial market in India & overseas, we have earned a reputation for quality, reliability, and exceptional customer service.

Our specialized engineering expertise and state-of-the-art manufacturing and R&D center in Shendra, Aurangabad allow us to offer a wide range of customized solutions that meet the unique needs of our customers. We pride ourselves on our commitment to constantly upgrading our products and processes to meet international quality and safety standards, and we have received certifications from several external agencies to validate this.

With a wide distribution network and a dedicated sales force and application engineering team, we are equipped to offer customers the advantages they need to stay ahead in today's increasingly competitive market. At NRB Industrial Bearings, we are dedicated to helping our customers increase uptime, efficiency, and reliability for their equipment, all while keeping operational costs low. Choose NRB Industrial Bearings for your bearings needs and experience the difference of exceptional products and customer service.



OUR PRODUCT
















INDEX

NRB INDUSTRIAL

DOUBLE-ROW SPHERICAL ROLLER BEARINGS

MOVING THE WHEELS OF INDUSTRY

NIBL 'EA type' double-row spherical roller bearing, a choice for the most difficult applications

NIBL self-aligning double-row spherical roller bearing is a combination of radial and axial bearing. It is designed to operate even if shaft and housing are, or become, misaligned under load. The internal design of bearing enables them to withstand very high radial loads and axial loads in both directions. This type of heavy duty bearing is the favored choice when conditions include heavy loads, difficulties in establishing or maintaining housing alignment, or when shaft deflection is expected. Bearing can take high degrees of misalignment depending on the size and series of the bearing.

Shaft deflection and housing distortion caused by shock or heavy loads, which lead to misalignment, are compensated for by the internal self-alignment of the bearing elements during operation. Corner loading of rollers, a condition that limits service life on other types of bearings, cannot develop in spherical roller bearings.

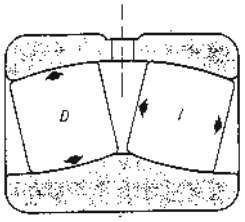
The inherent compensation for misalignment provided by the spherical roller bearing offers the designer the opportunity to use weldments for housing frames instead of complex castings, eliminating high cost machining operations. Even when castings may be preferred, bore alignment is less critical if spherical roller bearings are specified. Unit design and construction also make the spherical roller bearing convenient to handle during installation or maintenance.

Most types have circular groove and lubricating holes in the outer ring. This feature facilitates more effective lubrication. NIBL manufactures spherical roller bearings with cylindrical and tapered bore. Tapered bore bearings may be used either in Plummer blocks or conventional housings.

FEATURES of NIBL EA double-row spherical roller bearings

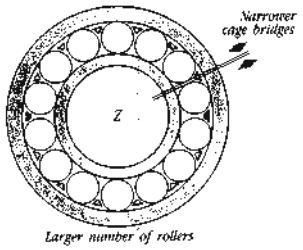
- **Symmetrical rollers of LARGE DIAMETER** by optimizing the wall thickness of rings. This became possible by making improvements in steel, heat treatment techniques and machining.

- **Rollers LONGER in LENGTH** by eliminating the central collar in E design of bearing.



Larger diametre and longer length for rollers

MORE NUMBER of ROLLERS by optimizing the design of cage which enabled to reduce the distance between rollers, hence it became possible to accommodate more number of rollers in a cage.



Redesigned bearing tracks for
- Greater contact area
- Better load distribution
- Improved contact between track and rollers.

Maximum dynamic load rating for longer life and better reliability.

High static load rating for high performance under low speeds and heavy loads.

Lower operating temperature (down by 10°C) due to reduced internal friction.

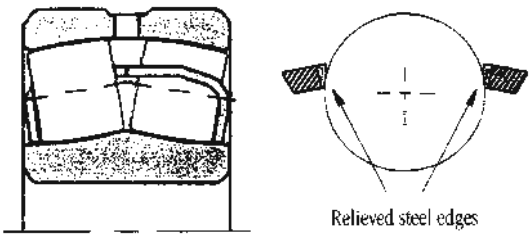
Higher limiting speed, diversifying the application range for NIBL double-row spherical roller bearings.

Ability to operate at high temperatures, for bearings with a metallic cage. Dimensional stability is assured by a specific heat treatment. (Please specify the operating temperature while ordering).

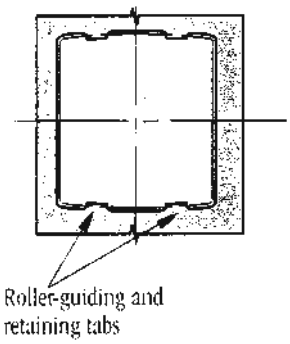
Misalignment capability, about 0.5° without reducing bearing loading capacity

The precision in the design and in the production, with respect to the micro- geometry of the profiles and surfaces enabled to obtain
- An elimination of concentrated stresses which lead to abnormal metal fatigue due to unevenly distributed contact pressures.
- A reduction in friction. Efficient machining and inspection techniques enabled to control the profiles, surface finish, and dimensional tolerances.
- Self aligning rollers. The raceway curvatures are designed to assure that the rollers are perfectly guided.
- Rollers are perfectly guided by the raceways and the cage thus eliminating the guide ring.

Advantages offered by EA series Steel cage
- Resistance at high temperatures
- Accurate cage positioning, ground inner ring raceway supports cage to keep it perfectly centered.
- Reliable and enveloping profile, cage is located above the center of rollers to secure them and hence will not be squeezed between rollers and inner ring in the event of breakdown.



- Accurate guiding of rollers, the cage pockets incorporate 4 guiding flats to maintain rollers. The main guidance being assured by bearing raceways. The cage is simplified and lightened.



- Excellent lubrication: Cage design maximizes amount of lubricant in the bearing. Phosphate surface treatment of steel cage protects it from corrosion and helps in retaining a lubricating film at cage contact with rollers and inner race and thus reducing friction wear.

SUFFIXES

EA Internal design feature, high capacity bearing with steel cage.

EM Internal design feature, high capacity bearing with machined brass cage.

K Tapered bore, 1:12 taper

B33 Lubrication groove & holes in outer ring (= W33)

C2 ISO C2 radial clearance < C0, marked C2

C0 ISO Normal radial clearance not marked

C3 ISO C3 radial clearance > C0, marked C3

C4 ISO C4 radial clearance > C3, marked C4

C5 ISO C5 radial clearance > C4, marked C5

BEARING TOLERANCES

Dimensional and geometrical tolerances correspond to ISO 492 Standard.

NIBL can supply bearings with closer tolerances on bore, outside diameter, specific radial clearance to suit the application, etc.

RADIAL CLEARANCE

The radial clearance as defined in ISO 5753 Standard, the values for tapered bore bearings are different for bearings with cylindrical bore. In tapered bore bearings there is reduction of the internal clearance when fitting them on their seat.

Approximate recommended **residual clearance**, **Jrm** after fitting:

$$Jrm = 5\ d^{1/2}\ 10^{-3}\ mm$$

d, bearing bore in mm

Double-row spherical rollers bearings with cylindrical bore
Series 213-222-223

Bearing bore diameter	Radial Internal Clearance (values in µm)									
d	C2		NORMAL		C3		C4		C5	
mm	min	max	min	max	min	max	min	max	min	max
14 < d ≤ 18	10	20	20	35	35	45	45	60	60	75
18 < d ≤ 24	10	20	20	35	35	45	45	60	60	75
24 < d ≤ 30	15	25	25	40	40	55	55	75	75	95
30 < d ≤ 40	15	30	30	45	45	60	60	80	80	100
40 < d ≤ 50	20	35	35	55	55	75	75	100	100	125
50 < d ≤ 65	20	40	40	65	65	90	90	120	120	150
65 < d ≤ 80	30	50	50	80	80	110	110	145	145	180
80 < d ≤ 100	35	60	60	100	100	135	135	180	180	225
100 < d ≤ 120	40	75	75	120	120	160	160	210	210	260
120 < d ≤ 140	50	95	95	145	145	190	190	240	240	300
140 < d ≤ 160	60	110	11	170	170	220	220	280	280	350
160 < d ≤ 180	65	120	12	180	180	240	240	310	310	390
180 < d ≤ 200	70	130	13	200	200	260	260	340	340	430
200 < d ≤ 225	80	140	14	220	220	290	290	380	380	470
225 < d ≤ 250	90	150	15	240	240	320	320	420	420	520

Double-row spherical rollers bearings with tapered bore
Series 213K-222K-223K

Bearing bore diameter	Radial Internal Clearance (values in µm)									
d	C2		NORMAL		C3		C4		C5	
mm	min	max	min	max	min	max	min	max	min	max
18 < d ≤ 24	15	25	25	35	35	45	45	60	60	75
24 < d ≤ 30	20	30	30	40	40	55	55	75	75	95
30 < d ≤ 40	25	35	35	50	50	65	65	85	85	105
40 < d ≤ 50	30	45	45	60	60	80	80	100	100	130
50 < d ≤ 65	40	55	55	75	75	95	95	120	120	160
65 < d ≤ 80	50	70	70	95	95	120	120	150	150	200
80 < d ≤ 100	55	80	80	110	110	140	140	180	180	230
100 < d ≤ 120	65	100	100	135	135	170	170	220	220	280
120 < d ≤ 140	80	120	120	160	160	200	200	260	260	330
140 < d ≤ 160	90	130	130	180	180	230	230	300	300	380
160 < d ≤ 180	100	140	140	200	200	260	260	340	340	430
180 < d ≤ 200	110	160	160	220	220	290	290	370	370	470
200 < d ≤ 225	120	180	180	250	250	320	320	410	410	520
225 < d ≤ 250	140	200	200	270	270	350	350	450	450	570

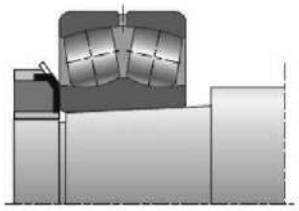
AXIAL CLEARANCE

Axial clearance, J_a depends on the radial clearance, J_r. Approximately it can be calculated by using the formula:

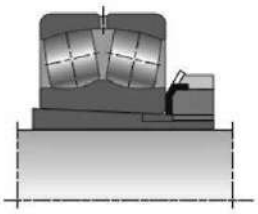
$$J_a = 2.27\ Y_0 J_r$$

(Refer to Dimensions Table for value of Y_0)

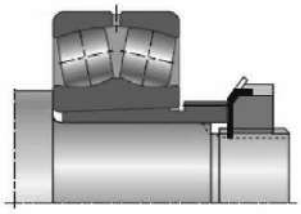
BEARING MOUNTING and CONTROL OF CLEARANCE OF TAPERED BORE DOUBLE-ROW SPHERICAL ROLLER BEARING



Tapered bore bearing mounting directly on to the shaft



Tapered bore bearing mounting using adapter sleeve

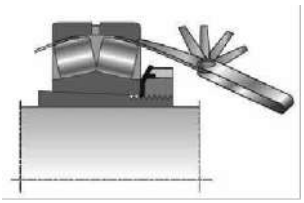


Tapered bore bearing mounting using withdrawal sleeve

While fitting the bearing on the sleeve the inner ring expands thus radial internal clearance of the bearing reduces.

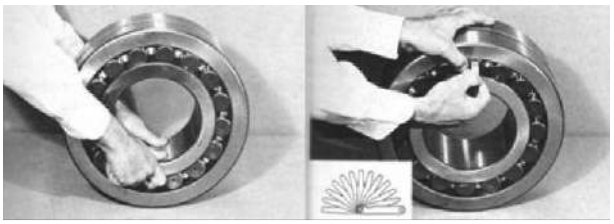
It is very important to monitor the reduction of radial internal clearance while the bearing is being fitted to ensure that the final radial internal clearance is adequate for the proper functioning of the bearing.

Principle of measurement



The clearance can be measured by sliding a feeler gauge between the outer ring and the rollers. For large bearings do not use feeler gauges over 0.150 mm thick since they are too stiff to take the shape of the outer ring raceway. Instead of thick gauge use a combination of thin gauges by stacking them up for measurement.

Method of measurement



Place the bearing upright, the rings must be parallel. Manually rotate the inner ring to ensure that the rollers are properly seated.

Find in the column 2 of the table below, the minimum value of the standardized clearance that corresponds to the bore and clearance class of the bearing. Choose a feeler gauge slightly smaller than this value. Slide the gauge at an angle between the unloaded rollers and the outer ring race. Progressively increase the gauge thickness. The clearance value will be situated between the last « pass » gauge and the next one that failed to « pass ».

Monitoring of bearing fitting and radial clearance

- Radially

Drive up the bearing until the clearance has been reduced to the indicated limits. Check that the final residual clearance is no smaller than the value stated for the particular clearance class (column 3)

- Axially (shaft with tapered seat)

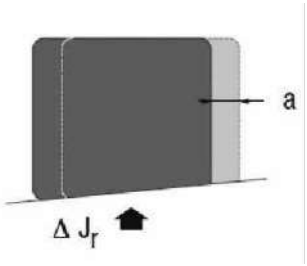
The axial movement corresponding to the tightening must be within the indicated limits (column 4). Check that the final residual clearance is no smaller than the value stated for the particular clearance class.

Measurement of radial clearance during fitting

		Prior to mounting						After mounting						Axial drive-up			
Bearing		C0		C3		C4		C0		C3		C4		mm			
bore mm		According to ISO 5753 (in mm)						Feeler gauge*		Feeler gauge*		Feeler gauge*		Taper 1:30		Taper 1:30	
from	Incl.	min	max	min	max	min	max	yes	no	yes	no	yes	no	min	max	min	max
30	40	0.035	0.050	0.050	0.065	0.065	0.085	2	3	3	4	4	5	0.350	0.400	–	–
40	50	0.045	0.060	0.060	0.080	0.080	0.100	3	4	3	5	4	6	0.400	0.450	–	–
50	65	0.055	0.075	0.075	0.095	0.095	0.120	3	5	4	6	5	7	0.450	0.600	–	–
65	80	0.070	0.095	0.095	0.120	0.120	0.150	4	6	5	7	6	8	0.600	0.750	–	–
80	100	0.080	0.110	0.110	0.140	0.140	0.180	4	6	6	8	7	10	0.700	0.900	1.700	2.200
100	120	0.100	0.135	0.135	0.170	0.170	0.220	5	7	7	9	9	12	0.750	1.100	1.900	2.700
120	140	0.120	0.160	0.160	0.200	0.200	0.260	8	11	10	13	12	17	1.100	1.400	2.700	3.500
140	160	0.130	0.180	0.180	0.230	0.230	0.300	8	12	11	15	14	19	1.200	1.600	3.000	4.000
160	180	0.140	0.200	0.200	0.260	0.260	0.340	9	13	12	17	16	21	1.300	1.700	3.200	4.200
180	200	0.160	0.220	0.220	0.290	0.290	0.370	11	16	15	20	20	26	1.400	2.000	3.500	5.000
200	225	0.180	0.250	0.250	0.320	0.320	0.410	12	17	17	22	22	28	1.600	2.200	4.000	5.500
225	250	0.200	0.270	0.270	0.350	0.350	0.450	14	19	18	24	24	31	1.700	2.400	4.200	6.700

***Practical measurement of clearance to within 1/100th of an mm by means thickness shims. For values smaller than 4/100th of an mm, use peel shims.**

Bearing mounting criteria



The residual clearance of the bearing must be checked after fitting. This check is vital for bearings with a tapered bore. Relation between the axial displacement 'a' of a tapered bore bearing and the corresponding reduction in its radial clearance, Δ Jr:

taper 1:12 $a = 12 \Delta Jr / ti$

taper 1:30 $a = 30 \Delta Jr / ti$

a: axial displacement

Δ Jr: reduction in radial clearance

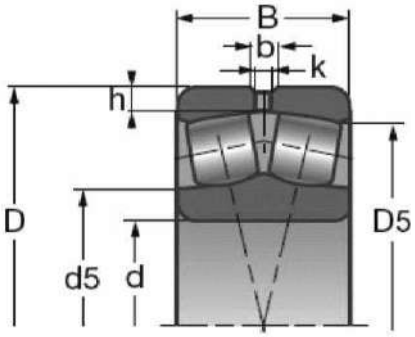
ti: repercussion factor for the interference fit of the inner ring

ti= 0.75 if the bearing is mounted directly on a tapered seat of a solid shaft
ti = 0.7 if the bearing is mounted on a tapered adapter sleeve

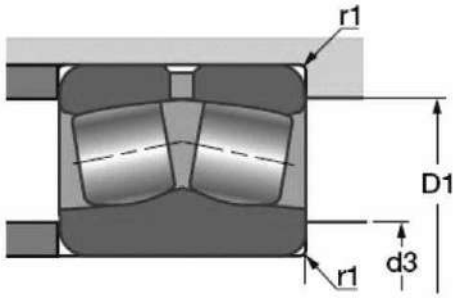
Axial load

Double-row spherical roller bearings can withstand axial loads. It is recommended not to exceed a value of:

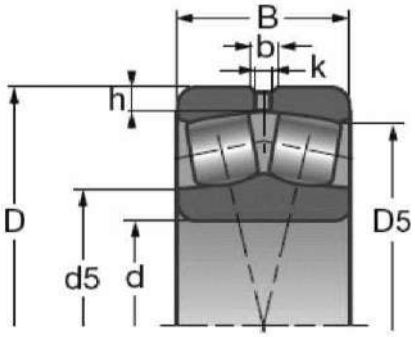
Fa / Fr = 0,6



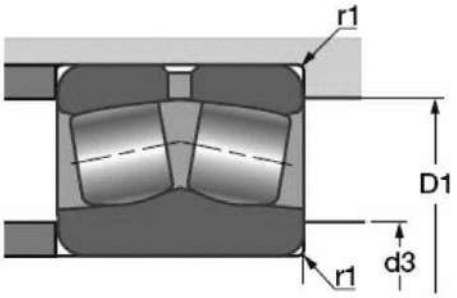
Shaft Ø d	Designation	Dimendions					Basic capacities	
		D	B	b	k	h	Dynamic Cr	Static Cor
mm		mm	mm	mm	mm	mm	kN	kN
25	22205 EAB33	52	18	3	1.5	2.8	54.4	46.1
	21305	62	17			3.5	48.5	37.5
30	22206 EAB33	62	20	4.4	2	2.8	72	64.5
	21306	72	19			3.5	63	50
35	22207 EAB33	72	23	4.9	2	3.5	95.4	92
	21307	80	21			4.5	79	66
40	22208 EAB33	80	23	5.4	2.5	3.5	110	105
	21308	90	23			4.5	96	84
	22308 EAB33	90	33	5.9	3	4.5	161	152
45	22209 EAB33	85	23	5.8	2.5	3.5	115	113
	21309	100	25			4.5	119	106
	22309 EAB33	100	36	6.4	3	4.5	196	187
50	22210 EAB33	90	23	5.8	2.5	3.5	124	124
	21310	110	27			5.5	137	128
	22310 EAB33	110	40	7.4	3.5	5.5	237	232
55	22211 EAB33	100	25	6.3	3	4.5	147	148
	21311	120	29			5.5	167	158
	22311 EAB33	120	43	7.8	3.5	5.5	282	274
60	22212 EAB33	110	28	6.9	3.0	4.5	178	181
	21312	130	31			6	186	179
	22312 EAB33	130	46	8.7	4	6	323	319
65	22213 EAB33	120	31	7.8	3.5	4.5	215	224
	21313	140	33			6	224	215
	22313 EAB33	140	48	9.2	4	6	351	343
70	22214 EAB33	125	31	7.4	3.5	4.5	224	240
	21314	150	35			6	246	240
	22314 EAB33	150	51	10.4	5	6	400	396
75	22215 EAB33	130	31	7.4	3.5	4.5	232	249
	21315	160	37			6	280	275
	22315 EAB33	160	55	10.3	5	6	467	467
80	22216 EAB33	140	33	7.9	3.5	5.5	265	287
	21316	170	39			6	305	305
	22316 EAB33	170	58	10.4	5	6	515	522
85	22217 EAB33	150	36	7.9	3.5	5.5	308	330
	21317	180	41			7	355	365
	22317 EAB33	180	60	11	5	7	570	604



e	Factors			Speed limit			Abutment dimensions				Weight approx.
	Y		Y0	greese	oil	d_5 ~	d_3 min.	D_1 max.	d_5 ~	r1 max.	
	Fa/Fr ≤ e	Fa/Fr > e		rpm	rpm	mm	mm	mm	mm	mm	kg
0.34	2	2.98	1.96	8 600	11 000	30	30	47	46	1	0.170
0.29	2.33	3.47	2.28	6 800	9 100	34	32	55	52	1.1	0.257
0.31	2.15	3.2	2.1	7 200	9 300	37	36	57	55	1	0.272
0.28	2.45	3.64	2.39	5 800	7 700	40	37	65	60	1.1	0.394
0.31	2.21	3.29	2.16	6 100	7 900	45	42	66	63	1.1	0.440
0.27	2.48	3.69	2.42	5 200	6 900	46	44	71	68	1.5	0.513
0.27	2.47	3.67	2.41	5 500	7 100	50	47	74	71	1.1	0.515
0.26	2.55	3.8	2.5	4 500	6 100	53	49	81	76	1.5	0.715
0.36	1.87	2.79	1.83	4 100	5 300	52	49	83	78	1.5	1.006
0.26	2.64	3.93	2.58	5 100	6 600	54	52	79	76	1.1	0.565
0.26	2.64	3.93	2.58	4 100	5 400	59	54	91	85	1.5	0.949
0.36	1.9	2.83	1.86	3 700	4 800	58	54	93	87	1.5	1.352
0.24	2.84	4.23	2.78	4 800	6 200	59	57	84	81	1.1	0.603
0.25	2.71	4.04	2.65	3 700	4 900	66	61	99	93	2	1.251
0.36	1.87	2.79	1.83	3 400	4 400	63	61	101	95	2	1.810
0.23	2.95	4.4	2.89	4 300	5 500	66	64	93	90	1.5	0.823
0.24	2.82	4.2	2.76	3 300	4 500	73	66	109	102	2	1.537
0.36	1.87	2.79	1.83	3 100	4 000	68	66	111	104	2	2.290
0.24	2.84	4.23	2.78	3 900	5 100	71	69	103	99	1.5	1.134
0.24	2.81	4.19	2.75	3 100	4 100	79	72	118	110	2.1	1.986
0.35	1.95	2.9	1.91	2 900	3 700	75	72	120	113	2.1	2.804
0.24	2.79	4.15	2.73	3 600	4 700	78	74	113	107	1.5	1.512
0.23	2.91	4.33	2.84	2 900	3 800	85	77	128	120	2.1	2.410
0.33	2.06	3.06	2.01	2 700	3 400	81	77	130	122	2.1	3.413
0.22	3.01	4.48	2.94	3 400	4 400	84	79	118	113	1.5	1.586
0.23	2.9	4.31	2.83	2 700	3 600	91	82	138	127	2.1	2 990
0.34	2	2.98	1.96	2 500	3 200	85	82	140	131	2.1	4 176
0.22	3.14	4.67	3.07	3 200	4 200	88	84	123	118	1.5	1.644
0.23	2.94	4.37	2.87	2 500	3 400	97	87	148	137	2.1	3.590
0.34	2	2.98	1.96	2 300	3 000	91	87	150	139	2.1	5.083
0.22	3.14	4.67	3.07	3 000	3 900	94	91	131	127	2	2.071
0.23	2.95	4.4	2.89	2 400	3 200	104	92	158	145	2.1	4.260
0.34	2	2.98	1.96	2 200	2 800	98	92	160	148	2.1	6 030
0.22	3.07	4.57	3	2 800	3 600	100	96	141	137	2	2.560
0.23	2.99	4.46	2.93	2 200	3 000	111	99	166	154	3	5.230
0.32	2.09	3.11	2.04	2 000	2 600	107	99	166	157	3	7.061



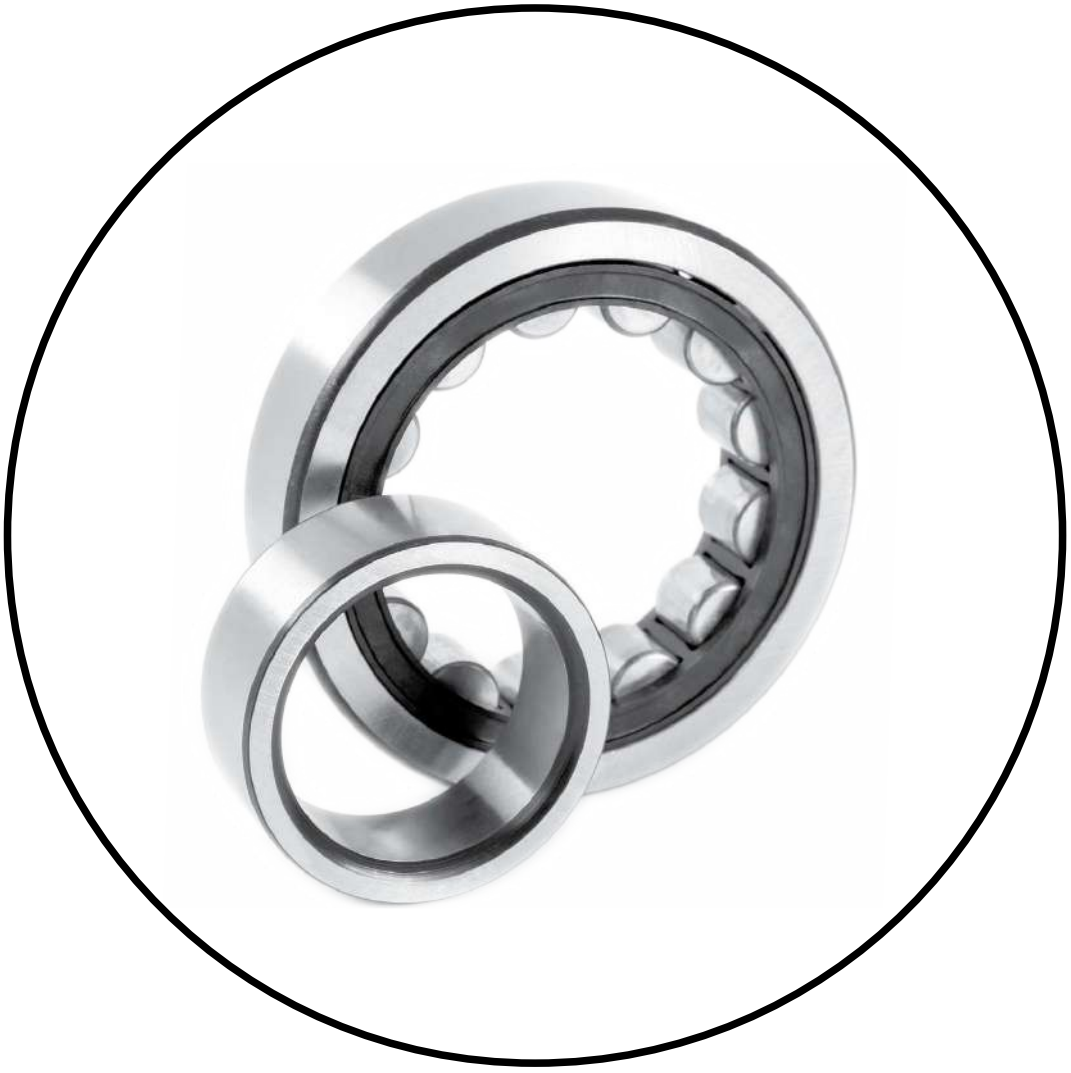
Shaft Ø d	Designation	Dimendions					Basic capacities	
		D	B	b	k	h	Dynamic Cr	Static Cor
mm		mm	mm	mm	mm	mm	kN	kN
90	22218 EAB33	160	40	10.2	4.5	5.5	366	398
	21318	190	43			7	385	400
	22318 EAB33	190	64	11.56	5	7	636	652
95	22219 EAB33	170	43	9.93	4.5	6	395	417
	22319 EAB33	200	67	12.15	6	7	696	751
100	22220 EAB33	180	46	11.2	5	6	449	495
	22320 EAB33	215	73	13.3	6	7	787	844
110	22222 EAB33	200	53	12.2	6	6	573	643
	22322 EAB33	240	80	15.6	7	7	928	972
120	22224 EAB33	215	58	12.16	6	6	654	753
130	22226 EAB33	230	64	13.21	6	7	768	898
140	22228 EAB33	250	68	14.18	7	7	867	1010



	Factors			Speed limit			Abutment dimensions				Weight approx.
e	Y		Y0	greese	oil	d_5 ~	d_3 min.	D_1 max.	d_5 ~	r1 max.	
	Fa/Fr ≤ e	Fa/Fr > e		rpm	rpm	mm	mm	mm	mm	mm	kg
0.23	2.9	4.31	2.83	2 700	3 500	105	101	151	144	2	3.283
0.23	3	4.47	2.93	2 100	2 800	117	104	176	162	3	6.110
0.33	2.06	3.06	2.01	1 900	2 500	110	104	176	166	3	8.285
0.23	2.95	4.4	2.89	2 500	3 200	110	107	158	153	2.1	3.950
0.32	2.09	3.11	2.04	1 800	2 300	120	109	186	174	3	9.890
0.24	2.84	4.23	2.78	2 400	3 100	118	112	170	161	2.1	4.900
0.34	1.98	2.94	1.93	1 700	2 200	127	114	201	187	3	12.470
0.25	2.69	4	2 63	2 200	2 800	130	122	190	179	2.1	6.929
0.31	2.09	3.11	2.04	1 600	2 000	139	124	226	209	3	16.870
0.25	2.74	4.08	2.68	1 900	2 500	141	132	203	193	2.1	8.693
0.25	2.69	4	2.63	1 800	2 400	151	144	216	206	3	10.771
0.25	2.74	4.08	2.68	1 700	2 200	163	154	236	224	3	14.200

NRB INDUSTRIAL

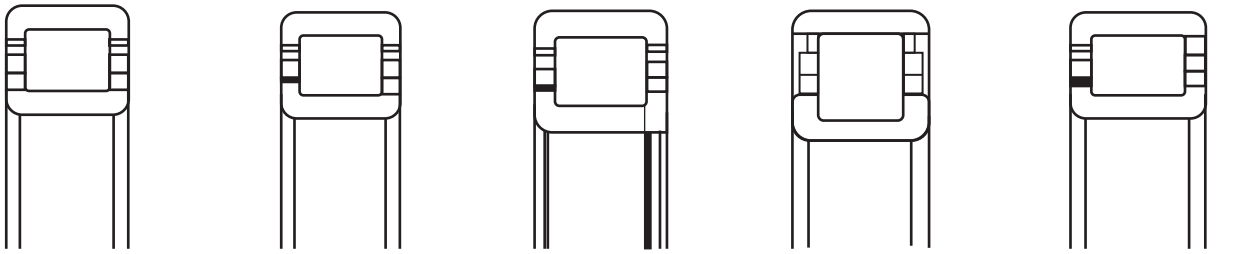
CYLINDRICAL ROLLER BEARINGS



MOVING THE WHEELS OF INDUSTRY

Single row cylindrical roller bearings are units with solid inner ring, outer ring, cylindrical roller and / or cage assemblies. Inner ring and outer rings are designed with one side rigid rib, both sides rigid ribs or no rigid rigs. The cage prevents rollers to rub each other during rolling. Cage type cylindrical roller bearings are very rigid, support high load on high speed compared to full compliment bearing. Bearings with suffix E have higher load carrying capacity.

Cylindrical roller bearings are classified into following types depending on passion of ribs.



NU-TYPE **NJ-TYPE** **NUP-TYPE** **N-TYPE** **NF-TYPE**

Non locating Bearings: NU and N type cylindrical roller bearings are non locating bearings and can support only radial load.

Semi locating Bearings: NJ and NF type cylindrical roller bearings are semi locating bearing and they can support one direction axial load along with high radial load. Opposite direction they act as non locating bearing.

Locating Bearings: NUP and NH (NJ with HJ ring) type cylindrical roller bearings are locating bearings and support axial load in both the direction along with high radial load.

Races and Rollers: Inner, outer races and rollers are manufactured of high quality bearing steel (SAE 52100) for optimum performance.

Cages: Depending on application polyamide, steel and brass cages are used. Glass fiber filled polyamide cages are used in the bearings with EG15 and ECP suffix. No suffix used in usual bearing with steel cage. Suffix M or EM are used for the bearings where brass cages are used. For the bearings with polyamide cage, maximum working temperature is 120°C.

Other cage design will be made available on agreement.

Lubrication: They can be lubricated using grease or oil.

Permissible Misalignment:

Series… 10, 2 &3 - 0.0012 radian (4')

22 & 23 – 0.0006 radian (2')

Equivalent Load:

a. Dynamic Equivalent Load:

$P = XFr + YFa$

Series	e	Single Row			
		Fa/Fr ≤ e		Fa/Fr ≥ e	
		X	Y	X	Y
NJ2, NUP2, NJ3, NUP3	0.2	1	0	0.92	0.6
NJ22, NUP22, NJ23, NUP23	0.3	1	0	0.92	0.4

b. Static Equivalent Load:

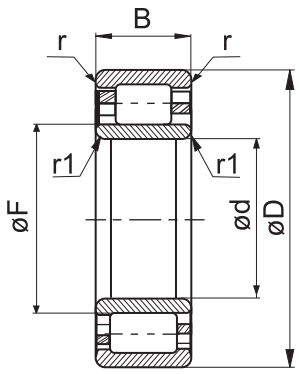
$P_o = X_o Fr + Y_o Fa$

Single Row	
X_o	Y_o
1	0

Accuracy: The dimensional and geometrical tolerances are according to ISO492.

Radial internal Clearance: Cylindrical Roller bearings are supplied with Radial internal clearance accordance with ISO 5753-1.

Special radial internal clearance will be made available on agreement.



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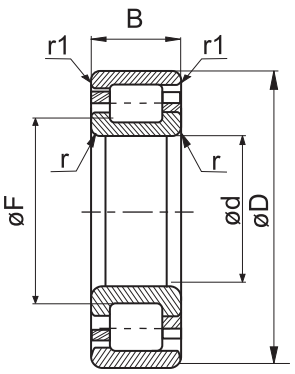

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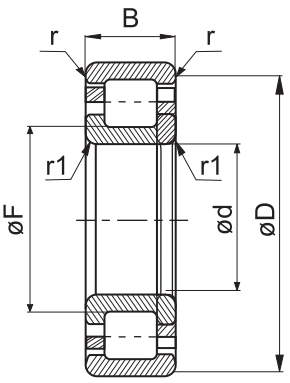
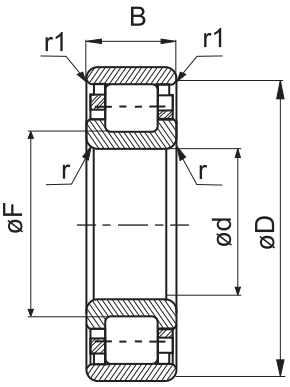
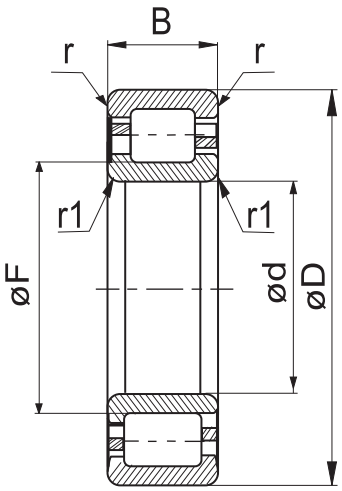


NUP-TYPE

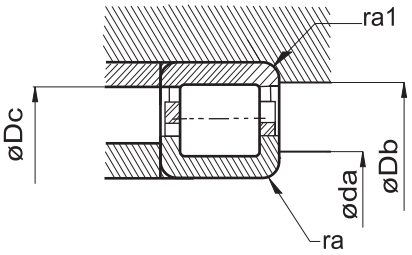


N-TYPE

Designation			d	D	B	r Min	r1 Min	F	BASIC LOAD RATING	
									DYNAMIC Cr(N)	STATIC C or (N)
NU203EG15	—	---	17	40	12	0.6	0.3	22.1	18000	15000
N203EG15	—	---	17	40	12	0.6	0.3	22.1	18000	15000
NU2203EG15	—	---	17	40	16	0.6	0.3	22.1	24500	22400
NU303EG15	NJ303EG15	NUP303EG15	17	47	14	1	0.6	24.2	25800	21600
N303EG15	NF303EG15	---	17	47	14	1	0.6	24.2	25800	21600
NU204EM	NJ204M	---	20	47	14	1	0.6	26.5	28000	25300
N204EM	---	---	20	47	14	1	0.6	26.5	28000	25300
NU2204EG15	NJ2204EG15	NUP2204EG15	20	47	18	1	0.6	26.5	33000	31500
NU304EG15	NJ304EG15	NUP304EG15	20	52	15	1.1	0.6	27.5	32000	27500
N304EG15	---	---	20	52	15	1.1	0.6	27.5	32000	27500
NU2304EM	NJ2304EM	---	20	52	21	1.1	0.6	27.5	42400	39400
NU1005M	---	---	25	47	12	0.6	0.3	30.5	13800	12500
NU205EG15	NJ205EG15	NUP205EG15	25	52	15	1	0.6	31.5	30000	28400
N205EG15	NF205EG15	---	25	52	15	1	0.6	31.5	30000	28400
NU2205EG15	NJ2205EG15	NUP2205EG15	25	52	18	1	0.6	31.5	37500	38000
NU305EM	NJ305EM	NUP305EM	25	62	17	1.1	1.1	34	42000	37000
N305EM	NF305EM	---	25	62	17	1.1	1.1	34	42000	37000
NU2305EM	NJ2305EM	NUP2305EM	25	62	24	1.1	1.1	34	57500	56800
NU1006M	---	---	30	55	13	1	0.6	36.6	17200	16500
NU206EG15	NJ206EG15	NUP206EG15	30	62	16	1	0.6	37.5	42000	41000
N206EG15	NF206EG15	---	30	62	16	1	0.6	37.5	42000	41000
NU2206EG15	NJ2206EG15	NUP2206EG15	30	62	20	1	0.6	37.5	52400	54500
NU306EG15	NJ306EG15	NUP306EG15	30	72	19	1.1	1.1	40.5	54000	51000
N306EG15	NF306EG15	---	30	72	19	1.1	1.1	40.5	54000	51000
NU2306EM	NJ2306EM	NUP2306EM	30	72	27	1.1	1.1	40.5	75300	78500
NU1007M	---	---	35	62	14	1	0.6	42	36300	38900
NU207EG15	NJ207EG15	NUP207EG15	35	72	17	1.1	0.6	44	51000	51200
N207EG15	NF207EG15	---	35	72	17	1.1	0.6	44	51000	51200
NU2207EG15	NJ2207EG15	NUP2207EG15	35	72	23	1.1	0.6	44	65700	71000
NU307EG15	NJ307EG15	NUP307EG15	35	80	21	1.5	1.1	46.2	67300	66400
N307EG15	NF307EG15	---	35	80	21	1.5	1.1	46.2	67300	66400
NU2307EM	NJ2307EM	NJ2307EM	35	80	31	1.5	1.1	46.2	93800	106000



NJ-TYPE



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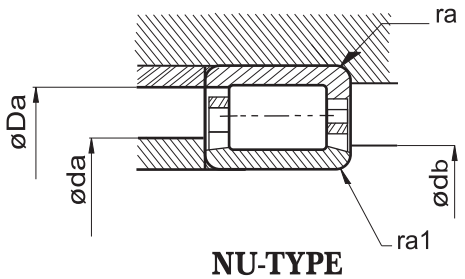
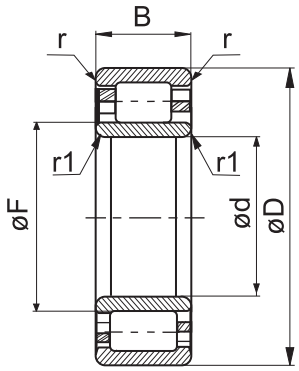


NU-TYPE

Mass (Kg)	Limiting Speed		da		db	Da	Db	Dc	ra Min	ra1 Min
	Grease	Oil	min	max						
0.07	15000	18000	21	21.5	23	36	-	-	0.6	0.3
0.07	15000	18000	21	-	-	36	36	34	0.6	0.3
-	15000	18000	21	21.5	23	36	-	-	0.6	0.3
0.12	13000	16000	21.2	23.5	25	42.8	-	-	1	0.6
0.12	13000	16000	21.2	-	-	42.8	43	41	1	0.6
0.12	13000	16000	24	26	29	41	-	-	1	0.6
0.12	15000	18000	24	-	-	41	43	40	1	0.6
0.15	13000	16000	24	26	29	41	-	-	1	0.6
0.15	12000	15000	24	27	30	45	-	-	1	0.6
0.15	12000	15000	24	-	-	45	48	46	1	0.6
0.22	11000	14000	24	27	30	45	-	-	1	0.6
0.09	15000	18000	27	30	32	44	-	-	0.6	0.3
0.14	12000	14000	29	31	34	46	-	-	1	0.6
0.14	13000	16000	29	-	-	46	48	45	1	0.6
0.17	12000	14000	29	31	34	46	-	-	1	0.6
0.26	10000	12000	32	33	37	55	-	-	1	1
0.26	1000	13000	32	-	-	55	55	53	1	1
0.36	9000	11000	32	33	37	55	-	-	1	1
0.13	12000	15000	33	35	38	50	-	-	1	0.6
0.21	9500	12000	34	37	40	56	-	-	1	0.6
0.21	11000	13000	34	-	-	56	57	54	1	0.6
0.26	9500	12000	34	37	40	56	-	-	1	0.6
0.37	8500	10000	37	40	44	65	-	-	1	1
0.37	8500	11000	37	-	-	65	64	61	1	1
0.54	8000	9500	37	40	44	65	-	-	1	1
0.18	11000	13000	38	41	44	57	-	-	1	0.6
0.30	8500	10000	39	43	46	65	-	-	1	0.6
0.30	9500	11000	39	-	-	65	65	63	1	0.6
0.41	8500	10000	39	43	46	65	-	-	1	0.6
0.49	8000	9500	42	45	48	71	-	-	1.5	1
0.50	8000	9500	42	-	-	71	71	69	1.5	1
0.75	6700	8500	42	45	48	71	-	-	1.5	1



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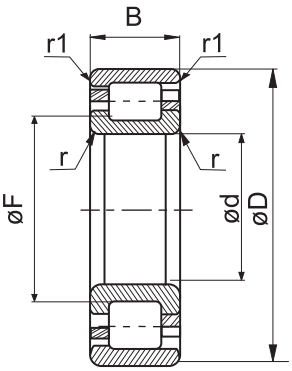

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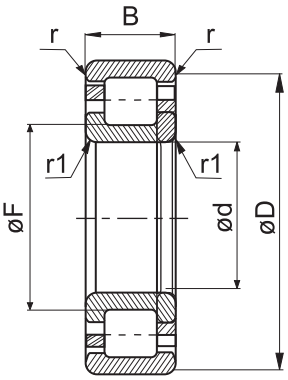

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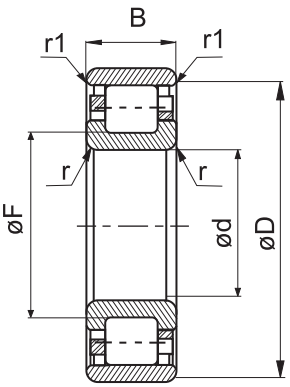
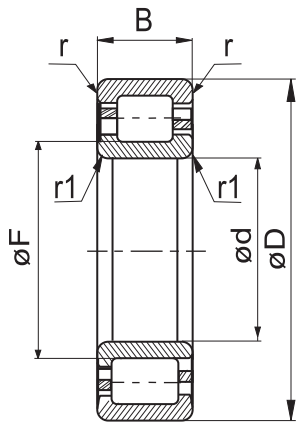


N-TYPE

Designation			d	D	B	r Min	r1 Min	F	BASIC LOAD RATING	
									DYNAMIC Cr(N)	STATIC C or (N)
NU1008M	—	—	40	68	15	1	0.6	47	25600	26600
NU208EG15	NJ208EG15	NUP208EG15	40	80	18	1.1	1.1	49.5	56500	56500
N208EG15	NF208EG15	---	40	80	18	1.1	1.1	49.5	56500	56500
NU2208EG15	NJ2208EG15	NUP2208EG15	40	80	23	1.1	1.1	49.5	77000	84300
NU308EM	NJ308EM	NUP308EM	40	90	23	1.5	1.5	52	84000	82700
N308EM	NF308EM	---	40	90	23	1.5	1.5	52	84000	82700
NU2308EM	NJ2308EM	NUP2308EM	40	90	33	1.5	1.5	52	115000	123500
NU1009M	—	—	45	75	16	1	0.6	52.5	45700	52300
NU209EG15	NJ209EG15	NUP209EG15	45	85	19	1.1	1.1	54.5	60700	63100
N209EG15	NF209EG15	---	45	85	19	1.1	1.1	54.5	60700	63100
NU2209EG15	NJ2209EG15	NUP2209EG15	45	85	23	1.1	1.1	54.5	80700	91500
NU309EM	NJ309EM	NUP309EM	45	100	25	1.5	1.5	58.5	101700	103800
N309EM	NF309EM	---	45	100	25	1.5	1.5	58.5	101700	103800
NU2309EM	NJ2309EM	NUP2309EM	45	100	36	1.5	1.5	58.5	141000	1584000
NU1010M	---	---	50	80	16	1	0.6	57.5	43500	51100
NU210EG15	NJ210EG15	NUP210EG15	50	90	20	1.1	1.1	59.5	70100	77800
N210EG15	NF210EG15	---	50	90	20	1.1	1.1	59.5	70100	77800
NU2210EG15	NJ2210EG15	NUP2210EG15	50	90	23	1.1	1.1	59.5	80500	92800
NU310	NJ310	NUP310	50	110	27	2	2	65	114500	119000
N310	NF310	---	50	110	27	2	2	65	114500	119000
NU2310EM	NJ2310EM	NUP2310EM	50	110	40	2	2	65	166000	192400
NU1011M	---	---	55	90	18	1.1	1	64	58000	70900
NU211	NJ211EG15	NUP211EG15	55	100	21	1.5	1.1	66	87200	100000
N211EG15	NF211EG15	---	55	100	21	1.5	1.1	66	87200	100000
NU2211EM	NJ2211EM	NUP2211EM	55	100	25	1.5	1.1	66	102000	123000
NU311EM	NJ311EM	NUP311EM	55	120	29	2	2	70.5	142000	148000
N311EM	NF311EM	---	55	120	29	2	2	70.5	142000	148000
NU2311EM	NJ2311EM	NUP2311EM	55	120	43	2	2	70.5	204000	238000
NU1012M	---	---	60	95	18	1.1	1	69.5	38000	45500
NU212	NJ212	NUP212	60	110	22	1.5	1.5	72	98600	109000
N212	NF212	---	60	110	22	1.5	1.5	72	98600	109000
NU2212EM	NJ2212EM	NUP2212EM	60	110	28	1.5	1.5	72	132000	158400
NU312EM	NJ312EM	NUP312EM	60	130	31	2.1	2.1	77	157000	167000
N312EM	NF312EM	---	60	130	31	2.1	2.1	77	157000	167000
NU2312EM	NJ2312EM	NUP2312EM	60	130	46	2.1	2.1	77	228000	270000



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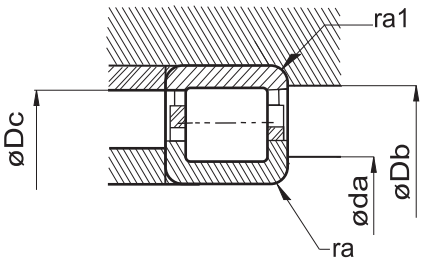

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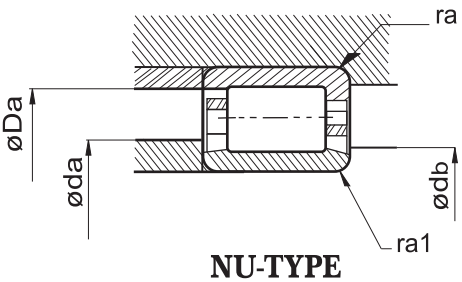
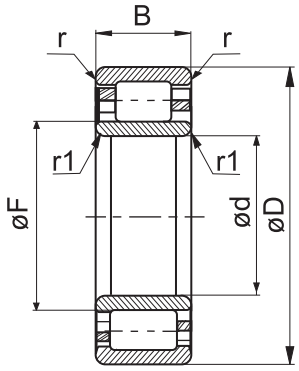


NU-TYPE

Mass (Kg)	Limiting Speed		da		db	Da	Db	Dc	ra Min	ra1 Min
	Grease	Oil	min	max						
0.22	10000	12000	43	46	49	63	-	-	1	0.6
0.38	7500	9000	47	49	52	73	-	-	1	1
0.36	8500	10000	47	-	-	73	73	70	1	1
0.49	7500	9000	47	49	52	73	-	-	1	1
0.67	6700	8000	49	51	55	81	-	-	1.5	1.5
0.67	6700	8500	49	-	-	81	81	79	1.5	1.5
0.97	6000	7500	49	51	55	81	-	-	1.5	1.5
0.28	9000	11000	48	52	54	70	-	-	1	0.6
0.43	6700	8000	52	54	57	78	-	-	1	1
0.43	7500	9000	52	-	-	78	78	75	1	1
0.53	6700	8500	52	54	57	78	-	-	1	1
0.91	6000	7500	54	57	60	91	-	-	1.5	1.5
0.91	6300	7500	54	-	-	91	90	87	1.5	1.5
1.32	5300	6700	54	57	60	91	-	-	1.5	1.5
0.31	8000	10000	53	57	59	75	-	-	1	0.6
0.49	6300	7500	57	58	62	83	-	-	1	1
0.49	7100	8500	57	-	-	83	83	80	1	1
0.57	6300	8000	57	58	62	83	-	-	1	1
1.18	5000	6000	61	63	67	99	-	-	2	2
1.18	5600	6700	61	-	-	99	98	96	2	2
1.95	5000	6300	61	63	67	99	-	-	2	2
0.45	7500	9000	60	63	65	84	-	-	1	1
0.67	5600	7100	62	65	68	91	-	-	1.5	1
0.67	6300	7500	62	-	-	91	91	89	1.5	1
0.82	5600	7100	62	65	68	91	-	-	1.5	1
1.50	4500	5600	66	69	72	109	-	-	2	2
1.50	5000	6300	66	-	-	109	108	105	2	2
2.25	4500	5600	66	69	72	109	-	-	2	2
0.48	6700	8500	65	68	71	89	-	-	1	1
0.83	5300	6300	69	71	75	101	-	-	1.5	1.5
0.83	6000	7100	69	-	-	101	101	99	1.5	1.5
1.10	5300	6300	69	71	75	101	-	-	1.5	1.5
1.87	4800	5600	72	75	79	118	-	-	2	2
1.87	4800	5600	72	-	-	118	116	114	2	2
2.80	4300	5300	72	75	79	118	-	-	2	2



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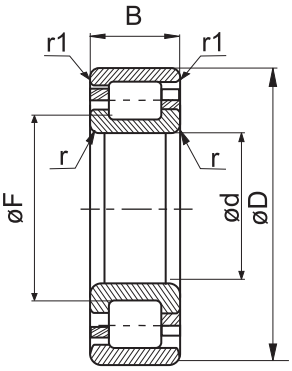

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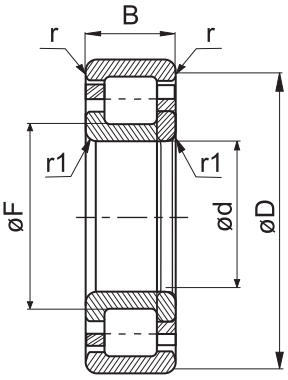

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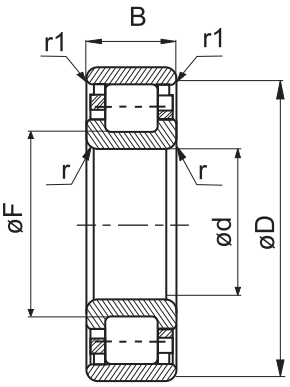
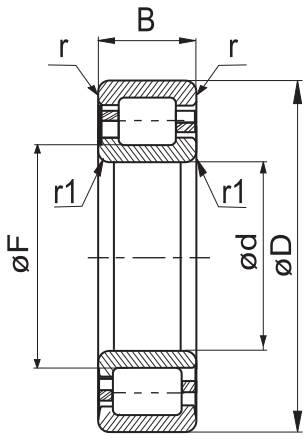


N-TYPE

Designation			d	D	B	r Min	r1 Min	F	BASIC LOAD RATING	
									DYNAMIC Cr(N)	STATIC C or (N)
NU1013M	—	—	65	100	18	1.1	1	74.5	63600	82800
NU213EM	NJ213EM	NUP213EM	65	120	23	1.5	1.5	78.5	112000	125900
N213EM	NF213EM	---	65	120	23	1.5	1.5	78.5	112000	125900
NU2213EM	NJ2213EM	NUP2213EM	65	120	31	1.5	1.5	78.5	153000	188000
NU313EM	NJ313EM	NUP313EM	65	140	33	2.1	2.1	82.5	189000	202900
N313EM	NF313EM	---	65	140	33	2.1	2.1	82.5	189000	202900
NU2313EM	NJ2313EM	NUP2313EM	65	140	48	2.1	2.1	82.5	254000	297000
NU1014M	---	---	70	110	20	1.1	1	80	80200	100000
NU214EM	NJ214EM	NUP214EM	70	125	24	1.5	1.5	83.5	123000	144500
N214EM	NF214EM	---	70	125	24	1.5	1.5	83.5	123000	144500
NU2214EM	NJ2214EM	NUP2214EM	70	125	31	1.5	1.5	83.5	160000	201600
NU314EM	NJ314EM	NUP314EM	70	150	35	2.1	2.1	89	213000	234000
N314	NF314	---	70	150	35	2.1	2.1	89	213000	234000
NU2314EM	NJ2314EM	NUP2314EM	70	150	51	2.1	2.1	89	280000	333000
NU1015M	—	—	75	115	20	1.1	1	85	59200	72400
NU215EM	NJ215EM	NUP215EM	75	130	25	1.5	1.5	88.5	135000	164500
N215EM	NF215EM	---	75	130	25	1.5	1.5	88.5	135000	164500
NU2215EM	NJ2215EM	NUP2215EM	75	130	31	1.5	1.5	88.5	166000	215000
NU315EM	NJ315EM	NUP315EM	75	160	37	2.1	2.1	95	249000	276000
N315EM	NF315EM	---	75	160	37	2.1	2.1	95	249000	276000
NU2315EM	NJ2315EM	NUP2315EM	75	160	55	2.1	2.1	95	336000	405500
NU1016M	---	---	80	125	22	1.1	1	91.5	103600	135000
NU216EM	NJ216EM	NUP216EM	80	140	26	2	2	95.3	144000	175700
N216EM	NF216EM	---	80	140	26	2	2	95.3	144000	175700
NU2216EM	NJ2216EM	NUP2216EM	80	140	33	2	2	95.3	191000	251700
NU316EM	NJ316EM	NUP316EM	80	170	39	2.1	2.1	101	269000	300000
N316EM	NF316EM	---	80	170	39	2.1	2.1	101	269000	300000
NU2316EM	NJ2316EM	NUP2316EM	80	170	58	2.1	2.1	101	366000	447000
NU1017M	---	---	85	130	22	1.1	1	96.5	64500	85500
NU217EM	NJ217EM	NUP217EM	85	150	28	2	2	100.5	173000	208000
N217EM	NF217EM	---	85	150	28	2	2	100.5	173000	208000
NU2217EM	NJ2217EM	NUP2217EM	85	150	36	2	2	100.5	223000	287000
NU317EM	NJ317EM	NUP317EM	85	180	41	3	3	108	305000	351000
N317EM	NF317EM	---	85	180	41	3	3	108	305000	351000



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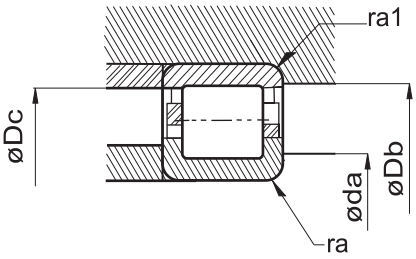

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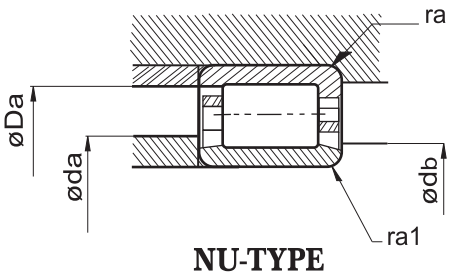
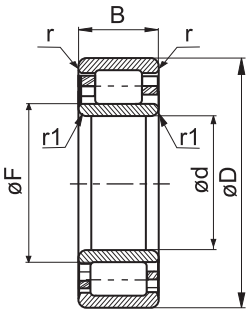


NU-TYPE

Mass (Kg)	Limiting Speed		da		db	Da	Db	Dc	ra Min	ra1 Min
	Grease	Oil	min	max						
0.51	6300	8000	70	73	76	94	-	-	1	1
1.06	4800	5600	74	77	81	111	-	-	1.5	1.5
1.07	5300	6300	74	-	-	111	110	107	1.5	1.5
1.45	4800	6000	74	77	81	111	-	-	1.5	1.5
2.30	4300	5300	77	81	85	128	-	-	2	2
2.30	4300	5300	77	-	-	128	126	123	2	2
3.36	3800	4800	77	81	85	128	-	-	2	2
0.71	6000	7100	75	78	82	104	-	-	1	1
1.18	5000	6300	79	82	86	116	-	-	1.5	1.5
1.85	5000	6300	79	-	-	116	115	112	1.5	1.5
1.45	4500	5600	79	82	86	116	-	-	1.5	1.5
2.85	4000	5000	82	87	92	138	-	-	2	2
2.85	4000	5000	82	-	-	138	135	131	2	2
4.10	3600	4500	82	87	92	138	-	-	2	2
0.74	5600	6700	80	83	87	109	-	-	1	1
1.32	4800	6000	84	87	90	121	-	-	1.5	1.5
1.34	4800	6000	84	-	-	121	120	117	1.5	1.5
1.67	4300	5300	84	87	90	121	-	-	1.5	1.5
3.40	3800	4800	87	93	97	148	-	-	2	2
3.40	3800	4800	87	-	-	148	145	141	2	2
5.00	3400	4300	87	93	97	148	-	-	2	2
0.99	5300	6300	85	90	94	119	-	-	1	1
1.95	4500	5300	91	94	97	129	-	-	2	2
1.95	4500	5300	91	-	-	129	129	126	2	2
2.11	4000	5000	91	94	97	129	-	-	2	2
4.00	3600	4300	92	99	105	158	-	-	2	2
4.22	3600	4300	92	-	-	158	153	149	2	2
5.90	3200	4000	92	99	105	158	-	-	2	2
1.04	5000	6000	90	95	99	124	-	-	1	1
1.99	4300	5000	96	99	104	139	-	-	2	2
1.99	4300	5000	96	-	-	139	138	135	2	2
2.60	3800	4500	96	99	104	139	-	-	2	2
4.70	3400	4000	99	106	110	166	-	-	2.5	2.5
5.40	3400	4000	99	-	-	166	162	158	2.5	2.5



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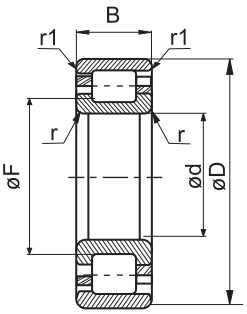

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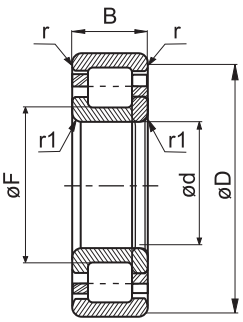

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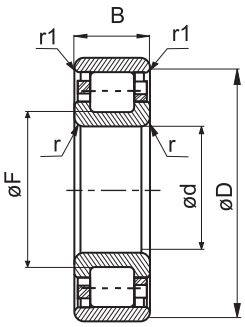
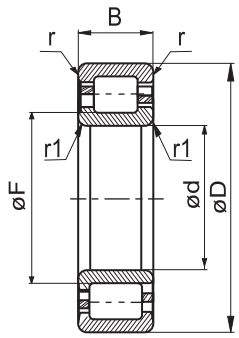
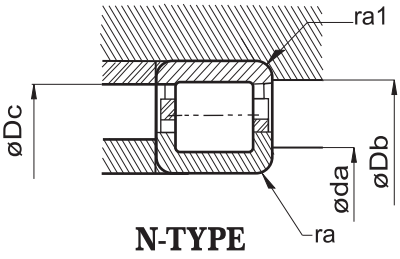


N-TYPE

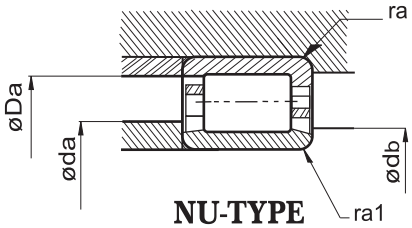
Designation			d	D	B	r Min	r1 Min	F	BASIC LOAD RATING	
									DYNAMIC Cr(N)	STATIC C or (N)
NU1018M	—	—	90	140	24	1.5	1.1	103	85800	111000
NU218EM	NJ218EM	NUP218EM	90	160	30	2	2	107	191000	232000
N218EM	NF218EM	---	90	160	30	2	2	107	191000	232000
NU2218EM	NJ2218EM	NUP2218EM	90	160	40	2	2	107	250000	328000
NU318EM	NJ318EM	NUP318EM	90	190	43	3	3	113.5	330000	375000
N318EM	NF318EM	—	90	190	43	3	3	113.5	330000	375000
NU1019M	---	---	95	145	24	1.5	1.1	108	89000	117000
NU219EM	NJ219EM	NUP219EM	95	170	32	2.1	2.1	112.5	231000	280000
N219EM	N219EM	---	95	170	32	2.1	2.1	112.5	231000	280000
NU2219EM	NJ2219EM	NUP2219EM	95	170	43	2.1	2.1	112.5	296000	386000
NU319EM	NJ319EM	NUP319EM	95	200	45	3	3	121.5	350000	409000
N319EM	NF319EM	---	95	200	45	3	3	121.5	350000	409000
NU1020M	---	---	100	150	24	1.5	1.1	113	92000	123000
NU220EM	NJ220EM	NUP220EM	100	180	34	2.1	2.1	119	260000	322000
N220EM	NF220EM	---	100	180	34	2.1	2.1	119	260000	322000
NU2220EM	NJ2220EM	NUP2220EM	100	180	46	2.1	2.1	119	344000	461000
NU320EM	NJ320EM	NUP320EM	100	215	47	3	3	127.5	401000	456000
N320EM	N320EM	---	100	215	47	3	3	127.5	401000	456000
N1021M	---	---	105	160	26	2	1.1	119.5	107000	145000
NU221EM	NJ221EM	NUP221EM	105	190	36	2.1	2.1	125.5	273000	329000
N221EM	NF221EM	—	105	190	36	2.1	2.1	125.5	273000	329000
NU1022M	—	—	110	170	28	2	1.1	125	133000	176000
NU222EM	NJ222EM	NUP222EM	110	200	38	2.1	2.1	132.5	303000	383000
N222EM	NF222EM	---	110	200	38	2.1	2.1	132.5	303000	383000
NU2222EM	NJ2222EM	NUP2222EM	110	200	53	2.1	2.1	132.5	392000	532000
NU322EM	NJ322EM	NUP322EM	110	240	50	3	3	143	476000	561000
N322EM	NF322EM	—	110	240	50	3	3	143	476000	561000
NU1024M	---	---	120	180	28	2	1.1	135	140000	194000
NU224EM	NJ224EM	NUP224EM	120	215	40	2.1	2.1	143.5	351000	448000
N224EM	NF224EM	---	120	215	40	2.1	2.1	143.5	351000	448000
NU2224EM	NJ2224EM	NUP2224EM	120	215	58	2.1	2.1	143.5	464000	642000
NU1026M	---	---	130	200	33	2	1.1	148	172000	239000
NU226EM	NJ226EM	NUP226EM	130	230	40	3	3	153.5	380000	481000
N226EM	NF226EM	---	130	230	40	3	3	153.5	380000	481000
NU1028M	---	---	140	210	33	2	1.1	158	184000	262000
NU228EM	NJ228EM	NUP228EM	140	250	42	3	3	169	411000	546000
N228EM	NF228EM	---	140	250	42	3	3	169	411000	546000
NU1030M	---	---	150	225	35	2.1	1.5	169.5	205000	310000



NJ-TYPE



N-TYPE



NU-TYPE

Mass (Kg)	Limiting Speed		da		db	Da	Db	Dc	ra Min	ra1 Min
	Grease	Oil	min	max						
1.31	4500	5600	96	101	106	133	-	-	1.5	1
2.46	4000	4800	101	105	109	149	-	-	2	2
2.47	4000	4800	101	-	-	149	147	143	2	2
3.22	3600	4300	101	105	109	149	-	-	2	2
5.39	3200	3800	104	111	117	176	-	-	2.5	2.5
6.19	3200	3800	104	-	-	176	171	168	2.5	2.5
1.41	4300	5300	101	106	111	138	-	-	1.5	1
3.10	3800	4500	107	111	116	158	-	-	2	2
3.10	3800	4500	107	-	-	158	156	153	2	2
4.10	3400	4000	107	111	116	158	-	-	2	2
6.52	3000	3600	109	119	124	186	-	-	2.5	2.5
7.25	3000	3600	109	-	-	186	179	176	2.5	2.5
1.46	4300	5300	106	111	116	143	-	-	1.5	1
3.69	3600	4300	112	117	122	168	-	-	2	2
3.70	3600	4300	112	-	-	168	165	161	2	2
4.97	3200	3800	112	117	122	168	-	-	2	2
8.67	2800	3400	114	125	132	201	-	-	2.5	2.5
8.75	2800	3400	114	-	-	201	193	190	2.5	2.5
1.84	4000	4800	111	118	122	151	-	-	2	1
4.08	3400	4000	117	123	128	178	-	-	2	2
4.63	3400	4000	117	-	-	178	173	170	2	2
2.31	3800	4500	116	124	128	161	-	-	2	1
4.64	3200	3800	122	130	135	188	-	-	2	2
5.37	3200	3800	122	-	-	188	182	179	2	2
7.65	2800	3400	122	130	135	188	-	-	2	2
11.80	2600	3000	124	140	145	226	-	-	2.5	2.5
11.80	2600	3000	124	-	-	226	213	209	2.5	2.5
2.47	3400	4300	126	134	138	171	-	-	2	1
6.43	3000	3400	132	141	146	203	-	-	2	2
6.43	3000	3400	132	-	-	203	197	194	2	2
9.51	2600	3200	132	141	146	203	-	-	2	2
3.81	3200	3800	136	146	151	191	-	-	2	1
6.50	2600	3200	144	151	158	216	-	-	2.5	2.5
8.03	2600	3200	144	-	-	216	212	207	2.5	2.5
3.94	3000	3600	146	156	161	201	-	-	2	1
9.31	2400	3000	154	171	171	236	-	-	2.5	2.5
9.30	2400	3000	154	-	-	236	227	223	2.5	2.5
4.93	2800	3400	158	167	173	215	-	-	2	1.5

NRB INDUSTRIAL

FULL COMPLEMENT NEEDLE BEARINGS

MOVING THE WHEELS OF INDUSTRY

Full complement needle bearings have a through-hardened outer ring which results in high static and dynamic load capacities and an ability to withstand overloading, shocks and vibrations.
They are particularly suitable for operations involving oscillating motion but may also accept high speed conditions where good alignment is necessary. This can more easily be achieved using a convex inner ring raceway.
The retention of the needles in the outer ring enables the bearing to be installed easily during assembly. These bearings are available with or without an inner ring from 12 mm bore size. Standard complete bearings type NA (and special types NA...BIR) have an inner ring with convex raceway form. If extra wide inner rings or rings with lubrication hole are required, they should be ordered separately for use with the corresponding RNA series.

STANDARD TYPES

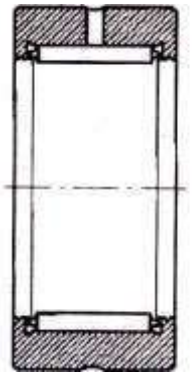
Bearing without inner ring	Inner ring with cylindrical raceway		
	Same width as bearing (with lubrication hole)	Extra wide inner rings	
		with lubrication hole	without lubrication hole
RNA series 1 000, 2 000, 22 000, 3 000	BIC series 1 000, 2 000, 22 000, 3 000	BICG	BIP, BIG, BIK
Complete bearing with convex inner raceway			
NA Series 1 000, 2 000, 22 000, 3 000			

1) Old designation Na...s/Bi

2) Widths quoted on request

SPECIAL TYPES

RNA...DER / SGT	Bearings without inner ring. Convex outer ring without lubrication hole or grease groove. Cylindrical inner rings available separately
NA...BIR	Complete bearing with convex inner raceway for misalignment greater than 1 in 1000.

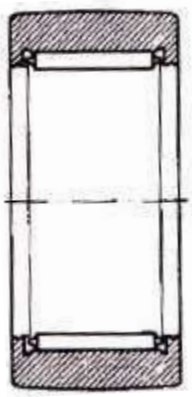


Standard type RNA (old designation Na...s/Bi)
Series 1 000, 2 000, 22 000, 3 000

The shaft journal which is used directly as the inner ring raceway of the bearing should have adequate hardness and satisfactory surface finish. A hardness of 58 – 64 HRC will ensure full load capacity for the bearing. Lower hardness figures will entail a reduction in both static and dynamic capacities as shown in the table of dimensions according to the following table:

Hardness	HRC	60	58	56	54	52	50	48	45	40	35	30	25
	HV	697	653	613	577	545	512	485	447	392	346	302	267
Capacity reduction coefficients	Dyn.	1	1	0.93	0.84	0.73	0.63	0.52	0.43	0.31	0.23	0.15	0.11
	Stat.	1	1	1	1	0.96	0.86	0.77	0.65	0.50	0.39	0.30	0.25

In case of misalignment, a convex inner ring raceway can be machined directly at the shaft journal position by grinding, using a concave profile and inclining the diamond impregnated grinding wheel. A convex inner raceway calculated to permit misalignment of 1 in 1000 does not affect bearing load capacity. A large convex radius is necessary for a greater degree of misalignment but this will reduce the effective bearing load capacity. Further information is available on request.



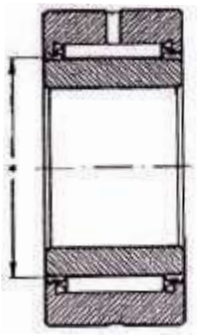
RNA...DER/SG

These bearings have a convex outer ring which can swivel in the housing and must be used with a cylindrical bearing raceway. They are manufactured specially on request in the same dimensions as the standard RNA series 1 000, 2 000, 22 000 and 3 000. The convex outer ring radius is normally designed for a maximum misalignment of 10 in 1 000. In special cases a specific radius can be provided on request.

For these bearings the swivelling contact of the outer ring in the housing is improved by the elimination of the lubrication groove and hole (designated by the suffix ...SGT)
If the outer ring is to move freely in the cylindrical housing, the later must be machine to F7 (or F8) tolerance,though the fit is only suitable for operation under a load fixed in relation to the housing to prevent the outer ring slipping. The shoulders at the outer rings (snap rings or abutments) must leave sufficient lateral clearance topermit the ring to move. These bearings must be assembled with a cylindrical inner ring raceway with or without a lubrication hole.
Please consult NIBL Technical Department on each application.

INNER RINGS

Inner rings made from high quality bearing steel heat treated and through-hardened avoid any necessity for heat treatment of the shaft and enable the bearings to operate within their full load capacity (with the exception of special convex inner rings).

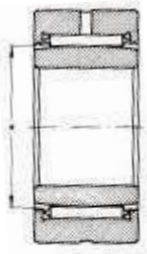


*NA type with standard convex inner ring R6

Inner Rings with cover raceway R6

These inner rings without lubrication hole are of the same width as the outer ring and are supplied with series NA complete, types 1 000, 2 000, 22 000 and 3 000. They can accept a misalignment of 1 in 1 000 in continuous operation and up to 2 in 1000 temporarily, as in the case of sudden deflection due to overload conditions. The inner and outer rings may be displaced axially from one to the other by up to 5% of the inner ring width.

Inner Rings with convex raceway type BIR

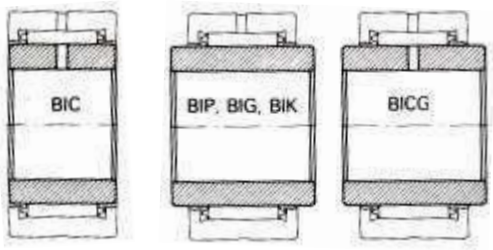


NA..BIR

** Special convex inner ring BIR*

For those applications where the acceptable misalignment required is beyond the limit of convex inner rings R6, the complete NA bearing can be supplied under the designation NA...BIR, with an inner ring possessing a larger radius of convexity. However, the load capacity for these bearings is then reduced. Please consult NIBL Technical Department if these types are to be specified.

Inner Rings with cylindrical raceway



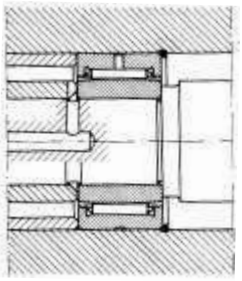
Cylindrical inner rings of the same bore as those with convex raceway may be supplied on request

:

- With oil hole permitting lubrication through the shaft.
- Wider than corresponding outer ring to enable a displacement in position of one ring relative to the other (e.g. expansion of the shaft) or lateral movement. Please consult NIBL Technical Department. The widths of these inner rings can be supplied on request.

Important

The use of cylindrical inner rings with standard bearings type RNA series 1 000, 2 000, 22 000 and 3 000 requires that the housing and shaft be correctly aligned at assembly with due regard to the application under load. If it is not essential to use these inner rings, it is always preferable to use complete bearings type NA with convex inner rings type R6, without oil hole, of the same widths as the outer ring. In particular cases where lubrication is provided through the shaft, the inner ring with oil hole may be replaced by a lubrication hole at the face of the inner ring.
(see figure)



Cylindrical inner rings are recommended for use with special bearings type NA...DE R with convex outer ring, since using a convex inner ring with these types could create an indeterminate system of alignment.

RING TOLERANCES

Inner and outer rings for full complements standard needle bearings are manufactured in accordance with the tolerance class of ISO R 492 (class zero according to DIN 620). Closer tolerances corresponding to classes 6, 5 and 4 may be necessary for special high precision applications (symbols P6, P5, P4).

Manufacturing tolerances of bearing rings

Standard tolerance class [1)]

Inner rings

Bore nominal		Di_m		Out of round	Width		
Di		(Di min + Di max) / 2			Tolerance		Max variation on a ring
mm		µm		µm	µm		µm
from	to	max	min	max	max	min	max
2.5	10	0	-8	10	0	-120	15
10	18	0	-8	10	0	-120	15
18	30	0	-10	13	0	-120	20
30	50	0	-12	15	0	-120	20
50	50	0	-15	20	0	-150	25
80	120	0	-20	25	0	-200	25
120	180	0	-25	30	0	-250	30
180	250	0	-30	40	0	-300	30
250	315	0	-35	50	0	-350	35
315	400	0	-40	60	0	-400	40

Outer rings :

External diameter nominal		De_m		Out of round	Width
De		(De min + De max) / 2			
mm		µm		µm	
from	to	max	min	max	
6	18	0	-8	15	Tolerance variation on a ring are identical to those of the inner ring for the corresponding bearing
18	30	0	-9	15	
30	50	0	-11	20	
50	80	0	-13	25	
80	120	0	-15	35	
120	150	0	-18	40	
150	180	0	-25	45	
180	250	0	-30	50	
250	315	0	-35	60	
315	400	0	-40	70	

[1)]According to ISO Norm 3097 or ISO/R492 (DIN 620 Class zero)

SHAFT AND HOUSING TOLERANCES

Type of operation	Load Direction	SHAFT					HOUSING [2)] Dim. De
		Bearing without inner ring Dim. Ci	Bearing With inner ring [1)] Dim. Di				
			≤80	85 - 130	140 - 220	≥230	
Shaft rotating Housing fixed	Fixed	h5	k5	m5	n6	p6	J6 (J7)
	Rotating with shaft	g5	h5	h5	h6	h6	M6 (M7)
	Unknown	g5	k5*	m5*	n6	p6	M6 (M7)
Shaft fixed Housing rotating	Fixed	g5	h5	h5	h6	h6	M6 (M7)
	Rotating with shaft	h5	k5	m5	n6	p6	J6 (J7)
	Unknown	g5	k5*	m5*	n6	p6	M6 (M7)
Shaft and Housing rotating	Any direction	g5	k5*	m5*	n6	p6	M6 (M7)
Oscillating motion	Any direction	h5	k5*	k5*	m6	m6	M6 (M7)

* To be used with bearings with selected TC clearance.

Cylindrical tolerance, defined as the difference in radii of two coaxial cylinders (ISO R 1101) must normally be less than a quarter of the manufacturing tolerance. In the case of precision applications or high speed operation it is recommended to reduce this tolerance to one eighth of the manufacturing tolerance.
1) Tolerances applicable for solid shafts in steel or cast iron. The fit of the inner ring should be controlled to closer limits for hollow shafts or shafts of non-ferrous metals.
2) Tolerances applicable for housings in steel or cast iron of rigid wall section. Housing fit at outer ring should be controlled to closer limits for thin wall sections in non-ferrous metals.

If the housing or shaft are manufactured from light alloys and can reach temperatures greatly in excess or below 20°C, it is necessary to allow for differential expansion or contraction with respect to the accompanying bearing and make the necessary adjustments.

RADIAL PLAY (RADIAL INTERNAL CLEARANCE)

Bearings without inner ring

The radial play of bearing without inner result from the difference in diameter beneath the needles and the size of the shaft. The standard diameter beneath the needles for RNA bearings with the recommended shaft tolerances should provide suitable radial play for most normal applications.

For special applications (high precision, close fits, etc.), NIBL can offer the diameter beneath the needles selected as follows:

- In the bottom half of the normal tolerance (RNA...TB)
- In the upper half of the normal tolerance (RNA...TC)

Bearings without inner ring tolerance Class TB mounted on a shaft with k5 tolerance will have a reduced radial play suitable for certain applications.

Nominal dimension		Tolerance of diameter under needles					
Ci		Normal F6		Selected TB		Selected TC	
mm		µm		µm		µm	
above	to	Min.	Max.	Min.	Max.	Min.	Max.
5	15	+20	+40	+20	+31	+29	+40
15	25	+20	+43	+20	+33	+30	+43
25	30	+25	+48	+25	+38	+35	+48
30	35	+30	+53	+30	+43	+40	+53
35	60	+35	+58	+35	+48	+45	+58
60	80	+45	+73	+45	+60	+58	+73
80	115	+50	+78	+50	+65	+63	+78
115	180	+60	+88	+60	+75	+73	+88
180	220	+70	+103	+70	+88	+85	+103
220	270	+80	+113	+80	+98	+95	+113
270	350	+90	+128	+90	+110	+108	+128
Example		RNA 1020		RNA 1020 TB		RNA 1020 TC	

A nominal diameter under the needles further reduced and having a tolerance of 10, 15, or 20 microns according to size, may be required for certain precision applications (Type RNA...TA)

.

Should a larger clearance than normal be necessary, the shaft diameter must be controlled nearer to the nominal size than the tolerances h5 or g5 would normally provide.

Standard complete bearings with inner ring

Complete bearings type NA are offered with a radial play that is suitable for the majority of applications.

They can be supplied if required:

- With the radial play selected from the bottom half of the normal tolerance (NA…TB)
- With the radial play selected from the upper half of the normal tolerance (NA…TC)

For bore dimensions Di > 130 mm bearings NA…TB or NA…TC are supplied only on special request.

Radial play of full complement bearings with convex inner ring “R6”

Series 1 000, 2 000, 22 000							
Inner ring bore Di		Standard play		Selected TB		Selected TC	
mm		µm		µm		µm	
above	to	Min.	Max.	Min.	Max.	Min.	Max.
12	20	20	50	20	35	35	50
20	25	25	60	25	43	42	60
25	30	30	65	30	48	47	65
30	50	35	70	35	53	52	70
50	55	45	85	45	65	65	85
55	65	45	90	45	68	67	90
65	70	45	95	45	70	70	95
70	105	50	100	50	75	75	100
105	120	60	115	60	88	87	115
120	140	80	145	80	113	112	145
140	170	100	165				
170	190	120	185.				
190	210	130	200				
210	230	130	205				
230	260	160	235				
260	290	180	260				
290	310	180	265				

Series 3 000							
Inner ring bore Di		Standard play		Selected TB		Selected TC	
mm		µm		µm		µm	
above	to	Min.	Max.	Min.	Max.	Min.	Max.
30	45	35	70	35	53	52	70
45	55	45	85	45	65	65	85
55	65	45	90	45	68	67	90
65	70	50	95	50	73	72	95
70	100	50	100	50	75	75	100
100	105	60	110	60	85	85	110
105	130	60	115	60	88	87	115
130	140	80	145	80	113	112	145
140	170	100	165				
170	190	120	185				
190	210	130	200				
210	230	130	205				
230	260	160	235				
260	290	180	260				
290	310	180	265				

Radial play of full complement bearing with cylindrical inner ring

Series 1 000, 22 000							
Inner ring bore Di		Standard play		Selected TB		Selected TC	
mm		µm		µm		µm	
above	to	Min.	Max.	Min.	Max.	Min.	Max.
12	17	20	50	20	35	35	50
17	20	30	60	30	45	45	60
20	25	35	70	35	53	53	70
25	30	40	75	40	58	58	75
30	35	45	80	45	63	63	80
35	50	50	85	50	68	68	85
50	55	60	100	60	80	80	100
55	65	60	105	60	83	83	105
65	70	60	110	60	85	85	110
70	90	65	115	65	90	90	115
Series 2 000							
above	to	Min.	Max.	Min.	Max.	Min.	Max.
15	20	30	60	30	45	45	60
20	25	35	70	35	53	53	70
25	30	40	75	40	58	58	75
30	35	45	80	45	63	63	80
35	50	50	85	50	68	68	85
50	55	60	100	60	80	80	100
55	65	60	105	60	83	83	105
65	70	60	110	60	85	85	110
70	105	65	115	65	90	90	115
105	125	75	130	75	103	102	130
125	140	95	160	95	128	127	160
140	170	125	190				
170	190	145	210				
190	210	160	230				
210	230	160	235				

Series 3 000							
Inner ring bore Di		Standard play		Selected TB		Selected TC	
mm		µm		µm		µm	
above	to	Min.	Max.	Min.	Max.	Min.	Max.
30	45	50	85	50	68	67	85
45	55	60	100	60	80	80	100
55	65	60	105	60	83	82	105
65	70	65	110	65	88	87	110
70	100	65	115	65	90	90	115
100	105	75	125	75	100	100	125
105	.130	75	130	75	103	102	130
130	140	95	160	95	128	127	160
140	170	125	190				
170	190	145	210				
190	210	160	230				
210	230	160	235				
230	260	190	265				
260	290	210	290				
290	310	210	295				

A reduced radial play, in the 10, 15 or 20 micron groups, can be supplied for special precision applications (NA…TA…).

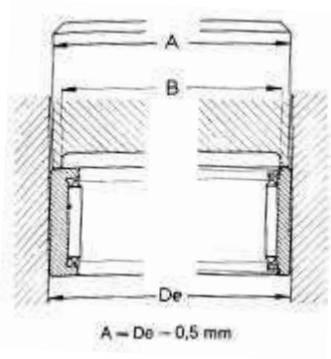
A radial play larger than normal may be necessary for certain applications, for example an inner ring subject to expansion mounted on a shaft running at high temperature (NA…TS…)

INSTALLATION OF RINGS

Outer Rings

The force applied to the face of the ring must be exerted only on the area bounded by outer diameter De and the inner diameter B. The area of a ring with shoulders must not be subjected to loads or shocks.

It is recommended to use a mandrel with which to tap small outer rings lightly into position. Alternately, a press may be used, providing the load exerted is on the centre line of the ring.



De	B	De	B	De	B	De	B	De	B	De	B
mm		mm		mm		mm		mm		mm	
16	13.5	52	46.5	100	90	145	135	205	190	300	280
19	16	58	52	105	95	150	138	215	200	315	295
22	18.5	62	55	110	100	155	143	220	205	325	305
24	21	65	58	115	105	160	148	230	215	340	315
28	24	72	64	120	110	165	153	245	225	350	325
32	27.5	80	71	125	115	170	158	255	235	365	340
35	30.5	85	76	130	120	180	168	265	245	375	350
42	37	90	81	135	125	190	175	280	260	385	360
47	41.5	95	85	140	130	195	180	290	270	395	370

Inner Rings

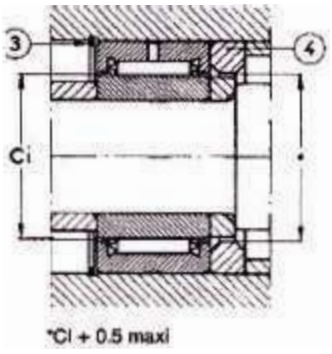
For inner rings of small dimensions one can proceed In the manner described above. For larger sizes where tight fits are required, the rings should first be immersed in an oil bath at a temperature of 70°C to 80°C to enable them to expand and slide more easily up to their correct position on the shaft.

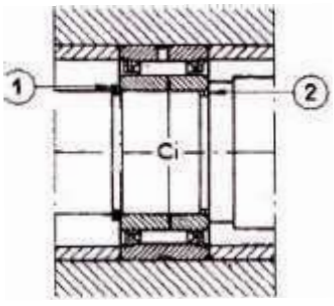
LATERAL RETENTION OF RINGS

Inner and outer rings for NA bearings must be positioned laterally:

- each lateral abutment for the outer rings must have an inner diameter greater than dimension Ci
- each lateral abutment for the inner rings must have an outer diameter smaller than dimension Ci.

In this way correct fitting is ensured and fretting at the face of the bearing is avoided.





Fitting of outer rings

1.Snap Ring
2.Groove for extraction tool
3.Snap Ring
4.Guidance ring for inserting shaft

Whenever possible outer rings should be installed in through bored housings, which are easier to manufacture in cylindrical form without taper than housings with shoulders. Lateral retention of rings can then be assured by snap rings, etc.

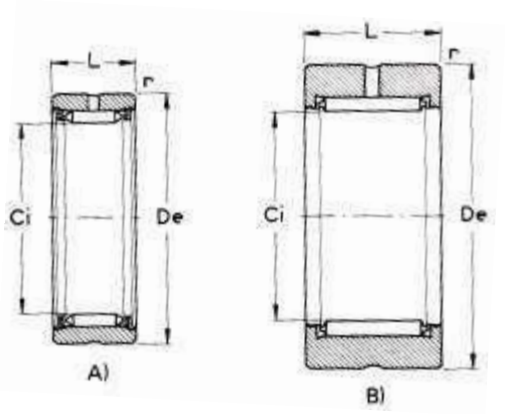
If the housing cannot be through bored, its base must possess grooves for engaging a bearing extraction tool.

For those installations using large components and where bearings are inaccessible or difficult to observe, it is advisable to protect the face of the outer ring on the mounting side by a ring having an internal diameter slightly larger than dimension Ci and possessing a chamfer to help guide the shaft into position during installation.

Fitting of inner rings

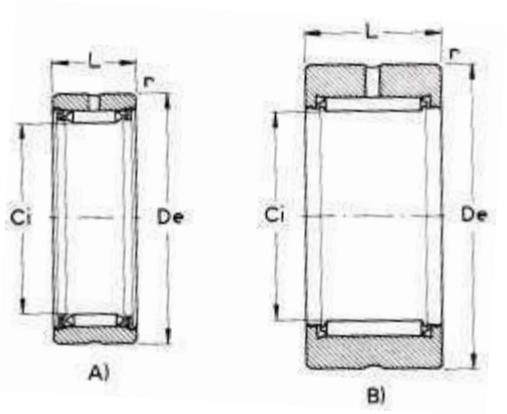
Inner rings may be positioned laterally by snap rings. They may also be supported by a shoulder on the shaft providing that the shoulder radius is smaller than the chamfer on the ring – shown in the table of dimensions. Whenever possible, it is preferable to provide a groove for a bearing extraction tool on the shaft. If it is necessary to provide a large shoulder radius in order to retain the shaft strength, then a ring incorporating a large chamfer may be placed between the shoulder and the inner ring.

FULL COMPLEMENT NEEDLE BEARINGS WITHOUT INNER RING RNA 1000, 2000, 22000, 3000 SERIES



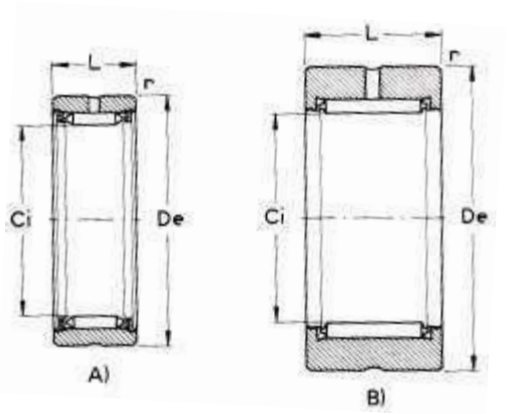
Shaft diameter	Designation		Dimensions				Basic capacities		Speed limit	Weight approx.
	Series 1 000, 2 000, 22 000	Series 3 000	Ci	De	L	r min	Dynamic Cr	Static. cor		
mm	fig. A	fig. B	mm	mm	mm	mm	N	N	rpm	g
7.3	RNA 1 005		7.3	16	12	0.35	3950	4450	52000	10
9.7	RNA 1 007		9.7	19	12	0.35	4800	5900	39000	13
12.1	RNA 1 009		12.1	22	12	0.35	5600	7400	31000	18
14.4	RNA 1 010		14.4	24	12	0.35	6350	8900	26000	20
17.6	RNA 1 012		17.6	28	15	0.35	11000	16500	21600	34
20.8	RNA 1 015		20.8	32	15	0.65	12400	19500	18300	44
22.1	RNA 2 015		22.1	35	22	0.65	23500	37500	17200	82
23.9	RNA 1 017		23.9	35	15	0.65	13700	22500	15900	47
28.7	RNA 1 020		28.7	42	18	0.65	19300	33500	13200	84
	RNA 2 020		28.7	42	22	0.65	28500	49000	13200	104
33.5	RNA 1 025		33.5	47	18	0.65	21500	39000	11100	97
	RNA2 025		33.5	47	22	0.65	33000	60000	11100	122
	RNA 22 025		33.5	47	30	0.65	52000	94000	11100	170
38.2	RNA 1 030		38.2	52	18	0.65	23500	44500	10000	107
	RNA 2 030		38.2	52	22	0.65	34500	66000	10000	139
	RNA 22 030		38.2	52	30	0.65	57000	108000	10000	193
44	RNA 1 035		44	58	18	0.65	26000	51000	8600	127
	RNA 2 035		44	58	22	0.65	38000	75000	8600	160
	RNA 22 035		44	58	30	0.65	63000	124000	8600	225
		RNA 3 030	44	62	30	0.65	64000	125000	8600	309
49.7	RNA 1 040		49.7	65	18	0.85	28500	58000	7600	160
	RNA 2 040		49.7	65	22	0.85	41500	85000	7600	200
	RNA 22 040		49.7	65	30	0.85	68000	140000	7600	278
		RNA 3 035	49.7	72	36	0.65	90000	183000	7600	545
55.4	RNA 1 045		55.4	72	18	0.85	30500	65000	6900	193
	RNA 2 045		55.4	72	22	0.85	45000	95000	6900	242
		RNA 3 040	55.4	80	36	0.85	97000	204000	6900	672
62.1	RNA 1 050		62.1	80	20	0.85	33000	73000	6100	225
	RNA 2 050		62.1	80	28	0.85	64000	142000	6100	375
		RNA 3 045	62.1	85	38	0.85	105000	230000	6100	710
68.8	RNA 1 055		68.8	85	20	0.85	35500	80000	5500	248

FULL COMPLEMENT NEEDLE BEARINGS WITHOUT INNER RING RNA 1000, 2000, 22000, 3000 SERIES



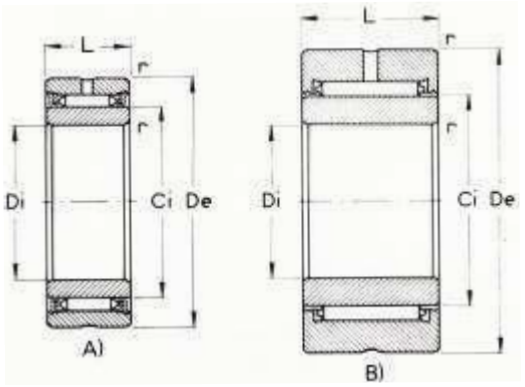
Shaft diameter	Designation		Dimensions				Basic capacities		Speed limit	Weight approx.
	Series 1 000, 2 000, 22 000	Series 3 000	Ci	De	L	r min	Dynamic Cr	Static. cor		
mm	fig. A	fig. B	mm	mm	mm	mm	N	N	rpm	g
68.8	RNA 2 055		68.8	85	28	0.85	69000	157000	5500	361
		RNA 3 050	68.8	90	38	0.85	113000	255000	5500	705
72.6	RNA 1 060		72.6	90	20	0.85	37000	85000	5200	283
	RNA 2 060		72.6	90	28	0.85	72000	165000	5200	413
		RNA 3 055	72.6	95	38	0.85	117000	268000	5200	782
78.3	RNA 1 065		78.3	95	20	0.85	41500	97000	4900	306
	RNA 2 065		78.3	95	28	0.85	78000	184000	4900	433
		RNA 3 060	78.3	100	38	0.85	123000	290000	4900	810
83.1	RNA 1 070		83.1	100	20	0.85	43000	103000	4500	322
	RNA 2 070		83.1	100	28	0.85	81000	195000	4500	470
		RNA 3 065	83.1	105	38	0.85	129000	308000	4500	865
88	RNA 1 075		88	110	24	0.85	64000	155000	4300	577
	RNA 2 075		88	110	32	0.85	104000	253000	4300	767
		RNA 3 070	88	110	38	0.85	134000	325000	4300	906
96	RNA 1 080		96	115	24	0.85	68000	170000	4000	510
	RNA 2 080		96	115	32	0.85	110000	275000	4000	694
		RNA 3 075	96	120	38	0.85	142000	355000	4000	1 098
95.5	RNA 2 085		99.5	120	32	1.35	113000	285000	3800	787
		RNA 3 080	99.5	125	38	0.85	145000	365000	3800	1 220
104.7	RNA 2 090		104.7	125	32	1.35	117000	300000	3600	837
		RNA 3 085	104.7	130	38	1.35	150000	390000	3600	1 252
109.1	RNA 2 095		109.1	130	32	1.35	120000	315000	3500	882
		RNA 3 090	109.1	135	43	1.35	185000	480000	3500	1 522
114.7	RNA 2 100		114.7	135	32	1.35	125000	330000	3300	877
		RNA 3 095	114.7	140	43	1.35	190000	505000	3300	1 551
119.2	RNA 2 105		119.2	140	32	1.35	129000	340000	3200	941
		RNA 3 100	119.2	145	43	1.35	195000	520000	3200	1 645
124.7	RNA 2 110		124.7	145	34	1.35	133000	360000	3000	1 015
		RNA 3 105	124.7	150	45	1.35	203000	550000	3000	1 762
132.5	RNA 2 115		132.5	155	34	1.35	139000	380000	2900	1 205
		RNA 3 110	132.5	160	45	1.35	210000	580000	2900	2 037

FULL COMPLEMENT NEEDLE BEARINGS WITHOUT INNER RING NA 1000, 2000, NA 22000, NA 3000 SERIES



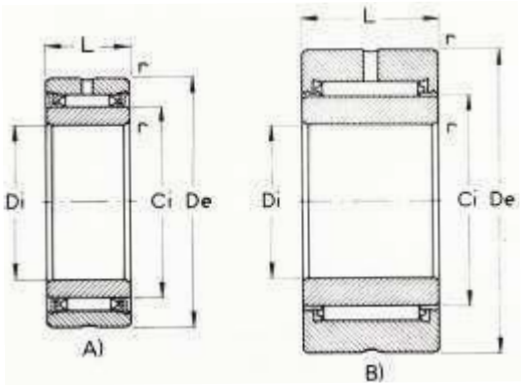
Shaft diameter	Designation		Dimensions				Basic capacities		Speed limit	Weight approx.
	Series 1 000, 2 000, 22 000	Series 3 000	Ci	De	L	r min	Dynamic Cr	Static. cor		
mm	fig. A	fig. B	mm	mm	mm	mm	N	N	rpm	g
137	RNA 2 120		137	160	34	1.35	142000	395000	2800	1265
		RNA 3 115	137	165	45	1.35	215000	600000	2800	2140
143.5	RNA 2 125		143.5	165	34	1.35	145000	410000	2700	1218
		RNA 3 120	143.5	170	45	1.35	224000	630000	2700	2107
148	RNA 2 130		148	170	34	1.35	150000	425000	2600	1292
158	RNA 2 140		158	180	36	1.35	157000	455000	2400	1478
		RNA 3 130	158	190	52	1.35	275000	790000	2400	3285
170.5	RNA 2 150		170.5	195	36	1.35	165000	490000	2200	1790
		RNA 3 140	170.5	205	52	1.35	290000	860000	2200	3840
179.3	RNA 2 160		179.3	205	36	1.35	170000	515000	2100	1970
		RNA 3 150	179.3	215	52	1.35	300000	900000	2100	4185
193.8	RNA 2 170		193.8	220	42	1.85	233000	720000	2000	2570
		RNA 3 160	193.8	230	57	1.35	360000	1110000	2000	4955
202.6	RNA 2 180		202.6	230	42	1.85	240000	750000	1900	2835
		RNA 3 170	202.6	245	57	1.85	370000	1150000	1900	6235
216	RNA 2 190		216	245	42	1.85	250000	800000	1800	3210

FULL COMPLEMENT NEEDLE BEARINGS WITHOUT INNER RING NA 1000, 2000, NA 22000, NA 3000 SERIES



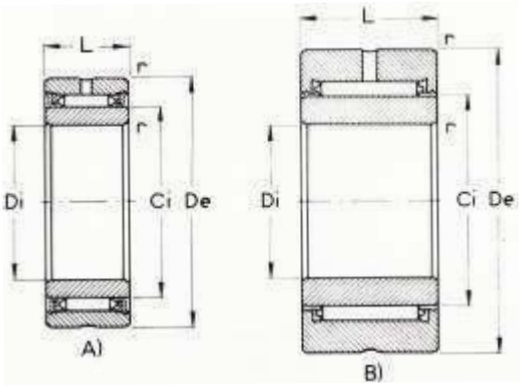
Shaft diameter	Designation		Dimensions					Basic capacities		Speed limit	Weight approx.
	Series 1 000, 2 000, 22 000	Series 3 000	Di	De	L	Ci	r min	Dynamic Cr	Static. cor		
mm	fig. A	fig. B	mm	mm	mm	mm	mm	N	N	rpm	g
12	NA 1 012		12	28	15	17.6	0.35	11000	16500	21600	50
15	NA 1 015		15	32	15	20.8	0.65	12400	19500	18300	62
	NA 2 015		15	35	22	22.1	0.65	23500	37500	17200	117
17	NA 1 017		17	35	15	23.9	0.65	13700	22500	15900	73
20	NA 1 020		20	42	18	28.7	0.65	19300	33500	13200	130
	NA 2 020		20	42	22	28.7	0.65	28500	49000	13200	160
25	NA 1 025		25	47	18	33.5	0.65	21500	39000	11100	151
	NA 2 025		25	47	22	33.5	0.65	33000	60000	11100	187
	NA 22 025		25	47	30	33.5	0.65	52000	94000	11100	259
30	NA 1 030		30	52	18	38.2	0.65	23500	44500	10000	167
	NA 2 030		30	52	22	38.2	0.65	34500	66000	10000	213
	NA 22 030	NA 3 030	30	52	30	38.2	0.65	57000	108000	10000	293
			30	62	30	44	0.65	64000	125000	8600	497
35	NA 1 035		35	58	18	44	0.65	26000	51000	8600	204
	NA 2 035		35	58	22	44	0.65	38000	75000	8600	253
	NA 22 035	NA 3 035	35	58	30	44	0.65	63000	124000	8600	352
			35	72	36	49.7	0.65	90000	183000	7600	815
40	NA 1 040		40	65	18	49.7	0.85	28500	58000	7600	254
	NA 2 040		40	65	22	49.7	0.85	41500	85000	7600	315
	NA 22 040	NA 3 040	40	65	30	49.7	0.85	68000	140000	7600	434
45			40	80	36	55.4	0.85	97000	204000	6900	993
	NA 1 045		45	72	18	55.4	0.85	30500	65000	6900	306
	NA 2 045	NA 3 045	45	72	22	55.4	0.85	45000	95000	6900	381
			45	85	38	62.1	0.85	105000	230000	6100	1132
50	NA 1 050		50	80	20	62.1	0.85	33000	73000	6100	418
	NA 2 050	NA 3 050	50	80	28	62.1	0.85	64000	142000	6100	603
			50	90	38	68.8	0.85	113000	255000	5500	1220
55	NA 1 055		55	85	20	68.8	0.85	35500	80000	5500	453
	NA 2 055		55	85	28	68.8	0.85	69000	157000	5500	649
		NA3055	55	95	38	72.6	0.85	117000	268000	5200	1307

FULL COMPLEMENT NEEDLE BEARINGS WITHOUT INNER RING NA 1000, 2000, NA 22000, NA 3000 SERIES



Shaft diameter	Designation		Dimensions					Basic capacities		Speed limit	Weight approx.
	Series 1 000, 2 000, 22 000	Series 3 000	Di	De	L	Ci	r min	Dynamic Cr	Static. cor		
mm	fig. A	fig. B	mm	mm	mm	mm	mm	N	N	rpm	g
60	NA 1 060		60	90	20	72.6	0.85	37000	85000	5200	485
	NA 2 060		60	90	28	72.6	0.85	72000	165000	5200	695
		NA 3 060	60	100	38	78.3	0.85	123000	290000	4900	1393
65	NA 1 065		65	95	20	78.3	0.85	41500	97000	4900	536
	NA 2 065		65	95	28	78.3	0.85	78000	184000	4900	757
		NA 3 065	65	105	38	83.1	0.85	129000	308000	4500	1488
70	NA 1 070		70	100	20	83.1	0.85	43000	103000	4500	567
	NA 2 070		70	100	28	83.1	0.85	81000	195000	4500	805
		NA 3 070	70	110	38	88	0.85	134000	325000	4300	1568
75	NA 1 075		75	110	24	88	0.85	64000	155000	4300	882
	NA 2 075		75	110	32	88	0.85	104000	253000	4300	1.177
		NA 3 075	75	120	38	96	0.85	142000	355000	4000	1923
80	NA 1 080		80	115	24	96	0.85	68000	170000	4000	920
	NA 2 080		80	115	32	96	0.85	110000	275000	4000	1239
		NA 3 080	80	125	38	99.5	0.85	145000	365000	3800	2025
85	NA 2 085		85	120	32	99.5	1.35	113000	285000	3800	1302
		NA 3 085	85	130	38	104.7	1.35	150000	390000	3600	2117
90	NA 2 090		90	125	32	104.7	1.35	117000	300000	3600	1368
		NA 3 090	90	135	43	109.1	1.35	185000	480000	3500	2512
95	NA 2 095		95	130	32	109.1	1.35	120000	315000	3500	1430
		NA 3 095	95	140	43	114.7	1.35	190000	505000	3300	2626
100	NA 2 100		100	135	32	114.7	1.35	125000	303000	3300	1497
		NA 3 100	100	145	43	119.2	1.35	195000	520000	3200	2735
105	NA 2 105		105	140	32	119.2	1.35	129000	340000	3200	1556
		NA 3 105	105	150	45	124.7	1.35	203000	550000	3000	2987
110	NA 2 110		110	145	34	124.7	1.35	133000	360000	3000	1720
		NA 3 110	110	160	45	132.5	1.35	210000	580000	2900	3532
115	NA 2 115		115	155	34	132.5	1.35	139000	380000	2900	2100
		NA 3 115	115	165	45	137	1.35	215000	600000	2800	3660
120	NA 2 120		120	160	34	137	1.35	142000	395000	2800	2167
		NA 3 120	120	170	45	143.5	1.35	224000	630000	2700	3792

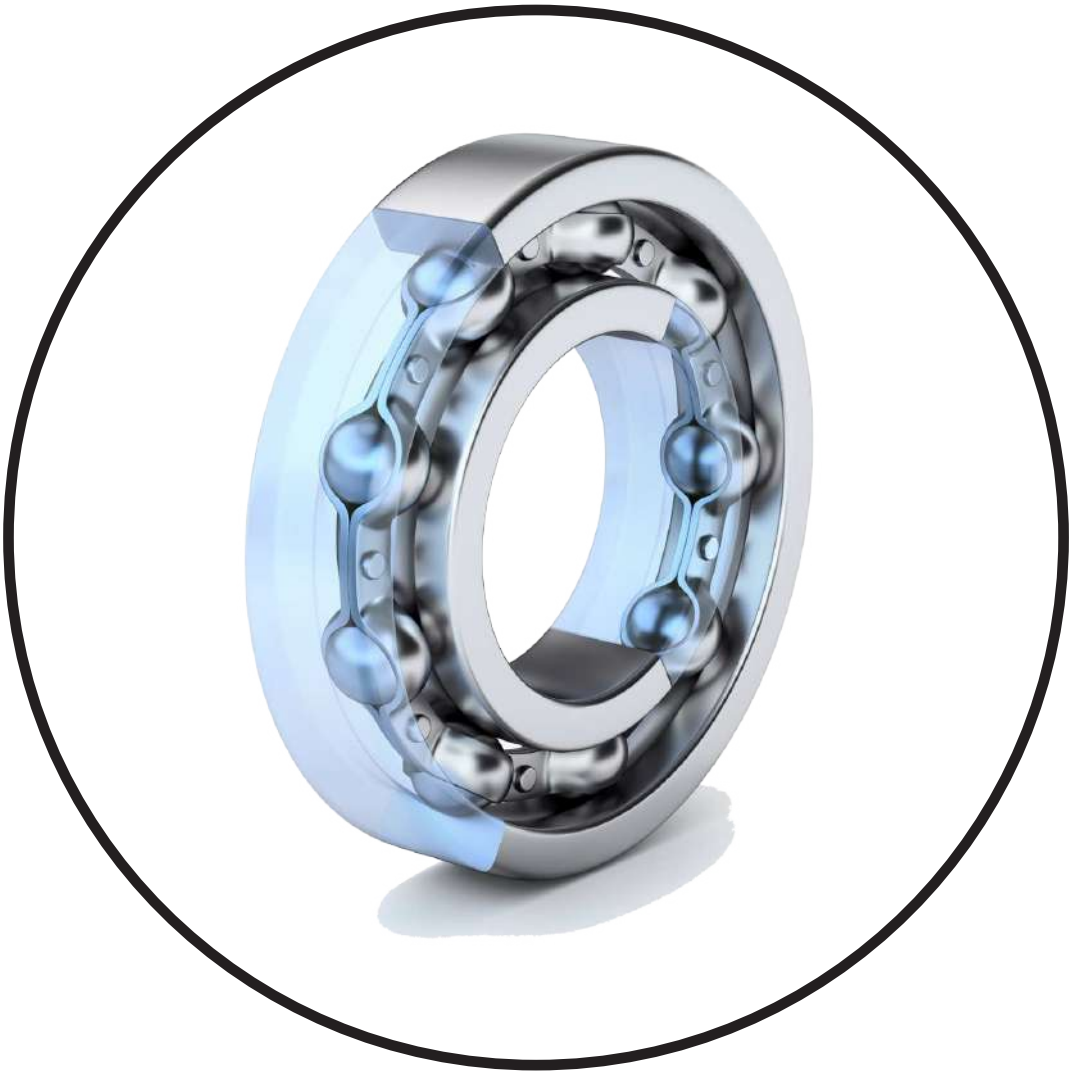
FULL COMPLEMENT NEEDLE BEARINGS WITHOUT INNER RING NA 1000, 2000, NA 22000, NA 3000 SERIES



Shaft diameter	Designation		Dimensions					Basic capacities		Speed limit	Weight approx.
	Series 1 000, 2 000, 22 000	Series 3 000	Di	De	L	Ci	r min	Dynamic Cr	Static. cor		
mm	fig. A	fig. B	mm	mm	mm	mm	mm	N	N	rpm	g
125	NA 2 125		125	165	34	143.5	1.35	145000	410000	2700	2240
		NA 3 125	125	185	52	152.8	1.35	266000	790000	2500	5620
130	NA 2 130		130	170	34	148	1.35	150000	425000	2600	2325
		NA 3 130	130	190	52	158	1.35	275000	790000	2400	5815
140	NA 2 140		140	180	36	158	1.35	157000	455000	2400	2643
		NA 3 140	140	205	52	170.5	1.35	290000	860000	2200	6840
150	NA 2 150		150	195	36	170.5	1.35	165000	490000	2200	3230
		NA 3 150	150	215	52	179.3	1.35	300000	900000	2100	7230
160	NA 2 160		160	205	36	179.3	1.35	170000	515000	2100	3400
		NA 3 160	160	230	57	193.8	1.35	360000	1100000	2000	9070
170	NA 2 170		170	220	42	193.8	1.85	233000	720000	2000	4770
		NA 3 170	170	245	57	202.6	1.85	370000	1150000	1900	10420
180	NA 2 180		180	230	42	202.6	1.85	240000	750000	1900	5010
190	NA 2 190		190	245	42	216	1.85	250000	800000	1800	5890

NRB INDUSTRIAL

DEEP GROOVE BALL BEARINGS



MOVING THE WHEELS OF INDUSTRY

DEEP GROOVE BALL BEARINGS

Today's applications demand continuous operations at high speeds. To avoid expensive downtime, manufacturers prefer to use reliable products that are robust in operation and require less maintenance. Deep groove ball bearings are the most versatile and are used in a variety of applications.

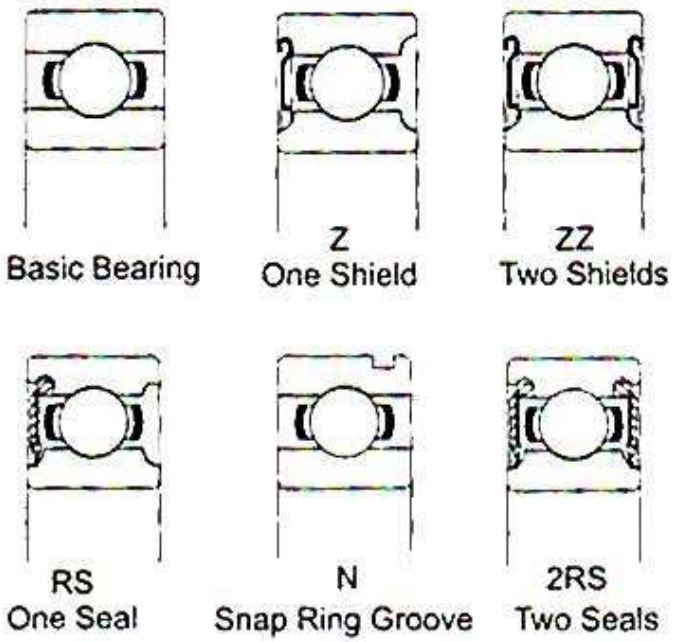
Deep groove ball bearings are used in a vast array of applications. These bearings have uninterrupted raceway grooves. These grooves have close osculation with the balls, enabling these bearings to accommodate both radial and axial loads in both directions. Since these bearings are non-separable, they are easier to handle and can be mounted in either way; fixed or floating.

NIBL offers its range of deep groove ball bearings. Manufactured in a state-of-the-art facility in Aurangabad and thoroughly tested, the bearings come in the range of the 60, 62 and 63 series.

NIBL offers customized engineered solutions as well; our bearings can be manufactured in a variety of sizes and applications.

PRODUCT APPLICATIONS

NIBL's product range has the ability to reach across different applications and industries. Our products are designed to ensure maximum productivity. From light applications like machine tools and food and beverage to heavy machinery, our products are designed to withstand varied temperatures, operating conditions, speeds and loads.



Different types of basic bearing

SUFFIXES

C2	Radial internal clearance less than normal - marked C2
CN	Normal grade of radial internal clearance - not marked
C3	Radial internal clearance greater than normal- marked C3
C4	Radial internal clearance greater than C3 - marked C4
C5	Radial internal clearance greater than C4-marked C5
N	Snap ring groove on the outer ring outside diameter
NR	Snap ring groove with snap ring
RS	One synthetic rubber seal
2RS	Two synthetic rubber seals
Z	One metal shield
ZZ	Two metal shields

TOLERANCES

NIBL standard metric bearings are manufactured in accordance with normal tolerance class of ISO 492.

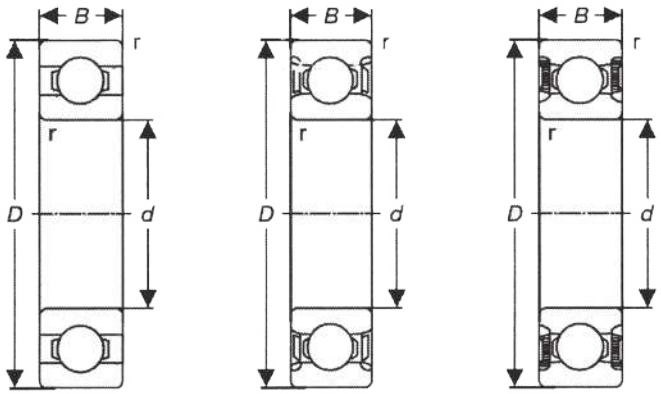
RADIAL INTERNAL CLEARANCE (RIC)

NIBL bearings are generally available in normal radial internal clearances. Bearings in normal radial internal clearances. Bearings in other radial internal clearance groups can be supplied on request. The following table gives the RIC values for standard bearings.

RADIAL INTERNAL CLEARANCE VALUES FOR RADIAL CONTACT GROOVE BALL BEARINGS WITH CYLINDRICAL BORE

Bore dia m m		Radial internal clearance groups									
		C2		CN		C3		C4		C5	
over	incl	min	max	min	max	min	max	min	max	min	max
2.5	6	0	7	2	13	8	23				
6	10	0	7	2	13	8	23	14	29	20	37
10	18	0	9	3	18	11	25	18	33	25	45
18	24	0	10	5	20	13	28	20	36	28	48
24	30	1	11	5	20	13	28	23	41	30	53
30	40	1	11	6	20	15	33	28	46	40	64
40	50	1	11	6	23	18	36	30	51	45	73
50	65	1	15	8	28	23	43	38	61	55	90
65	80	1	15	10	30	25	51	46	71	65	105
80	100	1	18	12	36	30	58	53	84	75	120
100	120	2	20	15	41	36	66	61	97	90	140
120	140	2	23	18	48	41	81	71	114	105	160

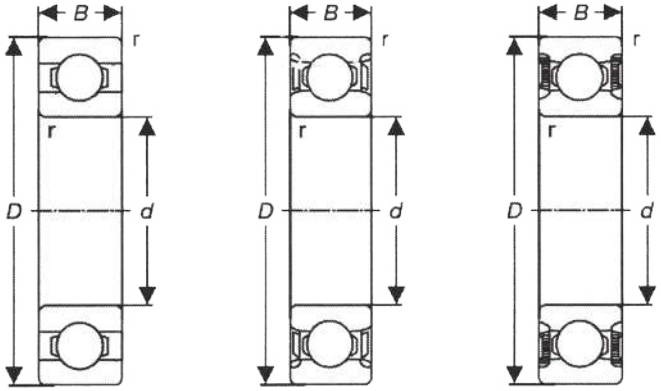
60 Series



Open Shields-ZZ Seals-2RS

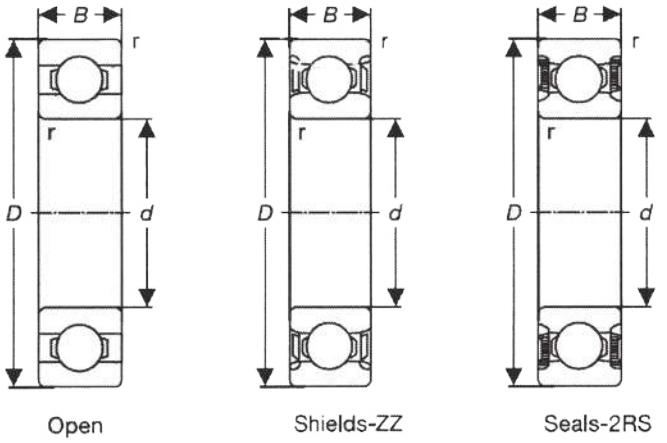
Inner bore d mm	Bearing number			Principal Dimensions			Basic Load Rating (kN)		Limiting Speed (r/min)		Weight kg
	Open	With Shields	With Seals	D	B	r	Dynamic C	Static Co	Grease	Oil	
				mm							
10	6000	6000 ZZ	6000 2RS	26 26	8 8	0,3 0,3	4.55 4.55	1.97 1.97	24,000 15,000	28,800 -	0.019 0.019
12	6001	6001 ZZ	6001 2RS	28 28	8 8	0,3 0,3	5.10 5.10	2.40 2.40	20,800 13,600	25,000 -	0.022 0.022
15	6002	6002 ZZ	6002 2RS	32 32	9 9	0,3 0,3	5.60 5.60	2.84 2.84	17,600 11,200	22,400 -	0.030 0.030
17	6003	6003 ZZ	6003 2RS	35 35	10 10	0,3 0,3	6.00 6.00	3.25 3.25	15,200 10,400	19,200 -	0.039 0.039
20	6004	6004 ZZ	6004 2RS	42 42	12 12	0,6 0,6	9.40 9.40	5.00 5.00	13,600 8,800	16,000 -	0.069 0.069
25	6005	6005 ZZ	6005 2RS	47 47	12 12	0,6 0,6	10.10 10.10	5.85 5.85	12,000 7,600	14,400 -	0.080 0.080
30	6006	6006 ZZ	6006 2RS	55 55	13 13	1,0 1,0	13.20 13.20	8.30 8.30	9,600 6,400	12,000 -	0.120 0.120
35	6007	6007 ZZ	6007 2RS	62 62	14 14	1,0 1,0	16.00 16.00	10.30 10.30	8,000 5,600	10,400 -	0.160 0.160
40	6008	6008 ZZ	6008 2RS	68 68	15 15	1,0 1,0	16.80 16.80	11.50 11.50	7,600 5,040	9,600 -	0.190 0.190
45	6009	6009 ZZ	6009 2RS	75 75	16 16	1,0 1,0	21.00 21.00	15.20 15.20	7,200 4,480	8,800 -	0.250 0.250
50	6010	6010 ZZ	6010 2RS	80 80	16 16	1,0 1,0	21.80 21.80	16.60 16.60	6,800 4,000	8,000 -	0.260 0.260
55	6011	6011 ZZ	6011 2RS	90 90	18 18	1,1 1,1	28.30 28.30	21.30 21.30	6,000 3,440	7,200 -	0.390 0.390
60	6012	6012 ZZ	6012 2RS	95 95	18 18	1,1 1,1	29.50 29.50	23.20 23.20	5,360 3,440	6,400 -	0.420 0.420
65	6013	6013 ZZ	6013 2RS	100 100	18 18	1,1 1,1	30.70 30.70	25.00 25.00	5,040 3,200	6,000 -	0.440 0.440

62 Series



Inner bore d mm	Bearing number			Principal Dimensions			Basic Load Rating (kN)		Limiting Speed (r/min)		Weight kg
	Open	With Shields	With Seals	D	B	r	Dynamic C	Static Co	Grease	Oil	
				mm							
10	6200	6200 ZZ	6200 2RS	30 30	9 9	0,60 0,60	5.10 5.10	2.40 2.40	19,200 13,600	24,000 -	0.032 0.032
12	6201	6201 ZZ	6201 2RS	32 32	10 10	0,60 0,60	6.80 6.80	3.05 3.05	17,600 12,000	22,400 -	0.037 0.037
15	6202	6202 ZZ	6202 2RS	35 35	11 11	0,60 0,60	7.65 7.65	3.70 3.70	15,200 10,400	19,200 -	0.045 0.045
17	6203	6203 ZZ	6203 2RS	40 40	12 12	0,60 0,60	9.55 9.55	4.80 4.80	13,600 9,600	16,000 -	0.065 0.065
20	6204	6204 ZZ	6204 2RS	47 47	14 14	1,00 1,00	12.80 12.80	6.60 6.60	12,000 8,000	14,400 -	0.110 0.110
25	6205	6205 ZZ	6205 2RS	52 52	15 15	1,00 1,00	14.00 14.00	7.90 7.90	9,600 6,800	12,000 -	0.130 0.130
30	6206	6206 ZZ	6206 2RS	62 62	16 16	1,00 1,00	19.50 19.50	11.30 11.30	8,000 6,000	10,400 -	0.200 0.200
35	6207	6207 ZZ	6207 2RS	72 72	17 17	1,10 1,10	25.70 25.70	15.30 15.30	7,200 5,040	8,800 -	0.290 0.290
40	6208	6208 ZZ	6208 2RS	80 80	18 18	1,10 1,10	29.10 29.10	17.90 17.90	6,800 4,480	8,000 -	0.370 0.370
45	6209	6209 ZZ	6209 2RS	85 85	19 19	1,10 1,10	32.50 32.50	20.50 20.50	6,000 4,000	7,200 -	0.410 0.410
50	6210	6210 ZZ	6210 2RS	90 90	20 20	1,10 1,10	35.00 35.00	23.20 23.20	5,600 3,840	6,800 -	0.460 0.460
55	6211	6211 ZZ	6211 2RS	100 100	21 21	1,50 1,50	43.30 43.30	29.40 29.40	5,040 3,440	6,000 -	0.610 0.610
60	6212	6212 ZZ	6212 2RS	110 110	22 22	1,50 1,50	52.50 52.50	36.00 36.00	4,800 3,200	5,600 5,600	0.780 0.780
65	6213	6213 ZZ	6213 2RS	120 120	23 23	1,50 1,50	57.20 57.20	40.00 40.00	4,240 2,880	5,240 -	0.990 0.990

63 Series



Inner bore d mm	Bearing number			Principal Dimensions			Basic Load Rating (kN)		Limiting Speed (r/min)		Weight kg
	Open	With Shields	With Seals	D	B	r	Dynamic C	Static Co	Grease	Oil	
				mm							
10	6300	6300 ZZ	6300 2RS	35 35	11 11	0,6 0,6	8.10 8.10	3.45 3.45	24,000 14,400	27,200 -	0.053 0.053
12	6301	6301 ZZ	6301 2RS	37 37	12 12	1,0 1,0	9.80 9.80	4.25 4.25	19,200 13,600	24,000 -	0.060 0.060
15	6302	6302 ZZ	6302 2RS	42 42	13 13	1,0 1,0	11.40 11.40	5.40 5.40	15,200 10,400	19,200 -	0.082 0.082
17	6303	6303 ZZ	6303 2RS	47 47	14 14	1,0 1.0	13.60 13.60	6.55 6.55	13,600 9,600	16,000 -	0.112 0.112
20	6304	6304 ZZ	6304 2RS	52 52	15 15	1,1 1,1	15.90 15.90	7.90 7.90	12,000 8,000	14,400 -	0.144 0.144
25	6305	6305 ZZ	6305 2RS	62 62	17 17	1,1 1,1	22.20 22.20	11.50 11.50	9,600 6,800	12,000 -	0.227 0.227
30	6306	6306 ZZ	6306 2RS	72 72	19 19	1,1 1,1	26.70 26.70	15.00 15.00	8,000 6,000	10,400 -	0.352 0.352
35	6307	6307 ZZ	6307 2RS	80 80	21 21	1,5 1,5	33.50 33.50	19.10 19.10	7,200 5,040	8,800 -	0.458 0.458
40	6308	6308 ZZ	6308 2RS	90 90	23 23	1,5 1,5	40.50 40.50	24.10 24.10	6,800 4,480	8,000 -	0.630 0.630
45	6309	6309 ZZ	6309 2RS	100 100	25 25	1,5 1,5	53.00 53.00	32.00 32.00	6,000 3,840	7,200 -	0.841 0.841
50	6310	6310 ZZ	6310 2RS	110 110	27 27	2,0 2,0	62.00 62.00	38.10 38.10	5,600 3,840	6,800 -	1.080 1.080
55	6311	6311 ZZ	6311 2RS	130 130	29 29	2,0 2,0	71.00 71.00	45.00 45.00	5,040 3,440	6,000 -	1.375 1.375
60	6312	6312 ZZ	6312 2RS	130 130	31 31	2,0 2,0	82.00 82.00	52.20 52.20	4,800 3,200	5,600 5,600	1.720 1.720

NRB INDUSTRIAL

WIDE INNER RING BEARINGS & HOUSED UNITS

MOVING THE WHEELS OF INDUSTRY

Research and Development

The success of NIBL is added by the focus on bearing design and development where the latest technology is used to offer need-based customized solution. NIBL uses CREO-PARAMATRIC, AUTO DESK PRODUCT DESIGN SUIT & AUTO DESK DESIGN SUIT Software for this purposes.

NIBL has set up an R&D center at its Shendra plant to achieve the goal of becoming a bearing solution provider. Our aim is to develop a long lasting partnership with the customers.

Quality & Reliability

Quality Control is the hallmark of every operation. At NIBL,we believe, if the end result is to be outstanding the highest degree of quality and precision must exist at every level, whether it is men, machines, materials or methods.

The policies of precision and effort have enabled us to achieve what we have today. The special care at every step 'and' the realization, that nothing matters more than a satisfied customer.

Our plant is equipped with extensive facilities for quality control. We manufacture our own tooling, special equipment in our sophisticated Tool Room. We employ the best machinery, superior quality raw materials and the latest technology for every aspect of manufacture.

Sales and Service Support.

NIBL has a wide network of preferred distributor and zonal offices throughout the country.

NIBL has a highly skilled team of engineers who are available for solving your bearing problems. NIBL with its wide range of bearings can offer you quick and economic solutions.

Nomenclature

Prefixes:
Basic Series / Additional Features

C	Concentric collar
E	Metric bore
G	Re-lubrication
1	Standard series (200 series bearings)
L	Light series
N	Heavy series (300 series bearing)
RA	Extended inner ring, one side only
SM	Standard series (open type bearing)
SMN	Heavy series (open type bearing)
GY,ER,YA	Setscrew locking device series
M	Medium duty setscrew lock series
SB	One side extended Inner ring

Additional Features

L	One mechanical seal
LL	Two mechanical seal
PP	Two seals
R	One land riding rubber seal
RR	Two land riding rubber seal
B	Spherical outside diameter
C	Cylindrical outside diameter
S	External self-aligning
PP2,3,4 etc	- Tri-ply seal if preceded by K
TDC	Thin dense chrome plate
F	Food grade

G	20	K	RR	* Option

Bore Code :
Last three numbers indicate bore size-
First in inches, last two in sixteenths

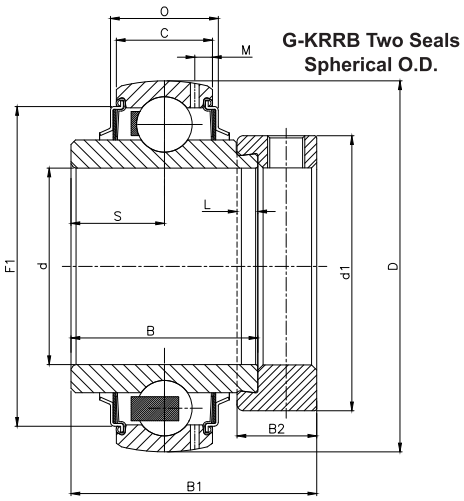
015	15/16"
103	1 3/16"
203	2 3/16"
25	25mm (metric)
40	40 mm (metric)

Suffixes:
Internal Construction code

K	Conrad, non-filling slot type
W	Maximum capacity filling slot type

*M Modified insert, rubber seal with steel stiffener and protective cap

WIDE INNER RING BEARINGS WITH ECCENTRIC LOCKING COLLAR
G-KRRB SERIES, RELUBRICATABLE TYPES



The G-KRRB Series wide inner ring ball bearings are the same as the RR Series but have a provision for relubrication. They are designed especially for extremely dirty or wet conditions. These bearings feature R-Seal with flared lips which firmly contact the ground O.D. of the inner ring to provide a positive seal against dust, dirt and other contaminants while effectively retaining the lubricant.

G-KRR Series bearings are equiped with shroud seals which provide extra effectiveness and protection.

The extra wide design provides additional shaft support and extra large grease capacity.

Recommended shaft tolerances : ½" to 1 15⁄16", nominal to -0.0005" (0.013 mm)
2" to 2 15⁄16", nominal to -0.0010" (0.025 mm)

To order, specify bearing number followed by “and collar”. Example : **G1103KRRB and Collar**

Bearing Number	Collar Number	Basic Outer Ring Size	Bore(1) d	O.D. D	Ring Widths B Inner	Ring Widths C Outer	S	L	d_1	B_2	M	B_1	F_1	O	Brg. & Collar Wt.
			in. mm		in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	kg.
G1008KRRB	S1008K		½												0.154
G1009KRRB	S1009K		9⁄16												0.141
G1010KRRB	S1010K	203	5⁄8	1.5748	1 3/32	0.472	35/64	5/32	1 1/8	17/32	0.107	1 15/32	1.339	0.652	0.141
G1011KRRB	S1011K		11⁄16	40	27.78	12	13.9	4.0	28.6	13.5	2.72	37.3	34.01	16.56	0.118
GE17KRRB	SE17K		17												0.118
G1012KRRB	S1012K	204	¾	1.8504	1 11/32	0.551	43/64	5/32	1 5/16	17/32	0.135	1 23/32	1.532	0.681	0.204
GE20KRRB	SE20K		20	47	34.13	14	17.1	4.0	33.3	13.5	3.43	43.7	38.91	17.3	0.204
G1013KRRB	S1013K		13⁄16												0.286
G1014KRRB	S1014K		7⁄8	2.0472											0.263
G1015KRRB	S1015K	205	15⁄16		1 3/8	0.591	11/6	5/32	1 1/2	17/32	0.152	1 3/4	1. 779	0.656	0.24
G1100KRRB	S1100K		1	52	34.92	15	17.5	4.0	38.1	13.5	3.86	44.4	45.19	16.66	0.227
GE25KRRB	SE25K		25												0.277

WIDE INNER RING BEARINGS WITH ECCENTRIC LOCKING COLLAR
G-KRRB SERIES, RELUBRICATABLE TYPES

Bearing Number	Collar Number	Basic Outer Ring Size	Bore[1] d	O.D. D	Ring Widths B Inner	Ring Widths C Outer	S	L	d_1	B_2	M	B_1	F_1	O	Brg. & Collar Wt.
			in. mm		in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	kg.
G1101	S1101K		1 1/16												0.417
G1102KRRB	S1102K		1 1/8	2.4409											0.404
G1103KRRB	S1103K	**206**	1 3/16	62	1 7/16 36.51	0.709 18	23/32 18.3	5/32 4.0	1 47/64 44.1	5/8 15.9	0.156 3.96	1 29/32 48.4	2.068 52.53	0.849 21.56	0.376
G1103KRRB3	S1103K3		1 1/4												0.349
GE30KRRB	SE30K		**30**												0.376
G1104KRRB	S1104K		1 1/4												0.653
G1105KRRB	S1105K		1 5/16	2.8346											0.617
G1106KRRB	S1106K	**207**	1 3/8	72	1 31/64 37.70	0.748 19	0.742 18.85	5/32 4.0	2 1/8 54.0	43/64 17.1	0.145 3.68	2 1/64 51.2	2.384 60.55	0.856 21.74	0.585
G1107KRRB	S1107K		1 7/16												0.562
GE35KRRB	SE35K		**35**												0.585
G1108KRRB	S1108KT		1 1/2	3.1496											0.812
G1109KRRB	S1109KT	**208**	1 9/16	80	1 11/16 42.86	0.827 21	27/32 21.4	3/16 4.8	2 3/8 60.3	23/32 18.3	0.16 4.06	2 7/32 56.4	2.669 67.79	0.923 23.44	0.771
GE40KRRB	SE40K		**40**												0.771
G1110KRRB	S1110K		1 5/8												0.925
G1111KRRB	S1111K	**209**	1 11/16	3.3456	1 11/16 42.86	0.866 22	27/32 21.4	3/16 4.8	2 1/2 63.5	23/32 18.3	0.179 4.55	2 7/32 56.4	2.908 73.86	1.07 27.18	0.88
G1112KRRB	S1112K		1 3/4	85											0.835
GE45KRRB	SE45K		**45**												0.835
G1113KRRB	S1113K		1 13/16												1.116
G1114KRRB	S1114K	**210**	1 7/8	3.5433	1 15/16 49.21	0.906 23	31/32 24.6	3/16 4.8	2 3/4 69.9	23/32 18.3	0.185 4.7	2 15/32 62.7	3.059 77.7	1.083 27.51	1.034
G1115KRRB	S1115K		1 15/16	90											1.016
GE50KRRB	SE50K		**50**												1.016
G1200KRRB	S1200K		2												1.583
G1201KRRB	S1201K		2 1/16	3.9370											1.47
G1202KRRB	S1202K	**211**	2 1/8	100	2 3/16 55.56	0.945 24	1 3/32 27.8	3/16 4.8	3 76.2	13/16 20.6	0.197 5.0	2 13/16 71.4	3.432 87.17	1.142 29.01	1.406
G1203KRRB	S1203K		2 3/16												1.365
GE55KRRB	SE55K		**55**												1.365
G1204KRRB	S1204K		2 1/4												2.041
G1205KRRB	S1205K		2 5/16	4.3307											1.923
G1206KRRB	S1206K	**212**	2 3/8	110	2 7/16 61.91	1.063 27	1 7/32 31	1/4 6.4	3 5/16 84.1	7/8 22.2	0.202 5.13	3 1/16 77.8	3.736 94.89	1.379 35.03	1.846
G1207KRRB	S1207K		2 7/16												1.778
GE60KRRB	SE60K		**60**												1.846

WIDE INNER RING BEARINGS ONE SIDE EXTENDED WITH ECCENTRIC LOCKING COLLAR GRA -RRB SERIES, RELUBRICATABLE TYPES

The GRA-RRB Series Bearings are extended inner ring type with self-locking collar. A positive contact, land riding R-seal provides improved protection against harmful contaminants and effectively retains the lubricant under severe operating conditions. GRA-RRB Series bearings are factory prelubricated.

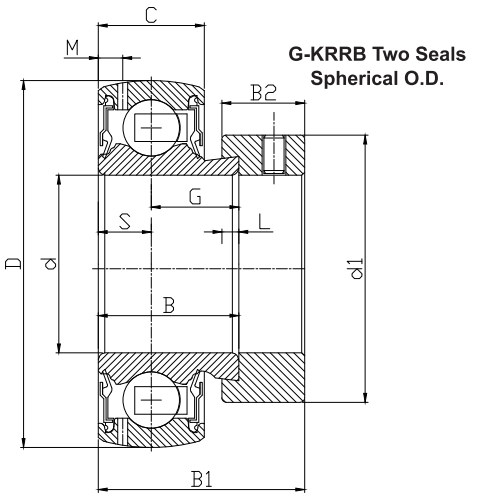
The GM-RRB Series have spherical outside diameters for use in housing with corresponding spherical inside surfaces to provide unrestricted initial alignment.

Recommended shaft tolerances : ½" to 1 15⁄16", nominal to -0.0005" (0.013mm)
2" to 2 15⁄16", nominal to -0.0010" (0.025mm)

To order, specify bearing number followed by “and collar”. Example : **GRA100RRB and Collar**

Bearing Number	Collar Number	Basic Outer Ring Size	Bore(1) d	O.D. D	Ring Widths B Inner	Ring Widths C Outer	S	G	L	d_2	B_2	M	B_1	Brg. & Collar Wt.
			in. mm		in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	kg.
GRA008RRB	S1008K		½											0.154
GRA009RRB	S1009K	**203**	9⁄16	1.5748	0.750	0.512	0.256	0.494	5/32	1 1/8	17/32	0.107	1 1/8	0.145
GRA010RRB	S1010K		5⁄8	40	19.05	13	6.5	12.55	4.0	28.6	13.5	2.72	28.6	0.127
GRAE17RRB	SE17K		**17**											0.127
GRA012RRB	S1012K	**204**	¾	1.8504	0.844	0.591	0.295	0.548	5/32	1 5/16	17/32	0.12	1 7/32	0.132
GRAE20RRB	SE20K		**20**	47	21.44	15	7.49	13.92	4.0	33.3	13.5	3.05	31	0.132
GRA013RRB	S1013K		13⁄16											0.231
GRA014RRB	S1014K		7⁄8	2.0472										0.213
GRA015RRB	S1015K	**205**	15⁄16		0.844	0.591	0.295	0.548	5/32	1 1/2	17/32	0.142	1 7/32	0.200
GRA100RRB	S1100K		1	52	21.44	15	7.49	13.92	4.0	38.1	13.5	3.61	31	0.186
GRAE25RRB	SE25K		**25**											0.186
GRA101RRB	S1101K		1 1⁄16											0.349
GRA102RRB	S1102K		1 1⁄8	2.4409										0.327
GRA103RRB	S1103K	**206**	1 3⁄16		0.938	0.709	0.354	0.583	5/32	1 47/64	5/8	0.164	1 13/32	0.318
GRA103RRB2	S1103K		1 ¼	62	23.82	18	8.99	14.81	4.0	44.1	15.9	4.17	35.7	0.295
GRAE30RRB	SE30K		**30**											0.318

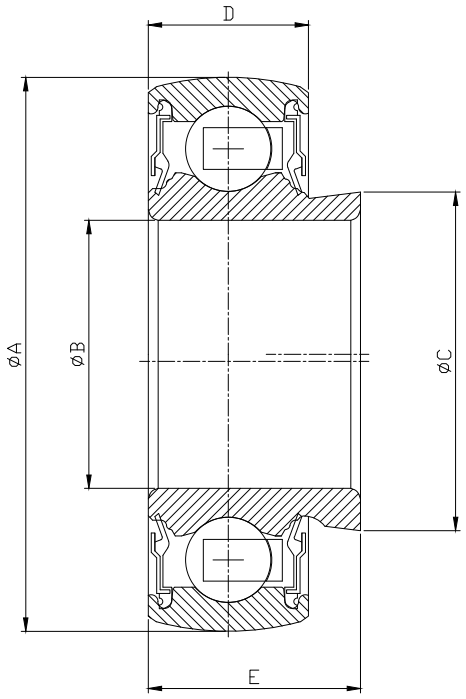
WIDE INNER RING BEARINGS ONE SIDE EXTENDED WITH ECCENTRIC LOCKING COLLAR
GRA -RRB SERIES, RELUBRICATABLE TYPES



Bearing Number	Collar Number	Basic Outer Ring Size	Bore(1) d	O.D. D	Ring Widths B Inner	Ring Widths C Outer	S	G	L	d_2	B_2	M	B_1	Brg. & Collar Wt.
			in. mm		in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	kg.
GRA104RRB	S1104K	207	1 ¼	2.8346 72	1.000 25.4	0.748 19	0374 9.5	0.626 15.9	5/32 4.0	2 1/8 54.0	43/64 17.1	0.145 3.68	1 17/32 38.9	0.562
GRA105RRB	S1105K		1 5/16											0.540
GRA106RRB	S1106K		1 ⅜											0.513
GRA107RRB	S1107K		1 7/16											0.476
GRAE35RRB	SE35K		35											0.513
GRA108RRB	S1108K	208	1 ½	3.1496 80	1.188 30.18	0.866(2) 22	0.433 11	0.755 19.18	3/16 4.8	2 3/8 60.3	23/32 18.3	0.164 4.17	1 23/32 43.7	0.694
GRA109RRB	S1109		1 9/16											0.649
GRAE40RRB	SE40K		40											0.649
GRAE38NPPB	S1108K	209	1 ½	3.3456 85	1.188 30.18	0.866 22	0.433 11	0.755 19.18	3/16 4.8	2 1/2 63.5	23/32 18.3	0.179 4.55	1 23/32 43.7	0.760
GRA110RRB	S1110K		1 ⅝											0.780
GRA111RRB	S1111K		1 11/16											0.735
GRA112RRB	S1112K		1 ¾											0.68
GRAE45RRB	SE45K		45											0.68
GRA113RRB	S1113K	210	1 13/16	3.5433 90	1.188 30.18	0.866 22	0.433 11	0.755 19.18	3/16 4.8	2 3/4 69.9	23/32 18.3	0.175 4.44	1 23/32 43.7	0.880
GRA114RRB	S1114K		1 ⅞											0.830
GRA115RRB	S1115K		1 15/16											0.771
GRA115RRB2	S1115K2		2											0.717
GRAE50RRB	SE50K		50											0.771
GRA200RRB	S1200K	211	2	3.9370 100	1.281 32.54	0.945 24	0.472 11.99	0.809 20.55	3/16 4.8	3 76.2	13/16 20.6	0.193 4.9	1 29/32 48.4	0.962
GRA201RRB	S1201K		2 1/16											0.898
GRA202RRB	S1202K		2 ⅛											0.857
GRA203RRB	S1203K		2 3/16											0.807
GRAE55RRB	SE55K		55											0.807

NOTE : 1) Bore Tolerance is nominal to +0.005" (0.013mm)
2) Spherical OD, Outer Ring width is 0.827" (21mm)

WIDE INNER RING BEARINGS ONE SIDE EXTENDED FOR CLAMPING ECCENTRIC COLLAR
RAE - SERIES PRELUBRICATED TYPE



RAE Series bearings are extended inner ring type with self locking collar. (Check) Rubber seals are placed below the bearing face & positive contact of rubber lip on inner ring for protecting bearing against harmful contaminants effectively retain the lubricant under severe operating condition.

RAE series have spherical outside diameters for use in housings with corresponding spherical inside surfaces to provide unrestricted initial alignment.

Recommended shaft tolerances : ½" to 1 15⁄16", nominal to -0.0005" (0.013mm)
2" to 2 15⁄16", nominal to -0.0010" (0.025mm)

To order, specify bearing number followed by “and collar”. Example : **RAE 25 RRB L/C and Collar**

Bearing Number	Basic Outer Ring	Bore Dia. B		OD Dia. A		Bearing Widths E Inner		Bearing Widths D Outer		C	
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
RAE 20 RRB L/C	204	0.787	20	1.850	47	0.844	21.44	0.551	14	1.040	26.42
RAE 25 RRB L/C	205	0.984	25	2.047	52	0.844	21.44	0.590	15	1.238	31.45
RAE 30 RRB L/C	206	1.181	30	2.44	62	0.938	23.82	0.709	18	1.492	37.9

WIDE INNER RING BEARINGS WITH SETSCREW LOCKING
GY-KRRB SERIES, SETSCREW SERIES

This “Y” series extra wide inner ring setscrew bearing has increased shaft support for HVAC and other industrial applications. The bearings feature super finished raceways, grade 10 balls, and anti-backout nylon patch setscrew.

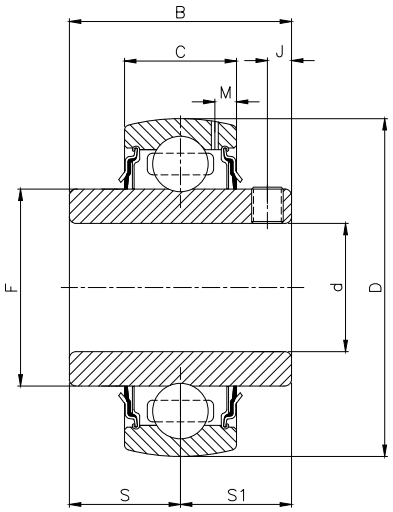
They are factory prelubricated and are relubricatable. Setscrew mounting feature is ideal for reversing load applications.

Recommended shaft tolerances : ½" to 1 15⁄16", nominal to -0.0005" (0.013mm)
2" to 2 15⁄16", nominal to -0.0010" (0.025mm)

To order, specify bearing number followed by “and collar”. Example : **GY1100KRRB and Collar**

Bearing Number	Basic Outer Ring Size	Bore(1) d	O.D. D	Ring Widths B Inner	Ring Widths C Outer	S	S1	F	M	J	Setscrew Sizes
		in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	mm
GY1008KRRB	203	½	1.5748	1.078	0.472	0.453	0.625	0.900	0.107	0.179	M5X8
GY1009KRRB		9⁄16	40	27.38	12	11.50	15.88	22.86	2.72	4.55	
GY1010KRRB		5⁄8									
GY1011KRRB		11⁄16									
GYE15KRRB		15									
GYE17KRRB		17									
GY1012KRRB	204	¾	1.8504	1.219	0.551	0.500	0.719	1.085	0.135	0.202	M5X8
GYE20KRRB		20	47	30.96	14	12.70	18.26	27.56	3.43	5.13	
GY1013KRRB	205	13⁄16	2.0472	1.343	0.591	0.562	0.781	1.332	0.152	0.248	M6X1
GY1014KRRB		7⁄8	52	34.11	15	14.27	19.91	33.83	3.86	6.30	
GY1015KRRB		15⁄16									
GY1100KRRB		1									
GYE25KRRB		25									
GY1101KRRB	206	1 1⁄16	2.4409	1.500	0.709	0.625	0.875	1.587	0.156	0.300	M6X1
GY1102KRRB		1 1⁄8	62	38.10	18	15.88	22.22	40.31	3.96	7.62	
GY1103KRRB		1 3⁄16									
GY1103KRRB3		1 ¼									
GYE30KRRB		30									

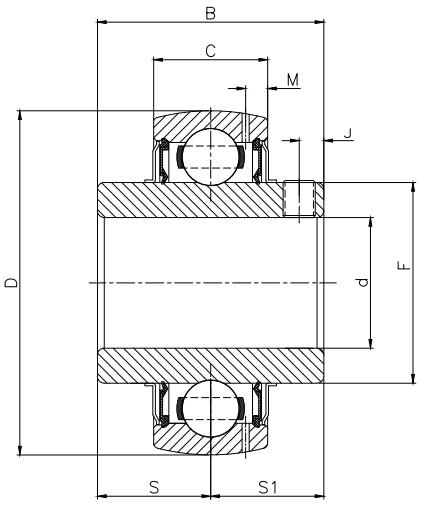
WIDE INNER RING BEARINGS WITH SETSCREW LOCKING
GY-KRRB SERIES, SETSCREW SERIES



GY ...KRRB

Bearing Number	Basic Outer Ring Size	Bore(1) d	O.D. D	Ring Widths B Inner	Ring Widths C Outer	S	S_1	F	M	J	Setscrew Sizes
		in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	mm
GY1104KRRB GY1105KRRB GY1106KRRB GY1107KRRB GYE35KRRB	207	1 1/4 1 5/16 1 3/8 1 7/16 **35**	2.8346 72	1.688 42.87	0.748 19	0.688 17.48	1.000 25.40	1.816 46.13	0.145 3.68	0.308 7.82	M8X1.25
GY1108KRRB GY1109KRRB GYE40KRRB	208	1 1/2 1 9/16 **40**	3.1496 80	1.938 49.22	0.827 21	0.750 19.05	1.188 30.17	2.058 52.27	0.160 4.06	0.315 8.00	M8X1.25
GY1110KRRB GY1111KRRB GY1112KRRB GYE45KRRB	209	1 5/8 1 11/16 1 3/4 **45**	3.3456 85	1.938 49.22	0.8661 22	0.750 19.05	1.188 30.17	2.280 57.92	0.179 4.55	0.315 8	M8X1.25
GY1113KRRB GY1114KRRB GY1115KRRB GY1115KRRB3 GYE50KRRB GY1113MKRRB GY1114MKRRB GY1115MKRRB GY1115MKRRB3 GYE50MKRRB	210	1 13/16 1 7/8 1 15/16 2 **50**	3.5433 90	2.031 51.59	0.8661 22	0.750 19.05	1.281 32.54	2.474 62.84	0.185 4.70	0.394 10	M10 X1.5

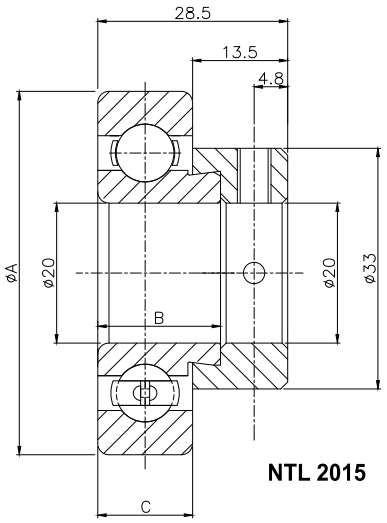
WIDE INNER RING BEARINGS WITH SETSCREW LOCKING
GY-KRRB SERIES, SETSCREW SERIES



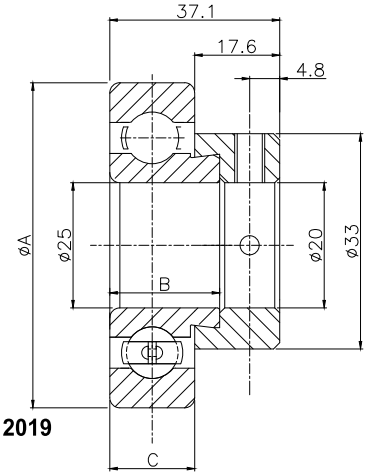
GY ...MKRRB

Bearing Number	Basic Outer Ring Size	Bore(1) d	O.D. D	Ring Widths B Inner	Ring Widths C Outer	S	S_1	F	M	J	Setscrew Sizes
		in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	mm
GY1200KRRB GY1201KRRB GY1202KRRB GY1203KRRB GYE55KRRB GY1200MKRRB GY1201MKRRB GY1202MKRRB GY1203MKRRB GYE55MKRRB	211	2 2 1/16 2 1/8 2 3/16 55 2	3.9370 100	2.187 55.55	0.945 24	0.875 22.22	1.312 33.32	2.747 69.77	0.197 5.00	0.394 10	M10X1.5
GY1204KRRB GY1205KRRB GY1206KRRB GY1207KRRB GYE60KRRB GY1204MKRRB GY1205MKRRB GY1206MKRRB GY1207MKRRB GYE60KRRB	212	2 1/4 2 5/16 2 3/8 2 7/16 60	4.3307 110	2.562 65.07	1.063 27	1.000 25.40	1.562 39.67	3.011 76.48	0.202 5.13	0.394 10	M10X1.5
GY1208MKRRB GY1209MKRRB GYE65MKRRB	213	2 1/2 2 9/16 65	4.724 120	2.562 65.07	1.259 32	1.000 25.40	1.562 39.67	3.248 82.5	0.202 5.13	0.394 10	M10X1.5

WIDE INNER RING BEARINGS ONE SIDE EXTENDED WITH ECCENTRIC LOCKING COLLAR



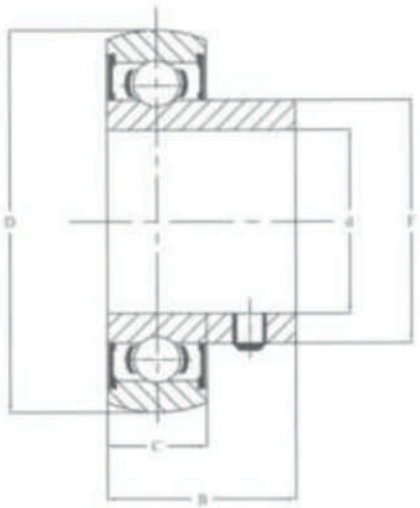
NTL 2015



NTL 2019

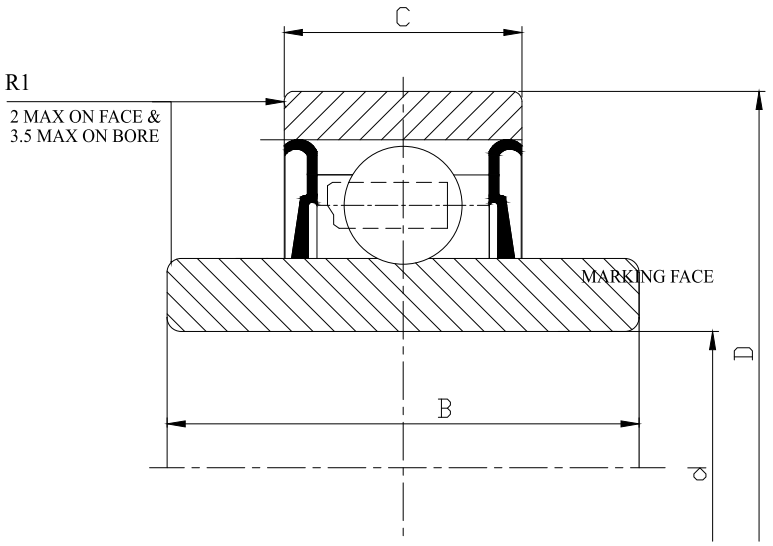
Bearing Number	Basic Outer Ring	OD Dia. A	Bearing Widths B Inner	Bearing Widths C Outer	Brg. & Collar Wt.	Remarks
	mm	mm	mm	mm	kg.	
NTL2015	20	52	19	15	0.154	----
NTL2019	25	68	21.5	17	0.325	Both ends shielded

WIDE INNER RING BEARINGS ONE SIDE EXTENDED WITH SETSCREW LOCKING AND SEALED BOTH ENDS RYE - SERIES



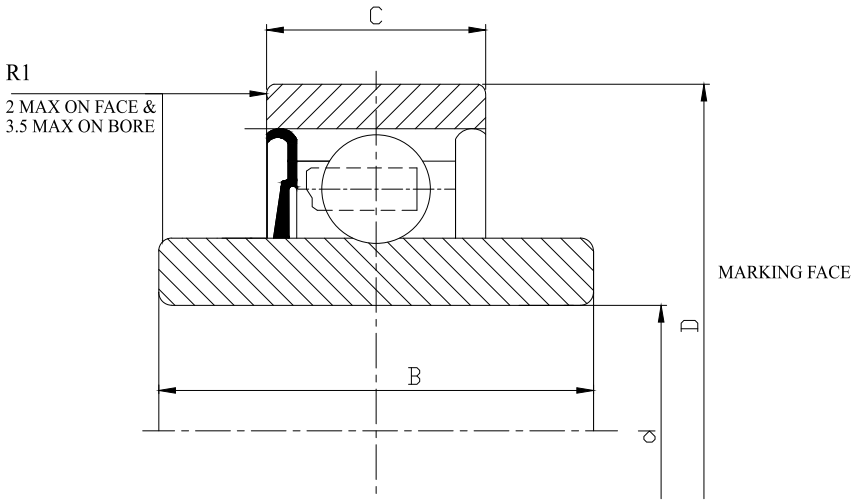
Bearing Number	Basic Outer Ring	Bore d	OD Dia. A	Bearing Widths B Inner	Bearing Widths C Outer	F	Setscrew Size	Bearing Wt.
		mm	mm	mm	mm	mm	mm	kg
RYE20KRRB	204	20	47	25	14	27.55	M5 X 0.8	0.126
RYE30KRRB	206	30	62	30	16	40.33	M6 X 1	0.252

WIDE INNER RING BEARINGS BOTH SIDE EXTENDED AND SEALED BOTH END



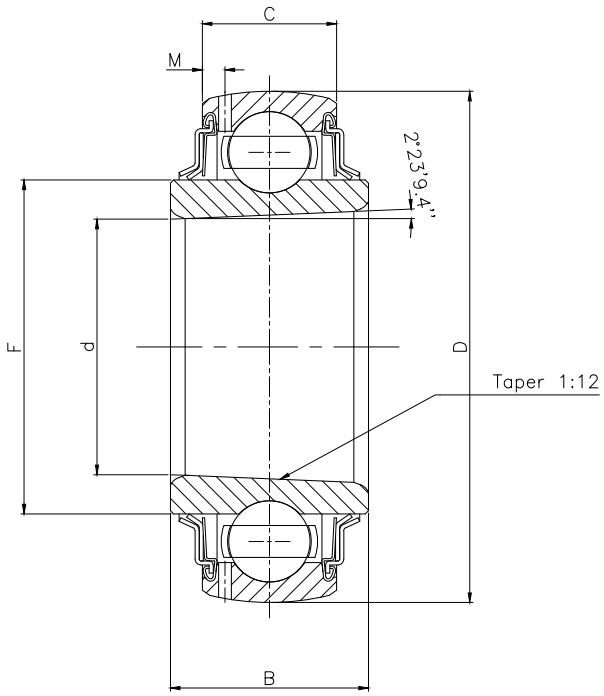
Bearing Number	Basic Outer Ring	Bore d	O.D. D	Bearing Widths B Inner	C Outer	Bearing Wt.
	mm	mm	mm	mm	mm	mm
207YY2	207	35	72	23	17	0.28
208YY2	208	40	80	27	21	0.44
209YY2	209	45	85	27	21	0.483

WIDE INNER RING BEARINGS BOTH SIDE EXTENDED AND ONE END

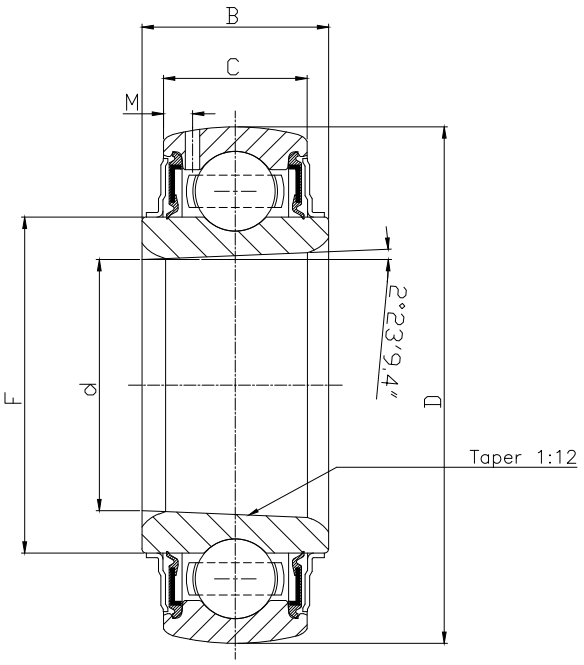


Bearing Number	Basic Outer Ring	Bore d	OD D	Bearing Widths B Inner	C Outer	Bearing Wt.	Remarks
		mm	mm	mm	mm	kg.	
208KY	208	40	80	27	21	0.41	one end sealed

GKE - KRRB - WIDE INNER RING WITH TAPER BORE AND BOTH END SEALS



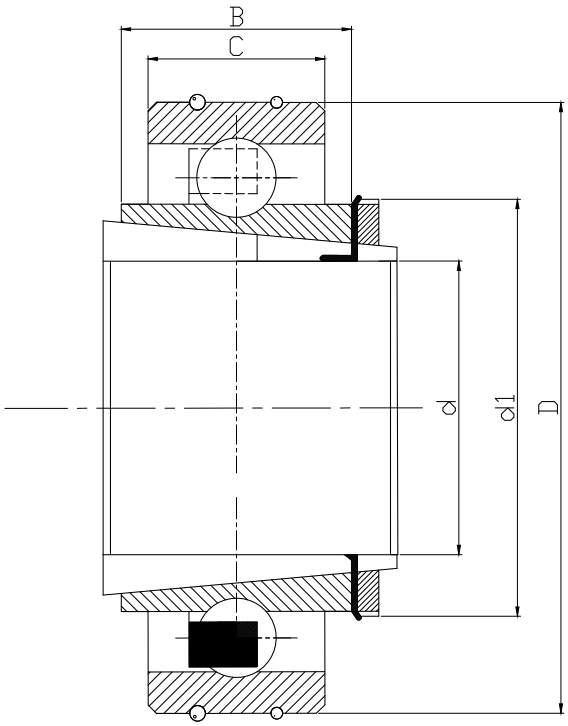
GKE ...KRRB

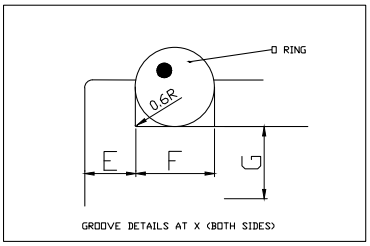


GKE ...MKRRB

Bearing Number	Basic Outer Ring	Bore d	O.D. D	Bearing Widths B Inner	C Outer	F	M	Bearing Wt.
		mm	mm	mm	mm	mm	mm	kg.
GKE40 KRRB	208	40	80	31	21	52.26	4.06	0.379
GKE45 KRRB	209	45	85	30.94	22	57.9	4.04	0.522
GKE50 KRRB	210	50	90	31.94	22	62.83	4.44	0.585
GKE55 KRRB	211	55	100	35	24	69	5	0.678
GKE55 MKRRB	211	55	100	35	25	69	5.15	0.691
GKE65 MKRRB	213	65	120	40	32	82.8	7.27	0.798

WIDE INNER RING BEARINGS WITH WITHDRAWAL SLEEVE





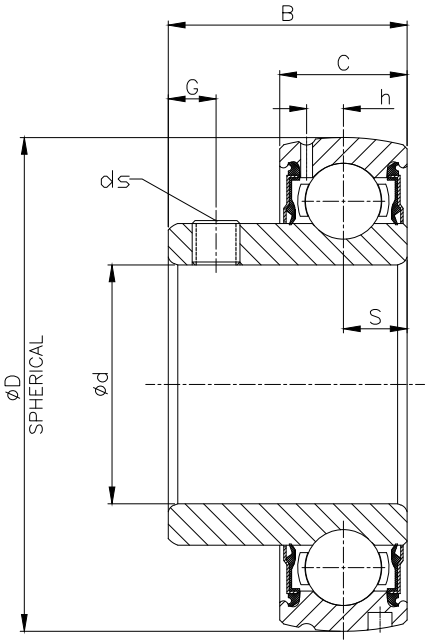
Bearing Number	Basic Outer Ring	Bore d	O.D. D	Bearing Widths B Inner	C Outer	F	M	Bearing Wt.
		mm	mm	mm	mm	mm	mm	kg.
BIN 16297	20	52	38	19	15	3	2.2	49.2
BIN 16293	30	72	52	21	17	3	2.2	69.2

Wide Inner Ring Bearing with set screw locking
SB...G Series

These units are factory pre lubricated, but a grease fitting is provided for re lubrication if required.

Recommended shaft tolerances : ½" to 1 15/16", nominal to -0.0005" (0.013mm)
2" to 2 15/16", nominal to -0.0010" (0.025mm)

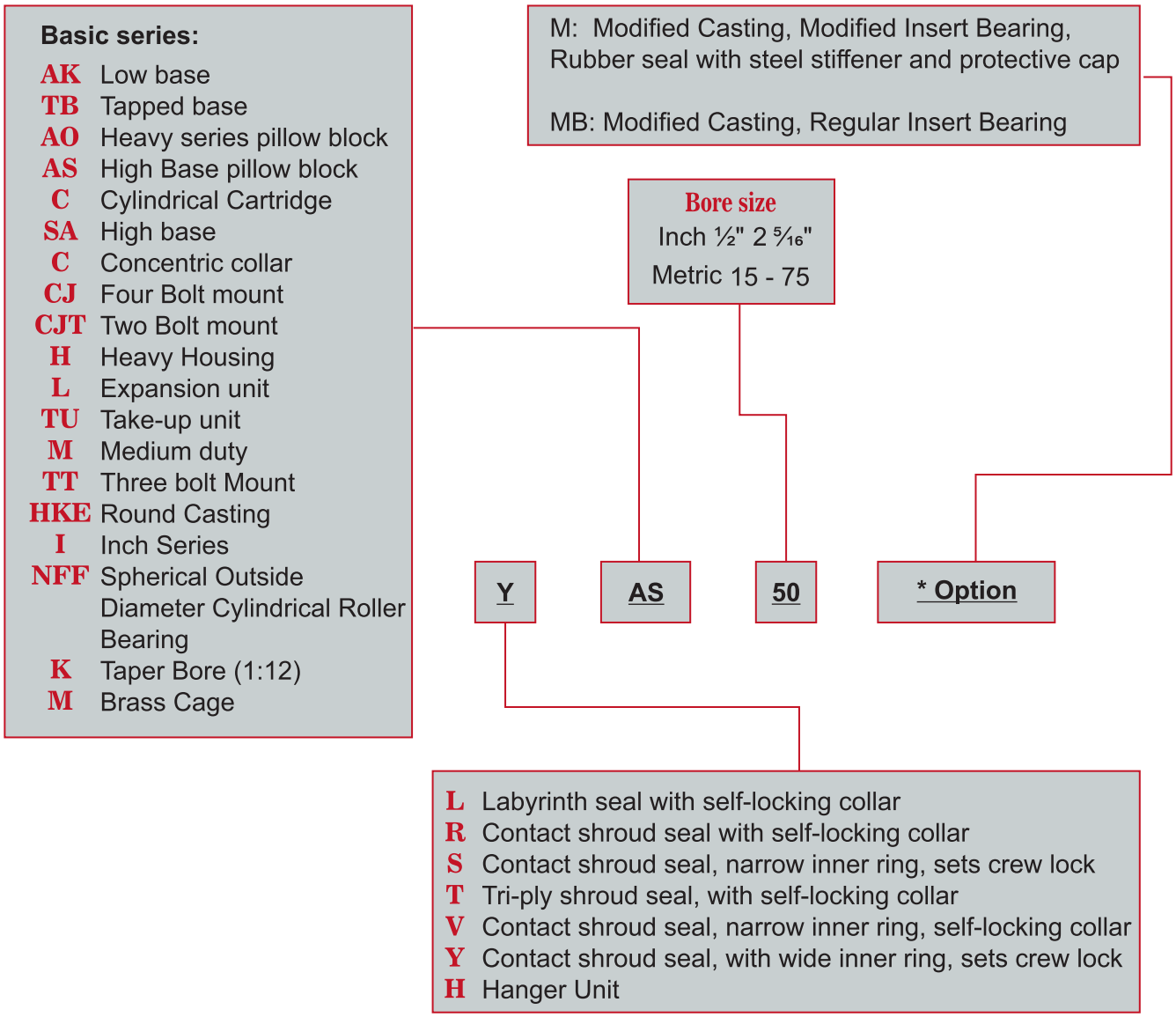
To order, specify Unit and Shaft Diameter. Example: **SB30G**



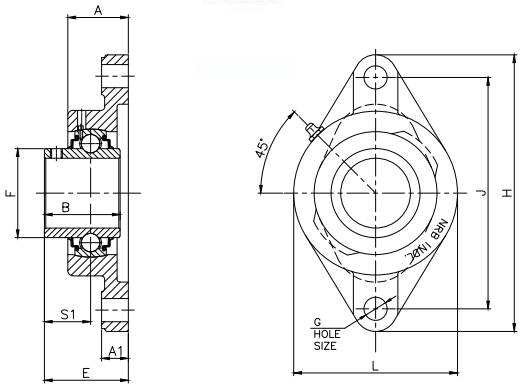
SB2G - Relubricable type

Bearing Number	Basic Outer Ring Size	Bore d	O.D. D	Bearing Load Rating (KN)		B	C	S	h	G	ds	Weight
				Dynamic C_r	Static C_{or}							
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg.
SB20 G	204	20	47	12.8	6.65	25	14	7	4	5	M6x1	0.14
SB30 G	206	30	62	19.5	11.2	30	16	8	5	6	M6x1	0.26

Nomenclature



INDUSTRIAL DUTY TWO BOLT CAST IRON HOUSED UNITS SETSCREW LOCKING
YT WIDE INNER SETSCREW SERIES



The YT flange cartridge basically has the same design as the YCJ series but is mounted with two bolts instead of four. All Y1 units are equipped with GY-KRRB wide inner rings setscrew bearings mounted in the corresponding machined house seals provide the initial self alignment

These units are factory prelubricated, but a grease fitting is provided for relubrication if required.

Bearing Data

Unit	Bearing Number
YT	GY-KRRB

Recommended shaft tolerances : ½" to 1 15⁄16", nominal to -0.0005" (0.013mm)
2" to 2 15⁄16", nominal to -0.0010" (0.025mm)

To order, specify Unit and Shaft Diameter. Example: **YT 1⅛"**

Unit	Shaft Diam.	Basic Bearing Number	H	J	L	A	E	B	A_1	F	S_1	G Hole Size	Bearing Number
	in. mm		in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	mm	
YT	1	205	130	99.2	68	27	35.83	34.11	13	-	19.83	16	GY1100KRRB
YT	25												GYE25KRRB
YT	1⅛	206	148	116.7	79.4	31	40.22	38.10	13	-	22.225	16	GY1102KRRB
YT	30												GYE30KRRB

INDUSTRIAL DUTY PILLOW BLOCK CAST IRON HOUSED UNITS WITH ECCENTRIC COLLAR LOCKING RAS STANDARD SERIES

NIBL RAS pillow blocks are recommended for industrial applications where normal loads are encountered. They assure the user the advantages of a compact, one piece housing which can be mounted in any position. The pillow blocks are self-aligning at mounting with the spherical outside diameter of the bearing fitting into a corresponding spherical housing seat. These units are prelubricated and ready for immediate installation. A grease fitting provides for relubrication if required. Self-locking collars are supplied with all units. The RAS pillow blocks are equipped with G-KRRB (R-Seal) wide inner ring bearings.

Bearing Data

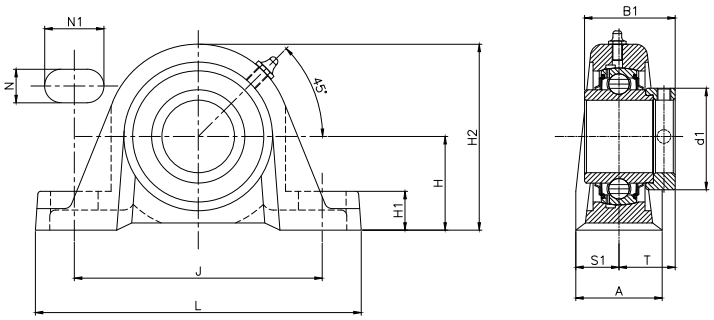
Unit	Bearing Number
RAS	G....KRRB

Recommended shaft tolerances : ½" to 1 15/16", nominal to -0.0005" (0.013mm)
2" to 2 15/16", nominal to -0.0010" (0.025mm)

To order, specify Unit and Shaft Diameter. Example: **RAS1"**

Unit	Shaft Diam.	Basic Bearing Number	H	H_2	B_1	J	L	A	H_1	N	N_1	d_1	S_1	T	Bolt Size	Bearing Number	Collar Number	Unit Wt.
	in. / mm		in. / mm	in. / mm	in. / mm	in. / mm	in. / mm	in. / mm	in. / mm	in. / mm	in. / mm	in. / mm	in. / mm	in. / mm	mm			kg.
RAS ½ RAS 9/16 RAS 5/8 RAS 11/16 RAS 17		203	1 3/16 30.16	2 7/32 56.4	1 15/32 37.3	3 5/8 92.1	4 7/8 123.8	1 3/16 30.2	15/32 11.9	7/16 11.1	7/8 22.2	1 1/8 28.6	50/64 23.4	19/32 15.1	10	G1008KRRB G1009KRRB G1010KRRB G1011KRRB GE17KRRB	S1008K S1009K S1010K S1011K SE17K	0.454
RAS ¾ RAS 20		204	1 5/16 33.34	2 17/32 64.3	1 23/32 43.7	3 25/32 96	5 127	1 1/4 31.8	17/32 13.5	7/16 11.1	25/32 19.8	1 5/16 33.3	1 3/64 26.6	5/8 15.9	10	G1012KRRB GE20KRRB	S1012K SE20K	0.635
RAS 13/16 RAS 7/8 RAS 15/16 RAS 1 RAS 25		205	1 7/16 36.51	2 13/16 71.4	1 3/4 44.4	4 1/8 104.8	5 1/2 139.7	1 13/32 35.7	19/32 15.1	7/16 11.1	13/16 20.6	1 1/2 38.1	1 1/16 27	45/64 17.9	10	G1013KRRB G1014KRRB G1015KRRB G1100KRRB GE25KRRB	S1013K S1014K S1015K S1100K SE25K	0.803

NOTE : All Units have 1/8 pipe thread fitting except ½ - 1 1/16 and ¾ units which have ¼ -28 fitting.



Unit Shaft Diam.	Basic Bearing Number	H	H_2	B_1	J	L	A	H_1	N	N_1	d_1	S_1	T	Bolt Size	Bearing Number	Collar Number	Unit Wt.
in. mm		in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	mm			kg.
RAS 1 1/16 RAS 1 1/8 RAS 1 3/16 RAS 30	206	1 11/16 42.86	3 9/32 83.3	1 29/32 48.4	4 5/8 117.5	6 3/16 157.2	1 9/16 39.7	21/32 16.7	9/16 14.3	15/16 23.8	1 3/4 44.5	1 3/16 30.2	25/32 19.9	12	G1101KRRB G1102KRRB G1103KRRB GE30KRRB	S1101K S1102K S1103K SE30K	1.297
RAS 1 1/4 RAS 1 5/16 RAS 1 3/8 RAS 1 7/16 RAS 35	207	1 1/8 47.62	3 11/16 93.7	2 1/64 51.2	5 1/8 130.2	6 9/16 166.7	1 25/32 45.2	23/32 18.3	9/16 14.3	31/32 24.6	2 1/8 54	1 9/32 32.5	57/64 22.7	12	G1104KRRB G1105KRRB G1106KRRB G1107KRRB GE35KRRB	S1104K S1105K S1106K S1107K SE35K	1.674
RAS 1 1/2 RAS 1 9/16 RAS 40	208	1 15/16 49.21	3 15/16 100	2 7/32 56.4	5 3/8 136.5	7 1/16 179.4	1 7/8 47.6	3/4 19	9/16 14.3	1 1/32 26.2	2 3/8 60.3	1 3/8 34.9	15/16 23.8	12	G1108KRRB G1109KRRB GE40KRRB	S1108K S1109K SE40K	2.150
RAS 1 5/8 RAS 1 11/16 RAS 1 3/4 RAS 45	209	2 1/8 53.98	4 3/16 106.4	2 7/13 56.4	5 7/8 149.2	7 17/32 191.3	2 50.8	3/4 19	9/16 14.3	1 1/8 28.6	2 1/2 63.5	1 3/8 34.9	1 25.4	12	G1110KRRB G1111KRRB G1112KRRB GE45KRRB	S1110K S1111K S1112K SE45K	2.409
RAS 1 13/16 RAS 1 7/8 RAS 1 15/16 RAS 50	210	2 1/4 57.15	4 1/2 114.3	2 15/16 62.7	6 7/32 158	7 7/8 200	2 3/16 55.6	3/4 19	11/16 17.5	15/16 23.8	2 3/4 69.8	1 1/2 38.1	1 3/32 27.8	16	G1113KRRB G1114KRRB G1115KRRB GE50KRRB	S1113K S1114K S1115K SE50K	3.003
RAS 2 RAS 2 1/16 RAS 2 1/8 RAS 2 3/16 RAS 55	211	2 1/2 63.50	4 31/32 126.2	2 13/16 71.4	6 15/16 176.2	8 3/4 222.3	2 5/16 58.7	13/16 20.6	23/32 18.3	1 5/32 29.4	3 76.2	1 23/32 43.7	1 5/32 29.4	16	G1200KRRB G1201KRRB G1202KRRB G1203KRRB GE55KRRB	S1200K S1201K S1202K S1203K SE55K	3.901
RAS 2 1/4 RAS 2 5/16 RAS 2 3/8 RAS 2 7/16 RAS 60	212	2 3/4 69.85	5 15/32 138.9	3 1/16 77.8	7 13/32 188.1	9 7/16 239.7	2 3/8 60.3	15/16 23.8	23/32 18.3	1 5/32 29.4	3 5/16 84.1	1 27/32 46.8	1 3/16 30.2	16	G1204KRRB G1205KRRB G1206KRRB G1207KRRB GE60KRRB	S1204K S1205K S1206K S1207K SE60K	5.511

NOTE : All Units have 1/8 pipe thread fitting except 1/2 - 1 1/16 and 3/4 units which have 1/4 -28 fitting.

INDUSTRIAL DUTY PILLOW BLOCK / CAST IRON HOUSED UNITS SETSCREWS LOCKING. YAS SERIES SETSCREWS UNITS

NIBL YAS series high base, setscrew, pillow blocks feature the new GY-KRRB bearing. This full width inner ring setscrew unit is well suited for industrial applications involving wet and dirty environments. The housing designed for two bolt mounting in any position.

Bearing Data

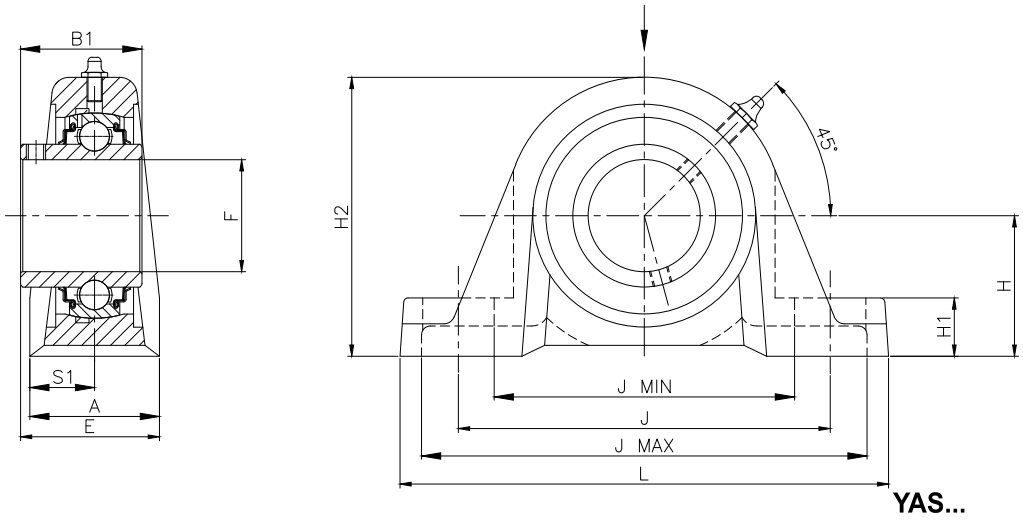
Unit	Bearing Number
YAS	G....KRRB

Recommended shaft tolerances : ½" to 1 15/16", nominal to -0.0005" (0.013mm)
2" to 2 15/16", nominal to -0.0010" (0.025mm)

To order, specify Unit and Shaft Diameter. Example: **YAS 1 7/16"**

Unit Shaft Diam.	Basic Bearing Number	H	H_2	B_1	L	J	J_{min}	J_{max}	A	N_1	F	S_1	E	Bolt Size	Bearing Number
in. / mm		in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	mm	
*YAS ½	203	1 3/16 / 30.16	2 7/32 / 56.4	1 51/64 / 27.4	4 7/8 / 123.8	3 5/8 / 92.1	2 3/4 / 69.8	4 1/2 / 114.4	1 3/16 / 30.2	15/32 / 11.9	0.900 / 22.86	5/8 / 15.9	1 7/32 / 30.95	10	GY1008KRRB
YAS 9/16															GY1009KRRB
*YAS 5/8															GY1010KRRB
YAS 11/16															GY1011KRRB
YAS 15															GYE15KRRB
*YAS 17															GYE17KRRB
*YAS ¾	204	1 5/16 / 33.34	2 17/16 / 64.3	1 7/32 / 30.9	5 / 127.0	3 25/32 / 96.0	3 / 76.2	4 9/16 / 155.8	1 1/4 / 31.8	17/32 / 13.5	1.085 / 27.56	23/32 / 18.3	1 11/32 / 34.13	10	GY1012KRRB
*YAS 20															GYE20KRRB
YAS 13/16	205	1 7/16 / 36.51	2 13/16 / 71.4	1 11/32 / 34.1	5 1/2 / 139.7	4 1/8 / 104.8	3 5/16 / 84.1	4 15/16 / 125.4	1 13/32 / 35.7	19/32 / 15.1	1.332 / 33.83	25/32 / 19.8	1 31/64 / 37.7	10	GY1013KRRB
*YAS 7/8															GY1014KRRB
*YAS 15/16															GY1015KRRB
*YAS 1															GY1100KRRB
*YAS 25															GYE25KRRB
YAS 1 1/16	206	1 11/16 / 42.86	3 3/32 / 83.3	1 1/2 / 38.1	6 3/16 / 157.2	4 5/8 / 117.5	3 11/16 / 93.7	5 5/16 / 141.3	1 9/16 / 39.7	21/32 / 16.7	1.587 / 40.31	7/8 / 22.2	1 21/32 / 42.07	12	GY1101KRRB
*YAS 1 1/8															GY1102KRRB
*YAS 1 3/16															GY1103KRRB
*YAS 1 1/4S															GY1103KRRB3
*YAS 30															GYE30KRRB

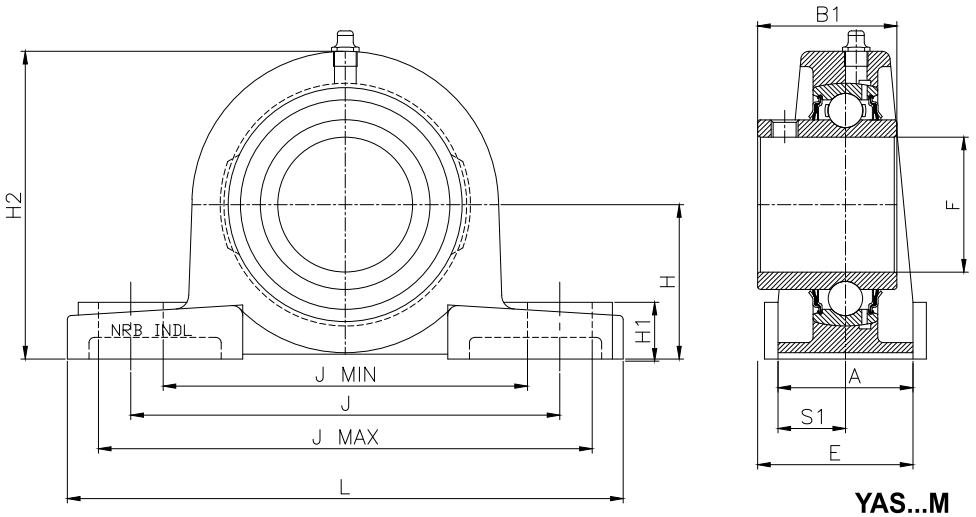
NOTE : All Units have ½ pipe thread fitting except ½ - 1 1/16 and ¾ units which have ¼ -28 fitting. (*Preferred Sizes)



YAS...

Unit	Shaft Diam.	Basic Bearing Number	H	H_2	B_1	L	J	J_{min}	J_{max}	A	N_1	F	S_1	E	Bolt Size	Bearing Number
	in. mm		in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	mm	
*YAS 1 ¼																GY1104KRRB
YAS 1 5/16																GY1105KRRB
*YAS 1 ⅜		207	1⅞ 47.62	3 11/16 93.6	1 11/16 42.9	6 9/16 166.7	5⅛ 130.2	4 5/32 105.6	6 3/32 154.8	1 25/32 45.2	23/32 18.3	1.816 46.13	1 25.4	1 57/64 48.2	12	GY1106KRRB
*YAS 1 7/16																GY1107KRRB
*YAS 35																GYE35KRRB
*YAS 1 ½																GY1108KRRB
YAS 1 9/16		208	1 15/16 49.21	3 15/16 100.0	1 15/16 49.2	7 1/16 179.4	5⅜ 136.5	4 11/32 110.3	6 13/32 162.7	1⅞ 47.6	¾ 19.1	2.058 52.27	1 3/16 30.2	2⅛ 53.98	12	GY1109KRRB
*YAS 40																GYE40KRRB
*YAS 1 ½H		208	2⅛ 53.98	4⅛ 104.8	1 15/16 49.2	7 1/16 179.4	5⅜ 136.5	4 11/32 100.3	6 13/32 162.7	1⅞ 47.6	29/32 23	2.058 52.27	1 3/16 30.2	2⅛ 53.98	12	GY1108KRRB
YAS 1 ⅝																GY1110KRRB
*YAS 1 11/16		209	2⅛ 53.98	4 3/16 106.3	1 15/16 49.2	7 17/32 191.3	5⅞ 149.2	4¾ 120.7	7 177.8	2 50.8	¾ 19.1	2.280 57.92	1 3/16 30.2	2 3/16 55.56	12	GY1111KRRB
*YAS 1 ¾																GY1112KRRB
*YAS 45																GYE45KRRB
YAS 1 13/16																GY1113KRRB
YAS 1 ⅞																GY1114KRRB
*YAS 1 15/16		210	2¼ 57.15	4½ 114.3	2 1/32 51.6	7⅞ 200.0	6 7/32 158.0	5 7/32 132.6	7 7/32 183.4	2 3/16 55.6	¾ 19.1	2.474 62.84	1 9/32 32.5	2⅜ 60.33	16	GY1115KRRB
*YAS 2S																GY1115KRRB
*YAS 50																GYE50KRRB
YAS 1 13/16M																GY1113MKRRB
YAS 1 ⅞ M																GY1114MKRRB
*YAS 1 15/16M		210	2.252 57.2	4.488 114	2.031 51.59	8.110 206	6.260 159	5.315 135	7.204 182	2.362 60	0.827 21	2.470 62.73	1.281 32.54	2.462 62.54	16	GY1115MKRRB
*YAS 2S M																GY1115MKRRB
*YAS1.96950M																GYE50MKRRB

NOTE : All Units have ⅛ pipe thread fitting except ½ - 1 1/16 and ¾ units which have ¼ -28 fitting.



YAS...M

Unit Shaft Diam.	Basic Bearing Number	H	H_2	B_1	L	J	J_{min}	J_{max}	A	N_1	F	S_1	E	Bolt Size	Bearing Number
in. mm		in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	mm	
*YAS 2	211	2½ 63.50	4 31/32 126.2	2 3/16 55.6	8¾ 222.3	6 15/16 176.2	5 25/32 146.9	8 3/32 205.6	2 5/16 58.7	13/16 20.6	2.747 69.77	1 5/16 33.3	2 7/16 61.91	16	GY1200KRRB
YAS 2 1/16															GY1201KRRB
YAS 2⅛															GY1202KRRB
*YAS 2 3/16															GY1203KRRB
*YAS 55															GYE55KRRB
YAS 2M 50.8	211	2.5 63.5	4.961 126	2.187 55.545	8.622 219	6.632 171	5.827 148	7.638 194	2.362 60	0.906 23	2.743 69.65	1.312 33.32	2.493 62.32	16	GY1200MKRRB
YAS 2 1/16M															GY1201MKRRB
*YAS 2⅛M															GY1202MKRRB
*YAS 2 3/16M															GY1203MKRRB
*YAS 2¼	212	2¼ 69.85	5 16/32 188.9	9 9/16 65.1	9 7/16 239.7	7 13/32 188.1	6¼ 158.8	8 8/16 217.5	2⅜ 60.3	15/16 23.8	3.011 76.48	1 9/16 39.7	1¾ 69.85	16	GY1204KRRB
YAS 2 5/16															GY1205KRRB
YAS 2⅜															GY1206KRRB
*YAS 2 7/16															GY1207KRRB
*YAS 60															GYE60KRRB
*YAS 2¼M	212	2¾ 69.85	5 15/32 138.9	9 9/16 65.07	9 7/16 239.7	7 13/32 138.1	6¼ 158.8	8 9/16 217.5	2⅜ 60.4	15/16 23.8	3.011 76.48	1 9/16 39.7	2 3/4 69.85	16	GY1204MKRRB
YAS 2 5/16M															GY1205MKRRB
YAS 2⅜M															GY1206MKRRB
*YAS 2 7/16M															GY1207MKRRB
*YAS 60M															GYE60MKRRB
YAS 65M	213	3 76.2	7.992 203	2.562 65.10	10.433 265	7.992 203	6.299 160	9.330 237	2.755 70	1.062 27	3.011 76.48	1.562 39.70	3 76.2	16	GYE65MKRRB

NOTE : All Units have ⅛ pipe thread fitting except ½ - 1 1/16 and ¾ units which have ¼ -28 fitting.

INDUSTRIAL DUTY FOUR BOLT CAST IRON HOUSED UNITS ECCENTRIC COLLAR LOCKING RCJ STANDARD SERIES

NIBL flange cartridges are used in application where a minimum amount of machining is to be done. Each unit is furnished assembled and ready for mounting by means of bolts through the flange. They use a wide inner ring bearing, self-aliginng B type, which compensates for shaft misalignment. The RCJ flange cartridge is equipped with G-KRRB (R-Seal) wide inner ring bearing.

These units are factory prelubricated, but a grease fitting is provided for relubrication if required.
All units are supplied with self-locking collars.

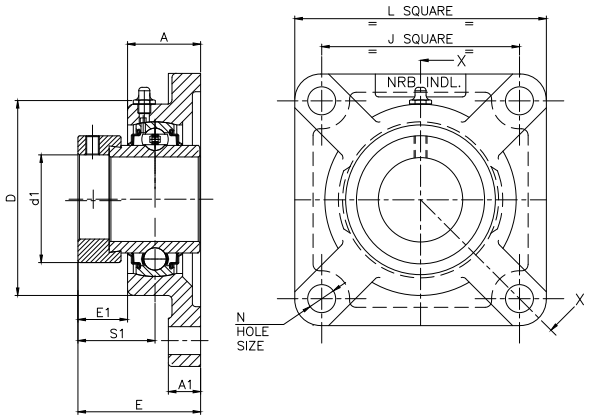
Bearing Data

Unit	Bearing Number
RCJ	G....KRRB

Recommended shaft tolerances : ½" to 1 15/16", nominal to -0.0005" (0.013mm)
2" to 2 15/16", nominal to -0.0010" (0.025mm)

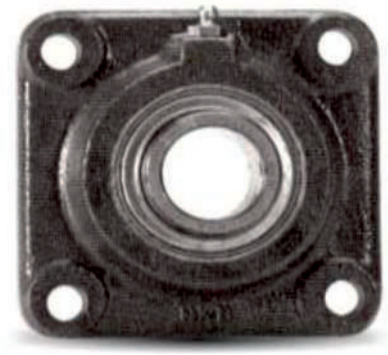
To order, specify Unit and Shaft Diameter. Example: **RCJ1 3/16"**

Unit Shaft Diam.	Basic Bearing Number	L	J	A_1	A	E	N	E_1	S_1	D	d_1	Bearing Number	Collar Number	Unit Wt.
in / mm		in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm			kg
RCJ ½	203	3 / 76.2	2 1/8 / 54	3/8 / 9.5	31/32 / 24.6	1 37/64 / 40.1	27/64 / 10.7	35/64 / 13.9	59/64 / 23.4	2 1/16 / 52.4	1 1/8 / 28.6	G1008KRRB	S1008K	0.526
RCJ 9/16												G1009KRRB	S1009K	
RCJ 5/8												G1010KRRB	S1010K	
RCJ 11/16												G1011KRRB	S1011K	
RCJ 17												GE17KRRB	SE17K	
RCJ ¾	204	3 3/8 / 85.7	2½ / 63.5	7/16 / 11.1	1 3/32 / 27.8	1 51/64 / 45.6	27/64 / 10.7	41/64 / 16.3	1 3/64 / 26.6	2 3/8 / 60.3	1 5/16 / 33.3	G1012KRRB	S1012K	0.726
RCJ 20												GE20KRRB	SE20K	
RCJ 13/16	205	3¾ / 95.2	2 49/64 / 70.2	½ / 12.7	1 1/8 / 28.6	1 13/16 / 40	29/64 / 11.5	5/8 / 15.9	1 1/16 / 27	2 9/16 / 65.1	1½ / 38.1	G1013KRRB	S1013K	0.939
RCJ 7/8												G1014KRRB	S1014K	
RCJ 5/16												G1015KRRB	S1015K	
RCJ 1												G1100KRRB	S1100K	
RCJ 25												GE25KRRB	SE25K	



Unit Shaft Diam.	Basic Bearing Number	L	J	A_1	A	E	N	E_1	S_1	D	d_1	Bearing Number	Collar Number	Unit Wt.
in mm		in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm			kg
RCJ 1 1/16 RCJ 1 1/8 RCJ 1 3/16 RCJ 30	206	4 1/4 107.9	3 1/4 82.6	17/32 13.5	1 3/16 30.2	1 31/32 50	29/64 11.5	11/16 17.5	1 3/16 30.2	3 76.2	1 3/4 44.5	G1101KRRB G1102KRRB G1103KRRB GE30KRRB	S1101K S1102K S1103K SE30K	1.302
RCJ 1 1/4 RCJ 1 5/16 RCJ 1 3/8 RCJ 1 7/16 RCJ 35	207	4 5/8 117.5	3 5/8 92.1	17/32 13.5	1 11/32 34.1	2 3/32 53.2	33/64 13.1	3/4 19	1 9/32 32.5	3 1/2 88.9	2 1/8 54	G1104KRRB G1105KRRB G1106KRRB G1107KRRB GE35KRRB	S1104K S1105K S1106K S1107K SE35K	1.787
RCJ 1 1/2 RCJ 1 9/16 RCJ 40	208	5 1/8 130.2	4 101.6	9/16 14.3	1 1/2 38.1	2 5/16 58.7	33/64 13.1	13/16 20.6	1 3/8 34.9	3 7/8 98.4	2 3/8 60.3	G1108KRRB G1109KRRB GE40KRRB	S1108KT S1109KT SE40K	2.291
RCJ 1 5/8 RCJ 1 11/16 RCJ 1 3/4 RCJ 45	209	5 3/8 136.5	4 1/8 104.8	9/16 14.3	1 17/32 38.9	2 5/16 58.7	33/64 13.1	25/32 19.8	1 3/8 34.9	4 1/8 104.8	2 1/2 63.5	G1110KRRB G1111KRRB G1112KRRB GE45KRRB	S1110K S1111K S1112K SE45K	2.585
RCJ 1 13/16 RCJ 1 7/8 RCJ 1 15/16 RCJ 50	210	5 5/8 142.9	4 3/8 111.1	9/16 14.3	1 11/16 42.9	2 19/32 65.9	43/64 17.1	29/32 23.0	1 1/2 38.1	4 7/16 112.7	2 3/4 69.8	G1113KRRB G1114KRRB G1115KRRB GE50KRRB	S1113K S1114K S1115K SE50K	3.016
RCJ 2 RCJ 2 1/16 RCJ 2 1/8 RCJ 2 3/16 RCJ 55	211	6 3/8 161.9	5 1/8 130.2	21/32 16.7	1 27/32 46.8	2 15/16 74.6	43/64 17.1	1 3/32 27.8	1 23/32 43.7	4 3/4 120.6	3 76.2	G1200KRRB G1201KRRB G1202KRRB G1203KRRB GE55KRRB	S1200K S1201K S1202K S1203K SE55K	3.842
RCJ 2 1/4 RCJ 2 5/18 RCJ 2 3/8 RCJ 2 7/16 RCJ 60	212	6 7/8 174.6	5 5/8 142.9	11/16 17.5	1 15/16 49.2	3 3/16 81.0	43/64 17.1	1 1/4 31.8	1 27/32 46.8	5 3/8 136.5	3 5/16 84.1	G1204KRRB G1205KRRB G1206KRRB G1207KRRB GE60KRRB	S1204K S1205K S1206K S1207K SE60K	5.048

INDUSTRIAL DUTY FOUR BOLT CAST IRON HOUSED UNITS ECCENTRIC COLLAR LOCKING YCJ STANDARD SERIES



NIBL YCJ flange cartridges use specially designed setscrews rather than the concentric collar as the shaft locking device. All YCJ units equipped with GY-KRRB wide inner ring, setscrew bearings. The spherical outside diameter of these bearings, mounted in corresponding machined housing seats, provides the initial self-alignment. Bolts hole spacing dimensions are interchangeable with most competitive units.

These units are factory prelubricated, but a grease fitting is provided for relubrication if required.

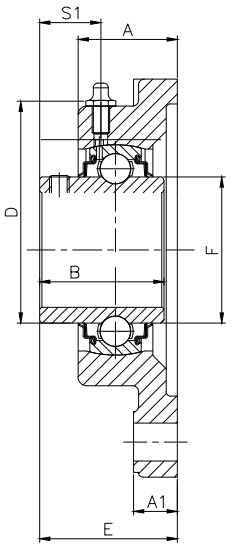
Bearing Data

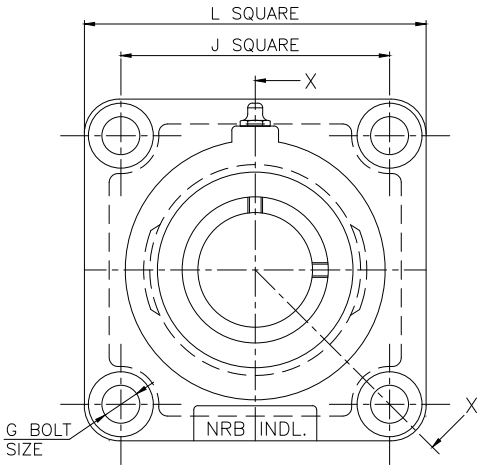
Unit	Bearing Number
YCJ	G-KRRB

Recommended shaft tolerances : ½" to 1 15/16", nominal to -0.0005" (0.013mm)
2" to 2 15/16", nominal to -0.0010" (0.025mm)

To order, specify Unit and Shaft Diameter. Example: **YCJ 1 3/16"**

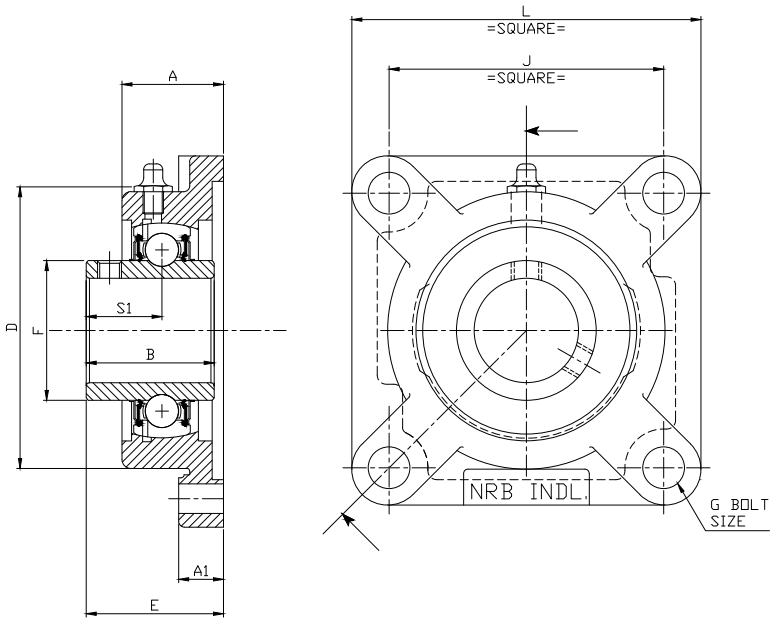
Unit Shaft Diam.	Basic Bearing Number	L	J	A_1	A	E	B	D	F	S_1	G Bolt Size	Bearing Number
in / mm		in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	mm	
YCJ ½	203	3 / 76.2	2 1/8 / 54	3/8 / 9.5	31/32 / 24.6	1 9/32 / 32.5	1 5/64 / 27.4	2 1/16 / 52.4	0.9 / 22.86	5/8 / 15.9	10	GY1008KRRB
YCJ 9/16												GY1009KRRB
YCJ 5/8												GY1010KRRB
YCJ 11/16												GY1011KRRB
YCJ 15												GYE15KRRB
YCJ 17												GYE17KRRB
YCJ ¾	204	3 3/8 / 85.7	2 1/2 / 63.5	7/16 / 11.1	1 3/32 / 27.8	1 15/32 / 37.3	1 7/32 / 31.0	2 3/8 / 60.3	1.085 / 27.56	23/32 / 18.3	10	GY1012KRRB
YCJ 20												GYE20KRRB
YCJ 20MB												GYE20KRRB
YCJ 13/16	205	3 3/4 / 95.2	2 49/64 / 69.8	1/2 / 12.7	1 1/8 / 28.6	1 17/32 / 38.9	1 11/32 / 34.1	2 9/16 / 65.1	1.332 / 33.88	25/32 / 19.8	10	GY1013KRRB
YCJ 7/8												GY1014KRRB
YCJ 15/16												GY1015KRRB
YCJ 1 25												GY1100KRRB
YCJ 25MB*												GYE25KRRB





YCJ...

Unit Shaft Diam.	Basic Bearing Number	L	J	A_1	A	E	B	D	F	S_1	Bolt Size	Bearing Number
in mm		in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	mm	
YCJ 1 1/16 YCJ 1 1/8 YCJ 1 3/16 YCJ 1 1/4S 30 YCJ 30MB*	206	4 1/4 107.9	3 1/4 82.6	17/32 13.5	1 3/16 30.2	1 21/32 42.1	1 1/2 38.1	3 76.2	1.587 40.31	7/8 22.2	10	GY1101KRRB GY1102KRRB GY1103KRRB GY1103KRRB3 GYE30KRRB
YCJ 1 1/4 YCJ 1 5/16 YCJ 1 3/8 YCJ 1 7/16 35 YCJ 35MB*	207	4 5/8 117.5	3 5/8 92.1	17/32 13.5	1 11/32 34.1	1 13/16 46.0	1 1/16 42.9	3 1/2 88.9	1.816 46.13	1 25.4	12	GY1104KRRB GY1105KRRB GY1106KRRB GY1107KRRB GYE35KRRB
YCJ 1 1/2 YCJ 1 9/16 YCJ 40 YCJ 40MB*	208	5 1/8 130.2	4 101.6	9/16 14.3	1 1/2 38.1	2 1/8 54 52.2	1 15/16 49.2	3 7/8 98.4	2.058 52.27	1 3/16 30.2	12	GY1108KRRB GY1109KRRB GYE40KRRB GYE40KRRB
YCJ 1 5/8 YCJ 1 11/16 YCJ 1 3/4 45 YCJ 45MB* YCJ	209	5 3/8 136.5	4 1/8 104.8	9/16 14.3	1 17/32 38.9	2 1/8 54.0 52.2	1 15/16 49.2	4 1/8 104.8	2.280 57.92	1 3/16 30.2	12	GY1110KRRB GY1111KRRB GY1112KRRB GYE45KRRB GYE45KRRB
YCJ 1 13/16 YCJ 1 7/8 YCJ 1 15/16 YCJ 2S 50 YCJ 50MB* YCJ	210	5 5/8 142.9	4 3/8 111.1	9/16 14.3	1 11/16 42.9	2 3/8 60.3 54.60	2 1/32 51.6	4 7/16 112.7	2.474 62.84	1 9/32 32.5	16	GY1113KRRB GY1114KRRB GY1115KRRB GY1115KRRB2 GYE50KRRB GYE50KRRB
YCJ 1 13/16 M YCJ 1 7/8 M YCJ 1 15/16M YCJ 2S 50M	210	5.629 143	4.370 111	0.6299 16	1 11/16 42.9	2.149 54.6	2.031 51.6	4.330 112.7	2.474 62.84	1.283 32.6	16	GY1113MKRRB GY1114MKRRB GY1115MKRRB GY50MKRRB



YCJ...M

Unit Shaft Diam.	Basic Bearing Number	L	J	A_1	A	E	B	D	F	S_1	Bolt Size	Bearing Number
in mm		in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	mm	
YCJ 2 YCJ 2 1/16 YCJ 2 1/8 YCJ 2 3/16 YCJ 55MB	211	6 3/8 161.9	52 1/8 130.2	21/32 16.7	1 27/32 46.8	2 17/32 64.3	2 3/16 55.6	4 3/4 120.7	2.743 69.68	1.312 33.32	16	GY1200KRRB GY1201KRRB GY1202KRRB GY1203KRRB GYE55KRRB
YCJ 2 M YCJ 2 1/16 M YCJ 2 1/8 M YCJ 2 3/16 M YCJ 2.165 55M	211	6.378 162	5.118 130	0.709 18	1.654 42	2.296 58.32	2.187 55.545	4 3/4 120.7	2.743 69.66	1.312 33.32	19	GY1200MKRRB GY1201MKRRB GY1202MKRRB GY1203MKRRB GYE55MKRRB
YCJ 2 1/4 YCJ 2 5/16 YCJ 2 3/8 YCJ 2 7/16 YCJ 60M	212	6 7/8 174.6	5 5/8 142.9	11/16 17.5	1 15/16 49.2	2 29/32 73.8	2 9/16 65.1	5 3/8 136.5	3.011 76.48	1 9/16 39.7	16	GY1204KRRB GY1205KRRB GY1206KRRB GY1207KRRB GYE60MKRRB
YCJ 1/2 60 YCJ 2 9/16 M YCJ 2 M YCJ 65M	213	1.165 182	5.866 149	0.708 18	1.869 50	2.744 69.7	2.562 65.1	5.078 129	3.259 82.80	1.181 30	19	GYE60KRRB GY1208MKRRB GY1209MKRRB GYE65MKRRB

INDUSTRIAL DUTY TWO BOLT CAST IRON HOUSED UNITS ECCENTRIC COLLAR LOCKING RCJT STANDARD SERIES

NIBL flange cartridges are used in application where a minimum amount of machining is to be done. Each unit is furnished assembled and ready for mounting by means of bolts through the flange. They use a wide inner ring bearing, self-aligning B type, which compensates for shaft misalignment. They are designed chiefly to fill the need for applications where the mounting area is restricted.

The RCJT flange cartridge is equipped with G-KRRB (R-Seal) wide inner ring bearings.

These units are factory prelubricated, but a grease fitting is provided for relubrication if required. All units are supplied with self-locking collars.

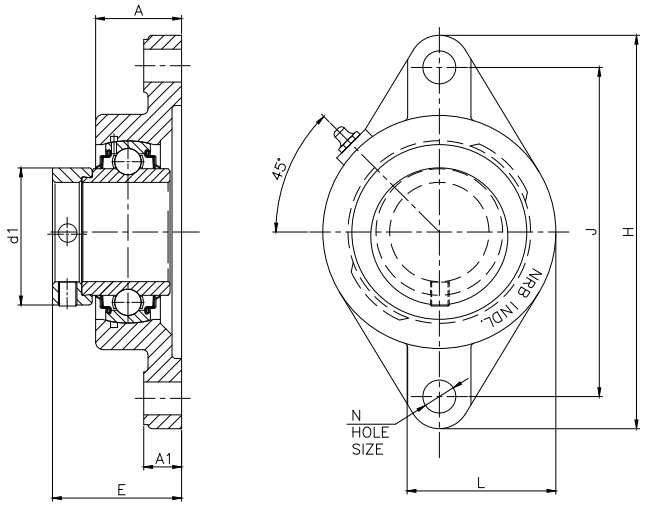
Bearing Data

Unit	Bearing Number
RCJT	G-KRRB

Recommended shaft tolerances : ½" to 1 15/16", nominal to -0.0005" (0.013mm)
2" to 2 15/16", nominal to -0.0010" (0.025mm)

To order, specify Unit and Shaft Diameter. Example: **RCJT 1 7/16"**

Unit Shaft Diam.	Basic Bearing Number	H	J	L	A	N	E	A_1	d_1	Bearing Number	Collar Number	Unit Wt.
in / mm		in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm			kg.
RCJT ½	203	3 7/8 / 98.4	3 / 76.2	2 3/8 / 60.3	1 3/32 / 27.8	25/64 / 9.9	1 37/64 / 40.1	7/16 / 11.1	1 1/8 / 28.6	G1008KRRB	S1008K	0.59
RCJT 9/16										G1009KRRB	S1009K	
RCJT 5/8										G1010KRRB	S1010K	
RCJT 11/16										G1011KRRB	S1011K	
RCJ T 17										GE17KRRB	SE17K	
RCJT ¾	204	4 13/32 / 111.9	3 17/32 / 89.7	2 9/16 / 65.1	1 3/32 / 27.8	27/64 / 10.7	1 51/64 / 45.6	7/16 / 11.1	1 5/16 / 33.3	G1012KRRB	S1012K	0.59
RCJT 20										GE20KRRB	SE20K	
RCJT 13/16	205	4 7/8 / 123.8	3 29/32 / 99.2	2 3/4 / 69.80	1 9/64 / 29.0	15/32 / 11.9	1 25/32 / 45.2	7/16 / 11.1	1 1/2 / 38.1	G1013KRRB	S1013K	0.785
RCJT 7/8										G1014KRRB	S1014K	
RCJT 15/16										G1015KRRB	S1015K	
RCJT 1										G1100KRRB	S1100K	
RCJT 25										GE25KRRB	SE25K	



Unit Shaft Diam.	Basic Bearing Number	H	J	L	A	N	E	A_1	d_1	Bearing Number	Collar Number	Unit Wt.
in mm		in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm			kg.
RCJT 1 1/16 RCJT 1 1/8 RCJT 1 3/16 RCJT ¼S RCJT 30	206	5 9/16 141.3	4 19/32 116.7	3 1/8 79.4	1 1/4 31.8	29/64 11.5	1 31/32 50	15/32 11.9	1 47/64 44.1	G1101KRRB G1102KRRB G1103KRRB - - - - - GE30KRRB	S1101K S1102K S1103K S1103K3 SE30K	1.09
RCJT 1 1/4 RCJT 1 5/16 RCJT 1 3/8 RCJT 1 7/16 RCJT 35	207	6 1/8 155.6	5 1/8 130.2	3 5/8 92.1	1 11/32 34.1	33/64 13.1	2 3/32 53.2	15/32 11.9	2 1/8 54	G1104KRRB G1105KRRB G1106KRRB G1107KRRB GE35KRRB	S1104K S1105K S1106K S1107K SE35K	1.444
RCJT 1 1/2 RCJT 1 9/16 RCJT 40	208	6 3/4 171.4	5 21/32 143.6	4 1/8 104.7	1 1/2 38.1	33/64 13.1	2 5/16 58.7	1/2 12.7	2 3/8 60.3	G1108KRRB G1109KRRB GE40KRRB	S1108KT S1109KT SE40K	2.193
RCJT 1 5/8 RCJT 1 11/16 RCJT 1 3/4 RCJT 45	209	7 1/16 179.4	5 53/64 148	4 3/8 111.1	1 17/32 38.90	33/64 13.1	2 5/16 58.7	1/2 12.7	2 1/2 63.5	G1110KRRB G1111KRRB G1112KRRB GE45KRRB	S1110K S1111K S1112K SE45K	2.379
RCJT 1 13/16 RCJT 1 7/8 RCJT 1 15/16 RCJT 50	210	7 1/16 188.9	6 3/16 157.2	4 9/16 115.9	1 11/16 42.9	43/64 17.1	2 19/32 65.9	1/2 12.7	2 3/4 69.9	G1113KRRB G1114KRRB G1115KRRB GE50KRRB	S1113K S1114K S1115K SE50K	2.724
RCJT 2 RCJT 2 1/16 RCJT 2 1/8 RCJT 2 3/16 RCJT 55	211	8 1/2 215.9	7 1/4 184.1	5 127	1 27/32 46.8	43/64 17.1	2 18/16 74.6	21/32 16.7	3 76.2	G1200KRRB G1201KRRB G1202KRRB G1203KRRB GE55KRRB	S1200K S1201K S1202K S1203K SE55K	3.668

INDUSTRIAL DUTY FOUR BOLT CAST IRON HOUSED UNITS ECCENTRIC COLLAR LOCKING YCJT STANDARD SERIES

NIBL YCJT flange cartridges are basically the same design as the YCJ series but are mounted with two bolts instead of four. All YCJT units are equipped with GY-KRRB wide inner ring, setscrew bearings, the spherical outside diameter of these bearings mounted in corresponding machined housing seats provides the initial self-alignment.

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These units are factory prelubricated, but a grease fitting is provided for relubrication if required.

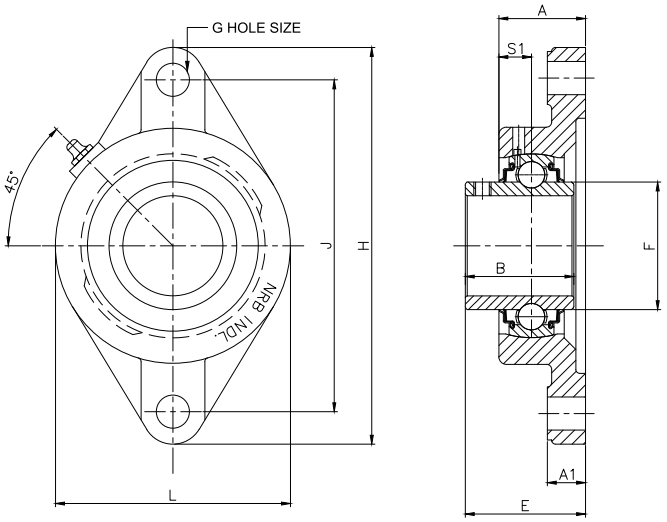
Bearing Data

Unit	Bearing Number
YCJT	G-KRRB

Recommended shaft tolerances : ½" to 1 15/16", nominal to -0.0005" (0.013mm)
2" to 2 15/16", nominal to -0.0010" (0.025mm)

To order, specify Unit and Shaft Diameter. Example: YCJT 1 7/16"

Unit	Shaft Diam. in / mm	Basic Bearing Number	H in / mm	J in / mm	L in / mm	A in / mm	E in / mm	B in / mm	A_1 in / mm	F in / mm	S_1 in / mm	G Bolt Size mm	Bearing Number
YCJT	½	203	3⅞ 98.4	3 76.2	2⅛ 53.9	31/32 24.6	1 9/32 32.5	1 5/64 27.4	7/16 11.1	0.9 22.86	⅝ 15.9	10	GY1008KRRB
YCJT	9/16												GY1009KRRB
YCJT	⅝												GY1010KRRB
YCJT	11/16												GY1011KRRB
YCJT	15												GYE15KRRB
YCJT	17												GYE17KRRB
YCJT	¾	204	4 13/32 111.9	3 17/32 89.7	2⅜ 60.3	1 3/32 27.8	1 15/32 37.3	1 7/32 30.9	7/16 11.1	1.085 27.56	23/32 18.3	10	GY1012KRRB
YCJT	20												GYE20KRRB
YCJT	13/16	205	4⅞ 123.8	3 57/64 98.8	2¾ 69.9	1⅛ 28.6	1½ 38.1	1 11/32 34.1	7/16 11.1	1.332 33.83	25/32 19.8	10	GY1013KRRB
YCJT	⅞												GY1014KRRB
YCJT	5/16												GY1015KRRB
YCJT	1												GY1100KRRB
YCJT	25												GYE25KRRB



Unit Shaft Diam.	Basic Bearing Number	H	J	L	A	E	B	A_1	F	S_1	G Bolt Size	Bearing Number
in / mm		in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm		
YCJT 1 1/16	206	5 9/16 / 141.3	4 19/32 / 116.7	3 1/8 / 79.375	1 3/16 / 30.2	1 21/32 / 42.1	1 1/2 / 38.1	15/32 / 11.9	1.587 / 40.31	7/8 / 22.2	10	GY1101KRRB
YCJT 1 1/8												GY1102KRRB
YCJT 1 3/16												GY1103KRRB
YCJT 1 1/4S												GY1103KRRB
YCJT 30												GYE30KRRB
YCJT 1 1/4	207	6 1/8 / 155.6	5 1/8 / 130.2	3 5/8 / 92.1	1 11/32 / 34.1	1 13/16 / 46	1 11/16 / 42.9	15/32 / 11.9	1.816 / 46.13	1 / 25.4	12	GY1104KRRB
YCJT 1 5/16												GY1105KRRB
YCJT 1 3/8												GY1106KRRB
YCJT 1 7/16												GY1107KRRB
YCJT 35												GYE35KRRB
YCJT 1 1/2	208	6 3/4 / 171.45	5 21/32 / 143.7	4 1/8 / 104.8	1 1/2 / 38.1	2 1/8 / 54	1 15/16 / 49.2	1/2 / 12.7	2.058 / 52.27	1 3/16 / 30.2	12	GY1108KRRB
YCJT 1 9/16												GY1109KRRB
YCJT 40												GYE40KRRB
YCJT 1 5/8	209	7 1/16 / 179.4	5 27/32 / 148.4	4 3/8 / 111.1	1 17/32 / 38.9	2 1/8 / 54	1 15/16 / 49.2	1/2 / 12.7	2.28 / 57.92	1 3/16 / 30.2	12	GY1110KRRB
YCJT 1 11/16												GY1111KRRB
YCJT 1 3/4												GY1112KRRB
YCJT 45												GYE45KRRB
YCJT 1 13/16	210	7 1/16 / 188.9	6 3/16 / 157.2	4 9/16 / 115.9	1 11/16 / 42.9	2 3/8 / 60.3	2 1/32 / 51.6	1/2 / 12.7	2.474 / 62.84	1 9/32 / 32.5	16	GY1113KRRB
YCJT 1 7/8												GY1114KRRB
YCJT 1 15/16												GY1115KRRB
YCJT 2S												GY1115KRRB3
YCJT 50												GYE50KRRB
YCJT 2	211	8 1/2 / 215.9	7 1/4 / 184.2	5 / 127	1 27/32 / 46.8	2 17/32 / 64.3	2 3/16 / 55.6	21/32 / 16.7	2.747 / 69.77	1 5/16 / 33.3	16	GY1200KRRB
YCJT 2 1/16												GY1201KRRB
YCJT 2 1/8												GY1202KRRB
YCJT 2 3/16												GY1203KRRB
YCJT 55												GYE55KRRB

INDUSTRIAL DUTY ROUND FLANGE THREE/FOUR BOLT CAST IRON HOUSED UNITS WITH ECCENTRIC COLLAR LOCKING

NIBL YCR flange cartridges are basically tailor made designs for combine harvestors.

These bearings mounted in corresponding machined housing seats provides the initial self-alignment.

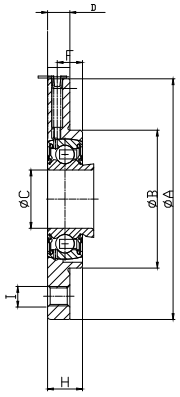
These units are factory prelubricated, but a grease fitting is provided for relubrication if required.

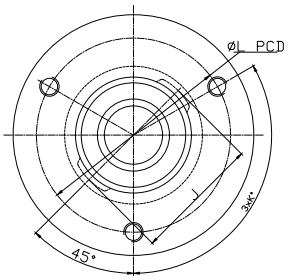
Bearing Data

Unit	Bearing Number
YCR	GRAE -RRB

Recommended shaft tolerances : ½" to 1 15/16", nominal to -0.0005" (0.013mm)
2" to 2 15/16", nominal to -0.0010" (0.025mm)

To order, specify Unit and Shaft Diameter. Example: **YCR 30 1.181 30**





Unit	Shaft Diam.	Basic Bearing Number	H	J	L	A	E	B	A_1	l Mounting hole size	F	S_1	PCD L	Bearing Number
	in mm		in mm	in mm	in mm	in mm	in mm	in mm	in mm	mm	Deg	Deg mm	in mm	
YCR 30	1.181 30	206	4.882 124	2.795 71	0.512 13	0.709 18	0.531 13.5	0.220 5.6	0.709 18	M10-3 nos Equispaced on PCD	64	120	3.937 100	GRAE 30 RRB
YCR 40	1.574 40	208	5 9/10 150	3 13/25 89.3	5 1/100 13	7 9/100 20	5 7/100 14.5	1 1/100 5.6	1 3/50 27	M12-4 nos Equispaced on PCD	82	90	4.685 119	GRAE 40 RRB

INDUSTRIAL DUTY TAKE-UP UNITS/CAST IRON HOUSING SETSCREW LOCKING YTU SERIES

Ball bearing tack-up units are used where shaft adjustment and belt tightening devices are required, as on conveyor applications. YTU series take-up units incorporate self-aligning B-type extra wide inner ring ball bearings with setscrew lock.

The YTU uses a GY-KRRB (Shroud Seal) type wide inner ring bearing.

These units provide very compact, efficient support for adjustable shaft and conveyor tack-up pulleys.

These units are factory prelubricated, but a grease fitting is provided for relubrication if required.

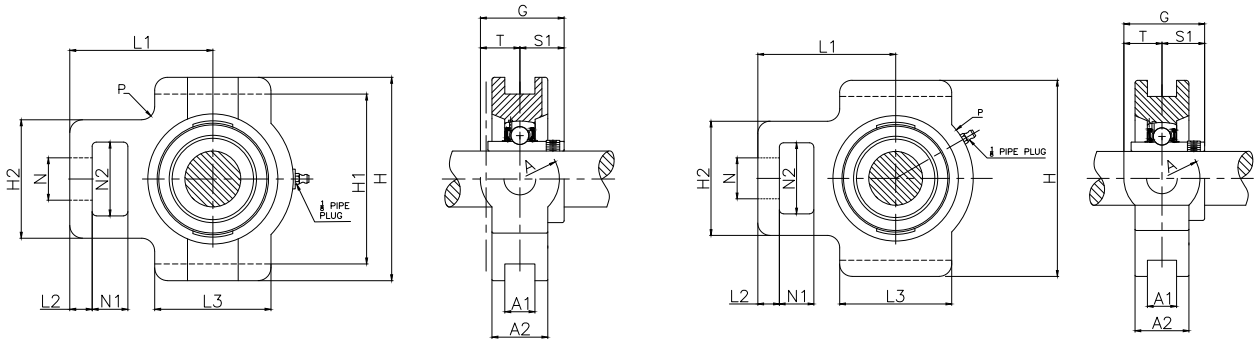
Bearing Data

Unit	Bearing Number
YTU	GY-KRRB

Recommended shaft tolerances : ½" to 1 15⁄16", nominal to -0.0005" (0.013mm)
2" to 2 15⁄16", nominal to -0.0010" (0.025mm)

To order, specify Unit and Shaft Diameter. Example: **YTU 1 7/16"**

Unit Shaft Diam.	Basic Bearing Number	G	T	S1	A2	A1	A	L1	H2	N	N2	L2	N1	P	L1	H1	H	Bearing Number
in mm		in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	
YTU ¾ YTU 20	204	1¾ 44.4	13⁄16 20.6	0.719 18.3	1 11⁄32 34.1	17⁄32 13.5	1⅝ 41.3	2 21⁄32 67.5	2¼ 57.2	¾ 19	1¼ 31.8	½ 12.7	⅝ 15.9	1 5⁄16 33.3	2¼ 57.2	3 76.2	3⅝ 92.1	GY1012KRRB GYE20KRRB
YTU 13⁄16 YTU ⅞ YTU 15⁄16 YTU 1 YTU 25	205	1 15⁄16 49.2	⅞ 22.2	0.781 19.8	1 15⁄32 37.3	17⁄32 13.5	1¾ 44.4	2 21⁄32 67.5	2¼ 57.4	¾ 19	1¼ 31.8	½ 12.7	⅝ 15.9	1⅜ 34.9	2¼ 57.2	3 76.2	3⅝ 92.1	GY1013KRRB GY1014KRRB GY1015KRRB GY1100KRRB GYE25KRRB
YTU 13⁄16M YTU ⅞M YTU 15⁄16M YTU 1M YTU 0.984 25M	205	1.411 35.83	0.630 16	0.781 19.835	0.945 24	0.472 12	1.260 32	2.441 62	2.264 57.5	0.748 19	1.260 32	0.472 12	0.630 16	1.374 34.9	2.008 51	2.992 76	3.504 89	GY1013MKRRB GY1014MKRRB GY1015MKRRB GY1100MKRRB GYE25MKRRB



YTU... **YTU...M**

Unit Shaft Diam.	Basic Bearing Number	G	T	S1	A2	A1	A	L1	H2	N	N2	L2	N1	P	L1	H1	H	Bearing Number
in / mm		in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	in / mm	
YTU 1 1/16	206	2 1/16	1	0.875	1 1/2	17/32	2	2 27/32	2 7/16	7/8	1 1/16	1/2	5/8	1 5/8	2 1/2	3 1/2	4 1/8	GY1101KRRB
YTU 1 1/8		52	25.4	22.2	38.1	13.5	50.8	72.2	61.9	22.2	36.5	12.7	15.9	41.3	63.5	88.9	104.8	GY1102KRRB
YTU 1 3/16																		GY1103KRRB
YTU 30																		GYE35KRRB
YTU 1 1/4	207	2 5/32	1	1.017	1 7/16	17/32	2	2 15/16	2 1/2	7/8	1 7/16	1/2	5/8	1 15/16	2 3/4	3 1/2	4 1/8	GY1104KRRB
YTU 1 5/16		54.7	25.4	25.8	36.5	13.5	50.8	74.6	63.5	22.2	36.5	12.7	15.9	49.2	69.8	88.9	104.8	GY1105KRRB
YTU 1 3/8																		GY1106KRRB
YTU 1 7/16																		GY1107KRRB
YTU 35																		GYE35KRRB
YTU 1 1/2	208	62.7	32.5	30.2	44.4	17.5	65.1	88.1	82.6	28.6	49.2	15.9	19	53.2	82.6	100.8	120.6	GY1108KRRB
YTU 40																		GYE40KRRB
YTU 1 5/8	209	2 9/16	1 9/32	1.188	1 3/4	1/16	2 9/16	3 15/32	3 1/4	1 1/8	1 15/16	5/8	3/4	2 3/32	3 1/4	3 31/32	4 3/4	GY1110KRRB
YTU 1 11/16		65	32.5	30.2	44.4	17.5	65.1	88.1	82.6	28.6	49.2	15.9	19	53.2	82.6	100.8	120.6	GY1111KRRB
YTU 1 3/4																		GY1112KRRB
YTU 45																		GYE45KRRB
YTU 1 13/16	210	2 9/16	1 9/32	1.281	1 15/16	1/16	2 9/16	3 19/32	3 1/4	1 1/8	1 15/16	5/8	3/4	2 11/32	3 3/8	3 31/32	4 3/4	GY1113KRRB
YTU 1 7/8		65	32.5	32.5	49.2	17.5	65.1	91.3	82.6	28.6	49.2	15.9	19	59.5	85.7	100.8	120.6	GY1114KRRB
YTU 1 15/16																		GY1115KRRB
YTU 50																		GYE50KRRB
YTU 2	211	2 13/16	1 3/8	1.312	2 3/16	1 1/16	2 3/4	4 23/32	4	1 3/8	2 1/2	3/4	1 1/4	2 23/32	4	5 3/32	5 7/8	GY1200KRRB
YTU 2 1/16		71.4	34.9	33.3	55.6	27	69.8	119.9	101.6	34.9	63.5	19	31.8	69.1	101.6	129.6	149.2	GY1201KRRB
YTU 2 1/8																		GY1202KRRB
YTU 2 3/16																		GY1203KRRB
YTU 55																		GYE55KRRB
YTU 2 1/4	212	2 15/16	1 3/8	1.562	2 1/16	1 1/16	2 3/4	4 23/32	4	1 3/8	2 1/2	3/4	1 1/4	2 23/32	4	5 3/32	5 7/8	GY1204KRRB
YTU 2 7/16		74.6	34.9	39.6	52.4	27	69.8	119.9	101.6	34.9	63.5	19	31.8	69.1	101.6	129.6	149.2	GY1207KRRB

Industrial duty 3-Bolt Flange Cast Iron Housed Unit with set screw SBTT...G series

NIBL Cast iron 3-Bolt Flange Cast Iron Housed are designed for use with extended inner ring, self-aligning ball bearings, taper bore self-aligning ball bearings or spherical roller bearings mounted on adapter sleeves. These units are recommended for light duty applications such as in Harvester, Textile machine manufacturing.

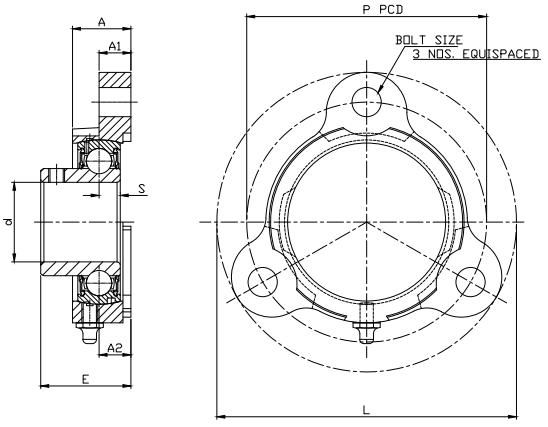
These units are factory pre lubricated, but a grease fitting is provided for re lubrication if required.

Bearing Data

Unit	Bearing Number
SBTT...G	SB...G

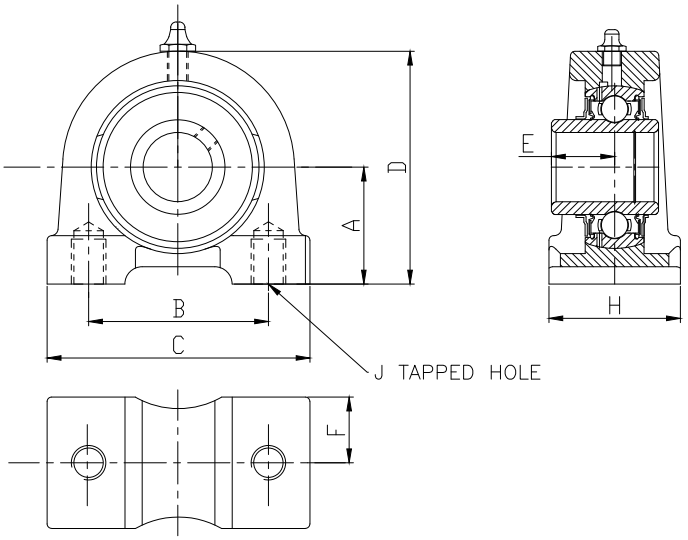
Recommended shaft tolerances : ½" to 1 15/16", nominal to -0.0005" (0.013mm)
2" to 2 15/16", nominal to -0.0010" (0.025mm)

To order, specify Unit and Shaft Diameter. Example: **SBTT30G**



Unit	Shaft Diam.	Basic Bearing Number	L	P	A_1	A	A_2	N	S	E	Bolt Size	Bearing Number	Weight
	mm		mm	mm	mm	mm	mm	mm	mm	mm			kg.
SBTT	20 G	204	90.5	71.4	11.1	19.8	11.1	8.7	7	29.1	M8	SB20 G	0.32
SBTT	30 G	206	113	90.5	12	22	12	10.3	8	34	M10	SB30 G	0.37

BOTTOM TAPPED PILLOW BLOCK CAST IRON HOUSED UNIT SETSCREW LOCKING YAA SERIES SETSCREW UNITS.



YAA series two bolt house units are furnished assembled and ready for mounting by means of two bolt from under the housing. These units are ideal for application where space is limited, access to bolts is from bottom of unit, loads are not severe and reversing moments are not encountered. The units are assembled with GY-KRRB bearings and setscrew locking.

These units are factory prelubricated, but a grease fitting is provided for relubrication if required.

Bearing Data

Unit	Bearing Number
YAA	GY-KRRB

Recommended shaft tolerances : ½" to 1 15/16", nominal to -0.0005" (0.013mm)
2" to 2 15/16", nominal to -0.0010" (0.025mm)

To order, specify Unit and Shaft Diameter. Example: **YAA 1"**

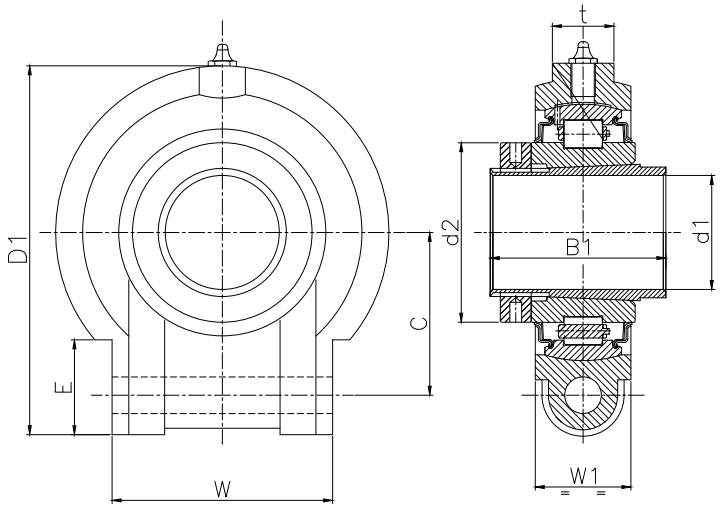
Unit	Shaft Diam. in mm	Basic Bearing Number	A in mm	B in mm	C in mm	D in mm	E in mm	F in mm	G in mm	H in mm	I in mm	J Tapped Hole Size mm	Bearing Number
YAA	¾	204	30.2	52	76	62	18.26	18.5	20	37	8.8	M 10X1.5 13 Deep	GY1012KRRB
YAA	20												GYE20KRRB
YAA	1	205	36.5	56	85	72	19.84	18.5	22	37	10.3	M 10X1.5 13 Deep	GY1100KRRB
YAA	25												GYE25KRRB
YAA	1 1/8	206	42.9	76.2	101.6	82.6	22.22	19	24	38	13	M 12X1.75 13 Deep	GY1102KRRB
YAA	1 3/16												GY1106KRRB
YAA	30												GYE30KRRB

Heavy duty Cast Iron Housed Unit
HKE...series

NIBL HKE series Housed unit has easy slip fit shaft mountings with wide inner ring, which provides additional shaft support. These bearings have spherical outer diameter cylindrical roller bearing inside the housing providing increased load carrying capacity and they are pre lubricated. These bearings features a sealproviding a positive sealing against dust, dirt and other contaminants while effectively retaining the lubricant.

This bearing is developed for Jute mill application for cylinder assembly of Slip draft machine. It also has application in Agricultural equipments, fans, blowers, food processing devices and conveyors.

These units are factory pre lubricated, but a grease fitting is provided for re lubrication if required.



Unit	Shaft Diam.	d1	d2	D1	W	W1	B1	t	C	E	Bearing Number
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
HKE	45	45	69	144	86	37.3	61.5	24	63.5	37	NFF10052KM
HKEI	44.5	44.5	69	144	86	37.3	61.5	24	63.5	37	NFF10052KM

Mounting Instructions and Load Rating

Note: Above radial internal clearance correspond to:

H(2)	C2,	Radial internal clearance smaller than CN
R(0)	CN,	Normal radial internal clearance
p(3)	C3,	Radial internal clearance greater than C3
J(4)	C4,	Radial internal clearance greater than C3
J(5)	C5,	Radial internal clearance greater than C4

Self -Locking Collar Installation

Most NIBL housed units come equipped with the self-locking collar to facilitate the mounting of wide-inner-ring ball bearings. This self-locking collar eliminates the need for locknuts, washers, shoulders, sleeves and adapters. The locking collar has a counter bored recess made purposely eccentric to the bore. The collar recess and the end of the bearing inner ring with which it engages are both machined so that they act as mating cams when on the shaft. When the collar is engaged to the inner ring, it grips the shaft tightly with a positive binding action that increases with use. No adjustments of any kind are necessary.

1. Slip the shaft through the pillow block incorporating the wide-inner ring ball bearing. Be certain the bearing is aligned in position along the shaft to eliminate any possibility of cramping loads.

2. Fasten the unit securely to the base using the proper bolt size.

3. Place the self-locking collar on the shaft with its cam adjacent to the cam on the end of the bearing's inner ring. The eccentric recessed cam will slide over and engage the corresponding cam on the bearing inner ring. Turn the collar in the direction of shaft rotation.

4. Using a lightweight hammer and a drift pin inserted in the drift-pin hole, tap lightly in the direction of shaft rotation to positively engage the collar. The wide inner ring is now locked to the shaft.

5. As a final step, fully tighten the set screw. It exerts a wedging action to hold the collar always in the engaged position, even under shock load. This design will operate effectively after the cams are tightly locked and in most cases, with no set screws at all.

SET SCREW LOCKING BEARING INSTALLATION

Steps 1 and 2 can be repeated from the self-locking collar installation above. To lock the set screw bearing, simply tighten each inner ring set screw to the suggested torque listed by shaft size. See table below

Table: Set screw locking guide.

Shaft Size		Recommended Torque	
inch	mm	inch lbs	n.m
1/2-11/16	17 mm	35	4
3/4-1	20-25 mm	80	9
11/16-1 3/4	30-45 mm	155	18
113/16-2 3/16	50-55 mm	275	31

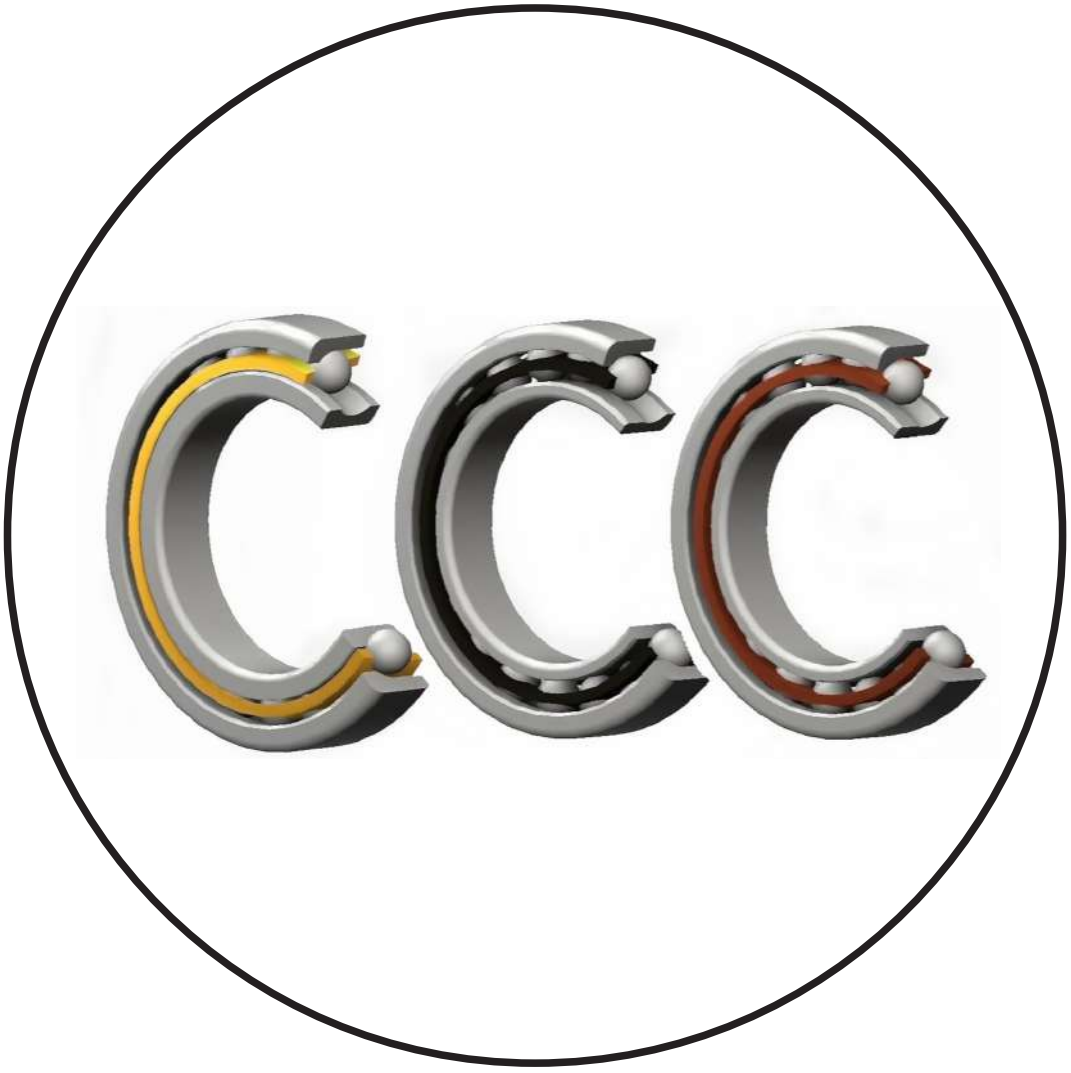
It may be necessary to rotate the shaft to provide an easy access of the set screw wrench to the set screws.
To dissemble, loosen the set screws.

Radial Load Ratings

Bearing Numbers				Basic Outer Ring Size	Shaft Size		Static Load Rating C0	Extended Dynamic Load CE	Limiting Speed
Bearing Series									
G	GRA	GY	SPECIALS		in	mm	N	N	RPM
G1008KRRB G1009KRRB G1011KRRB G1015KRRB GE17KRRB	GRA008RRB GRA009RRB GRA010RRB GRAE17RRB	GY1008KRRB GY1009KRRB GY1010KRRB GY1011KRRB GY1015KRRB GYE17KRRB		203	1/2 9/16 5/8 11/16	 15 17	4700	10700	10000
G1012KRRB GE20KRRB	GRA012RRB GRAE20RRB	GY1012KRRB GYE20KRRB	SB20G RYE20KRRB	204	3/4	20	6650 6500	12800 14500	8750
G1013KRRB G1014KRRB G1015KRRB G1100KRRB GE25KRRB	GRA013RRB GRA014RRB GRA015RRB GRA100RRB GRAE25RRB	GY1013KRRB GY1014KRRB GY1015KRRB GY1100KRRB GYE25KRRB	 BIN16297	205	13/16 7/8 15/16 1	 25	7700	15800	6850
G1101- G1102KRRB G1103KRRB G1103KRRB3 GE30KRRB	GRA101RRB GRA102RRB GRA103RRB GRA103RRB2 GRAE30RRB	GY1101KRRB GY1102KRRB GY1103KRRB GY1103KRRB3 GYE30KRRB	 SB30G RYE30KRRB	206	1 1/16 1 1/8 1 3/16 1 1/4	 30	11200 11100	19500 21800	5500
G1104KRRB G1105KRRB G1106KRRB G1107KRRB GE35KRRB	GRA104RRB GRA105RRB GRA106RRB GRA107RRB GRAE35RRB	GY1104KRRB GY1105KRRB GY1106KRRB GY1107KRRB GYE35KRRB	 BIN16293, 207YY2	207	1 1/2 1 13/16 1 3/8 1 7/16	 35	15100	28500	4750
G1108KRRB G1109KRRB GE40KRRB	GRA108RRB GRA109RRB GRAE40RRB	GY1108KRRB GY1109KRRB GYE4KRRB	 208YY2, 208KY	208	1 1/2 1 9/16	 40	19600	36300	4350
G1110KRRB G1111KRRB G1112KRRB GE45KRRB	GRA110RRB GRA111RRB GRA112RRB GRAE45RRB	GY1110KRRB GY1111KRRB GY1112KRRB GYE45KRRB	 209YY2, GKE45RRB GYNE45KRRB	209	1 5/8 1 11/16 1 3/4	 45	20000	36300	3850
G1113KRRB G1114KRRB G1115KRRB GE50KRRB	GRA113RRB GRA114RRB GRA115RRB GRA115RRB2 GRAE50RRB	GY1113KRRB GY1114KRRB GY1115KRRB GY1115KRRB3 GYE50KRRB	 GKE50RRB	210	13/16 7/8 15/16 2	 50	22700	39200	3450
G1200KRRB G1201KRRB G1202KRRB G1203KRRB GE55KRRB	GRA200RRB GRA201RRB GRA202RRB GRA203RRB GRAE55RRB	GY1200KRRB GY1201KRRB GY1202KRRB GY1203KRRB GYE55KRRB	 	211	2 1/16 4/8 3/16	 55	28500	48100	3150
G1204KRRB G1205KRRB G1206KRRB G1207KRRB GE60KRRB		GY1204KRRB GY1205KRRB GY1206KRRB GY1207KRRB GYE60KRRB	 	212	2 1/4 2 8/16 2 3/8 2 7/16	 60	35600	58800	2800
			NTL2015 NTL2019	304 -		20 25	7700 11000	12200 20400	3000 11000

NRB
INDUSTRIAL

SINGLE ROW ANGULAR CONTACT BALL BEARINGS



MOVING THE WHEELS OF INDUSTRY

DESIGN & FEATURES

Single row angular contact ball bearings are self-retaining units with solid inner rings, outer rings, balls and cage assemblies. Since, these bearings have a contact angle, they can sustain significant unidirectional axial load together with radial load.

Due to its design, an axial force component is produced when a radial load is applied. As a result, two opposite or combination of more than two bearings must be used. Bearings with suffix E are designed for higher load ratings and better performance.

Since the rigidity of single row angular contact bearings increases by preloading, these bearings can be used in applications like machine tool spindles where high running accuracy is required.

Races and ball: Inner, outer races and balls are manufactured from high quality bearing steel (SAE 52100) for optimum performance

Cages: Usually glass fiber filled polyamide cages are used in 40° contact angle (B suffix) bearings. Depending on the application, steel and brass cages are also used. In such cases for the same bearing, the number of balls can vary and accordingly load ratings can also vary.

Bearings with suffix TN have glass fiber filled polyamide cage. There is no suffix for steel cage. For the polyamide cage maximum working temperature is 120°C.

Sealing: Bearings with RS/2RS suffix have contact lip seal on one side/ both sides respectively to protect against atmosphere, contamination and dust.

Lubrication: Bearing with both side seals are filled with high quality grease for life time lubrication. Open bearings and one side sealed bearings are not provided with lubricant. They can be lubricated with grease or oil.

EQUIVALENT LOAD

DYNAMIC EQUIVALENT LOAD

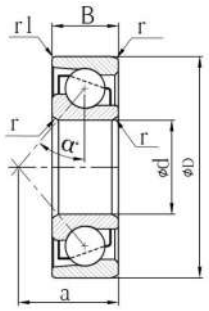
$P = XFr + YFa$

Contact Angle	e	Single Row			
		Fa/Fr ≤ e		Fa/Fr ≥ e	
α°		X	Y	X	Y
40°	1.14	1	0	0.35	0.57

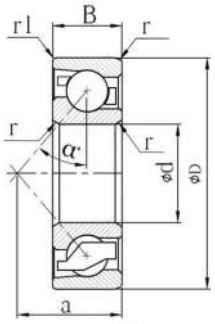
STATIC EQUIVALENT LOAD

$P_o = X_o Fr + Y_o Fa$

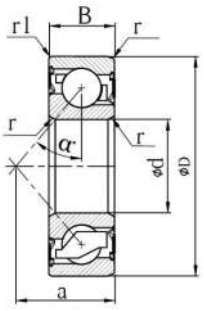
Contact Angle	Single Row	
α°	X_o	Y_o
40°	0.5	0.26



72...BE



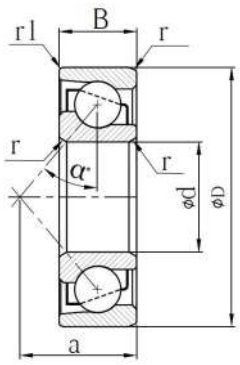
72...BETN



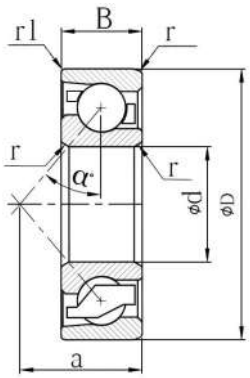
72...BETN-2RS

DIMENSIONAL TABLE α°=40 All Dimensions are in mm

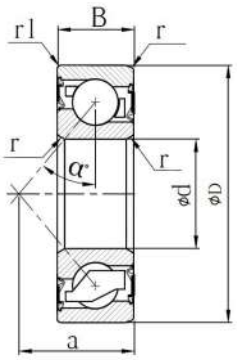
Designation	d	D	B	r min	r1 min	a	BASIC LOAD RATING		MASS (KG)	LIMITING SPEED	
							DYNAMIC CR (N)	STATIC COR (N)		Oil (rpm)	Grease (rpm)
7200 BE	10	30	9	0.6	0.3	13	6960	3280	0.033	32000	22000
7200 BETN	10	30	9	0.6	0.3	13	6960	3280	0.032	32000	22000
7200 BETN-2RS	10	30	9	0.6	0.3	13	6960	3280	0.032	-	15000
7201 BE	12	32	10	0.6	0.3	14	7530	3780	0.038	28000	21000
7201 BETN	12	32	10	0.6	0.3	14	7530	3780	0.035	28000	21000
7201 BETN-2RS	12	32	10	0.6	0.3	14	7530	3780	0.036	-	14000
7202 BE	15	35	11	0.6	0.3	16	8940	4850	0.047	24000	18000
7202 BETN	15	35	11	0.6	0.3	16	8940	4850	0.044	24000	18000
7202 BETN-2RS	15	35	11	0.6	0.3	16	8940	4850	0.044	-	12000
7203 BE	17	40	12	0.6	0.3	18	10350	5550	0.069	22000	17000
7203 BETN	17	40	12	0.6	0.3	18	10350	5550	0.065	22000	17000
7203 BETN-2RS	17	40	12	0.6	0.3	18	10350	5550	0.066	-	11000
7204 BE	20	47	14	1.0	0.6	21	14820	8200	0.111	20000	15000
7204 BETN	20	47	14	1.0	0.6	21	14820	8200	0.104	20000	15000
7204 BETN-2RS	20	47	14	1.0	0.6	21	14820	8200	0.105	-	9000
7205 BE	25	52	15	1.0	0.6	24	15800	9500	0.135	16000	13500
7205 BETN	25	52	15	1.0	0.6	24	15800	9500	0.127	16000	13500
7205 BETN-2RS	25	52	15	1.0	0.6	24	15800	9500	0.127	-	8000
7206 BE	30	62	16	1.0	0.6	27	22600	14390	0.202	14000	11000
7206 BETN	30	62	16	1.0	0.6	27	22600	14390	0.196	14000	11000
7206 BETN-2RS	30	62	16	1.0	0.6	27	22600	14390	0.203	-	6200



72...BE



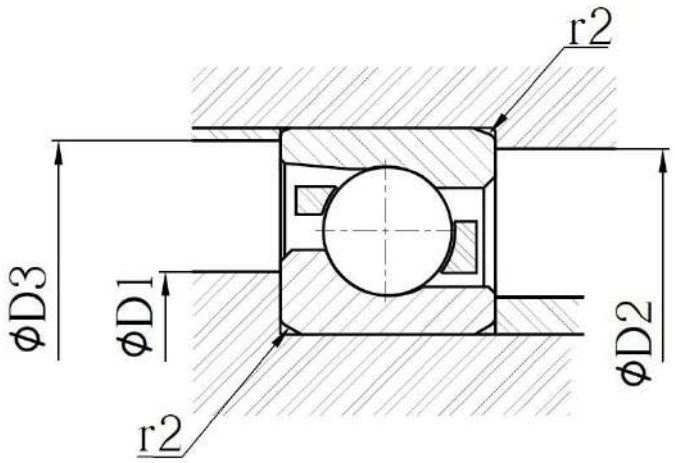
72...BETN



72...BETN-2RS

DIMENSIONAL TABLE α°=40 All Dimensions are in mm

Designation	d	D	B	r min	r1 min	a	BASIC LOAD RATING		MASS (KG)	LIMITING SPEED	
							DYNAMIC CR (N)	STATIC COR (N)		Oil (rpm)	Grease (rpm)
7207 BE	35	72	17	1.1	0.6	31	29180	19140	0.3	12000	9100
7207 B ETN	35	72	17	1.1	0.6	31	29180	19140	0.282	12000	9100
7207 BETN-2RS	35	72	17	1.1	0.6	31	29180	19140	0.282	-	5500
7208 BE	40	80	18	1.1	0.6	34	34490	24000	0.387	11000	8300
7208 BETN	40	80	18	1.1	0.6	34	34490	24000	0.367	11000	8300
7208 BETN-2RS	40	80	18	1.1	0.6	34	34490	24000	0.367	-	5000
7209 BE	45	85	19	1.1	0.6	37	36050	26300	0.428	9500	7400
7209 BETN	45	85	19	1.1	0.6	37	36050	26300	0.405	9500	7400
7210 BE	50	90	20	1.1	0.6	39	37430	28540	0.493	9000	6500
7210 BETN	50	90	20	1.1	0.6	39	37430	28540	0.458	9000	6500
7211 BE	55	100	21	1.5	1.0	43	48260	38500	0.645	8200	6000
7211 BETN	55	100	21	1.5	1.0	43	48260	38500	0.604	8200	6000
7212 BE	60	110	22	1.5	1.0	47	57850	45780	0.847	7500	5700
7212 BETN	60	110	22	1.5	1.0	47	57860	45780	0.78	7500	5700
7213 BE	65	120	23	1.5	1.0	51	66380	54000	1.08	6000	5200
7213 BETN	65	120	23	1.5	1.0	51	66380	54000	1.0	6000	5200



All Dimensions are in mm

Designation			Abutment and fillet dimensions			
			D1 (min)	D2 (min)	D3 (max)	r2 (max)
7200 BE	7200 BETN	7200 BETN-2RS	14.2	25.8	27.6	0.6
7201 BE	7201 BETN	7201 BETN-2RS	16.2	27.8	29.6	0.6
7202 BE	7202 BETN	7202 BETN-2RS	19.2	30.8	32.6	0.6
7203 BE	7203 BETN	7203 BETN-2RS	21.2	35.8	37.6	0.6
7204 BE	7204 BETN	7204 BETN-2RS	25.6	41.8	42.8	1.0
7205 BE	7205 BETN	7205 BETN-2RS	30.6	46.4	47.8	1.0
7206 BE	7206 BETN	7206 BETN-2RS	35.6	56.4	57.8	1.0
7207 BE	7207 BETN	7207 BETN-2RS	42	65	67.8	1.0
7208 BE	7208 BETN	7208 BETN-2RS	47	73	75.8	1.0
7209 BE	7209 BETN	-	52	78	80.8	1.0
7210 BE	7210 BETN	-	61	83	85.8	1.0
7211 BE	7211 BETN	-	64	91	94.4	1.5
7212 BE	7212 BETN	-	69	101	104.4	1.5
7213 BE	7213 BETN	-	74	111	114.4	1.5

NRB INDUSTRIAL

CAM FOLLOWERS
STUD TYPE

MOVING THE WHEELS OF INDUSTRY

CAM FOLLOWERS - STUD TYPE

Cam followers are designed to run directly on surfaces such as cams, ramps, and slide ways. They are used as track rollers, cam followers, and in a wide range of linear motion systems.

In order to meet the operating conditions of heavy radial loads usually accompanied by repeated shocks, NIBL cam followers have the following advantages:

- Heavy section outer ring of high strength steel hardened to 58 – 62 HRC
- No oil hole or lubrication groove on the outer ring, thus preventing the
  - introduction of impurities into the bearing
  - scaling and galling of the bearing track
- Convex (crowned) outer ring tolerating out-of-parallelism of contact surfaces.

Crowned outer rings are used where the axis of the cam follower is not parallel to the surface of the track or is skewed relative to the direction of travel. Outer ring with crowned outside surface supports high radial loads and reduces edge stresses which occur due to misalignment. Crowned outer rings are best suited in applications with curved or circular tracks.

NIBL offers cam followers with crowned outer ring as a standard feature. Cam followers with cylindrical outer ring are also available, suffix X.

For use of cam followers with crowned outer ring as bearings, please consult NIBL Technical Department.

- Oil hole provided under the needles enable lubricant replenishment through the shaft.
- Cam followers with full complement of needles offer the maximum dynamic and static load carrying capability, and anti-friction performance, in a compact design.
- Cage-guided cam followers provide large space for grease, helpful in applications where re-lubrication is infrequent. Permit operation at high speed.

Sealed type cam followers require low maintenance. Their operating temperature is limited due to the grease and seal material which is between -30° C and +100° C.

NIBL stud type cam followers consist of a solid stud of high tensile strength with an integral rib on one side, thick-walled outer ring, rolling elements set and a thrust washer pressed on to the other side of the stud. Assembly of these components forms an integral unit. Area which serves as the race way for the rolling elements and the abutment surfaces are hardened.

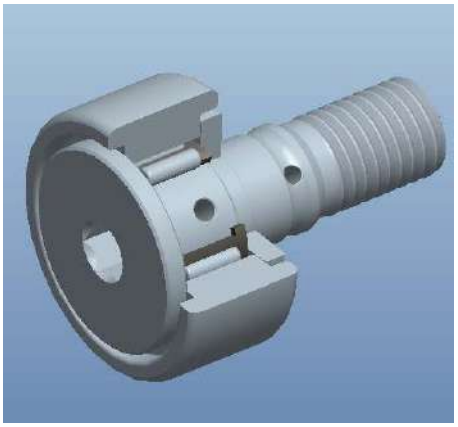
Axial guidance to the outer ring is by means of integral rib on the stud and a thrust washer which is press fitted on to the stud.

For re-lubrication lubrication holes are provided at the ribbed face of the stud as well as at the threaded end. In case of symbols 16 and 19 lubrication hole is at the ribbed face only. Additional lubrication holes are provided in the stud for cam followers with an outside diameter of 30 mm and above.

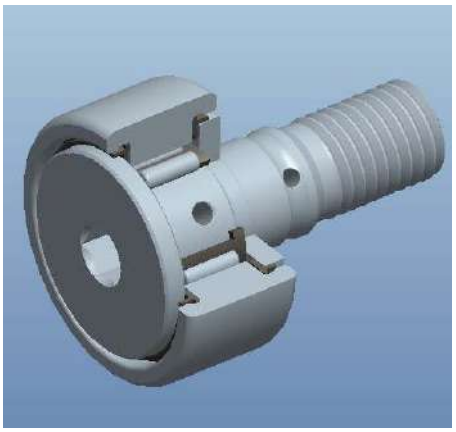
Threads on the end of the stud, hexagonal socket in the ribbed face and threads side of the stud are provided for ease of mounting. In case of symbols 16 and 19 threads on the end of the stud and a screw driver slot is provided in the ribbed face.

Design variations, different design variations of stud type cam followers are available:

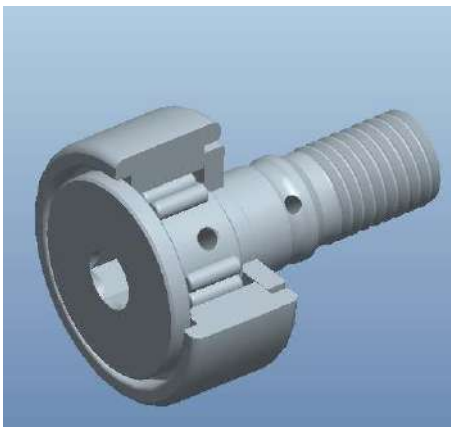
KR .. type
- cage guided needle rollers
- with axial guidance
- with gap seals



KR .. EE types
- cage guided needle rollers
- with axial guidance
- sealed both sides

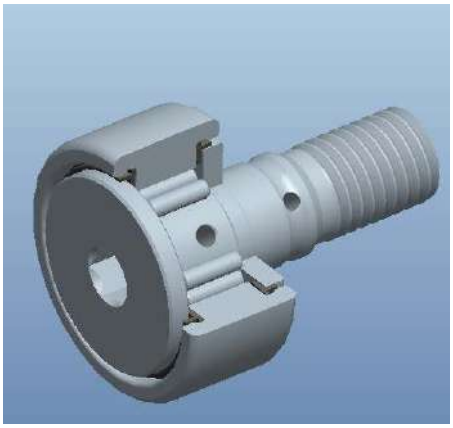


KRV .. type
- full complement set of needle rollers
- with axial guidance
- with gap seals



KRV .. EE type

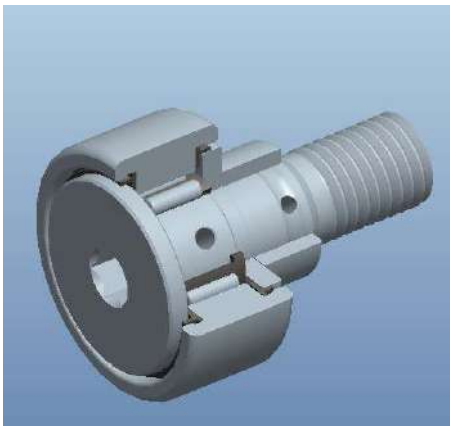
- full complement set of needles
- with axial guidance
- sealed both sides



KRE .. EE type

- with eccentric collar (**Eccentric Cam Followers**) **#**
- cage guided needle rollers
- with axial guidance
- sealed both sides

 # Stud type of cam follower with eccentric collar can be supplied in any of the above design variation. Add 'E' to the pre-fix, example KRE.., KRE..EE, KRVE.., KRVE..EE



Eccentric Cam Followers are used when there is a need to make height adjustments between the cam follower and the track. This can be done by simply turning the entire cam follower inside the housing by using one of the hexagonal sockets provided on the side faces of the stud. It is possible to adjust the distance between the cam follower and the track by twice the eccentricity (for value of eccentricity, please-refer to the 'Dimensions table').

Benefits of eccentric cam followers,

- Improved load distribution when using more eccentric type stud cam followers.
- Preloaded linear systems possible.
- Manufacturing tolerances of mating component can be relaxed

The highest point of the eccentricity is indicated on the stud side face. Highest point of eccentricity is also the indicator of the location of the re-lubrication radial holes which should not lie in the load zone of the rolling contact.

Note
Cam followers with crowned outer ring is standard feature of NIBL cam followers. Above design variations of NIBL cam followers can also be supplied with cylindrical outer ring, add suffix 'X' to designation, example, KRV 26 EEX

Stud type cam followers, KR .. & KR .. EE types

- cage guided needle rollers
- with axial gudance
- with gap seales, KR ..
- sealed both sides, KR .. EE

Dimensions table - dimensions in mm

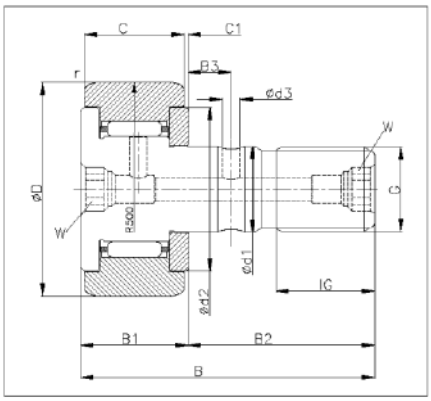
Outside diameter	Designation	Weight approx.	Dimensions										
			D	d_1 h7	B	B_1 max	B_2	B_3	C	C_1	r min.	d_2	d_3
mm		gms	mm										
16	KR 16 *	19	16	6	28	12.2	16	-	11	0.6	0.15	12.5	-
	KR 16 EE *	18	16	6	28	12.2	16	-	11	0.6	0.15	12.5	-
19	KR 19 *	29	19	8	32	12.2	20	-	11	0.6	0.15	15	-
	KR 19 EE *	29	19	8	32	12.2	20	-	11	0.6	0.15	15	-
22	KR 22	45	22	10	36	13.2	23	-	12	0.6	0.3	17.5	-
	KR 22 EE	43	22	10	36	13.2	23	-	12	0.6	0.3	17.5	-
26	KR 26	59	26	10	36	13.2	23	-	12	0.6	0.3	17.5	-
	KR 26 EE	57	26	10	36	13.2	23	-	12	0.6	0.3	17.5	-
30	KR 30	92	30	12	40	15.2	25	6	14	0.6	0.6	23	3
	KR 30 EE	88	30	12	40	15.2	25	6	14	0.6	0.6	23	3
32	KR 32	103	32	12	40	15.2	25	6	14	0.6	0.6	23	3
	KR 32 EE	98	32	12	40	15.2	25	6	14	0.6	0.6	23	3
35	KR 35	173	35	16	52	19.6	32.5	8	18	0.8	0.6	27.6	3
	KR 35 EE	164	35	16	52	19.6	32.5	8	18	0.8	0.6	27.6	3
40	KR 40	247	40	18	58	21.6	36.5	8	20	0.8	1	31.5	3
	KR 40 EE	239	40	18	58	21.6	36.5	8	20	0.8	1	31.5	3
47	KR 47	386	47	20	66	25.6	40.5	9	24	0.8	1	36.5	4
	KR 47 EE	381	47	20	66	25.6	40.5	9	24	0.8	1	36.5	4
52	KR 52	461	52	20	66	25.6	40.5	9	24	0.8	1	36.5	4
	KR 52 EE	454	52	20	66	25.6	40.5	9	24	0.8	1	36.5	4
62	KR 62	790	62	24	80	30.6	49.5	11	29	0.8	1	44	4
	KR 62 EE	770	62	24	80	30.6	49.5	11	29	0.8	1	44	4
72	KR 72	1 040	72	24	80	30.6	49.5	11	29	0.8	1.1	44	4
	KR 72 EE	1 010	72	24	80	30.6	49.5	11	29	0.8	1.1	44	4
80	KR 80	1 608	80	30	100	37	63	15	35	1	1.1	53	4
	KR 80 EE	1 608	80	30	100	37	63	15	35	1	1.1	53	4
90	KR 90	1 975	90	30	100	37	63	15	35	1	1.1	53	4
	KR 90 EE	1 975	90	30	100	37	63	15	35	1	1.1	53	4

(1) W, Nominal dimension for hexagonal socket

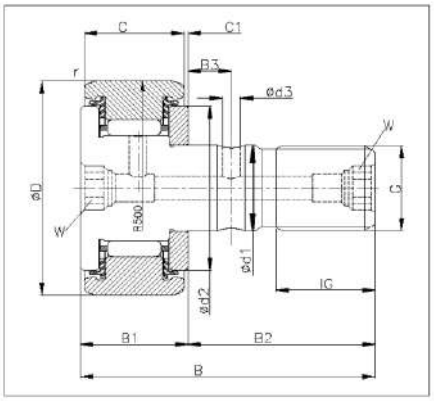
(2) When a cam follower moves on a flat raceway or on a cam plate, the load distribution on rolling elements changes due to the elastic deformation of the outer ring. For such operating conditions, the effective load ratings C_{rw} and C_{orw} should be used.

(3) speed limit given is with grease lubrication.

* Symbols 16 & 19 are supplied with screw driver slot as standard feature, however these can also be supplied with hexagonal socket if required.



KR .. type



KR .. EE type

G	IG	(1) W	Nut tightening torque M_A	(2) Basic capacities		Fatigue limit load Cur w	(3) Speed limit
				Dynamic C_{rw}	Static $C_{or\,w}$		
mm			Nm	N	N	N	r.p.m.
M6X1	8	-	3	3150	3350	450	14000
M6X1	8	-	3	3150	3350	450	14000
M8X1.25	10	-	8	3500	4000	540	11000
M8X1.25	10	-	8	3500	4000	540	11000
M10X1	12	5	15	4550	5300	730	8000
M10X1	12	5	15	4550	5300	730	8000
M10X1	12	5	15	5100	6400	840	8000
M10X1	12	5	15	5100	6400	840	8000
M12X1.5	13	6	22	6800	8600	1220	5500
M12X1.5	13	6	22	6800	8600	1220	5500
M12X1.5	13	6	22	7100	9200	1290	5500
M12X1.5	13	6	22	7100	9200	1290	5500
M16X1.5	17	8	58	9700	14300	1830	3600
M16X1.5	17	8	58	9700	14300	1830	3600
M18X1.5	19	8	87	10900	15800	2090	2900
M18X1.5	19	8	87	10900	15800	2090	2900
M20X1.5	21	10	120	15400	26000	3400	2400
M20X1.5	21	10	120	15400	26000	3400	2400
M20X1.5	21	10	120	16600	29000	3800	2400
M20X1.5	21	10	120	16600	29000	3800	2400
M24X1.5	25	14	220	26000	48000	6800	1900
M24X1.5	25	14	220	26000	48000	6800	1900
M24X1.5	25	14	220	28000	53000	7200	1900
M24X1.5	25	14	220	28000	53000	7200	1900
M30X1.5	32	14	450	38500	77000	11000	1300
M30X1.5	32	14	450	38500	77000	11000	1300
M30X1.5	32	14	450	40500	83000	11700	1300
M30X1.5	32	14	450	40500	83000	11700	1300

Stud type cam followers, KRV .. & KRV .. EE types

- full complement set of needles rollers
- with axial gudance
- with gap seales, KRV ..
- sealed both sides, KRV .. EE

Dimensions table - dimensions in mm

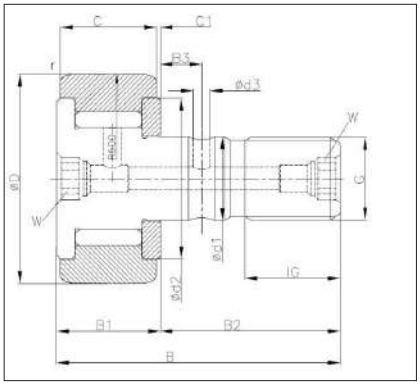
Outside diameter	Designation	Weight approx.	Dimensions										
			D	d_1 h7	B	B_1 max	B_2	B_3	C	C_1	r min.	d_2	d_3
mm		gms	mm										
16	KRV 16 *	19	16	6	28	12.2	16	-	11	0.6	0.15	12.5	-
	KRV 16 EE *	19	16	6	28	12.2	16	-	11	0.6	0.15	12.5	-
19	KRV 19 *	31	19	8	32	12.2	20	-	11	0.6	0.15	15	-
	KRV 19 EE *	31	19	8	32	12.2	20	-	11	0.6	0.15	15	-
22	KRV 22	45	22	10	36	13.2	23	-	12	0.6	0.3	17.5	-
	KRV 22 EE	45	22	10	36	13.2	23	-	12	0.6	0.3	17.5	-
26	KRV 26	59	26	10	36	13.2	23	-	12	0.6	0.3	17.5	-
	KRV 26 EE	59	26	10	36	13.2	23	-	12	0.6	0.3	17.5	-
30	KRV 30	91	30	12	40	15.2	25	6	14	0.6	0.6	23	3
	KRV 30 EE	91	30	12	40	15.2	25	6	14	0.6	0.6	23	3
32	KRV 32	101	32	12	40	15.2	25	6	14	0.6	0.6	23	3
	KRV 32 EE	101	32	12	40	15.2	25	6	14	0.6	0.6	23	3
35	KRV 35	166	35	16	52	19.6	32.5	8	18	0.8	0.6	27.6	3
	KRV 35 EE	166	35	16	52	19.6	32.5	8	18	0.8	0.6	27.6	3
40	KRV 40	247	40	18	58	21.6	36.5	8	20	0.8	1	31.5	3
	KRV 40 EE	247	40	18	58	21.6	36.5	8	20	0.8	1	31.5	3
47	KRV 47	390	47	20	66	25.6	40.5	9	24	0.8	1	36.5	4
	KRV 47 EE	390	47	20	66	25.6	40.5	9	24	0.8	1	36.5	4
52	KRV 52	463	52	20	66	25.6	40.5	9	24	0.8	1	36.5	4
	KRV 52 EE	463	52	20	66	25.6	40.5	9	24	0.8	1	36.5	4
62	KRV 62	787	62	24	80	30.6	49.5	11	29	0.8	1	44	4
	KRV 62 EE	787	62	24	80	30.6	49.5	11	29	0.8	1	44	4
72	KRV 72	1 027	72	24	80	30.6	49.5	11	29	0.8	1.1	44	4
	KRV 72 EE	1 027	72	24	80	30.6	49.5	11	29	0.8	1.1	44	4
80	KRV 80	1 636	80	30	100	37	63	15	35	1	1.1	53	4
	KRV 80 EE	1 636	80	30	100	37	63	15	35	1	1.1	53	4
90	KRV 90	2 003	90	30	100	37	63	15	35	1	1.1	53	4
	KRV 90 EE	2 003	90	30	100	37	63	15	35	1	1.1	53	4

(1) W, Nominal dimension for hexagonal socket

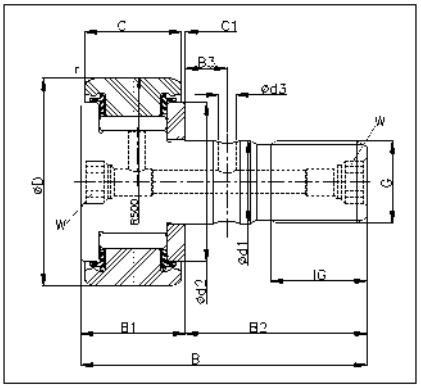
(2) When a cam follower moves on a flat raceway or on a cam plate, the load distribution on rolling elements changes due to the elastic deformation of the outer ring. For such operating conditions, the effective load ratings C_{rw} and C_{orw} should be used.

(3) speed limit given is with grease lubrication.

* Symbols 16 & 19 are supplied with screw driver slot as standard feature, however these can also be supplied with hexagonal socket if required.



KRV .. type



KRV .. EE type

G	IG	(1) W	Nut tightening torque M_A	(2) Basic capacities		Fatigue limit load Cur w	(3) Speed limit
				Dynamic C_{rw}	Static $C_{or w}$		
mm			Nm	N	N	N	r.p.m.
M6X1	8	-	3	4900	6600	950	3800
M6X1	8	-	3	4900	6600	950	3800
M8X1.25	10	-	8	5400	8000	1170	3100
M8X1.25	10	-	8	5400	8000	1170	3100
M10X1	12	5	15	6200	9200	1210	2600
M10X1	12	5	15	6200	9200	1210	2600
M10X1	12	5	15	7300	11500	1500	2600
M10X1	12	5	15	7300	11500	1500	2600
M12X1.5	13	6	22	9500	14900	2050	2100
M12X1.5	13	6	22	9500	14900	2050	2100
M12X1.5	13	6	22	10000	16100	2200	2100
M12X1.5	13	6	22	10000	16100	2200	2100
M16X1.5	17	8	58	12600	23100	3200	1600
M16X1.5	17	8	58	12600	23100	3200	1600
M18X1.5	19	8	87	14700	26500	3500	1400
M18X1.5	19	8	87	14700	26500	3500	1400
M20X1.5	21	10	120	20300	42000	5900	1300
M20X1.5	21	10	120	20300	42000	5900	1300
M20X1.5	21	10	120	22300	48000	6700	1300
M20X1.5	21	10	120	22300	48000	6700	1300
M24X1.5	25	14	220	33500	75000	11200	1100
M24X1.5	25	14	220	33500	75000	11200	1100
M24X1.5	25	14	220	36500	85000	12600	1100
M24X1.5	25	14	220	36500	85000	12600	1100
M30X1.5	32	14	450	48500	117000	17400	850
M30X1.5	32	14	450	48500	117000	17400	850
M30X1.5	32	14	450	52000	129000	19000	850
M30X1.5	32	14	450	52000	129000	19000	850

Stud type cam followers, KRE .. EE types

- † with eccentric collar #
- cage guided needle rollers
- with axial gudance
- sealed both sides, KRE..EE

Dimensions table - dimensions in mm

Outside diameter	Designation	Weight approx.	Dimensions										
			D	d_1 h7	B	B_1 max	B_2	B_3	C	C_1	r min.	d_2	d_3
mm		gms	mm										
16	KRE 16 EE *	20	16	6	28	12.2	16	-	11	0.6	0.15	12.5	-
19	KRE 19 EE	32	19	8	32	12.2	20	-	11	0.6	0.15	15	-
22	KRE 22 EE *	47	22	10	36	13.2	23	-	12	0.6	0.30	17.5	-
26	KRE 26 EE	62	26	10	36	13.2	23	-	12	0.6	0.30	17.5	-
30	KRE 30 EE	93	30	12	40	15.2	25	6	14	0.6	0.60	23.0	3
32	KRE 32 EE	104	32	12	40	15.2	25	6	14	0.6	0.60	23.0	3
35	KRE 35 EE	177	35	16	52	19.6	32.5	8	18	0.8	0.60	27.6	3
40	KRE 40 EE	255	40	18	58	21.6	36.5	8	20	0.8	1	31.5	3
47	KRE 47 EE	400	47	20	66	25.6	40.5	9	24	0.8	1	36.5	4
52	KRE 52 EE	473	52	20	66	25.6	40.5	9	24	0.8	1	36.5	4
62	KRE 62 EE	798	62	24	80	30.6	49.5	11	29	0.8	1	44	4
72	KRE 72 EE	1 038	72	24	80	30.6	49.5	11	29	0.8	1.1	44	4
80	KRE 80 EE	1 665	80	30	100	37	63	15	35	1	1.1	53	4
90	KRE 90 EE	2 032	90	30	100	37	63	15	35	1	1.1	53	4

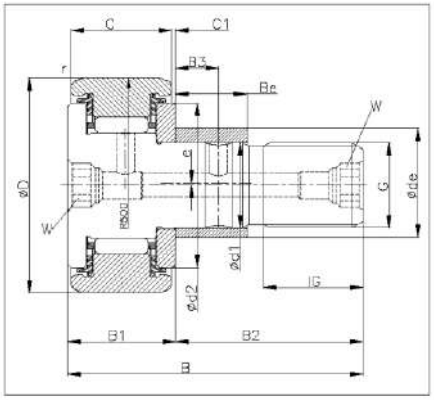
cam followers in other design variations (KR ..; KR .. EE; KRV ..; KRV .. EE) can also be supplied with Eccentric Collar, suffix E : KRE ..; KRE .. EE; KRVE ..; KRVE .. EE

(1) W, Nominal dimension for hexagonal socket

(2) When a cam follower moves on a flat raceway or on a cam plate, the load distribution on rolling elements changes due to the elastic deformation of the outer ring. For such operating conditions, the effective load ratings C_{rw} and C_{orw} should be used.

(3) speed limit given is with grease lubrication.

* Symbols 16 & 19 are supplied with screw driver slot as standard feature, however these can also be supplied with hexagonal socket if required.



KRV ..EE type

G	IG	(1) W	Eccentric d_e h9	Eccentric B_e	Eccentric e	Nut tightening torque M_A	(2) Basic capacities Dynamic C_{rw}	(2) Basic capacities Static $C_{or\,w}$	Fatigue limit load $C_{ur\,w}$	(3) Speed limit
mm						Nm	N	N	N	r.p.m.
M6X1	8	-	9	7	0.5	3	3150	3350	450	14000
M8X1.25	10	-	11	9	0.5	8	3500	4000	540	11000
M10X1	12	5	13	10	0.5	15	4550	5300	730	8000
M10X1	12	5	13	10	0.5	15	5100	6400	840	8000
M12X1.5	13	6	15	11	0.5	22	6800	8600	1220	5500
M12X1.5	13	6	15	11	0.5	22	7100	9200	1290	5500
M16X1.5	17	8	20	14	1	58	9700	14300	1830	3600
M18X1.5	19	8	22	16	1	87	10900	15800	2090	2900
M20X1.5	21	10	24	18	1	120	15400	26000	3400	2400
M20X1.5	21	10	24	18	1	120	16600	29000	3800	2400
M24X1.5	25	14	28	22	1	220	26000	48000	6800	1900
M24X1.5	25	14	28	22	1	220	28000	53000	7200	1900
M30X1.5	32	14	35	29	1.5	450	38500	77000	11000	1300
M30X1.5	32	14	35	29	1.5	450	40500	83000	11700	1300

NRB INDUSTRIAL

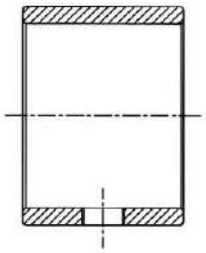
BOTTOM ROLLER BEARINGS

MOVING THE WHEELS OF INDUSTRY

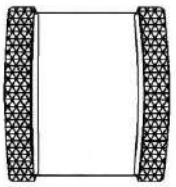
NIBL manufactures a wide range of Bottom Roller Bearings for supporting bottom rollers in Ring Spinning Frames and Speed Frames of textile industry.

NIBL Bottom Roller Bearings confirm to International Standards. Holders (locating caps) for these bearings are made suitable for various sizes of roller stands. Special sizes of Bottom Roller bearings are also manufactured as per customer's requirements.

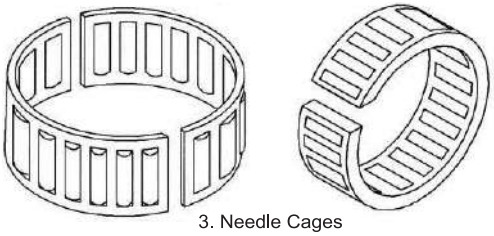
FEATURES



1. Outer Ring



2. Inner Ring



3. Needle Cages

Steel Cage Split in Two Halves Plastic Cage

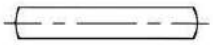
NIBL Bottom Roller Bearings – UN series are specially constructed Needle Roller Bearings for long and trouble free service. Every component of the bearing is manufactured to strict quality norms.

The stringent limits of manufacture ensure the running accuracy of the bearing.

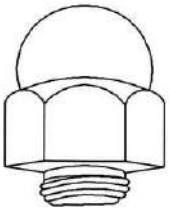
The outer ring (1) of the bearing is crowned to accommodate some misalignment in the roller stands. Crowning also helps in preventing early failure of the bearing by distributing the load uniformly.

The inner ring (2) has knurling on its flanges, which provides an effective seal to prevent entry of fibres in the bearing and protect it from damage.

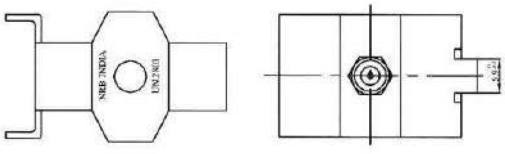
NIBL Bottom Roller Bearings incorporate a steel cage split in two halves or plastic cage (3). The design of cage pockets ensures that the needles (4) do not fall and also give them positive and accurate guidance. Lubrication to the bearing is effected through the grease nipple (5). The bearing is secured on the roller stand very easily by a holder (locating cap) (6). Holder (locating cap) in different designs as per customer's requirement can be supplied.



4. Needles

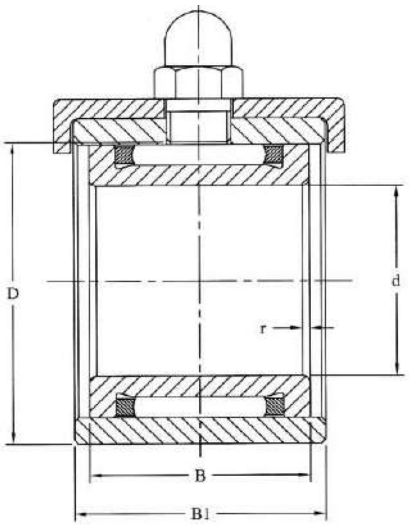


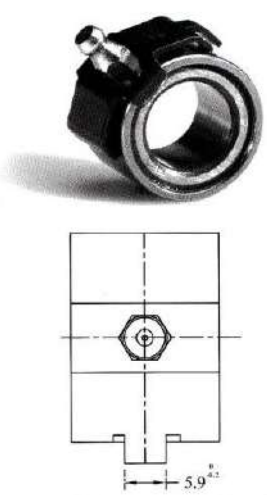
5. Lubricating Nipples



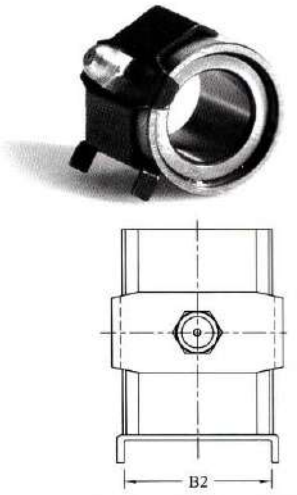
6. Holder (Locating Cap)

Side Location - Type SL. Central Location - Type CL





Holder Central Location - Type CL



Holder Side Location - Type

Journal Dia mm	NIBL No.	Equivalent		d	D	B
		SKF No.	INA No.	(mm)	(mm)	(mm)
14.2	UN2813	UL112-28	-	14.2	28.0	16.6
16.5	UN2803	-	UW2128.20	16.5	28.0	19.0
16.5	UN2804	-	UWL2800	16.5	28.0	19.0
16.5	UN2809	-	UW2128.22	16.5	28.0	19.0
16.5	UN2821	-	UW2128.22	16.5	28.0	19.0
16.5 [1)]	UN2810	-	UW2128.22	16.5	28.0	19.0
16.5	UN2814	UL2528-0 000417	-	16.5	28.0	19.0
16.5	UN2822	UL2800-00417	-	16.5	28.0	19.0
16.5	UN3229	-	-	16.5	32.0	19.0
16.5	UN2815	UL2800-10080	-	16.5	28.0	23.0
16.5	UN3001	-	-	16.5	30.0	19.0
17.0	UN3203	-	-	17.0	32.0	22.0
17.0	UN3204	-	-	17.0	32.0	22.0
18.5	UN3003	UL30-0 007871	UWL3000	18.5	30.0	19.0
18.5	UN3003D3	-	-	18.5	30.0	19.0
19.0 [2)]	UN3209	-	UW2132.22	19.0	32.0	20.0
19.0 [2)]	UN3230	-	UW2132.22	19.0	32.0	20.0
19.0 [2)]	UN3210	-	UWL3200	19.0	32.0	20.0
19.0 [2)]	UN3211	-	UW2132.20	19.0	32.0	20.0
19.0 [2)]	UN3213B	-	UWL3200	19.0	32.0	20.0
19.0 [3)]	UN3224	-	-	19.0	32.0	20.0
19.0 [3)]	UN3225	-	-	19.0	32.0	20.0
19.0	UN3233	UL3200-0 0421	-	19.0	32.0	20.0
24.0	UN3216	-	F-18636	24.0	32.0	-

Note: *r: max. shaft fillet radius
** Holder type: design features of holders can vary from bearing to bearing. Pictures shown above indicate the basic type of holders.
Equivalent Suessen bearing no. [1)]UZ2808, [2)]UZ328, [3)]UZ3202

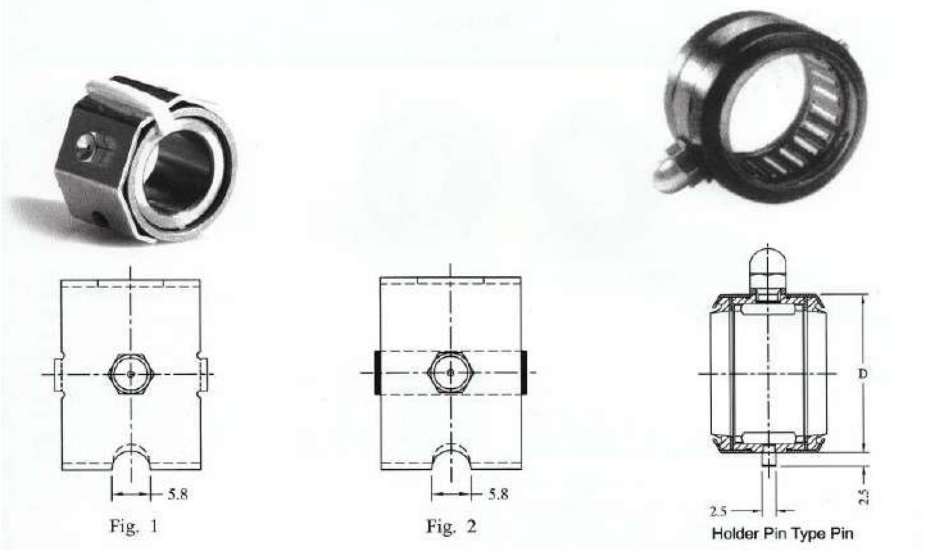
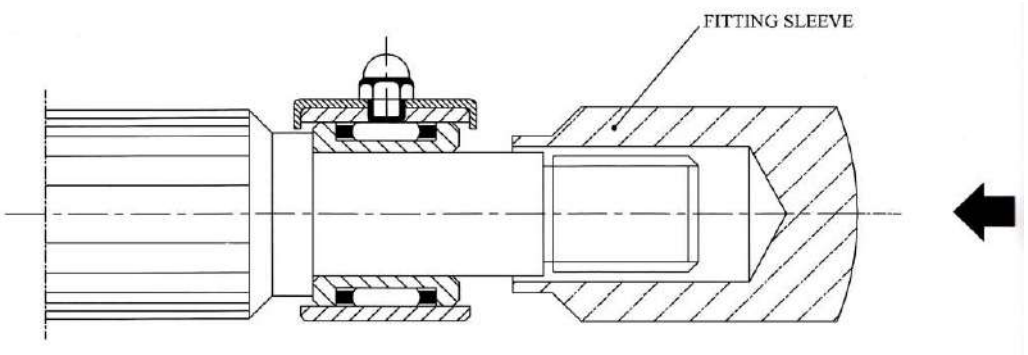


Fig. 1 Fig. 2 Holder Pin Type Pin

B1 (mm)	r* (mm)	Holder Type**	B2 (mm)	C newtons	C_0 newtons
23.0	0.5	SL	22.2	9900	14100
22.0	0.6	SL	20.0	9900	14100
22.0	0.6	CL	-	9900	14100
22.0	0.6	SL	22.0	9900	14100
22.0	0.6	SL	22.0	9900	14100
22.0	0.6	SL	22.0	9900	14100
23.0	0.6	SL	22.2	9900	14100
23.0	0.6	SL	22.3	9900	14100
23.0	0.6	SL	22.2	9700	14200
23.0	0.5	SL	24.0	9900	14100
23.0	0.6	SL	22.0	9900	14100
25.0	0.4	SL	20.4	15800	20000
25.0	0.4	SL	20.4	15800	20000
22.0	0.6	CL	-	9000	12700
22.0	0.6	SL	22.2	9000	12700
23.0	0.25	SL	22.2	12200	19200
23.0	0.25	SL	22.2	12200	19200
23.0	0.25	CL	-	12200	19200
23.0	0.25	SL	20.0	12200	19200
23.0	0.25	CL	-	12200	19200
23.0	0.6	SPECIAL (fig. 1)	-	12200	19200
23.0	0.6	SPECIAL (fig. 2)	-	12200	19200
24.0	0.6	SL	22.3	12200	19200
22.0	-	PIN	-	10600	16400

MOUNTING



To mount the bearings on the Bottom Rollers, we recommend the following:

1. Light mineral oil should be applied on the journal seating. Care should be taken to ensure that the faces and journals of the Bottom Rollers are neither damaged nor dirty.
2. The inner ring is press fit on the journal. A special tubular dummy should be placed against the inner ring face and the force for mounting should be applied uniformly (use of a - pneumatic cylinder is advisable) until the bearing ring abuts the face of the Bottom Roller. No sharp tool or pointed edge should be used against the bearing ring face.
3. After the rollers are placed on the stands and the holders are in position, the alignment in the longitudinal direction should be checked to ensure true running. Excessive misalignment can reduce the service life of the bearings.

LUBRICATION

On delivery NIBL Bottom Roller Bearings are supplied with rust preventive oil and are not greased. Therefore, all bearings should be greased before use. We recommend the use of good quality lithium base grease of consistency to NLGI2.

Relubrication frequency depends on the operating conditions and can vary from mill to mill. However, relubrication interval between 1500 to 3000 operating hours can be taken as a guideline.

It is recommended to relubricate the bearing while the bottom rollers are revolving and it is very important to ensure that the same grease is used, which was used at the time of initial greasing.

NOTES

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