

# Housings for paper machines SBFN, SBPN and SDM series

**Bearing types**

- Spherical roller bearings
- CARB toroidal roller bearings

**Bearing dimension series**

- 22, 23, 31 (SBFN series)
- 31 (SBPN series)
- 30, 31 (SDM series)

**Shaft diameter range**

- 60 to 180 mm (SBFN series)
- 180 to 320 mm (SBPN series)
- 340 to 670 mm (SDM series)

**Typical shaft-bearing combinations**

- Stepped shaft with a bearing on a tapered seat

**Seals**

- Labyrinth (SBFN and SBPN series)
- Gap-type seal with oil flinger (SDM series)

**Lubrication**

- Circulating oil lubrication systems

**Materials**

- Grey cast iron

**Mounting**

- Two-bolt mounting (SBFN series)
- Four-bolt mounting (SBPN and SDM series)

**Compliance to standards**

- Not standardized

**Supersedes**

- SBF, SBP series

With increasing demands placed on the output of paper machines, the operating conditions for housings, bearings and seals in this application are quite severe. Very high temperatures are typical and the risk of water contamination is always high. SKF provides housings for felt rolls, drying cylinders, and Yankee cylinders (used for producing tissue and board).

# Housings for paper machines SBFN, SBPN and SDM series

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## Designations

## Designations

Designation system for SKF housings for paper machines<sup>1)</sup>**A SBPN 3136 RA/P45**Prefix**A** Short, wide base (SBPN series only)Series

<b>SBFN</b>	Non-split felt roll housing
<b>SBPN</b>	Non-split drying cylinder housing
<b>SDM</b>	Yankee cylinder housing (split)

Size identification

<b>22(00)</b>	Housing for bearings in the 22 dimension series
<b>23(00)</b>	Housing for bearings in the 23 dimension series
<b>30(00)</b>	Housing for bearings in the 30 dimension series
<b>31(00)</b>	Housing for bearings in the 31 dimension series
<b>..(00)</b>	Size code of the bearing, x 5 = bearing bore diameter [mm]
<b>.../..</b>	Bearing bore diameter [mm] e.g. .../530

Suffixes<sup>2)</sup>

- Housing for metric thread connection arrangements (shaft, oil inlet and sensor attachment threads) (SBFN and SBPN series only)
- Housing for metric thread connection arrangements (shaft, oil inlet and sensor attachment threads) and through shaft (SDM series only)
- A** Housing for a shaft end, with end cover (SBFN and SBPN series only)
- B** Housing for a through shaft (SBFN and SBPN series only)
- B..** Housing for a through shaft with a modified outer cover for a steam box connection (B1 to B99) (SBPN and SDM series only)
- F** Housing for the locating bearing position (drive side)
- RA** Housing for a CARB toroidal roller bearing (front side)
- N9** Housing for inch thread connection arrangements (shaft, oil inlet and sensor attachment threads)
- /P..** Paint variant according to customer specification (P01 to P999)

<sup>1)</sup> SNL ... TURP housings are included in the Designation system on **page 191**.<sup>2)</sup> When multiple suffixes are used, they are listed in the same order as shown here.

## Housings for paper machines SBFN, SBPN and SDM series

### Standard housing design

SKF provides an assortment of housings for paper machines. The four standard housing series that are covered in this publication include:

- SBFN series, for felt rolls
- SBPN series, for drying cylinders
- SDM series, for Yankee cylinders
- SNL ... TURP series, for drying cylinders and felt rolls

SBFN felt roll housings (**→ fig. 1**) are non-split housings. They consist of a housing body and two covers with integrated seals. The base has two oblong cast holes for attachment bolts. Oblong attachment bolt holes enable exact positioning of the housing during mounting to fully exploit the potential of CARB toroidal roller bearings to accommodate thermal elongation of the shaft. For dimensions and detailed specifications of SBFN housings, contact SKF.

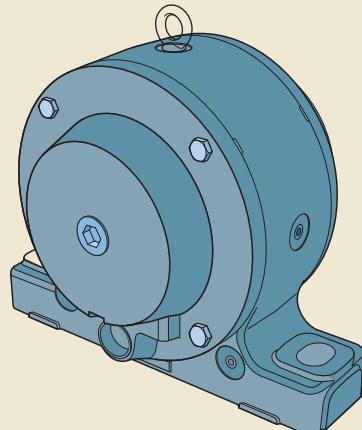
SBPN drying cylinder housings (**→ fig. 2**) are non-split housings. They consist of a housing body and two covers with integrated seals. The base has four cast holes for attachment bolts. Housings for spherical roller bearings have open-ended attachment bolt holes. Housings for CARB toroidal roller bearings have oblong attachment bolt holes. They enable exact positioning of the housing during mounting to fully exploit the potential of CARB toroidal roller bearings to accommodate thermal elongation of the shaft.

SDM Yankee cylinder housings (**→ fig. 3**) are split housings consisting of a cap, base and two covers with integrated seals. The inboard cover is split to enable removal of the cover without removing the cap. To facilitate handling, the cap has two integral flanges, with a hole cast into each one. The base has four holes for attachment bolts. Housings for spherical roller bearings have drilled attachment bolt holes. Housings for CARB toroidal roller bearings have oblong attachment bolt holes. They enable exact positioning of the housing during mounting to fully exploit the potential of CARB toroidal roller bearings to accommodate thermal elongation of the shaft.

For information about SNL ... TURP housings, refer to the chapter *Split plummer block housings SNL 30, 31 and 32 series*, starting on

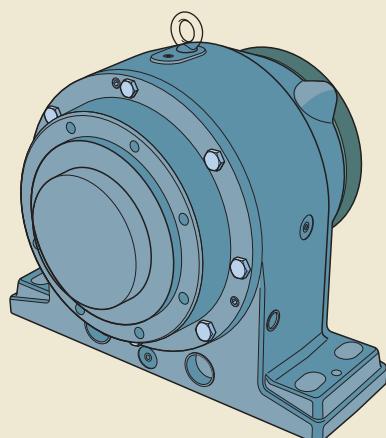
**Fig. 1**

SBFN felt roll housings



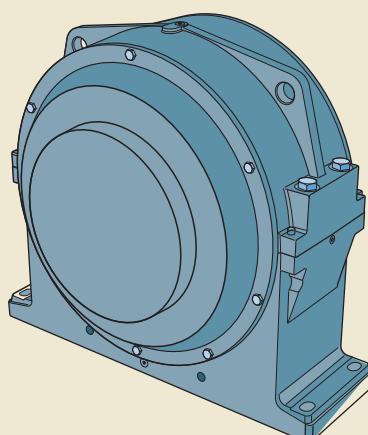
**Fig. 2**

SBPN drying cylinder housings



**Fig. 3**

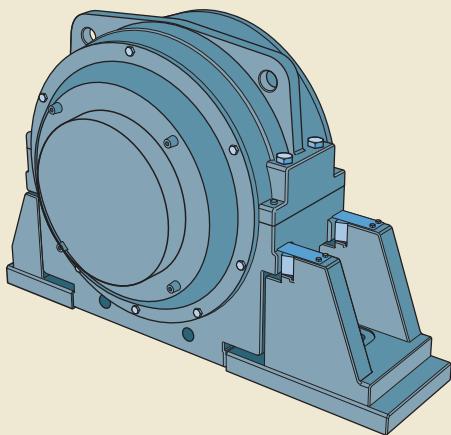
SDM yankee cylinder housings



Standard housing design

Fig. 4

SDM Yankee cylinder rocker housings



**page 189.** For information about other housings for felt rolls and drying cylinders such as SBF and SBP housings (predecessors to SBFN and SBPN housings respectively) as well as SDM Yankee cylinder housings on rockers (**→ fig. 4**), all of which can still be supplied by SKF, contact the SKF application engineering service.

### Features and benefits

SKF housings for paper machines have the following features and benefits:

#### Optimized designs

The housing designs are developed together with leading OEMs and are optimized to accommodate the arduous operating conditions present in paper machines.

#### Effective and maintenance-free seals

SBFN and SBPN housings have upgraded labyrinth seals compared to their predecessors, providing extra protection against liquid contaminants during operation and high pressure wash-downs. The seals also virtually eliminate oil leaks, even for high oil flow rates.

SDM housings have a maintenance-free, non-contact gap-type seal incorporated into each cover.

#### Prepared for condition monitoring

The housings have tapped holes to attach condition monitoring sensors.

#### Mounting in different positions

It is possible to mount SBFN housings at angles of 0°, 90°, 180° and 270°.

#### Housing material

SKF housings for paper machines are made of grey cast iron.

#### Paint, corrosion protection

SBFN, SBPN and SDM housings are painted blue (RAL 5007) using a water based alkyd/acryl paint. The paint protects the housings in accordance with ISO 12944-2, corrosivity category C2 (**→ page 36**). Housings can be repainted with most water or solvent based one- or two-component paints. The housings can also be supplied painted according to customer specification (**→ Housing variants, page 594**).

Unpainted surfaces are protected with a solventless rust inhibitor.

#### Dimension standards

SBFN, SBPN and SDM housings are not standardized either nationally or internationally.

## Housings for paper machines SBFN, SBPN and SDM series

### Housing variants

In addition to standard design housings for paper machines, a number of variants are also available. For additional information, contact the SKF application engineering service.

#### Housings for connections with inch threads

SBFN, SBPN and SDM housings can be supplied with inch threads for connectors. Threads are in accordance with modified American National Form NS threads and all screws and bolts have UNC threads. Oil inlets and outlets are tapped with NPTF threads and holes for condition monitoring sensors have 5/16-18 UNC threads.

This housing variant is identified by the designation suffix N9, e.g. SBPN 3140 RAN9.

#### Housings with special paint

SBFN, SBPN and SDM housings can be supplied painted according to customer specification. The housings are identified by the designation suffix P, followed by a number, e.g. SBFN 3136 RA/P45.

#### Housings for steam joint connections

SBPN and SDM housings can be supplied with a modified cover to accommodate steam joint connections on through shafts (→ fig. 5). Various cover designs are available to suit the type of steam joint.

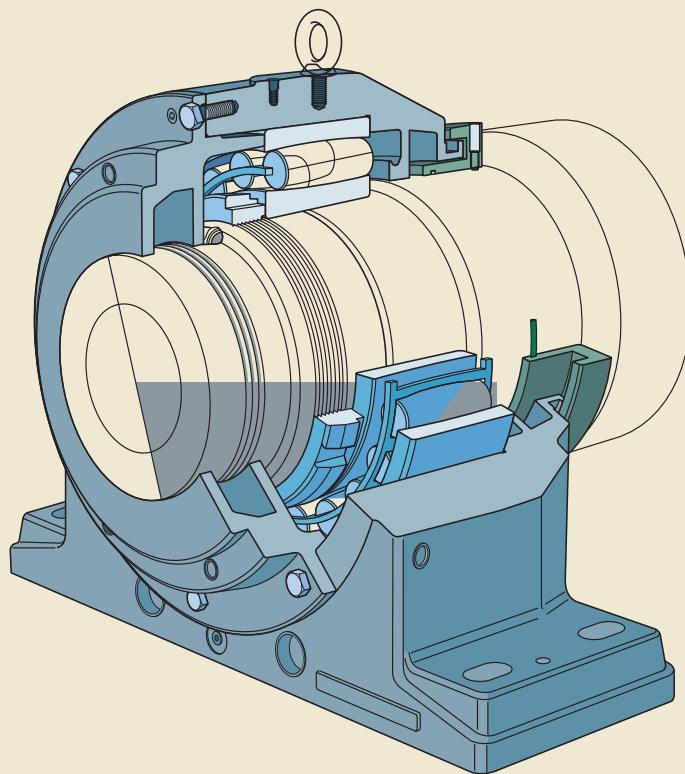
This housing variant is identified by the designation suffix B, followed by a number (from 1 to 99) indicating the cover design, e.g. SDM 30/670 B2RA.

#### Housings for the wet section

SBFN housings for the wet section are available on request. For additional information,

Fig. 5

Housing for steam joint connection, SBPN series



## Housing variants

contact the SKF application engineering service.

### **Housings for rope sheaves**

For rope sheave applications, SBPN drying cylinder housings can be supplied with one side machined to fit the rope sheave. For additional information, contact the SKF application engineering service.

### **Housings for four-bolt mounting**

SBFN housings can be supplied with four holes cast into the base for attachment bolts. For additional information, contact the SKF application engineering service.

## Housings for paper machines SBFN, SBPN and SDM series

### Sealing solutions

**Table 1** provides an overview of the characteristics and suitability of the sealing solutions for SKF housings for paper machines. This information should be used as a guideline, which cannot substitute for testing a seal in its application.

SBFN (→ **fig. 6**) and SBPN (→ **fig. 7**) housings are equipped with labyrinth seals integrated in each cover. A labyrinth ring, bolted to the shaft, forms an axial labyrinth with the housing cover. Shafts used with SBFN housings require machined grooves that act as oil flingers. End covers are available for housings mounted at the end of a shaft.

SDM housings are equipped with gap-type seals and split oil flinger rings (→ **fig. 8**). The seals are integrated in the covers. The flinger ring is split and mounted directly onto the shaft. The ring is positioned axially by tightening the ring screw into a tapped hole on the shaft.

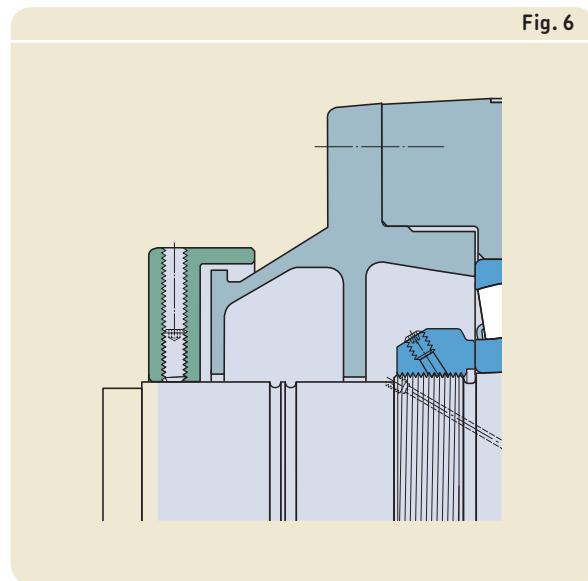


Fig. 6

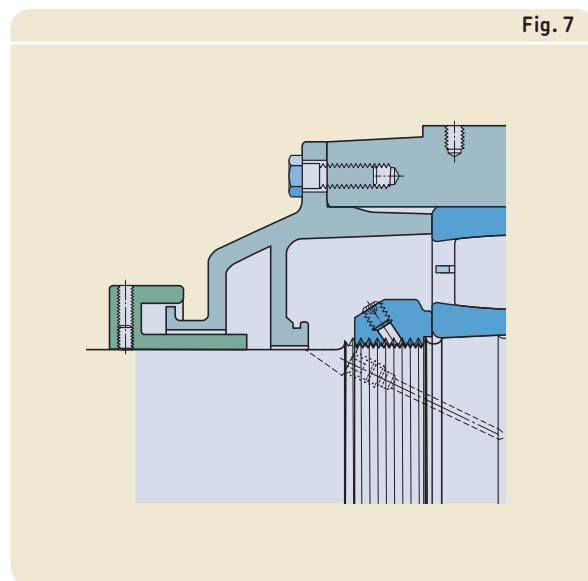


Fig. 7

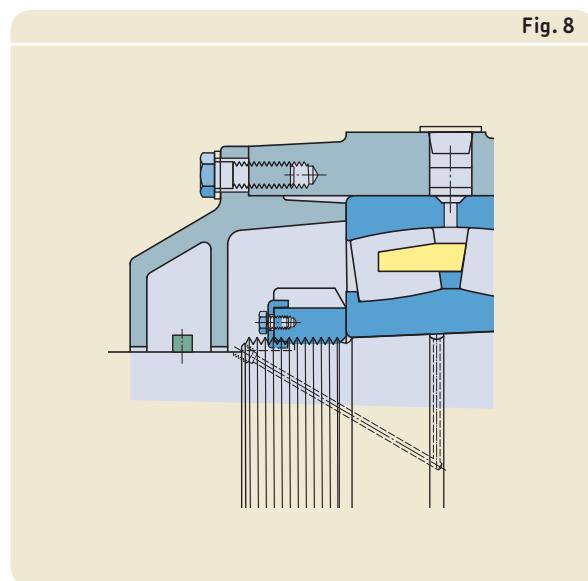
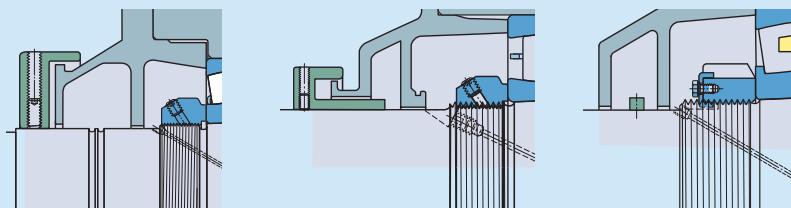


Fig. 8

Sealing solutions

Table 1

Seals for SKF housings for paper machines



SBFN

SBPN

SDM

Seal

Type	Labyrinth	Labyrinth	Gap seal with oil flinger
Material	grey cast iron	grey cast iron	grey cast iron, steel

Application conditions and requirements

Temperature [°C]	-40 to +200	-40 to +200	-40 to +200
Temperature [°F]	-40 to +390	-40 to +390	-40 to +390
Max. circumferential speed [m/s]	bearing dependent	bearing dependent	bearing dependent
Max. misalignment [°]	0,5	0,5	0,3
Low friction	++	++	++
Shaft tolerance class	h9(ε)	h9(ε)	h9(ε)
Shaft roughness Ra [μm]	≤ 3,2	≤ 3,2	≤ 3,2

Sealing suitability

Dust	-	-	-
Fine particles	+	+	+
Coarse particles	+	+	+
Pressure-wash	+	+	-
Running water	++	++	-

Symbols: ++ very suitable    + suitable    - limited suitability    -- unsuitable

## Housings for paper machines SBFN, SBPN and SDM series

### Design considerations

For general information about design considerations, refer to the following sections:

- *Typical shaft-bearing combinations*  
( $\rightarrow$  page 41)
- *Locating/non-locating bearing arrangements*  
( $\rightarrow$  page 40)
- *Housing support surface* ( $\rightarrow$  page 45)

For additional information about rolling bearings, refer to the product information available online at [skf.com/bearings](http://skf.com/bearings). For information about paper machine applications, refer to the SKF handbook *Rolling bearings in paper machines*.

### Typical shaft-bearing combinations

Housings for paper machines can accommodate stepped shafts with a bearing on a tapered seat ( $\rightarrow$  fig. 9):

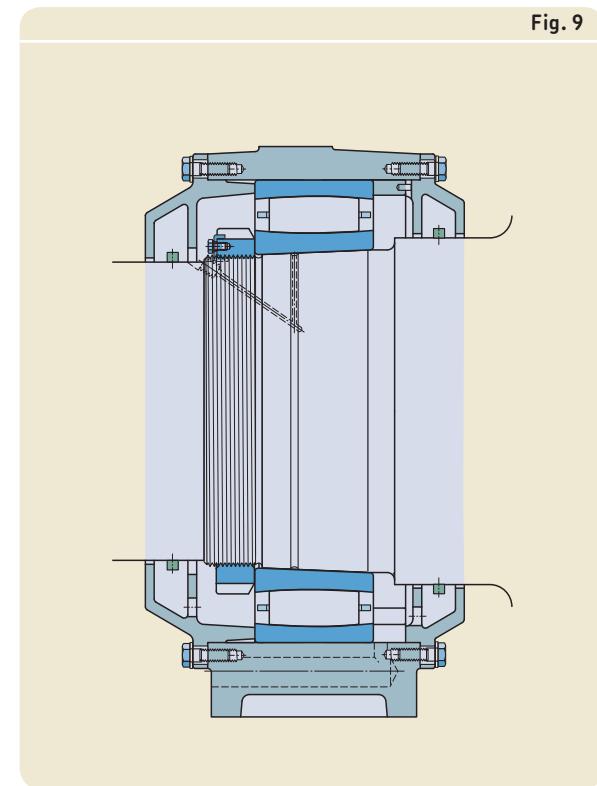
### Locating and non-locating bearing positions

Housings for paper machines are available for both the locating and non-locating bearing positions:

- Housings with the designation suffix F are designed to accommodate spherical roller bearings in the locating bearing position on the drive side.
- Housings with the designation suffix RA are designed for CARB toroidal roller bearings in the non-locating bearing position on the front side.

SKF recommends using a spherical roller bearing on the drive side and a CARB toroidal roller bearing on the front side ( $\rightarrow$  *The SKF self-aligning bearing system*, page 41). However, other housing/bearing combinations are also available ( $\rightarrow$  table 2).

The extent to which a CARB toroidal roller bearing can accommodate axial displacement due to interference with the seal can be calculated. For assistance, contact the SKF application engineering service



### Load carrying capacity

For information about breaking loads for SBFN housings, contact SKF for more information. SBPN and SDM housings are intended for loads acting perpendicular toward the support surface.

Guideline values for the permissible loads for SDM housings, based on cap bolt strength, are provided in **table 3**. Housings for paper machines should always be supported over the entire base. Perpendicular loads toward the support surface are limited only by the bearing.

## Design considerations

Table 2

### Housing/bearing combinations

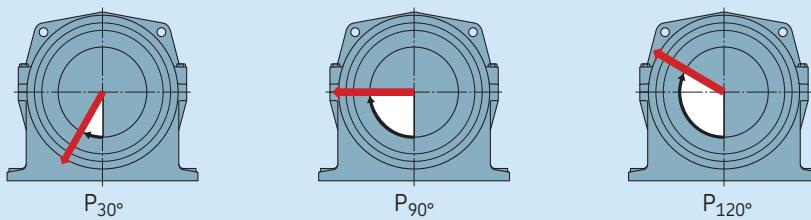
Housing series	Locating bearing position (Drive side)	Non-locating bearing position (Front side)		
	spherical roller bearing with located outer ring	CARB bearing with located outer ring	spherical roller bearing with non-located outer ring	spherical roller bearing with located outer ring in housing on rockers
<b>Felt roll housings</b>				
-SBFN	✓	✓	–	–
-SBF	✓	–	✓ <sup>1)</sup>	–
<b>Drying cylinder housings</b>				
-SBPN	✓	✓	–	–
-SBP	✓	✓	✓ <sup>1)</sup>	✓ <sup>1)</sup>
<b>Yankee cylinder housings</b>				
-SDM	✓	✓	✓ <sup>1)</sup>	✓ <sup>1) 2)</sup>

<sup>1)</sup> This housing/bearing combination is still available on request. However, SKF strongly recommends using a CARB toroidal roller bearing at the front side (→ *The SKF self-aligning bearing system, page 41*).

<sup>2)</sup> Also available additionally with two support rockers.

Table 3

### Permissible loads for SDM housings



Housing	Permissible loads		
	P <sub>30°</sub>	P <sub>90°</sub>	P <sub>120°</sub>
Size	P <sub>30°</sub>	P <sub>90°</sub>	P <sub>120°</sub>
–	kN		
3068	490	325	275
3168	590	295	245
3076	560	310	260
3084	650	305	255
3184	– <sup>1)</sup>	– <sup>1)</sup>	– <sup>1)</sup>
3092	770	320	270
30/530	900	500	425
31/530	1 000	525	450
30/600	1 000	525	450
31/600	– <sup>1)</sup>	– <sup>1)</sup>	– <sup>1)</sup>
30/670	1 090	475	400

<sup>1)</sup> Contact SKF.

## Housings for paper machines SBFN, SBPN and SDM series

### Additional housing support

When radial loads act at angles between 30° and 120° on SDM and SBPN housings or between 90° and 270° on SBFN housings, a stop should be provided to counter the load. The stop should be sufficiently strong to accommodate the loads acting parallel to the support surface (→ fig. 10).

### Operating temperature

The housing material does not set any temperature limits, except for very low temperature applications where impact strength could be a factor. For additional information, contact the application engineering service.

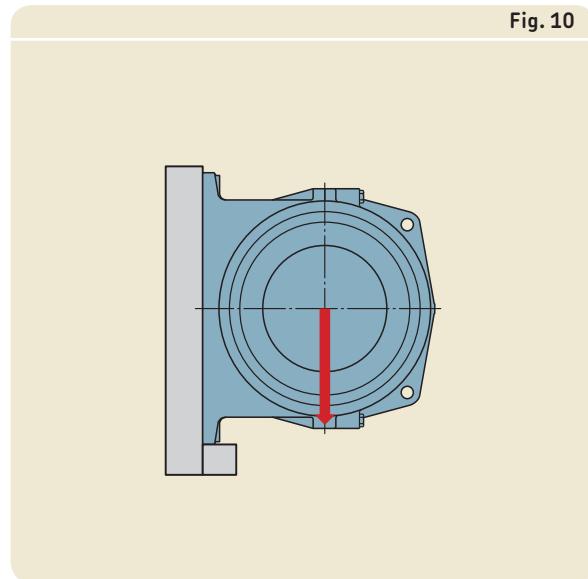
The housing paint is heat resistant up to 80 °C (175 °F) material temperature or 100 °C (210 °F) ambient temperature. Alternative paints that can accommodate higher temperatures are available on request (→ *Housing variants, page 594*).

### Operating speed

The permissible operating speed of the incorporated bearing is not limited by the housing or the seal.

### Shaft specifications

The bearing seat on the shaft should comply with the tolerances required by the bearing (→ SKF handbook *Rolling bearings in paper machines*), which is typically to IT9 tolerance grade. A cylindricity tolerance of IT5/2 and a conicity tolerance of IT7/2 are recommended.



## Design considerations

**Attachment bolt recommendations**

In typical applications, 8.8 class hexagon head bolts, in accordance with ISO 4014, can be used together with washers.

For SBPN housings, M 24 or 1 UNC attachment bolts with a recommended tightening torque of 665 Nm are suitable. For SDM housings, refer to **table 4**.

Table 4

**Torque values for cap bolts and attachment bolts for SDM housings**

Housing Size	Cap bolts Designation to ISO 262 grade 8.8	Tightening torque Nm	Attachment bolts Size	Tightening torque Nm
-	-	Nm	-	Nm
<b>3068</b>	M 24 or 1 UNC	350	M 24 or 1 UNC	665
<b>3168</b>	M 24 or 1 UNC	350	M 24 or 1 UNC	665
<b>3076</b>	M 24 or 1 UNC	350	M 24 or 1 UNC	665
<b>3084</b>	M 30 or 1.1/4 UNC	400	M 24 or 1 UNC	665
<b>3184</b>	M 30 or 1.1/4 UNC	400	M 24 or 1 UNC	665
<b>3092</b>	M 30 or 1.1/4 UNC	400	M 24 or 1 UNC	665
<b>30/530</b>	M 30 or 1.1/4 UNC	400	M 30 or 1.1/4 UNC	1 310
<b>31/530</b>	M 30 or 1.1/4 UNC	400	M 30 or 1.1/4 UNC	1 310
<b>30/600</b>	M 30 or 1.1/4 UNC	400	M 30 or 1.1/4 UNC	1 310
<b>31/630</b>	M 36 or 1.1/2 UNC	600	M 30 or 1.1/4 UNC	1 310
<b>30/670</b>	M 36 or 1.1/2 UNC	600	M 30 or 1.1/4 UNC	1 310

## Housings for paper machines SBFN, SBPN and SDM series

### Lubrication

SBFN, SBPN and SDM housings are designed for high-flow circulating oil systems. The oil should be selected based on the operating conditions of the bearing. For additional information about lubricant selection, refer to the product information available online at [skf.com/bearings](http://skf.com/bearings).

A circulating oil lubrication system typically has supply lines and drain lines. Circulation is normally produced with the aid of a pump. After the oil has passed through the bearing, it drains from the housing and flows into a tank where it is filtered and allowed to cool before being returned to the housing. Proper filtering and cooling of the oil are important factors for bearing and oil service life, and can improve machine performance as well as cost savings.

SBFN housings have two oil inlets and one oil outlet (→ **fig. 11**). One of the inlets as well as the outlet are plugged with plastic plugs. The other inlet, not in use, is plugged with a steel plug.

SBPN and SDM housings have two oil inlets, and two oil outlets on each side (→ **figs. 12** and **13**). SKF recommends using both outlets on the relevant side to sufficiently drain the large quantity of circulating oil. The tapped outlets have two plastic and two steel plugs. The steel plugs should remain on the side opposite the return pipes.

Fig. 11

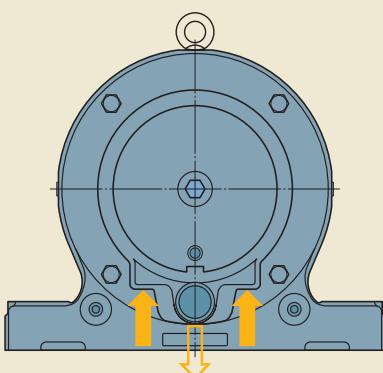


Fig. 12

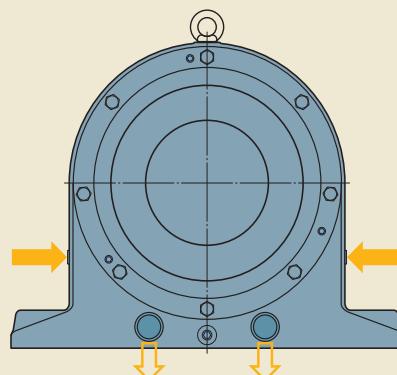
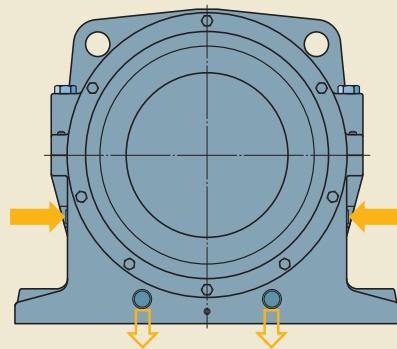


Fig. 13



**Mounting**

## Mounting

SKF housings for paper machines must be mounted properly by experienced, knowledgeable people using the correct tools.

SBFN housings can be mounted at angles of 0°, 90°, 180° and 270°. To prevent oil leakage, the arrow on the cover should always point upward.

For SBFN and SBPN housings, the interface between the housing and covers should be coated with an oil-resistant sealant.

SBPN and SDM housings should be mounted so that the oil outlets with the plastic plugs are facing outward.

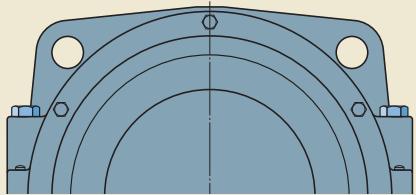
For additional information, contact the SKF application engineering service. SKF can also assist during mounting or provide a complete installation service

### Eye bolts and lifting holes

SBFN and SBPN housings are supplied with an eye bolt on top. SDM housings have two flanges on the cap with a cast hole in each (→ fig. 14).

### Cap bolt torque specifications

Cap bolts should be tightened to the recommended torque values listed in **table 4** on **page 601**.

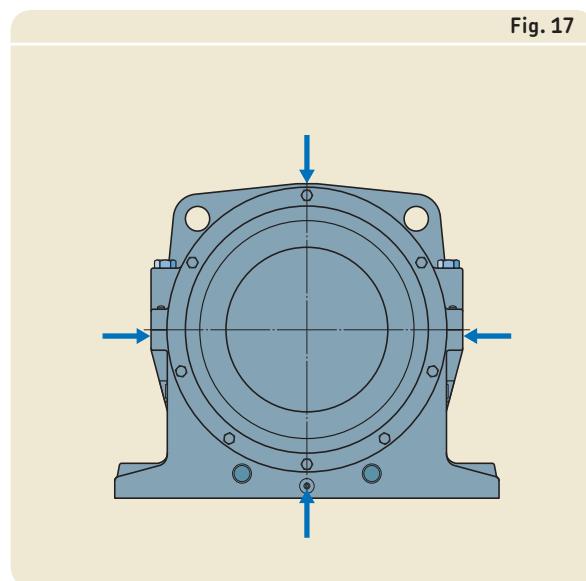
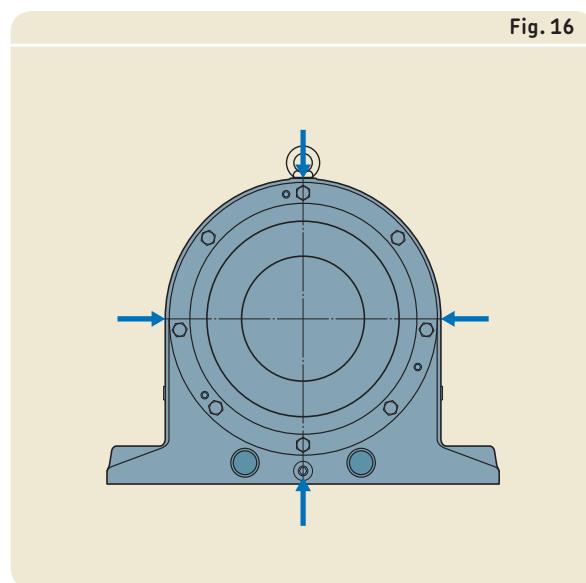
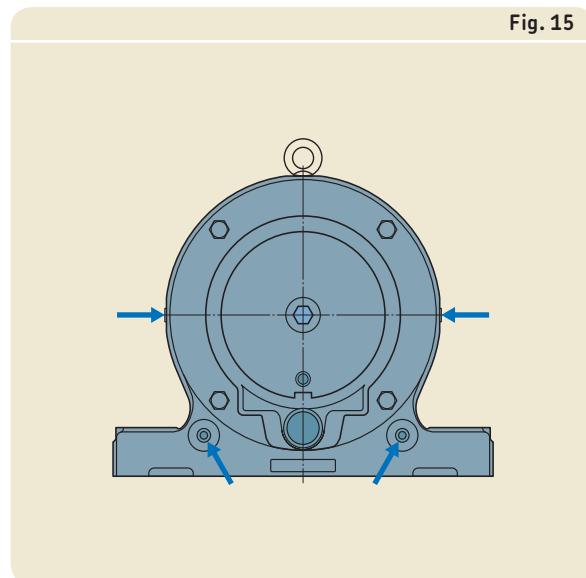
**Fig. 14**

## Housings for paper machines SBFN, SBPN and SDM series

### Condition monitoring

SBFN (→ fig. 15), SBPN (→ fig. 16) and SDM housings (→ fig. 17) have tapped holes (M8) for attaching condition monitoring sensors.

Housings with inch thread connections, designation suffix N9, have holes for attaching condition monitoring sensors with 5/16-18 UNC threads.



## Ordering information

## Accessories

The following accessories are available for housings for paper machines:

- central lubrication systems, e.g. SKF Flowline
- condition monitoring sensors

For additional information, contact SKF.

## Ordering information

SKF housings for paper machines are supplied complete with covers, seals and plugs. The bearings must be ordered separately.

### Order example

Two housings with inch thread dimensions are required for a felt roll assembly – one for a 22218 EK/C3 spherical roller bearing in the locating bearing position, and one for a C 22218 K/C3 CARB toroidal roller bearing in the non-locating bearing position at the end of a shaft. The following items should be ordered (in addition to the bearings):

- 1 SBFN 2218 BFN9
- 1 SBFN 2218 ARAN9

Two housings are required for a drying cylinder assembly – one for a 23144 CCK/C4W33 spherical roller bearing in the locating bearing position, and one for a C 3144 K/C4 CARB toroidal roller bearing in the non-locating bearing position at the end of a shaft. The housings require a special paint that can accommodate special customer requirements. The following items should be ordered (in addition to the bearings):

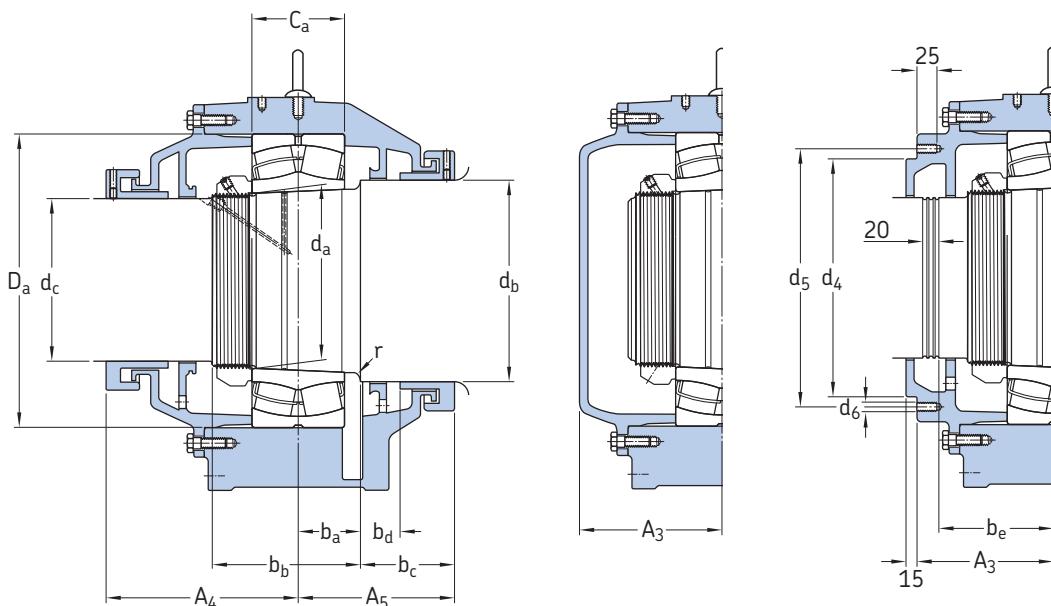
- 1 SBPN 3144 BF/P..
- 1 SBPN 3144 ARA/P..

Two housings are required for a Yankee cylinder – one for a 230/670 CAK/C084W33 spherical roller bearing in the locating bearing position, and one for a C 30/670 KM/C084 CARB toroidal roller bearing in the non-locating bearing position. The following items should be ordered (in addition to the bearings):

- 1 SDM 30/670 F
- 1 SDM 30/670 RA

## 13.1 SBPN drying cylinder housings

d<sub>a</sub> 180 – 320 mm



Housing for through shaft  
(designation suffix B)

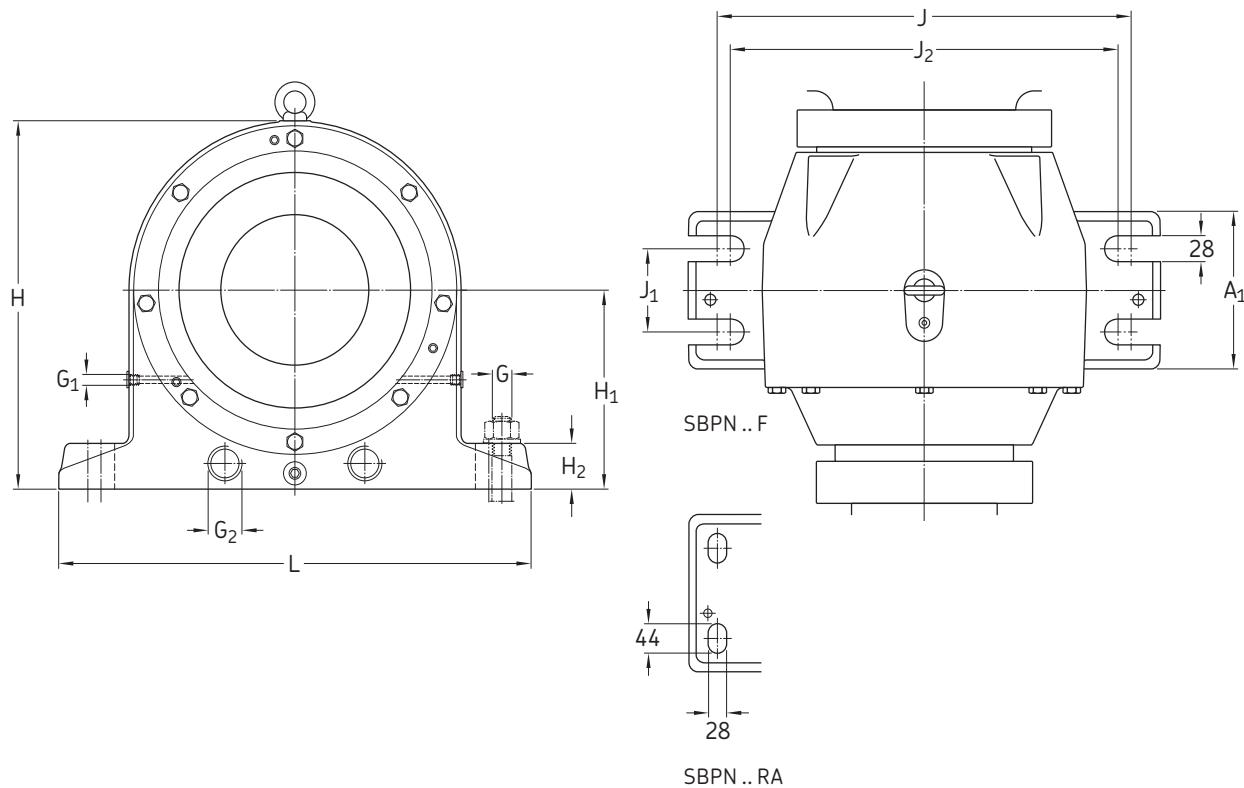
Housing for shaft end  
(designation suffix A)

Housing for steam joint  
connection  
(designation suffix B42)

Shaft diameter d <sub>a</sub>	Housing Designation	Appropriate parts Bearing <sup>1)</sup>	Lock nut <sup>2)</sup>	Dimensions Housing												
				A <sub>1</sub>	A <sub>3</sub>	A <sub>4</sub>	A <sub>5</sub>	C <sub>a</sub>	D <sub>a</sub>	H	H <sub>1</sub>	H <sub>2</sub>	J	J <sub>1</sub>	J <sub>2</sub>	L
mm	–	–	–	mm												–
180	SBPN 3136 F SBPN 3136 RA	23136 CCK/W33 C 3136 K	KMT 36	170	155	230	195	96	300	400	220	50	440	90	424	520
200	SBPN 3140 F SBPN 3140 RA	23140 CCK/W33 C 3140 K	KMT 40	200	165	240	200	112	340	440	240	55	485	115	469	570
220	SBPN 3144 F SBPN 3144 RA	23144 CCK/W33 C 3144 K	KMT 44	235	175	255	200	120	370	490	265	60	550	135	534	640
240	SBPN 3148 F SBPN 3148 RA	23148 CCK/W33 C 3148 K	KMT 48	250	190	265	215	128	400	535	285	65	580	150	564	680
260	SBPN 3152 F SBPN 3152 RA	23152 CCK/W33 C 3152 K	KMT 52	265	200	280	225	144	440	570	310	75	620	160	604	720
300	SBPN 3160 F SBPN 3160 RA	23160 CCK/W33 C 3160 K	KMT 60	300	215	290	235	160	500	630	335	85	720	180	704	820
320	SBPN 3164 F SBPN 3164 RA	23164 CCK/W33 C 3164 KM	KMT 64	320	225	300	255	176	540	680	360	85	760	200	744	880

<sup>1)</sup> 231(00) – spherical roller bearing, C... – CARB toroidal roller bearing. Only typical bearings are listed. Other bearing variants can also fit the housing.

<sup>2)</sup> As an alternative to KMT lock nuts, it is also possible to use KML or HM lock nuts with a locking device.

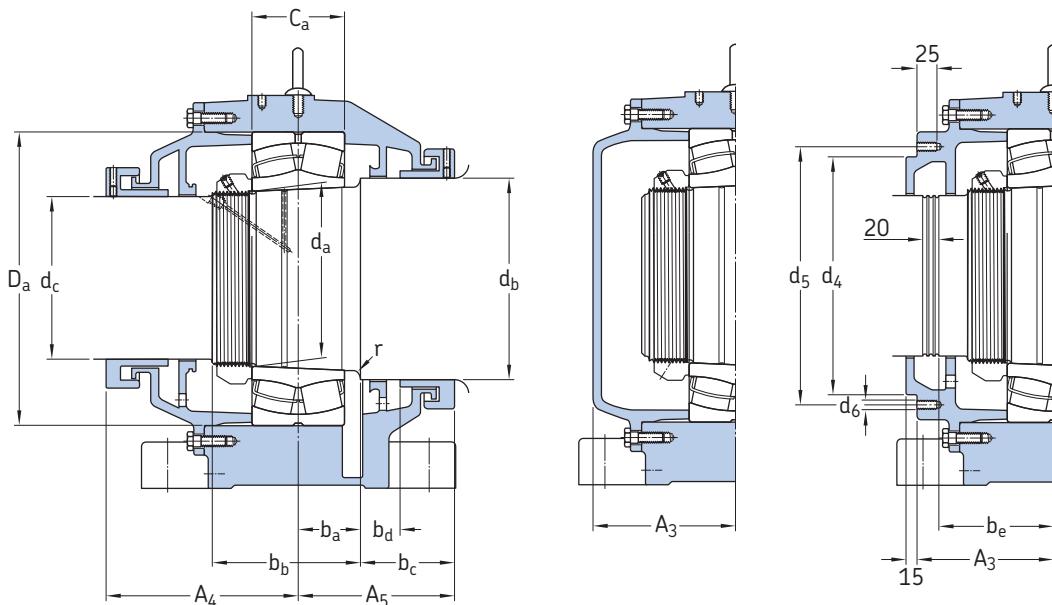


Shaft diam- eter $d_a$	Dimensions										Mass						
	Housing			Shaft							Housing A	Housing B					
mm	G	G <sub>1</sub>	G <sub>2</sub>	b <sub>a</sub>	b <sub>b</sub>	b <sub>c</sub> min.	b <sub>d</sub>	b <sub>e</sub>	d <sub>b</sub>	d <sub>c</sub>	d <sub>d</sub>	d <sub>4</sub>	d <sub>5</sub>	d <sub>6</sub>	r	kg	
180	M 24	G 1/2	G 1.1/4	65	150	130	55	128	200	160	M 180x3	225	250	M 12	5	118	115
200	M 24	G 1/2	G 1.1/4	75	170	125	50	138	230	180	M 200x3	265	290	M 12	8	133	147
220	M 24	G 1/2	G 1.1/4	75	190	125	50	148	250	200	Tr 220x4	305	330	M 12	8	189	205
240	M 24	G 1/2	G 1.1/4	85	205	130	55	163	275	220	Tr 240x4	335	360	M 12	8	244	256
260	M 24	G 1/2	G 1.1/2	95	225	130	55	173	300	240	Tr 260x4	355	380	M 12	8	259	273
300	M 24	G 1/2	G 1.1/2	105	250	130	55	188	340	280	Tr 300x4	435	460	M 12	8	342	358
320	M 24	G 1/2	G 1.1/2	115	270	140	65	198	360	300	Tr 320x5	455	480	M 12	8	445	465

13.1

## 13.2 SBPN drying cylinder housings – short, wide base

$d_a$  180 – 320 mm



Housing for through shaft  
(designation suffix B)

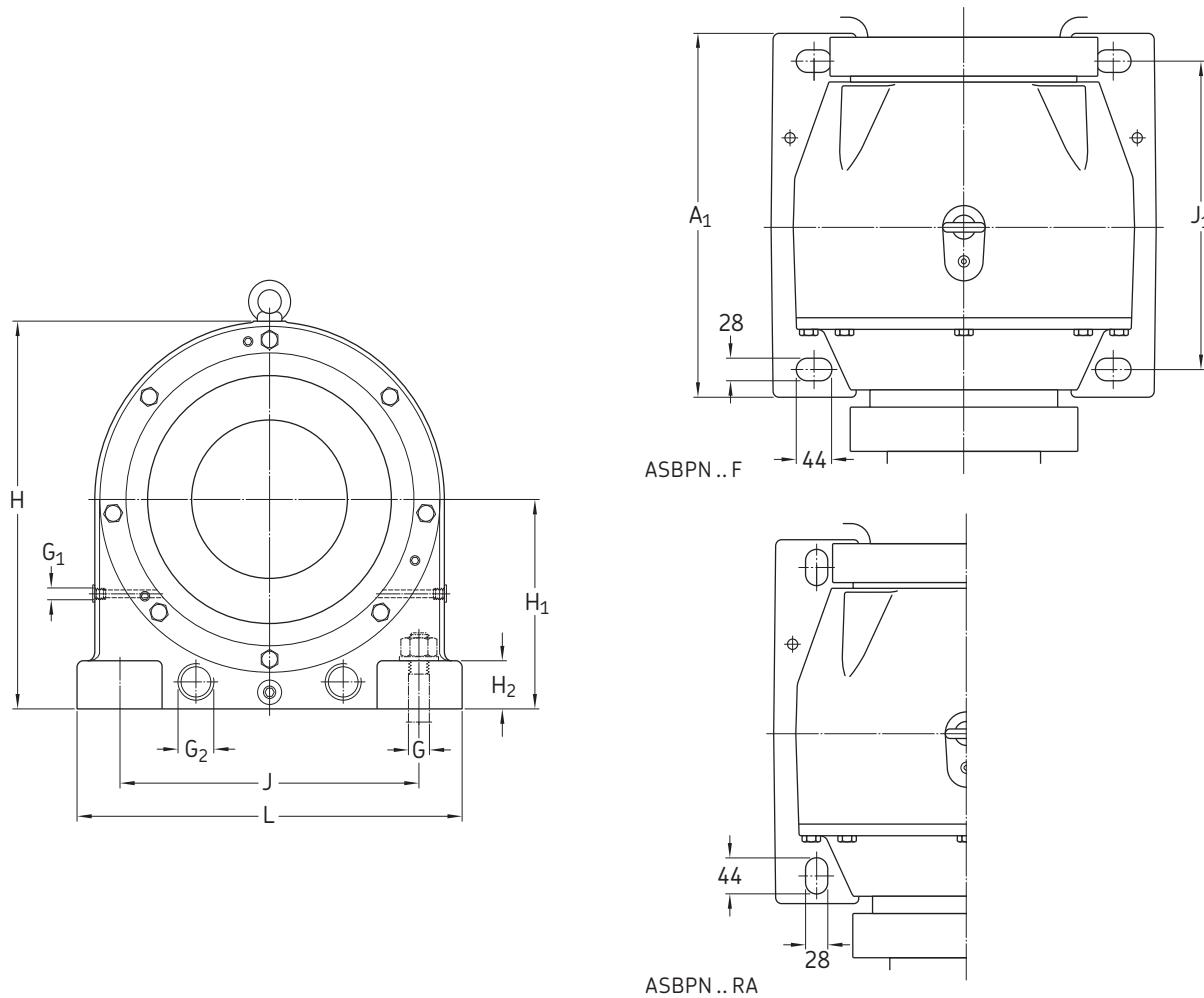
Housing for shaft end  
(designation suffix A)

Housing for steam joint  
connection  
(designation suffix B42)

Shaft diameter $d_a$	Housing Designation	Appropriate parts Bearing <sup>1)</sup>	Lock nut <sup>2)</sup>	Dimensions Housing											
				A <sub>1</sub>	A <sub>3</sub>	A <sub>4</sub>	A <sub>5</sub>	C <sub>a</sub>	D <sub>a</sub>	H	H <sub>1</sub>	H <sub>2</sub>	J	L	
mm	–	–	–	mm											
180	ASBPN 3136 F ASBPN 3136 RA	23136 CCK/W33 C 3136 K	KMT 36	350	155	230	195	96	300	400	220	50	320	400	
220	ASBPN 3144 F ASBPN 3144 RA	23144 CCK/W33 C 3144 K	KMT 44	410	175	255	200	120	370	490	265	60	380	490	
260	ASBPN 3152 F ASBPN 3152 RA	23152 CCK/W33 C 3152 K	KMT 52	445	200	280	225	144	440	570	310	75	470	580	
300	ASBPN 3160 F ASBPN 3160 RA	23160 CCK/W33 C 3160 K	KMT 60	480	215	290	235	160	500	630	335	85	560	670	
320	ASBPN 3164 F ASBPN 3164 RA	23164 CCK/W33 C 3164 KM	KMT 64	500	225	300	255	176	540	680	360	85	580	710	

<sup>1)</sup> 231(00) – spherical roller bearing, C... – CARB toroidal roller bearing. Only typical bearings are listed. Other bearing variants can also fit the housing.

<sup>2)</sup> As an alternative to KMT lock nuts, it is also possible to use KML or HM lock nuts with a locking device.

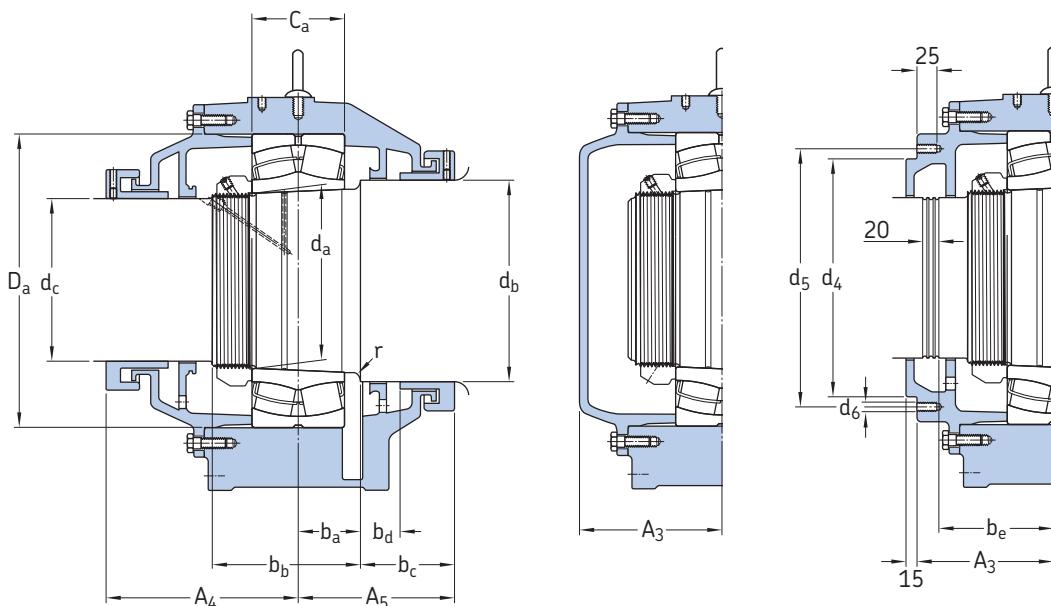


Shaft diameter d <sub>a</sub>	Dimensions Housing										Shaft					Mass Housing		
	G	G <sub>1</sub>	G <sub>2</sub>	b <sub>a</sub>	b <sub>b</sub>	b <sub>c</sub> min.	b <sub>d</sub>	b <sub>e</sub>	d <sub>b</sub>	d <sub>c</sub>	d <sub>d</sub>	d <sub>4</sub>	d <sub>5</sub>	d <sub>6</sub>	r			
mm	—			mm					mm			mm	—	mm	kg			
180	M 24	G 1/2	G 1.1/4	65	150	130	55	128	200	160	M 180x3	225	250	M 12	5	1)	13.2	
220	M 24	G 1/2	G 1.1/4	75	190	125	50	148	250	200	Tr 220x4	305	330	M 12	8	203		
260	M 24	G 1/2	G 1.1/2	95	225	130	55	173	300	240	Tr 260x4	355	380	M 12	8	1)		
300	M 24	G 1/2	G 1.1/2	105	250	130	55	188	340	280	Tr 300x4	435	460	M 12	8	1)		
320	M 24	G 1/2	G 1.1/2	115	270	140	65	198	360	300	Tr 320x5	455	480	M 12	8	1)		

1) Contact SKF for missing values.

### 13.3 SBPN drying cylinder housings, with inch connection threads

$d_2$  180 – 320 mm  
7.087 – 12.598 in.



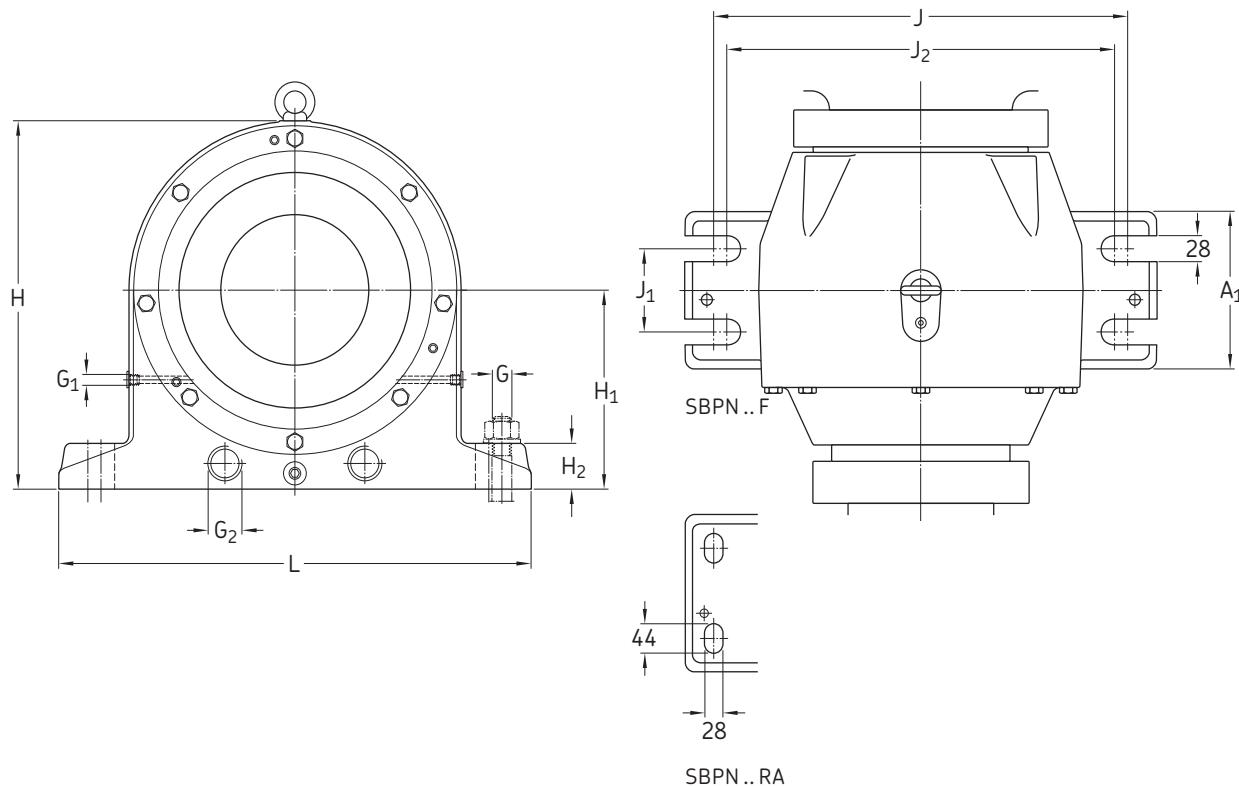
Housing for through shaft  
(designation suffix B)

Housing for shaft end  
(designation suffix A)

Housing for steam joint  
connection  
(designation suffix B42)

Shaft diameter $d_a$	Housing Designation	Appropriate parts	Dimensions														
			Bearing <sup>1)</sup>	Lock nut	Locking clip	A <sub>1</sub>	A <sub>3</sub>	A <sub>4</sub>	A <sub>5</sub>	C <sub>a</sub>	D <sub>a</sub>	H	H <sub>1</sub>	H <sub>2</sub>	J	J <sub>1</sub>	J <sub>2</sub>
mm/in. – – mm																	
180 7.087	SBPN 3136 FN9 SBPN 3136 RAN9	23136 CCK/W33 N 036 W 036	170 155 230 195 96	300 400 220 50 440 90	424 520												
200 7.874	SBPN 3140 FN9 SBPN 3140 RAN9	23140 CCK/W33 N 040 W 040	200 165 240 200 112 340 440 240 55	485 115 469 570													
220 8.661	SBPN 3144 FN9 SBPN 3144 RAN9	23144 CCK/W33 N 044 W 044	235 175 255 200 120 370 490 265 60	550 135 534 640													
240 9.449	SBPN 3148 FN9 SBPN 3148 RAN9	23148 CCK/W33 N 048 PL 48	250 190 265 215 128 400 535 285 65	580 150 564 680													
260 10.236	SBPN 3152 FN9 SBPN 3152 RAN9	23152 CCK/W33 N 052 PL 52	265 200 280 225 144 440 570 310 75	620 160 604 720													
300 11.811	SBPN 3160 FN9 SBPN 3160 RAN9	23160 CCK/W33 N 060 PL 60	300 215 290 235 160 500 630 335 85	720 180 704 820													
320 12.598	SBPN 3164 FN9 SBPN 3164 RAN9	23164 CCK/W33 N 064 PL 64	320 225 300 255 176 540 680 360 85	760 200 744 880													

<sup>1)</sup> 231(00) – spherical roller bearing, C... – CARB toroidal roller bearing. Only typical bearings are listed. Other bearing variants can also fit the housing.

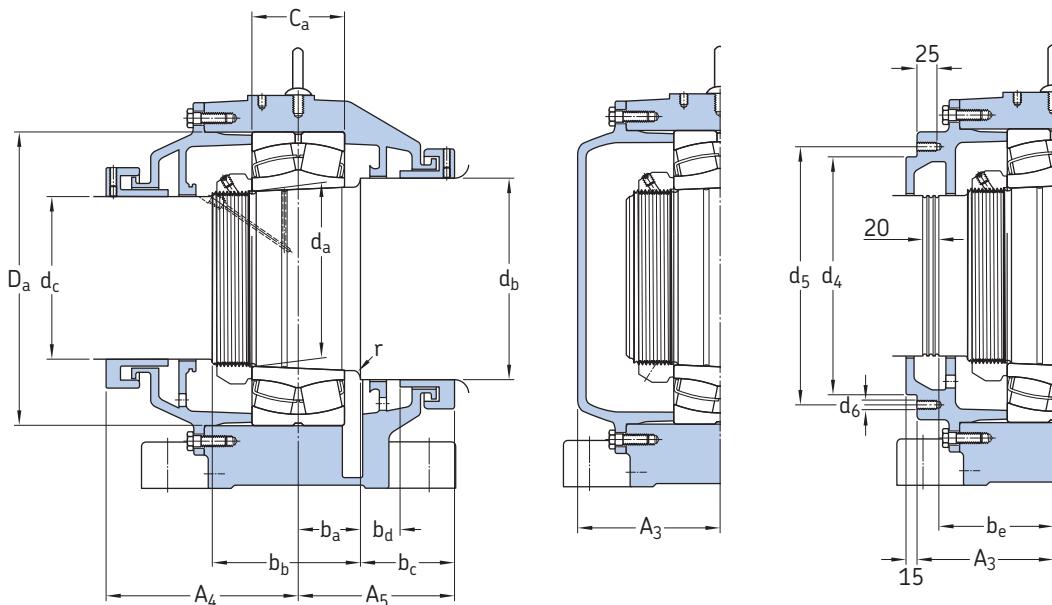


Shaft diam- eter $d_a$	Dimensions										Mass					
	Housing		Shaft								Housing A	Housing B				
	G	G <sub>1</sub>	G <sub>2</sub>	b <sub>a</sub>	b <sub>b</sub>	b <sub>c</sub> min.	b <sub>d</sub>	b <sub>e</sub>	d <sub>b</sub>	d <sub>c</sub>	d <sub>d</sub>	Threads/ inch	d <sub>4</sub>	d <sub>5</sub>	d <sub>6</sub>	r
mm/in. -				mm					in.				mm	-	mm	kg
180 7.087	1 UNC	NPTF 1/2	NPTF 1.1/4	65	150	130	55	128	200	160	7.063	8	225	250	M12 5	118 115
200 7.874	1 UNC	NPTF 1/2	NPTF 1.1/4	75	170	125	50	138	230	180	7.844	8	265	290	M12 8	133 147
220 8.661	1 UNC	NPTF 1/2	NPTF 1.1/4	75	190	125	50	148	250	200	8.625	8	305	330	M12 8	189 205
240 9.449	1 UNC	NPTF 1/2	NPTF 1.1/4	85	205	130	55	163	275	220	9.439	6	335	360	M12 8	244 256
260 10.236	1 UNC	NPTF 1/2	NPTF 1.1/2	95	225	130	55	173	300	240	10.189	6	355	380	M12 8	259 273
300 11.811	1 UNC	NPTF 1/2	NPTF 1.1/2	105	250	130	55	188	340	280	11.781	6	435	460	M12 8	342 358
320 12.598	1 UNC	NPTF 1/2	NPTF 1.1/2	115	270	140	65	198	360	300	12.559	6	455	480	M12 8	445 465

13.3

### 13.4 SBPN drying cylinder housings, with inch connection threads – short, wide base

d 180 – 320 mm  
7.087 – 12.598 in.



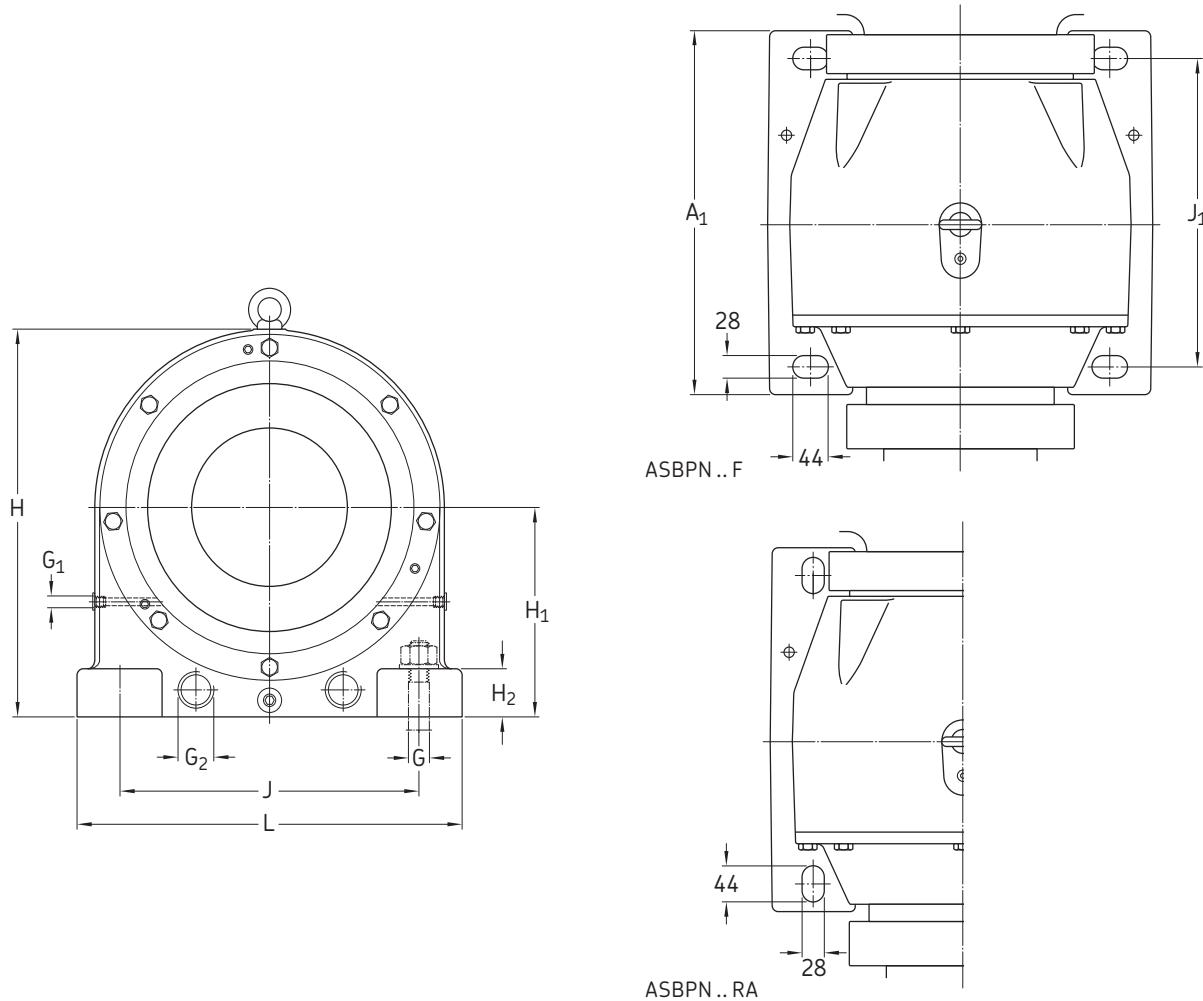
Housing for through shaft  
(designation suffix B)

Housing for shaft end  
(designation suffix A)

Housing for steam joint  
connection  
(designation suffix B42)

Shaft diameter d <sub>a</sub>	Housing Designation	Appropriate parts Bearing <sup>1)</sup>	Dimensions														
			Lock nut	Locking clip	Housing		A <sub>1</sub>	A <sub>3</sub>	A <sub>4</sub>	A <sub>5</sub>	C <sub>a</sub>	D <sub>a</sub>	H	H <sub>1</sub>	H <sub>2</sub>	J	J <sub>1</sub>
mm/in.																	
			mm														
180 7.087	ASBPN 3136 FN9 ASBPN 3136 RAN9	23136 CCK/W33 N 036 W 036 C 3136 K			350	155	230	195	96	300	400	220	50	320	280	400	
220 8.661	ASBPN 3144 FN9 ASBPN 3144 RAN9	23144 CCK/W33 N 044 W 044 C 3144 K			410	175	255	200	120	370	490	265	60	380	340	490	
260 10.236	ASBPN 3152 FN9 ASBPN 3152 RAN9	23152 CCK/W33 N 052 PL 52 C 3152 K			445	200	280	225	144	440	570	310	75	470	375	580	
300 11.811	ASBPN 3160 FN9 ASBPN 3160 RAN9	23160 CCK/W33 N 060 PL 60 C 3160 K			480	215	290	235	160	500	630	335	85	560	410	670	
320 12.598	ASBPN 3164 FN9 ASBPN 3164 RAN9	23164 CCK/W33 N 064 PL 64 C 3164 KM			500	225	300	255	176	540	680	360	85	580	430	710	

<sup>1)</sup> 231(00) – spherical roller bearing, C... – CARB toroidal roller bearing. Only typical bearings are listed. Other bearing variants can also fit the housing.

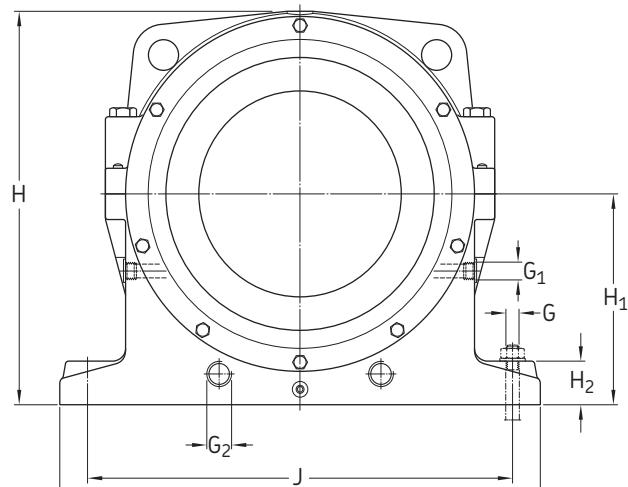
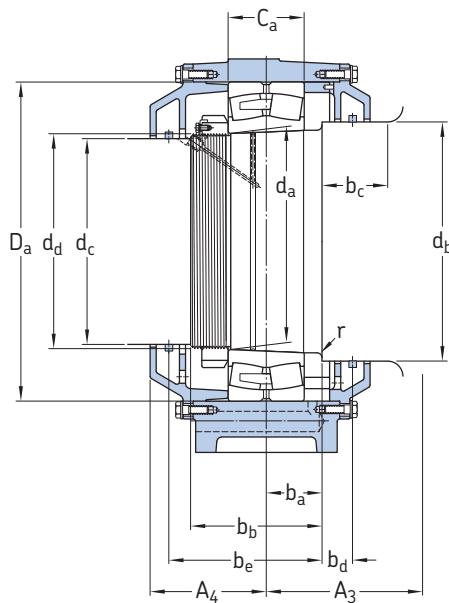


Shaft diameter $d_a$	Dimensions Housing		Shaft										Mass Housing						
	G	G1	G2	b <sub>a</sub>	b <sub>b</sub>	b <sub>c</sub> min.	b <sub>d</sub>	b <sub>e</sub>	d <sub>b</sub>	d <sub>c</sub>	d <sub>d</sub>	Threads/ inch	d <sub>4</sub>	d <sub>5</sub>	d <sub>6</sub>	r			
mm/in.	-	mm											in.	-	mm	kg			
180 7.087	1	UNC	NPTF 1/2	NPTF 1.1/4	65	150	130	55	128	200	160	7.063	8	225	250	M12	5	1)	
220 8.661	1	UNC	NPTF 1/2	NPTF 1.1/4	75	190	125	50	148	250	200	8.625	8	305	330	M12	8	203	
260 10.236	1	UNC	NPTF 1/2	NPTF 1.1/2	95	225	130	55	173	300	240	10.189	6	355	380	M12	8	1)	
300 11.811	1	UNC	NPTF 1/2	NPTF 1.1/2	105	250	130	55	188	340	280	11.781	6	435	460	M12	8	1)	
320 12.598	1	UNC	NPTF 1/2	NPTF 1.1/2	115	270	140	65	198	360	300	12.559	6	455	480	M12	8	1)	

13.4

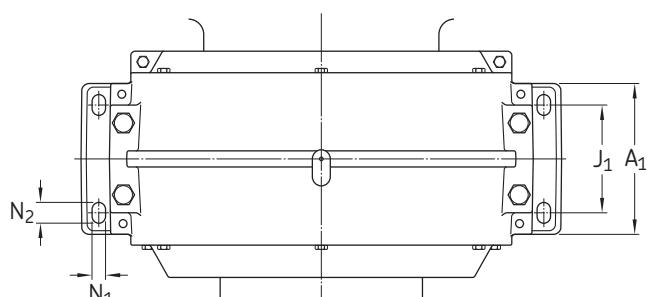
1) Contact SKF for missing values.

## 13.5 SDM Yankee cylinder housings d 340 – 600 mm

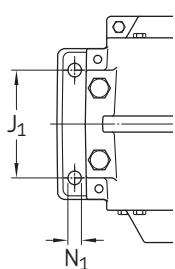


Shaft diameter d <sub>a</sub>	Housing designation	Appropriate parts Bearing <sup>1)</sup>	Lock nut	Locking clip	Dimensions Housing									
					A <sub>1</sub>	A <sub>3</sub>	A <sub>4</sub>	C <sub>a</sub>	D <sub>a</sub>	H	H <sub>1</sub>	H <sub>2</sub>	J	
mm	–	–	mm									J <sub>1</sub>	L	
340	SDM 3068 F	23068 CCK/W33	HM 3068	MS 3068-64	260	195	210	133	520	650	345	75	760	170 860
	SDM 3068 RA	C 3068 K												
380	SDM 3168 F	23168 CCK/W33	HM 3068	MS 3068-64	320	210	255	190	580	740	400	80	800	180 900
	SDM 3168 RA	C 3168 KM												
420	SDM 3076 F	23076 CCK/W33	HM 3076	MS 3080-76	260	200	220	135	560	710	380	80	790	170 890
	SDM 3076 RA	C 3076 K												
460	SDM 3084 F	23084 CAK/W33	HM 3084	MS 3084	280	205	230	150	620	765	410	85	840	180 950
	SDM 3084 RA	C 3084 KM												
530	SDM 30/530 F	230/530 CAK/W33	HM 30/530	MS 30/600-530	360	240	270	185	780	960	510	85	1090	240 1200
	SDM 30/530 RA	C 30/530 KM												
600	SDM 30/600 F	230/600 CAK/W33	HM 30/600	MS 30/600-530	410	325	355	200	870	1065	550	85	1220	240 1360
	SDM 30/600 RA	C 30/600 KM/C3												

<sup>1)</sup> 23(000) and 23(0)/(000) – spherical roller bearing, C... – CARB toroidal roller bearing. Only typical bearings are listed. Other bearing variants can also fit the housing.



SDM .. RA

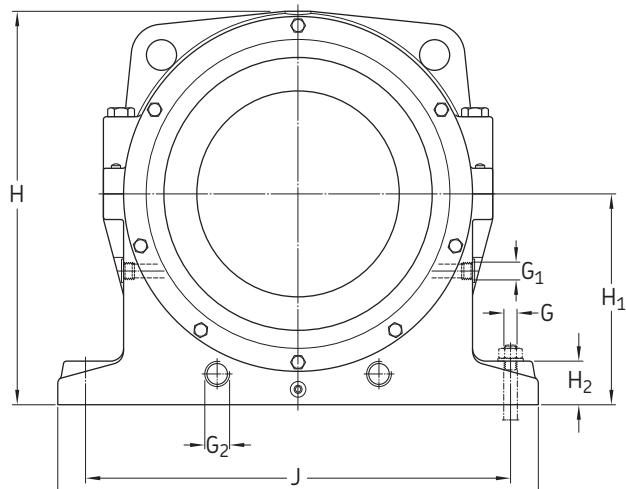
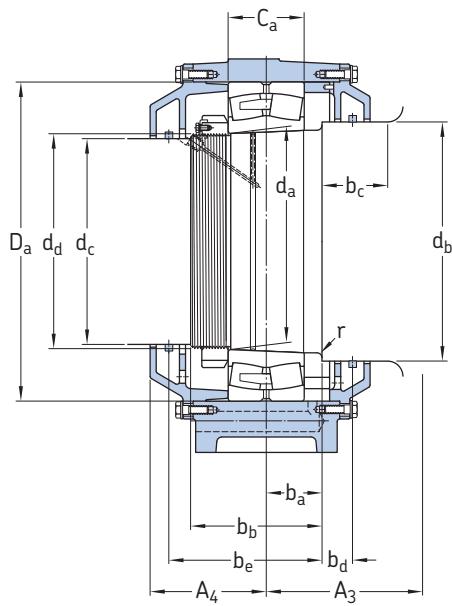


SDM .. F

Shaft diameter	Dimensions										Shaft			Mass Housing										
	Housing										d <sub>a</sub>	N <sub>1</sub>	N <sub>2</sub>	G	G <sub>1</sub>	G <sub>2</sub>	b <sub>a</sub>	b <sub>b</sub>	b <sub>c</sub> min.	b <sub>d</sub>	b <sub>e</sub>	d <sub>b</sub>	d <sub>c</sub>	d <sub>d</sub>
mm	mm	mm	-	mm	-	mm	mm	mm	mm	mm	mm	mm	mm	kg	mm	kg								
340	30	50	M 24	G 1	G 1.1/4	95	225	130	65	270	380	320	Tr 340x5	10	386									
	30	50	M 24	G 1	G 2	130	295	110	48	353	390	320	Tr 340x5	10	572									
380	30	50	M 24	G 1	G 1.1/4	95	230	135	70	280	420	360	Tr 380x5	10	475									
420	30	50	M 24	G 1	G 1.1/2	110	260	130	60	305	465	400	Tr 420x5	10	494									
	30	50	M 24	G 1	G 1.1/2	180	375	150	70	450	465	400	Tr 420x5	10	882									
460	30	50	M 24	G 1	G 1.1/2	110	270	140	70	320	510	430	Tr 460x5	10	750									
530	38	58	M 30	G 1	G 2	135	300	140	65	365	580	500	Tr 530x6	10	914									
	38	58	M 30	G 1	G 2	195	425	160	85	505	590	500	Tr 530x6	10	1530									
600	38	58	M 30	G 1	G 2	160	345	195	120	470	660	560	Tr 600x6	15	1550									

13.5

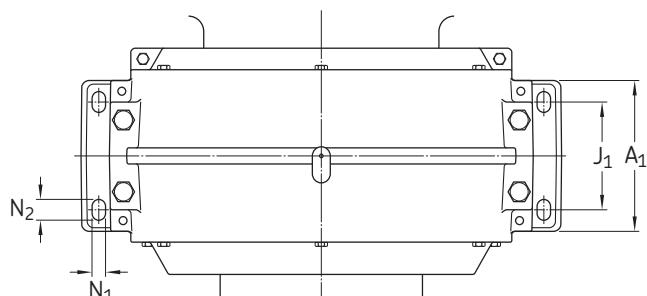
## 13.5 SDM Yankee cylinder housings d 630 – 670 mm



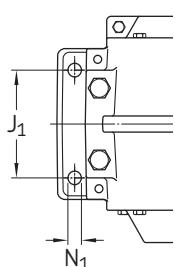
Shaft diameter	Housing designation	Appropriate parts	Lock nut	Locking clip	Dimensions Housing							
					A <sub>1</sub>	A <sub>3</sub>	A <sub>4</sub>	C <sub>a</sub>	D <sub>a</sub>	H	H <sub>1</sub>	H <sub>2</sub>
mm												mm
630	SDM 31/630 F SDM 31/630 RA	231/630 CAK/C3W33 C 31/630 KMB/HA3C4	HM 31/630	MS 31/630	510	2)	2)	315	1 030	2)	700	2) 1 330 350 1 500
670	SDM 30/670 F SDM 30/670 RA	230/670 CAK/W33 C 30/670 KM/HA3C4	HM 30/670	MS 30/670	420	300	330	230	980	1 180	620	85 1 260 300 1 380

<sup>1)</sup> 23(000) and 23(0)/(000) – spherical roller bearing, C... – CARB toroidal roller bearing. Only typical bearings are listed. Other bearing variants can also fit the housing.

<sup>2)</sup> Contact SKF for missing values.



SDM .. RA



SDM .. F

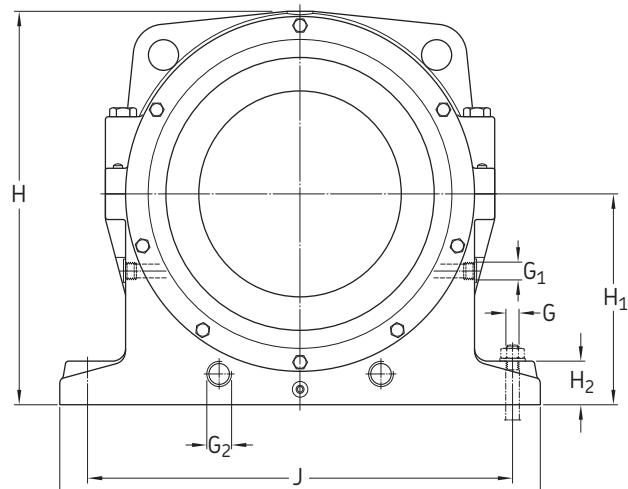
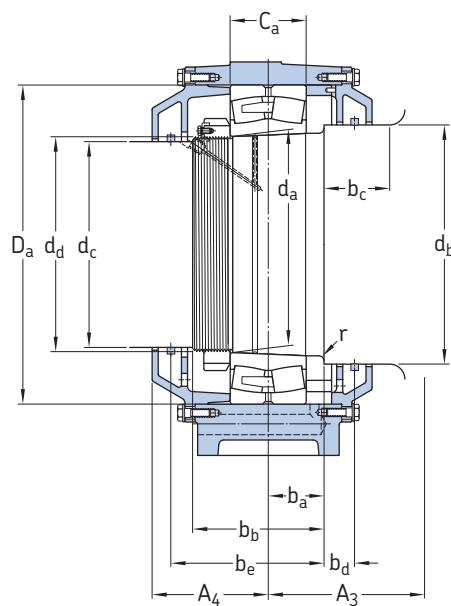
Shaft diameter	Dimensions Housing										Shaft			Mass Housing		
	N <sub>1</sub>	N <sub>2</sub>	G	G <sub>1</sub>	G <sub>2</sub>	b <sub>a</sub>	b <sub>b</sub>	b <sub>c</sub> min.	b <sub>d</sub>	b <sub>e</sub>	d <sub>b</sub>	d <sub>c</sub>	d <sub>d</sub>	r		
mm	mm	–	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	–	
630	38	58	M 30	G 1	G 2	1)	1)	1)	1)	1)	710	590	Tr 630x6	1)	2 420	
670	38	58	M 30	G 1	G 2	190	395	150	65	475	750	630	Tr 670x6	15	1 420	

13.5

<sup>1)</sup> Contact SKF for missing values.

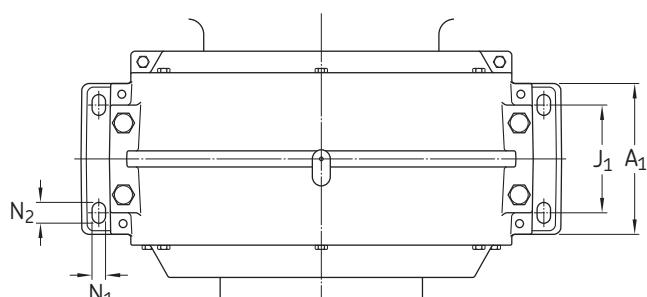
## 13.6 SDM Yankee cylinder housings, with inch connection threads

d 340 – 600 mm  
13.368 – 23.622 in.

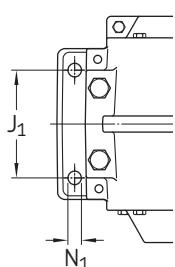


Shaft diameter d <sub>a</sub>	Housing Designation	Appropriate parts Bearing <sup>1)</sup>	Dimensions Housing												
			Lock nut	Locking clip	A <sub>1</sub>	A <sub>3</sub>	A <sub>4</sub>	C <sub>a</sub>	D <sub>a</sub>	H	H <sub>1</sub>	H <sub>2</sub>	J	J <sub>1</sub>	L
340 13.368	SDM 3068 FN9 SDM 3068 RAN9	23068 CCK/W33 C 3068 K	N 068	PL 68	260	195	210	133	520	650	345	75	760	170	860
	SDM 3168 FN9 SDM 3168 RAN9	23168 CCK/W33 C 3168 KM	N 068	PL 68	320	210	255	190	580	740	400	80	800	180	900
380 14.961	SDM 3076 FN9 SDM 3076 RAN9	23076 CCK/W33 C 3076 K	N 076	PL 76	260	200	220	135	560	710	380	80	790	170	890
420 16.535	SDM 3084 FN9 SDM 3084 RAN9	23084 CAK/W33 C 3084 KM	N 084	PL 84	280	205	230	150	620	765	410	85	840	180	950
	SDM 3184 FN9 SDM 3184 RAN9	23184 CKJ/W33 C 3184 KM	N 084	PL 84	400	290	310	224	700	910	480	85	1045	280	1165
460 18.110	SDM 3092 FN9 SDM 3092 RAN9	23092 CAK/W33 C 3092 KM/C3	N 092	PL 92	310	220	250	163	680	850	450	85	970	200	1090
530 20.866	SDM 30/530 FN9 SDM 30/530 RAN9	230/530 CAK/W33 C 30/530 KM	N 530	PL 530	360	240	270	185	780	960	510	85	1090	240	1200
	SDM 31/530 FN9 SDM 31/530 RAN9	231/530 CAK/W33 C 31/530 KM	N 530	PL 530	410	325	355	272	870	1065	550	85	1220	240	1360
600 23.622	SDM 30/600 FN9 SDM 30/600 RAN9	230/600 CAK/W33 C 30/600 KM/C3	N 600	PL 600	410	325	355	200	870	1065	550	85	1220	240	1360

<sup>1)</sup> 23(000) and 23(0)/(000) – spherical roller bearing, C... – CARB toroidal roller bearing. Only typical bearings are listed. Other bearing variants can also fit the housing.



SDM .. RA



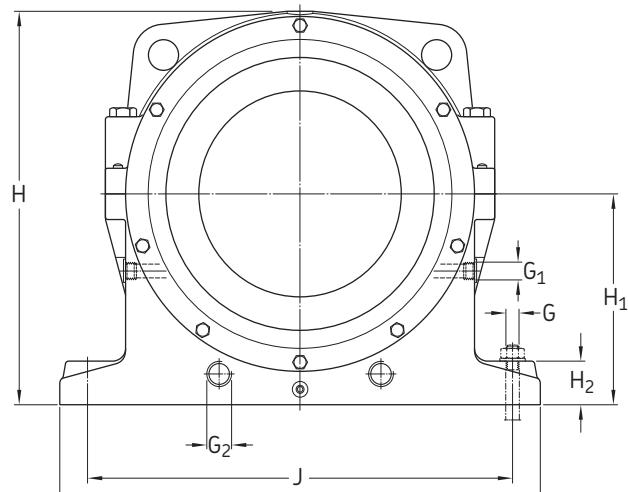
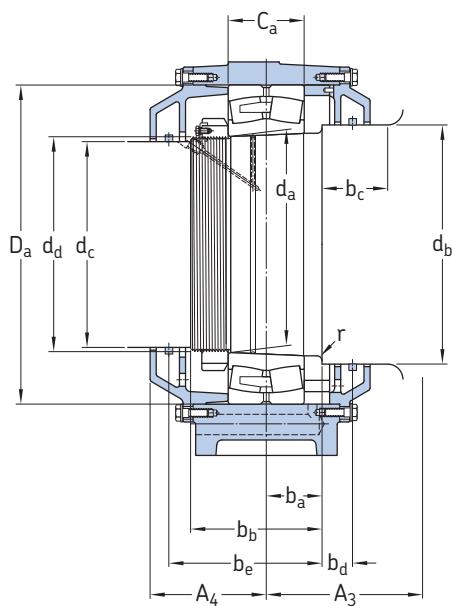
SDM .. F

Shaft diam- eter $d_a$	Dimensions						Shaft						Mass Housing			
	Housing			$G_1$	$G_2$	$b_a$	$b_b$	$b_c$ min.	$b_d$	$b_e$	$d_b$	$d_c$	$d_d$	threads/ inch	r	
mm/in.	mm	in.	mm						in.			-			mm	kg
340 13.368	30	50	1 UNC	NPTF 1	NPTF 1.1/4	95	225	130	65	270	380	320	13.303	5	10	386
	30	50	1 UNC	NPTF 1	NPTF 2	130	295	110	48	353	390	320	13.303	5	10	572
380 14.961	30	50	1 UNC	NPTF 1	NPTF 1.1/4	95	230	135	70	280	420	360	14.921	5	10	475
420 16.535	30	50	1 UNC	NPTF 1	NPTF 1.1/2	110	260	130	60	305	465	400	16.496	5	10	494
	30	50	1 UNC	NPTF 1	NPTF 1.1/2	180	375	150	70	450	465	400	16.496	5	10	882
460 18.110	30	50	1 UNC	NPTF 1	NPTF 1.1/2	110	270	140	70	320	510	430	18.071	5	10	750
530 20.866	38	58	1.1/4 UNC	NPTF 1	NPTF 2	135	300	140	65	365	580	500	20.827	4	10	914
	38	58	1.1/4 UNC	NPTF 1	NPTF 2	195	425	160	85	505	590	500	20.827	4	10	1530
600 23.622	38	58	1.1/4 UNC	NPTF 1	NPTF 2	160	345	195	120	470	660	560	23.583	4	15	1550

13.6

## 13.6 SDM Yankee cylinder housings, with inch connection threads

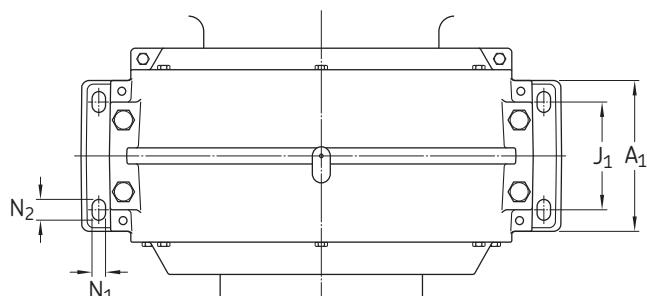
d 630–670 mm  
24.803 – 26.378 in.



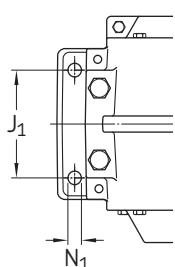
Shaft diameter d <sub>a</sub>	Housing Designation	Appropriate parts Bearing <sup>1)</sup>	Dimensions									
			Lock nut	Locking clip	Housing							
mm/in.	mm	A <sub>1</sub>	A <sub>3</sub>	A <sub>4</sub>	C <sub>a</sub>	D <sub>a</sub>	H	H <sub>1</sub>	H <sub>2</sub>	J	J <sub>1</sub>	L
630 24.803	SDM 31/630 FN9 SDM 31/630 RAN9	231/630 CAK/C3W33 C 31/630 KMB/HAA3C4	N 630	PL 630	510	2)	2)	315	1030	2)	700	2) 1330 350 1500
670 26.378	SDM 30/670 FN9 SDM 30/670 RAN9	230/670 CAK/W33 C 30/670 KM/HAA3C4	N 670	PL 670	420	300	330	230	980	1180	620	85 1260 300 1380

<sup>1)</sup> 23(000) and 23(0)/(000) – spherical roller bearing, C... – CARB toroidal roller bearing. Only typical bearings are listed. Other bearing variants can also fit the housing.

<sup>2)</sup> Contact SKF for missing values.



SDM .. RA



SDM .. F

Shaft diam- eter $d_a$	Dimensions						Shaft						Mass Housing				
	Housing			$G_1$	$G_2$		$b_a$	$b_b$	$b_c$ min.	$b_d$	$b_e$	$d_b$	$d_c$	$d_d$	threads/ inch	r	
mm/in.	mm	in.					mm					in.	–	mm	kg		
630 24.803	38	58	1.1/4 UNC	NPTF 1	NPTF 2		1)	1)	1)	1)	1)	710	590	24.760	4	1)	1)
670 26.378	38	58	1.1/4 UNC	NPTF 1	NPTF 2		190	395	150	65	475	750	630	26.339	4	15	1 420

13.6

<sup>1)</sup> Contact SKF for missing values.

