

Split Pillow Block Housings SAF, SDAF

Mounting manual

Split pillow block housings SAF, SDAF

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About the mounting manual

The purpose of this mounting manual is to assist the fitter in mounting split pillow block housings SAF and SDAF safely and correctly.

It contains important information on mounting with the following objectives:

- to prevent personal injury or damage to property that may be caused by errors in mounting
- to facilitate, through correct mounting, a long operating life of the housing and the bearing mounted therein

Availability

This mounting manual is available immediately for download at www.schaeffler.com in the menu Media Library, Publications.

We will be pleased to send you a printed copy upon request.

Legal guidelines

The information in this manual corresponded to the most recent status at the close of editing. The illustrations and descriptions cannot be used as grounds for any claims relating to housings that have already been delivered. Schaeffler Technologies AG & Co. KG accepts no liability for any damage or malfunctions if housings or accessories have been modified or used in an inappropriate manner.

Symbols

The warning and hazard symbols are defined along the lines of ANSI Z535.6–2011.



In case of non-compliance, death or serious injury may occur. <



In case of non-compliance, minor or slight injury will occur. <



In case of non-compliance, damage or malfunctions in the product or the adjacent construction will occur. <

Further information

If you have any questions on mounting, please contact the Schaeffler industrial service experts:

- info.us@schaeffler.com
- Phone: +1 (803) 548-8500

General safety guidelines

Usage for the intended purpose

Split pillow block housings SAF and SDAF are for the purpose of supporting rolling bearings. The function of the seals and endcovers available as accessories is the sealing of the bearing position. Functionality can be expanded through the connection of systems for condition monitoring and for automatic relubrication.

Usage for any other purpose is not permissible.

Selection and qualification of personnel

Mounting of split pillow block housings SAF and SDAF must be carried out by qualified personnel only.

A person defined as qualified personnel:

- is authorised to perform mounting of the housings
- has all the knowledge necessary for mounting of the housings
- is familiar with the safety regulations

Personal protective equipment

Personal protective equipment is intended to protect operating personnel against health hazards. This comprises safety shoes, safety gloves and protective goggles and these must be used in the interests of personal safety.

Depending on the mounting location and on the machine or equipment in which the housings are to be mounted, it may be necessary to use additional personal protective equipment. The applicable regulations relating to occupational safety must be observed.

Safety specifications

In order to prevent the occurrence of personal injury or damage to property during mounting, the following safety specifications must be observed.

Fundamental specifications

The mounting area must be kept free of trip hazards.

Heavy components such as the upper and lower housing sections, seals, endcovers and rolling bearings must be secured to prevent toppling or falling.

When heavy components are being set down and fitted together, particular attention must be paid to the limbs in order to prevent crushing.

If special mounting methods are used, the safety specifications applicable to these methods must be observed. These may include thermal and hydraulic methods for mounting the bearing on the shaft.

Mounting and maintenance work of all types may only be carried out when the machine or equipment is at a standstill.

Grease

The greases used for the greasing of housings and bearings may contain components that are hazardous to health. A safety data sheet exists for each grease that describes the hazards.



Grease containing components hazardous to health.

Hazard in case of skin or eye contact or swallowing.

Avoid direct contact with the skin and wear protective gloves.

Observe the safety data sheet for the grease. ◀

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Cleaning Volatile solvents are recommended for the cleaning of housing components since these allow cleaning without leaving a residue. In this case, attention must be paid to the compatibility of the solvent used with the paint coating of the housing. If compatibility is inadequate, the paint coating may be damaged with the result that protection of the housing against corrosion is no longer ensured.



Volatile solvents. Hazard through ignition of vapours or in the case of skin or eye contact, inhalation or swallowing.

Avoid direct contact with the skin and wear protective gloves. Observe the safety guidelines of the manufacturer. <

Disposal Any cloths soaked with grease or solvents, excess grease, packaging material and any other waste generated in connection with mounting must be disposed of by environmentally acceptable methods. The applicable legal regulations must be observed.

Environmental hazards Depending on the ambient conditions, safety risks may be present at the mounting location that are not associated directly with the housing but must be taken into consideration in mounting of the housing. These may include dusts that are hazardous to health or working at a considerable height. Furthermore, the machine or equipment in which the housing is mounted may be a source of hazards, for example as a result of movable machinery or equipment parts.

Before starting mounting work, a safety engineer must be consulted. All safety specifications that are applicable to the mounting location and the machine or equipment affected by the mounting work must be observed.

Transport specifications In order to prevent the occurrence of personal injury or damage to property during transport, the following transport specifications must be observed.



Swivelling out or falling apart of rolling bearings. Severe personal injury or damage to property as a result of falling components.

Before transport, secure rolling bearings against swivelling out or falling apart. <

Lifting of heavy components Lifting of heavy components must be carried out using suitable technical accessories. The mounting personnel must be familiar with correct usage of the accessories and must observe all safety specifications relating to the handling of suspended loads.



Suspended loads. Severe personal injury or damage to property as a result of the swivelling out or falling of heavy components.

Do not remain below or within the swivel range of suspended loads. Use only lifting gear and tackle that is approved and has sufficient load capacity. Do not draw unprotected lifting tackle under load across sharp edges, avoid kinking or twisting. Never leave suspended loads unsupervised. <

Securing for transport after prior mounting

If a premounted unit comprising a shaft, bearings and housing is to be transported, it is recommended that it should be secured for transport. The shaft should be radially clamped against the housing. Securing for transport assists in preventing transport damage such as standstill marks on the rolling bearing.

Attachment points

The large size housings are supplied with 2 eye bolts in accordance with ANSI B18.15. These are intended as attachment points for mounting and dismantling of the housing, *Figure 1*. The load carrying capacity of the eye bolts allows lifting of the housing including a bearing fitted in the housing. The eye bolts must not be subjected to additional load as a result of parts attached to the housing.

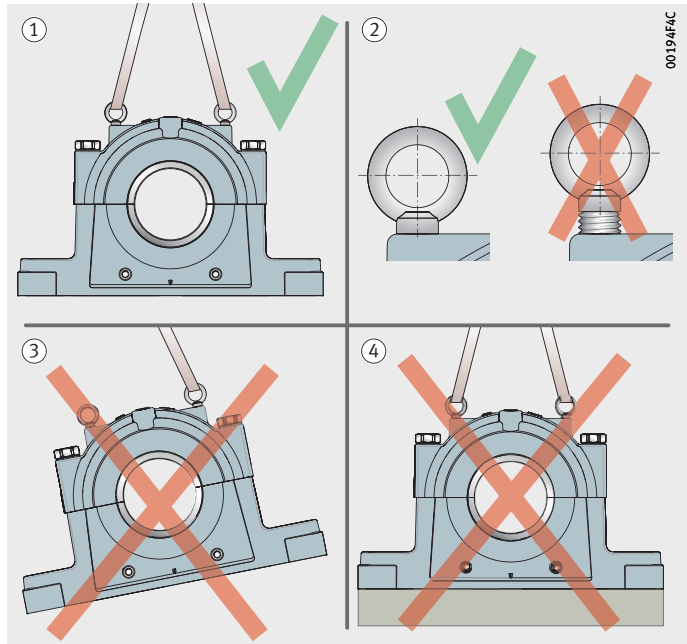


Rupture of the eye bolts due to overload. Severe personal injury or damage to property as a result of the falling housing.

Always screw eye bolts completely into the upper housing section. Always use both eye bolts simultaneously as attachment points. Only use eye bolts for lifting the housing including the bearing fitted in the housing. ◀

- ① Correct usage of eye bolts as attachment points
- ② Screw in eye bolts completely
- ③ Never use only one eye bolt
- ④ Do not apply additional load as a result of attached parts

Figure 1
Usage of eye bolts as attachment points



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Preparation for mounting

Checking the locating surface

The locating surface on which the housing will be mounted must be checked before mounting.

The requirements for the locating surface are as follows:

- sufficiently robust to withstand the static and dynamic loads occurring in operation over the long term
- surface roughness $R_a \leq 12.5 \mu\text{m}$
- flatness tolerance to IT7, measured across the diagonal
- surface cleaned and paint free
- compensation of differences in level between locating surfaces

Level of mounting surfaces

A difference in level between the locating surfaces of bearing housings will lead to misalignment of the shaft, *Figure 2*.

Permitted misalignments for the seals of split pillow block housings SAF and SDAF:

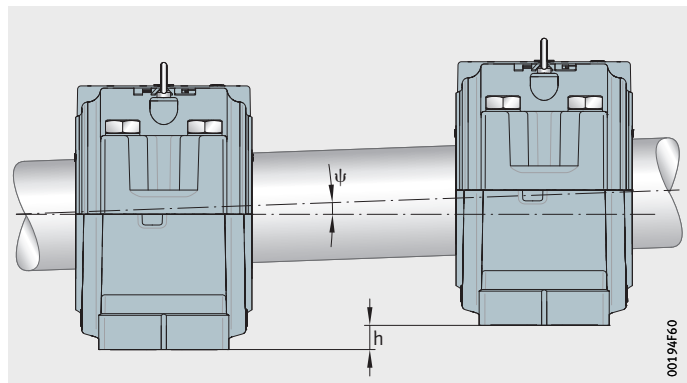
- labyrinth seal: up to 0.3°
- FAG MaxTAC seal: up to 0.3°
- FAG SuperTAC II seal: up to 0.5°

Differences in level must therefore be compensated such that the misalignment of the shaft is no greater than permitted. Levelling shims can be used for this purpose.

In addition, it must be ensured that the bearings mounted can compensate the misalignments present.

ψ = misalignment of shaft
 h = difference in level between locating surfaces

Figure 2
Misalignment of the shaft



Checking the bearing seats on the shaft

The bearing seats on the shaft must be free from impact marks and burrs and must have adequate dimensional and geometrical accuracy.

The requirements for dimensional and geometrical accuracy of the bearing seats for a tapered bearing bore and location by adapter sleeve are as follows:

- diameter to tolerance zone h9
- cylindricity tolerance within IT6/2

The requirements for dimensional and geometrical accuracy of the bearing seats for a cylindrical bearing bore and direct seating of the bearing on the shaft are dependent on the operating conditions. They are generally defined for the specific application by the designer.

Checking the requirement for horizontal location

In addition to the base bolts, horizontal location of the housing is necessary if one of the following conditions is fulfilled:

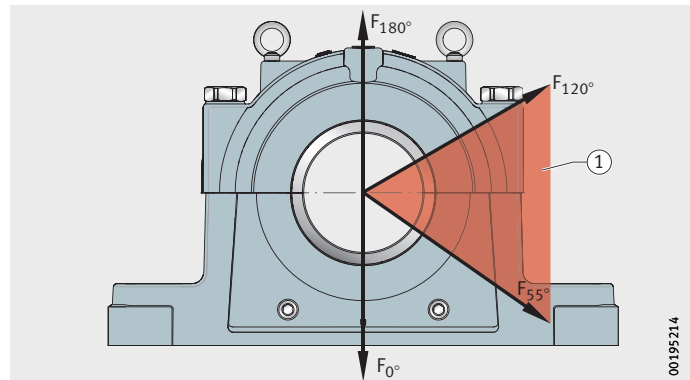
- The load angle is between 55° and 120° , *Figure 3*.
- Axial load is present.

Whether horizontal location of the housing is necessary should be checked by the designer of the machine or equipment.

It is recommended that horizontal location is carried out by means of stops in the load direction. The lower housing section is therefore provided with machined locating faces.

① Load angle range within which horizontal location of the housing is necessary

Figure 3
Load directions in the split pillow block housing SAF, SDAF



Split pillow block housings SAF, SDAF

Cleanliness Contamination can shorten the operating life of rolling bearings and must therefore be prevented.

NOTICE

Residues of cleaning agents can contribute to contamination. Only use volatile solvents and lint-free cloths for cleaning. <

Measures for ensuring cleanliness are as follows:

- Ensure that the mounting area is clean.
- Clean the mounting surface.
- Clean the housing, seals and endcover, paying particular attention to any machining or moulding sand residues.
- After cleaning, lightly grease the labyrinth rings of the seals with the grease to be used for lubrication of the bearing.
- Do not remove rolling bearings and adapter sleeves from their packaging until immediately before mounting. Do not remove the anti-corrosion protection on these components.

Mounting

Locating and greasing the lower housing section

The lower housing section should be located on the locating surface and greased as follows, *Figure 4*:

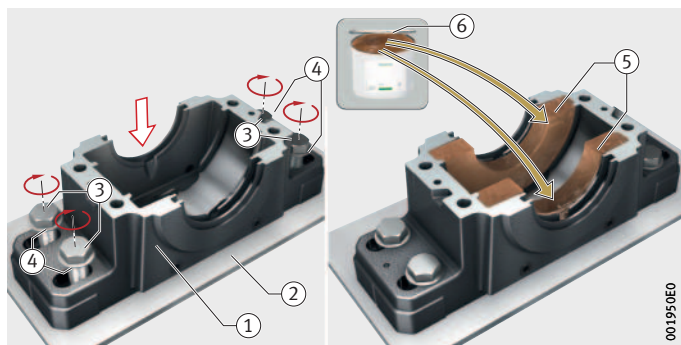
⚠ WARNING

Rupture of the eye bolts. Severe personal injury or damage to property as a result of the falling housing. Always use both eye bolts and screw them in completely. ◀

- ▶ Place the lower housing section in the correct mounting position on the locating surface. The complete housing can first be set down and the upper section housing can then be lifted off again.
- ▶ Insert base bolts each with a support washer in the lower housing section.
- ▶ Screw the base bolts into place but do not tighten them fully.
- ▶ Introduce a portion of the grease to be used for initial greasing into the lower housing section on both sides of the ultimate bearing position. Grease quantity for initial greasing, see page 28.
- ▶ If labyrinth seals are to be used: introduce grease additionally into the annular slots in the lower housing section.

- ① Lower housing section
- ② Locating surface
- ③ Base bolts
- ④ Support washers
- ⑤ Area for grease
- ⑥ Grease

Figure 4
Locating and greasing the lower housing section



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Mounting the inner seal

Of the two seals in a housing, the inner seal is mounted first on the shaft, followed by the bearing and then the outer seal.

Split pillow block housings SAF and SDAF can be sealed as standard by means of labyrinth seals or by means of taconite seals.

For closed end housing configurations, an endcover can replace one of the seals.

Variant 1: Labyrinth seal (SAF design)

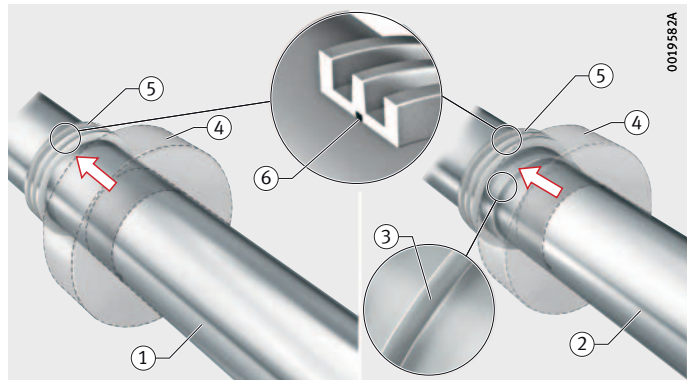
The labyrinth seal (SAF design) comprises the labyrinth ring and the mating contour in the upper and lower housing section.

The inner labyrinth seal (SAF design) is mounted as follows:

- ▶ Install the O ring in the groove in the bore of the labyrinth ring. A thin film of grease added to the groove before assembling the O ring will help to keep it in place during the installation.
- ▶ Non-stepped shaft, *Figure 5*, left: slide the labyrinth ring onto the shaft.
- ▶ Stepped shaft, *Figure 5*, right: slide the labyrinth ring onto the larger diameter of the shaft.
- ▶ Apply a film of grease to the O ring surface to reduce the friction in the installation.

- ① Non-stepped shaft
- ② Stepped shaft
- ③ Shaft shoulder
- ④ Planned bearing location
- ⑤ Labyrinth ring
- ⑥ O ring

Figure 5
Mounting of inner labyrinth seal
(SAF design)



**Variant 2:
Labyrinth seal
(SDAF and SAF030 series design)**

The labyrinth seal (SDAF and SAF030 series design) comprises the labyrinth ring and the mating contour in the upper and lower housing section. The labyrinth ring must be slid onto the shaft until the slot for the O ring is on the side facing away from the bearing.

The inner labyrinth seal (SDAF and SAF030 series design) is mounted as follows:

- ▶ Non-stepped shaft, *Figure 6*, left:
slide the labyrinth ring onto the shaft.
- ▶ Stepped shaft, *Figure 6*, right:
slide the labyrinth ring onto the larger diameter of the shaft.

The O ring is only fitted later in the slot in the labyrinth ring, see page 23. As a result, the labyrinth ring can initially still be displaced on the shaft.

- ① Non-stepped shaft
- ② Stepped shaft
- ③ Shaft shoulder
- ④ Planned bearing location
- ⑤ Labyrinth ring
- ⑥ Groove for O ring

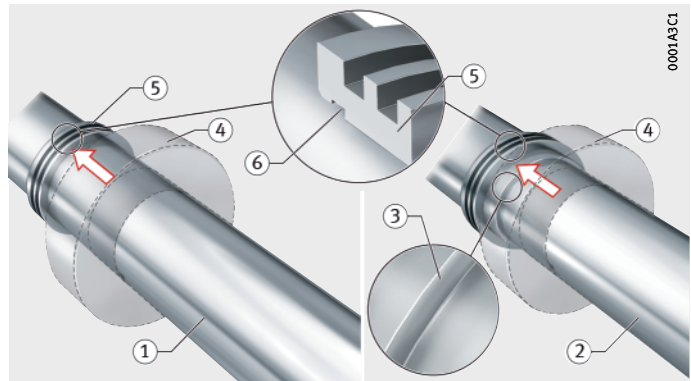


Figure 6
Mounting of inner labyrinth seal
(SDAF and SAF030 series design)

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Variant 3: FAG MaxTAC seal

On a non-stepped shaft, the inner MaxTAC seal is mounted as follows, *Figure 7*, left:

- ▶ Fit the O ring on the housing adapter ring.
- ▶ Slide the shaft ring onto the shaft, do not fully tighten the set screws.
- ▶ Slide the V ring onto the shaft such that the lip points towards the bearing position.
- ▶ Coat the V ring and labyrinth area of the shaft ring generously with grease.
- ▶ Slide the housing adapter ring onto the shaft.

On a stepped shaft, the inner MaxTAC seal is mounted as follows, *Figure 7*, right:

- ▶ Assemble the inner MaxTAC seal on the larger diameter of the shaft. The assembly procedure is the same as above (non-stepped shaft).

- ① Non-stepped shaft
- ② Stepped shaft
- ③ Shaft shoulder
- ④ Planned bearing location
- ⑤ O ring
- ⑥ Shaft ring
- ⑦ Set screw
- ⑧ V ring
- ⑨ Grease
- ⑩ Housing adapter ring

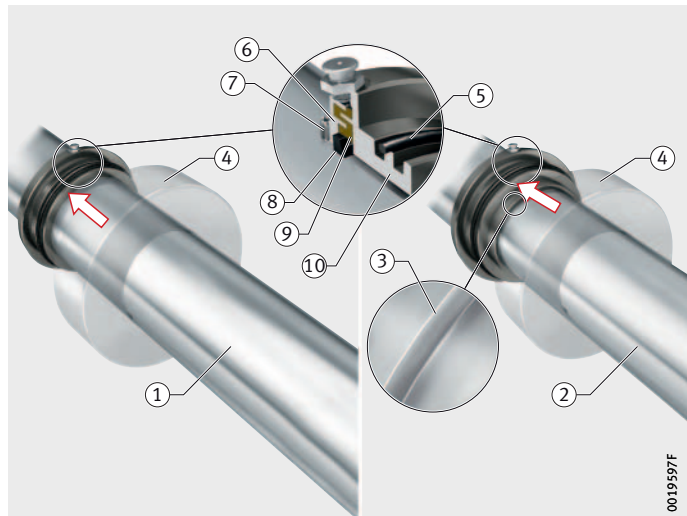


Figure 7
Mounting the inner MaxTAC seal

**Variant 4:
FAG SuperTAC II seal**

The SuperTAC II seal is prepared for mounting as follows:

- ▶ Separate the taconite flinger from the housing adapter ring. Slight resistance is expected due to the inherent spring tension of the laminar rings.
- ▶ Install the O ring in the groove in the bore of the taconite flinger. A thin film of grease added to the groove before assembling the O ring will help to keep it in place during the installation.

On a non-stepped shaft, the inner SuperTAC II seal is mounted as follows, *Figure 8*, left:

- ▶ Coat the taconite flinger O ring with grease and assemble onto to the shaft. Slide the taconite flinger to required installation area.
- ▶ Pack the laminar ring area and the labyrinth of the taconite flinger with grease.
- ▶ Fit the O ring on the housing adapter ring.
- ▶ Slide the housing adapter ring along the shaft.
- ▶ Assemble the taconite flinger and housing adapter ring together.

On a stepped shaft, the inner SuperTAC II seal is mounted as follows, *Figure 8*, right:

- ▶ Assemble the inner SuperTAC II seal on the larger diameter of the shaft. The assembly procedure is the same as above (non-stepped shaft).

- ① Non-stepped shaft
- ② Stepped shaft
- ③ Shaft shoulder
- ④ Planned bearing location
- ⑤ Taconite flinger
- ⑥ O ring of taconite flinger
- ⑦ Laminar rings
- ⑧ Housing adapter ring
- ⑨ O ring of housing adapter ring
- ⑩ Grease

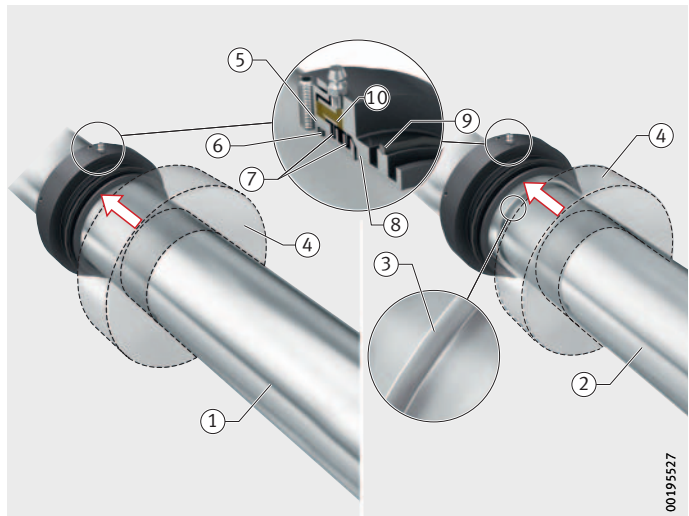


Figure 8
Mounting the inner SuperTAC II seal

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Mounting a bearing with a tapered bearing bore

This section describes the mounting of a bearing with a tapered bore and adapter sleeve on the shaft.

Mounting of a bearing with a cylindrical bore is described in a separate section, see page 18.

The mounting of sealed spherical roller bearings and split spherical roller bearings must be considered as a special case and is not described in this mounting manual. If necessary, please contact us.

Recommendation of the hydraulic method

Where the bearing must be slid onto the adapter sleeve, the hydraulic method is recommended in the case of larger diameters. In the hydraulic method, oil is injected under pressure between the bearing and adapter sleeve, giving a significant reduction in the force required for sliding on. After the bearing has been slid on, the bearing seat is relieved of oil pressure.

Further information

- Mounting Handbook MH 1, Mounting of rotary bearings
<https://www.schaeffler.de/std/1F86>
- Technical Product Information TPI 195, Hydraulic Pumps
<https://www.schaeffler.de/std/1F8D>

Measurement of radial internal clearance

Rigid seating is indicated by the reduction in the radial internal clearance or, if it is not possible to measure the radial internal clearance at the bearing position, by the axial drive-up distance of the bearing on the sleeve. During mounting, the radial internal clearance or

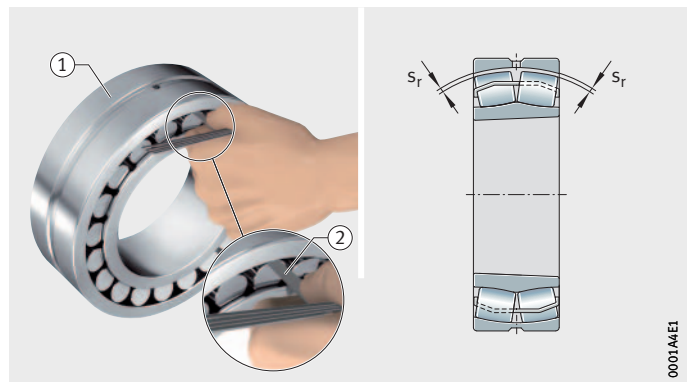
the axial drive-up distance must be measured continuously until the specified value is achieved, see *table*, page 35.

The radial internal clearance of spherical roller bearings is measured by means of feeler gauges. In spherical roller bearings, the radial internal clearance must be measured simultaneously over both rows of rollers, *Figure 9*.

s_r = radial internal clearance

- ① Spherical roller bearing
- ② Feeler gauge

Figure 9
Measurement of the radial internal clearance of a spherical roller bearing



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Mounting a bearing with a tapered bore and adapter sleeve

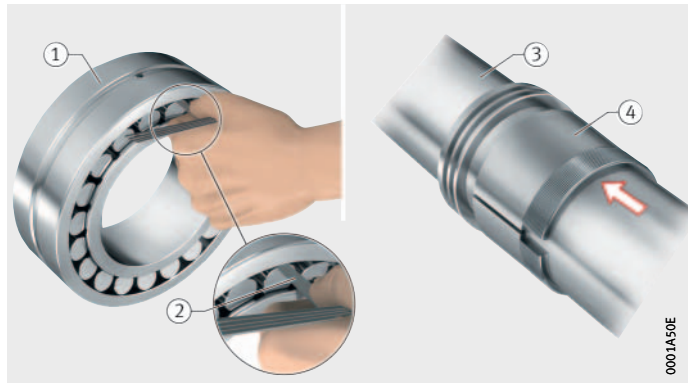
For mounting of a bearing with a tapered bore and an adapter sleeve, there are various methods for applying the force necessary to achieve axial drive-up of the bearing.

This manual describes the method using a hydraulic nut, *Figure 10* to *Figure 14*, page 17:

- ▶ Measure the radial internal clearance and note the value, *Figure 10*.
- ▶ Slide the adapter sleeve onto the shaft, *Figure 10*.
- ▶ Slide the bearing onto the adapter sleeve, *Figure 11*.
- ▶ Screw the hydraulic nut onto the thread of the adapter sleeve and tighten until the bearing is seated fully on the adapter sleeve, *Figure 11*.

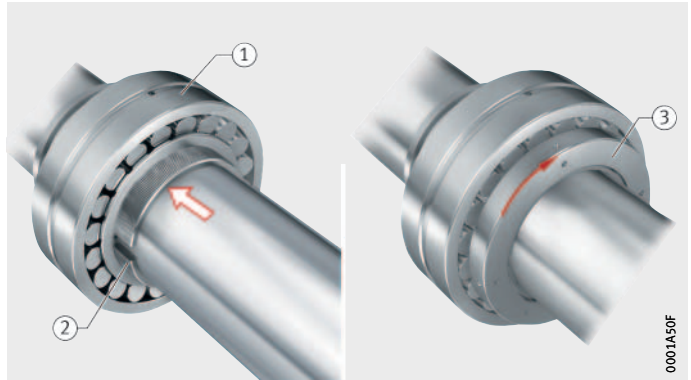
- ① Bearing
- ② Feeler gauge
- ③ Shaft
- ④ Adapter sleeve

Figure 10
Measuring the radial internal clearance, sliding on the adapter sleeve



- ① Bearing
- ② Adapter sleeve
- ③ Hydraulic nut

Figure 11
Sliding on the bearing, tightening the hydraulic nut



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- ▶ Check the position of the bearing. Take account of the drive-up distance of the bearing on the sleeve in subsequent sliding on, *Figure 12*.

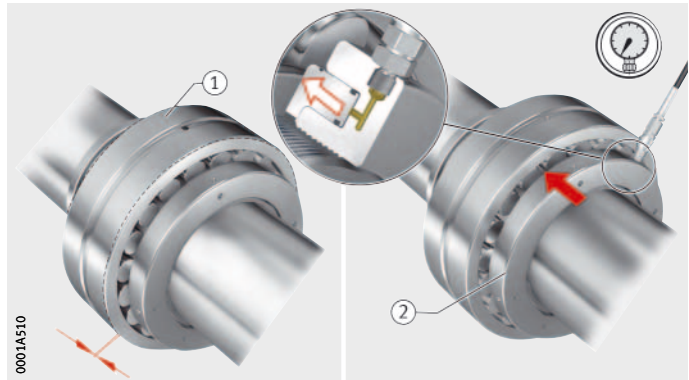
⚠ WARNING

Risk of severe injury due to escape of hydraulic oil at high pressure. Use hydraulic hoses and devices only if in acceptable condition. Observe the operating manuals for the devices. ◀

- ▶ When using the hydraulic method: subject the bearing seat to oil pressure.
- ▶ Slide the bearing onto the sleeve using the hydraulic nut until the required reduction in the radial internal clearance is achieved, *Figure 12*. When using the hydraulic method, the oil pressure must be zero during measurement of the radial internal clearance.
- ▶ When using the hydraulic method: relieve the bearing seat of oil pressure and wait until the oil has escaped from the joint without leaving any residue.
- ▶ Relieve the hydraulic nut of oil pressure.
- ▶ Unscrew the hydraulic nut.

- ① Bearing
- ② Hydraulic nut

Figure 12
Checking the position of the bearing, sliding the bearing onto the adapter sleeve



NOTICE

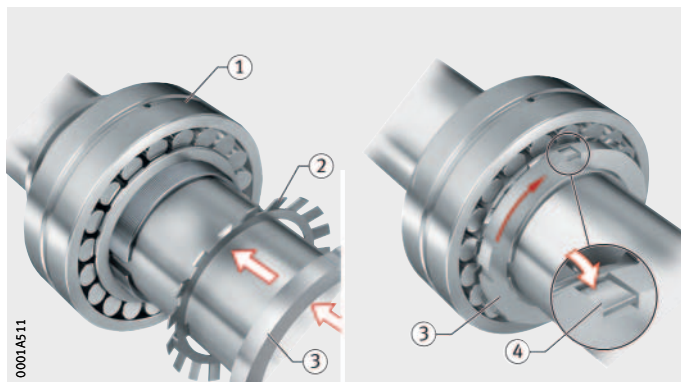
If the locknut is not secured, the rigid seating of the bearing may become loosened. Secure the locknut by means of a lockwasher or lockplate. ◀

The locknut is secured by means of a lockwasher as follows, *Figure 13*:

- ▶ Slide the lockwasher onto the adapter sleeve.
- ▶ Tighten the locknut until it abuts the bearing.
- ▶ Bend back the tab on the lockwasher.
- ▶ Check the radial internal clearance.

- ① Bearing
- ② Lockwasher
- ③ Locknut
- ④ Tab on lockwasher

Figure 13
Securing the locknut
by means of a lockwasher

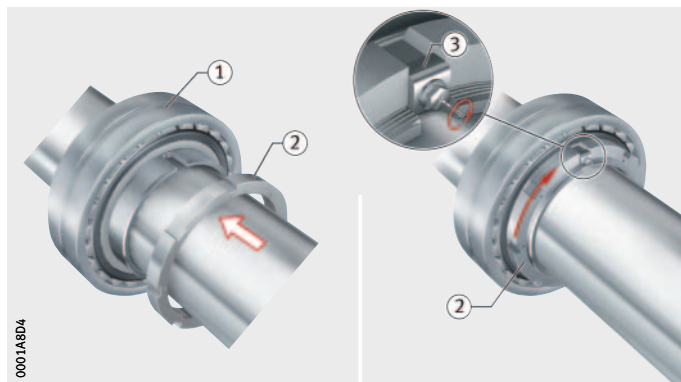


The locknut is secured by means of a lockplate as follows, *Figure 14*:

- ▶ Tighten the locknut until it abuts the bearing.
- ▶ Tighten the lockplate against the locknut until it engages in one slot each in the locknut and the adapter sleeve.
- ▶ Check the radial internal clearance.

- ① Bearing
- ② Locknut
- ③ Lockplate

Figure 14
Securing the locknut
by means of a lockplate



Further information

- Technical Product Information
TPI 195, Hydraulic Pumps
<https://www.schaeffler.de/std/1F8D>
- Technical Product Information
TPI 196, Hydraulic Nut HYDNUT
<https://www.schaeffler.de/std/1F8E>

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Mounting a bearing with a cylindrical bearing bore

This section describes the mounting of a bearing with a cylindrical bore on the shaft.

Mounting of a bearing with a tapered bore and an adapter sleeve is described in a separate section, see page 14.

Recommendation of the thermal method

Where the bearing must be slid onto the shaft, the thermal method is recommended. In the thermal method, the bearing is heated until the bore diameter of the bearing increases as a result of thermal expansion and the bearing can be easily slid onto the shaft. In general, the bearing is slid onto a cylindrical shaft until the inner ring abuts a bearing shoulder.

Further information

- Mounting Handbook MH 1, Mounting of rotary bearings
<https://www.schaeffler.de/std/1F86>
- Technical Product Information
TPI 200, Induction Heating Devices HEATER
<https://www.schaeffler.de/std/1F8F>

Mounting a bearing with a cylindrical bearing bore

Bearings with a cylindrical bore are mounted on a stepped shaft. A bearing with a cylindrical bore is mounted using the thermal method as follows, *Figure 15* and *Figure 16*, page 19:

- ▶ Apply a thin coating of mounting paste to the bearing seat on the shaft, *Figure 15*, page 19.
We recommend the mounting paste ARCANOL-MOUNTINGPASTE2 from Schaeffler.

⚠ WARNING

Risk of burns during heating of the bearing.

Wear heat-resistant safety gloves. ◀

NOTICE

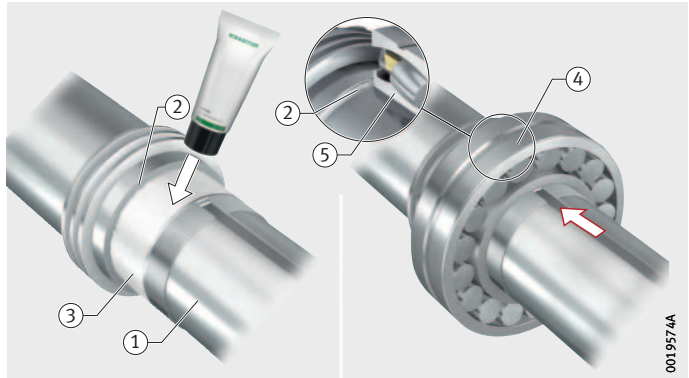
Risk of damage to the bearing due to incorrect heating.

Observe the maximum heating temperature of +120 °C. In the case of non-separable bearings, carry out heating using a heating device at reduced power or in stages. ◀

- ▶ Heat the bearing.
- ▶ Slide the hot bearing onto the shaft until the inner ring abuts the shaft shoulder, *Figure 15*, page 19.
- ▶ For large bearings:
locate the bearing axially during cooling.
- ▶ Check the abutment of the inner ring against the shaft shoulder by means of a feeler gauge, *Figure 16*, page 19.
- ▶ Slide the lockwasher onto the shaft.
- ▶ Tighten the locknut until it abuts the bearing.
- ▶ Bend back the tab on the lockwasher.

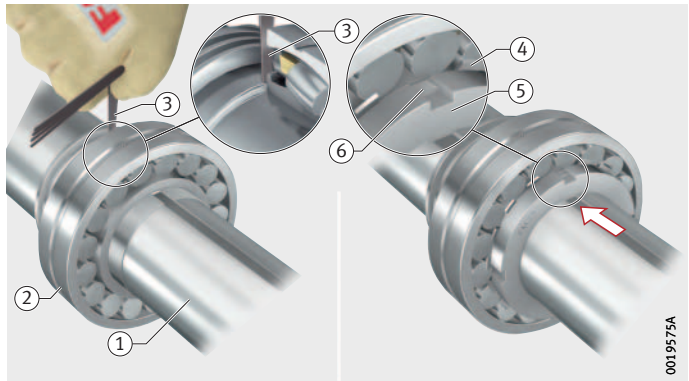
- ① Shaft
- ② Shaft shoulder
- ③ Mounting paste
- ④ Bearing
- ⑤ Inner ring of bearing

Figure 15
Applying mounting paste,
sliding on the bearing



- ① Shaft
- ② Bearing
- ③ Feeler gauge
- ④ Lockwasher
- ⑤ Locknut
- ⑥ Tab on lockwasher

Figure 16
Checking abutment of the inner ring,
mounting lockwasher and locknut



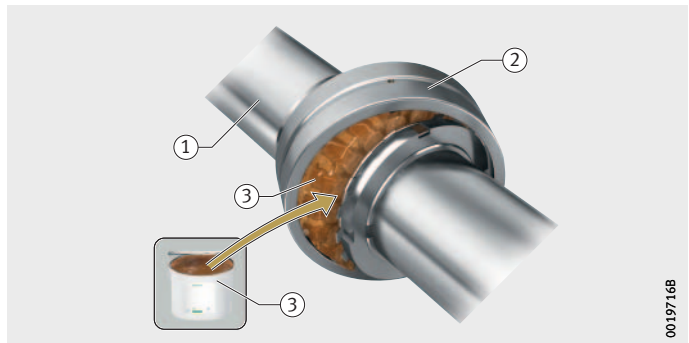
Greasing the bearing

The bearing is greased as follows, *Figure 17*:

- With the outer ring swivelled out, fill the free cavities of the bearing completely with grease.

- ① Shaft
- ② Outer ring of bearing
- ③ Grease

Figure 17
Greasing the bearing



Mounting the outer seal

In the case of a continuous shaft, the outer seal is mounted on the shaft in a similar manner as the previously mounted inner seal. In the case of a housing closed on one side, this operation is omitted.

Split pillow block housings SAF, SDAF

Inserting the shaft and locating rings in the housing

Non-locating bearing arrangement

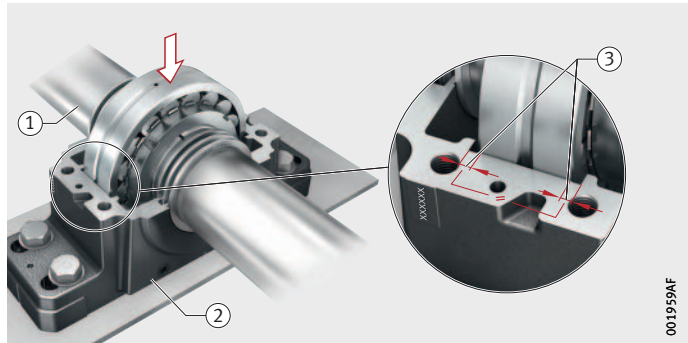
Locating rings are always necessary if the bearing position is to be realized as a locating bearing arrangement.

In the case of a non-locating bearing arrangement, the shaft must be inserted in the housing until the bearing is seated centrally on the bearing seating surface of the housing. As a result, the drive-up distance of the bearing in the housing is equally large on both sides. The shaft is inserted in the housing as follows, *Figure 18*:

- ▶ Insert the subassembly comprising the shaft, bearing and sealing rings in the lower housing section, observing the drive-up distance of the bearing.

- ① Shaft
- ② Lower housing section
- ③ Drive-up distance of bearing in housing

Figure 18
Inserting the shaft,
non-locating bearing arrangement



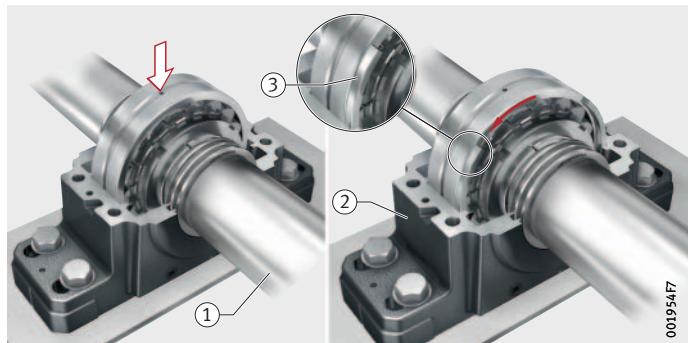
Locating bearing arrangement

The shaft and locating rings are inserted in the housing as follows, *Figure 19*:

- ▶ Insert the subassembly comprising the shaft, bearing and sealing rings in the lower housing section.
- ▶ For SAFD200 and SAF500:
Insert the locating ring in the housing, *Figure 19*.
- ▶ For large SAF and SDAF:
Insert the locating rings in the housing, one locating ring on each side of the bearing.
- ▶ Position the locating rings so that their opening faces upwards.

- ① Shaft
- ② Lower housing section
- ③ Locating ring

Figure 19
Inserting the shaft and
the locating ring(s),
locating bearing arrangement
(example: SAF500)



Inserting the endcover

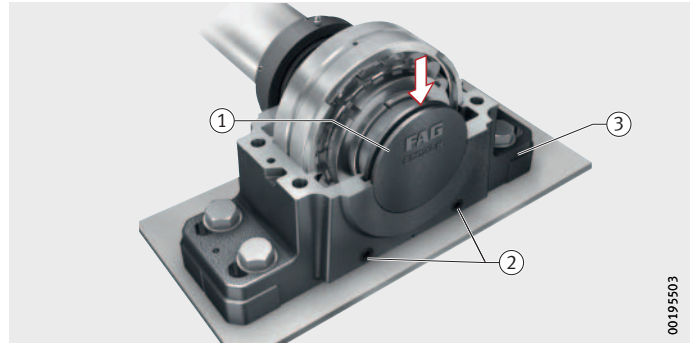
In the case of a housing closed on one side, the endcover is inserted on one side of the housing. In the case of a continuous shaft, this operation is omitted.

The endcover is inserted as follows, *Figure 20*:

- ▶ Insert the endcover from above in the lower housing section.

- ① Endcover
- ② Machined drain holes
- ③ Lower housing section

Figure 20
Inserting the endcover
in a housing closed on one side



Aligning the housing

Precise alignment of the housing is a prerequisite for high operational security and long life of the seals and bearing.

The lower housing section includes the following features that assist in alignment:

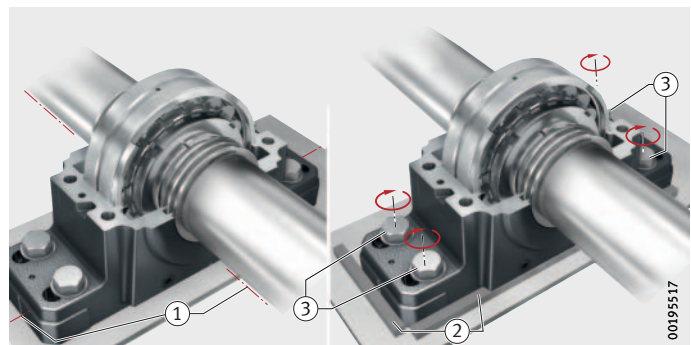
- Indentations indicate the shaft and bearing centres in the housing.
- Machined locating faces facilitate precise alignment.

The housing is aligned as follows, *Figure 21*:

- ▶ First align the housing approximately. This should be based on the indentations in the lower housing section.
- ▶ Align the housing precisely. Use the machined locating faces on the lower housing section, in conjunction with suitable locating strips.
- ▶ Lightly tighten the base bolts.

- ① Approximate alignment by means of indentations
- ② Precise alignment by means of locating faces and strips
- ③ Base bolts

Figure 21
Aligning the housing



Split pillow block housings SAF, SDAF

Greasing and mounting the upper housing section

The upper housing section is greased and mounted as follows, *Figure 22*:

- ▶ Introduce a portion of the grease to be used for initial greasing into the upper housing section on both sides of the ultimate bearing position. Grease quantity for initial greasing, see page 28.
- ▶ If labyrinth seals are to be used: introduce grease additionally into the annular slots in the upper housing section.
- ▶ Check whether the upper and lower housing sections have matching serial numbering.

⚠ WARNING

Rupture of the eye bolts. Severe personal injury or damage to property as a result of the falling housing. Always use both eye bolts and screw them in completely. ◀

- ▶ Place the upper housing section on the lower housing section.
- ▶ Drive in the dowel pins connecting the upper and lower housing section.
- ▶ Tighten the cap bolts in a crosswise sequence to the recommended tightening torque, see page 33.

- ① Upper housing section
- ② Area for grease
- ③ Grease
- ④ Lower housing section
- ⑤ Serial numbering
- ⑥ Dowel pins
- ⑦ Cap bolts

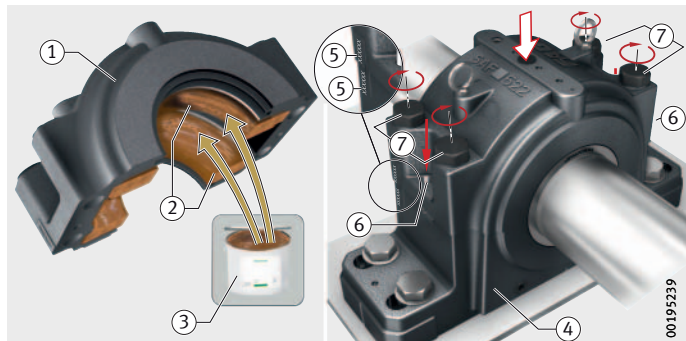


Figure 22
Greasing and mounting the upper housing section

Final mounting of the housing

The lower housing section is finally bolted to the locating surface as follows, *Figure 23*:

- ▶ Check the alignment of the housing and correct if necessary.
- ▶ Tighten the base bolts in a crosswise sequence to the recommended tightening torque, see page 31.

- ① Base bolts

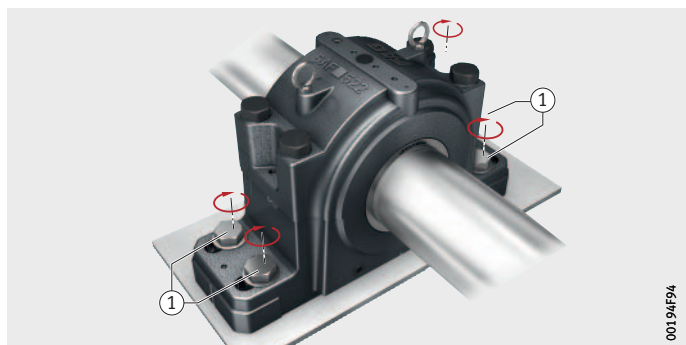


Figure 23
Final mounting of the housing

Final mounting of the seals

For some seal variants, final mounting operations are required.

Variant 1: Labyrinth seal (SAF design)

No final mounting operation required.

Variant 2: Labyrinth seal (SDAF and SAF030 series design)

Mounting of the labyrinth rings on both sides of the housing is completed by inserting O rings. This can be carried out using, for example, a screwdriver with rounded corners.

Inserting the O rings, *Figure 24*:

- ▶ Position the labyrinth ring on the shaft such that it is seated centrally in the appropriate annular slot in the housing.

NOTICE

Take care if using sharp-edged tools. Damage to O ring. Only use rounded tools. <

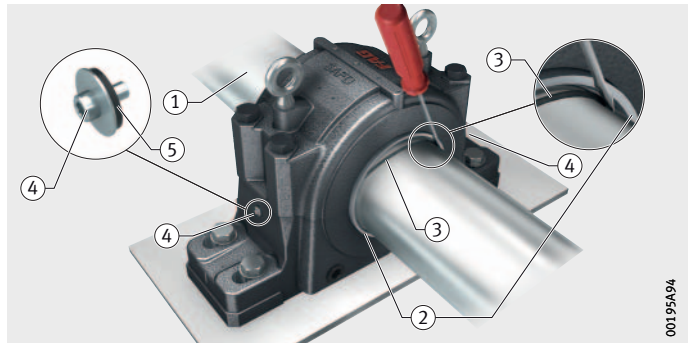
- ▶ Insert the O ring in the slot in the labyrinth ring. Rotate the shaft and carefully press the O ring into the slot using a suitable tool.

If temperatures of more than +125 °C can occur during operation:

- ▶ On both sides of the housing, unscrew the screw located at the position for the vibration sensor.
- ▶ Remove the plastic support washer.
- ▶ Screw the screw back in.

- ① Shaft
- ② Labyrinth ring
- ③ O ring
- ④ Screw at position for vibration sensor
- ⑤ Plastic support washer

Figure 24
Inserting the O ring in the slot in the labyrinth ring



Split pillow block housings SAF, SDAF

Variant 3: FAG MaxTAC seal

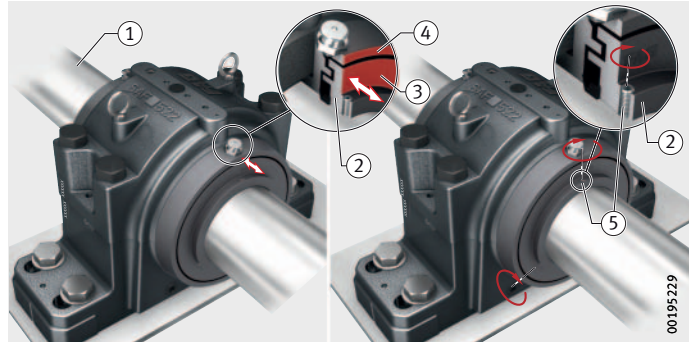
If MaxTAC seals are used on both sides of the housing, the position on the shaft ring of the MaxTAC seal must be set.

Adjusting the MaxTAC seal, *Figure 25*:

- Position the MaxTAC seal axially such that the end faces of the shaft ring and the housing adapter ring are flush.
- Fully tighten the shaft ring on the shaft using the set screws provided.

- ① Shaft
- ② Shaft ring
- ③ End face of shaft ring
- ④ End face of housing adapter ring
- ⑤ Set screws

Figure 25
Setting the position of the shaft ring of the MaxTAC seal



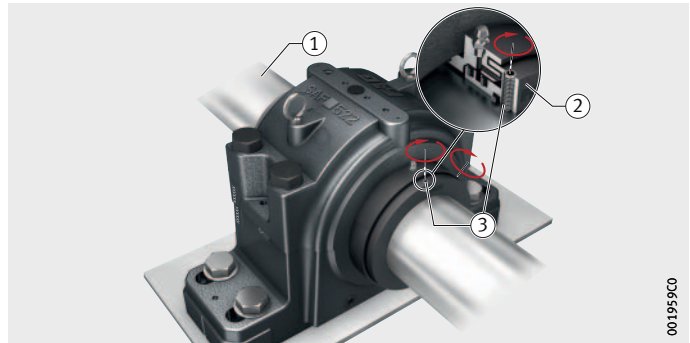
Variant 4: FAG SuperTAC II seal

Mounting of the SuperTAC II seals on both sides of the housing is completed as follows, *Figure 26*:

- Fully tighten the taconite flinger on the shaft using the set screws provided.

- ① Shaft
- ② Taconite flinger
- ③ Set screws

Figure 26
Tightening of the set screws of the SuperTAC II seal



Checking the tightening torques

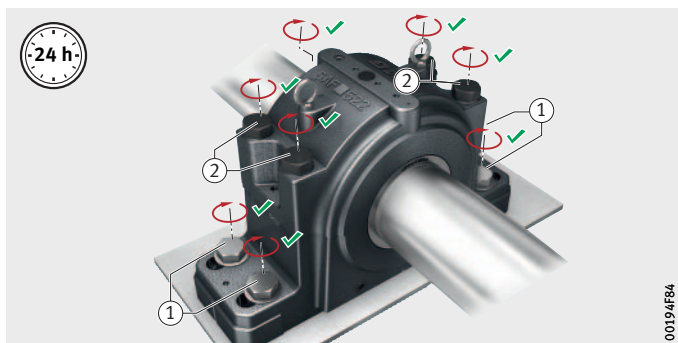
Settling of bolt connections can lead to a reduction in bolt preload. The tightening torques must therefore be checked after 24 hours of operation.

The tightening torques are checked as follows, *Figure 27*:

- ▶ Check the tightening torques of the base bolts, see page 31.
- ▶ Check the tightening torques of the cap bolts, see page 33.
- ▷ Mounting of the housing is now complete.

- ① Base bolts
- ② Cap bolts

Figure 27
Checking the tightening torques



Split pillow block housings SAF, SDAF

Operating guidelines

Careful maintenance of the housing in conjunction with monitoring of the operating condition of the bearing position makes a significant contribution towards achieving a long operating life and reliable operation.

Maintenance

Regular maintenance must be carried out and the intervals for the various maintenance operations are dependent on the ambient and operating conditions.



Danger of death if maintenance operations are carried out on a machine that is still running.

Only carry out maintenance operations when the machine is at a standstill. Take precautions to prevent unintentional startup of the machine. <

Regular maintenance operations are as follows:

- Check the alignment of the housing.
- Retighten the base bolts and cap bolts. This should be carried out more frequently at first after commissioning and at longer intervals later.
- Inspect the housing for damage. Any indications such as conspicuous noise or unusual grease escape must also be noted.
- Relubricate the seals. Taconite seals are equipped for this purpose with lubrication nipples. If the ambient air contains high levels of dust, the seals must be relubricated more frequently.
- Carry out a grease change. The housing must be opened and the used grease replaced by new grease.
- As an alternative to a grease change, relubrication can be carried out. For this purpose, a lubrication nipple is provided in the upper housing section. During relubrication, the grease outlet holes in the lower housing section must be left open.
- Clean the housing to remove baked-on material and other coarse contaminants.

NOTICE

If cleaning is not carried out correctly, contamination or moisture may enter the housing.

In the area of the seals in particular, do not use compressed air, steam cleaners or comparable cleaning methods. <

Automatic relubrication

For automatic relubrication, Schaeffler offers a range of lubrication systems and lubricators. These supply lubrication points with fresh lubricant automatically, in the defined quantity and at the defined time.

Further information

- Technical Product Information
TPI 252, Lubricators for grease and oil lubrication
<https://www.schaeffler.de/std/1F84>

Condition monitoring

Operating condition can be monitored at regular intervals or continuously (Condition Monitoring). The objective is to detect damage at an early stage in order to prevent major damage and long downtime by means of appropriately scheduled repair.

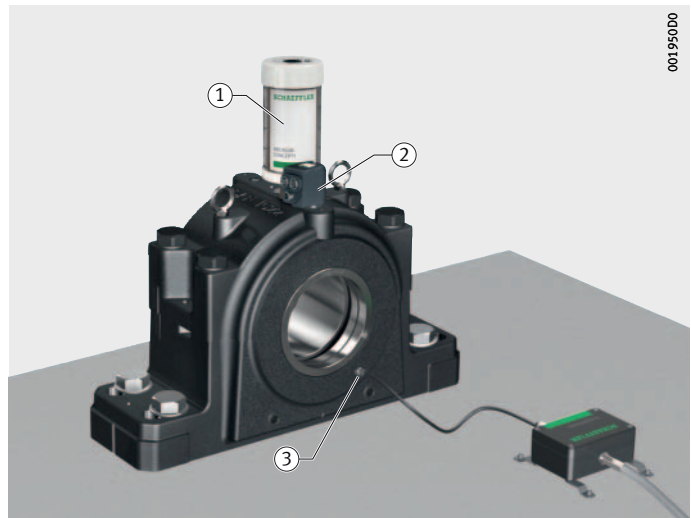
Recommendations for condition monitoring are as follows:

- Vibration monitoring is the most important element of condition monitoring. This can be used to detect rolling bearing damage as well as imbalance or alignment errors.
- Temperature monitoring can be used to detect unusual heating of the housing body, seals or bearing.
- Lubricant monitoring can be carried out by means of a grease sensor in order to assess grease condition and facilitate targeted relubrication.

Schaeffler offers a wide portfolio of products for condition monitoring. One example shows a split pillow block housing equipped with an online monitoring system for vibration diagnosis and with a grease sensor, *Figure 28*.

- ① Lubrication system CONCEPT1
- ② Online monitoring system for vibration diagnosis, Schaeffler SmartCheck
- ③ Grease sensor Schaeffler GreaseCheck

Figure 28
Split pillow block housing SAF,
fitted with lubrication system and
condition monitoring



Replacement parts

Seals and other individual parts can be ordered separately as replacement parts. Information on the selection and ordering designation of seals can be found in the dimension tables in TPI 229. If you have any questions, please contact our Engineering Offices.

Further information

- Technical Product Information
TPI 229, Split Pillow Block Housings SAF
<https://www.schaeffler.de/std/1F90>

Split pillow block housings SAF, SDAF

Appendix

Grease quantities for initial greasing

The grease quantity for initial greasing can be determined for each housing-bearing combination using a basic rule.

Basic rule

For initial greasing, the basic rule is that the bearing should be filled with grease to 100% and the free volume of the housing to 60%. The free volume is the space that remains in the housing once the bearing, adapter sleeve, shaft and seals have been fitted.

Recommended grease quantity for selected housing-bearing combinations

The recommended grease quantity is stated in grams and takes account of the following:

- filling of the free volume to 60%
- grease with a density of 0.9 g/cm^3

**Recommended grease quantity
(bearing)**

SRB bearing bore code	Series			
	SRB 222	SRB 230	SRB 231	SRB 232
	Recommended grease volume 100% fill ≈ g			
09	20	–	–	–
10	20	–	–	–
11	30	–	–	–
13	45	–	–	–
15	50	–	–	–
16	75	–	–	–
17	80	–	–	–
18	105	–	–	–
20	150	–	–	–
22	260	–	–	–
24	265	–	–	–
26	340	–	–	–
28	410	–	–	–
30	525	–	–	–
32	655	–	–	–
34	880	–	–	–
36	890	–	–	–
38	1 070	–	–	–
40	1 220	–	1 220	–
44	1 695	880	1 505	–
48	–	610	1 865	3 105
52	–	1 240	2 435	4 130
56	–	1 505	2 505	5 150
60	–	1 980	3 620	5 605
64	–	2 200	4 630	6 905
68	–	2 940	6 025	8 395
72	–	3 165	5 750	9 150
76	–	3 190	6 045	10 430
80	–	3 915	7 320	12 305
84	–	3 615	9 705	15 690
88	–	4 445	9 935	16 020
92	–	5 365	11 780	18 905
96	–	5 705	13 170	21 305
/500	–	5 715	–	–
/530	–	7 635	–	–

Split pillow block housings SAF, SDAF

Recommended grease quantity (housing)

SRB bearing bore code	Series									
	SRB 222	SRB 222..-K	SRB 230	SRB 230..-K	SRB 230	SRB 230..-K	SRB 231	SRB 231..-K	SRB 232	SRB 232..-K
	SAFD200	SAF500	SAF0		SDAF0		SDAF31		SDAF32	
	Recommended grease quantity 60% fill ≈ g									
09	-	85	-	-	-	-	-	-	-	-
10	-	110	-	-	-	-	-	-	-	-
11	-	140	-	-	-	-	-	-	-	-
13	-	220	-	-	-	-	-	-	-	-
15	-	250	-	-	-	-	-	-	-	-
16	370	370	-	-	-	-	-	-	-	-
17	375	375	-	-	-	-	-	-	-	-
18	400	400	-	-	-	-	-	-	-	-
20	600	600	-	-	-	-	-	-	-	-
22	800	800	-	-	-	-	-	-	-	-
24	1 130	1 130	-	-	-	-	-	-	-	-
26	1 475	1 475	-	-	-	-	-	-	-	-
28	1 500	1 500	-	-	-	-	-	-	-	-
30	1 700	1 700	-	-	-	-	-	-	-	-
32	1 930	1 930	-	-	-	-	-	-	-	-
34	2 400	2 400	-	-	-	-	-	-	-	-
36	2 700	2 700	-	-	-	-	-	-	-	-
38	3 390	3 390	-	-	-	-	-	-	-	-
40	3 900	3 900	-	-	-	-	-	-	-	-
44	5 200	5 200	3 390	3 390	-	-	-	-	-	-
48	-	-	3 900	3 900	-	-	-	-	3 265	3 265
52	-	-	5 200	5 200	-	-	3 265	3 265	5 305	5 305
56	-	-	6 325	6 325	-	-	5 305	5 305	4 490	4 490
60	-	-	-	-	5 305	5 305	4 490	4 490	6 125	6 125
64	-	-	-	-	4 490	4 490	5 715	5 715	7 345	7 345
68	-	-	-	-	5 715	5 715	7 345	7 345	7 760	7 760
72	-	-	-	-	5 715	5 715	7 760	7 760	8 980	8 980
76	-	-	-	-	6 125	6 125	5 715	5 715	7 760	7 760
80	-	-	-	-	7 760	7 760	7 760	7 760	12 655	12 655
84	-	-	-	-	5 715	5 715	13 065	13 065	11 840	11 840
88	-	-	-	-	7 760	7 760	11 430	11 430	11 020	11 020
92	-	-	-	-	7 760	7 760	11 840	11 840	15 515	15 515
96	-	-	-	-	13 065	13 065	11 020	11 020	13 065	13 065
/500	-	-	-	-	12 655	12 655	-	-	-	-
/530	-	-	-	-	11 840	11 840	-	-	-	-

Information on the recommended grease quantity for other housing/bearing combinations is available by agreement.

Nominal bolt sizes and tightening torques for base bolts

Base bolts are used for mounting the housing to the locating surface. They are not included in the scope of delivery of the housings.

The recommended tightening torque is based on 70% of proof load stress for SAE J429, ASTM A449 Grade 5 bolts assuming a friction factor of 0.15 (lubricated threads).

Base mounting bolts with unified coarse pitch thread according to ASTM A449 Grade 5.

Nominal bolt sizes and tightening torques for base bolts

Split pillow block housing						Base bolt size	Recommended tightening torque	
SAFD200	SAF500	SAF0	SDAF0	SDAF31	SDAF32		ft-lbs	Nm
–	SAF509	–	–	–	–	7/16" - 14 UNC	35	45
–	SAF510	–	–	–	–	1/2" - 13 UNC	55	70
–	SAF511	–	–	–	–			
–	SAF513	–	–	–	–			
–	SAF515	–	–	–	–	5/8" - 11 UNC	105	140
SAFD216	SAF516	–	–	–	–			
SAFD217	SAF517	–	–	–	–			
SAFD218	SAF518	–	–	–	–			
SAFD220	SAF520	–	–	–	–			
SAFD222	SAF522	–	–	–	–			
SAFD224	SAF524	–	–	–	–	3/4" - 10 UNC	185	255
SAFD226	SAF526	–	–	–	–			
SAFD228	SAF528	–	–	–	–			
SAFD230	SAF530	–	–	–	–			
SAFD232	SAF532	–	–	–	–			
SAFD234	SAF534	–	–	–	–			
SAFD236	SAF536	–	–	–	–			
SAFD238	SAF538	–	–	–	–			
SAFD240	SAF540	–	–	–	–			
SAFD244	SAF544	SAF044	–	–	–			
–	–	SAF048	–	–	–			
–	–	SAF052	–	–	–			
–	–	SAF056	–	–	–			
–	–	–	–	–	SDAF3248	1 5/8" - 5 1/2 UNC	1 290	1 745
–	–	–	–	SDAF3152	SDAF3252			
–	–	–	–	SDAF3156	SDAF3256			
–	–	–	SDAF060	SDAF3160	–			
–	–	–	SDAF064	–	–			
–	–	–	–	–	SDAF3260			
–	–	–	–	–	SDAF3164	1 7/8" - 5 UNC	2 000	2 710
–	–	–	SDAF068	–	–			
–	–	–	SDAF072	–	–			
–	–	–	SDAF076	–	–			
–	–	–	–	–	–			

continued ▾

Split pillow block housings SAF, SDAF

Nominal bolt sizes and tightening torques for base bolts

Split pillow block housing						Base bolt size	Recommended tightening torque	
SAFD200	SAF500	SAF0	SDAF0	SDAF31	SDAF32		ft.-lbs	Nm
-	-	-	-	-	SDAF3264	2" - 4 ¹ / ₂ UNC	2 405	3 260
-	-	-	-	SDAF3168	SDAF3268			
-	-	-	-	SDAF3172	-			
-	-	-	-	SDAF3176	-			
-	-	-	SDAF080	-	-			
-	-	-	SDAF084	-	-	2 ¹ / ₄ " - 4 ¹ / ₂ UNC	3 515	4 770
-	-	-	-	-	SDAF3272			
-	-	-	-	-	SDAF3276			
-	-	-	-	SDAF3180	SDAF3280			
-	-	-	-	SDAF3184	-			
-	-	-	SDAF088	SDAF3188	-	2 ¹ / ₂ " - 4 UNC	4 810	6 525
-	-	-	SDAF092	-	-			
-	-	-	SDAF096	-	-			
-	-	-	SDAF30/500	-	-			
-	-	-	-	-	SDAF3284			
-	-	-	-	-	SDAF3288	3" - 4 UNC	8 615	11 680
-	-	-	-	SDAF3192	SDAF3292			
-	-	-	-	SDAF3196	-			
-	-	-	SDAF30/530	-	-			
-	-	-	-	-	SDAF3296			

continued ▲

Nominal bolt sizes and tightening torques for cap bolts

Cap bolts are used for mounting the upper housing section to the lower housing section. They are included in the scope of delivery of the housing.

Nominal bolt sizes and tightening torques for cap bolts

Split pillow block housing						Cap bolt size	Recommended tightening torque	
SAFD200	SAF500	SAF0	SDAF0	SDAF31	SDAF32		ft.-lbs	Nm
–	SAF509	–	–	–	–	7/16" - 14 UNC	35	45
–	SAF510	–	–	–	–	1/2" - 13 UNC	55	70
–	SAF511	–	–	–	–			
–	SAF513	–	–	–	–			
–	SAF515	–	–	–	–			
–	FSAF515	–	–	–	–			
SAFD216	SAF516	–	–	–	–	5/8" - 11 UNC	105	140
FSAFD216	FSAF516	–	–	–	–			
SAFD217	SAF517	–	–	–	–			
FSAFD217	FSAF517	–	–	–	–			
SAFD218	SAF518	–	–	–	–			
FSAFD218	FSAF518	–	–	–	–			
SAFD220	SAF520	–	–	–	–			
FSAFD220	FSAF520	–	–	–	–			
SAFD222	SAF522	–	–	–	–			
SAFD224	SAF524	–	–	–	–			
SAFD226	SAF526	–	–	–	–	3/4" - 10 UNC	185	255
SAFD228	SAF528	–	–	–	–			
SAFD230	SAF530	–	–	–	–			
SAFD232	SAF532	–	–	–	–			
SAFD234	SAF534	–	–	–	–			
SAFD236	SAF536	–	–	–	–			
SAFD238	SAF538	–	–	–	–	1" - 8 UNC	450	610
SAFD240	SAF540	–	–	–	–			
–	–	SAF048	–	–	–	1 1/8" - 7 UNC	555	755
SAFD244	SAF544	SAF052	–	–	–	1 1/4" - 7 UNC	785	1 065
–	–	SAF056	–	–	–			
–	–	–	–	SDAF3152	SDAF3248	1 1/2" - 6 UNC	1 365	1 850
–	–	–	SDAF060	SDAF3156	–			
–	–	–	SDAF064	SDAF3160	SDAF3252			
–	–	–	–	–	SDAF3256			

continued ▼

Split pillow block housings SAF, SDAF

Nominal bolt sizes and tightening torques for cap bolts

Split pillow block housing						Cap bolt size	Recommended tightening torque	
SAFD200	SAF500	SAF0	SDAF0	SDAF31	SDAF32		ft.-lbs	Nm
-	-	-	SDAF072	SDAF3164	SDAF3260	1 ³ / ₄ " - 5 UNC	1 600	2 170
-	-	-	SDAF076	-	-			
-	-	-	-	SDAF3168	SDAF3264			
-	-	-	SDAF080	SDAF3172	-			
-	-	-	SDAF084	SDAF3176	SDAF3268			
-	-	-	SDAF068	-	-			
-	-	-	SDAF088	SDAF3180	SDAF3272	1 ⁷ / ₈ " - 5 UNC	2 000	2 710
-	-	-	SDAF092	-	SDAF3276			
-	-	-	SDAF096	SDAF3184	SDAF3280			
-	-	-	SDAF30/500	SDAF3188	-	2 ¹ / ₄ " - 4 ¹ / ₂ UNC	3 515	4 770
-	-	-	SDAF30/530	SDAF3192	SDAF3284			
-	-	-	-	SDAF3196	SDAF3288			
-	-	-	-	SDAF31/500	-			
-	-	-	-	SDAF31/530	SDAF3292			
-	-	-	-	-	SDAF3296			
-	-	-	-	-	-			

continued ▲

Reduction in the radial internal clearance and drive-up distance

In the mounting of bearings with a tapered bore and adapter sleeve, the bearing is slid onto the taper of the adapter sleeve. If the values specified for the drive-up distance on the taper and the reduction in the radial internal clearance are observed, this will ensure a rigid seat on the shaft.

Reduction in the radial internal clearance and drive-up distance on the taper 1:12

Nominal bore diameter		Reduction in radial internal clearance during mounting ¹⁾		Drive-up distance on taper 1:12 ¹⁾				Minimum radial internal clearance required after mounting, control value with		
d				Shaft		Sleeve		CN (Group N)	C3 (Group 3)	C4 (Group 4)
mm		mm		mm		mm		mm		mm
over	incl.	min.	max.	min.	max.	min.	max.	min.	min.	min.
40	50	0.025	0.03	0.4	0.45	0.45	0.5	0.02	0.03	0.05
50	65	0.03	0.04	0.45	0.6	0.5	0.7	0.025	0.035	0.055
65	80	0.04	0.05	0.6	0.75	0.7	0.85	0.025	0.04	0.07
80	100	0.045	0.06	0.7	0.9	0.75	1	0.035	0.05	0.08
100	120	0.05	0.07	0.7	1.1	0.8	1.2	0.05	0.065	0.1
120	140	0.065	0.09	1.1	1.4	1.2	1.5	0.055	0.08	0.11
140	160	0.075	0.1	1.2	1.6	1.3	1.7	0.055	0.09	0.13
160	180	0.08	0.11	1.3	1.7	1.4	1.9	0.06	0.1	0.15
180	200	0.09	0.13	1.4	2	1.5	2.2	0.07	0.1	0.16
200	225	0.1	0.14	1.6	2.2	1.7	2.4	0.08	0.12	0.18
225	250	0.11	0.15	1.7	2.4	1.8	2.6	0.09	0.13	0.2
250	280	0.12	0.17	1.9	2.6	2	2.9	0.1	0.14	0.22
280	315	0.13	0.19	2	3	2.2	3.2	0.11	0.15	0.24
315	355	0.15	0.21	2.4	3.4	2.6	3.6	0.12	0.17	0.26
355	400	0.17	0.23	2.6	3.6	2.9	3.9	0.13	0.19	0.29
400	450	0.2	0.26	3.1	4.1	3.4	4.4	0.13	0.2	0.31
450	500	0.21	0.28	3.3	4.4	3.6	4.8	0.16	0.23	0.35
500	560	0.24	0.32	3.7	5	4.1	5.4	0.17	0.25	0.36

¹⁾ Valid only for solid steel shafts and hollow shafts with a bore no larger than half the shaft diameter. The following applies: bearings with a radial internal clearance before mounting in the upper half of the tolerance range are mounted using the larger value for the reduction in radial internal clearance, while bearings in the lower half of the tolerance range are mounted using the smaller value for the reduction in radial internal clearance.

Split pillow block housings SAF, SDAF

Reduction in the radial internal clearance and drive-up distance on the taper 1:12

Nominal bore diameter d		Reduction in radial internal clearance during mounting ¹⁾		Drive-up distance on taper 1:12 ¹⁾				Minimum radial internal clearance required after mounting, control value with		
				Shaft		Sleeve		CN (Group N)	C3 (Group 3)	C4 (Group 4)
over	incl.	min.	max.	min.	max.	min.	max.	inch	inch	inch
40	50	0.001	0.0012	0.016	0.018	0.018	0.02	0.0008	0.0012	0.002
50	65	0.0012	0.0016	0.018	0.024	0.02	0.028	0.001	0.0014	0.0022
65	80	0.0016	0.002	0.024	0.03	0.028	0.033	0.001	0.0016	0.0028
80	100	0.0018	0.0024	0.028	0.035	0.03	0.039	0.0014	0.002	0.0031
100	120	0.002	0.0028	0.028	0.043	0.031	0.047	0.002	0.0026	0.0039
120	140	0.0026	0.0035	0.043	0.055	0.047	0.059	0.0022	0.0031	0.0043
140	160	0.003	0.0039	0.047	0.063	0.051	0.067	0.0022	0.0035	0.0051
160	180	0.0031	0.0043	0.051	0.067	0.055	0.075	0.0024	0.0039	0.0059
180	200	0.0035	0.0051	0.055	0.079	0.059	0.087	0.0028	0.0039	0.0063
200	225	0.0039	0.0055	0.063	0.087	0.067	0.094	0.0031	0.0047	0.0071
225	250	0.0043	0.0059	0.067	0.094	0.071	0.102	0.0035	0.0051	0.0079
250	280	0.0047	0.0067	0.075	0.102	0.079	0.114	0.0039	0.0055	0.0087
280	315	0.0051	0.0075	0.079	0.118	0.087	0.126	0.0043	0.0059	0.0094
315	355	0.0059	0.0083	0.094	0.134	0.102	0.142	0.0047	0.0067	0.0102
355	400	0.0067	0.0091	0.102	0.142	0.114	0.154	0.0051	0.0075	0.0114
400	450	0.0079	0.0102	0.122	0.161	0.134	0.173	0.0051	0.0079	0.0122
450	500	0.0083	0.011	0.13	0.173	0.142	0.189	0.0063	0.0091	0.0138
500	560	0.0094	0.0126	0.146	0.197	0.161	0.213	0.0067	0.0098	0.0142

¹⁾ Valid only for solid steel shafts and hollow shafts with a bore no larger than half the shaft diameter. The following applies: bearings with a radial internal clearance before mounting in the upper half of the tolerance range are mounted using the larger value for the reduction in radial internal clearance, while bearings in the lower half of the tolerance range are mounted using the smaller value for the reduction in radial internal clearance.

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