Gear Couplings

Features

Characteristics of Gear Couplings

- There are many ways to couple shafts to transmit power. We have developed these standardized gear couplings of our own design. They are easier to connect or disconnect than chain couplings.
- The gear teeth of the inner hubs are crowned to allow for up to 5° of shaft angle offset.
- Due to induction hardened gear teeth, these couplings have excellent durability. All surfaces are plated (Titanium nitride).
- The units are machined complete with keyways, set screw holes and finished bores and are ready for immediate installation. We also offer minimum bore models for users who want to perform their own secondary operations.

Points to observe during use

- If you require one set of GC2-30, you will need one GC2-I (outer ring) and two GC2-30 (inner hub). These components may also be purchased separately. Therefore, please specify them when ordering.
- Inner hubs come with snap rings, 5 type products have prepared minimum bores and finished products come with set screws.
- Due to the gear teeth being induction hardened, no secondary operations can be performed on teeth areas, including the bottom land (approx. 2 to 3 mm).

Strength of Gear Couplings

Tolerance torques of the gear couplings are determined in accordance with the shear strength of the keys. Allowable shear force of keys F (N) are calculated from the following formula.

\[ F = \sigma \times L \times a \times \frac{1}{t} \]

Additionally, allowable torques (T) of the inner hubs of the gear coupling, versus shear force of keys, can be calculated from the formula below.

\[ T = \frac{F}{2000} \]

- \( \sigma \): Key Width (mm) → Keyway width of inner hub of the GC Gear Coupling
- \( L \): Key Length (mm) → Set at -2 mm from the total length of the inner hub of the GC Gear Coupling
- \( a \): Allowable Shear Force of keys → Set at 49MPa (Slig/㎟)
- \( t \): Safety Factor → Optionally set
- \( d \): Bore size (mm) → Bore size A of the inner hub of the GC Gear Coupling

Caution: Safety Factor (S) must be set at a value between 1 to 3, depending on the load types or the coupling displacement.

Application

Assembly Example: KHK Stock Gears Sample Unit

Module 2 to 2.5

Specific usage for turning the work having no shafts or bores.

Other Products

Please see our website for corrections on KHK Catalogs.
## Gear Couplings (Inner hub)

<table>
<thead>
<tr>
<th>Catalog No.</th>
<th>Module No. of teeth</th>
<th>Shape</th>
<th>Bore H7 dia.</th>
<th>Pitch dia.</th>
<th>Outside dia.</th>
<th>Face width</th>
<th>Tooth length</th>
<th>Set Screw</th>
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<td>m2</td>
<td>T2</td>
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### Specifications
- Gear teeth: Standard full depth
  - Pressure angle: 20°
- Material: S45C
- Heat treatment: Tooth surface induction hardened
- Tooth hardness: 50 – 60HRC

### Catalog No.
- L: 12
- M: 22
- N: 32

### Remarks
- For products not categorized in our KHK Stock Gear series, custom gear production services are available. For details see page 8.