SKF Food Line ball bearing units

Contents

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A complete range of relubrication-free solutions supporting food safety programs

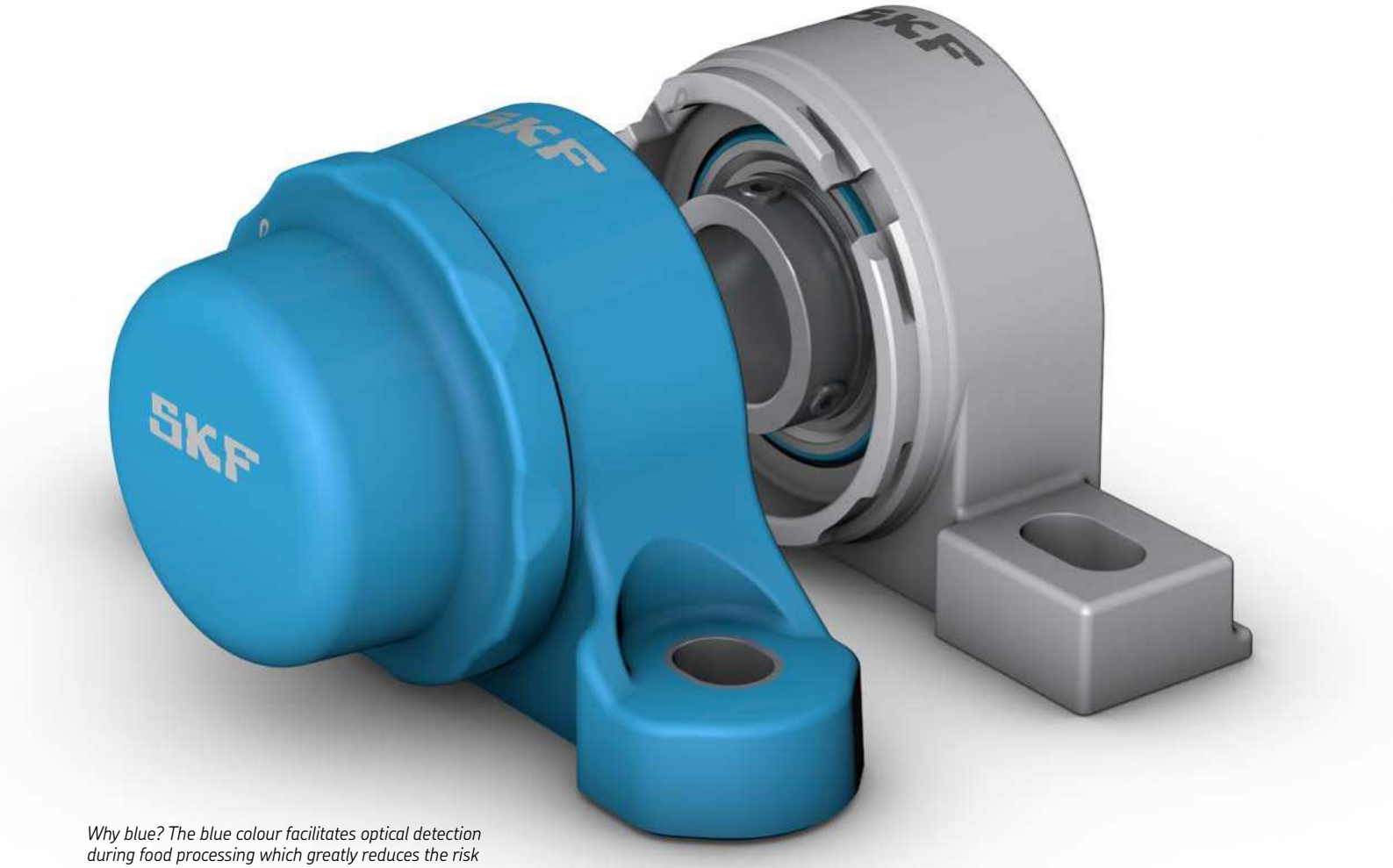
Food and beverage processing is a particularly challenging industry for machinery operations. Strict cleaning regimes for eliminating contaminants and reducing the spread of bacteria mean the machinery will be frequently exposed to pressure washdowns with caustic, antibacterial cleansing agents.

The SKF Food Line ball bearing units offer a complete range of bearing unit solutions for such demanding environments. Lubricated for life and designed to withstand frequent washdowns, the new bearing units solve many of the problems resulting from traditional maintenance.

More importantly, they provide a solution to many food safety issues. With food recalls on the rise and safety regulations becoming stricter globally, proactive food safety programs have become the norm.

All SKF Food Line ball bearing units are specifically developed to support these proactive food safety programs. They incorporate SKF's latest advancements in hygienic design and bearing performance to help the industry reach its most critical goals, such as:

- reducing risks to food safety
- increasing the potential for uptime
- reducing maintenance and related costs
- fostering a sustainable culture



Why blue? The blue colour facilitates optical detection during food processing which greatly reduces the risk of undetected product contamination.

SKF Food Line ball bearing units

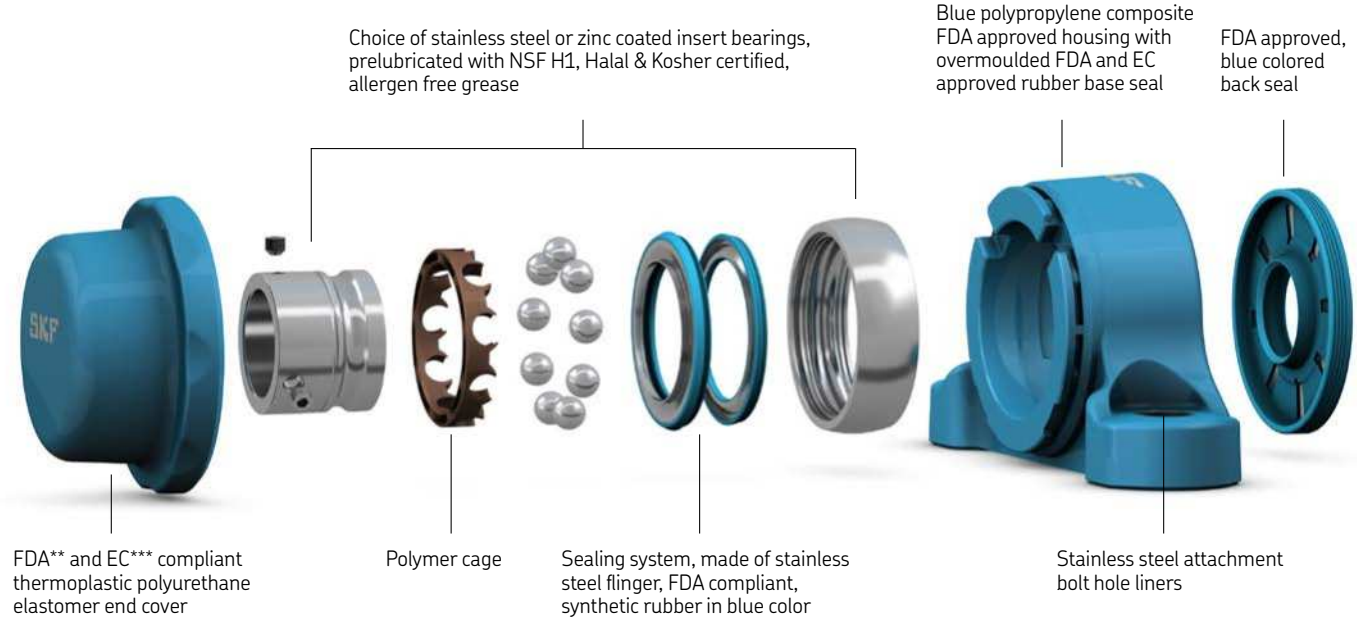
SKF Food Line ball bearing units have been developed with most of the food safety regulations worldwide – with food grade and corrosion resistant components, using blue materials for optical detectability. Each element has been designed to balance high performance and hygienic standards considering EHEDG* guidelines.

Built from the ground up using foodsafe components and hygienic surface design, the units are developed to proactively eliminate contaminant traps and to reduce the risk of bacteria and allergen development.

SKF Food Line ball bearing units can be supplied as open units or completely sealed units with an end cover and back seal.

The patented bearing sealing system and exceptional grease performance contribute to achieving extended bearing life and high reliability. Designed for relubrication-free operations, the units are thus able to reduce maintenance needs and the related grease and labour costs.

The relubrication-free feature and hygienic design contribute to cleaning water savings, as well as a reduced disposal of grease absorbents. This supports an overall preventive culture versus a disposal oriented environmental one.



** EHEDG – European hygienic engineering design group – is a forum for food processing equipment manufacturers, users and legislators to discuss issues concerning hygienic design and to stimulate food safety and quality. (source: https://www.ehedg.org/ehedg/tasks-objectives/)*

*** FDA – U.S. Food and Drug Administration*

**** EC – European Community*

Hygienic design

Hygienic engineering and a design for food safety comes with a range of specific requirements. The surface geometry and material composition of housings, end covers, and the base and back seals have been designed in line with these requirements.

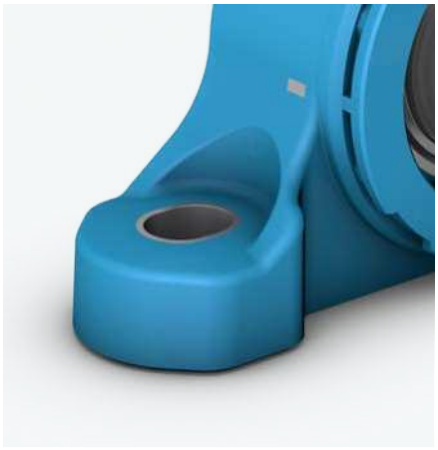
Hygienic geometry of the housing reduces potential contaminant traps.

The housing is designed to avoid crevices or recesses where food products might become trapped and bacteria might grow.

The sleeves in the mounting bolt holes are not split and the manufacturing mould marks are kept to a minimum.

Further, the housing has no sharp corners. All surfaces are angled to prevent pooling. The flat areas on its exterior are those provided to seat rubberised mounting washers.

These advanced housing shapes provide three different design protections.



All external surfaces of the housing have a smooth surface finish.

Smooth exterior surfaces on the unit are key to achieving good drainability and cleanability – critical factors in preventing bacterial build-up on the exterior of the bearing unit.

The finish is comparable to food industry requirements for the internal surface finish on hygienic tubing and piping.

The construction makes use of over moulding to achieve an effective base seal. (Not available for stainless-steel housings.)

On its base surface or mounting face, a food grade rubber forms the base seal. The rubber is selectively overmoulded with the composite of the housing to create an effective seal.

As the housing is tightened down, the overmoulded rubber deforms – thereby providing a base seal to the mounting frame. Having this as an integral part of the housing design makes it easier to achieve a more consistent and effective sealing function. It also simplifies the installation.

IP69 certified

Hygienic engineering and a design for food safety comes with a range of specific requirements for ingress protection (IP). The surface geometry and material composition of housings, end covers, and the base and back seals have been designed to comply with these requirements. However, only fully sealed SKF Food line ball bearing units are third-party certified for IP69 rating (IEC 60529).

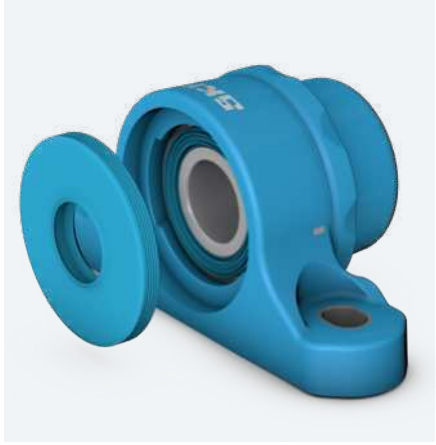
The end cover features positive locking to the housing to help protect against it accidentally being dislodged.

End covers only contribute to hygiene if they remain in place and sealed.

The end cover does not require an additional O-ring, which could easily be displaced during mounting or dismounting.

The end cover material is a high-performance thermoplastic polyurethane elastomer. This material provides a rigid, protective end cover with sufficient flexibility to form an effective interference seal with the housing.

Both the retention and sealing features of this end cover are patented.



The back seal offers an additional double sealing protection, stopping food products from entering the bearing cavity.

The back seal seals with the rotating shaft and statically with the housing. Both sealing features are intrinsic to the detailed design of the back seal and rely on no additional components, such as a spring.

The integral sealing solution of the back seal reduces the risk of damaging components and contaminating the product line. It also eliminates the risk of losing a separate component.

Housings

The housings are strong, yet lightweight and chemically resistant. Their hygienic design features make them ideal for complying with the highest food safety standards.

The housings remain highly stable dimensionally and maintain their expected physical properties despite repeated operational and washdown cycles.

Particularly in wet environments, the housings are more reliable than the ones made with polyamide (PA) and Polybutylene terephthalate (PBT). PA (not geometrically stable) and PBT (subject to hydrolysis if washed down with hot water) are the main two materials commonly utilized in the market.

The composite material for the housings is reinforced polypropylene – a material chosen for its dimensional stability and chemical resistance to detergents and contaminants (**table 1**). Importantly, polypropylene naturally repels water, distinguishing it from other conventional composite housing materials.

The housings feature 40% long glass fibre reinforcement. This reduces the tendency of the housings to creep under temperature and load (**table 2**).

Table 1

Chemical resistance ratings for polypropylene

Strong alkalies	Excellent
Weak acids	Excellent
Strong acids	Good
Alcohol	Good

Table 2

Temperature limit
For other operating temperature, please contact your local sales representative

	Temperature range	
Insert bearing	–30 °C (*–20 °F*)	100 °C (*210 °F*) Up to 120 (*250 °F*) for short periods
Open Unit (SS*)	–30 °C (*–20 °F*)	100 °C (*210 °F*) Up to 120 (*250 °F*) for short periods
Open Unit (Composite)	–20 °C (*–5 °F*)	80 °C (*175 °F*) Up to 100 (*210 °F*) for short periods
Fully Sealed Unit	–20 °C (*–5 °F*)	80 °C (*175 °F*) Up to 100 (*210 °F*) for short periods

* Stainless steel

The housings are available in the following six designs – all covered by design patents:


Plummer block


Short base plummer block


Oval flanged


3-bolt flanged


Square flanged


Take-up

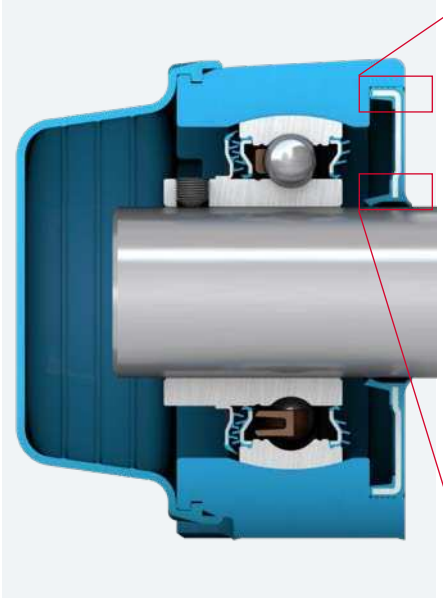
Back seal

The primary purpose of the back seal is to protect the bearing unit from "shaft-side" contamination.

The external face of the back seal has been designed to provide sealing against enclosure wall or panel that has been drilled to allow clearance for the shaft to pass through to the bearing unit.

On a flanged unit back seal can be used to seal the shaft access or clearance hole in order to avoid the creation of a cavity behind the panel, where food debris could otherwise collect.

Both housing types, either composite or Stainless steel, can host a back seal. It can only be mounted in a unit with a dedicated bearing.



Static: Sealing with housing: The rubberized outer diameter of the back seal has an interference fit in the housing bore.

Dynamic: The seal has double contacting lips with sufficient interference to cope with up to 1° misalignment.

End cover

The end cover improves operator safety by covering the shaft and is an additional barrier to the ingress of process material and cleaning agents.

Positive retention to the housing is provided by four circumferential interlocking slots, that require a locked end cover to be rotated before it can be removed.

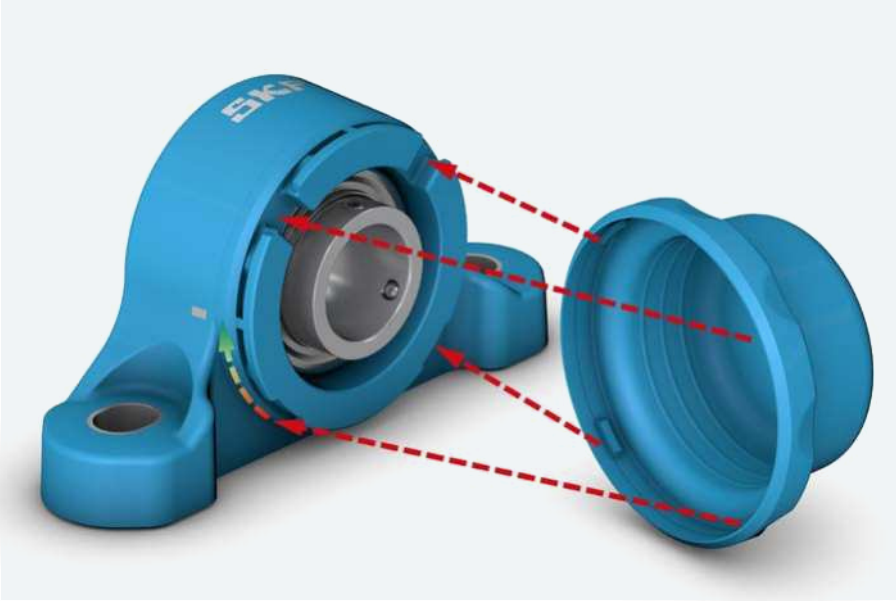
In the locked position, each of the four "teeth" on the end cover are secured in position by internal housings stops. This helps protect against the end cover being dislodged accidentally or during cleaning.

The resistance to rotation provided by the inter-locking stops must be overcome before the cover can be rotated.

The end cover is designed to be routinely opened for inspection and then re-locked. Both the housing and the end cover feature laser marked lock and unlock symbols, so that the end cover lock status can be easily confirmed.

Twist to lock or to unlock (1/8 turn) with no tools required.

End covers are available in closed and open versions for both composite and stainless steel housings.



The end cover locking mechanism and sealing features are patented.

The housing marker aligns with the end cover symbol (see picture on the right):

- ○ an open circle – end cover unlocked, ready to be removed or locked.
- ● a filled circle – end cover now correctly locked in position.

End cover resistance
The end cover's ability to resist high pressure cleaning at 70 bar has been tested. Throughout the tests, the end cover remained locked in place, and completely sealed. An inspection of the interior of the end cover on completion of the tests, confirmed no soilings were present.

End cover effectiveness
Repetitive opening and closing that were the equivalent of weekly checks over a four-year period, resulted in no loss of effectiveness of the locking and sealing functions.

Product combinations for process specific zones

In addition to the completely sealed SKF Food Line ball bearing units (suffix DFH), other product combinations are available. For instance, in applications where a fully sealed bearing unit is not required from a food safety perspective, or in environments subject to peak loading. All product combinations feature the same advanced bearing seal arrangement and are supplied lubricated for life with the same highly effective grease, similar to the fully sealed ball bearing units.

Zones with limited risk of contamination

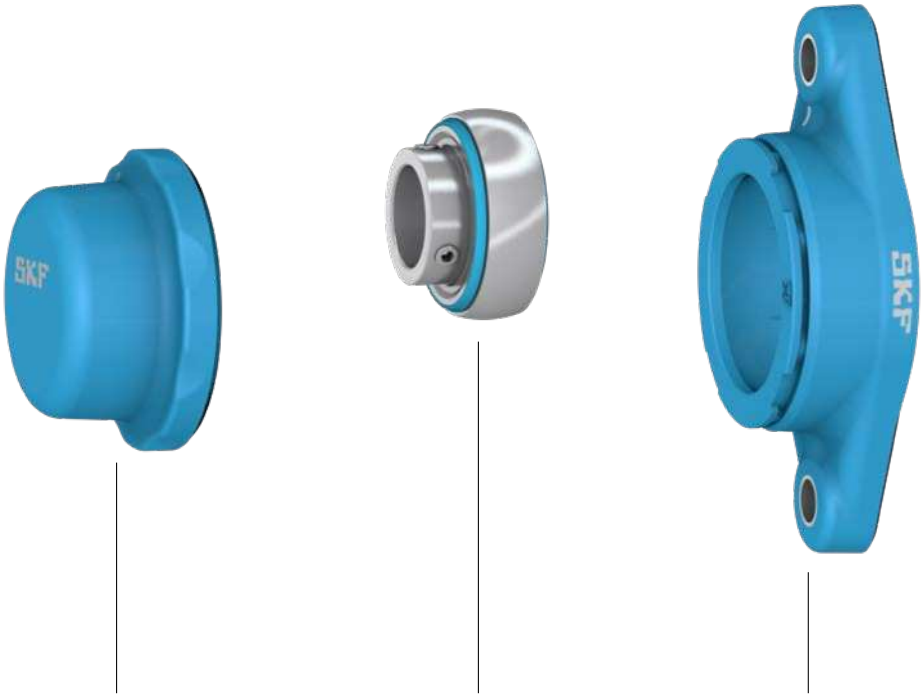
Closed food processing or areas where packaged goods are being handled are typical zones with limited risk of contamination. The SKF Food Line ball bearing units offer high performing solutions for such areas.

These product combinations include a stainless steel insert bearing in the blue, hygienically designed, composite housing with no backseal.

In addition, there is also the option of ordering the blue end cover which improves personnel safety by enclosing the exposed shaft end.

For applications where it is considered acceptable, a zinc coated insert bearing can be substituted for the stainless steel bearing.

Bearings with this coating resist attack from water and acidic or caustic solutions far better than uncoated insert bearings, or bearings with black oxide coatings.



End cover
(optional)

ECB 5XX

Stainless steel bearing
(For open version, zinc coated bearing suffix ZM are also available)

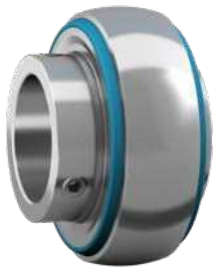
YAR 2XX(–XXX)–2LPW/SS

Composite housing
(with no backseal)

F2BC 5XX

Insert bearings and sealing system

At the heart of each unit is a high-quality corrosion resistant insert bearing with AISI grade 420 stainless steel inner ring, outer ring and balls. SKF Food Line ball bearing units also incorporate a patented bearing sealing system that adopts a radically different approach to preventing damage caused by detergent ingress into the bearing.



The bearing is designed as a single row deep groove ball bearing with a sphered (convex) outer surface to the outer ring. The sphered surface matches a correspondingly sphered, but concave housing bore. The design minimises internal loads on the bearing that would exist if initial misalignment went uncorrected.

The bearing inner ring is extended on the outboard/locking side. It is locked on the shaft with two stainless steel grub screws that are positioned at 120°, minimising inner ring distortion while maintaining good gripping strength.

The inner ring of the bearing is dimensioned to accommodate the fitting of the back seal, allowing the units to be deployed in applications with the highest hygienic design and food safety requirements (e.g. open food processing zones). The sealing system consists of a non-contacting seal and a flinger, located at the outer circumference (**fig. 1**). The flinger provides the first barrier against the ingress of both solid and liquid contaminants. This closes against the bearing outer ring when pressure washed.

Next, the design provides a series of internal concentric "gutters" (**fig. 2**) which contain and collect any drops of detergent that penetrate and then guide them, circumferentially, around and away from the bearing (**fig. 3**).

Due to this innovative design, the sealing performance is not limited by the lip contact force against the shaft. This means that the seal can achieve high levels of protection coupled with low energy consumption. The internal gutters are designed to guide detergent away from the bearing. Whereas the aim of a detergent is to penetrate and clean, this novel approach aims to work with rather than against the detergent.


Fig. 1

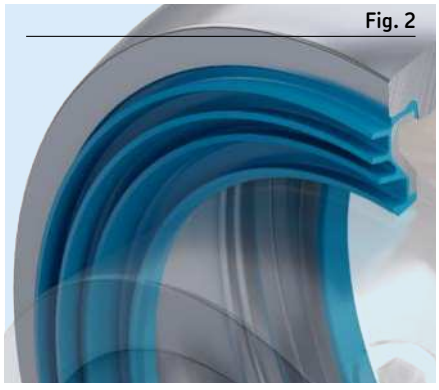


Fig. 2

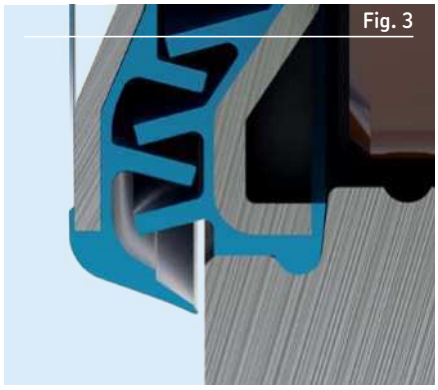


Fig. 3

The bearing seals are patented.

Sealing system effectiveness

Accelerated testing has shown that this design provides better sealing performance by actively dealing with detergent ingress rather than seeking to passively exclude it. In testing, detergent droplets were allowed to enter the seal at a rate of 5 drops per minute over a period of 500 hours, after which the internals of the seal were examined.

The post-test analyses confirmed that detergent ingress is typically contained within and channelled away by the first or second of the multiple gutters.

In addition, both the friction torque and the temperature measured from trials of the 206 size are considerably reduced, considering that there is only one contacting lip instead of two.

Applications subject to peak loads

SKF Food Line stainless steel ball bearing housings are cast from AISI 300 series stainless steel, providing good durability and resistance to peak loads.

Cast stainless steel is resistant to aggressive washdown chemicals. The housings are therefore not affected by strong concentrations of chlorine, hydrogen peroxide and many other chemicals. In addition, the housings feature machined flat bases; the absence of any unnecessary crevices or pockets on the external surfaces and a smooth finish means that the stainless steel housings are easy to clean with no recessed areas for debris and bacteria to accumulate or become trapped.

The SKF Food Line ball bearing units with stainless steel housings are offered with stainless steel inserts only and can be supplied as open units (with a blue end cover as an option), or completely sealed units with end cover and back seal.

End cover (optional)

ECB 5XX

Stainless steel bearing

YAR 2XX(–XXX)–2LPW/SS

Stainless steel housing (compact and standard type)

F2BSS 5XX

Back seal for DFH version only

The stainless steel housings are available in the following four designs:

Plummer block

Short base plummer block

Oval flanged

Square flanged

Bearing grease

All units are lubricated for life with NSF*-approved, SKF food-grade grease for relubrication-free operation. The high-quality grease is registered by NSF as a category H1 (lubricant acceptable for use in applications where there is potential for incidental food contact).

The SKF food-grade grease has been selected because it provides good resistance to the separation of the base oil from the thickener in the presence of detergent. Greases without this enhanced resistance can separate, resulting in loss of oil past the seal, then loss of lubrication to the seal lips.

This can lead to scoring damage to the mating surface on the inner ring shoulder. The NSF registration confirms this SKF grease fulfils the requirements listed in the FDA's guidelines under 21 CFR section 178.3570.

The technical specifications of this grease are listed in **table 2**.

The grease contains no ingredients from the 14 allergens and allergen categories that must be declared in food products and is also free from traces of beef, pork and chicken. Additional certifications for the grease have been secured from AMERICAN HALAL FOUNDATION (AHF) and 1K Kosher.

Allergens and allergen categories

- Cereals containing gluten, namely: wheat (such as spelt and khorasan wheat), rye, barley, oats
- Crustaceans for example prawns, crabs, lobster, crayfish
- Eggs
- Fish
- Peanuts
- Soybeans
- Milk (including lactose)
- Nuts; namely almonds, hazelnuts, walnuts, cashews, pecan nuts, Brazil nuts, pistachio nuts, macadamia (or Queensland) nuts
- Celery (including celeriac)
- Mustard
- Sesame
- Sulphur dioxide/sulphites, where added and at concentration > 10 mg/kg or 10 mg/L in the finished product. This can be used as a preservative in dried fruit
- Lupin, which includes lupin seeds and flour and can be found in types of bread, pastries and pasta
- Molluscs like, mussels, whelks, oysters, snails and squid

Table 2

Technical specifications of the SKF grease for Food Line ball bearing units

Temperature range[1)]	Thickener	Base oil type	NLGI consistency class	Base oil viscosity [mm²/s] at 40 °C (104 °F)	at 100 °C (212 °F)	Grease performance factor (GPF)
–50 0 50 100 150 200 250 °C –60 30 120 210 300 390 480 °F	Calcium Sulfonate Complex	Mineral	2	113,0	5,8	1,5

1) Refer to SKF catalogue Rolling bearings – the SKF traffic life concept

Grease effectiveness

In SKF testing, droplets of detergent were injected into the test bearings using a peristaltic pump. The results showed a good resistance to degradation in the presence of detergent.

** NSF – National Sanitation Foundation*

Mounting instructions

General

To have proper bearing performance and prevent premature failure, all relevant procedures and precautions should be observed when mounting SKF Food Line ball bearing units.

As with all precision components, they should be kept clean and handled carefully when mounting. It is also important to choose the appropriate method of mounting and to use the correct tools.

The method used for mounting SKF Food Line ball bearing units depends on the:

- overall machine design
- bearing housing design
- method used to attach the unit to the shaft.

Tools

To mount or dismount SKF Food Line ball bearing units, the following tools are required:

- a hexagonal key (hex wrench) to tighten or loosen grub (set) screws
- a spanner wrench to tighten or loosen the mounting bolts.

Mounting bolts

To attach SKF Food Line ball bearing units to the support surface and to increase the hygienic safety of the overall product, SKF recommends using hygienic design bolts and rubberised washers, **fig 1**.

In order to assure the ball bearing unit is correctly positioned and the bearing is able to withstand the load in application, SKF advises that you not exceed the machine wall through hole diameters as per **table 4** and **5** and to follow the tightening torque values highlighted in **table 6**.

Fig. 1

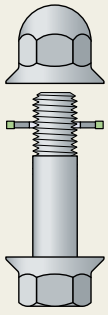


Table 1

Recommended ISO shaft fits

Operating conditions	Tolerance class[1)]
P > 0,05 C and/or high speeds	h6
0,035 C < P ≤ 0,05 C and/or low speeds	h7
0,02 C < P ≤ 0,035 C and/or low speeds	h8
Simple bearing arrangement or P ≤ 0,02 C	h9–11

[1)] All ISO tolerance classes are valid with the envelope requirements (such as h7Ⓔ) in accordance with ISO 14405-1.

⚠ WARNING

Failure to carefully follow applicable mounting instructions such as not having the metallic bushes in contact with machine frame on composite housing, may result in premature bearing failure or improper performance. For further information, contact the SKF application engineering service.

Back Seal

Plummer block and flanged units having assembled back seals must be mounted on the shaft or on the machine frame without the end cover in place (**fig. 2**).

The end cover is to be mounted after the unit is bolted to the machine (**fig. 3**).

Shaft tolerances

The recommended fits for SKF Food Line ball bearings are listed in **table 1**. For moderate loads (0,035 C < P ≤ 0,05 C), the shaft seats should be machined to an ISO h7 tolerance.

For speeds, an ISO h8 shaft tolerance is sufficient, and for very simple applications, ISO h9 and ISO h11 shaft tolerances may be used.

Fig. 4 illustrates the relative position of the upper and lower limits of the most commonly used ISO shaft tolerance classes. The values of these ISO tolerances are listed in **table 2**.

Permissible speed

SKF Food Line ball bearing units should not be operated at speeds above the limiting speeds listed in the product tables (see **table** 3). Permissible speed is also influenced by the shaft diameter tolerance.

Fig. 2

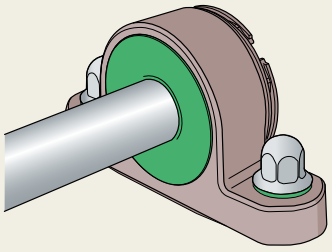


Fig. 3

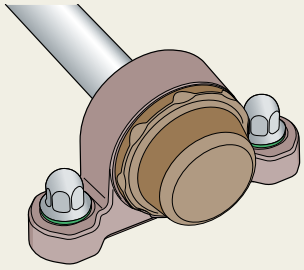


Fig. 4

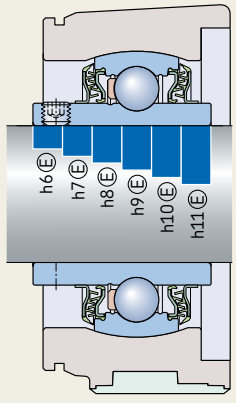


Table 2

ISO shaft deviations for SKF Food Line

Shaft diameter d		Shaft diameter deviations h6Ⓔ		h7Ⓔ		h8Ⓔ		h9Ⓔ		h10Ⓔ		h11Ⓔ	
		Deviation											
over	incl.	high	low	high	low	high	low	high	low	high	low	high	low
mm		µm											
10	**18**	0	–11	0	–18	0	–27	0	–43	0	–70	0	–110
18	**30**	0	–13	0	–21	0	–33	0	–52	0	–84	0	–130
30	**50**	0	–16	0	–25	0	–39	0	–62	0	–100	0	–160
50	**80**	0	–19	0	–30	0	–46	0	–74	0	–120	0	–190
80	**120**	0	–22	0	–35	0	–54	0	–87	0	–140	0	–220

Table 3

Permissible speeds for SKF Food Line[1)]

Bearing size[1)]	Permissible speeds for shafts machined to tolerance class			
	h7Ⓔ	h8Ⓔ	h9Ⓔ	h11Ⓔ
d				
–	r/min			
04	5 300	3 800	1 300	850
05	4 500	3 200	1 000	700
06	4 000	2 800	900	630
07	3 400	2 200	750	530
08	3 000	1 900	670	480
09	2 600	1 600	560	400

[1)] For example, bearing size 07 includes all bearings based on a Y207 bearings such as YAR 207-2LPW/SS, YAR 207-104-2LPW/SS, YAR 207-106-2LPW/SS, YAR 207-107-2LPW/SS.

For standard permissible speeds for open and DFH units and insert bearings please refer to the product tables starting on page 25.

Assembling units

In cases where SKF Food Line ball bearings and bearing housings are not supplied as a unit, the first step is to assemble the bearing into the housing.

The mounting procedure begins with bolting of the housing to the machine frame (**fig. 5**) and placing the bearing when the housing is fixed.

Insert the bearing into the filling slot in the housing bore (**fig. 6**) and rotate it by hand in the housing until the bearing and housing bore axes align as closely as possible.

NOTE
The bearing must be inserted so that the inner ring grub screws will be on the front (end cover) side of the housing.

With a round piece of wood or pipe of a suitable diameter, swivel the bearing a few turns in each direction. While moving the bearing this way, vary the angle so that it moves in all orientations (**fig. 7**).

Fig. 5

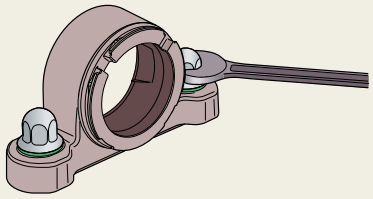


Fig. 6

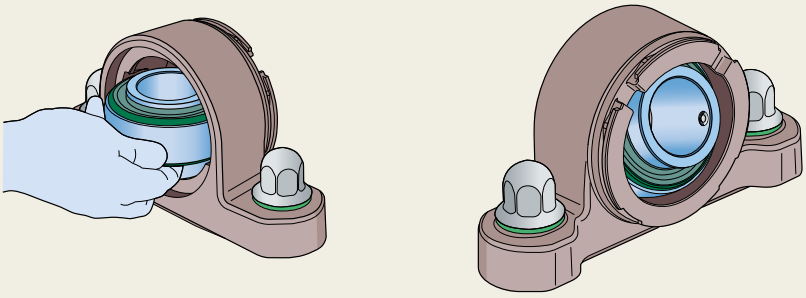
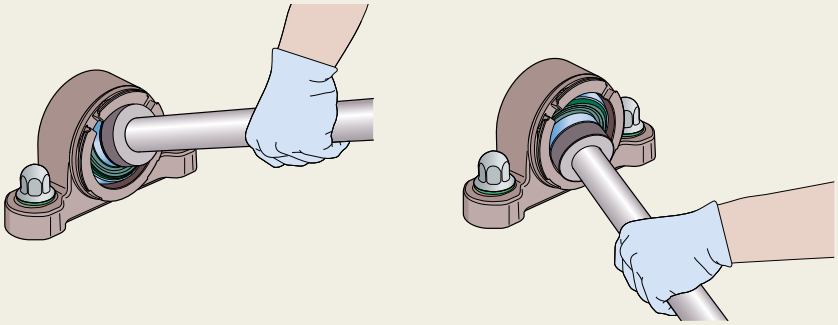


Fig. 7



Alignment

When mounting SKF Food Line ball bearing units it is important for the performance and longevity of the bearing that any misalignment is kept within acceptable limits (**fig. 8**).

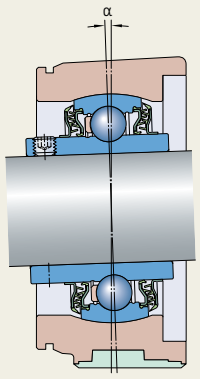
In this regard, the sphered nature of the bearing outer ring and the housing bore can accommodate some static misalignment.

Static, as illustrated above, refers to any initial misalignment between housing and shaft/bearing inner ring arising from mounting errors.

For the fully sealed units this is limited, on the back seal, to ±1°. Housings without back seals can accommodate static misalignment up to ±5°.

The dynamic misalignment is the same of the DGBB bearing which is only few minutes of arc.

Fig. 8



Mounting procedure

1 Remove any burrs on the shaft with emery cloth or a fine file, wipe clean with a cloth. Depending on loads and speeds, define the appropriate shaft tolerance from **tables 1** and **2**, and check the shaft diameter. Mount any components that are on the shaft between the two SKF Food Line ball bearing units. Ensure the supporting surface is flat. The flatness should be within the ISO IT7 tolerance grade and the roughness should be Ra ≤ 12,5 µm. If the housing requires shims or adjustment, the shims must extend the full length and width of the base (**fig. 9**).

2 Slide the SKF Food Line ball bearing unit onto the shaft with grub screws facing outwards and ensure the shaft is correctly positioned (**fig. 10**).

3 For plummer block units, fit the attachment bolts but do not tighten them (**fig 11**). For flanged units, fasten them securely to the machine wall. For composite housings, be sure the metallic bushes in bolt areas will be in contact with the machine wall.

4 Mount the other SKF Food Line ball bearing unit on the other end of the shaft following the same procedure as the first bearing, as shown in **fig. 9** to **11**.

NOTE

For attachment bolt hole sizes and tightening torque, see **tables 4, 5** and **7**.

Fig. 9

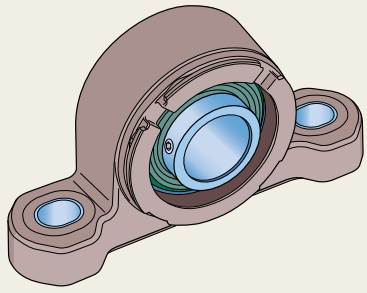


Fig. 10

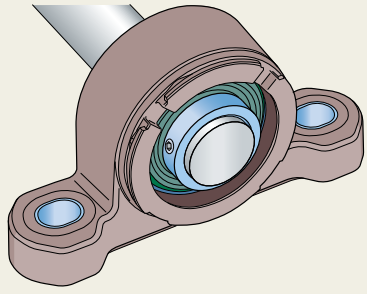


Table 4

Attachment bolt hole sizes according to DIN EN 20273

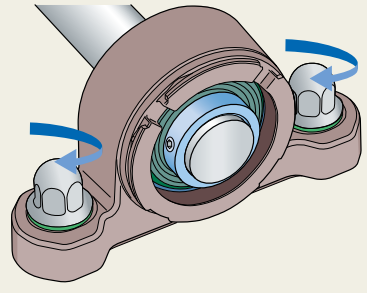
Units for metric shafts	
Bolt size	**Through hole diameter**
G	d_m
mm	mm
8	9
10	11
12	13,5
16	17,5

Table 5

Attachment bolt hole sizes according to ASME

Units for inch shafts	
Bolt size	**Through hole diameter**
G	d_m
in	in
3/8	13/32
7/16	15/32
1/2	9/16
5/8	11/16

Fig. 11



5 Carefully align both SKF Food Line ball bearing units using the shaft. For all plummer block housings, fully tighten the attachment bolts using a torque wrench as shown in **fig. 12** to the tightening torque values shown in **table 7, page 20**. For flanged housings, securely fasten the second unit to the machine wall **(fig. 13)**.

6 Align the shaft in the bearing arrangement axially and, if possible, rotate the shaft a few times. Tighten the inner ring grub screw of both units, **fig. 14** and **15**, to the tightening torque indicated in **table 6**.

7 If applicable, mount the end cover(s).

Fig. 12

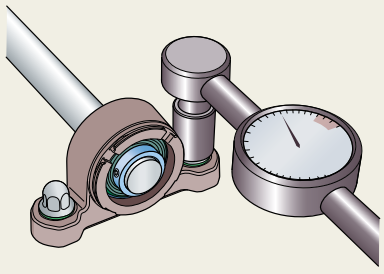


Fig. 13

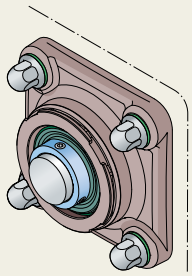


Fig. 14

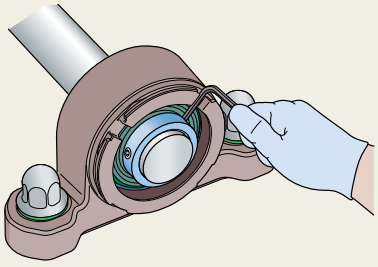


Fig. 15

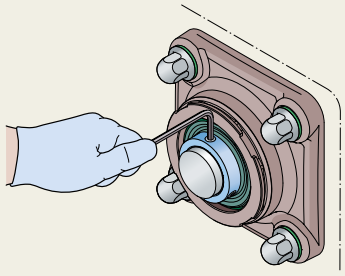
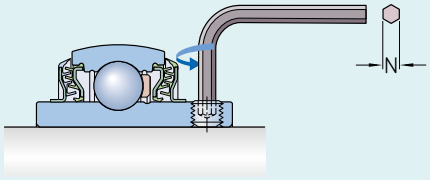


Table 6

Hexagonal keys to tighten inner ring grub screws – sizes and tightening torque



Bearing size[1]	Bearing or unit with metric bore screw size	Hexagonal key size N	Tightening torque	Bearing or unit with inch bore screw size	Hexagonal key size N	Tightening torque
–	–	mm	Nm	–	in	Nm
04	M6×0,75	3	4	1/4-28 UNF	1/8	4
05	M6×0,75	3	4	1/4-28 UNF	1/8	4
06	M6×0,75	3	4	1/4-28 UNF	1/8	4
07	M6×0,75	3	4	5/16-24 UNF	5/32	6,5
08	M8×1	4	6,5	5/16-24 UNF	5/32	6,5
09	M10×1	5	16,5	3/8-24 UNF	3/16	16,5

[1] For example, bearing size 07 includes all bearings based on a Y207 bearings such as YAR 207-2LPW/SS, YAR 207-104-2LPW/SS, YAR 207-106-2LPW/SS, YAR 207-107-2LPW/SS.

Table 7

Recommended tightening torque for attachment bolts

Size	Pillow block ball bearing units				Flanged ball bearing units				
	Stainless steel		Composite		Stainless steel	Composite	Stainless steel	Composite	Composite
	Standard base	Short base	Standard base	Short base	Square		Oval		3-bolt-bracket
	Nm								
03	–	–	–	–	–	–	–	–	–
04	25	25	25	25	20	20	25	25	25
05	30	30	30	30	25	25	30	30	30
06	55	45	45	35	30	30	40	40	40
07	70	55	55	40	35	35	60	55	50
08	90	65	60	45	40	40	70	60	55
09	–	–	–	–	–	–	–	–	–
10	–	–	70	55	–	55	–	70	65

End covers

The **product tables 1.1** to **1.13** show the appropriate end cover for each bearing unit and the distance A_5 that the end cover protrudes once mounted on the housing (**fig. 16**). Prior to starting the mounting procedure, check if the A_5 dimension is suitable for your application arrangement.

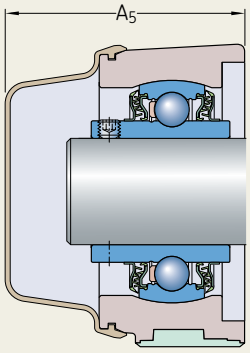
Open and closed ECB end cover with TPU seal material

NOTE

The end cover is sold separately in all the units except for the DFH (fully sealed) solution.

Blue end covers (composite housings)

Fig. 16



⚠ WARNING

Rotating parts hazard.
To avoid serious injury, do not mount or dismount an end cover unless the shaft has stopped rotating and the machine has been locked out or the shaft has been secured so it can't rotate.

Mounting/dismounting instructions

1 Remove the end cover from its packaging.
2 Identify the alignment mark on the housing and orientate the end cover so that the alignment mark is aligned with the "open circle" marking on the end cover:

○

3 Engage and rotate the end cover, 1/8 of a turn until the housing marker is now aligned to the closed circle marking on the end cover:

●

The end cover is now in the mounted position.

4 To dismount the end cover, rotate the end cover back so that the housing marker and the open circle align, then pull away the cover.

The end cover locking mechanism and sealing features are patented.

Back seal

The shaft surface where the back seal is positioned must have a surface finish Ra < 0,6 microns.

It is highly recommended that the space between the contact seal and its excluder seals be filled with a certified NSF1 grease to minimize the seal wear and optimize its life.

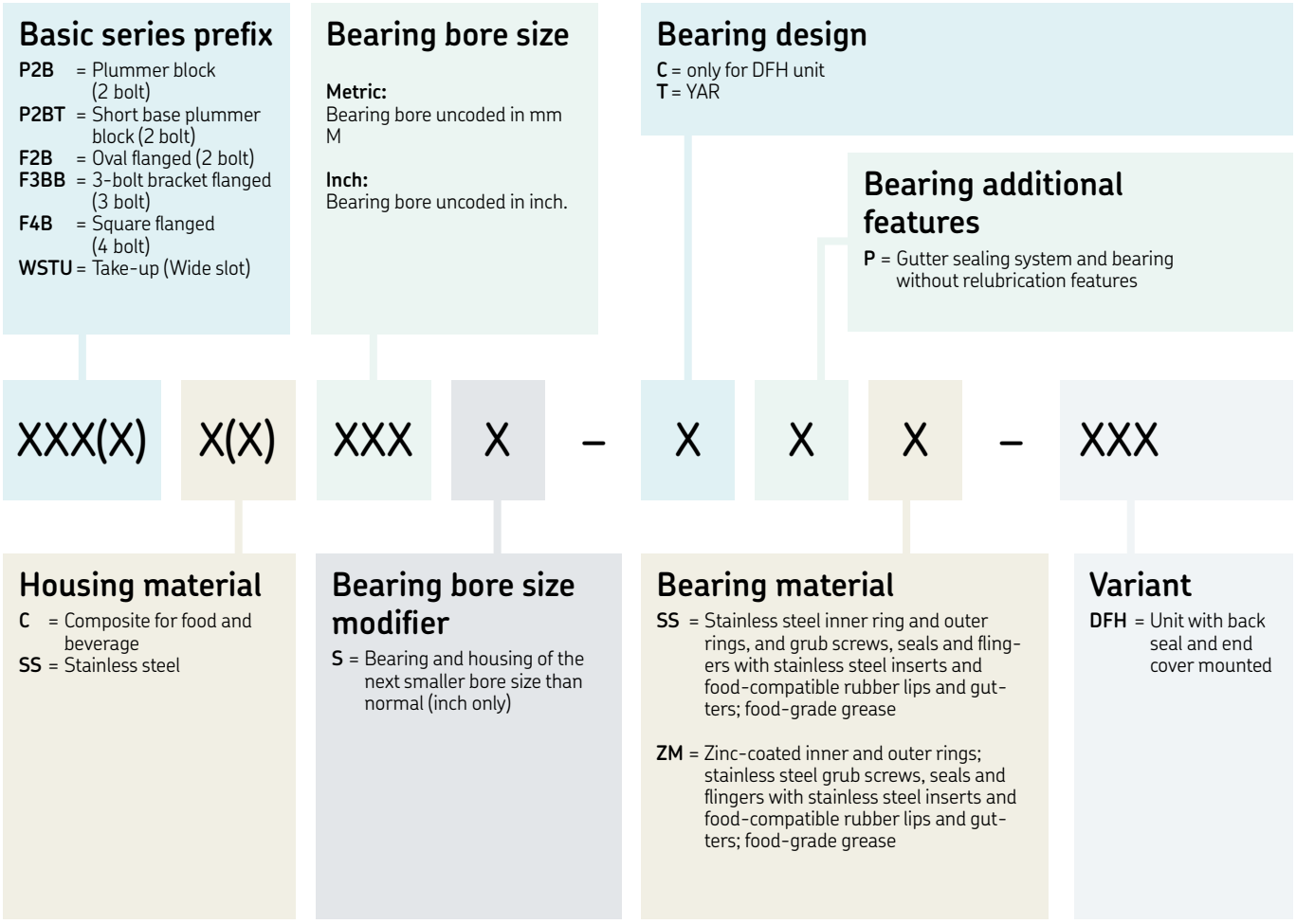
Product data

Food and beverages designation rules – Units

The new designation systems for the SKF Food Line insert bearings and ball bearing units have been completely renovated to be user friendly for a fast as well as clear identification, and to be modular so that you can easily follow the customer desired final variant.

More details about the developed nomenclature can be obtained from the designation charts:

- SKF Food Line ball bearing unit designation system (**pages 26** to **87**)
- SKF Food Line insert bearing designation system (**pages 86** to **87**)



Food and beverages designation rules – Bearings

Main size

1st digit: diameter series

Metric
2nd–3rd digits: bore diameter code

Inch
2nd–3rd digits: bore diameter code of the basic metric bearing

Inch bore diameter (empty for metric bearings)

1st digit: number of whole inches

2nd–3rd digits: sixteenth of an inch

Additional bearing features

W = Bearing without relubrication features

XXX XXX (–XXX) – XXX(X) X / XX

Bearing design

YAR = Insert bearing with grub screws, inner ring extended on both sides

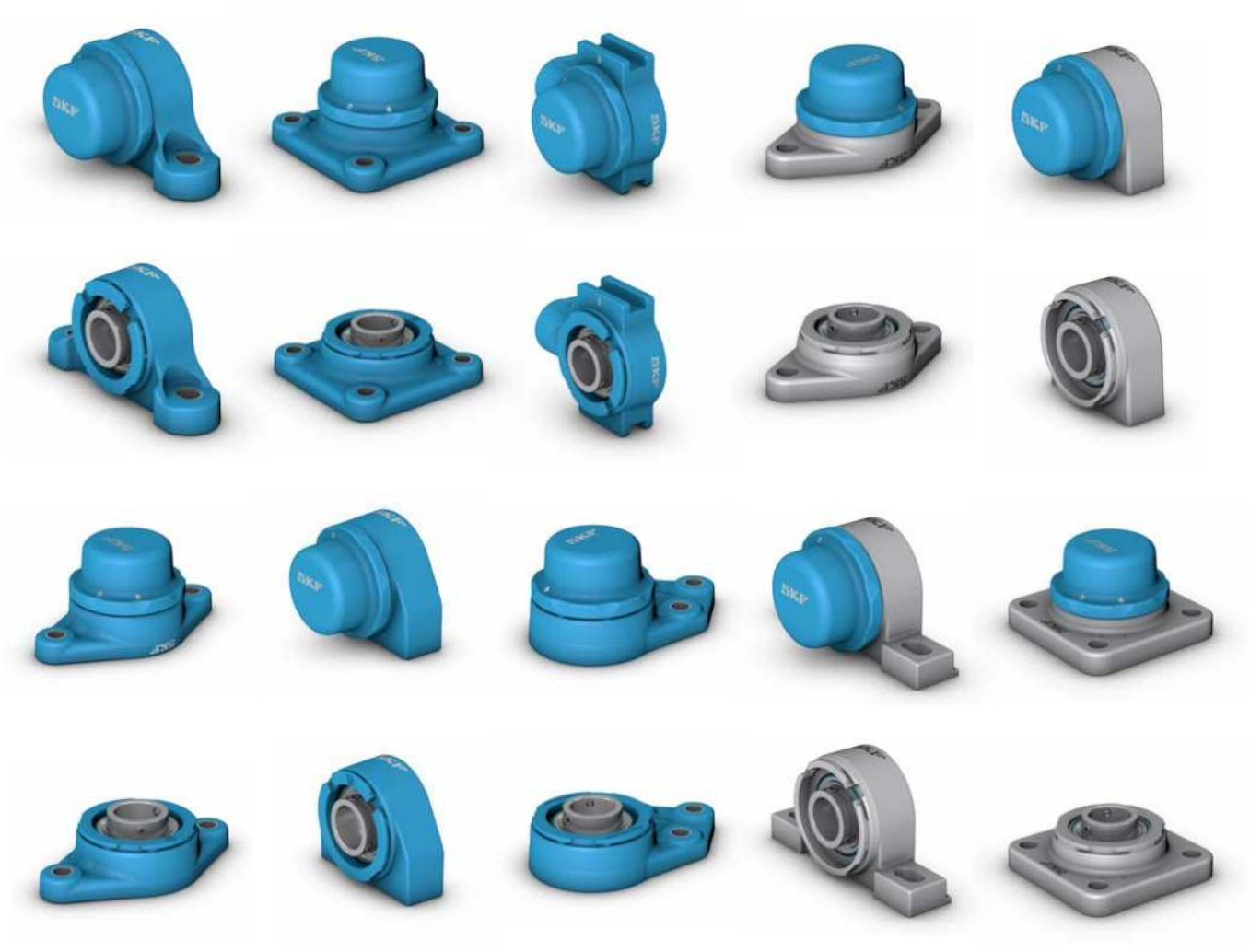
Sealing system

2LP = Gutter seal and gutter flinger on both sides

Material

SS = Stainless steel inner ring and outer rings, and grub screws, seals and flingers with stainless steel inserts and food-compatible rubber lips and gutters; food-grade grease

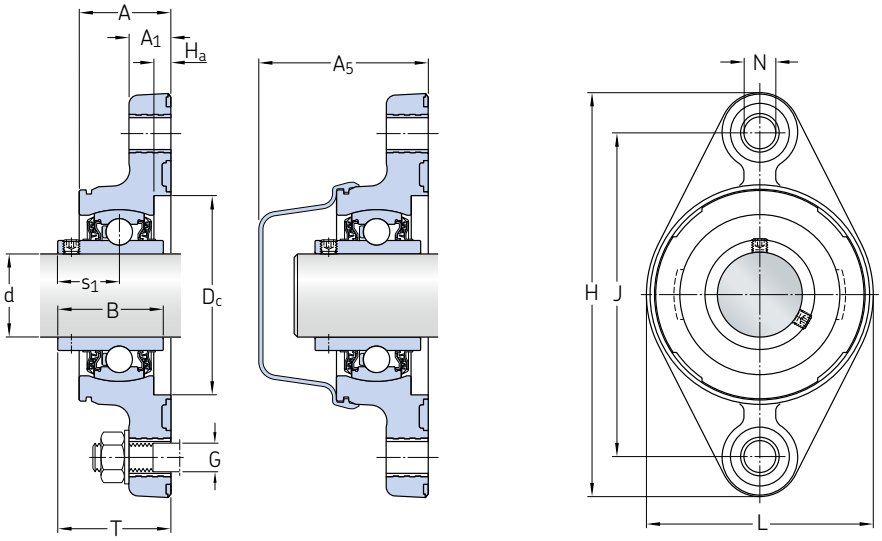
ZM = Zinc-coated inner and outer rings, stainless steel grub screws, seals and flingers with stainless steel inserts and food-compatible rubber lips and gutters; food-grade grease



Product tables

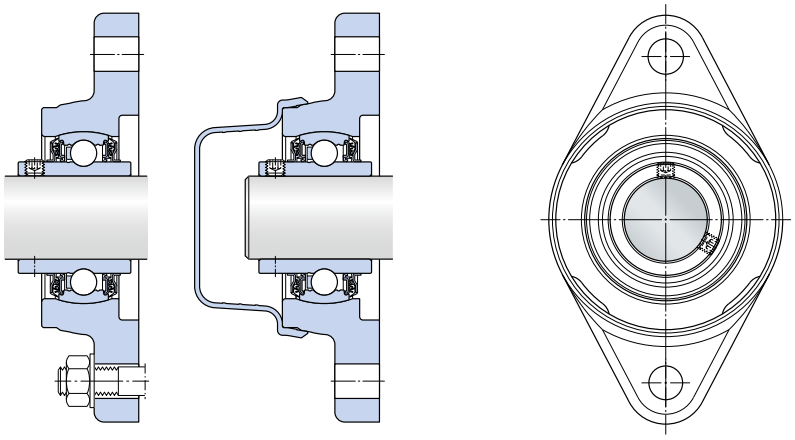
1.1 Oval flanged ball bearing units, metric shafts

d **20 – 50** mm



F2BC (composite housing)

Principal dimensions		Basic load ratings dynamic	static	Fatigue load limit	Limiting speed with shaft tolerance h6	Mass	Designations Bearing unit	End cover
d	J	C	C_0	P_u				
mm		kN		kN	r/min	kg	–	
20	89,7	10,8	6,55	0,28	5 000	0,48	**F2BSS 20M-TPSS**	ECB 504
	90	10,8	6,55	0,28	5 000	0,23	**F2BC 20M-TPSS**	ECB 504
	90	12,7	6,55	0,28	5 000	0,23	**F2BC 20M-TPZM**	ECB 504
25	98,8	11,9	7,8	0,335	4 300	0,71	**F2BSS 25M-TPSS**	ECB 505
	99	11,9	7,8	0,335	4 300	0,29	**F2BC 25M-TPSS**	ECB 505
	99	14	7,8	0,335	4 300	0,3	**F2BC 25M-TPZM**	ECB 505
30	116,7	16,3	11,2	0,475	3 800	1	**F2BSS 30M-TPSS**	ECB 506
	117	16,3	11,2	0,475	3 800	0,44	**F2BC 30M-TPSS**	ECB 506
	117	19,5	11,2	0,475	3 800	0,44	**F2BC 30M-TPZM**	ECB 506
35	130	21,6	15,3	0,655	3 200	0,61	**F2BC 35M-TPSS**	ECB 507
	130	25,5	15,3	0,655	3 200	0,63	**F2BC 35M-TPZM**	ECB 507
	130,2	21,6	15,3	0,655	3 200	1,3	**F2BSS 35M-TPSS**	ECB 507
40	143,7	24,7	19	0,8	2 800	1,7	**F2BSS 40M-TPSS**	ECB 508
	144	24,7	19	0,8	2 800	0,78	**F2BC 40M-TPSS**	ECB 508
	144	30,7	19	0,8	2 800	0,8	**F2BC 40M-TPZM**	ECB 508
50	157	29,6	23,2	0,98	2 200	1	**F2BC 50M-TPSS**	ECB 510
	157	35,1	23,2	0,98	2 200	1	**F2BC 50M-TPZM**	ECB 510



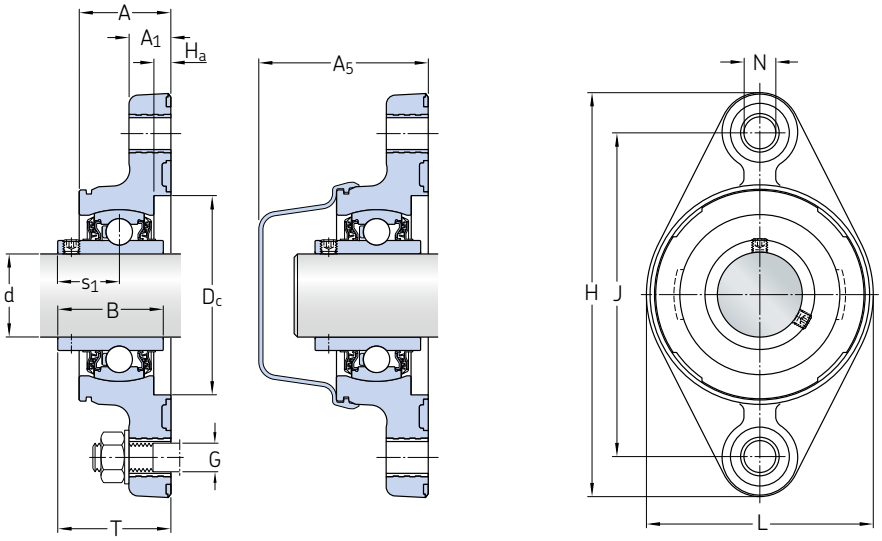
F2BSS (stainless steel housing)

Dimensions

d	A	A_1	A_5	B	D_C	H	H_a	L	N	G	s_1	T
mm												
20	25,8	11,1	52,9	31	52	111,9	6	61,5	11,1	10	18,3	33,6
	27	15	54,3	31	52	119	6	62	11,5	10	18,3	35
	27	15	54,3	31	52	119	6	62	11,5	10	18,3	35
25	29,4	13,5	56	34,1	62	123,8	6	69,3	12,7	10	19,8	36,5
	29	15	55,8	34,1	62	128	6	72	11,5	10	19,8	37
	29	15	55,8	34,1	62	128	6	72	11,5	10	19,8	37
30	34,1	13,5	62,2	38,1	72	141,3	6	79,1	12,7	10	22,2	42
	33	15	61,3	38,1	72	146	6	82	11,5	10	22,2	40,9
	33	15	61,3	38,1	72	146	6	82	11,5	10	22,2	40,9
35	36	17	64,8	42,9	82	164	6	92	14,2	12	25,4	45
	36	17	64,8	42,9	82	164	6	92	14,2	12	25,4	45,1
	35,7	14,3	64,3	42,9	82	155,6	6	89,5	14,3	12	25,4	46
40	38,9	14,3	68,8	49,2	88	171,5	6	95,1	14,3	12	30,2	53,2
	38	17	68,1	49,2	88	178	6	98	14,2	12	30,2	50,9
	38	17	68,1	49,2	88	178	6	98	14,2	12	30,2	50,9
50	42	19	74,2	51,6	98	199	6	107	17,5	16	32,6	53,8
	42	19	74,2	51,6	98	199	6	107	17,5	16	32,6	53,8

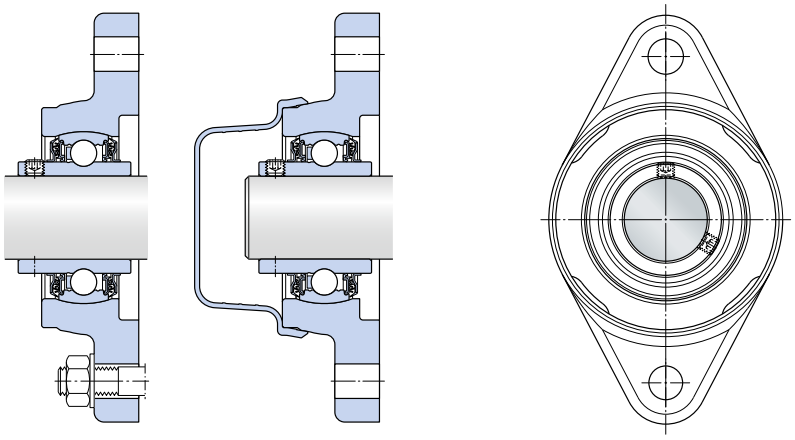
1.1 Oval flanged ball bearing units, inch shafts

d **3/4 – 1 1/4** in
19,05 – 31,75 mm



F2BC (composite housing)

Principal dimensions		Basic load ratings dynamic	static	Fatigue load limit	Limiting speed with shaft tolerance h6	Mass	Designations Bearing unit	End cover
d	J	C	C_0	P_u				
in/*mm*		lbf/*kN*		lbf/*kN*	r/min	lb/*kg*	–	
3/4	3,53	2 430	1 470	62,9	5 000	1,05	**F2BSS 012-TPSS**	ECB 504
19,05	*89,7*	*10,8*	*6,55*	*0,28*		*0,48*		
	3,54	2 430	1 470	62,9	5 000	0,53	**F2BC 012-TPSS**	ECB 504
	90	*10,8*	*6,55*	*0,28*		*0,24*		
	3,54	2 860	1 470	62,9	5 000	0,51	**F2BC 012-TPZM**	ECB 504
	90	*12,7*	*6,55*	*0,28*		*0,23*		
15/16	3,9	3 150	1 750	75,3	4 300	0,68	**F2BC 015-TPZM**	ECB 505
23,813	*99*	*14*	*7,8*	*0,335*		*0,31*		
1	3,89	2 680	1 750	75,3	4 300	1,55	**F2BSS 100-TPSS**	ECB 505
25,4	*98,8*	*11,9*	*7,8*	*0,335*		*0,71*		
	3,9	2 680	1 750	75,3	4 300	0,64	**F2BC 100-TPSS**	ECB 505
	99	*11,9*	*7,8*	*0,335*		*0,29*		
	3,9	2 680	1 750	75,3	4 300	0,64	**F2BC 100-TPZM**	ECB 505
	99	14	7,8	0,335		0,29		
1 3/16	4,59	3 660	2 520	107	3 800	2,2	**F2BSS 103-TPSS**	ECB 506
30,163	*116,7*	*16,3*	*11,2*	*0,475*		*1*		
	4,61	3 660	2 520	107	3 800	0,97	**F2BC 103-TPSS**	ECB 506
	117	*16,3*	*11,2*	*0,475*	*3 800*	*0,44*		
	4,61	4 380	2 520	107	3 800	0,97	**F2BC 103-TPZM**	ECB 506
	117	*19,5*	*11,2*	*0,475*	*3 800*	*0,44*		
1 1/4	4,59	3 660	2 520	107	3 800	2,15	**F2BSS 104S-TPSS**	ECB 506
31,75	*116,7*	*16,3*	*11,2*	*0,475*		*0,97*		
	4,61	3 660	2 520	107	3 800	0,9	**F2BC 104S-TPSS**	ECB 506
	117	*16,3*	*11,2*	*0,475*		*0,41*		
	4,61	4 380	2 520	107	3 800	0,93	**F2BC 104S-TPZM**	ECB 506
	117	*19,5*	*11,2*	*0,475*		*0,42*		
	5,12	4 860	3 440	147	3 200	1,5	**F2BC 104-TPSS**	ECB 507
	130	*21,6*	*15,3*	*0,655*		*0,67*		
	5,12	5 730	3 440	147	3 200	1,5	**F2BC 104-TPZM**	ECB 507
	130	*25,5*	*15,3*	*0,655*		*0,69*		
	130,2	21,6	15,3	0,655	3 200	3,1	**F2BSS 104-TPSS**	ECB 507
	130,2	*21,6*	*15,3*	*0,655*		*1,4*		



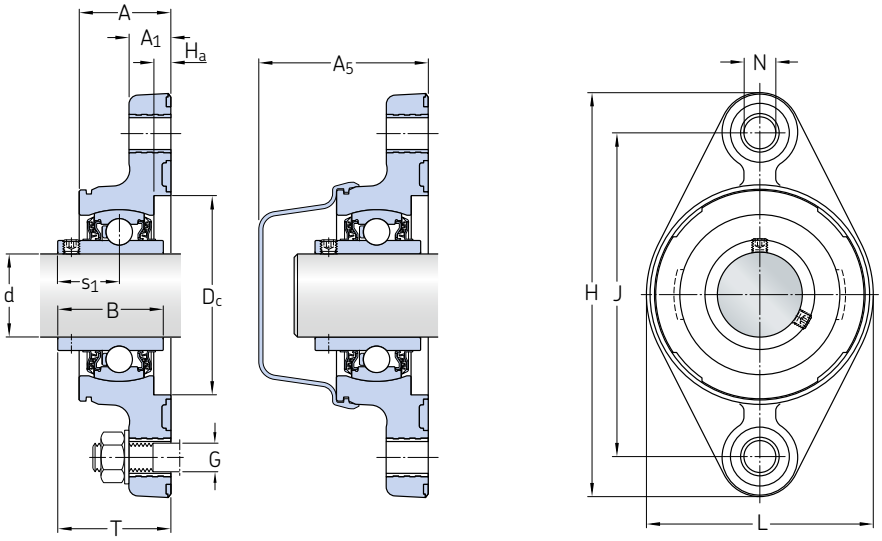
F2BSS (stainless steel housing)

Dimensions

d	A	A_1	A_5	B	D_C	H	H_a	L	N	G	s_1	T
in/*mm*												
3/4	1,02	0,44	2,08	1,22	2,05	4,41	0,24	2,42	0,44	3/8	0,72	1,32
19,05	*25,8*	*11,1*	*52,9*	*31*	*52*	*111,9*	*6*	*61,5*	*11,1*	*10*	*18,3*	*33,6*
	1,06	0,67	2,14	1,22	2,05	4,69	0,24	2,44	0,45	3/8	0,72	1,38
	27	*17*	*54,3*	*31*	*52*	*119*	*6*	*62*	*11,5*	*10*	*18,3*	*35*
	1,06	0,67	2,14	1,22	2,05	4,69	0,24	2,44	0,45	3/8	0,72	1,38
	27	*17*	*54,3*	*31*	*52*	*119*	*6*	*62*	*11,5*	*10*	*18,3*	*35*
15/16	1,14	0,67	2,2	1,34	2,44	5,04	0,24	2,83	0,45	3/8	0,78	1,46
23,813	*29*	*17*	*55,8*	*34,1*	*62*	*128*	*6*	*72*	*11,5*	*10*	*19,8*	*37*
1	1,16	0,53	2,2	1,34	2,44	4,87	0,24	2,73	0,5	7/16	0,78	1,44
25,4	*29,4*	*13,5*	*56*	*34,1*	*62*	*123,8*	*6*	*69,3*	*12,7*	*10*	*19,8*	*36,5*
	1,14	0,67	2,2	1,34	2,44	5,04	0,24	2,83	0,45	3/8	0,78	1,46
	29	*17*	*55,8*	*34,1*	*62*	*128*	*6*	*72*	*11,5*	*10*	*19,8*	*37*
	1,14	0,67	2,19	1,34	2,44	5,04	0,24	2,83	0,45	3/8	0,78	1,37
	29	*17*	*55,6*	*34,1*	*62*	*128*	*6*	*72*	*11,5*	*10*	*19,8*	*34,8*
1 3/16	1,34	0,53	2,45	1,5	2,83	5,56	0,24	3,11	0,5	7/16	0,87	1,65
30,163	*34,1*	*13,5*	*62,2*	*38,1*	*72*	*141,3*	*6*	*79,1*	*12,7*	*10*	*22,2*	*42*
	1,3	0,59	2,41	1,5	2,83	5,75	0,24	3,23	0,45	3/8	0,87	1,61
	33	*15*	*61,3*	*38,1*	*72*	*146*	*6*	*82*	*11,5*	*10*	*22,2*	*40,9*
	1,3	0,59	2,41	1,5	2,83	5,75	0,24	3,23	0,45	3/8	0,87	1,61
	33	*15*	*61,3*	*38,1*	*72*	*146*	*6*	*82*	*11,5*	*10*	*22,2*	*40,9*
1 1/4	1,34	0,53	2,45	1,5	2,83	5,56	0,24	3,11	0,5	7/16	0,87	1,65
31,75	*34,1*	*13,5*	*62,2*	*38,1*	*72*	*141,3*	*6*	*79,1*	*12,7*	*10*	*22,2*	*42*
	1,3	0,59	2,41	1,5	2,83	5,75	0,24	3,23	0,45	3/8	0,87	1,61
	33	*15*	*61,3*	*38,1*	*72*	*146*	*6*	*82*	*11,5*	*10*	*22,2*	*40,9*
	1,3	0,59	2,41	1,5	2,83	5,75	0,24	3,23	0,45	3/8	0,87	1,61
	33	*15*	*61,3*	*38,1*	*72*	*146*	*6*	*82*	*11,5*	*10*	*22,2*	*40,9*
	1,42	0,67	2,55	1,69	3,23	6,46	0,24	3,62	0,56	1/2	1	1,77
	36	*17*	*64,8*	*42,9*	*82*	*164*	*6*	*92*	*14,2*	*12*	*25,4*	*45*
	1,42	0,67	2,55	1,69	3,23	6,46	0,24	3,62	0,56	1/2	1	1,78
	36	*17*	*64,8*	*42,9*	*82*	*164*	*6*	*92*	*14,2*	*12*	*25,4*	*45,1*
	1,41	0,56	2,53	1,69	3,23	6,13	0,24	3,52	0,56	1/2	1	1,81
	35,7	*14,3*	*64,3*	*42,9*	*82*	*155,6*	*6*	*89,5*	*14,3*	*12*	*25,4*	*46*

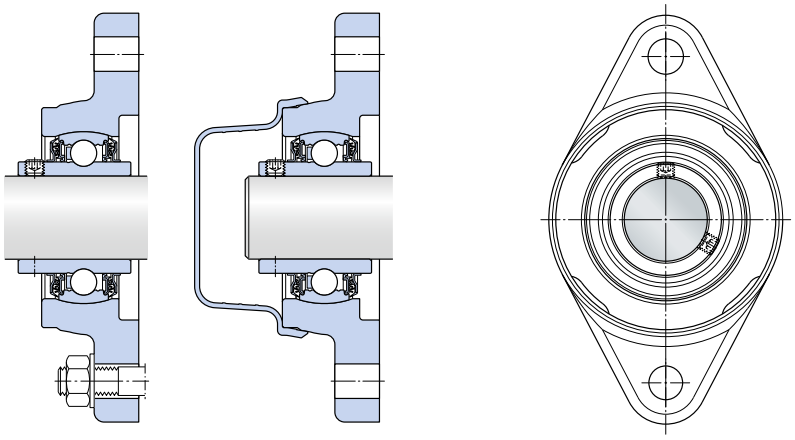
1.1 Oval flanged ball bearing units, inch shafts

d **1 3/8 – 1 15/16** in
34,925 – 49,213 mm



F2BC (composite housing)

Principal dimensions		Basic load ratings dynamic	static	Fatigue load limit	Limiting speed with shaft tolerance h6	Mass	Designations Bearing unit	End cover
d	J	C	C_0	P_u				
in/*mm*		lbf/*kN*		lbf/*kN*	r/min	lb/*kg*	–	
1 3/8	5,12	4 860	3 440	147	3 200	1,4	**F2BC 106-TPSS**	ECB 507
34,925	*130*	*21,6*	*15,3*	*0,655*		*0,63*		
	5,12	5 730	3 440	147	3 200	1,4	**F2BC 106-TPZM**	ECB 507
	130	*25,5*	*15,3*	*0,655*		*0,63*		
	5,13	4 860	3 440	147	3 200	2,85	**F2BSS 106-TPSS**	ECB 507
	130,2	*21,6*	*15,3*	*0,655*		*1,3*		
1 7/16	5,12	4 860	3 440	147	3 200	1,3	**F2BC 107-TPSS**	ECB 507
36,513	*130*	*21,6*	*15,3*	*0,655*		*0,6*		
	5,12	5 730	3 440	147	3 200	1,3	**F2BC 107-TPZM**	ECB 507
	130	*25,5*	*15,3*	*0,655*		*0,6*		
	5,13	4 860	3 440	147	3 200	2,85	**F2BSS 107-TPSS**	ECB 507
	130,2	*21,6*	*15,3*	*0,655*		*1,3*		
1 1/2	5,66	5 550	4 270	180	2 800	3,85	**F2BSS 108-TPSS**	ECB 508
38,1	*143,7*	*24,7*	*19*	*0,8*		*1,75*		
	5,67	5 550	4 270	180	2 800	1,8	**F2BC 108-TPSS**	ECB 508
	144	*24,7*	*19*	*0,8*		*0,82*		
	5,67	6 900	4 270	180	2 800	1,85	**F2BC 108-TPZM**	ECB 508
	144	*30,7*	*19*	*0,8*		*0,84*		
1 15/16	6,18	6 650	5 220	220	2 200	2,3	**F2BC 115-TPSS**	ECB 510
49,213	*157*	*29,6*	*23,2*	*0,98*		*1,05*		
	6,18	7 890	5 220	220	2 200	2,3	**F2BC 115-TPZM**	ECB 510
	157	*35,1*	*23,2*	*0,98*		*1,05*		



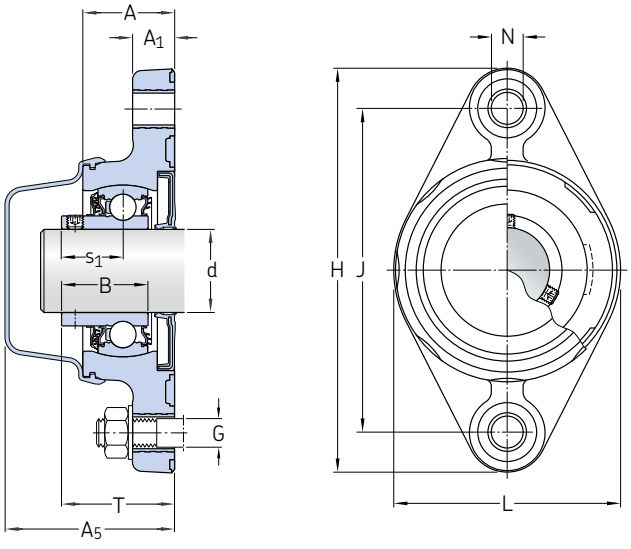
F2BSS (stainless steel housing)

Dimensions

d	A	A_1	A_5	B	D_C	H	H_a	L	N	G	s_1	T
in/*mm*												
1 3/8	1,42	0,67	2,55	1,69	3,23	6,46	0,24	3,62	0,56	1/2	1	1,77
34,925	*36*	*17*	*64,8*	*42,9*	*82*	*164*	*6*	*92*	*14,2*	*12*	*25,4*	*45*
	1,42	0,67	2,55	1,69	3,23	6,46	0,24	3,62	0,56	1/2	1	1,78
	36	*17*	*64,8*	*42,9*	*82*	*164*	*6*	*92*	*14,2*	*12*	*25,4*	*45,1*
	1,41	0,56	2,53	1,69	3,23	6,13	0,24	3,52	0,56	1/2	1	1,81
	35,7	*14,3*	*64,3*	*42,9*	*82*	*155,6*	*6*	*89,5*	*14,3*	*12*	*25,4*	*46*
1 7/16	1,42	0,67	2,55	1,69	3,23	6,46	0,24	3,62	0,56	1/2	1	1,77
36,513	*36*	*17*	*64,8*	*42,9*	*82*	*164*	*6*	*92*	*14,2*	*12*	*25,4*	*45*
	1,42	0,67	2,55	1,69	3,23	6,46	0,24	3,62	0,56	1/2	1	1,78
	36	*17*	*64,8*	*42,9*	*82*	*164*	*6*	*92*	*14,2*	*12*	*25,4*	*45,1*
	1,41	0,56	2,53	1,69	3,23	6,13	0,24	3,52	0,56	1/2	1	1,81
	35,7	*14,3*	*64,3*	*42,9*	*82*	*155,6*	*6*	*89,5*	*14,3*	*12*	*25,4*	*46*
1 1/2	1,53	0,56	2,71	1,94	3,46	6,75	0,24	3,74	0,56	1/2	1,19	2,09
38,1	*38,9*	*14,3*	*68,8*	*49,2*	*88*	*171,5*	*6*	*95,1*	*14,3*	*12*	*30,2*	*53,2*
	1,5	0,67	2,68	1,94	3,46	7,01	0,24	3,86	0,56	1/2	1,19	2
	38	*17*	*68,1*	*49,2*	*88*	*178*	*6*	*98*	*14,2*	*12*	*30,2*	*50,9*
	1,5	0,67	2,68	1,94	3,46	7,01	0,24	3,86	0,56	1/2	1,19	2
	38	*17*	*68,1*	*49,2*	*88*	*178*	*6*	*98*	*14,2*	*12*	*30,2*	*50,9*
1 15/16	1,65	0,75	2,92	2,03	3,86	7,83	0,24	4,21	0,69	5/8	1,28	2,12
49,213	*42*	*19*	*74,2*	*51,6*	*98*	*199*	*6*	*107*	*17,5*	*16*	*32,6*	*53,8*
	1,65	0,75	2,92	2,03	3,86	7,83	0,24	4,21	0,69	5/8	1,28	2,12
	42	*19*	*74,2*	*51,6*	*98*	*199*	*6*	*107*	*17,5*	*16*	*32,6*	*53,8*

1.2 Oval flanged sealed ball bearing units (DFH), metric shafts

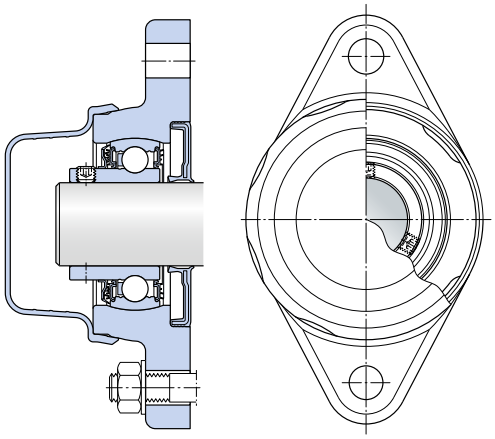
d **20 – 50** mm



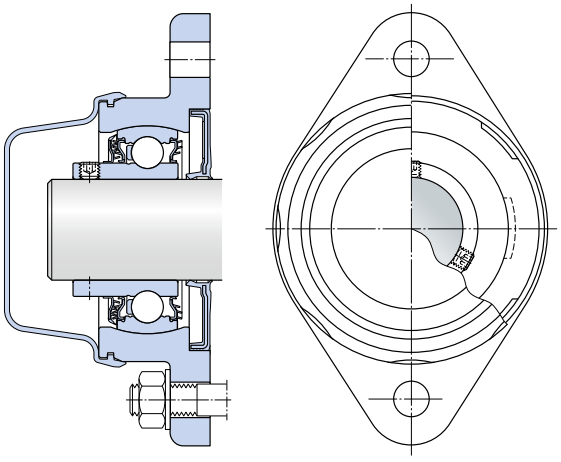
F2BC .. -DFH (composite housing)

Principal dimensions		Basic load ratings dynamic	static	Fatigue load limit	Limiting speed with shaft tolerance h6	Mass	Designation
d	J	C	C_0	P_u			
mm		kN		kN	r/min	kg	–
20	89,7	10,8	6,55	0,28	700	0,48	**F2BSS 20M-CPSS-DFH**
	90	10,8	6,55	0,28	700	0,25	**F2BC 20M-CPSS-DFH**
25	98,8	11,9	7,8	0,335	700	0,72	**F2BSS 25M-CPSS-DFH**
	99	11,9	7,8	0,335	700	0,32	**F2BC 25M-CPSS-DFH**
30	99	16,3	11,2	0,475	700	0,99	**F2BESS 30M-CPSS-DFH**[1]
	116,7	16,3	11,2	0,475	700	1	**F2BSS 30M-CPSS-DFH**
	117	16,3	11,2	0,475	700	0,46	**F2BC 30M-CPSS-DFH**
35	130	21,6	15,3	0,655	500	0,65	**F2BC 35M-CPSS-DFH**
	130,2	21,6	15,3	0,655	500	1,35	**F2BSS 35M-CPSS-DFH**
40	117	24,7	19	0,8	500	1,4	**F2BESS 40M-CPSS-DFH**[1]
	143,7	24,7	19	0,8	500	1,7	**F2BSS 40M-CPSS-DFH**
	144	24,7	19	0,8	500	0,81	**F2BC 40M-CPSS-DFH**
50	157	29,6	23,2	0,98	500	1,05	**F2BC 50M-CPSS-DFH**

[1] Compact units



F2BSS .. -DFH (stainless steel housing)



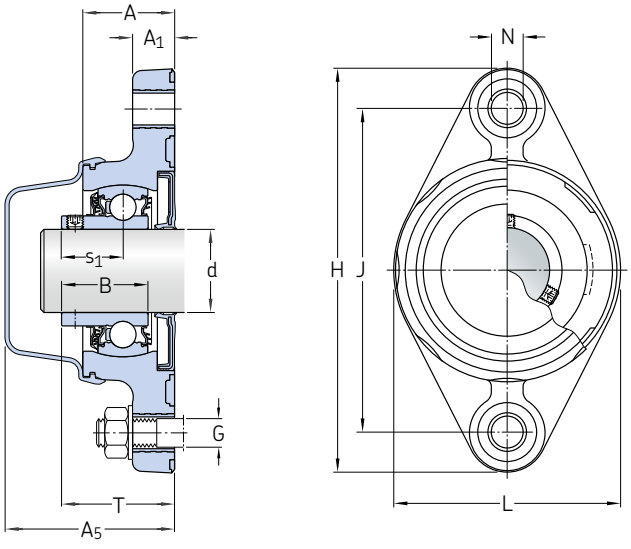
F2BESS .. -DFH (stainless steel housing) - compact unit

Dimensions

d	A	A_1	A_5	B	H	L	N	G	s_1	T
mm										
20	25,8 27	11,1 17	52,9 54,3	25,3 25,3	111,9 119	61,5 62	11,1 11,5	10 10	18,3 18,3	33,6 34,8
25	29,4 29	13,5 17	53,8 55,8	27,3 27,3	123,8 128	69,3 72	12,7 11,5	10 10	19,8 19,8	36,5 36,8
30	34,3 34,1 33	12,5 13,5 15	62,4 62,2 61,1	31,2 31,2 31,2	130 141,3 146	85 79,1 82	11,5 12,7 11,5	10 10 10	22,2 22,2 22,2	42,2 42 40,7
35	36 35,7	17 14,3	64,6 61,2	34,9 34,9	164 155,6	92 89,5	14,2 14,3	12 12	25,4 25,4	44,9 46
40	38,9 38,9 *38*	12,5 14,3 *17*	68,8 68,8 *67,9*	40,7 40,7 *40,7*	145 171,5 *178*	100 95,1 *98*	11,5 14,3 *14,2*	12 12 *12*	30,2 30,2 *30,2*	53,2 53,2 *50,7*
50	*42*	*19*	*74,2*	*43,6*	*199*	*107*	*17,5*	*16*	*32,6*	*53,8*

1.2 Oval flanged sealed ball bearing units (DFH), inch shafts

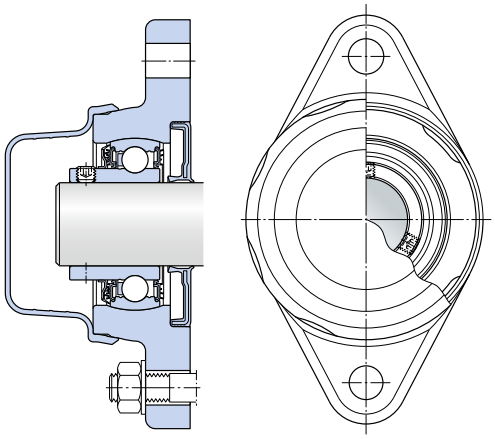
d **3/4 – 1 3/8** in
19,05 – 34,925 mm



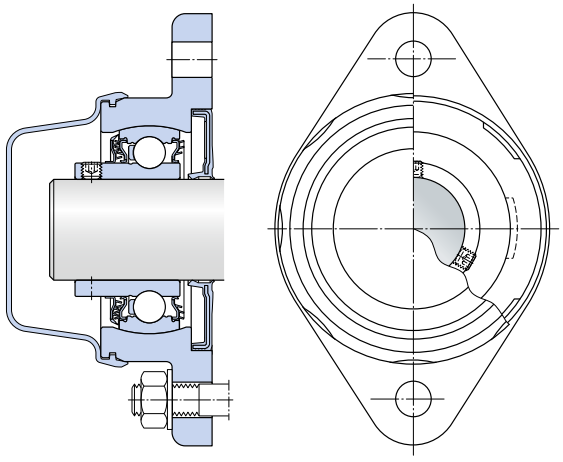
F2BC .. -DFH (composite housing)

Principal dimensions		Basic load ratings dynamic	static	Fatigue load limit	Limiting speed with shaft tolerance h6	Mass	Designation
d	J	C	C_0	P_u			
in/*mm*		lbf/*kN*		lbf/*kN*	r/min	lb/*kg*	–
3/4	3,53	2 430	1 470	62,9	700	1,1	**F2BSS 012-CPSS-DFH**
19,05	*89,7*	*10,8*	*6,55*	*0,28*		*0,49*	
	3,54	2 430	1 470	62,9	700	0,57	**F2BC 012-CPSS-DFH**
	90	*10,8*	*6,55*	*0,28*		*0,26*	
1	3,89	2 680	1 750	75,3	700	1,6	**F2BSS 100-CPSS-DFH**
25,4	*98,8*	*11,9*	*7,8*	*0,335*		*0,72*	
	3,9	2 680	1 750	75,3	700	0,68	**F2BC 100-CPSS-DFH**
	99	*11,9*	*7,8*	*0,335*		*0,31*	
1 3/16	4,59	3 660	2 520	107	700	2,2	**F2BSS 103-CPSS-DFH**
30,163	*116,7*	*16,3*	*11,2*	*0,475*		*1*	
	4,61	3 660	2 520	107	700	0,99	**F2BC 103-CPSS-DFH**
	117	*16,3*	*11,2*	*0,475*		*0,45*	
1 1/4	3,9	3 660	2 520	107	700	2,15	**F2BESS 104S-CPSS-DFH**[1]
31,75	*99*	*16,3*	*11,2*	*0,475*		*0,97*	
	4,59	3 660	2 520	107	700	2,15	**F2BSS 104S-CPSS-DFH**
	116,7	*16,3*	*11,2*	*0,475*		*0,98*	
	4,61	3 660	2 520	107	700	0,97	**F2BC 104S-CPSS-DFH**
	117	*16,3*	*11,2*	*0,475*		*0,44*	
	5,12	4 860	3 440	147	500	1,55	**F2BC 104-CPSS-DFH**
	130	*21,6*	*15,3*	*0,655*		*0,7*	
	5,13	4 860	3 440	147	500	3,1	**F2BSS 104-CPSS-DFH**
	130,2	*21,6*	*15,3*	*0,655*		*1,4*	
1 3/8	5,12	4 860	3 440	147	500	1,45	**F2BC 106-CPSS-DFH**
34,925	*130*	*21,6*	*15,3*	*0,655*		*0,65*	
	5,13	4 860	3 440	147	500	3	**F2BSS 106-CPSS-DFH**
	130,2	*21,6*	*15,3*	*0,655*		*1,35*	

[1] Compact units



F2BSS .. -DFH (stainless steel housing)



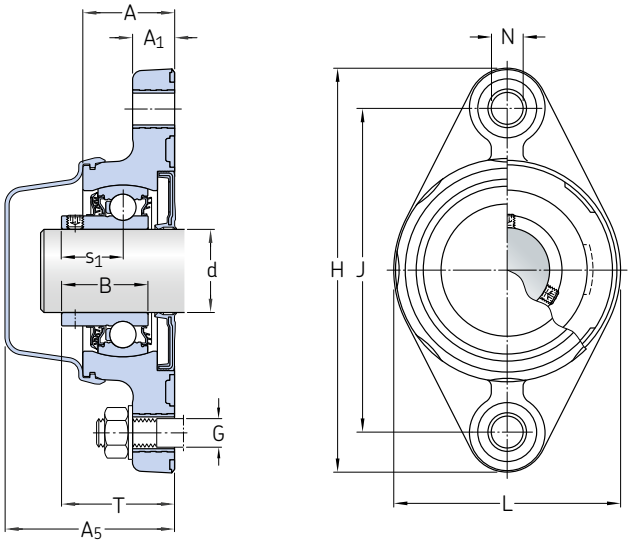
F2BESS .. -DFH (stainless steel housing) - compact unit

Dimensions

d	A	A_1	A_5	B	H	L	N	G	s_1	T
in/*mm*										
3/4	1,02	0,44	2,08	1	4,41	2,42	0,44	3/8	0,72	1,32
19,05	*25,8*	*11,1*	*52,9*	*25,3*	*111,9*	*61,5*	*11,1*	*10*	*18,3*	*33,6*
	1,06	0,67	2,14	1	4,69	2,44	0,45	3/8	0,72	1,38
	27	*17*	*54,3*	*25,3*	*119*	*62*	*11,5*	*10*	*18,3*	*35*
1	1,16	0,53	2,1	1,07	4,87	2,73	0,5	7/16	0,78	1,44
25,4	*29,4*	*13,5*	*53,3*	*27,3*	*123,8*	*69,3*	*12,7*	*10*	*19,8*	*36,5*
	1,14	0,67	2,2	1,07	5,04	2,83	0,45	3/8	0,78	1,45
	29	*17*	*55,8*	*27,3*	*128*	*72*	*11,5*	*10*	*19,8*	*36,8*
1 3/16	1,34	0,53	2,45	1,23	5,56	3,11	0,5	7/16	0,87	1,65
30,163	*34,1*	*13,5*	*62,2*	*31,2*	*141,3*	*79,1*	*12,7*	*10*	*22,2*	*42*
	1,3	0,59	2,41	1,23	5,75	3,23	0,45	3/8	0,87	1,6
	33	*15*	*61,1*	*31,2*	*146*	*82*	*11,5*	*10*	*22,2*	*40,7*
1 1/4	1,35	0,49	2,46	1,23	5,12	3,35	0,45	7/16	0,87	1,66
31,75	*34,3*	*12,5*	*62,4*	*31,2*	*130*	*85*	*11,5*	*10*	*22,2*	*42,2*
	1,34	0,53	2,45	1,23	5,56	3,11	0,5	7/16	0,87	1,65
	34,1	*13,5*	*62,2*	*31,2*	*141,3*	*79,1*	*12,7*	*10*	*22,2*	*42*
	1,3	0,59	2,41	1,23	5,75	3,23	0,45	3/8	0,87	1,6
	33	*15*	*61,1*	*31,2*	*146*	*82*	*11,5*	*10*	*22,2*	*40,7*
	1,42	0,67	2,54	1,37	6,46	3,62	0,56	1/2	1	1,77
	36	*17*	*64,6*	*34,9*	*164*	*92*	*14,2*	*12*	*25,4*	*44,9*
	1,41	0,56	2,53	1,37	6,13	3,52	0,56	1/2	1	1,81
	35,7	*14,3*	*64,3*	*34,9*	*155,6*	*89,5*	*14,3*	*12*	*25,4*	*46*
1 3/8	1,42	0,67	2,54	1,37	6,46	3,62	0,56	1/2	1	1,77
34,925	*36*	*17*	*64,6*	*34,9*	*164*	*92*	*14,2*	*12*	*25,4*	*44,9*
	1,41	0,56	2,53	1,37	6,13	3,52	0,56	1/2	1	1,81
	35,7	*14,3*	*64,3*	*34,9*	*155,6*	*89,5*	*14,3*	*12*	*25,4*	*46*

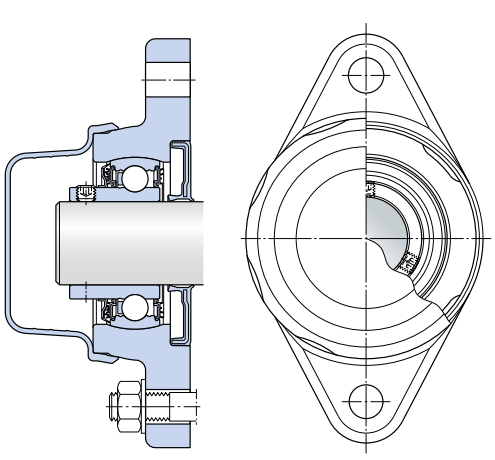
1.2 Oval flanged sealed ball bearing units (DFH), inch shafts

d **1 7/16 – 1 15/16** in
36,513 – 49,213 mm

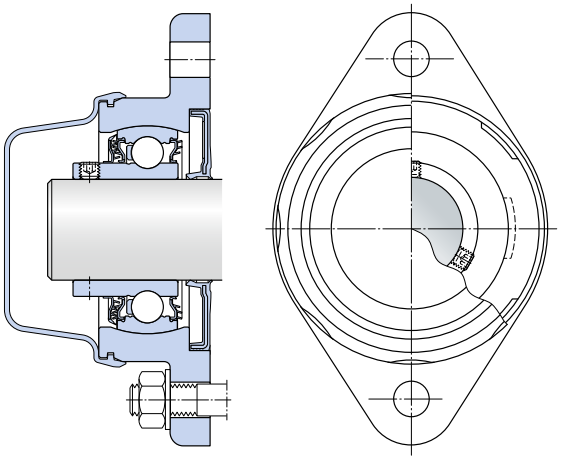


F2BC .. -DFH (composite housing)

Principal dimensions		Basic load ratings dynamic	static	Fatigue load limit	Limiting speed with shaft tolerance h6	Mass	Designation
d	J	C	C_0	P_u			
in/*mm*		lbf/*kN*		lbf/*kN*	r/min	lb/*kg*	–
1 7/16	5,12	4 860	3 440	147	500	1,35	**F2BC 107-CPSS-DFH**
36,513	*130*	*21,6*	*15,3*	*0,655*		*0,62*	
	5,13	4 860	3 440	147	500	2,85	**F2BSS 107-CPSS-DFH**
	130,2	*21,6*	*15,3*	*0,655*		*1,3*	
1 1/2	5,66	5 550	4 270	180	500	3,85	**F2BSS 108-CPSS-DFH**
38,1	*143,7*	*24,7*	*19*	*0,8*		*1,75*	
	5,67	5 550	4 270	180	500	1,85	**F2BC 108-CPSS-DFH**
	144	*24,7*	*19*	*0,8*		*0,85*	
1 15/16	6,18	6 650	5 220	220	500	2,3	**F2BC 115-CPSS-DFH**
49,213	*157*	*29,6*	*23,2*	*0,98*		*1,05*	



F2BSS .. -DFH (stainless steel housing)



F2BESS .. -DFH (stainless steel housing) - compact unit

Dimensions

d	A	A_1	A_5	B	H	L	N	G	s_1	T
in/*mm*										
1 7/16	1,42	0,67	2,54	1,37	6,46	3,62	0,56	1/2	1	1,77
36,513	*36*	*17*	*64,6*	*34,9*	*164*	*92*	*14,2*	*12*	*25,4*	*44,9*
	1,41	0,56	2,53	1,37	6,13	3,52	0,56	1/2	1	1,81
	35,7	*14,3*	*64,3*	*34,9*	*155,6*	*89,5*	*14,3*	*12*	*25,4*	*46*
1 1/2	1,53	0,56	2,71	1,6	6,75	3,74	0,56	1/2	1,19	2,09
38,1	*38,9*	*14,3*	*68,8*	*40,7*	*171,5*	*95,1*	*14,3*	*12*	*30,2*	*53,2*
	1,5	0,67	2,68	1,6	7,01	3,86	0,56	1/2	1,19	2
	38	*17*	*68,1*	*40,7*	*178*	*98*	*14,2*	*12*	*30,2*	*50,7*
1 15/16	1,65	0,75	2,92	1,72	7,83	4,21	0,69	5/8	1,28	2,12
49,213	*42*	*19*	*74,2*	*43,6*	*199*	*107*	*17,5*	*16*	*32,6*	*53,8*