

7. Super Precision Bearing Units with 60° Angular Contact Thrust Ball Bearings and Floating End Supporting Units

The applications of the IBC precision ball screw support bearing units are manufactured for machine tools, robots, cutting machines, wood working machines, printing machines, control systems, aero space and medical equipment.

Dimensions and design

IBC precision units are designed as flange cartridge units BSBU and pillow blocks BSPB and as fixed units for preloading as well as floating end units BLBU and floating pillow block units BLPB to support the ball screw. Fixed units are also mounted at both ends to stretch the ball screw.

Precision units BNBU for mounting on the rotating ball screw nut are also manufactured.

The dimensional design of the units are modular and each housing can be supplied with different bore dimensions. That allows a change to different ball screw shaft diameter without changing any dimensions at the counter part of machine.

The BSBU-M and BSPB-M units are supplied with an integrated sealed locknut of MMRS series for preloading the unit.

Fixed end units and floating end units are dimensioned to similar fitting dimensions.

Stiffness and preload

Stiffness and preloads are similar to the bearings size and preload mounted in the unit.

Lubrication

IBC units are greased with BearLub GH62 for life time.

Cartridge units BSBU

Cartridge units are designed to provide the machine manufacturer with a ready made unit for excellent accuracy and rigidity.

The cartridge unit incorporates a flange that can be bolted to any flat surface or can be centered in a bore. Traditionally 60° ball screw support units were mounted as figure a) but cartridge units can be mounted as figures b) or c).

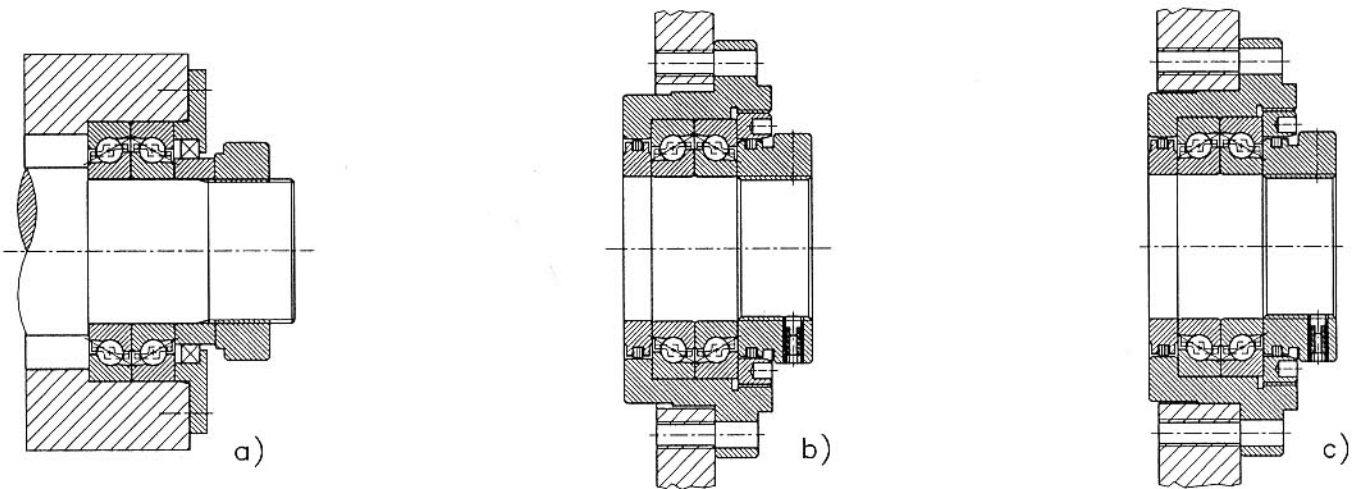


Fig. 9.1 shows the varieties of mountings.

Pillow block units BSPB

The pillow block units are similar to that of the cartridge series but they are designed to be bolted down on flat surfaces which is parallel to the ball screw access. It permits easier adjustment of alignments of the shims.

The mounting of BSPB units is easy and fast and can be used with a floating bearing unit of the BLPB series.

The abutment dimensions of BSPB, BSPB-M and BLPB series are similar to provide an accurate fixing with shims.

Cartridge Adapter Units

Cartridge adapter units BNBU and BNPB

Especially for long ballscrews it is an advantage to drive the nut for its less accelerated mass.

IBC offers special ready-to-mount units of the series BNBU and BNPB with adapter sleeves for the hole patterns acc. to DIN 69 051.

With this arrangement the ballscrew can be easily stretched without transferring those stretching loads in the bearings. The stretching is often done to compensate elongation when the spindle warms up. Technical support and further information will be provided by the IBC technical department.

Design

According to the needs regarding stiffness, speed and max. drag torque units can be chosen of light (L), medium (M) or heavy (H) preload.

Units for dominating loads in one direction

Bearings at vertical or declined axis often have to support a non-neglectable, often dominating load of the table acting, because of its inertia, basically in one direction. In this case a bearing arrangement 3 : 1 with the suffix QBT before the preload should be chosen (Fig. 9.2).

Designation

The complete designation combines the basic one in the data tables and suffixes as stated below for flange form, bearing arrangement and preload.

For new developments the execution with integrated locknut should be preferred.

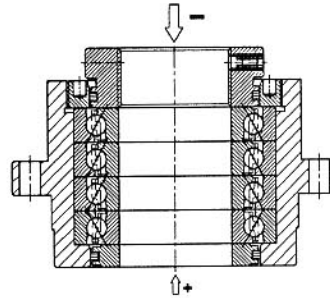


Fig. 9.2: BSBU-M40Q124 QBTM with arrangement $\emptyset \emptyset \emptyset$

7.1 Designation of IBC Super Precision Bearing Units for Ballscrews

| | | | | | | | | |
|----|----|----|----|---|-----|-----|-----|-------|
| BS | BU | -M | 25 | D | 80 | | | M |
| BS | BU | -M | 40 | Q | 124 | | QBT | M |
| BS | PB | | 30 | Q | 50 | | | L |
| BN | BU | | 63 | Q | 130 | B 2 | | L -M2 |
| BN | PB | | 95 | D | 105 | 2 | | M -M2 |
| BL | PB | | 20 | N | 32 | 2RS | | |

| Bearing units for ballscrews | |
|------------------------------|----------------------------|
| BS | Fixed end units for screws |
| BN | Fixed end units for nuts |
| BL | Floating end units |

| Execution | |
|-----------|--------------|
| BU | Flange unit |
| PB | Pillow block |

| Integrated locknut | |
|--------------------|---------------------------|
| M | Integrated |
| - | Order nut MMRB separately |

| Inner diameter [mm] | |
|---------------------|--|
| | |

| Arrangement | |
|-------------|-------------------------------------|
| D | Duplex set in O-, DB |
| Q | Quadruplex in QB |
| N | Needle bearing in floating end unit |

| Main reference dimension | |
|--------------------------|-------------------------------|
| | Seat diameter of flange |
| | Centre height of pillow block |

| Arrangement adapter for BN..-units | |
|------------------------------------|----|
| | M2 |
| | M1 |

| Bearing preload | |
|-----------------|--------|
| L | Light |
| M | Medium |
| H | Heavy |

| Bearing arrangement | |
|---------------------|--------------|
| DB, QB | Not stated |
| QBT | See fig. 9.2 |

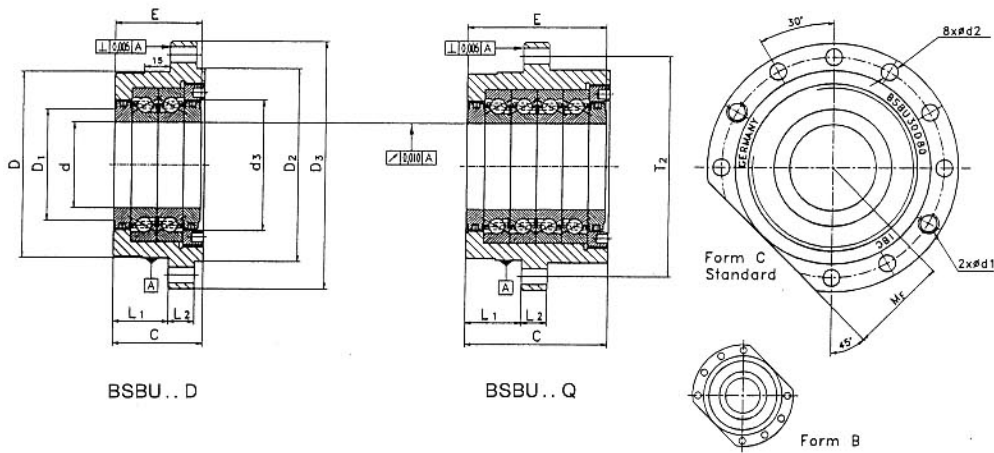
| Adapter hole pattern (DIN 69051) | |
|----------------------------------|--------------------|
| 1 | Hole pattern no. 1 |
| 2 | Hole pattern no. 2 |

| Flange form | |
|-------------|-----------------------|
| C | Standard; |
| | one side flat |
| B | 2 opposite sides flat |

| Sealing | |
|---------|--|
| 2RS | Touching seals for floating end units only |
| - | Labyrinth seal |

Nicht alle Kombinationen sind vorgesehen

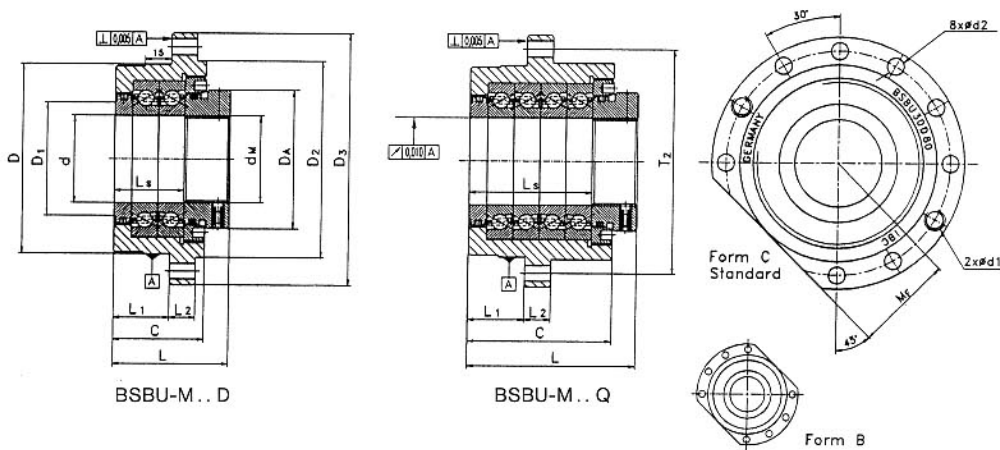
7.2 Super Precision Cartridge Bearing Units for supporting fixed end ballscrew shafts



| Shaft mm | Unit | d | D | M _F | C | E | d ₁ | d ₂ | d ₃ | D ₁ | D ₂ | D ₃ | Weight kg | | | | | | |
|----------------------------------|---------------|----|-----|----------------|--------------|-----|----------------|----------------|----------------|----------------|----------------|----------------|--------------|-----|----|----|----|-----|-----|
| | | mm | | | | | | | | | | | | | | | | | |
| Medium Series | | | | | | | | | | | | | | | | | | | |
| 17 | BSBU 17 D 60 | 17 | 60 | 32 | 47 | 44 | M8 | 6,6 | 36 | 26 | 64 | 90 | 1,1 | | | | | | |
| | BSBU 17 Q 60 | | | | 77 | 74 | | | | | | | 1,7 | | | | | | |
| 20 | BSBU 20 D 60 | 20 | 60 | 32 | 47 | 44 | M8 | 6,6 | 36 | 26 | 64 | 90 | 1,1 | | | | | | |
| | BSBU 20 Q 60 | | | | 77 | 74 | | | | | | | 1,7 | | | | | | |
| 25 | BSBU 25 D 80 | 25 | 80 | 44 | 52 | 50 | M12 | 9,2 | 50 | 40 | 88 | 120 | 2,3 | | | | | | |
| | BSBU 25 Q 80 | | | | 82 | 80 | | | | | | | 3,5 | | | | | | |
| 30 | BSBU 30 D 80 | 30 | 80 | 44 | 52 | 50 | M12 | 9,2 | 50 | 40 | 88 | 120 | 2,2 | | | | | | |
| | | | | | BSBU 30 Q 80 | 82 | | | | | | | 80 | 3,4 | | | | | |
| | BSBU 30 D 90 | | | | 90 | 49 | | | | | | | 52 | 50 | 60 | 46 | 98 | 130 | 3,3 |
| | | | | | | | | | | | | | BSBU 30 Q 90 | 82 | | | | | 80 |
| 35 | BSBU 35 D 90 | 35 | 90 | 49 | 52 | 50 | M12 | 9,2 | 50 | 40 | 88 | 120 | 3,2 | | | | | | |
| | BSBU 35 Q 90 | | | | 82 | 80 | | | | | | | 4,6 | | | | | | |
| 40 | BSBU 40 D 90 | 40 | 90 | 49 | 52 | 50 | M12 | 9,2 | 50 | 40 | 88 | 120 | 3,1 | | | | | | |
| | BSBU 40 Q 90 | | | | 82 | 80 | | | | | | | 4,5 | | | | | | |
| 45 | BSBU 45 D 92 | 45 | 92 | 49 | 52 | 50 | M12 | 9,2 | 50 | 40 | 88 | 120 | 3,8 | | | | | | |
| | BSBU 45 Q 92 | | | | 82 | 80 | | | | | | | 4,6 | | | | | | |
| 55 | BSBU 55 D 110 | 55 | 110 | 56,5 | 52 | 50 | M12 | 9,2 | 50 | 40 | 88 | 120 | 3,4 | | | | | | |
| | BSBU 55 Q 110 | | | | 82 | 80 | | | | | | | 5,1 | | | | | | |
| 75 | BSBU 75 D 130 | 75 | 130 | 69 | 54 | 50 | M12 | 9,2 | 50 | 40 | 88 | 120 | 4,1 | | | | | | |
| | BSBU 75 Q 130 | | | | 84 | 80 | | | | | | | 6,3 | | | | | | |
| Heavy Series | | | | | | | | | | | | | | | | | | | |
| 35 | BSBU 35 D 124 | 35 | 124 | 64 | 66 | 64 | M14 | 11,4 | 76 | 66 | 128 | 165 | 6,3 | | | | | | |
| | BSBU 35 Q 124 | | | | 106 | 104 | | | | | | | 10,1 | | | | | | |
| 40 | BSBU 40 D 124 | 40 | 124 | 64 | 66 | 64 | M14 | 11,4 | 76 | 66 | 128 | 165 | 6,1 | | | | | | |
| | BSBU 40 Q 124 | | | | 106 | 104 | | | | | | | 9,7 | | | | | | |
| 45 | BSBU 45 D 124 | 45 | 124 | 64 | 66 | 64 | M14 | 11,4 | 76 | 66 | 128 | 165 | 6,0 | | | | | | |
| | BSBU 45 Q 124 | | | | 106 | 104 | | | | | | | 9,5 | | | | | | |
| 50 | BSBU 50 D 124 | 50 | 124 | 64 | 66 | 64 | M14 | 11,4 | 76 | 66 | 128 | 165 | 5,9 | | | | | | |
| | BSBU 50 Q 124 | | | | 106 | 104 | | | | | | | 9,3 | | | | | | |
| 55 | BSBU 55 D 144 | 55 | 144 | 74 | 66 | 64 | M14 | 11,4 | 76 | 66 | 128 | 165 | 8,2 | | | | | | |
| | BSBU 55 Q 144 | | | | 106 | 104 | | | | | | | 12,9 | | | | | | |
| 60 | BSBU 60 D 144 | 60 | 144 | 74 | 66 | 64 | M14 | 11,4 | 76 | 66 | 128 | 165 | 7,9 | | | | | | |
| | BSBU 60 Q 144 | | | | 106 | 104 | | | | | | | 12,5 | | | | | | |
| Tolerances | | | | | d | | D | | E (Duplex) | | E (Quad) | | | | | | | | |
| BSBU 17 D/Q 60 – BSBU 30 D/Q 80 | | | | | 0 / -0,005 | | 0 / -0,013 | | 0 / -1,02 | | 0 / -1,52 | | | | | | | | |
| BSBU 30 D/Q 90 – BSBU 45 D/Q 92 | | | | | 0 / -0,005 | | 0 / -0,015 | | 0 / -1,02 | | 0 / -1,52 | | | | | | | | |
| BSBU 55 D/Q 110 – BSBU 60 D/Q 80 | | | | | 0 / -0,005 | | 0 / -0,018 | | 0 / -1,02 | | 0 / -1,52 | | | | | | | | |

Recommended locknuts series MMRB, see page 50.

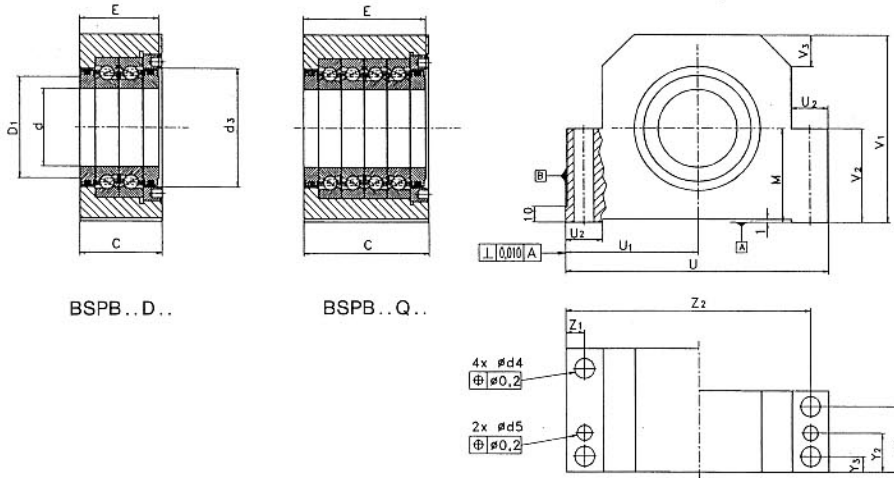
... with integrated locknuts for supporting fixed end ballscrew shafts



| T ₂ | L ₁ | L ₂ | D _A | L _s | L | Integrated nut | Unit | Shaft mm | | | |
|----------------------|----------------|----------------|----------------|----------------|----|----------------|----------------|-------------|-----------------|----------------|----|
| mm | | | | | | | | | | | |
| Medium Series | | | | | | | | | | | |
| 76 | 32 | 13 | 38 | 37 | 57 | MMRS 17-36 | BSBU-M 17 D 60 | 17 | | | |
| | | | | 67 | 87 | | BSBU-M 17 Q 60 | | | | |
| | | | | 102 | 15 | 58 | 37 | 57 | MMRS 20-36 | BSBU-M 20 D 60 | 20 |
| | | | | | | | 67 | 87 | | BSBU-M 20 Q 60 | |
| 113 | 70 | 40 | 65 | | | | 65 | MMRS 25-50 | BSBU-M 25 D 80 | 25 | |
| | | | 70 | | | | 95 | | BSBU-M 25 Q 80 | | |
| | | | 129 | 80 | 40 | 65 | 65 | MMRS 30-50 | BSBU-M 30 D 80 | 30 | |
| | | | | | | 70 | 95 | | BSBU-M 30 Q 80 | | |
| 154 | 105 | 40 | | | | 68 | 68 | MMRS 30-60 | BSBU-M 30 D 90 | 35 | |
| | | | | | | 70 | 98 | | BSBU-M 30 Q 90 | | |
| | | | 166 | 105 | 40 | 68 | 68 | MMRS 35-60 | BSBU-M 35 D 90 | 40 | |
| | | | | | | 70 | 98 | | BSBU-M 35 Q 90 | | |
| 176 | 105 | 40 | | | | 68 | 68 | MMRS 40-60 | BSBU-M 40 D 90 | 45 | |
| | | | | | | 70 | 98 | | BSBU-M 40 Q 90 | | |
| | | | 186 | 105 | 40 | 68 | 68 | MMRS 45-60 | BSBU-M 45 D 92 | 55 | |
| | | | | | | 70 | 98 | | BSBU-M 45 Q 92 | | |
| 196 | 105 | 40 | | | | 70 | 70 | MMRS 55-76 | BSBU-M 55 D 110 | 75 | |
| | | | | | | 70 | 100 | | BSBU-M 55 Q 110 | | |
| | | | 206 | 105 | 40 | 70 | 70 | MMRS 75-99 | BSBU-M 75 D 130 | 75 | |
| | | | | | | 70 | 100 | | BSBU-M 75 Q 130 | | |

| | | | | | | | | | | | |
|---------------------|------|----|-----|-----|-----|------------|-----------------|------------|-----------------|-----------------|----|
| Heavy Series | | | | | | | | | | | |
| 146 | 43,5 | 17 | 80 | 54 | 82 | MMRS 35-76 | BSBU-M 35 D 124 | 35 | | | |
| | | | | 94 | 122 | | BSBU-M 35 Q 124 | | | | |
| | | | | 166 | 105 | 54 | 82 | 82 | MMRS 40-76 | BSBU-M 40 D 124 | 40 |
| | | | | | | | 94 | 122 | | BSBU-M 40 Q 124 | |
| 186 | 105 | 54 | 82 | | | | 82 | MMRS 45-76 | BSBU-M 45 D 124 | 45 | |
| | | | 94 | | | | 122 | | BSBU-M 45 Q 124 | | |
| | | | 206 | 105 | 54 | 82 | 82 | MMRS 50-76 | BSBU-M 50 D 124 | 50 | |
| | | | | | | 94 | 122 | | BSBU-M 50 Q 124 | | |
| 226 | 105 | 54 | | | | 82 | 82 | MMRS 55-99 | BSBU-M 55 D 144 | 55 | |
| | | | | | | 94 | 122 | | BSBU-M 55 Q 144 | | |
| | | | 246 | 105 | 54 | 82 | 82 | MMRS 60-99 | BSBU-M 60 D 144 | 60 | |
| | | | | | | 94 | 122 | | BSBU-M 60 Q 144 | | |

7.3 Super Precision Pillow Block Bearing Units for supporting fixed end ballscrew shafts



BSPB...D...

BSPB...Q...

| Shaft mm | Unit | d | M | C | E | d ₃ | D ₁ | U | U ₁ | U ₂ | V ₁ | V ₂ | V ₃ | Weight kg |
|-------------|------|----|---|---|---|----------------|----------------|---|----------------|----------------|----------------|----------------|----------------|--------------|
| | | mm | | | | | | | | | | | | |

Medium Series

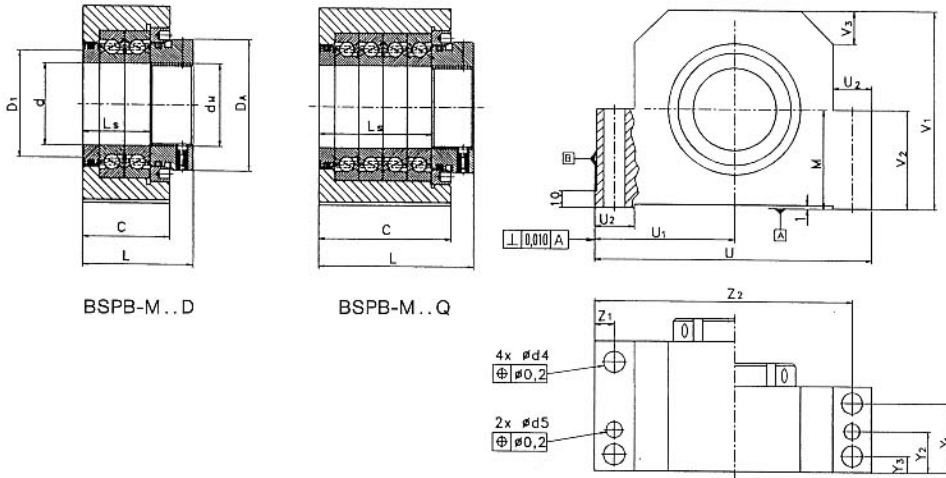
| | | | | | | | | | | | | | | |
|--------------|--------------|----|-----|----|----|----|----|-----|------|----|-----|----|----|-----|
| 17 | BSPB 17 D 32 | 17 | 32 | 47 | 44 | 36 | 26 | 94 | 47 | 17 | 62 | 32 | 15 | 1,5 |
| | BSPB 17 Q 32 | | | 77 | 74 | | | | | | | | | 2,6 |
| 20 | BSPB 20 D 32 | 20 | 32 | 47 | 44 | 36 | 26 | 94 | 47 | 17 | 62 | 32 | 15 | 1,5 |
| | BSPB 20 Q 32 | | | 77 | 74 | | | | | | | | | 2,6 |
| 25 | BSPB 25 D 42 | 25 | 42 | 52 | 50 | 50 | 40 | 125 | 62,5 | 20 | 85 | 42 | 15 | 2,8 |
| | BSPB 25 Q 42 | | | 82 | 80 | | | | | | | | | 4,6 |
| 30 | BSPB 30 D 42 | 30 | 42 | 52 | 50 | 50 | 40 | 125 | 62,5 | 20 | 85 | 42 | 15 | 2,7 |
| | BSPB 30 Q 42 | | | 82 | 80 | | | | | | | | | 4,5 |
| | BSPB 30 D 50 | | | 50 | 52 | | | | | | | | | 50 |
| BSPB 30 Q 50 | 82 | 80 | 6,3 | | | | | | | | | | | |
| 35 | BSPB 35 D 50 | 35 | 42 | 52 | 50 | 50 | 40 | 125 | 62,5 | 20 | 85 | 42 | 15 | 3,8 |
| | BSPB 35 Q 50 | | | 82 | 80 | | | | | | | | | 6,2 |
| 40 | BSPB 40 D 50 | 40 | 42 | 52 | 50 | 50 | 50 | 125 | 62,5 | 20 | 85 | 42 | 15 | 3,7 |
| | BSPB 40 Q 50 | | | 82 | 80 | | | | | | | | | 6,0 |
| 45 | BSPB 45 D 50 | 45 | 42 | 52 | 50 | 66 | 55 | 154 | 77 | 23 | 118 | 65 | 15 | 3,6 |
| | BSPB 45 Q 50 | | | 82 | 80 | | | | | | | | | 5,9 |
| 55 | BSPB 55 D 65 | 55 | 65 | 52 | 50 | 76 | 68 | 154 | 77 | 23 | 118 | 65 | 15 | 4,5 |
| | BSPB 55 Q 65 | | | 82 | 80 | | | | | | | | | 7,2 |
| 75 | BSPB 75 D 65 | 75 | 65 | 54 | 52 | 99 | 89 | 174 | 87 | 23 | 129 | 65 | 15 | 5,0 |
| | BSPB 75 Q 65 | | | 82 | 82 | | | | | | | | | 8,0 |

Heavy Series

| | | | | | | | | | | | | | | |
|----|--------------|----|----|-----|-----|----|-----|-----|----|-----|-----|----|----|------|
| 35 | BSPB 35 D 65 | 35 | 65 | 66 | 64 | 76 | 66 | 190 | 95 | 30 | 130 | 65 | 15 | 9,7 |
| | BSPB 35 Q 65 | | | 106 | 104 | | | | | | | | | 15,9 |
| 40 | BSPB 40 D 65 | 40 | 65 | 66 | 64 | 76 | 66 | 190 | 95 | 30 | 130 | 65 | 15 | 9,5 |
| | BSPB 40 Q 65 | | | 106 | 104 | | | | | | | | | 15,7 |
| 45 | BSPB 45 D 65 | 45 | 65 | 66 | 64 | 76 | 66 | 190 | 95 | 30 | 130 | 65 | 15 | 9,3 |
| | BSPB 45 Q 65 | | | 106 | 104 | | | | | | | | | 15,4 |
| 50 | BSPB 50 D 65 | 50 | 65 | 66 | 64 | 76 | 66 | 190 | 95 | 30 | 130 | 65 | 15 | 9,1 |
| | BSPB 50 Q 65 | | | 106 | 104 | | | | | | | | | 15,1 |
| 55 | BSPB 55 D 85 | 55 | 85 | 66 | 64 | 86 | 200 | 100 | 30 | 155 | 85 | 30 | 15 | 9,1 |
| | BSPB 55 Q 85 | | | 106 | 104 | | | | | | | | | 15,1 |
| 60 | BSPB 60 D 85 | 60 | 85 | 66 | 64 | 86 | 200 | 100 | 30 | 155 | 85 | 30 | 15 | 9,1 |
| | BSPB 60 Q 85 | | | 106 | 104 | | | | | | | | | 15,1 |

| Tolerances | d | M | U ₁ | E (Duplex) | E (Quad) |
|---------------------------------|------------|------------|----------------|------------|-----------|
| BSPB 17 D/Q 32 – BSPB 30 D/Q 42 | 0 / -0,005 | 0 / -0,013 | 0 / -0,013 | 0 / -1,02 | 0 / -1,52 |
| BSPB 30 D/Q 50 – BSPB 45 D/Q 50 | 0 / -0,005 | 0 / -0,015 | 0 / -0,015 | 0 / -1,02 | 0 / -1,52 |
| BSPB 55 D/Q 65 – BSPB 60 D/Q 85 | 0 / -0,005 | 0 / -0,018 | 0 / -0,018 | 0 / -1,02 | 0 / -1,52 |

... with integrated locknuts for supporting fixed end ballscrew shafts



| Y ₁ | Y ₂ | Y ₃ | Z ₁ | Z ₂ | d ₄ | d ₅ | D _A | L _s | L | Integrated nut | Unit | Shaft mm |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---|----------------|------|-------------|
| mm | | | | | | | | | | | | |

Medium Series

| | | | | | | | | | | | | | | | | | | | | | |
|------|-------|------|------|-------|------|------------|-------|-------|-----|------------|----------------|------|----------------|------------|----------------|----------------|----------------|----------------|----------------|------------|----------------|
| 38 | 22,0 | 9 | 8 | 85,5 | 9 | 7,8 | 38 | 37 | 57 | MMRS 17-36 | BSPB-M 17 D 32 | 17 | | | | | | | | | |
| 68 | | | | | | | | 67 | 87 | | | | BSPB-M 17 Q 32 | | | | | | | | |
| 38 | 25,0 | 10 | 10 | 115,5 | 11 | 9,8 | 58 | 37 | 57 | MMRS 20-36 | BSPB-M 20 D 36 | 20 | | | | | | | | | |
| 68 | | | | | | | | 67 | 87 | | | | BSPB-M 20 Q 35 | | | | | | | | |
| 42 | 25,0 | 10 | 10 | 115,5 | 11 | 9,8 | 58 | 40 | 65 | MMRS 25-50 | BSPB-M 25 D 42 | 25 | | | | | | | | | |
| 72 | | | | | | | | 70 | 95 | | | | BSPB-M 25 Q 42 | | | | | | | | |
| 42 | | | | | | | | 126,0 | 13 | 70 | 40 | 65 | | MMRS 30-50 | BSPB-M 30 D 42 | 30 | | | | | |
| 72 | | | | | | | | | | | 70 | 95 | BSPB-M 30 Q 42 | | | | | | | | |
| 42 | | | | | | | | | | | 26,0 | 11,5 | | 11,5 | 40 | 68 | MMRS 30-60 | BSPB-M 30 D 50 | 35 | | |
| 72 | | | | | | | | | | | | | 70 | | 98 | BSPB-M 30 Q 50 | | | | | |
| 42 | | | | 142,5 | 11,5 | 105 | 40 | | | | | | 68 | | MMRS 35-60 | | BSPB-M 35 D 50 | 40 | | | |
| 72 | | | | | | | 70 | | | | | | 98 | | | BSPB-M 35 Q 50 | | | | | |
| 42 | | | | | | | 162,5 | 11,5 | 105 | 40 | | | 68 | | MMRS 40-60 | | BSPB-M 40 D 50 | 45 | | | |
| 72 | | | | | | | | | | 70 | | | 98 | | | BSPB-M 40 Q 50 | | | | | |
| 40,5 | | | | | | | | | | 26,0 | 11,5 | 11,5 | 142,5 | 18 | 11,8 | | 80 | 40 | 70 | MMRS 45-60 | BSPB-M 45 D 50 |
| 70,5 | | | | | | | | | | | | | | | | 70 | | 100 | BSPB-M 45 Q 50 | | |
| 40,5 | 162,5 | 11,5 | 105 | 40 | 70 | MMRS 55-76 | | | | | | | | | | BSPB-M 55 D 65 | | 55 | | | |
| 70,5 | | | | 70 | 100 | | | | | | | | | | | | | | BSPB-M 55 Q 65 | | |
| 40,5 | 26,0 | 11,5 | 11,5 | 142,5 | 18 | 11,8 | 80 | 40 | 70 | MMRS 75-99 | BSPB-M 75 D 65 | 75 | | | | | | | | | |
| 70,5 | | | | | | | | 70 | 100 | | | | BSPB-M 75 Q 65 | | | | | | | | |

Heavy Series

| | | | | | | | | | | | | |
|----|------|----|----|-------|----|------|-----|----|-----|------------|----------------|----|
| 53 | 32,0 | 13 | 15 | 175,0 | 18 | 11,8 | 80 | 54 | 82 | MMRS 35-76 | BSPB-M 35 D 65 | 35 |
| 93 | | | | | | | | 94 | 122 | | | |
| 53 | 32,0 | 13 | 15 | 175,0 | 18 | 11,8 | 80 | 54 | 82 | MMRS 40-76 | BSPB-M 40 D 65 | 40 |
| 93 | | | | | | | | 94 | 122 | | | |
| 53 | 32,0 | 13 | 15 | 175,0 | 18 | 11,8 | 80 | 54 | 82 | MMRS 45-76 | BSPB-M 45 D 65 | 45 |
| 93 | | | | | | | | 94 | 122 | | | |
| 53 | 32,0 | 13 | 15 | 175,0 | 18 | 11,8 | 80 | 54 | 82 | MMRS 50-76 | BSPB-M 50 D 65 | 50 |
| 93 | | | | | | | | 94 | 122 | | | |
| 53 | 32,0 | 13 | 15 | 175,0 | 18 | 11,8 | 80 | 54 | 82 | MMRS 55-99 | BSPB-M 55 D 85 | 55 |
| 93 | | | | | | | | 94 | 122 | | | |
| 53 | 32,0 | 13 | 15 | 185,0 | 18 | 11,8 | 105 | 54 | 82 | MMRS 60-99 | BSPB-M 60 D 85 | 60 |
| 93 | | | | | | | | 94 | 122 | | | |



7.4 Super Precision Cartridge and Pillow Block Bearing Units – Data Table

BSBU..D.. BSPB..D.. BSBU-M..D.. BSPB-M..D..
BSBU..Q.. BSPB..Q.. BSBU-M..Q.. BSPB-M..Q..

| Designation | | Axial capacity | | Preload F_v | | | Axial stiffness S_{ax} | | | Speed grease n_F | | | Drag torque M_f | | |
|-------------|--------|----------------|-----|---------------|---|---|--------------------------|---|---|--------------------|---|---|-------------------|---|---|
| BSBU | BSPB | Ca | Coa | L | M | H | L | M | H | L | M | H | L | M | H |
| BSBU-M | BSPB-M | N | | N | | | N/ μm | | | min ⁻¹ | | | Nm | | |

Duplex-Medium Series

| | | | | | | | | | | | | | | | |
|---------------|--------------|-------|-------|------|------|-------|------|------|------|------|------|------|------|------|------|
| BSBU 17 D 60 | BSPB 17 D 32 | 25000 | 32000 | 875 | 1750 | 3500 | 450 | 570 | 730 | 7200 | 6300 | 4950 | 0,08 | 0,16 | 0,32 |
| BSBU 20 D 60 | BSPB 20 D 32 | | | | | | | | | | | | | | |
| BSBU 25 D 80 | BSPB 25 D 42 | 29200 | 43600 | 1125 | 2250 | 4500 | 640 | 810 | 1030 | 4950 | 4350 | 3450 | 0,11 | 0,22 | 0,43 |
| BSBU 30 D 80 | BSPB 30 D 42 | | | | | | | | | | | | | | |
| BSBU 30 D 90 | BSPB 30 D 50 | 35600 | 55000 | 1700 | 3400 | 6800 | 770 | 970 | 1240 | 4350 | 3900 | 3000 | 0,11 | 0,22 | 0,43 |
| BSBU 35 D 90 | BSPB 35 D 50 | | | | | | | | | | | | | | |
| BSBU 40 D 90 | BSPB 40 D 50 | | | | | | | | | | | | | | |
| BSBU 45 D 92 | BSPB 45 D 50 | 37900 | 62000 | 1700 | 3400 | 6800 | 770 | 970 | 1240 | 4350 | 3900 | 3000 | 0,14 | 0,28 | 0,56 |
| BSBU 55 D 110 | BSPB 55 D 65 | 40700 | 74000 | 1975 | 3950 | 7900 | 1020 | 1300 | 1640 | 3450 | 3000 | 2400 | 0,22 | 0,42 | 0,82 |
| BSBU 75 D 130 | BSPB 75 D 65 | 44500 | 94000 | 2500 | 5000 | 10000 | 1320 | 1650 | 2120 | 2700 | 2400 | 1875 | 0,26 | 0,50 | 1,00 |

Heavy Series

| | | | | | | | | | | | | | | | |
|---------------|--------------|-------|--------|------|------|-------|------|------|------|------|------|------|------|------|------|
| BSBU 35 D 124 | BSPB 35 D 65 | 70500 | 116000 | 3200 | 6400 | 12800 | 1050 | 1360 | 1740 | 3300 | 2850 | 2250 | 0,26 | 0,51 | 1,07 |
| BSBU 40 D 124 | BSPB 55 D 65 | | | | | | | | | | | | | | |
| BSBU 45 D 124 | BSPB 45 D 65 | | | | | | | | | | | | | | |
| BSBU 50 D 124 | BSPB 50 D 65 | | | | | | | | | | | | | | |
| BSBU 55 D 144 | BSPB 55 D 85 | 80800 | 137800 | 3900 | 7800 | 15600 | 1320 | 1650 | 2120 | 2700 | 2400 | 1875 | 0,34 | 0,68 | 1,36 |
| BSBU 60 D 144 | BSPB 60 D 85 | | | | | | | | | | | | | | |

Quadruplex – Medium Series

| | | | | | | | | | | | | | | | |
|---------------|--------------|-------|--------|------|-------|-------|------|------|------|------|------|------|------|------|------|
| BSBU 17 Q 60 | BSPB 17 Q 32 | 40600 | 64000 | 1750 | 3500 | 7000 | 900 | 1040 | 1460 | 4950 | 4350 | 3450 | 0,16 | 0,32 | 0,64 |
| BSBU 20 Q 60 | BSPB 20 Q 32 | | | | | | | | | | | | | | |
| BSBU 25 Q 80 | BSPB 25 Q 42 | 47500 | 86000 | 2250 | 4500 | 9000 | 1280 | 1620 | 2060 | 3450 | 3000 | 2400 | 0,22 | 0,43 | 0,86 |
| BSBU 30 Q 80 | BSPB 30 Q 42 | | | | | | | | | | | | | | |
| BSBU 30 Q 90 | BSPB 30 Q 50 | 57800 | 110000 | 3400 | 6800 | 13600 | 1540 | 1940 | 2480 | 3000 | 2700 | 2100 | 0,22 | 0,43 | 0,86 |
| BSBU 35 Q 90 | BSPB 35 Q 50 | | | | | | | | | | | | | | |
| BSBU 40 Q 90 | BSPB 40 Q 50 | | | | | | | | | | | | | | |
| BSBU 45 Q 92 | BSPB 45 Q 50 | 61600 | 123000 | 3400 | 6800 | 13600 | 1540 | 1940 | 2480 | 2925 | 2475 | 2060 | 0,28 | 0,56 | 1,02 |
| BSBU 55 Q 110 | BSPB 55 Q 65 | 66100 | 178000 | 3950 | 7900 | 15800 | 2040 | 2600 | 3280 | 2400 | 2100 | 1650 | 0,44 | 0,84 | 1,64 |
| BSBU 75 Q 130 | BSPB 75 Q 65 | 72300 | 188000 | 5000 | 10000 | 20000 | 2640 | 3300 | 4240 | 1875 | 1650 | 1275 | 0,52 | 1,00 | 2,00 |

Heavy Series

| | | | | | | | | | | | | | | | |
|---------------|--------------|--------|--------|------|-------|-------|------|------|------|------|------|------|-------|------|------|
| BSBU 35 Q 124 | BSPB 35 Q 65 | 114500 | 232000 | 6400 | 12800 | 25600 | 2100 | 2720 | 3480 | 2400 | 2100 | 1650 | 0,516 | 1,02 | 2,04 |
| BSBU 40 Q 124 | BSPB 55 Q 65 | | | | | | | | | | | | | | |
| BSBU 45 Q 124 | BSPB 45 Q 65 | | | | | | | | | | | | | | |
| BSBU 50 Q 124 | BSPB 50 Q 65 | | | | | | | | | | | | | | |
| BSBU 55 Q 144 | BSPB 55 Q 85 | 131000 | 274000 | 7800 | 15600 | 31200 | 2640 | 3300 | 4220 | 1875 | 1650 | 1275 | 0,68 | 1,36 | 2,72 |
| BSBU 60 Q 144 | BSPB 60 Q 85 | | | | | | | | | | | | | | |

with adapter sleeve for ball screw nuts acc. to DIN 69051 BNBU..D.., BNBU..Q.., BNPB..D.., BNPB..Q..

| KGT do x P | Designation | | Axial capacity | | Preload F_v | | | Axial stiffness S_{ax} | | | Speed grease n_F | | | Drag torque M_f | | |
|---------------|----------------|----------------|----------------|--------|---------------|-------|-------|--------------------------|------|------|--------------------|------|------|-------------------|------|------|
| | BNBU | BNPB | Ca | Coa | L | M | H | L | M | H | L | M | H | L | M | H |
| | BNBU-M | BNPB-M | N | | N | | | N/ μm | | | min ⁻¹ | | | Nm | | |
| 16x5 | BNBU 28 D 92 | BNPB 28 D 50 | 37900 | 62000 | 1700 | 3400 | 6800 | 840 | 1050 | 1330 | 4200 | 3600 | 2850 | 0,14 | 0,28 | 0,56 |
| 20x5 | BNBU 36 D 92 | BNPB 36 D 50 | 37900 | 62000 | 1700 | 3400 | 6800 | 840 | 1050 | 1330 | 4200 | 3600 | 2850 | 0,14 | 0,28 | 0,56 |
| 25x5 | BNBU 40 D 110 | BNPB 40 D 65 | 40700 | 74000 | 1975 | 3950 | 7900 | 1010 | 1260 | 1610 | 3450 | 3000 | 2400 | 0,22 | 0,42 | 0,32 |
| 25x10 | BNBU 40 Q 110 | BNPB 40 Q 65 | 66100 | 148000 | 3900 | 7800 | 15600 | 2050 | 2560 | 3250 | 2475 | 2175 | 1725 | 0,44 | 0,84 | 1,64 |
| 32x5 | BNBU 50 D 130 | BNPB 50 D 65 | 44500 | 94000 | 2500 | 5000 | 10000 | 1230 | 1570 | 2010 | 2700 | 2400 | 1875 | 0,26 | 0,50 | 1,00 |
| 32x10 | BNBU 50 Q 130 | BNPB 50 Q 65 | 72300 | 188000 | 5000 | 10000 | 20000 | 2500 | 3180 | 4100 | 1950 | 1725 | 1350 | 0,52 | 1,00 | 2,00 |
| 40x5 | BNBU 63 D 130 | BNPB 63 D 65 | 44500 | 94000 | 2500 | 5000 | 10000 | 1230 | 1570 | 2010 | 2700 | 2400 | 1875 | 0,26 | 0,50 | 1,00 |
| 40x10 | BNBU 63 Q 130 | BNPB 63 Q 65 | 72300 | 188000 | 5000 | 10000 | 20000 | 2500 | 3180 | 4100 | 1950 | 1725 | 1350 | 0,52 | 1,00 | 2,00 |
| 50x5 | BNBU 75 D 174 | BNPB 75 D 65 | 80000 | 192000 | 3500 | 7000 | 13900 | 1450 | 1900 | 2460 | 1950 | 1725 | 1350 | 0,27 | 0,53 | 1,06 |
| 50x10 | BNBU 75 Q 174 | BNPB 75 Q 65 | 130000 | 384000 | 7000 | 13900 | 27800 | 2900 | 3800 | 4900 | 1390 | 1240 | 975 | 0,54 | 1,06 | 2,12 |
| 63x5 | BNBU 90 D 200 | BNPB 90 D 105 | 85200 | 240000 | 4550 | 9100 | 18200 | 1950 | 2500 | 3150 | 1613 | 1390 | 1125 | 0,27 | 0,54 | 1,08 |
| 63x10 | BNBU 90 Q 200 | BNPB 90 Q 105 | 138000 | 480000 | 9100 | 18200 | 36400 | 3900 | 5000 | 6300 | 1170 | 1020 | 790 | 0,54 | 1,08 | 2,16 |
| 63x20 | BNBU 95 D 200 | BNPB 95 D 105 | 85200 | 240000 | 4550 | 9100 | 18200 | 1950 | 2500 | 3150 | 1620 | 1390 | 1125 | 0,27 | 0,54 | 1,08 |
| | BNBU 95 Q 200 | BNPB 95 Q 105 | 138000 | 480000 | 9100 | 18200 | 36400 | 3900 | 5000 | 6300 | 1170 | 1020 | 790 | 0,54 | 1,08 | 2,16 |
| 80x10 | BNBU 105 D 200 | BNPB 105 D 105 | 85200 | 240000 | 4550 | 9100 | 18200 | 1950 | 2500 | 3150 | 1620 | 1390 | 1125 | 0,27 | 0,54 | 1,08 |
| | BNBU 105 Q 200 | BNPB 105 Q 105 | 138000 | 480000 | 9100 | 18200 | 36400 | 3900 | 5000 | 6300 | 1170 | 1020 | 790 | 0,54 | 1,08 | 2,16 |

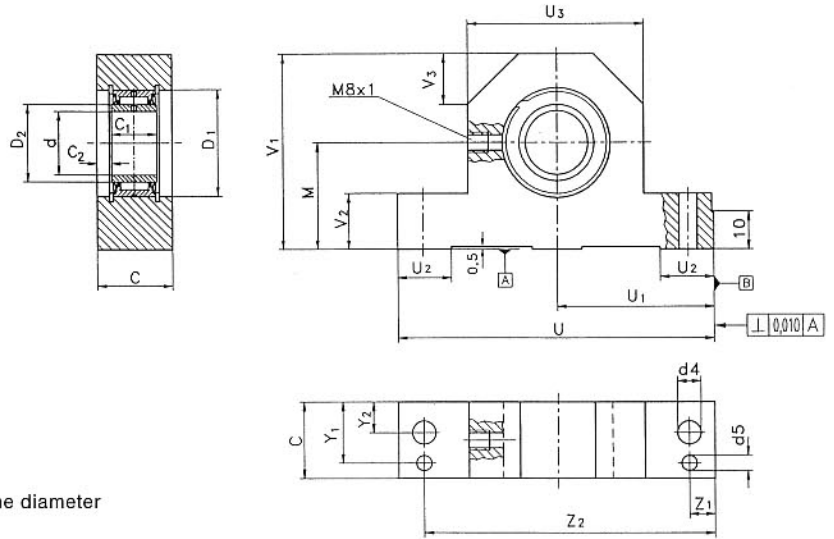
7.5 Super Precision Bearing Units for supporting floating end ballscrew shafts

Super Precision Pillow Block Bearing Units for supporting floating end shafts BLPB..N.. 2RS

| Tolerances | M | U ₁ |
|--------------|------------|----------------|
| BLPB 20 N 32 | 0 / -0,013 | 0 / -0,013 |
| BLPB 25 N 42 | 0 / -0,013 | 0 / -0,013 |
| BLPB 30 N 50 | 0 / -0,015 | 0 / -0,015 |
| BLPB 40 N 65 | 0 / -0,018 | 0 / -0,018 |
| BLPB 50 N 85 | 0 / -0,018 | 0 / -0,018 |

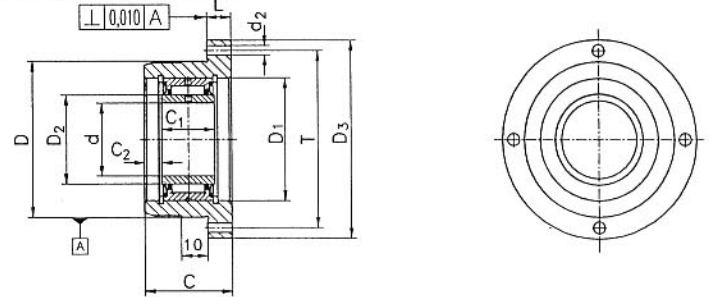
d according to PN DIN 620 and ISO 492

max speed see flange bearing unit of series BLBU of same diameter



| Shaft mm | Designation | d | M | C | C ₁ | C ₂ | D ₁ | D ₂ | U | U ₁ | U ₂ | U ₃ | V ₁ | V ₂ | V ₃ | Y ₁ | Y ₂ | Z ₁ | Z ₂ | d ₄ | d ₅ | C | Co |
|----------|--------------|----|----|----|----------------|----------------|----------------|----------------|-----|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------|-------|
| | | mm | | | | | | | | | | | | | | | | | | | | N | |
| 20 | BLPB 20 N 32 | 20 | 32 | 30 | 18 | 6 | 37 | 25 | 94 | 47 | 16 | 56 | 59 | 15 | 15 | 24,0 | 12 | 8,5 | 85,5 | 9 | 5,8 | 17300 | 19900 |
| 25 | BLPB 25 N 42 | 25 | 42 | 30 | 18 | 6 | 42 | 30 | 125 | 62,5 | 21 | 70 | 77 | 22 | 20 | 24,0 | 12 | 10 | 115 | 9 | 5,8 | 19300 | 24200 |
| 30 | BLPB 30 N 50 | 30 | 50 | 30 | 18 | 6 | 47 | 35 | 136 | 68 | 21 | 80 | 88 | 28 | 20 | 24,0 | 12 | 10 | 126 | 9 | 5,8 | 21100 | 28500 |
| 40 | BLPB 40 N 65 | 40 | 65 | 40 | 23 | 8,5 | 62 | 48 | 190 | 95 | 30 | 100 | 108 | 38 | 20 | 30,0 | 15 | 15 | 175 | 13 | 7,8 | 36000 | 53000 |
| 50 | BLPB 50 N 85 | 50 | 85 | 40 | 23 | 8,5 | 72 | 58 | 200 | 100 | 30 | 110 | 138 | 48 | 30 | 30,0 | 15 | 15 | 185 | 13 | 7,8 | 40000 | 64000 |

Super Precision Cartridge Bearing Units for supporting floating end shafts BLBU..N.. 2RS



| Shaft mm | Designation | d | D | C | C ₁ | C ₂ | D ₁ | D ₂ | D ₃ | L | T | d ₂ | n _{Grease} | C | Co |
|----------|--------------|----|----|----|----------------|----------------|----------------|----------------|----------------|----|-----|----------------|---------------------|-------|-------|
| | | mm | | | | | | | | | | | min ⁻¹ | N | |
| 10 | BLBU 10 N 32 | 10 | 32 | 25 | 14 | 5,5 | 22 | 14 | 52 | 6 | 42 | 4,5 | 13000 | 6800 | 6900 |
| 12 | BLBU 12 N 35 | 12 | 35 | 25 | 14 | 5,5 | 24 | 16 | 55 | 6 | 45 | 4,5 | 12000 | 7600 | 8300 |
| 17 | BLBU 17 N 40 | 17 | 40 | 26 | 14 | 6 | 30 | 20 | 60 | 6 | 50 | 4,5 | 9000 | 8800 | 11000 |
| 20 | BLBU 20 N 50 | 20 | 50 | 30 | 18 | 6 | 37 | 25 | 70 | 8 | 60 | 4,5 | 7500 | 17300 | 19900 |
| 25 | BLBU 25 N 55 | 25 | 55 | 30 | 18 | 6 | 42 | 30 | 75 | 8 | 65 | 4,5 | 6500 | 19300 | 24200 |
| 30 | BLBU 30 N 60 | 30 | 60 | 32 | 18 | 6 | 47 | 35 | 80 | 8 | 70 | 4,5 | 5500 | 21100 | 28500 |
| 35 | BLBU 35 N 55 | 35 | 70 | 38 | 21 | 8,5 | 55 | 42 | 90 | 10 | 80 | 5,5 | 4800 | 26500 | 39500 |
| 40 | BLBU 40 N 62 | 40 | 80 | 43 | 23 | 10 | 62 | 48 | 110 | 10 | 95 | 5,5 | 4200 | 36000 | 53000 |
| 45 | BLBU 45 N 68 | 45 | 85 | 43 | 23 | 10 | 68 | 52 | 110 | 10 | 98 | 5,5 | 3900 | 38000 | 59000 |
| 50 | BLBU 50 N 72 | 50 | 90 | 44 | 23 | 10,5 | 72 | 58 | 120 | 10 | 105 | 5,5 | 3500 | 40000 | 64000 |

Tolerances of cartridge bearing units for supporting floating end shafts

| Bore | d | PN DIN 620 | |
|-----------------|---|------------|------------|
| Flange diameter | D | 32 - 80 | 0 / -0,013 |
| | | 85 / 90 | 0 / -0,015 |