Ball Screw with X1 Seals for Machine Tool Applications

The newly developed X1 seal combines high dustproof performance with grease retention performance. These improvements contribute to longer service life for machine tools and reduce environmental impact.

Features

1. Highly dustproof
   Particle penetration ratio reduced to less than 1/30 of existing standard seals, thus contributing to longer service life for machine tools.

2. Superior grease retention
   Lubricant consumption can be reduced and grease splattering suppressed. The function is even more effective with an automatic grease supply system.

3. Contact seal with low torque
   Low seal torque is achieved by optimizing the seal shape.
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**Ball screw specifications**

**Structure**
The ball screw with X1 seals has a double seal structure combining a dustproof seal and a grease-retaining seal. It improves both dustproof performance and grease retention performance, and it can reduce lubricant consumption. Moreover, by optimizing the seal shape, heat generation by the seals is reduced.

**Scope of application in NSK Ball Screw series**
Ball screws for high-speed machine tools HMS series, (Nut model: ZFRC) HMD series, (Nut model: EM) *for specifications other than the above, please contact NSK.*

**Accuracy grade / Axial play**
Accuracy grade: C3 and C5 grades of JIS standard Axial play: 0 (Offset preload)
*for specifications other than the above, please contact NSK.*

**Cautions regarding design**
Cut through the thread screw to the end. Additional torque by X1 seal is about 15-35 N-cm. Maximum overall shaft length is 2900 mm.

**Nut Model ZFRC**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Shaft dia.</th>
<th>Lead</th>
<th>Basic load rating[kN]</th>
<th>Axial play</th>
<th>Nut dimensions</th>
<th>Ball holes</th>
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</table>

**Handling precautions**
Maximum temperature for use: 60 °C (measured at outside diameter of ball nut) Chemicals that must be avoided: Do not leave ball screw in hexane, thinner, or other organic solvents that remove oil, in white kerosene, or in rust preventive oil that contains white kerosene compounds.

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

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