SKF bearing housings – overview, selection and application recommendations

Basics

The purpose of a bearing housing is to:

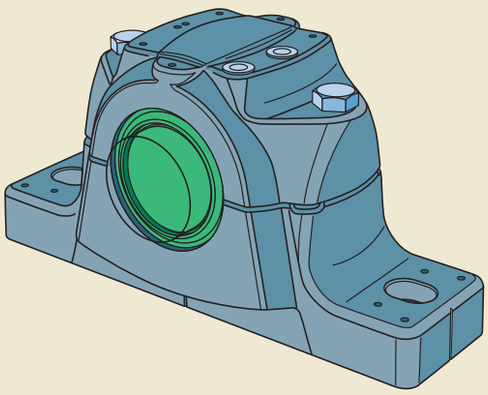
- support the bearing and transmit operating static and dynamic loads
- protect the bearing and lubricant from contaminants
- contain the lubricant and accommodate lubrication system components
- accommodate monitoring system components
- maximize the performance and service life of the incorporated bearings

Terminology

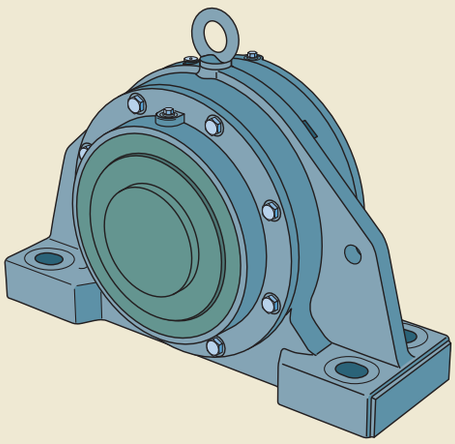
An overview of the terminology used in this catalogue is provided in **figs. 1** to **4**:

- types of bearing housings and bearing units (→ **fig. 1**)
- split plummer (pillow) block housings (→ **fig. 2**)
- housing and shaft arrangements (→ **figs. 3 and 4**)

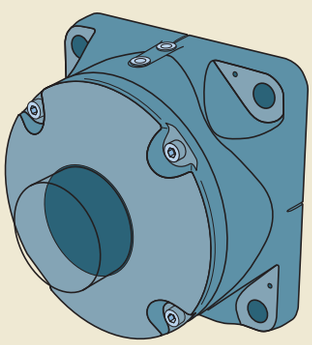
Fig. 1



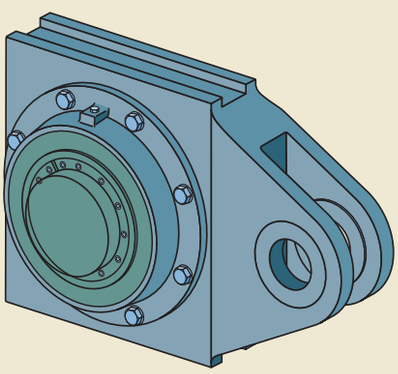
Split plummer (pillow) block housing



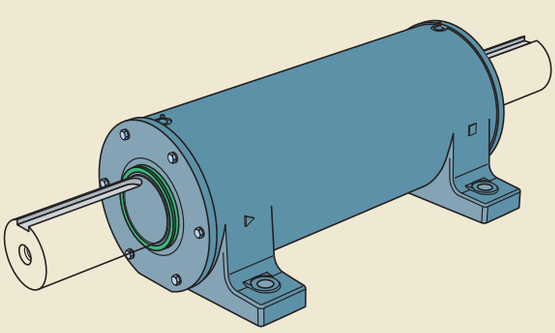
Non-split plummer (pillow) block housing



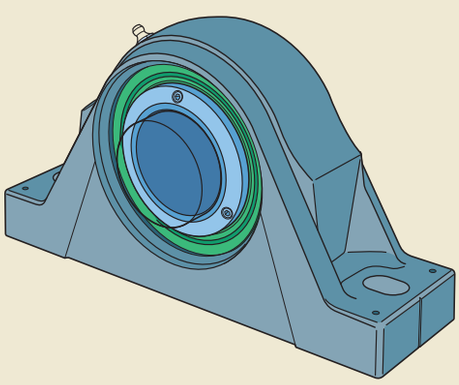
Flanged housing



Take-up housing



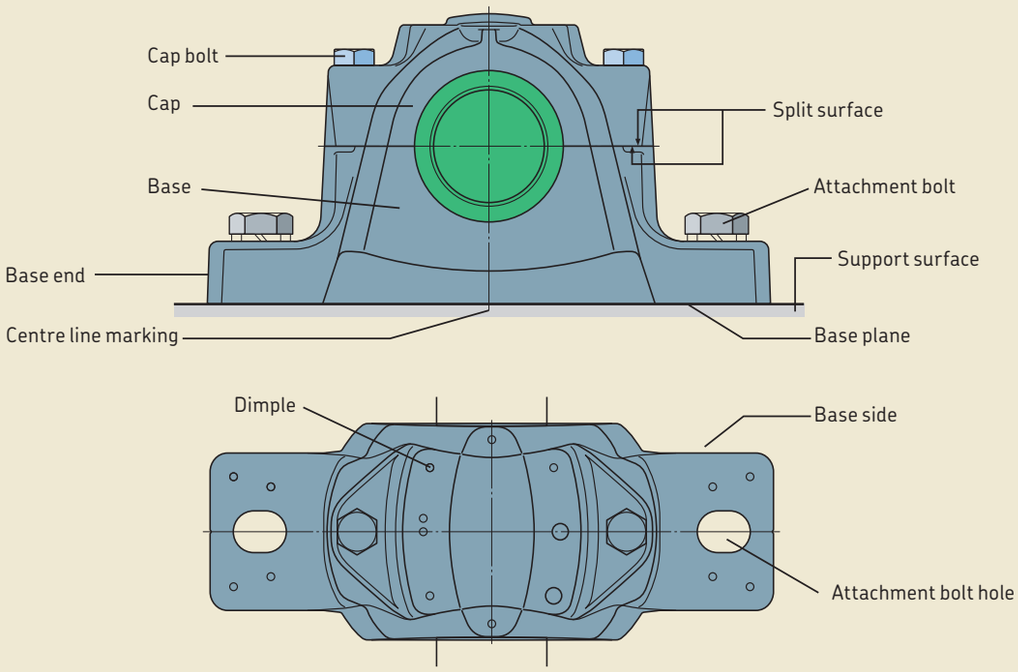
Two-bearing housing



Roller bearing unit

Fig. 2

SE plummer (pillow) block housing



SONL plummer (pillow) block housing

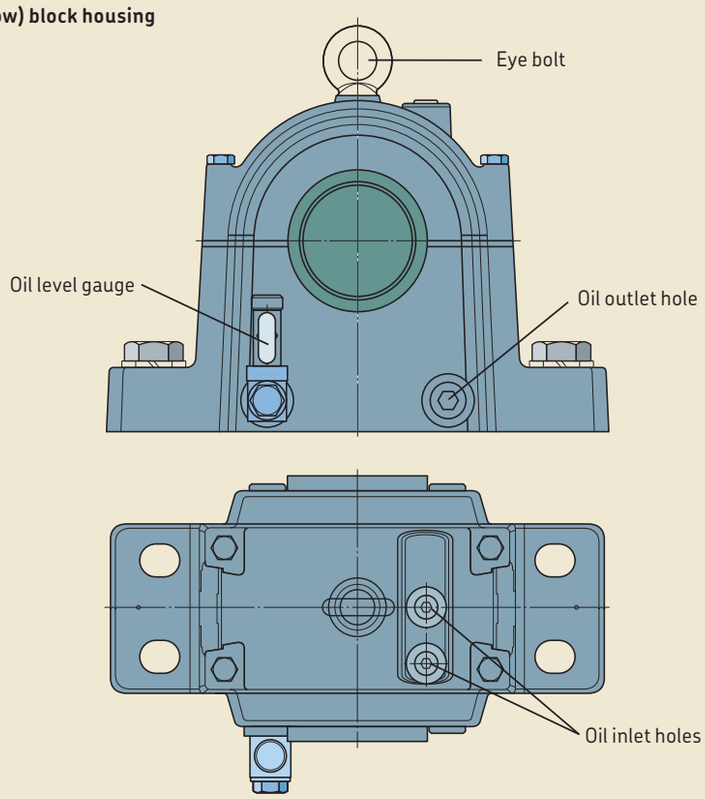
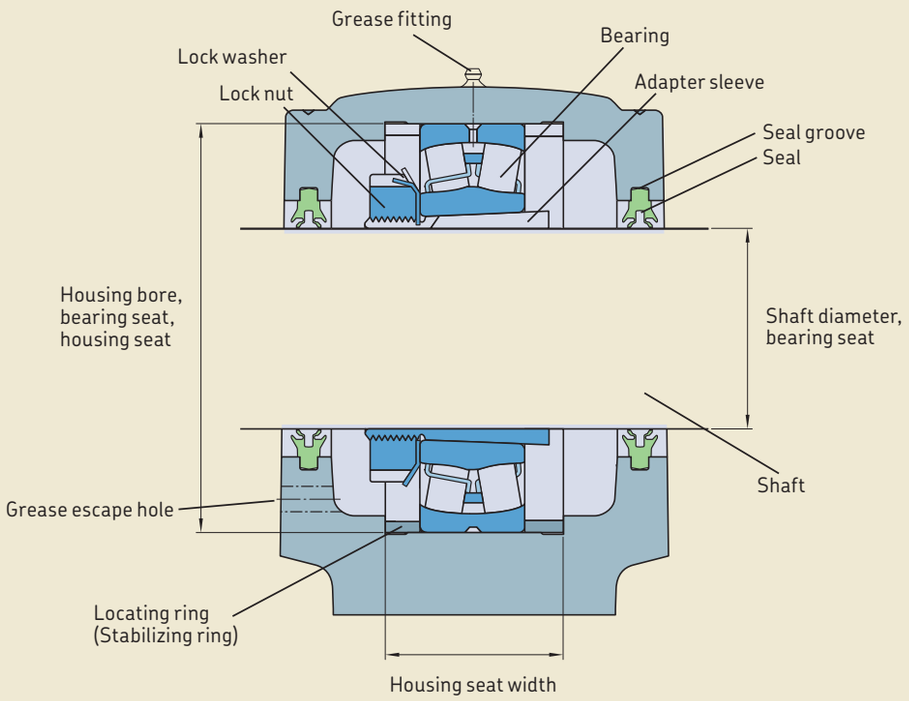


Fig. 3

SE plummer (pillow) block housing



FNL flanged housing

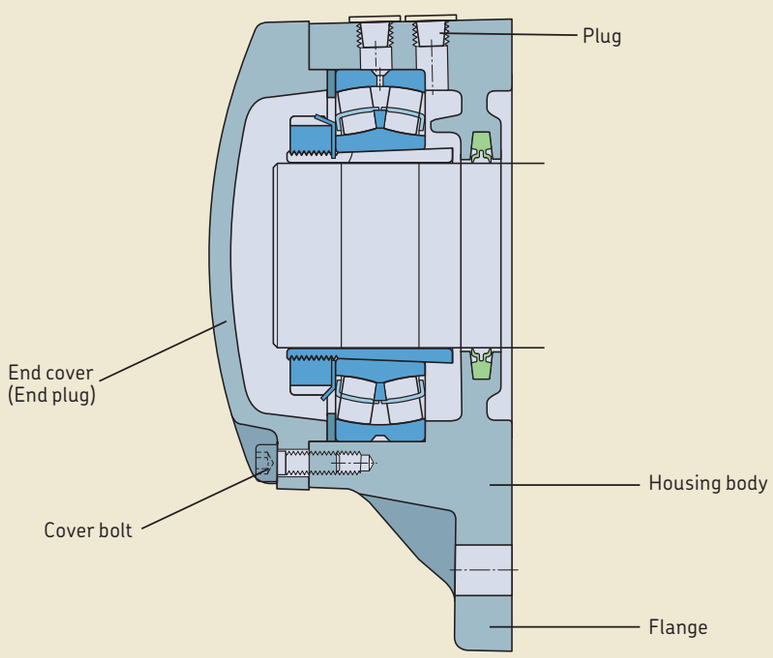
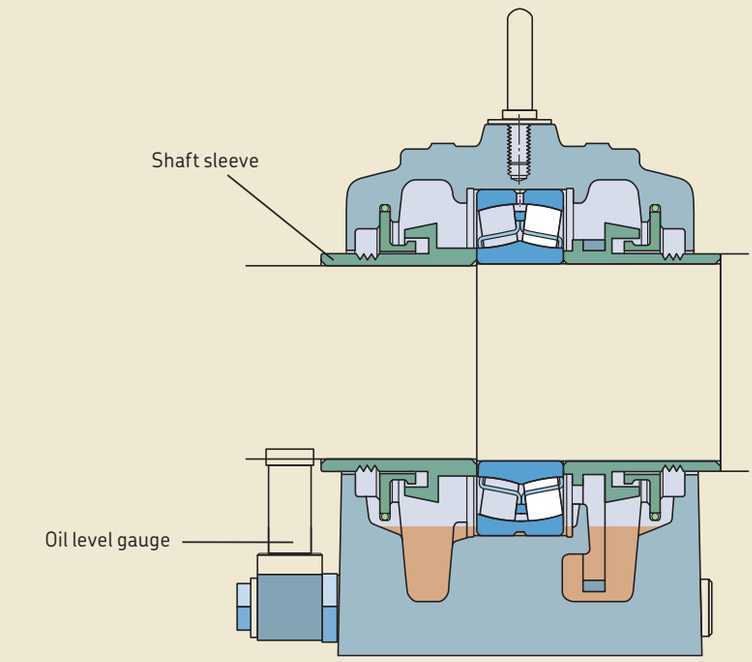
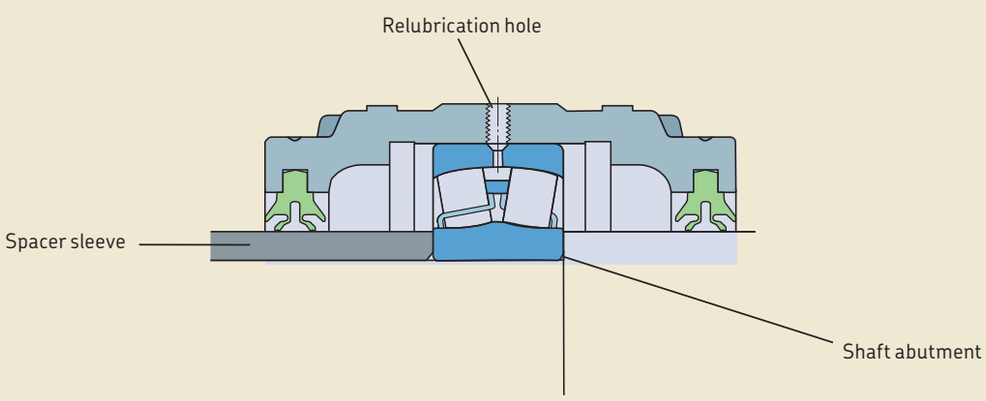


Fig. 4





Environmental conditions

SKF housings are intended for both interior and exterior applications. The following corrosivity categories, in accordance with ISO 12944-2, are applicable for SKF housings:

- C2 for all housings except SE and SED plummer (pillow) block housings
- C3 for SE and SED plummer (pillow) block housings

Additional information about corrosivity categories is provided in **table 6**.

Custom painting / corrosivity category

The standard colour and corrosivity category of an SKF housing is indicated in the relevant product chapter. SKF housings can also be supplied in other colours and/or corrosivity categories (→ **table 6**) or according to customer specifications. Housings that have a non-standard painting requirement are identified by the designation suffix P followed by a unique two- or three-digit number e.g. SNL 510-608/P76.

If a housing is going to be repainted, SKF recommends taking the following precautions prior to painting:

- Cover all housing openings. For housings with seal grooves, place discs cut from cardboard or plastic in the seal grooves. This is particularly important because residual chemicals or abrasives from the preparation process can lead to premature bearing and seal damage.
- Remove all grease fittings and protect all threaded holes with plugs.
- To avoid any chemical attack of the surface when washing painted castings, follow the instructions from the supplier of the washing chemicals regarding concentration, temperature, and time. The paint is resistant to commonly used low alkalescent washing chemicals.

Sealing solutions

The performance of a sealing arrangement is vital to the cleanliness of the lubricant and the service life of the bearings. The type of seal should be selected based on the lubricant type and operating speed but levels of contamination and misalignment should also be considered.

There is a wide assortment of SKF housing seals. Some housings can accommodate different types of seals, while other housings are designed for one specific sealing solution. For information about the sealing solutions available for a particular housing or roller bearing unit, refer to **tables 1** to **4**, starting on **page 30**, or the relevant product chapter. The properties, application conditions and suitability of each sealing solution are also provided in the relevant product chapter.

Converting circumferential to rotational speeds

To convert the circumferential speed limit of a sealing solution to the equivalent rotational speed, refer to **table 7**.

Table 6

Corrosivity categories[1)]

Corrosivity category	Examples of typical environments in a temperate climate	
	Exterior	Interior
C1 (very low)	–	Heated buildings with clean atmospheres, e.g. offices, shops, schools, hotels.
C2 (low)	Atmospheres with low levels of pollution. Typically inland rural areas.	Unheated buildings where condensation may occur, e.g. depots, sport halls.
C3 (medium)	Urban and industrial atmospheres with moderate levels of sulphur dioxide. Coastal areas with low salinity.	Production rooms with high humidity and some air pollution, e.g. food-processing plants, laundries, breweries, dairies.
C4 (high)	Industrial and coastal areas with moderate salinity.	Chemical plants, swimming pools, coastal ship- and boatyards.
C5-I (very high, industrial)	Industrial areas with high humidity and aggressive atmosphere.	Buildings or areas with almost permanent condensation and with high pollution.
C5-M (very high, marine)	Coastal and offshore areas with high salinity.[2)]	Buildings or areas with almost permanent condensation and with high pollution.

1) In accordance with ISO 12944-2.
2) In hot, humid coastal areas, the mass loss or thickness loss can exceed the limits of category C5-M and special precautions should be taken when selecting protective paint systems.

Table 7

Converting circumferential speed limits to rotational speeds

Shaft diameter at the seal lip	Rotational speed for circumferential speed limits					
	2 m/s	4 m/s	7 m/s	8 m/s	12 m/s	13 m/s
mm	r/min					
20	1 910	3 820	6 680	7 640	11 460	12 410
25	1 530	3 060	5 350	6 110	9 170	9 930
30	1 270	2 550	4 460	5 090	7 640	8 280
35	1 090	2 180	3 820	4 370	6 550	7 090
40	950	1 910	3 340	3 820	5 730	6 210
45	850	1 700	2 970	3 400	5 090	5 520
50	760	1 530	2 670	3 060	4 580	4 970
55	690	1 390	2 430	2 780	4 170	4 510
60	640	1 270	2 230	2 550	3 820	4 140
65	590	1 180	2 060	2 350	3 530	3 820
70	550	1 090	1 910	2 180	3 270	3 550
75	510	1 020	1 780	2 040	3 060	3 310

continues on next page

cont. Table 7

Converting circumferential speed limits to rotational speeds

Shaft diameter at the seal lip	Rotational speed for circumferential speed limits					
	2 m/s	4 m/s	7 m/s	8 m/s	12 m/s	13 m/s
mm	r/min					
80	480	950	1 670	1 910	2 860	3 100
85	450	900	1 570	1 800	2 700	2 920
90	420	850	1 490	1 700	2 550	2 760
95	400	800	1 410	1 610	2 410	2 610
100	380	760	1 340	1 530	2 290	2 480
110	350	690	1 220	1 390	2 080	2 260
115	330	660	1 160	1 330	1 990	2 160
120	320	640	1 110	1 270	1 910	2 070
125	310	610	1 070	1 220	1 830	1 990
130	290	590	1 030	1 180	1 760	1 910
135	280	570	990	1 130	1 700	1 840
140	270	550	950	1 090	1 640	1 770
145	260	530	920	1 050	1 580	1 710
150	250	510	890	1 020	1 530	1 660
155	250	490	860	990	1 480	1 600
160	240	480	840	950	1 430	1 550
165	230	460	810	930	1 390	1 500
170	220	450	790	900	1 350	1 460
175	220	440	760	870	1 310	1 420
180	210	420	740	850	1 270	1 380
185	210	410	720	830	1 240	1 340
195	200	390	690	780	1 180	1 270
200	190	380	670	760	1 150	1 240
205	190	370	650	750	1 120	1 210
215	180	360	620	710	1 070	1 150
220	170	350	610	690	1 040	1 130
240	160	320	560	640	950	1 030
255	150	300	520	600	900	970
260	150	290	510	590	880	950
275	140	280	490	560	830	900
280	140	270	480	550	820	890
295	130	260	450	520	780	840
300	130	250	450	510	760	830
320	120	240	420	480	720	780
340	110	220	390	450	670	730
360	110	210	370	420	640	690
380	100	200	350	400	600	650
400	100	190	330	380	570	620
410	90	190	330	370	560	610
430	90	180	310	360	530	580
450	80	170	300	340	510	550
470	80	160	280	330	490	530
500	80	150	270	310	460	500

The SKF three-barrier solution

For highly contaminated environments, SKF recommends the three-barrier solution. This cost-effective sealing solution can have a significant impact on bearing service life as contaminants have to pass through three barriers to reach the bearing (→ **fig. 11**):

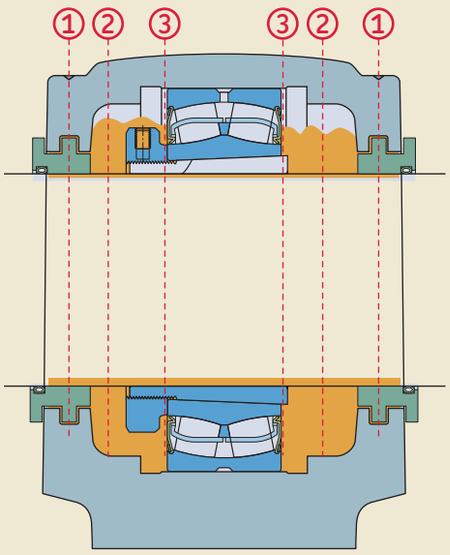
- 1st barrier – external housing seal
- 2nd barrier – housing grease
- 3rd barrier – integral bearing seal

The SKF three-barrier solution consists of a sealed SKF bearing, a housing with a 70 to 90% grease fill, and labyrinth housing seals.

Sealed bearings have integral contact seals that keep the lubricant in and contaminants out of the bearing cavity during operation. The seals also protect the bearing from the ingress of contaminants during installation. Using a sealed bearing also means that the grease used to fill the housing and labyrinth seals is independent of the lubrication requirements for the bearing. Therefore, environmentally friendly, biodegradable greases, such as SKF LGGB 2, can be used to fill the housing (→ skf.com/lubrication).

When the SKF self-aligning bearing system is used (→ **page 41**), the labyrinth seal for the CARB toroidal roller bearing should be replaced with a taconite seal.

Fig. 11



Design considerations

SKF housings are typically designed for self-aligning ball bearings, spherical roller bearings and CARB toroidal roller bearings. These bearings are chosen because they are insensitive to initial misalignment, which normally occurs when the housings are spaced far apart.

Two-bearing housings have inherently aligned bearing seats and therefore can accommodate rigid bearings such as deep groove ball bearings, angular contact ball bearings and cylindrical roller bearings.

Bearing arrangements

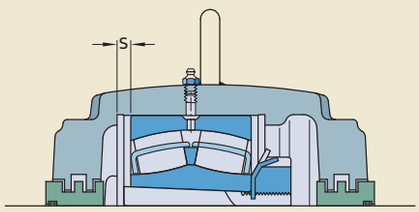
Locating/non-locating bearing arrangements

Conventional locating/non-locating bearing arrangements (→ **fig. 15**) are designed to accommodate thermal elongation of the shaft. In these systems, the non-locating bearing must be able to move axially on its seat in the housing.

SKF housings can accommodate bearings in both the locating and non-locating positions. Most standard housings have a bearing seat that is sufficiently wide to enable axial displacement of the non-locating bearing (→ **fig. 12**, "s"). When these housings are used in the locating position, locating (stabilizing) ring(s) should be used to secure the bearing axially in the housing (→ **fig. 13**).

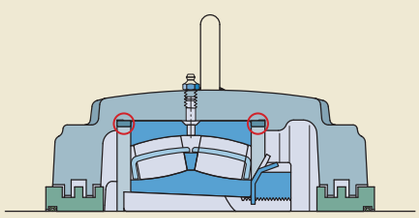
Some SKF housing series are available with a wide bearing seat for axial displacement, designation suffix L, and a bearing seat that matches the width of the bearing to locate it axially, designation suffix F (→ **fig. 14**).

Fig. 12



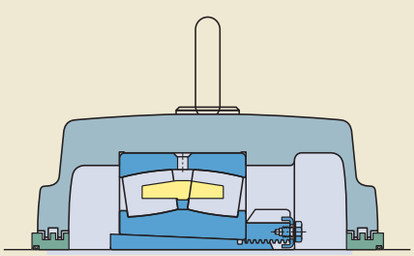
Wide bearing seat for the non-locating bearing position

Fig. 13



Locating bearing held axially by locating rings

Fig. 14



Locating bearing held axially by a matched bearing seat

The SKF self-aligning bearing system

To accommodate misalignment and shaft deflections, conventional self-aligning bearing arrangements use sp r self-aligning ball bearings in both the locating and non-locating bearing positions (→ **fig. 15**). To accommodate thermal elongation of the shaft in these arrangements, the non-locating bearing must be able to move axially on its seat in the housing. Any wear or damage to the housing seat results in a "stick-slip" condition that induces axial loads, friction, and heat into the bearing arrangement.

A better solution is to use a CARB toroidal roller bearing in the non-locating position (→ **fig. 15**). CARB bearings accommodate misalignment and shaft deflections. They also accommodate thermal elongation of the shaft within the bearing, with virtually no friction, to avoid induced axial loads.

Because CARB bearings do not accommodate axial loads, these bearings must always be secured axially in the housing, with either locating (stabilizing) rings or by using a housing variant with an F (or RA for some housings) in its designation suffix.

Compared to conventional self-aligning bearing arrangements, replacing the non-locating bearing with a CARB bearing increases the load carrying capacity of the bearing arrangement, enabling a more compact, and therefore lighter, bearing arrangement to be used. By virtually eliminating induced axial loads, vibration levels and temperatures are reduced and less grease is consumed, resulting in less maintenance. The solution contributes to improved reliability and extended bearing service life.

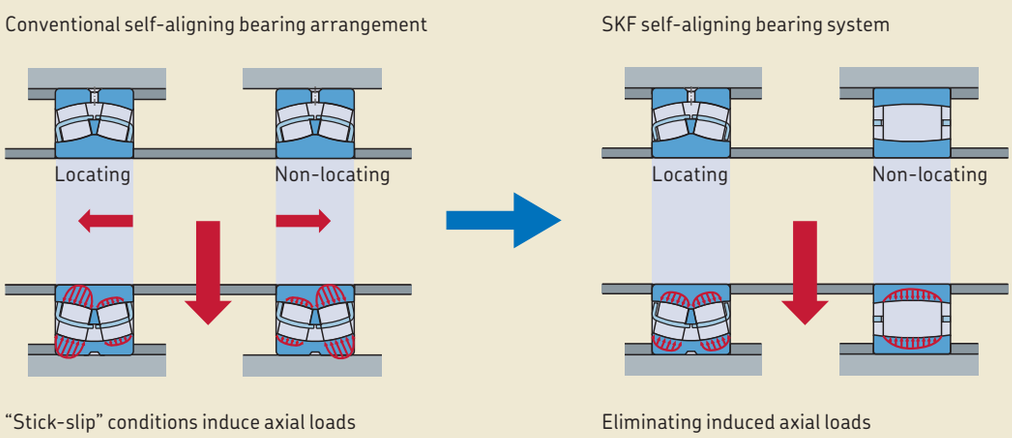
Typical shaft-bearing combinations

Bearings in SKF housings can be mounted either directly on a shaft or on a sleeve on the shaft. There are four typical combinations (→ **table 8**, **pages 42–43**):

- plain shaft with bearing on an adapter sleeve
- stepped shaft with bearing on an adapter sleeve
- stepped shaft with bearing on a withdrawal sleeve
- stepped shaft with bearing on a cylindrical seat

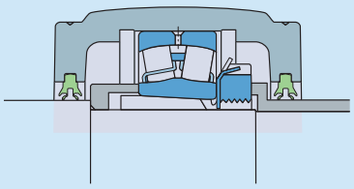
For information about the shaft-bearing combination alternatives for a particular housing type, refer to **tables 1** to **4**, starting on **page 30**, or the relevant product chapter.

Fig. 15



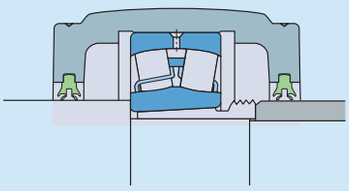
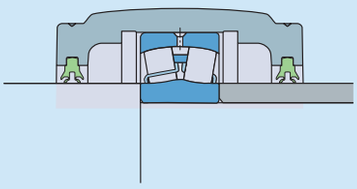
SKF bearing housings – overview, selection and application recommendations

Comparison of typical shaft-bearing combinations



	Plain shaft with bearing on an adapter sleeve	Stepped shaft with bearing on an adapter sleeve
Shaft	• Machining not required, drawn round bars (h9 or better) can be used • Maximum shaft strength (no shoulders or undercuts)	• Machining required, typically two steps • Shaft strength weakened by shoulders
Bearing	• Bearing can be mounted at any position on the shaft • Internal clearance changes during mounting (proper drive-up required) • Axial load carrying capacity limited by the adapter sleeve	• Bearing position determined accurately by the stepped ring • Internal clearance changes during mounting (proper drive-up required) • Axial load carrying capacity limited by the shaft sleeve or adapter sleeve in one direction and by the bearing and housing in the other direction
Mounting and dismounting	• 40% less mounting force required compared to other sleeve mounted arrangements as friction only occurs between two mating surfaces	• Other components on the shaft can be located axially against the bearing on its sleeve via spacer sleeves • Easy dismounting as the bearing inner ring is in contact with the stepped ring
Applications	• Long shafts where more than two bearings are required for support • When the final position of the bearing cannot be accurately determined prior to mounting • When machine components are mounted using clamping or tensioning devices so that the shaft does not need to be machined	• Support of shaft ends • Frequent mounting and dismounting

Table 8

Stepped shaft with bearing on a withdrawal sleeve	Stepped shaft with bearing on a cylindrical seat
	
• Machining required, typically two steps • Shaft strength weakened by shoulders	• Machining required, typically two steps • Shaft strength weakened by shoulders • Largest shaft diameter for a given bearing size
• Bearing position determined accurately by the shaft shoulder • Internal clearance changes during mounting (proper drive-up required) • Axial load carrying capacity limited by the shaft sleeve or withdrawal sleeve in one direction and by the bearing and housing in the other direction	• Bearing position determined accurately by the shaft shoulder • Internal clearance determined by the shaft seat tolerance • Axial load carrying capacity limited by the bearing and housing
• Other components on the shaft can be located axially against the bearing on its sleeve via spacer sleeves • Easy dismounting with a withdrawal sleeve and hydraulic nut	• Other components can be located axially against the bearing via spacer sleeves • Suitable when large numbers of bearings have to be mounted • Simple axial locating by shaft nut
• Support of shaft ends • Frequent mounting and dismounting	• Support of shaft ends • Frequent mounting and dismounting • Suitable for shock loads or where higher speeds or higher precision are required

Load carrying capacity

The load carrying capacity of a housing depends on many factors:

- the housing material and design and, where applicable, cap bolt strength
- the direction of the load
- the strength of the attachment bolts and support structure
- the condition of the support surface

SKF provides static housing load limits, either in the form of breaking loads or safe loads, for most housings. Where values are not provided, the load carrying capacity is higher for the housing than for the bearing.

Breaking loads can be used to calculate a permissible load, based on a selected safety factor. Safe loads already include a safety factor.

Special attention is required for split housings subjected to cyclic loads or dynamic imbalance. Under these conditions, cap bolt and housing cap strength ($P_{180°}$) should be analyzed carefully. For additional information, contact the SKF application engineering service.

Breaking loads

For most SKF housings, guideline values for the breaking loads P are provided in the relevant product chapter. To obtain the permissible load for a housing, the guideline value should be divided by a factor based on the safety requirements and operating conditions of the application. In general engineering, a safety factor of 6 is typical. The permissible load can only be exploited if the housing is mounted properly and all bolts are tightened to the specified torque values. For split housings, the strength of the cap bolts should also be considered. A minimum safety factor of 2 against cap bolt yield should be used.

The load P_a is the axial breaking load of the housing. If the incorporated bearing is mounted on a sleeve, check the permissible axial load for the sleeve (→ *Axial load carrying capacity for bearings on a sleeve*).

Safe loads

In some regions, safe loads are used instead of breaking loads. These guideline values have been established using accepted engineering practices, taking safety and ultimate tensile strength of the materials into account. They reflect a safety factor of 5 against housing fracture, and where applicable, a minimum factor of 2 against cap bolt yield. The safe loads can only be fully exploited if the housing is mounted properly and all bolts are tightened to the correct torque values.

Axial load carrying capacity for bearings on a sleeve

When using a bearing on a sleeve on a plain shaft, the axial load carrying capacity is limited either by the bearing, sleeve or housing.

For the axial load carrying capacity of the bearing, refer to the product information available online at skf.com/bearings. For the sleeve, the permissible axial load to safely prevent slippage on the shaft is determined by the friction between the shaft and sleeve. Provided the bearing is mounted correctly (→ skf/mount.com), the permissible axial load can be calculated from

$$F_{ap} = 0{,}003\ B\ d$$

where
F_{ap} = maximum permissible axial load [
B = earing width [mm]
d = bearing bore diameter [mm]

Information about the axial load carrying capacity of the housing is provided in the relevant product chapter.

Specifications for shafts and housing support surfaces

Shaft

Bearing seat

Recommended fits for bearings on solid steel shafts in cast iron housings are provided in the SKF catalogue *Rolling bearings* and are available online at skf.com/bearings.

If adapter or withdrawal sleeves are used, the sleeve seat on the shaft should be machined to tolerance class h9Ⓔ or better. The total radial runnout should be IT5/2 for tolerance class h9Ⓔ.

If bearings are to be mounted directly onto the shaft, the cylindricity tolerance and total runout tolerance of the bearing seat should, depending on the requirements, be one to two IT tolerance grades better than the prescribed dimensional tolerance. Abutments for bearing rings should have a perpendicularity tolerance and total axial runout tolerance that is at least one IT tolerance grade better than the diameter tolerance of the associated cylindrical seat.

Seal seat or counterface

Recommendations are provided in the relevant product chapter. Generally, seal counterfaces should be machined to tolerance class h9Ⓔ or better and the cylindricity should be to tolerance grade IT5.

Surface roughness

At the sleeve and seal positions, the shaft surface should have a surface roughness $R_a \leq 3{,}2$ µm *(125 µin.)*. Recommendations for the surface roughness of cylindrical bearing seats are provided in the SKF catalogue *Rolling bearings* and are available online at skf.com/bearings.

Housing support surface

To maximize bearing service life and prevent deformation of the housing bore, SKF recommends that the flatness of the housing support surface is to tolerance grade IT7 in accordance with ISO 1101. The surface should be finished to a surface roughness $R_a \leq 12{,}5$ µm *(500 µin.)*.

Lubrication

Grease selection

Grease selection is typically driven by the bearing and its operating conditions. The same grease can be used to fill the housing and lubricate the seal.

For information about SKF greases, refer to the product information available online at skf.com/lubrication. The SKF grease selection program *LubeSelect*, also available online at skf.com/lubrication, can be used to select an appropriate grease.

Biodegradable grease for housings with sealed bearings

If sealed bearings are used, the grease used to fill the housing and lubricate the housing seals does not need to be compatible with the grease inside the bearing. This is a good opportunity to use environmentally friendly grease such as SKF LGGB 2. It is a biodegradable, low toxicity grease. For additional information about this grease, refer to the product information available online at skf.com/lubrication.

Initial grease fill

If no other requirements exist, the free space in the bearing should be completely filled with grease and the free space in the housing should be filled to 20 to 40% of its volume. A 40% grease fill is required when bearings have to be relubricated from the side, while a 20% grease fill is used when bearings are lubricated via the outer ring.

For highly contaminated environments and slow speeds, fill the housing to 70 to 80%. For the best protection against contaminants, use the SKF three-barrier solution (→ **page 39**).

Higher speeds can require a reduced grease fill. For additional information, contact the SKF application engineering service. Quantities for the initial grease fill are provided in the individual product chapters.

Relubrication

Grease escape holes

Bearing arrangements in housings that have contact seals, e.g. double-lip or four-lip seals, can be equipped with a grease escape hole to allow used, excess grease to be purged from the housing. The escape hole should be positioned on the side opposite the grease inlet and if applicable, on the same side as the lock nut. For long relubrication intervals, it is often sufficient to remove the housing cap or cover and remove the old grease.

Relubrication via the outer ring

CAUTION: Care should be taken when relubricating spherical roller bearings in the non-locating position via their lubrication feature in the outer ring. There is a risk that the lubrication groove of the bearing will not be aligned with the hole in the centre of the housing cap and the lubricant will not reach the bearing. This can be the case when narrow bearings are mounted in housings with a wide housing seat, e.g. spherical roller bearings in the 222 series mounted in SNL 5(00) series housings, and the application is subjected to large axial movements. Under these circumstances, the bearings should be relubricated from the side.

Fig. 16

SKF tools and products

SKF has a wide assortment of lubrication tools and products for SKF bearing housings. A brief overview is provided here. For additional information, refer to the product information available online at mapro.skf.com and skf.com/lubrication.

Grease meter

The SKF grease meter LAGM 1000E (→ **fig. 16**) accurately measures grease discharge in volume or weight, and in both metric (cm^3 or g) and imperial (fl.oz. or oz.) units. It is suitable for all SKF bearing greases with a consistency class of up to 3 on the NLGI scale.

Automatic lubricators

Automatic lubricators can prevent both over and under-greasing.

SKF SYSTEM 24 lubricators (→ **fig. 17**) are automatic single point lubricators suitable for a wide range of applications and operating conditions. They are compact, easy to install and have a transparent container to check the amount of lubricant that is available. There are two series of lubricators: Gas driven lubricators include LAGD 60 (60 ml) and LAGD 125 (125 ml); Electro-mechanical driven lubricators include LAGE 125 (122 ml) and LAGE 250 (250 ml).

The SKF MultiPoint lubricator LAGD 400 (→ **fig. 18**) is a centralized automatic lubricator that simultaneously lubricates up to eight points. It is compact, easy to install and has a transparent container to check the amount of lubricant that is available.

Fig. 17

Fig. 18

Oil levellers

SKF oil levellers LAHD 500 (→ **fig. 19**) and LAGH 1000 are designed to automatically adj st the oil level in a bearing housing. The levellers allow the oil level to be adjusted during operation, optimizing machine performance and increasing the service life of the bearings. The transparent container enables the oil level to be inspected.

Adapters to change connection threads

The assortment of adapters in the LAPN series (→ **fig. 20**) are available, to convert, for example, from a 1/8 – 27 NPSF thread to a G 1/4 thread.

Caps and tags for grease fittings

TLAC 50 caps and tags provide a space to properly identify the lubrication point(s) on a bearing housing as well as protect the grease fittings from the ingress of contaminants (→ **fig. 21**). The labels can also be used in conjunction with the SKF Lubrication Planner.

Centralized lubrication systems

The SKF Multilube pumping unit (→ **fig. 22**) is a compact, all-in-one unit for lubricating individual machines and equipment. Designed for indoor and outdoor use, the unit is suitable for all pumpable oils and greases and can be used in single line, dual line and progressive lubrication systems.

Circulating oil lubrication concept

Oil circulation lubrication is needed in applications where the lubrication point (bearing) must be cooled while lubricated. An oil circulation system consists of a pumping station with a large oil reservoir and oil flow meters.

SKF Flowline reservoir (→ **fig. 23**) is round in shape and the plate construction inside improves the oil movement so much, that the efficiency is over 90%. This means, the reservoir size can be reduced even down to 1/3 of the traditional reservoir and still the real retention time of the oil is the same or better. Plate construction makes water and air separation very effective and the oil remains in very good condition, which means longer bearing life.

Fig. 19

Fig. 20

Savings in the oil purchase and handling costs are significant and the entire pumping station can be installed in the space taken by the old reservoir only.

Oil flow meters are always needed as a part of an oil circulation system to regulate and monitor oil flow. SKF Flowline Monitor is a digital oil flow meter, where the measurement is viscosity compensated and the reading by clear numbers is always correct, independent of temperature. On-line monitoring and setting parameters can also be done remotely.

Fig. 22

Fig. 21

Fig. 23

Inspection and condition monitoring

SKF housings and roller bearing units should be inspected regularly for damage and lubricant leaks. SKF also recommends a visual inspection of the seals, plugs, bolts and housing joints. The frequency of these inspections depends on the operating conditions and potential downtime consequences but should be done as part of a regularly scheduled maintenance program.

Where oil bath lubrication is used, the oil level should be monitored regularly. During operation, the oil level may drop below the minimum level. If that should happen, and oil needs to be added while the machine is running, keep the oil level well below the maximum oil level on the indicator or overfilling can result.

For additional information about inspection techniques and corrective maintenance actions, refer to the *SKF bearing maintenance handbook*.

SKF also recommends monitoring the condition of all bearings on a regular or continuous basis to detect early signs of bearing damage. Trending the condition of the bearing makes it possible to analyze the root cause of an impending failure, and plan for corrective action. Trending can also eliminate unplanned downtime. The most reliable way to do condition monitoring is through vibration analysis.

Vibration analysis

Many SKF housings are prepared for condition monitoring and are supplied with drilled and tapped holes to accommodate sensors. For other housings, dimples indicate the position where sensors can be located. For information about the condition monitoring possibilities for a particular housing type, refer to the relevant product chapter.

SKF has a comprehensive assortment of vibration detection, analysis and diagnostic products, from light hand-held instruments to fully integrated monitoring systems. For additional information, refer to the product information available online at skf.com/cm.

Storage

SKF housings, roller bearing units and associated components, including the seals, should be stored under controlled temperature and humidity conditions in a clean, dry environment. Variations in temperature and humidity should be avoided but gradual, seasonal variations of a gradual nature are acceptable. As a general rule, SKF recommends the following storage conditions:

- temperature: < 30 °C *(< 85 °F)* for long-term storage
- relative humidity: < 60%
- If peaks above 65% occur regularly, a dehumidifier is required.
- temperature fluctuation: max. 3 °C / 48 hours

Under these conditions, housings can be stored for up to 10 years. Roller bearing units should not be subjected to vibration during storage as this could cause false brinelling damage to the bearing. Depending on the actual storage conditions, the lubricating properties of the initial grease fill might deteriorate. Generally SKF roller bearing units should not be stored for more than 3 years.