

## 71916 ACE/P4A

Angular contact ball bearings,  
super-precision

### Product details

[Tolerances,](#)

P4A, P4B, P4, PA9A, P2, D design,

E design, B design,

[direct oil-air lubrication](#)

### Principles of bearing

selection and application

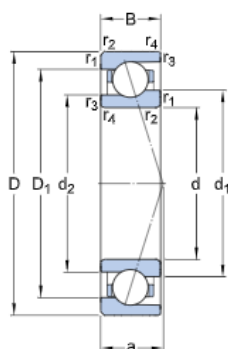
[Chamfer dimensions,](#)

[Seat tolerances for standard conditions,](#)

shafts, housings, shafts, housings,

[Initial grease fill](#)

## Technical specification

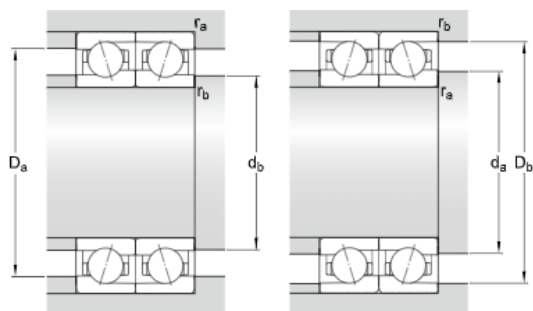


### DIMENSIONS

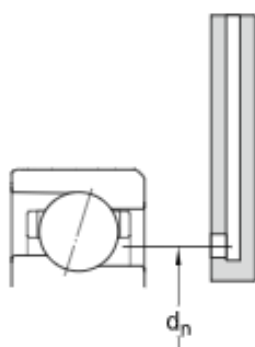
|                  |             |
|------------------|-------------|
| d                | 80 mm       |
| D                | 110 mm      |
| B                | 16 mm       |
| d <sub>1</sub>   | 89.3 mm     |
| d <sub>2</sub>   | 86.8 mm     |
| D <sub>1</sub>   | 100.52 mm   |
| r <sub>1,2</sub> | min. 1 mm   |
| r <sub>3,4</sub> | min. 0.3 mm |
| a                | 32 mm       |

### ABUTMENT DIMENSIONS

|                |               |
|----------------|---------------|
| d <sub>a</sub> | min. 84.6 mm  |
| d <sub>b</sub> | min. 82 mm    |
| D <sub>a</sub> | max. 105.4 mm |
| D <sub>b</sub> | max. 108 mm   |



|       |             |
|-------|-------------|
| $r_a$ | max. 1 mm   |
| $r_b$ | max. 0.3 mm |
| $d_n$ | 91.5 mm     |



## CALCULATION DATA

|                                          |           |             |
|------------------------------------------|-----------|-------------|
| Basic dynamic load rating                | $C$       | 21.2 kN     |
| Basic static load rating                 | $C_0$     | 17 kN       |
| Fatigue load limit                       | $P_u$     | 0.71 kN     |
| Attainable speed for grease lubrication  |           | 14500 r/min |
| Attainable speed for oil-air lubrication |           | 22000 r/min |
| Contact angle                            | $\alpha$  | 25 °        |
| Ball diameter                            | $D_w$     | 9.525 mm    |
| Number of balls                          | $z$       | 24          |
| Reference grease quantity                | $G_{ref}$ | 4.8 cm      |

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

|                 |       |       |
|-----------------|-------|-------|
| Preload class A | $G_A$ | 195 N |
|-----------------|-------|-------|

|                                         |       |          |
|-----------------------------------------|-------|----------|
| Static axial stiffness, preload class A |       | 141 N/μm |
| Preload class B                         | $G_B$ | 590 N    |
| Static axial stiffness, preload class B |       | 214 N/μm |
| Preload class C                         | $G_C$ | 1170 N   |
| Static axial stiffness, preload class C |       | 281 N/μm |

## CALCULATION FACTORS

|                                                 |          |      |
|-------------------------------------------------|----------|------|
| Calculation factor                              | $f$      | 1.19 |
| Calculation factor                              | $f_1$    | 0.99 |
| Calculation factor                              | $f_{2A}$ | 1    |
| Calculation factor                              | $f_{2B}$ | 1.04 |
| Calculation factor                              | $f_{2C}$ | 1.07 |
| Calculation factor                              | $f_{HC}$ | 1    |
| Calculation factor                              | $e$      | 0.68 |
| Calculation factor (single, tandem)             | $Y_2$    | 0.87 |
| Calculation factor (single, tandem)             | $Y_0$    | 0.38 |
| Calculation factor (single, tandem)             | $X_2$    | 0.41 |
| Calculation factor (back-to-back, face-to-face) | $Y_1$    | 0.92 |
| Calculation factor (back-to-back, face-to-face) | $Y_2$    | 1.41 |
| Calculation factor (back-to-back, face-to-face) | $Y_0$    | 0.76 |
| Calculation factor (back-to-back, face-to-face) | $X_2$    | 0.67 |

## MASS

|              |         |
|--------------|---------|
| Mass bearing | 0.36 kg |
|--------------|---------|

## More information

| Product details                                       | Engineering information                                         | Tools                                      |
|-------------------------------------------------------|-----------------------------------------------------------------|--------------------------------------------|
| <a href="#">Designs and variants</a>                  | <a href="#">Principles of bearing selection and application</a> | <a href="#">SimPro Quick</a>               |
| <a href="#">Markings on bearings and bearing sets</a> | <a href="#">General bearing knowledge</a>                       | <a href="#">SimPro Spindle</a>             |
| <a href="#">Bearing data</a>                          | <a href="#">Bearing selection process</a>                       | <a href="#">Engineering Calculator</a>     |
| <a href="#">Preload, clearance, and stiffness</a>     | <a href="#">Bearing failure and how to prevent it</a>           | <a href="#">LubeSelect for SKF greases</a> |
| <a href="#">Loads</a>                                 |                                                                 | <a href="#">Heater selection tool</a>      |
| <a href="#">Attainable speeds</a>                     |                                                                 |                                            |
| <a href="#">Mounting</a>                              |                                                                 |                                            |
| <a href="#">Designation system</a>                    |                                                                 |                                            |

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