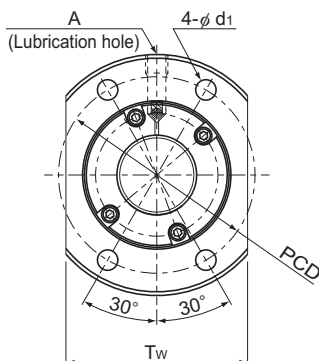


SBK Small With Preload

| | |
|----------|---------|
| DN value | 130,000 |
|----------|---------|



| Model No. | Screw shaft outer diameter d | Lead Ph | Ball center-to-center diameter dp | Thread minor diameter dc | No. of loaded circuits Rows X turns | Basic load rating | | Rigidity K N/μm |
|--------------|---------------------------------|------------|--------------------------------------|-----------------------------|--|-------------------|-----------------------|-----------------------|
| | | | | | | Ca kN | C _{0a} kN | |
| SBK 1520-3.6 | 15 | 20 | 15.75 | 12.2 | 1×1.8 | 5.8 | 7.8 | 178 |
| SBK 1616-3.6 | 16 | 16 | 16.65 | 13.5 | 1×1.8 | 4.6 | 6.4 | 182 |
| SBK 2010-5.6 | 20 | 10 | 20.75 | 17.2 | 1×2.8 | 10.7 | 17.3 | 353 |
| SBK 2020-3.6 | 20 | 20 | 20.75 | 17.2 | 1×1.8 | 7 | 10.5 | 229 |
| SBK 2030-3.6 | 20 | 30 | 20.75 | 17.2 | 1×1.8 | 6.9 | 11.2 | 236 |
| SBK 2520-3.6 | 25 | 20 | 26 | 21.5 | 1×1.8 | 11 | 16.9 | 292 |
| SBK 2525-3.6 | 25 | 25 | 26 | 21.5 | 1×1.8 | 10.8 | 16.9 | 290 |
| SBK 3220-5.6 | 32 | 20 | 33.25 | 27.9 | 1×2.8 | 23.6 | 41.1 | 565 |
| SBK 3232-5.6 | 32 | 32 | 33.25 | 27.9 | 1×2.8 | 23.1 | 41.8 | 567 |

Note: With model SBK, the raising of both ends of the thread groove is not available. When designing your system this way, contact THK.

Axial Clearance

Unit: mm

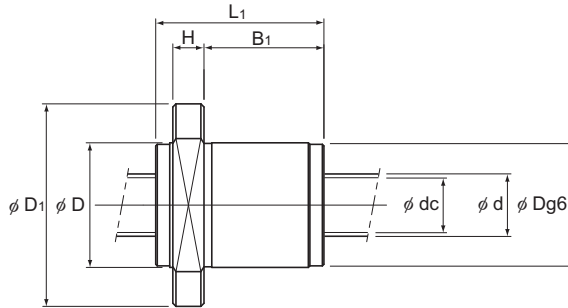
| | |
|------------------|-----------|
| Clearance symbol | G0 |
| Axial Clearance | 0 or less |

Model number coding

SBK2525-3.6 QZ G0 +1200L C5

Model Number

Overall screw shaft
length (in mm)Accuracy symbol¹Symbol for clearance in the axial direction
(G0 for all SBK variations)With QZ Lubricator
(no symbol if the model is without a QZ Lubricator)¹ See **A15-12**.



Unit: mm

| | Nut dimensions | | | | | | | | | Screw shaft inertial moment/mm kg·m ² /mm | Nut mass kg | Shaft mass kg/m | Permissible rotational speed min ⁻¹ |
|--|---------------------|-----------------------------------|----------------------------------|----|----------------|-----|----------------|----------------|-----------------------|---|----------------|--------------------|---|
| | Outer diameter D | Flange diameter D ₁ | Overall length L ₁ | H | B ₁ | PCD | d ₁ | T _w | Lubrication hole A | | | | |
| | 38 | 62 | 54 | 10 | 38.5 | 49 | 5.5 | 39 | M6 | 3.90×10 ⁻⁸ | 0.41 | 1.27 | 5,000 |
| | 33 | 54 | 45 | 10 | 29.5 | 43 | 4.5 | 38 | M6 | 5.05×10 ⁻⁸ | 0.25 | 1.46 | 5,000 |
| | 40 | 65 | 45 | 10 | 29.5 | 53 | 5.5 | 49 | M6 | 1.23×10 ⁻⁷ | 0.37 | 2.18 | 5,000 |
| | 40 | 65 | 54 | 10 | 38.5 | 53 | 5.5 | 49 | M6 | 1.23×10 ⁻⁷ | 0.43 | 2.32 | 5,000 |
| | 40 | 65 | 71 | 10 | 55.5 | 53 | 5.5 | 49 | M6 | 1.23×10 ⁻⁷ | 0.55 | 2.36 | 5,000 |
| | 47 | 74 | 57 | 12 | 38 | 60 | 6.6 | 56 | M6 | 3.01×10 ⁻⁷ | 0.59 | 3.58 | 5,000 |
| | 47 | 74 | 68 | 12 | 49 | 60 | 6.6 | 56 | M6 | 3.01×10 ⁻⁷ | 0.69 | 3.63 | 5,000 |
| | 58 | 92 | 82 | 15 | 58 | 74 | 9 | 68 | M6 | 8.08×10 ⁻⁷ | 1.23 | 5.82 | 3,900 |
| | 58 | 92 | 118 | 15 | 94 | 74 | 9 | 68 | M6 | 8.08×10 ⁻⁷ | 1.70 | 5.99 | 3,900 |

The rigidity values in the table represent spring constants, each obtained from the load and the elastic deformation when providing a preload equal to 10% of the basic axial dynamic load rating (Ca) and applying an axial load three times greater than the preload.

These values do not include the rigidity of the components related to mounting the ball screw nut. Therefore, it is normally appropriate to regard roughly 80% of the value in the table as the actual value.

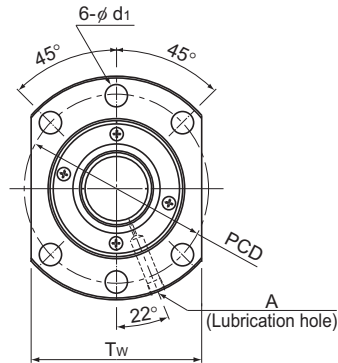
If the applied preload (Fa₀) is not 10% of Ca, the rigidity value (K_N) is obtained from the following equation.

$$K_N = K \left(\frac{Fa_0}{0.1Ca} \right)^{\frac{1}{3}}$$

K: Rigidity value in the dimensional table

SBK Medium With Preload

| | | |
|----------|---------------------------|---------|
| DN value | SBK3636, 4040, 5050 | 210,000 |
| | All other Model SBK units | 160,000 |



| Model No. | Screw shaft outer diameter d | Lead Ph | Ball center-to-center diameter dp | Thread minor diameter dc | No. of loaded circuits Rows X turns | Basic load rating | | Rigidity K N/μm |
|--------------|---------------------------------|------------|--------------------------------------|-----------------------------|--|-------------------|----------------------|-----------------------|
| | | | | | | Ca kN | C _a kN | |
| SBK 3620-7.6 | 36 | 20 | 37.75 | 30.4 | 1×3.8 | 48.5 | 85 | 870 |
| SBK 3636-5.6 | 36 | 36 | 37.75 | 31.4 | 1×2.8 | 36.6 | 64.7 | 460 |
| SBK 4020-7.6 | 40 | 20 | 42 | 34.1 | 1×3.8 | 59.7 | 112.7 | 970 |
| SBK 4030-7.6 | 40 | 30 | 42 | 34.1 | 1×3.8 | 59.2 | 107.5 | 970 |
| SBK 4040-5.6 | 40 | 40 | 42 | 34.9 | 1×2.8 | 44.8 | 80.3 | 520 |
| SBK 5020-7.6 | 50 | 20 | 52 | 44.1 | 1×3.8 | 66.8 | 141.9 | 1,170 |
| SBK 5030-7.6 | 50 | 30 | 52 | 44.1 | 1×3.8 | 66.5 | 135 | 1,170 |
| SBK 5036-7.6 | 50 | 36 | 52 | 44.1 | 1×3.8 | 65.9 | 135 | 1,170 |
| SBK 5050-5.6 | 50 | 50 | 52 | 44.9 | 1×2.8 | 50.3 | 102.4 | 630 |
| SBK 5520-7.6 | 55 | 20 | 57 | 49.1 | 1×3.8 | 69.8 | 156.4 | 1,250 |
| SBK 5530-7.6 | 55 | 30 | 57 | 49.1 | 1×3.8 | 69.2 | 147 | 1,250 |
| SBK 5536-7.6 | 55 | 36 | 57 | 49.1 | 1×3.8 | 69.1 | 148.7 | 1,260 |

Note: With model SBK, the raising of both ends of the thread groove is not available. When designing your system this way, contact THK.

Axial Clearance

Unit: mm

| | |
|------------------|-----------|
| Clearance symbol | G0 |
| Axial Clearance | 0 or less |

Model number coding

SBK3620-7.6 RR G0 +1500L C5

Model number

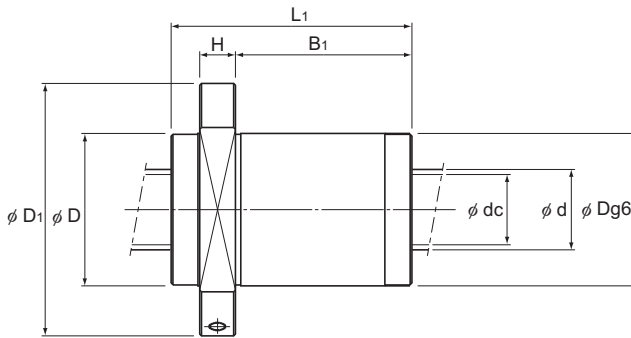
Seal symbol¹

Overall screw shaft length (in mm)

Accuracy symbol²

Symbol for clearance in the axial direction (G0 for all SBK variations)

¹ See **A15-356**. ² See **A15-12**.



Unit: mm

| | Nut dimensions | | | | | | | | Screw shaft inertial moment/mm kg·m ² /mm | Nut mass kg | Shaft mass kg/m | Permissible rotational speed min ⁻¹ |
|----|---------------------|-----------------------------------|----------------------------------|-----|----------------|-----|----------------|------------------|---|----------------|--------------------|---|
| | Outer diameter D | Flange diameter D ₁ | Overall length L ₁ | H | B ₁ | PCD | d ₁ | T _w | | | | |
| 73 | 114 | 110 | 18 | 81 | 93 | 11 | 86 | Rc1/8 (PT1/8) | 1.29×10 ⁻⁶ | 3.4 | 5 | 4,230 |
| 73 | 114 | 134 | 18 | 105 | 93 | 11 | 86 | | 1.29×10 ⁻⁶ | 3.37 | 7.43 | 5,000 |
| 80 | 136 | 110 | 20 | 79 | 112 | 14 | 103 | | 1.97×10 ⁻⁶ | 4.5 | 5.7 | 3,800 |
| 80 | 136 | 148 | 20 | 117 | 112 | 14 | 103 | | 1.97×10 ⁻⁶ | 5.6 | 7 | 3,800 |
| 80 | 136 | 146 | 20 | 115 | 112 | 14 | 103 | | 1.97×10 ⁻⁶ | 4.74 | 9.16 | 5,000 |
| 90 | 146 | 110 | 22 | 77 | 122 | 14 | 110 | | 4.82×10 ⁻⁶ | 5.3 | 10.2 | 3,070 |
| 90 | 146 | 149 | 22 | 116 | 122 | 14 | 110 | | 4.82×10 ⁻⁶ | 6.6 | 11.9 | 3,070 |
| 90 | 146 | 172 | 22 | 139 | 122 | 14 | 110 | | 4.82×10 ⁻⁶ | 7.4 | 12.5 | 3,070 |
| 90 | 146 | 175 | 22 | 142 | 122 | 14 | 110 | | 4.82×10 ⁻⁶ | 6.46 | 14.72 | 4,030 |
| 96 | 152 | 110 | 22 | 77 | 128 | 14 | 114 | | 7.05×10 ⁻⁶ | 5.7 | 13 | 2,800 |
| 96 | 152 | 149 | 22 | 116 | 128 | 14 | 114 | | 7.05×10 ⁻⁶ | 7.2 | 14.8 | 2,800 |
| 96 | 152 | 172 | 22 | 139 | 128 | 14 | 114 | | 7.05×10 ⁻⁶ | 8.1 | 15.5 | 2,800 |

The rigidity values in the table represent spring constants, each obtained from the load and the elastic deformation when providing a preload equal to 10% of the basic axial dynamic load rating (Ca) and applying an axial load three times greater than the pre-load.

These values do not include the rigidity of the components related to mounting the ball screw nut. Therefore, it is normally appropriate to regard roughly 80% of the value in the table as the actual value.

If the applied preload (Fa₀) is not 10% of Ca, the rigidity value (K_n) is obtained from the following equation.

$$K_n = K \left(\frac{Fa_0}{0.1Ca} \right)^3$$

K: Rigidity value in the dimensional table