MOTION & CONTROL™

NSK

# Ball Screws for High-Speed Machine Tools
# HMS Model

RoHS compliant

New!

The SRC recirculation system is a wonderful addition to our lineup of ball screws for machine tools, including our well-established HMC and HMD Model*. This new Model is particularly suited for machining centers for high precision machining.

## Features

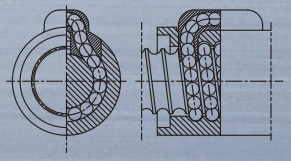
### 1.High speed

Permissible rotational speed (d・n value) has increased from 100 000 to 160 000.

### 2.Low noise

By adopting SRC recirculation system, the sound pressure level has been reduced by 5 dB compared with our existing product.

*SRC recirculation system: A high speed, low noise recirculation system used in the well accepted HTF-SRC Model designed for heavy load applications.



# Ball Screws for High-Speed Machine Tools HMS Model

## Ball screw specifications

・Accuracy grade/axial play
Accuracy grade: C3 and C5 grades of JIS standard
Axial play: 0 (Preload)

・Nut dimensions
Nut mounting and external dimensions are the same as existing tube type ball screws.
Please see Table 2 for specifications and dimensions.

*For any specifications other than the above, please contact NSK.

## Optional specifications

・Cooling ball screws
・Ball screws for twin-drive systems

## Maximum feed speed

By adopting the SRC recirculation system, the permissible rotational speed (d・n value) is improved and the maximum feed speed has been substantially increased.

d・n value: Increased to 160 000 from 100 000 in the existing products.
*d: shaft diameter (mm), n: rotational speed ($min^{-1}$)

Please see Table 1 for permissible rotational speed and maximum feed speed.

Table 1 Permissible rotational speed and maximum feed speed Unit: mm

| Shaft dia. \ Lead | Permissible rotational speed ($min^{-1}$) | 8 | 10 | 12 |
|---|---|---|---|---|
| 40 | 4 000 | — | 40 m/min | 48 m/min |
| 45 | 3 550 | 28 m/min | — | — |
| 50 | 3 200 | — | 32 m/min | 38 m/min |

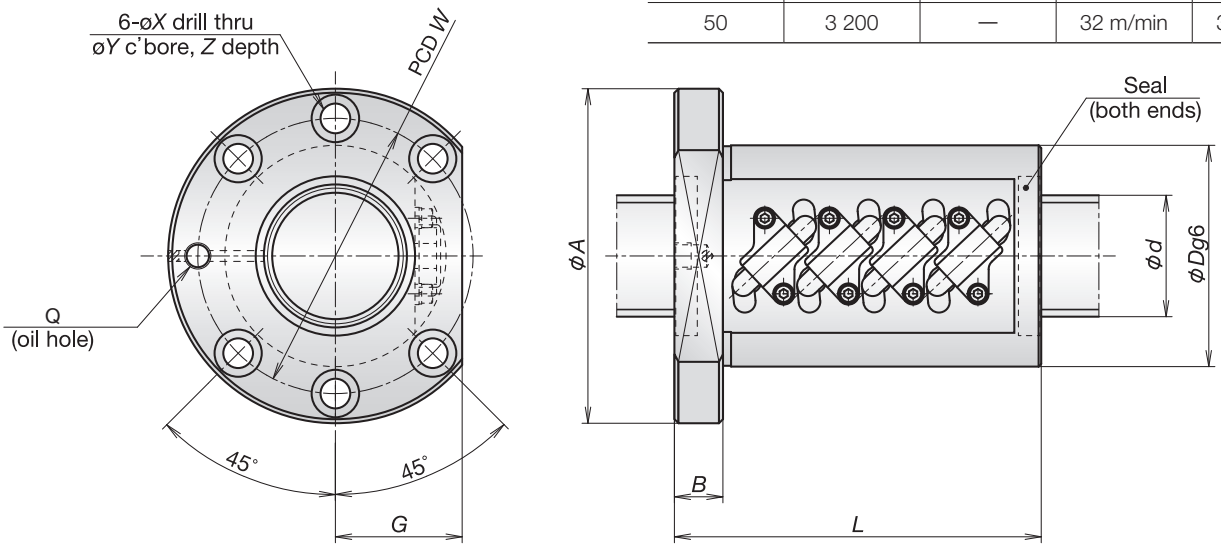



Table 2 Nut dimensions Unit: mm

| Model No. | Shaft dia. d | Lead l | Basic load rating (kN) Dynamic Ca | Basic load rating (kN) Static Coa | Axial rigidity K (N/μm) | External dimensions L | D | A | B | G | Mounting hole dimensions X | Y | Z | W | Oil hole Q |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ZFRC3205-10 | 32 | 5 | 21 800 | 56 000 | 891 | 89 | 58 | 85 | 12 | 32 | 6.6 | 11 | 6.5 | 71 | M6×1 |
| ZFRC3210-10 | 32 | 10 | 54 500 | 110 000 | 970 | 163 | 74 | 108 | 15 | 41 | 9 | 14 | 8.5 | 90 | M6×1 |
| ZFRC4005-10 | 40 | 5 | 23 900 | 70 500 | 1 067 | 92 | 67 | 101 | 15 | 39 | 9 | 14 | 8.5 | 83 | M6×1 |
| ZFRC4010-10 | 40 | 10 | 61 200 | 137 000 | 1 154 | 166 | 82 | 124 | 18 | 47 | 11 | 17.5 | 11 | 102 | Rc1/8 |
| ZFRC4012-10 | 40 | 12 | 71 700 | 154 000 | 1 177 | 192 | 86 | 128 | 18 | 48 | 11 | 17.5 | 11 | 106 | Rc1/8 |
| ZFRC4508-10 | 45 | 8 | 44 000 | 118 000 | 1 234 | 136 | 82 | 124 | 18 | 47 | 11 | 17.5 | 11 | 102 | Rc1/8 |
| ZFRC4510-10 | 45 | 10 | 65 800 | 157 000 | 1 291 | 166 | 88 | 132 | 18 | 50 | 11 | 17.5 | 11 | 110 | Rc1/8 |
| ZFRC4512-10 | 45 | 12 | 75 600 | 176 000 | 1 304 | 192 | 90 | 132 | 18 | 50 | 11 | 17.5 | 11 | 110 | Rc1/8 |
| ZFRC5010-10 | 50 | 10 | 68 100 | 174 000 | 1 397 | 166 | 93 | 135 | 18 | 51 | 11 | 17.5 | 11 | 113 | Rc1/8 |
| ZFRC5012-10 | 50 | 12 | 91 500 | 218 000 | 1 441 | 198 | 100 | 146 | 22 | 55 | 14 | 20 | 13 | 122 | Rc1/8 |
| ZFRC6312-14 | 63 | 12 | 136 000 | 385 000 | 2 388 | 244 | 115 | 161 | 22 | 61 | 14 | 20 | 13 | 137 | Rc1/8 |

Notes: 1. All of the above are right-hand screws.
2. Value shown as rigidity K is the value when 5% of the basic dynamic load rating Ca has been applied as the preload.

Handling precautions: Maximum operating temperature; 60°C (at outside diameter of ball nut)

**For more information about NSK products, please contact: www.nsk.com**



Eco-awareness and reliability in motion NSK

NSK used environmentally friendly paper and printing methods for this publication.

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