



BEARINGS CATALOGUE

No. BC2010-A

Single row radial ball bearings

Double row radial ball bearings

Double row self-aligning ball bearings

Single row separable ball bearings

Single and double row angular contact ball bearings

Single row duplex ball bearings

Single and double direction thrust ball bearings

Single row cylindrical roller bearings

Double row spherical roller bearings

Spherical roller thrust bearings

Taper roller bearings

RKB Bearings Catalogue

BEARING INDUSTRIES

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The **RKB** Group is an international manufacturing organization operating in the bearing industry with headquarters in Switzerland. The experience gained in this sector provides **RKB** with the know-how and expertise necessary for the development and production of technological value-added bearings, particularly in the field of heavy duty machines and equipments. All **RKB** bearings are manufactured in conformity with the International Standards in owned plants that are ISO 9001 and ISO 14001 certified. Thanks to its pioneer business model, based on a vertically integrated system, **RKB** offers reliable cost-effective solutions in the long run, with extreme operational flexibility, leading-edge service and the quality typical of a consistent premium-class bearing source. With a worldwide distribution network and exports to more than 50 Countries, **RKB** is globally recognized as “*The Alternative Power*” in the bearing industry.

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The present catalogue lists the types and technical specifications of the standard ball and roller bearings manufactured and offered by **RKB** Bearing Industries. All the bearings in this catalogue are produced in accordance with the standards of the International Organization for Standardization (ISO). The load ratings in this volume are principally based on ISO 281 and ISO 76, but are not calculated according to the latest available bearing design and execution. In order to get further background information on calculations please ask **RKB** Technical Department for related data. Unilaterally empowered factors, formulas and tables are not taken into consideration. This catalogue is intended to be a critical information and advisory instrument for all technical issues regarding rolling bearings, and a guideline for machine and equipment designers.

The standard products described in this publication only partially cover the range of bearings manufactured by **RKB**. In fact, rolling bearing technology is in constant development and **RKB** Bearing Industries specializes most of all in technological, big size and application optimized bearings, both in through-hardened steel and case-hardened steel. Therefore, due to the necessity of incessantly revising and optimizing products, **RKB** adopted the Technical Fiche method to offer the most accurate and up-to-date data in compliance with the latest available executions (examples on page VI, VII, VIII, IX, X, and XI). So, because of continuous redesign and technological progress, this catalogue cannot be considered exhaustive in terms of product range and executions. For this reason, for a more comprehensive knowledge of the bearing families manufactured by **RKB** please refer to the Bearings Production Range enclosed here and contact **RKB** Technical Department to request the most updated technical fiche of the products of your interest.

Then, although this catalogue is correct at the time of going to press, bearings supplied may be of a different design to that specified.

The listing of bearing types and sizes in this catalogue does not imply that they are always available and customers are advised to check with **RKB** Sales Department before committing themselves to any particular bearing.

A technical advisory service is available on a confidential basis. Any customer who wishes to take advantage of this service should submit a drawing or sketch and all details of the proposed application to **RKB** Technical Department.

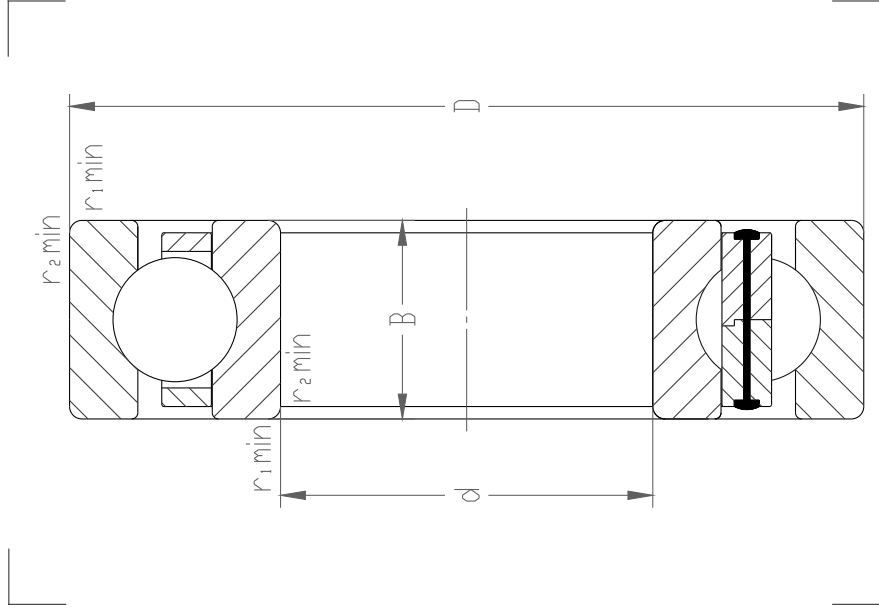
Deep groove ball bearings

618/750 MB

GGC140410

Main boundary dimensions (mm)	
d	750
D	920
B	78

Technical data		
Basic load ratings (kN)	C_r	525
	C_{or}	1250
Mass (kg)		116
Cage material		Brass
Radius min (mm)	r_1	5,0
	r_2	5,0
	r_3	5,0
	r_4	5,0
Precision class		P0
e		-
Radial clearance (mm)		CN
Configuration/Design		618/MB



Technical notes

- Machined brass cage guided on inner ring (rivet-type)
- Speed rating oil lubrication 600 rpm
- 29 balls dia 1-7/8"
- Outer ring raceway diameter 882,625
- Inner ring raceway diameter 787,375
- Raceways curvature R25

Sketch scale is free.
 Load ratings are principally based on ISO 281 and ISO 76, but not calculated according to the latest bearing design and execution. For further background ask for related calculations.
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 Also refer to RKB Affidavit of Conformance (LUSA) for related compliance to International Standards.
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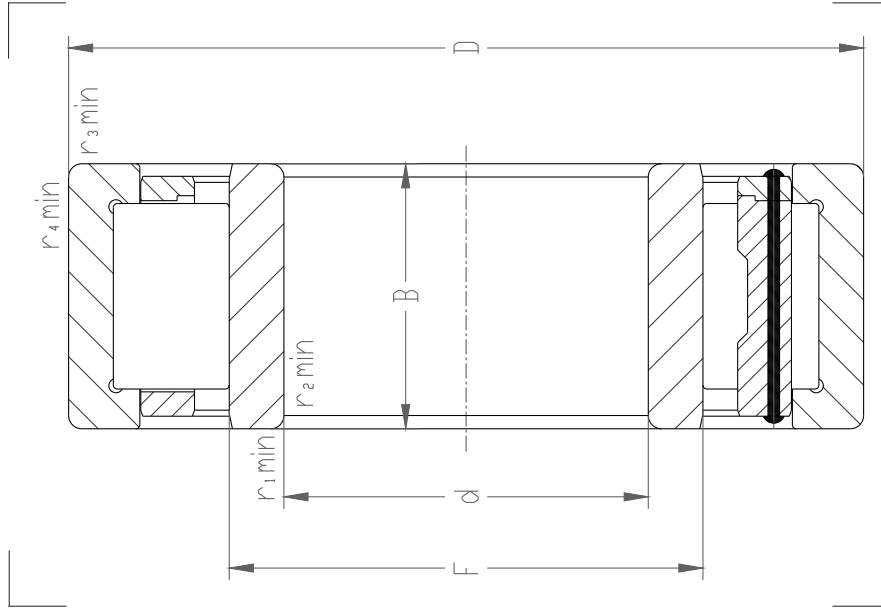
CC270510

Cylindrical roller bearings

NU 2032 EMAC3ZB

Main boundary dimensions (mm)	
d	160
D	240
B	48
F	180

Technical data		
Basic load ratings (kN)	C_r	410
	C_{br}	670
Mass (kg)		8,0
Cage material		Brass
Radius min (mm)	r_1	1,5
	r_2	1,5
	r_3	2,1
	r_4	2,1
Precision class		P0
e		-
Radial clearance (mm)		C3
Configuration/Design		NU/EMA



Technical notes	
-	Optimized inner geometry E_Type
-	Machined brass cage guided on outer ring (rivet-type)
-	ZB roller profile
-	Max axial displacement +/-2 mm
-	For general industry purpose

Sketch scale is free.
 Load ratings are principally based on ISO 281 and ISO 76, but not calculated according to the latest bearing design and execution. For further background ask for related calculations.
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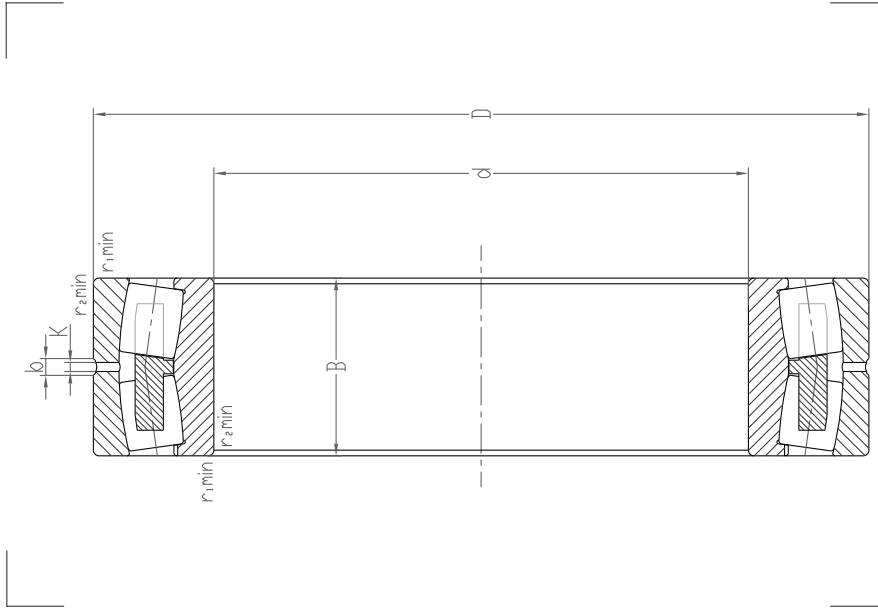
Spherical roller bearings

24192 CAC3W33X

GGC260510

Main boundary dimensions (mm)	
d	460
D	760
B	300

Technical data		
Basic load ratings (kN)	C_r	7300
	C_{or}	14000
Mass (kg)		547,0
Cage material		Brass
	r_1	7,5
	r_2	7,5
	r_3	-
Radius min (mm)	r_4	-
Precision class		P0
e		0,37/13°30'
Radial clearance (mm)		C3
Configuration/Design		CAW33X



Technical notes
<ul style="list-style-type: none"> - Annular groove and 6 lubrication holes in outer ring b;K (suffix W33X) - Optimized cage design (integrated guiding slinger) - For general industry purpose

Sketch scale is free.
 Load ratings are principally based on ISO 281 and ISO 76, but not calculated according to the latest bearing design and execution. For further background ask for related calculations.
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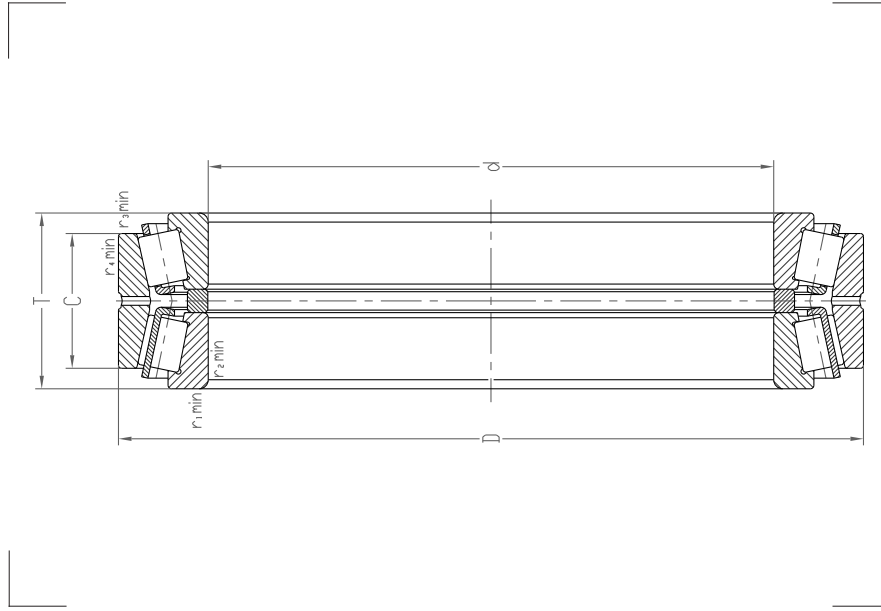
CC200510

Double row taper roller bearings

TDO 331605 A3HA1ZBBT2B

Main boundary dimensions (mm)	
d	498,475
D	634,873
T	177,800
C	142,875

Technical data		
Basic load ratings (kN)	$\frac{C}{D}$	2550
	C_{br}	7300
Mass (kg)		125,0
Cage material		Pressed steel
Radius min (mm)	r_1	6,4
	r_2	6,4
	r_3	1,5
	r_4	1,5
Precision class		CL2
e		0,35/K factor 1,70
Radial clearance (mm)		B.E.P. 0,850/1,100
Configuration/Design		TDO/A3



Technical notes
<ul style="list-style-type: none"> - Double cup with annular groove and lubrication holes. One hole counter bored for locking pin (Ka 28,4;Kb 13,5) - Cone spacer with annular groove and lubrication holes - Case-hardened steel for rings - 2x47 ZB rollers - Cage max protusion 8,5 - Marked zones - Q.C.C.D.S. certificate data sheet included

Sketch scale is free.
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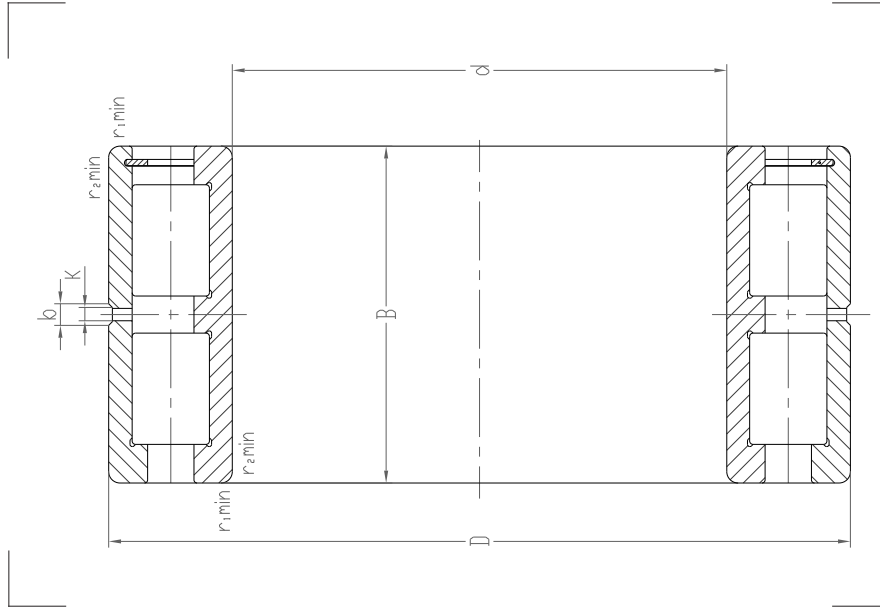
Cylindrical roller bearings

NNCF 5036 VZB

CC100510

Main boundary dimensions (mm)	
d	180
D	280
B	136

Technical data		
Basic load ratings (kN)	C_r	1300
	C_{or}	2500
Mass (kg)		30,0
Cage material	r_1	2,1
	r_2	2,1
	r_3	-
	r_4	-
Precision class		P0
Radial clearance (mm)	e	-
Configuration/Design		NNCF50V



Technical notes
<ul style="list-style-type: none"> - AWT Technology for rings and rollers (anti-wear surface treatment) - Permissible axial displacement $\pm 0,8$ mm - Annular groove and 4 lubrication holes in outer ring (b;K)

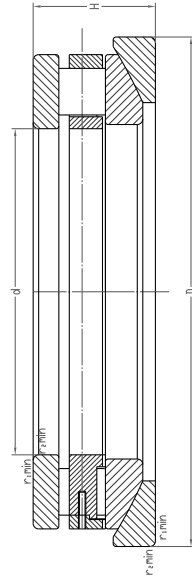
Sketch scale is free.
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Cylindrical roller thrust bearings

AT 626

Main boundary dimensions (mm)	
d	88.900
D ₃	138.887
H	33.325

Technical data		
Basic load ratings (kN)	C _a	165
	C _{0a}	588
Mass (kg)		1,71
Cage material		Brass
Radius min (mm)	r ₁	1,5
	r ₂	1,5
	r ₃	1,5
	r ₄	1,5
Precision class		Normal
e		-
Radial clearance (mm)		-
Configuration/Design		Inch/AT600



Technical notes
<ul style="list-style-type: none"> - Optimized cage design (elastic pin-type retention method) - 18 rollers - For general industry purpose

Sketch scale is free.
 Load ratings are principally based on ISO 281 and ISO 76, but not calculated according to the latest bearing design and execution. For further background ask for related calculations.
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Roadmap for eligibility criteria

Procurement compliance procedure for technological bearings

The knowledge and experience gained over the years, along with the close cooperation with international academic centers, have enabled **RKB** to establish the steps of the procurement compliance procedure for technological bearings. For reasons of responsibility and transparency, all customers are invited to read thoroughly and follow carefully the following roadmap:

- (1) Signing of non-disclosure agreement (where required).
- (2) Commercial evaluation (price, delivery terms and conditions).
- (3) Technical merit evaluation (application analysis and evaluation, project development, bearing size and type selection, bearing load calculations for verification, bearing engineering and design, bearing drawings, setting and tuning, guidelines and instructions, technical specifications and protocols, advanced software engineering, traceability validation).
- (4) Supplier evaluation: standing (including assets, liabilities, equity and capital expenditures), general information, essential background and qualifications.
- (5) Representations and warranties (certifications, affidavits, declarations and references).
- (6) Visits, audits and approval of operations and supply chain (level of integration).
- (7) Laboratory analyses and certifications.
- (8) Tests/trials on the application and certifications.
- (9) Homologation formalities (product meets regulatory standards and specifications).

This procedure is of paramount importance to ensure high levels of product reliability and quality, and to guarantee the correctness of the relationship with clients. In fact, by establishing the rights, obligations and responsibility in the procurement process of technological bearings, the compliance procedures have the objective of ensuring that:

- Products are in conformity with related International Standards and/or technical documentation.
- Expected characteristics, parameters and performance are accomplished.
- Deals are executed in transparency, without misleading or deceiving conduct with regard to corporate and product consistency and reliability, through an appropriate scoring model.

Recommendations to customers

As a matter of responsibility, **RKB** has also developed a series of recommendations in order to help customers choose after due consideration and keep away from unpleasant surprises:

- (1) **Homologation roadmap**
Always follow the Roadmap for eligibility criteria in the procurement process of technological bearings.
- (2) **Representations and warranties**
Always formally define representations and warranties to avoid incurring fraudulent cases, including misleading or deceiving conduct with regard to corporate consistency and reliability.
- (3) **Scientific background and conformity to International Standards**
As a matter of transparency, always request suppliers to show the scientific background (quantitative and qualitative) and technical conformity to related International Standards of the data provided during the process of technical evaluation and compliance.
- (4) **Bearing mixing**
Never mix **RKB** rolling bearings with not eligible products on the same equipment or machine.
- (5) **Big size and technological bearings**
The manufacturing knowledge, technology, procedures and processes for big size (in particular heavy series and extra-thin series from 260 mm bore on) and technological bearings are extremely complex and critical compared to smaller sizes. In fact from designing and engineering to raw material selection, forging, heat-treatments, machinings, assembling and all related multilevel quality controls, it is state-of-the-art to manufacture a conventional qualified rolling bearing that meets performance requirements and International Standards. Once again **RKB** suggests, particularly in the procurement process of the above mentioned products, to strictly follow an efficient and reliable homologation roadmap.
- (6) **Spurious sources**
Always investigate and formally define the level of integration (in-house operations) of bearing manufacturers to avoid the risk of selecting spurious sources.



BEARINGS
PRODUCTION RANGE

Deep groove ball bearings

Non-separable, for operations at high speeds, of simple design and little maintenance, RKB deep groove ball bearings are the most versatile and popular bearings in rolling applications.

The internal designs are the Conrad assembly (the majority of the production) and the filling slot assembly (for special applications with cage or with full ball complement).

The single row deep groove ball bearings can take radial and double direction axial loads.

They have limited abilities to compensate for errors of misalignment. Because of the values, in order to avoid inadmissible high additional loads and noise increase as a result of complex relationships among several influencing factors, the permissible misalignments are considered those between 2 to 10 minutes of arc depending on the bearing series.

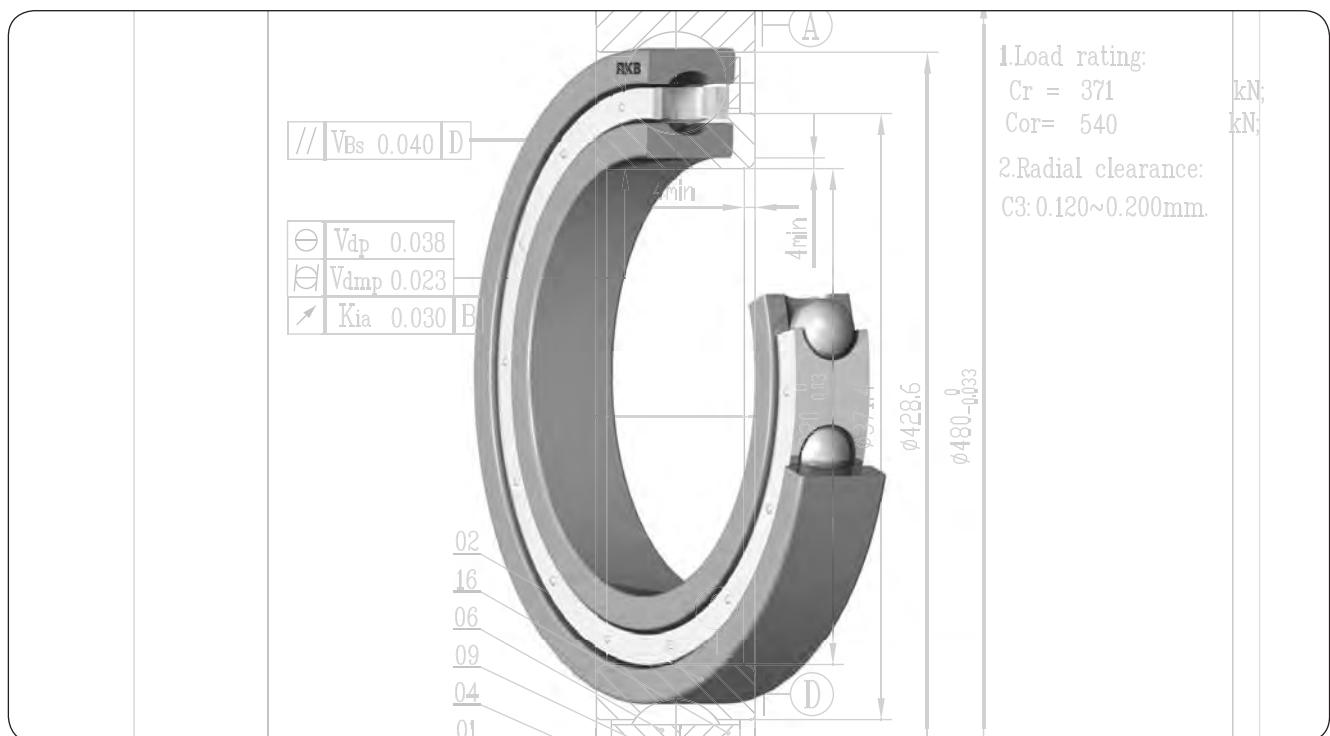
The basic design of RKB deep groove ball bearings is open type either with boundary metric dimensions in accordance with ISO 15:1988 or with inch dimensions as per American AFBMA specifications.

The version with a snap ring groove on the outer ring (suffix N) for the easy axial location in the housing is in accordance with ISO 464.

When required by the application, these ball bearings are also produced in the sealed and shielded versions that have the seal recesses in the outer rings (suffix 2RS and ZZ). In case of bearings with shields, there is a small interstice between the shield and the rib of the inner ring; in case of bearings with seals, the oil resistant elastic rubber lip runs on the groove on the side of the inner ring or directly on the outside surface of the inner ring. Bearings sealed and shielded on both sides manufactured in series are delivered filled with normal lithium base grease of consistency NLGI 2 or with special grease suitable for specific applications.

RKB single row deep groove ball bearings are produced as standard to normal tolerances P0. Higher precision bearings in accordance with ISO 492:2002 can be considered.

The radial clearance, according to ISO 5753, can be normal or in different classes as per international specifications.



The axial clearance is generally not standardized and depends on the values of the radial clearance, ball size and raceway radius.

The cage depends on the bearing series and size; RKB single row deep groove ball bearings are supplied with one of the following designs: ribbon type cage of steel or brass sheet, riveted type of steel or brass sheet and machined brass type centered on balls, inner ring or outer ring.

Large size bearings are also available in special executions such as lubrication grooves in the guiding surfaces of machined brass cage (suffix MAS or MBS) and/or one notch in the outer ring side face to prevent ring from rotating (suffix N1).

Non ISO standard dimensions (including special part numbers) can be manufactured on request.

Highlights

Part number:	6236 MP63A
Bore:	180 mm
Outside diameter:	320 mm
Width:	52 mm
Mass:	18,9 kg
Dynamic load carrying capacity:	225 kN
Static load carrying capacity:	238 kN
Application:	Traction Motors

Single row angular contact ball bearings

RKB single row angular contact ball bearings are designed to accommodate combined loads acting in radial and axial direction. They can take axial loads in one direction only. When radially loaded, in the bearing occurs an axially acting load which has to be compensated. For this reason one bearing or paired bearings are mounted on each shaft end. These bearings are not separable and their use at relatively high speed is allowed. Manufactured in various constructive versions, they can be with different contact angles, depending on the application (suffix AC, A and B).

RKB produces two types of single row angular contact ball bearings: those of normal design and those intended for paired mounting (used respectively for tandem arrangement, DB and DF arrangements when axial loads have to be taken in both directions).

In the case of single row angular contact ball bearings the efforts between rings and rolling elements are transmitted at an angle to a plane perpendicular to the bearing axis. The value of this angle depends on the magnitude of the raceway radius, ball diameter and radial clearance in the bearing when the curvature centers of the raceway are in the same plane.

The main dimensions are in accordance with ISO/R 15. The values for the tolerance of the normal, P6 and P5 classes conform to ISO 492. Internal axial clearance or preload is obtained only when the bearings are mounted in the assembly and depends on the location of the second bearing which assures the shaft axial guiding.

RKB single row angular contact ball bearings are fitted with a cage type depending on series and size: pressed steel sheet cage, machined brass cage guided on balls or on the inner ring and machined steel cage.

Large size paired 718 and 719 series bearings in DF and DB configuration for power transmission equipment are included in RKB production program.



Four-point angular contact ball bearings (single row duplex ball bearings)

RKB four-point angular contact ball bearings are single row bearings where the raceway is designed to accommodate significant axial loads in both directions.

Generally they have contact angle of either 35° or 45°.

They need less axial space than double row or paired angular contact ball bearings.

The four-point contact ball bearings have a split two-part inner (bearing designation QJ) or outer (bearing designation Q) ring, allowing a large number of balls to be incorporated, thus providing a high load carrying capacity.

The bearings are of separable design of the parts.

To prevent rotation of the outer ring (when split inner ring) all the bearings with outside diameter over 160 mm are provided with locating slots (suffix N).

The main boundary dimensions are in accordance to ISO 15.

The tolerances have values conform to ISO 492 and the normal class is for RKB standard production.

The fitted cage is machined brass centered on outer ring for the standard common type QJ with split inner ring.

RKB produces these bearings with normal axial internal clearance measured before mounting under zero measuring loads, but most sizes can also be supplied with greater or smaller clearance to special order.

Highlights

Part number:	719/600 AMBP6DFA250-300
Bore:	600 mm
Outside diameter:	800 mm
Width:	180 mm
Mass:	250 kg
Dynamic load carrying capacity:	1170 kN
Static load carrying capacity:	3450 kN
Application:	Steel Industry

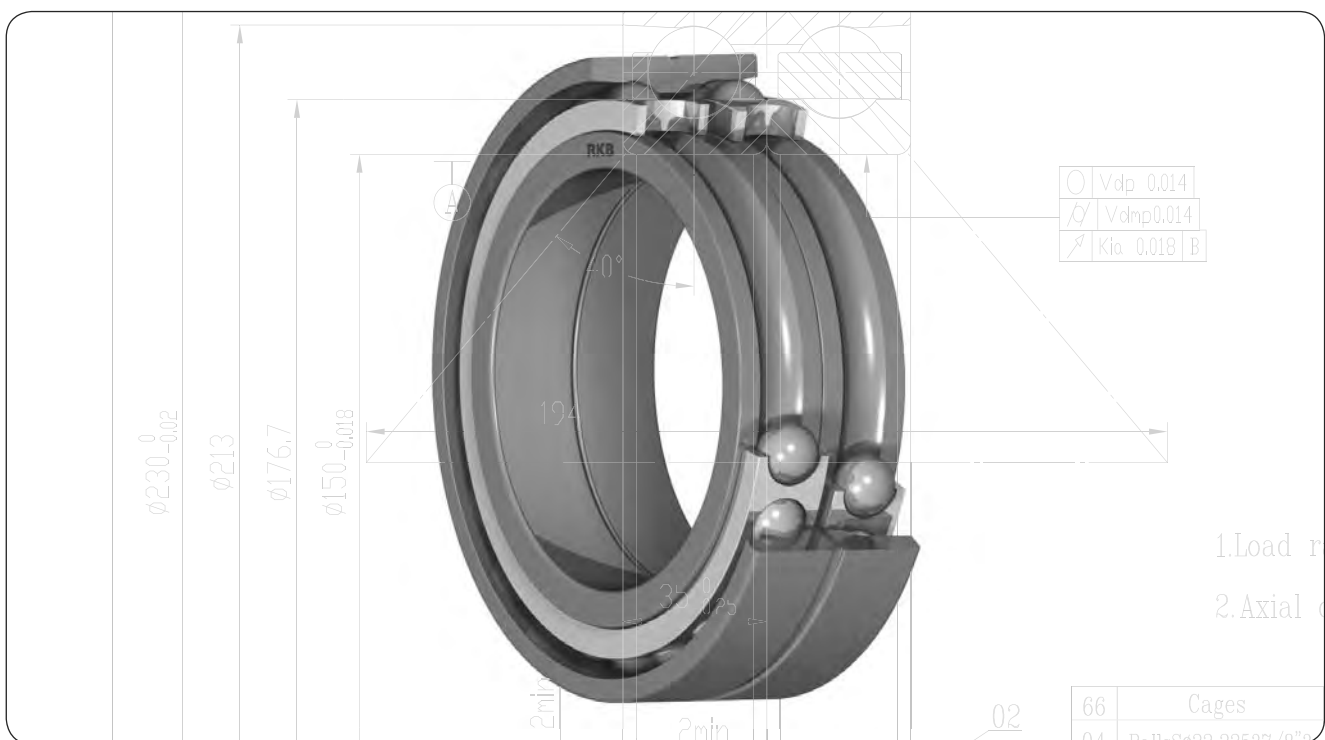
Double row angular contact ball bearings

RKB double row angular contact ball bearings are equivalent to two single row paired angular contact ball bearings in the arrangement back-to-back or face-to-face. So they can accept radial loads together with axial loads acting in both directions. The width is narrower than the two equivalent single row bearings in pair.

The large double row angular contact ball bearings of RKB production range include bearings specially designed for rolling mills (bearing designation series 305 followed by three numbers).

The standardized items of the series ISO 32 and 33 have the filling slot and are non-separable, thus single direction axial loads should be applied.

The special bearings with drawing number of series 305 can have either split two-part inner ring or split two-part outer ring. They are non-separable and usually are mounted with radial play in the housing. In the bearings with split two-part inner ring the load lines refer to the back-to-back arrangement. The load lines of the bearings with split two-part outer ring are in the face-to-face arrangement.



The main dimensions of bearing series 32 and 33 are as per ISO 15 specifications.
The dimensions of bearing series 305 do not follow any standards, but are internationally accepted and recognized in the rolling mill applications.
The manufacturing tolerances conform to ISO 492 for normal class specification, but running accuracy grade is in accordance with P6 at least.
These bearings are generally produced with a uniform axial internal clearance, but special values suitable for specific applications can be supplied on request.

The double row angular contact ball bearings in RKB production program are normally filled with two machined brass cage (one for each ball row).

Highlights

Part number:	305269 DP6
Bore:	280 mm
Outside diameter:	389,5 mm
Width:	92 mm
Mass:	34,1 kg
Dynamic load carrying capacity:	400 kN
Static load carrying capacity:	750 kN
Application:	Rolling Mill Stands/Steel Industry

Cylindrical roller bearings

RKB produces cylindrical roller bearings in various design styles, sizes and dimension series.

RKB heavy duty radial cylindrical roller bearings are designed to provide the highest possible radial capacity for the given cross section and to perform under heavy radial loads. These bearings incorporate improved internal proportions developed through computer assisted optimization studies, to make the maximum use of the total available cross-sectional area. The rollers have controlled contour to redistribute end stress concentration and provide more uniform distribution of the applied loads (suffix ZB). Their surface finishing maximizes lubricant film formation and optimizes rolling motion.

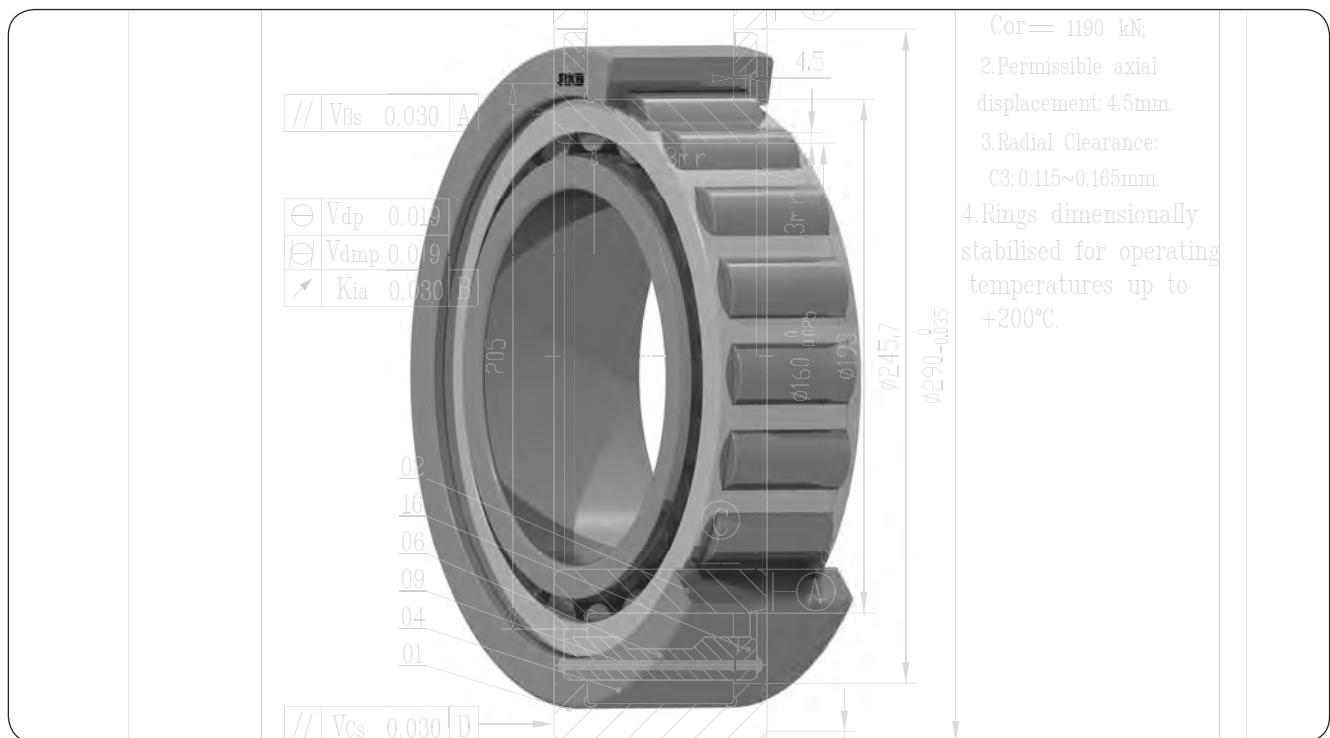
The standard ISO assortment of RKB production program includes single and double row bearings with a cage that can accommodate heavy radial loads and operation at high speeds.

A complete range in various executions of full complement of rollers suitable for more heavy loads at moderate speeds is also available. Large size bearings can be supplied with surface treated rollers (suffix B).

In addition to the standard assortment, RKB cylindrical roller bearing range is comprehensive of open and sealed multi row for rolling mills in many executions and designs, backing bearings for cold rolling mills and indexing roller units for continuous furnace.

Besides to the inch dimension series as per AFBMA specifications, RKB offers the American style series 5200 and 5300 metric cylindrical roller bearings with enhanced radial capacity due to its internal design proportions, with double ribbed outer ring and with manufacturing tolerances established for the interchangeable components.

The single row cylindrical roller bearings are manufactured in various constructive versions, depending on the position of the ribs on the rings (e.g. bearing designation NU, NJ, NUP and N).



Depending on size and design, the bearings are equipped as standard with one of the following cages: unhardened pressed steel roller centered, one-piece window type brass inner or outer ring centered, two-piece machined brass roller centered (suffix M) or outer ring centered (suffix MA) or inner ring centered (suffix MB) and steel pin-type for pierced rollers.

Lubrication grooves in the guiding surfaces of machined brass cages are also available (suffix MAS and MBS).

RKB cylindrical roller bearings undergo a special heat treatment of stress relieving which allows them to be operated up to a temperature of +150 °C.

The tolerances are in accordance with ISO 492:2002.

The radial internal clearance, even smaller or greater than normal, is in accordance with the range class of ISO 5753 measured for unmounted bearings under zero measuring loads.

The axial internal clearance for fixed design bearings, which can locate the shaft axially in both directions, is specified as per experienced rule.

Bearings with no standard radial clearance or with special stated values required by specific applications can be supplied to special order.

Bearings made of case hardened carburizing alloy steels can be produced for particular applications, where required (suffix HA1, HA2, HA3 and HA4).

Besides, special treatments for rings and rollers are available (e.g. bainite quenching hardened for rings - suffix HB1 -, anti-wear surface treatment etc.).

Highlights

Part number:	NU 18/900 MASP6ZBS1AVH
Bore:	900 mm
Outside diameter:	1090 mm
Width:	85 mm
Mass:	168 kg
Dynamic load carrying capacity:	2320 kN
Static load carrying capacity:	5950 kN
Application:	Azimuthal Retractable Thruster/Shipyard Industry

Multi row cylindrical roller bearings

RKB cylindrical roller bearings with four or six rows have low cross section, high load carrying capacity and stiffness, and are particularly used for metal rolling equipment in mills, where the equipment has been scaled down and jet loads remain high.

These bearings are only able to accommodate radial loads, therefore they are mounted together with deep groove or angular contact ball bearings or with taper roller bearings which take up the axial loads. The four-row cylindrical roller bearings are of separable design, which considerably simplifies mounting, maintenance and inspection.

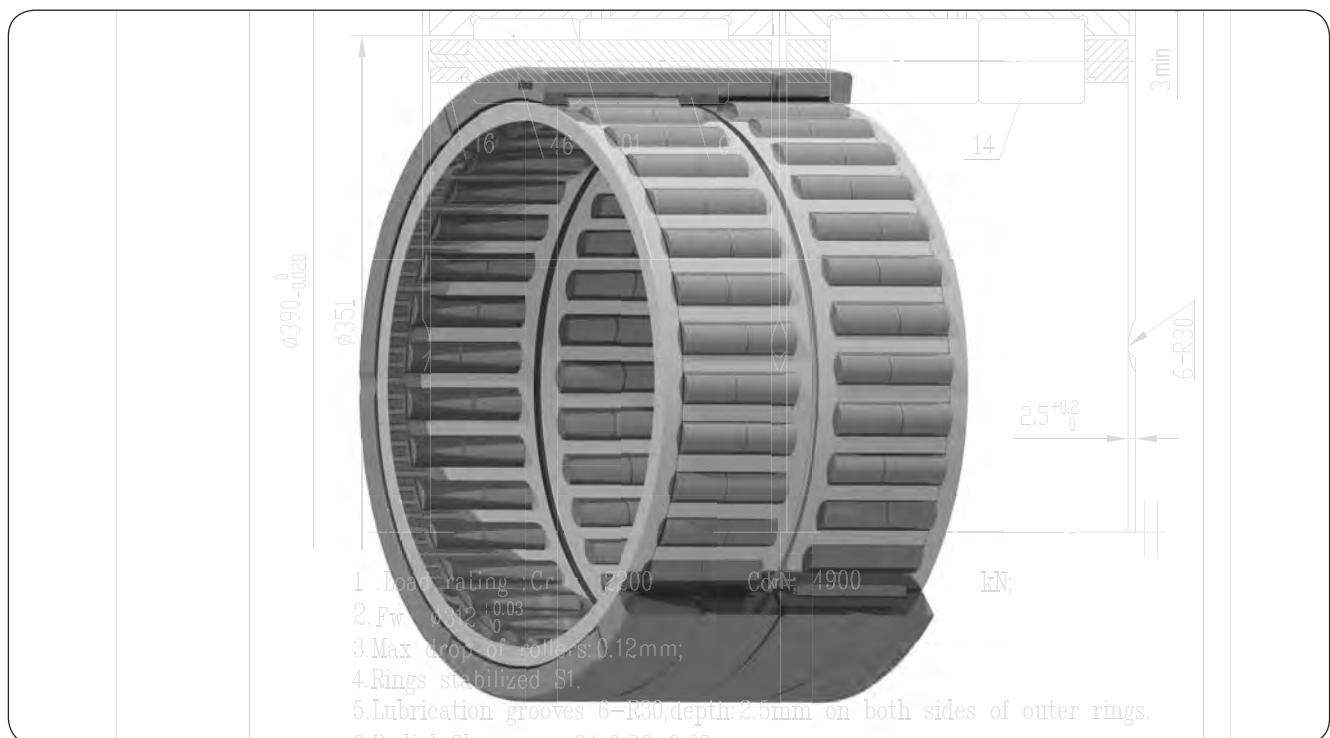
RKB cylindrical roller bearings can tolerate moderate to high shaft speeds. The rollers and outer races are carefully matched to ensure the best load distribution.

Inner rings (designation L) are interchangeable with other assemblies (designation R). Moreover, RKB multi row bearings allow direct interchange with main premium competitor products.

RKB has a flexible manufacturing program of different styles (also special) and sizes for multi row bearings. They have cylindrical bore and some sizes are also available with tapered bore as required by the application or by maintenance request.

The use of multi row cylindrical roller bearings in metal rolling mills exposes them to very heavy stresses, sometimes to impact loadings. The rings and rollers can be manufactured with very high quality case hardened carburizing alloy steels. Deep case depth and special heat treatment ensure superior size stability, fracture toughness and reliability.

Where the bearings are mounted with a loose fit on the roll neck, RKB multi row cylindrical roller bearings have C2 internal radial clearance and are supplied with a helical groove in the bore and/or lubrication grooves in the side faces of the bearing rings for the efficient lubrication of the mating parts (e.g. suffix AC).



To match the applications in the proper way, RKB produces the multi row cylindrical roller bearings in several construction designs within given geometric series. The various designs differ basically in the number of inner and outer rings, in the number of loose or integral flanges on the outer ring, in the cage type, in the number of rollers in the cage pocket etc. Furthermore, on order RKB can produce the four-row cylindrical roller bearings sealed at both sides by radial rubbing seals or with wider inner ring with concentric shoulder.

The boundary dimensions of these bearings are not standardized. However most of them have bore and outside diameter corresponding to ISO 15 series 9 and series 0. They are produced with the normal precision grade for roll neck bearings, which means tolerances conform to class P6 for dimensional and running accuracy with values as per ISO 492.

Highlights

Part number:	313822 GB2DXS1
Bore:	280 mm
Outside diameter:	390 mm
Width:	220 mm
Mass:	88 kg
Dynamic load carrying capacity:	2200 kN
Static load carrying capacity:	4900 kN
Application:	Rolling Mill Stands/Steel Industry

The main dimensions are in accordance with ISO 15.

The radial clearance can be normal, larger than normal (suffix C3, C4 and C5) or smaller than normal (suffix C2), measured on unloaded bearing in accordance with ISO 5753.

RKB spherical roller bearings of all series and sizes are stress relieved. They undergo a special heat treatment so that they can be used up to an operating temperature of +150 °C for long periods without inadmissible dimensional changes occurring.

Some of RKB spherical roller bearings are also manufactured in the sealed version with contact seal on both sides. The seals are reinforced with steel sheet and made of an oil and wear resistant rubber (as nitrile butadiene for universal usage - suffix 2CZ1 - or fluoro base - suffix 2CZ - to withstand operating temperature up to about +200 °C).

In order to locate the spherical roller bearings with the tapered bore onto a cylindrical seating, the adapter (designation H) or withdrawal (designation AH) sleeves are the most commonly used components with large shafts with h9 and h10 tolerance. They are easy-to-mount on smooth or stepped shafts and require no additional location.

Adapter sleeves are supplied along with lock nut and locking device (washer or clip).

For large sized bearings, both adapter and withdrawal sleeves are provided with oil grooves and oil duct at the threaded side to enable the oil injection method to be used for easy mounting and dismounting (designation OH and AOH).

All ISO series (also the outmoded series, such as 202 and 203) are in RKB manufacturing program with both straight bore (no suffix) and tapered bore (suffix K).

Highlights

Part number:	232/750 KCAC3W33XS1
Bore:	750 mm
Outside diameter:	1360 mm
Width:	475 mm
Mass:	2956 kg
Dynamic load carrying capacity:	19000 kN
Static load carrying capacity:	36000 kN
Application:	Mines and Minerals Industry

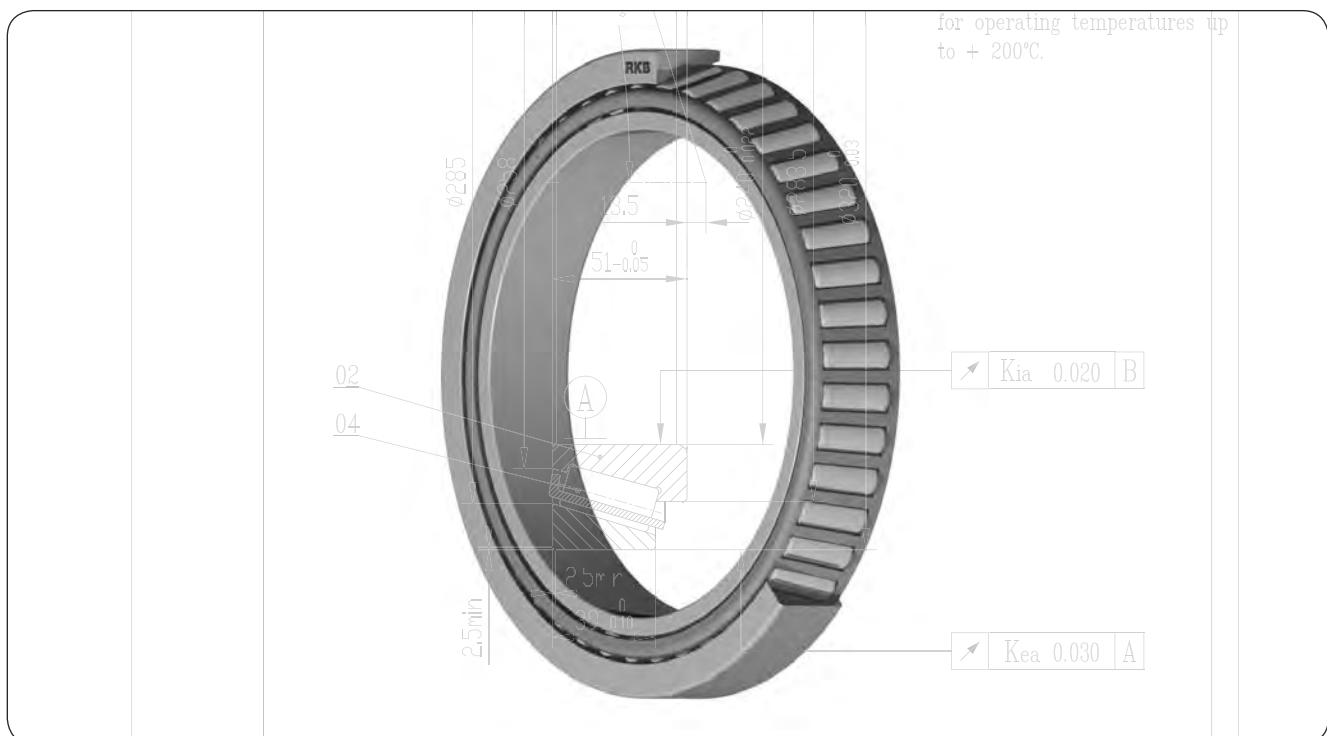
Single row taper roller bearings and matched paired sets

RKB taper roller bearings have the rolling elements under the form of frustum of cone. They roll on tapered surface which, if extended, converges towards a single point on the bearing axis. The rollers are guided tangentially by the cage and axially by the big rib of the inner ring, on which they have contact. As between rollers and raceways there is linear contact, they can take heavy radial loads. They can also take heavy axial or combined loads, depending on the contact angle caused by the tapered elements. The contact angle is the one of the outer raceway generatrix.

The single row taper roller bearings are of separable design, which means the outer ring/cup and the inner ring/cone with rollers and cage assembly can be separately mounted. RKB taper roller bearings are manufactured both in standardized (metric and inch sizes) and in non-standardized constructive version.

The metric single bearings have standardized dimensions as listed in ISO 355:1977 and those designated with prefix J conform to American AFBMA 19.1/1987. The inch size bearings conform to American AFBMA 19/1974.

The taper roller bearings can carry only single direction axial loads. Under pure radial loads, an axial force is induced within the bearings so that they cannot be used singly and a second bearing is required. A correct operational clearance or preload has to be identified for the correct performance and reliability of the application. RKB taper roller bearings have pressed steel cage as standard. For large size and/or heavy engineering applications, the steel pin-type cage and case hardened carburizing alloy steels can be considered. RKB single row taper roller bearings can also be produced with a rib on the outer cup as a flange to be used when the housing cannot be manufactured with shoulder, but only with a passed through hole so that, in this case, axial location can be provided by the bearing cup.



When the load carrying capacity of a single row is inadequate or where the load has to be located in both directions, RKB produces the single row taper roller bearings as ready-to-mount matched pairs.

The matched pairs, generally metric sized, in "O" back-to-back (designation DB) or "X" face-to-face (designation DF) arrangements, locate the shaft in both axial directions and the optimum axial play in the two bearings is adjusted and guaranteed after mounting.

In case of taper roller bearings, clearance should be in radial direction, but it is measured and adjusted in axial direction.

RKB paired matching sets are made to normal and CLN class tolerances as standard corresponding to ISO 492:1986.

The tolerances of the total width of the pair are not standardized, but an international common specification is applied.

The matched pairs of taper roller bearings incorporate pressed steel cages guided on rollers.

Highlights

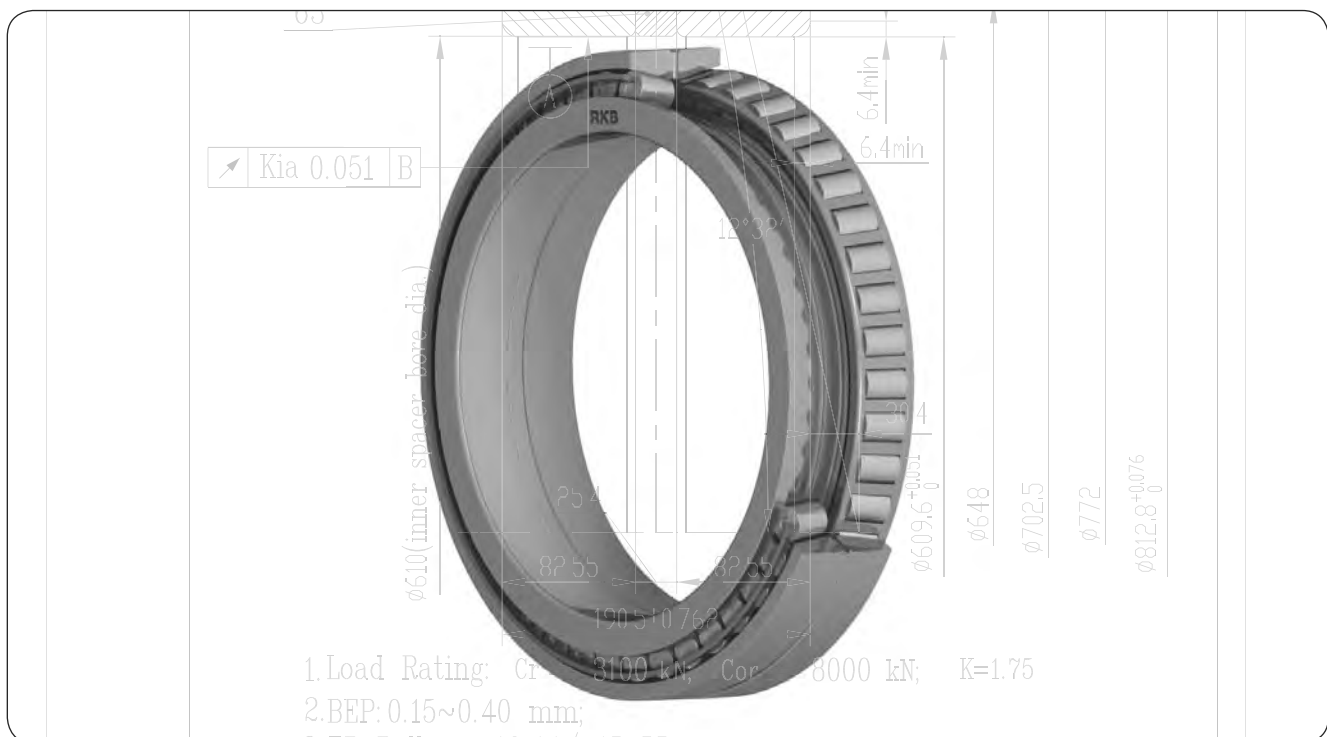
Part number:	LL 788349/310 HA1ZB
Bore:	1066,800 mm
Outside diameter:	1219,200 mm
Width:	65,088 mm
Mass:	106,5 kg
Dynamic load carrying capacity:	1550 kN
Static load carrying capacity:	4800 kN
Application:	Power Transmission Equipment for the Maltese Falcon Sailing Yacht (Dynarig Concept)

Double row taper roller bearings

RKB double row taper roller bearings can take up heavy loads and are stiff. Suitable for combined radial and axial loads, they locate axially the shaft in both directions with the stated axial end play (also defined as BEP - Bench End Play) or given preload. The basic styles are two-row converging TDI configuration and two-row diverging TDO configuration.

Rings and rollers are made of high chrome through hardening steels or case hardened carburizing alloy steels depending on the application. Cages for RKB double row taper roller bearings are stamped pressed steel. A steel pin-type cage, which allows a larger complement of rollers for higher capacity, is also available. This style of bearing set simplifies design and reduces the danger of bearing clearance changes due to axial shaft expansion. It is important the definition of the proper internal play related to the application.

RKB bearings in TDI configuration have a double cone assembly and two single cups and they are generally supplied with a cup spacer. The cup spacer of each bearing is face ground after accurate measurement of the distance between adjacent cup faces to obtain a predetermined internal play. Consequently, spacers or components may not be interchangeable. An annular groove and lubrication holes are included in the spacer. The contact angle converges, so the use of these bearings will not appreciably increase the rigidity of the shaft mounting. RKB also produces the taper roller steep contact angle TDIS version with higher thrust capacity (while the radial one is reduced) than the TDI type, normally used as back-up thrust bearings in rolling mills. These TDIS bearings have combination of face slots (e.g. N, N1, N2 etc.) and bore key-way for locking the cone on the shaft. Also helical groove in the bore and lubrication grooves in side faces of double cone and/or retention sleeve with annular groove and lubrication holes can be provided.



RKB bearings in TDO configuration have a double cup, two single cone assemblies and can be supplied with a shaft supported cone spacer.

The spacer for individual cones is face ground to obtain the desired internal play for the assembly.

So, also in this case, spacers and components may not be interchanged. An annular groove and oil holes are included in the cone spacer.

The TDO style bearings are mainly used in a floating cup mounting. So the counterbored hole in the cup is for a drilled dowel pin which prevents rotation of the loosely fitted double cup. Additional features of a lubrication groove and oil holes in the double cup for simplified lubrication through the outer ring are included (suffix CD). However, this style of bearings are usually lubricated through the shaft by use of oil holes and a groove in the cone spacer.

In the TDO type the contact angle diverges, so the rigidity of the shaft mounting is increased to resist overturning moments.

Bearing sets with steep contact angle and intermediate ring, pierced rollers and steel pin-type cage (TDOS design), bearing sets with extended inner rings which abut each other (TDONA and TDONASW designs), bearing sets with heavy wall cup (TNASWH design) and bearing sets with shields of pressed steel (TDO 4422 design) are also in RKB manufacturing program.

Most of TDI and TDO double row taper roller bearings are produced with inch dimensions as per American AFBMA 19/1974 and as per RKB standard practice, dimensional and running accuracy grade is in accordance with class 2 or 4.

Highlights

Part number:	TDO 331554 A7HA1ZBBT2B
Bore:	723,900 mm
Outside diameter:	914,400 mm
Width:	187,325 mm
Mass:	267 kg
Dynamic load carrying capacity:	3800 kN
Static load carrying capacity:	9650 kN
Application:	Power Transmission Industry

Four-row taper roller bearings

RKB four-row taper roller bearings are installed as complete assemblies and take axial loads in addition to heavy radial loads, so that generally it is not requested separate thrust bearings in such arrangements. They are commonly used in rolling mill applications.

For quick roll changes, the bearings have a loose fit on the roll necks, but there is the disadvantage that the inner rings wander on their seatings causing wear. To reduce these negative effects, RKB bearings have a helical groove in the bore and lubrication grooves in the side faces of the inner rings. These grooves enable lubricant to be supplied to the contact surfaces of the inner ring and seating.

Since wear and shock resistance under heavy rolling loads is a requirement for roll neck bearings, highest quality carburizing grade bearing alloy steels are normally used in RKB four-row taper roller bearings.

Besides, for large size bearings, pierced rollers and steel pin-type cage for maximum load ratings possible are applied.

The induced thrust resulting from radial loading is cancelled within the double cones and it eliminates excessive loads on clamping and spacing members.

RKB produces this style of bearings in two base designs, TQO and TQI configuration, where the main difference is the mutual arrangement of the roller complements and the number of inner and outer rings dictated by this.

The TQO type is composed in its standard configuration of two double cone assemblies, one central double cup, two single cups and factory adjusted cup and cone spacers.

The spacers of each bearing are face ground after accurate measurement of the distance between adjacent cups and cones to obtain the asked initial play (also defined as BEP - Bench End Play). So the bearing parts cannot be interchanged and they are individually marked for proper assembly.

Lubrication grooves and oil holes are provided in the cup spacers and in the double cup. Furthermore, lubricant slots in the cones side faces and cone spacer permit the lubricant to go through the bearing to the roll neck.

These bearings can be provided with lateral extension of the double cones used as sealing surface. This sealing feature offers better protection against hostile environment.

For high speed rolling mill requirements, the TQO bearing sets may have tapered bore with features of high capacity, compactness and a mounting system that guarantees a positive interference fit on the roll neck.



The TQI type is composed in its standard configuration of one double cone assembly, two single cone assemblies and two double cups. A four-separated individual single cup configuration is also available. This design facilitates the reworking of the bearing.

These bearings are fitted with pressed steel cage or with pierced rollers and steel pin-type cage. The fact that contact angles diverge makes the bearings well suited to resist to warping and misalignment.

The version with tapered bore that, with its three-cone design, assures easy assembly and disassembly (designation TQIT and TQITE) is also available.

In RKB sealed TQOS type sets, four-row taper roller bearings have been developed to improve the lubrication in service. The incorporation of this type of bearing simplifies design, reduces grease consumption and routine maintenance requirements and attains longer service life.

The seals, fitted on both sides of the bearing set, are produced in several designs depending on bearing size and application needs; the most common ones are the integrated lateral unitized seals (European version), the integrated lateral narrow seals (compact seal concept) and the loose flange lateral unitized seals (Japanese version).

So the basic design with the garter seal, made by reinforced fluoro rubber and steel spring, is located in the integral external cups.

Alternatively, the separate seal carrier flanges are matched to the cups and a chock type seal runs on extended surface of inner rings.

Furthermore, RKB seals have been redesigned in new type to increase seal durability and efficiency: while maintaining an overall narrow profile, these seals optimize the available space by utilizing the area directly adjacent to or underneath the cage bore, with the result of the usage of longer rollers with consequent increased bearing capacity similar to open type version.

RKB sealed four-row taper roller bearings are usually provided also with O-rings in the outboard cup outside diameter to seal contaminants from the bearing outer diameter and/or with a cone seal set designed to accommodate relative motion between inner rings and to prevent build-up of negative pressure (anti-vortex system technology for longer bearing life and less lubricant deterioration).

Phosphate treatment for rings, rollers and spacers (suffix PT4) for anti-rust and anti-corrosion properties under water, alkalinescent and acidescient working conditions is also available.

RKB produces special executions of TQO made of four single cups and two double cone assemblies (design without spacers).

Most of TQO and TQI four-row taper roller bearings are manufactured with inch dimensions as per American AFBMA 19/1974 and as per RKB standard practice, dimensional and running accuracy grade is in accordance with class 2 or 4.

Highlights

Part number:	TQO 331925 A2AHA1ZBBT4B
Bore:	609,600 mm
Outside diameter:	813,562 mm
Width:	479,425 mm
Mass:	695 kg
Dynamic load carrying capacity:	10500 kN
Static load carrying capacity:	30000 kN
Application:	Rolling Mill/Steel Industry

Thrust ball and cylindrical roller bearings

RKB thrust ball bearings are manufactured in two versions: single and double direction. They can carry heavy axial loads, but they cannot take radial loads.

The single direction bearings consist of shaft washer, housing washer with flat support surface and ball cage assembly. The bearings are of separable design for a simple mounting of the parts.

The double direction thrust ball bearings can take axial loads in both directions. Such a bearing consists of a shaft central washer, two housing washers and two ball cage assemblies. The bearings are of separable design and ball cage assemblies are interchangeable with the corresponding single direction bearings.

Thrust ball bearings with sphered housing washer can be used with sphered seating housing to compensate the misalignment between the support surface in the housing and in the shaft.

The boundary dimensions of RKB thrust ball bearings in metric size conform to ISO 104:1979 with several dimensional series.

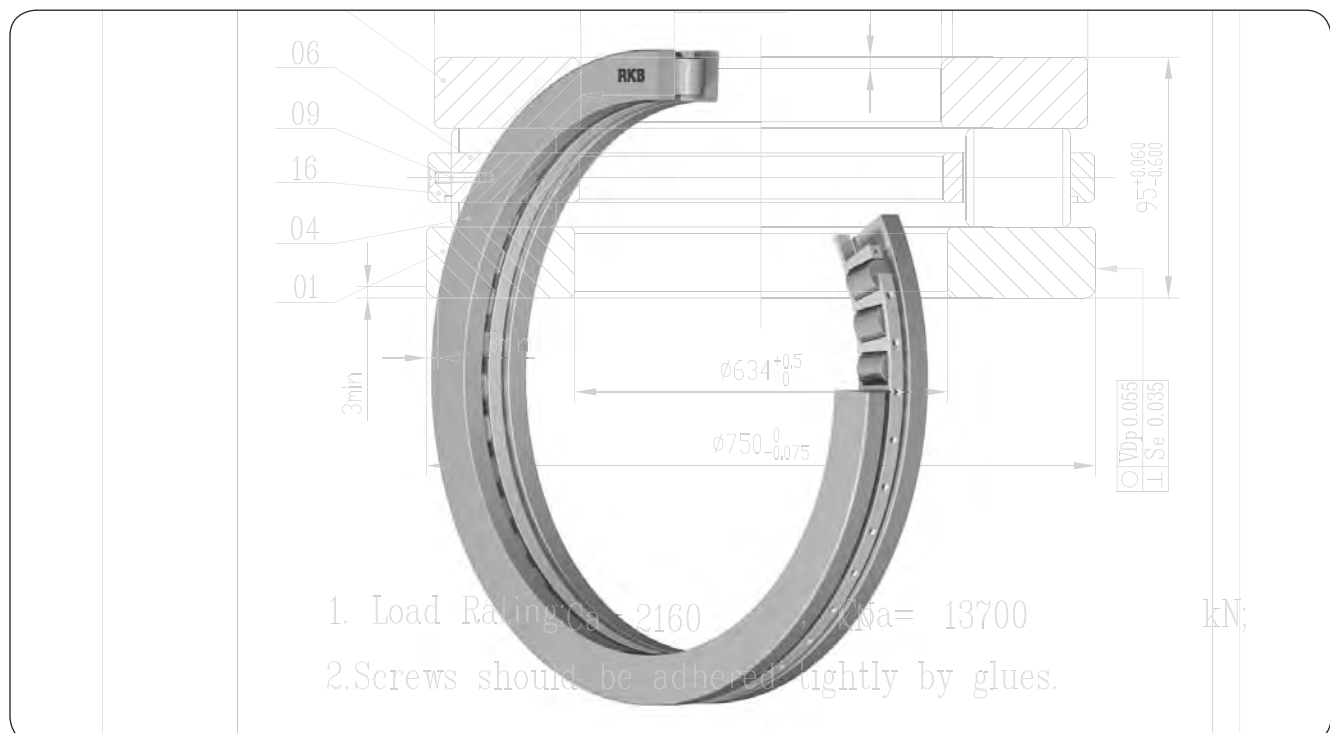
They are produced to normal tolerance class in accordance with ISO 199:1997.

RKB big size thrust ball bearings are normally fitted with machined brass cage (suffix M). Machined steel cage (suffix F) is also available.

RKB cylindrical roller thrust bearings are generally used to take over heavy pure axial loads, to carry shock loads and to be stiff into a little axial space with simple design.

They are manufactured for the axial support of a shaft in one direction and are available as single or multi rows of rollers.

Double direction cylindrical roller thrust bearings can be easily obtained with assembly of the standard roller cage and washers together with an appropriately designed intermediate washer. If the support shaft shoulder is heat treated and ground, it can be used as a raceway for the roller cage assembly.



In case of more rows, the rollers have various lengths and are alternatively mounted. To avoid side friction, one of the side of the roller can be crown profiled.

The boundary dimensions of RKB cylindrical roller thrust bearings conform to ISO 104:1979. Angular misalignment between shaft and housing is not permitted. In order to guarantee a proper arrangement of the rolling parts for the satisfactory operation, the cylindrical roller thrust bearings have always to be submitted to a given minimum load, specially when high speeds, high accelerations or rapid changes of load directions are involved.

Both machined brass and steel cages are available as standard. RKB production range also includes inch size cylindrical roller thrust bearings, engineered up to 50 inches outside diameter in conformance with RBEC accuracy specifications. Executions requiring antirotation devices on the plates and lifting holes are also available. There are standard design variations of RKB inch series thrust bearings. Each design is based on a standard single acting with addition of special components to modify its function: the AT aligning type with sphered housing plate for a possible initial static misalignment up to 3°; the crane hook thrust type with the weather shed pressed on the rotating plate; the DT double acting thrust bearing and the DAT aligning style combination of DT and AT types; the SDT simplified double acting thrust with only one roller assembly and two thrust plates.

Highlights

Part number:	TCRB 431M2203A
Bore:	419,500 mm
Outside diameter:	571,400 mm
Height:	89,000 mm
Mass:	66,3 kg
Dynamic load carrying capacity:	1860 kN
Static load carrying capacity:	11200 kN
Application:	Mines and Minerals Industry

Spherical roller thrust bearings

In RKB spherical roller thrust bearings the load is transmitted from one raceway to the other under an angle of about 50° related to the bearing axis.

They can take over heavy axial loads and simultaneously they can accommodate radial loads with values of up to 55% of the axial load magnitude.

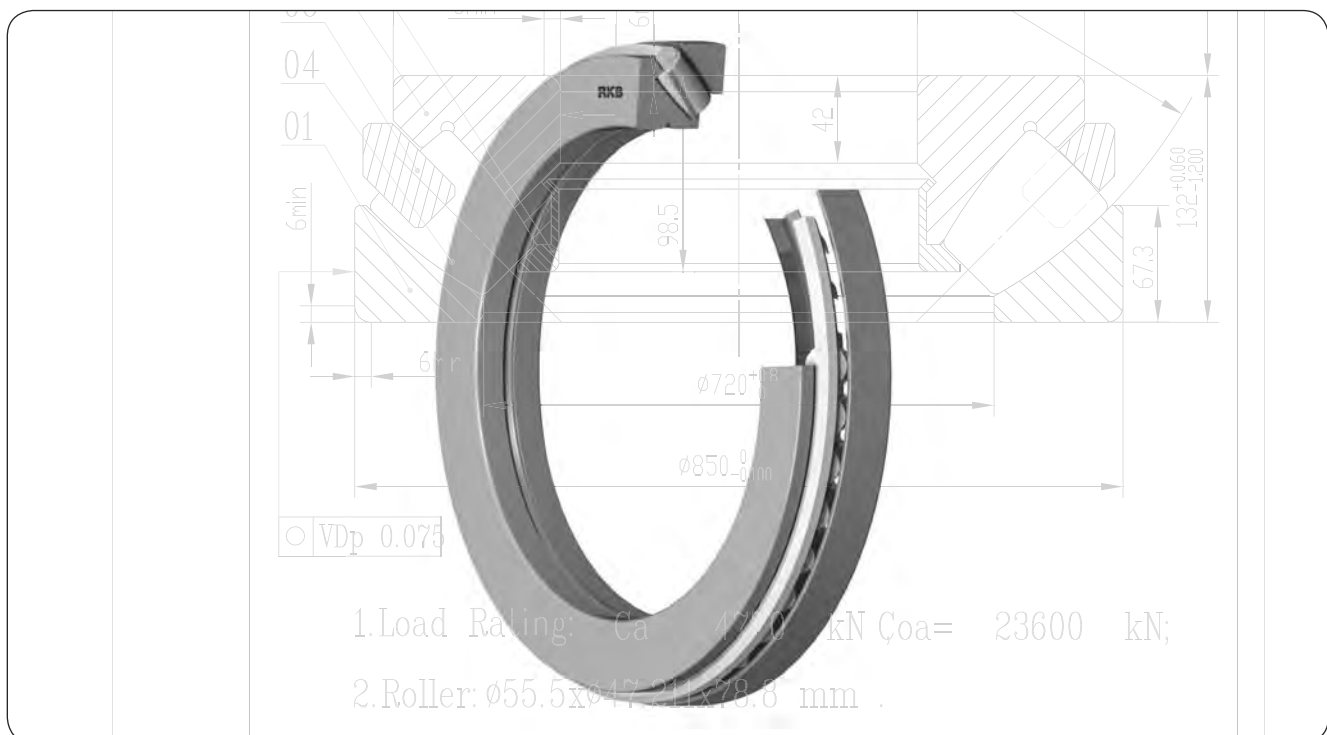
An important feature of spherical roller thrust bearings is their self-aligning capability, thanks to the design of the housing and shaft washer raceways with a large number of asymmetrical rollers and the proper conformity with the paths.

RKB spherical thrust bearings have a machined brass cage guided by a sleeve clamped in the shaft washer bore (suffix EM). The shaft washer and the cage with rollers form a non-separable unit.

The overall dimensions of the spherical roller thrust bearings are in accordance with ISO 104:1979, so that they are interchangeable with different designs, even the earlier ones (suffix B).

Where the cage guiding sleeve also serves as a spacer sleeve, the spacer sleeve needed between the shaft washer and the shaft shoulder has to be checked and, if necessary, remachined when substituted with different bearing designs.

These RKB bearings as standard are manufactured to normal tolerance class as specified in ISO 199:1997. However the tolerance for the total height is tighter than that specified by ISO.



Highlights

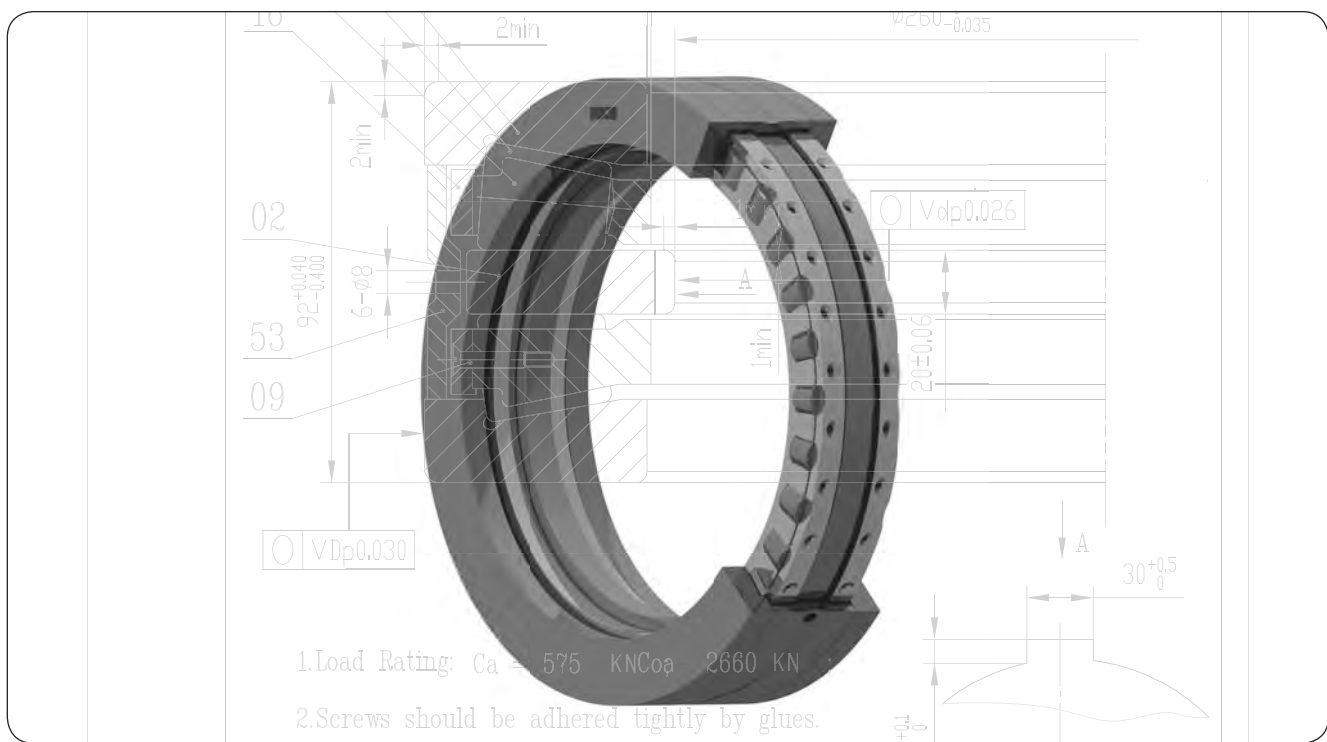
Part number:	294/670 EMN1EBEVO
Bore:	670 mm
Outside diameter:	1150 mm
Height:	290 mm
Mass:	1160 kg
Dynamic load carrying capacity:	16000 kN
Static load carrying capacity:	68000 kN
Application:	Plastic Industry

Taper roller thrust bearings

RKB taper roller thrust bearings have the following separable parts: shaft washer, housing washer and rolling element assembly.
 RKB manufacturing program includes the single direction type, the double direction type and the screw-down special type.

RKB single direction taper roller thrust bearings are manufactured in two constructive versions, with tapered raceway on both washers or on only one.
 The rollers are radially guided by the rib of one washer. They have controlled contour to redistribute end stress concentration and provide more uniform distribution of the applied loads (suffix ZB).
 These bearings can also be produced in the version without the cage to obtain the maximum axial load carrying capacity (suffix V).
 The most common series are T type, TK type and 351 type.
 Bearings made of case hardened carburizing alloy steels can be produced for particular applications where required.

RKB double direction taper roller thrust bearings are normally used in the rolling mill applications associated with a multi row cylindrical roller bearing.
 RKB produces this type of bearing in two constructive versions, either with central plane shaft washer and taper raceways in both housing washers or with both plane housing washers and taper raceways in the central shaft washer.
 A special sleeve is arranged between the two housing washers, so that, when mounting, no special adjustment of the bearing is required.
 As the double direction taper roller bearings are usually mounted with loose fit on the roll neck, the shaft washer is normally provided with one or two locating slots that, engaged with key-way or similar devices, prevent the shaft washer from rotating on the seating.
 If the load carrying capacity is not adequate to the expected life, TDIS type can be used in alternative.
 The most common series are 350 type, 351 type, 353 type and TTK type.



RKB screw-down bearings are a special design of the single direction taper roller thrust bearings used for rolling mill arrangements. They are generally produced with case hardened carburizing alloy steels and with full complement of long rollers of large diameter to accommodate very heavy axial loads and shocks.

In order to accept the angular movements of the screw spindle with respect to the support without detrimental effects on bearing performance, the bearings have one sphered washer that could be either the shaft or the housing washer. An additional concave sphered pressure plate can be supplied with the bearing. Usually screw-down bearings are custom-made to meet the specific requirements of different applications.

The dimensions of taper roller thrust bearings are not standardized. The main boundary dimensions are produced with normal tolerances according to ISO 199:1979.

Highlights

Part number:	350981 C
Bore:	260 mm
Outside diameter:	360 mm
Height:	92 mm
Mass:	25,8 kg
Dynamic load carrying capacity:	575 kN
Static load carrying capacity:	2660 kN
Application:	Rolling Mill/Steel Industry



BEARINGS CATALOGUE

Bearing steels

RKB makes use of SAE 52100 steel to manufacture rolling bearings for common applications. Under certain circumstances and most of all for medium and large size bearings, SAE 52100/A is adopted. Regarding critical applications, a special bearing steel (SAE A485 or **RKB** Type.RAV), with higher cleanliness and specific mechanical properties, is used. This steel, obtained through the Vacuum Degassed Electroslag Remelting process (VAC-ESR), has lower levels of non-metallic inclusions (according to ASTM E3 and ASTM E45) and ensures premium product reliability and performance. As for the manufacture of rollers, **RKB** can use SAE 52100/A.F forged steel (Tough Roller Technology) to guarantee better resistance to corrosion, wear, fatigue and stationary loads, especially in harsh conditions.

All **RKB** bearing steels are hardened and heat treated to obtain optimum mechanical properties. In addition to the conventional thermal cycles, **RKB** can perform two special heat treatments on its products: **RKB** Bainite Treatment (HB) for decreasing ring crack incidence and **RKB** Dimensional Stabilization Treatment (S) for ring dimensional stability up to an operating temperature of 350 °C.

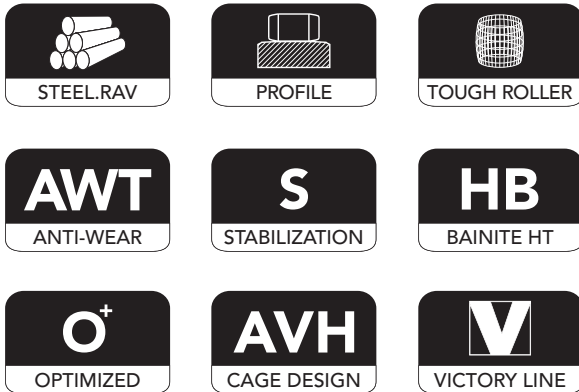
Finally, two thermo-chemical surface treatments are available: **RKB** Anti-Wear Treatment (AWT), essential to reduce the metal-on-metal friction between contact surfaces, and **RKB** Phosphate Treatment (PT), suitable for bearings operating in highly corrosive environments.

Design

Metric bearings conform to the International Standard ISO 15 general plan for boundary dimensions (DIN 616), whereas inch bearings conform to the dimensions given in BS 292 (pt. 2). Bearing internal dimensions are not standardised and **RKB** designs are optimised for load capacity to incorporate the maximum size and number of rolling elements that are consistent with reasonable ring proportions and cage design requirements. Popular bearings have a wide variety of cage types including pressed steel cages centred on the rolling elements.

RKB manufactures many cages moulded in polyamide and other machined from brass. Bearings fitted with synthetic rubber seals are suitable for a normal temperature range of -20 °C to +100 °C, and when two seals are fitted the bearings are prelubricated with a lithium grease which is suitable for this temperature range. The same temperature limitation also applies to metal shielded bearings when the standard lithium grease is used.

Separable rings of single row duplex ball bearings and cylindrical roller bearings with matched rings must not be interchanged from one bearing to another. The components are individually matched to give correct tracking/clearance and any mixing could promote early failure.



Materials, design and load ratings

Higher load ratings for RKB bearings

Dynamic load ratings

The dynamic load ratings in this catalogue have been increased to reflect the improved performance associated with the **RKB** use of cleaner bearing steels. The life adjustment factor (a_2) given in previous **RKB** publications for improved materials, as permitted in International Standard 281/1, has now been incorporated in the up-rated load capacities. The calculation of Equivalent Load (P) and Rating Life (L_{10}) remains unchanged. The previous life adjustment factors have been appropriately amended.

Rating Life (L_{10}) may be adjusted to take account of:

- Increased reliability requirements (factor a_1 from table 9-1, page 9).
- Reduction of material hardness due to temperature (factor a_2 from table 9-2, page 9).
- Lubrication effectiveness (factor a_3 from graph 4, page 8).

The adjusted life $L_{10a} = a_1 \cdot a_2 \cdot a_3 \cdot L_{10}$.

Limitations

The basic relationship between load and life is valid only for properly mounted, conventionally loaded and adequately lubricated bearings protected from foreign matter and not subjected to extreme operating conditions such as excessive misalignment, speed or temperature. When the equivalent load exceeds 40% of the dynamic or 100% of the static rating, or when bearings with interrupted raceways are used (i.e. those with filling slots) the life calculation must be regarded more as means of comparison with other similarly loaded applications rather than an accurate assessment of fatigue life. The performance of sealed and shielded bearings may be limited by the life of the lubricant rather than by bearing fatigue. Please refer to **RKB** Technical Department for advice.

Static load ratings

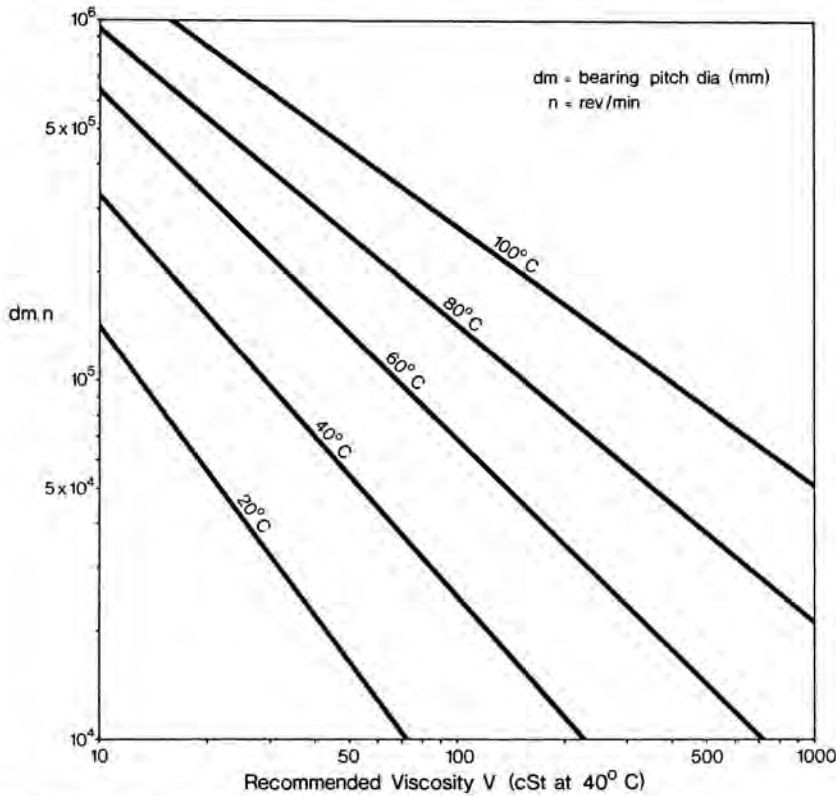
The basis for ball bearing ratings is unchanged. Roller bearing ratings are increased having been re-calculated on the basis of a nominal permissible contact stress at the heaviest loaded roller of 4000 MPa. The new values permit greater loading that will give acceptable performance for most applications; however, previously permitted overload factors will have to be reduced.

RKB premium brand bearings - Victory Line

Victory Line is the premium brand of **RKB** created for all those critical applications requiring new design opportunities. The bearings of Victory Line capitalize on the latest knowledge of micro-geometry and surface topography, and on the best improved steels and manufacturing technologies. These products are endowed with the highest possible level of innovation, performance and reliability.

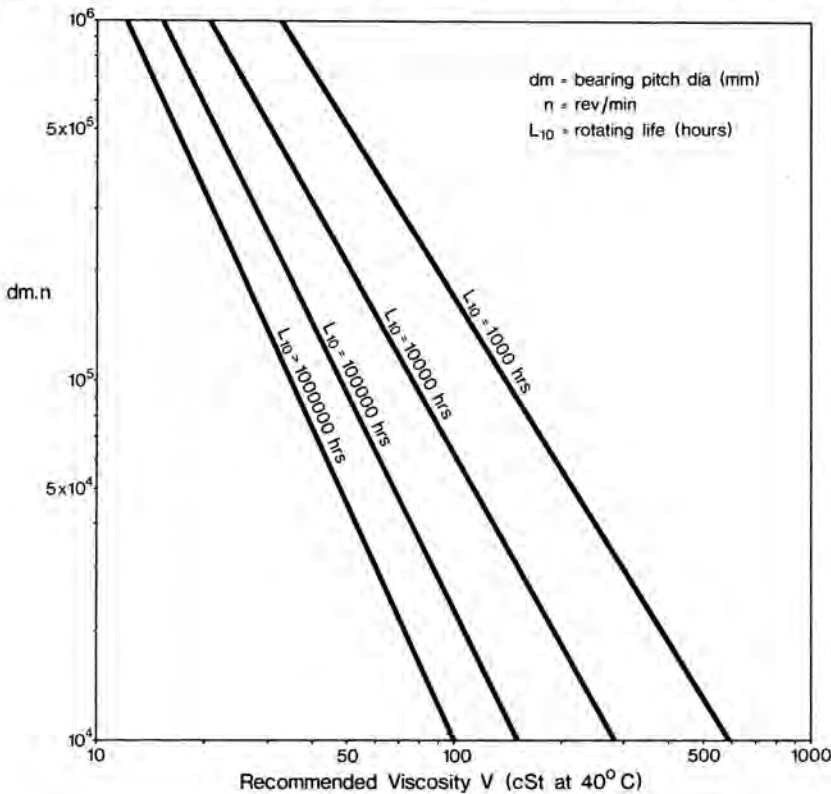


Graph 1 Minimum oil viscosity for known operating temperature



The temperature relates to the actual temperature that the bearing achieves, or is estimated to achieve, in service when taking into account all environmental and operating conditions.

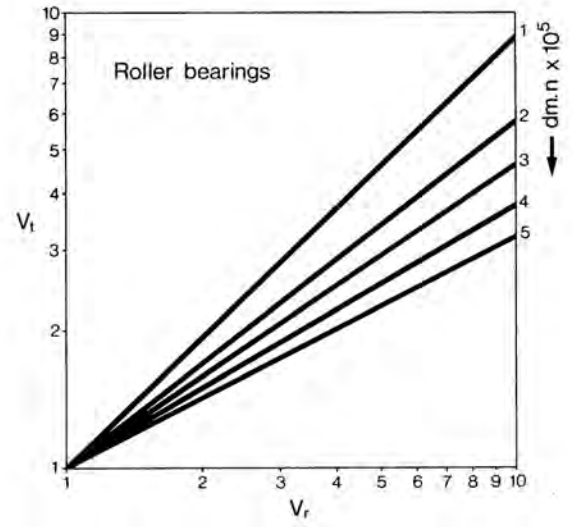
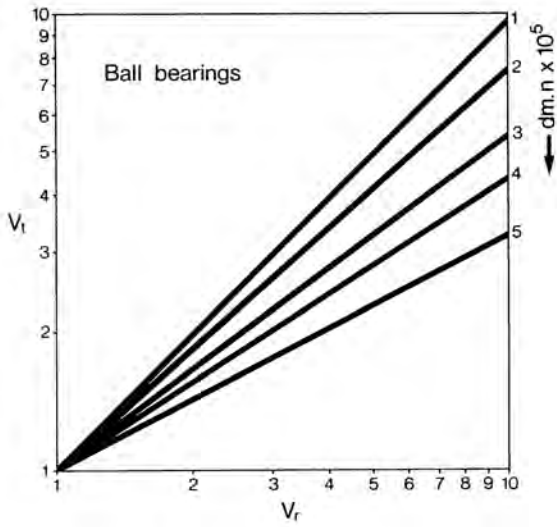
Graph 2 Minimum oil viscosity – operating temperature not known



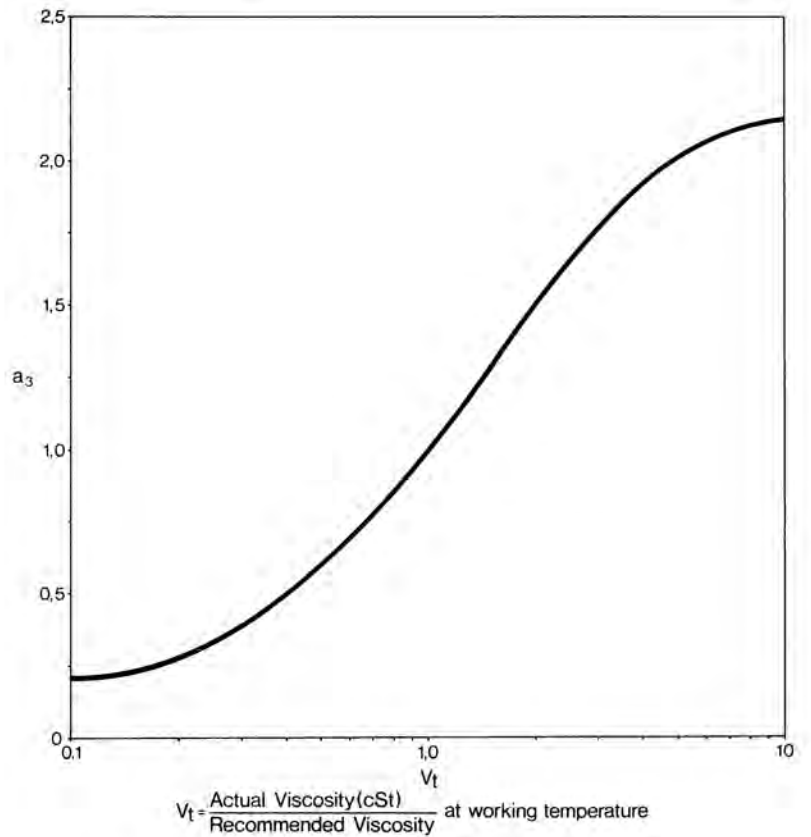
This graph is valid for normal ambient temperature conditions and where there is reasonable heat dissipation.

Materials, design and load ratings

Graph 3 Conversion of lubricant viscosity ratio at 40°C (V_r) to viscosity ratio at the operating temperature (V_t)



Graph 4 Lubrication factor a_3



Materials, design and load ratings

Reliability factor a_1

Critical applications may require reliabilities greater than 90%, and in such cases the L_{10} life should be multiplied by the factor a_1 given in the following table.

Table 9-1

Reliability %	Ln	Life factor a_1
90	L_{10}	1,0
95	L_5	0,62
96	L_4	0,53
97	L_3	0,44
98	L_2	0,33
99	L_1	0,21

Temperature factor a_2

The effect of temperatures of 150°C and higher is to reduce the bearing material hardness. The factor a_2 given in the following table allows for this reduction but assumes that effective lubrication is maintained at the operating temperature.

Table 9-2

Operating temperature °C		Life factor a_2	
over	incl.	Ball	Roller
—	150	1,0	1,0
150	175	0,86	0,85
175	200	0,72	0,70
200	225	0,58	0,54

It should be noted that standard bearings are stabilised for operating temperatures up to 125°C.

Lubrication factor a_3

Satisfactory bearing performance is dependent on there being an adequate lubricant film at the rolling element and raceway contacts. The value of a_3 is therefore related to speed and lubricant viscosity at the operating temperature.

The procedure for obtaining the factor a_3 for specific bearings and operating conditions is as follows:

- (1) Obtain the **RKB** recommended lubricant viscosity (V) at 40°C using graphs 1 and 2 on page 7.
- (2) Determine the actual lubricant viscosity (cSt) at 40°C.
- (3) Divide the viscosity obtained in (2) above by the viscosity obtained in (1) to obtain the viscosity ratio (V_r) at 40°C.
- (4) Use graph 3, page 8 to find V_t which is the viscosity ratio at the operating temperature. For speeds less than $dm.n$ of 10^5 or for a V_r ratio less than 1, it is reasonable to take $V_t = V_r$.
- (5) Using the value for V_t obtained in (4) the lubrication factor a_3 is obtained from graph 4, page 8.

Suffix system

Variations of standard bearing designs may be indicated by suffixes to the basic bearing reference, and a list of those most commonly in use is given below.

Special bearings will normally have a numerical prefix to the basic bearing reference if they can be reasonably associated with a standard bearing. In other cases special designations are used.

Suffix	Definition
--------	------------

A*/*	Special manufacturing tolerance for axial clearance where */* gives the min/max values in micrometres
B	40° contact angle
CN	Normal grade of radial internal clearance (not marked)
C2	Internal clearance less than normal
C3	Internal clearance greater than normal
C4	Internal clearance greater than C3
C5	Internal clearance greater than C4
E	Inch series bearings over 4" bore – whole number bore sizes only
K	Tapered bore
LOC	Location bearing having reduced outside diameter
M	Machined brass cage located on rolling elements
MA	Machined brass cage located in the outer ring bore
MB	Machined brass cage located on the inner ring outside diameter
MNA	MA cage riveted type
MNB	MB cage riveted type
N	Snap ring groove on outer ring outside diameter
NR	N type with locating snap ring
P*/*	Special manufacturing tolerance for axial interference where */* gives the min/max values in micrometres
Q**	Special feature where ** is the specification number
R*/*	Special manufacturing tolerance for radial internal clearance where */* gives the min/max values in micrometres
RS	Bearing fitted with one synthetic rubber seal
-2RS	Bearing fitted with two synthetic rubber seals
RSN	Bearing with seal fitted on opposite side to the snap ring groove
RSNR	RSN bearing with locating snap ring
RSZ	Bearing fitted with one seal and one shield
RSZN	RSZ bearing with snap ring groove on same side as shield
S*	Special heat stabilised bearing where * gives the specification number
U	Universally faced angular contact ball bearing
W33	Spherical roller bearing with lubricating holes and groove
Z	Bearing fitted with one metal shield
-2Z	Bearing fitted with two metal shields
ZN	Z bearing with snap ring groove on the opposite side to the shield
ZNB	Z bearing with snap ring groove on the same side as the shield

For other suffixes refer to **RKB**.

Definitions

The symbols used in this section are in accordance with ISO recommendations and they are defined as

Inner rings

d	= the nominal bore diameter
d_{mp}	= the arithmetical mean of the largest and smallest actual single diameters of a bore in a single radial plane
d_s	= a single diameter of a bore
Δ_{dmp}	= the deviation of the mean bore diameter in a single plane = $d_{mp} - d$
Δ_{ds}	= the deviation of a single bore diameter = $d_s - d$
K_{ia}	= the radial runout of an assembled bearing inner ring relative to a fixed point on the bearing outer ring, both inner and outer raceways being in contact with the rolling elements at the relevant angular position of measurement

Outer rings

D	= the nominal outside diameter
D_{mp}	= the arithmetical mean of the largest and smallest actual single outside diameters in a single radial plane
D_s	= a single outside diameter
Δ_{Dmp}	= the deviation of the mean outside diameter in a single plane = $D_{mp} - D$
Δ_{Ds}	= the deviation of a single outside diameter = $D_s - D$
K_{ea}	= the radial runout of an assembled bearing outer ring relative to a fixed point on the bearing inner ring, both inner and outer raceways being in contact with the rolling elements at the relevant angular position of measurement

Ring widths – radial and angular contact bearings

B	= the nominal inner ring width
C	= the nominal outer ring width
B_s	= a single inner ring width
C_s	= a single outer ring width
Δ_{Bs}	= the deviation of a single inner ring width = $B_s - B$
Δ_{Cs}	= the deviation of a single outer ring width = $C_s - C$
V_{Bs}	= the inner ring width variation = the difference between the largest and smallest actual single widths of an inner ring
V_{Cs}	= the outer ring width variation

Thrust ball bearings

T	= the nominal height of an assembled bearing
T_m	= the actual height of an assembled bearing
Δ_{Tm}	= the bearing height deviation = $T_m - T$
S_i	= the shaft washer raceway runout relative to the flat seat face
S_e	= the housing washer raceway runout relative to the flat seat face

Nomenclatura

I simboli usati in questa sezione sono quelli delle specifiche ISO e sono definiti come segue:

Anello interno

d	= diametro nominale del foro
d_{mp}	= media aritmetica tra il massimo ed il minimo diametro del foro effettivamente misurabili in un solo piano radiale
d_s	= misura effettiva del diametro del foro
Δ_{dmp}	= scostamento in uno stesso piano del diametro medio = $d_{mp} - d$
Δ_{ds}	= scostamento del diametro effettivo del foro = $d_s - d$
K_{ia}	= difetto radiale di rotazione dell'anello interno assemblato riferito a un punto fisso sull'anello esterno del cuscinetto, con entrambe le piste interna ed esterna a contatto con gli elementi rotolanti nella posizione angolare di misurazione

Anello esterno

D	= diametro esterno nominale
D_{mp}	= media aritmetica tra il massimo e il minimo diametro esterno effettivamente misurabili in un solo piano radiale
D_s	= misura effettiva del diametro esterno
Δ_{Dmp}	= scostamento in uno stesso piano del diametro esterno medio = $D_{mp} - D$
Δ_{Ds}	= scostamento del diametro effettivo del diametro esterno = $D_s - D$
K_{ea}	= difetto radiale di rotazione dell'anello esterno assemblato riferito a un punto fisso sull'anello interno del cuscinetto, con entrambe le piste interna ed esterna a contatto con gli elementi di rotolamento nella posizione angolare di misurazione

Larghezza degli anelli – cuscinetti radiali e obliqui

B	= larghezza nominale dell'anello interno
C	= larghezza nominale dell'anello esterno
B_s	= larghezza effettiva dell'anello interno
C_s	= larghezza effettiva dell'anello esterno
Δ_{Bs}	= scostamento della larghezza effettiva dell'anello interno = $B_s - B$
Δ_{Cs}	= scostamento della lunghezza effettiva dell'anello esterno = $C_s - C$
V_{Bs}	= variazione di larghezza dell'anello interno = la differenza fra la lunghezza massima e minima effettivamente misurabili su un anello interno
V_{Cs}	= variazione di larghezza dell'anello esterno

Cuscinetti reggispinta a sfere

T	= altezza nominale di un cuscinetto assemblato
T_m	= altezza effettiva di un cuscinetto assemblato
Δ_{Tm}	= scostamento dell'altezza del cuscinetto = $T_m - T$
S_i	= difetto di rotazione della pista della ralla centrata sull'albero rispetto alla facciata di appoggio
S_e	= difetto di rotazione della pista della ralla destinata all'alloggiamento rispetto alla facciata di appoggio

Definiciones

Los símbolos empleados en ésta sección están de acuerdo con las recomendaciones ISO y se definen de la siguiente manera:

Aros interiores

- d = el diámetro interior nominal
- d_{mp} = la media aritmética de los diámetros interiores mayor y menor reales, dentro de un solo plano radial
- d_s = un diámetro interior único
- Δ_{dmp} = la desviación del diámetro interior medio en un solo plano
= $d_{mp} - d$
- Δ_{ds} = la desviación de un solo diámetro interior
= $d_s - d$
- K_{ia} = el salto radial del aro interior de un rodamiento ensamblado, relativo a un punto fijo en el aro exterior del rodamiento. Tanto la pista interior como la exterior estando en contacto con los elementos rodantes en la posición angular precisa de medición

Aros exteriores

- D = el diámetro exterior nominal
- D_{mp} = la media aritmética de los diámetros exteriores mayor y menor reales, dentro de un solo plano radial
- D_s = un diámetro exterior único
- Δ_{Dmp} = la desviación del diámetro exterior medio en un solo plano
= $D_{mp} - D$
- Δ_{Ds} = la desviación de un solo diámetro exterior
= $D_s - D$
- K_{ea} = el salto radial del aro exterior de un rodamiento ensamblado, relativo a un punto fijo en el aro interior del rodamiento. Tanto la pista interior como la exterior estando en contacto con los elementos rodantes en la posición angular precisa de medición

Ancho del aro – rodamientos radiales y de contacto angular

B	= ancho nominal del aro interior
C	= ancho nominal del aro exterior
B_s	= un solo ancho del aro interior
C_s	= un solo ancho del aro exterior
Δ_{Bs}	= la desviación de un solo ancho del aro interior = $B_s - B$
Δ_{Cs}	= la desviación de un solo ancho del aro exterior = $C_s - C$
V_{Bs}	= la variación en el ancho del aro interior = la diferencia entre el ancho mayor y menor de un aro interior
V_{Cs}	= la variación en el ancho del aro exterior

Rodamientos de bolas de empuje axial

T	= la altura nominal de un rodamiento ensamblado
T_m	= la altura real de un rodamiento ensamblado
Δ_{Tm}	= la desviación de la altura de un rodamiento = $T_m - T$
S_i	= el salto en la pista de la arandela del eje, relativo al plano del alojamiento
S_e	= el salto en la pista de la arandela del alojamiento, relativo al plano del alojamiento

Metric bearings

RKB limits of accuracy for standard metric bearings are given in tables 18-1 and 18-2. The bore, outside diameter, and width tolerances are comparable with ABEC 1 and conform to the ISO 'Normal Class'. The **RKB** tolerances for running accuracy are generally closer than both the ABEC 1 and ISO Normal Class requirements.

Metric taper roller bearings

RKB limits of accuracy for standard metric taper roller bearing are given in tables 21-1, 21-2 and 21-3. These dimensions conform to the ISO 355.

Thrust ball bearings

RKB limits of accuracy for metric thrust ball bearings are given in tables 20-1 and 20-2.

Sealed and shielded bearings

The tolerances for the outer rings of bearings fitted with seals or shields differ from those for the open bearings in that the outside diameter deviation Δ_{D_s} is greater to allow for the effects of fitting the seals or shields. See table 18-2.

Note

The cylindrical bore diameter and outside diameter tolerances do not necessarily apply within a distance of three times the ring corner radius from the ring face.

Bearing tolerances

Inner ring tolerances – metric radial and angular contact ball bearings
0,001 mm units

Table 18-1

d mm		Δ_{dmp}		Δ_{ds}		K_{Ia}	Δ_{Bs}		V_{Bs}
over	incl	high	low	high	low	max	high	low	max
2,5	10	0	- 8	+ 2	-10	7,5	0	-120	15
10	18	0	- 8	+ 3	-11	10	0	-120	20
18	30	0	-10	+ 3	-13	10	0	-120	20
30	50	0	-12	+ 3	-15	13	0	-120	20
50	80	0	-15	+ 4	-19	15	0	-150	25
80	120	0	-20	+ 5	-25	20	0	-200	25
120	180	0	-25	+ 6	-31	25	0	-250	30
180	250	0	-30	+ 8	-38	30	0	-300	30
250	315	0	-35	+ 9	-44	40	0	-350	35
315	400	0	-40	+10	-50	50	0	-400	40

Δ_{ds} applies to: ISO diameter series 4 and 3, all sizes.
ISO diameter series 2, up to and including d = 180mm
ISO diameter series 0, up to and including d = 40 mm

K_{Ia} does not apply to double row spherical roller bearings which are made to comply with ISO normal class tolerances.

Outer ring tolerances – metric radial and angular contact ball bearings
0,001 mm units

Table 18-2

D mm		Δ_{Dmp}		Δ_{Ds}		K_{ea}
over	incl	high	low	high	low	max
18	30	0	- 9	+ 2	-11	10
30	50	0	-11	+ 3	-14	13
50	80	0	-13	+ 4	-17	15
80	120	0	-15	+ 5	-20	18
120	150	0	-18	+ 6	-24	20
150	180	0	-25	+ 7	-32	23
180	250	0	-30	+ 8	-38	25
250	315	0	-35	+ 9	-44	30
315	400	0	-40	+10	-50	35

Δ_{Ds} applies to: ISO diameter series 4 and 3, all sizes.
ISO diameter series 2, up to and including D = 315 mm
ISO diameter series 0, up to and including D = 80 mm

K_{ea} does not apply to double row spherical roller bearings which are made to comply with ISO normal class tolerances.

The width deviation (Δ_{Cs}) and variation (V_{Cs}) for an outer ring is the same as that of the inner ring (Δ_{Bs} and V_{Bs}) of the same bearing.

Bearing tolerances

Inner ring tolerances – magneto bearings – metric single row separable ball bearings
0,001 mm units Table 19-1

d mm		Δ_{dmp}		Δ_{ds}		K_{ia}
over	incl	high	low	high	low	max
2,5	9	0	- 8	+2	-10	8
9	18	0	- 8	+2	-10	10
18	30	0	-10	+2	-13	13

Outer ring tolerances – magneto bearings – metric single row separable ball bearings
0,001 mm units Table 19-2

D mm		Δ_{Dmp}		Δ_{Ds}		K_{ea}
over	incl	high	low	high	low	max
10	30	+10	0	+13	-2	15
30	50	+10	0	+18	-5	20

Width tolerances – magneto bearings – metric single row separable ball bearings
0,001 mm units Table 19-3

Sizes	Width tolerances apply to	high	low
All sizes	Individual rings (Δ_{Bs} and Δ_{Cs})	0	-120
	Across assembled bearing	+120	-120

Bearing tolerances

Shaft washer bore and assembled bearing height tolerances – metric thrust ball bearings
0.001 mm units

Table 20-1

d mm		Δ_{dmp}		S_i	Δ_{Tm}	
over	incl	high	low	max	high	low
9	18	0	- 8	10	0	- 75
18	30	0	-10	10	0	- 75
30	50	0	-12	10	0	-100
50	80	0	-15	10	0	-125
80	120	0	-20	15	0	-150
120	180	0	-25	15	0	-175
180	250	0	-30	20	0	-200

The above tolerances do not apply to the housing washers which are made to clear the shaft.

Housing washer O/D tolerances – metric thrust ball bearings
0.001 mm units

Table 20-2

D mm		Δ_{Dmp}	
over	incl	high	low
10	18	0	-11
18	30	0	-13
30	50	0	-16
50	80	0	-19
80	120	0	-22
120	180	0	-25
180	250	0	-30
250	315	0	-35
315	400	0	-40

These tolerances apply to both shaft and housing washers up to 170 mm outside diameter, they do not apply to shaft washers above this size which are made to clear the housing.

The raceway runout of the housing washer (S_e) is the same as that of the shaft washer of the same bearing.

Bearing tolerances

Inner ring tolerances – tapered roller bearings
0,001 mm units

Table 21-1

d mm		Δd_{mp}		V _{dp}	V _{dmp}	K _{ia}
over	incl	high	low	max	max	max
10 1)	18	0	-12	12	9	15
18	30	0	-12	12	9	18
30	50	0	-12	12	9	20
50	80	0	-15	15	11	25
80	120	0	-20	20	15	30
120	180	0	-25	25	19	35
180	250	0	-30	30	23	50
250	315	0	-35	35	26	60
315	400	0	-40	40	30	70

Outer ring tolerances – tapered roller bearings
0,001 mm units

Table 21-2

D mm		ΔD_{mp}		V _{Dp}	V _{Dmp}	K _{ea}
over	incl	high	low	max	max	max
18 1)	30	0	-12	12	9	18
30	50	0	-14	14	11	20
50	80	0	-16	16	12	25
80	120	0	-18	18	14	35
120	150	0	-20	20	15	40
150	180	0	-25	25	19	45
180	250	0	-30	30	23	50
250	315	0	-35	35	26	60
315	400	0	-40	40	30	70
400	500	0	-45	45	34	80
500	630	0	-50	50	38	100

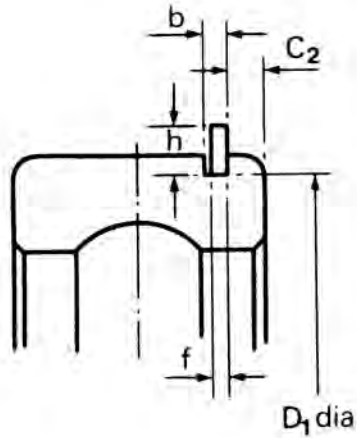
Inner and outer ring tolerances – tapered roller bearings
0,001 mm units

Table 21-3

d mm		ΔB_s DCs		ΔT_s		ΔT_{1s}		ΔT_{2s}	
over	incl	high	low	high	low	high	low	high	low
10 1)	18	0	-120	+200	0	+100	0	+100	0
18	30	0	-120	+200	0	+100	0	+100	0
30	50	0	-120	+200	0	+100	0	+100	0
50	80	0	-150	+200	0	+100	0	+100	0
80	120	0	-200	+200	-200	+100	-100	+100	-100
120	180	0	-250	+350	-250	+150	-150	+200	-100
180	250	0	-300	+350	-250	+150	-150	+200	-100
250	315	0	-350	+350	-250	+150	-150	+200	-100
315	400	0	-400	+400	-400	+200	-200	+200	-200

1) This value included

Snap ring and groove tolerances



Snap ring and groove tolerances – metric bearings
0,001 mm units

Table 22-1

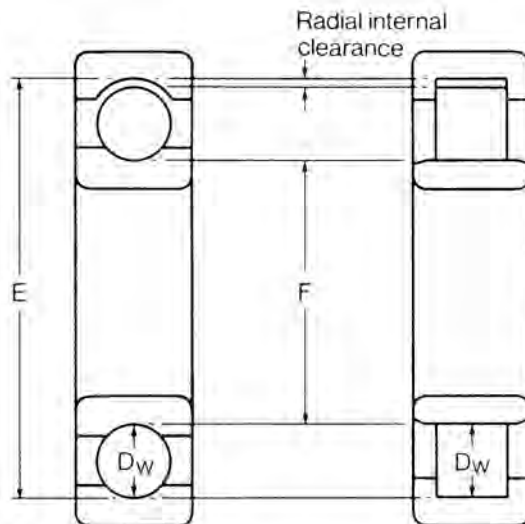
D mm		b		f		h		C ₂		D ₁	
over	incl	high	low	high	low	high	low	high	low	high	low
28	52	+220	-80	+50	-50	+75	-75	+80	-80	0	-250
52	55	+220	-80	+50	-50	+75	-75	+100	-100	0	-250
55	130	+220	-80	+50	-50	+75	-75	+100	-100	0	-500
130	250	+220	-80	+50	-50	+75	-75	+120	-120	0	-500

Snap ring and groove tolerances – inch bearings
0,0001 inch units

Table 22-2

D inch		b		f		h		C ₂		D ₁	
over	incl	high	low	high	low	high	low	high	low	high	low
2	2,25	+90	-30	+20	-20	+30	-30	+30	-30	0	-200
2,25	5	+90	-30	+20	-20	+30	-30	+40	-40	0	-200
5	5,5	+90	-30	+20	-20	+30	-30	+50	-50	0	-200

Radial internal clearance



Bearing radial internal clearance relates to the total clearance between the raceways and rolling elements measured normal to the bearing axis.

In single row radial ball and cylindrical roller bearings this may be simply defined as being equal to the difference between the mean outer raceway diameter (E) and the sum of the mean inner raceway diameter (F) and twice the mean diameter of the rolling elements ($2 D_w$).

i.e. Radial internal clearance = $E - (F + 2 D_w)$

This feature is not easily checked in assembled bearings, particularly ball bearings where the rolling elements should be central to the raceways. Allowance must also be made for the elastic deformation of rolling elements and raceways under gauging load.

Bearings are made to four standard groups of internal clearance

C2 0 (one dot) smallest clearance – please check availability

CN 00 (two dot) normal clearance

C3 000 (three dot) larger clearance than normal

C4 0000 (four dot) larger clearance than C3 – please check availability

C5 larger clearance than C4 – please check availability

Standard bearings are supplied normal clearance (CN) unless ordered differently. Normal clearance bearings are not marked with the internal clearance code. Radial ball bearings and spherical roller bearings have some axial clearance and this depends on rolling element size, raceway curvature, and radial internal clearance.

Values of radial internal clearance for the various bearing types are given in the following tables.

Radial internal clearance

Radial internal clearance – single row radial ball bearings
0,001 mm units

Table 24-1



d				Radial internal clearance groups							
mm		inch		C2		CN (normal)		C3		C4	
over	incl	over	incl	low	high	low	high	low	high	low	high
2,5	10	$\frac{1}{8}$	$\frac{3}{8}$	0	7	2	13	8	23	—	—
10	18	$\frac{3}{8}$	$\frac{11}{16}$	0	9	3	18	11	25	18	33
18	24	$\frac{11}{16}$	$\frac{11}{16}$	0	10	5	20	13	28	20	36
24	30	$\frac{15}{16}$	$1\frac{1}{8}$	0	11	5	20	13	28	23	41
30	40	$1\frac{1}{8}$	$1\frac{9}{16}$	0	11	6	20	15	33	28	46
40	50	$1\frac{3}{16}$	$1\frac{15}{16}$	0	11	6	23	18	36	30	51
50	65	$1\frac{15}{16}$	$2\frac{1}{2}$	0	15	8	28	23	43	38	61
65	80	$2\frac{1}{2}$	$3\frac{1}{8}$	0	15	10	30	25	51	46	71
80	100	$3\frac{1}{8}$	$3\frac{7}{8}$	0	18	12	36	30	58	53	84
100	120	$3\frac{7}{8}$	$4\frac{11}{16}$	2,5	20	15	41	36	66	61	97
120	140	$4\frac{11}{16}$	$5\frac{1}{2}$	2,5	23	18	48	41	81	71	114
140	160	$5\frac{1}{2}$	$6\frac{1}{4}$	2,5	23	18	53	46	91	81	130
160	180	$6\frac{1}{4}$	7	2,5	25	20	61	53	102	91	147
180	200	7	$7\frac{7}{8}$	2,5	30	25	71	63	117	107	163
200	225	$7\frac{7}{8}$	$8\frac{7}{8}$	2,5	35	28	86	76	137	127	193
225	250	$8\frac{7}{8}$	$9\frac{7}{8}$	2,5	38	30	97	86	157	147	221
250	280	$9\frac{7}{8}$	11	2,5	41	33	102	91	168	157	241
280	315	11	$12\frac{3}{8}$	2,5	64	46	114	104	185	175	264
315	355	$12\frac{3}{8}$	14	2,5	64	46	124	115	206	196	295
355	400	14	$15\frac{3}{4}$	2,5	74	56	145	135	236	226	335

Radial internal clearance – single row radial ball bearings
0,0001 inch units

Table 24-2

d				Radial internal clearance groups							
mm		inch		C2		CN (normal)		C3		C4	
over	incl	over	incl	low	high	low	high	low	high	low	high
2,5	10	$\frac{1}{8}$	$\frac{3}{8}$	0	3	1	5	3	9	—	—
10	18	$\frac{3}{8}$	$\frac{11}{16}$	0	3,5	1	7	4,5	10	7	13
18	24	$\frac{11}{16}$	$\frac{11}{16}$	0	4	2	8	5	11	8	14
24	30	$\frac{15}{16}$	$1\frac{1}{8}$	0	4,5	2	8	5	11	9	16
30	40	$1\frac{1}{8}$	$1\frac{9}{16}$	0	4,5	2,5	8	6	13	11	18
40	50	$1\frac{3}{16}$	$1\frac{15}{16}$	0	4,5	2,5	9	7	14	12	20
50	65	$1\frac{15}{16}$	$2\frac{1}{2}$	0	6	3	11	9	17	15	24
65	80	$2\frac{1}{2}$	$3\frac{1}{8}$	0	6	4	12	10	20	18	28
80	100	$3\frac{1}{8}$	$3\frac{7}{8}$	0	7	5	14	12	23	21	33
100	120	$3\frac{7}{8}$	$4\frac{11}{16}$	0	8	6	16	14	26	24	38
120	140	$4\frac{11}{16}$	$5\frac{1}{2}$	1	9	7	19	16	32	28	45
140	160	$5\frac{1}{2}$	$6\frac{1}{4}$	1	9	7	21	18	36	32	51
160	180	$6\frac{1}{4}$	7	1	10	8	24	21	40	36	58
180	200	7	$7\frac{7}{8}$	1	12	10	28	25	46	42	64
200	225	$7\frac{7}{8}$	$8\frac{7}{8}$	1	14	11	34	30	54	50	76
225	250	$8\frac{7}{8}$	$9\frac{7}{8}$	1	15	12	38	34	62	58	87
250	280	$9\frac{7}{8}$	11	1	16	13	40	36	66	62	95
280	315	11	$12\frac{3}{8}$	1	25	18	45	41	73	69	104
315	355	$12\frac{3}{8}$	14	1	25	18	49	45	81	77	116
355	400	14	$15\frac{3}{4}$	1	29	22	57	53	93	89	132

These inch values are rounded conversions. Exact values for both inch and metric bearings are as listed in the metric units given in table 24-1.

Radial internal clearance

Radial internal clearance – cylindrical roller bearings with matched rings
0,001 mm units

Table 25-1

d				Radial internal clearance groups							
mm		inch		C2		CN (normal)		C3		C4	
over	incl	over	incl	low	high	low	high	low	high	low	high
6	24	$\frac{1}{4}$	$\frac{1}{16}$	10	20	20	30	35	45	45	55
24	30	$\frac{1}{8}$	$\frac{1}{8}$	10	25	25	35	40	50	50	60
30	40	$1\frac{1}{8}$	$1\frac{3}{16}$	12	25	25	40	45	55	55	70
40	50	$1\frac{9}{16}$	$1\frac{11}{16}$	15	30	30	45	50	65	65	80
50	65	$1\frac{11}{16}$	$2\frac{1}{2}$	15	35	35	50	55	75	75	90
65	80	$2\frac{1}{2}$	$3\frac{1}{8}$	20	40	40	60	70	90	90	110
80	100	$3\frac{1}{8}$	$3\frac{7}{8}$	25	45	45	70	80	105	105	125
100	120	$3\frac{7}{8}$	$4\frac{1}{16}$	25	50	50	80	95	120	120	145
120	140	$4\frac{11}{16}$	$5\frac{1}{2}$	30	60	60	90	105	135	135	160
140	160	$5\frac{1}{2}$	$6\frac{1}{2}$	35	65	65	100	115	150	150	180
160	180	$6\frac{1}{2}$	7	35	75	75	110	125	165	165	200
180	200	7	$7\frac{7}{8}$	40	80	80	120	140	180	180	220
200	225	$7\frac{7}{8}$	$8\frac{7}{8}$	45	90	90	135	155	200	200	240
225	250	$8\frac{7}{8}$	$9\frac{7}{8}$	50	100	100	150	170	215	215	265
250	280	9	11	55	110	110	165	185	240	240	295
280	315	11	$12\frac{3}{8}$	60	120	120	180	205	265	265	325
315	355	$12\frac{3}{8}$	14	65	135	135	200	225	295	295	360
355	400	14	$15\frac{3}{4}$	75	150	150	225	255	330	330	405



Radial internal clearance – cylindrical roller bearings with matched rings
0,0001 inch units

Table 25-2

d				Radial internal clearance groups							
mm		inch		C2		CN (normal)		C3		C4	
over	incl	over	incl	low	high	low	high	low	high	low	high
6	24	$\frac{1}{4}$	$\frac{1}{16}$	4	8	8	12	14	18	18	22
24	30	$\frac{1}{8}$	$\frac{1}{8}$	4	10	10	14	16	20	20	24
30	40	$1\frac{1}{8}$	$1\frac{3}{16}$	5	10	10	16	18	22	22	28
40	50	$1\frac{9}{16}$	$1\frac{11}{16}$	6	12	12	18	20	26	26	31
50	65	$1\frac{11}{16}$	$2\frac{1}{2}$	6	14	14	20	22	30	30	35
65	80	$2\frac{1}{2}$	$3\frac{1}{8}$	8	16	16	24	28	35	35	43
80	100	$3\frac{1}{8}$	$3\frac{7}{8}$	10	18	18	28	31	41	41	49
100	120	$3\frac{7}{8}$	$4\frac{1}{16}$	10	20	20	31	37	47	47	57
120	140	$4\frac{11}{16}$	$5\frac{1}{2}$	12	24	24	35	41	53	53	63
140	160	$5\frac{1}{2}$	$6\frac{1}{2}$	14	26	26	39	45	59	59	71
160	180	$6\frac{1}{2}$	7	14	30	30	43	49	65	65	79
180	200	7	$7\frac{7}{8}$	16	31	31	47	55	71	71	87
200	225	$7\frac{7}{8}$	$8\frac{7}{8}$	18	35	35	53	61	79	79	94
225	250	$8\frac{7}{8}$	$9\frac{7}{8}$	20	39	39	59	67	85	85	104
250	280	9	11	22	43	43	65	73	94	94	116
280	315	11	$12\frac{3}{8}$	24	47	47	71	81	104	104	128
315	355	$12\frac{3}{8}$	14	26	53	53	79	89	116	116	142
355	400	14	$15\frac{3}{4}$	30	59	59	89	100	130	130	159

These inch values are rounded conversions. Exact values for both inch and metric bearings are listed in the metric units given in table 25-1.

Radial internal clearance



Radial internal clearance – double row self-aligning ball bearings
0.001 mm units

Table 26-1

d				Radial internal clearance groups							
mm		inch		C2		CN (normal)		C3		C4	
over	incl	over	incl	low	high	low	high	low	high	low	high
2,5	6	$\frac{1}{8}$	$\frac{7}{32}$	1	5	5	10	10	15	15	21
6	10	$\frac{7}{32}$	$\frac{9}{16}$	2	6	6	12	12	19	19	27
10	14	$\frac{3}{8}$	$\frac{9}{16}$	2	6	6	13	13	21	21	30
14	18	$\frac{9}{16}$	$\frac{11}{16}$	3	8	8	15	15	23	23	32
18	24	$\frac{11}{16}$	$\frac{15}{16}$	4	10	10	17	17	25	25	34
24	30	$\frac{15}{16}$	$1\frac{1}{8}$	5	11	11	19	19	29	29	40
30	40	$1\frac{1}{8}$	$1\frac{9}{16}$	6	13	13	23	23	34	34	46
40	50	$1\frac{9}{16}$	$1\frac{15}{16}$	6	14	14	25	25	37	37	50
50	65	$1\frac{15}{16}$	$2\frac{1}{2}$	7	16	16	30	30	45	45	65
65	80	$2\frac{1}{2}$	$3\frac{1}{8}$	8	18	18	35	35	54	54	76
80	100	$3\frac{1}{8}$	$3\frac{7}{8}$	9	22	22	42	42	64	64	89
100	120	$3\frac{7}{8}$	$4\frac{11}{16}$	10	25	25	50	50	75	75	105
120	140	$4\frac{11}{16}$	$5\frac{1}{2}$	10	30	30	60	60	90	90	130
140	160	$5\frac{1}{2}$	$6\frac{1}{4}$	15	35	35	70	70	110	110	150

Radial internal clearance – double row self-aligning ball bearings
0.0001 inch units

Table 26-2

d				Radial internal clearance groups							
mm		inch		C2		CN (normal)		C3		C4	
over	incl	over	incl	low	high	low	high	low	high	low	high
2,5	6	$\frac{1}{8}$	$\frac{7}{32}$	0,5	2	2	4	4	6	6	8
6	10	$\frac{7}{32}$	$\frac{9}{16}$	1	2,5	2,5	5	5	7,5	7,5	11
10	14	$\frac{3}{8}$	$\frac{9}{16}$	1	2,5	2,5	5	5	8	8	12
14	18	$\frac{9}{16}$	$\frac{11}{16}$	1	3	3	6	6	9	9	13
18	24	$\frac{11}{16}$	$\frac{15}{16}$	1,5	4	4	6,5	6,5	10	10	13
24	30	$\frac{15}{16}$	$1\frac{1}{8}$	2	4,5	4,5	7,5	7,5	11	11	16
30	40	$1\frac{1}{8}$	$1\frac{9}{16}$	2,5	5	5	9	9	13	13	18
40	50	$1\frac{9}{16}$	$1\frac{15}{16}$	2,5	5,5	5,5	10	10	15	15	20
50	65	$1\frac{15}{16}$	$2\frac{1}{2}$	3	6,5	6,5	12	12	18	18	26
65	80	$2\frac{1}{2}$	$3\frac{1}{8}$	3	7	7	14	14	21	21	30
80	100	$3\frac{1}{8}$	$3\frac{7}{8}$	3,5	9	9	17	17	25	25	35
100	120	$3\frac{7}{8}$	$4\frac{11}{16}$	4	10	10	20	20	30	30	41
120	140	$4\frac{11}{16}$	$5\frac{1}{2}$	4	12	12	24	24	35	35	51
140	160	$5\frac{1}{2}$	$6\frac{1}{4}$	6	14	14	28	28	43	43	59

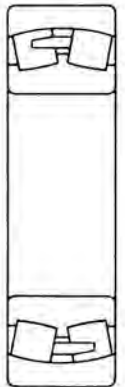
These inch values are rounded conversions. Exact values for both inch and metric bearings are listed in the metric units, given in table 26-1.

Radial internal clearance

Radial internal clearance – double row spherical roller bearings with cylindrical bores
0,001 mm units

Table 27-1

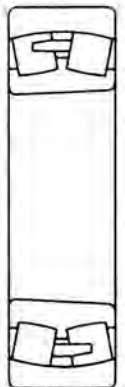
d mm		Radial internal clearance groups							
		C2		CN (normal)		C3		C4	
over	incl	low	high	low	high	low	high	low	high
24	30	15	25	25	40	40	55	55	75
30	40	15	30	30	45	45	60	60	80
40	50	20	35	35	55	55	75	75	100
50	65	20	40	40	65	65	90	90	120
65	80	30	50	50	80	80	110	110	145
80	100	35	60	60	100	100	135	135	180
100	120	40	75	75	120	120	160	160	210
120	140	50	95	95	145	145	190	190	240
140	160	60	110	110	170	170	220	220	280
160	180	65	120	120	180	180	240	240	310
180	200	70	130	130	200	200	260	260	340
200	225	80	140	140	220	220	290	290	380
225	250	90	150	150	240	240	320	320	420



Radial internal clearance – double row spherical roller bearings with tapered bores
0,001 mm units

Table 27-2

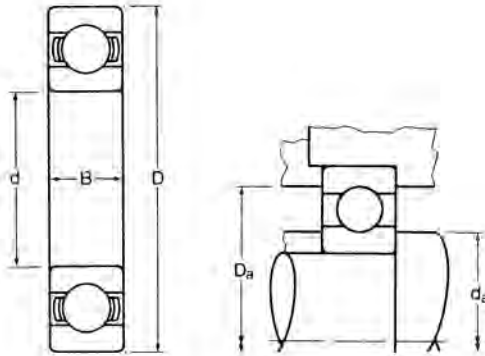
d mm		Radial internal clearance groups							
		C2		CN (normal)		C3		C4	
over	incl	low	high	low	high	low	high	low	high
24	30	20	30	30	40	40	55	55	75
30	40	25	35	35	50	50	65	65	85
40	50	30	45	45	60	60	80	80	100
50	65	40	55	55	75	75	95	95	120
65	80	50	70	70	95	95	120	120	150
80	100	55	80	80	110	110	140	140	180
100	120	65	100	100	135	135	170	170	220
120	140	80	120	120	160	160	200	200	260
140	160	90	130	130	180	180	230	230	300
160	180	100	140	140	200	200	260	260	340
180	200	110	160	160	220	220	290	290	370
200	225	120	180	180	250	250	320	320	410
225	250	140	200	200	270	270	350	350	450



Single row radial ball bearings



Single row radial ball bearings



160 EXTRA LIGHT NARROW SERIES

METRIC SIZES

ISO DIMENSION SERIES 00

RKB designation	Dimensions millimetres			RKB load ratings† newtons		Normal limiting speeds rev/min		Weight	Shaft and housing dimensions millimetres		
	d	D	B	dynamic	static	grease	oil	kg approx	max fillet radius	da min	Da max
				C _r	C _{0r}						
16002	15	32	8	5 350	2 200	23 000	29 000	0,025	0,3	16,8	30,2
16003	17	35	8	5 800	2 500	20 000	25 000	0,032	0,3	18,8	33,2
16004	20	42	8	9 750	3 200	16 500	21 000	0,050	0,3	21,8	40,2
16005	25	47	8	7 550	3 750	14 000	18 000	0,060	0,3	26,8	45,2
16006	30	55	9	11 700	6 000	12 000	15 000	0,085	0,3	31,8	53,2
16007	35	62	9	12 700	7 100	10 500	13 000	0,110	0,3	36,8	60,2
16008	40	68	9	13 700	8 000	9 500	12 000	0,125	0,3	41,8	66,2
16009	45	75	10	16 200	9 500	8 500	10 500	0,170	0,6	48,2	71,8
16010	50	80	10	16 700	10 200	8 000	10 000	0,180	0,6	53,2	76,8
16013	65	100	11	22 000	15 000	6 300	7 500	0,300	0,6	68,2	96,8
16020	100	150	16	45 600	33 500	4 100	4 900	0,910	1,0	104,6	145,4
16022	110	170	19	59 500	43 000	3 700	4 400	1,46	1,0	114,6	165,4

161 EXTRA LIGHT NARROW SERIES

METRIC SIZES

ISO DIMENSION SERIES 00

16100	10	28	8	4 620	1 960	28 000	34 000	0,022	0,3	12	26
16101	12	30	8	5 070	2 360	26 000	32 000	0,023	0,3	14	28

Larger sizes, sealed and shielded types are available on request

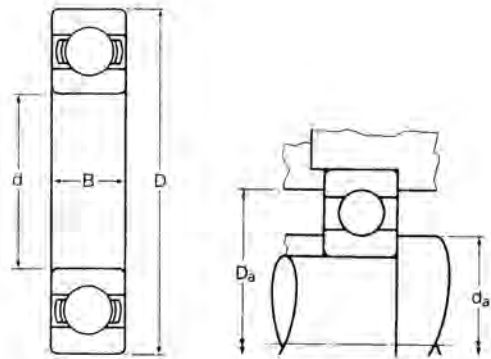
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Single row radial ball bearings

60 EXTRA LIGHT SERIES

METRIC SIZES

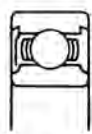
ISO DIMENSION SERIES 10



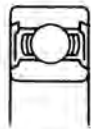
RKB designations

basic bearing	RKB designations						Dimensions millimetres			RKB load ratings† newtons	
	with one shield Z	with two shields -2Z	with one seal RS	with two seals -2RS	with snap ring groove N	with groove and snap ring NR	d	D	B	C _r	C _{0r}
6000	6000Z	6000-2Z	6000RS	6000-2RS			10	26	8	4 750	1 950
6001	6001Z	6001-2Z	6001RS	6001-2RS			12	28	8	5 300	2 230
6002	6002Z	6002-2Z	6002RS	6002-2RS	6002N	6002NR	15	32	9	5 800	2 510
6003	6003Z	6003-2Z	6003RS	6003-2RS	6003N	6003NR	17	35	10	7 050	3 030
6004	6004Z	6004-2Z	6004RS	6004-2RS	6004N	6004NR	20	42	12	9 750	4 450
6005	6005Z	6005-2Z	6005RS	6005-2RS	6005N	6005NR	25	47	12	10 500	4 950
6006	6006Z	6006-2Z	6006RS	6006-2RS	6006N	6006NR	30	55	13	15 700	7 750
6007	6007Z	6007-2Z	6007RS	6007-2RS	6007N	6007NR	35	62	14	16 600	8 500
6008	6008Z	6008-2Z	6008RS	6008-2RS	6008N	6008NR	40	68	15	19 700	10 300
6009	6009Z	6009-2Z	6009RS	6009-2RS	6009N	6009NR	45	75	16	24 400	13 400
6010	6010Z	6010-2Z	6010RS	6010-2RS	6010N	6010NR	50	80	16	22 700	13 100
6011	6011Z	6011-2Z	6011RS	6011-2RS	6011N	6011NR	55	90	18	29 400	17 000
6012	6012Z	6012-2Z	6012RS	6012-2RS	6012N	6012NR	60	95	18	33 600	19 700
6013	6013Z	6013-2Z	6013RS	6013-2RS	6013N	6013NR	65	100	18	31 800	19 600
6014	6014Z	6014-2Z	6014RS	6014-2RS	6014N	6014NR	70	110	20	42 700	25 700
6015			6015RS	6015-2RS	6015N	6015NR	75	115	20	41 100	26 100
6016			6016RS	6016-2RS	6016N	6016NR	80	125	22	49 600	31 300
6017			6017RS	6017-2RS	6017N	6017NR	85	130	22	51 500	33 500
6018					6018N	6018NR	90	140	24	60 500	39 100
6019			6019RS	6019-2RS			95	145	24	63 000	41 900
6020							100	150	24	62 500	42 500
6021							105	160	26	75 500	51 000
6022							110	170	28	85 500	57 500
6024							120	180	28	86 000	62 000
6026							130	200	33	109 000	80 000
6028							140	210	33	113 000	85 000
6030							150	225	35	134 000	97 500
6032							160	240	38	145 000	104 000
6034							170	260	42	175 000	137 000
6036							180	280	46	181 000	140 000

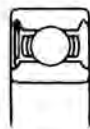
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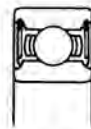
Z



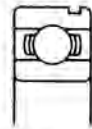
-2Z



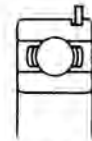
RS



-2RS



N



NR

Normal limiting speeds		Weight	Shaft and housing dimensions						RKB designation
rev/min			kg	millimetres					
grease	oil	types RS and -2RS	approx (basic bearing)	max fillet radius	d_a min	d_a max	D_a min	D_a max	(basic bearing)
25 500	34 500	18 000	0,020	0,3	12,0	12,7	23,1	24,0	6000
23 500	32 000	16 500	0,023	0,3	13,2	14,7	25,1	26,8	6001
21 000	28 000	14 600	0,030	0,3	16,2	18,3	28,7	30,8	6002
19 000	26 000	13 500	0,038	0,3	18,2	20,3	31,5	33,8	6003
16 500	22 500	11 600	0,069	0,6	22,4	24,6	37,3	39,6	6004
14 600	19 500	10 200	0,080	0,6	27,4	29,7	42,4	44,6	6005
12 600	17 000	8 800	0,116	1,0	34,0	34,5	50,5	51,0	6006
11 200	15 000	7 800	0,156	1,0	39,0	40,6	56,4	58,0	6007
10 100	13 600	7 100	0,191	1,0	44,0	45,2	62,7	64,0	6008
9 100	12 300	6 400	0,245	1,0	49,0	50,5	69,6	71,0	6009
8 300	11 200	5 800	0,264	1,0	54,0	57,4	74,7	76,0	6010
7 600	10 300	5 300	0,394	1,0	59,0	62,2	82,8	86,0	6011
7 100	9 600	5 000	0,419	1,0	64,0	66,5	88,6	91,0	6012
6 700	9 000	4 700	0,449	1,0	69,0	72,1	92,7	96,0	6013
6 100	8 200	4 300	0,608	1,0	74,0	77,2	102,6	106,0	6014
5 800	7 800	4 050	0,680	1,0	79,0	83,6	107,2	111,0	6015
5 300	7 200	3 700	0,907	1,0	84,0	88,9	116,1	121,0	6016
5 000	6 800	3 500	0,907	1,0	89,0	94,5	121,4	126,0	6017
4 600	6 300	3 100	1,16	1,5	96,0	100,8	131,1	134,0	6018
4 400	6 000	3 100	1,21	1,5	101,0	105,7	135,6	139,0	6019
4 100	4 900		1,26	1,5	106,0	109,2	141,0	144,0	6020
2 000	4 000		1,62	2,0	113,0	115,8	148,3	152,0	6021
3 800	5 100		1,97	2,0	118,0	121,7	158,2	162,0	6022
3 400	4 000		2,53	2,0	128,0	131,8	168,1	172,0	6024
3 100	3 700		3,81	2,0	138,0	144,3	185,7	192,0	6026
2 800	3 300		4,02	2,0	148,0	155,7	196,8	202,0	6028
1 300	2 700		4,94	2,0	158,0	164,6	210,6	217,0	6030
1 200	2 400		5,95	2,0	168,0	174,5	225,5	232,0	6032
2 200	2 600		8,07	2,0	178,0	187,2	242,8	252,0	6034
1 000	2 000		10,7	2,0	188,0	204,2	261,4	272,0	6036

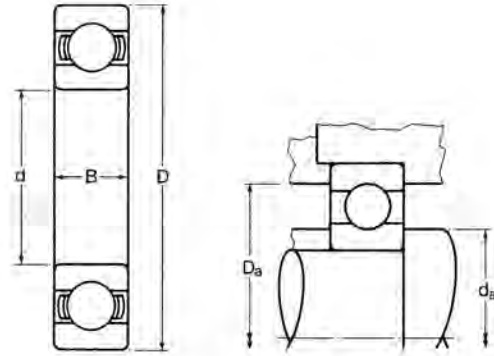
Larger sizes are available on request

Single row radial ball bearings

62 LIGHT SERIES

METRIC SIZES

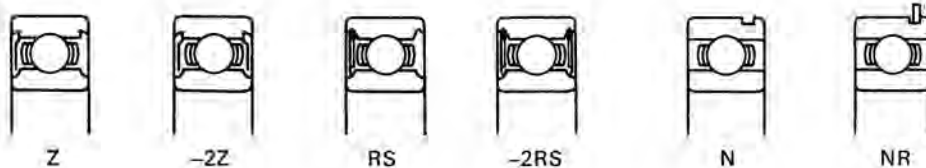
ISO DIMENSION SERIES 02



RKB designations

basic bearing	RKB designations						Dimensions millimetres			RKB load ratings† newtons	
	with one shield Z	with two shields -ZZ	with one seal RS	with two seals -2RS	with snap ring groove N	with groove and snap ring NR	d	D	B	C _r	C _{0r}
6200	6200Z	6200-ZZ	6200RS	6200-2RS	6200N	6200NR	10	30	9	6 200	2 650
6201	6201Z	6201-ZZ	6201RS	6201-2RS	6201N	6201NR	12	32	10	7 050	3 040
6202	6202Z	6202-ZZ	6202RS	6202-2RS	6202N	6202NR	15	35	11	8 050	3 530
6203	6203Z	6203-ZZ	6203RS	6203-2RS	6203N	6203NR	17	40	12	9 950	4 470
6204	6204Z	6204-ZZ	6204RS	6204-2RS	6204N	6204NR	20	47	14	13 300	6 200
6205	6205Z	6205-ZZ	6205RS	6205-2RS	6205N	6205NR	25	52	15	14 500	6 950
6206	6206Z	6206-ZZ	6206RS	6206-2RS	6206N	6206NR	30	62	16	20 200	10 000
6207	6207Z	6207-ZZ	6207RS	6207-2RS	6207N	6207NR	35	72	17	26 700	13 600
6208	6208Z	6208-ZZ	6208RS	6208-2RS	6208N	6208NR	40	80	18	34 000	17 800
6209	6209Z	6209-ZZ	6209RS	6209-2RS	6209N	6209NR	45	85	19	34 000	17 800
6210	6210Z	6210-ZZ	6210RS	6210-2RS	6210N	6210NR	50	90	20	36 500	19 800
6211	6211Z	6211-ZZ	6211RS	6211-2RS	6211N	6211NR	55	100	21	45 100	25 100
6212	6212Z	6212-ZZ	6212RS	6212-2RS	6212N	6212NR	60	110	22	54 500	30 900
6213	6213Z	6213-ZZ	6213RS	6213-2RS	6213N	6213NR	65	120	23	59 500	34 100
6214	6214Z	6214-ZZ	6214RS	6214-2RS	6214N	6214NR	70	125	24	64 500	37 400
6215	6215Z	6215-ZZ	6215RS	6215-2RS	6215N	6215NR	75	130	25	69 000	41 200
6216	6216Z	6216-ZZ	6216RS	6216-2RS	6216N	6216NR	80	140	26	80 500	49 000
6217	6217Z	6217-ZZ	6217RS	6217-2RS	6217N	6217NR	85	150	28	87 500	52 500
6218	6218Z	6218-ZZ	6218RS	6218-2RS	6218N	6218NR	90	160	30	93 000	57 500
6219					6219N	6219NR	95	170	32	106 000	66 500
6220					6220N	6220NR	100	180	34	120 000	74 500
6221							105	190	36	135 000	87 000
6222							110	200	38	147 000	98 500
6224							120	215	40	150 000	102 000
6226							130	230	40	172 000	123 000
6228							140	250	42	184 000	136 000
6230							150	270	45	183 000	138 000
6232							160	290	48	238 000	196 000
6234							170	310	52	237 000	196 000
6236							180	320	52	266 000	230 000
6238							190	340	55	281 000	248 000
6240							200	360	58	279 000	265 000
6244							220	400	65	356 000	348 000

Please check availability



Normal limiting speeds		Weight	Shaft and housing dimensions					RKB designation	
rev/min			kg	millimetres					
grease	oil	types RS and -2RS	approx (basic bearing)	max fillet radius	d_a min	d_a max	D_a min	D_a max	(basic bearing)
23 500	32 000	16 500	0,031	0,6	14,0	14,0	25,0	26,0	6200
22 000	29 500	15 500	0,034	0,6	14,4	15,9	28,6	29,6	6201
19 500	26 500	13 800	0,043	0,6	17,4	19,1	31,3	32,6	6202
18 000	24 000	12 500	0,062	0,6	19,4	21,8	36,1	37,6	6203
15 500	21 000	10 800	0,099	1,0	24,0	25,1	42,5	43,0	6204
14 000	19 000	9 800	0,123	1,0	29,0	30,1	47,6	48,0	6205
11 700	15 500	8 200	0,198	1,0	36,0	36,0	55,0	56,0	6206
10 100	13 600	7 100	0,276	1,0	42,0	43,0	63,0	65,0	6207
9 000	12 200	6 300	0,351	1,0	44,0	48,3	73,7	76,0	6208
8 400	11 400	5 900	0,397	1,0	49,0	52,7	78,1	81,0	6209
7 800	10 600	5 500	0,446	1,0	54,0	57,7	83,2	86,0	6210
7 100	9 500	4 900	0,590	1,5	61,0	63,8	92,2	94,0	6211
6 400	8 700	4 500	0,771	1,5	66,0	69,1	100,9	104,0	6212
5 900	7 900	4 100	0,966	1,5	71,0	76,2	109,7	114,0	6213
5 600	7 500	3 900	1,05	1,5	76,0	80,5	115,6	119,0	6214
5 300	7 100	3 700	1,13	1,5	81,0	84,8	120,4	124,0	6215
4 900	6 600	3 400	1,37	2,0	88,0	92,5	130,6	132,0	6216
4 500	6 100	3 100	1,71	2,0	93,0	97,5	138,7	142,0	6217
4 300	5 800	3 000	2,57	2,0	98,0	105,2	146,6	152,0	6218
4 000	5 400		2,72	2,0	103,0	111,8	156,2	162,0	6219
3 800	5 100		3,12	2,0	108,0	116,8	166,1	172,0	6220
3 500	4 700		4,42	2,0	113,0	122,9	173,7	182,0	6221
3 300	4 400		5,17	2,0	118,0	129,0	182,9	192,0	6222
2 500	3 200		5,15	2,0	132,0	138,2	198,6	203,0	6224
2 700	3 700		7,08	2,5	140,0	152,4	212,6	220,0	6226
2 500	3 400		8,98	2,5	150,0	163,3	226,8	240,0	6228
2 300	3 100		9,41	2,5	164,0	178,6	248,4	256,0	6230
2 100	2 800		13,7	2,5	170,0	189,5	265,7	280,0	6232
1 000	2 000		16,7	3,0	182,0	201,9	278,1	298,0	6234
1 800	2 500		17,2	3,0	192,0	210,7	293,2	308,0	6236
1 700	2 300		21,7	3,0	202,0	219,4	311,8	328,0	6238
1 600	1 900		27,0	3,0	212,0	236,5	328,6	348,0	6240
700	1 400		36,4	3,0	232,0	259,1	360,7	388,0	6244

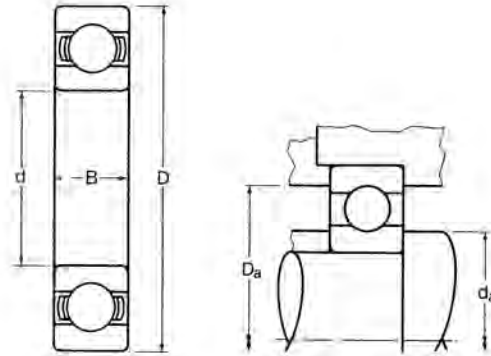
Larger sizes are available on request

Single row radial ball bearings

63 MEDIUM SERIES

METRIC SIZES

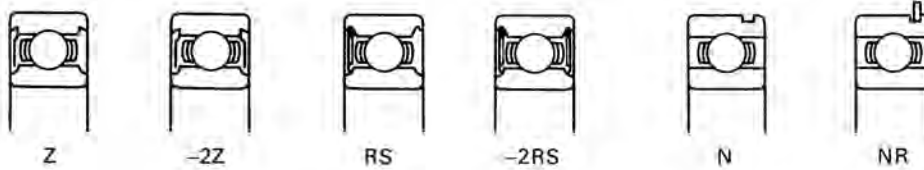
ISO DIMENSION SERIES 03



RKB designations

basic bearing	RKB designations						Dimensions			RKB load ratings†	
	with one shield	with two shields	with one seal	with two seals	with snap ring groove	with groove and snap ring	millimetres			newtons	
	Z	-2Z	RS	-2RS	N	NR	d	D	B	C _r	C _{0r}
6300	6300Z	6300-2Z	6300RS	6300-2RS	6300N	6300NR	10	35	11	8 400	3 760
6301	6301Z	6301-2Z	6301RS	6301-2RS	6301N	6301NR	12	37	12	10 100	4 640
6302	6302Z	6302-2Z	6302RS	6302-2RS	6302N	6302NR	15	42	13	12 300	5 600
6303	6303Z	6303-2Z	6303RS	6303-2RS	6303N	6303NR	17	47	14	14 500	6 700
6304	6304Z	6304-2Z	6304RS	6304-2RS	6304N	6304NR	20	52	15	16 500	7 800
6305	6305Z	6305-2Z	6305RS	6305-2RS	6305N	6305NR	25	62	17	22 100	10 600
6306	6306Z	6306-2Z	6306RS	6306-2RS	6306N	6306NR	30	72	19	30 800	15 800
6307	6307Z	6307-2Z	6307RS	6307-2RS	6307N	6307NR	35	80	21	34 600	17 900
6308	6308Z	6308-2Z	6308RS	6308-2RS	6308N	6308NR	40	90	23	46 200	24 700
6309	6309Z	6309-2Z	6309RS	6309-2RS	6309N	6309NR	45	100	25	54 900	29 900
6310	6310Z	6310-2Z	6310RS	6310-2RS	6310N	6310NR	50	110	27	64 500	35 600
6311	6311Z	6311-2Z	6311RS	6311-2RS	6311N	6311NR	55	120	29	74 500	41 800
6312	6312Z	6312-2Z	6312RS	6312-2RS	6312N	6312NR	60	130	31	85 000	48 500
6313	6313Z	6313-2Z	6313RS	6313-2RS	6313N	6313NR	65	140	33	96 500	55 500
6314	6314Z	6314-2Z	6314RS	6314-2RS	6314N	6314NR	70	150	35	108 000	63 500
6315	6315Z	6315-2Z	6315RS	6315-2RS	6315N	6315NR	75	160	37	118 000	71 500
6316	6316Z	6316-2Z			6316N	6316NR	80	170	39	128 000	80 000
6317					6317N	6317NR	85	180	41	138 000	89 500
6318					6318N	6318NR	90	190	43	148 000	99 000
6319					6319N	6319NR	95	200	45	149 000	99 000
6320					6320N	6320NR	100	215	47	170 000	120 000
6321							105	225	49	191 000	143 000
6322							110	240	50	203 000	155 000
6324							120	260	55	226 000	180 000
6326							130	280	58	250 000	208 000
6328							140	300	62	263 000	223 000
6330							150	320	65	288 000	253 000
6332							160	340	68	313 000	286 000
6334							170	360	72	339 000	321 000
6336							180	380	75	352 000	357 000
6338							190	400	78	397 000	402 000

Please check availability



Normal limiting speeds		Weight	Shaft and housing dimensions					RKB designation	
rev/min			kg	millimetres					
grease	oil	types RS and -2RS	approx (basic bearing)	max fillet radius	d_a min	d_a max	D_a min	D_a max	(basic bearing)
21 500	29 000	15 000	0,049	0,6	12,4	15,5	30,0	32,6	6300
20 000	27 000	14 000	0,061	1,0	16,0	16,5	32,5	33,0	6301
17 500	24 000	12 400	0,081	1,0	19,0	20,1	37,6	38,0	6302
16 000	21 500	11 200	0,109	1,0	21,0	22,9	41,9	43,0	6303
14 700	20 000	10 300	0,144	1,0	24,0	26,2	45,2	48,0	6304
12 200	16 500	8 500	0,220	1,0	29,0	33,0	55,1	58,0	6305
10 600	14 300	7 400	0,331	1,0	34,0	39,1	64,5	68,0	6306
9 400	12 700	6 600	0,446	1,5	41,0	43,9	71,1	74,0	6307
8 400	11 300	5 900	0,590	1,5	46,0	49,5	81,3	84,0	6308
7 500	10 200	5 300	0,794	1,5	51,0	55,1	89,9	94,0	6309
6 800	9 200	4 800	1,06	2,0	58,0	61,0	99,1	102,0	6310
6 200	8 400	4 400	1,35	2,0	63,0	66,8	108,2	112,0	6311
5 700	7 700	4 000	1,69	2,0	68,0	73,4	117,9	122,0	6312
5 300	7 100	3 700	2,07	2,0	73,0	79,2	128,3	132,0	6313
4 900	6 600	3 400	2,49	2,0	78,0	85,3	136,1	142,0	6314
4 600	6 200	3 200	2,98	2,0	83,0	90,7	144,5	152,0	6315
4 200	5 700		3,58	2,0	88,0	97,3	154,4	162,0	6316
4 000	5 400		4,25	2,5	95,0	102,1	162,3	170,0	6317
3 700	5 000		5,85	2,5	100,0	109,2	172,7	180,0	6318
3 500	4 700		6,80	2,5	105,0	116,8	180,3	190,0	6319
3 200	4 400		7,03	2,5	110,0	124,2	194,1	205,0	6320
3 100	4 200		9,53	2,5	115,0	128,0	204,2	215,0	6321
2 900	3 900		9,70	2,5	120,0	136,4	215,6	230,0	6322
2 600	3 500		15,4	2,5	130,0	148,3	233,9	250,0	6324
2 400	3 200		18,4	3,0	142,0	159,0	251,0	268,0	6326
2 200	2 900		22,4	3,0	152,0	172,5	267,7	288,0	6328
2 000	2 700		24,9	3,0	162,0	184,2	285,8	308,0	6330
1 900	2 500		32,1	3,0	172,0	196,0	304,0	328,0	6332
1 700	2 300		37,4	3,0	182,0	208,0	322,0	348,0	6334
800	1 600		40,8	3,0	192,0	220,0	340,0	368,0	6336
750	1 500		49,8	4,0	206,0	233,0	357,0	384,0	6338

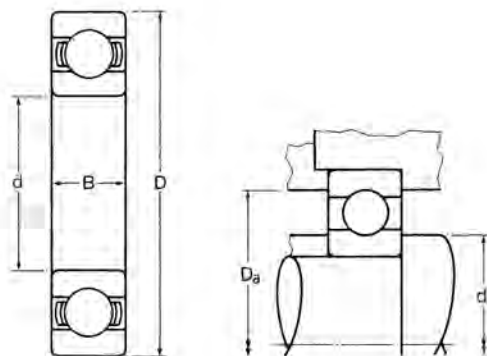
Larger sizes are available on request

Single row radial ball bearings

64 HEAVY SERIES

METRIC SIZES

ISO DIMENSION SERIES 04



RKB designation	Dimensions millimetres			RKB load ratings† newtons		Normal limiting speeds rev/min		Weight kg approx	Shaft and housing dimensions millimetres					
	d	D	B	C _r	C _{0r}	grease	oil		max fillet radius	d _a		D _a		
										min	max	min	max	
6403	17	62	17	22 100	10 600	12 200	16 500	0,255	1,0	21,0	33,0	55,1	58,0	
6404	20	72	19	30 700	15 600	10 600	14 300	0,390	1,0	24,0	35,1	62,2	68,0	
6405	25	80	21	34 700	17 900	9 400	12 700	0,526	1,5	31,0	45,0	71,9	74,0	
6406	30	90	23	42 200	21 700	8 400	11 300	0,689	1,5	36,0	49,5	81,3	84,0	
6407	35	100	25	55 000	29 900	7 500	10 200	0,916	1,5	41,0	55,6	90,7	94,0	
6408	40	110	27	64 500	35 600	6 800	9 200	1,21	2,0	48,0	61,4	99,6	102,0	
6409	45	120	29	74 500	41 800	6 200	8 400	1,53	2,0	53,0	67,6	108,7	112,0	
6410	50	130	31	85 000	48 500	5 700	7 700	1,90	2,0	58,0	73,4	117,9	122,0	
6411	55	140	33	96 500	55 500	5 300	7 100	2,31	2,0	63,0	79,2	128,3	132,0	
6412	60	150	35	108 000	63 500	4 900	6 600	2,80	2,0	68,0	85,3	136,1	142,0	
6413	65	160	37	118 000	71 500	4 600	6 200	3,25	2,0	73,0	90,7	144,5	152,0	
6414	70	180	42	138 000	89 500	4 000	5 400	5,03	2,5	80,0	102,1	162,3	170,0	
6415	75	190	45	148 000	89 500	1 900	3 900	7,03	2,5	85,0	106,4	166,6	180,0	
6416	80	200	48	170 000	125 000	1 900	3 700	8,30	2,5	90,0	102,9	179,1	190,0	
6417	85	210	52	159 000	109 000	1 700	3 400	9,84	3,0	97,0	117,6	184,2	198,0	
6418	90	225	54	170 000	120 000	1 600	3 200	12,4	3,0	102,0	124,0	193,8	213,0	
6420	100	250	58	214 000	170 000	1 400	2 900	16,2	3,0	112,0	130,6	219,5	238,0	

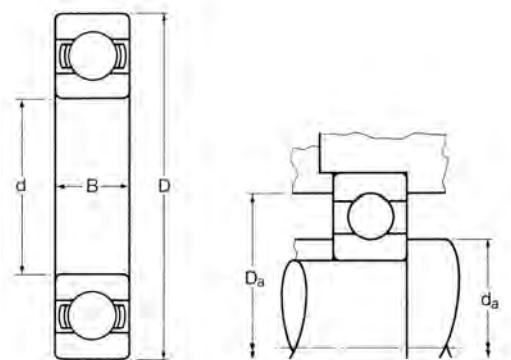
Please check availability

Single row radial ball bearings

618 SUPER LIGHT

METRIC SIZES

ISO DIMENSION SERIES 18



RKB designation	Dimensions millimetres			RKB load ratings† newtons		Normal limiting speeds rev/min		Weight kg approx	Shaft and housing dimensions millimetres		
	d	D	B	C _r	C _{or}	grease	oil		max fillet radius	da min	Da max
								dynamic			
61800	10	19	5	1 380	585	36 000	43 000	0.0055	0.3	12	17
61801	12	21	5	1 430	670	32 000	38 000	0.0063	0.3	14	19
61802	15	24	5	1 560	800	28 000	34 000	0.0074	0.3	17	22
61803	17	26	5	1 680	930	24 000	30 000	0.0082	0.3	19	24
61804	20	32	7	2 700	1 500	19 000	24 000	0.018	0.3	22	30
61805	25	37	7	4 360	2 600	17 000	20 000	0.022	0.3	27	35
61806	30	42	7	4 490	2 900	15 000	18 000	0.027	0.3	32	40
61807	35	47	7	4 750	3 200	13 000	16 000	0.03	0.3	37	45
61808	40	52	7	4 940	3 450	11 000	14 000	0.034	0.3	42	50
61809	45	58	7	6 050	4 300	9 500	12 000	0.04	0.3	47	56
61810	50	65	7	6 240	4 750	9 000	11 000	0.052	0.3	52	63
61811	55	72	9	8 320	6 200	8 500	10 000	0.083	0.3	57	70
61812	60	78	10	8 710	6 700	7 500	9 000	0.11	0.3	62	76
61813	65	85	10	11 700	9 150	7 000	8 500	0.13	0.6	69	81
61814	70	90	10	12 100	10 000	6 700	8 000	0.14	0.6	74	86
61815	75	95	10	12 500	10 800	6 300	7 500	0.15	0.6	79	91
61816	80	100	10	12 400	10 800	6 000	7 000	0.15	0.6	84	96
61817	85	110	13	19 500	16 600	5 300	6 300	0.27	1	90	105
61818	90	115	13	19 500	17 000	5 300	6 300	0.28	1	95	110
61819	95	120	13	19 900	17 600	5 000	6 000	0.3	1	100	115
61820	100	125	13	19 900	18 300	4 800	5 600	0.31	1	105	120
61821	105	130	13	20 800	19 600	4 500	5 300	0.32	1	110	125
61822	110	140	16	28 100	26 000	4 300	5 000	0.6	1	115	135
61824	120	150	16	29 100	28 000	3 800	4 500	0.65	1	125	145
61826	130	165	18	37 700	43 000	3 600	4 300	0.93	1.1	136.5	158.5
61828	140	175	18	39 000	46 500	3 400	4 000	0.99	1.1	146.5	168.5
61830	150	190	20	48 800	61 000	3 000	3 600	1.40	1.1	156.5	183.5
61832	160	200	20	49 400	64 000	2 800	3 400	1.45	1.1	166.5	193.5
61834	170	215	22	61 800	78 000	2 600	3 200	1.9	1.1	176.5	208.5
61836	180	225	22	62 400	81 500	2 400	3 000	2	1.1	186.5	218.5
61838	190	240	24	76 100	98 000	2 200	2 800	2.6	1.5	195	232
61840	200	250	24	76 100	102 000	2 200	2 800	2.7	1.5	208	242

Larger sizes, sealed and shielded types are available on request

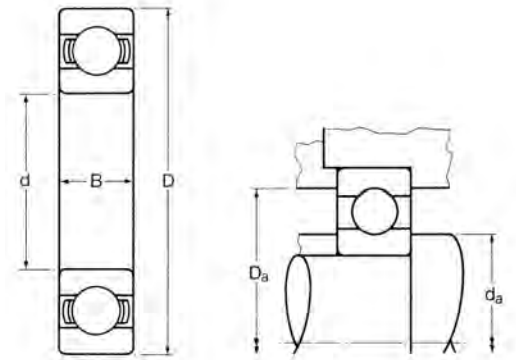
Please check availability

Single row radial ball bearings

619 SUPER LIGHT

METRIC SIZES

ISO DIMENSION SERIES 19



RKB designation	Dimensions millimetres			RKB load ratings† newtons		Normal limiting speeds rev/min		Weight kg	Shaft and housing dimensions millimetres		
	d	D	B	C _r	C _{or}	grease	oil		approx	max fillet radius	da
								min			max
61900	10	22	6	1 950	750	34 000	40 000	0.010	0.3	12	20
61901	12	24	6	2 250	980	30 000	36 000	0.011	0.3	14	22
61902	15	28	7	4 030	2 040	24 000	30 000	0.016	0.3	17	26
61903	17	30	7	4 360	2 320	22 000	28 000	0.018	0.3	19	28
61904	20	37	9	6 370	3 650	18 000	22 000	0.038	0.3	22	35
61905	25	42	9	6 630	4 000	16 000	19 000	0.045	0.3	27	40
61906	30	42	9	4 490	2 900	15 000	18 000	0.027	0.3	32	45
61907	35	55	10	9 560	6 200	11 000	14 000	0.08	0.6	39	51
61908	40	62	12	13 800	9 300	10 000	13 000	0.12	0.6	44	58
61909	45	68	12	14 000	9 800	9 000	11 000	0.14	0.6	49	64
61910	50	72	12	14 600	10 400	8 500	10 000	0.14	0.6	54	68
61911	55	80	13	15 900	11 400	8 000	9 500	0.19	1	60	75
61912	60	85	13	16 500	12 000	7 500	9 000	0.20	1	65	80
61913	65	90	13	17 400	13 400	6 700	8 000	0.22	1	70	85
61914	70	100	16	23 800	18 300	6 300	7 500	0.35	1	75	95
61915	75	105	16	24 200	19 300	6 000	7 000	0.37	1	80	100
61916	80	110	16	25 100	20 400	5 600	6 700	0.40	1	85	105
61917	85	120	18	31 900	30 000	5 300	6 300	0.55	1.1	91.5	113.5
61918	90	125	18	33 200	31 500	5 000	6 000	0.59	1.1	96.5	118.5
61919	95	130	18	33 800	33 500	4 800	5 600	0.61	1.1	101.5	123.5
61920	100	140	20	42 300	41 500	4 500	5 300	0.83	1.1	106.5	133.5
61921	105	145	20	44 200	44 000	4 300	5 000	0.87	1.1	111.5	138.5
61922	110	150	20	43 600	45 000	4 000	4 800	0.9	1.1	116.5	143.5
61924	120	165	22	55 300	57 000	3 600	4 300	1.2	1.1	126.5	158.5
61926	130	180	24	65 000	67 000	3 400	4 000	1.6	1.5	138	172
61928	140	190	24	66 300	72 000	3 200	3 800	1.7	1.5	148	182
61930	150	210	28	88 400	93 000	2 800	3 400	3.05	2	159	201
61932	160	220	28	92 300	98 000	2 600	3 200	3.25	2	169	211

Larger sizes, sealed and shielded types are available on request

Please check availability

Double row radial ball bearings
Double row self-aligning ball bearings

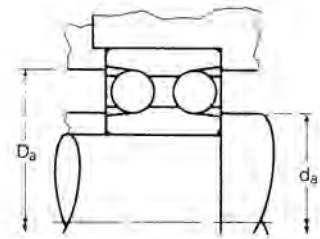
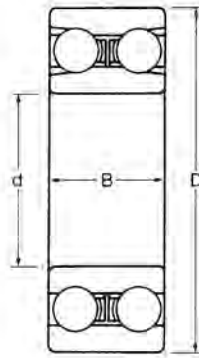


Double row radial ball bearings

42 LIGHT SERIES

METRIC SIZES

ISO DIMENSION SERIES 22

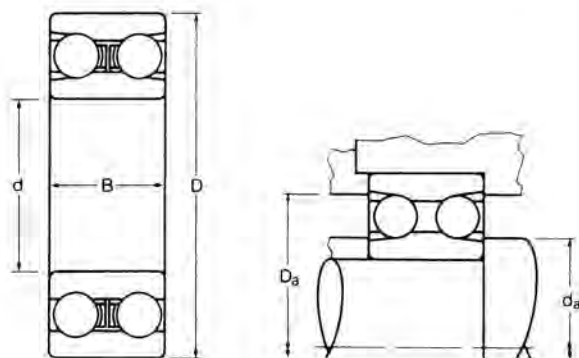


RKB designation	Dimensions millimetres			RKB load ratings† newtons		Normal limiting speeds rev/min		Weight kg approx	Shaft and housing dimensions millimetres				
	d	D	B	C _r	C _{0r}	grease	oil		max fillet radius	d _a		D _a	
										min	max	min	max
4200	10	30	14	10 500	6 050	9 500	19 000	0,054	0,6	12,4	14,7	25,7	27,6
4201	12	32	14	10 700	6 050	8 800	17 500	0,059	0,6	14,4	16,8	27,7	29,6
4202	15	35	14	12 600	7 600	7 900	16 000	0,064	0,6	17,4	19,6	30,5	32,6
4203	17	40	16	17 100	10 900	7 100	14 200	0,100	0,6	19,4	22,1	34,8	37,6
4204	20	47	18	25 400	17 000	6 200	12 400	0,159	1,0	24,0	25,7	41,7	43,0
4205	25	52	18	25 700	17 000	5 500	11 000	0,181	1,0	29,0	31,0	47,0	48,0
4206	30	62	20	34 200	24 300	4 700	9 500	0,277	1,0	34,0	37,6	55,1	58,0
4207	35	72	23	32 600	24 700	4 100	8 200	0,463	1,0	39,0	46,0	62,0	68,0
4208	40	80	23	50 500	39 200	3 700	7 300	0,553	1,0	44,0	50,3	70,9	76,0
4209	45	85	23	52 500	41 800	3 400	6 800	0,621	1,0	49,0	55,1	75,9	81,0
4210	50	90	23	54 500	44 400	3 100	6 300	0,635	1,0	54,0	61,2	81,8	86,0
4211	55	100	25	57 000	45 500	2 800	5 600	0,870	1,5	61,0	66,8	89,2	94,0
4212	60	110	28	79 000	67 500	2 500	5 100	1,19	1,5	66,0	73,9	99,3	104,0

Larger sizes are available on request

Please check availability

Double row radial ball bearings



MEDIUM SERIES **43**

METRIC SIZES

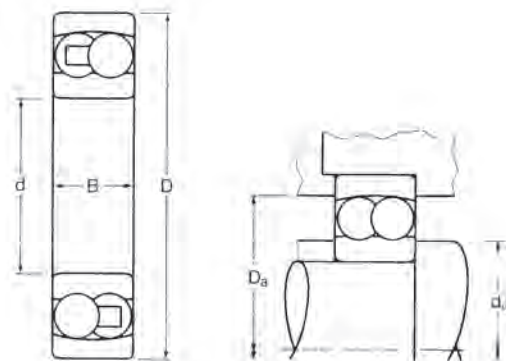
ISO DIMENSION SERIES 23

RKB designation	Dimensions millimetres			RKB load ratings† newtons		Normal limiting speeds rev/min		Weight kg approx	Shaft and housing dimensions millimetres					
	d	D	B	C _r	C _{0r}	grease	oil		max fillet radius	min	d _a		D _a	
											max	min	min	max
4300	10	35	17	14 300	8 900	8 600	17 500	0,091	0,6	12,4	16,3	29,0	32,6	
4301	12	37	17	14 700	8 900	8 100	16 000	0,100	1,0	16,0	18,5	31,2	33,0	
4302	15	42	17	18 200	11 300	7 100	14 200	0,127	1,0	19,0	21,6	36,1	38,0	
4303	17	47	19	22 000	13 900	6 500	12 900	0,172	1,0	21,0	24,1	39,9	43,0	
4304	20	52	21	30 100	20 600	5 800	11 700	0,240	1,0	24,0	28,2	45,7	48,0	
4305	25	62	24	40 700	28 700	4 900	9 900	0,376	1,0	29,0	33,5	54,4	58,0	
4306	30	72	27	49 700	36 400	4 300	8 500	0,576	1,0	34,0	40,1	62,2	68,0	
4307	35	80	31	52 500	39 400	3 800	7 600	0,771	1,5	41,0	47,8	69,8	74,0	
4308	40	90	33	74 500	58 000	3 400	6 800	1,07	1,5	46,0	52,1	79,0	84,0	
4309	45	100	36	91 000	72 500	3 000	6 100	1,45	1,5	51,0	58,2	88,1	94,0	
4310	50	110	40	109 000	88 500	2 800	5 500	1,93	2,0	58,0	63,8	97,0	102,0	
4311	55	120	43	138 000	116 000	2 500	5 000	2,44	2,0	63,0	68,8	106,9	112,0	
4312	60	130	46	139 000	116 000	2 300	4 600	3,05	2,0	68,0	76,2	114,3	122,0	

Larger sizes are available on request

Please check availability

Double row self-aligning ball bearings



12 LIGHT SERIES

METRIC SIZES

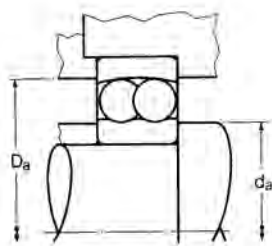
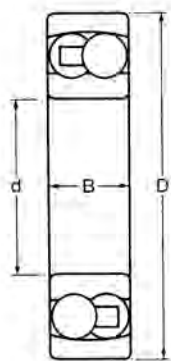
ISO DIMENSION SERIES 02

RKB designation	Dimensions			RKB load ratings†		Normal limiting speeds rev/min		Weight kg approx	Shaft and housing dimensions					
	millimetres			newtons		grease	oil		millimetres					
	d	D	B	C _r	C _{0r}				max fillet radius	d _a		D _a		
126	6	19	6	2 600	520	32 000	40 000	0,009	0,3	8,0	9,4	16,0	17,0	
127	7	22	7	2 750	655	29 500	40 000	0,014	0,3	8,2	11,7	18,3	20,8	
129	9	26	8	4 000	925	28 000	36 000	0,022	0,6	13,0	13,5	21,8	22,0	
1200	10	30	9	4 250	995	23 500	32 000	0,027	0,6	12,4	15,7	24,9	27,6	
1201	12	32	10	5 650	1 480	22 000	29 500	0,041	0,6	14,4	17,8	27,9	29,6	
1202	15	35	11	7 700	2 020	20 000	27 000	0,054	0,6	17,4	19,3	31,0	32,6	
1203	17	40	12	8 250	2 420	18 000	24 000	0,073	0,6	19,4	22,1	33,8	37,6	
1204	20	47	14	10 800	3 150	15 500	21 000	0,122	1,0	26,0	28,7	37,9	41,0	
1205	25	52	15	13 100	4 350	13 800	18 500	0,150	1,0	29,0	31,2	46,2	48,0	
*1206	30	62	16	16 300	5 800	11 700	16 000	0,231	1,0	34,0	37,3	53,8	58,0	
*1207	35	72	17	16 400	6 650	10 200	13 800	0,318	1,0	39,0	45,0	61,2	68,0	
*1208	40	80	18	20 000	8 500	9 100	12 300	0,417	1,0	47,0	54,3	66,6	73,0	
*1209	45	85	19	22 700	9 600	8 500	11 400	0,481	1,0	49,0	54,9	74,4	81,0	
*1210	50	90	20	23 600	10 800	7 900	10 600	0,531	1,0	54,0	59,9	79,5	86,0	
*1211	55	100	21	27 800	13 400	7 100	9 600	0,703	1,5	61,0	67,3	88,6	94,0	
1212	60	110	22	31 500	15 500	3 200	6 500	0,998	1,5	66,0	73,9	96,8	104,0	
*1213	65	120	23	32 300	17 200	3 000	5 900	1,22	1,5	71,0	81,3	104,4	114,0	
1214	70	125	24	36 900	19 700	2 800	5 600	1,32	1,5	76,0	85,6	110,0	119,0	
*1215	75	130	25	40 400	21 400	2 700	5 300	1,46	1,5	81,0	89,9	115,8	124,0	
1216	80	140	26	41 600	23 500	2 500	4 900	1,76	2,0	88,0	97,3	123,4	132,0	
*1217	85	150	28	51 000	28 400	2 300	4 600	2,19	2,0	93,0	103,1	132,6	142,0	
1218	90	160	30	59 000	31 800	2 100	4 300	2,58	2,0	98,0	109,2	141,7	152,0	
1219	95	170	32	68 500	38 700	2 000	4 000	3,23	2,0	103,0	115,8	150,1	162,0	
*1220	100	180	34	74 500	42 500	1 900	3 800	3,88	2,0	108,0	122,4	158,5	172,0	
1221	105	190	36	82 500	48 600	1 700	3 500	4,66	2,0	113,0	129,3	166,6	182,0	
*1222	110	200	38	89 000	53 000	1 600	3 300	5,67	2,0	118,0	135,9	175,3	192,0	

*These sizes are also available with bores having a taper of 1:12 and are denoted by suffix K.
Adapter sleeves are also available for these sizes - see page 48

Please check availability

Double row self-aligning ball bearings



MEDIUM SERIES **13**

METRIC SIZES

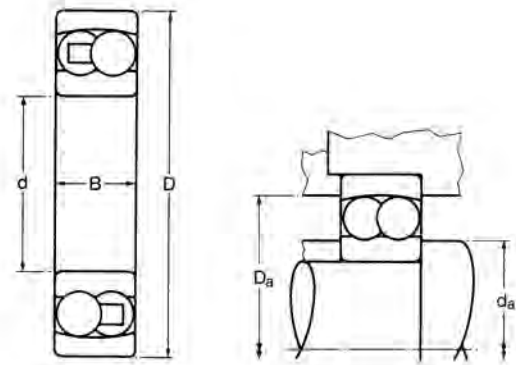
ISO DIMENSION SERIES 03

RKB designation	Dimensions millimetres			RKB load ratings † newtons		Normal limiting speeds rev/min		Weight kg approx	Shaft and housing dimensions millimetres				
	d	D	B	C _r	C _{0r}	grease	oil		max fillet radius	d _a		D _a	
										min	max	min	max
135	5	19	6	2 360	460	33 500	45 500	0,009	0,3	6,2	9,4	16,0	17,8
1300	10	35	11	6 750	1 730	10 800	21 500	0,059	0,6	12,4	17,5	28,4	32,6
1301	12	37	12	8 450	2 070	10 100	20 000	0,073	1,0	16,0	18,5	31,2	33,0
1302	15	42	13	9 750	2 630	8 900	18 000	0,091	1,0	19,0	22,1	35,6	38,0
1303	17	47	14	12 900	3 670	8 100	16 000	0,136	1,0	21,0	24,9	39,9	43,0
1304	20	52	15	12 900	4 010	14 600	19 500	0,177	1,0	24,0	29,0	43,9	48,0
1305	25	62	17	18 700	6 000	12 300	16 500	0,263	1,0	29,0	34,8	53,1	58,0
1306	30	72	19	22 200	7 750	10 700	14 400	0,395	1,0	34,0	41,4	61,5	68,0
1307	35	80	21	26 100	9 800	9 500	12 900	0,517	1,5	41,0	48,5	70,1	74,0
1308	40	90	23	30 700	12 200	8 500	11 400	0,717	1,5	46,0	53,8	77,2	84,0
1309	45	100	25	38 100	15 800	3 800	7 600	0,971	1,5	54,0	62,7	83,1	91,0
1310	50	110	27	42 800	16 200	3 400	6 900	1,27	2,0	58,0	65,8	95,2	102,0
1311	55	120	29	53 500	22 500	3 100	6 300	1,61	2,0	63,0	72,4	103,6	112,0
1312	60	130	31	60 500	26 600	2 900	5 800	2,03	2,0	68,0	79,2	112,3	122,0
1313	65	140	33	68 000	31 100	2 700	5 300	2,50	2,0	73,0	85,9	120,4	132,0
1314	70	150	35	74 500	33 000	2 500	4 900	3,03	2,0	78,0	91,7	129,6	142,0
1315	75	160	37	82 500	38 300	2 300	4 600	3,62	2,0	83,0	98,3	137,9	152,0
1316	80	170	39	92 500	42 200	2 100	4 300	4,31	2,0	88,0	104,4	147,1	162,0
1317	85	180	41	102 000	48 500	2 000	4 000	4,76	2,5	95,0	110,0	155,2	170,0
1318	90	190	43	144 000	62 500	1 900	3 800	6,08	2,5	100,0	113,0	168,9	180,0
1319	95	200	45	162 000	76 000	1 800	3 500	7,21	2,5	105,0	119,9	177,8	190,0
1320	100	215	47	159 000	75 500	1 600	3 300	9,30	2,5	110,0	129,0	188,2	205,0

The balls may protrude slightly beyond the width of the rings on bearings of 90 mm bore diameter and over.

Please check availability

Double row self-aligning ball bearings



22 LIGHT WIDE SERIES

METRIC SIZES

ISO DIMENSION SERIES 22

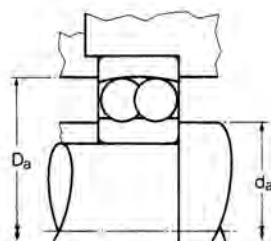
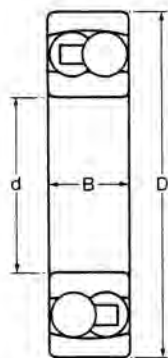
RKB designation	Dimensions millimetres			RKB load ratings† newtons		Normal limiting speeds rev/min		Weight kg approx	Shaft and housing dimensions millimetres					
	d	D	B	C _r	C _{0r}	grease	oil		max fillet radius	d _a		D _a		
										min	max	min	max	
2200	10	30	14	7 500	1 680	25 000	32 000	0,054	0,6	14,0	14,0	26,0	26,0	
2201	12	32	14	6 700	1 670	22 000	29 500	0,059	0,6	14,4	16,2	27,8	29,6	
2202	15	35	14	7 950	2 160	20 000	27 000	0,064	0,6	17,4	19,5	30,7	32,6	
2203	17	40	16	10 200	2 800	18 000	24 000	0,100	0,6	19,4	21,5	34,5	37,6	
2204	20	47	18	12 500	3 610	15 500	21 000	0,159	1,0	24,0	25,9	41,4	43,0	
2205	25	52	18	13 000	4 250	13 800	18 500	0,181	1,0	29,0	31,0	46,3	48,0	
2206	30	62	20	19 100	6 450	11 700	16 000	0,277	1,0	34,0	36,9	55,4	58,0	
2207	35	72	23	23 700	8 900	10 200	13 800	0,431	1,0	39,0	43,6	63,8	68,0	
2208	40	80	23	26 800	10 500	9 100	12 300	0,526	1,0	44,0	50,2	71,8	76,0	
*2209	45	85	23	23 200	10 000	8 500	11 400	0,572	1,0	49,0	54,7	76,2	81,0	
2210	50	90	23	27 200	12 000	7 900	10 600	0,621	1,0	54,0	59,5	80,9	86,0	
*2211	55	100	25	27 300	13 300	5 600	7 100	0,810	1,5	64,0	70,0	85,0	91,0	
2212	60	110	28	35 100	16 200	5 000	6 300	1,09	1,5	69,0	75,0	95,0	101,0	
*2213	65	120	31	45 000	21 400	4 500	5 600	1,46	1,5	74,0	80,0	105,0	111,0	

*These sizes are also available with bores having a taper of 1:12 and are denoted by suffix K. Adapter sleeves are also available for these sizes - see page 48

Larger sizes are available on request

Please check availability

Double row self-aligning ball bearings



MEDIUM WIDE SERIES **23**

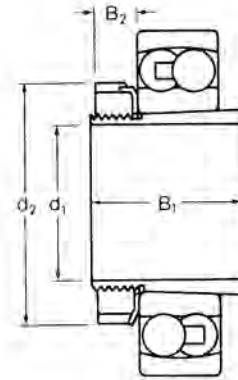
METRIC SIZES

ISO DIMENSION SERIES 23

RKB designation	Dimensions millimetres			RKB load ratings† newtons		Normal limiting speeds rev/min		Weight kg approx	Shaft and housing dimensions millimetres				
	d	D	B	C _r	C _{0r}	grease	oil		max fillet radius	d _a		D _a	
										min	max	min	max
2300	10	35	17	10 500	2 180	21 500	29 000	0,091	0,6	12,4	14,2	30,5	32,6
2301	12	37	17	11 300	2 540	20 000	27 000	0,100	1,0	16,0	17,0	33,0	33,0
2302	15	42	17	12 500	3 230	18 000	24 000	0,127	1,0	19,0	20,9	36,6	38,0
2303	17	47	19	15 200	4 050	16 000	22 000	0,172	1,0	21,0	24,1	41,2	43,0
2304	20	52	21	16 000	4 840	14 600	19 500	0,218	1,0	24,0	28,0	45,5	48,0
2305	25	62	24	22 400	7 050	12 300	16 500	0,367	1,0	29,0	34,0	54,5	58,0
2306	30	72	27	27 600	8 600	10 700	14 400	0,549	1,0	34,0	40,1	64,2	68,0
2307	35	80	31	34 200	11 800	9 500	12 900	0,748	1,5	41,0	44,2	70,6	74,0
2308	40	90	33	43 200	13 900	8 500	11 400	0,998	1,5	46,0	50,0	79,6	84,0
2309	45	100	36	52 500	19 100	7 600	10 300	1,34	1,5	51,0	58,1	90,5	94,0
2310	50	110	40	63 000	23 300	6 900	9 300	1,78	2,0	58,0	63,6	99,7	102,0
2311	55	120	43	71 000	27 700	6 300	8 500	2,28	2,0	63,0	70,0	107,3	112,0
2312	60	130	46	83 000	32 900	5 800	7 800	2,83	2,0	68,0	76,0	116,9	122,0
2313	65	140	48	88 000	35 700	5 300	7 200	3,50	2,0	73,0	81,0	123,8	132,0
2314	70	150	51	97 500	44 700	3 600	4 500	3,90	2,0	82,0	92,0	128,0	138,0

Please check availability

Adapter sleeves



RKB designations		Dimensions				
basic bearing	adapter sleeve	inches d_1	millimetres d_1	d_2	B_1	approx B_2
1206 K	H206- $\frac{7}{8}$	$\frac{7}{8}$	22,225	45	27	8
	H206		25			
	H206-1	1	25,400			
1207 K	H207- $1\frac{1}{8}$	$1\frac{1}{8}$	28,575	52	29	9
	H207		30			
1208 K	H208- $1\frac{1}{8}$	$1\frac{1}{8}$	31,750	58	31	10
	H208- $1\frac{3}{8}$	$1\frac{3}{8}$	34,925			
	H208		35			
1209 K	H209- $1\frac{1}{2}$	$1\frac{1}{2}$	38,100	65	33	11
	H209		40			
1210 K	H210- $1\frac{5}{8}$	$1\frac{5}{8}$	41,275	70	35	12
	H210- $1\frac{3}{4}$	$1\frac{3}{4}$	44,450			
	H210		45			
1211 K	H211- $1\frac{7}{8}$	$1\frac{7}{8}$	47,625	75	37	12
	H211		50			
	H211-2	2	50,800			
1213 K	H213- $2\frac{1}{4}$	$2\frac{1}{4}$	57,150	85	40	14
	H213		60			
	H213- $2\frac{3}{8}$	$2\frac{3}{8}$	60,325			
1215 K	H215- $2\frac{1}{2}$	$2\frac{1}{2}$	63,500	98	43	15
	H215		65			
	H215- $2\frac{5}{8}$	$2\frac{5}{8}$	66,675			
1217 K	H217		75	110	50	18
	H217-3	3	76,200			
1220 K	H220- $3\frac{1}{2}$	$3\frac{1}{2}$	88,900	130	58	20
	H220		90			
1222 K	H222		100	145	63	21
	H222-4	4	101,600			
2209 K	H309- $1\frac{1}{2}$	$1\frac{1}{2}$	38,100	65	39	11
	H309		40			
2211 K	H311- $1\frac{7}{8}$	$1\frac{7}{8}$	47,625	75	45	12
	H311		50			
	H311-2	2	50,8			
2213K	H313- $2\frac{1}{4}$	$2\frac{1}{4}$	57,150	85	50	14
	H313		60			
	H313- $2\frac{3}{8}$	$2\frac{3}{8}$	60,325			

Please enquire regarding the availability of other sizes.

Please check availability

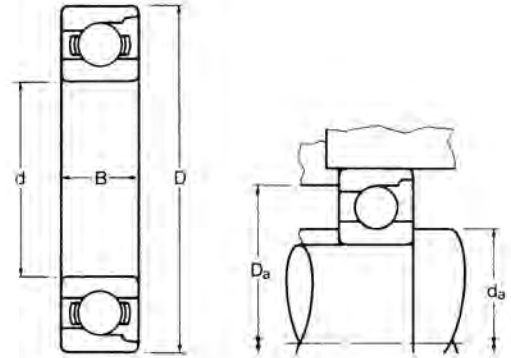
**Single row separable ball bearings (magneto type)
Single row angular contact ball bearings
Double row angular contact ball bearings**



Single row separable ball bearings (magneto type)

E SERIES

METRIC SIZES

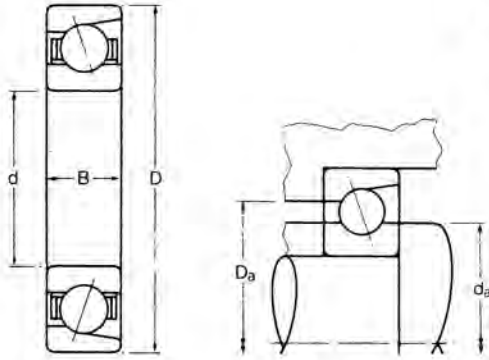


RKB designation	Dimensions millimetres			RKB load ratings† newtons		Normal limiting speeds rev/min		Weight kg approx	Shaft and housing dimensions millimetres				
	d	D	B	C _r	C _{0r}	grease	oil		max fillet radius	d _a		D _a	
										min	max	min	max
E 3	3	16	5	1 620	245	33 000	41 200	0,005	0,1	4,2	7,8	13,0	14,8
E 4	4	16	5	1 620	245	33 000	41 200	0,005	0,1	5,2	7,8	13,0	14,8
E 5	5	16	5	1 620	245	33 000	41 200	0,005	0,1	6,2	7,8	13,0	14,8
E 6	6	21	7	2 960	390	30 000	37 500	0,011	0,3	7,8	9,6	16,7	19,2
E 7	7	22	7	3 180	465	29 000	36 200	0,013	0,3	8,8	10,6	17,7	20,2
E 8	8	24	7	3 370	530	28 000	35 000	0,016	0,3	9,8	11,9	19,0	22,2
E 9	9	28	8	4 430	720	26 000	32 500	0,023	0,3	10,8	14,4	22,6	26,2
E 10	10	28	8	4 430	720	26 000	32 500	0,022	0,3	11,8	14,4	22,6	26,2
E 11	11	32	7	3 570	735	23 000	28 700	0,029	0,3	12,8	17,5	24,9	30,2
E 12	12	32	7	3 570	735	23 000	28 700	0,028	0,3	13,8	17,5	24,9	30,2
E 13	13	30	7	3 570	735	25 000	31 200	0,022	0,3	14,8	17,5	24,9	28,2
E 15	15	35	8	4 700	1 000	20 000	25 000	0,034	0,3	16,8	20,5	29,0	33,2
E 17	17	44	11	5 800	1 350	16 200	20 200	0,079	0,6	20,6	24,5	35,1	40,4
E 19	19	40	9	3 570	930	17 000	21 200	0,048	0,4	21,4	24,2	32,8	37,6
E 20	20	47	12	9 200	2 040	14 000	17 500	0,089	1,0	24,6	27,1	38,9	42,4

*The tolerance on the outside diameter is 0 to +0,010 mm which differs slightly from the series EN bearings

Please check availability

Single row angular contact ball bearings



EXTRA LIGHT SERIES **70**

METRIC SIZES
20° contact angle

ISO DIMENSION SERIES 10

RKB designation	Dimensions millimetres			RKB load ratings † newtons		Normal limiting speeds rev/min		Weight kg approx	Shaft and housing dimensions millimetres				
	d	D	B	C _r	C _{0r}	grease	oil		max fillet radius	d _a		D _a	
										min	max	min	max
7000	10	26	8	5 450	2 350	12 900	25 500	0,014	0,3	11,2	14,2	20,8	24,8
7001	12	28	8	5 950	2 620	11 900	23 500	0,018	0,3	13,2	17,0	23,6	26,8
7002	15	32	9	6 750	3 140	10 400	21 000	0,027	0,3	16,2	20,3	26,9	30,8
7003	17	35	10	7 100	3 400	9 600	19 000	0,036	0,3	18,2	23,1	29,5	33,8
7004	20	42	12	10 700	5 100	8 300	16 500	0,059	0,6	22,4	26,7	35,6	39,6
7005	25	47	12	12 500	6 500	7 300	14 600	0,073	0,6	27,4	32,5	41,4	44,6
7006	30	55	13	16 100	8 850	6 300	12 600	0,104	1,0	34,0	38,4	46,5	51,0
7007	35	62	14	19 500	10 900	5 600	11 200	0,168	1,0	39,0	44,4	53,1	58,0
7008	40	68	15	20 900	12 400	5 100	10 100	0,209	1,0	44,0	49,8	58,4	64,0
7009	45	75	16	25 700	15 900	4 600	9 100	0,263	1,0	49,0	55,4	64,8	71,0
7010	50	80	16	25 500	15 800	4 200	8 500	0,286	1,0	54,0	60,5	69,8	76,0
7011	55	90	18	34 700	22 100	3 800	7 600	0,417	1,0	59,0	67,3	78,5	86,0
7012	60	95	18	36 800	24 600	3 600	7 100	0,449	1,0	64,0	71,1	83,3	91,0
7013	65	100	18	36 500	24 600	3 300	6 700	0,472	1,0	69,0	77,2	88,4	96,0
7014	70	110	20	47 600	32 700	3 000	6 100	0,658	1,0	74,0	83,8	96,5	106,0
7015	75	115	20	48 700	34 300	2 900	5 800	0,694	1,0	79,0	89,2	101,9	111,0
7016	80	125	22	59 500	42 100	2 700	5 300	0,925	1,0	84,0	95,5	109,7	121,0
7017	85	130	22	61 000	44 100	2 500	5 000	0,962	1,0	89,0	101,1	115,3	126,0
7018	90	140	24	72 500	52 500	2 300	4 700	1,26	1,5	96,0	108,0	123,7	134,0

Larger sizes are available on request

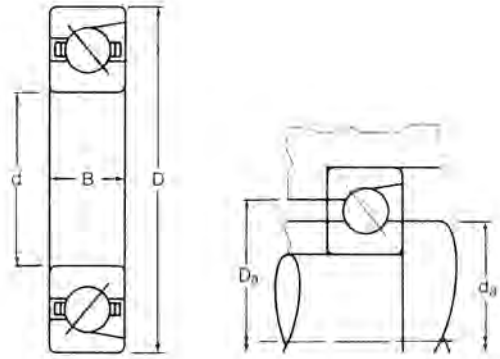
Please check availability

Single row angular contact ball bearings

72 B LIGHT SERIES

METRIC SIZES
40° contact angle

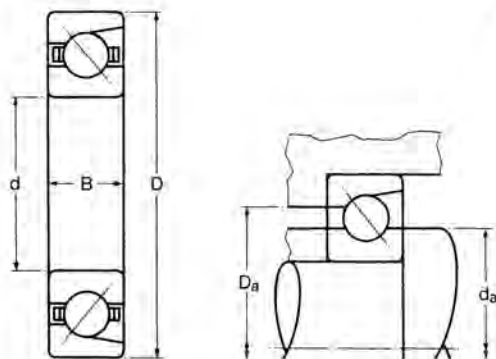
ISO DIMENSION SERIES 02



RKB designation	Dimensions millimetres			RKB load ratings† newtons		Normal limiting speeds rev/min		Shaft and housing dimensions millimetres				
	d	D	B	C _r	C _{0r}	grease	oil	max fillet radius	d _a		D _a	
									min	max	min	max
7200 B	10	30	9	6 350	2 610	11 900	23 500	0,6	12,4	18,9	22,8	27,6
7201 B	12	32	10					0,6	14,4			29,6
7202 B	15	35	11	8 350	3 800	20 000	25 000	0,6	19,0	22,8	27,5	31,0
7203 B	17	40	12	10 300	4 700	16 000	20 000	0,6	21,0	26,5	31,8	36,0
7204 B	20	47	14	13 800	6 500	7 800	15 500	1,0	24,0	30,7	36,6	43,0
7205 B	25	52	15	17 400	8 600	6 900	13 800	1,0	29,0	35,9	42,2	48,0
7206 B	30	62	16	21 400	10 900	10 000	12 000	1,0	36,0	41,1	51,8	56,0
7207 B	35	72	17	30 400	16 000	5 100	10 200	1,0	39,0	49,7	58,3	68,0
7208 B	40	80	18	35 900	19 700	4 600	9 100	1,0	44,0	55,6	64,8	76,0
7209 B	45	85	19	37 500	21 200	4 200	8 500	1,0	49,0	60,6	69,8	81,0
7210 B	50	90	20	38 900	22 700	6 300	8 000	1,0	57,0	65,6	74,8	83,0
7211 B	55	100	21	48 200	28 800	3 600	7 100	1,5	61,0	72,6	82,7	94,0
7212 B	60	110	22	55 500	33 200	3 200	6 500	1,5	66,0	79,5	90,9	104,0
7213 B	65	120	23	66 000	41 400	4 500	5 600	1,5	74,0	87,0	99,5	111,0
7214 B	70	125	24	72 000	45 900	2 200	4 500	1,5	76,0	91,5	103,9	119,0
7215 B	75	130	25	74 500	48 700	2 100	4 200	1,5	81,0	97,4	109,8	124,0
7216 B	80	140	26	83 500	54 500	2 000	3 900	2,0	88,0	105,0	118,5	132,0
7217 B	85	150	28	90 000	59 000	2 300	4 600	2,0	93,0	110,6	124,5	142,0
7218 B	90	160	30	111 000	74 500	2 100	4 300	2,0	98,0	118,3	134,0	152,0
7219 B	95	170	32	120 000	80 000	2 000	4 000	2,0	103,0	125,0	141,7	162,0
7220 B	100	180	34	135 000	91 000	1 900	3 800	2,0	108,0	131,3	149,3	172,0
7221 B	105	190	36	148 000	103 000	1 800	3 500	2,0	113,0	138,4	157,5	182,0
7222 B	110	200	38	160 000	115 000	1 700	3 300	2,0	118,0	146,2	166,4	192,0
7224 B	120	215	40	157 000	116 000	1 500	3 000	2,0	128,0	159,0	178,1	207,0
7226 B	130	230	40	193 000	152 000	1 100	2 200	2,5	140,0	169,1	191,5	220,0
7228 B	140	250	42	205 000	167 000	1 300	2 500	2,5	150,0	183,6	207,1	240,0
7230 B	150	270	45	234 000	201 000	1 200	2 300	2,5	160,0	197,5	223,2	260,0

Please check availability

Single row angular contact ball bearings



MEDIUM SERIES **73 B**

METRIC SIZES
40° contact angle

ISO DIMENSION SERIES 03

RKB designation	Dimensions millimetres			RKB load ratings† newtons		Normal limiting speeds rev/min		Shaft and housing dimensions millimetres				
	d	D	B	dynamic static		grease	oil	max fillet radius	d _a		D _a	
				C _r	C _{0r}				min	max	min	max
7300 B	10	35	11	9 150	3 840	10 800	21 500	0,6	12,4	20,5	26,0	32,6
7301 B	12	37	12	10 000	4 150	10 100	20 000	1,0	16,0	21,7	27,6	33,0
7302 B	15	42	13	12 100	5 350	8 900	18 000	1,0	19,0	25,7	31,6	38,0
7303 B	17	47	14					1,0	21,0			43,0
7304 B	20	52	15	18 000	8 500	13 000	17 000	1,0	27,0	31,8	39,2	45,0
7305 B	25	62	17	25 400	12 800	10 000	13 000	1,0	32,0	40,1	48,7	55,0
7306 B	30	72	19	33 800	17 100	9 000	11 500	1,0	37,0	47,1	56,7	65,0
7307 B	35	80	21	38 100	20 600	8 000	10 400	1,5	44,0	52,6	62,8	71,0
7308 B	40	90	23	51 000	28 400	8 400	11 300	1,5	46,0	59,8	71,0	84,0
7309 B	45	100	25	57 500	31 500	3 000	6 100	1,5	51,0	66,5	78,7	94,0
7310 B	50	110	27	72 000	40 800	3 400	6 900	2,0	58,0	73,5	86,8	102,0
7311 B	55	120	29	82 000	48 000	4 500	5 600	2,0	66,0	80,4	95,2	109,0
7312 B	60	130	31	93 500	55 500	2 900	5 800	2,0	68,0	88,0	103,5	122,0
7313 B	65	140	33	106 000	64 000	5 300	7 100	2,0	73,0	95,9	112,5	132,0
7314 B	70	150	35	119 000	73 000	2 500	4 900	2,0	78,0	101,3	119,3	142,0
7315 B	75	160	37	130 000	82 000	2 300	4 600	2,0	83,0	108,2	127,0	152,0
7316 B	80	170	39	140 000	92 000	2 100	4 300	2,0	88,0	116,2	136,4	162,0
7317 B	85	180	41	151 000	103 000	2 000	4 000	2,5	95,0	122,1	143,5	170,0
7318 B	90	190	43	163 000	114 000	1 900	3 800	2,5	100,0	129,1	151,6	180,0
7319 B	95	200	45	171 000	123 000	1 800	3 500	2,5	105,0	137,7	160,1	190,0
7320 B	100	215	47	198 000	150 000	1 300	2 600	2,5	110,0	146,8	172,6	205,0
7321 B	105	225	49	210 000	164 000	1 500	3 100	2,5	115,0	152,1	178,8	215,0
7322 B	110	240	50	235 000	192 000	1 400	2 900	2,5	120,0	162,2	191,4	230,0
7324 B	120	260	55	247 000	208 000	1 300	2 600	2,5	130,0	175,8	204,7	250,0
7326 B	130	280	58	287 000	256 000	1 200	2 400	3,0	142,0	188,7	222,2	268,0
7328 B	140	300	62	302 000	277 000	1 100	2 200	3,0	152,0	203,6	237,1	288,0
7330 B	150	320	65	331 000	319 000	800	1 600	3,0	162,0	220,1	254,7	308,0

Please check availability

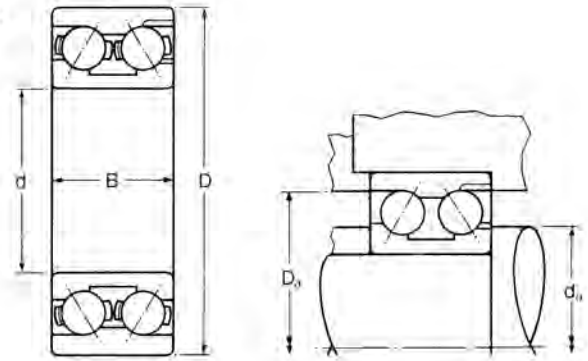
Double row angular contact ball bearings

32 LIGHT SERIES

METRIC SIZES

32° contact angle

ISO DIMENSION SERIES 32



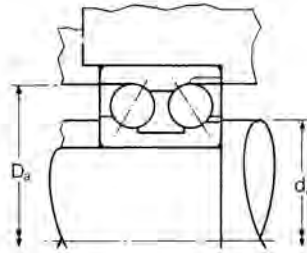
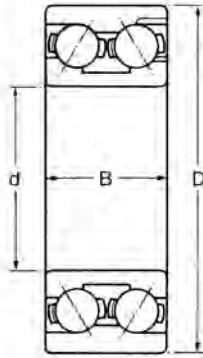
RKB designation	Dimensions millimetres			RKB load ratings† newtons		Normal limiting speeds rev/min		Weight kg approx	Shaft and housing dimensions millimetres				
	d	D	B	C _r	C _{0r}	grease	oil		max fillet radius	d _a		D _a	
										min	max	min	max
3200	10	30	14	9 900	5 200	16 000	22 000	0,052	0,6	14	17	25	26
3201	12	32	15,9	11 800	6 450	15 000	20 000	0,063	0,6	16	19	27	28
3203	17	40	17,5	17 100	10 100	11 000	15 000	0,103	0,6	21	25	34	36
3204	20	47	20,6	21 100	12 800	9 500	13 000	0,168	1,0	26	29	40	41
3205	25	52	20,6	23 300	14 900	8 500	11 000	0,194	1,0	31	34	45	46
3206	30	62	23,8	33 400	22 300	7 000	9 500	0,316	1,0	36	41	55	56
3207	35	72	27	42 600	29 200	6 000	8 000	0,484	1,0	42	48	63	65
3208	40	80	30,2	51 500	36 100	5 400	7 500	0,654	1,0	47	53	70	73
3209	45	85	30,2	56 000	41 200	5 000	6 700	0,709	1,0	52	58	75	78
3210	50	90	30,2	63 000	47 300	4 600	6 200	0,764	1,0	57	63	81	83
3211	55	100	33,3	70 500	54 000	4 200	5 600	1,05	1,5	64	70	89	91
3212	60	110	36,5	87 500	68 000	3 800	5 000	1,40	1,5	69	77	98	101
3213	65	120	38,1	96 500	76 000	3 600	4 700	1,75	1,5	74	84	106	111

The **RKB** double-row angular contact bearings are also available on request with the inverted angle and in the sealed version and/or in the shielded version.

Larger sizes are available on request

Please check availability

Double row angular contact ball bearings



MEDIUM SERIES **33**

METRIC SIZES
32° contact angle

ISO DIMENSION SERIES 33

RKB designation	Dimensions millimetres			RKB load ratings† newtons		Normal limiting speeds rev/min		Weight kg approx	Shaft and housing dimensions millimetres				
	d	D	B	C _r	C _{0r}	grease	oil		max fillet radius	d _a		D _a	
										min	max	min	max
3304	20	52	22,2	25 500	15 800	8 500	12 000	0,230	1,0	27	31	44	45
3305	25	62	25,4	35 500	22 700	7 000	10 000	0,369	1,0	32	38	52	55
3306	30	72	30,2	46 800	30 900	6 000	8 500	0,585	1,0	37	44	61	65
3307	35	80	34,9	59 500	40 400	5 300	7 400	0,816	1,5	44	51	69	71
3308	40	90	36,5	73 500	51 000	4 800	6 700	1,07	1,5	49	57	78	81
3309	45	100	39,7	89 000	63 000	4 300	6 000	1,42	1,5	54	63	87	91
3310	50	110	44,4	107 000	81 000	3 700	5 200	1,93	2,0	61	72	97	99
3312	60	130	54	136 000	106 000	3 200	4 400	3,24	2,0	72	86	114	118
3313	65	140	58,7	158 000	124 000	3 000	4 200	4,08	2,0	77	90	122	128
3314	70	150	63,5	180 000	144 000	2 700	3 700	5,04	2,0	82	99	133	138
3316	80	170	68,3	229 000	188 000	2 400	3 300	6,93	2,0	92	111	150	158

The **RKB** double-row angular contact bearings are also available on request with the inverted angle and in the sealed version and/or in the shielded version.

Larger sizes are available on request

Please check availability

Single row duplex ball bearings



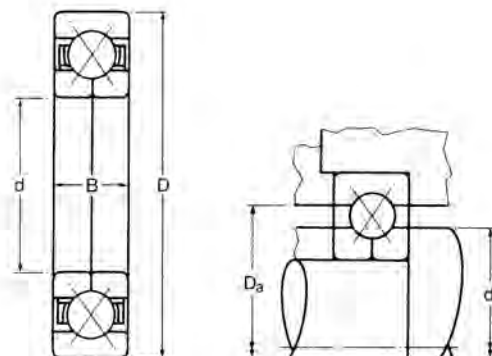
Single row duplex ball bearings

QJ 2 LIGHT SERIES

METRIC SIZES

35° contact angle

ISO DIMENSION SERIES 02



RKB designation	Dimensions millimetres			RKB load ratings † newtons		Normal limiting speeds rev/min		Weight kg approx	Shaft and housing dimensions millimetres					
	d	D	B	C _r	C _{0r}	grease	oil		max fillet radius	d _a		D _a		
										min	max	min	max	
QJ 204	20	47	14	11 400	6 350	7 800	15 500	0,136	1,0	24,0	30,7	36,6	43,0	
QJ 205	25	52	15	12 800	7 600	6 900	13 800	0,168	1,0	29,0	35,8	41,7	48,0	
QJ 206	30	62	16	24 600	12 900	5 800	11 600	0,254	1,0	34,0	42,9	49,3	58,0	
QJ 207	35	72	17	31 800	17 100	5 000	9 900	0,345	1,0	39,0	50,3	57,2	68,0	
QJ 208	40	80	18	37 700	21 100	4 500	9 000	0,454	1,0	44,0	56,4	64,3	76,0	
QJ 209	45	85	19	31 800	19 900	4 200	8 500	0,499	1,0	49,0	60,9	69,1	81,0	
QJ 210	50	90	20	36 900	22 800	3 900	7 900	0,576	1,0	54,0	65,8	74,2	86,0	
QJ 211	55	100	21	50 500	30 900	3 500	7 000	0,744	1,5	61,0	72,9	82,3	94,0	
QJ 212	60	110	22	52 500	32 800	3 200	6 500	0,957	1,5	66,0	80,0	90,2	104,0	
QJ 213	65	120	23	73 000	46 100	3 000	5 900	1,22	1,5	71,0	87,1	98,3	114,0	
QJ 214	70	125	24	69 500	44 700	2 800	5 600	1,29	1,5	76,0	91,7	103,6	119,0	
QJ 215	75	130	25	72 000	47 500	2 700	5 300	1,47	1,5	81,0	96,7	108,5	124,0	
QJ 216	80	140	26	81 500	53 500	2 400	4 800	1,70	2,0	88,0	103,6	116,6	132,0	
QJ 217	85	150	28	91 500	62 000	2 300	4 600	2,28	2,0	93,0	110,7	124,5	142,0	
QJ 218	90	160	30	106 000	79 000	2 100	4 300	2,79	2,0	98,0	117,6	132,3	152,0	
QJ 219	95	170	32	116 000	79 500	2 000	4 000	3,27	2,0	103,0	123,7	140,0	162,0	
QJ 220	100	180	34	132 000	91 000	1 900	3 700	3,97	2,0	108,0	131,8	148,3	172,0	

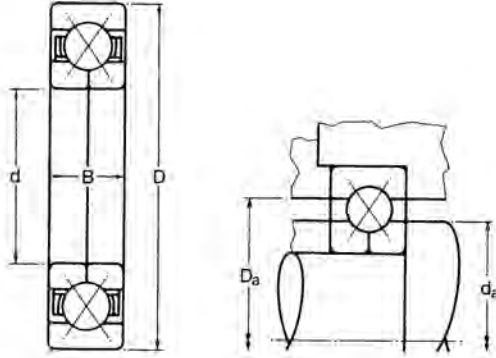
Duplex bearings are also available in the model series Q2 with split outer ring with same data.

Larger sizes are available on request

These bearings are also supplied with reduced O/D for location duties – add suffix 'LOC' to the basic designation.

Please check availability

Single row duplex ball bearings



MEDIUM SERIES **QJ 3**

METRIC SIZES
35° contact angle

ISO DIMENSION SERIES 03

RKB designation	Dimensions millimetres			RKB load ratings† newtons		Normal limiting speeds rev/min		Weight kg approx	Shaft and housing dimensions millimetres				
	d	D	B	C _r	C _{0r}	grease	oil		max fillet radius	d _a		D _a	
										min	max	min	max
QJ 304	20	52	15	14 000	7 650	7 300	14 600	0,191	1,0	24,0	33,0	39,1	48,0
QJ 305	25	62	17	28 000	14 300	6 200	12 300	0,281	1,0	29,0	41,1	48,0	58,0
QJ 306	30	72	19	35 200	18 300	5 300	10 700	0,449	1,0	34,0	46,5	55,6	68,0
QJ 307	35	80	21	36 500	18 500	4 800	9 500	0,544	1,5	41,0	53,3	62,0	74,0
QJ 308	40	90	23	50 500	27 900	4 200	8 500	0,771	1,5	46,0	59,4	70,6	84,0
QJ 309	45	100	25	64 500	36 900	3 800	7 600	1,03	1,5	51,0	66,8	78,2	94,0
QJ 310	50	110	27	75 500	43 600	3 300	6 700	1,41	2,0	58,0	73,9	86,4	102,0
QJ 311	55	120	29	80 000	47 500	3 100	6 300	1,75	2,0	63,0	79,2	95,5	112,0
QJ 312	60	130	31	98 000	59 500	2 900	5 800	2,16	2,0	68,0	85,9	105,2	122,0
QJ 313	65	140	33	111 000	68 500	2 700	5 300	2,66	2,0	73,0	94,2	111,0	132,0
QJ 314	70	150	35	118 000	73 000	2 400	4 800	3,18	2,0	78,0	101,6	118,6	142,0
QJ 315	75	160	37	130 000	83 000	2 300	4 600	3,86	2,0	83,0	108,5	126,7	152,0
QJ 316	80	170	39	143 000	95 000	2 100	4 300	4,63	2,0	88,0	115,5	134,4	162,0
QJ 317	85	180	41	149 000	101 000	2 000	4 000	5,40	2,5	95,0	122,9	142,3	170,0
QJ 318	90	190	43	170 000	119 000	1 900	3 800	6,40	2,5	100,0	129,8	150,6	180,0
QJ 319	95	200	45	180 000	132 000	1 800	3 500	7,67	2,5	105,0	136,6	158,8	190,0
QJ 320	100	215	47	195 000	148 000	1 600	3 300	9,53	2,5	110,0	145,8	169,2	205,0
QJ 321	105	225	49	205 000	159 000	1 500	3 100	10,9	2,5	115,0	153,2	177,3	215,0
QJ 322	110	240	50	232 000	189 000	1 400	2 900	12,6	2,5	120,0	162,3	188,0	230,0

Duplex bearings are also available in the model series Q3 with split outer ring with same data.

Larger sizes are available on request

These bearings are also supplied with reduced O/D for location duties – add suffix 'LOC' to the basic designation.

Please check availability

Single and double direction thrust ball bearings

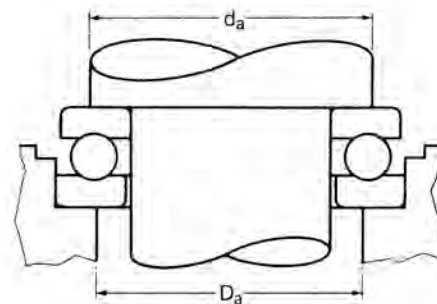
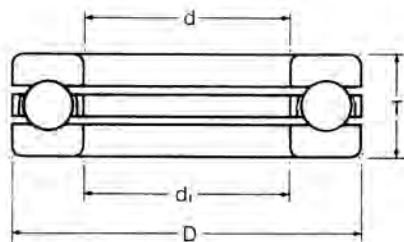


Single direction thrust ball bearings

511 EXTRA LIGHT SERIES

METRIC SIZES

ISO DIMENSION SERIES 11

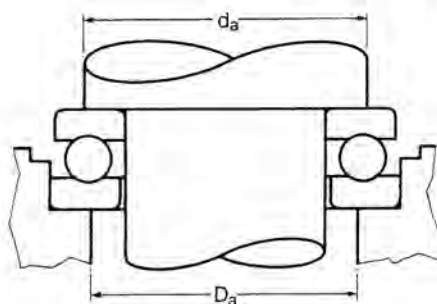
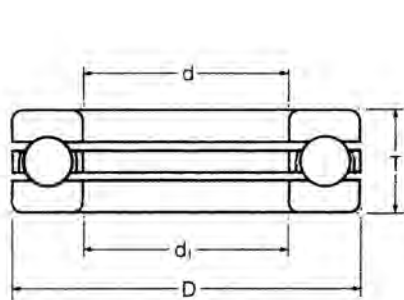


RKB designation	Dimensions millimetres				RKB load ratings† newtons		Normal limiting speeds rev/min		Weight kg approx	Shaft and housing dimensions millimetres		
	d	d ₁	D	T	C _a	C _{0a}	grease	oil		max fillet radius	d _a min	D _a max
51100	10	11	24	9	10 300	11 200	8 000	11 000	0,020	0,3	18	16
51101	12	13	26	9	10 800	12 200	7 100	10 000	0,022	0,3	20	18
51102	15	16	28	9	11 000	13 500	7 100	10 000	0,024	0,3	23	20
51103	17	18	30	9	11 800	15 500	7 100	10 000	0,028	0,3	25	22
51104	20	21	35	10	15 700	21 200	5 600	8 000	0,040	0,3	29	26
51105	25	26	42	11	18 900	28 500	4 500	6 300	0,059	0,6	35	32
51106	30	32	47	11	19 300	31 900	3 600	5 000	0,068	0,6	40	37
51107	35	37	52	12	20 500	37 500	3 200	4 500	0,085	0,6	45	42
51108	40	42	60	13	27 900	49 900	2 800	4 000	0,120	0,6	52	48
51109	45	47	65	14	29 000	54 500	2 500	3 600	0,150	0,6	57	53
51110	50	52	70	14	29 600	59 500	2 200	3 200	0,160	0,6	62	58
51111	55	57	78	16	35 900	72 000	2 000	2 800	0,240	0,6	69	64
51112	60	62	85	17	43 100	89 500	1 800	2 500	0,290	1,0	75	70
51113	65	67	90	18	45 100	94 500	1 800	2 500	0,340	1,0	80	75
51114	70	72	95	18	45 100	100 000	1 600	2 200	0,360	1,0	85	80
51115	75	77	100	19	50 500	112 000	1 600	2 200	0,420	1,0	90	85
51116	80	82	105	19	52 000	120 000	1 400	2 000	0,430	1,0	95	90
51117	85	87	110	19	53 000	125 000	1 400	2 000	0,460	1,0	100	95
51118	90	92	120	22	61 500	150 000	1 200	1 800	0,680	1,0	108	102
51120	100	102	135	25	88 500	212 000	1 100	1 600	0,990	1,0	121	114

Larger sizes are available on request

Please check availability

Single direction thrust ball bearings



512 LIGHT SERIES

METRIC SIZES

ISO DIMENSION SERIES 12

RKB designation	Dimensions millimetres				RKB load ratings † newtons		Normal limiting speeds rev/min		Weight kg approx	Shaft and housing dimensions millimetres		
	d	d ₁	D	T	C _a	C _{0a}	grease	oil		max fillet radius	d _a min	D _a max
51200	10	12	26	11	13 200	13 700	7 100	10 000	0,030	0,6	20	16
51201	12	14	28	11	13 800	15 000	7 100	10 000	0,034	0,6	22	18
51202	15	17	32	12	17 100	19 600	6 300	9 000	0,046	0,6	25	22
51203	17	19	35	12	17 800	21 500	5 600	8 000	0,053	0,6	28	24
51204	20	22	40	14	23 100	29 900	4 500	6 300	0,082	0,6	32	28
51205	25	27	47	15	29 000	39 900	3 600	5 000	0,120	0,6	38	34
51206	30	32	52	16	30 100	46 400	3 200	4 500	0,144	0,6	43	39
51207	35	37	62	18	40 400	62 500	2 800	4 000	0,220	1,0	51	46
51208	40	42	68	19	48 600	78 500	2 500	3 600	0,270	1,0	57	51
51209	45	47	73	20	52 000	86 000	2 200	3 200	0,320	1,0	62	56
51210	50	52	78	22	56 000	96 000	2 000	2 800	0,390	1,0	67	61
51211	55	57	90	25	77 000	134 000	1 800	2 500	0,610	1,0	76	69
51212	60	62	95	26	74 000	134 000	1 600	2 200	0,690	1,0	81	74
51213	65	67	100	27	81 500	153 000	1 600	2 200	0,770	1,0	86	79
51214	70	72	105	27	83 000	160 000	1 400	2 000	0,810	1,0	91	84
51215	75	77	110	27	84 500	170 000	1 400	2 000	0,860	1,0	96	89
51216	80	82	115	28	86 500	179 000	1 400	2 000	0,950	1,0	101	94
51217	85	88	125	31	110 000	223 000	1 200	1 800	1,29	1,0	109	101
51218	90	93	135	35	135 000	270 000	1 100	1 600	1,77	1,0	117	108
51220	100	103	150	38	155 000	318 000	1 000	1 400	2,36	1,0	130	120

Larger sizes are available on request

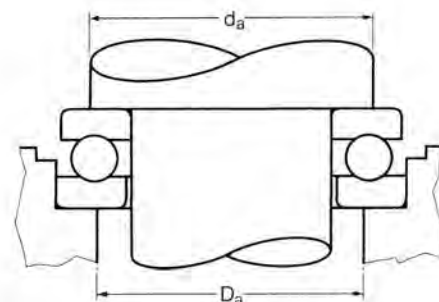
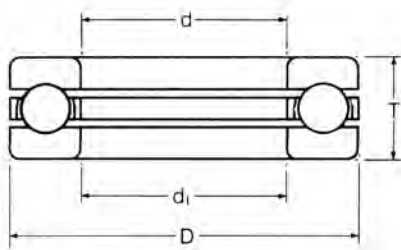
Please check availability

Single direction thrust ball bearings

513 MEDIUM SERIES

METRIC SIZES

ISO DIMENSION SERIES 13

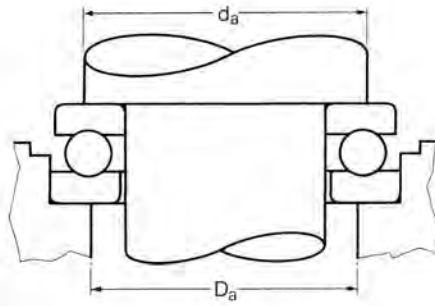
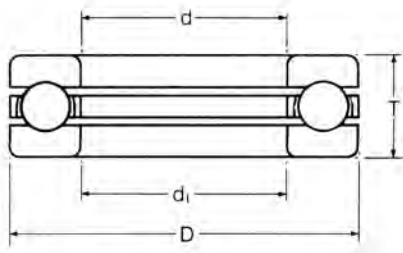


RKB designation	Dimensions millimetres				RKB load ratings† newtons		Normal limiting speeds rev/min		Weight kg approx	Shaft and housing dimensions millimetres		
	d	d ₁	D	H	C _a	C _{0a}	grease	oil		r _a max	d _a min	D _a max
									dynamic			
51305	25	27	52	18	34 500	55 000	3 400	4 500	0.17	1	41	36
51306	30	32	60	21	37 700	65 500	2 800	3 800	0.26	1	48	42
51307	35	37	68	24	49 400	88 000	2 400	3 400	0.38	1	55	48
51308	40	42	78	26	61 800	112 000	2 000	3 000	0.53	1	63	55
51309	45	47	85	28	76 100	140 000	1 900	2 800	0.66	1	69	61
51310	50	52	95	31	88 400	173 000	1 800	2 600	0.94	1	77	68
51311	55	57	105	35	104 000	208 000	1 600	2 200	1.30	1	85	75
51312	60	62	110	35	101 000	208 000	1 600	2 200	1.35	1	90	80
51313	65	67	115	36	106 000	220 000	1 500	2 000	1.50	1	95	85
51314	70	72	125	40	135 000	300 000	1 400	1 900	2.00	1	103	92
51315	75	77	135	44	163 000	360 000	1 200	1 700	2.60	1.5	111	99
51316	80	82	140	44	159 000	360 000	1 200	1 700	2.70	1.5	116	104
51317	85	88	150	49	190 000	425 000	1 100	1 600	3.55	1.5	124	111
51318	90	93	155	50	195 000	465 000	1 000	1 500	3.8	1.5	129	116
51320	100	103	170	55	229 000	560 000	950	1 400	4.95	1.5	142	128
51322	110	113	190	63	276 000	720 000	850	1 200	7.85	2	158	142
51324	120	123	210	70	325 000	915 000	800	1 100	11.0	2	173	157
51326	130	134	225	75	358 000	1 060 000	750	1 000	13.0	2	186	169
51328	140	144	240	80	397 000	1 220 000	700	950	15.5	2	199	181
51330	150	154	250	80	410 000	1 290 000	670	900	6.5	2	209	191
51332	160	164	270	87	449 000	1 500 000	630	850	21.0	2.5	225	205
51334	170	174	280	87	468 000	1 600 000	600	800	22.0	2.5	235	215
51336	180	184	300	95	520 000	1 830 000	560	750	28.5	2.5	251	229
51340	200	205	340	110	624 000	2 400 000	80	630	44.5	3	283	257

Larger sizes are available on request

Please check availability

Single direction thrust ball bearings



514 HEAVY SERIES

METRIC SIZES

ISO DIMENSION SERIES 14

RKB designation	Dimensions millimetres				RKB load ratings† newtons		Normal limiting speeds rev/min		Weight Kg approx	Shaft and housing dimensions millimetres		
	d	d ₁	D	H	C _a	C _{oa}	grease	oil		r _a max	d _a min	D _a max
51405	25	27	60	24	55 300	90 000	2 600	3 600	0.34	1	46	39
51406	30	32	70	28	72 800	125 000	2 000	3 000	0.52	1	54	46
51407	35	37	80	32	87 100	156 000	1 800	2 600	0.76	1	62	53
51408	40	42	90	36	112 000	204 000	1 700	2 400	1.10	1	70	60
51409	45	47	100	39	130 000	240 000	1 600	2 200	1.40	1	78	67
51410	50	52	110	43	159 000	310 000	1 500	2 000	2.00	1.5	86	74
51411	55	57	120	48	178 000	360 000	1 300	1 800	2.55	1.5	94	81
51412	60	62	130	51	199 000	400 000	1 100	1 600	3.10	1.5	102	88
51413	65	68	140	56	216 000	450 000	1 000	1 500	4.00	2	110	95
51414	70	73	150	60	234 000	500 000	950	1 400	5.00	2	118	102
51415	75	78	160	65	251 000	560 000	900	1 300	6.75	2	126	109
51416	80	83	170	68	270 000	620 000	850	1 200	7.95	2	133	117
51417	85	88	180	72	286 000	680 000	850	1 200	9.45	2	141	124
51418	90	93	190	77	307 000	750 000	800	1 100	11.0	2	149	131
51420	100	103	210	85	371 000	965 000	700	950	15.0	2.5	165	145
51422	110	113	230	95	410 000	1 140 000	630	850	20.0	2.5	181	159
51424	120	123	250	102	423 000	1 220 000	600	800	25.5	3	197	173
51426	130	134	270	110	520 000	1 600 000	560	750	32.0	3	213	187
51428	140	144	280	112	520 000	1 600 000	530	700	34.5	3	223	197
51430	150	154	300	120	559 000	1 800 000	500	670	42.5	3	239	211

Larger sizes are available on request

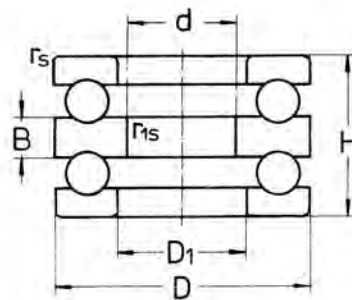
Please check availability

Double direction thrust ball bearings

522 LIGHT SERIES

METRIC SIZES

ISO DIMENSION SERIES 22

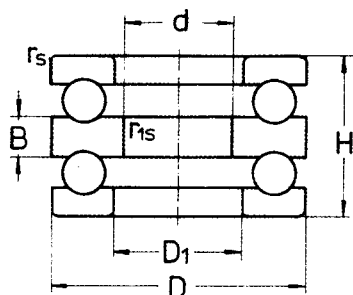


RKB designation	Dimensions millimetres							RKB load ratings† newtons		Factor M	Normal limiting speeds rev/min		Weight Kg approx
	d	D	H	rs/min	r1s/min	D ₁	B	dynamic	static		grease	oil	
								C _a	C _{0a}				
52202	10	32	22	0.6	0.3	17	5	16 600	24 800	0.004	5 000	6 700	0.085
52204	15	40	26	0.6	0.3	22	6	22 300	37 700	0.008	4 300	5 600	0.150
52205	20	47	28	0.6	0.3	27	7	27 700	50 400	0.014	3 800	5 000	0.230
52206	25	52	29	0.6	0.3	32	7	28 100	54 300	0.014	3 600	4 800	0.272
52207	30	62	34	1	0.3	37	8	40 700	83 800	0.029	3 000	4 000	0.402
52208	30	68	36	1	0.6	42	9	46 900	98 300	0.05	2 800	3 800	0.540
52209	35	73	37	1	0.6	47	9	47 700	105 000	0.044	2 600	3 600	0.620
52210	40	78	39	1	0.6	52	9	48 500	111 000	0.07	2 400	3 400	0.710
52211	45	90	45	1	0.6	57	10	69 400	159 000	0.12	1 900	2 800	1.12
52212	50	95	46	1	0.6	62	10	73 600	179 000	0.12	1 900	2 800	1.25
52213	55	100	47	1	0.6	67	10	74 800	189 000	0.14	1 800	2 600	1.36
52214	55	105	47	1	1	72	10	73 600	189 000	0.16	1 800	2 600	1.48
52215	60	110	47	1	1	77	10	77 400	209 000	0.18	1 700	2 400	1.57
52216	65	115	48	1	1	82	10	78 500	218 000	0.22	1 700	2 400	1.69
52217	70	125	55	1	1	88	12	92 300	251 000	0.38	1 600	2 200	2.34
52218	75	135	62	1.1	1	93	14	117 000	326 000	0.55	1 500	2 000	3.22
52220	85	150	67	1.1	1	103	15	147 000	410 000	0.7	1 300	1 800	4.29
52222	95	160	67	1.1	1	113	15	148 000	431 000	0.8	1 200	1 700	4.68
52224	100	170	68	1.1	1.1	123	15	154 000	472 000	1	1 100	1 600	5.24
52226	110	190	80	1.5	1.1	133	18	203 000	622 000	1.7	950	1 400	7.74
52228	120	200	81	1.5	1.1	143	18	215 000	669 000	2	950	1 400	8.95
52230	130	215	89	1.5	1.1	153	20	244 000	768 000	2.8	900	1 300	10.6
52232	140	225	90	1.5	1.1	163	20	247 000	803 000	3.2	850	1 200	12.2
52234	150	240	97	1.5	1.1	173	21	269 000	874 000	4.5	800	1 100	15.2

Larger sizes are available on request

Please check availability

Double direction thrust ball bearings



523 MEDIUM SERIES

METRIC SIZES

ISO DIMENSION SERIES 23

RKB designation	Dimensions millimetres							RKB load ratings† newtons		Factor M	Normal limiting speeds rev/min		Weight Kg approx
	d	D	H	rs/min	r1s/min	D ₁	B	Ca	Coa		grease	oil	
52305	20	52	34	1	0.3	27	8	35 700	61 400	0.02	3 200	4 300	0.033
52306	25	60	38	1	0.3	32	9	42 800	78 700	0.029	2 800	3 800	0.490
52307	30	68	44	1	0.3	37	10	55 500	105 000	0.05	2 400	3 400	0.710
52308	30	78	49	1	0.6	42	12	69 300	135 000	0.08	2 000	3 000	1.06
52309	35	85	52	1	0.6	47	12	80 800	163 000	0.12	1 900	2 800	1.29
52310	40	95	58	1.1	0.6	52	14	91 600	186 000	0.18	1 800	2 600	1.86
52311	45	105	64	1.1	0.6	57	15	119 000	246 000	0.26	1 600	2 200	2.51
52312	50	110	64	1.1	0.6	62	15	124 000	267 000	0.28	1 600	2 200	2.68
52313	55	115	65	1.1	0.6	67	15	128 000	287 000	0.32	1 500	2 000	2.90
52314	55	125	72	1.1	1	72	16	148 000	339 000	0.53	1 400	1 900	3.90
52315	60	135	79	1.5	1	77	18	171 000	396 000	0.75	1 200	1 700	4.83
52316	65	140	79	1.5	1	82	18	176 000	424 000	0.8	1 200	1 700	5.06
52317	70	150	87	1.5	1	88	19	206 000	489 000	1.1	1 100	1 600	6.43
52318	75	155	88	1.5	1	93	19	213 000	524 000	1.2	1 000	1 500	6.60
52320	85	170	97	1.5	1	103	21	236 000	596 000	1.8	950	1 400	8.90
52322	95	190	110	2	1	113	24	280 000	754 000	2.8	850	1 200	13.8
52324	100	210	123	2.1	1.1	123	27	325 000	931 000	4.5	800	1 100	17.2
52330	130	250	140	2.1	1.1	154	31	370 000	1 200 000	9	670	900	27.4
52332	140	270	140	2.1	1.1	164	31	470 000	1 570 000	12	630	850	26.2

524 HEAVY SERIES

METRIC SIZES

ISO DIMENSION SERIES 24

52405	15	60	45	1	0.3	27	11	55 600	89 400	0.044	2 600	3 600	0.630
52406	20	70	52	1	0.6	32	12	72 800	126 000	0.08	2 000	3 000	1.00
52407	25	80	59	1.1	0.6	37	14	87 100	155 000	0.13	1 800	2 600	1.44
52408	30	90	65	1.1	0.6	42	15	113 000	205 000	0.23	1 700	2 400	2.08
52409	35	100	72	1.1	0.6	47	17	130 000	242 000	0.32	1 600	2 200	2.71
52410	40	110	78	1.5	0.6	52	18	148 000	283 000	0.48	1 500	2 000	3.56
52411	45	120	87	1.5	0.6	57	20	178 000	359 000	0.67	1 300	1 800	4.70
52412	50	130	93	1.5	0.6	62	21	201 000	397 000	0.85	1 100	1 600	6.33
52413	50	140	101	2	1	68	23	232 000	493 000	1.1	1 000	1 500	8.03
52420	80	210	150	2	1	103	33	368 000	983 000	5.3	700	950	26.6

Larger sizes are available on request

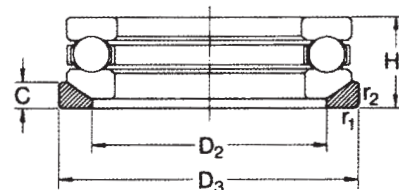
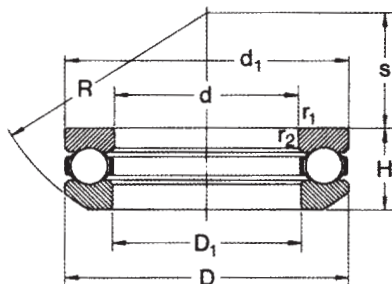
Please check availability

Single direction thrust ball bearings with spherical housing washers

532 LIGHT SERIES

METRIC SIZES

ISO DIMENSION SERIES 12

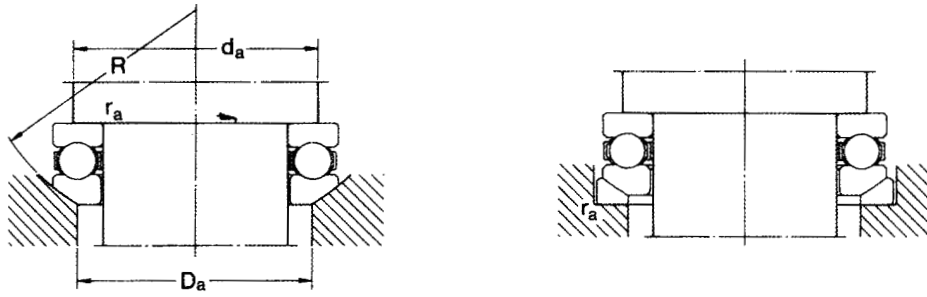


RKB designation basic bearing	washer	Dimensions millimetres			RKB load ratings† newtons		Factor A	Normal limiting speeds rev/min		Weight washer basic bearing Kg approx	
		d	D	H	dynamic C_a	static C_{oa}		grease	oil	Kg	approx
53201	U 201	12	28	11.4	13 300	19 000	1.9	6 000	8 000	0.033	0.012
53202	U 202	15	32	13.3	16 500	25 000	3.3	5 300	7 000	0.049	0.014
53203	U 203	17	35	13.2	17 200	27 500	3.9	5 000	6 700	0.056	0.015
53204	U 204	20	40	14.7	22 500	37 500	7.3	4 500	6 000	0.082	0.020
53205	U 205	25	47	16.7	27 600	50 000	13	4 000	5 300	0.12	0.032
53206	U 206	30	52	17.8	25 500	47 500	11	3 600	4 800	0.14	0.038
53207	U 207	35	62	19.9	35 100	67 000	23	3 000	4 000	0.22	0.057
53208	U 208	40	68	20.3	46 800	98 000	49	2 800	3 800	0.28	0.070
53209	U 209	45	73	21.3	39 000	80 000	33	2 600	3 600	0.30	0.087
53210	U 210	50	78	23.5	49 400	106 000	58	2 400	3 400	0.37	0.10
53211	U 211	55	90	27.3	61 800	134 000	93	1 900	2 800	0.60	0.15
53212	U 212	60	95	28	62 400	140 000	100	1 900	2 800	0.66	0.16
53213	U 213	65	100	28.7	63 700	150 000	120	1 800	2 600	0.73	0.18
53214	U 214	70	105	28.8	65 000	160 000	130	1 800	2 600	0.78	0.19
53215	U 215	75	110	28.3	67 600	170 000	150	1 700	2 400	0.81	0.21
53216	U 216	80	115	29.5	76 100	190 000	190	1 700	2 400	0.90	0.22
53217	U 217	85	125	33.1	97 500	250 000	330	1 600	2 200	1.20	0.29
53218	U 218	90	135	38.5	119 000	300 000	470	1 500	2 000	1.70	0.42
53220	U 220	100	150	40.9	124 000	320 000	530	1 300	1 800	2.20	0.50
53222	U 222	110	160	40.2	130 000	360 000	670	1 200	1 700	2.35	0.56
53224	U 224	120	170	40.8	140 000	400 000	830	1 100	1 600	2.55	0.65
53226	U 226	130	190	47.9	186 000	540 000	1 500	950	1 400	3.95	0.90
53228	U 228	140	200	48.6	190 000	570 000	1 700	950	1 400	4.25	1.20

Larger sizes are available on request

Please check availability

Single direction thrust ball bearings with spherical housing washers



Dimensions
millimetres

Shaft and housing dimensions
millimetres

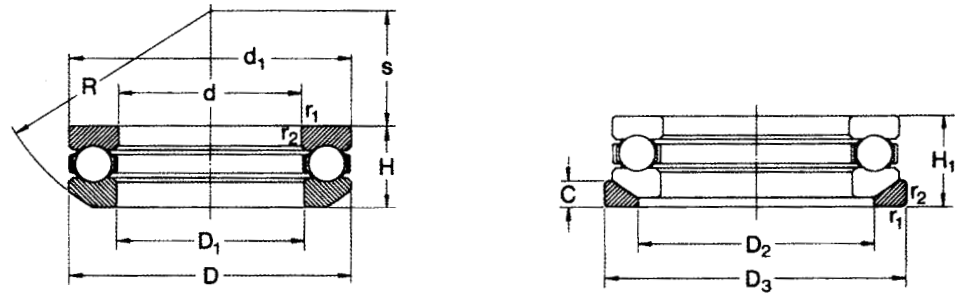
d	d ₁	D ₁	D ₂	D ₃	C	H ₁	R	s	r1 2 min	d _a min	D _a max	r _a max
12	28	14	20	30	3.5	13	25	11.5	0.6	22	20	0.6
15	32	17	24	35	4	15	28	12	0.6	25	24	0.6
17	35	19	26	38	4	15	32	16	0.6	28	26	0.6
20	40	22	30	42	5	17	36	18	0.6	32	30	0.6
25	47	27	36	50	5.5	19	40	19	0.6	38	36	0.6
30	52	32	42	55	5.5	20	45	22	0.6	43	42	0.6
35	62	37	48	65	7	22	50	24	1	51	48	1
40	68	42	55	72	7	23	56	28.5	1	57	55	1
45	73	47	60	78	7.5	24	56	26	1	62	60	1
50	78	52	62	82	7.5	26	64	32.5	1	67	62	1
55	90	57	72	95	9	30	72	35	1	76	72	1
60	95	62	78	100	9	31	72	32.5	1	81	78	1
65	100	67	82	105	9	32	80	40	1	86	82	1
70	105	72	88	110	9	32	80	38	1	91	88	1
75	110	77	92	115	9.5	32	90	49	1	96	92	1
80	115	82	98	120	10	33	90	46	1	101	98	1
85	125	88	105	130	11	37	100	52	1	109	105	1
90	135	93	110	140	13.5	42	100	45	1.1	117	110	1
100	150	103	125	155	14	45	112	52	1.1	130	125	1
110	160	113	135	165	14	45	125	65	1.1	140	135	1
120	170	123	145	175	15	46	125	61	1.1	150	145	1
130	187	133	160	195	17	53	140	67	1.5	166	160	1.5
140	197	143	170	210	17	55	160	87	1.5	176	170	1.5

Single direction thrust ball bearings with spherical housing washers

533 MEDIUM SERIES

METRIC SIZES

ISO DIMENSION SERIES 13



RKB designation basic bearing	washer	Dimensions millimetres			RKB load ratings† newtons		Factor A	Normal limiting speeds rev/min		Weight washer basic bearing Kg	approx
		d	D	H	dynamic C _a	static C _{0a}		grease	oil		
53306	U 306	30	60	22.6	37 700	65 500	22	2 800	3 800	0.27	0.056
53307	U 307	35	68	25.6	49 400	88 000	40	2 400	3 400	0.38	0.084
53308	U 308	40	78	28.5	61 800	112 000	65	2 000	3 000	0.55	0.12
53309	U 309	45	85	30.1	76 100	140 000	100	1 900	2 800	0.66	0.17
53310	U 310	50	95	34.4	88 400	173 000	160	1 800	2 600	0.97	0.23
53311	U 311	55	105	39.3	104 000	208 000	220	1 600	2 200	1.40	0.28
53312	U 312	60	110	38.3	101 000	208 000	220	1 600	2 200	1.40	0.31
53313	U 313	65	115	39.4	106 000	220 000	250	1 500	2 000	1.55	0.34
53314	U 314	70	125	44.2	135 000	300 000	470	1 400	1 900	2.10	0.41
53315	U 315	75	135	48.1	163 000	360 000	670	1 200	1 700	2.65	0.55
53316	U 316	80	140	47.6	159 000	360 000	670	1 200	1 700	2.75	0.57
53317	U 317	85	150	53.1	190 000	425 000	940	1 100	1 600	3.55	0.81
53318	U 318	90	155	54.6	195 000	465 000	1 100	1 000	1 500	3.85	0.84
53320	U 320	100	170	59.2	229 000	560 000	1 600	950	1 400	5.00	0.95
53322	U 322	110	190	67.2	276 000	720 000	2 700	850	1 200	7.80	1.30
53324	U 324	120	210	74.1	325 000	915 000	4 400	800	1 100	10.5	2.00

534 HEAVY SERIES

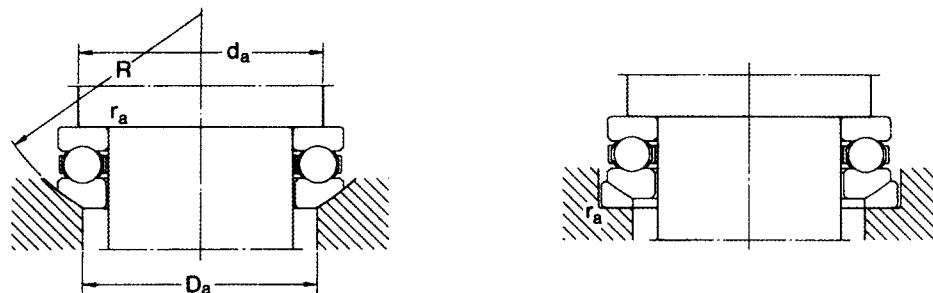
METRIC SIZES

ISO DIMENSION SERIES 14

53408	U 408	40	90	38.2	112 000	204 000	220	1 700	2 400	1.10	0.25
53409	U 409	45	100	42.4	130 000	240 000	300	1 600	2 000	1.45	0.32
53410	U 410	50	110	45.6	159 000	310 000	500	1 500	2 000	1.90	0.41
53412	U 412	60	130	54	199 000	400 000	830	1 100	1 600	3.10	0.71
53414	U 414	70	150	63.6	234 000	500 000	1 300	950	1 400	5.50	1.00
53415	U 415	75	160	69	251 000	560 000	1 600	900	1 300	6.85	1.25
53416	U 416	80	170	72.2	270 000	620 000	2 000	850	1 200	8.00	1.40
53418	U 418	90	190	81.2	307 000	750 000	2 900	800	1 100	11.0	1.90
53420	U 420	100	210	90	371 000	965 000	4 800	700	950	15.0	2.90

Please check availability

Single direction thrust ball bearings with spherical housing washers



Dimensions
millimetres

Shaft and housing dimensions
millimetres

d	d ₁	D ₁	D ₂	D ₃	C	H ₁	R	s	r1 2 min	d _a min	D _a max	r _a max
30	60	32	45	62	7	25	50	22	1	48	45	1
35	68	37	52	72	7.5	28	56	24	1	55	52	1
40	78	42	60	82	8.5	31	64	28	1	63	60	1
45	85	47	65	90	10	33	64	25	1	69	65	1
50	95	52	72	100	11	37	72	28	1.1	77	72	1
55	105	57	80	110	11.5	42	80	30	1.1	85	80	1
60	110	62	85	115	11.5	42	90	41	1.1	90	85	1
65	115	67	90	120	12.5	43	90	38.5	1.1	95	90	1
70	125	72	98	130	13	48	100	43	1.1	103	98	1
75	135	77	105	140	15	52	100	37	1.5	111	105	1.5
80	140	82	110	145	15	52	112	50	1.5	116	110	1.5
85	150	88	115	155	17.5	58	112	43	1.5	124	115	1.5
90	155	93	120	160	18	59	112	40	1.5	129	120	1.5
100	170	103	135	175	18	64	125	46	1.5	142	135	1.5
110	187	113	150	195	20.5	72	140	51	2	158	150	2
120	205	123	165	220	22	80	160	63	2.1	173	165	2

40	90	42	65	95	12	42	72	26	1.1	70	65	1
45	100	47	72	105	12.5	46	80	29	1.1	78	72	1
50	110	52	80	115	14	50	90	35	1.5	86	80	1.5
60	130	62	95	135	16	58	100	34	1.5	102	95	1.5
70	150	73	110	155	19.5	69	112	34	2	118	110	2
75	160	78	115	165	21	75	125	42	2	126	115	2
80	170	83	125	175	22	78	125	36	2.1	133	125	2
90	187	93	140	195	25.5	88	140	40	2.1	149	140	2
100	205	103	155	220	27	98	160	50	3	165	155	2.5

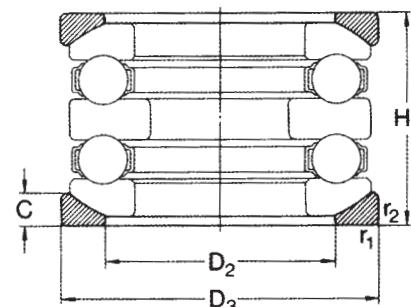
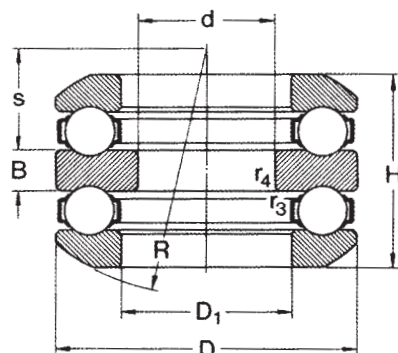
Larger sizes are available on request

Double direction thrust ball bearings with spherical housing washers

542 LIGHT SERIES

METRIC SIZES

ISO DIMENSION SERIES 22



RKB designation basic bearing	washer	Dimensions millimetres			RKB load ratings† newtons		Factor A	Normal limiting speeds rev/min		Weight washer bearing Kg	approx
		d	D	H	dynamic C _a	static C _{oa}		grease	oil		
54207	U 207	30	62	37.8	35 100	67 000	23	3 000	4 000	0.42	0.057
54208	U 208	30	68	38.6	46 800	98 000	49	2 800	3 800	0.56	0.070
54211	U 211	45	90	49.6	61 800	134 000	93	1 900	2 800	1.15	0.15

543 MEDIUM SERIES

METRIC SIZES

ISO DIMENSION SERIES 23

54306	U 306	25	60	41.3	37 700	65 500	22	2 800	3 800	0.47	0.056
54307	U 307	30	68	47.2	49 400	88 000	40	2 400	3 400	0.68	0.084
54308	U 308	30	78	54.1	61 800	112 000	65	2 000	3 000	1.05	0.12
54309	U 309	35	85	56.3	76 100	140 000	100	1 900	2 800	1.25	0.17
54310	U 310	40	95	64.7	88 400	173 000	160	1 800	2 600	1.85	0.23
54312	U 312	50	110	70.7	101 000	208 000	220	1 600	2 200	2.60	0.31
54316	U 316	65	140	86.1	159 000	360 000	670	1 200	1 700	5.05	0.57
54317	U 317	70	150	92.5	190 000	425 000	940	1 100	1 600	6.35	0.813

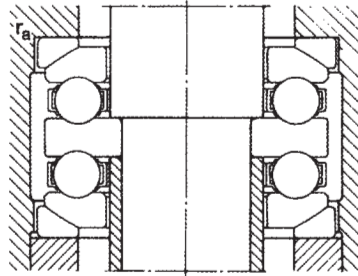
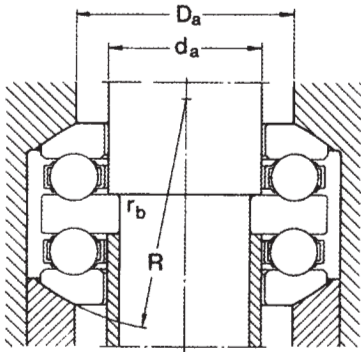
544 HEAVY SERIES

METRIC SIZES

ISO DIMENSION SERIES 24

54409	U 409	35	100	78.9	130 000	240 000	300	1 600	2 200	2.70	0.32
54410	U 410	40	110	83.2	159 000	310 000	500	1 500	2 000	3.55	0.46
54416	U 416	65	170	128.5	270 000	620 000	2 000	850	1 200	14.0	1.40
54420	U 420	80	210	159.9	371 000	965 000	4 800	700	950	26.0	2.90

Please check availability



**Dimensions
millimetres**

**Shaft and housing dimensions
millimetres**

d	D ₁	D ₂	D ₃	B	C	H ₁	R	s	r1 2 min	r3 4 min	d _a max	D _a max	r _a max	r _b min
30	37	48	65	8	7	42	50	21	1	0.3	35	48	1	0.3
30	42	55	72	9	7	44	56	25	1	0.6	40	55	1	0.6
45	57	72	95	10	9	55	72	32.5	1	0.6	55	72	1	0.6
25	32	45	62	9	7	46	50	19.5	1	0.3	30	45	1	0.3
30	37	52	72	10	7.5	52	56	21	1	0.3	35	52	1	0.3
30	42	60	82	12	8.5	59	64	23.5	1	0.6	40	60	1	0.6
35	47	65	90	12	10	62	64	21	1	0.6	45	65	1	0.6
40	52	72	100	14	11	70	72	23	1.1	0.6	50	72	1	0.6
50	62	85	115	15	11.5	78	90	36.5	1.1	0.6	60	85	1	0.6
65	82	110	145	18	15	95	112	45.5	1.5	1	80	110	1.5	1
70	88	115	155	19	17.5	105	112	39	1.5	1	85	115	1.5	1
35	47	72	105	17	12.5	86	80	23.5	1.1	0.6	45	72	1	0.6
40	52	80	115	18	14	92	90	30	1.5	0.6	50	80	1.5	0.6
65	83	125	175	27	22	140	125	30.5	2.1	1	80	125	2	1
80	103	155	220	33	27	176	160	43.5	3	1.1	100	155	2.5	1

Single row cylindrical roller bearings

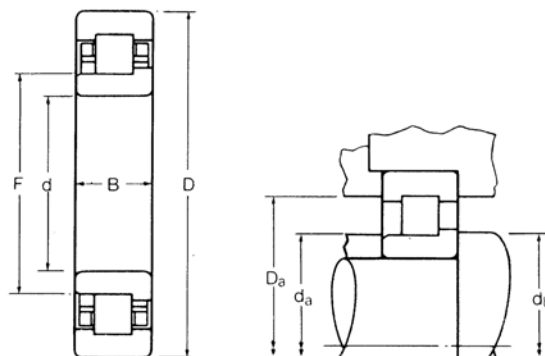


Single row cylindrical roller bearings

NJ 2 LIGHT SERIES

METRIC SIZES

ISO DIMENSION SERIES 02

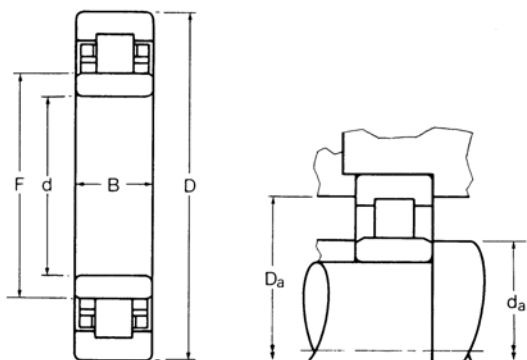


RKB designation	Dimensions millimetres				RKB load ratings† newtons				Weight kg	Shaft and housing dimensions millimetres						
	d	D	B	F	Cr	Cor	Normal limiting speeds rev/min			approx	max fillet radius	da min	da max	db max	Da	
							grease	oil							min	max
NJ 200	10	30	9	14,4	9 650	6 650	23 500	32 000	0,038	0,6	12,4	14,2	15,8	24,1	27,6	
NJ 201	12	32	10	17,2	8 400	6 150	12 100	24 000	0,045	0,6	14,4	17,0	18,3	25,9	29,6	
NJ 202	15	35	11	20,2	9 800	7 750	10 900	22 000	0,055	0,6	17,4	20,1	21,3	28,7	32,6	
NJ 203	17	40	12	22,9	11 600	9 050	18 000	24 000	0,073	0,6	19,4	22,8	24,2	32,8	37,6	
NJ 204	20	47	14	27,0	22 800	19 400	15 500	20 500	0,116	1,0	24,0	26,9	28,3	39,7	43,0	
NJ 205	25	52	15	32,0	24 500	22 100	13 600	18 500	0,141	1,0	29,0	31,9	33,3	44,7	48,0	
NJ 206	30	62	16	38,5	33 100	31 300	11 600	15 500	0,220	1,0	34,0	38,4	40,0	53,0	58,0	
NJ 207	35	72	17	43,8	42 100	38 300	10 100	13 700	0,305	1,0	39,0	43,7	45,7	61,9	68,0	
NJ 208	40	80	18	50,0	47 700	46 300	9 100	12 300	0,406	1,0	44,0	49,9	51,9	68,1	76,0	
NJ 209	45	85	19	55,0	54 000	56 000	8 500	11 400	0,463	1,0	49,0	54,9	57,4	73,1	81,0	
NJ 210	50	90	20	60,4	56 500	60 500	7 800	10 600	0,531	1,0	54,0	60,3	62,3	78,5	86,0	
NJ 211	55	100	21	66,5	72 000	79 000	7 100	9 600	0,699	1,5	61,0	66,4	68,6	86,4	94,0	
NJ 212	60	110	22	73,5	81 000	85 500	6 300	8 600	0,866	1,5	66,0	73,4	76,0	97,0	104,0	
NJ 213	65	120	23	79,6	92 000	98 000	5 800	7 900	1,17	1,5	71,0	79,2	82,6	104,8	114,0	
NJ 214	70	125	24	84,5	102 000	114 000	5 500	7 500	1,32	1,5	76,0	84,3	87,4	109,5	119,0	
NJ 215	75	130	25	88,5	107 000	122 000	5 300	7 200	1,44	1,5	81,0	88,4	91,4	113,3	124,0	
NJ 216	80	140	26	95,3	108 000	121 000	4 200	5 200	1,75	2,0	88,0	95,0	98,6	120,4	132,0	
NJ 217	85	150	28	101,8	122 000	137 000	3 900	4 800	2,15	2,0	93,0	101,6	105,4	129,8	142,0	
NJ 218	90	160	30	107,0	168 000	189 000	4 200	5 700	2,41	2,0	98,0	106,9	110,7	141,3	152,0	
NJ 219	95	170	32	113,5	185 000	217 000	4 000	5 400	3,23	2,0	103,0	113,3	118,1	146,8	162,0	
NJ 220	100	180	34	120,0	191 000	231 000	3 800	5 100	3,88	2,0	108,0	119,8	124,7	153,3	172,0	
NJ 222	110	200	38	132,5	266 000	311 000	3 300	4 500	4,91	2,0	118,0	131,1	136,9	173,0	192,0	
NJ 224	120	215	40	143,5	290 000	358 000	2 000	3 300	6,80	2,0	128,0	143,2	149,4	185,1	207,0	
NJ 226	130	230	40	156,0	299 000	381 000	1 800	3 100	7,44	2,5	140,0	155,7	161,8	198,9	220,0	
NJ 228	140	250	42	172,3	334 000	413 000	1 600	2 800	9,30	2,5	150,0	172,1	175,5	221,2	240,0	
NJ 230	150	270	45	182,0	404 000	518 000	2 300	3 100	11,9	2,5	160,0	181,8	189,0	232,2	260,0	
NJ 232	160	290	48	195,0	445 000	578 000	1 400	2 300	14,8	2,5	170,0	194,8	202,4	249,2	280,0	
NJ 234	170	310	52	208,0	508 000	675 000	1 300	2 100	18,2	3,0	182,0	207,7	215,9	263,3	298,0	
NJ 236	180	320	52	218,0	525 000	713 000	1 200	2 000	18,9	3,0	192,0	217,9	225,8	273,8	308,0	
NJ 238	190	340	55	231,0	713 000	955 000	1 100	1 900	23,4	3,0	202,0	230,8	239,5	292,3	328,0	
NJ 240	200	360	58	244,0	681 000	939 000	1 000	1 800	27,2	3,0	212,0	243,8	253,0	306,1	348,0	

Larger sizes are available on request

Please check availability

Single row cylindrical roller bearings



LIGHT SERIES **NU 2**

METRIC SIZES

ISO DIMENSION SERIES 02

RKB designation	Dimensions millimetres				RKB load ratings† newtons		Normal limiting speeds rev/min		Weight kg approx	Shaft and housing dimensions millimetres				
	d	D	B	F	C _r	C _{0r}	grease	oil		max fillet radius	d _a		D _a	
									min		max	min	max	
NU 200	10	30	9	14,4	9 650	6 650	23 500	32 000	0,037	0,6	12,4	14,2	24,1	27,6
NU 201	12	32	10	17,2	8 400	6 150	12 100	24 000	0,044	0,6	14,4	17,0	25,9	29,6
NU 202	15	35	11	20,2	9 800	7 750	10 900	22 000	0,054	0,6	17,4	20,1	28,7	32,6
NU 203	17	40	12	22,9	11 600	9 050	18 000	24 000	0,071	0,6	19,4	22,8	32,8	37,6
NU 204	20	47	14	27,0	22 800	19 400	15 500	20 500	0,113	1,0	24,0	26,9	39,7	43,0
NU 205	25	52	15	32,0	24 500	22 100	13 600	18 500	0,137	1,0	29,0	31,9	44,7	48,0
NU 206	30	62	16	38,5	33 100	31 300	11 600	15 500	0,215	1,0	34,0	38,4	53,0	58,0
NU 207	35	72	17	43,8	42 100	38 300	10 100	13 700	0,299	1,0	39,0	43,7	61,9	68,0
NU 208	40	80	18	50,0	47 700	46 300	9 100	12 300	0,397	1,0	44,0	49,9	68,1	76,0
NU 209	45	85	19	55,0	54 000	56 000	8 500	11 400	0,454	1,0	49,0	54,9	73,1	81,0
NU 210	50	90	20	60,4	56 500	60 500	7 800	10 600	0,517	1,0	54,0	60,3	78,5	86,0
NU 211	55	100	21	66,5	72 000	79 000	7 100	9 600	0,685	1,5	61,0	66,4	86,4	94,0
NU 212	60	110	22	73,5	81 000	85 500	6 300	8 600	0,844	1,5	66,0	73,4	97,0	104,0
NU 213	65	120	23	79,6	92 000	98 000	5 800	7 900	1,13	1,5	71,0	79,2	104,8	114,0
NU 214	70	125	24	84,5	102 000	114 000	5 500	7 500	1,28	1,5	76,0	84,3	109,5	119,0
NU 215	75	130	25	88,5	107 000	122 000	5 300	7 200	1,40	1,5	81,0	88,4	113,3	124,0
NU 216	80	140	26	95,3	108 000	121 000	4 200	5 200	1,70	2,0	88,0	95,0	120,4	132,0
NU 217	85	150	28	101,8	122 000	137 000	3 900	4 800	2,10	2,0	93,0	101,6	129,8	142,0
NU 218	90	160	30	107,0	168 000	189 000	4 200	5 700	2,36	2,0	98,0	106,9	141,3	152,0
NU 219	95	170	32	113,5	185 000	217 000	4 000	5 400	3,14	2,0	103,0	113,3	146,8	162,0
NU 220	100	180	34	120,0	191 000	231 000	3 800	5 100	3,78	2,0	108,0	119,8	153,3	172,0
NU 222	110	200	38	132,5	266 000	311 000	3 300	4 500	4,81	2,0	118,0	132,4	173,0	192,0
NU 224	120	215	40	143,5	290 000	358 000	2 000	3 300	6,35	2,0	128,0	143,2	185,1	207,0
NU 226	130	230	40	156,0	299 000	381 000	1 800	3 100	7,26	2,5	140,0	155,7	198,9	220,0
NU 228	140	250	42	172,3	334 000	413 000	1 600	2 800	9,07	2,5	150,0	172,1	221,2	240,0
NU 230	150	270	45	182,0	404 000	518 000	2 300	3 100	11,6	2,5	160,0	181,8	232,2	260,0
NU 232	160	290	48	195,0	445 000	578 000	1 400	2 300	14,5	2,5	170,0	194,8	249,2	280,0
NU 234	170	310	52	208,0	508 000	675 000	1 300	2 100	17,8	3,0	182,0	207,7	263,3	298,0
NU 236	180	320	52	218,0	525 000	713 000	1 200	2 000	18,4	3,0	192,0	217,9	273,8	308,0
NU 238	190	340	55	231,0	713 000	955 000	1 100	1 900	22,8	3,0	202,0	230,8	292,3	328,0
NU 240	200	360	58	244,0	681 000	939 000	1 000	1 800	26,6	3,0	212,0	243,8	306,1	348,0

Larger sizes are available on request

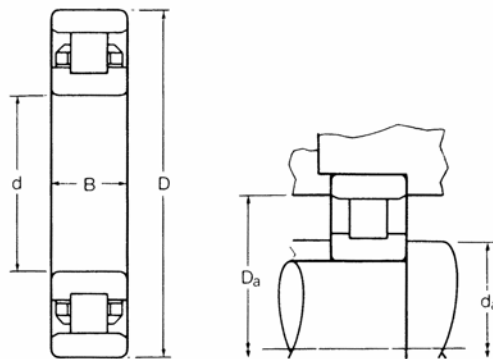
Please check availability

Single row cylindrical roller bearings

N 2 LIGHT SERIES

METRIC SIZES

ISO DIMENSION SERIES 02

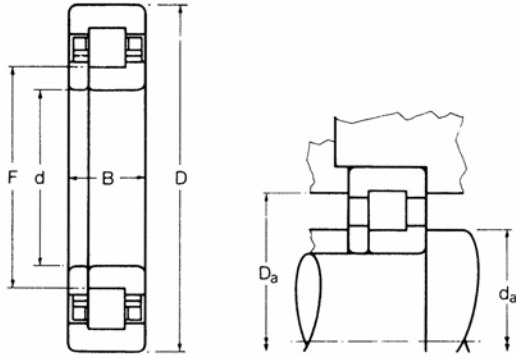


RKB designation	Dimensions			RKB load ratings†		Normal limiting speeds		Weight	Shaft and housing dimensions				
	millimetres			newtons		rev/min			kg	millimetres			
	d	D	B	dynamic C _r	static C _{0r}	grease	oil	approx		max fillet radius	d _a min	d _a max	D _a min
N 200	10	30	9	8 300	6 000	14 200	23 500	0,029	0,6	12,4	16,5	25,1	27,6
N 201	12	32	10	8 400	6 150	13 200	22 000	0,030	0,6	14,4	18,3	26,9	29,6
N 202	15	35	11	9 800	7 750	11 900	20 000	0,035	0,6	17,4	21,3	30,0	32,6
N 203	17	40	12	11 600	9 050	18 000	24 000	0,070	0,6	19,4	24,2	34,0	37,6
N 204	20	47	14	22 800	19 400	15 500	20 500	0,112	1,0	24,0	28,3	41,1	43,0
N 205	25	52	15	24 500	22 100	13 600	18 500	0,135	1,0	29,0	33,3	46,1	48,0
N 206	30	62	16	33 100	31 300	11 600	15 500	0,212	1,0	34,0	40,0	54,6	58,0
N 207	35	72	17	42 100	38 300	10 100	13 700	0,294	1,0	39,0	45,7	63,9	68,0
N 208	40	80	18	47 700	46 300	9 100	12 300	0,391	1,0	44,0	51,9	70,1	76,0
N 209	45	85	19	54 000	56 000	8 500	11 400	0,450	1,0	49,0	57,4	75,1	81,0
N 210	50	90	20	56 500	60 500	7 800	10 600	0,513	1,0	54,0	62,3	80,5	86,0
N 211	55	100	21	72 000	79 000	7 100	9 600	0,676	1,5	61,0	68,6	88,6	94,0
N 212	60	110	22	81 000	85 500	6 300	8 600	0,835	1,5	66,0	76,0	99,6	104,0
N 213	65	120	23	92 000	98 000	3 500	5 900	1,08	1,5	71,0	81,8	106,9	114,0
N 214	70	125	24	102 000	114 000	3 400	5 600	1,19	1,5	76,0	86,4	112,0	119,0
N 215	75	130	25	107 000	122 000	3 200	5 300	1,28	1,5	81,0	91,7	116,8	124,0
N 216	80	140	26	126 000	143 000	2 900	4 900	1,53	2,0	88,0	99,8	128,0	132,0
N 217	85	150	28	142 000	167 000	2 700	4 600	2,15	2,0	93,0	104,4	135,1	142,0
N 218	90	160	30	168 000	189 000	4 200	5 700	2,33	2,0	98,0	110,7	145,1	152,0
N 219	95	170	32	185 000	217 000	2 400	4 000	2,93	2,0	103,0	118,1	151,6	162,0
N 220	100	180	34	191 000	231 000	2 300	3 800	3,56	2,0	108,0	124,7	158,2	172,0
N 221	105	190	36	246 000	293 000	2 100	3 500	4,25	2,0	113,0	132,1	171,5	182,0
N 222	110	200	38	266 000	311 000	3 300	4 500	4,76	2,0	118,0	136,9	178,8	192,0
N 224	120	215	40	290 000	358 000	1 800	3 000	6,26	2,0	128,0	149,4	191,3	207,0
N 226	130	230	40	299 000	381 000	1 700	2 800	7,17	2,5	140,0	161,8	203,7	220,0
N 228	140	250	42	364 000	461 000	1 500	2 500	8,98	2,5	150,0	175,5	226,6	240,0
N 230	150	270	45	404 000	518 000	1 400	2 300	11,3	2,5	160,0	189,0	239,3	260,0
N 232	160	290	48	445 000	578 000	1 300	2 100	14,0	2,5	170,0	202,4	255,5	280,0
N 234	170	310	52	508 000	675 000	1 200	2 000	17,4	3,0	182,0	215,9	271,5	298,0
N 236	180	320	52	525 000	713 000	1 100	1 900	18,1	3,0	192,0	225,8	281,7	308,0
N 238	190	340	55	605 000	817 000	1 000	1 700	21,8	3,0	202,0	239,5	301,0	328,0
N 240	200	360	58	681 000	939 000	950	1 600	25,9	3,0	212,0	253,0	317,3	348,0

Larger sizes are available on request

Please check availability

Single row cylindrical roller bearings



LIGHT SERIES **NUP 2**

METRIC SIZES

ISO DIMENSION SERIES 02

RKB designation	Dimensions millimetres				RKB load ratings† newtons		Normal limiting speeds rev/min		Weight kg approx	Shaft and housing dimensions millimetres				
	d	D	B	F	C _r	C _{0r}	grease	oil		max fillet radius*	d _a		D _a	
									min		max	min	max	
NUP 200	10	30	9	14,4	9 650	6 650	23 500	32 000	0,039	0,6	12,4	15,8	24,1	27,6
NUP 201	12	32	10	17,2	8 400	6 150	12 100	24 000	0,046	0,6	14,4	18,3	25,9	29,6
NUP 202	15	35	11	20,2	9 800	7 750	10 900	22 000	0,058	0,6	17,4	21,3	28,7	32,6
NUP 203	17	40	12	22,9	11 600	9 050	18 000	24 000	0,075	0,6	19,4	24,2	32,8	37,6
NUP 204	20	47	14	27,0	22 800	19 400	15 500	20 500	0,118	1,0	24,0	28,3	39,7	43,0
NUP 205	25	52	15	32,0	24 500	22 100	13 600	18 500	0,144	1,0	29,0	33,3	44,7	48,0
NUP 206	30	62	16	38,5	33 100	31 300	11 600	15 500	0,225	1,0	34,0	40,0	53,0	58,0
NUP 207	35	72	17	43,8	42 100	38 300	10 100	13 700	0,312	1,0	39,0	45,7	61,9	68,0
NUP 208	40	80	18	50,0	47 700	46 300	9 100	12 300	0,415	1,0	44,0	51,9	68,1	76,0
NUP 209	45	85	19	55,0	54 000	56 000	8 500	11 400	0,475	1,0	49,0	57,4	73,1	81,0
NUP 210	50	90	20	60,4	56 500	60 500	7 800	10 600	0,540	1,0	54,0	62,3	78,5	86,0
NUP 211	55	100	21	66,5	72 000	79 000	7 100	9 600	0,712	1,5	61,0	68,6	86,4	94,0
NUP 212	60	110	22	73,5	81 000	85 500	6 300	8 600	0,885	1,5	66,0	76,0	97,0	104,0
NUP 213	65	120	23	79,6	92 000	98 000	3 800	6 500	1,20	1,5	71,0	82,6	102,6	114,0
NUP 214	70	125	24	84,5	102 000	114 000	5 600	7 600	1,36	1,5	76,0	87,4	106,9	119,0
NUP 215	75	130	25	88,5	107 000	122 000	5 400	7 300	1,48	1,5	81,0	91,4	111,0	124,0
NUP 216	80	140	26	95,3	108 000	121 000	4 900	6 700	1,80	2,0	88,0	98,6	120,4	132,0
NUP 217	85	150	28	101,8	122 000	137 000	4 600	6 200	2,22	2,0	93,0	105,4	129,8	142,0
NUP 218	90	160	30	107,0	168 000	189 000	4 200	5 700	2,46	2,0	98,0	110,7	141,3	152,0
NUP 219	95	170	32	113,5	185 000	217 000	4 000	5 400	3,31	2,0	103,0	118,1	146,8	162,0
NUP 220	100	180	34	120,0	191 000	231 000	3 800	5 100	3,99	2,0	108,0	124,7	153,3	172,0
NUP 222	110	200	38	132,5	266 000	311 000	3 300	4 500	5,01	2,0	118,0	136,9	173,0	192,0
NUP 224	120	215	40	143,5	290 000	358 000	2 000	3 300	6,67	2,0	128,0	149,4	185,1	207,0
NUP 226	130	230	40	156,0	299 000	381 000	1 800	3 100	7,62	2,5	140,0	161,8	198,9	220,0
NUP 228	140	250	42	172,3	334 000	413 000	1 600	2 800	9,48	2,5	150,0	175,5	221,2	240,0
NUP 230	150	270	45	182,0	404 000	518 000	2 300	3 100	12,2	2,5	160,0	189,0	232,2	260,0
NUP 232	160	290	48	195,0	445 000	578 000	1 400	2 300	15,2	2,5	170,0	202,4	249,2	280,0
NUP 234	170	310	52	208,0	508 000	675 000	1 300	2 100	18,6	3,0	182,0	215,9	263,3	298,0
NUP 236	180	320	52	218,0	525 000	713 000	1 200	2 000	19,3	3,0	192,0	225,8	273,8	308,0
NUP 238	190	340	55	231,0	713 000	955 000	1 100	1 900	23,8	3,0	202,0	239,5	292,3	328,0
NUP 240	200	360	58	244,0	681 000	939 000	1 000	1 800	27,7	3,0	212,0	253,0	306,1	348,0

Larger sizes are available on request

*Does not apply to the loose rib.

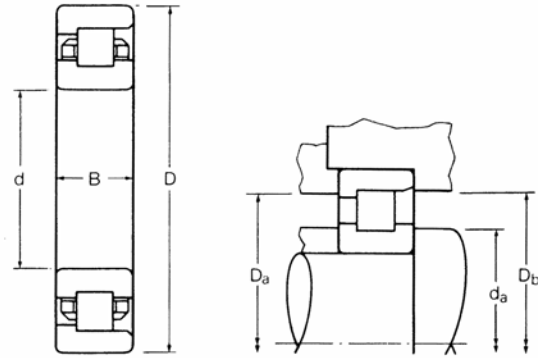
Please check availability

Single row cylindrical roller bearings

NF 2 LIGHT SERIES

METRIC SIZES

ISO DIMENSION SERIES 02



RKB designation	Dimensions millimetres			RKB load ratings† newtons		Normal limiting speeds rev/min		Weight kg approx	Shaft and housing dimensions millimetres					
	d	D	B	Cr	Cor	grease	oil		max fillet radius	da		Da		Db min
										min	max	min	max	
NF 200	10	30	9	8 300	6 000	14 200	23 500	0,035	0,6	12,4	16,5	24,1	27,6	25,1
NF 201	12	32	10	8 400	6 150	13 200	22 000	0,042	0,6	14,4	18,3	25,9	29,6	26,9
NF 202	15	35	11	9 800	7 750	11 900	20 000	0,050	0,6	17,4	21,3	28,7	32,6	30,0
NF 203	17	40	12	11 600	9 050	18 000	24 000	0,077	0,6	19,4	24,2	32,8	37,6	34,0
NF 204	20	47	14	22 800	19 400	15 500	20 500	0,114	1,0	24,0	28,3	39,7	43,0	41,1
NF 205	25	52	15	24 500	22 100	13 600	18 500	0,140	1,0	29,0	33,3	44,7	48,0	46,1
NF 206	30	62	16	33 100	31 300	11 600	15 500	0,218	1,0	34,0	40,0	53,0	58,0	54,6
NF 207	35	72	17	42 100	38 300	10 100	13 700	0,302	1,0	39,0	45,7	61,9	68,0	63,9
NF 208	40	80	18	47 700	46 300	9 100	12 300	0,402	1,0	44,0	51,9	68,1	76,0	70,1
NF 209	45	85	19	54 000	56 000	8 500	11 400	0,461	1,0	49,0	57,4	73,1	81,0	75,1
NF 210	50	90	20	56 500	60 500	7 800	10 600	0,525	1,0	54,0	62,3	78,5	86,0	80,5
NF 211	55	100	21	72 000	79 000	7 100	9 600	0,693	1,5	61,0	68,6	86,4	94,0	88,6
NF 212	60	110	22	81 000	85 500	6 300	8 600	0,858	1,5	66,0	76,0	97,0	104,0	99,6
NF 213	65	120	23	92 000	98 000	3 500	5 900	1,13	1,5	71,0	81,8	103,4	114,0	106,9
NF 214	70	125	24	102 000	114 000	3 400	5 600	1,24	1,5	76,0	86,4	108,5	119,0	112,0
NF 215	75	130	25	107 000	122 000	3 200	5 300	1,36	1,5	81,0	91,7	113,5	124,0	116,8
NF 216	80	140	26	126 000	143 000	2 900	4 900	1,61	2,0	88,0	99,8	124,2	132,0	128,0
NF 217	85	150	28	142 000	167 000	2 700	4 600	2,04	2,0	93,0	104,4	130,8	142,0	135,1
NF 218	90	160	30	168 000	189 000	4 200	5 700	2,40	2,0	98,0	110,7	141,3	152,0	145,1
NF 219	95	170	32	185 000	217 000	2 400	4 000	3,01	2,0	103,0	118,1	146,8	162,0	151,6
NF 220	100	180	34	191 000	231 000	2 300	3 800	3,74	2,0	108,0	124,7	153,3	172,0	158,2
NF 221	105	190	36	246 000	293 000	2 100	3 500	4,34	2,0	113,0	132,1	166,1	182,0	171,5
NF 222	110	200	38	266 000	311 000	3 300	4 500	4,88	2,0	118,0	136,9	173,0	192,0	178,8
NF 224	120	215	40	290 000	358 000	1 800	3 000	6,53	2,0	128,0	149,4	185,1	207,0	191,3
NF 226	130	230	40	299 000	381 000	1 700	2 800	7,12	2,5	140,0	161,8	198,9	220,0	203,7
NF 228	140	250	42	364 000	461 000	1 500	2 500	8,98	2,5	150,0	175,5	221,2	240,0	226,6
NF 230	150	270	45	404 000	518 000	1 400	2 300	11,3	2,5	160,0	189,0	232,2	260,0	239,3
NF 232	160	290	48	445 000	578 000	1 300	2 100	14,1	2,5	170,0	202,4	249,2	280,0	255,5
NF 234	170	310	52	508 000	675 000	1 200	2 000	18,6	3,0	182,0	215,9	263,3	298,0	271,5
NF 236	180	320	52	525 000	713 000	1 100	1 900	18,4	3,0	192,0	225,8	273,8	308,0	281,7
NF 238	190	340	55	605 000	817 000	1 000	1 700	22,2	3,0	202,0	239,5	292,3	328,0	301,0
NF 240	200	360	58	681 000	939 000	950	1 600	26,3	3,0	212,0	253,0	306,1	348,0	317,3

Larger sizes are available on request

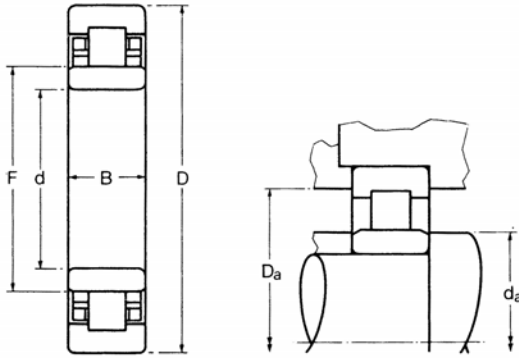
Please check availability

Single row cylindrical roller bearings

NU 3 MEDIUM SERIES

METRIC SIZES

ISO DIMENSION SERIES 03



RKB designation	Dimensions millimetres				RKB load ratings† newtons				Weight kg	Shaft and housing dimensions millimetres					
	d	D	B	F	C _r	C _{0r}	Normal limiting speeds rev/min			approx	max fillet radius	d _a		D _a	
							grease	oil				min	max	min	max
NU 300	10	35	11	16,9	10 700	7 800	11 900	24 000	0,063	0,6	12,4	16,7	26,9	32,6	
NU 301	12	37	12	18,9	11 700	8 850	20 000	27 000	0,075	1,0	16,0	18,7	28,7	33,0	
NU 302	15	42	13	22,1	14 200	10 700	18 000	24 000	0,099	1,0	19,0	22,1	33,5	38,0	
NU 303	17	47	14	24,9	18 800	14 800	16 000	22 000	0,130	1,0	21,0	24,9	37,6	43,0	
NU 304	20	52	15	28,5	26 600	22 100	14 400	19 500	0,158	1,0	24,0	28,4	43,0	48,0	
NU 305	25	62	17	35,0	35 000	30 600	12 200	16 500	0,250	1,0	29,0	34,9	51,3	58,0	
NU 306	30	72	19	42,0	45 500	41 900	10 500	14 100	0,378	1,0	34,0	41,9	60,1	68,0	
NU 307	35	80	21	46,2	58 000	52 500	9 400	12 700	0,485	1,5	41,0	46,1	67,9	74,0	
NU 308	40	90	23	53,5	72 500	68 500	8 300	11 200	0,676	1,5	46,0	53,4	77,0	84,0	
NU 309	45	100	25	58,5	82 000	78 500	7 600	10 300	0,912	1,5	51,0	58,4	83,8	94,0	
NU 310	50	110	27	65,0	98 500	94 500	6 800	9 200	1,16	2,0	58,0	64,9	93,9	102,0	
NU 311	55	120	29	70,5	111 000	108 000	6 200	8 400	1,62	2,0	63,0	70,3	102,9	112,0	
NU 312	60	130	31	77,0	136 000	138 000	5 800	7 800	1,89	2,0	68,0	76,9	109,5	122,0	
NU 313	65	140	33	83,5	164 000	167 000	5 200	7 100	2,31	2,0	73,0	83,4	119,6	132,0	
NU 314	70	150	35	90,0	154 000	163 000	4 900	6 600	2,93	2,0	78,0	89,6	127,8	142,0	
NU 315	75	160	37	95,5	209 000	217 000	4 500	6 100	3,52	2,0	83,0	95,2	136,9	152,0	
NU 316	80	170	39	103,0	234 000	248 000	4 200	5 700	3,97	2,0	88,0	102,9	146,3	162,0	
NU 317	85	180	41	108,0	259 000	273 000	3 300	4 000	4,99	2,5	95,0	107,7	149,9	170,0	
NU 318	90	190	43	115,0	245 000	273 000	3 800	5 100	5,81	2,5	100,0	114,8	157,0	180,0	
NU 319	95	200	45	120,8	309 000	345 000	3 500	4 800	6,94	2,5	105,0	120,6	169,4	190,0	
NU 320	100	215	47	129,5	324 000	372 000	3 300	4 500	8,57	2,5	110,0	129,2	177,0	205,0	
NU 321	105	225	49	135,0	343 000	390 000	3 100	4 200	9,84	2,5	115,0	134,8	185,2	215,0	
NU 322	110	240	50	143,0	379 000	435 000	2 900	3 900	11,2	2,5	120,0	142,9	196,1	230,0	
NU 324	120	260	55	154,0	395 000	451 000	2 700	3 600	14,7	2,5	130,0	153,9	209,8	250,0	
NU 326	130	280	58	167,0	540 000	633 000	2 400	3 200	18,1	3,0	142,0	166,8	231,1	268,0	
NU 328	140	300	62	180,0	584 000	693 000	2 200	3 000	22,0	3,0	152,0	179,8	246,9	288,0	
NU 330	150	320	65	193,0	683 000	820 000	1 200	2 000	27,1	3,0	162,0	192,8	265,2	308,0	
NU 332	160	340	68	208,0	870 000	1 040 000	1 100	1 900	32,7	3,0	172,0	203,7	290,3	328,0	
NU 334	170	360	72	220,0	901 000	1 100 000	1 000	1 700	37,9	3,0	182,0	217,1	300,7	348,0	

Larger sizes are available on request

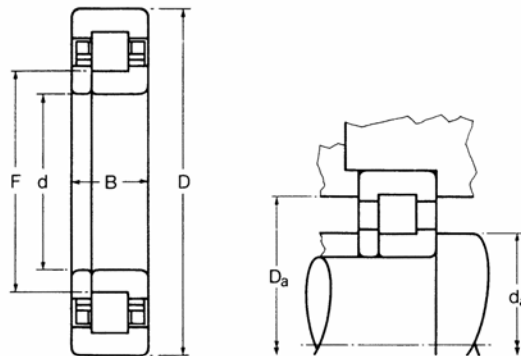
Please check availability

Single row cylindrical roller bearings

NUP 3 MEDIUM SERIES

METRIC SIZES

ISO DIMENSION SERIES 03



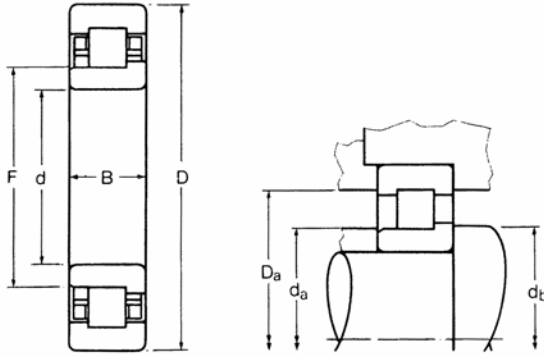
RKB designation	Dimensions millimetres				RKB load ratings† newtons		Normal limiting speeds rev/min		Weight kg	Shaft and housing dimensions millimetres				
	d	D	B	F	C _r	C _{or}	grease	oil		approx	max fillet radius*	d _a		D _a
									min			max	min	max
NUP 300	10	35	11	16,9	10 700	7 800	11 900	24 000	0,066	0,6	12,4	18,3	26,9	32,6
NUP 301	12	37	12	18,9	11 700	8 850	20 000	27 000	0,078	1,0	16,0	20,2	28,7	33,0
NUP 302	15	42	13	22,1	14 200	10 700	18 000	24 000	0,105	1,0	19,0	23,6	33,5	38,0
NUP 303	17	47	14	24,9	18 800	14 800	16 000	22 000	0,137	1,0	21,0	26,7	37,6	43,0
NUP 304	20	52	15	28,5	26 600	22 100	14 400	19 500	0,164	1,0	24,0	30,0	43,0	48,0
NUP 305	25	62	17	35,0	35 000	30 600	12 200	16 500	0,260	1,0	29,0	36,7	51,3	58,0
NUP 306	30	72	19	42,0	45 500	41 900	10 500	14 100	0,393	1,0	34,0	43,9	60,1	68,0
NUP 307	35	80	21	46,2	58 000	52 500	9 400	12 700	0,508	1,5	41,0	48,5	67,9	74,0
NUP 308	40	90	23	53,5	72 500	68 500	8 300	11 200	0,703	1,5	46,0	56,0	77,0	84,0
NUP 309	45	100	25	58,5	82 000	78 500	7 600	10 300	0,953	1,5	51,0	61,2	83,8	94,0
NUP 310	50	110	27	65,0	98 500	94 500	6 800	9 200	1,21	2,0	58,0	68,1	93,9	102,0
NUP 311	55	120	29	70,5	111 000	108 000	6 400	8 600	1,73	2,0	63,0	74,0	98,6	112,0
NUP 312	60	130	31	77,0	136 000	138 000	5 800	7 800	1,97	2,0	68,0	80,5	109,5	122,0
NUP 313	65	140	33	83,5	164 000	167 000	5 200	7 100	2,40	2,0	73,0	87,4	119,6	132,0
NUP 314	70	150	35	90,0	154 000	163 000	3 200	5 500	3,13	2,0	78,0	94,5	123,4	142,0
NUP 315	75	160	37	95,5	209 000	217 000	4 600	6 300	3,85	2,0	83,0	100,8	133,4	152,0
NUP 316	80	170	39	103,0	234 000	248 000	4 200	5 700	4,12	2,0	88,0	107,7	146,3	162,0
NUP 317	85	180	41	108,0	259 000	273 000	4 000	5 400	5,31	2,5	95,0	113,8	149,9	170,0
NUP 318	90	190	43	115,0	245 000	273 000	3 800	5 100	6,21	2,5	100,0	120,9	157,0	180,0
NUP 319	95	200	45	120,8	309 000	345 000	3 500	4 800	7,48	2,5	105,0	127,5	169,4	190,0
NUP 320	100	215	47	129,5	324 000	372 000	3 300	4 500	9,03	2,5	110,0	136,1	177,0	205,0
NUP 321	105	225	49	135,0	343 000	390 000	3 100	4 200	10,3	2,5	115,0	140,9	185,2	215,0
NUP 322	110	240	50	143,0	379 000	435 000	2 900	3 900	12,0	2,5	120,0	150,3	196,1	230,0
NUP 324	120	260	55	154,0	395 000	451 000	2 700	3 600	15,3	2,5	130,0	161,8	209,8	250,0
NUP 326	130	280	58	167,0	540 000	633 000	2 400	3 200	19,0	3,0	142,0	174,5	231,1	268,0
NUP 328	140	300	62	180,0	584 000	693 000	2 200	3 000	23,2	3,0	152,0	189,4	246,9	288,0
NUP 330	150	320	65	193,0	683 000	820 000	1 200	2 000	28,5	3,0	162,0	203,2	265,2	308,0
NUP 332	160	340	68	208,0	870 000	1 040 000	1 100	1 900	33,0	3,0	172,0	213,6	290,3	328,0
NUP 334	170	360	72	220,0	901 000	1 100 000	1 000	1 700	39,5	3,0	182,0	229,1	300,7	348,0

Larger sizes are available on request

*Does not apply to the loose rib.

Please check availability

Single row cylindrical roller bearings



MEDIUM SERIES **NJ 3**

METRIC SIZES

ISO DIMENSION SERIES 03

RKB designation	Dimensions millimetres				RKB load ratings† newtons				Weight kg	Shaft and housing dimensions millimetres							
	d	D	B	F	C _r	C _{or}	Normal limiting speeds rev/min			approx	max fillet radius min	d _a		d _b		D _a	
							grease	oil				max	min	max	min	max	min
NJ 300	10	35	11	16,9	10 700	7 800	11 900	24 000	0,065	0,6	12,4	16,7	18,3	26,9	32,6		
NJ 301	12	37	12	18,9	11 700	8 850	20 000	27 000	0,077	1,0	16,0	18,7	20,2	28,7	33,0		
NJ 302	15	42	13	22,1	14 200	10 700	18 000	24 000	0,102	1,0	19,0	22,1	23,6	33,5	38,0		
NJ 303	17	47	14	24,9	18 800	14 800	16 000	22 000	0,134	1,0	21,0	24,9	26,7	37,6	43,0		
NJ 304	20	52	15	28,5	26 600	22 100	14 400	19 500	0,161	1,0	24,0	28,4	30,0	43,0	48,0		
NJ 305	25	62	17	35,0	35 000	30 600	12 200	16 500	0,255	1,0	29,0	34,9	36,7	51,3	58,0		
NJ 306	30	72	19	42,0	45 500	41 900	10 500	14 100	0,386	1,0	34,0	41,9	43,9	60,1	68,0		
NJ 307	35	80	21	46,2	58 000	52 500	9 400	12 700	0,494	1,5	41,0	46,1	48,5	67,9	74,0		
NJ 308	40	90	23	53,5	72 500	68 500	8 300	11 200	0,689	1,5	46,0	53,4	56,0	77,0	84,0		
NJ 309	45	100	25	58,5	82 000	78 500	7 600	10 300	0,934	1,5	51,0	58,4	61,2	83,8	94,0		
NJ 310	50	110	27	65,0	98 500	94 500	6 800	9 200	1,18	2,0	58,0	64,9	68,1	93,9	102,0		
NJ 311	55	120	29	70,5	111 000	108 000	6 200	8 400	1,68	2,0	63,0	70,3	74,1	102,9	112,0		
NJ 312	60	130	31	77,0	136 000	138 000	5 800	7 800	1,93	2,0	68,0	76,9	80,5	109,5	122,0		
NJ 313	65	140	33	83,5	164 000	167 000	5 200	7 100	2,36	2,0	73,0	83,4	87,4	119,6	132,0		
NJ 314	70	150	35	90,0	154 000	163 000	3 200	5 500	3,01	2,0	78,0	89,6	94,5	123,4	142,0		
NJ 315	75	160	37	95,5	209 000	217 000	4 500	6 100	3,74	2,0	83,0	95,2	100,8	136,9	152,0		
NJ 316	80	170	39	103,0	234 000	248 000	4 200	5 700	4,05	2,0	88,0	102,9	107,7	146,3	162,0		
NJ 317	85	180	41	108,0	259 000	273 000	3 300	4 000	5,17	2,5	95,0	107,7	113,8	149,9	170,0		
NJ 318	90	190	43	115,0	245 000	273 000	3 800	5 100	6,08	2,5	100,0	114,8	120,9	157,0	180,0		
NJ 319	95	200	45	120,8	309 000	345 000	3 500	4 800	7,03	2,5	105,0	120,6	127,5	169,4	190,0		
NJ 320	100	215	47	129,5	324 000	372 000	3 300	4 500	8,80	2,5	110,0	129,2	136,1	177,0	205,0		
NJ 321	105	225	49	135,0	343 000	390 000	3 100	4 200	10,1	2,5	115,0	134,8	140,9	185,2	215,0		
NJ 322	110	240	50	143,0	379 000	435 000	2 900	3 900	11,7	2,5	120,0	142,9	150,3	196,1	230,0		
NJ 324	120	260	55	154,0	395 000	451 000	2 700	3 600	15,0	2,5	130,0	153,9	161,8	209,8	250,0		
NJ 326	130	280	58	167,0	540 000	633 000	2 400	3 200	18,5	3,0	142,0	166,8	174,5	231,1	268,0		
NJ 328	140	300	62	180,0	584 000	693 000	2 200	3 000	22,6	3,0	152,0	179,8	189,4	246,9	288,0		
NJ 330	150	320	65	193,0	683 000	820 000	1 200	2 000	27,9	3,0	162,0	192,8	203,2	265,2	308,0		
NJ 332	160	340	68	208,0	870 000	1 040 000	1 100	1 900	32,3	3,0	172,0	203,7	213,6	290,3	328,0		
NJ 334	170	360	72	220,0	901 000	1 100 000	1 000	1 700	38,6	3,0	182,0	217,1	229,1	300,7	348,0		

Larger sizes are available on request

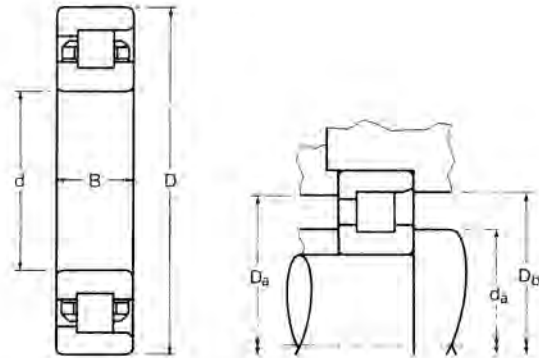
Please check availability

Single row cylindrical roller bearings

NF 3 MEDIUM SERIES

METRIC SIZES

ISO DIMENSION SERIES 03

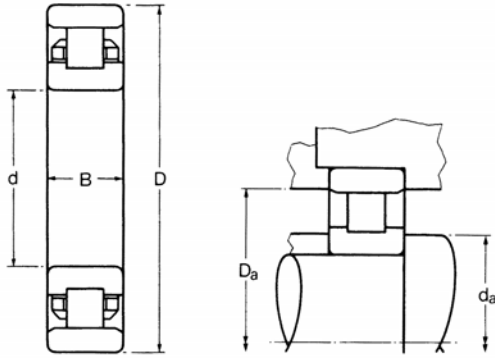


RKB designation	Dimensions millimetres			RKB load ratings† newtons		Normal limiting speeds rev/min		Weight kg approx	Shaft and housing dimensions millimetres					
	d	D	B	C _r	C _{0r}	grease	oil		max fillet radius	d _a		D _a		D _b min
										min	max	min	max	
NF 300	10	35	11	10 700	7 800	13 000	21 500	0,062	0,6	12,4	18,3	26,9	32,6	28,2
NF 301	12	37	12	11 700	8 850	12 100	20 000	0,072	1,0	16,0	20,3	29,0	33,0	30,2
NF 302	15	42	13	14 200	10 700	10 700	18 000	0,097	1,0	19,0	23,6	33,5	38,0	35,1
NF 303	17	47	14	18 800	14 800	9 700	16 000	0,131	1,0	21,0	26,7	37,6	43,0	39,4
NF 304	20	52	15	26 600	22 100	14 400	19 500	0,159	1,0	24,0	30,0	43,0	48,0	44,6
NF 305	25	62	17	35 000	30 600	12 200	16 500	0,254	1,0	29,0	36,7	51,3	58,0	53,1
NF 306	30	72	19	45 500	41 900	10 500	14 100	0,383	1,0	34,0	43,9	60,1	68,0	62,1
NF 307	35	80	21	58 000	52 500	9 400	12 700	0,494	1,5	41,0	48,5	67,9	74,0	70,3
NF 308	40	90	23	72 500	68 500	8 300	11 200	0,685	1,5	46,0	56,0	77,0	84,0	79,6
NF 309	45	100	25	82 000	78 500	7 600	10 300	0,925	1,5	51,0	61,2	83,8	94,0	86,6
NF 310	50	110	27	98 500	94 500	6 800	9 200	1,17	2,0	58,0	68,1	93,9	102,0	97,1
NF 311	55	120	29	111 000	108 000	3 800	6 300	1,60	2,0	63,0	75,9	100,1	112,0	103,9
NF 312	60	130	31	136 000	138 000	5 800	7 800	1,91	2,0	68,0	80,5	109,5	122,0	113,1
NF 313	65	140	33	164 000	167 000	5 200	7 100	2,34	2,0	73,0	87,4	119,6	132,0	123,6
NF 314	70	150	35	151 000	153 000	2 900	4 900	2,92	2,0	78,0	94,5	123,2	142,0	130,8
NF 315	75	160	37	209 000	217 000	2 700	4 600	3,55	2,0	83,0	100,8	133,4	152,0	139,7
NF 316	80	170	39	234 000	248 000	4 200	5 700	4,02	2,0	88,0	107,7	146,3	162,0	151,1
NF 317	85	180	41	259 000	273 000	2 400	4 000	4,99	2,5	95,0	113,5	151,4	170,0	158,0
NF 318	90	190	43	287 000	308 000	2 300	3 800	5,90	2,5	100,0	121,2	158,7	180,0	165,6
NF 319	95	200	45	296 000	318 000	2 100	3 500	7,25	2,5	105,0	127,5	169,4	190,0	174,8
NF 320	100	215	47	296 000	323 000	2 000	3 300	8,48	2,5	110,0	136,1	177,0	205,0	183,6
NF 321	105	225	49	343 000	390 000	1 900	3 100	9,62	2,5	115,0	140,9	185,2	215,0	192,3
NF 322	110	240	50	380 000	420 000	1 700	2 900	11,5	2,5	120,0	149,4	199,5	230,0	208,0
NF 324	120	260	55	444 000	485 000	1 600	2 600	15,3	2,5	130,0	162,3	212,3	250,0	220,7
NF 326	130	280	58	540 000	633 000	1 400	2 400	17,9	3,0	142,0	174,5	231,1	268,0	240,0
NF 328	140	300	62	584 000	693 000	1 300	2 200	21,9	3,0	152,0	189,4	246,9	288,0	256,3
NF 330	150	320	65	683 000	820 000	2 000	2 700	27,9	3,0	162,0	203,2	265,2	308,0	275,6
NF 332	160	340	68	870 000	1 040 000	1 800	2 500	33,1	3,0	172,0	213,6	290,3	328,0	300,2
NF 334	170	360	72	901 000	1 100 000	1 000	1 700	36,7	3,0	182,0	229,1	300,7	348,0	312,7

Larger sizes are available on request

Please check availability

Single row cylindrical roller bearings



MEDIUM SERIES **N 3**

METRIC SIZES

ISO DIMENSION SERIES 03

RKB designation	Dimensions millimetres			RKB load ratings† newtons		Normal limiting speeds rev/min		Weight kg approx.	Shaft and housing dimensions millimetres				
	d	D	B	C _r	C _{0r}	grease	oil		max fillet radius	d _a		D _a	
										min	max	min	max
N 300	10	35	11	10 700	7 800	13 000	21 500	0,059	0,6	12,4	18,3	28,2	32,6
N 301	12	37	12	11 700	8 850	12 100	20 000	0,064	1,0	16,0	20,3	30,2	33,0
N 302	15	42	13	14 200	10 700	10 700	18 000	0,086	1,0	19,0	23,6	35,1	38,0
N 303	17	47	14	18 800	14 800	9 700	16 000	0,127	1,0	21,0	26,7	39,4	43,0
N 304	20	52	15	26 600	22 100	14 400	19 500	0,154	1,0	24,0	30,0	44,6	48,0
N 305	25	62	17	35 000	30 600	12 200	16 500	0,245	1,0	29,0	36,7	53,1	58,0
N 306	30	72	19	45 500	41 900	10 500	14 100	0,372	1,0	34,0	43,9	62,1	68,0
N 307	35	80	21	58 000	52 500	9 400	12 700	0,476	1,5	41,0	48,5	70,3	74,0
N 308	40	90	23	72 500	68 500	8 300	11 200	0,662	1,5	46,0	56,0	79,6	84,0
N 309	45	100	25	82 000	78 500	7 600	10 300	0,898	1,5	51,0	61,2	86,6	94,0
N 310	50	110	27	98 500	94 500	6 800	9 200	1,13	2,0	58,0	68,1	97,1	102,0
N 311	55	120	29	111 000	108 000	3 800	6 300	1,52	2,0	63,0	75,9	103,9	112,0
N 312	60	130	31	136 000	138 000	5 800	7 800	1,86	2,0	68,0	80,5	113,1	122,0
N 313	65	140	33	164 000	167 000	5 200	7 100	2,28	2,0	73,0	87,4	123,6	132,0
N 314	70	150	35	151 000	153 000	2 900	4 900	2,82	2,0	78,0	94,5	130,8	142,0
N 315	75	160	37	209 000	217 000	2 700	4 600	3,44	2,0	83,0	100,8	139,7	152,0
N 316	80	170	39	234 000	248 000	4 200	5 700	3,92	2,0	88,0	107,7	151,1	162,0
N 317	85	180	41	259 000	273 000	2 400	4 000	4,81	2,5	95,0	113,5	158,0	170,0
N 318	90	190	43	287 000	308 000	2 300	3 800	5,72	2,5	100,0	121,2	165,6	180,0
N 319	95	200	45	296 000	318 000	2 100	3 500	7,08	2,5	105,0	127,5	174,8	190,0
N 320	100	215	47	296 000	323 000	2 000	3 300	8,21	2,5	110,0	136,1	183,6	205,0
N 321	105	225	49	343 000	390 000	1 900	3 100	10,1	2,5	115,0	140,9	192,3	215,0
N 322	110	240	50	380 000	420 000	1 700	2 900	11,1	2,5	120,0	149,4	208,0	230,0
N 324	120	260	55	444 000	485 000	1 600	2 600	14,7	2,5	130,0	162,3	220,7	250,0
N 326	130	280	58	540 000	633 000	1 400	2 400	17,9	3,0	142,0	174,5	240,0	268,0
N 328	140	300	62	584 000	693 000	1 300	2 200	21,9	3,0	152,0	189,4	256,3	288,0
N 330	150	320	65	683 000	820 000	2 000	2 700	26,0	3,0	162,0	203,2	275,6	308,0
N 332	160	340	68	870 000	1 040 000	1 800	2 500	30,7	3,0	172,0	213,6	300,2	328,0
N 334	170	360	72	901 000	1 100 000	1 000	1 700	36,5	3,0	182,0	229,1	312,7	348,0

Larger sizes are available on request

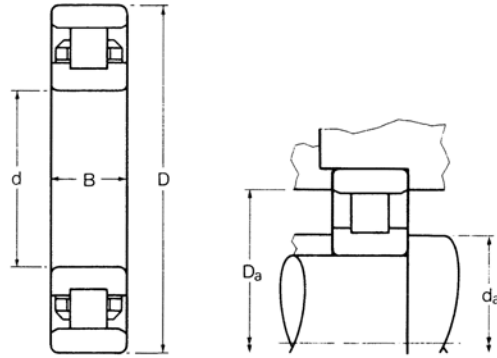
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Single row cylindrical roller bearings

N 10 EXTRA LIGHT SERIES

METRIC SIZES

ISO DIMENSION SERIES 10

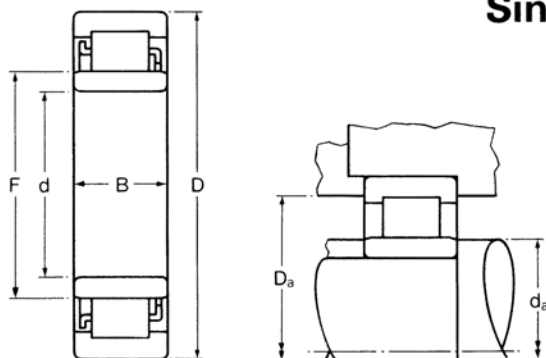


RKB designation	Dimensions millimetres			RKB load ratings† newtons		Normal limiting speeds rev/min		Weight kg	Shaft and housing dimensions millimetres					
	d	D	B	C _r	C _{0r}	grease	oil		approx	max fillet radius	d _a		D _a	
								min			max	min	max	
N 1004	20	42	12	13 600	11 300	10 000	16 500	0,067	0,6	22,4	26,9	36,8	39,6	
N 1005	25	47	12	15 200	13 600	8 800	14 600	0,080	0,6	27,4	31,8	41,7	44,6	
N 1006	30	55	13	24 800	24 300	7 600	12 600	0,113	1,0	34,0	37,8	49,3	51,0	
N 1007	35	62	14	26 700	26 100	6 700	11 200	0,170	1,0	39,0	43,7	56,4	58,0	
N 1008	40	68	15	27 700	28 200	6 100	10 100	0,191	1,0	44,0	48,7	61,5	64,0	
N 1009	45	75	16	34 200	35 500	9 100	12 200	0,255	1,0	49,0	54,0	68,5	71,0	
N 1010	50	80	16	35 400	38 000	5 100	8 500	0,284	1,0	54,0	59,4	73,4	76,0	
N 1011	55	90	18	43 400	48 000	4 600	7 600	0,404	1,0	59,0	66,5	82,0	86,0	
N 1012	60	95	18	44 700	51 000	4 300	7 100	0,446	1,0	64,0	71,6	87,1	91,0	
N 1013	65	100	18	47 600	56 500	4 000	6 700	0,454	1,0	69,0	76,7	92,2	96,0	
N 1014	70	110	20	64 500	76 500	3 700	6 100	0,680	1,0	74,0	82,5	100,8	106,0	
N 1015	75	115	20	66 500	80 500	3 500	5 800	0,708	1,0	79,0	87,3	105,7	111,0	
N 1016	80	125	22	77 000	94 500	3 200	5 300	0,939	1,0	84,0	94,2	113,8	121,0	
N 1017	85	130	22	81 500	104 000	3 000	5 000	0,998	1,0	89,0	99,1	118,9	126,0	
N 1018	90	140	24	98 500	123 000	2 800	4 700	1,25	1,5	96,0	106,2	128,5	134,0	
N 1019	95	145	24	101 000	129 000	2 700	4 500	1,41	1,5	101,0	111,0	133,6	139,0	
N 1020	100	150	24	104 000	135 000	2 600	4 300	1,59	1,5	106,0	116,0	138,4	144,0	

Larger sizes are available on request

Please check availability

Single row cylindrical roller bearings



LIGHT WIDE SERIES **NU 22**

METRIC SIZES

ISO DIMENSION SERIES 22

RKB designation	Dimensions millimetres				RKB load ratings† newtons		Normal limiting speeds rev/min		Weight kg approx	Shaft and housing dimensions millimetres					
	d	D	B	F	C _r	C _{or}	grease	oil		max fillet radius		d _a		D _a	
										inner ring	outer ring	min	max	min	max
NU 2205	25	52	18	32	24 800	23 400	11 500	14 000	0,163	0,6	1,0	29,2	31,0	43,5	46,4
NU 2206	30	62	20	38,5	34 200	33 800	9 500	12 000	0,262	0,6	1,0	34,2	37,0	51,9	56,4
NU 2207	35	72	23	43,8	50 500	51 000	8 300	10 000	0,402	0,6	1,0	39,2	43,0	59,9	65,0
NU 2208	40	80	23	50	60 000	62 000	7 300	9 000	0,490	1,0	1,0	45,6	49,0	67,9	73,0
NU 2209	45	85	23	55	63 000	68 000	7 000	8 500	0,536	1,0	1,0	50,6	54,0	73,0	78,0
NU 2210	50	90	23	60,4	66 000	73 500	6 300	7 600	0,580	1,0	1,0	55,6	58,0	78,3	83,0
NU 2211	55	100	25	66,5	77 500	87 000	5 700	7 000	0,780	1,0	1,5	60,6	65,0	86,4	91,0
NU 2212	60	110	28	73,5	98 500	116 000	5 100	6 200	1,07	1,5	1,5	69,0	71,0	95,1	101,0
NU 2215	75	130	31	88,5	132 000	160 000	4 300	5 200	1,57	1,5	1,5	84,0	87,0	113,8	121,0
NU 2216	80	140	33	95,3	154 000	190 000	4 000	4 800	1,96	2,0	2,0	91,0	94,0	122,5	129,0

Larger sizes are available on request

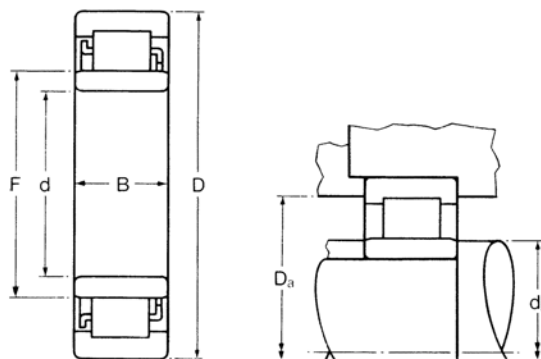
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Single row cylindrical roller bearings

NU 23 MEDIUM WIDE SERIES

METRIC SIZES

ISO DIMENSION SERIES 23



RKB designation	Dimensions millimetres				RKB load ratings† newtons		Normal limiting speeds rev/min		Weight kg	Shaft and housing dimensions millimetres						
	d	D	B	F	dynamic static		grease oil			approx	max fillet radius		d _a		D _a	
					C _r	C _{or}					inner ring	outer ring	min	max	min	max
NU 2305	25	62	24	35	43 800	41 000	9 500	11 500	0,340	1,0	1,0	32,0	33,0	51,0	55,0	
NU 2306	30	72	27	42	53 000	51 000	8 000	9 500	0,500	1,0	1,0	37,0	40,0	59,9	65,0	
NU 2307	35	80	31	46,2	62 000	60 000	7 100	8 500	0,696	1,0	1,5	42,0	45,0	65,9	71,0	
NU 2308	40	90	33	53,5	84 500	88 000	6 300	7 600	0,956	1,5	1,5	49,0	51,0	75,1	81,0	
NU 2309	45	100	36	58,5	101 000	103 000	5 600	6 700	1,25	1,5	1,5	54,0	57,0	83,8	91,0	
NU 2310	50	110	40	65	126 000	134 000	5 000	6 000	1,69	2,0	2,0	61,0	63,0	92,0	99,0	
NU 2312	60	130	46	77	174 000	189 000	4 200	5 000	2,69	2,0	2,0	72,0	75,0	109,4	118,0	
NU 2314	70	150	51	90	219 000	247 000	3 700	4 500	3,97	2,0	2,0	82,0	87,0	126,0	138,0	
NU 2316	80	170	58	103	284 000	336 000	3 200	3 800	5,83	2,0	2,0	92,0	99,0	142,6	158,0	
NU 2317	85	180	60	108	308 000	357 000	3 000	3 600	6 62	2,5	2,5	97,0	106,0	151,3	168,0	
NU 2320	100	215	73	129,5	450 000	553 000	2 500	3 000	11,9	2,5	2,5	112,0	125,0	180,0	203,0	

Larger sizes are available on request

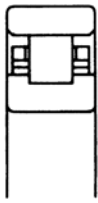
Please check availability

Single row cylindrical roller bearings

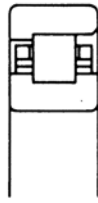
Cylindrical roller bearings are made with the following alternative rib arrangements for the series indicated.

Imperial sizes with inch dimensions are also available on request BSI references and standards.

Please enquire regarding availability of particular sizes.

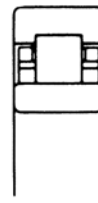


N 4



NF 10
NF 4

XLRJA
LRJA
MRJA

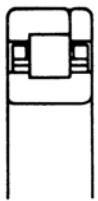


NU 4

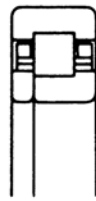


NJ 4

MMRJA

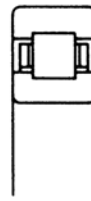


NP 2
NP 3



NUP 4

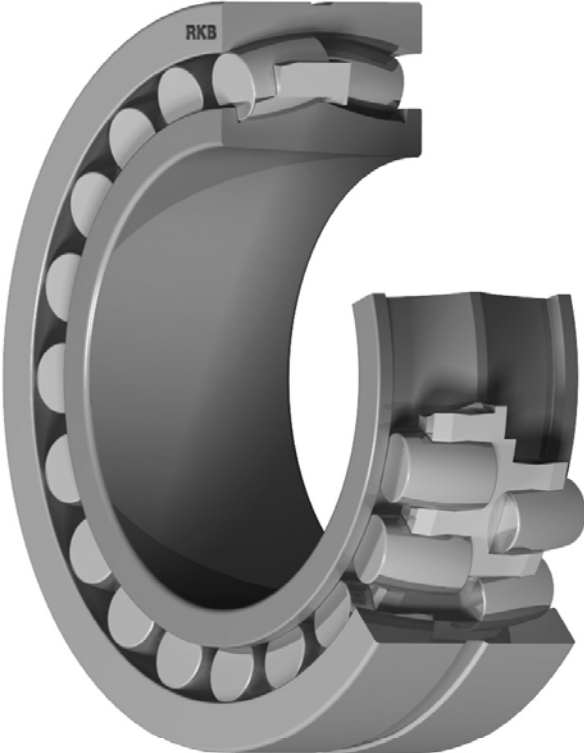
MMRJB



NC 2
NC 3

XLLRJN
LLRJN
MMRJN

Double row spherical roller bearings

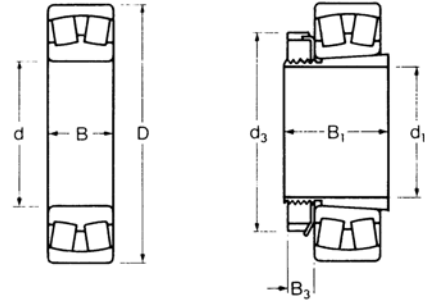


Double row spherical roller bearings

230 EXTRA LIGHT SERIES

METRIC SIZES

ISO DIMENSION SERIES 30



Bearing with cylindrical bore

Bearing with adapter sleeve

RKB designations

basic bearing with cylindrical bore*	adapter sleeve		withdrawal sleeve	Dimensions millimetres										
	metric bore	inch bore	metric bore	d	d ₁	d ₂	D	B	d ₃	d ₄	B ₁	B ₂	B ₃	B ₄
230 22				110			170	45						
230 24	H3024	H3024-4 $\frac{1}{4}$	AHX3024	120	110	115	180	46	145	130	72	60	22	13
230 26	H3026	H3026-4 $\frac{1}{2}$	AHX3026	130	115	125	200	52	155	140	80	67	23	14
230 28	H3028	H3028-5	AHX3028	140	125	135	210	53	165	150	82	68	24	14
230 30	H3030	H3030-5 $\frac{1}{4}$	AHX3030	150	135	145	225	56	180	160	87	72	26	15
230 32	H3032	H3032-5 $\frac{1}{2}$	AH 3032	160	140	150	240	60	190	170	93	77	28	16
230 34	H3034	H3034-6	AH 3034	170	150	160	260	67	200	180	101	85	29	17
230 36	H3036		AH 3036	180	160	170	280	74	210	190	109	92	30	17
230 38	H3038		AH 3038	190	170	180	290	75	220	205	112	96	31	18
230 40	H3040		AH 3040	200	180	190	310	82	240	215	120	102	32	19
230 44	H3044		AH 3044	220	200	200	340	90	260	235	126	111	41	20
230 48	H3048		AH 3048	240	220	220	360	92	290	260	133	116	46	21
230 52	H3052		AH 3052	260	240	240	400	104	310	280	145	128	46	23

*For bearings with 1 : 12 tapered bore add suffix 'K', e.g. 230 24K.

If bearings are required with a radial groove and three lubrication holes add suffix 'W33', e.g. 230 48 W33.

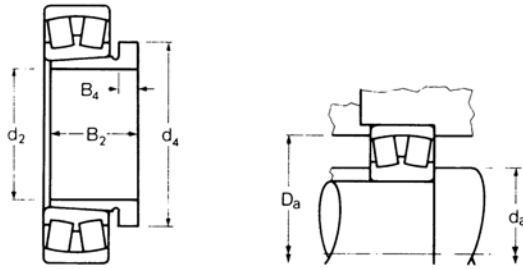
When ordering a bearing with an adapter or withdrawal sleeve, add the designation of the latter component to that of the bearing with tapered bore, e.g. 230 30K + H3030.

For $d_1 \leq 180$ mm the adapter sleeves are provided with a lock washer.

For $d_1 > 180$ mm the adapter sleeves have a locking clamp and dimension B_3 includes the width of the locking screw.

Please check availability

RKB



Bearing with withdrawal sleeve

RKB load ratings†		Normal limiting speeds		Weights			Shaft and housing dimensions					RKB
newtons		rev/min		kg approx			millimetres					designation
dynamic	static	grease	oil	basic bearing	with adapter sleeve	with withdrawal sleeve	max fillet radius	da		Da		(basic bearing)
Cr	Cor							min	max	min	max	
285 000	455 000	1 700	2 200	4,00			2,0	119	125	153	161	230 22
275 000	460 000	1 600	2 100	4,35	6,03	4,85	2,0	129	135	163	171	230 24
350 000	580 000	1 500	1 900	6,35	9,07	7,12	2,0	139	147	180	191	230 26
360 000	620 000	1 400	1 800	6,85	9,84	7,67	2,0	149	157	190	201	230 28
405 000	700 000	1 300	1 700	8,26	11,9	9,16	2,0	161	168	204	214	230 30
460 000	810 000	1 200	1 600	10,2	15,1	12,0	2,0	171	180	218	229	230 32
630 000	1 100 000	1 100	1 400	13,4	19,0	15,4	2,0	181	192	235	249	230 34
750 000	1 340 000	1 000	1 300	17,6	23,9	19,9	2,0	191	206	252	269	230 36
720 000	1 260 000	900	1 200	18,8	25,7	21,6	2,0	200	213	262	280	230 38
915 000	1 630 000	900	1 200	24,1	32,6	27,2	2,0	211	227	279	299	230 40
1 060 000	1 930 000	800	1 000	31,5	40,9	38,0	2,5	232	247	306	328	230 44
1 120 000	2 120 000	700	900	34,9	47,0	42,6	2,5	252	268	327	348	230 48
1 460 000	2 650 000	630	800	50,7	64,5	59,9	3,0	275	291	361	385	230 52

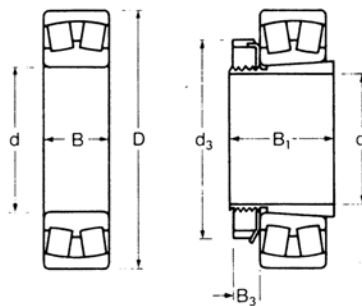
Larger sizes are available on request

Double row spherical roller bearings

231 EXTRA LIGHT WIDE SERIES

METRIC SIZES

ISO DIMENSION SERIES 31



Bearing with cylindrical bore

Bearing with adapter sleeve

RKB designations

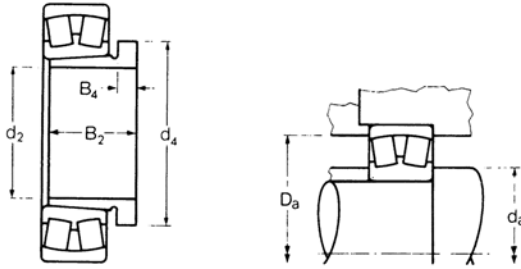
basic bearing with cylindrical bore*	adapter sleeve		withdrawal sleeve	Dimensions										
	metric bore	inch bore	metric bore	millimetres										
				d	d ₁	d ₂	D	B	d ₃	d ₄	B ₁	B ₂	B ₃	B ₄
231 20	H3120	H3120-3½	AHX3120	100	90	95	165	52	130	110	76	64	20	11
231 22	H3122	H3122-4	AHX3122	110	100	105	180	56	145	120	81	68	21	11
231 24	H3124	H3124-4¼	AHX3124	120	110	115	200	62	155	130	88	75	22	12
231 26	H3126	H3126-4½	AHX3126	130	115	125	210	64	165	140	92	78	23	12
231 28	H3128	H3128-5	AHX3128	140	125	135	225	68	180	150	97	83	24	14
231 30	H3130	H3130-5¼	AHX3130	150	135	145	250	80	195	165	111	96	26	15
231 32	H3132	H3132-5½	AH 3132	160	140	150	270	86	210	180	119	103	28	16
231 34	H3134	H3134-6	AH 3134	170	150	160	280	88	220	190	122	104	29	16
231 36	H3136		AH 3136	180	160	170	300	96	230	200	131	116	30	19
231 38	H3138		AH 3138	190	170	180	320	104	240	210	141	125	31	20
231 40	H3140		AH 3140	200	180	190	340	112	250	220	150	134	32	21
231 44	H3144X		AH 3144	220	200	200	370	120	280	240	161	145	35	23
231 48	H3148X		AH 3148	240	220	220	400	128	300	260	172	154	37	25
231 52	H3152X		AH 3152	260	240	240	440	144	330	290	190	172	39	26

*For bearings with 1 : 12 tapered bore add suffix 'K', e.g. 231 30K.

If bearings are required with a radial groove and three lubrication holes add suffix 'W33', e.g. 231 48 W33.

When ordering a bearing with an adapter or withdrawal sleeve, add the designation of the latter component to that of the bearing with tapered bore, e.g. 231 26K + H3126.

Please check availability



Bearing with
withdrawal sleeve

RKB load ratings†		Normal limiting speeds		Weights			Shaft and housing dimensions				RKB
newtons		rev/min		kg approx			millimetres				designation
dynamic	static	grease	oil	basic bearing	with adapter sleeve	with withdrawal sleeve	max fillet radius	d_a		D_a max	(basic bearing)
C_r	C_{0r}							min	max		
315 000	490 000	1 600	2 000	4,53	6,18	5,05	2,0	111	115	154	231 20
350 000	560 000	1 600	2 000	5,76	7,84	6,35	2,0	121	127	169	231 22
460 000	750 000	1 400	1 800	8,33	10,7	9,03	2,0	131	142	189	231 24
460 000	770 000	1 400	1 800	9,10	12,5	9,91	2,0	141	149	199	231 26
560 000	930 000	1 300	1 700	10,8	14,8	11,8	2,0	153	162	212	231 28
690 000	1 210 000	1 000	1 200	16,4	21,4	17,7	2,0	162	176	238	231 30
800 000	1 320 000	1 000	1 200	20,5	27,6	23,1	2,0	173	189	257	231 32
850 000	1 430 000	900	1 200	22,4	30,1	25,1	2,0	182	197	268	231 34
1 020 000	1 730 000	900	1 200	28,4	37,9	31,7	2,5	194	209	286	231 36
1 140 000	2 000 000	800	1 000	35,5	45,2	39,3	2,5	204	223	306	231 38
1 270 000	2 160 000	800	1 000	43,7	54,4	47,8	2,5	214	231	326	231 40
1 560 000	2 750 000	700	900	54,8	67,8	63,5	3,0	237	253	353	231 44
1 800 000	3 150 000	630	800	67,6	82,9	77,6	3,0	257	276	383	231 48
2 160 000	3 900 000	560	700	93,6	113	107	3,0	277	302	423	231 52

Larger sizes are available on request

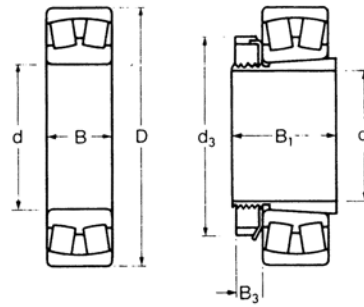
Please check availability

Double row spherical roller bearings

222 LIGHT SERIES

METRIC SIZES

ISO DIMENSION SERIES 22



Bearing with cylindrical bore

Bearing with adapter sleeve

RKB designations

Dimensions

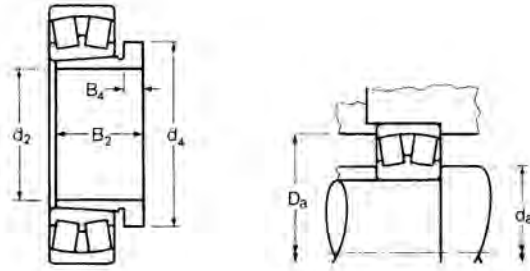
basic bearing with cylindrical bore*	adapter sleeve		withdrawal sleeve	millimetres											
	metric bore	inch bore		metric bore	d	d ₁	d ₂	D	B	d ₃	d ₄	B ₁	B ₂	B ₃	B ₄
222 05	H 305	H 305- $\frac{3}{4}$		25	20		52	18	38		29		8		
222 06	H 306	H 306-1		30	25		62	20	45		31		8		
222 07	H 307			35	30		72	23	52		35		9		
222 08	H 308	H 308-1 $\frac{1}{4}$	AH 308	40	35	35	80	23	58	45	36	29	10	6	
222 09	H 309	H 309-1 $\frac{1}{2}$	AH 309	45	40	40	85	23	65	50	39	31	11	6	
222 10	H 310	H 310-1 $\frac{3}{4}$	AHX 310	50	45	45	90	23	70	55	42	35	12	7	
222 11	H 311	H 311-2	AHX 311	55	50	50	100	25	75	60	45	37	12	7	
222 12	H 312	H 312-2 $\frac{1}{8}$	AHX 312	60	55	55	110	28	80	65	47	40	13	8	
222 13	H 313	H 313-2 $\frac{1}{4}$	AH 313	65	60	60	120	31	85	75	50	42	14	8	
222 14	H 314		AH 314	70	60	65	125	31	92	80	52	43	14	8	
222 15	H 315	H 315-2 $\frac{1}{2}$	AH 315	75	65	70	130	31	98	85	55	45	15	8	
222 16	H 316	H 316-2 $\frac{3}{4}$	AH 316	80	70	75	140	33	105	90	59	48	17	8	
222 17	H 317	H 317-3	AHX 317	85	75	80	150	36	110	95	63	52	18	9	
222 18	H 318	H 318-3 $\frac{1}{4}$	AHX 318	90	80	85	160	40	120	100	65	53	18	9	
222 19	H 319		AHX 319	95	85	90	170	43	125	105	68	57	19	10	
222 20	H 320	H 320-3 $\frac{1}{2}$	AHX 320	100	90	95	180	46	130	110	71	59	20	10	
222 22	H 322	H 322-4	AHX3122	110	100	105	200	53	145	120	77	68	21	11	
222 24	H3124	H3124-4 $\frac{1}{4}$	AHX3124	120	110	115	215	58	155	130	88	75	22	12	
222 26	H3126	H3126-4 $\frac{1}{2}$	AHX3126	130	115	125	230	64	165	140	92	78	23	12	
222 28	H3128	H3128-5	AHX3128	140	125	135	250	68	180	150	97	83	24	14	
222 30	H3130	H3130-5 $\frac{1}{4}$	AHX3130	150	135	145	270	73	195	165	111	96	26	15	
222 32	H3132	H3132-5 $\frac{1}{2}$	AH 3132	160	140	150	290	80	210	180	119	103	28	16	
222 34	H3134	H3134-6	AH 3134	170	150	160	310	86	220	190	122	104	29	16	
222 36	H3136		AH 2236	180	160	170	320	86	230	200	131	105	30	17	
222 38	H3138		AH 2238	190	170	180	340	92	240	210	141	112	31	18	
222 40	H3140		AH 2240	200	180	190	360	98	250	220	150	118	32	19	
222 44	H3144X		AH 2244	220	200	200	400	108	280	240	161	130	35	20	
222 48	H3148X		AH 2248	240	220	220	440	120	300	260	172	144	37	21	

*For bearings with 1:12 tapered bore add suffix 'K', e.g. 222 O5K.

If bearings are required with a radial groove and three lubrication holes add suffix 'W33' e.g. 222 36 W33.

When ordering a bearing with an adapter or withdrawal sleeve, add the designation of the latter component to that of the bearing with tapered bore, e.g. 222 09K + H309.

Please check availability



Bearing with withdrawal sleeve

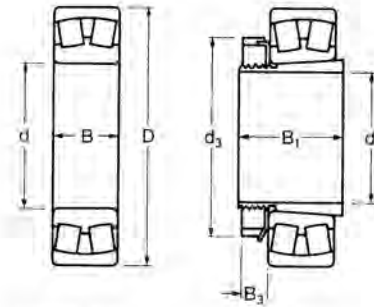
RKB load ratings†		Normal limiting speeds		Weights			Shaft and housing dimensions					RKB
newtons		rev/min		kg approx			millimetres					designation
dynamic	static	grease	oil	basic bearing	with adapter sleeve	with withdrawal sleeve	max fillet radius	da min	da max	Da min	Da max	(basic bearing)
Cr	Cor											
33 500	35 500	6 800	8 900	0,182	0,265		1,0	31	34	45	46	222 05
45 000	48 000	5 700	7 400	0,290	0,409		1,0	36	40	54	56	222 06
60 000	66 000	4 900	6 400	0,431	0,572		1,0	42	47	63	65	222 07
70 000	76 000	4 300	5 700	0,549	0,726	0,626	1,0	47	53	71	73	222 08
75 000	83 000	4 000	5 200	0,608	0,844	0,703	1,0	52	58	76	78	222 09
79 000	88 000	3 700	4 900	0,649	0,939	0,771	1,0	57	62	81	83	222 10
93 000	104 000	3 400	4 400	0,880	1,21	1,02	1,5	64	69	90	91	222 11
117 000	131 000	3 100	4 000	1,21	1,58	1,38	1,5	69	75	97	101	222 12
141 000	161 000	2 800	3 700	1,59	2,02	1,81	1,5	74	82	108	111	222 13
147 000	173 000	2 700	3 500	1,67	2,35	1,91	1,5	79	87	113	116	222 14
153 000	185 000	2 500	3 300	1,76	2,55	2,03	1,5	84	92	118	121	222 15
175 000	212 000	2 400	3 100	2,16	3,14	2,48	2,0	91	99	127	129	222 16
204 000	250 000	2 200	2 900	2,75	3,87	3,12	2,0	96	105	135	139	222 17
255 000	325 000	2 100	2 700	3,55	4,85	3,94	2,0	101	112	144	149	222 18
275 000	360 000	2 000	2 600	4,31	5,76	4,76	2,0	108	120	153	157	222 19
305 000	400 000	1 900	2 400	5,17	6,76	5,62	2,0	113	127	162	167	222 20
390 000	520 000	1 700	2 200	7,40	9,43	7,98	2,0	123	139	179	187	222 22
460 000	630 000	1 600	2 000	9,30	11,7	10,1	2,0	133	151	193	202	222 24
550 000	770 000	1 400	1 900	11,7	15,2	12,6	2,5	144	162	206	216	222 26
590 000	810 000	1 300	1 700	15,0	19,0	16,0	2,5	154	176	225	236	222 28
690 000	980 000	1 200	1 600	18,5	23,6	19,9	2,5	164	192	242	256	222 30
680 000	1 010 000	1 200	1 500	23,4	30,6	26,1	2,5	174	204	260	276	222 32
780 000	1 180 000	1 100	1 400	29,0	36,8	31,8	3,0	188	217	277	292	222 34
800 000	1 230 000	1 000	1 400	30,5	39,4	34,1	3,0	198	228	287	302	222 36
940 000	1 450 000	1 000	1 300	37,4	47,6	41,5	3,0	208	240	306	322	222 38
1 120 000	1 740 000	900	1 200	45,0	56,2	49,4	3,0	218	253	323	342	222 40
1 360 000	2 150 000	800	1 100	63,1	76,2	72,1	3,0	238	285	358	382	222 44
1 860 000	2 850 000	750	1 000	84,8	101	95,3	3,0	258	310	394	422	222 48

Larger sizes are available on request

Double row spherical roller bearings

232 LIGHT WIDE SERIES

METRIC SIZES



Bearing with cylindrical bore

Bearing with adapter sleeve

ISO DIMENSION SERIES 32

RKB designations

basic bearing with cylindrical bore*
 adapter sleeve
 metric bore inch bore
 withdrawal sleeve
 metric bore

Dimensions

millimetres

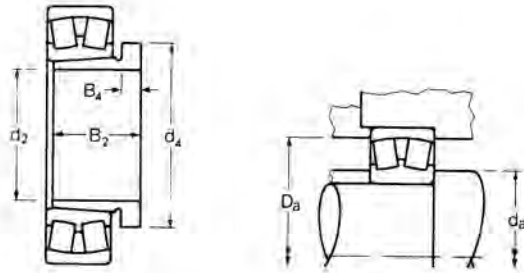
	adapter sleeve		withdrawal sleeve	Dimensions										
	metric bore	inch bore		metric bore	d	d ₁	d ₂	D	B	d ₃	d ₄	B ₁	B ₂	B ₃
232 18	H2318	H2318-3 $\frac{1}{4}$	AHX3218	90	80	85	160	52,4	120	100	86	63	18	10
232 20	H2320	H2320-3 $\frac{1}{2}$	AHX3220	100	90	95	180	60,3	130	110	97	73	20	11
232 22	H2322	H2322-4	AHX3222	110	100	105	200	69,8	145	125	105	82	21	11
232 24	H2324	H2324-4 $\frac{1}{2}$	AHX3224	120	110	115	215	76	155	135	112	90	22	13
232 26	H2326	H2326-4 $\frac{1}{2}$	AHX3226	130	115	125	230	80	165	145	121	98	23	15
232 28	H2328	H2328-5	AHX3228	140	125	135	250	88	180	155	131	104	24	15
232 30	H2330	H2330-5 $\frac{1}{4}$	AHX3230	150	135	145	270	96	195	165	139	114	26	17
232 32	H2332	H2332-5 $\frac{1}{2}$	AH 3232	160	140	150	290	104	210	180	147	124	28	20
232 34	H2334	H2334-6	AH 3234	170	150	160	310	110	220	190	154	134	29	24
232 36	H2336		AH 3236	180	160	170	320	112	230	200	161	140	30	25
232 38	H2338		AH 3238	190	170	180	340	120	240	210	169	145	31	25
232 40	H2340		AH 3240	200	180	190	360	128	250	220	176	153	32	24
232 44	H2344X		AH 2344	220	200	200	400	144	280	240	186	181	35	30

*For bearings with 1:12 tapered bore add suffix 'K', e.g. 232 18K.

If bearings are required with a radial groove and three lubrication holes add suffix 'W33' e.g. 232 38 W33.

When ordering a bearing with an adapter or withdrawal sleeve, add the designation of the latter component to that of the bearing with tapered bore, e.g. 232 24K + H2324.

Please check availability



Bearing with withdrawal sleeve

RKB load ratings†		Normal limiting speeds		Weights			Shaft and housing dimensions				RKB	
newtons		rev/min		kg approx			millimetres				designation	
dynamic	static	grease	oil	basic bearing	with adapter sleeve	with withdrawal sleeve	max fillet radius	da		Da		(basic bearing)
Cr	Cor							min	max	min	max	
320 000	470 000	1 800	2 200	4,68	6,23	5,12	2,0	101	107	140	149	232 18
405 000	610 000	1 600	2 000	6,85	8,80	7,44	2,0	113	119	157	167	232 20
490 000	740 000	1 500	1 900	9,89	12,4	10,7	2,0	123	132	174	187	232 22
600 000	940 000	1 400	1 800	12,2	15,1	13,2	2,0	133	142	186	202	232 24
590 000	940 000	1 200	1 600	14,5	18,7	15,7	2,5	144	152	201	216	232 26
780 000	1 270 000	1 200	1 600	19,0	24,1	20,3	2,5	154	163	218	236	232 28
800 000	1 280 000	1 100	1 400	24,5	30,8	26,0	2,5	164	175	235	256	232 30
1 060 000	1 700 000	900	1 200	31,0	39,2	34,2	2,5	174	190	251	276	232 32
1 200 000	1 930 000	800	1 000	37,5	46,6	41,2	3,0	187	202	269	293	232 34
1 290 000	2 080 000	800	1 000	39,8	50,0	44,0	3,0	197	209	279	303	232 36
1 500 000	2 500 000	800	1 000	47,4	58,6	51,9	3,0	207	222	295	323	232 38
1 600 000	2 650 000	700	900	58,1	70,4	63,2	3,0	217	237	311	343	232 40
1 850 000	3 100 000	700	900	81,6	96,2	93,0	3,0	238	263	346	382	232 44

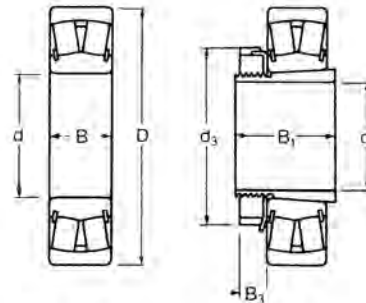
Larger sizes are available on request

Double row spherical roller bearings

213 MEDIUM SERIES

METRIC SIZES

ISO DIMENSION SERIES 03



Bearing with cylindrical bore

Bearing with adapter sleeve

RKB designations

Dimensions

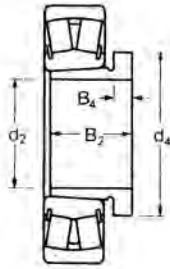
basic bearing with cylindrical bore*	adapter sleeve		withdrawal sleeve	millimetres											
	metric bore	inch bore	metric bore	d	d ₁	d ₂	D	B	d ₃	d ₄	B ₁	B ₂	B ₃	B ₄	
213 05				25			62	17							
213 06				30			72	19							
213 07				35			80	21							
213 08	H308	H308-1 $\frac{1}{4}$	AH 308	40	35	35	90	23	58	45	36	29	10	6	
213 09	H309	H309-1 $\frac{1}{2}$	AH 309	45	40	40	100	25	65	50	39	31	11	6	
213 10	H310	H310-1 $\frac{3}{4}$	AHX310	50	45	45	110	27	70	55	42	35	12	7	
213 11	H311	H311-1 $\frac{7}{8}$	AHX311	55	50	50	120	29	75	60	45	37	12	7	
213 12	H312	H312-2 $\frac{1}{8}$	AHX312	60	55	55	130	31	80	65	47	40	13	8	
213 13	H313	H313-2 $\frac{1}{4}$	AH 313	65	60	60	140	33	85	75	50	42	14	8	
213 14	H314		AH 314	70	60	65	150	35	92	80	52	43	14	8	
213 15	H315	H315-2 $\frac{1}{2}$	AH 315	75	65	70	160	37	98	85	55	45	15	8	
213 16	H316	H316-2 $\frac{3}{4}$	AH 316	80	70	75	170	39	105	90	59	48	17	8	
213 17	H317	H317-3	AHX317	85	75	80	180	41	110	95	63	52	18	9	
213 18	H318	H318-3 $\frac{1}{2}$	AHX318	90	80	85	190	43	120	100	65	53	18	9	

* For bearings with 1 : 12 tapered bore add suffix 'K', e.g. 21308K.

If bearings are required with a radial groove and three lubrication holes add suffix "W33" e.g. 21312 W33.

When ordering a bearing with an adapter or withdrawal sleeve, add the designation of the latter component to that of the bearing with tapered bore, e.g. 213 13K + H313.

Please check availability



Bearing with withdrawal sleeve

RKB load ratings†		Normal limiting speeds		Weights			Shaft and housing dimensions				RKB	
newtons		rev/min		kg approx			millimetres				designation	
dynamic	static	grease	oil	basic bearing	with adapter sleeve	with withdrawal sleeve	max fillet radius	da		Da		(basic bearing)
Cr	Cor							min	max	min	max	
43 000	41 000	5 200	6 700	0,250			1,0	32	33	53	55	213 05
56 000	55 000	4 300	5 600	0,380			1,0	37	38	61	65	213 06
69 000	71 000	3 800	5 000	0,508			1,5	44	45	68	71	213 07
84 000	90 000	3 400	4 400	0,712	0,889	0,789	1,5	49	52	77	81	213 08
102 000	111 000	3 000	4 000	0,948	1,18	1,04	1,5	54	58	86	91	213 09
122 000	140 000	2 800	3 600	1,21	1,49	1,33	2,0	61	65	94	99	213 10
147 000	171 000	2 500	3 300	1,58	1,91	1,72	2,0	66	70	104	109	213 11
164 000	193 000	2 300	3 000	1,96	2,32	2,12	2,0	73	77	112	117	213 12
191 000	223 000	2 100	2 800	2,45	2,87	2,66	2,0	78	82	122	127	213 13
210 000	248 000	2 000	2 600	2,99	3,67	3,23	2,0	83	88	129	137	213 14
238 000	285 000	1 900	2 400	3,56	4,34	3,82	2,0	88	93	138	147	213 15
260 000	310 000	1 800	2 300	4,18	5,17	4,49	2,0	93	100	147	157	213 16
295 000	360 000	1 700	2 200	4,99	6,08	5,35	2,5	99	106	156	166	213 17
315 000	395 000	1 600	2 000	5,81	7,08	6,17	2,5	104	113	165	176	213 18

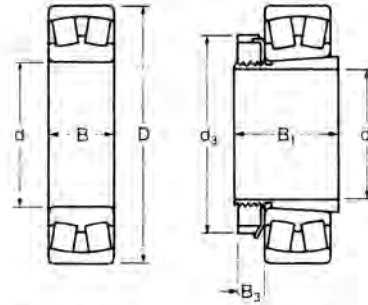
Larger sizes are available on request

Double row spherical roller bearings

223 MEDIUM WIDE SERIES

METRIC SIZES

ISO DIMENSION SERIES 23



Bearing with cylindrical bore

Bearing with adapter sleeve

RKB designations

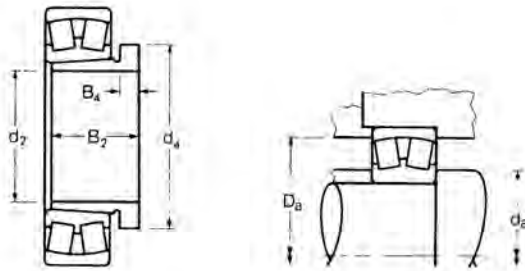
basic bearing with cylindrical bore*	adapter sleeve		withdrawal sleeve	Dimensions millimetres										
	metric bore	inch bore	metric bore	d	d ₁	d ₂	D	B	d ₃	d ₄	B ₁	B ₂	B ₃	B ₄
223 08	H2308	H2308-1 $\frac{1}{4}$	AH 2308	40	35	35	90	33	58	45	46	40	10	7
223 09	H2309	H2309-1 $\frac{1}{2}$	AH 2309	45	40	40	100	36	65	50	50	44	11	7
223 10	H2310	H2310-1 $\frac{3}{4}$	AHX2310	50	45	45	110	40	70	55	55	50	12	9
223 11	H2311	H2311-2	AHX2311	55	50	50	120	43	75	60	59	54	12	10
223 12	H2312		AHX2312	60	55	55	130	46	80	65	62	58	13	11
223 13	H2313	H2313-2 $\frac{1}{2}$	AH 2313	65	60	60	140	48	85	75	65	61	14	12
223 14	H2314		AHX2314	70	60	65	150	51	92	80	68	64	14	12
223 15	H2315	H2315-2 $\frac{1}{2}$	AHX2315	75	65	70	160	55	98	85	73	68	15	12
223 16	H2316	H2316-2 $\frac{3}{4}$	AHX2316	80	70	75	170	58	105	90	78	71	17	12
223 17	H2317	H2317-3	AHX2317	85	75	80	180	60	110	95	82	74	18	13
223 18	H2318	H2318-3 $\frac{1}{4}$	AHX2318	90	80	85	190	64	120	100	86	79	18	14
223 19	H2319		AHX2319	95	85	90	200	67	125	105	90	85	19	16
223 20	H2320	H2320-3 $\frac{1}{2}$	AHX2320	100	90	95	215	73	130	110	97	90	20	16
223 22	H2322	H2322-4	AHX2322	110	100	105	240	80	145	125	105	98	21	16
223 24	H2324	H2324-4 $\frac{1}{4}$	AHX2324	120	110	115	260	86	155	135	112	105	22	17
223 26	H2326	H2326-4 $\frac{1}{2}$	AHX2326	130	115	125	280	93	165	145	121	115	23	19
223 28	H2328	H2328-5	AHX2328	140	125	135	300	102	180	155	131	125	24	20
223 30	H2330	H2330-5 $\frac{1}{2}$	AHX2330	150	135	145	320	108	195	165	139	135	26	24
223 32	H2332	H2332-5 $\frac{1}{2}$	AH 2332	160	140	150	340	114	210	180	147	140	28	24
223 34	H2334	H2334-6	AH 2334	170	150	160	360	120	220	190	154	146	29	24

*For bearings with 1 : 12 tapered bore add suffix 'K', e.g. 223 16K.

If bearings are required with a radial groove and three lubrication holes add suffix 'W33', e.g. 223 28 W33.

When ordering a bearing with an adapter or withdrawal sleeve, add the designation of the latter component to that of the bearing with tapered bore, e.g. 223 26K + AHX2326.

Please check availability



Bearing with withdrawal sleeve

RKB load ratings†		Normal limiting speeds		Weights			Shaft and housing dimensions					RKB
newtons		rev/min		kg approx			millimetres					designation
dynamic	static	grease	oil	basic bearing	with adapter sleeve	with withdrawal sleeve	max fillet radius	d _a		D _a		(basic bearing)
C _r	C _{0r}							min	max	min	max	
115 000	129 000	3 900	5 000	0,993	1,20	1,10	1,5	49	51	76	81	223 08
137 000	163 000	3 400	4 500	1,35	1,60	1,48	1,5	54	59	84	91	223 09
168 000	202 000	3 100	4 100	1,81	2,13	1,98	2,0	61	65	93	99	223 10
198 000	240 000	2 900	3 700	2,33	2,70	2,53	2,0	66	71	102	109	223 11
230 000	280 000	2 600	3 400	2,91	3,32	3,14	2,0	73	77	111	117	223 12
247 000	300 000	2 400	3 200	3,48	3,96	3,80	2,0	78	83	120	127	223 13
280 000	325 000	2 300	3 000	4,20	4,99	4,58	2,0	83	87	130	137	223 14
325 000	385 000	2 100	2 800	5,22	6,17	5,62	2,0	88	92	139	147	223 15
370 000	460 000	2 000	2 600	6,17	7,30	6,62	2,0	93	100	147	157	223 16
395 000	510 000	1 900	2 500	7,12	8,44	7,67	2,5	99	108	154	166	223 17
435 000	550 000	1 800	2 300	8,48	9,98	9,07	2,5	104	113	165	176	223 18
415 000	510 000	1 700	2 200	9,93	11,7	10,6	2,5	109	119	174	186	223 19
465 000	570 000	1 600	2 100	12,5	14,5	13,3	2,5	114	126	186	201	223 20
770 000	1 030 000	1 400	1 900	18,1	20,4	19,1	2,5	124	141	207	226	223 22
790 000	1 020 000	1 300	1 700	22,9	25,6	24,0	2,5	134	150	226	246	223 24
910 000	1 200 000	1 200	1 600	28,6	32,6	30,0	3,0	148	165	242	262	223 26
1 070 000	1 440 000	1 100	1 500	36,2	41,0	37,2	3,0	158	177	260	282	223 28
1 170 000	1 600 000	1 100	1 400	43,6	49,4	45,4	3,0	168	189	277	302	223 30
1 200 000	1 660 000	1 000	1 300	51,7	59,9	55,3	3,0	178	205	293	322	223 32
1 310 000	1 840 000	950	1 200	62,1	70,8	66,2	3,0	188	217	310	342	223 34

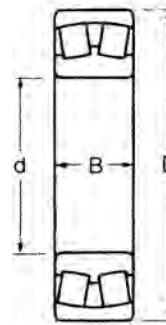
Larger sizes are available on request

Double row spherical roller bearings

240 SERIES

METRIC SIZES

ISO DIMENSION SERIES 40



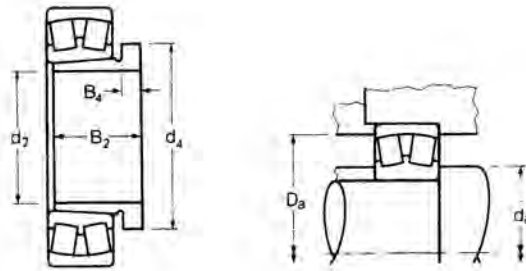
RKB designations			Dimensions							RKB load ratings†		Normal limiting speeds	
basic bearing with cylindrical bore	with taper bore	withdrawal sleeve metric bore	millimetres							newtons		rev/min	
			d	d ₂	D	B	d ₄	B ₂	B ₄	dynamic C _r	static C _{0r}	grease	oil
24024	-K	AH 24024	120	115	180	60	M 125X2	73	82	374 000	670 000	1 600	2 000
24026	-K	AH 24026	130	125	200	69	M 135X2	83	93	477 000	815 000	1 500	1 900
24028	-K	AH 24028	140	135	210	69	M 145X2	83	93	495 000	900 000	1 400	1 800
24030	-K	AH 24030	150	145	225	75	M 155X3	90	101	564 000	1 040 000	1 300	1 700
24032	-K	AH 24032	160	150	240	80	M 170X3	95	106	656 000	1 200 000	1 100	1 500
24034	-K	AH 24034	170	160	260	90	M 180X3	106	117	799 000	1 460 000	1 000	1 400
24036	-K	AH 24036	180	170	280	100	M 190X3	116	127	937 000	1 730 000	950	1 300
24038	-K	AH 24038	190	180	290	100	M 200X3	118	131	978 000	1 800 000	950	1 300
24040	-K	AH 24040	200	190	310	109	Tr 210X4	127	140	1 130 000	2 120 000	900	1 200
24044	-K	AOH 24044	220	200	340	118	Tr 230X4	138	152	1 360 000	2 600 000	850	1 100
24048	-K	AOH 24048	240	220	360	118	Tr 250X4	138	153	1 380 000	2 700 000	800	1 000
24052	-K	AOH 24052	260	240	400	140	Tr 270X4	162	178	1 760 000	3 450 000	700	900
24056	-K	AOH 24056	280	260	420	140	Tr 290X4	162	179	1 780 000	3 800 000	670	850
24060	-K	AOH 24060	300	280	460	160	Tr 310X5	184	202	2 350 000	4 750 000	600	750
24064	-K	AOH 24064	320	300	480	160	Tr 330X5	184	202	2 480 000	5 100 000	560	700
24068	-K	AOH 24068	340	320	520	180	Tr 360X5	206	225	2 990 000	6 200 000	530	670
24072	-K	AOH 24072	360	340	540	180	Tr 380X5	206	226	3 110 000	6 550 000	500	630
24076	-K	AOH 24076	380	360	560	200	Tr 400X5	208	228	3 160 000	6 800 000	480	600
24080	-K	AOH 24080	400	380	600	200	Tr 420X5	228	248	3 620 000	7 800 000	450	750
24084	-K	AOH 24084	420	400	620	200	Tr 440X5	230	252	3 740 000	8 150 000	380	480
24088	-K	AOH 24088	440	420	650	212	Tr 460X5	242	264	4 080 000	8 800 000	360	450
24092	-K			460		680		218		4 370 000	9 500 000	340	430
24096	-K			480		700		218		4 490 000	10 000 000	340	430
240/500	-K			500		720		218		4 600 000	10 400 000	320	400
240/530	-K			530		780		250		5 640 000	12 700 000	280	360
240/560	-K			560		820		258		6 210 000	14 000 000	260	340
240/600	-K			600		870		272		6 730 000	15 600 000	240	320
240/630	-K			630		920		290		7 530 000	17 300 000	220	300
240/670	-K			670		980		308		8 450 000	20 000 000	200	280
240/710	-K			710		1 030		315		8 970 000	22 000 000	190	260
240/750	-K			750		1 090		335		9 950 000	24 000 000	180	240
240/800	-K			800		1 150		345		10 900 000	27 500 000	170	220
240/850	-K			850		1 220		365		12 000 000	30 000 000	160	200
240/900	-K			900		1 280		375		12 900 000	32 500 000	150	190
240/950	-K			950		1 360		412		14 800 000	39 000 000	130	170
240/1000	-K			1 000		1 420		412		15 400 000	40 500 000	120	160
240/1060	-K			1 060		1 500		438		17 300 000	45 500 000	110	120

For bearings with 1 : 30 tapered bore add suffix 'K', 30' e.g. 24030 K30.

If bearings are required with a radial groove and three lubrication holes add suffix "W33" e.g. 24056 W33.

When ordering a bearing with an adapter or withdrawal sleeve, add the designation of the latter component to that of the bearing with tapered bore, e.g. 24052 K30 + AOH 24052.

Please check availability



Weights

Shaft and housing dimensions

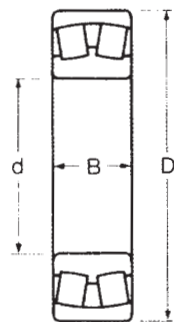
Kg	approx	millimetres		
		basic bearing	withdrawal sleeve	max fillet radius
5,30	0,70	2	130	170
7,85	0,88	2	140	190
8,35	0,95	2	150	200
10,5	1,05	2	162	213
12,5	2,30	2	172	228
17,0	2,70	2	182	248
22,5	3,20	2	192	268
23,5	3,55	2	202	278
30,0	4,00	2	212	298
39,0	8,20	2,5	326	234
42,0	8,05	2,5	254	346
63,5	10,5	3	278	382
67,5	11,5	3	298	402
95,5	14,0	3	318	442
98,0	15,0	3	338	462
135	18,0	4	362	498
140	20,0	4	382	518
145	23,5	4	402	538
200	27,0	4	422	578
205	29,0	4	442	598
240	32,0	5	468	622
275				
285				
295				
410				
465				
540				
655				
790				
895				
1 065				
1 200				
1 410				
1 570				
1 990				
2 140				
2 515				

Larger sizes are available on request

Double row spherical roller bearings

241 SERIES

METRIC SIZES



ISO DIMENSION SERIES 41

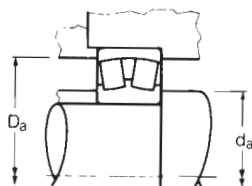
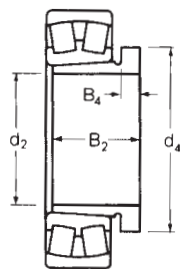
RKB designations			Dimensions						RKB newtons		load ratings†		Normal limitings	
basic bearing with cylindrical bore	with taper bore	withdrawal sleeve metric bore	millimetres						B ₂	B ₄	dynamic C _r	static C _{or}	grease	oil
			d	d ₂	D	B	d ₄	B ₂						
24122	-K	AH 24122	110	105	180	69	M 115X2	82	91	460 000	750 000	1 000	1 400	
24124	-K	AH 24124	120	115	200	80	M 130X2	93	102	575 000	950 000	900	1 200	
24126	-K	AH 24126	130	125	210	80	M 140X2	94	104	587 000	1 000 000	900	1 200	
24128	-K	AH 24128	140	135	225	85	M 150X2	99	109	673 000	1 160 000	850	1 100	
24130	-K	AH 24130	150	145	250	100	M 160X3	115	126	897 000	1 530 000	800	1 000	
24132	-K	AH 24132	160	150	270	109	M 170X3	124	135	1 040 000	1 760 000	700	900	
24134	-K	AH 24134	170	160	280	109	M 180X3	125	136	1 070 000	1 860 000	670	850	
24136	-K	AH 24136	180	170	300	118	M 190X3	134	145	1 220 000	2 160 000	630	800	
24138	-K	AH 24138	190	180	320	128	M 200X3	146	159	1 400 000	2 500 000	600	750	
24140	-K	AH 24140	200	190	340	140	Tr 210X4	158	171	1 580 000	2 800 000	560	700	
24144	-K	AOH 24144	220	200	370	150	Tr 230X4	170	184	1 840 000	3 350 000	500	630	
24148	-K	AOH 24148	240	220	400	160	Tr 260X4	180	195	2 100 000	3 900 000	480	600	
24152	-K	AOH 24152	260	240	440	180	Tr 280X4	202	218	2 620 000	4 800 000	430	530	
24156	-K	AOH 24156	280	260	460	180	Tr 300X4	202	219	2 670 000	5 100 000	400	500	
24160	-K	AOH 24160	300	280	500	200	Tr 320X5	224	242	3 280 000	6 300 000	360	450	
24164	-K	AOH 24164	320	300	540	218	Tr 340X5	242	260	3 740 000	7 100 000	340	430	
24168	-K	AOH 24168	340	320	580	243	Tr 360X5	269	288	4 660 000	8 650 000	320	400	
24172	-K	AOH 24172	360	340	600	243	Tr 380X5	269	289	4 490 000	8 650 000	300	380	
24176	-K	AOH 24176	380	360	620	243	Tr 400X5	271	291	4 600 000	9 150 000	190	260	
24180	-K	AOH 24180	400	380	650	250	Tr 420X5	278	298	4 890 000	9 800 000	180	240	
24184	-K	AOH 24184	420	400	700	280	Tr 440X5	310	332	5 750 000	11 400 000	170	220	
24188	-K	AOH 24188	440	420	720	280	Tr 460X5	310	332	5 980 000	12 200 000	170	220	
24192	-K	AOH 24192		440	760	300	Tr 480X5	332	355	7 250 000	14 600 000	160	200	
24196	-K	AOH 24196		460	790	308	Tr 500X5	340	363	7 250 000	15 000 000	150	190	
241/500	-K	AOH 241/500		480	830	325	Tr 530X6	360	383	8 630 000	17 000 000	140	180	
241/530	-K	AOH 241/530		500	870	335	Tr 550X6	370	394	9 200 000	19 000 000	130	170	
241/560	-K	AOH 241/560		530	920	355	Tr 580X6	393	417	10 500 000	21 600 000	120	160	
241/600	-K	AOH 241/600		560	980	375	Tr 630X6	413	439	10 700 000	22 800 000	110	150	
241/630	-K	AOH 241/630		600	1 030	400	Tr 650X6	440	466	12 700 000	27 000 000	100	140	

For bearings with 1 : 30 tapered bore add suffix 'K', 30' e.g. 24138 K30.

If bearings are required with a radial groove and three lubrication holes add suffix "W33" e.g. 24160 W33.

When ordering a bearing with an adapter or withdrawal sleeve, add the designation of the latter component to that of the bearing with tapered bore, e.g. 24136 K30 + AH 24136.

Please check availability



Weights

Shaft and housing dimensions

kg	approx	millimetres		
		basic bearing	withdrawal sleeve	max fillet radius
6.75	0.71	2	120	170
10.0	1.00	2	130	190
10.5	1.05	2	140	200
12.5	1.30	2	152	213
19.5	1.55	2	162	238
25.0	3.05	2	172	258
26.0	3.25	2	182	268
32.5	3.75	2.5	194	286
41.0	4.45	2.5	204	306
51.0	5.05	2.5	214	326
64.0	10.0	3	238	352
79.0	11.5	3	258	382
110	14.0	3	278	422
115	15.0	4	302	438
155	18.5	4	322	478
205	20.5	4	342	518
265	25.5	4	362	558
265	26.0	4	382	578
295	31.0	4	402	598
335	35.0	5	428	622
440	39.0	5	448	672
455	42.5	5	468	692
550	50.0	6	496	724
595	51.5	6	516	754
735	57.0	6	536	794
820	86.0	6	566	834
970	97.0	6	596	884
1 180	120	6	636	944
1 380	130	6	666	994

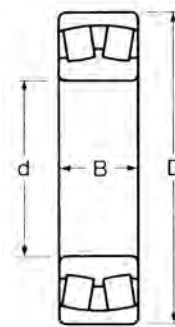
Larger sizes are available on request

Double row spherical roller bearings

239 SERIES

METRIC SIZES

ISO DIMENSION SERIES 39



RKB designations basic bearing with cylindrical bore	with taper bore	Dimensions millimetres			RKB load ratings†		Normal limiting speeds rev/min		Weight Kg approx	Shaft and housing dimensions millimetres		
		d	D	B	dynamic C _r	static C _{0r}	grease	oil		da min	Da max	ra max
239 36	-K	180	250	52	431 000	830 000	1 700	2 200	8.20	190	240	2
239 38	-K	190	260	52	414 000	800 000	1 700	2 200	8.40	200	250	2
239 40	-K	200	280	60	546 000	1 040 000	1 600	2 000	11.5	212	268	2
239 44	-K	220	300	60	546 000	1 080 000	1 500	1 900	13.0	232	288	2
239 48	-K	240	320	60	564 000	1 160 000	1 300	1 700	14.0	252	308	2
239 52	-K	260	360	75	880 000	1 800 000	1 100	1 500	24.0	272	348	2
239 56	-K	280	380	75	845 000	1 760 000	1 000	1 400	26.0	292	368	2
239 60	-K	300	420	90	1 200 000	2 500 000	950	1 300	40.5	314	406	2.5
239 64	-K	320	440	90	1 240 000	2 700 000	900	1 200	42.0	334	426	2.5
239 68	-K	340	460	90	1 270 000	2 800 000	900	1 200	45.5	354	446	2.5
239 72	-K	360	480	90	1 290 000	2 900 000	850	1 100	46.5	374	466	3
239 76	-K	380	520	106	1 730 000	3 800 000	800	1 000	69.0	398	502	3
239 80	-K	400	540	106	1 730 000	3 900 000	750	950	71.0	418	522	3
239 84	-K	420	560	106	1 760 000	4 150 000	700	900	74.5	438	542	3
239 88	-K	440	600	118	2 100 000	4 900 000	670	850	99.5	458	582	3
239 92	-K	460	620	118	2 190 000	5 000 000	430	530	105	478	602	3
239 96	-K	480	650	128	2 530 000	5 700 000	400	500	125	502	628	4
239 /500	-K	500	670	128	2 530 000	6 000 000	400	500	130	522	648	4
239 /530	-K	530	710	136	2 820 000	6 700 000	360	450	155	552	688	4
239 /560	-K	560	750	140	3 050 000	7 200 000	340	430	175	582	778	4
239 /600	-K	600	800	150	3 450 000	8 300 000	320	400	220	622	778	4
239 /630	-K	630	850	165	3 970 000	9 800 000	280	360	280	658	822	5
239 /670	-K	670	900	170	4 370 000	10 800 000	260	340	315	698	872	5
239 /710	-K	710	950	180	4 770 000	12 000 000	240	320	365	738	922	5
239 /750	-K	750	1 000	185	5 180 000	13 200 000	220	300	420	778	972	5
239 /800	-K	800	1 060	195	5 640 000	14 300 000	200	280	470	828	1 032	5
239 /850	-K	850	1 120	200	5 980 000	15 600 000	190	260	560	878	1 092	5
239 /900	-K	900	1 180	206	6 440 000	17 000 000	180	240	605	928	1 152	5
239 /950	-K	950	1 250	224	7 250 000	19 600 000	170	220	755	986	1 214	6
239 /1060	-K	1 060	1 400	250	9 550 000	26 000 000	140	180	1 100	1 096	1 364	6

* For bearings with 1 : 12 tapered bore add suffix 'K', e.g. 23940 K.

If bearings are required with a radial groove and three lubrication holes add suffix "W33" e.g. 23948 W33.

Larger sizes are available on request

Please check availability

Spherical roller thrust bearings

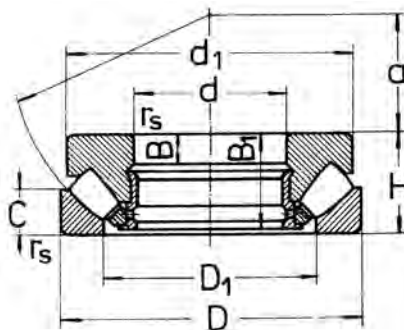


Spherical roller thrust bearings

292 SERIES

METRIC SIZES

ISO DIMENSION



RKB designations	Dimensions millimetres										RKB load ratings† newtons		Normal limiting speeds rev/min	Weight Kg approx	
	d	D	H	d ₁	D ₁	B	B ₁	C	rs/min	a	dynamic C _r	static C _{0r}	oil		
29230	150	215	39	208	177	11	37	20	1.5		80	395 000	1 570 000	1 800	4.55
29232	160	225	39	220	188	11	37	20	1.5		87	410 000	1 680 000	1 700	4.80
29234	170	240	42	235	201	13	40	22	1.5		93	470 000	1 900 000	1 600	5.95
29236	180	250	42	245	211	14	40	21	1.5		97	485 000	2 020 000	1 600	6.25
29238	190	270	48	262	226	14	45	25.5	2		103	500 000	2 200 000	1 400	8.7
29240	200	280	48	270	236	15	45	24	2		108	610 000	2 620 000	1 400	8.90
29244	220	300	48	292	254	15	45	24	2		117	630 000	2 760 000	1 300	10.0
29248	240	340	60	330	283	19	57	30	2.1		130	920 000	3 970 000	1 100	16.5
29252	260	360	60	350	302	19	57	30	2.1		139	960 000	4 355 000	1 100	18.5
29256	280	380	60	370	323	19	57	30	2.1		150	975 000	4 465 000	1 000	19.5
29260	300	420	73	405	353	21	69	38	3		162	1 230 000	5 500 000	900	30.5
29264	320	440	73	430	372	21	69	38	3		172	1 325 000	6 230 000	850	34.0
29268	340	460	73	445	395	21	69	37	3		183	1 330 000	6 300 000	850	33.5
29272	360	500	85	485	423	25	81	44	4		194	1 710 000	7 765 000	750	51.0
29276	380	520	85	505	441	27	81	42	4		202	1 820 000	8 800 000	700	53.0
29280	400	540	85	526	460	27	81	42	4		212	1 900 000	9 570 000	700	57.0
29284	420	580	95	564	489	30	91	46	4		225	2 290 000	11 200 000	630	75.5
29288	440	600	95	585	508	30	91	46	5		235	2 380 000	11 900 000	630	78.0
29292	460	620	95	605	530	30	91	46	5		245	2 380 000	12 100 000	600	81.0
29296	480	650	103	635	556	33	99	53	5		259	2 700 000	13 500 000	560	98.0
292/500	500	670	103	654	574	33	99	55	5		268	2 755 000	14 260 000	560	105
292/530	530	710	109	692	610	35	105	57	5		288	3 010 000	15 900 000	530	125
292/560	560	750	115	732	644	37	111	61	5		302	3 440 000	18 400 000	480	140
292/600	600	800	122	780	688	39	117	60	5		321	3 570 000	18 600 000	450	170
292/630	630	850	132	830	723	42	127	67	6		338	4 620 000	23 600 000	400	210
292/670	670	900	140	880	773	45	135	73	6		361	4 830 000	26 200 000	380	255
292/710	710	950	145	930	815	46	140	73	6		380	6 000 000	29 300 000	340	290
292/750	750	1 000	150	977	858	48	144	74	6		409	5 900 000	31 000 000	340	325
292/800	800	1 060	155	1035	911	52	149	77	7.5		434	6 390 000	35 335 000	320	388

Because of the internal design of this bearing model, the lubrication with oil have to be preferred. Grease lube could be considered only when applied loads and speeds are low and proper relube internal determined.

Larger sizes are available on request

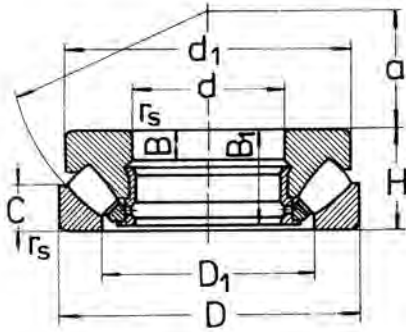
Please check availability

Spherical roller thrust bearings

293 SERIES

METRIC SIZES

ISO DIMENSION



RKB designations	Dimensions millimetres									RKB load ratings† speeds rev/min		Normal limiting oil	Weight limiting Kg approx	
	d	D	H	d_1	D_1	B	B_1	C	rs/min. a	dynamic C_r	static C_{or}			
29330	150	250	60	240	190	20	57	28	2.1	87	800 000	2 850 000	1 400	11.5
29332	160	270	67	260	203	23	64	33	3	92	910 000	3 470 000	1 200	16.0
29334	170	280	67	270	215	23	64	30.5	3	96	980 000	3 550 000	1 200	16.5
29336	180	300	73	290	227	25	69	35.5	3	103	1 150 000	4 300 000	1 100	20.5
29338	190	320	78	308	243	27	74	36	4	110	1 305 000	4 820 000	1 000	25.5
29340	200	340	85	325	257	29	81	40	4	116	1 500 000	5 605 000	950	32.0
29344	220	360	85	345	273	29	81	41	4	125	1 540 000	6 190 000	950	34.5
29348	240	380	85	365	295	29	81	40.5	4	135	1 580 000	6 420 000	900	36.5
29352	260	420	95	405	324	32	91	46	5	148	1 995 000	8 175 000	800	51.0
29356	280	440	95	423	343	32	91	45.5	5	158	2 070 000	8 705 000	800	54.0
29360	300	480	109	460	372	37	105	51	5	168	2 580 000	10 510 000	700	76.0
29364	320	500	109	482	391	37	105	53	5	180	2 555 000	10 770 000	670	81.0
29368	340	540	122	520	428	41	117	59	5	192	3 125 000	12 430 000	630	106
29372	360	560	122	540	448	41	117	59	5	202	3 150 000	12 800 000	600	110
29376	380	600	132	580	477	44	127	63	6	216	3 805 000	15 475 000	530	140
29380	400	620	132	596	494	44	127	64	6	225	3 805 000	16 140 000	530	146
29384	420	650	140	626	520	48	135	68	6	235	4 260 000	17 700 000	500	170
29388	440	680	145	655	540	49	140	70.5	6	249	4 360 000	19 300 000	480	180
29392	460	710	150	685	567	51	144	72	6	257	4 910 000	21 000 000	450	215
29396	480	730	150	705	591	51	144	73.5	6	270	4 950 000	21 700 000	450	220
293/500	500	750	150	725	611	51	144	74	6	280	5 100 000	22 600 000	430	235
293/530	530	800	160	772	648	54	154	76	7.5	295	5 950 000	26 200 000	400	270
293/560	560	850	175	822	690	60	168	85	7.5	310	6 500 000	28 800 000	380	320
293/600	600	900	180	870	731	61	173	87	7.5	335	7 200 000	33 300 000	340	400
293/630	630	950	190	918	761	68	183	92	9.5	359	8 200 000	38 000 000	320	485
293/670	670	1 000	200	968	813	68	193	96	9.5	372	8 350 000	38 800 000	300	545
293/710	710	1 060	212	1 028	855	72	204	103	9.5	405	9 650 000	45 500 000	280	660
293/750	750	1 120	224	1 086	910	76	216	109	9.5	415	10 600 000	49 900 000	260	770
293/800	800	1 180	230	1 146	965	78	222	111	9.5	440	11 300 000	54 400 000	240	865

Because of the internal design of this bearing model, the lubrication with oil have to be preferred. Grease lube could be considered only when applied loads and speeds are low and proper relube internal determined.

Larger sizes are available on request

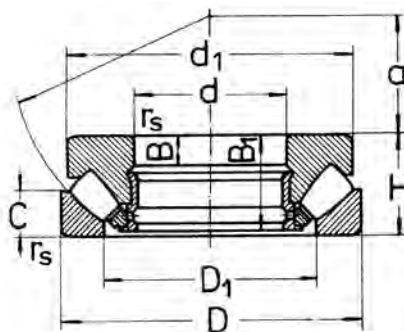
Please check availability

Spherical roller thrust bearings

294 SERIES

METRIC SIZES

ISO DIMENSION



RKB designations	Dimensions millimetres									RKB load ratings†		Normal limiting speeds rev/min oil	Weight Kg approx	
	d	D	H	d_1	D_1	B	B_1	C	rs/min a	dynamic C_r	static C_{or}			
29430	150	300	90	285	207	32	86	43.4	4	92	1 510 000	5 085 000	1 100	30.0
29432	160	320	95	300	223	34	91	45.5	5	99	1 655 000	5 650 000	1 000	35.0
29434	170	340	103	324	236	37	99	50	5	104	1 880 000	6 550 000	950	45.8
28436	180	360	109	342	250	39	105	53	5	110	2 135 000	7 435 000	900	52.0
29438	190	380	115	360	264	41	111	55.5	5	117	2 345 000	8 220 000	850	61.0
29440	200	400	122	380	277	43	117	59.4	5	122	2 580 000	9 160 000	800	72.0
29444	220	420	122	400	300	43	117	58.5	6	132	2 660 000	9 630 000	750	76.5
29448	240	440	122	420	322	43	117	59	6	142	2 720 000	10 040 000	700	81.5
29452	260	480	132	460	346	48	127	63	6	154	3 210 000	12 125 000	670	106
29456	280	520	145	495	372	52	140	70	6	166	3 810 000	14 675 000	630	137
29460	300	540	145	515	392	52	140	70.5	6	175	3 930 000	15 580 000	600	145
29464	320	580	155	555	422	55	149	74.5	7.5	191	4 450 000	17 246 000	560	178
29468	340	620	170	590	445	61	164	84	7.5	201	5 160 000	20 390 000	500	226
29472	360	640	170	610	474	61	164	82	7.5	210	5 205 000	20 202 000	500	234
29476	380	670	175	640	494	63	168	85	7.5	222	5 695 000	23 120 000	480	263
29480	400	710	185	680	525	67	178	89.5	7.5	234	6 450 000	26 000 000	450	310
29484	420	730	185	700	545	67	178	90.5	7.5	244	6 600 000	27 000 000	430	325
29488	440	780	206	745	577	74	199	100	9.5	257	7 805 000	31 530 000	380	420
29492	460	800	206	765	596	74	199	101.5	9.5	268	7 850 000	32 800 000	380	425
29496	480	850	224	810	625	81	216	108	9.5	280	9 455 000	38 865 000	340	542
294/500	500	870	224	830	648	81	216	110	9.5	290	9 200 000	39 200 000	340	560
294/530	530	920	236	880	686	86	228	116	9.5	308	10 300 000	43 100 000	320	650
294/560	560	980	250	940	727	82	242	122	12	328	11 800 000	50 000 000	300	810
294/600	600	1 030	258	990	769	92	249	128	12	349	12 940 000	55 555 000	280	900
294/630	630	1 090	280	1 040	815	100	270	137	12	365	14 100 000	60 800 000	260	1 100
294/670	670	1 150	290	1 105	864	106	280	141	15	387	15 100 000	66 700 000	240	1 260
294/710	710	1 220	308	1 165	917	112	298	149	15	415	17 200 000	75 000 000	220	1 500
294/750	750	1 280	315	1 220	964	116	305	153	15	436	18 300 000	83 300 000	200	1 650
294/800	800	1 360	335	1 300	1 034	120	324	165	15	462	19 800 000	91 100 000	190	2 025

Because of the internal design of this bearing model, the lubrication with oil have to be preferred. Grease lube could be considered only when applied loads and speeds are low and proper relube internal determined.

Larger sizes are available on request

Please check availability

Taper roller bearings

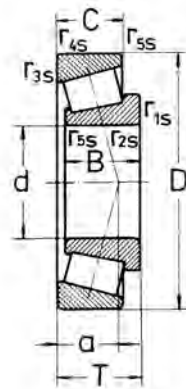


Taper roller bearings

320 SERIES

METRIC SIZES

ISO DIMENSION



RKB designations	ISO series	Dimensions millimetres					RKB load ratings†					Normal limiting speeds		Weight Kg approx				
		d	D	B	C	T	r1s, r2s min	r3s, r4s min	r5 min	a	dynamic C _r	e	Y		static C _{0r}	Y0	grease oil	oil
32004XA	3CC	20	42	15	12	15	0.6	0.6	0.3	10	26 000	0.37	1.6	28 500	0.9	8 500	12 000	0.097
32005XA	4CC	25	47	15	11.5	15	0.6	0.6	0.3	11	26 000	0.43	1.4	33 500	0.8	8 000	11 000	0.113
32006XA	4CC	30	55	17	13	17	1	1	0.3	13	34 000	0.43	1.4	45 500	0.8	6 700	9 000	0.017
32007XA	4CC	35	62	18	14	18	1	1	0.3	15	35 900	0.46	1.3	52 400	0.7	6 000	8 000	0.220
32008XA	3CD	40	68	19	14.5	19	1	1	0.3	15	48 800	0.37	1.6	65 600	0.9	5 300	7 000	0.270
32009XA	3CC	45	75	20	15.5	20	1	1	0.3	16	57 000	0.4	1.5	82 200	0.8	4 800	6 300	0.330
32010XA	3CC	50	80	20	15.5	20	1	1	0.3	18	58 500	0.43	1.4	88 500	0.8	4 500	6 000	0.360
32011XA	3CC	55	90	23	17.5	23	1.5	1.5	0.6	20	77 000	0.4	1.5	117 000	0.8	4 000	5 300	0.540
32012XA	4CC	65	95	23	17.5	23	1.5	1.5	0.6	21	78 500	0.43	1.4	119 000	0.8	3 800	5 000	0.580
32013XA	4CC	65	100	23	17.5	23	1.5	1.5	0.6	22	80 600	0.46	1.3	123 000	0.7	3 400	4 500	0.620
32014XA	4CC	70	110	25	19	25	1.5	1.5	0.6	23	95 600	0.43	1.4	143 000	0.8	3 200	4 300	0.830
32015XA	4CC	75	115	25	19	25	1.5	1.5	0.6	25	97 300	0.46	1.3	149 000	0.7	3 000	4 000	0.880
32016XA	3CC	80	125	29	22	29	1.5	1.5	0.6	27	130 000	0.43	1.4	198 000	0.8	2 600	3 600	1.24
32017XA	4CC	85	130	29	22	29	1.5	1.5	0.6	28	136 000	0.44	1.4	213 000	0.8	2 400	3 400	1.30
32018XA	3CC	90	140	32	24	32	2	1.5	0.6	30	159 000	0.43	1.4	246 000	0.8	2 200	3 200	1.70
32019XA	4CC	95	145	32	24	32	2	1.5	0.6	31	163 000	0.44	1.4	257 000	0.8	2 200	3 200	1.80
32020XA	4CC	100	150	32	24	32	2	1.5	0.6	32	171 000	0.46	1.3	277 000	0.7	2 000	3 000	1.85
32021XA	4DC	105	160	35	26	35	2.5	2	0.6	34	204 000	0.44	1.4	334 000	0.8	1 900	2 800	2.42
32022XA	4DC	110	170	38	29	38	2.5	2	0.6	36	235 000	0.43	1.4	382 000	0.8	1 800	2 600	3.06
32024XA	4DC	120	180	38	29	38	2.5	2	0.6	39	238 000	0.46	1.3	397 000	0.7	1 700	2 400	3.25
32026XA	4EC	130	200	45	34	45	2.5	2	0.6	42	315 000	0.43	1.4	526 000	0.8	1 600	2 200	4.93
32028XA	4DC	140	210	45	34	45	2.5	2	0.6	46	312 000	0.46	1.3	529 000	0.7	1 600	2 200	5.23
32030XA	4EC	150	225	48	36	48	3	2.5	1	49	355 000	0.46	1.3	620 000	0.7	1 500	2 000	6.35
32032XA	4EC	160	240	51	38	51	3	2.5	1	52	402 000	0.46	1.4	696 000	0.7	1 300	1 800	7.75
32034XA	4EC	170	260	57	43	57	3	2.5	1	56	480 000	0.44	1.4	865 000	0.8	1 200	1 700	10.5
32036XA	3FD	180	280	64	48	64	3	2.5	1	59	599 000	0.43	1.4	1 037 000	0.8	1 100	1 600	14.5
32038XA	4FD	190	290	64	48	64	3	2.5	1	62	609 000	0.44	1.4	1 077 000	0.8	1 000	1 500	15.0
32040XA	4FD	200	310	70	53	70	3	2.5	1	66	716 000	0.43	1.4	1 356 000	0.8	950	1 400	19.5
32044XA	4FD	220	340	76	57	76	4	3	1	72	850 000	0.43	1.4	1 537 000	0.8	900	1 300	25.5
32048XA	4FD	240	360	76	57	76	4	3	1	78	870 000	0.46	1.3	1 690 000	0.7	850	1 200	27.5
32052XA	4FC	260	400	87	65	87	5	4	1.5	84	1 153 000	0.43	1.4	2 141 000	0.8	800	1 100	40.0
32056XA	4FC	280	420	87	65	87	5	4	1.5	89	1 150 000	0.46	1.3	2 250 000	0.7	750	1 000	40.5
32064X	4GD	320	480	100	74	100	5	4	1.5	103	1 535 000	0.46	1.3	2 935 000	0.7	630	850	63.0

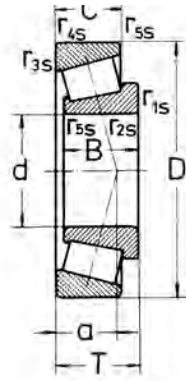
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Taper roller bearings

302 SERIES

METRIC SIZES

ISO DIMENSION



RKB designations	ISO series	Dimensions millimetres									RKB load ratings†				Normal limiting speeds		Weight	
		d	D	B	C	T	r1s, r2s min min	r3s, r4s min min	r5s min	a	dynamic C _r	e	Y	static C _{0r}	Y ₀	grease oil	oil	Kg approx
30203A	2DB	17	40	12	11	13.25	1	1	0.3	10	18 300	0.35	1.7	19 000	0.9	9 000	13 000	0.074
30204A	2DB	20	47	14	12	15.25	1	1	0.3	11	25 800	0.35	1.7	26 400	0.9	8 000	11 000	0.120
30205A	3CC	25	52	15	13	16.25	1	1	0.3	12	30 100	0.37	1.6	39 200	0.9	7 500	10 000	0.150
30206A	3DB	30	62	16	14	17.25	1	1	0.3	14	40 500	0.37	1.6	45 100	0.9	6 300	8 500	0.220
30207A	3DB	35	72	17	15	18.25	1.5	1.5	0.6	15	50 500	0.37	1.6	54 700	0.9	5 300	7 000	0.320
30208A	3DB	40	80	18	16	19.75	1.5	1.5	0.6	16	57 900	0.37	1.6	62 400	0.9	4 800	6 300	0.420
30209A	3DB	45	85	19	16	20.75	1.5	1.5	0.6	18	60 100	0.4	1.5	67 100	0.8	4 500	6 000	0.470
30210A	3DB	50	90	20	17	21.75	1.5	1.5	0.6	19	69 700	0.43	1.4	81 300	0.8	4 300	5 600	0.530
30211A	3DB	55	100	21	18	22.75	2	1.5	0.6	20	83 000	0.4	1.5	95 200	0.8	3 800	5 000	0.690
30212A	3EB	60	110	22	19	23.75	2	1.5	0.6	22	91 600	0.4	1.5	105 000	0.8	3 400	4 500	0.860
30213A	3EB	65	120	23	20	24.75	2	1.5	0.6	23	111 000	0.4	1.5	129 000	0.8	3 000	4 000	1.10
30214A	3EB	70	125	24	21	26.25	2	1.5	0.6	25	119 000	0.43	1.4	143 000	0.8	3 000	4 000	1.22
30215A	4DB	75	130	25	22	27.25	2	1.5	0.6	27	134 000	0.43	1.4	166 000	0.8	2 800	2 800	1.33
30216A	3EB	80	140	26	22	28.25	2.5	2	0.6	28	145 000	0.43	1.4	177 000	0.8	2 400	3 400	1.59
30217A	3EB	85	150	28	24	30.5	2.5	2	0.6	30	167 000	0.43	1.4	206 000	0.8	2 200	3 200	2.00
30218A	3FB	90	160	30	26	32.5	2.5	2	0.6	31	190 000	0.43	1.4	238 000	0.8	2 200	3 000	2.49
30219A	2FB	95	170	32	27	34.5	3	2.5	1	33	210 000	0.43	1.4	264 000	0.8	1 900	2 800	2.96
30220A	3FB	100	180	34	29	37	3	2.5	1	35	238 000	0.43	1.4	303 000	0.8	1 900	2 800	3.54
30221A	3FB	105	190	36	30	39	3	2.5	1	37	270 000	0.43	1.4	350 000	0.8	1 800	2 600	4.26
30222A	3FB	110	200	38	32	41	3	2.5	1	39	304 000	0.43	1.4	396 000	0.8	1 700	2 400	5.00
30224A	4FB	120	215	40	34	43.5	3	2.5	1	43	340 000	0.43	1.4	459 000	0.8	1 600	2 200	6.01
30226A	4FB	130	230	40	34	43.75	4	3	1	45	367 000	0.43	1.4	485 000	0.8	1 500	2 000	7.60
30228A	4FB	140	250	42	36	45.75	4	3	1	47	396 000	0.43	1.4	527 000	0.8	1 400	1 900	8.50
30230A	4GB	150	270	45	38	49	4	3	1	50	457 000	0.43	1.4	618 000	0.8	1 300	1 800	10.7
30232A	4GB	160	290	48	40	52	4	3	1	54	520 000	0.43	1.4	710 000	0.8	1 100	1 600	13.6
30234A	4GB	170	310	52	43	57	5	4	1.5	58	610 000	0.43	1.4	844 000	0.8	1 000	1 500	19.0
30236A	4GB	180	320	52	43	57	5	4	1.5	61	584 000	0.46	1.3	825 000	0.7	1 000	1 500	20.0
30260	4GB	300	540	85	71	96	6	5	1.5	103	1 350 000	0.43	1.4	1 900 000	0.8	600	800	86.0

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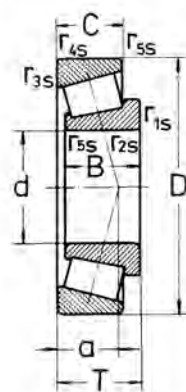
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Taper roller bearings

303 SERIES

METRIC SIZES

ISO DIMENSION



RKB designations	ISO series	Dimensions millimetres					RKB load ratings†					Normal limiting speeds		Weight Kg approx				
		d	D	B	C	T	r1s,r2 min	sr3s,r4s min	r5 min	a	dynamic C _r	e	Y		static C _{0r}	Y0	grease oil	oil
30302A	2FB	15	42	13	11	14.25	1	1	0.3	9	21 500	0.28	2.1	19 800	1.1	9 000	13 000	0.090
30303A	2FB	17	47	14	12	15.25	1	1	0.3	10	26 000	0.28	2.1	24 500	1.1	8 500	12 000	0.130
30304A	2FB	20	52	15	13	16.25	1.5	1.5	0.6	11	32 000	0.3	2	32 000	1.1	8 000	11 000	0.170
30305A	2FB	25	62	17	15	18.25	1.5	1.5	0.6	13	43 000	0.3	2	43 000	1.1	6 700	9 000	0.250
30306A	2FB	30	72	19	16	20.75	1.5	1.5	0.6	15	52 900	0.31	1.9	51 800	1.1	5 600	7 500	0.380
30307A	2FB	35	80	21	18	22.75	2	1.5	0.6	16	71 200	0.31	1.9	72 500	1.1	5 000	6 700	0.520
30308A	2FB	40	90	23	20	25.25	2	1.5	0.6	19	83 900	0.35	1.7	91 300	0.9	4 500	6 000	0.700
30309A	2FB	45	100	25	22	27.25	2	1.5	0.6	21	106 000	0.35	1.7	118 000	0.9	4 000	5 300	0.920
30310A	2FB	50	110	27	23	29.25	2.5	2	0.6	23	120 000	0.35	1.7	133 000	0.9	3 600	4 800	1.19
30311A	2FB	55	120	29	25	31.5	2.5	2	0.6	24	146 000	0.35	1.7	166 000	0.9	3 200	4 300	1.53
30312A	2FB	60	130	31	26	33.5	3	2.5	1	26	164 000	0.35	1.7	187 000	0.9	3 000	4 000	1.90
30313A	2GB	65	140	33	28	36	3	2.5	1	28	191 000	0.35	1.7	220 000	0.9	2 600	3 600	2.30
30314A	2GB	70	150	35	30	38	3	2.5	1	29	224 000	0.35	1.7	264 000	0.9	2 400	3 400	3.00
30315A	2GB	75	160	37	31	40	3	2.5	1	31	246 000	0.35	1.7	289 000	0.9	2 600	3 600	3.40
30316A	2GB	80	170	39	33	42.5	3	2.5	1	33	277 000	0.35	1.7	329 000	0.9	2 000	3 000	4.00
30317A	2GB	85	180	41	34	44.5	4	3	1	35	298 000	0.35	1.7	354 000	0.9	1 900	2 800	4.70
30318A	2GB	90	190	43	36	46.5	4	3	1	36	328 000	0.35	1.7	394 000	0.9	1 700	2 400	5.50
30319A	2GB	95	200	45	38	49.5	4	3	1	39	350 000	0.35	1.7	449 000	0.9	1 800	2 600	6.70
30320A	2GB	100	215	47	39	51.5	4	3	1	40	404 000	0.35	1.7	492 000	0.9	1 700	2 400	7.90
30322A	2GB	110	240	50	42	54.5	4	3	1	43	479 000	0.35	1.7	588 000	0.9	1 600	2 200	12.5
30324A	2GB	120	260	55	46	59.5	4	3	1	47	568 000	0.35	1.7	712 000	0.8	1 500	2 000	13.6
30326A	2GB	130	280	58	49	63.75	5	4	1.5	51	640 000	0.35	1.7	820 000	0.9	1 300	1 800	19.5

Larger sizes are available on request

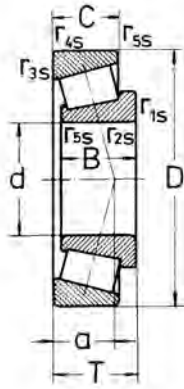
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Taper roller bearings

313 SERIES

METRIC SIZES

ISO DIMENSION



RKB designations	ISO series	ISO dimensions millimetres								Load ratings†			Normal limiting speeds		Weight			
		d	D	B	C	T	r1s,r2s min	r3s,r4 min	sr5 min	a	dynamic C _r	e	Y	static C _{0r}	Y0	grease oil	oil	Kg approx
31305A	7FB	25	62	17	13	18.25	1.5	1.5	0.6	20	39 000	0.83	0.7	41 000	0.4	5 600	7 500	0.255
31306A	7FB	30	72	19	14	20.75	1.5	1.5	0.6	22	46 500	0.83	0.7	49 500	0.4	5 000	6 700	0.390
31307A	7FB	35	80	21	15	22.75	2	1.5	0.6	25	58 100	0.83	0.7	64 000	0.4	4 500	6 000	0.520
31308A	7FB	40	90	23	17	25.25	2	1.5	0.6	28	74 600	0.83	0.7	60 800	0.4	4 000	5 300	0.685
31309A	7FB	45	100	25	18	27.25	2	1.5	0.6	31	88 900	0.83	0.7	97 100	0.4	3 400	4 500	0.915
31310A	7FB	50	110	27	19	29.25	2.5	2	0.6	34	102 000	0.83	0.7	112 000	0.4	3 200	4 300	1.16
31311A	7FB	55	120	29	21	31.5	2.5	2	0.6	37	118 000	0.83	0.7	133 000	0.4	2 800	3 800	1.49
31312A	7FB	60	130	31	22	33.5	3	2.5	1	39	140 000	0.83	0.7	158 000	0.4	2 600	3 600	1.83
31313A	7GB	65	140	33	23	36	3	2.5	1	42	164 000	0.83	0.7	189 000	0.4	2 200	3 200	2.25
31314A	7GB	70	150	35	25	38	3	2.5	1	45	185 000	0.83	0.7	215 000	0.4	2 000	3 000	2.82
31315A	7GB	75	160	37	26	40	3	2.5	1	48	213 000	0.83	0.7	251 000	0.4	1 900	2 800	3.50
31316A	7GB	80	170	39	27	42.5	3	2.5	1	52	222 000	0.83	0.7	275 000	0.4	1 900	2 800	4.07
31317A	7GB	85	180	41	28	44.5	4	3	1	55	245 000	0.83	0.7	298 000	0.4	1 800	2 600	5.08
31318A	7GB	90	190	43	30	46.5	4	3	1	57	270 000	0.83	0.7	330 000	0.4	1 700	2 400	5.92
31319A	7GB	95	200	45	32	49.5	4	3	1	60	300 000	0.83	0.7	365 000	0.4	1 700	2 400	6.95
31326XA	7GB	130	280	66	44	72	5	4	1.5	87	597 000	0.83	0.7	761 000	0.4	1 200	1 700	18.6
31328XA	7GB	140	300	70	47	77	5	4	1.5	90	714 000	0.83	0.7	935 000	0.4	1 200	1 700	23.9

Larger sizes are available on request

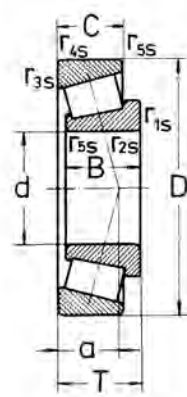
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Taper roller bearings

322 SERIES

METRIC SIZES

ISO DIMENSION



RKB designations	ISO series	Dimensions millimetres					RKB load ratings†					Normal limiting speeds		Weight Kg approx				
		d	D	B	C	T	r1s, r2s, r3s, r4s, r5s min	a	dynamic C _r	e	Y	static C _{0r}	Y0		grease	oil		
32205A	2CD	25	52	18	15	19.25	1	1	0.3	16	31 000	0.33	1.8	37 000	1	7 500	10 000	0.182
32206A	3DC	30	62	20	17	21.25	1	1	0.3	15	49 000	0.37	1.6	61 000	0.9	6 300	8 500	0.280
32207A	3DC	35	72	23	19	24.25	1.5	1.5	0.6	17	66 200	0.37	1.6	77 500	0.9	5 300	7 000	0.420
32208A	3DC	40	80	23	19	24.75	1.5	1.5	0.6	19	66 200	0.37	1.6	79 500	0.9	4 800	6 300	0.510
32209A	3DC	45	85	23	20	24.75	1.5	1.5	0.6	20	76 500	0.4	1.5	91 600	0.8	4 500	6 000	0.560
32210A	3DC	50	90	23	19	24.75	1.5	1.5	0.6	21	79 100	0.43	1.4	95 800	0.8	4 300	5 600	0.600
32211A	3DC	55	100	25	21	26.75	2	1.5	0.6	22	96 200	0.4	1.5	115 000	0.8	3 800	5 000	0.820
32212A	3EC	60	110	28	24	29.75	2	1.5	0.6	24	122 000	0.4	1.5	152 000	0.8	3 400	4 500	1.10
32213A	3EC	65	120	31	27	32.75	2	1.5	0.6	27	149 000	0.4	1.5	189 000	0.8	3 000	4 000	1.48
32214A	3EC	70	125	31	27	33.25	2	1.5	0.6	28	157 000	0.43	1.4	204 000	0.8	2 800	3 800	1.56
32215A	4DC	75	130	31	27	33.25	2	1.5	0.6	29	157 000	0.43	1.4	205 000	0.8	2 600	3 600	2.62
32216A	3EC	80	140	33	28	35.25	2.5	2	0.6	30	180 000	0.43	1.4	232 000	0.8	2 400	3 400	2.00
32217A	3EC	85	150	36	30	38.5	2.5	2	0.6	33	213 000	0.43	1.4	283 000	0.8	2 200	3 200	2.50
32218A	3FC	90	160	40	34	42.5	2.5	2	0.6	36	251 000	0.43	1.4	340 000	0.8	2 000	3 000	3.30
32219A	3FC	95	170	43	37	45.5	3	2.5	1	39	281 000	0.43	1.4	390 000	0.8	1 900	2 800	4.00
32220A	3FC	100	180	46	39	49	3	2.5	1	41	320 000	0.43	1.4	444 000	0.8	1 800	2 600	4.76
32221A	3FC	105	190	50	43	53	3	2.5	1	44	358 000	0.43	1.4	510 000	0.8	1 800	2 600	5.90
32222A	3FC	110	200	53	46	56	3	2.5	1	46	406 000	0.43	1.4	580 000	0.8	1 700	2 400	6.90
32224A	4FD	120	215	58	50	61.5	3	2.5	1	51	446 000	0.43	1.4	653 000	0.8	1 600	2 200	8.59
32226A	4FD	130	230	64	54	67.75	4	3	1	56	551 000	0.43	1.4	836 000	0.8	1 500	2 000	10.7
32228A	4FD	140	250	68	58	71.75	4	3	1	60	602 000	0.43	1.4	907 000	0.8	1 400	1 900	13.9
32230A	4GD	150	270	73	60	77	4	3	1	64	705 000	0.43	1.4	1 080 000	0.8	1 200	1 700	17.9
32232A	4GD	160	290	80	67	84	4	3	1	70	840 000	0.43	1.4	1 400 000	0.8	1 100	1 600	25.5
32234A	4GD	170	310	86	71	91	5	4	1.5	75	889 000	0.43	1.4	1 377 000	0.8	1 000	1 500	29.3
32236A	4GD	180	320	86	71	91	5	4	1.5	78	974 000	0.46	1.3	1 571 000	0.7	950	1 400	27.4
32238A	4GD	190	340	92	75	97	5	4	1.5	81	1 080 000	0.43	1.4	1 860 000	0.8	900	1 300	39.5
32240A	3GD	200	360	98	82	104	5	4	1.5	83	1 220 000	0.4	1.5	2 020 000	0.8	900	1 300	33.0
32248		240	440	120	100	127	5	4	1.5	105	1 750 000	0.43	1.4	2 869 000	0.8	750	1 000	81.0

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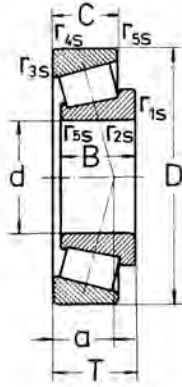
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Taper roller bearings

323 SERIES

METRIC SIZES

ISO DIMENSION



RKB designations	ISO series	Dimensions millimetres										RKB load ratings†			Normal limiting speeds		Weight Kg approx	
		d	D	B	C	T	r1s, r2s min	r3s, r4s min	r5 min	a	dynamic Cr	e	Y	static Cor	Y0	grease		oil
32303A	2FD	17	47	19	16	20.25	1	1	0.3	12	34 000	0.28	2.1	35 500	1.1	8 000	11 000	0.170
32304A	2FD	20	52	21	18	22.25	1.5	1.5	0.6	14	42 500	0.3	2	47 000	1.1	7 500	10 000	0.221
32305A	2FD	25	62	24	20	25.25	1.5	1.5	0.6	15	58 300	0.3	2	60 300	1.1	6 000	8 000	0.360
32306A	2FD	30	72	27	23	28.75	1.5	1.5	0.6	18	75 800	0.31	1.9	82 700	1.1	5 300	7 000	0.550
32307A	2FD	35	80	31	25	32.75	2	1.5	0.6	20	95 300	0.31	1.9	106 000	.1	4 800	6 300	0.730
32308A	2FD	40	90	33	27	35.25	2	1.5	0.6	23	105 000	0.35	1.7	122 000	0.9	4 000	5 300	0.993
32309A	2FD	45	100	36	30	38.25	2	1.5	0.6	25	133 000	0.35	1.7	159 000	0.9	3 600	4 800	1.25
32310A	2FD	50	110	40	33	42.25	2.5	2	0.6	27	160 000	0.35	1.7	194 000	0.9	3 200	4 300	1.83
32311A	2FD	55	120	43	35	45.5	2.5	2	0.6	29	191 000	0.35	1.7	235 000	0.9	3 000	4 000	2.21
32312A	2FD	60	130	46	37	48.5	3	2.5	1	31	229 000	0.35	1.7	288 000	0.9	2 600	3 600	2.80
32313A	2GD	65	140	48	39	51	3	2.5	1	33	256 000	0.35	1.7	322 000	0.9	2 400	3 400	3.49
32314A	2GD	70	150	51	42	54	3	2.5	1	36	297 000	0.35	1.7	381 000	0.9	2 200	3 200	4.10
32315A	2GD	75	160	55	45	58	3	2.5	1	38	350 000	0.35	1.7	460 000	0.9	2 000	3 000	5.00
32316A	2GD	80	170	58	48	61.5	3	2.5	1	41	383 000	0.35	1.7	503 000	0.9	1 900	2 800	5.90
32317A	2GD	85	180	60	49	63.5	4	3	1	42	400 000	0.35	1.7	555 000	0.9	1 800	2 600	6.85
32318A	2GD	90	190	64	53	67.5	4	3	1	44	461 000	0.35	1.7	612 000	0.9	1 700	2 400	8.21
32319A	2GD	95	200	67	55	71.5	4	3	1	47	500 000	0.35	1.7	670 000	0.9	1 700	2 400	11.0
32320A	2GD	100	215	73	60	77.5	4	3	1	53	578 000	0.35	1.7	780 000	0.9	1 600	2 200	14.0
32321A	2GD	105	225	77	63	81.5	4	3	1	53	405 000	0.35	1.7	815 000	0.9	1 500	2 000	14.5
32322A	2GD	110	240	80	65	84.5	4	3	1	55	699 000	0.35	1.7	956 000	0.9	1 400	1 900	16.4
32324A	2GD	120	260	86	69	90.5	4	3	1	60	799 000	0.35	1.7	1 104 000	0.9	1 300	1 800	24.5
32326A		130	280	93	78	98.75	5	4	1.5	66	947 000	0.35	1.7	1 333 000	0.9	1 100	1 600	27.6

Larger sizes are available on request

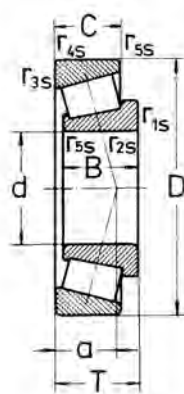
Please check availability

Taper roller bearings

329 SERIES

METRIC SIZES

ISO DIMENSION



RKB designations	ISO series	Dimensions millimetres					RKB load ratings†					Normal limiting speeds		Weight Kg approx				
		d	D	B	C	T	r1s,r2s min	r3s,r4s min	r5 min	a	newtons dynamic Cr	newtons static Cor	Y0		grease	oil		
32934A	3DC	170	230	38	30	38	2.5	2	0.6	42	280 000	0.37	1.6	572 000	0.9	1 400	1 900	4.50
32936A	4DC	180	250	45	34	45	2.5	2	0.6	53	350 000	0.48	1.3	727 000	0.7	1 200	1 700	6.65
32938A	4DC	190	260	45	34	45	2.5	2	0.6	55	358 000	0.48	1.3	772 000	0.7	1 100	1 600	7.00
32940A	3EC	200	280	51	39	51	3	2.5	1	53	474 000	0.4	1.5	950 000	0.8	1 000	1 500	9.50
32944M	3EC	220	300	51	39	51	3	2.5	1	58	407 000	0.43	1.4	827 000	0.8	950	1 400	11.2
32960	3FD	300	420	76	57	76	4	3	1	65	1 006 000	0.29	2.1	1 973 000	1.1	700	950	31.5
32972	4FD	360	480	76	57	76	4	3	1	77	1 130 000	0.31	1.9	2 411 000	1.1	600	800	40.5

Larger sizes are available on request

Please check availability



APPENDIX

Unvt $\mu\text{m} = 0,001\text{ mm}$

Dimensional Tolerances of Shaft

Over	(incl)	a	c	d	e	f	g	h	i	j	k	m	n	p	r	r	Over	(incl)	
3	6	270	-70	-30	-20	-10	-4	0	0	0	0	0	0	0	0	0	27	3	6
		450	-190	-38	-28	-15	-9	-12	-5	-8	-12	-18	-30	-48	0	± 2.5 ± 4	+ 3 + 6 + 6 + 9 + 9 + 12 + 13 + 16 + 17 + 20 + 23 + 27 + 15 + 15		
6	10	280	-80	-40	-25	-13	-5	0	0	0	0	0	0	0	0	0	24	6	10
		500	-230	-49	-34	-19	-22	-11	-14	-6	-9	-15	-22	-36	-58	± 3 ± 4.5 ± 2	+ 4 + 7 + 7 + 10 + 12 + 15 + 16 + 19 + 21 + 24 + 28 + 34 + 15 + 19 + 19		
10	14	290	-95	-50	-32	-16	-6	0	0	0	0	0	0	0	0	± 5.5 ± 4	+ 5 + 8 + 9 + 12 + 15 + 18 + 20 + 23 + 26 + 29 + 34 + 41 + 23 + 23		
		560	-275	-61	-43	-24	-27	-14	-17	-8	-11	-18	-27	-43	-70	± 4	+ 5 + 8 + 9 + 12 + 15 + 18 + 20 + 23 + 26 + 29 + 34 + 41 + 23 + 23		
18	24	300	-110	-65	-40	-20	-7	0	0	0	0	0	0	0	0	± 4.5 ± 6.5 ± 4	+ 5 + 9 + 11 + 15 + 17 + 21 + 24 + 28 + 31 + 35 + 41 + 49 + 22 + 28 + 28		
		630	-320	-78	-53	-29	-33	-16	-20	-9	-13	-21	-33	-52	-84	± 4.5 ± 6.5 ± 4	+ 5 + 9 + 11 + 15 + 17 + 21 + 24 + 28 + 31 + 35 + 41 + 49 + 22 + 28 + 28		
24	30																	24	30
30	40	310	-120	-80	-50	-25	-9	0	0	0	0	0	0	0	0	± 5.5 ± 8	+ 6 + 11 + 13 + 18 + 20 + 25 + 28 + 33 + 37 + 42 + 50 + 59 + 34 + 34		
		700	-370	-96	-66	-36	-41	-20	-25	-11	-16	-25	-39	-62	-100	± 5.5 ± 8	+ 6 + 11 + 13 + 18 + 20 + 25 + 28 + 33 + 37 + 42 + 50 + 59 + 34 + 34		
40	50	320	-130	-96	-66	-36	-41	-20	-25	-11	-16	-25	-39	-62	-100	± 5.5 ± 8	+ 6 + 11 + 13 + 18 + 20 + 25 + 28 + 33 + 37 + 42 + 50 + 59 + 34 + 34		
		710	-380															40	50
50	65	340	-140	-100	-60	-30	-10	-10	-10	-10	-10	-10	-10	-10	-10	± 6.5 ± 9.5 ± 7	+ 6 + 12 + 15 + 21 + 24 + 30 + 33 + 39 + 45 + 51 + 60 + 71 + 71 + 41 + 41		
		800	-440	-119	-79	-43	-49	-23	-29	-13	-19	-30	-46	-74	-120	± 6.5 ± 9.5 ± 7	+ 6 + 12 + 15 + 21 + 24 + 30 + 33 + 39 + 45 + 51 + 60 + 71 + 71 + 41 + 41		
65	80	360	-150	-119	-79	-43	-49	-23	-29	-13	-19	-30	-46	-74	-120	± 6.5 ± 9.5 ± 7	+ 6 + 12 + 15 + 21 + 24 + 30 + 33 + 39 + 45 + 51 + 60 + 71 + 71 + 41 + 41		
		820	-450															65	80
80	100	380	-170	-120	-72	-36	-36	-12	-12	0	0	0	0	0	0	± 7.5 ± 11	+ 6 + 13 + 18 + 25 + 28 + 35 + 38 + 45 + 52 + 59 + 73 + 86 + 80 + 100		
		920	-520	-142	-94	-51	-58	-27	-34	-15	-22	-35	-54	-87	-140	± 7.5 ± 11	+ 6 + 13 + 18 + 25 + 28 + 35 + 38 + 45 + 52 + 59 + 73 + 86 + 80 + 100		
100	120	410	-180	-142	-94	-51	-58	-27	-34	-15	-22	-35	-54	-87	-140	± 7.5 ± 11	+ 6 + 13 + 18 + 25 + 28 + 35 + 38 + 45 + 52 + 59 + 73 + 86 + 80 + 100		
		950	-530															100	120
120	140	460	-200	-170	-85	-43	-43	-14	-14	0	0	0	0	0	0	± 9 ± 12.5 ± 11	+ 7 + 14 + 21 + 28 + 33 + 40 + 45 + 52 + 61 + 68 + 88 + 103 + 120 + 140		
		1090	-600	-170	-110	-61	-68	-32	-39	-18	-25	-40	-63	-100	-160	± 9 ± 12.5 ± 11	+ 7 + 14 + 21 + 28 + 33 + 40 + 45 + 52 + 61 + 68 + 88 + 103 + 120 + 140		
140	160	520	-210	-145	-85	-43	-43	-14	-14	0	0	0	0	0	0	± 9 ± 12.5 ± 11	+ 7 + 14 + 21 + 28 + 33 + 40 + 45 + 52 + 61 + 68 + 88 + 103 + 120 + 140		
		1150	-610	-170	-110	-61	-68	-32	-39	-18	-25	-40	-63	-100	-160	± 9 ± 12.5 ± 11	+ 7 + 14 + 21 + 28 + 33 + 40 + 45 + 52 + 61 + 68 + 88 + 103 + 120 + 140		
160	180	580	-230	-170	-85	-43	-43	-14	-14	0	0	0	0	0	0	± 9 ± 12.5 ± 11	+ 7 + 14 + 21 + 28 + 33 + 40 + 45 + 52 + 61 + 68 + 88 + 103 + 120 + 140		
		1210	-630															160	180
180	200	660	-240	-170	-85	-43	-43	-14	-14	0	0	0	0	0	0	± 9 ± 12.5 ± 11	+ 7 + 14 + 21 + 28 + 33 + 40 + 45 + 52 + 61 + 68 + 88 + 103 + 120 + 140		
		1380	-700															180	200
200	225	740	-260	-170	-85	-43	-43	-14	-14	0	0	0	0	0	0	± 9 ± 12.5 ± 11	+ 7 + 14 + 21 + 28 + 33 + 40 + 45 + 52 + 61 + 68 + 88 + 103 + 120 + 140		
		1460	-720	-199	-129	-70	-79	-35	-44	-20	-29	-46	-72	-115	-185	± 10 ± 14.5 ± 10	+ 7 + 16 + 24 + 33 + 37 + 46 + 51 + 60 + 70 + 79 + 109 + 126 + 200 + 225		
225	250	820	-280	-199	-129	-70	-79	-35	-44	-20	-29	-46	-72	-115	-185	± 10 ± 14.5 ± 10	+ 7 + 16 + 24 + 33 + 37 + 46 + 51 + 60 + 70 + 79 + 109 + 126 + 200 + 225		
		1540	-740															225	250
250	280	920	-300	-190	-110	-56	-56	-17	-17	0	0	0	0	0	0	± 11.5 ± 16	+ 7 + 16 + 27 + 36 + 43 + 52 + 57 + 66 + 79 + 88 + 126 + 146 + 250 + 280		
		1730	-820	-222	-142	-79	-88	-40	-49	-23	-32	-52	-81	-130	-210	± 11.5 ± 16	+ 7 + 16 + 27 + 36 + 43 + 52 + 57 + 66 + 79 + 88 + 126 + 146 + 250 + 280		
280	315	1050	-330	-222	-142	-79	-88	-40	-49	-23	-32	-52	-81	-130	-210	± 11.5 ± 16	+ 7 + 16 + 27 + 36 + 43 + 52 + 57 + 66 + 79 + 88 + 126 + 146 + 250 + 280		
		1860	-850															280	315
315	355	1200	-360	-210	-125	-62	-62	-18	-18	0	0	0	0	0	0	± 12.5 ± 18	+ 7 + 18 + 29 + 40 + 46 + 57 + 62 + 73 + 87 + 98 + 144 + 165 + 315 + 355		
		2090	-930	-246	-161	-87	-98	-43	-54	-25	-36	-57	-89	-140	-230	± 12.5 ± 18	+ 7 + 18 + 29 + 40 + 46 + 57 + 62 + 73 + 87 + 98 + 144 + 165 + 315 + 355		
355	400	1350	-400	-246	-161	-87	-98	-43	-54	-25	-36	-57	-89	-140	-230	± 12.5 ± 18	+ 7 + 18 + 29 + 40 + 46 + 57 + 62 + 73 + 87 + 98 + 144 + 165 + 315 + 355		
		2240	-970															355	400
400	450	1500	-440	-230	-135	-68	-68	-20	-20	0	0	0	0	0	0	± 13.5 ± 20	+ 7 + 20 + 32 + 45 + 50 + 63 + 67 + 80 + 95 + 108 + 166 + 189 + 400 + 450		
		2470	-1070	-270	-175	-95	-108	-47	-60	-27	-40	-63	-97	-155	-250	± 13.5 ± 20	+ 7 + 20 + 32 + 45 + 50 + 63 + 67 + 80 + 95 + 108 + 166 + 189 + 400 + 450		
450	500	1650	-480	-270	-175	-95	-108	-47	-60	-27	-40	-63	-97	-155	-250	± 13.5 ± 20	+ 7 + 20 + 32 + 45 + 50 + 63 + 67 + 80 + 95 + 108 + 166 + 189 + 400 + 450		
		2620	-1110															450	500

Dimensional Tolerances of housing Bore

Unit $\mu\text{m} = 0.001 \text{ mm}$

Dimensional Divisions (mm)		Dimensional Divisions (mm)																									
over	incl	E	F	G	H	H	H7	H8	H9	H10	Js6	Js7	J6	J7	K6	K7	M6	M7	N6	N7	P6	P7	R6	R7	Over	Incl	
3	6	+68 +20	+95 +10	+28 +10	+16 +4	+5 +0	+8 +0	+12 +0	+18 +0	+30 +0	+48 +0	± 6	+5 -3	+6 -6	+2 -6	+3 -9	-1 -9	0 -12	-5 -13	-4 -16	-9 -17	-8 -20	-12 -20	-11 -23	3	6	
6	10	+83 +25	+115 +25	+28 +13	+35 +13	+6 +5	+9 +0	+15 +0	+22 +0	+36 +0	+58 +0	± 4.5 ± 7.5	+5 -4	+8 -7	+2 -7	+5 -10	-3 -12	0 -15	-7 -16	-4 -19	-12 -21	-9 -24	-16 -25	-13 -28	6	10	
10	14	+102 +32	+142 +32	+43 +16	+17 +6	+8 +0	+11 +0	+18 +0	+27 +0	+43 +0	+70 +0	± 5.5 ± 9	+6 -5	+10 -8	+2 -9	+6 -12	-4 -15	0 -18	-9 -20	-5 -23	-15 -26	-11 -29	-20 -31	-16 -34	10	14	
14	18																									14	18
18	24	+124 +40	+170 +40	+53 +20	+28 +7	+9 +0	+13 +0	+21 +0	+33 +0	+52 +0	+84 +0	± 6.5 ± 10.5	+8 -5	+12 -9	+2 -11	+6 -15	-4 -17	0 -21	-11 -24	-7 -28	-18 -31	-14 -35	-24 -37	-20 -41	18	24	
24	30																									24	30
30	40	+150 +50	+210 +50	+64 +25	+25 +9	+11 +0	+16 +0	+25 +0	+39 +0	+62 +0	+100 +0	± 8 ± 12.5	+10 -6	+14 -11	+3 -13	+7 -18	-4 -20	0 -25	-12 -28	-8 -33	-21 -37	-17 -42	-29 -45	-25 -50	30	40	
40	50																									40	50
50	65	+180 +60	+250 +60	+76 +30	+29 +10	+13 +0	+19 +0	+30 +0	+46 +0	+74 +0	+120 +0	± 9.5 ± 15	+13 -6	+18 -12	+4 -15	+9 -21	-5 -24	0 -30	-14 -33	-9 -39	-26 -45	-21 -51	-35 -56	-30 -62	50	65	
65	80																									65	80
80	100	+212 +72	+292 +72	+90 +36	+34 +12	+15 +0	+22 +0	+35 +0	+54 +0	+87 +0	+140 +0	± 11 ± 17.5	+16 -6	+22 -13	+4 -18	+10 -25	-6 -28	0 -35	-16 -38	-10 -45	-30 -45	-24 -59	-41 -76	-38 -76	80	100	
100	120																									100	120
120	140																									120	140
140	160	+245 +85	+335 +85	+83 +43	+106 +43	+18 +14	+25 +40	+40 +63	+100 +100	+160 +160	+200 +200	± 12.5 ± 20	+18 -7	+26 -14	+4 -21	+12 -28	-8 -33	0 -40	-20 -45	-12 -52	-36 -61	-28 -68	-58 -90	-50 -90	140	160	
160	180																									160	180
180	200																									180	200
200	225	+285 +100	+390 +100	+96 +50	+122 +15	+44 +15	+20 +0	+29 +0	+46 +0	+72 +0	+115 +185	± 14.5 ± 23	+22 -7	+30 -16	+5 -24	+13 -33	-8 -37	0 -46	-22 -51	-14 -60	-41 -70	-33 -79	-71 -100	-63 -109	200	225	
225	250																									225	250
250	280	+320 +110	+430 +110	+108 +56	+137 +17	+49 +17	+23 +0	+32 +0	+52 +0	+81 +0	+130 +210	± 16 ± 26	+25 -7	+36 -16	+5 -27	+16 -36	-9 -41	0 -52	-25 -57	-14 -66	-47 -79	-36 -88	-117 -126	-74 -126	250	280	
280	315																									280	315
315	355	+355 +125	+485 +125	+98 +62	+119 +62	+54 +18	+25 +0	+36 +0	+57 +0	+89 +0	+140 +230	± 18 ± 28.5	+29 -7	+39 -18	+7 -29	+17 -40	-10 -46	0 -57	-26 -62	-16 -73	-51 -87	-41 -98	-133 -144	-87 -144	315	355	
355	400																									355	400
400	450	+385 +135	+535 +135	+108 +68	+131 +68	+60 +20	+83 +20	+27 +0	+40 +0	+63 +0	+97 +155	± 20 ± 31.5	+33 -7	+43 -20	+8 -32	+18 -45	-10 -50	0 -63	-27 -67	-17 -80	-55 -95	-45 -108	-113 -166	-103 -166	400	450	
450	500																									450	500

Conversion tables

Load and force conversion

When using the conversion tables below please refer to the centre columns in each table, i.e.

in the first table: 1 newton = 0,22481 lbf

in the second table: 1 kg = 2,2046 lb.

Newton's to pounds force and pounds force to newtons

N		lbf
4,448	1	0,22481
8,896	2	0,44962
13,345	3	0,67443
17,793	4	0,89924
22,241	5	1,12404
26,689	6	1,34885
31,138	7	1,57366
35,586	8	1,79847
40,034	9	2,02328
44,482	10	2,24809
48,930	11	2,47290
53,379	12	2,69771
57,827	13	2,92252
62,275	14	3,14733
66,723	15	3,37213
71,172	16	3,59694
75,620	17	3,82175
80,068	18	4,04656
84,516	19	4,27137
88,964	20	4,49618

Kilogrammes to pounds and pounds to kilogrammes

kg		lb
0,4536	1	2,2046
0,9072	2	4,4092
1,3608	3	6,6139
1,8144	4	8,8185
2,2680	5	11,0231
2,7216	6	13,2277
3,1751	7	15,4324
3,6287	8	17,6370
4,0823	9	19,8416
4,5359	10	22,0462
4,9895	11	24,2508
5,4431	12	26,4555
5,8967	13	28,6601
6,3503	14	30,8647
6,8039	15	33,0693
7,2575	16	35,2740
7,7111	17	37,4786
8,1647	18	39,6832
8,6183	19	41,8878
9,0718	20	44,0925

Tolerance conversion

The table below gives a rounded conversion and should be used for reference only when converting metric tolerances to inch units

Tolerance conversion from 0,001 mm units to 0,0001 inch units

0,001 mm units	0	10	20	30	40	50	60	70	80	90
0	0	3,9	7,9	11,8	15,7	19,7	23,6	27,5	31,5	35,4
1	0,4	4,3	8,3	12,2	16,1	20,1	24,0	27,9	31,9	35,8
2	0,8	4,7	8,7	12,6	16,5	20,5	24,4	28,3	32,3	36,2
3	1,2	5,1	9,0	13,0	16,9	20,9	24,8	28,7	32,7	36,6
4	1,6	5,5	9,4	13,4	17,3	21,2	25,2	29,1	33,1	37,0
5	2,0	5,9	9,8	13,8	17,7	21,6	25,6	29,5	33,5	37,4
6	2,4	6,3	10,2	14,2	18,1	22,0	26,0	29,9	33,8	37,8
7	2,8	6,7	10,6	14,6	18,5	22,4	26,4	30,3	34,2	38,2
8	3,1	7,1	11,0	15,0	18,9	22,8	26,8	30,7	34,6	38,6
9	3,5	7,5	11,4	15,3	19,3	23,2	27,2	31,1	35,0	39,0

Metric/inch conversions

mm	0	10	20	30	40	50	60	70	80	90
0	inch	0,39370	0,78740	1,18110	1,57480	1,96850	2,36220	2,75590	3,14961	3,54331
1	0,03937	0,43307	0,82677	1,22047	1,61417	2,00787	2,40157	2,79528	3,18898	3,58268
2	0,07874	0,47244	0,86614	1,25984	1,65354	2,04724	2,44094	2,83464	3,22835	3,62205
3	0,11811	0,51181	0,90551	1,29921	1,69291	2,08661	2,48031	2,87402	3,26772	3,66142
4	0,15748	0,55118	0,94488	1,33858	1,73228	2,12598	2,51968	2,91338	3,30709	3,70079
5	0,19685	0,59055	0,98425	1,37795	1,77165	2,16535	2,55906	2,95276	3,34646	3,74016
6	0,23622	0,62992	1,02362	1,41732	1,81102	2,20472	2,59842	2,99212	3,38583	3,77953
7	0,27559	0,66929	1,06299	1,45669	1,85039	2,24409	2,63780	3,03150	3,42520	3,81890
8	0,31496	0,70866	1,10236	1,49606	1,88976	2,28346	2,67716	3,07087	3,46457	3,85827
9	0,35433	0,74803	1,14173	1,53543	1,92913	2,32283	2,71654	3,11024	3,50394	3,89764

mm	0	100	200	300	400	500	600	700	800	900
0	inch	3,93701	7,87402	11,8110	15,7480	19,6850	23,6220	27,5590	31,4961	35,4331
5	0,19685	4,13386	8,07087	12,0079	15,9449	19,8819	23,8189	27,7559	31,6929	35,6299
10	0,39370	4,33071	8,26772	12,2047	16,1417	20,0787	24,0157	27,9528	31,8898	35,8268
15	0,59055	4,52756	8,46457	12,4016	16,3386	20,2756	24,2126	28,1496	32,0866	36,0236
20	0,78740	4,72441	8,66142	12,5984	16,5354	20,4724	24,4094	28,3464	32,2835	36,2205
25	0,98425	4,92126	8,85827	12,7953	16,7323	20,6693	24,6063	28,5433	32,4803	36,4173
30	1,18110	5,11811	9,05512	12,9921	16,9291	20,8661	24,8031	28,7402	32,6772	36,6142
35	1,37795	5,31496	9,25197	13,1890	17,1260	21,0630	25,0000	28,9370	32,8740	36,8110
40	1,57480	5,51181	9,44882	13,3858	17,3228	21,2598	25,1968	29,1338	33,0709	37,0079
45	1,77165	5,70866	9,64567	13,5827	17,5197	21,4567	25,3937	29,3307	33,2677	37,2047
50	1,96850	5,90551	9,84252	13,7795	17,7165	21,6535	25,5906	29,5276	33,4646	37,4016
55	2,16535	6,10236	10,0394	13,9764	17,9134	21,8504	25,7874	29,7244	33,6614	37,5984
60	2,36220	6,29921	10,2362	14,1732	18,1102	22,0472	25,9842	29,9212	33,8583	37,7953
65	2,55906	6,49606	10,4331	14,3701	18,3071	22,2441	26,1811	30,1181	34,0551	37,9921
70	2,75590	6,69291	10,6299	14,5669	18,5039	22,4409	26,3780	30,3150	34,2520	38,1890
75	2,95276	6,88976	10,8268	14,7638	18,7008	22,6378	26,5748	30,5118	34,4488	38,3858
80	3,14961	7,08661	11,0236	14,9606	18,8976	22,8346	26,7716	30,7087	34,6457	38,5827
85	3,34646	7,28346	11,2205	15,1575	19,0945	23,0315	26,9685	30,9055	34,8425	38,7795
90	3,54331	7,48031	11,4173	15,3543	19,2913	23,2283	27,1654	31,1024	35,0394	38,9764
95	3,74016	7,67716	11,6142	15,5512	19,4882	23,4252	27,3622	31,2992	35,2362	39,1732

mm	inch	mm	inch	mm	inch
0,001	0,000039	0,01	0,00039	0,1	0,00394
0,002	0,000079	0,02	0,00079	0,2	0,00787
0,003	0,000118	0,03	0,00118	0,3	0,01181
0,004	0,000157	0,04	0,00157	0,4	0,01575
0,005	0,000197	0,05	0,00197	0,5	0,01968
0,006	0,000236	0,06	0,00236	0,6	0,02362
0,007	0,000276	0,07	0,00276	0,7	0,02756
0,008	0,000315	0,08	0,00315	0,8	0,03150
0,009	0,000354	0,09	0,00354	0,9	0,03543

1 METRE = 39,37 INCHES

RKB Europe SA
General Condition of Contract
Edition November 2008

In this document RKB Europe SA is also referred to as "the Company".

- 1 Scope of Applicability
- 1.1 These General Terms and Conditions apply to all contracts of sale of any type of good and or services, unless otherwise expressly agreed in writing with the Customer.
- 1.2 Any General Terms and Conditions of the Customer shall apply only if and to the extent to which the Company has expressly consented thereto in writing. An express rejection of the Customer's general conditions is not required.
- 2 Contract Formation
- 2.1 The Customer's order must be in writing and validly signed.
- 2.2 A Customer's order shall always be subject to the Company's written confirmation ("acceptance" or "confirmation of order") and the contract shall be deemed to have been concluded only upon such written confirmation ("acceptance" or "confirmation of order") by the Company.
- 2.3 A purchase shall also be considered concluded by delivering the ordered goods in case where no written confirmation ("acceptance" or "confirmation of order") was issued by the Company.
- 2.4 Any price list, illustration, catalogue, brochure, circular, advertisement, and other descriptive document constitute no offer, but only an approximate guide and shall be binding on the Company only upon written confirmation ("acceptance" or "confirmation of order") stating a limited acceptance period. Where no acceptance period is specified for the time-limited offer, a 30 days period, starting with the first notice (i.e. "information delivery"), will apply. Where the Company places a time-limited offer, the duly signed Customer's acceptance must reach the Company within the mentioned time-limit in order to be binding for the Company. Any time-limited offer for prompt delivery is subject to prior sales ("first come, first served").
- 2.5 Where special materials are ordered, the Company reserves the right to ship and charge 10% more or less than the quantity ordered. The Company shall call Customer attention on the difference between the quantity ordered and the quantity to be delivered by the Company, without any interference on contract formation between the parties and for the quantity unilaterally accepted by the Company. Unless otherwise agreed in writing the Company does not accept any restriction of its right to manufacture, sell or offer to any other Customers, goods which may be manufactured specially for a specific Customer or Customers or goods of like pattern.
- 2.6 The Company reserves right to cancel any uncompleted order, or to suspend delivery, should any of the Customer's commitments to the Company not be met.
- 3 Contract Amendments
- 3.1 No subsequent agreement, understanding alterations or amendments of a contract in any way altering these terms and conditions shall be binding upon the Company unless made in writing and validly signed by an authorized officer of all parties.
- 4 Price
- 4.1 For Customers with registered offices in the Swiss Confederation and Customers with registered offices outside the European Union, Company's prices include, except for Value Added Tax (VAT), such other taxes and duties payable in the Swiss Confederation. Duties payable outside the Swiss Confederation are for the Customer's account.
- 4.2 For Customers with registered offices within the European Union, Company's prices include, except for Value Added Tax (VAT), such other taxes and duties payable in the European Union area.
- 4.3 Prices include normal packing for both domestic and export markets. Unless otherwise expressly agreed upon in writing, the contract price does not include performances such as, however not limited to, installation, start up, training of Customer's operation and maintenance employees or engineers.
- 4.4 Shipping costs are for the buyer's account (see below: EXW clause 6.2) .
- 4.5 The Company may make appropriate price increases after contract formation if raw material suppliers have raised their prices significantly between contract formation and delivery date.
- 5 Payment
- 5.1 Unless otherwise agreed, payment shall be net cash and made within 30 days from the date of shipment delivery. Any payments must be made in full without any deduction. Whatever the means of payment used, payment shall not be deemed to have been effected before the Company's account has been fully and irrevocably credited.
- 5.2 If the Customer fails to pay by the stipulated date, the Company shall be entitled to interest from the day on which payment was due. The rate of interest shall be 8% above the rate of the main refinancing facility on the European Central Bank in force on the due date of payment. After having notified the Customer in writing, the Company may also suspend its contract performance (i.e. future deliveries and/or warranties) until the Company's account has been fully and irrevocably credited.
- 5.3 If the Customer has not paid the amount due within three months the Company shall be entitled to terminate the contract by notice in writing to the Customer and to claim compensation for the loss it has incurred.
- 5.4 If, in the space of time in-between contract formation and product shipment, circumstances affecting the general credit of the customer arise, the company shall have the right to deliver only after receipt of full and unconditional payment.
- 6 Delivery
- 6.1 The INCOTERMS (see: www.incoterms.com) in their respectively valid version shall apply for interpreting standard trade terms.
- 6.2 Unless agreed upon differently in writing, deliveries
- 6.2.1 to Customers with registered offices within the territory of the Swiss Confederation or a non European Union country ("third country") will be made ex works (EXW) Balerna (Via Primo Agosto, CH-6828 Balerna - Switzerland)
- 6.2.2 to Customers with registered offices within the territory of the European Union will be made ex works (EXW) Milano (Via Ernesto Teodoro Moneta 41, I-20161 Milano - Italy)
- 6.3 Unless agreed upon differently in writing, "delivery period" is 10 months and shall run from the date of contract formation.
- 6.4 Unless otherwise expressly agreed upon in writing, delivery dates stated by the Company or delivery dates in the end of a "delivery period" are approximate and shall not be deemed "fixed" under article 102 para. 2 of the Swiss Code of Obligations. In case of non-delivery at delivery date (stated by the Company or in the end of a "delivery period"), the Customer must exhort the Company and set a reasonable time limit ("grace period") to the Company (article 107 para. 1 of the Swiss Code of Obligations).
- 6.5 Compensation for damages in accordance with article 97 para. 1 ("non-delivery") of the Swiss Code of Obligations, is excluded in case of slight negligence by the Company or its employees or any auxiliary person (article 100 para. 1 Swiss Code of Obligations). Analogically, compensation for damages in accordance with article 107 para. 2 ("late delivery") of the Swiss Code of Obligations, is also excluded in case of slight negligence by the Company or its employees or any auxiliary person.
- 6.6 The presumption of article 190 of the Swiss Code of Obligations shall not apply.
- 6.7 The Company shall have the right to part deliveries, unless the Customer suffers unreasonable or inequitable harm thereby.
- 7 Warranty
- 7.1 The Company warrants that at the time of delivery the goods sold hereunder shall be free from defects in material and workmanship. The Customer is obliged to promptly examine the goods upon delivery and shall notify in writing defects without undue delay to the Company. The notification must detail the goods and the defects. If the Customer fails to comply with these obligations, the goods shall be deemed to have been accepted as faultless. The Company reserves the right to reject all claims for shortage made without undue delay and in any event every claim reaching the Company later than fourteen days after shipment delivery.
- 7.2 The same waiver of redhibitory action (annulment) or impairment ("actio quanti minoris"), in accordance to art. 205 para. 1 of the Swiss Code of Obligations, shall apply post-delivery. During a period of 12 months after the goods have been put into operation, but not exceeding 18 months after the passing of risks under clause 6.2 (or differing agreement), the Company warrants that the goods shall be free from defects in material and workmanship. During this time period the Company shall, at its own choice, replace or repair goods or issue credit for goods becoming "objectionable". If the daily use of the goods exceeds that which is agreed, this period shall be reduced proportionately.
- 7.3 Notice of defects shall be given immediately and, under no circumstances, later than fourteen days after the expiry of the periods set forth under clause 7.2. If the Customer fails to notify the Company in writing of a defect within the time limits set forth, he loses his right to have the defect remedied. Where the defect is such that it may cause damage, the Customer shall immediately inform the Company. The Customer shall bear the risk of damage resulting from his failure so to notify.
- 7.4 Warranty applies, provided the allegedly "objectionable good" is returned for examination and our inspection demonstrates the good not to be free from defects in materials and workmanship (i.e. objectionable). Warranty doesn't apply if the Company's inspection demonstrates that the product was not properly mounted, lubricated or used. The allegedly "objectionable goods" may be returned at the expense of the Company only upon receipt by the Customer of definite shipping instructions from the Company.
- 7.5 If the Customer submits a warranty claim and no defect is found for which the Company is liable, the Company shall be entitled to compensation for the costs it has incurred as a result of the notice.
- 7.6 Once the Company, based on its examination, decides in favour of warranty according to clause 7 if it shall repair the defect at its own cost and without undue delay or proceed to the shipment of a good free from defects in material and workmanship. If, within a reasonable time, the Company fails to fulfil its warranty obligations, the Customer may by written notice exhort the Company and set a time limit (grace period) for completion of the warranty. If, within such final time period, the Company fails to fulfil its obligations, the Customer may proceed with a replacement of the "objectionable good" by a third party. Reimbursement by the Company for reasonable costs incurred shall be in full settlement of the Company's liabilities for the said defect and shall in no event exceed the contractual value of the good subject to warranty.
- 7.7 In the event the Company determines that it is unable to remedy by repair or replacement of any "objectionable good", the Company's sole and exclusive remedy shall then be refund of the purchase price, or so much of the purchase price as has been paid by the Customer.
- 7.8 When a defect in a part of the delivered product has been remedied, the Company shall be liable for defects in the repaired or replaced part under the same terms and conditions as those applicable to the original product for a period of 12 months. For the remaining parts of the product the period set forth under clause 7.3 shall be extended only by a period equal to the period during which the product has been out of operation as a result of the defect.
- 7.9 The Customer shall at his own expense arrange for any dismantling and reassembly of equipment to the extent that this is necessary to remedy the defect. No dismantling or reassembly of the defective part is performed by the Company. The Company has fulfilled his obligations in respect of the defect when it delivers to the Customer a duly repaired or replaced part. Necessary transport of the product and or parts thereof from the Company to the Customer in connection with the remedying of defects for which the Company is liable shall be at expense of the Company.
- 7.10 Defective parts which have been replaced shall be property of the Company.
- 7.11 Specific qualities of the goods or fitness for particular purposes shall be deemed to have been warranted only if expressly stated in writing.
- 7.12 In addition to what explicitly stated under clause 7.1-7.11, no warranty shall apply:
- 7.12.1 To defects arising out of material provided, or out of a design furnished, by the Customer;
- 7.12.2 To defects due to causes arising after the risk has passed under clause 6.2 (or differing agreement);
- 7.12.3 To defective parts delivered by third parties, however the Company shall be obliged to assign to the Customer its corresponding claims against third parties;
- 7.12.4 To faults or damage by abnormal use or arising in consequence of faulty maintenance, fault repair by the Customer, alterations carried out without the Company's written consent, negligence or improper handling or storage of the goods by the Customer or his agents;
- 7.12.5 To consequences for any inexpert alterations or repairs carried out by unauthorised persons;
- 7.12.6 For the sale of used goods;
- 7.12.7 To goods not in the plant of the original Customer;
- 7.12.8 If and as long as the Customer fails to comply with his obligations under the contract, unless his failure to comply is negligible or the Customer is legally entitled to refuse performance.
- 7.13 The remedies under clause 7 shall be Customer's exclusive remedies for breach of this warranty or other claims for defects in goods. The Company makes no warranties, either express or implied (including, without limitation, warranties of merchantability or fitness for a particular purpose), other than those above set forth. The full purpose of this exclusive remedy shall be to provide the Customer with repair and replacement of defective goods in the manner provided for. This exclusive remedy shall not be deemed to have failed of its essential purpose so long as the Company is willing and able to repair and replace defective goods in the described manner.

- 8 Consequential damages and losses
- 8.1 Company's responsibility for any claims, damages, losses or liabilities arising out of or related to its performance of this contract or the goods covered hereunder, including but not limited to, any repair or replacement of goods under the warranty shall not exceed the sales price of the particular individual product which is the source of buyer's claim.
- 8.2 In no event shall the Company be liable for any special, indirect, consequential, or punitive damages of any character, including but not limited to, loss of use of productive facilities or equipment, loss of profits, loss of production, loss of use, loss of contracts or for any other consequential or indirect loss whatsoever, whether suffered by buyer or any third party, irrespective of whether such claims or actions for damages are based upon contract, warranty, negligence, strict liability or otherwise.
- 8.3 Article 1 of the Swiss Product Liability Law ("Legge federale sulla responsabilità per danno da prodotti" [LRDP; "Produktehaftpflichtgesetz" [PrHG]), outlaws the exclusion of liability for damages to a person or damages resulting out of the private use or consumption of the good. Swiss Product Liability Law shall not apply to goods leaving the territory of the Swiss Confederation in case where a foreign "strict liability" ("responsabilità causale", "Kausalhaftung") of the same nature is less stringent.
- 9 "Force majeure"
- 9.1 Either party shall be entitled to suspend performance of his obligations to the extent that such performance is impeded or made unreasonably onerous by any of the following circumstances: industrial disputes and any other circumstance beyond the control of the parties such as fire, war, extensive military mobilization, insurrection, requisition, seizure, embargo, restrictions in the use of power and defects or delays in deliveries by sub-contractors caused by any such circumstances.
- 9.2 A circumstance referred to in this clause, whether occurring prior to, or after the formation of the contract, shall give a right to suspension or delivery extension only if its effect on the performance of the contract could not be foreseen at the time of the formation of the contract.
- 9.3 The party claiming to be affected by "force majeure" shall notify the other party in writing without delay on the intervention and on the cessation of such circumstance.
- 9.4 If either party suffers unreasonable or inequitable harm by a delay due to "force majeure", the respective party shall have the right to rescind the contract after giving notice in writing.
- 10 Retention of Proprietary Rights
- 10.1 The goods delivered, including technical documents, shall remain property of the Company until the Company's claims against the Customer have been satisfied in full.
- 10.2 The Customer must notify the Company without delay of any attachment or other violation of the ownership of the Company by third parties.
- 10.3 If and to the extent the Company has claims against the Customer arising from transactions or dealings of any nature with the same Customer other than those referred to at the above clause 10.1, all goods supplied to the Customer shall remain property of the Company until all Company's claims against the Customer from all such transactions or dealings have been satisfied in full. If the value of the security provided exceeds the claims to be secured by more than twenty percentage points the Company shall be obliged to release the security of its choice at the Customer's request.
- 10.4 If the Customer fails to make any payment when due, he shall be obliged to return the goods that are subject to the Company's ownership rights after notice has been given by the Company, without affecting other rights. The Customer shall, in such event, be obliged to ship back these goods to the Company at his own risk and expense. The Customer shall be obliged to insure the goods delivered at his own expenses as long as they remain property of the Company.
- 10.5 If the goods with respect to which title has been retained become part of a new item by way of connection or is built-in and if such item is owned by the Customer, it is hereby agreed that the Customer transfers co-ownership to the new item to the Company and acts as bailee without compensation for such item. The Company's co-ownership share shall be determined by the relationship of the value of the goods with respect to which title was retained to the value of the new item. The Customer hereby assigns to the Company all claims against Company's Customers resulting from the sale of the goods with respect to which title was retained. If the goods with respect to which title was retained are sold together with other goods that are not owned by the Company, then the Customer assigns to the Company such part of the claim resulting from the sale that is equal to the invoiced amount for the goods with respect to which title was retained. If an item with respect to which title was retained is only partially owned by us and is sold, the part of the claim resulting from the sale that is assigned to the Company will be equal to the company's percentage of ownership in the goods with respect to which title was retained. The Company grants authority to the Customer to collect any claims resulting from the further sale of the retained goods. If requested, all Customer must deliver to the Company all information and documents required to enforce the Company's rights.
- 10.6 If the law of the country where the goods are situated after delivery does not permit to the Company to retain the property of the goods, the Company shall be entitled to rights as closely related to the Company's rights stated above, as the law permits. The Customer shall give to the Company every assistance in taking any measure required to protect Company's rights of property or such other rights as aforesaid.
- 10.7 The retention of title under clause 10.1-10.6 shall not affect the passing of risk under clause 6.2 (INCOTERMS).
- 11 Intellectual Property Rights
- 11.1 The Company shall not be liable if the manufacturing of the goods supplied is based on specifications or drawings provided by the Customer or if the application of the goods infringes third party rights.
- 11.2 The Customer agrees to indemnify and hold the Company harmless for any loss, cost, liability or expense resulting from infringement, or claimed infringement, of Intellectual Property Rights in connection with goods manufactured by the Company in accordance with Customer's specifications..
- 12 Regulation (EC) No. 1334/2000
- 12.1 Regulation (EC) No. 1334/2000 sets up a Community regime for the control of exports of dual-use items and technology. "Dual-use" items are goods, including software and technology, which can be used for both civil and military purposes.
- 12.2 According to the regulation CE 1334/2000, the Company declares that all the products it handles as per business scope are generic mechanical components and therefore intended for civil purposes only."
- 12.3 The Customer agrees to indemnify and hold the Company harmless for any loss, cost, liability or expense resulting from infringement, or claimed infringement, of Regulation (EC) No. 1334/2000.
- 13 Confidentiality
- 13.1 The Customer shall keep strictest secrecy about and may not disclose the contents of technical documents or any know-how to any third party. The Customer may not use such technical data or know-how for any purpose other than those envisaged by the contract.
- 13.2 This confidentiality obligation shall remain in force also after the expiration of the sale contract.
- 14 Severability
- 14.1 Even if an individual provision herein is or becomes invalid the remaining provisions of the contract or of the General Conditions shall remain valid. This also applies to issues the parties intended but failed to address.
- 15 Drawings and other documents
- 15.1 The Company reserves all property rights and copyrights for cost estimates, drawings and other documents provided to the Customer. Those documents may not be utilised for purposes other than those specified by the Company or otherwise disclosed to third parties.
- 16 Applicable Law and Jurisdiction
- 16.1 The validity, construction and interpretation of all documents relating to this sale, and the rights and duties of the parties thereto shall be governed by the laws of the Swiss Confederation, excluding the provisions of the United Nations Convention on Contracts for the International Sale of Goods dated 11 April 1980 (CISG).
- 16.2 For all disputes arising out of or in connection with the contractual relationship between the Company and its contractual counterpart (the Customer), where the amount in controversy, excluding court fees and legal expenses, is below CHF 200'000.—, the competent jurisdiction shall be Lugano (Switzerland).
- 16.3 Where the amount in controversy, excluding court fees and legal expenses, is beyond CHF 200'000.—, all disputes arising out of or in connection with the contractual relationship between the Company and its contractual counterpart (the Customer), shall be finally settled in arbitration under the Rules of Arbitration of the International Chamber of Commerce (ICC), by three arbitrators appointed in accordance with the said Rules. The place of arbitration shall be Zurich (Switzerland). The language of the arbitration shall be English. Any Party shall have the right to have recourse to and shall be bound by the pre-arbitral referee procedure of the International Chamber of Commerce (ICC) in accordance with its Rules for a Pre-Arbitral Referee Procedure. Neither party shall be prevented from having recourse to a court of competent jurisdiction for the purpose of seeking urgent conservatory or interim measures, being specified that the arbitral tribunal shall also have the power to order such measures.
- 16.4 Any dispute arising out of or in connection with the interpretation of clause 16.2 and/or clause 16.3 shall be finally settled in arbitration under the Rules of Arbitration of the International Chamber of Commerce (ICC), by three arbitrators appointed in accordance with the said Rules. The place of arbitration shall be Zurich (Switzerland). The arbitral tribunal shall resolve about its competency, according to the amount in controversy. Specifics under clause 16.3 shall apply.

RKB Europe SA
Limited Warranty
Edition December 2007

Limited Warranty and Limitation of Liability: RKB Europe SA, for itself and its related companies and subsidiaries (hereinafter described collectively as "RKB"), warrants that all RKB products sold will be free of defects in materials and workmanship for a period of twelve (12) months from date of delivery. The foregoing twelve (12) month warranty shall not be extended or changed by RKB furnishing any replacements, additions, attachments, accessories or repairs to the product subsequent to the date of delivery or acceptance. The foregoing warranty is the sole and exclusive warranty of RKB regarding the product.

Disclaimer of other warranties: other than the foregoing warranty, there are no express or implied warranties or any affirmations of fact or promises by RKB with respect to the product. RKB disclaims any warranties, express, implied or statutory, not specifically set forth above. Without limiting the generality of the foregoing, RKB expressly disclaims any implied warranties of merchantability, fitness for any particular purpose, infringement or any representations of fact or quality not expressly set forth herein.

Limitation of liability and remedies: RKB's sole responsibility and liability incurred as a result of the sale and/or use of the product, and the purchaser's exclusive remedy against RKB under any warranty shall be limited to the repair or replacement, at RKB's option, of product components not conforming to the warranty. The total liability of RKB shall in no event exceed the amount actually paid to RKB by purchaser with respect to the product. This limitation of remedy is intended by the parties to survive even if the remedy is claimed to have failed of its essential purpose. Purchaser's full and complete performance of all obligations of purchaser recited in this agreement is a condition precedent to RKB's warranty obligations and liabilities herein.

Purchaser's damages and limitations: in no event shall RKB be liable to purchaser, its assigns or agents, for economic loss, incidental or consequential damages, in contract or in tort, including but not limited to, any damages for lost profits, down-time, lost production, failure to meet purchaser's sales contracts, or defects in purchaser's materials or workmanship arising directly or indirectly from the use of the product.

RKB

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The Alternative Power

Engineered in Switzerland
Technological Bearings

