SCHAEFFLER

# Ball bearings for the Food Industry

## Deep groove ball bearings, radial insert ball bearings, plastic housing units

Technical Product Information

# Foreword

Schaeffler products have proved themselves over many years even under critical and problematic application conditions.

In addition to the specific environmental influences, legal or religious requirements in the food and beverage industry also call for the use of special high-quality solutions. We now offer an extended range of corrosion-resistant products for the food industry, to satisfy these high demands on corrosion protection, reliability and service life as well as the specific lubricant requirements:

- deep groove ball bearings
- radial insert ball bearings and housing units

1 Certifications: kosher, halal, NSF H1


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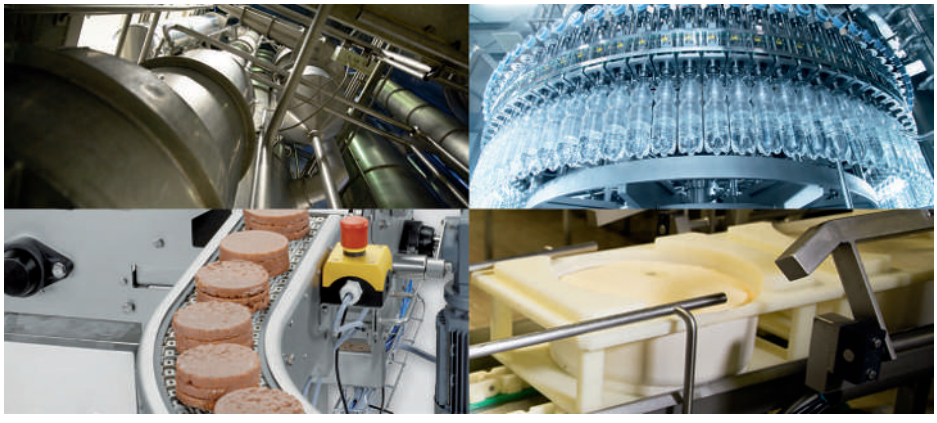
Specific lubricants are used in the products that meet the special requirements and approval regulations such as NSF H1. These lubricants are non-toxic and neutral in taste and odour. They are suitable for applications where contact between food and lubricant cannot always be ruled out.

The grease also contains only allergen-free ingredients in accordance with Regulation (EC) 1169/2011 and is therefore free of cereals containing gluten, nuts and milk, for example. In addition, the grease does not contain any components comprising animal or genetically modified organisms.

All other bearing components are, of course, also designed to meet the standards of the food industry. The designations of bearings for the food industry are distinguished from the standard range by the suffix FD.

2 Areas of application (image top right, source: Krones AG)



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# Contents

# 1 Deep groove ball bearings

Deep groove ball bearings in FD design are optimised for use in the food industry. They correspond in their structure to single row standard deep groove ball bearings but are specially adapted in relation to:

- suitable materials for the food industry
- significantly higher corrosion and media resistance

## Single row deep groove ball bearings

3 Contact seals on both sides in FD design

0016CA33

Bearing series:

- S60..-FD
- S62..-FD
- S63..-FD

## 1.1 Bearing design

Single row deep groove ball bearings are the most frequently used type of rolling bearing. They are produced in numerous sizes and designs and are particularly economical. Due to their low frictional torque, they are also suitable for high speeds.

Due to the raceway geometry, the use of balls as rolling elements and the design without a filling slot, deep groove ball bearings can support axial loads in both directions as well as radial loads.

The angular adjustment facility of single row deep groove ball bearings is limited, so the bearing positions must be well aligned.

### Special characteristics

Operation even under difficult conditions is ensured by seals that are matched to the application and the use of food-grade greases.

- bearing rings, cages and balls made from high-grade steel
- highly effective contact seal
- lubrication with food-grade grease

### Design variants

Deep groove ball bearings in FD design for the food industry are available in the following variant:

- single row, contact seals on both sides

If a longer operating life is also necessary, ceramic rolling elements can replace the steel rolling elements in deep groove ball bearings.

## 1.2 Corrosion-resistant materials

The bearing rings, cages and rolling elements are made from high-grade steel.

The materials used in series FD are resistant to moisture, contaminated water, salt spray mist and weak alkaline or weak acidic cleaning agents.

By agreement, deep groove ball bearings for the food industry are also available as hybrid bearings with ceramic rolling elements made from silicon nitride ($Si_3N_4$).

1 Steels used

| Bearing components | Designation | | | Material number |
|---|---|---|---|---|
| | ISO 683-17:2000 | GB/T 1220-2007 | AISI | EN 10088-3 |
| Bearing rings | X65Cr13 | – | 420D | 1.4037 |
| | – | 95Cr18 | – | – |
| Rolling elements | X105CrMo17 | | 440C | 1.4125 |
| | – | 95Cr18 | – | – |
| Cage | X5CrNi18-10 | – | 304 | 1.4301 |

We reserve the right to make technical changes, including material changes, as part of the ongoing development.

### Media resistance

In the food industry in particular, the resistance of the material in relation to various cleaning agents is of increasing importance.

2 Resistance to media

| Medium | | Concentration | X65Cr13 | | X5CrNi18-10 | | X105CrMo17 | | 95Cr18 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | % | +20 °C | +80 °C | +20 °C | +80 °C | +20 °C | +80 °C | +20 °C | +80 °C |
| Hydrochloric acid | HCl | 0,1 | – | – | + | + | – | – | – [1] | – [1] |
| | | 1 | – | – | (+) | – | – | – | – [1] | – [1] |
| | | 18 | – | – | – | – | – | – | – [1] | – [1] |
| Hydrofluoric acid | HF | 1 | – | – | – | – | – | – | – [1] | – [1] |
| | | 5 | – [1] | – | – [1] | – | – [1] | – | – [1] | – [1] |
| Sulphuric acid | $H_2SO_4$ | 1 | – | – | + | – | – | – | – [1] | – [1] |
| | | 10 | – | – | (+) | – | – | – | – [1] | – [1] |
| | | 96 | (+) | – | + | (+) | – | – | – [1] | – [1] |
| Sulphurous acid | $H_2SO_3$ | 1 | – | – | + | + | – | – | – | – |
| Nitric acid | $HNO_3$ | 5 | – | – | + | + | – | – | (–) | (+) |
| | | 25 | + | (+) | + | + | + | (+) | + | + |
| | | 65 | + | (+) | + | + | + | (+) | + | + |
| Phosphoric acid | $H_3PO_4$ | 1 | + | + | + | + | + | + | + | + |
| | | 10 | – | – | + | + | (+) | + | (+) | (+) |
| | | 85 | + | – | + | + | + | – | + | + |
| Formic acid | HCOOH | 5 | – | – | + | + | – | – | – | – |
| | | 25 | – | – | + | + | – | – | – | – |
| Acetic acid | $CH_3COOH$ | 5 | (+) | – | + | + | + | – | (+) | – |
| | | 25 | (+) | – | + | + | + | – | (+) | – |
| Citric acid | | 5 | (+) | – | + | + | + | + | (+) | (+) |
| | | 25 | (+) | – | + | + | – | – | (+) | (–) |
| Chloroacetic acid | | 5 | (+) | – | + | + | (+) | – | (+) | – |
| Sodium chloride | NaCl | 10 | (–) | (–) | + | + | (–) | (–) | [2] | [2] |
| Sea water | | 4 | (–) | (–) | + | + | (–) | (–) | + [1] | [2] |

| Medium | | Concentration | X65Cr13 | | X5CrNi18-10 | | X105CrMo17 | | 95Cr18 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | % | +20 °C | +80 °C | +20 °C | +80 °C | +20 °C | +80 °C | +20 °C | +80 °C |
| Distilled water | | – | + | + | + | + | + | + | + [1] | + [1] |
| Ammonium hydroxide | $NH_4OH$ | 1 | + | + | + | + | + | + | + [1] | + [1] |
| | | 10 | + | + | + | + | + | + | + [1] | + [1] |
| Potassium hydroxide solution | KOH | 0,1 | + | + | + | + | + | + | + [1] | + [1] |
| | | 1 | + | + | + | + | + | + | + [1] | + [1] |
| | | 10 | + | + | + | + | + | + | + [1] | + [1] |
| Sodium hypochlorite solution | | 1 | [2] | (–) | + [1] | + | [2] | (–) | (+) | (–) |
| Hydrogen peroxide | $H_2O_2$ | 5 | + | + | + | + | + | + | [2] | [2] |

| | |
|---|---|
| – | Not resistant |
| (–) | Barely resistant |
| (+) | Moderately resistant |
| + | Resistant |

1) Not tested. Estimate generated from remaining test series.
2) Not tested. No estimate possible.

## 1.3 Lubrication

### Food-grade grease application

The high-quality grease used for lubrication is approved for food applications to category NSF H1. The grease is particularly suitable for use in the food industry and meets the quality requirements of FDA 21 CFR 178.3570 in full. Furthermore, the grease is halal and kosher-certified.

A lubricant of class NSF H1 is suitable for applications in which incidental contact between food and lubricant may occur and is unavoidable by technical measures. Such lubricants must be non-toxic and neutral in taste and odour.

The grease also contains only allergen-free ingredients in accordance with Regulation (EC) 1169/2011 and is therefore free of cereals containing gluten, nuts and milk, for example. In addition, the grease does not contain any components comprising animal or genetically modified organisms.

The halal and kosher certification of the lubricant used confirms that the strict halal and kosher criteria are also met in relation to the processing and ingredients of the bearings. These dietary laws of the Muslim and Jewish population not only apply to the actual food and beverages, but also to the machines and environment during manufacture.

4 Certifications: kosher, halal, NSF H1


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### Lubrication of bearings

The bearings are greased using an aluminium complex soap grease with food applications approval to NSF H1, which is characterised by very good water and chemical resistance. The grease filling is measured so that it is sufficient for the entire life of the bearing. As a result, these bearings are generally maintenance-free.

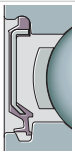
Do not wash greased bearings out prior to mounting. If mounting is carried out using thermal tools, the bearings should be heated to a maximum temperature of +80 °C, taking account of the grease filling and seal material. If higher heating temperatures are required, it must be ensured that the permissible upper temperature limits for greases and seals are observed.

Schaeffler recommends the use of induction heating devices in accordance with MH 1, Mounting Handbook for heating purposes.

## 1.4 Sealing

As standard, bearings for the food industry are sealed on both sides with contact seals made from NBR. These seals are elastomer lip seals with a sheet steel reinforcement (suffix 2RSR or 2RS).

3 Seal type

| | |
|---|---|
| Seal RSR | |
|  | single piece, sheet steel washer with vulcanised and radially preloaded seal lip made from NBR |
| Seal RS | |
|  | single piece, sheet steel washer with vulcanised and axially preloaded seal lip made from NBR |

In the case of direct exposure to spray water, prior consultation with Application Engineering is required. For any queries regarding resistance to specific media, please consult Application Engineering.

## 1.5 Prefixes and suffixes

4 Prefixes and suffixes

| Prefix | Suffix | Description | Design |
|---|---|---|---|
| S | – | High-grade steel | Standard |
| HC | – | Hybrid bearing with ceramic balls made from $Si_3N_4$ | By agreement |
| – | 2RS | Axial contact seal on both sides (lip seal)<br>Sealing material NBR | Standard |
| – | 2RSR | Radial contact seal on both sides (lip seal)<br>Sealing material NBR | |
| – | FD | Suitable for applications in the food industry | |
| – | C2 | Radial internal clearance C2 (smaller than normal) | By agreement |
| – | C3 | Radial internal clearance C3 (larger than normal) | |
| – | C4 | Radial internal clearance C4 (larger than C3) | |

## 1.6 Temperature range

Deep groove ball bearings with seals can be used at operating temperatures of –30 °C to +100 °C, restricted by the grease.

## 1.7 Internal clearance

Deep groove ball bearings of basic design are manufactured as standard with the radial internal clearance CN (normal). CN is not stated in the designation.

The bearings are also available by agreement with the smaller internal clearance C2 and with the larger internal clearance C3 and C4.

The values for radial internal clearance correspond to DIN 620-4:2004 (ISO 5753-1:2009). These are valid for bearings which are free from load and measurement forces, i.e. without elastic deformation.

5 Radial internal clearance

| d | | C2 (Group 2) | | CN (Group N) | | C3 (Group 3) | | C4 (Group 4) | | C5 (Group 5) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| over | incl. | min. | max. | min. | max. | min. | max. | min. | max. | min. | max. |
| mm | mm | µm | µm | µm | µm | µm | µm | µm | µm | µm | µm |
| 6 | 10 | 0 | 7 | 2 | 13 | 8 | 23 | 14 | 29 | – | – |
| 10 | 18 | 0 | 9 | 3 | 18 | 11 | 25 | 18 | 33 | – | – |
| 18 | 24 | 0 | 10 | 5 | 20 | 13 | 28 | 20 | 36 | – | – |
| 24 | 30 | 1 | 11 | 5 | 20 | 13 | 28 | 23 | 41 | – | – |
| 30 | 40 | 1 | 11 | 6 | 20 | 15 | 33 | 28 | 46 | – | – |
| 40 | 50 | 1 | 11 | 6 | 23 | 18 | 36 | 30 | 51 | – | – |

## 1.8 Dimensions, tolerances

The main dimensions of single row deep groove ball bearings correspond to DIN 625-1:2011. Nominal dimensions of single row deep groove ball bearings are listed in the product table ➤20|1.15.2.

### Chamfer dimensions

The limiting dimensions for chamfer dimensions correspond to DIN 620-6:2004. For an overview and limiting values, please refer to Catalogue HR 1, Rolling Bearings. Nominal dimensions for the chamfer dimension are listed in the product table ➤20|1.15.2.

### Tolerances

The tolerances for the dimensional and running accuracy of deep groove ball bearings correspond to tolerance class Normal in accordance with ISO 492:2014.

# 1.9 Design and safety guidelines

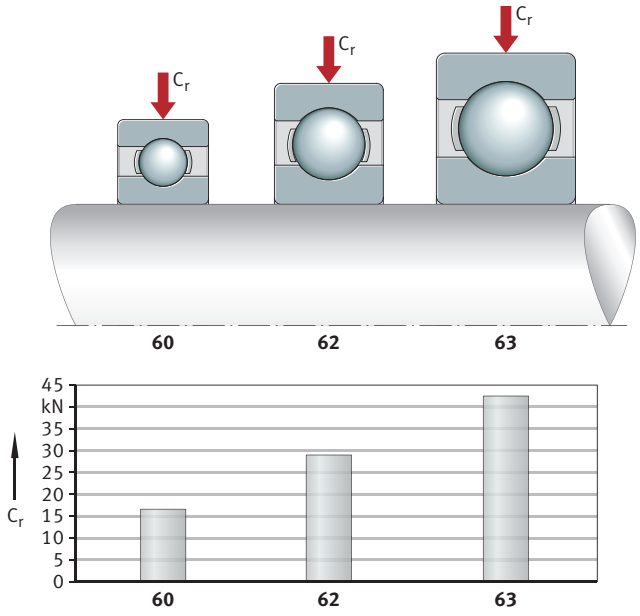
## 1.9.1 Load carrying capacity

### Radial load carrying capacity

The balls are in contact with the raceways at one point only. Under purely radial load, the contact points between the rolling elements and raceways lie at the centre of the raceway. As a result, the connection between the contact points passes through the radial plane, i.e. the optimum load direction is a purely radial load.

The load carrying capacity is dependent on the bearing series and the size of the ball set in the deep groove ball bearings. As a result, the deep groove ball bearing series 60 with a smaller bearing cross-section has a lower load carrying capacity than the standard series 62 with the same dimensions relative to the bore diameter d and a larger ball set. The heavy bearing series 63 with the largest ball set is suitable for even higher loads when used for the same bore diameter.

5 Single row deep groove ball bearings, comparison of cross-section and load carrying capacity for bearings with d = 40 mm




### Axial load carrying capacity

Due to the deep raceway grooves in the bearing rings and the narrow osculation between the raceway grooves and the balls, the bearings can support axial loads in both directions. The axial load carrying capacity is dependent, for example, on the bearing size, the internal construction and the operating clearance. If the axial load is too high, however, this can increase the running noise and considerably reduce the operating life of the bearings.

If there is any uncertainty regarding the axial load carrying capacity of the bearings, please consult Schaeffler.

### 1.9.2 Compensation of angular misalignments

Single row deep groove ball bearings are only suitable for compensating static angular misalignments to a very limited extent. As a result, the bearing positions must be well aligned. Misalignments shorten the operating life, as they place an additional strain on the bearing. In order to keep these loads at a low level, only small adjustment angles are permissible for deep groove ball bearings as a function of the load.

6 Permissible adjustment angles

| Series | Adjustment angle for low loads | | Adjustment angle for high loads | |
|---|---|---|---|---|
| | from | to | from | to |
| | ' | ' | ' | ' |
| 60 | 2 | 6 | 5 | 10 |
| 62 | 5 | 10 | 8 | 16 |
| 63 | 5 | 10 | 8 | 16 |

### 1.9.3 Speeds

The product tables give the limiting speed $n_G$.

The limiting speed $n_G$ is the kinematically permissible speed of the bearing. Even under favourable mounting and operating conditions, this value should only be exceeded following prior consultation with Schaeffler.

If the application renders it necessary to exceed the specified speed limits, please contact Schaeffler Application Engineering.

## 1.10 Dimensioning

### Equivalent dynamic bearing load

The basic rating life equation $L = (C_r/P)^p$ used in the dimensioning of bearings under dynamic load assumes a load of constant magnitude and direction. In radial bearings, this is a purely radial load $F_r$. If such a load is present, the bearing load $F_r$ is used in the rating life equation for P ($P = F_r$).

If a load of constant magnitude and direction is not present, a constant radial force must first be determined for the rating life calculation that, in relation to the rating life, represents an equivalent load. This force is known as the equivalent dynamic bearing load P.

The calculation of P is dependent on the load ratio $F_a/F_r$ and the calculation factor e:

$$\frac{F_a}{F_r} \leq e \quad \Rightarrow \quad P = F_r$$

$f_{}$2

$$\frac{F_a}{F_r} > e \quad \Rightarrow \quad P = X \cdot F_r + Y \cdot F_a$$

| | | |
|---|---|---|
| e | – | Calculation factor |
| $F_a$ | N | Axial load |
| $F_r$ | N | Radial load |
| P | N | Equivalent dynamic bearing load |
| X | – | Radial load factor |
| Y | – | Axial load factor |

The specified values are valid for normal operating clearance. If the operating clearance differs significantly, the use of Bearinx is recommended for calculation of the rating life. If the calculation values lie between the stated values (such as 0,4), then read off the table values for 0,3 and 0,5 and determine the intermediate values using linear interpolation.

For normal operating clearance, observe the fit recommendations in Catalogue HR 1, Rolling Bearings.

▦7 Factors e, X and Y

| $\frac{f_0 \cdot F_a}{C_{0r}}$ | **Factor (for normal operating clearance)** | | |
|---|---|---|---|
| | **e** | **X** | **Y** |
| 0,3 | 0,22 | 0,56 | 2 |
| 0,5 | 0,24 | 0,56 | 1,8 |
| 0,9 | 0,28 | 0,56 | 1,58 |
| 1,6 | 0,32 | 0,56 | 1,4 |
| 3 | 0,36 | 0,56 | 1,2 |
| 6 | 0,43 | 0,56 | 1 |

## Equivalent static bearing load

The calculation of $P_0$ for deep groove ball bearings under static load is dependent on the load ratio $F_{0a}/F_{0r}$ and the factor 0,8:

$f_{}$3

$$\frac{F_{0a}}{F_{0r}} \leq 0{,}8 \quad \Rightarrow \quad P_0 = F_{0r}$$

$f_{}$4

$$\frac{F_{0a}}{F_{0r}} > 0{,}8 \quad \Rightarrow \quad P_0 = 0{,}6 \cdot F_{0r} + 0{,}5 \cdot F_{0a}$$

| | | |
|---|---|---|
| $F_{0a}$ | N | Largest axial load present (maximum load) |
| $F_{0r}$ | N | Largest radial load present (maximum load) |
| $P_0$ | N | Equivalent static bearing load |

### Static load safety factor

In addition to the basic rating life L ($L_{10h}$), it is also always necessary to check the static load safety factor $S_0$:

$$S_0 = \frac{C_0}{P_0} \quad (5)$$

| | | |
|---|---|---|
| $S_0$ | – | Static load safety factor |
| $C_0$ | N | Basic static load rating |
| $P_0$ | N | Equivalent static bearing load |

## 1.11 Minimum load

In order that no slippage occurs between the contact partners, the bearings must be constantly subjected to a sufficiently high load. Based on experience, a minimum radial load of the order of $P > C_{0r}/100$ is thus necessary. In most cases, however, the radial load is already higher than the requisite minimum load due to the weight of the supported parts and the external forces.

If the minimum radial load is lower than stated, please consult Schaeffler.

## 1.12 Design of bearing arrangements

In order to allow full utilisation of the load carrying capacity of the bearings and thus also achieve the requisite rating life, the bearing rings must be rigidly and uniformly supported by means of contact surfaces over their entire circumference and over the entire width of the raceway. The seating and contact surfaces should not be interrupted by grooves, holes or other recesses. The accuracy of mating parts must meet specific requirements.

### Radial location of bearings, fit recommendations

In addition to supporting the rings adequately, the bearings must also be securely located in a radial direction, to prevent creep of the bearing rings on the mating parts under load. This is generally achieved by means of tight fits between the bearing rings and the mating parts. If the rings are secured inadequately or incorrectly, this can cause severe damage to the bearings and adjacent machine parts. Influencing factors, such as the conditions of rotation, magnitude of the load, internal clearance, temperature conditions, design of the mating parts and the mounting and dismounting options must be taken into consideration in the selection of fits.

If shock type loads occur, tight fits in the form of transition fits or interference fits are required to prevent the rings from coming loose at any point.

### Axial location of bearings, location methods

A tight fit alone is not normally sufficient to also locate the bearing rings securely on the shaft and in the housing bore in an axial direction. This must usually be achieved by means of an additional axial location or retention method. The axial location of the bearing rings must be matched to the type of bearing arrangement. Shaft shoulders and housing shoulders, housing covers, nuts, spacer rings and retaining rings etc., are fundamentally suitable.

## Dimensional accuracy, geometrical accuracy and running accuracy of the bearing seats

The accuracy of the cylindrical bearing seat on the shaft and in the housing should correspond to the accuracy of the bearing used. For deep groove ball bearings with the tolerance class Normal, the shaft seat should correspond to a minimum of standard tolerance grade IT6 and the housing seat to a minimum of IT7. Guide values for the geometrical tolerances and positional tolerances of bearing seating surfaces and corresponding numerical values for the IT grades can be found in the table.

8 Guide values for the geometrical tolerances and positional tolernaces of bearing seating surfaces in accordance with ISO 286-1 (IT grade)

| Tolerance class | | Bearing seating surface | Fundamental tolerance grades | | | |
|---|---|---|---|---|---|---|
| To ISO 492:2023 | To DIN 620 | | IT grade | $t_1$ | $t_2$ | $t_3$ |
| Normal | PN (P0) | Shaft | IT6 (IT5) | Circumferential load<br>IT4/2 | Circumferential load<br>IT4/2 | IT4 |
| | | | IT6 (IT5) | Point load<br>IT5/2 | Point load<br>IT5/2 | IT4 |
| | | Housing | IT7 (IT6) | Circumferential load<br>IT5/2 | Circumferential load<br>IT5/2 | IT5 |
| | | | IT7 (IT6) | Point load<br>IT6/2 | Point load<br>IT6/2 | IT5 |

9 Numerical values for basic tolerances to ISO 286-1:2010 (IT grade)

| Nominal dimension | | IT grade | | | | |
|---|---|---|---|---|---|---|
| over | incl. | IT3 | IT4 | IT5 | IT6 | IT7 |
| mm | mm | µm | µm | µm | µm | µm |
| 6 | 10 | 2,5 | 4 | 6 | 9 | 15 |
| 10 | 18 | 3 | 5 | 8 | 11 | 18 |
| 18 | 30 | 4 | 6 | 9 | 13 | 21 |
| 30 | 50 | 4 | 7 | 11 | 16 | 25 |
| 50 | 80 | 5 | 8 | 13 | 19 | 30 |
| 80 | 120 | 6 | 10 | 15 | 22 | 35 |

## Roughness of cylindrical bearing seating surfaces

The roughness of the bearing seats must be matched to the tolerance class of the bearings. The mean roughness value Ra must not be too high, in order to maintain the interference loss within limits. The shafts must be ground, while the bores must be precision turned. Guide values as a function of the IT grade of bearing seating surfaces can be found in the table.

10 Guide values for mean roughness Ramax for ground bearing seats (IT grade)

| Nominal dimension | | Ramax | | | |
|---|---|---|---|---|---|
| from | to | IT7 | IT6 | IT5 | IT4 |
| mm | mm | µm | µm | µm | µm |
| – | 80 | 1,6 | 0,8 | 0,4 | 0,2 |
| 80 | 500 | 1,6 | 1,6 | 0,8 | 0,4 |

## Mounting dimensions for the contact surfaces of bearing rings

The mounting dimensions of the shaft shoulders and housing shoulders, and spacer rings etc., must ensure that the contact surfaces for the bearing rings are of sufficient height. However, they must also reliably prevent rotating parts of the bearing from grazing stationary parts. Proven mounting dimensions for the radii and diameters of the abutment shoulders are indicated in the product tables. These dimensions are limiting dimensions (maximum or minimum dimensions). These limiting dimensions must be observed.

## 1.13 Mounting and dismounting

Deep groove ball bearings are not separable. In the mounting of non-separable bearings, the mounting forces must always be applied to the bearing ring with a tight fit.

The mounting and dismounting options for deep groove ball bearings by thermal, hydraulic or mechanical methods, must also be taken into consideration in the design of the bearing position.

Rolling bearings are well-proven precision machine elements for the design of economical and reliable bearing arrangements, which offer high operational security. In order that these products can function correctly and achieve the envisaged operating life without detrimental effect, they must be handled with care.

## 1.14 Further information

The information on the design of the bearing arrangement, lubrication, mounting and dismounting and on the operation of the bearings provided in the Technical Principles of Catalogue HR 1, Rolling Bearings, must be observed as further information.

HR 1 | Rolling Bearings |
https://www.schaeffler.de/std/1D3D

MH 1 | Mounting Handbook |
https://www.schaeffler.de/std/1B68

TPI 64 | Corrosion-resistant products |
https://www.schaeffler.de/std/1F37

# 1.15 Product tables

## 1.15.1 Explanations

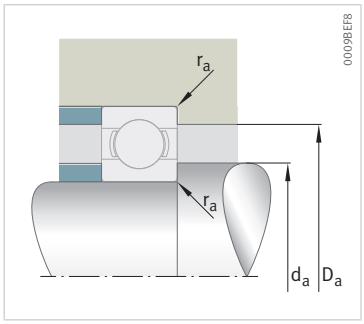
| | | |
|---|---|---|
| B | mm | Width |
| $C_{0r}$ | N | Basic static load rating, radial |
| $C_r$ | N | Basic dynamic load rating, radial |
| $C_{ur}$ | N | Fatigue limit load, radial |
| d | mm | Bearing bore diameter |
| D | mm | Bearing outside diameter |
| $d_1$ | mm | Inner ring rib diameter |
| $d_2$ | mm | Caliber diameter inner ring |
| $D_2$ | mm | Caliber diameter outer ring |
| $d_a$ | mm | Abutment diameter, shaft shoulder |
| $D_a$ | mm | Housing shoulder diameter |
| $f_0$ | – | Calculation factor |
| m | kg or lbs | Mass |
| $n_G$ | $min^{-1}$ | Limiting speed |
| $r_{a\ max}$ | mm | Max. undercut radius |
| $r_{min}$ | mm | Min. chamfer dimension |

## 1.15.2 Deep groove ball bearings, single row

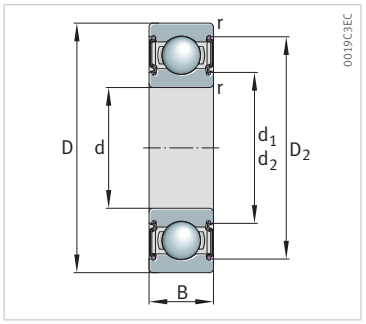
FD design

Contact seals on both sides

| Designation | d | D | B | $d_1$ | $d_2$ | $D_2$ | r min. |
|---|---|---|---|---|---|---|---|
| – | mm | mm | mm | mm | mm | mm | mm |
| **S6000-2RSR-FD** | **10** | 26 | 8 | – | 13,9 | 22,38 | 0,3 |
| **S6200-2RS-FD** | **10** | 30 | 9 | – | 15,6 | 25,2 | 0,6 |
| **S6300-2RS-FD** | **10** | 35 | 11 | – | 17,5 | 29,5 | 0,6 |
| **S6001-2RS-FD** | **12** | 28 | 8 | – | 15,8 | 24,9 | 0,3 |
| **S6201-2RS-FD** | **12** | 32 | 10 | – | 17,5 | 28,1 | 0,6 |
| **S6301-2RS-FD** | **12** | 37 | 12 | – | 18,3 | 31,6 | 1 |
| **S6002-2RS-FD** | **15** | 32 | 9 | – | 18,8 | 28,8 | 0,3 |
| **S6202-2RS-FD** | **15** | 35 | 11 | – | 20,9 | 30,9 | 0,6 |
| **S6302-2RS-FD** | **15** | 42 | 13 | – | 22,7 | 36,7 | 1 |
| **S6003-2RS-FD** | **17** | 35 | 10 | – | 21,7 | 31,3 | 0,3 |
| **S6203-2RS-FD** | **17** | 40 | 12 | – | 23,5 | 35,3 | 0,6 |
| **S6303-2RS-FD** | **17** | 47 | 14 | – | 25,5 | 39,6 | 1 |
| **S6004-2RS-FD** | **20** | 42 | 12 | – | 25,3 | 37 | 0,6 |
| **S6204-2RS-FD** | **20** | 47 | 14 | – | 27,3 | 41,5 | 1 |
| **S6304-2RS-FD** | **20** | 52 | 15 | – | 27,2 | 43,8 | 1,1 |
| **S6005-2RS-FD** | **25** | 47 | 12 | – | 30,8 | 42 | 0,6 |
| **S6205-2RS-FD** | **25** | 52 | 15 | – | 32,5 | 46,3 | 1 |
| **S6305-2RSR-FD** | **25** | 62 | 17 | 38,1 | – | 53,22 | 1,1 |
| **S6006-2RS-FD** | **30** | 55 | 13 | – | 36,5 | 49,9 | 1 |
| **S6206-2RSR-FD** | **30** | 62 | 16 | 40,7 | – | 55,13 | 1 |
| **S6306-2RSR-FD** | **30** | 72 | 19 | 44,9 | – | 62,35 | 1,1 |
| **S6007-2RSR-FD** | **35** | 62 | 14 | 44 | – | 57,05 | 1 |
| **S6207-2RSR-FD** | **35** | 72 | 17 | 47,6 | – | 64,83 | 1,1 |
| **S6307-2RSR-FD** | **35** | 80 | 21 | – | 46,78 | 71,58 | 1,5 |
| **S6008-2RSR-FD** | **40** | 68 | 15 | 49,2 | – | 62,5 | 1 |
| **S6208-2RSR-FD** | **40** | 80 | 18 | – | 50,1 | 70,78 | 1,1 |
| **S6009-2RSR-FD** | **45** | 75 | 16 | 54,5 | – | 69 | 1 |
| **S6209-2RSR-FD** | **45** | 85 | 19 | – | 53,5 | 76,35 | 1,1 |
| **S6010-2RSR-FD** | **50** | 80 | 16 | 60 | – | 74,55 | 1 |
| **S6210-2RSR-FD** | **50** | 90 | 20 | – | 60 | 82,15 | 1,1 |




Mounting dimensions




2RS, 2RSR

| $C_r$ | $C_{0r}$ | $C_{ur}$ | $n_G$ | $f_0$ | m | $d_a$ min. | $D_a$ max. | $r_a$ max. |
|---|---|---|---|---|---|---|---|---|
| N | N | N | $min^{-1}$ | – | kg | | mm | mm |
| 3890 | 1570 | 125 | 11000 | 9,9 | 0,02 | 12 | 24 | 0,3 |
| 5100 | 2380 | 108 | 18000 | 13,1 | 0,032 | 14,2 | 25,8 | 0,6 |
| 7650 | 3480 | 158 | 17000 | 12,3 | 0,058 | 14,2 | 30,8 | 0,6 |
| 5100 | 2380 | 108 | 18000 | 13,1 | 0,022 | 14 | 26 | 0,3 |
| 6820 | 3050 | 139 | 17000 | 12,3 | 0,036 | 16,2 | 27,8 | 0,6 |
| 9710 | 4190 | 190 | 16000 | 11,1 | 0,065 | 17,6 | 31,4 | 1 |
| 5580 | 2840 | 129 | 15000 | 13,9 | 0,03 | 17 | 30 | 0,3 |
| 7650 | 3720 | 169 | 14000 | 13,1 | 0,045 | 19,2 | 30,8 | 0,6 |
| 11440 | 5430 | 246 | 13000 | 12,3 | 0,081 | 20,6 | 36,4 | 1 |
| 6000 | 3250 | 148 | 13000 | 14,3 | 0,039 | 19 | 33 | 0,3 |
| 9580 | 4780 | 217 | 12000 | 13,1 | 0,065 | 21,2 | 35,8 | 0,6 |
| 13580 | 6580 | 299 | 11000 | 12,2 | 0,114 | 22,6 | 41,4 | 1 |
| 9380 | 5020 | 228 | 11000 | 13,8 | 0,069 | 23,2 | 38,8 | 0,6 |
| 12800 | 6650 | 302 | 11000 | 13,2 | 0,109 | 25,6 | 41,4 | 1 |
| 15800 | 7880 | 358 | 10000 | 12,4 | 0,144 | 27 | 45 | 1 |
| 10000 | 5850 | 266 | 9500 | 14,5 | 0,077 | 28,2 | 43,8 | 0,6 |
| 14000 | 7880 | 358 | 9000 | 13,9 | 0,13 | 30,6 | 46,4 | 1 |
| 17500 | 9000 | 960 | 4700 | 10,6 | 0,245 | 32 | 55 | 1 |
| 13200 | 8300 | 377 | 8000 | 14,8 | 0,1 | 34,6 | 50,4 | 1 |
| 16500 | 9070 | 600 | 4500 | 11,1 | 0,211 | 35,6 | 56,4 | 1 |
| 22700 | 12000 | 1290 | 4100 | 10,6 | 0,32 | 37 | 65 | 1 |
| 13600 | 8240 | 720 | 4300 | 11,9 | 0,155 | 39,6 | 57,4 | 1 |
| 21800 | 12300 | 1210 | 3900 | 11,1 | 0,303 | 42 | 65 | 1 |
| 28300 | 15400 | 1680 | 3600 | 10,6 | 0,483 | 44 | 71 | 1,5 |
| 14300 | 9240 | 770 | 3900 | 12,2 | 0,188 | 44,6 | 63,4 | 1 |
| 24700 | 14300 | 1400 | 3500 | 11,2 | 0,384 | 47 | 73 | 1 |
| 17800 | 12100 | 870 | 3500 | 12,2 | 0,244 | 49,6 | 70,4 | 1 |
| 27800 | 16400 | 1490 | 3200 | 11,3 | 0,441 | 52 | 78 | 1 |
| 18500 | 13300 | 920 | 3200 | 12,5 | 0,271 | 54,6 | 75,4 | 1 |
| 29800 | 18600 | 1630 | 3000 | 11,5 | 0,457 | 57 | 83 | 1 |

# 2 Radial insert ball bearings

Radial insert ball bearings GYE..-KRR-B-FA107-VA-FD and GE..-KRR-B-FA107-VA-FD in FD design are designed for use in the food and beverage industry. They have a significantly higher resistance to corrosion and media than conventional radial insert ball bearings and are therefore extremely suitable for a wide range of applications in the food industry, where they are exposed to various media, moisture, salt spray mist, contaminated water or cleaning agents.

## With grub screws in inner ring

Two high-grade steel grub screws offset by 120° are used to locate the inner ring (Y type) on the shaft. This location method is suitable for bearing arrangements with a constant direction of rotation or, under low speed and load, for an alternating direction of rotation.

The grub screws are self-retaining and have a fine pitch thread with cup point for secure location of the bearings, in due accordance with the stated tightening torques.

6 With grub screws in inner ring in FD design

0019C0C8

Bearing series:

- GYE..-KRR-B-FA107-VA-FD

## With eccentric locking collar

The bearings are located on the shaft by means of a high-grade steel locking collar. They are thus particularly suitable for bearing arrangements with a constant direction of rotation or, under low load and speed, for an alternating direction of rotation.

The locking collar is preferably tightened in the direction of rotation and must be secured by means of a grub screw. This location method prevents damage to the shaft and can be easily loosened again.

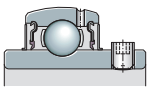
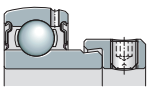
7 With eccentric locking collar in FD design

0019C0D8

Bearing series:

- GE..-KRR-B-FA107-VA-FD

11 Comparison of series

| Feature | GYE..-KRR-B-FA107-VA-FD  | GE..-KRR-B-FA107-VA-FD  |
|---|---|---|
| Shaft diameter | 20 mm to 40 mm | 20 mm to 40 mm |
| Location method | Grub screws | Eccentric locking collar |
| Seal | RSR | RSR |
| Compensation of misalignment | yes | yes |
| Internal clearance | C3 | C3 |
| Bearing components | High-grade steel | High-grade steel |
| Grease approved for food application according to NSF H1 | yes | yes |
| Relubrication facility | yes | yes |
| Recommended application temperature | –30 °C to +100 °C | –30 °C to +100 °C |
| Comments | High-grade steel version with flinger shield | High-grade steel version |

## 2.1 Bearing design

The bearings in FD design (high-grade steel version with food-grade grease) correspond in their design to single row deep groove ball bearings 62. They are ready to fit, particularly easy to fit and allow robust, economical bearing arrangements with a long operating life. Grub screws in the extended ring or an eccentric locking collar are used to locate them on the shaft.

Operation even under difficult conditions is ensured by seals that are matched to the application and the use of food-grade greases.

### Special characteristics

- bearing rings, cages and balls made from high-grade steel
- eccentric locking rings, grub screws and flinger shields made from high-grade steel
- highly effective contact seal of type RSR with high-grade steel reinforcement and additional flinger shield
- relubrication facility

### Design variants

Radial insert ball bearings in FD design for the food industry are available with various location methods as:

- radial insert ball bearing with grub screws in the inner ring, GYE..-KRR-B-FA107-VA-FD
- radial insert ball bearing with eccentric locking collar, GE..-KRR-B-FA107-VA-FD

## 2.2 Corrosion-resistant materials

The bearing rings, cages and rolling elements are made from high-grade steel. The seal and flinger shield reinforcement as well as the fasteners such as eccentric locking collars and grub screws are also made from high-grade steel.

The materials used in series FD are resistant to moisture, contaminated water, salt spray mist and weak alkaline or weak acidic cleaning agents.

12 Steels used

| Bearing components | Designation | | Material number |
|---|---|---|---|
| | ISO 683-17:2000 | AISI | EN 10088-3 |
| Bearing rings | X105CrMo17 | 440C | 1.4125 |
| Rolling elements | | | |
| Cage | X5CrNi18-10 | 304 | 1.4301 |
| Grub screws | | | |
| Eccentric locking collar | | | |
| Seal reinforcement | | | |
| Flinger shields | | | |

We reserve the right to make technical changes, including material changes, as part of the ongoing development.

## Media resistance

In the food industry in particular, the resistance of the material in relation to various cleaning agents is of increasing importance.

13 Resistance to media

| Medium | | Concentration | X5CrNi18-10 | | X105CrMo17 | |
|---|---|---|---|---|---|---|
| | | % | +20 °C | +80 °C | +20 °C | +80 °C |
| Hydrochloric acid | HCl | 0,1 | + | + | – | – |
| | | 1 | (+) | – | – | – |
| | | 18 | – | – | – | – |
| Hydrofluoric acid | HF | 1 | – | – | – | – |
| | | 5 | – [1] | – | – [1] | – |
| Sulphuric acid | $H_2SO_4$ | 1 | + | – | – | – |
| | | 10 | (+) | – | – | – |
| | | 96 | + | (+) | – | – |
| Sulphurous acid | $H_2SO_3$ | 1 | + | + | – | – |
| Nitric acid | $HNO_3$ | 5 | + | + | – | – |
| | | 25 | + | + | + | (+) |
| | | 65 | + | + | + | (+) |
| Phosphoric acid | $H_3PO_4$ | 1 | + | + | + | + |
| | | 10 | + | + | (+) | + |
| | | 85 | + | + | + | – |
| Formic acid | HCOOH | 5 | + | + | – | – |
| | | 25 | + | + | – | – |
| Acetic acid | $CH_3COOH$ | 5 | + | + | + | – |
| | | 25 | + | + | + | – |
| Citric acid | | 5 | + | + | + | + |
| | | 25 | + | + | – | – |
| Chloroacetic acid | | 5 | + | + | (+) | – |
| Sodium chloride | NaCl | 10 | + | + | (–) | (–) |
| Sea water | | 4 | + | + | (–) | (–) |
| Distilled water | | – | + | + | + | + |
| Ammonium hydroxide | $NH_4OH$ | 1 | + | + | + | + |
| | | 10 | + | + | + | + |
| Potassium hydroxide solution | KOH | 0,1 | + | + | + | + |
| | | 1 | + | + | + | + |
| | | 10 | + | + | + | + |
| Sodium hypochlorite solution | | 1 | + [1] | + | [2] | (–) |
| Hydrogen peroxide | $H_2O_2$ | 5 | + | + | + | + |

| | |
|---|---|
| – | Not resistant |
| (–) | Barely resistant |
| (+) | Moderately resistant |
| + | Resistant |

1) Not tested. Estimate generated from remaining test series.
2) Not tested. No estimate possible.

### FDA-compliant materials

The following FDA-compliant materials are used:

14 FDA-compliant materials

| Bearing components | Material, designation | FDA directive |
|---|---|---|
| Seals | NBR | FDA 21 CFR 177.2600 |
| Grease | Mobile Grease FM222 | FDA 21 CFR 178.3570 |

The classification of components as FDA-compliant is based on information provided by material manufacturers.

## 2.3 Lubrication

### Food-grade grease application

The high-quality grease used for lubrication is approved for food applications to category NSF H1. The grease is particularly suitable for use in the food industry and meets the quality requirements of FDA 21 CFR 178.3570 in full. Furthermore, the grease is halal and kosher-certified.

A lubricant of class NSF H1 is suitable for applications in which incidental contact between food and lubricant may occur and is unavoidable by technical measures. Such lubricants must be non-toxic and neutral in taste and odour.

The grease also contains only allergen-free ingredients in accordance with Regulation (EC) 1169/2011 and is therefore free of cereals containing gluten, nuts and milk, for example. In addition, the grease does not contain any components comprising animal or genetically modified organisms.

The halal and kosher certification of the lubricant used confirms that the strict halal and kosher criteria are also met in relation to the processing and ingredients of the bearings. These dietary laws of the Muslim and Jewish population not only apply to the actual food and beverages, but also to the machines and environment during manufacture.

8 Certifications


| | | | |
|---|---|---|---|
| 1 | kosher | 2 | halal |
| 3 | National Sanitation Foundation (NSF) | | |

### Lubrication of bearings

Initial greasing is carried out with Mobile Grease FM222, an aluminium complex soap grease with food applications approval to NSF H1, which is sufficient in many cases for the operating life of the bearings. The bearings are relubricated via lubrication holes on the outside surface of the outer rings. The use of rolling bearing grease Arcanol FOOD2 is recommended for relubrication.

### Arcanol FOOD2

Arcanol FOOD2 is a rolling bearing grease for rolling bearing arrangements in the food industry. It is registered to NSF H1 (reg.no. 150727), is halal-certified and kosher-certified, has very good water resistance and corrosion protection, and has very good resistance to cleaning chemicals.

Typical areas of application are:

- applications with food contact
- H1 to USDA
- bearing positions with NSF H1 requirement (food contact)

The criteria for application are:

- universal application
- good relubrication

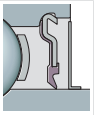
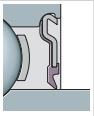
## 2.4 Sealing

Radial insert ball bearings for the food industry are sealed in a radial direction on both sides with contact seals made from NBR. These seals are of the type RSR and are elastomer lip seals with a high-grade steel reinforcement. This variant has the suffix KRR.

In the case of variant GYE, the seals are additionally fitted with flinger shields made from high-grade steel, which protect the seals against mechanical damage.

As standard, bearings for the food industry are delivered with seals made from NBR.

15 Seal type

| | |
|---|---|
| Seal RSR with flinger shield in high-grade steel design: | |
|  | single piece, sheet steel washer made from high-grade steel with vulcanised and radially preloaded seal lip made from NBR and additional flinger shield made from high-grade steel<br>used in radial insert ball bearings with grub screws in the inner ring (series GYE ) |
| Seal RSR in high-grade steel design: | |
|  | single piece, sheet steel washer made from high-grade steel with vulcanised and radially preloaded seal lip made from NBR<br>used in radial insert ball bearings with eccentric locking collar (series GE ) |

In the case of direct exposure to spray water, prior consultation with Application Engineering is required. For any queries regarding resistance to specific media, please consult Application Engineering.

## 2.5 Suffixes

16 Available designs

| Suffix | Series | Description | Design |
|---|---|---|---|
| B | – | Bearing with spherical outer ring | Standard |

| Suffix | Series | Description | Design |
|---|---|---|---|
| FA107 | – | Bearing with lubrication holes on the locating side | |
| FD | – | Suitable for applications in the food industry | |
| KRR | GE | Lip seal on both sides<br>Seal type RSR made from NBR | |
| KRR | GYE | Lip seal on both sides<br>Seal type RSR made from NBR<br>Additional flinger shield | |
| VA | – | High-grade steel version | |

## 2.6 Temperature range

Radial insert ball bearings for the food industry are suitable for operating temperatures from –30 °C to +100 °C.

## 2.7 Internal clearance

Radial insert ball bearings for the food industry are manufactured as standard with radial internal clearance C3 (Group 3). C3 is not stated in the designation.

The internal clearance is larger than in the case of normal deep groove ball bearings. As a result, support of misalignments and shaft deflections is improved.

The values for radial internal clearance correspond to DIN 620-4:2004 (ISO 5753-1:2009). These are valid for bearings which are free from load and measurement forces, i.e. without elastic deformation.

17 Radial internal clearance

| d | | C2 (Group 2) | | CN (Group N) | | C3 (Group 3) | | C4 (Group 4) | | C5 (Group 5) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| over | incl. | min. | max. | min. | max. | min. | max. | min. | max. | min. | max. |
| mm | mm | µm | µm | µm | µm | µm | µm | µm | µm | µm | µm |
| 2,5 | 6 | – | – | 2 | 13 | 8 | 23 | – | – | – | – |
| 6 | 10 | – | – | 2 | 13 | 8 | 23 | 14 | 29 | 20 | 37 |
| 10 | 18 | – | – | 3 | 18 | 11 | 25 | 18 | 33 | 25 | 45 |
| 18 | 24 | – | – | 5 | 20 | 13 | 28 | 20 | 36 | 28 | 48 |
| 24 | 30 | – | – | 5 | 20 | 13 | 28 | 23 | 41 | 30 | 53 |
| 30 | 40 | – | – | 6 | 20 | 15 | 33 | 28 | 46 | 40 | 64 |
| 40 | 50 | – | – | 6 | 23 | 18 | 36 | 30 | 51 | 45 | 73 |
| 50 | 65 | – | – | 8 | 28 | 23 | 43 | 38 | 61 | 55 | 90 |
| 65 | 80 | – | – | 10 | 30 | 25 | 51 | 46 | 71 | 65 | 105 |
| 80 | 100 | – | – | 12 | 36 | 30 | 58 | 53 | 84 | 75 | 120 |
| 100 | 120 | – | – | 15 | 41 | 36 | 66 | 61 | 97 | 90 | 140 |
| 120 | 140 | – | – | 18 | 48 | 41 | 81 | 71 | 114 | 105 | 160 |
| 140 | 160 | – | – | 18 | 53 | 46 | 91 | 81 | 130 | 120 | 180 |

## 2.8 Dimensions, tolerances

### Dimensions

The main dimensions of radial insert ball bearings correspond to ISO 9628 and DIN 626-1:1999. Nominal dimensions of the radial insert ball bearings are listed in the product tables ➤35|2.15.

### Tolerances

The tolerances for the dimensional and running accuracy of deep groove ball bearings correspond to tolerance class Normal in accordance with ISO 492:2014.

The diameter tolerances of radial insert ball bearings deviate from the values in the above-mentioned standard. The inner ring bore has a plus tolerance to facilitate mounting of the bearing.

In the case of sealed bearings, the largest value and smallest value of the outside diameter can deviation from the mean value by up to 0,03 mm.

18 Tolerances of radial insert ball bearings, FD design

| Inner ring | | | | Outer ring | | | |
|---|---|---|---|---|---|---|---|
| d | | $t_{\Delta dmp}$ | | D | | $t_{\Delta Dmp}$ | |
| over | incl. | U | L | over | incl. | U | L |
| mm | mm | µm | µm | mm | mm | µm | µm |
| 18 | 24 | +25 | 0 | 50 | 80 | 0 | –13 |
| 24 | 30 | +25 | 0 | 80 | 120 | 0 | –13 |
| 30 | 40 | +25 | 0 | 120 | 150 | 0 | –13 |

## 2.9 Design and safety guidelines

### 2.9.1 Load carrying capacity

#### Radial load carrying capacity

The balls are in contact with the raceways at one point only. Under purely radial load, the contact points between the rolling elements and raceways lie at the centre of the raceway. As a result, the connection between the contact points passes through the radial plane, i.e. the optimum load direction is a purely radial load.

#### Axial load carrying capacity

Due to the deep raceway grooves in the bearing rings and the narrow osculation between the raceway grooves and the balls, the bearings can support axial loads in both directions. The axial load carrying capacity is dependent, for example, on the bearing size, the internal construction and the operating clearance. If the axial load is too high, however, this can increase the running noise and considerably reduce the operating life of the bearings.

If there is any uncertainty regarding the axial load carrying capacity of the bearings, please consult Schaeffler.

### 2.9.2 Compensation of angular misalignments

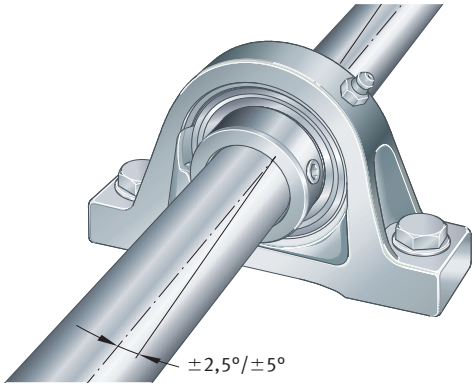
Bearings with a spherical outside surface of the outer ring, fitted in housings with a concave bore, can compensate for static misalignment of the shaft.

For units with a lubrication groove in the housing and lubrication hole in the radial insert ball bearing, the following applies:

- Up to ±2,5°, the units can be relubricated.
- Between ±2,5° and ±5°, the facility for relubrication is dependent on the specific unit. Please contact us in this case.
- Over ±5°, relubrication is no longer possible.

The units are not suitable for supporting swivelling or tumbling motion.

9 Compensation of static shaft misalignment

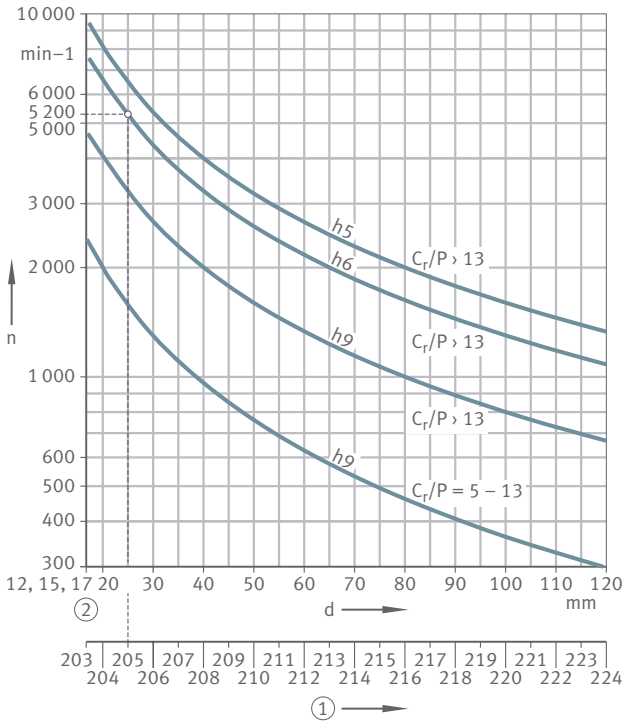


## 2.9.3 Speeds

The speed limits are dependent on the load, the clearance between the bearing bore and shaft, and the friction of the seals in the case of bearings with contact seals.

Guide values for the permissible speeds can be derived from the diagram.

10 Determining the permissible speeds for radial insert ball bearings with seal RSR (design KRR)




| | | | |
|---|---|---|---|
| 1 | Ball set | 2 | For d = 12 mm, 15 mm and 17 mm, identical ball set 203 |
| n | Permissible speed | d | Bore diameter |

In the case of load ratios $C_r/P$ › 13, the speeds can be increased. For $C_r/P$ ‹ 5, location by means of a fit with a shaft roughness of Ra 0,3 is recommended, as specified in Catalogue HR 1, Rolling Bearings. For both types of applications, please contact Schaeffler. In order to ensure slippage-free operation, the minimum radial load must be observed.

### Example of permissible speed calculation

19 Given

| | | |
|---|---|---|
| Shaft tolerance | | h6(E) |
| Radial insert ball bearing | | GE25-KRR-B-FA107-VA-FD |
| Ball set | | 205 |
| Sealing | | RSR |
| Basic dynamic load rating, radial | $C_r$ | 13400 N |
| Load | P | 1000 N |

20 Required

| | | |
|---|---|---|
| Load ratio | $C_r/P$ | 13400 N/1000 N = 13,4 › 13 |
| Permissible speed | n | 5200 $min^{-1}$ according to the determination of the permissible speeds for radial insert ball bearings |

## 2.10 Dimensioning

### Equivalent dynamic bearing load

The basic rating life equation $L = (C_r/P)^p$ used in the dimensioning of bearings under dynamic load assumes a load of constant magnitude and direction. In radial bearings, this is a purely radial load $F_r$. If such a load is present, the bearing load $F_r$ is used in the rating life equation for P ($P = F_r$).

If a load of constant magnitude and direction is not present, a constant radial force must first be determined for the rating life calculation that, in relation to the rating life, represents an equivalent load. This force is known as the equivalent dynamic bearing load P.

The calculation of P is dependent on the load ratio $F_a/F_r$ and the calculation factor e:

$$\frac{F_a}{F_r} \leq e \quad \Rightarrow \quad P = F_r \qquad f6$$

$$\frac{F_a}{F_r} > e \quad \Rightarrow \quad P = X \cdot F_r + Y \cdot F_a \qquad f7$$

| | | |
|---|---|---|
| e | – | Calculation factor |
| $F_a$ | N | Axial load |
| $F_r$ | N | Radial load |
| P | N | Equivalent dynamic bearing load |
| X | – | Radial load factor |
| Y | – | Axial load factor |

The specified values are valid for normal operating clearance. If the operating clearance differs significantly, the use of Bearinx is recommended for calculation of the rating life. If the calculation values lie between the stated values (such as 0,4), then read off the table values for 0,3 and 0,5 and determine the intermediate values using linear interpolation.

For normal operating clearance, observe the fit recommendations in Catalogue HR 1, Rolling Bearings.

21 Factors e, X and Y

| $\frac{f_0 \cdot F_a}{C_{0r}}$ | **Factor (for normal operating clearance)** | | |
|---|---|---|---|
| | **e** | **X** | **Y** |
| 0,3 | 0,22 | 0,56 | 2 |
| 0,5 | 0,24 | 0,56 | 1,8 |
| 0,9 | 0,28 | 0,56 | 1,58 |
| 1,6 | 0,32 | 0,56 | 1,4 |
| 3 | 0,36 | 0,56 | 1,2 |
| 6 | 0,43 | 0,56 | 1 |

### Equivalent static bearing load

As radial insert ball bearings have the same internal construction as single row deep groove ball bearings, their equivalent static bearing load is calculated in the same manner as for deep groove ball bearings.

The calculation of $P_0$ for deep groove ball bearings under static load is dependent on the load ratio $F_{0a}/F_{0r}$ and the factor 0,8:

$$\frac{F_{0a}}{F_{0r}} \leq 0{,}8 \quad \Rightarrow \quad P_0 = F_{0r} \qquad (8)$$

$$\frac{F_{0a}}{F_{0r}} > 0{,}8 \quad \Rightarrow \quad P_0 = 0{,}6 \cdot F_{0r} + 0{,}5 \cdot F_{0a} \qquad (9)$$

| | | |
|---|---|---|
| $F_{0a}$ | N | Largest axial load present (maximum load) |
| $F_{0r}$ | N | Largest radial load present (maximum load) |
| $P_0$ | N | Equivalent static bearing load |

## 2.11 Minimum load

In order that no slippage occurs between the contact partners, the bearings must be constantly subjected to a sufficiently high load. Based on experience, a minimum radial load of the order of $P > C_{0r}/100$ is thus necessary. In most cases, however, the radial load is already higher than the requisite minimum load due to the weight of the supported parts and the external forces.

If the minimum radial load is lower than stated, please consult Schaeffler.

## 2.12 Design of bearing arrangements

### Shaft tolerances for radial insert ball bearings

The permissible shaft tolerance is dependent on the speed and load. Shafts of the tolerance classes h6 (E) to h9 (E) can be used.

Conventional drawn shafts will suffice for most applications.

### Roughness of cylindrical bearing seating surfaces

The roughness of the bearing seats must be matched to the tolerance class of the bearings. The mean roughness value Ra must not be too high, in order to maintain the interference loss within limits. The shafts must be ground, while the bores must be precision turned. Guide values as a function of the IT grade of bearing seating surfaces can be found in the table.

22 Guide values for mean roughness Ramax for ground bearing seats (IT grade)

| Nominal dimension | | Ramax | | | |
|---|---|---|---|---|---|
| from | to | IT7 | IT6 | IT5 | IT4 |
| mm | mm | µm | µm | µm | µm |
| – | 80 | 1,6 | 0,8 | 0,4 | 0,2 |
| 80 | 500 | 1,6 | 1,6 | 0,8 | 0,4 |

### Housing units for radial insert ball bearings

For radial insert ball bearings for the food industry, Schaeffler offers the appropriate plummer block housings and flanged housings made from plastic. The plastic housings, like the radial insert ball bearings themselves, are corrosion-resistant and suitable for food applications.

The housing units comprise radial insert ball bearings with a curved outer ring and a housing with a curved bore to form ready-to-fit units. The user is thus spared the need for costly production of the mounting environment required for these bearings. The areas of application correspond to those of the radial insert ball bearings.

## 2.13 Mounting and dismounting

The detailed guidelines on the mounting and dismounting of radial insert ball bearings must be observed.

### Tightening torques for grub screws

The tightening torques for grub screws from Schaeffler are dependent on the material of the screws. The tightening torques for the high-grade steel grub screws are valid only for original grub screws from Schaeffler (INA or FAG brand).

23 Tightening torques for metric high-grade steel grub screws

| W | G | $M_A$ |
|---|---|---|
| mm | – | Nm |
| 2,5 | M5 | 2,4 |
| 3 | M6×0,75 | 3,9 |
| 4 | M8×1 | 8,3 |

Rolling bearings are well-proven precision machine elements for the design of economical and reliable bearing arrangements, which offer high operational security. In order that these products can function correctly and achieve the envisaged operating life without detrimental effect, they must be handled with care.

## 2.14 Further information

The information on the design of the bearing arrangement, lubrication, mounting and dismounting and on the operation of the bearings provided in the Technical Principles of Catalogue HR 1, Rolling Bearings, must be observed as further information.

HR 1 | Rolling Bearings |
https://www.schaeffler.de/std/1D3D

SG 1 | Radial insert ball bearings and housing units |
https://www.schaeffler.de/std/1B64

MH 1 | Mounting Handbook |
https://www.schaeffler.de/std/1B68

TPI 64 | Corrosion-resistant products |
https://www.schaeffler.de/std/1F37

## 2.15 Product tables

### 2.15.1 Explanations

| | | |
|---|---|---|
| A | mm | Thread spacing |
| B | mm | Width |
| C | mm | Outer ring width |
| $C_{0r}$ | N | Basic static load rating, radial |
| $C_a$ | mm | Distance to lubrication hole |
| $C_r$ | N | Basic dynamic load rating, radial |
| $C_{ur}$ | N | Fatigue limit load, radial |
| d | mm | Bearing bore diameter |
| $d_1$ | mm | Inner ring rib diameter |
| $d_3$ | mm | Outside diameter of locking collar |
| $d_a$ | mm | Abutment diameter, shaft shoulder |
| $f_0$ | – | Calculation factor |
| m | kg or lbs | Mass |
| S | mm | Distance to raceway centre |
| W | mm | Width across flats |

## 2.15.2 Radial insert ball bearings, with grub screw

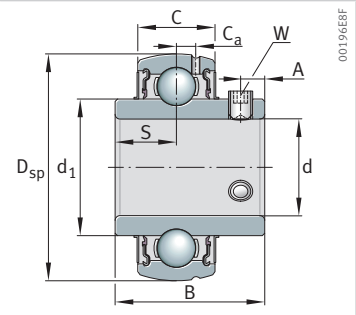
FD design

With grub screw in inner ring

Spherical outer ring

With extended inner ring

| d | $D_{sp}$ | C | B | Designation | $C_r$ | $C_{0r}$ | $C_{ur}$ | $f_0$ |
|---|---|---|---|---|---|---|---|---|
| mm | mm | mm | mm | – | N | N | N | – |
| **20** | 47 | 16 | 31 | **GYE20-KRR-B-FA107-VA-FD** | 10900 | 5300 | 280 | 13,1 |
| **25** | 52 | 17 | 34,1 | **GYE25-KRR-B-FA107-VA-FD** | 11900 | 6300 | 335 | 13,8 |
| **30** | 62 | 19 | 38,1 | **GYE30-KRR-B-FA107-VA-FD** | 16700 | 9000 | 475 | 13,8 |
| **35** | 72 | 20 | 42,9 | **GYE35-KRR-B-FA107-VA-FD** | 22000 | 12300 | 655 | 13,8 |
| **40** | 80 | 21 | 49,2 | **GYE40-KRR-B-FA107-VA-FD** | 24900 | 14300 | 800 | 14 |




GYE..-KRR-B-FA107-VA-FD

| S | $d_1$ | $C_a$ | A | W | m |
|---|---|---|---|---|---|
| mm | mm | mm | mm | mm | kg |
| 12,7 | 28,3 | 4 | 5 | 2,5 | 0,16 |
| 14,3 | 34 | 4,15 | 5 | 2,5 | 0,21 |
| 15,9 | 40,3 | 5 | 6 | 3 | 0,3 |
| 17,5 | 46,9 | 5,7 | 6,5 | 3 | 0,46 |
| 19 | 52,4 | 5,9 | 8 | 4 | 0,61 |

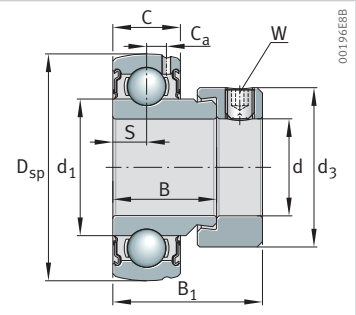
## 2.15.3 Radial insert ball bearings, with eccentric locking collar

FD design

With eccentric locking collar

Spherical outer ring

| d | $D_{sp}$ | C | B | Designation | $C_r$ | $C_{0r}$ | $C_{ur}$ | $f_0$ |
|---|---|---|---|---|---|---|---|---|
| mm | mm | mm | mm | – | N | N | N | – |
| **20** | 47 | 14 | 21,5 | **GE20-KRR-B-FA107-VA-FD** | 12840 | 6650 | 280 | 13,1 |
| **25** | 52 | 15 | 21,5 | **GE25-KRR-B-FA107-VA-FD** | 14020 | 7880 | 335 | 13,8 |
| **30** | 62 | 16 | 23,8 | **GE30-KRR-B-FA107-VA-FD** | 19460 | 11310 | 475 | 13,8 |
| **35** | 72 | 17 | 25,4 | **GE35-KRR-B-FA107-VA-FD** | 25670 | 15300 | 655 | 13,8 |
| **40** | 80 | 18 | 30,2 | **GE40-KRR-B-FA107-VA-FD** | 29520 | 18140 | 800 | 14 |




GE..-KRR-B-FA107-VA-FD

| S | $d_1$ | $C_a$ | $B_1$ | $d_3$ max. | W | m |
|---|---|---|---|---|---|---|
| mm | mm | mm | mm | mm | mm | kg |
| 7 | 28,3 | 4,1 | 31 | 33,3 | 3 | 0,17 |
| 7,5 | 34 | 4,15 | 31 | 38,1 | 3 | 0,2 |
| 8 | 40,3 | 5 | 35,7 | 44,5 | 3 | 0,3 |
| 8,5 | 46,9 | 5,35 | 38,9 | 55,6 | 3 | 0,5 |
| 9 | 52,4 | 5,5 | 43,7 | 60,3 | 4 | 0,63 |

# 3 Plastic housing units

Housing units with white, FDA-approved plastic housings made from PBT are available as plummer block housing units and flanged housing units.

The glass fibre reinforced plastic PBT is highly resistant to humidity, UV radiation, bacterial and fungal attacks as well as many chemical agents.

The white plastic housing units are highly suitable for applications in the food industry, where they are exposed to various media, moisture, salt spray mist, contaminated water or cleaning agents.

## Plummer block housing units

Plummer block housing units are available with a long base or short base. They have a complete housing base and therefore offer no hidden spaces for bacterial growth. The housings are made from glass fibre reinforced, white plastic PBT, are not split and are screw mounted to the adjacent construction by means of slots or threaded holes. Inserts made from corrosion-resistant steel are integrated into the housing base, to prevent damage when tightening the screws.

For relubrication of radial insert ball bearings, the housing bore has a lubrication groove and the housing has a lubrication hole suitable for conventional lubrication nipples. The lubrication nipple is supplied already fitted, a bearing end cap is supplied loose at the time of delivery.

11 Plummer block housing units RASEY, RASE in FD design

00089A6D

Versions:

- RASEY..-TV-VA-FD
- RASE..-TV-VA-FD

12 Plummer block housing units RSEHY, RSEH in FD design

00089A7D

Versions:

- RSHEY..-TV-VA-FD
- RSHE..-TV-VA-FD

## Flanged housing units

Flanged housing units are available as two-bolt flanged housing units and four-bolt flanged housing units. For location, the housings have through holes reinforced with high-grade steel inserts.

The housing material, the design of lubrication arrangements and the delivered condition correspond to those of plummer block housing units.

13 Flanged housing units RCJTY, RCJT in FD design

00089A71

Versions:

- RCJTY..-TV-VA-FD
- RCJT..-TV-VA-FD

14 Flanged housing units GLCTE in FD design

00089A69

Versions:

- GLCTE..-TV-VA-FD

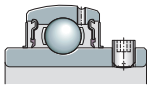
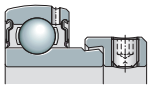
15 Flanged housing units RCJY, RCJ in FD design

00089A75

Versions:

- RCJY..-TV-VA-FD
- RCJ..-TV-VA-FD

▦24 Possible combinations of radial insert ball bearings and plastic housings

| **Plastic housing** | | | **Radial insert ball bearing** | |
|---|---|---|---|---|
| | | | **GYE..-KRR-B-FA107-VA-FD**  | **GE..-KRR-B-FA107-VA-FD**  |
| Location method | | | Grub screws | Eccentric locking collar |
| Shaft diameter | | | 20 mm to 40 mm | 20 mm to 40 mm |
| Plummer block housing |  | ASE..–TV–WHT | RASEY..-TV-VA-FD ➤50\|3.13.2 | RASE..-TV-VA-FD ➤52\|3.13.3 |
| |  | SHE..–TV–WHT | RSHEY..-TV-VA-FD ➤54\|3.13.4 | RSHE..-TV-VA-FD ➤56\|3.13.5 |
| Two-bolt flanged housing |  | CJT..–TV–WHT | RCJTY..-TV-VA-FD ➤58\|3.13.6 | RCJT..-TV-VA-FD ➤60\|3.13.7 |
| |  | GLCTE..–TV–WHT | – | GLCTE..-TV-VA-FD ➤62\|3.13.8 |
| Four-bolt flanged housing |  | CJ..–TV–WHT | RCJY..-TV-VA-FD ➤64\|3.13.9 | RCJ..-TV-VA-FD ➤66\|3.13.10 |

## 3.1 Housing design

The units are ready-to-fit and comprise white plastic housings in which corrosion-resistant Schaeffler radial insert ball bearings for the food industry are fitted. The possible combinations can be found in the table of combination options ➤42|▦24.

Grub screws locate housing units with integral radial insert ball bearing GYE..-KRR-B-FA107-VA-FD on the shaft. Eccentric locking collars locate housing units with integral radial insert ball bearing GE..-KRR-B-FA107-VA-FD on the shaft

The housings are screw mounted on the adjacent construction. Less stringent tolerances are sufficient for the screw mounting surfaces.

In order to ensure function and reliability under all operating conditions, the bearings and housings are matched to each other with a defined swivel moment after mounting.

The swivel moment can be requested from Schaeffler.

The lubricant used is approved for food applications to category NSF H1 and meets the quality requirements of FDA 21 CFR 178.3570 in full. Furthermore, the lubricant is certified to halal and kosher standards. The grease also only contains allergen-free ingredients and no components comprising animal or genetically modified organisms.

16 Certifications


| | | | |
|---|---|---|---|
| 1 | kosher | 2 | halal |
| 3 | National Sanitation Foundation (NSF) | | |

### Design variants

- plummer block housing units with white plastic housings, with radial insert ball bearings made from high-grade steel and with food-grade grease lubrication, and with grub screw or eccentric locking collar for use in the food industry
- flanged housing units with white plastic housings, with radial insert ball bearings made from high-grade steel and with food-grade grease lubrication, and with grub screw or eccentric locking collar for use in the food industry

## 3.2 Accessories

### 3.2.1 Bearing end caps

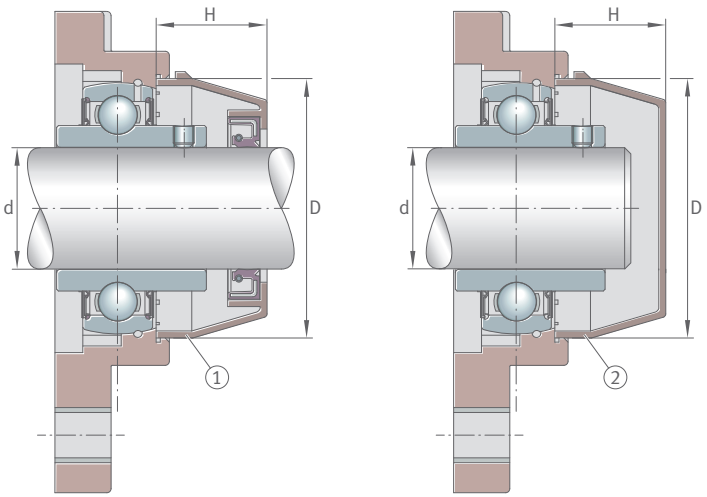
Each housing unit is supplied with a closed, white end cap KASK..-S-G-WHT.

For all units, open white end caps KASK..-S-R-NBR-WHT with an integral rotary shaft seal are available by agreement.

The bearing end caps are made from the plastic Capilene SR 50.

In application testing, the bearing end caps proved resistant to water jets applied at a high water pressure (90 bar). In the test, housings sealed with end caps withstood water jets at a temperature of 80 °C from various angles (0°, 30°, 60°, 90°). The remained in their position on the housings and were not damaged.

17 Open or closed end caps




| | | | |
|---|---|---|---|
| 1 | Open end cap with integral rotary shaft seal | 2 | Closed end cap |

25 Bearing end caps for plastic housing units

| Designation | | d | D | H |
|---|---|---|---|---|
| Closed end cap | Open end cap | mm | mm | mm |
| KASK04-S-G-WHT | KASK04-S-R-NBR-WHT | 20 | 50 | 23 |
| KASK05-S-G-WHT | KASK05-S-R-NBR-WHT | 25 | 55 | 25 |
| KASK06-S-G-WHT | KASK06-S-R-NBR-WHT | 30 | 64 | 30 |
| KASK07-S-G-WHT | KASK07-S-R-NBR-WHT | 35 | 74,6 | 32 |
| KASK08-S-G-WHT | KASK08-S-R-NBR-WHT | 40 | 84 | 37 |

### 3.2.2 Back Seal component

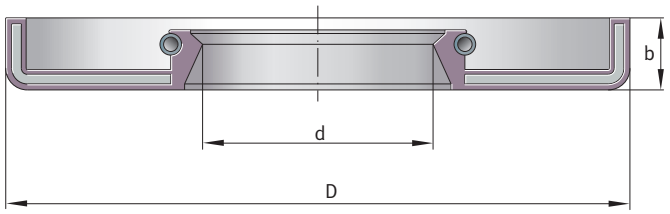
For flanged housing units RCJ..-TV-VA-FD and RCJT..-TV-VA-FD, a Back Seal component RWDR..-R-NBR is available, which seals the rear of the housing.

The Back Seal component is made from NBR and has a spring washer made from corrosion-resistant steel, material no. 1.4301. This additional sealing against the environment gives the plastic housing units effective, additional protection against contamination, which extends the operating life of the bearings.

18 Flanged housing units with Back Seal component


| | | | |
|---|---|---|---|
| 1 | Flanged housing unit RCJ..-TV-VA-FD with Back Seal component | 2 | Flanged housing unit RCJT..-TV-VA-FD with Back Seal component |

19 Dimensions of Back Seal component




26 Designations and dimensions of Back Seal components

| Designation | d | b | D |
|---|---|---|---|
| | mm | mm | mm |
| RWDR04-R-NBR | 20 | 6 | 52 |
| RWDR05-R-NBR | 25 | 6 | 62 |
| RWDR06-R-NBR | 30 | 6 | 72 |
| RWDR07-R-NBR | 35 | 6 | 82 |
| RWDR08-R-NBR | 40 | 6 | 88 |

### 3.2.3 Temperature range

Housing units with or without a Back Seal component are suitable for operating temperatures from –30 °C to +100 °C. If bearing end caps are used, the maximum temperature is reduced to +80 °C.

## 3.3 Materials, corrosion protection, food grade

All further information on the materials used, corrosion resistance and food-grade greasing can be found in the section Radial insert ball bearings ➤22|2.

We reserve the right to make technical changes, including material changes, as part of the ongoing development.

### FDA-compliant materials

The following FDA-compliant materials are used:

27 FDA-compliant materials

| Bearing components | Material, designation | FDA directive |
|---|---|---|
| Seals | NBR | FDA 21 CFR 177.2600 |
| Grease | Mobile Grease FM222 | FDA 21 CFR 178.3570 |
| Housing | PBT-GF20 | FDA 21 - CFR 175-178 |
| | | FDA 21 CFR 177.1660 |
| End cap | Capilene SR 50 | FDA 21 CFR 177.1520(a)(3)(i)(c)3.1a |
| | | FDA 21 CFR 177.1520(b) |

The classification of components as FDA-compliant is based on information provided by material manufacturers.

## 3.4 Lubrication

All further information on the lubrication of plastic housing units can be found in the section Radial insert ball bearings ➤25|2.3.

## 3.5 Sealing

All further information on the sealing of plastic housing units can be found in the section Radial insert ball bearings ➤26|2.4.

## 3.6 Suffixes

▦28 Available designs

| Suffix | Design | Design |
|---|---|---|
| TV | Plastic housing | Standard |
| VA | Components made from high-grade steel | |
| FD | Suitable for applications in the food industry | |

## 3.7 Dimensions, tolerances

Information on the dimensions, tolerances and internal clearance of integral radial insert ball bearings can be found in the section Radial insert ball bearings ➤28|2.8.

### Tolerances

The dimensional tolerances, geometrical tolerances and positional tolerances of plastic housings correspond to DIN 16742.

The permissible shaft tolerance is dependent on the speed, load and the radial insert ball bearing fitted. Shafts of the tolerance classes h6 (E) to h9 (E) can be used. Conventional drawn shafts will suffice for most applications.

The roughness of the shaft must be matched to the tolerance class of the integral radial insert ball bearing. The mean roughness value Ra must not be too high, in order to maintain the interference loss within limits. The shafts must be ground. Guide values as a function of the IT grade can be found in the table.

▦29 Guide values for mean roughness Ramax for ground bearing seats (IT grade)

| Nominal dimension | | Ramax | | | |
|---|---|---|---|---|---|
| from | to | IT7 | IT6 | IT5 | IT4 |
| mm | mm | µm | µm | µm | µm |
| – | 80 | 1,6 | 0,8 | 0,4 | 0,2 |
| 80 | 500 | 1,6 | 1,6 | 0,8 | 0,4 |

### Screw mounting surfaces

Recommendations for the screw mounting surfaces are as follows:

- roughness of the screw mounting surface max. Ra 12,5 (Rzmax 63)
- geometrical tolerance and positional tolerance 0,04/100 concave, spherical not permissible

### Fixing screws

The screw connection should be designed in accordance with VDI 2230 with a friction coefficient µ = 0,12 (90 %).

High-grade steel screws of grade 80 or better are suitable for fixing. The maximum tightening torques applicable to this screw grade should be observed even if screws of a higher grade are used.

In principle, we recommend that the screw connection should only be tightened to 70 % of the values stated in the standard.

For fixing, hexagonal socket head screws with a coarse pitch full thread in accordance with DIN EN ISO 4017:2022 should be used. The screws should be combined as a minimum with a washer in accordance with DIN EN ISO 7089 or DIN EN ISO 7090.

Screws and accessories for location are not included in the delivery.

All screws and other accessories used for location should be in the high-grade steel version.

## 3.8 Design and safety guidelines

### 3.8.1 Load carrying capacity

The load carrying capacity of radial insert ball bearings can be found in the section Radial insert ball bearings ➤29|2.9.1.

#### Radial load carrying capacity of housings

Plastic housings are suitable for moderate loads. The radial static load carrying capacity $C_{0r\,G}$ of plastic housings and the static load carrying capacity $C_{0r}$ of the radial insert ball bearings is stated in the relevant product tables.

#### Axial load carrying capacity of housings

The axial operating load of the unit must not exceed the axial load carrying capacity of the housing.

The axial load carrying capacity of plastic housings is $C_{0a\,G} = 0{,}25 \cdot C_{0r\,G}$.

### 3.8.2 Compensation of angular misalignments

Bearings with a spherical outside surface of the outer ring, fitted in housings with a concave bore, can compensate for static misalignment of the shaft.

Detailed information on the compensation of static misalignments can be found in the section Radial insert ball bearings ➤29|2.9.2.

### 3.8.3 Speeds

The speed limits are dependent on the load, the clearance between the bearing bore and shaft, and the friction of the seals in the case of bearings with contact seals.

Detailed information on the speed limits can be found in the section Radial insert ball bearings ➤30|2.9.3.

## 3.9 Dimensioning

Detailed information on the dimensioning of integral radial insert ball bearings can be found in the section Radial insert ball bearings ➤31|2.10.

## 3.10 Minimum load

Detailed information on the minimum loading of integral radial insert ball bearings can be found in the section Radial insert ball bearings ➤32|2.11.

## 3.11 Mounting and dismounting

Observe the detailed guidelines on the mounting and dismounting of housing units and radial insert ball bearings.

Rolling bearings are well-proven precision machine elements for the design of economical and reliable bearing arrangements, which offer high operational security. In order that these products can function correctly and achieve the envisaged operating life without detrimental effect, they must be handled with care.

## 3.12 Further information

The information on the design of the bearing arrangement, lubrication, mounting and dismounting and on the operation of the bearings provided in the Technical Principles of Catalogue HR 1, Rolling Bearings, must be observed as further information.

Due to their versatile characteristics, Schaeffler housing units are suitable for use in almost all industrial sectors

It is always and fundamentally the responsibility of the designer of a machine to ensure that a malfunction of housing units cannot be hazardous to persons. An unplanned stoppage of the machine should not cause major disruptions in operation. In both cases, it is therefore essential that you contact us before design work is carried out.

HR 1 | Rolling Bearings |
https://www.schaeffler.de/std/1D3D

SG 1 | Radial insert ball bearings and housing units |
https://www.schaeffler.de/std/1B64

MH 1 | Mounting Handbook |
https://www.schaeffler.de/std/1B68

MON 108 | Mounting of Radial Insert Ball Bearings with Spherical Outer Ring in Bearing Housings |
https://www.schaeffler.de/std/1FA1

TPI 64 | Corrosion-resistant products |
https://www.schaeffler.de/std/1F37

## 3.13 Product tables

### 3.13.1 Explanations

| | | |
|---|---|---|
| A | mm | Base width |
| A | mm | Housing height |
| $A_1$ | mm | Flange thickness |
| $A_2$ | mm | Distance to raceway centre |
| B | mm | Width |
| $B_1$ | mm | Width across locking element |
| $B_3$ | mm | Distance from housing centre to end of cap |
| $C_{0r}$ | N | Basic static load rating, radial |
| $C_{0r\,G}$ | N | Basic static load rating, housing |
| $C_a$ | mm | Distance to lubrication hole |
| $C_r$ | N | Basic dynamic load rating, radial |
| $C_{ur}$ | N | Fatigue limit load, radial |
| d | mm | Bearing bore diameter |
| $d_3$ | mm | Outside diameter of locking collar |
| $f_0$ | – | Calculation factor |
| H | mm | Distance to shaft axis |
| H | mm | Flange height |
| $H_1$ | mm | Base height |
| $H_2$ | mm | Height |
| J | mm | Pitch circle diameter of fixing holes |
| K | – | Fixing hole thread |
| L | mm | Length |
| L | mm | Width |
| L | mm | Total unit height |
| m | kg or lbs | Mass |
| N | mm | Slot width |
| N | mm | Fixing hole |
| $N_1$ | mm | Slot length |
| Q | – | Threaded connector for lubrication |
| $S_1$ | mm | Distance from housing centre to locking collar |
| V | mm | Housing shoulder diameter |
| W | mm | Width across flats |

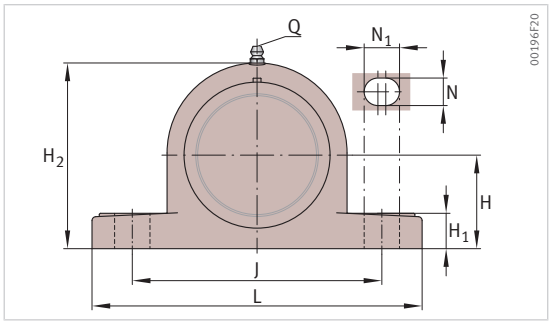
## 3.13.2 Plummer block housing units, with long base, with grub screw

FD design

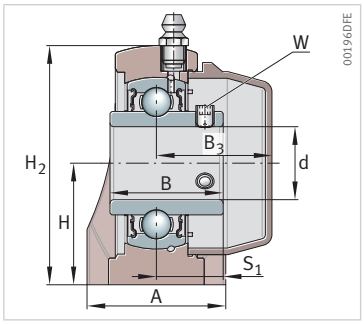
White plastic housing with long base

With grub screw in inner ring

| d | Unit | Housing | Radial insert ball bearing | $C_r$ | $C_{0r}$ | $C_{ur}$ | $C_{0r\,G}$ | $f_0$ |
|---|---|---|---|---|---|---|---|---|
| mm | – | – | – | N | N | N | N | – |
| **20** | **RASEY20-TV-VA-FD** | **ASE04-TV-WHT** | **GYE20-KRR-B-FA107-VA-FD** | 10900 | 5300 | 280 | 7700 | 13,1 |
| **25** | **RASEY25-TV-VA-FD** | **ASE05-TV-WHT** | **GYE25-KRR-B-FA107-VA-FD** | 11900 | 6300 | 335 | 10000 | 13,8 |
| **30** | **RASEY30-TV-VA-FD** | **ASE06-TV-WHT** | **GYE30-KRR-B-FA107-VA-FD** | 18700 | 10700 | 475 | 10600 | 13,8 |
| **35** | **RASEY35-TV-VA-FD** | **ASE07-TV-WHT** | **GYE35-KRR-B-FA107-VA-FD** | 22000 | 12300 | 655 | 10800 | 13,8 |
| **40** | **RASEY40-TV-VA-FD** | **ASE08-TV-WHT** | **GYE40-KRR-B-FA107-VA-FD** | 24900 | 14300 | 800 | 11100 | 14 |




RASEY.., RASE..




RASEY..-TV-VA-FD

| H | J | L | A | $H_1$ | $H_2$ | N | $N_1$ | B | $B_3$ | $S_1$ | Q | W | m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | – | mm | kg |
| 33,3 | 95 | 127 | 38 | 14 | 65,5 | 11 | 14 | 31 | 31,65 | 18,3 | $^1/_4$"–28 UNF | 2,5 | 0,3 |
| 36,5 | 105 | 140 | 38 | 14 | 71 | 11 | 14 | 34,1 | 34,05 | 19,8 | $^1/_4$"–28 UNF | 2,5 | 0,37 |
| 42,9 | 119 | 162 | 46 | 17,8 | 83 | 14 | 18 | 38,1 | 39,95 | 22,2 | $^1/_4$"–28 UNF | 3 | 0,69 |
| 47,6 | 127 | 167 | 48 | 18 | 94 | 14 | 18 | 42,9 | 44,85 | 25,4 | $^1/_4$"–28 UNF | 3 | 0,76 |
| 49,2 | 137 | 184 | 54 | 19,5 | 98 | 14 | 18 | 49,2 | 51,5 | 30,2 | $^1/_4$"–28 UNF | 4 | 0,97 |

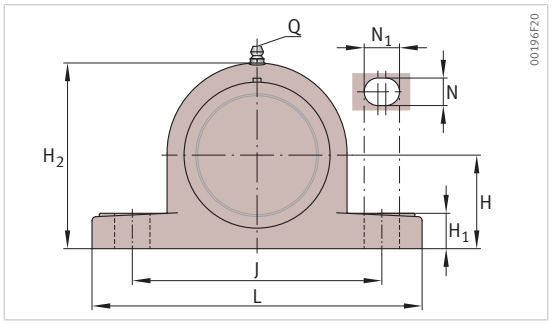
## 3.13.3 Plummer block housing units, with long base, with eccentric locking collar

FD design

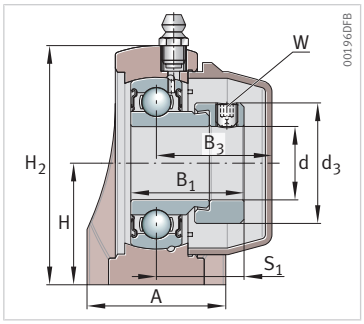
White plastic housing with long base

With eccentric locking collar

| d | Unit | Housing | Radial insert ball bearing | $C_r$ | $C_{0r}$ | $C_{ur}$ | $C_{0r\,G}$ | $f_0$ |
|---|---|---|---|---|---|---|---|---|
| mm | – | – | – | N | N | N | N | – |
| **20** | **RASE20-TV-VA-FD** | **ASE04-TV-WHT** | **GE20-KRR-B-FA107-VA-FD** | 12840 | 6650 | 280 | 7700 | 13,1 |
| **25** | **RASE25-TV-VA-FD** | **ASE05-TV-WHT** | **GE25-KRR-B-FA107-VA-FD** | 14020 | 7880 | 335 | 10000 | 13,8 |
| **30** | **RASE30-TV-VA-FD** | **ASE06-TV-WHT** | **GE30-KRR-B-FA107-VA-FD** | 19460 | 11310 | 475 | 10600 | 13,8 |
| **35** | **RASE35-TV-VA-FD** | **ASE07-TV-WHT** | **GE35-KRR-B-FA107-VA-FD** | 25670 | 15300 | 655 | 10800 | 13,8 |
| **40** | **RASE40-TV-VA-FD** | **ASE08-TV-WHT** | **GE40-KRR-B-FA107-VA-FD** | 29520 | 18140 | 800 | 11100 | 14 |




RASEY.., RASE..




RASE..-TV-VA-FD

| H | J | L | A | $H_1$ | $H_2$ | N | $N_1$ | $B_1$ | $B_3$ | $S_1$ | Q | $d_3$ | W | m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | – | mm | mm | kg |
| 33,3 | 95 | 127 | 38 | 14,2 | 65,5 | 11 | 14 | 31 | 31,65 | 24,1 | $^1/_4$"–28 UNF | 33,3 | 3 | 0,3 |
| 36,5 | 105 | 140 | 38 | 14,5 | 71 | 11 | 14 | 31 | 34,05 | 23,5 | $^1/_4$"–28 UNF | 38,1 | 3 | 0,35 |
| 42,9 | 119 | 162 | 46 | 17,8 | 83 | 14 | 18 | 35,7 | 39,95 | 27,7 | $^1/_4$"–28 UNF | 44,5 | 3 | 0,55 |
| 47,6 | 127 | 167 | 48 | 18 | 94 | 14 | 18 | 38,9 | 44,85 | 30,4 | $^1/_4$"–28 UNF | 55,6 | 3 | 0,8 |
| 49,2 | 137 | 184 | 54 | 19,5 | 98 | 14 | 18 | 43,7 | 51,5 | 34,7 | $^1/_4$"–28 UNF | 60,3 | 4 | 0,99 |

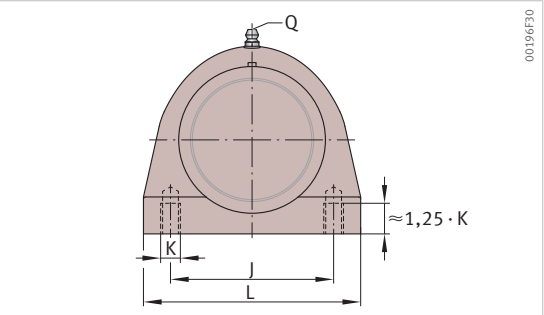
## 3.13.4 Plummer block housing units, with short base, with grub screw

FD design

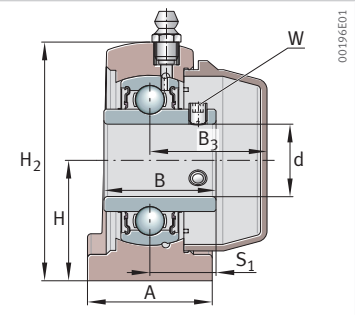
White plastic housing with short base

With grub screw in inner ring

| d | Unit | Housing | Radial insert ball bearing | $C_r$ | $C_{0r}$ | $C_{ur}$ | $C_{0r\,G}$ | $f_0$ |
|---|---|---|---|---|---|---|---|---|
| mm | – | – | – | N | N | N | N | – |
| **20** | **RSHEY20-TV-VA-FD** | **SHE04-TV-WHT** | **GYE20-KRR-B-FA107-VA-FD** | 10900 | 5300 | 280 | 6900 | 13,1 |
| **25** | **RSHEY25-TV-VA-FD** | **SHE05-TV-WHT** | **GYE25-KRR-B-FA107-VA-FD** | 11900 | 6300 | 335 | 7000 | 13,8 |
| **30** | **RSHEY30-TV-VA-FD** | **SHE06-TV-WHT** | **GYE30-KRR-B-FA107-VA-FD** | 16700 | 9000 | 475 | 6500 | 13,8 |
| **35** | **RSHEY35-TV-VA-FD** | **SHE07-TV-WHT** | **GYE35-KRR-B-FA107-VA-FD** | 22000 | 12300 | 655 | 8000 | 13,8 |
| **40** | **RSHEY40-TV-VA-FD** | **SHE08-TV-WHT** | **GYE40-KRR-B-FA107-VA-FD** | 24900 | 14300 | 800 | 9100 | 14 |




RSHEY.., RSHE..




RSHEY..-TV-VA-FD

| H | J | L | A | $H_2$ | K | B | $B_3$ | $S_1$ | Q | W | m |
|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | mm | mm | mm | mm | – | mm | mm | mm | – | mm | kg |
| 33,3 | 50,8 | 72,8 | 34,5 | 66 | M8 | 31 | 32,35 | 18,3 | $^1/_4$"–28 UNF | 2,5 | 0,27 |
| 36,5 | 50,8 | 76,2 | 39,5 | 73,5 | M10 | 34,1 | 35,05 | 19,8 | $^1/_4$"–28 UNF | 2,5 | 0,37 |
| 42,9 | 76,2 | 101 | 42,5 | 84 | M10 | 38,1 | 41,25 | 22,2 | $^1/_4$"–28 UNF | 3 | 0,52 |
| 47,6 | 82,6 | 110 | 47,5 | 95 | M10 | 42,9 | 45,05 | 25,4 | $^1/_4$"–28 UNF | 3 | 0,74 |
| 49,2 | 88,9 | 120 | 48 | 100,5 | M12 | 49,2 | 51,4 | 30,2 | $^1/_4$"–28 UNF | 4 | 0,91 |

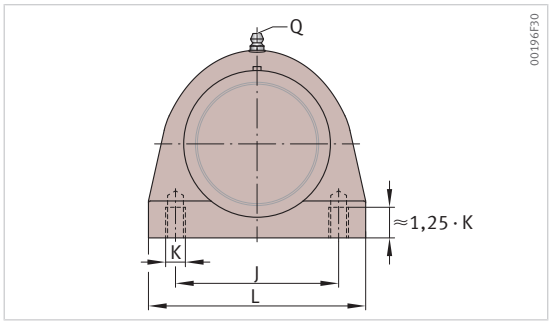
## 3.13.5 Plummer block housing units, with short base, with eccentric locking collar

FD design

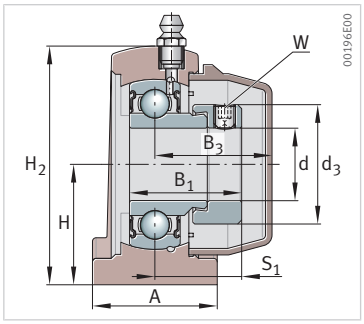
White plastic housing with short base

With eccentric locking collar

| d | Unit | Housing | Radial insert ball bearing | $C_r$ | $C_{0r}$ | $C_{ur}$ | $C_{0r\,G}$ | $f_0$ |
|---|---|---|---|---|---|---|---|---|
| mm | – | – | – | N | N | N | N | – |
| **20** | **RSHE20-TV-VA-FD** | **SHE04-TV-WHT** | **GE20-KRR-B-FA107-VA-FD** | 12840 | 6650 | 280 | 6900 | 13,1 |
| **25** | **RSHE25-TV-VA-FD** | **SHE05-TV-WHT** | **GE25-KRR-B-FA107-VA-FD** | 14020 | 7880 | 335 | 7000 | 13,8 |
| **30** | **RSHE30-TV-VA-FD** | **SHE06-TV-WHT** | **GE30-KRR-B-FA107-VA-FD** | 19460 | 11310 | 475 | 6500 | 13,8 |
| **35** | **RSHE35-TV-VA-FD** | **SHE07-TV-WHT** | **GE35-KRR-B-FA107-VA-FD** | 25670 | 15300 | 655 | 8000 | 13,8 |
| **40** | **RSHE40-TV-VA-FD** | **SHE08-TV-WHT** | **GE40-KRR-B-FA107-VA-FD** | 29520 | 18140 | 800 | 9100 | 14 |




RSHEY.., RSHE..




RSHE..-TV-VA-FD

| H | J | L | A | $H_2$ | K | $B_1$ | $B_3$ | $S_1$ | Q | $d_3$ | W | m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | mm | mm | mm | mm | – | mm | mm | mm | – | mm | mm | kg |
| 33,3 | 50,8 | 72,8 | 34,5 | 66 | M8 | 31 | 32,35 | 24 | $^1/_4$"–28 UNF | 33,3 | 3 | 0,28 |
| 36,5 | 50,8 | 76,2 | 39,5 | 73,5 | M10 | 31 | 35,05 | 23,5 | $^1/_4$"–28 UNF | 38,1 | 3 | 0,35 |
| 42,9 | 76,2 | 101 | 42,5 | 84 | M10 | 35,7 | 41,25 | 27,7 | $^1/_4$"–28 UNF | 44,5 | 3 | 0,52 |
| 47,6 | 82,6 | 110 | 47,5 | 95 | M10 | 38,9 | 45,05 | 30,4 | $^1/_4$"–28 UNF | 55,6 | 3 | 0,79 |
| 49,2 | 88,9 | 120 | 48 | 100,5 | M12 | 43,7 | 51,4 | 34,7 | $^1/_4$"–28 UNF | 60,3 | 4 | 0,93 |

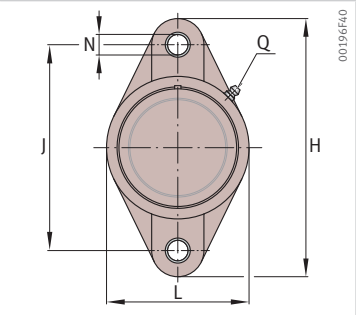
## 3.13.6 Two-bolt flanged housing units, narrow version, with grub screw

FD design

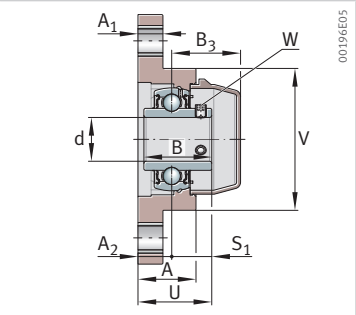
White plastic housing, narrow version

With grub screw in inner ring

| d | Unit | Housing | Radial insert ball bearing | $C_r$ | $C_{0r}$ | $C_{ur}$ | $C_{0r\,G}$ | $f_0$ |
|---|---|---|---|---|---|---|---|---|
| mm | – | – | – | N | N | N | N | – |
| **20** | **RCJTY20-TV-VA-FD** | **CJT04-TV-WHT** | **GYE20-KRR-B-FA107-VA-FD** | 10900 | 5300 | 280 | 8500 | 13,1 |
| **25** | **RCJTY25-TV-VA-FD** | **CJT05-TV-WHT** | **GYE25-KRR-B-FA107-VA-FD** | 11900 | 6300 | 335 | 11100 | 13,8 |
| **30** | **RCJTY30-TV-VA-FD** | **CJT06-TV-WHT** | **GYE30-KRR-B-FA107-VA-FD** | 16700 | 9000 | 475 | 14200 | 13,8 |
| **35** | **RCJTY35-TV-VA-FD** | **CJT07-TV-WHT** | **GYE35-KRR-B-FA107-VA-FD** | 22000 | 12300 | 655 | 14900 | 13,8 |
| **40** | **RCJTY40-TV-VA-FD** | **CJT08-TV-WHT** | **GYE40-KRR-B-FA107-VA-FD** | 24900 | 14300 | 800 | 14900 | 14 |




RCJTY.., RCJT..




RCJTY..-TV-VA-FD

| H | J | L | A | $A_1$ | $A_2$ | N | B | $B_3$ | $S_1$ | U | V | Q | W | m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | – | mm | kg |
| 114 | 90 | 64,8 | 26,5 | 11,4 | 15,4 | 11 | 31 | 31,4 | 18,3 | 33,7 | 64,8 | $^1/_4$"–28 UNF | 2,5 | 0,25 |
| 130 | 99 | 70 | 29,1 | 13,5 | 17 | 11 | 34,1 | 34,1 | 19,8 | 37,1 | 70 | $^1/_4$"–28 UNF | 2,5 | 0,33 |
| 148 | 117 | 80 | 30,5 | 13,3 | 19 | 11 | 38,1 | 38,5 | 22,2 | 41,2 | 80 | $^1/_4$"–28 UNF | 3 | 0,45 |
| 163 | 130 | 90 | 32,8 | 16,1 | 18 | 13 | 42,9 | 43,6 | 25,4 | 43,4 | 90 | $^1/_4$"–28 UNF | 3 | 0,65 |
| 175 | 144 | 100 | 37,5 | 20 | 21,5 | 14 | 49,2 | 49,5 | 30,2 | 51,7 | 100 | $^1/_4$"–28 UNF | 4 | 0,86 |

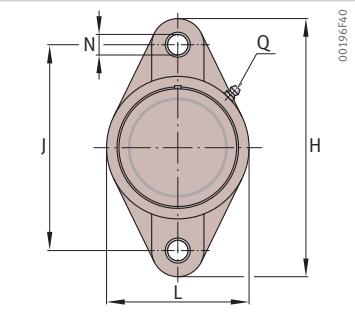
## 3.13.7 Two-bolt flanged housing units, narrow version, with eccentric locking collar

FD design

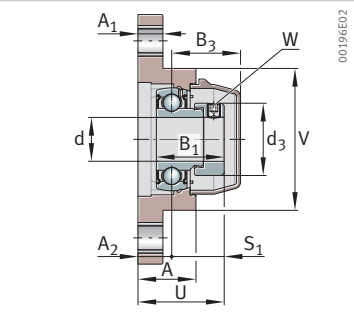
White plastic housing, narrow version

With eccentric locking collar

| d | Unit | Housing | Radial insert ball bearing | $C_r$ | $C_{0r}$ | $C_{ur}$ | $C_{0r\,G}$ | $f_0$ |
|---|---|---|---|---|---|---|---|---|
| mm | – | – | – | N | N | N | N | – |
| **20** | **RCJT20-TV-VA-FD** | **CJT04-TV-WHT** | **GE20-KRR-B-FA107-VA-FD** | 12840 | 6650 | 280 | 8500 | 13,1 |
| **25** | **RCJT25-TV-VA-FD** | **CJT05-TV-WHT** | **GE25-KRR-B-FA107-VA-FD** | 14020 | 7880 | 335 | 11100 | 13,8 |
| **30** | **RCJT30-TV-VA-FD** | **CJT06-TV-WHT** | **GE30-KRR-B-FA107-VA-FD** | 19460 | 11310 | 475 | 14200 | 13,8 |
| **35** | **RCJT35-TV-VA-FD** | **CJT07-TV-WHT** | **GE35-KRR-B-FA107-VA-FD** | 25670 | 15300 | 655 | 14900 | 13,8 |
| **40** | **RCJT40-TV-VA-FD** | **CJT08-TV-WHT** | **GE40-KRR-B-FA107-VA-FD** | 29520 | 18140 | 800 | 14900 | 14 |




RCJTY.., RCJT..




RCJT..-TV-VA-FD

| H | J | L | A | $A_1$ | $A_2$ | N | $B_1$ | $B_3$ | $S_1$ | U | V | Q | $d_3$ | W | m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | – | mm | mm | kg |
| 114 | 90 | 64,8 | 26,5 | 11,4 | 15,4 | 11 | 31 | 31,4 | 24 | 39,4 | 64,8 | $^1/_4$"–28 UNF | 33,3 | 3 | 0,26 |
| 130 | 99 | 70 | 29,1 | 13,5 | 17 | 11 | 31 | 34,1 | 23,5 | 40,5 | 70 | $^1/_4$"–28 UNF | 38,1 | 3 | 0,32 |
| 148 | 117 | 80 | 30,5 | 13,3 | 19 | 11 | 35,7 | 38,5 | 27,7 | 46,7 | 80 | $^1/_4$"–28 UNF | 44,5 | 3 | 0,45 |
| 163 | 130 | 90 | 32,8 | 16,1 | 18 | 13 | 38,9 | 43,6 | 30,4 | 48,4 | 90 | $^1/_4$"–28 UNF | 55,6 | 3 | 0,69 |
| 175 | 144 | 100 | 37,5 | 20 | 21,5 | 14 | 43,7 | 49,5 | 34,7 | 56,2 | 100 | $^1/_4$"–28 UNF | 60,3 | 4 | 0,88 |

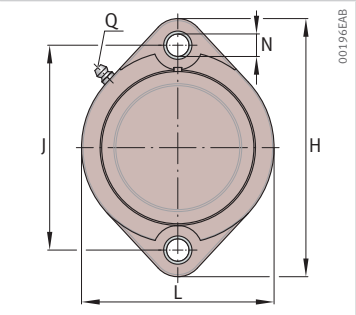
## 3.13.8 Two-bolt flanged housing units, wide version

FD design

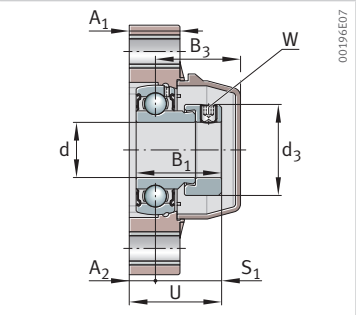
White plastic housing, wide version

Radial insert ball bearing with grub screw or eccentric locking collar

| d | Unit | Housing | Radial insert ball bearing | $C_r$ | $C_{0r}$ | $C_{ur}$ | $C_{0r\,G}$ | $f_0$ |
|---|---|---|---|---|---|---|---|---|
| mm | – | – | – | N | N | N | N | – |
| **20** | **GLCTE20-TV-VA-FD** | **GLCTE04-TV-WHT** | **GE20-KRR-B-FA107-VA-FD** | 12840 | 6650 | 280 | 9600 | 13,1 |
| **25** | **GLCTE25-TV-VA-FD** | **GLCTE05-TV-WHT** | **GE25-KRR-B-FA107-VA-FD** | 14020 | 7880 | 335 | 9400 | 13,8 |
| **30** | **GLCTE30-TV-VA-FD** | **GLCTE06-TV-WHT** | **GE30-KRR-B-FA107-VA-FD** | 19460 | 11310 | 475 | 12000 | 13,8 |
| **35** | **GLCTE35-TV-VA-FD** | **GLCTE07-TV-WHT** | **GE35-KRR-B-FA107-VA-FD** | 25670 | 15300 | 655 | 12600 | 13,8 |
| **40** | **GLCTE40-TV-VA-FD** | **GLCTE08-TV-WHT** | **GE40-KRR-B-FA107-VA-FD** | 29520 | 18140 | 800 | 12800 | 14 |




GLCTE..




GLCTE..-TV-VA-FD

| H | J | L | $A_1$ | $A_2$ | N | $B_1$ | $B_3$ | $S_1$ | U | Q | $d_3$ | W | m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | – | mm | mm | kg |
| 90,5 | 71,4 | 66,5 | 18,4 | 9,5 | 9,2 | 31,1 | 30,8 | 24 | 33,6 | $^1/_4$"–28 UNF | 33,3 | 3 | 0,25 |
| 97 | 76,2 | 91 | 18,4 | 9,9 | 9,2 | 31 | 33,5 | 23,5 | 33,4 | $^1/_4$"–28 UNF | 38,1 | 3 | 0,29 |
| 112 | 90,5 | 84 | 20,5 | 11,4 | 11 | 35,7 | 38,6 | 27,7 | 39,1 | $^1/_4$"–28 UNF | 44,5 | 3 | 0,4 |
| 126 | 100 | 94 | 22,5 | 12,4 | 11 | 38,9 | 41,1 | 30,4 | 42,8 | $^1/_4$"–28 UNF | 55,6 | 3 | 0,66 |
| 150 | 119 | 100 | 24 | 13,5 | 14 | 43,7 | 47,5 | 34,7 | 48,2 | $^1/_4$"–28 UNF | 60,3 | 4 | 0,82 |

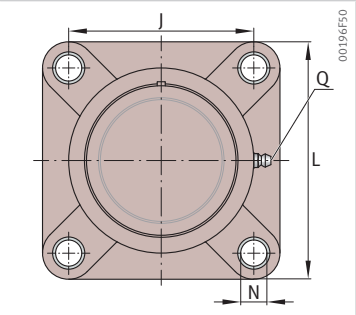
## 3.13.9 Four-bolt flanged housing units, with grub screw

FD design

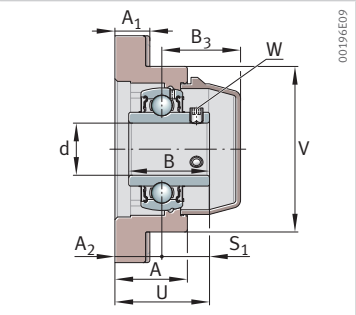
White plastic housing

With grub screw in inner ring

| d | Unit | Housing | Radial insert ball bearing | $C_r$ | $C_{0r}$ | $C_{ur}$ | $C_{0r\,G}$ | $f_0$ |
|---|---|---|---|---|---|---|---|---|
| mm | – | – | – | N | N | N | N | – |
| **20** | **RCJY20-TV-VA-FD** | **CJ04-TV-WHT** | **GYE20-KRR-B-FA107-VA-FD** | 10900 | 5300 | 280 | 10200 | 13,1 |
| **25** | **RCJY25-TV-VA-FD** | **CJ05-TV-WHT** | **GYE25-KRR-B-FA107-VA-FD** | 13400 | 7500 | 335 | 12100 | 13,8 |
| **30** | **RCJY30-TV-VA-FD** | **CJ06-TV-WHT** | **GYE30-KRR-B-FA107-VA-FD** | 16700 | 9000 | 475 | 17700 | 13,8 |
| **35** | **RCJY35-TV-VA-FD** | **CJ07-TV-WHT** | **GYE35-KRR-B-FA107-VA-FD** | 22000 | 12300 | 655 | 18500 | 13,8 |
| **40** | **RCJY40-TV-VA-FD** | **CJ08-TV-WHT** | **GYE40-KRR-B-FA107-VA-FD** | 24900 | 14300 | 800 | 19200 | 14 |




RCJY.., RCJ..




RCJY..-TV-VA-FD

| J | L | A | $A_1$ | $A_2$ | N | B | $B_3$ | $S_1$ | U | V | Q | W | m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | – | mm | kg |
| 63,5 | 87 | 27,8 | 13,4 | 18 | 11 | 31 | 30,2 | 18,3 | 36,3 | 63,5 | $^1/_4$"–28 UNF | 2,5 | 0,31 |
| 70 | 94,5 | 27,9 | 14,3 | 17 | 11 | 34,1 | 33,1 | 19,8 | 36,8 | 70 | $^1/_4$"–28 UNF | 2,5 | 0,39 |
| 83 | 107 | 31,5 | 14,3 | 19,2 | 11 | 38,1 | 39,5 | 22,2 | 41,4 | 80 | $^1/_4$"–28 UNF | 3 | 0,52 |
| 92 | 117 | 34,8 | 15,5 | 21,5 | 13 | 42,9 | 42,1 | 25,4 | 46,9 | 90 | $^1/_4$"–28 UNF | 3 | 0,73 |
| 102 | 130 | 37,5 | 17 | 23 | 14 | 49,2 | 48 | 30,2 | 53,2 | 99 | $^1/_4$"–28 UNF | 4 | 0,97 |

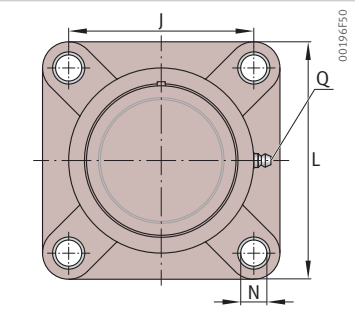
## 3.13.10 Four-bolt flanged housing units, with eccentric locking collar

FD design

White plastic housing

With eccentric locking collar

| d | Unit | Housing | Radial insert ball bearing | $C_r$ | $C_{0r}$ | $C_{ur}$ | $C_{0r\,G}$ | $f_0$ |
|---|---|---|---|---|---|---|---|---|
| mm | – | – | – | N | N | N | N | – |
| **20** | **RCJ20-TV-VA-FD** | **CJ04-TV-WHT** | **GE20-KRR-B-FA107-VA-FD** | 12840 | 6650 | 280 | 10200 | 13,1 |
| **25** | **RCJ25-TV-VA-FD** | **CJ05-TV-WHT** | **GE25-KRR-B-FA107-VA-FD** | 14020 | 7880 | 335 | 12100 | 13,8 |
| **30** | **RCJ30-TV-VA-FD** | **CJ06-TV-WHT** | **GE30-KRR-B-FA107-VA-FD** | 19460 | 11310 | 475 | 17700 | 13,8 |
| **35** | **RCJ35-TV-VA-FD** | **CJ07-TV-WHT** | **GE35-KRR-B-FA107-VA-FD** | 25670 | 15300 | 655 | 18500 | 13,8 |
| **40** | **RCJ40-TV-VA-FD** | **CJ08-TV-WHT** | **GE40-KRR-B-FA107-VA-FD** | 28500 | 17200 | 800 | 19200 | 14 |

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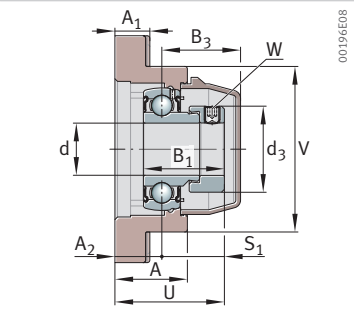


RCJ..-TV-VA-FD

| J | L | A | $A_1$ | $A_2$ | N | $B_1$ | $B_3$ | $S_1$ | U | V | Q | $d_3$ | W | m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | – | mm | mm | kg |
| 63,5 | 87 | 27,8 | 13,4 | 18 | 11 | 31 | 30,2 | 24 | 42 | 63,5 | $^1/_4$"–28 UNF | 33,3 | 3 | 0,31 |
| 70 | 94,5 | 27,9 | 14,3 | 17 | 11 | 31 | 33,1 | 23,5 | 40,5 | 70 | $^1/_4$"–28 UNF | 38,1 | 3 | 0,38 |
| 83 | 107 | 31,5 | 14,3 | 19,2 | 11 | 35,7 | 39,5 | 27,7 | 46,9 | 80 | $^1/_4$"–28 UNF | 44,5 | 3 | 0,52 |
| 92 | 117 | 34,8 | 15,5 | 21,5 | 13 | 38,9 | 42,1 | 30,4 | 51,9 | 90 | $^1/_4$"–28 UNF | 55,6 | 3 | 0,77 |
| 102 | 130 | 37,5 | 17 | 23 | 14 | 43,7 | 48 | 34,7 | 57,7 | 99 | $^1/_4$"–28 UNF | 60,3 | 4 | 0,99 |

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