### Specifications
- **Precision grade**: JIS grade No. 1 (JIS B1702-1998)
- **Normal plane**: Reference section of gear
- **Normal pressure angle**: 20°
- **Helix angle**: 45°
- **Material**: CAC702 (old JIS display A, BC2)
- **Heat Treatment**:

### Screw Gears
- **Catalog Number**: Module No. of teeth Direction of spiral Shape
- **Bore Hub dia. Pitch dia. Outside dia. Face width Hub width Total Length**

### Allowable Torque (N·m) & (kgf·m)
- **Backlash (mm)**
- **Weight (kg)**

### Caution on Product Characteristics
1. When mating screw gears are made of the same material, they may cause abrasion and scoring. It is recommended to mate screw gears composed of different materials.
2. The allowable torques shown in the table are calculated values according to the assumed usage conditions. Please see Page 342 for more details.
3. The backlash values shown in the table are the theoretical values for the backlash in the normal direction of a pair of identical gears in mesh.
4. For offset shaft applications, match a RH with a RH, or LH with a LH, to make a set of screw gears. For parallel shaft applications, mesh opposite hands (RH and LH) of helical gear sets. Please see Page 342 for more details.
5. If the bore diameter is less than φ4, the bore tolerance class is H8. If the bore diameter is φ5 or φ6, and the hole length (total length) exceeds 3 times the diameter, then the class is also H8.

### Caution on Secondary Operations
1. Please read "Cautions on Performing Secondary Operations" (Page 343) when performing modifications and/or secondary operations for safety concerns.
2. Avoid performing secondary operations that narrow the tooth width, as it affects precision and strength.
Screw Gears

Features

KHK stock screw gears come in four materials, S45C, SUS303, CAC702 (old JIS A1BC2) and MC nylon, in modules 1–4 and numbers of teeth from 10 to 30.

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Module</th>
<th>Material</th>
<th>Heat Treatment</th>
<th>Tooth Treatment</th>
<th>Pressure Angle</th>
<th>Secondary Operability</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSN 1 to 4</td>
<td>4</td>
<td>S45C</td>
<td>—</td>
<td>Cut N9</td>
<td>20° (H10/16)</td>
<td>○</td>
<td>Popular screw gears. Additionally, gear tooth hardening is a secondary operation which can be performed. Series products are also available.</td>
</tr>
<tr>
<td>KSN 1 to 3</td>
<td>3</td>
<td>SUS303</td>
<td>—</td>
<td>Cut N9</td>
<td>20° (H10/16)</td>
<td>○</td>
<td>Tapered for food machinery due to SUS303's rust-resistant qualities.</td>
</tr>
<tr>
<td>KAN 1 to 4</td>
<td>4</td>
<td>CAC702</td>
<td>—</td>
<td>Cut N9</td>
<td>20° (H10/16)</td>
<td>○</td>
<td>Aluminum bronze made products have excellent wear resistance.</td>
</tr>
<tr>
<td>KPN 1 to 3</td>
<td>3</td>
<td>MC901</td>
<td>—</td>
<td>Cut N9</td>
<td>20° (H10/16)</td>
<td>○</td>
<td>Light weight products made of MC Nylon can be used without lubrication.</td>
</tr>
</tbody>
</table>

Note: ○ Possible □ Partially possible X Not possible

Application Examples

KHK stock screw gears are used in various labor-saving machines including feeding devices.

- Design example of feeding device (from a design for machinery or a device in actual use).
- Selection Hints

Selection Hints

Please select the most suitable products by carefully considering the characteristics of items and contents of the product tables. Since screw gears come in right- or left-hand helix, make sure to include the letter “R” or “L” in the catalog number when you order.

1. Caution in Selecting the Mating Gears

Screw gears are used for offset shafts. Whether the shafts are parallel offset or skewed offset depends on the helix direction of the mating gears.

- [NOTE] 100 rpm

<table>
<thead>
<tr>
<th>Setting values depending on usage conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catalog Number</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>KSN 1 to 4</td>
</tr>
<tr>
<td>KSN 1 to 3</td>
</tr>
<tr>
<td>KAN 1 to 4</td>
</tr>
<tr>
<td>KPN 1 to 3</td>
</tr>
</tbody>
</table>

Note: ○ Possible □ Partially possible X Not possible

Application Hints

In order to use KHK stock screw gears safely, read the Application Hints carefully before proceeding. Please refer to Page 26 for “Cautions on Handling” and Page 27 for “Cautions on Starting”.

1. Cautions on Performing Secondary Operations

- If reboring, it is important to pay special attention to locating the center in order to avoid runout.
- The reference datum for gear cutting is the bore. Therefore, use the bore for locating the center. If it is too difficult to do for small bores, the alternative is to use one spot on the bore and the runout of the side surface.
- If reworking using scroll chucks, we recommend the use of new or rebored jaws for improved precision. Please exercise caution not to crush the teeth by applying too much pressure. Any scarring will cause noise during operation.

2. Points of Caution during Assembly

- Due to the helix of screw gears, they produce axial thrust forces. The bearings must be selected properly to be able to handle these thrust forces. The directions of thrust change with the direction of the helix and the direction of rotation as illustrated below.

- [NOTE] For parallel shaft applications, use the Application Hints for KHK Helical Gears (Page 167).

KHK Technical Information

KHK considers safety a priority in the use of our products. When handling, adding secondary operations, assembling, and operating KHK products, please be aware of the following issues in order to prevent accidents.

- **Warning: Precautions for preventing physical and property damage**
  1. When using KHK products, follow relevant safety regulations (Occupational Safety and Health Regulations, etc.).
  2. Pay attention to the following items, when engine, surrounding, or performing maintenance and inspection of the product
  3. Do not use scroll after the product.
  4. Wear appropriate clothing and protective equipment for the work.

- **Caution: Cautions in Preventing Accidents**
  1. Before using a KHK product, read the precautions in the catalog carefully in order to use it correctly.
  2. Avoid use in environments that may adversely affect the product.
  3. Our products are manufactured under a superior quality control system based on the ISO9001 quality management system. If you notice any malfunctions upon purchasing a product, please contact the supplier.