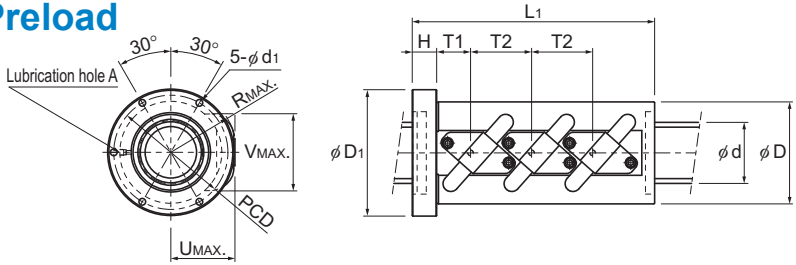
# HBN-K and HBN-KA
# No Preload

| DN value | 120,000 |
|---|---|




Models HBN12020K to 14040K

| Model No. | Screw shaft outer diameter | Lead | Ball center-to-center diameter | Thread minor diameter | No. of loaded circuits | Threads | Basic load rating | | Permissible load[1] | Rigidity |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Ca | C0a | FP | K |
| | d | Ph | dp | dc | Rows × turns | | kN | kN | kN | N/μm |
| HBN12020K-10 | 120 | 20 | 123.5 | 106.6 | 4×2.5 | 1 | 995 | 3,389 | 474 | 6,746 |
| HBN12020KA-10 | 120 | 20 | 123.5 | 106.6 | 4×2.5 | 1 | 995 | 3,389 | 474 | 6,746 |
| HBN12025K-7.5 | 120 | 25 | 124 | 103.6 | 3×2.5 | 1 | 996 | 3,034 | 424 | 5,254 |
| HBN12025KA-7.5 | 120 | 25 | 124 | 103.6 | 3×2.5 | 1 | 996 | 3,034 | 424 | 5,254 |
| HBN12025K-10 | 120 | 25 | 124 | 103.6 | 4×2.5 | 1 | 1,276 | 4,045 | 566 | 6,912 |
| HBN12025KA-10 | 120 | 25 | 124 | 103.6 | 4×2.5 | 1 | 1,276 | 4,045 | 566 | 6,912 |
| HBN12025K-12.5 | 120 | 25 | 124 | 103.6 | 5×2.5 | 1 | 1,546 | 5,057 | 708 | 8,550 |
| HBN12025KA-12.5 | 120 | 25 | 124 | 103.6 | 5×2.5 | 1 | 1,546 | 5,057 | 708 | 8,550 |
| HBN12025K-14 | 120 | 25 | 124 | 103.6 | 4×3.5 | 1 | 1,698 | 5,632 | 788 | 9,479 |
| HBN12025KA-14 | 120 | 25 | 124 | 103.6 | 4×3.5 | 1 | 1,698 | 5,632 | 788 | 9,479 |
| HBN14025K-10 | 140 | 25 | 144 | 123.6 | 4×2.5 | 1 | 1,360 | 4,714 | 660 | 7,781 |
| HBN14025KA-10 | 140 | 25 | 144 | 123.6 | 4×2.5 | 1 | 1,360 | 4,714 | 660 | 7,781 |
| HBN14032K-10.5 | 140 | 32 | 145 | 119.6 | 3×3.5 | 1 | 2,089 | 6,510 | 911 | 7,997 |
| HBN14032KA-10.5 | 140 | 32 | 145 | 119.6 | 3×3.5 | 1 | 2,089 | 6,510 | 911 | 7,997 |
| HBN14040K-7.5 | 140 | 40 | 144 | 123.6 | 3×2.5 | 1 | 1,058 | 3,527 | 493 | 5,909 |
| HBN14040KA-7.5 | 140 | 40 | 144 | 123.6 | 3×2.5 | 1 | 1,058 | 3,527 | 493 | 5,909 |

[1] The permissible load $F_P$ indicates the maximum axial load that the ball screw can receive.
Notes: This model is capable of achieving a longer service life than the conventional ball screw under a high load.

Axial Clearance

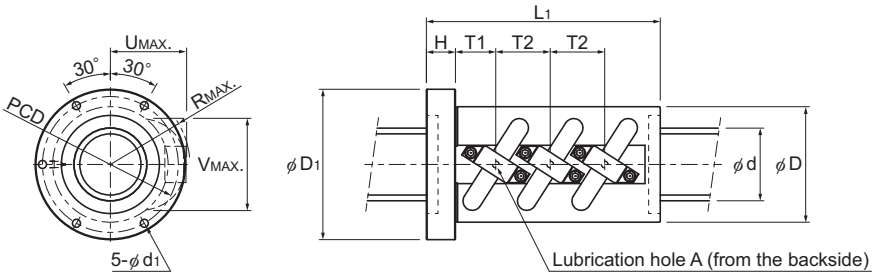
Unit: mm

| Clearance symbol | G2 |
|---|---|
| Axial clearance | 0 to 0.02 |

**Model number coding**

**HBN12025K-10 RR G2 +1200L C7**

- HBN12025K-10: Model number
- RR: Seal symbol[1]
- G2: Symbol for clearance in the axial direction (For the axial clearance, this model has clearance G2 as standard. Other clearance is also available at your request. Contact THK for details.)
- +1200L: Overall screw shaft length (in mm)
- C7: Accuracy symbol[2]




Models HBN12020KA to 14040KA

Unit: mm

| Nut dimensions | | | | | | | | | | | | Screw shaft inertial moment/mm | Nut mass | Shaft mass | Permissible rotational speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Outer diameter D | Flange diameter $D_1$ | Overall length $L_1$ | H | PCD | $d_1$ | T1 | T2 | $U_{MAX}$ | $V_{MAX}$ | $R_{MAX}$ | Lubrication hole A | $kg \cdot m^2/mm$ | kg | kg/m | $min^{-1}$ |
| 190 | 230 | 322 | 40 | 210 | 11 | 46 | 60 | 110 | 142 | 117 | Rc1/8 (PT1/8) | $1.59\times10^{-4}$ | 38.1 | 88 | 970 |
| 173 | 230 | 322 | 40 | 210 | 11 | 46 | 60 | 110 | 143 | 117 | | $1.59\times10^{-4}$ | 28.7 | 88 | 970 |
| 195 | 235 | 322 | 40 | 215 | 11 | 54.5 | 75 | 115 | 147 | 122 | | $1.59\times10^{-4}$ | 42.6 | 88 | 960 |
| 173 | 235 | 322 | 40 | 215 | 11 | 54.5 | 75 | 115 | 147 | 122 | | $1.59\times10^{-4}$ | 30.2 | 88 | 960 |
| 195 | 235 | 397 | 40 | 215 | 11 | 54.5 | 75 | 115 | 147 | 122 | | $1.59\times10^{-4}$ | 52.6 | 88 | 960 |
| 173 | 235 | 397 | 40 | 215 | 11 | 54.5 | 75 | 115 | 147 | 122 | | $1.59\times10^{-4}$ | 36.9 | 88 | 960 |
| 195 | 235 | 472 | 40 | 215 | 11 | 54.5 | 75 | 115 | 147 | 122 | | $1.59\times10^{-4}$ | 62.5 | 88 | 960 |
| 173 | 235 | 472 | 40 | 215 | 11 | 54.5 | 75 | 115 | 147 | 122 | | $1.59\times10^{-4}$ | 43.5 | 88 | 960 |
| 195 | 235 | 497 | 40 | 215 | 11 | 54.5 | 100 | 115 | 147 | 122 | | $1.59\times10^{-4}$ | 65.8 | 88 | 960 |
| 173 | 235 | 497 | 40 | 215 | 11 | 54.5 | 100 | 115 | 147 | 122 | | $1.59\times10^{-4}$ | 45.8 | 88 | 960 |
| 230 | 290 | 397 | 40 | 260 | 18 | 54.5 | 75 | 140 | 175 | 148 | | $2.96\times10^{-4}$ | 77.6 | 120 | 830 |
| 204 | 290 | 397 | 40 | 260 | 18 | 54.5 | 75 | 140 | 175 | 148 | | $2.96\times10^{-4}$ | 54.1 | 120 | 830 |
| 230 | 290 | 480 | 40 | 260 | 18 | 67 | 128 | 147 | 175 | 154 | | $2.96\times10^{-4}$ | 96.8 | 120 | 820 |
| 222 | 290 | 480 | 40 | 260 | 18 | 67 | 128 | 147 | 175 | 154 | | $2.96\times10^{-4}$ | 89.2 | 120 | 820 |
| 230 | 290 | 470 | 40 | 260 | 18 | 95 | 120 | 140 | 170 | 140 | | $2.96\times10^{-4}$ | 88.2 | 120 | 830 |
| 204 | 290 | 470 | 40 | 260 | 18 | 95 | 120 | 140 | 170 | 140 | | $2.96\times10^{-4}$ | 59.9 | 120 | 830 |

The rigidity values in the table represent spring constants, each obtained from the load and the elastic deformation under an axial load equal to 30% of the basic axial dynamic load rating (Ca).
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 axial load (Fa) is not 30% of Ca, the rigidity value ($K_N$) is obtained from the following equation.

$$K_N = K \left( \frac{Fa}{0.3Ca} \right)^{\frac{1}{3}}$$

K: Rigidity value in the dimensional table