

Grease for Machine Tool Spindle Bearings

ROBUSTGRD™

ROBUSTGRD improves seizure resistance and reliability in machine tools using cutting fluid and enables the adoption of environmentally friendly grease lubrication in applications typically covered by oil-air lubrication.



1 Background

Oil-air lubrication is widely used in machine tools for its excellent lubrication performance. However, oil-air lubrication uses a large amount of compressed air and consumes a lot of electricity, so there is a need to reduce power consumption to reduce running costs and pursue carbon neutrality. Grease lubrication does not use compressed air, leading to energy savings compared to oil-air lubrication, but reliability improvement has been an issue. In the development of the new grease, NSK aimed to further enhance reliability while enabling more machining applications to use more environmentally friendly grease lubrication.

2 Product Benefits

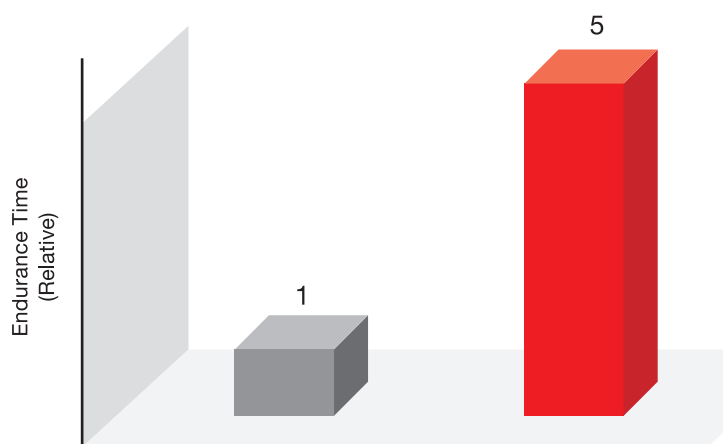
Improved seizure resistance and reliability in machine tools using cutting fluid or coolant enables the adoption of grease lubrication to reduce power consumption of machine tools. In addition, the increased reliability contributes to improved productivity and long-term stable operation.

3 Product Features

High Seizure Resistance

Optimized grease composition to achieve 5 times higher* seizure resistance compared to our conventional grease.

* Under accelerated test conditions of approximately 3 times the typical usage conditions



Conventional

ROBUSTGRD™

Accelerated Test Conditions

Bearing
: Angular ball bearing
(Inner dia. 50mm, Outer dia. 80mm, steel balls)

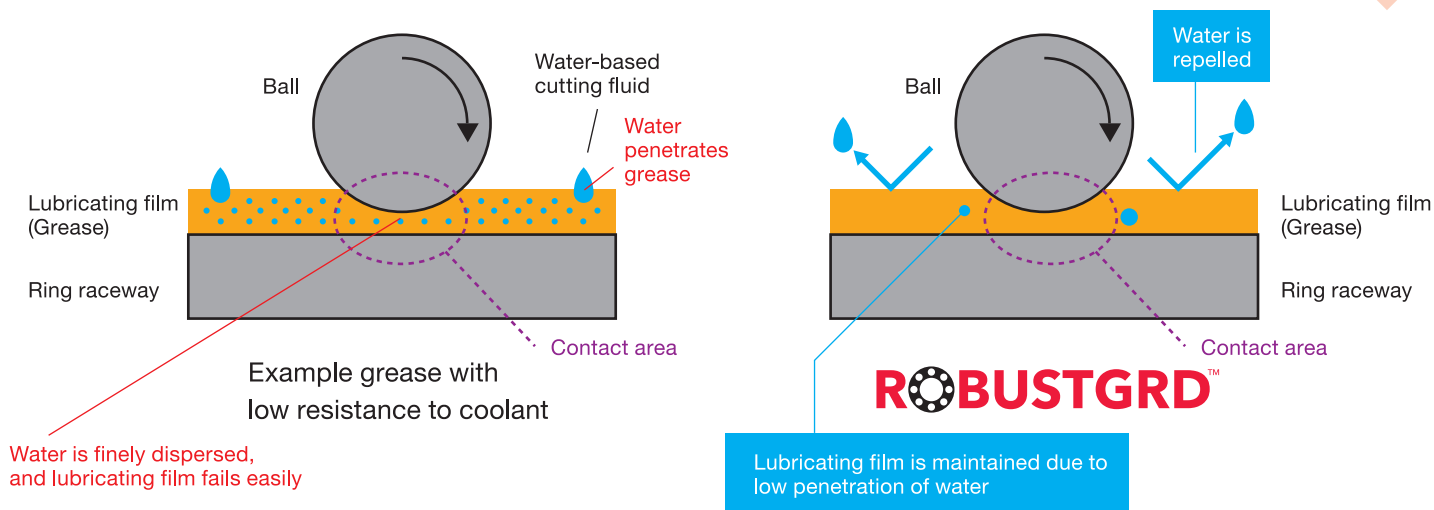
Speed
: 18000 min⁻¹

Load
: 2100N

Grease fill volume
: 15% of free space

High Reliability in Machine Tools Using Cutting Fluid

Previously, a concern of grease lubrication was that cutting fluid or coolant could infiltrate the bearing, causing the oil film to break and adversely affect lubrication performance. The newly developed ROBUSTGRD maintains the protective oil film by reducing the adverse effects of cutting fluid or coolant that enters the bearing.



For more information about NSK products, please contact: www.nsk.com



NSK used environmentally friendly paper and printing methods for this publication.