

**FAG**



# Deep Groove Ball Bearings Generation C

Single row

**SCHAEFFLER**



# Single row deep groove ball bearings Generation C

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# Product overview Single row deep groove ball bearings Generation C

## Open

60...-C  
62...-C  
63...-C

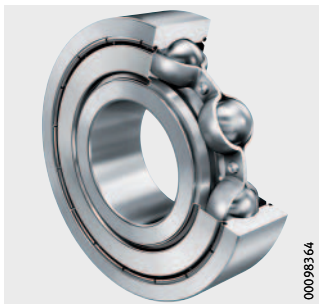


60...-C-TVH  
62...-C-TVH  
63...-C-TVH

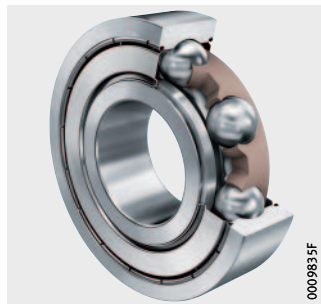


## Gap seals

60...-C-2Z  
62...-C-2Z  
63...-C-2Z

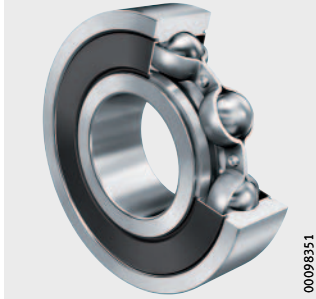


60...-C-2Z-TVH  
62...-C-2Z-TVH  
63...-C-2Z-TVH

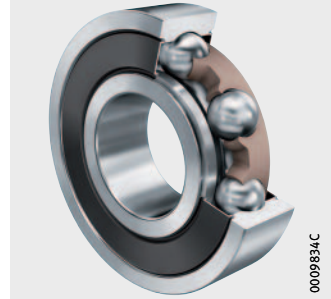


## Lip seals

60..-C-2HRS  
62..-C-2HRS  
63..-C-2HRS



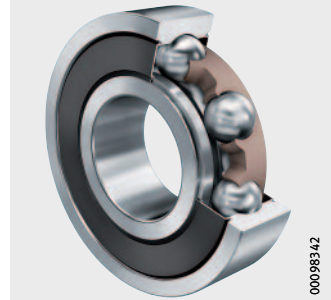
60..-C-2HRS-TVH  
62..-C-2HRS-TVH  
63..-C-2HRS-TVH



60..-C-2ELS  
62..-C-2ELS  
63..-C-2ELS

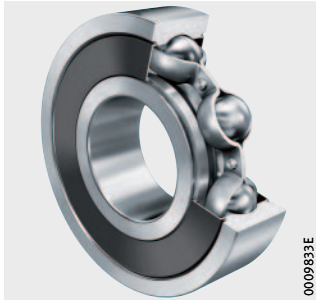


60..-C-2ELS-TVH  
62..-C-2ELS-TVH  
63..-C-2ELS-TVH

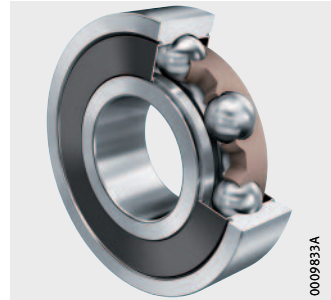


## Non-contact seals

60..-C-2BRS  
62..-C-2BRS  
63..-C-2BRS



60..-C-2BRS-TVH  
62..-C-2BRS-TVH  
63..-C-2BRS-TVH



# Single row deep groove ball bearings Generation C

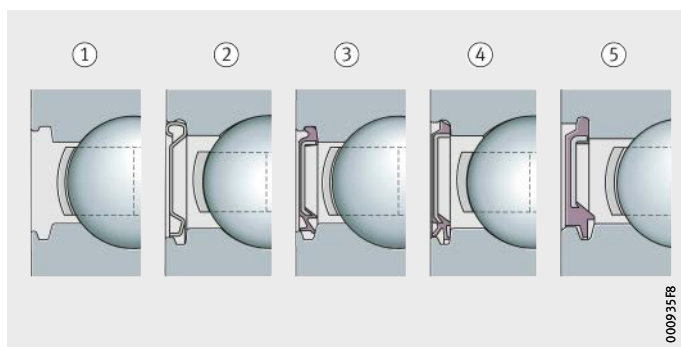
|                                  |   |
|----------------------------------|---|
| <b>Features</b>                  | <p>Single row deep groove ball bearings are versatile, self-retaining bearings with solid outer rings, inner rings and ball and cage assemblies. They are of a simple design, robust in operation and easy to maintain. They are available in open and sealed designs. Due to the raceway geometry and the use of balls, deep groove ball bearings can support axial forces in both directions as well as radial forces.</p> <p>Deep groove ball bearings of Generation C were specially developed with a focus on low noise levels and low frictional torque. They are particularly suitable, for example, for use in electrical machinery, ventilators, washing machines and power tools.</p> |
| <b>Advantages</b>                | <p>Thanks to design modifications such as improved bearing kinematics, new seals and cages as well as refined manufacturing processes, deep groove ball bearings of Generation C have numerous advantages.</p>  |
| <b>Lower noise levels</b>        | <p>The bearing is quieter in operation due to the better quality of the balls, the optimised surfaces, the higher stability of the cage and the modified internal construction.</p>   |
| <b>Improved sealing</b>          | <p>Efficient protection against the escape of grease or the ingress of dust is provided by the innovative gap seal design (suffix Z). Even better sealing is achieved in the bearings with a lip seal running under axial contact, <i>Figure 1</i>, page 5, ③ and ④ (suffix HRS or ELS). This is due to the seal design and the labyrinth function as a result of the matched undercuts in the outer ring and inner ring.</p>   |
| <b>Lower friction</b>            | <p>The friction in the bearing is reduced by modified osculation and optimisation of surfaces, waviness and roundness.</p>  |
| <b>Higher cost-effectiveness</b> | <p>Due to the lower friction, energy costs for operation are reduced. The reduced grease loss, better protection against contamination and reduced strain on the lubricant extend the grease operating life and thus the rating life of the bearing.</p>  |
| <b>Sealing</b>                   | <p>Open bearings are suitable for high to very high speeds. Due to the manufacturing process, they have turned recesses for sealing washers and sealing shields, <i>Figure 1</i>, page 5, ①.</p> <p>Bearings with the suffix 2Z have gap seals on both sides, <i>Figure 1</i>, page 5, ②. These bearings are greased using a high quality grease, lubricated for life and suitable for high speeds. In comparison with conventional gap seals, the inverted sealing shield design gives improved sealing action.</p>  |

Bearings with the suffix 2HRS or 2ELS have lip seals on both sides made from nitrile butadiene rubber, *Figure 1* ③ and ④. They are greased using a high quality grease, lubricated for life and suitable for moderate speeds. In comparison with lip seals running under radial contact, higher speeds can be achieved. At the same time, the frictional torque and heat generation are lower.

Bearings with the suffix 2BRS have non-contact seals on both sides made from nitrile butadiene rubber. The operating temperature is restricted by the seal material, see section Operating temperature, page 6. Their friction level is as low as with the gap seals. In addition, they offer better protection against the ingress of dust and the escape of lubricant, *Figure 1* ⑤.

As lip seals, deep groove ball bearings of Generation C are supplied as standard with the seal HRS. The seal ELS is available by agreement.

- ① Open bearing
- ② New gap seal on both sides (2Z)
- ③ Lip seal on both sides (2HRS)
- ④ Lip seal on both sides (2ELS)
- ⑤ Non-contact seal on both sides (2BRS)



*Figure 1*  
Available designs

### Characteristics of sealing variants

| Characteristic                          | Suffix for seal |     |         |     |
|---|-----------------|-----|---------|-----|
|   | Non-contact     |     | Contact |     |
|   | Z               | BRS | ELS     | HRS |
| Frictional torque                       | +++             | +++ | +       | o   |
| Speeds                                  | +++             | +++ | o       | o   |
| Sealing effect against ingress of water | -               | o   | ++      | ++  |
| Sealing effect against ingress of dust  | o               | +   | +++     | ++  |
| Sealing effect against escape of grease | o               | +   | +++     | ++  |
| Compensation of pressure                | +++             | +++ | +       | +   |

#### Definition of symbols

- +++ Excellent
- ++ Very good
- + Good
- o Satisfactory
- Unsatisfactory

# Single row deep groove ball bearings Generation C

## Operating temperature Operating temperatures for various sealing materials

| Suffix        | Temperature range |  |
|---------------|-------------------|--|
| Open bearings | up to +120 °C     | If > +120 °C, please contact us            |
| Z             | -30 °C to +120 °C | If > +120 °C, please contact us            |
| HRS           | -30 °C to +110 °C | Temperature restricted<br>by seal material |
| ELS           | -30 °C to +110 °C |  |
| BRS           | -30 °C to +110 °C |  |
| TVH           | -30 °C to +120 °C | Temperature restricted<br>by cage material |

## Suffixes for bearings for high temperatures

| Suffix                     | S1      | S2      | S3      | S4      |
|----------------------------|---------|---------|---------|---------|
| Max. operating temperature | +200 °C | +250 °C | +300 °C | +350 °C |

## Cages

Single row deep groove ball bearings of Generation C without a cage suffix have a riveted sheet metal cage.

## Suffixes

Suffixes for available designs, see table.

## Available designs

| Suffix | Description                                    | Design  |
|--------|--|---|
| C      | Modified internal construction in Generation C | Standard  |
| 2Z     | Gap seal on both sides                         |   |
| 2HRS   | Lip seal on both sides                         |   |
| 2BRS   | Labyrinth seal on both sides                   |   |
| Z      | Gap seal on one side                           | Special design,<br>available by<br>agreement only |
| HRS    | Lip seal on one side                           |   |
| ELS    | Lip seal on one side                           |   |
| 2ELS   | Lip seal on both sides                         |   |
| BRS    | Labyrinth seal on one side                     |   |
| TVH    | Solid polyamide snap cage, ball-guided         |   |



Check the chemical resistance of the polyamide to synthetic greases as well as to lubricants with EP additives.

Aged oil and additives in the oil can impair the operating life of plastic cages at high temperatures. The oil change intervals must be observed.

## Further information

- Information on the technical principles of rolling bearing arrangements can be found in our Catalogues HR 1, Rolling Bearings and GL 1, Large Size Bearings.



**Design and safety guidelines**  
**Equivalent dynamic bearing load**

The equivalent dynamic load P is valid for bearings that are subjected to radial and axial dynamic loads. It gives the same rating life as the combined bearing load occurring in practice.

For bearings under dynamic loading, the following applies:

**Load ratio and equivalent dynamic load**

| Load ratio               | Equivalent dynamic bearing load |
|--------------------------|---------------------------------|
| $\frac{F_a}{F_r} \leq e$ | $P = F_r$                       |
| $\frac{F_a}{F_r} > e$    | $P = X \cdot F_r + Y \cdot F_a$ |

$F_a$  N  
 Axial dynamic bearing load  
 $F_r$  N  
 Radial dynamic bearing load  
 $e, X, Y$  –  
 Factors, see table Factors e, X and Y  
 $P$  N  
 Equivalent dynamic bearing load for combined load.

The factors e, X and Y required for determining P are dependent on the ratio  $f_0 \cdot F_a / C_{0r}$  and the radial internal clearance.

The values in the table are valid for normal fits:

- shaft machined to j5 or k5, housing machined to J6.

**Factors e, X and Y**

| $\frac{f_0 \cdot F_a}{C_{0r}}$ | Factor for radial internal clearance |      |      |              |      |      |              |      |      |
|--------------------------------|--------------------------------------|------|------|--------------|------|------|--------------|------|------|
|                                | CN (Group N)                         |      |      | C3 (Group 3) |      |      | C4 (Group 4) |      |      |
|                                | e                                    | X    | Y    | e            | X    | Y    | e            | X    | Y    |
| 0,3                            | 0,22                                 | 0,56 | 2    | 0,32         | 0,46 | 1,7  | 0,4          | 0,44 | 1,4  |
| 0,5                            | 0,24                                 | 0,56 | 1,8  | 0,35         | 0,46 | 1,56 | 0,43         | 0,44 | 1,31 |
| 0,9                            | 0,28                                 | 0,56 | 1,58 | 0,39         | 0,46 | 1,41 | 0,45         | 0,44 | 1,23 |
| 1,6                            | 0,32                                 | 0,56 | 1,4  | 0,43         | 0,46 | 1,27 | 0,48         | 0,44 | 1,16 |
| 3                              | 0,36                                 | 0,56 | 1,2  | 0,48         | 0,46 | 1,14 | 0,52         | 0,44 | 1,08 |
| 6                              | 0,43                                 | 0,56 | 1    | 0,54         | 0,46 | 1    | 0,56         | 0,44 | 1    |

$f_0$  –  
 Factor, see table, page 8  
 $F_a$  N  
 Axial dynamic bearing load  
 $C_{0r}$  N  
 Basic static load rating, see dimension table.

# Single row deep groove ball bearings Generation C

Factor  $f_0$   
for deep groove ball bearings

| Bore code | Factor $f_0$ |           |           |
|-----------|--------------|-----------|-----------|
|           | Series 60    | Series 62 | Series 63 |
| 00        | 12,4         | 12,1      | 11,3      |
| 01        | 13           | 12,3      | 11,1      |
| 02        | 13,9         | 13,1      | 12,1      |
| 03        | 14,3         | 13,1      | 12,3      |
| 04        | 13,9         | 13,1      | 12,4      |
| 05        | 14,5         | 13,8      | 12,4      |
| 06        | 14,8         | 13,8      | 13        |
| 07        | 14,8         | 13,8      | 13,1      |
| 08        | 15,3         | 14        | 13        |
| 09        | 15,4         | 14,3      | 13        |
| 10        | 15,6         | 14,3      | 13        |

## Equivalent static bearing load

The equivalent static load  $P_0$  is valid for bearings that are subjected to radial and axial static loads. It induces the same load, at the centre point of the most heavily loaded contact point between the rolling element and raceway, as the combined bearing load occurring in practice.

For bearings under static loading, the following applies:

Load ratio and  
equivalent static load

| Load ratio                       | Equivalent static load                      |
|----------------------------------|---|
| $\frac{F_{0a}}{F_{0r}} \leq 0,8$ | $P_0 = F_{0r}$                              |
| $\frac{F_{0a}}{F_{0r}} > 0,8$    | $P_0 = 0,6 \cdot F_{0r} + 0,5 \cdot F_{0a}$ |

$F_{0a}$  N  
Axial static bearing load

$F_{0r}$  N  
Radial static bearing load

$P_0$  N  
Equivalent static bearing load for combined load.

## Axial load carrying capacity



Deep groove ball bearings are also suitable for axial loads.

If the bearing is subjected to high loads and high speeds, a reduction in rating life as well as an increase in friction and bearing temperature must be taken into consideration.

### Minimum radial load

In order to ensure slippage-free operation, the bearings must be subjected to a minimum radial load. This applies particularly in the case of high speeds and high accelerations. In continuous operation, a minimum radial load of the order of  $P/C_r > 0,01$  is necessary for ball bearings with cage.

### Speed

The limiting speed  $n_G$  indicates the speed range within which the bearing can be used without the need for special precautions. In the case of bearings with increased running accuracy, the limiting speed  $n_G$  can be exceeded under certain circumstances.

The following influencing factors are significant here:

- cage design
- cage material
- lubricant
- lubrication method
- internal clearance
- machining of the bearing seats
- bearing load
- heat dissipation.

If the limiting speed  $n_G$  is exceeded, we recommend checking with Schaeffler Application Engineering to determine whether the necessary conditions will be fulfilled at these higher speeds.

### Mounting dimensions

The dimension tables give the maximum dimension of the radius  $r_a$  and the diameters of the abutment shoulders  $D_a$  and  $d_a$ .



Bearings of Generation C may exhibit differences in diameter of the dimensions  $D_2$  and  $d_2$  compared to the standard bearings described in Catalogue HR 1, Rolling Bearings.

# Single row deep groove ball bearings Generation C

**Accuracy** The main dimensions of the standardised single row deep groove ball bearings correspond to DIN 625-1 (ISO 15).

**Dimensional and running tolerances** The dimensional and running tolerances of the standardised bearings correspond to tolerance class 6 in accordance with ISO 492:2014.

Bearings with a higher accuracy are available by agreement.

**Radial internal clearance of bearings with cylindrical bore** The radial internal clearance corresponds to internal clearance group CN (Group N) in accordance with DIN 620-4 (ISO 5753-1).

## Radial internal clearance

| Bore<br>d<br>mm |       | Radial internal clearance |      |                       |      |                       |      |                       |      |
|-----------------|-------|---------------------------|------|-----------------------|------|-----------------------|------|-----------------------|------|
|                 |       | C2<br>(Group 2)<br>µm     |      | CN<br>(Group N)<br>µm |      | C3<br>(Group 3)<br>µm |      | C4<br>(Group 4)<br>µm |      |
| over            | incl. | min.                      | max. | min.                  | max. | min.                  | max. | min.                  | max. |
| 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   |

## Radial internal clearance CM for electric motors

| Bore<br>d<br>mm |       | Radial internal clearance<br>CM<br>µm |      |
|-----------------|-------|---------------------------------------|------|
| over            | incl. | min.                                  | max. |
| 10              | 18    | 4                                     | 11   |
| 18              | 30    | 5                                     | 12   |
| 30              | 50    | 9                                     | 17   |



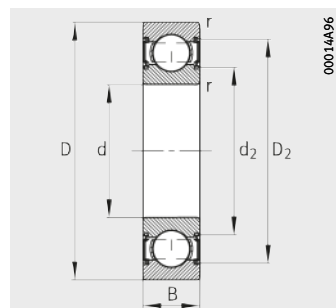
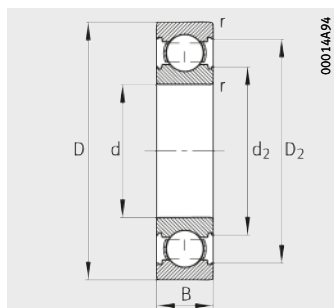
*Figure 2*  
Deep groove ball bearings  
of Generation C

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# Deep groove ball bearings Generation C

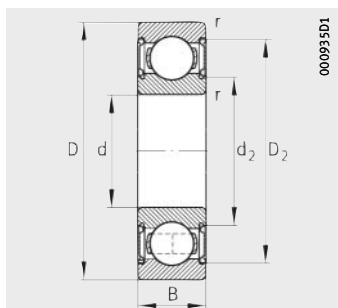
Single row  
Open or sealed



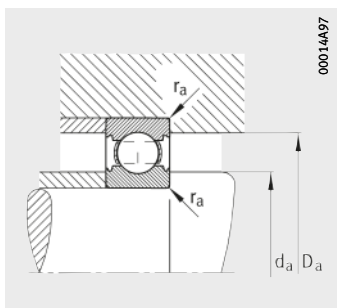
Seal 2HRS

Dimension table · Dimensions in mm

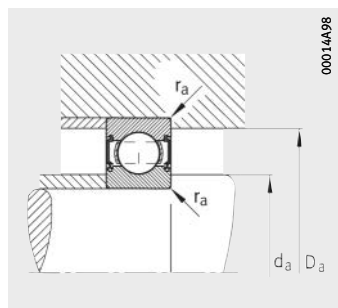
| Designation             | Mass<br>m<br>≈ kg | Dimensions |    |    |           |                     |                     |
|-------------------------|-------------------|------------|----|----|-----------|---------------------|---------------------|
|                         |                   | d          | D  | B  | r<br>min. | D <sub>2</sub><br>≈ | d <sub>2</sub><br>≈ |
| <b>629-C</b>            | 0,02              | <b>9</b>   | 26 | 8  | 0,3       | 23,4                | 13,4                |
| <b>629-C-2HRS</b>       | 0,021             | <b>9</b>   | 26 | 8  | 0,3       | 23,4                | 13,4                |
| <b>629-C-2Z(-2BRS)</b>  | 0,021             | <b>9</b>   | 26 | 8  | 0,3       | 23,4                | 13,4                |
| <b>6000-C</b>           | 0,019             | <b>10</b>  | 26 | 8  | 0,3       | 23,4                | 13,4                |
| <b>6000-C-2HRS</b>      | 0,02              | <b>10</b>  | 26 | 8  | 0,3       | 23,4                | 13,4                |
| <b>6000-C-2Z(-2BRS)</b> | 0,02              | <b>10</b>  | 26 | 8  | 0,3       | 23,4                | 13,4                |
| <b>6200-C</b>           | 0,031             | <b>10</b>  | 30 | 9  | 0,6       | 26                  | 14,9                |
| <b>6200-C-2HRS</b>      | 0,034             | <b>10</b>  | 30 | 9  | 0,6       | 26                  | 14,9                |
| <b>6200-C-2Z(-2BRS)</b> | 0,032             | <b>10</b>  | 30 | 9  | 0,6       | 26                  | 14,9                |
| <b>6001-C</b>           | 0,02              | <b>12</b>  | 28 | 8  | 0,3       | 25,4                | 15,41               |
| <b>6001-C-2HRS</b>      | 0,022             | <b>12</b>  | 28 | 8  | 0,3       | 25,4                | 15,41               |
| <b>6001-C-2Z(-2BRS)</b> | 0,02              | <b>12</b>  | 28 | 8  | 0,3       | 25,4                | 15,41               |
| <b>6201-C</b>           | 0,037             | <b>12</b>  | 32 | 10 | 0,6       | 28,2                | 17                  |
| <b>6201-C-2HRS</b>      | 0,039             | <b>12</b>  | 32 | 10 | 0,6       | 28,2                | 17                  |
| <b>6201-C-2Z(-2BRS)</b> | 0,039             | <b>12</b>  | 32 | 10 | 0,6       | 28,2                | 17                  |
| <b>6301-C</b>           | 0,062             | <b>12</b>  | 37 | 12 | 1         | 32,2                | 17,8                |
| <b>6301-C-2HRS</b>      | 0,064             | <b>12</b>  | 37 | 12 | 1         | 32,2                | 17,8                |
| <b>6301-C-2Z(-2BRS)</b> | 0,064             | <b>12</b>  | 37 | 12 | 1         | 32,2                | 17,8                |
| <b>6002-C</b>           | 0,031             | <b>15</b>  | 32 | 9  | 0,3       | 29                  | 18,9                |
| <b>6002-C-2HRS</b>      | 0,033             | <b>15</b>  | 32 | 9  | 0,3       | 29                  | 18,9                |
| <b>6002-C-2Z(-2BRS)</b> | 0,033             | <b>15</b>  | 32 | 9  | 0,3       | 29                  | 18,9                |
| <b>6202-C</b>           | 0,043             | <b>15</b>  | 35 | 11 | 0,6       | 31,2                | 19,8                |
| <b>6202-C-2HRS</b>      | 0,045             | <b>15</b>  | 35 | 11 | 0,6       | 31,2                | 19,8                |
| <b>6202-C-2Z(-2BRS)</b> | 0,045             | <b>15</b>  | 35 | 11 | 0,6       | 31,2                | 19,8                |
| <b>6203-C</b>           | 0,065             | <b>17</b>  | 40 | 12 | 0,6       | 35,2                | 22,6                |
| <b>6203-C-2HRS</b>      | 0,067             | <b>17</b>  | 40 | 12 | 0,6       | 35,2                | 22,6                |
| <b>6203-C-2Z(-2BRS)</b> | 0,067             | <b>17</b>  | 40 | 12 | 0,6       | 35,2                | 22,6                |
| <b>6004-C</b>           | 0,069             | <b>20</b>  | 42 | 12 | 0,6       | 37,7                | 25,1                |
| <b>6004-C-2HRS</b>      | 0,071             | <b>20</b>  | 42 | 12 | 0,6       | 37,7                | 25,1                |
| <b>6004-C-2Z(-2BRS)</b> | 0,071             | <b>20</b>  | 42 | 12 | 0,6       | 37,7                | 25,1                |
| <b>6204-C</b>           | 0,106             | <b>20</b>  | 47 | 14 | 1         | 41,4                | 26,5                |
| <b>6204-C-2HRS</b>      | 0,11              | <b>20</b>  | 47 | 14 | 1         | 41,4                | 26,5                |
| <b>6204-C-2Z(-2BRS)</b> | 0,11              | <b>20</b>  | 47 | 14 | 1         | 41,4                | 26,5                |



Seal 2Z (2BRS)



Mounting dimensions  
Open design

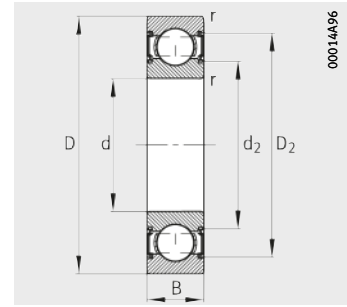
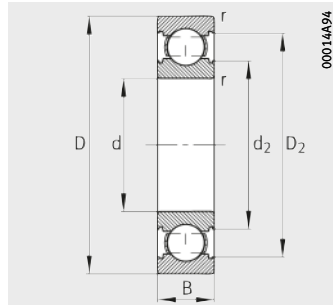


Mounting dimensions  
Sealed design

| Mounting dimensions |               |               | Basic load ratings |                        | Fatigue limit load<br>$C_{ur}$<br>N | Limiting speed<br>$n_G$<br>$\text{min}^{-1}$ | Reference speed<br>$n_B$<br>$\text{min}^{-1}$ |
|---------------------|---------------|---------------|--------------------|------------------------|-------------------------------------|--|---|
| $d_a$<br>min.       | $D_a$<br>max. | $r_a$<br>max. | dyn.<br>$C_r$<br>N | stat.<br>$C_{0r}$<br>N |                                     |  |   |
| 11,4                | 23,6          | 0,3           | 5 000              | 1 970                  | 133                                 | 44 500                                       | 28 500  |
| 11,4                | 23,6          | 0,3           | 5 000              | 1 970                  | 133                                 | 28 600                                       | –   |
| 11,4                | 23,6          | 0,3           | 5 000              | 1 970                  | 133                                 | 38 000                                       | 28 500  |
| 12                  | 24            | 0,3           | 5 000              | 1 970                  | 133                                 | 44 500                                       | 30 000  |
| 12                  | 24            | 0,3           | 5 000              | 1 970                  | 133                                 | 28 600                                       | –   |
| 12                  | 24            | 0,3           | 5 000              | 1 970                  | 133                                 | 38 000                                       | 30 000  |
| 14,2                | 25,8          | 0,6           | 6 600              | 2 600                  | 177                                 | 40 500                                       | 26 000  |
| 14,2                | 25,8          | 0,6           | 6 600              | 2 600                  | 177                                 | 25 700                                       | –   |
| 14,2                | 25,8          | 0,6           | 6 600              | 2 600                  | 177                                 | 34 500                                       | 26 000  |
| 14                  | 26            | 0,3           | 5 500              | 2 360                  | 158                                 | 42 500                                       | 26 000  |
| 14                  | 26            | 0,3           | 5 500              | 2 360                  | 158                                 | 24 800                                       | –   |
| 14                  | 26            | 0,3           | 5 500              | 2 360                  | 158                                 | 36 000                                       | 26 000  |
| 16,2                | 27,8          | 0,6           | 7 600              | 3 100                  | 208                                 | 37 000                                       | 24 600  |
| 16,2                | 27,8          | 0,6           | 7 600              | 3 100                  | 208                                 | 22 400                                       | –   |
| 16,2                | 27,8          | 0,6           | 7 600              | 3 100                  | 208                                 | 31 500                                       | 24 600  |
| 17,6                | 31,4          | 1             | 10 900             | 4 200                  | 280                                 | 31 000                                       | 20 000  |
| 17,6                | 31,4          | 1             | 10 900             | 4 200                  | 280                                 | 21 700                                       | –   |
| 17,6                | 31,4          | 1             | 10 900             | 4 200                  | 280                                 | 26 500                                       | 20 000  |
| 17                  | 30            | 0,3           | 6 000              | 2 850                  | 171                                 | 37 000                                       | 23 300  |
| 17                  | 30            | 0,3           | 6 000              | 2 850                  | 171                                 | 20 200                                       | –   |
| 17                  | 30            | 0,3           | 6 000              | 2 850                  | 171                                 | 31 500                                       | 23 300  |
| 19,2                | 30,8          | 0,6           | 8 400              | 3 750                  | 250                                 | 33 000                                       | 22 400  |
| 19,2                | 30,8          | 0,6           | 8 400              | 3 750                  | 250                                 | 19 300                                       | –   |
| 19,2                | 30,8          | 0,6           | 8 400              | 3 750                  | 250                                 | 28 000                                       | 22 400  |
| 21,2                | 35,8          | 0,6           | 10 400             | 4 750                  | 320                                 | 29 000                                       | 20 100  |
| 21,2                | 35,8          | 0,6           | 10 400             | 4 750                  | 320                                 | 16 900                                       | –   |
| 21,2                | 35,8          | 0,6           | 10 400             | 4 750                  | 320                                 | 24 600                                       | 20 100  |
| 23,2                | 38,8          | 0,6           | 10 000             | 5 000                  | 305                                 | 27 500                                       | 19 800  |
| 23,2                | 38,8          | 0,6           | 10 000             | 5 000                  | 305                                 | 15 200                                       | –   |
| 23,2                | 38,8          | 0,6           | 10 000             | 5 000                  | 305                                 | 23 200                                       | 19 800  |
| 25,6                | 41,4          | 1             | 13 900             | 6 600                  | 445                                 | 24 300                                       | 18 100  |
| 25,6                | 41,4          | 1             | 13 900             | 6 600                  | 445                                 | 14 400                                       | –   |
| 25,6                | 41,4          | 1             | 13 900             | 6 600                  | 445                                 | 20 600                                       | 18 100  |

# Deep groove ball bearings Generation C

Single row  
Open or sealed

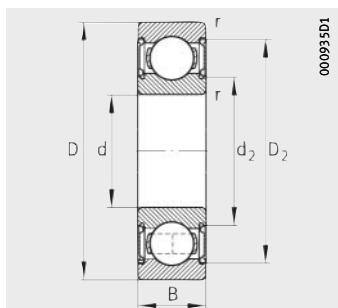


Seal 2HRS

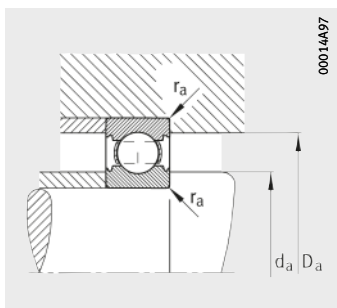
Dimension table (continued) - Dimensions in mm

| Designation             | Mass<br>m<br>≈ kg | Dimensions |    |    |           |                     |                     |
|-------------------------|-------------------|------------|----|----|-----------|---------------------|---------------------|
|                         |                   | d          | D  | B  | r<br>min. | D <sub>2</sub><br>≈ | d <sub>2</sub><br>≈ |
| <b>6205-C</b>           | 0,129             | <b>25</b>  | 52 | 15 | 1         | 46,4                | 31,3                |
| <b>6205-C-2HRS</b>      | 0,133             | <b>25</b>  | 52 | 15 | 1         | 46,4                | 31,3                |
| <b>6205-C-2Z(-2BRS)</b> | 0,133             | <b>25</b>  | 52 | 15 | 1         | 46,4                | 31,3                |
| <b>6305-C</b>           | 0,215             | <b>25</b>  | 62 | 17 | 1,1       | 54                  | 34                  |
| <b>6305-C-2HRS</b>      | 0,224             | <b>25</b>  | 62 | 17 | 1,1       | 54                  | 34                  |
| <b>6305-C-2Z(-2BRS)</b> | 0,222             | <b>25</b>  | 62 | 17 | 1,1       | 54                  | 34                  |
| <b>6206-C</b>           | 0,195             | <b>30</b>  | 62 | 16 | 1         | 55,4                | 37,4                |
| <b>6206-C-2HRS</b>      | 0,201             | <b>30</b>  | 62 | 16 | 1         | 55,4                | 37,4                |
| <b>6206-C-2Z(-2BRS)</b> | 0,201             | <b>30</b>  | 62 | 16 | 1         | 55,4                | 37,4                |
| <b>6306-C</b>           | 0,328             | <b>30</b>  | 72 | 19 | 1,1       | 63,4                | 41,3                |
| <b>6306-C-2HRS</b>      | 0,34              | <b>30</b>  | 72 | 19 | 1,1       | 63,4                | 41,3                |
| <b>6306-C-2Z(-2BRS)</b> | 0,339             | <b>30</b>  | 72 | 19 | 1,1       | 63,4                | 41,3                |
| <b>6207-C</b>           | 0,263             | <b>35</b>  | 72 | 17 | 1,1       | 64,7                | 44,5                |
| <b>6207-C-2HRS</b>      | 0,274             | <b>35</b>  | 72 | 17 | 1,1       | 64,7                | 44,5                |
| <b>6207-C-2Z(-2BRS)</b> | 0,273             | <b>35</b>  | 72 | 17 | 1,1       | 64,7                | 44,5                |
| <b>6307-C</b>           | 0,434             | <b>35</b>  | 80 | 21 | 1,5       | 69,8                | 46                  |
| <b>6307-C-2HRS</b>      | 0,449             | <b>35</b>  | 80 | 21 | 1,5       | 69,8                | 46                  |
| <b>6307-C-2Z(-2BRS)</b> | 0,447             | <b>35</b>  | 80 | 21 | 1,5       | 69,8                | 46                  |
| <b>6208-C</b>           | 0,345             | <b>40</b>  | 80 | 18 | 1,1       | 70,7                | 49,2                |
| <b>6208-C-2HRS</b>      | 0,359             | <b>40</b>  | 80 | 18 | 1,1       | 70,7                | 49,2                |
| <b>6208-C-2Z(-2BRS)</b> | 0,359             | <b>40</b>  | 80 | 18 | 1,1       | 70,7                | 49,2                |
| <b>6308-C</b>           | 0,6               | <b>40</b>  | 90 | 23 | 1,5       | 78,8                | 52,1                |
| <b>6308-C-2HRS</b>      | 0,622             | <b>40</b>  | 90 | 23 | 1,5       | 78,8                | 52,1                |
| <b>6308-C-2Z(-2BRS)</b> | 0,617             | <b>40</b>  | 90 | 23 | 1,5       | 78,8                | 52,1                |
| <b>6209-C</b>           | 0,396             | <b>45</b>  | 85 | 19 | 1,1       | 75,5                | 53,9                |
| <b>6209-C-2HRS</b>      | 0,413             | <b>45</b>  | 85 | 19 | 1,1       | 75,5                | 53,9                |
| <b>6209-C-2Z(-2BRS)</b> | 0,411             | <b>45</b>  | 85 | 19 | 1,1       | 75,5                | 53,9                |
| <b>6210-C</b>           | 0,431             | <b>50</b>  | 90 | 20 | 1,1       | 81,8                | 59,1                |
| <b>6210-C-2HRS</b>      | 0,451             | <b>50</b>  | 90 | 20 | 1,1       | 81,8                | 59,1                |
| <b>6210-C-2Z(-2BRS)</b> | 0,448             | <b>50</b>  | 90 | 20 | 1,1       | 81,8                | 59,1                |

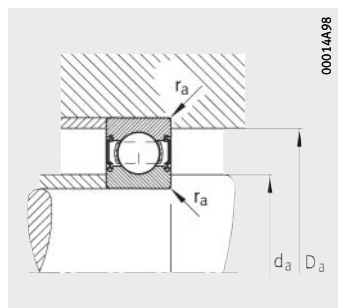




Seal 2Z (2BRS)



Mounting dimensions  
Open design



Mounting dimensions  
Sealed design

| Mounting dimensions |               |               | Basic load ratings |                        | Fatigue limit load<br>$C_{ur}$ | Limiting speed<br>$n_G$ | Reference speed<br>$n_B$ |
|---------------------|---------------|---------------|--------------------|------------------------|--------------------------------|-------------------------|--------------------------|
| $d_a$<br>min.       | $D_a$<br>max. | $r_a$<br>max. | dyn.<br>$C_r$<br>N | stat.<br>$C_{0r}$<br>N |                                |                         |                          |
| 30,6                | 46,4          | 1             | 15 000             | 7 800                  | 485                            | 21 600                  | 16 100                   |
| 30,6                | 46,4          | 1             | 15 000             | 7 800                  | 485                            | 12 200                  | –                        |
| 30,6                | 46,4          | 1             | 15 000             | 7 800                  | 485                            | 18 400                  | 16 100                   |
| 32                  | 55            | 1             | 24 700             | 11 500                 | 780                            | 17 800                  | 13 500                   |
| 32                  | 55            | 1             | 24 700             | 11 500                 | 780                            | 11 300                  | –                        |
| 32                  | 55            | 1             | 24 700             | 11 500                 | 780                            | 15 100                  | 13 500                   |
| 35,6                | 56,4          | 1             | 20 800             | 11 200                 | 700                            | 17 800                  | 13 400                   |
| 35,6                | 56,4          | 1             | 20 800             | 11 200                 | 700                            | 10 200                  | –                        |
| 35,6                | 56,4          | 1             | 20 800             | 11 200                 | 700                            | 15 100                  | 13 400                   |
| 37                  | 65            | 1             | 32 000             | 16 200                 | 1 090                          | 15 100                  | 11 800                   |
| 37                  | 65            | 1             | 32 000             | 16 200                 | 1 090                          | 9 300                   | –                        |
| 37                  | 65            | 1             | 32 000             | 16 200                 | 1 090                          | 12 800                  | 11 800                   |
| 42                  | 65            | 1             | 28 000             | 15 400                 | 1 030                          | 15 000                  | 11 500                   |
| 42                  | 65            | 1             | 28 000             | 15 400                 | 1 030                          | 8 600                   | –                        |
| 42                  | 65            | 1             | 28 000             | 15 400                 | 1 030                          | 12 700                  | 11 500                   |
| 44                  | 71            | 1,5           | 37 000             | 19 100                 | 1 290                          | 13 600                  | 10 900                   |
| 44                  | 71            | 1,5           | 37 000             | 19 100                 | 1 290                          | 8 300                   | –                        |
| 44                  | 71            | 1,5           | 37 000             | 19 100                 | 1 290                          | 11 500                  | 10 900                   |
| 47                  | 73            | 1             | 31 500             | 17 800                 | 1 200                          | 13 600                  | 10 400                   |
| 47                  | 73            | 1             | 31 500             | 17 800                 | 1 200                          | 7 800                   | –                        |
| 47                  | 73            | 1             | 31 500             | 17 800                 | 1 200                          | 11 600                  | 10 400                   |
| 49                  | 81            | 1,5           | 47 000             | 25 000                 | 1 690                          | 11 800                  | 9 900                    |
| 49                  | 81            | 1,5           | 47 000             | 25 000                 | 1 690                          | 7 400                   | –                        |
| 49                  | 81            | 1,5           | 47 000             | 25 000                 | 1 690                          | 10 100                  | 9 900                    |
| 52                  | 78            | 1             | 34 000             | 20 300                 | 1 370                          | 12 700                  | 9 700                    |
| 52                  | 78            | 1             | 34 000             | 20 300                 | 1 370                          | 7 100                   | –                        |
| 52                  | 78            | 1             | 34 000             | 20 300                 | 1 370                          | 10 800                  | 9 700                    |
| 57                  | 83            | 1             | 38 000             | 23 200                 | 1 540                          | 11 700                  | 9 200                    |
| 57                  | 83            | 1             | 38 000             | 23 200                 | 1 540                          | 6 400                   | –                        |
| 57                  | 83            | 1             | 38 000             | 23 200                 | 1 540                          | 9 900                   | 9 200                    |

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