Hub Bearing with Wireless ABS Sensor

The wireless ABS sensor module is a single unit containing a hub bearing, hub joint, high-efficiency generator, and wireless transmitter. Use of the generator output as a power supply and sensor signal allows wireless transmission of the wheel speed signal.

**Features**

- **Compact**
  Hub bearing, hub joint, and sensor are integrated into one unit.

- **Reduced assembly time**
  No wiring is required between the wheel and tire housing.

- **Improved safety (Prevention of accidents caused by damaged or broken wires)**
  No wiring is used in moving parts.

- **Improved design flexibility**
  Entire sensor is integrated into a single unit.

- **Possible to activate ABS function at very low speeds.**
  It also detects wheel slippage during acceleration.

**Structure**

- GEN3 hub bearing type
- GEN4 hub joint type
GEN2 Tapered Hub Bearing for Large Commercial Vehicles

The outer ring and hub are integrated into a single lightweight greased and sealed unit with high-reliability features.

Features

- Requires no preload adjustment (Unit is designed to have the appropriate preload after assembly on the vehicle).
- Ease of assembly, maintenance, and inspection.

Bearing Specifications

- Outer ring material: NTN’s unique SC steel with excellent fatigue strength and shock resistance
- Inner ring and roller material: NTN’s unique long-life carburized steel with excellent hardness, toughness, and shock resistance
- Lubrication: Long-life Urea grease with high fretting resistance
- Fluorocarbon rubber seals with excellent high-temperature endurance and seal lips resistant to muddy water
GEN3 Hub Bearing with Brake Rotor

GEN3 hub bearing and brake rotor are integrated into a single unit, resulting in drastically reduced rotor runout.

Features
- Not as susceptible to brake shudder
- Decreases drag and reduces fuel consumption
- Eliminates the need for matching brake rotor to hub

Applications
- Axle unit for passenger cars
The third generation hub bearing is integrated with the new "E Series" constant-velocity joint, resulting in a compact, lightweight design.

**Features**

- **High efficiency and low heat generation**
  Adoption of the new "E Series" constant-velocity joint improves transmitted torque by 30% during power conveyance. Heat generation has also been reduced by 20°C compared to the conventional type.

- **Smaller axial dimension**
  Integration of the new constant-velocity joint and bearing reduces the distance between the flange and CVJ center by 20% or more.

- **Lightweight**
  Integration of the CVJ and bearing, adoption of a hollow joint shaft, and use of the new CVJ bearing tightening method reduces the weight by 10% or more.

**Structure**
This E series constant velocity joint provides high levels of functionality and environmental solutions by offering reduced weight, compactness, and high transmission efficiency.

### Fixed type

**EBJ (θ = 47˚)**

**EUJ (θ = 50˚)**

### Plunging type

**EDJ**

**ETJ**

### Comparison with NTN's conventional CVJ product

<table>
<thead>
<tr>
<th></th>
<th>EBJ</th>
<th>EUJ</th>
<th>EDJ</th>
<th>ETJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (%)</td>
<td>-15</td>
<td>-15</td>
<td>-10</td>
<td>-12</td>
</tr>
<tr>
<td>Outer diameter (%)</td>
<td>-7</td>
<td>-7</td>
<td>-4</td>
<td>-8</td>
</tr>
<tr>
<td>Temperature rise (˚C)</td>
<td>-20</td>
<td>-20</td>
<td>-20</td>
<td>—</td>
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</tbody>
</table>
PTJ (Super-Shudderless Constant Velocity Joints)

New plunging type constant velocity joints with low, constant vibration.

Features

- Minimized vibration for drive shafts.
- Constant induced cyclic axial load not related to the working angle.
- 50% lower induced cyclic axial load in comparison with SFJ.
- Identical outer diameter to SFJ
Super High Speed AT Spindle

Aero-static bearing spindle that can be attached to the machining center main spindles

Features
- Can be attached to the machining center spindles (special machine tools are not needed).
- Use of aero-static bearings deliver super-high speeds up to 150,000 min⁻¹ with high rotational accuracy.
- Use of a shaft-integrated shrink fit chuck enables high-accuracy and high-stiffness chucking.
- Low vibration, low noise level, and long life

Specifications

<table>
<thead>
<tr>
<th></th>
<th>Axial</th>
<th>Radial</th>
<th>Axial</th>
<th>Radial</th>
<th>Spindle weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum speed</td>
<td>150,000 min⁻¹</td>
<td></td>
<td></td>
<td></td>
<td>5 kg (excluding mounting shank)</td>
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<tr>
<td>Load capacity</td>
<td>20 N</td>
<td>40 N</td>
<td>1.0 N/μm</td>
<td>1.8 N/μm</td>
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<tr>
<td>Static stiffness</td>
<td></td>
<td></td>
<td>Tool chucking method</td>
<td>Shaft-integrated shrink fit chuck (₆)</td>
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<tr>
<td>Spindle weight</td>
<td></td>
<td></td>
<td>Supply air pressure</td>
<td></td>
<td>100 L/min (A.N.R.)</td>
</tr>
</tbody>
</table>

* The radial load capacity and static stiffness are measured at a position 14mm from the spindle end.

Motor

Rated Power 0.6kW
Three-phase induction motor: 200V AC
Water-cooled: 1 to 2 L/min

Motor

Applicable tool diameter: 1mm or smaller

Supply air pressure: 0.49 MPa

Air consumption: 100 L/min (A.N.R.)
BEAREE Slide Guide

Lightweight and compact linear guide with optimal utilization of BEAREE material.

Features
- Low friction at loads up to 50N
- Lighter (approx. 1/3) and less expensive than the conventional linear guide with balls
- Allows custom design of various shapes

Structure

Friction data (Reciprocating testing device)