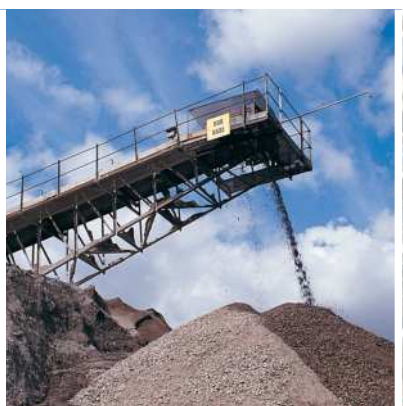
SKF bearings and mounted products

Engineered for long life in the world's most demanding applications









Important notice

For important updates and changes to this catalog, visit our catalog page at catalog.skfusa.com.

You will find corrections, updates and links to related publications such as:

- SKF Maintenance and Lubrication Products PUB MP/P1 03000 EN
- CR Seals handbook PUB 810-701
- MRC Engineering Handbook PUB M190-730
- Bearing Installation and Maintenance Guide PUB 140-710

If you notice a typographical error or other incorrect information, or if you have information to add, we encourage you to submit corrections or additions to pubupdates@skf.com.

For additional technical specification not covered in the catalog, please refer to the website, skf.com/us. Select Engineering Tools under the Support menu. Or contact SKF Applications Engineering at 1-888-SKF-2000.

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About this catalog

Catalog format

Inside this catalog, you will find the common range of bearings and mounted products offered by SKF USA Inc. To help you locate SKF products and technical information as easily as possible, we have organized the structure of the catalog as follows:

Bearing basics

This chapter includes general information pertaining to all bearing types included in this catalog, such as designations, bearing types, technical features and characteristics, basic life theory, and materials.

Product chapters

The following type of information typically appears in each chapter:

Product nomenclature

Contains commonly used current nomenclature and descriptions that apply to that specific product type.

Product introduction

Covers information regarding basic design, assortment, and variations within the product type.

Product highlights

Includes information on the benefits and features of the particular product type.

Technical features

Covers boundary dimensions, tolerances and physical characteristics which are common within the product type.

Product specification tables

- Products are sorted by the basic product designation number (excluding the Split pillow blocks metric series) and contain principal dimensions, basic load ratings (dynamic and static), speed ratings, and mass.
- Product designation numbers shown in blue indicate SKF Explorer class bearings. Please see page 25 for details on SKF Explorer class bearings.
- Variants to the basic product range (i.e. shields, seals, etc.) appear as illustrations above each table for quick reference.
- Imperial units of measure appear in the light blue columns and the corresponding metric units appear in the white columns.
- At the top of each page, you will find descriptions of the product assortment included on that specific page (i.e. number of rows, closures, size range, etc.).

Index

The index is the last chapter in this catalog beginning on page 577.

This catalog is intended to be used as a product reference guide only and as such contains only very basic product information. This catalog is not intended to be used as a design manual. The data in this catalog is based on current information at the time of press. The data from earlier catalogs which deviates from those given here are rendered invalid. SKF reserves the right to make changes necessitated by technological developments. Consult SKF USA Inc. prior to design change or order placement.

For additional technical specifications not covered in this catalog, please refer to the SKF website, skfusa.com. Select Engineering Tools under the Support menu. Or contact SKF Applications Engineering.

Additional information on mounting, dismounting, lubrication, and maintenance of SKF products can be found in the SKF Bearing Installation and Maintenance Guide (publication #140-710).

Any reference in this catalog to SKF Applications Engineering is making reference to the SKF USA Inc. Applications Engineering Department that can be reached through the SKF Technical Hotline at 1-888-SKF-2000.

SKF does not guarantee the continued performance of any mounted unit where the insert bearing is replaced or modified by the customer.

How to reach SKF USA Inc.

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E-mail	skfusainfo@skf.com
Company web site	www.skfusa.com
On-line store	www.ptplace.com

Conversions

Quantity	Unit	Conversion			
Length	Inch	1 mm	.000039 in	1 in	25 400 µm
	Inch	1 mm	0.039 in	1 in	25.40 mm
	Foot	1 m	3.281 ft	1 ft	0.3048 m
	Yard	1 m	1.094 yd	1 yd	0.9144 m
	Mile	1 km	0.6214 mile	1 mile	1.609 km
Area	Square inch	1 mm^2	0.00155 sq in	1 sq in	645.16 mm^2
	Square foot	1 m^2	10.76 sq ft	1 sq ft	0.0929 m^2
Volume	Cubic inch	1 cm^3	0.061 cu in	1 cu in	16.387 cm^3
	Cubic foot	1 m^3	35 cu ft	1 cu ft	0.02832 m^3
	Imperial gallon	1 l	0.22 gallon	1 gallon	4.5461 l
	U.S. gallon	1 l	0.2642 US gallon	1 U.S. gallon	3.7854 l
Velocity	Foot per second	1 m/s	3.28 ft/s	1 ft/s	0.30480 m s
Speed	Mile per hour	1 km/h	0.6214 mile/h (mph)	1 mile/h (mph)	1.609 km/h
Mass	Ounce	1 g	0.03527 oz	1 oz	28.350 g
	Pound	1 kg	2.205 lb	1 lb	0.45359 kg
	Short ton	1 tonne	1.1023 short ton	1 short ton	0.90719 tonne
	Long ton	1 tonne	0.9842 long ton	1 long ton	1.0161 tonne
Density	Pound per cubic inch	1 g/cm^3	0.0361 lb/cu in	1 lb/cu in	27.680 g/cm^3
Force	Pound-force	1 N	0.225 lbf	1 lbf	4.4482 N
Pressure	Pounds per	1 MPa	145 psi	1 psi	6.8948 = 10^3 Pa
Stress	Square inch				
Moment	Inch pound-force	1 Nm	8.85 in lbf	1 in lbf	0.113 Nm
Power	Foot-pound per	1 W	0.7376 ft lbf/s	1 ft lbf/s	1.3558 W
	Second				
	Horsepower	1 kW	1.36 HP	1 HP	0.736 kW
Temperature	Degree	Celsius	Tc = 0.555 (T_f) – 32°	Fahrenheit	Tf = 1.8 (T_c) + 32°

Bearing Basics

Basic bearing designations for rolling bearings (excluding housings and units)

Each SKF® bearing of standard design is given a basic designation, which normally consists of three, four or five figures or a combination of letters and figures. The figures shown on page 5 indicate the basic designation system for the most common types of rolling bearings.

These figures identify the following in the order stated:

- The first figure in the basic designation or, alternatively, the first letter or combination of letters, denotes the bearing type. The bearing types identified by these designations can be seen from the diagram on page 6 and in the accompanying text.
- The second and third figures denote the Dimension series (according to ISO); the first identifies the width or height ratio (B or T for width and H for height) and the other the Diameter series (D).
- The two final figures in the basic designation, when multiplied by five, identify the bore diameter d in mm, with the following exceptions.

For bearings with a bore diameter less than 10 mm or equal to or greater than 500 mm, the bore diameter is given uncoded in mm and is separated from the rest of the basic designation by an oblique stroke, e.g. 618 / 8 (d = 8 mm) or 511 / 530 (d = 530mm). The same system also applies to bearings of the ISO dimension series with a bore diameter of 22, 28, or 32 mm, e.g. 322 / 28 (d = 28 mm). Bearings with a bore diameter of 10, 12, 15 or 17 mm are identified as follows:

00 = 10 mm

01 = 12 mm

02 = 15 mm

03 = 17 mm

In the case of certain deep groove ball bearings, self aligning ball bearings and angular contact ball bearings with a bore diameter of less than 10 mm, the bore diameter is also given uncoded in mm, but directly after the first two figures, e.g. 629 or 129 (d = 9 mm).

A non-standard bore diameter is always expressed in mm to a maximum of three decimal places. This bore diameter identification belongs to the basic designation and is separated from the normal basic designation by an oblique stroke, e.g. 6202 / 15.875 (d = 15.875 mm instead of the normal 15 mm).

Supplementary designations

The supplementary designations are placed either in front of the basic designation (prefix) or after the basic designation (suffix). Prefixes serve to identify bearing components. Suffixes are used to identify designs (variants) that differ in some way from the original design or that differ from the design that is the current production standard.

Prefixes

A prefix designates either a bearing component (generally with the same basic designation as that of the complete bearing), taper roller bearing cones and cups corresponding to ABMA standard specifications, or special bearings.

In some cases, a set of "prefix" letters represents part of the standard designation (rather than a prefix depicting a special bearing). The most obvious example of these are the cylindrical roller bearings (NU 320 ECM).

Other examples are needle bearings, CARB, housings, accessories, etc.

Suffixes

A suffix identifies a variant, i.e. a deviation from the standard design or from the original design. These suffixes are grouped according to an established system and are added to the basic designation in a specified order in cases where more than one deviation applies. Where two or more suffixes normally preceded by an oblique stroke are combined, then the oblique stroke will generally appear only before the first suffix. In the following cases, however, the suffixes are separated by oblique strokes:

a) Where two suffixes follow one another, the first ending with a figure and the second tarting with a figure, e.g. 6310 / C4 / 630251;

b) Where a clearance range is followed by a suffix for type of grease and where the meaning would otherwise be ambiguous, e.g. 6205 - 2Z / C2L / HT51 (= C2L + HT51; low range C2 clearance + HT51 grease) but 6205 - 2Z / C2LHT51 (= C2 + LHT51; C2 clearance + LHT51 grease).

Complete product designations (basic designation plus any other supplementary designations) are always marked on the package, whereas the designation on the actual product may be incomplete for practical reasons (i.e. small bearings with very lengthy designations).

Designation

Diagram of the basic designation system for rolling bearings (see page 6)

Above each bearing type symbol is shown a column of the most common bearing series for that particular type. Below each symbol is shown a bearing type figure or letter(s). Parenthesis in the designation indicate figures, which according to the rules of this system, should be included in the basic designation, but have been left out for practical reasons (see explanations below):

0 Ball bearings

- Double row angular contact
- Single row filling slot (maximum capacity) type deep groove

The symbol (0) is not included as part of ball bearing designations.

1 Self aligning ball bearings
The symbol for the type of bearing (1) or the first figure (0 or 1) of the dimension series may be omitted. Bearings with bore diameter less than 10 mm are designated by three figures, where the last figure represents the bore diameter in mm.

2 Spherical roller bearings and spherical roller thrust bearings

3 Taper roller bearings

4 Double row deep groove ball bearings

5 Thrust ball bearings

6 Single row deep groove ball bearings
The symbol for the type of bearing (6) and / or the first figure (0) of the dimension series may be omitted. Bearings with bore diameters less than 10 mm are designated by three figures, where the last figure represents the bore diameter in mm. On sizes 500 and larger mm bore, the actual bore diameter is preceded by a "/" (e.g. 62 / 520).

7 Single row angular contact ball bearings
The first figure (0 or 1) of the dimension series may be omitted.

8 Cylindrical roller thrust bearings

C CARB® toroidal roller bearings
The C prefix denotes a CARB bearing. CARB is SKF's trademarked name for a toroidal roller bearing. The designation for CARB bearings with bore diameters less than 500 mm use four digits. The first two digits designate the dimension series and the final two digits indicate the bore diameter size. Above 500 mm, a "/" separates the series designation from the actual bore size in mm.

N Cylindrical roller bearings
The symbol N, which indicates the type of bearing, may be supplemented by one or two letters to indicate different guide flange combinations. In the dimension series designation that follows, the first figure (0) may be omitted.

NK Needle roller bearings

QJ 4-point contact ball bearings The first figure (0) of the dimension series has been omitted.

Other products

In addition to prefixes and suffixes for roller bearings, prefixes and suffixes are shown for mounted products. For details, please reference the four mounted products chapters that appear in this catalog.

Grease designations

The various available lubricants for pre-lubricated sealed or shielded bearings are identified by suffixes such as MT, LHT, GMB, etc.

Each bearing series has a Standard grease, which is not identified in the designation. If the grease (or the grease fill) in the bearing is Non-standard (suited for high or low temperature), it is part of the designation shown on the bearing and package.

Unique variants

Some standard SKF bearings are modified with unique variants. SKF now uses a 3-letter / number prefix to identify these bearing variants by drawing number.

Position 1:	Product class (ex: B)
Position 2:	Bearing group (ex: A indicates Angular contact ball bearing)
Position 3:	Sub group, if needed
Example:	BA2 6515 (no sub group) indicates a variant Angular contact ball bearing

Current designations include:

BA1, BA2	Angular contact ball bearing
BB1, BB2, BBY	Deep groove ball bearing
BC1, BC2	Cylindrical roller bearing
BS2	Spherical roller bearing
BT1, BT2, BT4	Tapered roller bearing

This system replaces an older system of 6-digit (boxcar) numbers (for example BA2B 630560).

What does "JEM" mean?

In the aftermarket, SKF uses the designation "JEM" for deep groove ball bearings that are primarily used in electric motor applications. The "J" designates a steel cage and "EM" designates electric motor quality as required by electric motor OEMs.

Several characteristics define the "JEM" specification – all of which come standard in the SKF deep groove ball bearing and meet industry requirements.

- C3 radial internal clearance
- Steel cage
- Electric motor noise quality levels
- GJN grease supplied in the double shielded or sealed versions

GJN is a urea-based high temperature grease that offers a wide range of operating temperatures and is quiet running. It is compatible with most other polyurea and lithium based greases.

Tolerance is also an important criteria for running accuracy. SKF deep groove ball bearings up to 110 mm outside diameter have a tolerance equal to ABEC 3 or greater. This means higher running accuracy, cooler running conditions, and quieter performance than the minimum (ABEC 1) typically required by the electric motor industry.

Nomenclature for each product type

For your convenience, each chapter in this catalog includes the most commonly referenced nomenclature.

Designation

Designation system for SKF standard metric ball and roller bearings

Bearing series

Bearing type

Each bearing type displays characteristic properties, based on its design, which makes it more or less appropriate for a given application. For example, deep groove ball bearings can accommodate moderate radial loads as well as axial loads. They have low friction and can be produced with high precision and in quiet running variants. Therefore they are preferred for small and medium-sized electric motors.

Spherical and toroidal roller bearings can carry very heavy loads and are self-aligning. These properties make them popular for example, in heavy engineering applications, where there are heavy loads, shaft deflections and misalignments.

In many cases, however, several factors have to be considered and weighed against each other when selecting a bearing type, so that no general rules can be given.

The information provided here should serve to indicate which are the most important factors to be considered when selecting a standard bearing type and thus facilitate an appropriate choice:

- Available space
- Loads
- Misalignment
- Precision
- Speed
- Quiet running
- Stiffness
- Axial displacement
- Mounting and dismounting
- Integral seals

An overview of the standard bearing types, their design characteristics and their suitability for the demands placed on a given application will be found in the matrix on pages 12 and 13. Detailed information on the individual bearing types, including their characteristics and the available designs, will be found in the sections dealing with individual bearing types. Bearing types that are not included in the matrix are generally only used for a few well-defined applications.

The matrix permits only a relatively superficial classification of bearing types. The limited number of symbols does not allow an exact differentiation and some properties do not depend solely on bearing design. For example, the stiffness of an arrangement incorporating angular contact ball bearings or taper roller bearings also depends on the applied preload and the operating speed, which is influenced by the precision of the bearing and its associated components as well as by the cage design. In spite of its limitations, the matrix on pages 12 and 13 should enable an appropriate comparison of bearing types. It should also be considered that the total cost of a bearing arrangement and inventory considerations could also influence the final choice.

Other important criteria to be observed when designing a bearing arrangement – load carrying capacity and life, friction, permissible speeds, bearing internal clearance or preload, lubrication, sealing etc. – are dealt with in the SKF Rolling bearings catalog (17000 EN).

Available space

In many cases, one of the principal dimensions of a bearing – the bore diameter – is predetermined by the machine's design and the shaft diameter.

For small-diameter shafts all types of ball bearings can be used, the most popular being deep groove ball bearings; needle roller bearings are also suitable **(Figure 1a).** For large-diameter shafts, cylindrical, taper, spherical and toroidal roller bearings are available, as well as deep groove ball bearings **(Figure 1b).**

When radial space is limited, bearings with a small cross section, particularly those with a low cross-sectional height, should be chosen, i.e. bearings in the 8 or 9 diameter series.

For purely axial loads, needle roller and cage thrust assemblies (with or without washers) as well as thrust ball bearings and cylindrical roller thrust bearings can be used **(Figure 1c).**

Figure 1a

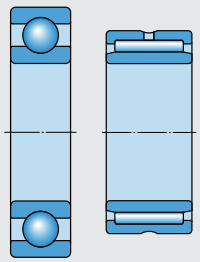


Figure 1b

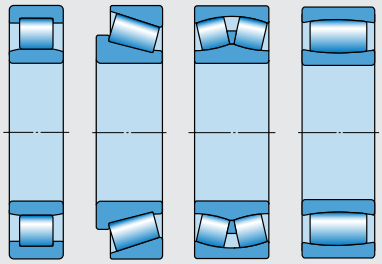
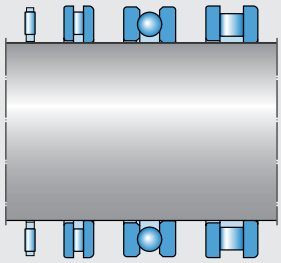


Figure 1c



Loads

Magnitude of load

The magnitude of the load is one of the factors that usually determines the size of the bearing to be used. Generally, roller bearings are able to support heavier loads than similar sized ball bearings and bearings having a full complement of rolling elements can accommodate heavier loads than the corresponding caged bearings. Ball bearings are mostly used where loads are light or moderate.

For heavy loads and where shaft diameters are large, roller bearings are usually the more appropriate choice.

Direction of load

NU and N types cylindrical roller bearings, needle roller bearings and toroidal roller bearings can only support pure radial loads. All other radial bearings can accommodate some axial loads in addition to radial loads ("combined loads").

Axial load - (Figure 2b)

Thrust ball bearings and four-point contact ball bearings are suitable for light or moderate loads that are purely axial. Single direction thrust ball bearings can only accommodate axial loads acting in one direction; for axial loads acting in both directions, double direction thrust ball bearings are needed.

Angular contact thrust ball bearings can support moderate axial loads at high speeds; here the single direction bearings can also accommodate simultaneously acting radial loads, while double direction bearings are normally used only for purely axial loads.

For moderate and heavy axial loads acting in one direction, needle roller thrust bearings, cylindrical and taper roller thrust bearings are suitable, as are spherical roller thrust bearings. Spherical roller thrust bearings can also accommodate simultaneously acting radial loads. For heavy alternating axial loads, two cylindrical roller thrust bearings or two spherical roller thrust bearings can be mounted adjacent to each other.

Single row angular contact ball bearings and taper roller bearings, NJ and NU + HJ type cylindrical roller bearings and spherical roller thrust bearings can only accommodate axial loads acting in one direction. For axial loads of alternating direction these bearings must be combined with a second bearing. For this reason, single row angular contact ball bearings are available as "universal bearings" for paired mounting and single row taper roller bearings can be supplied as matched sets comprising two single row bearings (Single row angular contact ball bearings, page 57, and Taper roller bearings, page 225).

Combined load - (Figure 2c)

A combined load comprises a radial and an axial load acting simultaneously. The ability of a bearing to carry an axial load is determined by the bearing contact angle – the greater the angle, the more suitable the bearing for axial loads. An indication of this is given by the factor Y, which becomes smaller as the contact angle increases. The values of this factor for a bearing type or for individual bearings will be found in the introductory text of the product table sections, or in the actual product tables. The axial load carrying capacity of a deep groove ball bearing depends on its internal design and the internal clearance in the bearing (Deep groove ball bearings, page 33).

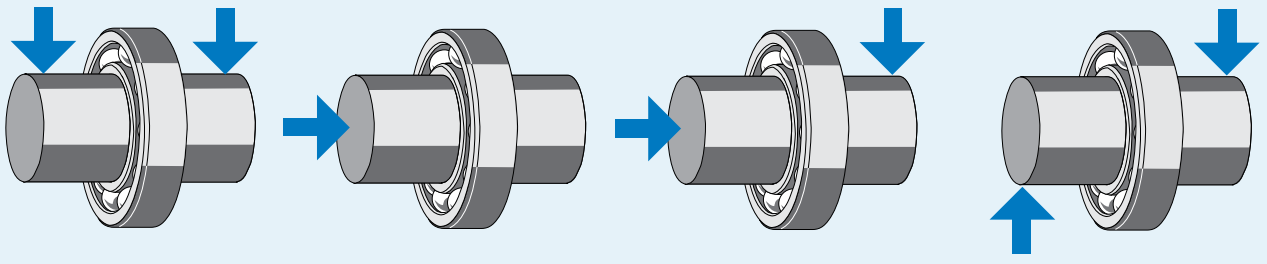
For combined loads, single and double row angular contact ball bearings and single row taper roller bearings are most commonly used although deep groove ball bearings and spherical roller bearings can be suitable. In addition, self-aligning ball bearings and NJ and NUP type cylindrical roller bearings as well as NJ and NU type cylindrical roller bearings with HJ angle rings can be used for combined loads where the axial component is relatively small.

When the axial component of combined loads is large, it may be supported independently from the radial load by a separate bearing. In addition to the thrust bearings, some radial bearings, e.g. deep groove ball bearings or four-point contact ball bearings, are suitable for this task. To make sure that the bearing is only subjected to the axial load in such cases, the bearing outer ring must be mounted with radial clearance.

Moment load - (Figure 2d)

When a load acts eccentrically on a bearing, a tilting moment will occur. Double row bearings, e.g. deep groove or angular contact ball bearings, can accommodate tilting moments, but paired single row angular contact ball bearings or taper roller bearings arranged face-to-face, or better still back-to-back, are more suitable.

Figure 2



Radial load
a

Axial load
b

Combined load
c

Moment load
d

Misalignment

Angular misalignments between the shaft and housing occur when the shaft bends (flexes) under the operating load. For example, when the bearing seatings in the housing are not machined to the same height or when shafts are supported by bearings in separate housings that are too far apart.

Rigid bearings, i.e. deep groove ball bearings and cylindrical roller bearings, can only accommodate very minor misalignments unless by force. Self-aligning bearings, i.e. self-aligning ball bearings, spherical roller bearings, CARB, and spherical roller thrust bearings **(Figure 3)**, on the other hand, can accommodate misalignment produced under operating loads and can also compensate for initial errors of misalignment resulting from machining or mounting errors. Values for the permissible misalignments are given in the introductory text of the table section. If the expected misalignment exceeds the permissible values, please contact the SKF application engineering service.

Thrust ball bearings with sphered housing washers and seating rings, Y-bearing units and alignment needle roller bearings **(Figure 4)** can compensate for initial misalignment arising from machining or mounting errors.

Precision

Bearings with higher precision than Normal are required for arrangements that must have high running accuracy (e.g. machine tool spindle arrangements) as well as those applications where very high speeds are required.

The Technical Features Tables at the beginning of each table section contain information regarding the tolerance classes to which the bearings in that section are produced. SKF produces a comprehensive range of high precision bearings, including single row angular contact ball bearings, single and double row cylindrical roller bearings, and single and double direction angular contact thrust ball bearings.

Figure 3

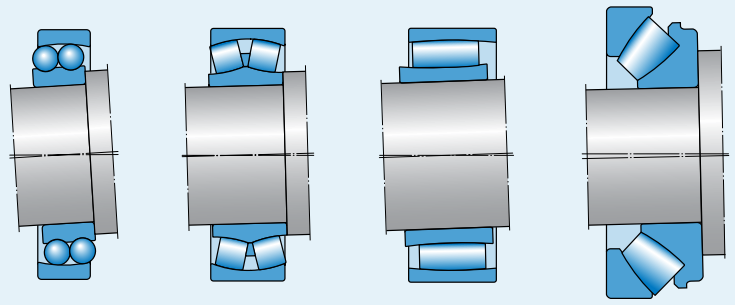
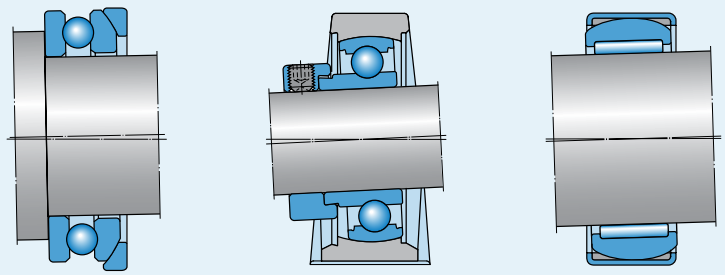


Figure 4



Speed

Speed ratings

There is a limit to the speed at which rolling bearings can be operated. Generally it is the operating temperature that can be permitted with respect to the lubricant being used or to the material of the bearing components that sets the limit. The speed at which this limiting bearing temperature is reached depends on the frictional heat generated in the bearing (including any externally applied heat) and the amount of heat that can be transported away from the bearing. Bearing type and size, internal design, load, lubrication and cooling conditions as well as cage design, accuracy and internal clearance all play a part in determining speed capability. In the product tables two speeds are listed: (thermal) Reference speed and (kinematic) Limiting speed.

Reference speeds

The (thermal) reference speed for a given bearing represents a reference speed value that is used to determine the permissible operating speed of the bearing when subjected to the specific operating conditions of load and lubrication type and method.

The reference speeds listed in the product tables are according to ISO 15312. This Standard has been established for oil lubrication but is valid also for grease and uses the following reference conditions:

- A temperature increase of 90° F (50° C) above an ambient temperature of 68° F (20° C), thus a bearing temperature of 158° F (70° C), measured on the bearing stationary outer ring or housing washer
- Radial bearing: a constant radial load, being 5% of the basic static load rating C_0
- Thrust bearing: a constant axial load, being 2% of the basic static load rating C_0
- Open bearings with Normal clearance

For oil lubricated bearings:

- Lubricant: mineral oil without EP-additives having a kinematic viscosity at 158° F (70° C) equal to:
- Radial bearing: n = 12 mm^2 / s (ISO VG32)
- Thrust roller bearing: n = 24 mm^2 / s (ISO VG68)
- Method of lubrication: oil bath with the oil reaching up to the middle of the rolling element in the lowest position

For grease lubricated bearings:

- Lubricant: regular lithium soap grease with mineral base oil having a viscosity of 100 to 200 mm2 / s at 104° F (40° C) (e.g. ISO VG 150)
- Grease quantity: approximately 30% of the free space in the bearing

Technical Features

The reference speed will be reached after 10 to 20 hours running time. Under these specific conditions the reference speed for oil and grease lubrication will be equal.

Speeds above the reference speed

It is possible to operate bearings at speeds above the reference speed if the bearing friction can be reduced, for example, by lubrication systems with small, accurately measured quantities of lubricant or when heat can be removed from the bearing by circulating oil lubrication with cooling of the oil, by cooling ribs on the housing, or by directed cooling air streams.

Any increase in speed above the reference speed without taking any of these precautions would only cause bearing temperature to rise excessively. An increase of bearing temperature means that lubricant viscosity is lowered and film formation is made more difficult, leading to even higher friction and further temperature increases. If, at the same time, the operational clearance in the bearing is reduced because of increased inner ring temperature, the final consequence could be bearing seizure

Limiting speeds

The speed limit is determined by criteria that include the stability or strength of the cage, lubrication of cage guiding surfaces, centrifugal and gyratory forces acting on the rolling elements and other speed-limiting factors.

Experience gained from laboratory tests and practical applications indicates that there are maximum speeds that should not be exceeded for technical reasons or because of the very high costs involved.

Limiting speeds shown in the bearing tables are based on the demands of high speed running applications and are valid only for the specific design and cage design shown in the tables.

It is possible to run bearings with higher speeds than those shown as limiting speeds but then several speed-limiting factors must be reviewed and improved such as the running accuracy, cage material and design, lubrication and heat dissipation. It is therefore advisable to contact the SKF application engineering for advice. For grease lubrication, additional parameters have to be considered such as lubrication of cage guiding surfaces and the shear strength of the lubricant, which is determined by the base oil and thickener.

Some bearings such as open ball bearings have very low friction and reference speeds may actually be higher than the limiting speed. In these cases the permissible speed must be calculated from the operating conditions and the lower value between the permissible and limiting speed used.

Quiet running

In certain applications, e.g. small electric motors for household appliances or office machinery, the noise produced in operation is an important factor and can influence the bearing choice. SKF deep groove ball bearings are produced specifically for these applications.

Stiffness

The stiffness of a rolling bearing is characterized by the magnitude of the elastic deformation (resilience) in the bearing under load. Generally this deformation is very small and can be neglected. In some cases, however, e.g. spindle bearing arrangements for machine tools or pinion bearing arrangements, stiffness is important.

Because of the contact conditions between the rolling elements and raceways, roller bearings e.g. cylindrical or taper roller bearings, have a higher degree of stiffness than ball bearings. Bearing stiffness can be further enhanced by applying a preload. SKF Application Engineering can assist you with specific calculations regarding stiffness.

Preload

Depending on the application it may be necessary to have either a positive or a negative operational clearance in the bearing arrangement. In the majority of applications, the operational clearance should be positive, i.e. when in operation, the bearing should have a residual clearance, however slight (section “Bearing internal clearance” on page 22).

However, there are many cases, e.g. machine tool spindle bearings, pinion bearings in automotive axle drives, bearing arrangements of small electric motors, or bearing arrangements for oscillating movement, where a negative operational clearance, i.e. a preload, is needed to enhance the stiffness of the bearing arrangement or to increase running accuracy. The application of a preload, e.g. by springs, is also recommended where bearings are to operate without load or under very light load and at high speeds. In these cases, the preload serves to provide a minimum load on the bearing and prevent bearing damage as a result of sliding movements of the rolling elements (section “Requisite minimum load” on page 19).

Types of preload

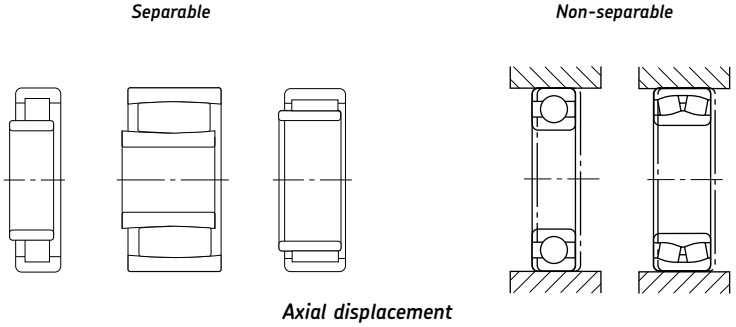
Depending on the type of bearing, the preload may be either radial or axial. Cylindrical roller bearings can only be radially preloaded and thrust ball bearings can only be axially preloaded. Single row angular contact ball bearings and tapered roller bearings, which are generally mounted together with a second bearing of the same type in a back-to-back, face-to-face, or tandem arrangement, are axially preloaded.

Angular contact ball bearings modified for light preloads and universal matching can be purchased utilizing the suffix GA. Other types of preload methods include the use of shims, springs, wavy washers, friction torque, direct force measurements and adjustment procedures.

Effect of preload

- The main effects of bearing preload are to:
- Enhance system stiffness
- Reduce running noise
- Enhance the accuracy of shaft guidance
- Compensate for wear and settling (relaxation) processes in operation, and
- Provide long service life

Figure 5



Axial displacement

Shafts, or other rotating machine components, are generally supported by a locating and a non-locating bearing.

Locating bearings provide axial location for the machine component in both directions. The most suitable bearings for this are those that can accommodate combined loads, or can provide axial guidance in combination with a second bearing (matrix on pages 12 and 13).

Non-locating bearings must permit shaft movement in the axial direction, so that the bearings are not overloaded when, for example, thermal expansion of the shaft occurs. The most suitable bearings for the non-locating position include needle roller bearings and NU and N design cylindrical roller bearings. NJ design cylindrical roller bearings and some full complement design cylindrical roller bearings can also be used.

In applications where the required axial displacement is relatively large and also the shaft may be misaligned, the CARB toroidal roller bearing is the ideal non-locating bearing.

All of these bearings permit axial displacement of the shaft with respect to the housing within the bearing. Values for the permissible axial displacement within the bearing are given in the relevant product tables.

If non-separable bearings, e.g. deep groove ball bearings or spherical roller bearings are used as non-locating bearings, one of the bearing rings must have a loose fit.

Mounting and dismounting

Cylindrical bore

Bearings with a cylindrical bore (Figure 6) are easier to mount and dismount if they are of separable design rather than non-separable, particularly if interference fits are required for both rings. Separable bearings are also preferable if frequent mounting and dismounting are required, because the ring with rolling element and cage assembly of these separable bearings can be fitted independently of the other ring, e.g. four-point contact ball bearings, cylindrical, needle and taper roller bearings as well as ball and roller thrust bearings.

Tapered bore

Bearings with a tapered bore **(Figure 7)** can easily be mounted on a tapered journal or on a cylindrical shaft seating using an adapter or withdrawal sleeve or a stepped sleeve. Care must be taken to obtain the desired mounting clearance.

Details on mounting and dismounting can be found in the SKF Bearing Installation and Maintenance Guide (publication #140-710).

Tolerances

The dimensional and running accuracy of rolling bearings has been standardized internationally. In addition to the Normal tolerances the ISO standards also cover closer tolerances, e.g.

- Tolerance class 6 which corresponds to SKF tolerance class P6
- Tolerance class 5 which corresponds to SKF tolerance class P5

For special applications, such as machine tool spindles, SKF also manufactures bearings with higher accuracy, e.g. to tolerance classes P4, P4A, PA9A, SP and UP.

Tolerance information about each bearing type is contained in the Technical features tables in the beginning of the various product table sections under the heading “Tolerances”.

Dimensions

Manufacturers and users of rolling bearings are, for reasons of price, quality and ease of replacement, only interested in a limited number of bearing sizes. The International Organization for Standardization (ISO) has therefore laid down General Plans for the boundary dimensions of :

- Metric radial rolling bearings in standard ISO 15:1998, except taper roller bearings
- Metric radial taper roller bearings in standard ISO 355:1977
- Metric thrust rolling bearings in standard ISO 104:2002

General Plans for inch-size bearings

A large group of bearings in inch sizes are inch-size taper roller bearings. The dimensions of these bearings conform to ABMA Standard 19-1974 (ANSI B3.19-1975). ANSI / ABMA Standard 19.2-1994 has subsequently replaced this standard, but this later standard no longer includes dimensions.

Figure 6

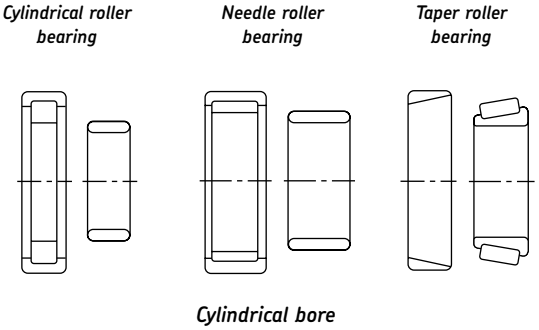
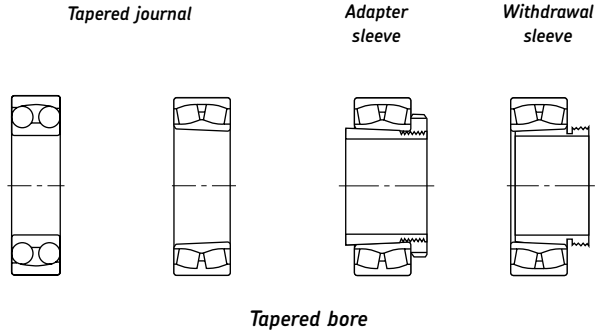


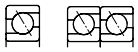
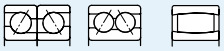
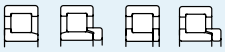
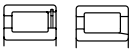
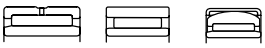
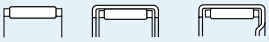
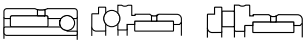
Figure 7



Technical Features

The matrix can only provide a rough guide so that in each individual case it is necessary to make a more qualified selection referring to the information given on the preceding pages or the detailed information in the text preceding each table section.

Key: + Excellent ▲ Good ● Fair ■ Poor – Unsuitable

Bearing type		Series	
Deep groove ball bearings		16000, 200, 300, 6000, 61800, 61900, 6200, 6300, 6400	
Angular contact ball bearings	Single row	7200, 7300, 7400	
	Matched single row, double row	3200, 3300, BA2B 459000	
	Four-point contact	QJ200, QJ300	
Self-aligning ball bearings		1200, 1300, 1400, 2200, 2300	
Cylindrical roller bearings	With cage	N, NJ, NU (200, 300, 400)	
		NUP (200, 300, 400)	
	Full complement, single row	NCF, NJG	
	Full complement, double row	NNC4800, NNCF, NNCL, NNF	
Needle roller bearings	With steel rings	HK, NA, NK, NKI, NKIS, NKS, RNA	
	Assemblies, drawn cups	HK, NA, NK, NKI, NKIS, NKS, RNA	
	Combined bearings	HK, NA, NK, NKI, NKIS, NKS, RNA	
Taper roller bearings	Single row	30000, 31000, 32000, 33000, T2, T4, T7	
	Matched single row	31300DF, 32000DF	
Spherical roller bearings		21000, 22000, 23000, 24000, 452000, 453000, I series	
CARB® toroidal roller bearings	With cage	C2200, C2300, C3000, C3100, C3200,	
	Full complement	C39 / 100, C4000, C5900, C6000	
Thrust ball bearings		51000, 52000	
	With sphered housing washer	53000, 54000	
Spherical roller thrust bearings		29200, 29300, 29400	

Bearing characteristics

Characteristics – suitability of bearing for

Shields or seals	Radial capacity	Axial capacity	Combined load	Moment load	Speed	Running accuracy	Stiffness	Quiet running	Low friction	Compensation for misalignment	Axial displacement possible in bearing	Typical application
+	●	●	●	■	●	●	●	+	+	■	–	Textiles power tools, electric motors, pumps, gearboxes
–	●	●	▲	■	▲	+	●	▲	▲	■	–	Pumps, compressors, centrifuges
▲	▲	●	▲	●	●	▲	▲	●	●	–	–	Pumps, compressors, centrifuges
■	■	▲	●	●	▲	●	●	●	●	–	–	Compressors
▲	●	■	■	–	+	▲	■	▲	+	+	–	Fans, paper making machines
■	▲	–	–	–	▲	▲	▲	▲	▲	■	+	Traction motors, electric motors, gearboxes
■	▲	●	●	–	▲	▲	▲	●	▲	■	●	Traction motors, electric motors, gearboxes
●	+	■	●	–	■	●	+	■	■	■	●	Elevators, gearboxes
●	+	■	●	●	■	●	+	■	■	–	●	Cranes, steel rolling mills, wire ropes, sheaves
■	▲	–	–	–	●	●	▲	●	■	–	+	Gearboxes (planetary), alternators
–	▲	–	–	–	●	●	▲	●	■	–	+	Gearboxes (planetary), alternators
–	●	●	●	■	●	●	▲	●	■	–	–	Gearboxes (planetary), alternators
–	▲	▲	+	■	●	●	▲	●	●	■	–	Gearboxes, cone crushers
–	+	▲	+	●	●	●	+	●	●	■	–	Gearboxes, rail car axle
●	+	●	+	–	●	●	▲	●	●	+	–	Fans, paper, gearboxes, crushers vibrating screens
●	+	–	–	–	●	●	▲	●	●	+	+	Paper making machines, gearboxes, fans, electric motors
●	+	–	–	–	■	●	+	●	●	+	+	Paper making machines, gearboxes, fans, electric motors
–	–	●	–	–	■	▲	●	■	●	■	–	Plastic extruder tools, crane hooks
–	–	●	–	–	■	●	●	■	●	■	–	Plastic extruder tools, crane hooks
–	–	+	●	–	■	●	▲	■	●	+	–	Tunnel boring machines, wind turbines, cranes, pumps, electric motors

Bearing life

Load carrying capacity and life

The bearing size to be used for an application is initially selected on the basis of its load ratings in relation to the applied loads and the requirements regarding service life and reliability. Values for the basic dynamic load rating C and the basic static load rating C_0 are quoted in the product tables. Both static and dynamic bearing load conditions have to be independently verified. Static loads are not only those that are applied with the bearing at rest or at very low rotational speeds (n < 10 r / min), but should include checking the static safety of heavy shock loads (very short duration loads). Dynamic loads should also be checked using a representative spectrum of load conditions on the bearing. The load spectrum should include any peak (heavy) loads that may occur on rare occasions.

In the SKF life rating equation, the stress resulting from the external loads is considered together with stresses originated by the surface topography, lubrication and kinematics of the rolling contact surfaces. The influence on bearing life of this combined stress system provides a better prediction of the actual performance of the bearing in a particular application.

Due to its complexity, a detailed description of the theory is beyond the scope of this catalog. Therefore, a simplified "catalog" approach is presented under the heading "SKF rating life". This enables users to fully recognize the influence of lubrication and contamination on bearing service life.

Metal fatigue of the rolling contact surfaces is generally the dominant failure mechanism in rolling bearings. Therefore, a criterion based on raceway fatigue is generally sufficient for the selection and sizing of a rolling bearing for a given application. International standards such as ISO 281 and ABMA Standards 9 and 11 are based on metal fatigue of the rolling contact surfaces. Nevertheless, it is important to remember that the complete bearing can be viewed as a system in which the life of each component (i.e. cage, lubricant and seal) when present, equally contributes and in some cases dominates the effective endurance of the bearing. In theory, the optimum service life is achieved when all the components reach the same life.

In other words, the calculated life will correspond to the actual service life of the bearing when the service life of other contributing mechanisms is at least as long as the calculated bearing life. Contributing mechanisms can include the cage, seal and lubricant. In practice, metal fatigue is most often the dominating factor.

Basic dynamic load ratings

The basic dynamic load rating C is used for calculations involving dynamically stressed bearings, for example, when selecting a bearing which is to rotate under load. It expresses the bearing load which will give an ISO 281:1990 and ABMA Standards 9 and 11 (1990) basic rating life (defined below) of 1,000,000 revolutions*.

The SKF Explorer class bearings account among others, for improvements in material and manufacturing techniques applied by SKF and use additional factors to calculate the basic dynamic load ratings according to ISO 281:1990.

Static bearing loads

The basic static load rating C0 is used in calculations when the bearings are to rotate at very slow speeds, (less than 10 rpm) are to be subjected to very slow oscillating movements, or are to be stationary under load during certain periods. It is also most important to check the safety factor of short duration loads, such as shock or heavy peak loads, that act on a rotating (dynamically stressed) bearing or with the bearing at rest.

The basic static load rating is defined in accordance with ISO 76-1987 as the static load, which corresponds to a calculated contact stress at the center of the most heavily loaded rolling element / raceway contact of:

- 667,000 psi (4,600 Mpa) for self-aligning ball bearings
- 609,000 psi (4,200 Mpa) for all other ball bearings
- 580,000 psi (4,000 Mpa) for all roller bearings

This stress produces a total permanent deformation of rolling element and raceway, which is approximately 0.0001 of the rolling element diameter. The loads are purely radial for radial bearings and centrically acting axial loads for thrust bearings.

Verification of the static bearing loads is performed checking the static safety factor of the application, which is defined as:

s0 = C0/P0

where

C0 = Basic static load rating, kN (or lbs)

P0 = Equivalent static bearing load, kN (or lbs)

s0 = Static safety factor

The maximum load that can occur on a bearing should be used in the calculation of the equivalent static bearing load. Further information about the advised values for the safety factor and its calculation can be obtained by contacting SKF Application Engineering.

Life

Practical experience shows that seemingly identical bearings operating under identical conditions have different individual endurance lives. A clearer definition of the term "life" is therefore essential for the calculation of the bearing size. All information presented by SKF on dynamic load ratings is based on the life that 90% of a sufficiently large group of apparently identical bearings can be expected to attain or exceed. This is called the basic rating life and agrees with the ISO and ABMA definitions. The median or average life is approximately five times the calculated basic rating life.

There are several other types of bearing life. One of these is "service life" which represents the actual life of a bearing in real operating conditions before it fails. Note that individual bearing life can only be predicted statistically. Life calculations refer only to a bearing population and a given degree of reliability, i.e. 90%. Furthermore, field failures are not generally caused by fatigue, but are more often caused by contamination, wear, misalignment, corrosion, or as a result of cage, lubrication or seal failure.

Another "life" is the "specification life". This is the life specified by an authority, for example, based on hypothetical load and speed data supplied by the same authority. It is generally a requisite L10 basic rating life and based on experience gained from similar applications.

Selecting bearing size using the life equations

Bearing life can be calculated with different degrees of sophistication and hence accuracy, depending on the knowledge of the real operating conditions.

Calculation of dynamic bearing loads

The loads acting on the bearing can be calculated according to the laws of mechanics if the external forces (for example, forces from power transmission, work forces or inertia forces) are known or can be calculated.

When calculating the load components for a single bearing, the shaft is assumed to be a beam resting on rigid, moment-free supports for the sake of simplification. Elastic deformations in the bearing, the housing or the machine frame are not considered, nor are the moments produced in the bearing as a result of shaft deflection. These simplifications are necessary if a bearing arrangement is to be calculated using readily available aids such as pocket calculators. The standardized methods for calculating basic load ratings and equivalent bearing loads are based on similar assumptions.

* The values are based on chromium steel bearings, heat-treated to a minimum hardness of 58 HRC, and operating under normal conditions.

Bearing life

Table 1

Ball bearings - Basic bearing life versus speed for different load ratios

L_{10h}	C/P When n = 50	100	125	150	200	250	300	400	500	600	750	900	1 000	1 200	1 500
hours	rpm														
100	0.67	0.84	0.91	0.97	1.06	1.14	1.22	1.34	1.44	1.53	1.65	1.75	1.82	1.93	2.08
500	1.14	1.44	1.55	1.65	1.82	1.96	2.08	2.29	2.47	2.62	2.82	3.00	3.11	3.3	3.56
1 000	1.44	1.82	1.96	2.08	2.29	2.47	2.62	2.88	3.11	3.3	3.56	3.78	3.91	4.16	4.48
1 250	1.55	1.96	2.11	2.24	2.47	2.66	2.82	3.11	3.35	3.56	3.83	4.07	4.22	4.48	4.83
1 600	1.69	2.13	2.29	2.43	2.68	2.88	3.07	3.37	3.63	3.86	4.16	4.42	4.58	4.87	5.24
2 000	1.82	2.29	2.47	2.62	2.88	3.11	3.3	3.63	3.91	4.16	4.48	4.76	4.93	5.24	5.65
2 500	1.96	2.47	2.66	2.82	3.11	3.35	3.56	3.91	4.22	4.48	4.83	5.13	5.31	5.65	6.08
3 200	2.13	2.68	2.88	3.07	3.37	3.63	3.86	4.25	4.58	4.87	5.24	5.57	5.77	6.13	6.60
4 000	2.29	2.88	3.11	3.30	3.63	3.91	4.16	4.58	4.93	5.24	5.65	6.00	6.21	6.6	7.11
5 000	2.47	3.11	3.35	3.56	3.91	4.22	4.48	4.93	5.31	5.65	6.08	6.46	6.69	7.11	7.66
6 300	2.66	3.36	3.62	3.84	4.23	4.55	4.84	5.33	5.74	6.1	6.57	6.98	7.23	7.68	8.28
8 000	2.88	3.63	3.91	4.16	4.58	4.93	5.24	5.77	6.21	6.6	7.11	7.56	7.83	8.32	8.96
10 000	3.11	3.91	4.22	4.48	4.93	5.31	5.65	6.21	6.69	7.11	7.66	8.14	8.43	8.96	9.65
12 500	3.35	4.22	4.54	4.83	5.31	5.72	6.08	6.69	7.21	7.66	8.25	8.77	9.09	9.65	10.4
16 000	3.63	4.58	4.93	5.24	5.77	6.21	6.6	7.27	7.83	8.32	8.96	9.52	9.86	10.5	11.3
20 000	3.91	4.93	5.31	5.65	6.21	6.69	7.11	7.83	8.43	8.96	9.65	10.3	10.6	11.3	12.2
25 000	4.22	5.31	5.72	6.08	6.69	7.21	7.66	8.43	9.09	9.65	10.4	11.1	11.4	12.2	13.1
32 000	4.58	5.77	6.21	6.60	7.27	7.83	8.32	9.16	9.86	10.5	11.3	12.0	12.4	13.2	14.2
40 000	4.93	6.21	6.69	7.11	7.83	8.43	8.96	9.86	10.6	11.3	12.2	12.9	13.4	14.2	15.3
50 000	5.31	6.69	7.21	7.66	8.43	9.09	9.65	10.6	11.4	12.2	13.1	13.9	14.4	15.3	16.5
63 000	5.74	7.23	7.79	8.28	9.11	9.81	10.4	11.5	12.4	13.1	14.2	15.0	15.6	16.6	17.8
80 000	6.21	7.83	8.43	8.96	9.86	10.6	11.3	12.4	13.4	14.2	15.3	16.3	16.9	17.9	19.3
100 000	6.69	8.43	9.09	9.65	10.6	11.4	12.2	13.4	14.4	15.3	16.5	17.5	18.2	19.3	20.8
200 000	8.43	10.6	11.4	12.2	13.4	14.4	15.3	16.9	18.2	19.3	20.8	22.1	22.9	24.3	26.2

L_{10h}	C/P When n = 1 800	2 000	2 500	3 000	3 600	4 000	5 000	6 000	8 000	10 000	12 000	15 000	20 000	30 000	40 000
hours	rpm														
100	2.21	2.29	2.47	2.62	2.78	2.88	3.11	3.3	3.63	3.91	4.16	4.48	4.93	5.65	6.21
500	3.78	3.91	4.22	4.48	4.76	4.93	5.31	5.65	6.21	6.69	7.11	7.66	8.43	9.65	10.6
1 000	4.76	4.93	5.31	5.65	6.00	6.21	6.69	7.11	7.83	8.43	8.96	9.65	10.6	12.2	13.4
1 250	5.13	5.31	5.72	6.08	6.46	6.69	7.21	7.66	8.43	9.09	9.65	10.4	11.4	13.1	14.4
1 600	5.57	5.77	6.21	6.60	7.02	7.27	7.83	8.32	9.16	9.86	10.5	11.3	12.4	14.2	15.7
2 000	6.00	6.21	6.69	7.11	7.56	7.83	8.43	8.96	9.86	10.6	11.3	12.2	13.4	15.3	16.9
2 500	6.46	6.69	7.21	7.66	8.14	8.43	9.09	9.65	10.6	11.4	12.2	13.1	14.4	16.5	18.2
3 200	7.02	7.27	7.83	8.32	8.84	9.16	9.86	10.5	11.5	12.4	13.2	14.2	15.7	17.9	19.7
4 000	7.56	7.83	8.43	8.96	9.52	9.86	10.6	11.3	12.4	13.4	14.2	15.3	16.9	19.3	21.3
5 000	8.14	8.43	9.09	9.65	10.3	10.6	11.4	12.2	13.4	14.4	15.3	16.5	18.2	20.8	22.9
6 300	8.80	9.11	9.81	10.4	11.1	11.5	12.4	13.1	14.5	15.6	16.6	17.8	19.6	22.5	24.7
8 000	9.52	9.86	10.6	11.3	12.0	12.4	13.4	14.2	15.7	16.9	17.9	19.3	21.3	24.3	26.8
10 000	10.3	10.6	11.4	12.2	12.9	13.4	14.4	15.3	16.9	18.2	19.3	20.8	22.9	26.2	28.8
12 500	11.1	11.4	12.3	13.1	13.9	14.4	15.5	16.5	18.2	19.6	20.8	22.4	24.7	28.2	31.1
16 000	12.0	12.4	13.4	14.2	15.1	15.7	16.9	17.9	19.7	21.3	22.6	24.3	26.8	30.7	33.7
20 000	12.9	13.4	14.4	15.3	16.3	16.9	18.2	19.3	21.3	22.9	24.3	26.2	28.8	33.0	36.3
25 000	13.9	14.4	15.5	16.5	17.5	18.2	19.6	20.8	22.9	24.7	26.2	28.2	31.1	35.6	39.1
32 000	15.1	15.7	16.9	17.9	19.0	19.7	21.3	22.6	24.9	26.8	28.5	30.7	33.7	38.6	42.5
40 000	16.3	16.9	18.2	19.3	20.5	21.3	22.9	24.3	26.8	28.8	30.7	33.0	36.3	41.6	45.8
50 000	17.5	18.2	19.6	20.8	22.1	22.9	24.7	26.1	28.8	31.1	33.0	35.6	39.1	44.8	49.3
63 000	18.9	19.6	21.1	22.5	23.9	24.7	26.6	28.3	31.2	33.6	35.7	38.4	42.3	48.4	53.3
80 000	20.5	21.3	22.9	24.3	25.9	26.8	28.8	30.7	33.7	36.3	38.6	41.6	45.8	52.4	57.7
100 000	22.1	22.9	24.7	26.2	27.8	28.8	31.1	33.0	36.3	39.1	41.6	44.8	49.3	56.5	62.1
200 000	27.8	28.8	31.1	33.0	35.1	36.3	39.1	41.6	45.8	49.3	52.4	56.5	62.1	71.1	78.3

These tables should not be used as a method to select or design a bearing into an application.

Bearing life

Table 2

Roller bearings - Basic bearing life versus speed for different load ratios

L_{10h}	C/P When n =														
	50	100	125	150	200	250	300	400	500	600	750	900	1 000	1 200	1 500
hours	rpm														
100	0.70	0.86	0.92	0.97	1.06	1.13	1.19	1.30	1.39	1.47	1.57	1.66	1.71	1.81	1.93
500	1.13	1.39	1.49	1.57	1.71	1.83	1.93	2.11	2.25	2.38	2.54	2.69	2.77	2.93	3.13
1 000	1.39	1.71	1.83	1.93	2.11	2.25	2.38	2.59	2.77	2.93	3.13	3.31	3.42	3.61	3.86
1 250	1.49	1.83	1.96	2.07	2.25	2.41	2.54	2.77	2.97	3.13	3.35	3.54	3.65	3.86	4.12
1 600	1.6	1.97	2.11	2.23	2.43	2.59	2.74	2.99	3.19	3.37	3.61	3.81	3.93	4.15	4.44
2 000	1.71	2.11	2.25	2.38	2.59	2.77	2.93	3.19	3.42	3.61	3.86	4.07	4.20	4.44	4.75
2 500	1.83	2.25	2.41	2.54	2.77	2.97	3.13	3.42	3.65	3.86	4.12	4.36	4.50	4.75	5.08
3 200	1.97	2.43	2.59	2.74	2.99	3.19	3.37	3.68	3.93	4.15	4.44	4.69	4.84	5.11	5.47
4 000	2.11	2.59	2.77	2.93	3.19	3.42	3.61	3.93	4.20	4.44	4.75	5.02	5.18	5.47	5.85
5 000	2.25	2.77	2.97	3.13	3.42	3.65	3.86	4.20	4.50	4.75	5.08	5.36	5.54	5.85	6.25
6 300	2.42	2.97	3.18	3.36	3.66	3.91	4.13	4.51	4.82	5.09	5.44	5.75	5.93	6.27	6.70
8 000	2.59	3.19	3.42	3.61	3.93	4.20	4.44	4.84	5.18	5.47	5.85	6.18	6.37	6.73	7.20
10 000	2.77	3.42	3.65	3.86	4.20	4.50	4.75	5.18	5.54	5.85	6.25	6.60	6.81	7.20	7.70
12 500	2.97	3.65	3.90	4.12	4.50	4.81	5.08	5.54	5.92	6.25	6.68	7.06	7.29	7.7	8.23
16 000	3.19	3.93	4.20	4.44	4.84	5.18	5.47	5.96	6.37	6.73	7.20	7.60	7.85	8.29	8.86
20 000	3.42	4.20	4.50	4.75	5.18	5.54	5.85	6.37	6.81	7.20	7.70	8.13	8.39	8.86	9.48
25 000	3.65	4.50	4.81	5.08	5.54	5.92	6.25	6.81	7.29	7.70	8.23	8.69	8.97	9.48	10.1
32 000	3.93	4.84	5.18	5.47	5.96	6.37	6.73	7.34	7.85	8.29	8.86	9.36	9.66	10.2	10.9
40 000	4.20	5.18	5.54	5.85	6.37	6.81	7.20	7.85	8.39	8.86	9.48	10.0	10.3	10.9	11.7
50 000	4.50	5.54	5.92	6.25	6.81	7.29	7.70	8.39	8.97	9.48	10.1	10.7	11.0	11.7	12.5
63 000	4.82	5.93	6.34	6.70	7.30	7.81	8.25	8.99	9.61	10.2	10.9	11.5	11.8	12.5	13.4
80 000	5.18	6.37	6.81	7.20	7.85	8.39	8.86	9.66	10.3	10.9	11.7	12.3	12.7	13.4	14.4
100 000	5.54	6.81	7.29	7.70	8.39	8.97	9.48	10.3	11.0	11.7	12.5	13.2	13.6	14.4	15.4
200 000	6.81	8.39	8.97	9.48	10.3	11.0	11.7	12.7	13.6	14.4	15.4	16.2	16.7	17.7	18.9

L_{10h}	C/P When n =													
	1 800	2 000	2 500	3 000	3 600	4 000	5 000	6 000	8 000	10 000	12 000	15 000	20 000	30 000	40 000
hours	rpm														
100	2.04	2.11	2.25	2.38	2.51	2.59	2.77	2.93	3.19	3.42	3.61	3.86	4.20	4.75	5.18
500	3.31	3.42	3.65	3.86	4.07	4.20	4.50	4.75	5.18	5.54	5.85	6.25	6.81	7.70	8.39
1 000	4.07	4.20	4.50	4.75	5.02	5.18	5.54	5.85	6.37	6.81	7.20	7.70	8.39	9.48	10.3
1 250	4.36	4.50	4.81	5.08	5.36	5.54	5.92	6.25	6.81	7.29	7.70	8.23	8.97	10.1	11.0
1 600	4.69	4.84	5.18	5.47	5.78	5.96	6.37	6.73	7.34	7.85	8.29	8.86	9.66	10.9	11.9
2 000	5.02	5.18	5.54	5.85	6.18	6.37	6.81	7.20	7.85	8.39	8.86	9.48	10.3	11.7	12.7
2 500	5.36	5.54	5.92	6.25	6.60	6.81	7.29	7.70	8.39	8.97	9.48	10.1	11.0	12.5	13.6
3 200	5.78	5.96	6.37	6.73	7.11	7.34	7.85	8.29	9.03	9.66	10.2	10.9	11.9	13.4	14.6
4000	6.18	6.37	6.81	7.20	7.6	7.85	8.39	8.86	9.66	10.3	10.9	11.7	12.7	14.4	15.7
5 000	6.60	6.81	7.29	7.70	8.13	8.39	8.97	9.48	10.3	11.0	11.7	12.5	13.6	15.4	16.7
6 300	7.08	7.30	7.81	8.25	8.71	8.99	9.61	10.2	11.1	11.8	12.5	13.4	14.6	16.5	17.9
8 000	7.60	7.85	8.39	8.86	9.36	9.66	10.3	10.9	11.9	12.7	13.4	14.4	15.7	17.7	19.3
10 000	8.13	8.39	8.97	9.48	10.0	10.3	11.0	11.7	12.7	13.6	14.4	15.4	16.7	18.9	20.6
12 500	8.69	8.97	9.59	10.1	10.7	11.0	11.8	12.5	13.6	14.5	15.4	16.4	17.9	20.2	22.0
16 000	9.36	9.66	10.3	10.9	11.5	11.9	12.7	13.4	14.6	15.7	16.5	17.7	19.3	21.8	23.7
20 000	10.0	10.3	11.0	11.7	12.3	12.7	13.6	14.4	15.7	16.7	17.7	18.9	20.6	23.3	25.4
25 000	10.7	11.0	11.8	12.5	13.2	13.6	14.5	15.4	16.7	17.9	18.9	20.2	22.0	24.9	27.1
32 000	11.5	11.9	12.7	13.4	14.2	14.6	15.7	16.5	18.0	19.3	20.4	21.8	23.7	26.8	29.2
40 000	12.3	12.7	13.6	14.4	15.2	15.7	16.7	17.7	19.3	20.6	21.8	23.3	25.4	28.7	31.2
50 000	13.2	13.6	14.5	15.4	16.2	16.7	17.9	18.9	20.6	22.0	23.3	24.9	27.1	30.6	33.4
63 000	14.1	14.6	15.6	16.5	17.4	17.9	19.2	20.3	22.1	23.6	24.9	26.7	29.1	32.8	35.8
80 000	15.2	15.7	16.7	17.7	18.7	19.3	20.6	21.8	23.7	25.4	26.8	28.7	31.2	35.3	38.5
100 000	16.2	16.7	17.9	18.9	20.0	20.6	22.0	23.3	25.4	27.1	28.7	30.6	33.4	37.7	41.1
200 000	20.0	20.6	22.0	23.3	24.6	25.4	27.1	28.7	31.2	33.4	35.3	37.7	41.1	46.4	50.6

These tables should not be used as a method to select or design a bearing into an application.

Bearing life

It is possible to calculate bearing loads based on the theory of elasticity without making the above simplifications, but this requires the use of a powerful computer and lengthy complex programs.

Those external forces which arise, for example, from the inherent weight of the shaft and the components which it carries, or from the weight of a vehicle, and the other inertia forces, are either known or can be calculated. However, when determining the work forces (rolling forces, cutting forces in machine tools, etc.), shock forces and additional dynamic forces, for example, as a result of unbalance, it is often necessary to rely on estimations based on experience gained with similar machines or bearing arrangements.

With a gear train, for example, the theoretical tooth forces can be calculated from the power transmitted and the design characteristics of the gear teeth. However, there are additional dynamic forces produced either in the gear itself or by the input drive or power take-off. Additional dynamic forces in gears result from errors of form of the teeth and from unbalance of the rotating components. Because of requirements for quiet running, gears are made to high standards of accuracy and these forces are generally so small that they may be neglected when making bearing calculations.

Additional forces arising from the type and mode of operation of the machines coupled to the gear can only be determined when the operating conditions are known. Their influence on the rating lives of the bearings is considered by using an "operation" factor which takes into account shock loads and the efficiency of the gear. Values of this factor for different operating conditions can usually be found in information published by the gear manufacturer.

For belt drives it is necessary to take into account the effective belt pull (circumferential force) which is dependent on the transmitted torque when calculating shaft or bearing loads.

The belt pull must be multiplied by a factor, which is dependent on the type of belt, its preload, belt tension and any additional dynamic forces. Values are usually published by the belt manufacturer.

Equivalent dynamic bearing load

If the calculated bearing load F obtained using the above information is found to fulfill the requirements for the basic dynamic load rating C, i.e. the load is constant in magnitude and direction and acts radially on a radial bearing or axially and centrically on a thrust bearing, then P = F and the load may be inserted directly in the life equations.

In all other cases it is first necessary to calculate the equivalent dynamic bearing load. This is defined as that hypothetical load, constant in magnitude and direction, acting radially on radial bearings or axially on thrust bearings which, if applied, would have the same influence on bearing life as the actual loads to which the bearing is subjected.

Table 3

Guideline values of specification life for different types of machines

Machine type	Specification life
	Operating hours
Household machines, agricultural machines, instruments, technical equipment for medical use	300 ... 3 000
Machines used for short periods or intermittently: electric hand tools, lifting tackle in workshops, construction equipment and machines	3 000 ... 8 000
Machines used for short periods or intermittently where high operational reliability is required: lifts (elevators), cranes for packaged goods or slings of drums, etc.	8 000 ... 12 000
Machines for use 8 hours per day but not always fully utilized: gear drives for general purposes, electric motors for industrial use, rotary crushers	10 000 ... 25 000
Machines for use 8 hours per day and fully utilized: machine tools, woodworking machines, machines for the engineering industry, cranes for bulk materials, ventilator fans, conveyor belts, printing equipment, separators and centrifuges	20 000 ... 30 000
Machines for continuous 24 hour use: rolling mill gear units, medium-sized electrical machinery, compressors, mine hoists, pumps, textile machinery	40 000 ... 50 000
Wind energy machinery, this includes main shaft, yaw, pitching gearbox, generator bearings	30 000 ... 100 000
Water works machinery, rotary furnaces, cable stranding machines, propulsion machinery for ocean-going vessels	60 000 ... 100 000
Large electric machines, power generation plant, mine pumps, mine ventilator fans, tunnel shaft bearings for ocean-going vessels	> 100 000

Table 4

Guideline values of specification life for axlebox bearings and units for railway vehicles

Type of vehicle	Specification life
	Millions of km
Freight wagons to UIC specification based on continuously acting maximum axle load	0.8
Mass transit vehicles: suburban trains, underground carriages, light rail and tramway vehicles	1.5
Main line passenger coaches	3
Main line diesel and electric multiple units	3 ... 4
Main line diesel and electric locomotives	3 ... 5

Bearing life

Constant bearing load

Radial bearings are often subjected to simultaneously acting radial and axial loads. If the resultant load is constant in magnitude and direction, the equivalent dynamic bearing load can be obtained from the general equation:

$P = XFr + YFa$

where
P = Equivalent dynamic bearing load
Fr = Actual radial bearing load
Fa = Actual axial bearing load
X = Radial load factor for the bearing
Y = Axial load factor for the bearing

An additional axial load only influences the equivalent dynamic load P for a single row radial bearing if the ratio Fa / Fr exceeds a certain limiting value. With double row radial bearings even light axial loads are significant.

The same general equation is also applied for thrust bearings which can take both axial and radial loads, for example, spherical roller thrust bearings. For thrust bearings which can carry only purely axial loads, for example, thrust ball bearings, the equation can be simplified, provided the load acts centrically.

$P = Fa$

Contact SKF Application Engineering for specific equivalent load calculations.

Basic rating life equation

The simplest method of life calculation is to use the ISO or ABMA equation for basic non-adjusted rating life, which is:

$$L_{10} = \left(\frac{C}{P}\right)^p \text{ or } \frac{C}{P} = L_{10}^{1/p}$$

where

L_{10} = Basic rating life, millions of revolutions
C = Basic dynamic load rating
P = Equivalent dynamic bearing load
p = Exponent of the life equation
p = 3 for ball bearings
p = 10 / 3 for roller bearings

For bearings operating at constant speed it may be more convenient to deal with a basic rating life expressed in operating hours using the equation:

$$L_{10h} = \frac{1\,000\,000}{60\,n}\left(\frac{C}{P}\right)^p$$

or

$$L_{10h} = \frac{1\,000\,000}{60\,n} L_{10}$$

where

L_{10h} = basic rating, operating hours
n = rotational speed, r / min

For example:

A deep groove ball bearing 6205 in an electric motor, operating at 3,600 rpm, is subjected to a radial load of 100 lbs. To calculate the L_{10h}:

n = 3,600 rpm
P = 100 lbs
C = 3,330 lbs (from table on page 34)
p = 3 for ball bearing
Therefore:

$$L_{10h} = \frac{1\,000\,000}{60 \times 3600} \times \left(\frac{3330}{100}\right)^3$$

L_{10h} = 170,954 hours

Values of L_{10} as a function of load ratio C/P and speed n can be found in **Table 1** (ball bearings) and **Table 2** (roller bearings) on pages 15 and 16.

Requisite basic rating life

When determining the bearing size it is general practice to base the initial selection on the basic rating life (L10), so that it is essential that the required basic rating life or "specification life" for the application under consideration is known. It usually depends on the type of machine and the requirements regarding duration of service and operational reliability. In the absence of previous experience the values given in Tables 3 and 4 for L10 can be used.

SKF rating life

For modern high quality SKF bearings, the basic rating life can deviate significantly from the actual service life in a given application. Service life in a particular application depends on a variety of influencing factors including lubrication, the degree of contamination, misalignment, proper installation and environmental conditions.

Therefore ISO 281:1990 / Amd 2:2000 contains a modified life equation to supplement the basic rating life. This life calculation makes use of a modification factor to account for the lubrication and contamination condition of the bearing and the fatigue limit of the material.

ISO 281:1990 / Amd 2:2000 also makes provisions for bearing manufacturers to recommend a suitable method for calculating the life modification factor to be applied to a bearing based on operating conditions. The SKF life modification factor aSKF applies the concept of a fatigue load limit analogous to that used when calculating other machine components. Furthermore, the SKF life modification factor aSKF makes use of the lubrication conditions (viscosity ratio k), a factor for contamination level to reflect the application's operating conditions and performance level, i.e., SKF Explorer bearings.

The equation for SKF rating life is in accordance with ISO 281:1990 / Amd 2:2000. Contact SKF Application Engineering for more specifics and various factor calculations.

If the speed is constant, the life can be expressed in operating hours, using the equation:

$L_{nm} = a_1\, a_{SKF}\, L_{10}$

where

L_{nm} = SKF rating life (at $_n$% reliability), millions of revolutions
L_{nmh} = SKF rating life (at $_n$% reliability), operating hours
L_{10} = Basic rating life (at 90% reliability), millions of revolutions
a_1 = Life adjustment factor for reliability; 1.0 for 90% reliability (Contact SKF Applications Engineering for other reliability factors)
a_{SKF} = SKF life modification factor (contact SKF Applications Engineering)
C = Basic dynamic load rating
P = Equivalent dynamic bearing load
n = Rotational speed, r / min
p = Exponent of the life equation
= 3 for ball bearings
= 10 / 3 for roller bearings

In some cases it is preferable to express bearing life in units other than millions of revolutions or hours. For example, bearing life for axle bearings used in road and rail vehicles is commonly expressed in terms of distance traveled.

SKF life modification factor a_{SKF}

This factor represents the relationship between the fatigue load limit ratio (Pu / P), the lubrication condition (viscosity ratio k) and the contamination level in the bearing (hc). Values for the factor aSKF are calculated depending on bearing type, as a function of hc (Pu / P) for SKF standard and SKF Explorer bearings and different values of the viscosity ratio k.

SKF has developed sophisticated computer programs incorporating the SKF life method and permitting the factors influencing bearing life to be taken into account. Because of their sophistication, any errors in input data can be magnified in the life predictions. Obviously, if operating conditions are not well defined, little benefit will be gained by making the more complex calculations. SKF Applications Engineering can assist with this type of analysis. More information can be found on SKF.com on Principals of rolling bearing selection under Rolling Bearings (Products) regarding a_{SKF}. Furthermore, SKF has also developed sophisticated computer programs incorporating the SKF rating life equation directly at the rolling contact stress level thus permitting other factors influencing bearing life, such as misalignment, shaft deflection and housing deformation to be taken into account.

Example

A deep groove ball bearing 6309 made of SKF standard steel is to operate at a speed of 5,000 r / min under a constant radial load F_r = 1,800 lbs (8,000 N). Oil lubrication is to be used, the oil having a kinematic viscosity n = 20 mm²/ sec at the operating temperature. The desired reliability is 90% and it is assumed that the conditions are ultra-clean. What will be the L_{10}, L_{na} and L_{naa} lives?

a) Basic rating life L_{10} (for 90% reliability)

$$L_{10} = \left(\frac{C}{P}\right)^p$$

From the bearing tables, the basic dynamic load rating for bearing 6309, C = 12,430 lbs (55,300 N). Since the load is purely radial, P = F_r = 1,800 lbs (8,000 N) (see page 44).

$$L_{10h} = \left(\frac{55{,}300}{8{,}000}\right)^3 = 330 \text{ mill revs}$$

b) L_{nm} life according to SKF life method

$$L_{nm} = a_1 a_{SKF} L_{10}$$

As the desired reliability is 90%, the L_{10aa} life is to be calculated and a_1 = 1. From the bearing tables in the SKF General Catalog (6000 EN) the value of P_u for bearing 6309 is 300 lbs. (1,340 N). P_u / P = 1,340/8000 = 0.17 and as the conditions are ultra-clean, h_C = 1. For bearing 6309, dm = 0.5 (d + D) = 0.5 (45 + 100) = 72.5 mm (values of d and D are obtained from the bearing tables). From Diagram 1, page 20 the requisite oil viscosity at the operating temperature for a speed of 5,000 r / min, v_1 = 7 mm²/ sec
k = n / n_1 = 20 / 7 = 2.9

Therefore, for k = 2.9, the value of a_{SKF} obtained from the SKF General Catalog – 6000 EN, Diagram 1 (for SKF Explorer radial ball bearings) is 25, so that according to the SKF life method

L_{10aa} = 1 x 25 x 330 = 8250 mill revs

To obtain the corresponding lives in operating hours, it is necessary to multiply by (1/60 n) where

n = 5,000 r / min. The different lives are then

L_{10h} = 1,100 operating hours
L_{10aah} = 27,500 operating hours

If the example were to be calculated for contaminated conditions such that h_C = 0.02, then a_{SKF} would be 0.3 and

L_{10aa} = 1 x 0.3 x 330 = 99 mill revs

L_{10aah} = 330 operating hours

Requisite minimum load

If a bearing is to operate satisfactorily it must always be subjected to a given minimum load.

A general "rule of thumb" indicates that loads corresponding to 0.02 C should be imposed on roller bearings and loads corresponding to 0.01 C on ball bearings. The importance of imposing this load increases where accelerations in the bearing are high, and where speeds are in the region of 75% of the speed ratings quoted in the bearing tables or higher.

Contact SKF Application Engineering for more specifics and various factor calculations.

Static load carrying capacity

Bearing size should be selected on the basis of the basic static load rating C_0 instead of on bearing life when one of the following conditions pertains:

- The bearing is stationary and is subjected to continuous or intermittent (shock) loads
- The bearing makes slow oscillating or alignment movements under load
- The bearing rotates under load at very slow speed and is only required to have a short life (the life equation in this case, for a given equivalent load P would give such a low requisite basic dynamic load rating C, that the bearing selected on this basis would be subjected to considerable overloading in service)
- The bearing rotates and, in addition to the normal operating loads, has to sustain heavy shock loads, which act during a fraction of a revolution

In all these cases, the permissible load for a bearing is determined not by material fatigue but by the permanent deformation caused by the load at the rolling element / raceway contacts. Loads acting on a stationary bearing or one which is slowly oscillating, as well as shock loads on a rotating bearing which act for only part of a revolution, produce flattened areas on the rolling elements and indentations in the raceways.

The indentations may be irregularly spaced around the raceway, or they may be evenly spaced at positions corresponding to the spacing of the rolling elements. If the load acts for several revolutions of the bearing, the deformation will be evenly distributed over the whole raceway. The permanent deformations in the bearing can lead to vibration in the bearing, noisy operation and increased friction; it is also possible that the internal clearance will increase or the character of the fits may be changed.

The extent to which these changes are detrimental to bearing performance depends on the demands placed on the bearing in a particular application. It is therefore necessary to ensure that permanent deformations cannot occur, or occur to a very limited extent only, by selecting a bearing with a sufficiently high static load carrying capacity, if one of the following demands has to be satisfied:

- Silent running (for example, electric motors)
- Vibration-free running (for example, machine tools)
- Constant bearing friction torque (for example, measuring equipment and test apparatus)
- Low starting friction under load (for
- example, cranes)

When determining bearing size based on static load carrying capacity, a given safety factor s_0, which represents the relationship between the basic static load rating C_0 and the equivalent static bearing load P_0, is used to calculate the requisite basic static load rating.

Requisite basic static load rating

The requisite basic static load rating C0 can be determined from

$$C_0 = s_0 P_0$$

where

C_0 = Basic static load rating
P_0 = Equivalent static bearing load
s_0 = Static safety factor

Guideline values based on experience are given in **Table 5** for the static safety factor s0 for ball and roller bearings for various types of operation and requirements regarding smooth running.

At elevated temperatures the static load carrying capacity of bearings is reduced; further information will be supplied on request.

Bearing life

Checking the static load carrying capacity

For dynamically loaded bearings, which have been selected with reference to life, it is advisable, where the equivalent static bearing load is known, to check that the static load carrying capacity is adequate using

$$s_0 = \frac{C_0}{P_0}$$

If the s_0 value obtained is less than the recommended guideline value (see **Table 6**) then a bearing having a higher basic static load rating should be selected.

Table 5

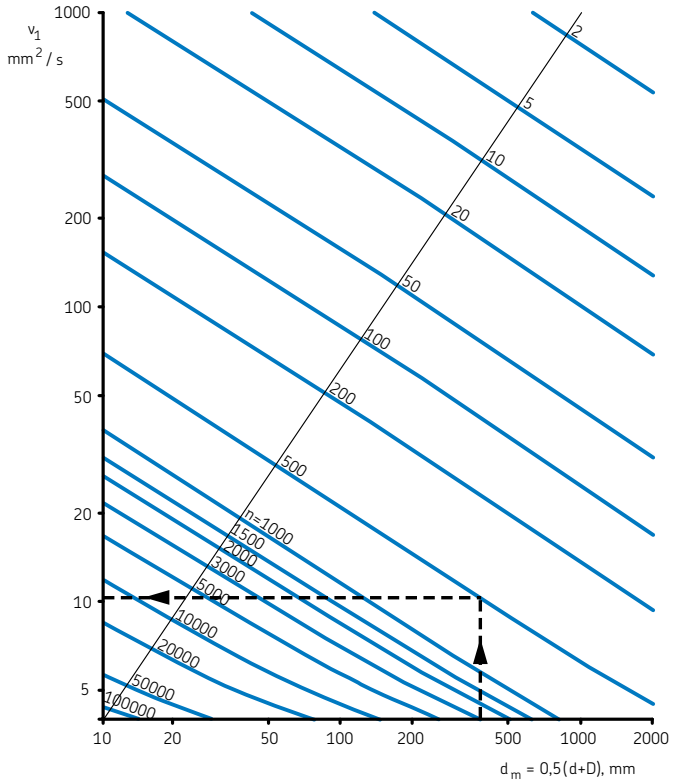
Guideline values for static safety factor s_0

Type of operation	Rotating bearings						Non-rotating bearings	
	Requirements regarding quiet running							
	unimportant		normal		high			
	Ball bearings	Roller bearings	Ball bearings	Roller bearings	Ball bearings	Roller bearings	Ball bearings	Roller bearings
Smooth, vibration-free	0.5	1	1	1.5	2	3	0.4	0.8
Normal	0.5	1	1	1.5	2	3.5	0.5	1
Pronounced shock loads[1)]	≥ 1.5	≥ 2.5	≥ 1.5	≥ 3	≥ 2	≥ 4	≥ 1	≥ 2

For spherical roller thrust bearings it is advisable to use $s_0 \geq 4$

1) Where the magnitude of the load is not known, values of s_0, which are at least as large as those quoted above should be used. If the magnitude of the shock loads is exactly known, smaller values of s_0 can be applied.

Diagram 1



Lubrication selection

Lubrication conditions – the viscosity ratio

The effectiveness of the lubricant is primarily determined by the degree of surface separation between the rolling contact surfaces. If an adequate lubricant film is to be formed, the lubricant must have a given minimum viscosity when the application has reached its normal operating temperature. The condition of the lubricant is described by the viscosity ratio k as the ratio of the actual viscosity n to the rated viscosity n1 for adequate lubrication, both values being considered when the lubricant is at normal operating temperature.

$$k = \frac{n}{n_1}$$

where

k = Viscosity ratio

n = Actual operating viscosity of the lubricant, mm^2/s

n_1 = Rated viscosity depending on the bearing mean diameter and rotational speed, mm^2/s

In order to form an adequate lubricant film between the rolling contact surfaces, the lubricant must retain a certain minimum viscosity when the lubricant is at operating temperature. The rated viscosity n1, required for adequate lubrication, can be determined from **Diagram 1**, using the bearing mean diameter dm = 0.5 (d + D), mm, and the rotational speed of the bearing n, r / min. This diagram has been revised taking the latest findings of tribology in rolling bearings into account.

When the operating temperature is known from experience or can otherwise be determined, the corresponding viscosity at the internationally standardized reference temperature of 40° C can be obtained from **Diagram 2**, page 21, or can be calculated. The diagram is compiled for a viscosity index of 95. Table 6 lists the viscosity grades according to ISO 3448:1992 showing the range of viscosity for each class at 40° C. Certain bearing types, e.g. spherical roller bearings, taper roller bearings, and spherical roller thrust bearings, normally have a higher operating temperature than other bearing types, e.g. deep groove ball bearings and cylindrical roller bearings, under comparable operating conditions.

Table 6

ISO viscosity

Viscosity class acc. to ISO	Kinematic viscosity at 104° F (40° C)		
	mean	min	max
–	mm^2/sec		
ISO VG 2	2.2	1.98	2.42
ISO VG 3	3.2	2.88	3.52
ISO VG 5	4.6	4.14	5.06
ISO VG 7	6.8	6.12	7.48
ISO VG 10	10	9	11
ISO VG 15	15	13.5	16.5
ISO VG 22	22	19.8	24.2
ISO VG 32	32	28.8	35.2
ISO VG 46	46	41.4	50.6
ISO VG 68	68	61.2	74.8
ISO VG 100	100	90	110
ISO VG 150	150	135	165
ISO VG 220	220	198	242
ISO VG 320	320	288	352
ISO VG 460	460	414	506
ISO VG 680	680	612	748
ISO VG 1 000	1 000	900	1 100
ISO VG 1 500	1 500	1 350	1 650

Consideration of EP additives

It is known that some EP additives in the lubricant can extend bearing service life where lubrication might otherwise be poor, e.g. when k < 1 and if the factor for the contamination level hc ≥ 0,2 according to ISO 281 (2007) a value of k = 1 can be used in the calculation if a lubricant with proven effective EP additives is used. In this case the life modification factor a_{SKF} has to be limited to ≤ 3, but not less than a_{SKF} for normal lubricants.

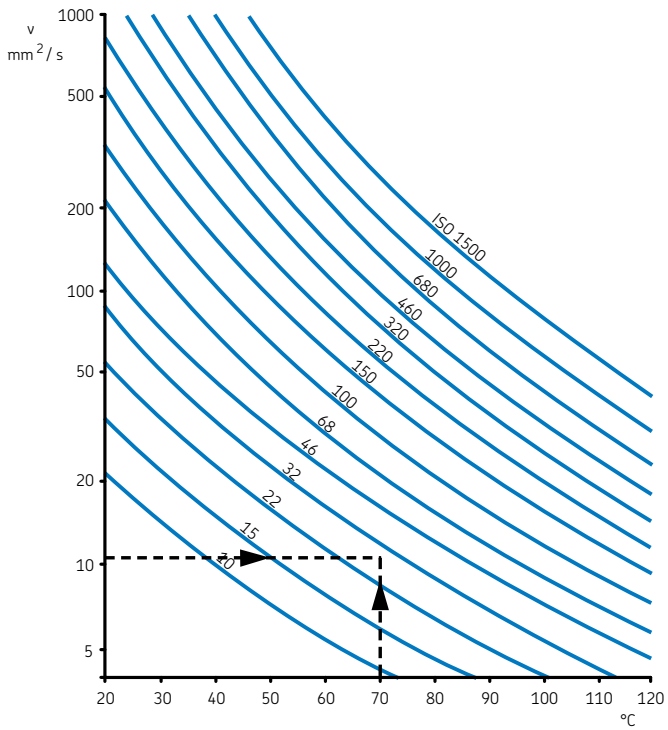
For the remaining range, the life modification factor a_{SKF} can be determined using the actual k of the application. In case of severe contamination, i.e. contamination factor hc < 0.2, the possible benefit of an EP additive has to be proved by testing.

SKF calculation tools

SKF possesses one of the most comprehensive and powerful sets of modeling and simulation packages in the bearing industry. They range from easy-to-use tools based on SKF General Catalog formula to the most sophisticated calculation and simulation systems, running on parallel computers.

The company's philosophy is to develop a range of programs to satisfy a number of customer requirements; from fairly simple design checks, through moderately complex investigations, to the most advanced simulations for bearing and machine design. Wherever possible these programs are available for in-the-field use on customers' or SKF engineers' laptops, desk top PCs or workstations. Moreover, particular care is taken to provide integration and interoperability of the different systems with each other.

Diagram 2



Based on VI (viscosity index) = 95

Bearing data

SKF engineering consultancy services

They can provide support with the complete SKF application know-how. The SKF application specialists will

- Analyze the technical problems
- Suggest the appropriate system solution
- Select the appropriate lubrication and an optimized maintenance practice

SKF Engineering Consultancy Services provides a new approach to services concerning machines and installations for OEM and end users. Some of these service benefits are:

- Faster development processes and reduced time to market
- Reduced implementation costs by virtual testing before production start
- Improved bearing arrangement by lowering noise and vibration levels
- Higher power density by upgrading
- Longer service life by improving lubrication or sealing

Advanced computer programs

Within the SKF Engineering Consultancy Services there are highly advanced computer programs which can be used for

- Analytical modeling of complete bearing arrangements, consisting of shaft, housing, gears, couplings, etc.
- Static analysis, i.e. determination of elastic deformations and stresses in components of mechanical systems
- Dynamic analysis, i.e. determination of the vibration behavior of systems under working conditions ("virtual testing")
- Visual and animated presentation of structural and component deflection
- Optimizing system costs, service life, vibration and noise level

Bearing internal clearance

Bearing internal clearance (**Figure 8**) is defined as the total distance through which one bearing ring can be moved relative to the other in the radial direction (radial internal clearance) or in the axial direction (axial internal clearance).

It is necessary to distinguish between the internal clearance of a bearing before mounting and the internal clearance in a mounted bearing which has reached its operating temperature (operational clearance). The initial internal clearance (before mounting) is greater than the operational clearance because different degrees of interference in the fits and differences in thermal expansion of the bearing rings and the associated components cause the rings to be expanded or compressed.

The radial internal clearance of a bearing is of considerable importance if satisfactory operation is to be obtained. As a general rule, ball bearings should always have an operational clearance that is virtually zero, or there may be a slight preload. Cylindrical, spherical and CARB toroidal roller bearings, on the other hand, should always have some residual clearance – however small – in operation. The same is true of taper roller bearings except in bearing arrangements where stiffness is desired, e.g. pinion bearing arrangements, where the bearings are mounted with a certain amount of preload (Bearing preload, page 10).

The bearing internal clearance referred to as Normal has been selected so that a suitable operational clearance will be obtained when bearings are mounted with the fits usually recommended and operating conditions are normal. Where operating and mounting conditions differ from the normal, e.g. where interference fits are used for both bearing rings, unusual temperatures prevail etc., bearings with greater or smaller internal clearance than Normal are required. In such cases, SKF recommends checking residual clearance in the bearing after it has been mounted.

Bearings having an internal clearance other than Normal are identified by the suffixes C1 to C5 (**Table 7**).

Tables giving the clearance values for the various bearing types will be found in the text preceding the relevant product section. For paired single row angular contact ball bearings and taper roller bearings, double row angular contact ball bearings and four-point contact ball bearings, values for the axial internal clearance are given instead of radial clearance as the axial clearance is of greater importance in application design for these bearing types.

Figure 8

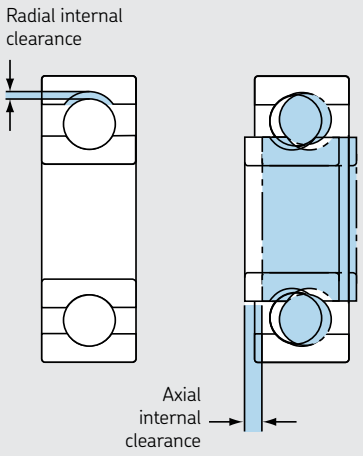


Table 7

Supplementary designation for internal clearance

Suffix	Internal clearance
C1	Less than C2
C2	Less than Normal
CN	Normal, only used in combination with letters indicating reduced or displaced clearance range.
C3	Greater than Normal
C4	Greater than C3
C5	Greater than C4

Materials for rolling bearings

The materials from which the bearing components are made determine to a large extent the performance and reliability of rolling bearings. For the bearing rings and rolling elements typical considerations include hardness for load carrying capacity, fatigue resistance under rolling contact conditions, under clean or contaminated lubrication conditions, and the dimensional stability of the bearing components. For the cage, considerations include friction, strain, inertia forces, and in some cases, the chemical action of certain lubricants, solvents, coolants and refrigerants. The relative importance of these considerations can be affected by other operational parameters such as corrosion, elevated temperatures, shock loads or combinations of these and other conditions.

Because SKF has the competence and facilities to provide a variety of materials, processes and coatings, SKF application engineers can assist in selecting those bearings that will provide superior performance for particular applications.

Contact seals integrated in rolling bearings can also have a considerable impact on the performance and reliability of the bearings. The materials they are made of have to offer excellent oxidation, thermal or chemical resistance.

In order to meet the needs of various applications, SKF uses different materials for bearing rings, rolling elements, cages and seals. Furthermore, in applications where sufficient lubrication cannot be achieved or where an electric current passing through the bearings has to be prevented, SKF bearings can be supplied with special coatings.

Materials for bearing rings and rolling elements

Through-hardening steels

The most common through-hardening bearing steel is a carbon chromium steel containing approximately 1% carbon and 1.5% chromium according to ISO 683-17:1999. Today, carbon-chromium steel is one of the oldest and most intensively investigated steels – due to the continuously increasing demands for extended bearing service life. The composition of this rolling bearing steel provides an optimum balance between manufacturing and application performance. This steel is normally given a martensitic or bainitic heat treatment during which it is hardened to the range of 58 to 65 HRC.

Within the last few years process developments have enabled more stringent cleanliness specifications to be realized, which has had a significant impact on the consistency and quality of SKF's bearing steel. The reduction of oxygen and harmful non-metallic inclusions has led to significantly improved properties of rolling bearing steels – the steels from which the SKF Explorer class bearings are made.

Case-hardening bearing steels

SKF also manufactures bearings from case-hardened steels. Chromium-nickel and manganese-chromium alloyed steels according to ISO 683-17:1999 with a carbon content of approximately 0.15% are those case-hardening steels most commonly used for SKF rolling bearings.

In applications where there are high tensile interference fits and high shock loads, bearings with carburized rings and/or rolling elements may be recommended. Please consult SKF Applications Engineering.

High-temperature bearing steels

Depending on the bearing type, standard bearings made from through hardened and surface-hardened steels have a recommended maximum operating temperature, which differs between 248° F (120° C) and 392° F (200° C). The maximum operating temperature is directly related to the heat treatment process used in manufacturing components.

For operating temperatures up to 482° F (250° C); a special heat treatment (stabilization) can be applied. In this case a reduction of the load carrying capacity of the bearing has to be taken into account.

For bearings operated at elevated temperatures (higher than 482° F (250° C), for extended periods), alloyed steels like the 80MoCrV42-16 manufactured to ISO 683-17:1999 should be used because they retain their hardness and bearing performance characteristics even under extreme temperature conditions.

For additional information about high temperature bearing steels, please contact the SKF Applications Engineering.

Ceramics

The common ceramic used for SKF bearing rings and rolling elements is a bearing grade silicon nitride material. It consists of fine elongated grains of beta-silicon nitride in a glassy phase matrix. It provides a combination of favorable properties for rolling bearings, such as high hardness, low density, low thermal expansion, high electric resistivity, low dielectric constant and no response to magnetic fields.

Stainless bearing steels

For bearings which come into contact with corrosive media during operation, chromium or chromium / molybdenum stainless steels are used. Because of the reduced hardness of these steels, the bearings do not have the same high load carrying capacity as bearings made of conventional steels. The corrosion resistance is only available when the whole surface is perfectly polished and if it is not roughened or damaged during mounting.

The most common stainless steels used for SKF bearing rings and rolling elements are the high chromium content steels X65Cr14 according to ISO 683-17:2000 and X105CrMo17 according to EN 10088-1:1995. It is recommended to seek advice from SKF Applications Engineering regarding the selection and application of stainless steel bearings.

Cage materials

Sheet steel cages (J suffix)

The majority of pressed sheet steel cages are made from continuously hot-rolled low carbon sheet steel according to EN 10111:1998. These lightweight cages have relatively high strength and can be surface treated to further reduce friction and wear.

Pressed cages normally used in stainless steel bearings are made from stainless steel X5CrNi18-10 according to EN 10088-1:1995.

Machined steel cages

Machined steel cages are normally made of non-alloyed structural steel of type S355GT (St 52) according to EN 10 025:1990 + A:1993. To improve sliding and wear resistance properties some machined steel cages are surface treated.

Machined steel cages are used for large-size bearings or in applications where there is a danger that season cracking, caused by a chemical reaction, may occur if a brass cage were used. Steel cages can be used at operating temperatures up to 572° F (300° C). They are not affected by the mineral or synthetic oil-based lubricants normally used for rolling bearings or by the organic solvents used to clean bearings.

Sheet brass cages (Y suffix)

Pressed sheet brass cages are used for some small and medium-sized bearings. The brass used for these cages conforms to EN 1652:1997. In applications such as compressors for refrigeration using ammonia, season cracking in sheet brass might occur, therefore machined brass or steel cages should be used instead.

Bearing materials

Machined brass cages (M suffix)

Most brass cages are machined from a CW612N cast or wrought brass according to EN 1652:1997. They are unaffected by most common bearing lubricants, including synthetic oils and greases, and can be cleaned using normal organic solvents. Brass cages should not be used at temperatures in excess of 482° F (250° C).

Polymer cages

Polyamide 6.6 (TN9 suffix)

For the majority of injection molded cages polyamide 6.6 is used. This material, with or without glass fiber reinforcement is characterized by a favorable combination of strength and elasticity. The mechanical properties like strength and elasticity of polymeric materials are temperature dependent and subject to permanent changes under operating conditions, called aging. The most important factors that play a role in this aging behavior are temperature, time and the medium (lubricant) to which the polymer is exposed. It appears that the cage life decreases with increasing temperature and the aggressiveness of the lubricant.

Please contact SKF Applications Engineering for cage availability.

Polyamide 4.6 (TN9 suffix)

Glass fiber reinforced polyamide 4.6 is used for some small and medium size CARB® toroidal roller bearings as standard. These cages have a 59° F (15°C) higher permissible operating temperature than those made from glass fiber reinforced polyamide 6.6.

Polyether ether ketone

The use of the glass fiber reinforced PEEK for cages has become common within SKF for demanding conditions regarding high speeds, chemical attack or high temperatures. The exceptional properties of PEEK are superior combination of strength and flexibility, high operating temperature range, high chemical and wear resistance and good processability.

Please contact SKF Applications Engineering for cage availability.

Seal materials

Seals integrated in SKF bearings are typically made from elastomer materials. The type of material can depend on the series and size of the bearing as well as the application requirements. SKF seals are generally produced from the materials to follow.

Acrylonitrile butadiene rubber

Acrylonitrile butadiene rubber (NBR) is the "universal" seal material. This copolymer, produced from acrylonitrile and butadiene, shows good resistance to the following media:

- Most mineral oils and greases with a mineral oil base
- Normal fuels: petrol, diesel and light heating oils
- Animal and vegetable oils and fats
- Hot water

It also tolerates short-term dry running of the sealing lip. The permissible operating temperature range is -40° to +212° F (-40° to +100° C); for brief periods temperatures of up to +248° F (+120° C) can be tolerated. At higher temperatures the material hardens.

Hydrogenated acrylonitrile butadiene rubber

Hydrogenated acrylonitrile butadiene rubber (HNBR) has appreciably better wear characteristics than nitrile rubber so that seals made of this material have a longer service life. Hydrogenated acrylonitrile butadiene rubber is also more resistant to heat, aging and hardening in hot oil or ozone.

Mixtures of oil in air may have a negative impact on seal life. The upper operating temperature limit is +302° F (+150° C), which is appreciably higher than that of normal nitrile rubber.

Fluoro rubber

Fluoro rubbers (FKM or FPM) are characterized by their high thermal and chemical resistance. Their resistance to aging and ozone is very good and their gas permeability is very slight. They have exceptionally good wear characteristics even under harsh environmental conditions and can withstand operating temperatures up to +392° F (+200° C). Seals made from this material can tolerate dry running of the lip for short periods.

Fluoro rubbers are also resistant to oils and hydraulic fluids, fuels and lubricants, mineral acids and aliphatic as well as aromatic hydrocarbons which would cause seals made from other materials to fail. In the presence of esters, ethers, ketones, certain amines and hot anhydrous hydrofluorides, fluoro rubbers should not be used.

At temperatures above 572° F (300° C), fluoro rubber gives off dangerous fumes. As handling seals made of fluoro rubber constitutes a potential safety risk, the safety precautions mentioned hereafter must always be considered.

WARNING!

Safety precautions for fluoro rubber:

Fluoro rubber is very stable and harmless in normal operating conditions up to +392° F (+200° C). However, if exposed to extreme temperatures above 572° F (300° C), e.g. fire or the flame of a cutting torch, fluoro rubber seals give off hazardous fumes. These fumes can be harmful if inhaled, as well as to the eyes. In addition, once the seals have been heated to such temperatures, they are dangerous to handle even after they have cooled and should not touch the skin. If it is necessary to handle bearings with seals that have been subjected to high temperatures, such as when dismounting the bearing, the following safety precautions should be observed:

- ***Always wear protective goggles, gloves and appropriate breathing apparatus***
- ***Place the remains of the seals in an air tight plastic container marked with a symbol for "material will etch"***
- ***Follow the safety precautions in the appropriate material safety data sheet (MSDS)***

If there is unintentional contact with the seals, wash hands with soap and plenty of water and flush eyes with plenty of water and consult a doctor immediately. If the fumes have been inhaled, consult a doctor immediately.

The user is responsible for the correct use of the product during its service life and its proper disposal. SKF takes no responsibility for the improper handling of fluoro rubber seals or for any injury resulting from their use.

Coatings

Coating is a well-established method to upgrade materials and to provide bearings with additional features for specific application conditions. Two different coating methods developed by SKF are available and already successfully proven in many applications.

The surface coating, trademarked NoWear®, applies a low friction ceramic coating on the bearing inner surfaces to withstand long periods of operation under marginal lubrication.

The SKF INSOCOAT® coating, which can be applied to the exterior of the outer ring or inner ring of a bearing, offers resistance to the damage that can be caused by the passage of electric current through the bearing.

Lubrication

If rolling bearings are to operate reliably they must be adequately lubricated to prevent direct metal-to-metal contact between the rolling elements, raceways and cages. The lubricant also inhibits wear and protects the bearing surfaces against corrosion. The choice of a suitable lubricant and method of lubrication for each individual bearing application is therefore important, as is correct maintenance.

A wide selection of greases and oils is available for the lubrication of rolling bearings and there are also solid lubricants for extreme temperature conditions. The actual choice of a lubricant depends primarily on the operating conditions, the temperature range and speeds as well as the influence of the surroundings.

The most favorable operating temperatures will be obtained when the minimum amount of lubricant needed for reliable bearing lubrication is provided. However, when the lubricant has additional functions, such as sealing or the removal of heat, additional amounts of lubricant may be required.

The lubricant in a bearing arrangement gradually loses its lubricating properties as a result of mechanical work, aging and the build-up of contamination. It is therefore necessary for grease to be replenished or renewed and for oil to be filtered and changed at regular intervals.

The information and recommendations in this section relate to bearings without integral seals or shields. SKF bearings and bearing units with integral seals and shields at both sides are supplied greased. Information about the greases used by SKF as standard for these products can be found in the text preceding the relevant product tables together with a brief description of the performance data.

The service life of the grease in sealed bearings most often exceeds bearing life so that, with some exceptions, no provision is made for the relubrication of these bearings.

Grease lubrication

Grease can be used to lubricate rolling bearings under normal operating conditions in the majority of applications.

Grease has the advantage over oil that it is more easily retained in the bearing arrangement, particularly where shafts are inclined or vertical, and it also contributes to sealing the arrangement against contaminants, moisture or water.

Excessive amounts of grease will cause the operating temperature within the bearing to rise rapidly particularly when running at high speeds. As a general rule, when starting up, only the bearing should be completely filled, while the free space in the housing should be partly filled with grease. Before operating at full speed, the excess grease in the bearing must be allowed to settle or escape during a running-in period. At the end of the running-in period the operating temperature will drop considerably indicating that the grease has been distributed in the bearing arrangement.

However, where bearings are to operate at very low speeds and good protection against contamination and corrosion is required, it is advisable to fill the housing completely with grease.

Contact SKF Applications Engineering for more details.

Lubricating greases

Lubricating greases consist of a mineral or synthetic oil combined with a thickener. The thickeners are usually metallic soaps. However, other thickeners, e.g. polyurea, can be used for superior performance in certain areas like high temperature applications. Additives can also be included to enhance certain properties of the grease. The consistency of the grease depends largely on the type and concentration of the thickener used and on the operating temperature of the application. When selecting a grease, the consistency, operating temperature range, viscosity of the base oil, rust inhibiting properties and the load carrying ability are the most important factors to be considered.

Contact SKF Applications Engineering for more details.

SKF greases

The SKF range of lubricating greases for rolling bearings comprises many types of grease and covers virtually all application requirements. These greases have been developed based on the latest information regarding rolling bearing lubrication and have been thoroughly tested both in the laboratory and in the field. Their quality is continuously monitored by SKF.

Further information on SKF greases can be found in the catalog SKF Maintenance and Lubrication Products (publication #03000) or online at **www.mapro.skf.com.**

For a more detailed selection of the appropriate grease for a specific bearing type and application, use the Internet based SKF grease selection program "LubeSelect". This program can be found online at **skfusa.com.** Select Engineering Tools under the Support menu. Or contact SKF Applications Engineering.

Note: Differences in the lubricating properties of seemingly identical lubricants – particularly grease – produced at different locations can exist. Therefore, SKF cannot accept liability for any lubricant or its performance. The user is therefore advised to specify lubricant properties in detail so as to obtain the most suitable lubricant for the application.

SKF Explorer bearings

The performance class from SKF

SKF Explorer is a performance class of rolling bearings, of the types angular contact ball bearings, cylindrical roller bearings, spherical roller bearings, CARB toroidal roller bearings and spherical roller thrust bearings, which provide a substantial improvement in key operational parameters relevant to the bearing type and its typical applications. This new level of superior performance represents the blending of SKF's applications knowledge with its expertise in tribology, materials development, design optimization and manufacturing.

Using advanced analytical and modeling techniques and supporting testing, SKF engineers were able to confirm that SKF Explorer bearings provide a significant improvement in key operational parameters. These parameters, according to bearing type and application, include noise, vibration, service life, dimensional stability, dynamic load carrying ability and heat generation (friction torque). Because these parameters are not adequately factored into standardized life calculations, SKF Explorer bearing life is calculated with modified factors, which takes key operational parameters into account.

SKF Explorer bearings are interchangeable with previously specified SKF standard bearings of the same type and size. In the product tables, the SKF Explorer bearing designations are **printed in blue.**

The making of an SKF Explorer bearing

Achieving the outstanding levels of SKF Explorer bearings has only been possible due to the basic sound engineering design of SKF products and by further improving the manufacturing of bearings to these designs. By studying the interrelationship between each bearing component, SKF engineers were able to maximize the effects of lubrication and minimize the effects of friction, wear and contamination. To do this, an international research team looked at each component at micro level and then developed new procedures to consistently manufacture this new standard of excellence.

SKF Explorer bearings are characterized by a number of technical improvements some of which are listed below. Depending on the type of SKF Explorer bearing, one or several of these examples have been applied:

Improved bearing steel

SKF Explorer bearings feature an extremely clean and homogenous steel with a minimum number of inclusions. This improved steel is so much cleaner than the highest grades covered by present classification methods that SKF has developed new calculation methods to take this factor into account.

SKF Explorer bearings

The unique SKF heat treatment procedures

To maximize the benefits of SKF's ultra-clean steel, engineers incorporated unique heat treatment procedures. These new procedures optimize the bearing's resistance to operational damage without affecting heat stabilization. Wear resistance was improved so dramatically that SKF engineers were not able to accurately predict life expectancy using existing life factors for calculation methods.

Improved surface finish

The surface finish on all contact surfaces (rolling elements and raceways) has been improved to maximize the effects of the lubricant and reduce vibrations and noise. This has lead to a smoother, cooler running bearing that uses less lubricant and consequently the arrangement, including the seals, requires less maintenance.

Deep groove ball bearings

For the rolling bearing types deep groove ball bearings and taper roller bearings there have been many performance improvements since the last SKF General Catalog. In line with the SKF product strategy, improvements for deep groove ball bearings and taper roller bearings have sufficiently been implemented for certain sizes to qualify as SKF Explorer class bearings. For these selected deep groove ball bearings sizes improved sealing, precision and surface finish, give reduced noise and vibration levels and improved running accuracy. Similarly for selected taper roller bearing sizes, improved surfaces for better lubrication and significantly reduced noise and vibration levels, cleaner steel in combination with improved heat treatment give significantly longer life. Because all these parameters are not adequately factored into standardized life calculations, the bearing life of selected sizes SKF deep groove ball bearings and taper roller bearings is calculated with modified factors in line with all SKF Explorer class bearings.

Improved materials enhance performance

Developments in the steel making process have created an extremely clean and homogenous steel with a minimum number of inclusions. This improved steel is so much cleaner than the highest grades covered by present classification methods that SKF experts developed new specifications with a view toward standardization.

To maximize the benefits of this improved steel, SKF developed new heat treatment procedures. These new procedures further improved the wear resistance of SKF Explorer bearings. In fact, wear resistance was improved so dramatically that SKF Engineers were not able to accurately predict life expectancy using existing life calculation methods. To enable users to predict bearing life more accurately, SKF has done the following:

- Increased basic dynamic load ratings
- Added a factor to be considered when calculating life using the SKF Life Method

For more information, please contact SKF Applications Engineering or visit www.skfusa.com.

Reengineered for endurance

By studying the interrelationship of each bearing component's design, molecular structure and finish, SKF scientists and engineers were able to maximize the effects of lubrication and minimize the effects of friction, wear, contamination and vibration. To do this, the SKF research team had to literally reengineer each component at either the micro or molecular level, and then develop new procedures to consistently manufacture this new standard of excellence. These new procedures have tightened the manufacturing tolerance for all components used in SKF Explorer bearings.

A new level of performance

Over the years, manufacturing and materials research and process improvements have enabled machine components to get smaller without decreasing power output. With each developmental milestone, engineers were given a choice: either downsize the application or increase power output. The new generation of SKF Explorer bearings represents the next significant improvement in performance. But this is not just a short hop to the next level. This is a quantum leap in bearing performance. Tests have shown that these bearings will last significantly longer than the bearing you are currently using.

What SKF Explorer does for your machine

Existing machine

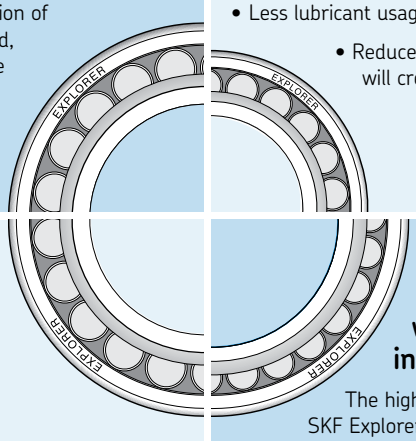
Switching to SKF Explorer bearings give:

- Several times the service life previously achieved
- More machine uptime
- Higher safety factor
- An appreciable reduction of machine cycle cost and, therefore, added value

New machine with same power

SKF Explorer makes it possible to use a smaller bearing size which allows:

- More compact machines
- Higher speeds
- Smoother and quieter running
- Less lubricant usage
- Reduced friction and will create added value



Existing machine with increased power

Same size SKF Explorer bearings allow power increases of 15 to 25% with:

- Same service life
- Same machine uptime
- Same machine design and higher added value

New machine with same or increased power

The higher carrying capacity of SKF Explorer bearings allows the use of a lighter series with same outside diameter and increased bore diameter, so that:

- A stronger, or even hollow shaft can be used
- The total design can be stiffer and also cheaper
- System life is increased due to higher stiffness and machine cycle cost is significantly reduced

Notes

Notes

Notes

Notes

Notes

Notes



Deep groove ball bearings

6200-2Z J/C3 HC5 GJN

1 2 3 4 5

1. Seals, shields & snap rings:

RSH	Contact seal of synthetic rubber (NBR) on one side for bearings up to 52 mm O.D.
RS1	Contact seal of synthetic rubber (NBR) on one side for bearings above 52 mm O.D.
RS2	Contact seal of synthetic rubber (FRM) on one side for high temperature capability
RSL	Low friction seal of synthetic rubber (NBR) on one side for bearings up to 52 mm O.D.
RZ	Low friction seal of synthetic rubber (NBR) on one side for bearings above 52 mm O.D.
Z	Shield on one side
2RSH	Contact seal of synthetic rubber (NBR) on both sides for bearings up to 52 mm O.D.
2RS2	Contact seal of synthetic rubber (FPM) on both sides for high temperature capability
2RSL	Low friction seal of synthetic rubber (NBR) on both sides for bearings up to 52 mm O.D.
2RZ	Low friction seal of synthetic rubber (NBR) on both sides for bearings above 52 mm O.D.
2Z	Shields on both sides
NR	Snap ring groove and snap ring on outer ring
N	Snap ring groove
ZNBR	Snap ring on opposite side of shield
JEM	C3 clearance, Pressed steel cage, electric motor quietness specification, GJN grease for "bearings with closures.

2. Cage designs:

J	Pressed steel cage, ball guided (not marked on bearings)
M/MA	Machined brass cage, rolling element guided
TC	Phenolic cage, inner ring guided
Y	Pressed brass cage, ball guided
TN9	Cage of glass fiber reinforced polyamide 6.6, ball guided

3. Clearance/tolerance:

C1	Clearance < C2
C2	Clearance < Normal
(C0)*	Normal clearance
C3	Clearance > Normal
C4	Clearance > C3
C08	ABEC5 running accuracy inner and outer
C78	Combination of C70 and C08
C70	Reduced I.R. and O.R. diameter
C782	C78 and C2 clearance
C783	C78 and C3 clearance

* Not marked on bearing or package.

Note: C3 clearance, J-steel cages and quiet running characteristics available in JEM bearings. See page 35.

4. Suffix:

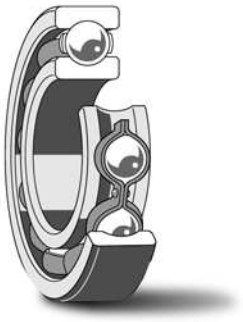
HC5	Ceramic ball set
VA201, VA208, VA228	Special specifications for high temperature applications

5. Lubrication:

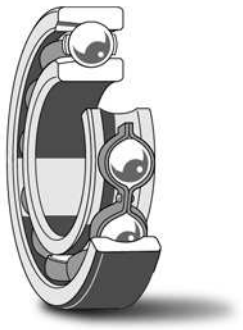
GJN	High temperature, long life NLGI 2 grease with urea thickener and mineral oil (HT51 no longer available, replaced by GJN)
WT	Wide temperature range, long life NLGI 2-3 grease with urea thickener and ester oil
LHT23	Long life, quiet running NLGI 2 grease with lithium thickener and ester oil
MT47	Medium temperature, quiet running NLGI 2 grease with lithium thickener and mineral oil
MT33	Medium temperature, quiet running NLGI 3 grease with lithium thickener and mineral oil
LHT30	Dow Corning Molykote® 44 Medium
LHT64	Shell Aeroshell® #7, MIL-G-23827
W64	Solid Oil
LT10	Low temperature NLGI 2 grease with lithium thickener and diester oil

Introduction

		Technical Features
Boundary dimensions		In accordance with ISO 15
Tolerances		Normal, ABEC 1
		P6 (SKF Explorer)
Running accuracy		Up to 52 mm O.D. – P5, ABEC 5
		52 mm to 110 mm O.D. – P6, ABEC 3
		>110 mm O.D. – Normal, ABEC 1
Heat stabilization		250° F (120° C)
Misalignment		2-10 minutes of arc
Cage material	Standard	Steel
	Optional	Machined brass (M)
Axial load – max		0.5 x C0 for 6200, 6300 and 6400 series
		0.25 x C0 for 61800, 61900 and 6000 series
Seals		2RS1 – Synthetic rubber (NBR) seals
		2RS2 – Synthetic rubber (FKM) seals
Shields		2Z – Stamped steel



Single row deep groove ball bearing (data tables on page 40) and ABEC 5 (data tables on page 54)



Single row deep groove ball bearing Max type (data tables on page 55)

Introduction

Deep groove ball bearings are used in a particularly wide variety of applications. They are relatively simple in design, non-separable, capable of operating at high and even very high speeds, and require little attention or maintenance in service provided the customer selects the appropriate bearing specifications for his application. These characteristics coupled with a price advantage make deep groove ball bearings the most popular of all rolling bearings.

SKF produces deep groove ball bearings in a large number of designs and sizes. The most numerous are the single row bearings without filling slots (Conrad assembly). The bearings with filling slots described in the section starting on page 55 are used in special applications and consequently only a limited range is produced.

Basic design

Deep groove ball bearings, single row

SKF single row deep groove ball bearings have deep, uninterrupted raceways and a high degree of conformity between balls and raceways. This enables them to carry axial loads in both directions in addition to radial loads even at high speeds. Single row deep groove ball bearings are suitable for a wide variety of applications and are therefore produced in a large number of sizes and designs.

Single row deep groove ball bearings of the basic design, i.e. open at both sides, **(Figure 1)** are produced by SKF in several series and in a very wide range of diameters. Those bearings of the basic design which are also produced as shielded or sealed bearings may, for manufacturing reasons, have recessed outer ring shoulders to take the shields or seals.

ABEC 5 single row bearings

SKF produces single row deep groove ball bearings in a higher precision class (ABEC 5). These products are most frequently used in high-speed applications or where precision is critical as in cutting tools, electric motors, handheld tools, and spindles. ABEC 5 bearings are produced in the 6200 and 6300 series and are available in an open version only. They can be supplied with either a brass (Y) or phenolic (TC) cage.

Deep groove ball bearings with filling slots (Max type)

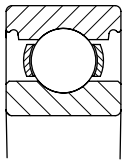
Single row deep groove ball bearings with filling slots incorporate a greater number of balls than the corresponding size without filling slot, and have a filling slot in both outer and inner rings. The radial load carrying capacity is higher than that of bearings without filling slot, but their axial load carrying capacity is small. They are also unable to operate at the high speeds normally associated with deep groove ball bearings.

SKF deep groove ball bearings with filling slots are available in various designs to meet market demands. The most common are described below **(Figure 2)** and are listed in the tables on page 55.

SKF Explorer class bearings

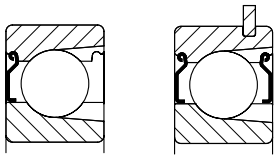
High performance SKF Explorer deep groove ball bearings are printed in blue in the product tables. The higher performance of SKF Explorer deep groove ball bearings also includes quieter running. SKF Explorer bearings retain the designation of the earlier standard bearings. However, each bearing and its box are marked with the name “SKF Explorer”. Additional details on SKF Explorer performance class bearings can be found on page 25.

Figure 1



Deep groove ball bearing single row

Figure 2



Deep groove ball bearing with filling slots (Max type)

Product highlights

Fast, quiet, robust bearings

If the application is demanding and quiet running, smoothness, strength and low heat generation are mandatory–SKF deep groove ball bearings fit the bill.

Quiet running

High precision balls and specially designed raceway grinding equipment are used by SKF to produce some of the quietest running bearings available.

Quality performance in demanding applications

Capable of meeting the severest demands in terms of operating speed, operating temperature, vibration, high running accuracy, low friction, and the ability to function in a contaminated environment with available seals and shields.

Optimized internal geometry

The internal geometry has been optimized for longer life, quieter running, improved seal attachment, low friction and increased ability to accommodate slight misalignments without reducing bearing life.

Large product assortment

Available in a wide range (2.5 to 800 mm inside bore diameter), the basic SKF design is available with a choice of shields, seals and snap rings. In addition, SKF produces max-type deep groove ball bearings with a filling slot.

JEM bearings

In the USA, SKF offers bearings with C3 internal clearance, steel cages and quiet running characteristics packaged as JEM bearings.

JEM packaging

The box will be marked “JEM” while the bearing is marked C3 and/or GJN pending if the bearing is open or capped.

GJN grease provided as standard in JEM bearings

SKF provides GJN, a high temperature urea based grease, as the standard for all JEM deep groove ball bearings. GJN is accepted by major OEM electric motor manufactures in the U.S. and offers a wide range of operating temperature and is quiet running.

Introduction

Variations

Bearings with shields

Bearings with shields, designation suffix Z or 2Z, are produced in one of two designs, depending on the bearing series and size **(Figure 3)**. The shields are made of sheet steel and normally have a cylindrical extension in the shield bore to form a long sealing gap with the inner ring shoulder.

Shielded bearings are primarily intended for applications where the inner ring rotates. If the outer ring rotates, there is a risk that the grease will leak from the bearing at high speeds.

Bearings with low friction seals

SKF deep groove ball bearings with low-friction seals, designation suffixes RSL, 2RSL or RZ, 2RZ are manufactured in two designs depending on bearing series and size **(Figure 4)**.

- Bearings in the 60, 62 and 63 series up to 52 mm outside diameter are equipped with RSL seals to design **(a)**.
- Other bearings have RZ seals **(b)**.

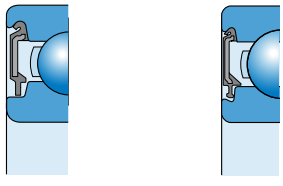
The seals form an extremely narrow gap with the cylindrical surface of the inner ring shoulder or recess profile and are practically non-contracting. Because of this, bearings fitted with low-friction seals can be operated at the same high speeds as bearings with Z shields, but with improved seal performance.

The low-friction seals are made of oil and wear-resistant acrylonitrile butadiene rubber (NBR) with a sheet steel reinforcement. The permissible operating temperature range for these seals is -40° to +212° F (-40° to +100° C) and up to +250° F (+120° C) for brief periods.

Figure 3



Figure 4



a b

Bearings with contact seals

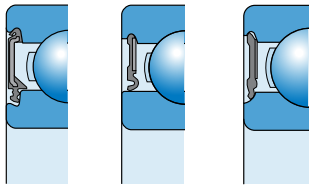
Bearings with contact seals, designation suffixes RSH, 2RSH or RS1, 2RS1 are manufactured in three designs depending on bearing series and size **(Figure 5)**.

- Bearings in the 60, 62 and 63 series up to 52 mm outside diameter are equipped with RSH seals to design **(a)**.
- Other bearings have RS1 seals, which seal against the cylindrical surface of the inner ring shoulder **(b)** indicated by dimension d1 in the product table or against a recess in the inner ring side face **(c)** indicated by dimension d2 in the product table.
- The seals are inserted in recesses in the outer ring and provide good sealing at this position without deforming the outer ring. Standard seals are made of acrylonitrile butadiene rubber (NBR) with a sheet steel reinforcement. The permissible operating temperature range for these seals is -40° to 212° F (-40° to +100° C) and up to +250° F (+120° C) for brief periods.
- When sealed bearings are operated under extreme conditions, e.g. very high speeds or high temperatures, grease leakage may occur at the inner ring. For bearing arrangements where this would be detrimental, special design steps must be undertaken, please consult SKF Applications Engineering.

Bearings with snap ring groove

Deep groove ball bearings with a snap ring groove can simplify arrangement design as the bearings can be axially located in the housing by a snap (or retaining) ring **(Figure 6).** This saves space. Appropriate snap rings are shown in the product table with designation and dimensions and may be supplied separately or already mounted on the bearing.

Figure 5



a b c

Warning!

Safety precautions for fluoro rubber

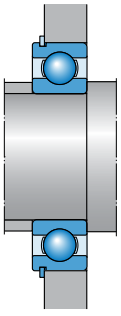
Fluoro rubber is very stable and harmless in normal operating conditions up to +392° F (+200° C). However, if exposed to extreme temperatures above +572° F (+300° C), e.g. fire or the flame of a cutting torch, fluoro rubber seals give off hazardous fumes. These fumes can be harmful if inhaled, as well as to the eyes. In addition, once the seals have been heated to such temperatures, they are dangerous to handle even after they have cooled and should not touch the skin. If it is necessary to handle bearings with seals that have been subjected to high temperatures, such as when dismounting the bearing, the following safety precautions should be observed:

- *Always wear protective goggles, gloves and appropriate breathing apparatus,*
- *Place the remains of the seals in an airtight plastic container marked with a symbol for "material will etch",*
- *Follow the safety precautions in the appropriate material safety data sheet (MSDS).*

If there is unintentional contact with the seals, wash hands with soap and plenty of water and flush eyes with plenty of water and consult a doctor immediately. If the fumes have been inhaled, consult a doctor immediately.

The user is responsible for the correct use of the product during its service life and its proper disposal. SKF takes no responsibility for the improper handling of fluoro rubber seals or for any injury resulting from their use.

Figure 6



SKF

Lubrication

Bearings with shields or seals at both sides are supplied as standard filled with a grease which has good rust inhibiting properties and which is suitable for operating temperatures between -22° and +230° F (-30° to +110° C). The bearings are lubricated for life and are maintenance free. **They should on no account be heated to temperatures above 250° F (120° C), nor should they be washed.** By special order, bearings with shields or seals can be supplied with other greases, e.g. for a temperature range of -40° to +300° F (-40° to +150° C).

The quantity of grease supplied is appropriate to the size of the bearing and normally fills between 25 and 35% of the free space in the bearing. Open bearings are supplied with a rust preservative that is compatible with most standard greases and should not be removed prior to mounting or lubricating.

Masses

The masses given in the tables are for the basic design of the bearing. The mass of bearings with shield(s), seal(s) or snap ring groove differs only slightly from that of the basic bearing.

Internal clearance

Radial internal clearance (Table 1)

SKF single row deep groove ball bearings are produced with Normal radial internal clearance (CN or C0 not marked on bearing) as standard. Radial clearance selection is based on factors such as high speed, operating temperature, shaft fits and axial movement limitations. The availability of bearings with clearances other than Normal should be checked before ordering. The suffix JEM indicates an internal clearance greater than Normal (C3). Many of the bearings, particularly the smaller sizes, are also available with radial internal clearance, which is greater than (C3) or less than (C2) Normal.

The values of the clearance limits for single row deep groove ball bearings are shown in Table 1 and the values of the clearance limits for max type ball bearings are shown in Table 3 on page 38. Both conform to ISO 5753-1991 (ABMA standard 20-1996) for the size range covered by this standard. The values apply to unmounted bearings under zero measuring load.

Table 1

Radial internal clearance of deep groove ball bearings

Bore diameter d		Radial internal clearance																			
		C2				Normal				C3				C4				C5			
over	incl.	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
mm		µm		in		µm		in		µm		in		µm		in		µm		in	
2.5	6	0	7	0.0000	0.0003	2	13	0.0001	0.0005	8	23	0.0003	0.0009	–	–	–	–	–	–	–	–
6	10	0	7	0.0000	0.0003	2	13	0.0001	0.0005	8	23	0.0003	0.0009	14	29	0.0006	0.0011	20	37	0.0008	0.0015
10	18	0	9	0.0000	0.0004	3	18	0.0001	0.0007	11	25	0.0004	0.0010	18	33	0.0007	0.0013	25	45	0.0010	0.0018
18	24	0	10	0.0000	0.0004	5	20	0.0002	0.0008	13	28	0.0005	0.0011	20	36	0.0008	0.0014	28	48	0.0011	0.0019
24	30	1	11	0.0000	0.0004	5	20	0.0002	0.0008	13	28	0.0005	0.0011	23	41	0.0009	0.0016	30	53	0.0012	0.0021
30	40	1	11	0.0000	0.0004	6	20	0.0002	0.0008	15	33	0.0006	0.0013	28	46	0.0011	0.0018	40	64	0.0016	0.0025
40	50	1	11	0.0000	0.0004	6	23	0.0002	0.0009	18	36	0.0007	0.0014	30	51	0.0012	0.0020	45	73	0.0018	0.0029
50	65	1	15	0.0000	0.0006	8	28	0.0003	0.0011	23	43	0.0009	0.0017	38	61	0.0015	0.0024	55	90	0.0022	0.0035
65	80	1	15	0.0000	0.0006	10	30	0.0004	0.0012	25	51	0.0010	0.0020	46	71	0.0018	0.0028	65	105	0.0026	0.0041
80	100	1	18	0.0000	0.0007	12	36	0.0005	0.0014	30	58	0.0012	0.0023	53	84	0.0021	0.0033	75	120	0.0030	0.0047
100	120	2	20	0.0001	0.0008	15	41	0.0006	0.0016	36	66	0.0014	0.0026	61	97	0.0024	0.0038	90	140	0.0035	0.0055
120	140	2	23	0.0001	0.0009	18	48	0.0007	0.0019	41	81	0.0016	0.0032	71	114	0.0028	0.0045	105	160	0.0041	0.0063
140	160	2	23	0.0001	0.0009	18	53	0.0007	0.0021	46	91	0.0018	0.0036	81	130	0.0032	0.0051	120	180	0.0047	0.0071
160	180	2	25	0.0001	0.0010	20	61	0.0008	0.0024	53	102	0.0021	0.0040	91	147	0.0036	0.0058	135	200	0.0053	0.0079
180	200	2	30	0.0001	0.0012	25	71	0.0010	0.0028	63	117	0.0025	0.0046	107	163	0.0042	0.0064	150	230	0.0059	0.0091
200	225	2	35	0.0001	0.0014	25	85	0.0010	0.0033	75	140	0.0030	0.0055	125	195	0.0049	0.0077	175	265	0.0069	0.0104
225	250	2	40	0.0001	0.0016	30	95	0.0012	0.0037	85	160	0.0033	0.0063	145	225	0.0057	0.0089	205	300	0.0081	0.0118
250	280	2	45	0.0001	0.0018	35	105	0.0014	0.0041	90	170	0.0035	0.0067	155	245	0.0061	0.0096	225	340	0.0089	0.0134
280	315	2	55	0.0001	0.0022	40	115	0.0016	0.0045	100	190	0.0039	0.0075	175	270	0.0069	0.0106	245	370	0.0096	0.0146
315	355	3	60	0.0001	0.0024	45	125	0.0018	0.0049	110	210	0.0043	0.0083	195	300	0.0077	0.0118	275	410	0.0108	0.0161
355	400	3	70	0.0001	0.0028	55	145	0.0022	0.0057	130	240	0.0051	0.0094	225	340	0.0089	0.0134	315	460	0.0124	0.0181
400	450	3	80	0.0001	0.0031	60	170	0.0024	0.0067	150	270	0.0059	0.0106	250	380	0.0098	0.0150	350	520	0.0138	0.0205
450	500	3	90	0.0001	0.0035	70	190	0.0028	0.0075	170	300	0.0067	0.0118	280	420	0.0110	0.0165	390	570	0.0154	0.0224
500	560	10	100	0.0004	0.0039	80	210	0.0031	0.0083	190	330	0.0075	0.0130	310	470	0.0122	0.0185	440	630	0.0173	0.0248
560	630	10	110	0.0004	0.0043	90	230	0.0035	0.0091	210	360	0.0083	0.0142	340	520	0.0134	0.0205	490	700	0.0193	0.0276
630	710	20	130	0.0008	0.0051	110	260	0.0043	0.0102	240	400	0.0094	0.0157	380	570	0.0150	0.0224	540	780	0.0213	0.0307
710	800	20	140	0.0008	0.0055	120	290	0.0047	0.0114	270	450	0.0106	0.0177	430	630	0.0169	0.0248	600	860	0.0236	0.0339
800	900	20	160	0.0008	0.0063	140	320	0.0055	0.0126	300	500	0.0118	0.0197	480	700	0.0189	0.0276	670	960	0.0264	0.0378
900	1 000	20	170	0.0008	0.0067	150	350	0.0059	0.0138	330	550	0.0130	0.0217	530	770	0.0209	0.0303	740	1040	0.0291	0.0409
1 000	1 120	20	180	0.0008	0.0071	160	380	0.0063	0.0150	360	600	0.0142	0.0236	580	850	0.0228	0.0335	820	1150	0.0323	0.0453
1 120	1 250	20	190	0.0008	0.0075	170	410	0.0067	0.0161	390	650	0.0154	0.0256	630	920	0.0248	0.0362	890	1260	0.0350	0.0496
1 250	1 400	30	200	0.0012	0.0079	190	440	0.0075	0.0173	420	700	0.0165	0.0276	680	1000	0.0268	0.0394	–	–	–	–
1 400	1 600	30	210	0.0012	0.0083	210	470	0.0083	0.0185	450	750	0.0177	0.0295	730	1060	0.0287	0.0417	–	–	–	–

Introduction

Loads

Equivalent dynamic bearing load for single bearings, Conrad type

$P = F_r$ when $F_a / F_r \leq e$

$P = XF_r + YF_a$ when $F_a / F_r > e$

where

P = equivalent dynamic bearing load

F_r = radial load acting on the bearing

F_a = axial load acting on the bearing

X, Y and e = factors from **Table 2**

The X and Y factors required for the calculation of the equivalent bearing load of deep groove ball bearings are dependent on the ratio of the axial load Fa to the basic static load rating C0 They are also influenced by the magnitude of the radial internal clearance; increased clearance enables heavier axial loads to be carried.

If the bearings are mounted with the usual fits (tolerance j5 to n6 depending on shaft diameter, and J7 for the housing) the values of e, X and Y given in **Table 2** can be used to calculate the equivalent load. If a clearance greater than Normal is chosen because a reduction in clearance will be obtained in operation, for example, as a result of strong heating of the inner ring, then the values of the factors under Normal clearance should be used.

Equivalent dynamic bearing load for single row deep groove ball bearings with filling slots

$P = F_r + F_a$

provided $F_a / F_r \leq 0.6$

Bearings with filling slots are unsuitable for axial loads F_a greater than 0.6 F_r and deep groove ball bearings without filling slot should be used instead.

Minimum load

In order to provide satisfactory operation of all ball and roller bearings they must always be subjected to a given minimum load.

This is also true of deep groove ball bearings, particularly if they run at high speeds where the inertia forces of the balls and cage, and the friction in the lubricant can have a detrimental influence on the rolling conditions in the bearing and may cause damaging sliding movements to occur between the balls and the raceways.

The requisite minimum radial load to be applied in such cases can be determined by using the Interactive Engineering Catalog on the SKF website www.skf.com or by contacting SKF Applications Engineering.

However, the weight of the components supported by the bearing, together with the external forces, often exceeds the requisite minimum load. If this is not the case, an additional radial load must be applied to the bearing; for example, by increasing belt tension, by applying a preload to the inner or outer rings, or by using springs.

Frequency vibration data

Frequency vibration data is available on the SKF website skfusa.com. Select Engineering Tools under the Support menu. Or contact SKF Applications Engineering.

Special solutions using deep groove ball bearings

- Bearings with inch boundary dimensions
- High temperature (kiln truck) bearings for extreme temperatures
- Stainless steel bearings for water/moist environments
- INSOCOAT for electrically insulating a bearing from stray current
- Bearings with ceramic balls for extreme speed or electrical insulation
- Double row deep groove (4200 series) for increased load

Details on these special solution products are available in other SKF publications, which can be supplied upon request.

Table 2

Calculation factors for single row deep groove ball bearings

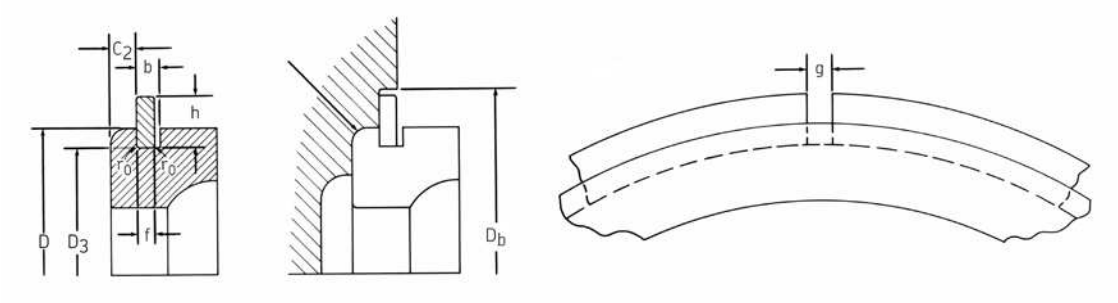
Single bearings and bearing pairs in tandem

	Normal clearance			C3 clearance			C4 clearance		
F_a/C_0	e	X	Y	e	X	Y	e	X	Y
0.025	0.22	0.56	2.0	0.31	0.46	1.75	0.4	0.44	1.42
0.04	0.24	0.56	1.8	0.33	0.46	1.62	0.42	0.44	1.36
0.07	0.27	0.56	1.6	0.36	0.46	1.46	0.44	0.44	1.27
0.13	0.31	0.56	1.4	0.41	0.46	1.30	0.48	0.44	1.16
0.25	0.37	0.56	1.2	0.46	0.46	1.14	0.53	0.44	1.05
0.5	0.44	0.56	1.0	0.54	0.46	1.00	0.56	0.44	1.00

Table 3

Radial internal clearance of deep groove ball bearings with filling slots

Bore diameter d		**Radial internal clearance**											
		C2				**Normal**				**C3**			
over	incl.	min	max	min	max	min	max	min	max	min	max	min	max
mm		µm		in		µm		in		µm		in	
18	**24**	0	10	0.0000	0.0004	5	20	0.0002	0.0008	13	28	0.0005	0.0011
24	**30**	1	11	0.0000	0.0004	5	20	0.0002	0.0008	13	28	0.0005	0.0011
30	**40**	1	11	0.0000	0.0004	6	20	0.0002	0.0008	15	33	0.0006	0.0013
40	**50**	1	11	0.0000	0.0004	6	23	0.0002	0.0009	18	36	0.0007	0.0014
50	**65**	1	15	0.0000	0.0006	8	28	0.0003	0.0011	23	43	0.0009	0.0017
65	**80**	1	15	0.0000	0.0006	10	30	0.0004	0.0012	25	51	0.0010	0.0020
80	**100**	1	18	0.0000	0.0007	12	36	0.0005	0.0014	30	58	0.0012	0.0023



Snap ring and snap ring groove dimensions

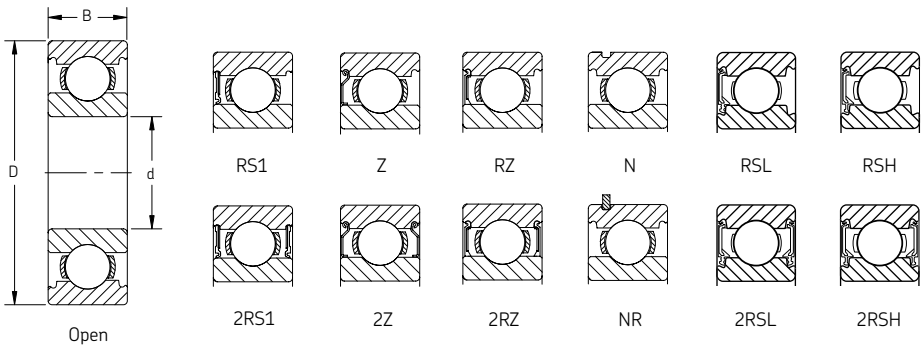
Table 4

Snap ring and groove dimensions - ball bearings

Outer ring O.D. D		Groove dia. max. D_3		Groove location max. C_2		Groove width min. b		Fillet radius max. r_0		Ring thickness max. f		Ring section height max. h		Ring gap g		End cover D_b	
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
40	**1.5748**	38.10	1.500	2.06	0.081	1.35	0.053	0.4	0.016	1.12	0.044	3.25	0.128	3	0.12	45	1.8
47	**1.8504**	44.60	1.756	2.46	0.097	1.35	0.053	0.4	0.016	1.12	0.044	4.04	0.159	4	0.15	53	2.1
52	**2.0472**	49.73	1.958	2.46	0.097	1.35	0.053	0.4	0.016	1.12	0.044	4.04	0.159	4	0.15	58	2.3
62	**2.4409**	59.61	2.347	3.28	0.129	1.90	0.075	0.6	0.024	1.70	0.067	4.04	0.159	4	0.15	68	2.7
72	**2.8346**	68.81	2.709	3.28	0.129	1.90	0.075	0.6	0.024	1.70	0.067	4.85	0.191	5	0.19	80	3.1
80	**3.1496**	76.81	3.024	3.28	0.129	1.90	0.075	0.6	0.024	1.70	0.067	4.85	0.191	5	0.19	88	3.5
85	**3.3464**	81.81	3.221	3.28	0.129	1.90	0.075	0.6	0.024	1.70	0.067	4.85	0.191	5	0.19	93	3.7
90	**3.5400**	86.79	3.417	3.28	0.129	2.70	0.106	0.6	0.024	2.46	0.097	4.85	0.191	5	0.19	98	3.9
100	**3.9370**	96.80	3.811	3.28	0.129	2.70	0.106	0.6	0.024	2.46	0.097	4.85	0.191	5	0.19	108	4.3
110	**4.3307**	106.81	4.205	3.28	0.129	2.70	0.106	0.6	0.024	2.46	0.097	4.85	0.191	5	0.19	118	4.6
120	**4.7244**	115.21	4.536	4.06	0.160	3.10	0.122	0.6	0.024	2.82	0.111	7.21	0.284	7	0.28	131	5.2
125	**4.9210**	120.22	4.733	4.06	0.160	3.10	0.122	0.6	0.024	2.82	0.111	7.21	0.284	7	0.28	136	5.4
130	**5.1181**	125.22	4.930	4.06	0.160	3.10	0.122	0.6	0.024	2.82	0.111	7.21	0.284	7	0.28	141	5.6
140	**5.5118**	135.23	5.324	4.90	0.193	3.10	0.122	0.6	0.024	2.82	0.111	7.21	0.284	7	0.28	151	5.9
150	**5.9055**	145.24	5.718	4.90	0.193	3.10	0.122	0.6	0.024	2.82	0.111	7.21	0.284	7	0.28	161	6.3
160	**6.2992**	155.22	6.111	4.90	0.193	3.10	0.122	0.6	0.024	2.82	0.111	7.21	0.284	7	0.28	171	6.7
170	**6.6929**	163.65	6.443	5.69	0.224	3.50	0.138	0.6	0.024	3.10	0.122	9.60	0.378	10	0.39	184	7.2
180	**7.0866**	173.66	6.837	5.69	0.224	3.50	0.138	0.6	0.024	3.10	0.122	9.60	0.378	10	0.39	194	7.6
190	**7.4803**	183.64	7.230	5.69	0.224	3.50	0.138	0.6	0.024	3.10	0.122	9.60	0.378	10	0.39	204	8.0
200	**7.8740**	193.65	7.624	5.69	0.224	3.50	0.138	0.6	0.024	3.10	0.122	9.60	0.378	10	0.39	214	8.4

Note: Does not include 6000 series bearings

Single row
Conrad
Open, sealed, shielded and snap ring
Standard and SKF Explorer
Series: 604 – 6026
Size: 4 mm – 140 mm
0.1575 in – 5.1118 in

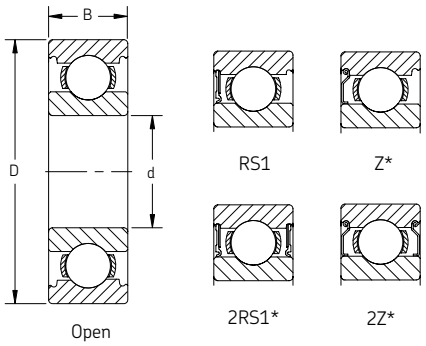


Designation	Principal dimensions						Basic load ratings				Speed rating[1]			Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Refer-ence speed	Limiting speed	Sealed Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	r/min	kg	lb
604	4	0.1575	12	0.4724	4	0.1575	806	180	280	60	120000	75000	–	0.00	0.01
607	7	0.2756	19	0.7480	6	0.2362	2340	530	950	210	85000	53000	24000	0.01	0.02
608	8	0.3150	22	0.8661	7	0.2756	3450	780	1370	310	75000	48000	22000	0.01	0.03
609	9	0.3543	24	0.9449	7	0.2756	3900	880	1660	370	70000	43000	19000	0.01	0.03
6000	10	0.3937	26	1.0236	8	0.3150	4750	1070	1960	440	67000	40000	19000	0.02	0.04
6001	12	0.4724	28	1.1024	8	0.3150	5400	1210	2360	530	60000	38000	17000	0.02	0.05
6002	15	0.5906	32	1.2598	9	0.3543	5850	1310	2850	640	50000	32000	14000	0.03	0.07
6003	17	0.6693	35	1.3780	10	0.3937	6370	1430	3250	730	45000	28000	13000	0.04	0.08
6004	20	0.7874	42	1.6535	12	0.4724	9950	2240	5000	1120	38000	24000	11000	0.07	0.15
6005	25	0.9843	47	1.8504	12	0.4724	11900	2670	6550	1470	32000	20000	9500	0.08	0.17
6006	30	1.1811	55	2.1654	13	0.5118	13800	3100	8300	1870	28000	17000	8000	0.12	0.26
6007	35	1.3780	62	2.4409	14	0.5512	16800	3780	10200	2290	24000	15000	7000	0.15	0.34
6008	40	1.5748	68	2.6772	15	0.5906	17800	4000	11000	2470	22000	14000	6300	0.19	0.42
6009	45	1.7717	75	2.9528	16	0.6299	22100	4970	14600	3280	20000	12000	5600	0.24	0.54
6010	50	1.9685	80	3.1496	16	0.6299	22900	5150	16000	3600	18000	11000	5000	0.26	0.58
6011	55	2.1654	90	3.5433	18	0.7087	29600	6650	21200	4760	16000	10000	4500	0.38	0.85
6012	60	2.3622	95	3.7402	18	0.7087	30700	6900	23200	5210	15000	9500	4300	0.41	0.91
6013	65	2.5591	100	3.9370	18	0.7087	31900	7170	25000	5620	14000	9000	4000	0.44	0.96
6014	70	2.7559	110	4.3307	20	0.7874	39700	8920	31000	6970	13000	8000	3600	0.61	1.35
6015	75	2.9528	115	4.5276	20	0.7874	41600	9350	33500	7530	12000	7500	3400	0.65	1.43
6016	80	3.1496	125	4.9213	22	0.8661	49400	11100	40000	8990	11000	7000	3200	0.86	1.89
6017	85	3.3465	130	5.1181	22	0.8661	52000	11690	43000	9660	11000	6700	3000	0.90	1.99
6018	90	3.5433	140	5.5118	24	0.9449	60500	13600	50000	11240	10000	6300	2800	1.16	2.56
6019	95	3.7402	145	5.7087	24	0.9449	63700	14310	54000	12130	9500	6000	2800	1.21	2.67
6020	100	3.9370	150	5.9055	24	0.9449	63700	14310	54000	12130	9500	5600	2600	1.26	2.78
6021	105	4.1339	160	6.2992	26	1.0236	76100	17100	65500	14720	8500	5300	2400	1.60	3.53
6022	110	4.3307	170	6.6929	28	1.1024	85200	19150	73500	16520	8000	5000	2400	1.97	4.34
6024	120	4.7244	180	7.0866	28	1.1024	88400	19870	80000	17980	7500	4800	2200	2.10	4.64
6026	130	5.1181	200	7.8740	33	1.2992	112000	25170	100000	22470	7000	4300	2000	3.28	7.23

[1] For shielded limiting speed ratings, contact SKF Applications Engineering.

Consult SKF USA Inc. prior to design change or order placement.

Single row
Conrad
Open, sealed, shielded and snap ring
Standard
Series: 6028 – 60/800 N1MAS
Size: 150 mm – 800 mm
5.9055 in – 31.4961 in



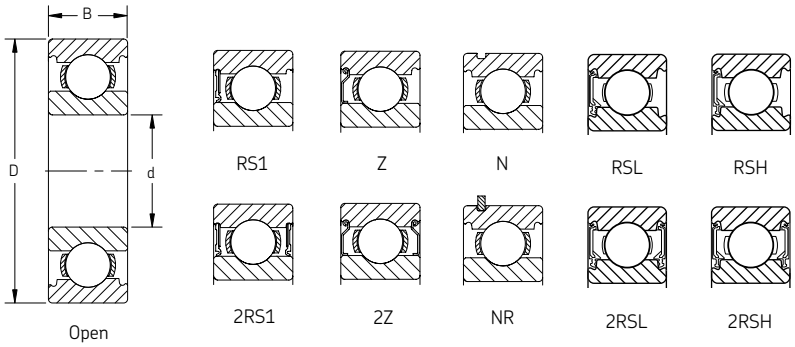
Designation	Principal dimensions						Basic load ratings				Speed rating[1]			Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed	Sealed Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	r/min	kg	lb
6028	140	5.5118	210	8.2677	33	1.2992	111000	24940	108000	24270	6700	4000	1800	3.45	7.61
6030	150	5.9055	225	8.8583	35	1.3780	125000	28090	125000	28090	6000	3800	1700	4.29	9.46
6032	160	6.2992	240	9.4488	38	1.4961	143000	32130	143000	32130	5600	3600	1600	5.21	11.48
6034 M	170	6.6929	260	10.2362	42	1.6535	168000	37750	173000	38880	5300	4300	–	8.14	17.95
6036 M	180	7.0866	280	11.0236	46	1.8110	190000	42700	200000	44940	4800	4000	–	10.31	22.73
6038 M	190	7.4803	290	11.4173	46	1.8110	195000	43820	216000	48540	4800	3800	–	10.81	23.84
6040 M	200	7.8740	310	12.2047	51	2.0079	216000	48540	245000	55060	4300	3600	–	13.96	30.78
6044 M	220	8.6614	340	13.3858	56	2.2047	247000	55510	290000	65170	4000	3200	–	18.32	40.40
6048 M	240	9.4488	360	14.1732	56	2.2047	255000	57300	315000	70790	3600	3000	–	19.60	43.22
6052 M	260	10.2362	400	15.7480	65	2.5591	291000	65390	375000	84270	3200	2800	–	29.04	64.04
6056 M	280	11.0236	420	16.5354	65	2.5591	302000	67870	405000	91010	3000	2600	–	30.78	67.87
6060 M	300	11.8110	460	18.1102	74	2.9134	358000	80450	500000	112360	2800	2400	–	44.00	97.02
6064 M	320	12.5984	480	18.8976	74	2.9134	371000	83370	540000	121350	2600	2200	–	46.00	101.43
6068 M	340	13.3858	520	20.4724	82	3.2283	423000	95060	640000	143820	2400	2200	–	62.00	136.71
6072 M	360	14.1732	540	21.2598	82	3.2283	442000	99330	695000	156180	2400	1900	–	64.50	142.22
6076 M	380	14.9606	560	22.0472	82	3.2283	436000	97980	695000	156180	2200	1800	–	70.40	155.23
6080 M	400	15.7480	600	23.6220	90	3.5433	520000	116850	865000	194380	2000	1700	–	87.50	192.94
6084 M	420	16.5354	620	24.4094	90	3.5433	507000	113930	880000	197750	2000	1600	–	91.50	201.76
6088 M	440	17.3228	650	25.5906	94	3.7008	553000	124270	965000	216850	1900	1500	–	105.00	231.53
6092 MB	460	18.1102	680	26.7717	100	3.9370	582000	130790	1060000	238200	1800	1500	–	120.00	264.60
6096 M	480	18.8976	700	27.5591	100	3.9370	618000	138880	1140000	256180	1700	1400	–	125.00	275.63
60/500 N1MAS	500	19.6850	720	28.3465	100	3.9370	605000	135960	1140000	256180	1600	1300	–	135.00	297.68
60/530 N1MAS	530	20.8661	780	30.7087	112	4.4094	650000	146070	1270000	285390	1500	1200	–	185.00	407.93
60/560 N1MAS	560	22.0472	820	32.2835	115	4.5276	663000	148990	1370000	307870	1400	1200	–	210.00	463.05
60/ 600 MA	600	23.6220	870	34.2520	118	4.6457	728000	163600	1500000	337080	1300	1100	–	230.00	507.15
60/630 N1MBS	630	24.8031	920	36.2205	128	5.0394	819000	184040	1760000	395510	1200	1000	–	285.00	628.43
60/670 N1MAS	670	26.3780	980	38.5827	136	5.3543	904000	203150	2039999	458430	1100	900	–	345.00	760.73
60/710 N1MAS	710	27.9528	1030	40.5512	140	5.5118	956000	214830	2199999	494380	1000	850	–	394.00	868.77
60/750 MA	750	29.5276	1090	42.9134	150	5.9055	995000	223600	2360000	530340	950	800	–	485.00	1069.43
60/800 N1MAS	800	31.4961	1150	45.2756	155	6.1024	1010000	226970	2550000	573030	900	750	–	523.00	1153.22

* Feature may not be available in all sizes.

[1] For shielded limiting speed ratings, contact SKF Applications Engineering.

Consult SKF USA Inc. prior to design change or order placement.

Single row
Conrad
Open, sealed, shielded and snap ring
Standard and SKF Explorer
Series: 623 – 6222
Size: 3 mm – 110 mm
0.1181 in – 4.3307 in

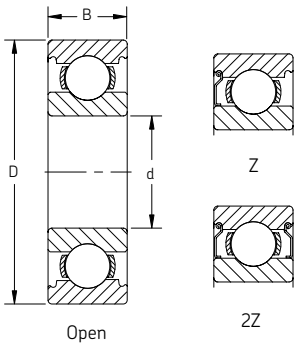


Designation	Principal dimensions						Basic load ratings				Speed rating[1]			Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed	Sealed Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	r/min	kg	lb
623	3	0.1181	10	0.3937	4	0.1575	540	120	180	40	130000	80000	40000	0.00	0.00
624	4	0.1575	13	0.5118	5	0.1969	936	210	290	70	110000	67000	–	0.00	0.01
625	5	0.1969	16	0.6299	5	0.1969	1140	260	380	90	95000	60000	–	0.01	0.01
626	6	0.2362	19	0.7480	6	0.2362	2340	530	950	210	80000	50000	24000	0.01	0.02
627	7	0.2756	22	0.8661	7	0.2756	3450	780	1370	310	70000	45000	22000	0.01	0.03
628	8	0.3150	24	0.9449	8	0.3150	3900	880	1660	370	63000	40000	19000	0.02	0.04
629	9	0.3543	26	1.0236	8	0.3150	4750	1070	1960	440	60000	38000	19000	0.02	0.04
6200	10	0.3937	30	1.1811	9	0.3543	5400	1210	2360	530	56000	36000	17000	0.03	0.07
6201	12	0.4724	32	1.2598	10	0.3937	7280	1640	3100	700	50000	32000	15000	0.04	0.08
6202	15	0.5906	35	1.3780	11	0.4331	8060	1810	3750	840	43000	28000	13000	0.04	0.10
6203	17	0.6693	40	1.5748	12	0.4724	9950	2240	4750	1070	38000	24000	12000	0.06	0.14
6204	20	0.7874	47	1.8504	14	0.5512	13500	3030	6550	1470	32000	20000	10000	0.11	0.23
6205	25	0.9843	52	2.0472	15	0.5906	14800	3330	7800	1750	28000	18000	8500	0.13	0.28
6206	30	1.1811	62	2.4409	16	0.6299	20300	4560	11200	2520	24000	15000	7500	0.20	0.44
6207	35	1.3780	72	2.8346	17	0.6693	27000	6070	15300	3440	20000	13000	6300	0.29	0.64
6208	40	1.5748	80	3.1496	18	0.7087	32500	7300	19000	4270	18000	11000	5600	0.37	0.80
6209	45	1.7717	85	3.3465	19	0.7480	35100	7890	21600	4850	17000	11000	5000	0.42	0.92
6210	50	1.9685	90	3.5433	20	0.7874	37100	8340	23200	5210	15000	10000	4800	0.46	1.01
6211	55	2.1654	100	3.9370	21	0.8268	46200	10380	29000	6520	14000	9000	4300	0.61	1.35
6212	60	2.3622	110	4.3307	22	0.8661	55300	12430	36000	8090	13000	8000	4000	0.78	1.72
6213	65	2.5591	120	4.7244	23	0.9055	58500	13150	40500	9100	12000	7500	3600	1.02	2.25
6214	70	2.7559	125	4.9213	24	0.9449	63700	14310	45000	10110	11000	7000	3400	1.09	2.40
6215	75	2.9528	130	5.1181	25	0.9843	68900	15480	49000	11010	10000	6700	3200	1.19	2.62
6216	80	3.1496	140	5.5118	26	1.0236	72800	16360	55000	12360	9500	6000	3000	1.47	3.23
6217	85	3.3465	150	5.9055	28	1.1024	87100	19570	64000	14380	9000	5600	2800	1.80	3.98
6218	90	3.5433	160	6.2992	30	1.1811	101000	22700	73500	16520	8500	5300	2600	2.22	4.89
6219	95	3.7402	170	6.6929	32	1.2598	114000	25620	81500	18310	8000	5000	2400	2.63	5.79
6220	100	3.9370	180	7.0866	34	1.3386	127000	28540	93000	20900	7500	4800	2400	3.18	7.01
6221	105	4.1339	190	7.4803	36	1.4173	140000	31460	104000	23370	7000	4500	2200	3.79	8.36
6222	110	4.3307	200	7.8740	38	1.4961	151000	33930	118000	26520	6700	4300	2000	4.45	9.80

[1] For shielded limiting speed ratings, contact SKF Applications Engineering.

Consult SKF USA Inc. prior to design change or order placement.

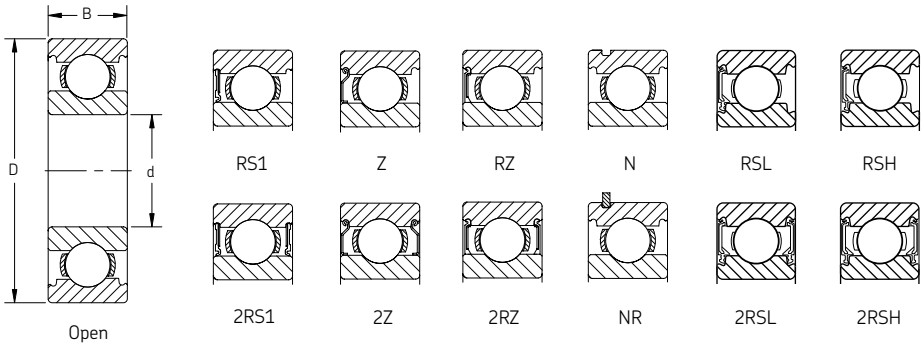
Single row
Conrad
Open and shielded
Standard
Series: 6224 – 6260 M
Size: 120 mm – 300 mm
4.7244 in – 11.8110 in



Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
6224	120	4.7244	215	8.4646	40	1.5748	146000	32810	118000	26520	6300	4000	5.27	11.62
6226	130	5.1181	230	9.0551	40	1.5748	156000	35060	132000	29660	5600	3600	5.86	12.92
6228	140	5.5118	250	9.8425	42	1.6535	165000	37080	150000	33710	5300	3400	7.77	17.14
6230	150	5.9055	270	10.6299	45	1.7717	174000	39100	166000	37300	5000	3200	10.14	22.35
6232	160	6.2992	290	11.4173	48	1.8898	186000	41800	186000	41800	4500	3000	12.90	28.44
6234 M	170	6.6929	310	12.2047	52	2.0472	212000	47640	224000	50340	4300	3800	17.50	38.58
6236 M	180	7.0866	320	12.5984	52	2.0472	229000	51460	240000	53930	4000	3800	17.83	39.31
6238 M	190	7.4803	340	13.3858	55	2.1654	255000	57300	280000	62920	3800	3400	21.66	47.75
6240 M	200	7.8740	360	14.1732	58	2.2835	270000	60670	310000	69660	3600	3200	26.18	57.73
6244 M	220	8.6614	400	15.7480	65	2.5591	296000	66520	365000	82020	3200	3000	36.56	80.61
6248 M	240	9.4488	440	17.3228	72	2.8346	358000	80450	465000	104490	3000	2600	51.00	112.46
6252 M	260	10.2362	480	18.8976	80	3.1496	390000	87640	530000	119100	2600	2400	65.50	144.43
6256 M	280	11.0236	500	19.6850	80	3.1496	423000	95060	600000	134830	2600	2200	72.00	158.76
6260 M	300	11.8110	540	21.2598	85	3.3465	462000	103820	670000	150560	2400	2000	88.50	195.14

Consult SKF USA Inc. prior to design change or order placement.

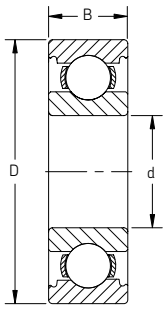
Single row
Conrad
Open, sealed, shielded and snap ring
Standard and SKF Explorer
Series: 634 – 6324 M
Size: 4 mm – 120 mm
0.1575 in – 4.7244 in



Designation	Principal dimensions						Basic load ratings				Speed rating[1]			Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed	Sealed Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	r/min	kg	lb
634	4	0.1575	16	0.6299	5	0.1969	1110	250	380	90	95000	60000	28000	0.01	0.01
635	5	0.1969	19	0.7480	6	0.2362	2340	530	950	210	80000	50000	24000	0.01	0.02
6300	10	0.3937	35	1.3780	11	0.4331	8520	1910	3400	760	50000	32000	15000	0.05	0.12
6301	12	0.4724	37	1.4567	12	0.4724	10100	2270	4150	930	45000	28000	14000	0.06	0.13
6302	15	0.5906	42	1.6535	13	0.5118	11900	2670	5400	1210	38000	24000	12000	0.08	0.18
6303	17	0.6693	47	1.8504	14	0.5512	14300	3210	6550	1470	34000	22000	11000	0.11	0.25
6304	20	0.7874	52	2.0472	15	0.5906	16800	3780	7800	1750	30000	19000	9500	0.14	0.32
6305	25	0.9843	62	2.4409	17	0.6693	23400	5260	11600	2610	24000	16000	7500	0.23	0.50
6306	30	1.1811	72	2.8346	19	0.7480	29600	6650	16000	3600	20000	13000	6300	0.35	0.77
6307	35	1.3780	80	3.1496	21	0.8268	35100	7890	19000	4270	19000	12000	6000	0.46	1.01
6308	40	1.5748	90	3.5433	23	0.9055	42300	9510	24000	5390	17000	11000	5000	0.63	1.38
6309	45	1.7717	100	3.9370	25	0.9843	55300	12430	31500	7080	15000	9500	4500	0.84	1.84
6310	50	1.9685	110	4.3307	27	1.0630	65000	14610	38000	8540	13000	8500	4300	1.08	2.38
6311	55	2.1654	120	4.7244	29	1.1417	74100	16650	45000	10110	12000	8000	3800	1.37	3.03
6312	60	2.3622	130	5.1181	31	1.2205	85200	19150	52000	11690	11000	7000	3400	1.72	3.80
6313	65	2.5591	140	5.5118	33	1.2992	97500	21910	60000	13480	10000	6700	3200	2.11	4.64
6314	70	2.7559	150	5.9055	35	1.3780	111000	24940	68000	15280	9500	6300	3000	2.55	5.62
6315	75	2.9528	160	6.2992	37	1.4567	119000	26740	76500	17190	9000	5600	2800	3.06	6.74
6316	80	3.1496	170	6.6929	39	1.5354	130000	29210	86500	19440	8500	5300	2600	3.63	8.00
6317	85	3.3465	180	7.0866	41	1.6142	140000	31460	96500	21690	8000	5000	2400	4.25	9.38
6318	90	3.5433	190	7.4803	43	1.6929	151000	33930	108000	24270	7500	4800	2400	4.97	10.96
6319	95	3.7402	200	7.8740	45	1.7717	159000	35730	118000	26520	7000	4500	2200	5.75	12.67
6320	100	3.9370	215	8.4646	47	1.8504	174000	39100	140000	31460	6700	4300	2000	7.08	15.60
6321	105	4.1339	225	8.8583	49	1.9291	182000	40900	153000	34380	6300	4000	–	8.18	18.03
6322	110	4.3307	240	9.4488	50	1.9685	203000	45620	180000	40450	6000	3800	1800	9.66	21.31
6324	120	4.7244	260	10.2362	55	2.1654	208000	46740	186000	41800	5600	3400	1700	12.66	27.92

[1] For shielded limiting speed ratings, contact SKF Applications Engineering.

Consult SKF USA Inc. prior to design change or order placement.



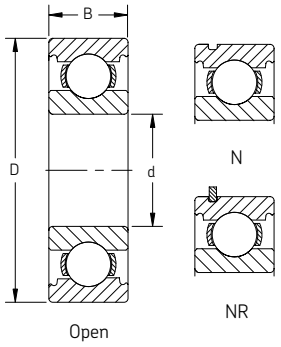
Open

Single row
Conrad
Open
Series: 6326 M – 6348 M
Standard
Size: 130 mm – 240 mm
5.1181 in – 9.4488 in

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
6326 M	130	5.1181	280	11.0236	58	2.2835	229000	51460	216000	48540	5000	4500	17.26	38.05
6328 M	140	5.5118	300	11.8110	62	2.4409	251000	56400	245000	55060	4800	4300	21.07	46.46
6330 M	150	5.9055	320	12.5984	65	2.5591	276000	62020	285000	64040	4300	4000	25.50	56.23
6332 M	160	6.2992	340	13.3858	68	2.6772	276000	62020	285000	64040	4000	3800	29.85	65.82
6334 M	170	6.6929	360	14.1732	72	2.8346	312000	70110	340000	76400	3800	3400	34.93	77.03
6336 M	180	7.0866	380	14.9606	75	2.9528	351000	78880	405000	91010	3600	3200	40.90	90.19
6338 M	190	7.4803	400	15.7480	78	3.0709	371000	83370	430000	96630	3400	3000	47.44	104.60
6344 M	220	8.6614	460	18.1102	88	3.4646	410000	92130	520000	116850	3000	2600	73.00	160.97
6348 M	240	9.4488	500	19.6850	95	3.7402	442000	99330	585000	131460	2600	2400	96.80	213.44

Consult SKF USA Inc. prior to design change or order placement.

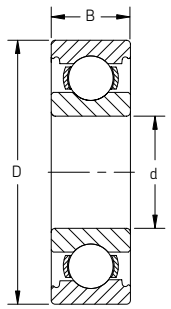
Single row
Conrad
Open and snap ring
Standard
Series: 6403 – 6418
Size: 17 mm – 90 mm
0.6693 in – 3.5433 in



Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
6403	17	0.6693	62	2.4409	17	0.6693	22900	5150	10800	2430	28000	18000	0.27	0.60
6404	20	0.7874	72	2.8346	19	0.7480	30700	6900	15000	3370	24000	15000	0.41	0.90
6405	25	0.9843	80	3.1496	21	0.8268	35800	8040	19300	4340	20000	13000	0.54	1.20
6406	30	1.1811	90	3.5433	23	0.9055	43600	9800	23600	5300	18000	11000	0.75	1.65
6407	35	1.3780	100	3.9370	25	0.9843	55300	12430	31000	6970	16000	10000	0.97	2.14
6408	40	1.5748	110	4.3307	27	1.0630	63700	14310	36500	8200	14000	9000	1.26	2.78
6409	45	1.7717	120	4.7244	29	1.1417	76100	17100	45000	10110	13000	8500	1.57	3.47
6410	50	1.9685	130	5.1181	31	1.2205	87100	19570	52000	11690	12000	7500	1.94	4.27
6411	55	2.1654	140	5.5118	33	1.2992	99500	22360	62000	13930	11000	7000	2.35	5.19
6412	60	2.3622	150	5.9055	35	1.3780	108000	24270	69500	15620	10000	6300	2.83	6.24
6413	65	2.5591	160	6.2992	37	1.4567	119000	26740	78000	17530	9500	6000	3.37	7.43
6414	70	2.7559	180	7.0866	42	1.6535	143000	32130	104000	23370	8500	5300	4.93	10.87
6415	75	2.9528	190	7.4803	45	1.7717	153000	34380	114000	25620	8000	5000	5.81	12.80
6416	80	3.1496	200	7.8740	48	1.8898	163000	36630	125000	28090	7500	4800	6.86	15.12
6417	85	3.3465	210	8.2677	52	2.0472	174000	39100	137000	30790	7000	4500	8.05	17.75
6418	90	3.5433	225	8.8583	54	2.1260	186000	41800	150000	33710	6700	4300	9.78	21.56

Consult SKF USA Inc. prior to design change or order placement.

Single row
Conrad
Open, shielded and snap ring
Standard and SKF Explorer
Series: 16002 – 16044
Size: 15 mm – 220 mm
0.5906 in – 8.6614 in



Open


2Z*


NR*

Designation	Principal dimensions						Basic load ratings				Speed rating[1]		Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
16002	15	0.5906	32	1.2598	8	0.3150	5850	1310	2850	640	50000	32000	0.03	0.06
16003	17	0.6693	35	1.3780	8	0.3150	6370	1430	3250	730	45000	28000	0.03	0.07
16005	25	0.9843	47	1.8504	8	0.3150	8060	1810	4750	1070	32000	20000	0.06	0.12
16006	30	1.1811	55	2.1654	9	0.3543	11900	2670	7350	1650	28000	17000	0.09	0.20
16007	35	1.3780	62	2.4409	9	0.3543	13000	2920	8150	1830	24000	15000	0.11	0.25
16008	40	1.5748	68	2.6772	9	0.3543	13800	3100	10200	2290	22000	14000	0.13	0.29
16009	45	1.7717	75	2.9528	10	0.3937	16500	3710	10800	2430	20000	12000	0.17	0.37
16010	50	1.9685	80	3.1496	10	0.3937	16800	3780	11400	2560	18000	11000	0.18	0.40
16011	55	2.1654	90	3.5433	11	0.4331	20300	4560	14000	3150	16000	10000	0.26	0.58
16012	60	2.3622	95	3.7402	11	0.4331	20800	4670	15000	3370	15000	9500	0.29	0.63
16013	65	2.5591	100	3.9370	11	0.4331	22500	5060	19600	4400	14000	9000	0.30	0.66
16014	70	2.7559	110	4.3307	13	0.5118	29100	6540	25000	5620	13000	8000	0.44	0.97
16015	75	2.9528	115	4.5276	13	0.5118	30200	6790	27000	6070	12000	7500	0.46	1.02
16016	80	3.1496	125	4.9213	14	0.5512	35100	7890	31500	7080	11000	7000	0.61	1.34
16017	85	3.3465	130	5.1181	14	0.5512	35800	8040	33500	7530	11000	6700	0.64	1.41
16018	90	3.5433	140	5.5118	16	0.6299	43600	9800	39000	8760	10000	6300	0.85	1.88
16019	95	3.7402	145	5.7087	16	0.6299	44900	10090	41500	9330	9500	6000	0.89	1.97
16020	100	3.9370	150	5.9055	16	0.6299	46200	10380	44000	9890	9500	5600	0.94	2.06
16021	105	4.1339	160	6.2992	18	0.7087	54000	12130	51000	11460	8500	5300	1.19	2.63
16022	110	4.3307	170	6.6929	19	0.7480	60500	13600	57000	12810	8000	5000	1.47	3.23
16024	120	4.7244	180	7.0866	19	0.7480	63700	14310	64000	14380	7500	4800	1.57	3.45
16026	130	5.1181	200	7.8740	22	0.8661	83200	18700	81500	18310	7000	4300	2.39	5.26
16028	140	5.5118	210	8.2677	22	0.8661	80600	18110	86500	19440	6700	4000	2.53	5.57
16030	150	5.9055	225	8.8583	24	0.9449	92300	20740	98000	22020	6000	3800	3.14	6.93
16032	160	6.2992	240	9.4488	25	0.9843	99500	22360	108000	24270	5600	3600	3.66	8.08
16034	170	6.6929	260	10.2362	28	1.1024	119000	26740	129000	28990	5300	3200	5.02	11.06
16036	180	7.0866	280	11.0236	31	1.2205	138000	31010	146000	32810	4800	3000	6.51	14.35
16038	190	7.4803	290	11.4173	31	1.2205	148000	33260	166000	37300	4800	3000	6.89	15.20
16040	200	7.8740	310	12.2047	34	1.3386	168000	37750	190000	42700	4300	2800	8.78	19.37
16044	220	8.6614	340	13.3858	37	1.4567	174000	39100	204000	45840	4000	2400	11.49	25.33

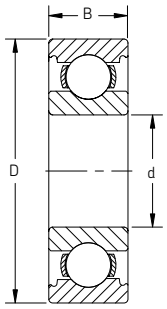
* Feature may not be available in all sizes.

[1] For shielded limiting speed ratings, contact SKF Applications Engineering.

Consult SKF USA Inc. prior to design change or order placement.

Single row
Conrad
Open and sealed
Standard
Series: 16048 – 16076
Size: 240 mm – 380 mm
9.4488 in – 14.9606 in

Series: 16100 – 16101
Size: 10 mm – 12 mm
0.3937 in – 0.4724 in

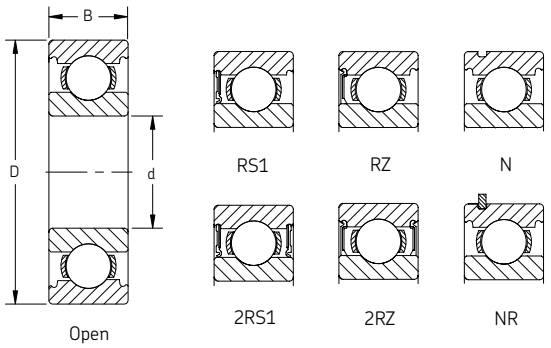


Open

Designation	Principal dimensions						Basic load ratings				Speed rating			Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Refer-ence speed	Limiting speed	Sealed Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	r/min	kg	lb
16048	240	9.4488	360	14.1732	37	1.4567	203000	45620	255000	57300	3600	2200	–	12.30	27.12
16052	260	10.2362	400	15.7480	44	1.7323	238000	53480	310000	69660	3200	2000	–	18.00	39.69
16056	280	11.0236	420	16.5354	44	1.7323	242000	54380	335000	75280	3000	1900	–	19.00	41.90
16060 MA	300	11.8110	460	18.1102	50	1.9685	286000	64270	405000	91010	2800	1800	–	32.00	70.56
16064 MA	320	12.5984	480	18.8976	50	1.9685	281000	63150	405000	91010	2600	2200	–	34.00	74.97
16068 MA	340	13.3858	520	20.4724	57	2.2441	345000	77530	520000	116850	2400	2000	–	45.00	99.23
16072 MA	360	14.1732	540	21.2598	57	2.2441	351000	78880	550000	123600	1800	1400	–	49.00	108.05
16076 MA	380	14.9606	560	22.0472	57	2.2441	377000	84720	620000	139330	2200	1400	–	51.00	112.46
16100	10	0.3937	28	1.1024	8	0.3150	5070	1140	2360	530	60000	38000	–	0.02	0.05
16101	12	0.4724	30	1.1811	8	0.3150	5070	1140	2360	530	60000	38000	16000	0.03	0.06

Consult SKF USA Inc. prior to design change or order placement.

Single row
Conrad
Open, sealed and snap ring
Standard
Series: 61800 – 61830
Size: 10 mm – 150 mm
0.3937 in – 5.9055 in

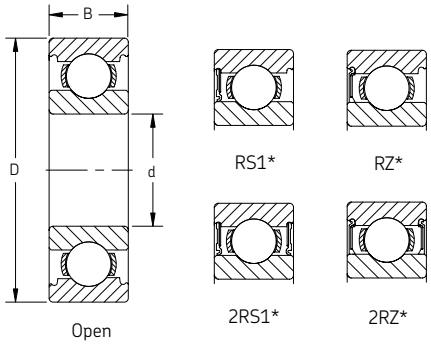


Designation	Principal dimensions						Basic load ratings				Speed rating			Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed	Sealed Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	r/min	kg	lb
61800	10	0.3937	19	0.7480	5	0.1969	1720	390	830	190	80000	48000	22000	0.01	0.01
61801	12	0.4724	21	0.8268	5	0.1969	1740	390	915	210	70000	43000	20000	0.01	0.01
61802	15	0.5906	24	0.9449	5	0.1969	1900	430	1100	250	60000	38000	17000	0.01	0.01
61803	17	0.6693	26	1.0236	5	0.1969	2030	460	1270	290	56000	34000	16000	0.01	0.02
61804	20	0.7874	32	1.2598	7	0.2756	4030	910	2320	520	45000	28000	13000	0.02	0.04
61805	25	0.9843	37	1.4567	7	0.2756	4360	980	2600	580	38000	24000	11000	0.02	0.05
61806	30	1.1811	42	1.6535	7	0.2756	4490	1010	2900	650	32000	20000	9500	0.03	0.06
61807	35	1.3780	47	1.8504	7	0.2756	4360	980	3350	750	30000	18000	8500	0.03	0.06
61808	40	1.5748	52	2.0472	7	0.2756	4490	1010	3750	840	26000	16000	7500	0.03	0.07
61809	45	1.7717	58	2.2835	7	0.2756	6630	1490	6100	1370	22000	14000	6700	0.04	0.09
61810	50	1.9685	65	2.5591	7	0.2756	6760	1520	6800	1530	20000	13000	6000	0.05	0.11
61811	55	2.1654	72	2.8346	9	0.3543	9040	2030	8800	1980	19000	12000	5300	0.08	0.18
61812	60	2.3622	78	3.0709	10	0.3937	11900	2670	11400	2560	17000	11000	4800	0.11	0.24
61813	65	2.5591	85	3.3465	10	0.3937	12400	2790	12700	2850	16000	10000	4500	0.13	0.29
61814	70	2.7559	90	3.5433	10	0.3937	12400	2790	13200	2970	15000	9000	4300	0.14	0.31
61815	75	2.9528	95	3.7402	10	0.3937	12500	2810	10800	2430	14000	8500	4000	0.15	0.32
61816	80	3.1496	100	3.9370	10	0.3937	12700	2850	11200	2520	13000	8000	3600	0.15	0.34
61817	85	3.3465	110	4.3307	13	0.5118	19500	4380	16600	3730	12000	7500	3400	0.26	0.58
61818	90	3.5433	115	4.5276	13	0.5118	19500	4380	17000	3820	11000	7000	3200	0.28	0.61
61819	95	3.7402	120	4.7244	13	0.5118	19900	4470	17600	3960	11000	6700	3000	0.29	0.64
61820	100	3.9370	125	4.9213	13	0.5118	17800	4000	18300	4110	10000	6300	3000	0.30	0.67
61821	105	4.1339	130	5.1181	13	0.5118	20800	4670	19600	4400	10000	6300	2800	0.31	0.68
61822	110	4.3307	140	5.5118	16	0.6299	28100	6310	26000	5840	9500	5600	2600	0.47	1.04
61824	120	4.7244	150	5.9055	16	0.6299	29100	6540	28000	6290	8500	5300	2400	0.51	1.13
61826	130	5.1181	165	6.4961	18	0.7087	37700	8470	43000	9660	8000	4800	2200	0.75	1.65
61828	140	5.5118	175	6.8898	18	0.7087	39000	8760	46500	10450	7500	4500	2000	0.82	1.82
61830	150	5.9055	190	7.4803	20	0.7874	48800	10970	61000	13710	6700	4300	–	1.19	2.62

* 61808-2RZ NR and 61812 NR are made to order products.

Consult SKF USA Inc. prior to design change or order placement.

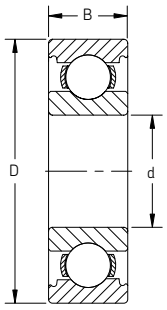
Single row
Conrad
Open and sealed
Standard
Series: 61832 – 618/800 MA
Size: 160 mm – 800 mm
6.2992 in – 31.4961 in



Designation	Principal dimensions						Basic load ratings				Speed rating			Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Refer-ence speed	Limiting speed	Sealed Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	r/min	kg	lb
61832	160	6.2992	200	7.8740	20	0.7874	49400	11100	64000	14380	6300	4000	–	1.25	2.76
61834	170	6.6929	215	8.4646	22	0.8661	61800	13890	78000	17530	6000	3600	–	1.63	3.60
61836	180	7.0866	225	8.8583	22	0.8661	62400	14020	81500	18310	5600	3400	–	1.73	3.82
61838	190	7.4803	240	9.4488	24	0.9449	76100	17100	98000	22020	5300	3200	–	2.24	4.93
61840	200	7.8740	250	9.8425	24	0.9449	76100	17100	102000	22920	5000	3200	–	2.34	5.16
61844	220	8.6614	270	10.6299	24	0.9449	78000	17530	110000	24720	4500	2800	–	2.54	5.60
61848	240	9.4488	300	11.8110	28	1.1024	108000	24270	150000	33710	4000	2600	–	3.88	8.55
61852	260	10.2362	320	12.5984	28	1.1024	111000	24940	163000	36630	3800	2400	–	4.17	9.19
61856 MA	280	11.0236	350	13.7795	33	1.2992	138000	31010	200000	44940	3400	2800	–	7.25	15.98
61860 MA	300	11.8110	380	14.9606	38	1.4961	172000	38650	245000	55060	3200	2600	–	10.35	22.83
61864 MA	320	12.5984	400	15.7480	38	1.4961	172000	38650	255000	57300	3000	2400	–	10.95	24.16
61868 MA	340	13.3858	420	16.5354	38	1.4961	178000	40000	275000	61800	2800	2400	–	11.57	25.51
61872 MA	360	14.1732	440	17.3228	38	1.4961	182000	40900	285000	64040	2600	2200	–	12.00	26.46
61876 MA	380	14.9606	480	18.8976	46	1.8110	242000	54380	390000	87640	2400	2000	–	20.00	44.10
61880 MA	400	15.7480	500	19.6850	46	1.8110	247000	55510	405000	91010	2400	1900	–	20.50	45.20
61884 MA	420	16.5354	520	20.4724	46	1.8110	251000	56400	425000	95510	2200	1800	–	21.50	47.41
61888 MA	440	17.3228	540	21.2598	46	1.8110	255000	57300	440000	98880	2200	1800	–	22.50	49.61
61892 MA	460	18.1102	580	22.8346	56	2.2047	319000	71690	570000	128090	2000	1600	–	35.00	77.18
61896 MA	480	18.8976	600	23.6220	56	2.2047	325000	73030	600000	134830	1900	1600	–	36.50	80.48
618/500 MA	500	19.6850	620	24.4094	56	2.2047	332000	74610	620000	139330	1800	1500	–	40.50	89.30
618/530 MA	530	20.8661	650	25.5906	56	2.2047	332000	74610	655000	147190	1700	1400	–	39.50	87.10
618/560 MA	560	22.0472	680	26.7717	56	2.2047	345000	77530	695000	156180	1600	1300	–	42.00	92.61
618/600 MA	600	23.6220	730	28.7402	60	2.3622	364000	81800	765000	171910	1500	1200	–	52.00	114.66
618/630 MA	630	24.8031	780	30.7087	69	2.7165	442000	99330	965000	216850	1400	1100	–	73.00	160.97
618/710 MA	710	27.9528	870	34.2520	74	2.9134	475000	106740	1100000	247190	1200	1000	–	93.50	206.17
618/750 MA	750	29.5276	920	36.2205	78	3.0709	527000	118430	1250000	280900	1100	900	–	110.00	242.55
618/800 MA	800	31.4961	980	38.5827	82	3.2283	559000	125620	1370000	307870	1000	850	–	130.00	286.65

* Feature may not be available in all sizes.

Consult SKF USA Inc. prior to design change or order placement.



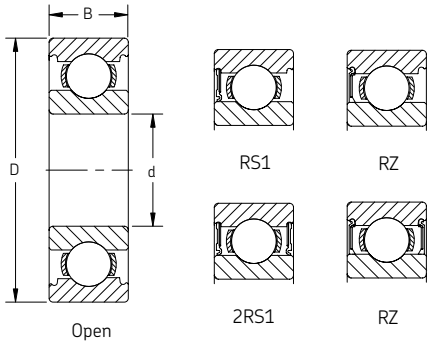
Open

Single row
Conrad
Open
Standard
Series: 618/850 MA – 618/1500 MA
Size: 850 mm – 1 500 TN
33.4646 in – 59.0551 in

Designation	Principal dimensions						Basic load ratings				Speed rating[1]		Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
618/850 MA	850	33.4646	1030	40.5512	82	3.2283	559000	125620	1430000	321350	950	750	140.00	308.70
618/900 MA	900	35.4331	1090	42.9134	85	3.3465	618000	138880	1599999	359550	850	700	167.00	368.24
618/950 MA	950	37.4016	1150	45.2756	90	3.5433	637000	143150	1729999	388760	800	670	196.50	433.28
618/1000 MA	1000	39.3701	1220	48.0315	100	3.9370	637000	143150	1800000	404490	750	600	245.00	540.23
618/1060 MA	1060	41.7323	1280	50.3937	100	3.9370	728000	163600	2119999	476400	670	560	260.00	573.30
618/1120 MA	1120	44.0945	1360	53.5433	106	4.1732	741000	166520	2200000	494380	630	530	315.00	694.58
618/1180 MB	1180	46.4567	1420	55.9055	106	4.1732	761000	171010	2359999	530340	560	480	337.00	743.09
618/1320 MA	1320	51.9685	1600	62.9921	122	4.8031	956000	214830	3149999	707860	480	400	500.00	1102.50
618/1500 TN	1500	59.0551	1820	71.6535	140	5.5118	1170000	262920	4149999	932580	380	240	638.00	1406.79

Consult SKF USA Inc. prior to design change or order placement.

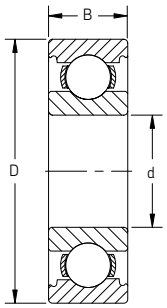
Single row
Conrad
Open and sealed
Standard
Series: 61900 – 61936 MA
Size: 10 mm – 180 mm
0.3937 in – 7.0866 in



Designation	Principal dimensions						Basic load ratings				Speed rating			Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Refer-ence speed	Limiting speed	Sealed Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	r/min	kg	lb
61900	10	0.3937	22	0.8661	6	0.2362	2700	610	1270	290	70000	45000	20000	0.01	0.02
61901	12	0.4724	24	0.9449	6	0.2362	2910	650	1460	330	67000	40000	19000	0.01	0.02
61902	15	0.5906	28	1.1024	7	0.2756	4360	980	2240	500	56000	34000	16000	0.02	0.04
61903	17	0.6693	30	1.1811	7	0.2756	4620	1040	2550	570	50000	32000	14000	0.02	0.04
61904	20	0.7874	37	1.4567	9	0.3543	6370	1430	3650	820	43000	26000	12000	0.04	0.08
61905	25	0.9843	42	1.6535	9	0.3543	7020	1580	4300	970	36000	22000	10000	0.05	0.10
61906	30	1.1811	47	1.8504	9	0.3543	7280	1640	4550	1020	30000	19000	8500	0.05	0.11
61907	35	1.3780	55	2.1654	10	0.3937	10800	2430	7800	1750	26000	16000	7500	0.08	0.18
61908	40	1.5748	62	2.4409	12	0.4724	13800	3100	10000	2250	24000	14000	6700	0.12	0.26
61909	45	1.7717	68	2.6772	12	0.4724	14000	3150	10800	2430	20000	13000	6000	0.14	0.31
61910	50	1.9685	72	2.8346	12	0.4724	14600	3280	11800	2650	19000	12000	5600	0.14	0.31
61911	55	2.1654	80	3.1496	13	0.5118	16500	3710	14000	3150	17000	11000	5000	0.19	0.42
61912	60	2.3622	85	3.3465	13	0.5118	16500	3710	12000	2700	16000	10000	4500	0.20	0.43
61913	65	2.5591	90	3.5433	13	0.5118	17400	3910	16000	3600	15000	9500	4300	0.22	0.49
61914	70	2.7559	100	3.9370	16	0.6299	23800	5350	18300	4110	14000	8500	4000	0.34	0.74
61915	75	2.9528	105	4.1339	16	0.6299	24200	5440	19300	4340	13000	8000	3600	0.36	0.79
61916	80	3.1496	110	4.3307	16	0.6299	25100	5640	20400	4580	12000	7500	3400	0.38	0.85
61917	85	3.3465	120	4.7244	18	0.7087	31900	7170	30000	6740	11000	7000	–	0.55	1.22
61918	90	3.5433	125	4.9213	18	0.7087	33200	7460	31500	7080	11000	6700	–	0.59	1.30
61919	95	3.7402	130	5.1181	18	0.7087	33800	7600	33500	7530	10000	6300	3000	0.61	1.35
61920	100	3.9370	140	5.5118	20	0.7874	42300	9510	41500	9330	9500	6000	–	0.83	1.83
61921	105	4.1339	145	5.7087	20	0.7874	44200	9930	44000	9890	9500	5600	–	0.87	1.92
61922	110	4.3307	150	5.9055	20	0.7874	43600	9800	45000	10110	9000	5600	–	0.90	1.99
61924	120	4.7244	165	6.4961	22	0.8661	55300	12430	57000	12810	8000	5000	–	1.20	2.65
61926	130	5.1181	180	7.0866	24	0.9449	65000	14610	67000	15060	7500	4500	–	1.60	3.53
61928	140	5.5118	190	7.4803	24	0.9449	66300	14900	72000	16180	7000	4300	–	1.70	3.75
61930 MA	150	5.9055	210	8.2677	28	1.1024	88400	19870	93000	20900	6300	5300	–	3.03	6.69
61932 MA	160	6.2992	220	8.6614	28	1.1024	92300	20740	98000	22020	6000	5000	–	3.20	7.06
61934 MA	170	6.6929	230	9.0551	28	1.1024	93600	21030	106000	23820	5600	4800	–	3.37	7.43
61936 MA	180	7.0866	250	9.8425	33	1.2992	119000	26740	134000	30110	5300	4300	–	4.99	11.00

Consult SKF USA Inc. prior to design change or order placement.

Single row
Conrad
Open
Standard
Series: 61938 MA – 619/850
Size: 190 mm – 850 mm
7.4803 in – 33.4646 in



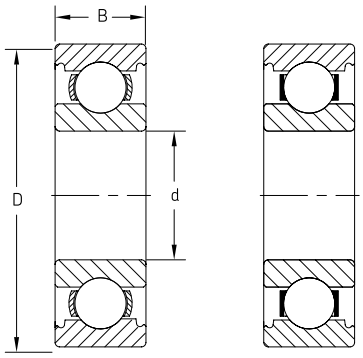
Open

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
61938 MA	190	7.4803	260	10.2362	33	1.2992	117000	26290	134000	30110	5000	4300	5.21	11.50
61940 MA	200	7.8740	280	11.0236	38	1.4961	148000	33260	166000	37300	4800	3800	7.32	16.15
61944 MA	220	8.6614	300	11.8110	38	1.4961	151000	33930	180000	40450	4300	3600	7.93	17.49
61948 MA	240	9.4488	320	12.5984	38	1.4961	159000	35730	200000	44940	4000	3200	8.54	18.84
61952 MA	260	10.2362	360	14.1732	46	1.8110	212000	47640	270000	60670	3600	3000	14.42	31.80
61956 MA	280	11.0236	380	14.9606	46	1.8110	216000	48540	285000	64040	3200	2800	15.34	33.83
61960 MA	300	11.8110	420	16.5354	56	2.2047	270000	60670	375000	84270	3000	2400	24.35	53.69
61964 MA	320	12.5984	440	17.3228	56	2.2047	276000	62020	400000	89890	2800	2400	25.50	56.23
61968 MA	340	13.3858	460	18.1102	56	2.2047	281000	63150	425000	95510	2600	2200	26.50	58.43
61972 MA	360	14.1732	480	18.8976	56	2.2047	291000	65390	450000	101120	2600	2200	28.00	61.74
61976 MA	380	14.9606	520	20.4724	65	2.5591	338000	75960	540000	121350	2400	1900	40.00	88.20
61980 MA	400	15.7480	540	21.2598	65	2.5591	345000	77530	570000	128090	2200	1800	41.50	91.51
61984 MA	420	16.5354	560	22.0472	65	2.5591	351000	78880	600000	134830	2200	1800	43.00	94.82
61988 MA	440	17.3228	600	23.6220	74	2.9134	410000	92130	720000	161800	2000	1600	60.50	133.40
61992 MA	460	18.1102	620	24.4094	74	2.9134	423000	95060	750000	168540	1900	1600	62.50	137.81
61996 MA	480	18.8976	650	25.5906	78	3.0709	449000	100900	815000	183150	1800	1500	74.00	163.17
619/500 MA	500	19.6850	670	26.3780	78	3.0709	462000	103820	865000	194380	1700	1400	81.50	179.71
619/530 MA	530	20.8661	710	27.9528	82	3.2283	488000	109660	930000	208990	1600	1300	90.50	199.55
619/560 MA	560	22.0472	750	29.5276	85	3.3465	494000	111010	980000	220220	1500	1200	105.00	231.53
619/600 MA	600	23.6220	800	31.4961	90	3.5433	585000	131460	1220000	274160	1400	1100	125.00	275.63
619/670 MA	670	26.3780	900	35.4331	103	4.0551	676000	151910	1500000	337080	1200	1000	192.00	423.36
619/710 MA	710	27.9528	950	37.4016	106	4.1732	663000	148990	1500000	337080	1100	900	220.00	485.10
619/750 MA	750	29.5276	1000	39.3701	112	4.4094	761000	171010	1799999	404490	1000	850	255.00	562.28
619/800 MA	800	31.4961	1060	41.7323	115	4.5276	832000	186970	2039999	458430	950	800	275.00	606.38
619/850 MA	850	33.4646	1120	44.0945	118	4.6457	852000	191460	2119999	476400	850	750	320.00	705.60

Consult SKF USA Inc. prior to design change or order placement.

Single row
ABEC 5
Open
Standard
Series: 6205/C78 – 6218/C78
Size: 25 mm – 90 mm
0.9843 in – 3.5433 in

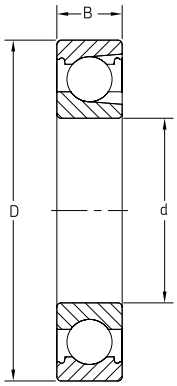
Series: 6303/C78 – 6317/C78
Size: 17 mm – 85 mm
0.6693 in – 3.3465 in



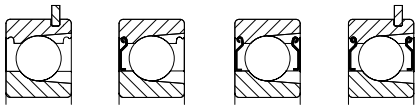
Y/C78 TC/C78

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
6205/C78	25	0.9843	52	2.0472	15	0.5906	14 800	3 330	7 800	1 750	28 000	18 000	0.13	0.29
6206/C78	30	1.1811	62	2.4409	16	0.6299	20 300	4 560	11 200	2 520	24 000	15 000	0.20	0.44
6207/C78	35	1.3780	72	2.8346	17	0.6693	27 000	6 070	15 300	3 440	20 000	13 000	0.28	0.62
6208/C78	40	1.5748	80	3.1496	18	0.7087	32 500	7 310	19 000	4 270	18 000	11 000	0.36	0.79
6209/C78	45	1.7717	85	3.3465	19	0.748	35 100	7 890	21 600	4 860	17 000	11 000	0.41	0.90
6210/C78	50	1.9685	90	3.5433	20	0.7874	37 100	8 340	23 200	5 220	15 000	10 000	0.46	1.01
6211/C78	55	2.1654	100	3.9370	21	0.8268	46 200	10 390	29 000	6 520	14 000	9 000	0.60	1.32
6212/C78	60	2.3622	110	4.3307	22	0.8661	55 300	12 430	36 000	8 090	13 000	8 000	0.78	1.72
6213/C78	65	2.5591	120	4.7244	23	0.9055	58 500	13 150	40 500	9 100	12 000	7 500	0.99	2.18
6214/C78	70	2.7559	125	4.9213	24	0.9449	63 700	14 320	45 000	10 120	11 000	7 000	1.07	2.40
6215/C78	75	2.9528	130	5.1181	25	0.9843	68 900	15 490	49 000	11 020	10 000	6 700	1.20	2.60
6216/C78	80	3.1496	140	5.5118	26	1.0236	72 800	16 370	55 000	12 360	9 500	6 000	1.42	3.10
6217/C78	85	3.3465	150	5.9055	28	1.1024	87 100	19 580	64 000	14 390	9 000	5 600	1.80	4.00
6218/C78	90	3.5433	160	6.2992	30	1.1811	101 000	22 700	73 500	16 520	8 500	5 300	2.15	4.70
6303/C78	17	0.6693	47	1.8504	14	0.5512	14 300	3 210	6 550	1 470	34 000	22 000	0.12	0.26
6304/C78	20	0.7874	52	2.0472	15	0.5906	16 800	3 780	7 800	1 750	30 000	19 000	0.14	0.31
6305/C78	25	0.9843	62	2.4409	17	0.6693	23 400	5 260	11 600	2 610	24 000	16 000	0.23	0.50
6306/C78	30	1.1811	72	2.8346	19	0.748	29 600	6 650	16 000	3 600	20 000	13 000	0.34	0.70
6307/C78	35	1.3780	80	3.1496	21	0.8268	35 100	7 890	19 000	4 270	19 000	12 000	0.46	1.00
6308/C78	40	1.5748	90	3.5433	23	0.9055	42 300	9 510	24 000	5 400	17 000	11 000	0.63	1.40
6309/C78	45	1.7717	100	3.9370	25	0.9843	55 300	12 430	31 500	7 080	15 000	9 500	0.84	1.90
6310/C78	50	1.9685	110	4.3307	27	1.063	65 000	14 610	38 000	8 540	13 000	8 500	1.10	2.40
6311/C78	55	2.1654	120	4.7244	29	1.1417	74 100	16 660	45 000	10 120	12 000	8 000	1.39	3.10
6312/C78	60	2.3622	130	5.1181	31	1.2205	85 200	19 150	52 000	11 690	11 000	7 000	1.75	3.90
6313/C78	65	2.5591	140	5.5118	33	1.2992	97 500	21 920	60 000	13 490	10 000	6 700	2.10	4.60
6314/C78	70	2.7559	150	5.9055	35	1.378	111 000	24 950	68 000	15 290	9 500	6 300	2.55	5.60
6315/C78	75	2.9528	160	6.2992	37	1.4567	119 000	26 750	76 500	17 200	9 000	5 600	3.05	6.70
6316/C78	80	3.1496	170	6.6929	39	1.5354	130 000	29 220	86 500	19 450	8 500	5 300	3.59	7.90
6317/C78	85	3.3465	180	7.0866	41	1.6142	140 000	31 470	96 500	21 690	8 000	5 000	4.30	9.50

Consult SKF USA Inc. prior to design change or order placement.



Open



NR Z 2Z 2ZNR

Single row
Max type
Open, shielded, snap ring
Standard
Series: 206 – 220
Size: 30 mm – 100 mm
1.1811 in – 3.9370 in

Series: 305 – 318
Size: 25 mm – 90 mm
0. 9843 in – 3.5433 in

Designation	Principal dimensions						Basic load ratings				Speed rating[1]		Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
206	30	1.1811	62	2.4409	16	0.6299	21 000	4 800	14 510	3 300	20 000	12 000	0.21	0.46
207	35	1.3780	72	2.8346	17	0.6693	27 760	6 300	19 740	4 500	17 000	11 000	0.31	0.68
208	40	1.5748	80	3.1496	18	0.7087	33 370	7 600	24 200	5 500	15 000	9 500	0.39	0.86
209	45	1.7717	85	3.3465	19	0.7480	35 100	7 900	26 070	5 900	14 000	9 000	0.44	0.97
210	50	1.9685	90	3.5433	20	0.7874	38 920	8 800	29 760	6 700	13 000	8 000	0.50	1.10
211	55	2.1654	100	3.9370	21	0.8268	48 110	10 900	37 670	8 500	12 000	7 500	0.66	1.50
212	60	2.3622	110	4.3307	22	0.8661	55 540	12 500	43 400	9 800	11 000	6 700	0.85	1.90
213	65	2.5591	120	4.7244	23	0.9055	60 500	13 700	58 500	13 200	10 000	6 000	1.05	2.30
214	70	2.7559	125	4.9213	24	0.9449	66 000	14 900	65 500	14 800	9 500	6 000	1.15	2.50
215	75	2.9528	130	5.1181	25	0.9843	72 100	16 300	72 000	16 200	9 000	5 600	1.25	2.80
216	80	3.1496	140	5.5118	26	1.0236	88 000	19 800	85 000	19 200	8 500	5 300	1.55	3.40
217	85	3.3465	150	5.9055	28	1.1024	96 800	21 800	100 000	22 500	7 500	4 800	1.95	4.30
218	90	3.5433	160	6.2992	30	1.1811	112 000	25 200	114 000	25 700	7 000	4 500	2.35	5.20
219	95	3.7402	170	6.6929	32	1.2598	121 000	27 300	122 000	27 500	6 700	4 300	2.70	6.00
220	100	3.9370	180	7.0866	34	1.3386	134 000	30 200	140 000	31 500	6 300	4 000	3.45	7.60
305	25	0.9843	62	2.4409	17	0.6693	22 900	5 200	15 600	3 600	20 000	13 000	0.24	0.50
306	30	1.1811	72	2.8346	19	0.7480	29 490	6 700	20 480	4 700	18 000	11 000	0.37	0.80
307	35	1.3780	80	3.1496	21	0.8268	34 860	7 900	24 640	5 600	16 000	10 000	0.48	1.10
308	40	1.5748	90	3.5433	23	0.9055	45 200	10 200	33 570	7 600	14 000	9 000	0.64	1.40
309	45	1.7717	100	3.9370	25	0.9843	55 260	12 500	41 260	9 300	13 000	8 000	0.88	1.90
310	50	1.9685	110	4.3307	27	1.0630	64 730	14 600	49 100	11 100	11 000	7 000	1.15	2.50
311	55	2.1654	120	4.7244	29	1.1417	79 200	17 800	67 000	15 100	10 000	6 700	1.50	3.30
312	60	2.3622	130	5.1181	31	1.2205	91 300	20 500	78 000	17 600	9 500	6 000	1.85	4.10
313	65	2.5591	140	5.5118	33	1.2992	102 000	22 900	90 000	20 300	9 000	5 600	2.30	5.10
314	70	2.7559	150	5.9055	35	1.3780	114 000	25 600	102 000	23 000	8 000	5 000	2.75	6.10
315	75	2.9528	160	6.2992	37	1.4567	125 000	28 100	116 000	26 100	7 500	4 800	3.25	7.20
316	80	3.1496	170	6.6929	39	1.5354	138 000	31 000	129 000	29 000	7 000	4 500	3.95	8.70
317	85	3.3465	180	7.0866	41	1.6142	147 000	33 100	146 000	32 900	6 700	4 300	4.60	10.10
318	90	3.5433	190	7.4803	43	1.6929	157 000	35 300	160 000	36 000	6 300	4 000	5.40	11.90

[1] For shielded limiting speed ratings, contact SKF Applications Engineering.

Consult SKF USA Inc. prior to design change or order placement.

Notes



Angular contact ball bearings

7205 BE CB Y HC5

SRACBB – single row

A	30° contact angle
B	40° contact angle
BE	40° contact angle, high capacity, all ISO corners
C	25° contact angle
CA	Designed for duplex mounting with lower than normal (CB) axial clearance
CB	Designed for duplex mounting with normal axial clearance
CC	Designed for duplex mounting with larger than normal (CB) axial clearance
DGA	Duplex ground for a light preload
DGB	Duplex ground for a medium preload
GA	Designed for duplex mounting with a light axial preload
GB	Designed for duplex mounting with a medium axial preload
GC	Designed for duplex mounting with a heavy axial preload
G###	Designed for duplex mounting with a non-standard preload in dN
N1	One locating slot in outer ring side face
N2	Two locating slots in outer ring side face 180° apart
W64	Solid Oil lubricants
2RZP	Two seals
F	Machined steel cage
J	Pressed steel cage
M	Machined brass cage
P	Glass fiber reinforced PA66 cage
PH	Glass fiber reinforced PEEK cage
Y	Pressed brass cage

3200 A-2RS1 TN9

DRACBB – double row

A	Conrad design (no filling slot) with outwardly converging contact angles
AW	Conrad design (no filling slot) with inwardly converging contact angles
E	Max type design (filling slot), with outwardly converging contact angles
EW	Max type design (filling slot), with inwardly converging contact angles
D	Two piece inner ring design
DMA	Two piece inner ring design with a machined brass cage
NR	Snap ring groove and snap ring in the OD of the bearing
Z	Metal shield on one side
2Z	Metal shield on both side
RS1	Rubber seal on one side
2RS1	Rubber seal on both sides
W64	Solid Oil lubricants
TN9	Glass fiber reinforced PA66 cage
M	Machined brass cage
MT33	Lithium thickened grease with mineral base oil
C2	Less than normal (C0) axial internal clearance
C0	Normal axial internal clearance (not designated in part number)
C3	Greater than normal axial internal clearance

QJ 203 N2MA

FPACBB – four point

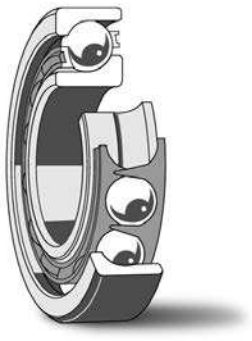
C2	Less than normal (C0) axial internal clearance
C2L	Lower half of C2 axial internal clearance
C0	Normal axial internal clearance (not designated in part number)
C3	Greater than normal (C0) axial internal clearance
C4	Greater than C3 axial internal clearance
F	Machined steel cage
MA	Machined brass cage, outer ring centered
N2	Two locating slots in outer ring side face 180° apart
PHAS	Glass fiber reinforced PEEK cage
P63	ABEC-3 precision and C3 internal clearance
LA	Machined light alloy cage, outer ring centered

Special features:

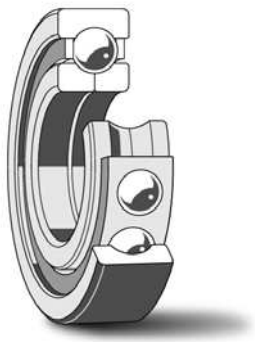
HC5	Ceramic ball set
W64	Solid Oil lubricants

Technical features

	Single row ACBB	Double row ACBB	Four-point contact ACBB
Boundary dimensions	In accordance with ISO 15 and ISO 12044	In accordance with ISO 15	In accordance with ISO 15
Tolerances	ABEC 3 (P6, dimension) ABEC 5 (P5, running accuracy)	ABEC 3	ABEC 3
Heat stabilization	302° F (150° C)	302° F (150° C)	302° F (150° C)
Misalignment	2 minutes of arc	2 minutes of arc	2 minutes of arc
Cage materials	Polyamide (P) Machined brass (M) Pressed brass (Y) Pressed steel (J)	Polyamide (TN9) Pressed steel (not designated)	Machined brass (M, MA)
Axial load – max	1.4 x C_0 for single or tandem mounted bearings 0.7 x C_0 for duplex mounted bearings	0.7 x C_0 – Conrad $F_a / F_r \leq 0.3$	0.7 x C_0
Seals	2RZP – Synthetic rubber (NBR)	2RS1 – Synthetic rubber (NBR)	Not available
Shields	Consult SKF for NILOS ring options	2Z – Stamped steel	Consult SKF for NILOS ring options



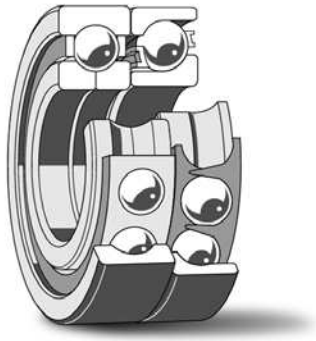
Single row angular contact ball bearing
(data tables on page 68)



Four-point angular contact ball bearing
(data tables on page 74)



Double row angular contact ball bearing
(data tables on page 81)



Thrust pack angular contact ball bearing
(data tables on page 80)

Introduction

SKF standard angular contact ball bearings are available with axial clearances, preloads and high precision. Single row angular contact ball bearings are designed to accommodate axial loads acting in one direction. Under radial loads, an induced force acting in the axial direction is produced which must be counteracted. Consequently, the single bearings are normally adjusted against a second bearing.

SKF angular contact ball bearings are produced in a wide variety of designs and sizes. Those commonly used in general engineering are shown in this catalog:

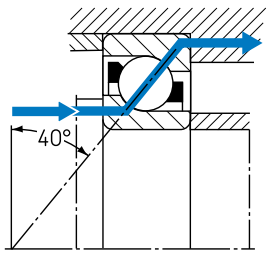
- Single row bearings
- Double row bearings
- Four-point contact ball bearings
- Thrust pack

Basic design

Angular contact ball bearings have raceways in the inner and outer rings that are displaced with respect to each other in the direction of the bearing axis. This means that they are suitable to accommodate combined loads; for example, simultaneously acting radial and axial loads.

The axial load carrying capacity of angular contact ball bearings increases with increasing contact angle a. This is defined as the angle between the line joining the points of contact between the ball and the raceways in the radial plane, along which the load is transmitted from one raceway to the other, and a line perpendicular to the bearing axis. For single row bearings, the magnitude of the contact angle is indicated by a suffix in the designation (B = 40 degrees) (Figure 1). For double row angular contact ball bearings, the contact angle is 30 degrees and for QJ four-point angular contact ball bearings the contact angle is 35 degrees and neither is indicated in the nomenclature.

Figure 1



Angular contact ball bearings, single row

Single row angular contact ball bearings can accommodate combined loads however the axial loads can only act in one direction (Figure 1). Under radial loads, a force acting in the axial direction is produced which must be counteracted. Consequently, the bearings are normally adjusted against a second bearing.

The single row angular contact ball bearings shown in the tables have one high and one low shoulder on each ring, enabling a large number of balls to be incorporated. This gives the bearings relatively high load carrying capacity. The contact angle is 40° (suffix B) and the bearings are therefore suitable for heavy axial loads. They are of non-separable design and permit relatively high-speed operation.

Bearings of the BE design feature an increased load carrying capacity, and either machined brass (M), glass fiber reinforced polyamide 6-6 (P), or pressed brass (Y) cages as standard.

The single row angular contact ball bearings are produced in two standard versions for different design purposes. The standard design (no additional designation suffix such as BEP) is intended for arrangements where only one bearing is used at each bearing position (Figure 4, page 66).

The most common version, identified by suffix CB (universal matching) is designed for arrangements where two or more bearings are mounted immediately adjacent to each other in random order (back-to-back, face-to-face or tandem, Figure 5, page 66). Because of demand, the larger sized bearings are only produced with universal matching (suffix CB).

SKF offers sealed single row 40° ACBB in both the 7200 and 7300 series. Consult SKF Engineering for specifications.

SKF Explorer class bearings

High performance SKF Explorer angular contact ball bearings are **printed in blue** in the product tables. SKF Explorer bearings retain the designation of the earlier standard bearings, e.g. 7208 BECBP. However, each bearing and its box are marked with the name “SKF Explorer”. Additional details on SKF Explorer performance class bearings can be found on page 25.

Product highlights

High running accuracy and speed capabilities

Angular contact ball bearings feature high radial and axial load capacity combined with high speed capabilities. SKF ACBB are made as standard to ISO P6 or ABMA ABEC 3 precision as standard.

Universal matching

Angular contact ball bearings are manufactured for universal mounting in multiple arrangements, including face-to-face, back-to-back and tandem.

Large product assortment

Available in a wide range (10 to 240 mm inside bore diameter) with cage and clearance / preload combinations. The double row design is available with a choice of shields, seals and snap rings as well as max-type bearings with a filling slot. Special application designs include 4-point contact and thrust pack.

Machined brass cage for heavy duty applications

The machined brass cage provides better performance and longer service life under harsh conditions and can be used in applications where a standard metal or plastic cage is normally used.

Meets ANSI and API pump requirements

Angular contact ball bearings are widely used in centrifugal pump applications and are manufactured in accordance with ANSI and API pump standards.

Introduction

Angular contact ball bearings, double row (Figure 1a)

SKF double row ball bearings are designed with solid or one-piece inner and outer rings with contact angles converging outside the bearing providing overall system rigidity.

The double row angular contact ball bearings are available in two styles, Conrad (suffix A) and Max type (suffix E). The more popular style is the Conrad type. This assembly uses a slight elastic deflection of the outer ring to insert the "last ball". This results in uninterrupted raceways with smooth running, and significant thrust carrying capacity in both directions.

Bearings of the Max type design (suffix E) have a filling slot for inserting the balls. This permits assembly with a greater number of balls than in the previously described Conrad type bearings.

Filling slot bearing features are similar to those of the Conrad type; however, because of the greater number of balls (with the exception of a few sizes) their radial load carrying capacity is often higher than that of the Conrad type. On the other hand, heavy thrust loads can be accommodated in only one direction. These bearings should be mounted so that the predominant axial load acting on the shaft is directed away from the filling slot (**Figure 1a**). Thrust loads in the direction of the filling slot **should not** exceed a thrust to radial load ratio of Fa / Fr = 0.3.

Part number markings are normally located on either the side face or the O.D. The side face marking is always on the side opposite the filling slot, and the O.D. marking is offset from the center away from the side with the filling slot. Therefore, even double sealed or shielded bearings with the filling slot covered from view can be oriented correctly.

Angular contact ball bearings, four-point (Figure 1b)

Four-point contact ball bearings are single row angular contact ball bearings having raceways which are designed to enable axial loads to be accommodated in both directions. They need less axial space than double row bearings. The four-point contact ball bearings shown in the following tables have a contact angle of 35° and a two-part inner ring, allowing a large number of balls to be incorporated, thus providing a high axial load carrying capacity. The bearings are separable, i.e. the inner ring halves and the outer ring with ball and cage assembly can be mounted individually.

Angular contact ball bearings, thrust pack

A thrust pack bearing consists of a standard QJ bearing and a single row angular contact bearing (BEGAM version) matched together and are intended for applications having predominate axial load in one direction. The axial load should not reverse direction during operation except for transient conditions such as at machine start up or shut-down, else the BEGAM bearing may become unloaded and have possible skidding problems. These bearings are matched in sets and are serialized and therefore **are not** interchangeable amongst sets.

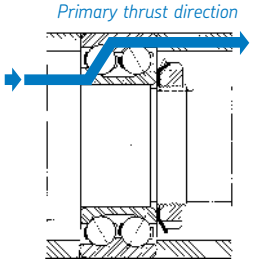
Variations

Angular contact ball bearings, single row for universal matching

These bearings are specially manufactured so that when mounted in random order (back-to-back, face-to-face or tandem) (**Figure 2**), but immediately adjacent to each other, the predetermined value of axial internal clearance or preload will be attained. An even distribution of load will occur without shims or similar devices.

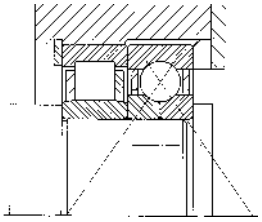
The standard bearings for universal matching carry the suffix CB where C indicates clearance and B the magnitude of the clearance (**Figure 3**). Bearings with a smaller or greater clearance are also available (suffixes CA and CC, respectively) as are bearings with light, moderate or heavy preload, (suffixes GA, GB and GC, respectively where G = preload or negative clearance). When ordering bearings for universal matching; for example 7206 BECB, it is necessary to indicate the number of individual bearings required since SKF does not stock these in sets.

Figure 1a



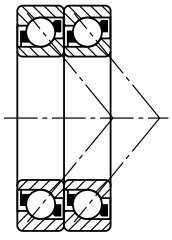
Double row, angular contact ball bearing

Figure 1b

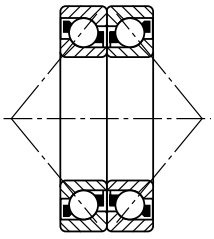


Four-point contact ball bearing

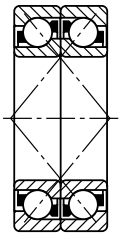
Figure 2



Tandem arrangement



Back-to-back arrangement



Face-to-face arrangement

Limiting speeds

The limiting speeds listed in the bearing tables are guideline values and are valid for single row bearings. The values under oil lubrication are maximum values and the values under grease lubrication are maximum values that can be attained using a good quality grease of a soft consistency.

If single bearings are to be adjusted against each other in matched sets of two, three or four bearings, the limiting speed values given in the bearing tables must be reduced. Reduction factors are given in the table below.

Reduction factors for limiting speeds angular contact ball bearings, single row

Bearing arrangement	Reduction factors
Two bearings	0.80
Three bearings	0.70
Four bearings	0.65

Load carrying capacity of bearing sets

The values given in the bearing tables for the basic dynamic load ratings apply to single bearings. The basic dynamic and static load ratings for sets of bearings arranged back-to-back, face-to-face or in tandem is obtained by multiplying the C value for a single bearings by:

Two bearings	1.62 x C
Three bearings	2.16 x C
Four bearings	2.64 x C

Where the basic static load rating is concerned, the table value C_0 should be multiplied by the number of bearings in the set, 2, 3 or 4.

For example, a pair of 7205 BEGAP angular contact ball bearings will have the following values:

C (single) = 3,510 lbs
C (pair) = 3,510 x 1.62 = 5,690 lbs

C_0 (single) = 2,290 lbs
C_0 (pair) = 2,290 x 2 = 4,580 lbs

Grease speed (single) = 10,000 rpm
Grease speed (pair) = 10,000 x 0.8 = 8,000 rpm

The C, C_0 and speed limits of the pair of bearings must be used for calculation purposes in this case.

Special solutions using angular contact ball bearings

- Precision angular contact ball bearings for machine tools
- Large-size single and double row bearings for heavy engineering applications
- Hub units produced for the automotive industry

The precision angular contact ball bearings are available with a contact angle of 15° (suffix CD) or 25° (suffix ACD) and can be supplied either individually or in matched sets of two, three or four bearings.

Details on these special solution products are available in publication BU/P1 13383 EN, Super-precision bearings.

Figure 3

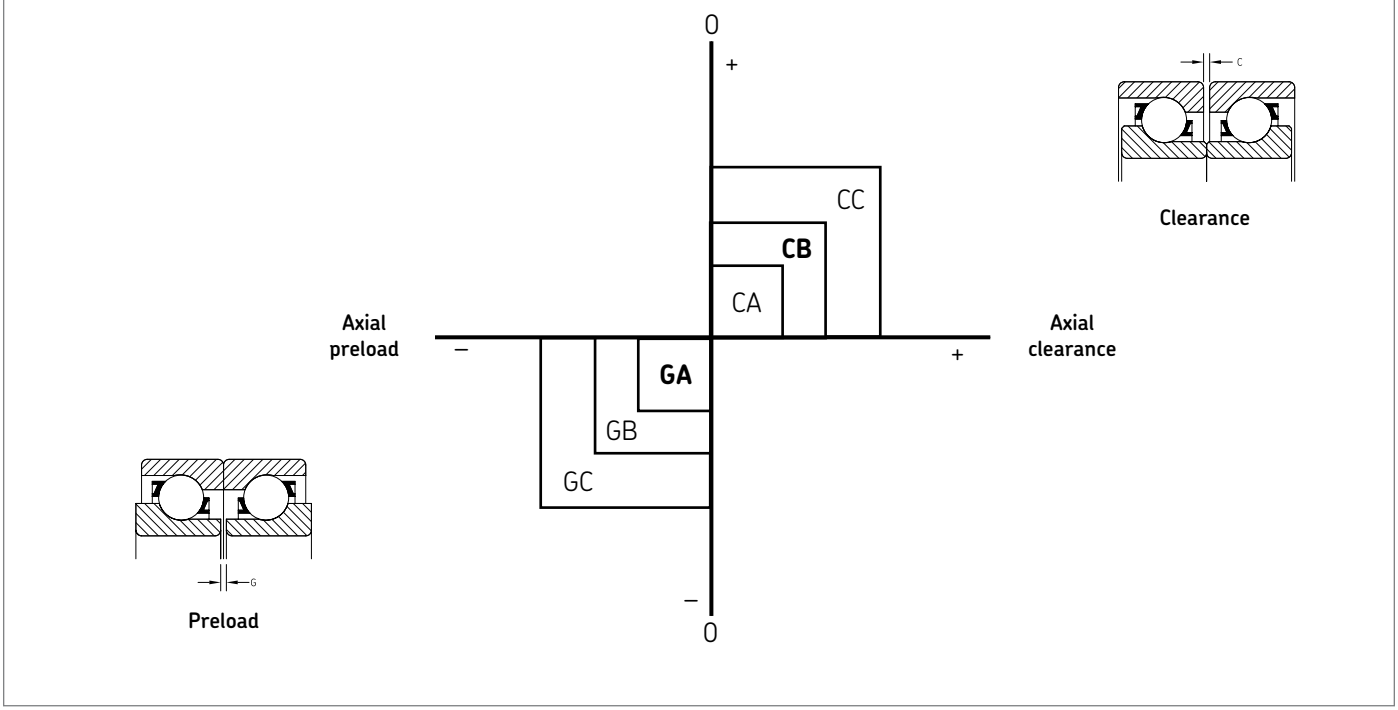
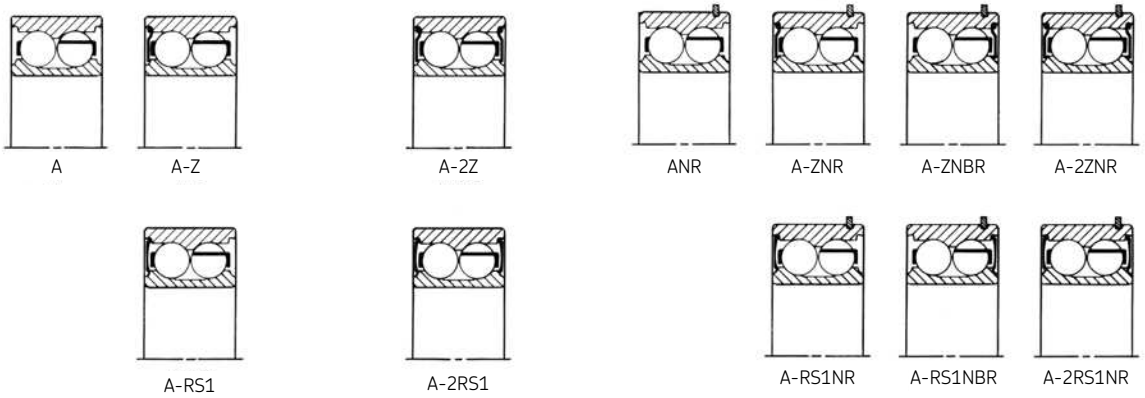


Figure 3a

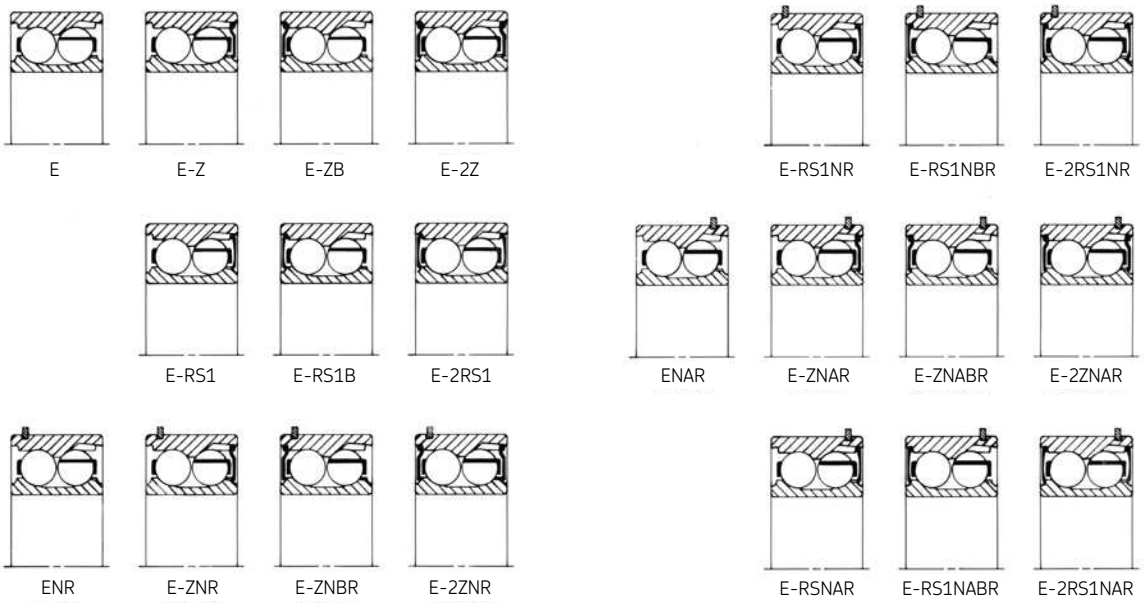
Conrad type

Designations for Conrad type double-row ball bearings with various combinations of seals, shields and snap rings



Max type

Designations for Max type (single slot) filling slot double-row ball bearings with various combinations of seals, shields and snap rings



Angular contact ball bearings, double row

Shielded (Z) and sealed (RS1) bearings

In addition to the open designs, most SKF double row ball bearings are offered with shields or seals, on either one or both sides. In most sizes, open bearings also contain seal grooves on the inner and/or outer rings.

Shields (suffix Z and 2Z) are non-contacting. They form a small gap with a chamfer on the inner ring. They are made from pressed steel and are fixed into an outer ring groove. This non-contacting closure is designed to retain lubricant and exclude larger particles of foreign matter. These shielded bearings are primarily intended for applications with inner ring rotation. Single shielded bearings can be used with oil or grease lubrication, while double shielded bearings are packed with a predetermined quantity of grease, providing maintenance-free operation for the life of the bearings.

Most bearings are also available with either one or two contacting seals, (suffix -RS1 and -2RS1). The seals consist of an oil and wear resistant elastomer bonded to a metal plate. The O.D. of either of the seal is firmly fixed into an outer ring groove. The lip at the I.D. of the seal contacts an inner ring seal chamfer for effective closure. This seal effectively excludes solid contaminants and moisture from the inside surfaces of the bearing. The permissible operating temperature range for the seals with a proper lubricant is -40° to +250° F (-40° to +120° C). Single sealed bearings can be regreased while double sealed bearings are greased for life.

They should not be heated at temperatures greater than 250° F (120° C) prior to mounting and must on no account be washed.

Snap rings

Snap rings (suffix NR) in the outer ring can provide an easy method of locating the bearing in the application. The snap rings and the snap ring grooves in the outer rings generally conform to ABMA Standard 20 and ISO standard 464. Important snap ring dimensions are shown in the deep groove ball bearings section, **Table 4** page 65.

Combination of seals, shields and snap rings

Most bearings are available in various combinations of seals, shields and snap rings. **Figure 3a** illustrates the designations for Conrad type bearings in various configurations and shows the same for max-type filling slot bearings.

In a single sealed or shielded Conrad type bearing with snap ring, the snap ring is normally on the opposite side of the seal or shield. An additional suffix B indicates the snap ring is on the same side as the seal or shield, e.g. NBR.

Max type bearings use a suffix A to indicate that the snap ring is on the side of the filling slot (NAR). Suffix B in single seal or shield designation indicates that the seal or shield is on the opposite side of the filling slot (RS1B or ZB).

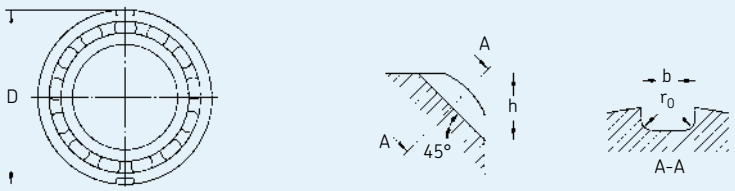
Angular contact ball bearings, four-point

Locating slots

Four-point contact ball bearings are designed to accommodate predominantly axial loads and are arranged as thrust bearings with radial clearance in the housing in many applications. To permit simple location and prevent rotation of the outer ring, all bearings with an outside diameter of 160 mm and above are provided with two locating slots in the outer ring (N2 design). The dimensions of these locating slots are given in **Table 1**.

Table 1

Locating slots in outer ring of four-point contact ball bearings



Outside diameter D				Dimensions Diameter series 2						Diameter series 3						Tolerance[1]	
over		incl.		h		b		r_0		h		b		r_0		t max.	
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
35	**1.3779**	**45**	**1.7116**	2.5	0.0398	3.5	0.1378	0.5	0.0197	–	–	–		–		0.2	0.0079
45	**1.7116**	**60**	**2.3622**	3.0	0.2953	4.5	0.1771	0.5	0.0197	3.5	0.1378	4.5	0.1771	0.5	0.0197	0.2	0.0079
60	**2.3622**	**72**	**2.8346**	3.5	0.1378	4.5	0.1771	0.5	0.0197	3.5	0.1378	4.5	0.1771	0.5	0.0197	0.2	0.0079
72	**2.8346**	**95**	**3.7401**	4.0	0.1575	5.5	0.2165	0.5	0.0197	4.0	0.1575	5.5	0.2165	0.5	0.0197	0.2	0.0079
95	**3.7401**	**115**	**4.5276**	5.0	0.1968	6.5	0.2559	0.5	0.0197	5.0	0.1968	6.5	0.2559	0.5	0.0197	0.2	0.0079
115	**4.5276**	**130**	**5.1181**	6.5	0.2559	6.5	0.2559	0.5	0.0197	8.1	0.3189	6.5	0.2559	1.0	0.0394	0.2	0.0079
130	**5.1181**	**145**	**5.7087**	8.1	0.3189	6.5	0.2559	1.0	0.0394	8.1	0.3189	6.5	0.2559	1.0	0.0394	0.2	0.0079
145	**5.7087**	**170**	**6.6929**	8.1	0.3189	6.5	0.2559	1.0	0.0394	10.1	0.3976	8.5	0.3346	2.0	0.0787	0.2	0.0079
170	**6.6929**	**190**	**7.4803**	10.1	0.3976	8.5	0.3346	2.0	0.0787	11.7	0.4606	10.5	0.4134	2.0	0.0787	0.2	0.0079
190	**7.4803**	**210**	**8.2677**	10.1	0.3976	8.5	0.3346	2.0	0.0787	11.7	0.4606	10.5	0.4134	2.0	0.0787	0.2	0.0079
210	**8.2677**	**240**	**9.4488**	11.7	0.4606	10.5	0.4134	2.0	0.0787	11.7	0.4606	10.5	0.4134	2.0	0.0787	0.2	0.0079
240	**9.4488**	**270**	**10.6299**	11.7	0.4606	10.5	0.4134	2.0	0.0787	11.7	0.4606	10.5	0.4134	2.0	0.0787	0.2	0.0079
270	**10.6299**	**400**	**15.7480**	12.7	0.5000	10.5	0.4134	2.0	0.0787	12.7	0.5000	10.5	0.4134	2.0	0.0787	0.4	0.0157

1) Other tolerances are in accordance with ISO 20515.
mm x 0.0394 = inches

Internal clearance

Axial internal clearance single row angular contact ball bearings

Internal clearance in a single row angular contact ball bearing is only obtained after mounting and is dependent on adjustment against a second bearing that provides axial location in the opposite direction.

Bearings for universal pairing (suffix CB) are the standard SKF bearings for paired mounting in random order (back-to-back, face-to-face or tandem). Bearings can be supplied with smaller axial internal clearance (suffix CA) or larger (suffix CC) or with preload (suffixes GA, GB and GC) for universal pairing.

Bearings identified by suffix CA, CB or CC can be mounted immediately adjacent to each other in any order and two or more bearings may be used. Bearings with preload of the GA, GB and GC designs can only be arranged in pairs, otherwise the preload will increase.

The values of axial internal clearance for the classes CA, CB and CC can be found in **Table 2**. They are valid for bearings arranged back-to-back or face-to-face before mounting and under zero measuring load. Preload values for classes GA, GB and GC are given in **Table 2a. Table 3** shows a conversion from the old preload suffices to the current suffix.

Table 2

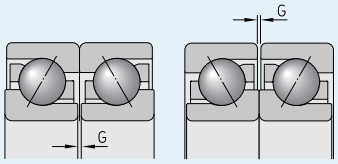
Unmounted axial internal clearance of single row angular contact ball bearings of series 72B (E), 73B (E) and 74B (B) when arranged in random pairs (back-to-back or face-to-face)

Bore diameter		Axial internal clearance													
		CA				CB				CC					
d															
over	incl.	min	max	min	max	min	max	min	max	min	max	min	max		
mm		µm		in		µm		in		µm		in			
–	18	5	13	0.1969	0.5118	15	23	0.5906	0.9055	24	32	0.9449	1.2598		
18	30	7	15	0.2756	0.5906	18	26	0.7087	1.0236	32	40	1.2598	1.5748		
30	50	9	17	0.3543	0.6693	22	30	0.8661	1.1811	40	48	1.5748	1.8898		
50	80	11	23	0.4331	0.9055	26	38	1.0236	1.4961	48	60	1.8898	2.3622		
80	120	14	26	0.5512	1.0236	32	44	1.2598	1.7323	55	67	2.1654	2.6378		
120	160	17	29	0.6693	1.1417	35	47	1.3780	1.8504	62	74	2.4409	2.9134		
160	180	17	29	0.6693	1.1417	35	47	1.3780	1.8504	62	74	2.4409	2.9134		
180	250	21	37	0.8268	1.4567	45	61	1.7717	2.4016	74	90	2.9134	3.5433		
250	315	26	42	1.0236	1.6535	52	68	2.0472	2.6772	90	106	3.5433	4.1732		

Radial clearance [~=] 0.85 axial clearance.
µm x 0.00004 = inches

Table 2a

Unmounted preload of single row angular contact ball bearings of series 72B (E), 73B (E) and 74 (B) when arranged in random pairs (back-to-back or face-to-face)



Bore diameter		Preload																			
		GA						GB								GC							
d																							
over	incl.	min	max	min	max	max	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
mm		µm		in		N	lbf	µm		in		N		lbf		µm		in		N		lbf	
10	18	4	-4	0.0002	-0.0002	80	18	-2	-10	-0.0001	-0.0004	30	330	7	74	-8	-16	-0.0003	-0.0006	230	660	52	149
18	30	4	-4	0.0002	-0.0002	120	27	-2	-10	-0.0001	-0.0004	40	480	9	108	-8	-16	-0.0003	-0.0006	340	970	76	218
30	50	4	-4	0.0002	-0.0002	160	36	-2	-10	-0.0001	-0.0004	60	630	13	142	-8	-16	-0.0003	-0.0006	450	1 280	101	288
50	80	6	-6	0.0002	-0.0002	380	86	-3	-15	-0.0001	-0.0006	140	1 500	31	338	-12	-24	-0.0005	-0.0009	1 080	3 050	243	686
80	120	6	-6	0.0002	-0.0002	410	92	-3	-15	-0.0001	-0.0006	150	1 600	34	360	-12	-24	-0.0005	-0.0009	1 150	3 250	259	731
120	180	6	-6	0.0002	-0.0002	540	122	-3	-15	-0.0001	-0.0006	200	2 150	45	484	-12	-24	-0.0005	-0.0009	1 500	4 300	337	968
180	250	8	-8	0.0003	-0.0003	940	212	-4	-20	-0.0002	-0.0008	330	3 700	74	833	-16	-32	-0.0006	-0.0013	2 650	7 500	596	1 688

µm x 0.00004 = inches

Axial internal clearance double row angular contact ball bearings

Internal clearances for double row angular contact ball bearings differ from deep groove ball bearings in that axial rather than radial clearance is specified. **Table 4** shows the axial clearance of the SKF double row angular contact bearings in four standard clearance ranges; C2 (less than normal clearance), normal clearance, C3 (greater than normal clearance), and C4 (greater than C3 clearance). These are valid for bearings before mounting under zero measuring load.

Axial internal clearance four-point contact ball bearings

Standard manufacture SKF four-point contact ball bearings have Normal axial internal clearance. Most sizes can also be supplied with greater or smaller internal clearance than Normal. Availability should be checked before ordering.

The values for the axial internal clearance are shown in **Table 5** and are for bearings before mounting under zero measuring load.

Old versus current designations on SRACBB (Table 3)

Use this table to determine which current preload designations replace old preload designations. Simply find the bearing bore size/diameter on the left, and the old preload across the top. The current designation is at the point where the bore size/diameter row intersects with the old preload column.

***Example:** 73**08** BEAG1Y = 08 bore size,
40 mm bore diameter
G1 (100 lbs) preload
Replace with: 73**08** BE**GB**Y

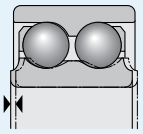
Table 3

Old/current preload designation interchange, single row angular contact ball bearings 72xx, 73xx and 74xx series

Bore size	Bore diameter (mm)	Old preload suffix					
		G02	G05	G1*	G2	G3	G5
00	10	GB	GB	GC	–	–	–
01	12	GB	GB	GC	–	–	–
02	15	GB	GB	GC	–	–	–
03	17	GB	GB	GC	–	–	–
04	20	GA	GB	GC	–	–	–
06	30	GA	GB	GC	–	–	–
07	35	GA	GB	GB	GC	–	–
08*	**40***	**GA**	**GB**	**GB***	**GC**	**–**	**–**
09	45	GA	GB	GB	GC	–	–
10	50	GA	GB	GB	GC	–	–
11	55	GA	GA	GB	GB	GB	GC
12	60	GA	GA	GB	GB	GB	GC
13	65	GA	GA	GB	GB	GB	GC
14	70	GA	GA	GB	GB	GB	GC
15	75	GA	GA	GB	GB	GB	GC
16	80	GA	GA	GB	GB	GB	GC
17	85	GA	GA	GB	GB	GB	GC
18	90	GA	GA	GB	GB	GB	GC
19	95	GA	GA	GB	GB	GB	GC
20	100	GA	GA	GB	GB	GB	GC
21	105	GA	GA	GB	GB	GB	GC
22	110	GA	GA	GB	GB	GB	GC
24	120	GA	GA	GB	GB	GB	GC
26	130	GA	GA	GB	GB	GB	GC
28	140	GA	GA	GB	GB	GB	GC
30	150	GA	GA	GB	GB	GB	GC
32	160	GA	GA	GB	GB	GB	GC
34	170	GA	GA	GB	GB	GB	GC
36	180	GA	GA	GB	GB	GB	GC

Table 4

Axial internal clearance of Conrad type and filling slot double row angular contact ball bearings 32 and 33 series (values in 0.001 mm)



Bore diameter d		Axial internal clearance															
		C2				Normal (not designated)				C3				C4			
over	incl.	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
mm		µm		in		µm		in		µm		in		µm		in	
-	10	1	11	0.0000	0.0004	5	21	0.0002	0.0008	12	28	0.0005	0.0011	25	45	0.0010	0.0018
10	18	1	12	0.0000	0.0005	6	23	0.0002	0.0009	13	31	0.0005	0.0012	27	47	0.0011	0.0019
18	24	2	14	0.0001	0.0006	7	25	0.0003	0.0010	16	34	0.0006	0.0013	28	48	0.0011	0.0019
24	30	2	15	0.0001	0.0006	8	27	0.0003	0.0011	18	37	0.0007	0.0015	30	50	0.0012	0.0020
30	40	2	16	0.0001	0.0006	9	29	0.0004	0.0011	21	40	0.0008	0.0016	33	54	0.0013	0.0021
40	50	2	18	0.0001	0.0007	11	33	0.0004	0.0013	23	44	0.0009	0.0017	36	58	0.0014	0.0023
50	65	3	22	0.0001	0.0009	13	36	0.0005	0.0014	26	48	0.0010	0.0019	40	63	0.0016	0.0025
65	80	3	24	0.0001	0.0009	15	40	0.0006	0.0016	30	54	0.0012	0.0021	46	71	0.0018	0.0028
80	100	3	26	0.0001	0.0010	18	46	0.0007	0.0018	35	63	0.0014	0.0025	55	83	0.0022	0.0033
100	110	4	30	0.0002	0.0012	22	53	0.0009	0.0021	42	73	0.0017	0.0029	65	96	0.0026	0.0038

Table 5

Axial internal clearance of four-point contact ball bearings

Bore diameter d				Axial internal clearance															
				C2				Normal (not designated)				C3				C4			
over		incl.		min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
mm	in	mm	in	µm		in		µm		in		µm		in		µm		in	
10	**18**	**0.3937**	**0.7087**	15	65	0.0006	0.0026	50	95	0.0020	0.0038	85	130	0.0034	0.0052	120	165	0.0048	0.0066
18	**40**	**0.7087**	**1.5748**	25	75	0.0010	0.0030	65	110	0.0026	0.0044	100	150	0.0040	0.0060	135	185	0.0054	0.0074
40	**60**	**1.5748**	**2.3622**	35	85	0.0014	0.0034	75	125	0.0030	0.0050	110	165	0.0044	0.0066	150	200	0.0060	0.0080
60	**80**	**2.3622**	**3.1496**	45	100	0.0018	0.0040	85	140	0.0034	0.0056	125	175	0.0050	0.0070	165	215	0.0066	0.0086
80	**100**	**3.1496**	**3.9370**	55	110	0.0022	0.0044	95	150	0.0038	0.0060	135	190	0.0054	0.0076	180	235	0.0072	0.0094
100	**140**	**3.9370**	**5.5118**	70	130	0.0028	0.0052	115	175	0.0046	0.0070	160	220	0.0064	0.0088	205	265	0.0082	0.0106
140	**180**	**5.5118**	**7.0866**	90	155	0.0036	0.0062	135	200	0.0054	0.0080	185	250	0.0074	0.0100	235	300	0.0094	0.0120
180	**220**	**7.0866**	**8.6614**	105	175	0.0042	0.0070	155	225	0.0062	0.0102	210	280	0.0084	0.0112	260	330	0.0104	0.0132

Radial clearance ≈0.7 axial clearance.

Design of bearing arrangements

When designing bearing arrangements using single row angular contact ball bearings it is necessary to pay attention to the special characteristics of the bearings. Because of their internal design they cannot be used singly and must be used either with a second bearing **(Figure 4)** or as bearing sets **(Figure 5)**.

As already mentioned under "Internal clearance", it is necessary to adjust the two single row angular contact ball bearings of an arrangement against each other until the operational clearance or requisite preload is obtained.

Arrangements using bearings for universal mounting, where the bearings are immediately adjacent to each other, do not require adjustment. Here, the required operational preload or clearance is obtained by choosing an appropriate preload or clearance class as well as suitable fits for the bearings in the housing and on the shaft.

For more specific mounting instructions visit the SKF website at www.skf.com/mount or contact SKF Applications Engineering.

Figure 4

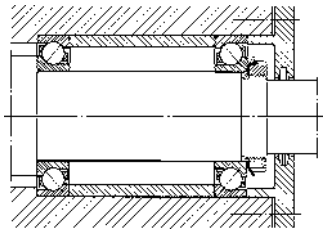


Figure 5

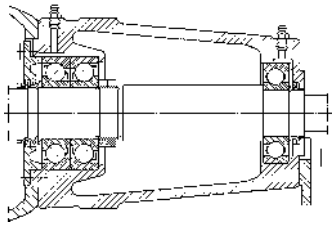


Table 6

Calculation factors for double row angular contact ball bearings

Bearing series	Calculation factors				
	e	X	Y1	Y2	Y0
32 A, 33 A	0.80	0.63	0.78	1.24	0.66
33 D	1.34	0.54	0.47	0.81	0.44
33 DNRCBM	1.14	0.57	0.55	0.93	0.52

Loads

Equivalent dynamic bearing load for single row bearings of the B and BE designs when mounted as single bearings or paired in tandem

$P = F_r$ when $F_a / F_r \leq 1.14$
$P = 0.35\ F_r + 0.57\ F_a$ when $F_a / F_r > 1.14$

where
P = equivalent dynamic bearing load
F_r = radial load acting on the bearing
F_a = axial load acting on the bearing

When determining the axial force Fa reference should be made to the following section.

Equivalent dynamic bearing load for bearings mounted in pairs, back-to-back or face-to-face

$P = F_r + 0.55\ F_a$
when $F_a / F_r \leq 1.14$

$P = 0.57\ F_r + 0.93\ F_a$
when $F_a / F_r > 1.14$

F_a and F_r are the forces acting on the bearing pair.

Equivalent dynamic bearing load for double row bearings

For the double row angular contact bearings described in this catalog, the equivalent dynamic bearing load is

$F_a / F_r \leq e \rightarrow P = F_r + Y_1 F_a$
$F_a / F_r > e \rightarrow P = XF_r + Y_2 F_a$

where
P = equivalent dynamic bearing load
X, Y_1, Y_2, Y_0 = calculation factors (see **Table 6**)
F_r = actual radial bearing load
F_a = actual axial bearing load

Equivalent dynamic bearing load for four-point contact bearings

When four-point contact ball bearings with a contact angle of 35° are used as locating bearings to accommodate radial and axial loads, the equivalent dynamic bearing load can be obtained from

$P = F_r + 0.66\ F_a$
when $F_a / F_r \leq 0.95$

$P = 0.6\ F_r + 1.07\ F_a$
when $F_a / F_r > 0.95$

It should be remembered that satisfactory performance of the ball set of four-point contact ball bearings is only obtained when the balls are in contact with the raceways at two points, i.e. when the axial load

$F_a \geq 1.27\ F_r$

If the four-point contact ball bearing is used as a thrust bearing in combination with other radial bearings, and it is mounted with radial clearance in the housing, the equivalent dynamic bearing load becomes

$P = 1.07\ F_a$

Minimum load

In order to provide satisfactory operation of all ball and roller bearings they must always be subjected to a given minimum load.

This is also true of angular contact ball bearings, particularly if they run at high speeds where the inertia forces of the balls and cage, and the friction in the lubricant can have a detrimental influence on the rolling conditions in the bearing and may cause damaging sliding movements to occur between the balls and the raceways.

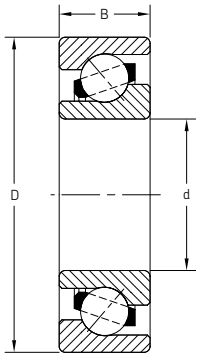
The requisite minimum radial load to be applied in such cases can be determined by using the tools available on the SKF website **skfusa.com**. Select Engineering Tools under the Support menu. Or contact SKF Applications Engineering.

by the bearing, together with the external forces, often exceeds the requisite minimum load. If this is not the case, an additional radial load must be applied to the bearing; for example, by increasing belt tension, by applying a preload to the inner or outer rings, or by using springs.

Frequency vibration data

Frequency vibration data is available on the SKF website, **skfusa.com.** Select Engineering Tools under the Support menu. Or contact SKF Applications Engineering.

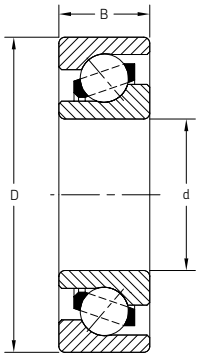
Single row
Standard
Series: 7024 B – 70/1250 AMB
Size: 120 mm – 1250 mm
4.2744 in – 49.2126 in



These bearings are typically used in pairs and require additional suffix letters to define the end play and preload values as well as cage type for the specific application conditions. Refer to page 60 for details.

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
7024 B	120	4.7244	180	7.0866	28	1.1024	87 100	19 570	93 000	20 900	3 000	4 000	2.4	5.29
7028 B	140	5.5118	210	8.2677	33	1.2992	114 000	25 620	129 000	28 990	2 400	3 400	3.85	8.49
7030 B	150	5.9055	225	8.8583	35	1.3780	133 000	29 890	146 000	32 810	2 400	3 200	4.7	10.36
7034 B	170	6.6929	260	10.2362	42	1.6535	172 000	38 650	204 000	45 840	2 000	2 800	7.65	16.87
7036 B	180	7.0866	280	11.0236	46	1.8110	195 000	43 820	240 000	53 900	1 900	2 600	10	22.05
7038 B	190	7.4803	290	11.4173	46	1.8110	199 000	44 720	255 000	57 300	1 800	2 400	10.5	23.15
7040 B	200	7.8740	310	12.2047	51	2.0079	225 000	50 600	290 000	65 200	1 700	2 200	18	39.69
7044 B	220	8.6614	340	13.3858	56	2.2047	255 000	57 300	355 000	79 800	1 600	2 000	18	39.69
7048 B	240	9.4488	360	14.1732	56	2.2047	260 000	58 400	375 000	84 300	1 500	1 900	19	41.90
7052 B	260	10.2362	400	15.7480	65	2.5591	332 000	74 600	510 000	114 600	1 300	1 700	30	66.15
7056 B	280	11.0236	420	16.5354	65	2.5591	338 000	76 000	540 000	121 300	1 200	1 600	30	66.15
7060 B	300	11.8110	460	18.1102	74	2.9134	377 000	84 700	630 000	141 600	1 400	1 500	42.5	93.71
7064 B	320	12.5984	480	18.8976	74	2.9134	390 000	87 600	670 000	150 600	1 300	1 400	44.5	98.12
7068 B	340	13.3858	520	20.4724	82	3.2283	449 000	100 900	815 000	183 100	1 200	1 300	59.5	131.20
7072 B	360	14.1732	540	21.2598	82	3.2283	462 000	103 800	850 000	191 000	1 200	1 200	61.8	136.27
7076 B	380	14.9606	560	22.0472	82	3.2283	468 000	105 200	850 000	191 000	1 100	1 200	64.7	142.66
7080 B	400	15.7480	600	23.6220	90	3.5433	527 000	118 400	1 020 000	229 200	1 000	1 100	90.5	199.55
7084 B	420	16.5354	620	24.4094	90	3.5433	540 000	121 300	1 060 000	238 200	1 000	1 000	88	194.04
7088 B	440	17.3228	650	25.5906	94	3.7008	572 000	128 500	1 180 000	265 200	950	950	100	220.50
7092 B	460	18.1102	680	26.7717	100	3.9370	618 000	138 900	1 290 000	289 900	900	900	120	264.60
7096 B	480	18.8976	700	27.5591	100	3.9370	624 000	140 200	1 340 000	301 100	850	900	125	275.63
70/500 B	500	19.6850	720	28.3465	100	3.9370	637 000	143 100	1 400 000	314 600	800	850	130	286.65
70/530 B	530	20.8661	780	30.7087	112	4.4094	741 000	166 500	1 700 000	382 000	750	800	180	396.90
70/560 AMB	560	22.0472	820	32.2835	115	4.5276	793 000	178 200	1 900 000	427 000	700	700	203	447.62
708/600 AMB	600	23.6220	730	28.7402	42	1.6535	338 000	76 000	735 000	165 200	800	850	38.5	84.89
70/600 AGMB	600	23.6220	870	34.2520	118	4.6457	884 000	198 700	2 160 000	485 400	700	750	236	520.38
70/630 AMB	630	24.8031	920	36.2205	128	5.0394	956 000	214 800	2 450 000	550 600	560	700	270	595.35
70/670 AMB	670	26.3780	980	38.5827	136	5.3543	1 170 000	262 900	3 100 000	696 600	560	560	353	778.37
70/710 AMB	710	27.9528	1 030	40.5512	140	5.5118	1 190 000	267 400	3 250 000	730 300	560	600	370	815.85
70/750 AMB	750	29.5276	1 090	42.9134	150	5.9055	1 300 000	292 100	3 650 000	820 200	530	560	445	981.23
70/800 AMB	800	31.4961	1 150	45.2756	155	6.1024	1 250 000	280 900	3 650 000	820 200	450	450	524	1155.42
70/850 AMB	850	33.4646	1 220	48.0315	165	6.4961	1 380 000	310 100	4 150 000	932 600	400	400	626	1380.33
70/900 AMB	900	35.4331	1 280	50.3937	170	6.6929	1 560 000	350 600	4 900 000	1 101 100	400	430	665	1466.33
70/950 AMB	950	37.4016	1 360	53.5433	180	7.0866	1 630 000	366 300	5 200 000	1 168 500	380	400	805	1775.03
70/1000 AMB	1 000	39.3701	1 420	55.9055	185	7.2835	1 630 000	366 300	5 400 000	1 213 500	360	380	890	1962.45
70/1060 AMB	1 060	41.7323	1 500	59.0551	195	7.6772	1 680 000	377 500	5 700 000	1 280 900	320	340	1 050	2315.25
70/1120 AMB	1 120	44.0945	1 580	62.2047	200	7.8740	1 720 000	386 500	5 850 000	1 314 600	300	320	1 150	2535.75
70/1180 AMB	1 180	46.4567	1 660	65.3543	212	8.3465	1 740 000	391 000	6 200 000	1 393 300	280	280	1 350	2976.75
708/1250 AMB	1 250	49.2126	1 500	59.0551	80	3.1496	806 000	181 100	2 700 000	606 700	280	300	295	650.48
70/1250 AMB	1 250	49.2126	1 750	68.8976	218	8.5827	1 780 000	400 000	6 550 000	1 471 900	240	260	1 600	3528.00

Consult SKF USA Inc. prior to design change or order placement.



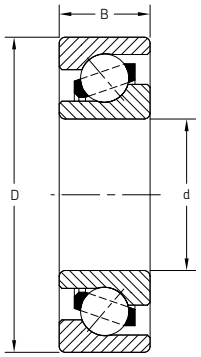
Single row
Standard and SKF Explorer
Series: 7200 BE – 7280 B
Size: 10 mm – 400 mm
0.3937 in – 15.7480 in

These bearings are typically used in pairs and require additional suffix letters to define the end play and preload values as well as cage type for the specific application conditions. Refer to page 60 for details.

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
7200 BE	10	0.3937	30	1.1811	9	0.3543	7 020	1 580	3 350	750	22 000	30 000	0.03	0.07
7201 BE	12	0.4724	32	1.2598	10	0.3937	7 610	1 710	3 800	850	20 000	26 000	0.036	0.08
7202 BE	15	0.5906	35	1.3780	11	0.4331	8 320	1 870	4 400	990	18 000	24 000	0.045	0.10
7203 BE	17	0.6693	40	1.5748	12	0.4724	10 400	2 340	5 500	1 240	15 000	20 000	0.065	0.14
7204 BE	20	0.7874	47	1.8504	14	0.5512	13 300	2 990	7 650	1 720	13 000	18 000	0.11	0.24
7205 BE	25	0.9843	52	2.0472	15	0.5906	14 800	3 330	9 300	2 090	11 000	15 000	0.13	0.29
7206 BE	30	1.1811	62	2.4409	16	0.6299	22 500	5 060	14 300	3 210	9 500	13 000	0.2	0.44
7207 BE	35	1.3780	72	2.8346	17	0.6693	29 100	6 540	19 000	4 270	8 000	11 000	0.28	0.62
7208 BE	40	1.5748	80	3.1496	18	0.7087	34 500	7 750	24 000	5 390	7 000	10 000	0.37	0.82
7209 BE	45	1.7717	85	3.3465	19	0.7480	35 800	8 040	26 000	5 840	6 700	9 000	0.42	0.93
7210 BE	50	1.9685	90	3.5433	20	0.7874	37 700	8 470	28 500	6 400	6 300	8 500	0.47	1.04
7211 BE	55	2.1654	100	3.9370	21	0.8268	46 200	10 380	36 000	8 090	5 600	7 500	0.62	1.37
7212 BE	60	2.3622	110	4.3307	22	0.8661	57 200	12 850	45 500	10 220	5 000	7 000	0.8	1.76
7213 BE	65	2.5591	120	4.7244	23	0.9055	66 300	14 900	54 000	12 130	4 800	6 300	1	2.21
7214 BE	70	2.7559	125	4.9213	24	0.9449	67 600	15 190	56 000	12 580	4 500	6 000	1.1	2.43
7215 BE	75	2.9528	130	5.1181	25	0.9843	70 200	15 780	60 000	13 480	5 600	5 600	1.2	2.65
7216 BE	80	3.1496	140	5.5118	26	1.0236	80 600	18 110	69 500	15 620	4 000	5 300	1.45	3.20
7217 BE	85	3.3465	150	5.9055	28	1.1024	95 600	21 480	83 000	18 650	3 800	5 000	1.85	4.08
7218 BE	90	3.5433	160	6.2992	30	1.1811	108 000	24 270	96 500	21 690	3 600	4 500	2.3	5.07
7219 BE	95	3.7402	170	6.6929	32	1.2598	124 000	27 870	108 000	24 270	3 200	4 300	2.7	5.95
7220 BE	100	3.9370	180	7.0866	34	1.3386	135 000	30 340	122 000	27 420	3 200	4 000	3.3	7.28
7221 BE	105	4.1339	190	7.4803	36	1.4173	148 000	33 260	137 000	30 790	3 000	3 800	3.95	8.71
7222 BE	110	4.3307	200	7.8740	38	1.4961	153 000	34 380	143 000	32 130	2 800	3 600	4.6	10.14
7224 B	120	4.7244	215	8.4646	40	1.5748	165 000	37 080	163 000	36 630	2 600	3 600	5.89	12.99
7226 B	130	5.1181	230	9.0551	40	1.5748	186 000	41 800	193 000	43 370	2 400	3 400	6.95	15.32
7228 B	140	5.5118	250	9.8425	42	1.6535	199 000	44 720	212 000	47 640	2 200	3 000	8.85	19.51
7230 B	150	5.9055	270	10.6299	45	1.7717	216 000	48 540	240 000	53 900	2 000	3 200	11.5	25.36
7232 B	160	6.2992	290	11.4173	48	1.8898	255 000	57 300	300 000	67 400	2 000	3 000	14	30.87
7234 B	170	6.6929	310	12.2047	52	2.0472	281 000	63 100	345 000	77 500	1 800	2 800	17.5	38.59
7236 B	180	7.0866	320	12.5984	52	2.0472	291 000	65 400	375 000	84 300	1 800	2 600	18	39.69
7238 B	190	7.4803	340	13.3858	55	2.1654	307 000	69 000	405 000	91 000	1 800	2 600	22	48.51
7240 B	200	7.8740	360	14.1732	58	2.2835	325 000	73 000	430 000	96 600	1 600	2 400	25	55.13
7244 B	220	8.6614	400	15.7480	65	2.5591	390 000	87 600	560 000	125 800	1 400	2 200	37	81.59
7248 B	240	9.4488	440	17.3228	72	2.8346	449 000	100 900	670 000	150 600	1 600	2 600	49	108.05
7252 B	260	10.2362	480	18.8976	80	3.1496	507 000	113 900	780 000	175 300	1 400	1 500	66	145.53
7256 B	280	11.0236	500	19.6850	80	3.1496	507 000	113 900	830 000	186 500	1 400	1 400	67.5	148.84
7260 B	300	11.8110	540	21.2598	85	3.3465	553 000	124 300	930 000	209 000	1 300	1 300	85	187.43
7264 B	320	12.5984	580	22.8346	92	3.6220	572 000	128 500	1 020 000	229 200	1 200	1 200	110	242.55
7268 B	340	13.3858	620	24.4094	92	3.6220	702 000	157 800	1 340 000	301 100	1 100	1 100	125	275.63
7272 B	360	14.1732	650	25.5906	95	3.7402	806 000	181 100	1 559 999	350 600	1 900	1 700	145	319.73
7280 B	400	15.7480	720	28.3465	103	4.0551	728 000	163 600	1 500 000	337 100	900	950	190	418.95

Consult SKF USA Inc. prior to design change or order placement.

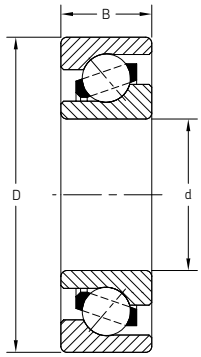
Single row
Standard and SKF Explorer
Series: 7301 BE – 7348 B
Size: 12 mm – 240 mm
0.4724 in – 9.4488 in



These bearings are typically used in pairs and require additional suffix letters to define the end play and preload values as well as cage type for the specific application conditions. Refer to page 60 for details.

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
7301 BE	12	0.4724	37	1.4567	12	0.4724	10 600	2 380	5 000	1 120	18 000	24 000	0.06	0.13
7302 BE	15	0.5906	42	1.6535	13	0.5118	13 000	2 920	6 700	1 510	15 000	20 000	0.08	0.18
7303 BE	17	0.6693	47	1.8504	14	0.5512	15 900	3 570	8 300	1 870	14 000	19 000	0.11	0.24
7304 BE	20	0.7874	52	2.0472	15	0.5906	17 400	3 910	9 500	2 130	12 000	16 000	0.14	0.31
7305 BE	25	0.9843	62	2.4409	17	0.6693	24 200	5 440	14 000	3 150	10 000	14 000	0.23	0.51
7306 BE	30	1.1811	72	2.8346	19	0.7480	32 500	7 300	19 300	4 340	8 500	12 000	0.34	0.75
7307 BE	35	1.3780	80	3.1496	21	0.8268	39 000	8 760	24 500	5 510	7 500	10 000	0.45	0.99
7308 BE	40	1.5748	90	3.5433	23	0.9055	46 200	10 380	30 500	6 850	6 700	9 000	0.62	1.37
7309 BE	45	1.7717	100	3.9370	25	0.9843	55 900	12 560	37 500	8 430	6 000	8 000	0.82	1.81
7310 BE	50	1.9685	110	4.3307	27	1.0630	68 900	15 480	47 500	10 670	5 300	7 500	1.1	2.43
7311 BE	55	2.1654	120	4.7244	29	1.1417	79 300	17 820	55 000	12 360	5 000	6 700	1.4	3.09
7312 BE	60	2.3622	130	5.1181	31	1.2205	95 600	21 480	69 500	15 620	4 500	6 000	1.75	3.86
7313 BE	65	2.5591	140	5.5118	33	1.2992	108 000	24 270	80 000	17 980	4 300	5 600	2.15	4.74
7314 BE	70	2.7559	150	5.9055	35	1.3780	119 000	26 740	90 000	20 220	4 000	5 300	2.65	5.84
7315 BE	75	2.9528	160	6.2992	37	1.4567	125 000	28 090	98 000	22 020	3 800	5 000	3.2	7.06
7316 BE	80	3.1496	170	6.6929	39	1.5354	135 000	30 340	110 000	24 720	3 600	4 500	3.8	8.38
7317 BE	85	3.3465	180	7.0866	41	1.6142	146 000	32 810	122 000	27 420	3 200	4 300	4.45	9.81
7318 BE	90	3.5433	190	7.4803	43	1.6929	156 000	35 060	134 000	30 110	3 200	4 000	5.2	11.47
7319 BE	95	3.7402	200	7.8740	45	1.7717	168 000	37 750	150 000	33 710	3 000	3 800	6.05	13.34
7320 BE	100	3.9370	215	8.4646	47	1.8504	203 000	45 620	190 000	42 700	2 800	3 600	7.5	16.54
7321 BE	105	4.1339	225	8.8583	49	1.9291	203 000	45 620	193 000	43 370	2 600	3 400	8.55	18.85
7322 BE	110	4.3307	240	9.4488	50	1.9685	225 000	50 600	224 000	50 300	2 400	3 200	10	22.05
7324 B	120	4.7244	260	10.2362	55	2.1654	238 000	53 500	250 000	56 200	2 200	3 600	14.5	31.97
7326 B	130	5.1181	280	11.0236	58	2.2835	276 000	62 000	305 000	68 500	2 000	2 800	17.1	37.71
7328 B	140	5.5118	300	11.8110	62	2.4409	302 000	67 900	345 000	77 500	2 000	3 000	21.5	47.41
7330 B	150	5.9055	320	12.5984	65	2.5591	332 000	74 600	390 000	87 600	1 900	2 800	26	57.33
7332 B	160	6.2992	340	13.3858	68	2.6772	358 000	80 400	440 000	98 900	1 800	2 600	30.32	66.86
7334 B	170	6.6929	360	14.1732	72	2.8346	390 000	87 600	490 000	110 100	1 600	2 600	36	79.38
7336 B	180	7.0866	380	14.9606	75	2.9528	410 000	92 100	540 000	121 300	1 600	2 400	42	92.61
7338 B	190	7.4803	400	15.7480	78	3.0709	442 000	99 300	600 000	134 800	1 500	2 200	48.5	106.94
7340 B	200	7.8740	420	16.5354	80	3.1496	462 000	103 800	655 000	147 200	1 400	2 200	53	116.87
7344 B	220	8.6614	460	18.1102	88	3.4646	494 000	111 000	720 000	161 800	1 600	1 700	70	154.35
7348 B	240	9.4488	500	19.6850	95	3.7402	559 000	125 600	800 000	179 800	1 400	1 500	89.4	197.13

Consult SKF USA Inc. prior to design change or order placement.



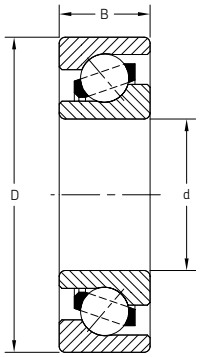
Single row
Series: 7405 B – 7420
Standard
Size: 25 mm – 100 mm
0.9843 in – 3.9370 in

Series: AMS 22 ABP – ALS 40 ABM
Standard
Size: 69.85 mm – 127 mm
2.75 in – 5.00 in

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
7405 B	25	0.9843	80	3.1496	21	0.8268	39 700	8 920	23 600	5 300	11 000	11 000	0.61	1.35
7406 B	30	1.1811	90	3.5433	23	0.9055	47 500	10 670	29 000	6 520	10 000	10 000	0.83	1.83
7407 B	35	1.3780	100	3.9370	25	0.9843	60 500	13 600	38 000	8 540	8 500	9 000	1.10	2.43
7408 B	40	1.5748	110	4.3307	27	1.0630	70 200	15 780	45 000	10 110	8 000	8 000	1.40	3.09
7409 B	45	1.7717	120	4.7244	29	1.1417	85 200	19 150	55 000	12 360	7 000	7 500	1.55	3.42
7410 B	50	1.9685	130	5.1181	31	1.2205	95 600	21 480	64 000	14 380	6 300	6 700	2.25	4.96
7411 B	55	2.1654	140	5.5118	33	1.2992	111 000	24 940	76 500	17 190	6 000	6 300	2.35	5.18
7412 B	60	2.3622	150	5.9055	35	1.3780	119 000	26 740	86 500	19 440	5 600	6 000	3.30	7.28
7413 B	65	2.5591	160	6.2992	37	1.4567	130 000	29 210	96 500	21 690	5 000	5 300	4.00	8.82
7414 B	70	2.7559	180	7.0866	42	1.6535	159 000	35 730	127 000	28 540	4 500	4 800	5.00	11.03
7415 B	75	2.9528	190	7.4803	45	1.7717	168 000	37 750	140 000	31 460	4 300	4 500	6.85	15.10
7416 B	80	3.1496	200	7.8740	48	1.8898	178 000	40 000	153 000	34 380	4 000	4 300	8.10	17.86
7417 B	85	3.3465	210	8.2677	52	2.0472	190 000	42 700	166 000	37 300	3 800	4 000	9.60	21.17
7418	90	3.5433	225	8.8583	54	2.1260	212 000	47 640	193 000	43 370	3 600	3 800	11.50	25.36
7419	95	3.7402	250	9.8425	55	2.1654	242 000	54 400	236 000	53 000	3 400	3 400	13.50	29.77
7420	100	3.9370	265	10.4331	60	2.3622	265 000	59 600	270 000	60 700	3 200	3 200	15.50	34.18
AMS 22 ABP	69.85	2.7500	158.75	6.2500	34.92	1.3750	138 000	31 010	104 000	23 370	6 000	6 000	3.60	7.94
AMS 24 ABP	76.20	3.0000	177.80	7.0000	39.69	1.5625	163 000	36 630	137 000	30 790	5 000	5 000	5.21	11.49
ALS 28 ABP	88.90	3.5000	165.10	6.5000	28.57	1.1250	127 000	28 540	112 000	25 170	5 000	5 000	2.89	6.37
ALS 32 ABP	101.60	4.0000	184.15	7.2500	31.75	1.2500	159 000	35 730	143 000	32 130	4 500	4 500	3.15	6.95
ALS 40 ABM	127.00	5.0000	228.60	9.0000	34.92	1.3750	186 000	41 800	190 000	42 700	3 600	3 600	6.10	13.45

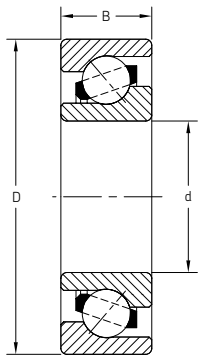
Consult SKF USA Inc. prior to design change or order placement.

Single row
Standard
Series: 71964 AC – 719/710 ACMB
Size: 320 mm – 710 mm
12.5894 in – 27.9528 in



Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
71964 AC	320	12.5984	440	17.3228	56	2.2047	351 000	78 900	585 000	131 500	1 500	1 600	25.5	56.23
71968 AC	340	13.3858	460	18.1102	56	2.2047	338 000	76 000	585 000	131 500	1 500	1 500	24	52.92
71972 B	360	14.1732	480	18.8976	56	2.2047	302 000	67 900	550 000	123 600	1 400	1 500	28.5	62.84
71972 A	360	14.1732	480	18.8976	56	2.2047	338 000	76 000	610 000	137 100	1 400	1 500	28.5	62.84
71972 AC	360	14.1732	480	18.8976	56	2.2047	351 000	78 900	630 000	141 600	1 400	1 500	28	61.74
71976 AC	380	14.9606	520	20.4724	65	2.5591	410 000	92 100	735 000	165 200	1 300	1 300	40.5	89.30
71980 A	400	15.7480	540	21.2598	65	2.5591	403 000	90 600	735 000	165 200	1 200	1 200	39	86.00
71984 B	420	16.5354	560	22.0472	65	2.5591	364 000	81 800	670 000	150 600	1 200	1 200	44.5	98.12
71984 A	420	16.5354	560	22.0472	65	2.5591	410 000	92 100	765 000	171 900	1 200	1 200	42	92.61
71988 AC	440	17.3228	600	23.6220	74	2.9134	507 000	113 900	1 040 000	233 700	1 000	1 100	61	134.51
71992 AC	460	18.1102	620	24.4094	74	2.9134	507 000	113 900	1 040 000	233 700	100	1 100	58	127.89
719/500 AGMB	500	19.6850	670	26.3780	78	3.0709	553 000	124 300	1 220 000	274 200	950	1 000	78	171.99
719/530 ACM	530	20.8661	710	27.9528	82	3.2283	618 000	138 900	1 340 000	301 100	850	900	92	202.86
719/560 AMB	560	22.0472	750	29.5276	85	3.3465	592 000	133 000	1 290 000	289 900	800	850	105	231.53
719/600 ACM	600	23.6220	800	31.4961	90	3.5433	715 000	160 700	1 730 000	388 800	750	800	125	275.63
719/710 ACMB	710	27.9528	950	37.4016	106	4.1732	852 000	191 500	2 200 000	494 400	600	630	195	429.98

Consult SKF USA Inc. prior to design change or order placement.

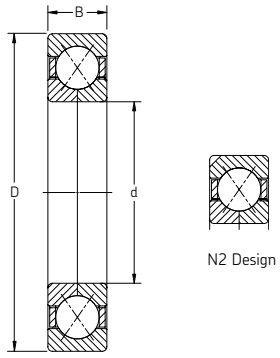


Single row
Standard
Series: 71872 AC – 718/1250 AMB
Size: 360 mm – 1250 mm
14.1732 in – 49.2126 in

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
71872 AC	360	14.1732	440	17.3228	38	1.4961	234 000	52 600	425 000	95 500	1 500	1 500	12	26.46
71876 AC	380	14.9606	480	18.8976	46	1.8110	291 000	65 400	500 000	112 400	1 300	1 400	18	39.69
71892 AG	460	18.1102	580	22.8346	56	2.2047	371 000	83 400	765 000	171 900	1 100	1 100	35	77.18
718/500 AM	500	19.6850	620	24.4094	56	2.2047	390 000	87 600	850 000	191 000	1 000	1 000	38	83.79
718/530 AMB	530	20.8661	650	25.5906	56	2.2047	390 000	87 600	900 000	202 200	950	1 000	39.5	87.10
718/560 AMB	560	22.0472	680	26.7717	56	2.2047	397 000	89 200	930 000	209 000	850	900	41.5	91.51
718/600 AMB	600	23.6220	730	28.7402	60	2.3622	449 000	100 900	1 100 000	247 200	800	850	52	114.66
718/670 AMB	670	26.3780	820	32.2835	69	2.7165	527 000	118 400	1 250 000	280 900	700	750	77	169.79
718/670 ACMB	670	26.3780	820	32.2835	69	2.7165	553 000	124 300	1 290 000	289 900	700	750	77	169.79
718/710 AMB	710	27.9528	870	34.2520	74	2.9134	572 000	128 500	1 560 000	350 600	630	670	93.5	206.17
718/710 ACMB	710	27.9528	870	34.2520	74	2.9134	605 000	136 000	1 630 000	366 300	630	630	92.4	203.74
718/750 AGMB	750	29.5276	920	36.2205	78	3.0709	618 000	138 900	1 730 000	388 800	600	630	110	242.55
718/750 ACMB	750	29.5276	920	36.2205	78	3.0709	650 000	146 100	1 800 000	404 500	600	630	110	242.55
718/850 AMB	850	33.4646	1 030	40.5512	82	3.2283	689 000	154 800	1 860 000	418 000	500	530	140	308.70
718/1000 AMB	1 000	39.3701	1 220	48.0315	100	3.9370	923 000	207 400	2 750 000	618 000	400	430	243	535.82
718/1120 AMB	1 120	44.0945	1 360	53.5433	106	4.1732	1 060 000	238 200	3 750 000	842 700	340	360	320	705.60
718/1250 AMB	1 250	49.2126	1 500	59.0551	112	4.4094	1 140 000	256 200	3 900 000	876 400	280	300	390	859.95

Consult SKF USA Inc. prior to design change or order placement.

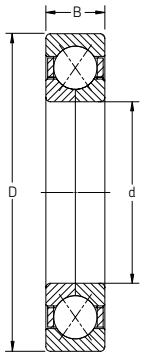
Single row
Four-point ACBB
SKF Explorer
Series: QJ 202 N2MA – QJ 215 MA
Size: 15 mm – 75 mm
0.5906 in – 2.9528 in



N2 Design

Designation	Principal dimensions						Basic load ratings				Speed rating	Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	kg	lb
QJ 202 N2MA	15	0.5906	35	1.3780	11	0.4331	12 700	2 850	8 300	1 870	36 000	0.06	0.1
QJ 203 N2MA	17	0.6693	40	1.5748	12	0.4724	17 000	3 820	11 400	2 560	30 000	0.08	0.2
QJ 205 MA	25	0.9843	52	2.0472	15	0.5906	27 000	6 070	21 200	4 760	22 000	0.16	0.4
QJ 205 N2MA	25	0.9843	52	2.0472	15	0.5906	27 000	6 070	21 200	4 760	22 000	0.16	0.4
QJ 206 MA	30	1.1811	62	2.4409	16	0.6299	37 500	8 430	30 500	6 850	19 000	0.24	0.5
QJ 206 N2MA	30	1.1811	62	2.4409	16	0.6299	37 500	8 430	30 500	6 850	19 000	0.24	0.5
QJ 207 N2MA	35	1.3780	72	2.8346	17	0.6693	49 000	11 010	41 500	9 330	17 000	0.35	0.8
QJ 208 MA	40	1.5748	80	3.1496	18	0.7087	56 000	12 580	49 000	11 010	15 000	0.45	1.0
QJ 208 N2MA	40	1.5748	80	3.1496	18	0.7087	56 000	12 580	49 000	11 010	15 000	0.45	1.0
QJ 209 MA	45	1.7717	85	3.3465	19	0.7480	63 000	14 160	56 000	12 580	14 000	0.52	1.1
QJ 210 MA	50	1.9685	90	3.5433	20	0.7874	65 500	14 720	61 000	13 710	13 000	0.59	1.3
QJ 211 MA	55	2.1654	100	3.9370	21	0.8268	85 000	19 100	83 000	18 650	11 000	0.77	1.7
QJ 211 N2MA	55	2.1654	100	3.9370	21	0.8268	85 000	19 100	83 000	18 650	11 000	0.77	1.7
QJ 212 MA	60	2.3622	110	4.3307	22	0.8661	96 500	21 690	93 000	20 900	10 000	0.99	2.2
QJ 212 N2MA	60	2.3622	110	4.3307	22	0.8661	96 500	21 690	93 000	20 900	10 000	0.99	2.2
QJ 213 MA	65	2.5591	120	4.7244	23	0.9055	110 000	24 720	112 000	25 170	9 500	1.20	2.6
QJ 213 N2MA	65	2.5591	120	4.7244	23	0.9055	110 000	24 720	112 000	25 170	9 500	1.20	2.6
QJ 214 MA	70	2.7559	125	4.9213	24	0.9449	120 000	26 970	122 000	27 420	9 000	1.30	2.9
QJ 214 N2MA	70	2.7559	125	4.9213	24	0.9449	120 000	26 970	122 000	27 420	9 000	1.30	2.9
QJ 215 MA	75	2.9528	130	5.1181	25	0.9843	125 000	28 090	132 000	29 660	8 500	1.45	3.2

Consult SKF USA Inc. prior to design change or order placement.





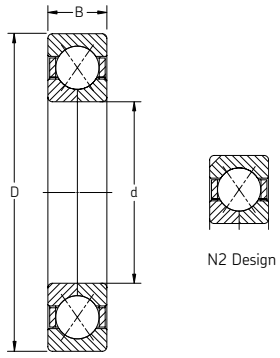
N2 Design

Single row
Four-point ACBB
Standard and SKF Explorer
Series: QJ 215 N2MA – QJ 260 N2MA
Size: 75 mm – 260 mm
2.9528 in – 10.2362 in

Designation	Principal dimensions						Basic load ratings				Speed rating	Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	kg	lb
QJ 215 N2MA	75	2.9528	130	5.1181	25	0.9843	125 000	28 090	132 000	29 660	8 500	1.45	3.2
QJ 216 MA	80	3.1496	140	5.5118	26	1.0236	146 000	32 810	156 000	35 060	8 000	1.85	4.1
QJ 216 N2MA	80	3.1496	140	5.5118	26	1.0236	146 000	32 810	156 000	35 060	8 000	1.85	4.1
QJ 217 MA	85	3.3465	150	5.9055	28	1.1024	156 000	35 060	173 000	38 880	7 500	2.25	5.0
QJ 217 N2MA	85	3.3465	150	5.9055	28	1.1024	156 000	35 060	173 000	38 880	7 500	2.25	5.0
QJ 218 N2MA	90	3.5433	160	6.2992	30	1.1811	186 000	41 800	200 000	44 940	7 000	2.75	6.1
QJ 219 N2MA	95	3.7402	170	6.6929	32	1.2598	212 000	47 640	232 000	52 100	6 700	3.35	7.4
QJ 220 N2MA	100	3.9370	180	7.0866	34	1.3386	236 000	53 000	265 000	59 600	6 300	4.05	8.9
QJ 222 N2MA	110	4.3307	200	7.8740	38	1.4961	280 000	62 900	325 000	73 000	5 600	5.60	12.3
QJ 224 N2MA	120	4.7244	215	8.4646	40	1.5748	300 000	67 400	365 000	82 000	5 000	6.95	15.3
QJ 226 N2MA	130	5.1181	230	9.0551	40	1.5748	310 000	69 700	400 000	89 900	4 800	7.75	17.1
QJ 228 N2MA	140	5.5118	250	9.8425	42	1.6535	345 000	77 500	475 000	106 700	4 300	9.85	21.7
QJ 230 N2MA	150	5.9055	270	10.6299	45	1.7717	400 000	89 900	570 000	128 100	4 000	12.50	27.6
QJ 232 N2MA	160	6.2992	290	11.4173	48	1.8898	450 000	101 100	670 000	150 600	3 800	15.50	34.2
QJ 234 N2MA	170	6.6929	310	12.2047	52	2.0472	455 000	102 200	720 000	161 800	3 400	19.50	43.0
QJ 236 N2MA	180	7.0866	320	12.5984	52	2.0472	475 000	106 700	765 000	171 900	3 400	20.50	45.2
QJ 238 N2MA	190	7.4803	340	13.3858	55	2.1654	510 000	114 600	850 000	191 000	3 200	23.30	51.4
QJ 240 N2MA	200	7.8740	360	14.1732	58	2.2835	540 000	121 300	915 000	205 600	3 000	28.50	62.8
QJ 248 N2MA	240	9.4488	440	17.3228	72	2.8346	650 000	146 100	1 200 000	269 700	2 400	53.20	117.3
QJ 252 N2MA	260	10.2362	480	18.8976	80	3.1496	728 000	163 600	1 430 000	321 300	2 200	68.00	149.9

Consult SKF USA Inc. prior to design change or order placement.

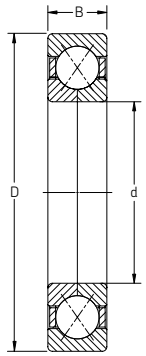
Single row
Four-point ACBB
SKF Explorer
Series: QJ 303 N2MA – QJ 313 MA
Size: 17 mm – 65 mm
0.6693 in – 2.5591 in



N2 Design

Designation	Principal dimensions						Basic load ratings				Speed rating	Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	kg	lb
QJ 303 N2MA	17	0.6693	47	1.8504	14	0.5512	23 400	5 260	15 000	3 370	28 000	0.14	0.3
QJ 304 MA	20	0.7874	52	2.0472	15	0.5906	32 000	7 190	21 600	4 850	24 000	0.18	0.4
QJ 304 N2MA	20	0.7874	52	2.0472	15	0.5906	32 000	7 190	21 600	4 850	24 000	0.18	0.4
QJ 305 MA	25	0.9843	62	2.4409	17	0.6693	42 500	9 550	30 000	6 740	20 000	0.29	0.6
QJ 305 N2MA	25	0.9843	62	2.4409	17	0.6693	42 500	9 550	30 000	6 740	20 000	0.29	0.6
QJ 306 MA	30	1.1811	72	2.8346	19	0.7480	53 000	11 910	41 500	9 330	17 000	0.42	0.9
QJ 306 N2MA	30	1.1811	72	2.8346	19	0.7480	53 000	11 910	41 500	9 330	17 000	0.42	0.9
QJ 307 MA	35	1.3780	80	3.1496	21	0.8268	64 000	14 380	51 000	11 460	15 000	0.57	1.3
QJ 307 N2MA	35	1.3780	80	3.1496	21	0.8268	64 000	14 380	51 000	11 460	15 000	0.57	1.3
QJ 308 MA	40	1.5748	90	3.5433	23	0.9055	78 000	17 530	64 000	14 380	14 000	0.78	1.7
QJ 308 N2MA	40	1.5748	90	3.5433	23	0.9055	78 000	17 530	64 000	14 380	14 000	0.78	1.7
QJ 309 MA	45	1.7717	100	3.9370	25	0.9843	100 000	22 470	83 000	18 650	12 000	1.05	2.3
QJ 309 N2MA	45	1.7717	100	3.9370	25	0.9843	100 000	22 470	83 000	18 650	12 000	1.05	2.3
QJ 310 MA	50	1.9685	110	4.3307	27	1.0630	118 000	26 520	100 000	22 470	11 000	1.35	3.0
QJ 311 MA	55	2.1654	120	4.7244	29	1.1417	137 000	30 790	118 000	26 520	10 000	1.75	3.9
QJ 311 N2MA	55	2.1654	120	4.7244	29	1.1417	137 000	30 790	118 000	26 520	10 000	1.75	3.9
QJ 312 MA	60	2.3622	130	5.1181	31	1.2205	156 000	35 060	137 000	30 790	9 000	2.15	4.7
QJ 312 N2MA	60	2.3622	130	5.1181	31	1.2205	156 000	35 060	137 000	30 790	9 000	2.15	4.7
QJ 313 MA	65	2.5591	140	5.5118	33	1.2992	176 000	39 550	156 000	35 060	8 500	2.70	6.0

Consult SKF USA Inc. prior to design change or order placement.





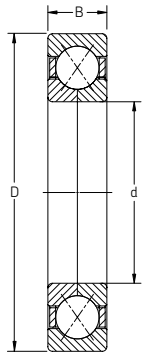
N2 Design

Single row
Four-point ACBB
Standard and SKF Explorer
Series: QJ 314 MA – QJ 344 N2MA
Size: 70 mm – 220 mm
2.7559 in – 8.6614 in

Designation	Principal dimensions						Basic load ratings				Speed rating	Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	kg	lb
QJ 314 MA	70	2.7559	150	5.9055	35	1.3780	200 000	44 940	180 000	40 450	8 000	3.15	6.9
QJ 314 N2MA	70	2.7559	150	5.9055	35	1.3780	200 000	44 940	180 000	40 450	8 000	3.15	6.9
QJ 315 N2MA	75	2.9528	160	6.2992	37	1.4567	216 000	48 540	200 000	44 940	7 500	3.90	8.6
QJ 316 N2MA	80	3.1496	170	6.6929	39	1.5354	232 000	52 100	228 000	51 200	7 000	4.60	10.1
QJ 317 N2MA	85	3.3465	180	7.0866	41	1.6142	250 000	56 200	255 000	57 300	6 700	5.45	12.0
QJ 318 N2MA	90	3.5433	190	7.4803	43	1.6929	285 000	64 000	305 000	68 500	6 300	6.45	14.2
QJ 319 N2MA	95	3.7402	200	7.8740	45	1.7717	305 000	68 500	340 000	76 400	6 000	7.45	16.4
QJ 320 N2MA	100	3.9370	215	8.4646	47	1.8504	345 000	77 500	400 000	89 900	5 600	9.30	20.5
QJ 322 N2MA	110	4.3307	240	9.4488	50	1.9685	390 000	87 600	480 000	107 900	4 800	12.50	27.6
QJ 324 N2MA	120	4.7244	260	10.2362	55	2.1654	415 000	93 300	530 000	119 100	4 500	16.00	35.3
QJ 326 N2MA	130	5.1181	280	11.0236	58	2.2835	455 000	102 200	610 000	137 100	4 000	19.50	43.0
QJ 328 N2MA	140	5.5118	300	11.8110	62	2.4409	500 000	112 400	695 000	156 200	3 800	24.00	52.9
QJ 330 N2MA	150	5.9055	320	12.5984	65	2.5591	530 000	119 100	765 000	171 900	3 600	29.00	63.9
QJ 332 N2MA	160	6.2992	340	13.3858	68	2.6772	570 000	128 100	880 000	197 800	3 400	34.50	76.1
QJ 334 N2MA	170	6.6929	360	14.1732	72	2.8346	655 000	147 200	1 040 000	233 700	3 200	41.50	91.5
QJ 336 N2MA	180	7.0866	380	14.9606	75	2.9528	680 000	152 800	1 100 000	247 200	3 000	47.50	104.7
QJ 338 N2MA	190	7.4803	400	15.7480	78	3.0709	702 000	157 800	1 159 999	260 700	2 800	49.00	108.0
QJ 344 N2MA	220	8.6614	460	18.1102	88	3.4646	780 000	175 300	1 399 999	314 600	2 400	78.00	172.0

Consult SKF USA Inc. prior to design change or order placement.

Single row
Four-point ACBB
Standard and SKF Explorer
Series: QJ 1017 N2MA – QJ 1096 N2MA
Size: 85 mm – 480 mm
3.3465 in – 18.8976 in

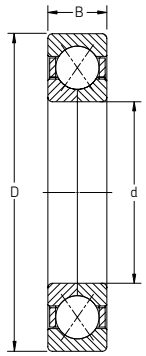




N2 Design

Designation	Principal dimensions						Basic load ratings				Speed rating	Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	kg	lb
QJ 1017 N2MA	85	3.3465	130	5.1181	22	0.8661	99 500	22 360	114 000	25 620	8 000	1.10	2.40
QJ 1021 N2MA	105	4.1339	160	6.2992	26	1.0236	135 000	30 340	170 000	38 200	6 700	2.00	4.40
QJ 1022 N2MA	110	4.3307	170	6.6929	28	1.1024	153 000	34 380	193 000	43 370	6 300	2.50	5.50
QJ 1030 N2MA	150	5.9055	225	8.8583	35	1.3780	242 000	54 400	335 000	75 300	4 500	5.25	11.60
QJ 1032 N2MA	160	6.2992	240	9.4488	38	1.4961	270 000	60 700	380 000	85 400	4 300	6.45	14.20
QJ 1038 N2MA	190	7.4803	290	11.4173	46	1.8110	364 000	81 800	560 000	125 800	3 400	11.50	25.40
QJ 1040 N2MA	200	7.8740	310	12.2047	51	2.0079	390 000	87 600	620 000	139 300	3 200	15.00	33.10
QJ 1056 N2MA	280	11.0236	420	16.5354	65	2.5591	585 000	131 500	1 139 999	256 200	2 400	33.50	73.90
QJ 1060 MA	300	11.8110	460	18.1102	74	2.9134	702 000	157 800	1 429 999	321 300	2 200	47.00	103.60
QJ 1060 N2MA	300	11.8110	460	18.1102	74	2.9134	650 000	146 100	1 340 000	301 100	2 200	47.50	104.70
QJ 1064 MA	320	12.5984	480	18.8976	74	2.9134	715 000	160 700	1 529 999	343 800	2 000	50.00	110.30
QJ 1064 N2MA	320	12.5984	480	18.8976	74	2.9134	715 000	160 700	1 530 000	343 800	2 000	50.00	110.30
QJ 1068 N2MA	340	13.3858	520	20.4724	82	3.2283	780 000	175 300	1 700 000	382 000	1 800	67.50	148.80
QJ 1072 N2MA	360	14.1732	540	21.2598	82	3.2283	852 000	191 500	1 930 000	433 700	1 700	70.50	155.50
QJ 1076 N2MA	380	14.9606	560	22.0472	82	3.2283	884 000	198 700	2 039 999	458 400	1 600	72.50	159.90
QJ 1080 N2MA	400	15.7480	600	23.6220	90	3.5433	904 000	203 100	2 160 000	485 400	1 500	95.00	209.50
QJ 1084 N2MA	420	16.5354	620	24.4094	90	3.5433	923 000	207 400	2 280 000	512 400	1 500	99.50	219.40
QJ 1088 N2MA	440	17.3228	650	25.5906	94	3.7008	995 000	223 600	2 500 000	561 800	1 400	115.00	253.60
QJ 1092 N2MA	460	18.1102	680	26.7717	100	3.9370	1 040 000	233 700	2 650 000	595 500	1 300	130.00	286.70
QJ 1096 N2MA	480	18.8976	700	27.5591	100	3.9370	1 060 000	238 200	2 799 999	629 200	1 300	135.00	297.70

Consult SKF USA Inc. prior to design change or order placement.





N2 Design

Single row
Four-point ACBB
Standard and SKF Explorer
Series: QJ 1096 N2MA – QJ 1296 N2MA
Size: 200 mm – 480 mm
7.8740 in – 18.8976 in

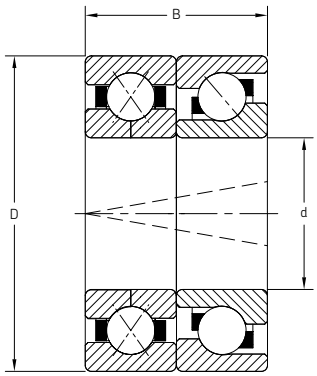
Series: QJ 1984 N2MA – QJ 1988 N2MA
Size: 420 mm – 440 mm
16.5354 in – 17.3228 in

Designation	Principal dimensions						Basic load ratings				Speed rating	Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	kg	lb
QJ 1240 N2MA	200	7.8740	360	14.1732	70	2.7559	520 000	116 900	865 000	194 400	3 000	32.50	71.70
QJ 1244 N2MA	220	8.6614	400	15.7480	78	3.0709	592 000	133 000	1 020 000	229 200	2 600	45.50	100.30
QJ 1248 MA/344524	240	9.4488	440	17.3228	85	3.3465	663 000	149 000	1 220 000	274 200	2 400	61.00	134.50
QJ 1252 MA	260	10.2362	480	18.8976	90	3.5433	741 000	166 500	1 460 000	328 100	2 200	78.50	173.10
QJ 1252 N2MA	260	10.2362	480	18.8976	90	3.5433	741 000	166 500	1 459 999	328 100	2 200	78.00	172.00
QJ 1256 N2MA	280	11.0236	500	19.6850	90	3.5433	728 000	163 600	1 460 000	328 100	2 000	82.00	180.80
QJ 1260 N2MA	300	11.8110	540	21.2598	98	3.8583	832 000	187 000	1 760 000	395 500	1 900	105.00	231.50
QJ 1264 N2MA	320	12.5984	580	22.8346	105	4.1339	956 000	214 800	2 080 000	467 400	1 700	130.00	286.70
QJ 1268 MA/344524	340	13.3858	620	24.4094	118	4.6457	1 060 000	238 200	2 450 000	550 600	1 600	165.00	363.80
QJ 1272 N2MA	360	14.1732	650	25.5906	122	4.8031	1 110 000	249 400	2 600 000	584 300	1 500	190.00	419.00
QJ 1276 N2MA	380	14.9606	680	26.7717	132	5.1969	1 170 000	262 900	2 850 000	640 400	1 400	220.00	485.10
QJ 1280 N2MA	400	15.7480	720	28.3465	140	5.5118	1 300 000	292 100	3 250 000	730 300	1 300	265.00	584.30
QJ 1284 N2MA	420	16.5354	760	29.9213	150	5.9055	1 430 000	321 300	3 750 000	842 700	1 300	315.00	694.60
QJ 1288 N2MA	440	17.3228	790	31.1024	155	6.1024	1 400 000	314 600	3 750 000	842 700	1 200	350.00	771.80
QJ 1292 N2MA	460	18.1102	830	32.6772	165	6.4961	1 530 000	343 800	4 250 000	955 100	1 100	415.00	915.10
QJ 1296 N2MA	480	18.8976	870	34.2520	170	6.6929	1 680 000	377 500	4 750 000	1 067 400	1 100	470.00	1036.40
QJ 1984 MA	420	16.5354	560	22.0472	65	2.5591	637 000	143 100	1 600 000	359 600	1 600	51.00	112.50
QJ 1988 N2MA	440	17.3228	600	23.6220	74	2.9134	761 000	171 000	1 900 000	427 000	1 500	65.00	143.30

Consult SKF USA Inc. prior to design change or order placement.

Thrust pack
Double row
Four-point ACBB and Single row ACBB
Standard
Series: BA2B 459304 – BA2B 459328
Size: 20 mm – 140 mm
0.7874 in – 5.5118 in

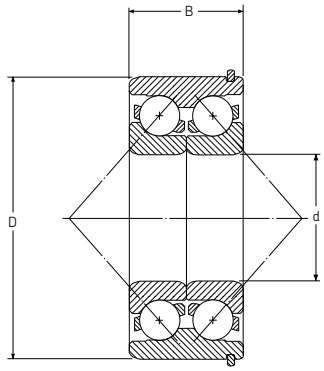
Series: BA2B 459418 – BA2B 459430
Size: 90 mm – 150 mm
3.5433 in – 5.9055 in



BA2B 4593XX

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
BA2B 459304	20	0.7874	52	2.0472	30	1.1811	30 700	6 900	20 800	4 680	9 000	13 000	0.28	0.62
BA2B 459306	30	1.1811	72	2.8346	38	1.4961	55 900	12 600	42 500	9 550	6 700	9 000	0.68	1.50
BA2B 459307	35	1.3780	80	3.1496	42	1.6535	62 400	14 000	49 000	11 000	6 000	8 000	0.90	2.00
BA2B 459308	40	1.5748	90	3.5433	46	1.8110	79 300	17 800	65 500	14 700	5 300	7 000	1.25	2.75
BA2B 459309	45	1.7717	100	3.9370	50	1.9685	97 500	21 900	81 500	18 300	4 800	6 300	1.70	3.75
BA2B 459310	50	1.9685	110	4.3307	54	2.1260	119 000	26 800	102 000	22 900	4 300	5 600	2.20	4.85
BA2B 459311	55	2.1654	120	4.7244	58	2.2835	138 000	31 000	120 000	27 000	3 800	5 000	2.80	6.15
BA2B 459312	60	2.3622	130	5.1181	62	2.4409	156 000	35 100	140 000	31 500	3 600	4 800	3.50	7.70
BA2B 459313	65	2.5591	140	5.5118	65	2.5984	174 000	39 100	160 000	36 000	3 200	4 300	4.30	9.50
BA2B 459314	70	2.7559	150	5.9055	70	2.7559	195 000	43 800	180 000	40 500	3 000	4 000	5.30	11.50
BA2B 459317	85	3.3465	180	7.0866	82	3.2283	251 000	56 400	265 000	59 600	2 400	3 400	8.90	19.50
BA2B 459318	90	3.5433	190	7.4803	86	3.3858	270 000	60 700	290 000	65 200	2 200	3 200	10.50	23.00
BA2B 459320	100	3.9370	215	8.4646	94	3.7008	325 000	73 100	380 000	85 400	1 900	2 800	15.00	33.00
BA2B 459322	110	4.3307	240	9.4488	100	3.9370	364 000	81 800	450 000	101 000	1 700	2 400	20.00	44.00
BA2B 459326	130	5.1181	280	11.0236	116	4.5669	403 000	90 600	540 000	121 000	1 500	2 000	35.00	77.00
BA2B 459328	140	5.5118	300	11.8110	124	4.8819	449 000	101 000	620 000	139 000	1 400	1 900	43.00	95.00
BA2B 459418	90	3.5433	160	6.2992	60	2.3622	178 000	40 000	193 000	43 400	2 600	3 600	4.60	10.00
BA2B 459420	100	3.9370	180	7.0866	68	2.6772	221 000	49 700	245 000	55 100	2 200	3 200	6.60	14.50
BA2B 459422	110	4.3307	200	7.8740	76	2.9921	260 000	58 500	310 000	69 700	1 900	2 800	9.20	20.50
BA2B 459424	120	4.7244	215	8.4646	80	3.1496	270 000	60 700	325 000	73 100	1 700	2 400	12.20	27.00
BA2B 459428	140	5.5118	250	9.8425	84	3.3071	296 000	66 500	390 000	87 700	1 600	2 200	17.70	39.00
BA2B 459430	150	5.9055	270	10.6299	90	3.5433	319 000	71 700	44 0000	98 900	1 500	2 000	23.00	50.50

Consult SKF USA Inc. prior to design change or order placement.

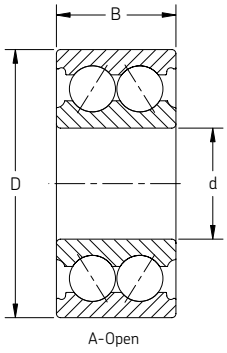


Double row, 40° contact angle
Standard
Series: 3308 DNRCBM – 3313 DNRCBM
Size: 40 mm – 65 mm
1.5748 in – 2.5591 in

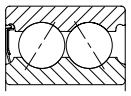
Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
3308 DNRCBM	40	1.5748	90	3.5433	36.5	1.4370	49 400	11 100	41 500	9 330	6 700	7 000	1.20	2.60
3309 DNRCBM	45	1.7716	100	3.9370	39.7	1.5630	61 800	13 890	52 000	11 690	6 000	6 300	1.50	3.30
3310 DNRCBM	50	1.9685	110	4.3307	44.4	1.7480	81 900	18 400	69 500	15 620	5 300	5 600	1.95	4.30
3311 DNRCBM	55	2.1653	120	4.7244	49.2	1.9370	95 600	21 480	83 000	18 650	5 000	5 300	2.55	5.60
3313 DNRCBM	65	2.5591	140	5.5118	58.7	2.3110	138 000	31 010	122 000	27 420	4 300	4 500	4.00	8.80

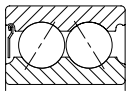
Consult SKF USA Inc. prior to design change or order placement.

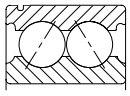
Double row, 30° contact angle
Conrad
Open, sealed, shielded and snap ring
Standard and SKF Explorer
Series: 3200 A – 3220 A
Size: 10 mm – 100 mm
0.3937 in – 3.9370 in

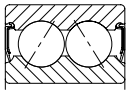


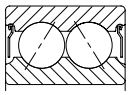
A-Open

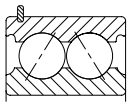

A-RS1


A-Z


A-N


A-2RS1


A-2Z

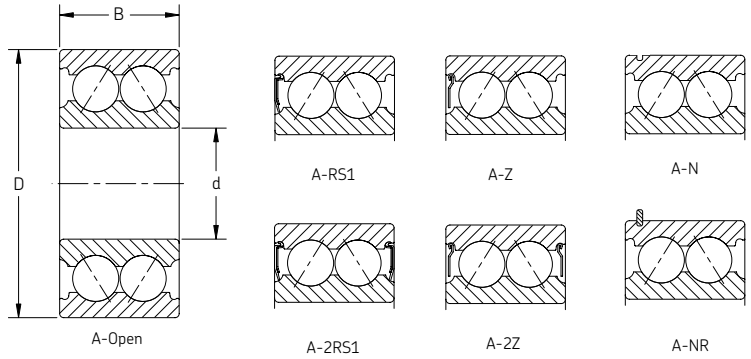

A-NR

Designation	Principal dimensions						Basic load ratings				Speed rating			Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed	Sealed imiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	r/min	kg	lb
3200 A	10	0.3937	30	1.1811	14.0	0.5625	7 610	1 700	4 300	1 000	22 000	24 000	17 000	0.05	0.11
3201 A	12	0.4724	32	1.2598	15.9	0.6250	10 100	2 300	5 600	1 300	20 000	22 000	15 000	0.06	0.13
3202 A	15	0.5906	35	1.3780	15.9	0.6250	11 200	2 500	6 800	1 500	17 000	18 000	14 000	0.07	0.15
3203 A	17	0.6693	40	1.5748	17.5	0.6875	14 300	3 200	8 800	2 000	15 000	16 000	12 000	0.10	0.21
3204 A	20	0.7874	47	1.8504	20.6	0.8125	20 000	4 500	12 000	2 700	14 000	14 000	10 000	0.16	0.35
3205 A	25	0.9843	52	2.0472	20.6	0.8125	21 600	4 900	14 300	3 200	12 000	12 000	8 500	0.19	0.42
3206 A	30	1.1811	62	2.4409	23.8	0.9375	30 000	6 700	20 400	4 600	10 000	10 000	7 500	0.29	0.64
3207 A	35	1.3780	72	2.8346	27.0	1.0625	40 000	9 000	28 000	6 300	9 000	9 000	6 300	0.40	0.88
3208 A	40	1.5748	80	3.1496	30.2	1.1875	47 500	10 700	34 000	7 600	8 000	8 000	5 600	0.58	1.28
3209 A	45	1.7717	85	3.3465	30.2	1.1875	51 000	11 500	39 000	8 800	7 500	7 500	5 300	0.64	1.41
3210 A	50	1.9685	90	3.5433	30.2	1.1875	51 000	11 500	39 000	8 800	7 000	7 000	4 800	0.66	1.46
3211 A	55	2.1654	100	3.9370	33.3	1.3125	60 000	13 500	47 500	10 700	6 300	6 300	4 500	1.05	2.31
3212 A	60	2.3622	110	4.3307	36.5	1.4375	73 500	16 500	58 500	13 200	5 600	5 600	4 000	1.40	3.09
3213 A	65	2.5591	120	4.7244	38.1	1.5000	80 600	18 100	73 500	16 500	4 500	4 800	3 600	1.75	3.86
3214 A	70	2.7559	125	4.9213	39.7	1.5625	88 400	19 900	80 000	18 000	4 300	4 500	–	1.90	4.19
3215 A	75	2.9528	130	5.1181	41.3	1.6250	95 600	21 500	88 000	19 800	4 300	4 500	3 200	2.10	4.63
3216 A	80	3.1496	140	5.5118	44.4	1.7500	106 000	23 800	95 000	21 400	4 000	4 300	3 000	2.65	5.84
3217 A	85	3.3465	150	5.9055	49.2	1.9375	124 000	27 900	110 000	24 700	3 600	3 800	–	3.40	7.50
3218 A	90	3.5433	160	6.2992	52.4	2.0625	130 000	29 200	120 000	27 000	3 400	3 600	–	4.15	9.15
3219 A	95	3.7402	170	6.6929	55.6	2.1875	159 000	35 700	146 000	32 800	3 200	3 400	–	5.00	11.02
3220 A	100	3.9370	180	7.0866	60.3	2.3750	178 000	40 000	166 000	37 300	3 000	3 200	–	6.10	13.45

Note: The 5200/5300 series DRACBB have been replaced with the 3200/3300 series designation.
The product design has not changed; therefore, the fit, form and function remain the same.

Consult SKF USA Inc. prior to design change or order placement.

Double row, 30° contact angle
Conrad
Open, sealed, shielded and snap ring
Standard and SKF Explorer
Series: 3302 A – 3322 A
Size: 15 mm – 110 mm
0.5905 in – 4.3307 in



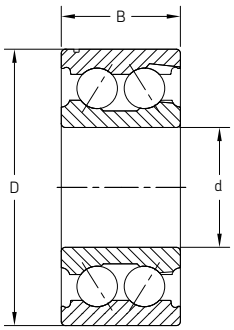
Designation	Principal dimensions						Basic load ratings				Speed rating			Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed	Sealed imiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	r/min	kg	lb
3302 A	15	0.5905	42	1.6535	19	0.7480	15 100	3 390	9 300	2 090	15 000	16 000	12 000	0.13	0.3
3303 A	17	0.6692	47	1.8504	22.2	0.8740	21 600	4 850	12 700	2 850	14 000	14 000	11 000	0.18	0.4
3304 A	20	0.7874	52	2.0472	22.2	0.8740	23 600	5 300	14 600	3 280	13 000	13 000	9 000	0.22	0.5
3305 A	25	0.9842	62	2.4409	25.4	1.0000	32 000	7 190	20 400	4 580	11 000	11 000	7 500	0.35	0.8
3306 A	30	1.1811	72	2.8346	30.2	1.1890	42 500	9 550	30 000	6 740	9 000	9 000	6 300	0.52	1.1
3307 A	35	1.3779	80	3.1496	34.9	1.3740	52 000	11 690	35 500	7 980	8 500	8 500	6 000	0.73	1.6
3308 A	40	1.5748	90	3.5433	36.5	1.4370	64 000	14 380	44 000	9 890	7 500	7 500	5 000	0.93	2.1
3309 A	45	1.7716	100	3.9370	39.7	1.5630	75 000	16 850	53 000	11 910	6 700	6 700	4 800	1.25	2.8
3310 A	50	1.9685	110	4.3307	44.4	1.7480	90 000	20 220	64 000	14 380	6 000	6 000	4 300	1.70	3.7
3311 A	55	2.1653	120	4.7244	49.2	1.9370	112 000	25 170	81 500	18 310	5 300	5 300	–	2.65	5.8
3312 A	60	2.3622	130	5.1181	54	2.1260	127 000	28 540	95 000	21 350	5 000	5 000	–	2.80	6.2
3313 A	65	2.5590	140	5.5118	58.7	2.3110	146 000	32 810	110 000	24 720	4 500	4 500	–	4.10	9.0
3314 A	70	2.7559	150	5.9055	63.5	2.5000	163 000	36 630	125 000	28 090	4 300	4 300	–	5.05	11.1
3315 A	75	2.9527	160	6.2992	68.3	2.6890	176 000	39 550	140 000	31 460	4 000	4 000	–	5.55	12.2
3316 A	80	3.1496	170	6.6929	68.3	2.6890	193 000	43 370	156 000	35 060	3 800	3 800	–	6.80	15.0
3317 A	85	3.3464	180	7.0866	73	2.8740	208 000	46 740	176 000	39 550	3 600	3 600	–	8.30	18.3
3318 A	90	3.5433	190	7.4803	73	2.8740	208 000	46 740	180 000	40 450	3 400	3 400	–	9.25	20.4
3319 A	95	3.7401	200	7.8740	77.8	3.0630	240 000	53 900	216 000	48 540	3 200	3 200	–	11.00	24.3
3320 A	100	3.9370	215	8.4646	82.6	3.2520	255 000	57 300	255 000	57 300	2 600	2 800	–	13.50	29.8
3322 A	110	4.3307	240	9.4488	92.1	3.6260	291 000	65 400	305 000	68 500	2 400	2 600	–	19.00	41.9

Note: The 5200/5300 series DRACBB have been replaced with the 3200/3300 series designation. The product design has not changed; therefore, the fit, form and function remain the same. The "AH" features have been incorporated into the standard design, and that suffix has been eliminated.

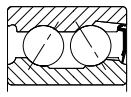
Consult SKF USA Inc. prior to design change or order placement.

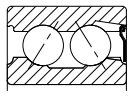
Double row, 30° contact angle
Max type
Open, sealed, shielded and snap ring
Standard
Series: 3205 E – 3218 E
Size: 25 mm – 90 mm
0.9843 in – 3.5433 in

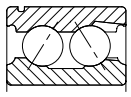
Series: 3305 E – 3316 E
Size: 25 mm – 80 mm
0.9843 in – 3.1496 in

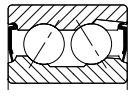


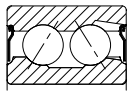
E-Open

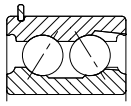

E-RS1


E-Z


E-N


E-2RS1


E-2Z


E-NR

Designation	Principal dimensions						Basic load ratings				Speed rating			Mass	
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed	Sealed imiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	r/min	kg	lb
3205 E	25	0.9843	52	2.0472	20.6	0.8125	22 900	5 150	21 200	4 770	11 000	12 000	8 500	0.25	0.55
3206 E	30	1.1811	62	2.4409	23.8	0.9375	30 300	6 810	28 000	6 290	9 500	10 000	7 500	0.35	0.8
3207 E	35	1.378	72	2.8346	27	1.0625	39 100	8 790	36 500	8 210	8 000	8 500	6 300	0.54	1.2
3208 E	40	1.5748	80	3.1496	30.2	1.1875	49 500	11 130	49 000	11 020	7 500	8 000	5 600	0.73	1.6
3209 E	45	1.7717	85	3.3465	30.2	1.1875	51 200	11 510	54 000	12 140	6 700	7 000	5 300	0.77	1.7
3210 E	50	1.9685	90	3.5433	30.2	1.1875	53 900	12 120	58 500	13 150	6 300	6 700	4 800	0.82	1.8
3211 E	55	2.1654	100	3.937	33.3	1.3125	66 000	14 840	76 500	17 200	5 600	6 000	4 500	1.15	2.5
3212 E	60	2.3622	110	4.3307	36.5	1.4375	78 100	17 560	88 000	19 780	5 000	5 300	4 000	1.5	3.3
3213 E	65	2.5591	120	4.7244	38.1	1.5	88 000	19 780	106 000	23 800	4 800	5 000	3 600	1.95	4.3
3214 E	70	2.7559	125	4.9213	39.7	1.5625	101 000	22 700	125 000	28 100	4 500	4 800	3 200	2.15	4.7
3215 E	75	2.9528	130	5.1181	41.3	1.625	108 000	24 300	137 000	30 800	4 300	4 500	3 000	2.5	5.5
3216 E	80	3.1496	140	5.5118	44.4	1.75	128 000	28 800	160 000	36 000	4 000	4 000	–	3	6.6
3217 E	85	3.3465	150	5.9055	49.2	1.9375	142 000	31 900	176 000	39 600	3 600	3 800	–	3.7	8.16
3218 E	90	3.5433	160	6.2992	52.4	2.0625	151 000	33 900	193 000	43 400	3 400	3 600	–	4.55	10
3305 E	25	0.9843	62	2.4409	25.4	1	34 100	7 670	30 500	6 860	10 000	10 000	7 500	0.39	0.9
3306 E	30	1.1811	72	2.8346	30.2	1.1875	46 800	10 520	43 000	9 670	8 500	9 000	6 300	0.59	1.3
3307 E	35	1.378	80	3.1496	34.9	1.375	52 300	11 760	48 000	10 790	7 500	8 000	6 000	0.86	1.9
3308 E	40	1.5748	90	3.5433	36.5	1.4375	67 100	15 080	65 500	14 720	6 700	7 000	5 000	1.15	2.5
3309 E	45	1.7717	100	3.937	39.7	1.5625	80 900	18 190	80 000	17 980	6 000	6 300	4 800	1.5	3.3
3310 E	50	1.9685	110	4.3307	44.4	1.75	95 200	21 400	95 000	21 360	5 300	5 600	–	2	4.4
3311 E	55	2.1654	120	4.7244	49.2	1.9375	119 000	26 800	122 000	27 400	5 000	5 300	–	2.65	5.8
3312 E	60	2.3622	130	5.1181	54	2.125	134 000	30 100	143 000	32 100	4 500	4 800	–	3.3	7.3
3313 E	65	2.5591	140	5.5118	58.7	2.3125	182 000	40 900	163 000	36 600	4 300	4 500	–	4.2	9.3
3314 E	70	2.7559	150	5.9055	63.5	2.5	172 000	38 700	186 000	41 800	4 000	4 300	–	5	11
3315 E	75	2.9528	160	6.2992	68.3	2.6875	187 000	42 000	208 000	46 800	3 600	3 800	–	6.35	14
3316 E	80	3.1496	170	6.6929	68.3	2.6875	201 000	45 200	236 000	53 100	3 400	3 600	–	7.25	16

Note: The 5200/5300 series DRACBB have been replaced with the 3200/3300 series designation.
The product design has not changed; therefore, the fit, form and function remain the same.

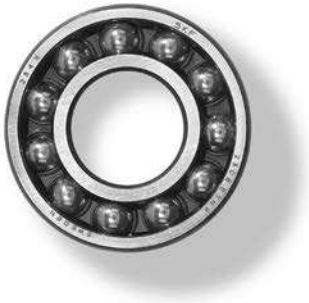
Consult SKF USA Inc. prior to design change or order placement.

Notes

Notes

Notes

Notes



Self-aligning ball bearings

1220 _ K M C3 W64

1 – 2 – 3 – 4 – 5

1. Internal design:

–	Standard internal design
E	Optimized internal design

2. Variations:

K	Bearing with 1 to 12 tapered bore
2RS1	Contact seal of acrylonitrile butadine rubber (NBR) with sheet steel backing on both sides of bearing

3. Cage designs:

TN9	Injection molded polyamide PA66 cage with glass fiber reinforcement
M	Machined brass cage
–	Pressed steel cage (standard)
TN	Injection molded polyamide PA66 cage

4. Clearance:

C2	Radial internal clearance < Normal
(C0)*	Normal radial internal clearance
C3	Radial internal clearance > Normal
C4	Radial internal clearance > C3

*Not marked on bearing or package

5. Lubrication:

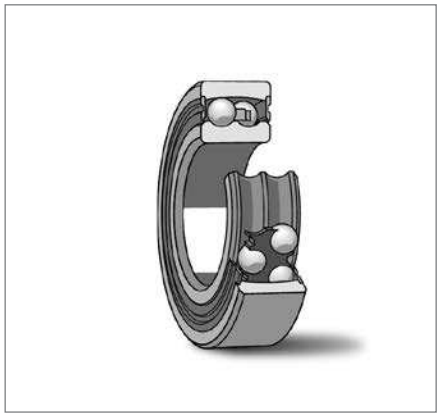
W64	Solid Oil lubricants

Technical features

Boundary dimensions	In accordance with ISO 15	
Tolerances	ABEC 1, ISO 492	
Max. temperature	248° F (120° C) for open bearings only	
Misalignment	Series 108, 126, 127, 129, 135	3.0 degrees
	Series 12 (E)	2.5 degrees
	Series 13 (E)	3.0 degrees
	Series 22 (E)	2.5 degrees
	Series 22 E-2RS1	1.5 degrees
	Series 23 (E)	3.0 degrees
	Series 23 E-2RS1	1.5 degrees
	Series 112 (E)	2.5 degrees
	Series 130, 139	3.0 degrees
Cage material		
Standard	Polyamide (TN) Glass fiber reinforced polyamide (TN9)	
Optional	Machined brass (M) for large bearings	
Axial load – max for adapter sleeve mounting	F_{ap} = 3 x B x d where B = bearing width in mm d = bearing bore in mm F_{ap} = axial load in Newtons	
Seals	2RS1 synthetic rubber (NBR) seals	
Grease	Lithium soap with mineral oil	



Self-aligning ball bearing (open design) (data tables on page 96)



Self-aligning ball bearing (sealed design) (data tables on page 100)

Introduction

Self-aligning ball bearings have two rows of balls with a common sphered raceway in the outer ring. This feature gives the bearings their self-aligning property, permitting angular misalignment of the shaft relative to the housing. Therefore, they are particularly suitable for applications where misalignment can arise from errors in mounting or from shaft deflection.

For applications where the load carrying capacity of self-aligning ball bearings is insufficient; spherical roller bearings, which have the same self-aligning property, should be used.

SKF self-aligning ball bearings of the E design have higher load carrying capacity than bearings of the original standard design because of improvements to the internal design. This makes them suitable for a wider range of applications than their predecessors; i.e., the same size of bearing can be used to carry heavier loads, or if the loads remain the same, operational reliability is enhanced and bearing life is longer. Self-aligning ball bearings of the E design are fitted with a glass fiber reinforced polyamide PA66 cage (TN9) as standard.

SKF self-aligning ball bearings are available in several designs of which the most common are shown in this catalog:

- Basic open (unsealed) design bearings
- Bearings with seals on both sides

Basic design

Self-aligning ball bearings of the basic design are available with a cylindrical bore as well as with a tapered bore (taper 1:12).

For self-aligning ball bearings with a tapered bore, SKF supplies appropriate adapter sleeves with which the bearings can be secured simply and rapidly to smooth or stepped shafts. The adapter sleeves are supplied complete with nut and locking device. Additional information can be found in the Split Pillow Block sections (inch and metric) under "Mounted Accessories".

Variations

Sealed bearings

SKF self-aligning ball bearings are also available in a sealed (2RS1) version with rubbing seals on both sides. The seals are made of oil and acrylonitrile butadiene rubber (NBR) and have a sheet steel reinforcement. The operating temperature range for the seal material is -40° to +248° F (-40° to +120° C). The outside diameter of the seal is retained in a recess in the outer ring giving a tight seal without deformation, while the lip of the seal exerts a slight pressure against a recess in the inner ring shoulder.

The sealed bearings are supplied as standard filled with a lithium base grease which is suitable for the operating temperature range -22° to +230° F (-30° to +110° C). The bearings are lubricated for life and are maintenance free. **They should not be heated at temperatures greater than 250° F (120° C) prior to mounting and must on no account be washed.**

SKF self-aligning ball bearings with seals are available with a cylindrical bore or with a tapered bore, the taper being 1:12 as for the basic bearings.

Special solutions for bearings with extended inner ring

Self-aligning ball bearings with extended inner ring (series 11200) are used for applications employing commercial ground shafting. The special bore tolerance of these bearings allows easy mounting and dismounting.

Self-aligning ball bearings with extended inner ring are located axially by pins or shouldered screws which engage in a slot at one side of the inner ring. The pins or screws also prevent the inner ring from turning on the shaft. When these bearings are used in pairs, the slots of the inner rings must either be adjacent or at the outboard positions. Otherwise, the shaft will be located in one direction only.

Details on these special solution products are available in other SKF publications, which can be supplied upon request.

Product highlights

Optimum performance

SKF self-aligning ball bearings have been designed to provide optimum performance in a wide range of machinery and equipment applications. They are particularly suitable for applications where misalignment can arise from errors in shaft and housing alignment or shaft deflection and where high speed is a requirement.

Capacity for resistance-free, self-alignment

In the event of minor angular misalignment, the problems which beset many other bearing types do not occur – allowing for increased operational life, lower friction and temperature, less wear and noise during operation, and reduced stress on both the cages and lubricants.

Sealed bearings – greased for life

SKF self-aligning ball bearings are available with contact seals on both sides which protect the bearing from contaminants during handling and operation. This allows for longer bearing service life, is environmentally friendly, and requires no relubrication – making the bearing maintenance free.

Large product assortment

Available in a wide range (5 to 130 mm bore diameter), the basic SKF design is available with a choice of seals, cage materials, and extended inner rings.

Application flexibility

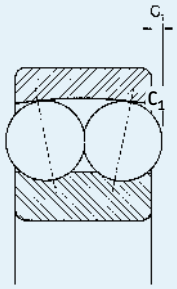
Self-aligning bearings are used in high speed applications where alignments may be a problem and running accuracy is required. Examples include fans and blowers, textile equipment and general conveyor equipment.

Introduction

Special feature

Self-aligning ball bearings of series 12 (K) and 13 (K) have balls which protrude somewhat from the bearing; the actual values are given in the adjacent table. This should be remembered when designing adjacent components.

Protrusion of balls from bearing side faces



Bearing	Protrusion C1	
	mm	in
1224(K)	1.3	0.0512
1226	1.4	0.0551
1318(K)	1.1	0.0433
1319(K)	1.5	0.0591
1320(K)	2.5	0.0984
1322(K)	2.6	0.1024

Clearance

Radial internal clearance

SKF self-aligning ball bearings are produced with Normal radial internal clearance (CN or C0, not marked on bearing) as standard. Radial clearance selection is based on factors such as high speed, operating temperature, shaft fits and axial movement limitations. Bearings with a tapered bore are normally supplied with a C3 radial internal clearance (marked on the bearing). Bearings having clearances that are greater than (C3 or C4) or less than (C2) Normal are available on request.

The clearance values are given in **Table 1**. They are valid for unmounted bearings without measuring load, and conform to ISO 5753-1991.

Loads

Equivalent dynamic bearing loads

$P = F_r + Y_1 F_a$ where $F_a / F_r \leq e$
$P = 0.65\ F_r + Y_2\ F_a$ when $F_a / F_r > e$

Values of factors e, Y_1 and Y_2 for each individual bearing are given in the bearing **Table 2**, page 96.

Minimum load

In order to provide satisfactory operation of all ball and roller bearings they must always be subjected to a given minimum load. This is also true of self-aligning ball bearings, particularly if they run at high speeds where the inertia forces of the balls and cage, and the friction in the lubricant can have a detrimental influence on the rolling conditions in the bearing and may cause damaging sliding movements to occur between the balls and the raceways.

The requisite minimum radial load to be applied in such cases can be determined by using the Interactive Engineering catalog on the SKF website www.skf.com or by contacting SKF Applications Engineering. However, the weight of the components supported by the bearing, together with the external forces, often exceeds the requisite minimum load. If this is not the case, an additional radial load must be applied to the bearing; for example, by increasing belt tension or similar means.

Mounting bearings with tapered bore

Bearings with a tapered bore are always mounted with an interference fit on the shaft, adapter sleeve or withdrawal sleeve. As a measure of the degree of interference of the fit, either the reduction in radial internal clearance of the bearing or the axial displacement of the inner ring on the tapered bearing seating can be used.

The mounting of self-aligning ball bearings with tapered bore calls for experience and skill as they have a relatively small internal clearance, and a reliable measurement of the clearance reduction is not always possible. There are specific mounting instructions for these bearings in the SKF Bearing Installation and Maintenance Guide (140-710) or by visiting the SKF website www.skf.com/mount for exact mounting instructions.

Frequency vibration data

Frequency vibration data is available on the SKF website **skfusa.com.** Select Engineering Tools under the Support menu. Or contact SKF Applications Engineering.

Table 1

Radial internal clearance of self-aligning ball bearings

Bore diameter d		Radial internal clearance															
		C2				Normal				C3				C4			
over	incl.	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
mm		µm		in		µm		in		µm		in		µm		in	
Bearings with cylindrical bore																	
2.5	**6**	1	8	0.0000	0.0003	5	15	0.0002	0.0006	10	20	0.0004	0.0008	15	25	0.0006	0.0010
6	**10**	2	9	0.0001	0.0004	6	17	0.0002	0.0007	12	25	0.0005	0.0010	19	33	0.0007	0.0013
10	**14**	2	10	0.0001	0.0004	6	19	0.0002	0.0007	13	26	0.0005	0.0010	21	35	0.0008	0.0014
14	**18**	3	12	0.0001	0.0005	8	21	0.0003	0.0008	15	28	0.0006	0.0011	23	37	0.0009	0.0015
18	**24**	4	14	0.0002	0.0006	10	23	0.0004	0.0009	17	30	0.0007	0.0012	25	39	0.0010	0.0015
24	**30**	5	16	0.0002	0.0006	11	24	0.0004	0.0009	19	35	0.0007	0.0014	29	46	0.0011	0.0018
30	**40**	6	18	0.0002	0.0007	13	29	0.0005	0.0011	23	40	0.0009	0.0016	34	53	0.0013	0.0021
40	**50**	6	19	0.0002	0.0007	14	31	0.0006	0.0012	25	44	0.0010	0.0017	37	57	0.0015	0.0022
50	**65**	7	21	0.0003	0.0008	16	36	0.0006	0.0014	30	50	0.0012	0.0020	45	69	0.0018	0.0027
65	**80**	8	24	0.0003	0.0009	18	40	0.0007	0.0016	35	60	0.0014	0.0024	54	83	0.0021	0.0033
80	**100**	9	27	0.0004	0.0011	22	48	0.0009	0.0019	42	70	0.0017	0.0028	64	96	0.0025	0.0038
100	**120**	10	31	0.0004	0.0012	25	56	0.0010	0.0022	50	83	0.0020	0.0033	75	114	0.0030	0.0045
120	**140**	10	38	0.0004	0.0015	30	68	0.0012	0.0027	60	100	0.0024	0.0039	90	135	0.0035	0.0053
Bearings with tapered bore																	
18	**24**	7	17	0.0003	0.0007	13	26	0.0005	0.0010	20	33	0.0008	0.0013	28	42	0.0011	0.0017
24	**30**	9	20	0.0004	0.0008	15	28	0.0006	0.0011	23	39	0.0009	0.0015	33	50	0.0013	0.0020
30	**40**	12	24	0.0005	0.0009	19	35	0.0007	0.0014	29	46	0.0011	0.0018	40	59	0.0016	0.0023
40	**50**	14	27	0.0006	0.0011	22	39	0.0009	0.0015	33	52	0.0013	0.0020	45	65	0.0018	0.0026
50	**65**	18	32	0.0007	0.0013	27	47	0.0011	0.0019	41	61	0.0016	0.0024	56	80	0.0022	0.0031
65	**80**	23	39	0.0009	0.0015	35	57	0.0014	0.0022	50	75	0.0020	0.0030	69	98	0.0027	0.0039
80	**100**	29	47	0.0011	0.0019	42	68	0.0017	0.0027	62	90	0.0024	0.0035	84	116	0.0033	0.0046
100	**120**	35	56	0.0014	0.0022	50	81	0.0020	0.0032	75	108	0.0030	0.0043	100	139	0.0039	0.0055

Table 2

Calculation factors for self-aligning ball bearings

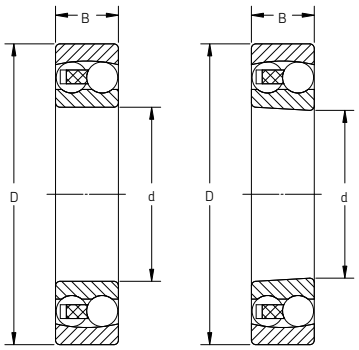
Designation	Calculation factors		
Bearings with cylindrical bore	e	Y1	Y2
126	0.33	1.9	3.0
127	0.33	1.9	3.0
129	0.33	1.9	3.0
1200 E	0.33	1.9	3.0
1201 E	0.33	1.9	3.0
1202 E	0.33	1.9	3.0
1203 E	0.31	2.0	3.1
1204 E	0.30	2.1	3.3
1205 E	0.28	2.2	3.5
1206 E	0.25	2.5	3.9
1207 E	0.23	2.7	4.2
1208 E	0.22	2.9	4.5
1209 E	0.21	3.0	4.6
1210 E	0.21	3.0	4.6
1211 E	0.19	3.3	5.1
1212 E	0.19	3.3	5.1
1213 E	0.18	3.5	5.4
1214 E	0.18	3.5	5.4
1215	0.17	3.7	5.7
1216	0.16	3.9	6.1
1217	0.17	3.7	5.7
1218	0.17	3.7	5.7
1219	0.17	3.7	5.7
1220	0.17	3.7	5.7
1221	0.17	3.7	5.7
1222	0.17	3.7	5.7
1224	0.19	3.3	5.1
1226	0.19	3.3	5.1
135	0.33	1.9	3.0
1301 E	0.35	1.8	2.8
1302 E	0.31	2.0	3.1
1303 E	0.30	2.1	3.3
1304 E	0.28	2.2	3.5
1305 E	0.28	2.2	3.5
1306 E	0.25	2.5	3.9
1307 E	0.25	2.5	3.9
1308 E	0.23	2.7	4.2
1309 E	0.23	2.7	4.2
1310 E	0.24	2.6	4.1
1311 E	0.23	2.7	4.2
1312 E	0.22	2.9	4.5
1313 E	0.22	2.9	4.5
1314	0.22	2.9	4.5
1315	0.22	2.9	4.5
1316	0.22	2.9	4.5
1317	0.22	2.9	4.5
1318	0.22	2.9	4.5
1319	0.23	2.7	4.2
1320	0.23	2.7	4.2
1322	0.22	2.9	4.5

Table 2

Calculation factors for self-aligning ball bearings

Designation	Calculation factors		
Bearings with cylindrical bore	e	Y1	Y2
1412	0.33	1.90	3.0
2200 E	0.54	1.15	1.8
2201 E	0.50	1.25	2.0
2202 E	0.43	1.50	2.3
2203 E	0.43	1.50	2.3
2204 E	0.40	1.60	2.4
2205 E	0.35	1.80	2.8
2206 E	0.33	1.90	3.0
2207 E	0.31	2.00	3.1
2208 E	0.28	2.20	3.5
2209 E	0.26	2.40	3.7
2210 E	0.23	2.70	4.2
2211 E	0.23	2.70	4.2
2212 E	0.24	2.60	4.1
2213 E	0.24	2.60	4.1
2214	0.27	2.30	3.6
2215 E	0.22	2.90	4.5
2216 E	0.22	2.90	4.5
2217	0.25	2.50	3.9
2218	0.27	2.30	3.6
2219	0.27	2.30	3.6
2220	0.27	2.30	3.6
2221	0.28	2.20	3.5
2222	0.28	2.20	3.5
2301	0.60	1.05	1.6
2302	0.52	1.20	1.9
2303	0.52	1.20	1.9
2304	0.52	1.20	1.9
2305 E	0.44	1.40	2.2
2306	0.44	1.40	2.2
2307 E	0.46	1.35	2.1
2308 E	0.40	1.60	2.4
2309 E	0.33	1.90	3.0
2310	0.43	1.50	2.3
2311	0.40	1.60	2.4
2312	0.33	1.90	3.0
2313	0.37	1.70	2.6
2314	0.37	1.70	2.6
2315	0.37	1.70	2.6
2316	0.37	1.70	2.6
2317	0.37	1.70	2.6
2318	0.37	1.70	2.6
2319	0.37	1.70	2.6
2320	0.37	1.70	2.6
2322	0.37	1.70	2.6

Double row
Open, cylindrical and tapered bore
Series: 126 – 1226 M
Size: 6 mm – 130 mm
0.2362 in – 5.1181 in

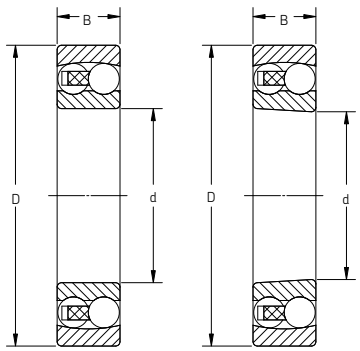


Cylindrical bore Tapered bore

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Designation		Mass	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed			Tapered bore	Adapter sleeve		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb			kg	lb
126	6	0.2362	19	0.7480	6	0.2362	2 510	560	480	110	70 000	45 000	0.01	0.02	–	–	–	–
127	7	0.2756	22	0.8661	7	0.2756	2 650	600	560	130	63 000	40 000	0.01	0.03	–	–	–	–
108	8	0.3150	22	0.8661	7	0.2756	2 650	600	560	130	60 000	40 000	0.01	0.03	–	–	–	–
129	9	0.3543	26	1.0236	8	0.3150	3 900	880	820	180	60 000	38 000	0.02	0.05	–	–	–	–
1200 E	10	0.3937	30	1.1811	9	0.3543	5 530	1 240	1 180	270	56 000	36 000	0.03	0.07	–	–	–	–
1201 E	12	0.4724	32	1.2598	10	0.3937	6 240	1 400	1 430	320	50 000	32 000	0.04	0.09	–	–	–	–
1202 E	15	0.5906	35	1.3780	11	0.4331	7 410	1 670	1 760	400	45 000	28 000	0.05	0.11	–	–	–	–
1203 E	17	0.6693	40	1.5748	12	0.4724	8 840	1 990	2 200	490	38 000	24 000	0.07	0.16	–	–	–	–
1204 E	20	0.7874	47	1.8504	14	0.5512	12 700	2 850	3 400	760	32 000	20 000	0.12	0.26	1204 EK	H 204	0.0	0.1
1205 E	25	0.9843	52	2.0472	15	0.5906	14 300	3 210	4 000	900	28 000	18 000	0.14	0.31	1205 EK	H 205	0.1	0.1
1206 E	30	1.1811	62	2.4409	16	0.6299	15 600	3 510	4 650	1 040	24 000	15 000	0.22	0.49	1206 EK	H 206	0.1	0.2
1207 E	35	1.3780	72	2.8346	17	0.6693	19 000	4 270	6 000	1 350	20 000	13 000	0.32	0.71	1207 EK	H 207	0.1	0.3
1208 E	40	1.5748	80	3.1496	18	0.7087	19 900	4 470	6 950	1 560	18 000	11 000	0.42	0.93	1208 EK	H 208	0.2	0.3
1209 E	45	1.7717	85	3.3465	19	0.7480	22 900	5 150	7 800	1 750	17 000	11 000	0.47	1.04	1209 EK	H 209	0.2	0.4
1210 E	50	1.9685	90	3.5433	20	0.7874	26 500	5 960	9 150	2 060	16 000	10 000	0.53	1.17	1210 EK	H 210	0.2	0.5
1211 E	55	2.1654	100	3.9370	21	0.8268	27 600	6 200	10 600	2 380	14 000	9 000	0.71	1.57	1211 EK	H 211	0.3	0.6
1212 E	60	2.3622	110	4.3307	22	0.8661	31 200	7 010	12 200	2 740	12 000	8 500	0.90	1.98	1212 EK	H 212	0.3	0.7
1213 E	65	2.5591	120	4.7244	23	0.9055	35 100	7 890	14 000	3 150	11 000	7 000	1.15	2.54	1213 EK	H 213	0.4	0.8
1214 E	70	2.7559	125	4.9213	24	0.9449	35 800	8 040	14 600	3 280	11 000	7 000	1.25	2.76	–	–	–	–
1215	75	2.9528	130	5.1181	25	0.9843	39 000	8 760	15 600	3 510	10 000	6 700	1.35	2.98	1215 K	H 215	0.7	1.5
1216	80	3.1496	140	5.5118	26	1.0236	39 700	8 920	17 000	3 820	9 500	6 000	1.65	3.64	1216 K	H 216	0.8	1.8
1217	85	3.3465	150	5.9055	28	1.1024	48 800	10 970	20 800	4 670	9 000	5 600	2.05	4.52	1217 K	H 217	1.0	2.2
1218	90	3.5433	160	6.2992	30	1.1811	57 200	12 850	23 600	5 300	8 500	5 300	2.50	5.51	1218 K	H 218	1.1	2.5
1219	95	3.7402	170	6.6929	32	1.2598	63 700	14 310	27 000	6 070	8 000	5 000	3.10	6.84	1219 K	H 219	1.2	2.7
1220	100	3.9370	180	7.0866	34	1.3386	68 900	15 480	30 000	6 740	7 500	4 800	3.70	8.16	1220 K	H 220	1.5	3.3
1222	110	4.3307	200	7.8740	38	1.4961	88 400	19 870	39 000	8 760	6 700	4 300	5.15	11.36	1222 K	H 222	1.9	4.1
1224 M	120	4.7244	215	8.4646	42	1.6535	119 000	26 740	53 000	11 910	6 300	4 000	6.75	14.88	1224 KM	H 3024	1.9	4.2
1226 M	130	5.1181	230	9.0551	46	1.8110	127 000	28 540	58 500	13 150	5 600	3 600	8.30	18.30	1226 KM	H 3026	2.8	6.1

Consult SKF USA Inc. prior to design change or order placement.

Double row
Open, cylindrical and tapered bore
Series: 135 – 1322 M
Size: 5 mm – 110 mm
0.1969 in – 4.3307 in

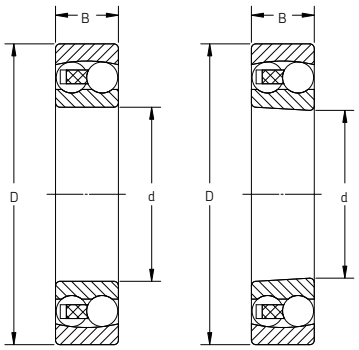


Cylindrical bore Tapered bore

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Designation		Mass	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed			Tapered bore	Adapter sleeve		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb			kg	lb
135	5	0.1969	19	0.7480	6	0.2362	2 510	560	480	110	63 000	45 000	0.01	0.02	–	–	–	–
1301 E	12	0.4724	37	1.4567	12	0.4724	9 360	2 100	2 160	490	40 000	28 000	0.07	0.15	–	–	–	–
1302 E	15	0.5906	42	1.6535	13	0.5118	10 800	2 430	2 600	580	34 000	24 000	0.09	0.21	–	–	–	–
1303 E	17	0.6693	47	1.8504	14	0.5512	12 700	2 850	3 400	760	28 000	20 000	0.12	0.26	–	–	–	–
1304 E	20	0.7874	52	2.0472	15	0.5906	14 300	3 210	4 000	900	26 000	18 000	0.16	0.35	–	–	–	–
1305 E	25	0.9843	62	2.4409	17	0.6693	19 000	4 270	5 400	1 210	22 000	15 000	0.26	0.57	1305 EK	H 305	0.1	0.2
1306 E	30	1.1811	72	2.8346	19	0.7480	22 500	5 060	6 800	1 530	19 000	13 000	0.39	0.86	1306 EK	H 306	0.1	0.2
1307 E	35	1.3780	80	3.1496	21	0.8268	26 500	5 960	8 500	1 910	16 000	11 000	0.51	1.12	1307 EK	H 307	0.1	0.3
1308 E	40	1.5748	90	3.5433	23	0.9055	33 800	7 600	11 200	2 520	14 000	9 500	0.68	1.50	1308 EK	H 308	0.2	0.4
1309 E	45	1.7717	100	3.9370	25	0.9843	39 000	8 760	13 400	3 010	12 000	8 500	0.96	2.12	1309 EK	H 309	0.2	0.5
1310 E	50	1.9685	110	4.3307	27	1.0630	43 600	9 800	14 000	3 150	12 000	8 000	1.20	2.65	1310 EK	H 310	0.3	0.6
1311 E	55	2.1654	120	4.7244	29	1.1417	50 700	11 390	18 000	4 040	11 000	7 500	1.60	3.53	1311 EK	H 311	0.3	0.7
1312 E	60	2.3622	130	5.1181	31	1.2205	58 500	13 150	22 000	4 940	9 000	6 300	1.95	4.30	1312 EK	H 312	0.4	0.8
1313 E	65	2.5591	140	5.5118	33	1.2992	65 000	14 610	25 500	5 730	8 500	6 000	2.45	5.40	1313 EK	H 313	0.4	0.9
1314	70	2.7559	150	5.9055	35	1.3780	74 100	16 650	27 500	6 180	8 500	6 000	3.00	6.62	–	–	–	–
1315	75	2.9528	160	6.2992	37	1.4567	79 300	17 820	30 000	6 740	8 000	5 600	3.55	7.83	1315 K	H 315	0.8	1.8
1316	80	3.1496	170	6.6929	39	1.5354	88 400	19 870	33 500	7 530	7 500	5 300	4.20	9.26	1316 K	H 316	1.0	2.2
1317	85	3.3465	180	7.0866	41	1.6142	97 500	21 910	38 000	8 540	7 000	4 800	5.00	11.03	1317 K	H 317	1.1	2.5
1318	90	3.5433	190	7.4803	43	1.6929	117 000	26 290	44 000	9 890	6 700	4 500	5.80	12.79	1318 K	H 318	1.3	3.0
1319	95	3.7402	200	7.8740	45	1.7717	133 000	29 890	51 000	11 460	6 300	4 300	6.70	14.77	1319 K	H 319	1.4	3.1
1320	100	3.9370	215	8.4646	47	1.8504	143 000	32 130	57 000	12 810	6 000	4 000	8.30	18.30	1320 K	H 320	1.7	3.7
1322 M	110	4.3307	240	9.4488	50	1.9685	163 000	36 630	72 000	16 180	5 300	3 600	12.00	26.46	1322 KM	H 322	2.2	4.8

Consult SKF USA Inc. prior to design change or order placement.

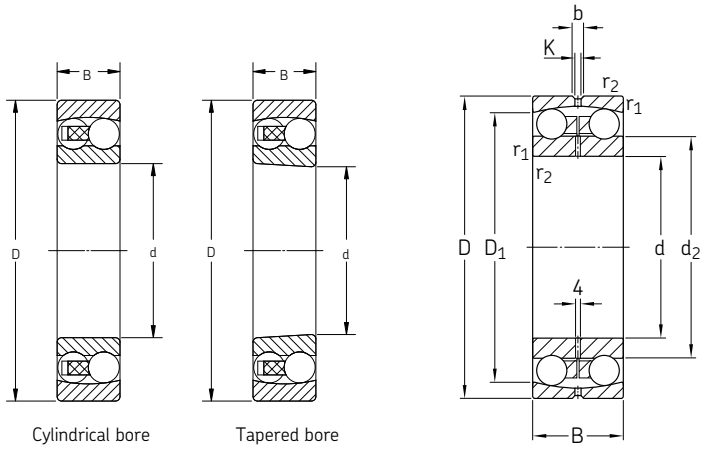
Double row
Open, cylindrical and tapered bore
Series: 2200 E – 2222
Size: 10 mm – 110 mm
0.3937 in – 4.3307 in



Cylindrical bore Tapered bore

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Designation		Mass	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed			Tapered bore	Adapter sleeve		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb			kg	lb
2200 E	10	0.3937	30	1.1811	14	0.5512	8 060	1 810	1 730	390	50 000	34 000	0.05	0.10	–	–	–	–
2201 E	12	0.4724	32	1.2598	14	0.5512	8 520	1 910	1 900	430	45 000	30 000	0.05	0.12	–	–	–	–
2202 E	15	0.5906	35	1.3780	14	0.5512	8 710	1 960	2 040	460	38 000	26 000	0.06	0.13	–	–	–	–
2203 E	17	0.6693	40	1.5748	16	0.6299	10 600	2 380	2 550	570	34 000	24 000	0.09	0.19	–	–	–	–
2204 E	20	0.7874	47	1.8504	18	0.7087	16 800	3 780	4 150	930	28 000	20 000	0.14	0.31	–	–	–	–
2205 E	25	0.9843	52	2.0472	18	0.7087	16 800	3 780	4 400	990	26 000	18 000	0.16	0.35	2205 EK	H 305	0.1	0.2
2206 E	30	1.1811	62	2.4409	20	0.7874	23 800	5 350	6 700	1 510	22 000	15 000	0.26	0.57	2206 EK	H 306	0.1	0.2
2207 E	35	1.3780	72	2.8346	23	0.9055	30 200	6 790	8 800	1 980	18 000	12 000	0.40	0.88	2207 EK	H 307	0.1	0.3
2208 E	40	1.5748	80	3.1496	23	0.9055	31 900	7 170	10 000	2 250	16 000	11 000	0.51	1.12	2208 EK	H 308	0.2	0.4
2209 E	45	1.7717	85	3.3465	23	0.9055	32 500	7 300	10 600	2 380	15 000	10 000	0.55	1.21	2209 EK	H 309	0.2	0.5
2210 E	50	1.9685	90	3.5433	23	0.9055	33 800	7 600	11 200	2 520	14 000	9 500	0.60	1.32	2210 EK	H 310	0.3	0.6
2211 E	55	2.1654	100	3.9370	25	0.9843	39 000	8 760	13 400	3 010	12 000	8 500	0.81	1.79	2211 EK	H 311	0.3	0.7
2212 E	60	2.3622	110	4.3307	28	1.1024	48 800	10 970	17 000	3 820	11 000	8 000	1.10	2.43	2212 EK	H 312	0.4	0.8
2213 E	65	2.5591	120	4.7244	31	1.2205	57 200	12 850	20 000	4 490	10 000	7 000	1.45	3.20	2213 EK	H 313	0.4	0.9
2214	70	2.7559	125	4.9213	31	1.2205	44 200	9 930	17 000	3 820	10 000	6 700	1.50	3.31	–	–	–	–
2215 E	75	2.9528	130	5.1181	31	1.2205	58 500	13 150	22 000	4 940	9 000	6 300	1.60	3.53	2215 EK	H 315	0.8	1.8
2216 E	80	3.1496	140	5.5118	33	1.2992	65 000	14 610	25 500	5 730	8 500	6 000	2.00	4.41	2216 EK	H 316	1.0	2.2
2217	85	3.3465	150	5.9055	36	1.4173	58 500	13 150	23 600	5 300	8 000	5 600	2.50	5.51	2217 K	H 317	1.1	2.5
2218	90	3.5433	160	6.2992	40	1.5748	70 200	15 780	28 500	6 400	7 500	5 300	3.40	7.50	2218 K	H 318	1.3	3.0
2219	95	3.7402	170	6.6929	43	1.6929	83 200	18 700	34 500	7 750	7 000	5 000	4.10	9.04	2219 K	H 319	1.4	3.1
2220	100	3.9370	180	7.0866	46	1.8110	97 500	21 910	40 500	9 100	6 700	4 800	5.00	11.03	2220 K	H 320	1.7	3.7
2222	110	4.3307	200	7.8740	53	2.0866	124 000	27 870	52 000	11 690	6 000	4 300	7.10	15.66	2222 K	H 322	2.2	4.8

Consult SKF USA Inc. prior to design change or order placement.



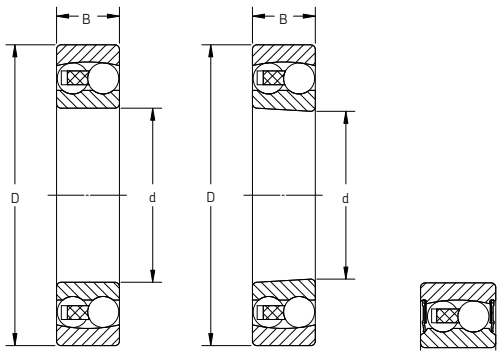
Double row
Open, cylindrical and tapered bore
Series: 2301 – 2320 M
Size: 12 mm – 100 mm
0.4724 in – 3.9370 in

Series: 13030 – 13948
Size: 150 mm – 240 mm
5.9055 in – 9.4488 in

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Designation		Mass	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed			Tapered bore	Adapter sleeve		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb			kg	lb
2301	12	0.4724	37	1.4567	17	0.6693	11 700	2 630	2 700	610	38 000	28 000	0.10	0.21	–	–	–	–
2302	15	0.5906	42	1.6535	17	0.6693	11 900	2 670	2 900	650	32 000	24 000	0.12	0.26	–	–	–	–
2303	17	0.6693	47	1.8504	19	0.7480	14 300	3 210	3 550	800	30 000	22 000	0.18	0.40	–	–	–	–
2304	20	0.7874	52	2.0472	21	0.8268	18 200	4 090	4 750	1 070	26 000	19 000	0.22	0.49	–	–	–	–
2305 E	25	0.9843	62	2.4409	24	0.9449	27 000	6 070	7 100	1 600	22 000	16 000	0.34	0.75	2305 EK	H 2305	0.1	0.2
2306	30	1.1811	72	2.8346	27	1.0630	31 200	7 010	8 800	1 980	18 000	13 000	0.50	1.10	2306 K	H 2306	0.1	0.3
2307 E	35	1.3780	80	3.1496	31	1.2205	39 700	8 920	11 200	2 520	16 000	12 000	0.68	1.50	2307 EK	H 2307	0.2	0.4
2308 E	40	1.5748	90	3.5433	33	1.2992	54 000	12 130	16 000	3 600	14 000	10 000	0.93	2.05	2308 EK	H 2308	0.2	0.5
2309 E	45	1.7717	100	3.9370	36	1.4173	63 700	14 310	19 300	4 340	13 000	9 000	1.25	2.76	2309 EK	H 2309	0.3	0.6
2310	50	1.9685	110	4.3307	40	1.5748	63 700	14 310	20 000	4 490	14 000	9 500	1.65	3.64	2310 K	H 2310	0.3	0.8
2311	55	2.1654	120	4.7244	43	1.6929	76 100	17 100	24 000	5 390	11 000	7 500	2.10	4.63	2311 K	H 2311	0.4	0.9
2312	60	2.3622	130	5.1181	46	1.8110	87 100	19 570	28 500	6 400	9 500	7 000	2.60	5.73	2312 K	H 2312	0.5	1.0
2313	65	2.5591	140	5.5118	48	1.8898	95 600	21 480	32 500	7 300	9 000	6 300	3.25	7.17	2313 K	H 2313	0.5	1.1
2314	70	2.7559	150	5.9055	51	2.0079	111 000	24 940	37 500	8 430	8 000	6 000	3.90	8.60	–	–	–	–
2315	75	2.9528	160	6.2992	55	2.1654	124 000	27 870	43 000	9 660	7 500	5 600	4.70	10.36	2315 K	H 2315	1.0	2.2
2316	80	3.1496	170	6.6929	58	2.2835	135 000	30 340	49 000	11 010	7 000	5 300	6.10	13.45	2316 K	H 2316	1.2	2.7
2317 M	85	3.3465	180	7.0866	60	2.3622	140 000	31 460	51 000	11 460	6 700	4 800	7.05	15.55	2317 KM	H 2317	1.4	3.1
2318	90	3.5433	190	7.4803	64	2.5197	151 000	33 930	57 000	12 810	6 300	4 500	8.45	18.63	2318 K	H 2318	1.7	3.7
2319 M	95	3.7402	200	7.8740	67	2.6378	165 000	37 080	64 000	14 380	6 000	4 500	9.80	21.61	2319 KM	H 2319	1.8	4.0
2320	100	3.9370	215	8.4646	73	2.8740	190 000	42 700	80 000	17 980	5 600	4 000	12.50	27.56	2320 K	H 2320	2.1	4.6
13 030	150	5.9055	225	8.8583	56	2.2047	57 200	12 850	23 600	5 300	5 600	3 400	7.50	16.54	–	–	–	–
13 036	180	7.0866	280	11.0236	74	2.9134	95 600	21 480	40 000	8 990	4 500	2 800	16.00	35.28	–	–	–	–
13 940	200	7.8740	280	11.0236	60	2.3622	60 500	13 600	29 000	6 520	4 300	2 600	10.70	23.59	–	–	–	–
13 944	220	8.6614	300	11.8110	60	2.3622	60 500	13 600	30 500	6 850	3 800	2 400	11.00	24.26	–	–	–	–
13 948	240	9.4488	320	12.5984	60	2.3622	60 500	13 600	32 000	7 190	3 800	2 200	11.30	24.92	–	–	–	–

Consult SKF USA Inc. prior to design change or order placement.

Double row
Sealed, cylindrical and tapered bore
Series: 2200 E 2RS1 – 2214 E 2RS1
Size: 10 mm – 70 mm
0.3937 in – 2.7559 in

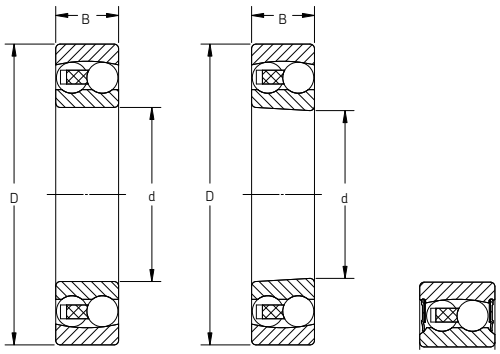


Cylindrical bore | Tapered bore | 2RS1

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Designation		Mass	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed			Tapered bore	Adapter sleeve		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb			kg	lb
2200 E-2RS1TN9	10	0.3937	30	1.1811	14	0.5512	5530	1 240	1 180	270	5 530	17 000	0.048	0.11	–	–	–	–
2201 E-2RS1TN9	12	0.4724	32	1.2598	14	0.5512	6240	1 400	1 430	320	6 240	16 000	0.053	0.12	–	–	–	–
2202 E-2RS1TN9	15	0.5906	35	1.3780	14	0.5512	7410	1 670	1 760	400	7 410	14 000	0.058	0.13	–	–	–	–
2203 E-2RS1TN9	17	0.6693	40	1.5748	16	0.6299	8840	1 990	2 200	490	8 840	12 000	0.089	0.20	–	–	–	–
2204 E-2RS1TN9	20	0.7874	47	1.8504	18	0.7087	12700	2 850	3 400	760	12 700	10 000	0.14	0.31	–	–	–	–
2205 E-2RS1TN9	25	0.9843	52	2.0472	18	0.7087	14300	3 210	4 000	900	14 300	9 000	0.16	0.35	2205 E-2RS1K	H 305 E	0.07	0.20
2206 E-2RS1TN9	30	1.1811	62	2.4409	20	0.7874	15600	3 510	4 650	1 040	15 600	7 500	0.26	0.57	2206 E-2RS1K	H 306 E	0.10	0.30
2207 E-2RS1TN9	35	1.3780	72	2.8346	23	0.9055	19000	4 270	6 000	1 350	19 000	6 300	0.41	0.90	2207 E-2RS1K	H 307 E	0.14	0.40
2208 E-2RS1TN9	40	1.5748	80	3.1496	23	0.9055	19900	4 470	6 950	1 560	19 900	5 600	0.5	1.10	2208 E-2RS1K	H 308 E	0.17	0.40
2209 E-2RS1TN9	45	1.7717	85	3.3465	23	0.9055	22900	5 150	7 800	1 750	22 900	5 300	0.53	1.17	2209 E-2RS1K	H 309 E	0.23	0.60
2210 E-2RS1TN9	50	1.9685	90	3.5433	23	0.9055	22900	5 150	8 150	1 830	22 900	4 800	0.57	1.26	2210 E-2RS1K	H 310 E	0.27	0.60
2211 E-2RS1TN9	55	2.1654	100	3.9370	25	0.9843	27600	6 200	10 600	2 380	27 600	4 300	0.79	1.74	2211 E-2RS1K	H 311 E	0.32	0.80
2212 E-2RS1TN9	60	2.3622	110	4.3307	28	1.1024	31200	7 010	12 200	2 740	31 200	3 800	1.05	2.32	2212 E-2RS1K	H 312 E	–	–
2213 E-2RS1TN9	65	2.5591	120	4.7244	31	1.2205	35100	7 890	14 000	3 150	35 100	3 600	1.4	3.09	2213 E-2RS1K	H 313 E	0.42	1.00
2214 E-2RS1TN9	70	2.7559	125	4.9213	31	1.2205	35800	8 040	14 600	3 280	35 800	3 400	1.45	3.20	–	–	–	–

Consult SKF USA Inc. prior to design change or order placement.

Double row
Sealed, cylindrical and tapered bore
Series: 2302 E 2RS1 – 2310 E 2RS1
Size: 15 mm – 50 mm
0.5906 in – 1.9685 in



Cylindrical bore Tapered bore 2RS1

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Designation		Mass	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed			Tapered bore	Adapter sleeve		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb			kg	lb
2302 E-2RS1TN9	15	0.5906	42	1.6535	17	0.6693	10800	2 430	2 600	580	10 800	12 000	0.11	0.24	–	–	–	–
2303 E-2RS1TN9	17	0.6693	47	1.8504	19	0.7480	12700	2 850	3 400	760	12 700	11 000	0.16	0.35	–	–	–	–
2304 E-2RS1TN9	20	0.7874	52	2.0472	21	0.8268	14300	3 210	4 000	900	14 300	9 000	0.21	0.46	–	–	–	–
2305 E-2RS1TN9	25	0.9843	62	2.4409	24	0.9449	19000	4 270	5 400	1 210	19 000	7 500	0.34	0.75	2305 E-2RS1K	H 2305	–	–
2306 E-2RS1TN9	30	1.1811	72	2.8346	27	1.0630	22500	5 060	6 800	1 530	22 500	6 700	0.51	1.12	2306 E-2RS1K	H 2306	–	–
2307 E-2RS1TN9	35	1.3780	80	3.1496	31	1.2205	26500	5 960	8 500	1 910	26 500	5 600	0.7	1.54	2307 E-2RS1K	H 2307 E	–	–
2308 E-2RS1TN9	40	1.5748	90	3.5433	33	1.2992	33800	7 600	11 200	2 520	33 800	5 000	0.96	2.12	2308 E-2RS1K	H 2309	–	–
2309 E-2RS1TN9	45	1.7717	100	3.9370	36	1.4173	39000	8 760	13 400	3 010	39 000	4 500	1.3	2.87	2309 E-2RS1K	H 2309	–	–
2310 E-2RS1TN9	50	1.9685	110	4.3307	40	1.5748	43600	9 800	14 000	3 150	43 600	4 000	1.65	3.64	2310 E-2RS1K	H 2310	–	–

Consult SKF USA Inc. prior to design change or order placement.

Notes

Notes

Notes



Thrust bearings

Thrust ball bearing

53210 U210*
M

1

with seating washer

Spherical roller thrust bearing

29430 E

2

1. Features

M	Machined brass cage, roller guided
J9	Internal design change to J cage
F	Machined steel or special cast iron cage, roller guided
P5	Dimensional and running accuracy to ISO tolerance class 5 (approximately ABEC 5)

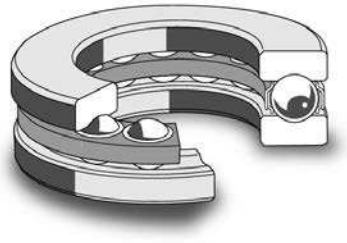
2. Features

E	Optimized internal design, window-type steel cage
–	Machined brass cage (no symbol)
EF	Optimized internal design, machined steel cage
EM	Optimized internal design, machined brass cage
RD	Spacer sleeve
W64	Solid Oil lubricants

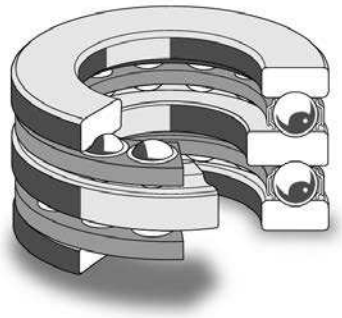
*** The sphered seating washer must be ordered separately**. See **Table 1** on page 110 for designations and dimensions.

Technical features

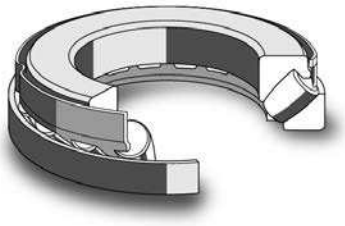
	Thrust ball bearing	Spherical roller thrust bearing
Boundary dimensions	Bearings with flat housing washers are in accordance with ISO 104. The bearings with sphered housing washers have dimensions in accordance with ISO 20516.	In accordance with ISO 104
Tolerances	ABEC 1	RBEC 1
Heat stabilization	250° F (125° C)	392° F (200° C)
Misalignment	None – contact SKF	**Normal load conditions** $F_a + 2.7 \times F_r \leq 0.05\ C_0$ series 29200 – 2 degrees series 29300 – 2.5 degrees series 29400 – 3 degrees **Heavy load conditions** $F_a + 2.7 \times F_r > 0.05\ C_0$ 1.5 degrees for all series **Extreme load conditions** $F_a + 2.7 \times F_r > 0.3\ C_0$ series 29200 – 1 degree series 29300 – 0.3 degrees series 29400 – 0.3 degrees
Cage materials		
Standard	Pressed steel	Steel
Optional	Machined brass (M)	Machined brass (larger bearings only)
Seals	Not available	Not available



Single direction thrust ball bearing
(data tables on page 112)



Double direction thrust ball bearing
(data tables on page 118)



Spherical roller thrust bearing
(data tables on page 123)

Introduction

SKF produces two types of thrust bearings – ball and roller – both of the separable design. The thrust ball bearings are manufactured in single direction and double direction designs and are specifically designed into applications in which there is no radial load.

The spherical roller thrust bearings are capable of handling shaft misalignment, very heavy axial loads, small radial loads and relatively high speeds.

Basic design

Single direction thrust ball bearings

Thrust ball bearings of this type are suitable for the accommodation of axial loads in one direction only and can locate a shaft in one direction; **they may not, however, be subjected to any radial load.**

Single direction thrust ball bearings comprise a shaft washer with raceway groove, a ball and cage thrust assembly and a housing washer with raceway groove. The housing washer can have a flat or sphered seating surface as required. Bearings with a sphered housing washer can compensate for initial misalignment if they are used together with a seating washer which has a correspondingly sphered surface.

The bearings are separable and mounting is simple as the components can be mounted individually.

Double direction thrust ball bearings

Thrust ball bearings of this type can accommodate axial loads acting in both directions and consequently can be used to locate a shaft in both directions. They should not be subjected to any radial load.

Double direction thrust ball bearings comprise one shaft washer with a raceway groove in each face, two ball and cage thrust assemblies and two housing washers with raceway groove. The housing washers can have a flat or sphered seating surface as required. Bearings with sphered housing washers can compensate for initial misalignments if they are used together with seating washers which have a correspondingly sphered surface. The sphered seating washers must be ordered separately. See bearing tables for designations.

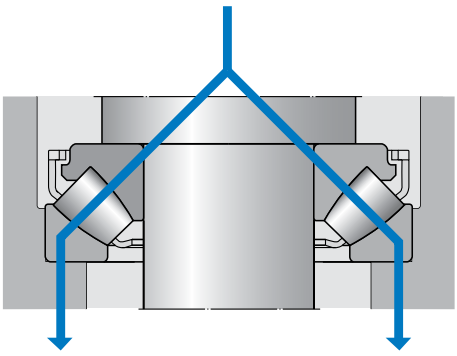
The bearings are separable. The housing washers and ball and cage thrust assemblies are the same as those of the corresponding single direction bearings.

Spherical roller thrust bearings

In spherical roller thrust bearings the load is transmitted from one raceway to the other at an angle to the bearing axis **(Figure 1)**. They are therefore suitable, in contrast to the other thrust bearings shown in this catalog, for the accommodation of radial loads in addition to simultaneously acting axial loads. Another important characteristic of spherical roller thrust bearings is their self-aligning capability. This makes the bearings insensitive to shaft deflection and to errors of alignment of the shaft relative to the housing.

Spherical roller thrust bearings are of separable design; the shaft washer with roller and cage assembly, and the housing washer, can be mounted individually.

Figure 1



Product highlights

Thrust ball

Purely for thrust loads
SKF thrust ball bearings are designed for purely thrust loads and are used in applications in which there is no radial load. These bearings are separable to facilitate easy mounting.

High speed capabilities
SKF thrust ball bearings offer higher speed capabilities than the spherical roller thrust bearings.

Large product assortment
Single and double direction designs are available also with sphered seating washers to compensate for alignment errors. Size range includes 10 to 800 mm inside diameter.

Spherical roller thrust

Accommodates heavy combined load at high speeds
Spherical roller thrust bearings are used extensively in applications where heavy axial and simultaneous radial loads need to be supported. These heavy loads are often accompanied by relatively high speeds.

Unaffected by misalignment
Spherical roller thrust bearings are also insensitive to misalignments allowing for equipment machining error without reduced service life.

Application flexibility
Used in a wide range of machinery including gearboxes, water turbines, steering propellers and propeller thrust blocks, wind power stations, electric motors, pumps, fans, crushers, machine tools, rolling mills, extrusion machines refiners, injection molding machines, hydraulic motors, cranes and tunneling.

Introduction

SKF spherical roller thrust bearings incorporate a large number of asymmetrical rollers and have specially designed raceways with an optimum conformity. They are therefore suitable for very heavy axial loads and also permit relatively high speed operation.

SKF spherical roller thrust bearings are manufactured in two designs depending on size and series. Bearings identified by the designation suffix E up to and including size 68 – except bearing 29238 E – have a pressed steel window-type cage which forms a non-separable assembly with the rollers and the shaft washer. All other bearings have a machined cage of brass which is guided by a sleeve fixed in the shaft washer bore. Here again, the shaft washer, cage and rollers form a non-separable unit.

The E design bearings represent a new generation of SKF spherical roller thrust bearings. They have the same boundary dimensions, but because of improvements to the internal design, their load carrying capacity is much higher and their friction much lower than that of the earlier bearings.

If bearings of earlier design with a machined cage, where axial forces were transmitted via the cage-guiding sleeve, are to be replaced by E design bearings with a pressed steel cage, it is necessary to insert a spacer sleeve between the shaft washer and the existing abutment **(Figure 2).** If bearings of the earlier B design are to be replaced, the spacer sleeve used with the B design generally needs machining **(Figure 3)**. The sleeves must be hardened and should have ground faces. These sleeves may be purchased through SKF using the designation RD + the basic part number, i.e. RD 29434 B. Appropriate outside diameters for the sleeves and detailed drawings can be obtained from SKF Applications Engineering.

Loads

Minimum load – thrust ball

In order to provide satisfactory operation, thrust ball bearings, like all ball and roller bearings, must always be subjected to a given minimum load, particularly if they are to operate at high speeds or are subjected to high accelerations or rapid changes in the direction of load. Under such conditions the inertia forces of the balls and cage(s), and the friction in the lubricant, can have a detrimental influence on the rolling conditions in the bearing arrangement and may cause damaging sliding movements to occur between the balls and raceways.

The requisite minimum axial load to be applied to thrust ball bearings can be estimated using

$$F_{am} = A \left(\frac{n}{1\,000} \right)^2$$

where
F_{am} = minimum axial load, N
A = minimum load factor, (see product tables)
n = rotational speed, r/min

When starting up at low temperatures or when the lubricant is highly viscous, even greater minimum loads may be required. The weight of the components supported by the bearing, particularly when the shaft is vertical, together with external forces, generally exceeds the requisite minimum load. If this is not the case, the thrust ball bearing must be preloaded, e.g. by springs.

Minimum load – spherical roller thrust

In order to provide satisfactory operation, spherical roller thrust bearings, like all ball and roller bearings, must always be subjected to a given minimum load, particularly if they are to operate at high speeds or are subjected to high accelerations or rapid changes in the direction of the load. Under such conditions, the inertia forces of the rollers and cage, and the friction in the lubricant, can have a detrimental influence on the rolling conditions in the bearing arrangement and may cause damaging sliding movements to occur between the rollers and raceways.

The requisite minimum axial load to be applied to spherical roller thrust bearings can be estimated using

$$F_{am} = 1.8\, F_r + A \left(\frac{n}{1\,000} \right)^2$$

where
F_{am} = minimum axial load, N
F_r = radial component of load for bearings subjected to combined load, N
C_0 = basic static load rating, N (see product tables)
A = minimum load factor, (see product tables)
n = rotational speed, r/min

If $1.8\, F_r < 0.0005\, C_0$ then $0.0005\, C_0$ should be used in the above equation instead of $1.8\, F_r$.

At speeds higher than the reference speed or when starting up at low temperatures, or when the lubricant is highly viscous, even greater minimum loads may be required. The weight of the components supported by the bearing, together with external forces, generally exceeds the requisite minimum load. If this is not the case, the spherical roller thrust bearing must be preloaded, e.g. by springs. For a more accurate calculation of minimum load requirement that factors in lubrication, visit **skfusa.com** and choose Engineering Tools under the Support menu.

Figure 2

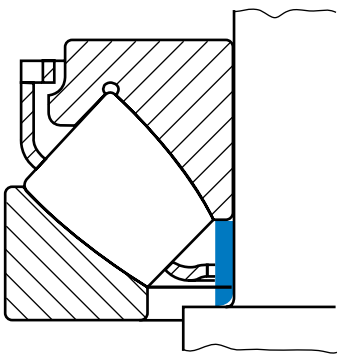
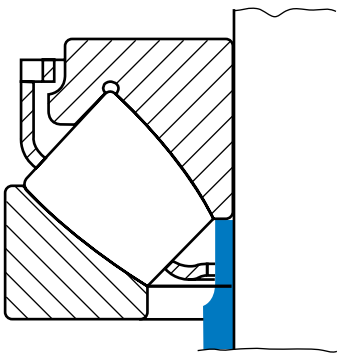


Figure 3



Equivalent dynamic bearing load – thrust ball

For single and double direction thrust ball bearings

$P = F_a$

Equivalent dynamic bearing load – spherical roller thrust

For spherical roller thrust bearings, provided $F_r \leq 0.55\ F_a$

$P = F_a + 1.2\ F_r$

If, however, the bearing is arranged so that it can compensate for axial and radial runouts by relative movements between the washers and provided $Fr \leq 0.55\ F_a$ then

$P = 0.88\ (F_a + 1.2\ F_r)$

can be used.

If $F_r > 0.55\ F_a$ please contact SKF Applications Engineering.

Design of associated components for roller thrust bearings

For E design bearings with pressed steel cage it is recommended that the housing bore be relieved to prevent the cage from rubbing against the housing if the shaft should be misaligned **(Figure 4)**. Recommended guideline values for the diameter of this relief are D + 15 mm for bearings with outside diameters up to and including 380 mm and D + 20 mm for larger bearings. Contact SKF Applications Engineering for additional information.

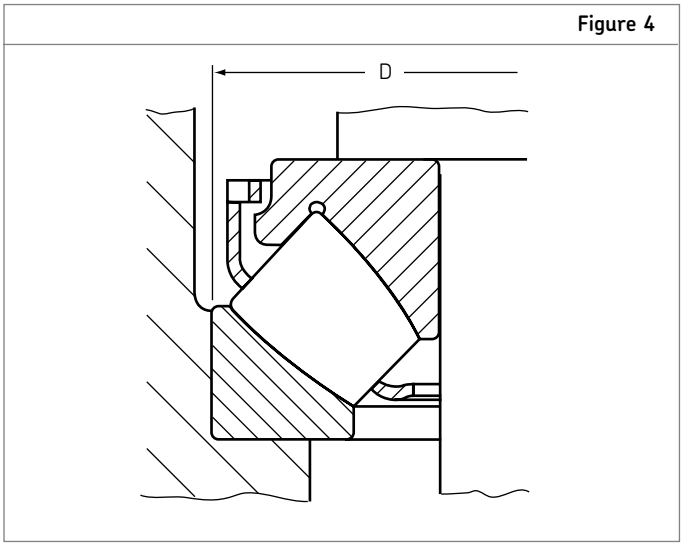
SKF Explorer class bearings

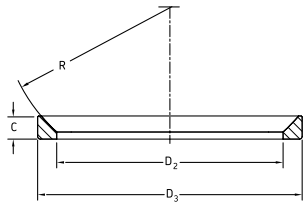
High performance SKF Explorer spherical roller thrust bearings are shown in blue in the product tables. SKF Explorer bearings retain the designation of the earlier standard bearings, e.g. 29330 E. However, each bearing and its box are marked with the name “SKF Explorer”. Additional details on the Explorer performance class bearings can be found on page 25.

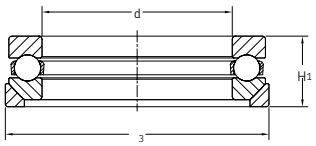
Frequency vibration data

Frequency vibration data is available on the SKF website skfusa.com. Select Engineering Tools under the Support menu. Or contact SKF Applications Engineering.

Figure 4







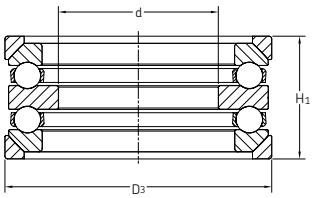
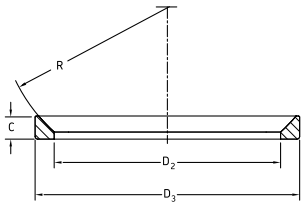
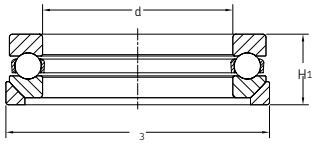


Table 1

Ball thrust bearing seating washer dimensions

Designation		Dimensions - seating washer										Mass	
Seating washer	Bearing	D2		D3		C		R		H1		Seating washer	
		mm	in	mm	in	mm	in	mm	in	mm	in	kg	lb
U 201	53201	20	0.7874	30	1.1811	3.5	0.1378	25	0.9843	13	0.5118	0.01	0.03
U 202	53202	24	0.9449	35	1.3780	4	0.1575	28	1.1024	15	0.5906	0.01	0.03
U 203	53203	26	1.0236	38	1.4961	4	0.1575	32	1.2598	15	0.5906	0.02	0.03
U 204	53204	30	1.1811	42	1.6535	5	0.1969	36	1.4173	17	0.6693	0.02	0.04
U 205	53205	36	1.4173	50	1.9685	5.5	0.2165	40	1.5748	19	0.7480	0.03	0.07
U 206	53206	42	1.6535	55	2.1654	5.5	0.2165	45	1.7717	20	0.7874	0.04	0.08
U 207	53207	48	1.8898	65	2.5591	7	0.2756	50	1.9685	22	0.8661	0.06	0.13
U 207	54207	48	1.8898	65	2.5591	7	0.2756	50	1.9685	42	1.6535	0.06	0.13
U 208	53208	55	2.1654	72	2.8346	7	0.2756	56	2.2047	23	0.9055	0.07	0.15
U 208	54208	55	2.1654	72	2.8346	7	0.2756	56	2.2047	44	1.7323	0.07	0.15
U 209	53209	60	2.3622	78	3.0709	7.5	0.2953	56	2.2047	24	0.9449	0.09	0.19
U 210	53210	62	2.4409	82	3.2283	7.5	0.2953	64	2.5197	26	1.0236	0.10	0.22
U 211	53211	72	2.8346	95	3.7402	9	0.3543	72	2.8346	30	1.1811	0.15	0.33
U 211	54211	72	2.8346	95	3.7402	9	0.3543	72	2.8346	55	2.1654	0.15	0.33
U 212	53212	78	3.0709	100	3.9370	9	0.3543	72	2.8346	31	1.2205	0.16	0.35
U 213	53213	82	3.2283	105	4.1339	9	0.3543	80	3.1496	32	1.2598	0.18	0.40
U 214	53214	88	3.4646	110	4.3307	9	0.3543	80	3.1496	32	1.2598	0.19	0.42
U 215	53215	92	3.6220	115	4.5276	9.5	0.3740	90	3.5433	32	1.2598	0.21	0.46
U 216	53216	98	3.8583	120	4.7244	10	0.3937	90	3.5433	33	1.2992	0.22	0.48
U 217	53217	105	4.1339	130	5.1181	11	0.4331	100	3.9370	37	1.4567	0.29	0.64
U 218	53218	110	4.3307	140	5.5118	13.5	0.5315	100	3.9370	42	1.6535	0.42	0.92
U 220	53220	125	4.9213	155	6.1024	14	0.5512	112	4.4094	45	1.7717	0.50	1.10
U 222	53222	135	5.3150	165	6.4961	14	0.5512	125	4.9213	45	1.7717	0.56	1.23
U 224	53224	145	5.7087	175	6.8898	15	0.5906	125	4.9213	46	1.8110	0.65	1.43
U 226	53226	160	6.2992	195	7.6772	17	0.6693	140	5.5118	53	2.0866	0.90	1.98
U 228	53228	170	6.6929	210	8.2677	17	0.6693	160	6.2992	55	2.1654	1.20	2.64
U 306	53306	45	1.7717	62	2.4409	7	0.2756	50	1.9685	25	0.9843	0.06	0.12
U 306	54306	45	1.7717	62	2.4409	7	0.2756	50	1.9685	46	1.8110	0.06	0.12
U 307	53307	52	2.0472	72	2.8346	7.5	0.2953	56	2.2047	28	1.1024	0.08	0.18
U 307	54307	52	2.0472	72	2.8346	7.5	0.2953	56	2.2047	52	2.0472	0.08	0.18
U 308	53308	60	2.3622	82	3.2283	8.5	0.3346	64	2.5197	31	1.2205	0.12	0.26
U 308	54308	60	2.3622	82	3.2283	8.5	0.3346	64	2.5197	59	2.3228	0.12	0.26





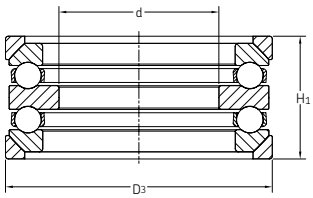


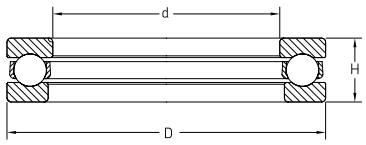
Table 1

Ball thrust bearing seating washer dimensions

Designation		Dimensions - seating washer										Mass	
Seating washer	Bearing	D2		D3		C		R		H1		Seating washer	
		mm	in	mm	in	mm	in	mm	in	mm	in	kg	lb
U 309	53309	65	2.5591	90	3.5433	10	0.3937	64	2.5197	33	1.2992	0.17	0.37
U 309	54309	65	2.5591	90	3.5433	10	0.3937	64	2.5197	62	2.4409	0.17	0.37
U 310	53310	72	2.8346	100	3.9370	11	0.4331	72	2.8346	37	1.4567	0.23	0.51
U 310	54310	72	2.8346	100	3.9370	11	0.4331	72	2.8346	70	2.7559	0.23	0.51
U 311	53311	80	3.1496	110	4.3307	11.5	0.4528	80	3.1496	42	1.6535	0.28	0.62
U 312	53312	85	3.3465	115	4.5276	11.5	0.4528	90	3.5433	42	1.6535	0.31	0.68
U 312	54312	85	3.3465	115	4.5276	11.5	0.4528	90	3.5433	78	3.0709	0.31	0.68
U 313	53313	90	3.5433	120	4.7244	12.5	0.4921	90	3.5433	43	1.6929	0.34	0.75
U 314	53314	98	3.8583	130	5.1181	13	0.5118	100	3.9370	48	1.8898	0.41	0.90
U 315	53315	105	4.1339	140	5.5118	15	0.5906	100	3.9370	52	2.0472	0.55	1.21
U 316	53316	110	4.3307	145	5.7087	15	0.5906	112	4.4094	52	2.0472	0.57	1.25
U 316	54316	110	4.3307	145	5.7087	15	0.5906	112	4.4094	95	3.7402	0.57	1.25
U 317	53317	115	4.5276	155	6.1024	17.5	0.6890	112	4.4094	58	2.2835	0.81	1.78
U 317	54317	115	4.5276	155	6.1024	17.5	0.6890	112	4.4094	105	4.1339	0.81	1.78
U 318	53318	120	4.7244	160	6.2992	18	0.7087	112	4.4094	59	2.3228	0.84	1.85
U 320	53320	135	5.3150	175	6.8898	18	0.7087	125	4.9213	64	2.5197	0.95	2.09
U 322	53322	150	5.9055	195	7.6772	20.5	0.8071	140	5.5118	72	2.8346	1.30	2.86
U 324	53324	165	6.4961	220	8.6614	22	0.8661	160	6.2992	80	3.1496	2.00	4.40
U 408	53408	65	2.5591	95	3.7402	12	0.4724	72	2.8346	42	1.6535	0.25	0.55
U 409	53409	72	2.8346	105	4.1339	12.5	0.4921	80	3.1496	46	1.8110	0.32	0.70
U 409	54409	72	2.8346	105	4.1339	12.5	0.4921	80	3.1496	86	3.3858	0.32	0.70
U 410	53410	80	3.1496	115	4.5276	14	0.5512	90	3.5433	50	1.9685	0.41	0.90
U 410	54410	80	3.1496	115	4.5276	14	0.5512	90	3.5433	92	3.6220	0.41	0.90
U 412	53412	95	3.7402	135	5.3150	16	0.6299	100	3.9370	58	2.2835	0.71	1.56
U 414	53414	110	4.3307	155	6.1024	19.5	0.7677	112	4.4094	69	2.7165	1.00	2.20
U 415	53415	115	4.5276	165	6.4961	21	0.8268	125	4.9213	75	2.9528	1.25	2.75
U 416	53416	125	4.9213	175	6.8898	22	0.8661	125	4.9213	78	3.0709	1.40	3.08
U 416	54416	125	4.9213	175	6.8898	22	0.8661	125	4.9213	140	5.5118	1.40	3.08
U 418	53418	140	5.5118	195	7.6772	25.5	1.0039	140	5.5118	88	3.4646	1.90	4.18
U 420	53420	155	6.1024	220	8.6614	27	1.0630	160	6.2992	98	3.8583	2.90	6.38
U 420	54420	155	6.1024	220	8.6614	27	1.0630	160	6.2992	176	6.9291	2.90	6.38

Thrust ball bearings
Single direction
Standard
Series: BA 3 – BA 9
Size: 3 mm – 9 mm
0.1181 in – 0.3543 in

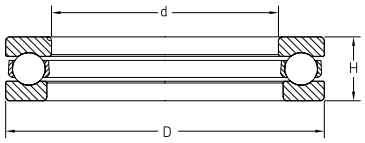
Series: 51100 – 51132 M
Size: 10 mm – 160 mm
0.3937 in – 6.2292 in



Single direction

Designation	Principal dimensions						Basic load ratings				Minimum load factor	Speed rating		Mass	
	Bore d		Outside diameter D		Height H		Dynamic C		Static C_0			Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	A	r/min	r/min	kg	lb
BA 3	3	0.1181	8	0.3150	3.5	0.1378	806	180	720	160	0.003	26 000	36 000	0.0009	0.00
BA 4	4	0.1575	10	0.3937	4	0.1575	761	170	720	160	0.003	22 000	30 000	0.0015	0.00
BA 5	5	0.1969	12	0.4724	4	0.1575	852	190	965	220	0.005	20 000	28 000	0.0021	0.00
BA 6	6	0.2362	14	0.5512	5	0.1969	1 780	400	1 920	430	0.019	17 000	24 000	0.0035	0.01
BA 7	7	0.2756	17	0.6693	6	0.2362	2 510	560	2 900	650	0.044	14 000	19 000	0.0065	0.01
BA 8	8	0.3150	19	0.7480	7	0.2756	3 190	720	3 800	850	0.075	12 000	17 000	0.0091	0.02
BA 9	9	0.3543	20	0.7874	7	0.2756	3 120	700	3 800	850	0.075	12 000	16 000	0.0100	0.02
51100	10	0.3937	24	0.9449	9	0.3543	9 950	2 240	15 300	3 440	1.2	9 500	13 000	0.02	0.04
51101	12	0.4724	26	1.0236	9	0.3543	10 400	2 340	16 600	3 730	1.4	9 000	13 000	0.02	0.05
51102	15	0.5906	28	1.1024	9	0.3543	10 600	2 380	18 300	4 110	1.7	8 500	12 000	0.02	0.05
51103	17	0.6693	30	1.1811	9	0.3543	11 400	2 560	21 200	4 760	2.3	8 500	12 000	0.03	0.06
51104	20	0.7874	35	1.3780	10	0.3937	15 100	3 390	29 000	6 520	4.4	7 500	10 000	0.04	0.08
51105	25	0.9843	42	1.6535	11	0.4331	18 200	4 090	39 000	8 760	7.9	6 300	9 000	0.06	0.12
51106	30	1.1811	47	1.8504	11	0.4331	19 000	4 270	43 000	9 660	9.6	6 000	8 500	0.06	0.14
51107	35	1.3780	52	2.0472	12	0.4724	19 900	4 470	51 000	11 460	13	5 600	7 500	0.08	0.18
51108	40	1.5748	60	2.3622	13	0.5118	25 500	5 730	63 000	14 160	20	5 000	7 000	0.12	0.26
51109	45	1.7717	65	2.5591	14	0.5512	26 500	5 960	69 500	15 620	25	4 500	6 300	0.14	0.31
51110	50	1.9685	70	2.7559	14	0.5512	27 000	6 070	75 000	16 850	29	4 300	6 300	0.16	0.35
51111	55	2.1654	78	3.0709	16	0.6299	30 200	6 790	81 500	18 310	39	3 800	5 300	0.23	0.51
51112	60	2.3622	85	3.3465	17	0.6693	41 600	9 350	122 000	27 420	77	3 600	5 000	0.27	0.60
51113	65	2.5591	90	3.5433	18	0.7087	37 700	8 470	108 000	24 270	60	3 400	4 800	0.33	0.73
51114	70	2.7559	95	3.7402	18	0.7087	40 300	9 060	120 000	26 970	74	3 400	4 500	0.35	0.77
51115	75	2.9528	100	3.9370	19	0.7480	44 200	9 930	134 000	30 110	110	3 200	4 300	0.40	0.88
51116	80	3.1496	105	4.1339	19	0.7480	44 900	10 090	140 000	31 460	120	3 000	4 300	0.42	0.93
51117	85	3.3465	110	4.3307	19	0.7480	44 900	10 090	146 000	32 810	140	3 000	4 300	0.44	0.97
51118	90	3.5433	120	4.7244	22	0.8661	59 200	13 300	208 000	46 740	220	2 600	3 800	0.67	1.48
51120	100	3.9370	135	5.3150	25	0.9843	80 600	18 110	265 000	59 600	440	2 400	3 200	0.97	2.14
51122	110	4.3307	145	5.7087	25	0.9843	83 200	18 700	285 000	64 000	520	2 200	3 200	1.05	2.32
51124	120	4.7244	155	6.1024	25	0.9843	85 200	19 150	305 000	68 500	580	2 200	3 000	1.15	2.54
51126	130	5.1181	170	6.6929	30	1.1811	119 000	26 740	440 000	98 900	940	1 900	2 600	1.85	4.08
51128	140	5.5118	180	7.0866	31	1.2205	111 000	24 940	440 000	98 900	1 000	1 800	2 600	2.05	4.52
51130 M	150	5.9055	190	7.4803	31	1.2205	111 000	24 940	440 000	98 900	1 000	1 700	2 400	2.20	4.85
51132 M	160	6.2992	200	7.8740	31	1.2205	112 000	25 170	465 000	104 500	1 100	1 700	2 400	2.35	5.18

Consult SKF USA Inc. prior to design change or order placement.

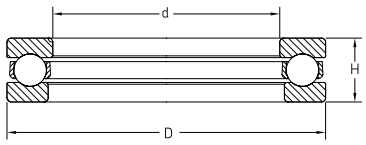


Single direction

Designation	Principal dimensions						Basic load ratings				Minimum load factor	Speed rating		Mass	
	Bore d		Outside diameter D		Height H		Dynamic C		Static C_0			Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	A	r/min	r/min	kg	lb
51122	110	4.3307	145	5.7087	25	0.9843	83 200	18 700	285 000	64 000	520	2 200	3 200	1.05	2.32
51124	120	4.7244	155	6.1024	25	0.9843	85 200	19 150	305 000	68 500	580	2 200	3 000	1.15	2.54
51126	130	5.1181	170	6.6929	30	1.1811	119 000	26 740	440 000	98 900	940	1 900	2 600	1.85	4.08
51128	140	5.5118	180	7.0866	31	1.2205	111 000	24 940	440 000	98 900	1 000	1 800	2 600	2.05	4.52
51130 M	150	5.9055	190	7.4803	31	1.2205	111 000	24 940	440 000	98 900	1 000	1 700	2 400	2.20	4.85
51132 M	160	6.2992	200	7.8740	31	1.2205	112 000	25 170	465 000	104 500	1 100	1 700	2 400	2.35	5.18
51134 M	170	6.6929	215	8.4646	34	1.3386	133 000	29 890	540 000	121 300	1 500	1 600	2 200	3.30	7.28
51136 M	180	7.0866	225	8.8583	34	1.3386	135 000	30 340	570 000	128 100	1 700	1 500	2 200	3.50	7.72
51138 M	190	7.4803	240	9.4488	37	1.4567	172 000	38 650	710 000	159 600	2 600	1 400	2 000	4.05	8.93
51140 M	200	7.8740	250	9.8425	37	1.4567	168 000	37 750	710 000	159 600	2 600	1 400	1 900	4.25	9.37
51144 M	220	8.6614	270	10.6299	37	1.4567	178 000	40 000	800 000	179 800	3 300	1 300	1 900	4.60	10.14
51148 M	240	9.4488	300	11.8110	45	1.7717	234 000	52 600	1 040 000	233 700	5 600	1 100	1 600	7.55	16.65
51152 M	260	10.2362	320	12.5984	45	1.7717	238 000	53 500	1 100 000	247 200	6 300	1 100	1 500	8.10	17.86
51156 M	280	11.0236	350	13.7795	53	2.0866	319 000	71 700	1 460 000	328 100	11 000	950	1 300	12.00	26.46
51160 M	300	11.8110	380	14.9606	62	2.4409	364 000	81 800	1 760 000	395 500	16 000	850	1 200	17.50	38.59
51164 M	320	12.5984	400	15.7480	63	2.4803	371 000	83 400	1 860 000	418 000	18 000	800	1 100	19.00	41.90
51168 M	340	13.3858	420	16.5354	64	2.5197	377 000	84 700	1 960 000	440 400	20 000	800	1 100	20.50	45.20
51172 F	360	14.1732	440	17.3228	65	2.5591	390 000	87 600	2 080 000	467 400	22 000	750	1 100	22.00	48.51
51176 F	380	14.9606	460	18.1102	65	2.5591	397 000	89 200	2 200 000	494 400	25 000	750	1 000	23.00	50.72
51180 F	400	15.7480	480	18.8976	65	2.5591	403 000	90 600	2 280 000	512 400	27 000	700	1 000	24.00	52.92
51184 F	420	16.5354	500	19.6850	65	2.5591	410 000	92 100	2 400 000	539 300	30 000	700	1 000	25.50	56.23
51188 F	440	17.3228	540	21.2598	80	3.1496	527 000	118 400	3 250 000	730 300	55 000	600	850	42.00	92.61
51192 F	460	18.1102	560	22.0472	80	3.1496	527 000	118 400	3 250 000	730 300	55 000	600	800	43.50	95.92
51196 F	480	18.8976	580	22.8346	80	3.1496	540 000	121 300	3 550 000	797 800	66 000	560	800	45.50	100.33
511/500 F	500	19.6850	600	23.6220	80	3.1496	553 000	124 300	3 600 000	809 000	67 000	560	800	47.00	103.64
511/530 F	530	20.8661	640	25.1969	85	3.3465	650 000	146 100	4 400 000	988 800	100 000	530	750	58.50	128.99
511/560 F	560	22.0472	670	26.3780	85	3.3465	650 000	146 100	4 650 000	1 044 900	110 000	500	700	61.00	134.51
511/600 F	600	23.6220	710	27.9528	85	3.3465	663 000	149 000	4 800 000	1 078 700	120 000	500	700	65.00	143.33
511/630 F	630	24.8031	750	29.5276	95	3.7402	728 000	163 600	5 400 000	1 213 500	150 000	450	630	84.00	185.22
511/670 F	670	26.3780	800	31.4961	105	4.1339	852 000	191 500	6 700 000	1 505 600	230 000	400	560	105.00	231.53
511/670 M	670	26.3780	800	31.4961	105	4.1339	852 000	191 500	6 700 000	1 505 600	230 000	400	560	105.00	231.53

Consult SKF USA Inc. prior to design change or order placement.

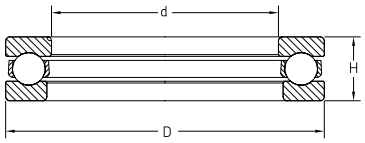
Thrust ball bearings
Single direction
Standard
Series: 51200 – 51228
Size: 10 mm – 140 mm
0.3937 in – 5.5118 in



Single direction

Designation	Principal dimensions						Basic load ratings				Minimum load factor	Speed rating		Mass	
	Bore d		Outside diameter D		Height H		Dynamic C		Static C_0			Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	A	r/min	r/min	kg	lb
51200	10	0.3937	26	1.0236	11	0.4331	12 700	2 850	18 600	4 180	1.8	8 000	11 000	0.03	0.07
51201	12	0.4724	28	1.1024	11	0.4331	13 300	2 990	20 800	4 670	2.2	8 000	11 000	0.03	0.07
51202	15	0.5906	32	1.2598	12	0.4724	15 900	3 570	25 000	5 620	3.8	7 000	10 000	0.04	0.10
51203	17	0.6693	35	1.3780	12	0.4724	16 300	3 660	27 000	6 070	4.7	6 700	9 500	0.05	0.12
51204	20	0.7874	40	1.5748	14	0.5512	21 200	4 760	37 500	8 430	8.5	6 000	8 000	0.08	0.18
51205	25	0.9843	47	1.8504	15	0.5906	26 500	5 960	50 000	11 240	15	5 300	7 500	0.11	0.24
51206	30	1.1811	52	2.0472	16	0.6299	25 100	5 640	51 000	11 460	13	4 800	6 700	0.13	0.29
51207	35	1.3780	62	2.4409	18	0.7087	35 100	7 890	73 500	16 520	28	4 000	5 600	0.22	0.49
51208	40	1.5748	68	2.6772	19	0.7480	44 200	9 930	96 500	21 690	58	3 800	5 300	0.28	0.62
51209	45	1.7717	73	2.8740	20	0.7874	39 000	8 760	86 500	19 440	38	3 600	5 000	0.30	0.66
51210	50	1.9685	78	3.0709	22	0.8661	49 400	11 100	116 000	26 070	69	3 400	4 500	0.37	0.82
51211	55	2.1654	90	3.5433	25	0.9843	58 500	13 150	134 000	30 110	110	2 800	4 000	0.59	1.30
51212	60	2.3622	95	3.7402	26	1.0236	59 200	13 300	140 000	31 460	120	2 800	3 800	0.65	1.43
51213	65	2.5591	100	3.9370	27	1.0630	60 500	13 600	150 000	33 710	140	2 600	3 600	0.72	1.59
51214	70	2.7559	105	4.1339	27	1.0630	62 400	14 020	160 000	35 960	160	2 600	3 600	0.79	1.74
51215	75	2.9528	110	4.3307	27	1.0630	63 700	14 310	170 000	38 200	170	2 400	3 400	0.83	1.83
51216	80	3.1496	115	4.5276	28	1.1024	76 100	17 100	208 000	46 740	220	2 400	3 400	0.91	2.01
51217	85	3.3465	125	4.9213	31	1.2205	97 500	21 910	275 000	61 800	390	2 200	3 000	1.20	2.65
51218	90	3.5433	135	5.3150	35	1.3780	112 000	25 170	290 000	65 170	550	2 000	2 800	1.70	3.75
51220	100	3.9370	150	5.9055	38	1.4961	119 000	26 740	325 000	73 030	620	1 800	2 400	2.20	4.85
51222	110	4.3307	160	6.2992	38	1.4961	125 000	28 090	365 000	82 020	790	1 700	2 400	2.40	5.29
51224	120	4.7244	170	6.6929	39	1.5354	127 000	28 540	390 000	87 640	1 000	1 600	2 200	2.65	5.84
51226	130	5.1181	190	7.4803	45	1.7717	186 000	41 800	585 000	131 460	1 800	1 400	2 000	4.00	8.82
51228	140	5.5118	200	7.8740	46	1.8110	190 000	42 700	620 000	139 330	2 000	1 400	1 900	4.35	9.59

Consult SKF USA Inc. prior to design change or order placement.

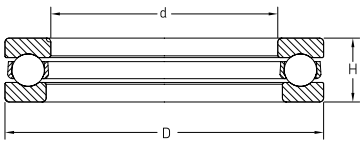


Single direction

Designation	Principal dimensions						Basic load ratings				Minimum load factor	Speed rating		Mass	
	Bore d		Outside diameter D		Height H		Dynamic C		Static C_0			Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	A	r/min	r/min	kg	lb
51230 M	150	5.9055	215	8.4646	50	1.9685	238 000	53 480	800 000	179 780	3 300	1 300	1 800	6.10	13.45
51232 M	160	6.2992	225	8.8583	51	2.0079	238 000	53 480	830 000	186 520	3 800	1 200	1 700	6.55	14.44
51234 M	170	6.6929	240	9.4488	55	2.1654	270 000	60 670	930 000	208 990	5 400	1 200	1 700	8.15	17.97
51236 M	180	7.0866	250	9.8425	56	2.2047	302 000	67 870	1 120 000	251 690	6 100	1 200	1 600	8.60	18.96
51238 M	190	7.4803	270	10.6299	62	2.4409	332 000	74 610	1 270 000	285 390	8 400	1 100	1 600	12.00	26.46
51240 M	200	7.8740	280	11.0236	62	2.4409	338 000	75 960	1 320 000	296 630	9 100	1 100	1 500	12.00	26.46
51244 M	220	8.6614	300	11.8110	63	2.4803	358 000	80 450	1 460 000	328 090	11 000	950	1 300	13.00	28.67
51248 M	240	9.4488	340	13.3858	78	3.0709	449 000	100 900	1 960 000	440 450	21 000	800	1 100	23.00	50.72
51252 M	260	10.2362	360	14.1732	79	3.1102	488 000	109 660	2 240 000	503 370	24 000	750	1 100	25.00	55.13
51256 M	280	11.0236	380	14.9606	80	3.1496	488 000	109 660	2 320 000	521 350	28 000	750	1 000	26.50	58.43
51260 M	300	11.8110	420	16.5354	95	3.7402	585 000	131 460	3 000 000	674 160	47 000	630	850	42.00	92.61
51264 F	320	12.5984	440	17.3228	95	3.7402	572 000	128 540	3 000 000	674 160	47 000	600	850	45.50	100.33
51264 M		12.5984	440	17.3228	95	3.7402	572 000	128 540	3 000 000	674 160	47 000	600	850	45.00	99.23
51268 F	340	13.3858	460	18.1102	96	3.7795	371 000	83 370	1 370 000	307 870	53 000	600	800	48.50	106.94
51272 F	360	14.1732	500	19.6850	110	4.3307	741 000	166 520	4 150 000	932 580	90 000	500	700	70.00	154.35
51276 F	380	14.9606	520	20.4724	112	4.4094	728 000	163 600	4 150 000	932 580	90 000	500	700	73.00	160.97

Consult SKF USA Inc. prior to design change or order placement.

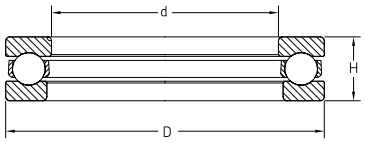
Thrust ball bearings
Single direction
Standard
Series: 51305 – 51340 M
Size: 25 mm – 200 mm
0.9843 in – 7.8740 in



Single direction

Designation	Principal dimensions						Basic load ratings				Minimum load factor	Speed rating		Mass	
	Bore d		Outside diameter D		Height H		Dynamic C		Static C_0			Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	A	r/min	r/min	kg	lb
51305	25	0.9843	52	2.0472	18	0.7087	34 500	7 750	60 000	13 480	18	4 500	6 300	0.17	0.37
51306	30	1.1811	60	2.3622	21	0.8268	35 800	8 040	65 500	14 720	26	3 800	5 300	0.26	0.57
51307	35	1.3780	68	2.6772	24	0.9449	49 400	11 100	96 500	21 690	48	3 400	4 800	0.39	0.86
51308	40	1.5748	78	3.0709	26	1.0236	61 800	13 890	122 000	27 420	77	3 000	4 300	0.53	1.17
51309	45	1.7717	85	3.3465	28	1.1024	76 100	17 100	153 000	34 380	120	2 800	4 000	0.66	1.46
51310	50	1.9685	95	3.7402	31	1.2205	81 900	18 400	170 000	38 200	190	2 600	3 600	0.94	2.07
51311	55	2.1654	105	4.1339	35	1.3780	101 000	22 700	224 000	50 340	260	2 200	3 200	1.30	2.87
51312	60	2.3622	110	4.3307	35	1.3780	101 000	22 700	224 000	50 340	260	2 200	3 000	1.35	2.98
51313	65	2.5591	115	4.5276	36	1.4173	106 000	23 820	240 000	53 930	300	2 000	3 000	1.50	3.31
51314	70	2.7559	125	4.9213	40	1.5748	135 000	30 340	320 000	71 910	530	1 900	2 600	2.00	4.41
51315	75	2.9528	135	5.3150	44	1.7323	163 000	36 630	390 000	87 640	790	1 700	2 400	2.60	5.73
51316	80	3.1496	140	5.5118	44	1.7323	159 000	35 730	390 000	87 640	790	1 700	2 400	2.70	5.95
51317	85	3.3465	150	5.9055	49	1.9291	174 000	39 100	405 000	91 010	1 100	1 600	2 200	3.55	7.83
51318	90	3.5433	155	6.1024	50	1.9685	182 000	40 900	440 000	98 880	1 300	1 500	2 200	3.80	8.38
51320	100	3.9370	170	6.6929	55	2.1654	225 000	50 560	570 000	128 090	1 900	1 400	1 900	4.95	10.91
51322 M	110	4.3307	190	7.4803	63	2.4803	281 000	63 150	815 000	183 150	3 200	1 200	1 700	7.85	17.31
51324 M	120	4.7244	210	8.2677	70	2.7559	325 000	73 030	980 000	220 220	5 000	1 100	1 500	11.00	24.26
51326 M	130	5.1181	225	8.8583	75	2.9528	358 000	80 450	1 140 000	256 180	6 800	1 000	1 400	13.0	28.67
51328 M	140	5.5118	240	9.4488	80	3.1496	377 000	84 720	1 220 000	274 160	9 100	950	1 300	15.50	34.18
51330 M	150	5.9055	250	9.8425	80	3.1496	390 000	87 640	1 290 000	289 890	10 000	900	1 300	16.50	36.38
51332 M	160	6.2992	270	10.6299	87	3.4252	449 000	100 900	1 660 000	373 030	14 000	850	1 200	21.00	46.31
51334 M	170	6.6929	280	11.0236	87	3.4252	468 000	105 170	1 760 000	395 510	16 000	800	1 100	22.00	48.51
51336 M	180	7.0866	300	11.8110	95	3.7402	520 000	116 850	2 000 000	449 440	21 000	750	1 100	28.50	62.84
51338 M	190	7.4803	320	12.5984	105	4.1339	559 000	125 620	2 200 000	494 380	30 000	700	950	36.50	80.48
51340 M	200	7.8740	340	13.3858	110	4.3307	624 000	140 220	2 600 000	584 270	35 000	630	900	44.50	98.12

Consult SKF USA Inc. prior to design change or order placement.

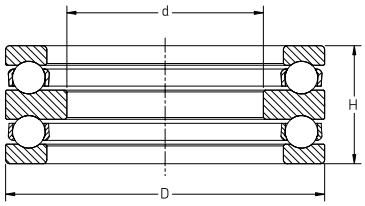


Single direction

Designation	Principal dimensions						Basic load ratings				Minimum load factor	Speed rating		Mass	
	Bore d		Outside diameter D		Height H		Dynamic C		Static C_0			Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	A	r/min	r/min	kg	lb
51405	25	0.9843	60	2.3622	24	0.9449	42 300	9 510	67 000	15 060	48	3 600	5 000	0.34	0.75
51406	30	1.1811	70	2.7559	28	1.1024	70 200	15 780	122 000	27 420	97	3 000	4 300	0.52	1.15
51407	35	1.3780	80	3.1496	32	1.2598	76 100	17 100	137 000	30 790	150	2 600	3 600	0.79	1.74
51408	40	1.5748	90	3.5433	36	1.4173	95 600	21 480	183 000	41 120	260	2 400	3 400	1.10	2.43
51409	45	1.7717	100	3.9370	39	1.5354	124 000	27 870	240 000	53 930	370	2 200	3 000	1.40	3.09
51410	50	1.9685	110	4.3307	43	1.6929	159 000	35 730	340 000	76 400	600	2 000	2 800	2.00	4.41
51411	55	2.1654	120	4.7244	48	1.8898	195 000	43 820	400 000	89 890	790	1 800	2 400	2.55	5.62
51412 M	60	2.3622	130	5.1181	51	2.0079	199 000	44 720	430 000	96 630	960	1 600	2 200	3.10	6.84
51413 M	65	2.5591	140	5.5118	56	2.2047	216 000	48 540	490 000	110 110	1 200	1 500	2 200	4.00	8.82
51414 M	70	2.7559	150	5.9055	60	2.3622	234 000	52 580	550 000	123 600	1 600	1 400	2 000	5.00	11.03
51415 M	75	2.9528	160	6.2992	65	2.5591	251 000	56 400	610 000	137 080	1 900	1 300	1 800	6.75	14.88
51416 M	80	3.1496	170	6.6929	68	2.6772	302 000	67 870	750 000	168 540	2 300	1 200	1 700	7.95	17.53
51417 M	85	3.3465	180	7.0866	72	2.8346	286 000	64 270	750 000	168 540	2 900	1 200	1 600	9.45	20.84
51418 M	90	3.5433	190	7.4803	77	3.0315	307 000	68 990	815 000	183 150	3 500	1 100	1 500	11.00	24.26
51420 M	100	3.9370	210	8.2677	85	3.3465	371 000	83 370	1 060 000	238 200	5 800	950	1 400	15.00	33.08
51422 M	110	4.3307	230	9.0551	95	3.7402	410 000	92 130	1 220 000	274 160	7 700	900	1 300	20.00	44.10
51424 M	120	4.7244	250	9.8425	102	4.0157	432 000	97 080	1 320 000	296 630	16 000	800	1 100	25.50	56.23
51426 M	130	5.1181	270	10.6299	110	4.3307	520 000	116 850	1 730 000	388 760	16 000	750	1 000	32.00	70.56
51428 M	140	5.5118	280	11.0236	112	4.4094	520 000	116 850	1 730 000	388 760	16 000	700	1 000	34.50	76.07
51430 M	150	5.9055	300	11.8110	120	4.7244	559 000	125 620	1 960 000	440 450	20 000	670	950	42.50	93.71

Consult SKF USA Inc. prior to design change or order placement.

Thrust ball bearings
Double direction
Standard
Series: 52202 – 52236 M
Size: 15 mm – 180 mm
0.3937 in – 5.9055 in



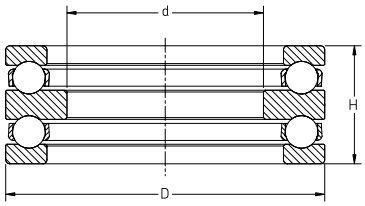
Double direction

Designation	Principal dimensions						Basic load ratings				Minimum load factor	Speed rating		Mass	
	Bore d		Outside diameter D		Height H		Dynamic C		Static C_0			Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	A	r/min	r/min	kg	lb
52202	15	0.3937	32	1.2598	22	0.8661	15 900	3 570	25 000	5 620	3.8	5 300	7 500	0.08	0.18
52204	20	0.5906	40	1.5748	26	1.0236	21 200	4 760	37 500	8 430	8.5	4 300	6 000	0.15	0.33
52205	25	0.7874	47	1.8504	28	1.1024	26 500	5 960	50 000	11 240	15	3 800	5 300	0.22	0.49
52206	30	0.9843	52	2.0472	29	1.1417	25 100	5 640	51 000	11 460	13	3 600	5 000	0.25	0.55
52207	35	1.1811	62	2.4409	34	1.3386	35 100	7 890	73 500	16 520	28	3 000	4 300	0.41	0.90
52208	40	1.1811	68	2.6772	36	1.4173	44 200	9 930	96 500	21 690	58	2 800	3 800	0.55	1.21
52209	45	1.3780	73	2.8740	37	1.4567	39 000	8 760	86 500	19 440	38	2 600	3 600	0.60	1.32
52210	50	1.5748	78	3.0709	39	1.5354	49 400	11 100	116 000	26 070	69	2 400	3 400	0.71	1.57
52211	55	1.7717	90	3.5433	45	1.7717	58 500	13 150	134 000	30 110	110	2 200	3 000	1.10	2.43
52212	60	1.9685	95	3.7402	46	1.8110	59 200	13 300	140 000	31 460	120	2 000	2 800	1.20	2.65
52213	65	2.1654	100	3.9370	47	1.8504	60 500	13 600	150 000	33 710	140	2 000	2 800	1.35	2.98
52214	70	2.1654	105	4.1339	47	1.8504	62 400	14 020	160 000	35 960	160	1 900	2 600	1.50	3.31
52215	75	2.3622	110	4.3307	47	1.8504	63 700	14 310	170 000	38 200	170	1 900	2 600	1.55	3.42
52216	80	2.5591	115	4.5276	48	1.8898	76 100	17 100	208 000	46 740	220	2 400	3 400	1.70	3.75
52217	85	2.7559	125	4.9213	55	2.1654	97 500	21 910	275 000	61 800	390	1 600	2 200	2.40	5.29
52218	90	2.9528	135	5.3150	62	2.4409	112 000	25 170	290 000	65 170	550	1 500	2 000	3.20	7.06
52220	100	3.3465	150	5.9055	67	2.6378	119 000	26 740	325 000	73 030	620	1 300	1 800	4.20	9.26
52222	110	3.7402	160	6.2992	67	2.6378	125 000	28 090	365 000	82 020	790	1 300	1 800	4.65	10.25
52224	120	3.9370	170	6.6929	68	2.6772	127 000	28 540	390 000	87 640	1 000	1 200	1 700	5.25	11.58
52226	130	4.3307	190	7.4803	80	3.1496	182 000	40 900	585 000	131 460	1 800	1 100	1 500	8.00	17.64
52228	140	4.7244	200	7.8740	81	3.1890	190 000	42 700	620 000	139 330	2 000	1 000	1 400	8.65	19.07
52230 M	150	5.1181	215	8.4646	89	3.5039	238 000	53 480	800 000	179 780	3 300	950	1 300	11.50	25.36
52232 M	160	5.5118	225	8.8583	90	3.5433	238 000	53 480	830 000	186 520	3 800	900	1 300	12.00	26.46
52234 M	170	5.9055	240	9.4488	97	3.8189	270 000	60 670	930 000	208 990	5 400	850	1 200	15.00	33.08
52236 M	180	5.9055	250	9.8425	98	3.8583	302 000	67 870	1 120 000	251 690	6 100	800	1 100	16.00	35.28

Consult SKF USA Inc. prior to design change or order placement.

Thrust ball bearings
Double direction
Standard
Series: 52305 – 52320
Size: 25 mm – 100 mm
0.7874 in – 3.3465 in

Series: 52406 – 52414 M
Size: 30 mm – 70 mm
0.7874 in – 2.1654 in

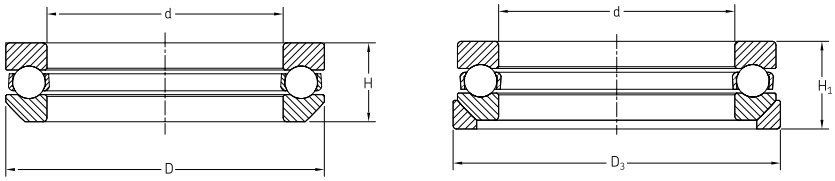


Double direction

Designation	Principal dimensions						Basic load ratings				Minimum load factor	Speed rating		Mass	
	Bore d		Outside diameter D		Height H		Dynamic C		Static C_0			Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	A	r/min	r/min	kg	lb
52305	25	0.7874	52	2.0472	34	1.3386	34 500	7 750	60 000	13 480	18	3 200	4 500	0.33	0.73
52306	30	0.9843	60	2.3622	38	1.4961	35 800	8 040	65 500	14 720	26	2 800	4 000	0.47	1.04
52307	35	1.1811	68	2.6772	44	1.7323	49 400	11 100	96 500	21 690	48	2 400	3 400	0.68	1.50
52308	40	1.1811	78	3.0709	49	1.9291	61 800	13 890	122 000	27 420	77	2 200	3 000	1.05	2.32
52309	45	1.3780	85	3.3465	52	2.0472	76 100	17 100	153 000	34 380	120	2 000	2 800	1.25	2.76
52310	50	1.5748	95	3.7402	58	2.2835	81 900	18 400	170 000	38 200	190	1 800	2 600	1.75	3.86
52311	55	1.7717	105	4.1339	64	2.5197	101 000	22 700	224 000	50 340	260	1 600	2 200	2.40	5.29
52312	60	1.9685	110	4.3307	64	2.5197	101 000	22 700	224 000	50 340	260	1 600	2 200	2.55	5.62
52313	65	2.1654	115	4.5276	64	2.5197	106 000	23 820	240 000	53 930	300	1 600	2 200	2.75	6.06
52314	70	2.1654	125	4.9213	72	2.8346	135 000	30 340	320 000	71 910	530	1 400	2 000	3.65	8.05
52315	75	2.3622	135	5.3150	79	3.1102	163 000	36 630	390 000	87 640	790	1 300	1 800	4.80	10.58
52316	80	2.5591	140	5.5118	79	3.1102	159 000	35 730	390 000	87 640	790	1 300	1 800	4.94	10.89
52320	100	3.3465	170	6.6929	97	3.8189	225 000	50 560	570 000	128 090	1 900	1 000	1 400	8.95	19.73
52406	30	0.7874	70	2.7559	52	2.0472	70 200	15 780	122 000	27 420	97	2 200	3 200	1.00	2.21
52407	35	0.9843	80	3.1496	59	2.3228	76 100	17 100	137 000	30 790	150	2 000	2 800	1.45	3.20
52408	40	1.1811	90	3.5433	65	2.5591	95 600	21 480	183 000	41 120	260	1 800	2 400	2.05	4.52
52409	30	1.3780	100	3.9370	72	2.8346	124 000	27 870	240 000	53 930	370	1 600	2 200	2.70	5.95
52411	35	1.7717	120	4.7244	87	3.4252	195 000	43 820	400 000	89 890	790	1 300	1 800	4.70	10.36
52412 M	40	1.9685	130	5.1181	93	3.6614	199 000	44 720	430 000	96 630	960	1 200	1 700	6.35	14.00
52414 M	70	2.1654	250	9.8425	107	4.2126	234 000	52 580	550 000	123 600	1 600	800	1 100	9.70	21.39

Consult SKF USA Inc. prior to design change or order placement.

Thrust ball bearings
Single direction, sphered housing washer
Standard
Series: 53201 – 53228
Size: 12 mm – 140 mm
0.4724 in – 5.5118 in



Single direction with sphered housing washer

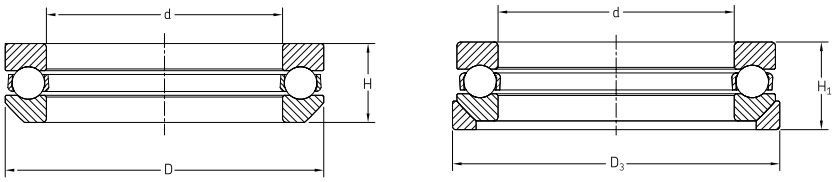
For D_3 and H_1 dimension refer to table 1 on pages 110 and 111.

Designation	Principal dimensions						Basic load ratings				Minimum load factor	Speed rating		Mass		Seating washer	Mass	
	Bore d		Outside diameter D		Height H_1		Dynamic C		Static C_0			Reference speed	Limiting speed					
	mm	in	mm	in	mm	in	N	lbf	N	lbf	A	r/min	r/min	kg	lb	–	kg	lb
53201	12	0.4724	28	1.1024	13	0.5118	13 300	2 990	20 800	4 670	2.2	8 000	11 000	0.05	0.10	U 201	0.0	0.0
53202	15	0.5906	32	1.2598	15	0.5906	15 900	3 570	25 000	5 620	3.8	7 000	10 000	0.06	0.14	U 202	0.0	0.0
53203	17	0.6693	35	1.3780	15	0.5906	16 300	3 660	27 000	6 070	4.7	6 700	9 500	0.07	0.16	U 203	0.0	0.0
53204	20	0.7874	40	1.5748	17	0.6693	21 200	4 760	37 500	8 430	8.5	5 600	8 000	0.10	0.22	U 204	0.0	0.0
53205	25	0.9843	47	1.8504	19	0.7480	26 500	5 960	50 000	11 240	15	5 000	7 000	0.15	0.33	U 205	0.0	0.1
53206	30	1.1811	52	2.0472	20	0.7874	25 100	5 640	51 000	11 460	13	4 500	6 300	0.18	0.40	U 206	0.0	0.1
53207	35	1.3780	62	2.4409	22	0.8661	35 100	7 890	73 500	16 520	28	4 000	5 600	0.28	0.62	U 207	0.1	0.1
53208	40	1.5748	68	2.6772	23	0.9055	44 200	9 930	96 500	21 690	58	3 600	5 300	0.35	0.77	U 208	0.1	0.2
53209	45	1.7717	73	2.8740	24	0.9449	39 000	8 760	86 500	19 440	38	3 400	4 800	0.39	0.86	U 209	0.1	0.2
53210	50	1.9685	78	3.0709	26	1.0236	49 400	11 100	116 000	26 070	69	3 200	4 500	0.47	1.04	U 210	0.1	0.2
53211	55	2.1654	90	3.5433	30	1.1811	58 500	13 150	134 000	30 110	110	2 800	3 800	0.75	1.65	U 211	0.2	0.3
53212	60	2.3622	95	3.7402	31	1.2205	59 200	13 300	140 000	31 460	120	2 600	3 600	0.82	1.81	U 212	0.2	0.4
53213	65	2.5591	100	3.9370	32	1.2598	60 500	13 600	150 000	33 710	140	2 600	3 600	0.91	2.01	U 213	0.2	0.4
53214	70	2.7559	105	4.1339	32	1.2598	62 400	14 020	160 000	35 960	160	2 600	3 600	0.97	2.14	U 214	0.2	0.4
53215	75	2.9528	110	4.3307	32	1.2598	63 700	14 310	170 000	38 200	170	2 400	3 400	1.00	2.21	U 215	0.2	0.5
53216	80	3.1496	115	4.5276	33	1.2992	76 100	17 100	208 000	46 740	220	2 400	3 200	1.10	2.43	U 216	0.2	0.5
53217	85	3.3465	125	4.9213	37	1.4567	97 500	21 910	275 000	61 800	390	2 000	3 000	1.50	3.31	U 217	0.3	0.6
53218	90	3.5433	135	5.3150	42	1.6535	112 000	25 170	290 000	65 170	550	1 900	2 600	2.10	4.63	U 218	0.4	0.9
53220	100	3.9370	150	5.9055	45	1.7717	119 000	26 740	325 000	73 030	620	1 700	2 400	2.70	5.95	U 220	0.5	1.1
53222	110	4.3307	160	6.2992	45	1.7717	125 000	28 090	365 000	82 020	790	1 700	2 400	2.91	6.42	U 222	0.6	1.2
53224	120	4.7244	170	6.6929	46	1.8110	127 000	28 540	390 000	87 640	1 000	1 500	2 200	3.20	7.06	U 224	–	–
53226	130	5.1181	190	7.4803	53	2.0866	186 000	41 800	585 000	131 460	1 800	1 300	1 800	4.85	10.69	U 226	0.9	1.9
53228	140	5.5118	200	7.8740	55	2.1654	190 000	42 700	620 000	139 330	2 000	1 300	1 800	5.45	12.02	U 228	1.2	2.7

Consult SKF USA Inc. prior to design change or order placement.

Thrust ball bearings
Single direction, sphered housing washer
Standard
Series: 53306 – 53324 M
Size: 30 mm – 120 mm
1.1811 in – 4.7244 in

Series: 53408 – 53420 M
Size: 40 mm – 100 mm
1.5748 in – 3.9370 in



Single direction with sphered housing washer

For D_3 and H_1 dimension refer to table 1 on pages 110 and 111.

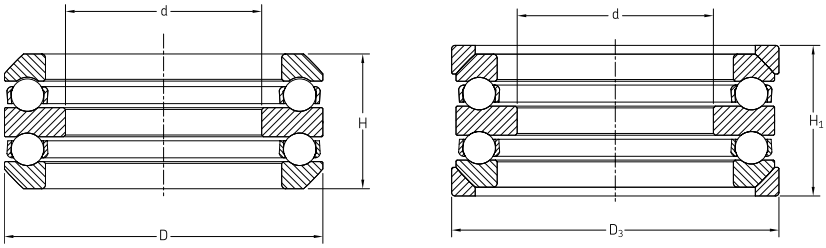
Designation	Principal dimensions						Basic load ratings				Minimum load factor	Speed rating		Mass		Seating washer	Mass	
	Bore d		Outside diameter D		Height H_1		Dynamic C		Static C_0			Reference speed	Limiting speed					
	mm	in	mm	in	mm	in	N	lbf	N	lbf	A	r/min	r/min	kg	lb	–	kg	lb
53306	30	1.1811	60	2.3622	25	0.9843	35 800	8 040	65 500	14 720	26	3 800	5 300	0.33	0.73	U 306	0.1	0.1
53307	35	1.3780	68	2.6772	28	1.1024	49 400	11 100	96 500	21 690	48	3 200	4 500	0.46	1.01	U 307	0.1	0.2
53308	40	1.5748	78	3.0709	31	1.2205	61 800	13 890	122 000	27 420	77	2 800	4 000	0.67	1.48	U 308	0.1	0.2
53309	45	1.7717	85	3.3465	33	1.2992	76 100	17 100	153 000	34 380	120	2 600	3 800	0.83	1.83	U 309	0.2	0.4
53310	50	1.9685	95	3.7402	37	1.4567	81 900	18 400	170 000	38 200	190	2 400	3 400	1.20	2.65	U 310	0.2	0.5
53311	55	2.1654	105	4.1339	42	1.6535	101 000	22 700	224 000	50 340	260	2 200	3 000	1.68	3.70	U 311	–	–
53312	60	2.3622	110	4.3307	42	1.6535	101 000	22 700	224 000	50 340	260	2 000	3 000	1.71	3.77	U 312	0.3	0.7
53313	65	2.5591	115	4.5276	43	1.6929	106 000	23 820	240 000	53 930	300	2 000	2 800	1.89	4.17	U 313	0.3	0.7
53314	70	2.7559	125	4.9213	48	1.8898	135 000	30 340	320 000	71 910	530	1 800	2 600	2.50	5.51	U 314	0.4	0.9
53315	75	2.9528	135	5.3150	52	2.0472	163 000	36 630	390 000	87 640	790	1 700	2 400	3.20	7.06	U 315	0.5	1.2
53316	80	3.1496	140	5.5118	52	2.0472	159 000	35 730	390 000	87 640	790	1 600	2 200	3.20	7.06	U 316	0.6	1.2
53317	85	3.3465	150	5.9055	58	2.2835	174 000	39 100	405 000	91 010	1 100	1 500	2 000	4.35	9.59	U 317	0.8	1.8
53318	90	3.5433	155	6.1024	59	2.3228	182 000	40 900	440 000	98 880	1 300	1 400	2 000	4.70	10.36	U 318	0.8	1.9
53320	100	3.9370	170	6.6929	64	2.5197	225 000	50 560	570 000	128 090	1 900	1 300	1 800	5.95	13.12	U 320	1.0	2.1
53322 M	110	4.3307	190	7.4803	72	2.8346	281 000	63 150	815 000	183 150	3 200	1 100	1 600	9.10	20.07	U 322	–	–
53324 M	120	4.7244	210	8.2677	80	3.1496	325 000	73 030	980 000	220 220	5 000	1 000	1 400	12.50	27.56	U 324	–	–
53408	40	1.5748	90	3.5433	42	1.6535	95 600	21 480	183 000	41 120	260	2 400	3 200	1.35	2.98	U 408	0.3	0.6
53410	50	1.9685	110	4.3307	50	1.9685	159 000	35 730	340 000	76 400	600	1 900	2 600	2.31	5.09	U 410	0.4	0.9
53411	55	2.1654	120	4.7244	55	2.1654	195 000	43 820	400 000	89 890	790	1 700	2 400	3.08	6.79	U 411	–	–
53412 M	60	2.3622	130	5.1181	58	2.2835	199 000	44 720	430 000	96 630	960	1 600	2 200	3.80	8.38	U 412	–	–
53414 M	70	2.7559	150	5.9055	69	2.7165	234 000	52 580	550 000	123 600	1 600	1 400	2 000	6.50	14.33	U 414	–	–
53415 M	75	2.9528	160	6.2992	75	2.9528	251 000	56 400	610 000	137 080	1 900	1 300	1 800	8.10	17.86	U 415	–	–
53418 M	90	3.5433	190	7.4803	88	3.4646	307 000	68 990	815 000	183 150	3 500	1 100	1 500	13.00	28.67	U 418	–	–
53420 M	100	3.9370	210	8.2677	98	3.8583	371 000	83 370	1 060 000	238 200	5 800	950	1 300	18.00	39.69	U 420	2.8	6.2

Consult SKF USA Inc. prior to design change or order placement.

Thrust ball bearings
Double direction, sphered housing washer
Standard
Series: 54207 – 54211
Size: 35 mm – 55 mm
1.1811 in – 1.7717 in

Series: 54306 – 54317
Size: 30 mm – 85 mm
0.9843 in – 2.7559 in

Series: 54409 – 54420
Size: 45 mm – 100 mm
1.3780 in – 3.1496 in

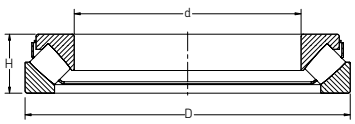


Double direction with sphered housing washer

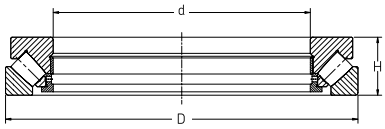
For D_3 and H_1 dimension refer to table 1 on pages 110 and 111.

Designation	Principal dimensions						Basic load ratings				Minimum load factor	Speed rating		Mass		Seating washer	Mass	
	Bore d		Outside diameter D		Height H_1		Dynamic C		Static C_0			Reference speed	Limiting speed					
	mm	in	mm	in	mm	in	N	lbf	N	lbf	A	r/min	r/min	kg	lb	–	kg	lb
54207	35	1.1811	62	2.4409	42	1.6535	35 100	7 890	73 500	16 520	28	2 800	4 000	0.53	1.17	U 207	0.1	0.1
54208	40	1.1811	68	2.6772	44	1.7323	44 200	9 930	96 500	21 690	58	2 800	3 800	0.63	1.39	U 208	0.1	0.2
54209	45	1.3780	73	2.8740	45	1.7717	39 000	8 760	86 500	19 440	38	2 600	3 600	0.78	1.72	U 209	0.1	0.2
54211	55	1.7717	90	3.5433	55	2.1654	58 500	13 150	134 000	30 110	110	2 200	3 000	1.30	2.87	U 211	0.2	0.3
54306	30	0.9843	60	2.3622	46	1.8110	35 800	8 040	65 500	14 720	26	2 800	3 800	0.58	1.28	U 306	0.1	0.1
54307	35	1.1811	68	2.6772	52	2.0472	49 400	11 100	96 500	21 690	48	2 400	3 400	0.85	1.87	U 307	0.1	0.2
54308	40	1.1811	78	3.0709	59	2.3228	61 800	13 890	122 000	27 420	77	2 200	3 000	1.17	2.58	U 308	0.1	0.2
54309	45	1.3780	85	3.3465	62	2.4409	76 100	17 100	153 000	34 380	120	1 900	2 800	1.60	3.53	U 309	0.2	0.4
54310	50	1.5748	95	3.7402	70	2.7559	81 900	18 400	170 000	38 200	190	1 700	2 400	2.30	5.07	U 310	0.2	0.5
54410	50	1.5748	110	4.3307	92	3.6220	148 000	33 260	305 000	68 540	600	1 400	1 900	4.45	9.81	U 410	0.4	0.9
54312	60	1.9685	110	4.3307	78	3.0709	101 000	22 700	224 000	50 340	260	1 500	2 200	2.90	6.39	U 312	0.3	0.7
54316	80	2.5591	140	5.5118	95	3.7402	159 000	35 730	390 000	87 640	790	1 300	1 800	5.57	12.28	U 316	0.6	1.2
54317	85	2.7559	150	5.9055	105	4.1339	174 000	39 100	405 000	91 010	1 100	1 100	1 500	7.95	17.53	U 317	0.8	1.8
54409	45	1.3780	100	3.9370	86	3.3858	124 000	27 870	240 000	53 930	370	1 500	2 000	3.00	6.62	U 409	–	–
54416 M	80	2.5591	170	6.6929	140	5.5118	307 000	68 990	750 000	168 540	2 300	850	1 200	17.50	38.59	U 416	–	–
54420 M	100	3.1496	210	8.2677	176	6.9291	371 000	83 370	1 060 000	238 200	5 800	700	950	29.00	63.95	U 420	2.8	6.2

Consult SKF USA Inc. prior to design change or order placement.



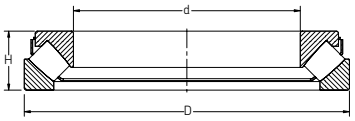
E design



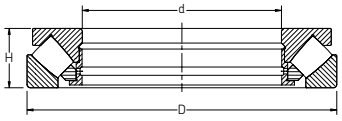
Designation	Principal dimensions						Basic load ratings				Minimum load factor	Speed rating		Mass	
	Bore d		Outside diameter D		Height H		Dynamic C		Static C_0			Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	A	r/min	r/min	kg	lb
29230 E	150	5.9055	215	8.4646	39	1.5354	408 000	91 700	1 600 000	359 600	240	1 800	2 800	4.3	9.5
29236 E	180	7.0866	250	9.8425	42	1.6535	495 000	111 200	2 040 000	458 400	400	1 600	2 600	5.8	12.8
29240 E	200	7.8740	280	11.0236	48	1.8898	656 000	147 400	2 650 000	595 500	670	1 400	2 200	9.3	20.5
29244 E	220	8.6614	300	11.8110	48	1.8898	690 000	155 100	3 000 000	674 200	860	1 300	2 200	10.0	22.1
29248	240	9.4488	340	13.3858	60	2.3622	799 000	179 600	3 450 000	775 300	1 100	1 100	1 800	16.5	36.4
29252	260	10.2362	360	14.1732	60	2.3622	817 000	183 600	3 650 000	820 200	1 300	1 100	1 700	18.5	40.8
29256	280	11.0236	380	14.9606	60	2.3622	863 000	193 900	4 000 000	898 900	1 500	1 000	1 700	19.5	43.0
29260	300	11.8110	420	16.5354	73	2.8740	1 070 000	240 400	4 800 000	1 078 700	2 200	900	1 400	30.5	67.3
29264	320	12.5984	440	17.3228	73	2.8740	1 110 000	249 400	5 100 000	1 146 100	2 500	850	1 400	33.0	72.8
29268	340	13.3858	460	18.1102	73	2.8740	1 130 000	253 900	5 400 000	1 213 500	2 800	850	1 300	33.5	73.9
29272	360	14.1732	500	19.6850	85	3.3465	1 460 000	328 100	6 800 000	1 528 100	4 400	750	1 200	52.0	114.7
29276	380	14.9606	520	20.4724	85	3.3465	1 580 000	355 100	7 650 000	1 719 100	5 600	700	1 100	53.0	116.9
29280	400	15.7480	540	21.2598	85	3.3465	1 610 000	361 800	8 000 000	1 797 800	6 100	700	1 100	55.5	122.4
29284	420	16.5354	580	22.8346	95	3.7402	1 990 000	447 200	9 800 000	2 202 200	9 100	630	1 000	75.5	166.5
29288	440	17.3228	600	23.6220	95	3.7402	2 070 000	465 200	10 400 000	2 337 100	10 000	630	1 000	78.0	172.0
29292	460	18.1102	620	24.4094	95	3.7402	2 070 000	465 200	10 600 000	2 382 000	11 000	600	950	81.0	178.6
29296	480	18.8976	650	25.5906	103	4.0551	2 350 000	528 100	11 800 000	2 651 700	13 000	560	900	98.0	216.1
292/500	500	19.6850	670	26.3780	103	4.0551	2 390 000	537 100	12 500 000	2 809 000	15 000	560	900	100.0	220.5
292/530 EM	530	20.8661	710	27.9528	109	4.2913	3 110 000	698 900	15 300 000	3 438 200	22 000	530	850	115.0	253.6
292/560	560	22.0472	750	29.5276	115	4.5276	2 990 000	671 900	16 000 000	3 595 500	24 000	480	800	140.0	308.7
292/600 EM	600	23.6220	800	31.4961	122	4.8031	3 740 000	840 400	18 600 000	4 179 800	33 000	450	700	170.0	374.9
292/630 EM	630	24.8031	850	33.4646	132	5.1969	4 770 000	1 071 900	23 600 000	5 303 400	53 000	400	670	210.0	463.1
292/800 EM	800	31.4961	1 060	41.7323	155	6.1024	6 560 000	1 474 200	34 500 000	7 752 800	110 000	320	530	380.0	837.9

Consult SKF USA Inc. prior to design change or order placement.

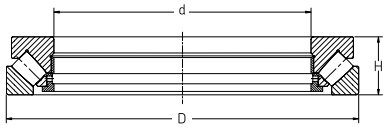
Spherical roller thrust bearings
Standard and SKF Explorer
Series: 29317 E – 293/800 EM
Size: 85 mm – 800 mm
3.3465 in – 31.4961 in



E design

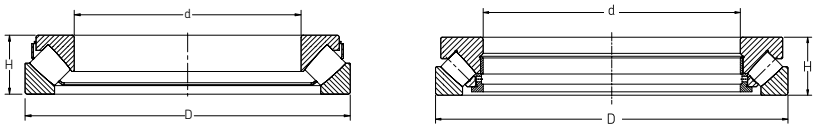


EM design



Designation	Principal dimensions						Basic load ratings				Minimum load factor	Speed rating		Mass	
	Bore d		Outside diameter D		Height H		Dynamic C		Static C_0			Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	A	r/min	r/min	kg	lb
29317 E	85	3.3465	150	5.9055	39	1.5354	380 000	85 400	1 060 000	238 200	110	2 400	4 000	2.8	6.1
29318 E	90	3.5433	155	6.1024	39	1.5354	400 000	89 900	1 080 000	242 700	110	2 400	4 000	2.9	6.3
29320 E	100	3.9370	170	6.6929	42	1.6535	465 000	104 500	1 290 000	289 900	160	2 200	3 600	3.7	8.0
29322 E	110	4.3307	190	7.4803	48	1.8898	610 000	137 100	1 730 000	388 800	280	1 900	3 200	5.3	11.7
29324 E	120	4.7244	210	8.2677	54	2.1260	765 000	171 900	2 120 000	476 400	430	1 700	2 800	7.4	16.2
29326 E	130	5.1181	225	8.8583	58	2.2835	865 000	194 400	2 500 000	561 800	590	1 600	2 600	9.0	19.8
29328 E	140	5.5118	240	9.4488	60	2.3622	980 000	220 200	2 850 000	640 400	770	1 500	2 600	10.5	23.2
29330 E	150	5.9055	250	9.8425	60	2.3622	1 000 000	224 700	2 850 000	640 400	770	1 500	2 400	11.0	24.3
29332 E	160	6.2992	270	10.6299	67	2.6378	1 180 000	265 200	3 450 000	775 300	1 100	1 300	2 200	14.5	32.0
29334 E	170	6.6929	280	11.0236	67	2.6378	1 200 000	269 700	3 550 000	797 800	1 200	1 300	2 200	15.0	33.1
29336 E	180	7.0866	300	11.8110	73	2.8740	1 430 000	321 300	4 300 000	966 300	1 800	1 200	2 000	19.5	43.0
29338 E	190	7.4803	320	12.5984	78	3.0709	1 630 000	366 300	4 750 000	1 067 400	2 100	1 100	1 900	23.5	51.8
29340 E	200	7.8740	340	13.3858	85	3.3465	1 860 000	418 000	5 500 000	1 236 000	2 900	1 000	1 700	28.4	62.6
29344 E	220	8.6614	360	14.1732	85	3.3465	2 000 000	449 400	6 300 000	1 415 700	3 800	1 000	1 700	31.2	68.8
29348 E	240	9.4488	380	14.9606	85	3.3465	2 040 000	458 400	6 550 000	1 471 900	4 100	1 000	1 600	35.5	78.3
29352 E	260	10.2362	420	16.5354	95	3.7402	2 550 000	573 000	8 300 000	1 865 200	6 500	850	1 400	49.0	108.0
29356 E	280	11.0236	440	17.3228	95	3.7402	2 550 000	573 000	8 650 000	1 943 800	7 100	850	1 400	53.0	116.9
29360 E	300	11.8110	480	18.8976	109	4.2913	3 100 000	696 600	10 600 000	2 382 000	11 000	750	1 200	75.0	165.4
29364 E	320	12.5984	500	19.6850	109	4.2913	3 350 000	752 800	11 200 000	2 516 900	12 000	750	1 200	78.0	172.0
29368	340	13.3858	540	21.2598	122	4.8031	2 710 000	609 000	11 000 000	2 471 900	11 000	600	1 100	105.0	231.5
29372	360	14.1732	560	22.0472	122	4.8031	2 760 000	620 200	11 600 000	2 606 700	13 000	600	1 100	110.0	242.6
29376	380	14.9606	600	23.6220	132	5.1969	3 340 000	750 600	14 000 000	3 146 100	19 000	530	1 000	140.0	308.7
29380	400	15.7480	620	24.4094	132	5.1969	3 450 000	775 300	14 600 000	3 280 900	20 000	530	950	150.0	330.8
29384	420	16.5354	650	25.5906	140	5.5118	3 740 000	840 400	16 000 000	3 595 500	24 000	500	900	170.0	374.9
29388 EM	440	17.3228	680	26.7717	145	5.7087	5 200 000	1 168 500	19 300 000	4 337 100	34 000	530	850	180.0	396.9
29392	460	18.1102	710	27.9528	150	5.9055	4 310 000	968 500	19 000 000	4 269 700	34 000	450	800	215.0	474.1
293 / 500	500	19.6850	750	29.5276	150	5.9055	4 490 000	1 009 000	20 400 000	4 584 300	40 000	430	800	235.0	518.2
293 / 530 EM	530	20.8661	800	31.4961	160	6.2992	5 870 000	1 319 100	26 500 000	5 955 100	67 000	400	750	265.0	584.3
293 / 630 EM	630	24.8031	950	37.4016	190	7.4803	8 450 000	1 898 900	38 000 000	8 539 300	140 000	320	600	485.0	1069.4
293 / 710 EM	710	27.9528	1 060	41.7323	212	8.3465	9 950 000	2 236 000	45 500 000	10 224 700	200 000	280	500	610.0	1345.1
293 / 800 EM	800	31.4961	1 180	46.4567	230	9.0551	11 300 000	2 539 300	55 000 000	12 359 600	290 000	240	450	810.0	1786.1

Consult SKF USA Inc. prior to design change or order placement.

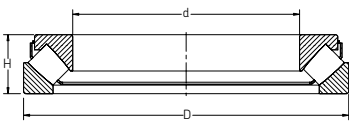


E design

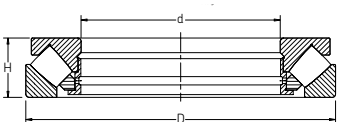
Designation	Principal dimensions						Basic load ratings				Minimum load factor	Speed rating		Mass	
	Bore d		Outside diameter D		Height H		Dynamic C		Static C_0			Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	A	r/min	r/min	kg	lb
29412 E	60	2.3622	130	5.1181	42	1.6535	390 000	87 600	915 000	205 600	80	2 800	5 000	2.6	5.7
29413 E	65	2.5591	140	5.5118	45	1.7717	455 000	102 200	1 080 000	242 700	110	2 600	4 800	3.2	7.1
29414 E	70	2.7559	150	5.9055	48	1.8898	520 000	116 900	1 250 000	280 900	150	2 400	4 300	3.9	8.6
29415 E	75	2.9528	160	6.2992	51	2.0079	600 000	134 800	1 430 000	321 300	190	2 400	4 000	4.7	10.4
29416 E	80	3.1496	170	6.6929	54	2.1260	670 000	150 600	1 630 000	366 300	250	2 200	3 800	5.6	12.3
29417 E	85	3.3465	180	7.0866	58	2.2835	735 000	165 200	1 800 000	404 500	310	2 000	3 600	6.8	14.9
29418 E	90	3.5433	190	7.4803	60	2.3622	815 000	183 100	2 000 000	449 400	380	1 900	3 400	7.8	17.1
29420 E	100	3.9370	210	8.2677	67	2.6378	980 000	220 200	2 500 000	561 800	590	1 700	3 000	10.5	23.2
29422 E	110	4.3307	230	9.0551	73	2.8740	1 180 000	265 200	3 000 000	674 200	860	1 600	2 800	13.5	29.8
29424 E	120	4.7244	250	9.8425	78	3.0709	1 370 000	307 900	3 450 000	775 300	1 100	1 500	2 600	17.5	38.6
29426 E	130	5.1181	270	10.6299	85	3.3465	1 560 000	350 600	4 050 000	910 100	1 600	1 300	2 400	22.0	48.5
29428 E	140	5.5118	280	11.0236	85	3.3465	1 630 000	366 300	4 300 000	966 300	1 800	1 300	2 400	23.0	50.7
29430 E	150	5.9055	300	11.8110	90	3.5433	1 860 000	418 000	5 100 000	1 146 100	2 500	1 200	2 200	28.0	61.7
29432 E	160	6.2992	320	12.5984	95	3.7402	2 080 000	467 400	5 600 000	1 258 400	3 000	1 100	2 000	32.0	70.6
29434 E	170	6.6929	340	13.3858	103	4.0551	2 360 000	530 300	6 550 000	1 471 900	4 100	1 100	1 900	44.5	98.1
29436 E	180	7.0866	360	14.1732	109	4.2913	2 600 000	584 300	7 350 000	1 651 700	5 100	1 000	1 800	52.5	115.8
29438 E	190	7.4803	380	14.9606	115	4.5276	2 850 000	640 400	8 000 000	1 797 800	6 100	950	1 700	60.5	133.4
29440 E	200	7.8740	400	15.7480	122	4.8031	3 200 000	719 100	9 000 000	2 022 500	7 700	850	1 600	72.0	158.8
29444 E	220	8.6614	420	16.5354	122	4.8031	3 350 000	752 800	9 650 000	2 168 500	8 800	850	1 500	75.0	165.4
29448 E	240	9.4488	440	17.3228	122	4.8031	3 400 000	764 000	10 200 000	2 292 100	9 900	850	1 500	80.0	176.4
29452 E	260	10.2362	480	18.8976	132	5.1969	4 050 000	910 100	12 900 000	2 898 900	16 000	750	1 300	105.0	231.5
29456 E	280	11.0236	520	20.4724	145	5.7087	4 900 000	1 101 100	15 300 000	3 438 200	22 000	670	1 200	135.0	297.7
29460 E	300	11.8110	540	21.2598	145	5.7087	5 000 000	1 123 600	16 600 000	3 730 300	24 000	670	1 200	140.0	308.7

Consult SKF USA Inc. prior to design change or order placement.

Spherical roller thrust bearings
Standard and SKF Explorer
Series: 29464 E – 294/1060 EF
Size: 320 mm – 1060 mm
12.5984 in – 41.7322 in



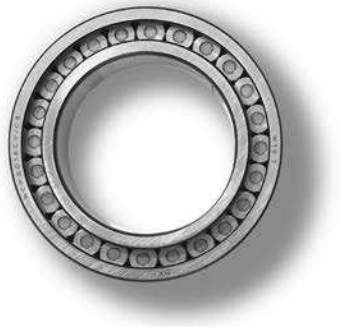
E design



EM design

Designation	Principal dimensions						Basic load ratings				Minimum load factor	Speed rating		Mass	
	Bore d		Outside diameter D		Height H		Dynamic C		Static C_0			Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	A	r/min	r/min	kg	lb
29464 E	320	12.5984	580	22.8346	155	6.1024	5 700 000	1 280 900	19 000 000	4 269 700	32 000	600	1 100	175.0	385.9
29468 E	340	13.3858	620	24.4094	170	6.6929	6 700 000	1 505 600	22 400 000	5 033 700	46 000	560	1 000	220.0	485.1
29472 EM	360	14.1732	640	25.1969	170	6.6929	6 200 000	1 393 300	21 200 000	4 764 000	41 000	560	950	230.0	507.2
29476 EM	380	14.9606	670	26.3780	175	6.8898	6 800 000	1 528 100	24 000 000	5 393 300	53 000	530	900	260.0	573.3
29480 EM	400	15.7480	710	27.9528	185	7.2835	7 650 000	1 719 100	26 500 000	5 955 100	62 000	480	850	310.0	683.6
29484 EM	420	16.5354	730	28.7402	185	7.2835	7 800 000	1 752 800	27 500 000	6 179 800	69 000	480	850	325.0	716.6
29488 EM	440	17.3228	780	30.7087	206	8.1102	9 000 000	2 022 500	32 000 000	7 191 000	91 000	430	750	410.0	904.1
29492 EM	460	18.1102	800	31.4961	206	8.1102	9 300 000	2 089 900	33 500 000	7 528 100	100 000	430	750	425.0	937.1
29496 EM	480	18.8976	850	33.4646	224	8.8189	9 550 000	2 146 100	39 000 000	8 764 000	140 000	340	670	550.0	1212.8
294/500 EM	500	19.6850	870	34.2520	224	8.8189	9 370 000	2 105 600	40 000 000	8 988 800	150 000	340	670	560.0	1234.8
294/530 EM	530	20.8661	920	36.2205	236	9.2913	10 500 000	2 359 600	44 000 000	9 887 600	180 000	320	630	650.0	1433.3
294/560 EM	560	22.0472	980	38.5827	250	9.8425	12 000 000	2 696 600	51 000 000	11 460 700	250 000	300	560	810.0	1786.1
294/600 EM	600	23.6220	1 030	40.5512	258	10.1575	13 100 000	2 943 800	56 000 000	12 584 300	300 000	280	530	845.0	1863.2
294/630 EM	630	24.8031	1 090	42.9134	280	11.0236	14 400 000	3 236 000	62 000 000	13 932 600	370 000	260	500	1040.0	2293.2
294/670 EM	670	26.3780	1 150	45.2756	290	11.4173	15 400 000	3 460 700	68 000 000	15 280 900	440 000	240	450	1210.0	2668.1
294/710 EF	710	27.9528	1 220	48.0315	308	12.1260	17 600 000	3 955 100	76 500 000	17 191 000	560 000	220	430	1500.0	3307.5
294/750 EF	750	29.5276	1 280	50.3937	315	12.4016	18 700 000	4 202 200	85 000 000	19 101 100	690 000	200	400	1650.0	3638.3
294/800 EF	800	31.4961	1 360	53.5433	335	13.1890	20 200 000	4 539 300	93 000 000	20 898 900	820 000	190	360	2025.0	4465.1
294/850 EF	850	33.4646	1 440	56.6929	354	13.9370	23 900 000	5 370 800	108 000 000	24 269 700	1 100 000	170	340	2390.0	5270.0
294/900 EF	900	35.4331	1 520	59.8425	372	14.6457	26 700 000	6 000 000	122 000 000	27 415 700	1 400 000	160	300	2650.0	5843.3
294/950 EF	950	37.4016	1 600	62.9921	390	15.3543	28 200 000	6 337 100	132 000 000	29 662 900	1 700 000	140	280	3065.0	6758.3
294/1000 EF	1 000	39.3701	1 670	65.7480	402	15.8268	31 100 000	6 988 800	140 000 000	31 460 700	1 900 000	130	260	3383.0	7459.5
294/1060 EF	1 060	41.7323	1 770	69.6850	426	16.7717	33 400 000	7 505 600	156 000 000	35 056 200	2 300 000	120	240	4280.0	9437.4

Consult SKF USA Inc. prior to design change or order placement.



Cylindrical roller bearings

N 310 EC M / C3 V W23B

1 2 3 4 5 6

1. Basic design:

N	Two integral flanges on inner ring, flangeless outer ring
NU	Two integral flanges on outer ring, flangeless inner ring
NJ	One flange on inner ring, two flanges on outer ring
NUP	Two integral flanges on outer ring, one integral flange on inner ring and one loose flange on inner ring
NCF	Full complement, two flanges on inner ring, one flange on outer ring, with snap ring
NJG	Full complement with one flange on inner ring, and two flanges on outer ring
NNCF	Two-row, full complement, three flanges on inner ring, one flange on outer ring, with snap ring
NNF	Two-row, full complement
NNCL	Double row CRB with no outer ring integral flanges, only one centrally located snap ring
NNC	Double row CRB with one outer ring integral flange and one flange ring
BC4	Four row CRB
HJ	Angle ring
L	Separate inner or outer ring of a separable bearing
R	Inner or outer ring with roller and cage assembly of a separable bearing

2. Internal design:

EC	Increased capacity plus improved roller end to flange contact
CV	Modified internal design, full complement roller set

3. Cage designs:

M	Two piece machined brass cage, rolling element guided
MA	Two piece machined brass cage, outer ring flange guided
MB	Machined brass cage, inner ring flange guided
ML/MP	One piece window-type brass cage, inner or outer ring centered
M2	Solid brass drilled cage, roller guided for traction motor bearings
HB1	Bainite hardened inner and outer ring
J	Pressed steel cage, rolling element guided
P	Molded glass fiber reinforced polyamide 6.6 cage, roller centered
PHA	Injection molded cage of polyetheretherketone (PEEK), outer ring centered

4. Radial internal clearance:

C1	Clearance < C2
C2	Clearance < Normal
(C0)*	Normal internal clearance
C3	Clearance > Normal
C4	Clearance > C3

* Not marked on bearing or package

5. Variations:

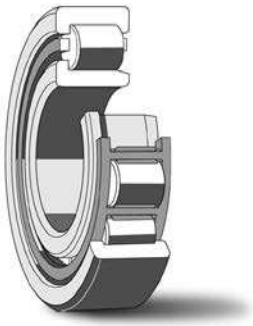
C	Surface treated rollers
CV	V + surface treated rollers
F	Hardened steel cage with MnPh coating
V	Full complement bearing without cage
VH	Full complement rollers (no cage), self-retaining
2LS	Two land riding contact seals

6. Special features:

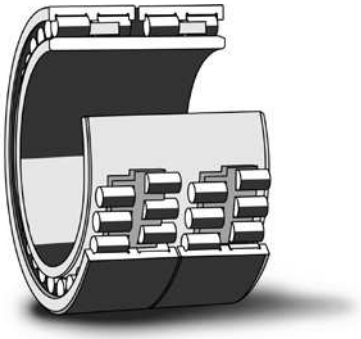
W23B	Special features for traction motor bearings
VA301	Special bearing specifications for traction motors
VL0241	INSOCOAT® coating on outer ring for electrical insulation
W64	Solid Oil lubricants

Technical features

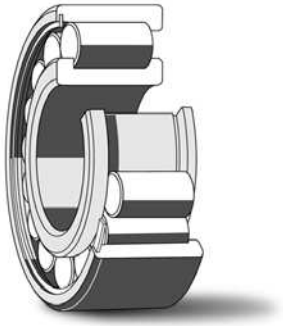
Boundary dimensions	In accordance with ISO 15
Tolerances	ABMA RBEC 3, ISO P6 running accuracy ABMA RBEC 1, ISO Normal dimensional
Heat stabilization	302° F (150° C)
Misalignment	4 minutes of arc for series N200, 300, 400, 1000 and 1800 3 minutes of arc for series N2200, 2300, 2900 and 3000
Cage material	
Standard	Molded glass fiber reinforced polyamide (P)
Optional	Machined brass (M) and pressed steel (J)
Axial load – max	Contact SKF Applications Engineering
Seals	2LS seals on NNF series only



Single row cylindrical roller bearing (data tables on page 138)



Four row cylindrical roller bearing (data-s on page 144)



Full complement, single row cylindrical roller bearing (data tables on page 148)

Introduction

SKF manufactures many types and sizes of cylindrical roller bearings, the majority being single row bearings with a cage, but also single or double row bearings with a full complement of rollers.

All SKF cylindrical roller bearings represent the latest state of the art. The contact geometry between roller and raceway has been much improved by the introduction of the "logarithmic" profile that provides for optimum stress distribution in the bearing. Optimized surface finishes favor lubricant film formation and the correct rolling motion of the cylindrical rollers. These improvements have considerably increased the performance of SKF cylindrical roller bearings as well as their operational reliability in comparison with conventional bearings, and have made them less sensitive to misalignment.

Full complement cylindrical roller bearings incorporate the maximum number of rollers and, as a rule, have a low sectional height in relation to their width. This produces an extremely high load carrying capacity and permits space-saving designs to be achieved. Full complement cylindrical roller bearings are suitable for very heavy radial loads; however, the different kinematic conditions in the bearing mean that they cannot operate at the same high speeds as cylindrical roller bearings of the conventional caged type.

SKF produces single and double row full complement cylindrical roller bearings as part of the standard product range. The bearings shown in the tables are standard range bearings but represent only part of the actual manufactured range.

Basic design

Single row cylindrical roller bearings

The rollers of single row cylindrical roller bearings with cages are guided between integral flanges on one of the bearing rings. The ring with integral flanges and the roller and cage assembly can be withdrawn from the other ring (i.e., separable). This facilitates mounting and dismounting particularly where both rings need to have interference fits because of the load conditions.

SKF single row cylindrical roller bearings have high radial load carrying capacity and also high speed capability. They are produced in different designs that differ in the configuration of the flanges (**Figure 1**).

The most popular of these bearings is the NU type which has two integral flanges on the outer ring and an inner ring without flanges (**Figure 1a**). The N type has two integral flanges on the inner ring and an outer ring without flanges (**Figure 1b**).

Axial displacement of the shaft with respect to the housing is permitted in both directions within certain limits (**Table 3a**, page 135 for dimension code "s"). For example, changes in length because of thermal expansion can be accommodated, and the bearings are therefore suitable as non-locating bearings.

Cylindrical roller bearings of the NJ type have two integral flanges on the outer ring and one integral flange on the inner ring, so that axial location can be provided for the shaft in one direction (**Figure 1c**).

Type NUP cylindrical roller bearings have two integral flanges on the outer ring and the inner ring has one integral and one loose flange, enabling the bearings to locate a shaft axially in both directions (**Figure 1d**).

SKF Explorer class bearings

SKF Explorer cylindrical roller bearings retain the designation of earlier standard bearings, e.g. NU 216 ECP. However, each bearing and its box are marked with the name "SKF Explorer", to avoid confusion. In the product tables, the SKF Explorer bearing designations are printed in blue. Additional details on the SKF Explorer performance class bearings can be found on page 25.

Product highlights

Logarithmically crowned rollers... sets SKF apart

SKF cylindrical roller bearings feature logarithmically "crowned" rollers. This roller profile reduces stresses under high load conditions, while simultaneously providing excellent performance under misaligned conditions.

High speed performance

Extended benefits of the logarithmic profile roller are the cooler running conditions and reliable performance which allow for high speed running conditions.

Precision-honed rolling contact surfaces

SKF cylindrical roller bearings also feature precision-honed inner and outer rings, raceways and rollers. The SKF honing process results in optimum bearing performance and improved lubricant effectiveness... and quieter, cooler, more reliable performance.

Large product assortment

SKF manufactures cylindrical roller bearings in single, double and multiple row designs which differ in the arrangement, design and construction of the flanges. While caged bearings are most common, several series with a full compliment of rollers are also available. Size range includes 25 to 1,000 mm inside diameter.

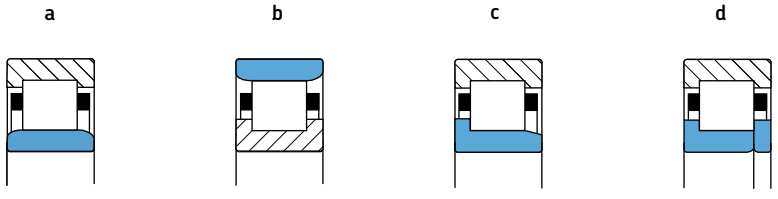
Application flexibility

The large variety of sizes and types of cylindrical roller bearings available from SKF provides a wide degree of application flexibility. Typical applications include compressors, industrial gearboxes, transmissions, and final drives in both on-road and off-road vehicles.

Customized solutions

Special cages are available from SKF for special application conditions such as ammonia compressors and railroad applications.

Figure 1



Introduction

EC–design bearings

The EC design contains improvements in the guiding surfaces of the flanges and of the roller ends which means that the EC bearings have a high axial load carrying capacity. The favorable contact conditions also contribute to better lubrication of the roller end/flange contact zone and to lower operating temperatures. These characteristics make SKF cylindrical roller bearings of the EC design particularly useful. They represent the standard design for the most popular sizes of bearing series 10, 2, 22, 3 and 23.

Single row full complement cylindrical roller bearings

SKF full complement cylindrical roller bearings are produced as standard in the single row NCF and NJG designs. **(Figure 2).**

Bearings of the NCF design are the most popular and have two integral flanges on the inner ring and one integral flange in the outer ring and can thus locate the shaft in one direction **(Figure 2a).** A retaining ring at the flangeless side of the outer ring holds the bearing together. The axial internal clearance in the bearing is designed to permit small axial displacements of the shaft in relation to the housing to be accommodated within the bearing (**Table 3b**, page 136).

Bearings of the NJG design all belong to the heavy dimension series 23 and are intended for very heavily loaded, slow-speed applications **(Figure 2b).** In contrast to the other full complement bearings, the NJG bearings have a self-retaining roller complement. The outer ring with its two integral flanges, together with the roller complement, can be withdrawn from the inner ring and there is no need to provide any extra retention for the rollers. Mounting and dismounting of these bearings are therefore simple operations. NJG design bearings can support axial loads acting in one direction and can consequently locate the shaft in one direction.

Double row full complement cylindrical roller bearings

There are several designs of SKF double row full complement cylindrical roller bearings, all of which have an annular groove and lubrication holes in the outer ring. This feature facilitates the provision of efficient lubrication.

Double row full complement cylindrical roller bearings of the NNC, NNCL, and NNCF designs differ only in the number of flanges on the outer ring. The inner ring with its three integral flanges between which the two rows of rollers are accurately guided is common to all three designs. Outer ring flanges or retaining rings inserted in the outer ring bore prevent the bearing from falling apart.

Bearings of the NNCL design **(Figure 2c)** have no integral flanges on the outer ring. Axial displacements of the shaft relative to the housing are thus permitted, within certain limits.

Bearings of the NNCF and NNC designs **(Figure 2d and 2e)** have one integral flange and a retaining ring in the outer ring. They can accommodate axial loads in one direction and can locate the shaft in one direction. Axial displacements of the shaft relative to the housing are permitted.

The rollers of bearings of the NNF design (series NNF 50) are guided between the integral flanges of the two-part inner ring, which is held together by a retaining ring. The outer ring has a central integral flange. The bearings can be used as locating bearings as they can accommodate axial loads acting in both directions. Because of the large distance between the roller rows, they are also suitable for the accommodation of tilting moments.

The outer ring of the bearing is 1 mm narrower than the inner ring and has two snap ring grooves in the outside diameter. It is thus possible to dispense with spacer rings between the inner ring and adjacent components without affecting outer ring rotation; for example in pulleys, or the housing (or hub) can be made narrower than the bearing and axial space saved.

Bearings of the NNF design (Figure 2f) are produced as standard with outer ring contacting seals at both sides. NNF design bearings are supplied filled with rust inhibiting lithium grease having a diester oil base, which is suitable for operation at temperatures between -58° and +230° F (-50° and +110° C). However, the permissible operating temperature for these bearings is limited to -40° to +176° F (-40° to +80° C) by the material used for the seals.

Under certain conditions, the sealed NNF bearings are maintenance-free. However, where they operate in the presence of moisture or contaminants, or where speeds are moderate or high, they must be relubricated. This can be achieved via both bearing rings. If bearings are required without one or both seals, they may be removed quite simply, for example, using a screwdriver.

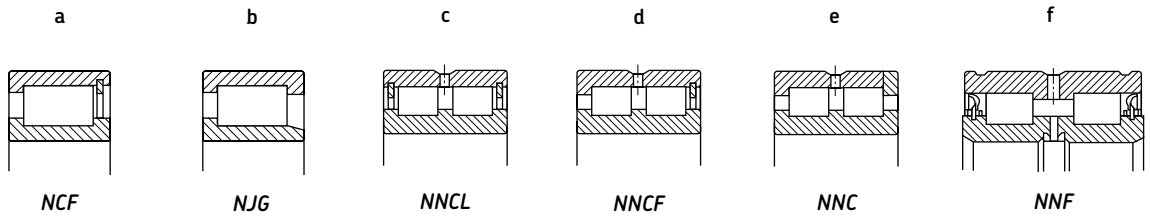
For applications where oil lubrication is to be employed, the bearings can be delivered without seals and grease if economic quantities are involved. Otherwise the seals should be removed and the bearings washed before use. If oil lubrication is adopted, the speed ratings can be increased by approximately 30%.

The new line of SKF Explorer 4rCRB work roll bearings

The new Explorer design offers extended service life under the harsh operating conditions of bar, wire and section mills.

- Size range with an outer diameter of up to 420mm
- Brass cage for significantly longer service life and higher reliability
- Optional hardened steel cage with MnPh coating as a problem solver for exceptional operating conditions
- The potential to downsize applications
- Better accommodation for heavier loads
- Reduced noise, vibration and sensitivity to misalignment
- Improved robustness against contamination and lubrication issues
- Increased asset uptime and productivity

Figure 2



Internal clearance

Radial internal clearance

SKF single row cylindrical bearings are produced with Normal radial internal clearance as standard; the majority of the bearings are also available with C3 radial internal clearance and some with the appreciably greater C4 clearance.

The values for the clearance correspond to DIN 620, Part 4 for the size range covered by this standard and are given in **Table 1**. The values apply to bearings before mounting and under zero measuring load.

SKF full complement cylindrical roller bearings are manufactured with Normal or C3 radial internal clearance as standard. The values for the clearance limits correspond to ISO and are shown in **Table 1**.

Axial internal clearance

Cylindrical roller bearings of the NUP type can serve to locate shafts in both directions, and are manufactured by SKF with axial internal clearance according to **Table 2**.

The values given in **Table 2** for axial internal clearance should be considered as guideline values. Because of roller tilting during measurement of the axial internal clearance, increases in the clearance are possible. These correspond:

- For bearings of series 10, 2, 3 and 4 to approximately the radial internal clearance, and
- For bearings of series 22 and 23 to approximately 2/3 of the radial internal clearance

Special solutions using cylindrical roller bearings

SKF also manufactures:

- Precision single and double row cylindrical roller bearings for machine tool applications
- Double and multi-row cylindrical roller bearings for rolling mill and other heavy engineering applications
- Special traction roller bearings for railroad applications

Details on these special solution products are available in other SKF publications, which can be supplied upon request.

Table 1

Radial internal clearance of cylindrical roller bearings

Bore diameter d		Radial internal clearance															
		C2				Normal				C3				C4			
over	incl.	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
mm		µm		in		µm		in		µm		in		µm		in	
-	24	0	25	0.0000	0.0010	20	45	0.0008	0.0018	35	60	0.0014	0.0024	50	75	0.0020	0.0030
24	30	0	25	0.0000	0.0010	20	45	0.0008	0.0018	35	60	0.0014	0.0024	50	75	0.0020	0.0030
30	40	5	30	0.0002	0.0012	25	50	0.0010	0.0020	45	70	0.0018	0.0028	60	85	0.0024	0.0033
40	50	5	35	0.0002	0.0014	30	60	0.0012	0.0024	50	80	0.0020	0.0031	70	100	0.0028	0.0039
50	65	10	40	0.0004	0.0016	40	70	0.0016	0.0028	60	90	0.0024	0.0035	80	110	0.0031	0.0043
65	80	10	45	0.0004	0.0018	40	75	0.0016	0.0030	65	100	0.0026	0.0039	90	125	0.0035	0.0049
80	100	15	50	0.0006	0.0020	50	85	0.0020	0.0033	75	110	0.0030	0.0043	105	140	0.0041	0.0055
100	120	15	55	0.0006	0.0022	50	90	0.0020	0.0035	85	125	0.0033	0.0049	125	165	0.0049	0.0065
120	140	15	60	0.0006	0.0024	60	105	0.0024	0.0041	100	145	0.0039	0.0057	145	190	0.0057	0.0075
140	160	20	70	0.0008	0.0028	70	120	0.0028	0.0047	115	165	0.0045	0.0065	165	215	0.0065	0.0085
160	180	25	75	0.0010	0.0030	75	125	0.0003	0.0049	120	170	0.0047	0.0067	170	220	0.0067	0.0087
180	200	35	90	0.0014	0.0035	90	145	0.0035	0.0057	140	195	0.0055	0.0077	195	250	0.0077	0.0098
200	225	45	105	0.0018	0.0041	105	165	0.0041	0.0065	160	220	0.0063	0.0087	220	280	0.0087	0.0110
225	250	45	110	0.0018	0.0043	110	175	0.0043	0.0069	170	235	0.0067	0.0093	235	300	0.0093	0.0118
250	280	55	125	0.0022	0.0049	125	195	0.0049	0.0077	190	260	0.0075	0.0102	260	330	0.0102	0.0130
280	315	55	130	0.0022	0.0051	130	205	0.0051	0.0081	200	275	0.0079	0.0108	275	350	0.0108	0.0138
315	355	65	145	0.0026	0.0057	145	225	0.0057	0.0089	225	305	0.0089	0.0120	305	385	0.0120	0.0152
355	400	100	190	0.0039	0.0075	190	280	0.0075	0.0110	280	370	0.0110	0.0146	370	460	0.0146	0.0181
400	450	110	210	0.0043	0.0083	210	310	0.0083	0.0122	310	410	0.0122	0.0161	410	510	0.0161	0.0201
450	500	110	220	0.0043	0.0087	220	330	0.0087	0.0130	330	440	0.0130	0.0173	440	550	0.0173	0.0217
500	560	120	240	0.0047	0.0094	240	360	0.0094	0.0142	360	480	0.0142	0.0189	480	600	0.0189	0.0236
560	630	140	260	0.0055	0.0102	260	380	0.0102	0.0150	380	500	0.0150	0.0197	500	620	0.0197	0.0244
630	710	145	285	0.0057	0.0112	285	425	0.0112	0.0167	425	565	0.0167	0.0222	565	705	0.0222	0.0278
710	800	150	310	0.0059	0.0122	310	470	0.0122	0.0185	470	630	0.0185	0.0248	630	790	0.0248	0.0311

Loads

Equivalent dynamic bearing load for single row cylindrical roller bearings

When cylindrical roller bearings are used as non-locating bearings and are only subjected to radial loads, the equivalent dynamic bearing load is

$P = F_r$

If cylindrical roller bearings with flanges on inner and outer rings are used to axially locate the shaft in one or both directions, as is frequently the case, the equivalent dynamic bearing load should be calculated using

$P = F_r$ when $F_a / F_r \leq e$

$P = 0.92\ F_r + YF_a$ when $F_a / F_r > e$

where

e = calculation factor
= 0.2 bearings of series 10, 2, 3 and 4
= 0.3 for bearings of series 22 and 23

Y = axial load factor
= 0.6 for bearings of series 10, 2, 3 and 4
= 0.4 for bearings of series 22 and 23

Since axially loaded cylindrical roller bearings will only operate satisfactorily when they are subjected to a simultaneously acting radial load, the ratio Fa / Fr should not exceed 0.5 for EC designed bearings and 0.4 for the other bearings.

Equivalent dynamic bearing load for full complement cylindrical roller bearings

When cylindrical roller bearings are used as non-locating bearings and are only subjected to radial loads, the equivalent dynamic bearing load

$P = F_r$

If cylindrical roller bearings with flanges on inner and outer rings are used to axially locate the shaft in one or both directions, as is frequently the case, the equivalent dynamic bearing load should be calculated using

Table 2

Axial internal clearance of single row cylindrical roller bearings

Bore diameter	Axial internal clearance																			
d	NUP 2				NUP 3				NUP 4				NUP 22				NUP 23			
	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
mm	µm		in		µm		in		µm		in		µm		in		µm		in	
15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	37	140	0.0015	0.0055	37	140	0.0015	0.0055	-	-	-	-	37	140	0.0015	0.0055	47	155	0.0019	0.0061
20	37	140	0.0015	0.0000	37	140	0.0015	0.0055	-	-	-	-	47	155	0.0019	0.0061	47	155	0.0019	0.0061
25	37	140	0.0015	0.0055	47	155	0.0019	0.0061	-	-	-	-	47	155	0.0019	0.0061	47	155	0.0019	0.0061
30	37	140	0.0015	0.0055	47	155	0.0019	0.0061	-	-	-	-	47	155	0.0019	0.0061	47	155	0.0019	0.0061
35	47	155	0.0019	0.0061	47	155	0.0019	0.0061	55	155	0.0022	0.0061	47	155	0.0019	0.0061	62	180	0.0024	0.0071
40	47	155	0.0019	0.0061	47	155	0.0019	0.0061	55	155	0.0022	0.0061	47	155	0.0019	0.0061	62	180	0.0024	0.0071
45	47	155	0.0019	0.0061	47	155	0.0019	0.0061	55	155	0.0022	0.0061	47	155	0.0019	0.0061	62	180	0.0024	0.0071
50	47	155	0.0019	0.0061	47	155	0.0019	0.0061	70	185	0.0028	0.0073	47	155	0.0019	0.0061	62	180	0.0024	0.0071
55	47	155	0.0019	0.0061	47	155	0.0019	0.0061	70	185	0.0028	0.0073	47	155	0.0019	0.0061	62	180	0.0024	0.0071
60	47	155	0.0019	0.0061	62	180	0.0024	0.0071	70	185	0.0028	0.0073	62	180	0.0024	0.0071	87	230	0.0034	0.0091
65	47	155	0.0019	0.0061	62	180	0.0024	0.0071	70	185	0.0028	0.0073	62	180	0.0024	0.0071	87	230	0.0034	0.0091
70	47	155	0.0019	0.0061	62	180	0.0024	0.0071	70	185	0.0028	0.0073	62	180	0.0024	0.0071	87	230	0.0034	0.0091
75	47	155	0.0019	0.0061	62	180	0.0024	0.0071	70	185	0.0028	0.0073	62	180	0.0024	0.0071	87	230	0.0034	0.0091
80	47	155	0.0019	0.0061	62	180	0.0024	0.0071	-	-	-	-	62	180	0.0024	0.0071	87	230	0.0034	0.0091
85	62	180	0.0024	0.0071	62	180	0.0024	0.0071	-	-	-	-	62	180	0.0024	0.0071	87	230	0.0034	0.0091
90	62	180	0.0024	0.0071	62	180	0.0024	0.0071	-	-	-	-	62	180	0.0024	0.0071	87	230	0.0034	0.0091
95	62	180	0.0024	0.0071	62	180	0.0024	0.0071	-	-	-	-	62	180	0.0024	0.0071	87	230	0.0034	0.0091
100	62	180	0.0024	0.0071	87	230	0.0034	0.0091	-	-	-	-	87	230	0.0034	0.0091	120	315	0.0047	0.0124
105	62	180	0.0024	0.0071	-	-	-	-	-	-	-	-	87	230	0.0034	0.0091	120	315	0.0047	0.0124
110	62	180	0.0024	0.0071	87	230	0.0034	0.0091	-	-	-	-	87	230	0.0034	0.0091	120	315	0.0047	0.0124
120	62	180	0.0024	0.0071	87	230	0.0034	0.0091	-	-	-	-	87	230	0.0034	0.0091	120	315	0.0047	0.0124
130	62	180	0.0024	0.0071	87	230	0.0034	0.0091	-	-	-	-	87	230	0.0034	0.0091	120	315	0.0047	0.0124
140	62	180	0.0024	0.0071	87	230	0.0034	0.0091	-	-	-	-	87	230	0.0034	0.0091	120	315	0.0047	0.0124
150	62	180	0.0024	0.0071	87	230	0.0034	0.0091	-	-	-	-	87	230	0.0034	0.0091	120	315	0.0047	0.0124
160	87	230	0.0034	0.0091	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
170	87	230	0.0034	0.0091	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
180	87	230	0.0034	0.0091	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
190	87	230	0.0034	0.0091	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
200	87	230	0.0034	0.0091	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
220	95	230	0.0037	0.0091	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

$P = F_r$ when $F_a / F_r \leq e$

$P = 0.92\ F_r + YF_a$ when $F_a / F_r > e$

where

e = calculation factor
- = 0.15 for double row bearings
- = 0.2 for bearings of series 18
- = 0.3 for all other single row bearings

Y = axial load factor
- = 0.6 for bearings of series 18
- = 0.53 for double row bearings
- = 0.4 for all other single row bearings

Since axially loaded full complement cylindrical roller bearings will only operate satisfactorily when they are subjected to a simultaneously acting radial load, the ratio Fa / Fr should not exceed 0.5 for single row bearings or 0.25 for double row bearings.

Table 3a

Axial displacement(s) of NU, NJ and N bearing ring relative to opposite ring

Designation	Axial displacement s		Designation	Axial displacement s		Designation	Axial displacement s		Designation	Axial displacement s	
	mm	in		mm	in		mm	in		mm	in
1005	2	0.079	**208 EC**	1.4	0.055	**2222 EC**	3.7	0.146	**302 EC**	1	0.039
1006	2.1	0.083	**209 EC**	1.2	0.047	**2224 EC**	3.8	0.150	**303 EC**	1	0.039
1007 EC	1	0.039	**210 EC**	1.5	0.059	**2226 EC**	4.3	0.169	**304 EC**	0.9	0.035
1008	2.4	0.094	**211 EC**	1	0.039	**2228 EC**	4.4	0.173	**305 EC**	1.3	0.051
1009 EC	0.9	0.035	**212 EC**	1.4	0.055	**2230 EC**	4.9	0.193	**306 EC**	1.4	0.055
1010	2.5	0.098	**213 EC**	1.4	0.055	**2232 EC**	4.5	0.177	**307 EC**	1.2	0.047
1011 EC	0.5	0.020	**214 EC**	1.2	0.047	**2234 EC**	4.2	0.165	**308 EC**	1.4	0.055
1012	2.9	0.114	**215 EC**	1.2	0.047	**2236 EC**	4.2	0.165	**309 EC**	1.7	0.067
1013	2.9	0.114	**216 EC**	1.4	0.055	**2238 EC**	5	0.197	**310 EC**	1.9	0.075
1014	3	0.118	**217 EC**	1.5	0.059	**2240 EC**	5.1	0.201	**311 EC**	2	0.079
1015	3	0.118	**218 EC**	1.8	0.071	**2244 EC**	7.9	0.311	**312 EC**	2.1	0.083
1016	3.3	0.130	**219 EC**	1.7	0.067	**2248**	4.3	0.169	**313 EC**	2.2	0.087
1017	3.3	0.130	**220 EC**	1.7	0.067	**2252**	4.3	0.169	**314 EC**	1.8	0.071
1018	3.5	0.138	**221 EC**	2	0.079	**2256 EC**	10.2	0.402	**315 EC**	1.8	0.071
1019	3.5	0.138	**222 EC**	2.1	0.083	**2260**	5.6	0.220	**316 EC**	2.1	0.083
1020	3.5	0.138	**224 EC**	1.9	0.075	**2264**	5.9	0.232	**317 EC**	2.3	0.091
1021	3.8	0.150	**226 EC**	2.1	0.083	**2268**	8	0.315	**318 EC**	2.5	0.098
1022	3.8	0.150	**228 EC**	2.4	0.094	**2272**	16.7	0.657	**319 EC**	2.9	0.114
1024	3.8	0.150	**N 228**	2.5	0.098	**2276**	8.3	0.327	**320 EC**	2.9	0.114
1026	4.7	0.185	**230 EC**	2.5	0.098				**321 EC**	3.4	0.134
1028	4.4	0.173	**232 EC**	2.7	0.106				**322 EC**	3	0.118
1030	4.9	0.193	**234 EC**	2.9	0.114	**2304 EC**	1.9	0.075	**324 EC**	3.7	0.146
1032	5.2	0.205	**236 EC**	2.9	0.114	**2305 EC**	2.3	0.091	**326 EC**	3.7	0.146
1034	5.8	0.228	**238 EC**	3	0.118	**2306 EC**	2.4	0.094	**328 EC**	3.7	0.146
1038	6.1	0.240	**240 EC**	2.6	0.102	**2307 EC**	2.7	0.106	**N 328**	4.2	0.165
1040	7	0.276	**244**	2.3	0.091	**2308 EC**	2.9	0.114	**330 EC**	4	0.157
1044	7.5	0.295	**248**	3.4	0.134	**2309 EC**	3.2	0.126	**332 EC**	4	0.157
1048	7.5	0.295	**252**	4.4	0.134	**2310 EC**	3.4	0.134	**334**	4.6	0.181
1052	8.8	0.346	**256**	3.8	0.150	**2311 EC**	3.5	0.138	**336**	4.4	0.173
1056	8.8	0.346	**260**	4.8	0.189	**2312 EC**	3.6	0.142	**338 EC**	4.3	0.169
1060	6	0.382	**264**	5.3	0.209	**2313 EC**	4.7	0.185	**340**	4	0.157
1064	13.5	0.382				**2314 EC**	4.8	0.189	**344**	5.2	0.205
1068	6.5	0.425				**2315 EC**	4.8	0.189	**348**	5.6	0.220
1072	6.5	0.425	**2203 EC**	1.5	0.059	**2316 EC**	5.1	0.201			
1076	6.5	0.425	**2204 EC**	2	0.079	**2317 EC**	5.8	0.228			
1080	7	0.551	**2205 EC**	1.8	0.071	**2318 EC**	6	0.382	**406**	1.6	0.063
1084	11	0.551	**2206 EC**	1.8	0.071	**2319 EC**	6.9	0.272	**407**	1.7	0.067
1088	7	0.579	**2207 EC**	2.8	0.110	**2320 EC**	5.9	0.232	**408**	2.5	0.098
1092	7.8	0.626	**2208 EC**	1.9	0.075	**2322 EC**	7.5	0.295	**409**	2.5	0.098
1096	7.8	0.626	**2209 EC**	1.7	0.067	**2324 EC**	7.2	0.283	**410**	2.6	0.102
10/500	11.2	0.441	**2210 EC**	1.5	0.059	**2326 EC**	8.7	0.343	**411**	2.6	0.102
10/530	10.4	0.409	**2211 EC**	1.5	0.059	**2328 EC**	9.7	0.382	**412**	2.5	0.098
10/560	10	0.484	**2212 EC**	1.4	0.055	**2330 EC**	10.5	0.413	**413**	2.6	0.102
10/600	8.5	0.547	**2213 EC**	1.9	0.075	**2332 EC**	11	0.433	**414**	3.5	0.138
10/710 EC	8	0.673	**2214 EC**	1.7	0.067	**2334**	5.2	0.205	**415**	3.8	0.150
			2215 EC	1.7	0.067	**2336**	5.1	0.201	**416**	3.7	0.146
			2216 EC	1.4	0.055	**2338 EC**	9.5	0.374	**417**	3.8	0.150
202 EC	1	0.039	**2217 EC**	2	0.079	**2340 EC**	9.4	0.370	**418**	4.9	0.193
203 EC	1	0.039	**2218 EC**	2.6	0.102	**2344 EC**	10.4	0.409	**419**	5	0.197
204 EC	1	0.039	**2219 EC**	3	0.118	**2348**	6.4	0.252	**420**	4.9	0.193
205 EC	1.3	0.051	**2220 EC**	2.5	0.098	**2356**	6.6	0.260	**421**	4.9	0.193
206 EC	1.3	0.051							**422**	4.8	0.189
207 EC	1.3	0.051							**424**	6.3	0.248

Minimum load

In order to provide the satisfactory operation of all ball and roller bearings they must always be subjected to a given minimum load. This is also true of cylindrical roller bearings, particularly if they run at high speeds where the inertia forces of the rollers and cage, and the friction in the lubricant can have a detrimental influence on the rolling conditions in the bearing and may cause damaging sliding movements to occur between the rollers and the raceways.

The requisite minimum radial load to be applied in such cases can be found by accessing **skfusa.com.** Select Engineering Tools under the Support menu. Or contact SKF Applications Engineering.

However, the weight of the components supported by the bearing, together with the external forces, often exceeds the requisite minimum load. If this is not the case, an additional radial load must be applied to the bearing, for example, by increasing belt tension or similar means.

Table 3b

Axial displacement(s) of full complement NCF and NJG bearing ring relative to opposite ring

Designation	Axial displacement s		Designation	Axial displacement s		Designation	Axial displacement s		Designation	Axial displacement s	
	mm	in		mm	in		mm	in		mm	in
1830 V	1.5	0.059	**2305 VH**	1.7	0.067	**2944 V**	2.5	0.098	**3020 V**	2	0.079
1832 V	1.5	0.059	**2306 VH**	1.8	0.071	**2948 V**	2.5	0.098	**3022 V**	3	0.118
1834 V	1.5	0.059	**2307 VH**	2	0.079	**2952 V**	5	0.197	**3024 V**	3.5	0.138
1836 V	1.5	0.059	**2308 VH**	2.4	0.094	**2956 V**	4	0.157	**3026 V**	3.5	0.138
1838 V	1.8	0.071	**2309 VH**	2.4	0.094	**2960 V**	5	0.197	**3028 V**	3.5	0.138
1840 V	1.8	0.071	**2310 VH**	2.6	0.102	**2964 V**	5	0.197	**3030 V**	3.5	0.138
1844 V	1.8	0.071	**2311 VH**	2.6	0.102	**2968 V**	5	0.197	**3032 V**	4	0.157
1848 V	1.8	0.071	**2313 VH**	3	0.118	**2972 V**	5	0.197	**3034 V**	7	0.276
1852 V	1.8	0.071	**2314 VH**	3	0.118	**2976 V**	5	0.197	**3036 V**	5	0.197
1856 V	2.5	0.098	**2315 VH**	3	0.118	**2980 V**	5	0.197	**3038 V**	6	0.236
1860 V	3	0.118	**2316 VH**	4	0.157	**2984 V**	5	0.197	**3040 V**	6.5	0.256
1864 V	3	0.118	**2317 VH**	4	0.157	**2988 V**	6	0.236	**3044 V**	7	0.276
1868 V	3	0.118	**2318 VH**	4	0.157	**2992 V**	6	0.236	**3048 V**	7	0.276
1872 V	3	0.118	**2320 VH**	4.5	0.177	**2996 V**	7	0.276	**3052 V**	8	0.315
1876 V	3.5	0.138	**2322 VH**	5	0.197	**29/500 V**	7	0.276	**3056 V**	9	0.354
1880 V	3.5	0.138	**2324 VH**	5.5	0.217	**29/530 V**	7	0.276	**3060 V**	10	0.394
1884 V	3.5	0.138	**2326 VH**	6	0.236	**29/560 V**	7	0.276	**3064 V**	12	0.472
1888 V	3.5	0.138	**2328 VH**	6.5	0.256	**29/600 V**	7	0.276	**3068 V**	12	0.472
1892 V	5	0.197	**2330 VH**	6.5	0.256				**3072 V**	12	0.472
1896 V	5	0.197							**3076 V**	12	0.472
18/500 V	5	0.197				**3004 V**	0.5	0.020	**3080 V**	14	0.551
18/530 V	5	0.197	**2912 V**	0.5	0.020	**3005 V**	0.5	0.020			
18/560 V	5	0.197	**2914 V**	0.75	0.030	**3006 V**	0.8	0.031			
18/600 V	7	0.276	**2916 V**	0.75	0.030	**3007 V**	1	0.039			
18/630 V	8	0.315	**2918 V**	0.75	0.030	**3008 V**	1	0.039			
18/670 V	8	0.315	**2920 V**	0.75	0.030	**3009 V**	1	0.039			
18/710 V	8	0.315	**2922 V**	0.75	0.030	**3010 V**	1	0.039			
18/750 V	8	0.315	**2924 V**	0.75	0.030	**3011 V**	1.2	0.047			
			2926 V	0.75	0.030	**3012 V**	1.2	0.047			
2207 V	1	0.039	**2928 V**	0.75	0.030	**3013 V**	1.2	0.047			
2209 V	1	0.039	**2930 V**	0.8	0.031	**3014 V**	1.5	0.059			
2210 V	1	0.039	**2932 V**	0.8	0.031	**3015 V**	1.5	0.059			
2218 V	2.5	0.098	**2934 V**	0.8	0.031	**3016 V**	1.8	0.071			
2220 V	2.5	0.098	**2936 V**	1	0.039	**3017 V**	1.8	0.071			
2224 V	4	0.157	**2938 V**	1	0.039	**3018 V**	2	0.079			
			2940 V	3	0.118						

Frequency vibration data

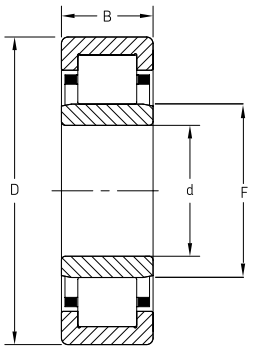
Frequency vibration data is available on the SKF website **skfusa.com**. Select Engineering Tools under the Support menu. Or contact SKF Applications Engineering.

Table 3c

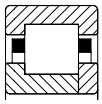
Axial displacement (s) of full complement NNC, NNCF and NNCL bearing ring relative to opposite ring

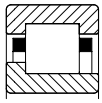
Designation	Axial displacement s		Designation	Axial displacement s		Designation	Axial displacement s		Designation	Axial displacement s	
	mm	in		mm	in		mm	in		mm	in
4830 V	1.1	0.043	**4912 V**	1	0.039	**4940 V**	2.1	0.083	**5013 V**	1.1	0.043
4832 V	1.1	0.043	**4914 V**	1	0.039	**4944 V**	2.1	0.083	**5015 V**	1.1	0.043
4834 V	1.1	0.043	**4916 V**	1	0.039	**4948 V**	2.1	0.083	**5017 V**	1.1	0.043
4836 V	1.1	0.043	**4918 V**	1.1	0.043	**4952 V**	2.1	0.083	**5024 V**	2	0.079
4838 V	1.5	0.059	**4920 V**	1.1	0.043	**4956 V**	2.1	0.083	**5056 V**	4	0.157
4840 V	1.5	0.059	**4922 V**	1.1	0.043	**4960 V**	3	0.118			
4844 V	1.5	0.059	**4924 V**	1.1	0.043	**4964 V**	3	0.118			
4848 V	2	0.079	**4926 V**	1.5	0.059	**4968 V**	3	0.118			
4852 V	2	0.079	**4926 V**	1.5	0.059	**4972 V**	3	0.118			
4856 V	2	0.079	**4928 V**	1.5	0.059	**4976 V**	4	0.157			
4860 V	2.1	0.083	**4930 V**	2	0.079	**4980 V**	4	0.157			
4864 V	2.1	0.083	**4932 V**	2	0.079	**4984 V**	4	0.157			
4872 V	2.1	0.083	**4934 V**	2	0.079	**4988 V**	4	0.157			
4876 V	2.1	0.083	**4936 V**	2	0.079	**4992 V**	4	0.157			
			4938 V	2	0.079	**4996 V**	5	0.197			
						49/500 V	5	0.197			

Single row
Standard
Series: 1005 – 1052
Size: 25 mm – 260 mm
0.9843 in – 10.2362 in



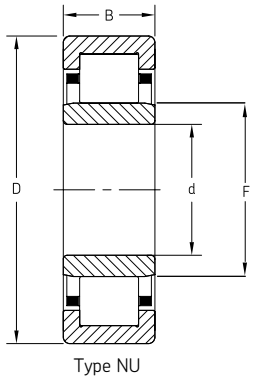
Type NU


Type NUP

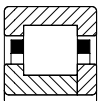

Type NJ

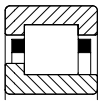
Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Diameter			
	Bore d		Outside diameter D		Height B		Dynamic C		Static C_0		Reference speed	Limiting speed			Under roller F		Over roller E	
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	mm	in	mm	in
1005	25	0.9843	47	1.8504	12	0.4724	14 200	3 190	13 200	2 970	18 000	18 000	0.1	0.2	30.5	1.20	41.5	1.63
1006	30	1.1811	55	2.1654	13	0.5118	17 900	4 020	17 300	3 890	15 000	15 000	0.1	0.2	36.5	1.44	48.5	1.91
1007 EC	35	1.3780	62	2.4409	14	0.5512	35 800	8 040	38 000	8 540	13 000	13 000	0.2	0.3	42.0	1.65	57.0	2.24
1008	40	1.5748	68	2.6772	15	0.5906	25 100	5 640	26 000	5 840	12 000	18 000	0.2	0.5	47.0	1.85	61.0	2.40
1009 EC	45	1.7717	75	2.9528	16	0.6299	44 600	10 020	52 000	11 690	11 000	11 000	0.3	0.6	52.5	2.07	68.5	2.70
1010 EC	50	1.9685	80	3.1496	16	0.6299	46 800	10 520	56 000	12 580	9 500	9 500	0.3	0.6	57.5	2.26	73.5	2.89
1011 EC	55	2.1654	90	3.5433	18	0.7087	57 200	12 850	69 500	15 620	8 500	8 500	0.4	0.9	64.5	2.54	82.5	3.25
1012	60	2.3622	95	3.7402	18	0.7087	37 400	8 400	44 000	9 890	8 000	13 000	0.5	1.1	69.5	2.74	85.5	3.37
1013 EC	65	2.5591	100	3.9370	18	0.7087	62 700	14 090	81 500	18 310	7 500	7 500	0.4	1.0	74.0	2.91	92.0	3.62
1013	65	2.5591	100	3.9370	18	0.7087	38 000	8 540	46 500	10 450	7 500	12 000	0.5	1.1	74.5	2.93	90.5	3.56
1014 EC	70	2.7559	110	4.3307	20	0.7874	76 500	17 190	93 000	20 900	7 000	7 000	0.6	1.3	79.5	3.13	101.5	4.00
1014	70	2.7559	110	4.3307	20	0.7874	56 100	12 610	67 000	15 060	7 000	11 000	0.7	1.5	80.0	3.15	100.0	3.94
1015	75	2.9528	115	4.5276	20	0.7874	58 300	13 100	71 000	15 960	6 700	10 000	0.8	1.7	85.0	3.35	105.0	4.13
1016	80	3.1496	125	4.9213	22	0.8661	64 400	14 470	78 000	17 530	6 300	6 300	0.9	1.9	91.5	3.60	113.5	4.47
1016 EC	80	3.1496	125	4.9213	22	0.8661	99 000	22 250	127 000	28 540	6 000	9 500	1.0	2.3	91.5	3.60	115.5	4.55
1017	85	3.3465	130	5.1181	22	0.8661	68 200	15 330	86 500	19 440	6 000	9 000	1.1	2.3	96.5	3.80	118.5	4.67
1018	90	3.5433	140	5.5118	24	0.9449	80 900	18 180	104 000	23 370	5 600	8 500	1.4	3.0	103.0	4.06	127.0	5.00
1019	95	3.7402	145	5.7087	24	0.9449	84 200	18 920	110 000	24 720	5 300	8 000	1.5	3.2	108.0	4.25	132.0	5.20
1020	100	3.9370	150	5.9055	24	0.9449	85 800	19 280	114 000	25 620	5 000	7 500	1.5	3.2	113.0	4.45	137.0	5.39
1021	105	4.1339	160	6.2992	26	1.0236	101 000	22 700	137 000	30 790	4 800	7 500	1.9	4.1	119.5	4.70	145.5	5.73
1022	110	4.3307	170	6.6929	28	1.1024	128 000	28 760	166 000	37 300	4 500	7 000	2.3	5.0	125.0	4.92	155.0	6.10
1024	120	4.7244	180	7.0866	28	1.1024	134 000	30 110	183 000	41 120	4 000	6 300	2.5	5.6	135.0	5.31	165.0	6.50
1026	130	5.1181	200	7.8740	33	1.2992	165 000	37 080	224 000	50 300	3 800	5 600	3.8	8.5	148.0	5.83	182.0	7.17
1028	140	5.5118	210	8.2677	33	1.2992	179 000	40 220	255 000	57 300	3 600	5 300	4.1	9.0	158.0	6.22	192.0	7.56
1030	150	5.9055	225	8.8583	35	1.3780	198 000	44 490	290 000	65 200	3 200	5 000	4.9	10.8	169.5	6.67	205.5	8.09
1032	160	6.2992	240	9.4488	38	1.4961	229 000	51 500	325 000	73 000	3 000	4 800	6.0	13.2	180.0	7.09	220.0	8.66
1034	170	6.6929	260	10.2362	42	1.6535	275 000	61 800	400 000	89 900	2 800	4 300	8.0	17.6	193.0	7.60	237.0	9.33
1036	180	7.0866	280	11.0236	46	1.8110	336 000	75 500	475 000	106 700	2 600	4 000	10.4	23.0	205.0	8.07	255.0	10.04
1038	190	7.4803	290	11.4173	46	1.8110	347 000	78 000	500 000	112 400	2 600	3 800	10.9	23.9	215.0	8.46	265.0	10.43
1040	200	7.8740	310	12.2047	51	2.0079	380 000	85 400	570 000	128 100	2 400	3 600	14.1	31.0	229.0	9.02	281.0	11.06
1044	220	8.6614	340	13.3858	56	2.2047	495 000	111 200	735 000	165 200	2 200	3 200	18.3	40.4	250.0	9.84	310.0	12.20
1048	240	9.4488	360	14.1732	56	2.2047	523 000	117 500	800 000	179 800	2 000	3 000	19.4	42.7	270.0	10.63	330.0	12.99
1052	260	10.2362	400	15.7480	65	2.5591	627 000	140 900	965 000	216 900	1 800	2 800	29.3	64.6	296.0	11.65	364.0	14.33

Consult SKF USA Inc. prior to design change or order placement.



Type NU


Type NUP

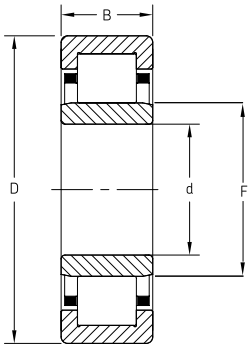

Type NJ

Single row
Standard
Series: 1056 MA – 10/750 EC
Size: 280 mm – 750 mm
11.0236 in – 29.5276 in

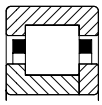
Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Diameter			
	Bore d		Outside diameter D		Height B		Dynamic C		Static C_0		Reference speed	Limiting speed			Under roller F		Over roller E	
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	mm	in	mm	in
1056	280	11.0236	420	16.5354	65	2.5591	660 000	148 300	1 060 000	238 200	1 700	2 600	31.0	68.4	316.0	12.44	384.0	15.12
1060	300	11.8110	460	18.1102	74	2.9134	858 000	192 800	1 370 000	307 900	1 500	2 000	46.0	101.4	340.0	13.39	420.0	16.54
1064	320	12.5984	480	18.8976	74	2.9134	880 000	197 800	1 430 000	321 300	1 400	1 400	48.0	105.8	360.0	14.17	440.0	17.32
1068	340	13.3858	520	20.4724	82	3.2283	1 080 000	242 700	1 760 000	395 500	1 300	1 700	63.5	140.0	385.0	15.16	475.0	18.70
1072	360	14.1732	540	21.2598	82	3.2283	1 100 000	247 200	1 830 000	411 200	1 300	1 600	67.5	148.8	405.0	15.94	495.0	19.49
1076	380	14.9606	560	22.0472	82	3.2283	1 140 000	256 200	1 930 000	433 700	1 200	1 600	70.0	154.4	425.0	16.73	515.0	20.28
1080	400	15.7480	600	23.6220	90	3.5433	1 380 000	310 100	2 320 000	521 300	1 100	1 500	90.0	198.5	450.0	17.72	550.0	21.65
1084	420	16.5354	620	24.4094	90	3.5433	1 420 000	319 100	2 450 000	550 600	1 100	1 400	94.0	207.3	470.0	18.50	570.0	22.44
1088	440	17.3228	650	25.5906	94	3.7008	1 510 000	339 300	2 650 000	595 500	1 000	1 300	105.0	231.5	493.0	19.41	597.0	23.50
1092	460	18.1102	680	26.7717	100	3.9370	1 650 000	370 800	2 850 000	640 400	950	1 200	115.0	253.6	516.0	20.31	624.0	24.57
1096	480	18.8976	700	27.5591	100	3.9370	1 680 000	377 500	3 000 000	674 200	900	1 200	130.0	286.7	536.0	21.10	644.0	25.35
10/500	500	19.6850	720	28.3465	100	3.9370	1 720 000	386 500	3 100 000	696 600	900	1 100	135.0	297.7	556.0	21.89	664.0	26.14
10/530	530	20.8661	780	30.7087	112	4.4094	2 290 000	514 600	4 050 000	910 100	800	1 000	190.0	419.0	593.0	23.35	721.0	28.39
10/560	560	22.0472	820	32.2835	115	4.5276	2 330 000	523 600	4 250 000	955 100	750	1 000	210.0	463.1	625.0	24.61	753.0	29.65
10/600	600	23.6220	870	34.2520	118	4.6457	2 750 000	618 000	5 100 000	1 146 100	700	900	240.0	529.2	667.0	26.26	807.0	31.77
10/630 EC	630	24.8031	920	36.2205	128	5.0394	3 410 000	766 300	6 200 000	1 393 300	630	850	285.0	628.4	702.0	27.64	862.0	33.94
10/670 EC	670	26.3780	980	38.5827	136	5.3543	3 740 000	840 400	6 800 000	1 528 100	600	800	350.0	771.8	747.0	29.41	917.0	36.10
10/710 EC	710	27.9528	1 030	40.5512	140	5.5118	4 680 000	1 051 700	8 500 000	1 910 100	560	750	415.0	915.1	778.0	30.63	968.0	38.11
10/750 EC	750	29.5276	1 090	42.9134	150	5.9055	4 730 000	1 062 900	8 800 000	1 977 500	430	670	487.0	1073.8	830.0	32.68	1020.0	40.16

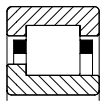
Consult SKF USA Inc. prior to design change or order placement.

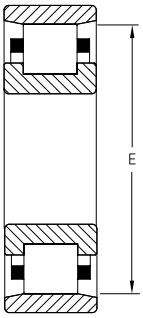
Single row
Standard and SKF Explorer
Series: 202 EC – 244 EC
Size: 15 mm – 220 mm
0.5906 in – 8.6614 in



Type NU


Type NUP

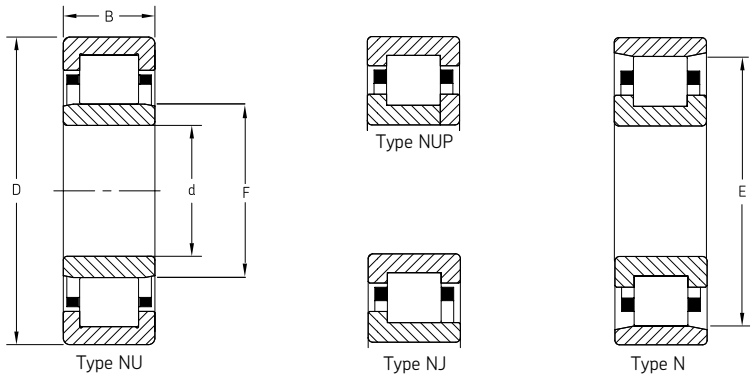

Type NJ



Type N

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Diameter			
	Bore d		Outside diameter D		Height B		Dynamic C		Static C_0		Reference speed	Limiting speed			Under roller F		Over roller E	
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	mm	in	mm	in
202 EC	15	0.5906	35	1.3780	11	0.4331	12 500	2 810	10 200	2 290	22 000	26 000	0.0	0.1	19.3	0.76	30.3	1.19
203 EC	17	0.6693	40	1.5748	12	0.4724	20 000	4 490	14 300	3 210	20 000	22 000	0.1	0.1	22.1	0.87	35.1	1.38
204 EC	20	0.7874	47	1.8504	14	0.5512	28 500	6 400	22 000	4 940	17 000	19 000	0.1	0.2	26.5	1.04	41.5	1.63
205 EC	25	0.9843	52	2.0472	15	0.5906	32 500	7 300	27 000	6 070	15 000	16 000	0.1	0.3	31.5	1.24	46.5	1.83
206 EC	30	1.1811	62	2.4409	16	0.6299	44 000	9 890	36 500	8 200	13 000	14 000	0.2	0.4	37.5	1.48	55.5	2.19
207 EC	35	1.3780	72	2.8346	17	0.6693	56 000	12 580	48 000	10 790	11 000	12 000	0.3	0.6	44.0	1.73	64.0	2.52
208 EC	40	1.5748	80	3.1496	18	0.7087	62 000	13 930	53 000	11 910	9 500	11 000	0.4	0.8	49.5	1.95	71.5	2.81
209 EC	45	1.7717	85	3.3465	19	0.7480	69 500	15 620	64 000	14 380	9 000	9 500	0.4	0.9	54.5	2.15	76.5	3.01
210 EC	50	1.9685	90	3.5433	20	0.7874	73 500	16 520	69 500	15 620	8 500	9 000	0.5	1.0	59.5	2.34	81.5	3.21
211 EC	55	2.1654	100	3.9370	21	0.8268	96 500	21 690	95 000	21 350	7 500	8 000	0.7	1.4	66.0	2.60	90.0	3.54
212 EC	60	2.3622	110	4.3307	22	0.8661	108 000	24 270	102 000	22 920	6 700	7 500	0.8	1.7	72.0	2.83	100.0	3.94
213 EC	65	2.5591	120	4.7244	23	0.9055	122 000	27 420	118 000	26 520	6 300	6 700	1.0	2.2	78.5	3.09	108.5	4.27
214 EC	70	2.7559	125	4.9213	24	0.9449	137 000	30 790	137 000	30 790	6 000	6 300	1.1	2.5	83.5	3.29	113.5	4.47
215 EC	75	2.9528	130	5.1181	25	0.9843	150 000	33 710	156 000	35 060	5 600	6 000	1.2	2.7	88.5	3.48	118.5	4.67
216 EC	80	3.1496	140	5.5118	26	1.0236	160 000	35 960	166 000	37 300	5 300	5 600	1.5	3.4	95.3	3.75	127.3	5.01
217 EC	85	3.3465	150	5.9055	28	1.1024	190 000	42 700	200 000	44 940	4 800	5 300	1.9	4.1	100.5	3.96	136.5	5.37
218 EC	90	3.5433	160	6.2992	30	1.1811	208 000	46 740	220 000	49 440	4 500	5 000	2.3	5.0	107.0	4.21	145.0	5.71
219 EC	95	3.7402	170	6.6929	32	1.2598	255 000	57 300	265 000	59 600	4 300	4 800	2.8	6.2	112.5	4.43	154.5	6.08
220 EC	100	3.9370	180	7.0866	34	1.3386	285 000	64 000	305 000	68 500	4 000	4 500	3.4	7.4	119.0	4.69	163.0	6.42
221 EC	105	4.1339	190	7.4803	36	1.4173	300 000	67 400	315 000	70 800	3 800	4 300	3.9	8.5	125.0	4.92	173.0	6.81
222 EC	110	4.3307	200	7.8740	38	1.4961	335 000	75 300	365 000	82 000	3 600	4 000	4.7	10.4	132.5	5.22	180.5	7.11
224 EC	120	4.7244	215	8.4646	40	1.5748	390 000	87 600	430 000	96 600	3 400	3 600	5.7	12.6	143.5	5.65	195.5	7.70
226 EC	130	5.1181	230	9.0551	40	1.5748	415 000	93 300	455 000	102 200	3 200	3 400	6.4	14.2	153.5	6.04	209.5	8.25
228 EC	140	5.5118	250	9.8425	42	1.6535	450 000	101 100	510 000	114 600	2 800	3 200	8.5	18.6	169.0	6.65	225.0	8.86
230 EC	150	5.9055	270	10.6299	45	1.7717	510 000	114 600	600 000	134 800	2 600	2 800	10.7	23.6	182.0	7.17	242.0	9.53
232 EC	160	6.2992	290	11.4173	48	1.8898	585 000	131 500	680 000	152 800	2 400	2 600	14.2	31.3	195.0	7.68	259.0	10.20
234 EC	170	6.6929	310	12.2047	52	2.0472	695 000	156 200	815 000	183 100	2 200	3 800	17.3	38.2	207.0	8.15	279.0	10.98
236 EC	180	7.0866	320	12.5984	52	2.0472	720 000	161 800	850 000	191 000	2 200	3 600	18.5	40.7	217.0	8.54	289.0	11.38
238 EC	190	7.4803	340	13.3858	55	2.1654	800 000	179 800	965 000	216 900	2 000	3 400	22.2	48.9	230.0	9.06	306.0	12.05
240 EC	200	7.8740	360	14.1732	58	2.2835	880 000	197 800	1 060 000	238 200	1 900	3 200	26.5	58.5	243.0	9.57	323.0	12.72
244 EC	220	8.6614	400	15.7480	65	2.5591	1 059 999	238 200	1 290 000	289 900	1 700	3 000	36.8	81.0	268.0	10.55	358.0	14.09

Consult SKF USA Inc. prior to design change or order placement.



Single row
Standard and SKF Explorer
Series: 248 – 264
Size: 240 mm – 320 mm
9.4488 in – 12.5984 in

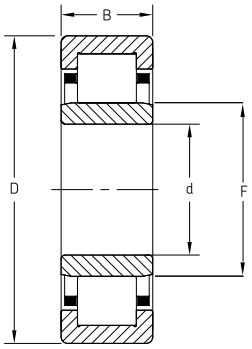
Standard and SKF Explorer
Series: 2203 EC – 2226 EC
Size: 17 mm – 130 mm
0.6693 in – 5.1181 in

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Diameter			
	Bore d		Outside diameter D		Height B		Dynamic C		Static C_0		Reference speed	Limiting speed			Under roller F		Over roller E	
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	mm	in	mm	in
248	240	9.4488	440	17.3228	72	2.8346	952 000	213 900	1 370 000	307 900	1 600	2 200	51.5	113.6	295.0	11.61	385.0	15.16
252	260	10.2362	480	18.8976	80	3.1496	1 170 000	262 900	1 700 000	382 000	1 400	2 000	68.5	151.0	320.0	12.60	420.0	16.54
256	280	11.0236	500	19.6850	80	3.1496	1 140 000	256 200	1 800 000	404 500	1 400	1 900	73.0	161.0	340.0	13.39	440.0	17.32
260	300	11.8110	540	21.2598	85	3.3465	1 420 000	319 100	2 120 000	476 400	1 300	1 400	89.5	197.3	364.0	14.33	476.0	18.74
264 EC	320	12.5984	580	22.8346	92	3.6220	1 830 000	411 200	2 750 000	618 000	1 000	1 200	115.0	253.6	392.0	15.43	520.0	20.47
264	320	12.5984	580	22.8346	92	3.6220	1 610 000	361 800	2 450 000	550 600	1 200	1 600	115.0	253.6	390.0	15.35	510.0	20.08
2203 EC	17	0.6693	40	1.5748	16	0.6299	27 500	6 180	21 600	4 850	20 000	22 000	0.1	0.2	22.1	0.87	35.1	1.38
2204 EC	20	0.7874	47	1.8504	18	0.7087	34 500	7 750	27 500	6 180	17 000	19 000	0.1	0.3	26.5	1.04	41.5	1.63
2205 EC	25	0.9843	52	2.0472	18	0.7087	39 000	8 760	34 000	7 640	15 000	16 000	0.2	0.4	31.5	1.24	46.5	1.83
2206 EC	30	1.1811	62	2.4409	20	0.7874	55 000	12 360	49 000	11 010	13 000	14 000	0.3	0.6	37.5	1.48	55.5	2.19
2207 EC	35	1.3780	72	2.8346	23	0.9055	69 500	15 620	63 000	14 160	11 000	12 000	0.4	0.9	44.0	1.73	64.0	2.52
2208 EC	40	1.5748	80	3.1496	23	0.9055	81 500	18 310	75 000	16 850	9 500	11 000	0.5	1.1	49.5	1.95	71.5	2.81
2209 EC	45	1.7717	85	3.3465	23	0.9055	85 000	19 100	81 500	18 310	9 000	9 500	0.5	1.2	54.5	2.15	76.5	3.01
2210 EC	50	1.9685	90	3.5433	23	0.9055	90 000	20 220	88 000	19 780	8 500	9 000	0.6	1.2	59.5	2.34	81.5	3.21
2211 EC	55	2.1654	100	3.9370	25	0.9843	114 000	25 620	118 000	26 520	7 500	8 000	0.8	1.7	66.0	2.60	90.0	3.54
2212 EC	60	2.3622	110	4.3307	28	1.1024	146 000	32 810	153 000	34 380	6 700	7 500	1.0	2.3	72.0	2.83	100.0	3.94
2213 EC	65	2.5591	120	4.7244	31	1.2205	170 000	38 200	180 000	40 450	6 300	6 700	1.4	3.1	78.5	3.09	108.5	4.27
2214 EC	70	2.7559	125	4.9213	31	1.2205	180 000	40 450	193 000	43 370	6 000	6 300	1.5	3.3	83.5	3.29	113.5	4.47
2215 EC	75	2.9528	130	5.1181	31	1.2205	186 000	41 800	208 000	46 740	5 600	6 000	1.6	3.5	88.5	3.48	118.5	4.67
2216 EC	80	3.1496	140	5.5118	33	1.2992	212 000	47 640	245 000	55 100	5 300	5 600	2.0	4.3	95.3	3.75	127.3	5.01
2217 EC	85	3.3465	150	5.9055	36	1.4173	250 000	56 200	280 000	62 900	4 800	5 300	2.5	5.5	100.5	3.96	136.5	5.37
2218 EC	90	3.5433	160	6.2992	40	1.5748	280 000	62 900	315 000	70 800	4 500	5 000	3.1	6.9	107.0	4.21	145.0	5.71
2219 EC	95	3.7402	170	6.6929	43	1.6929	325 000	73 000	375 000	84 300	4 300	4 800	3.8	8.3	112.5	4.43	154.5	6.08
2220 EC	100	3.9370	180	7.0866	46	1.8110	380 000	85 400	450 000	101 100	4 000	4 500	4.7	10.5	119.0	4.69	163.0	6.42
2222 EC	110	4.3307	200	7.8740	53	2.0866	440 000	98 900	520 000	116 900	3 600	4 000	6.7	14.7	132.5	5.22	180.5	7.11
2224 EC	120	4.7244	215	8.4646	58	2.2835	520 000	116 900	630 000	141 600	3 400	3 600	8.2	18.1	143.5	5.65	195.5	7.70
2226 EC	130	5.1181	230	9.0551	64	2.5197	610 000	137 100	735 000	165 200	3 200	3 400	10.1	22.2	153.5	6.04	209.5	8.25

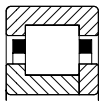
Consult SKF USA Inc. prior to design change or order placement.

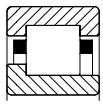
Single row
Standard and SKF Explorer
Series: 2228 EC – 22/560 EC
Size: 140 mm – 560 mm
5.5118 in – 22.0472 in

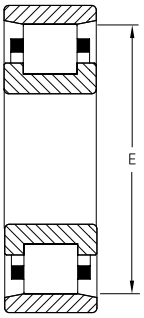
SKF Explorer
Series: 2304 EC – 2312 EC
Size: 20 mm – 60 mm
0.7874 in – 2.3622 in



Type NU


Type NUP


Type NJ

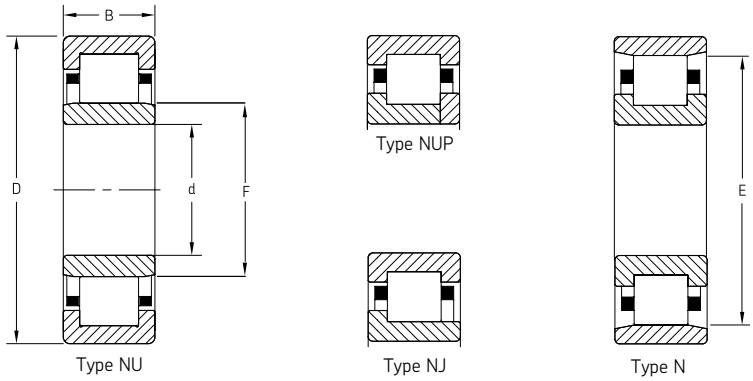


Type N

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Diameter			
	Bore d		Outside diameter D		Height B		Dynamic C		Static C_0		Reference speed	Limiting speed			Under roller F		Over roller E	
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	mm	in	mm	in
2228 EC	140	5.5118	250	9.8425	68	2.6772	655 000	147 200	830 000	186 500	2 800	4 800	15.0	33.0	169.0	6.65	225.0	8.86
2230 EC	150	5.9055	270	10.6299	73	2.8740	735 000	165 200	930 000	209 000	2 600	2 800	18.5	40.8	182.0	7.17	242.0	9.53
2232 EC	160	6.2992	290	11.4173	80	3.1496	930 000	209 000	1 200 000	269 700	2 400	4 000	23.1	50.9	193.0	7.60	261.0	10.28
2234 EC	170	6.6929	310	12.2047	86	3.3858	1 059 999	238 200	1 340 000	301 100	2 200	3 800	28.1	62.0	205.0	8.07	281.0	11.06
2236 EC	180	7.0866	320	12.5984	86	3.3858	1 099 999	247 200	1 430 000	321 300	2 200	3 600	29.9	65.9	215.0	8.46	291.0	11.46
2238 EC	190	7.4803	340	13.3858	92	3.6220	1 219 999	274 200	1 600 000	359 600	2 000	3 400	35.7	78.7	228.0	8.98	308.0	12.13
2240 EC	200	7.8740	360	14.1732	98	3.8583	1 369 999	307 900	1 800 000	404 500	1 900	3 200	43.8	96.6	241.0	9.49	325.0	12.80
2244 EC	220	8.6614	400	15.7480	108	4.2520	1 570 000	352 800	2 280 000	512 400	1 600	3 000	58.2	128.4	259.0	10.20	367.0	14.45
2248	240	9.4488	440	17.3228	120	4.7244	1 450 000	325 800	2 360 000	530 300	1 500	2 200	84.0	185.2	295.0	11.61	385.0	15.16
2252	260	10.2362	480	18.8976	130	5.1181	1 790 000	402 200	3 000 000	674 200	1 300	2 000	112.0	247.0	320.0	12.60	420.0	16.54
2256 EC	280	11.0236	500	19.6850	130	5.1181	2 200 000	494 400	3 450 000	775 300	1 200	1 900	115.0	253.6	333.0	13.11	453.0	17.83
2260	300	11.8110	540	21.2598	140	5.5118	2 090 000	469 700	3 450 000	775 300	1 200	1 800	145.0	319.7	364.0	14.33	476.0	18.74
2264 EC	320	12.5984	580	22.8346	150	5.9055	3 190 000	716 900	5 000 000	1 123 600	1 000	1 600	180.0	396.9	380.0	14.96	530.0	20.87
2268	340	13.3858	620	24.4094	165	6.4961	2 640 000	593 300	4 500 000	1 011 200	1 000	1 200	226.0	498.3	416.0	16.38	544.0	21.42
2272	360	14.1732	650	25.5906	170	6.6929	2 920 000	656 200	4 900 000	1 101 100	950	1 400	257.0	566.7	437.0	17.20	573.0	22.56
2276 EC	380	14.9606	680	26.7717	175	6.8898	3 960 000	889 900	6 400 000	1 438 200	850	1 300	288.0	635.0	451.0	17.76	621.0	24.45
2292	460	18.1102	830	32.6772	212	8.3465	5 120 000	1 150 600	8 650 000	1 943 800	700	1 100	527.0	1162.0	554.0	21.81	744.0	29.29
22/560 EC	560	22.0472	1 030	40.5512	272	10.7087	9 900 000	2 224 700	16 600 000	3 730 300	530	800	1086.0	2394.6	664.0	26.14	944.0	37.17
2304 EC	20	0.7874	52	2.0472	21	0.8268	47 500	10 670	38 000	8 540	15 000	18 000	0.2	0.5	27.5	1.08	45.5	1.79
2305 EC	25	0.9843	62	2.4409	24	0.9449	64 000	14 380	55 000	12 360	12 000	15 000	0.3	0.7	34.0	1.34	54.0	2.13
2306 EC	30	1.1811	72	2.8346	27	1.0630	83 000	18 650	75 000	16 850	11 000	12 000	0.5	1.2	40.5	1.59	62.5	2.46
2307 EC	35	1.3780	80	3.1496	31	1.2205	106 000	23 820	98 000	22 020	9 500	11 000	0.7	1.6	46.2	1.82	70.2	2.76
2308 EC	40	1.5748	90	3.5433	33	1.2992	129 000	28 990	120 000	26 970	8 000	9 500	0.9	2.1	52.0	2.05	80.0	3.15
2309 EC	45	1.7717	100	3.9370	36	1.4173	160 000	35 960	153 000	34 380	7 500	8 500	1.3	2.8	58.5	2.30	88.5	3.48
2310 EC	50	1.9685	110	4.3307	40	1.5748	186 000	41 800	186 000	41 800	6 700	8 000	1.7	3.8	65.0	2.56	97.0	3.82
2311 EC	55	2.1654	120	4.7244	43	1.6929	232 000	52 100	232 000	52 100	6 000	7 000	2.2	4.9	70.5	2.78	106.5	4.19
2312 EC	60	2.3622	130	5.1181	46	1.8110	260 000	58 400	265 000	59 600	5 600	6 700	2.7	6.1	77.0	3.03	115.0	4.53

Consult SKF USA Inc. prior to design change or order placement.

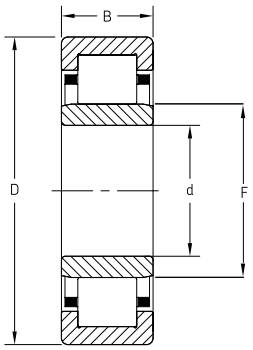
Single row
Standard and SKF Explorer
Series: 2313 EC – 2372 EC
Size: 65 mm – 360 mm
2.5591 in – 14.1732 in



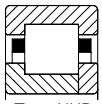
Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Diameter			
	Bore d		Outside diameter D		Height B		Dynamic C		Static C_0		Reference speed	Limiting speed			Under roller F		Over roller E	
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	mm	in	mm	in
2313 EC	65	2.5591	140	5.5118	48	1.8898	285 000	64 000	290 000	65 200	5 300	6 000	3.2	7.1	82.5	3.25	124.5	4.90
2314 EC	70	2.7559	150	5.9055	51	2.0079	315 000	70 800	325 000	73 000	4 800	5 600	3.9	8.7	89.0	3.50	133.0	5.24
2315 EC	75	2.9528	160	6.2992	55	2.1654	380 000	85 400	400 000	89 900	4 500	5 300	4.8	10.6	95.0	3.74	143.0	5.63
2316 EC	80	3.1496	170	6.6929	58	2.2835	415 000	93 300	440 000	98 900	4 300	5 000	5.7	12.7	101.0	3.98	151.0	5.94
2317 EC	85	3.3465	180	7.0866	60	2.3622	455 000	102 200	490 000	110 100	4 000	4 800	6.8	15.1	108.0	4.25	160.0	6.30
2318 EC	90	3.5433	190	7.4803	64	2.5197	500 000	112 400	540 000	121 300	3 800	4 500	8.0	17.6	113.5	4.47	169.5	6.67
2319 EC	95	3.7402	200	7.8740	67	2.6378	530 000	119 100	585 000	131 500	3 600	4 300	9.3	20.6	121.5	4.78	177.5	6.99
2320 EC	100	3.9370	215	8.4646	73	2.8740	670 000	150 600	735 000	165 200	3 200	3 800	11.8	26.0	127.5	5.02	191.5	7.54
2322 EC	110	4.3307	240	9.4488	80	3.1496	780 000	175 300	900 000	202 200	3 000	3 400	16.9	37.2	143.0	5.63	211.0	8.31
2324 EC	120	4.7244	260	10.2362	86	3.3858	915 000	205 600	1 040 000	233 700	2 800	5 000	22.4	49.4	154.0	6.06	230.0	9.06
2326 EC	130	5.1181	280	11.0236	93	3.6614	1 059 999	238 200	1 250 000	280 900	2 400	4 500	28.4	62.6	167.0	6.57	247.0	9.72
2328 EC	140	5.5118	300	11.8110	102	4.0157	1 199 999	269 700	1 430 000	321 300	2 400	4 300	35.9	79.1	180.0	7.09	264.0	10.39
2330 EC	150	5.9055	320	12.5984	108	4.2520	1 369 999	307 900	1 630 000	366 300	2 200	4 000	42.4	93.6	193.0	7.60	283.0	11.14
2332 EC	160	6.2992	340	13.3858	114	4.4882	1 250 000	280 900	1 730 000	388 800	1 800	3 600	49.9	110.1	204.0	8.03	300.0	11.81
2334 EC	170	6.6929	360	14.1732	120	4.7244	1 450 000	325 800	2 040 000	458 400	1 700	3 400	60.5	133.4	216.0	8.50	316.0	12.44
2336 EC	180	7.0866	380	14.9606	126	4.9606	1 610 000	361 800	2 240 000	503 400	1 600	3 200	69.4	153.0	227.0	8.94	339.0	13.35
2338 EC	190	7.4803	400	15.7480	132	5.1969	1 830 000	411 200	2 550 000	573 000	1 500	3 000	80.3	177.0	240.0	9.45	360.0	14.17
2340 EC	200	7.8740	420	16.5354	138	5.4331	1 980 000	444 900	2 800 000	629 200	1 400	2 800	92.4	203.7	253.0	9.96	377.0	14.84
2344 EC	220	8.6614	460	18.1102	145	5.7087	2 380 000	534 800	3 450 000	775 300	1 300	2 200	124.0	273.4	277.0	10.91	413.0	16.26
2348 EC	240	9.4488	500	19.6850	155	6.1024	2 600 000	584 300	3 650 000	820 200	1 200	2 000	155.0	341.8	299.0	11.77	449.0	17.68
2352 EC	260	10.2362	540	21.2598	165	6.4961	3 140 000	705 600	4 550 000	1 022 500	1 100	1 900	196.0	432.2	324.0	12.76	484.0	19.06
2356	280	11.0236	580	22.8346	175	6.8898	2 700 000	606 700	4 300 000	966 300	1 000	1 700	230.0	507.2	362.0	14.25	498.0	19.61
2360 EC	300	11.8110	620	24.4094	185	7.2835	4 020 000	903 400	5 850 000	1 314 600	950	1 600	270.0	595.4	371.0	14.61	561.0	22.09
2364 EC	320	12.5984	670	26.3780	200	7.8740	4 730 000	1 062 900	7 500 000	1 685 400	850	1 500	369.2	814.1	405.0	15.94	595.0	23.43
2368 EC	340	13.3858	710	27.9528	212	8.3465	5 610 000	1 260 700	8 650 000	1 943 800	800	1 400	439.0	968.0	425.0	16.73	635.0	25.00
2372 EC	360	14.1732	750	29.5276	224	8.8189	5 010 000	1 125 800	8 150 000	1 831 500	850	1 300	510.0	1124.6	465.0	18.31	655.0	25.79

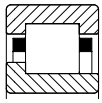
Consult SKF USA Inc. prior to design change or order placement.

Single row
Standard and SKF Explorer
Series: 303 EC – 360 EC
Size: 17 mm – 300 mm
0.6693 in – 11.8110 in



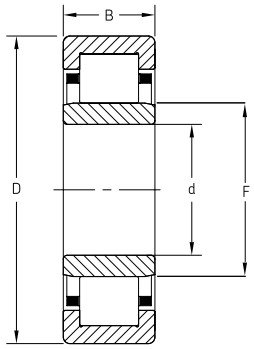
Type NU


Type NUP

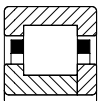

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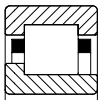
Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Diameter			
	Bore d		Outside diameter D		Height B		Dynamic C		Static C_0		Reference speed	Limiting speed			Under roller F		Over roller E	
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	mm	in	mm	in
303 EC	17	0.6693	47	1.8504	14	0.5512	28 500	6 400	20 400	4 580	17 000	20 000	0.1	0.3	24.2	0.95	40.2	1.58
304 EC	20	0.7874	52	2.0472	15	0.5906	35 500	7 980	26 000	5 840	15 000	18 000	0.1	0.3	27.5	1.08	45.5	1.79
305 EC	25	0.9843	62	2.4409	17	0.6693	46 500	10 450	36 500	8 200	12 000	15 000	0.2	0.5	34.0	1.34	54.0	2.13
306 EC	30	1.1811	72	2.8346	19	0.7480	58 500	13 150	48 000	10 790	11 000	12 000	0.4	0.8	40.5	1.59	62.5	2.46
307 EC	35	1.3780	80	3.1496	21	0.8268	75 000	16 850	63 000	14 160	9 500	11 000	0.5	1.0	46.2	1.82	70.2	2.76
308 EC	40	1.5748	90	3.5433	23	0.9055	93 000	20 900	78 000	17 530	8 000	9 500	0.6	1.4	52.0	2.05	80.0	3.15
309 EC	45	1.7717	100	3.9370	25	0.9843	112 000	25 170	100 000	22 470	7 500	8 500	0.9	1.9	58.5	2.30	88.5	3.48
310 EC	50	1.9685	110	4.3307	27	1.0630	127 000	28 540	112 000	25 170	6 700	8 000	1.1	2.4	65.0	2.56	97.0	3.82
311 EC	55	2.1654	120	4.7244	29	1.1417	156 000	35 060	143 000	32 130	6 000	7 000	1.4	3.2	70.5	2.78	106.5	4.19
312 EC	60	2.3622	130	5.1181	31	1.2205	173 000	38 880	160 000	35 960	5 600	6 700	1.8	3.9	77.0	3.03	115.0	4.53
313 EC	65	2.5591	140	5.5118	33	1.2992	212 000	47 640	196 000	44 040	5 300	6 000	2.2	4.8	82.5	3.25	124.5	4.90
314 EC	70	2.7559	150	5.9055	35	1.3780	236 000	53 000	228 000	51 200	4 800	5 600	2.7	5.9	89.0	3.50	133.0	5.24
315 EC	75	2.9528	160	6.2992	37	1.4567	280 000	62 900	265 000	59 600	4 500	5 300	3.3	7.3	95.0	3.74	143.0	5.63
316 EC	80	3.1496	170	6.6929	39	1.5354	300 000	67 400	290 000	65 200	4 300	5 000	3.9	8.5	101.0	3.98	151.0	5.94
317 EC	85	3.3465	180	7.0866	41	1.6142	340 000	76 400	335 000	75 300	4 000	4 800	4.5	10.0	108.0	4.25	160.0	6.30
318 EC	90	3.5433	190	7.4803	43	1.6929	365 000	82 000	360 000	80 900	3 800	4 500	5.3	11.6	113.5	4.47	169.5	6.67
319 EC	95	3.7402	200	7.8740	45	1.7717	390 000	87 600	390 000	87 600	3 600	4 300	6.2	13.6	121.5	4.78	177.5	6.99
320 EC	100	3.9370	215	8.4646	47	1.8504	450 000	101 100	440 000	98 900	3 200	3 800	7.4	16.3	127.5	5.02	191.5	7.54
321 EC	105	4.1339	225	8.8583	49	1.9291	500 000	112 400	500 000	112 400	3 200	3 800	8.5	18.7	133.0	5.24	201.0	7.91
322 EC	110	4.3307	240	9.4488	50	1.9685	530 000	119 100	540 000	121 300	3 000	3 400	10.2	22.5	143.0	5.63	211.0	8.31
324 EC	120	4.7244	260	10.2362	55	2.1654	610 000	137 100	620 000	139 300	2 800	3 200	12.8	28.2	154.0	6.06	230.0	9.06
326 EC	130	5.1181	280	11.0236	58	2.2835	720 000	161 800	750 000	168 500	2 400	3 000	16.1	35.4	167.0	6.57	247.0	9.72
328 EC	140	5.5118	300	11.8110	62	2.4409	780 000	175 300	830 000	186 500	2 400	2 800	20.0	44.1	180.0	7.09	264.0	10.39
330 EC	150	5.9055	320	12.5984	65	2.5591	900 000	202 200	965 000	216 900	2 200	2 600	26.3	58.0	193.0	7.60	283.0	11.14
332 EC	160	6.2992	340	13.3858	68	2.6772	1 000 000	224 700	1 080 000	242 700	2 000	3 600	30.9	68.1	204.0	8.03	300.0	11.81
334 EC	170	6.6929	360	14.1732	72	2.8346	952 000	213 900	1 180 000	265 200	1 700	2 200	33.2	73.1	218.0	8.58	318.0	12.52
336 EC	180	7.0866	380	14.9606	75	2.9528	1 020 000	229 200	1 290 000	289 900	1 600	2 200	42.7	94.1	231.0	9.09	335.0	13.19
338 EC	190	7.4803	400	15.7480	78	3.0709	1 140 000	256 200	1 500 000	337 100	1 500	2 000	50.0	110.3	245.0	9.65	353.0	13.90
340 EC	200	7.8740	420	16.5354	80	3.1496	1 230 000	276 400	1 630 000	366 300	1 400	2 800	56.3	124.1	258.0	10.16	370.0	14.57
344	220	8.6614	460	18.1102	88	3.4646	1 210 000	271 900	1 630 000	366 300	1 500	1 700	73.5	162.1	284.0	11.18	396.0	15.59
348	240	9.4488	500	19.6850	95	3.7402	1 450 000	325 800	2 000 000	449 400	1 300	1 600	94.5	208.4	310.0	12.20	430.0	16.93
352 EC	260	10.2362	540	21.2598	102	4.0157	1 940 000	436 000	2 700 000	606 700	1 100	1 800	120.5	265.7	337.0	13.27	477.0	18.78
360 EC	300	11.8110	620	24.4094	109	4.2913	2 330 000	523 600	3 350 000	752 800	950	1 200	174.0	383.7	385.0	15.16	535.0	21.06

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Type NU


Type NUP


Type NJ

Single row
Standard
Series: 406 – 424
Size: 30 mm – 120 mm
1.1811 in – 4.7244 in

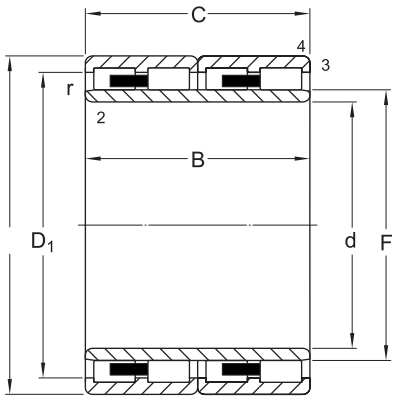
Series: 1292 – 12/630 EC
Size: 460 mm – 630 mm
18.1102 in – 24.8031 in

Series: 1876 EC – 18/1000
Size: 380 mm – 1000 mm
14.9606 in – 39.3701 in

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Diameter			
	Bore d		Outside diameter D		Height B		Dynamic C		Static C_0		Reference speed	Limiting speed			Under roller F		Over roller E	
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	mm	in	mm	in
406	30	1.1811	90	3.5433	23	0.9055	60 500	13 600	53 000	11 910	9 000	11 000	0.8	1.7	45.0	1.77	73.0	2.87
407	35	1.3780	100	3.9370	25	0.9843	76 500	17 190	69 500	15 620	8 000	9 500	1.0	2.2	53.0	2.09	83.0	3.27
408	40	1.5748	110	4.3307	27	1.0630	96 800	21 750	90 000	20 220	7 000	8 500	1.3	2.8	58.0	2.28	92.0	3.62
409	45	1.7717	120	4.7244	29	1.1417	106 000	23 820	102 000	22 920	6 700	7 500	1.6	3.6	64.5	2.54	100.5	3.96
410	50	1.9685	130	5.1181	31	1.2205	130 000	29 210	127 000	28 540	6 000	7 000	2.0	4.5	70.8	2.79	110.8	4.36
411	55	2.1654	140	5.5118	33	1.2992	142 000	31 910	140 000	31 460	5 600	6 300	2.5	5.5	77.2	3.04	117.2	4.61
412	60	2.3622	150	5.9055	35	1.3780	168 000	37 750	173 000	38 880	5 000	6 000	3.0	6.7	83.0	3.27	127.0	5.00
413	65	2.5591	160	6.2992	37	1.4567	183 000	41 120	190 000	42 700	4 800	5 600	3.6	7.9	89.3	3.52	135.3	5.33
414	70	2.7559	180	7.0866	42	1.6535	229 000	51 500	240 000	53 900	4 300	5 000	5.2	11.6	100.0	3.94	152.0	5.98
415	75	2.9528	190	7.4803	45	1.7717	264 000	59 300	280 000	62 900	4 000	4 800	6.2	13.7	104.5	4.11	160.5	6.32
416	80	3.1496	200	7.8740	48	1.8898	303 000	68 100	320 000	71 900	3 800	4 500	7.2	16.0	110.0	4.33	170.0	6.69
417	85	3.3465	210	8.2677	52	2.0472	319 000	71 700	335 000	75 300	3 600	4 300	8.9	19.6	113.0	4.45	177.0	6.97
418	90	3.5433	225	8.8583	54	2.1260	380 000	85 400	415 000	93 300	3 400	4 000	10.2	22.5	123.5	4.86	191.5	7.54
419	95	3.7402	240	9.4488	55	2.1654	413 000	92 800	455 000	102 200	3 200	3 600	13.4	29.6	133.5	5.26	201.5	7.93
420	100	3.9370	250	9.8425	58	2.2835	457 000	102 700	520 000	116 900	3 000	3 600	15.7	34.6	139.0	5.47	211.0	8.31
421	105	4.1339	260	10.2362	60	2.3622	501 000	112 600	570 000	128 100	2 800	3 400	17.3	38.1	144.5	5.69	220.5	8.68
422	110	4.3307	280	11.0236	65	2.5591	550 000	123 600	630 000	141 600	2 600	3 200	22.7	50.0	155.0	6.10	235.0	9.25
424	120	4.7244	310	12.2047	72	2.8346	644 000	144 700	735 000	165 200	2 400	2 800	27.3	60.2	170.0	6.69	260.0	10.24
1292	460	18.1102	830	32.6772	165	6.4961	4 180 000	939 300	6 800 000	1 528 100	750	1 100	415.0	915.1	554.0	21.81	744.0	29.29
12/500	500	19.6850	920	36.2205	185	7.2835	5 280 000	1 186 500	8 500 000	1 910 100	670	950	575.0	1267.9	603.1	23.74	823.1	32.41
12/560	560	22.0472	1 030	40.5512	206	8.1102	7 210 000	1 620 200	11 200 000	2 516 900	560	800	805.0	1775.0	668.0	26.30	948.0	37.32
12/630 EC	630	24.8031	1 150	45.2756	230	9.0551	8 580 000	1 928 100	13 700 000	3 078 700	450	700	1109.0	2445.3	751.0	29.57	1051.0	41.38
1876 EC	380	14.9606	480	18.8976	46	1.8110	561 000	126 100	1 120 000	251 700	1 300	2 000	20.0	44.1	406.0	15.98	458.0	18.03
1880	400	15.7480	500	19.6850	46	1.8110	572 000	128 500	1 180 000	265 200	1 300	1 900	21.5	47.4	423.0	16.65	475.0	18.70
1884	420	16.5354	520	20.4724	46	1.8110	572 000	128 500	1 200 000	269 700	1 200	1 800	22.0	48.5	447.0	17.60	499.0	19.65
18/600 EC	600	23.6220	730	28.7402	60	2.3622	897 000	201 600	2 080 000	467 400	800	1 000	54.0	119.1	632.0	24.88	696.0	27.40
18/630 EC	630	24.8031	780	30.7087	69	2.7165	1 100 000	247 200	2 500 000	561 800	750	950	75.0	165.4	667.0	26.26	739.0	29.09
18/800 EC	800	31.4961	980	38.5827	82	3.2283	1 720 000	386 500	4 150 000	932 600	530	700	137.0	302.1	846.0	33.31	936.0	36.85
18/900 EC	900	35.4331	1 090	42.9134	85	3.3465	1 980 000	444 900	4 900 000	1 101 100	450	600	169.0	372.6	948.0	37.32	1044.0	41.10
18/1000	1 000	39.3701	1 220	48.0315	100	3.9370	2 640 000	593 300	6 550 000	1 471 900	400	530	265.0	584.3	1053.0	41.46	1165.0	45.87

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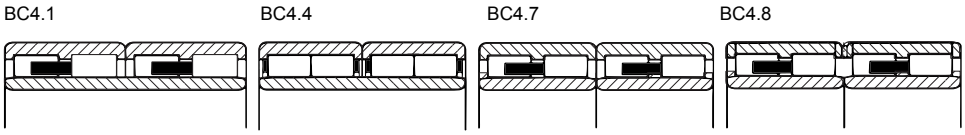
Four row
SKF Explorer
Series: BC4 0093 – BC4 0124
Size: 127 mm – 300 mm
5.000 in – 11.8110 in



Designation	Principal dimensions								Basic load ratings				Speed rating		Mass	
BC Full bearing	Bore d		Outside diameter D		Height B		F^1		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
BC4-0093	127.0	5.000	174.65	6.8760	151	5.9375	139.50	5.4921	780,000	175,350	1,320,000	296,750	2 800	4 000	10.6	23.3
BC4-0105	145.0	5.7087	225.00	8.8583	156	6.1417	169.00	6.6535	1,100,000	247,290	1,630,000	366,440	2 200	3 200	23.7	52.2
BC4-0101	145.0	5.7087	210.00	8.2677	155	6.1024	166.00	6.5354	980,000	220,310	1,560,000	350,700	2 400	3 400	18.0	39.7
BC4-0096	150.0	5.9055	230.00	9.0551	156	6.1417	174.00	6.8504	1,120,000	251,790	1,660,000	373,180	2 200	3 200	24.1	53.1
BC4-0108	160.0	6.2992	230.00	9.0551	130	5.1181	180.00	7.0866	965,000	216,940	1,340,000	301,240	2 000	3 000	17.3	38.1
BC4-0103	160.0	6.2992	230.00	9.0551	168	6.6142	179.00	7.0472	1,290,000	290,000	2,200,000	494,580	2 200	3 200	23.8	52.4
BC4-0111	165.1	6.5000	225.45	8.8760	168	6.6260	181.00	7.1260	1,250,000	281,010	2,240,000	503,570	2 200	3 200	20.0	44.1
BC4-0118	170.0	6.6929	230.00	9.0551	160	6.2992	185.50	7.3031	1,370,000	307,990	2,360,000	530,550	2 000	3 000	19.3	42.4
BC4-0119	170.0	6.6929	240.00	9.4488	130	5.1181	187.00	7.3622	1,140,000	256,280	1,830,000	411,400	2 000	3 000	19.0	41.9
BC4-0114	180.0	7.0866	260.00	10.2362	168	6.6142	202.00	7.9528	1,560,000	350,700	2,500,000	562,020	1 900	2 800	30.1	66.2
BC4-0098	190.0	7.4803	260.00	10.2362	168	6.6142	212.00	8.3465	1,430,000	321,480	2,600,000	584,500	1 800	2 600	26.7	58.9
BC4-0116	190.0	7.4803	280.00	11.0236	200	7.8740	214.00	8.4252	2,080,000	467,600	3,250,000	730,630	1 700	2 600	41.8	92.2
BC4-0109	190.0	7.4803	270.00	10.6299	200	7.8740	212.00	8.3465	1,800,000	404,660	3,150,000	708,150	1 800	2 600	37.2	82.0
BC4-0106	200.0	7.8740	290.00	11.4173	192	7.5591	226.00	8.8976	1,900,000	427,140	3,350,000	753,110	1 600	2 400	43.0	94.8
BC4-0092	200.0	7.8740	280.00	11.0236	200	7.8740	222.00	8.7402	1,860,000	418,140	3,350,000	753,110	1 700	2 600	39.2	86.5
BC4-0095	200.0	7.8740	280.00	11.0236	170	6.6929	222.00	8.7402	1,700,000	382,180	3,000,000	674,430	1 700	2 600	33.4	73.6
BC4-0113	200.0	7.8740	270.00	10.6299	170	6.6929	222.00	8.7402	1,430,000	321,480	2,700,000	606,980	1 700	2 600	28.5	62.7
BC4-0051	200.0	7.8740	270.00	10.6299	200	7.8740	222.25	8.7500	1,730,000	388,920	3,350,000	753,110	1 700	2 600	33.0	72.8
BC4-0102	210.0	8.26877	290.00	11.4173	192	7.5591	236.00	9.2913	1,760,000	395,660	3,350,000	753,110	1 600	2 400	39.4	86.9
BC4-0117	220.0	8.6614	310.00	12.2047	192	7.5591	246.00	9.6850	1,900,000	427,140	3,550,000	798,070	1 500	2 200	49.0	108.1
BC4-0097	220.0	8.6614	310.00	12.2047	225	8.8583	244.00	9.6063	2,280,000	512,560	4,050,000	910,480	1 500	2 200	55.6	122.6
BC4-0115	230.0	9.0551	365.00	14.3701	250	9.8425	266.00	10.4724	3,350,000	753,110	5,000,000	1,124,040	1 300	2 000	69.3	152.8
BC4-0112	230.0	9.0551	330.00	12.9921	206	8.1102	260.00	10.2362	2,320,000	521,560	4,000,000	899,240	1 400	2 200	58.6	129.1
BC4-0099	240.0	9.4488	330.00	12.9921	220	8.6614	270.00	10.6299	2,160,000	485,590	4,300,000	966,680	1 400	2 000	64.1	141.3
BC4-0104	240.0	9.4488	330.00	12.992	180	7.0866	265.00	10.4331	2,120,000	476,590	3,800,000	854,270	1 400	2 000	50.5	111.2
BC4-0110	260.0	10.2362	370.00	14.5669	220	8.6614	292.00	11.4961	2,700,000	606,980	4,650,000	1,045,360	1 300	1 900	77.9	171.7
BC4-0107	280.0	11.0236	390.00	15.3543	220	8.6614	312.00	12.2835	2,800,000	629,460	5,000,000	1,124,040	1 200	1 700	87.2	192.1
BC4-0100	280.0	11.0236	390.00	15.3543	275	10.8268	308.00	12.1260	3,750,000	843,030	6,950,000	1,562,420	1 200	1 700	101.8	224.4
BC4-0128	280.0	11.0236	390.00	15.3543	275	10.8268	308.00	12.1260	3,750,000	843,030	6,950,000	1,562,420	1 200	1 700	102.2	225.4
BC4-0094	300.0	11.8110	420.00	16.5354	300	11.8110	332.00	13.0709	4,400,000	989,160	8,300,000	1,865,910	1 100	1 600	130.2	287.0
BC4-0124	300.0	11.8110	420.00	16.5354	300	11.8110	332.00	13.0709	4,400,000	989,160	8,300,000	1,865,910	1 100	1 600	130.4	287.4

[1] F = Diameter under rollers
[2] R-Part = Outer ring with roller and cage assembly of a separable BC4 bearing assembly
[3] L-Part = Separate inner ring of a separable BC4 bearing assembly

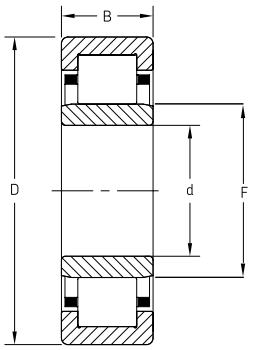
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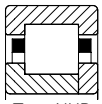
Designation				Design & Features			
BC Full bearing	R-Part[2]	L-Part[3]	BC4	Performance	Clearance	Radial side face lube grooves	Cage
	Designation	Designation	Design	Class	Class	Lube	Execution
BC4-0093	RBC4-0093	LBC4-0093	BC4.1	Explorer	C4P	both sides	Brass
BC4-0105	RBC4-0105	LBC4-0105	BC4.1	Explorer	C4	both sides	Brass
BC4-0101	RBC4-0101	LBC4-0101	BC4.1	Explorer	C4	both sides	Brass
BC4-0096	RBC4-0096	LBC4-0096	BC4.1	Explorer	0,18-0,23	both sides	Brass
BC4-0108	RBC4-0108	LBC4-0108	BC4.1	Explorer	C4	both sides	Brass
BC4-0103	RBC4-0103	LBC4-0103	BC4.1	Explorer	C4	both sides	Brass
BC4-0111	RBC4-0111	LBC4-0111	BC4.1	Explorer	C4P	both sides	Brass
BC4-0118	RBC4-0118	LBC4-0118	BC4.7	Explorer	C4	-	Brass
BC4-0119	RBC4-0119	LBC4-0119	BC4.1	Explorer	C4	both sides	Brass
BC4-0114	RBC4-0114	LBC4-0114	BC4.1	Explorer	C4	both sides	Brass
BC4-0098	RBC4-0098	LBC4-0098	BC4.1	Explorer	C4	both sides	Brass
BC4-0116	RBC4-0116	LBC4-0116	BC4.1	Explorer	C4	both sides	Brass
BC4-0109	RBC4-0109	LBC4-0109	BC4.1	Explorer	C4	both sides	Brass
BC4-0106	RBC4-0106	LBC4-0106	BC4.1	Explorer	C4	both sides	Brass
BC4-0092	RBC4-0092	LBC4-0092	BC4.1	Explorer	C4	both sides	Brass
BC4-0095	RBC4-0095	LBC4-0095	BC4.1	Explorer	C4	both sides	Brass
BC4-0113	RBC4-0113	LBC4-0095	BC4.1	Explorer	C4	both sides	Brass
BC4-0051	RBC4-0051	LBC4-0051	BC4.1	Explorer	C4	both sides	Brass
BC4-0102	RBC4-0102	LBC4-0102	BC4.1	Explorer	C3	both sides	Brass
BC4-0117	RBC4-0117	LBC4-0117	BC4.1	Explorer	C4	both sides	Brass
BC4-0097	RBC4-0097	LBC4-0097	BC4.1	Explorer	C4	both sides	Brass
BC4-0115	RBC4-0115	LBC4-0115	BC4.8	Explorer	C3	-	Brass
BC4-0112	RBC4-0112	LBC4-0112	BC4.1	Explorer	C4	both sides	Brass
BC4-0099	RBC4-0099	LBC4-0099	BC4.1	Explorer	C3	both sides	Brass
BC4-0104	RBC4-0104	LBC4-0104	BC4.4	Explorer	C4	both sides	Brass
BC4-0110	RBC4-0110	LBC4-0110	BC4.1	Explorer	C4	both sides	Brass
BC4-0107	RBC4-0107	LBC4-0107	BC4.1	Explorer	C4	both sides	Brass
BC4-0100	RBC4-0100	LBC4-0100	BC4.8	Explorer	C4	-	Brass
BC4-0128	RBC4-0128	LBC4-0100	BC4.7	Explorer	C4	-	Brass
BC4-0094	RBC4-0094	LBC4-0094	BC4.8	Explorer	C4	both sides	Brass
BC4-0124	RBC4-0124	LBC4-0094	BC4.7	Explorer	C4	both sides	Brass

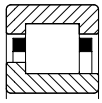
Consult SKF USA Inc. prior to design change or order placement.

Full complement
Single row
Standard
Series: 1964 EC – 3992 EC
Size: 320 mm – 460 mm
12.5984 in – 18.1102 in



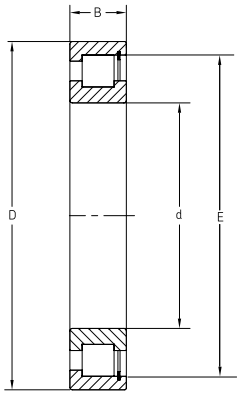
Type NU


Type NUP


Type NJ

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Diameter			
	Bore d		Outside diameter D		Height B		Dynamic C		Static C_0		Reference speed	Limiting speed			Under roller F		Over roller E	
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	mm	in	mm	in
1964 EC	320	12.5984	440	17.3228	56	2.2047	693 000	155 700	1 200 000	269 700	1 500	2 000	26.0	57.3	348.0	13.70	412.0	16.22
1968 EC	340	13.3858	460	18.1102	56	2.2047	682 000	153 300	1 200 000	269 700	1 400	1 900	27.5	60.6	370.0	14.57	434.0	17.09
1972 EC	360	14.1732	480	18.8976	56	2.2047	781 000	175 500	1 460 000	328 100	1 400	2 000	29.0	63.9	387.5	15.26	451.5	17.78
1988	440	17.3228	600	23.6220	74	2.9134	1 060 000	238 200	2 000 000	449 400	1 100	1 400	53.0	116.9	482.0	18.98	562.0	22.13
1996	480	18.8976	650	25.5906	78	3.0709	1 170 000	262 900	2 240 000	503 400	950	1 300	76.0	167.6	525.0	20.67	609.0	23.98
2060 EC	300	11.8110	460	18.1102	95	3.7402	1 510 000	339 300	2 600 000	584 300	1 300	2 000	62.0	136.7	341.0	13.43	425.0	16.73
2088 EC	440	17.3228	650	25.5906	122	4.8031	2 550 000	573 000	4 900 000	1 101 100	8 500	1 300	145.0	319.7	487.0	19.17	599.0	23.58
2096 EC	480	18.8976	700	27.5591	128	5.0394	2 860 000	642 700	5 600 000	1 258 400	750	1 200	179.0	394.7	533.0	20.98	653.0	25.71
20/500 EC	500	19.6850	720	28.3465	128	5.0394	2 920 000	656 200	5 850 000	1 314 600	750	1 100	180.0	396.9	553.0	21.77	673.0	26.50
20/530 EC	530	20.8661	780	30.7087	145	5.7087	3 740 000	840 400	7 350 000	1 651 700	670	1 000	253.0	557.9	591.0	23.27	727.0	28.62
20/560 EC	560	22.0472	820	32.2835	150	5.9055	3 800 000	853 900	7 650 000	1 719 100	630	1 000	290.0	639.5	626.0	24.65	762.0	30.00
20/600 EC	600	23.6220	870	34.2520	155	6.1024	4 180 000	939 300	8 000 000	1 797 800	600	900	325.0	716.6	661.0	26.02	821.0	32.32
20/630 EC	630	24.8031	920	36.2205	170	6.6929	4 730 000	1 062 900	9 500 000	2 134 800	560	850	400.0	882.0	699.0	27.52	859.0	33.82
20/670 EC	670	26.3780	980	38.5827	180	7.0866	5 390 000	1 211 200	11 000 000	2 471 900	500	800	480.0	1058.4	746.0	29.37	916.0	36.06
20/710 EC	710	27.9528	1 030	40.5512	185	7.2835	5 940 000	1 334 800	12 000 000	2 696 600	480	700	540.0	1190.7	787.0	30.98	967.0	38.07
20/750 EC	750	29.5276	1 090	42.9134	195	7.6772	7 040 000	1 582 000	14 600 000	3 280 900	430	670	635.0	1400.2	832.0	32.76	1022.0	40.24
20/800 EC	800	31.4961	1 150	45.2756	200	7.8740	7 040 000	1 582 000	14 600 000	3 280 900	400	630	715.0	1576.6	882.0	34.72	1082.0	42.60
20/850 EC	850	33.4646	1 220	48.0315	212	8.3465	8 420 000	1 892 100	18 600 000	4 179 800	360	560	880.0	1940.4	942.0	37.09	1142.0	44.96
3068	340	13.3858	520	20.4724	133	5.2362	2 200 000	494 400	4 150 000	932 600	1 100	1 700	109.0	240.3	385.0	15.16	481.0	18.94
3076 EC	380	14.9606	560	22.0472	135	5.3150	2 380 000	534 800	4 750 000	1 067 400	1 000	1 800	108.5	239.2	425.0	16.73	521.0	20.51
30/500 EC	500	19.6850	720	28.3465	167	6.5748	3 800 000	853 900	7 350 000	1 651 700	750	1 100	233.0	513.8	540.8	21.29	676.8	26.65
3168 EC	340	13.3858	580	22.8346	190	7.4803	3 470 000	779 800	5 850 000	1 314 600	950	1 600	217.0	478.5	390.5	15.37	526.5	20.73
3172 EC	360	14.1732	600	23.6220	192	7.5591	3 410 000	766 300	6 100 000	1 370 800	900	1 500	226.0	498.3	420.0	16.54	548.0	21.57
3184 EC	420	16.5354	700	27.5591	224	8.8189	4 950 000	1 112 400	9 000 000	2 022 500	750	1 300	365.0	804.8	485.0	19.09	645.0	25.39
3188 EC	440	17.3228	720	28.3465	226	8.8976	5 120 000	1 150 600	10 000 000	2 247 200	700	1 200	388.0	855.5	509.0	20.04	669.0	26.34
3192 EC	460	18.1102	760	29.9213	240	9.4488	5 280 000	1 186 500	9 650 000	2 168 500	670	1 100	450.0	992.3	529.3	20.84	695.3	27.37
3196 EC	480	18.8976	790	31.1024	248	9.7638	5 940 000	1 334 800	10 800 000	2 427 000	630	1 100	507.0	1117.9	547.0	21.54	727.0	28.62
3984 EC	420	16.5354	560	22.0472	106	4.1732	1 680 000	377 500	3 650 000	820 200	950	1 500	79.7	175.7	455.0	17.91	531.0	20.91
3992 EC	460	18.1102	620	24.4094	118	4.6457	2 050 000	460 700	4 550 000	1 022 500	850	1 300	111.5	245.9	501.0	19.72	585.0	23.03

Consult SKF USA Inc. prior to design change or order placement.



Type NCF

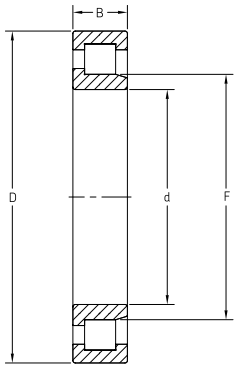
Full complement
Single row
Series: NCF 1840 V – NCF 18/1120 V
Size: 200 mm – 1120 mm
7.8740 in – 44.0945 in

Series: NCF 2224 V – NCF 2244 V
Size: 120 mm – 220 mm
4.7244 in – 8.6614 in

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Diameter			
	Bore d		Outside diameter D		Height B		Dynamic C		Static C_0		Reference speed	Limiting speed			Under roller F		Over roller E	
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	mm	in	mm	in
NCF 1840 V	200	7.8740	250	9.8425	24	0.9449	176 000	39 550	335 000	75 300	1 100	1 400	2.6	5.7	237.5	9.35	211.5	8.33
NCF 1844 V	220	8.6614	270	10.6299	24	0.9449	183 000	41 120	365 000	82 000	1 000	1 200	2.9	6.3	258.0	10.16	232.0	9.13
NCF 1848 V	240	9.4488	300	11.8110	28	1.1024	260 000	58 400	510 000	114 600	900	1 100	4.4	9.7	287.0	11.30	255.0	10.04
NCF 1852 V	260	10.2362	320	12.5984	28	1.1024	270 000	60 700	550 000	123 600	800	1 000	4.6	10.0	307.2	12.09	275.2	10.83
NCF 1856 V	280	11.0236	350	13.7795	33	1.2992	341 000	76 600	695 000	156 200	750	950	7.1	15.7	334.0	13.15	298.0	11.73
NCF 1860 V	300	11.8110	380	14.9606	38	1.4961	418 000	93 900	850 000	191 000	670	850	10.0	22.1	363.0	14.29	321.0	12.64
NCF 1864 V	320	12.5984	400	15.7480	38	1.4961	440 000	98 900	900 000	202 200	630	800	10.5	23.2	383.0	15.08	341.0	13.43
NCF 1868 V	340	13.3858	420	16.5354	38	1.4961	446 000	100 200	950 000	213 500	600	750	11.0	24.3	403.0	15.87	361.0	14.21
NCF 1872 V	360	14.1732	440	17.3228	38	1.4961	402 000	90 300	900 000	202 200	560	700	11.5	25.4	418.9	16.49	380.9	15.00
NCF 1876 V	380	14.9606	480	18.8976	46	1.8110	627 000	140 900	1 290 000	289 900	530	670	19.5	43.0	458.0	18.03	406.0	15.98
NCF 1880 V	400	15.7480	500	19.6850	46	1.8110	627 000	140 900	1 340 000	301 100	500	630	20.5	45.2	475.0	18.70	423.0	16.65
NCF 1884 V	420	16.5354	520	20.4724	46	1.8110	660 000	148 300	1 430 000	321 300	480	600	20.7	45.6	499.0	19.65	447.0	17.60
NCF 1888 V	440	17.3228	540	21.2598	46	1.8110	671 000	150 800	1 460 000	328 100	450	560	22.0	48.5	516.0	20.31	464.0	18.27
NCF 1896 V	480	18.8976	600	23.6220	56	2.2047	935 000	210 100	2 040 000	458 400	400	500	35.5	78.3	573.5	22.58	509.5	20.06
NCF 18/500 V	500	19.6850	620	24.4094	56	2.2047	952 000	213 900	2 120 000	476 400	380	480	35.4	78.1	594.0	23.39	530.0	20.87
NCF 18/530 V	530	20.8661	650	25.5906	56	2.2047	990 000	222 500	2 240 000	503 400	360	450	38.5	84.9	624.5	24.59	560.5	22.07
NCF 18/600 V	600	23.6220	730	28.7402	60	2.3622	1 050 000	236 000	2 550 000	573 000	320	400	51.5	113.6	696.0	27.40	632.0	24.88
NCF 18/630 V	630	24.8031	780	30.7087	69	2.7165	1 250 000	280 900	2 900 000	651 700	300	360	72.5	159.9	739.0	29.09	667.0	26.26
NCF 18/670 V	670	26.3780	820	32.2835	69	2.7165	1 300 000	292 100	3 150 000	707 900	280	340	74.0	163.2	783.0	30.83	711.0	27.99
NCF 18/710 V	710	27.9528	870	34.2520	74	2.9134	1 540 000	346 100	3 750 000	842 700	260	320	92.5	204.0	831.0	32.72	751.0	29.57
NCF 18/750 V	750	29.5276	920	36.2205	78	3.0709	1 760 000	395 500	4 300 000	966 300	240	300	105.0	231.5	880.0	34.65	794.0	31.26
NCF 18/800 V	800	31.4961	980	38.5827	82	3.2283	1 940 000	436 000	4 800 000	1 078 700	220	280	126.0	277.8	936.0	36.85	846.0	33.31
NCF 18/850 V	850	33.4646	1 030	40.5512	82	3.2283	2 050 000	460 700	5 200 000	1 168 500	200	260	131.0	288.9	986.0	38.82	894.0	35.20
NCF 18/950 V	950	37.4016	1 150	45.2756	90	3.5433	2 420 000	543 800	6 300 000	1 415 700	170	220	185.0	407.9	1103.0	43.43	1003.0	39.49
NCF 18/1000 V	1 000	39.3701	1 220	48.0315	100	3.9370	2 920 000	656 200	7 500 000	1 685 400	160	200	230.0	507.2	1165.0	45.87	1053.0	41.46
NCF 18/1120 V	1 120	44.0945	1 360	53.5433	106	4.1732	3 740 000	840 400	9 650 000	2 168 500	130	170	298.0	657.1	1310.0	51.57	1182.0	46.54
NCF 2224 V	120	4.7244	215	8.4646	58	2.2835	512 000	115 100	735 000	165 200	1 400	1 700	9.1	20.0	192.3	7.57	140.3	5.52
NCF 2228 V	140	5.5118	250	9.8425	68	2.6772	693 000	155 700	1 020 000	229 200	1 200	1 500	14.4	31.8	221.9	8.74	161.9	6.37
NCF 2230 V	150	5.9055	270	10.6299	73	2.8740	781 000	175 500	1 220 000	274 200	950	1 200	18.4	40.6	236.7	9.32	172.7	6.80
NCF 2232 V	160	6.2992	290	11.4173	80	3.1496	990 000	222 500	1 500 000	337 100	950	1 200	23.0	50.7	266.4	10.49	194.4	7.65
NCF 2234 V	170	6.6929	310	12.2047	86	3.3858	1 100 000	247 200	1 700 000	382 000	900	1 100	28.7	63.3	281.1	11.07	205.1	8.07
NCF 2238 V	190	7.4803	340	13.3858	92	3.6220	1 250 000	280 900	1 900 000	427 000	800	1 000	35.7	78.7	310.7	12.23	226.7	8.92
NCF 2244 V	220	8.6614	400	15.7480	108	4.2520	1 830 000	411 200	2 750 000	618 000	700	850	58.0	127.9	366.0	14.41	258.0	10.16

Consult SKF USA Inc. prior to design change or order placement.

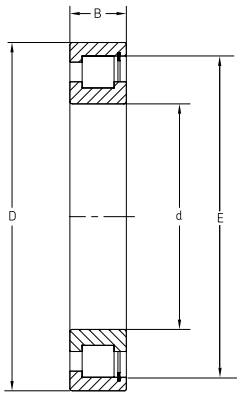
Full complement
Single row
Series: NJG 2305 VH – NJG 2352 VH
Size: 25 mm – 260 mm
0.9843 in – 10.2362 in



Type NJG

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Diameter			
	Bore d		Outside diameter D		Height B		Dynamic C		Static C_0		Reference speed	Limiting speed			Under roller F		Over roller E	
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	mm	in	mm	in
NJG 2305 VH	25	0.9843	62	2.4409	24	0.9449	68 200	15 330	68 000	15 280	4 500	5 600	0.4	0.8	53.7	2.12	31.7	1.25
NJG 2306 VH	30	1.1811	72	2.8346	27	1.0630	84 200	18 920	86 500	19 440	4 000	4 800	0.6	1.2	62.4	2.46	38.4	1.51
NJG 2307 VH	35	1.3780	80	3.1496	31	1.2205	108 000	24 270	114 000	25 620	3 400	4 300	0.8	1.7	72.8	2.86	44.8	1.76
NJG 2308 VH	40	1.5748	90	3.5433	33	1.2992	145 000	32 580	156 000	35 060	3 000	3 600	1.0	2.2	83.2	3.27	51.2	2.01
NJG 2309 VH	45	1.7717	100	3.9370	36	1.4173	172 000	38 650	196 000	44 040	2 800	3 400	1.4	3.1	88.1	3.47	56.1	2.21
NJG 2311 VH	55	2.1654	120	4.7244	43	1.6929	233 000	52 400	260 000	58 400	2 200	2 800	2.3	5.1	109.1	4.30	67.1	2.64
NJG 2313 VH	65	2.5591	140	5.5118	48	1.8898	303 000	68 100	360 000	80 900	1 900	2 400	3.6	7.8	126.7	4.99	80.7	3.18
NJG 2314 VH	70	2.7559	150	5.9055	51	2.0079	336 000	75 500	400 000	89 900	1 800	2 200	4.4	9.7	132.2	5.20	84.2	3.31
NJG 2315 VH	75	2.9528	160	6.2992	55	2.1654	396 000	89 000	480 000	107 900	1 600	2 000	5.4	11.8	143.2	5.64	91.2	3.59
NJG 2316 VH	80	3.1496	170	6.6929	58	2.2835	457 000	102 700	570 000	128 100	1 500	1 900	6.4	14.1	154.3	6.07	98.3	3.87
NJG 2317 VH	85	3.3465	180	7.0866	60	2.3622	484 000	108 800	620 000	139 300	1 400	1 800	7.4	16.3	163.0	6.42	107.0	4.21
NJG 2318 VH	90	3.5433	190	7.4803	64	2.5197	550 000	123 600	680 000	152 800	1 400	1 700	8.8	19.3	170.8	6.72	108.8	4.28
NJG 2320 VH	100	3.9370	215	8.4646	73	2.8740	704 000	158 200	900 000	202 200	1 200	1 500	13.0	28.7	192.8	7.59	122.8	4.83
NJG 2322 VH	110	4.3307	240	9.4488	80	3.1496	858 000	192 800	1 060 000	238 200	1 100	1 300	17.5	38.6	218.3	8.59	134.3	5.29
NJG 2324 VH	120	4.7244	260	10.2362	86	3.3858	952 000	213 900	1 250 000	280 900	1 000	1 200	22.7	50.1	231.4	9.11	147.4	5.80
NJG 2326 VH	130	5.1181	280	11.0236	93	3.6614	1 080 000	242 700	1 430 000	321 300	950	1 200	28.0	61.7	247.9	9.76	157.9	6.22
NJG 2328 VH	140	5.5118	300	11.8110	102	4.0157	1 230 000	276 400	1 660 000	373 000	850	1 100	35.5	78.3	264.5	10.41	168.5	6.63
NJG 2330 VH	150	5.9055	320	12.5984	108	4.2520	1 450 000	325 800	1 930 000	433 700	800	1 000	42.5	93.7	286.5	11.28	182.5	7.19
NJG 2334 VH	170	6.6929	360	14.1732	120	4.7244	1 760 000	395 500	2 450 000	550 600	700	900	59.5	131.2	319.6	12.58	203.6	8.01
NJG 2336 VH	180	7.0866	380	14.9606	126	4.9606	1 870 000	420 200	2 650 000	595 500	670	800	69.5	153.2	337.7	13.30	221.7	8.73
NJG 2338 VH	190	7.4803	400	15.7480	132	5.1969	2 160 000	485 400	3 000 000	674 200	630	800	80.0	176.4	352.5	13.88	224.5	8.84
NJG 2340 VH	200	7.8740	420	16.5354	138	5.4331	2 290 000	514 600	3 200 000	719 100	600	750	92.0	202.9	374.7	14.75	238.7	9.40
NJG 2344 VH	220	8.6614	460	18.1102	145	5.7087	2 700 000	606 700	3 750 000	842 700	530	670	111.0	244.8	418.7	16.48	266.7	10.50
NJG 2348 VH	240	9.4488	500	19.6850	155	6.1024	3 140 000	705 600	4 400 000	988 800	480	600	147.0	324.1	451.8	17.79	287.8	11.33
NJG 2352 VH	260	10.2362	540	21.2598	165	6.4961	3 580 000	804 500	5 000 000	1 123 600	430	530	177.0	390.3	495.9	19.52	315.9	12.44

Consult SKF USA Inc. prior to design change or order placement.



Type NCF

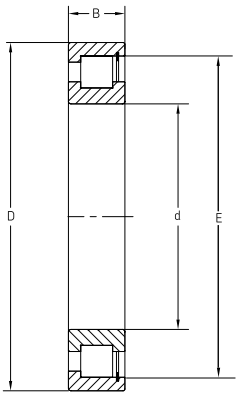
Full complement
Single row
Series: NCF 2888 V – NCF 28/1000 V
Size: 440 mm – 1000 mm
17.3228 in – 39.3701 in

Series: NCF 2912 CV – NCF 2934 CV
Size: 60 mm – 170 mm
2.3622 in – 6.6929 in

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Diameter			
	Bore d		Outside diameter D		Height B		Dynamic C		Static C_0		Reference speed	Limiting speed			Under roller F		Over roller E	
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	mm	in	mm	in
NCF 2888 V	440	17.3228	540	21.2598	60	2.3622	1 060 000	238 200	2 700 000	606 700	450	560	30.0	66.2	516.0	20.31	464.0	18.27
NCF 2892 V	460	18.1102	580	22.8346	72	2.8346	1 300 000	292 100	3 050 000	685 400	430	530	44.0	97.0	553.0	21.77	489.0	19.25
NCF 2896 V	480	18.8976	600	23.6220	72	2.8346	1 320 000	296 600	3 150 000	707 900	400	500	46.0	101.4	573.5	22.58	509.5	20.06
NCF 28/500 V	500	19.6850	620	24.4094	72	2.8346	1 340 000	301 100	3 350 000	752 800	380	480	47.0	103.6	594.0	23.39	530.0	20.87
NCF 28/530 V	530	20.8661	650	25.5906	72	2.8346	1 400 000	314 600	3 450 000	775 300	360	450	49.3	108.7	624.5	24.59	560.5	22.07
NCF 28/560 V	560	22.0472	680	26.7717	72	2.8346	1 420 000	319 100	3 650 000	820 200	340	430	54.0	119.1	655.0	25.79	591.0	23.27
NCF 28/600 V	600	23.6220	730	28.7402	78	3.0709	1 570 000	352 800	4 300 000	966 300	320	400	67.5	148.8	696.0	27.40	632.0	24.88
NCF 28/630 V	630	24.8031	780	30.7087	88	3.4646	1 940 000	436 000	5 000 000	1 123 600	300	360	92.2	203.3	741.4	29.19	665.4	26.20
NCF 28/670 V	670	26.3780	820	32.2835	88	3.4646	1 940 000	436 000	5 300 000	1 191 000	280	340	98.0	216.1	783.0	30.83	711.0	27.99
NCF 28/710 V	710	27.9528	870	34.2520	95	3.7402	2 330 000	523 600	6 300 000	1 415 700	260	320	115.0	253.6	831.0	32.72	751.0	29.57
NCF 28/750 V	750	29.5276	920	36.2205	100	3.9370	2 640 000	593 300	6 950 000	1 561 800	240	300	139.0	306.5	878.0	34.57	788.0	31.02
NCF 28/800 V	800	31.4961	980	38.5827	106	4.1732	2 750 000	618 000	7 500 000	1 685 400	220	280	169.0	372.6	936.0	36.85	846.0	33.31
NCF 28/850 V	850	33.4646	1 030	40.5512	106	4.1732	2 860 000	642 700	8 000 000	1 797 800	200	260	175.0	385.9	986.0	38.82	894.0	35.20
NCF 28/900 V	900	35.4331	1 090	42.9134	112	4.4094	3 190 000	716 900	9 150 000	2 056 200	190	240	210.0	463.1	1044.0	41.10	948.0	37.32
NCF 28/950 V	950	37.4016	1 150	45.2756	118	4.6457	3 410 000	766 300	9 800 000	2 202 200	170	220	240.0	529.2	1103.0	43.43	1003.0	39.49
NCF 28/1000 V	1 000	39.3701	1 220	48.0315	128	5.0394	4 130 000	928 100	11 600 000	2 606 700	160	200	309.0	681.3	1165.0	45.87	1053.0	41.46
NCF 2912 CV	60	2.3622	85	3.3465	16	0.6299	55 000	12 360	80 000	17 980	3 600	4 500	0.3	0.6	78.7	3.10	64.7	2.55
NCF 2913 CV	65	2.5591	90	3.5433	16	0.6299	58 300	13 100	88 000	19 780	3 200	4 000	0.3	0.7	85.2	3.36	71.2	2.80
NCF 2914 CV	70	2.7559	100	3.9370	19	0.7480	76 500	17 190	116 000	26 070	3 000	3 800	0.5	1.1	92.5	3.64	76.5	3.01
NCF 2915 CV	75	2.9528	105	4.1339	19	0.7480	79 200	17 800	125 000	28 090	2 800	3 600	0.5	1.1	97.5	3.84	81.5	3.21
NCF 2916 CV	80	3.1496	110	4.3307	19	0.7480	80 900	18 180	132 000	29 660	2 600	3 400	0.6	1.2	102.7	4.04	86.7	3.41
NCF 2917 CV	85	3.3465	120	4.7244	22	0.8661	102 000	22 920	166 000	37 300	6 300	6 300	0.8	1.8	109.5	4.31	91.5	3.60
NCF 2918 CV	90	3.5433	125	4.9213	22	0.8661	105 000	23 600	176 000	39 550	2 400	3 000	0.8	1.9	115.6	4.55	97.6	3.84
NCF 2920 CV	100	3.9370	140	5.5118	24	0.9449	128 000	28 760	200 000	44 940	2 000	2 600	1.1	2.4	130.6	5.14	108.6	4.28
NCF 2922 CV	110	4.3307	150	5.9055	24	0.9449	134 000	30 110	220 000	49 440	1 900	2 400	1.2	2.6	141.1	5.56	119.1	4.69
NCF 2924 CV	120	4.7244	165	6.4961	27	1.0630	172 000	38 650	290 000	65 200	4 300	4 300	1.7	3.8	154.3	6.07	130.3	5.13
NCF 2926 CV	130	5.1181	180	7.0866	30	1.1811	205 000	46 070	360 000	80 900	1 600	2 000	2.3	5.1	167.1	6.58	141.1	5.56
NCF 2928 CV	140	5.5118	190	7.4803	30	1.1811	220 000	49 440	390 000	87 600	1 500	1 900	2.4	5.3	180.0	7.09	152.0	5.98
NCF 2930 CV	150	5.9055	210	8.2677	36	1.4173	292 000	65 600	490 000	110 100	1 400	1 700	3.8	8.3	196.4	7.73	162.4	6.39
NCF 2932 CV	160	6.2992	220	8.6614	36	1.4173	303 000	68 100	530 000	119 100	1 300	1 600	4.0	8.8	207.2	8.16	173.2	6.82
NCF 2934 CV	170	6.6929	230	9.0551	36	1.4173	314 000	70 600	560 000	125 800	1 200	1 500	4.3	9.5	218.0	8.58	184.0	7.24

Consult SKF USA Inc. prior to design change or order placement.

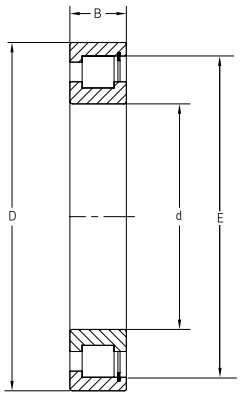
Full complement
Single row
Series: NCF 2936 CV – NCF 29/1000 V
Size: 180 mm – 1000 mm
7.0866 in – 39.3701 in



Type NCF

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Diameter			
	Bore d		Outside diameter D		Height B		Dynamic C		Static C_0		Reference speed	Limiting speed			Under roller F		Over roller E	
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	mm	in	mm	in
NCF 2936 CV	180	7.0866	250	9.8425	42	1.6535	391 000	87 900	695 000	156 200	1 100	1 400	6.2	13.7	232.0	9.13	194.0	7.64
NCF 2938 CV	190	7.4803	260	10.2362	42	1.6535	440 000	98 900	780 000	175 300	1 100	1 400	6.5	14.3	244.0	9.61	204.0	8.03
NCF 2940 CV	200	7.8740	280	11.0236	48	1.8898	528 000	118 700	965 000	216 900	1 000	1 300	9.1	20.1	262.0	10.31	218.0	8.58
NCF 2944 CV	220	8.6614	300	11.8110	48	1.8898	550 000	123 600	1 060 000	238 200	900	1 200	9.9	21.8	283.0	11.14	239.0	9.41
NCF 2948 CV	240	9.4488	320	12.5984	48	1.8898	583 000	131 000	1 140 000	256 200	850	1 100	10.6	23.4	303.0	11.93	259.0	10.20
NCF 2952 CV	260	10.2362	360	14.1732	60	2.3622	737 000	165 600	1 430 000	321 300	750	950	18.2	40.2	333.7	13.14	281.7	11.09
NCF 2956 CV	280	11.0236	380	14.9606	60	2.3622	880 000	197 800	1 730 000	388 800	700	900	19.3	42.6	359.1	14.14	303.1	11.93
NCF 2960 CV	300	11.8110	420	16.5354	72	2.8346	1 120 000	251 700	2 200 000	494 400	630	800	31.2	68.8	390.5	15.37	326.5	12.85
NCF 2964 V	320	12.5984	440	17.3228	72	2.8346	1 140 000	256 200	2 360 000	530 300	600	750	33.0	72.8	411.0	16.18	347.0	13.66
NCF 2968 V	340	13.3858	460	18.1102	72	2.8346	1 190 000	267 400	2 500 000	561 800	560	700	35.0	77.2	431.0	16.97	367.0	14.45
NCF 2972 CV	360	14.1732	480	18.8976	72	2.8346	1 230 000	276 400	2 600 000	584 300	530	670	36.5	80.5	451.5	17.78	387.5	15.26
NCF 2976 V	380	14.9606	520	20.4724	82	3.2283	1 570 000	352 800	3 250 000	730 300	500	630	52.0	114.7	488.0	19.21	412.0	16.22
NCF 2980 CV	400	15.7480	540	21.2598	82	3.2283	1 650 000	370 800	3 450 000	775 300	480	600	54.5	120.2	511.0	20.12	435.0	17.13
NCF 2984 V	420	16.5354	560	22.0472	82	3.2283	1 650 000	370 800	3 600 000	809 000	450	560	57.0	125.7	524.0	20.63	448.0	17.64
NCF 2988 V	440	17.3228	600	23.6220	95	3.7402	2 010 000	451 700	4 400 000	988 800	430	530	80.0	176.4	565.5	22.26	481.5	18.96
NCF 2992 V	460	18.1102	620	24.4094	95	3.7402	2 050 000	460 700	4 500 000	1 011 200	400	500	83.0	183.0	579.0	22.80	495.0	19.49
NCF 2996 V	480	18.8976	650	25.5906	100	3.9370	2 290 000	514 600	4 900 000	1 101 100	380	480	93.0	205.1	615.0	24.21	519.0	20.43
NCF 29/500 V	500	19.6850	670	26.3780	100	3.9370	2 380 000	534 800	5 300 000	1 191 000	360	450	100.0	220.5	634.5	24.98	544.5	21.44
NCF 29/530 V	530	20.8661	710	27.9528	106	4.1732	2 700 000	606 700	6 000 000	1 348 300	340	430	120.0	264.6	673.0	26.50	573.0	22.56
NCF 29/560 V	560	22.0472	750	29.5276	112	4.4094	3 030 000	680 900	6 700 000	1 505 600	320	400	140.0	308.7	709.0	27.91	601.0	23.66
NCF 29/600 V	600	23.6220	800	31.4961	118	4.6457	3 360 000	755 100	7 500 000	1 685 400	300	380	170.0	374.9	754.0	29.69	642.0	25.28
NCF 29/630 V	630	24.8031	850	33.4646	128	5.0394	3 740 000	840 400	8 650 000	1 943 800	280	340	205.0	452.0	807.0	31.77	687.0	27.05
NCF 29/670 V	670	26.3780	900	35.4331	136	5.3543	3 910 000	878 700	9 000 000	2 022 500	260	320	245.0	540.2	846.0	33.31	726.0	28.58
NCF 29/710 V	710	27.9528	950	37.4016	140	5.5118	4 290 000	964 000	10 000 000	2 247 200	240	300	275.0	606.4	896.0	35.28	766.0	30.16
NCF 29/750 V	750	29.5276	1 000	39.3701	145	5.7087	4 460 000	1 002 200	10 600 000	2 382 000	220	280	313.0	690.2	938.0	36.93	808.0	31.81
NCF 29/800 V	800	31.4961	1 060	41.7323	150	5.9055	4 950 000	1 112 400	12 000 000	2 696 600	200	260	359.0	791.6	1002.0	39.45	866.0	34.09
NCF 29/850 V	850	33.4646	1 120	44.0945	155	6.1024	5 230 000	1 175 300	12 700 000	2 853 900	190	240	406.0	895.2	1061.0	41.77	917.0	36.10
NCF 29/900 V	900	35.4331	1 180	46.4567	165	6.4961	5 940 000	1 334 800	14 600 000	3 280 900	170	220	472.0	1040.8	1120.0	44.09	968.0	38.11
NCF 29/950 V	950	37.4016	1 250	49.2126	175	6.8898	6 600 000	1 483 100	16 300 000	3 662 900	160	200	565.0	1245.8	1179.0	46.42	1019.0	40.12
NCF 29/1000 V	1 000	39.3701	1 320	51.9685	185	7.2835	7 480 000	1 680 900	18 600 000	4 179 800	150	180	680.0	1499.4	1252.0	49.29	1082.0	42.60

Consult SKF USA Inc. prior to design change or order placement.



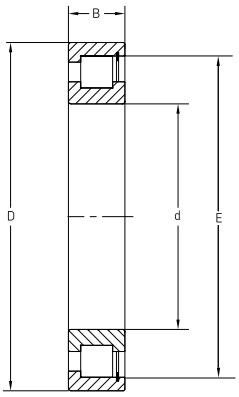
Type NCF

Full complement
Single row
Series: NCF 3004 CV – NCF 3034 CV
Size: 20 mm – 170 mm
0.7874 in – 6.6929 in

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Diameter			
	Bore d		Outside diameter D		Height B		Dynamic C		Static C_0		Reference speed	Limiting speed			Under roller F		Over roller E	
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	mm	in	mm	in
NCF 3004 CV	20	0.7874	42	1.6535	16	0.6299	28 100	6 310	28 500	6 400	8 500	10 000	0.1	0.2	36.8	1.45	24.8	0.98
NCF 3005 CV	25	0.9843	47	1.8504	16	0.6299	31 900	7 170	35 500	7 980	7 000	9 000	0.1	0.3	42.5	1.67	30.5	1.20
NCF 3006 CV	30	1.1811	55	2.1654	19	0.7480	39 600	8 900	44 000	9 890	13 000	15 000	0.2	0.4	49.6	1.95	35.6	1.40
NCF 3007 CV	35	1.3780	62	2.4409	20	0.7874	48 400	10 880	56 000	12 580	5 300	6 700	0.3	0.6	55.5	2.19	40.5	1.60
NCF 3008 CV	40	1.5748	68	2.6772	21	0.8268	57 200	12 850	69 500	15 620	4 800	6 000	0.3	0.7	61.7	2.43	45.7	1.80
NCF 3009 CV	45	1.7717	75	2.9528	23	0.9055	60 500	13 600	78 000	17 530	4 300	5 300	0.4	0.9	66.9	2.63	50.9	2.00
NCF 3010 CV	50	1.9685	80	3.1496	23	0.9055	76 500	17 190	98 000	22 020	4 000	5 000	0.4	0.9	72.3	2.85	54.3	2.14
NCF 3011 CV	55	2.1654	90	3.5433	26	1.0236	105 000	23 600	140 000	31 460	3 400	4 300	0.6	1.4	83.5	3.29	63.5	2.50
NCF 3012 CV	60	2.3622	95	3.7402	26	1.0236	106 000	23 820	146 000	32 810	3 400	4 000	0.7	1.5	86.7	3.41	66.7	2.63
NCF 3013 CV	65	2.5591	100	3.9370	26	1.0236	112 000	25 170	163 000	36 630	3 000	3 800	0.7	1.6	93.1	3.66	73.1	2.88
NCF 3014 CV	70	2.7559	110	4.3307	30	1.1811	128 000	28 760	173 000	38 880	6 000	7 000	1.0	2.2	100.3	3.95	76.3	3.00
NCF 3015 CV	75	2.9528	115	4.5276	30	1.1811	134 000	30 110	190 000	42 700	2 600	3 200	1.1	2.3	107.9	4.25	83.9	3.30
NCF 3016 CV	80	3.1496	125	4.9213	34	1.3386	165 000	37 080	228 000	51 200	2 400	3 000	1.4	3.2	117.0	4.61	89.0	3.50
NCF 3017 CV	85	3.3465	130	5.1181	34	1.3386	172 000	38 650	236 000	53 000	2 400	3 000	1.5	3.3	121.4	4.78	93.4	3.68
NCF 3018 CV	90	3.5433	140	5.5118	37	1.4567	198 000	44 490	280 000	62 900	2 200	2 800	2.0	4.3	130.1	5.12	100.1	3.94
NCF 3020 CV	100	3.9370	150	5.9055	37	1.4567	209 000	46 970	310 000	69 700	2 000	2 600	2.2	4.7	139.7	5.50	109.7	4.32
NCF 3022 CV	110	4.3307	170	6.6929	45	1.7717	275 000	61 800	400 000	89 900	3 800	4 500	3.5	7.7	156.1	6.15	120.1	4.73
NCF 3024 CV	120	4.7244	180	7.0866	46	1.8110	292 000	65 600	440 000	98 900	1 700	2 000	3.8	8.4	167.6	6.60	131.6	5.18
NCF 3026 CV	130	5.1181	200	7.8740	52	2.0472	413 000	92 800	620 000	139 300	1 500	1 900	5.8	12.8	183.8	7.24	139.8	5.50
NCF 3028 CV	140	5.5118	210	8.2677	53	2.0866	440 000	98 900	680 000	152 800	1 400	1 800	6.1	13.5	197.8	7.79	153.8	6.06
NCF 3030 CV	150	5.9055	225	8.8583	56	2.2047	457 000	102 700	710 000	159 600	1 300	1 700	7.5	16.5	206.8	8.14	160.8	6.33
NCF 3032 CV	160	6.2992	240	9.4488	60	2.3622	512 000	115 100	800 000	179 800	1 200	1 500	9.1	20.1	224.9	8.85	174.9	6.88
NCF 3034 CV	170	6.6929	260	10.2362	67	2.6378	671 000	150 800	1 060 000	238 200	1 100	1 400	12.5	27.6	242.9	9.56	186.9	7.36

Consult SKF USA Inc. prior to design change or order placement.

Full complement
Single row
Series: NCF 3036 CV – NCF 30/530 V
Size: 180 mm – 560 mm
7.0866 in – 22.0472 in



Type NCF

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Diameter			
	Bore d		Outside diameter D		Height B		Dynamic C		Static C_0		Reference speed	Limiting speed			Under roller F		Over roller E	
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	mm	in	mm	in
NCF 3036 CV	180	7.0866	280	11.0236	74	2.9134	781 000	175 500	1 250 000	280 900	1 100	1 300	16.5	36.4	260.2	10.24	200.2	7.88
NCF 3038 CV	190	7.4803	290	11.4173	75	2.9528	792 000	178 000	1 290 000	289 900	1 000	1 300	17.0	37.5	269.8	10.62	209.8	8.26
NCF 3040 CV	200	7.8740	310	12.2047	82	3.2283	913 000	205 200	1 530 000	343 800	950	1 200	22.5	49.6	287.8	11.33	223.8	8.81
NCF 3044 CV	220	8.6614	340	13.3858	90	3.5433	1 080 000	242 700	1 800 000	404 500	850	1 100	29.5	65.0	312.2	12.29	240.2	9.46
NCF 3048 CV	240	9.4488	360	14.1732	92	3.6220	1 140 000	256 200	1 960 000	440 400	800	1 000	32.0	70.6	335.1	13.19	263.1	10.36
NCF 3052 CV	260	10.2362	400	15.7480	104	4.0945	1 540 000	346 100	2 550 000	573 000	700	900	46.5	102.5	376.0	14.80	286.0	11.26
NCF 3060 CV	300	11.8110	460	18.1102	118	4.6457	1 900 000	427 000	3 250 000	730 300	600	750	65.5	144.4	433.0	17.05	333.0	13.11
NCF 3064 CV	320	12.5984	480	18.8976	121	4.7638	1 980 000	444 900	3 450 000	775 300	560	700	71.0	156.6	449.5	17.70	349.5	13.76
NCF 3068 CV	340	13.3858	520	20.4724	133	5.2362	2 380 000	534 800	4 150 000	932 600	530	670	95.0	209.5	485.7	19.12	373.7	14.71
NCF 3072 CV	360	14.1732	540	21.2598	134	5.2756	2 420 000	543 800	4 300 000	966 300	500	630	105.0	231.5	503.5	19.82	391.5	15.41
NCF 3076 V	380	14.9606	560	22.0472	135	5.3150	2 700 000	606 700	5 100 000	1 146 100	480	600	110.0	242.6	520.5	20.49	412.5	16.24
NCF 3080 CV	400	15.7480	600	23.6220	148	5.8268	2 970 000	667 400	5 500 000	1 236 000	450	560	145.0	319.7	558.0	21.97	438.0	17.24
NCF 3084 CV	420	16.5354	620	24.4094	150	5.9055	3 030 000	680 900	5 700 000	1 280 900	430	530	150.0	330.8	577.6	22.74	457.6	18.02
NCF 3092 CV	460	18.1102	680	26.7717	163	6.4173	3 690 000	829 200	6 950 000	1 561 800	380	480	195.0	430.0	633.0	24.92	497.0	19.57
NCF 3096 CV	500	19.6850	720	28.3465	167	6.5748	3 800 000	853 900	7 500 000	1 685 400	360	450	215.0	474.1	676.0	26.61	540.0	21.26
NCF 30/500 CV	530	20.8661	780	30.7087	185	7.2835	5 230 000	1 175 300	10 600 000	2 382 000	320	400	300.0	661.5	732.0	28.82	580.0	22.83
NCF 30/530 V	560	22.0472	820	32.2835	195	7.6772	5 830 000	1 310 100	11 800 000	2 651 700	300	380	345.0	760.7	770.0	30.31	610.0	24.02

Consult SKF USA Inc. prior to design change or order placement.



Spherical roller bearings

ECB 22240 CCK JA / C3 W33

1 2 3 4 5 6

1. Prefix:

BS2	Two row spherical roller bearing, special dimensions and/or features
ECB	Air melt carburized steel, inner ring only, replaced by HA3
ZE	Bearings with SensorMount feature

2. Internal design:

E	Two pressed window-type hardened steel cages, an inner ring without flanges and a floating guide ring centered on the inner ring (d ≤ 65 mm) or on the cages (d > 65 mm). Optimized internal design for increased load carrying capacity. Includes the W33 feature.
CC	Two pressed window-type steel cages, an inner ring without flanges and a floating guide ring centered on the inner ring
CA, CAC	Machined double prong-type brass cage, an inner ring with a retaining flange on both sides and a floating guide ring centered on the inner ring
ECA, ECAC	Large CA design bearings with the designation suffix ECA and ECAC have an optimized internal design for increased load carrying capacity

3. Bore type:

–	Cylindrical bore
K	Bearing with 1 to 12 tapered bore
K30	Bearing with 1 to 30 tapered bore

4. Cage designs:

J	Pressed steel cage, inner ring centered (usually omitted with E or CC suffixes)
JA	Hardened pressed steel cage, hardened outer ring centered guide ring (for vibratory applications)
M	Machined brass cage, rolling element centered (usually omitted with CA suffix)
MA	Machined brass cage, outer ring guided (usually omitted with CA suffix)
M2	Heavy duty machined brass cage for vibratory equipment
F	Machined steel cage, rolling element centered
FA	Machined steel cage, outer ring centered

4. Seals:

-2CS	Contact seal, NBR, on both sides
-2CS2	Contact seal, FKM, on both sides
-2CS5	Contact seal, HNBR, on both sides
-2RS	Improved design contact seal, NBR, on both sides
-2RS2	Improved design contact seal, FKM, on both sides
-2RS5	Improved design contact seal, HNBR, on both sides

5. Clearance / tolerance:

C1	Clearance < C2
C2	Clearance < Normal
(C0)*	Normal clearance
C3	Clearance > Normal
C3H	[Reduced clearance range corresponding to] the upper half of the C3 clearance range
C4	Clearance > C3
C08	RBEC 5 running accuracy, inner & outer rings
C083	C08 + C3 *Not marked on bearing or package
C084	C08 + C4

6. Features:

W4	High point of eccentricity marked on inner ring or sleeve
W22	Special reduced outside diameter tolerance for outer ring
W26	Six lubrication holes in inner ring
W31	Bearing inspected to special quality requirement
W33	Three oil holes and circumferential groove in outside diameter
W33X	Lubrication groove and six holes in outer ring
W502	Combination of W22 & W33
W507	Combination of W4, W31 & W33
W509	Combination of W26, W31 & W33
HA1	Case hardened outer and inner rings
HA3	Case hardened inner rings (equal to ECB)
VA405	Specification for vibrating applications
VA406	PTFE-lined bore
VA751-VA759	Specification for high precision applications (printing, embossing, coating)
VA9A1	Bearings for billet and bloom caster applications
VA9B1	Bearing for continuous slab caster applications
VA991	Bearing for high-speed applications
VT143	SKF grease LGEP2 supplied in sealed spherical roller bearings
VE552(E)	Outer ring with three equally-spaced threaded holes in one side face to accommodate lifting tackle. The E indicates that three appropriate hoist rings are supplied with the bearing
VT143	SKF grease LGEP 2 filled to 25 – 45% in sealed spherical roller bearing
GEA8	Filled 60 – 80% with SKF LGEV 2 grease, optional grease fill for large SRBs for extremely slow speeds
GEM9	SKF grease LGHB 2 filled to 70 – 100% in sealed spherical roller bearing
W64	Solid Oil lubricants

Technical features

Boundary dimensions
In accordance with ISO 15

Tolerances
SKF spherical roller bearings are manufactured as standard to ISO Normal (RBEC 1) tolerances. SKF Explorer bearings up to and including 300 mm bore diameter are produced with a higher precision: the width tolerance is at least 50% tighter than ISO standard and the geometrical tolerance is ISO P5 (RBEC 5) as standard. For larger bearings, ISO P5 geometrical tolerance is available on request with suffix C08 or closer tolerances are available with suffix VQ424. Bearing for vibratory applications have the same features as SKF Explorer bearings with additional specifications suited to increase performance in vibratory applications.

Heat stabilization
392° F (200° C)

Misalignment

Series 21300 – 2.0°
Series 22300 – 3.0°
Series 23100 – <60: 2° ; ≥60: 3°
Series 23800 – 1.5°
Series 24000 – 2.0°
Series 24000 – 1.5°
Sealed spherical – 0.5°

Series 22200 – <52: 2.0° ; ≥52: 1.5°
Series 23000 – <56: 2.0° ; ≥56: 2.5°
Series 23200 – <52: 2.5° ; ≥52: 3.5°
Series 23900 – 1.5°
Series 24100 – <64: 2.5° ; ≥64: 3.5°
Series 24900 – 2.5°

Cage material

Standard
Steel

Optional
Machined brass (CA) and machined steel (F) for larger bearings only

Axial load – max
For adapter and withdrawal sleeve installations: $F_{ap} = 3 \times B \times d$
where B = bearing width (mm)

F_{ap} = axial load in Newtons

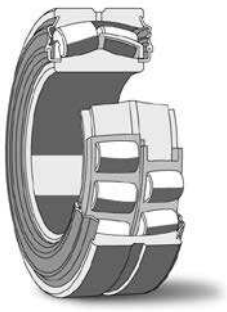
For cylindrical mounts contact SKF

Seals
-2CS – Contact seal, NBR, on both sides
-2CS2 – Contact seal, FKM, on both sides
-2CS5 – Contact seal, HNBR, on both sides
-2RS – Improved design contact seal, NBR, on both sides
-2RS2 – Contact seal, FKM, on both sides
-2RS5 – Improved design contact seal, HNBR, on both sides

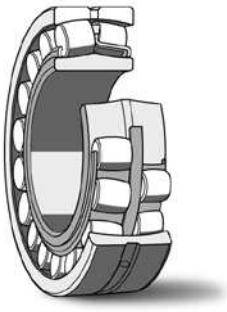
* See width tolerances in SKF Rolling Bearings catalog.



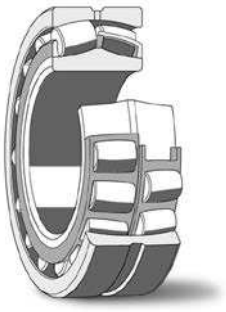
Standard spherical roller bearing (data tables on page 162)



Sealed spherical roller bearing (data tables on page 173)



Shaker screen spherical roller bearing (data tables on page 178)



Printing press spherical roller bearing (data tables on page 180)

Introduction

Spherical roller bearings have two rows of rollers with a common sphered raceway in the outer ring. The two inner ring raceways are inclined at an angle to the bearing axis. The bearings are self – aligning and consequently insensitive to minor errors of alignment of the shaft relative to the housing, and to shaft bending. In addition to radial loads, the bearings can also accommodate axial loads acting in both directions.

SKF spherical roller bearings have a large number of long, symmetrical rollers of large diameter and consequently have very high load carrying capacity. Their internal design differs slightly depending on series and size, but has been continually improved over the years.

Bearing performance is not only determined by load or speed ratings. There are a number of other factors that contribute to bearing performance. To a large extent, performance is influenced by the geometry of the rollers, raceways and cages, the heat treatment, as well as the surface finish of all contact surfaces. Main factors which influence SKF spherical roller bearing performance include, but are not limited to:

Symmetrical rollers

Symmetrical rollers self-adjust **(Fig. 1a)**, providing optimal load distribution along the roller length. This keeps stresses low under all load conditions and extends bearing service life.

Roller tolerances

The rollers in an SKF spherical roller bearing are manufactured to extremely tight tolerances for dimension and form. Each roller is virtually identical in size and shape to the other rollers in the set. This optimizes load distribution over the rollers to maximize bearing service life.

Special roller profile

The roller profile determines the stress distribution in the roller/raceway contact area. The special profile distributes loads more evenly along the rollers and prevents stress peaks at the roller ends to extend bearing service life **(Fig. 1b)**.

Self-guiding rollers and a floating guide ring between the two rows of rollers

The special roller and raceway surface finishes provide self-guiding rollers that reduce friction and frictional heat **(Fig. 1c)**. A floating guide ring guides unloaded rollers so that they enter the load zone in the optimal position.

Metal cages

All SKF spherical roller bearings contain strong metal cages. This enables them to tolerate high temperatures and all lubricants.

In response to the ever-demanding performance requirements of modern machinery, SKF developed the SKF Explorer performance class of rolling bearings.

SKF Explorer spherical roller bearings realized this substantial improvement in performance by optimizing the internal geometry and surface finish of all contact surfaces, combining the extremely clean and homogenous steel with a unique heat treatment, improving the cage, roller profile and the geometry of the raceways.

These improvements provide the following benefits:
- higher dynamic load carrying capacity compared to conventional design bearings
- improved wear-resistance
- reduced noise and vibration levels
- less frictional heat
- significantly extended bearing service life

SKF Explorer bearings reduce environmental impact by enabling downsizing and reducing both lubricant and energy consumption. Just as importantly, SKF Explorer bearings can reduce the need for maintenance and contribute to increased productivity.

All standard SKF spherical roller bearings, CARB toroidal bearings and all spherical roller thrust bearings are now manufactured to SKF Explorer performance class specifications. All have been upgraded to a new level of performance. Combining the clean and homogenous high-quality steel used in the original SKF Explorer bearings with an improved heat treatment process, upgraded SKF Explorer bearings provide longer service life, particularly under difficult operating conditions.

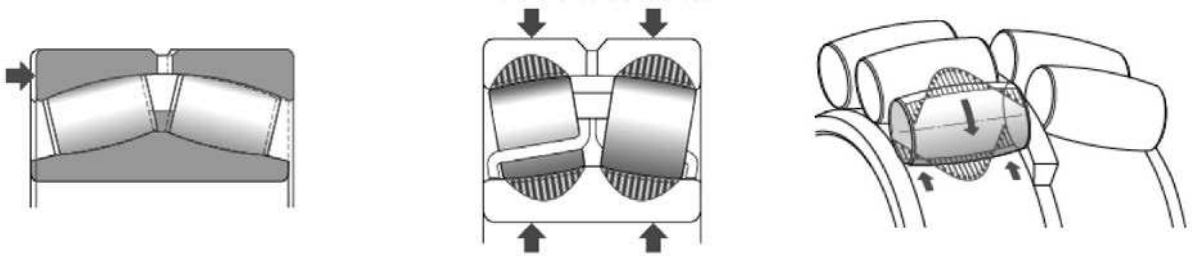
SKF upgraded bearing steel can extend the service life of SKF Explorer self-aligning roller bearings regardless of the application. However, the benefits are most noticeable in applications where bearings are subjected to contaminated or poor lubrication conditions.

Upgraded SKF Explorer bearings can provide the following benefits:

- Significantly improved wear resistance
- SKF compared the wear resistance of upgraded SKF Explorer bearings to original SKF Explorer bearings. The test results showed that upgraded bearings were significantly more wear resistant than the original SKF Explorer bearings.
- Extended service life under poor lubrication conditions
- Tests have been conducted at the SKF Engineering & Research Centre to verify the service life of upgraded SKF Explorer bearings. The results show conclusively that upgraded SKF Explorer bearings last twice as long as the original, when used under poor lubrication conditions.
- Extended service life under contaminated conditions
- The SKF Engineering & Research Centre also performed endurance tests under contaminated conditions that verified performance improvements of the upgraded SKF Explorer bearings. These test results showed that the upgraded SKF Explorer bearings provide almost twice the service life under contaminated operating conditions.

For additional information visit us online at:
www.skf.com/upgrade

Figure 1



a *b* *c*

Introduction

Basic design

All SKF spherical roller bearings are produced with the SKF Explorer upgraded steel. As such, all SKF Explorer spherical roller bearings have an optimized surface finish on the rollers and raceways to promote roller guidance and reduce friction.

E design (Figure 2a)

These bearings have symmetrical rollers, a flangeless inner ring and a floating guide ring between the two rows of rollers, which is centered on the inner ring (d ≤ 65 mm) or on the cages (d > 65 mm). The hardened pressed steel cages have been newly developed and permit the inclusion of a greater number and/or larger diameter rollers of increased length, imparting even higher load carrying capacity to the bearings. The hardened steel cages also provide increased robustness even in challenging applications. The positioning of the guide ring towards the outer ring (d > 65 mm) enables lubrication at the roller end guide ring contact to be improved. The guide ring contributes to the reduced friction in the bearing as it helps to guide the rollers in the unloaded zone and assists their entry into the loaded zone.

CC, E (d ≤ 65) designs (Figure 2b)

These bearings have symmetrical rollers, a flangeless inner ring and a pressed steel cage for each roller row. The guide ring is centered on the inner ring between the two rows of rollers. E (d ≤ 65) design bearings incorporate reinforced roller sets for increased load carrying capacity.

CAC, ECAC, CA and ECA designs (Figure 2c)

These designs are used for the larger sizes of SKF spherical roller bearings. The rollers are symmetrical and the inner ring has retaining flanges. The guide ring is centered on the inner ring between the two rows of rollers and the cage is a one–piece, double pronged machined brass cage. The ECAC and ECA designs have reinforced roller complements for increased load carrying capacity.

Variations

SKF offers an unmatched range of sealed spherical roller bearings with market-leading performance, in the SKF Explorer performance class. Sealed SRB can significantly increase bearing service life in contaminated environments. They are pre-lubricated and sealed with highly effective contact seals. The seals protect the bearing and lubricant from contaminants that might otherwise cause premature bearing failure. Eliminating or extending relubrication intervals, can significantly reduce the cost to purchase, apply and dispose of grease. Reduced maintenance costs and increased uptime will substantially reduce the total cost of ownership.

Sealed E-design bearings are wider than ISO standards (BS2 prefix) to have the same internal geometry as corresponding open bearings, and accordingly have the same basic load ratings. Sealed CC design bearings are kept within ISO standards, but the basic load ratings differ slightly from the corresponding open bearings due to the adjusted contact angle. The effect on calculated life can be considered negligible for moderate axial loads.

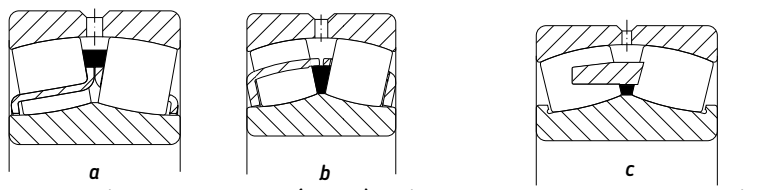
The three current designs of seals will be replaced by one design, with an improved seal recess to facilitate efficient mounting, a seal lip with an optimized contact pressure and a rubberized side face. The new seal design (suffix RS) replaces the current design (suffix CS) for the small sealed SRB (D to around 180 mm).

Two different seal materials are standard. NBR is standard for the small assortment (D to around 180 mm) and HNBR is standard for the rest of the sealed assortment. Please note that for the improved small assortment, i.e. RS-design, HNBR is colored brown. FKM is available for certain sizes.

NBR is intended for normal operating temperatures, up to 90 °C, identified by the suffix 2CS or 2RS HNBR is intended for both normal and high operating temperatures, up to 150 °C, identified by suffix 2CS5 or 2RS5. FKM is intended for both normal and high operating temperatures, up to 200 °C, identified by suffix 2CS2 or 2RS2.

The new design of small sealed SRB, maintain the sealing capabilities while reducing the friction, enabling up to twice the limiting speed or further reducing the need for maintenance. The sealed SKF Explorer SRB standard assortment is available on stock. The new seal design suffix RS is valid for the small assortment (O.D. to around180 mm), while the remaining assortment keeps the suffix CS.

Figure 2

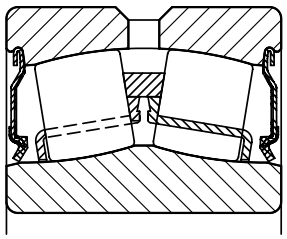


a *E design*

b *CC and E (d ≤ 65) designs*

c *CAC, ECAC, CA and ECA designs*

Figure 3



Sealed bearing

Warning:

SKF sealed roller bearings that are fitted with fluoro rubber (elastomer) seals (2CS2 and 2RS2) can cause serious bodily injury if used improperly. The seals are suitable for operation up to 392° F (200° C). A fluoroelastomer base will resist ignition under any conditions outside special furnace condition, but if exposure to heat (due to fire or any other conditions) is extreme, e.g. over 572° F (300° C) for more than a brief time, degradation will occur. Fluoro rubber emits dangerous fumes at temperatures of 572° F (300° C) and above. This may occur if the seals are subjected to extreme heat during dismounting, for example. Once it has been overheated, fluoro rubber will remain dangerous to handle, even when it has cooled down. This degraded product is a major health and safety danger due to the evolution of hydrofluoric acid (HF). It is necessary to handle overheated fluoro rubber seals carefully: always observe safety instructions and wear goggles and protective gloves. Under no circumstances should material (hot or cold) be allowed to contact skin. If hands or eyes have come into contact with the material or fumes, they should be washed or rinsed in plenty of water. A doctor should always be consulted, especially if the fumes have been inhaled.

Decontamination can be carried out using limewater (calcium hydroxide solution); use of PVC gloves is essential. After neutralization, the degraded seal can be disposed of in a similar manner to an un-degraded one.

The user is responsible for the correct handling of the seals during bearing life and for the proper disposal of used seals. Seals of fluoro rubber and bearings incorporating them are not dangerous to handle provided they have never been overheated.

Annular groove and lubrication holes (W33)

For efficient bearing lubrication, SKF spherical roller bearings are provided with an annular groove and three lubrication holes in the outer ring as standard except those of series 213 CC, and CC design bearings with an outside diameter smaller than 150 or 180 mm (depending on series).

Designation suffix W33 is used to identify this feature on bearings of the CC, C, CAC, ECAC, CA and ECA designs. The suffix is not used with the E design bearings as the lubrication groove and three holes feature is an integral part of the new standard E design. If E design bearings are required without this feature, then suffix W must be added to the bearing designation; for example, 22312 EW or 22312 EKW.

Bearings for vibrating applications

Continuing research into the operating characteristics of roller bearings in extreme environments, such as those in vibrating applications, has been an ongoing part of the SKF search to optimize the value received by our customers.

Laboratory and field testing over prolonged periods have proven the durability we have sought to engineer into these bearings. SKF Vibrating screen bearings of series 4523 / 4533 (CAC)M2/W502 as well as series 223 VA405 bearings and 4533 VA405 kits are the proven result of years of intensive and innovative applications research.

Upgraded Explorer series 223 VA405 bearings and 4533 VA405 kits special clearance are modified to cope with shaft deflection encountered in vibrating applications. They are characterized by a hardened floating guide ring centered in the outer ring which guides the highly wear resistant, surface hardened window-type steel cages. To prevent fretting corrosion at the non-locating bearing position, a special version with PTFE-coated cylindrical bore is available (VA406). Contact SKF Applications Engineering for further details.

Bearings for high precision applications

Preloaded spherical roller bearings have been made in many sizes for use on various cylinders in printing presses. These bearings, in addition to being used by the printing industry, are also used on embossing, coating and slitting machines.

Special design features, which have contributed to their outstanding performance, are as follows:

- High precision O.D. tolerance maintains a controlled housing fit
- Torque tested bearings are "run in" at the factory
- Interchangeability within one size against a properly made spacer resulting in the desired preload
- Special precision roller diameter variation.
- Special inner ring runout closer than normal
- High point of eccentricity (both magnitude and location) marked on inner ring
- All bearings are marked with a serial number and the individual bearing drive up required to achieve a specific internal preload
- Special unmounted radial internal clearance

Bearings for continuous casters

SKF has tapped into our years of experience in the steel industry to develop the SKF Spherical roller bearings for continuous casters. The bearings are designed to provide excellent performance, wear resistance and cost efficiency in the extreme operating conditions.

Designed specifically for continuous casting applications, they provide numerous advantages, including:

- High static load carrying capacity
- Good wear resistance
- Superior crack resistance
- Optimized for lubrication
- Fully interchangeable with standard spherical roller bearings

The bearing is designed for robust performance. Superior, high-grade steel helps to prevent unplanned downtime and catastrophic machinery failure. The cage design is optimized for low-speed rotation. The internal design of the bearing includes a larger grease reservoir that provides an average of 10% increase in grease capacity as well as enhanced oil flow for air-oil lubrication.

During its life cycle, the bearing design reduces grease consumption, making the SKF Spherical roller bearings for continuous casters an environmentally friendly and cost-effective choice. The sum of these improvements contribute to increased uptime and a lower total cost of ownership.

Accessories for optimum performance

Any system is only as strong as its weakest member. Therefore, SKF offers not only a wide range of spherical roller bearings, but also a full line of quality bearing accessories to go with them.

Adapter and withdrawal sleeves

Adapter and withdrawal sleeves are used to locate bearings with a tapered bore on cylindrical or shouldered shafts. They facilitate bearing mounting and dismounting and in many cases simplify bearing arrangement design. Consequently, several series of quality sleeves are included in the SKF product range. More detailed information on the sleeves can be found in the Accessories Section of the "Split Pillow Block – Inch" and "Split Pillow Block – Metric" chapters in this catalog.

Lock nuts

To lock bearings in position on a shaft, SKF supplies a variety of lock or shaft nuts. Lock nuts N, KM(L) and HM use a locking washer or a locking clip to engage a groove on the shaft. KMF, KMK, KMT and KMTA locknuts are locked on the shaft with either grub screws or locking pins.

Bearing housings

Bearing housings must be suited to the demands placed on the bearings that they house, e.g. load, accuracy, type of lubrication and lubricant, sealing, etc. Therefore, SKF offers a comprehensive range of high-quality standard and special housings. These, together with the appropriate SKF Explorer spherical roller bearings, form economic and interchangeable bearing units, which meet all the performance demands of a bearing application.

Introduction

Availability

All SKF spherical roller bearings are produced to a high performance with the SKF Explorer upgraded steel. The designations of SKF Explorer bearings are shown colored blue in the product tables. The bearings retain the designation of earlier standard bearings. However, each bearing and its box are marked with the name “SKF Explorer” or “SKF Explorer UPGRADE” and “WR”. The bearing outer ring will also be marked with the letters WR, positioned immediately after the year letter.

Product designations

The SKF Explorer bearings retain the designations of the earlier standard bearings, e.g. 22218 E or 23032 CC/W33. However, each bearing and its box is marked with the name SKF Explorer so that there can be no confusion.

Additional details on Explorer performance class bearings can be found on page 25.

Product highlights

Self-aligning, robust design
Allows misalignment between shaft and housing without increasing friction or reducing bearing life. Also insensitive to misalignment caused by shaft or housing deflection due to heavy load.

Very high load carrying capacity
Optimum internal design provides maximum radial and axial load carrying capacity.

Reduced friction and minimum heat generation
Self-guiding roller – an SKF patent – means reduced friction and minimum heat generation.

Excellent performance at high temperatures
High-strength, dimensionally stable bearing rings minimize the risk of ring breakage allowing for good performance at high temperatures.

Seals integration
Under normal operating conditions, sealed SKF Explorer spherical roller bearings are greased for life and may make external seals unnecessary–simplifying bearing arrangements and requiring minimum maintenance.

Special bearing series available for demanding applications
High precision printing press bearings and bearings for vibrating screen applications.

Minimum load

In order to provide satisfactory operation of all ball and roller bearings, they must always be subjected to a given minimum load. This is also true of spherical roller bearings, particularly if they run at high speeds where the inertia forces of the rollers and cage, and the friction in the lubricant can have a detrimental influence on the rolling conditions in the bearing and may cause damaging sliding movements to occur between the rollers and the raceways.

The requisite minimum radial load to be applied in such cases can be determined by using the SKF Interactive Engineering Catalog on the SKF website www.skf.com or by contacting SKF Applications Engineering. However, the weight of the components supported by the bearing, together with the external forces, often exceeds the requisite minimum load. If this is not the case, an additional radial load must be applied to the bearing, for example, by increasing belt tension or similar means.

Frequency vibration data

Frequency vibration data is available on the SKF website **skfusa.com**. Select Engineering Tools under the Support menu. Or contact SKF Applications Engineering.

Misalignment

The design of spherical roller bearings is such that they are inherently self-aligning, i.e. angular misalignment between the outer and inner rings can be accommodated without any effect on bearing performance. Under Normal loads and operating conditions (C / P>10), and when misalignment is constant in position with respect to the outer ring, the guideline values for permissible misalignment given in Table 3 apply. Whether these values can be fully exploited or not depends on the design of the bearing arrangement, the type of seals used, etc.

Additional sliding is caused in the bearing under certain operating conditions when the position of the misalignment is not constant with respect to the bearing outer ring, for example:

Vibrating screens with rotating imbalance and therefore rotating deflection of the shaft **(Figure 4)**, or Deflection-compensating rolls of papermachines where the stationary shaft is bent.

Therefore, with reference to bearing friction and associated heat generation, it is recommended that misalignment of the inner ring with respect to the outer ring should not exceed a few tenths of a degree.

Sealed bearings can accommodate angular misalignments of the shaft with respect to the housing of up to approximately 0.5°. Provided the guideline value is not exceeded, there will be no detrimental effect on the efficiency of the seals.

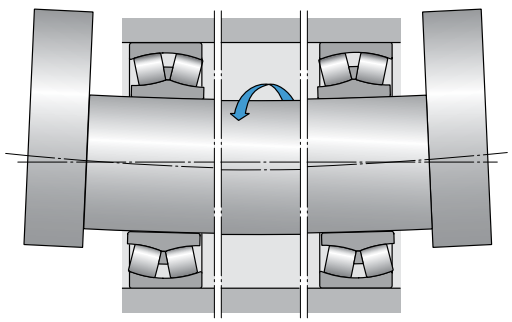
Table 3

Permissible angular misalignment

Bearing series sizes[1]	Permissible angular misalignment
–	degrees
Series 213	2.0
Series 222	
sizes < 52	2.0
sizes ≥ 52	1.5
Series 223	3.0
Series 230	
sizes < 56	2.0
sizes ≥ 56	2.5
Series 231	
sizes < 60	2.0
sizes ≥ 60	3.0
Series 232	
sizes < 52	2.5
sizes ≥ 52	3.5
Series 238	1.5
Series 239	1.5
Series 240	2.0
Series 241	
sizes < 64	2.5
sizes ≥ 64	3.5
Series 248	1.5
Series 249	2.5

[1] Last two figures of bearing designation

Figure 4



Introduction

Special solutions

SKF supplies different types of spherical roller bearings in addition to those shown in this catalog, including:

- Spherical roller bearings for heavy engineering applications
- Split spherical roller bearings
- Rolling mill bearings

Details on these special solution products are available in other SKF publications, which can be supplied upon request.

Internal clearance

Internal radial clearance

SKF spherical roller bearings are manufactured as standard with Normal radial internal clearance. Nearly all the bearings are also available with the larger C3 clearance and some can be supplied with the even larger C4 clearance. Some sizes can be delivered with C2 clearance which is smaller than Normal. The availability of bearings with radial internal clearances other than Normal (including C5) should be checked before design change or order placement.

The limits for the various clearances can be found in Table 1, for cylindrical bores and Table 2, for tapered (K) bores and are in accordance with ISO 5753-1991 (ABMA standard 20), where d ≤ 1,000 mm (39.3701"). They are valid for zero measuring load and before mounting.

Masses

The masses given in the bearing tables are for bearings with cylindrical bore; the masses of bearings with tapered bore are somewhat less. For a specific value, contact SKF Applications Engineering.

Table 1

Radial internal clearance of spherical roller bearings with cylindrical bore

Bore diameter d				Radial internal clearance																			
				C2				Normal				C3				C4				C5			
over	incl.	over	incl.	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
mm		in		µm		in		µm		in		µm		in		µm		in		µm		in	
18	24	0.7087	0.9449	10	20	0.0004	0.0008	20	35	0.0008	0.0014	35	45	0.0014	0.0018	45	60	0.0018	0.0024	60	75	0.0024	0.0030
24	30	0.9449	1.1811	15	25	0.0006	0.0010	25	40	0.0010	0.0016	40	55	0.0016	0.0022	55	75	0.0022	0.0030	75	95	0.0030	0.0037
30	40	1.1811	1.5748	15	30	0.0006	0.0012	30	45	0.0012	0.0018	45	60	0.0018	0.0024	60	80	0.0024	0.0031	80	100	0.0031	0.0039
40	50	1.5748	1.9685	20	35	0.0008	0.0014	35	55	0.0014	0.0022	55	75	0.0022	0.0030	75	100	0.0030	0.0039	100	125	0.0039	0.0049
50	65	1.9685	2.5591	20	40	0.0008	0.0016	40	65	0.0016	0.0026	65	90	0.0026	0.0035	90	120	0.0035	0.0047	120	150	0.0047	0.0059
65	80	2.5591	3.1496	30	50	0.0012	0.0020	50	80	0.0020	0.0031	80	110	0.0031	0.0043	110	145	0.0043	0.0057	145	180	0.0057	0.0071
80	100	3.1496	3.9370	35	60	0.0014	0.0024	60	100	0.0024	0.0039	100	135	0.0039	0.0053	135	180	0.0053	0.0071	180	225	0.0071	0.0089
100	120	3.9370	4.7244	40	75	0.0016	0.0030	75	120	0.0030	0.0047	120	160	0.0047	0.0063	160	210	0.0063	0.0083	210	260	0.0083	0.0102
120	140	4.7244	5.5118	50	95	0.0020	0.0037	95	145	0.0037	0.0057	145	190	0.0057	0.0075	190	240	0.0075	0.0094	240	300	0.0094	0.0118
140	160	5.5118	6.2992	60	110	0.0024	0.0043	110	170	0.0043	0.0067	170	220	0.0067	0.0087	220	280	0.0087	0.0110	280	350	0.0110	0.0138
160	180	6.2992	7.0866	65	120	0.0026	0.0047	120	180	0.0047	0.0071	180	240	0.0071	0.0094	240	310	0.0094	0.0122	310	390	0.0122	0.0154
180	200	7.0866	7.8740	70	130	0.0028	0.0051	130	200	0.0051	0.0079	200	260	0.0079	0.0102	260	340	0.0102	0.0134	340	430	0.0134	0.0169
200	225	7.8740	8.8583	80	140	0.0031	0.0055	140	220	0.0055	0.0087	220	290	0.0087	0.0114	290	380	0.0114	0.0150	380	470	0.0150	0.0185
225	250	8.8583	9.8425	90	150	0.0035	0.0059	150	240	0.0059	0.0094	240	320	0.0094	0.0126	320	420	0.0126	0.0165	420	520	0.0165	0.0205
250	280	9.8425	11.0236	100	170	0.0039	0.0067	170	260	0.0067	0.0102	260	350	0.0102	0.0138	350	460	0.0138	0.0181	460	570	0.0181	0.0224
280	315	11.0236	12.4016	110	190	0.0043	0.0075	190	280	0.0075	0.0110	280	370	0.0110	0.0146	370	500	0.0146	0.0197	500	630	0.0197	0.0248
315	355	12.4016	13.9764	120	200	0.0047	0.0079	200	310	0.0079	0.0122	310	410	0.0122	0.0161	410	550	0.0161	0.0217	550	690	0.0217	0.0272
355	400	13.9764	15.7480	130	220	0.0051	0.0087	220	340	0.0087	0.0134	340	450	0.0134	0.0177	450	600	0.0177	0.0236	600	750	0.0236	0.0295
400	450	15.7480	17.7165	140	240	0.0055	0.0094	240	370	0.0094	0.0146	370	500	0.0146	0.0197	500	660	0.0197	0.0260	660	820	0.0260	0.0323
450	500	17.7165	19.6850	140	260	0.0055	0.0102	260	410	0.0102	0.0161	410	550	0.0161	0.0217	550	720	0.0217	0.0283	720	900	0.0283	0.0354
500	560	19.6850	22.0472	150	280	0.0059	0.0110	280	440	0.0110	0.0173	440	600	0.0173	0.0236	600	780	0.0236	0.0307	780	1000	0.0307	0.0394
560	630	22.0472	24.8031	170	310	0.0067	0.0122	310	480	0.0122	0.0189	480	650	0.0189	0.0256	650	850	0.0256	0.0335	850	1100	0.0335	0.0433
630	710	24.8031	27.9528	190	350	0.0075	0.0138	350	530	0.0138	0.0209	530	700	0.0209	0.0276	700	920	0.0276	0.0362	920	1190	0.0362	0.0469
710	800	27.9528	31.4961	210	390	0.0083	0.0154	390	580	0.0154	0.0228	580	770	0.0228	0.0303	770	1010	0.0303	0.0398	1010	1300	0.0398	0.0512
800	900	31.4961	35.4331	230	430	0.0091	0.0169	430	650	0.0169	0.0256	650	860	0.0256	0.0339	860	1120	0.0339	0.0441	1120	1440	0.0441	0.0567
900	1000	35.4331	39.3701	260	480	0.0102	0.0189	480	710	0.0189	0.0280	710	930	0.0280	0.0366	930	1220	0.0366	0.0480	1220	1570	0.0480	0.0618
1000	1120	39.3701	44.0945	290	530	0.0114	0.0209	530	780	0.0209	0.0307	780	1020	0.0307	0.0402	1020	1330	0.0402	0.0524	1330	1720	0.0524	0.0677
1120	1250	44.0945	49.2126	320	580	0.0126	0.0228	580	860	0.0228	0.0339	860	1120	0.0339	0.0441	1120	1460	0.0441	0.0575	1460	1870	0.0575	0.0736

Loads

Axial load carrying capacity of bearings mounted on adapter or withdrawal sleeves

If spherical roller bearings with adapter or withdrawal sleeves are mounted on smooth shafts with no fixed abutment, the magnitude of the axial load that can be supported is determined by the friction between the shaft and sleeve. Provided the bearings are mounted correctly, the permissible axial load can be calculated from:

$F_{ap} = 3\ B\ d$

where
F_{ap} = maximum permissible axial load, N
B = bearing width, mm
d = bearing bore diameter, mm

Equivalent dynamic bearing load – standard spherical roller bearings

The equivalent dynamic bearing load for spherical roller bearings can be obtained from:

$P = F_r + Y_1 F_a$ when $F_a / F_r \leq e$
$P = 0.67\ F_r + Y_2 F_a$ when $F_a / F_r > e$

where
P = equivalent dynamic bearing load, N
F_r = actual radial bearing load, N
F_a = actual axial bearing load, N
Y_1, Y_2 = axial load factors for the bearings
e = calculation factor

Appropriate values of the factors e, Y1 and Y2 will be found in the bearing tables for each individual bearing.

Equivalent dynamic bearing load – vibrating screen bearings

For the normal configuration of a shaft supported by a bearing at each end, the equivalent dynamic bearing load is mostly a function of the centrifugal force and is calculated from:

$$P = \frac{.5 f_d\ WRn^2}{91{,}100} \text{ for N \& mm}$$

$$P = \frac{.5 f_d\ WRn^2}{35{,}200} \text{ for lb \& in}$$

where
W = mass of eccentric part of shaft kg (lb mass)
R = eccentric radius, mm (in)
n = rev / m
f_d = vibrating application factor = 1.2
P = equivalent Load, N (lb force)

Table 2

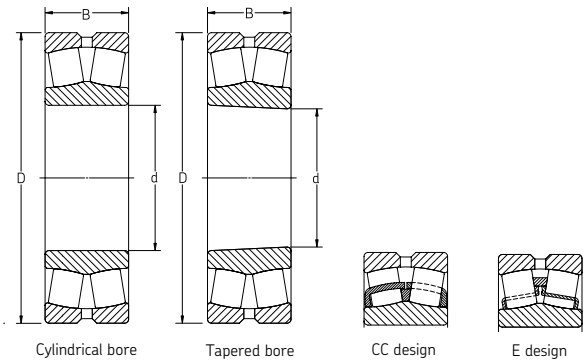
Radial internal clearance of spherical roller bearings with tapered bore

Bore diameter d				Radial internal clearance																			
				C2				Normal				C3				C4				C5			
over	incl.	over	incl.	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
mm		in		µm		in		µm		in		µm		in		µm		in		µm		in	
24	30	0.9449	1.1811	20	30	0.0008	0.0012	30	40	0.0012	0.0016	40	55	0.0016	0.0022	55	75	0.0022	0.0030	-	-	-	-
30	40	1.1811	1.5748	25	35	0.0010	0.0014	35	50	0.0014	0.0020	50	65	0.0020	0.0026	65	85	0.0026	0.0033	85	105	0.0033	0.0041
40	50	1.5748	1.9685	30	45	0.0012	0.0018	45	60	0.0018	0.0024	60	80	0.0024	0.0031	80	100	0.0031	0.0039	100	130	0.0039	0.0051
50	65	1.9685	2.5591	40	55	0.0016	0.0022	55	75	0.0022	0.0030	75	95	0.0030	0.0037	95	120	0.0037	0.0047	120	160	0.0047	0.0063
65	80	2.5591	3.1496	50	70	0.0020	0.0028	70	95	0.0028	0.0037	95	120	0.0037	0.0047	120	150	0.0047	0.0059	150	200	0.0059	0.0079
80	100	3.1496	3.9370	55	80	0.0022	0.0031	80	110	0.0031	0.0043	110	140	0.0043	0.0055	140	180	0.0055	0.0071	180	230	0.0071	0.0091
100	120	3.9370	4.7244	65	100	0.0026	0.0039	100	135	0.0039	0.0053	135	170	0.0053	0.0067	170	220	0.0067	0.0087	220	280	0.0087	0.0110
120	140	4.7244	5.5118	80	120	0.0031	0.0047	120	160	0.0047	0.0063	160	200	0.0063	0.0079	200	260	0.0079	0.0102	260	330	0.0102	0.0130
140	160	5.5118	6.2992	90	130	0.0035	0.0051	130	180	0.0051	0.0071	180	230	0.0071	0.0091	230	300	0.0091	0.0118	300	380	0.0118	0.0150
160	180	6.2992	7.0866	100	140	0.0039	0.0055	140	200	0.0055	0.0079	200	260	0.0079	0.0102	260	340	0.0102	0.0134	340	430	0.0134	0.0169
180	200	7.0866	7.8740	110	160	0.0043	0.0063	160	220	0.0063	0.0087	220	290	0.0087	0.0114	290	370	0.0114	0.0146	370	470	0.0146	0.0185
200	225	7.8740	8.8583	120	180	0.0047	0.0071	180	250	0.0071	0.0098	250	320	0.0098	0.0126	320	410	0.0126	0.0161	410	520	0.0161	0.0205
225	250	8.8583	9.8425	140	200	0.0055	0.0079	200	270	0.0079	0.0106	270	350	0.0106	0.0138	350	450	0.0138	0.0177	450	570	0.0177	0.0224
250	280	9.8425	11.0236	150	220	0.0059	0.0087	220	300	0.0087	0.0118	300	390	0.0118	0.0154	390	490	0.0154	0.0193	490	620	0.0193	0.0244
280	315	11.0236	12.4016	170	240	0.0067	0.0094	240	330	0.0094	0.0130	330	430	0.0130	0.0169	430	540	0.0169	0.0213	540	680	0.0213	0.0268
315	355	12.4016	13.9764	190	270	0.0075	0.0106	270	360	0.0106	0.0142	360	470	0.0142	0.0185	470	590	0.0185	0.0232	590	740	0.0232	0.0291
355	400	13.9764	15.7480	210	300	0.0083	0.0118	300	400	0.0118	0.0157	400	520	0.0157	0.0205	520	650	0.0205	0.0256	650	820	0.0256	0.0323
400	450	15.7480	17.7165	230	330	0.0091	0.0130	330	440	0.0130	0.0173	440	570	0.0173	0.0224	570	720	0.0224	0.0283	720	910	0.0283	0.0358
450	500	17.7165	19.6850	260	370	0.0102	0.0146	370	490	0.0146	0.0193	490	630	0.0193	0.0248	630	790	0.0248	0.0311	790	1000	0.0311	0.0394
500	560	19.6850	22.0472	290	410	0.0114	0.0161	410	540	0.0161	0.0213	540	680	0.0213	0.0268	680	870	0.0268	0.0343	870	1100	0.0343	0.0433
560	630	22.0472	24.8031	320	460	0.0126	0.0181	460	600	0.0181	0.0236	600	760	0.0236	0.0299	760	980	0.0299	0.0386	980	1230	0.0386	0.0484
630	710	24.8031	27.9528	350	510	0.0138	0.0201	510	670	0.0201	0.0264	670	850	0.0264	0.0335	850	1090	0.0335	0.0429	1090	1360	0.0429	0.0535
710	800	27.9528	31.4961	390	570	0.0154	0.0224	570	750	0.0224	0.0295	750	960	0.0295	0.0378	960	1220	0.0378	0.0480	1220	1500	0.0480	0.0591
800	900	31.4961	35.4331	440	640	0.0173	0.0252	640	840	0.0252	0.0331	840	1070	0.0331	0.0421	1070	1370	0.0421	0.0539	1370	1690	0.0539	0.0665
900	1000	35.4331	39.3701	490	710	0.0193	0.0280	710	930	0.0280	0.0366	930	1190	0.0366	0.0469	1190	1520	0.0469	0.0598	1520	1860	0.0598	0.0732
1000	1120	39.3701	44.0945	530	770	0.0209	0.0303	770	1030	0.0303	0.0406	1030	1300	0.0406	0.0512	1300	1670	0.0512	0.0657	1670	2050	0.0657	0.0807
1120	1250	44.0945	49.2126	570	830	0.0224	0.0327	830	1120	0.0327	0.0441	1120	1420	0.0441	0.0559	1420	1830	0.0559	0.0720	1830	2250	0.0720	0.0886

SKF Explorer

Series: 21305 CC – 21320 E
Size: 25 mm – 100 mm
0.9843 in – 3.9370 in

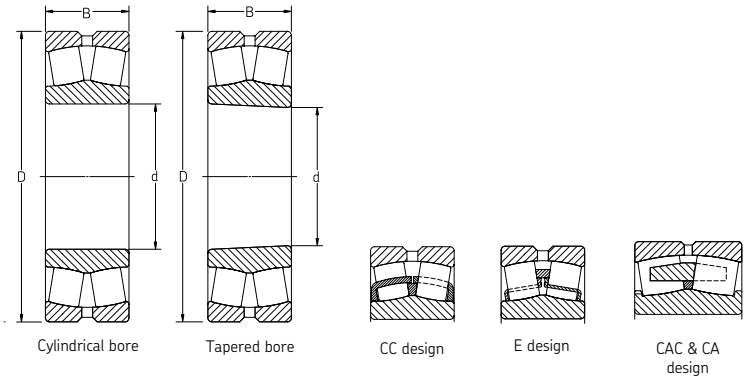
Series: 22205 E – 22224 E
Size: 25 mm – 120 mm
0.9843 in – 4.7244 in



Cylindrical bore | Tapered bore | CC design | E design

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Calculation factors		
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed					
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	e	Y_1	Y_2
21305 CC	25	0.9843	62	2.4409	17	0.6693	49 100	11 030	41 500	9 330	9 300	12 000	0.28	0.62	0.30	2.3	3.4
21306 CC	30	1.1811	72	2.8346	19	0.7480	65 700	14 760	61 000	13 710	8 200	10 000	0.41	0.90	0.27	2.5	3.7
21307 CC	35	1.3780	80	3.1496	21	0.8268	79 200	17 800	72 000	16 180	7 300	9 500	0.55	1.21	0.28	2.4	3.6
21308 E	40	1.5748	90	3.5433	23	0.9055	107 000	24 040	108 000	24 270	7 000	9 500	0.75	1.65	0.24	2.8	4.2
21309 E	45	1.7717	100	3.9370	25	0.9843	129 000	28 990	127 000	28 540	6 300	8 500	0.99	2.18	0.24	2.8	4.2
21310 E	50	1.9685	110	4.3307	27	1.0630	159 000	35 730	163 000	36 630	5 600	7 500	1.35	2.98	0.24	2.8	4.2
21311 E	55	2.1654	120	4.7244	29	1.1417	159 000	35 730	163 000	36 630	5 600	7 500	1.70	3.75	0.24	2.8	4.2
21312 E	60	2.3622	130	5.1181	31	1.2205	217 000	48 760	240 000	53 900	4 800	6 300	2.10	4.63	0.22	3.0	4.6
21313 E	65	2.5591	140	5.5118	33	1.2992	243 000	54 600	270 000	60 700	4 300	6 000	2.55	5.62	0.22	3.0	4.6
21314 E	70	2.7559	150	5.9055	35	1.3780	291 000	65 400	325 000	73 000	4 000	5 600	3.10	6.84	0.22	3.0	4.6
21315 E	75	2.9528	160	6.2992	37	1.4567	291 000	65 400	325 000	73 000	4 000	5 600	3.75	8.27	0.22	3.0	4.6
21316 E	80	3.1496	170	6.6929	39	1.5354	331 000	74 400	375 000	84 300	3 800	5 300	4.45	9.81	0.24	2.8	4.2
21317 E	85	3.3465	180	7.0866	41	1.6142	331 000	74 400	375 000	84 300	3 800	5 300	5.20	11.47	0.24	2.8	4.2
21318 E	90	3.5433	190	7.4803	43	1.6929	393 000	88 300	450 000	101 100	3 600	4 800	6.10	13.45	0.24	2.8	4.2
21319 E	95	3.7402	200	7.8740	45	1.7717	433 000	97 300	490 000	110 100	3 400	4 500	7.05	15.55	0.24	2.8	4.2
21320 E	100	3.9370	215	8.4646	47	1.8504	433 000	97 300	490 000	110 100	3 400	4 500	8.60	18.96	0.24	2.8	4.2
22205 E	25	0.9843	52	2.0472	18	0.7087	49 900	11 210	44 000	9 890	13 000	17 000	0.26	0.57	0.35	1.9	2.9
22206 E	30	1.1811	62	2.4409	20	0.7874	66 100	14 850	58 500	13 150	10 000	14 000	0.29	0.64	0.31	2.2	3.3
22207 E	35	1.3780	72	2.8346	23	0.9055	88 800	19 960	83 000	18 650	9 000	12 000	0.45	0.99	0.31	2.2	3.3
22208 E	40	1.5748	80	3.1496	23	0.9055	98 500	22 130	91 500	20 560	8 000	11 000	0.53	1.17	0.28	2.4	3.6
22209 E	45	1.7717	85	3.3465	23	0.9055	104 000	23 370	100 000	22 470	7 500	10 000	0.58	1.28	0.26	2.6	3.9
22210 E	50	1.9685	90	3.5433	23	0.9055	107 000	24 040	108 000	24 270	7 000	9 500	0.63	1.39	0.24	2.8	4.2
22211 E	55	2.1654	100	3.9370	25	0.9843	129 000	28 990	127 000	28 540	6 300	8 500	0.84	1.85	0.24	2.8	4.2
22212 E	60	2.3622	110	4.3307	28	1.1024	159 000	35 730	163 000	36 630	5 600	7 500	1.15	2.54	0.24	2.8	4.2
22213 E	65	2.5591	120	4.7244	31	1.2205	198 000	44 490	208 000	46 740	5 000	7 000	1.55	3.42	0.24	2.8	4.2
22214 E	70	2.7559	125	4.9213	31	1.2205	213 000	47 870	228 000	51 200	5 000	6 700	1.55	3.42	0.23	2.9	4.4
22215 E	75	2.9528	130	5.1181	31	1.2205	217 000	48 760	240 000	53 900	4 800	6 300	1.70	3.75	0.22	3.0	4.6
22216 E	80	3.1496	140	5.5118	33	1.2992	243 000	54 600	270 000	60 700	4 300	6 000	2.10	4.63	0.22	3.0	4.6
22217 E	85	3.3465	150	5.9055	36	1.4173	291 000	65 400	325 000	73 000	4 000	5 600	2.69	5.93	0.22	3.0	4.6
22218 E	90	3.5433	160	6.2992	40	1.5748	331 000	74 400	375 000	84 300	3 800	5 300	3.40	7.50	0.24	2.8	4.2
22219 E	95	3.7402	170	6.6929	43	1.6929	393 000	88 300	450 000	101 100	3 600	4 800	4.15	9.15	0.24	2.8	4.2
22220 E	100	3.9370	180	7.0866	46	1.8110	433 000	97 300	490 000	110 100	3 400	4 500	4.90	10.80	0.24	2.8	4.2
22222 E	110	4.3307	200	7.8740	53	2.0866	572 000	128 500	640 000	143 800	3 000	4 000	7.00	15.44	0.25	2.7	4.0
22224 E	120	4.7244	215	8.4646	58	2.2835	652 000	146 500	765 000	171 900	2 800	3 800	8.70	19.18	0.26	2.6	3.9

Consult SKF USA Inc. prior to design change or order placement.



Cylindrical bore | Tapered bore | CC design | E design | CAC & CA design

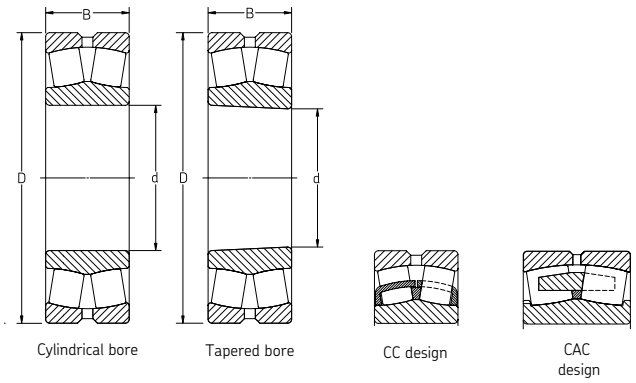
Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Calculation factors		
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed					
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	e	Y_1	Y_2
22226 E	130	5.1181	230	9.0551	64	2.5197	758 000	170 300	930 000	209 000	2 600	3 600	11.00	24.26	0.27	2.5	3.7
22228 CC/W33	140	5.5118	250	9.8425	68	2.6772	743 000	167 000	900 000	202 200	2 400	3 200	14.00	30.87	0.26	2.6	3.9
22230 CC/W33	150	5.9055	270	10.6299	73	2.8740	898 000	201 800	1 080 000	242 700	2 200	3 000	18.00	39.69	0.26	2.6	3.9
22232 CC/W33	160	6.2992	290	11.4173	80	3.1496	1 043 000	234 400	1 290 000	289 900	2 000	2 800	22.50	49.61	0.26	2.6	3.9
22234 CC/W33	170	6.6929	310	12.2047	86	3.3858	1 183 000	265 800	1 460 000	328 100	1 900	2 600	28.50	62.84	0.27	2.5	3.7
22236 CC/W33	180	7.0866	320	12.5984	86	3.3858	1 237 000	278 000	1 560 000	350 600	1 800	2 600	29.50	65.05	0.26	2.6	3.9
22238 CC/W33	190	7.4803	340	13.3858	92	3.6220	1 342 000	301 600	1 700 000	382 000	1 700	2 400	36.50	80.48	0.26	2.6	3.9
22240 CC/W33	200	7.8740	360	14.1732	98	3.8583	1 526 000	342 900	1 930 000	433 700	1 600	2 200	43.50	95.92	0.26	2.6	3.9
22244 CC/W33	220	8.6614	400	15.7480	108	4.2520	1 835 000	412 400	2 360 000	530 300	1 500	2 000	60.50	133.40	0.27	2.5	3.7
22248 CC/W33	240	9.4488	440	17.3228	120	4.7244	2 258 000	507 400	3 000 000	674 200	1 300	1 800	83.00	183.02	0.27	2.5	3.7
22252 CC/W33	260	10.2362	480	18.8976	130	5.1181	2 722 000	611 700	3 550 000	797 800	1 200	1 600	110.00	242.55	0.27	2.5	3.7
22252 CAC/W33													110.00	242.55	0.27	2.5	3.7
22256 CC/W33	280	11.0236	500	19.6850	130	5.1181	2 795 000	628 100	3 750 000	842 700	1 100	1 500	115.00	253.58	0.26	2.6	3.9
22260 CC/W33	300	11.8110	540	21.2598	140	5.5118	3 239 000	727 900	4 250 000	955 100	1 000	1 400	135.00	297.68	0.26	2.6	3.9
22264 CC/W33	320	12.5984	580	22.8346	150	5.9055	3 708 000	833 300	4 900 000	1 101 100	950	1 300	175.00	385.88	0.26	2.6	3.9
22272 CA/W33	360	14.1732	650	25.5906	170	6.6929	4 430 000	995 500	6 200 000	1 393 300	630	850	255.00	562.28	0.26	2.6	3.9
22308 E	40	1.5748	90	3.5433	33	1.2992	155 000	34 830	137 000	30 790	6 000	8 000	1.05	2.32	0.37	1.8	2.7
22309 E	45	1.7717	100	3.9370	36	1.4173	190 000	42 700	176 000	39 550	5 300	7 000	1.40	3.09	0.37	1.8	2.7
22310 E	50	1.9685	110	4.3307	40	1.5748	228 000	51 200	216 000	48 540	4 800	6 300	1.90	4.19	0.37	1.8	2.7
22311 E	55	2.1654	120	4.7244	43	1.6929	280 000	62 900	280 000	62 900	4 300	5 600	2.45	5.40	0.35	1.9	2.9
22312 E	60	2.3622	130	5.1181	46	1.8110	325 000	73 000	335 000	75 300	4 000	5 300	3.10	6.84	0.35	1.9	2.9
22313 E	65	2.5591	140	5.5118	48	1.8898	357 000	80 200	360 000	80 900	3 800	5 000	3.75	8.27	0.35	1.9	2.9
22314 E	70	2.7559	150	5.9055	51	2.0079	413 000	92 800	430 000	96 600	3 400	4 500	4.55	10.03	0.33	2.0	3.0
22315 E	75	2.9528	160	6.2992	55	2.1654	462 000	103 800	475 000	106 700	3 200	4 300	5.55	12.24	0.35	1.9	2.9
22316 E	80	3.1496	170	6.6929	58	2.2835	516 000	116 000	530 000	119 100	3 000	4 000	6.60	14.55	0.35	1.9	2.9
22317 E	85	3.3465	180	7.0866	60	2.3622	577 000	129 700	620 000	139 300	2 800	3 800	7.65	16.87	0.33	2.0	3.0
22318 E	90	3.5433	190	7.4803	64	2.5197	637 000	143 100	695 000	156 200	2 600	3 600	9.05	19.96	0.33	2.0	3.0
22319 E	95	3.7402	200	7.8740	67	2.6378	699 000	157 100	765 000	171 900	2 600	3 400	10.50	23.15	0.33	2.0	3.0
22320 E	100	3.9370	215	8.4646	73	2.8740	847 000	190 300	950 000	213 500	2 400	3 000	13.50	29.77	0.33	2.0	3.0
22322 E	110	4.3307	240	9.4488	80	3.1496	989 000	222 200	1 120 000	251 700	2 000	2 800	18.40	40.57	0.33	2.0	3.0
22324 CC/W33	120	4.7244	260	10.2362	86	3.3858	1 019 000	229 000	1 120 000	251 700	2 000	2 600	23.00	50.72	0.35	1.9	2.9
22326 CC/W33	130	5.1181	280	11.0236	93	3.6614	1 176 000	264 300	1 320 000	296 600	1 800	2 400	29.00	63.95	0.35	1.9	2.9
22328 CC/W33	140	5.5118	300	11.8110	102	4.0157	1 357 000	304 900	1 560 000	350 600	1 700	2 200	36.50	80.48	0.35	1.9	2.9
22330 CC/W33	150	5.9055	320	12.5984	108	4.2520	1 539 000	345 800	1 760 000	395 500	1 600	2 000	43.50	95.92	0.35	1.9	2.9

Consult SKF USA Inc. prior to design change or order placement.

SKF Explorer
Series: 22332 CC/W33 – 22380 CA/W33
Size: 160 mm – 400 mm
6.2992 in – 15.7480 in

Series: 229750 J/C3R505
Size: 130 mm
5.1181 in

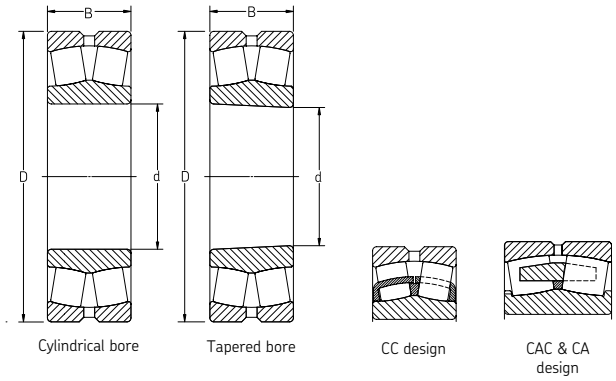
Series: 23022 CC/W33 – 23072 CC/W33
Size: 110 mm – 360 mm
4.3307 in – 14.1732 in



Cylindrical bore Tapered bore CC design CAC design

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Calculation factors		
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed					
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	e	Y_1	Y_2
22332 CC/W33	160	6.2992	340	13.3858	114	4.4882	1 680 000	377 500	1 960 000	440 400	1 500	1 900	52.00	114.66	0.35	1.9	2.9
22334 CC/W33	170	6.6929	360	14.1732	120	4.7244	1 863 000	418 700	2 160 000	485 400	1 400	1 800	61.00	134.51	0.33	2.0	3.0
22336 CC/W33	180	7.0866	380	14.9606	126	4.9606	2 077 000	466 700	2 450 000	550 600	1 300	1 700	71.50	157.66	0.35	1.9	2.9
22338 CC/W33	190	7.4803	400	15.7480	132	5.1969	2 232 000	501 600	2 650 000	595 500	1 200	1 600	82.50	181.91	0.35	1.9	2.9
22340 CC/W33	200	7.8740	420	16.5354	138	5.4331	2 439 000	548 100	2 900 000	651 700	1 200	1 500	95.00	209.48	0.33	2.0	3.0
22344 CC/W33	220	8.6614	460	18.1102	145	5.7087	2 839 000	638 000	3 450 000	775 300	1 000	1 400	120.00	264.60	0.31	2.2	3.3
22348 CC/W33	240	9.4488	500	19.6850	155	6.1024	3 229 000	725 600	4 000 000	898 900	950	1 300	155.00	341.78	0.31	2.2	3.3
22352 CC/W33	260	10.2362	540	21.2598	165	6.4961	3 680 000	827 000	4 550 000	1 022 500	850	1 100	190.00	418.95	0.31	2.2	3.3
22356 CC/W33	280	11.0236	580	22.8346	175	6.8898	4 158 000	934 400	5 200 000	1 168 500	800	1 100	235.00	518.18	0.30	2.3	3.4
22380 CA/W33	400	15.7480	820	32.2835	243	9.5669	7 832 000	1 760 000	10 400 000	2 337 100	430	750	650.00	1433.25	0.30	2.3	3.4
229750 J/C3R505	130	5.1181	220	8.6614	73	2.8740	564 000	126 700	930 000	209 000	1 600	2 400	11.50	25.36	0.31	2.2	3.3
23022 CC/W33	110	4.3307	170	6.6929	45	1.7717	326 000	73 300	440 000	98 900	3 400	4 300	3.80	8.38	0.23	2.9	4.4
23024 CC/W33	120	4.7244	180	7.0866	46	1.8110	366 000	82 200	500 000	112 400	3 200	4 000	4.20	9.26	0.22	3.0	4.6
23026 CC/W33	130	5.1181	200	7.8740	52	2.0472	452 000	101 600	610 000	137 100	2 800	3 600	6.00	13.23	0.23	2.9	4.4
23028 CC/W33	140	5.5118	210	8.2677	53	2.0866	485 000	109 000	680 000	152 800	2 600	3 400	6.55	14.44	0.22	3.0	4.6
23030 CC/W33	150	5.9055	225	8.8583	56	2.2047	531 000	119 300	750 000	168 500	2 400	3 200	7.95	17.53	0.22	3.0	4.6
23032 CC/W33	160	6.2992	240	9.4488	60	2.3622	614 000	138 000	880 000	197 800	2 400	3 000	9.70	21.39	0.22	3.0	4.6
23034 CC/W33	170	6.6929	260	10.2362	67	2.6378	745 000	167 400	1 060 000	238 200	2 200	2 800	13.00	28.67	0.23	2.9	4.4
23036 CC/W33	180	7.0866	280	11.0236	74	2.9134	883 000	198 400	1 250 000	280 900	2 000	2 600	17.00	37.49	0.24	2.8	4.2
23038 CC/W33	190	7.4803	290	11.4173	75	2.9528	916 000	205 800	1 340 000	301 100	1 900	2 400	18.00	39.69	0.23	2.9	4.4
23040 CC/W33	200	7.8740	310	12.2047	82	3.2283	1 058 000	237 800	1 530 000	343 800	1 800	2 200	23.30	51.38	0.24	2.8	4.2
23044 CC/W33	220	8.6614	340	13.3858	90	3.5433	1 261 000	283 400	1 860 000	418 000	1 600	2 000	30.50	67.25	0.24	2.8	4.2
23048 CC/W33	240	9.4488	360	14.1732	92	3.6220	1 340 000	301 100	2 080 000	467 400	1 500	1 900	33.50	73.87	0.23	2.9	4.4
23052 CC/W33	260	10.2362	400	15.7480	104	4.0945	1 675 000	376 400	2 550 000	573 000	1 300	1 700	48.50	106.94	0.23	2.9	4.4
23056 CC/W33	280	11.0236	420	16.5354	106	4.1732	1 797 000	403 800	2 850 000	640 400	1 300	1 600	52.50	115.76	0.23	2.9	4.4
23056 CAC/W33							1 747 000	392 600	2 750 000	618 000	1 300	1 600	52.50	115.76	0.23	2.9	4.4
23060 CC/W33	300	11.8110	460	18.1102	118	4.6457	2 219 000	498 700	3 450 000	775 300	1 200	1 500	71.50	157.66	0.23	2.9	4.4
23060 CAC/W33							2 154 000	484 000	3 350 000	752 800	1 200	1 500	71.50	157.66	0.23	2.9	4.4
23064 CC/W33	320	12.5984	480	18.8976	121	4.7638	2 348 000	527 600	3 800 000	853 900	1 100	1 400	78.00	171.99	0.23	2.9	4.4
23068 CC/W33	340	13.3858	520	20.4724	133	5.2362	2 812 000	631 900	4 550 000	1 022 500	1 000	1 300	105.00	231.53	0.24	2.8	4.2
23068 CAC/W33											1 000	1 300	105.00	231.53	0.24	2.8	4.2
23072 CC/W33	360	14.1732	540	21.2598	134	5.2756	2 850 000	640 400	4 800 000	1 078 700	950	1 200	110.00	242.55	0.23	2.9	4.4

Consult SKF USA Inc. prior to design change or order placement.

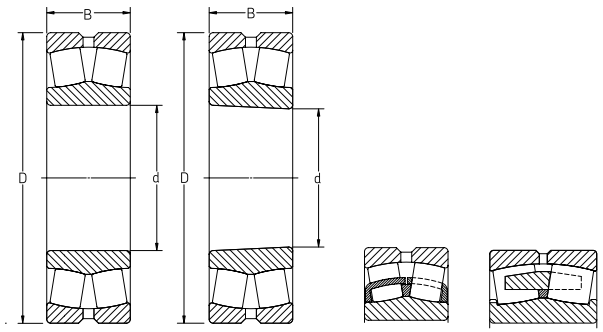


Cylindrical bore | Tapered bore | CC design | CAC & CA design

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Calculation factors		
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed					
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	e	Y_1	Y_2
23072 CAC/W33	360	14.1732	540	21.2598	134	5.2756	2773000	623100	4650000	1044900	950	1200	110.00	242.55	0.23	4.4	2.9
23076 CC/W33	380	14.9606	560	22.0472	135	5.3150	2984000	670600	5000000	1123600	900	1200	115.00	253.58	0.22	3.0	4.6
23076 CAC/W33							2903000	652400	4900000	1101100	900	1200	110.00	242.55	0.22	4.6	2.9
23080 CC/W33	400	15.7480	600	23.6220	148	5.8268	3511000	789000	5850000	1314600	850	1100	150.00	330.75	0.23	2.9	4.4
23080 CAC/W33							3413000	767000	5700000	1280900	850	1100	150.00	330.75	0.23	4.4	3.0
23084 CA/W33	420	16.5354	620	24.4094	150	5.9055	3541000	795700	6000000	1348300	600	1100	155.00	341.78	0.22	3.0	4.6
23088 CA/W33	440	17.3228	650	25.5906	157	6.1811	3831000	860900	6550000	1471900	560	1000	180.00	396.90	0.22	3.0	4.6
23092 CA/W33	460	18.1102	680	26.7717	163	6.4173	4065000	913500	6950000	1561800	560	950	205.00	452.03	0.22	3.0	4.6
23096 CA/W33	480	18.8976	700	27.5591	165	6.4961	3996000	898000	6800000	1528100	530	950	215.00	474.08	0.21	3.2	4.8
230/ 500 CA/W33	500	19.6850	720	28.3465	167	6.5748	4358000	979300	7800000	1752800	500	900	225.00	496.13	0.21	3.2	4.8
230/ 530 CA/W33	530	20.8661	780	30.7087	185	7.2835	5267000	1183600	9300000	2089900	450	800	310.00	683.55	0.22	3.0	4.6
230/ 560 CA/W33	560	22.0472	820	32.2835	195	7.6772	5779000	1298700	10200000	2292100	430	750	355.00	782.78	0.22	3.0	4.6
230/ 600 CA/W33	600	23.6220	870	34.2520	200	7.8740	6252000	1404900	11400000	2561800	400	700	405.00	893.03	0.22	3.0	4.6
230/ 630 CA/W33	630	24.8031	920	36.2205	212	8.3465	6898000	1550100	12500000	2809000	380	670	485.00	1069.43	0.21	3.2	4.8
230/ 670 CA/W33	670	26.3780	980	38.5827	230	9.0551	7919000	1779600	14600000	3280900	340	600	600.00	1323.00	0.21	3.2	4.8
230/ 710 CA/W33	710	27.9528	1030	40.5512	236	9.2913	8669000	1948100	16300000	3662900	300	560	670.00	1477.35	0.21	3.2	4.8
230/ 750 CA/W33	750	29.5276	1090	42.9134	250	9.8425	10061000	2260900	18600000	4179800	280	530	795.00	1752.98	0.21	3.2	4.8
230/ 800 CA/W33	800	31.4961	1150	45.2756	258	10.1575	10335000	2322500	20000000	4494400	260	480	895.00	1973.48	0.20	3.4	5.0
230/ 850 CA/W33	850	33.4646	1220	48.0315	272	10.7087	11291000	2537300	21600000	4853900	240	450	1050.00	2315.25	0.20	3.4	5.0
230/ 900 CA/W33	900	35.4331	1280	50.3937	280	11.0236	12002000	2697100	23200000	5213500	220	400	1200.00	2646.00	0.20	3.4	5.0
230/ 950 CA/W33	950	37.4016	1360	53.5433	300	11.8110	14363000	3227600	28500000	6404500	200	380	1450.00	3197.25	0.20	3.4	5.0
230/ 1250 CAF/W33	1250	49.2126	1750	68.8976	375	14.7638	21256000	4776600	45000000	10112400	130	240	2840.00	6262.20	0.19	3.6	5.3

Consult SKF USA Inc. prior to design change or order placement.

SKF Explorer
Series: 23120 CC/W33 – 231/530 CA/W33
Size: 100 mm – 530 mm
3.9370 in – 20.8661 in



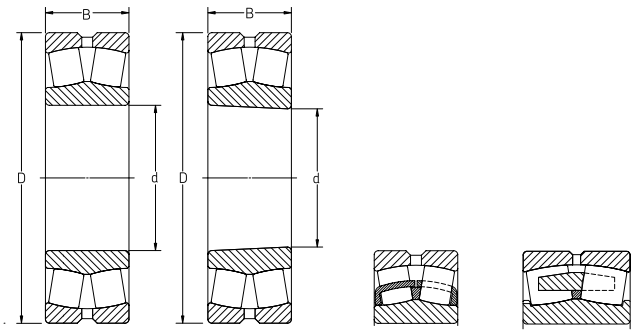
Cylindrical bore | Tapered bore | CC design | CAC & CA design

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Calculation factors		
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed					
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	e	Y_1	Y_2
23120 CC/W33	100	3.9370	165	6.4961	52	2.0472	385 000	86 500	490 000	110 100	3 000	4 000	4.55	10.03	0.30	2.3	3.4
23122 CC/W33	110	4.3307	180	7.0866	56	2.2047	450 000	101 100	585 000	131 500	2 800	3 600	5.75	12.68	0.30	2.3	3.4
23124 CC/W33	120	4.7244	200	7.8740	62	2.4409	534 000	120 000	695 000	156 200	2 600	3 400	8.00	17.64	0.28	2.4	3.6
23126 CC/W33	130	5.1181	210	8.2677	64	2.5197	586 000	131 700	780 000	175 300	2 400	3 200	8.80	19.40	0.28	2.4	3.6
23128 CC/W33	140	5.5118	225	8.8583	68	2.6772	659 000	148 100	900 000	202 200	2 200	2 800	10.50	23.15	0.28	2.4	3.6
23130 CC/W33	150	5.9055	250	9.8425	80	3.1496	883 000	198 400	1 200 000	269 700	2 000	2 600	16.00	35.28	0.30	2.3	3.4
23132 CC/W33	160	6.2992	270	10.6299	86	3.3858	1 029 000	231 200	1 370 000	307 900	1 900	2 400	20.50	45.20	0.30	2.3	3.4
23134 CC/W33	170	6.6929	280	11.0236	88	3.4646	1 086 000	244 000	1 500 000	337 100	1 800	2 400	22.00	48.51	0.30	2.3	3.4
23136 CC/W33	180	7.0866	300	11.8110	96	3.7795	1 263 000	283 800	1 760 000	395 500	1 700	2 200	28.00	61.74	0.30	2.3	3.4
23138 CC/W33	190	7.4803	320	12.5984	104	4.0945	1 456 000	327 200	2 080 000	467 400	1 500	2 000	35.00	77.18	0.31	2.2	3.3
23140 CC/W33	200	7.8740	340	13.3858	112	4.4094	1 665 000	374 200	2 360 000	530 300	1 500	1 900	43.00	94.82	0.31	2.2	3.3
23144 CC/W33	220	8.6614	370	14.5669	120	4.7244	1 888 000	424 300	2 750 000	618 000	1 300	1 700	53.50	117.97	0.30	2.3	3.4
23148 CC/W33	240	9.4488	400	15.7480	128	5.0394	2 187 000	491 500	3 200 000	719 100	1 200	1 600	66.50	146.63	0.30	2.3	3.4
23152 CC/W33	260	10.2362	440	17.3228	144	5.6693	2 664 000	598 700	3 900 000	876 400	1 100	1 400	90.50	199.55	0.31	2.2	3.3
23152 CAC/W33							2 568 000	577 100	3 750 000	842 700	1 100	1 400	91.00	200.66	0.31	3.3	4.4
23156 CC/W33	280	11.0236	460	18.1102	146	5.7480	2 784 000	625 600	4 250 000	955 100	1 000	1 300	97.00	213.89	0.30	2.3	3.4
23156 CAC/W33							2 688 000	604 000	4 000 000	898 900	1 000	1 300	97.00	213.89	0.30	3.4	4.6
23160 CC/W33	300	11.8110	500	19.6850	160	6.2992	3 368 000	756 900	5 100 000	1 146 100	950	1 200	125.00	275.63	0.30	2.3	3.4
23160 CAC/W33							3 135 000	704 500	4 650 000	1 044 900	950	1 200	125.00	275.63	2.3	3.4	4.4
23164 CC/W33	320	12.5984	540	21.2598	176	6.9291	3 923 000	881 600	6 000 000	1 348 300	850	1 100	165.00	363.83	0.31	2.2	3.3
23164 CAC/W33							3 653 000	820 900	5 500 000	1 236 000	850	1 100	165.00	363.83	2.2	3.3	4.4
23168 CC/W33	340	13.3858	580	22.8346	190	7.4803	4 445 000	998 900	6 800 000	1 528 100	800	1 000	210.00	463.05	0.31	2.2	3.3
23168 CAC/W33							4 285 000	962 900	6 550 000	1 471 900	800	1 000	210.00	463.05	2.2	3.3	4.2
23172 CC/W33	360	14.1732	600	23.6220	192	7.5591	4 515 000	1 014 600	6 950 000	1 561 800	750	1 000	220.00	485.10	0.30	2.3	3.4
23172 CAC/W33											750	1 000	220.00	485.10	2.3	3.4	4.4
23176 CA/W33	380	14.9606	620	24.4094	194	7.6378	4 561 000	1 024 900	7 100 000	1 595 500	560	1 000	230.00	507.15	0.30	2.3	3.4
23180 CA/W33	400	15.7480	650	25.5906	200	7.8740	4 864 000	1 093 000	7 650 000	1 719 100	530	950	265.00	584.33	0.28	2.4	3.6
23184 CJ/W33	420	16.5354	700	27.5591	224	8.8189	5 919 000	1 330 100	9 300 000	2 089 900	480	900	350.00	771.75	0.30	2.3	3.4
23188 CA/W33	440	17.3228	720	28.3465	226	8.8976	6 215 000	1 396 600	10 000 000	2 247 200	450	850	360.00	793.80	0.30	2.3	3.4
23192 CA/W33	460	18.1102	760	29.9213	240	9.4488	6 760 000	1 519 100	10 800 000	2 427 000	430	800	440.00	970.20	0.30	2.3	3.4
23196 CA/W33	480	18.8976	790	31.1024	248	9.7638	7 362 000	1 654 400	12 000 000	2 696 600	400	750	485.00	1069.43	0.30	2.3	3.4
231 / 500 CA/W33	500	19.6850	830	32.6772	264	10.3937	8 037 000	1 806 100	12 900 000	2 898 900	380	700	580.00	1278.90	0.30	2.3	3.4
231 / 530 CA/W33	530	20.8661	870	34.2520	272	10.7087	8 526 000	1 916 000	14 000 000	3 146 100	360	670	645.00	1422.23	0.30	2.3	3.4

Consult SKF USA Inc. prior to design change or order placement.

SKF Explorer
Series: 231/560 CA/W33 – 231/1000 CAF/W33
Size: 560 mm – 1000 mm
22.0472 in – 39.3701 in

Series: 23218 CC/W33 – 23272 CA/W33
Size: 90 mm – 360 mm
3.5433 in – 14.1732 in



Cylindrical bore | Tapered bore | CC design | CAC & CA design

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Calculation factors		
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed					
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	e	Y_1	Y_2
231/560 CA/W33	560	22.0472	920	36.2205	280	11.0236	9 596 000	2 156 400	16 000 000	3 595 500	340	630	740.00	1631.70	0.30	2.3	3.4
231/600 CA/W33	600	23.6220	980	38.5827	300	11.8110	10 738 000	2 413 000	18 000 000	4 044 900	320	560	895.00	1973.48	0.30	2.3	3.4
231/630 CA/W33	630	24.8031	1 030	40.5512	315	12.4016	12 600 000	2 831 500	20 800 000	4 674 200	260	530	1050.00	2315.25	0.30	2.3	3.4
231/670 CA/W33	670	26.3780	1 090	42.9134	336	13.2283	13 101 000	2 944 000	22 400 000	5 033 700	240	500	1250.00	2756.25	0.30	2.3	3.4
231/710 CA/W33	710	27.9528	1 150	45.2756	345	13.5827	14 732 000	3 310 600	26 000 000	5 842 700	240	450	1450.00	3197.25	0.28	2.4	3.6
231/750 CA/W33	750	29.5276	1 220	48.0315	365	14.3701	16 518 000	3 711 900	29 000 000	6 516 900	220	430	1700.00	3748.50	0.28	2.4	3.6
231/800 CA/W33	800	31.4961	1 280	50.3937	375	14.7638	18 033 000	4 052 400	31 500 000	7 078 700	200	400	1920.00	4233.60	0.28	2.4	3.6
231/1000 CAF/W33	1 000	39.3701	1 580	62.2047	462	18.1890	25 650 000	5 764 000	48 000 000	10 786 500	140	280	3500.00	7717.50	0.28	2.4	3.6
23218 CC/W33	90	3.5433	160	6.2992	52.4	2.0630	372 000	83 600	440 000	98 900	2 800	3 800	4.65	10.25	0.31	2.2	3.3
23220 CC/W33	100	3.9370	180	7.0866	60.3	2.3740	498 000	111 900	600 000	134 800	2 400	3 400	6.85	15.10	0.33	2.0	3.0
23222 CC/W33	110	4.3307	200	7.8740	69.8	2.7480	626 000	140 700	765 000	171 900	2 200	3 200	9.85	21.72	0.33	2.0	3.0
23224 CC/W33	120	4.7244	215	8.4646	76	2.9921	732 000	164 500	930 000	209 000	2 000	2 800	12.00	26.46	0.35	1.9	2.9
23226 CC/W33	130	5.1181	230	9.0551	80	3.1496	826 000	185 600	1 060 000	238 200	1 900	2 600	14.50	31.97	0.33	2.0	3.0
23228 CC/W33	140	5.5118	250	9.8425	88	3.4646	962 000	216 200	1 250 000	280 900	1 700	2 400	19.00	41.90	0.33	2.0	3.0
23230 CC/W33	150	5.9055	270	10.6299	96	3.7795	1 129 000	253 700	1 460 000	328 100	1 600	2 200	24.50	54.02	0.35	1.9	2.9
23232 CC/W33	160	6.2992	290	11.4173	104	4.0945	1 281 000	287 900	1 660 000	373 000	1 500	2 200	31.00	68.36	0.35	1.9	2.9
23234 CC/W33	170	6.6929	310	12.2047	110	4.3307	1 472 000	330 800	1 930 000	433 700	1 400	2 000	37.50	82.69	0.35	1.9	2.9
23236 CC/W33	180	7.0866	320	12.5984	112	4.4094	1 557 000	349 900	2 120 000	476 400	1 300	1 900	39.50	87.10	0.35	1.9	2.9
23238 CC/W33	190	7.4803	340	13.3858	120	4.7244	1 759 000	395 300	2 400 000	539 300	1 300	1 800	48.00	105.84	0.35	1.9	2.9
23240 CC/W33	200	7.8740	360	14.1732	128	5.0394	1 947 000	437 500	2 700 000	606 700	1 200	1 700	58.00	127.89	0.35	1.9	2.9
23244 CC/W33	220	8.6614	400	15.7480	144	5.6693	2 485 000	558 400	3 450 000	775 300	1 100	1 500	81.50	179.71	0.35	1.9	2.9
23248 CC/W33	240	9.4488	440	17.3228	160	6.2992	3 042 000	683 600	4 300 000	966 300	950	1 300	110.00	242.55	0.35	1.9	2.9
23252 CC/W33 23252 CAC/W33	260	10.2362	480	18.8976	174	6.8504	3 395 000	762 900	4 750 000	1 067 400	850	1 200	140.00	308.70	0.35	1.9	2.9
23256 CC/W33 23256 CAC/W33	280	11.0236	500	19.6850	176	6.9291	3 425 000	769 700	4 900 000	1 101 100	800	1 100	150.00	330.75	0.35	1.9	2.9
23260 CC/W33 23260 CAC/W33	300	11.8110	540	21.2598	192	7.5591	4 052 000	910 600	5 850 000	1 314 600	750	1 000	190.00	418.95	0.35	1.9	2.9
23264 CC/W33 23264 CAC/W33	320	12.5984	580	22.8346	208	8.1890	4 607 000	1 035 300	6 700 000	1 505 600	700	950	240.00	529.20	0.35	1.9	2.9
23268 CA/W33	340	13.3858	620	24.4094	224	8.8189	5 362 000	1 204 900	7 800 000	1 752 800	560	800	295.00	650.48	0.35	1.9	2.9
23272 CA/W33	360	14.1732	650	25.5906	232	9.1339	5 663 000	1 272 600	8 300 000	1 865 200	530	750	335.00	738.68	0.35	1.9	2.9

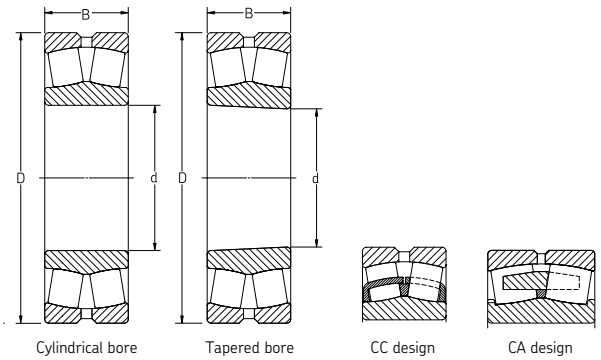
Consult SKF USA Inc. prior to design change or order placement.

SKF Explorer

Series: 23276 CA/W33 – 232/850 CAF/W33
Size: 380 mm – 850 mm
14.9606 in – 33.4646 in

Series: 238/630 CAMA/W20 – 238/1180 CAFA/W20
Size: 630 mm – 1180 mm
24.8031 in – 46.4567 in

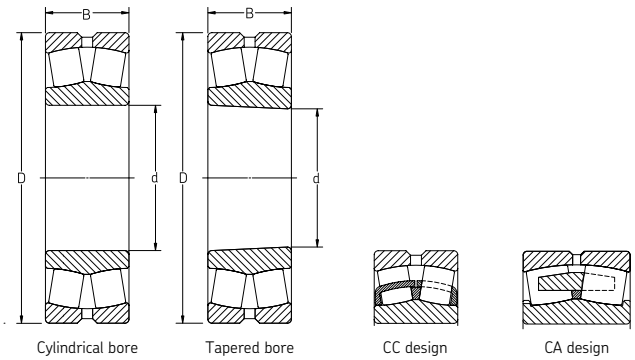
Series: 23936 CC/W33 – 23976 CC/W33
Size: 180 mm – 380 mm
7.0866 in – 14.9606 in



Cylindrical bore | Tapered bore | CC design | CA design

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Calculation factors		
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed					
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	e	Y_1	Y_2
23276 CA/W33	380	14.9606	680	26.7717	240	9.4488	6 126 000	1 376 600	9 150 000	2 056 200	500	750	375.00	826.88	0.35	1.9	2.9
23280 CA/W33	400	15.7480	720	28.3465	256	10.0787	6 881 000	1 546 300	10 400 000	2 337 100	480	670	450.00	992.25	0.35	1.9	2.9
23284 CA/W33	420	16.5354	760	29.9213	272	10.7087	7 677 000	1 725 200	11 600 000	2 606 700	450	630	535.00	1179.68	0.35	1.9	2.9
23288 CA/W33	440	17.3228	790	31.1024	280	11.0236	8 150 000	1 831 500	12 500 000	2 809 000	430	600	590.00	1300.95	0.35	1.9	2.9
23292 CA/W33	460	18.1102	830	32.6772	296	11.6535	8 958 000	2 013 000	13 700 000	3 078 700	400	560	695.00	1532.48	0.35	1.9	2.9
23296 CA/W33	480	18.8976	870	34.2520	310	12.2047	9 805 000	2 203 400	15 000 000	3 370 800	380	530	800.00	1764.00	0.35	1.9	2.9
232/500 CA/W33	500	19.6850	920	36.2205	336	13.2283	11 183 000	2 513 000	17 300 000	3 887 600	360	500	985.00	2171.93	0.35	1.9	2.9
232/530 CA/W33	530	20.8661	980	38.5827	355	13.9764	13 268 000	2 981 600	20 400 000	4 584 300	320	480	1200.00	2646.00	0.35	1.9	2.9
232/560 CA/W33	560	22.0472	1 030	40.5512	365	14.3701	13 940 000	3 132 600	22 000 000	4 943 800	280	430	1350.00	2976.75	0.35	1.9	2.9
232/600 CA/W33	600	23.6220	1 090	42.9134	388	15.2756	15 652 000	3 517 300	25 500 000	5 730 300	260	400	1600.00	3528.00	0.35	1.9	2.9
232/670 CA/W33	670	26.3780	1 220	48.0315	438	17.2441	18 650 000	4 191 000	30 500 000	6 853 900	220	360	2270.00	5005.35	0.35	1.9	2.9
232/710 CA/W33	710	27.9528	1 280	50.3937	450	17.7165	21 208 000	4 765 800	34 500 000	7 752 800	200	320	2610.00	5755.05	0.35	1.9	2.9
232/800 CAF/W33	800	31.4961	1 420	55.9055	488	19.2126	24 973 000	5 611 900	43 000 000	9 662 900	180	280	3280.00	7232.40	0.33	2.0	3.0
232/850 CAF/W33	850	33.4646	1 500	59.0551	515	20.2756	27 636 000	6 210 300	48 000 000	10 786 500	160	260	3940.00	8687.70	0.33	2.0	3.0
238/630 CAMA/W20	630	24.8031	780	30.7087	112	4.4094	2 545 000	571 900	6 100 000	1 370 800	430	750	120.00	264.60	0.12	5.6	8.4
238/670 CAMA/W20	670	26.3780	820	32.2835	112	4.4094	2 643 000	593 900	6 400 000	1 438 200	400	700	130.00	286.65	0.11	6.1	9.1
238/710 CAMA/W20	710	27.9528	870	34.2520	118	4.6457	3 013 000	677 100	7 500 000	1 685 400	360	670	153.00	337.37	0.11	6.1	9.1
238/750 CAMA/W20	750	29.5276	920	36.2205	128	5.0394	3 405 000	765 200	8 500 000	1 910 100	340	600	185.00	407.93	0.11	6.1	9.1
238/850 CAMA/W20	850	33.4646	1 030	40.5512	136	5.3543	3 882 000	872 400	10 000 000	2 247 200	260	530	240.00	529.20	0.11	6.1	9.1
238/1000 CAMA/W20	1 000	39.3701	1 220	48.0315	165	6.4961	5 405 000	1 214 600	14 300 000	3 213 500	220	400	410.00	904.05	0.12	5.6	8.4
238/1060 CAMA/W20	1 060	41.7323	1 280	50.3937	165	6.4961	5 555 000	1 248 300	15 000 000	3 370 800	200	380	435.00	959.18	0.11	6.1	9.1
238/1180 CAFA/W20	1 180	46.4567	1 420	55.9055	180	7.0866	6 778 000	1 523 100	18 600 000	4 179 800	170	320	575.00	1267.88	0.11	6.1	9.1
23936 CC/W33	180	7.0866	250	9.8425	52	2.0472	519 000	116 600	830 000	186 500	2 600	2 800	7.90	17.42	0.18	3.8	5.6
23938 CC/W33	190	7.4803	260	10.2362	52	2.0472	499 000	112 100	800 000	179 800	2 400	2 600	8.30	18.30	0.16	4.2	6.3
23940 CC/W33	200	7.8740	280	11.0236	60	2.3622	651 000	146 300	1 040 000	233 700	2 200	2 400	11.50	25.36	0.19	3.6	5.3
23944 CC/W33	220	8.6614	300	11.8110	60	2.3622	661 000	148 500	1 080 000	242 700	2 000	2 200	12.50	27.56	0.16	4.2	6.3
23948 CC/W33	240	9.4488	320	12.5984	60	2.3622	685 000	153 900	1 160 000	260 700	1 900	2 000	13.50	29.77	0.15	4.5	6.7
23952 CC/W33	260	10.2362	360	14.1732	75	2.9528	1 055 000	237 100	1 800 000	404 500	1 700	1 900	23.50	51.82	0.18	3.8	5.6
23956 CC/W33	280	11.0236	380	14.9606	75	2.9528	1 016 000	228 300	1 760 000	395 500	1 600	1 700	25.00	55.13	0.16	4.2	6.3
23960 CC/W33	300	11.8110	420	16.5354	90	3.5433	1 413 000	317 500	2 500 000	561 800	1 400	1 600	39.50	87.10	0.19	3.6	5.3
23964 CC/W33	320	12.5984	440	17.3228	90	3.5433	1 480 000	332 600	2 700 000	606 700	1 400	1 500	42.00	92.61	0.17	4.0	5.9
23968 CC/W33	340	13.3858	460	18.1102	90	3.5433	1 490 000	334 800	2 800 000	629 200	1 300	1 400	45.50	100.33	0.17	4.0	5.9
23972 CC/W33	360	14.1732	480	18.8976	90	3.5433	1 456 000	327 200	2 750 000	618 000	1 200	1 300	46.00	101.43	0.15	4.5	6.7
23976 CC/W33	380	14.9606	520	20.4724	106	4.1732	2 011 000	451 900	3 800 000	853 900	1 100	1 200	69.00	152.15	0.17	4.0	5.9

Consult SKF USA Inc. prior to design change or order placement.



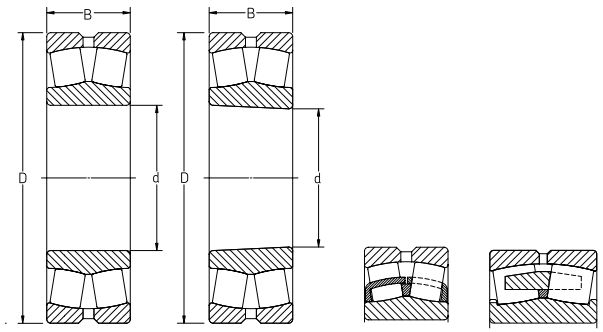
Cylindrical bore | Tapered bore | CC design | CA design

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Calculation factors		
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed					
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	e	Y_1	Y_2
23980 CC/W33	400	15.7480	540	21.2598	106	4.1732	2 038 000	458 000	3 900 000	876 400	1 100	1 200	71.00	156.56	0.16	4.2	6.3
23984 CC/W33	420	16.5354	560	22.0472	106	4.1732	2 083 000	468 100	4 150 000	932 600	1 000	1 100	74.50	164.27	0.16	4.2	6.3
23988 CC/W33	440	17.3228	600	23.6220	118	4.6457	2 506 000	563 100	4 900 000	1 101 100	950	1 000	99.50	219.40	0.16	4.2	6.3
23992 CA/W33	460	18.1102	620	24.4094	118	4.6457	2 558 000	574 800	5 000 000	1 123 600	600	1 000	105.00	231.53	0.16	4.2	6.3
23996 CA/W33	480	18.8976	650	25.5906	128	5.0394	2 990 000	671 900	5 700 000	1 280 900	560	1 000	125.00	275.63	0.18	3.8	5.6
239/500 CA/W33	500	19.6850	670	26.3780	128	5.0394	2 967 000	666 700	6 000 000	1 348 300	530	950	130.00	286.65	0.17	4.0	5.9
239/530 CA/W33	530	20.8661	710	27.9528	136	5.3543	3 308 000	743 400	6 700 000	1 505 600	500	900	155.00	341.78	0.17	4.0	5.9
239/560 CA/W33	560	22.0472	750	29.5276	140	5.5118	3 571 000	802 500	7 200 000	1 618 000	450	850	175.00	385.88	0.16	4.2	6.3
239/600 CA/W33	600	23.6220	800	31.4961	150	5.9055	4 022 000	903 800	8 300 000	1 865 200	430	750	220.00	485.10	0.17	4.0	5.9
239/630 CA/W33	630	24.8031	850	33.4646	165	6.4961	4 744 000	1 066 100	9 800 000	2 202 200	400	700	280.00	617.40	0.17	4.0	5.9
239/670 CA/W33	670	26.3780	900	35.4331	170	6.6929	5 146 000	1 156 400	10 800 000	2 427 000	360	670	315.00	694.58	0.17	4.0	5.9
239/710 CA/W33	710	27.9528	950	37.4016	180	7.0866	5 702 000	1 281 300	12 000 000	2 696 600	340	600	365.00	804.83	0.17	4.0	5.9
239/750 CA/W33	750	29.5276	1 000	39.3701	185	7.2835	6 138 000	1 379 300	13 200 000	2 966 300	320	560	420.00	926.10	0.16	4.2	6.3
239/800 CA/W33	800	31.4961	1 060	41.7323	195	7.6772	6 595 000	1 482 000	14 300 000	3 213 500	280	530	470.00	1036.35	0.16	4.2	6.3
239/850 CA/W33	850	33.4646	1 120	44.0945	200	7.8740	7 072 000	1 589 200	15 600 000	3 505 600	260	480	560.00	1234.80	0.16	4.2	6.3
239/900 CA/W33	900	35.4331	1 180	46.4567	206	8.1102	7 652 000	1 719 600	17 000 000	3 820 200	240	450	605.00	1334.03	0.15	4.5	6.7
239/950 CA/W33	950	37.4016	1 250	49.2126	224	8.8189	8 606 000	1 933 900	19 600 000	4 404 500	220	430	755.00	1664.78	0.15	4.5	6.7
239/1060 CAF/W33	1 060	41.7323	1 400	55.1181	250	9.8425	11 333 000	2 546 700	26 000 000	5 842 700	180	360	1100.00	2425.50	0.16	4.2	6.3
239/1180 CAF/W33	1 180	46.4567	1 540	60.6299	272	10.7087	13 076 000	2 938 400	31 000 000	6 966 300	150	300	1400.00	3087.00	0.16	4.2	6.3
24013 CC/W33	65	2.5591	100	3.9370	35	1.3780	137 000	30 790	173 000	38 880	4 300	6 300	0.95	2.09	0.27	2.5	3.7
24015 CC/W33	75	2.9528	115	4.5276	40	1.5748	181 000	40 670	232 000	52 100	3 800	5 300	1.55	3.42	0.28	2.4	3.6
24020 CC/W33	100	3.9370	150	5.9055	50	1.9685	296 000	66 500	415 000	93 300	2 800	4 000	3.15	6.95	0.28	2.4	3.6
24022 CC/W33	110	4.3307	170	6.6929	60	2.3622	437 000	98 200	620 000	139 300	2 400	3 600	5.00	11.03	0.33	2.0	3.0
24024 CC/W33	120	4.7244	180	7.0866	60	2.3622	456 000	102 500	670 000	150 600	2 400	3 400	5.45	12.02	0.30	2.3	3.4
24026 CC/W33	130	5.1181	200	7.8740	69	2.7165	569 000	127 900	815 000	183 100	2 000	3 000	8.05	17.75	0.31	2.2	3.3
24028 CC/W33	140	5.5118	210	8.2677	69	2.7165	600 000	134 800	900 000	202 200	2 000	2 800	8.55	18.85	0.30	2.3	3.4
24030 CC/W33	150	5.9055	225	8.8583	75	2.9528	680 000	152 800	1 040 000	233 700	1 800	2 600	10.50	23.15	0.30	2.3	3.4
24032 CC/W33	160	6.2992	240	9.4488	80	3.1496	783 000	176 000	1 200 000	269 700	1 700	2 400	13.00	28.67	0.30	2.3	3.4
24034 CC/W33	170	6.6929	260	10.2362	90	3.5433	963 000	216 400	1 460 000	328 100	1 600	2 400	17.50	38.59	0.33	2.0	3.0
24036 CC/W33	180	7.0866	280	11.0236	100	3.9370	1 134 000	254 800	1 730 000	388 800	1 500	2 200	23.00	50.72	0.33	2.0	3.0
24038 CC/W33	190	7.4803	290	11.4173	100	3.9370	1 164 000	261 600	1 800 000	404 500	1 400	2 000	24.50	54.02	0.31	2.2	3.3

Consult SKF USA Inc. prior to design change or order placement.

SKF Explorer

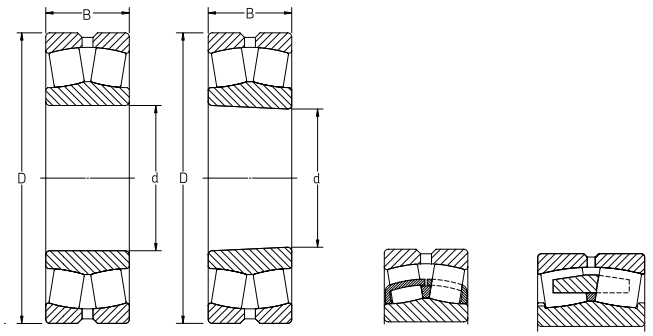
Series: 24040 CC/W33 – 240/1180 CAF/W33
Size: 380 mm – 1180 mm
14.9606 in – 46.4567 in



Cylindrical bore | Tapered bore | CC design | CAC & ECA design

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Calculation factors		
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Refer-ence speed	Limit-ing speed					
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	e	Y_1	Y_2
24040 CC/W33	200	7.8740	310	12.2047	109	4.2913	12:10 PM	304 000	2 120 000	476 400	1 300	1 900	31.00	68.36	0.33	2.0	3.0
24044 CC/W33	220	8.6614	340	13.3858	118	4.6457	1 628 000	365 800	2 600 000	584 300	1 200	1 700	40.00	88.20	0.33	2.0	3.0
24048 CC/W33	240	9.4488	360	14.1732	118	4.6457	1 663 000	373 700	2 700 000	606 700	1 100	1 600	43.00	94.82	0.30	2.3	3.4
24052 CC/W33	260	10.2362	400	15.7480	140	5.5118	2 135 000	479 800	3 450 000	775 300	1 000	1 400	65.50	144.43	0.33	2.0	3.0
24056 CC/W33	280	11.0236	420	16.5354	140	5.5118	2 248 000	505 200	3 800 000	853 900	950	1 400	69.50	153.25	0.31	2.2	3.3
24060 CC/W33	300	11.8110	460	18.1102	160	6.2992	2 821 000	633 900	4 750 000	1 067 400	850	1 200	97.00	213.89	0.33	2.0	3.0
24060 CAC/W33						13.2283	2 735 000	614 600	4 500 000	1 011 200	850	1 200	97.00	213.89	0.33	2.0	3.0
24064 CC/W33	320	12.5984	480	18.8976	160	6.2992	2 969 000	667 200	5 100 000	1 146 100	800	1 200	100.00	220.50	0.31	2.2	3.3
24068 CC/W33	340	13.3858	520	20.4724	180	7.0866	3 621 000	813 700	6 200 000	1 393 300	750	1 100	140.00	308.70	0.33	2.0	3.0
24072 CC/W33	360	14.1732	540	21.2598	180	7.0866	3 705 000	832 600	6 550 000	1 471 900	700	1 000	145.00	319.73	0.31	2.2	3.3
24076 CC/W33	380	14.9606	560	22.0472	180	7.0866	3 786 000	850 800	6 800 000	1 528 100	670	950	150.00	330.75	0.30	2.3	3.4
24080 ECCJ/W33	400	15.7480	600	23.6220	200	7.8740	4 507 000	1 012 800	8 000 000	1 797 800	630	900	205.00	452.03	0.30	2.3	3.4
24084 ECA/W33	420	16.5354	620	24.4094	200	7.8740	4 610 000	1 036 000	8 300 000	1 865 200	530	900	210.00	463.05	0.30	2.3	3.4
24088 ECA/W33	440	17.3228	650	25.5906	212	8.3465	4 987 000	1 120 700	9 150 000	2 056 200	500	850	245.00	540.23	0.30	2.3	3.4
24092 ECA/W33	460	18.1102	680	26.7717	218	8.5827	5 401 000	1 213 700	10 000 000	2 247 200	480	800	275.00	606.38	0.28	2.4	3.6
24096 ECA/W33	480	18.8976	700	27.5591	218	8.5827	5 524 000	1 241 300	10 400 000	2 337 100	450	750	285.00	628.43	0.28	2.4	3.6
240/500 ECA/W33	500	19.6850	720	28.3465	218	8.5827	5 777 000	1 298 200	11 000 000	2 471 900	430	700	295.00	650.48	0.26	2.6	3.9
240/530 ECA/W33	530	20.8661	780	30.7087	250	9.8425	6 973 000	1 567 000	13 200 000	2 966 300	400	670	410.00	904.05	0.28	2.4	3.6
240/560 ECA/W33	560	22.0472	820	32.2835	258	10.1575	7 621 000	1 712 600	14 600 000	3 280 900	380	630	465.00	1025.33	0.28	2.4	3.6
240/600 ECA/W33	600	23.6220	870	34.2520	272	10.7087	8 580 000	1 928 100	17 000 000	3 820 200	340	560	520.00	1146.60	0.30	2.3	3.4
240/630 ECJ/W33	630	24.8031	920	36.2205	290	11.4173	9 150 000	2 056 200	18 000 000	4 044 900	320	530	645.00	1422.23	0.28	2.4	3.6
240/670 ECA/W33	670	26.3780	980	38.5827	308	12.1260	10 435 000	2 344 900	20 400 000	4 584 300	300	500	790.00	1741.95	0.28	2.4	3.6
240/710 ECA/W33	710	27.9528	1 030	40.5512	315	12.4016	11 164 000	2 508 800	22 800 000	5 123 600	260	450	895.00	1973.48	0.27	2.5	3.7
240/750 ECA/W33	750	29.5276	1 090	42.9134	335	13.1890	12 235 000	2 749 400	25 000 000	5 618 000	240	430	1065.00	2348.33	0.28	2.4	3.6
240/800 ECA/W33	800	31.4961	1 150	45.2756	345	13.5827	13 431 000	3 018 200	28 500 000	6 404 500	220	400	1200.00	2646.00	0.27	2.5	3.7
240/850 ECA/W33	850	33.4646	1 220	48.0315	365	14.3701	15 183 000	3 411 900	31 500 000	7 078 700	200	360	1410.00	3109.05	0.27	2.5	3.7
240/900 ECA/W33	900	35.4331	1 280	50.3937	375	14.7638	16 185 000	3 637 100	34 500 000	7 752 800	190	340	1570.00	3461.85	0.26	2.6	3.9
240/950 CAF/W33	950	37.4016	1 360	53.5433	412	16.2205	17 847 000	4 010 600	39 000 000	8 764 000	170	300	1990.00	4387.95	0.27	2.5	3.7
240/1000 CAF/W33	1 000	39.3701	1 420	55.9055	412	16.2205	18 592 000	4 178 000	40 500 000	9 101 100	160	280	2140.00	4718.70	0.26	2.6	3.9
240/1060 CAF/W33	1 060	41.7323	1 500	59.0551	438	17.2441	20 724 000	4 657 100	45 500 000	10 224 700	150	260	2515.00	5545.58	0.26	2.6	3.9
240/1120 CAF/W33	1 120	44.0945	1 580	62.2047	462	18.1890	22 364 000	5 025 600	50 000 000	11 236 000	130	240	2925.00	6449.63	0.26	2.6	3.9
240/1180 CAF/W33	1 180	46.4567	1 660	65.3543	475	18.7008	25 471 000	5 723 800	58 500 000	13 146 100	130	220	3311.00	7300.76	0.26	2.6	3.9

Consult SKF USA Inc. prior to design change or order placement.



Cylindrical bore | Tapered bore | CC design | ECA & ECAC design

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Calculation factors		
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed					
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	e	Y_1	Y_2
24120 CC/W33	100	3.9370	165	6.4961	65	2.5591	468 000	105 200	640 000	143 800	2 400	3 200	5.65	12.46	0.37	1.8	2.7
24122 CC/W33	110	4.3307	180	7.0866	69	2.7165	539 000	121 100	750 000	168 500	2 000	3 000	7.10	15.66	0.37	1.8	2.7
24124 CC/W33	120	4.7244	200	7.8740	80	3.1496	679 000	152 600	950 000	213 500	1 900	2 600	10.30	22.71	0.37	1.8	2.7
24126 CC/W33	130	5.1181	210	8.2677	80	3.1496	699 000	157 100	1 000 000	224 700	1 700	2 400	11.00	24.26	0.35	1.9	2.9
24128 CC/W33	140	5.5118	225	8.8583	85	3.3465	796 000	178 900	1 160 000	260 700	1 600	2 200	13.50	29.77	0.35	1.9	2.9
24130 CC/W33	150	5.9055	250	9.8425	100	3.9370	1 054 000	236 900	1 530 000	343 800	1 400	2 000	20.00	44.10	0.37	1.8	2.7
24132 CC/W33	160	6.2992	270	10.6299	109	4.2913	1 227 000	275 700	1 760 000	395 500	1 300	1 900	25.00	55.13	0.40	1.7	2.5
24134 CC/W33	170	6.6929	280	11.0236	109	4.2913	1 270 000	285 400	1 860 000	418 000	1 200	1 800	27.50	60.64	0.37	1.8	2.7
24136 CC/W33	180	7.0866	300	11.8110	118	4.6457	1 449 000	325 600	2 160 000	485 400	1 100	1 600	34.50	76.07	0.37	1.8	2.7
24138 CC/W33	190	7.4803	320	12.5984	128	5.0394	1 652 000	371 200	2 500 000	561 800	1 100	1 500	43.00	94.82	0.40	1.7	2.5
24140 CC/W33	200	7.8740	340	13.3858	140	5.5118	1 865 000	419 100	2 800 000	629 200	1 000	1 400	53.50	117.97	0.40	1.7	2.5
24144 CC/W33	220	8.6614	370	14.5669	150	5.9055	2 197 000	493 700	3 350 000	752 800	850	1 200	67.00	147.74	0.40	1.7	2.5
24148 CC/W33	240	9.4488	400	15.7480	160	6.2992	2 489 000	559 300	3 900 000	876 400	750	1 100	83.00	183.02	0.40	1.7	2.5
24152 CC/W33	260	10.2362	440	17.3228	180	7.0866	3 086 000	693 500	4 800 000	1 078 700	670	950	110.00	242.55	0.40	1.7	2.5
24156 CC/W33	280	11.0236	460	18.1102	180	7.0866	3 183 000	715 300	5 100 000	1 146 100	630	900	120.00	264.60	0.40	1.7	2.5
24160 CC/W33	300	11.8110	500	19.6850	200	7.8740	3 876 000	871 000	6 300 000	1 415 700	560	800	160.00	352.80	0.40	1.7	2.5
24164 CC/W33	320	12.5984	540	21.2598	218	8.5827	4 395 000	987 600	7 100 000	1 595 500	500	700	210.00	463.05	0.40	1.7	2.5
24168 ECCJ/W33	340	13.3858	580	22.8346	243	9.5669	5 487 000	1 233 000	8 800 000	1 977 500	430	630	280.00	617.40	0.40	1.7	2.5
24168 ECAC/W33									8 650 000	1 943 800	430	630	270.00	595.35	0.40	1.7	2.5
24172 ECCJ/W33	360	14.1732	600	23.6220	243	9.5669	5 737 000	1 289 200	9 300 000	2 089 900	400	600	280.00	617.40	0.40	1.7	2.5
24176 ECA/W33	380	14.9606	620	24.4094	243	9.5669	5 936 000	1 333 900	10 000 000	2 247 200	360	530	300.00	661.50	0.37	1.8	2.7
24180 ECA/W33	400	15.7480	650	25.5906	250	9.8425	6 331 000	1 422 700	10 600 000	2 382 000	340	500	340.00	749.70	0.37	1.8	2.7
24184 ECA/W33	420	16.5354	700	27.5591	280	11.0236	7 577 000	1 702 700	12 500 000	2 809 000	320	480	445.00	981.23	0.40	1.7	2.5
24188 ECA/W33	440	17.3228	720	28.3465	280	11.0236	7 777 000	1 747 600	13 200 000	2 966 300	300	450	460.00	1014.30	0.37	1.8	2.7
24192 ECA/W33	460	18.1102	760	29.9213	300	11.8110	8 608 000	1 934 400	15 000 000	3 370 800	280	430	560.00	1234.80	0.37	1.8	2.7
24196 ECA/W33	480	18.8976	790	31.1024	308	12.1260	9 198 000	2 067 000	16 000 000	3 595 500	260	400	605.00	1334.03	0.37	1.8	2.7
241/500 ECA/W33	500	19.6850	830	32.6772	325	12.7953	10 123 000	2 274 800	17 300 000	3 887 600	260	380	700.00	1543.50	0.37	1.8	2.7
241/530 ECA/W33	530	20.8661	870	34.2520	335	13.1890	10 909 000	2 451 500	19 000 000	4 269 700	240	360	830.00	1830.15	0.37	1.8	2.7
241/560 ECJ/W33	560	22.0472	920	36.2205	355	13.9764	12 366 000	2 778 900	22 000 000	4 943 800	220	320	985.00	2171.93	0.35	1.9	2.9
241/600 ECA/W33	600	23.6220	980	38.5827	375	14.7638	13 522 000	3 038 700	24 000 000	5 393 300	200	300	1200.00	2646.00	0.37	1.8	2.7
241/630 ECA/W33	630	24.8031	1 030	40.5512	400	15.7480	15 001 000	3 371 000	27 000 000	6 067 400	190	280	1400.00	3087.00	0.37	1.8	2.7
241/670 ECA/W33	670	26.3780	1 090	42.9134	412	16.2205	16 381 000	3 681 100	29 000 000	6 516 900	180	260	1600.00	3528.00	0.37	1.8	2.7

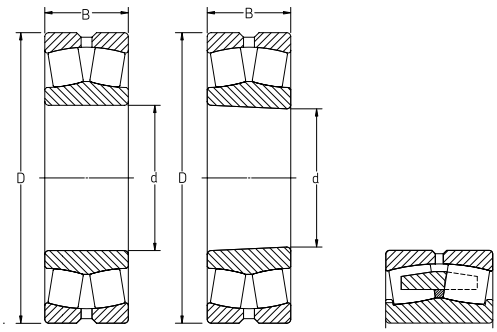
Consult SKF USA Inc. prior to design change or order placement.

SKF Explorer

Series: 241/710 ECA/W33 – 241/1000 ECAF/W33
Size: 710 mm – 1000 mm
27.9528 in – 39.3701 in

Series: 24892 CAMA/W20 – 248/1800 CAFA/W20
Size: 460 mm – 1800 mm
18.1102 in – 70.8661 in

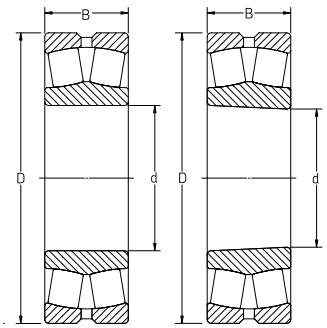
Series: 249/710 CA/W33 – 249/1320 CAF/W33
Size: 710 mm – 1320 mm
27.9528 in – 51.9685 in



Cylindrical bore | Tapered bore | CA, CAC & ECA design

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Calculation factors		
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed					
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	e	Y_1	Y_2
241/710 ECA/W33	710	27.9528	1 150	45.2756	438	17.2441	17 935 000	4 030 300	32 500 000	7 303 400	160	240	1900.00	4189.50	0.37	1.8	2.7
241/750 ECA/W33	750	29.5276	1 220	48.0315	475	18.7008	20 434 000	4 591 900	38 000 000	8 539 300	150	220	2100.00	4630.50	0.37	1.8	2.7
241/800 ECA/W33	800	31.4961	1 280	50.3937	475	18.7008	21 587 000	4 851 000	40 500 000	9 101 100	140	200	2300.00	5071.50	0.35	1.9	2.9
241/850 ECAF/W33	850	33.4646	1 360	53.5433	500	19.6850	23 827 000	5 354 400	45 000 000	10 112 400	130	190	2762.00	6090.21	0.35	1.9	2.9
241/900 ECAF/W33	900	35.4331	1 420	55.9055	515	20.2756	25 310 000	5 687 600	49 000 000	11 011 200	120	180	3350.00	7386.75	0.35	1.9	2.9
241/950 ECAF/W33	950	37.4016	1 500	59.0551	545	21.4567	27 892 000	6 267 900	55 000 000	12 359 600	110	160	3535.00	7794.68	0.35	1.9	2.9
241/1000 ECAF/W33	1 000	39.3701	1 580	62.2047	580	22.8346	31 174 000	7 005 400	62 000 000	13 932 600	100	150	4300.00	9481.50	0.35	1.9	2.9
24892 CAMA/W20	460	18.1102	580	22.8346	118	4.6457	2 082 000	467 900	4 900 000	1 101 100	630	1 100	75.50	166.48	0.17	4.0	5.9
248/530 CAMA/W20	530	20.8661	650	25.5906	118	4.6457	2 124 000	477 300	5 300 000	1 191 000	530	950	86.00	189.63	0.15	4.5	6.7
248/670 CAMA/W20	670	26.3780	820	32.2835	150	5.9055	3 598 000	808 500	9 500 000	2 134 800	400	700	172.00	379.26	0.16	4.2	6.3
248/800 CAMA/W20	800	31.4961	980	38.5827	180	7.0866	4 780 000	1 074 200	12 900 000	2 898 900	320	560	300.00	661.50	0.15	4.5	6.7
248/900 CAMA/W20	900	35.4331	1 090	42.9134	190	7.4803	5 428 000	1 219 800	15 300 000	3 438 200	240	480	370.00	815.85	0.14	4.8	7.2
248/1500 CAFA/W20	1 500	59.0551	1 820	71.6535	315	12.4016	14 684 000	3 299 800	45 000 000	10 112 400	110	220	1710.00	3770.55	0.15	4.5	6.7
248/1800 CAFA/W20	1 800	70.8661	2 180	85.8268	375	14.7638	20 274 000	4 556 000	63 000 000	14 157 300	75	140	2900.00	6394.50	0.15	4.5	6.7
249/710 CA/W33	710	27.9528	950	37.4016	243	9.5669	6 860 000	1 541 600	15 600 000	3 505 600	300	500	495.00	1091.48	0.22	3.0	4.6
249/750 CA/W33	750	29.5276	1 000	39.3701	250	9.8425	7 699 000	1 730 100	18 000 000	4 044 900	280	480	560.00	1234.80	0.22	3.0	4.6
249/800 CA/W33	800	31.4961	1 060	41.7323	258	10.1575	8 136 000	1 828 300	19 300 000	4 337 100	240	430	640.00	1411.20	0.21	3.2	4.8
249/850 CA/W33	850	33.4646	1 120	44.0945	272	10.7087	9 390 000	2 110 100	22 800 000	5 123 600	220	400	740.00	1631.70	0.22	3.0	4.6
249/950 CA/W33	950	37.4016	1 250	49.2126	300	11.8110	10 701 000	2 404 700	26 000 000	5 842 700	180	340	1015.00	2238.08	0.21	3.2	4.8
249/1000 CA/W33	1 000	39.3701	1 320	51.9685	315	12.4016	11 939 000	2 682 900	29 000 000	6 516 900	170	320	1200.00	2646.00	0.21	3.2	4.8
249/1060 CAF/W33	1 060	41.7323	1 400	55.1181	335	13.1890	13 354 000	3 000 900	32 500 000	7 303 400	160	280	1400.00	3087.00	0.21	3.2	4.8
249/1120 CAF/W33	1 120	44.0945	1 460	57.4803	335	13.1890	13 718 000	3 082 700	34 500 000	7 752 800	140	260	1500.00	3307.50	0.20	3.4	5.0
249/1180 CAF/W33	1 180	46.4567	1 540	60.6299	355	13.9764	15 751 000	3 539 600	40 500 000	9 101 100	130	240	1800.00	3969.00	0.20	3.4	5.0
249/1320 CAF/W33	1 320	51.9685	1 720	67.7165	400	15.7480	18 714 000	4 205 400	49 000 000	11 011 200	110	200	2500.00	5512.50	0.21	3.2	4.8

Consult SKF USA Inc. prior to design change or order placement.



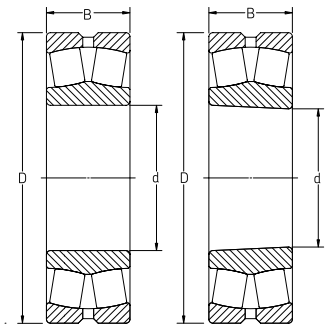
Cylindrical bore Tapered bore

Designation	Principal dimensions						Basic load ratings				Speed rating	Mass		Calculation factors		
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Limiting speed					
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	kg	lb	e	Y_1	Y_2
BS2-2205-2RS	25	0.9843	52	2.0472	23	0.9055	49 900	11 210	44 000	9 890	6 100	0.3	0.6	0.35	1.9	2.9
BS2-2206-2RS	30	1.1811	62	2.4409	25	0.9843	66 100	14 850	60 000	13 480	5 100	0.3	0.7	0.31	2.2	3.3
BS2-2207-2RS	35	1.3780	72	2.8346	28	1.1024	88 800	19 960	85 000	19 100	4 300	0.5	1.1	0.31	2.2	3.3
BS2-2208-2RS	40	1.5748	80	3.1496	28	1.1024	98 500	22 130	90 000	20 220	3 900	0.6	1.3	0.28	2.4	3.6
BS2-2209-2RS	45	1.7717	85	3.3465	28	1.1024	104 000	23 370	98 000	22 020	3 500	0.7	1.5	0.26	2.6	3.9
BS2-2210-2RS	50	1.9685	90	3.5433	28	1.1024	107 000	24 040	108 000	24 270	3 200	0.7	1.5	0.24	2.8	4.2
BS2-2211-2RS	55	2.1654	100	3.9370	31	1.2205	129 000	28 990	127 000	28 540	2 900	1.0	2.2	0.24	2.8	4.2
BS2-2212-2RS	60	2.3622	110	4.3307	34	1.3386	159 000	35 730	166 000	37 300	2 700	1.3	2.9	0.24	2.8	4.2
BS2-2213-2RS	65	2.5591	120	4.7244	38	1.4961	198 000	44 490	216 000	48 540	2 400	1.6	3.5	0.24	2.8	4.2
BS2-2214-2RS	70	2.7559	125	4.9213	38	1.4961	213 000	47 870	228 000	51 200	2 300	1.8	4.0	0.23	2.9	4.4
BS2-2215-2RS	75	2.9528	130	5.1181	38	1.4961	217 000	48 760	240 000	53 900	2 200	2.1	4.6	0.22	3.0	4.6
BS2-2216-2RS	80	3.1496	140	5.5118	40	1.5748	243 000	54 600	270 000	60 700	2 000	2.4	5.3	0.22	3.0	4.6
BS2-2217-2RS	85	3.3465	150	5.9055	44	1.7323	291 000	65 400	325 000	73 000	1 900	3.0	6.6	0.22	3.0	4.6
BS2-2218-2RS	90	3.5433	160	6.2992	48	1.8898	331 000	74 400	375 000	84 300	1 800	3.7	8.2	0.24	2.8	4.2
BS2-2219-2RS	95	3.7402	170	6.6929	51	2.0079	393 000	88 300	450 000	101 100	1 700	4.7	10.3	0.24	2.8	4.2
BS2-2220-2RS5	100	3.9370	180	7.0866	55	2.1654	433 000	97 300	490 000	110 100	1 600	5.5	12.1	0.24	2.8	4.2
BS2-2222-2RS5	110	4.3307	200	7.8740	63	2.4803	572 000	128 500	640 000	143 800	1 500	7.6	16.8	0.25	2.7	4.0
BS2-2224-2RS5	120	4.7244	215	8.4646	69	2.7165	652 000	146 500	765 000	171 900	1 400	9.8	21.5	0.26	2.6	3.9
BS2-2226-2CS5	130	5.1181	230	9.0551	75	2.9528	758 000	170 300	930 000	209 000	700	11.0	24.3	0.27	2.5	3.7
22228-2CS5	140	5.5118	250	9.8425	68	2.6772	744 000	167 200	900 000	202 200	670	14.0	30.9	0.24	2.8	4.2
22230-2CS5	150	5.9055	270	10.6299	73	2.8740	899 000	202 000	1 080 000	242 700	630	18.0	39.7	0.24	2.8	4.2
22232-2CS5	160	6.2992	290	11.4173	80	3.1496	1 044 000	234 600	1 290 000	289 900	600	22.5	49.6	0.25	2.7	4.0
22234-2CS5	170	6.6929	310	12.2047	86	3.3858	1 185 000	266 300	1 460 000	328 100	500	28.5	62.8	0.25	2.7	4.0
22236-2CS5	180	7.0866	320	12.5984	86	3.3858	1 239 000	278 400	1 560 000	350 600	530	28.9	63.7	0.24	2.8	4.2
22238-2CS5	190	7.4803	340	13.3858	92	3.6220	1 345 000	302 200	1 700 000	382 000	480	34.9	77.0	0.24	2.8	4.2
22240-2CS5	200	7.8740	360	14.1732	98	3.8583	1 529 000	343 600	1 930 000	433 700	430	42.1	92.8	0.24	2.8	4.2
22244-2CS5	220	8.6614	400	15.7480	108	4.2520	1 839 000	413 300	2 360 000	530 300	380	58.2	128.3	0.25	2.7	4.0

Consult SKF USA Inc. prior to design change or order placement.

SKF Explorer
Sealed Spherical Roller Bearing
Series: BS2-2310-2RS – BS2-2224-2RS5
Size: 50 mm – 120 mm
1.9685 in – 4.7244 in

Series: BS2-2308-2RS – 23044-2CS5
Size: 40 mm – 220 mm
1.5748 in – 8.6614 in



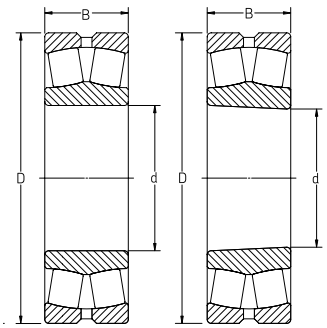
Cylindrical bore Tapered bore

Designation	Principal dimensions						Basic load ratings				Speed rating	Mass		Calculation factors		
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Limiting speed					
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	kg	lb	e	Y_1	Y_2
BS2-2310-2RS	50	1.9685	110	4.3307	45	1.7717	228 000	51 200	224 000	50 300	3 000	2.1	4.6	0.37	1.8	2.7
BS2-2311-2RS	55	2.1654	120	4.7244	49	1.9291	280 000	62 900	280 000	62 900	2 800	2.8	6.2	0.35	1.9	2.9
BS2-2312-2RS	60	2.3622	130	5.1181	53	2.0866	325 000	73 000	335 000	75 300	2 500	3.4	7.5	0.35	1.9	2.9
BS2-2313-2RS	65	2.5591	140	5.5118	56	2.2047	357 000	80 200	360 000	80 900	2 400	4.2	9.2	0.35	1.9	2.9
BS2-2314-2RS	70	2.7559	150	5.9055	60	2.3622	413 000	92 800	430 000	96 600	2 100	5.1	11.2	0.33	2.0	3.0
BS2-2315-2RS	75	2.9528	160	6.2992	64	2.5197	462 000	103 800	475 000	106 700	2 100	6.5	14.3	0.35	1.9	2.9
BS2-2316-2RS	80	3.1496	170	6.6929	67	2.6378	516 000	116 000	530 000	119 100	2 000	7.2	15.9	0.35	1.9	2.9
BS2-2318-2RS5	90	3.5433	190	7.4803	73	2.8740	637 000	143 100	695 000	156 200	1 700	9.8	21.6	0.33	2.0	3.0
22324-2CS5	120	4.7244	260	10.2362	86	3.3858	1 022 000	229 700	1 120 000	251 700	600	23.0	50.7	0.33	2.0	3.0
22326-2CS5	130	5.1181	280	11.0236	93	3.6614	1 178 000	264 700	1 320 000	296 600	500	29.0	63.9	0.33	2.0	3.0
22328-2CS5	140	5.5118	300	11.8110	102	4.0157	1 359 000	305 400	1 560 000	350 600	430	36.5	80.5	0.33	2.0	3.0
22330-2CS5	150	5.9055	320	12.5984	108	4.2520	1 541 000	346 300	1 760 000	395 500	400	43.5	95.9	0.33	2.0	3.0
22332-2CS5	160	6.2992	340	13.3858	114	4.4882	1 683 000	378 200	1 960 000	440 400	380	52.0	114.7	0.33	2.0	3.0
22338-2CS5	190	7.4803	400	15.7480	132	5.1969	2 236 000	502 500	2 650 000	595 500	340	77.7	171.3	0.33	2.0	3.0
22344-2CS5	220	8.6614	460	18.1102	145	5.7087	2 844 000	639 100	3 450 000	775 300	300	114.3	252.0	0.30	2.3	3.4
BS2-2220-2RS5	100	3.9370	180	7.0866	55	2.1654	433 000	97 300	490 000	110 100	1 600	5.5	12.1	0.24	2.8	4.2
BS2-2222-2RS5	110	4.3307	200	7.8740	63	2.4803	572 000	128 500	640 000	143 800	1 500	7.6	16.8	0.25	2.7	4.0
BS2-2224-2RS5	120	4.7244	215	8.4646	69	2.7165	652 000	146 500	765 000	171 900	1 400	9.8	21.5	0.26	2.6	3.9
BS2-2308-2RS	40	1.5748	90	3.5433	38	1.4961	155 000	34 830	140 000	31 460	3 900	1.2	2.6	0.37	1.8	2.7
BS2-2309-2RS	45	1.7717	100	3.9370	42	1.6535	190 000	42 700	183 000	41 120	3 400	1.6	3.5	0.37	1.8	2.7
23022-2RS	110	4.3307	170	6.6929	45	1.7717	326 000	73 300	440 000	98 900	1 500	3.8	8.4	0.21	3.2	4.8
23024-2RS5	120	4.7244	180	7.0866	46	1.8110	367 000	82 500	500 000	112 400	1 400	4.2	9.3	0.20	3.4	5.0
23026-2CS5	130	5.1181	200	7.8740	52	2.0472	452 000	101 600	610 000	137 100	800	6.0	13.2	0.21	3.2	4.8
23028-2CS5	140	5.5118	210	8.2677	53	2.0866	485 000	109 000	680 000	152 800	700	6.6	14.4	0.20	3.4	5.0
23030-2CS5	150	5.9055	225	8.8583	56	2.2047	532 000	119 600	750 000	168 500	670	8.0	17.5	0.20	3.4	5.0
23032-2CS5	160	6.2992	240	9.4488	60	2.3622	615 000	138 200	880 000	197 800	670	9.7	21.4	0.20	3.4	5.0
23034-2CS5	170	6.6929	260	10.2362	67	2.6378	746 000	167 600	1 080 000	242 700	630	13.0	28.7	0.22	3.0	4.6
23036-2CS5	180	7.0866	280	11.0236	74	2.9134	884 000	198 700	1 270 000	285 400	560	17.0	37.5	0.22	3.0	4.6
23040-2CS5	200	7.8740	310	12.2047	82	3.2283	1 059 000	238 000	1 530 000	343 800	480	22.0	48.5	0.22	3.0	4.6
23044-2CS5	220	8.6614	340	13.3858	90	3.5433	1 262 000	283 600	1 860 000	418 000	430	28.9	63.7	0.22	3.0	4.6

Consult SKF USA Inc. prior to design change or order placement.

SKF Explorer
Sealed Spherical Roller Bearing
Series: 23048-2CS5 – 23088-2CS5
Size: 240 mm – 440 mm
9.4488 in – 17.3228 in

Series: 23120-2RS5 – 23196-2CS5
Size: 100 mm – 480 mm
3.9370 in – 18.8976 in



Cylindrical bore Tapered bore

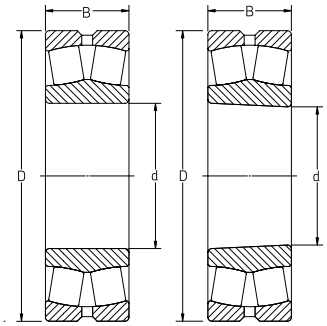
Designation	Principal dimensions						Basic load ratings				Speed rating	Mass		Calculation factors		
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Limiting speed					
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	kg	lb	e	Y_1	Y_2
23048-2CS5	240	9.4488	360	14.1732	92	3.6220	1 341 000	301 300	2 080 000	467 400	400	31.8	70.1	0.21	3.2	4.8
23052-2CS5	260	10.2362	400	15.7480	104	4.0945	1 677 000	376 900	2 550 000	573 000	360	45.9	101.2	0.22	3.0	4.6
23060-2CS5	300	11.8110	460	18.1102	118	4.6457	2 222 000	499 300	3 450 000	775 300	320	71.5	157.7	0.22	3.0	4.6
23064-2CS5	320	12.5984	480	18.8976	121	4.7638	2 348 000	527 600	3 800 000	853 900	320	7.6	16.6	0.23	2.9	4.4
23080-2CS5	400	15.7480	600	23.6220	148	5.8268	3 515 000	789 900	5 850 000	1 314 600	240	143.3	316.0	0.21	3.2	4.8
23088-2CS5	440	17.3228	650	25.5906	157	6.1811	3 834 000	861 600	6 550 000	1 471 900	190	178.0	392.5	0.21	3.2	4.8
23120-2RS5	100	3.9370	165	6.4961	52	2.0472	386 000	86 700	490 000	110 100	1 700	4.6	10.0	0.27	2.5	3.7
23122-2CS5	110	4.3307	180	7.0866	56	2.2047	451 000	101 300	585 000	131 500	800	5.8	12.7	0.27	2.5	3.7
23124-2CS5	120	4.7244	200	7.8740	62	2.4409	535 000	120 200	695 000	156 200	720	7.6	16.6	0.27	2.5	3.7
23130-2CS5	150	5.9055	250	9.8425	80	3.1496	884 000	198 700	1 200 000	269 700	560	16.0	35.3	0.28	2.4	3.6
23132-2CS5	160	6.2992	270	10.6299	86	3.3858	1 030 000	231 500	1 400 000	314 600	530	20.5	45.2	0.28	2.4	3.6
23134-2CS5	170	6.6929	280	11.0236	88	3.4646	1 088 000	244 500	1 500 000	337 100	480	22.0	48.5	0.28	2.4	3.6
23136-2CS5	180	7.0866	300	11.8110	96	3.7795	1 264 000	284 000	1 800 000	404 500	430	28.0	61.7	0.28	2.4	3.6
23138-2CS5	190	7.4803	320	12.5984	104	4.0945	1 458 000	327 600	2 080 000	467 400	400	35.0	77.2	0.30	2.3	3.4
23140-2CS5	200	7.8740	340	13.3858	112	4.4094	1 668 000	374 800	2 360 000	530 300	380	43.0	94.8	0.30	2.3	3.4
23144-2CS5	220	8.6614	370	14.5669	120	4.7244	1 891 000	424 900	2 750 000	618 000	360	53.5	118.0	0.28	2.4	3.6
23148-2CS5	240	9.4488	400	15.7480	128	5.0394	2 191 000	492 400	3 200 000	719 100	340	66.5	146.6	0.28	2.4	3.6
23152-2CS5	260	10.2362	440	17.3228	144	5.6693	2 668 000	599 600	3 900 000	876 400	320	90.5	199.6	0.30	2.3	3.4
23156-2CS5	280	11.0236	460	18.1102	146	5.7480	2 788 000	626 500	4 250 000	955 100	300	97.0	213.9	0.28	2.4	3.6
23160-2CS5	300	11.8110	500	19.6850	160	6.2992	3 373 000	758 000	5 100 000	1 146 100	260	125.0	275.6	0.28	2.4	3.6
23164-2CS5	320	12.5984	540	21.2598	176	6.9291	3 929 000	882 900	6 100 000	1 370 800	260	165.0	363.8	0.30	2.3	3.4
23168-2CS5	340	13.3858	580	22.8346	190	7.4803	4 452 000	1 000 400	6 800 000	1 528 100	240	210.0	463.1	0.30	2.3	3.4
23172-2CS5	360	14.1732	600	23.6220	192	7.5591	4 521 000	1 016 000	6 950 000	1 561 800	220	213.2	470.1	0.28	2.4	3.6
23176-2CS5	380	14.9606	620	24.4094	194	7.6378	4 561 000	1 024 900	7 100 000	1 595 500	160	232.0	511.6	0.30	2.3	3.4
23180-2CS5	400	15.7480	650	25.5906	200	7.8740	4 864 000	1 093 000	7 650 000	1 719 100	150	255.0	562.3	0.28	2.4	3.6
23184-2CS5	420	16.5354	700	27.5591	224	8.8189	5 919 000	1 330 100	9 300 000	2 089 900	190	350.0	771.8	0.30	2.3	3.4
23188-2CS5	440	17.3228	720	28.3465	226	8.8976	6 220 000	1 397 800	10 000 000	2 247 200	180	360.0	793.8	0.28	2.4	3.6
23192-2CS5	460	18.1102	760	29.9213	240	9.4488	6 765 000	1 520 200	10 800 000	2 427 000	128	427.0	941.5	0.30	2.3	3.4
23196-2CS5	480	18.8976	790	31.1024	248	9.7638	7 367 000	1 655 500	12 000 000	2 696 600	170	485.0	1069.4	0.30	2.3	3.4

Consult SKF USA Inc. prior to design change or order placement.

SKF Explorer
Sealed Spherical Roller Bearing
Series: 23220-2RS – 23284-2CS5
Size: 100 mm – 420 mm
3.9370 in – 16.5354 in

Series: 23944-2CS
Size: 220 mm
8.6614 in

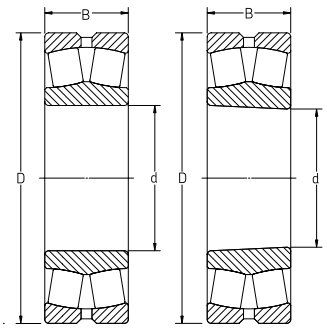
Series: 24013-2RS5W – 24060-2CS5
Size: 65 mm – 300 mm
2.5591 in – 11.8110 in



Cylindrical bore Tapered bore

Designation	Principal dimensions						Basic load ratings				Speed rating	Mass		Calculation factors		
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Limiting speed					
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	kg	lb	e	Y_1	Y_2
23220-2RS	100	3.9370	180	7.0866	60.3	2.3740	499 000	112 100	600 000	134 800	1 600	6.9	15.1	0.30	2.3	3.4
23220-2RS5			180	7.0866	60.3	2.3740	499 000	112 100	600 000	134 800	1 600	6.9	15.1	0.30	2.3	3.4
23222-2CS5	110	4.3307	200	7.8740	69.8	2.7480	627 000	140 900	765 000	171 900	640	9.9	21.7	0.33	2.0	3.0
23224-2CS5	120	4.7244	215	8.4646	76	2.9921	734 000	164 900	930 000	209 000	600	12.0	26.5	0.33	2.0	3.0
23226-2CS5	130	5.1181	230	9.0551	80	3.1496	828 000	186 100	1 060 000	238 200	530	14.5	32.0	0.31	2.2	3.3
23228-2CS5	140	5.5118	250	9.8425	88	3.4646	963 000	216 400	1 250 000	280 900	480	19.0	41.9	0.33	2.0	3.0
23230-2CS5	150	5.9055	270	10.6299	96	3.7795	1 132 000	254 400	1 460 000	328 100	430	24.5	54.0	0.33	2.0	3.0
23240-2CS5	200	7.8740	360	14.1732	128	5.0394	1 950 000	438 200	2 700 000	606 700	340	58.0	127.9	0.33	2.0	3.0
23272-2CS5	360	14.1732	650	25.5906	232	9.1339	5 669 000	1 273 900	8 300 000	1 865 200	160	332.0	732.1	0.35	1.9	2.9
23284-2CS5	420	16.5354	760	29.9213	272	10.7087	7 683 000	1 726 500	11 600 000	2 606 700	128	535.0	1179.7	0.35	1.9	2.9
23944-2CS	220	8.6614	300	11.8110	60	2.3622	662 000	148 800	1 080 000	242 700	600	12.5	27.6	0.15	4.5	6.7
24013-2RS5W	65	2.5591	100	3.9370	35	1.3780	137 000	30 790	173 000	38 880	2 600	1.0	2.1	0.27	2.5	3.7
24015-2RS5	75	2.9528	115	4.5276	40	1.5748	181 000	40 670	232 000	52 100	2 300	1.6	3.4	0.28	2.4	3.6
24020-2RS5	100	3.9370	150	5.9055	50	1.9685	296 000	66 500	415 000	93 300	1 700	3.2	6.9	0.28	2.4	3.6
24022-2RS5	110	4.3307	170	6.6929	60	2.3622	438 000	98 400	620 000	139 300	1 600	5.0	11.0	0.30	2.3	3.4
24024-2CS5	120	4.7244	180	7.0866	60	2.3622	457 000	102 700	670 000	150 600	670	5.5	12.0	0.28	2.4	3.6
24026-2CS5	130	5.1181	200	7.8740	69	2.7165	570 000	128 100	830 000	186 500	600	8.1	17.8	0.30	2.3	3.4
24028-2CS5	140	5.5118	210	8.2677	69	2.7165	601 000	135 100	900 000	202 200	560	8.6	18.9	0.28	2.4	3.6
24030-2CS5	150	5.9055	225	8.8583	75	2.9528	681 000	153 000	1 040 000	233 700	530	10.5	23.2	0.28	2.4	3.6
24032-2CS5	160	6.2992	240	9.4488	80	3.1496	784 000	176 200	1 200 000	269 700	450	13.0	28.7	0.28	2.4	3.6
24034-2CS5	170	6.6929	260	10.2362	90	3.5433	966 000	217 100	1 500 000	337 100	400	17.5	38.6	0.30	2.3	3.4
24036-2CS5	180	7.0866	280	11.0236	100	3.9370	1 136 000	255 300	1 730 000	388 800	380	23.0	50.7	0.31	2.2	3.3
24060-2CS5	300	11.8110	460	18.1102	160	6.2992	2 827 000	635 300	4 750 000	1 067 400	240	95.0	209.5	0.31	2.2	3.3

Consult SKF USA Inc. prior to design change or order placement.



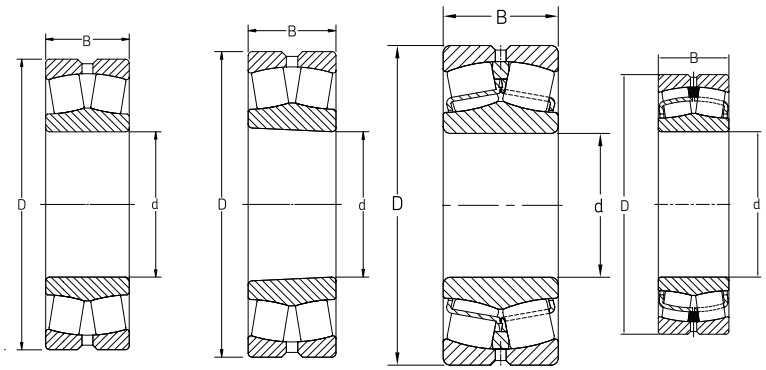
Cylindrical bore Tapered bore

Designation	Principal dimensions						Basic load ratings				Speed rating	Mass		Calculation factors		
	Bore d		Outside dimeter D		Width B		Dynamic C		Static C_0		Limiting speed					
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	kg	lb	e	Y_1	Y_2
24120-2RS5	100	3.9370	165	6.4961	65	2.5591	470 000	105 600	640 000	143 800	1 700	5.7	12.5	0.35	1.9	2.9
24122-2CS5	110	4.3307	180	7.0866	69	2.7165	540 000	121 300	750 000	168 500	630	7.1	15.7	0.35	1.9	2.9
24124-2CS5	120	4.7244	200	7.8740	80	3.1496	680 000	152 800	950 000	213 500	560	10.3	22.7	0.37	1.8	2.7
24126-2CS5	130	5.1181	210	8.2677	80	3.1496	701 000	157 500	1 000 000	224 700	530	11.0	24.3	0.33	2.0	3.0
24128-2CS5	140	5.5118	225	8.8583	85	3.3465	797 000	179 100	1 160 000	260 700	450	13.5	29.8	0.35	1.9	2.9
24130-2CS5	150	5.9055	250	9.8425	100	3.9370	1 056 000	237 300	1 530 000	343 800	400	20.0	44.1	0.37	1.8	2.7
24132-2CS5	160	6.2992	270	10.6299	109	4.2913	1 229 000	276 200	1 760 000	395 500	380	25.0	55.1	0.37	1.8	2.7
24134-2CS5	170	6.6929	280	11.0236	109	4.2913	1 273 000	286 100	1 860 000	418 000	360	27.5	60.6	0.35	1.9	2.9
24136-2CS5	180	7.0866	300	11.8110	118	4.6457	1 452 000	326 300	2 160 000	485 400	360	34.5	76.1	0.37	1.8	2.7
24138-2CS5	190	7.4803	320	12.5984	128	5.0394	1 655 000	371 900	2 500 000	561 800	340	43.0	94.8	0.37	1.8	2.7
24140-2CS5	200	7.8740	340	13.3858	140	5.5118	1 871 000	420 400	2 800 000	629 200	320	53.5	118.0	0.37	1.8	2.7
24152-2CS5	260	10.2362	440	17.3228	180	7.0866	3 092 000	694 800	4 900 000	1 101 100	240	109.0	240.3	0.40	1.7	2.5
24156-2CS5	280	11.0236	460	18.1102	180	7.0866	3 190 000	716 900	5 100 000	1 146 100	220	115.0	253.6	0.37	1.8	2.7
24160-2CS5	300	11.8110	500	19.6850	200	7.8740	3 881 000	872 100	6 300 000	1 415 700	212	156.0	344.0	0.37	1.8	2.7

Consult SKF USA Inc. prior to design change or order placement.

Shaker screen
SKF Explorer
Series: 22308 E/VA405 – 22322 EJA/VA405
Size: 40 mm – 110 mm
1.5748 in – 4.3307 in

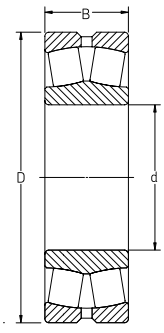
Series: 22324 CCJA/W33VA405 – 22348 CCJA/W33VA405
Size: 120 mm – 240 mm
4.7224 in – 19.6850 in



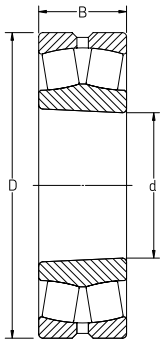
Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Calculation factors		
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed			e	Y_1	Y_2
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	-	-	-
22308 E/VA405	40	1.5748	90	3.5433	33	1.2992	155 000	34 830	137 000	30 790	6 000	8 000	1.05	2.32	0.37	1.80	2.70
22309 E/VA405	45	1.7717	100	3.9370	36	1.4173	190 000	42 700	176 000	39 550	5 300	7 000	1.40	3.09	0.37	1.80	2.70
22310 E/VA405	50	1.9685	110	4.3307	40	1.5748	228 000	51 200	216 000	48 540	4 800	6 300	1.90	4.19	0.37	1.80	2.70
22311 E/VA405	55	2.1654	120	4.7244	43	1.6929	280 000	62 900	280 000	62 900	4 300	5 600	2.45	5.40	0.35	1.90	2.90
22312 E/VA405	60	2.3622	130	5.1181	46	1.8110	325 000	73 000	335 000	75 300	4 000	5 300	3.10	6.84	0.35	1.90	2.90
22313 E/VA405	65	2.5591	140	5.5118	48	1.8898	357 000	80 200	360 000	80 900	3 800	5 000	3.75	8.27	0.35	1.90	2.90
22314 E/VA405	70	2.7559	150	5.9055	51	2.0079	413 000	92 800	430 000	96 600	3 400	4 500	4.55	10.03	0.33	2.00	3.00
22315 EJA/VA405	75	2.9528	160	6.2992	55	2.1654	462 000	103 800	475 000	106 700	3 200	4 300	5.55	12.24	0.35	1.90	2.90
22316 EJA/VA405	80	3.1496	170	6.6929	58	2.2835	516 000	116 000	530 000	119 100	3 000	4 000	6.60	14.55	0.35	1.90	2.90
22317 EJA/VA405	85	3.3465	180	7.0866	60	2.3622	577 000	129 700	620 000	139 300	2 800	3 800	7.65	16.87	0.33	2.00	3.00
22318 EJA/VA405	90	3.5433	190	7.4803	64	2.5197	637 000	143 100	695 000	156 200	2 600	3 600	9.05	19.96	0.33	2.00	3.00
22319 EJA/VA405	95	3.7402	200	7.8740	67	2.6378	699 000	157 100	765 000	171 900	2 600	3 400	10.50	23.15	0.33	2.00	3.00
22320 EJA/VA405	100	3.9370	215	8.4646	73	2.8740	847 000	190 300	950 000	213 500	2 400	3 000	13.50	29.77	0.33	2.00	3.00
22322 EJA/VA405	110	4.3307	240	9.4488	80	3.1496	989 000	222 200	1 120 000	251 700	2 000	2 800	18.40	40.57	0.33	2.00	3.00
22324 CCJA/W33VA405	120	4.7244	260	10.2362	86	3.3858	1 019 000	229 000	1 120 000	251 700	2 000	2 600	23.00	50.72	0.35	1.90	2.90
22326 CCJA/W33VA405	130	5.1181	280	11.0236	93	3.6614	1 176 000	264 300	1 320 000	296 600	1 800	2 400	29.00	63.95	0.35	1.90	2.90
22328 CCJA/W33VA405	140	5.5118	300	11.8110	102	4.0157	1 357 000	304 900	1 560 000	350 600	1 700	2 200	36.50	80.48	0.35	1.90	2.90
22330 CCJA/W33VA405	150	5.9055	320	12.5984	108	4.2520	1 539 000	345 800	1 760 000	395 500	1 600	2 000	43.50	95.92	0.35	1.90	2.90
22332 CCJA/W33VA405	160	6.2992	340	13.3858	114	4.4882	1 680 000	377 500	1 960 000	440 400	1 500	1 900	52.00	114.66	0.35	1.90	2.90
22334 CCJA/W33VA405	170	6.6929	360	14.1732	120	4.7244	1 863 000	418 700	2 160 000	485 400	1 400	1 800	61.00	134.51	0.33	2.00	3.00
22336 CCJA/W33VA405	180	7.0866	380	14.9606	126	4.9606	2 077 000	466 700	2 450 000	550 600	1 300	1 700	71.50	157.66	0.35	1.90	2.90
22338 CCJA/W33VA405	190	7.4803	400	15.7480	132	5.1969	2 232 000	501 600	2 650 000	595 500	1 200	1 600	82.50	181.91	0.35	1.90	2.90
22340 CCJA/W33VA405	200	7.8740	420	16.5354	138	5.4331	2 439 000	548 100	2 900 000	651 700	1 200	1 500	95.00	209.48	0.33	2.00	3.00
22344 CCJA/W33VA405	220	8.6614	460	18.1102	145	5.7087	2 839 000	638 000	3 450 000	775 300	1 000	1 400	120.00	264.60	0.31	2.20	3.30
22348 CCJA/W33VA405	240	9.4488	500	19.6850	155	6.1024	3 229 000	725 600	4 000 000	898 900	950	1 300	155.00	341.78	0.31	2.20	3.30

*** Tapered (K) bore available on limited sizes.**

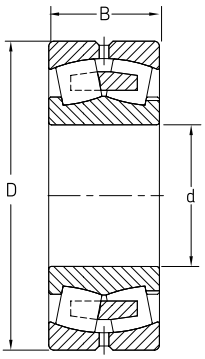
Consult SKF USA Inc. prior to design change or order placement.



Cylindrical bore



Tapered bore*



M2/W502

Shaker screen
Series: 452319 M2/W502 – 452340 M2/W502
Size: 95 mm – 200 mm
3.7402 in – 7.8740 in

Series: 453322 M2/W502 – 453332 M2/W502
Size: 110 mm – 160 mm
4.3307 in – 6.2992 in

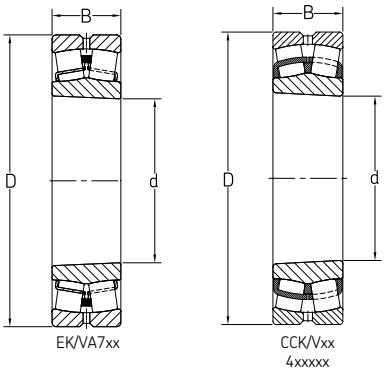
Series: 453322 EJA/VA405 – 453332 CCJA/VA405
Size: 110 mm – 160 mm
4.3307 in – 6.2992 in

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Calculation factors		
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed			e	Y_1	Y_2
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	-	-	-
452319 M2/W502	95	3.7402	200	7.8740	67	2.6378	518 000	116 400	670 000	150 600	2 400	3 400	10.00	22.00	0.35	1.90	2.90
452320 M2/W502	100	3.9370	215	8.4646	73	2.8740	610 000	137 100	800 000	179 800	2 200	3 200	13.00	28.70	0.35	1.90	2.90
452322 M2/W502	110	4.3307	240	9.4488	80	3.1496	725 000	163 000	965 000	216 900	2 000	2 800	18.00	39.70	0.35	1.90	2.90
452324 M2/W502	120	4.7244	260	10.2362	86	3.3858	845 000	190 000	1 140 000	256 300	1 800	2 600	22.00	48.50	0.35	1.90	2.90
452326 M2/W502	130	5.1181	280	11.0236	93	3.6614	978 000	219 900	1 320 000	296 700	1 700	2 400	28.50	62.80	0.35	1.90	2.90
452328 M2/W502	140	5.5118	300	11.8110	102	4.0157	1 130 000	254 000	1 560 000	350 700	1 500	2 200	34.50	76.10	0.35	1.90	2.90
452330 M2/W502	150	5.9055	320	12.5984	108	4.2520	1 290 000	290 000	1 800 000	404 600	1 400	2 000	41.50	91.50	0.35	1.90	2.90
452332 M2/W502	160	6.2992	340	13.3858	114	4.4882	1 400 000	314 700	1 960 000	440 600	1 300	1 900	50.00	110.20	0.35	1.90	2.90
452340 M2/W502	200	7.8740	420	16.5354	138	5.4331	1 020 000	229 300	2 900 000	651 900	1 100	1 500	93.00	205.00	0.33	2.00	3.00
453322 M2/W502	110	4.3307	240	9.4488	92.1	3.6260	817 000	183 700	1 100 000	247 300	1 900	2 800	20.50	45.20	0.40	1.70	2.50
453324 M2/W502	120	4.7244	260	10.2362	106	4.1732	978 000	219 900	1 340 000	301 200	1 700	2 600	27.00	59.50	0.43	1.60	2.30
453328 M2/W502	140	5.5118	300	11.8110	118	4.6457	1 240 000	278 800	1 730 000	388 900	1 500	2 200	40.90	90.20	0.40	1.70	2.50
453332 M2/W502	160	6.2992	340	13.3858	136	5.3543	1 640 000	368 700	2 400 000	539 500	1 300	1 900	60.20	132.70	0.40	1.70	2.50
453322 EJA/VA405	110	4.3307	240	9.4488	92.1	3.6260	950 000	213 600	1 120 000	251 800	2 000	2 800	20.50	45.20	0.33	2.00	3.00
453324 CCJA/VA405	120	4.7244	260	10.2362	106	4.1732	965 000	216 900	1 120 000	251 800	2 000	2 600	27.00	59.50	0.35	1.90	2.90
453326 CCJA/VA405	130	5.1181	280	11.0236	112	4.4094	1 120 000	251 800	1 320 000	296 700	1 800	2 400	35.50	78.30	0.35	1.90	2.90
453328 CCJA/VA405	140	5.5118	300	11.8110	118	4.6457	1 290 000	290 000	1 560 000	350 700	1 700	2 200	40.90	90.20	0.35	1.90	2.90
453330 CCJA/VA405	150	5.9055	320	12.5984	128	5.0394	1 460 000	328 200	1 760 000	395 600	1 600	2 000	47.50	104.70	0.35	1.90	2.90
453332 CCJA/VA405	160	6.2992	340	13.3858	136	5.3543	1 600 000	359 700	1 960 000	440 600	1 500	1 900	60.20	132.70	0.35	1.90	2.90

*** Tapered (K) bore available on limited sizes.**

Consult SKF USA Inc. prior to design change or order placement.

Printing press
Series: 22209 CCK/VA759 – 23226 VAD
Size: 45.000 mm – 130.000 mm
1.7717 in – 5.1181 in



EK/VA7xx

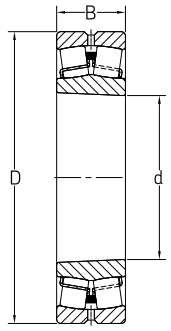
CCK/Vxx
4xxxxx

Please contact SKF Applications Engineering for tapered journal (X drawings) details.

Designation		Principal dimensions						Basic load ratings				Mass		Calculation factors		
Current	Basic/ replaced design	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0				e	Y_1	Y_2
		mm	in	mm	in	mm	in	N	lbf	N	lbf	kg	lb	-	-	-
22209 CCK/VA759	**22209 CCK/W33**	45.000	1.7717	85	3.3465	23.0	0.9055	138 000	31 000	160 000	31 100	1.35	3.00	0.26	2.6	3.9
22211 EK/VA751	**22211 VAE**	55.000	2.1654	100	3.9370	25.0	0.9843	99 500	22 400	118 000	26 500	0.82	1.80	0.24	2.8	4.2
22212 EK/VA751	**22212 VAD**	60.000	2.3622	110	4.3307	28.0	1.1024	122 000	27 000	146 000	32 800	1.10	2.45	0.24	2.8	4.2
22212 EK/VA7582‡	**22212 EK/VA751**	60.000	2.3622	110	4.3307	28.0	1.1024	122 000	27 000	146 000	32 800	1.10	2.45	0.24	2.8	4.2
22220 VAE	**22220 CCK/W33**	100.000	3.9370	180	7.0866	46.0	1.8110	311 000	70 000	415 000	93 300	4.85	10.50	0.24	2.8	4.2
22220 EK/VA751	**22220 EK/VA751**	100.000	3.9370	180	7.0866	46.0	1.8110	425 000	95 500	490 000	110 200	4.80	10.60	0.24	2.8	4.2
22230 VAB	**22230 CCK/W33**	150.000	5.9055	270	10.6299	73.0	2.8740	736 000	166 000	1 080 000	243 000	18.00	39.50	0.26	2.6	3.9
22309 EK/VA751	**450918**	45.000	1.7717	100	3.9370	36.0	1.4173	138 000	31 000	160 000	31 100	1.35	3.00	0.37	1.8	2.7
22310 EK/VA751	**467964**	50.000	1.9685	110	4.3307	40.0	1.5748	176 000	39 600	200 000	45 000	1.85	4.10	0.37	1.8	2.7
22311 EK/VA751	**22311 VAE**	55.000	2.1654	120	4.7244	43.0	1.6929	199 000	44 800	232 000	52 200	2.35	5.20	0.35	1.9	2.9
22312 EK/VA751	**467000**	60.000	2.3622	130	5.1181	46.0	1.8110	235 000	52 900	280 000	63 000	2.95	6.50	0.35	1.9	2.9
22312 EK/VA7582‡	**22312 EK/VA7583‡‡**	60.000	2.3622	130	5.1181	46.0	1.8110	235 000	52 900	280 000	63 000	2.95	6.50	0.35	1.9	2.9
22312 EK/VA7583‡‡	**22312 EK/VA751**	60.000	2.3622	130	5.1181	46.0	1.8110	235 000	52 900	280 000	63 000	2.95	6.50	0.35	1.9	2.9
22315 CCK/VA755	**22315 CCK/W33**	75.000	2.9528	160	6.2992	55.0	2.1654	345 000	77 600	430 000	96 700	5.25	11.50	0.35	1.9	2.9
22315 VAE‡‡	**466915**	75.000	2.9528	160	6.2992	55.0	2.1654	345 000	77 600	430 000	96 700	5.25	11.50	0.35	1.9	2.9
22315 VAH‡	**22315 VAE‡‡**	75.000	2.9528	160	6.2992	55.0	2.1654	345 000	77 600	430 000	96 700	5.25	11.50	0.35	1.9	2.9
22319 VAC	**22319 CCK/W33**	95.000	3.7402	200	7.8740	67.0	2.6378	518 000	117 000	670 000	151 000	10.00	22.00	0.35	1.9	2.9
23122 VAF	**23122 CCK/W33**	110.000	4.3307	180	7.0866	56.0	2.2047	374 000	84 000	585 000	132 000	5.45	12.00	0.30	2.3	3.4
23124 VAA	**23124 CCK/W33**	120.000	4.7244	200	7.7840	62.0	2.4409	437 000	98 300	695 000	156 000	7.80	17.00	0.28	2.4	3.6
23130 VAA**	**23130 CCK/W33**	151.333	5.9579	250	9.8425	80.0	3.1496	725 000	163 000	1 200 000	270 000	16.00	35.50	0.30	2.3	3.4
23220 VAA	**23220 CCK/W33**	100.000	3.9370	180	7.0866	60.3	2.3470	414 000	93 200	600 000	135 000	6.70	15.00	0.33	2.0	3.0
ECB 23220 VAA	**EVB 23220 VAA**	100.000	3.9370	180	7.0866	60.3	2.3470	414 000	93 200	600 000	135 000	6.70	15.00	0.33	2.0	3.0
23222 CCK/VA756	**23222 CCK/W33**	110.000	4.3307	200	7.8740	69.8	2.7480	518 000	117 000	765 000	172 000	9.70	21.50	0.33	2.0	3.0
23226 VAD	**23226 CCK/W33**	130.000	5.1181	230	9.0551	80.0	3.1496	690 000	155 000	1 060 000	238 000	14.00	31.00	0.33	2.0	3.0

* Special bore size
** Controlled inner ring width
‡ Coater roll bearing w/ .000050 runout max
‡‡ Coater roll bearing w/ .000075 runout max.

Consult SKF USA Inc. prior to design change or order placement.



45xxxx & 46xxxx

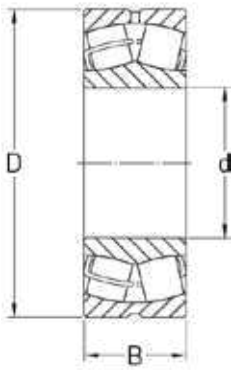
Please contact SKF Applications Engineering for tapered journal (X drawings) details.

Designation		Principal dimensions						Basic load ratings				Mass		Calculation factors		
Current	Basic/ replaced design	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0				e	Y_1	Y_2
		mm	in	mm	in	mm	in	N	lbf	N	lbf	kg	lb	-	-	-
453538	**22210 CCK/W33**	50.000	1.9685	90	3.5433	23.0	.9055	84 500	19 000	100 000	22 500	0.60	1.30	0.24	2.8	4.2
454548	**23126 CCK/W33**	130.000	5.1181	210	8.2677	64.0	2.5197	489 000	110 000	780 000	175 000	8.55	19.00	0.28	2.4	3.6
458681	**22217 CCK/W33**	85.000	3.3465	150	5.9055	36.0	1.4173	210 000	47 200	270 000	60 700	2.55	5.60	0.22	3.0	4.6
465123	**22216 CCK/W33**	80.000	3.1496	140	5.5118	33.0	1.2992	176 000	39 600	228 000	51 300	2.05	4.50	0.22	3.0	4.6
466144	**23122 CCK/W33**	110.000	4.3307	180	7.0866	56.0	2.2047	374 000	84 000	585 000	132 000	5.45	12.00	0.30	2.3	3.4
466144 A**	**23122 CCK/W33**	110.000	4.3307	180	7.0866	56.0	2.2047	374 000	84 000	585 000	132 000	5.45	12.00	0.30	2.3	3.4
466713	**23230 CCK/W33**	150.000	5.9055	270	10.6299	96.0	3.7795	937 000	211 000	1 460 000	328 000	24.00	53.00	0.35	1.9	2.9
466816	**23226 CCK/W33**	130.000	5.1181	230	9.0551	80.0	3.1496	690 000	155 000	1 060 000	238 000	14.00	31.00	0.33	2.0	3.0
466817	**23228 CCK/W33**	140.000	5.5118	250	9.8425	88.0	3.4646	799 000	180 000	1 250 000	281 000	18.50	41.00	0.33	2.0	3.0
466915	**22315 CCK/W33**	75.000	2.9528	160	6.2992	55.0	2.1654	345 000	77 600	430 000	96 700	5.25	11.50	0.35	1.9	2.9
467304	**22314 CCK/W33**	70.000	2.7559	150	5.9055	51.0	2.0079	311 000	70 000	380 000	85 400	4.30	9.50	0.35	1.9	2.9
467311	**22316 CCK/W33**	80.000	3.1496	170	6.6929	58.0	2.2835	374 000	84 200	455 000	102 000	6.20	13.50	0.35	1.9	2.9
467315	**22317 CCK/W33**	85.000	3.3465	180	7.0866	60.0	2.3622	420 000	94 500	520 000	117 000	7.25	16.00	0.33	2.0	3.0
467418	**22218 CCK/W33**	90.000	3.5433	160	6.2992	40.0	1.5748	253 000	56 900	340 000	76 400	3.25	7.15	0.23	2.9	4.4
468043	**23222 CCK/W33**	110.000	4.3307	200	7.8740	69.8	2.7480	518 000	117 000	765 000	172 000	9.70	21.50	0.33	2.0	3.0
468603	**22222 CCK/W33**	110.000	4.3307	200	7.8740	53.0	2.0866	408 000	91 800	560 000	126 000	7.00	15.50	0.25	2.7	4.0

* Special bore size
** Controlled inner ring width

Continuous caster applications
Series: 22214/C3W33VA9A1 – 24122/C4W33VA9B1
Size: 70 mm – 110 mm
2.756 in – 4.331 in

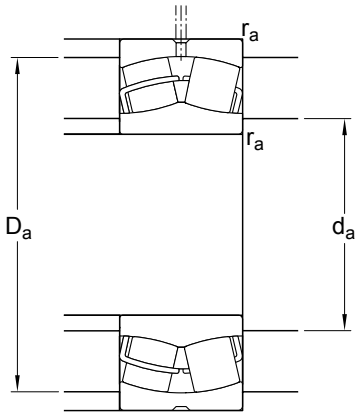
Series: BS2B 243359C/VA9B1
Size: 90 mm
3.543 in



Designation	Principal dimensions						Basic static load ratings		Abutment		Fillet	Mass	
	Bore d		Outside diameter D		B		C_0		$d_a$min	$D_a$max	$r_a$max		
	mm	in	mm	in	mm	in	N	lbf	mm	mm	mm	kg	lb
22214/C3W33VA9A1	70	2.756	125	4.921	31.0	1.220	224 000	50 357	79	116	1.5	1.60	3.53
22214/C4W33VA9A1	70	2.756	125	4.921	31.0	1.220	224 000	50 357	79	116	1.5	1.60	3.53
22215/C3W33VA9A1	75	2.953	130	5.118	31.0	1.220	232 000	52 156	84	121	1.5	1.65	3.64
22215/C4W33VA9A1	75	2.953	130	5.118	31.0	1.220	232 000	52 156	84	121	1.5	1.65	3.64
22216/C3W33VA9A1	80	3.150	140	5.512	33.0	1.299	265 000	59 574	91	129	2.0	2.05	4.52
22216/C4W33VA9A1	80	3.150	140	5.512	33.0	1.299	265 000	59 574	91	129	2.0	2.05	4.52
22217/C3W33VA9A1	85	3.346	150	5.906	36.0	1.417	320 000	71 939	96	139	1.5	2.65	5.84
22217/C4W33VA9A1	85	3.346	150	5.906	36.0	1.417	320 000	71 939	96	139	2.0	2.65	5.84
BS2B 243359C/VA9B1	90	3.543	150	5.906	72.0	2.835	455 000	102 288	97	143	2.0	4.60	10.14
22218/C3W33VA9A1	90	3.543	160	6.299	40.0	1.575	360 000	80 931	101	149	2.0	3.35	7.39
22218/C4W33VA9A1	90	3.543	160	6.299	40.0	1.575	360 000	80 931	101	149	2.0	3.35	7.39
22219/C3W33VA9A1	95	3.740	170	6.693	43.0	1.693	430 000	96 668	107	158	1.0	4.10	9.04
22219/C4W33VA9A1	95	3.740	170	6.693	43.0	1.693	430 000	96 668	107	158	2.0	4.10	9.04
23120/C3W33VA9B1	100	3.937	165	6.496	52.0	2.047	490 000	110 156	111	154	2.0	4.30	9.48
23120/C4W33VA9B1	100	3.937	165	6.496	52.0	2.047	490 000	110 156	111	154	2.0	4.30	9.48
22220/C3W33VA9A1	100	3.937	180	7.087	46.0	1.811	465 000	106 784	112	168	2.0	4.85	10.69
22220/C4W33VA9A1	100	3.937	180	7.087	46.0	1.811	465 000	106 784	112	168	2.0	4.85	10.69
23220/C3W33VA9B1	100	3.937	180	7.087	60.3	2.374	600 000	134 885	112	168	2.0	6.71	14.79
23220/C4W33VA9B1	100	3.937	180	7.087	60.3	2.374	600 000	134 885	112	168	2.0	6.71	14.79
24022/C3W33VA9B1	110	4.331	170	6.693	60.0	2.362	620 000	139 382	119	161	2.0	4.92	10.85
24022/C4W33VA9B1	110	4.331	170	6.693	60.0	2.362	620 000	139 382	119	161	2.0	4.92	10.85
22222/C3W33VA9A1	110	4.331	200	7.874	53.0	2.087	620 000	139 382	122	188	2.0	6.95	15.32
22222/C4W33VA9A1	110	4.331	200	7.874	53.0	2.087	620 000	139 382	122	188	2.0	6.95	15.32
23122/C3W33VA9B1	110	4.331	180	7.087	56.0	2.205	585 000	131 513	121	169	2.0	5.40	11.90
23122/C4W33VA9B1	110	4.331	180	7.087	56.0	2.205	585 000	131 513	121	169	2.0	5.40	11.90
24122/C3W33VA9B1	110	4.331	180	7.087	69.0	2.717	750 000	168 607	121	169	2.0	7.00	15.43
24122/C4W33VA9B1	110	4.331	180	7.087	69.0	2.717	750 000	168 607	121	169	2.0	7.00	15.43

Heat treatment: Stabilization class S1, up to 392°F (200°C)
Recommended speed limit for continuous caster operations is <50 rpm

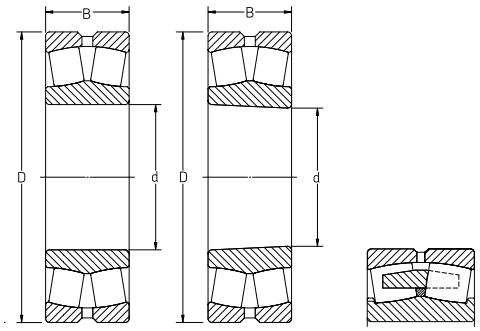
Consult SKF USA Inc. prior to design change or order placement.



Designation	Principal dimensions						Basic static load ratings		Abutment		Fillet	Mass	
	Bore d		Outside diameter D		B		C_0		$d_a$min	$D_a$max	$r_a$max		
	mm	in	mm	in	mm	in	N	lbf	mm	mm	mm	kg	lb
22224/C3W33VA9A1	120	4.724	215	8.465	58	2.283	750 000	168 607	132	203	2.0	8.80	19.40
22224/C4W33VA9A1	120	4.724	215	8.465	58	2.283	750 000	168 607	132	203	2.0	8.80	19.40
22324/C3W33VA9B1	120	4.724	260	10.236	86	3.386	1 120 000	251 786	134	246	2.5	22.00	48.50
22324/C4W33VA9B1	120	4.724	260	10.236	86	3.386	1 120 000	251 786	134	246	2.5	22.00	48.50
24024/C3W33VA9B1	120	4.724	180	7.087	60	2.362	670 000	150 622	129	171	2.0	5.36	11.82
24024/C4W33VA9B1	120	4.724	180	7.087	60	2.362	670 000	150 622	129	171	2.0	5.36	11.82
24026/C3W33VA9B1	130	5.118	200	7.874	69	2.717	815 000	183 219	139	191	2.0	7.93	17.48
24026/C4W33VA9B1	130	5.118	200	7.874	69	2.717	815 000	183 219	139	191	2.0	7.93	17.48
24126/C3W33VA9B1	130	5.118	210	8.268	80	3.150	1 000 000	224 809	141	199	2.0	10.50	23.15
24126/C4W33VA9B1	130	5.118	210	8.268	80	3.150	1 000 000	224 809	141	199	2.0	10.50	23.15
24028/C3W33VA9B1	140	5.512	210	8.268	69	2.717	900 000	202 328	149	201	2.0	8.43	18.58
24028/C4W33VA9B1	140	5.512	210	8.268	69	2.717	900 000	202 328	149	201	2.0	8.43	18.58
24128/C3W33VA9B1	140	5.512	225	8.858	85	3.346	1 160 000	260 778	152	213	2.0	12.50	27.56
24128/C4W33VA9B1	140	5.512	225	8.858	85	3.346	1 160 000	260 778	152	213	2.0	12.50	27.56
23030/C3W33VA9B1	150	5.906	225	8.858	56	2.205	750 000	168 607	161	214	2.0	7.45	16.42
23030/C4W33VA9B1	150	5.906	225	8.858	56	2.205	750 000	168 607	161	214	2.0	7.45	16.42
24030/C3W33VA9B1	150	5.906	225	8.858	75	2.953	1 040 000	233 801	161	214	2.0	10.34	22.80
24030/C4W33VA9B1	150	5.906	225	8.858	75	2.953	1 040 000	233 801	161	214	2.0	10.34	22.80
24130/C3W33VA9B1	150	5.906	250	9.843	100	3.937	1 530 000	343 958	162	238	2.0	19.79	43.63
24130/C4W33VA9B1	150	5.906	250	9.843	100	3.937	1 530 000	343 958	162	238	2.0	19.79	43.63
22332/C3W33VA9B1	160	6.299	340	13.386	114	4.488	1 960 000	440 626	177	323	3.0	49.00	108.03
22332/C4W33VA9B1	160	6.299	340	13.386	114	4.488	1 960 000	440 626	177	323	3.0	49.00	108.03
24032/C3W33VA9B1	160	6.299	240	9.449	80	3.150	1 200 000	269 771	171	229	2.0	12.82	28.26
24032/C4W33VA9B1	160	6.299	240	9.449	80	3.150	1 200 000	269 771	171	229	2.0	12.82	28.26
24034/C3W33VA9B1	170	6.693	260	10.236	90	3.543	1 460 000	328 221	181	249	2.0	17.26	38.05
24034/C4W33VA9B1	170	6.693	260	10.236	90	3.543	1 460 000	328 221	181	249	2.0	17.26	38.05

Heat treatment: Stabilization class S1, up to 392°F (200°C)
Recommended speed limit for continuous caster operations is <50 rpm

Special bearings
Series: I-26310 CAM2/W33 – ECBI-112630 CAC/W33
Size: 200 mm – 350 mm
7.8740 in – 13.7795 in



Cylindrical bore | Tapered bore | CAC & CA design

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Calculation factors		
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed			e	Y_1	Y_2
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	-	-	-
I-26310 CAM2/W33*	200	7.8740	380	14.9606	126	4.9606	1 730 000	390 000	2 700 000	610 000	750	950	68.00	150.00	0.33	2.0	3.0
I-26311 CAM2/W33*	220	8.6614	420	16.5354	138	5.4331	2 070 000	465 000	3 200 000	720 000	670	850	90.50	200.00	0.33	2.0	3.0
I-28809 CAM2/W33*	190	7.4803	280	11.0236	67	2.6378	644 000	145 000	1 140 000	256 000	1 700	2 200	15.00	33.00	0.21	3.2	4.8
I-28814 CAM2/W33*	240	9.4488	350	13.7795	83	3.2677	978 000	220 000	1 830 000	411 000	850	1 100	27.50	60.50	0.21	3.2	4.8
I-28821 CACM2/W33*	310	12.2047	455	17.9134	109	4.2913	1 680 000	378 000	3 250 000	730 000	630	800	66.00	145.00	0.21	3.2	4.8
I-37611 CAM2/W33**	220	8.6614	420	16.5354	138	5.4331	2 070 000	465 000	3 200 000	720 000	670	850	90.50	200.00	0.33	2.0	3.0
I-37617 CA/W33**	340	13.3858	640	25.1969	190	7.4803	4 080 000	920 000	6 550 000	1 500 000	480	600	150.00	640.00	0.30	2.3	3.4
I-112618 CA/W33**	250	9.8425	410	16.1417	128	5.0394	1 760 000	400 000	3 100 000	700 000	630	800	68.00	150.00	0.30	2.3	3.4
ECBI-112630 CAC/W33**	350	13.7795	590	23.2283	192	7.5591	3 740 000	840 500	6 800 000	1 530 000	430	530	220.00	485.00	0.30	2.3	3.4

* Cylindrical bore
** Tapered bore

Consult SKF USA Inc. prior to design change or order placement.



CARB®
Toroidal roller bearings

C2222 KV TN9 / C3

1 2 3 4

1. Variations:

K	Bearing with 1 to 12 tapered bore
K30	Bearing with 1 to 30 tapered bore

2. Internal design:

V	Full complement bearing (without cage)

3. Cage designs:

TN9	Nylon cage, rolling element guided
M	Machined brass cage (large bore > 500 mm only)
–	No cage suffix indicates window-type sheet steel cage

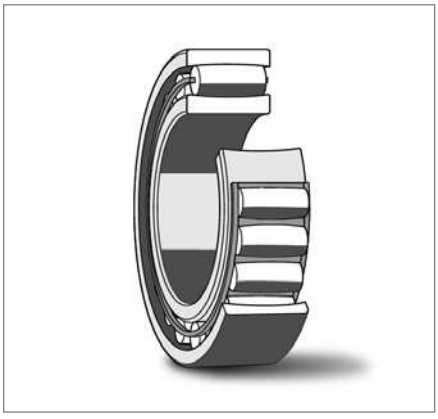
4. Clearance & features:

C2	Radial internal clearance < Normal
(C0)*	Normal radial internal clearance
C3	Radial internal clearance > Normal
C4	Radial internal clearance > C3
C08	RBEC class 5 (ISO class P5) running accuracy
HA3	Case hardened inner ring
VE240	Bearing modified for greater axial displacement
2CS5	Two synthetic rubber seals with Kluber grease
VG114	Hardened steel cage
VQ424	Closer tolerances than C08
GEM9	70% - 100% fill of SKF grease LGHB 2

*Not marked on bearing or package

Technical features

Boundary dimensions	In accordance with ISO 15
Tolerances	In accordance with ISO 492 SKF CARB® bearings up to 300 mm bore diameter are produced to higher precision than ISO Normal tolerances; the width tolerance is 50% better than the ISO Normal tolerance. The running accuracy is to tolerance class P5 as standard. For larger bearings (>300mm), P5 tolerances are also available with the suffix C08 or even closer tolerances are available with the suffix VQ424.
Heat stabilization	392° F (200° C)
Misalignment	0.5 degrees between the inner and outer rings
Cage material	
Standard	Steel
Optional	Nylon (TN9) Brass (M, MB, MBI)
Axial load – max	None
Seals	2CS5 – 2 synthetic rubber (HNBR) seals with SKF high temperature grease (70-100% fill) LGHB 2 (GEM9)



CARB bearing
(data tables on page 192)

Introduction

The CARB toroidal roller bearing can support very heavy radial loads. It is intended exclusively as a non-locating bearing and as such is ideal with its combination of self-aligning and axial alignment properties, to open up completely new opportunities to save space, weight and arrangement costs. By deliberately displacing the rings axially with respect to each other, it is possible to accurately set the internal radial clearance in the bearing.

These bearings permit smaller and lighter bearing arrangement designs offering the same or heightened performance in a particularly impressive manner; for example, in planetary gearboxes. They also simplify the bearing arrangement design for long shafts, which are subjected to temperature variations and also reduce vibrations; for example, in papermaking machines or ship propulsion arrangements. CARB does not pass axial vibrations in the shaft to the housing. The list of applications where CARB is appropriate is long. SKF Applications Engineering can supply additional information and special publications on request.

Basic design

The CARB toroidal roller bearing is a single row bearing with long, slightly crowned rollers. The raceways of both inner and outer rings are concave and symmetrical about a line through the bearing center. The optimum combination of raceway profiles guarantees a favorable load distribution in the bearings as well as low friction.

The rollers of the CARB are self-guiding, i.e. they will always adopt the position where the load is evenly distributed over the roller length – irrespective of whether the inner ring is axially displaced and/or misaligned with respect to the outer ring.

The load carrying capacity of the CARB is very high even when it has to compensate for angular misalignments or axial displacements. This results in operationally reliable bearing arrangements with long service life. The load carrying capacity of the full complement CARB is appreciably higher than that of the caged bearing.

The CARB is produced in a caged design **(Figure 1)** as well as a full complement version **(Figure 2)** and is available with a cylindrical or tapered bore. Depending on bearing width, the tapered bore has a taper of either 1:12 (designation suffix K) which is the most popular or 1:30 (suffix K30) which is limited to only a few sizes.

SKF Explorer class bearings

All CARB bearings are manufactured to the SKF Explorer performance class. In the product tables, the SKF Explorer bearing designations are printed in blue.

Product highlights

A breakthrough in bearing technology
The CARB (Compact Aligning Roller Bearing) toroidal roller bearing is a major breakthrough in bearing technology. This is the first new bearing type in over 50 years.

Three-in-one bearing
The CARB toroidal roller bearing is space-saving like a needle roller bearing, self-aligning like a spherical roller bearing, and axially free like a cylindrical bearing– combining the application and performance advantages of all three bearings.

Longer service life, increased uptime, reduced costs
A toroidal roller bearing adapts to both angular misalignment and axial displacement simultaneously. Because the CARB tolerates more than any other bearing, it can help extend service life, increase machine uptime, and reduce maintenance costs where conventional bearings now experience premature failure.

Large product assortment
CARB is available with a cage or in a full complement design without a cage, with a choice of cylindrical or tapered bore.

Application flexibility
The low minimum load requirement makes the CARB a good candidate for fans while the higher running accuracy makes it suitable for precision equipment.

Figure 1

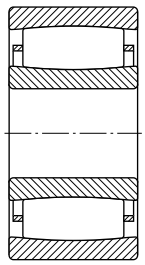
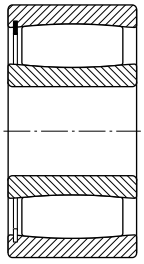


Figure 2



Variations

Bearings on adapter or withdrawal sleeve
A CARB with tapered bore can be mounted on an adapter sleeve with a low profile locknut (KML) (**Figure 3**) or a withdrawal sleeve (**Figure 4**) in the same way as a self-aligning ball bearing or a spherical roller bearing on straight or stepped shafts in an easy and rapid manner. If large axial displacements are expected, care should be taken to see that they take place towards the same side of the arrangement as the sleeve locknut (**Figure 5**).

Bearings on adapter sleeve

The use of an adapter sleeve is the most popular means of securing a bearing with a tapered bore on a cylindrical seating. Adapter sleeves can be used both with straight and stepped shafts. They are simple to mount and require no additional fixation on the shaft.

On straight shafts CARB can be mounted at any position. Where stepped shafts are used together with a support ring, the bearing position can be accurately defined and dismounting of the bearing is also simplified (**Figure 6**).

Where appropriate, adapter sleeves of the E and L variants are available, e.g. H 310 E. Adapter sleeves of the E type are supplied with a spacer ring which should be arranged between the bearing and the locking nut to prevent the nut from contacting the cage when axial displacement occurs. Where adapter sleeves of the L type are concerned, the standard locking arrangement (KM + MB) has been replaced by the lower section nut KML with MBL locking washer. Any contacting of the cage by the sleeve locking device is thus prevented.

Mounting and dismounting of bearings on adapter sleeves can be greatly facilitated by the use of an hydraulic nut (**Figure 6**) or adapter sleeves for oil injection mounting. For details, please reference the SKF Bearing Installation and Maintenance Guide (140-710).

Appropriate housings

Any CARB toroidal roller bearing belonging to C22xx, C23xx can be mounted in almost any SKF standard bearing housing, irrespective of whether the bearing is mounted on a cylindrical stepped shaft or on an adapter sleeve on a straight shaft. **Figure 7** shows a CARB C 2220 in a SNL plummer block housing.

The extensive range of SKF housings can be found in other SKF publications that can be supplied on request.

Figure 3

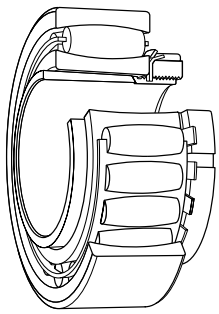


Figure 4

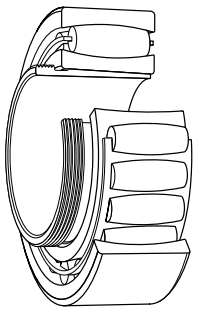


Figure 5

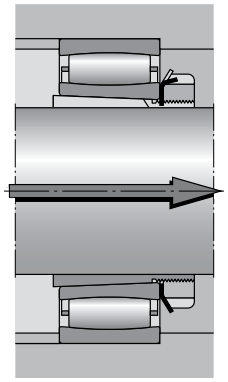


Figure 6

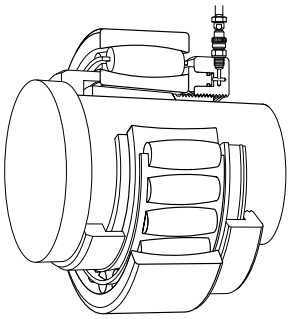
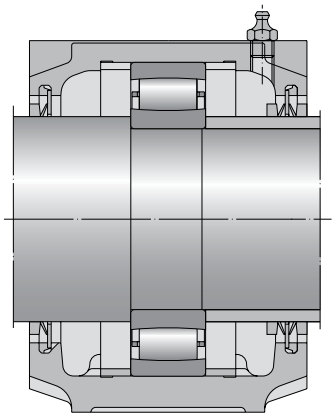


Figure 7



Internal clearance

Radial internal clearance

The CARB is produced as standard with Normal radial internal clearance. Many of the bearings are also available with C3 clearance and some with the smaller C2 or the much larger C4 clearance. The availability of bearings with clearance other than Normal should be checked prior to design change or order placement.

The radial internal clearance limits for bearings with cylindrical bore are given in Table 1 and for bearings with tapered bore in Table 2. They are valid for bearings before mounting and under zero measuring load.

Axial displacement of the one ring in relation to the other will reduce the clearance in a CARB. This is why the clearance for a CARB is larger than a comparably sized spherical roller bearing having the same clearance class.

Axial displacement

The permissible axial displacement of the CARB inner ring with respect to the outer ring depends on the radial internal clearance. The relationship between the radial internal clearance and the permissible axial displacement from the central position is shown in Diagram 1, page 191. In fact, the bearing rings can be further displaced with respect to each other, even into the gray region, without any effect on bearing life. Bearing friction, however, will be increased by up to 50% as a result.

The axial displacement, "s", guideline values given in the product tables represent the theoretically possible axial displacement of one ring in relation to the other from the central position under zero misalignment where the rollers

- of bearings with a cage will not protrude from the bearing rings, and
- of full complement bearings will not contact the retaining ring in the outer ring raceway.

A rough estimate of the permissible axial displacement for bearings having Normal radial internal clearance, one ring mounted with an interference fit, and an operating temperature of approximately 158° F (70° C), is 0.5 s. If the bearing has C3 radial internal clearance, the corresponding estimate is 0.65 s.

Table 1

Radial internal clearance of CARB bearings with cylindrical bore

Bore diameter d		Radial internal clearance									
		C2		Normal		C3		C4		C5	
over	incl.	min	max	max	min	max	min	max	min	max	min
mm		µm		µm		µm		µm		µm	
18	**24**	15	30	25	40	35	55	50	65	65	85
24	**30**	15	35	30	50	45	60	60	80	75	95
30	**40**	20	40	35	55	55	75	70	95	90	120
40	**50**	25	45	45	65	65	85	85	110	105	140
50	**65**	30	55	50	80	75	105	100	140	135	175
65	**80**	40	70	65	100	95	125	120	165	160	210
80	**100**	50	85	80	120	120	160	155	210	205	260
100	**120**	60	100	100	145	140	190	185	245	240	310
120	**140**	75	120	115	170	165	215	215	280	280	350
140	**160**	85	140	135	195	195	250	250	325	320	400
160	**180**	95	155	150	220	215	280	280	365	360	450
180	**200**	105	175	170	240	235	310	305	395	390	495
200	**225**	115	190	185	265	260	340	335	435	430	545
225	**250**	125	205	200	285	280	370	365	480	475	605
250	**280**	135	225	220	310	305	410	405	520	515	655
280	**315**	150	240	235	330	330	435	430	570	570	715
315	**355**	160	260	255	360	360	485	480	620	620	790
355	**400**	175	280	280	395	395	530	525	675	675	850
400	**450**	190	310	305	435	435	580	575	745	745	930
450	**500**	205	335	335	475	475	635	630	815	810	1 015
500	**560**	220	360	360	520	510	690	680	890	890	1 110
560	**630**	240	400	390	570	560	760	750	980	970	1 220
630	**710**	260	440	430	620	610	840	830	1 080	1 070	1 340
710	**800**	300	500	490	680	680	920	920	1 200	1 200	1 480
800	**900**	320	540	530	760	750	1 020	1 010	1 330	1 320	1 660
900	**1 000**	370	600	590	830	830	1 120	1 120	1 460	1 460	1 830
1 000	**1 120**	410	660	660	930	930	1 260	1 260	1 640	1 640	2 040
1 120	**1 250**	450	720	720	1 020	1 020	1 380	1 380	1 800	1 800	2 240
1 250	**1 400**	490	800	800	1 130	1 130	1 510	1 510	1 970	1 970	2 460
1 400	**1 600**	570	890	890	1 250	1 250	1 680	1 680	2 200	2 200	2 740
1 600	**1 800**	650	1 010	1 010	1 390	1 390	1 870	1 870	2 430	2 430	3 000

The permissible axial displacement is limited in operation by the operating clearance in the bearing and the actual angular misalignment. The influence of the operating clearance is shown in Diagram 1, page 191.

If the axial movement exceeds 50% of the permissible axial displaceability "s", it should be checked, whether the residual radial internal clearance is sufficiently large.

If the axial movement exceeds 50% of the axial displaceability "s", and the misalignment attains approximately 0.5°, the actual axial displacement of the rollers is to also be checked.

For additional information, please visit the SKF website **skfusa.com**. Select Engineering Tools under the Support menu. Or contact SKF Applications Engineering.

Table 2

Radial internal clearance of CARB bearings with tapered bore

Bore diameter d		Radial internal clearance									
		C2		Normal		C3		C4		C5	
over	incl.	min	max	max	min	max	min	max	min	max	min
mm		µm		µm		µm		µm		µm	
18	**24**	15	35	30	45	40	55	55	70	65	85
24	**30**	20	40	35	55	50	65	65	85	80	100
30	**40**	25	50	45	65	60	80	80	100	100	125
40	**50**	30	55	50	75	70	95	90	120	115	145
50	**65**	40	65	60	90	85	115	110	150	145	185
65	**80**	50	80	75	110	105	140	135	180	175	220
80	**100**	60	100	95	135	130	175	170	220	215	275
100	**120**	75	115	115	155	155	205	200	255	255	325
120	**140**	90	135	135	180	180	235	230	295	290	365
140	**160**	100	155	155	215	210	270	265	340	335	415
160	**180**	115	175	170	240	235	305	300	385	380	470
180	**200**	130	195	190	260	260	330	325	420	415	520
200	**225**	140	215	210	290	285	365	360	460	460	575
225	**250**	160	235	235	315	315	405	400	515	510	635
250	**280**	170	260	255	345	340	445	440	560	555	695
280	**315**	195	285	280	380	375	485	480	620	615	765
315	**355**	220	320	315	420	415	545	540	680	675	850
355	**400**	250	350	350	475	470	600	595	755	755	920
400	**450**	280	385	380	525	525	655	650	835	835	1 005
450	**500**	305	435	435	575	575	735	730	915	910	1 115
500	**560**	330	480	470	640	630	810	800	1 010	1 000	1 230
560	**630**	380	530	530	710	700	890	880	1 110	1 110	1 350
630	**710**	420	590	590	780	770	990	980	1 230	1 230	1 490
710	**800**	480	680	670	860	860	1 100	1 100	1 380	1 380	1 660
800	**900**	520	740	730	960	950	1 220	1 210	1 530	1 520	1 860
900	**1 000**	580	820	810	1 040	1 040	1 340	1 340	1 670	1 670	2 050
1 000	**1 120**	640	900	890	1 170	1 160	1 500	1 490	1 880	1 870	2 280
1 120	**1 250**	700	980	970	1 280	1 270	1 640	1 630	2 060	2 050	2 500
1 250	**1 400**	770	1 080	1 080	1 410	1 410	1 790	1 780	2 250	2 250	2 740
1 400	**1 600**	870	1 200	1 200	1 550	1 550	1 990	1 990	2 500	2 500	3 050
1 600	**1 800**	950	1 320	1 320	1 690	1 690	2 180	2 180	2 730	2 730	3 310

Loads

Minimum load

In order to provide satisfactory operation, the CARB, like all ball and roller bearings, must always be subjected to a given minimum load, particularly if it is to operate at high speeds or is subjected to high accelerations or rapid changes in the direction of load. Under such conditions the inertia forces of the rollers and cage, and the friction in the lubricant, can have a detrimental effect on the rolling conditions in the bearing arrangement and may cause damaging sliding movements to occur between the rollers and the raceways.

The requisite minimum radial load to be applied in such cases can be determined by using the Bearing Calculator on the SKF website www.skf.com or by contacting SKF Applications Engineering.

However, the weight of the components supported by the bearing, together with the external forces, often exceeds the requisite minimum load. If this is not the case, an additional radial load must be applied to the bearing, for example, by increasing belt tension or similar means.

Equivalent bearing loads

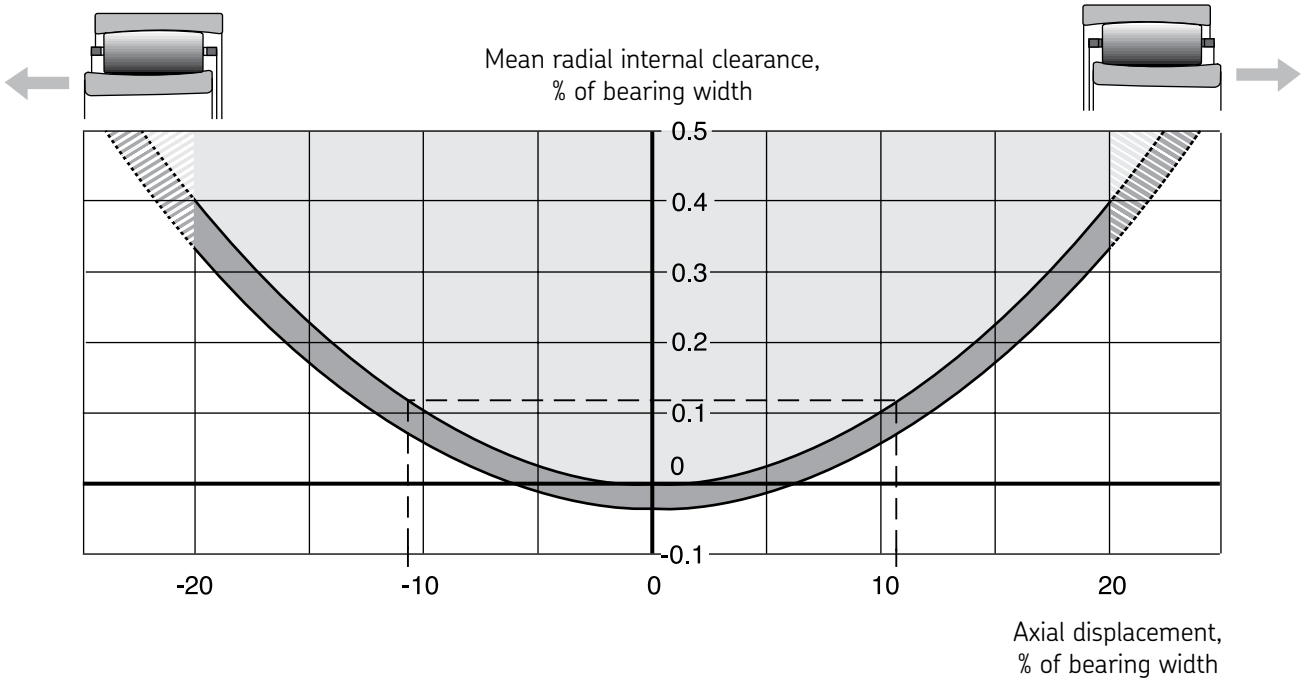
As the CARB can only accept radial loads

$P = F_r$

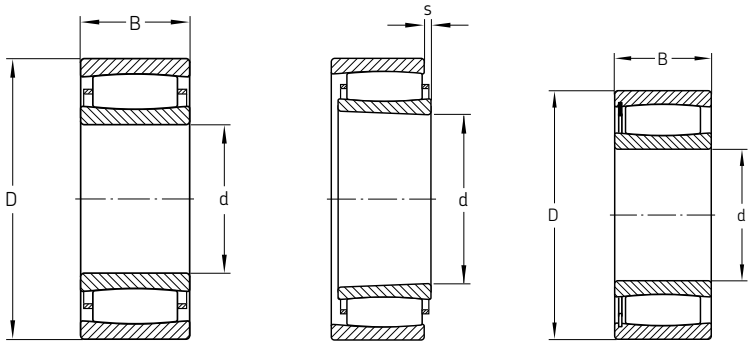
Frequency vibration data

Frequency vibration data is available on the SKF website, **skfusa.com.** Select Engineering Tools under the Support menu. Or contact SKF Applications Engineering.

Diagram 1



Single row
SKF Explorer
Series: C 2206 TN9 – C 2215 V
Size: 30 mm – 75 mm
1.181 in – 2.953 in



with cage

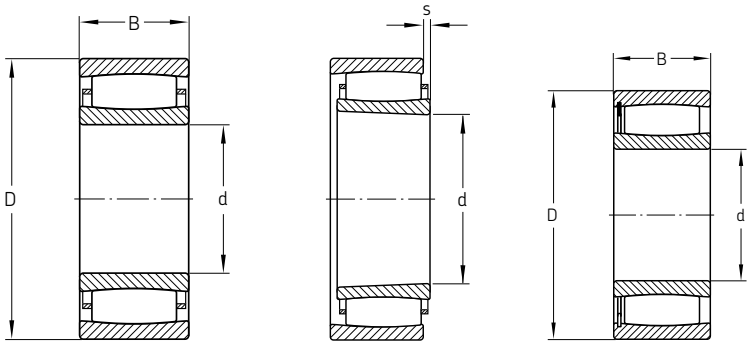
full complement
suffix V

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Axial Displacement +/- s[1]	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed				
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	mm	in
C 2206 TN9	30	1.1811	62	2.4409	20	0.7874	69 500	15 620	62 000	13 930	11 000	15 000	0.28	0.62	4.5	0.177
C 2206 V	30	1.1811	62	2.4409	20	0.7874	76 500	17 190	71 000	15 960		6 000	0.29	0.64	4.5	0.177
C 2207 TN9	35	1.3780	72	2.8346	23	0.9055	83 000	18 650	80 000	17 980	9 500	13 000	0.44	0.97	5.7	0.224
C 2207 V	35	1.3780	72	2.8346	23	0.9055	95 000	21 350	96 000	21 570		5 300	0.46	1.01	5.7	0.224
C 2208 TN9	40	1.5748	80	3.1496	23	0.9055	90 000	20 220	86 500	19 440	8 000	11 000	0.51	1.12	7.1	0.280
C 2208 V	40	1.5748	80	3.1496	23	0.9055	102 000	22 920	104 000	23 370		4 500	0.53	1.17	7.1	0.280
C 2209 TN9	45	1.7717	85	3.3465	23	0.9055	93 000	20 900	93 000	20 900	7 500	11 000	0.56	1.23	7.1	0.280
C 2209 V	45	1.7717	85	3.3465	23	0.9055	106 000	23 820	110 000	24 720		4 300	0.58	1.28	7.1	0.280
C 2210 TN9	50	1.9685	90	3.5433	23	0.9055	98 000	22 020	100 000	22 470	7 000	9 500	0.60	1.32	7.1	0.280
C 2210 V	50	1.9685	90	3.5433	23	0.9055	114 000	25 620	122 000	27 420		3 800	0.63	1.39	7.1	0.280
C 2211 TN9	55	2.1654	100	3.9370	25	0.9843	116 000	26 070	114 000	25 620	6 300	9 000	0.80	1.76	8.6	0.339
C 2211 V	55	2.1654	100	3.9370	25	0.9843	132 000	29 660	134 000	30 110		3 400	0.82	1.81	8.6	0.339
C 2212 TN9	60	2.3622	110	4.3307	28	1.1024	143 000	32 130	156 000	35 060	5 600	7 500	1.10	2.43	8.5	0.335
C 2212 V	60	2.3622	110	4.3307	28	1.1024	166 000	37 300	190 000	42 700		2 800	1.15	2.54	8.5	0.335
C 2213 TN9	65	2.5591	120	4.7244	31	1.2205	180 000	40 450	180 000	40 450	5 300	7 500	1.45	3.20	9.6	0.378
C 2213 V	65	2.5591	120	4.7244	31	1.2205	204 000	45 840	216 000	48 540		2 400	1.50	3.31	9.6	0.378
C 2214 TN9	70	2.7559	125	4.9213	31	1.2205	186 000	41 800	196 000	44 040	5 000	7 000	1.50	3.31	9.6	0.378
C 2214 V	70	2.7559	125	4.9213	31	1.2205	212 000	47 640	228 000	51 200		2 400	1.55	3.42	9.6	0.378
C 2215	75	2.9528	130	5.1181	31	1.2205	196 000	44 040	208 000	46 740	4 800	6 700	1.60	3.53	9.6	0.378
C 2215 V	75	2.9528	130	5.1181	31	1.2205	220 000	49 440	240 000	53 900		2 200	1.65	3.64	9.6	0.378

1) Permissible axial displacement from Normal position of one bearing ring in relation to the other.

Consult SKF USA Inc. prior to design change or order placement.

Single row
SKF Explorer
Series: C 2216 – C 2320
Size: 80 mm – 100 mm
3.150 in – 3.937 in



with cage

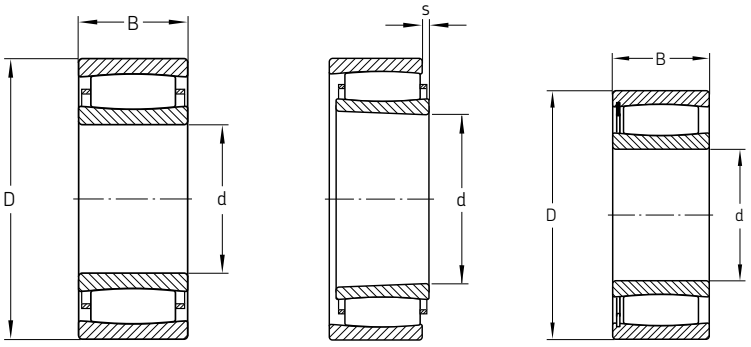
full complement
suffix V

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Axial Displacement +/- s[1]	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed				
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	mm	in
C 2216	80	3.1496	140	5.5118	33	1.2992	220 000	49 440	250 000	56 200	4 300	6 000	2.05	4.52	9.1	0.358
C 2216 V	80	3.1496	140	5.5118	33	1.2992	255 000	57 300	305 000	68 500		2 000	2.15	4.74	9.1	0.358
C 2217	85	3.3465	150	5.9055	36	1.4173	275 000	61 800	320 000	71 900	4 000	5 600	2.65	5.84	7.1	0.280
C 2218	90	3.5433	160	6.2992	40	1.5748	325 000	73 000	380 000	85 400	3 800	5 300	3.30	7.28	9.5	0.374
C 2220	100	3.9370	180	7.0866	46	1.8110	415 000	93 300	465 000	104 500	3 600	4 800	4.95	10.91	10.1	0.398
C 2222	110	4.3307	200	7.8740	53	2.0866	530 000	119 100	620 000	139 300	3 200	4 300	7.00	15.44	11.1	0.437
C 2226	130	5.1181	230	9.0551	64	2.5197	735 000	165 200	930 000	209 000	2 800	3 800	11.50	25.36	9.6	0.378
C 2228	140	5.5118	250	9.8425	68	2.6772	830 000	186 500	1 060 000	238 200	2 400	3 200	14.00	30.87	13.7	0.539
C 2230	150	5.9055	270	10.6299	73	2.8740	980 000	220 200	1 220 000	274 200	2 400	3 200	18.00	39.69	11.2	0.441
C 2234	170	6.6929	310	12.2047	86	3.3858	1 270 000	285 400	1 630 000	366 300	1 900	2 600	28.00	61.74	16.4	0.646
C 2238	190	7.4803	340	13.3858	92	3.6220	1 370 000	307 900	1 730 000	388 800	1 800	2 400	34.50	76.07	22.5	0.886
C 2244	220	8.6614	400	15.7480	108	4.2520	2 000 000	449 400	2 500 000	561 800	1 500	2 000	57.50	126.79	20.5	0.807
C 2314	70	2.7559	150	5.9055	51	2.0079	405 000	91 000	430 000	96 600	3 800	5 000	4.30	9.48	9.1	0.358
C 2315	75	2.9528	160	6.2992	55	2.1654	425 000	95 500	465 000	104 500	3 600	4 800	5.30	11.69	13.1	0.516
C 2316	80	3.1496	170	6.6929	58	2.2835	510 000	114 600	550 000	123 600	3 400	4 500	6.30	13.89	10.1	0.398
C 2317	85	3.3465	180	7.0866	60	2.3622	540 000	121 300	600 000	134 800	3 200	4 300	7.40	16.32	12.1	0.476
C 2318	90	3.5433	190	7.4803	64	2.5197	610 000	137 100	695 000	156 200	2 800	4 000	8.65	19.07	9.6	0.378
C 2319	95	3.7402	200	7.8740	67	2.6378	610 000	137 100	695 000	156 200	2 800	4 000	10.00	22.05	12.6	0.496
C 2320	100	3.9370	215	8.4646	73	2.8740	800 000	179 800	880 000	197 800	2 600	3 600	12.50	27.56	11.0	0.433

1) Permissible axial displacement from Normal position of one bearing ring in relation to the other.

Consult SKF USA Inc. prior to design change or order placement.

Single row
SKF Explorer
Series: C 3024 V – C 30/1000 MB
Size: 120 mm – 1000 mm
4.724 in – 39.370 in



with cage

full complement
suffix V

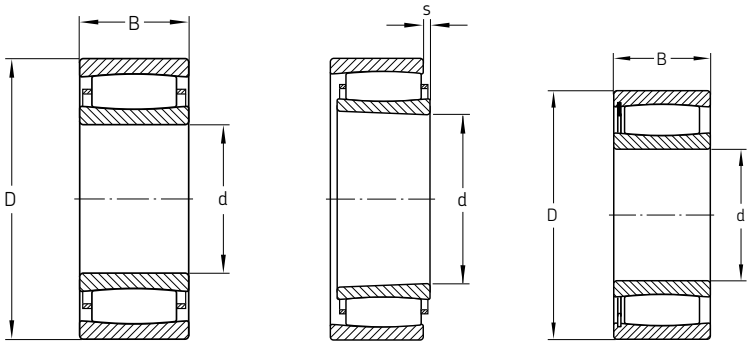
Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Axial Displacement +/- s[1]	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed				
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	mm	in
C 3024 V	120	4.7244	180	7.0866	46	1.8110	430 000	96 600	640 000	143 800	–	1 400	4.10	9.04	10.6	0.417
C 3030 MB	150	5.9055	225	8.8583	56	2.2047	540 000	121 300	850 000	191 000	2 400	3 200	8.45	18.63	8.7	0.343
C 3030 V	150	5.9055	225	8.8583	56	2.2047	585 000	131 500	960 000	215 700	–	1 000	8.00	17.64	14.1	0.555
C 3034 M	170	6.6929	260	10.2362	67	2.6378	750 000	168 500	1 080 000	242 700	2 200	2 800	12.40	27.34	19.0	0.748
C 3036	180	7.0866	280	11.0236	74	2.9134	880 000	197 800	1 340 000	301 100	2 000	2 600	17.00	37.49	15.1	0.594
C 3038	190	7.4803	290	11.4173	75	2.9528	930 000	209 000	1 460 000	328 100	1 800	2 400	17.50	38.59	16.1	0.634
C 3040	200	7.8740	310	12.2047	82	3.2283	1 120 000	251 700	1 730 000	388 800	1 700	2 400	22.50	49.61	15.2	0.598
C 3044	220	8.6614	340	13.3858	90	3.5433	1 320 000	296 600	2 040 000	458 400	1 600	2 200	29.50	65.05	17.2	0.677
C 3048	240	9.4488	360	14.1732	92	3.6220	1 340 000	301 100	2 160 000	485 400	1 500	2 000	32.00	70.56	19.2	0.756
C 3052	260	10.2362	400	15.7480	104	4.0945	1 760 000	395 500	2 850 000	640 400	1 300	1 800	47.00	103.64	19.3	0.760
C 3056	280	11.0236	420	16.5354	106	4.1732	1 860 000	418 000	3 100 000	696 600	1 200	1 600	50.50	111.35	21.3	0.839
C 3060 M	300	11.8110	460	18.1102	118	4.6457	2 160 000	485 400	3 750 000	842 700	1 100	1 500	72.00	158.76	20.0	0.787
C 3064 M	320	12.5984	480	18.8976	121	4.7638	2 280 000	512 400	4 000 000	898 900	1 000	1 400	78.00	171.99	23.3	0.917
C 3068 M	340	13.3858	520	20.4724	133	5.2362	2 900 000	651 700	5 000 000	1 123 600	950	1 300	100.00	220.50	25.0	0.984
C 3072 M	360	14.1732	540	21.2598	134	5.2756	2 900 000	651 700	5 000 000	1 123 600	900	1 300	106.00	233.73	26.4	1.039
C 3076 M	380	14.9606	560	22.0472	135	5.3150	3 000 000	674 200	5 200 000	1 168 500	900	1 200	110.00	242.55	27.0	1.063
C 3080 M	400	15.7480	600	23.6220	148	5.8268	3 650 000	820 200	6 200 000	1 393 300	800	1 100	145.00	319.73	30.6	1.205
C 3084 M	420	16.5354	620	24.4094	150	5.9055	3 800 000	853 900	6 400 000	1 438 200	800	1 100	150.00	330.75	32.6	1.283
C 3088 MB	440	17.3228	650	25.5906	157	6.1811	3 750 000	842 700	6 400 000	1 438 200	750	1 000	190.00	418.95	24.6	0.969
C 3092 M	460	18.1102	680	26.7717	163	6.4173	4 000 000	898 900	7 500 000	1 685 400	700	950	205.00	452.03	33.5	1.319
C 3096 M	480	18.8976	700	27.5591	165	6.4961	4 050 000	910 100	7 800 000	1 752 800	670	900	215.00	474.08	35.5	1.398
C 30/500 M	500	19.6850	720	28.3465	167	6.5748	4 250 000	955 100	8 300 000	1 865 200	630	900	225.00	496.13	37.5	1.476
C 30/530 M	530	20.8661	780	30.7087	185	7.2835	5 100 000	1 146 100	9 500 000	2 134 800	600	800	300.00	661.50	35.7	1.406
C 30/560 M	560	22.0472	820	32.2835	195	7.6772	5 600 000	1 258 400	11 000 000	2 471 900	530	750	350.00	771.75	45.7	1.799
C 30/600 M	600	23.6220	870	34.2520	200	7.8740	6 300 000	1 415 700	12 200 000	2 741 600	500	700	395.00	870.98	35.9	1.413
C 30/630 M	630	24.8031	920	36.2205	212	8.3465	6 800 000	1 528 100	12 900 000	2 898 900	480	670	470.00	1036.35	48.1	1.894
C 30/670 M	670	26.3780	980	38.5827	230	9.0551	8 150 000	1 831 500	16 300 000	3 662 900	430	600	590.00	1300.95	41.1	1.618
C 30/710 M	710	27.9528	1 030	40.5512	236	9.2913	8 800 000	1 977 500	17 300 000	3 887 600	400	560	655.00	1444.28	47.3	1.862
C 30/750 MB	750	29.5276	1 090	42.9134	250	9.8425	9 500 000	2 134 800	19 300 000	4 337 100	380	530	838.00	1847.79	28.6	1.126
C 30/800 MB	800	31.4961	1 150	45.2756	258	10.1575	9 300 000	2 089 900	19 300 000	4 337 100	360	480	941.00	2074.91	45.9	1.807
C 30/850 MB	850	33.4646	1 220	48.0315	272	10.7087	11 600 000	2 606 700	24 500 000	5 505 600	320	450	1 105	2436.53	24.0	0.945
C 30/900 MB	900	35.4331	1 280	50.3937	280	11.0236	12 700 000	2 853 900	26 500 000	5 955 100	300	400	1 200	2646.00	24.8	0.976
C 30/950 MB	950	37.4016	1 360	53.5433	300	11.8110	13 200 000	2 966 300	28 500 000	6 404 500	280	380	1 475	3252.38	37.8	1.488
C 30/1000 MB	1 000	39.3701	1 420	55.9055	308	12.1260	13 700 000	3 078 700	30 500 000	6 853 900	260	360	1 680	3704.40	44.9	1.768

1) Permissible axial displacement from Normal position of one bearing ring in relation to the other.

Consult SKF USA Inc. prior to design change or order placement.

Single row
SKF Explorer
Series: C 3120 V – C 30/1000 MB
Size: 100 mm – 1000 mm
3.937 in – 39.370 in

Series: C 3224 – C 3236
Size: 120 mm – 180 mm
4.724 in – 7.087 in



with cage

full complement suffix V

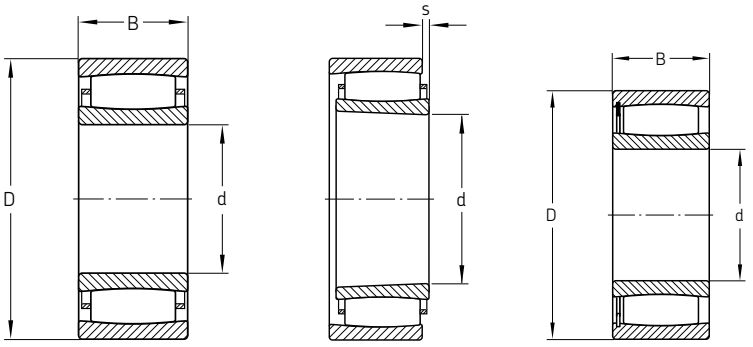
Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Axial Displacement +/- s[1]	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed				
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	mm	in
C 3120 V	100	3.9370	165	6.4961	52	2.0472	475 000	106 700	655 000	147 200	–	1 300	4.50	9.81	10.1	0.398
C 3130	150	5.9055	250	9.8425	80	3.1496	880 000	197 800	1 290 000	289 900	2 000	2 800	15.50	34.18	13.9	0.547
C 3132	160	6.2992	270	10.6299	86	3.3858	1 000 000	224 700	1 400 000	314 600	1 900	2 600	21.50	47.41	10.3	0.406
C 3136	180	7.0866	300	11.8110	96	3.7795	1 250 000	280 900	1 730 000	388 800	1 700	2 400	26.50	58.43	23.2	0.913
C 3138 V	190	7.4803	320	12.5984	104	4.0945	1 700 000	382 000	2 550 000	573 000	–	190	34.00	74.97	19.0	0.748
C 3140	200	7.8740	340	13.3858	112	4.4094	1 600 000	359 600	2 320 000	521 300	1 500	2 000	41.00	90.41	27.3	1.075
C 3144	220	8.6614	370	14.5669	120	4.7244	1 900 000	427 000	2 900 000	651 700	1 400	1 800	52.00	114.66	22.3	0.878
C 3148	240	9.4488	400	15.7480	128	5.0394	2 320 000	521 300	3 450 000	775 300	1 300	1 700	64.00	141.12	20.4	0.803
C 3152	260	10.2362	440	17.3228	144	5.6693	2 650 000	595 500	4 050 000	910 100	1 100	1 500	88.00	194.04	26.4	1.039
C 3156	280	11.0236	460	18.1102	146	5.7480	2 850 000	640 400	4 500 000	1 011 200	1 100	1 400	94.50	208.37	28.4	1.118
C 3160	300	11.8110	500	19.6850	160	6.2992	3 250 000	730 300	5 200 000	1 168 500	950	1 300	125.00	275.63	30.5	1.201
C 3164 M	320	12.5984	540	21.2598	176	6.9291	4 150 000	932 600	6 300 000	1 415 700	900	1 300	164.00	361.62	26.7	1.051
C 3168 M	340	13.3858	580	22.8346	190	7.4803	4 900 000	1 101 100	7 500 000	1 685 400	850	1 100	205.00	452.03	25.9	1.020
C 3172 M	360	14.1732	600	23.6220	192	7.5591	5 000 000	1 123 600	8 000 000	1 797 800	800	1 100	220.00	485.10	27.9	1.098
C 3176 MB	380	14.9606	620	24.4094	194	7.6378	4 400 000	988 800	7 200 000	1 618 000	750	1 000	243.00	535.82	25.4	1.000
C 3180 M	400	15.7480	650	25.5906	200	7.8740	4 800 000	1 078 700	8 300 000	1 865 200	700	950	258.00	568.89	50.7	1.996
C 3184 M	420	16.5354	700	27.5591	224	8.8189	6 000 000	1 348 300	10 400 000	2 337 100	670	900	355.00	782.78	34.8	1.370
C 3188 MB	440	17.3228	720	28.3465	226	8.8976	6 700 000	1 505 600	11 400 000	2 561 800	630	850	385.00	848.93	16.0	0.630
C 3192 M	460	18.1102	760	29.9213	240	9.4488	6 800 000	1 528 100	12 000 000	2 696 600	600	800	435.00	959.18	51.0	2.008
C 3196 MB	480	18.8976	790	31.1024	248	9.7638	6 950 000	1 561 800	12 500 000	2 809 000	560	750	523.00	1153.22	35.1	1.382
C 31/500 M	500	19.6850	830	32.6772	264	10.3937	7 500 000	1 685 400	12 700 000	2 853 900	530	750	560.00	1234.80	75.3	2.965
C 31/530 M	530	20.8661	870	34.2520	272	10.7087	8 800 000	1 977 500	15 600 000	3 505 600	500	670	636.00	1402.38	44.4	1.748
C 31/600 MB	600	23.6220	980	38.5827	300	11.8110	10 200 000	2 292 100	18 000 000	4 044 900	430	600	929.00	2048.45	26.1	1.028
C 31/630 MB	630	24.8031	1 030	40.5512	315	12.4016	11 800 000	2 651 700	20 800 000	4 674 200	400	560	1 089	2401.25	23.8	0.937
C 31/670 MB	670	26.3780	1 090	42.9134	336	13.2283	11 800 000	2 651 700	21 200 000	4 764 000	380	500	1 300	2866.50	41.0	1.614
C 31/710 MB	710	27.9528	1 150	45.2756	345	13.5827	13 400 000	3 011 200	25 500 000	5 730 300	340	480	1 470	3241.35	47.8	1.882
C 31/750 MB	750	29.5276	1 220	48.0315	365	14.3701	16 000 000	3 595 500	30 500 000	6 853 900	320	450	1 802	3973.41	33.0	1.299
C 31/1000 MB	1 000	39.3701	1 580	62.2047	462	18.1890	20 400 000	4 584 300	45 500 000	10 224 700	220	300	3 800	8379.00	70.1	2.760
C 3224	120	4.7244	215	8.4646	76	2.9921	750 000	168 500	980 000	220 200	2 400	3 200	12.00	26.46	17.1	0.673
C 3232	160	6.2992	290	11.4173	104	4.0945	1 370 000	307 900	1 830 000	411 200	1 800	2 400	29.50	65.05	19.3	0.760
C 3236	180	7.0866	320	12.5984	112	4.4094	1 530 000	343 800	2 200 000	494 400	1 500	2 000	38.00	83.79	27.3	1.075

1) Permissible axial displacement from Normal position of one bearing ring in relation to the other.

Consult SKF USA Inc. prior to design change or order placement.

Single row
SKF Explorer
Series: C 3972 M – C 39/1700 MB
Size: 360 mm – 1700 mm
14.173 in – 66.929 in

Series: C 4010 TN9 – C 40/710 M
Size: 50 mm – 710 mm
1.969 in – 27.953 in



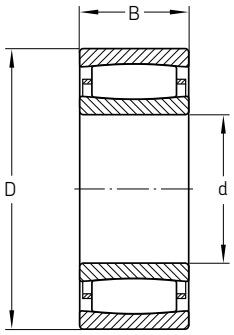
with cage

full complement
suffix V

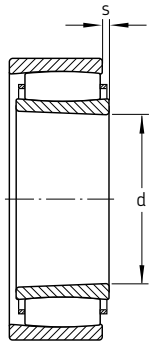
Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Axial Displacement +/- s[1]	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed				
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	mm	in
C 3972 M	360	14.1732	480	18.8976	90	3.5433	1 760 000	395 500	3 250 000	730 300	1 000	1 400	45.00	99.23	17.2	0.677
C 3984 M	420	16.5354	560	22.0472	106	4.1732	2 160 000	485 400	4 250 000	955 100	850	1 200	72.00	158.76	21.3	0.839
C 3996 M	480	18.8976	650	25.5906	128	5.0394	3 100 000	696 600	6 100 000	1 370 800	750	1 000	120.00	264.6	20.4	0.803
C 39/500 M	500	19.6850	670	26.3780	128	5.0394	3 150 000	707 900	6 300 000	1 415 700	700	950	125.00	275.63	20.4	0.803
C 39/560 M	560	22.0472	750	29.5276	140	5.5118	3 600 000	809 000	7 350 000	1 651 700	600	850	175.00	385.88	32.4	1.276
C 39/630 M	630	24.8031	850	33.4646	165	6.4961	4 650 000	1 044 900	10 000 000	2 247 200	530	700	275.00	606.38	35.5	1.398
C 39/710 M	710	27.9528	950	37.4016	180	7.0866	6 000 000	1 348 300	12 500 000	2 809 000	450	630	360.00	793.8	30.7	1.209
C 39/750 M	750	29.5276	1 000	39.3701	185	7.2835	6 100 000	1 370 800	13 400 000	3 011 200	430	560	410.00	904.05	35.7	1.406
C 39/800 M	800	31.4961	1 060	41.7323	195	7.6772	6 400 000	1 438 200	14 600 000	3 280 900	380	530	480.00	1058.4	45.7	1.799
C 39/850 M	850	33.4646	1 120	44.0945	200	7.8740	7 350 000	1 651 700	16 300 000	3 662 900	360	480	540.00	1190.7	35.9	1.413
C 39/1060 MB	1 060	41.7323	1 400	55.1181	250	9.8425	11 000 000	2 471 900	26 000 000	5 842 700	260	360	1 119	2467.4	38.4	1.512
C 39/1180 MB	1 180	46.4567	1 540	60.6299	272	10.7087	13 400 000	3 011 200	33 500 000	7 528 100	220	300	1 400	3 087	19.6	0.772
C 39/1500 MB	1 500	59.0551	1 950	76.7717	335	13.1890	19 600 000	4 404 500	48 000 000	10 786 500	140	200	2 710	5975.55	35.0	1.378
C 39/1700 MB	1 700	66.9291	2 180	85.8268	355	13.9764	24 000 000	5 393 300	62 000 000	13 932 600	110	150	3 510	7739.55	40.6	1.598
C 4010 TN9	50	1.9685	80	3.1496	30	1.1811	116 000	26 070	140 000	31 460	5 600	7 500	0.55	1.21	6.0	0.236
C 4010 V	50	1.9685	80	3.1496	30	1.1811	137 000	30 790	176 000	39 550		3 000	0.58	1.28	6.0	0.236
C 4015 V	75	2.9528	115	4.5276	40	1.5748	208 000	46 740	345 000	77 500		2 000	1.60	3.53	9.4	0.370
C 4020 V	100	3.9370	150	5.9055	50	1.9685	355 000	79 800	530 000	119 100		1 400	3.05	6.73	14.0	0.551
C 4022 MB	110	4.3307	170	6.6929	60	2.3622	430 000	96 600	655 000	147 200	2 600	3 400	5.30	11.69	4.8	0.189
C 4022 V	110	4.3307	170	6.6929	60	2.3622	500 000	112 400	800 000	179 800		1 200	5.20	11.47	12.0	0.472
C 4024 V	120	4.7244	180	7.0866	60	2.3622	530 000	119 100	880 000	197 800		1 100	5.55	12.24	12.0	0.472
C 4024 V/VE240	120	4.7244	180	7.0866	60	2.3622	430 000	96 600	640 000	143 800		1 400	5.05	11.14	17.8	0.701
C 4026	130	5.1181	200	7.8740	69	2.7165	620 000	139 300	930 000	209 000	2 200	2 800	7.85	17.31	11.4	0.449
C 4026 V	130	5.1181	200	7.8740	69	2.7165	720 000	161 800	1 120 000	251 700		850	8.15	17.97	11.4	0.449
C 4028 V	140	5.5118	210	8.2677	69	2.7165	750 000	168 500	1 220 000	274 200		800	8.60	18.96	11.4	0.449
C 4030 V	150	5.9055	225	8.8583	75	2.9528	780 000	175 300	1 320 000	296 600		750	10.50	23.15	17.4	0.685
C 4032	160	6.2992	240	9.4488	80	3.1496	765 000	171 900	1 160 000	260 700	1 700	2 400	12.50	27.56	18.1	0.713
C 4032 V	160	6.2992	240	9.4488	80	3.1496	915 000	205 600	1 460 000	328 100		600	13.00	28.67	18.1	0.713
C 4034 V	170	6.6929	260	10.2362	90	3.5433	1 140 000	256 200	1 860 000	418 000		500	17.50	38.59	17.1	0.673
C 4036 V	180	7.0866	280	11.0236	100	3.9370	1 320 000	296 600	2 120 000	476 400		430	23.50	51.82	20.1	0.791
C 4040 V	200	7.8740	310	12.2047	109	4.2913	1 630 000	366 300	2 650 000	595 500		260	30.50	67.25	21.0	0.827
C 4044 V	220	8.6614	340	13.3858	118	4.6457	1 930 000	433 700	3 250 000	730 300		200	40.00	88.20	20.0	0.787
C 4060 M	300	11.8110	460	18.1102	160	6.2992	2 900 000	651 700	4 900 000	1 101 100	900	1 200	95.50	210.58	30.4	1.197
C 40/710 M	710	27.9528	1 030	40.5512	315	12.4016	10 600 000	2 382 000	21 600 000	4 853 900	320	430	865.00	1907.33	51.2	2.016

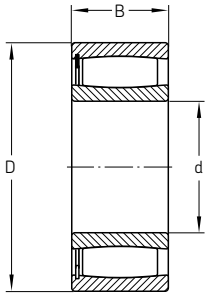
1) Permissible axial displacement from Normal position of one bearing ring in relation to the other.

Consult SKF USA Inc. prior to design change or order placement.



with cage





full complement
suffix V

Single row
SKF Explorer
Series: C 4120 V/VE240 – C 41/670 MB
Size: 100 mm – 670 mm
3.937 in – 26.378 in

Series: C 4908 V – C 49/1120 MB1
Size: 40 mm – 1120 mm
1.575 in – 44.094 in

Series: C 5915 V – C 5918 V
Size: 75 mm – 90 mm
2.953 in – 3.543 in

Series: C 6909 V – C 6915 V/VE240
Size: 45 mm – 75 mm
1.772 in – 2.953 in

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Axial Displacement +/- s[1]	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed				
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	mm	in
C 4120 V/VE240	100	3.9370	165	6.4961	65	2.5591	475 000	106 700	655 000	147 200		1 300	5.30	11.69	17.7	0.697
C 4122 V	110	4.3307	180	7.0866	69	2.7165	670 000	150 600	1 000 000	224 700		900	7.10	15.66	11.4	0.449
C 4124 V	120	4.7244	200	7.8740	80	3.1496	780 000	175 300	1 120 000	251 700		750	10.00	22.05	18.0	0.709
C 4128 V/VE240	140	5.5118	225	8.8583	85	3.3465	780 000	175 300	1 200 000	269 700		800	12.50	27.56	9.7	0.382
C 4130 V	150	5.9055	250	9.8425	100	3.9370	1 220 000	274 200	1 860 000	418 000		450	20.0	44.10	20.0	0.787
C 4136 V	180	7.0866	300	11.8110	118	4.6457	1 760 000	395 500	2 700 000	606 700		220	34.50	76.07	20.0	0.787
C 4188 MB	440	17.3228	720	28.3465	280	11.0236	7 500 000	1 685 400	12 900 000	2 898 900	500	670	471	1038.56	27.8	1.094
C 4192 MB	460	18.1102	760	29.9213	300	11.8110	8 650 000	1 943 800	15 000 000	3 370 800	480	630	571	1259.06	23.3	0.917
C 41/500 M	500	19.6850	830	32.6772	325	12.7953	9 800 000	2 202 200	17 600 000	3 955 100	430	560	710	1565.55	46.3	1.823
C 41/600 MB	600	23.6220	980	38.5827	375	14.7638	12 900 000	2 898 900	23 200 000	5 213 500	340	450	1 150	2535.75	24.6	0.969
C 41/670 MB	670	26.3780	1 090	42.9134	412	16.2205	16 000 000	3 595 500	29 000 000	6 516 900	300	400	1 570	3461.85	37.2	1.465
C 4908 V	40	1.5748	62	2.4409	22	0.8661	76 500	17 190	100 000	22 470		4 300	0.25	0.55	4.7	0.185
C 4910 V	50	1.9685	72	2.8346	22	0.8661	86 500	19 440	125 000	28 090		3 600	0.29	0.64	4.7	0.185
C 49/1120 MB1	1 120	44.0945	1 460	57.4803	335	13.1890	13 200 000	2 966 300	31 500 000	7 078 700	200	260	1 628	3589.74	76.1	2.996
C 5020 V	100	3.9370	150	5.9055	67	2.6378	510 000	114 600	865 000	194 400		1 100	4.30	9.48	9.3	0.366
C 5915 V	75	2.9528	105	4.1339	40	1.5748	204 000	45 840	325 000	73 000		1 900	1.10	2.43	9.4	0.370
C 5918 MB	90	3.5433	125	4.9213	46	1.8110	193 000	43 370	325 000	73 000	2 600	4 000	1.75	3.86	2.9	0.114
C 5918 V	90	3.5433	125	4.9213	46	1.8110	224 000	50 300	400 000	89 900		1 600	1.75	3.86	15.4	0.606
C 6006 V	30	1.1811	55	2.1654	45	1.7717	134 000	30 110	180 000	40 450		3 200	0.49	1.08	7.9	0.311
C 6909 V	45	1.7717	68	2.6772	40	1.5748	132 000	29 660	200 000	44 940		2 600	0.53	1.17	9.4	0.370
C 6910 V	50	1.9685	72	2.8346	40	1.5748	140 000	31 460	224 000	50 300		2 400	0.54	1.19	9.4	0.370
C 6911 V	55	2.1654	80	3.1496	45	1.7717	180 000	40 450	300 000	67 400		2 200	0.78	1.72	7.9	0.311
C 6912 V	60	2.3622	85	3.3465	45	1.7717	190 000	42 700	335 000	75 300		1 900	0.83	1.83	7.9	0.311
C 6915 V/VE240	75	2.9528	105	4.1339	54	2.1260	204 000	45 840	325 000	73 000		1 900	1.40	3.09	9.2	0.362

1) Permissible axial displacement from Normal position of one bearing ring in relation to the other.

Consult SKF USA Inc. prior to design change or order placement.

Notes

Notes

Notes



Needle roller bearings

RNA 4900 2RS M V C3

1 2 3 4 5

1. Basic design:

BK	Closed end drawn cup
HK	Drawn cup needle roller with open ends
NA	Bearing with flanges and inner ring
NK	Bearing with flanges without inner ring
NKI	Bearing with flanges and inner rings
NKIS	Bearing with flanges and inner rings
NKS	Bearing with flanges without inner ring
RNA	Bearing without inner ring

2. Seals, shields and snap rings:

RS	Seal of plate and synthetic rubber on one side
2RS	Seal of plate and synthetic rubber on both sides

3. Cage designs:

TN	Nylon cage, rolling element guided
M	Machined brass cage, rolling element guided
IS1	One lubrication hole in the inner ring

4. Features:

V	Full complement bearing without cage
H...	Reduced tolerance for the inside diameter of the roller and cage assembly; the figures following the letter H indicate the tolerance limits in mm
W64	Solid Oil lubricants

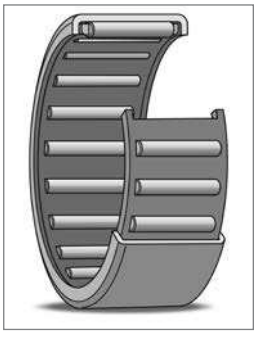
5. Clearance and tolerance:

(C0)*	Normal radial internal clearance
C3	Radial internal clearance > normal
C4	Radial internal clearance > C3
CNR	Reduced normal radial clearance corresponding to earlier standard (ISO 5753-1981)
P5	Dimensional and running accuracy to ISO tolerance class 5 specifications (better than P6)
P6	Dimensional and running accuracy to ISO tolerance class 6 specifications (better than normal)

* Not marked on bearing or package

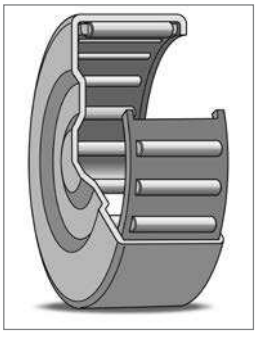
Technical features

Boundary dimensions	In accordance with ISO 3245-1974 (ABMA std 18.1)
Tolerances	Normal
Heat stabilization	302° F (150° C)
Misalignment	None to very minor (contact SKF for further details)
Cage Material	
Standard	Steel
Optional	Polyamide (TN)
Axial load – max	None
Seals	2RS1 – 2 synthetic rubber (NBR) seals only available on RNA 49 and NA 49 series



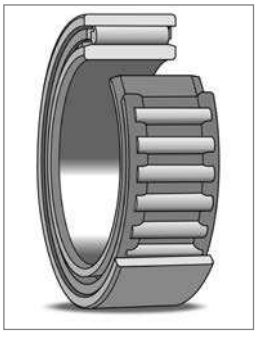
HK

Drawn cup needle roller bearing with open ends (data tables on page 206)



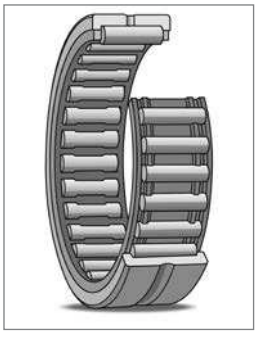
BK

Drawn cup needle roller bearing with closed ends (data tables on page 206)



NA

Needle roller bearing with inner ring (data tables on page 210)



NK

Needle roller bearing without inner ring (data tables on page 214)

Introduction

Needle roller bearings are roller bearings with cylindrical rollers, which are thin and long in relation to their diameter. They are referred to as needle rollers. In spite of their low cross section, the bearings have a high load carrying capacity and are thus eminently suitable for bearing arrangements where radial space is limited.

The needle rollers have a profile, which is slightly relieved towards the roller ends. The resultant modified line contact between needle rollers and raceways means that damaging edge stresses are minimized.

SKF supplies many different types of needle roller bearings, including drawn cup needle roller bearings with open ends and with closed ends, and needle roller bearings with and without inner rings.

Basic design

Needle roller bearings with carbon chromium steel rings have a low sectional height and very high load carrying capacity. Depending on the application, they may be used with or without an inner ring.

Needle roller bearings without inner ring are the better alternative where it is possible to harden and grind the necessary raceways on the shaft. As the inner ring is not needed the shaft can have a larger diameter and will therefore be stiffer. The amount by which the shaft can be axially displaced relative to the housing is also only limited by the width of the raceway on the shaft. By machining the shaft raceways to appropriate accuracies of dimension and form, it is possible to achieve bearing arrangements having enhanced running accuracy.

Needle roller bearings with inner ring are used for arrangements where it is impossible, or uneconomical, to harden and grind the shaft. Bearings with inner ring only permit axial displacements of the shaft relative to the housing within the limits quoted in the bearing tables. If greater displacements have to be accommodated, extended inner rings can be used instead of the standard inner rings. For details on these extended rings, please consult SKF Applications Engineering.

Drawn cup needle roller bearings

Drawn cup needle roller bearings are needle roller bearings with thin, deep drawn outer rings. Their principal characteristics are their very low cross section and their high load carrying capacity. They are mainly used where particularly compact and economic bearing arrangements are desired but where the housing bore cannot serve as a raceway for a needle roller and cage assembly. The bearings must be mounted with an interference fit in the housing. If axial location by means of shoulders, snap rings, etc. is dispensed with, the housing bores can be produced simply and economically.

Drawn cup needle roller bearings are available with open ends **(Figure 1a),** or with one closed end **(Figure 1b)** for mounting on shaft ends. The profiled base (end) of the closed drawn cup enables minor axial guiding forces to be accommodated.

Drawn cup needle roller bearings are generally used without an inner ring. For applications where it is not possible to harden and grind the shaft seating, the inner rings listed in the tables can be used.

The outer ring of hardened sheet steel and the needle roller and cage assembly of drawn cup needle roller bearings form a non-separable unit. The free space available for lubricant means that long relubrication intervals can be applied. The bearings are generally of the single row design with the exception of the relatively wide sizes 1522, 1622, 2030, 2538 and 3038, which incorporate two needle roller and cage assemblies and have a lubrication hole in the outer ring.

Product highlights

Suitable for limited radial space
Low sectional height makes needle roller bearings suitable for applications when heavy radial loads and a limited radial space exist. Depending on the application, they may be used with or without an inner ring, with a roller cage assembly running directly on the shaft.

Drawn cup series – the popular choice
The popular drawn cup series have an extremely thin-walled outer ring and are intended to operate directly on the shaft without use of an inner ring.

Large product assortment
A wide variety of designs include combined bearings for radial and axial loads allowing for compact and economical bearing arrangements. Size range includes 3 to 360 mm inside diameter.

Seals integration
SKF needle roller bearings are also available with seals on one or two sides making external seals unnecessary. The seals are made of synthetic rubber and provide efficient protection to the bearings against contaminants.

Figure 1



Open ends (HK)

a

Closed ends (BK)

b

Introduction

Variations

Sealed drawn cup needle roller bearings
For applications where an adequate seal is not available or cannot be provided for space reasons, sealed drawn cup needle roller bearings with open and closed ends (c,d,e) can be supplied. These incorporate rubbing seals of synthetic rubber and are filled with a lithium base grease having good rust inhibiting properties. The bearings are suitable for operating temperatures in the range –4° to +212° F (-20° to +100° C). For further information on sealed drawn cup needle roller bearings, please consult SKF Applications Engineering.

Needle roller bearings with machined rings

The basic design of SKF needle roller bearings in the size range up to and including 19 mm outside diameter has an outer ring with either integral or inserted flanges **(Figure 2a).** The larger bearings have integral flanges and an annular groove and lubrication hole in the outer ring **(Figure 2b)**. Needle roller bearings with flanged outer rings are mainly produced as single row bearings. The exceptions are bearings of series RNA 69 and NA 69 having outside diameters of 55 mm and above where two needle roller and cage assemblies are guided between integral flanges on the outer ring **(Figure 2c)**. The outer ring, needle rollers and cage of all bearings form a non-separable unit.

Sealed bearings

Single row needle roller bearings of series RNA 49 and NA 49 are also available with rubbing seals at one side, RS design **(Figure 2d)**, or at both sides, 2RS design **(Figure 2e)**. The seals are made of synthetic rubber and provide efficient protection to the bearings against contaminants. All bearings are supplied as standard filled with a lithium base grease having good rust inhibiting properties. The bearings are suitable for operating temperatures in the range of -4° to +212° F (-20° to +100° C). The inner rings of the sealed bearings are 1 mm wider than the outer rings. This will allow the seals to provide adequate protection against contaminants even where the shaft is slightly displaced axially relative to the housing.

The inner rings also have a lubrication hole so that, depending on the arrangement, it is possible to relubricate the bearings via the outer or inner rings.

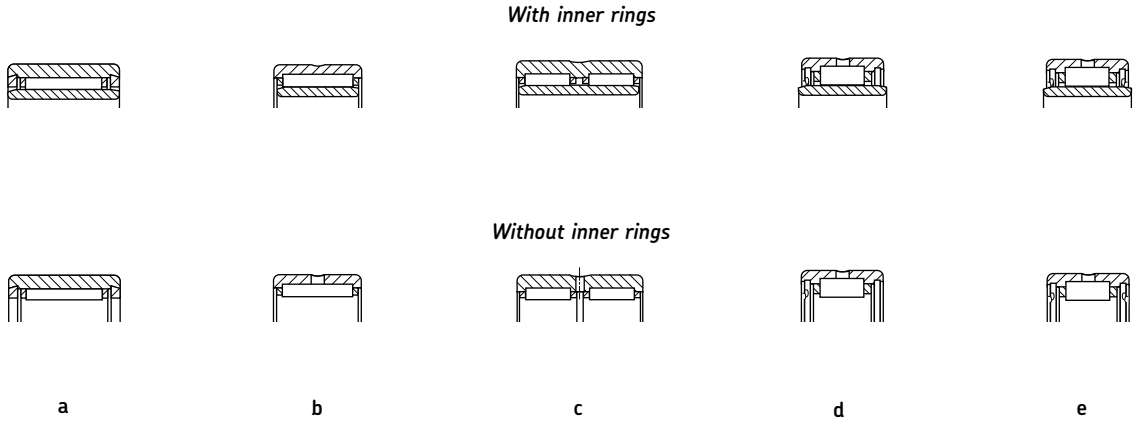
Special solutions using needle roller bearings

SKF supplies many different types of needle roller bearings in addition to those shown in this catalog, including:

- Needle roller and cage assemblies
- Needle roller bearings without flanges
- Alignment needle roller bearings
- Combined needle roller / ball bearings
- Combined needle roller / thrust ball bearings
- Combined needle roller / cylindrical roller thrust bearings

Details on these special solution products are available in the Needle roller bearings catalog (PUB 06003 EN), which can be supplied upon request.

Figure 2



Internal Clearance

Radial internal clearance

SKF needle roller bearings with inner ring are supplied with Normal radial internal clearance as standard. Bearings with greater or smaller clearance may be available but this should be checked before ordering.

The clearance values correspond to ISO 5753-1 and are shown in **Table 1**.

Loads

Equivalent dynamic bearing load

Needle roller bearings and standard needle roller bearing assemblies can only accommodate radial loads. Therefore:

P = Fr

Minimum Load

In order to provide satisfactory operation of all ball and roller bearings, they must always be subjected to a given minimum load. This is also true of needle roller bearings, particularly if they run at high speeds where the inertia forces of the rollers and cage, and the friction in the lubricant can have a detrimental influence on the rolling conditions in the bearing. It may also cause damaging sliding movements to occur between the rollers and the raceways.

The requisite minimum radial load to be applied in such cases can be found on the SKF website, skfusa.com. Select Engineering Tools under the Support menu. Or contact SKF Applications Engineering.

However, the weight of the components supported by the bearing, together with the external forces, often exceeds the requisite minimum load. If this is not the case, an additional radial load must be applied to the bearing, for example, by increasing belt tension or similar means.

Frequency Vibration Data

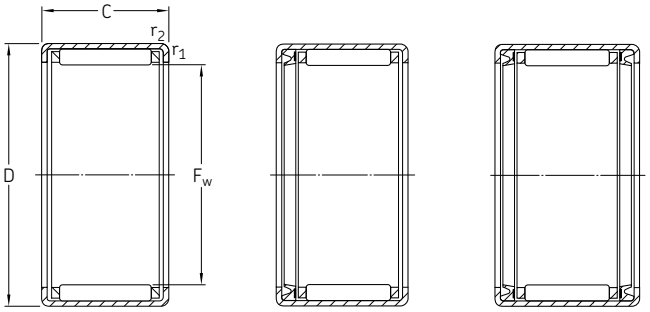
Frequency vibration data is available on the SKF website, skfusa.com. Select Engineering Tools under the Support menu. Or contact SKF Applications Engineering.

Table 1

Radial internal clearance of needle roller bearings

Bore diameter d				Radial internal clearance															
				C2				Normal				C3				C4			
over	incl.			min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
mm		in		µm		in		µm		in		µm		in		µm		in	
-	24	0	0.9449	0	25	0.0000	0.0010	20	45	0.0008	0.0018	35	60	0.0014	0.0024	50	75	0.0020	0.0030
24	30	0.9449	1.1811	0	25	0.0000	0.0010	20	45	0.0008	0.0018	35	60	0.0014	0.0024	50	75	0.0020	0.0030
30	40	1.1811	1.5748	5	30	0.0002	0.0012	25	50	0.0010	0.0020	45	70	0.0018	0.0028	60	85	0.0024	0.0033
40	50	1.5748	1.9685	5	35	0.0002	0.0014	30	60	0.0012	0.0024	50	80	0.0020	0.0031	70	100	0.0028	0.0039
50	65	1.9685	2.5591	10	40	0.0004	0.0016	40	70	0.0016	0.0028	60	90	0.0024	0.0035	80	110	0.0031	0.0043
65	80	2.5591	3.1496	10	45	0.0004	0.0018	40	75	0.0016	0.0030	65	100	0.0026	0.0039	90	125	0.0035	0.0049
80	100	3.1496	3.9370	15	50	0.0006	0.0020	50	85	0.0020	0.0033	75	110	0.0030	0.0043	105	140	0.0041	0.0055
100	120	3.9370	4.7244	15	55	0.0006	0.0022	50	90	0.0020	0.0035	85	125	0.0033	0.0049	125	165	0.0049	0.0065
120	140	4.7244	5.5118	15	60	0.0006	0.0024	60	105	0.0024	0.0041	100	145	0.0039	0.0057	145	190	0.0057	0.0075
140	160	5.5118	6.2992	20	70	0.0008	0.0028	70	120	0.0028	0.0047	115	165	0.0045	0.0065	165	215	0.0065	0.0085
160	180	6.2992	7.0866	25	75	0.0010	0.0030	75	125	0.0030	0.0049	120	170	0.0047	0.0067	170	220	0.0067	0.0087
180	200	7.0866	7.8740	35	90	0.0014	0.0035	90	145	0.0035	0.0057	140	195	0.0055	0.0077	195	250	0.0077	0.0098
200	225	7.8740	8.8583	45	105	0.0018	0.0041	105	165	0.0041	0.0065	160	220	0.0063	0.0087	220	280	0.0087	0.0110
225	250	8.8583	9.8425	45	110	0.0018	0.0043	110	175	0.0043	0.0069	170	235	0.0067	0.0093	235	300	0.0093	0.0118
250	280	9.8425	11.0236	55	125	0.0022	0.0049	125	195	0.0049	0.0077	190	260	0.0075	0.0102	260	330	0.0102	0.0130
280	315	11.0236	12.4016	55	130	0.0022	0.0051	130	205	0.0051	0.0081	200	275	0.0079	0.0108	275	350	0.0108	0.0138
315	355	12.4016	13.9764	65	145	0.0026	0.0057	145	225	0.0057	0.0089	225	305	0.0089	0.0120	305	385	0.0120	0.0152
355	400	13.9764	15.7480	100	190	0.0039	0.0075	190	280	0.0075	0.0110	280	370	0.0110	0.0146	370	460	0.0146	0.0181

Single row
Drawn cup, open and closed end
Series: HK 0306 TN – HK 1614 RS
Size: 3 mm – 16 mm
0.1181 in – 0.6299 in



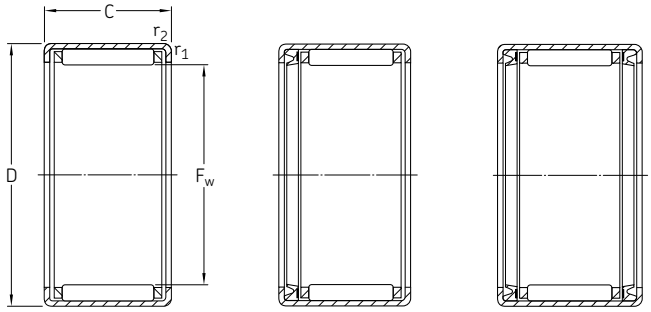
Series HK | Series HK ...RS | Series HK ...2RS

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass			
	Bore F_w		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed	Open end (HK)		Closed end (BK)	
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	g	oz	g	oz
HK 0306 TN	3	0.1181	6.5	0.2559	6	0.2362	1 230	280	880	200	24 000	26 000	1.0	0.04	1.0	0.04
HK 0408	4	0.1575	8	0.3150	8	0.3150	1 760	400	1 370	310	22 000	26 000	2.0	0.07	2.1	0.07
HK 0509	5	0.1969	9	0.3543	9	0.3543	2 380	530	2 080	470	22 000	24 000	2.0	0.07	2.1	0.07
HK 0606	6	0.2362	10	0.3937	6	0.2362	1 720	390	1 290	290	20 000	22 000	1.5	0.05	-	-
HK 0608	6	0.2362	10	0.3937	8	0.3150	2 010	450	1 730	390	20 000	22 000	2.1	0.07	-	-
HK 0609	6	0.2362	10	0.3937	9	0.3543	2 810	630	2 700	610	20 000	22 000	2.5	0.09	2.6	0.09
HK 0709	7	0.2756	11	0.4331	9	0.3543	3 030	680	3 050	690	20 000	22 000	2.6	0.09	2.9	0.10
HK 0808	8	0.3150	12	0.4724	8	0.3150	2 700	610	2 750	620	19 000	22 000	2.7	0.10	3.0	0.11
HK 0810	8	0.3150	12	0.4724	10	0.3937	3 690	830	4 050	910	19 000	22 000	3.0	0.11	3.4	0.12
HK 0812 2RS	8	0.3150	12	0.4724	12	0.4724	2 700	610	2 750	620	-	13 000	3.3	0.12	-	-
HK 0908	9	0.3543	13	0.5118	8	0.3150	3 520	790	3 900	880	18 000	20 000	3.0	0.11	-	-
HK 0910	9	0.3543	13	0.5118	10	0.3937	4 130	930	4 800	1 080	18 000	20 000	4.0	0.14	4.3	0.15
HK 0912	9	0.3543	13	0.5118	12	0.4724	5 120	1 150	6 400	1 440	18 000	20 000	4.6	0.16	4.9	0.17
HK 1010	10	0.3937	14	0.5512	10	0.3937	4 290	960	5 300	1 190	18 000	20 000	4.1	0.14	4.3	0.15
HK 1012	10	0.3937	14	0.5512	12	0.4724	5 390	1 210	6 950	1 560	18 000	20 000	4.8	0.17	5.0	0.18
HK 1014 2RS	10	0.3937	14	0.5512	14	0.5512	4 290	960	5 300	1 190	-	12 000	4.6	0.16	-	-
HK 1015	10	0.3937	14	0.5512	15	0.5906	6 600	1 480	9 000	2 020	18 000	20 000	6.0	0.21	6.2	0.22
HK 1210	12	0.4724	16	0.6299	10	0.3937	4 840	1 090	6 400	1 440	16 000	18 000	4.6	0.16	5.2	0.18
HK 1212	12	0.4724	18	0.7087	12	0.4724	6 270	1 410	7 350	1 650	16 000	18 000	9.5	0.34	10.0	0.35
HK 1214 2RS	12	0.4724	16	0.6299	14	0.5512	4 840	1 090	6 400	1 440	-	10 000	8.0	0.28	-	-
HK 1216 2RS	12	0.4724	18	0.7087	16	0.6299	6 270	1 410	7 350	1 650	-	10 000	11.0	0.39	-	-
HK 1312	13	0.5118	19	0.7480	12	0.4724	6 600	1 480	8 000	1 800	16 000	17 000	10.3	0.36	11.0	0.39
HK 1412	14	0.5512	20	0.7874	12	0.4724	6 820	1 530	8 650	1 940	15 000	17 000	10.5	0.37	12.0	0.42
HK 1414 RS	14	0.5512	20	0.7874	14	0.5512	6 820	1 530	8 650	1 940	-	9 500	12.0	0.42	13.0	0.46
HK 1416 2RS	14	0.5512	20	0.7874	16	0.6299	6 820	1 530	8 650	1 940	-	9 500	13.0	0.46	-	-
HK 1512	15	0.5906	21	0.8268	12	0.4724	7 650	1 720	9 500	2 130	15 000	16 000	11.0	0.39	13.0	0.46
HK 1514 RS	15	0.5906	21	0.8268	14	0.5512	7 480	1 680	10 000	2 250	-	9 500	12.0	0.42	14.0	0.49
HK 1516	15	0.5906	21	0.8268	16	0.6299	10 100	2 270	14 600	3 280	15 000	16 000	15.0	0.53	17.0	0.60
HK 1518 RS	15	0.5906	21	0.8268	18	0.7087	10 100	2 270	14 600	3 280	-	9 500	16.0	0.56	-	-
HK 1520 2RS	15	0.5906	21	0.8268	20	0.7874	10 100	2 270	14 600	3 280	-	9 500	18.0	0.63	-	-
HK 1522 [1]	15	0.5906	21	0.8268	22	0.8661	13 000	2 920	20 000	4 490	15 000	16 000	20.0	0.71	-	-
HK 1612	16	0.6299	22	0.8661	12	0.4724	7 370	1 660	9 800	2 200	14 000	16 000	12.0	0.42	14.0	0.49
HK 1614 RS	16	0.6299	22	0.8661	14	0.5512	7 370	1 660	9 800	2 200	-	9 000	13.0	0.46	15.0	0.53

1) Double row

Consult SKF USA Inc. prior to design change or order placement.

Single row
Drawn cup, open and closed end
Series: HK 1616 – HK 3018 RS
Size: 16 mm – 30 mm
0.6299 in – 1.1811 in



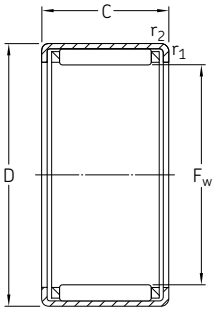
Series HK | Series HK ...RS | Series HK ...2RS

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass			
	Bore F_w		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed	Open end (HK)		Closed end (BK)	
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	g	oz	g	oz
HK 1616	16	0.6299	22	0.8661	16	0.6299	10 500	2 360	15 600	3 510	14 000	16 000	16.0	0.56	18.0	0.63
HK 1620 2RS	16	0.6299	22	0.8661	20	0.7874	10 500	2 360	15 600	3 510	-	9 000	18.0	0.63		
HK 1622 [1)]	16	0.6299	22	0.8661	22	0.8661	12 800	2 880	19 600	4 400	14 000	16 000	24.0	0.85	24.0	0.85
HK 1712	17	0.6693	23	0.9055	12	0.4724	7 650	1 720	10 600	2 380	14 000	15 000	13.0	0.46	-	-
HK 1812	18	0.7087	24	0.9449	12	0.4724	7 920	1 780	11 200	2 520	13 000	15 000	13.0	0.46	15.0	0.53
HK 1814 RS	18	0.7087	24	0.9449	14	0.5512	7 920	1 780	11 200	2 520	-	8 500	14.0	0.49	-	-
HK 1816	18	0.7087	24	0.9449	16	0.6299	11 200	2 520	17 600	3 960	13 000	15 000	18.0	0.63	20.0	0.71
HK 2010	20	0.7874	26	1.0236	10	0.3937	6 160	1 380	8 500	1 910	12 000	14 000	12.0	0.42	-	-
HK 2012	20	0.7874	26	1.0236	12	0.4724	8 420	1 890	12 500	2 810	12 000	14 000	14.0	0.49	-	-
HK 2016	20	0.7874	26	1.0236	16	0.6299	12 300	2 760	20 400	4 580	12 000	14 000	19.0	0.67	22.0	0.78
HK 2018 RS	20	0.7874	26	1.0236	18	0.7087	12 300	2 760	20 400	4 580	-	8 000	21.0	0.74	24.0	0.85
HK 2020	20	0.7874	26	1.0236	20	0.7874	15 100	3 390	26 500	5 960	12 000	14 000	24.0	0.85	27.0	0.95
HK 2030 [1)]	20	0.7874	26	1.0236	30	1.1811	20 900	4 700	40 500	9 100	12 000	14 000	35.0	1.23	-	-
HK 2210	22	0.8661	28	1.1024	10	0.3937	7 210	1 620	10 600	2 380	11 000	12 000	13.0	0.46	-	-
HK 2212	22	0.8661	28	1.1024	12	0.4724	8 800	1 980	13 700	3 080	11 000	12 000	15.0	0.53	18.0	0.63
HK 2214 RS	22	0.8661	28	1.1024	14	0.5512	8 800	1 980	13 700	3 080	-	7 500	16.0	0.56	-	-
HK 2216	22	0.8661	28	1.1024	16	0.6299	13 000	2 920	22 400	5 030	11 000	12 000	21.0	0.74	24.0	0.85
HK 2218 RS	22	0.8661	28	1.1024	18	0.7087	13 000	2 920	22 400	5 030	-	7 500	24.0	0.85	-	-
HK 2220	22	0.8661	28	1.1024	20	0.7874	15 700	3 530	29 000	6 520	11 000	12 000	26.0	0.92	-	-
HK 2512	25	0.9843	32	1.2598	12	0.4724	10 500	2 360	15 300	3 440	9 500	11 000	20.0	0.71	-	-
HK 2516	25	0.9843	32	1.2598	16	0.6299	15 100	3 390	24 000	5 390	9 500	11 000	25.3	0.89	32.0	1.13
HK 2518 RS	25	0.9843	32	1.2598	18	0.7087	15 100	3 390	24 000	5 390	-	6 700	29.0	1.02	34.0	1.20
HK 2520	25	0.9843	32	1.2598	20	0.7874	19 000	4 270	32 500	7 300	9 500	11 000	33.0	1.16	38.0	1.34
HK 2524 2RS	25	0.9843	32	1.2598	24	0.9449	19 000	4 270	32 500	7 300	-	6 700	40.0	1.41		
HK 2526	25	0.9843	32	1.2598	26	1.0236	24 200	5 440	45 000	10 110	9 500	11 000	44.0	1.55	48.0	1.69
HK 2530 2RS	25	0.9843	32	1.2598	30	1.1811	24 200	5 440	45 000	10 110	-	6 700	47.0	1.66	-	-
HK 2538 [1)]	25	0.9843	32	1.2598	38	1.4961	33 000	7 420	65 500	14 720	9 500	11 000	64.0	2.26	68.0	2.40
HK 2816	28	1.1024	35	1.3780	16	0.6299	15 700	3 530	26 500	5 960	9 000	9 500	26.6	0.94	-	-
HK 2818 RS	28	1.1024	35	1.3780	18	0.7087	15 700	3 530	26 500	5 960	-	6 300	31.0	1.09	-	-
HK 2820	28	1.1024	35	1.3780	20	0.7874	20 100	4 520	36 500	8 200	9 000	9 500	36.0	1.27	-	-
HK 3012	30	1.1811	37	1.4567	12	0.4724	11 700	2 630	18 300	4 110	8 000	9 000	23.0	0.81	28.0	0.99
HK 3016	30	1.1811	37	1.4567	16	0.6299	16 500	3 710	29 000	6 520	8 000	9 000	31.0	1.09	38.0	1.34
HK 3018 RS	30	1.1811	37	1.4567	18	0.7087	16 500	3 710	29 000	6 520	-	5 600	37.0	1.31	-	-

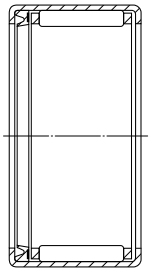
1) Double row

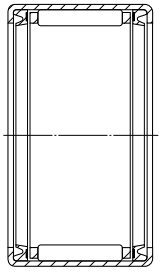
Consult SKF USA Inc. prior to design change or order placement.

Single row
Drawn cup, open and closed end
Series: HK 3020 – HK 4020
Size: 30 mm – 40 mm
1.1811 in – 1.5748 in



Series HK


Series HK ...RS

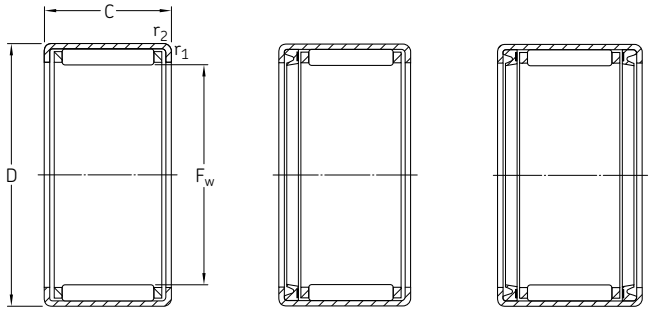

Series HK ...2RS

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass			
	Bore F_w		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed	Open end (HK)		Closed end (BK)	
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	g	oz	g	oz
HK 3020	30	1.1811	37	1.4567	20	0.7874	20 900	4 700	40 000	8 990	8 000	9 000	38.0	1.34	47.0	1.66
HK 3022	30	1.1811	37	1.4567	22	0.8661	23 800	5 350	46 500	10 450	8 000	9 000	42.0	1.48		
HK 3024 2RS	30	1.1811	37	1.4567	24	0.9449	20 900	4 700	40 000	8 990	–	5 600	44.0	1.55		
HK 3026	30	1.1811	37	1.4567	26	1.0236	27 000	6 070	54 000	12 130	8 000	9 000	51.0	1.80	58.0	2.05
HK 3038 [1]	30	1.1811	37	1.4567	38	1.4961	35 800	8 040	80 000	17 980	8 000	9 000	76.0	2.68	84.0	2.96
HK 3220	32	1.2598	39	1.5354	20	0.7874	22 000	4 940	43 000	9 660	7 500	8 500	40.6	1.43		
HK 3224	32	1.2598	39	1.5354	24	0.9449	26 400	5 930	54 000	12 130	7 500	8 500	49.0	1.73		
HK 3512	35	1.3780	42	1.6535	12	0.4724	12 500	2 810	21 600	4 850	7 000	8 000	27.0	0.95		
HK 3516	35	1.3780	42	1.6535	16	0.6299	17 900	4 020	34 000	7 640	7 000	8 000	36.0	1.27		
HK 3518 RS	35	1.3780	42	1.6535	18	0.7087	17 900	4 020	34 000	7 640	–	5 000	39.0	1.38		
HK 3520	35	1.3780	42	1.6535	20	0.7874	22 900	5 150	46 500	10 450	7 000	8 000	44.0	1.55	53.0	1.87
HK 4012	40	1.5748	47	1.8504	12	0.4724	13 400	3 010	24 500	5 510	6 300	7 000	30.0	1.06		
HK 4016	40	1.5748	47	1.8504	16	0.6299	19 000	4 270	39 000	8 760	6 300	7 000	39.0	1.38		
HK 4018 RS	40	1.5748	47	1.8504	18	0.7087	19 000	4 270	39 000	8 760	–	4 500	45.0	1.59		
HK 4020	40	1.5748	47	1.8504	20	0.7874	24 200	5 440	53 000	11 910	6 300	7 000	54.0	1.90	62.0	2.19

1) Double row

Consult SKF USA Inc. prior to design change or order placement.

Single row
Drawn cup, open and closed end
Series: HK 4512 – HK 6032
Size: 45 mm – 60 mm
1.7717 in – 2.3622 in



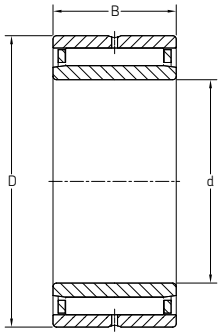
Series HK | Series HK ...RS | Series HK ...2RS

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass			
	Bore F_w		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed	Open end (HK)		Closed end (BK)	
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	g	oz	g	oz
HK 4512	45	1.7717	52	2.0472	12	0.4724	14 200	3 190	27 500	6 180	5 600	6 300	33.0	1.16		
HK 4516	45	1.7717	52	2.0472	16	0.6299	20 500	4 610	43 000	9 660	5 600	6 300	46.9	1.65		
HK 4518 RS	45	1.7717	52	2.0472	18	0.7087	20 500	4 610	43 000	9 660	–	4 000	50.0	1.76		
HK 4520	45	1.7717	52	2.0472	20	0.7874	26 000	5 840	60 000	13 480	5 600	6 300	56.0	1.98	72.0	2.54
HN 4525	45	1.7717	52	2.0472	25	0.9843	44 000	44 000	140 000	31 460	4 500	5 600	85.0	3.00		
HK 5020	50	1.9685	58	2.2835	20	0.7874	29 200	6 560	63 000	14 160	5 000	5 600	70.0	2.47		
HK 5022 RS	50	1.9685	58	2.2835	22	0.8661	29 200	6 560	63 000	14 160	–	3 600	76.0	2.68		
HK 5024 2RS	50	1.9685	58	2.2835	24	0.9449	29 200	6 560	63 000	14 160	–	3 600	81.0	2.86		
HK 5025	50	1.9685	58	2.2835	25	0.9843	36 900	8 290	85 000	19 100	5 000	5 600	85.0	3.00		
HK 5520	55	2.1654	63	2.4803	20	0.7874	30 300	6 810	67 000	15 060	4 500	5 000	74.0	2.61		
HK 5528	55	2.1654	63	2.4803	28	1.1024	41 800	9 390	104 000	23 370	4 500	5 000	105.0	3.70		
HK 6012	60	2.3622	68	2.6772	12	0.4724	17 600	3 960	32 000	7 190	4 300	4 800	49.0	1.73		
HK 6020	60	2.3622	68	2.6772	20	0.7874	31 900	7 170	75 000	16 850	4 300	4 800	81.0	2.86		
HK 6032	60	2.3622	68	2.6772	32	1.2598	51 200	11 510	137 000	30 790	4 300	4 800	136.0	4.80		

1) Double row

Consult SKF USA Inc. prior to design change or order placement.

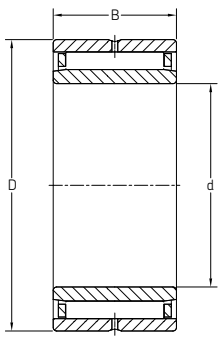
Single row
with inner ring
Series: NA 4822 – NA 4876
Size: 110 mm – 380 mm
4.3307 in – 14.9606 in



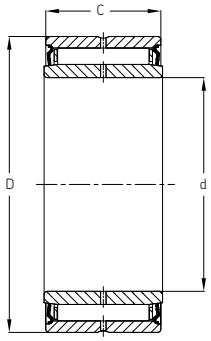
Series NA 48

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
NA 4822	110	4.3307	140	5.5118	30	1.1811	93 500	21 010	232 000	52 100	3 400	3 800	1.08	2.38
NA 4824	120	4.7244	150	5.9055	30	1.1811	99 000	22 250	255 000	57 300	3 200	3 600	1.17	2.58
NA 4826	130	5.1181	165	6.4961	35	1.3780	119 000	26 740	325 000	73 000	2 800	3 200	1.81	3.99
NA 4828	140	5.5118	175	6.8898	35	1.3780	121 000	27 190	345 000	77 500	2 600	3 000	1.92	4.23
NA 4830	150	5.9055	190	7.4803	40	1.5748	147 000	33 030	415 000	93 300	2 400	2 800	2.72	6.00
NA 4832	160	6.2992	200	7.8740	40	1.5748	157 000	35 280	450 000	101 100	2 200	2 600	2.87	6.33
NA 4834	170	6.6929	215	8.4646	45	1.7717	179 000	40 220	520 000	116 900	2 200	2 400	3.96	8.73
NA 4836	180	7.0866	225	8.8583	45	1.7717	190 000	42 700	570 000	128 100	2 000	2 400	4.20	9.26
NA 4838	190	7.4803	240	9.4488	50	1.9685	220 000	49 440	710 000	159 600	1 900	2 200	5.55	12.24
NA 4840	200	7.8740	250	9.8425	50	1.9685	224 000	50 300	735 000	165 200	1 800	2 000	5.80	12.79
NA 4844	220	8.6614	270	10.6299	50	1.9685	238 000	53 500	815 000	183 100	1 700	1 900	6.33	13.96
NA 4848	240	9.4488	300	11.8110	60	2.3622	347 000	78 000	1 119 999	251 700	1 500	1 700	9.88	21.79
NA 4852	260	10.2362	320	12.5984	60	2.3622	358 000	80 400	1 199 999	269 700	1 400	1 500	10.60	23.37
NA 4856	280	11.0236	350	13.7795	69	2.7165	429 000	96 400	1 319 999	296 600	1 300	1 400	15.30	33.74
NA 4860	300	11.8110	380	14.9606	80	3.1496	594 000	133 500	1 799 999	404 500	1 100	1 300	21.80	48.07
NA 4864	320	12.5984	400	15.7480	80	3.1496	605 000	136 000	1 899 999	427 000	1 100	1 200	23.00	50.72
NA 4868	340	13.3858	420	16.5354	80	3.1496	616 000	138 400	1 959 999	440 400	1 000	1 200	23.80	52.48
NA 4872	360	14.1732	440	17.3228	80	3.1496	627 000	140 900	2 039 999	458 400	950	1 100	25.60	56.45
NA 4876	380	14.9606	480	18.8976	100	3.9370	968 000	217 500	3 000 000	674 200	900	1 000	42.60	93.93

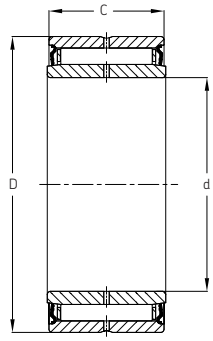
Consult SKF USA Inc. prior to design change or order placement.



Series NA 49



Series NA 49 RS



Series NA 2RS

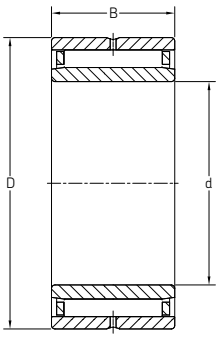
Single row
with inner ring
Open and sealed
Series: NA 4900 – NA 4915
Size: 10 mm – 75 mm
0.3937 in – 2.9528 in

Series: NA 4900 – NA 4907 2RS
Size: 10 mm – 35 mm
0.3937 in – 1.3780 in

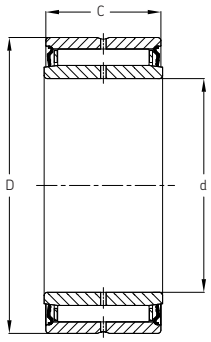
Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
NA 49/22	22	0.8661	39	1.5354	17	0.6693	23 300	5 240	32 000	7 190	14 000	15 000	0.0800	0.18
NA 49/28	28	1.1024	45	1.7717	17	0.6693	25 100	5 640	36 500	8 200	12 000	14 000	0.0977	0.22
NA 49/32	32	1.2598	52	2.0472	20	0.7874	30 800	6 920	51 000	11 460	10 000	11 000	0.1580	0.35
NA 4900	10	0.3937	22	0.8661	13	0.5118	8 800	1 980	10 400	2 340	24 000	28 000	0.0237	0.05
NA 4900 RS	10	0.3937	22	0.8661	14	0.5512	7 370	1 660	8 150	1 830	–	12 000	0.0245	0.05
NA 4900 2RS	10	0.3937	22	0.8661	14	0.5512	7 370	1 660	8 150	1 830	–	12 000	0.0245	0.05
NA 4901	12	0.4724	24	0.9449	13	0.5118	9 900	2 220	12 200	2 740	22 000	26 000	0.0260	0.06
NA 4901 2RS	12	0.4724	24	0.9449	14	0.5512	8 090	1 820	9 650	2 170	–	11 000	0.0275	0.06
NA 4902	15	0.5906	28	1.1024	13	0.5118	11 200	2 520	15 300	3 440	19 000	22 000	0.0340	0.07
NA 4902 2RS	15	0.5906	28	1.1024	14	0.5512	9 130	2 050	12 000	2 700	–	9 500	0.0370	0.08
NA 4903	17	0.6693	30	1.1811	13	0.5118	11 400	2 560	16 300	3 660	18 000	20 000	0.0380	0.08
NA 4903 2RS	17	0.6693	30	1.1811	14	0.5512	9 520	2 140	12 900	2 900	–	9 000	0.0400	0.09
NA 4904	20	0.7874	37	1.4567	17	0.6693	21 600	4 850	28 000	6 290	15 000	17 000	0.0752	0.17
NA 4904 2RS	20	0.7874	37	1.4567	18	0.7087	19 400	4 360	22 400	5 030	–	7 500	0.0800	0.18
NA 4905	25	0.9843	42	1.6535	17	0.6693	24 200	5 440	34 500	7 750	13 000	15 000	0.0880	0.19
NA 4905 2RS	25	0.9843	42	1.6535	18	0.7087	21 600	4 850	27 500	6 180	–	6 300	0.0895	0.20
NA 4906	30	1.1811	47	1.8504	17	0.6693	25 500	5 730	39 000	8 760	11 000	13 000	0.1010	0.22
NA 4906 RS	30	1.1811	47	1.8504	18	0.7087	23 300	5 240	32 000	7 190	–	5 600	0.1040	0.23
NA 4906 2RS	30	1.1811	47	1.8504	18	0.7087	23 300	5 240	32 000	7 190	–	5 600	0.1040	0.23
NA 4907	35	1.3780	55	2.1654	20	0.7874	31 900	7 170	54 000	12 130	9 500	11 000	0.1700	0.37
NA 4907 RS	35	1.3780	55	2.1654	21	0.8268	27 000	6 070	43 000	9 660	–	4 800	0.1750	0.39
NA 4907 2RS	35	1.3780	55	2.1654	21	0.8268	27 000	6 070	43 000	9 660	–	4 800	0.1750	0.39

Consult SKF USA Inc. prior to design change or order placement.

Single row
with inner ring
Open and sealed
Series: NA 4908 – NA 4928
Size: 40 mm – 140 mm
1.5748 in – 5.5118 in



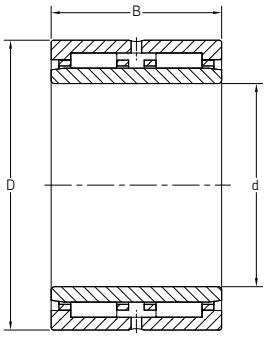
Series NA 49



Series NA 2RS

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
NA 4908	40	1.5748	62	2.4409	22	0.8661	42 900	9 640	71 000	15 960	8 000	9 500	0.230	0.51
NA 4908 2RS	40	1.5748	62	2.4409	23	0.9055	36 900	8 290	58 500	13 150		4 000	0.252	0.56
NA 4909	45	1.7717	68	2.6772	22	0.8661	45 700	10 270	78 000	17 530	7 500	8 500	0.271	0.60
NA 4909 2RS	45	1.7717	68	2.6772	23	0.9055	39 100	8 790	64 000	14 380		3 800	0.290	0.64
NA 4910	50	1.9685	72	2.8346	22	0.8661	47 300	10 630	85 000	19 100	7 000	8 000	0.274	0.60
NA 4910 2RS	50	1.9685	72	2.8346	23	0.9055	40 200	9 030	69 500	15 620		3 400	0.295	0.65
NA 4911	55	2.1654	80	3.1496	25	0.9843	57 200	12 850	106 000	23 820	6 300	7 000	0.393	0.87
NA 4912	60	2.3622	85	3.3465	25	0.9843	60 500	13 600	114 000	25 620	6 000	6 700	0.426	0.94
NA 4913	65	2.5591	90	3.5433	25	0.9843	61 600	13 840	120 000	26 970	5 600	6 300	0.456	1.01
NA 4914	70	2.7559	100	3.9370	30	1.1811	84 200	18 920	163 000	36 630	5 000	5 600	0.728	1.61
NA 4915	75	2.9528	105	4.1339	30	1.1811	84 200	18 920	170 000	38 200	4 800	5 300	0.775	1.71
NA 4916	80	3.1496	110	4.3307	30	1.1811	88 000	19 780	183 000	41 120	4 500	5 000	0.878	1.94
NA 4917	85	3.3465	120	4.7244	35	1.3780	108 000	24 270	250 000	56 200	4 000	4 500	1.250	2.76
NA 4918	90	3.5433	125	4.9213	35	1.3780	112 000	25 170	265 000	59 600	3 800	4 300	1.312	2.89
NA 4919	95	3.7402	130	5.1181	35	1.3780	114 000	25 620	270 000	60 700	3 600	4 000	1.371	3.02
NA 4920	100	3.9370	140	5.5118	40	1.5748	125 000	28 090	280 000	62 900	3 400	4 000	1.900	4.19
NA 4922	110	4.3307	150	5.9055	40	1.5748	130 000	29 210	300 000	67 400	3 200	3 600	2.070	4.56
NA 4924	120	4.7244	165	6.4961	45	1.7717	176 000	39 550	405 000	91 000	3 000	3 400	2.860	6.31
NA 4926	130	5.1181	180	7.0866	50	1.9685	198 000	44 490	480 000	107 900	2 600	3 000	3.900	8.60
NA 4928	140	5.5118	190	7.4803	50	1.9685	205 000	46 070	510 000	114 600	2 400	2 800	4.150	9.15

Consult SKF USA Inc. prior to design change or order placement.



Series NA 69

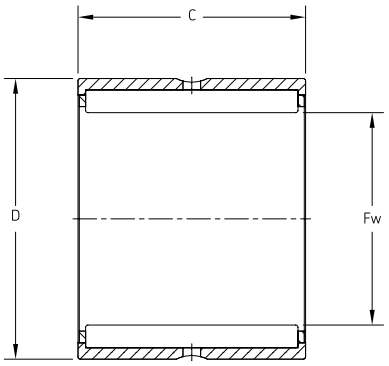
Double row
with inner ring
Series: NA 69/22 – NA 69/32
Size: 22 mm – 32 mm
0.8661 in – 1.2598 in

Series: NA 6901 – NA 6919
Size: 12 mm – 95 mm
0.4724 in – 3.7402 in

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
NA 69/22	22	0.8661	39	1.5354	30	1.1811	36 900	8 290	57 000	12 810	14 000	15 000	0.150	0.33
NA 69/28	28	1.1024	45	1.7717	30	1.1811	39 600	8 900	65 500	14 720	12 000	14 000	0.182	0.40
NA 69/32	32	1.2598	52	2.0472	36	1.4173	47 300	10 630	90 000	20 220	10 000	11 000	0.288	0.64
NA 6901	12	0.4724	24	0.9449	22	0.8661	16 100	3 620	23 200	5 210	22 000	26 000	0.046	0.10
NA 6902	15	0.5906	28	1.1024	23	0.9055	17 200	3 870	27 000	6 070	19 000	22 000	0.064	0.14
NA 6903	17	0.6693	30	1.1811	23	0.9055	18 700	4 200	30 500	6 850	18 000	20 000	0.072	0.16
NA 6904	20	0.7874	37	1.4567	30	1.1811	35 200	7 910	53 000	11 910	15 000	17 000	0.141	0.31
NA 6905	25	0.9843	42	1.6535	30	1.1811	38 000	8 540	62 000	13 930	13 000	15 000	0.161	0.36
NA 6906	30	1.1811	47	1.8504	30	1.1811	42 900	9 640	75 000	16 850	11 000	13 000	0.192	0.42
NA 6907	35	1.3780	55	2.1654	36	1.4173	48 400	10 880	93 000	20 900	9 500	11 000	0.310	0.68
NA 6908	40	1.5748	62	2.4409	40	1.5748	67 100	15 080	125 000	28 090	8 000	9 500	0.430	0.95
NA 6909	45	1.7717	68	2.6772	40	1.5748	70 400	15 820	137 000	30 790	7 500	8 500	0.495	1.09
NA 6910	50	1.9685	72	2.8346	40	1.5748	73 700	16 560	150 000	33 710	7 000	8 000	0.515	1.14
NA 6911	55	2.1654	80	3.1496	45	1.7717	89 700	20 160	190 000	42 700	6 300	7 000	0.780	1.72
NA 6912	60	2.3622	85	3.3465	45	1.7717	93 500	21 010	204 000	45 840	6 000	6 700	0.808	1.78
NA 6913	65	2.5591	90	3.5433	45	1.7717	95 200	21 390	212 000	47 640	5 600	6 300	0.833	1.84
NA 6914	70	2.7559	100	3.9370	54	2.1260	128 000	28 760	285 000	64 000	5 000	5 600	1.340	2.95
NA 6915	75	2.9528	105	4.1339	54	2.1260	130 000	29 210	290 000	65 200	4 800	5 300	1.450	3.20
NA 6916	80	3.1496	110	4.3307	54	2.1260	134 000	30 110	315 000	70 800	4 500	5 000	1.522	3.36
NA 6917	85	3.3465	120	4.7244	63	2.4803	165 000	37 080	425 000	95 500	4 000	4 500	2.200	4.85
NA 6918	90	3.5433	125	4.9213	63	2.4803	172 000	38 650	450 000	101 100	3 800	4 300	2.310	5.09
NA 6919	95	3.7402	130	5.1181	63	2.4803	172 000	38 650	465 000	104 500	3 600	4 000	2.500	5.51

Consult SKF USA Inc. prior to design change or order placement.

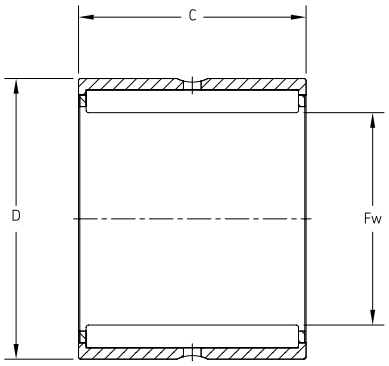
Single row
without inner ring
Series: NK 5/10 TN – NK 21/20
Size: 5 mm – 21 mm
0.1969 in – 0.8268 in



Series NK

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore F_w		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
NK 5/10 TN	5	0.1969	10	0.3937	10	0.3937	2 290	510	2 000	450	36 000	40 000	0.00	0.01
NK 5/12 TN	5	0.1969	10	0.3937	12	0.4724	2 920	660	2 700	610	36 000	40 000	0.00	0.01
NK 6/10 TN	6	0.2362	12	0.4724	10	0.3937	2 550	570	2 360	530	34 000	38 000	0.00	0.01
NK 6/12 TN	6	0.2362	12	0.4724	12	0.4724	3 300	740	3 200	720	34 000	38 000	0.01	0.01
NK 7/10 TN	7	0.2756	14	0.5512	10	0.3937	2 810	630	2 750	620	32 000	36 000	0.01	0.02
NK 7/12 TN	7	0.2756	14	0.5512	12	0.4724	3 580	800	3 750	840	32 000	36 000	0.01	0.02
NK 8/12 TN	8	0.3150	15	0.5906	12	0.4724	3 800	850	4 250	960	32 000	36 000	0.01	0.02
NK 8/16 TN	8	0.3150	15	0.5906	16	0.6299	5 010	1 130	5 850	1 310	32 000	36 000	0.01	0.03
NK 9/12 TN	9	0.3543	16	0.6299	12	0.4724	4 400	990	5 200	1 170	30 000	34 000	0.01	0.02
NK 9/16 TN	9	0.3543	16	0.6299	16	0.6299	5 720	1 290	7 200	1 620	30 000	34 000	0.01	0.03
NK 10/12 TN	10	0.3937	17	0.6693	12	0.4724	4 570	1 030	5 700	1 280	28 000	32 000	0.01	0.02
NK 10/16 TN	10	0.3937	17	0.6693	16	0.6299	5 940	1 330	8 000	1 800	28 000	32 000	0.01	0.03
NK 12/16	12	0.4724	19	0.7480	16	0.6299	9 130	2 050	12 000	2 700	26 000	30 000	0.02	0.04
NK 12/12	12	0.4724	19	0.7480	12	0.4724	6 710	1 510	8 150	1 830	26 000	30 000	0.01	0.03
NK 14/16	14	0.5512	22	0.8661	16	0.6299	10 200	2 290	12 500	2 810	24 000	28 000	0.02	0.05
NK 14/20	14	0.5512	22	0.8661	20	0.7874	12 800	2 880	16 600	3 730	24 000	28 000	0.03	0.06
NK 15/16	15	0.5906	23	0.9055	16	0.6299	11 000	2 470	14 000	3 150	24 000	26 000	0.02	0.05
NK 15/20	15	0.5906	23	0.9055	20	0.7874	13 800	3 100	18 300	4 110	24 000	26 000	0.03	0.06
NK 16/16	16	0.6299	24	0.9449	16	0.6299	11 700	2 630	15 300	3 440	22 000	26 000	0.02	0.05
NK 16/20	16	0.6299	24	0.9449	20	0.7874	14 500	3 260	20 000	4 490	22 000	26 000	0.03	0.06
NK 17/16	17	0.6693	25	0.9843	16	0.6299	12 100	2 720	16 600	3 730	22 000	26 000	0.02	0.05
NK 17/20	17	0.6693	25	0.9843	20	0.7874	15 100	3 390	22 000	4 940	22 000	26 000	0.03	0.07
NK 18/20	18	0.7087	26	1.0236	20	0.7874	16 100	3 620	23 600	5 300	22 000	24 000	0.03	0.07
NK 18/16	18	0.7087	26	1.0236	16	0.6299	12 800	2 880	17 600	3 960	22 000	24 000	0.02	0.05
NK 19/16	19	0.7480	27	1.0630	16	0.6299	13 400	3 010	19 000	4 270	20 000	24 000	0.03	0.06
NK 19/20	19	0.7480	27	1.0630	20	0.7874	16 500	3 710	25 500	5 730	20 000	24 000	0.03	0.07
NK 20/16	20	0.7874	28	1.1024	16	0.6299	13 200	2 970	19 300	4 340	19 000	22 000	0.03	0.06
NK 20/20	20	0.7874	28	1.1024	20	0.7874	16 500	3 710	25 500	5 730	19 000	22 000	0.03	0.07
NK 21/16	21	0.8268	29	1.1417	16	0.6299	13 800	3 100	20 400	4 580	19 000	22 000	0.03	0.06
NK 21/20	21	0.8268	29	1.1417	20	0.7874	17 200	3 870	27 000	6 070	19 000	22 000	0.04	0.08

Consult SKF USA Inc. prior to design change or order placement.



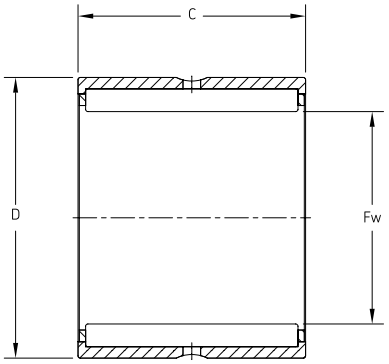
Series NK

Single row
without inner ring
Series: NK 22/16 – NK 45/30 TN
Size: 22 mm – 45 mm
0.8661 in – 1.7717 in

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore F_w		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
NK 22/16	22	0.8661	30	1.1811	16	0.6299	14 200	3 190	21 600	4 850	18 000	20 000	0.03	0.07
NK 22/20	22	0.8661	30	1.1811	20	0.7874	17 900	4 020	29 000	6 520	18 000	20 000	0.04	0.08
NK 24/16	24	0.9449	32	1.2598	16	0.6299	15 400	3 460	24 500	5 510	16 000	19 000	0.03	0.07
NK 24/20	24	0.9449	32	1.2598	20	0.7874	19 000	4 270	32 500	7 300	16 000	19 000	0.04	0.09
NK 25/16	25	0.9843	33	1.2992	16	0.6299	15 100	3 390	24 500	5 510	16 000	18 000	0.03	0.07
NK 25/20	25	0.9843	33	1.2992	20	0.7874	19 000	4 270	32 500	7 300	16 000	18 000	0.04	0.09
NK 26/16	26	1.0236	34	1.3386	16	0.6299	15 700	3 530	26 000	5 840	15 000	17 000	0.03	0.07
NK 26/20	26	1.0236	34	1.3386	20	0.7874	19 400	4 360	34 500	7 750	15 000	17 000	0.04	0.09
NK 28/20	28	1.1024	37	1.4567	20	0.7874	22 000	4 940	36 500	8 200	14 000	16 000	0.05	0.12
NK 28/30	28	1.1024	37	1.4567	30	1.1811	31 900	7 170	60 000	13 480	14 000	16 000	0.08	0.18
NK 29/30	29	1.1417	38	1.4961	30	1.1811	31 900	7 170	60 000	13 480	14 000	15 000	0.08	0.19
NK 29/20 TN	29	1.1417	38	1.4961	20	0.7874	24 600	5 530	42 500	9 550	14 000	15 000	0.05	0.11
NK 30/20 TN	30	1.1811	40	1.5748	20	0.7874	25 100	5 640	44 000	9 890	13 000	15 000	0.06	0.13
NK 30/30 TN	30	1.1811	40	1.5748	30	1.1811	36 900	8 290	72 000	16 180	13 000	15 000	0.09	0.20
NK 32/30	32	1.2598	42	1.6535	30	1.1811	34 100	7 660	65 500	14 720	12 000	14 000	0.10	0.22
NK 32/20 TN	32	1.2598	42	1.6535	20	0.7874	26 400	5 930	48 000	10 790	12 000	14 000	0.06	0.14
NK 35/20 TN	35	1.3780	45	1.7717	20	0.7874	27 500	6 180	52 000	11 690	11 000	13 000	0.07	0.15
NK 35/30 TN	35	1.3780	45	1.7717	30	1.1811	40 200	9 030	85 000	19 100	11 000	13 000	0.11	0.23
NK 37/20	37	1.4567	47	1.8504	20	0.7874	25 100	5 640	46 500	10 450	11 000	12 000	0.08	0.17
NK 37/30	37	1.4567	47	1.8504	30	1.1811	36 900	8 290	76 500	17 190	11 000	12 000	0.11	0.25
NK 38/20	38	1.4961	48	1.8898	20	0.7874	25 500	5 730	49 000	11 010	11 000	12 000	0.08	0.18
NK 38/30	38	1.4961	48	1.8898	30	1.1811	37 400	8 400	80 000	17 980	11 000	12 000	0.12	0.26
NK 40/30	40	1.5748	50	1.9685	30	1.1811	38 000	8 540	83 000	18 650	10 000	11 000	0.13	0.28
NK 40/20 TN	40	1.5748	50	1.9685	20	0.7874	29 700	6 670	60 000	13 480	10 000	11 000	0.08	0.17
NK 42/20	42	1.6535	52	2.0472	20	0.7874	27 000	6 070	53 000	11 910	9 500	11 000	0.09	0.19
NK 42/30	42	1.6535	52	2.0472	30	1.1811	39 100	8 790	86 500	19 440	9 500	11 000	0.13	0.29
NK 43/20	43	1.6929	53	2.0866	20	0.7874	27 500	6 180	55 000	12 360	9 500	11 000	0.09	0.19
NK 43/30	43	1.6929	53	2.0866	30	1.1811	40 200	9 030	90 000	20 220	9 500	11 000	0.13	0.29
NK 45/20 TN	45	1.7717	55	2.1654	20	0.7874	31 400	7 060	65 500	14 720	9 000	10 000	0.09	0.19
NK 45/30 TN	45	1.7717	55	2.1654	30	1.1811	45 700	10 270	108 000	24 270	9 000	10 000	0.13	0.29

Consult SKF USA Inc. prior to design change or order placement.

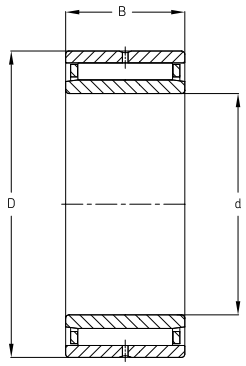
Single row
without inner ring
Series: NK 47/20 – NK 110/40
Size: 47 mm – 110 mm
1.8504 in – 4.3307 in



Series NK

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore F_w		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
NK 47/20	47	1.8504	57	2.2441	20	0.7874	29 200	6 560	61 000	13 710	8 500	10 000	0.09	0.21
NK 47/30	47	1.8504	57	2.2441	30	1.1811	41 800	9 390	98 000	22 020	8 500	10 000	0.14	0.31
NK 50/25 TN	50	1.9685	62	2.4409	25	0.9843	42 900	9 640	91 500	20 560	8 000	9 000	0.15	0.32
NK 50/35 TN	50	1.9685	62	2.4409	35	1.3780	58 300	13 100	137 000	30 790	8 000	9 000	0.21	0.46
NK 55/35	55	2.1654	68	2.6772	35	1.3780	52 300	11 750	122 000	27 420	7 500	8 500	0.25	0.55
NK 55/25	55	2.1654	68	2.6772	25	0.9843	40 200	9 030	88 000	19 780	7 500	8 500	0.18	0.40
NK 60/35	60	2.3622	72	2.8346	35	1.3780	55 000	12 360	134 000	30 110	6 700	7 500	0.26	0.57
NK 60/25 TN	60	2.3622	72	2.8346	25	0.9843	46 800	10 520	110 000	24 720	6 700	7 500	0.17	0.37
NK 65/25	65	2.5591	78	3.0709	25	0.9843	44 000	9 890	104 000	23 370	6 300	7 000	0.22	0.49
NK 65/35	65	2.5591	78	3.0709	35	1.3780	58 300	13 100	146 000	32 810	6 300	7 000	0.31	0.68
NK 68/25	68	2.6772	82	3.2283	25	0.9843	44 000	9 890	95 000	21 350	6 000	6 700	0.24	0.53
NK 68/35	68	2.6772	82	3.2283	35	1.3780	60 500	13 600	146 000	32 810	6 000	6 700	0.34	0.75
NK 70/25	70	2.7559	85	3.3465	25	0.9843	44 600	10 020	98 000	22 020	6 000	6 700	0.26	0.57
NK 70/35	70	2.7559	85	3.3465	35	1.3780	61 600	13 840	150 000	33 710	6 000	6 700	0.37	0.82
NK 73/25	73	2.8740	90	3.5433	25	0.9843	52 800	11 870	106 000	23 820	5 600	6 300	0.30	0.67
NK 73/35	73	2.8740	90	3.5433	35	1.3780	73 700	16 560	163 000	36 630	5 600	6 300	0.43	0.94
NK 75/25	75	2.9528	92	3.6220	25	0.9843	53 900	12 110	110 000	24 720	5 300	6 000	0.32	0.69
NK 75/35	75	2.9528	92	3.6220	35	1.3780	74 800	16 810	170 000	38 200	5 300	6 000	0.45	0.98
NK 80/25	80	3.1496	95	3.7402	25	0.9843	56 100	12 610	127 000	28 540	5 000	5 600	0.30	0.66
NK 80/35	80	3.1496	95	3.7402	35	1.3780	76 500	17 190	190 000	42 700	5 000	5 600	0.43	0.94
NK 85/25	85	3.3465	105	4.1339	25	0.9843	69 300	15 570	132 000	29 660	4 800	5 300	0.43	0.94
NK 85/35	85	3.3465	105	4.1339	35	1.3780	96 800	21 750	200 000	44 940	4 800	5 300	0.60	1.32
NK 90/25	90	3.5433	110	4.3307	25	0.9843	72 100	16 200	140 000	31 460	4 500	5 000	0.45	0.99
NK 90/35	90	3.5433	110	4.3307	35	1.3780	101 000	22 700	216 000	48 540	4 500	5 000	0.63	1.39
NK 95/26	95	3.7402	115	4.5276	26	1.0236	73 700	16 560	146 000	32 810	4 300	4 800	0.49	1.08
NK 95/36	95	3.7402	115	4.5276	36	1.4173	105 000	23 600	232 000	52 100	4 300	4 800	0.68	1.50
NK 100/26	100	3.9370	120	4.7244	26	1.0236	76 500	17 190	156 000	35 060	4 000	4 500	0.52	1.14
NK 100/36	100	3.9370	120	4.7244	36	1.4173	108 000	24 270	250 000	56 200	4 000	4 500	0.72	1.58
NK 105/26	105	4.1339	125	4.9213	26	1.0236	78 100	17 550	166 000	37 300	3 800	4 300	0.54	1.19
NK 105/36	105	4.1339	125	4.9213	36	1.4173	112 000	25 170	265 000	59 600	3 800	4 300	0.71	1.57
NK 110/30	110	4.3307	130	5.1181	30	1.1811	96 800	21 750	220 000	49 440	3 600	4 000	0.65	1.43
NK 110/40	110	4.3307	130	5.1181	40	1.5748	123 000	27 640	305 000	68 500	3 600	4 000	0.83	1.83

Consult SKF USA Inc. prior to design change or order placement.



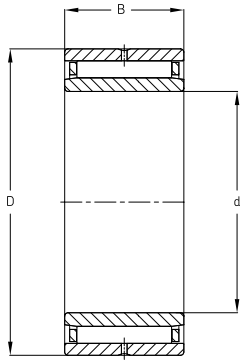
Series NKI

Single row
with inner ring
Series: NKI 5/12 TN – NKI 35/30
Size: 5 mm – 35 mm
0.1969 in – 1.3780 in

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
NKI 5/12 TN	5	0.1969	15	0.5906	12	0.4724	3 800	850	4 250	960	32 000	36 000	0.011	0.03
NKI 5/16 TN	5	0.1969	15	0.5906	16	0.6299	5 010	1 130	5 850	1 310	32 000	36 000	0.015	0.03
NKI 6/12 TN	6	0.2362	16	0.6299	12	0.4724	4 400	990	5 200	1 170	30 000	34 000	0.013	0.03
NKI 6/16 TN	6	0.2362	16	0.6299	16	0.6299	5 720	1 290	7 200	1 620	30 000	34 000	0.017	0.04
NKI 7/12 TN	7	0.2756	17	0.6693	12	0.4724	4 570	1 030	5 700	1 280	28 000	32 000	0.014	0.03
NKI 7/16 TN	7	0.2756	17	0.6693	16	0.6299	5 940	1 330	8 000	1 800	28 000	32 000	0.018	0.04
NKI 9/12	9	0.3543	19	0.7480	12	0.4724	6 710	1 510	8 150	1 830	26 000	30 000	0.017	0.04
NKI 9/16	9	0.3543	19	0.7480	16	0.6299	9 130	2 050	12 000	2 700	26 000	30 000	0.022	0.05
NKI 10/16	10	0.3937	22	0.8661	16	0.6299	10 200	2 290	12 500	2 810	24 000	28 000	0.029	0.06
NKI 10/20	10	0.3937	22	0.8661	20	0.7874	12 800	2 880	16 600	3 730	24 000	28 000	0.037	0.08
NKI 12/16	12	0.4724	24	0.9449	16	0.6299	11 700	2 630	15 300	3 440	22 000	26 000	0.033	0.07
NKI 12/20	12	0.4724	24	0.9449	20	0.7874	14 500	3 260	20 000	4 490	22 000	26 000	0.042	0.09
NKI 15/16	15	0.5906	27	1.0630	16	0.6299	13 400	3 010	19 000	4 270	20 000	24 000	0.039	0.09
NKI 15/20	15	0.5906	27	1.0630	20	0.7874	16 500	3 710	25 500	5 730	20 000	24 000	0.049	0.11
NKI 17/16	17	0.6693	29	1.1417	16	0.6299	13 800	3 100	20 400	4 580	19 000	22 000	0.042	0.09
NKI 17/20	17	0.6693	29	1.1417	20	0.7874	17 200	3 870	27 000	6 070	19 000	22 000	0.053	0.12
NKI 20/16	20	0.7874	32	1.2598	16	0.6299	15 400	3 460	24 500	5 510	16 000	19 000	0.048	0.11
NKI 20/20	20	0.7874	32	1.2598	20	0.7874	19 000	4 270	32 500	7 300	16 000	19 000	0.060	0.13
NKI 22/16	22	0.8661	34	1.3386	16	0.6299	15 700	3 530	26 000	5 840	15 000	17 000	0.052	0.11
NKI 22/20	22	0.8661	34	1.3386	20	0.7874	19 400	4 360	34 500	7 750	15 000	17 000	0.065	0.14
NKI 25/30	25	0.9843	38	1.4961	30	1.1811	31 900	7 170	60 000	13 480	14 000	15 000	0.115	0.25
NKI 25/20 TN	25	0.9843	38	1.4961	20	0.7874	24 600	5 530	42 500	9 550	14 000	15 000	0.080	0.18
NKI 28/30	28	1.1024	42	1.6535	30	1.1811	34 100	7 660	65 500	14 720	12 000	14 000	0.141	0.31
NKI 28/20 TN	28	1.1024	42	1.6535	20	0.7874	26 400	5 930	48 000	10 790	12 000	14 000	0.092	0.20
NKI 30/20 TN	30	1.1811	45	1.7717	20	0.7874	27 500	6 180	52 000	11 690	11 000	13 000	0.112	0.25
NKI 30/30 TN	30	1.1811	45	1.7717	30	1.1811	40 200	9 030	85 000	19 100	11 000	13 000	0.165	0.36
NKI 32/20	32	1.2598	47	1.8504	20	0.7874	25 100	5 640	46 500	10 450	11 000	12 000	0.114	0.25
NKI 32/30	32	1.2598	47	1.8504	30	1.1811	36 900	8 290	76 500	17 190	11 000	12 000	0.173	0.38
NKI 35/20 TN	35	1.3780	50	1.9685	20	0.7874	29 700	6 670	60 000	13 480	10 000	11 000	0.123	0.27
NKI 35/30	35	1.3780	50	1.9685	30	1.1811	38 000	8 540	83 000	18 650	10 000	11 000	0.193	0.43

Consult SKF USA Inc. prior to design change or order placement.

Single row
with inner ring
Series: NKI 38/20 – NKI 100/40
Size: 38 mm – 100 mm
1.4961 in – 3.9370 in

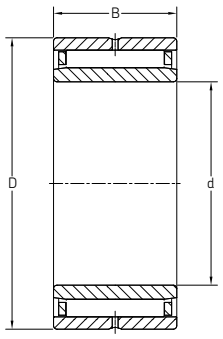


Series NKI

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
NKI 38/20	38	1.4961	53	2.0866	20	0.7874	27 500	6 180	55 000	12 360	9 500	11 000	0.132	0.29
NKI 38/30	38	1.4961	53	2.0866	30	1.1811	40 200	9 030	90 000	20 220	9 500	11 000	0.207	0.46
NKI 40/20 TN	40	1.5748	55	2.1654	20	0.7874	31 400	7 060	65 500	14 720	9 000	10 000	0.138	0.30
NKI 40/30 TN	40	1.5748	55	2.1654	30	1.1811	45 700	10 270	108 000	24 270	9 000	10 000	0.216	0.48
NKI 42/20	42	1.6535	57	2.2441	20	0.7874	29 200	6 560	61 000	13 710	8 500	10 000	0.144	0.32
NKI 42/30	42	1.6535	57	2.2441	30	1.1811	41 800	9 390	98 000	22 020	8 500	10 000	0.218	0.48
NKI 45/25 TN	45	1.7717	62	2.4409	25	0.9843	42 900	9 640	91 500	20 560	8 000	9 000	0.220	0.49
NKI 45/35 TN	45	1.7717	62	2.4409	35	1.3780	58 300	13 100	137 000	30 790	8 000	9 000	0.305	0.67
NKI 50/25	50	1.9685	68	2.6772	25	0.9843	40 200	9 030	88 000	19 780	7 500	8 500	0.262	0.58
NKI 50/35	50	1.9685	68	2.6772	35	1.3780	52 300	11 750	122 000	27 420	7 500	8 500	0.364	0.80
NKI 55/35	55	2.1654	72	2.8346	35	1.3780	55 000	12 360	134 000	30 110	6 700	7 500	0.364	0.80
NKI 55/25 TN	55	2.1654	72	2.8346	25	0.9843	46 800	10 520	110 000	24 720	6 700	7 500	0.262	0.58
NKI 60/25	60	2.3622	82	3.2283	25	0.9843	44 000	9 890	95 000	21 350	6 000	6 700	0.394	0.87
NKI 60/35	60	2.3622	82	3.2283	35	1.3780	60 500	13 600	146 000	32 810	6 000	6 700	0.553	1.22
NKI 65/25	65	2.5591	90	3.5433	25	0.9843	52 800	11 870	106 000	23 820	5 600	6 300	0.463	1.02
NKI 65/35	65	2.5591	90	3.5433	35	1.3780	73 700	16 560	163 000	36 630	5 600	6 300	0.659	1.45
NKI 70/25	70	2.7559	95	3.7402	25	0.9843	56 100	12 610	127 000	28 540	5 000	5 600	0.511	1.13
NKI 70/35	70	2.7559	95	3.7402	35	1.3780	76 500	17 190	190 000	42 700	5 000	5 600	0.718	1.58
NKI 75/25	75	2.9528	105	4.1339	25	0.9843	69 300	15 570	132 000	29 660	4 800	5 300	0.641	1.41
NKI 75/35	75	2.9528	105	4.1339	35	1.3780	96 800	21 750	200 000	44 940	4 800	5 300	0.908	2.00
NKI 80/25	80	3.1496	110	4.3307	25	0.9843	72 100	16 200	140 000	31 460	4 500	5 000	0.679	1.50
NKI 80/35	80	3.1496	110	4.3307	35	1.3780	101 000	22 700	216 000	48 540	4 500	5 000	0.956	2.11
NKI 85/26	85	3.3465	115	4.5276	26	1.0236	73 700	16 560	146 000	32 810	4 300	4 800	0.738	1.63
NKI 85/36	85	3.3465	115	4.5276	36	1.4173	105 000	23 600	232 000	52 100	4 300	4 800	1.040	2.29
NKI 90/26	90	3.5433	120	4.7244	26	1.0236	76 500	17 190	156 000	35 060	4 000	4 500	0.777	1.71
NKI 90/36	90	3.5433	120	4.7244	36	1.4173	108 000	24 270	250 000	56 200	4 000	4 500	1.090	2.40
NKI 95/26	95	3.7402	125	4.9213	26	1.0236	78 100	17 550	166 000	37 300	3 800	4 300	0.816	1.80
NKI 95/36	95	3.7402	125	4.9213	36	1.4173	112 000	25 170	265 000	59 600	3 800	4 300	1.145	2.52
NKI 100/30	100	3.9370	130	5.1181	30	1.1811	96 800	21 750	220 000	49 440	3 600	4 000	0.991	2.19
NKI 100/40	100	3.9370	130	5.1181	40	1.5748	123 000	27 640	305 000	68 500	3 600	4 000	1.330	2.93

Consult SKF USA Inc. prior to design change or order placement.

Single row
with inner ring
Series: NKIS 15 – NKIS 65
Size: 15 mm – 65 mm
0.5906 in – 2.5591 in

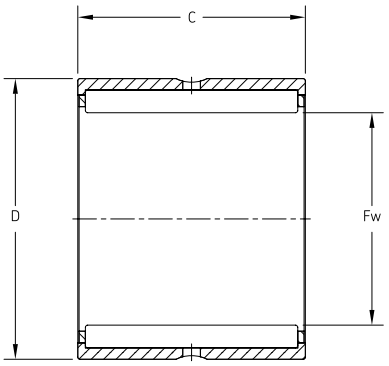


Series NKIS

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
NKIS 15	15	0.5906	35	1.3780	20	0.7874	24 600	5 530	30 000	6 740	16 000	19 000	0.092	0.20
NKIS 17	17	0.6693	37	1.4567	20	0.7874	26 000	5 840	33 500	7 530	15 000	17 000	0.098	0.22
NKIS 20	20	0.7874	42	1.6535	20	0.7874	28 600	6 430	39 000	8 760	13 000	15 000	0.129	0.28
NKIS 25	25	0.9843	47	1.8504	22	0.8661	34 100	7 660	46 500	10 450	12 000	13 000	0.162	0.36
NKIS 30	30	1.1811	52	2.0472	22	0.8661	36 900	8 290	54 000	12 130	10 000	12 000	0.184	0.41
NKIS 35	35	1.3780	58	2.2835	22	0.8661	39 100	8 790	61 000	13 710	9 000	10 000	0.220	0.49
NKIS 40	40	1.5748	65	2.5591	22	0.8661	42 900	9 640	72 000	16 180	8 000	9 000	0.281	0.62
NKIS 45	45	1.7717	72	2.8346	22	0.8661	44 600	10 020	78 000	17 530	7 000	8 000	0.336	0.74
NKIS 50	50	1.9685	80	3.1496	28	1.1024	62 700	14 090	104 000	23 370	6 300	7 500	0.518	1.14
NKIS 55	55	2.1654	85	3.3465	28	1.1024	66 000	14 830	114 000	25 620	6 000	6 700	0.558	1.23
NKIS 60	60	2.3622	90	3.5433	28	1.1024	68 200	15 330	120 000	26 970	5 600	6 300	0.560	1.23
NKIS 65	65	2.5591	95	3.7402	28	1.1024	70 400	15 820	132 000	29 660	5 300	6 000	0.641	1.41

Consult SKF USA Inc. prior to design change or order placement.

Single row
without inner ring
Series: NKS 20 – NKS 75
Size: 20 mm – 75 mm
0.7874 in – 2.9528 in

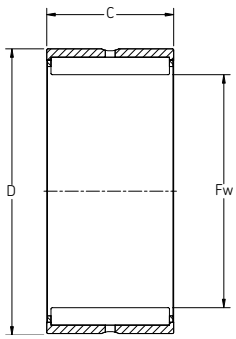


Series NKS

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore F_w		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
NKS 20	20	0.7874	32	1.2598	20	0.7874	23 300	5 240	27 000	6 070	18 000	20 000	0.05	0.11
NKS 22	22	0.8661	35	1.3780	20	0.7874	24 600	5 530	30 000	6 740	16 000	19 000	0.06	0.14
NKS 24	24	0.9449	37	1.4567	20	0.7874	26 000	5 840	33 500	7 530	15 000	17 000	0.07	0.14
NKS 25	25	0.9843	38	1.4961	20	0.7874	27 500	6 180	36 000	8 090	15 000	17 000	0.07	0.15
NKS 28	28	1.1024	42	1.6535	20	0.7874	28 600	6 430	39 000	8 760	13 000	15 000	0.08	0.18
NKS 30	30	1.1811	45	1.7717	22	0.8661	31 900	7 170	43 000	9 660	12 000	14 000	0.10	0.23
NKS 32	32	1.2598	47	1.8504	22	0.8661	34 100	7 660	46 500	10 450	12 000	13 000	0.11	0.24
NKS 35	35	1.3780	50	1.9685	22	0.8661	35 200	7 910	50 000	11 240	11 000	12 000	0.12	0.26
NKS 37	37	1.4567	52	2.0472	22	0.8661	36 900	8 290	54 000	12 130	10 000	12 000	0.12	0.27
NKS 40	40	1.5748	55	2.1654	22	0.8661	38 000	8 540	57 000	12 810	9 500	11 000	0.13	0.28
NKS 43	43	1.6929	58	2.2835	22	0.8661	39 100	8 790	61 000	13 710	9 000	10 000	0.14	0.31
NKS 45	45	1.7717	60	2.3622	22	0.8661	40 200	9 030	64 000	14 380	8 500	10 000	0.15	0.32
NKS 50	50	1.9685	65	2.5591	22	0.8661	42 900	9 640	72 000	16 180	8 000	9 000	0.16	0.35
NKS 55	55	2.1654	72	2.8346	22	0.8661	44 600	10 020	78 000	17 530	7 000	8 000	0.22	0.49
NKS 60	60	2.3622	80	3.1496	28	1.1024	62 700	14 090	104 000	23 370	6 300	7 500	0.34	0.74
NKS 65	65	2.5591	85	3.3465	28	1.1024	66 000	14 830	114 000	25 620	6 000	6 700	0.36	0.78
NKS 70	70	2.7559	90	3.5433	28	1.1024	68 200	15 330	120 000	26 970	5 600	6 300	0.38	0.84
NKS 75	75	2.9528	95	3.7402	28	1.1024	70 400	15 820	132 000	29 660	5 300	6 000	0.40	0.89

Consult SKF USA Inc. prior to design change or order placement.

Single row
without inner ring
Series: RNA 4822 – RNA 4876
Size: 120 mm – 415 mm
4.7244 in – 16.3386 in



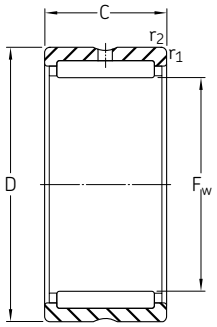
Series RNA 48

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore F_w		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
RNA 4822	120	4.7244	140	5.5118	30	1.1811	93 500	21 010	232 000	52 100	3 400	3 800	0.66	1.46
RNA 4824	130	5.1181	150	5.9055	30	1.1811	99 000	22 250	255 000	57 300	3 200	3 600	0.73	1.61
RNA 4826	145	5.7087	165	6.4961	35	1.3780	119 000	26 740	325 000	73 000	2 800	3 200	0.99	2.18
RNA 4828	155	6.1024	175	6.8898	35	1.3780	121 000	27 190	345 000	77 500	2 600	3 000	0.97	2.14
RNA 4830	165	6.4961	190	7.4803	40	1.5748	147 000	33 030	415 000	93 300	2 400	2 800	1.60	3.53
RNA 4832	175	6.8898	200	7.8740	40	1.5748	157 000	35 280	450 000	101 100	2 200	2 600	1.70	3.75
RNA 4834	185	7.2835	215	8.4646	45	1.7717	179 000	40 220	520 000	116 900	2 200	2 400	2.54	5.60
RNA 4836	195	7.6772	225	8.8583	45	1.7717	190 000	42 700	570 000	128 100	2 000	2 400	2.68	5.91
RNA 4838	210	8.2677	240	9.4488	50	1.9685	220 000	49 440	710 000	159 600	1 900	2 200	3.21	7.08
RNA 4840	220	8.6614	250	9.8425	50	1.9685	224 000	50 300	735 000	165 200	1 800	2 000	3.35	7.39
RNA 4844	240	9.4488	270	10.6299	50	1.9685	238 000	53 500	815 000	183 100	1 700	1 900	3.62	7.98
RNA 4848	265	10.4331	300	11.8110	60	2.3622	347 000	78 000	1 119 999	251 700	1 500	1 700	5.40	11.91
RNA 4852	285	11.2205	320	12.5984	60	2.3622	358 000	80 400	1 199 999	269 700	1 400	1 500	5.80	12.79
RNA 4856	305	12.0079	350	13.7795	69	2.7165	429 000	96 400	1 319 999	296 600	1 300	1 400	9.30	20.51
RNA 4860	330	12.9921	380	14.9606	80	3.1496	594 000	133 500	1 799 999	404 500	1 100	1 300	12.70	28.00
RNA 4864	350	13.7795	400	15.7480	80	3.1496	605 000	136 000	1 899 999	427 000	1 100	1 200	13.40	29.55
RNA 4868	370	14.5669	420	16.5354	80	3.1496	616 000	138 400	1 959 999	440 400	1 000	1 200	14.00	30.87
RNA 4872	390	15.3543	440	17.3228	80	3.1496	627 000	140 900	2 039 999	458 400	950	1 100	14.80	32.63
RNA 4876	415	16.3386	480	18.8976	100	3.9370	968 000	217 500	3 000 000	674 200	900	1 000	26.00	57.33

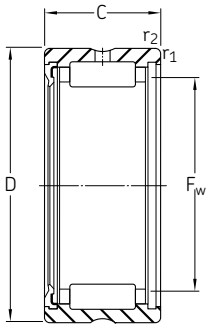
Consult SKF USA Inc. prior to design change or order placement.

Single row
without inner ring
Open and sealed
Series: RNA 49/22 – RNA 49/32
Size: 14 mm – 85 mm
1.1024 in – 1.5748 in

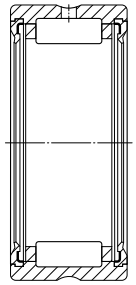
Series: RNA 4900 – RNA 4907 2RS
Size: 14 mm – 42 mm
0.5512 in – 1.6535 in



Series RNA 49



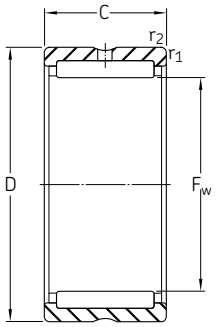
Series RNA 49 RS


Series RNA 2RS

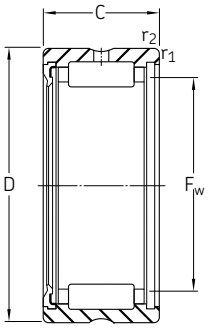
Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore F_w		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
RNA 49/22	28	1.1024	39	1.5354	17	0.6693	23 300	5 240	32 000	7 190	14 000	15 000	0.05	0.11
RNA 49/28	32	1.2598	45	1.7717	17	0.6693	25 100	5 640	36 500	8 200	12 000	14 000	0.07	0.16
RNA 49/32	40	1.5748	52	2.0472	20	0.7874	30 800	6 920	51 000	11 460	10 000	11 000	0.09	0.20
RNA 4900	14	0.5512	22	0.8661	13	0.5118	8 800	1 980	10 400	2 340	24 000	28 000	0.02	0.04
RNA 4900 2RS	14	0.5512	22	0.8661	13	0.5118	7 370	1 660	8 150	1 830	–	12 000	0.02	0.04
RNA 4901	16	0.6299	24	0.9449	13	0.5118	9 900	2 220	12 200	2 740	22 000	26 000	0.02	0.04
RNA 4901 2RS	16	0.6299	24	0.9449	13	0.5118	8 090	1 820	9 650	2 170	–	11 000	0.02	0.04
RNA 4902	20	0.7874	28	1.1024	13	0.5118	11 200	2 520	15 300	3 440	19 000	22 000	0.02	0.05
RNA 4902 2RS	20	0.7874	28	1.1024	13	0.5118	9 130	2 050	12 000	2 700	–	9 500	0.02	0.05
RNA 4903	22	0.8661	30	1.1811	13	0.5118	11 400	2 560	16 300	3 660	18 000	20 000	0.02	0.05
RNA 4903 RS	22	0.8661	30	1.1811	13	0.5118	9 520	2 140	12 900	2 900	–	9 000	0.02	0.05
RNA 4903 2RS	22	0.8661	30	1.1811	13	0.5118	9 520	2 140	12 900	2 900	–	9 000	0.02	0.05
RNA 4904	25	0.9843	37	1.4567	17	0.6693	21 600	4 850	28 000	6 290	15 000	17 000	0.05	0.12
RNA 4904 RS	25	0.9843	37	1.4567	17	0.6693	19 400	4 360	22 400	5 030	–	7 500	0.06	0.12
RNA 4904 2RS	25	0.9843	37	1.4567	17	0.6693	19 400	4 360	22 400	5 030	–	7 500	0.06	0.12
RNA 4905	30	1.1811	42	1.6535	17	0.6693	24 200	5 440	34 500	7 750	13 000	15 000	0.06	0.13
RNA 4905 RS	30	1.1811	42	1.6535	17	0.6693	21 600	4 850	27 500	6 180	–	6 300	0.06	0.13
RNA 4905 2RS	30	1.1811	42	1.6535	17	0.6693	21 600	4 850	27 500	6 180	–	6 300	0.06	0.13
RNA 4906	35	1.3780	47	1.8504	17	0.6693	25 500	5 730	39 000	8 760	11 000	13 000	0.07	0.15
RNA 4906 RS	35	1.3780	47	1.8504	17	0.6693	23 300	5 240	32 000	7 190	–	5 600	0.07	0.15
RNA 4906 2RS	35	1.3780	47	1.8504	17	0.6693	23 300	5 240	32 000	7 190	–	5 600	0.07	0.15
RNA 4907	42	1.6535	55	2.1654	20	0.7874	31 900	7 170	54 000	12 130	9 500	11 000	0.11	0.24
RNA 4907 RS	42	1.6535	55	2.1654	20	0.7874	27 000	6 070	43 000	9 660	–	4 800	0.11	0.24
RNA 4907 2RS	42	1.6535	55	2.1654	20	0.7874	27 000	6 070	43 000	9 660	–	4 800	0.11	0.24

Consult SKF USA Inc. prior to design change or order placement.

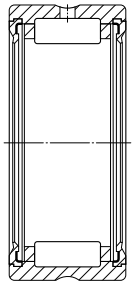
Single row
without inner ring
Open and sealed
Series: RNA 4908 – RNA 4928
Size: 48 mm – 160 mm
1.8898 in – 6.2992 in



Series RNA 49



Series RNA 49 RS

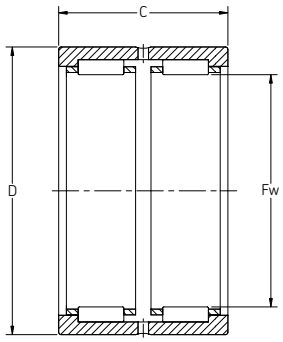

Series RNA 2RS

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore F_w		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
RNA 4908	48	1.8898	62	2.4409	22	0.8661	42 900	9 640	71 000	15 960	8 000	9 500	0.14	0.31
RNA 4908 RS	48	1.8898	62	2.4409	22	0.8661	36 900	8 290	58 500	13 150	–	4 000	0.15	0.34
RNA 4908 2RS	48	1.8898	62	2.4409	22	0.8661	36 900	8 290	58 500	13 150	–	4 000	0.15	0.34
RNA 4909	52	2.0472	68	2.6772	22	0.8661	45 700	10 270	78 000	17 530	7 500	8 500	0.18	0.40
RNA 4909 RS	52	2.0472	68	2.6772	22	0.8661	39 100	8 790	64 000	14 380	–	3 800	0.16	0.35
RNA 4909 2RS	52	2.0472	68	2.6772	22	0.8661	39 100	8 790	64 000	14 380	–	3 800	0.16	0.35
RNA 4910	58	2.2835	72	2.8346	22	0.8661	47 300	10 630	85 000	19 100	7 000	8 000	0.16	0.36
RNA 4910 RS	58	2.2835	72	2.8346	22	0.8661	40 200	9 030	69 500	15 620	–	3 400	0.16	0.35
RNA 4910 2RS	58	2.2835	72	2.8346	22	0.8661	40 200	9 030	69 500	15 620	–	3 400	0.16	0.35
RNA 4911	63	2.4803	80	3.1496	25	0.9843	57 200	12 850	106 000	23 820	6 300	7 000	0.26	0.56
RNA 4912	68	2.6772	85	3.3465	25	0.9843	60 500	13 600	114 000	25 620	6 000	6 700	0.28	0.61
RNA 4913	72	2.8346	90	3.5433	25	0.9843	61 600	13 840	120 000	26 970	5 600	6 300	0.31	0.69
RNA 4914	80	3.1496	100	3.9370	30	1.1811	84 200	18 920	163 000	36 630	5 000	5 600	0.46	1.01
RNA 4915	85	3.3465	105	4.1339	30	1.1811	84 200	18 920	170 000	38 200	4 800	5 300	0.49	1.08
RNA 4916	90	3.5433	110	4.3307	30	1.1811	88 000	19 780	183 000	41 120	4 500	5 000	0.52	1.14
RNA 4917	100	3.9370	120	4.7244	35	1.3780	108 000	24 270	250 000	56 200	4 000	4 500	0.66	1.45
RNA 4918	105	4.1339	125	4.9213	35	1.3780	112 000	25 170	265 000	59 600	3 800	4 300	0.75	1.64
RNA 4919	110	4.3307	130	5.1181	35	1.3780	114 000	25 620	270 000	60 700	3 600	4 000	0.72	1.59
RNA 4920	115	4.5276	140	5.5118	40	1.5748	125 000	28 090	280 000	62 900	3 400	4 000	1.15	2.54
RNA 4922	125	4.9213	150	5.9055	40	1.5748	130 000	29 210	300 000	67 400	3 200	3 600	1.24	2.73
RNA 4924	135	5.3150	165	6.4961	45	1.7717	176 000	39 550	405 000	91 000	3 000	3 400	1.86	4.10
RNA 4926	150	5.9055	180	7.0866	50	1.9685	198 000	44 490	480 000	107 900	2 600	3 000	2.21	4.87
RNA 4928	160	6.2992	190	7.4803	50	1.9685	205 000	46 070	510 000	114 600	2 400	2 800	2.35	5.18

Consult SKF USA Inc. prior to design change or order placement.

Double row
without inner ring
Series: RNA 69/22 – RNA 69/32
Size: 28 mm – 40 mm
1.1024 in – 1.5748 in

Series: RNA 6901 – RNA 6919
Size: 16 mm – 110 mm
0.6299 in – 4.3307 in



Series RNA 69

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore F_w		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
RNA 69/22	28	1.1024	39	1.5354	30	1.1811	36 900	8 290	57 000	12 810	14 000	15 000	0.10	0.22
RNA 69/28	32	1.2598	45	1.7717	30	1.1811	39 600	8 900	65 500	14 720	12 000	14 000	0.14	0.30
RNA 69/32	40	1.5748	52	2.0472	36	1.4173	47 300	10 630	90 000	20 220	10 000	11 000	0.16	0.36
RNA 6901	16	0.6299	24	0.9449	22	0.8661	16 100	3 620	23 200	5 210	22 000	26 000	0.03	0.07
RNA 6902	20	0.7874	28	1.1024	23	0.9055	17 200	3 870	27 000	6 070	19 000	22 000	0.04	0.09
RNA 6903	22	0.8661	30	1.1811	23	0.9055	18 700	4 200	30 500	6 850	18 000	20 000	0.04	0.09
RNA 6904	25	0.9843	37	1.4567	30	1.1811	35 200	7 910	53 000	11 910	15 000	17 000	0.10	0.22
RNA 6905	30	1.1811	42	1.6535	30	1.1811	38 000	8 540	62 000	13 930	13 000	15 000	0.11	0.25
RNA 6906	35	1.3780	47	1.8504	30	1.1811	42 900	9 640	75 000	16 850	11 000	13 000	0.13	0.28
RNA 6907	42	1.6535	55	2.1654	36	1.4173	48 400	10 880	93 000	20 900	9 500	11 000	0.19	0.43
RNA 6908	48	1.8898	62	2.4409	40	1.5748	67 100	15 080	125 000	28 090	8 000	9 500	0.26	0.56
RNA 6909	52	2.0472	68	2.6772	40	1.5748	70 400	15 820	137 000	30 790	7 500	8 500	0.34	0.75
RNA 6910	58	2.2835	72	2.8346	40	1.5748	73 700	16 560	150 000	33 710	7 000	8 000	0.31	0.68
RNA 6911	63	2.4803	80	3.1496	45	1.7717	89 700	20 160	190 000	42 700	6 300	7 000	0.47	1.04
RNA 6912	68	2.6772	85	3.3465	45	1.7717	93 500	21 010	204 000	45 840	6 000	6 700	0.49	1.08
RNA 6913	72	2.8346	90	3.5433	45	1.7717	95 200	21 390	212 000	47 640	5 600	6 300	0.58	1.28
RNA 6914	80	3.1496	100	3.9370	54	2.1260	128 000	28 760	285 000	64 000	5 000	5 600	0.86	1.89
RNA 6915	85	3.3465	105	4.1339	54	2.1260	130 000	29 210	290 000	65 200	4 800	5 300	0.94	2.06
RNA 6916	90	3.5433	110	4.3307	54	2.1260	134 000	30 110	315 000	70 800	4 500	5 000	0.99	2.18
RNA 6917	100	3.9370	120	4.7244	63	2.4803	165 000	37 080	425 000	95 500	4 000	4 500	1.20	2.65
RNA 6918	105	4.1339	125	4.9213	63	2.4803	172 000	38 650	450 000	101 100	3 800	4 300	1.33	2.93
RNA 6919	110	4.3307	130	5.1181	63	2.4803	172 000	38 650	465 000	104 500	3 600	4 000	1.46	3.22

Consult SKF USA Inc. prior to design change or order placement.



Taper roller bearings (metric series)

32302 B J2 / Q CL7C

1 2 3 4

1. Contact angle:

B	Larger contact angle than standard

2. Internal design:

J2	Pressed steel cage rolling element guided
X	Boundary dimensions changed to conform to ISO standards
DF	Duplex (2) bearings, face-to-face arrangement including 1 outer ring
DB	Duplex (2) bearings, back-to-back arrangement including 1 outer and 1 inner ring spacer
DT	Duplex (2) bearings arranged in tandem with 1 outer ring and 1 inner ring spacer
T...	A number immediately following the T identifies the total width of the matched bearings, arranged back-to-back or tandem
C	Special axial clearance in microns (mean value)

3. Features:

Q	Improved friction torque characteristics and raceway geometry

4. Quality:

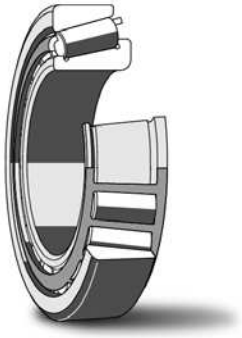
CL7C	Special SKF quality for pinion bearings
W64	Solid Oil lubricants

* QCL7A is now QCL7C.

Introduction

Technical features

Boundary dimensions	In accordance with ISO 355-2007
Tolerances	ISO-Normal
Heat stabilization	302° F (150° C)
Misalignment (under heavy load conditions)	2-4 minutes of arc (logarithmic profile rollers)
Cage Material	
Standard	Steel
Optional	None
Axial load – max	Contact SKF Applications Engineering
Seals	Not available



Single row
Taper roller bearing
(data tables on page 232)



Paired single row
Taper roller bearing
(data tables on page 242)

Introduction

Taper roller bearings have tapered inner and outer ring raceways between which tapered rollers are arranged. If extended, the tapered surfaces converge towards a single point on the bearing axis. This means that rolling conditions are at an optimum.

Their design makes taper roller bearings particularly suitable for the accommodation of combined (radial and axial) loads. The axial load carrying capacity of the bearings is largely determined by the contact angle a, which corresponds to the angle of the outer ring raceway. The larger this angle, the larger the axial load carrying capacity. Taper roller bearings are generally of separable design; for example, the inner ring with roller and cage assembly forms a unit which can be mounted separately from the outer ring.

Single row taper roller bearings are able to accommodate axial loads acting in one direction only. Under radial loads, an axial force is produced in the bearing which must be counteracted. Therefore, it is customary for the single row taper roller bearings to be adjusted against a second taper roller bearing.

SKF manufactures single and double row taper roller bearings with metric dimensions. The single row bearings listed in the following product tables are the most prevalent. Double row taper roller bearings are also included in this catalog.

Basic design

Single row taper roller bearings

Continuous improvements made to SKF taper roller bearings resulted in the latest state of the art design known as the TQ-line (suffix Q). The sliding surfaces of the inner ring guide flange and the roller ends have been redesigned to enable lubricant feed to the roller end / flange contacts to be enhanced and lubricant film formation in the contacts to be considerably improved. The contact geometry between rollers and raceways has also been markedly improved by the "logarithmic" profile, which provides for optimum stress distribution in the bearing. Optimized raceway surfaces promote lubricant film formation and correct motion of the rollers. These improvements have considerably enhanced the performance of SKF taper roller bearings.

Metric bearings

When the current international standard (ISO 355-1977) was prepared, new designations were devised for the Dimension series, and consequently, for the bearings.

However, since changes in bearing designations cause difficulties, and if introduced would necessitate the alteration of drawings, part lists, etc., both by producer and user, it was decided that the SKF designations for those bearings, which were in accordance with the earlier ISO/R 355 as well as the new standard, would be retained. New designations comprising the three symbols of the series designation to ISO, prefixed by the letter T and followed by a three-figure identification of the bore diameter in mm were adopted only for the bearing sizes, which were new to the ISO 355-1977 standard; for example, T2ED 045.

SKF Explorer class bearings

High performance taper roller bearings in the SKF Explorer performance class are printed in blue in the product tables. The higher performance of SKF Explorer bearings retain the designation of the earlier standard bearings, e.g. 32010 X/Q. However, each bearing and its box are marked with the name "SKF Explorer".

Additional details on SKF Explorer performance class bearings can be found on page 25.

Product highlights

Suitable for heavy loads

Taper roller bearings are designed for heavy combined axial and radial loads.

Offer longer life and higher reliability

SKF's latest state-of-the-art taper roller bearing design is less sensitive to misalignment (up to two minutes of arc) and offers long life, high reliability and low operating temperatures.

CL7C design offers high running accuracy and low friction torque

These taper roller bearings operate under full load without any running-in risk or temperature peaks.

Large product assortment

Available in a wide range of sizes including 15 to 320 mm inside diameter.

Quiet running

The outstanding running and dimensional accuracy allows for extremely silent running conditions.

Application flexibility

Depending on application needs, SKF has the possibility to provide either case-carburized or thru-hardened in some sizes. Typical applications are gearboxes, construction equipment, wheel hubs, and mining bulk conveyors.

Introduction

Paired single row taper roller bearings

For bearing arrangements where the load carrying capacity of a single bearing is inadequate or where the shaft has to be located in both directions with a given axial play, SKF can supply single row taper roller bearings as ready-to-mount matched pairs.

Matched pairs of single row taper roller bearings enable economic designs of bearing arrangement to be made and can be supplied by SKF in the arrangements shown in **(Figure 1)**. However, the use of the paired bearings in face-to-face arrangements shown in the product tables on pages 242-246, which represent the range currently produced, is recommended. Other sets of bearings arranged face-to-face as well as bearing sets arranged back-to-back or in tandem can be supplied to order if the quantities required are economic.

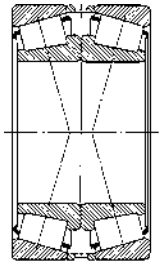
Where only a few sets are required it is recommended that they be matched by the user, following the instructions given in the SKF Rolling bearings catalog 17000 EN.

Matched pairs of bearings arranged face-to-face are simple in design and easily produced as they consist of two bearings with an intermediate ring between the two outer rings. The load lines of bearings arranged face-to-face converge towards the bearing axis. Axial loads can be accommodated in both directions, although only by one bearing at a time.

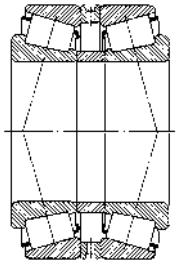
Where the bearing set has a back-to-back arrangement, two intermediate rings are needed: one between the outer rings and one between the inner rings. Such sets are therefore more expensive to produce. In a back-to-back arrangement, the load lines of the bearings diverge towards the bearing axis, so that such bearing arrangements are relatively stiff and can accommodate tilting moments. Axial loads can again be accommodated in both directions as for the face-to-face arrangement.

Sets of bearings arranged in tandem also call for the use of two intermediate rings (one between the inner and one between the outer rings) but such sets are seldom required. The load lines of bearings arranged in tandem are parallel to each other so that radial and axial loads are equally distributed over the bearing pair. Axial loads can only be taken up in one direction and the pair is usually adjusted against a third bearing, which can take axial loads acting in the opposite direction.

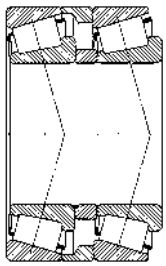
Figure 1



Face-to-face arrangement
(Suffix DF)



Back-to-back arrangement
(Suffix DB)



Tandem arrangement
(Suffix DT)

Variations

CL7C design

Bearings to the CL7C specifications require no running-in and a hydrodynamic lubricant film is able to form in the roller end / flange so that their friction torque almost from the start of operation is as low as that of normal bearings after running-in. The bearings can be adjusted using the preload force / preload path procedures as well as the friction torque, as described in the SKF Rolling bearings catalog 17000 EN.

Further information on CL7C design bearings can be supplied on request.

Four-row tapered roller bearings

Four-row tapered roller bearings are used in extremely heavy applications. Consult SKF Applications Engineering for further details.

Metric bearing tolerances

SKF single row metric taper roller bearings are manufactured to Normal tolerances as standard. Some bearings are also available with higher accuracy – in particular those of series 320 X, T4CB and T4DB. Consult SKF Applications Engineering for further details.

Inch series

SKF manufactures a limited assortment of these bearings. Consult SKF USA Inc. prior to design or ordering.

Internal clearance

Axial internal clearance – single row

The internal clearance of single row taper roller bearings can only be obtained after mounting and is determined by adjustment of the bearing against a second bearing which provides location in the opposite direction. Further details will be found in the SKF Rolling bearings catalog 17000 EN.

Axial internal clearance – paired tapered roller bearings

The axial internal clearance of paired single row taper roller bearings is determined by the intermediate rings between the two bearings of the matched pair. The bearing pairs shown in the bearing tables are produced with the standard bearing clearance shown in Table 1. The values apply to bearings before they are mounted and under measuring loads of

- 100 N for bearings with an outside diameter $D \leq 90$ mm
- 300 N for bearings with an outside diameter $90 < D \leq 240$ mm
- 500 N for bearings with an outside diameter $D > 240$ mm

Matched bearing sets having a clearance other than the standard value are identified by the designation suffix C followed by a two-or three-figure number, which gives the mean axial clearance in µm. The range of the special clearance is, however, the same as for the standard clearance; for example, for the bearing set designated 32048 X / DFC205, having a mean axial clearance of 205 µm, the clearance limits are 175 and 235 µm since the range from the table below for a 320X series bearing with 240 mm bore is 500 - 440 = 60 µm.

Loads

Equivalent dynamic bearing load for single row taper roller bearings

$P = F_r$ where $F_a / F_r \leq e$

$P = 0.4\ F_r + YF_a$ where $F_a / F_r > e$

The values of factors e and Y will be found in the bearing tables for each individual bearing.

Because the raceways are at an angle to the bearing axis, when taper roller bearings are subjected to a radial load, an axial force is induced within the bearing. This must be considered when calculating the equivalent dynamic bearing load. All the requisite equations for the various bearing arrangements and load cases are given on the following page. These are only valid if the bearings are adjusted against each other to give zero clearance in operation, but are without preload. Values for the axial load factor Y for bearings can be found in the bearing tables.

Equivalent dynamic bearing load for bearings arranged in either face-to-face or back-to-back assemblies.

$P = F_r + Y_1 F_a$ where $F_a / F_r \leq e$

$P = 0.67\ F_r + Y_2 F_a$ where $F_a / F_r > e$

F_r and F_a are the forces acting on the bearing pair. Values of the factors e, Y_1 and Y_2 are given for each bearing pair on the SKF website.

Information regarding the calculation of the equivalent load for sets of bearings arranged back-to-back or in tandem will be found in the SKF Rolling bearings catalog 17000 EN.

Table 1

Total width tolerances of matched single row metric taper roller bearings

Bore diameter d		Total width tolerance Δ_{TsD} of matched bearings of series											
		329		320		330		331, 302, 322, 332		303, 323		313	
over	incl.	high	low	high	low	high	low	high	low	high	low	high	low
mm		µm											
–	30	–	–	+550	+100	–	–	+550	+100	+600	+150	+500	+50
30	40	–	–	+550	+100	–	–	+600	+150	+600	+150	+550	+50
40	50	–	–	+600	+150	–	–	+600	+200	+600	+200	+550	+50
50	65	–	–	+600	+150	–	–	+600	+200	+650	+200	+550	+100
65	80	–	–	+600	+200	–	–	+650	+200	+700	+200	+600	+100
80	100	+750	-150	+650	-250	+800	-50	+700	-200	+700	-100	+600	-300
100	120	+750	-150	+700	-200	+800	-100	+700	-200	+750	-150	+600	-300
120	140	+1 100	-200	+1 000	-300	+1 100	-200	+1 000	-300	+1 100	-200	+950	-350
140	160	+1 150	-150	+1 050	-250	+1 100	-200	+1 050	-250	+1 150	-150	+950	-350
160	180	+1 150	-150	+1 100	-200	–	–	+1 100	-200	+1 150	-150	–	–
180	190	+1 150	-150	+1 100	-200	–	–	+1 100	-200	+1 200	-100	–	–
190	200	+1 150	-150	+1 100	-200	–	–	+1 100	-200	+1 200	-100	–	–
200	225	+1 200	-100	+1 150	-150	–	–	+1 150	-150	+1 250	-50	–	
225	250	+1 200	-100	+1 200	-100	–	–	+1 200	-100	+1 300	0	–	–
250	280	+1 300	0	+1 250	-50	–	–	+1 250	-50	–	–	–	–
280	300	+1 400	+100	+1 300	0	–	–	+1 300	0	–	–	–	–
300	315	+1 400	+100	+1 350	+50	–	–	+1 350	+50	–	–	–	–
315	340	+1 500	-200	+1 450	-250	–	–	+1 450	+200				

Axial internal clearance of matched single row metric taper roller bearings

Bore diameter d		Axial internal clearance of matched bearings of series											
		329		320		330		331, 302, 322, 332		303, 323		313	
over	incl.	min	max	min	max	min	max	min	max	min	max	min	max
mm		µm											
–	30	–	–	80	120	–	–	100	140	130	170	60	100
30	40	–	–	100	140	–	–	120	160	140	180	70	110
40	50	–	–	120	160	180	220	140	180	160	200	80	120
50	65	–	–	140	180	200	240	160	200	180	220	100	140
65	80	–	–	160	200	250	290	180	220	200	260	110	170
80	100	270	310	190	230	350	390	210	270	240	300	110	170
100	120	270	330	220	280	340	400	220	280	280	340	130	190
120	140	310	370	240	300	340	400	240	300	330	390	160	220
140	160	370	430	270	330	340	400	270	330	370	430	180	240
160	180	370	430	310	370	–	–	310	370	390	450	–	–
180	190	370	430	340	400	–	–	340	400	440	500	–	–
190	200	390	450	340	400	–	–	340	400	440	500	–	–
200	225	440	500	390	450	–	–	390	450	490	550	–	–
225	250	440	500	440	500	–	–	440	500	540	600	–	–
250	280	540	600	490	550	–	–	490	550	–	–	–	–
280	300	640	700	540	600	–	–	540	600	–	–	–	–
300	340	640	700	590	650	–	–	590	650				

Note: To convert values to inches, multiply "µm" x 0.00004.

Minimum load

In order to guarantee the satisfactory operation of all ball and roller bearings, they must always be subjected to a given minimum load. This is also true of taper roller bearings, particularly if they run at high speeds where the inertia forces of the rollers and cage, and the friction in the lubricant can have a detrimental influence on the rolling conditions in the bearing and may cause damaging sliding movements to occur between the rollers and the raceways.

The requisite minimum radial load to be applied in such cases can be found on the SKF website Frequency vibration data is available on the SKF website **skfusa.com.** Select Engineering Tools under the Support menu. Or contact SKF Applications Engineering. However, the weight of the components supported by the bearing, together with the external forces, often exceeds the requisite minimum load. If this is not the case, an additional radial load must be applied to the bearing by increasing belt tension or similar means.

Frequency vibration data

Frequency vibration data is available on the SKF website **skfusa.com.** Select Engineering Tools under the Support menu. Or contact SKF Applications Engineering.

Design of bearing arrangements

When designing bearing arrangements incorporating single row taper roller bearings, it is necessary to consider the special characteristics of these bearings. Because of their internal design, they cannot be used singly and a second bearing is required, or alternatively a paired set (**Figure 1**, page 228) may be used.

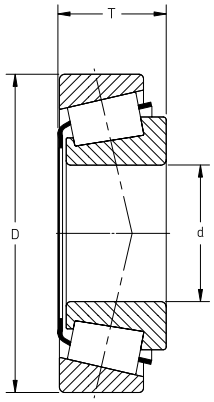
Where the arrangement comprises two single row taper roller bearings, they must be adjusted against each other until the desired operational clearance or requisite preload is achieved.

A correctly dimensioned operational clearance or preload is vital to the correct performance of single row taper roller bearings and also to the operational reliability of the bearing arrangement. If the operational clearance is too great, then the full load carrying capacity of the bearing will not be exploited and if the preload is too large then frictional losses will be greater, the operating temperature higher and the life shorter.

Single row

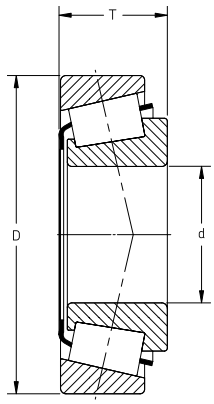
Standard and SKF Explorer

Series: 30202 – 30248
Size: 15 mm – 240 mm
0.5906 in – 9.4488 in



Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Calculation factors	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed				
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	e	Y
30202	15	0.5906	35	1.3780	11.75	0.4626	18500	4160	14600	3280	17000	20000	0.1	0.1	0.10	1.70
30203	17	0.6693	40	1.5748	13.25	0.5217	23400	5260	18600	4180	15000	18000	0.1	0.2	0.35	1.70
30204	20	0.7874	47	1.8504	15.25	0.6004	34100	7660	28000	6290	12000	15000	0.1	0.3	0.35	1.70
30205	25	0.9843	52	2.0472	16.25	0.6398	38100	8560	33500	7530	11000	13000	0.2	0.3	0.37	1.60
30 2/28	28	1.1024	58	2.2835	17.25	0.6791	46600	10470	41500	9330	10000	12000	0.2	0.4	0.37	1.60
30206	30	1.1811	62	2.4409	17.25	0.6791	50000	11240	44000	9890	9000	11000	0.2	0.5	0.37	1.60
30207	35	1.3780	72	2.8346	18.25	0.7185	63200	14200	56000	12580	8000	9500	0.3	0.7	0.37	1.60
30208	40	1.5748	80	3.1496	19.75	0.7776	75800	17030	68000	15280	7000	8500	0.4	0.9	0.37	1.60
30209	45	1.7717	85	3.3465	20.75	0.8169	81600	18340	76500	17190	6300	8000	0.5	1.0	0.40	1.50
30210	50	1.9685	90	3.5433	21.75	0.8563	93100	20920	91500	20560	6000	7500	0.5	1.2	0.43	1.40
30211	55	2.1654	100	3.9370	22.75	0.8957	111000	24940	106000	23820	5300	6700	0.7	1.5	0.40	1.50
30212	60	2.3622	110	4.3307	23.75	0.9350	120000	26970	114000	25620	5000	6000	0.9	1.9	0.40	1.50
30213	65	2.5591	120	4.7244	24.75	0.9744	141000	31690	134000	30110	4500	5600	1.1	2.5	0.40	1.50
30214	70	2.7559	125	4.9213	26.25	1.0335	155000	34830	156000	35060	4300	5300	1.2	2.7	0.43	1.40
30215	75	2.9528	130	5.1181	27.25	1.0728	171000	38430	176000	39550	4000	5000	1.4	3.0	0.43	1.40
30216	80	3.1496	140	5.5118	28.25	1.1122	184000	41350	183000	41120	3800	4800	1.6	3.6	0.43	1.40
30217	85	3.3465	150	5.9055	30.50	1.2008	216000	48540	220000	49440	3600	4300	2.0	4.5	0.43	1.40
30218	90	3.5433	160	6.2992	32.50	1.2795	240000	53900	245000	55100	3400	4000	2.5	5.6	0.43	1.40
30219	95	3.7402	170	6.6929	34.50	1.3583	266000	59800	275000	61800	3200	3800	3.0	6.6	0.43	1.40
30220	100	3.9370	180	7.0866	37.00	1.4567	304000	68300	320000	71900	3000	3600	3.6	8.0	0.43	1.40
30221	105	4.1339	190	7.4803	39.00	1.5354	333000	74800	355000	79800	2800	3400	4.3	9.5	0.43	1.40
30222	110	4.3307	200	7.8740	41.00	1.6142	376000	84500	405000	91000	2600	3200	5.1	11.2	0.43	1.40
30224	120	4.7244	215	8.4646	43.50	1.7126	417000	93700	465000	104500	2400	3000	6.1	13.5	0.43	1.40
30226	130	5.1181	230	9.0551	43.75	1.7224	451000	101300	490000	110100	2200	2800	6.8	15.1	0.43	1.40
30228	140	5.5118	250	9.8425	45.75	1.8012	451000	101300	570000	128100	1900	2600	8.7	19.2	0.43	1.40
30230	150	5.9055	270	10.6299	49.00	1.9291	455000	102200	560000	125800	1800	2400	10.6	23.4	0.43	1.40
30232	160	6.2992	290	11.4173	52.00	2.0472	566000	127200	735000	165200	1600	2200	13.2	29.1	0.43	1.40
30234	170	6.6929	310	12.2047	57.00	2.2441	657000	147600	865000	194400	1500	2000	16.6	36.6	0.43	1.40
30236	180	7.0866	320	12.5984	57.00	2.2441	629000	141300	815000	183100	1500	2000	17.0	37.5	0.46	1.30
30238	190	7.4803	340	13.3858	60.00	2.3622	763000	171500	1000000	224700	1400	1800	20.5	45.3	0.43	1.40
30240	200	7.8740	360	14.1732	64.00	2.5197	845000	189900	1120000	251700	1300	1700	24.6	54.3	0.43	1.40
30244	220	8.6614	400	15.7480	72.00	2.8346	1059000	238000	1400000	314600	1200	1600	34.4	75.9	0.43	1.40
30248	240	9.4488	440	17.3228	79.00	3.1102	1300000	292100	1760000	395500	1000	1400	47.0	103.6	0.43	1.40

Consult SKF USA Inc. prior to design change or order placement.



Single row

Standard and SKF Explorer

Series: 30302 – 30334
Size: 15 mm – 170 mm
0.5906 in – 6.6929 in

Series: 31305 – 31310
Size: 25 mm – 50 mm
0.9843 in – 1.9685 in

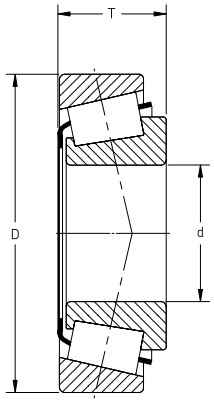
Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Calculation factors	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed				
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	e	Y
30302	15	0.5906	42	1.6535	14.25	0.5610	27700	6220	20000	4490	15000	18000	0.1	0.2	0.28	2.10
30303	17	0.6693	47	1.8504	15.25	0.6004	34200	7690	25000	5620	13000	16000	0.1	0.3	0.28	2.10
30304	20	0.7874	52	2.0472	16.25	0.6398	41900	9420	32500	7300	12000	14000	0.2	0.4	0.30	2.00
30305	25	0.9843	62	2.4409	18.25	0.7185	55300	12430	43000	9660	9500	12000	0.3	0.6	0.30	2.00
30306	30	1.1811	72	2.8346	20.75	0.8169	69200	15550	56000	12580	8000	10000	0.4	0.8	0.31	1.90
30307	35	1.3780	80	3.1496	22.75	0.8957	88900	19980	73500	16520	7500	9000	0.5	1.1	0.31	1.90
30308	40	1.5748	90	3.5433	25.25	0.9941	106000	23820	95000	21350	6300	8000	0.7	1.6	0.35	1.70
30309	45	1.7717	100	3.9370	27.25	1.0728	132000	29660	120000	26970	5600	7000	1.0	2.1	0.35	1.70
30310	50	1.9685	110	4.3307	29.25	1.1516	154000	34610	140000	31460	5300	6300	1.2	2.7	0.35	1.70
30311	55	2.1654	120	4.7244	31.50	1.2402	176000	39550	163000	36630	4800	5600	1.6	3.4	0.35	1.70
30312	60	2.3622	130	5.1181	33.50	1.3189	208000	46740	196000	44040	4300	5300	2.0	4.3	0.35	1.70
30313	65	2.5591	140	5.5118	36.00	1.4173	240000	53900	228000	51200	4000	4800	2.4	5.3	0.35	1.70
30314	70	2.7559	150	5.9055	38.00	1.4961	271000	60900	260000	58400	3800	4500	2.9	6.5	0.35	1.70
30315	75	2.9528	160	6.2992	40.00	1.5748	301000	67600	290000	65200	3400	4300	3.5	7.7	0.35	1.70
30316	80	3.1496	170	6.6929	42.50	1.6732	333000	74800	320000	71900	3200	4000	4.1	9.1	0.35	1.70
30317	85	3.3465	180	7.0866	44.50	1.7520	372000	83600	365000	82000	3000	3800	4.8	10.7	0.35	1.70
30318	90	3.5433	190	7.4803	46.50	1.8307	353000	79300	400000	89900	2600	3600	5.6	12.4	0.35	1.70
30319	95	3.7402	200	7.8740	49.50	1.9488	353000	79300	390000	87600	2600	3400	6.5	14.2	0.35	1.70
30320	100	3.9370	215	8.4646	51.50	2.0276	431000	96900	490000	110100	2400	3200	8.0	17.5	0.35	1.70
30321	105	4.1339	225	8.8583	53.50	2.1063	462000	103800	530000	119100	2200	3000	9.1	20.0	0.35	1.70
30322	110	4.3307	240	9.4488	54.50	2.1457	507000	113900	585000	131500	2200	2800	10.8	23.8	0.35	1.70
30324	120	4.7244	260	10.2362	59.50	2.3425	601000	135100	710000	159600	2000	2600	13.7	30.2	0.35	1.70
30326	130	5.1181	280	11.0236	63.75	2.5098	679000	152600	800000	179800	1800	2400	16.8	37.1	0.35	1.70
30328	140	5.5118	300	11.8110	67.75	2.6673	787000	176900	950000	213500	1700	2200	20.7	45.6	0.35	1.70
30330	150	5.9055	320	12.5984	72.00	2.8346	879000	197500	1060000	238200	1600	2000	24.8	54.6	0.35	1.70
30332	160	6.2992	340	13.3858	75.00	2.9528	970000	218000	1180000	265200	1500	2000	28.9	63.7	0.35	1.70
30334	170	6.6929	360	14.1732	80.00	3.1496	1103000	247900	1340000	301100	1400	1800	34.7	76.6	0.35	1.70
31305	25	0.9843	62	2.4409	18.25	0.7185	46600	10470	40000	8990	8500	11000	0.3	0.6	0.83	0.72
31306	30	1.1811	72	2.8346	20.75	0.8169	58300	13100	50000	11240	7500	9500	0.4	0.9	0.83	0.72
31307	35	1.3780	80	3.1496	22.75	0.8957	75400	16940	67000	15060	6300	8500	0.5	1.1	0.83	0.72
31308	40	1.5748	90	3.5433	25.25	0.9941	91100	20470	81500	18310	5600	7500	0.7	1.6	0.83	0.72
31309	45	1.7717	100	3.9370	27.25	1.0728	113000	25390	102000	22920	5000	6700	1.0	2.1	0.83	0.72
31310	50	1.9685	110	4.3307	29.25	1.1516	131000	29440	120000	26970	4500	6000	1.2	2.7	0.83	0.72

Consult SKF USA Inc. prior to design change or order placement.

Single row

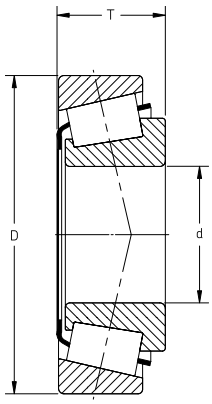
Standard and SKF Explorer
Series: 31311 – 31330 X
Size: 55 mm – 150 mm
2.1654 in – 5.9055 in

Series: 320/22 X – 32018 X
Size: 22 mm – 90 mm
0.8661 in – 3.5433 in



Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Calculation factors	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed				
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	e	Y
31311	55	2.1654	120	4.7244	31.50	1.2402	149000	33480	137000	30790	4300	5600	1.5	3.4	0.83	0.72
31312	60	2.3622	130	5.1181	33.50	1.3189	177000	39780	166000	37300	3800	5300	1.9	4.2	0.83	0.72
31313	65	2.5591	140	5.5118	36.00	1.4173	203000	45620	193000	43370	3600	4800	2.4	5.2	0.83	0.72
31314	70	2.7559	150	5.9055	38.00	1.4961	229000	51500	220000	49440	3400	4500	2.9	6.3	0.83	0.72
31315	75	2.9528	160	6.2992	40.00	1.5748	255000	57300	245000	55100	3200	4300	3.4	7.5	0.83	0.72
31316	80	3.1496	170	6.6929	42.50	1.6732	276000	62000	265000	59600	3000	4000	4.1	8.9	0.83	0.72
31317	85	3.3465	180	7.0866	44.50	1.7520	297000	66700	285000	64000	2800	3800	4.6	10.2	0.83	0.72
31318	90	3.5433	190	7.4803	46.50	1.8307	283000	63600	315000	70800	2400	3400	5.4	11.9	0.83	0.72
31319	95	3.7402	200	7.8740	49.50	1.9488	314000	70600	355000	79800	2400	3400	6.3	13.9	0.83	0.72
31320 X	100	3.9370	215	8.4646	56.50	2.2244	399000	89700	465000	104500	2200	3000	8.6	19.0	0.83	0.72
31321 X	105	4.1339	225	8.8583	58.00	2.2835	429000	96400	500000	112400	2000	3000	9.6	21.3	0.83	0.72
31322 X	110	4.3307	240	9.4488	63.00	2.4803	491000	110300	585000	131500	1900	2800	12.0	26.4	0.83	0.72
31324 X	120	4.7244	260	10.2362	68.00	2.6772	578000	129900	695000	156200	1700	2400	15.3	33.7	0.83	0.72
31326 X	130	5.1181	280	11.0236	72.00	2.8346	647000	145400	780000	175300	1600	2400	18.5	40.7	0.83	0.72
31328 X	140	5.5118	300	11.8110	77.00	3.0315	737000	165600	900000	202200	1500	2200	22.6	49.9	0.83	0.72
31330 X	150	5.9055	320	12.5984	82.00	3.2283	832000	187000	1020000	229200	1400	2000	27.2	59.9	0.83	0.72
320/22 X	22	0.8661	44	1.7323	15.00	0.5906	30900	6940	29000	6520	13000	15000	0.1	0.2	0.40	1.50
320/28 X	28	1.1024	52	2.0472	16.00	0.6299	39000	8760	38000	8540	10000	13000	0.1	0.3	0.43	1.40
320/32 X	32	1.2598	58	2.2835	17.00	0.6693	45100	10130	46500	10450	9000	11000	0.2	0.4	0.46	1.30
32004 X	20	0.7874	42	1.6535	15.00	0.5906	29700	6670	27000	6070	13000	16000	0.1	0.2	0.37	1.60
32005 X	25	0.9843	47	1.8504	15.00	0.5906	33200	7460	32500	7300	12000	14000	0.1	0.3	0.43	1.40
32006 X	30	1.1811	55	2.1654	17.00	0.6693	43900	9870	44000	9890	10000	12000	0.2	0.4	0.43	1.40
32007 X	35	1.3780	62	2.4409	18.00	0.7087	52300	11750	54000	12130	8500	10000	0.2	0.5	0.46	1.30
32008 X	40	1.5748	68	2.6772	19.00	0.7480	64700	14540	71000	15960	7500	9500	0.3	0.6	0.37	1.60
32009 X	45	1.7717	75	2.9528	20.00	0.7874	71700	16110	80000	17980	7000	8500	0.3	0.8	0.40	1.50
32010 X	50	1.9685	80	3.1496	20.00	0.7874	75100	16880	88000	19780	6300	8000	0.4	0.8	0.43	1.40
32011 X	55	2.1654	90	3.5433	23.00	0.9055	99400	22340	116000	26070	5600	7000	0.6	1.2	0.40	1.50
32012 X	60	2.3622	95	3.7402	23.00	0.9055	101000	22700	122000	27420	5300	6700	0.6	1.3	0.43	1.40
32013 X	65	2.5591	100	3.9370	23.00	0.9055	103000	23150	127000	28540	5000	6000	0.6	1.4	0.46	1.30
32014 X	70	2.7559	110	4.3307	25.00	0.9843	125000	28090	153000	34380	4500	5600	0.9	1.9	0.43	1.40
32015 X	75	2.9528	115	4.5276	25.00	0.9843	130000	29210	163000	36630	4300	5300	0.9	2.0	0.46	1.30
32016 X	80	3.1496	125	4.9213	29.00	1.1417	168000	37750	216000	48540	4000	5000	1.3	2.9	0.43	1.40
32017 X	85	3.3465	130	5.1181	29.00	1.1417	171000	38430	224000	50300	3800	4800	1.4	3.0	0.44	1.35
32018 X	90	3.5433	140	5.5118	32.00	1.2598	208000	46740	270000	60700	3600	4300	1.8	3.9	0.43	1.40

Consult SKF USA Inc. prior to design change or order placement.



Single row

Standard and SKF Explorer

Series: 32004 X – 32064 X
Size: 95 mm – 320 mm
3.7402 in – 12.5984in

Series: 32205 – 32219
Size: 25 mm – 95 mm
0.9843 in – 3.7402 in

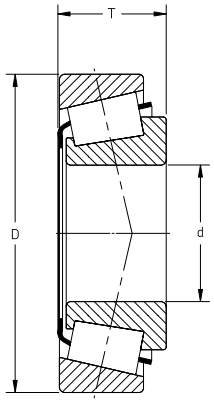
Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Calculation factors	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed				
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	e	Y
32019 X	95	3.7402	145	5.7087	32.00	1.2598	206000	46290	270000	60700	3400	4300	1.8	4.1	0.44	1.35
32020 X	100	3.9370	150	5.9055	32.00	1.2598	209000	46970	280000	62900	3200	4000	1.9	4.2	0.46	1.30
32021 X	105	4.1339	160	6.2992	35.00	1.3780	248000	55700	335000	75300	3200	3800	2.4	5.4	0.44	1.35
32022 X	110	4.3307	170	6.6929	38.00	1.4961	288000	64700	390000	87600	3000	3600	3.1	6.8	0.43	1.40
32024 X	120	4.7244	180	7.0866	38.00	1.4961	299000	67200	415000	93300	2800	3400	3.3	7.3	0.46	1.30
32026 X	130	5.1181	200	7.8740	45.00	1.7717	388000	87200	540000	121300	2400	3000	4.9	10.9	0.43	1.40
32028 X	140	5.5118	210	8.2677	45.00	1.7717	404000	90800	585000	131500	2400	2800	5.3	11.6	0.46	1.30
32030 X	150	5.9055	225	8.8583	48.00	1.8898	456000	102500	655000	147200	2200	2600	6.4	14.1	0.46	1.30
32032 X	160	6.2992	240	9.4488	51.00	2.0079	532000	119600	780000	175300	2000	2400	7.8	17.2	0.46	1.30
32034 X	170	6.6929	260	10.2362	57.00	2.2441	625000	140400	915000	205600	1900	2200	10.5	23.2	0.44	1.35
32036 X	180	7.0866	280	11.0236	64.00	2.5197	793000	178200	1160000	260700	1700	2200	14.2	31.3	0.43	1.40
32038 X	190	7.4803	290	11.4173	64.00	2.5197	806000	181100	1200000	269700	1600	2000	14.8	32.5	0.44	1.35
32040 X	200	7.8740	310	12.2047	70.00	2.7559	800000	179800	1370000	307900	1400	1900	18.8	41.5	0.43	1.40
32044 X	220	8.6614	340	13.3858	76.00	2.9921	955000	214600	1660000	373000	1300	1700	24.6	54.2	0.43	1.40
32048 X	240	9.4488	360	14.1732	76.00	2.9921	989000	222200	1800000	404500	1200	1600	26.3	58.0	0.46	1.30
32052 X	260	10.2362	400	15.7480	87.00	3.4252	1241000	278900	2200000	494400	1100	1400	38.2	84.2	0.43	1.40
32056 X	280	11.0236	420	16.5354	87.00	3.4252	1288000	289400	2360000	530300	1000	1300	40.6	89.5	0.46	1.30
32060 X	300	11.8110	460	18.1102	100.00	3.9370	1644000	369400	3000000	674200	900	1200	58.0	127.9	0.43	1.40
32064 X	320	12.5984	480	18.8976	100.00	3.9370	1663000	373700	3100000	696600	850	1100	64.0	141.1	0.46	1.30
32205	25	0.9843	52	2.0472	19.25	0.7579	50400	11330	45500	10220	11000	13000	0.2	0.4	0.35	1.70
32206	30	1.1811	62	2.4409	21.25	0.8366	61800	13890	57000	12810	9000	11000	0.3	0.6	0.37	1.60
32207	35	1.3780	72	2.8346	24.25	0.9547	81200	18250	78000	17530	8000	9500	0.4	1.0	0.37	1.60
32208	40	1.5748	80	3.1496	24.75	0.9744	91600	20580	86500	19440	7000	8500	0.5	1.2	0.37	1.60
32209	45	1.7717	85	3.3465	24.75	0.9744	98700	22180	98000	22020	6300	8000	0.6	1.3	0.40	1.50
32210	50	1.9685	90	3.5433	24.75	0.9744	101000	22700	100000	22470	6000	7500	0.6	1.4	0.43	1.40
32211	55	2.1654	100	3.9370	26.75	1.0531	130000	29210	129000	28990	5300	6700	0.8	1.8	0.40	1.50
32212	60	2.3622	110	4.3307	29.75	1.1713	155000	34830	160000	35960	5000	6000	1.2	2.5	0.40	1.50
32213	65	2.5591	120	4.7244	32.75	1.2894	186000	41800	193000	43370	4500	5600	1.5	3.3	0.40	1.50
32214	70	2.7559	125	4.9213	33.25	1.3091	195000	43820	208000	46740	4300	5300	1.6	3.5	0.43	1.40
32215	75	2.9528	130	5.1181	33.25	1.3091	197000	44270	212000	47640	4000	5000	1.7	3.7	0.43	1.40
32216	80	3.1496	140	5.5118	35.25	1.3878	228000	51200	245000	55100	3800	4500	2.1	4.5	0.43	1.40
32217	85	3.3465	150	5.9055	38.50	1.5157	263000	59100	285000	64000	3600	4300	2.6	5.8	0.43	1.40
32218	90	3.5433	160	6.2992	42.50	1.6732	309000	69400	340000	76400	3400	4000	3.3	7.3	0.43	1.40
32219	95	3.7402	170	6.6929	45.50	1.7913	348000	78200	390000	87600	3200	3800	4.1	9.0	0.43	1.40

Consult SKF USA Inc. prior to design change or order placement.

Single row

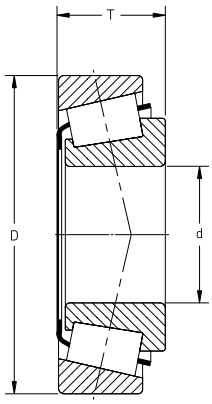
Standard and SKF Explorer
Series: 32220 – 32264
Size: 15 mm – 90 mm
0.5906 in – 3.5433 in

Series: 32303 – 32320
Size: 17 mm – 100 mm
0.6693 in – 3.9370 in



Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Calculation factors	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed				
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	e	Y
32220	15	0.5906	35	1.3780	11.75	0.4626	18500	4160	14600	3280	17000	20000	0.1	0.1	0.10	1.70
32221	17	0.6693	40	1.5748	13.25	0.5217	23400	5260	18600	4180	15000	18000	0.1	0.2	0.35	1.70
32222	20	0.7874	47	1.8504	15.25	0.6004	34100	7660	28000	6290	12000	15000	0.1	0.3	0.35	1.70
32224	25	0.9843	52	2.0472	16.25	0.6398	38100	8560	33500	7530	11000	13000	0.2	0.3	0.37	1.60
32226	28	1.1024	58	2.2835	17.25	0.6791	46600	10470	41500	9330	10000	12000	0.2	0.4	0.37	1.60
32228	30	1.1811	62	2.4409	17.25	0.6791	50000	11240	44000	9890	9000	11000	0.2	0.5	0.37	1.60
32230	35	1.3780	72	2.8346	18.25	0.7185	63200	14200	56000	12580	8000	9500	0.3	0.7	0.37	1.60
32232	40	1.5748	80	3.1496	19.75	0.7776	75800	17030	68000	15280	7000	8500	0.4	0.9	0.37	1.60
32234	45	1.7717	85	3.3465	20.75	0.8169	81600	18340	76500	17190	6300	8000	0.5	1.0	0.40	1.50
32236	50	1.9685	90	3.5433	21.75	0.8563	93100	20920	91500	20560	6000	7500	0.5	1.2	0.43	1.40
32238	55	2.1654	100	3.9370	22.75	0.8957	111000	24940	106000	23820	5300	6700	0.7	1.5	0.40	1.50
32240	60	2.3622	110	4.3307	23.75	0.9350	120000	26970	114000	25620	5000	6000	0.9	1.9	0.40	1.50
32244	65	2.5591	120	4.7244	24.75	0.9744	141000	31690	134000	30110	4500	5600	1.1	2.5	0.40	1.50
32248	70	2.7559	125	4.9213	26.25	1.0335	155000	34830	156000	35060	4300	5300	1.2	2.7	0.43	1.40
32252	75	2.9528	130	5.1181	27.25	1.0728	171000	38430	176000	39550	4000	5000	1.4	3.0	0.43	1.40
32256	80	3.1496	140	5.5118	28.25	1.1122	184000	41350	183000	41120	3800	4800	1.6	3.6	0.43	1.40
32260	85	3.3465	150	5.9055	30.50	1.2008	216000	48540	220000	49440	3600	4300	2.0	4.5	0.43	1.40
32264	90	3.5433	160	6.2992	32.50	1.2795	240000	53900	245000	55100	3400	4000	2.5	5.6	0.43	1.40
32303	17	0.6693	47	1.8504	20.25	0.7972	42800	9620	33500	7530	12000	16000	0.2	0.4	0.28	2.10
32304	20	0.7874	52	2.0472	22.25	0.8760	54300	12200	45500	10220	11000	14000	0.2	0.5	0.30	2.00
32305	25	0.9843	62	2.4409	25.25	0.9941	74100	16650	63000	14160	9000	12000	0.4	0.8	0.30	2.00
32306	30	1.1811	72	2.8346	28.75	1.1319	95000	21350	85000	19100	7500	10000	0.6	1.2	0.31	1.90
32307	35	1.3780	80	3.1496	32.75	1.2894	117000	26290	106000	23820	6700	9000	0.7	1.6	0.31	1.90
32308	40	1.5748	90	3.5433	35.25	1.3878	143000	32130	140000	31460	6000	8000	1.0	2.3	0.35	1.70
32309	45	1.7717	100	3.9370	38.25	1.5059	173000	38880	170000	38200	5300	7000	1.4	3.1	0.35	1.70
32310	50	1.9685	110	4.3307	42.25	1.6634	211000	47420	212000	47640	4800	6300	1.8	4.0	0.35	1.70
32311	55	2.1654	120	4.7244	45.50	1.7913	245000	55100	250000	56200	4300	5600	2.3	5.1	0.35	1.70
32312	60	2.3622	130	5.1181	48.50	1.9094	282000	63400	290000	65200	4000	5300	2.9	6.4	0.35	1.70
32313	65	2.5591	140	5.5118	51.00	2.0079	323000	72600	335000	75300	3600	4800	3.5	7.7	0.35	1.70
32314	70	2.7559	150	5.9055	54.00	2.1260	363000	81600	380000	85400	3400	4500	4.3	9.4	0.35	1.70
32315	75	2.9528	160	6.2992	58.00	2.2835	416000	93500	440000	98900	3200	4300	5.2	11.5	0.35	1.70
32316	80	3.1496	170	6.6929	61.50	2.4213	465000	104500	500000	112400	3200	4000	6.2	13.7	0.35	1.70
32317	85	3.3465	180	7.0866	63.50	2.5000	501000	112600	530000	119100	3000	3800	7.1	15.6	0.35	1.70
32318	90	3.5433	190	7.4803	67.50	2.6575	487000	109400	610000	137100	2600	3600	8.4	18.5	0.35	1.70
32319	95	3.7402	200	7.8740	71.50	2.8150	535000	120200	670000	150600	2400	3400	9.8	21.6	0.35	1.70
32320	100	3.9370	215	8.4646	77.50	3.0512	617000	138700	780000	175300	2200	3200	12.5	27.5	0.35	1.70

Consult SKF USA Inc. prior to design change or order placement.



Single row

SKF Explorer

Series: 32321 – 32328
Size: 105 mm – 140 mm
4.1339 in – 5.5118 in

Series: 32910 – 32964
Size: 50 mm – 320 mm
1.9685 in – 12.5984 in

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Calculation factors	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed				
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	e	Y
32321	105	4.1339	225	8.8583	81.50	3.2087	645000	144900	815000	183100	2000	3000	14.1	31.2	0.35	1.70
32322	110	4.3307	240	9.4488	84.50	3.3268	675000	151700	830000	186500	1900	2800	16.6	36.7	0.35	1.70
32324	120	4.7244	260	10.2362	90.50	3.5630	855000	192100	1120000	251700	1800	2600	21.4	47.1	0.35	1.70
32326	130	5.1181	280	11.0236	98.75	3.8878	1019000	229000	1340000	301100	1600	2400	27.3	60.1	0.35	1.70
32328	140	5.5118	300	11.8110	107.75	4.2421	1220000	274200	1660000	373000	1600	2200	34.6	76.4	0.35	1.70
32910	50	1.9685	72	2.8346	15.00	0.5906	41300	9280	53000	11910	7000	8500	0.2	0.4	0.35	1.70
32911	55	2.1654	80	3.1496	17.00	0.6693	51700	11620	69500	15620	6300	7500	0.3	0.6	0.31	1.90
32912	60	2.3622	85	3.3465	17.00	0.6693	53200	11960	75000	16850	6000	7000	0.3	0.7	0.33	1.80
32913	65	2.5591	90	3.5433	17.00	0.6693	54700	12290	80000	17980	5600	6700	0.3	0.7	0.35	1.70
32914	70	2.7559	100	3.9370	20.00	0.7874	85800	19280	112000	25170	5000	6000	0.5	1.1	0.31	1.90
32915	75	2.9528	105	4.1339	20.00	0.7874	86800	19510	116000	26070	4800	5600	0.5	1.1	0.33	1.80
32916	80	3.1496	110	4.3307	20.00	0.7874	89700	20160	125000	28090	4500	5600	0.5	1.2	0.35	1.70
32917	85	3.3465	120	4.7244	23.00	0.9055	115000	25840	156000	35060	4000	5000	0.8	1.7	0.33	1.80
32918	90	3.5433	125	4.9213	23.00	0.9055	119000	26740	166000	37300	4000	4800	0.8	1.8	0.35	1.70
32919	95	3.7402	130	5.1181	23.00	0.9055	121000	27190	173000	38880	3800	4500	0.9	1.9	0.35	1.70
32920	100	3.9370	140	5.5118	25.00	0.9843	147000	33030	204000	45840	3400	4300	1.1	2.5	0.33	1.80
32921	105	4.1339	145	5.7087	25.00	0.9843	149000	33480	212000	47640	3400	4000	1.2	2.6	0.35	1.70
32922	110	4.3307	150	5.9055	25.00	0.9843	154000	34610	224000	50300	3200	4000	1.2	2.7	0.35	1.70
32924	120	4.7244	165	6.4961	29.00	1.1417	204000	45840	305000	68500	3000	3600	1.8	4.0	0.35	1.70
32926	130	5.1181	180	7.0866	32.00	1.2598	245000	55100	365000	82000	2600	3200	2.4	5.3	0.33	1.80
32928	140	5.5118	190	7.4803	32.00	1.2598	252000	56600	390000	87600	2600	3000	2.5	5.6	0.35	1.70
32930	150	5.9055	210	8.2677	38.00	1.4961	346000	77800	530000	119100	2200	2800	3.9	8.7	0.33	1.80
32932	160	6.2992	220	8.6614	38.00	1.4961	349000	78400	540000	121300	2200	2600	4.2	9.2	0.35	1.70
32934	170	6.6929	230	9.0551	38.00	1.4961	351000	78900	585000	131500	2000	2400	4.5	9.9	0.37	1.60
32936	180	7.0866	250	9.8425	45.00	1.7717	435000	97800	735000	165200	1900	2200	6.7	14.7	0.48	1.25
32938	190	7.4803	260	10.2362	45.00	1.7717	443000	99600	765000	171900	1800	2200	7.0	15.4	0.48	1.25
32940	200	7.8740	280	11.0236	51.00	2.0079	588000	132100	950000	213500	1700	2000	9.5	20.9	0.40	1.50
32944	220	8.6614	300	11.8110	51.00	2.0079	601000	135100	1000000	224700	1500	1900	10.2	22.4	0.43	1.40
32948	240	9.4488	320	12.5984	51.00	2.0079	624000	140200	1080000	242700	1400	1700	11.0	24.3	0.46	1.30
32952	260	10.2362	360	14.1732	63.50	2.5000	910000	204500	1530000	343800	1300	1600	18.9	41.6	0.40	1.50
32956	280	11.0236	380	14.9606	63.50	2.5000	950000	213500	1660000	373000	1200	1400	20.2	44.6	0.43	1.40
32960	300	11.8110	420	16.5354	76.00	2.9921	1126000	253000	2240000	503400	950	1300	31.7	69.8	0.40	1.50
32964	320	12.5984	440	17.3228	76.00	2.9921	1156000	259800	2360000	530300	900	1200	33.5	73.9	0.43	1.40

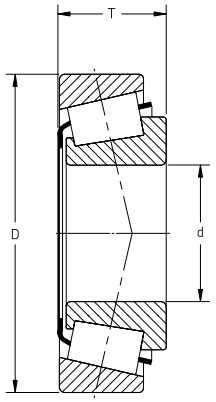
Consult SKF USA Inc. prior to design change or order placement.

Single row

Standard and SKF Explorer
Series: 32968 – 32972
Size: 340 mm – 360 mm
13.3858 in – 14.1732 in

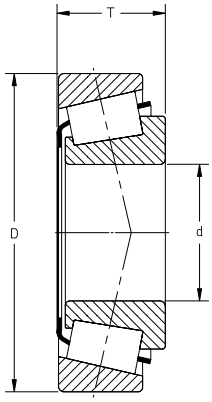
Series: 33010 – 33030
Size: 50 mm – 150 mm
1.9685 in – 5.9055 in

Series: 33108 – 33122
Size: 40 mm – 110 mm
1.5748 in – 4.3307 in



Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Calculation factors	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed				
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	e	Y
32968	340	13.3858	460	18.1102	76.00	2.9921	1163000	261300	2400000	539300	850	1200	35.0	77.2	0.44	1.35
32972	360	14.1732	480	18.8976	76.00	2.9921	1191000	267600	2550000	573000	800	1100	37.0	81.6	0.46	1.30
33010	50	1.9685	80	3.1496	24.00	0.9449	84800	19060	102000	22920	6300	8000	0.4	1.0	0.31	1.90
33011	55	2.1654	90	3.5433	27.00	1.0630	111000	24940	137000	30790	5600	7000	0.7	1.5	0.31	1.90
33012	60	2.3622	95	3.7402	27.00	1.0630	113000	25390	143000	32130	5300	6700	0.7	1.6	0.33	1.80
33013	65	2.5591	100	3.9370	27.00	1.0630	119000	26740	153000	34380	5000	6300	0.8	1.7	0.35	1.70
33014	70	2.7559	110	4.3307	31.00	1.2205	159000	35730	196000	44040	4800	5600	1.1	2.4	0.28	2.10
33015	75	2.9528	115	4.5276	31.00	1.2205	167000	37530	228000	51200	4300	5300	1.2	2.6	0.30	2.00
33016	80	3.1496	125	4.9213	36.00	1.4173	207000	46520	285000	64000	4000	5000	1.6	3.6	0.28	2.10
33017	85	3.3465	130	5.1181	36.00	1.4173	223000	50100	310000	69700	3800	4800	1.7	3.8	0.30	2.00
33018	90	3.5433	140	5.5118	39.00	1.5354	266000	59800	355000	79800	3600	4500	2.2	4.8	0.27	2.20
33019	95	3.7402	145	5.7087	39.00	1.5354	272000	61100	375000	84300	3400	4300	2.3	5.1	0.28	2.10
33020	100	3.9370	150	5.9055	39.00	1.5354	278000	62500	390000	87600	3400	4000	2.4	5.3	0.28	2.10
33021	105	4.1339	160	6.2992	43.00	1.6929	303000	68100	430000	96600	3200	3800	3.0	6.7	0.28	2.10
33022	110	4.3307	170	6.6929	47.00	1.8504	343000	77100	500000	112400	3000	3600	3.8	8.4	0.28	2.10
33024	120	4.7244	180	7.0866	48.00	1.8898	356000	80000	540000	121300	2800	3400	4.2	9.2	0.30	2.00
33026	130	5.1181	200	7.8740	55.00	2.1654	470000	105600	680000	152800	2400	3000	6.1	13.5	0.35	1.70
33030	150	5.9055	225	8.8583	59.00	2.3228	561000	126100	865000	194400	2200	2600	8.0	17.7	0.37	1.60
33108	40	1.5748	75	2.9528	26.00	1.0236	97500	21910	104000	23370	7000	9000	0.5	1.1	0.35	1.70
33109	45	1.7717	80	3.1496	26.00	1.0236	104000	23370	114000	25620	6700	8000	0.5	1.2	0.37	1.60
33110	50	1.9685	85	3.3465	26.00	1.0236	106000	23820	122000	27420	6000	7500	0.6	1.3	0.40	1.50
33111	55	2.1654	95	3.7402	30.00	1.1811	136000	30560	156000	35060	5600	6700	0.9	1.9	0.37	1.60
33112	60	2.3622	100	3.9370	30.00	1.1811	144000	32360	170000	38200	5300	6300	0.9	2.0	0.40	1.50
33113	65	2.5591	110	4.3307	34.00	1.3386	175000	39330	208000	46740	4800	5600	1.3	2.8	0.40	1.50
33114	70	2.7559	120	4.7244	37.00	1.4567	211000	47420	250000	56200	4300	5300	1.7	3.7	0.37	1.60
33115	75	2.9528	125	4.9213	37.00	1.4567	216000	48540	265000	59600	4000	5000	1.8	3.9	0.40	1.50
33116	80	3.1496	130	5.1181	37.00	1.4567	221000	49660	280000	62900	4000	4800	1.9	4.1	0.43	1.40
33117	85	3.3465	140	5.5118	41.00	1.6142	268000	60200	340000	76400	3600	4500	2.4	5.4	0.40	1.50
33118	90	3.5433	150	5.9055	45.00	1.7717	310000	69700	390000	87600	3400	4300	3.1	6.9	0.40	1.50
33122	110	4.3307	180	7.0866	56.00	2.2047	455000	102200	630000	141600	2800	3400	5.5	12.2	0.43	1.40

Consult SKF USA Inc. prior to design change or order placement.



Single row

SKF Explorer

Series: 33205 – 33220
Size: 25 mm – 100 mm
0.9843 in – 3.9370 in

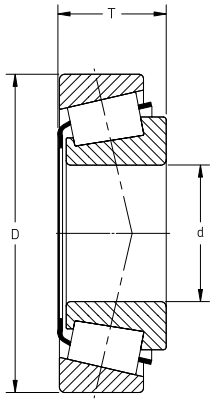
Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Calculation factors	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed				
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	e	Y
33205	25	0.9843	52	2.0472	22.00	0.8661	57900	13010	56000	12580	10000	13000	0.2	0.5	0.35	1.70
33206	30	1.1811	62	2.4409	25.00	0.9843	79700	17910	76500	17190	8500	11000	0.4	0.8	0.35	1.70
33207	35	1.3780	72	2.8346	28.00	1.1024	104000	23370	106000	23820	7000	9500	0.5	1.2	0.35	1.70
33208	40	1.5748	80	3.1496	32.00	1.2598	128000	28760	132000	29660	6300	8500	0.7	1.6	0.35	1.70
33209	45	1.7717	85	3.3465	32.00	1.2598	132000	29660	143000	32130	6000	7500	0.8	1.8	0.40	1.50
33210	50	1.9685	90	3.5433	32.00	1.2598	142000	31910	160000	35960	5300	7000	0.9	1.9	0.40	1.50
33211	55	2.1654	100	3.9370	35.00	1.3780	170000	38200	190000	42700	4800	6300	1.2	2.6	0.40	1.50
33212	60	2.3622	110	4.3307	38.00	1.4961	207000	46520	236000	53000	4500	6000	1.5	3.4	0.40	1.50
33213	65	2.5591	120	4.7244	41.00	1.6142	239000	53700	270000	60700	4000	5300	2.0	4.4	0.40	1.50
33214	70	2.7559	125	4.9213	41.00	1.6142	247000	55500	285000	64000	3800	5000	2.1	4.6	0.40	1.50
33215	75	2.9528	130	5.1181	41.00	1.6142	255000	57300	300000	67400	3600	4800	2.2	4.8	0.43	1.40
33216	80	3.1496	140	5.5118	46.00	1.8110	308000	69200	375000	84300	3400	4500	2.9	6.4	0.43	1.40
33217	85	3.3465	150	5.9055	49.00	1.9291	353000	79300	430000	96600	3200	4300	3.6	7.9	0.43	1.40
33218	90	3.5433	160	6.2992	55.00	2.1654	415000	93300	520000	116900	3000	4000	4.6	10.2	0.43	1.40
33219	95	3.7402	170	6.6929	58.00	2.2835	460000	103400	560000	125800	2800	3800	5.5	12.0	0.40	1.50
33220	100	3.9370	180	7.0866	63.00	2.4803	532000	119600	655000	147200	2600	3600	6.7	14.8	0.40	1.50

Consult SKF USA Inc. prior to design change or order placement.

Single row

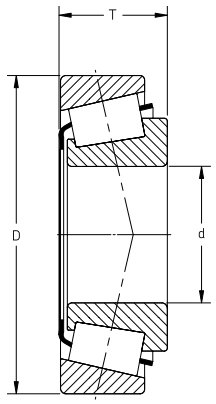
Standard and SKF Explorer
Series: T2EE 040 – T7FC 075
Size: 120 mm – 320 mm
4.7244 in – 12.5984 in

Series: T7FC 080 – T4EB 240
Size: 50 mm – 130 mm
1.9685 in – 5.1811 in



Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Calculation factors	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed				
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	e	Y
T2EE 040	120	4.7244	165	6.4961	29.00	1.1417	204000	45840	305000	68500	3000	3600	1.8	4.0	0.35	1.70
T2ED 045	130	5.1181	180	7.0866	32.00	1.2598	245000	55100	365000	82000	2600	3200	2.4	5.3	0.33	1.80
T7FC 045	140	5.5118	190	7.4803	32.00	1.2598	252000	56600	390000	87600	2600	3000	2.5	5.6	0.35	1.70
T2ED 050	150	5.9055	210	8.2677	38.00	1.4961	346000	77800	530000	119100	2200	2800	3.9	8.7	0.33	1.80
T7FC 050	160	6.2992	220	8.6614	38.00	1.4961	349000	78400	540000	121300	2200	2600	4.2	9.2	0.35	1.70
T2ED 055	170	6.6929	230	9.0551	38.00	1.4961	351000	78900	585000	131500	2000	2400	4.5	9.9	0.37	1.60
T7FC 055	180	7.0866	250	9.8425	45.00	1.7717	435000	97800	735000	165200	1900	2200	6.7	14.7	0.48	1.25
T2EE 060	190	7.4803	260	10.2362	45.00	1.7717	443000	99600	765000	171900	1800	2200	7.0	15.4	0.48	1.25
T7FC 060	200	7.8740	280	11.0236	51.00	2.0079	588000	132100	950000	213500	1700	2000	9.5	20.9	0.40	1.50
T2DD 065	220	8.6614	300	11.8110	51.00	2.0079	601000	135100	1000000	224700	1500	1900	10.2	22.4	0.43	1.40
T7FC 065	240	9.4488	320	12.5984	51.00	2.0079	624000	140200	1080000	242700	1400	1700	11.0	24.3	0.46	1.30
T2ED 070	260	10.2362	360	14.1732	63.50	2.5000	910000	204500	1530000	343800	1300	1600	18.9	41.6	0.40	1.50
T7FC 070	280	11.0236	380	14.9606	63.50	2.5000	95000	213500	1660000	373000	1200	1400	20.2	44.6	0.43	1.40
T3FE 075	300	11.8110	420	16.5354	76.00	2.9921	1126000	253000	2240000	503400	950	1300	31.7	69.8	0.40	1.50
T7FC 075	320	12.5984	440	17.3228	76.00	2.9921	1156000	259800	2360000	530300	900	1200	33.5	73.9	0.43	1.40
T7FC 080	50	1.9685	80	3.1496	24.00	0.9449	8480	19060	102000	22920	6300	8000	0.4	1.0	0.31	1.90
T7FC 085	55	2.1654	90	3.5433	27.00	1.0630	11100	24940	137000	30790	5600	7000	0.7	1.5	0.31	1.90
T2EE 100	60	2.3622	95	3.7402	27.00	1.0630	113000	25390	143000	32130	5300	6700	0.7	1.6	0.33	1.80
T4CB 100	65	2.5591	100	3.9370	27.00	1.0630	119000	26740	153000	34380	5000	6300	0.8	1.7	0.35	1.70
T4CB 120	70	2.7559	110	4.3307	31.00	1.2205	159000	35730	196000	44040	4800	5600	1.1	2.4	0.28	2.10
T4CB 140	75	2.9528	115	4.5276	31.00	1.2205	167000	37530	228000	51200	4300	5300	1.2	2.6	0.30	2.00
T4DB 150	80	3.1496	125	4.9213	36.00	1.4173	207000	46520	285000	64000	4000	5000	1.6	3.6	0.28	2.10
T4DB 160	85	3.3465	130	5.1181	36.00	1.4173	223000	50100	310000	69700	3800	4800	1.7	3.8	0.30	2.00
T4EE 160	90	3.5433	140	5.5118	39.00	1.5354	266000	59800	355000	79800	3600	4500	2.2	4.8	0.27	2.20
T4DB 170	95	3.7402	145	5.7087	39.00	1.5354	272000	61100	375000	84300	3400	4300	2.3	5.1	0.28	2.10
T4DB 180	100	3.9370	150	5.9055	39.00	1.5354	278000	62500	390000	87600	3400	4000	2.4	5.3	0.28	2.10
T4DB 200	105	4.1339	160	6.2992	43.00	1.6929	303000	68100	430000	96600	3200	3800	3.0	6.7	0.28	2.10
T2DC 220	110	4.3307	170	6.6929	47.00	1.8504	343000	77100	500000	112400	3000	3600	3.8	8.4	0.28	2.10
T2EE 240	120	4.7244	180	7.0866	48.00	1.8898	356000	80000	540000	121300	2800	3400	4.2	9.2	0.30	2.00
T4EB 240	130	5.1181	200	7.8740	55.00	2.1654	470000	105600	680000	152800	2400	3000	6.1	13.5	0.35	1.70

Consult SKF USA Inc. prior to design change or order placement.



Single row

SKF Explorer

Series: JL 26749/710 – JM 73829/210

Size: 80 mm – 180 mm

3.1496 in – 7.0866 in

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass		Calculation factors	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed				
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb	e	Y
JL 26749/710	80	3.1496	125	4.9213	29.00	1.1417	168000	37750	216000	48540	4000	5000	1.3	2.9	0.43	1.40
JL 69345/310	85	3.3465	130	5.1181	29.00	1.1417	171000	38430	224000	50300	3800	4800	1.4	3.0	0.44	1.35
JL 69349/310	90	3.5433	140	5.5118	32.00	1.2598	208000	46740	270000	60700	3600	4300	1.8	3.9	0.43	1.40
JLM 10 4945/910	95	3.7402	145	5.7087	32.00	1.2598	206000	46290	270000	60700	3400	4300	1.8	4.1	0.44	1.35
JM 20 5149/110	100	3.9370	150	5.9055	32.00	1.2598	209000	46970	280000	62900	3200	4000	1.9	4.2	0.46	1.30
JLM 50 8748/710	105	4.1339	160	6.2992	35.00	1.3780	248000	55700	335000	75300	3200	3800	2.4	5.4	0.44	1.35
JLM 710 949/910	110	4.3307	170	6.6929	38.00	1.4961	288000	64700	390000	87600	3000	3600	3.1	6.8	0.43	1.40
JM 511946/910	120	4.7244	180	7.0866	38.00	1.4961	299000	67200	415000	93300	2800	3400	3.3	7.3	0.46	1.30
JM 714249/210	130	5.1181	200	7.8740	45.00	1.7717	388000	87200	540000	121300	2400	3000	4.9	10.9	0.43	1.40
JM 515649/610	140	5.5118	210	8.2677	45.00	1.7717	404000	90800	585000	131500	2400	2800	5.3	11.6	0.46	1.30
JM 716649/610	150	5.9055	225	8.8583	48.00	1.8898	456000	102500	655000	147200	2200	2600	6.4	14.1	0.46	1.30
JM 718149/110	160	6.2992	240	9.4488	51.00	2.0079	532000	119600	780000	175300	2000	2400	7.8	17.2	0.46	1.30
JM 8220 49/010	170	6.6929	260	10.2362	57.00	2.2441	625000	140400	915000	205600	1900	2200	10.5	23.2	0.44	1.35
JM 738249/210	180	7.0866	280	11.0236	64.00	2.5197	793000	178200	1160000	260700	1700	2200	14.2	31.3	0.43	1.40

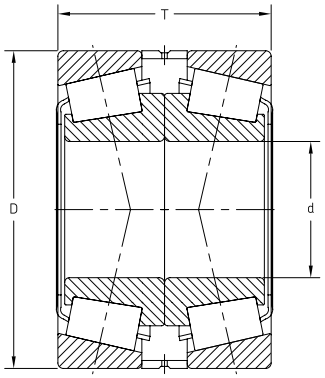
Consult SKF USA Inc. prior to design change or order placement.

Paired single row

Standard and SKF Explorer

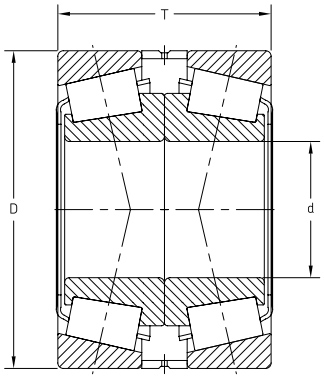
Series: 30206 /DF – 30244 /DF
Size: 30 mm – 220 mm
1.1811 in – 8.6614 in

Series: 30306 /DF – 30330/DF
Size: 30 mm – 150 mm
1.1811 in – 5.9055 in



Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
30206/DF	30	1.1811	62	2.4409	34.5	1.3583	85700	19260	88000	19780	7500	11000	0.5	1.1
30208/DF	40	1.5748	80	3.1496	39.5	1.5551	130000	29210	137000	30790	5600	8500	0.9	1.9
30210/DF	50	1.9685	90	3.5433	43.5	1.7126	160000	35960	183000	41120	4800	7500	1.1	2.5
30211/DF	55	2.1654	100	3.9370	45.5	1.7913	190000	42700	212000	47640	4500	6700	1.5	3.2
30212/DF	60	2.3622	110	4.3307	47.5	1.8701	207000	46520	228000	51200	4000	6000	1.8	4.0
30213/DF	65	2.5591	120	4.7244	49.5	1.9488	242000	54400	270000	60700	3600	5600	2.3	5.1
30215/DF	75	2.9528	130	5.1181	54.5	2.1457	293000	65800	355000	79800	3400	5000	2.8	6.2
30217/DF	85	3.3465	150	5.9055	61.0	2.4016	370000	83100	440000	98900	3000	4300	4.2	9.4
30218/DF	90	3.5433	160	6.2992	65.0	2.5591	411000	92400	490000	110100	2800	4000	5.2	11.4
30220/DF	100	3.9370	180	7.0866	74.0	2.9134	521000	117100	640000	143800	2400	3600	7.5	16.6
30221/DF	105	4.1339	190	7.4803	78.0	3.0709	571000	128300	710000	159600	2200	3400	9.0	19.9
30222/DF	110	4.3307	200	7.8740	82.0	3.2283	645000	144900	800000	179800	2200	3200	10.5	23.0
30224/DF	120	4.7244	215	8.4646	87.0	3.4252	716000	160900	915000	205600	2000	3000	12.7	27.9
30226/DF	130	5.1181	230	9.0551	87.5	3.4449	774000	173900	980000	220200	1800	2800	14.1	31.2
30228/DF	140	5.5118	250	9.8425	91.5	3.6024	773000	173700	1140000	256200	1500	2600	17.9	39.5
30230/DF	150	5.9055	270	10.6299	98.0	3.8583	781000	175500	1120000	251700	1400	2400	22.1	48.8
30232/DF	160	6.2992	290	11.4173	104.0	4.0945	971000	218200	1460000	328100	1300	2200	27.4	60.5
30234/DF	170	6.6929	310	12.2047	114.0	4.4882	1126000	253000	1730000	388800	1200	2000	34.6	76.3
30236/DF	180	7.0866	320	12.5984	114.0	4.4882	1079000	242500	1630000	366300	1200	2000	35.5	78.3
30238/DF	190	7.4803	340	13.3858	120.0	4.7244	1308000	293900	2000000	449400	1100	1800	42.6	94.0
30240/DF	200	7.8740	360	14.1732	128.0	5.0394	1448000	325400	2240000	503400	1000	1700	51.8	114.3
30244/DF	220	8.6614	400	15.7480	144.0	5.6693	1816000	408100	2800000	629200	950	1600	71.8	158.2
30306/DF	30	1.1811	72	2.8346	41.5	1.6339	119000	26740	112000	25170	6700	10000	0.8	1.8
30307/DF	35	1.3780	80	3.1496	45.5	1.7913	152000	34160	150000	33710	6000	9000	1.1	2.3
30309/DF	45	1.7717	100	3.9370	54.5	2.1457	227000	51000	240000	53900	4500	7000	2.0	4.4
30311/DF	55	2.1654	120	4.7244	63.0	2.4803	302000	67900	325000	73000	3800	5600	3.3	7.2
30312/DF	60	2.3622	130	5.1181	67.0	2.6378	357000	80200	390000	87600	3600	5300	4.1	9.0
30320/DF	100	3.9370	215	8.4646	103.0	4.0551	739000	166100	980000	220200	1900	3200	16.9	37.2
30324/DF	120	4.7244	260	10.2362	119.0	4.6850	1031000	231700	1400000	314600	1600	2600	29.0	64.0
30326/DF	130	5.1181	280	11.0236	127.5	5.0197	1165000	261800	1600000	359600	1400	2400	35.2	77.7
30330/DF	150	5.9055	320	12.5984	144.0	5.6693	1507000	338700	2120000	476400	1300	2000	51.9	114.4

Consult SKF USA Inc. prior to design change or order placement.



Paired single row

Standard and SKF Explorer
Series: 31305/DF – 31330 X/DF
Size: 25 mm – 150 mm
0.9843 in – 5.9055 in

Series: 32007 X/DF – 32017 X/DF
Size: 35 mm – 85 mm
1.3780 in – 3.3465 in

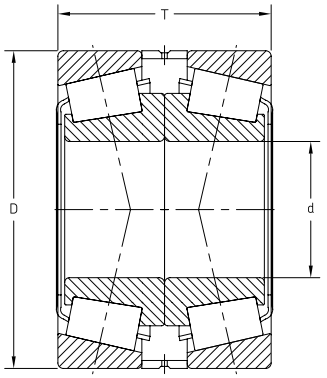
Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
31305/DF	25	0.9843	62	2.4409	36.5	1.4370	79900	17960	80000	17980	6700	11000	0.6	1.2
31306/DF	30	1.1811	72	2.8346	41.5	1.6339	100000	22470	100000	22470	5600	9500	0.8	1.8
31307/DF	35	1.3780	80	3.1496	45.5	1.7913	129000	28990	134000	30110	5000	8500	1.1	2.4
31308/DF	40	1.5748	90	3.5433	50.5	1.9882	156000	35060	163000	36630	4500	7500	1.5	3.3
31309/DF	45	1.7717	100	3.9370	54.5	2.1457	194000	43600	204000	45840	4000	6700	2.0	4.4
31310/DF	50	1.9685	110	4.3307	58.5	2.3031	224000	50300	240000	53900	3600	6000	2.6	5.6
31311/DF	55	2.1654	120	4.7244	63.0	2.4803	256000	57500	275000	61800	3400	5600	3.2	7.2
31312/DF	60	2.3622	130	5.1181	67.0	2.6378	303000	68100	335000	75300	3000	5300	4.0	8.9
31313/DF	65	2.5591	140	5.5118	72.0	2.8346	348000	78200	380000	85400	2800	4800	5.0	11.0
31314/DF	70	2.7559	150	5.9055	76.0	2.9921	393000	88300	440000	98900	2600	4500	6.1	13.4
31315/DF	75	2.9528	160	6.2992	80.0	3.1496	438000	98400	490000	110100	2400	4300	7.2	15.8
31316/DF	80	3.1496	170	6.6929	85.0	3.3465	473000	106300	530000	119100	2400	4000	8.7	19.1
31317/DF	85	3.3465	180	7.0866	89.0	3.5039	510000	114600	570000	128100	2200	3800	9.9	21.8
31318/DF	90	3.5433	190	7.4803	93.0	3.6614	486000	109200	630000	141600	1900	3400	11.4	25.2
31319/DF	95	3.7402	200	7.8740	99.0	3.8976	539000	121100	710000	159600	1800	3400	13.5	29.8
31320 X/DF	100	3.9370	215	8.4646	113.0	4.4488	685000	153900	930000	209000	1700	3000	18.4	40.6
31322 X/DF	110	4.3307	240	9.4488	126.0	4.9606	841000	189000	1160000	260700	1500	2800	25.9	57.2
31324 X/DF	120	4.7244	260	10.2362	136.0	5.3543	992000	222900	1400000	314600	1400	2400	32.5	71.7
31326 X/DF	130	5.1181	280	11.0236	144.0	5.6693	1110000	249400	1560000	350600	1300	2400	39.6	87.3
31328 X/DF	140	5.5118	300	11.8110	154.0	6.0630	1264000	284000	1800000	404500	1200	2200	49.1	108.3
31330 X/DF	150	5.9055	320	12.5984	164.0	6.4567	1427000	320700	2040000	458400	1100	2000	58.6	129.1
32007 X/DF	35	1.3780	62	2.4409	36.0	1.4173	89700	20160	108000	24270	7000	10000	0.5	1.0
32009 X/DF	45	1.7717	75	2.9528	40.0	1.5748	123000	27640	160000	35960	5600	8500	0.7	1.6
32010 X/DF	50	1.9685	80	3.1496	40.0	1.5748	129000	28990	176000	39550	5300	8000	0.8	1.7
32011 X/DF	55	2.1654	90	3.5433	46.0	1.8110	170000	38200	232000	52100	4500	7000	1.2	2.5
32012 X/DF	60	2.3622	95	3.7402	46.0	1.8110	173000	38880	245000	55100	4300	6700	1.2	2.7
32013 X/DF	65	2.5591	100	3.9370	46.0	1.8110	176000	39550	255000	57300	4000	6000	1.3	2.9
32014 X/DF	70	2.7559	110	4.3307	50.0	1.9685	214000	48090	305000	68500	3800	5600	1.8	3.9
32016 X/DF	80	3.1496	125	4.9213	58.0	2.2835	288000	64700	430000	96600	3200	5000	2.7	5.9
32017 X/DF	85	3.3465	130	5.1181	58.0	2.2835	293000	65800	450000	101100	3200	4800	2.8	6.2

Consult SKF USA Inc. prior to design change or order placement.

Paired single row

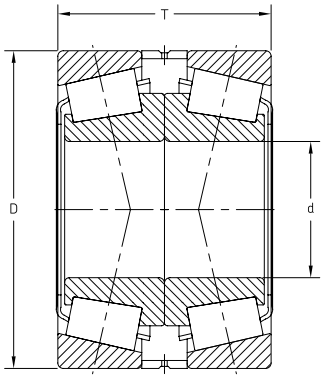
Standard and SKF Explorer
Series: 32018 X/DF – 32064 X/DF
Size: 90 mm – 320 mm
3.5433 in – 12.5984 in

Series: 32206/DF – 32221/DF
Size: 30 mm – 105 mm
1.1811 in – 4.1339 in



Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
32018 X/DF	90	3.5433	140	5.5118	64.0	2.5197	356000	80000	540000	121300	3000	4300	3.6	8.0
32019 X/DF	95	3.7402	145	5.7087	64.0	2.5197	353000	79300	540000	121300	2800	4300	3.8	8.4
32020 X/DF	100	3.9370	150	5.9055	64.0	2.5197	359000	80700	560000	125800	2600	4000	3.9	8.6
32021 X/DF	105	4.1339	160	6.2992	70.0	2.7559	426000	95700	670000	150600	2600	3800	5.0	11.1
32022 X/DF	110	4.3307	170	6.6929	76.0	2.9921	494000	111000	780000	175300	2400	3600	6.3	13.9
32024 X/DF	120	4.7244	180	7.0866	76.0	2.9921	513000	115300	830000	186500	2200	3400	6.8	14.9
32026 X/DF	130	5.1181	200	7.8740	90.0	3.5433	666000	149700	1080000	242700	2000	3000	10.2	22.5
32028 X/DF	140	5.5118	210	8.2677	90.0	3.5433	692000	155500	1160000	260700	1900	2800	10.9	24.0
32030 X/DF	150	5.9055	225	8.8583	96.0	3.7795	782000	175700	1320000	296600	1800	2600	13.3	29.2
32032 X/DF	160	6.2992	240	9.4488	102.0	4.0157	912000	204900	1560000	350600	1600	2400	16.2	35.7
32034 X/DF	170	6.6929	260	10.2362	114.0	4.4882	1071000	240700	1830000	411200	1500	2200	21.7	47.9
32036 X/DF	180	7.0866	280	11.0236	128.0	5.0394	1360000	305600	2320000	521300	1400	2200	29.2	64.5
32038 X/DF	190	7.4803	290	11.4173	128.0	5.0394	1381000	310300	2400000	539300	1300	2000	30.6	67.5
32040 X/DF	200	7.8740	310	12.2047	140.0	5.5118	1372000	308300	2750000	618000	1100	1900	39.0	86.0
32044 X/DF	220	8.6614	340	13.3858	152.0	5.9843	1637000	367900	3350000	752800	1000	1700	51.0	112.4
32048 X/DF	240	9.4488	360	14.1732	152.0	5.9843	1695000	380900	3550000	797800	950	1600	54.3	119.7
32052 X/DF	260	10.2362	400	15.7480	174.0	6.8504	2127000	478000	4400000	988800	850	1400	78.8	173.7
32056 X/DF	280	11.0236	420	16.5354	174.0	6.8504	2208000	496200	4750000	1067400	800	1300	84.0	185.2
32060 X/DF	300	11.8110	460	18.1102	200.0	7.8740	2818000	633300	6000000	1348300	750	1200	119.0	262.4
32064 X/DF	320	12.5984	480	18.8976	200.0	7.8740	2852000	640900	6200000	1393300	700	1100	104.0	229.3
32206/DF	30	1.1811	62	2.4409	42.5	1.6732	106000	23820	116000	26070	7500	11000	0.6	1.3
32207/DF	35	1.3780	72	2.8346	48.5	1.9094	139000	31240	156000	35060	6300	9500	0.9	2.0
32209/DF	45	1.7717	85	3.3465	49.5	1.9488	169000	37980	196000	44040	5300	8000	1.2	2.6
32210/DF	50	1.9685	90	3.5433	49.5	1.9488	173000	38880	200000	44940	4800	7500	1.3	2.8
32211/DF	55	2.1654	100	3.9370	53.5	2.1063	222000	49890	260000	58400	4300	6700	1.7	3.8
32212/DF	60	2.3622	110	4.3307	59.5	2.3425	266000	59800	320000	71900	4000	6000	2.4	5.3
32213/DF	65	2.5591	120	4.7244	65.5	2.5787	320000	71900	390000	87600	3600	5600	3.1	6.8
32214/DF	70	2.7559	125	4.9213	66.5	2.6181	334000	75100	415000	93300	3400	5300	3.3	7.2
32215/DF	75	2.9528	130	5.1181	66.5	2.6181	337000	75700	425000	95500	3200	5000	3.4	7.5
32216/DF	80	3.1496	140	5.5118	70.5	2.7756	391000	87900	490000	110100	3000	4500	4.2	9.3
32217/DF	85	3.3465	150	5.9055	77.0	3.0315	451000	101300	570000	128100	2800	4300	5.4	11.9
32218/DF	90	3.5433	160	6.2992	85.0	3.3465	529000	118900	680000	152800	2600	4000	6.9	15.1
32219/DF	95	3.7402	170	6.6929	91.0	3.5827	597000	134200	780000	175300	2600	3800	8.4	18.5
32220/DF	100	3.9370	180	7.0866	98.0	3.8583	668000	150100	880000	197800	2400	3600	10.2	22.5
32221/DF	105	4.1339	190	7.4803	106.0	4.1732	760000	170800	1020000	229200	2200	3400	12.4	27.4

Consult SKF USA Inc. prior to design change or order placement.



Paired single row

Standard and SKF Explorer
Series: 32222/DF – 32260/DF
Size: 110 mm – 300 mm
4.3307 in – 11.8110 in

Series: 32312/DF – 32324/DF
Size: 60 mm – 120 mm
2.3622 in – 4.7244 in

Series: 32920/DF – 32972/DF
Size: 100 mm – 360 mm
3.9370 in – 14.1732 in

Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
32222/DF	110	4.3307	200	7.8740	112.0	4.4094	842000	189200	1140000	256200	2200	3200	14.5	32.1
32224/DF	120	4.7244	215	8.4646	123.0	4.8425	983000	220900	1400000	314600	2000	3000	18.6	41.0
32226/DF	130	5.1181	230	9.0551	135.5	5.3346	1012000	227400	1660000	373000	1600	2800	23.1	50.9
32228/DF	140	5.5118	250	9.8425	143.5	5.6496	1185000	266300	2000000	449400	1500	2600	29.3	64.6
32230/DF	150	5.9055	270	10.6299	154.0	6.0630	1341000	301300	2280000	512400	1400	2400	37.3	82.2
32232/DF	160	6.2992	290	11.4173	168.0	6.6142	1602000	360000	2800000	629200	1300	2200	48.0	105.7
32234/DF	170	6.6929	310	12.2047	182.0	7.1654	1843000	414200	3250000	730300	1200	2000	59.3	130.9
32236/DF	180	7.0866	320	12.5984	182.0	7.1654	1833000	411900	3250000	730300	1100	1900	61.1	134.6
32240/DF	200	7.8740	360	14.1732	208.0	8.1890	2229000	500900	4000000	898900	1000	1700	88.1	194.3
32244/DF	220	8.6614	400	15.7480	228.0	8.9764	2949000	662700	5400000	1213500	900	1500	123.2	271.8
32248/DF	240	9.4488	440	17.3228	254.0	10.0000	3300000	741600	6550000	1471900	1000	1500	172.0	379.3
32252/DF	260	10.2362	480	18.8976	274.0	10.7874	4013000	901800	7350000	1651700	750	1200	213.0	469.7
32256/DF	280	11.0236	500	19.6850	274.0	10.7874	2410000	541600	7800000	1752800	700	1200	226.0	498.3
32260/DF	300	11.8110	540	21.2598	280.0	11.0236	2935000	659600	9500000	2134800	630	1100	290.0	639.5
32312/DF	60	2.3622	130	5.1181	97.0	3.8189	483000	108500	585000	131500	3200	5300	6.1	13.4
32315/DF	75	2.9528	160	6.2992	116.0	4.5669	713000	160200	880000	197800	2600	4300	10.8	23.8
32316/DF	80	3.1496	170	6.6929	123.0	4.8425	797000	179100	1000000	224700	2600	4000	12.8	28.3
32318/DF	90	3.5433	190	7.4803	135.0	5.3150	835000	187600	1220000	274200	2200	3600	17.5	38.7
32320/DF	100	3.9370	215	8.4646	155.0	6.1024	1057000	237500	1560000	350600	1900	3200	26.1	57.6
32322/DF	110	4.3307	240	9.4488	169.0	6.6535	1158000	260200	1660000	373000	1700	2800	35.0	77.1
32324/DF	120	4.7244	260	10.2362	181.0	7.1260	1466000	329400	2240000	503400	1600	2600	45.0	99.3
32920/DF	100	3.9370	140	5.5118	50.0	1.9685	252000	56600	405000	91000	2800	4300	2.4	5.2
32926/DF	130	5.1181	180	7.0866	64.0	2.5197	420000	94400	735000	165200	2200	3200	4.9	10.9
32928/DF	140	5.5118	190	7.4803	64.0	2.5197	432000	97100	780000	175300	2000	3000	5.2	11.5
32936/DF	180	7.0866	250	9.8425	90.0	3.5433	746000	167600	1460000	328100	1500	2200	13.8	30.5
32938/DF	190	7.4803	260	10.2362	90.0	3.5433	760000	170800	1530000	343800	1400	2200	14.5	32.0
32944/DF	220	8.6614	300	11.8110	102.0	4.0157	1030000	231500	2000000	449400	1200	1900	21.1	46.5
32948/DF	240	9.4488	320	12.5984	102.0	4.0157	1069000	240200	2160000	485400	1200	1700	22.6	49.9
32960/DF	300	11.8110	420	16.5354	152.0	5.9843	1790000	402200	4500000	1011200	800	1400	65.5	144.4
32964/DF	320	12.5984	440	17.3228	152.0	5.9843	1982000	445400	4650000	1044900	750	1200	69.0	152.1
32968/DF	340	13.3858	460	18.1102	152.0	5.9843	1995000	448300	4800000	1078700	700	1200	73.0	161.0
32972/DF	360	14.1732	480	18.8976	152.0	5.9843	2043000	459100	5100000	1146100	670	1100	302.0	665.9

Consult SKF USA Inc. prior to design change or order placement.

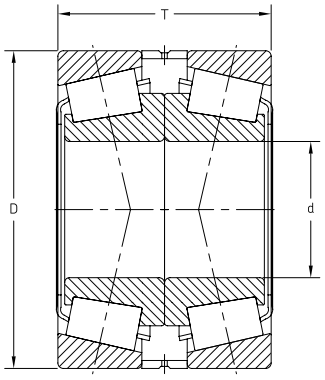
Paired single row

SKF Explorer

Series: 33010 / DF – 33024 / DF
Size: 50 mm – 120 mm
1.9685 in – 4.7244 in

Series: 33108 / DF – 33122/ DF
Size: 40 mm – 110 mm
1.5748 in – 4.3307 in

Series: 33207/ DF – 33217/ DF
Size: 35 mm – 85 mm
1.3780 in – 3.3465 in



Designation	Principal dimensions						Basic load ratings				Speed rating		Mass	
	Bore d		Outside diameter D		Width B		Dynamic C		Static C_0		Reference speed	Limiting speed		
	mm	in	mm	in	mm	in	N	lbf	N	lbf	r/min	r/min	kg	lb
33010/DF	50	1.9685	80	3.1496	48.0	1.8898	145000	32580	204000	45840	5300	8000	0.9	2.0
33011/DF	55	2.1654	90	3.5433	54.0	2.1260	191000	42920	270000	60700	4500	7000	1.4	3.0
33013/DF	65	2.5591	100	3.9370	54.0	2.1260	204000	45840	310000	69700	4000	6300	1.5	3.4
33014/DF	70	2.7559	110	4.3307	62.0	2.4409	273000	61300	400000	89900	3800	5600	2.2	4.8
33015/DF	75	2.9528	115	4.5276	62.0	2.4409	286000	64300	455000	102200	3600	5300	2.4	5.3
33017/DF	85	3.3465	130	5.1181	72.0	2.8346	382000	85800	620000	139300	3200	4800	3.5	7.8
33018/DF	90	3.5433	140	5.5118	78.0	3.0709	457000	102700	710000	159600	3000	4500	4.5	9.9
33019/DF	95	3.7402	145	5.7087	78.0	3.0709	467000	104900	735000	165200	2800	4300	4.7	10.3
33024/DF	120	4.7244	180	7.0866	96.0	3.7795	611000	137300	1080000	242700	2200	3400	8.6	18.9
33108/DF	40	1.5748	75	2.9528	52.0	2.0472	167000	37530	208000	46740	6000	9000	1.0	2.3
33114/DF	70	2.7559	120	4.7244	74.0	2.9134	361000	81100	500000	112400	3600	5300	3.4	7.6
33115/DF	75	2.9528	125	4.9213	74.0	2.9134	370000	83100	530000	119100	3400	5000	3.6	8.0
33116/DF	80	3.1496	130	5.1181	74.0	2.9134	379000	85200	560000	125800	3200	4800	3.8	8.4
33122/DF	110	4.3307	180	7.0866	112.0	4.4094	781000	175500	1250000	280900	2200	3400	11.3	25.0
33207/DF	35	1.3780	72	2.8346	56.0	2.2047	178000	40000	212000	47640	6300	9500	1.1	2.4
33210/DF	50	1.9685	90	3.5433	64.0	2.5197	243000	54600	320000	71900	4800	7000	1.8	3.9
33212/DF	60	2.3622	110	4.3307	76.0	2.9921	354000	79600	475000	106700	3800	6000	3.2	7.0
33215/DF	75	2.9528	130	5.1181	82.0	3.2283	436000	98000	600000	134800	3200	4800	4.5	9.9
33216/DF	80	3.1496	140	5.5118	92.0	3.6220	527000	118400	750000	168500	3000	4500	6.0	13.1
33217/DF	85	3.3465	150	5.9055	98.0	3.8583	606000	136200	850000	191000	2800	4300	7.3	16.1

Consult SKF USA Inc. prior to design change or order placement.

Notes

Notes



Ball bearing units

P2BL 207 WF W64

Housing style		ISO reference
F2B	Flange, two-bolt, cast iron	**FYT**
F4B	Flange, four-bolt, cast iron	**FY**
F4BM	Flange, four-bolt, cast iron, medium duty	**FYM**
P2B	Pillow block, cast iron	**SY**
P2BL	Pillow block, cast iron, low center height	**SYH**
P2BM	Pillow block, cast iron, medium duty	**SYM**
P2BX	Pillow block, pressed steel	**S**
P2BT	Tapped-base pillow block, threaded base, cast iron	**SYF**
WSTU	Wide slot take-up, cast iron	**TU**
ECY	End cover – order separately	**ECY**

Shaft size

Inch

First digit: number of inches

Second and third digits: number of sixteenths of an inch

Example: 207 indicates $2^{7}/_{16}$ (unit)

Metric

First two digits: number of millimeters

Example: 25M indicates 25mm (or millimeters)

S $1^{1}/_{4}$" bore, fitted into a housing that usually accommodates a $1^{3}/_{16}$" insert bearing

Insert bearing selections (WF):

TF Set screw lock, seals and flingers, wide inner ring, YAR series insert

RM Set screw lock, seals, narrow inner ring, YAT series insert

FM Eccentric lock, seals, narrow inner ring, YET series insert

WF Eccentric lock, seals and flingers, wide inner ring, YEL series insert

LF ConCentra™ lock, seals and flingers, wide inner ring, YSP series insert

Additional options (W64):

VA228 High temperature bearings with graphite cage

VA201 High temperature bearings with graphite paste

W64 Solid Oil

-AH Air handling unit – anti rotation pin

Ball bearing units

Ball bearing units consist of a precision wide inner ring bearing assembled into a housing made of cast iron or pressed steel. Units are prelubricated and are designed to slip fit on to the shaft. Locking method is either set screw locking, eccentric self-locking or concentric.

On cast iron and pressed steel units, the outside diameter of the bearing and the inside diameter of the housing are sphered, allowing the bearing to swivel within the housing to accommodate initial alignment.

There are numerous bearing and housing combinations to accommodate a diversity of mounting surfaces, load requirements, shaft sizes and dimensional requirements. Housing types include: pillow blocks, flange units, take-up units, flangette units, and tapped base units.



P2B – Pillow blocks

Pillow block housings, the most popular housing design for mounted bearings, are available in several series. All are designed to support loads primarily directed through the base. The P2B series housing has a standard base-to-center height. The P2BL series features a low center height with a base-to-center height typically 1/16" lower than the P2B series. The PTBM series – medium duty housings accommodate a larger bearing for a given shaft size, resulting in a greater load carrying capacity.

All three housing series are supplied with a grease fitting for relubrication, have slotted bolt holes for adjustments during installation and provide for initial bearing alignment. For more detailed information see data tables.



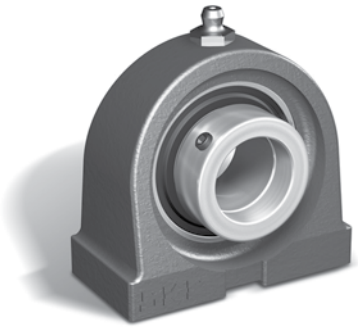
F4B – Four-bolt flange units

Four-bolt cast iron flange units are designed to support shafts through walls, bulkheads and other flat surfaces. The housing mounts flush to the surface and the load is carried by the four mounting bolts. F4BM – medium duty housings accommodate a larger bearing for a given shaft size, resulting in a greater load carrying capacity. Both series are supplied with a grease fitting for relubrication and provide for initial bearing alignment. For more detailed information see data tables.



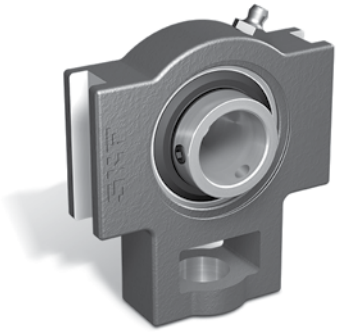
F2B – Two-bolt cast iron flange units

Two-bolt cast iron flange units flange units support shafts through walls, bulkheads and other flat surfaces but have a more compact two-bolt design. F2BM – medium duty housings accommodate a larger bearing for a given shaft size, resulting in a greater load carrying capacity. Both series are supplied with a grease fitting for relubrication and provide for initial bearing alignment. For more detailed information see data tables.



P2BT – Tapped base units

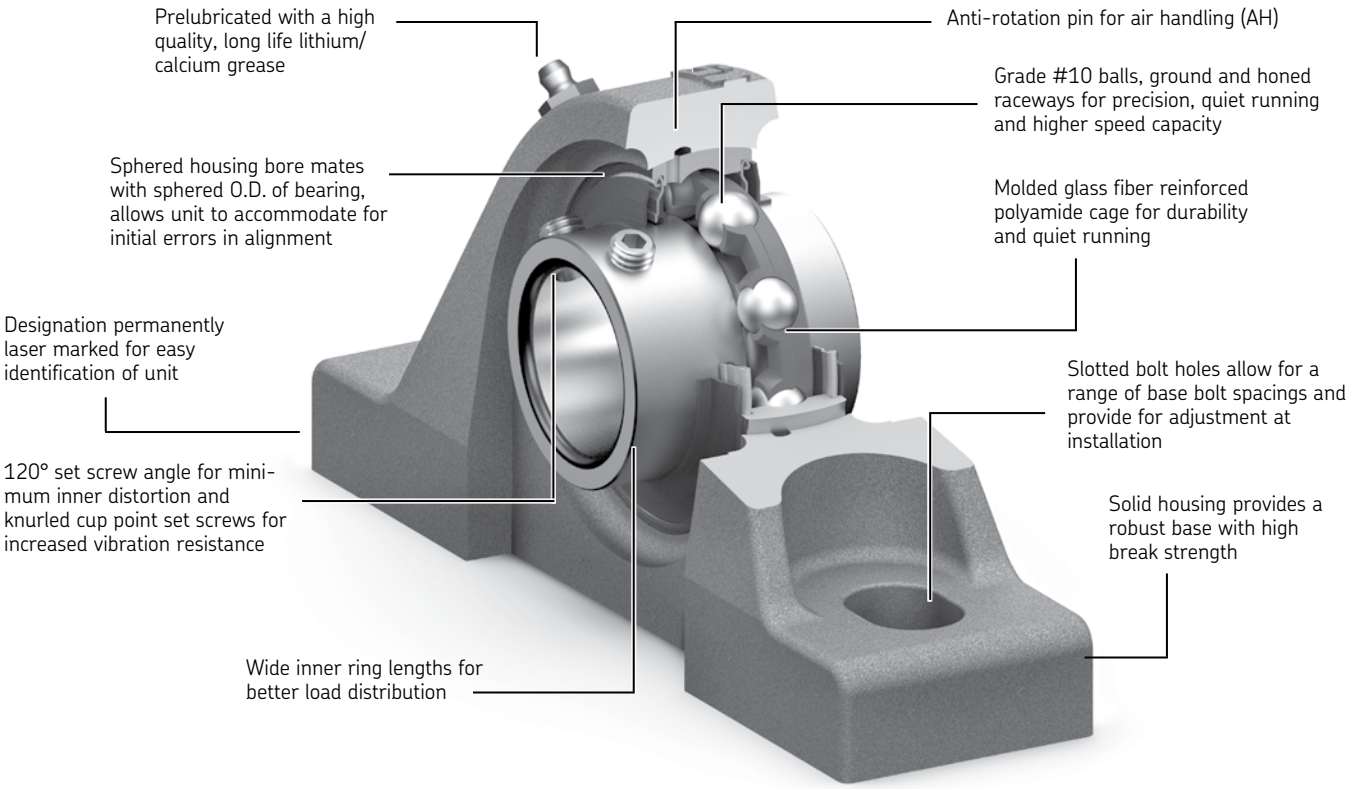
Tapped base housings are a variation of pillow block housings. Their design is optimized for radial loads acting in the direction of the base or the support surface. Tapped base units have a narrow width for tight areas and the non-tensioning end of conveyors. For more detailed information see data tables.



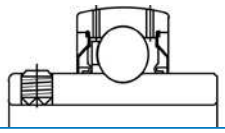
WSTU – Center pull cast iron take-up units

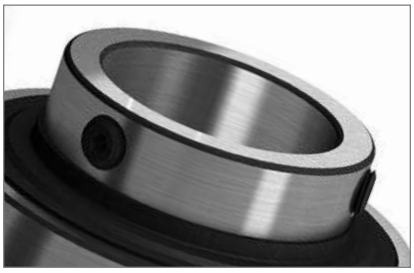
These take-up units are typically used in conjunction with a customer supplied frame for belt or shaft tensioning in conveyor, elevator and power transmission applications. A wide slot for the frame guide is standard. Bearings are supplied with a grease fitting for relubrication and provide for initial bearing alignment. For more detailed information see data tables.

Ball bearing units – features



Shaft locking methods

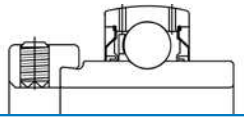




Set screw locking (RM, TF, TF-AH)

Set screw locking features two set screws 120° apart. This placement of the set screws maximizes holding power while minimizing inner ring distortion. Other factors such as zone hardening of the bearing inner ring, drilling and tapping after heat treat, proper screw length, a knurled cup point set screw and a forged set screw socket have been incorporated to further enhance holding power and vibration resistance (backout).

Insert bearing designations – YAT, YAR

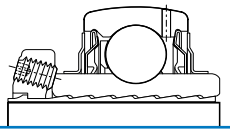


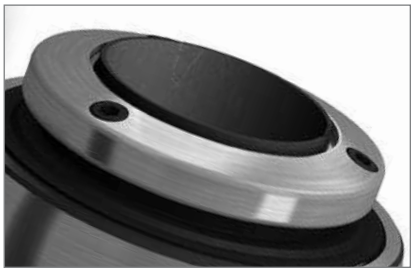


Eccentric self-locking (FM, WF, WF-AH)

Eccentric self-locking features a machined collar and bearing inner ring which act as mating cams when assembled on the shaft. When the collar is engaged on the bearing inner ring, and turned in the direction of shaft rotation, it grips the shaft firmly with a binding action that further increases with rotation. The single set screw in the collar firmly secures the position of the eccentric collar and does less damage to shaft than normal set screw lock. This locking method is recommended for most applications except where reversing shaft rotation is involved.

Insert bearing designations – YEL, YET





ConCentra™ locking (LF-AH)

ConCentra locking features SKF's patented mechanical connector that applies a near 360° concentric grip around the entire circumference of the shaft. Two paired rings with precision engineered serrations on their contact surfaces respond to axial displacement by expanding radially against the shaft. When the mounting screws are tightened the slotted ring grips the shaft firmly at the same time assuring the bearing maintains proper internal clearance conforming to SKF recommendations. An Allen wrench with a built in torque indicator, included with every unit, quickly shows when the proper locking torque has been achieved.

Insert bearing designation – YSP-2F-AH

Inner ring length

The bearings for ball bearing units are available in wide and narrow width inner ring designs. When space permits, the wide inner ring is the preferred choice. Shaft misalignment relative to the bearing bore is minimized with the wide inner ring since the load is distributed over a greater shaft area. The narrow inner ring is used when space is limited.

Misalignment

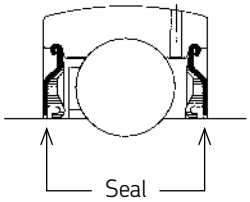
Ball bearing units can compensate for up to ±5° of static misalignment. However, in the cast iron housings when it is desirable to relubricate the bearings, initial errors in alignment should not exceed ±2° for basic bearings size 211 and smaller and ±1.5° for larger sizes. Misalignment greater than this will prevent the lubrication holes in the outer ring of the bearing from lining up with the groove in the housing bore, and the bearings will also not be relubricated.

Grease fill

Generally speaking, wide inner ring bearings are designed to operate without relubrication under normal speed and operating conditions. All wide inner ring bearings are sealed at both sides with rubbing contact seals and are filled with a special, long life grease with a Lithium/Calcium thickener/soap, and an NLGI #2 consistency. The grease has good corrosion inhibiting properties and is suitable for operating temperatures from -20° F to 250° F. However, under extreme conditions or in heavily contaminated environments, it may be necessary to relubricate the bearings. Reference the SKF General Catalog (6000EN) for relubrication intervals.

Cages

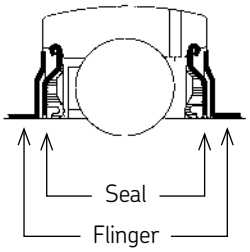
All wide inner ring bearings are fitted with an injection molded, heat stabilized, glass fiber reinforced polyamide 6.6 cage. This material has a favorable combination of strength and elasticity and cages of this material have given excellent performance in a wide variety of applications. The friction of these cages is low and they have excellent running properties under adverse conditions. Additionally, the cages promote quiet operation The operating temperature range for the cage is -40° F to 250° F.



FM, RM designation series seal

Seals are standard on FM and RM series housed units. This grease-purgeable contact seal is comprised of a wear resistant elastomer lip bonded to a steel trash guard.

The lip rides on the precision ground surface of the inner ring providing positive exclusion of dust, moisture and other contaminants.



TF, LF, and WF designation series seal and flinger

The 2F seal is standard on TF, LF and WF series housed units. It consists of the basic seal and a flinger mounted outboard. The flinger provides extra protection of the contact element and serves to “fling” large contaminants away from the seal opening.

This seal has tested extremely effective in a variety of contamination conditions including agricultural applications and very dirty environments.

The NBR contact seals are limited to a continuous operating range of -40° F to 210° F, with brief periods up to 250° F.

Radial loads – standard series

This table may be used to select series P2B and P2BL pillow blocks, F2B and F4B flanged units, P2BT tapped base units and WSTU take-up units.

Determine the operating speed and life required. Then select a unit having a bearing radial load rating equal to or greater than the actual radial load.

The loads listed in this table are calculated to give the indicated L10 basic rating life (hours at speed) and are in accordance with ANSI/ABMA standard 9 – load ratings and fatigue life for ball bearings. A life adjustment factor (a23) of 1.0 has been used throughout.

These loads are for horizontally mounted shafts with the radial load directed downward toward the base of the pillow block.

When the load is heavy, C / P <6.6, a press fit must be used. In the table, this is the area shaded in white.

Table 1

Bearing radial load in pounds for given speed and life – standard duty

Nominal shaft diameter		L10 basic rating life	Speed RPM								
mm	in	hrs	50	100	200	500	1 000	1 800	3 000	3 600	5 000
		5,000	872	692	549	405	321	264	223	210	188
12.70	1/2	10,000	692	549	436	321	255	210	177	166	149
15.88	5/8	20,000	549	436	346	255	202	166	140	132	118
		50,000	405	321	255	188	149	123	103	97	87
		100,000	321	255	202	149	118	97	82	77	69
		5,000	1,160	920	731	538	427	351	296	279	250
		10,000	920	731	580	427	339	279	235	221	198
19.05	3/4	20,000	731	580	460	339	269	221	187	176	157
		50,000	538	427	339	250	198	163	137	129	116
		100,000	427	339	269	198	157	129	109	103	92
20.64	13/16	5,000	1,277	1,014	805	593	471	387	326	307	275
22.22	7/8	10,000	1,014	805	639	471	373	307	259	244	218
23.81	15/16	20,000	805	639	507	373	296	244	206	193	173
25.40	1	50,000	593	471	373	275	218	180	151	143	128
		100,000	471	373	296	218	173	143	120	113	101
26.99	1 1/16	5,000	1,780	1,413	1,121	826	656	539	455	428	384
28.58	1 1/8	10,000	1,413	1,121	890	656	520	428	361	340	304
30.16	1 3/16	20,000	1,121	890	706	520	413	340	286	270	242
31.75	1 1/4	50,000	826	656	520	384	304	250	211	199	178
		100,000	656	520	413	304	242	199	168	158	141
31.75	1 1/4	5,000	2,327	1,847	1,466	1,080	857	705	595	559	501
33.34	1 5/16	10,000	1,847	1,466	1,164	857	681	559	472	444	398
34.92	1 3/8	20,000	1,466	1,164	924	681	540	444	375	352	316
36.51	1 7/16	50,000	1,080	857	681	501	398	327	276	260	233
		100,000	857	681	540	398	316	260	219	206	185
		5,000	2,802	2,224	1,765	1,301	1,032	849	716	673	604
		10,000	2,224	1,765	1,401	1,032	819	673	568	535	479
38.10	1 1/2	20,000	1,765	1,401	1,112	819	650	535	451	424	380
		50,000	1,301	1,032	819	604	479	394	332	313	280
		100,000	1,032	819	650	479	380	313	264	248	222
		5,000	3,029	2,404	1,908	1,406	1,116	917	774	728	653
41.28	1 5/8	10,000	2,404	1,908	1,514	1,116	886	728	614	578	518
42.86	1 11/16	20,000	1,908	1,514	1,202	886	703	578	487	459	411
44.45	1 3/4	50,000	1,406	1,116	886	653	518	426	359	338	303
		100,000	1,116	886	703	518	411	338	285	268	240
		5,000	3,203	2,542	2,018	1,487	1,180	970	818	770	
		10,000	2,542	2,018	1,602	1,180	937	770	649	611	
49.21	1 15/16	20,000	2,018	1,602	1,271	937	743	611	515	485	
		50,000	1,487	1,180	937	690	548	450	380	357	
		100,000	1,180	937	743	548	435	357	301	284	
		5,000	3,978	3,157	2,506	1,846	1,465	1,205	1,016	956	
50.80	2	10,000	3,157	2,506	1,989	1,465	1,163	956	806	759	
55.56	2 3/16	20,000	2,506	1,989	1,579	1,163	923	759	640	602	
		50,000	1,846	1,465	1,163	857	680	559	472	444	
		100,000	1,465	1,163	923	680	540	444	374	352	
		5,000	4,825	3,830	3,040	2,240	1,778	1,461	1,233	1,160	
57.15	2 1/4	10,000	3,830	3,040	2,413	1,778	1,411	1,160	978	921	
61.91	2 7/16	20,000	3,040	2,413	1,915	1,411	1,120	921	776	731	
		50,000	2,240	1,778	1,411	1,040	825	678	572	538	
		100,000	1,778	1,411	1,120	825	655	538	454	427	
		5,000	5,231	4,152	3,295	2,428	1,927	1,584	1,336	1,257	
63.50	2 1/2	10,000	4,152	3,295	2,615	1,927	1,529	1,257	1,060	998	
68.26	2 11/16	20,000	3,295	2,615	2,076	1,529	1,214	998	842	792	
		50,000	2,428	1,927	1,529	1,127	894	735	620	584	
		100,000	1,927	1,529	1,214	894	710	584	492	463	
		5,000	6,042	4,795	3,806	2,804	2,226	1,830	1,543		
69.85	2 3/4	10,000	4,795	3,806	3,021	2,226	1,767	1,452	1,225		
74.61	2 15/16	20,000	3,806	3,021	2,398	1,767	1,402	1,153	972		
		50,000	2,804	2,226	1,767	1,302	1,033	849	716		
		100,000	2,226	1,767	1,402	1,033	820	674	569		
		5,000	8,677	6,887	5,466	4,028	3,197	2,628			
		10,000	6,887	5,466	4,339	3,197	2,537	2,086			
87.31	3 7/16	20,000	5,466	4,339	3,444	2,537	2,014	1,656			
		50,000	4,028	3,197	2,537	1,869	1,484	1,220			
		100,000	3,197	2,537	2,014	1,484	1,178	968			
		5,000	11,272	8,947	7,101	5,232	4,153	3,414			
100.01	3 15/16	10,000	8,947	7,101	5,636	4,153	3,296	2,710			
101.60	4	20,000	7,101	5,636	4,473	3,296	2,616	2,151			
		50,000	5,232	4,153	3,296	2,429	1,928	1,585			
		100,000	4,153	3,296	2,616	1,928	1,530	1,258			

Radial loads – medium series

This table may be used to select series P2BM pillow blocks, F2BM and F4BM flanged units, and WSTU take-up units.

Determine the operating speed and life required. Then select a unit having a bearing radial load rating equal to or greater than the actual radial load.

The loads listed in this table are calculated to give the indicated L10 basic rating life (hours at speed) and are in accordance with ANSI/ABMA standard 9 – load ratings and fatigue life for ball bearings. A life adjustment factor (a23) of 1.0 has been used throughout.

These loads are for horizontally mounted shafts with the radial load directed downward toward the base of the pillow block.

When the load is heavy, C / P <6.6, a press fit must be used. In the table, this is the area shaded in white.

Table 2

Bearing radial load in pounds for given speed and life – standard duty

Nominal shaft diameter		L10 basic rating life	Speed RPM								
mm	in	hrs	50	100	200	500	1 000	1 800	3 000	3 600	5 000
		5,000	2,802	2,224	1,765	1,301	1,032	849	716	673	604
		10,000	2,224	1,765	1,401	1,032	819	673	568	535	479
36.51	1 7/16	20,000	1,765	1,401	1,112	819	650	535	451	424	380
		50,000	1,301	1,032	819	604	479	394	332	313	280
		100,000	1,032	819	650	479	380	313	264	248	222
		5,000	3,029	2,404	1,908	1,406	1,116	917	774	728	653
		10,000	2,404	1,908	1,514	1,116	886	728	614	578	518
38.10	1 1/2	20,000	1,908	1,514	1,202	886	703	578	487	459	411
		50,000	1,406	1,116	886	653	518	426	359	338	303
		100,000	1,116	886	703	518	411	338	285	268	240
		5,000	3,203	2,542	2,018	1,487	1,180	970	818	770	
42.86	1 11/16	10,000	2,542	2,018	1,602	1,180	937	770	649	611	
44.45	1 3/4	20,000	2,018	1,602	1,271	937	743	611	515	485	
		50,000	1,487	1,180	937	690	548	450	380	357	
		100,000	1,180	937	743	548	435	357	301	284	
		5,000	3,978	3,157	2,506	1,846	1,465	1,205	1,016	956	
		10,000	3,157	2,506	1,989	1,465	1,163	956	806	759	
49.21	1 15/16	20,000	2,506	1,989	1,579	1,163	923	759	640	602	
		50,000	1,846	1,465	1,163	857	680	559	472	444	
		100,000	1,465	1,163	923	680	540	444	374	352	
		5,000	4,825	3,830	3,040	2,240	1,778	1,461	1,233	1,160	
		10,000	3,830	3,040	2,413	1,778	1,411	1,160	978	921	
55.56	2 3/16	20,000	3,040	2,413	1,915	1,411	1,120	921	776	731	
		50,000	2,240	1,778	1,411	1,040	825	678	572	538	
		100,000	1,778	1,411	1,120	825	655	538	454	427	
		5,000	5,677	4,506	3,576	2,635	2,091	1,719	1,450		
61.91	2 7/16	10,000	4,506	3,576	2,838	2,091	1,660	1,365	1,151		
63.50	2 1/2	20,000	3,576	2,838	2,253	1,660	1,317	1,083	913		
		50,000	2,635	2,091	1,660	1,223	971	798	673		
		100,000	2,091	1,660	1,317	971	770	633	534		
		5,000	6,042	4,795	3,806	2,804	2,226	1,830	1,543		
		10,000	4,795	3,806	3,021	2,226	1,767	1,452	1,225		
68.26	2 11/16	20,000	3,806	3,021	2,398	1,767	1,402	1,153	972		
		50,000	2,804	2,226	1,767	1,302	1,033	849	716		
		100,000	2,226	1,767	1,402	1,033	820	674	569		
		5,000	6,650	5,278	4,189	3,087	2,450	2,014	1,699		
74.61	2 15/16	10,000	5,278	4,189	3,325	2,450	1,944	1,598	1,348		
76.20	3	20,000	4,189	3,325	2,639	1,944	1,543	1,269	1,070		
		50,000	3,087	2,450	1,944	1,433	1,137	935	788		
		100,000	2,450	1,944	1,543	1,137	903	742	626		
		5,000	11,272	8,947	7,101	5,232	4,153	3,414			
87.31	3 7/16	10,000	8,947	7,101	5,636	4,153	3,296	2,710			
88.90	3 1/2	20,000	7,101	5,636	4,473	3,296	2,616	2,151			
		50,000	5,232	4,153	3,296	2,429	1,928	1,585			
		100,000	4,153	3,296	2,616	1,928	1,530	1,258			

Air handling units

If you're responsible for designing high efficiency, quiet-running air handling equipment, then you know the importance of specifying the right bearing for the job.

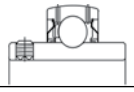
The right bearing not only meets the specific performance requirements of your air handling application, but also provides exceptional value with:

- On-time deliverySuperior product quality
- Unsurpassed customer service
- Expert technical support

As the world leader in rolling bearing technology, SKF is aware of the need for superior bearing performance in air handling applications. That's why we've committed the resources and have developed special ball bearing units to meet the performance requirements of air handling applications.

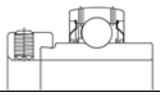
SKF air handling ball bearing units feature an anti-rotation pin that ensures the outer ring does not rotate. Ground and honed raceways and high precision balls are prelubricated with a special, long life grease with a Lithium/Calcium thickener/soap, and an NLGI #2 consistency to help ensure long service life.

Unit ball shaft locking methods



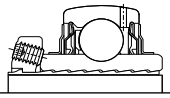
Set screw locking (RM-AH, TF-AH)

- Accommodates reverse rotation
- Optimized set screw location
- Optimized holding power
- Minimum inner ring distortion



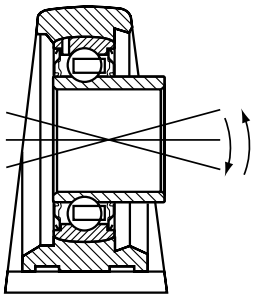
Eccentric locking (FM-AH, WF-AH)

- For rotation in one direction
- Easy to dismount
- Does less damage to shaft than normal set screw lock



ConCentra™ locking (LF-AH)

- SKF's patented mechanical connector applies a near 360° concentric grip around the shaft
- Slotted ring grips the shaft with the proper locking torque

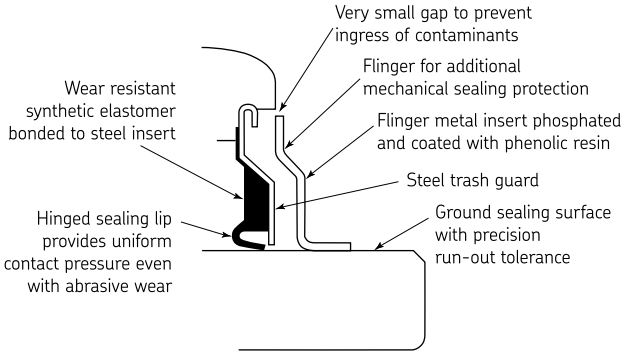


Closely controlled air-handling alignment torque increases system reliability to allow operating misalignment. An anti-rotation pin ensures that the outer ring does not rotate.

Air handling grease and sealing arrangement

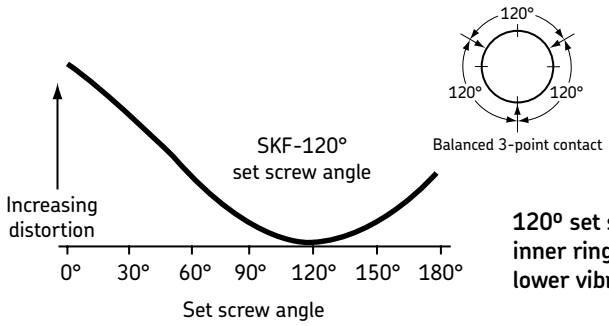
Contact seals and flingers allow for high speed operation and provide superior protection from contaminants in aggressive operating environments. The seal features a land riding design and is molded of synthetic rubber.

- Start-up capability of -20° F (-29° C)
- Operating range of -20° to +210° F (-29° to +99° C)
- Good water resistance and rust protection



NOTE: The SKF air handling units have longer service lives than other bearing units owing to the use of high performance grease and an improved sealing arrangement. The selection of SKF air handing units can be optimized using the SKF rating life calculation. Please contact SKF Applications Engineering for assistance.

Inner ring distortion vs. angle between set screws



120° set screw spacing minimizes inner ring distortion. This results in lower vibration and better sealing.

Notes

Set screw locking – pillow block

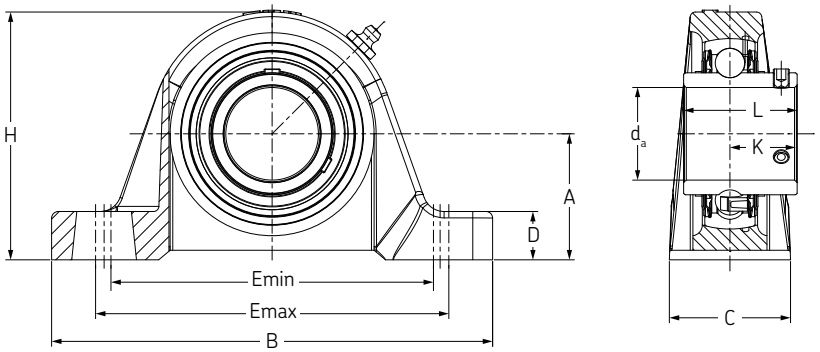
P2B-TF / standard duty & P2BM-TF / medium duty

Cast-iron housing
Standard center height
Wide inner ring
Seals & flingers

Replaces (standard duty): P2B-SC, YAS, NP, P3U, VPS-2, UCP
Replaces (medium duty): P2B-SCM, YASM, MP, VPS-3, UCPX

How to order

Suffix	Insert	Locking type
RM	YAT	Set screw – Seals
TF	YAR	Set screw – Seals and flingers
TF-AH	YAR	Set screw – Seals, AH unit



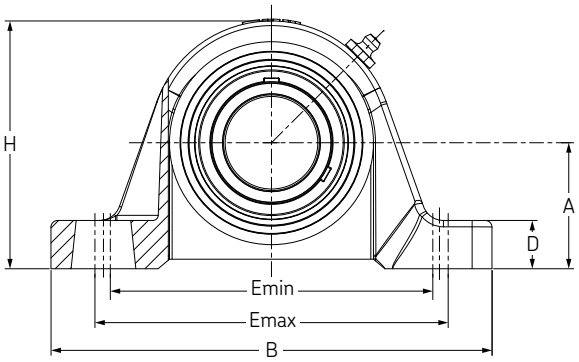
For bearing information see page **290**.

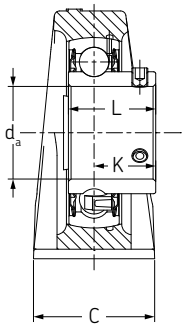
Shaft size d_a		Unit designation	E min.	E max.	A	B	C	D	H	K	L	Bolt dia	Insert bearing designation	Dynamic capacity C	Mass
in	mm		in									in		lbf	lb
1/2		**P2B 008-TF**	**3 1/8**	**4 1/8**	**1 3/16**	5 15/32	1.268	0.469	2.219	0.626	1.079	3/8	**YAR 203-008-2F**	2 150	1.1
5/8		**P2B 010-TF**											**YAR 203-010-2F**	2 150	1.0
3/4		**P2B 012-TF**	**3 3/8**	**4 1/8**	**1 5/16**	5	1.339	0.531	2.531	0.720	1.220	3/8	**YAR 204-012-2F**	2 850	1.3
7/8		**P2B 014-TF**											**YAR 205-014-2F**	3 150	1.8
15/16		**P2B 015-TF**	**3 3/4**	**4 1/2**	**1 7/16**	5 1/2	1.500	0.625	2.781	0.780	1.343	3/8	**YAR 205-015-2F**	3 150	1.7
1		**P2B 100-TF**											**YAR 205-100-2F**	3 150	1.7
1 1/8		**P2B 102-TF**											**YAR 206-102-2F**	4 380	2.8
1 3/16		**P2B 103-TF**	**4 3/8**	**5 1/16**	**1 11/16**	6 1/2	1.756	0.656	3.281	0.874	1.500	1/2	**YAR 206-103-2F**	4 380	2.6
1 1/4		**P2B 104S-TF**											**YAR 206-104-2F**	4 380	2.6
	30	**P2B 30M-TF**											**YAR 206-2F**	4 380	2.6
1 1/4		**P2B 104-TF**											**YAR 207-104-2F**	5 730	3.4
1 3/8		**P2B 106-TF**	**4 11/16**	**5 5/16**	**1 7/8**	6 9/16	1.803	0.719	3.687	1.000	1.689	1/2	**YAR 207-106-2F**	5 730	3.3
1 7/16		**P2B 107-TF**											**YAR 207-107-2F**	5 730	3.3
	35	**P2B 35M-TF**											**YAR 207-2F**	5 730	3.3
1 7/16		**P2BM 107-TF**											**YAR 208-107-2F**	6 900	4.7
1 1/2		**P2B 108-TF**	**5 3/32**	**5 23/32**	**2 1/8**	7 1/4	1.921	0.813	4.094	1.189	1.937	1/2	**YAR 208-108-2F**	6 900	4.6
	40	**P2B 40M-TF**											**YAR 208-2F**	6 900	4.5
1 5/8		**P2B 110-TF**											**YAR 209-110-2F**	7 460	5.2
1 11/16		**P2B 111-TF**	**5 7/16**	**6 1/8**	**2 1/8**	7 15/32	2.016	0.750	4.250	1.189	1.937	1/2	**YAR 209-111-2F**	7 460	5.1
1 3/4		**P2B 112-TF**											**YAR 209-112-2F**	7 460	5.0
	45	**P2B 45M-TF**											**YAR 209-2F**	7 460	5.0
1 11/16		**P2BM 111-TF**											**YAR 210-111-2F**	7 890	6.4
1 3/4		**P2BM 112-TF**	**6**	**6 1/2**	**2 1/4**	8 1/8	2.189	0.750	4.563	1.283	2.031	5/8	**YAR 210-112-2F**	7 890	6.0
1 15/16		**P2B 115-TF**											**YAR 210-115-2F**	7 890	6.0
	50	**P2B 50M-TF**											**YAR 210-2F**	7 890	5.8
1 15/16		**P2BM 115-TF**											**YAR 211-115-2F**	9 800	7.9
2		**P2B 200-TF**	**6 15/32**	**6 31/32**	**2 1/2**	8 5/8	2.319	0.875	4.969	1.315	2.189	5/8	**YAR 211-200-2F**	9 800	8.2
2 3/16		**P2B 203-TF**											**YAR 211-203-2F**	9 800	7.7
2 3/16		**P2BM 203-TF**											**YAR 212-203-2F**	11 840	10.5
2 1/4		**P2B 204-TF**	**6 7/8**	**7 5/8**	**2 3/4**	9 7/16	2.425	0.875	5.563	1.563	2.563	5/8	**YAR 212-204-2F**	11 840	10.4
2 7/16		**P2B 207-TF**											**YAR 212-207-2F**	11 840	9.8
	60	**P2B 60M-TF**											**YAR 212-2F**	11 840	10.0
2 1/2		**P2B 208-TF**											**YAR 213-208-2F**	12 850	14.0
2 11/16		**P2B 211-TF**	**7 9/16**	**8 7/16**	**3**	10 7/16	2.831	1.000	6.047	1.689	2.689	3/4	**YAR 213-211-2F**	12 850	13.5
	65	**P2B 65M-TF**											**YAR 213-2F**	12 850	13.9
2 7/16		**P2BM 207-TF**	**7 27/32**	**8 23/32**	**3**	10 15/32	2.839	1.109	6.142	1.563	2.752	3/4	**YAR 214-207-2F**	14 020	15.5
2 3/4		**P2B 212-TF**	**8 3/32**	**8 31/32**	3 1/4	10 13/16	2.874	1.000	6.625	1.823	2.886	3/4	**YAR 215-212-2F**	**14900**	**17.5**
2 15/16		**P2B 215-TF**											**YAR 215-215-2F**	**14900**	**16.9**
2 15/16		**P2BM 215-TF**	**8 1/2**	**9 3/4**	3.5	11 1/2	3.063	1.344	6.937	1.874	3.063	3/4	**YAR 216-215-2F**	**16360**	**21.2**
3		**P2BM 300-TF**											**YAR 216-300-2F**	**16360**	**20.9**

Consult SKF USA Inc. prior to design change or order placement.

Set screw locking – pillow block

P2B-RM / standard duty





Cast-iron housing
Standard center height
Narrow inner ring
Seals

Replaces: P2B-VSC, SAS, NP-C, P3S, VPS-1, BP

How to order

Suffix	Insert	Locking type
RM	YAT	Set screw – Seals
TF	YAR	Set screw – Seals and flingers
TF-AH	YAR	Set screw – Seals, AH unit

For bearing information see page **290**.

Shaft size d_a		Unit designation	E min.	E max.	A	B	C	D	H	K	L	Bolt dia	Insert bearing designation	Dynamic capacity C	Mass
in	mm		in									in		lbf	lb
1/2 5/8		**P2B 008-RM** **P2B 010-RM**	**3 1/8**	**4 1/8**	**1 3/16**	5 15/32	1.268	0.469	2.219	0.626	0.870	3/8	**YAT 203-008** **YAT 203-010**	2 150 2 150	1.0 1.0
3/4		**P2B 012-RM**	**3 3/8**	**4 1/8**	**1 5/16**	5	1.339	0.531	2.531	0.720	1.004	3/8	**YAT 204-012**	2 850	1.3
7/8 1		**P2B 014-RM** **P2B 100-RM**	**3 3/4**	**4 1/2**	**1 7/16**	5 1/2	1.500	0.625	2.781	0.768	1.071	3/8	**YAT 205-014** **YAT 205-100**	3 150 3 150	1.7 1.6
1 1/8 1 3/16 1 1/4		**P2B 102-RM** **P2B 103-RM** **P2B 104S-RM**	**4 3/8**	**5 1/16**	**1 11/16**	6 1/2	1.756	0.656	3.281	0.827	1.189	1/2	**YAT 206-102** **YAT 206-103** **YAT 206-104**	4 380 4 380 4 380	2.6 2.5 2.5
1 1/4 1 3/8 1 7/16		**P2B 104-RM** **P2B 106-RM** **P2B 107-RM**	**4 11/16**	**5 5/16**	**1 7/8**	6 9/16	1.803	0.719	3.687	0.917	1.299	1/2	**YAT 207-104** **YAT 207-106** **YAT 207-107**	5 730 5 730 5 730	3.3 3.2 3.1
1 1/2		**P2B 108-RM**	**5 3/32**	**5 23/32**	**2 1/8**	7 1/4	1.921	0.813	4.094	0.996	1.417	1/2	**YAT 208-108**	6 900	4.4
1 11/16 1 3/4		**P2B 111-RM** **P2B 112-RM**	**5 7/16**	**6 1/8**	**2 1/8**	7 15/32	2.016	0.750	4.250	1.016	1.457	1/2	**YAT 209-111** **YAT 209-112**	7 460 7 460	4.7 4.7
1 15/16		**P2B 115-RM**	**6**	**6 1/2**	**2 1/4**	8 1/8	2.189	0.750	4.563	1.087	1.528	5/8	**YAT 210-115**	7 890	5.6
2 2 3/16		**P2B 200-RM** **P2B 203-RM**	**6 15/32**	**6 31/32**	**2 1/2**	8 5/8	2.319	0.875	4.969	1.280	1.772	5/8	**YAT 211-200** **YAT 211-203**	9 800 9 800	7.7 7.5

Consult SKF USA Inc. prior to design change or order placement.

Set screw locking – pillow block

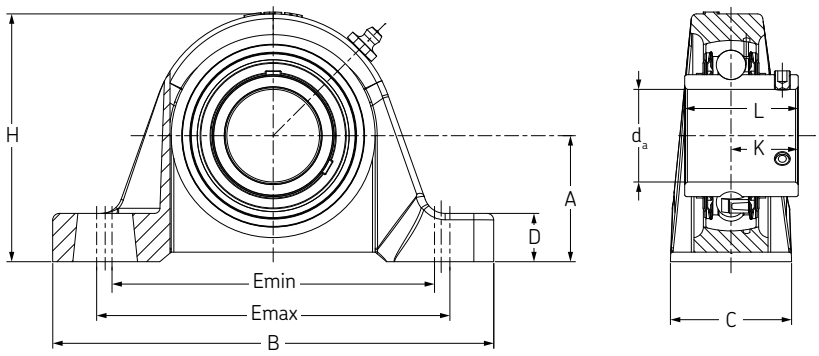
P2BL-TF / standard duty

Cast-iron housing
Low center height
Wide inner ring
Seals & flingers

Replaces: P2B-SCB, YAK, NPL, PL3U, VPLS-2, UCLP

How to order

Suffix	Insert	Locking type
RM	YAT	Set screw – Seals
TF	YAR	Set screw – Seals and flingers
TF-AH	YAR	Set screw – Seals, AH unit



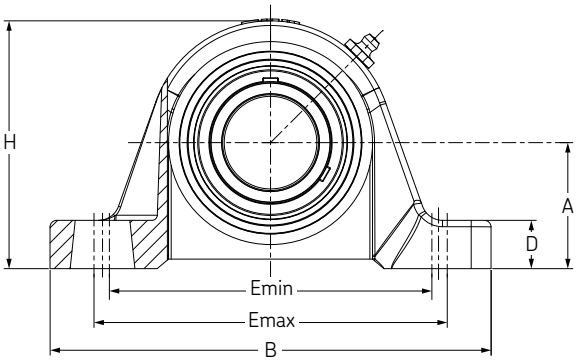
For bearing information see page **290**.

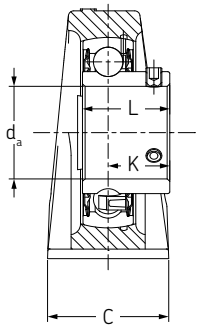
Shaft size d_a		Unit designation	E min.	E max.	A	B	C	D	H	K	L	Bolt dia	Insert bearing designation	Dynamic capacity C	Mass
in	mm		in									in		lbf	lb
1/2 5/8		**P2BL 008-TF** **P2BL 010-TF**	**3 1/8**	**4 1/8**	**1 1/16**	5 15/32	1.268	0.344	2.094	0.626	1.079	3/8	**YAR 203-008-2F** **YAR 203-010-2F**	2 150 2 150	0.9 0.9
3/4		**P2BL 012-TF**	**3 3/8**	**4 1/8**	**1 1/4**	5	1.339	0.469	2.469	0.720	1.220	3/8	**YAR 204-012-2F**	2 850	1.3
7/8 15/16 1		**P2BL 014-TF** **P2BL 015-TF** **P2BL 100-TF**	**3 3/4**	**4 1/2**	**1 5/16**	5 1/2	1.500	0.500	2.656	0.780	1.343	3/8	**YAR 205-014-2F** **YAR 205-015-2F** **YAR 205-100-2F**	3 150 3 150 3 150	1.7 1.6 1.6
1 1/8 1 3/16 1 1/4		**P2BL 102-TF** **P2BL 103-TF** **P2BL 104S-TF**	**4 3/8**	**5 1/16**	**1 9/16**	6 1/2	1.756	0.531	3.156	0.874	1.500	1/2	**YAR 206-102-2F** **YAR 206-103-2F** **YAR 206-104-2F**	4 380 4 380 4 380	2.5 2.5 2.4
1 1/4 1 3/8 1 7/16		**P2BL 104-TF** **P2BL 106-TF** **P2BL 107-TF**	**4 11/16**	**5 5/16**	**1 13/16**	6 9/16	1.803	0.656	3.625	1.000	1.689	1/2	**YAR 207-104-2F** **YAR 207-106-2F** **YAR 207-107-2F**	5 730 5 730 5 730	3.3 3.2 3.2
1 5/8 1 11/16 1 3/4		**P2BL 110-TF** **P2BL 111-TF** **P2BL 112-TF**	**5 7/16**	**6 1/8**	**2 1/16**	7 15/32	2.016	0.687	4.187	1.189	1.937	1/2	**YAR 209-110-2F** **YAR 209-111-2F** **YAR 209-112-2F**	7 460 7 460 7 460	5.1 5.0 4.9
1 15/16		**P2BL 115-TF**	**6**	**6 1/2**	**2 3/16**	8 1/8	2.189	0.687	4.500	1.283	2.031	5/8	**YAR 210-115-2F**	7 890	5.8
2 2 3/16		**P2BL 200-TF** **P2BL 203-TF**	**6 15/32**	**7 21/64**	**2 7/16**	8 5/8	2.319	0.813	4.906	1.315	2.189	5/8	**YAR 211-200-2F** **YAR 211-203-2F**	9 800 9 800	7.9 7.5
2 1/4 2 7/16		**P2BL 204-TF** **P2BL 207-TF**	**6 7/8**	**7 15/16**	**2 11/16**	9 1/2	2.425	0.813	5.500	1.563	2.563	5/8	**YAR 212-204-2F** **YAR 212-207-2F**	11 840 11 840	10.3 9.7
2 3/4 2 15/16		**P2BL 212-TF** **P2BL 215-TF**	**8 3/32**	**8 31/32**	**3 5/16**	10 13/16	2.874	1.061	6.686	1.823	2.886	3/4	**YAR 215-212-2F** **YAR 215-215-2F**	14 900 14 900	9.6 17.1

Consult SKF USA Inc. prior to design change or order placement.

Set screw locking – pillow block

P2BL-RM / standard duty





Cast-iron housing
Low center height
Narrow inner ring
Seals

Replaces: P2B-VSCB, SAK, NPL-C, PL3S, VPLS-1, BLP

How to order

Suffix	Insert	Locking type
RM	YAT	Set screw – Seals
TF	YAR	Set screw – Seals and flingers
TF-AH	YAR	Set screw – Seals, AH unit

For bearing information see page **290**.

Shaft size d_a		Unit designation	E min.	E max.	A	B	C	D	H	K	L	Bolt dia	Insert bearing designation	Dynamic capacity C	Mass
in	mm		in									in		lbf	lb
1/2		**P2BL 008-RM**	**3 1/8**	**4 1/8**	**1 1/16**	5 15/32	1.268	0.344	2.094	0.626	0.870	3/8	**YAT 203-008**	2 150	0.9
5/8		**P2BL 010-RM**											**YAT 203-010**	2 150	0.9
3/4		**P2BL 012-RM**	**3 3/8**	**4 1/8**	**1 1/4**	5	1.339	0.469	2.469	0.720	1.004	3/8	**YAT 204-012**	2 850	1.2
7/8		**P2BL 014-RM**	**3 3/4**	**4 1/2**	**1 5/16**	5 1/2	1.500	0.500	2.656	0.768	1.071	3/8	**YAT 205-014**	3 150	1.6
1		**P2BL 100-RM**											**YAT 205-100**	3 150	1.5
1 1/8		**P2BL 102-RM**											**YAT 206-102**	4 380	2.4
1 3/16		**P2BL 103-RM**	**4 3/8**	**5 1/16**	**1 9/16**	6 1/2	1.756	0.531	3.156	0.827	1.189	1/2	**YAT 206-103**	4 380	2.4
1 1/4		**P2BL 104S-RM**											**YAT 206-104**	4 380	2.3
1 1/4		**P2BL 104-RM**											**YAT 207-104**	5 730	3.2
1 3/8		**P2BL 106-RM**	**4 22/32**	**5 5/16**	**1 13/16**	6 9/16	1.803	0.656	3.625	0.917	1.299	1/2	**YAT 207-106**	5 730	3.1
1 7/16		**P2BL 107-RM**											**YAT 207-107**	5 730	3.0
1 1/2		**P2BL 108-RM**	**5 3/32**	**5 23/32**	**1 15/16**	7 1/4	1.921	0.813	4.000	0.996	1.417	1/2	**YAT 208-108**	6 900	4.3
1 11/16		**P2BL 111-RM**	**5 7/16**	**6 1/8**	**2 1/16**	7 15/32	2.016	0.687	4.187	1.016	1.457	1/2	**YAT 209-111**	7 460	4.6
1 3/4		**P2BL 112-RM**											**YAT 209-112**	7 460	4.6
1 15/16		**P2BL 115-RM**	**6**	**6 1/2**	**2 3/16**	8 1/8	2.189	0.687	4.500	1.087	1.528	5/8	**YAT 210-115**	7 890	5.5
2		**P2BL 200-RM**	**6 15/32**	**7 21/64**	**2 7/16**	8 5/8	2.319	0.813	4.906	1.280	1.772	5/8	**YAT 211-200**	9 800	7.5
2 3/16		**P2BL 203-RM**											**YAT 211-203**	9 800	7.3

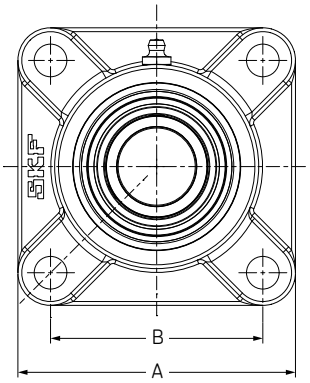
Consult SKF USA Inc. prior to design change or order placement.

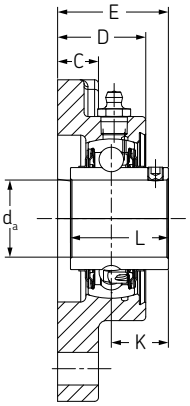
Set screw locking – 4-bolt flange

F4B-TF / standard duty & F4BM-TF / medium duty

Cast-iron flange
Four-bolt mounting
Wide inner ring
Seals & flingers

Replaces (standard duty): F4B-SC, YCJ, SF, F3U, VF4S-2, UCF
Replaces (medium duty): F4B-SCM, YCJM, MSF, VF4S-3, UCFX





How to order

Suffix	Insert	Locking type
RM	YAT	Set screw – Seals
TF	YAR	Set screw – Seals and flingers
TF-AH	YAR	Set screw – Seals, AH unit

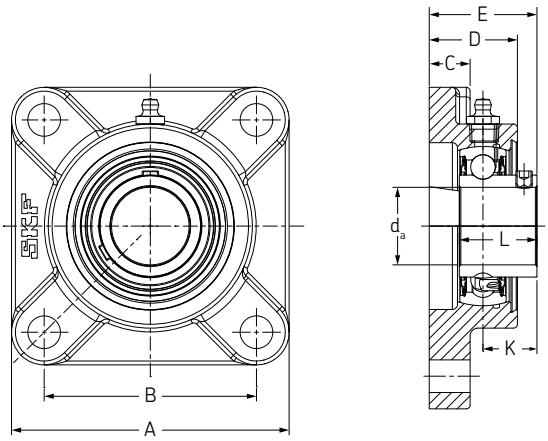
For bearing information see page **290**.

Shaft size d_a		Unit designation	A	B	C	D	E	K	L	Bolt dia	Insert bearing designation	Dynamic capacity C	End cover	Mass
in	mm		in							in		lbf		lb
1/2		**F4B 008-TF**	**3**	**2 1/8**	0.437	1.094	1.283	0.626	1.079	3/8	**YAR 203-008-2F**	2 150	–	1.1
5/8		**F4B 010-TF**									**YAR 203-010-2F**	2 150	–	1.0
3/4		**F4B 012-TF**	**3 3/8**	**2 1/2**	0.374	1.134	1.472	0.720	1.220	3/8	**YAR 204-012-2F**	2 850	ECY 204	1.3
7/8		**F4B 014-TF**									**YAR 205-014-2F**	3 150	ECY 205	1.9
15/16		**F4B 015-TF**	**3 3/4**	**2 3/4**	0.433	1.228	1.602	0.780	1.343	7/16	**YAR 205-015-2F**	3 150	ECY 205	1.9
1		**F4B 100-TF**									**YAR 205-100-2F**	3 150	ECY 205	1.9
	25	**F4B 25M-TF**									**YAR 205-2F**	3 150	ECY 205	1.9
1 1/8		**F4B 102-TF**									**YAR 206-102-2F**	4 380	ECY 206	2.9
1 3/16		**F4B 103-TF**	**4 1/4**	**3 1/4**	0.626	1.350	1.697	0.874	1.500	7/16	**YAR 206-103-2F**	4 380	ECY 206	2.8
1 1/4		**F4B 104S-TF**									**YAR 206-104-2F**	4 380	ECY 206	2.8
	30	**F4B 30M-TF**									**YAR 206-2F**	4 380	ECY 206	2.8
1 1/4		**F4B 104-TF**									**YAR 207-104-2F**	5 730	ECY 207	3.7
1 3/8		**F4B 106-TF**	**4 5/8**	**3 5/8**	0.500	1.500	1.906	1.000	1.689	1/2	**YAR 207-106-2F**	5 730	ECY 207	3.6
1 7/16		**F4B 107-TF**									**YAR 207-107-2F**	5 730	ECY 207	3.5
1 7/16		**F4BM 107-TF**									**YAR 208-107-2F**	6 900	ECY 208	5.1
1 1/2		**F4B 108-TF**	**5 1/8**	**4**	0.657	1.531	2.189	1.189	1.937	1/2	**YAR 208-108-2F**	6 900	ECY 208	5.1
	40	**F4B 40M-TF**									**YAR 208-2F**	6 900	ECY 208	5.0
1 5/8		**F4B 110-TF**									**YAR 209-110-2F**	7 460	ECY 209	5.8
1 11/16		**F4B 111-TF**	**5 3/8**	**4 1/8**	0.720	1.563	2.189	1.189	1.937	1/2	**YAR 209-111-2F**	7 460	ECY 209	5.7
1 3/4		**F4B 112-TF**									**YAR 209-112-2F**	7 460	ECY 209	5.6
1 11/16		**F4BM 111-TF**									**YAR 210-111-2F**	7 890	ECY 210	6.8
1 3/4		**F4BM 112-TF**	**5 5/8**	**4 3/8**	0.626	1.811	2.425	1.283	2.031	1/2	**YAR 210-112-2F**	7 890	ECY 210	6.7
1 15/16		**F4B 115-TF**									**YAR 210-115-2F**	7 890	ECY 210	6.4
1 15/16		**F4BM 115-TF**									**YAR 211-115-2F**	9 800	ECY 211	9.7
2		**F4B 200-TF**	**6 3/8**	**5 1/8**	0.689	1.969	2.575	1.315	2.189	5/8	**YAR 211-200-2F**	9 800	ECY 211	9.6
2 3/16		**F4B 203-TF**									**YAR 211-203-2F**	9 800	ECY 211	9.2
2 3/16		**F4BM 203-TF**									**YAR 212-203-2F**	11 840	ECY 212	11.2
2 1/4		**F4B 204-TF**	**6 7/8**	**5 5/8**	0.689	2.157	2.906	1.563	2.563	5/8	**YAR 212-204-2F**	11 840	ECY 212	11.1
2 7/16		**F4B 207-TF**									**YAR 212-207-2F**	11 840	ECY 212	10.6
2 1/2		**F4B 208-TF**	**7 3/8**	**5 7/8**	0.874	2.311	3.189	1.689	2.689	5/8	**YAR 213-208-2F**	12 850	ECY 213	14.2
2 11/16		**F4B 211-TF**									**YAR 213-211-2F**	12 850	ECY 213	13.6
2 7/16		**F4BM 207-TF**	**7 19/32**	**5 7/8**	0.874	2.437	3.063	1.563	2.752	5/8	**YAR 214-207-2F**	14 020	ECY 214	16.5
2 3/4		**F4B 212-TF**	**7 7/8**	**6**	0.874	2.563	3.429	1.823	2.886	3/4	**YAR 215-212-2F**	14 900	ECY 215	17.4
2 15/16		**F4B 215-TF**									**YAR 215-215-2F**	14 900	ECY 215	16.8
2 15/16		**F4BM 215-TF**	**7 25/32**	**6**	0.945	2.402	3.449	1.874	3.063	7/8	**YAR 216-215-2F**	16 360	–	17.5
3		**F4BM 300-TF**									YAR 216-300-2F	16 360	–	17.2

Consult SKF USA Inc. prior to design change or order placement.

Set screw locking – 4-bolt flange

F4B-RM / standard duty



Cast-iron flange
Four-bolt mounting
Narrow inner ring
Seals

Replaces: F4B-VSC, SCJ, SF-C, F3S, VF4S-1, BF

How to order

Suffix	Insert	Locking type
RM	YAT	Set screw – Seals
TF	YAR	Set screw – Seals and flingers
TF-AH	YAR	Set screw – Seals, AH unit

For bearing information see page **290**.

Shaft size d_a		Unit designation	A	B	C	D	E	K	L	Bolt dia	Insert bearing designation	Dynamic capacity C	End cover	Mass
in	mm		in							in		lbf		lb
1/2		**F4B 008-RM**	**3**	**2 1/8**	0.437	1.094	1.283	0.626	0.870	3/8	**YAT 203-008**	2 150	–	1.0
5/8		**F4B 010-RM**									**YAT 203-010**	2 150	–	1.0
3/4		**F4B 012-RM**	**3 3/8**	**2 1/2**	0.374	1.134	1.472	0.720	1.004	3/8	**YAT 204-012**	2 850	ECY 204	1.3
7/8		**F4B 014-RM**	**3 3/4**	**2 3/4**	0.433	1.228	1.591	0.768	1.071	7/16	**YAT 205-014**	3 150	ECY 205	1.9
1		**F4B 100-RM**									**YAT 205-100**	3 150	ECY 205	1.8
1 1/8		**F4B 102-RM**					1.650	0.827	1.189	7/16	**YAT 206-102**	4 380	ECY 206	2.8
1 3/16		**F4B 103-RM**	**4 1/4**	**3 1/4**	0.626	1.350	1.650	0.827	1.189	7/16	**YAT 206-103**	4 380	ECY 206	2.8
1 1/4		**F4B 104S-RM**					1.650	0.827	1.189	7/16	**YAT 206-104**	4 380	ECY 206	2.6
1 1/4		**F4B 104-RM**									**YAT 207-104**	5 730	ECY 207	3.6
1 3/8		**F4B 106-RM**	**4 5/8**	**3 5/8**	0.500	1.500	1.823	0.917	1.299	1/2	**YAT 207-106**	5 730	ECY 207	3.5
1 7/16		**F4B 107-RM**									**YAT 207-107**	5 730	ECY 207	3.4
1 1/2		**F4B 108-RM**	**5 1/8**	**4**	0.657	1.531	1.996	0.996	1.417	1/2	**YAT 208-108**	6 900	ECY 208	4.7
1 11/16		**F4B 111-RM**	**5 3/8**	**4 1/8**	0.720	1.563	2.016	1.016	1.457	1/2	**YAT 209-111**	7 460	ECY 209	5.5
1 3/4		**F4B 112-RM**									**YAT 209-112**	7 460	ECY 209	5.4
1 15/16		**F4B 115-RM**	**5 5/8**	**4 3/8**	0.626	1.811	2.228	1.087	1.528	1/2	**YAT 210-115**	7 890	ECY 210	6.1
2		**F4B 200-RM**	**6 3/8**	**5 1/8**	0.689	1.969	2.539	1.280	1.772	5/8	**YAT 211-200**	9 800	ECY 211	9.3
2 3/16		**F4B 203-RM**									**YAT 211-203**	9 800	ECY 211	8.9

Set screw locking – 2-bolt flange

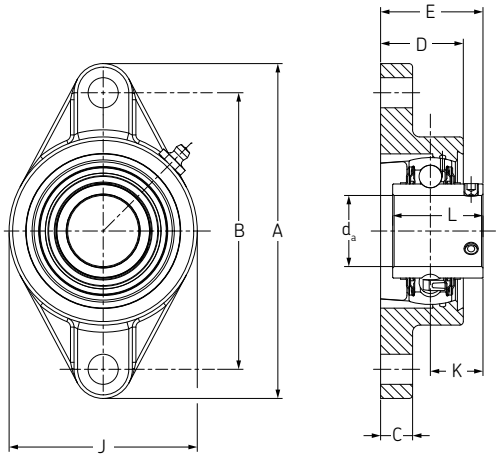
F2B-TF / standard duty

Cast-iron flange
Two-bolt mounting
Wide inner ring
Seals & flingers

Replaces: F2B-SC, YCJT, SFT, FX3U, VF2S-2, UCFT

How to order

Suffix	Insert	Locking type
RM	YAT	Set screw – Seals
TF	YAR	Set screw – Seals and flingers
TF-AH	YAR	Set screw – Seals, AH unit



For bearing information see page **290**.

Shaft size d_a		Unit designation	A	B	C	D	E	J	K	L	Bolt dia	Insert bearing designation	Dynamic capacity C	End cover	Mass
in	mm		in								in		lbf		lb
1/2		**F2B 008-TF**	3 7/8	3	0.437	0.945	1.295	2.374	0.626	1.079	3/8	**YAR 203-008-2F**	2 150	-	0.9
5/8		**F2B 010-TF**										**YAR 203-010-2F**	2 150	-	0.9
3/4		**F2B 012-TF**	4 7/16	3 17/32	0.437	1.142	1.469	2.374	0.720	1.220	3/8	**YAR 204-012-2F**	2 850	ECY 204	1.0
7/8		**F2B 014-TF**	4 7/8	3 7/8	0.531	1.165	1.528	2.752	0.780	1.342	7/16	**YAR 205-014-2F**	3 150	ECY 205	1.5
15/16		**F2B 015-TF**										**YAR 205-015-2F**	3 150	ECY 205	1.4
1		**F2B 100-TF**										**YAR 205-100-2F**	3 150	ECY 205	1.4
	25	**F2B 25M-TF**										**YAR 205-2F**	3 150	ECY 205	1.4
1 1/8		**F2B 102-TF**	5 9/16	4 19/32	0.531	1.374	1.701	3.126	0.874	1.500	7/16	**YAR 206-102-2F**	4 380	ECY 206	2.1
1 3/16		**F2B 103-TF**										**YAR 206-103-2F**	4 380	ECY 206	2.0
1 1/4		**F2B 104S-TF**										**YAR 206-104-2F**	4 380	ECY 206	2.0
	30	**F2B 30M-TF**										**YAR 206-2F**	4 380	ECY 206	2.1
1 1/4		**F2B 104-TF**	6 1/8	5 1/8	0.563	1.469	1.906	3.626	1.000	1.689	1/2	**YAR 207-104-2F**	5 730	ECY 207	3.0
1 3/8		**F2B 106-TF**										**YAR 207-106-2F**	5 730	ECY 207	2.9
1 7/16		**F2B 107-TF**										**YAR 207-107-2F**	5 730	ECY 207	2.8
1 1/2		**F2B 108-TF**	6 3/4	5 21/32	0.563	1.531	2.173	4.126	1.189	1.937	1/2	**YAR 208-108-2F**	6 900	ECY 208	4.0
	40	**F2B 40M-TF**										**YAR 208-2F**	6 900	ECY 208	3.9
1 5/8		**F2B 110-TF**	7 1/16	5 27/32	0.563	1.752	2.173	4.374	1.189	1.937	1/2	**YAR 209-110-2F**	7 460	ECY 209	5.0
1 11/16		**F2B 111-TF**										**YAR 209-111-2F**	7 460	ECY 209	4.9
1 3/4		**F2B 112-TF**										**YAR 209-112-2F**	7 460	ECY 209	4.7
1 15/16		**F2B 115-TF**	7 7/16	6 3/16	0.563	1.843	2.465	4.563	1.283	2.031	1/2	**YAR 210-115-2F**	7 890	ECY 210	5.2
2		**F2B 200-TF**	8 1/2	7 1/4	0.811	1.969	2.614	5.252	1.315	2.189	5/8	**YAR 211-200-2F**	9 800	ECY 211	7.9
2 3/16		**F2B 203-TF**										**YAR 211-203-2F**	9 800	ECY 211	7.5

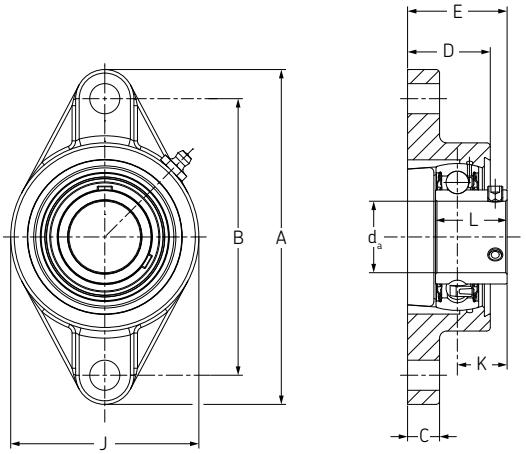
Consult SKF USA Inc. prior to design change or order placement.

Set screw locking – 2-bolt flange

F2B-RM / standard duty

Cast-iron flange
Two-bolt mounting
Set screw locking
Seals

Replaces: F2B-VSC, SCJT, SFT-C, FX3S, VF2S-1, BFT



How to order

Suffix	Insert	Locking type
RM	YAT	Set screw – Seals
TF	YAR	Set screw – Seals and flingers
TF-AH	YAR	Set screw – Seals, AH unit

For bearing information see page **290**.

Shaft size d_a		Unit designation	A	B	C	D	E	J	K	L	Bolt dia	Insert bearing designation	Dynamic capacity C	End cover	Mass
in	mm		in								in		lbf		lb
1/2		**F2B 008-RM**	3 7/8	3	0.437	0.945	1.295	2.374	0.626	0.870	3/8	**YAT 203-008**	2 150	-	0.9
5/8		**F2B 010-RM**										**YAT 203-010**	2 150	-	0.9
3/4		**F2B 012-RM**	4 7/16	3 17/32	0.437	1.142	1.469	2.374	0.720	1.004	3/8	**YAT 204-012**	2 850	ECY 204	1.0
7/8		**F2B 014-RM**	4 7/8	3 7/8	0.531	1.165	1.516	2.752	0.768	1.071	7/16	**YAT 205-014**	3 150	ECY 205	1.4
1		**F2B 100-RM**										**YAT 205-100**	3 150	ECY 205	1.3
1 1/8		**F2B 102-RM**										**YAT 206-102**	4 380	ECY 206	2.0
1 3/16		**F2B 103-RM**	5 9/16	4 19/32	0.531	1.374	1.654	3.126	0.827	1.189	7/16	**YAT 206-103**	4 380	ECY 206	1.9
1 1/4		**F2B 104S-RM**										**YAT 206-104**	4 380	ECY 206	1.9
1 1/4		**F2B 104-RM**										**YAT 207-104**	5 730	ECY 207	2.8
1 3/8		**F2B 106-RM**	6 1/8	5 1/8	0.563	1.469	1.823	3.626	0.917	1.299	1/2	**YAT 207-106**	5 730	ECY 207	2.8
1 7/16		**F2B 107-RM**										**YAT 207-107**	5 730	ECY 207	2.6
1 1/2		**F2B 108-RM**	6 3/4	5 21/32	0.563	1.531	1.980	4.126	0.996	1.417	1/2	**YAT 208-108**	6 900	ECY 208	3.7
1 11/16		**F2B 111-RM**	7 1/16	5 27/32	0.563	1.752	2.000	4.374	1.016	1.457	1/2	**YAT 209-111**	7 460	ECY 209	4.5
1 3/4		**F2B 112-RM**										**YAT 209-112**	7 460	ECY 209	4.5
1 15/16		**F2B 115-RM**	7 7/16	6 3/16	0.563	1.843	2.268	4.563	1.087	1.527	1/2	**YAT 210-115**	7 890	ECY 210	4.9
2		**F2B 200-RM**	8 1/2	7 1/4	0.811	1.969	2.579	5.252	1.280	1.772	5/8	**YAT 211-200**	9 800	ECY 211	7.5
2 3/16		**F2B 203-RM**										**YAT 211-203**	9 800	ECY 211	7.3

Consult SKF USA Inc. prior to design change or order placement.

Set screw locking – tapped base unit

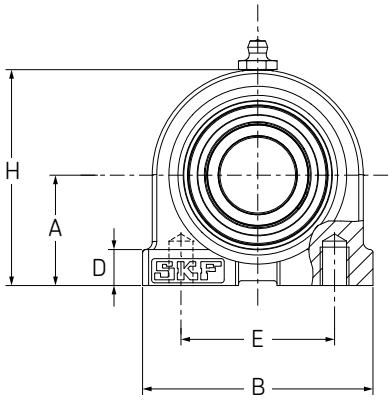
P2BT-TF / standard duty

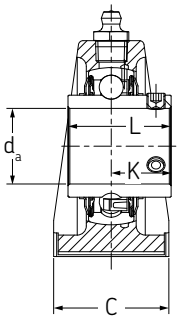
Cast-iron housing
Threaded base
Wide inner ring
Seal & flingers

Replaces: TB-SC, YTB, TB, PT3U, VTBS-2, UCTB

How to order

Suffix	Insert	Locking type
RM	YAT	Set screw – Seals
TF	YAR	Set screw – Seals and flingers
TF-AH	YAR	Set screw – Seals, AH unit





For bearing information see page **290**.

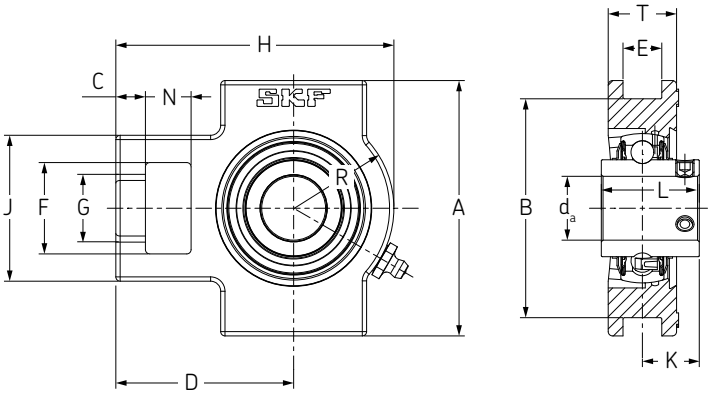
Shaft size d_a		Unit designation	E	A	B	C	D	H	K	L	Bolt dia	Insert bearing designation	Dynamic capacity C	Mass
in	mm		in								in		lbf	lb
3/4		**P2BT 012-TF**	**2**	**1 5/16**	2 7/8	1.500	0.437	2.563	0.720	1.220	3/8-16 UNC	**YAR 204-012-2F**	2 850	1.3
7/8		**P2BT 014-TF**										**YAR 205-014-2F**	3 150	1.5
15/16		**P2BT 015-TF**	**2**	**1 7/16**	3	1.500	0.469	2.811	0.780	1.343	3/8-16 UNC	**YAR 205-015-2F**	3 150	1.5
1		**P2BT 100-TF**										**YAR 205-100-2F**	3 150	1.5
	25	**P2BT 25M-TF**										**YAR 205-2F**	3 150	1.5
1 1/16		**P2BT 101-TF**										**YAR 206-101-2F**	4 380	2.6
1 1/8		**P2BT 102-TF**	**3**	**1 11/16**	4	1.500	0.469	3.374	0.874	1.500	7/16-14 UNC	**YAR 206-102-2F**	4 380	2.6
1 3/16		**P2BT 103-TF**										**YAR 206-103-2F**	4 380	2.5
1 1/4		**P2BT 104S-TF**										**YAR 206-104-2F**	4 380	2.5
1 1/4		**P2BT 104-TF**										**YAR 207-104-2F**	5 730	3.6
1 5/16		**P2BT 105-TF**	**3 1/4**	**1 7/8**	4 1/4	1.874	0.500	3.752	1.000	1.689	1/2-13 UNC	**YAR 207-105-2F**	5 730	3.6
1 3/8		**P2BT 106-TF**										**YAR 207-106-2F**	5 730	3.5
1 7/16		**P2BT 107-TF**										**YAR 207-107-2F**	5 730	3.5
1 1/2		**P2BT 108-TF**	**3 1/2**	**1 15/16**	4 5/8	1.874	0.500	3.937	1.189	1.937	1/2-13 UNC	**YAR 208-108-2F**	6 900	4.2
1 5/8		**P2BT 110-TF**										**YAR 209-110-2F**	7 460	5.1
1 11/16		**P2BT 111-TF**	**3 3/4**	**2 1/8**	5	2.000	0.500	4.248	1.189	1.937	1/2-13 UNC	**YAR 209-111-2F**	7 460	5.0
1 3/4		**P2BT 112-TF**										**YAR 209-112-2F**	7 460	4.9
1 15/16		**P2BT 115-TF**	**4**	**2 1/4**	5 1/2	2.000	0.563	4.626	1.283	2.031	5/8-11 UNC	**YAR 210-115-2F**	7 890	6.0

Consult SKF USA Inc. prior to design change or order placement.

WSTU-TF / standard duty

Cast-iron housing
Wide slot
Wide inner ring
Seal & flingers

Replaces: WSTU-SC, YTU, ST, TH3U, VTWS-2, UCST



How to order

Suffix	Insert	Locking type
RM	YAT	Set screw – Seals
TF	YAR	Set screw – Seals and flingers
TF-AH	YAR	Set screw – Seals, AH unit

For bearing information see page **290**.

Shaft size d_a		Unit designation	A	B	C	D	E	F	G	H	J	K	L	N	T	Insert bearing designation	Dynamic capacity C		End cover	Mass
in	mm		in														lbf			lb
3/4		**WSTU 012-TF**	**3.50**	3.00	0.41	2.41	0.53	1.25	0.69	3.72	2.00	0.72	1.22	0.63	0.81	**YAR 204-012-2F**	2 850	ECY 204		1.6
7/8		**WSTU 014-TF**														**YAR 205-014-2F**	3 150	ECY 205		1.8
15/16		**WSTU 015-TF**	**3.50**	3.00	0.41	2.44	0.53	1.25	0.69	3.81	2.00	0.78	1.34	0.63	0.94	**YAR 205-015-2F**	3 150	ECY 205		1.8
1		**WSTU 100-TF**														**YAR 205-100-2F**	3 150	ECY 205		1.7
1 1/8		**WSTU 102-TF**														**YAR 206-102-2F**	4 380	ECY 206		2.8
1 3/16		**WSTU 103-TF**	**4.03**	3.50	0.41	2.75	0.53	1.47	0.81	4.44	2.22	0.87	1.50	0.63	1.09	**YAR 206-103-2F**	4 380	ECY 206		2.6
1 1/4		**WSTU 104S-TF**														**YAR 206-104-2F**	4 380	ECY 206		2.6
1 1/4		**WSTU 104-TF**														**YAR 207-104-2F**	5 730	ECY 207		3.5
1 3/8		**WSTU 106-TF**	**4.03**	3.50	0.50	3.06	0.53	1.47	0.81	5.07	2.53	1.00	1.69	0.63	1.19	**YAR 207-106-2F**	5 730	ECY 207		3.4
1 7/16		**WSTU 107-TF**														**YAR 207-107-2F**	5 730	ECY 207		3.4
1 1/2		**WSTU 108-TF**	**4.50**	4.02	0.63	3.47	0.69	1.94	1.10	5.69	3.28	1.19	1.94	0.75	1.31	**YAR 208-108-2F**	6 900	ECY 208		5.3
	40	**WSTU 40M-TF**														**YAR 208-2F**	6 900	ECY 208		5.2
1 5/8		**WSTU 110-TF**														**YAR 209-110-2F**	7 460	ECY 209		5.4
1 11/16		**WSTU 111-TF**	**4.59**	4.02	0.63	3.44	0.69	1.94	1.10	5.69	3.28	1.19	1.94	0.83	1.37	**YAR 209-111-2F**	7 460	ECY 209		5.3
1 3/4		**WSTU 112-TF**														**YAR 209-112-2F**	7 460	ECY 209		5.2
1 15/16		**WSTU 115-TF**	**4.59**	4.02	0.63	3.53	0.69	1.94	1.10	5.84	3.28	1.28	2.03	0.75	1.47	**YAR 210-115-2F**	7 890	ECY 210		5.6
	50	**WSTU 50M-TF**														**YAR 210-2F**	7 890	ECY 210		5.5
2		**WSTU 200-TF**	**5.75**	5.13	0.75	4.19	1.06	2.53	1.37	6.75	4.03	1.31	2.19	1.00	1.50	**YAR 211-200-2F**	9 800	ECY 211		8.7
2 3/16		**WSTU 203-TF**														**YAR 211-203-2F**	9 800	ECY 211		8.3

Consult SKF USA Inc. prior to design change or order placement.

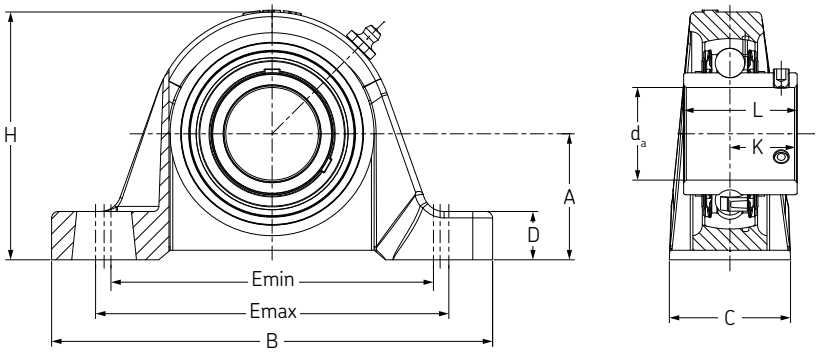
Set screw locking – pillow block

P2B-TF-AH / standard duty and medium duty

Cast-iron housing
Standard center height
Seals & flingers

Air handling (AH)
Wide inner ring

Replaces (standard duty): P2B-SCAH, NP-CXU, VPS-2 AH, UCP-AM
Replaces (medium duty): P2B-SCMAH, MP-CXU, VPS-3 AH, UCPX-AM



How to order

Suffix	Insert	Locking type
RM	YAT	Set screw – Seals
TF	YAR	Set screw – Seals and flingers
TF-AH	YAR	Set screw – Seals, AH unit

For bearing information see page **290**.

Shaft size d_a		Unit designation	E min.	E max.	A	B	C	D	H	K	L	Bolt dia	Insert bearing designation*	Dynamic capacity C	Mass
in	mm		in									in		lbf	lb
1/2		**P2B 008-TF-AH**	**3 1/8**	**4 1/8**	**1 3/16**	5 15/32	1.268	0.469	2.219	0.626	1.079	3/8	**YAR 203-008-2F-AH**	2 150	1.1
5/8		**P2B 010-TF-AH**											**YAR 203-010-2F-AH**	2 150	1.0
3/4		**P2B 012-TF-AH**	**3 3/8**	**4 1/8**	**1 5/16**	5	1.339	0.531	2.531	0.720	1.220	3/8	**YAR 204-012-2F-AH**	2 850	1.3
7/8		**P2B 014-TF-AH**											**YAR 205-014-2F-AH**	3 150	1.8
15/16		**P2B 015-TF-AH**	**3 3/4**	**4 1/2**	**1 7/16**	5 1/2	1.500	0.625	2.781	0.780	1.343	3/8	**YAR 205-015-2F-AH**	3 150	1.7
1		**P2B 100-TF-AH**											**YAR 205-100-2F-AH**	3 150	1.7
1 1/8		**P2B 102-TF-AH**											**YAR 206-102-2F-AH**	4 380	2.8
1 3/16		**P2B 103-TF-AH**	**4 3/8**	**5 1/16**	**1 11/16**	6 1/2	1.756	0.656	3.281	0.874	1.500	1/2	**YAR 206-103-2F-AH**	4 380	2.6
1 1/4		**P2B 104S-TF-AH**											**YAR 206-104-2F-AH**	4 380	2.6
1 1/4		**P2B 104-TF-AH**											**YAR 207-104-2F-AH**	5 730	3.4
1 3/8		**P2B 106-TF-AH**	**4 22/32**	**5 5/16**	**1 7/8**	6 9/16	1.803	0.719	3.687	1.000	1.689	1/2	**YAR 207-106-2F-AH**	5 730	3.3
1 7/16		**P2B 107-TF-AH**											**YAR 207-107-2F-AH**	5 730	3.3
1 7/16		**P2BM 107-TF-AH**											**YAR 208-107-2F-AH**	6 900	4.7
1 1/2		**P2B 108-TF-AH**	**5 3/32**	**5 23/32**	**2 1/8**	7 1/4	1.921	0.813	4.094	1.189	1.937	1/2	**YAR 208-108-2F-AH**	6 900	4.6
1 5/8		**P2B 110-TF-AH**											**YAR 209-110-2F-AH**	7 460	5.2
1 11/16		**P2B 111-TF-AH**	**5 7/16**	**6 1/8**	**2 1/8**	7 15/32	2.016	0.750	4.250	1.189	1.937	1/2	**YAR 209-111-2F-AH**	7 460	5.1
1 3/4		**P2B 112-TF-AH**											**YAR 209-112-2F-AH**	7 460	5.0
1 11/16		**P2BM 111-TF-AH**											**YAR 210-111-2F-AH**	7 890	6.4
1 3/4		**P2BM 112-TF-AH**	**6**	**6 1/2**	**2 1/4**	8 1/8	2.189	0.750	4.563	1.283	2.031	5/8	**YAR 210-112-2F-AH**	7 890	6.0
1 15/16		**P2B 115-TF-AH**											**YAR 210-115-2F-AH**	7 890	6.0
1 15/16		**P2BM 115-TF-AH**											**YAR 211-115-2F-AH**	9 800	7.9
2		**P2B 200-TF-AH**	**6 15/32**	**6 31/32**	**2 1/2**	8 5/8	2.319	0.875	4.969	1.315	2.189	5/8	**YAR 211-200-2F-AH**	9 800	8.2
2 3/16		**P2B 203-TF-AH**											**YAR 211-203-2F-AH**	9 800	7.7
2 3/16		**P2BM 203-TF-AH**											**YAR 212-203-2F-AH**	11 840	10.5
2 1/4		**P2B 204-TF-AH**	**6 7/8**	**7 5/8**	**2 3/4**	9 7/16	2.425	0.875	5.563	1.563	2.563	5/8	**YAR 212-204-2F-AH**	11 840	10.4
2 7/16		**P2B 207-TF-AH**											**YAR 212-207-2F-AH**	11 840	9.8
2 1/2		**P2B 208-TF-AH**	**7 9/16**	**8 7/16**	**3**	10 7/16	2.831	1.000	6.047	1.689	2.689	3/4	**YAR 213-208-2F-AH**	12 850	14.0
2 11/16		**P2B 211-TF-AH**											**YAR 213-211-2F-AH**	12 850	13.5
2 7/16		**P2BM 207-TF-AH**	**7 27/32**	**8 23/32**	**3**	10 15/32	2.839	1.109	6.142	1.563	2.752	3/4	**YAR 214-207-2F-AH**	14 020	15.5
2 3/4		**P2B 212-TF-AH**	**8 3/32**	**8 31/32**	**3 1/4**	10 13/16	2.874	1.000	6.625	1.823	2.886	3/4	**YAR 215-212-2F-AH**	14 900	17.5
2 15/16		**P2B 215-TF-AH**											**YAR 215-215-2F-AH**	14 900	16.9
2 15/16		**P2BM 215-TF-AH**	**8 1/2**	**9 3/4**	**3.5**	11 1/2	3.063	1.344	6.937	1.874	3.063	3/4	**YAR 216-215-2F-AH**	16 360	21.2
3		**P2BM 300-TF-AH**											**YAR 216-300-2F-AH**	16 360	20.9

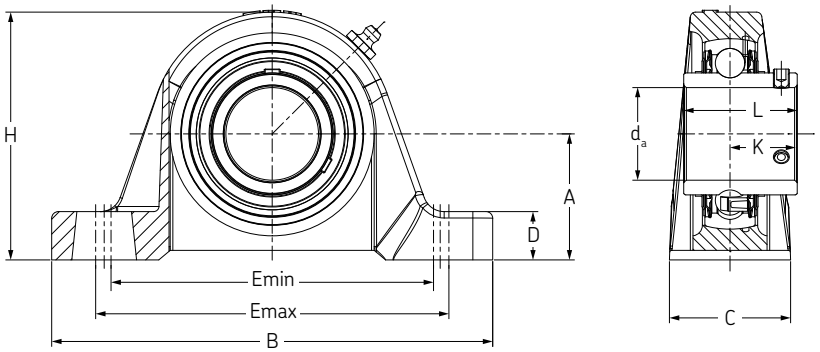
* AH bearings with anti-rotation pin not sold separately

Consult SKF USA Inc. prior to design change or order placement.

P2BL-TF-AH / standard duty

Air handling (AH)
Low center height
Cast-iron housing
Wide inner ring
Seals & flingers

Replaces: P2B-SCBAH, NPL-CXU, VPLS-2 AH, UCLP AM



How to order

Suffix	Insert	Locking type
RM	YAT	Set screw – Seals
TF	YAR	Set screw – Seals and flingers
TF-AH	YAR	Set screw – Seals, AH unit

For bearing information see page **290**.

Shaft size d_a		Unit designation	E min.	E max.	A	B	C	D	H	K	L	Bolt dia	Insert bearing designation*	Dynamic capacity C	Mass
in	mm		in									in		lbf	lb
1/2		**P2BL 008-TF-AH**	**3 1/8**	**4 1/8**	**1 1/16**	5 15/32	1.268	0.344	2.094	0.626	1.079	3/8	**YAR 203-008-2F-AH**	2 150	0.9
5/8		**P2BL 010-TF-AH**											**YAR 203-010-2F-AH**	2 150	0.9
3/4		**P2BL 012-TF-AH**	**3 3/8**	**4 1/8**	**1 1/4**	5	1.339	0.469	2.469	0.720	1.220	3/8	**YAR 204-012-2F-AH**	2 850	1.3
7/8		**P2BL 014-TF-AH**											**YAR 205-014-2F-AH**	3 150	1.7
15/16		**P2BL 015-TF-AH**	**3 3/4**	**4 1/2**	**1 5/16**	5 1/2	1.500	0.500	2.656	0.780	1.343	3/8	**YAR 205-015-2F-AH**	3 150	1.6
1		**P2BL 100-TF-AH**											**YAR 205-100-2F-AH**	3 150	1.6
1 1/8		**P2BL 102-TF-AH**											**YAR 206-102-2F-AH**	4 380	2.5
1 3/16		**P2BL 103-TF-AH**	**4 3/8**	**5 1/16**	**1 9/16**	6 1/2	1.756	0.531	3.156	0.874	1.500	1/2	**YAR 206-103-2F-AH**	4 380	2.5
1 1/4		**P2BL 104S-TF-AH**											**YAR 206-104-2F-AH**	4 380	2.4
1 1/4		**P2BL 104-TF-AH**											**YAR 207-104-2F-AH**	5 730	3.3
1 3/8		**P2BL 106-TF-AH**	**4 22/32**	**5 5/16**	**1 13/16**	6 9/16	1.803	0.656	3.625	1.000	1.689	1/2	**YAR 207-106-2F-AH**	5 730	3.2
1 7/16		**P2BL 107-TF-AH**											**YAR 207-107-2F-AH**	5 730	3.2
1 5/8		**P2BL 110-TF-AH**											**YAR 209-110-2F-AH**	7 460	5.1
1 11/16		**P2BL 111-TF-AH**	**5 7/16**	**6 1/8**	**2 1/16**	7 15/32	2.016	0.687	4.187	1.189	1.937	1/2	**YAR 209-111-2F-AH**	7 460	5.0
1 3/4		**P2BL 112-TF-AH**											**YAR 209-112-2F-AH**	7 460	4.9
1 15/16		**P2BL 115-TF-AH**	**6**	**6 1/2**	**2 3/16**	8 1/8	2.189	0.687	4.500	1.283	2.031	5/8	**YAR 210-115-2F-AH**	7 890	5.8
2		**P2BL 200-TF-AH**	**6 15/32**	**7 21/64**	**2 7/16**	8 5/8	2.319	0.813	4.906	1.315	2.189	5/8	**YAR 211-200-2F-AH**	9 800	7.9
2 3/16		**P2BL 203-TF-AH**											**YAR 211-203-2F-AH**	9 800	7.5
2 1/4		**P2BL 204-TF-AH**	**6 7/8**	**7 15/16**	**2 11/16**	9 1/2	2.425	0.813	5.500	1.563	2.563	5/8	**YAR 212-204-2F-AH**	11 840	10.3
2 7/16		**P2BL 207-TF-AH**											**YAR 212-207-2F-AH**	11 840	9.7
2 3/4		**P2BL 212-TF-AH**	**8 3/32**	**8 31/32**	**3 5/16**	10 13/16	2.874	1.061	6.686	1.823	2.886	3/4	**YAR 215-212-2F-AH**	14 900	9.6
2 15/16		**P2BL 215-TF-AH**											**YAR 215-215-2F-AH**	14 900	17.1

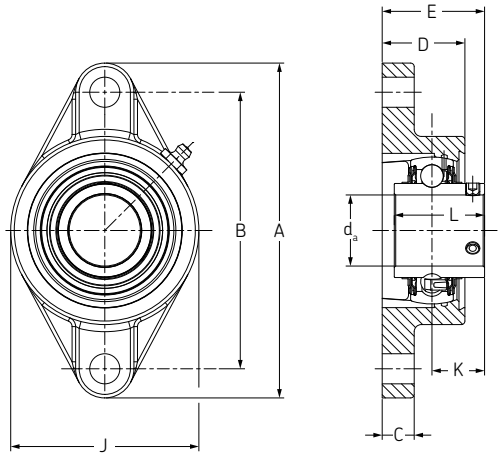
* AH bearings with anti-rotation pin not sold separately

Set screw locking – 2-bolt flange

F2B-TF-AH / standard duty

Air handling (AH)
Two-bolt mounting
Seals & flingers
Cast-iron flange
Wide inner ring

Replaces: F2B-SCAH, SFT-CXU, VF2S-2 AH, UCFT-AM



How to order

Suffix	Insert	Locking type
RM	YAT	Set screw – Seals
TF	YAR	Set screw – Seals and flingers
TF-AH	YAR	Set screw – Seals, AH unit

For bearing information see page **290**.

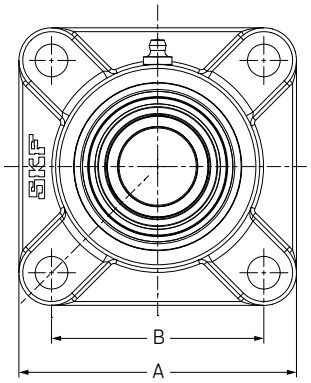
Shaft size d_a		Unit designation	A	B	C	D	E	J	K	L	Bolt dia	Insert bearing designation*	Dynamic capacity C	End cover	Mass
in	mm		in								in		lbf		lb
1/2		**F2B 008-TF-AH**	3 7/8	3	0.437	0.945	1.295	2.374	0.626	1.079	3/8	**YAR 203-008-2F-AH**	2 150	-	0.9
5/8		**F2B 010-TF-AH**										**YAR 203-010-2F-AH**	2 150	-	0.9
3/4		**F2B 012-TF-AH**	4 7/16	3 17/32	0.437	1.142	1.469	2.374	0.720	1.220	3/8	**YAR 204-012-2F-AH**	2 850	ECY 204	1.0
7/8		**F2B 014-TF-AH**										**YAR 205-014-2F-AH**	3 150	ECY 205	1.5
15/16		**F2B 015-TF-AH**	4 7/8	3 7/8	0.531	1.165	1.528	2.752	0.780	1.342	7/16	**YAR 205-015-2F-AH**	3 150	ECY 205	1.4
1		**F2B 100-TF-AH**										**YAR 205-100-2F-AH**	3 150	ECY 205	1.4
1 1/8		**F2B 102-TF-AH**										**YAR 206-102-2F-AH**	4 380	ECY 206	2.1
1 3/16		**F2B 103-TF-AH**	5 9/16	4 19/32	0.531	1.374	1.701	3.126	0.874	1.500	7/16	**YAR 206-103-2F-AH**	4 380	ECY 206	2.0
1 1/4		**F2B 104S-TF-AH**										**YAR 206-104-2F-AH**	4 380	ECY 206	2.0
1 1/4		**F2B 104-TF-AH**										**YAR 207-104-2F-AH**	5 730	ECY 207	3.0
1 3/8		**F2B 106-TF-AH**	6 1/8	5 1/8	0.563	1.469	1.906	3.626	1.000	1.689	1/2	**YAR 207-106-2F-AH**	5 730	ECY 207	2.9
1 7/16		**F2B 107-TF-AH**										**YAR 207-107-2F-AH**	5 730	ECY 207	2.8
1 1/2		**F2B 108-TF-AH**	6 3/4	5 21/32	0.563	1.531	2.173	4.126	1.189	1.937	1/2	**YAR 208-108-2F-AH**	6 900	ECY 208	4.0
1 5/8		**F2B 110-TF-AH**										**YAR 209-110-2F-AH**	7 460	ECY 209	5.0
1 11/16		**F2B 111-TF-AH**	7 1/16	5 27/32	0.563	1.752	2.173	4.374	1.189	1.937	1/2	**YAR 209-111-2F-AH**	7 460	ECY 209	4.9
1 3/4		**F2B 112-TF-AH**										**YAR 209-112-2F-AH**	7 460	ECY 209	4.7
1 15/16		**F2B 115-TF-AH**	7 7/16	6 3/16	0.563	1.843	2.465	4.563	1.283	2.031	1/2	**YAR 210-115-2F-AH**	7 890	ECY 210	5.2
2		**F2B 200-TF-AH**	8 1/2	7 1/4	0.811	1.969	2.614	5.252	1.315	2.189	5/8	**YAR 211-200-2F-AH**	9 800	ECY 211	7.9
2 3/16		**F2B 203-TF-AH**										**YAR 211-203-2F-AH**	9 800	ECY 211	7.5

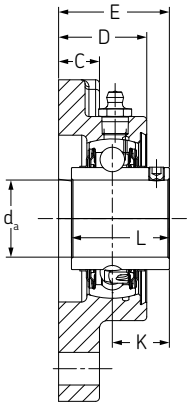
* AH bearings with anti-rotation pin not sold separately

Consult SKF USA Inc. prior to design change or order placement.

Set screw locking – 4-bolt flange

F4B-TF-AH / standard duty and medium duty





Air handling (AH) — Cast-iron flange
Four-bolt mounting — Wide inner ring
Seals & flingers

Replaces (standard duty): F4B-SCAH, SF-CXU, VF4S-2 AH, UCF-AM
Replaces (medium duty): F4B-SCMAH, MSF-CXU, VF4S-3 AH, UCFX-AM

How to order

Suffix	Insert	Locking type
RM	YAT	Set screw – Seals
TF	YAR	Set screw – Seals and flingers
TF-AH	YAR	Set screw – Seals, AH unit

For bearing information see page **290**.

Shaft size d_a		Unit designation	A	B	C	D	E	K	L	Bolt dia	Insert bearing designation*	Dynamic capacity C	End cover	Mass
in	mm		in							in		lbf		lb
1/2		**F4B 008-TF-AH**	**3**	**2 1/8**	0.437	1.094	1.295	0.626	1.079	3/8	**YAR 203-008-2F-AH**	2 150	–	1.1
5/8		**F4B 010-TF-AH**									**YAR 203-010-2F-AH**	2 150	–	1.0
3/4		**F4B 012-TF-AH**	**3 3/8**	**2 1/2**	0.374	1.134	1.469	0.720	1.220	3/8	**YAR 204-012-2F-AH**	2 850	ECY 204	1.3
7/8		**F4B 014-TF-AH**									**YAR 205-014-2F-AH**	3 150	ECY 205	1.9
15/16		**F4B 015-TF-AH**	**3 3/4**	**2 3/4**	0.433	1.228	1.606	0.780	1.343	7/16	**YAR 205-015-2F-AH**	3 150	ECY 205	1.9
1		**F4B 100-TF-AH**									**YAR 205-100-2F-AH**	3 150	ECY 205	1.9
1 1/8		**F4B 102-TF-AH**									**YAR 206-102-2F-AH**	4 380	ECY 206	2.9
1 3/16		**F4B 103-TF-AH**	**4 1/4**	**3 1/4**	0.626	1.350	1.701	0.874	1.500	7/16	**YAR 206-103-2F-AH**	4 380	ECY 206	2.8
1 1/4		**F4B 104S-TF-AH**									**YAR 206-104-2F-AH**	4 380	ECY 206	2.8
1 1/4		**F4B 104-TF-AH**									**YAR 207-104-2F-AH**	5 730	ECY 207	3.7
1 3/8		**F4B 106-TF-AH**	**4 5/8**	**3 5/8**	0.500	1.500	1.906	1.000	1.689	1/2	**YAR 207-106-2F-AH**	5 730	ECY 207	3.6
1 7/16		**F4B 107-TF-AH**									**YAR 207-107-2F-AH**	5 730	ECY 207	3.6
1 7/16		**F4BM 107-TF-AH**	**5 1/8**	**4**	0.657	1.531	2.173	1.189	1.937	1/2	**YAR 208-107-2F-AH**	6 900	ECY 208	5.2
1 1/2		**F4B 108-TF-AH**									**YAR 208-108-2F-AH**	6 900	ECY 208	5.1
1 5/8		**F4B 110-TF-AH**									**YAR 209-110-2F-AH**	7 460	ECY 209	5.8
1 11/16		**F4B 111-TF-AH**	**5 3/8**	**4 1/8**	0.720	1.563	2.173	1.189	1.937	1/2	**YAR 209-111-2F-AH**	7 460	ECY 209	5.7
1 3/4		**F4B 112-TF-AH**									**YAR 209-112-2F-AH**	7 460	ECY 209	5.6
1 11/16		**F4BM 111-TF-AH**									**YAR 210-111-2F-AH**	7 890	ECY 210	6.8
1 3/4		**F4BM 112-TF-AH**	**5 5/8**	**4 3/8**	0.626	1.811	2.425	1.283	2.031	1/2	**YAR 210-112-2F-AH**	7 890	ECY 210	6.4
1 15/16		**F4B 115-TF-AH**									**YAR 210-115-2F-AH**	7 890	ECY 210	6.4
1 15/16		**F4BM 115-TF-AH**									**YAR 211-115-2F-AH**	9 800	ECY 211	9.4
2		**F4B 200-TF-AH**	**6 3/8**	**5 1/8**	0.689	1.969	2.575	1.315	2.189	5/8	**YAR 211-200-2F-AH**	9 800	ECY 211	9.6
2 3/16		**F4B 203-TF-AH**									**YAR 211-203-2F-AH**	9 800	ECY 211	9.2
2 3/16		**F4BM 203-TF-AH**									**YAR 212-203-2F-AH**	11 840	ECY 212	11.2
2 1/4		**F4B 204-TF-AH**	**6 7/8**	**5 5/8**	0.689	2.157	2.902	1.563	2.563	5/8	**YAR 212-204-2F-AH**	11 840	ECY 212	11.1
2 7/16		**F4B 207-TF-AH**									**YAR 212-207-2F-AH**	11 840	ECY 212	10.6
2 1/2		**F4B 208-TF-AH**	**7 3/8**	**5 7/8**	0.874	2.311	3.185	1.689	2.689	5/8	**YAR 213-208-2F-AH**	12 850	ECY 213	14.1
2 11/16		**F4B 211-TF-AH**									**YAR 213-211-2F-AH**	12 850	ECY 213	13.6
2 7/16		**F4BM 207-TF-AH**	**7 19/32**	**5 7/8**	0.874	2.437	3.059	1.563	2.752	5/8	**YAR 214-207-2F-AH**	14 020	ECY 214	16.5
2 3/4		**F4B 212-TF-AH**	**7 7/8**	**6**	0.874	2.563	3.437	1.823	2.886	3/4	**YAR 215-212-2F-AH**	14 900	ECY 215	17.4
2 15/16		**F4B 215-TF-AH**									**YAR 215-215-2F-AH**	14 900	ECY 215	16.8
2 15/16		**F4BM 215-TF-AH**	**7 25/32**	**6**	0.945	2.402	3.449	1.874	3.063	7/8	**YAR 216-215-2F-AH**	16 360	–	17.5
3		**F4BM 300-TF-AH**									**YAR 216-300-2F-AH**	16 360	–	17.3

* AH bearings with anti-rotation pin not sold separately

Consult SKF USA Inc. prior to design change or order placement.

Eccentric locking – pillow block

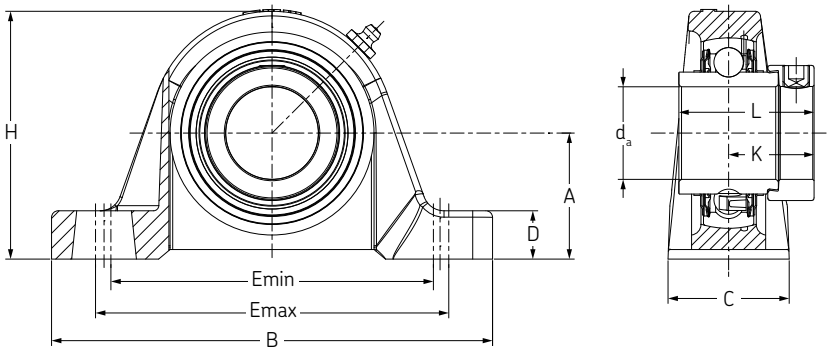
P2B-WF / standard duty

Cast-iron housing
Standard center height
Wide inner ring
Seals & flingers

Replaces: P2B-SXR, RAS, P3Y, VPE-2, UGP

How to order

Suffix	Insert	Locking type
FM	YET	Eccentric collar – Seals
WF	YEL	Eccentric collar – Seals & flingers
WF-AH	YEL	Eccentric coll., Seals & flingers, AH unit



For bearing information see page **290**.

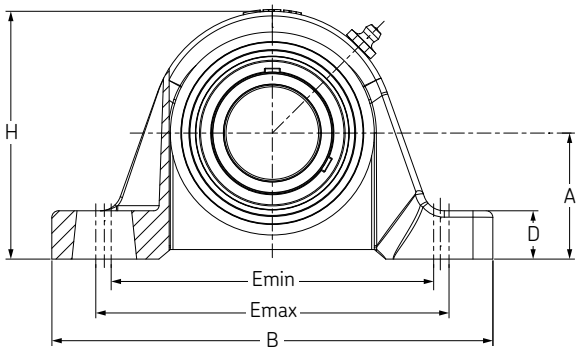
Shaft size d_a		Unit designation	E min.	E max.	A	B	C	D	H	K	L	Bolt dia	Insert bearing designation	Dynamic capacity C	Mass
in	mm		in									in		lbf	lb
3/4		**P2B 012-WF**	**3 3/8**	**4 1/8**	**1 5/16**	5	1.339	0.531	2.531	1.047	1.720	3/8	**YEL 204-012-2F**	2 850	1.4
1		**P2B 100-WF**	**3 3/4**	**4 1/2**	**1 7/16**	5 1/2	1.500	0.625	2.781	1.059	1.748	3/8	**YEL 205-100-2F**	3 150	1.8
1 1/8		**P2B 102-WF**	**4 3/8**	**5 1/16**	**1 11/16**	6 1/2	1.756	0.656	3.281	1.185	1.906	1/2	**YEL 206-102-2F**	4 380	2.9
1 3/16		**P2B 103-WF**											**YEL 206-103-2F**	4 380	2.9
1 1/4		**P2B 104-WF**											**YEL 207-104-2F**	5 730	3.6
1 3/8		**P2B 106-WF**	**4 22/32**	**5 5/16**	**1 7/8**	6 9/16	1.803	0.719	3.687	1.272	2.012	1/2	**YEL 207-106-2F**	5 730	3.5
1 7/16		**P2B 107-WF**											**YEL 207-107-2F**	5 730	3.4
1 1/2		**P2B 108-WF**	**5 3/32**	**5 23/32**	**2 1/8**	7 1/4	1.921	0.813	4.094	1.374	2.217	1/2	**YEL 208-108-2F**	6 900	4.9
1 3/4		**P2B 112-WF**	**5 7/16**	**6 1/8**	**2 1/8**	7 15/32	2.016	0.750	4.250	1.374	2.217	1/2	**YEL 209-112-2F**	7 460	5.2
1 15/16		**P2B 115-WF**	**6**	**6 1/2**	**2 1/4**	8 1/8	2.189	0.750	4.563	1.500	2.469	5/8	**YEL 210-115-2F**	7 890	6.3
2		**P2B 200-WF**	**6 15/32**	**6 31/32**	**2 1/2**	8 5/8	2.319	0.875	4.969	1.717	2.811	5/8	**YEL 211-200-2F**	9 800	8.8
2 3/16		**P2B 203-WF**											**YEL 211-203-2F**	9 800	8.3
2 7/16		**P2B 207-WF**	**6 7/8**	**7 5/8**	**2 3/4**	9 7/16	2.425	0.875	5.563	1.843	3.063	5/8	**YEL 212-207-2F**	11 840	10.5
2 15/16		**P2B 215-WF**	**8 3/32**	**8 31/32**	**3 1/4**	10 13/16	2.874	1.000	6.625	1.469	2.937	3/4	**YEL 215-215-2F**	14 900	18.0

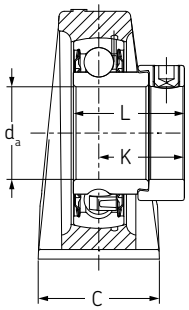
Consult SKF USA Inc. prior to design change or order placement.

P2B-FM / standard duty

Cast-iron housing
Standard center height
Narrow inner ring
Seals

Replaces: P2B-SXV, VAS, P3W, VPE-1, KHP





How to order

Suffix	Insert	Locking type
FM	YET	Eccentric collar – Seals
WF	YEL	Eccentric collar – Seals & flingers
WF-AH	YEL	Eccentric coll., Seals & flingers, AH unit

For bearing information see page **290**.

Shaft size d_a		Unit designation	E min.	E max.	A	B	C	D	H	K	L	Bolt dia	Insert bearing designation	Dynamic capacity C	Mass
in	mm		in									in		lbf	lb
1/2		**P2B 008-FM**	**3 1/8**	**4 1/8**	**1 3/16**	5 15/32	1.268	0.469	2.219	0.870	1.126	3/8	**YET 203-008**	2 150	1.1
5/8		**P2B 010-FM**											**YET 203-010**	2 150	1.0
3/4		**P2B 012-FM**	**3 3/8**	**4 1/8**	**1 5/16**	5	1.339	0.531	2.531	0.925	1.201	3/8	**YET 204-012**	2 850	1.3
	25	**P2B 25M-FM**											**YET 205**	3 150	1.7
7/8		**P2B 014-FM**	**3 3/4**	**4 1/2**	**1 7/16**	5 1/2	1.500	0.625	2.781	0.925	1.220	3/8	**YET 205-014**	3 150	1.8
1		**P2B 100-FM**											**YET 205-100**	3 150	1.7
1 1/8		**P2B 102-FM**											**YET 206-102**	4 380	2.8
1 3/16		**P2B 103-FM**	**4 3/8**	**5 1/16**	**1 11/16**	6 1/2	1.756	0.656	3.281	1.051	1.406	1/2	**YET 206-103**	4 380	2.8
1 1/4		**P2B 104S-FM**											**YET 206-104**	4 380	2.6
1 1/4		**P2B 104-FM**											**YET 207-104**	5 730	3.4
1 3/8		**P2B 106-FM**	**4 22/32**	**5 5/16**	**1 7/8**	6 9/16	1.803	0.719	3.687	1.157	1.531	1/2	**YET 207-106**	5 730	3.3
1 7/16		**P2B 107-FM**											**YET 207-107**	5 730	3.3
1 1/2		**P2B 108-FM**	**5 3/32**	**5 23/32**	**2 1/8**	7 1/4	1.921	0.813	4.094	1.287	1.701	1/2	**YET 208-108**	6 900	4.6
1 11/16		**P2B 111-FM**	**5 7/16**	**6 1/8**	**2 1/8**	7 15/32	2.016	0.750	4.250	1.287	1.720	1/2	**YET 209-111**	7 460	5.1
1 3/4		**P2B 112-FM**											**YET 209-112**	7 460	5.0
1 15/16		**P2B 115-FM**	**6**	**6 1/2**	**2 1/4**	8 1/8	2.189	0.750	4.563	1.287	1.720	5/8	**YET 210-115**	7 890	5.8
2		**P2B 200-FM**	**6 15/32**	**6 31/32**	**2 1/2**	8 5/8	2.319	0.875	4.969	1.413	1.906	5/8	**YET 211-200**	9 800	8.0
2 3/16		**P2B 203-FM**											**YET 211-203**	9 800	7.7

Consult SKF USA Inc. prior to design change or order placement.

Eccentric locking – pillow block

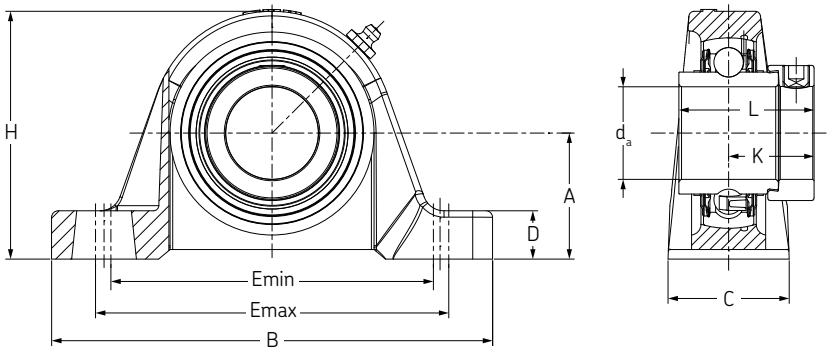
P2BL-WF / standard duty

Cast-iron housing
Low center height
Wide inner ring
Seals & flingers

Replaces: P2B-SXRB, RAK, PL3Y, VPLE-2, UGAK

How to order

Suffix	Insert	Locking type
FM	YET	Eccentric collar – Seals
WF	YEL	Eccentric collar – Seals & flingers
WF-AH	YEL	Eccentric coll., Seals & flingers, AH unit



For bearing information see page **290**.

Shaft size d_a		Unit designation	E min.	E max.	A	B	C	D	H	K	L	Bolt dia	Insert bearing designation	Dynamic capacity C	Mass
in	mm		in									in		lbf	lb
3/4		**P2BL 012-WF**	**3 3/8**	**4 1/8**	**1 1/4**	5	1.339	0.469	2.469	1.047	1.720	3/8	**YEL 204-012-2F**	2 850	1.4
1		**P2BL 100-WF**	**3 3/4**	**4 1/2**	**1 5/16**	5 1/2	1.500	0.500	2.656	1.059	1.748	3/8	**YEL 205-100-2F**	3 150	1.7
1 1/8		**P2BL 102-WF**											**YEL 206-102-2F**	4 380	2.8
1 3/16		**P2BL 103-WF**	**4 3/8**	**5 1/16**	**1 9/16**	6 1/2	1.756	0.531	3.156	1.185	1.906	1/2	**YEL 206-103-2F**	4 380	2.6
1 1/4		**P2BL 104S-WF**											**YEL 206-104-2F**	4 380	2.6
1 1/4		**P2BL 104-WF**											**YEL 207-104-2F**	5 730	3.5
1 3/8		**P2BL 106-WF**	**4 22/32**	**5 5/16**	**1 13/16**	6 9/16	1.803	0.656	3.625	1.272	2.012	1/2	**YEL 207-106-2F**	5 730	3.4
1 7/16		**P2BL 107-WF**											**YEL 207-107-2F**	5 730	3.3
1 1/2		**P2BL 108-WF**	**5 3/32**	**5 23/32**	**1 15/16**	7 1/4	1.921	0.813	4.000	1.374	2.217	1/2	**YEL 208-108-2F**	6 900	4.7
1 3/4		**P2BL 112-WF**	**5 7/16**	**6 1/8**	**2 1/16**	7 15/32	2.016	0.687	4.187	1.374	2.217	1/2	**YEL 209-112-2F**	7 460	5.1
1 15/16		**P2BL 115-WF**	**6**	**6 1/2**	**2 3/16**	8 1/8	2.189	0.687	4.500	1.500	2.469	5/8	**YEL 210-115-2F**	7 890	6.2
2		**P2BL 200-WF**	**6 15/32**	**7 21/64**	**2 7/16**	8 5/8	2.319	0.813	4.906	1.717	2.811	5/8	**YEL 211-200-2F**	9 800	8.6
2 3/16		**P2BL 203-WF**											**YEL 211-203-2F**	9 800	8.0
2 7/16		**P2BL 207-WF**	**6 7/8**	**7 15/16**	**2 11/16**	9 1/2	2.425	0.813	5.500	1.843	3.063	5/8	**YEL 212-207-2F**	11 840	10.4
2 15/16		**P2BL 215-WF**	**8 3/32**	**8 31/32**	**3 5/16**	10 13/16	2.874	1.016	6.686	1.469	2.937	3/4	**YEL 215-215-2F**	14 900	17.1

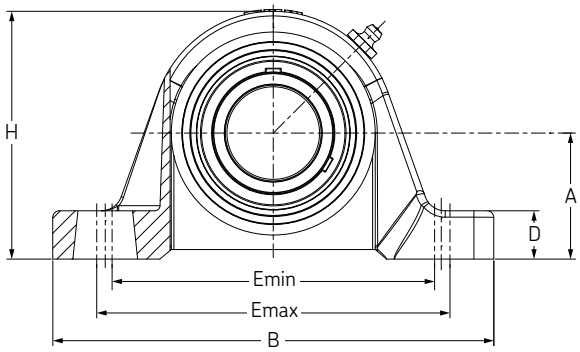
Consult SKF USA Inc. prior to design change or order placement.

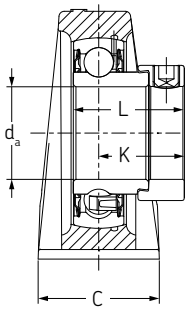
Eccentric locking – pillow block

P2BL-FM / standard duty

Cast-iron housing
Low center height
Narrow inner ring
Seals

Replaces: P2B-SXVB, VAK, PL3W, VPLE-1, KHLP





How to order

Suffix	Insert	Locking type
FM	YET	Eccentric collar – Seals
WF	YEL	Eccentric collar – Seals & flingers
WF-AH	YEL	Eccentric coll., Seals & flingers, AH unit

For bearing information see page **290**.

Shaft size d_a		Unit designation	E min.	E max.	A	B	C	D	H	K	L	Bolt dia	Insert bearing designation	Dynamic capacity C	Mass
in	mm		in									in		lbf	lb
1/2		P2BL 008-FM	3 1/8	4 1/8	1 1/16	5 15/32	1.268	0.344	2.094	0.870	1.126	3/8	YET 203-008	2 150	1.0
5/8		P2BL 010-FM											YET 203-010	2 150	0.9
3/4		P2BL 012-FM	3 3/8	4 1/8	1 1/4	5	1.339	0.469	2.469	0.925	1.201	3/8	YET 204-012	2 850	1.3
7/8		P2BL 014-FM	3 3/4	4 1/2	1 5/16	5 1/2	1.500	0.500	2.656	0.925	1.220	3/8	YET 205-014	3 150	1.7
1		P2BL 100-FM											YET 205-100	3 150	1.6
1 1/8		P2BL 102-FM	4 3/8	5 1/16	1 9/16	6 1/2	1.756	0.531	3.156	1.051	1.406	1/2	YET 206-102	4 380	2.5
1 3/16		P2BL 103-FM											YET 206-103	4 380	2.5
1 1/4		P2BL 104S-FM											YET 206-104	4 380	2.5
1 1/4		P2BL 104-FM	4 22/32	5 5/16	1 13/16	6 9/16	1.803	0.656	3.625	1.157	1.531	1/2	YET 207-104	5 730	3.3
1 3/8		P2BL 106-FM											YET 207-106	5 730	3.2
1 7/16		P2BL 107-FM											YET 207-107	5 730	3.2
1 1/2		P2BL 108-FM	5 3/32	5 23/32	1 15/16	7 1/4	1.921	0.813	4.000	1.287	1.701	1/2	YET 208-108	6 900	4.5
1 11/16		P2BL 111-FM	5 7/16	6 1/8	2 1/16	7 15/32	2.016	0.687	4.187	1.287	1.720	1/2	YET 209-111	7 460	5.0
1 3/4		P2BL 112-FM											YET 209-112	7 460	4.9
1 15/16		P2BL 115-FM	6	6 1/2	2 3/16	8 1/8	2.189	0.687	4.500	1.287	1.720	5/8	YET 210-115	7 890	5.7
2		P2BL 200-FM	6 15/32	7 21/64	2 7/16	8 5/8	2.319	0.813	4.906	1.413	1.906	5/8	YET 211-200	9 800	7.8
2 3/16		P2BL 203-FM											YET 211-203	9 800	7.5

Consult SKF USA Inc. prior to design change or order placement.

Eccentric locking – 4-bolt flange

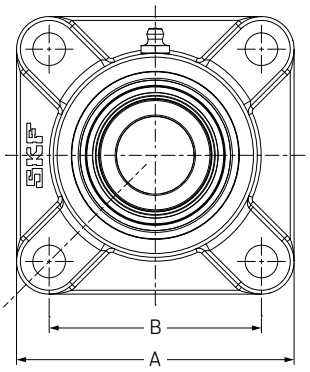
F4B-WF / standard duty

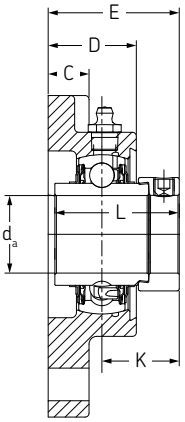
Cast-iron flange
Four-bolt mounting
Wide inner ring
Seals & flingers

Replaces: F4B-SXR, RCJ, F3Y, VF4E-2, UGSLF

How to order

Suffix	Insert	Locking type
FM	YET	Eccentric collar – Seals
WF	YEL	Eccentric collar – Seals & flingers
WF-AH	YEL	Eccentric coll., Seals & flingers, AH unit





For bearing information see page **290**.

Shaft size d_a		Unit designation	A	B	C	D	E	K	L	Bolt dia	Insert bearing designation	Dynamic capacity C	End cover	Mass
in	mm		in							in		lbf		lb
3/4		**F4B 012-WF**	**3 3/8**	**2 1/2**	0.374	1.134	1.677	0.925	1.201	3/8	**YET 204-012**	2 850	ECY 204	1.4
1		**F4B 100-WF**	**3 3/4**	**2 3/4**	0.433	1.228	1.882	1.059	1.748	7/16	**YEL 205-100-2F**	3 150	ECY 205	2.0
1 1/8		**F4B 102-WF**									**YEL 206-102-2F**	4 380	ECY 206	3.1
1 3/16		**F4B 103-WF**	**4 1/4**	**3 1/4**	0.626	1.350	2.008	1.185	1.906	7/16	**YEL 206-103-2F**	4 380	ECY 206	3.0
1 1/4		**F4B 104S-WF**									**YEL 206-104-2F**	4 380	ECY 206	2.9
1 1/4		**F4B 104-WF**									**YEL 207-104-2F**	5 730	ECY 207	4.0
1 3/8		**F4B 106-WF**	**4 5/8**	**3 5/8**	0.500	1.500	2.177	1.272	2.012	1/2	**YEL 207-106-2F**	5 730	ECY 207	3.9
1 7/16		**F4B 107-WF**									**YEL 207-107-2F**	5 730	ECY 207	3.7
1 1/2		**F4B 108-WF**	**5 1/8**	**4**	0.657	1.531	2.374	1.374	2.217	1/2	**YEL 208-108-2F**	6 900	ECY 208	5.3
1 3/4		**F4B 112-WF**	**5 3/8**	**4 1/8**	0.720	1.563	2.374	1.374	2.217	1/2	**YEL 209-112-2F**	7 460	ECY 209	6.0
1 15/16		**F4B 115-WF**	**5 5/8**	**4 3/8**	0.626	1.811	2.642	1.500	2.469	1/2	**YEL 210-115-2F**	7 890	ECY 210	6.7
2		**F4B 200-WF**	**6 3/8**	**5 1/8**	0.689	1.969	2.976	1.717	2.811	5/8	**YEL 211-200-2F**	9 800	ECY 211	10.3
2 3/16		**F4B 203-WF**									**YEL 211-203-2F**	9 800	ECY 211	9.8
2 7/16		**F4B 207-WF**	**6 7/8**	**5 5/8**	0.689	2.157	3.185	1.843	3.063	5/8	**YEL 212-207-2F**	11 840	ECY 212	11.2
2 15/16		**F4B 215-WF**	**7 7/8**	**6**	0.874	2.563	3.764	1.469	2.937	3/4	**YEL 215-215-2F**	14 900	ECY 215	17.9

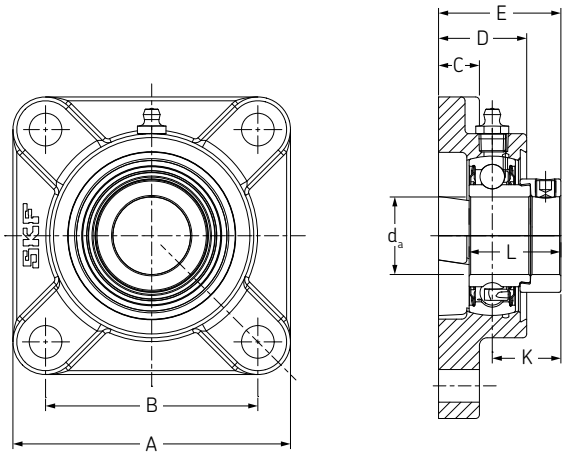
Consult SKF USA Inc. prior to design change or order placement.

Eccentric locking – 4-bolt flange

F4B-FM / standard duty

Cast-iron flange
Four-bolt mounting
Narrow inner ring
Seals

Replaces: F4B-SXV, VCJ, F3W, VF4E-1, KHF



How to order

Suffix	Insert	Locking type
FM	YET	Eccentric collar – Seals
WF	YEL	Eccentric collar – Seals & flingers
WF-AH	YEL	Eccentric coll., Seals & flingers, AH unit

For bearing information see page **290**.

Shaft size d_a		Unit designation	A	B	C	D	E	K	L	Bolt dia	Insert bearing designation	Dynamic capacity C	End cover	Mass
in	mm		in							in		lbf		lb
1/2		**F4B 008-FM**	**3**	**2 1/8**	0.437	1.094	1.528	0.870	1.126	3/8	**YET 203-008**	2 150	–	1.1
5/8		**F4B 010-FM**									**YET 203-010**	2 150	–	1.1
3/4		**F4B 012-FM**	**3 3/8**	**2 1/2**	0.374	1.134	1.677	0.925	1.201	3/8	**YET 204-012**	2 850	ECY 204	1.4
7/8		**F4B 014-FM**	**3 3/4**	**2 3/4**	0.433	1.228	1.748	0.925	1.220	7/16	**YET 205-014**	3 150	ECY 205	1.9
1		**F4B 100-FM**									**YET 205-100**	3 150	ECY 205	1.9
1 1/8		**F4B 102-FM**	**4 1/4**	**3 1/4**	0.626	1.350	1.874	1.051	1.406	7/16	**YET 206-102**	4 380	ECY 206	2.9
1 3/16		**F4B 103-FM**									**YET 206-103**	4 380	ECY 206	2.9
1 1/4		**F4B 104S-FM**									**YET 206-104**	4 380	ECY 206	2.8
1 1/4		**F4B 104-FM**	**4 5/8**	**3 5/8**	0.500	1.500	2.063	1.157	1.531	1/2	**YET 207-104**	5 730	ECY 207	3.7
1 3/8		**F4B 106-FM**									**YET 207-106**	5 730	ECY 207	3.6
1 7/16		**F4B 107-FM**									**YET 207-107**	5 730	ECY 207	3.6
1 1/2		**F4B 108-FM**	**5 1/8**	**4**	0.657	1.531	2.287	1.287	1.701	1/2	**YET 208-108**	6 900	ECY 208	5.1
1 11/16		**F4B 111-FM**	**5 3/8**	**4 1/8**	0.720	1.563	2.287	1.287	1.720	1/2	**YET 209-111**	7 460	ECY 209	5.7
1 3/4		**F4B 112-FM**									**YET 209-112**	7 460	ECY 209	5.6
1 15/16		**F4B 115-FM**	**5 5/8**	**4 3/8**	0.626	1.811	2.429	1.287	1.720	1/2	**YET 210-115**	7 890	ECY 210	6.3
2		**F4B 200-FM**	**6 3/8**	**5 1/8**	0.689	1.969	2.673	1.413	1.906	5/8	**YET 211-200**	9 800	ECY 211	9.5
2 3/16		**F4B 203-FM**									**YET 211-203**	9 800	ECY 211	9.2

Consult SKF USA Inc. prior to design change or order placement.

Eccentric locking – 2-bolt flange

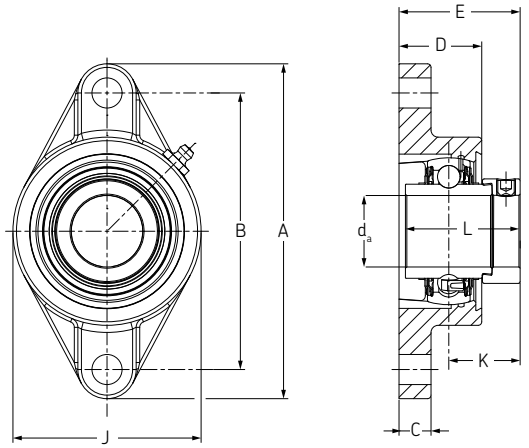
F2B-WF / standard duty

Cast-iron flange
Two-bolt mounting
Wide inner ring
Seals & flingers

Replaces: F2B-SXR, RCJT, FX3Y, VF2E-2, UGFJT

How to order

Suffix	Insert	Locking type
FM	YET	Eccentric collar – Seals
WF	YEL	Eccentric collar – Seals & flingers
WF-AH	YEL	Eccentric coll., Seals & flingers, AH unit



For bearing information see page **290**.

Shaft size d_a		Unit designation	A	B	C	D	E	J	K	L	Bolt dia	Insert bearing designation	Dynamic capacity C	End cover	Mass
in	mm		in								in		lbf		lb
3/4	20	**F2B 012-WF** **F2B 20M-WF**	**4 7/16**	**3 17/32**	0.437	1.142	1.795	2.374	1.047	1.720	3/8	YEL 204-012-2F YEL 204-2F	2 850 2 850	ECY 204 ECY 204	1.1 1.1
1	25	**F2B 100-WF** **F2B 25M-WF**	**4 7/8**	**3 7/8**	0.531	1.165	1.807	2.752	1.059	1.748	7/16	YEL 205-100-2F YEL 205-2F	3 150 3 150	ECY 205 ECY 205	1.5 1.5
1 1/8 1 3/16		**F2B 102-WF** **F2B 103-WF**	**5 9/16**	**4 19/32**	0.531	1.374	2.012	3.126	1.185	1.905	7/16	YEL 206-102-2F YEL 206-103-2F	4 380 4 380	ECY 206 ECY 206	2.3 2.2
1 1/4 1 3/8 1 7/16		**F2B 104-WF** **F2B 106-WF** **F2B 107-WF**	**6 1/8**	**5 1/8**	0.563	1.469	2.177	3.626	1.272	2.012	1/2	YEL 207-104-2F YEL 207-106-2F YEL 207-107-2F	5 730 5 730 5 730	ECY 207 ECY 207 ECY 207	3.2 3.1 3.0
1 1/2	40	**F2B 108-WF** **F2B 40M-WF**	**6 3/4**	**5 21/32**	0.563	1.531	2.358	4.126	1.374	2.216	1/2	YEL 208-108-2F YEL 208-2F	6 900 6 900	ECY 208 ECY 208	4.2 4.1
1 3/4		**F2B 112-WF**	**7 1/16**	**5 27/32**	0.563	1.752	2.358	4.374	1.374	2.216	1/2	YEL 209-112-2F	7 460	ECY 209	5.0
1 15/16		**F2B 115-WF**	**7 7/16**	**6 3/16**	0.563	1.843	2.681	4.563	1.500	2.468	1/2	YEL 210-115-2F	7 890	ECY 210	5.5
2 2 3/16		**F2B 200-WF** **F2B 203-WF**	**8 1/2**	**7 1/4**	0.811	1.969	3.016	5.252	1.717	2.811	5/8	YEL 211-200-2F YEL 211-203-2F	9 800 9 800	ECY 211 ECY 211	8.6 8.0

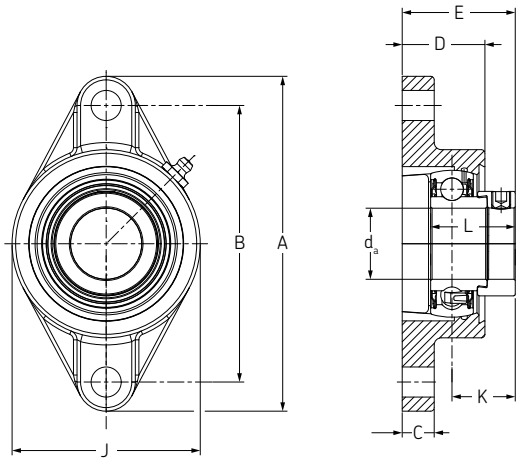
Consult SKF USA Inc. prior to design change or order placement.

Eccentric locking – 2-bolt flange

F2B-FM / standard duty

Cast-iron flange
Two-bolt mounting
Narrow inner ring
Seals

Replaces: F2B-SXV, VCJT, FX3W, VF2E-1, KHFT



How to order

Suffix	Insert	Locking type
FM	YET	Eccentric collar – Seals
WF	YEL	Eccentric collar – Seals & flingers
WF-AH	YEL	Eccentric coll., Seals & flingers, AH unit

For bearing information see page **290**.

Shaft size d_a		Unit designation	A	B	C	D	E	J	K	L	Bolt dia	Insert bearing designation	Dynamic capacity C	End cover	Mass
in	mm		in								in		lbf		lb
1/2		**F2B 008-FM**	**3 7/8**	**3**	0.437	0.945	1.539	2.374	0.870	1.126	3/8	**YET 203-008**	2 150	-	0.9
5/8		**F2B 010-FM**										**YET 203-010**	2 150	-	0.9
3/4		**F2B 012-FM**	**4 7/16**	**3 17/32**	0.437	1.142	1.673	2.374	0.925	1.201	3/8	**YET 204-012**	2 850	ECY 204	1.1
7/8		**F2B 014-FM**	**4 7/8**	**3 7/8**	0.531	1.165	1.673	2.752	0.925	1.220	7/16	**YET 205-014**	3 150	ECY 205	1.5
1		**F2B 100-FM**										**YET 205-100**	3 150	ECY 205	1.4
1 1/8		**F2B 102-FM**	**5 9/16**	**4 19/32**	0.531	1.374	1.878	3.126	1.051	1.405	7/16	**YET 206-102**	4 380	ECY 206	2.1
1 3/16		**F2B 103-FM**										**YET 206-103**	4 380	ECY 206	2.1
1 1/4		**F2B 104S-FM**										**YET 206-104**	4 380	ECY 206	2.0
	30	**F2B 30M-FM**										**YET 206**	4 380	ECY 206	2.1
1 1/4		**F2B 104-FM**	**6 1/8**	**5 1/8**	0.563	1.469	2.063	3.626	1.157	1.531	1/2	**YET 207-104**	5 730	ECY 207	3.0
1 3/8		**F2B 106-FM**										**YET 207-106**	5 730	ECY 207	2.9
1 7/16		**F2B 107-FM**										**YET 207-107**	5 730	ECY 207	2.9
1 1/2		**F2B 108-FM**	**6 3/4**	**5 21/32**	0.563	1.531	2.272	4.126	1.287	1.701	1/2	**YET 208-108**	6 900	ECY 208	4.0
1 11/16		**F2B 111-FM**	**7 1/16**	**5 27/32**	0.563	1.752	2.272	4.374	1.287	1.72	1/2	**YET 209-111**	7 460	ECY 209	4.9
1 3/4		**F2B 112-FM**										**YET 209-112**	7 460	ECY 209	4.7
1 15/16		**F2B 115-FM**	**7 7/16**	**6 3/16**	0.563	1.843	2.469	4.563	1.287	1.72	1/2	**YET 210-115**	7 890	ECY 210	5.1
2		**F2B 200-FM**	**8 1/2**	**7 1/4**	0.811	1.969	2.713	5.252	1.413	1.905	5/8	**YET 211-200**	9 800	ECY 211	7.8
2 3/16		**F2B 203-FM**										**YET 211-203**	9 800	ECY 211	7.5

Consult SKF USA Inc. prior to design change or order placement.

Eccentric locking – tapped base unit

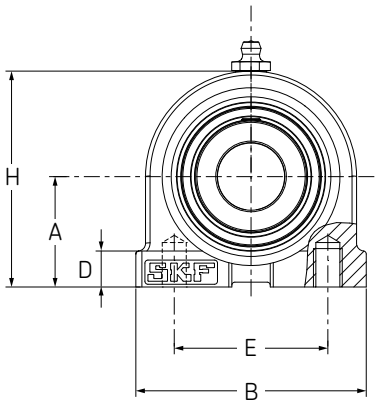
P2BT-WF / standard duty

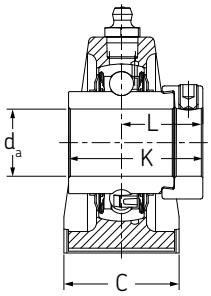
Cast-iron housing
Threaded base
Wide inner ring
Seals & flingers

Replaces: TB-SXR, RTB, PT3Y, VTBE-2, UGTB

How to order

Suffix	Insert	Locking type
FM	YET	Eccentric collar – Seals
WF	YEL	Eccentric collar – Seals & flingers
WF-AH	YEL	Eccentric coll., Seals & flingers, AH unit





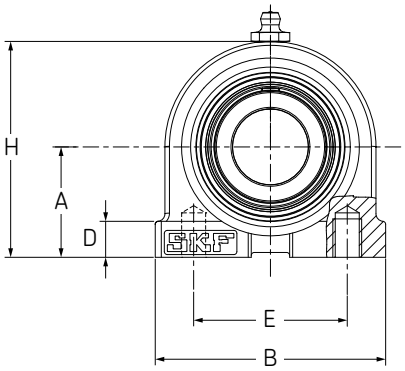
For bearing information see page **290**.

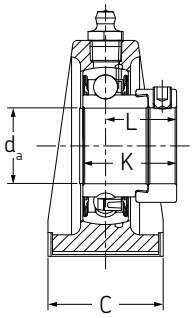
Shaft size d_a		Unit designation	E	A	B	C	D	H	K	L	Bolt dia	Insert bearing designation	Dynamic capacity C	Mass
in	mm		in								in		lbf	lb
3/4		**P2BT 012-WF**	2	1 5/16	2 7/8	1.500	0.437	2.563	1.047	1.720	3/8-16 UNC	**YEL 204-012-2F**	2 850	1.4
7/8		**P2BT 014-WF**										**YEL 205-014-2F**	3 150	1.7
15/16		**P2BT 015-WF**	2	1 7/16	3	1.500	0.469	2.811	1.059	1.748	3/8-16 UNC	**YEL 205-015-2F**	3 150	1.6
1		**P2BT 100-WF**										**YEL 205-100-2F**	3 150	1.6
1 1/16		**P2BT 101-WF**										**YEL 206-101-2F**	4 380	2.9
1 1/8		**P2BT 102-WF**	3	1 11/16	4	1.500	0.469	3.374	1.185	1.906	7/16-14 UNC	**YEL 206-102-2F**	4 380	2.9
1 3/16		**P2BT 103-WF**										**YEL 206-103-2F**	4 380	2.8
1 1/4		**P2BT 104S-WF**										**YEL 206-104-2F**	4 380	2.6
1 1/4		**P2BT 104-WF**										**YEL 207-104-2F**	5 730	3.9
1 5/16		**P2BT 105-WF**	3 1/4	1 7/8	4 1/4	1.874	0.500	3.752	1.272	2.012	1/2-13 UNC	**YEL 207-105-2F**	5 730	3.9
1 3/8		**P2BT 106-WF**										**YEL 207-106-2F**	5 730	3.7
1 7/16		**P2BT 107-WF**										**YEL 207-107-2F**	5 730	3.6
1 1/2		**P2BT 108-WF**	3 1/2	1 15/16	4 5/8	1.874	0.500	3.937	1.374	2.217	1/2-13 UNC	**YEL 208-108-2F**	6 900	4.4
1 5/8		**P2BT 110-WF**										**YEL 209-110-2F**	7 460	5.3
1 11/16		**P2BT 111-WF**	3 3/4	2 1/8	5	2.000	0.500	4.248	1.374	2.217	1/2-13 UNC	**YEL 209-111-2F**	7 460	5.2
1 3/4		**P2BT 112-WF**										**YEL 209-112-2F**	7 460	5.1
1 15/16		**P2BT 115-WF**	4	2 1/4	5 1/2	2.000	0.563	4.626	1.500	2.469	5/8-11 UNC	**YEL 210-115-2F**	7 890	6.3

Consult SKF USA Inc. prior to design change or order placement.

Eccentric locking – tapped base unit

P2BT-FM / standard duty





Cast-iron housing
Threaded base
Narrow inner ring
Seals

Replaces: TB-SXV, VTB, PT3W, VTBE-1, KHTB

How to order

Suffix	Insert	Locking type
FM	YET	Eccentric collar – Seals
WF	YEL	Eccentric collar – Seals & flingers
WF-AH	YEL	Eccentric coll., Seals & flingers, AH unit

For bearing information see page **290**.

Shaft size d_a		Unit designation	E	A	B	C	D	H	K	L	Bolt dia	Insert bearing designation	Dynamic capacity C	Mass
in	mm		in								in		lbf	lb
3/4		**P2BT 012-FM**	2	1 5/16	2 7/8	1.500	0.437	2.563	0.925	1.201	3/8-16 UNC	**YET 204-012**	2 850	1.3
7/8		**P2BT 014-FM**	2	1 7/16	3	1.500	0.469	2.811	0.925	1.220	3/8-16 UNC	**YET 205-014**	3 150	1.5
15/16		**P2BT 015-FM**										**YET 205-015**	3 150	1.5
1		**P2BT 100-FM**										**YET 205-100**	3 150	1.5
	25	**P2BT 25M-FM**										**YET 205**	3 150	1.5
1 1/16		**P2BT 101-FM**	3	1 11/16	4	1.500	0.469	3.374	1.051	1.406	7/16-14 UNC	**YET 206-101**	4 380	2.8
1 1/8		**P2BT 102-FM**										**YET 206-102**	4 380	2.6
1 3/16		**P2BT 103-FM**										**YET 206-103**	4 380	2.6
1 1/4		**P2BT 104S-FM**										**YET 206-104**	4 380	2.5
1 1/4		**P2BT 104-FM**	3 1/4	1 7/8	4 1/4	1.874	0.500	3.752	1.157	1.531	1/2-13 UNC	**YET 207-104**	5 730	3.6
1 5/16		**P2BT 105-FM**										**YET 207-105**	5 730	3.6
1 3/8		**P2BT 106-FM**										**YET 207-106**	5 730	3.5
1 7/16		**P2BT 107-FM**										**YET 207-107**	5 730	3.5
1 1/2		**P2BT 108-FM**	3 1/2	1 15/16	4 5/8	1.874	0.500	3.937	1.287	1.701	1/2-13 UNC	**YET 208-108**	6 900	4.2
1 5/8		**P2BT 110-FM**	3 3/4	2 1/8	5	2.000	0.500	4.248	1.287	1.720	1/2-13 UNC	**YET 209-110**	7 460	5.1
1 11/16		**P2BT 111-FM**										**YET 209-111**	7 460	5.0
1 3/4		**P2BT 112-FM**										**YET 209-112**	7 460	4.9
1 15/16		**P2BT 115-FM**	4	2 1/4	5 1/2	2.000	0.563	4.626	1.287	1.720	5/8-11 UNC	**YET 210-115**	7 890	5.8

Consult SKF USA Inc. prior to design change or order placement.

Eccentric locking – take-up unit

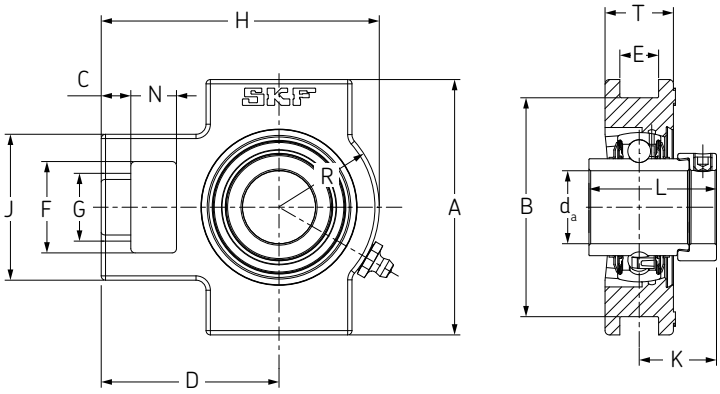
WSTU-WF / standard duty

Cast-iron housing
Wide slot
Wide inner ring
Seals & flingers

Replaces: WSTU-SXR, RTU, TH3Y, VTWE-2

How to order

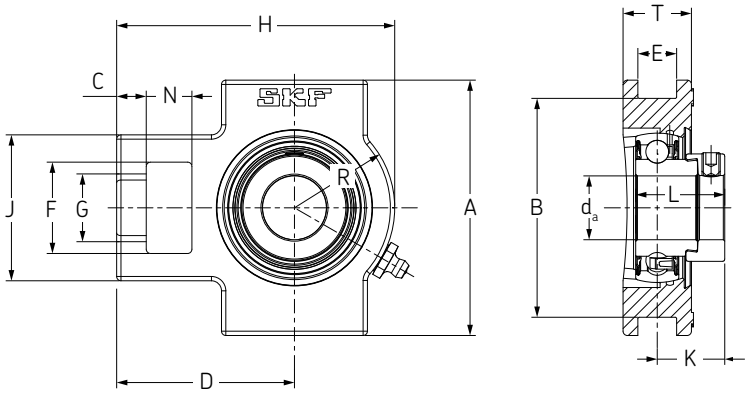
Suffix	Insert	Locking type
FM	YET	Eccentric collar – Seals
WF	YEL	Eccentric collar – Seals & flingers
WF-AH	YEL	Eccentric coll., Seals & flingers, AH unit



For bearing information see page **290**.

Shaft size d_a		Unit designation	A	B	C	D	E	F	G	H	J	K	L	N	T	Insert bearing designation	Dynamic End cover capacity C		Mass
in	mm		in														lbf		lb
3/4		**WSTU 012-WF**	3.50	3.00	0.41	2.41	0.53	1.25	0.69	3.72	2.00	1.05	1.20	0.63	0.81	**YEL 204-012-2F**	2 850	ECY 204	1.7
1		**WSTU 100-WF**	3.50	3.00	0.41	2.44	0.53	1.25	0.69	3.81	2.00	1.06	1.22	0.63	0.94	**YEL 205-100-2F**	3 150	ECY 205	1.9
1 1/8		**WSTU 102-WF**														**YEL 206-102-2F**	4 380	ECY 206	3.0
1 3/16		**WSTU 103-WF**	4.03	3.50	0.41	2.75	0.53	1.47	0.81	4.44	2.22	1.19	1.41	0.63	1.09	**YEL 206-103-2F**	4 380	ECY 206	2.9
1 1/4		**WSTU 104S-WF**														**YEL 206-104-2F**	4 380	ECY 206	2.8
1 1/4		**WSTU 104-WF**														**YEL 207-104-2F**	5 730	ECY 207	3.7
1 3/8		**WSTU 106-WF**	4.03	3.50	0.50	3.06	0.53	1.47	0.81	5.07	2.53	1.27	1.53	0.63	1.19	**YEL 207-106-2F**	5 730	ECY 207	3.6
1 7/16		**WSTU 107-WF**														**YEL 207-107-2F**	5 730	ECY 207	3.5
1 1/2		**WSTU 108-WF**	4.50	4.02	0.63	3.47	0.69	1.94	1.10	5.69	3.28	1.37	1.70	0.75	1.31	**YEL 208-108-2F**	6 900	ECY 208	5.5
1 3/4		**WSTU 112-WF**	4.59	4.02	0.63	3.44	0.69	1.94	1.10	5.69	3.28	1.37	1.72	0.83	1.37	**YEL 209-112-2F**	7 460	ECY 209	5.4
1 15/16		**WSTU 115-WF**	4.59	4.02	0.63	3.53	0.69	1.94	1.10	5.84	3.28	1.50	1.72	0.75	1.47	**YEL 210-115-2F**	7 890	ECY 210	6.0
2		**WSTU 200-WF**	5.75	5.13	0.75	4.19	1.06	2.53	1.37	6.75	4.03	1.72	1.91	1.00	1.50	**YEL 211-200-2F**	9 800	ECY 211	9.4
2 3/16		**WSTU 203-WF**														**YEL 211-203-2F**	9 800	ECY 211	8.8

Consult SKF USA Inc. prior to design change or order placement.



WSTU-FM / standard duty

Cast-iron housing
Wide slot
Narrow inner ring
Seals

Replaces: WSTU-SXV, VTU, TH3W, VTWE-1

How to order

Suffix	Insert	Locking type
FM	YET	Eccentric collar – Seals
WF	YEL	Eccentric collar – Seals & flingers
WF-AH	YEL	Eccentric coll., Seals & flingers, AH unit

For bearing information see page **290**.

Shaft size d_a		Unit designation	A	B	C	D	E	F	G	H	J	K	L	N	T	Insert bearing designation	Dynamic End cover capacity C		Mass
in	mm		in														lbf		lb
3/4		**WSTU 012-FM**	3.50	3.00	0.41	2.41	0.53	1.25	0.69	3.72	2.00	0.93	2.00	0.63	0.81	**YET 204-012**	2 850	ECY 204	1.6
7/8		**WSTU 014-FM**	3.50	3.00	0.41	2.44	0.53	1.25	0.69	3.81	2.00	0.93	2.00	0.63	0.94	**YET 205-014**	3 150	ECY 205	1.8
1		**WSTU 100-FM**														**YET 205-100**	3 150	ECY 205	1.7
1 1/8		**WSTU 102-FM**														**YET 206-102**	4 380	ECY 206	2.8
1 3/16		**WSTU 103-FM**	4.03	3.50	0.41	2.75	0.53	1.47	0.81	4.44	2.22	1.05	2.25	0.63	1.09	**YET 206-103**	4 380	ECY 206	2.8
1 1/4		**WSTU 104S-FM**														**YET 206-104**	4 380	ECY 206	2.6
1 1/4		**WSTU 104-FM**														**YET 207-104**	5 730	ECY 207	3.5
1 3/8		**WSTU 106-FM**	4.03	3.50	0.50	3.06	0.53	1.47	0.81	5.07	2.53	1.16	2.53	0.63	1.19	**YET 207-106**	5 730	ECY 207	3.4
1 7/16		**WSTU 107-FM**														**YET 207-107**	5 730	ECY 207	3.4
1 1/2		**WSTU 108-FM**	4.50	4.02	0.63	3.47	0.69	1.94	1.10	5.69	3.28	1.29	3.28	0.75	1.31	**YET 208-108**	6 900	ECY 208	5.3
1 11/16		**WSTU 111-FM**	4.59	4.02	0.63	3.44	0.69	1.94	1.10	5.69	3.28	1.29	3.28	0.83	1.37	**YET 209-111**	7 460	ECY 209	5.3
1 3/4		**WSTU 112-FM**														**YET 209-112**	7 460	ECY 209	5.2
1 15/16		**WSTU 115-FM**	4.59	4.02	0.63	3.53	0.69	1.94	1.10	5.84	3.28	1.29	3.37	0.75	1.47	**YET 210-115**	7 890	ECY 210	5.5
2		**WSTU 200-FM**	5.75	5.13	0.75	4.19	1.06	2.53	1.37	6.75	4.03	1.41	3.75	1.00	1.50	**YET 211-200**	9 800	ECY 211	8.6
2 3/16		**WSTU 203-FM**														**YET 211-203**	9 800	ECY 211	8.3

Consult SKF USA Inc. prior to design change or order placement.

Eccentric locking – pillow block

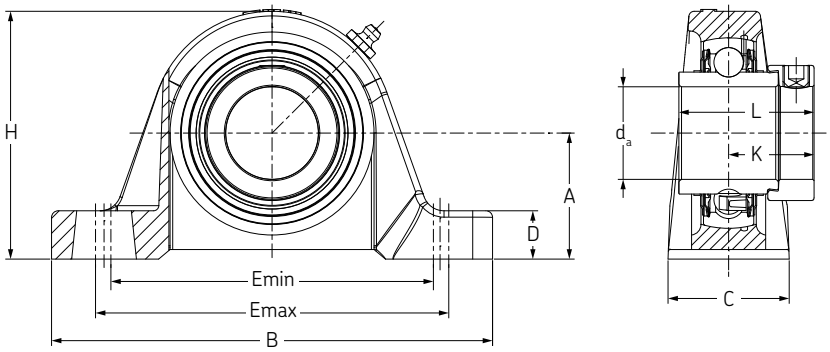
P2B-WF-AH, P2BL-WF-AH / standard duty

Air handling (AH) Cast-iron housing
Wide inner ring Seals & flingers
Standard center height and low center height

Replaces (standard height): P2B-SXRAH, VPE-2 AH, UGP-AM
Replaces (low height): P2B-SXRBAH, VPLE-2 AH, UGAK-AM

How to order

Suffix	Insert	Locking type
FM	YET	Eccentric collar – Seals
WF	YEL	Eccentric collar – Seals & flingers
WF-AH	YEL	Eccentric coll., Seals & flingers, AH unit



For bearing information see page **290**.

Shaft size d_a		Unit designation	E min.	E max.	A	B	C	D	H	K	L	Bolt dia	Insert bearing designation*	Dynamic capacity C	Mass
in	mm		in									in		lbf	lb
3/4		**P2B 012-WF-AH**	**3 3/8**	**4 1/8**	**1 5/16**	5	1.339	0.531	2.531	1.047	1.720	3/8	**YEL 204-012-2F-AH**	2 850	1.4
1 3/16		**P2B 103-WF-AH**	**4 3/8**	**5 1/16**	**1 11/16**	6 1/2	1.756	0.656	3.281	1.185	1.906	1/2	**YEL 206-103-2F-AH**	4 380	2.9
1		**P2BL 100-WF-AH**	**3 3/4**	**4 1/2**	**1 5/16**	5 1/2	1.500	0.500	2.656	1.059	1.748	3/8	**YEL 205-100-2F-AH**	3 150	1.7
1 1/8		**P2BL 102-WF-AH**	**4 3/8**	**5 1/16**	**1 9/16**	6 1/2	1.756	0.531	3.156	1.185	1.906	1/2	**YEL 206-102-2F-AH**	4 380	2.8
1 3/16		**P2BL 103-WF-AH**											**YEL 206-103-2F-AH**	4 380	2.6
1 1/4		**P2BL 104-WF-AH**	**4 22/32**	**5 5/16**	**1 13/16**	6 9/16	1.803	0.656	3.625	1.272	2.012	1/2	**YEL 207-104-2F-AH**	5 730	3.5
1 7/16		**P2BL 107-WF-AH**											**YEL 207-107-2F-AH**	5 730	3.3
1 1/2		**P2BL 108-WF-AH**	**5 3/32**	**5 23/32**	**1 15/16**	7 1/4	1.921	0.813	4.000	1.374	2.217	1/2	**YEL 208-108-2F-AH**	6 900	4.7
1 3/4		**P2BL 112-WF-AH**	**5 7/16**	**6 1/8**	**2 1/16**	7 15/32	2.016	0.687	4.187	1.374	2.217	1/2	**YEL 209-112-2F-AH**	7 460	5.1
1 15/16		**P2BL 115-WF-AH**	**6**	**6 1/2**	**2 3/16**	8 1/8	2.189	0.687	4.500	1.500	2.469	5/8	**YEL 210-115-2F-AH**	7 890	6.2
2 3/16		**P2BL 203-WF-AH**	**6 15/32**	**7 21/64**	**2 7/16**	8 5/8	2.319	0.813	4.906	1.717	2.811	5/8	**YEL 211-203-2F-AH**	9 800	8.0

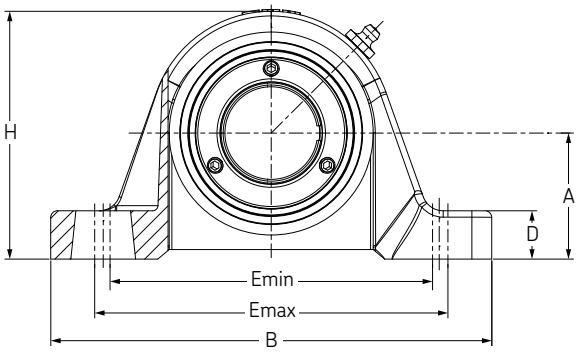
* AH bearings with anti-rotation pin not sold separately

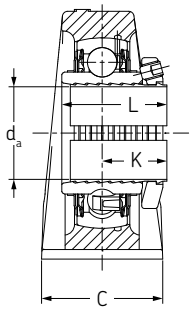
Consult SKF USA Inc. prior to design change or order placement.

P2B-LF-AH / standard duty

Air handling (AH)
Standard center height
Cast-iron housing
ConCentra locking
Seals & flingers

Replaces: P2B-DLAH, RASC, NP-T, P3CL, VPB-AH, UEP-AM





How to order

Suffix	Insert	Locking type
LF	YSP	Concentric collar – Air handling unit, Seals & flingers

For bearing information see page **290**.

Shaft size d_a		Unit designation	E min.	E max.	A	B	C	D	H	K	L	Bolt dia	Insert bearing designation*	Dynamic capacity C	Mass
in	mm		in									in		lbf	lb
1		**P2B 100-LF-AH**	**3 3/4**	**4 1/2**	1 7/16	5 1/2	1.500	0.625	2.781	0.835	1.307	3/8	**YSP 205-100 SB-2F-AH**	3 150	1.7
1 3/16		**P2B 103-LF-AH**	**4 3/8**	**5 1/16**	1 11/16	6 1/2	1.756	0.656	3.281	0.913	1.465	1/2	**YSP 206-103 SB-2F-AH**	4 380	2.6
1 1/4		**P2B 104-LF-AH**											**YSP 207-104 SB-2F-AH**	5 730	3.4
1 3/8		**P2B 106-LF-AH**	**4 22/32**	**5 5/16**	1 7/8	6 9/16	1.803	0.719	3.687	0.965	1.563	1/2	**YSP 207-106 SB-2F-AH**	5 730	3.3
1 7/16		**P2B 107-LF-AH**											**YSP 207-107 SB-2F-AH**	5 730	3.3
1 1/2		**P2B 108-LF-AH**	**5 3/32**	**5 23/32**	2 1/8	7 1/4	1.921	0.813	4.094	1.031	1.697	1/2	**YSP 208-108 SB-2F-AH**	6 900	4.6
1 15/16		**P2B 115-LF-AH**	**6**	**6 1/2**	2 1/4	8 1/8	2.189	0.750	4.563	1.091	1.819	5/8	**YSP 210-115 SB-2F-AH**	7 890	5.8
2 3/16		**P2B 203-LF-AH**	**6 15/32**	**6 31/32**	2 1/2	8 5/8	2.319	0.875	4.969	1.150	1.937	5/8	**YSP 211-203 SB-2F-AH**	9 800	7.7
2 7/16		**P2B 207-LF-AH**	**6 7/8**	**7 5/8**	2 3/4	9 7/16	2.425	0.875	5.563	1.201	2.035	5/8	**YSP 212-207 SB-2F-AH**	11 840	9.6

* AH bearings with anti-rotation pin not sold separately

Consult SKF USA Inc. prior to design change or order placement.

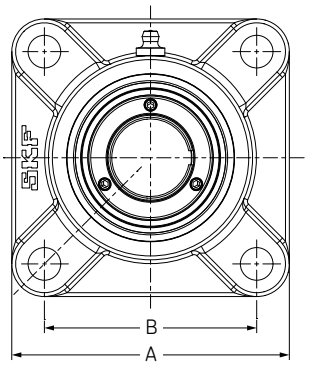
ConCentra™ locking – 4-bolt flange

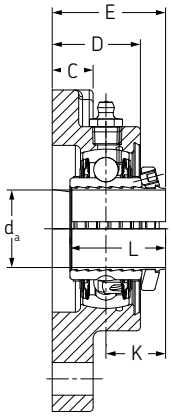
F4B-LF-AH / standard duty

Air handling (AH)
Four-bolt mounting
Seals & flingers

Cast-iron flange
ConCentra locking

Replaces: F4B-DLAH, RCJC, SF-T, F3CL, VF4B-2 AH, UEF-AM





How to order

Suffix	Insert	Locking type
LF	YSP	Concentric collar – Air handling unit, Seals & flingers

For bearing information see page **290**.

Shaft size d_a		Unit designation	A	B	C	D	E	K	L	Bolt dia	Insert bearing designation*	Dynamic capacity C	End cover	Mass
in	mm		in							in		lbf		lb
1		**F4B 100-LF-AH**	**3 3/4**	**2 3/4**	0.433	1.228	1.661	0.835	1.307	7/16	**YSP 205-100 SB-2F-AH**	3 150	ECY 205	1.8
1 3/16		**F4B 103-LF-AH**	**4 1/4**	**3 1/4**	0.626	1.350	1.740	0.913	1.465	7/16	**YSP 206-103 SB-2F-AH**	4 380	ECY 206	2.8
1 1/4		**F4B 104-LF-AH**									**YSP 207-104 SB-2F-AH**	5 730	ECY 207	3.7
1 3/8		**F4B 106-LF-AH**	**4 5/8**	**3 5/8**	0.500	1.500	1.870	0.965	1.563	1/2	**YSP 207-106 SB-2F-AH**	5 730	ECY 207	3.6
1 7/16		**F4B 107-LF-AH**									**YSP 207-107 SB-2F-AH**	5 730	ECY 207	3.6
1 1/2		**F4B 108-LF-AH**	**5 1/8**	**4**	0.657	1.531	2.016	1.031	1.697	1/2	**YSP 208-108 SB-2F-AH**	6 900	ECY 208	5.1
1 15/16		**F4B 115-LF-AH**	**5 5/8**	**4 3/8**	0.626	1.811	2.232	1.091	1.819	1/2	**YSP 210-115 SB-2F-AH**	7 890	ECY 210	6.3

* AH bearings with anti-rotation pin not sold separately

Consult SKF USA Inc. prior to design change or order placement.

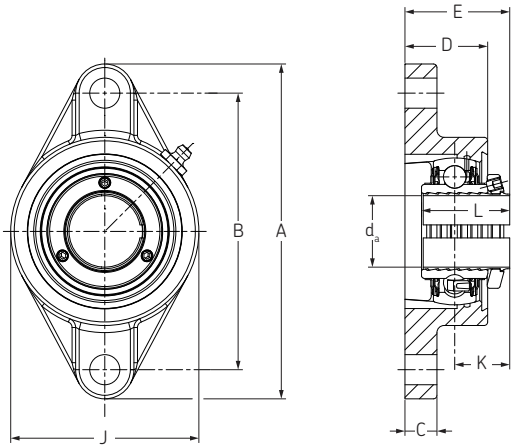
ConCentra™ locking – 2-bolt flange

F2B-LF-AH / standard duty

Air handling (AH)
Two-bolt mounting

Cast-iron housing
ConCentra locking
Seals & flingers

Replaces: F2B-DLAH, RCJTC, SFT-T, FX3CL, VF2B-2 AH, UEFT-AM



How to order

Suffix	Insert	Locking type
LF	YSP	Concentric collar – Air handling unit, Seals & flingers

For bearing information see page **290**.

Shaft size d_a	Unit designation	A	B	C	D	E	J	K	L	Bolt dia	Insert bearing designation*	Dynamic capacity C	End cover	Mass
in		in								in		lbf		lb
1	**F2B 100-LF-AH**	**4 7/8**	**3 7/8**	0.531	1.165	1.583	2.752	0.835	1.307	7/16	**YSP 205-100 SB-2F-AH**	3 150	ECY 205	1.4
1 3/16	**F2B 103-LF-AH**	**5 9/16**	**4 19/32**	0.531	1.374	1.740	3.126	0.913	1.465	7/16	**YSP 206-103 SB-2F-AH**	4 380	ECY 206	2.0
1 1/4	**F2B 104-LF-AH**										**YSP 207-104 SB-2F-AH**	5 730	ECY 207	3.0
1 3/8	**F2B 106-LF-AH**	**6 1/8**	**5 1/8**	0.563	1.469	1.870	3.626	0.965	1.563	1/2	**YSP 207-106 SB-2F-AH**	5 730	ECY 207	2.9
1 7/16	**F2B 107-LF-AH**										**YSP 207-107 SB-2F-AH**	5 730	ECY 207	2.8
1 1/2	**F2B 108-LF-AH**	**6 3/4**	**5 21/32**	0.563	1.531	2.016	4.126	1.031	1.697	1/2	**YSP 208-108 SB-2F-AH**	6 900	ECY 208	4.0

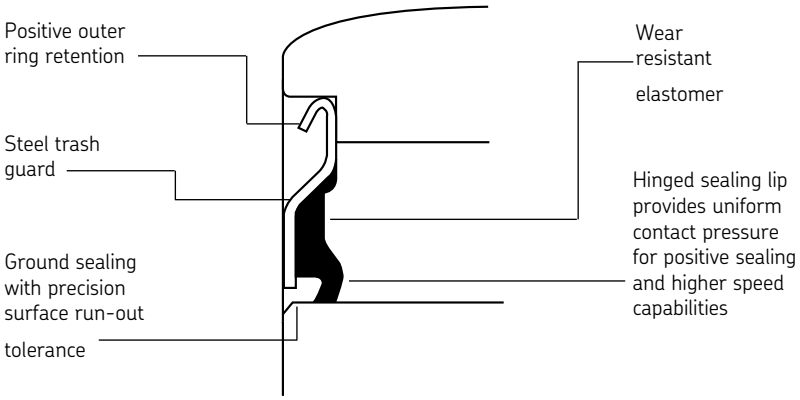
* AH bearings with anti-rotation pin not sold separately

Notes

Seals and grease – the basic protection

Seals

- The pressed steel washer or guard forms a narrow gap with the cylindrical surface of the inner ring shoulder providing protection against larger contaminants.
- A synthetic rubber lip is bonded to a pressed steel washer. This provides protection against small contaminants. It also retains the grease and allows for grease purging.



Long life grease

The standard SKF grease is a special, long life grease with a lithium/calcium thickener/ soap, and an NLGI #2 consistency.

Properties

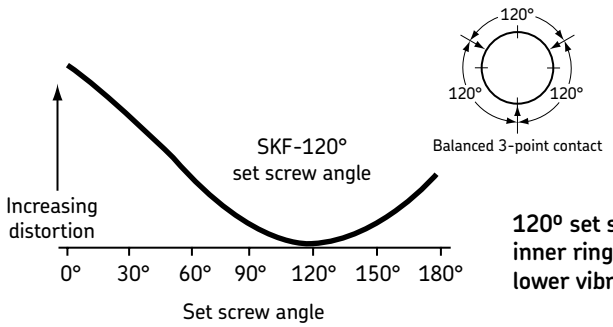
- High level of mechanical stability even in the most severe conditions
- Very good extreme pressure and anti-wear properties
- Very good water resistance
- Very good anti-rust and anti-corrosion protection
- Exceptional characteristics at both high and low temperatures

Grease characteristics	
Base	Lithium-Calcium
Application temperature	-20° to 250 F (-29° to 121° C)
NLGI	2
Viscosity at 100° F (40° C)	900 SUS (190 cSt)
Dropping point	389° F

Set screw locking method

Set screw locking features two set screws 120° apart. This placement of the set screws maximizes holding power while minimizing inner ring distortion. Other factors such as: zone hardening of the bearing inner ring, drilling and tapping after heat treat, proper screw length, a knurled cup point set screw and forged set screw socket have been incorporated to further enhance holding power and vibration resistance (backout).

Inner ring distortion vs. angle between set screws



120° set screw spacing minimizes inner ring distortion. This results in lower vibration and better sealing.

Insert bearing types

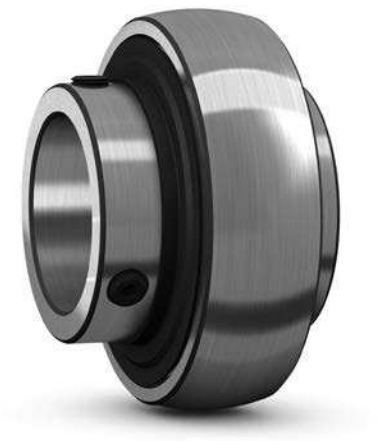
SKF wide inner ring insert bearings are based on the design of the 62(00) series deep groove ball bearing. They share the same materials, high precision and high quality manufacturing processes. Rings and steel balls are made of SAE 52100 bearing steel. Raceways are hardened, ground, and honed. Steel balls are a high precision grade #10. Cages are a molded, glass fiber reinforced polyamide. The standard seal is a positive contact, land riding seal with an integral trash guard.

Bearings are prelubricated with an optimum fill of a special, long life grease with a lithium/calcium thickener/soap, and an NLGI #2 consistency, and are relubricatable. The result is a bearing with high speed capabilities, low noise, superior protection against contamination, strength, durability, and one that is easy to install and maintain.

Bearings only differ in the type of locking method, inner ring length and seal options.

Wide inner ring insert bearings are offered with spherical or cylindrical profiled outer rings. Bearings with a spherical profiled outer ring are typically used with SKF housings. The sphered O.D. of the bearing is matched to the sphered I.D. of the housing allowing the bearing to swivel and accommodate initial alignment. Bearings with cylindrical profiled outer rings are assembled into customer machined housings and are not designed to accommodate initial alignment.

Set screw locking device



YAR-2F



YAT

YAR-2F – standard duty and medium duty wide inner ring, set screw locking, spherical O.D.

YAR wide inner ring insert bearings are offered in standard duty and medium duty series. The medium duty series uses a larger bearing for a given shaft size, resulting in a greater load carrying capacity. Both series feature an outboard flinger in addition to the standard seal. As the inner of the bearing rotates, the flinger "flings" away moisture and large contaminates for additional sealing performance. The wide inner ring offers additional bearing load support and minimizes shaft misalignment associated with narrow inner bearings. Housing units with this bearing have a TF suffix.

Options include a non-relubricatable version, a version with a grease groove in the outer ring and SKF's multi-function seal. YAR standard duty wide inner ring bearings are available in shaft sizes from $1/2$" to $2\,15/16$". YAR medium duty wide inner ring bearings are available in shaft sizes from $17/16$" to 3". For more detailed information see data tables on page **295**.

YAT – standard duty and medium duty narrow inner ring, set screw locking, spherical O.D.

YAT narrow inner ring insert bearings feature a positive contact, and a land riding seal with an integral trash guard. This seal is grease purgeable and provides high speed, low friction operation along with positive contaminant exclusion. The narrow inner ring makes the bearing suitable for use in tight operating spaces. Housing units equipped with this bearing have an RM suffix.

Options include a nonrelubricatable version, a version with a grease groove in the outer ring as well as an air handling (-AH suffix) unit. YAT bearings are available in shaft sizes from $1/2$" to $2\,15/16$" and are offered with several housing styles. For more detailed information see data tables on page **294**.

Eccentric locking device



YEL-2F

YEL-2F – standard duty wide inner ring, eccentric locking collar, spherical O.D.

YEL wide inner ring insert bearings feature an outboard flinger in addition to the standard seal. As the inner of the bearing rotates, the flinger "flings" away moisture and large contaminates for additional sealing performance. The wide inner ring offers additional bearing load support and minimizes shaft misalignment associated with narrow inner bearings. Housing units with this bearing have a WF suffix.

Options include a non-relubricatable version, a version with a grease groove in the outer ring and SKF's multi-function seal. YEL wide inner ring bearings are available in shaft sizes from $^{3}/_{4}$" to $2^{7}/_{16}$". For more detailed information see data tables on page **298**.



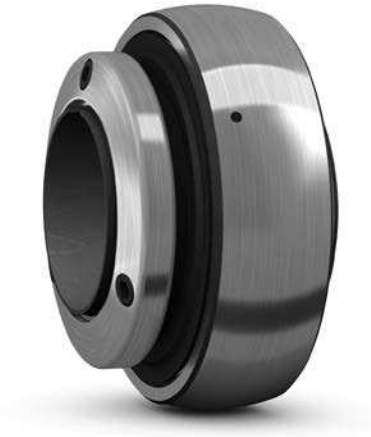
YET

YET – standard duty narrow inner ring, eccentric locking collar, spherical O.D.

YET narrow inner ring insert bearings feature a positive contact, land riding seal with an integral trash guard. This seal is grease purgeable and provides high speed, low friction operation along with positive contaminant exclusion. The narrow inner ring makes the bearing suitable for use in tight operating spaces. Housing units with this bearing have an FM suffix.

Options include a non-relubricatable version and a version with a grease groove in the outer ring. YET bearings are available in shaft sizes from $^{1}/_{2}$" to $2^{3}/_{16}$". For more detailed information see data tables on page **297**.

ConCentra™ locking device



YSP-2F

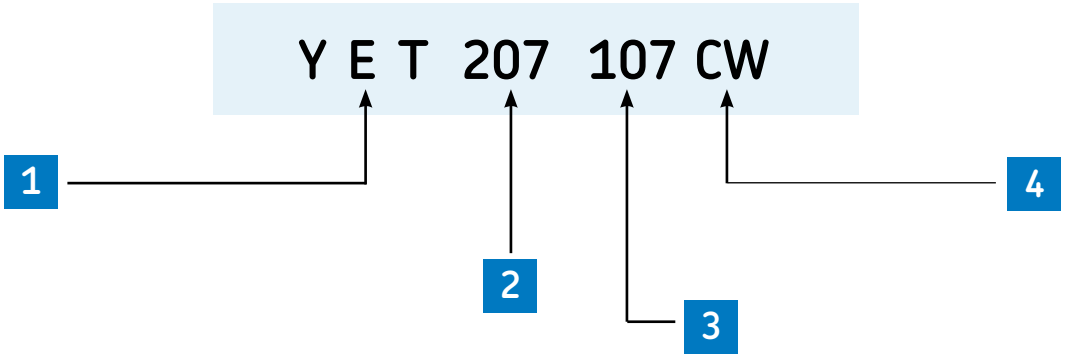
YSP-2F – wide inner ring, ConCentra™ locking, spherical O.D.

YSP-2F wide inner ring insert bearings feature an outboard flinger in addition to the land riding seal and SKF's revolutionary ConCentra locking system. Utilizing a built-in mechanical connector that applies a nearly 360° concentric grip around the shaft, SKF ConCentra inserts provide superb bearing performance while still allowing for easy mounting and dismounting.

Providing true concentric locking, ConCentra locking technology reduces vibration and fretting corrosion increasing service life and reducing the shaft damage common to conventional set screw locking devices when replacement is necessary. YSP-2F series bearings are the standard insert in SKF LF air handling housed units and are available in shaft sizes from 1" to $2^{11}/_{16}$".

For more detailed information see data tables on page **299**.

Nomenclature – insert bearings



1. Bearing type:

YET	Narrow inner ring, eccentric lock
YEL	Wide inner ring, eccentric lock
YAR	Wide inner ring, set screw lock
YAT	Narrow inner ring, set screw lock
YSP	Wide inner ring, ConCentra™ lock

2. Bearing series

3. Bore size:

Example: 107 is $1\frac{7}{16}$

4. Suffix:

C	Cylindrical O.D.
W	Nonrelubricatable bearing, no lube holes in outer ring
G	Lubrication groove in outer ring (opposite locking side)
GR	Lubrication groove in outer ring (on locking side)
-2F	Bearing with two flingers
-2RF	Bearing with two multi-function seals
U	No locking collar
SB	ConCentra™
-AH	Air handling – anti rotation pin