General

Units conversion

Quantity	Imperial unit	Metric SI units to imperial units		Imperial units to metric SI units	
Length	inch	1 mm	0,039 inch	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 cub.in	1 cub.in	16,387 cm^3
	cubic foot	1 m^3	35 cub.ft	1 cub.ft	0,02832 m^3
	imperial gallon	1 l	0,22 gallon	1 gallon	4,5461 l
	U.S. gallon	1 l	0,2642 U.S. gallon	1 U.S. gallon	3,7854 l
Velocity, speed	foot per second	1 m/s	3,28 ft/s	1 ft/s	0,30480 m/s
	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	0,9072 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/cub.in	1 lb/cub.in	27,680 g/cm^3
Force	pound-force	1 N	0,225 lbf	1 lbf	4,4482 N
Pressure, stress	pounds per square inch	1 MPa	145 psi	1 psi	6,8948 × 10^3 Pa
Moment	inch pound-force	1 Nm	8,85 in.lbf	1 in.lbf	0,113 Nm
Power	foot-pound per second	1 W	0,7376 ft lbf/s	1 ft lbf/s	1,3558 W
	horsepower	1 kW	1,36 HP	1 HP	0,736 kW
Temperature	degree	Celsius	$t_C = 0,555\ (t_F - 32)$	Fahrenheit	$t_F = 1,8\ t_C + 32$

Foreword

This catalogue shows the range of SKF single row four-point contact ball and single row crossed cylindrical roller slewing bearings, which are in regular demand and are used in a variety of applications. This range of SKF slewing bearings, which is based on SKF experience, offers a number of benefits:

- simplified bearing selection and application design work
- long-term stable supply
- worldwide availability
- no minimum order quantities
- simplified ordering and stocking

This catalogue contains basic data relevant to slewing bearings. More detailed information for a particular slewing bearing can be supplied on request.

The data in this catalogue relate to SKF's state-of-the art technology and production capabilities. The data may differ from that shown in earlier publications because of redesign, technological developments, or revised methods of calculation.

SKF reserves the right to make continuing improvements to SKF products with respect to materials, design and manufacturing methods, as well as changes necessitated by technological developments

The general information relating to a specific bearing is provided immediately preceding the table listing that bearing. General information and information common to all slewing bearings can be found in the chapters "Principles of bearing selection and application" and "Mounting, inspection and storage". Please note that all information related to bearing performance, e.g. load ratings, are only valid, when the bearings have been installed and maintained according to the instructions contained in this catalogue.

The catalogue is designed so that product information is easy to find and use. In order to enable the user to quickly find the technical data for a slewing bearing known only by its designation, the products are listed by designation in alphanumeric order in the "Product index", starting on **page 114**. Each entry lists the page number where the bearing can be found and provides a brief description of the product.

Please note that the items included in this catalogue do not represent the complete SKF slewing bearing range and that new items may be added in the future.

NOTE: All information related to bearing performance, e.g. load ratings, are only valid when the bearings have been installed and maintained properly, at least according to the instructions contained in this catalogue.

Slewing bearings

Generally, slewing bearings are large-size rolling bearings that can accommodate axial, radial and moment loads acting either singly or in combination and in any direction. They can perform both slewing (oscillating) movements as well as rotational movements.

Basically, a slewing bearing (→ **fig. 1**) consists of an inner ring (**a**), an outer ring (**b**) and rolling elements – balls (**c**) or cylindrical rollers – that are separated by polyamide spacers (**d**). The rings, one of which usually incorporates a gear (**e**), are provided with holes (**f**) to accommodate attachment bolts. The holes may be threaded. Generally, only the raceways in the rings (**h**) are hardened and precision-ground. Integral seals (**g**) made of acrylonitrile-butadiene rubber (NBR) keep the lubricant in, and contaminants out of the bearing. Slewing bearings are relubricated through grease fittings (**i**) to reduce maintenance and operating costs.

Compared to traditional pivot arrangements, slewing bearing arrangements provide many design and performance advantages. The compactness and large inner diameter simplify the design of the bearing arrangement and its associated components. The low sectional height of these bearings means that the pinion lever can be kept short. In most cases only flat surfaces on the associated components are needed.

Slewing bearings were originally designed to be mounted only on horizontal support structures, but can now be used successfully in vertical bearing arrangements. The forces and load distribution in slewing bearings, when subjected to axial, radial and moment loads, are shown in **figs. 2** to **5**.

Slewing bearings perform extremely well in a variety of applications such as:

- access platforms
- bucket wheel excavators
- conveyor booms
- cranes of all types
- small, medium and large excavators
- indexing tables
- ladle turrets
- offshore applications
- robots
- railway bogies
- rotary platforms
- stackers
- solar mirrors
- tunnel boring machines
- wind turbines

Fig. 1

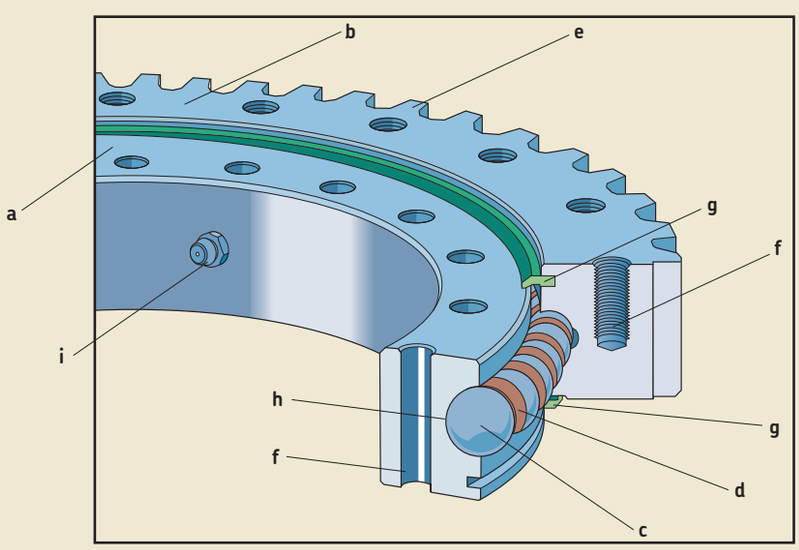
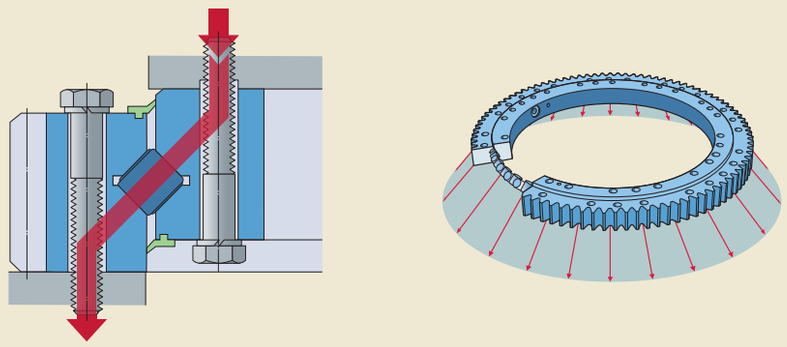
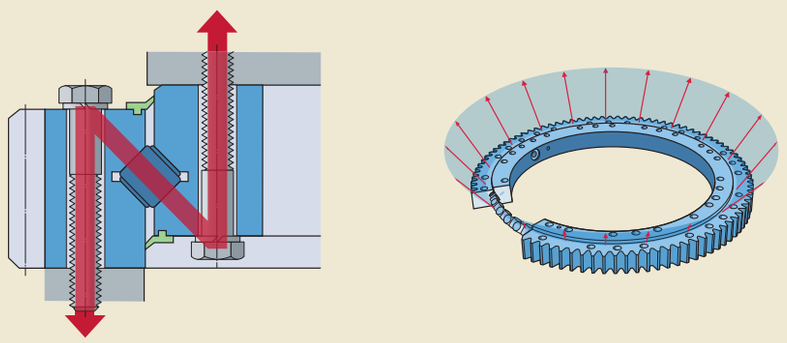


Fig. 2



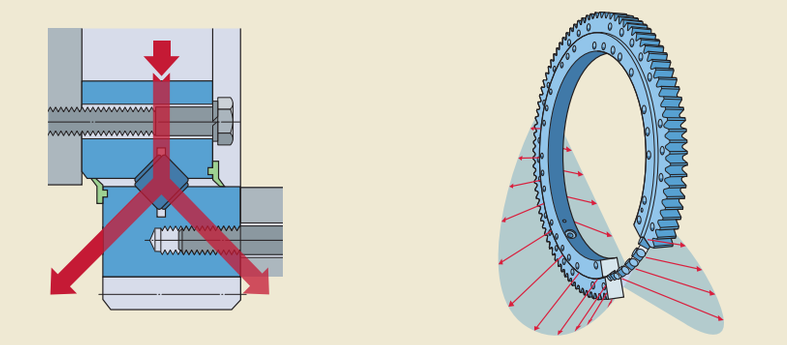
Transmission of axial loads in a supported slewing bearing

Fig. 3



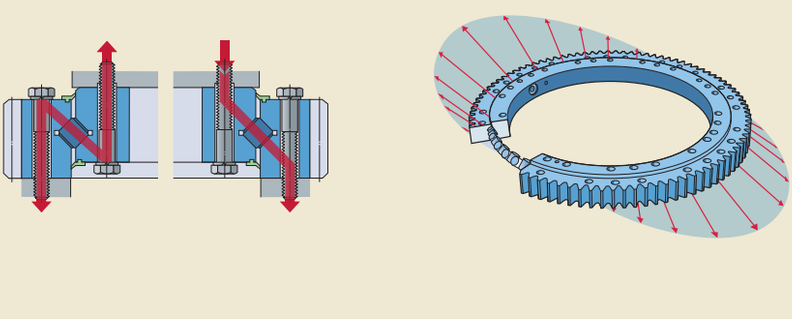
Transmission of axial loads in a suspended slewing bearing

Fig. 4



Transmission of radial loads in a vertical arranged slewing bearing

Fig. 5



Transmission of moments in a supported slewing bearing

Common SKF slewing bearings

SKF manufactures slewing bearings in a number of types and variants. The most common bearings available from stock or within short lead times are:

- single row four-point contact ball slewing bearings
- single row crossed cylindrical roller slewing bearings

These standard slewing bearings are introduced in the following pages and listed with their performance data in the relevant product tables. Commonly ordered customized bearings are listed in separate product tables, starting on **page 78** and **page 102**.

SKF also manufactures a wide range of other types of slewing bearings. A brief description of these bearings can be found under the heading “Other SKF slewing bearings”, starting on **page 12**. For additional information about these bearings, contact the SKF application engineering service.

Single row four-point contact ball slewing bearings

Light series four-point contact ball slewing bearings (→ **fig. 1**)

- with an external gear (**a**)
- with an internal gear (**b**)
- without a gear (**c**)

Medium size four-point contact ball slewing bearings (→ **fig. 2**)

- with an external gear (**a**)
- with an internal gear (**b**)
- without a gear gear (**c**)

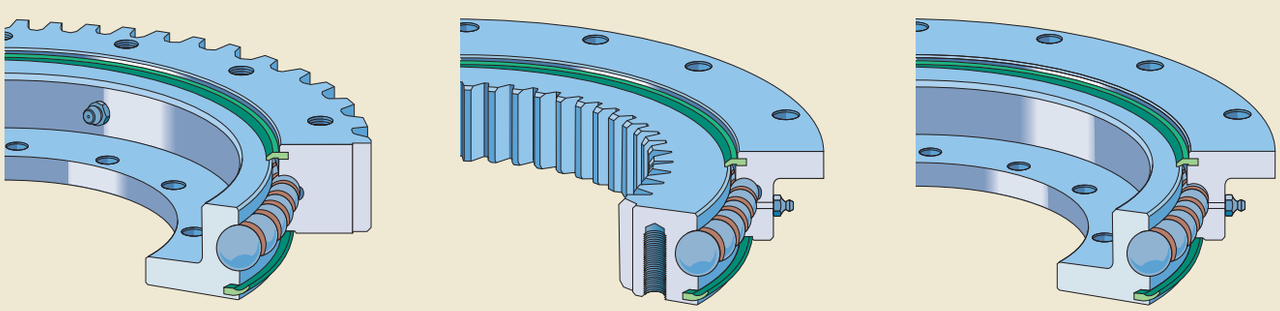
Single row crossed cylindrical roller slewing bearings

Medium size crossed cylindrical roller slewing bearings (→ **fig. 3**)

- with an external gear (**a**)
- with an internal gear (**b**)
- without a gear (**c**)

Light series four-point contact ball slewing bearings

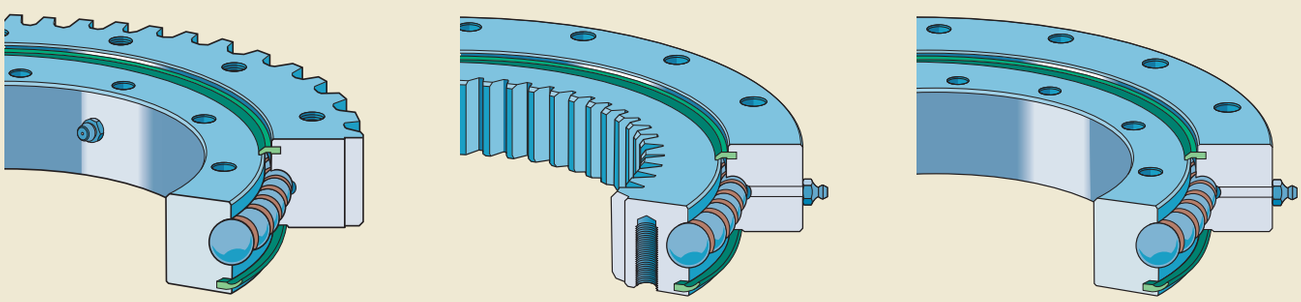
Fig. 1



a **b** **c**

Medium size four-point contact ball slewing bearings

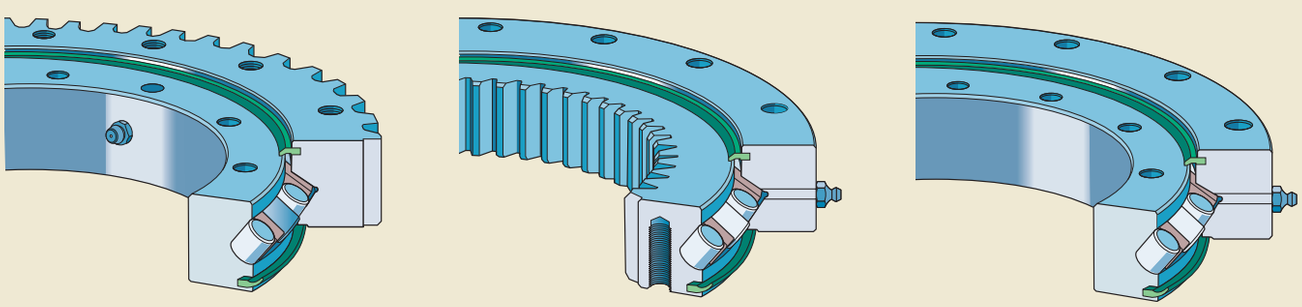
Fig. 2



a b c

Medium size crossed cylindrical roller slewing bearings

Fig. 3



a b c

Other SKF slewing bearings

The SKF slewing bearings listed in this catalogue represent only a part of the comprehensive SKF assortment. These bearings, which have an outside diameter ranging from 50 to 7 900 mm, are available with one-piece rings. Larger bearings with an outside diameter up to 14 000 mm have segmented rings. For the purpose of this catalogue, only examples of these large bearings are shown to illustrate SKF's manufacturing capabilities.

Double row ball slewing bearings

Double row four-point contact ball slewing bearings offer advantages for applications where the associated components may not be able to provide the level of stiffness or accuracy required by other types of slewing bearings.

These bearings consist of two one-piece rings and two independent rows of balls. The ball set can be a full complement design or separated by a window-type steel cage or polyamide spacers. The bearings are normally preloaded and fitted with integral lip seals.

Double row four-point contact ball slewing bearings can be manufactured:

- without a gear
- with an internal gear (→ **fig. 1**)
- with an external gear

Double row cylindrical roller slewing bearings

Double row cylindrical roller slewing bearings can accommodate heavy axial and radial loads as well as high tilting moments, which makes them particularly suitable for heavy-duty applications.

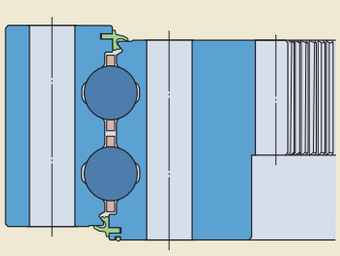
The bearings consist of two one-piece rings and two independent rows of rollers. The rollers are inserted into the bearing via two holes in one of the two rings and are separated by polyamide spacers. After loading the roller set, the holes are closed with a plug that conforms to the raceway contour. These bearings are normally preloaded and fitted with integral lip seals.

Double row cylindrical roller slewing bearings can be manufactured:

- without a gear
- with an internal gear (→ **fig. 2**)
- with an external gear

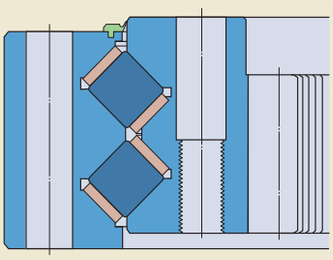
Double row ball slewing bearing with an internal gear

Fig. 1



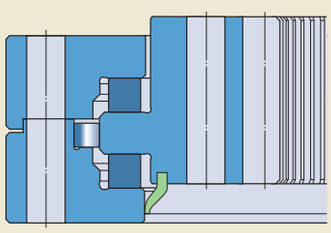
Double row cylindrical roller slewing bearing with an internal gear

Fig. 2



Triple row roller slewing bearing with an internal gear

Fig. 3



Triple row roller slewing bearings

Triple row roller slewing bearings are an excellent choice for heavily loaded applications. They provide the highest load ratings possible and can accommodate very heavy loads and high tilting moments.

These bearings are combined cylindrical roller radial/thrust bearings. They consist of one one-piece and one two-piece ring as well as two roller sets to accommodate axial loads, and one roller set to accommodate radial loads. Polyamide cages separate the axially loaded rollers. The bearings are not preloaded and have integral lip seals.

Triple row roller slewing bearings can be manufactured:

- without a gear
- with an internal gear (→ **fig. 3**)
- with an external gear

Triple row roller slewing bearings are sensitive to the deflections of associated components. As a result, an extremely stiff and accurately manufactured support structure is required if the bearing is to achieve maximum service life.

Combined cylindrical roller/ball slewing bearings

Combined cylindrical roller/ball slewing bearings can accommodate the same heavy axial loads as triple row roller slewing bearings in one direction only, but cannot accommodate the same degree of tilting moments. They are suitable for heavy-duty applications, but are as sensitive as triple row bearings to surface imperfections.

Combined cylindrical roller/ball slewing bearings consist of two one-piece rings and normally have axial internal clearance. The balls are inserted into the bearing via a hole in one of the two rings and are separated by polyamide spacers.

Combined cylindrical roller/ball slewing bearings can be manufactured:

- without a gear
- with an integral gear
- with an external gear (→ **fig. 4**)

Wire race slewing bearings

SKF offers a wide range of single row as well as multi-row ball or cylindrical roller wire race slewing bearings. Single row four point contact ball wire race slewing bearings (→ **fig. 5**) and single row crossed cylindrical roller wire race slewing bearings (→ **fig. 6**) are the most widely used slewing bearing types and normally consist of:

- a one-piece and a two-piece bearing ring made of aluminium
- four through-hardened wire inserts made of bearing steel, forming the raceways
- a cage guided rolling element assembly

Single row wire race slewing bearings are recommended for lightweight, precision applications. They are 70% lighter than similarly sized all-steel bearings, and can accommodate light to normal loads and significant tilting moments. Furthermore, the design of the wire inserts makes these bearings relatively insensitive to support surface imperfections.

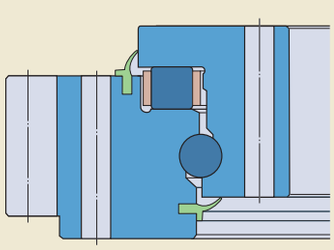
Multi-row wire race slewing bearings, such as double or triple row roller bearings, are available for heavier load applications.

Wire race slewing bearings can be manufactured:

- without a gear
- with an internal gear
- with an external gear

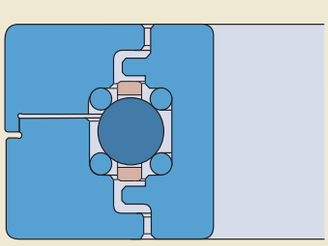
Combined cylindrical roller/ball slewing bearing with an external gear

Fig. 4



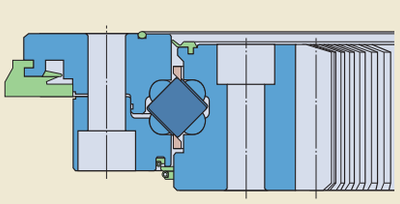
Single row ball wire race slewing bearing

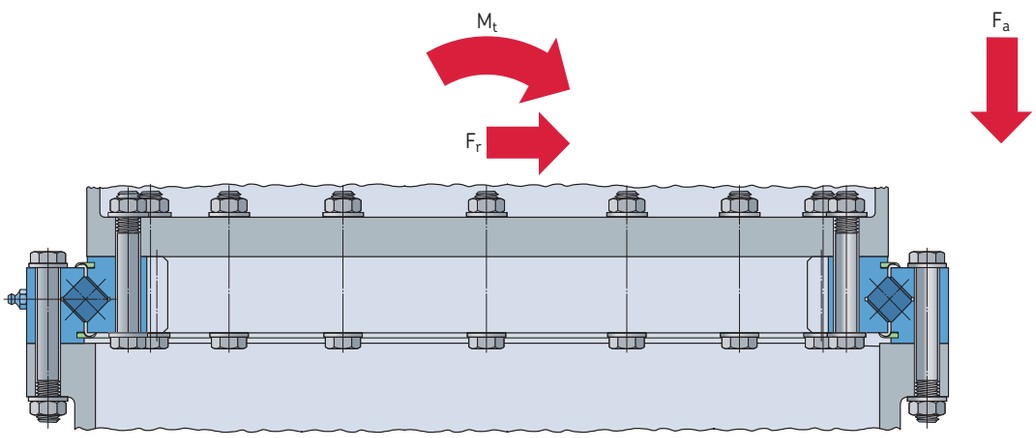
Fig. 5



Single row cylindrical roller wire race slewing bearing with an internal gear

Fig. 6




M_t
F_a
F_r