

2.4 40° Angular Contact Ball Bearings

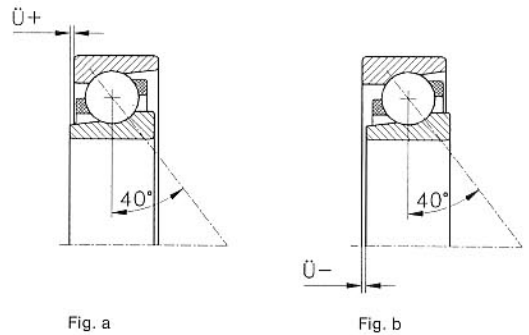
IBC 40° single row angular contact ball bearings are especially suitable for accommodation of combined loads e.g. simultaneously axial and radial loads. A radial load induces also an axial load which must be counteracted by a second bearing.

Dimensions

Primary dimensions according DIN 616, ISO 15 series 72 and 73.

Axial clearance / preload

Different classes of axial clearance UA, UB (Fig. a) (approx. free of clearance and preload) to UL (with preload) (Fig. b) are defined in table 8.12.



Universal faced bearings for mounting in sets.

| Bore code | | Series | UA | | UB | | UO | | | UL | | | |
|-----------|-----|--------|------|-----|------|-----|------|-----|-----|------|-----|-----|------|
| | | | min | max | min | max | min | max | max | min | max | min | max |
| über | bis | | [μm] | | [μm] | | [μm] | | [N] | [μm] | | [N] | |
| 10 | 18 | 72 | 20 | 30 | 15 | 23 | +4 | -4 | 80 | -2 | -10 | 30 | 350 |
| | | 73 | 25 | 35 | 17 | 25 | +5 | -4 | 90 | -1 | -10 | 25 | 370 |
| 18 | 30 | 72 | 28 | 38 | 18 | 26 | +4 | -4 | 110 | -3 | -11 | 50 | 490 |
| | | 73 | 32 | 42 | 20 | 28 | +5 | -4 | 130 | -2 | -11 | 40 | 500 |
| 30 | 50 | 72 | 38 | 48 | 22 | 30 | +4 | -4 | 150 | -3 | -12 | 100 | 740 |
| | | 73 | 42 | 52 | 24 | 34 | +5 | -4 | 160 | -2 | -12 | 80 | 780 |
| 50 | 80 | 72 | 44 | 56 | 26 | 38 | +5 | -5 | 370 | -3 | -15 | 150 | 1500 |
| | | 73 | 50 | 62 | 29 | 42 | +6 | -5 | 390 | -2 | -15 | 140 | 1600 |
| 80 | 120 | 72 | 52 | 64 | 32 | 45 | +6 | -6 | 400 | -4 | -16 | 200 | 1600 |
| | | 73 | 60 | 72 | 34 | 50 | +7 | -6 | 420 | -3 | -16 | 180 | 1700 |
| 120 | 180 | 72 | 58 | 70 | 35 | 48 | +6 | -6 | 530 | -4 | -16 | 250 | 2300 |
| | | 73 | 66 | 78 | 40 | 55 | +7 | -6 | 550 | -3 | -16 | 250 | 2400 |
| 180 | 250 | 72 | 65 | 80 | 45 | 60 | +7 | -7 | 860 | -5 | -22 | 360 | 3900 |
| | | 73 | 75 | 90 | 50 | 65 | +8 | -7 | 880 | -4 | -22 | 350 | 4000 |

Table 8.12: Axial clearance, preload of 40° angular contact ball bearings – IBC standard

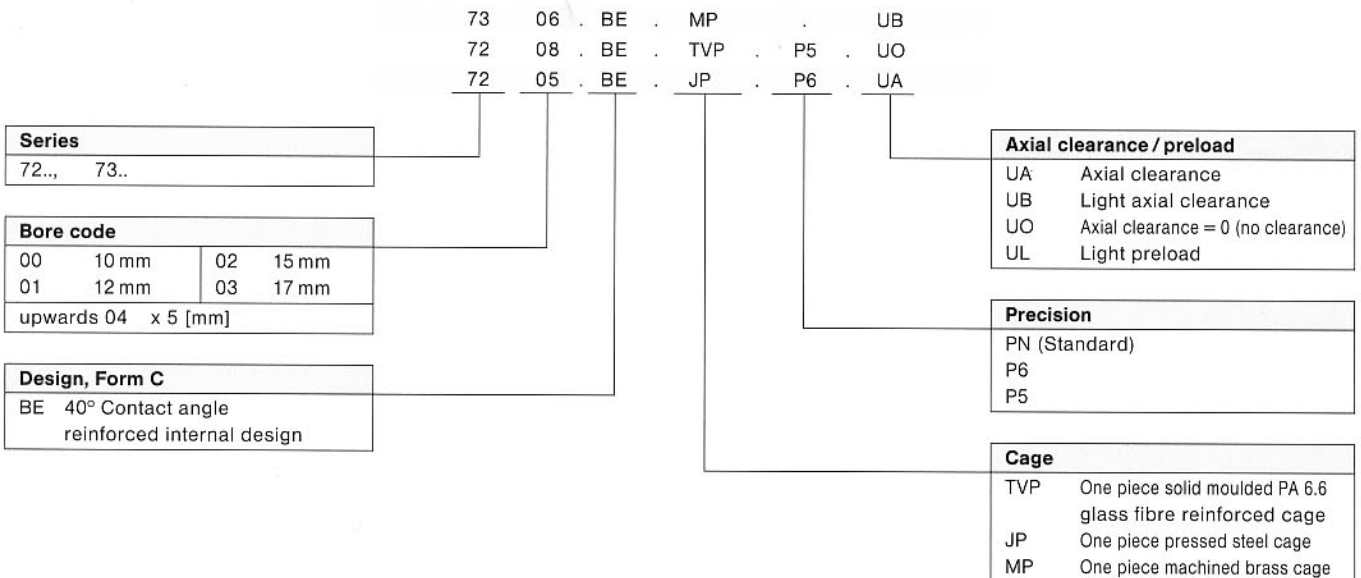
Remarks: Negative prefix „-“ marks preload, figure b

Radial clearance = appr. 0,85 axial clearance

Cages: Cages made of glassfibre reinforced polyamide PA 6.6; allowable temperature of -20° to 120 °C. Also, available are pressed steel and brass cages and solid machined brass cages.

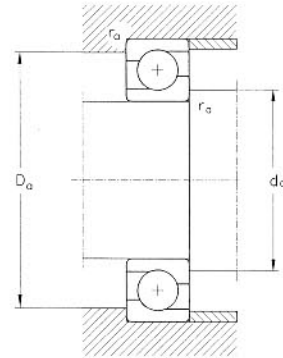
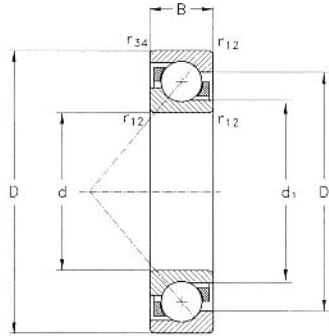
Precision grade: Class PN, P6 and P5 are available.

Standard versions: P6.UA
P5.UO
P5.UL



40° Angular Contact Ball Bearings

72.. BE..
73.. BE..



| Primary dimensions | | | Basic bearing number | Abutment and fillet dimensions | | | | | | | | Basic load ratings | | Limiting speeds | | Weight kg |
|--------------------|-----|----|----------------------|--------------------------------|---------------------|----------------|----------------|----|--------------------|--------------------|--------------------|--------------------|----------------|----------------------|-------------------|-----------|
| d | D | B | | r ₁₂ min | r ₃₄ min | d ₁ | D ₁ | a | d _a min | D _a max | r _a max | C | C ₀ | n _{bGrease} | n _{bOil} | |
| mm | | | | mm | | | | | | | | N | | min ⁻¹ | | |
| 10 | 30 | 9 | 7200 BE | 0,6 | 0,3 | 18,2 | 23,1 | 13 | 15 | 25 | 0,6 | 7020 | 3350 | 19000 | 28000 | 0,030 |
| 12 | 32 | 10 | 7201 BE | 0,6 | 0,3 | 20,2 | 25,1 | 14 | 17 | 27 | 0,6 | 7610 | 3800 | 18000 | 26000 | 0,036 |
| 15 | 35 | 11 | 7202 BE | 0,6 | 0,3 | 22,7 | 28,0 | 16 | 20 | 30 | 0,6 | 8840 | 4800 | 17000 | 24000 | 0,045 |
| 17 | 40 | 12 | 7203 BE | 1,0 | 0,6 | 25,9 | 31,9 | 18 | 22 | 35 | 0,6 | 11100 | 6100 | 15000 | 20000 | 0,065 |
| 20 | 47 | 14 | 7204 BE | 1,0 | 0,6 | 30,7 | 37,2 | 21 | 26 | 41 | 1,0 | 14000 | 8300 | 12000 | 17000 | 0,110 |
| 20 | 52 | 15 | 7304 BE | 1,1 | 0,6 | 32,9 | 41,0 | 23 | 27 | 45 | 1,0 | 19000 | 10400 | 11000 | 16000 | 0,140 |
| 25 | 52 | 15 | 7205 BE | 1,0 | 0,6 | 35,7 | 42,2 | 24 | 31 | 46 | 1,0 | 15600 | 10200 | 10000 | 15000 | 0,130 |
| 25 | 62 | 17 | 7305 BE | 1,1 | 0,6 | 39,4 | 48,9 | 27 | 32 | 55 | 1,0 | 26000 | 15600 | 9000 | 13000 | 0,230 |
| 30 | 62 | 16 | 7206 BE | 1,1 | 0,6 | 42,3 | 50,8 | 27 | 36 | 56 | 1,0 | 23800 | 15600 | 8500 | 12000 | 0,200 |
| 30 | 72 | 19 | 7306 BE | 1,1 | 0,6 | 46,2 | 57,3 | 31 | 37 | 65 | 1,0 | 34500 | 21200 | 8000 | 11000 | 0,340 |
| 35 | 72 | 17 | 7207 BE | 1,1 | 0,6 | 49,3 | 59,0 | 31 | 42 | 65 | 1,0 | 30700 | 20800 | 8000 | 11000 | 0,280 |
| 35 | 80 | 21 | 7307 BE | 1,5 | 1,0 | 52,4 | 64,2 | 35 | 44 | 71 | 1,5 | 39000 | 24500 | 7500 | 10000 | 0,450 |
| 40 | 80 | 18 | 7208 BE | 1,1 | 0,6 | 55,9 | 66,3 | 34 | 47 | 73 | 1,0 | 36400 | 26000 | 7000 | 9500 | 0,370 |
| 40 | 90 | 23 | 7308 BE | 1,5 | 1,0 | 59,4 | 72,4 | 39 | 49 | 81 | 1,5 | 49400 | 33500 | 6700 | 9000 | 0,630 |
| 45 | 85 | 19 | 7209 BE | 1,1 | 0,6 | 60,5 | 70,9 | 37 | 52 | 78 | 1,0 | 37700 | 28000 | 6700 | 9000 | 0,420 |
| 45 | 100 | 25 | 7309 BE | 1,5 | 1,0 | 66,3 | 80,7 | 43 | 54 | 91 | 1,5 | 60500 | 41500 | 6000 | 8000 | 0,850 |
| 50 | 90 | 20 | 7210 BE | 1,5 | 1,0 | 65,5 | 75,9 | 39 | 57 | 83 | 1,0 | 39000 | 30500 | 6000 | 8000 | 0,470 |
| 50 | 110 | 27 | 7310 BE | 2,0 | 1,0 | 73,5 | 89,7 | 47 | 60 | 100 | 2,0 | 74100 | 51000 | 5300 | 7000 | 1,100 |
| 55 | 100 | 21 | 7211 BE | 1,5 | 1,0 | 72,4 | 84,1 | 43 | 64 | 91 | 1,5 | 48800 | 38000 | 5600 | 7500 | 0,620 |
| 55 | 120 | 29 | 7311 BE | 2,0 | 1,0 | 80,0 | 97,6 | 51 | 65 | 110 | 2,0 | 85200 | 60000 | 4800 | 6300 | 1,400 |
| 60 | 110 | 22 | 7212 BE | 1,5 | 1,0 | 79,3 | 92,5 | 47 | 69 | 101 | 1,5 | 57200 | 45500 | 5000 | 6700 | 0,800 |
| 60 | 130 | 31 | 7312 BE | 2,1 | 1,1 | 87,0 | 106,0 | 55 | 72 | 118 | 2,0 | 95600 | 69500 | 4500 | 6000 | 1,750 |
| 65 | 120 | 23 | 7213 BE | 1,5 | 1,0 | 86,3 | 101,0 | 50 | 74 | 111 | 1,5 | 66300 | 54000 | 4500 | 6000 | 1,000 |
| 65 | 140 | 33 | 7313 BE | 2,1 | 1,1 | 93,8 | 114,0 | 60 | 77 | 128 | 2,0 | 108000 | 80000 | 4300 | 5600 | 2,150 |
| 70 | 125 | 24 | 7214 BE | 1,5 | 1,0 | 91,3 | 106,0 | 53 | 79 | 116 | 1,5 | 71500 | 60000 | 4300 | 5600 | 1,100 |
| 70 | 150 | 35 | 7314 BE | 2,1 | 1,1 | 100,0 | 123,0 | 64 | 82 | 138 | 2,0 | 119000 | 90000 | 3800 | 5000 | 2,650 |
| 75 | 130 | 25 | 7215 BE | 1,5 | 1,0 | 96,5 | 111,0 | 56 | 84 | 121 | 1,5 | 72800 | 64000 | 4300 | 5600 | 1,200 |
| 75 | 160 | 37 | 7315 BE | 2,1 | 1,1 | 108,0 | 130,0 | 68 | 87 | 178 | 2,0 | 133000 | 106000 | 3600 | 4800 | 3,200 |