Overview of SKF bearing housings

Assortment

The comprehensive assortment of SKF bearing housings is provided in **tables 1** to **4**, starting on **page 30**. SKF can also supply custom housings for specific applications and requirements. For additional information, contact the SKF application engineering service.

Split plummer (pillow) block housings

The main benefit of split plummer (pillow) block housings (→ **fig. 5**) is that they can accommodate preassembled shafts. Also, these housings simplify bearing inspections and maintenance because the shaft does not need to be disassembled.

The assortment of split plummer block housings is provided in **table 1** on **page 30**. Application-specific housings are provided in **table 4** on **page 34**.

Non-split plummer (pillow) block housings

Non-split plummer (pillow) block housings (→ **fig. 6**) are preferred when there are heavy loads acting in directions other than toward the support surface. They are also used when the housing has to be mounted from the end of the shaft.

The assortment of non-split plummer block housings is provided in **table 2** on **page 32**. Application-specific housings are provided in **table 4** on **page 34**.

Flanged housings

Flanged housings (→ **fig. 7**) provide a solution for applications that do not have a frame parallel to the shaft. The assortment of flanged housings is provided in **table 2** on **page 32**.

Fig. 5

Fig. 6

Fig. 7

Take-up housings

Take-up housings (→ **fig. 8**) are typically used to maintain the tension in conveyor belt applications and are mounted onto a guide frame.

The assortment of take-up housings is provided in **table 2** on **page 32**.

Two-bearing housings

Two-bearing housings (→ **fig. 9**) have intrinsically aligned bearing seats. As a result, they can accommodate rigid bearings, such as deep groove ball bearings, angular contact ball bearings and cylindrical roller bearings. Two-bearing housings are typically used in applications with an overhanging load.

The assortment of two-bearing housings is provided in **table 2** on **page 32**.

Roller bearing units

Roller bearing units consist of a bearing, housing, lubricant and seals as well as a mechanism to lock the bearing inner ring onto the shaft (→ **fig. 10**). These ready-to-mount units are assembled, lubricated and sealed at the factory for maximum service life. Bearing units require very little maintenance. They are also easy to install and replace. Once a unit is bolted to its support surface, only the grub (set) screws in the collar need to be tightened.

The assortment of roller bearing units is provided in **table 3** on **page 33**.

Application-specific housings

Application-specific housings have features that enable them to be used in special operating conditions. The assortment of application-specific housings is provided in **table 4** on **page 34**.

Fig. 8

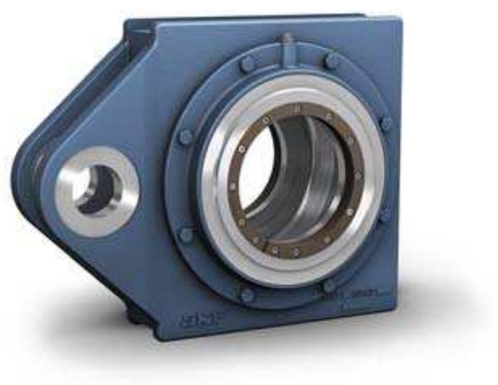


Fig. 9

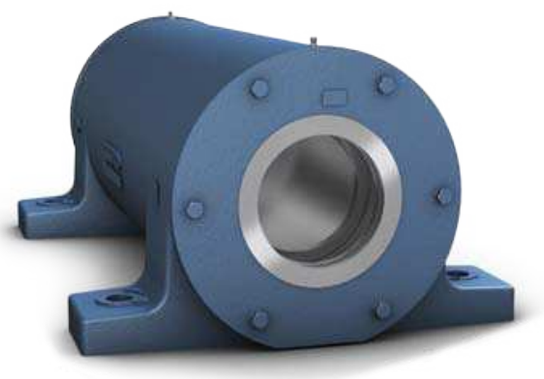


Fig. 10

Housing materials

SKF housings are typically made of either grey cast iron or spheroidal graphite cast iron. For information about the material options available for a particular housing type, refer to **tables 1** to **4**, starting on **page 30**, or the relevant product chapter.

Grey cast iron

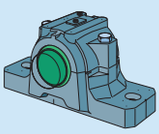
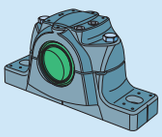
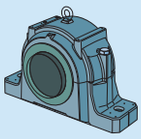
Grey cast iron is the standard material for most SKF housings and is sufficient for the majority of applications. It is characterized by high strength, good damping capability and good thermal conductivity.

Spheroidal graphite cast iron

Spheroidal graphite cast iron contains graphite nodules, making it ductile. It therefore provides a higher degree of strength and toughness than grey cast iron. On average, housings made of spheroidal graphite cast iron can withstand 1,8 times heavier loads compared to housings made of grey cast iron.

SKF bearing housings – overview, selection and application recommendations

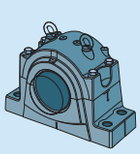
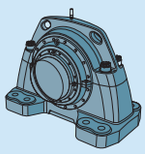
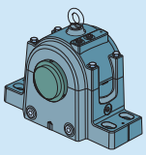
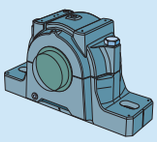
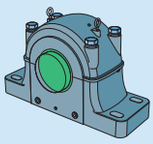
Split plummer (pillow) block housings

Series	SNL 2, 3, 5 and 6	SE 2, 3, 5 and 6	SNLN 30
Chapter	2	3	4
Bearing types			
Self-aligning ball bearing	✓	✓	–
Spherical roller bearing	✓	✓	✓
CARB bearing	✓	✓	✓
Shaft diameter range			
from [mm]	20 and 60	30	110
to [mm]	30 160	75	280
from [*in.*]	*3/4* and *2 3/16*	*15/16*	–
to [*in.*]	*1* *5 1/2*	*2 1/2*	–
Shaft-bearing combination			
Bearing on an adapter sleeve	✓	✓	✓
Bearing on a withdrawal sleeve	✓	✓	✓
Bearing on a cylindrical seat	✓	✓	✓
Sealing solutions			
Lip seal	✓	✓	✓[1]
Radial shaft seal	–	–	–
V-ring seal	✓	✓	✓[1]
Felt seal	✓	✓	✓[1]
Labyrinth seal	✓	✓	✓
Taconite heavy-duty seal	✓	✓	✓
Multi-seal	–	–	–
Lubrication			
Grease	✓	✓	✓
Oil	optional	optional[2]	–
Materials			
Grey cast iron	standard	standard	standard
Spheroidal graphite cast iron	optional	optional	optional
Cast steel	–	–	–
Mounting			
No attachment bolts	✓	✓	✓
Two-bolt mounting	✓	✓	✓
Four-bolt mounting	✓	✓	✓
Eight-bolt mounting	–	–	–
Supersedes (SKF)	SNH, SNA, SN	SNL 2,3,5 and 6, SNH, SNA, SN	SN 30
Replacement for (non-SKF)	ISO 113 standard housing	ISO 113 standard housing	ISO 113 standard housing

[1] Not available for sizes 34 and above.
[2] For sizes 518 to 532 circulating oil only.

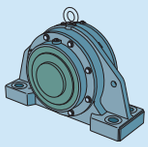
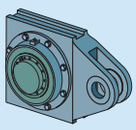
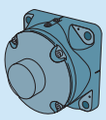
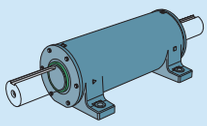
Table 1

				
SNL 30, 31 and 32	**SED**	**SONL**	**SAF, SAW**	**SDAF**
5	6	7	8	9
–	–	✓	✓	–
✓	✓	✓	✓	✓
✓	✓	✓	✓	✓
115	430	75	40	85
530	900	240	220	530
4 7/16	–	*2 15/16*	*1 3/16*	*2 15/16*
19 1/2	–	*8 15/16*	*10 1/2*	20
✓	✓	✓	✓	✓
✓	–	–	–	–
✓	✓	✓	✓	✓
–	–	–	–	–
–	–	–	✓	✓
–	–	–	–	–
–	–	–	–	✓
✓	–	✓	✓	✓
✓	–	–	✓	✓
–	✓	–	–	–
✓	✓	–	✓	✓
✓	✓	✓	✓	✓
standard	–	standard	standard	standard
optional	standard	optional	optional	optional
–	–	–	optional	optional
–	–	–	–	–
–	–	–	✓	–
✓	–	✓	✓	✓
–	✓	–	–	–
SD, SDD	–	SOFN 2, 5	–	–
ISO 113	–	–	–	–
standard housing				

SKF bearing housings – overview, selection and application recommendations

Table 2

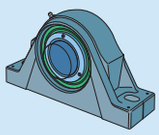
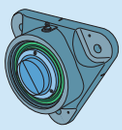
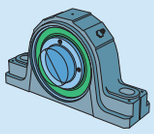
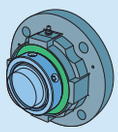
Non-split housings

				
Series	**SBD**	**THD**	**FNL**	**PD**
Chapter	10	10	11	12
Bearing types				
Self-aligning ball bearing	–	–	✓	–
Spherical roller bearing	✓	✓	✓	✓
CARB bearing	✓	✓	✓	–
Other	–	–	–	✓[1]
Shaft diameter range				
from [mm]	60	50	20	25
to [mm]	420	400	100	120
from [*in.*]	–	–	–	–
to [*in.*]	–	–	–	–
Shaft-bearing combination				
Bearing on an adapter sleeve	✓	✓	✓	–
Bearing on a withdrawal sleeve	–	–	–	–
Bearing on a cylindrical seat	✓	✓	–	✓
Sealing solutions				
Lip seal	–	–	✓	–
V-ring seal	–	–	–	✓
Felt seal	–	–	–	✓
Labyrinth seal	✓	✓	–	–
Lubrication				
Grease	✓	✓	✓	✓
Oil	–	–	–	optional
Materials				
Grey cast iron	optional	optional	standard	standard
Spheroidal graphite cast iron	standard	standard	–	–
Cast steel	optional	optional	–	–
Mounting				
No attachment bolts	–	n/a	–	–
Two-bolt mounting	–	n/a	–	–
Four-bolt mounting	✓	n/a	✓[2]	✓
Supersedes (SKF)	–	–	7225(00)	–

[1] Typical bearings include deep groove ball bearings, angular contact ball bearings, and cylindrical roller bearings.
[2] Housings with a triangular flange have three attachment bolts.

Table 3

Roller bearing units

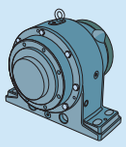
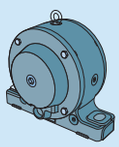
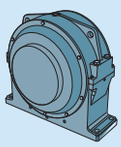
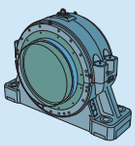
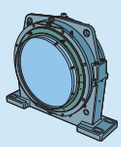
Series	SYNT	FYNT	SYE .. N, SYR .. N, FSYE	FYE, FYR, FYRP
				
Chapter	16	16	17	17
Bearing types				
Self-aligning ball bearing	–	–	–	–
Spherical roller bearing	✓	✓	✓	✓
CARB bearing	–	–	–	–
Shaft diameter range				
from [mm]	35	35	–	–
to [mm]	100	100	–	–
from [*in.*]	–	–	$1\,^{7}/_{16}$	$1\,^{7}/_{16}$
to [*in.*]	–	–	$4\,^{15}/_{16}$	4
Locking method				
SKF ConCentra	✓	✓	✓	✓
Locking collar	–	–	✓	✓
Sealing solutions				
Lip seal	✓	✓	✓	✓
Radial shaft seal	✓	–	✓	✓
Labyrinth seal	✓	–	✓	✓
Lubrication				
Grease	✓	✓	✓	✓
Oil	–	–	–	–
Materials				
Grey cast iron	✓	✓	✓	✓
Mounting				
No attachment bolts	–	–	–	–
Two-bolt mounting	✓	–	✓	–
Four-bolt mounting	–	✓[1)]	✓	✓
Supersedes (SKF)	SYT	–	–	–

[1)] Housings with a triangular flange have three attachment bolts.

SKF bearing housings – overview, selection and application recommendations

Table 4

Application-specific housings

					
Series	**SBPN**	**SBFN**	**SDM**	**SKND**	**FSDR**
Chapter	13	13	13	14	15
Application	Drying cylinder	Felt roll	Yankee cylinder	Converter trunnion	Mill trunnion
Bearing types					
Self-aligning ball bearing	–	–	–	–	–
Spherical roller bearing	✓	✓	✓	✓	✓
CARB bearing	✓	✓	✓	✓	–
Shaft diameter range					
from [mm]	180	60	340	530	825
to [mm]	320	180	670	1 180	1 460
from [*in.*]	[1]	[1]	[1]	[1]	[1]
to [*in.*]	[1]	[1]	[1]	[1]	[1]
Shaft-bearing combination					
Bearing on an unthreaded sleeve	–	–	–	–	✓[2]
Bearing on a cylindrical seat	–	optional	–	✓	–
Bearing on a tapered seat	✓	✓	✓	–	–
Sealing solutions					
Lip seal	–	–	–	✓	–
V-ring seal	–	–	–	–	✓
Labyrinth seal	✓	✓	–	–	✓
Gap-type seal	–	–	✓	–	–
Lubrication					
Grease	–	–	–	✓	✓
Oil	✓	✓	✓	–	–
Materials					
Grey cast iron	✓	✓	✓	–	✓
Spheroidal graphite cast iron	–	–	–	✓	optional
Mounting					
No attachment bolts	–	–	–	–	–
Two-bolt mounting	–	✓	–	–	–
Four-bolt mounting	✓	optional	✓	✓	✓
Supersedes (SKF)	SBP	SBF[2]	–	SDKD	–

[1] Contact SKF.
[2] Housings are still available.

Selecting a housing

When selecting a housing, many factors should be considered. The selection process depends not only on the bearing type and size but also on the ability of the housing to safely accommodate the magnitude and characteristics of all applied loads. Beside this, important considerations are mounting, maintenance, sealing options and bearing lubricant requirements.

Search for a housing

To identify housings that are suitable for a specific bearing type, size and shaft-bearing combination, use the *Bearing index*, starting on **page 742**, or the online application *SKF Housing Select*, available at skf.com/housings. Also keep in mind that a roller bearing unit may be the preferred solution (→ **table 5**). An online search facility for bearing units is also available at skf.com/housings.

Adjust the bearing selection

If there is no suitable housing for the selected bearing type or size, consider switching to a bearing that can be accommodated in a standard housing. The result will be a more cost-effective bearing/housing solution.

Select the final housing variant

Once a housing has been selected, be sure that the housing and available sealing solutions will accommodate the loads, shaft-bearing combination, lubrication method and operating conditions, e.g. type and level of contaminants. Consider all housing variants, including those with a non-standard seat tolerance or special seals. For unique requirements, contact the SKF application engineering service.

Table 5

Housing equivalents

Housing series	Roller bearing unit
SNL 5 series	SKF ConCentra roller bearing units in the SYNT series
FNL series	SKF ConCentra roller bearing units in the FYNT series

Mounting

Mounting instructions are supplied with most SKF bearing housings, or with the corresponding seal kit. For additional information about mounting, refer to the *SKF bearing maintenance handbook* or the information available online at skf.com/mount.

Preparations prior to mounting

Mounting housings (and bearings) requires care, accuracy and the appropriate tools. Prior to mounting, do the following:

- Make sure that the work area is clean.
- Study any drawings or instructions to determine the correct order in which to assemble the various components.
- Make sure that all the necessary components and tools are at hand.
- Clean the support surface.
- Check that the support surface meets the requirements for flatness (→ *Specifications for shafts and housing support surfaces*, **page 45**).
- Check that the shaft seats and seal counterfaces meet the requirements for dimensional and form accuracy, roughness and hardness (→ *Specifications for shafts and housing support surfaces*, **page 45**).
- Chamfer or round any shaft edges over which a seal lip will pass.

SKF tools and products

The SKF assortment of mounting tools and products includes mechanical tools, hydraulic tools, heating equipment and gloves. For additional information, refer to the product information available online at mapro.skf.com.

Lifting housings

Many SKF bearing housings are supplied with eye bolts for safe and easy handling. The eye bolts are designed to support the weight of the housing only, and not the incorporated bearing or shaft.

When lifting, make sure that the eye bolts are only subjected to load in the direction of the shank axis. The load should be evenly distributed across the number of eye bolts.

Attachment bolt tightening

Applying the specified torque to a bolt during installation is extremely important. Improper torque values can lead to machinery movement during operation. This can cause misalignment between machine parts, which will eventually lead to premature damage to bearings and other components.

Recommended tightening torque values are provided in the product chapters and are based on bolt manufacturers' recommendations.

All bolts should be tightened with an accurate torque wrench (in at least two stages) or a hydraulic bolt tensioner. SKF recommends using a HYDROCAM hydraulic bolt tensioner in applications where the attachment bolt has an end protruding above the tightening nut. These tensioners reduce the risk of over tightening and enable bolts to be installed accurately without the need of a torque wrench. The tensioners also provide uniform assembly preload or uniform bolt elongation.

Using shims

Shims can be used to raise the centre height of a housing. SKF recommends using shims made of stainless sheet steel with sufficient strength and the ability to withstand corrosion from several media. Shims made from soft metals like copper or brass typically compress over time, causing looseness, which can eventually lead to misalignment. Whenever possible, use only one shim and never stack more than three shims.

CAUTION: Make sure that the shim covers the complete contact surface between the housing base and the support surface (→ **fig. 23**). If shims are placed under the housing feet only, the bearing seat can distort.

Using locating (stabilizing) rings

A bearing in the locating position must be secured axially in the housing. If the bearing seat in the housing and the bearing width do not match, locating (stabilizing) rings (→ **fig. 24**) are required. Typically, two locating rings are required per housing. One ring should be placed on each side of the bearing. If only one locating ring is required, it should be installed on the same side as the lock nut. When placing

a locating ring in position, make sure that the open end of the locating ring is facing up.

CARB toroidal roller bearings, which are used exclusively in the non-locating position, require locating rings when the bearing seat in the housing and the bearing width do not match. For information about which locating rings are required for a bearing in a particular housing, refer to the relevant product chapter.

Installing seals

The seal counterface should meet the specifications for surface roughness and roundness (→ *Specifications for shafts and housing support surfaces*, **page 45**), and should be clean. If the counterface shows any signs of wear, repair it. This can be done easily with an SKF SPEEDI-SLEEVE or a large diameter wear sleeve (LDSLV). If repair is not possible, replace the shaft.

In general, the seal and counterface should be coated lightly with the lubricant used in the application.

When installing seals, make sure that the seal is oriented correctly. Many seals are not symmetrical and can be installed to either exclude contaminants or retain the lubricant.

Split seals consist of two halves, which can be installed around the shaft. They are easier to replace and can ease mounting.

Felt seals should be soaked in hot oil prior to installation.

Fig. 23

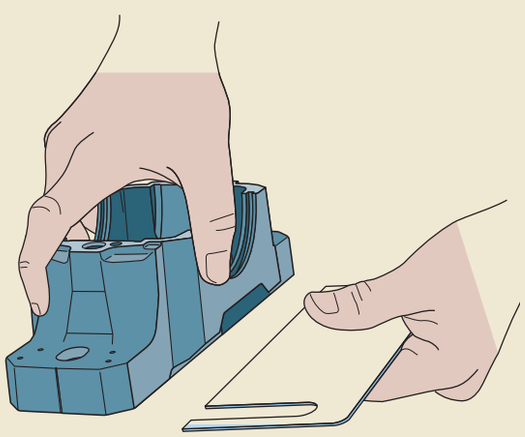


Fig. 24