MBSG

Ground Spiral Bevel Gears

Module 2, 2.5, 3, 4

![Diagram of Ground Spiral Bevel Gears]

### Specifications

<table>
<thead>
<tr>
<th>Catalog No.</th>
<th>Gear ratio</th>
<th>Module</th>
<th>No. of teeth</th>
<th>Arc</th>
<th>Add.</th>
<th>Pitch dia.</th>
<th>Mating distance</th>
<th>Total length</th>
<th>Crown to back length</th>
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</thead>
<tbody>
<tr>
<td>MBSG2-4020R</td>
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<td>B4</td>
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<td>88.4</td>
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</tbody>
</table>

| Note: *1* Allowable torques shown in the table are the calculated values according to the assumed usage conditions. Please see page 283 for more details.

* For products not categorized in our KHK Stock Gear series, custom gear production services with short lead times is available. For details see Page 8.

#### Contact Surface of Spiral Bevel Gears

Tooth surfaces of spiral gears have concave and convex sides.

Changes in the rotational direction of the driving gear alter the contact surface accordingly. The illustrations show the top view of RH and LH Spiral Gears, and the tables on the right explain the different contact surface depending on the situation.

**RH Spiral as a driving gear**

- **Contact Surface**
  - Convex Surface
  - Concave Surface

**LH Spiral as a driving gear**

- **Contact Surface**
  - Convex Surface
  - Concave Surface

(Note 1) Rotation directions given in the tables are for viewing the gears from the hub side.

Forces Acting on Spiral Bevel Gear Teeth

For a spiral bevel gear with shaft angle ψ=90°, pressure angle α=20°, and spiral angle β=35°, the tables below show the axial thrust force $F_x$ and the radial force $F_r$ when a tangential force $F_t$ of 100 units is applied at the center of face width. For details, please refer to the section “Features of Tooth Surface Contact” in separate technical reference book.

The tables show the values of

- Axial Thrust Force $F_x$
- Radial Force $F_r$

1. Forces acting upon pinion

   **Contact Surface**
   - Concave Surface
   - Convex Surface

   **Gear Ratio $z_{i}$**
   - 1.0
   - 2.5

   **Axial Thrust Force $F_x$**
   - 80.9
   - 103.3

   **Radial Force $F_r$**
   - 75.6
   - 103.3

2. Forces acting upon gear

   **Contact Surface**
   - Concave Surface
   - Convex Surface

   **Gear Ratio $z_{i}$**
   - 1.5
   - 2.0

   **Axial Thrust Force $F_x$**
   - 103.3
   - 103.3

   **Radial Force $F_r$**
   - 75.6
   - 103.3