

your global specialist

## Speciality lubricants for machine tools.

Economical lubrication for every component



# Speciality lubricants for maximum speeds



The demands on bearings, gears, chucks and guide systems in machine tools are increasing. The need for ever-shorter machining times means the spindle speeds have to increase as well. Drive and guide systems are expected to run smoothly and with consistent maximum precision. Our advanced speciality lubricants support your equipment in meeting these

requirements and at the same time enable simpler machine design and assembly. With many of our machine tool lubricants, life-time lubrication is achievable. That is why our lubricants are the first choice for many OEMs for machine tools, specifically for the Japanese machine makers.

## The lubrication of spindle bearings - reliable at high speeds

Machine tool main spindles running at higher speeds enable even greater machining rates and shorter machining times per workpiece. These high speeds result in demanding operating conditions for rolling bearings. Spindle bearings are required to operate at high speed factors (n x dm) and run with reduced friction to keep bearing temperature low.

The bearings have to carry both radial and axial loads. Naturally, premature bearing failure must be prevented. Our lubricants protect machine components effectively against corrosion to increase their service life, not least due to their excellent adhesion. They are resistant to water and cutting fluids.



Application	Product	Benefits and Values
Spindle bearings, greases	<b>ISOFLEX NBU 15</b>	<ul style="list-style-type: none"> <li>– Good pressure absorption capacity</li> <li>– Longer component life due to optimised wear protection</li> <li>– Excellent resistance to water, media and oxidation - protects bearing against premature failure, thus minimise repair costs</li> <li>– Low intrinsic bearing heat due to low lubricant friction enabling longer service life</li> <li>– Uninterrupted machine operation due to good pumpability and metering in customary centralised lubricating systems</li> </ul>
Spindle bearings, oils	<b>Klübersynth FB 4 series</b>	<ul style="list-style-type: none"> <li>– Longer oil life due to good resistance to ageing and oxidation</li> <li>– Reliable function at high speeds/speed factors</li> <li>– High machine availability due to low maintenance</li> <li>– Complies with high degree of oil purity - purity class 15/13/10 according to ISO 4406, before filling</li> <li>– High viscosity index reduces impact on thermal fluctuations on the viscosity</li> <li>– Very constant temperature behavior and friction behavior</li> </ul>

## Lubrication of clamping devices

Lubricating pastes have proven very useful in all types of holding chuck designs as they adhere well to the friction points and provide sufficient lubricity even when applied as a very thin film. Most pastes have low-viscosity base oils, a thickener and additional solid lubricant particles.



### ALTEMP Q NB 50

ALTEMP Q NB 50 is an universal assembly paste applications and offers friction points with small to minimum motion under high static and dynamic loads. This product has proven particularly successful in the lubrication of clamping chucks. High precision and constant clamping forces are essential requirements in chucks. It improves the sliding behaviour of moving chuck components, enables constant clamping forces and may therefore be used in all types of chucks, such as scroll, cam and spiral chucks.

#### Your benefits at a glance:

- Low lubricant costs for initial and re-lubrication due to long service life
- Resistant to water and media, e.g. against cooling lubricants
- Good wear and corrosion protection
- Prevents stick-slip and protects against tribo and fretting corrosion
- High pressure absorption capacity

## Lubrication of linear drive and guide systems

In most modern machine tools, workpieces and tools are positioned by means of anti-friction guideways or slideways. They are normally moved by ball screws. They are expected to run with maximum precision, reliability and smoothness. They also have to cope with high speeds, acceleration and the resulting stresses.



### MICROLUBE GB 00/0

MICROLUBE GB series are special mineral oil based lubricants. It has a high-pressure absorption capacity, provides excellent protection against wear and corrosion, shows good wetting behaviour and water resistance. They are developed for friction points subject to high loads and mixed friction conditions. It is suitable for the lubrication of slideways, guides and large chain drives.

#### Your benefits at a glance:

- Universal high-performance lubricant
- For high loads or micro-movement
- High pressure absorption capacity
- Longer service life due to very good wear protection
- Good anti-corrosion behaviour
- Pumpable through centralised systems

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## Klüber Lubrication – your global specialist

Innovative tribological solutions are our passion. Through personal contact and consultation, we help our customers to be successful worldwide, in all industries and markets. With our ambitious technical concepts and experienced, competent staff we have been fulfilling increasingly demanding requirements by manufacturing efficient high-performance lubricants for more than 85 years.