Low-torque Long-life Deep Groove Ball Bearings for Electric Motors

Optimized grease composition substantially reduces rotational torque & extends service life!!

- Combining low viscous base oil and optimized thickener substantially reduces stir resistance.
- Combining improved heat resistance and base oil retention capacity of the thickener with improved heat resistance of the base oil substantially extends bearing service life.

■ Grease compositions

<table>
<thead>
<tr>
<th>Grease Type</th>
<th>Thickener</th>
<th>Base oil</th>
<th>Base oil kinetic viscosity (40°C)</th>
<th>Additives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newly developed grease</td>
<td>Diurea</td>
<td>Synthetic oil</td>
<td>25 mm²/s</td>
<td>Oxidation inhibitors</td>
</tr>
<tr>
<td>SR grease</td>
<td>Diurea</td>
<td>Ester oil</td>
<td>24 mm²/s</td>
<td>Oxidation inhibitors</td>
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<tr>
<td>KVC grease</td>
<td>Lithium soap</td>
<td>Synthetic oil</td>
<td>47 mm²/s</td>
<td>Oxidation inhibitors</td>
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<tr>
<td>H8 grease</td>
<td>Diurea</td>
<td>Synthetic oil</td>
<td>47 mm²/s</td>
<td>Oxidation inhibitors</td>
</tr>
</tbody>
</table>

50% reduction of rotational torque from conventional products saves energy.

2 times longer service life compared to conventional bearings provides maintenance-free operation.

- Stir resistance
  - Generated when a rolling element or cage pushes grease aside
- Rolling viscous resistance
  - Generated when a ball breaks oil film over raceway
- Sliding friction resistance
  - Sliding friction between balls and cage
- Rolling friction resistance
  - Sliding friction between balls and raceway created by spinning balls
Rotational torque measurement results

50% reduction of rotational torque

Endurance test results

2 times the volume of remaining oil after test

Fretting resistance

Our newly developed grease has equivalent fretting resistance to that of H8 grease.

Test conditions

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<tr>
<th>Bearing</th>
<th>Load</th>
<th>Rotational speed</th>
<th>Ambient temperature</th>
<th>Test duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>6302</td>
<td>Fr=0 kN Fa=0.077 kN</td>
<td>1,800 min⁻¹</td>
<td>25°C (Room temperature)</td>
<td>30 min</td>
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<tr>
<td>6306</td>
<td>Fr=0.1 kN Fa=0.17 kN</td>
<td>1,800 min⁻¹</td>
<td>140°C</td>
<td>1,000 h (Suspension)</td>
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Applications

Household appliances/Industrial motors

Inquiries:

PUBLISHER

JTEKT CORPORATION NAGOYA HEAD OFFICE
No.7-1, Meiki 4-chome, Nakamura-ku, Nagoya, Aichi 450-8515, JAPAN
TEL:81-52-527-1900 FAX:81-52-527-1911

JTEKT CORPORATION OSAKA HEAD OFFICE
No.5-8, Minamisemba 3-chome, Chuo-ku, Osaka, 542-8502, JAPAN
TEL:81-6-6271-8451 FAX:81-6-6245-3712

Sales & Marketing Headquaters
No.5-8, Minamisemba 3-chome, Chuo-ku, Osaka, 542-8502, JAPAN
TEL:81-6-6245-6087 FAX:81-6-6244-9007

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