Lubtect®

An application-oriented alternative to grease lubrication of bearings

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Lubtect®

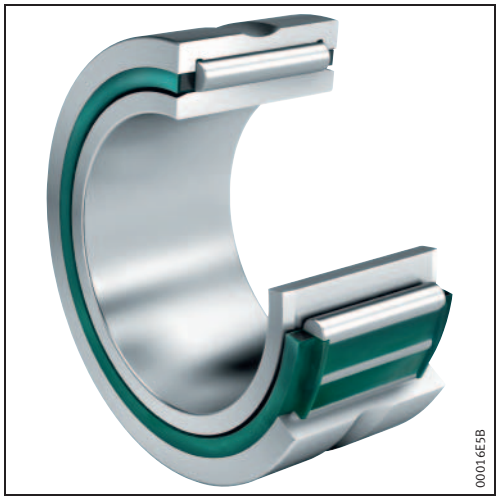

Figure 1: Needle roller bearing filled with Lubtect®

Lubtect® is a lubricant compound essentially comprising a polymer and a lubricant, *Figure 1*.

The compound fills the cavities in the rolling bearing and, after filling, forms a rigid, porous matrix structure, *Figure 2*.

This structure stores a larger quantity of lubricant than in a bearing with conventional grease lubrication.

During operation, the lubricant reaches precisely those areas where it is required, namely the contact zones of the rolling elements. Under particular application conditions, rolling bearings filled with Lubtect® can offer advantages in terms of operating life and security against failure compared with grease-lubricated rolling bearings.

Areas of application

Lubtect® is suitable for applications with swivel motion, low to moderate speeds, high loads and low temperatures. Lubtect® bearings have the same basic load ratings as bearings with standard greasing and run maintenance-free.

Due to the permanently uniform distribution of the compound, Lubtect® is also highly suitable where bearings undergo external accelerations or multi-row rolling bearings are fitted in a vertical arrangement. The space-filling characteristic of Lubtect® forms an additional barrier to contamination of the rolling contact.
In addition, the associated contact with the individual bearing components slightly increases the frictional torque. In order to ensure the bearing kinematics, a minimum radial load is therefore recommended.

A further advantage is the stronger retention of the lubricant within the bearing. This reduces the risk of lubricant escaping the bearing. Depending on the application, bearings can be designed with or without additional seals.

Technical data

- Operating temperature range at outer ring:
  –40 °C to +80 °C
- Upper continuous limit temperature:
  +60 °C
- Maximum speed parameter:
  Ball bearings: $n \cdot d_M = 120\,000$
  Roller bearings: $n \cdot d_M = 50\,000$
- Required minimum radial load:
  the recommended value is $> 1\%$ of the dynamic load carrying capacity
- Operating life:
  Running time tests with ball bearings 6206 and comparable market products from other manufacturers demonstrate that Lubtect® is particularly effective and is designed for a long operating life in the bearing, *Figure 3*.

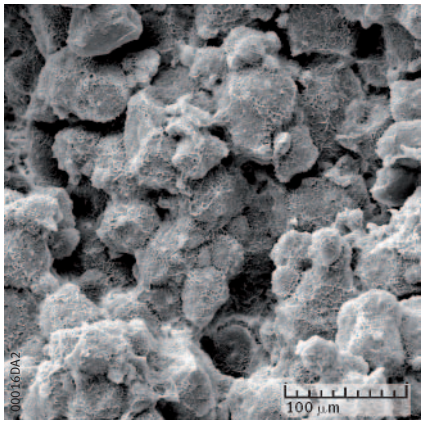

Figure 2: Polymer matrix structure

Lubtect® is registered as a brand with the German Patent and Trade Mark Office.

Applications

Lubtect® is suitable for ball, needle roller, spherical roller, tapered roller and cylindrical roller bearings.

Bearings with this lubricant compound are used where conventional oil and grease lubrication are not advisable for technical reasons.

Application examples

Typical applications are described below in which these requirements may occur.

Textile machine construction

The heald frame bearing in a mechanical loom is a full complement ball bearing and therefore has particularly high load carrying capacity.

Freedom from maintenance is particularly important in the heald control.
The bearings filled with Lubtect® are mounted in very difficult to access areas and undergo high external accelerations.

Paper production

At various locations in the pulp processing area, bearings filled with Lubtect® give protection against the ingress of fibres. In applications with a vertical bearing arrangement, the compound ensures that the lubricant is permanently retained in the bearing. This safeguards against the risk of lubricant starvation or overgreasing.

Kingpin bearing arrangements in commercial vehicles

Kingpin bearing arrangements perform only small swivel motions. The bearing serves to support the radial and axial forces acting on steered commercial vehicle axles. As a result, the axial bearing gives a defined frictional torque that has a direct and positive influence on the steering behaviour and assists in damping of the steering.
The uniform distribution of the compound ensures favourable lubrication conditions.

The bearing arrangement for radial load is not encapsulated. It is effectively protected against contamination and dust by the compound.

Other application examples

- Conveying equipment construction (track rollers)
- Woodworking
- Agricultural equipment construction
- Automotive industry (steering)
- Motorcycle construction (swing bearing arrangement).

Suffixes, available designs

When ordering, the suffix LT must be added to the selected standard bearing, for example 6002-C-2HRS-LT.

Bearings filled with Lubtect® are supplied by agreement.

Further information

Further information can be obtained from our employees in Commercial, External Sales and the relevant Application Engineering departments in the Business Units of Schaeffler Technologies GmbH & Co. KG.

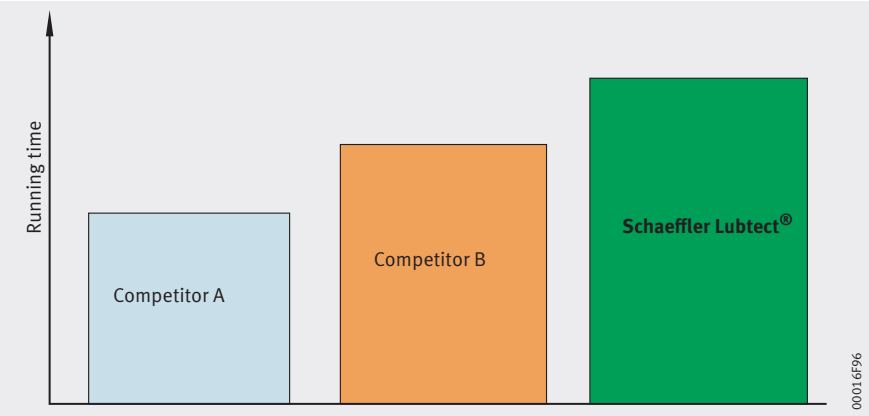

Figure 3: Comparison of operating life with bearings from other suppliers
Test conditions: C/P = 7,5; speed parameter = $n \cdot d_M$ = 115 000 (rotating)

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Schaeffler Technologies
GmbH & Co. KG

Industriestraße 1–3
91074 Herzogenaurach (Germany)
Internet www.ina.com
E-Mail info@schaeffler.com

In Germany:
Phone 0180 5003872
Fax 0180 5003873

From other countries:
Phone +49 9132 82-0
Fax +49 9132 82-4950

Schaeffler Technologies
GmbH & Co. KG

Georg-Schäfer-Straße 30
97421 Schweinfurt (Germany)
Internet www.fag.com
E-Mail FAGinfo@schaeffler.com

In Germany:
Phone 0180 5003872
Fax 0180 5003873

From other countries:
Phone +49 9721 91-0
Fax +49 9721 91-3435

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