

# SNL plummer block housings

solve housing problems





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The SKF brand now stands for more than ever before, and means more to you as a valued customer.

While SKF maintains its leadership as a high-quality bearing manufacturer throughout the world, new dimensions in technical advances, product support and services have evolved SKF into a truly solutions-oriented supplier, creating greater value for customers.

These solutions enable customers to improve productivity, not only with breakthrough application-specific products, but also through leading-edge design simulation tools and consultancy services, plant asset efficiency maintenance programmes, and the industry's most advanced supply management techniques.

The SKF brand still stands for the very best in rolling bearings, but it now stands for much more.

**SKF – the knowledge engineering company**

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# Fewer bearing replacements and less maintenance

## Plummer block housings have much to offer

The main benefit of split plumber block housings is their easy installation; preassembled shafts can be mounted in them. When the housing bases are attached to the base plate, it is then only necessary to place the housing caps in position and to tighten the attachment bolts to complete the installation.

Split plumber block housings available on the market are mainly intended for self-aligning ball bearings, spherical roller bearings and CARB toroidal roller bearings of ISO Dimension Series 02, 03, 22, 23 and 32. They can often be fitted with a number of different seals. Many designs and variants of split plumber block housings are available, making the use of tailored housings unnecessary and thus enabling cost-effective bearing arrangements to be made.

For many years SKF has been one of the leading producers of split plumber block housings – synonymous with operational reliability, quality and versatility.

## SNL plumber block housings have more to offer

SKF has developed the SNL plumber block housings to be the first choice for design, quality and economy. This enables customers to keep a step ahead.

SNL plumber block housings enable the full service life potential of the incorporated bearings to be exploited with less need for maintenance. This supports user's efforts to further reduce maintenance costs. Among other characteristics, the housings are very stiff, making them insensitive to uncontrolled and excessive tightening of the attachment bolts.

Another benefit is the wide range of different types of standard seals to be fitted in the SNL plumber block housings.



## One basic design – many variants

SNL plummer block housings are primarily intended for self-aligning ball bearings, spherical roller bearings and CARB toroidal roller bearings. The housings are designed on the "building block" principle to enable a wider choice of bearings and seals as well as a variety of mounting and lubrication methods.

### A building block system

The SKF assortment of SNL plummer block housings can accommodate shafts ranging from 20 to 160 mm in diameter. These housings, which all share the same design features, are available with a variety of seals. The standard range also includes a number of options, like tapped holes for grease fittings and condition monitoring sensors, to create an almost limitless combination of variants. Housings are also available for bearings for larger shaft diameters (→ **page 103**).

SNL plummer block housings are made of high quality, grey cast iron to provide high tensile strength. For applications where additional strength is required, housings made of spheroidal graphite cast iron are available.

### Several sealing options

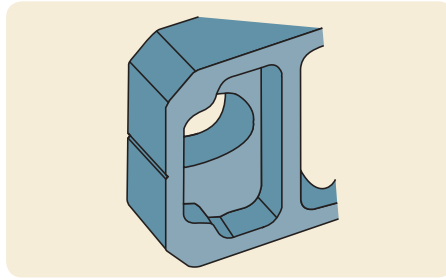
An important advantage of the SNL plummer block housings is that they can be fitted with a variety of seals. Standard SKF seals include four-lip seals, V-ring seals, felt seals, labyrinth seals and heavy-duty taconite labyrinth seals with a radial labyrinth and end covers. Other standard seals are also available for SNL housings, but the housing has to be modified for the seal to be effective. These include oil seals and heavy-duty taconite labyrinth seals with an axial labyrinth.

SNL plummer block housings are dimensionally interchangeable with the earlier SNH housings. Their dimensions conform to ISO 113:1999.



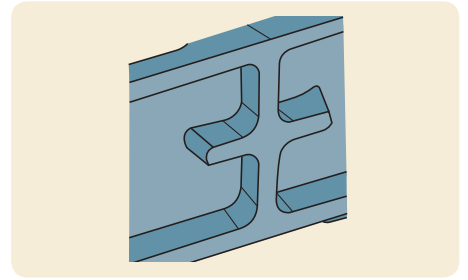
## Features and benefits

The SKF assortment of SNL plumber block housings is characterized by a number of advantages, including high load carrying capacity and machining quality. In addition, SNL housings incorporate unique features that are designed to improve the performance and increase the service life of your application.



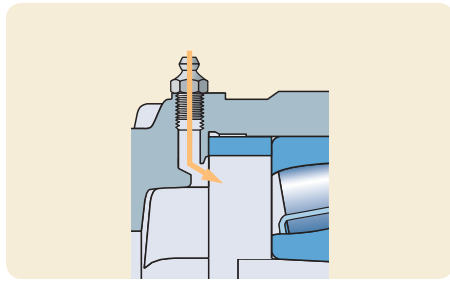
### Stiff design

The housing base is reinforced with ribs and extra material around the attachment holes to add strength and prevent deformation of the base. The attachment bolts can be preloaded to locate the housing and prevent deformation of the housing base and bore.



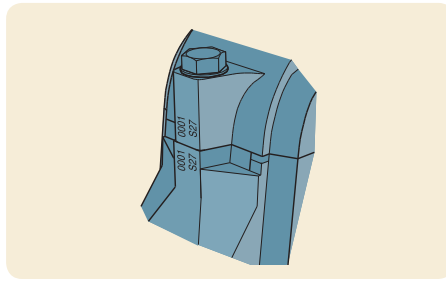
### Excellent heat conduction

Additional ribs on the underside of the base improve heat flow from the bearing outer ring to the support surface. Bearings in an SNL housing run 5–10 % cooler than the bearings in other housings.



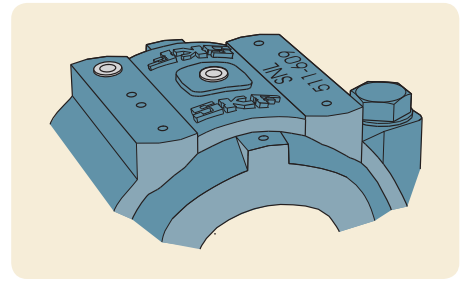
### Grease guiding system

When lubricating from the top, this feature guides fresh grease from the fitting to the side of the bearing. This applies in particular for lubricating self-aligning ball bearings and CARB bearings.



### Caps and bases individually marked

The housing base and cap are matched during manufacture and are not interchangeable with the caps and bases of other housings. To prevent any mismatches, a unique serial number is marked on both the housing cap and base.

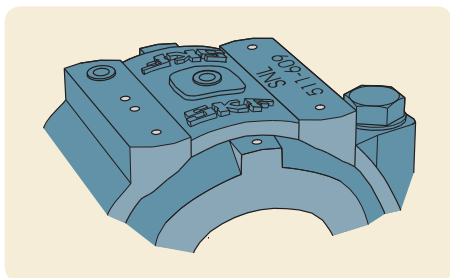


### Relubrication made simple

Standard SNL housings have two tapped holes in the cap for the grease fitting. They are protected by plastic plugs. The location of the grease fitting is determined by the bearing. If the bearing has a W33 groove, install the fitting in the middle of the housing. Otherwise, put the fitting in the other hole so that grease will enter the bearing from the side.

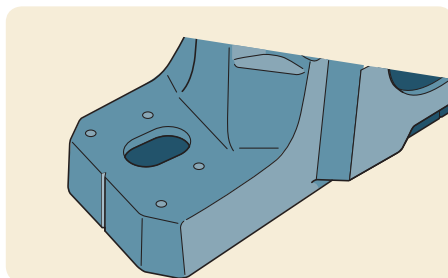
- |                                                                |                                                                                                                                            |
|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| • Stiff design                                                 | Insensitive to over-tightening of the attachment bolts                                                                                     |
| • Excellent heat dissipation                                   | Lowers bearing operating temperature<br>Extends relubrication intervals<br>Increases the service life of the bearings, seals and lubricant |
| • Drilled and tapped holes for grease fittings                 | Relubrication facility as standard                                                                                                         |
| • Caps and bases individually marked                           | Avoids mixing caps and bases, enables traceability                                                                                         |
| • Dimples cast into the housing to identify drilling locations | Enables quicker adaptation of a standard housing to an application                                                                         |
| • Simple mounting                                              | Centre lines are cast into the housing base to simplify the alignment process                                                              |
| • Additional seals                                             | Several sealing options, to extend bearing service life in harsh operating environment                                                     |
| • Grease guiding system                                        | Guides grease directly to the side of the bearing                                                                                          |





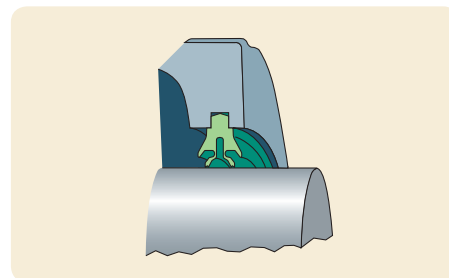
#### **Dimples to locate accessories**

SNL housings have dimples cast into the housing cap to show where condition monitoring sensors can be mounted for maximum effectiveness.



#### **Simple mounting**

To simplify mounting and make alignment more accurate, lines indicating the centre of the bore and the centre of the base are cast into the housing. Mounting instructions, included with each seal pack, provide valuable installation tips.



#### **High speed seal**

The SKF four-lip, low friction seal was developed specifically for SNL housings. This highly effective seal, which can accommodate speeds up to 13 m/s, is easy to remove and install.



## Superior performance in all sectors

High load carrying capacity, robust design, accurately machined surfaces and simplified installation make SKF housings the first choice for machine manufacturers and end users.

Another reason why SKF housings are so popular is because knowledgeable consumers know that high quality components can significantly reduce operating costs – that includes everything from maintenance, energy consumption, lubricant consumption and downtime.

### Applications

- Mine ventilators
- Exhaust and fresh air fans
- Flue gas fans
- Emergency power supply generator flywheels
- Transmissions
- Belt drives
- Impact and hammer mills

### Customer demands

- Robust design
- No breakdowns
- Extremely effective seals
- Long maintenance intervals
- Condition monitoring facilities
- Fast and easy mounting and dismounting

### Solution







# Bearing arrangement design

SNL plummer block housings are typically used with self-aligning ball bearings, spherical roller bearings or CARB toroidal roller bearings fitted on straight or stepped shafts; the bearings can be mounted on adapter or withdrawal sleeves or directly on cylindrical shaft seats. These housings can also be used with other bearing types if they are within the correct Dimension Series.

## 1. Bearings on adapter sleeves on straight shafts

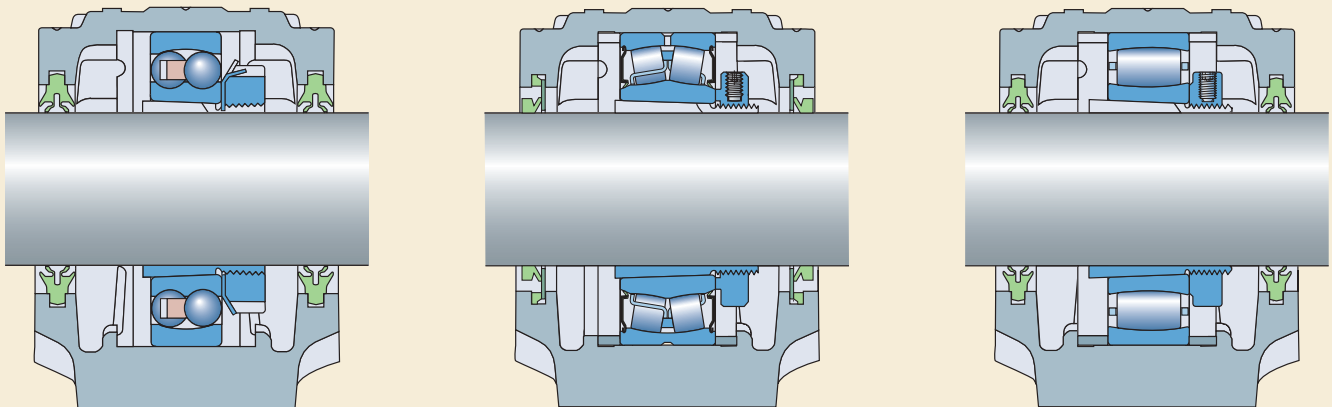
### Advantages

- Drawn round bar (tolerance h9) can be used without machining.
- Maximum shaft strength as there is no weakening by shoulders or reliefs.
- Bearings can be mounted at any position on the shaft.
- Mounting force, i.e. the force required to drive the bearing onto the sleeve, is 40 % less than with other shafts because there is only one sliding surface.
- Bearing radial clearance can be adjusted (within limits) during mounting to meet application demands.

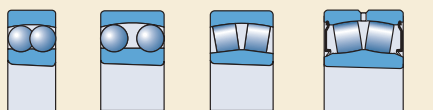
### Applications

- Bearing arrangements for relatively long shafts where more than two bearings are required for support.
- Bearing arrangements where machine components are mounted using wedging or tensioning components that do not require the shaft to be machined.
- Bearing arrangements where the final position of the bearing cannot be accurately determined.

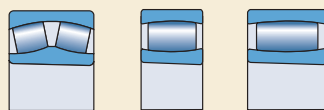
*Bearings on adapter sleeves on straight shafts*



SNL 5

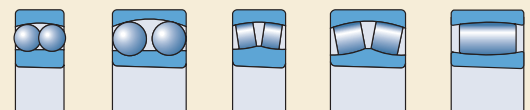


12 EK    22 EK    222 EK    BS2-22-2CSK



232 CCK    C 22 K    C 32 K

SNL 6



13 EK    23 EK    213 CCK    223 EK    C 23 K

## 2. Bearings on adapter sleeves on stepped shafts

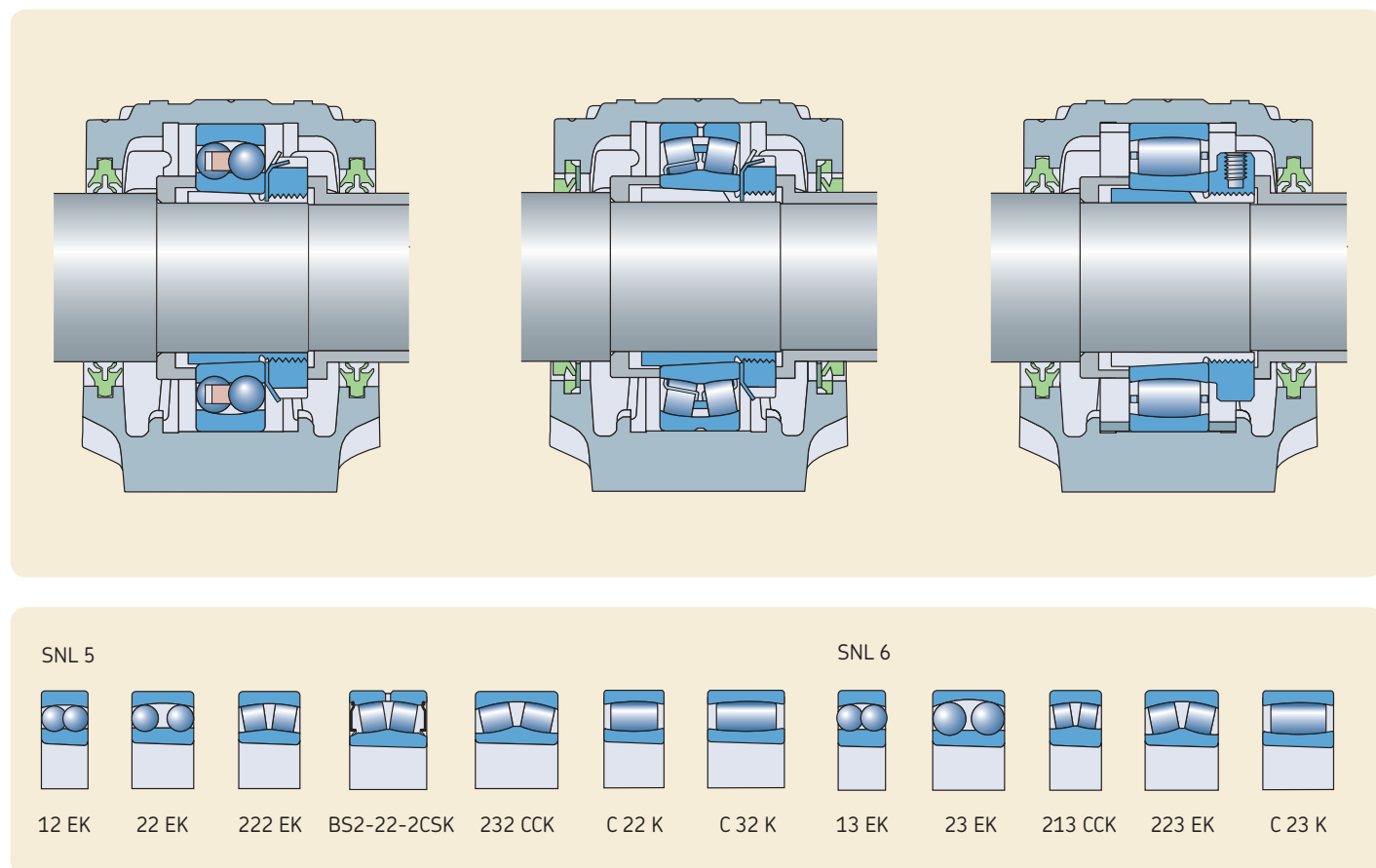
### Advantages

- The bearing position on the shaft is accurately determined by the abutment ring.
- Other components on the shaft can be axially located by the bearing on its sleeve via spacer sleeves.
- Easy dismounting as the bearing inner ring is in contact with the abutment ring.
- Bearing radial clearance can be adjusted (within limits) during mounting to meet application demands.

### Applications

- Bearing arrangements at the end of a shaft.
- Bearing arrangements where frequent mounting and dismounting are required.

*Bearings on adapter sleeves on stepped shafts*





### 3. Bearings on withdrawal sleeves on stepped shafts

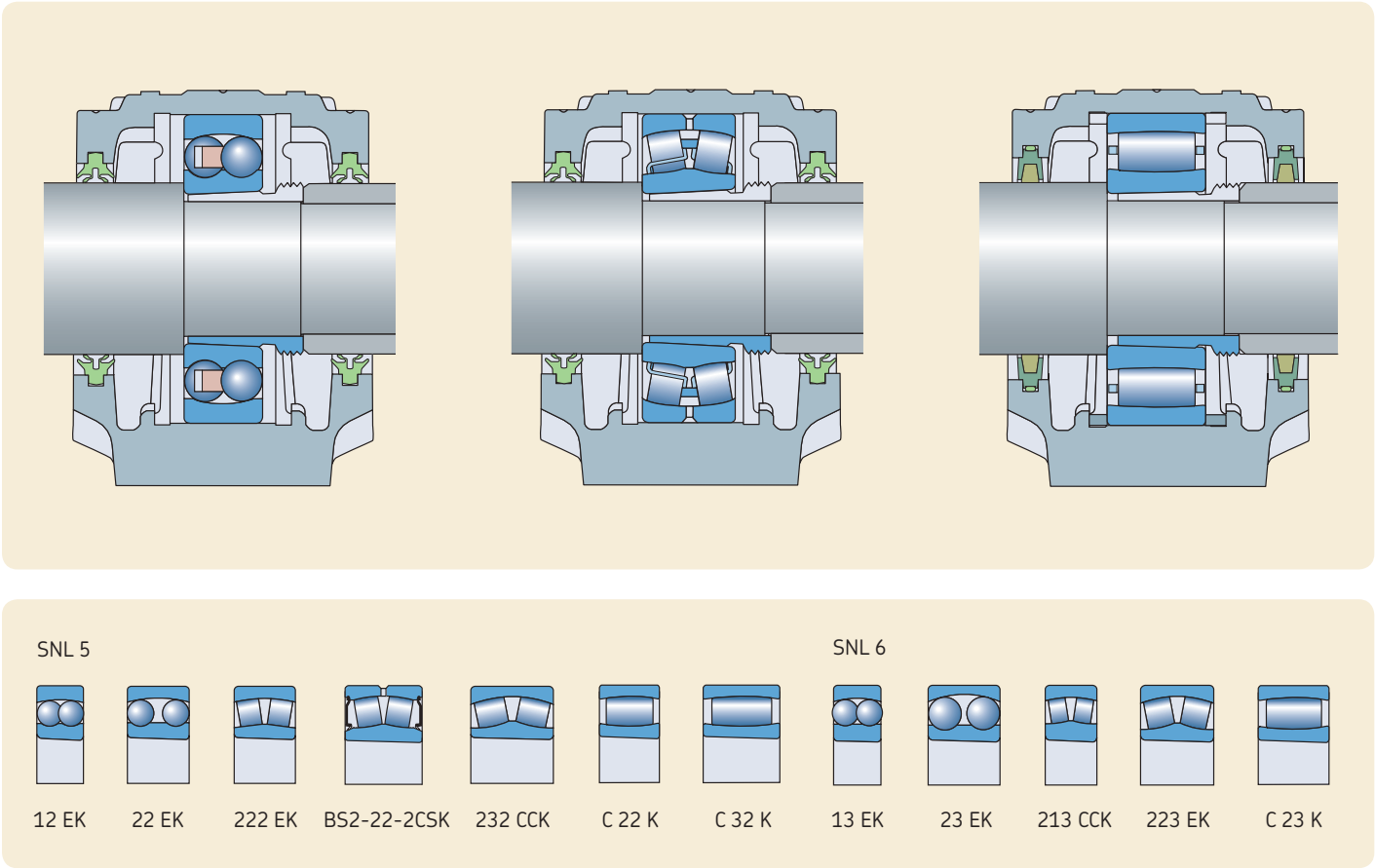
#### Advantages

- The bearing position on the shaft is accurately determined by the shaft shoulder.
- Other components on the shaft can be axially located by the bearing on its sleeve via spacer sleeves.
- Easy dismounting using a withdrawal or hydraulic nut.
- Bearing radial clearance can be adjusted (within limits) during mounting to meet application demands.

#### Applications

- Bearing arrangements at the end of a shaft.
- Bearing arrangements where frequent mounting and dismounting are required.

*Bearings on withdrawal sleeves on stepped shafts*



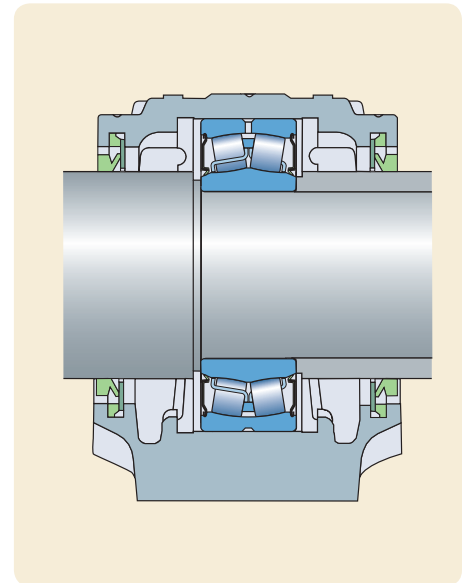
## 4. Bearings on cylindrical seats on stepped shafts

### Advantages

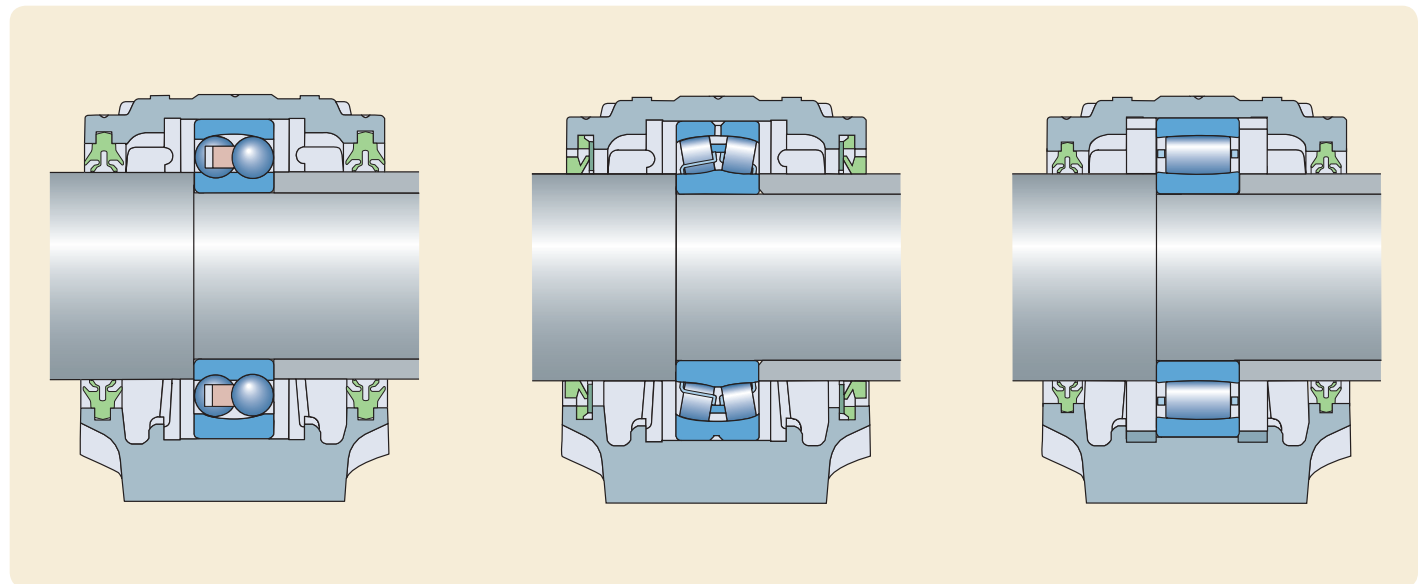
- The axial load carrying capacity of the bearings (in both directions) is not limited by a sleeve.
- The residual bearing internal clearance is determined by the tolerance of the shaft seat so there is no danger of radially preloading the bearing during mounting.
- The bearing position on the shaft is accurately determined by the shaft shoulder.
- The bearing can be supported by other components via spacer sleeves.
- The shaft diameter at the bearing position is maximized.

### Applications

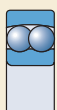
- Bearing arrangements where large numbers of bearings have to be mounted.
- Bearing arrangements where large shock loads can occur.



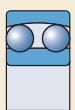
*Bearings on cylindrical seats on stepped shafts*



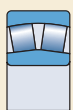
SNL 2



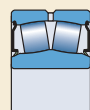
12 E



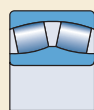
22 E



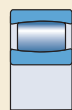
222 E



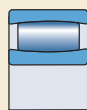
BS2-22-2CS



232 CC

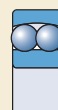


C 22

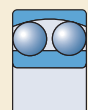


C 32

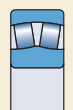
SNL 3



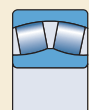
13 E



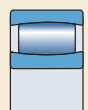
23 E



213 CC



223 CC



C 23



# Standard seals

An important advantage of SNL plummer block housings is that they can be fitted with different types of seals. Standard SKF seals include split four-lip seals, V-ring seals, felt seals, labyrinth seals and heavy-duty “taco-nite” seals with a radial labyrinth. The seals are easy to install and are supplied separately.

All the standard seals, as well as the seals for use with oil lubrication, are shown in **table 1**, with an overview of the seal type, its design features and suitability for various operating conditions. Detailed information

about standard and special seals can be found on **pages 16 to 21**.

Table 1

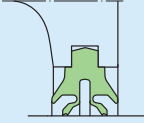
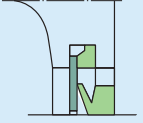
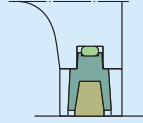
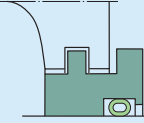
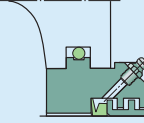
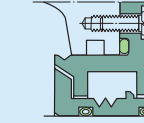
| Seal selection                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | TSN .. L                                                                          | TSN .. A                                                                          | TSN .. C                                                                          | TSN .. S                                                                          | TSN .. ND                                                                           | TSN .. U <sup>1)</sup>                                                              |
| <b>Internal conditions</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
| Temperature, °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | -40 to +100                                                                       | -40 to +100                                                                       | -40 to +100                                                                       | -50 to +200                                                                       | -40 to +100                                                                         | -40 to +200                                                                         |
| Temperature, °F                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | -40 to +210                                                                       | -40 to +210                                                                       | -40 to +210                                                                       | -60 to +390                                                                       | -40 to +210                                                                         | -40 to +390                                                                         |
| Peripheral speed, m/s <sup>2)</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                     | up to 13                                                                          | up to 7<br>above 7 <sup>3)</sup>                                                  | up to 4                                                                           | ++                                                                                | up to 12                                                                            | ++                                                                                  |
| Misalignment, degrees                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0,5 to 1                                                                          | 1 to 1,5                                                                          | up to 0,5                                                                         | up to 0,3                                                                         | up to 0,5                                                                           | up to 1                                                                             |
| Grease lubrication                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ++                                                                                | ++ <sup>4)</sup>                                                                  | -                                                                                 | +                                                                                 | +                                                                                   |                                                                                     |
| Oil lubrication                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | --                                                                                | --                                                                                | --                                                                                | --                                                                                | --                                                                                  | ++                                                                                  |
| Low friction                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ++                                                                                | ++                                                                                | -                                                                                 | ++                                                                                | +                                                                                   | ++                                                                                  |
| Axial shaft displacement                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ++                                                                                | -                                                                                 | ++                                                                                | +                                                                                 | +                                                                                   | -                                                                                   |
| Vertical arrangement                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | +                                                                                 | ++ <sup>5)</sup>                                                                  | --                                                                                | --                                                                                | -                                                                                   | --                                                                                  |
| Replacement                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ++                                                                                | -                                                                                 | +                                                                                 | -                                                                                 | -                                                                                   | -                                                                                   |
| <b>External conditions</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
| Dust                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ++                                                                                | +                                                                                 | +                                                                                 | +                                                                                 | ++                                                                                  | -                                                                                   |
| Fine particulate contaminants                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ++                                                                                | +                                                                                 | -                                                                                 | +                                                                                 | ++                                                                                  | +                                                                                   |
| Coarse particulate contaminants                                                                                                                                                                                                                                                                                                                                                                                                                                                         | +                                                                                 | -                                                                                 | -                                                                                 | +                                                                                 | ++                                                                                  | +                                                                                   |
| Abrasive contaminants                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | +                                                                                 | --                                                                                | +                                                                                 | ++                                                                                | ++                                                                                  | ++                                                                                  |
| Liquids when sprayed                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | +                                                                                 | +                                                                                 | -                                                                                 | --                                                                                | ++                                                                                  | -                                                                                   |
| Direct sunlight                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | +                                                                                 | --                                                                                | ++                                                                                | ++                                                                                | ++                                                                                  | ++                                                                                  |
| Symbols:<br>++ very suitable    - limited suitability<br>+ suitable        -- unsuitable                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
| <sup>1)</sup> Delivered as a complete unit only, i.e. housings with seals, SNL .. TURU. Oil seals can be ordered separately as spare parts only<br><sup>2)</sup> See <b>table 2</b> on <b>page 15</b> to convert peripheral speeds to rotational speeds<br><sup>3)</sup> When the V-ring is axially supported<br><sup>4)</sup> If appropriate components are used; i.e. ASNA .. V end cover at the end of a shaft<br><sup>5)</sup> When the V-ring of the lower seal is mounted inboard |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |

Table 2

| Rotational speeds corresponding to peripheral speeds |                                                            |       |       |       |        |        |
|------------------------------------------------------|------------------------------------------------------------|-------|-------|-------|--------|--------|
| Shaft diameter<br>at the seal lip                    | Rotational speeds corresponding<br>to peripheral speeds of |       |       |       |        |        |
| $d_a, d_b^{1)}$                                      | 2 m/s                                                      | 4 m/s | 7 m/s | 8 m/s | 12 m/s | 13 m/s |
| mm                                                   | r/min                                                      |       |       |       |        |        |
| <b>20</b>                                            | 1 910                                                      | 3 820 | 6 680 | 7 640 | 11 460 | –      |
| <b>25</b>                                            | 1 530                                                      | 3 060 | 5 350 | 6 110 | 9 170  | –      |
| <b>30</b>                                            | 1 270                                                      | 2 550 | 4 460 | 5 090 | 7 640  | 8 280  |
| <b>35</b>                                            | 1 090                                                      | 2 180 | 3 820 | 4 370 | 6 550  | 7 090  |
| <b>40</b>                                            | 950                                                        | 1 910 | 3 340 | 3 820 | 5 730  | 6 210  |
| <b>45</b>                                            | 850                                                        | 1 700 | 2 970 | 3 400 | 5 090  | 5 520  |
| <b>50</b>                                            | 760                                                        | 1 530 | 2 670 | 3 060 | 4 580  | 4 970  |
| <b>55</b>                                            | 690                                                        | 1 390 | 2 430 | 2 780 | 4 170  | 4 510  |
| <b>60</b>                                            | 640                                                        | 1 270 | 2 230 | 2 550 | 3 820  | 4 140  |
| <b>65</b>                                            | 590                                                        | 1 180 | 2 060 | 2 350 | 3 530  | 3 820  |
| <b>70</b>                                            | 550                                                        | 1 090 | 1 910 | 2 180 | 3 270  | 3 550  |
| <b>75</b>                                            | 510                                                        | 1 020 | 1 780 | 2 040 | 3 060  | 3 310  |
| <b>80</b>                                            | 480                                                        | 950   | 1 670 | 1 910 | 2 860  | 3 100  |
| <b>85</b>                                            | 450                                                        | 900   | 1 570 | 1 800 | 2 700  | 2 920  |
| <b>90</b>                                            | 420                                                        | 850   | 1 490 | 1 700 | 2 550  | 2 760  |
| <b>95</b>                                            | 400                                                        | 800   | 1 410 | 1 610 | 2 410  | 2 610  |
| <b>100</b>                                           | 380                                                        | 760   | 1 340 | 1 530 | 2 290  | 2 480  |
| <b>110</b>                                           | 350                                                        | 690   | 1 220 | 1 390 | 2 080  | 2 260  |
| <b>115</b>                                           | 330                                                        | 660   | 1 160 | 1 330 | 1 990  | 2 160  |
| <b>120</b>                                           | 320                                                        | 640   | 1 110 | 1 270 | 1 910  | 2 070  |
| <b>125</b>                                           | 310                                                        | 610   | 1 070 | 1 220 | 1 830  | 1 990  |
| <b>130</b>                                           | 290                                                        | 590   | 1 030 | 1 180 | 1 760  | 1 910  |
| <b>135</b>                                           | 280                                                        | 570   | 990   | 1 130 | 1 700  | 1 840  |
| <b>140</b>                                           | 270                                                        | 550   | 950   | 1 090 | 1 640  | 1 770  |
| <b>145</b>                                           | 260                                                        | 530   | 920   | 1 050 | 1 580  | 1 710  |
| <b>150</b>                                           | 250                                                        | 510   | 890   | 1 020 | 1 530  | 1 660  |
| <b>155</b>                                           | 250                                                        | 490   | 860   | 990   | 1 480  | 1 600  |
| <b>165</b>                                           | 230                                                        | 460   | 810   | 930   | 1 390  | –      |
| <b>175</b>                                           | 220                                                        | 440   | 760   | 870   | 1 310  | –      |

<sup>1)</sup>  $d_a$ : shaft diameter for bearings on an adapter sleeve.  $d_b$ : shaft diameter for bearings on a stepped shaft

## Four-lip seals

With shaft speeds continuously increasing, there was a need for a sealing solution that could accommodate higher speeds with the same high level of performance that the SKF double-lip seal could provide at lower speeds.

To meet that need, SKF developed a robust, easy-to-mount four-lip seal (→ **fig. 1**) that can accommodate peripheral speeds up to 13 m/s. This four-lip seal is made from a specially formulated thermoplastic elastomer. It is manufactured using a unique process that improves the finish of the contact surfaces so that there is less friction and heat generated by the seal. These four-lip seals, which are designed for grease lubrication, can accommodate speeds up to 13 m/s even if the housing uses a grease escape hole (suffix V). The seals are split so that they can be installed easily.

The permissible angular misalignment for shaft diameters  $\leq 100$  mm is approximately  $1^\circ$  and approximately  $0,5^\circ$  for larger shafts. The seal counterface on the shaft should be ground and the surface roughness  $R_a$  should not exceed  $3,2 \mu\text{m}$ . The recommended shaft tolerance is h9. The axial movement of the shaft relative to the housing is not limited when four-lip seals are used. The permissible

operating temperature range for the seal is between  $-40$  and  $+100^\circ\text{C}$  ( $-40$  to  $+210^\circ\text{F}$ ). The seals are available from size TSN 507 L up to and including size TSN 532 L.

Each package of four-lip seals contains two seals. Consequently, when using an end cover, one seal can be kept as a spare. Four-lip seals are identified by the designation prefix TSN followed by the size identification and the suffix L, e.g. TSN 511 L.

## V-ring seals

V-ring seals (→ **fig. 2**) are two-piece seals that consist of a V-ring and a galvanized, sheet steel sealing washer. A rubber lip, vulcanized to the sealing washer, fits into the seal groove in the housing. The V-ring fits tight on the shaft and seals axially against the washer. As it is turning with the shaft, the V-ring acts as a flinger. These very efficient seals are typically used in difficult applications e.g. where there are high speeds or rough finished shafts. They can accommodate peripheral speeds in excess of 7 m/s if the V-ring is prevented from moving or lifting from the shaft by a support ring. Recommended dimensions for appropriate support rings (for axial and radial location) are provided in **table 3**.

**NOTE:** Support rings can not be used for sizes between 205 to 211 and 306 to 314 due to limited space between the shaft and housing shaft bore.

The permissible angular misalignment for V-ring seals is approximately  $1,5^\circ$  for a 50 mm shaft decreasing to approximately  $1^\circ$  for shaft diameters  $\geq 150$  mm. The axial movement of the shaft relative to the housing is limited to  $\pm 1$  mm for shaft diameters up to 65 mm, to approximately  $\pm 1,2$  mm for 70-100 mm shaft diameters and to approximately  $\pm 1,5$  mm for larger shaft diameters.

Each package of V-ring seals contains two seals. Consequently, when using an end cover, one seal can be kept as a spare. V-ring seals are identified by the designation prefix TSN followed by the size identification and the suffix A, e.g. TSN 511 A.

Four-lip seal

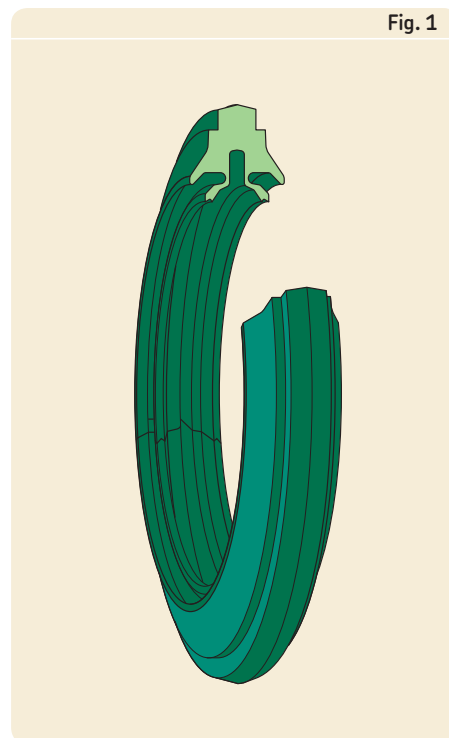


Fig. 1

V-ring seal

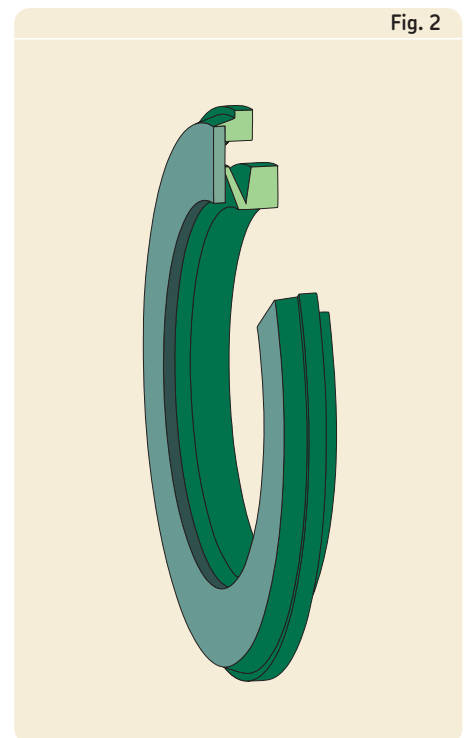
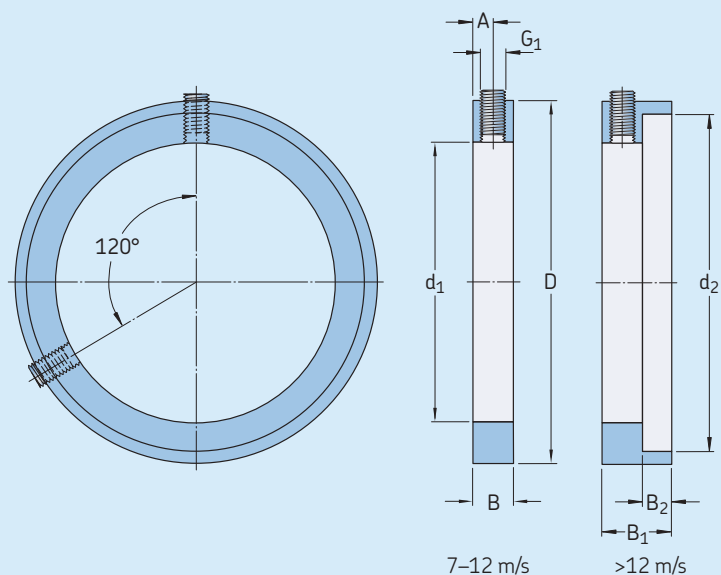


Fig. 2

Table 3

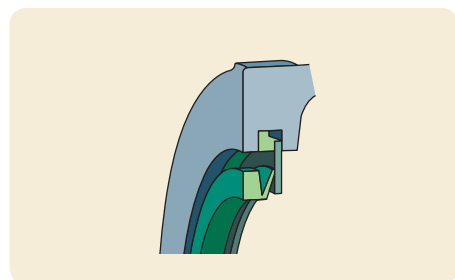
## Recommended dimensions for support rings for V-ring seals



| Shaft diameter                                | Dimensions     |                |    |                |                |       |     |                | Grub screw to DIN 913 | V-ring Designation VAR | CR        |
|-----------------------------------------------|----------------|----------------|----|----------------|----------------|-------|-----|----------------|-----------------------|------------------------|-----------|
| d <sub>a</sub> , d <sub>b</sub> <sup>1)</sup> | d <sub>1</sub> | d <sub>2</sub> | B  | B <sub>1</sub> | B <sub>2</sub> | D     | A   | G <sub>1</sub> |                       |                        |           |
| mm                                            | mm             |                |    |                |                |       |     |                |                       |                        |           |
| 20                                            | 20             | 27,2           | 5  | 8,5            | 3,5            | 30    | 2,5 | M3             | 3 × 5                 | 20 VAR                 | CR 400200 |
| 25                                            | 25             | 32,1           | 5  | 8,5            | 3,5            | 35    | 2,5 | M3             | 3 × 5                 | 25 VAR                 | CR 400250 |
| 30                                            | 30             | 37,2           | 5  | 8,5            | 3,5            | 40    | 2,5 | M3             | 3 × 5                 | 30 VAR                 | CR 400300 |
| 35                                            | 35             | 42,2           | 5  | 8,5            | 3,5            | 45    | 2,5 | M3             | 3 × 5                 | 35 VAR                 | CR 400350 |
| 40                                            | 40             | 49,1           | 7  | 11,5           | 4,5            | 53    | 3,5 | M4             | 4 × 5                 | 40 VAR                 | CR 400400 |
| 45                                            | 45             | 54             | 7  | 11,5           | 4,5            | 58    | 3,5 | M4             | 4 × 5                 | 45 VAR                 | CR 400450 |
| 50                                            | 50             | 59,1           | 7  | 11,5           | 4,5            | 63    | 3,5 | M4             | 4 × 5                 | 50 VAR                 | CR 400500 |
| 55                                            | 55             | 64,1           | 7  | 11,5           | 4,5            | 68    | 3,5 | M4             | 4 × 5                 | 55 VAR                 | CR 400550 |
| 60                                            | 60             | 69,1           | 7  | 11,5           | 4,5            | 73    | 3,5 | M4             | 4 × 5                 | 60 VAR                 | CR 400600 |
| 65                                            | 65             | 74,1           | 7  | 11,5           | 4,5            | 78    | 3,5 | M4             | 4 × 5                 | 65 VAR                 | CR 400650 |
| 70                                            | 70             | 81             | 9  | 15             | 6              | 84    | 4,5 | M5             | 5 × 6                 | 70 VAR                 | CR 400700 |
| 75                                            | 75             | 86             | 9  | 15             | 6              | 89,5  | 4,5 | M5             | 5 × 6                 | 75 VAR                 | CR 400750 |
| 80                                            | 80             | 91             | 9  | 15             | 6              | 94,5  | 4,5 | M5             | 5 × 6                 | 80 VAR                 | CR 400800 |
| 85                                            | 85             | 96             | 9  | 15             | 6              | 100   | 4,5 | M5             | 5 × 6                 | 85 VAR                 | CR 400850 |
| 90                                            | 90             | 101            | 9  | 15             | 6              | 105   | 4,5 | M5             | 5 × 6                 | 90 VAR                 | CR 400900 |
| 95                                            | 95             | 106            | 9  | 15             | 6              | 109   | 4,5 | M5             | 5 × 6                 | 95 VAR                 | CR 400950 |
| 100                                           | 100            | 111            | 9  | 15             | 6              | 115   | 4,5 | M5             | 5 × 6                 | 100 VAR                | CR 401000 |
| 110                                           | 110            | 122,9          | 10 | 17,5           | 7,5            | 128   | 5   | M6             | 6 × 8                 | 110 VAR                | CR 401100 |
| 115                                           | 115            | 127,4          | 10 | 17,5           | 7,5            | 133   | 5   | M6             | 6 × 8                 | 110 VAR                | CR 401100 |
| 125                                           | 125            | 138,1          | 10 | 17,5           | 7,5            | 143   | 5   | M6             | 6 × 8                 | 130 VAR                | CR 401300 |
| 135                                           | 135            | 147,5          | 10 | 17,5           | 7,5            | 153   | 5   | M6             | 6 × 8                 | 130 VAR                | CR 401300 |
| 140                                           | 140            | 152,9          | 10 | 17,5           | 7,5            | 158   | 5   | M6             | 6 × 8                 | 140 VAR                | CR 401400 |
| 145                                           | 145            | 158,1          | 10 | 17,5           | 7,5            | 163   | 5   | M6             | 6 × 8                 | 150 VAR                | CR 401500 |
| 155                                           | 155            | 167,5          | 10 | 18,5           | 8,5            | 173   | 5   | M6             | 6 × 8                 | 150 VAR                | CR 401500 |
| 165                                           | 165            | 179,9          | 10 | 18,5           | 8,5            | 185,5 | 5   | M6             | 6 × 8                 | 170 VAR                | CR 401700 |
| 175                                           | 175            | 189,3          | 10 | 18,5           | 8,5            | 195   | 5   | M6             | 6 × 8                 | 170 VAR                | CR 401700 |

<sup>1)</sup>  $d_a$ : shaft diameter for bearings on an adapter sleeve.  $d_b$ : shaft diameter for bearings on a stepped shaft

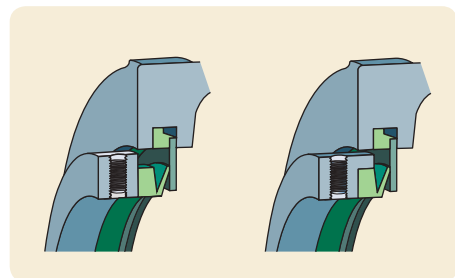
## Location of the V-ring



Peripheral speed up to 7 m/s

Peripheral speed  
7 to 12 m/s

above 12 m/s



## Felt ring seals

Felt ring seals (→ **fig. 3**) are simple, efficient grease seals that can accommodate peripheral speeds up to 4 m/s. These seals can accommodate higher speeds, but beyond 4 m/s, a small gap forms between the felt and shaft, transforming the contact seal into a non-contact, gap-type seal.

In applications where bearings are mounted on a straight shaft with adapter sleeve, split felt ring seals are typically used (→ **fig. 3a**). The felt is impregnated with oil. To install these seals, a round rubber cord is first inserted into the seal groove in the housing. Then, with the felt inserted in the light alloy half-rings, the half rings are installed in the seal groove. The rubber cord prevents the rings from turning.

The permissible angular misalignment for felt ring seals is approximately  $0,5^\circ$ . The seal counterface on the shaft should be ground and the surface roughness  $R_a$  should not exceed  $3,2 \mu\text{m}$ .

The axial movement of the shaft relative to the housing is not limited when felt seals are used.

Each package of felt ring seals contains two seals. Consequently, when using an end cover, one seal can be kept as a spare. Felt ring seals

are identified by the designation prefix TSN followed by the size identification and the suffix C, e.g. TSN 511 C.

### High temperature applications

For applications where spherical roller bearings or CARB toroidal roller bearings operate continuously at high temperatures, up to  $+250^\circ\text{C}$  ( $480^\circ\text{F}$ ), SKF graphited FSB seals should be used. These seals are made of aluminium boron silicate and can accommodate speeds up to 2 m/s.

Felt ring seals can be supplied with an FSB insert. The round rubber cords used with these seals are replaced with a fluoro rubber cord. These seals are identified by the suffix CB, e.g. TSN 511 CB.

### Felt strips

If the bearings are to be installed on a stepped shaft with a cylindrical seat (sizes 205 to 218 inclusive), loose felt strips (→ **fig. 3b**) can be used. The strips are 170 mm in length. They should be cut to the right length and prior to installation, they must be soaked in hot oil for a few minutes. Then, they can be installed directly into the seal groove. The felt strips are designated FS 170.

Seals made of fluoro rubber give off hazardous fumes when exposed to extreme temperatures above  $300^\circ\text{C}$  ( $570^\circ\text{F}$ ). Therefore, review and follow the safety recommendations mentioned in the section "Seal materials" in the General Catalogue 6000, on **page 143**.

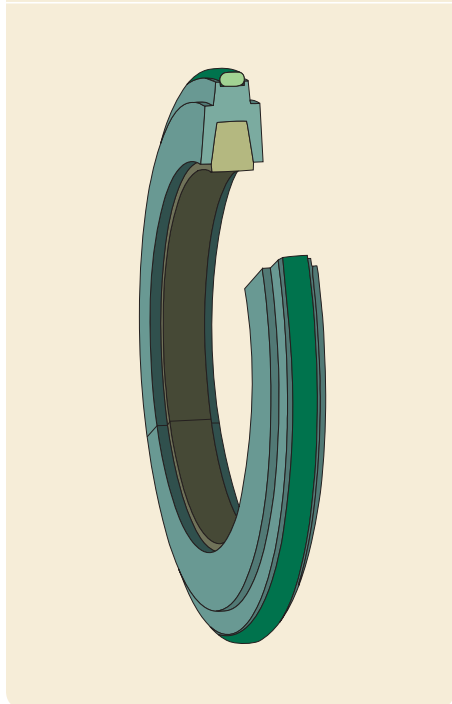
### High temperature applications

For high operating temperatures, up to  $+250^\circ\text{C}$  ( $480^\circ\text{F}$ ), SKF graphited strips can be supplied. They should be cut to the right length. They can be installed directly into the seal groove.

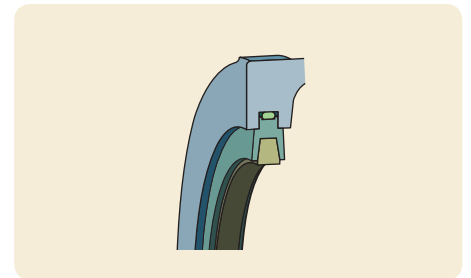
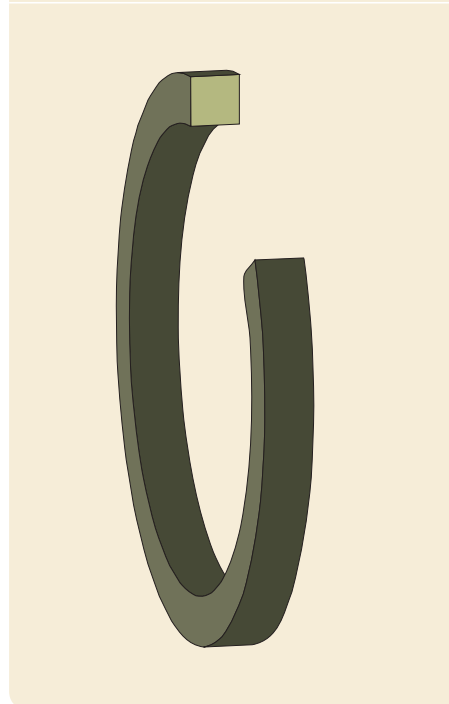
Contact SKF for correct designation.

*Felt ring seal*

**Fig. 3a**

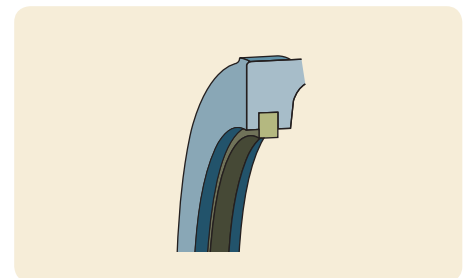


**Fig. 3b**



*Felt ring seal*

*Felt strips*





## Labyrinth seals

For applications where there are high speeds and/or extreme temperatures, SKF recommends using a labyrinth type seal (→ **fig. 4**). The standard labyrinth type seal is called a labyrinth ring. Labyrinth rings consist of a metal ring with two steps arranged radially. One step fits in the seal groove in the housing to form a gap type seal. The other step forms a gap type seal with the outside of the housing. A hollow, silicone rubber cord supplied with the seal holds the labyrinth ring in place on the shaft.

The standard labyrinth seals can accommodate approximately  $0,3^\circ$  of angular misalignment and operating temperatures ranging from  $-50$  to  $+200^\circ\text{C}$  ( $-60$  to  $+390^\circ\text{F}$ ).

When labyrinth seals are used, axial movement of the shaft relative to the housing is not limited. The recommended shaft tolerance is h9.

Labyrinth rings are supplied singly. For through-shaft applications, two rings should be ordered. A labyrinth ring is identified by the designation prefix TSN followed by the size identification and the suffix S, e.g. TSN 511 S.

## Taconite heavy-duty seals

Taconite is a very fine-grained mineral which is extremely difficult to seal against. For bearing arrangements which must operate under very arduous conditions such as those encountered in mining, labyrinth seals, which can be relubricated, are recommended, as grease enhances the sealing effect and extends the serviceability of the seals. SKF has developed different designs of these heavy-duty seals (which can seal against taconite, hence the name) that can be supplied for use with SNL housings.

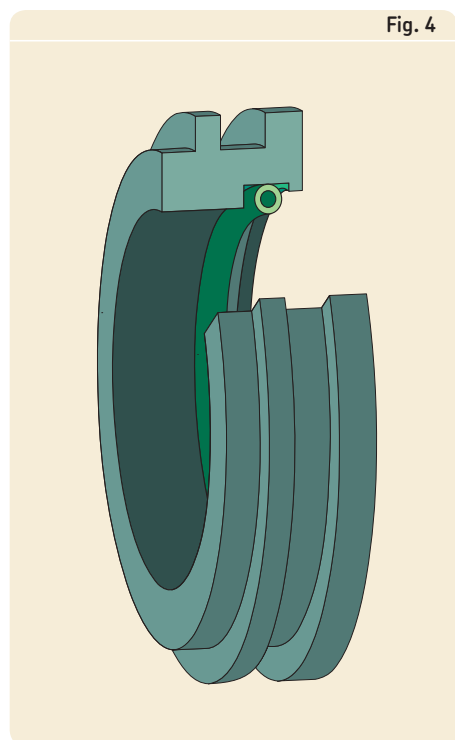
One taconite seal design (→ **fig. 5**) is based on a radial labyrinth seal and fits standard housings. AV-ring seal mounted on the shaft seals against the non-rotating part of the seal, which is inserted in the seal groove and prevents contaminants from penetrating to the bearing when the seal is relubricated. This grease is supplied via a grease fitting in the non-rotating part of the seal. Angular misalignments of the shaft of up to approximately  $0,5^\circ$  are possible. The permissible operating temperature range for the seal is between  $-40$  and  $+100^\circ\text{C}$  ( $-40$  to  $+210^\circ\text{F}$ ).

The axial movement of the shaft relative to the housing is limited for this type of taconite seal to  $\pm 1$  mm for shaft diameters up to 65 mm and to approximately  $\pm 1,2$  mm for sizes up to 100 mm and  $\pm 1,5$  mm for larger shaft diameters. The recommended shaft tolerance is h9.

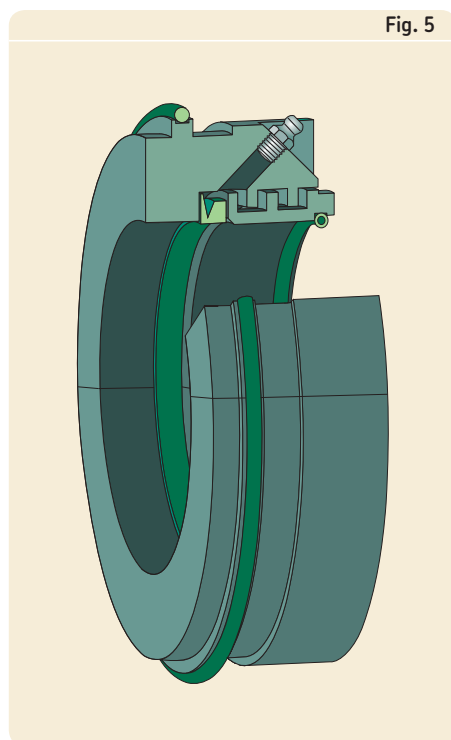
These seals are supplied singly so that for housings used on through shafts, it is necessary to order two seals. The seal is identified by the designation prefix TSN followed by the size identification and the suffix ND, e.g. TSN 511 ND.

The second design of taconite seal (→ **fig. 6**) is based on a labyrinth seal with the labyrinth stages arranged axially. The seal is relubricated via lubrication holes and fittings in the housing cap. The positions for the holes are marked by dimples in the casting. The permissible misalignment of the shaft relative to the housing for this seal is approximately  $0,5^\circ$ . The operating temperature range is from  $-40$  to  $+250^\circ\text{C}$  ( $-40$  to  $480^\circ\text{F}$ ). Axial movement of the shaft relative to the housing is also limited. The recommended shaft tolerance is h9.

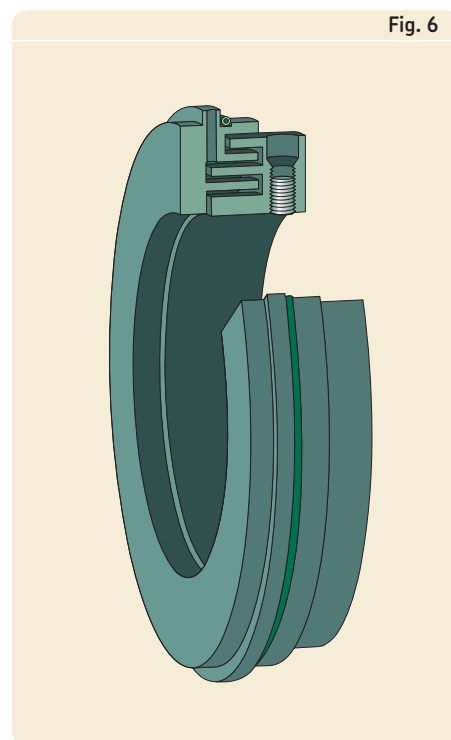
*Labyrinth seal*



*Taconite heavy-duty seal with a radial labyrinth*



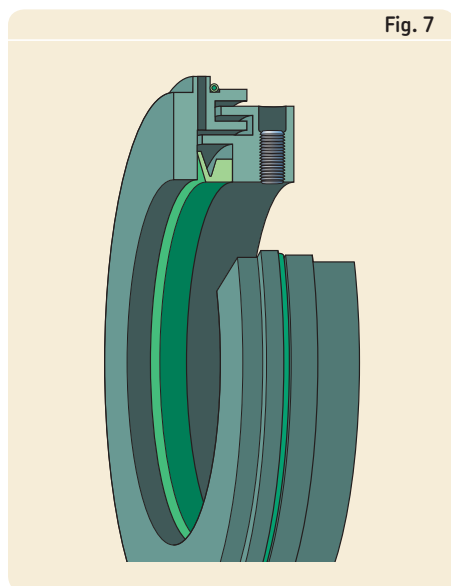
*Taconite heavy-duty seal with an axial labyrinth*



These seals require that a variant of the standard housing is ordered, either suffix T for housing used with end cover when lubrication on only one side of housing is required or suffix TD for through shaft when lubrication possibilities is required on both sides of the housing. The seals are available from size 515-612. The seals are supplied separately and is identified by the designation prefix TSN followed by the size identification and the suffix NC, e.g. TSN 515-612 NC.

The third variant of the Taconite seal has the same design as the Taconite heavy-duty seal with an axial labyrinth but includes an V-ring seal (→ **fig. 7**) and requires the same modified housing prepared for lubrication on one or two sides of the housing, e.g. suffix T or TD, as the second seal variant. The seal is available from size 515-612. The seals are supplied separately and is identified by the designation prefix TSN followed by the size identification and the suffix NB, e.g. TSN 515-612 NB.

*Taconite heavy-duty seal with an axial labyrinth and an V-ring seal*



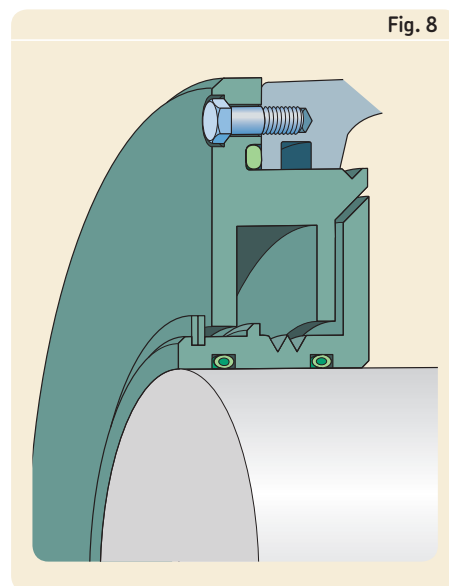
## Seals for oil lubrication

To retain oil in an SNL housing and prevent leaks, SKF has developed a U-design labyrinth seal (→ **fig. 8**). These seals, which require a modified housing, consist of two parts: a stationary U-shaped plate that is bolted to the housing, and a steel labyrinth ring that is mounted on the shaft. Two hollow, silicone rubber cords inserted between the loose fitting labyrinth ring and shaft, keep the ring in place and prevent oil from escaping along the shaft. To keep the two seal parts together, a retaining ring is mounted on the labyrinth ring. These oil seals do not limit axial movement of the shaft relative to the housing. The recommended shaft tolerance for these seals is g7, but h9 is acceptable.

Modified SNL housings for oil lubrication are supplied together with seals. The housings with seals are identified by designation suffix TURU, e.g. SNL 524 TURU. Special end covers, designation ASNH .. R, must be ordered separately.

SNL .. TURU housings are prone to overfilling with oil. This is due to the limited size of the SNL sump. For this reason, it is very important not to exceed the recommended oil level if leaks are to be avoided (→ **table 3** on **page 30**).

*Oil seal*



## SONL housings for oil lubrication

As part of the SNL assortment, SKF has a full line of SONL housings, specifically designed for oil lubrication. Available for shaft diameters ranging from 75 to 240 mm, these housings are not as prone to overfilling as SNL housings. Other advantages of the SONL housing include

- a 15 % larger oil sump (reservoir)
- cooling fins inside the casting for improved heat dissipation.

For additional information about SONL plummer block housings, → SKF publication 6111 "SONL plummer housings – designed for oil lubrication."

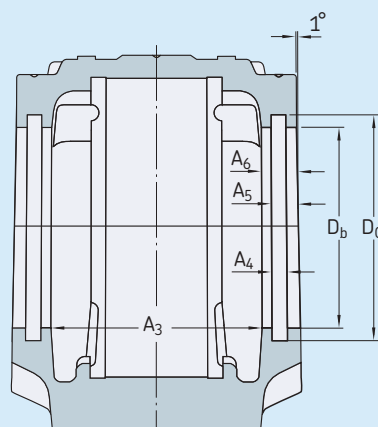
## Special seals

For applications that require special seals, SKF recommends ordering housings in the SNL 2 series rather than those in the 5 or 6 series. Housings in the SNL 2 series have a larger bore ( $D_b$ ) and can accommodate a wider choice of seal designs.

Special seals are not normally supplied by SKF. Therefore, relevant seal groove dimensions are provided in **table 4**.

Table 4

Seal groove dimensions



| Housing<br>Size | Dimensions     |                |                |                |                |                |
|-----------------|----------------|----------------|----------------|----------------|----------------|----------------|
|                 | A <sub>3</sub> | A <sub>4</sub> | A <sub>5</sub> | A <sub>6</sub> | D <sub>b</sub> | D <sub>c</sub> |
| –               | mm             |                |                |                |                |                |
| SNL 205         | 44             | 5              | 7,5            | 10             | 36,5           | 44,5           |
| SNL 206-305     | 54             | 5              | 7,5            | 10             | 46,5           | 54,5           |
| SNL 207         | 58             | 5              | 8              | 11             | 56,5           | 64,5           |
| SNL 208-307     | 61             | 5              | 8              | 11             | 62             | 70,5           |
| SNL 209         | 59             | 5              | 9              | 12             | 67             | 75,5           |
| SNL 210         | 64             | 5              | 9              | 12             | 72             | 80,5           |
| SNL 211         | 69             | 5              | 9              | 12             | 77             | 85,5           |
| SNL 212         | 79             | 5              | 9              | 12             | 87             | 95,5           |
| SNL 213         | 82             | 5              | 9              | 13             | 92,5           | 101            |
| SNL 215         | 87             | 5              | 9              | 13             | 102,5          | 111            |
| SNL 216         | 92             | 5              | 9              | 13             | 108            | 116,5          |
| SNL 217         | 97             | 5              | 9              | 13             | 112            | 120,5          |
| SNL 218         | 112            | 5              | 9              | 13             | 120            | 128,5          |
| SNL 505         | 45             | 5              | 7,5            | 10             | 31,5           | 39,5           |
| SNL 506-605     | 55             | 5              | 7,5            | 10             | 36,5           | 44,5           |
| SNL 507-606     | 59             | 5              | 8              | 11             | 46,5           | 54,5           |
| SNL 508-607     | 62             | 5              | 8              | 11             | 51,5           | 59,5           |
| SNL 509         | 60             | 5              | 9              | 12             | 56,5           | 64,5           |
| SNL 510-608     | 65             | 5              | 9              | 12             | 62             | 70,5           |
| SNL 511-609     | 70             | 5              | 9              | 12             | 67             | 75,5           |
| SNL 512-610     | 80             | 5              | 9              | 12             | 72             | 80,5           |
| SNL 513-611     | 83             | 5              | 9              | 13             | 77             | 85,5           |
| SNL 515-612     | 88             | 5              | 9              | 13             | 87             | 95,5           |
| SNL 516-613     | 93             | 5              | 9              | 13             | 92,5           | 101            |
| SNL 517         | 98             | 5              | 9              | 13             | 97,5           | 106            |
| SNL 518-615     | 113            | 5              | 9              | 13             | 102,5          | 111            |
| SNL 519-616     | 116            | 6              | 10             | 14             | 131            | 141            |
| SNL 520-617     | 131            | 6              | 10             | 14             | 137,5          | 147,5          |
| SNL 522-619     | 143            | 6              | 10             | 14             | 147,5          | 157,5          |
| SNL 524-620     | 151            | 6              | 11             | 15             | 157,5          | 167,5          |
| SNL 526         | 156            | 6              | 11             | 15             | 167,5          | 177,5          |
| SNL 528         | 171            | 6              | 11             | 15             | 177,5          | 187,5          |
| SNL 530         | 189            | 6              | 11             | 15             | 192,5          | 202,5          |
| SNL 532         | 201            | 6              | 11             | 15             | 202,5          | 212,5          |

## End covers

Housings mounted at the end of a shaft should be fitted with an end cover that fits into the seal groove (→ **fig. 9**). Details of the permissible length of the shaft end can be found in **table 5**. End covers, which are plastic, are suitable for operating temperatures ranging from  $-40$  to  $+110$  °C ( $-40$  to  $+230$  °F).

For applications where temperatures exceed  $110$  °C ( $230$  °F), steel end covers should be used. These can be cut from sheet steel and placed in the seal groove. Use a hollow silicone rubber cord to hold the cover in place. Seal groove dimensions are provided in **table 4** on **page 21**.

The standard plastic end cover is identified by the designation prefix ASNH followed by the housing size identification, e.g. ASNH 511-609.

## Locating rings

The width of the bearing seat in SNL housings is machined in such way that it can accommodate bearings in the locating as well as in the non-locating position.

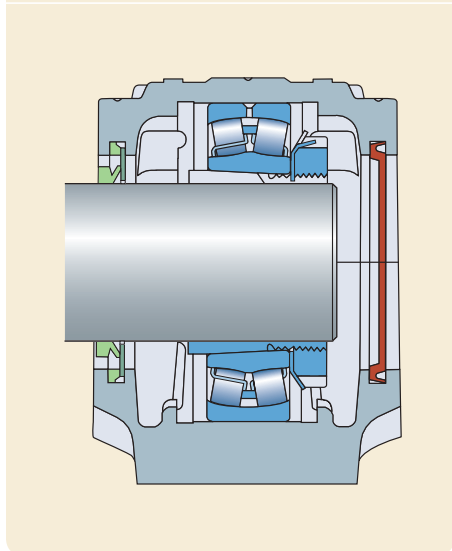
The locating bearing, which locates the shaft axially in both directions, must be secured in the housing on both sides with a locating ring (→ **fig. 10**).

In most cases, the non-locating bearing is free to move axially in the housing to accommodate thermal expansion of the shaft. However, CARB toroidal roller bearings are an exception. These bearings accommodate axial displacement internally and must therefore be secured in the housing, on both sides, with a locating ring.

Locating rings are identified by the designation prefix FRB followed by figures indicating the width/outside diameter in millimetres, e.g. FRB 11.5/100.

*Housing with an end cover*

**Fig. 9**



*Housing with a locating ring at both sides of the bearing*

**Fig. 10**

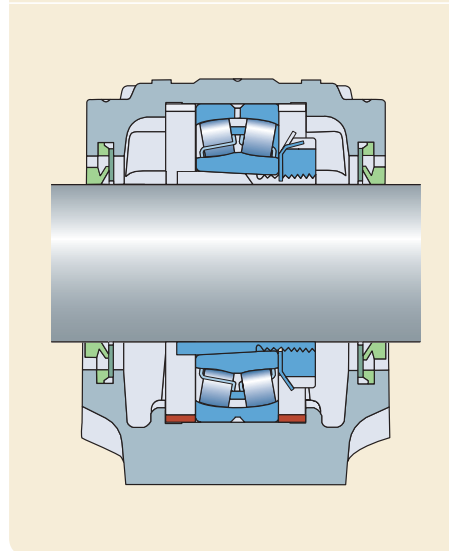
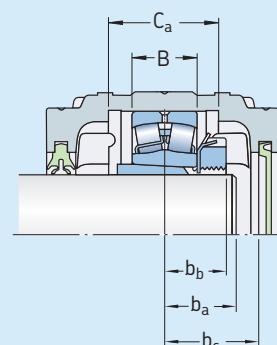
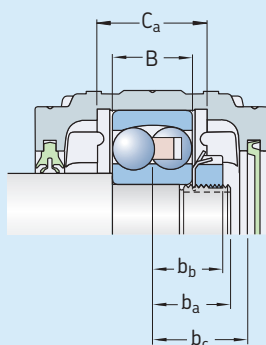


Table 5

## Permissible length of shaft end



| Housing Size | Dimensions |       |       | Widest bearing that fits the housing Designation | Dimensions |       |
|--------------|------------|-------|-------|--------------------------------------------------|------------|-------|
|              | $b_a^{1)}$ | $b_c$ | $C_a$ |                                                  | B          | $b_b$ |
| –            | mm         |       |       | –                                                | mm         |       |
| SNL 205      | 18         | 24    | 25    | 22205 E                                          | 18         | 17    |
| SNL 206-305  | 20         | 29    | 32    | 2305 E                                           | 24         | 19    |
| SNL 207      | 23         | 32    | 34    | 22207 E                                          | 23         | 20,5  |
| SNL 208-307  | 26 (22)    | 33    | 39    | 2307 E                                           | 31         | 24,5  |
| SNL 209      | 25         | 32    | 30    | 22209 E                                          | 23         | 22,5  |
| SNL 210      | 28 (24)    | 35    | 41    | 22210 E                                          | 23         | 23,5  |
| SNL 211      | 30 (25)    | 37    | 44    | 22211 E                                          | 25         | 25    |
| SNL 212      | 33 (26)    | 42    | 48    | 22212 E                                          | 28         | 27    |
| SNL 213      | 35 (30)    | 45    | 51    | 22213 E                                          | 31         | 29,5  |
| SNL 215      | 37 (30)    | 47    | 56    | 22215 E                                          | 31         | 30,5  |
| SNL 216      | 39 (33)    | 50    | 58    | 22216 E                                          | 33         | 33,5  |
| SNL 217      | 40 (35)    | 52    | 61    | 22217 E                                          | 36         | 36    |
| SNL 218      | 45 (35)    | 60    | 65    | 23218 CC/W33                                     | 52,4       | 44,2  |
| SNL 505      | 18         | 24    | 25    | 22205 EK                                         | 18         | 17    |
| SNL 506-605  | 20         | 29    | 32    | 2305 EK                                          | 24         | 19    |
| SNL 507-606  | 23         | 32    | 34    | 2306 EK                                          | 27         | 21,5  |
| SNL 508-607  | 26 (22)    | 33    | 39    | 2307 EK                                          | 31         | 24,5  |
| SNL 509      | 25         | 32    | 30    | 22209 EK                                         | 23         | 22,5  |
| SNL 510-608  | 28 (24)    | 35    | 41    | 22308 EK                                         | 33         | 26,5  |
| SNL 511-609  | 30 (25)    | 37    | 44    | 22309 EK                                         | 36         | 29    |
| SNL 512-610  | 33 (26)    | 42    | 48    | 22310 EK                                         | 40         | 32    |
| SNL 513-611  | 35 (30)    | 45    | 51    | 22311 EK                                         | 43         | 33,5  |
| SNL 515-612  | 37 (30)    | 47    | 56    | 22312 EK                                         | 46         | 36    |
| SNL 516-613  | 39 (33)    | 50    | 58    | 22313 EK                                         | 48         | 38    |
| SNL 517      | 40 (35)    | 52    | 61    | 22217 EK                                         | 36         | 36    |
| SNL 518-615  | 45 (35)    | 60    | 65    | 22315 EK                                         | 55         | 42,5  |
| SNL 519-616  | 47 (40)    | 61    | 68    | 22316 EK                                         | 58         | 46    |
| SNL 520-617  | 51 (45)    | 69    | 70    | 23220 CCK/W33                                    | 60,3       | 50,2  |
| SNL 522-619  | 61         | 75    | 80    | 23222 CCK/W33                                    | 69,8       | 55,9  |
| SNL 524-620  | 65         | 79    | 86    | 23224 CCK/W33                                    | 76         | 60    |
| SNL 526      | 65         | 81    | 90    | 23226 CCK/W33                                    | 80         | 63    |
| SNL 528      | 70         | 89    | 98    | 23228 CCK/W33                                    | 88         | 68    |
| SNL 530      | 80         | 98    | 106   | 23230 CCK/W33                                    | 96         | 74    |
| SNL 532      | 85         | 104   | 114   | 23232 CCK/W33                                    | 104        | 80    |

<sup>1)</sup> The dimension  $b_a$  suits all appropriate bearings, with two exceptions:

1. For self-aligning ball bearings in the 12 series, values between brackets are suitable for total bearing inner ring seat
2. For non-locating bearing arrangements, in particular for bearings with the widest possible width (see table), the values for  $b_a$  must be correspondingly adjusted (reduced or increased) when the bearing is not mounted centrally (→ page 24)



## Axial displacement using CARB toroidal roller bearings in SNL housings

with a KML nut indicated by suffix L in the sleeve designation, e.g. H 2324 L.

Axial displacement reduces clearance in a CARB bearing. As a result, the permissible axial displacement depends on the clearance in the bearing after mounting. Insufficient radial clearance, combined with axial displacement, could actually result in a preload condition that causes the bearing to fail prematurely. See general catalogue for calculation of permissible axial displacement.

Even if clearance is sufficient, axial displacement in a CARB bearing is limited by the distance the inner ring can move by any one of the following

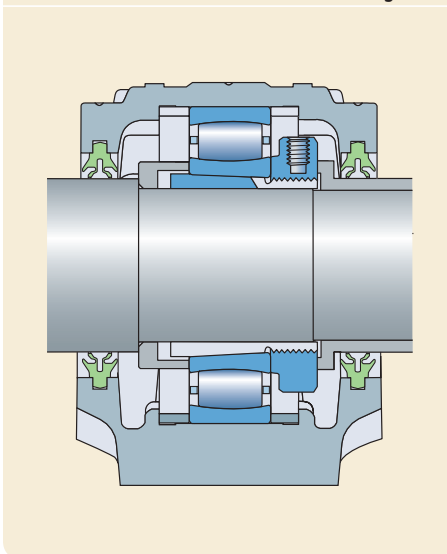
- rollers start to be exposed on one side of the bearing
- lock nut/locking washer fouls the rollers and cage
- type of seal.

To avoid the rollers and cage assembly from contacting the lock nut/ washer, bearings in the C 22 K series, up to and including size 22, should be used with a special adapter sleeve that has a narrow slot and a self-locking KMFE nut. These sleeves are identified by the suffix E, e.g. H 311 E (→ **fig. 11**).

For bearings in the C 22 K and C 32 K series from size 24 and above, sleeves are supplied

*CARB toroidal roller bearing on a stepped shaft and an adapter sleeve incorporating a self-locking KMFE nut*

Fig. 11





# Application advice for trouble-free operation

Condition monitoring is recommended for SNL plummer blocks, particularly if they are fitted to machines where bearing failures would cause production stoppages. The early recognition and trending of the degradation of the machine and machine parts make it possible to analyse the root cause and to be able to plan for corrective maintenance actions before they are needed.

Extensive monitoring experience and a knowledge of the dynamic behaviour of machines, machine components and bearings where there is incipient damage enables SKF to recommend two powerful signal processing techniques that can be used for condition monitoring.

## Vibration velocity

The RMS (root mean square) of the velocity of vibrations in the frequency range 10 Hz to 1 kHz has been used with great success to measure phenomena such as imbalance, misalignment, resonance etc. High levels of velocity vibration can be generated by poor machine conditions such as improper clearances, imbalance, misalignment, weak foundations, bent rotors, out-of-round, belt problems or damaged fan blades. The ISO Standard 10816-1:1995 contains recommendations for reference values for the RMS velocity values measured on different classes of machines and machine parts. These recommendations provide a clear and quantifiable measure for the changes in machine condition. Vibration velocity expressed as an overall RMS value in the 10 Hz to 1 kHz frequency range provides minimal information on defects in rolling element bearings or gear mesh problems. These types of defect can now be easily detected by enveloped acceleration in the higher frequency ranges.



*SKF Multilog online system IMx-T*



*SKF Machine Condition Transmitters (MCT)*



*SKF Microlog series data collectors/analysers*

## Enveloped acceleration

Bearing defects can be easily recognized by measurement and analysis of an enveloped acceleration signal of the higher frequencies generated by the impact signals typical of rolling bearing defects and gear teeth problems. This technique has proven to be extremely reliable in the detection of incipient bearing defects. The low frequencies generated by imbalance, misalignment etc. are not measured and diagnosed within the enveloped acceleration process.

- Condition monitoring and diagnosis with permanently installed monitoring systems

The SKF Multilog online system IMx-T is the next generation of powerful, cost-effective solutions for a variety of condition monitoring applications. Together with SKF @ptitude Observer software, Multilog IMx-T provides a complete for early fault detection and prevention, automatic advice for correcting existing or impending conditions and advanced condition based maintenance to improve machine reliability, availability and performance.

SKF's Machine Condition Transmitters (MCT) deliver added value to essential production equipment by providing vital information on bearing performance that helps maximize potential machine utilization. Highly cost-effective, using MCTs mean potential problems can be spotted before they deteriorate, so maintenance and repair schedules can be forecast and production arrangements can continue as planned.

Each stand-alone monitoring device may be permanently mounted onto a machine, providing low-cost continuous monitoring of specific machine, gear and bearing performance parameters in pumps, fans, motors and other general-purpose machinery.

- Condition monitoring and diagnosis with a portable data collector and analyser

SKF offers a range of portable condition monitoring hardware, designed to assess and report on temperature, oil condition, speed, bearing condition, shaft alignment, noise, vibration and more. Where a measurement point is difficult to access, permanently installed sensors can be used. These can be connected by cable to a connection box accessible to the data collector.

## SNL housings prepared for condition monitoring

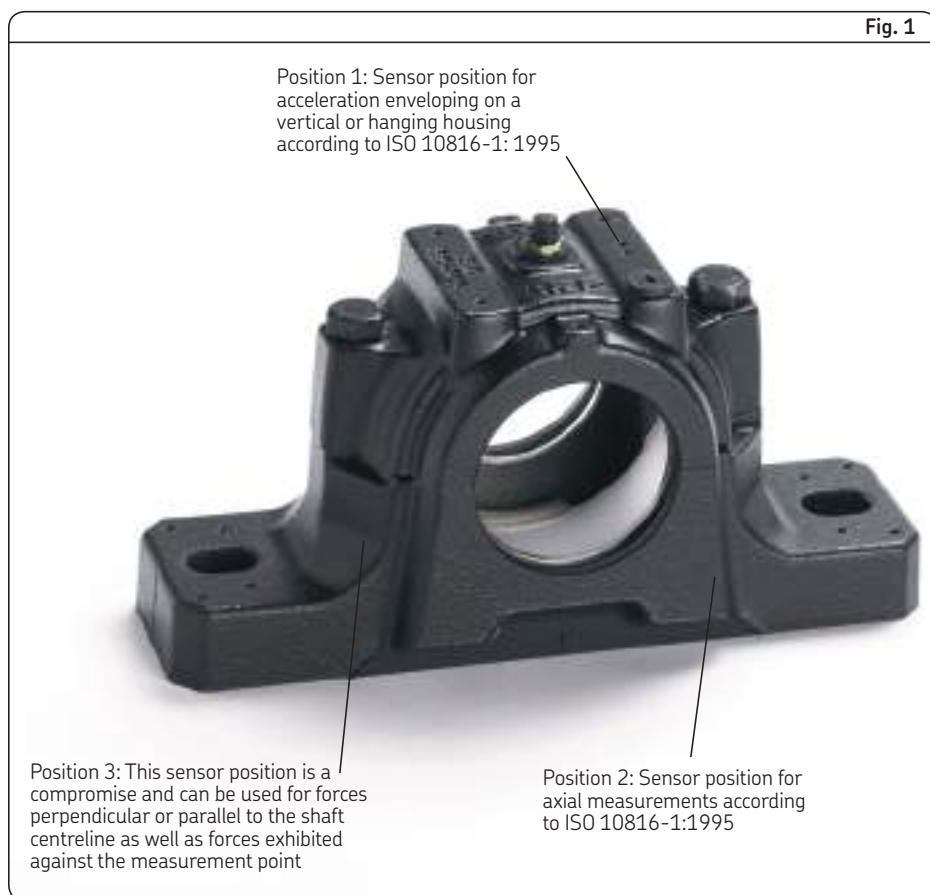
SNL housings have appropriate points for sensors (→ **fig. 1**). Measuring point in position 1 is perpendicular to the shaft, while position 2 is parallel to the shaft. Both points correspond to ISO 10816-1:1995. The measurement point in position 3 is at approximately 45° to the shaft axis. For enveloped acceleration, the angle of inclination of the measuring point is of minor importance.

Measurement point in position 2 should be used on SNL housings where the load acts toward the base plate. The measuring point in position 1 is intended for a housing that is hung from its support or when the load acts away from the base plate.

Housings with a tapped hole for a sensor in position 3 can be supplied on request. These housings are designated with the suffix SN.

For additional information about condition monitoring and the measurement tools and systems available from SKF, contact the SKF application engineering service.

### Measuring points for condition monitoring



# Lubrication

SNL plummer blocks can accommodate either grease or oil as a lubricant, but grease is preferred. For oil, SKF recommends SONL housings. Whichever housing is used, the lubricant should be selected based on the operating conditions. Additional information about lubricant selection can be found in the SKF General Catalogue.

## Grease lubrication

In most applications, the initial grease fill in an SNL housing will adequately lubricate the bearing until the next planned inspection. However, certain operating conditions such as high speeds, high temperatures or heavy loads may require more frequent relubrication. **Table 1** provides guideline values for the initial grease fill. Depending on the intended method of relubrication, the following grease fill percentages for the free space in the housing are recommended

- 40 % when relubricating from the side of the bearing
- 20 % when relubricating through the annular groove and lubrication holes in the bearing outer ring.

In either case, the free space in the bearing should be completely filled with grease. For relubrication quantities, more information can be found in the SKF General Catalogue. Six dimples cast into the top of the housing cap indicates where holes can be drilled and tapped to accommodate a grease fitting. One dimple on each outer side of the central ridge indicates a hole location to relubricate the seal. SNL housings have, as standard, two holes that have been drilled and tapped for a grease fitting AH 1/8-27 PTF (→ **fig. 2**). On a new housing, the holes are covered by plastic plugs. These plugs should be replaced with the grease fitting and threaded plug supplied with the housing. The hole in the middle of the cap should be used to relubricate spherical roller bearings with a lubrication groove and three holes in the outer ring, designation suffix E or W33 (→ **fig. 3**). For SNL housings from size 524 having an eye-bolt in centre of housing this hole is drilled in one of the bosses (→ **fig. 4**). It should be noted that when spherical roller bearings are to be lubricated via the outer ring, the shaft should be rotating. If outer ring relubrication is not possible, or if self-aligning ball bearings or CARB toroidal roller bearings are used, the other stand-

Table 1

| Grease quantities |                   |                 |              |                   |                 |
|-------------------|-------------------|-----------------|--------------|-------------------|-----------------|
| Housing Size      | Grease quantities |                 | Housing Size | Grease quantities |                 |
|                   | First fill 40 %   | First fill 20 % |              | First fill 40 %   | First fill 20 % |
| –                 | g                 | g               | –            | g                 | g               |
| SNL 205           | 25                | 15              | SNL 505      | 25                | 15              |
| SNL 206-305       | 40                | 25              | SNL 506-605  | 40                | 25              |
| SNL 207           | 50                | 30              | SNL 507-606  | 50                | 30              |
| SNL 208-307       | 60                | 35              | SNL 508-607  | 60                | 35              |
| SNL 209           | 65                | 40              | SNL 509      | 65                | 40              |
| SNL 210           | 75                | 45              | SNL 510-608  | 75                | 45              |
| SNL 211           | 100               | 60              | SNL 511-609  | 100               | 60              |
| SNL 212           | 150               | 90              | SNL 512-610  | 150               | 90              |
| SNL 213           | 180               | 110             | SNL 513-611  | 180               | 110             |
| SNL 215           | 230               | 140             | SNL 515-612  | 230               | 140             |
| SNL 216           | 280               | 170             | SNL 516-613  | 280               | 170             |
| SNL 217           | 330               | 200             | SNL 517      | 330               | 200             |
| SNL 218           | 430               | 260             | SNL 518-615  | 430               | 260             |
|                   |                   |                 | SNL 519-616  | 480               | 300             |
|                   |                   |                 | SNL 520-617  | 630               | 390             |
|                   |                   |                 | SNL 522-619  | 850               | 530             |
|                   |                   |                 | SNL 524-620  | 1 000             | 630             |
|                   |                   |                 | SNL 526      | 1 100             | 700             |
|                   |                   |                 | SNL 528      | 1 400             | 900             |
|                   |                   |                 | SNL 530      | 1 700             | 1 100           |
|                   |                   |                 | SNL 532      | 2 000             | 1 300           |

Grease fitting AH 1/8-27 PTF



Fig. 2

Relubricating a bearing via the outer ring and grease escape hole

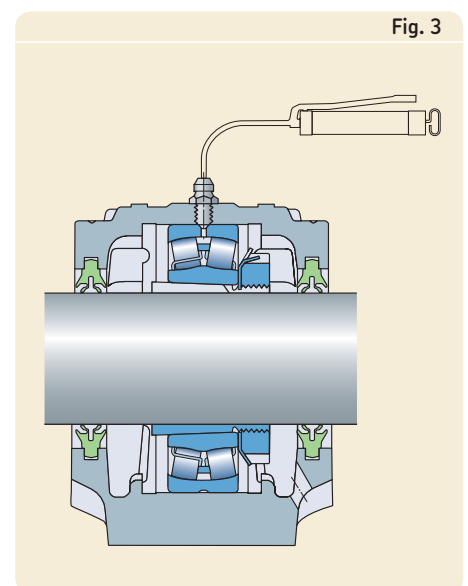


Fig. 3

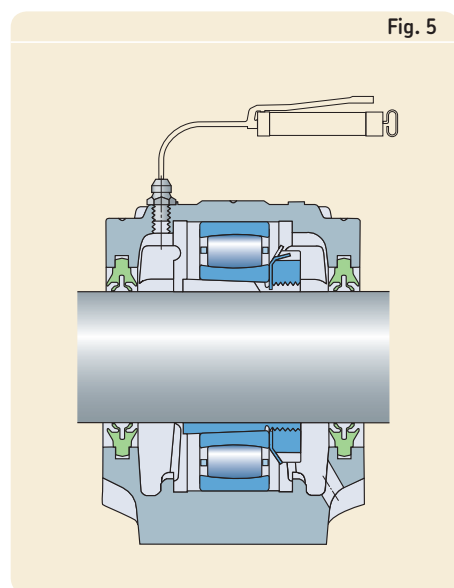
ard hole should contain the grease fitting (→ **fig. 5**) and the centre hole should be plugged. If a different size grease fitting will be used, adapters that fit into the existing holes are available (→ **fig. 6**), making rework unnecessary.

To improve the effectiveness of relubrication in applications where V-rings are used, mount an additional V-ring inside the housing on the side where grease is applied. Doing this forces grease to travel through the bearing to reach the escape hole on the opposite side of the housing. For this type of sealing arrangement, SKF supplies a V-ring and a splash plate that fits in the seal groove to cover a bit more than the top half of the housing (→ **fig. 7**). The V-ring and splash plate set is identified by the designation prefix ASNA followed by the housing size identification and the suffix V, e.g. ASNA 511 V.

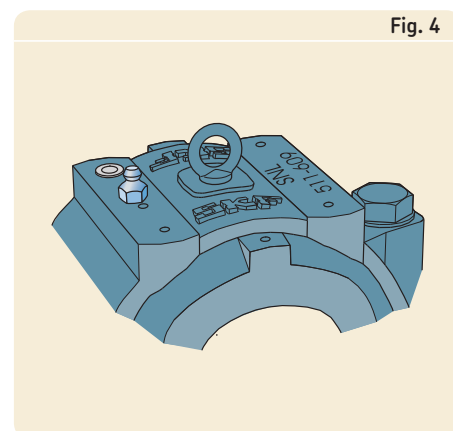
In applications where bearings are mounted on adapter sleeves, the grease should be introduced from the opposite side of the lock nut. If the housing is located at the end of a shaft, grease should be applied at the point closest to the end cover.

In applications where L or C design seals are used, grease cannot escape via the seals. Therefore, if frequent relubrication is required, SKF recommends using a grease escape hole (→ **fig. 3 and 5**). SNL housings with a grease escape hole are identified by the suffix V, e.g. SNL 511-609 V. Recommended dimensions can be found in **table 2** on **page 30**.

*Bearing relubrication at the side of the housing, via a standard grease fitting and grease escape hole*



Adapter



SNL housing having an eye-bolt in centre of housing

Housing with an additional V-ring and splash plate

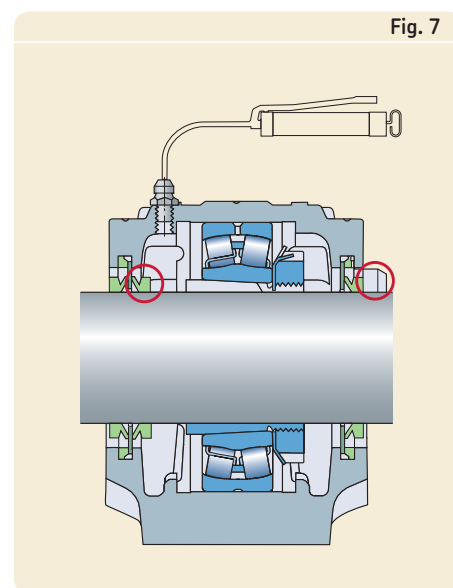
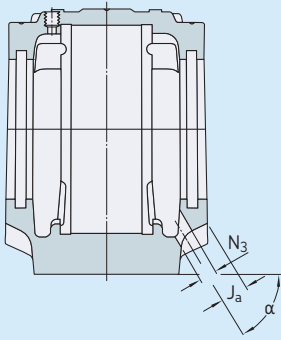




Table 2

## Recommended dimensions for grease escape holes



| Housing<br>Size | Dimensions |       |          |
|-----------------|------------|-------|----------|
|                 | $J_a$      | $N_3$ | $\alpha$ |
| –               | mm         |       | degrees  |
| SNL 205         | 8,5        | 10    | 45       |
| SNL 206-305     | 10         | 10    | 45       |
| SNL 207         | 10         | 10    | 45       |
| SNL 208-307     | 9          | 10    | 45       |
| SNL 209         | 10         | 10    | 45       |
| SNL 210         | 11         | 10    | 45       |
| SNL 211         | 10         | 12    | 45       |
| SNL 212         | 9          | 12    | 45       |
| SNL 213         | 13         | 12    | 45       |
| SNL 215         | 12,5       | 12    | 45       |
| SNL 216         | 14         | 16    | 45       |
| SNL 217         | 17         | 16    | 45       |
| SNL 218         | 20         | 16    | 40       |
| SNL 505         | 8,5        | 10    | 45       |
| SNL 506-605     | 10         | 10    | 45       |
| SNL 507-606     | 10         | 10    | 45       |
| SNL 508-607     | 9          | 10    | 45       |
| SNL 509         | 10         | 10    | 45       |
| SNL 510-608     | 11         | 10    | 45       |
| SNL 511-609     | 10         | 12    | 45       |
| SNL 512-610     | 9          | 12    | 45       |
| SNL 513-611     | 13         | 12    | 45       |
| SNL 515-612     | 12,5       | 12    | 45       |
| SNL 516-613     | 14         | 16    | 45       |
| SNL 517         | 17         | 16    | 45       |
| SNL 518-615     | 20         | 16    | 40       |
| SNL 519-616     | 20         | 16    | 50       |
| SNL 520-617     | 21         | 16    | 50       |
| SNL 522-619     | 21         | 20    | 50       |
| SNL 524-620     | 24         | 20    | 55       |
| SNL 526         | 22         | 20    | 55       |
| SNL 528         | 23         | 20    | 50       |
| SNL 530         | 25         | 20    | 55       |
| SNL 532         | 25         | 20    | 60       |

The dimensions are those recommended when the standard AH 1/8–27 PTF grease fitting is used (supplied with the housing) but can also be applied if fittings with R 1/8, KR 1/8 or M 10×1 threads are used. An adapter is available that fits the SNL standard lubrication hole, designation LAPN 1/8. Using this adapter fitting with G 1/4 thread and grease dispensers, e.g. SKF SYSTEM 24, can be applied.

Table 3

## Recommended oil levels for SNL .. TURU plummer block housings in the 5 series

| Housing<br>Designation | Oil level for bearings in the series |     |     |     |     |     |     |     |      |     |
|------------------------|--------------------------------------|-----|-----|-----|-----|-----|-----|-----|------|-----|
|                        | 12                                   |     | 22  |     | 232 |     | 222 |     | C 22 |     |
|                        | min                                  | max | min | max | min | max | min | max | min  | max |
| –                      | mm                                   |     |     |     |     |     |     |     |      |     |
| SNL 511 TURU           | 27                                   | 31  | 27  | 32  | –   | –   | 27  | 31  | 28   | 32  |
| SNL 512 TURU           | 23                                   | 27  | 22  | 28  | –   | –   | 23  | 27  | 23   | 26  |
| SNL 513 TURU           | 29                                   | 33  | 28  | 34  | –   | –   | 28  | 33  | 29   | 34  |
| SNL 515 TURU           | 24                                   | 29  | 23  | 29  | –   | –   | 23  | 28  | 24   | 29  |
| SNL 516 TURU           | 34                                   | 39  | 33  | 40  | –   | –   | 33  | 39  | 34   | 39  |
| SNL 517 TURU           | 30                                   | 36  | 30  | 36  | –   | –   | 29  | 35  | 30   | 36  |
| SNL 518 TURU           | 31                                   | 38  | 31  | 38  | 33  | 37  | 30  | 37  | 30   | 36  |
| SNL 519 TURU           | 38                                   | 45  | 38  | 46  | –   | –   | 38  | 45  | 39   | 46  |
| SNL 520 TURU           | 34                                   | 42  | 34  | 42  | 37  | 42  | 33  | 41  | 35   | 43  |
| SNL 522 TURU           | 39                                   | 47  | 38  | 48  | 42  | 47  | 37  | 46  | 39   | 48  |
| SNL 524 TURU           | 47                                   | 57  | –   | –   | 50  | 55  | 46  | 55  | 46   | 56  |
| SNL 526 TURU           | –                                    | –   | –   | –   | 54  | 59  | 50  | 59  | 52   | 62  |
| SNL 528 TURU           | –                                    | –   | –   | –   | 46  | 52  | 44  | 52  | 40   | 51  |
| SNL 530 TURU           | –                                    | –   | –   | –   | 48  | 54  | 45  | 54  | 44   | 57  |
| SNL 532 TURU           | –                                    | –   | –   | –   | 50  | 57  | 47  | 57  | –    | –   |

The oil level is measured from the base of the housing. Mark the min and max level on the sight glass. For housings in the 3 and 6 series, consult SKF

## Grease guiding system

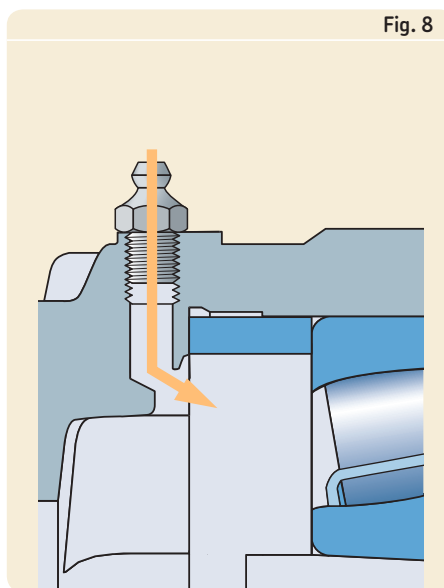
SKF has developed a grease guiding system for SNL housings (→ **fig. 8**). The housing contains an integrated flange that guides lubricant from the grease fitting directly to the rolling elements to provide a more efficient means of relubrication. This design feature is available on housings from size 511 up to and including size 532.

## Oil lubrication

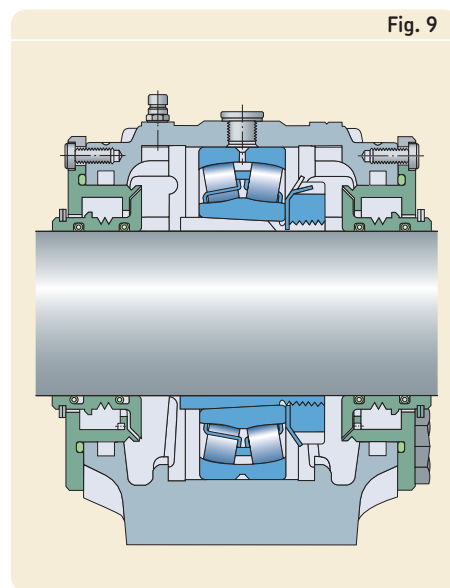
SNL housings can be used for oil lubrication at relatively high speeds provided the housing has been modified. When using oil, it is important to not overfill the sump and to use specially developed U design seals (→ **fig. 9**) or leaks may result. These seals, which are described on **page 20**, are supplied with the housing.

In order for these seals to be used, the housing must be modified. SNL housings for oil lubrication are supplied from SKF complete with seals, ventilation plug and oil sight glass. It is important not to exceed the recommended oil level if leakage is to be avoided (→ **table 3**).

*Grease guiding system*



*Housing for oil lubrication*



## Mounting

SNL housings, together with the appropriate SKF bearings, can create a robust, operationally reliable system that will provide long service life. However, if the system is to achieve maximum service life, each component must be mounted properly, using the correct tools.

Bearings can be mounted either on a tapered seat – typically an adapter sleeve – or on a cylindrical seat.

### Mounting bearings on a tapered seat

When a bearing is mounted correctly on a sleeve, there will be an interference fit between the inner ring, sleeve and shaft. The degree of interference depends on how far the bearing is driven up on the sleeve and can be determined either by measuring the reduction of internal clearance in the bearing with a feeler gauge or by measuring the drive-up distance.

Clearance reduction in a self-aligning ball bearing with Normal radial internal clearance, can be checked by turning and swiveling the outer ring. If, when swiveling, the outer ring provides slight resistance, it has a sufficient degree of interference and the drive-up is complete.

Another simple way to mount a self-aligning ball bearing on an adapter sleeve is to use a TMHN 7 lock nut spanner (available for bore sizes up to 55 mm). These specially designed spanners are marked with the angle through which the lock nut should be turned.

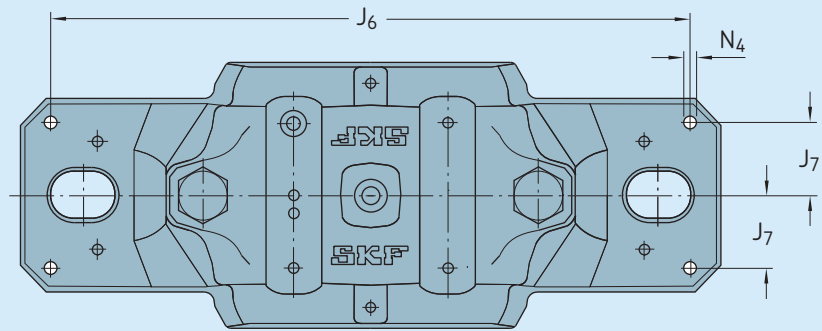
Small spherical roller and CARB toroidal roller bearings can also be mounted on an adapter sleeve with a TMHN 7 spanner. However, when mounting either of these bearings, do not use the angle on the spanner, as it is meant only for self-aligning ball bearings. Appropriate angles can be found in the tables in the chapters concerning spherical roller bearings and CARB toroidal roller bearings in the SKF General Catalogue.

To install larger spherical roller or CARB toroidal roller bearings, either the clearance reduction or the SKF Drive-up Method should be used. When using a feeler gauge to measure clearance reduction, it is important that the inner and outer rings of the bearing are not displaced relative to each other.

Details of the spanner lock nut set TMHN 7, several other mounting tools as well as the SKF Drive-up Method can be found in the catalogue MP3000 “SKF Maintenance and Lubrication Products”, which will be sent on request.

Table 4

Position and size of dowel pin holes



| Housing Size | Dimensions     |                |                    | Housing Size | Dimensions     |                |                    |
|--------------|----------------|----------------|--------------------|--------------|----------------|----------------|--------------------|
|              | J <sub>6</sub> | J <sub>7</sub> | N <sub>4</sub> max |              | J <sub>6</sub> | J <sub>7</sub> | N <sub>4</sub> max |
| –            | mm             |                |                    | –            | mm             |                |                    |
| SNL 205      | 152            | 16             | 5                  | SNL 505      | 152            | 16             | 5                  |
| SNL 206-305  | 172            | 19             | 5                  | SNL 506-605  | 172            | 19             | 5                  |
| SNL 207      | 172            | 19             | 5                  | SNL 507-606  | 172            | 19             | 5                  |
| SNL 208-307  | 188            | 22             | 6                  | SNL 508-607  | 188            | 22             | 6                  |
| SNL 209      | 188            | 22             | 6                  | SNL 509      | 188            | 22             | 6                  |
| SNL 210      | 188            | 22             | 6                  | SNL 510-608  | 188            | 22             | 6                  |
| SNL 211      | 234            | 24,5           | 8                  | SNL 511-609  | 234            | 24,5           | 8                  |
| SNL 212      | 234            | 27             | 8                  | SNL 512-610  | 234            | 27             | 8                  |
| SNL 213      | 252            | 29             | 8                  | SNL 513-611  | 252            | 29             | 8                  |
| SNL 215      | 257            | 29             | 8                  | SNL 515-612  | 257            | 29             | 8                  |
| SNL 216      | 288            | 33             | 8                  | SNL 516-613  | 288            | 33             | 8                  |
| SNL 217      | 292            | 33             | 8                  | SNL 517      | 292            | 33             | 8                  |
| SNL 218      | 317            | 35             | 8                  | SNL 518-615  | 317            | 35             | 8                  |
|              |                |                |                    | SNL 519-616  | 317            | 35             | 8                  |
|              |                |                |                    | SNL 520-617  | 348            | 39             | 8                  |
|              |                |                |                    | SNL 522-619  | 378            | 44             | 8                  |
|              |                |                |                    | SNL 524-620  | 378            | 44             | 8                  |
|              |                |                |                    | SNL 526      | 414            | 46             | 12                 |
|              |                |                |                    | SNL 528      | 458            | 54             | 12                 |
|              |                |                |                    | SNL 530      | 486            | 58             | 12                 |
|              |                |                |                    | SNL 532      | 506            | 58             | 12                 |

## Mounting bearings on a cylindrical seat

Bearings with a cylindrical bore are normally mounted with an interference fit on the shaft. Appropriate shaft tolerances should be selected.

Small bearings may be mounted cold, driven into position by applying light hammer blows to a sleeve placed against the bearing ring face. The use of a mounting dolly enables the mounting force to be applied centrally.

The force to mount bearings increases considerably with increasing bearing size. Therefore, medium sized bearings should be heated prior to mounting with an SKF electric induction heater.

## Support surface for housing base

To provide long bearing service life, SKF recommends that all housing support surfaces be finished to  $R_a \leq 12,5 \mu\text{m}$ . The flatness (planicity) tolerance should be to IT7. For moderate demands, IT8 may be satisfactory.

## Dowel pins

SNL housings are designed for loads acting vertically to the housing base support. If they are to be subjected to moderate or heavy loads, acting parallel to the base support, a stop should be provided, or the housing should be pinned to its support. Recommendations for the position and size of the holes to accommodate dowel pins are provided in **tables 4 and 5**.

## Housings for four-bolt mounting

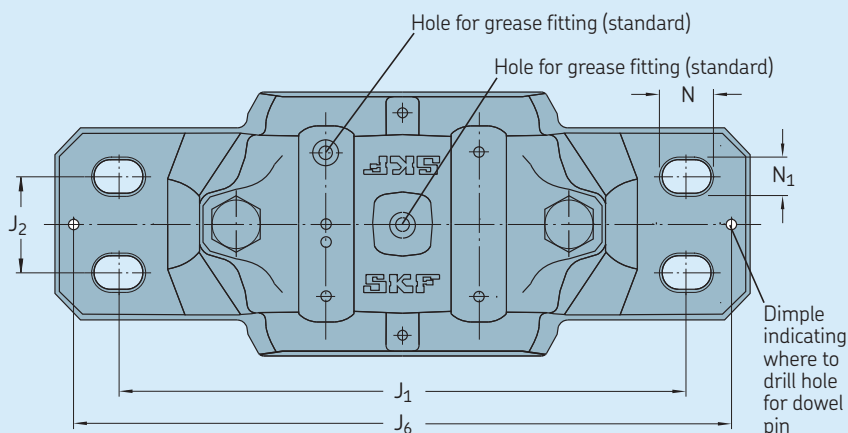
To attach SNL housings to T-shaped beams, a variant with four oblong holes cast into the mounting base can be supplied. Available sizes are shown in **table 5**. These housings are identified by the series designation FSNL, e.g. FSNL 511-609.

It is also possible to drill four bolt holes in the base of a standard SNL housing. Their positions are indicated by cast dimples. Recommended dimensions are provided in **table 6 on page 34**. SNL housings with four drilled bolt holes can be supplied upon request. These housings are identified by the designation suffix /MS2, e.g. SNL 510-608/MS2.

**NOTE:** Housings supplied with four drilled holes are not interchangeable with the variant containing four cast oblong bolt holes (FSNL). The size and position of the holes are different.

Table 5

Bolt hole dimensions for four cast oblong bolt holes



| Housing Size | Dimensions |                |                |                |                |
|--------------|------------|----------------|----------------|----------------|----------------|
|              | N          | N <sub>1</sub> | J <sub>1</sub> | J <sub>2</sub> | J <sub>6</sub> |
| –            | mm         |                |                |                |                |
| FSNL 511-609 | 20         | 15             | 210            | 35             | 234            |
| FSNL 512-610 | 20         | 15             | 210            | 35             | 234            |
| FSNL 513-611 | 20         | 15             | 230            | 40             | 252            |
| FSNL 515-612 | 20         | 15             | 230            | 40             | 257            |
| FSNL 516-613 | 24         | 18             | 260            | 50             | 288            |
| FSNL 517     | 24         | 18             | 260            | 50             | 292            |
| FSNL 518-615 | 24         | 18             | 290            | 50             | 317            |
| FSNL 519-616 | 24         | 18             | 290            | 50             | 317            |
| FSNL 520-617 | 24         | 18             | 320            | 60             | 348            |
| FSNL 522-619 | 24         | 18             | 350            | 70             | 378            |
| FSNL 524-620 | 24         | 18             | 350            | 70             | 378            |
| FSNL 526     | 28         | 22             | 380            | 70             | 414            |
| FSNL 528     | 32         | 26             | 420            | 80             | 458            |
| FSNL 530     | 32         | 26             | 450            | 90             | 486            |
| FSNL 532     | 32         | 26             | 470            | 90             | 506            |

## Housings for two-bolt mounting

SNL housings are as standard performed with two oblong cast holes with dimensions according to the product tables. If two drilled holes in the base are needed, this can be made provided an SSNLD housing with a blank base is used. Their positions are indicated by cast dimples. Recommended bolt hole dimensions are provided in **table 6 on page 34**. SSNLD housings with two drilled bolt holes can be supplied upon request.

These housings are identified by the designation suffix /MS1, e.g. SSNLD 516-613/MS1.

## Spheroidal graphite cast iron housings

For applications where extra strength is required, SKF can supply standard design SNL housings in spheroidal graphite cast iron. Sizes range from 510-608 to 532. For additional information → [page 53](#). The housings are available with either four oblong bolt holes cast into the base or a solid base. On special request, housings can be delivered with two or four holes drilled in the base.

If holes will be drilled on-site by the customer, dimples cast into the housing base indicate the optimum location of the hole. Recommended hole dimensions can be found in [table 6](#).

In all other respects these housings are identical to those manufactured in grey cast iron, enabling the same bearings and components to be used.

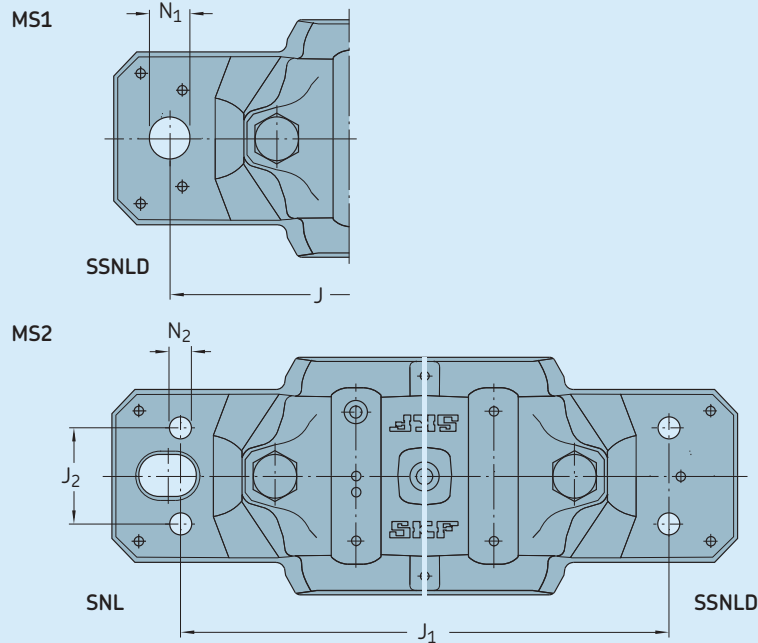
Spheroidal graphite cast iron housings with a solid base are identified by the series designation SSNLD, e.g. SSNLD 511-609. Housings with four holes cast into the base are identified by the series designation FSNLD, e.g. FSNLD 511-609. Housings with two holes drilled in the base have a designation suffix /MS1, while those with four drilled holes have a designation suffix /MS2, e.g. SSNLD 511-609/MS1 and SSNLD 511-609/MS2, respectively.

## Attachment bolts

SKF recommends using 8.8 class hexagonal bolts in accordance with ISO 4014:1999. If the load does not act vertically to the base, it may be necessary to use stronger bolts, class 10.9. Details of the appropriate tightening torques for the bolts to class 8.8 are provided in [table 2](#) on [page 52](#).

Table 6

### Bolt hole dimensions for drilled bolt holes



| Housing Size             | Two bolt holes (MS1) <sup>1)</sup> |                |                       |       | Four bolt holes (MS2)     |                |                | Appropriate bolt size |     |
|--------------------------|------------------------------------|----------------|-----------------------|-------|---------------------------|----------------|----------------|-----------------------|-----|
|                          | Dimensions J                       | N <sub>1</sub> | Appropriate bolt size |       | Dimensions J <sub>1</sub> | J <sub>2</sub> | N <sub>2</sub> | Appropriate bolt size |     |
| —                        | mm                                 |                | mm                    | in    | mm                        |                |                | mm                    | in  |
| <b>SNL 208-307</b>       | —                                  | —              | —                     | —     | 160                       | 34             | 11             | M 10                  | 3/8 |
| <b>SNL 209</b>           | —                                  | —              | —                     | —     | 160                       | 34             | 11             | M 10                  | 3/8 |
| <b>(S)SNL(D) 210</b>     | 170                                | 15             | M 12                  | 1/2   | 160                       | 34             | 11             | M 10                  | 3/8 |
| <b>(S)SNL(D) 211</b>     | 210                                | 18             | M 16                  | 5/8   | 200                       | 40             | 14             | M 12                  | 1/2 |
| <b>(S)SNL(D) 212</b>     | 210                                | 18             | M 16                  | 5/8   | 200                       | 40             | 14             | M 12                  | 1/2 |
| <b>(S)SNL(D) 213</b>     | 230                                | 18             | M 16                  | 5/8   | 220                       | 48             | 14             | M 12                  | 1/2 |
| <b>(S)SNL(D) 215</b>     | 230                                | 18             | M 16                  | 5/8   | 220                       | 48             | 14             | M 12                  | 1/2 |
| <b>(S)SNL(D) 216</b>     | 260                                | 22             | M 20                  | 3/4   | 252                       | 52             | 18             | M 16                  | 5/8 |
| <b>(S)SNL(D) 217</b>     | 260                                | 22             | M 20                  | 3/4   | 252                       | 52             | 18             | M 16                  | 5/8 |
| <b>(S)SNL(D) 218</b>     | 290                                | 22             | M 20                  | 3/4   | 280                       | 58             | 18             | M 16                  | 5/8 |
| <b>SNL 508-607</b>       | —                                  | —              | —                     | —     | 160                       | 34             | 11             | M 10                  | 3/8 |
| <b>SNL 509</b>           | —                                  | —              | —                     | —     | 160                       | 34             | 11             | M 10                  | 3/8 |
| <b>(S)SNL(D) 510-608</b> | 170                                | 15             | M 12                  | 1/2   | 160                       | 34             | 11             | M 10                  | 3/8 |
| <b>(S)SNL(D) 511-609</b> | 210                                | 18             | M 16                  | 5/8   | 200                       | 40             | 14             | M 12                  | 1/2 |
| <b>(S)SNL(D) 512-610</b> | 210                                | 18             | M 16                  | 5/8   | 200                       | 40             | 14             | M 12                  | 1/2 |
| <b>(S)SNL(D) 513-611</b> | 230                                | 18             | M 16                  | 5/8   | 220                       | 48             | 14             | M 12                  | 1/2 |
| <b>(S)SNL(D) 515-612</b> | 230                                | 18             | M 16                  | 5/8   | 220                       | 48             | 14             | M 12                  | 1/2 |
| <b>(S)SNL(D) 516-613</b> | 260                                | 22             | M 20                  | 3/4   | 252                       | 52             | 18             | M 16                  | 5/8 |
| <b>(S)SNL(D) 517</b>     | 260                                | 22             | M 20                  | 3/4   | 252                       | 52             | 18             | M 16                  | 5/8 |
| <b>(S)SNL(D) 518-615</b> | 290                                | 22             | M 20                  | 3/4   | 280                       | 58             | 18             | M 16                  | 5/8 |
| <b>(S)SNL(D) 519-616</b> | 290                                | 22             | M 20                  | 3/4   | 280                       | 58             | 18             | M 16                  | 5/8 |
| <b>(S)SNL(D) 520-617</b> | 320                                | 26             | M 24                  | 7/8   | 300                       | 66             | 18             | M 16                  | 5/8 |
| <b>(S)SNL(D) 522-619</b> | 350                                | 26             | M 24                  | 7/8   | 320                       | 74             | 18             | M 16                  | 5/8 |
| <b>(S)SNL(D) 524-620</b> | 350                                | 26             | M 24                  | 7/8   | 330                       | 74             | 18             | M 16                  | 5/8 |
| <b>(S)SNL(D) 526</b>     | 380                                | 28             | M 24                  | 1     | 370                       | 80             | 22             | M 20                  | 3/4 |
| <b>(S)SNL(D) 528</b>     | 420                                | 35             | M 30                  | 1 1/4 | 400                       | 92             | 26             | M 24                  | 7/8 |
| <b>(S)SNL(D) 530</b>     | 450                                | 35             | M 30                  | 1 1/4 | 430                       | 100            | 26             | M 24                  | 7/8 |
| <b>(S)SNL(D) 532</b>     | 470                                | 35             | M 30                  | 1 1/4 | 450                       | 100            | 26             | M 24                  | 7/8 |

<sup>1)</sup> Valid for SSNLD housings only

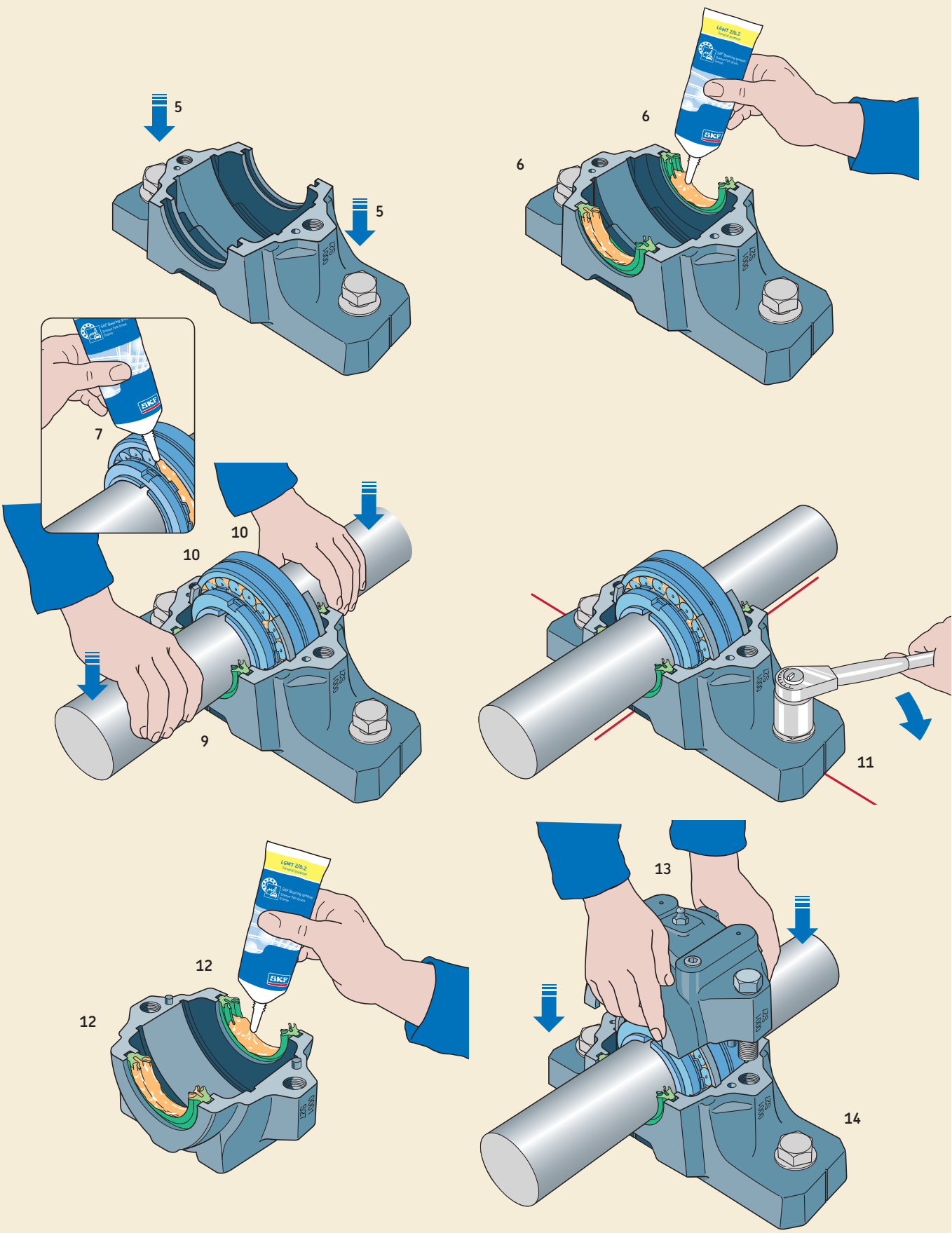




## Mounting SNL housings with four-lip seals

Before starting installation work, the following instructions should be read carefully.

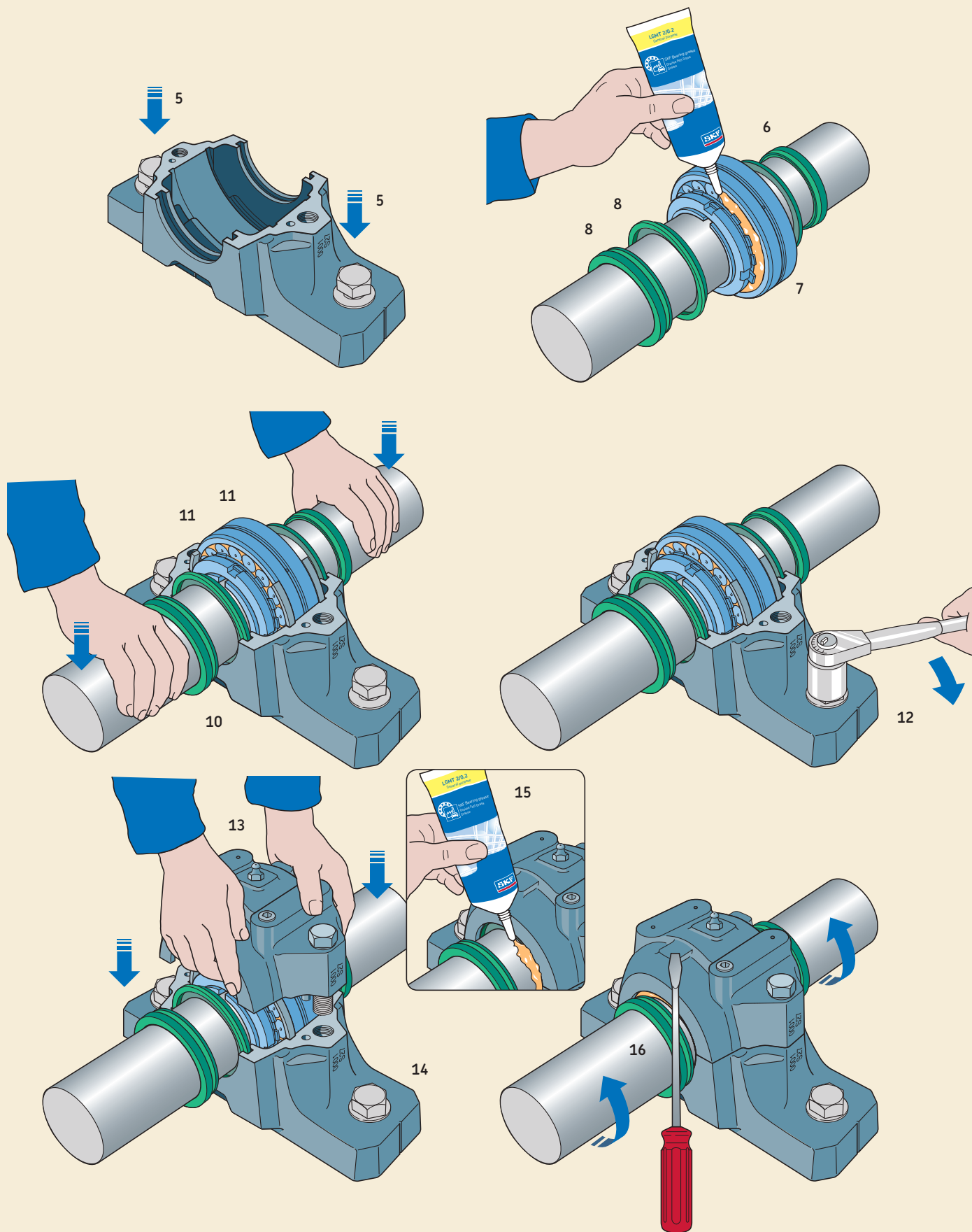
1. Be sure that the work area is clean. Check the dimensional and form accuracy of the shaft seat. The shaft should be machined to a h9/IT5 tolerance for adapter sleeve mounting.
2. Check that the roughness of the support surface is  $R_a \leq 12,5 \mu\text{m}$ . The flatness (planicity) tolerance should be to IT7. Make sure that the mounting surface is clean. If shims are used, the whole surface must be covered by shims. The mounting surface (frame) must be designed to accommodate actual load, vibrations and settings.
3. Mount any components that are on the shaft between the two SNL housings.
4. If the bearing is mounted on an adapter sleeve, determine its position relative to the housing. For spherical roller bearings with a lubrication groove and three holes in the outer ring, SKF recommends using the relubrication hole in the centre of the housing. When relubrication from the side of the bearing is required such as for CARB toroidal roller bearings or self-aligning ball bearings, the housing must be positioned so that the grease fitting is on the opposite side of the lock nut. When a housing is located at the end of a shaft, grease should be applied at the end cover side.
5. Position the housing on the support surface. Fit the attachment bolts, but do not tighten them.
6. Insert one seal half in each of the grooves in the housing base (If a stepped shaft is used, first mount the distance ring). Fill the space between the two inner sealing lips with grease. If the housing is to be used at the end of a shaft, insert an end cover instead of a seal half.
7. Mount the bearing on the shaft, using an adapter sleeve. Completely fill the bearing with grease. The remainder of the recommended grease quantity should be put in the housing base at the sides (→ **table 1, page 28**).
8. Mount the second bearing and housing, following steps 4 to 7.
9. Lay the shaft with the two bearings in the two housing bases.
10. For locating bearing arrangements and arrangements with CARB toroidal roller bearings, put in one locating ring on each side of the bearing.
11. Carefully align the two housing bases. Vertical markings at the middle of the side faces and ends of the housing bases can facilitate this. Then, lightly tighten the attachment bolts on both housings.
12. The remaining seal halves should be inserted in the seal grooves in the two housing caps and the space between the inner sealing lips filled with grease.
13. Place the two housing caps over each base and tighten the cap bolts (to join cap and base) to the torque specified in **table 2 on page 52**. The cap and base of one housing are not interchangeable with those of other housings. The cap and base of each housing should be checked to see that they bear the same serial number.
14. Check the alignment of the two housings to minimize misalignment and fully tighten the attachment bolts in the two housing bases. Recommended tightening torques are provided in **table 2 on page 52**.



## Mounting SNL housings with V-ring seals

Before starting installation work, the following instructions should be read carefully.

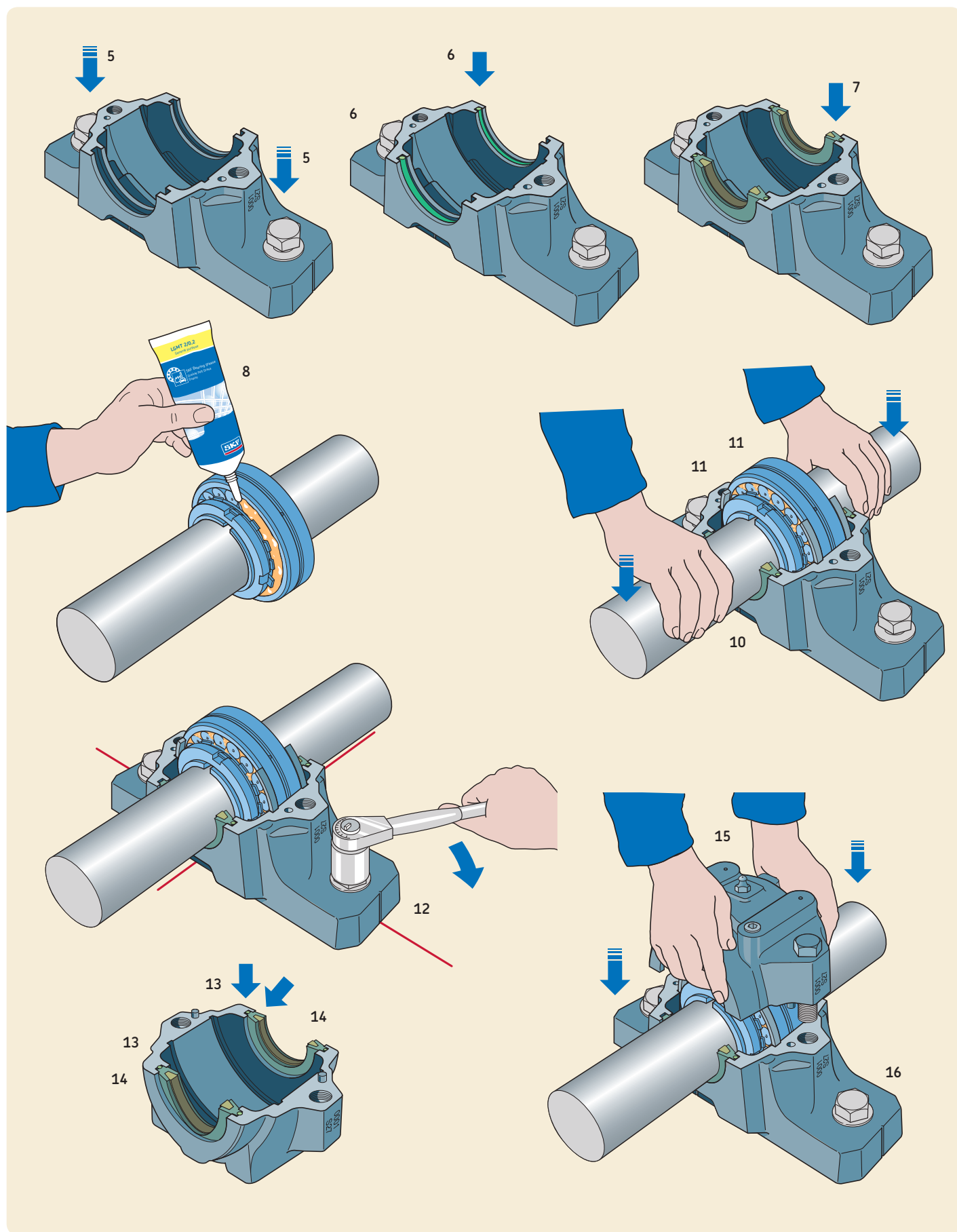
1. Be sure that the work area is clean. Check the dimensional and form accuracy of the shaft seat. The shaft should be machined to a h9/IT5 tolerance for adapter sleeve mounting.
2. Check that the roughness of the support surface is  $R_a \leq 12,5 \mu\text{m}$ . The flatness (planicity) tolerance should be to IT7. Make sure that the mounting surface is clean. If shims are used, the whole surface must be covered by shims. The mounting surface (frame) must be designed to accommodate actual load, vibrations and settings.
3. Mount any components that are on the shaft between the two SNL housings.
4. If the bearing is mounted on an adapter sleeve, determine its position relative to the housing. For spherical roller bearings with a lubrication groove and three holes in the outer ring, SKF recommends using the relubrication hole in the centre of the housing. When relubrication from the side of the bearing is required such as for CARB toroidal roller bearings or self-aligning ball bearings, the housing must be positioned so that the grease fitting is on the opposite side of the lock nut. When a housing is located at the end of a shaft, grease should be applied at the end cover side.
5. Position the housing on the support surface. Fit the attachment bolts, but do not tighten them.
6. Arrange the one V-ring with sealing washer on the shaft. The V-ring should be furthest away from the bearing and seal against the washer, i.e. the lip should point inwards towards the washer.
7. Mount the bearing on the shaft – either directly on a stepped shaft or using an adapter sleeve. Completely fill the bearing with grease. The remainder of the recommended grease quantity should be put in the housing base at the sides (→ **table 1, page 28**).
8. Arrange the second sealing washer and V-ring on the shaft at the other side of the bearing (If a stepped shaft is used, first mount the distance ring). If the housing is to be used at the end of a shaft, mount an end cover instead.
9. Mount the second bearing and housing, following steps 4 to 8.
10. Lay the shaft with the two bearings and sealing washers in the two housing bases.
11. For locating bearing arrangements and arrangements with CARB toroidal roller bearings, put in one locating ring on each side of the bearing.
12. Carefully align the two housing bases. Vertical markings at the middle of the side faces and ends of the housing bases can facilitate this. Then, lightly tighten the attachment bolts on both housings.
13. Place the two housing caps over each base and tighten the cap bolts (to join cap and base) to the torque specified in **table 2 on page 52**. The cap and base of one housing are not interchangeable with those of other housings. The cap and base of each housing should be checked to see that they bear the same serial number.
14. Check the alignment of the two housings to minimize misalignment and fully tighten the attachment bolts in the two housing bases. Recommended tightening torques are provided in **table 2 on page 52**.
15. Coat the V-ring counterfaces on the sealing washers with grease.
16. Finally, push the V-ring seals into their correct position. This can be done using a screwdriver while turning the shaft.



## Mounting SNL housings with felt seals

Before starting installation work, the following instructions should be read carefully.

1. Be sure that the work area is clean. Check the dimensional and form accuracy of the shaft seat. The shaft should be machined to a h9/IT5 tolerance for adapter sleeve mounting.
2. Check that the roughness of the support surface is  $R_a \leq 12,5 \mu\text{m}$ . The flatness (planicity) tolerance should be to IT7. Make sure that the mounting surface is clean. If shims are used, the whole surface must be covered by shims. The mounting surface (frame) must be designed to accommodate actual load, vibrations and settings.
3. Mount any components that are on the shaft between the two SNL housings.
4. If the bearing is mounted on an adapter sleeve, determine its position relative to the housing. For spherical roller bearings with a lubrication groove and three holes in the outer ring, SKF recommends using the relubrication hole in the centre of the housing. When relubrication from the side of the bearing is required such as for CARB toroidal roller bearings or self-aligning ball bearings, the housing must be positioned so that the grease fitting is on the opposite side of the lock nut. When a housing is located at the end of a shaft, grease should be applied at the end cover side.
5. Position the housing on the support surface. Fit the attachment bolts, but do not tighten them.
6. Insert the rubber O-section cords in the grooves in the housing base. If the housing is to be used at the end of a shaft, insert an end cover instead of one O-section cord.
7. Place one felt ring seal half (in light alloy ring) over the O-section cord in each sealing groove in the housing base. (Details about mounting of loose felt strips → **page 18**) (If a stepped shaft is used, first mount the distance ring).
8. Mount the bearing on the shaft – either directly on a stepped shaft or using an adapter sleeve. Completely fill the bearing with grease. The remainder of the recommended grease should be put in the housing base at the sides (→ **table 1, page 28**).
9. Mount the second bearing and housing, following steps 4 to 8.
10. Lay the shaft with the two bearings in the two housing bases.
11. For locating bearing arrangements and arrangements with CARB toroidal roller bearings, put in one locating ring on each side of the bearing.
12. Carefully align the two housing bases. Vertical markings at the middle of the side faces and ends of the housing bases can facilitate this. Then, lightly tighten the attachment bolts on both housings.
13. Put the O-ring cord into the sealing grooves in the two housing caps.
14. The remaining seal halves should be inserted in the seal grooves in the two housing caps over the O-ring cords.
15. Place the two housing caps over each base and tighten the cap bolts (to join cap and base) to the torque specified in **table 2 on page 52**. The cap and base of one housing are not interchangeable with those of other housings. The cap and base of each housing should be checked to see that they bear the same serial number.
16. Check the alignment of the two housings to minimize misalignment and fully tighten the attachment bolts in the two housing bases. Recommended tightening torques are provided in **table 2 on page 52**.

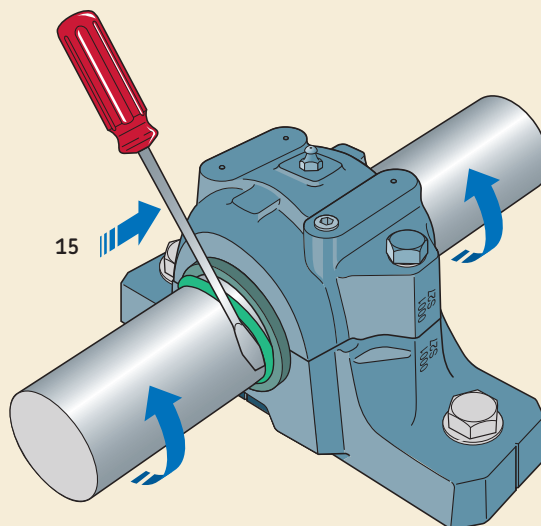
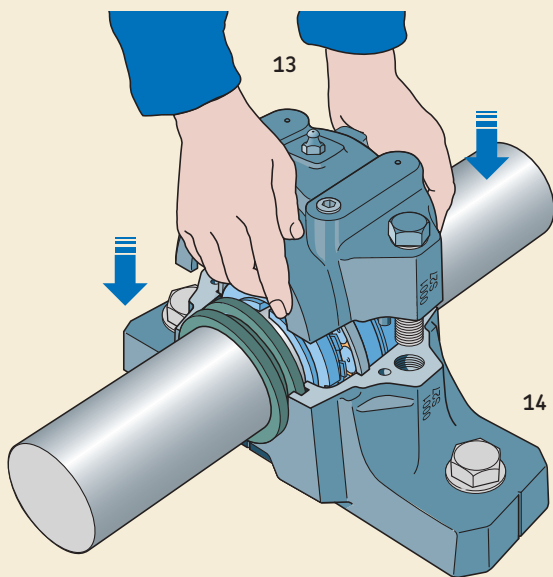
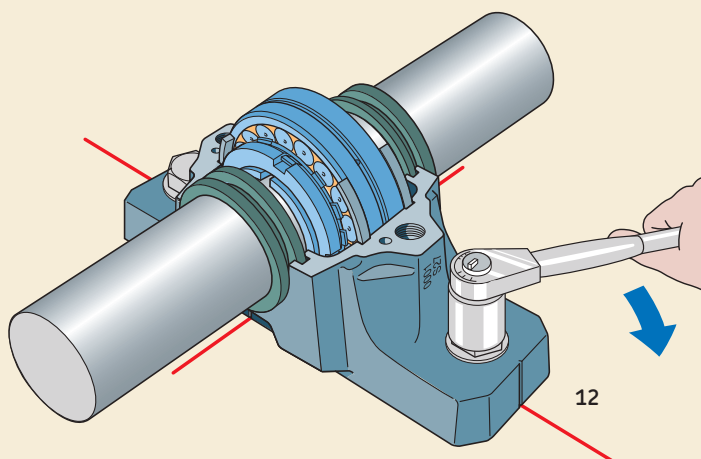
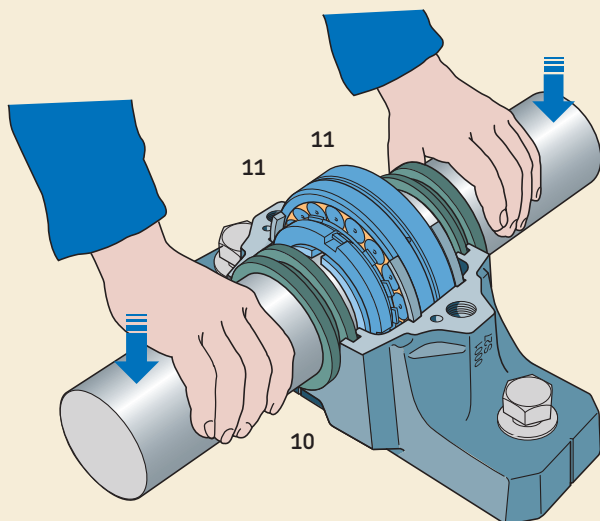
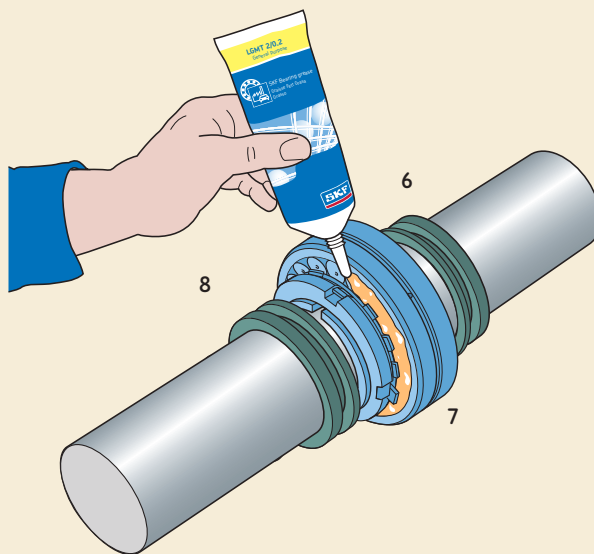
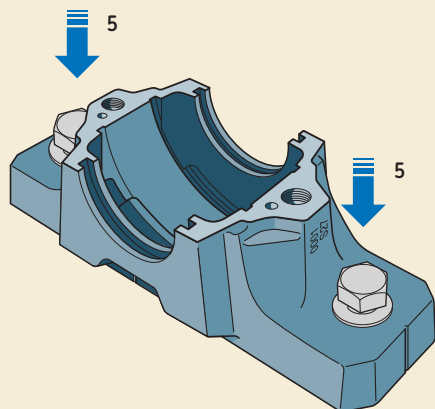




## Mounting SNL housings with labyrinth seals

Before starting installation work, the following instructions should be read carefully.

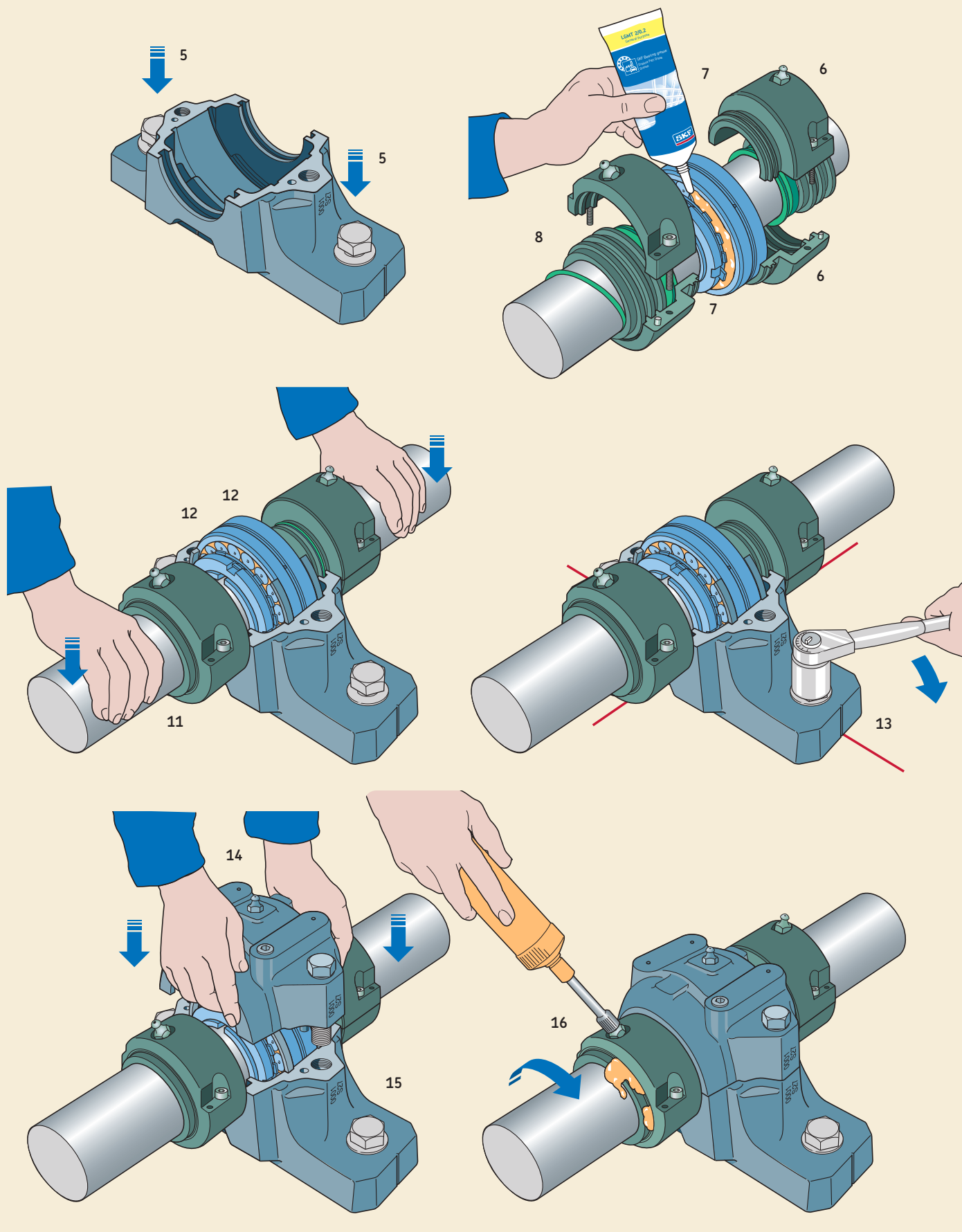
1. Be sure that the work area is clean. Check the dimensional and form accuracy of the shaft seat. The shaft should be machined to a h9/IT5 tolerance for adapter sleeve mounting.
2. Check that the roughness of the support surface is  $R_a \leq 12,5 \mu\text{m}$ . The flatness (planicity) tolerance should be to IT7. Make sure that the mounting surface is clean. If shims are used, the whole surface must be covered by shims. The mounting surface (frame) must be designed to accommodate actual load, vibrations and settings.
3. Mount any components that are on the shaft between the two SNL housings.
4. If the bearing is mounted on an adapter sleeve, determine its position relative to the housing. For spherical roller bearings with a lubrication groove and three holes in the outer ring, SKF recommends using the relubrication hole in the centre of the housing. When relubrication from the side of the bearing is required such as for CARB toroidal roller bearings or self-aligning ball bearings, the housing must be positioned so that the grease fitting is on the opposite side of the lock nut. When a housing is located at the end of a shaft, grease should be applied at the end cover side.
5. Position the housing on the support surface. Fit the attachment bolts, but do not tighten them.
6. Mount the first labyrinth seal on the shaft in the correct position.
7. Mount the bearing on the shaft – either directly on a stepped shaft or using an adapter sleeve. Completely fill the bearing with grease. The remainder of the recommended grease should be put in the housing base at the sides (→ **table 1, page 28**).
8. Mount the second labyrinth ring on the shaft in the correct position. (If a stepped shaft is used, first mount the distance ring). If the housing is to be used at the end of a shaft, the second seal is omitted and an end cover inserted in the housing base instead.
9. Mount the second bearing and housing, following steps 4 to 8.
10. Lay the shaft with the two bearings and labyrinth rings in the two housing bases.
11. For locating bearing arrangements and arrangements with CARB toroidal roller bearings, put in one locating ring on each side of the bearing.
12. Carefully align the two housing bases. Vertical markings at the middle of the side faces and ends of the housing bases can facilitate this. Then, lightly tighten the attachment bolts on both housings.
13. Place the two housing caps over each base and tighten the cap bolts (to join cap and base) to the torque specified in **table 2 on page 52**. The cap and base of one housing are not interchangeable with those of other housings. The cap and base of each housing should be checked to see that they bear the same serial number.
14. Check the alignment of the two housings to minimize misalignment and fully tighten the attachment bolts in the two housing bases. Recommended tightening torques are provided in **table 2 on page 52**.
15. Finally insert the hollow O-ring cord of synthetic rubber in the grooves in the labyrinth rings. This can be done using a screwdriver while turning the shaft.



## Mounting SNL housings with taconite seals

Before starting installation work, the following instructions should be read carefully.

1. Be sure that the work area is clean. Check the dimensional and form accuracy of the shaft seat. The shaft should be machined to a h9/IT5 tolerance for adapter sleeve mounting.
2. Check that the roughness of the support surface is  $R_a \leq 12,5 \mu\text{m}$ . The flatness (planicity) tolerance should be to IT7. Make sure that the mounting surface is clean. If shims are used, the whole surface must be covered by shims. The mounting surface (frame) must be designed to accommodate actual load, vibrations and settings.
3. Mount any components that are on the shaft between the two SNL housings.
4. If the bearing is mounted on an adapter sleeve, determine its position relative to the housing. For spherical roller bearings with a lubrication groove and three holes in the outer ring, SKF recommends using the relubrication hole in the centre of the housing. When relubrication from the side of the bearing is required such as for CARB toroidal roller bearings or self-aligning ball bearings, the housing must be positioned so that the grease fitting is on the opposite side of the lock nut. When a housing is located at the end of a shaft, grease should be applied at the end cover side.
5. Position the housing on the support surface. Fit the attachment bolts, but do not tighten them.
6. Mount the first V-ring together with one labyrinth seal on the shaft in the correct position. The lip of the V-ring should point towards the bearing. Place the split ring over the V-ring and labyrinth ring and screw together. The two parts of this split ring are not interchangeable. They should be checked to see that they carry the same serial number.
7. Mount the bearing on the shaft – either directly on a stepped shaft or using an adapter sleeve. Completely fill the bearing with grease. The remainder of the recommended grease should be put in the housing base at the sides (→ **table 1**, **page 28**).
8. Mount the second seal according to point 6 (If a stepped shaft is used, first mount the distance ring). If the housing is to be used at the end of a shaft, the second seal is omitted and an end cover inserted in the housing base instead.
9. Use the hollow O-section cord to fix the labyrinth ring in position on the shaft. A screwdriver can be used to fit the cords whilst rotating the shaft. Mount the O-ring on the seal outer diameter.
10. Mount the second bearing and housing, following steps 4 to 9.
11. Lay the shaft with the two bearings and seals in the two housing bases taking care that the O-rings are not damaged.
12. For locating bearing arrangements and arrangements with CARB toroidal roller bearings, put in one locating ring on each side of the bearing.
13. Carefully align the two housing bases. Vertical markings at the middle of the side faces and ends of the housing bases can facilitate this. Then, lightly tighten the attachment bolts on both housings.
14. Place the two housing caps over each base and tighten the cap bolts (to join cap and base) to the torque specified in **table 2** on **page 52**. The cap and base of one housing are not interchangeable with those of other housings. The cap and base of each housing should be checked to see that they bear the same serial number.
15. Check the alignment of the two housings to minimize misalignment and fully tighten the attachment bolts in the two housing bases. Recommended tightening torques are provided in **table 2** on **page 52**.
16. Finally, before the first test run, rotate the shaft and supply grease via the fitting until it exudes from the labyrinth rings. The same grease as that used for the bearings should also be used to lubricate the labyrinth rings.



## Mounting SNL housings with oil seals

Before starting installation work, the following instructions should be read carefully.

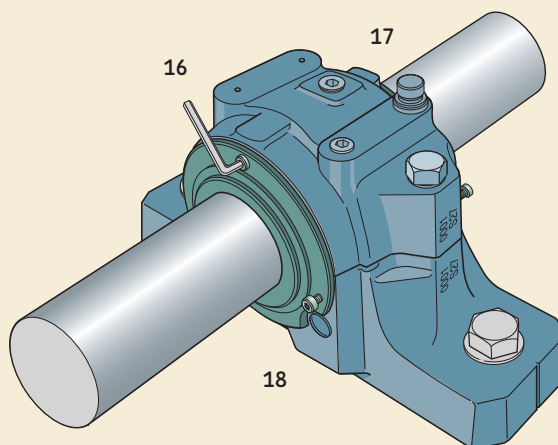
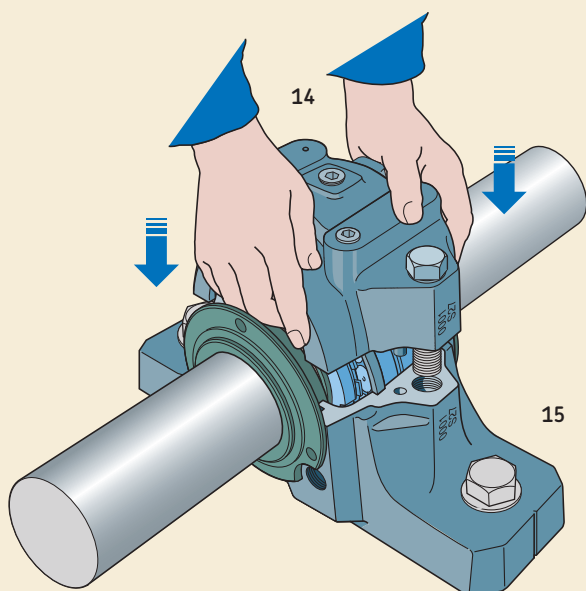
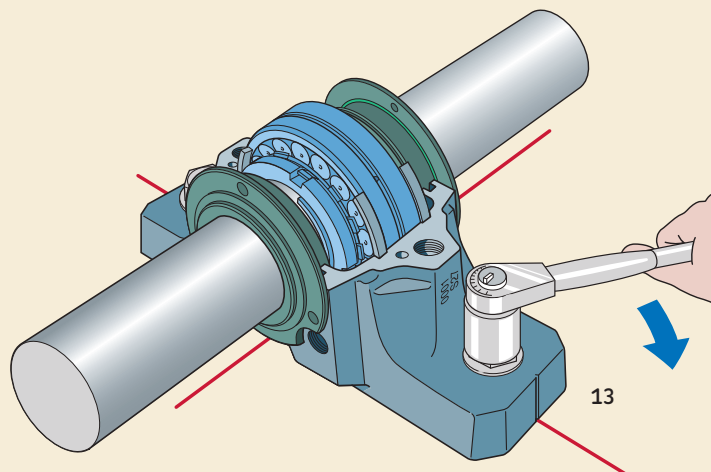
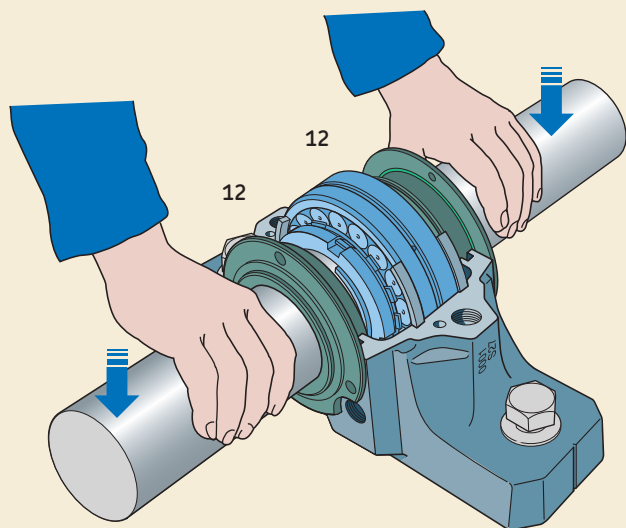
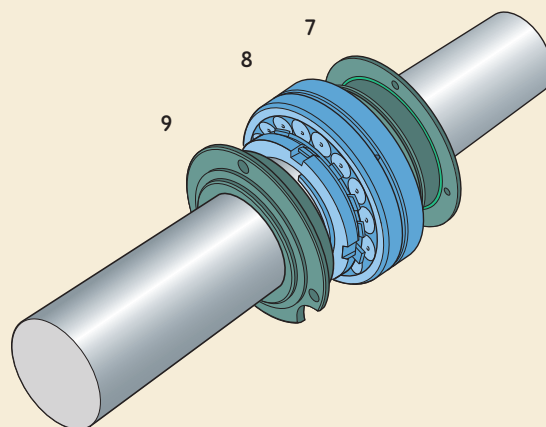
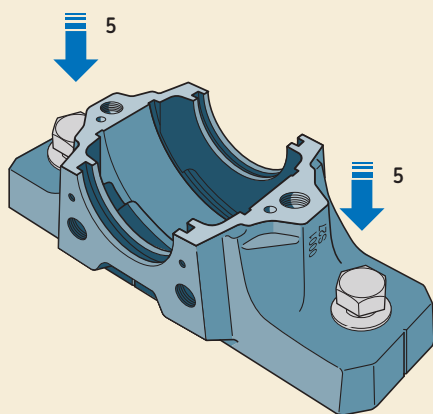
1. Be sure that the work area is clean. Check the dimensional and form accuracy of the shaft seat. The shaft should be machined to a g7/IT5 tolerance for adapter sleeve mounting, and performed with a lead-in chamfer of about 3 mm × 15°.
2. Check that the roughness of the support surface is  $R_a \leq 12,5 \mu\text{m}$ . The flatness (planicity) tolerance should be to IT7. Make sure that the mounting surface is clean. If the mounting surface is painted, the paint has to be removed. If shims are used, the whole surface must be covered by the shims. The mounting surface (frame) must be designed to accommodate actual load, vibrations and settings.
3. Mount any components that are on the shaft between the two SNL housings.
4. If the bearing is mounted on an adapter sleeve, determine its position relative to the housing.
5. Make sure that the attachment surface of the housing is cleaned from paint and contamination. Positioning the housing base on the support surface. Fit the attachment bolts, but do not tighten them.
6. Assemble the seals. Check if the O-ring and hollow O-ring cord of synthetic rubber are at the right position in their respective grooves (→ fig. 8 on page 20). The dimensions of the hollow O-ring cord of synthetic rubber are 1 × 3 mm.
7. Coat the shaft lightly with a thin oil. Slide the first seal to its right position, some millimetres outside its working position.
8. Mount the bearing on the shaft – either directly on a stepped shaft or using an adapter sleeve.
9. Slide the second seal to the right position on the shaft, as describes in point 7 (If a stepped shaft is used, first mount the distance ring). If the housing is to be used at the end of a shaft, the second seal is omitted and the inner part of the end cover is inserted in the housing base seal groove.
10. Mount the second bearing and housing, following steps 4 to 9.
11. Lay the shaft with the two bearings and seal assemblies in the two housing bases.
12. For locating bearing arrangements and arrangements with CARB toroidal roller bearings, put in one locating ring on each side of the bearing.
13. Carefully align the two housing bases. Vertical markings at the middle of the side faces and ends of the housing bases can facilitate this. Then, lightly tighten the attachment bolts on both housings.
14. Apply a string of oil-resistant sealant, of type Blue Silicone or equal, along the outer contour-line and around the holes, on the housing split surfaces. Then place the two housing caps over each base and tighten the cap bolts (to join cap and base) to the torque specified in table 2 on page 52. The cap and base of one housing are not interchangeable with those of other housings. The cap and base of each housing should be checked to see that they bear the same serial number.
15. Check the alignment of the two housings to minimize misalignment and fully tighten the attachment bolts in the two housing bases. Recommended tightening torques are provided in table 2 on page 52.
16. Slide the seals against the housing side surfaces. Mount the seal mounting screws and tighten them. If an end cover has been mounted fully tighten the screw on the external part of the end cover.
17. Mount the supplied ventilating plugs on the top of the housings and, when oil bath lubrication is used, mount the oil level sight glasses. When circulating oil lubrication is used, connect the oil inlet and outlet pipes to the housing.

Note: It is important that sealant, of type Loctite or equal, is applied on all threads on the supplied accessories.

18. When an oil bath lubrication is used, the maximum and minimum levels should be indicated on the sight glass. Recommended oil levels to be used for the mounted bearings can be found in table 3 on page 30. The oil levels must be read while the application is not operating.

Important: For oil bath lubrication, it is important not to overfill the maximum level as this can cause oil leakage from the housings. For circulating oil, it is important that the outlet pipes can drain the housing in a proper way to avoid overfill of oil inside the housings.

19. Protect the housing assemblies from negative pressure from surrounding equipment.
20. One day after tightening the cap and attachment bolts, make sure that the proper torque was maintained.





# Designations and housing data

## – general

### Designations

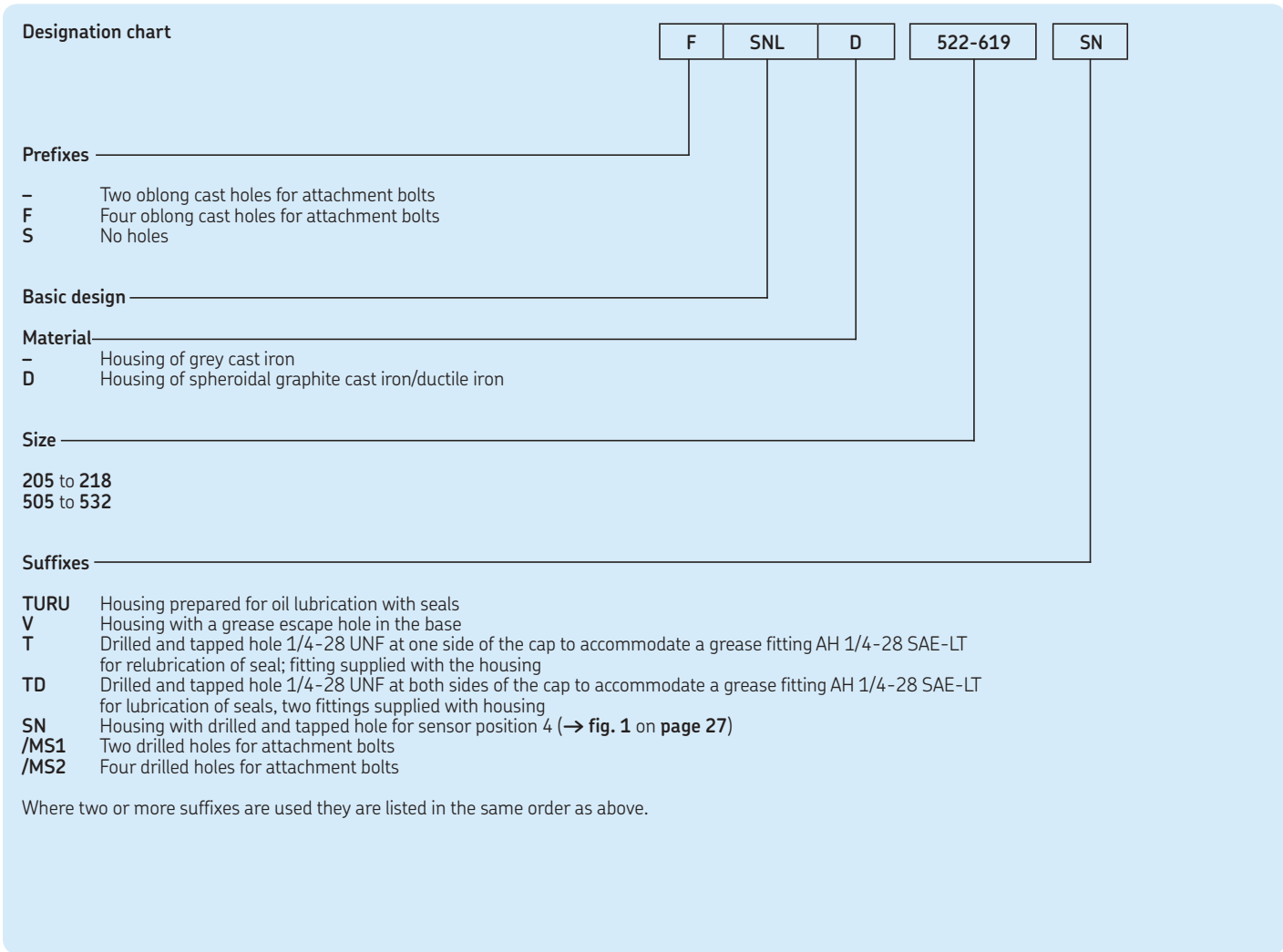
SNL housing designations consist of a basic designation that identifies the design, material and size, followed by any supplementary designations needed to identify features that differ from the standard design. A dash (–) in the designation chart indicates that the features belong to the standard design.

### Load carrying ability

SNL plummer block housings are intended for loads acting vertically toward the base plate (support). If loads acting in other directions occur, check to be sure that the magnitude of the load is permissible for the housing, for the bolts joining the housing cap and base, and for the attachment bolts.

### Load carrying ability of the housing

Guideline values for the breaking load P of the housing for various load directions are provided in **table 1**. The permissible housing load can be obtained from these values by applying a selected safety factor that depends on the operating conditions. In general engineering in Europe, a safety factor of 6 is often used. It is important for the load carrying ability of the



housing that the bolts joining the cap and base are tightened in accordance with the values provided in **table 2** on **page 52**.

The axial load carrying capacity of the housing is approximately 65 % of  $P_{180^\circ}$ . The housing should be pinned to the support or a stop should be provided in the direction of the load, if one of following conditions apply

- load angles between  $55^\circ$  and  $120^\circ$  exist
- if the axial loads acting parallel to the base plate (support surface) exceed 5 % of  $P_{180^\circ}$  shown in **table 1**.

Note that  $P_{0^\circ}$  values are valid only when the housing is not supported in the middle of the base plate i.e. the space between the reinforcement ribs in the base plate.

The axial load carrying capacity of the adapter sleeve must also be considered, see *General Catalogue* for more information.

### Load carrying ability of cap bolts

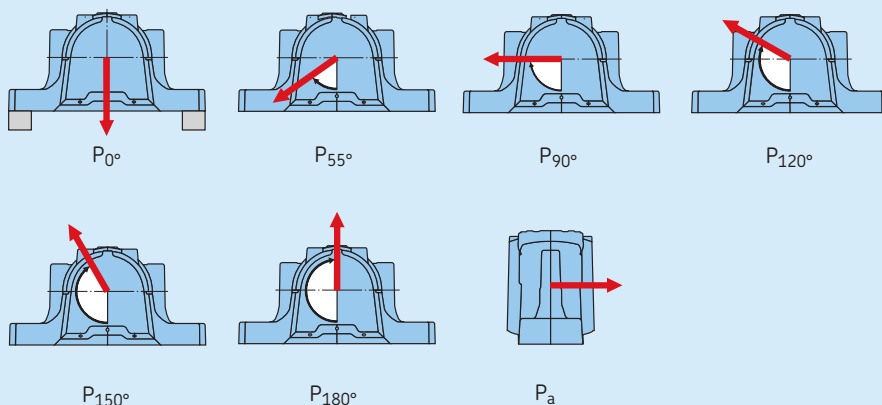
SNL plumber block housings are supplied with 8.8 strength cap bolts as standard. SNL housings made of spheroidal graphite cast iron have 10.9 strength cap bolts. The guideline values for the yield point Q for the cap bolts are provided in **table 2** on **page 52** for various load directions as well as the corresponding maximum radial loads F.

To avoid elastic separation of the cap and base under load, and to resist gradual loosening over time, the cap bolts should be tightened to the torque specifications listed in the table. This is particularly important for housings that are subjected to cyclic loading and dynamic imbalance.

Torque values for cap bolts are general guidelines based on bolt manufacturers' specifications and normal mounting practices where external loads act on the housing base. For applications where external stationary and/or rotating upward loads exist, consult the SKF application engineering service.

Table 1

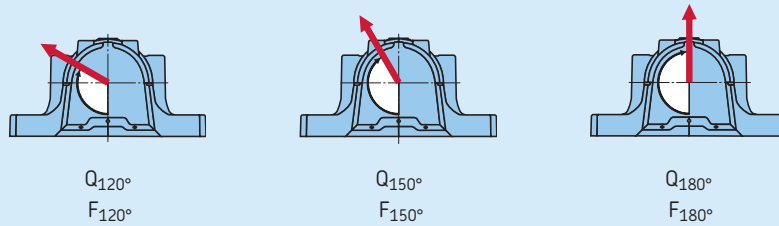
#### Breaking loads for SNL plumber block housings



| Housing Size   | Breaking loads for SNL and FSNL housings |                |                |                 |                 |                 |       |
|----------------|------------------------------------------|----------------|----------------|-----------------|-----------------|-----------------|-------|
|                | $P_{0^\circ}$                            | $P_{55^\circ}$ | $P_{90^\circ}$ | $P_{120^\circ}$ | $P_{150^\circ}$ | $P_{180^\circ}$ | $P_a$ |
| –              | kN                                       |                |                |                 |                 |                 |       |
| SNL 205        | 100                                      | 155            | 95             | 70              | 60              | 80              | 52    |
| SNL 206-305    | 130                                      | 170            | 100            | 80              | 65              | 85              | 55    |
| SNL 207        | 140                                      | 190            | 115            | 85              | 80              | 95              | 60    |
| SNL 208-307    | 150                                      | 215            | 130            | 95              | 85              | 110             | 70    |
| SNL 209        | 160                                      | 230            | 140            | 100             | 90              | 115             | 75    |
| SNL 210        | 170                                      | 265            | 155            | 120             | 110             | 130             | 85    |
| SNL 211        | 190                                      | 275            | 170            | 125             | 115             | 140             | 90    |
| SNL 212        | 210                                      | 300            | 180            | 130             | 120             | 150             | 100   |
| SNL 213        | 270                                      | 340            | 205            | 150             | 130             | 170             | 110   |
| SNL 215        | 290                                      | 410            | 250            | 185             | 160             | 205             | 135   |
| SNL 216        | 350                                      | 430            | 260            | 190             | 175             | 215             | 140   |
| SNL 217        | 370                                      | 480            | 290            | 205             | 190             | 240             | 155   |
| SNL 218        | 430                                      | 550            | 340            | 250             | 215             | 275             | 180   |
| SNL 505        | 100                                      | 155            | 95             | 70              | 60              | 80              | 52    |
| SNL 506-605    | 130                                      | 170            | 100            | 80              | 65              | 85              | 55    |
| SNL 507-606    | 140                                      | 190            | 115            | 85              | 80              | 95              | 60    |
| SNL 508-607    | 150                                      | 215            | 130            | 95              | 85              | 110             | 70    |
| SNL 509        | 160                                      | 230            | 140            | 100             | 90              | 115             | 75    |
| SNL 510-608    | 170                                      | 265            | 155            | 120             | 110             | 130             | 85    |
| (F)SNL 511-609 | 190                                      | 275            | 170            | 125             | 115             | 140             | 90    |
| (F)SNL 512-610 | 210                                      | 300            | 180            | 130             | 120             | 150             | 100   |
| (F)SNL 513-611 | 270                                      | 340            | 205            | 150             | 130             | 170             | 110   |
| (F)SNL 515-612 | 290                                      | 410            | 250            | 185             | 160             | 205             | 135   |
| (F)SNL 516-613 | 350                                      | 430            | 260            | 190             | 175             | 215             | 140   |
| (F)SNL 517     | 370                                      | 480            | 290            | 205             | 190             | 240             | 155   |
| (F)SNL 518-615 | 430                                      | 550            | 340            | 250             | 215             | 275             | 180   |
| (F)SNL 519-616 | 450                                      | 580            | 350            | 260             | 230             | 290             | 190   |
| (F)SNL 520-617 | 470                                      | 620            | 370            | 280             | 250             | 310             | 200   |
| (F)SNL 522-619 | 600                                      | 680            | 410            | 310             | 275             | 340             | 220   |
| (F)SNL 524-620 | 800                                      | 790            | 470            | 350             | 320             | 400             | 260   |
| (F)SNL 526     | 900                                      | 900            | 540            | 410             | 360             | 450             | 295   |
| (F)SNL 528     | 1 000                                    | 1 050          | 630            | 470             | 430             | 530             | 345   |
| (F)SNL 530     | 1 100                                    | 1 200          | 730            | 540             | 480             | 600             | 390   |
| (F)SNL 532     | 1 300                                    | 1 450          | 860            | 640             | 570             | 720             | 470   |

Table 2

## Load carrying ability and tightening torques for cap bolts and attachment bolts



| Housing<br>Size | Cap bolts<br>Yield point<br>for both bolts |                 |                 | Maximum load<br>for both bolts |                 |                 | Tightening<br>torque | Designation<br>to ISO 4014 | Attachment bolts |                      |
|-----------------|--------------------------------------------|-----------------|-----------------|--------------------------------|-----------------|-----------------|----------------------|----------------------------|------------------|----------------------|
|                 | $Q_{120^\circ}$                            | $Q_{150^\circ}$ | $Q_{180^\circ}$ | $F_{120^\circ}$                | $F_{150^\circ}$ | $F_{180^\circ}$ |                      |                            | Size             | Tightening<br>torque |
| –               | kN                                         |                 |                 | kN                             |                 |                 | Nm                   | –                          | –                | Nm                   |
| SNL 205         | 150                                        | 85              | 75              | 50                             | 30              | 25              | 50                   | M 10×40                    | M 12             | 80                   |
| SNL 206-305     | 150                                        | 85              | 75              | 50                             | 30              | 25              | 50                   | M 10×40                    | M 12             | 80                   |
| SNL 207         | 150                                        | 85              | 75              | 50                             | 30              | 25              | 50                   | M 10×50                    | M 12             | 80                   |
| SNL 208-307     | 150                                        | 85              | 75              | 50                             | 30              | 25              | 50                   | M 10×50                    | M 12             | 80                   |
| SNL 209         | 150                                        | 85              | 75              | 50                             | 30              | 25              | 50                   | M 10×50                    | M 12             | 80                   |
| SNL 210         | 150                                        | 85              | 75              | 50                             | 30              | 25              | 50                   | M 10×55                    | M 12             | 80                   |
| SNL 211         | 220                                        | 125             | 110             | 80                             | 45              | 40              | 80                   | M 12×60                    | M 16             | 200                  |
| SNL 212         | 220                                        | 125             | 110             | 80                             | 45              | 40              | 80                   | M 12×60                    | M 16             | 200                  |
| SNL 213         | 220                                        | 125             | 110             | 80                             | 45              | 40              | 80                   | M 12×65                    | M 16             | 200                  |
| SNL 215         | 220                                        | 125             | 110             | 80                             | 45              | 40              | 80                   | M 12×65                    | M 16             | 200                  |
| SNL 216         | 220                                        | 125             | 110             | 80                             | 45              | 40              | 80                   | M 12×70                    | M 20             | 385                  |
| SNL 217         | 220                                        | 125             | 110             | 80                             | 45              | 40              | 80                   | M 12×80                    | M 20             | 385                  |
| SNL 218         | 400                                        | 230             | 200             | 170                            | 100             | 85              | 150                  | M 16×90                    | M 20             | 385                  |
| SNL 505         | 150                                        | 85              | 75              | 50                             | 30              | 25              | 50                   | M 10×40                    | M 12             | 80                   |
| SNL 506-605     | 150                                        | 85              | 75              | 50                             | 30              | 25              | 50                   | M 10×40                    | M 12             | 80                   |
| SNL 507-606     | 150                                        | 85              | 75              | 50                             | 30              | 25              | 50                   | M 10×50                    | M 12             | 80                   |
| SNL 508-607     | 150                                        | 85              | 75              | 50                             | 30              | 25              | 50                   | M 10×50                    | M 12             | 80                   |
| SNL 509         | 150                                        | 85              | 75              | 50                             | 30              | 25              | 50                   | M 10×50                    | M 12             | 80                   |
| SNL 510-608     | 150                                        | 85              | 75              | 50                             | 30              | 25              | 50                   | M 10×55                    | M 12             | 80                   |
| SNL 511-609     | 220                                        | 125             | 110             | 80                             | 45              | 40              | 80                   | M 12×60                    | M 16             | 200                  |
| SNL 512-610     | 220                                        | 125             | 110             | 80                             | 45              | 40              | 80                   | M 12×60                    | M 16             | 200                  |
| SNL 513-611     | 220                                        | 125             | 110             | 80                             | 45              | 40              | 80                   | M 12×65                    | M 16             | 200                  |
| SNL 515-612     | 220                                        | 125             | 110             | 80                             | 45              | 40              | 80                   | M 12×65                    | M 16             | 200                  |
| SNL 516-613     | 220                                        | 125             | 110             | 80                             | 45              | 40              | 80                   | M 12×70                    | M 20             | 385                  |
| SNL 517         | 220                                        | 125             | 110             | 80                             | 45              | 40              | 80                   | M 12×80                    | M 20             | 385                  |
| SNL 518-615     | 400                                        | 230             | 200             | 170                            | 100             | 85              | 150                  | M 16×90                    | M 20             | 385                  |
| SNL 519-616     | 400                                        | 230             | 200             | 170                            | 100             | 85              | 150                  | M 16×90                    | M 20             | 385                  |
| SNL 520-617     | 620                                        | 360             | 310             | 260                            | 150             | 130             | 200                  | M 20×100                   | M 24             | 665                  |
| SNL 522-619     | 620                                        | 360             | 310             | 260                            | 150             | 130             | 200                  | M 20×100                   | M 24             | 665                  |
| SNL 524-620     | 620                                        | 360             | 310             | 260                            | 150             | 130             | 200                  | M 20×110                   | M 24             | 665                  |
| SNL 526         | 900                                        | 520             | 450             | 380                            | 220             | 190             | 350                  | M 24×130                   | M 24             | 665                  |
| SNL 528         | 900                                        | 520             | 450             | 380                            | 220             | 190             | 350                  | M 24×130                   | M 30             | 1 310                |
| SNL 530         | 900                                        | 520             | 450             | 380                            | 220             | 190             | 350                  | M 24×130                   | M 30             | 1 310                |
| SNL 532         | 900                                        | 520             | 450             | 380                            | 220             | 190             | 350                  | M 24×130                   | M 30             | 1 310                |

## Materials

Standard SNL housings are made of grey cast iron. Sizes up to and including 28 comply with EN-GJL-200 specifications. Sizes 30–32 comply with EN-GJL-250 specifications.

For applications where extra strength and resistance are required, SNL housings are also available in spheroidal graphite cast iron that comply with EN-GJS-400-18 specifications. Sizes range from 510–608 to 532 and are dimensionally interchangeable with housings made from grey cast iron. For spheroidal graphite cast iron, the values for P obtained from **table 1** on **page 51** should be multiplied by a factor of 1,8.

These housings are supplied as standard with a solid base, from size 510–608, or with four oblong cast bolt holes in the base, from size 511–609. Spheroidal graphite cast iron housings are designated SSNLD for a solid base, e.g. SSNLD 513–611 or FSNLD for housings with four oblong cast holes, e.g. FSNLD 513–611.

## Bearing seat tolerance

SNL housings can be supplied with different bearing seat tolerances. E.g. an interference fit is advantageous for self-aligning bearing systems (spherical roller bearing in the locating position and a CARB bearing in the non-locating position) or if the application is subjected to vibration. For additional information contact the SKF application engineering service.

## Painting system

SNL plummer block housings are painted as standard in accordance with ISO 12944-2: 1998, environmental Class C2. Black colour: RAL 9005.

## Safe loads

For the American and Canadian markets, the norm is to use safe loads instead of breaking loads. The approximate safe loads for different load directions are provided in **table 3** on **page 54**. These guideline limits have been established using accepted engineering practices with consideration given to safety, ultimate tensile strength of the materials, and

working stresses to reflect a safety factor of 5 against base fracture, and a minimum factor of 2 against cap bolt yield. The housings should be pinned to the support or a stop should be provided in the direction of the load, if one of following conditions apply

- load angles 55° and 120° exist
- if the axial loads acting parallel to the base plate (support surface) exceeds 25 % of the  $P_{180^\circ}$  value shown in **table 3** on **page 54**.

The maximum permissible axial load that can be safely carried by the housing assembly depends on various considerations in addition to the operational performance abilities of the bearing. For a purely axial load (static or dynamic), the permissible load on the housing should not exceed 65 % of  $P_{180^\circ}$  value shown in **table 3** on **page 54**.

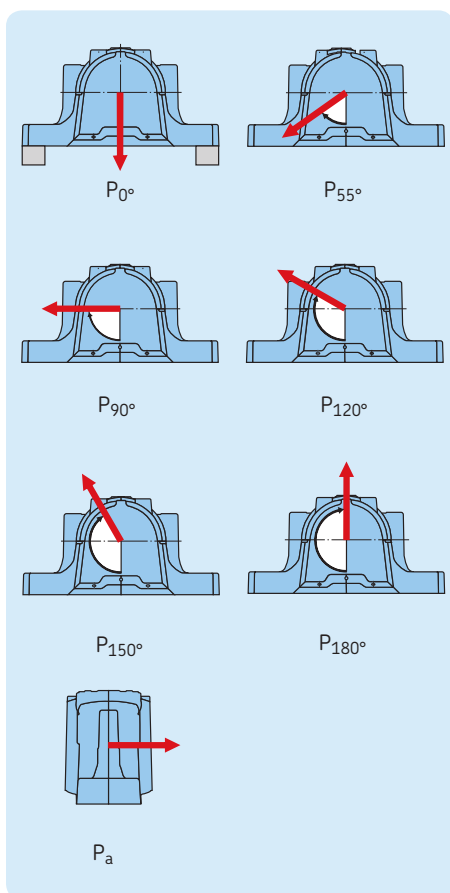


Table 3

Safe loads for SNL plummer block housings

| Housing Size   | Safe loads for SNL and FSNL plummer block housings |                |                |                 |                 |                 |               |
|----------------|----------------------------------------------------|----------------|----------------|-----------------|-----------------|-----------------|---------------|
|                | $P_{0^\circ}$                                      | $P_{55^\circ}$ | $P_{90^\circ}$ | $P_{120^\circ}$ | $P_{150^\circ}$ | $P_{180^\circ}$ | $P_a$         |
| –              | kN/lbf                                             |                |                |                 |                 |                 |               |
| SNL 205        | 20<br>4 500                                        | 31<br>6 975    | 19<br>4 275    | 14<br>3 150     | 12<br>2 700     | 16<br>3 600     | 10,4<br>2 340 |
| SNL 206-305    | 26<br>5 850                                        | 34<br>7 650    | 20<br>4 500    | 16<br>3 600     | 13<br>2 925     | 17<br>3 825     | 11<br>2 475   |
| SNL 207        | 28<br>6 300                                        | 38<br>8 550    | 23<br>5 175    | 17<br>3 825     | 16<br>3 600     | 19<br>4 275     | 12<br>2 700   |
| SNL 208-307    | 30<br>6 750                                        | 43<br>9 675    | 26<br>5 850    | 19<br>4 275     | 17<br>3 825     | 22<br>4 950     | 14<br>3 150   |
| SNL 209        | 32<br>7 200                                        | 46<br>10 350   | 28<br>6 300    | 20<br>4 500     | 18<br>4 050     | 23<br>5 175     | 15<br>3 375   |
| SNL 210        | 34<br>7 650                                        | 53<br>11 925   | 31<br>6 975    | 24<br>5 400     | 22<br>4 950     | 26<br>5 850     | 17<br>3 825   |
| SNL 211        | 38<br>8 550                                        | 55<br>12 375   | 34<br>7 650    | 25<br>5 625     | 23<br>5 175     | 28<br>6 300     | 18<br>4 050   |
| SNL 212        | 42<br>9 450                                        | 60<br>13 500   | 36<br>8 100    | 26<br>5 850     | 24<br>5 400     | 30<br>6 750     | 20<br>4 500   |
| SNL 213        | 54<br>12 150                                       | 68<br>15 300   | 41<br>9 225    | 30<br>6 750     | 26<br>5 850     | 34<br>7 650     | 22<br>4 950   |
| SNL 215        | 58<br>13 050                                       | 82<br>18 450   | 50<br>11 250   | 37<br>8 325     | 32<br>7 200     | 41<br>9 225     | 27<br>6 075   |
| SNL 216        | 70<br>15 750                                       | 86<br>19 350   | 52<br>11 700   | 38<br>8 550     | 35<br>7 875     | 43<br>9 675     | 28<br>6 300   |
| SNL 217        | 74<br>16 650                                       | 96<br>21 600   | 58<br>13 050   | 41<br>9 225     | 38<br>8 550     | 48<br>10 800    | 31<br>6 975   |
| SNL 218        | 86<br>19 350                                       | 110<br>24 750  | 68<br>15 300   | 50<br>11 250    | 43<br>9 675     | 55<br>12 375    | 36<br>8 100   |
| SNL 505        | 20<br>4 500                                        | 31<br>6 975    | 19<br>4 275    | 14<br>3 150     | 12<br>2 700     | 16<br>3 600     | 10,4<br>2 340 |
| SNL 506-605    | 26<br>5 850                                        | 34<br>7 650    | 20<br>4 500    | 16<br>3 600     | 13<br>2 925     | 17<br>3 825     | 11<br>2 475   |
| SNL 507-606    | 28<br>6 300                                        | 38<br>8 550    | 23<br>5 175    | 17<br>3 825     | 16<br>3 600     | 19<br>4 275     | 12<br>2 700   |
| SNL 508-607    | 30<br>6 750                                        | 43<br>9 675    | 26<br>5 850    | 19<br>4 275     | 17<br>3 825     | 22<br>4 950     | 14<br>3 150   |
| SNL 509        | 32<br>7 200                                        | 46<br>10 350   | 28<br>6 300    | 20<br>4 500     | 18<br>4 050     | 23<br>5 175     | 15<br>3 375   |
| SNL 510-608    | 34<br>7 650                                        | 53<br>11 925   | 31<br>6 975    | 24<br>5 400     | 22<br>4 950     | 26<br>5 850     | 17<br>3 825   |
| (F)SNL 511-609 | 38<br>8 550                                        | 55<br>12 375   | 34<br>7 650    | 25<br>5 625     | 23<br>5 175     | 28<br>6 300     | 18<br>4 050   |
| (F)SNL 512-610 | 42<br>9 450                                        | 60<br>13 500   | 36<br>8 100    | 26<br>5 850     | 24<br>5 400     | 30<br>6 750     | 20<br>4 500   |
| (F)SNL 513-611 | 54<br>12 150                                       | 68<br>15 300   | 41<br>9 225    | 30<br>6 750     | 26<br>5 850     | 34<br>7 650     | 22<br>4 950   |
| (F)SNL 515-612 | 58<br>13 050                                       | 82<br>18 450   | 50<br>11 250   | 37<br>8 325     | 32<br>7 200     | 41<br>9 225     | 27<br>6 075   |
| (F)SNL 516-613 | 70<br>15 750                                       | 86<br>19 350   | 52<br>11 700   | 38<br>8 550     | 35<br>7 875     | 43<br>9 675     | 28<br>6 300   |
| (F)SNL 517     | 74<br>16 650                                       | 96<br>21 600   | 58<br>13 050   | 41<br>9 225     | 38<br>8 550     | 48<br>10 800    | 31<br>6 975   |
| (F)SNL 518-615 | 86<br>19 350                                       | 110<br>24 750  | 68<br>15 300   | 50<br>11 250    | 43<br>9 675     | 55<br>12 375    | 36<br>8 100   |
| (F)SNL 519-616 | 90<br>20 250                                       | 116<br>26 100  | 70<br>15 750   | 52<br>11 700    | 46<br>10 350    | 58<br>13 050    | 38<br>8 550   |
| (F)SNL 520-617 | 94<br>21 150                                       | 124<br>27 900  | 74<br>16 650   | 56<br>12 600    | 50<br>11 250    | 62<br>13 950    | 40<br>9 000   |

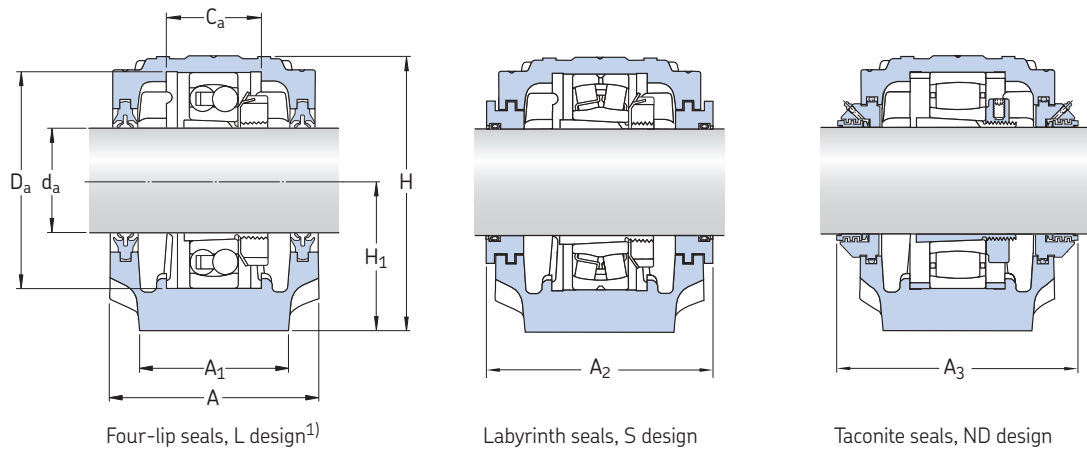
## Safe loads for SNL plummer block housings

| Housing Size   | Safe loads for SNL and FSNL plummer block housings |                  |                  |                   |                   |                   |                |
|----------------|----------------------------------------------------|------------------|------------------|-------------------|-------------------|-------------------|----------------|
|                | P <sub>0°</sub>                                    | P <sub>55°</sub> | P <sub>90°</sub> | P <sub>120°</sub> | P <sub>150°</sub> | P <sub>180°</sub> | P <sub>a</sub> |
| –              | kN/lbf                                             |                  |                  |                   |                   |                   |                |
| (F)SNL 522-619 | 120<br>27 000                                      | 136<br>30 600    | 82<br>18 450     | 62<br>13 950      | 55<br>12 375      | 68<br>15 300      | 44<br>9 900    |
| (F)SNL 524-620 | 160<br>36 000                                      | 158<br>35 550    | 94<br>21 150     | 70<br>15 750      | 64<br>14 400      | 80<br>18 000      | 52<br>11 700   |
| (F)SNL 526     | 180<br>40 500                                      | 180<br>40 500    | 108<br>24 300    | 82<br>18 450      | 72<br>16 200      | 90<br>20 250      | 59<br>13 275   |
| (F)SNL 528     | 200<br>45 000                                      | 210<br>47 250    | 126<br>28 350    | 94<br>21 150      | 86<br>19 350      | 106<br>23 850     | 69<br>15 525   |
| (F)SNL 530     | 220<br>49 500                                      | 240<br>54 000    | 146<br>32 850    | 108<br>24 300     | 96<br>21 600      | 120<br>27 000     | 78<br>17 550   |
| (F)SNL 532     | 260<br>58 500                                      | 290<br>65 250    | 172<br>38 700    | 128<br>28 800     | 114<br>25 650     | 144<br>32 400     | 94<br>21 150   |



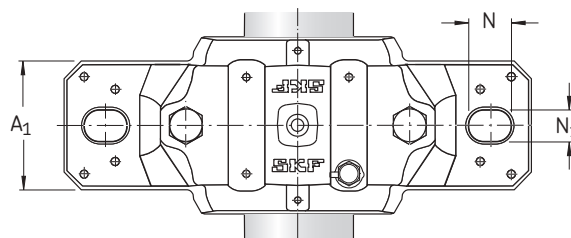
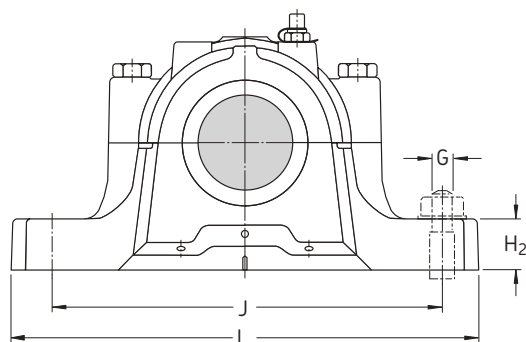
# SNL plummer block housings for bearings on an adapter sleeve, metric shafts

d<sub>a</sub> 20 – 35 mm



| Shaft<br>d <sub>a</sub> | Housing<br>Dimensions |                |     |                |                |     |     |    |                |    | Mass | Designations<br>Housing                                                 | Seals                                                          | End cover                                                                    |
|-------------------------|-----------------------|----------------|-----|----------------|----------------|-----|-----|----|----------------|----|------|-------------------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------------------------|
|                         | A                     | A <sub>1</sub> | H   | H <sub>1</sub> | H <sub>2</sub> | J   | L   | N  | N <sub>1</sub> | G  |      |                                                                         |                                                                |                                                                              |
| mm                      | mm                    |                |     |                |                |     |     |    |                |    | kg   | –                                                                       |                                                                |                                                                              |
| 20                      | 67                    | 46             | 74  | 40             | 19             | 130 | 165 | 20 | 15             | 12 | 1,45 | SNL 505<br>SNL 505<br>SNL 505<br>SNL 505                                | TSN 505 A<br>TSN 505 C<br>TSN 505 S<br>TSN 505 ND              | ASNH 505<br>ASNH 505<br>ASNH 505<br>ASNH 505                                 |
|                         | 77                    | 52             | 89  | 50             | 22             | 150 | 185 | 20 | 15             | 12 | 2,00 | SNL 506-605<br>SNL 506-605<br>SNL 506-605<br>SNL 506-605                | TSN 605 A<br>TSN 605 C<br>TSN 605 S<br>TSN 605 ND              | ASNH 506-605<br>ASNH 506-605<br>ASNH 506-605<br>ASNH 506-605                 |
| 25                      | 77                    | 52             | 89  | 50             | 22             | 150 | 185 | 20 | 15             | 12 | 2,00 | SNL 506-605<br>SNL 506-605<br>SNL 506-605<br>SNL 506-605                | TSN 506 A<br>TSN 506 C<br>TSN 506 S<br>TSN 506 ND              | ASNH 506-605<br>ASNH 506-605<br>ASNH 506-605<br>ASNH 506-605                 |
|                         | 82                    | 52             | 93  | 50             | 22             | 150 | 185 | 20 | 15             | 12 | 2,20 | SNL 507-606<br>SNL 507-606<br>SNL 507-606<br>SNL 507-606                | TSN 606 A<br>TSN 606 C<br>TSN 606 S<br>TSN 606 ND              | ASNH 507-606<br>ASNH 507-606<br>ASNH 507-606<br>ASNH 507-606                 |
| 30                      | 82                    | 52             | 93  | 50             | 22             | 150 | 185 | 20 | 15             | 12 | 2,20 | SNL 507-606<br>SNL 507-606<br>SNL 507-606<br>SNL 507-606<br>SNL 507-606 | TSN 507 L<br>TSN 507 A<br>TSN 507 C<br>TSN 507 S<br>TSN 507 ND | ASNH 507-606<br>ASNH 507-606<br>ASNH 507-606<br>ASNH 507-606<br>ASNH 507-606 |
|                         | 85                    | 60             | 108 | 60             | 25             | 170 | 205 | 20 | 15             | 12 | 2,90 | SNL 508-607<br>SNL 508-607<br>SNL 508-607<br>SNL 508-607                | TSN 607 A<br>TSN 607 C<br>TSN 607 S<br>TSN 607 ND              | ASNH 508-607<br>ASNH 508-607<br>ASNH 508-607<br>ASNH 508-607                 |
| 35                      | 85                    | 60             | 108 | 60             | 25             | 170 | 205 | 20 | 15             | 12 | 2,90 | SNL 508-607<br>SNL 508-607<br>SNL 508-607<br>SNL 508-607<br>SNL 508-607 | TSN 508 L<br>TSN 508 A<br>TSN 508 C<br>TSN 508 S<br>TSN 508 ND | ASNH 508-607<br>ASNH 508-607<br>ASNH 508-607<br>ASNH 508-607<br>ASNH 508-607 |
|                         | 90                    | 60             | 113 | 60             | 25             | 170 | 205 | 20 | 15             | 12 | 3,20 | SNL 510-608<br>SNL 510-608<br>SNL 510-608<br>SNL 510-608                | TSN 608 A<br>TSN 608 C<br>TSN 608 S<br>TSN 608 ND              | ASNH 510-608<br>ASNH 510-608<br>ASNH 510-608<br>ASNH 510-608                 |

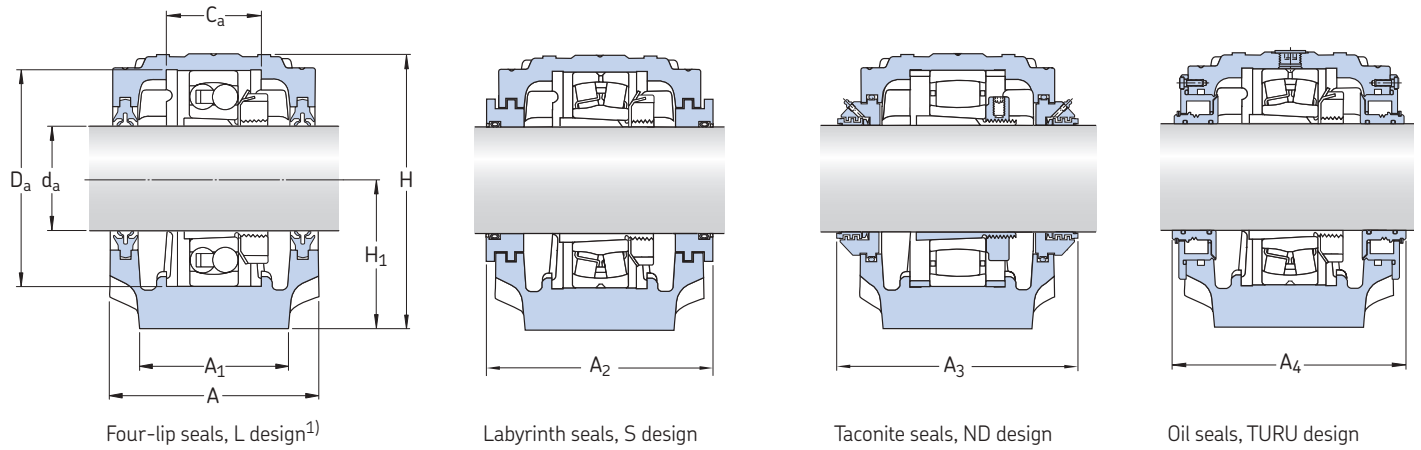
¹) Dimension A remains the same also with C and A seal designs



| Shaft<br>$d_a$ | Bearing seat |       | Width across seals |       | Appropriate bearings and associated components |                          |                |                                 |                            | Adapter sleeve           | Locating rings<br>2 per housing | Self-aligning ball bearing<br>Spherical roller bearing<br>Sealed spherical roller bearing<br>CARB toroidal roller bearing | Adapter sleeve | Locating rings<br>2 per housing |
|----------------|--------------|-------|--------------------|-------|------------------------------------------------|--------------------------|----------------|---------------------------------|----------------------------|--------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------|----------------|---------------------------------|
|                | $C_a$        | $D_a$ | $A_2$              | $A_3$ | Self-aligning ball bearing                     | Spherical roller bearing | Adapter sleeve | Locating rings<br>2 per housing | Self-aligning ball bearing | Spherical roller bearing | Sealed spherical roller bearing | CARB toroidal roller bearing                                                                                              | Adapter sleeve | Locating rings<br>2 per housing |
| mm             | mm           | mm    | mm                 | mm    | —                                              |                          |                |                                 |                            |                          |                                 |                                                                                                                           |                |                                 |
| 20             | 25           | 52    | 80                 | 125   | 1205 EKTN9                                     | —                        | H 205          | FRB 5/52                        | 2205 EKTN9                 | —                        | —                               | 2205 EK                                                                                                                   | H 305          | FRB 3.5/52                      |
|                |              |       |                    |       | —                                              | —                        | —              | —                               | —                          | —                        | —                               | —                                                                                                                         | H 305          | FRB 3.5/52                      |
|                |              |       |                    |       | —                                              | —                        | —              | —                               | C 2205 KTN9                | —                        | —                               | —                                                                                                                         | H 305 E        | FRB 3.5/52                      |
| 25             | 32           | 62    | 89                 | 135   | 1305 EKTN9                                     | —                        | H 305          | FRB 7.5/62                      | —                          | —                        | —                               | —                                                                                                                         | —              | —                               |
|                |              |       |                    |       | —                                              | —                        | —              | —                               | —                          | —                        | —                               | —                                                                                                                         | —              | —                               |
|                |              |       |                    |       | —                                              | —                        | —              | —                               | —                          | —                        | —                               | —                                                                                                                         | —              | —                               |
| 25             | 32           | 62    | 89                 | 135   | 1206 EKTN9                                     | —                        | H 206          | FRB 8/62                        | 2206 EKTN9                 | —                        | —                               | 2206 EK                                                                                                                   | H 306          | FRB 6/62                        |
|                |              |       |                    |       | —                                              | —                        | —              | —                               | —                          | —                        | —                               | —                                                                                                                         | H 306          | FRB 6/62                        |
|                |              |       |                    |       | —                                              | —                        | —              | —                               | C 2206 KTN9                | —                        | —                               | —                                                                                                                         | H 306 E        | FRB 6/62                        |
| 30             | 34           | 72    | 94                 | 140   | 1306 EKTN9                                     | —                        | H 306          | FRB 7.5/72                      | 2306 K                     | —                        | —                               | —                                                                                                                         | H 2306         | FRB 3.5/72                      |
|                |              |       |                    |       | 21306 CCK                                      | —                        | H 306          | FRB 7.5/72                      | —                          | —                        | —                               | —                                                                                                                         | —              | —                               |
|                |              |       |                    |       | —                                              | —                        | —              | —                               | —                          | —                        | —                               | —                                                                                                                         | —              | —                               |
| 30             | 34           | 72    | 94                 | 145   | 1207 EKTN9                                     | —                        | H 207          | FRB 8.5/72                      | 2207 EKTN9                 | —                        | —                               | 2207 EK                                                                                                                   | H 307          | FRB 5.5/72                      |
|                |              |       |                    |       | —                                              | —                        | —              | —                               | —                          | —                        | —                               | —                                                                                                                         | H 307          | FRB 5.5/72                      |
|                |              |       |                    |       | —                                              | —                        | —              | —                               | C 2207 KTN9                | —                        | —                               | —                                                                                                                         | H 307 E        | FRB 5.5/72                      |
| 35             | 39           | 80    | 97                 | 145   | 1307 EKTN9                                     | —                        | H 307          | FRB 9/80                        | 2307 EKTN9                 | —                        | —                               | —                                                                                                                         | H 2307         | FRB 4/80                        |
|                |              |       |                    |       | 21307 CCK                                      | —                        | H 307          | FRB 9/80                        | —                          | —                        | —                               | —                                                                                                                         | —              | —                               |
|                |              |       |                    |       | —                                              | —                        | —              | —                               | —                          | —                        | —                               | —                                                                                                                         | —              | —                               |
| 35             | 39           | 80    | 97                 | 150   | 1208 EKTN9                                     | —                        | H 208          | FRB 10.5/80                     | 2208 EKTN9                 | —                        | —                               | 2208 EK                                                                                                                   | H 308          | FRB 8/80                        |
|                |              |       |                    |       | —                                              | —                        | —              | —                               | —                          | —                        | —                               | —                                                                                                                         | H 308          | FRB 8/80                        |
|                |              |       |                    |       | —                                              | —                        | —              | —                               | BS2-2208-2CSK/VT143        | —                        | —                               | —                                                                                                                         | H 2308 E       | FRB 5.5/80                      |
| 35             | 41           | 90    | 102                | 150   | 1308 EKTN9                                     | —                        | H 308          | FRB 9/90                        | 2308 EKTN9                 | —                        | —                               | —                                                                                                                         | H 2308         | FRB 4/90                        |
|                |              |       |                    |       | 21308 EK                                       | —                        | H 308          | FRB 9/90                        | 22308 EK                   | —                        | —                               | —                                                                                                                         | H 2308         | FRB 4/90                        |
|                |              |       |                    |       | —                                              | —                        | —              | —                               | —                          | —                        | —                               | —                                                                                                                         | —              | —                               |

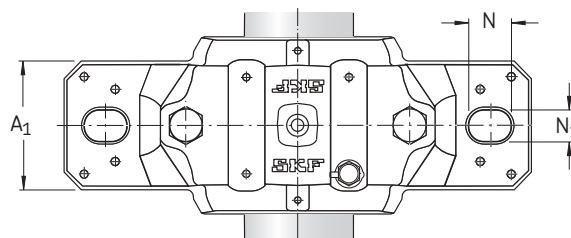
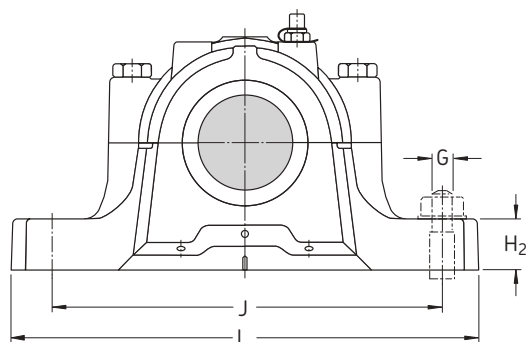
# SNL plummer block housings for bearings on an adapter sleeve, metric shafts

d<sub>a</sub> 40 – 50 mm



| Shaft<br>d <sub>a</sub> | Housing<br>Dimensions |                |     |                |                |     |     |    |                |    | Mass | Designations                                                                            |                                                                            |                                                                                                |
|-------------------------|-----------------------|----------------|-----|----------------|----------------|-----|-----|----|----------------|----|------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
|                         | A                     | A <sub>1</sub> | H   | H <sub>1</sub> | H <sub>2</sub> | J   | L   | N  | N <sub>1</sub> | G  |      | Housing                                                                                 | Seals                                                                      | End cover                                                                                      |
| mm                      | mm                    |                |     |                |                |     |     |    |                |    | kg   | –                                                                                       |                                                                            |                                                                                                |
| 40                      | 85                    | 60             | 109 | 60             | 25             | 170 | 205 | 20 | 15             | 12 | 2,90 | SNL 509<br>SNL 509<br>SNL 509<br>SNL 509<br>SNL 509                                     | TSN 509 L<br>TSN 509 A<br>TSN 509 C<br>TSN 509 S<br>TSN 509 ND             | ASNH 509<br>ASNH 509<br>ASNH 509<br>ASNH 509<br>ASNH 509                                       |
|                         | 95                    | 70             | 128 | 70             | 28             | 210 | 255 | 24 | 18             | 16 | 4,40 | SNL 511-609<br>SNL 511-609<br>SNL 511-609<br>SNL 511-609<br>SNL 511-609<br>SNL 609 TURU | TSN 609 L<br>TSN 609 A<br>TSN 609 C<br>TSN 609 S<br>TSN 609 ND<br>included | ASNH 511-609<br>ASNH 511-609<br>ASNH 511-609<br>ASNH 511-609<br>ASNH 511-609<br>ASNH 511-609 R |
| 45                      | 90                    | 60             | 113 | 60             | 25             | 170 | 205 | 20 | 15             | 12 | 3,20 | SNL 510-608<br>SNL 510-608<br>SNL 510-608<br>SNL 510-608<br>SNL 510-608                 | TSN 510 L<br>TSN 510 A<br>TSN 510 C<br>TSN 510 S<br>TSN 510 ND             | ASNH 510-608<br>ASNH 510-608<br>ASNH 510-608<br>ASNH 510-608<br>ASNH 510-608                   |
|                         | 105                   | 70             | 134 | 70             | 30             | 210 | 255 | 24 | 18             | 16 | 5,10 | SNL 512-610<br>SNL 512-610<br>SNL 512-610<br>SNL 512-610<br>SNL 512-610<br>SNL 610 TURU | TSN 610 L<br>TSN 610 A<br>TSN 610 C<br>TSN 610 S<br>TSN 610 ND<br>included | ASNH 512-610<br>ASNH 512-610<br>ASNH 512-610<br>ASNH 512-610<br>ASNH 512-610<br>ASNH 512-610 R |
| 50                      | 95                    | 70             | 128 | 70             | 28             | 210 | 255 | 24 | 18             | 16 | 4,40 | SNL 511-609<br>SNL 511-609<br>SNL 511-609<br>SNL 511-609<br>SNL 511-609<br>SNL 511 TURU | TSN 511 L<br>TSN 511 A<br>TSN 511 C<br>TSN 511 S<br>TSN 511 ND<br>included | ASNH 511-609<br>ASNH 511-609<br>ASNH 511-609<br>ASNH 511-609<br>ASNH 511-609<br>ASNH 513-611 R |
|                         | 110                   | 80             | 150 | 80             | 30             | 230 | 275 | 24 | 18             | 16 | 6,50 | SNL 513-611<br>SNL 513-611<br>SNL 513-611<br>SNL 513-611<br>SNL 513-611<br>SNL 611 TURU | TSN 611 L<br>TSN 611 A<br>TSN 611 C<br>TSN 611 S<br>TSN 611 ND<br>included | ASNH 513-611<br>ASNH 513-611<br>ASNH 513-611<br>ASNH 513-611<br>ASNH 513-611<br>ASNH 513-611 R |

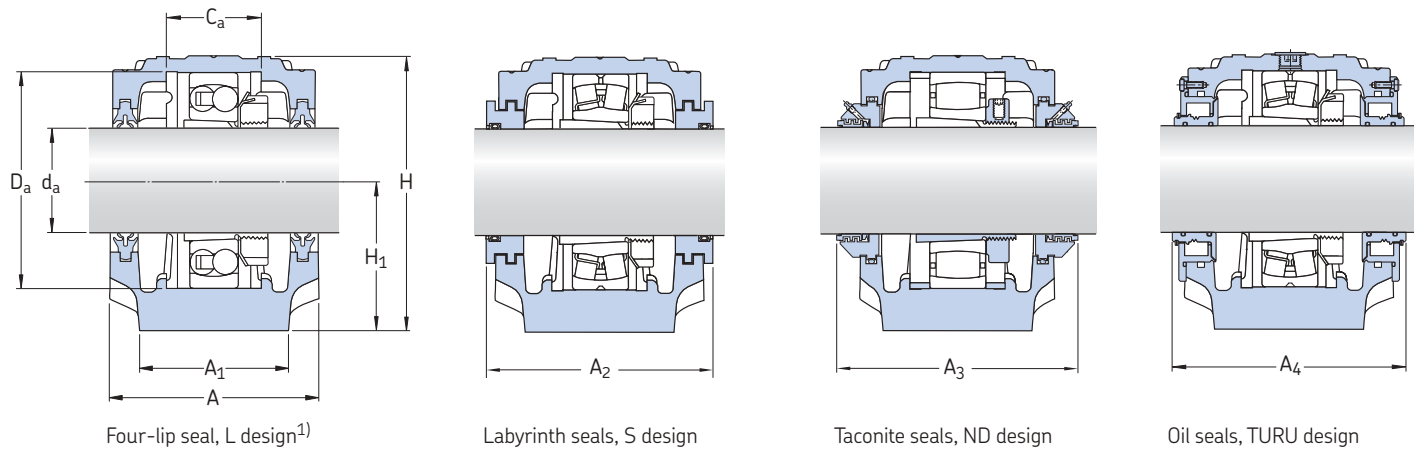
<sup>1)</sup> Dimension A remains the same also with C and A seal designs



| Shaft<br>$d_a$ | Bearing seat<br>$C_a$ $D_a$ |     | Width across seals<br>$A_2$ $A_3$ $A_4$ |     |     | Appropriate bearings and associated components |                |                              | Self-aligning ball bearing<br>Spherical roller bearing<br>Sealed spherical roller bearing<br>CARB toroidal roller bearing | Adapter sleeve                       | Locating rings<br>2 per housing                          | Self-aligning ball bearing<br>Spherical roller bearing<br>Sealed spherical roller bearing<br>CARB toroidal roller bearing | Adapter sleeve | Locating rings<br>2 per housing |
|----------------|-----------------------------|-----|-----------------------------------------|-----|-----|------------------------------------------------|----------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|----------------|---------------------------------|
|                |                             |     |                                         |     |     | Self-aligning ball bearing                     | Adapter sleeve | Locating rings               |                                                                                                                           |                                      |                                                          |                                                                                                                           |                |                                 |
| mm             | mm                          |     | mm                                      |     |     | —                                              |                |                              |                                                                                                                           |                                      |                                                          |                                                                                                                           |                |                                 |
| 40             | 30                          | 85  | 97                                      | 150 | —   | 1209 EKTN9<br>—                                | H 209<br>—     | FRB 5.5/85<br>—              | 2209 EKTN9<br>22209 EK<br>BS2-2209-2CSK/VT143<br>C 2209 KTN9                                                              | H 309<br>H 309<br>H 309 E<br>H 309 E | FRB 3.5/85<br>FRB 3.5/85<br>FRB 1/85<br>FRB 3.5/85       |                                                                                                                           |                |                                 |
|                | 44                          | 100 | 107                                     | 155 | 112 | 1309 EKTN9<br>21309 EK                         | H 309<br>H 309 | FRB 9.5/100<br>FRB 9.5/100   | 2309 EKTN9<br>22309 EK<br>—<br>—                                                                                          | H 2309<br>H 2309<br>—<br>—           | FRB 4/100<br>FRB 4/100<br>—<br>—                         |                                                                                                                           |                |                                 |
| 45             | 41                          | 90  | 102                                     | 155 | —   | 1210 EKTN9<br>—                                | H 210<br>—     | FRB 10.5/90<br>—             | 2210 EKTN9<br>22210 EK<br>BS2-2210-2CSK/VT143<br>C 2210 KTN9                                                              | H 310<br>H 310<br>H 310 E<br>H 310 E | FRB 9/90<br>FRB 9/90<br>FRB 6.5/90<br>FRB 9/90           |                                                                                                                           |                |                                 |
|                | 48                          | 110 | 117                                     | 165 | 124 | 1310 EKTN9<br>21310 EK                         | H 310<br>H 310 | FRB 10.5/110<br>FRB 10.5/110 | 2310 K<br>22310 EK<br>—<br>—                                                                                              | H 2310<br>H 2310<br>—<br>—           | FRB 4/110<br>FRB 4/110<br>—<br>—                         |                                                                                                                           |                |                                 |
| 50             | 44                          | 100 | 107                                     | 165 | 112 | 1211 EKTN9<br>—                                | H 211<br>—     | FRB 11.5/100<br>—            | 2211 EKTN9<br>22211 EK<br>BS2-2211-2CSK/VT143<br>C 2211 KTN9                                                              | H 311<br>H 311<br>H 311 E<br>H 311 E | FRB 9.5/100<br>FRB 9.5/100<br>FRB 6.5/100<br>FRB 9.5/100 |                                                                                                                           |                |                                 |
|                | 51                          | 120 | 122                                     | 170 | 128 | 1311 EKTN9<br>21311 EK                         | H 311<br>H 311 | FRB 11/120<br>FRB 11/120     | 2311 K<br>22311 EK<br>—<br>—                                                                                              | H 2311<br>H 2311<br>—<br>—           | FRB 4/120<br>FRB 4/120<br>—<br>—                         |                                                                                                                           |                |                                 |

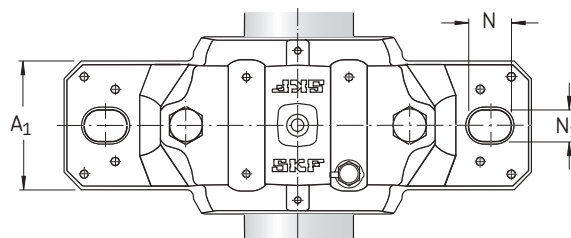
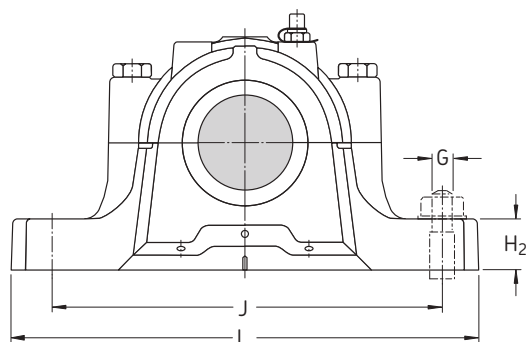
# SNL plummer block housings for bearings on an adapter sleeve, metric shafts

d<sub>a</sub> 55 – 65 mm



| Shaft<br>d <sub>a</sub> | Housing<br>Dimensions |                |     |                |                |     |     |    |                |    | Mass | Designations<br>Housing                                                                  | Seals                                                                      | End cover                                                                                      |
|-------------------------|-----------------------|----------------|-----|----------------|----------------|-----|-----|----|----------------|----|------|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
|                         | A                     | A <sub>1</sub> | H   | H <sub>1</sub> | H <sub>2</sub> | J   | L   | N  | N <sub>1</sub> | G  |      |                                                                                          |                                                                            |                                                                                                |
| mm                      | mm                    |                |     |                |                |     |     |    |                |    | kg   | –                                                                                        |                                                                            |                                                                                                |
| 55                      | 105                   | 70             | 134 | 70             | 30             | 210 | 255 | 24 | 18             | 16 | 5,10 | SNL 512-610<br>SNL 512-610<br>SNL 512-610<br>SNL 512-610<br>SNL 512-610<br>SNL 512 TURU  | TSN 512 L<br>TSN 512 A<br>TSN 512 C<br>TSN 512 S<br>TSN 512 ND<br>included | ASNH 512-610<br>ASNH 512-610<br>ASNH 512-610<br>ASNH 512-610<br>ASNH 512-610<br>ASNH 515-612 R |
|                         | 115                   | 80             | 156 | 80             | 30             | 230 | 280 | 24 | 18             | 16 | 7,00 | SNL 515-612<br>SNL 515-612<br>SNL 515-612<br>SNL 515-612<br>SNL 515-612<br>SNL 612 TURU  | TSN 612 L<br>TSN 612 A<br>TSN 612 C<br>TSN 612 S<br>TSN 612 ND<br>included | ASNH 515-612<br>ASNH 515-612<br>ASNH 515-612<br>ASNH 515-612<br>ASNH 515-612<br>ASNH 515-612 R |
| 60                      | 110                   | 80             | 149 | 80             | 30             | 230 | 275 | 24 | 18             | 16 | 6,50 | SNL 513-611<br>SNL 513-611<br>SNL 513-611<br>SNL 513-611<br>SNL 513-611<br>SNL 513 TURU  | TSN 513 L<br>TSN 513 A<br>TSN 513 C<br>TSN 513 S<br>TSN 513 ND<br>included | ASNH 513-611<br>ASNH 513-611<br>ASNH 513-611<br>ASNH 513-611<br>ASNH 513-611<br>ASNH 516-613 R |
|                         | 120                   | 90             | 177 | 95             | 32             | 260 | 315 | 28 | 22             | 20 | 9,50 | SNL 516-613<br>SNL 516-613<br>SNL 516-613<br>SSNL 516-613<br>SNL 516-613<br>SNL 613 TURU | TSN 613 L<br>TSN 613 A<br>TSN 613 C<br>TSN 613 S<br>TSN 613 ND<br>included | ASNH 516-613<br>ASNH 516-613<br>ASNH 516-613<br>ASNH 516-613<br>ASNH 516-613<br>ASNH 516-613 R |
| 65                      | 115                   | 80             | 155 | 80             | 30             | 230 | 280 | 24 | 18             | 16 | 7,00 | SNL 515-612<br>SNL 515-612<br>SNL 515-612<br>SNL 515-612<br>SNL 515-612<br>SNL 515 TURU  | TSN 515 L<br>TSN 515 A<br>TSN 515 C<br>TSN 515 S<br>TSN 515 ND<br>included | ASNH 515-612<br>ASNH 515-612<br>ASNH 515-612<br>ASNH 515-612<br>ASNH 515-612<br>ASNH 518-615 R |
|                         | 140                   | 100            | 194 | 100            | 35             | 290 | 345 | 28 | 22             | 20 | 12,5 | SNL 518-615<br>SNL 518-615<br>SNL 518-615<br>SNL 518-615<br>SNL 518-615<br>SNL 615 TURU  | TSN 615 L<br>TSN 615 A<br>TSN 615 C<br>TSN 615 S<br>TSN 615 ND<br>included | ASNH 518-615<br>ASNH 518-615<br>ASNH 518-615<br>ASNH 518-615<br>ASNH 518-615<br>ASNH 518-615 R |

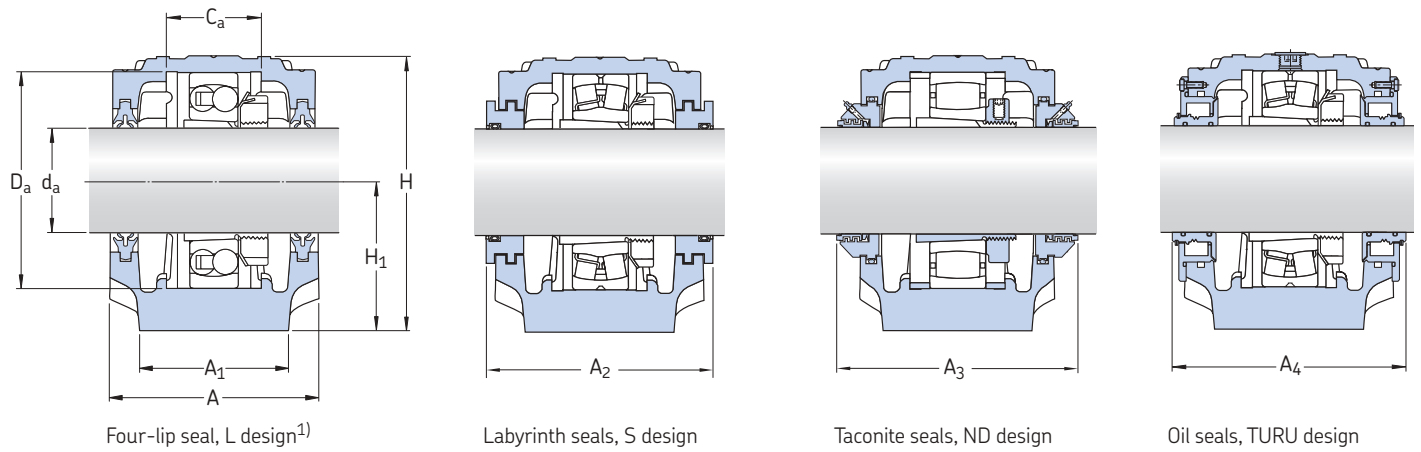
<sup>1)</sup> Dimension A remains the same also with C and A seal designs



| Shaft<br>$d_a$ | Bearing seat<br>$C_a$ $D_a$ |     | Width across seals<br>$A_2$ $A_3$ $A_4$ |     |     | Appropriate bearings and associated components |                          |                | Self-aligning ball bearing<br>Spherical roller bearing<br>Sealed spherical roller bearing<br>CARB toroidal roller bearing | Adapter sleeve      | Locating rings<br>2 per housing | Self-aligning ball bearing<br>Spherical roller bearing<br>Sealed spherical roller bearing<br>CARB toroidal roller bearing | Adapter sleeve | Locating rings<br>2 per housing |
|----------------|-----------------------------|-----|-----------------------------------------|-----|-----|------------------------------------------------|--------------------------|----------------|---------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------|----------------|---------------------------------|
|                |                             |     |                                         |     |     | Self-aligning ball bearing                     | Spherical roller bearing | Adapter sleeve |                                                                                                                           |                     |                                 |                                                                                                                           |                |                                 |
| mm             | mm                          |     | mm                                      |     |     | —                                              |                          |                |                                                                                                                           |                     |                                 |                                                                                                                           |                |                                 |
| 55             | 48                          | 110 | 117                                     | 175 | 124 | 1212 EKTN9                                     | —                        | H 212          | FRB 13/110                                                                                                                | 2212 EKTN9          | —                               | —                                                                                                                         | H 312          | FRB 10/110                      |
|                |                             |     |                                         |     |     | —                                              |                          | —              |                                                                                                                           | 22212 EK            | —                               |                                                                                                                           | H 312          | FRB 10/110                      |
|                |                             |     |                                         |     |     |                                                |                          |                |                                                                                                                           | BS2-2212-2CSK/VT143 | —                               |                                                                                                                           | H 312 E        | FRB 7/110                       |
|                |                             |     |                                         |     |     |                                                |                          |                |                                                                                                                           | C 2212 KTN9         | —                               |                                                                                                                           | H 312 E        | FRB 10/110                      |
|                | 56                          | 130 | 127                                     | 175 | 134 | 1312 EKTN9                                     | —                        | H 312          | FRB 12.5/130                                                                                                              | 2312 K              | —                               | —                                                                                                                         | H 2312         | FRB 5/130                       |
|                |                             |     |                                         |     |     | 21312 EK                                       | —                        | H 312          | FRB 12.5/130                                                                                                              | 2312 EK             | —                               | —                                                                                                                         | H 2312         | FRB 5/130                       |
|                |                             |     |                                         |     |     |                                                |                          |                |                                                                                                                           | —                   | —                               | —                                                                                                                         | —              | —                               |
| 60             | 51                          | 120 | 122                                     | 180 | 128 | 1213 EKTN9                                     | —                        | H 213          | FRB 14/120                                                                                                                | 2213 EKTN9          | —                               | —                                                                                                                         | H 313          | FRB 10/120                      |
|                |                             |     |                                         |     |     | —                                              |                          | —              |                                                                                                                           | 22213 EK            | —                               |                                                                                                                           | H 313          | FRB 10/120                      |
|                |                             |     |                                         |     |     |                                                |                          |                |                                                                                                                           | BS2-2213-2CSK/VT143 | —                               |                                                                                                                           | H 2313 E       | FRB 6,5/120                     |
|                |                             |     |                                         |     |     |                                                |                          |                |                                                                                                                           | C 2213 KTN9         | —                               |                                                                                                                           | H 313 E        | FRB 10/120                      |
|                | 58                          | 140 | 138                                     | 180 | 141 | 1313 EKTN9                                     | —                        | H 313          | FRB 12.5/140                                                                                                              | 2313 K              | —                               | —                                                                                                                         | H 2313         | FRB 5/140                       |
|                |                             |     |                                         |     |     | 21313 EK                                       | —                        | H 313          | FRB 12.5/140                                                                                                              | 22313 EK            | —                               | —                                                                                                                         | H 2313         | FRB 5/140                       |
|                |                             |     |                                         |     |     |                                                |                          |                |                                                                                                                           | —                   | —                               | —                                                                                                                         | —              | —                               |
| 65             | 56                          | 130 | 127                                     | 175 | 134 | 1215 K                                         | —                        | H 215          | FRB 15.5/130                                                                                                              | 2215 EKTN9          | —                               | —                                                                                                                         | H 315          | FRB 12.5/130                    |
|                |                             |     |                                         |     |     | —                                              |                          | —              |                                                                                                                           | 22215 EK            | —                               |                                                                                                                           | H 315          | FRB 12.5/130                    |
|                |                             |     |                                         |     |     |                                                |                          |                |                                                                                                                           | BS2-2215-2CSK/VT143 | —                               |                                                                                                                           | H 315 E        | FRB 9/130                       |
|                |                             |     |                                         |     |     |                                                |                          |                |                                                                                                                           | C 2215 K            | —                               |                                                                                                                           | H 315 E        | FRB 12.5/130                    |
|                | 65                          | 160 | 158                                     | 200 | 159 | 1315 K                                         | —                        | H 315          | FRB 14/160                                                                                                                | 2315 K              | —                               | —                                                                                                                         | H 2315         | FRB 5/160                       |
|                |                             |     |                                         |     |     | 21315 EK                                       | —                        | H 315          | FRB 14/160                                                                                                                | 22315 EK            | —                               | —                                                                                                                         | H 2315         | FRB 5/160                       |
|                |                             |     |                                         |     |     |                                                |                          |                |                                                                                                                           | —                   | —                               | —                                                                                                                         | —              | —                               |
|                |                             |     |                                         |     |     |                                                |                          |                |                                                                                                                           | C 2315 K            | —                               |                                                                                                                           | H 2315         | FRB 5/160                       |

# SNL plummer block housings for bearings on an adapter sleeve, metric shafts

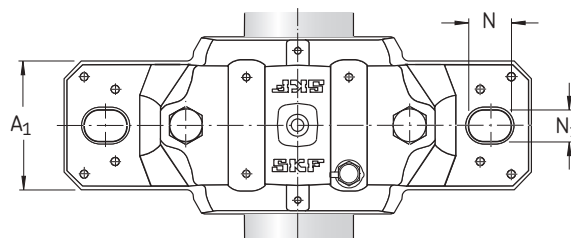
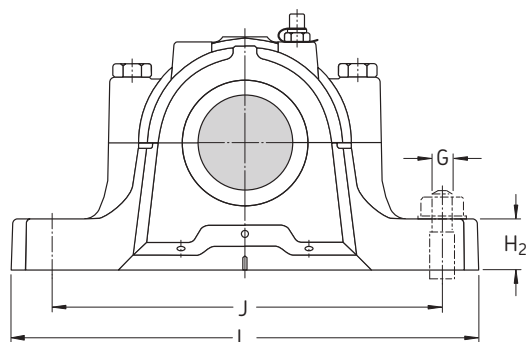
d<sub>a</sub> 70 – 80 mm



| Shaft<br>d <sub>a</sub> | Housing<br>Dimensions |                |     |                |                |     |     |    |                |    | Mass | Designations<br>Housing                                                                 | Seals                                                                      | End cover                                                                                      |
|-------------------------|-----------------------|----------------|-----|----------------|----------------|-----|-----|----|----------------|----|------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
|                         | A                     | A <sub>1</sub> | H   | H <sub>1</sub> | H <sub>2</sub> | J   | L   | N  | N <sub>1</sub> | G  |      |                                                                                         |                                                                            |                                                                                                |
| mm                      | mm                    |                |     |                |                |     |     |    |                |    | kg   | –                                                                                       |                                                                            |                                                                                                |
| 70                      | 120                   | 90             | 177 | 95             | 32             | 260 | 315 | 28 | 22             | 20 | 9,50 | SNL 516-613<br>SNL 516-613<br>SNL 516-613<br>SNL 516-613<br>SNL 516-613<br>SNL 516 TURU | TSN 516 L<br>TSN 516 A<br>TSN 516 C<br>TSN 516 S<br>TSN 516 ND<br>included | ASNH 516-613<br>ASNH 516-613<br>ASNH 516-613<br>ASNH 516-613<br>ASNH 516-613<br>ASNH 216 R     |
|                         | 145                   | 100            | 212 | 112            | 35             | 290 | 345 | 28 | 22             | 20 | 13,7 | SNL 519-616<br>SNL 519-616<br>SNL 519-616<br>SNL 519-616<br>SNL 519-616<br>SNL 616 TURU | TSN 616 L<br>TSN 616 A<br>TSN 616 C<br>TSN 616 S<br>TSN 616 ND<br>included | ASNH 519-616<br>ASNH 519-616<br>ASNH 519-616<br>ASNH 519-616<br>ASNH 519-616<br>ASNH 519-616 R |
| 75                      | 125                   | 90             | 183 | 95             | 32             | 260 | 320 | 28 | 22             | 20 | 10,0 | SNL 517<br>SNL 517<br>SNL 517<br>SNL 517<br>SNL 517<br>SNL 517 TURU                     | TSN 517 L<br>TSN 517 A<br>TSN 517 C<br>TSN 517 S<br>TSN 517 ND<br>included | ASNH 517<br>ASNH 517<br>ASNH 517<br>ASNH 517<br>ASNH 517<br>ASNH 217 R                         |
|                         | 160                   | 110            | 218 | 112            | 40             | 320 | 380 | 32 | 26             | 24 | 17,6 | SNL 520-617<br>SNL 520-617<br>SNL 520-617<br>SNL 520-617<br>SNL 520-617<br>SNL 617 TURU | TSN 617 L<br>TSN 617 A<br>TSN 617 C<br>TSN 617 S<br>TSN 617 ND<br>included | ASNH 520-617<br>ASNH 520-617<br>ASNH 520-617<br>ASNH 520-617<br>ASNH 520-617<br>ASNH 520-617 R |
| 80                      | 140                   | 100            | 194 | 100            | 35             | 290 | 345 | 28 | 22             | 20 | 12,5 | SNL 518-615<br>SNL 518-615<br>SNL 518-615<br>SNL 518-615<br>SNL 518-615<br>SNL 518 TURU | TSN 518 L<br>TSN 518 A<br>TSN 518 C<br>TSN 518 S<br>TSN 518 ND<br>included | ASNH 518-615<br>ASNH 518-615<br>ASNH 518-615<br>ASNH 518-615<br>ASNH 518-615<br>ASNH 218 R     |

<sup>1)</sup> Dimension A remains the same also with C and A seal designs

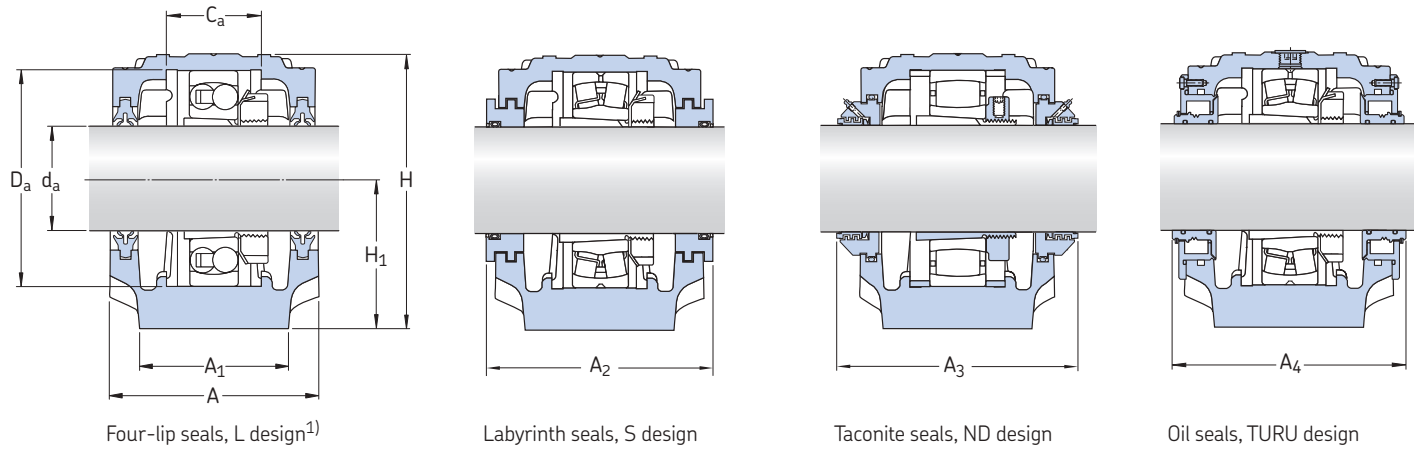




| Shaft<br>$d_a$ | Bearing seat |       | Width across seals |       |       | Appropriate bearings and associated components         |                 |                                 | Self-aligning ball bearing<br>Spherical roller bearing<br>Sealed spherical roller bearing<br>CARB toroidal roller bearing | Adapter sleeve                        | Locating rings<br>2 per housing                             |
|----------------|--------------|-------|--------------------|-------|-------|--------------------------------------------------------|-----------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------|-------------------------------------------------------------|
|                | $C_a$        | $D_a$ | $A_2$              | $A_3$ | $A_4$ | Self-aligning ball bearing<br>Spherical roller bearing | Adapter sleeve  | Locating rings<br>2 per housing |                                                                                                                           |                                       |                                                             |
| mm             | mm           |       | mm                 |       |       | —                                                      |                 |                                 |                                                                                                                           |                                       |                                                             |
| 70             | 58           | 140   | 138                | 205   | 141   | <b>1216 K</b><br>—                                     | H 216<br>—      | FRB 16/140<br>—                 | <b>2216 EKTN9</b><br><b>22216 EK</b><br><b>BS2-2216-2CSK/VT143</b><br><b>C 2216 K</b>                                     | H 316<br>H 316<br>H 316 E<br>H 316 E  | FRB 12.5/140<br>FRB 12.5/140<br>FRB 9/140<br>FRB 12.5/140   |
|                | 68           | 170   | 163                | 205   | 166   | <b>1316 K</b><br><b>21316 EK</b>                       | H 316<br>H 316  | FRB 14.5/170<br>FRB 14.5/170    | <b>2316 K</b><br><b>22316 EK</b><br>—<br><b>C 2316 K</b>                                                                  | H 2316<br>H 2316<br>—<br>H 2316       | FRB 5/170<br>FRB 5/170<br>—<br>FRB 5/170                    |
| 75             | 61           | 150   | 143                | 210   | 143   | <b>1217 K</b><br>—                                     | H 217<br>—      | FRB 16.5/150<br>—               | <b>2217 K</b><br><b>22217 EK</b><br><b>BS2-2217-2CSK/VT143</b><br><b>C 2217 K</b>                                         | H 317<br>H 317<br>H 317 E<br>H 317 E  | FRB 12.5/150<br>FRB 12.5/150<br>FRB 8.5/150<br>FRB 12.5/150 |
|                | 70           | 180   | 178                | 220   | 181   | <b>1317 K</b><br><b>21317 EK</b>                       | H 317<br>H 317  | FRB 14.5/180<br>FRB 14.5/180    | <b>2317 K</b><br><b>22317 EK</b><br>—<br><b>C 2317 K</b>                                                                  | H 2317<br>H 2317<br>—<br>H 2317       | FRB 5/180<br>FRB 5/180<br>—<br>FRB 5/180                    |
| 80             | 65           | 160   | 158                | 225   | 159   | <b>1218 K</b><br><b>23218 CCK/W33</b>                  | H 218<br>H 2318 | FRB 17.5/160<br>FRB 6.25/160    | <b>2218 K</b><br><b>22218 EK</b><br><b>BS2-2218-2CSK/VT143</b><br><b>C 2218 K</b>                                         | H 318<br>H 318<br>H 2318 E<br>H 318 E | FRB 12.5/160<br>FRB 12.5/160<br>FRB 8.5/160<br>FRB 12.5/160 |

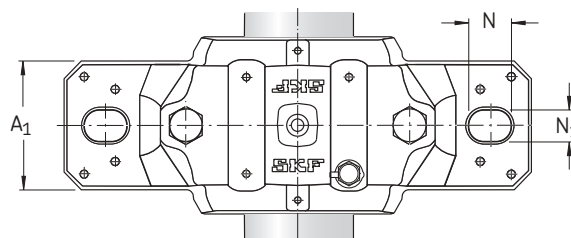
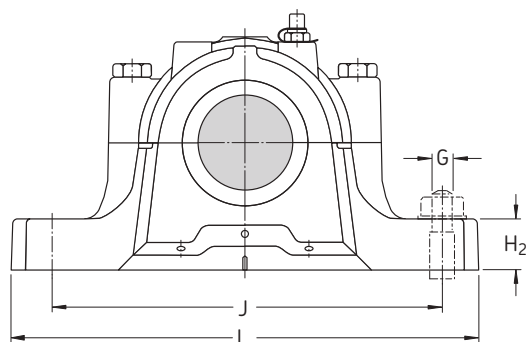
# SNL plummer block housings for bearings on an adapter sleeve, metric shafts

d<sub>a</sub> 85 – 110 mm



| Shaft<br>d <sub>a</sub> | Housing<br>Dimensions |                |     |                |                |     |     |    |                |    | Mass | Designations                                                                            |                                                                            |                                                                                                |
|-------------------------|-----------------------|----------------|-----|----------------|----------------|-----|-----|----|----------------|----|------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
|                         | A                     | A <sub>1</sub> | H   | H <sub>1</sub> | H <sub>2</sub> | J   | L   | N  | N <sub>1</sub> | G  |      | Housing                                                                                 | Seals                                                                      | End cover                                                                                      |
| mm                      | mm                    |                |     |                |                |     |     |    |                |    | kg   | –                                                                                       |                                                                            |                                                                                                |
| 85                      | 145                   | 100            | 212 | 112            | 35             | 290 | 345 | 28 | 22             | 20 | 13,7 | SNL 519-616<br>SNL 519-616<br>SNL 519-616<br>SNL 519-616<br>SNL 519-616<br>SNL 519 TURU | TSN 519 L<br>TSN 519 A<br>TSN 519 C<br>TSN 519 S<br>TSN 519 ND<br>included | ASNH 519-616<br>ASNH 519-616<br>ASNH 519-616<br>ASNH 519-616<br>ASNH 519-616<br>ASNH 519-616 R |
|                         | 175                   | 120            | 242 | 125            | 45             | 350 | 410 | 32 | 26             | 24 | 22,0 | SNL 522-619<br>SNL 522-619<br>SNL 522-619<br>SNL 522-619<br>SNL 619 TURU                | TSN 619 A<br>TSN 619 C<br>TSN 619 S<br>TSN 619 ND<br>included              | ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619 R                 |
| 90                      | 160                   | 110            | 218 | 112            | 40             | 320 | 380 | 32 | 26             | 24 | 17,6 | SNL 520-617<br>SNL 520-617<br>SNL 520-617<br>SNL 520-617<br>SNL 520-617<br>SNL 520 TURU | TSN 520 L<br>TSN 520 A<br>TSN 520 C<br>TSN 520 S<br>TSN 520 ND<br>included | ASNH 520-617<br>ASNH 520-617<br>ASNH 520-617<br>ASNH 520-617<br>ASNH 520-617<br>ASNH 520-617 R |
|                         | 185                   | 120            | 271 | 140            | 45             | 350 | 410 | 32 | 26             | 24 | 26,2 | SNL 524-620<br>SNL 524-620<br>SNL 524-620<br>SNL 524-620<br>SNL 620 TURU                | TSN 620 A<br>TSN 620 C<br>TSN 620 S<br>TSN 620 ND<br>included              | ASNH 524-620<br>ASNH 524-620<br>ASNH 524-620<br>ASNH 524-620<br>ASNH 524-620 R                 |
| 100                     | 175                   | 120            | 242 | 125            | 45             | 350 | 410 | 32 | 26             | 24 | 22,0 | SNL 522-619<br>SNL 522-619<br>SNL 522-619<br>SNL 522-619<br>SNL 522-619<br>SNL 522 TURU | TSN 522 L<br>TSN 522 A<br>TSN 522 C<br>TSN 522 S<br>TSN 522 ND<br>included | ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619 R |
| 110                     | 185                   | 120            | 271 | 140            | 45             | 350 | 410 | 32 | 26             | 24 | 26,2 | SNL 524-620<br>SNL 524-620<br>SNL 524-620<br>SNL 524-620<br>SNL 524-620<br>SNL 524 TURU | TSN 524 L<br>TSN 524 A<br>TSN 524 C<br>TSN 524 S<br>TSN 524 ND<br>included | ASNH 524-620<br>ASNH 524-620<br>ASNH 524-620<br>ASNH 524-620<br>ASNH 524-620<br>ASNH 524-620 R |

<sup>1)</sup> Dimension A remains the same also with C and A seal designs

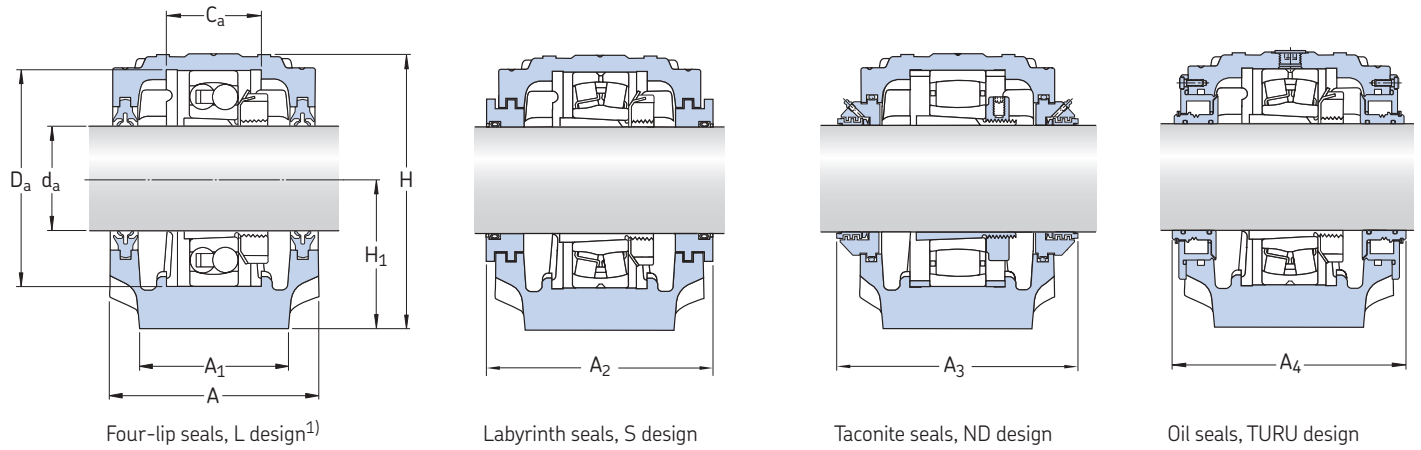


| Shaft<br>$d_a$ | Bearing seat<br>$C_a$ $D_a$ |     | Width across seals<br>$A_2$ $A_3$ $A_4$ |     |     | Appropriate bearings and associated components                                         |                |                                 | Self-aligning ball bearing<br>Spherical roller bearing<br>Sealed spherical roller bearing<br>CARB toroidal roller bearing | Adapter sleeve | Locating rings<br>2 per housing |
|----------------|-----------------------------|-----|-----------------------------------------|-----|-----|----------------------------------------------------------------------------------------|----------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------|----------------|---------------------------------|
|                |                             |     |                                         |     |     | Self-aligning ball bearing<br>Spherical roller bearing<br>CARB toroidal roller bearing | Adapter sleeve | Locating rings<br>2 per housing |                                                                                                                           |                |                                 |
| mm             | mm                          |     | mm                                      |     |     | —                                                                                      |                |                                 |                                                                                                                           |                |                                 |
| 85             | 68                          | 170 | 163                                     | 220 | 166 | 1219 K                                                                                 | H 219          | FRB 18/170                      | 2219 KM                                                                                                                   | H 319          | FRB 12.5/170                    |
|                |                             |     |                                         |     |     | —                                                                                      | —              | —                               | 22219 EK                                                                                                                  | H 319          | FRB 12.5/170                    |
|                |                             |     |                                         |     |     | —                                                                                      | —              | —                               | C 2219 K <sup>1)</sup>                                                                                                    | H 319 E        | FRB 12.5/170                    |
|                | 80                          | 200 | 191                                     | 235 | 195 | 1319 K                                                                                 | H 319          | FRB 17.5/200                    | 2319 KM                                                                                                                   | H 2319         | FRB 6.5/200                     |
|                |                             |     |                                         |     |     | 21319 EK                                                                               | H 319          | FRB 17.5/200                    | 23219 EK                                                                                                                  | H 2319         | FRB 6.5/200                     |
|                |                             |     |                                         |     |     | —                                                                                      | —              | —                               | C 2319 K                                                                                                                  | H 2319         | FRB 6.5/200                     |
| 90             | 70                          | 180 | 178                                     | 230 | 181 | 1220 K                                                                                 | H 220          | FRB 18/180                      | 2220 KM                                                                                                                   | H 320          | FRB 12/180                      |
|                |                             |     |                                         |     |     | 23220 CCK/W33                                                                          | H 2320         | FRB 4.85/180                    | 22220 EK                                                                                                                  | H 320          | FRB 12/180                      |
|                |                             |     |                                         |     |     | —                                                                                      | —              | —                               | BS2-2220-2CS5K/VT143                                                                                                      | H 2320 E       | FRB 7.5/180                     |
|                | 86                          | 215 | 199                                     | 240 | 203 | 1320 K                                                                                 | H 320          | FRB 19.5/215                    | 2320 KM                                                                                                                   | H 2320         | FRB 6.5/215                     |
|                |                             |     |                                         |     |     | 21320 EK                                                                               | H 320          | FRB 19.5/215                    | 22320 EK                                                                                                                  | H 2320         | FRB 6.5/215                     |
|                |                             |     |                                         |     |     | —                                                                                      | —              | —                               | C 2320 K                                                                                                                  | H 2320         | FRB 6.5/215                     |
| 100            | 80                          | 200 | 191                                     | 250 | 195 | 1222 K                                                                                 | H 222          | FRB 21/200                      | 2222 KM                                                                                                                   | H 322          | FRB 13.5/200                    |
|                |                             |     |                                         |     |     | 23222 CCK/W33                                                                          | H 2322         | FRB 5.1/200                     | 22222 EK                                                                                                                  | H 322          | FRB 13.5/200                    |
|                |                             |     |                                         |     |     | —                                                                                      | —              | —                               | BS2-2222-2CS5K/VT143                                                                                                      | H 2322 E       | FRB 8.5/200                     |
|                | 86                          | 215 | 199                                     | 260 | 203 | 1224 K                                                                                 | H 3024         | FRB 22/215                      | —                                                                                                                         | —              | —                               |
|                |                             |     |                                         |     |     | 23224 CCK/W33                                                                          | H 2324         | FRB 5/215                       | 22224 EK                                                                                                                  | H 3124         | FRB 14/215                      |
|                |                             |     |                                         |     |     | C 3224 K                                                                               | H 2324 L       | FRB 5/215                       | BS2-2224-2CS5K/VT143                                                                                                      | H 2324 E       | FRB 8.5/215                     |
|                | 86                          | 215 | 199                                     | 260 | 203 | 1224 K                                                                                 | H 3024         | FRB 22/215                      | —                                                                                                                         | —              | —                               |
|                |                             |     |                                         |     |     | 23224 CCK/W33                                                                          | H 2324         | FRB 5/215                       | 22224 EK                                                                                                                  | H 3124         | FRB 14/215                      |
|                |                             |     |                                         |     |     | C 3224 K                                                                               | H 2324 L       | FRB 5/215                       | BS2-2224-2CS5K/VT143                                                                                                      | H 2324 E       | FRB 8.5/215                     |
|                | 86                          | 215 | 199                                     | 260 | 203 | 1224 K                                                                                 | H 3024         | FRB 22/215                      | —                                                                                                                         | —              | —                               |
|                |                             |     |                                         |     |     | 23224 CCK/W33                                                                          | H 2324         | FRB 5/215                       | 22224 EK                                                                                                                  | H 3124         | FRB 14/215                      |
|                |                             |     |                                         |     |     | C 3224 K                                                                               | H 2324 L       | FRB 5/215                       | BS2-2224-2CS5K/VT143                                                                                                      | H 2324 E       | FRB 8.5/215                     |

<sup>1)</sup> Check with SKF for availability

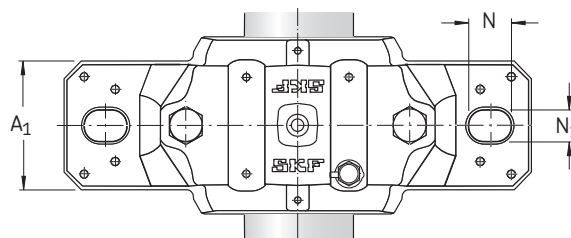
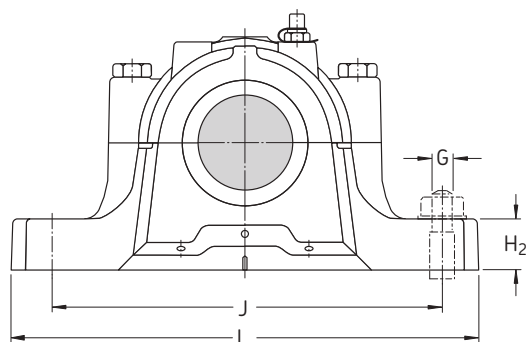
# SNL plummer block housings for bearings on an adapter sleeve, metric shafts

d<sub>a</sub> 115 – 140 mm



| Shaft<br>d <sub>a</sub> | Housing<br>Dimensions |                |     |                |                |     |     |    |                |    | Mass | Designations        |            |            |
|-------------------------|-----------------------|----------------|-----|----------------|----------------|-----|-----|----|----------------|----|------|---------------------|------------|------------|
|                         | A                     | A <sub>1</sub> | H   | H <sub>1</sub> | H <sub>2</sub> | J   | L   | N  | N <sub>1</sub> | G  |      | Housing             | Seals      | End cover  |
| mm                      | mm                    |                |     |                |                |     |     |    |                |    | kg   | –                   |            |            |
| <b>115</b>              | 190                   | 130            | 290 | 150            | 50             | 380 | 445 | 35 | 28             | 24 | 33,0 | <b>SNL 526</b>      | TSN 526 L  | ASNH 526   |
|                         |                       |                |     |                |                |     |     |    |                |    |      | <b>SNL 526</b>      | TSN 526 A  | ASNH 526   |
|                         |                       |                |     |                |                |     |     |    |                |    |      | <b>SNL 526</b>      | TSN 526 C  | ASNH 526   |
|                         |                       |                |     |                |                |     |     |    |                |    |      | <b>SNL 526</b>      | TSN 526 S  | ASNH 526   |
|                         |                       |                |     |                |                |     |     |    |                |    |      | <b>SNL 526</b>      | TSN 526 ND | ASNH 526   |
|                         |                       |                |     |                |                |     |     |    |                |    |      | <b>SNL 526 TURU</b> | included   | ASNH 526 R |
| <b>125</b>              | 205                   | 150            | 302 | 150            | 50             | 420 | 500 | 42 | 35             | 30 | 40,0 | <b>SNL 528</b>      | TSN 528 L  | ASNH 528   |
|                         |                       |                |     |                |                |     |     |    |                |    |      | <b>SNL 528</b>      | TSN 528 A  | ASNH 528   |
|                         |                       |                |     |                |                |     |     |    |                |    |      | <b>SNL 528</b>      | TSN 528 C  | ASNH 528   |
|                         |                       |                |     |                |                |     |     |    |                |    |      | <b>SNL 528</b>      | TSN 528 S  | ASNH 528   |
|                         |                       |                |     |                |                |     |     |    |                |    |      | <b>SNL 528</b>      | TSN 528 ND | ASNH 528   |
|                         |                       |                |     |                |                |     |     |    |                |    |      | <b>SNL 528 TURU</b> | included   | ASNH 528 R |
| <b>135</b>              | 220                   | 160            | 323 | 160            | 60             | 450 | 530 | 42 | 35             | 30 | 49,0 | <b>SNL 530</b>      | TSN 530 L  | ASNH 530   |
|                         |                       |                |     |                |                |     |     |    |                |    |      | <b>SNL 530</b>      | TSN 530 A  | ASNH 530   |
|                         |                       |                |     |                |                |     |     |    |                |    |      | <b>SNL 530</b>      | TSN 530 C  | ASNH 530   |
|                         |                       |                |     |                |                |     |     |    |                |    |      | <b>SNL 530</b>      | TSN 530 S  | ASNH 530   |
|                         |                       |                |     |                |                |     |     |    |                |    |      | <b>SNL 530</b>      | TSN 530 ND | ASNH 530   |
|                         |                       |                |     |                |                |     |     |    |                |    |      | <b>SNL 530 TURU</b> | included   | ASNH 530 R |
| <b>140</b>              | 235                   | 160            | 344 | 170            | 60             | 470 | 550 | 42 | 35             | 30 | 55,0 | <b>SNL 532</b>      | TSN 532 L  | ASNH 532   |
|                         |                       |                |     |                |                |     |     |    |                |    |      | <b>SNL 532</b>      | TSN 532 A  | ASNH 532   |
|                         |                       |                |     |                |                |     |     |    |                |    |      | <b>SNL 532</b>      | TSN 532 C  | ASNH 532   |
|                         |                       |                |     |                |                |     |     |    |                |    |      | <b>SNL 532</b>      | TSN 532 S  | ASNH 532   |
|                         |                       |                |     |                |                |     |     |    |                |    |      | <b>SNL 532</b>      | TSN 532 ND | ASNH 532   |
|                         |                       |                |     |                |                |     |     |    |                |    |      | <b>SNL 532 TURU</b> | included   | ASNH 532 R |

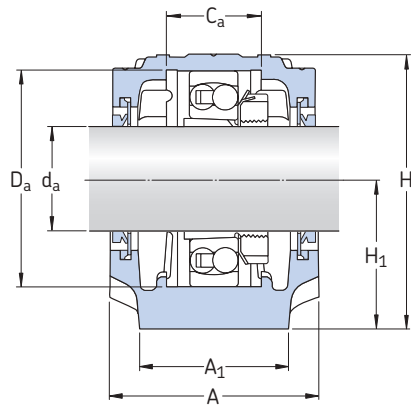
<sup>1)</sup> Dimension A remains the same also with C and A seal designs



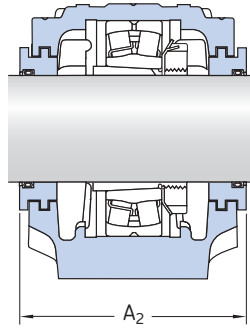
| Shaft<br><br>d <sub>a</sub> | Bearing<br>seat<br><br>C <sub>a</sub> D <sub>a</sub> |     | Width across<br>seals<br><br>A <sub>2</sub> A <sub>3</sub> A <sub>4</sub> |     |     | Appropriate bearings and associated components<br>Spherical roller bearing   Adapter   Locating rings<br>Sealed spherical roller bearing   sleeve   2 per housing<br>CARB toroidal roller bearing |                         |                             |   | Spherical roller bearing   Adapter   Locating<br>Sealed spherical roller bearing   sleeve   rings<br>CARB toroidal roller bearing | 2 per housing                  |                                              |
|-----------------------------|------------------------------------------------------|-----|---------------------------------------------------------------------------|-----|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------------------|---|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------------------|
|                             |                                                      |     |                                                                           |     |     |                                                                                                                                                                                                   |                         |                             |   |                                                                                                                                   |                                |                                              |
| mm                          | mm                                                   |     | mm                                                                        |     |     | —                                                                                                                                                                                                 |                         |                             |   |                                                                                                                                   |                                |                                              |
| 115                         | 90                                                   | 230 | 208                                                                       | 265 | 211 | 23226 CCK/W33<br>23226-2CS5K/VT143<br>—                                                                                                                                                           | H 2326<br>H 2326 L      | FRB 5/230<br>FRB 5/230      | — | 22226 EK<br>BS2-2226-2CS5K/VT143<br>C 2226 K                                                                                      | H 3126<br>H 2326 E<br>H 3126 L | FRB 13/230<br>FRB 7.5/230<br>FRB 13/230      |
| 125                         | 98                                                   | 250 | 223                                                                       | 285 | 225 | 23228 CCK/W33<br>23228-2CS5K/VT143<br>—                                                                                                                                                           | H 2328<br>H 2328        | FRB 5/250<br>FRB 5/250      | — | 22228 CCK/W33<br>22228-2CS5K/VT143<br>C 2228 K                                                                                    | H 3128<br>H 3128 L<br>H 3128 L | FRB 15/250<br>FRB 15/250<br>FRB 15/250       |
| 135                         | 106                                                  | 270 | 241                                                                       | 295 | 241 | 23230 CCK/W33<br>23230-2CS5K/VT143<br>—                                                                                                                                                           | H 2330<br>H 2330 L      | FRB 5/270<br>FRB 5/270      | — | 22230 CCK/W33<br>22230-2CS5K/VT143<br>C 2230 K                                                                                    | H 3130<br>H 3130<br>H 3130 L   | FRB 16.5/270<br>FRB 16.5/270<br>FRB 16.5/270 |
| 140                         | 114                                                  | 290 | 254                                                                       | 315 | 257 | 23232 CCK/W33<br>—<br>C 3232 K                                                                                                                                                                    | H 2332<br>—<br>H 2332 L | FRB 5/290<br>—<br>FRB 5/290 | — | 22232 CCK/W33<br>22232-2CS5K/VT143<br>—                                                                                           | H 3132<br>H 3132<br>—          | FRB 17/290<br>FRB 17/290<br>—                |

# SNL plummer block housings for bearings on an adapter sleeve, inch shafts

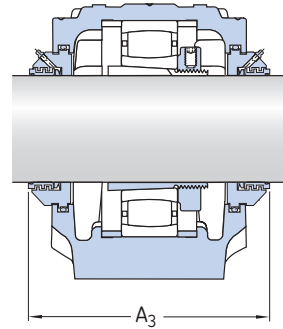
$d_a$   $\frac{3}{4}$  –  $1 \frac{1}{8}$  in



V-ring seals, A design<sup>1)</sup>



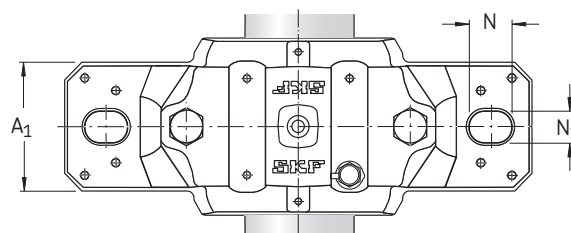
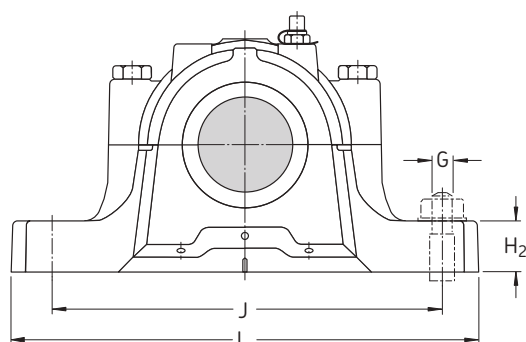
Labyrinth seals, SA/SE/SS design



Taconite seals, NDA/NDE/NDS design

| Shaft<br>$d_a$            | Housing<br>Dimensions |                |     |                |                |     |     |    |                |    |               | Mass | Designations<br>Housing                                  | Seals                                               | End cover                                                    |
|---------------------------|-----------------------|----------------|-----|----------------|----------------|-----|-----|----|----------------|----|---------------|------|----------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------------------|
|                           | A                     | A <sub>1</sub> | H   | H <sub>1</sub> | H <sub>2</sub> | J   | L   | N  | N <sub>1</sub> | G  | G             |      |                                                          |                                                     |                                                              |
| in/mm                     | mm                    |                |     |                |                |     |     |    |                |    |               | in   | kg                                                       | –                                                   |                                                              |
| $\frac{3}{4}$<br>19,05    | 67                    | 46             | 74  | 40             | 19             | 130 | 165 | 20 | 15             | 12 | $\frac{1}{2}$ | 1,45 | SNL 505<br>SNL 505<br>SNL 505<br>SNL 505                 | TSN 505 A<br>TSN 505 C<br>TSN 505 SE<br>TSN 505 NDE | ASNH 505<br>ASNH 505<br>ASNH 505<br>ASNH 505                 |
|                           | 77                    | 52             | 89  | 50             | 22             | 150 | 185 | 20 | 15             | 12 | $\frac{1}{2}$ | 2,00 | SNL 506-605<br>SNL 506-605<br>SNL 506-605<br>SNL 506-605 | TSN 605 A<br>TSN 605 C<br>TSN 605 SE<br>TSN 605 NDE | ASNH 506-605<br>ASNH 506-605<br>ASNH 506-605<br>ASNH 506-605 |
| $\frac{15}{16}$<br>28,813 | 77                    | 52             | 89  | 50             | 22             | 150 | 185 | 20 | 15             | 12 | $\frac{1}{2}$ | 2,00 | SNL 506-605<br>SNL 506-605<br>SNL 506-605<br>SNL 506-605 | TSN 506 A<br>TSN 506 C<br>TSN 506 SA<br>TSN 506 NDA | ASNH 506-605<br>ASNH 506-605<br>ASNH 506-605<br>ASNH 506-605 |
|                           | 82                    | 52             | 93  | 50             | 22             | 150 | 185 | 20 | 15             | 12 | $\frac{1}{2}$ | 2,20 | SNL 507-606<br>SNL 507-606<br>SNL 507-606<br>SNL 507-606 | TSN 606 A<br>TSN 606 C<br>TSN 606 SA<br>TSN 606 NDA | ASNH 507-606<br>ASNH 507-606<br>ASNH 507-606<br>ASNH 507-606 |
| 1<br>25,4                 | 77                    | 52             | 89  | 50             | 22             | 150 | 185 | 20 | 15             | 12 | $\frac{1}{2}$ | 2,00 | SNL 506-605<br>SNL 506-605<br>SNL 506-605<br>SNL 506-605 | TSN 506 A<br>TSN 506 C<br>TSN 506 SE<br>TSN 506 NDE | ASNH 506-605<br>ASNH 506-605<br>ASNH 506-605<br>ASNH 506-605 |
|                           | 82                    | 52             | 93  | 50             | 22             | 150 | 185 | 20 | 15             | 12 | $\frac{1}{2}$ | 2,20 | SNL 507-606<br>SNL 507-606<br>SNL 507-606<br>SNL 507-606 | TSN 606 A<br>TSN 606 C<br>TSN 606 SE<br>TSN 606 NDE | ASNH 507-606<br>ASNH 507-606<br>ASNH 507-606<br>ASNH 507-606 |
| $1 \frac{1}{8}$<br>28,575 | 82                    | 52             | 93  | 50             | 22             | 150 | 185 | 20 | 15             | 12 | $\frac{1}{2}$ | 2,20 | SNL 507-606<br>SNL 507-606<br>SNL 507-606<br>SNL 507-606 | TSN 507 A<br>TSN 507 C<br>TSN 507 SS<br>TSN 507 NDS | ASNH 507-606<br>ASNH 507-606<br>ASNH 507-606<br>ASNH 507-606 |
|                           | 85                    | 60             | 108 | 60             | 25             | 170 | 205 | 20 | 15             | 12 | $\frac{1}{2}$ | 2,90 | SNL 508-607<br>SNL 508-607<br>SNL 508-607<br>SNL 508-607 | TSN 607 A<br>TSN 607 C<br>TSN 607 SS<br>TSN 607 NDS | ASNH 508-607<br>ASNH 508-607<br>ASNH 508-607<br>ASNH 508-607 |

<sup>1)</sup> Dimension A remains the same also with C/CE seal design

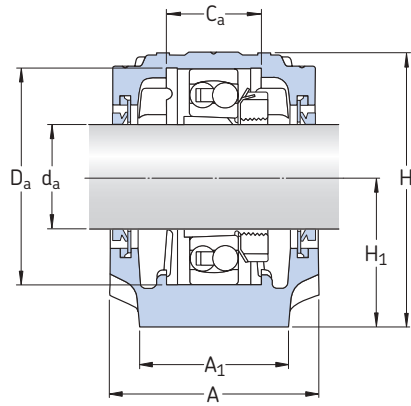


| Shaft<br><br>d <sub>a</sub> | Bearing seat   |                | Width across seals |                | Appropriate bearings and associated components         |                   |                                 |                                                                                        |                              |                                        |
|-----------------------------|----------------|----------------|--------------------|----------------|--------------------------------------------------------|-------------------|---------------------------------|----------------------------------------------------------------------------------------|------------------------------|----------------------------------------|
|                             | C <sub>a</sub> | D <sub>a</sub> | A <sub>2</sub>     | A <sub>3</sub> | Self-aligning ball bearing<br>Spherical roller bearing | Adapter sleeve    | Locating rings<br>2 per housing | Self-aligning ball bearing<br>Spherical roller bearing<br>CARB toroidal roller bearing | Adapter sleeve               | Locating rings<br>2 per housing        |
| in/mm                       | mm             |                | mm                 |                | —                                                      |                   |                                 |                                                                                        |                              |                                        |
| <b>3/4</b><br>19,05         | 25             | 52             | 80                 | 125            | <b>1205 EKTN9</b><br>—                                 | HE 205<br>—       | FRB 5/52<br>—                   | <b>2205 EKTN9</b><br><b>22205 EK</b><br><b>C 2205 KTN9</b>                             | HE 305<br>HE 305<br>HE 305 E | FRB 3.5/52<br>FRB 3.5/52<br>FRB 3.5/52 |
|                             | 32             | 62             | 89                 | 135            | <b>1305 EKTN9</b><br>—                                 | HE 305<br>—       | FRB 7.5/62<br>—                 | —<br>—<br>—                                                                            | —<br>—<br>—                  | —<br>—<br>—                            |
| <b>15/16</b><br>23,813      | 32             | 62             | 89                 | 135            | <b>1206EKTN9</b><br>—                                  | HA 206<br>—       | FRB 8/62<br>—                   | <b>2206 EKTN9</b><br><b>22206 EK</b><br><b>C 2206 KTN9</b>                             | HA 306<br>HA 306<br>HA 306 E | FRB 6/62<br>FRB 6/62<br>FRB 6/62       |
|                             | 34             | 72             | 94                 | 140            | <b>1306 EKTN9</b><br><b>21306 CCK</b>                  | HA 306<br>HA 306  | FRB 7.5/72<br>FRB 7.5/72        | <b>2306 K</b><br>—<br>—                                                                | HA 2306<br>—<br>—            | FRB 3.5/72<br>—<br>—                   |
| <b>1</b><br>25,4            | 32             | 62             | 89                 | 135            | <b>1206 EKTN9</b><br>—                                 | HE 206<br>—       | FRB 8/62<br>—                   | <b>2206 EKTN9</b><br><b>22206 EK</b><br><b>C 2206 KTN9</b>                             | HE 306<br>HE 306<br>HE 306 E | FRB 6/62<br>FRB 6/62<br>FRB 6/62       |
|                             | 34             | 72             | 94                 | 140            | <b>1306 EKTN9</b><br><b>21306 CCK</b>                  | HE 306<br>HE 2306 | FRB 7.5/72<br>FRB 7.5/72        | <b>2306 K</b><br>—<br>—                                                                | HE 2306<br>—<br>—            | FRB 3.5/72<br>—<br>—                   |
| <b>1 1/8</b><br>28,575      | 34             | 72             | 94                 | 145            | <b>1207 EKTN9</b><br>—                                 | HS 207<br>—       | FRB 8.5/72<br>—                 | <b>2207 EKTN9</b><br><b>22207 EK</b><br><b>C 2207 KTN9</b>                             | HS 307<br>HS 307<br>HS 307 E | FRB 5.5/72<br>FRB 5.5/72<br>FRB 5.5/72 |
|                             | 39             | 80             | 97                 | 145            | <b>1307 EKTN9</b><br><b>21307 CCK</b>                  | HS 307<br>HS 307  | FRB 9/80<br>FRB 9/80            | <b>2307 EKTN9</b><br>—<br>—                                                            | HS 2307<br>—<br>—            | FRB 4/80<br>—<br>—                     |

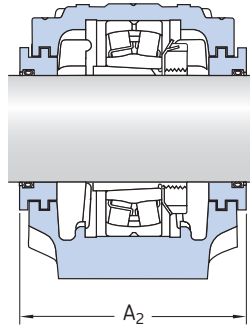


# SNL plummer block housings for bearings on an adapter sleeve, inch shafts

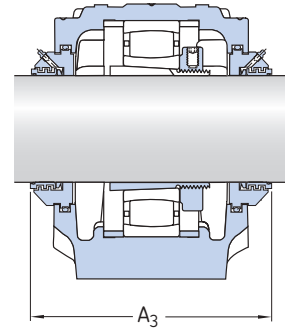
$d_a$  1 3/16 – 1 7/16 in



V-ring seals, A/AE design<sup>1)</sup>



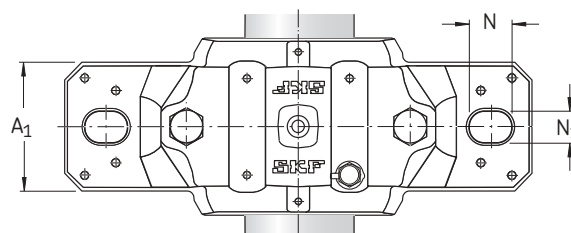
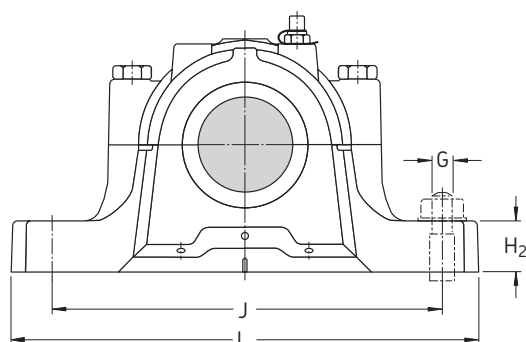
Labyrinth seals, SA/SE/SS design



Taconite seals, NDA/NDE/NDS design

| Shaft<br>$d_a$   | Housing<br>Dimensions |                |     |                |                |     |     |    |                |    |     | Mass | Designations<br>Housing                                                 | Seals                                                             | End cover                                                                    |
|------------------|-----------------------|----------------|-----|----------------|----------------|-----|-----|----|----------------|----|-----|------|-------------------------------------------------------------------------|-------------------------------------------------------------------|------------------------------------------------------------------------------|
|                  | A                     | A <sub>1</sub> | H   | H <sub>1</sub> | H <sub>2</sub> | J   | L   | N  | N <sub>1</sub> | G  | G   |      |                                                                         |                                                                   |                                                                              |
| in/mm            | mm                    |                |     |                |                |     |     |    |                |    |     | in   | kg                                                                      | –                                                                 |                                                                              |
| 1 3/16<br>30,163 | 82                    | 52             | 93  | 50             | 22             | 150 | 185 | 20 | 15             | 12 | 1/2 | 2,20 | SNL 507-606<br>SNL 507-606<br>SNL 507-606<br>SNL 507-606<br>SNL 507-606 | TSN 507 L<br>TSN 507 A<br>TSN 507 C<br>TSN 507 SA<br>TSNA 507 NDA | ASNH 507-606<br>ASNH 507-606<br>ASNH 507-606<br>ASNH 507-606<br>ASNH 507-606 |
|                  | 85                    | 60             | 108 | 60             | 25             | 170 | 205 | 20 | 15             | 12 | 1/2 | 2,90 | SNL 508-607<br>SNL 508-607<br>SNL 508-607<br>SNL 508-607                | TSN 607 A<br>TSN 607 C<br>TSN 607 SA<br>TSN 607 NDA               | ASNH 508-607<br>ASNH 508-607<br>ASNH 508-607<br>ASNH 508-607                 |
| 1 1/4<br>31,75   | 85                    | 60             | 108 | 60             | 25             | 170 | 205 | 20 | 15             | 12 | 1/2 | 2,90 | SNL 508-607<br>SNL 508-607<br>SNL 508-607<br>SNL 508-607                | TSN 508 AE<br>TSN 508 CE<br>TSN 508 SE<br>TSN 508 NDE             | ASNH 508-607<br>ASNH 508-607<br>ASNH 508-607<br>ASNH 508-607                 |
|                  | 90                    | 60             | 113 | 60             | 25             | 170 | 205 | 20 | 15             | 12 | 1/2 | 3,20 | SNL 510-608<br>SNL 510-608<br>SNL 510-608<br>SNL 510-608                | TSN 608 AE<br>TSN 608 CE<br>TSN 608 SE<br>TSN 608 NDE             | ASNH 510-608<br>ASNH 510-608<br>ASNH 510-608<br>ASNH 510-608                 |
| 1 3/8<br>34,925  | 85                    | 60             | 108 | 60             | 25             | 170 | 205 | 20 | 15             | 12 | 1/2 | 2,90 | SNL 508-607<br>SNL 508-607<br>SNL 508-607<br>SNL 508-607<br>SNL 508-607 | TSN 508 L<br>TSN 508 A<br>TSN 508 C<br>TSN 508 SS<br>TSN 508 NDS  | ASNH 508-607<br>ASNH 508-607<br>ASNH 508-607<br>ASNH 508-607<br>ASNH 508-607 |
|                  | 90                    | 60             | 113 | 60             | 25             | 170 | 205 | 20 | 15             | 12 | 1/2 | 3,20 | SNL 510-608<br>SNL 510-608<br>SNL 510-608<br>SNL 510-608                | TSN 608 A<br>TSN 608 C<br>TSN 608 SS<br>TSN 608 NDS               | ASNH 510-608<br>ASNH 510-608<br>ASNH 510-608<br>ASNH 510-608                 |
| 1 7/16<br>36,513 | 85                    | 60             | 109 | 60             | 25             | 170 | 205 | 20 | 15             | 12 | 1/2 | 2,90 | SNL 509<br>SNL 509<br>SNL 509<br>SNL 509                                | TSN 509 AE<br>TSN 509 CE<br>TSN 509 SA<br>TSN 509 NDA             | ASNH 509<br>ASNH 509<br>ASNH 509<br>ASNH 509                                 |
|                  | 95                    | 70             | 128 | 70             | 28             | 210 | 255 | 24 | 18             | 16 | 5/8 | 4,40 | SNL 511-609<br>SNL 511-609<br>SNL 511-609<br>SNL 511-609                | TSN 609 AE<br>TSN 609 CE<br>TSN 609 SA<br>TSN 609 NDA             | ASNH 511-609<br>ASNH 511-609<br>ASNH 511-609<br>ASNH 511-609                 |

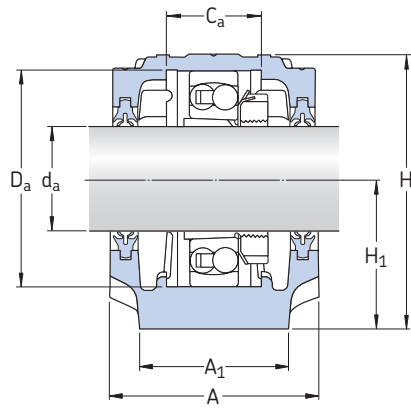
<sup>1)</sup> Dimension A remains the same also with L and C/CE seal designs



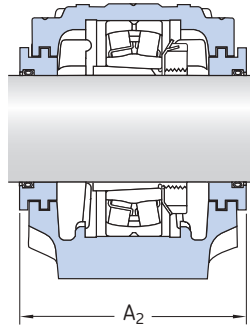
| Shaft<br>$d_a$          | Bearing seat<br>$C_a$ $D_a$ |     | Width across seals<br>$A_2$ $A_3$ |     | Appropriate bearings and associated components         |                  |                                 |                                                                                                                           |                                                                                                |
|-------------------------|-----------------------------|-----|-----------------------------------|-----|--------------------------------------------------------|------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
|                         |                             |     |                                   |     | Self-aligning ball bearing<br>Spherical roller bearing | Adapter sleeve   | Locating rings<br>2 per housing | Self-aligning ball bearing<br>Spherical roller bearing<br>Sealed spherical roller bearing<br>CARB toroidal roller bearing | Adapter sleeve<br>Locating rings<br>2 per housing                                              |
| in/mm                   | mm                          |     | mm                                |     | —                                                      |                  |                                 |                                                                                                                           |                                                                                                |
| <b>1 3/16</b><br>30,163 | 34                          | 72  | 94                                | 145 | <b>1207 EKTN9</b><br>—                                 | HA 207<br>—      | FRB 8.5/72<br>—                 | <b>2207 EKTN9</b><br><b>22207 EK</b><br>—<br><b>C 2207 KTN9</b>                                                           | HA 307<br>HA 307<br>—<br>HA 307 E<br>FRB 5.5/72<br>FRB 5.5/72<br>—<br>FRB 5.5/72               |
|                         | 39                          | 80  | 97                                | 145 | <b>1307 EKTN9</b><br><b>21307 CCK</b>                  | HA 307<br>HA 307 | FRB 9/80<br>FRB 9/80            | <b>2307 EKTN9</b><br>—<br>—<br>—                                                                                          | HA 2307<br>—<br>—<br>—<br>FRB 4/80<br>—<br>—<br>—                                              |
|                         | 41                          | 90  | 102                               | 150 | <b>1308 EKTN9</b><br><b>21308 EK</b>                   | HE 308<br>HE 308 | FRB 9/90<br>FRB 9/90            | <b>2308 EKTN9</b><br><b>22308 EK</b><br>—<br>—                                                                            | HE 2308<br>HE 2308<br>—<br>—<br>FRB 4/90<br>FRB 4/90<br>—<br>—                                 |
| <b>1 3/8</b><br>34,925  | 39                          | 80  | 97                                | 150 | <b>1208 EKTN9</b><br>—                                 | HS 208<br>—      | FRB 10,5/80<br>—                | <b>2208 EKTN9</b><br><b>22208 EK</b><br>—<br><b>BS2-2208-2CSK/VT143</b><br><b>C 2208 KTN9</b>                             | HS 308<br>HS 308<br>HS 2308 E<br>HS 308 E<br>FRB 8/80<br>FRB 8/80<br>FRB 5.5/80<br>FRB 8/80    |
|                         | 41                          | 90  | 102                               | 150 | <b>1308 EKTN9</b><br><b>21308 EK</b>                   | HS 308<br>HS 308 | FRB 9/90<br>FRB 9/90            | <b>2308 EKTN9</b><br><b>22308 EK</b><br>—<br>—                                                                            | HS 2308<br>HS 2308<br>—<br>—<br>FRB 4/90<br>FRB 4/90<br>—<br>—                                 |
|                         | 44                          | 100 | 107                               | 155 | <b>1309 EKTN9</b><br><b>21309 EK</b>                   | HA 309<br>HA 309 | FRB 9.5/100<br>FRB 9.5/100      | <b>2309 EKTN9</b><br><b>22309 EK</b><br>—<br>—                                                                            | HA 2309<br>HA 2309<br>—<br>—<br>FRB 4/100<br>FRB 4/100<br>—<br>—                               |
| <b>1 7/16</b><br>36,513 | 30                          | 85  | 97                                | 150 | <b>1209 EKTN9</b><br>—                                 | HA 209<br>—      | FRB 5.5/85<br>—                 | <b>2209 EKTN9</b><br><b>22209 EK</b><br><b>BS2-2209-2CSK/VT143</b><br><b>C 2209 KTN9</b>                                  | HA 309<br>HA 309<br>HA 309 E<br>HA 309 E<br>FRB 3.5/85<br>FRB 3.5/85<br>FRB 1/85<br>FRB 3.5/85 |
|                         | 39                          | 80  | 97                                | 150 | <b>1208 EKTN9</b><br>—                                 | HS 208<br>—      | FRB 10,5/80<br>—                | <b>2208 EKTN9</b><br><b>22208 EK</b><br>—<br><b>BS2-2208-2CSK/VT143</b><br><b>C 2208 KTN9</b>                             | HS 308<br>HS 308<br>HS 2308 E<br>HS 308 E<br>FRB 8/80<br>FRB 8/80<br>FRB 5.5/80<br>FRB 8/80    |
|                         | 41                          | 90  | 102                               | 150 | <b>1308 EKTN9</b><br><b>21308 EK</b>                   | HE 308<br>HE 308 | FRB 9/90<br>FRB 9/90            | <b>2308 EKTN9</b><br><b>22308 EK</b><br>—<br>—                                                                            | HE 2308<br>HE 2308<br>—<br>—<br>FRB 4/90<br>FRB 4/90<br>—<br>—                                 |

# SNL plummer block housings for bearings on an adapter sleeve, inch shafts

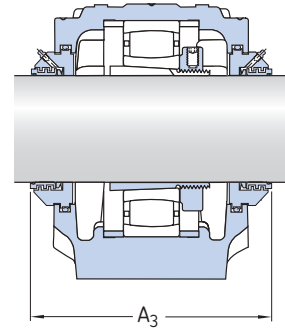
$d_a$  1 1/2 – 1 15/16 in



Four-lip seals, L design<sup>1)</sup>



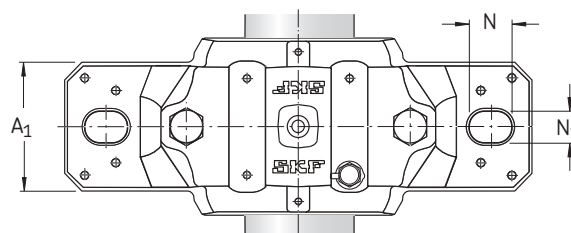
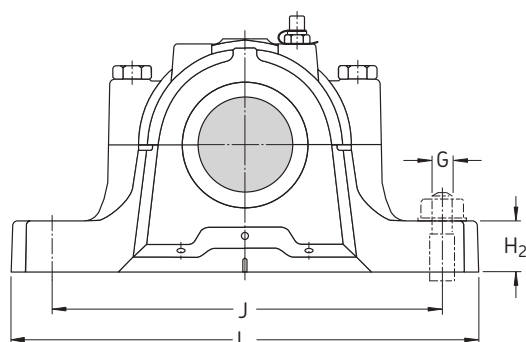
Labyrinth seals, SA/SE design



Taconite seals, NDA/NDE design

| Shaft<br>$d_a$    | Housing<br>Dimensions |                |     |                |                |     |     |    |                |    |       | Mass | Designations<br>Housing                                                 | Seals                                                            | End cover                                                                    |
|-------------------|-----------------------|----------------|-----|----------------|----------------|-----|-----|----|----------------|----|-------|------|-------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------|
|                   | A                     | A <sub>1</sub> | H   | H <sub>1</sub> | H <sub>2</sub> | J   | L   | N  | N <sub>1</sub> | G  | G     |      |                                                                         |                                                                  |                                                                              |
| in/mm             | mm                    |                |     |                |                |     |     |    |                |    |       | in   | kg                                                                      | –                                                                |                                                                              |
| 1 1/2<br>38,1     | 85                    | 60             | 109 | 60             | 25             | 170 | 205 | 20 | 15             | 12 | 1 1/2 | 2,90 | SNL 509<br>SNL 509<br>SNL 509<br>SNL 509                                | TSN 509 AE<br>TSN 509 CE<br>TSN 509 SE<br>TSN 509 NDE            | ASNH 509<br>ASNH 509<br>ASNH 509<br>ASNH 509                                 |
|                   | 95                    | 70             | 128 | 70             | 28             | 210 | 255 | 24 | 18             | 16 | 5/8   | 4,40 | SNL 511-609<br>SNL 511-609<br>SNL 511-609<br>SNL 511-609                | TSN 609 AE<br>TSN 609 CE<br>TSN 609 SE<br>TSN 609 NDE            | ASNH 511-609<br>ASNH 511-609<br>ASNH 511-609<br>ASNH 511-609                 |
| 1 11/16<br>42,863 | 90                    | 60             | 113 | 60             | 25             | 170 | 205 | 20 | 15             | 12 | 1 1/2 | 3,20 | SNL 510-608<br>SNL 510-608<br>SNL 510-608<br>SNL 510-608                | TSN 510 A<br>TSN 510 C<br>TSN 510 SA<br>TSN 510 NDA              | ASNH 510-608<br>ASNH 510-608<br>ASNH 510-608<br>ASNH 510-608                 |
|                   | 105                   | 70             | 134 | 70             | 30             | 210 | 255 | 24 | 18             | 16 | 5/8   | 5,10 | SNL 512-610<br>SNL 512-610<br>SNL 512-610<br>SNL 512-610                | TSN 610 A<br>TSN 610 C<br>TSN 610 SA<br>TSN 610 NDA              | ASNH 512-610<br>ASNH 512-610<br>ASNH 512-610<br>ASNH 512-610                 |
| 1 3/4<br>44,45    | 90                    | 60             | 113 | 60             | 25             | 170 | 205 | 20 | 15             | 12 | 1 1/2 | 3,20 | SNL 510-608<br>SNL 510-608<br>SNL 510-608<br>SNL 510-608<br>SNL 510-608 | TSN 510 L<br>TSN 510 A<br>TSN 510 C<br>TSN 510 SE<br>TSN 510 NDE | ASNH 510-608<br>ASNH 510-608<br>ASNH 510-608<br>ASNH 510-608<br>ASNH 510-608 |
|                   | 105                   | 70             | 134 | 70             | 30             | 210 | 255 | 24 | 18             | 16 | 5/8   | 5,10 | SNL 512-610<br>SNL 512-610<br>SNL 512-610<br>SNL 512-610<br>SNL 512-610 | TSN 610 L<br>TSN 610 A<br>TSN 610 C<br>TSN 610 SE<br>TSN 610 NDE | ASNH 512-610<br>ASNH 512-610<br>ASNH 512-610<br>ASNH 512-610<br>ASNH 512-610 |
| 1 15/16<br>49,213 | 95                    | 70             | 128 | 70             | 28             | 210 | 255 | 24 | 18             | 16 | 5/8   | 4,40 | SNL 511-609<br>SNL 511-609<br>SNL 511-609<br>SNL 511-609<br>SNL 511-609 | TSN 511 L<br>TSN 511 A<br>TSN 511 C<br>TSN 511 SA<br>TSN 511 NDA | ASNH 511-609<br>ASNH 511-609<br>ASNH 511-609<br>ASNH 511-609<br>ASNH 511-609 |
|                   | 110                   | 80             | 150 | 80             | 30             | 230 | 275 | 24 | 18             | 16 | 5/8   | 6,50 | SNL 513-611<br>SNL 513-611<br>SNL 513-611<br>SNL 513-611<br>SNL 513-611 | TSN 611 L<br>TSN 611 A<br>TSN 611 C<br>TSN 611 SA<br>TSN 611 NDA | ASNH 513-611<br>ASNH 513-611<br>ASNH 513-611<br>ASNH 513-611<br>ASNH 513-611 |

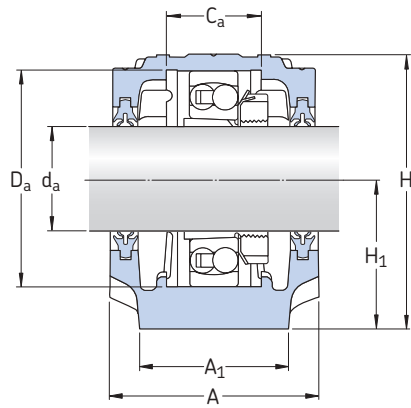
<sup>1)</sup> Dimension A remains the same also with A/AE and C/CE seal designs



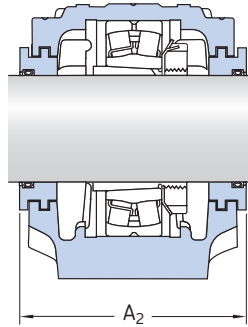
| Shaft<br><br>d <sub>a</sub> | Bearing seat   |                | Width across seals |                | Appropriate bearings and associated components         |                  |                                 |                                                                                                                           |                                          |                                                         |
|-----------------------------|----------------|----------------|--------------------|----------------|--------------------------------------------------------|------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------|------------------------------------------|---------------------------------------------------------|
|                             | C <sub>a</sub> | D <sub>a</sub> | A <sub>2</sub>     | A <sub>3</sub> | Self-aligning ball bearing<br>Spherical roller bearing | Adapter sleeve   | Locating rings<br>2 per housing | Self-aligning ball bearing<br>Spherical roller bearing<br>Sealed spherical roller bearing<br>CARB toroidal roller bearing | Adapter sleeve                           | Locating rings<br>2 per housing                         |
| in/mm                       | mm             |                | mm                 |                | —                                                      |                  |                                 |                                                                                                                           |                                          |                                                         |
| <b>1 1/2</b><br>38,1        | 30             | 85             | 97                 | 150            | <b>1209 EKTN9</b><br>—                                 | HE 209<br>—      | FRB 5.5/85<br>—                 | <b>2209 EKTN9</b><br><b>22209 EK</b><br><b>BS2-2209-2CSK/VT143</b><br><b>C 2209 KTN9</b>                                  | HE 309<br>HE 309<br>HE 309 E<br>HE 309 E | FRB 3.5/85<br>FRB 3.5/85<br>FRB 1/85<br>FRB 3.5/85      |
|                             | 44             | 100            | 107                | 155            | <b>1309 EKTN9</b><br><b>21309 EK</b>                   | HE 309<br>HE 309 | FRB 9.5/100<br>FRB 9.5/100      | <b>2309 EKTN9</b><br><b>22309 EK</b><br>—                                                                                 | HE 2309<br>HE 2309<br>—                  | FRB 4/100<br>FRB 4/100<br>—                             |
| <b>1 11/16</b><br>42,863    | 41             | 90             | 102                | 155            | <b>1210 EKTN9</b><br>—                                 | HA 210<br>—      | FRB 10.5/90<br>—                | <b>2210 EKTN9</b><br><b>22210 EK</b><br><b>BS2-2210-2CSK/VT143</b><br><b>C 2210 KTN9</b>                                  | HA 310<br>HA 310<br>HA 310 E<br>HA 310 E | FRB 9/90<br>FRB 9/90<br>FRB 6.5/90<br>FRB 9/90          |
|                             | 48             | 110            | 117                | 165            | <b>1310 EKTN9</b><br><b>21310 EK</b>                   | HA 310<br>HA 310 | FRB 10.5/110<br>FRB 10.5/110    | <b>2310 K</b><br><b>22310 EK</b><br>—                                                                                     | HA 2310<br>HA 2310<br>—                  | FRB 4/110<br>FRB 4/110<br>—                             |
| <b>1 3/4</b><br>44,45       | 41             | 90             | 102                | 155            | <b>1210 EKTN9</b><br>—                                 | HE 210<br>—      | FRB 10.5/90<br>—                | <b>2210 EKTN9</b><br><b>22210 EK</b><br><b>BS2-2210-2CSK/VT143</b><br><b>C 2210 KTN9</b>                                  | HE 310<br>HE 310<br>HE 310 E<br>HE 310 E | FRB 9/90<br>FRB 9/90<br>FRB 6.5/90<br>FRB 9/90          |
|                             | 48             | 110            | 117                | 165            | <b>1310 EKTN9</b><br><b>21310 EK</b>                   | HE 310<br>HE 310 | FRB 10.5/110<br>FRB 10.5/110    | <b>2310 K</b><br><b>22310 EK</b><br>—                                                                                     | HE 2310<br>HE 2310<br>—                  | FRB 4/110<br>FRB 4/110<br>—                             |
| <b>1 15/16</b><br>49,213    | 44             | 100            | 107                | 165            | <b>1211 EKTN9</b><br>—                                 | HA 211<br>—      | FRB 11.5/100<br>—               | <b>2211 EKTN9</b><br><b>22211 EK</b><br><b>BS2-2211-2CSK/VT143</b><br><b>C 2211 KTN9</b>                                  | HA 311<br>HA 311<br>HA 311 E<br>HA 311 E | FRB 9.5/100<br>FRB 9.5/100<br>FRB 6.5/90<br>FRB 9.5/100 |
|                             | 51             | 120            | 122                | 170            | <b>1311 EKTN9</b><br><b>21311 EK</b>                   | HA 311<br>HA 311 | FRB 11/120<br>FRB 11/120        | <b>2311 K</b><br><b>22311 EK</b><br>—                                                                                     | HA 2311<br>HA 2311<br>—                  | FRB 4/120<br>FRB 4/120<br>—                             |

# SNL plummer block housings for bearings on an adapter sleeve, inch shafts

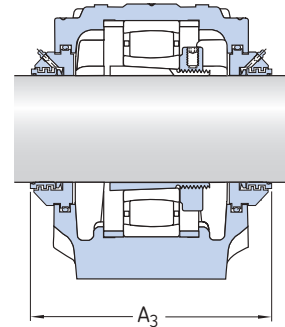
d<sub>a</sub> 2 – 2 1/4 in



Four-lip seals, L/LA design<sup>1)</sup>



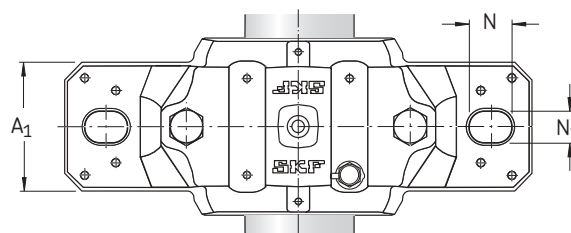
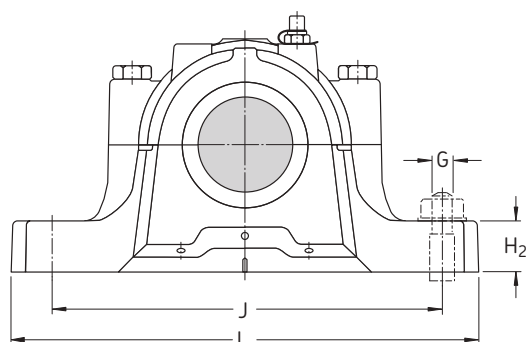
Labyrinth seals, SA/SE/SS design



Taconite seals, NDA/NDE/NDS design

| Shaft<br>d <sub>a</sub> | Housing<br>Dimensions |                |     |                |                |     |     |    |                |    |     | Mass | Designations<br>Housing                                                                                    | Seals                                                               | End cover                                                                    |
|-------------------------|-----------------------|----------------|-----|----------------|----------------|-----|-----|----|----------------|----|-----|------|------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|------------------------------------------------------------------------------|
|                         | A                     | A <sub>1</sub> | H   | H <sub>1</sub> | H <sub>2</sub> | J   | L   | N  | N <sub>1</sub> | G  | G   |      |                                                                                                            |                                                                     |                                                                              |
| in/mm                   | mm                    |                |     |                |                |     |     |    |                |    |     | in   | kg                                                                                                         | –                                                                   |                                                                              |
| <b>2</b><br>50,8        | 95                    | 70             | 128 | 70             | 28             | 210 | 255 | 24 | 18             | 16 | 5/8 | 4,40 | <b>SNL 511-609</b><br><b>SNL 511-609</b><br><b>SNL 511-609</b><br><b>SNL 511-609</b><br><b>SNL 511-609</b> | TSN 511 L<br>TSN 511 A<br>TSN 511 C<br>TSN 511 SE<br>TSN 511 NDE    | ASNH 511-609<br>ASNH 511-609<br>ASNH 511-609<br>ASNH 511-609<br>ASNH 511-609 |
|                         | 110                   | 80             | 150 | 80             | 30             | 230 | 275 | 24 | 18             | 16 | 5/8 | 6,50 | <b>SNL 513-611</b><br><b>SNL 513-611</b><br><b>SNL 513-611</b><br><b>SNL 513-611</b><br><b>SNL 513-611</b> | TSN 611 L<br>TSN 611 A<br>TSN 611 C<br>TSN 611 SE<br>TSN 611 NDE    | ASNH 513-611<br>ASNH 513-611<br>ASNH 513-611<br>ASNH 513-611<br>ASNH 513-611 |
| <b>2 1/8</b><br>53,975  | 105                   | 70             | 134 | 70             | 30             | 210 | 255 | 24 | 18             | 16 | 5/8 | 5,10 | <b>SNL 512-610</b><br><b>SNL 512-610</b><br><b>SNL 512-610</b><br><b>SNL 512-610</b>                       | TSN 512 A<br>TSN 512 C<br>TSN 512 SS<br>TSN 512 NDS                 | ASNH 512-610<br>ASNH 512-610v<br>ASNH 512-610<br>ASNH 512-610                |
|                         | 115                   | 80             | 156 | 80             | 30             | 230 | 280 | 24 | 18             | 16 | 5/8 | 7,00 | <b>SNL515-612</b><br><b>SNL515-612</b><br><b>SNL515-612</b><br><b>SNL515-612</b>                           | TSN 612 A<br>TSN 612 C<br>TSN 612 SS<br>TSN 612 NDS                 | ASNH 515-612<br>ASNH 515-612<br>ASNH 515-612<br>ASNH 515-612                 |
| <b>2 3/16</b><br>55,563 | 110                   | 80             | 149 | 80             | 30             | 230 | 275 | 24 | 18             | 16 | 5/8 | 6,50 | <b>SNL 513-611</b><br><b>SNL 513-611</b><br><b>SNL 513-611</b><br><b>SNL 513-611</b><br><b>SNL 513-611</b> | TSN 513 LA<br>TSN 513 AE<br>TSN 513 CE<br>TSN 513 SA<br>TSN 513 NDA | ASNH 513-611<br>ASNH 513-611<br>ASNH 513-611<br>ASNH 513-611<br>ASNH 513-611 |
|                         | 120                   | 90             | 177 | 95             | 32             | 260 | 315 | 28 | 22             | 20 | 3/4 | 9,50 | <b>SNL 516-613</b><br><b>SNL 516-613</b><br><b>SNL 516-613</b><br><b>SNL 516-613</b>                       | TSN 613 AE<br>TSN 613 CE<br>TSN 613 SA<br>TSN 613 NDA               | ASNH 516-613<br>ASNH 516-613<br>ASNH 516-613<br>ASNH 516-613                 |
| <b>2 1/4</b><br>57,15   | 110                   | 80             | 149 | 80             | 30             | 230 | 275 | 24 | 18             | 16 | 5/8 | 6,50 | <b>SNL 513-611</b><br><b>SNL 513-611</b><br><b>SNL 513-611</b><br><b>SNL 513-611</b>                       | TSN 513 A<br>TSN 513 CE<br>TSN 513 SE<br>TSN 513 NDE                | ASNH 513-611<br>ASNH 513-611<br>ASNH 513-611<br>ASNH 513-611                 |
|                         | 120                   | 90             | 177 | 95             | 32             | 260 | 315 | 28 | 22             | 20 | 3/4 | 9,50 | <b>SNL 516-613</b><br><b>SNL 516-613</b><br><b>SNL 516-613</b><br><b>SNL 516-613</b>                       | TSN 613 A<br>TSN 613 CE<br>TSN 613 SE<br>TSN 613 NDE                | ASNH 516-613<br>ASNH 516-613<br>ASNH 516-613<br>ASNH 516-613                 |

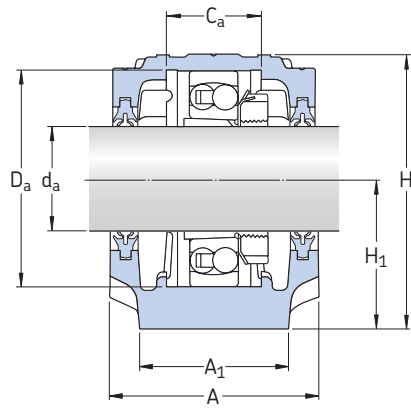
<sup>1)</sup> Dimension A remains the same also with A/AE and C/CE seal designs



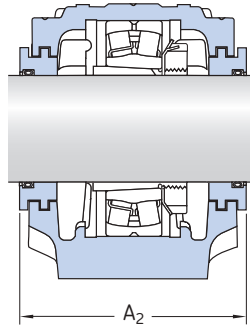
| Shaft<br><br>d <sub>a</sub> | Bearing seat   |                | Width across seals |                | Appropriate bearings and associated components         |                  |                                 |                                                                                                                           |                                                |                                                          |
|-----------------------------|----------------|----------------|--------------------|----------------|--------------------------------------------------------|------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|----------------------------------------------------------|
|                             | C <sub>a</sub> | D <sub>a</sub> | A <sub>2</sub>     | A <sub>3</sub> | Self-aligning ball bearing<br>Spherical roller bearing | Adapter sleeve   | Locating rings<br>2 per housing | Self-aligning ball bearing<br>Spherical roller bearing<br>Sealed spherical roller bearing<br>CARB toroidal roller bearing | Adapter sleeve                                 | Locating rings<br>2 per housing                          |
| in/mm                       | mm             |                | mm                 |                | —                                                      |                  |                                 |                                                                                                                           |                                                |                                                          |
| 2<br>50,8                   | 44             | 100            | 107                | 165            | 1211 EKTN9<br>—                                        | HE 211 B<br>—    | FRB 11.5/100<br>—               | 2211 EKTN9<br>22211 EK<br>BS2-2211-2CSK/VT143<br>C 2211 KTN9                                                              | HE 311 B<br>HE 311 B<br>HE 311 BE<br>HE 311 BE | FRB 9.5/100<br>FRB 9.5/100<br>FRB 6.5/100<br>FRB 9.5/100 |
|                             | 51             | 120            | 122                | 170            | 1311 EKTN9<br>21311 EK                                 | HE 311<br>HE 311 | FRB 11/120<br>FRB 11/120        | 2311 K<br>22311 EK<br>—<br>—                                                                                              | HE 2311 B<br>HE 2311 B<br>—<br>—               | FRB 4/120<br>FRB 4/120<br>—<br>—                         |
| 2 1/8<br>53,975             | 48             | 110            | 117                | 175            | 1212 EKTN9<br>—                                        | HS 212<br>—      | FRB 13/110<br>—                 | 2212 EKTN9<br>22212 EK<br>BS2-2212-2CSK/VT143<br>C 2212 KTN9                                                              | HS 312<br>HS 312<br>HS 312 E<br>HS 312 E       | FRB 10/110<br>FRB 10/110<br>FRB 7/110<br>FRB 10/110      |
|                             | 56             | 130            | 127                | 175            | 1312 EKTN9<br>21312 EK                                 | HS 312<br>HS 312 | FRB 12.5/130<br>FRB 12.5/130    | 2312 K<br>22312 EK<br>—<br>—                                                                                              | HS 2312<br>HS 2312<br>—<br>—                   | FRB 5/130<br>FRB 5/130<br>—<br>—                         |
| 2 3/16<br>55,563            | 51             | 120            | 122                | 180            | 1213 EKTN9<br>—                                        | HA 213<br>—      | FRB 14/120<br>—                 | 2213 EKTN9<br>22213 EK<br>BS2-2213-2CSK/VT143<br>C 2213 KTN9                                                              | HA 313<br>HA 313<br>HA 2313 E<br>HA 313 E      | FRB 10/120<br>FRB 10/120<br>FRB 6.5/120<br>FRB 10/120    |
|                             | 58             | 140            | 138                | 180            | 1313 EKTN9<br>21313 EK                                 | HA 313<br>HA 313 | FRB 12.5/140<br>FRB 12.5/140    | 2313 K<br>22313 EK<br>—<br>—                                                                                              | HA 2313<br>HA 2313<br>—<br>—                   | FRB 5/140<br>FRB 5/140<br>—<br>—                         |
| 2 1/4<br>57,15              | 51             | 120            | 122                | 180            | 1213 EKTN9<br>—                                        | HE 213<br>—      | FRB 14/120<br>—                 | 2213 EKTN9<br>22213 EK<br>BS2-2213-2CSK/VT143<br>C 2213 KTN9                                                              | HE 313<br>HE 313<br>HE 2313 E<br>HE 313 E      | FRB 10/120<br>FRB 10/120<br>FRB 6.5/120<br>FRB 10/120    |
|                             | 58             | 140            | 138                | 180            | 1313 EKTN9<br>21313 EK                                 | HE 313<br>HE 313 | FRB 12.5/140<br>FRB 12.5/140    | 2313 K<br>22313 EK<br>—<br>—                                                                                              | HE 2313<br>HE 2313<br>—<br>—                   | FRB 5/140<br>FRB 5/140<br>—<br>—                         |

# SNL plummer block housings for bearings on an adapter sleeve, inch shafts

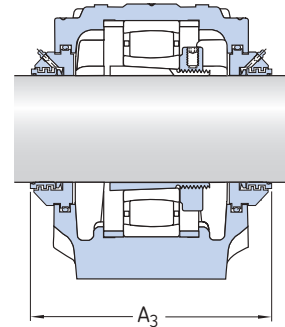
$d_a$  2 7/16 – 2 3/4 in



Four-lip seals, L/LA design<sup>1)</sup>



Labyrinth seals, SA/SE design

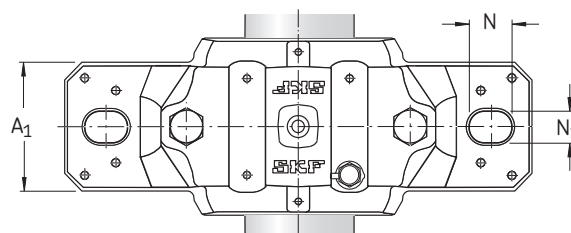
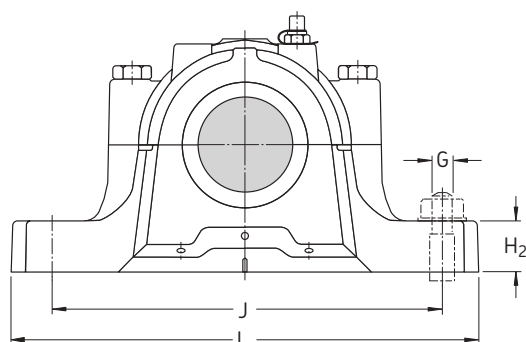


Taconite seals, NDA/NDE design

| Shaft<br>$d_a$    | Housing<br>Dimensions |                |     |                |                |     |     |    |                |    |     | Mass | Designations<br>Housing                                                 | Seals                                                               | End cover                                                                    |
|-------------------|-----------------------|----------------|-----|----------------|----------------|-----|-----|----|----------------|----|-----|------|-------------------------------------------------------------------------|---------------------------------------------------------------------|------------------------------------------------------------------------------|
|                   | A                     | A <sub>1</sub> | H   | H <sub>1</sub> | H <sub>2</sub> | J   | L   | N  | N <sub>1</sub> | G  | G   |      |                                                                         |                                                                     |                                                                              |
| in/mm             | mm                    |                |     |                |                |     |     |    |                |    |     | in   | kg                                                                      | –                                                                   |                                                                              |
| 2 7/16<br>61,913  | 115                   | 80             | 155 | 80             | 30             | 230 | 280 | 24 | 18             | 16 | 5/8 | 7,00 | SNL 515-612<br>SNL 515-612<br>SNL 515-612<br>SNL 515-612<br>SNL 515-612 | TSN 515 LA<br>TSN 515 AE<br>TSN 515 CE<br>TSN 515 SA<br>TSN 515 NDA | ASNH 515-612<br>ASNH 515-612<br>ASNH 515-612<br>ASNH 515-612<br>ASNH 515-612 |
|                   | 140                   | 100            | 194 | 100            | 35             | 290 | 345 | 28 | 22             | 20 | 3/4 | 12,5 | SNL 518-615<br>SNL 518-615<br>SNL 518-615<br>SNL 518-615                | TSN 615 AE<br>TSN 615 CE<br>TSN 615 SA<br>TSN 615 NDA               | ASNH 518-615<br>ASNH 518-615<br>ASNH 518-615<br>ASNH 518-615                 |
| 2 1/2<br>63,5     | 115                   | 80             | 155 | 80             | 30             | 230 | 280 | 24 | 18             | 16 | 5/8 | 7,00 | SNL 515-612<br>SNL 515-612<br>SNL 515-612<br>SNL 515-612                | TSN 515 A<br>TSN 515 C<br>TSN 515 SE<br>TSN 515 NDE                 | ASNH 515-612<br>ASNH 515-612<br>ASNH 515-612<br>ASNH 515-612                 |
|                   | 140                   | 100            | 194 | 100            | 35             | 290 | 345 | 28 | 22             | 20 | 3/4 | 12,5 | SNL 518-615<br>SNL 518-615<br>SNL 518-615<br>SNL 518-615                | TSN 615 A<br>TSN 615 C<br>TSN 615 SE<br>TSN 615 NDE                 | ASNH 518-615<br>ASNH 518-615<br>ASNH 518-615<br>ASNH 518-615                 |
| 2 11/16<br>68,263 | 120                   | 90             | 177 | 95             | 32             | 260 | 315 | 28 | 22             | 20 | 3/4 | 9,50 | SNL 516-613<br>SNL 516-613<br>SNL 516-613<br>SNL 516-613                | TSN 516 A<br>TSN 516 C<br>TSN 516 SA<br>TSN 516 NDA                 | ASNH 516-613<br>ASNH 516-613<br>ASNH 516-613<br>ASNH 516-613                 |
|                   | 145                   | 100            | 212 | 112            | 35             | 290 | 345 | 28 | 22             | 20 | 3/4 | 13,7 | SNL 519-616<br>SNL 519-616<br>SNL 519-616<br>SNL 519-616                | TSN 616 A<br>TSN 616 C<br>TSN 616 SA<br>TSN 616 NDA                 | ASNH 519-616<br>ASNH 519-616<br>ASNH 519-616<br>ASNH 519-616                 |
| 2 3/4<br>69,85    | 120                   | 90             | 177 | 95             | 32             | 260 | 315 | 28 | 22             | 20 | 3/4 | 9,50 | SNL 516-613<br>SNL 516-613<br>SNL 516-613<br>SNL 516-613<br>SNL 516-613 | TSN 516 L<br>TSN 516 A<br>TSN 516 C<br>TSN 516 SE<br>TSN 516 NDE    | ASNH 516-613<br>ASNH 516-613<br>ASNH 516-613<br>ASNH 516-613<br>ASNH 516-613 |
|                   | 145                   | 100            | 212 | 112            | 35             | 290 | 345 | 28 | 22             | 20 | 3/4 | 13,7 | SNL 519-616<br>SNL 519-616<br>SNL 519-616<br>SNL 519-616<br>SNL 519-616 | TSN 616 L<br>TSN 616 A<br>TSN 616 C<br>TSN 616 SE<br>TSN 616 NDE    | ASNH 519-616<br>ASNH 519-616<br>ASNH 519-616<br>ASNH 519-616<br>ASNH 519-616 |

<sup>1)</sup> Dimension A remains the same also with A/AE and C/CE seal designs

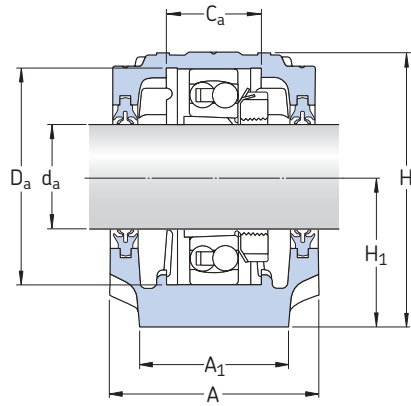




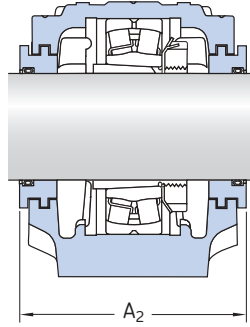
| Shaft<br>$d_a$           | Bearing seat |       | Width across seals |       | Appropriate bearings and associated components         |                  |                                 |                                                                                                                           |                                                                                                       |
|--------------------------|--------------|-------|--------------------|-------|--------------------------------------------------------|------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
|                          | $C_a$        | $D_a$ | $A_2$              | $A_3$ | Self-aligning ball bearing<br>Spherical roller bearing | Adapter sleeve   | Locating rings<br>2 per housing | Self-aligning ball bearing<br>Spherical roller bearing<br>Sealed spherical roller bearing<br>CARB toroidal roller bearing | Adapter sleeve<br>Locating rings<br>2 per housing                                                     |
| in/mm                    | mm           | mm    | mm                 | mm    | —                                                      | —                | —                               | —                                                                                                                         | —                                                                                                     |
| <b>2 7/16</b><br>61,913  | 56           | 130   | 127                | 175   | <b>1215 K</b><br>—                                     | HA 215<br>—      | FRB 15.5/130<br>—               | <b>2215 EKTN9</b><br><b>22215 EK</b><br>BS2-2215-2CSK/VT143<br><b>C 2215 K</b>                                            | HA 315<br>HA 315<br>HA 315 E<br>HA 315 E<br>FRB 12.5/130<br>FRB 12.5/130<br>FRB 9/130<br>FRB 12.5/130 |
|                          | 65           | 160   | 158                | 200   | <b>1315 KTN9</b><br><b>21315 EK</b>                    | HA 315<br>HA 315 | FRB 14/160<br>FRB 14/160        | <b>2315 K</b><br><b>22315 EK</b><br>—<br><b>C 2315 K</b>                                                                  | HA 2315<br>HA 2315<br>—<br>HA 2315<br>FRB 5/160<br>FRB 5/160<br>—<br>FRB 5/160                        |
|                          | 65           | 160   | 158                | 200   | <b>1315 K</b><br><b>21315 EK</b>                       | HE 315<br>HE 315 | FRB 14/160<br>FRB 14/160        | <b>2315 K</b><br><b>22315 EK</b><br>—<br><b>C 2315 K</b>                                                                  | HE 2315<br>HE 2315<br>—<br>HE 2315<br>FRB 5/160<br>FRB 5/160<br>—<br>FRB 5/160                        |
| <b>2 1/2</b><br>63,5     | 56           | 130   | 127                | 175   | <b>1215 K</b><br>—                                     | HE 215<br>—      | FRB 15.5/130<br>—               | <b>2215 EKTN9</b><br><b>22215 EK</b><br>BS2-2215-2CSK/VT143<br><b>C 2215 K</b>                                            | HE 315<br>HE 315<br>HE 315 E<br>HE 315 E<br>FRB 12.5/130<br>FRB 12.5/130<br>FRB 9/130<br>FRB 12.5/130 |
|                          | 65           | 160   | 158                | 200   | <b>1315 K</b><br><b>21315 EK</b>                       | HE 315<br>HE 315 | FRB 14/160<br>FRB 14/160        | <b>2315 K</b><br><b>22315 EK</b><br>—<br><b>C 2315 K</b>                                                                  | HE 2315<br>HE 2315<br>—<br>HE 2315<br>FRB 5/160<br>FRB 5/160<br>—<br>FRB 5/160                        |
|                          | 65           | 160   | 158                | 200   | <b>1315 K</b><br><b>21315 EK</b>                       | HE 315<br>HE 315 | FRB 14/160<br>FRB 14/160        | <b>2315 K</b><br><b>22315 EK</b><br>—<br><b>C 2315 K</b>                                                                  | HE 2315<br>HE 2315<br>—<br>HE 2315<br>FRB 5/160<br>FRB 5/160<br>—<br>FRB 5/160                        |
| <b>2 11/16</b><br>68,263 | 58           | 140   | 138                | 205   | <b>1216 K</b><br>—                                     | HA 216<br>—      | FRB 16/140<br>—                 | <b>2216 EKTN9</b><br><b>22216 EK</b><br>BS2-2216-2CSK/VT143<br><b>C 2216 K</b>                                            | HA 316<br>HA 316<br>HA 316 E<br>HA 316 E<br>FRB 12.5/140<br>FRB 12.5/140<br>FRB 9/140<br>FRB 12.5/140 |
|                          | 68           | 170   | 163                | 205   | <b>1316 K</b><br><b>21316 EK</b>                       | HA 316<br>HA 316 | FRB 14.5/170<br>FRB 14.5/170    | <b>2316 K</b><br><b>22316 EK</b><br>—<br><b>C 2316 K</b>                                                                  | HA 2316<br>HA 2316<br>—<br>HA 2316<br>FRB 5/170<br>FRB 5/170<br>—<br>FRB 5/170                        |
|                          | 68           | 170   | 163                | 205   | <b>1316 K</b><br><b>21316 EK</b>                       | HA 316<br>HA 316 | FRB 14.5/170<br>FRB 14.5/170    | <b>2316 K</b><br><b>22316 EK</b><br>—<br><b>C 2316 K</b>                                                                  | HA 2316<br>HA 2316<br>—<br>HA 2316<br>FRB 5/170<br>FRB 5/170<br>—<br>FRB 5/170                        |
| <b>2 3/4</b><br>69,85    | 58           | 140   | 138                | 205   | <b>1216 K</b><br>—                                     | HE 216<br>—      | FRB 16/140<br>—                 | <b>2216 EKTN9</b><br><b>22216 EK</b><br>BS2-2216-2CSK/VT143<br><b>C 2216 K</b>                                            | HE 316<br>HE 316<br>HE 316 E<br>HE 316 E<br>FRB 12.5/140<br>FRB 12.5/140<br>FRB 9/140<br>FRB 12.5/140 |
|                          | 68           | 170   | 163                | 205   | <b>1316 K</b><br><b>21316 EK</b>                       | HE 316<br>HE 316 | FRB 14.5/170<br>FRB 14.5/170    | <b>2316 K</b><br><b>22316 EK</b><br>—<br><b>C 2316 K</b>                                                                  | HE 2316<br>HE 2316<br>—<br>HE 2316<br>FRB 5/170<br>FRB 5/170<br>—<br>FRB 5/170                        |
|                          | 68           | 170   | 163                | 205   | <b>1316 K</b><br><b>21316 EK</b>                       | HE 316<br>HE 316 | FRB 14.5/170<br>FRB 14.5/170    | <b>2316 K</b><br><b>22316 EK</b><br>—<br><b>C 2316 K</b>                                                                  | HE 2316<br>HE 2316<br>—<br>HE 2316<br>FRB 5/170<br>FRB 5/170<br>—<br>FRB 5/170                        |

# SNL plummer block housings for bearings on an adapter sleeve, inch shafts

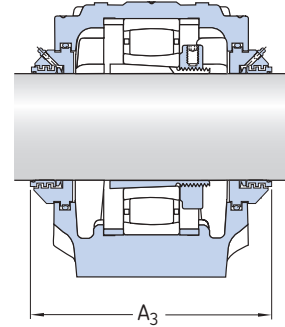
$d_a$  2 15/16 – 3 1/4 in



Four-lip seals, L design<sup>1)</sup>



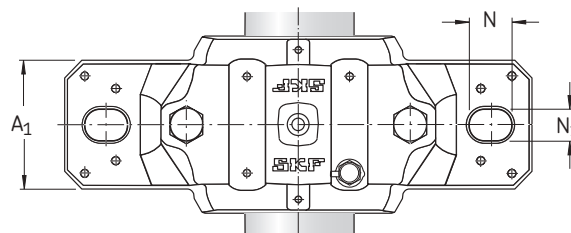
Labyrinth seals, SA/SE design



Taconite seals, NDA/NDE design

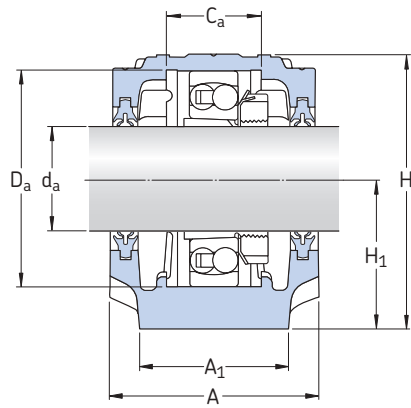
| Shaft<br><br>d <sub>a</sub> | Housing<br>Dimensions |                |     |                |                |     |     |    |                |    |     | Mass | Designations<br>Housing                                                                                    | Seals                                                             | End cover                                                                    |  |
|-----------------------------|-----------------------|----------------|-----|----------------|----------------|-----|-----|----|----------------|----|-----|------|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|------------------------------------------------------------------------------|--|
|                             | A                     | A <sub>1</sub> | H   | H <sub>1</sub> | H <sub>2</sub> | J   | L   | N  | N <sub>1</sub> | G  | G   |      |                                                                                                            |                                                                   |                                                                              |  |
| in/mm                       | mm                    |                |     |                |                |     |     |    |                |    |     | in   | kg                                                                                                         | —                                                                 |                                                                              |  |
| <b>2 15/16</b><br>74,613    | 125                   | 90             | 183 | 95             | 32             | 260 | 320 | 28 | 22             | 20 | 3/4 | 10,0 | <b>SNL 517</b><br><b>SNL 517</b><br><b>SNL 517</b><br><b>SNL 517</b><br><b>SNL 517</b>                     | TSN 517 L<br>TSN 517 A<br>TSN 517 C<br>TSNA 517 SA<br>TSN 517 NDA | ASNH 517<br>ASNH 517<br>ASNH 517<br>ASNH 517<br>ASNH 517                     |  |
|                             | 160                   | 110            | 218 | 112            | 40             | 320 | 380 | 32 | 26             | 24 | 7/8 | 17,6 | <b>SNL 520-617</b><br><b>SNL 520-617</b><br><b>SNL 520-617</b><br><b>SNL 520-617</b><br><b>SNL 520-617</b> | TSN 617 L<br>TSN 617 A<br>TSN 617 C<br>TSN 617 SA<br>TSN 617 NDA  | ASNH 520-617<br>ASNH 520-617<br>ASNH 520-617<br>ASNH 520-617<br>ASNH 520-617 |  |
| <b>3</b><br>76,2            | 125                   | 90             | 183 | 95             | 32             | 260 | 320 | 28 | 22             | 20 | 3/4 | 10,0 | <b>SNL 517</b><br><b>SNL 517</b><br><b>SNL 517</b><br><b>SNL 517</b><br><b>SNL 517</b>                     | TSN 517 L<br>TSN 517 A<br>TSN 517 C<br>TSN 517 SE<br>TSN 517 NDE  | ASNH 517<br>ASNH 517<br>ASNH 517<br>ASNH 517<br>ASNH 517                     |  |
|                             | 160                   | 110            | 218 | 112            | 40             | 320 | 380 | 32 | 26             | 24 | 7/8 | 17,6 | <b>SNL 520-617</b><br><b>SNL 520-617</b><br><b>SNL 520-617</b><br><b>SNL 520-617</b><br><b>SNL 520-617</b> | TSN 617 L<br>TSN 617 A<br>TSN 617 C<br>TSN 617 SE<br>TSN 617 NDE  | ASNH 520-617<br>ASNH 520-617<br>ASNH 520-617<br>ASNH 520-617<br>ASNH 520-617 |  |
| <b>3 3/16</b><br>80,963     | 140                   | 100            | 194 | 100            | 35             | 290 | 345 | 28 | 22             | 20 | 3/4 | 12,5 | <b>SNL 518-615</b><br><b>SNL 518-615</b><br><b>SNL 518-615</b><br><b>SNL 518-615</b><br><b>SNL 518-615</b> | TSN 518 L<br>TSN 518 A<br>TSN 518 CE<br>TSN 518 SA<br>TSN 518 NDA | ASNH 518-615<br>ASNH 518-615<br>ASNH 518-615<br>ASNH 518-615<br>ASNH 518-615 |  |
|                             | 140                   | 100            | 194 | 100            | 35             | 290 | 345 | 28 | 22             | 20 | 3/4 | 12,5 | <b>SNL 518-615</b><br><b>SNL 518-615</b><br><b>SNL 518-615</b><br><b>SNL 518-615</b>                       | TSN 518 A<br>TSN 518 CE<br>TSN 518 SE<br>TSN 518 NDE              | ASNH 518-615<br>ASNH 518-615<br>ASNH 518-615<br>ASNH 518-615                 |  |
| <b>3 1/4</b><br>82,55       | 140                   | 100            | 194 | 100            | 35             | 290 | 345 | 28 | 22             | 20 | 3/4 | 12,5 | <b>SNL 518-615</b><br><b>SNL 518-615</b><br><b>SNL 518-615</b><br><b>SNL 518-615</b>                       | TSN 518 A<br>TSN 518 CE<br>TSN 518 SE<br>TSN 518 NDE              | ASNH 518-615<br>ASNH 518-615<br>ASNH 518-615<br>ASNH 518-615                 |  |
|                             | 175                   | 120            | 242 | 125            | 45             | 350 | 410 | 32 | 26             | 24 | 7/8 | 22,0 | <b>SNL 522-619</b><br><b>SNL 522-619</b><br><b>SNL 522-619</b><br><b>SNL 522-619</b>                       | TSN 619 A<br>TSN 619 C<br>TSN 619 SE<br>TSN 619 NDE               | ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619                 |  |

<sup>1)</sup> Dimension A remains the same also with A and C/CE seal designs

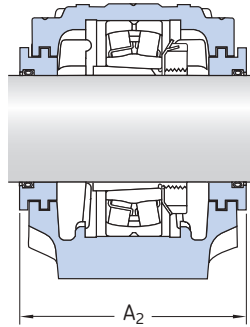


# SNL plummer block housings for bearings on an adapter sleeve, inch shafts

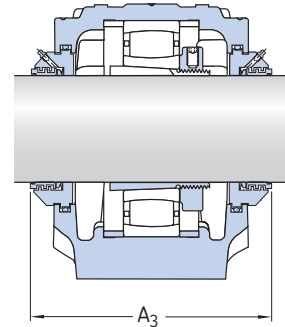
$d_a$  3 7/16 – 4 1/4 in



Four-lip seals, L design<sup>1)</sup>



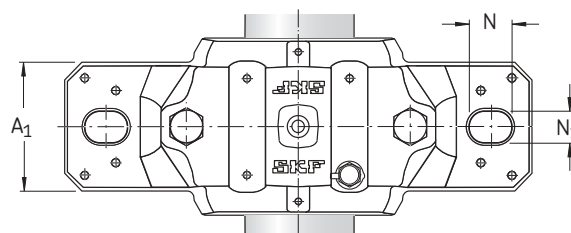
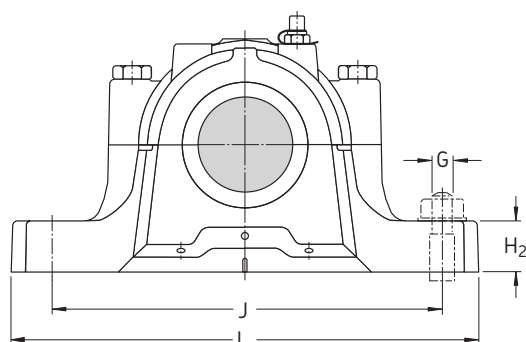
Labyrinth seals, SA/SE design



Taconite seals, NDA/NDE design

| Shaft<br>$d_a$     | Housing<br>Dimensions |                |     |                |                |     |     |    |                |    |     | Mass | Designations<br>Housing                                                 | Seals                                                            | End cover                                                                    |
|--------------------|-----------------------|----------------|-----|----------------|----------------|-----|-----|----|----------------|----|-----|------|-------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------|
|                    | A                     | A <sub>1</sub> | H   | H <sub>1</sub> | H <sub>2</sub> | J   | L   | N  | N <sub>1</sub> | G  | G   |      |                                                                         |                                                                  |                                                                              |
| in/mm              | mm                    |                |     |                |                |     |     |    |                |    |     | in   | kg                                                                      | –                                                                |                                                                              |
| 3 7/16<br>87,313   | 160                   | 110            | 218 | 112            | 40             | 320 | 380 | 32 | 26             | 24 | 7/8 | 17,6 | SNL 520-617<br>SNL 520-617<br>SNL 520-617<br>SNL 520-617                | TSN 520 A<br>TSN 520 C<br>TSN 520 SA<br>TSN 520 NDA              | ASNH 520-617<br>ASNH 520-617<br>ASNH 520-617<br>ASNH 520-617                 |
|                    | 185                   | 120            | 271 | 140            | 45             | 350 | 410 | 32 | 26             | 24 | 7/8 | 26,2 | SNL 524-620<br>SNL 524-620<br>SNL 524-620<br>SNL 524-620                | TSN 620 A<br>TSN 620 C<br>TSN 620 SA<br>TSN 620 NDA              | ASNH 524-620<br>ASNH 524-620<br>ASNH 524-620<br>ASNH 524-620                 |
| 3 1/2<br>88,9      | 160                   | 110            | 218 | 112            | 40             | 320 | 380 | 32 | 26             | 24 | 7/8 | 17,6 | SNL 520-617<br>SNL 520-617<br>SNL 520-617<br>SNL 520-617                | TSN 520 A<br>TSN 520 C<br>TSN 520 SE<br>TSN 520 NDE              | ASNH 520-617<br>ASNH 520-617<br>ASNH 520-617<br>ASNH 520-617                 |
|                    | 185                   | 120            | 271 | 140            | 45             | 350 | 410 | 32 | 26             | 24 | 7/8 | 26,2 | SNL 524-620<br>SNL 524-620<br>SNL 524-620<br>SNL 524-620                | TSN 620 A<br>TSN 620 C<br>TSN 620 SE<br>TSN 620 NDE              | ASNH 524-620<br>ASNH 524-620<br>ASNH 524-620<br>ASNH 524-620                 |
| 3 15/16<br>100,012 | 175                   | 120            | 242 | 125            | 45             | 350 | 410 | 32 | 26             | 24 | 7/8 | 22,0 | SNL 522-619<br>SNL 522-619<br>SNL 522-619<br>SNL 522-619<br>SNL 522-619 | TSN 522 L<br>TSN 522 A<br>TSN 522 C<br>TSN 522 SA<br>TSN 522 NDA | ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619 |
|                    | 175                   | 120            | 242 | 125            | 45             | 350 | 410 | 32 | 26             | 24 | 7/8 | 22,0 | SNL 522-619<br>SNL 522-619<br>SNL 522-619<br>SNL 522-619<br>SNL 522-619 | TSN 522 L<br>TSN 522 A<br>TSN 522 C<br>TSN 522 SE<br>TSN 522 NDE | ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619 |
| 4<br>101,6         | 175                   | 120            | 242 | 125            | 45             | 350 | 410 | 32 | 26             | 24 | 7/8 | 22,0 | SNL 522-619<br>SNL 522-619<br>SNL 522-619<br>SNL 522-619<br>SNL 522-619 | TSN 522 L<br>TSN 522 A<br>TSN 522 C<br>TSN 522 SE<br>TSN 522 NDE | ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619 |
|                    | 175                   | 120            | 242 | 125            | 45             | 350 | 410 | 32 | 26             | 24 | 7/8 | 22,0 | SNL 522-619<br>SNL 522-619<br>SNL 522-619<br>SNL 522-619<br>SNL 522-619 | TSN 522 L<br>TSN 522 A<br>TSN 522 C<br>TSN 522 SE<br>TSN 522 NDE | ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619 |
| 4 3/16<br>106,363  | 185                   | 120            | 271 | 140            | 45             | 350 | 410 | 32 | 26             | 24 | 7/8 | 26,2 | SNL 524-620<br>SNL 524-620<br>SNL 524-620<br>SNL 524-620                | TSN 524 A<br>TSN 524 CE<br>TSN 524 SA<br>TSN 524 NDA             | ASNH 524-620<br>ASNH 524-620<br>ASNH 524-620<br>ASNH 524-620                 |
|                    | 185                   | 120            | 271 | 140            | 45             | 350 | 410 | 32 | 26             | 24 | 7/8 | 26,2 | SNL 524-620<br>SNL 524-620<br>SNL 524-620<br>SNL 524-620                | TSN 524 A<br>TSN 524 C<br>TSN 524 SE<br>TSN 524 NDE              | ASNH 524-620<br>ASNH 524-620<br>ASNH 524-620<br>ASNH 524-620                 |
| 4 1/4<br>107,95    | 185                   | 120            | 271 | 140            | 45             | 350 | 410 | 32 | 26             | 24 | 7/8 | 26,2 | SNL 524-620<br>SNL 524-620<br>SNL 524-620<br>SNL 524-620                | TSN 524 A<br>TSN 524 C<br>TSN 524 SE<br>TSN 524 NDE              | ASNH 524-620<br>ASNH 524-620<br>ASNH 524-620<br>ASNH 524-620                 |
|                    | 185                   | 120            | 271 | 140            | 45             | 350 | 410 | 32 | 26             | 24 | 7/8 | 26,2 | SNL 524-620<br>SNL 524-620<br>SNL 524-620<br>SNL 524-620                | TSN 524 A<br>TSN 524 C<br>TSN 524 SE<br>TSN 524 NDE              | ASNH 524-620<br>ASNH 524-620<br>ASNH 524-620<br>ASNH 524-620                 |

<sup>1)</sup> Dimension A remains the same also with A and C/CE seal designs

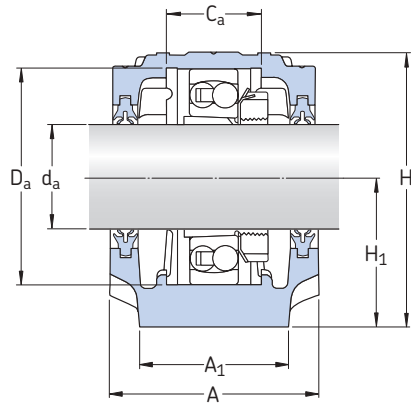


| Shaft              | Bearing seat   |                | Width across seals |                | Appropriate bearings and associated components                                         |                                 |                                      |                                                                                                                           |                                           |                                                             |
|--------------------|----------------|----------------|--------------------|----------------|----------------------------------------------------------------------------------------|---------------------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------------------------|
|                    | C <sub>a</sub> | D <sub>a</sub> | A <sub>2</sub>     | A <sub>3</sub> | Self-aligning ball bearing<br>Spherical roller bearing<br>CARB toroidal roller bearing | Adapter sleeve                  | Locating rings<br>2 per housing      | Self-aligning ball bearing<br>Spherical roller bearing<br>Sealed spherical roller bearing<br>CARB toroidal roller bearing | Adapter sleeve                            | Locating rings<br>2 per housing                             |
| d <sub>a</sub>     | C <sub>a</sub> | D <sub>a</sub> | A <sub>2</sub>     | A <sub>3</sub> |                                                                                        |                                 |                                      |                                                                                                                           |                                           |                                                             |
| in/mm              | mm             |                | mm                 |                | —                                                                                      |                                 |                                      |                                                                                                                           |                                           |                                                             |
| 3 7/16<br>87,313   | 70             | 180            | 178                | 230            | 1220 K<br>23220 CCK/W33<br>—                                                           | HA 220<br>HA 2320<br>—          | FRB 18/180<br>FRB 4.85/180<br>—      | 2220 KM<br>22220 EK<br>BS2-2220-2CS5K/VT143<br>C 2220 K                                                                   | HA 320<br>HA 320<br>HA 2320 E<br>HA 320 E | FRB 12/180<br>FRB 12/180<br>FRB 7.5/180<br>FRB 12/180       |
|                    | 86             | 215            | 199                | 240            | 1320 K<br>21320 EK<br>—                                                                | HA 320<br>HA 320<br>—           | FRB 19.5/215<br>FRB 19.5/215<br>—    | 2320 KM<br>22320 EK<br>—<br>C2320 K                                                                                       | HA 2320<br>HA 2320<br>—<br>HA 2320        | FRB 6.5/215<br>FRB 6.5/215<br>—<br>FRB 6.5/215              |
| 3 1/2<br>88,9      | 70             | 180            | 178                | 230            | 1220 K<br>23220 CCK/W33<br>—                                                           | HE 220<br>HE 2320<br>—          | FRB 18/180<br>FRB 4.85/180<br>—      | 2220 KM<br>22220 EK<br>BS2-2220-2CS5K/VT143<br>C 2220 K                                                                   | HE 320<br>HE 320<br>HE 2320 E<br>HE 320 E | FRB 12/180<br>FRB 12/180<br>FRB 7.5/180<br>FRB 12/180       |
|                    | 86             | 215            | 199                | 240            | 1320 EK<br>21320 EK<br>—                                                               | HE 320<br>HE 320<br>—           | FRB 19.5/215<br>FRB 19.5/215<br>—    | 2320 KM<br>22320 EK<br>—<br>C 2320 K                                                                                      | HE 2320<br>HE 2320<br>—<br>HE 2320        | FRB 6.5/215<br>FRB 6.5/215<br>—<br>FRB 6.5/215              |
| 3 15/16<br>100,012 | 80             | 200            | 191                | 250            | 1222 K<br>23222 CCK/W33<br>—                                                           | H 222<br>H 2322<br>—            | FRB 21/200<br>FRB 5.1/200<br>—       | 2222 KM<br>22222 EK<br>BS2-2222-2CS5K/VT143<br>C 2222 K                                                                   | H 322<br>H 322<br>H 2322 E<br>H 322 E     | FRB 13.5/200<br>FRB 13.5/200<br>FRB 8.5/200<br>FRB 13.5/200 |
|                    | 80             | 200            | 191                | 250            | 1222 K<br>23222 CCK/W33<br>—                                                           | HE 222<br>HE 2322<br>—          | FRB 21/200<br>FRB 5.1/200<br>—       | 2222 KM<br>22222 EK<br>BS2-2222-2CS5K/VT143<br>C 2222 K                                                                   | HE 322<br>HE 322<br>HE 2322 E<br>HE 322 E | FRB 13.5/200<br>FRB 13.5/200<br>FRB 8.5/200<br>FRB 13.5/200 |
| 4 3/16<br>106,363  | 86             | 215            | 199                | 260            | 1224 K<br>23224 CCK/W33<br>C 3224 K                                                    | HA 3024<br>HA 2324<br>HA 2324 L | FRB 22/215<br>FRB 5/215<br>FRB 5/215 | —<br>22224 EK<br>BS2-2224-2CS5K/VT143<br>—                                                                                | —<br>HA 3124<br>HA 2324 E<br>—            | —<br>FRB 14/215<br>FRB 8.5/215<br>—                         |
|                    | 86             | 215            | 199                | 260            | 1224 KM<br>23224 CCK/W33<br>C 3224 K                                                   | HE 3024<br>HE 2324<br>HE 2324 L | FRB 22/215<br>FRB 5/215<br>FRB 5/215 | —<br>22224 EK<br>BS2-2224-2CS5K/VT143<br>C 2224 K <sup>1)</sup>                                                           | —<br>HE 3124<br>HE 2324 E<br>HE 3124 L    | —<br>FRB 14/215<br>FRB 8.5/215<br>FRB 14/215                |

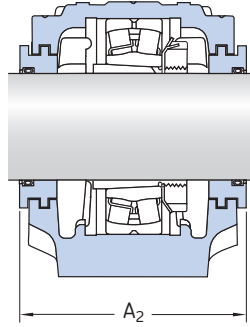
<sup>1)</sup> Check with SKF for availability

# SNL plummer block housings for bearings on an adapter sleeve, inch shafts

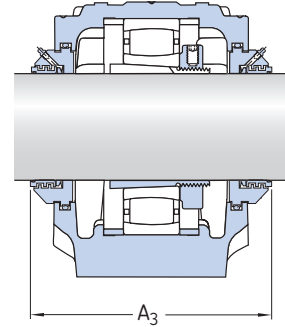
$d_a$  4 7/16 – 5 1/2 in



Four-lip seals, L design<sup>1)</sup>



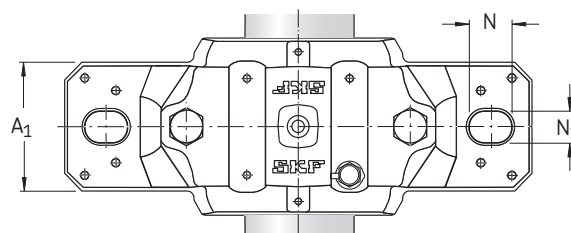
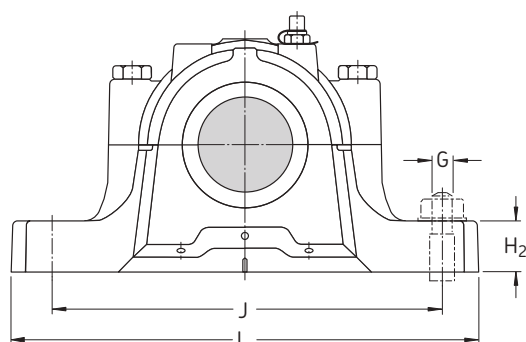
Labyrinth seals, SA/SE design



Taconite seals, NDA/NDE design

| Shaft<br>$d_a$     | Housing<br>Dimensions |                |     |                |                |     |     |    |                |    |       | Mass | Designations<br>Housing                             | Seals                                                            | End cover                                                |
|--------------------|-----------------------|----------------|-----|----------------|----------------|-----|-----|----|----------------|----|-------|------|-----------------------------------------------------|------------------------------------------------------------------|----------------------------------------------------------|
|                    | A                     | A <sub>1</sub> | H   | H <sub>1</sub> | H <sub>2</sub> | J   | L   | N  | N <sub>1</sub> | G  | G     |      |                                                     |                                                                  |                                                          |
| in/mm              | mm                    |                |     |                |                |     |     |    |                |    |       | in   | kg                                                  | –                                                                |                                                          |
| 4 7/16<br>112,713  | 190                   | 130            | 290 | 150            | 50             | 380 | 445 | 35 | 28             | 24 | 1     | 33,0 | SNL 526<br>SNL 526<br>SNL 526<br>SNL 526            | TSN 526 A<br>TSN 526 C<br>TSN 526 SA<br>TSN 526 NDA              | ASNH 526<br>ASNH 526<br>ASNH 526<br>ASNH 526             |
| 4 1/2<br>114,3     | 190                   | 130            | 290 | 150            | 50             | 380 | 445 | 35 | 28             | 24 | 1     | 33,0 | SNL 526<br>SNL 526<br>SNL 526<br>SNL 526<br>SNL 526 | TSN 526 L<br>TSN 526 A<br>TSN 526 C<br>TSN 526 SE<br>TSN 526 NDE | ASNH 526<br>ASNH 526<br>ASNH 526<br>ASNH 526<br>ASNH 526 |
| 4 15/16<br>125,413 | 205                   | 150            | 302 | 150            | 50             | 420 | 500 | 42 | 35             | 30 | 1 1/4 | 40,0 | SNL 528<br>SNL 528<br>SNL 528<br>SNL 528<br>SNL 528 | TSN 528 L<br>TSN 528 A<br>TSN 528 C<br>TSN 528 SA<br>TSN 528 NDA | ASNH 528<br>ASNH 528<br>ASNH 528<br>ASNH 528<br>ASNH 528 |
| 5<br>127           | 205                   | 150            | 302 | 150            | 50             | 420 | 500 | 42 | 35             | 30 | 1 1/4 | 40,0 | SNL 528<br>SNL 528<br>SNL 528<br>SNL 528            | TSN 528 A<br>TSN 528 C<br>TSN 528 SE<br>TSN 528 NDE              | ASNH 528<br>ASNH 528<br>ASNH 528<br>ASNH 528             |
| 5 3/16<br>131,763  | 220                   | 160            | 323 | 160            | 60             | 450 | 530 | 42 | 35             | 30 | 1 1/4 | 49,0 | SNL 530<br>SNL 530<br>SNL 530<br>SNL 530            | TSN 530 A<br>TSN 530 C<br>TSN 530 SA<br>TSN 530 NDA              | ASNH 530<br>ASNH 530<br>ASNH 530<br>ASNH 530             |
| 5 1/4<br>133,35    | 220                   | 160            | 323 | 160            | 60             | 450 | 530 | 42 | 35             | 30 | 1 1/4 | 49,0 | SNL 530<br>SNL 530<br>SNL 530<br>SNL 530            | TSN 530 A<br>TSN 530 C<br>TSN 530 SE<br>TSN 530 NDE              | ASNH 530<br>ASNH 530<br>ASNH 530<br>ASNH 530             |
| 5 7/16<br>138,113  | 235                   | 160            | 344 | 170            | 60             | 470 | 550 | 42 | 35             | 30 | 1 1/4 | 55,0 | SNL 532<br>SNL 532<br>SNL 532<br>SNL 532            | TSN 532 A<br>TSN 532 C<br>TSN 532 SA<br>TSN 532 NDA              | ASNH 532<br>ASNH 532<br>ASNH 532<br>ASNH 532             |
| 5 1/2<br>139,7     | 235                   | 160            | 344 | 170            | 60             | 470 | 550 | 42 | 35             | 30 | 1 1/4 | 55,0 | SNL 532<br>SNL 532<br>SNL 532<br>SNL 532<br>SNL 532 | TSN 532 L<br>TSN 532 A<br>TSN 532 C<br>TSN 532 SE<br>TSN 532 NDE | ASNH 532<br>ASNH 532<br>ASNH 532<br>ASNH 532<br>ASNH 532 |

<sup>1)</sup> Dimension A remains the same also with A and C/CE seal designs

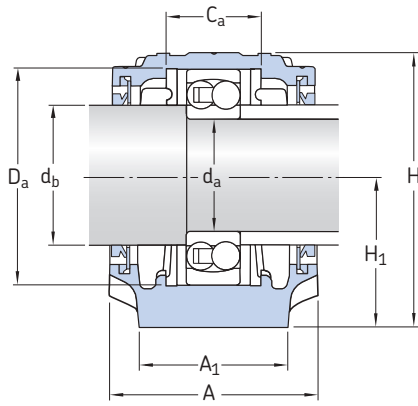


| Shaft<br>$d_a$            | Bearing seat |       | Width across seals |       | Appropriate bearings and associated components                                              |                           |                                 |                                                                                             |                                   | Locating rings<br>2 per housing              |
|---------------------------|--------------|-------|--------------------|-------|---------------------------------------------------------------------------------------------|---------------------------|---------------------------------|---------------------------------------------------------------------------------------------|-----------------------------------|----------------------------------------------|
|                           | $C_a$        | $D_a$ | $A_2$              | $A_3$ | Spherical roller bearing<br>Sealed spherical roller bearing<br>CARB toroidal roller bearing | Adapter sleeve            | Locating rings<br>2 per housing | Spherical roller bearing<br>Sealed spherical roller bearing<br>CARB toroidal roller bearing | Adapter sleeve                    |                                              |
| in/mm                     | mm           | mm    | mm                 | mm    | —                                                                                           |                           |                                 |                                                                                             |                                   |                                              |
| <b>4 7/16</b><br>112,713  | 90           | 230   | 208                | 265   | <b>23226 CCK/W33</b><br><b>23226-2CS5K/VT143</b><br>—                                       | HA 2326<br>HA 2326<br>—   | FRB 5/230<br>FRB 5/230<br>—     | <b>22226 EK</b><br><b>BS2-2226-2CS5K/VT143</b><br><b>C 2226 K</b>                           | HA 3126<br>HA 2326 E<br>HA 3126 L | FRB 13/230<br>FRB 7.5/230<br>FRB 13/230      |
| <b>4 1/2</b><br>114,3     | 90           | 230   | 208                | 265   | <b>23226 CCK/W33</b><br><b>23226-2CS5K/VT143</b><br>—                                       | HE 2326<br>HE 2326<br>—   | FRB 5/230<br>FRB 5/230<br>—     | <b>22226 EK</b><br><b>BS2-2226-2CS5K/VT143</b><br><b>C 2226 K</b>                           | HE 3126<br>HE 2326 E<br>HE 3126 L | FRB 13/230<br>FRB 7.5/230<br>FRB 13/230      |
| <b>4 15/16</b><br>125,413 | 98           | 250   | 223                | 285   | <b>23228 CCK/W33</b><br><b>23228-2CS5K/VT143</b><br>—                                       | HA 2328<br>HA 2328<br>—   | FRB 5/250<br>FRB 5/250<br>—     | <b>22228 CCK/W33</b><br><b>22228-2CS5K/VT143</b><br><b>C 2228 K</b>                         | HA 3128<br>HA 3128 L<br>HA 3128 L | FRB 15/250<br>FRB 15/250<br>FRB 15/250       |
| <b>5</b><br>127           | 98           | 250   | 223                | 285   | <b>23228 CCK/W33</b><br><b>23228-2CS5K/VT143</b><br>—                                       | HE 2328<br>HE 2328<br>—   | FRB 5/250<br>FRB 5/250<br>—     | <b>22228 CCK/W33</b><br><b>22228-2CS5K/VT143</b><br><b>C 2228 K</b>                         | HE 3128<br>HE 3128 L<br>HE 3128 L | FRB 15/250<br>FRB 15/250<br>FRB 15/250       |
| <b>5 3/16</b><br>131,763  | 106          | 270   | 241                | 295   | <b>23230 CCK/W33</b><br><b>23230-2CS5K/VT143</b><br>—                                       | HA 2330<br>HA 2330<br>—   | FRB 5/270<br>FRB 5/270<br>—     | <b>22230 CCK/W33</b><br><b>22230-2CS5K/VT143</b><br><b>C 2230 K</b>                         | HA 3130<br>HA 3130<br>HA 3130 L   | FRB 16.5/270<br>FRB 16.5/270<br>FRB 16.5/270 |
| <b>5 1/4</b><br>133,35    | 106          | 270   | 241                | 295   | <b>23230 CCK/W33</b><br><b>23230-2CS5K/VT143</b><br>—                                       | HE 2330<br>HE 2330<br>—   | FRB 5/270<br>FRB 5/270<br>—     | <b>22230 CCK/W33</b><br><b>22230-2CS5K/VT143</b><br><b>C 2230 K</b>                         | HE 3130<br>HE 3130<br>HE 3130 L   | FRB 16.5/270<br>FRB 16.5/270<br>FRB 16.5/270 |
| <b>5 7/16</b><br>138,113  | 114          | 290   | 254                | 315   | <b>23232 CCK/W33</b><br>—<br><b>C 3232 K</b>                                                | HA 2332<br>—<br>HA 2332 L | FRB 5/290<br>—<br>FRB 5/290     | <b>22232 CCK/W33</b><br><b>22232-2CS5K/VT143</b><br>—                                       | HA 3132<br>HA 3132<br>—           | FRB 17/290<br>FRB 17/290<br>—                |
| <b>5 1/2</b><br>139,7     | 114          | 290   | 254                | 315   | <b>23232 CCK/W33</b><br>—<br><b>C 3232 K</b>                                                | HE 2332<br>—<br>HE 2332 L | FRB 5/290<br>—<br>FRB 5/290     | <b>22232 CCK/W33</b><br><b>22232-2CS5K/VT143</b><br>—                                       | HE 3132<br>HE 3132<br>—           | FRB 17/290<br>FRB 17/290<br>—                |

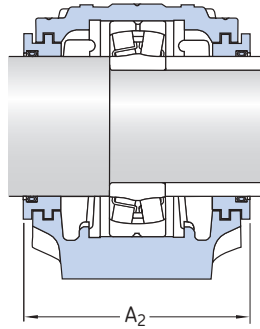


# SNL plummer block housings for bearings with a cylindrical bore

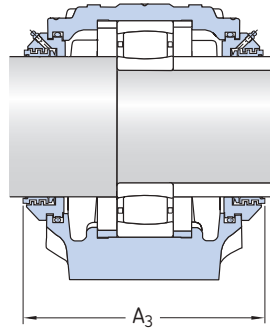
d<sub>a</sub> 25 – 40 mm



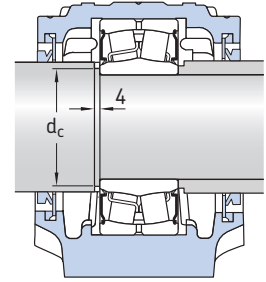
V-ring seals, A design



Labyrinth seals, S design

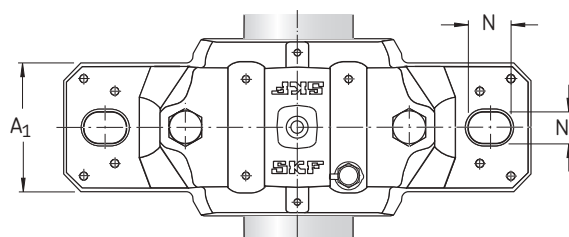
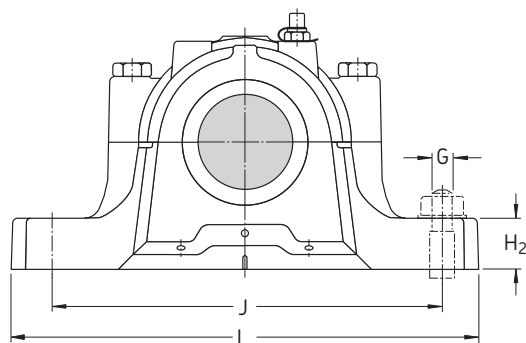


Taconite seals, ND design



Housing with sealed spherical roller bearing

| Shaft          | Housing Dimensions |                |     |                |                |     |     |    |                |    |      | Mass                                                     | Designations Housing                             | Seals                                                        | End cover |  |
|----------------|--------------------|----------------|-----|----------------|----------------|-----|-----|----|----------------|----|------|----------------------------------------------------------|--------------------------------------------------|--------------------------------------------------------------|-----------|--|
| d <sub>a</sub> | A                  | A <sub>1</sub> | H   | H <sub>1</sub> | H <sub>2</sub> | J   | L   | N  | N <sub>1</sub> | G  |      |                                                          |                                                  |                                                              |           |  |
| mm             | mm                 |                |     |                |                |     |     |    |                |    |      | kg                                                       | –                                                |                                                              |           |  |
| 25             | 67                 | 46             | 74  | 40             | 19             | 130 | 165 | 20 | 15             | 12 | 1,40 | SNL 505<br>SNL 205<br>SNL 205                            | 2 FS 170<br>TSN 205 S<br>TSN 205 ND              | ASNH 505<br>ASNH 506-605<br>ASNH 506-605                     |           |  |
|                | 77                 | 52             | 89  | 50             | 22             | 150 | 185 | 20 | 15             | 12 | 1,90 | SNL 206-305<br>SNL 206-305<br>SNL 206-305                | TSN 305 A<br>TSN 305 S<br>TSN 305 ND             | ASNH 507-606<br>ASNH 507-606<br>ASNH 507-606                 |           |  |
| 30             | 77                 | 52             | 89  | 50             | 22             | 150 | 185 | 20 | 15             | 12 | 1,90 | SNL 206-305<br>SNL 506-605<br>SNL 206-305<br>SNL 206-305 | TSN 206 A<br>2 FS 170<br>TSN 206 S<br>TSN 206 ND | ASNH 507-606<br>ASNH 506-605<br>ASNH 507-606<br>ASNH 507-606 |           |  |
|                | 82                 | 52             | 93  | 50             | 22             | 150 | 185 | 20 | 15             | 12 | 2,20 | SNL 507-606<br>SNL 507-606<br>SNL 507-606                | TSN 306 A<br>TSN 306 S<br>TSN 306 ND             | ASNH 507-606<br>ASNH 507-606<br>ASNH 507-606                 |           |  |
| 35             | 82                 | 52             | 93  | 50             | 22             | 150 | 185 | 20 | 15             | 12 | 2,10 | SNL 207<br>SNL 507-606<br>SNL 207<br>SNL 207             | TSN 207 A<br>4 FS 170<br>TSN 207 S<br>TSN 207 ND | ASNH 509<br>ASNH 507-606<br>ASNH 509<br>ASNH 509             |           |  |
|                | 85                 | 60             | 108 | 60             | 25             | 170 | 205 | 20 | 15             | 12 | 2,75 | SNL 208-307<br>SNL 208-307<br>SNL 208-307                | TSN 307 A<br>TSN 307 S<br>TSN 307 ND             | ASNH 510-608<br>ASNH 510-608<br>ASNH 510-608                 |           |  |
| 40             | 85                 | 60             | 108 | 60             | 25             | 170 | 205 | 20 | 15             | 12 | 2,75 | SNL 208-307<br>SNL 508-607<br>SNL 208-307<br>SNL 208-307 | TSN 208 A<br>4 FS 170<br>TSN 208 S<br>TSN 208 ND | ASNH 510-608<br>ASNH 508-607<br>ASNH 510-608<br>ASNH 510-608 |           |  |
|                | 90                 | 60             | 113 | 60             | 25             | 170 | 205 | 20 | 15             | 12 | 3,20 | SNL 510-608<br>SNL 510-608<br>SNL 510-608                | TSN 308 A<br>TSN 308 S<br>TSN 308 ND             | ASNH 510-608<br>ASNH 510-608<br>ASNH 510-608                 |           |  |



| Shaft          |                |                                     |                                     | Bearing seat   |                | Width across seals |                | Appropriate bearings and associated components |                |                                  |                |
|----------------|----------------|-------------------------------------|-------------------------------------|----------------|----------------|--------------------|----------------|------------------------------------------------|----------------|----------------------------------|----------------|
| d <sub>a</sub> | d <sub>b</sub> | d <sub>c</sub> <sup>1)</sup><br>min | d <sub>c</sub> <sup>1)</sup><br>max | C <sub>a</sub> | D <sub>a</sub> | A <sub>2</sub>     | A <sub>3</sub> | Self-aligning ball bearing                     | Locating rings | Self-aligning ball bearing       | Locating rings |
|                |                |                                     |                                     |                |                |                    |                | Spherical roller bearing                       | 2 per housing  | Spherical roller bearing         | 2 per housing  |
|                |                |                                     |                                     |                |                |                    |                |                                                |                | Sealed spherical roller bearing  |                |
|                |                |                                     |                                     |                |                |                    |                |                                                |                | CARB toroidal roller bearing     |                |
| mm             |                |                                     |                                     | mm             |                | mm                 |                |                                                | –              |                                  |                |
| 25             | 30             | –                                   | –                                   | 25 52          |                | 90                 | 140            | 1205 ETN9                                      | FRB 5/52       | 2205 ETN9                        | FRB 3.5/52     |
|                |                |                                     |                                     |                |                |                    |                | –                                              |                | 22205 E                          | FRB 3.5/52     |
|                |                |                                     |                                     |                |                |                    |                |                                                |                | BS2-2205-2CS/VT143               | FRB 1/52       |
|                |                |                                     |                                     |                |                |                    |                |                                                |                | C 2205 TN9 <sup>3)</sup>         | FRB 3.5/52     |
|                | 30             | –                                   | –                                   | 32 62          |                | 89                 | 140            | 1305 ETN9                                      | FRB 7.5/62     | 2305 ETN9                        | FRB 4/62       |
|                |                |                                     |                                     |                |                |                    |                | 21305 CC                                       | FRB 7.5/62     | –                                | –              |
|                |                |                                     |                                     |                |                |                    |                |                                                |                | –                                | –              |
| 30             | 35             | –                                   | –                                   | 32 62          |                | 89                 | 150            | 1206 ETN9                                      | FRB 8/62       | 2206 ETN9                        | FRB 6/62       |
|                |                |                                     |                                     |                |                |                    |                | –                                              | –              | 22206 E                          | FRB 6/62       |
|                |                |                                     |                                     |                |                |                    |                |                                                |                | BS2-2206-2CS/VT143               | FRB 3.5/62     |
|                |                |                                     |                                     |                |                |                    |                |                                                |                | C 2206 TN9                       | FRB 6/62       |
|                | 35             | –                                   | –                                   | 34 72          |                | 94                 | 155            | 1306 ETN9                                      | FRB 7.5/72     | 2306                             | FRB 3.5/72     |
|                |                |                                     |                                     |                |                |                    |                | 21306 CC                                       | FRB 7.5/72     | –                                | –              |
|                |                |                                     |                                     |                |                |                    |                |                                                |                | –                                | –              |
| 35             | 45             | 42                                  | 43                                  | 34 72          |                | 96                 | 160            | 1207 E                                         | FRB 8.5/72     | 2207 ETN9                        | FRB 5.5/72     |
|                |                |                                     |                                     |                |                |                    |                | –                                              | –              | 22207 E                          | FRB 5.5/72     |
|                |                |                                     |                                     |                |                |                    |                |                                                |                | BS2-2207-2CS/VT143 <sup>2)</sup> | FRB 3/72       |
|                |                |                                     |                                     |                |                |                    |                |                                                |                | C 2207 TN9                       | FRB 5.5/72     |
|                | 45             | –                                   | –                                   | 39 80          |                | 99                 | 145            | 1307 ETN9                                      | FRB 9/80       | 2307 ETN9                        | FRB 4/80       |
|                |                |                                     |                                     |                |                |                    |                | 21307 CC                                       | FRB 9/80       | –                                | –              |
|                |                |                                     |                                     |                |                |                    |                |                                                |                | –                                | –              |
| 40             | 50             | 47                                  | 47                                  | 39 80          |                | 99                 | 160            | 1208 ETN9                                      | FRB 10.5/80    | 2208 ETN9                        | FRB 8/80       |
|                |                |                                     |                                     |                |                |                    |                | –                                              | –              | 22208 E                          | FRB 8/80       |
|                |                |                                     |                                     |                |                |                    |                |                                                |                | BS2-2208-2CS/VT143 <sup>2)</sup> | FRB 5.5/80     |
|                |                |                                     |                                     |                |                |                    |                |                                                |                | C 2208 TN9                       | FRB 8/80       |
|                | 50             | –                                   | –                                   | 41 90          |                | 102                | 167            | 1308 ETN9                                      | FRB 9/90       | 2308 ETN9                        | FRB 4/90       |
|                |                |                                     |                                     |                |                |                    |                | 21308 E                                        | FRB 9/90       | 22308 E                          | FRB 4/90       |
|                |                |                                     |                                     |                |                |                    |                |                                                |                | BS2-2308-2CS/VT143               | FRB 1.5/90     |
|                |                |                                     |                                     |                |                |                    |                |                                                |                | –                                | –              |

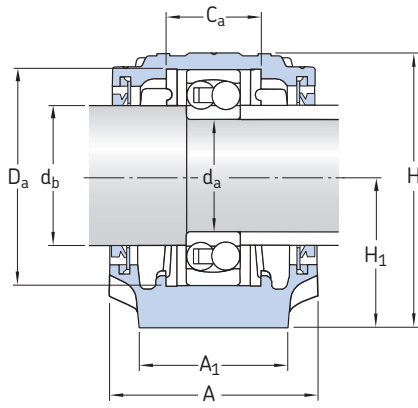
<sup>1)</sup> Valid for some sealed spherical roller bearings only

<sup>2)</sup> The shaft must be modified according to d<sub>c</sub> values for the bearing

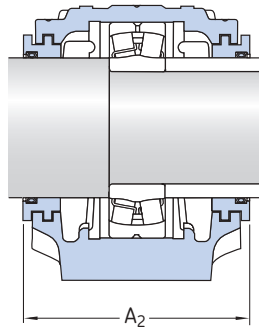
<sup>3)</sup> Check with SKF for availability

# SNL plummer block housings for bearings with a cylindrical bore

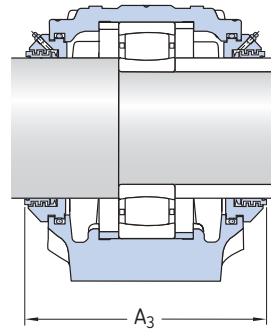
d<sub>a</sub> 45 – 60 mm



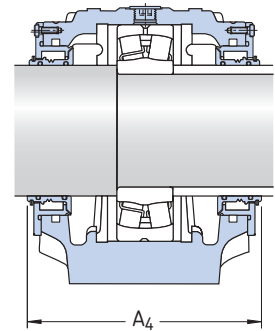
V-ring seals, A design



Labyrinth seals, S design

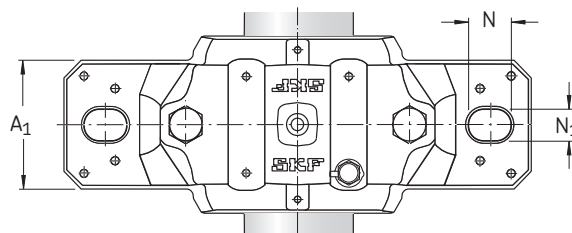
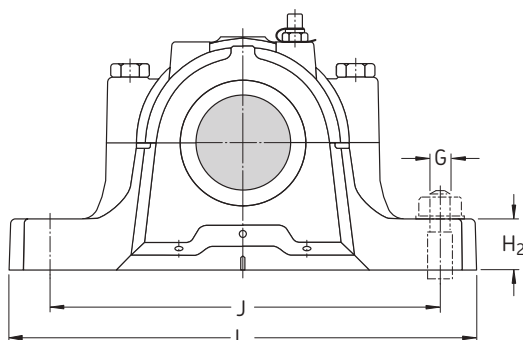
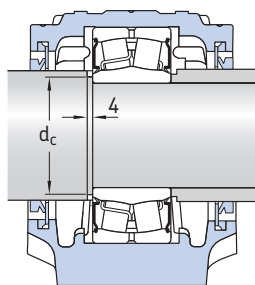


Taconite seals, ND design



Oil seals, TURU design

| Shaft          | Housing Dimensions |                |     |                |                |     |     |    |                |    |      | Mass                                                      | Designations                                     |                                                                |  |
|----------------|--------------------|----------------|-----|----------------|----------------|-----|-----|----|----------------|----|------|-----------------------------------------------------------|--------------------------------------------------|----------------------------------------------------------------|--|
| d <sub>a</sub> | A                  | A <sub>1</sub> | H   | H <sub>1</sub> | H <sub>2</sub> | J   | L   | N  | N <sub>1</sub> | G  |      | Housing                                                   | Seals                                            | End cover                                                      |  |
| mm             | mm                 |                |     |                |                |     |     |    |                |    |      | kg                                                        | –                                                |                                                                |  |
| 45             | 85                 | 60             | 109 | 60             | 25             | 170 | 205 | 20 | 15             | 12 | 2,75 | SNL 209<br>SNL 509<br>SNL 209<br>SNL 209                  | TSN 209 A<br>4 FS 170<br>TSN 209 S<br>TSN 209 ND | ASNH 511-609<br>ASNH 509<br>ASNH 511-609<br>ASNH 511-609       |  |
|                | 95                 | 70             | 128 | 70             | 28             | 210 | 255 | 24 | 18             | 16 | 4,40 | SNL 511-609<br>SNL 511-609<br>SNL 511-609                 | TSN 309 A<br>TSN 309 S<br>TSN 309 ND             | ASNH 511-609<br>ASNH 511-609<br>ASNH 511-609                   |  |
| 50             | 90                 | 60             | 113 | 60             | 25             | 170 | 205 | 20 | 15             | 12 | 3,00 | SNL 210<br>SNL 510-608<br>SNL 210<br>SNL 210              | TSN 210 A<br>4 FS 170<br>TSN 210 S<br>TSN 210 ND | ASNH 512-610<br>ASNH 510-608<br>ASNH 512-610<br>ASNH 512-610   |  |
|                | 105                | 70             | 134 | 70             | 30             | 210 | 255 | 24 | 18             | 16 | 5,10 | SNL 512-610<br>SNL 512-610<br>SNL 512-610                 | TSN 310 A<br>TSN 310 S<br>TSN 310 ND             | ASNH 512-610<br>ASNH 512-610<br>ASNH 512-610                   |  |
| 55             | 95                 | 70             | 128 | 70             | 28             | 210 | 255 | 24 | 18             | 16 | 4,20 | SNL 211<br>SNL 511-609<br>SNL 211<br>SNL 211              | TSN 211 A<br>4 FS 170<br>TSN 211 S<br>TSN 211 ND | ASNH 513-611<br>ASNH 511-609<br>ASNH 513-611<br>ASNH 513-611   |  |
|                | 110                | 80             | 150 | 80             | 30             | 230 | 275 | 24 | 18             | 16 | 6,50 | SNL 513-611<br>SNL 513-611<br>SNL 513-611                 | TSN 311 A<br>TSN 311 S<br>TSN 311 ND             | ASNH 513-611<br>ASNH 513-611<br>ASNH 513-611                   |  |
| 60             | 105                | 70             | 134 | 70             | 30             | 210 | 255 | 24 | 18             | 16 | 4,75 | SNL 212<br>SNL 512-610<br>SNL 212<br>SNL 212              | TSN 212 A<br>4 FS 170<br>TSN 212 S<br>TSN 212 ND | ASNH 515-612<br>ASNH 512-610<br>ASNH 515-612<br>ASNH 515-612   |  |
|                | 115                | 80             | 156 | 80             | 30             | 230 | 280 | 24 | 18             | 16 | 7,00 | SNL 515-612<br>SNL 515-612<br>SNL 515-612<br>SNL 312 TURU | TSN 312 A<br>TSN 312 S<br>TSN 312 ND<br>included | ASNH 515-612<br>ASNH 515-612<br>ASNH 515-612<br>ASNH 518-615 R |  |



Housing with a sealed spherical roller bearing

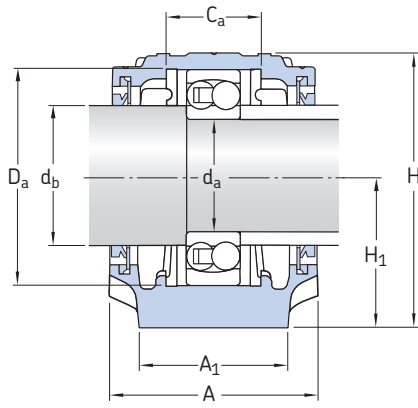
| Shaft |       |                   |                   | Bearing seat |       | Width across seals |       |       | Appropriate bearings and associated components         |                                 |                                                                                                                           |                                                          |
|-------|-------|-------------------|-------------------|--------------|-------|--------------------|-------|-------|--------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| $d_a$ | $d_b$ | $d_c^{1)}$<br>min | $d_c^{1)}$<br>max | $C_a$        | $D_a$ | $A_2$              | $A_3$ | $A_4$ | Self-aligning ball bearing<br>Spherical roller bearing | Locating rings<br>2 per housing | Self-aligning ball bearing<br>Spherical roller bearing<br>Sealed spherical roller bearing<br>CARB toroidal roller bearing | Locating rings<br>2 per housing                          |
| mm    | mm    | mm                | mm                | mm           | mm    | mm                 | mm    | mm    | —                                                      | —                               | —                                                                                                                         | —                                                        |
| 45    | 55    | 52                | 53                | 30           | 85    | 97                 | 160   | —     | 1209 ETN9<br>—                                         | FRB 5.5/85<br>—                 | 2209 ETN9<br>22209 E<br>BS2-2209-2CS/VT143 <sup>2)</sup><br>C 2209 TN9                                                    | FRB 3.5/85<br>FRB 3.5/85<br>FRB 1/85<br>FRB 3.5/85       |
|       | 55    | —                 | —                 | 44           | 100   | 107                | 172   | —     | 1309 ETN9<br>21309 E                                   | FRB 9.5/100<br>FRB 9.5/100      | 2309 ETN9<br>22309 E<br>—<br>—                                                                                            | FRB 4/100<br>FRB 4/100<br>—<br>—                         |
| 50    | 60    | 57                | 58                | 41           | 90    | 102                | 165   | —     | 1210 ETN9<br>—                                         | FRB 10.5/90<br>—                | 2210 ETN9<br>22210 E<br>BS2-2210-2CS/VT143 <sup>2)</sup><br>C 2210 TN9                                                    | FRB 9/90<br>FRB 9/90<br>FRB 6.5/90<br>FRB 9/90           |
|       | 60    | —                 | —                 | 48           | 110   | 117                | 180   | —     | 1310 ETN9<br>21310 E                                   | FRB 10.5/110<br>FRB 10.5/110    | 2310<br>22310 E<br>—<br>—                                                                                                 | FRB 4/110<br>FRB 4/110<br>—<br>—                         |
| 55    | 65    | 64                | 64                | 44           | 100   | 107                | 170   | —     | 1211 ETN9<br>—                                         | FRB 11.5/100<br>—               | 2211 ETN9<br>22211 E<br>BS2-2211-2CS/VT143 <sup>2)</sup><br>C 2211 TN9                                                    | FRB 9.5/100<br>FRB 9.5/100<br>FRB 6.5/100<br>FRB 9.5/100 |
|       | 65    | —                 | —                 | 51           | 120   | 122                | 185   | —     | 1311 ETN9<br>21311 E                                   | FRB 11/120<br>FRB 11/120        | 2311<br>22311 E<br>BS2-2311-2CS/VT143<br>—                                                                                | FRB 4/120<br>FRB 4/120<br>FRB 1/120<br>—                 |
| 60    | 70    | 69                | 69                | 48           | 110   | 117                | 185   | —     | 1212 ETN9<br>—                                         | FRB 13/110<br>—                 | 2212 ETN9<br>22212 E<br>BS2-2212-2CS/VT143 <sup>2)</sup><br>C 2212 TN9                                                    | FRB 10/110<br>FRB 10/110<br>FRB 7/110<br>FRB 10/110      |
|       | 70    | —                 | —                 | 56           | 130   | 127                | 197   | 134   | 1312 ETN9<br>21312 E                                   | FRB 12.5/130<br>FRB 12.5/130    | 2312<br>22312 E<br>—<br>—                                                                                                 | FRB 5/130<br>FRB 5/130<br>—<br>—                         |

<sup>1)</sup> Valid for some sealed spherical roller bearings only

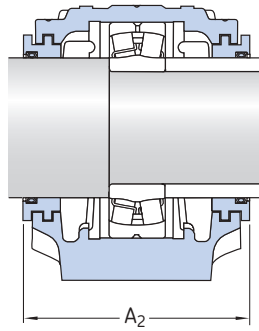
<sup>2)</sup> The shaft must be modified according to  $d_c$  values for the bearing

# SNL plummer block housings for bearings with a cylindrical bore

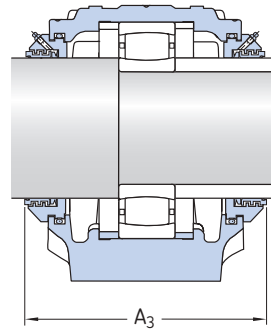
d<sub>a</sub> 65 – 80 mm



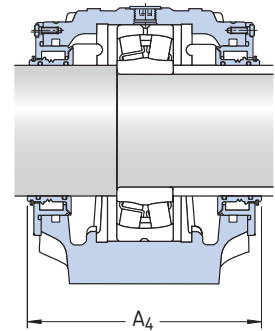
V-ring seals, A design



Labyrinth seals, S design

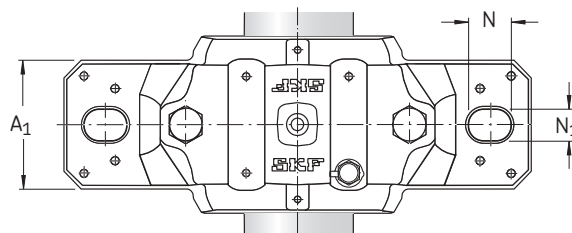
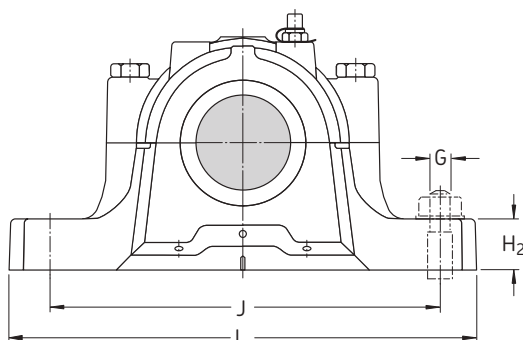
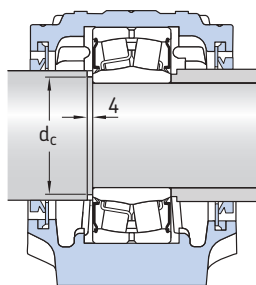


Taconite seals, ND design



Oil seals, TURU design

| Shaft<br>d <sub>a</sub> | Housing<br>Dimensions |                |     |                |                |     |     |    |                |    | Mass | Designations<br>Housing                                   | Seals                                            | End cover                                                      |
|-------------------------|-----------------------|----------------|-----|----------------|----------------|-----|-----|----|----------------|----|------|-----------------------------------------------------------|--------------------------------------------------|----------------------------------------------------------------|
|                         | A                     | A <sub>1</sub> | H   | H <sub>1</sub> | H <sub>2</sub> | J   | L   | N  | N <sub>1</sub> | G  |      |                                                           |                                                  |                                                                |
| mm                      | mm                    |                |     |                |                |     |     |    |                |    | kg   | –                                                         |                                                  |                                                                |
| 65                      | 110                   | 80             | 149 | 80             | 30             | 230 | 275 | 24 | 18             | 16 | 6,10 | SNL 213<br>SNL 513-611<br>SNL 213<br>SNL 213              | TSN 213 A<br>4 FS 170<br>TSN 213 S<br>TSN 213 ND | ASNH 516-613<br>ASNH 513-611<br>ASNH 516-613<br>ASNH 516-613   |
|                         | 120                   | 90             | 177 | 95             | 32             | 260 | 315 | 28 | 22             | 20 | 9,50 | SNL 516-613<br>SNL 516-613<br>SNL 516-613<br>SNL 313 TURU | TSN 313 A<br>TSN 313 S<br>TSN 313 ND<br>included | ASNH 516-613<br>ASNH 516-613<br>ASNH 516-613<br>ASNH 216 R     |
| 70                      | 125                   | 90             | 183 | 95             | 32             | 260 | 320 | 28 | 22             | 20 | 10,0 | SNL 517<br>SNL 517<br>SNL 517<br>SNL 314 TURU             | TSN 314 A<br>TSN 314 S<br>TSN 314 ND<br>included | ASNH 517<br>ASNH 517<br>ASNH 517<br>ASNH 217 R                 |
| 75                      | 115                   | 80             | 155 | 80             | 30             | 230 | 280 | 24 | 18             | 16 | 6,60 | SNL 215<br>SNL 515-612<br>SNL 215<br>SNL 215              | TSN 215 A<br>4 FS 170<br>TSN 215 S<br>TSN 215 ND | ASNH 518-615<br>ASNH 515-612<br>ASNH 518-615<br>ASNH 518-615   |
|                         | 140                   | 100            | 194 | 100            | 35             | 290 | 345 | 28 | 22             | 20 | 12,5 | SNL 518-615<br>SNL 518-615<br>SNL 518-615<br>SNL 315 TURU | TSN 315 A<br>TSN 315 S<br>TSN 315 ND<br>included | ASNH 518-615<br>ASNH 518-615<br>ASNH 518-615<br>ASNH 218 R     |
| 80                      | 120                   | 90             | 177 | 95             | 32             | 260 | 315 | 28 | 22             | 20 | 9,00 | SNL 216<br>SNL 516-613<br>SNL 216<br>SNL 216              | TSN 216 A<br>4 FS 170<br>TSN 216 S<br>TSN 216 ND | ASNH 216<br>ASNH 516-613<br>ASNH 216<br>ASNH 216               |
|                         | 145                   | 100            | 212 | 112            | 35             | 290 | 345 | 28 | 22             | 20 | 13,7 | SNL 519-616<br>SNL 519-616<br>SNL 519-616<br>SNL 316 TURU | TSN 316 A<br>TSN 316 S<br>TSN 316 ND<br>included | ASNH 519-616<br>ASNH 519-616<br>ASNH 519-616<br>ASNH 519-616 R |



Housing with a sealed spherical roller bearing

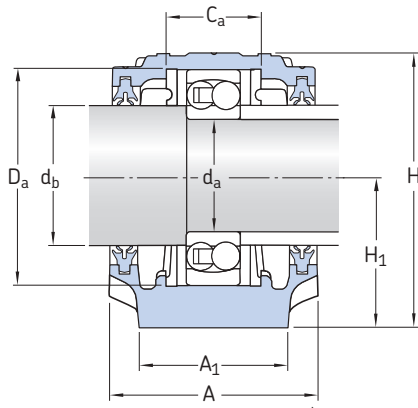
| Shaft |       |                   |                   | Bearing seat |       | Width across seals |       |       | Appropriate bearings and associated components         |                                 |                                                                                                                           |                                                           |
|-------|-------|-------------------|-------------------|--------------|-------|--------------------|-------|-------|--------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| $d_a$ | $d_b$ | $d_c^{1)}$<br>min | $d_c^{1)}$<br>max | $C_a$        | $D_a$ | $A_2$              | $A_3$ | $A_4$ | Self-aligning ball bearing<br>Spherical roller bearing | Locating rings<br>2 per housing | Self-aligning ball bearing<br>Spherical roller bearing<br>Sealed spherical roller bearing<br>CARB toroidal roller bearing | Locating rings<br>2 per housing                           |
| mm    | mm    | mm                | mm                | mm           | mm    | mm                 | mm    | mm    | —                                                      | —                               | —                                                                                                                         | —                                                         |
| 65    | 75    | —                 | —                 | 51           | 120   | 128                | 190   | —     | 1213 ETN9<br>—                                         | FRB 14/120<br>—                 | 2213 ETN9<br>22213 E<br>BS2-2213-2CS/VT143<br>C 2213 TN9                                                                  | FRB 10/120<br>FRB 10/120<br>FRB 6.5/120<br>FRB 10/120     |
|       | 75    | —                 | —                 | 58           | 140   | 138                | 200   | 141   | 1313 ETN9<br>21313 E                                   | FRB 12.5/140<br>FRB 12.5/140    | 2313<br>22313 E<br>—                                                                                                      | FRB 5/140<br>FRB 5/140<br>—                               |
| 70    | 80    | —                 | —                 | 61           | 150   | 143                | 205   | 143   | 1314<br>21314 E                                        | FRB 13/150<br>FRB 13/150        | 2314<br>22314 E<br>—<br>C 2314                                                                                            | FRB 5/150<br>FRB 5/150<br>—<br>FRB 5/150                  |
| 75    | 85    | 84                | 84                | 56           | 130   | 133                | 195   | —     | 1215<br>—                                              | FRB 15.5/130<br>—               | 2215 ETN9<br>22215 E<br>BS2-2215-2CS/VT143 <sup>2)</sup><br>C 2215                                                        | FRB 12.5/130<br>FRB 12.5/130<br>FRB 9/130<br>FRB 12.5/130 |
|       | 85    | —                 | —                 | 65           | 160   | 158                | 220   | 159   | 1315<br>21315 E                                        | FRB 14/160<br>FRB 14/160        | 2315<br>22315 E<br>—<br>C 2315                                                                                            | FRB 5/160<br>FRB 5/160<br>—<br>FRB 5/160                  |
| 80    | 90    | —                 | —                 | 58           | 140   | 138                | 200   | —     | 1216<br>—                                              | FRB 16/140                      | 2216 ETN9<br>22216 E<br>BS2-2216-2CS/VT143<br>C 2216                                                                      | FRB 12.5/140<br>FRB 12.5/140<br>FRB 9/140<br>FRB 12.5/140 |
|       | 90    | —                 | —                 | 68           | 170   | 163                | 218   | 166   | 1316<br>21316 E                                        | FRB 14.5/170<br>FRB 14.5/170    | 2316<br>22316 E<br>—<br>C 2316                                                                                            | FRB 5/170<br>FRB 5/170<br>—<br>FRB 5/170                  |

<sup>1)</sup> Valid for some sealed spherical roller bearings only

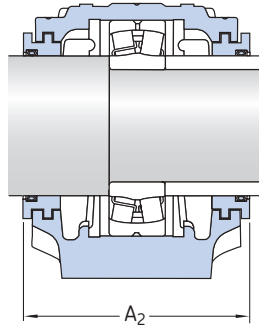
<sup>2)</sup> The shaft must be modified according to  $d_c$  values for the bearing

# SNL plummer block housings for bearings with a cylindrical bore

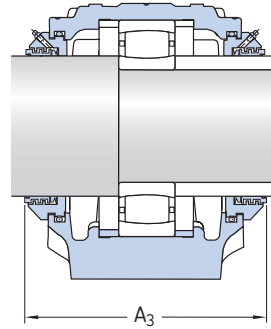
d<sub>a</sub> 85 – 130 mm



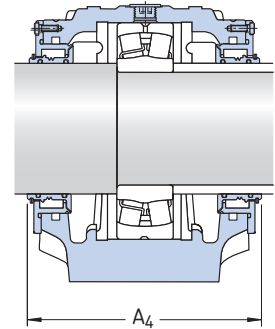
Four-lip seals, L design<sup>1)</sup>



Labyrinth seals, S design



Taconite seals, ND design

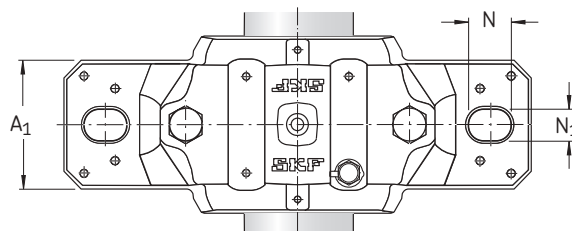
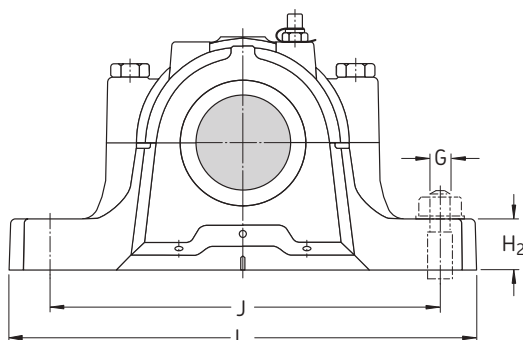
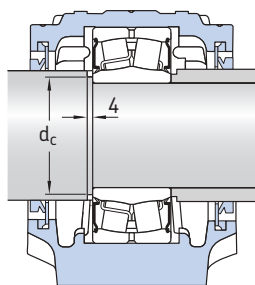


Oil seals, TURU design

| Shaft          | Housing Dimensions |                |     |                |                |     |     |    |                |    | Mass | Designations                                              | Seals                                                         | End cover                                                      |
|----------------|--------------------|----------------|-----|----------------|----------------|-----|-----|----|----------------|----|------|-----------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------------------------|
| d <sub>a</sub> | A                  | A <sub>1</sub> | H   | H <sub>1</sub> | H <sub>2</sub> | J   | L   | N  | N <sub>1</sub> | G  |      | Housing                                                   |                                                               |                                                                |
| mm             | mm                 |                |     |                |                |     |     |    |                |    | kg   | –                                                         |                                                               |                                                                |
| 85             | 125                | 90             | 183 | 95             | 32             | 260 | 320 | 28 | 22             | 20 | 9,50 | SNL 217<br>SNL 517<br>SNL 217<br>SNL 217                  | TSN 217 A<br>4 FS 170<br>TSN 217 S<br>TSN 217 ND              | ASNH 217<br>ASNH 517<br>ASNH 217<br>ASNH 217                   |
|                | 160                | 110            | 218 | 112            | 40             | 320 | 380 | 32 | 26             | 24 | 17,6 | SNL 520-617<br>SNL 520-617<br>SNL 520-617<br>SNL 317 TURU | TSN 317 A<br>TSN 317 S<br>TSN 317 ND<br>included              | ASNH 520-617<br>ASNH 520-617<br>ASNH 520-617<br>ASNH 520-617 R |
| 90             | 140                | 100            | 194 | 100            | 35             | 290 | 345 | 28 | 22             | 20 | 11,8 | SNL 218<br>SNL 218<br>SNL 518-615<br>SNL 218<br>SNL 218   | TSN 218 L<br>TSN 218 A<br>4 FS 170<br>TSN 218 S<br>TSN 218 ND | ASNH 218<br>ASNH 218<br>ASNH 518-615<br>ASNH 218<br>ASNH 218   |
| 95             | 175                | 120            | 242 | 125            | 45             | 350 | 410 | 32 | 26             | 24 | 22,0 | SNL 522-619<br>SNL 522-619<br>SNL 522-619<br>SNL 319 TURU | TSN 319 A<br>TSN 319 S<br>TSN 319 ND<br>included              | ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619 R |
| 100            | 160                | 110            | 218 | 112            | 40             | 320 | 380 | 32 | 26             | 24 | 17,6 | SNL 520-617<br>SNL 520-617<br>SNL 520-617<br>SNL 520-617  | TSN 220 L<br>TSN 220 A<br>TSN 220 S<br>TSN 220 ND             | ASNH 520-617<br>ASNH 520-617<br>ASNH 520-617<br>ASNH 520-617   |
|                | 185                | 120            | 271 | 140            | 45             | 350 | 410 | 32 | 26             | 24 | 26,2 | SNL 524-620<br>SNL 524-620<br>SNL 524-620<br>SNL 320 TURU | TSN 320 A<br>TSN 320 S<br>TSN 320 ND<br>included              | ASNH 524-620<br>ASNH 524-620<br>ASNH 524-620<br>ASNH 524-620 R |
| 110            | 175                | 120            | 242 | 125            | 45             | 350 | 410 | 32 | 26             | 24 | 22,0 | SNL 522-619<br>SNL 522-619<br>SNL 522-619<br>SNL 522-619  | TSN 222 L<br>TSN 222 A<br>TSN 222 S<br>TSN 222 ND             | ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619   |
| 120            | 185                | 120            | 271 | 140            | 45             | 350 | 410 | 32 | 26             | 24 | 26,2 | SNL 524-620<br>SNL 524-620<br>SNL 524-620<br>SNL 524-620  | TSN 224 L<br>TSN 224 A<br>TSN 224 S<br>TSN 224 ND             | ASNH 524-620<br>ASNH 524-620<br>ASNH 524-620<br>ASNH 524-620   |
| 130            | 190                | 130            | 290 | 150            | 50             | 380 | 445 | 35 | 28             | 24 | 33,0 | SNL 526<br>SNL 526<br>SNL 526<br>SNL 526                  | TSN 226 L<br>TSN 226 A<br>TSN 226 S<br>TSN 226 ND             | ASNH 526<br>ASNH 526<br>ASNH 526<br>ASNH 526                   |

<sup>1)</sup> Dimension A remains the same also with A seal design





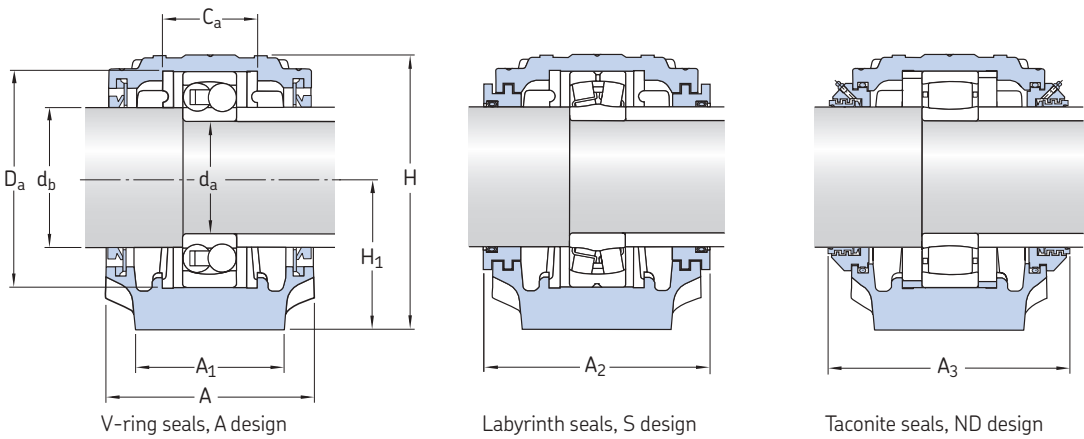
Housing with a sealed spherical roller bearing

| Shaft |       |                   |                   | Bearing seat |       | Width across seals |       |       | Appropriate bearings and associated components                                                                            |                                 |                                                                                                                           |                                 |
|-------|-------|-------------------|-------------------|--------------|-------|--------------------|-------|-------|---------------------------------------------------------------------------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| $d_a$ | $d_b$ | $d_c^{1)}$<br>min | $d_c^{1)}$<br>max | $C_a$        | $D_a$ | $A_2$              | $A_3$ | $A_4$ | Self-aligning ball bearing<br>Spherical roller bearing<br>Sealed spherical roller bearing<br>CARB toroidal roller bearing | Locating rings<br>2 per housing | Self-aligning ball bearing<br>Spherical roller bearing<br>Sealed spherical roller bearing<br>CARB toroidal roller bearing | Locating rings<br>2 per housing |
| mm    |       |                   |                   | mm           |       | mm                 |       |       | —                                                                                                                         |                                 |                                                                                                                           |                                 |
| 85    | 95    | —                 | —                 | 61           | 150   | 143                | 205   | —     | <b>1217</b>                                                                                                               | FRB 16.5/150                    | <b>2217</b>                                                                                                               | FRB 12.5/150                    |
|       |       |                   |                   |              |       |                    |       |       | —                                                                                                                         | —                               | <b>22217 E</b>                                                                                                            | FRB 12.5/150                    |
|       |       |                   |                   |              |       |                    |       |       | —                                                                                                                         | —                               | <b>BS2-2217-2CS/VT143</b>                                                                                                 | FRB 8.5/150                     |
|       | 95    | —                 | —                 | 70           | 180   | 178                | 238   | 181   | <b>1317</b>                                                                                                               | FRB 14.5/180                    | <b>2317</b>                                                                                                               | FRB 5/180                       |
|       |       |                   |                   |              |       |                    |       |       | <b>21317 E</b>                                                                                                            | FRB 14.5/180                    | <b>22317 E</b>                                                                                                            | FRB 5/180                       |
|       |       |                   |                   |              |       |                    |       |       | —                                                                                                                         | —                               | <b>C 2317</b>                                                                                                             | —                               |
| 90    | 100   | —                 | —                 | 65           | 160   | 158                | 220   | —     | <b>1218</b>                                                                                                               | FRB 17.5/160                    | <b>2218</b>                                                                                                               | FRB 12.5/160                    |
|       |       |                   |                   |              |       |                    |       |       | <b>23218 CC/W33</b>                                                                                                       | FRB 6.25/160                    | <b>22218 E</b>                                                                                                            | FRB 12.5/160                    |
|       |       |                   |                   |              |       |                    |       |       | —                                                                                                                         | —                               | <b>BS2-2218-2CS/VT143</b>                                                                                                 | FRB 8.5/160                     |
|       | 110   | —                 | —                 | 80           | 200   | 191                | 253   | 195   | <b>1319</b>                                                                                                               | FRB 17.5/200                    | <b>2319 M</b>                                                                                                             | FRB 6.5/200                     |
|       |       |                   |                   |              |       |                    |       |       | <b>21319 E</b>                                                                                                            | FRB 17.5/200                    | <b>22319 E</b>                                                                                                            | FRB 6.5/200                     |
|       |       |                   |                   |              |       |                    |       |       | —                                                                                                                         | —                               | <b>C 2319</b>                                                                                                             | FRB 6.5/200                     |
| 100   | 115   | 112               | 114               | 70           | 180   | 178                | 245   | —     | <b>1220</b>                                                                                                               | FRB 18/180                      | <b>2220 M</b>                                                                                                             | FRB 12/180                      |
|       |       |                   |                   |              |       |                    |       |       | <b>23220 CC/W33</b>                                                                                                       | FRB 4.85/180                    | <b>22220 E</b>                                                                                                            | FRB 12/180                      |
|       |       |                   |                   |              |       |                    |       |       | <b>23220-2CS/VT143</b>                                                                                                    | FRB 4.85/180                    | <b>BS2-2220-2CS5/VT143<sup>2)</sup></b>                                                                                   | FRB 7.5/180                     |
|       | 115   | —                 | —                 | 86           | 215   | 199                | 260   | 203   | <b>1320</b>                                                                                                               | FRB 19.5/215                    | <b>2320 M</b>                                                                                                             | FRB 6.5/215                     |
|       |       |                   |                   |              |       |                    |       |       | <b>21320 E</b>                                                                                                            | FRB 19.5/215                    | <b>22320 E</b>                                                                                                            | FRB 6.5/215                     |
|       |       |                   |                   |              |       |                    |       |       | —                                                                                                                         | —                               | <b>C 2320</b>                                                                                                             | —                               |
| 110   | 125   | —                 | —                 | 80           | 200   | 191                | 255   | —     | <b>1222</b>                                                                                                               | FRB 21/200                      | <b>2222 M</b>                                                                                                             | FRB 13.5/200                    |
|       |       |                   |                   |              |       |                    |       |       | <b>23222 CC/W33</b>                                                                                                       | FRB 5.1/200                     | <b>22222 E</b>                                                                                                            | FRB 13.5/200                    |
|       |       |                   |                   |              |       |                    |       |       | —                                                                                                                         | —                               | <b>BS2-2222-2CS5/VT143</b>                                                                                                | FRB 8.5/200                     |
| 120   | 135   | —                 | —                 | 86           | 215   | 199                | 270   | —     | <b>1224 M</b>                                                                                                             | FRB 22/215                      | —                                                                                                                         | —                               |
|       |       |                   |                   |              |       |                    |       |       | <b>23224 CC/W33</b>                                                                                                       | FRB 5/215                       | <b>22224 E</b>                                                                                                            | FRB 14/215                      |
|       |       |                   |                   |              |       |                    |       |       | —                                                                                                                         | FRB 5/215                       | <b>BS2-2224-2CS5/VT143</b>                                                                                                | FRB 8.5/215                     |
| 130   | 145   | —                 | —                 | 90           | 230   | 208                | 275   | —     | <b>C 3224</b>                                                                                                             | —                               | —                                                                                                                         | —                               |
|       |       |                   |                   |              |       |                    |       |       | <b>1226 M</b>                                                                                                             | FRB 22/230                      | —                                                                                                                         | —                               |
|       |       |                   |                   |              |       |                    |       |       | <b>23226 CC/W33</b>                                                                                                       | FRB 5/230                       | <b>22226 E</b>                                                                                                            | FRB 13/230                      |
|       |       |                   |                   |              |       |                    |       |       | <b>23226-2CS5/VT143</b>                                                                                                   | FRB 5/230                       | <b>BS2-2226-2CS5/VT143</b>                                                                                                | FRB 7.5/230                     |
|       |       |                   |                   |              |       |                    |       |       | —                                                                                                                         | —                               | <b>C 2226</b>                                                                                                             | FRB 13/230                      |

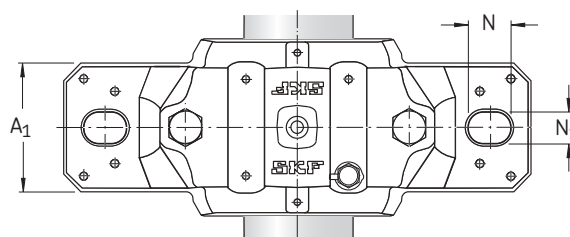
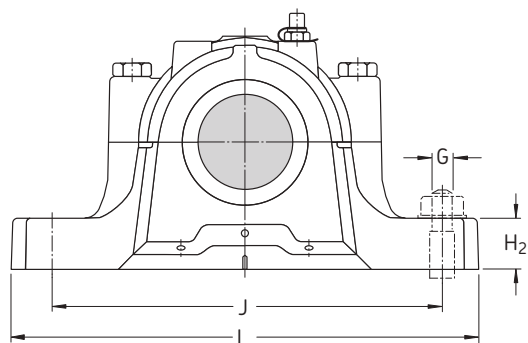
<sup>1)</sup> Valid for some sealed spherical roller bearings only

<sup>2)</sup> The shaft must be modified according to  $d_c$  values for the bearing

SNL plummer block housings for bearings with a cylindrical bore  
 $d_a$  140 – 160 mm

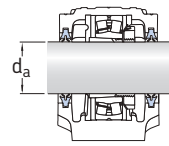


| Shaft | Housing Dimensions |       |     |       |       |     |     |    |       |    | Mass | Designations | Seals      | End cover |
|-------|--------------------|-------|-----|-------|-------|-----|-----|----|-------|----|------|--------------|------------|-----------|
| $d_a$ | A                  | $A_1$ | H   | $H_1$ | $H_2$ | J   | L   | N  | $N_1$ | G  |      | Housing      |            |           |
| mm    | mm                 |       |     |       |       |     |     |    |       |    | kg   | –            |            |           |
| 140   | 205                | 150   | 302 | 150   | 50    | 420 | 500 | 42 | 35    | 30 | 40,0 | SNL 528      | TSN 228 A  | ASNH 528  |
|       |                    |       |     |       |       |     |     |    |       |    |      | SNL 528      | TSN 228 S  | ASNH 528  |
|       |                    |       |     |       |       |     |     |    |       |    |      | SNL 528      | TSN 228 ND | ASNH 528  |
| 150   | 220                | 160   | 323 | 160   | 60    | 450 | 530 | 42 | 35    | 30 | 49,0 | SNL 530      | TSN 230 A  | ASNH 530  |
|       |                    |       |     |       |       |     |     |    |       |    |      | SNL 530      | TSN 230 S  | ASNH 530  |
|       |                    |       |     |       |       |     |     |    |       |    |      | SNL 530      | TSN 230 ND | ASNH 530  |
| 160   | 235                | 160   | 344 | 170   | 60    | 470 | 550 | 42 | 35    | 30 | 55,0 | SNL 532      | TSN 232 A  | ASNH 532  |
|       |                    |       |     |       |       |     |     |    |       |    |      | SNL 532      | TSN 232 S  | ASNH 532  |
|       |                    |       |     |       |       |     |     |    |       |    |      | SNL 532      | TSN 232 ND | ASNH 532  |

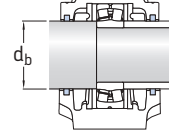


| Shaft |       | Bearing seat |       | Width across seals |       | Appropriate bearings and associated components                                              |                                 |                                                                                             |
|-------|-------|--------------|-------|--------------------|-------|---------------------------------------------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------|
| $d_a$ | $d_b$ | $C_a$        | $D_a$ | $A_2$              | $A_3$ | Spherical roller bearing<br>Sealed spherical roller bearing<br>CARB toroidal roller bearing | Locating rings<br>2 per housing | Spherical roller bearing<br>Sealed spherical roller bearing<br>CARB toroidal roller bearing |
| mm    |       | mm           |       | mm                 |       | —                                                                                           |                                 |                                                                                             |
| 140   | 155   | 98           | 250   | 223                | 290   | 23228 CC/W33<br>23228-2CS5/VT143<br>—                                                       | FRB 5/250<br>FRB 5/250<br>—     | 22228 CC/W33<br>22228-2CS5/VT143<br>C 2228<br>FRB 15/250<br>FRB 15/250<br>FRB 15/250        |
| 150   | 165   | 106          | 270   | 241                | 310   | 23230 CC/W33<br>23230-2CS5/VT143<br>—                                                       | FRB 5/270<br>FRB 5/270<br>—     | 22230 CC/W33<br>22230-2CS5/VT143<br>C 2230<br>FRB 16.5/270<br>FRB 16.5/270<br>FRB 16.5/270  |
| 160   | 175   | 114          | 290   | 254                | 325   | 23232 CC/W33<br>—<br>C 3232                                                                 | FRB 5/290<br>—<br>FRB 5/290     | 22232 CC/W33<br>22232-2CS5/VT143<br>—<br>FRB 17/290<br>FRB 17/290<br>—                      |

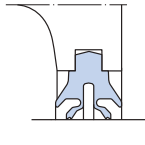
## Sealing arrangements for SNL plummer block housings, metric shafts



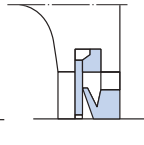
Housing series 5



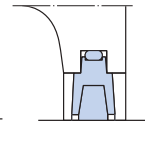
Housing series 2



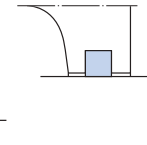
L design  
Split



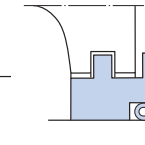
A design  
Unsplit



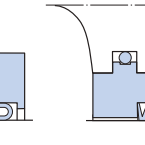
C design  
Split



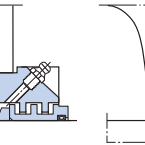
C design  
Felt strips cut  
to length



S design  
Unsplit



ND design



End cover

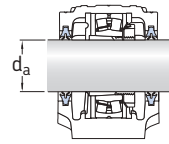
| Housing Size   | Shaft diameter<br>$d_a, d_b$ | Seal sets<br>L design<br>2 four-lip<br>seals | A design<br>2 V-ring<br>seals            | Loose<br>V-ring                          | C design<br>2 felt seals<br>or loose felt<br>strips     | S design<br>1 labyrinth<br>seal                      | ND design<br>1 Taconite<br>seal                         | End cover    |
|----------------|------------------------------|----------------------------------------------|------------------------------------------|------------------------------------------|---------------------------------------------------------|------------------------------------------------------|---------------------------------------------------------|--------------|
| –              | mm                           | –                                            | –                                        | –                                        | –                                                       | –                                                    | –                                                       | –            |
| <b>505</b>     | 20<br>30                     | –<br>–                                       | TSN 505 A<br>–                           | CR 400200<br>–                           | TSN 505 C<br>2 × FS 170 <sup>1)</sup>                   | 2 × TSN 505 S<br>–                                   | 2 × TSN 505 ND<br>–                                     | ASNH 505     |
| <b>205</b>     | 20<br>25<br>30<br>35         | –<br>–<br>–<br>–                             | TSN 605 A<br>TSN 506 A<br>–<br>–         | CR 400200<br>CR 400250<br>–<br>–         | TSN 605 C<br>TSN 506 C<br>–<br>2 × FS 170 <sup>1)</sup> | 2 × TSN 605 S<br>2 × TSN 506 S<br>2 × TSN 205 S<br>– | 2 × TSN 605 ND<br>2 × TSN 506 ND<br>2 × TSN 205 ND<br>– | ASNH 506-605 |
| <b>506-605</b> | 20<br>25<br>30<br>35         | –<br>–<br>–<br>–                             | TSN 605 A<br>TSN 506 A<br>TSN 205 A<br>– | CR 400200<br>CR 400250<br>CR 400300<br>– | TSN 605 C<br>TSN 506 C<br>–<br>2 × FS 170 <sup>1)</sup> | 2 × TSN 605 S<br>2 × TSN 506 S<br>2 × TSN 205 S<br>– | 2 × TSN 605 ND<br>2 × TSN 506 ND<br>2 × TSN 205 ND<br>– | ASNH 506-605 |
| <b>206-305</b> | 25<br>30<br>35<br>45         | –<br>TSN 507 L<br>–<br>–                     | TSN 606 A<br>TSN 305 A<br>TSN 206 A<br>– | CR 400250<br>CR 400300<br>CR 400350<br>– | TSN 606 C<br>TSN 305 C<br>–<br>2 × FS 170 <sup>1)</sup> | 2 × TSN 606 S<br>2 × TSN 305 S<br>2 × TSN 206 S<br>– | 2 × TSN 606 ND<br>2 × TSN 305 ND<br>2 × TSN 206 ND<br>– | ASNH 507-606 |
| <b>507-606</b> | 25<br>30<br>35<br>45         | –<br>TSN 507 L<br>–<br>–                     | TSN 606 A<br>TSN 507 A<br>TSN 306 A<br>– | CR 400250<br>CR 400300<br>CR 400350<br>– | TSN 606 C<br>TSN 507 C<br>–<br>2 × FS 170 <sup>1)</sup> | 2 × TSN 606 S<br>2 × TSN 507 S<br>2 × TSN 306 S<br>– | 2 × TSN 606 ND<br>2 × TSN 507 ND<br>2 × TSN 306 ND<br>– | ASNH 507-606 |
| <b>207</b>     | 40<br>45<br>55               | TSN 509 L<br>–<br>–                          | TSN 509 A<br>TSN 207 A<br>–              | CR 400400<br>CR 400450<br>–              | TSN 509 C<br>–<br>4 × FS 170 <sup>1)</sup>              | 2 × TSN 509 S<br>2 × TSN 207 S<br>–                  | 2 × TSN 509 ND<br>2 × TSN 207 ND<br>–                   | ASNH 509     |
| <b>508-607</b> | 30<br>35<br>50               | –<br>TSN 508 L<br>–                          | TSN 607 A<br>TSN 508 A<br>–              | CR 400300<br>CR 400350<br>–              | TSN 607 C<br>TSN 508 C<br>4 × FS 170 <sup>1)</sup>      | 2 × TSN 607 S<br>2 × TSN 508 S<br>–                  | 2 × TSN 607 ND<br>2 × TSN 508 ND<br>–                   | ASNH 508-607 |
| <b>208-307</b> | 35<br>45<br>50<br>60         | –<br>TSN 510 L<br>–<br>–                     | TSN 608 A<br>TSN 307 A<br>TSN 208 A<br>– | CR 400350<br>CR 400450<br>CR 400500<br>– | TSN 608 C<br>–<br>–<br>4 × FS 170 <sup>1)</sup>         | 2 × TSN 608 S<br>2 × TSN 307 S<br>2 × TSN 208 S<br>– | 2 × TSN 608 ND<br>2 × TSN 307 ND<br>2 × TSN 208 ND<br>– | ASNH 510-608 |
| <b>509</b>     | 40<br>45<br>55               | TSN 509 L<br>–<br>–                          | TSN 509 A<br>TSN 307 A<br>–              | CR 400400<br>CR 400450<br>–              | TSN 509 C<br>–<br>4 × FS 170 <sup>1)</sup>              | 2 × TSN 509 S<br>2 × TSN 307 S<br>–                  | 2 × TSN 509 ND<br>2 × TSN 307 ND<br>–                   | ASNH 509     |
| <b>209</b>     | 40<br>50<br>55<br>65         | TSN 609 L<br>TSN 511 L<br>–<br>–             | TSN 609 A<br>TSN 511 A<br>TSN 209 A<br>– | CR 400400<br>CR 400500<br>CR 400550<br>– | TSN 609 C<br>TSN 511 C<br>–<br>4 × FS 170 <sup>1)</sup> | 2 × TSN 609 S<br>2 × TSN 511 S<br>2 × TSN 209 S<br>– | 2 × TSN 609 ND<br>2 × TSN 511 ND<br>2 × TSN 209 ND<br>– | ASNH 511-609 |
| <b>510-608</b> | 35<br>45<br>50<br>60         | –<br>TSN 510 L<br>–<br>–                     | TSN 608 A<br>TSN 510 A<br>TSN 308 A<br>– | CR 400350<br>CR 400450<br>CR 400500<br>– | TSN 608 C<br>TSN 510 C<br>–<br>4 × FS 170 <sup>1)</sup> | 2 × TSN 608 S<br>2 × TSN 510 S<br>2 × TSN 308 S<br>– | 2 × TSN 608 ND<br>2 × TSN 510 ND<br>2 × TSN 308 ND<br>– | ASNH 510-608 |

<sup>1)</sup> Loose felt strips

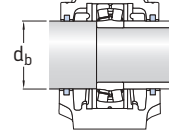
| Housing Size   | Shaft diameter<br>d <sub>a</sub> , d <sub>b</sub> | Seal sets<br>L design<br>2 four-lip<br>seals | A design<br>2 V-ring<br>seals | Loose<br>V-ring | C design<br>2 felt seals<br>or loose felt<br>strips | S design<br>1 labyrinth<br>seal | ND design<br>1 Taconite<br>seal | End cover    |
|----------------|---------------------------------------------------|----------------------------------------------|-------------------------------|-----------------|-----------------------------------------------------|---------------------------------|---------------------------------|--------------|
| –              | mm                                                | –                                            |                               |                 |                                                     |                                 |                                 | –            |
| <b>210</b>     | 45                                                | TSN 610 L                                    | TSN 610 A                     | CR 400450       | TSN 610 C                                           | 2 × TSN 610 S                   | 2 × TSN 610 ND                  | ASNH 512-610 |
|                | 55                                                | TSN 512 L                                    | TSN 512 A                     | CR 400550       | TSN 512 C                                           | 2 × TSN 512 S                   | 2 × TSN 512 ND                  |              |
|                | 60                                                | –                                            | TSN 210 A                     | CR 400600       | –                                                   | 2 × TSN 210 S                   | 2 × TSN 210 ND                  |              |
|                | 70                                                | –                                            | –                             | –               | 4 × FS 170 <sup>1)</sup>                            | –                               | –                               |              |
| <b>511-609</b> | 40                                                | TSN 609 L                                    | TSN 609 A                     | CR 400400       | TSN 609 C                                           | 2 × TSN 609 S                   | 2 × TSN 609 ND                  | ASNH 511-609 |
|                | 50                                                | TSN 511 L                                    | TSN 511 A                     | CR 400500       | TSN 511 C                                           | 2 × TSN 511 S                   | 2 × TSN 511 ND                  |              |
|                | 55                                                | –                                            | TSN 309 A                     | CR 400550       | –                                                   | 2 × TSN 309 S                   | 2 × TSN 309 ND                  |              |
|                | 65                                                | –                                            | –                             | –               | 4 × FS 170 <sup>1)</sup>                            | –                               | –                               |              |
| <b>211</b>     | 50                                                | TSN 611 L                                    | TSN 611 A                     | CR 400500       | TSN 611 C                                           | 2 × TSN 611 S                   | 2 × TSN 611 ND                  | ASNH 513-611 |
|                | 60                                                | TSN 513 L                                    | TSN 513 A                     | CR 400600       | TSN 513 C                                           | 2 × TSN 513 S                   | 2 × TSN 513 ND                  |              |
|                | 65                                                | –                                            | TSN 211 A                     | CR 400650       | –                                                   | 2 × TSN 211 S                   | 2 × TSN 211 ND                  |              |
|                | 75                                                | –                                            | –                             | –               | 4 × FS 170 <sup>1)</sup>                            | –                               | –                               |              |
| <b>512-610</b> | 45                                                | TSN 610 L                                    | TSN 610 A                     | CR 400450       | TSN 610 C                                           | 2 × TSN 610 S                   | 2 × TSN 610 ND                  | ASNH 512-610 |
|                | 55                                                | TSN 512 L                                    | TSN 512 A                     | CR 400550       | TSN 512 C                                           | 2 × TSN 512 S                   | 2 × TSN 512 ND                  |              |
|                | 60                                                | –                                            | TSN 310 A                     | CR 400600       | –                                                   | 2 × TSN 310 S                   | 2 × TSN 310 ND                  |              |
|                | 70                                                | –                                            | –                             | –               | 4 × FS 170 <sup>1)</sup>                            | –                               | –                               |              |
| <b>212</b>     | 55                                                | TSN 612 L                                    | TSN 612 A                     | CR 400550       | TSN 612 C                                           | 2 × TSN 612 S                   | 2 × TSN 612 ND                  | ASNH 515-612 |
|                | 65                                                | TSN 515 L                                    | TSN 515 A                     | CR 400650       | TSN 515 C                                           | 2 × TSN 515 S                   | 2 × TSN 515 ND                  |              |
|                | 70                                                | –                                            | TSN 212 A                     | CR 400700       | –                                                   | 2 × TSN 212 S                   | 2 × TSN 212 ND                  |              |
|                | 85                                                | –                                            | –                             | –               | 4 × FS 170 <sup>1)</sup>                            | –                               | –                               |              |
| <b>513-611</b> | 50                                                | TSN 611 L                                    | TSN 611 A                     | CR 400500       | TSN 611 C                                           | 2 × TSN 611 S                   | 2 × TSN 611 ND                  | ASNH 513-611 |
|                | 60                                                | TSN 513 L                                    | TSN 513 A                     | CR 400600       | TSN 513 C                                           | 2 × TSN 513 S                   | 2 × TSN 513 ND                  |              |
|                | 65                                                | –                                            | TSN 311 A                     | CR 400650       | –                                                   | 2 × TSN 311 S                   | 2 × TSN 311 ND                  |              |
|                | 75                                                | –                                            | –                             | –               | 4 × FS 170 <sup>1)</sup>                            | –                               | –                               |              |
| <b>213</b>     | 60                                                | TSN 613 L                                    | TSN 613 A                     | CR 400600       | TSN 613 C                                           | 2 × TSN 613 S                   | 2 × TSN 613 ND                  | ASNH 516-613 |
|                | 70                                                | TSN 516 L                                    | TSN 516 A                     | CR 400700       | TSN 516 C                                           | 2 × TSN 516 S                   | 2 × TSN 516 ND                  |              |
|                | 75                                                | –                                            | TSN 213 A                     | CR 400750       | –                                                   | 2 × TSN 213 S                   | 2 × TSN 213 ND                  |              |
|                | 90                                                | –                                            | –                             | –               | 4 × FS 170 <sup>1)</sup>                            | –                               | –                               |              |
| <b>515-612</b> | 55                                                | TSN 612 L                                    | TSN 612 A                     | CR 400550       | TSN 612 C                                           | 2 × TSN 612 S                   | 2 × TSN 612 ND                  | ASNH 515-612 |
|                | 65                                                | TSN 515 L                                    | TSN 515 A                     | CR 400650       | TSN 515 C                                           | 2 × TSN 515 S                   | 2 × TSN 515 ND                  |              |
|                | 70                                                | –                                            | TSN 312 A                     | CR 400700       | –                                                   | 2 × TSN 312 S                   | 2 × TSN 312 ND                  |              |
|                | 85                                                | –                                            | –                             | –               | 4 × FS 170 <sup>1)</sup>                            | –                               | –                               |              |
| <b>215</b>     | 65                                                | TSN 615 L                                    | TSN 615 A                     | CR 400650       | TSN 615 C                                           | 2 × TSN 615 S                   | 2 × TSN 615 ND                  | ASNH 518-615 |
|                | 80                                                | TSN 518 L                                    | TSN 518 A                     | CR 400800       | TSN 518 C                                           | 2 × TSN 518 S                   | 2 × TSN 518 ND                  |              |
|                | 85                                                | –                                            | TSN 215 A                     | CR 400850       | –                                                   | 2 × TSN 215 S                   | 2 × TSN 215 ND                  |              |
|                | 100                                               | –                                            | –                             | –               | 4 × FS 170 <sup>1)</sup>                            | –                               | –                               |              |
| <b>516-613</b> | 60                                                | TSN 613 L                                    | TSN 613 A                     | CR 400600       | TSN 613 C                                           | 2 × TSN 613 S                   | 2 × TSN 613 ND                  | ASNH 516-613 |
|                | 70                                                | TSN 516 L                                    | TSN 516 A                     | CR 400700       | TSN 516 C                                           | 2 × TSN 516 S                   | 2 × TSN 516 ND                  |              |
|                | 75                                                | –                                            | TSN 313 A                     | CR 400750       | –                                                   | 2 × TSN 313 S                   | 2 × TSN 313 ND                  |              |
|                | 90                                                | –                                            | –                             | –               | 4 × FS 170 <sup>1)</sup>                            | –                               | –                               |              |

<sup>1)</sup> Loose felt strips

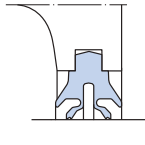
## Sealing arrangements for SNL plummer block housings, metric shafts



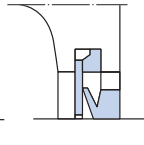
Housing series 5



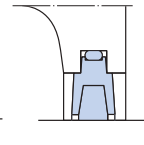
Housing series 2



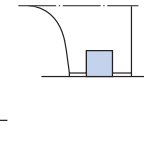
L design  
Split



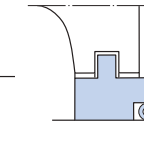
A design  
Unsplit



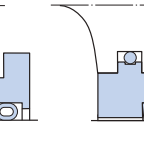
C design  
Split



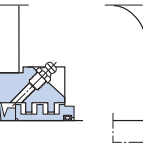
C design  
Felt strips cut  
to length



S design  
Unsplit



ND design



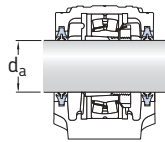
End cover

| Housing Size   | Shaft diameter<br>$d_a, d_b$ | Seal sets<br>L design<br>2 four-lip<br>seals | A design<br>2 V-ring<br>seals                    | Loose<br>V-ring                                  | C design<br>2 felt seals<br>or loose felt<br>strips     | S design<br>1 labyrinth<br>seal                                  | ND design<br>1 Taconite<br>seal                                      | End cover    |
|----------------|------------------------------|----------------------------------------------|--------------------------------------------------|--------------------------------------------------|---------------------------------------------------------|------------------------------------------------------------------|----------------------------------------------------------------------|--------------|
| –              | mm                           | –                                            | –                                                | –                                                | –                                                       | –                                                                | –                                                                    | –            |
| <b>216</b>     | 90<br>105                    | –<br>–                                       | TSN 216 A<br>–                                   | CR 400900<br>–                                   | –<br>4 × FS 170 <sup>1)</sup>                           | 2 × TSN 216 S<br>–                                               | 2 × TSN 216 ND<br>–                                                  | ASNH 216     |
| <b>517</b>     | 75<br>80<br>95               | TSN 517 L<br>–<br>–                          | TSN 517 A<br>TSN 314 A<br>–                      | CR 400750<br>CR 400800<br>–                      | TSN 517 C<br>–<br>4 × FS 170 <sup>1)</sup>              | 2 × TSN 517 S<br>2 × TSN 314 S<br>–                              | 2 × TSN 517 ND<br>2 × TSN 314 ND<br>–                                | ASNH 517     |
| <b>217</b>     | 95                           | –                                            | TSN 217 A                                        | CR 400950                                        | –                                                       | 2 × TSN 217 S                                                    | 2 × TSN 217 ND                                                       | ASNH 217     |
| <b>518-615</b> | 65<br>80<br>85<br>100        | TSN 615 L<br>TSN 518 L<br>–<br>–             | TSN 615 A<br>TSN 518 A<br>TSN 315 A<br>–         | CR 400650<br>CR 400800<br>CR 400850<br>–         | TSN 615 C<br>TSN 518 C<br>–<br>4 × FS 170 <sup>1)</sup> | 2 × TSN 615 S<br>2 × TSN 518 S<br>2 × TSN 315 S<br>–             | 2 × TSN 615 ND<br>2 × TSN 518 ND<br>2 × TSN 315 ND<br>–              | ASNH 518-615 |
| <b>218</b>     | 100                          | TSN 218 L                                    | TSN 218 A                                        | CR 401000                                        | –                                                       | 2 × TSN 218 S                                                    | 2 × TSN 218 ND                                                       | ASNH 218     |
| <b>519-616</b> | 70<br>85<br>90               | TSN 616 L<br>TSN 519 L<br>–                  | TSN 616 A<br>TSN 519 A<br>TSN 316 A              | CR 400700<br>CR 400850<br>CR 400900              | TSN 616 C<br>TSN 519 C<br>–                             | 2 × TSN 616 S<br>2 × TSN 519 S<br>2 × TSN 316 S                  | 2 × TSN 616 ND<br>2 × TSN 519 ND<br>2 × TSN 316 ND                   | ASNH 519-616 |
| <b>520-617</b> | 75<br>90<br>95<br>115        | TSN 617 L<br>TSN 520 L<br>–<br>TSN 220 L     | TSN 617 A<br>TSN 520 A<br>TSN 317 A<br>TSN 220 A | CR 400750<br>CR 400900<br>CR 400950<br>CR 401100 | TSN 617 C<br>TSN 520 C<br>–<br>–                        | 2 × TSN 617 S<br>2 × TSN 520 S<br>2 × TSN 317 S<br>2 × TSN 220 S | 2 × TSN 617 ND<br>2 × TSN 520 ND<br>2 × TSN 317 ND<br>2 × TSN 220 ND | ASNH 520-617 |
| <b>522-619</b> | 85<br>100<br>110<br>125      | –<br>TSN 522 L<br>–<br>TSN 522 L             | TSN 619 A<br>TSN 522 A<br>TSN 319 A<br>TSN 222 A | CR 400850<br>CR 401000<br>CR 401100<br>CR 401300 | TSN 619 C<br>TSN 522 C<br>–<br>–                        | 2 × TSN 619 S<br>2 × TSN 522 S<br>2 × TSN 319 S<br>2 × TSN 222 S | 2 × TSN 619 ND<br>2 × TSN 522 ND<br>2 × TSN 319 ND<br>2 × TSN 222 ND | ASNH 522-619 |
| <b>524-620</b> | 90<br>110<br>115<br>135      | –<br>TSN 524 L<br>–<br>TSN 224 L             | TSN 620 A<br>TSN 524 A<br>TSN 320 A<br>TSN 224 A | CR 400900<br>CR 401100<br>CR 401100<br>CR 401300 | TSN 620 C<br>TSN 524 C<br>–<br>–                        | 2 × TSN 620 S<br>2 × TSN 524 S<br>2 × TSN 320 S<br>2 × TSN 224 S | 2 × TSN 620 ND<br>2 × TSN 524 ND<br>2 × TSN 320 ND<br>2 × TSN 224 ND | ASNH 524-620 |
| <b>526</b>     | 115<br>145                   | TSN 526 L<br>TSN 226 L                       | TSN 526 A<br>TSN 226 A                           | CR 401100<br>CR 401500                           | TSN 526 C<br>–                                          | 2 × TSN 526 S<br>2 × TSN 226 S                                   | 2 × TSN 526 ND<br>2 × TSN 226 ND                                     | ASNH 526     |
| <b>528</b>     | 125<br>155                   | TSN 528 L<br>–                               | TSN 528 A<br>TSN 228 A                           | CR 401300<br>CR 401500                           | TSN 528 C<br>–                                          | 2 × TSN 528 S<br>2 × TSN 228 S                                   | 2 × TSN 528 ND<br>2 × TSN 228 ND                                     | ASNH 528     |
| <b>530</b>     | 135<br>165                   | TSN 530 L<br>–                               | TSN 530 A<br>TSN 230 A                           | CR 401300<br>CR 401700                           | TSN 530 C<br>–                                          | 2 × TSN 530 S<br>2 × TSN 230 S                                   | 2 × TSN 530 ND<br>2 × TSN 230 ND                                     | ASNH 530     |
| <b>532</b>     | 140<br>175                   | TSN 532 L<br>–                               | TSN 532 A<br>TSN 232 A                           | CR 401400<br>CR 401700                           | TSN 532 C<br>–                                          | 2 × TSN 532 S<br>2 × TSN 232 S                                   | 2 × TSN 532 ND<br>2 × TSN 232 ND                                     | ASNH 532     |

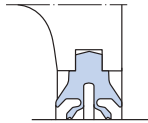
<sup>1)</sup> Loose felt strips



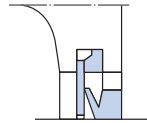
## Sealing arrangements for SNL plummer block housings, inch shafts



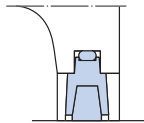
Housing series 5



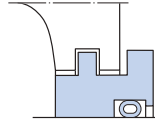
L design  
Split



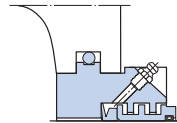
A/AE design  
Unsplit



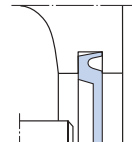
C/CE design  
Split



SA/SE/SS design  
Unsplit



NDA/NDE/NDS  
design



End cover

| Housing Size   | Shaft diameter $d_a$ | Seal sets<br>L/LA design<br>2 four-lip seals | A/AE design<br>2 V-ring seals | Loose<br>V-ring | C/CE design<br>2 felt seals | SA/SE/SS design<br>1 labyrinth seal | NDA/NDE/NDS design<br>1 Taconite seal | End cover    |
|----------------|----------------------|----------------------------------------------|-------------------------------|-----------------|-----------------------------|-------------------------------------|---------------------------------------|--------------|
| –              | in                   | –                                            |                               |                 |                             |                                     |                                       | –            |
| <b>505</b>     | 3/4                  | –                                            | TSN 505 A                     | CR 400200       | TSN 505 C                   | 2 × TSN 505 SE                      | 2 × TSN 505 NDE                       | ASNH 505     |
| <b>506-605</b> | 3/4                  | –                                            | TSN 605 A                     | CR 400200       | TSN 605 C                   | 2 × TSN 605 SE                      | 2 × TSN 605 NDE                       | ASNH 506-605 |
|                | 15/16                | –                                            | TSN 605 A                     | CR 400200       | TSN 605 C                   | 2 × TSN 605 SA                      | 2 × TSN 605 NDA                       | ASNH 506-605 |
|                | 1                    | –                                            | TSN 506 A                     | CR 400250       | TSN 506 C                   | 2 × TSN 506 SE                      | 2 × TSN 506 NDE                       | ASNH 506-605 |
| <b>507-606</b> | 15/16                | –                                            | TSN 606 A                     | CR 400250       | TSN 606 C                   | 2 × TSN 606 SA                      | 2 × TSN 606 NDA                       | ASNH 507-606 |
|                | 1                    | –                                            | TSN 606 A                     | CR 400250       | TSN 606 C                   | 2 × TSN 606 SE                      | 2 × TSN 606 NDE                       | ASNH 507-606 |
|                | 1 1/8                | –                                            | TSN 507 A                     | CR 400300       | TSN 507 C                   | 2 × TSN 507 SS                      | 2 × TSN 507 NDS                       | ASNH 507-606 |
|                | 1 3/16               | TSN 507 L                                    | TSN 507 A                     | CR 400300       | TSN 507 C                   | 2 × TSN 507 SA                      | 2 × TSN 507 NDA                       | ASNH 507-606 |
|                |                      |                                              |                               |                 |                             |                                     |                                       |              |
| <b>508-607</b> | 1 1/8                | –                                            | TSN 607 A                     | CR 400300       | TSN 607 C                   | 2 × TSN 607 SS                      | 2 × TSN 607 NDS                       | ASNH 508-607 |
|                | 1 3/16               | –                                            | TSN 607 A                     | CR 400300       | TSN 607 C                   | 2 × TSN 607 SA                      | 2 × TSN 607 NDA                       | ASNH 508-607 |
|                | 1 1/4                | –                                            | TSN 508 AE                    | CR 400320       | TSN 508 CE                  | 2 × TSN 508 SE                      | 2 × TSN 508 NDE                       | ASNH 508-607 |
|                | 1 3/8                | TSN 508 L                                    | TSN 508 A                     | CR 400350       | TSN 508 C                   | 2 × TSN 508 SS                      | 2 × TSN 508 NDS                       | ASNH 508-607 |
|                |                      |                                              |                               |                 |                             |                                     |                                       |              |
| <b>509</b>     | 1 7/16               | –                                            | TSN 509 AE                    | CR 400380       | TSN 509 CE                  | 2 × TSN 509 SA                      | 2 × TSN 509 NDA                       | ASNH 509     |
|                | 1 1/2                | –                                            | TSN 509 AE                    | CR 400380       | TSN 509 CE                  | 2 × TSN 509 SE                      | 2 × TSN 509 NDE                       | ASNH 509     |
| <b>510-608</b> | 1 1/4                | –                                            | TSN 608 AE                    | CR 400320       | TSN 608 CE                  | 2 × TSN 608 SE                      | 2 × TSN 608 NDE                       | ASNH 510-608 |
|                | 1 3/8                | –                                            | TSN 608 A                     | CR 400350       | TSN 608 C                   | 2 × TSN 608 SS                      | 2 × TSN 608 NDS                       | ASNH 510-608 |
|                | 1 11/16              | –                                            | TSN 510 A                     | CR 400450       | TSN 510 C                   | 2 × TSN 510 SA                      | 2 × TSN 510 NDA                       | ASNH 510-608 |
|                | 1 3/4                | TSN 510 L                                    | TSN 510 A                     | CR 400450       | TSN 510 C                   | 2 × TSN 510 SE                      | 2 × TSN 510 NDE                       | ASNH 510-608 |
|                |                      |                                              |                               |                 |                             |                                     |                                       |              |
| <b>511-609</b> | 1 1/2                | –                                            | TSN 609 AE                    | CR 400380       | TSN 609 CE                  | 2 × TSN 609 SE                      | 2 × TSN 609 NDE                       | ASNH 511-609 |
|                | 1 7/16               | –                                            | TSN 609 AE                    | CR 400380       | TSN 609 CE                  | 2 × TSN 609 SA                      | 2 × TSN 609 NDA                       | ASNH 511-609 |
|                | 1 15/16              | TSN 511 L                                    | TSN 511 A                     | CR 400500       | TSN 511 C                   | 2 × TSN 511 SA                      | 2 × TSN 511 NDA                       | ASNH 511-609 |
|                | 2                    | TSN 511 L                                    | TSN 511 A                     | CR 400500       | TSN 511 C                   | 2 × TSN 511 SE                      | 2 × TSN 511 NDE                       | ASNH 511-609 |
|                |                      |                                              |                               |                 |                             |                                     |                                       |              |
| <b>512-610</b> | 1 11/16              | –                                            | TSN 610 A                     | CR 400450       | TSN 610 C                   | 2 × TSN 610 SA                      | 2 × TSN 610 NDA                       | ASNH 512-610 |
|                | 1 3/4                | TSN 610 L                                    | TSN 610 A                     | CR 400450       | TSN 610 C                   | 2 × TSN 610 SE                      | 2 × TSN 610 NDE                       | ASNH 512-610 |
|                | 2 1/8                | –                                            | TSN 512 A                     | CR 400550       | TSN 512 C                   | 2 × TSN 512 SS                      | 2 × TSN 512 NDS                       | ASNH 512-610 |
| <b>513-611</b> | 1 15/16              | TSN 611 L                                    | TSN 611 A                     | CR 400500       | TSN 611 C                   | 2 × TSN 611 SA                      | 2 × TSN 611 NDA                       | ASNH 513-611 |
|                | 2                    | TSN 611 L                                    | TSN 611 A                     | CR 400500       | TSN 611 C                   | 2 × TSN 611 SE                      | 2 × TSN 611 NDE                       | ASNH 513-611 |
|                | 2 3/16               | TSN 513 LA                                   | TSN 513 AE                    | CR 400550       | TSN 513 CE                  | 2 × TSN 513 SA                      | 2 × TSN 513 NDA                       | ASNH 513-611 |
|                | 2 1/4                | –                                            | TSN 513 A                     | CR 400600       | TSN 513 CE                  | 2 × TSN 513 SE                      | 2 × TSN 513 NDE                       | ASNH 513-611 |
|                |                      |                                              |                               |                 |                             |                                     |                                       |              |
| <b>515-612</b> | 2 1/8                | –                                            | TSN 612 A                     | CR 400550       | TSN 612 C                   | 2 × TSN 612 SS                      | 2 × TSN 612 NDS                       | ASNH 515-612 |
|                | 2 7/16               | TSN 515 LA                                   | TSN 515 AE                    | CR 400600       | TSN 515 CE                  | 2 × TSN 515 SA                      | 2 × TSN 515 NDA                       | ASNH 515-612 |
|                | 2 1/2                | –                                            | TSN 515 A                     | CR 400650       | TSN 515 C                   | 2 × TSN 515 SE                      | 2 × TSN 515 NDE                       | ASNH 515-612 |
| <b>516-613</b> | 2 3/16               | –                                            | TSN 613 AE                    | CR 400550       | TSN 613 CE                  | 2 × TSN 613 SA                      | 2 × TSN 613 NDA                       | ASNH 516-613 |
|                | 2 1/4                | –                                            | TSN 613 A                     | CR 400600       | TSN 613 CE                  | 2 × TSN 613 SE                      | 2 × TSN 613 NDE                       | ASNH 516-613 |
|                | 2 11/16              | –                                            | TSN 516 A                     | CR 400700       | TSN 516 C                   | 2 × TSN 516 SA                      | 2 × TSN 516 NDA                       | ASNH 516-613 |
|                | 2 3/4                | TSN 516 L                                    | TSN 516 A                     | CR 400700       | TSN 516 C                   | 2 × TSN 516 SE                      | 2 × TSN 516 NDE                       | ASNH 516-613 |



| Housing Size   | Shaft diameter<br>d <sub>a</sub>                                                                                                   | Seal sets<br>L/LA design<br>2 four-lip<br>seals | A/AE design<br>2 V-ring<br>seals                  | Loose<br>V-ring                                  | C/CE design<br>2 felt seals                         | SA/SE/SS design<br>1 labyrinth seal                                  | NDA/NDE/NDS<br>design<br>1 Taconite seal                                 | End cover                                                    |
|----------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|---------------------------------------------------|--------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------|
| –              | in                                                                                                                                 | –                                               |                                                   |                                                  |                                                     |                                                                      |                                                                          | –                                                            |
| <b>517</b>     | 2 <sup>15</sup> / <sub>16</sub><br>3                                                                                               | TSN 517 L<br>TSN 517 L                          | TSN 517 A<br>TSN 517 A                            | CR 400750<br>CR 400750                           | TSN 517 C<br>TSN 517 C                              | 2 × TSN 517 SA<br>2 × TSN 517 SE                                     | 2 × TSN 517 NDA<br>2 × TSN 517 NDE                                       | ASNH 517<br>ASNH 517                                         |
| <b>518-615</b> | 2 <sup>7</sup> / <sub>16</sub><br>2 <sup>1</sup> / <sub>2</sub><br>3 <sup>3</sup> / <sub>16</sub><br>3 <sup>1</sup> / <sub>4</sub> | –<br>–<br>TSN 518 L<br>TSN 518 L                | TSN 615 AE<br>TSN 615 A<br>TSN 518 A<br>TSN 518 A | CR 400600<br>CR 400650<br>CR 400800<br>CR 400800 | TSN 615 CE<br>TSN 615 C<br>TSN 518 CE<br>TSN 518 CE | 2 × TSN 615 SA<br>2 × TSN 615 SE<br>2 × TSN 518 SA<br>2 × TSN 518 SE | 2 × TSN 615 NDA<br>2 × TSN 615 NDE<br>2 × TSN 518 NDA<br>2 × TSN 518 NDE | ASNH 518-615<br>ASNH 518-615<br>ASNH 518-615<br>ASNH 518-615 |
| <b>519-616</b> | 2 <sup>11</sup> / <sub>16</sub><br>2 <sup>3</sup> / <sub>4</sub>                                                                   | –<br>TSN 616 L                                  | TSN 616 A<br>TSN 616 A                            | CR 400700<br>CR 400700                           | TSN 616 C<br>TSN 616 C                              | 2 × TSN 616 SA<br>2 × TSN 616 SE                                     | 2 × TSN 616 NDA<br>2 × TSN 616 NDE                                       | ASNH 519-616<br>ASNH 519-616                                 |
| <b>520-617</b> | 2 <sup>15</sup> / <sub>16</sub><br>3<br>3 <sup>7</sup> / <sub>16</sub><br>3 <sup>1</sup> / <sub>2</sub>                            | TSN 617 L<br>TSN 617 L<br>–<br>–                | TSN 617 A<br>TSN 617 A<br>TSN 520 A<br>TSN 520 A  | CR 400750<br>CR 400750<br>CR 400900<br>CR 400900 | TSN 617 C<br>TSN 617 C<br>TSN 520 C<br>TSN 520 C    | 2 × TSN 617 SA<br>2 × TSN 617 SE<br>2 × TSN 520 SA<br>2 × TSN 520 SE | 2 × TSN 617 NDA<br>2 × TSN 617 NDE<br>2 × TSN 520 NDA<br>2 × TSN 520 NDE | ASNH 520-617<br>ASNH 520-617<br>ASNH 520-617<br>ASNH 520-617 |
| <b>522-619</b> | 3 <sup>1</sup> / <sub>4</sub><br>3 <sup>15</sup> / <sub>16</sub><br>4                                                              | –<br>TSN 522 L<br>TSN 522 L                     | TSN 619 A<br>TSN 522 A<br>TSN 522 A               | CR 400850<br>CR 401000<br>CR 401000              | TSN 619 C<br>TSN 522 C<br>TSN 522 C                 | 2 × TSN 619 SE<br>2 × TSN 522 SA<br>2 × TSN 522 SE                   | 2 × TSN 619 NDE<br>2 × TSN 522 NDA<br>2 × TSN 522 NDE                    | ASNH 522-619<br>ASNH 522-619<br>ASNH 522-619                 |
| <b>524-620</b> | 3 <sup>7</sup> / <sub>16</sub><br>3 <sup>1</sup> / <sub>2</sub><br>4 <sup>3</sup> / <sub>16</sub><br>4 <sup>1</sup> / <sub>4</sub> | –<br>–<br>–<br>–                                | TSN 620 A<br>TSN 620 A<br>TSN 524 A<br>TSN 524 A  | CR 400900<br>CR 400900<br>CR 401100<br>CR 401100 | TSN 620 C<br>TSN 620 C<br>TSN 524 CE<br>TSN 524 C   | 2 × TSN 620 SA<br>2 × TSN 620 SE<br>2 × TSN 524 SA<br>2 × TSN 524 SE | 2 × TSN 620 NDA<br>2 × TSN 620 NDE<br>2 × TSN 524 NDA<br>2 × TSN 524 NDE | ASNH 524-620<br>ASNH 524-620<br>ASNH 524-620<br>ASNH 524-620 |
| <b>526</b>     | 4 <sup>7</sup> / <sub>16</sub><br>4 <sup>1</sup> / <sub>2</sub>                                                                    | –<br>TSN 526 L                                  | TSN 526 A<br>TSN 526 A                            | CR 401100<br>CR 401100                           | TSN 526 C<br>TSN 526 C                              | 2 × TSN 526 SA<br>2 × TSN 526 SE                                     | 2 × TSN 526 NDA<br>2 × TSN 526 NDE                                       | ASNH 526<br>ASNH 526                                         |
| <b>528</b>     | 4 <sup>15</sup> / <sub>16</sub><br>5                                                                                               | TSN 528 L<br>–                                  | TSN 528 A<br>TSN 528 A                            | CR 401300<br>CR 401300                           | TSN 528 C<br>TSN 528 C                              | 2 × TSN 528 SA<br>2 × TSN 528 SE                                     | 2 × TSN 528 NDA<br>2 × TSN 528 NDE                                       | ASNH 528<br>ASNH 528                                         |
| <b>530</b>     | 5 <sup>3</sup> / <sub>16</sub><br>5 <sup>1</sup> / <sub>4</sub>                                                                    | –<br>–                                          | TSN 530 A<br>TSN 530 A                            | CR 401300<br>CR 401300                           | TSN 530 C<br>TSN 530 C                              | 2 × TSN 530 SA<br>2 × TSN 530 SE                                     | 2 × TSN 530 NDA<br>2 × TSN 530 NDE                                       | ASNH 530<br>ASNH 530                                         |
| <b>532</b>     | 5 <sup>7</sup> / <sub>16</sub><br>5 <sup>1</sup> / <sub>2</sub>                                                                    | –<br>TSN 532 L                                  | TSN 532 A<br>TSN 532 A                            | CR 401400<br>CR 401400                           | TSN 532 C<br>TSN 532 C                              | 2 × TSN 532 SA<br>2 × TSN 532 SE                                     | 2 × TSN 532 NDA<br>2 × TSN 532 NDE                                       | ASNH 532<br>ASNH 532                                         |

# Other products for trouble-free operation

## High-performance, self-aligning standard rolling bearings

To match the high performance of the SNL plummer block housings, SKF also manufactures state-of-the-art self-aligning rolling bearings:

- Self-aligning ball bearings.
- Spherical roller bearings.
- CARB toroidal roller bearings.

They are available in many sizes and several designs.

The degree of bearing misalignment that can be accommodated depends on the bearing series and also on the seals used in the SNL housings.

Self-aligning ball bearings and spherical roller bearings can be used for both locating and non-locating bearing arrangements. At

non-locating positions, the bearing outer ring is free to move axially in its seating in the housing bore. CARB toroidal roller bearings, on the other hand, accommodate axial displacements within the bearing and are always non-locating. It is common practice to combine a CARB toroidal roller bearing on the non-locating side with a spherical roller bearing or self-aligning ball bearing on the locating side.

### Self-aligning ball bearings

Self-aligning ball bearings in the 12, 22, 13 and 23 series can be incorporated in SNL plummer block housings. Sealed self-aligning ball bearings in the 22-2RS1 series are also appropriate, particularly where the surroundings in which the plummer blocks are to operate are heavily contaminated. Self-aligning ball bearings are available with a tapered bore for mounting on adapter sleeves or with a cylindrical bore.

### Spherical roller bearings

Spherical roller bearings in the 222, 232, 213 and 223 series can be incorporated in SNL plummer block housings. Spherical roller bearings are available with a tapered bore for mounting on adapter or withdrawal sleeves, or with a cylindrical bore. Sealed spherical roller bearings in the 22, 32 and 23 Dimension Series can also be incorporated.

### CARB toroidal roller bearings

CARB toroidal roller bearings in the C 22, C 23 and C 32 series can be incorporated in SNL plummer block housings.

Although available in a caged as well as a full complement version, it is normally recommended that caged bearings be used in SNL housings. CARB toroidal roller bearings are available with a tapered bore for mounting on an adapter sleeve or a withdrawal sleeve, as well as with a cylindrical bore.



## For easy mounting – adapter and withdrawal sleeves

Generally, bearings with a tapered bore that are incorporated in SNL plummer block housings are mounted on straight or stepped shafts by means of an adapter sleeve or, with a withdrawal sleeve on stepped shafts only.

SKF manufactures these sleeves in appropriate sizes for the range of bearings that can be used in SNL housings.

Adapter sleeves are more popular than withdrawal sleeves as they are more versatile and easier to mount.

### Adapter sleeves

These are slotted sleeves with a tapered outside diameter. The sizes used with bearings for SNL housings have an external taper of 1:12 and are supplied complete with lock nut and locking washer. Their dimensions are in accordance with ISO 2982-1:1995.

When using adapter sleeves on straight shafts, it is possible to locate the bearing at any position on the shaft and no additional axial location is required.

### Withdrawal sleeves

These are also slotted sleeves with a tapered outside diameter. The sizes used with bearings for SNL housings have an external taper of 1:12. Their dimensions are in accordance with ISO 2982-1:1995.

Bearings on withdrawal sleeves must be mounted against a fixed abutment, e.g. a shaft shoulder. The withdrawal sleeve must be secured in position after it has been pressed into the bearing bore by a lock nut or end plate on the shaft. The nuts are not supplied with the sleeves.

#### More information about

- *self-aligning ball bearings* (→ General Catalogue 6000)
- *spherical roller bearings* (→ General Catalogue 6000 and brochure 6100)
- *CARB toroidal roller bearings* (→ General Catalogue 6000 and brochure 6102)
- *bearing sleeves* (→ catalogue 6005)



## Other products

### Lock nuts

SKF lock nuts, also referred to as shaft nuts, are available in several designs to axially locate bearings on shaft ends. The most popular are those in the KM, KML and HM series. These nuts have four or eight equally spaced slots in the outside diameter and are locked in position with locking washers or locking clips engaging a groove in the shaft. The nut dimensions are in accordance with ISO 2982-2:1995, as are the dimensions of the locking washers in the MB and MBL series and locking clips in the MS series.

Other lock nuts produced by SKF include those in the KMT, KMTA, KMK and KMFE series and do not require a groove in the shaft.



### Lubricating greases for bearings

Lubrication is a necessity for proper bearing performance. Grease is normally used for applications involving SNL plummer blocks. SKF has put considerable effort into establishing a range of high-quality greases for ball and roller bearing lubrication.

The SKF SYSTEM 24 automatic lubricator can also be used with SNL plummer block housings. An adapter can be fitted to the standard drilled and tapped hole in the housing cap. It should be remembered that surplus grease should be able to leave the housing (→ section "Grease lubrication" on **pages 28 and 29**).

### SKF ConCentra roller bearing units

These units are plummer blocks with factory-lubricated bearings for easy installation. They comprise

- a one-piece plummer block housing of grey cast iron
- a spherical roller bearing in the 222 series with special inner ring
- a special adapter sleeve
- two seals of acrylonitrile-butadiene rubber double lip type or two labyrinth seals.

The units are available in a locating and a non-locating version.



## Other bearing housings

To meet a wide variety of application demands, SKF produces a comprehensive range of bearing housings. The majority of these are of the split plummer block type but the SKF range also includes

- one-piece plummer block housings
- flanged housings
- take-up housings
- two-bearing housings.

Most of these housings are designed to take self-aligning bearings, and the range extends to shaft diameters up to and including 1 800 mm. Housings are available for oil lubrication as well as grease lubrication and also for bearings with a cylindrical or tapered

bore, mounted on adapter or withdrawal sleeves. Straight or stepped shafts can be used.

Various types of seals are used. Most housings are made of grey cast iron but spheroidal graphite cast iron or cast steel housings are included in the range.

For additional information, contact SKF.

### *More information about*

- lock nuts (→ catalogue 6006)
- greases (→ catalogue MP3000)
- SKF ConCentra roller bearing units (→ brochure 6103)
- housings (→ catalogue 6004)





## Condition monitoring equipment

The goals of condition monitoring are to maximize the time that the machine is correctly functioning and to minimize the number of breakdowns, thereby significantly reducing operating downtime and maintenance costs.

To achieve this, it is recommended that the bearing and machine condition be monitored either periodically or continuously. Condition monitoring enables incipient bearing damage to be detected and evaluated, so that bearing replacement can be scheduled for a time when the machine is not in operation, thus avoiding unplanned stoppages. Applied to all machinery (not just sensitive or problematic machines), condition monitoring improves machinery operation to an optimum level, often exceeding the original equipment specifications.

SKF provides a comprehensive range of condition monitoring equipment to measure all important parameters. These include

- temperature
- speed
- noise
- oil condition
- shaft alignment
- vibration
- bearing condition.

The range includes lightweight, handheld devices for manual use as well as complex continuous monitoring systems for fixed installations in connection with preventive maintenance.

One example is the MARLIN I-Pro data manager, which is a rugged, high performance data collector that enables plant operations personnel to quickly and easily collect, store and analyze overall machine vibration, process and inspection data. The unit enables trending, comparison with previous readings, alarm alerts and more. A “user notes” feature allows an operator to immediately record detailed observations of troublesome machine conditions or questionable measurements.



*Recording vibration values using an SKF Microlog series data collector*

*SKF Machine Condition Adviser*



*Noise testing*



*MARLIN I-Pro data manger*





# SKF – the knowledge engineering company

From the company that invented the self-aligning ball bearing more than 100 years ago, SKF has evolved into a knowledge engineering company that is able to draw on five technology platforms to create unique solutions for its customers. These platforms include bearings, bearing units and seals, of course, but extend to other areas including: lubricants and lubrication systems, critical for long bearing life in many applications; mechatronics that combine mechanical and electronics knowledge into systems for more effective linear motion and sensorized solutions; and a full range of services, from design and logistics support to condition monitoring and reliability systems.

Though the scope has broadened, SKF continues to maintain the world's leadership in the design, manufacture and marketing of rolling bearings, as well as complementary products such as radial seals. SKF also holds an increasingly important position in the market for linear motion products, high-precision aerospace bearings, machine tool spindles and plant maintenance services.

The SKF Group is globally certified to ISO 14001, the international standard for environmental management, as well as OHSAS 18001, the health and safety management standard. Individual divisions have been approved for quality certification in accordance with ISO 9001 and other customer specific requirements.

With over 100 manufacturing sites worldwide and sales companies in 70 countries, SKF is a truly international corporation. In addition, our distributors and dealers in some 15 000 locations around the world, an e-business marketplace and a global distribution system put SKF close to customers for the supply of both products and services. In essence, SKF solutions are available wherever and whenever customers need them. Overall, the SKF brand and the corporation are stronger than ever. As the knowledge engineering company, we stand ready to serve you with world-class product competencies, intellectual resources, and the vision to help you succeed.

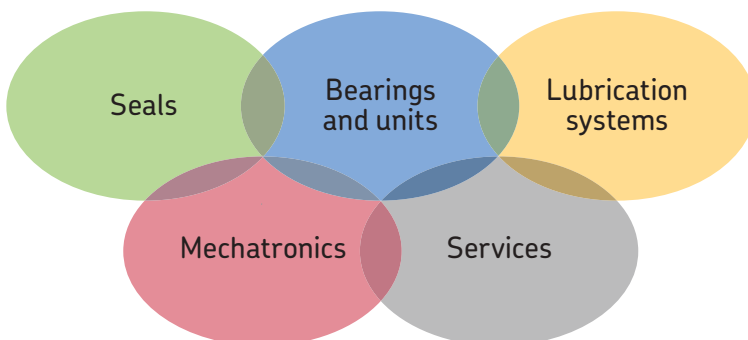


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## ***Evolving by-wire technology***

*SKF has a unique expertise in the fast-growing by-wire technology, from fly-by-wire, to drive-by-wire, to work-by-wire. SKF pioneered practical fly-by-wire technology and is a close working partner with all aerospace industry leaders. As an example, virtually all aircraft of the Airbus design use SKF by-wire systems for cockpit flight control.*

*SKF is also a leader in automotive by-wire technology, and has partnered with automotive engineers to develop two concept cars, which employ SKF mechatronics for steering and braking. Further by-wire development has led SKF to produce an all-electric forklift truck, which uses mechatronics rather than hydraulics for all controls.*







#### **Harnessing wind power**

The growing industry of wind-generated electric power provides a source of clean, green electricity. SKF is working closely with global industry leaders to develop efficient and trouble-free turbines, providing a wide range of large, highly specialized bearings and condition monitoring systems to extend equipment life of wind farms located in even the most remote and inhospitable environments.



#### **Working in extreme environments**

In frigid winters, especially in northern countries, extreme sub-zero temperatures can cause bearings in railway axleboxes to seize due to lubrication starvation. SKF created a new family of synthetic lubricants formulated to retain their lubrication viscosity even at these extreme temperatures. SKF knowledge enables manufacturers and end user customers to overcome the performance issues resulting from extreme temperatures, whether hot or cold. For example, SKF products are at work in diverse environments such as baking ovens and instant freezing in food processing plants.



#### **Developing a cleaner cleaner**

The electric motor and its bearings are the heart of many household appliances. SKF works closely with appliance manufacturers to improve their products' performance, cut costs, reduce weight, and reduce energy consumption. A recent example of this cooperation is a new generation of vacuum cleaners with substantially more suction. SKF knowledge in the area of small bearing technology is also applied to manufacturers of power tools and office equipment.



#### **Maintaining a 350 km/h R&D lab**

In addition to SKF's renowned research and development facilities in Europe and the United States, Formula One car racing provides a unique environment for SKF to push the limits of bearing technology. For over 60 years, SKF products, engineering and knowledge have helped make Scuderia Ferrari a formidable force in F1 racing. (The average racing Ferrari utilizes around 150 SKF components.) Lessons learned here are applied to the products we provide to automakers and the aftermarket worldwide.



#### **Delivering Asset Efficiency Optimization**

Through SKF Reliability Systems, SKF provides a comprehensive range of asset efficiency products and services, from condition monitoring hardware and software to maintenance strategies, engineering assistance and machine reliability programmes. To optimize efficiency and boost productivity, some industrial facilities opt for an Integrated Maintenance Solution, in which SKF delivers all services under one fixed-fee, performance-based contract.



#### **Planning for sustainable growth**

By their very nature, bearings make a positive contribution to the natural environment, enabling machinery to operate more efficiently, consume less power, and require less lubrication. By raising the performance bar for our own products, SKF is enabling a new generation of high-efficiency products and equipment. With an eye to the future and the world we will leave to our children, the SKF Group policy on environment, health and safety, as well as the manufacturing techniques, are planned and implemented to help protect and preserve the earth's limited natural resources. We remain committed to sustainable, environmentally responsible growth.







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