



Image may differ from product. See technical specification for details.

## S7012 CE/P4ADGA

**Matched set of two super-precision, high-speed E design, single row angular contact ball bearings with seals**

These matched sets of two super-precision, high-speed, E design, single row angular contact ball bearings with seals are available in a variety of arrangements. Compared to the equivalent SKF B design high-speed bearings, these have a slightly higher speed capability and can accommodate heavier loads.

- Very high running accuracy
- Accommodate very high speeds
- Non-contact seals
- Integral sealing prolongs bearing service life

# Overview

## Dimensions

|                  |       |
|------------------|-------|
| Bore diameter    | 60 mm |
| Outside diameter | 95 mm |
| Width            | 36 mm |
| Contact angle    | 15 °  |

## Properties

|                                              |                                                          |
|----------------------------------------------|----------------------------------------------------------|
| Contact type                                 | Normal contact (two-point contact)                       |
| Number of rows                               | 2                                                        |
| Ring type                                    | One-piece inner and outer rings                          |
| Design                                       | High-speed E                                             |
| Universal matching bearing                   | Yes, back-to-back (<>), face-to-face (><) or tandem (>>) |
| Matched arrangement                          | Universal matching                                       |
| Number of bearings in matched set            | 2                                                        |
| Matched condition (axial clearance/ preload) | Extra light preload                                      |
| Tolerance class                              | P4A                                                      |
| Material, bearing                            | Bearing steel                                            |
| Coating                                      | Without                                                  |
| Sealing                                      | Seal on both sides                                       |
| Sealing type                                 | Non-contact                                              |
| Lubricant                                    | Grease                                                   |

Indicative carbon footprint for new product

3.1 kg CO<sub>2</sub>e

## Performance

|                           |                                                                  |
|---------------------------|------------------------------------------------------------------|
| Basic dynamic load rating | 27.6 kN                                                          |
| Basic static load rating  | 25.5 kN                                                          |
| Note                      | Refer to catalogue data or contact SKF for the attainable speeds |

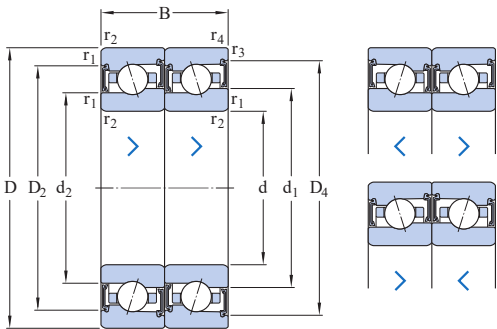
## Logistics

|                    |             |
|--------------------|-------------|
| Product net weight | 0.84 kg     |
| eClass code        | 23-05-08-04 |
| UNSPSC code        | 31171531    |

# Technical specification

Universal matching bearing(s)

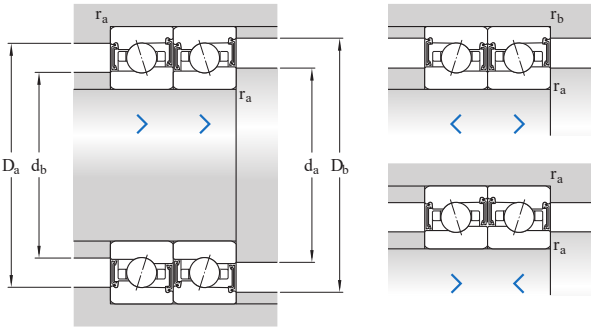
Yes, back-to-back (<>), face-to-face (><) or tandem (>>)



## Dimensions

|   |       |                  |
|---|-------|------------------|
| d | 60 mm | Bore diameter    |
| D | 95 mm | Outside diameter |
| B | 36 mm | Width            |

|           |             |                                                       |
|-----------|-------------|-------------------------------------------------------|
| $d_1$     | 72.74 mm    | Shoulder diameter of inner ring (large side face)     |
| $d_2$     | 70.6 mm     | Shoulder diameter of inner ring (small side face)     |
| $D_2$     | 85.4 mm     | Recess diameter of outer ring (large side face)       |
| $D_4$     | 87.8 mm     | Recess diameter outer ring shoulder (small side face) |
| $r_{1,2}$ | min. 1.1 mm | Chamfer dimension                                     |
| $r_{3,4}$ | min. 0.6 mm | Chamfer dimension                                     |



### Abutment dimensions

|       |              |                              |
|-------|--------------|------------------------------|
| $d_a$ | min. 66 mm   | Diameter of shaft abutment   |
| $d_a$ | max. 72.1 mm | Diameter of shaft abutment   |
| $d_b$ | min. 66 mm   | Diameter of shaft abutment   |
| $d_b$ | max. 70 mm   | Diameter of shaft abutment   |
| $D_a$ | max. 89 mm   | Diameter of housing abutment |
| $D_b$ | max. 90.8 mm | Diameter of housing abutment |
| $r_a$ | max. 1 mm    | Radius of fillet             |
| $r_b$ | max. 0.6 mm  | Radius of fillet             |

### Calculation data

|                                          |                                                                                     |         |
|------------------------------------------|-------------------------------------------------------------------------------------|---------|
| Basic dynamic load rating                | C                                                                                   | 27.6 kN |
| Basic static load rating                 | $C_0$                                                                               | 25.5 kN |
| Fatigue load limit                       | $P_u$                                                                               | 1.08 kN |
| Attainable speed for grease lubrication  | To be calculated: Single bearing (20000) x speed reduction factor (see table below) |         |
| Attainable speed for oil-air lubrication | To be calculated: Single bearing () x speed                                         |         |

|                               |          | reduction factor (see table below) |
|-------------------------------|----------|------------------------------------|
| Contact angle                 | $\alpha$ | 15 °                               |
| Ball diameter                 | $D_w$    | 7.938 mm                           |
| Number of rows                | $i$      | 2                                  |
| Number of balls (per bearing) | $z$      | 25                                 |

## PRELOAD AND STIFFNESS (BACK-TO-BACK, FACE-TO-FACE)

|                 |   |               |
|-----------------|---|---------------|
| Preload class   |   | A             |
| Preload         | G | 92 N          |
| Axial stiffness |   | 48 N/ $\mu$ m |

## CORRECTION FACTORS FOR PRELOAD CALCULATION

|                                                        |          |     |
|--------------------------------------------------------|----------|-----|
| Correction factor dependent on bearing series and size | $f$      | 1.1 |
| Correction factor dependent on contact angle           | $f_1$    | 1   |
| Correction factor, preload class A                     | $f_{2A}$ | 1   |
| Correction factor for hybrid bearings                  | $f_{HC}$ | 1   |

## FACTORS FOR EQUIVALENT BEARING LOAD CALCULATION

|                                         |       |     |
|-----------------------------------------|-------|-----|
| Calculation factor for equivalent loads | $f_0$ | 8.5 |
|-----------------------------------------|-------|-----|

## Tolerances and clearances

### GENERAL BEARING SPECIFICATIONS

- [Tolerances: P4A, P4B, P4, PA9A, P2](#)

## PRINCIPLES OF BEARING SELECTION AND APPLICATION

- [Chamfer dimensions](#)
- [Seat tolerances for standard conditions: shafts, housings](#)
- Values for ISO tolerance classes: [shafts](#), [housings](#)

- Speed dependent initial grease fill → [Initial grease fill](#)
- Clamping and fitting forces: [D design](#), [E design](#), [B design](#)
- Designation suffixes H, H1, L and L1 identify variants for [direct oil-air lubrication](#).

## FACTORS FOR EQUIVALENT BEARING LOAD CALCULATION

- Note 1: [Single bearings and bearings arranged in tandem](#)
- Note 2: [Bearings paired back-to-back or face-to-face](#)

SPEED REDUCTION FACTORS FOR SPEED CALCULATION

| Number of bearings | Arrangement             | Designation suffix | Speed reduction factors         |      |      |      |      |      |          |     |      |                      |      |  |
|--------------------|-------------------------|--------------------|---------------------------------|------|------|------|------|------|----------|-----|------|----------------------|------|--|
|                    |                         |                    | for bearings in the series      |      |      |      |      |      |          |     |      |                      |      |  |
|                    |                         |                    | for matched sets                |      |      |      |      |      |          |     |      |                      |      |  |
|                    |                         |                    | 718 .. D, 719 .. E, and 70 .. E |      |      |      |      |      | S70 .. W |     |      | 719 .. A and 70 .. A |      |  |
| for preload class  |                         |                    |                                 |      |      |      |      |      |          |     |      | for preload class    |      |  |
|                    |                         |                    | A                               | L    | B    | M    | C    | F    | –        | –   | A    | B                    | C    |  |
| 2                  | Back-to-back            | DB                 | 0,8                             | –    | 0,65 | –    | 0,4  | –    | 0,81     | 0,8 | 0,83 | 0,78                 | 0,74 |  |
|                    | Face-to-face            | DF                 | 0,77                            | –    | 0,61 | –    | 0,36 | –    | –        | –   | 0,8  | 0,74                 | 0,66 |  |
| 3                  | Back-to-back and tandem | TBT                | 0,69                            | 0,72 | 0,49 | 0,58 | 0,25 | 0,36 | –        | –   | 0,72 | 0,66                 | 0,56 |  |
|                    | Face-to-face and tandem | TFT                | 0,63                            | 0,66 | 0,42 | 0,49 | 0,17 | 0,24 | –        | –   | 0,64 | 0,56                 | 0,46 |  |
| 4                  | Tandem back-to-back     | QBC                | 0,64                            | –    | 0,53 | –    | 0,32 | –    | –        | –   | 0,67 | 0,64                 | 0,56 |  |
|                    | Tandem face-to-face     | QFC                | 0,62                            | –    | 0,48 | –    | 0,27 | –    | –        | –   | 0,64 | 0,6                  | 0,5  |  |

For spring-loaded tandem sets, designation suffix DT, a speed reduction factor of 0,9 should be applied.

Compatible products

Aftermarket replacement

|                                                                                                                 |                                                                              |
|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Super-precision, high speed, E design, universally matchable single row angular contact ball bearing with seals | <a href="#">2 x S7012 CEGA/P4A</a><br><i>Verify quantity of bearing rows</i> |
|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|

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