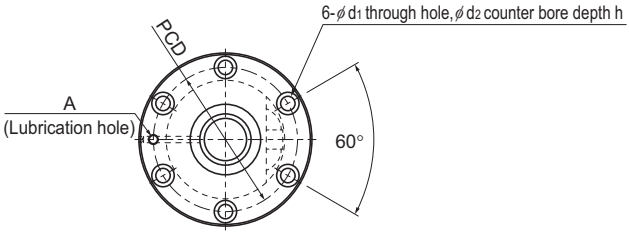
# SBN-V Medium With Preload

| DN value | 160,000 |
|---|---|

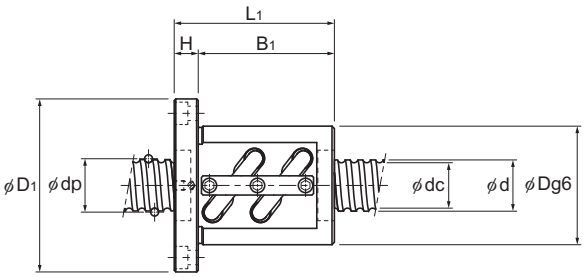



| Model No. | Screw shaft outer diameter | Lead | Ball center-to-center diameter | Thread minor diameter | No. of loaded circuits | Basic load rating | | Rigidity |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Ca | Coa | K |
| | d | Ph | dp | dc | Rows × turns | kN | kN | N/μm |
| SBN 2508V-7 | 25 | 8 | 26.25 | 20.5 | 1×3.5 | 26.2 | 43 | 650 |
| SBN 2510V-5 | 25 | 10 | 26.25 | 21.5 | 1×2.5 | 19.6 | 30.9 | 474 |
| SBN 2810V-3 | 28 | 10 | 29.75 | 22.4 | 1×1.5 | 19.5 | 27.8 | 332 |
| SBN 3210V-7 | 32 | 10 | 33.75 | 26.4 | 1×3.5 | 43 | 73.1 | 836.7 |
| SBN 3212V-5 | 32 | 12 | 34 | 26.1 | 1×2.5 | 37.4 | 58.7 | 612.2 |
| SBN 3216V-5 | 32 | 16 | 33.75 | 26.4 | 1×2.5 | 31.9 | 52.2 | 592 |
| SBN 3610V-7 | 36 | 10 | 37.75 | 30.4 | 1×3.5 | 45.6 | 82.3 | 900 |
| SBN 3612V-7 | 36 | 12 | 38 | 30.1 | 1×3.5 | 53.2 | 92.6 | 920 |
| SBN 3616V-5 | 36 | 16 | 38 | 30.1 | 1×2.5 | 39.7 | 66.4 | 662 |
| SBN 3620V-3 | 36 | 20 | 37.75 | 30.5 | 1×1.5 | 21.6 | 32.9 | 398 |
| SBN 4010V-5 | 40 | 10 | 41.75 | 34.4 | 1×2.5 | 35.8 | 65.2 | 708 |
| SBN 4012V-5 | 40 | 12 | 42 | 34.1 | 1×2.5 | 42 | 73.6 | 735.4 |
| SBN 4016V-5 | 40 | 16 | 42 | 34.1 | 1×2.5 | 41.9 | 73.8 | 736.6 |
| SBN 4020V-5 | 40 | 20 | 41.75 | 34.4 | 1×2.5 | 35.4 | 65.2 | 706 |
| SBN 4510V-5 | 45 | 10 | 46.75 | 39.5 | 1×2.5 | 37.9 | 73.8 | 780 |
| SBN 4512V-5 | 45 | 12 | 47 | 39.2 | 1×2.5 | 44.4 | 82.9 | 809.1 |
| SBN 4516V-5 | 45 | 16 | 47 | 39.2 | 1×2.5 | 44.3 | 83.1 | 810.1 |
| SBN 4520V-5 | 45 | 20 | 47 | 39.2 | 1×2.5 | 43.9 | 82.5 | 788 |
| SBN 5010V-5 | 50 | 10 | 51.75 | 44.4 | 1×2.5 | 39.4 | 81 | 838 |
| SBN 5012V-5 | 50 | 12 | 52.25 | 43.3 | 1×2.5 | 53.6 | 101.9 | 936 |
| SBN 5016V-5 | 50 | 16 | 52.7 | 42.9 | 1×2.5 | 89 | 167.7 | 1,228 |
| SBN 5020V-5 | 50 | 20 | 52.7 | 42.9 | 1×2.5 | 88.7 | 167.7 | 1,228 |

## Model number coding

**SBN4012V-5 QZ RR G0 +1200L C5**

- SBN4012V-5: Model No.
- QZ: Contamination protection accessory symbol [1] — With QZ lubricator (No code without QZ lubricator)
- RR
- G0: Symbol for Clearance in the axial direction (G0 for all SBN-V variations)
- +1200L: Overall screw shaft length (in mm)
- C5: Accuracy symbol[2]




Unit: mm

| | Nut dimensions | | | | | | | | Screw shaft inertial moment/mm | Nut mass | Shaft mass | Permissible rotational speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Outer diameter | Flange diameter | Overall length | | | | | Lubrication hole | | | | |
| | Dg6 | $D_1$ | $L_1$ | H | $B_1$ | PCD | $d_1 \times d_2 \times h$ | A | $kg \cdot m^2/mm$ | kg | kg/m | $min^{-1}$ |
| | 58 | 85 | 98 | 15 | 83 | 71 | 6.6×11×6.5 | M6 | $3.01\times10^{-7}$ | 1.5 | 3.51 | 5,000 |
| | 58 | 85 | 100 | 18 | 82 | 71 | 6.6×11×6.5 | M6 | $3.01\times10^{-7}$ | 1.31 | 3.5 | 5,000 |
| | 65 | 106 | 88 | 18 | 70 | 85 | 11×17.5×11 | M6 | $4.74\times10^{-7}$ | 2.41 | 4.15 | 5,000 |
| | 74 | 108 | 120 | 15 | 105 | 90 | 9×14×8.5 | M6 | $8.08\times10^{-7}$ | 3.1 | 5.53 | 4,740 |
| | 76 | 121 | 117 | 18 | 99 | 98 | 11×17.5×11 | M6 | $8.08\times10^{-7}$ | 3.7 | 5.7 | 4,700 |
| | 74 | 108 | 139 | 18 | 121 | 90 | 9×14×8.5 | M6 | $8.08\times10^{-7}$ | 3.81 | 5.82 | 4,740 |
| | 75 | 120 | 123 | 18 | 105 | 98 | 11×17.5×11 | M6 | $1.29\times10^{-6}$ | 3.82 | 7.1 | 4,230 |
| | 78 | 123 | 140 | 18 | 122 | 100 | 11×17.5×11 | M6 | $1.29\times10^{-6}$ | 4.34 | 7.99 | 4,210 |
| | 78 | 123 | 140 | 18 | 122 | 100 | 11×17.5×11 | M6 | $1.29\times10^{-6}$ | 4.31 | 7.99 | 4,210 |
| | 75 | 114 | 122 | 18 | 104 | 93 | 11×17.5×11 | M6 | $1.29\times10^{-6}$ | 3.4 | 7.54 | 4,230 |
| | 82 | 124 | 103 | 18 | 85 | 102 | 11×17.5×11 | M6 | $1.97\times10^{-6}$ | 3.61 | 8.87 | 3,830 |
| | 84 | 126 | 119 | 18 | 101 | 104 | 11×17.5×11 | M6 | $1.97\times10^{-6}$ | 4.2 | 8.83 | 3,800 |
| | 84 | 126 | 144 | 18 | 126 | 104 | 11×17.5×11 | M6 | $1.97\times10^{-6}$ | 4.9 | 9.09 | 3,800 |
| | 82 | 126 | 162 | 18 | 144 | 104 | 11×17.5×11 | M6 | $1.97\times10^{-6}$ | 5.17 | 9.37 | 3,830 |
| | 88 | 132 | 111 | 18 | 93 | 110 | 11×17.5×11 | Rc1/8 (PT1/8) | $3.16\times10^{-6}$ | 4.29 | 11.36 | 3,420 |
| | 90 | 130 | 119 | 18 | 101 | 110 | 11×17.5×11 | | $3.16\times10^{-6}$ | 4.6 | 11.32 | 3,400 |
| | 90 | 130 | 140 | 18 | 122 | 110 | 11×17.5×11 | | $3.16\times10^{-6}$ | 5.3 | 11.61 | 3,400 |
| | 90 | 130 | 162 | 18 | 144 | 110 | 11×17.5×11 | | $3.16\times10^{-6}$ | 5.96 | 11.1 | 3,400 |
| | 93 | 135 | 103 | 18 | 85 | 113 | 11×17.5×11 | | $4.82\times10^{-6}$ | 4.28 | 14.16 | 3,090 |
| | 100 | 146 | 123 | 22 | 101 | 122 | 14×20×13 | | $4.82\times10^{-6}$ | 6.12 | 13.82 | 3,060 |
| | 105 | 152 | 164 | 25 | 139 | 128 | 14×20×13 | | $4.82\times10^{-6}$ | 8.82 | 13.71 | 3,030 |
| | 105 | 152 | 201 | 28 | 173 | 128 | 14×20×13 | | $4.82\times10^{-6}$ | 10.63 | 14.05 | 3,030 |

Axial Clearance

Unit: mm

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

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 ($Fa_0$) 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