

your global specialist

KlüberEfficiencySupport.

Klüber Lubrication Services –
Success for you from one tool box!



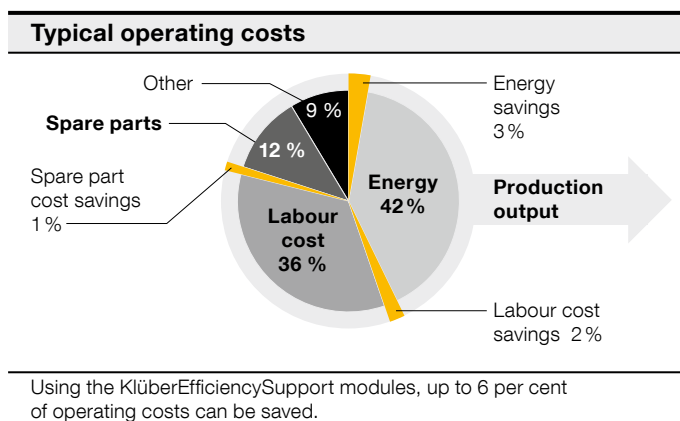


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Recognise the potential for efficiency improvement

Professional range of services provides real added value

Every manufacturer and operator wants his machinery to run reliably and efficiently to its design life and beyond. The right lubricants carry considerable potential to reduce energy, spare parts and labour costs while increasing productivity. With our KlüberEfficiencySupport (KES) programme, such efficiency gains can be attained for your production plants and processes. We offer solutions tailored to your needs, enabling you to calculate the actual savings to be made. And these savings will be maintained in the long term.



The results can be displayed by means of our maintenance software EfficiencyManager, which is used by our specialists to efficiently handle the processes relevant for production. The EfficiencyManager is an online portal combining all services offered by Klüber Lubrication and ensuring transparency among the ever more complex requirements in a smart factory.

Your benefits at a glance:

- **Valuable:** We make your production plants and processes more efficient.
- **Customised:** We provide solutions tailored to your needs.
- **Measurable:** We make added value (savings) calculable.
- **Sustainable:** We ensure long-term savings.

KlüberEfficiencySupport is available to you worldwide. We are where you are!

Just contact us – call your personal Klüber Lubrication consultant or send an e-mail to:

service@klueber.com

KlüberEfficiencySupport – Overview

KlüberEfficiencySupport

EfficiencyManager

KlüberEnergy Energy Efficiency



Services for optimum energy efficiency of your lubricant application. Reports on concrete savings.

Energy consulting
(tribo-system)

Energy measurement

Energy analysis ¹⁾

Reporting
(energy / cost savings)

KlüberMaintain Maintenance Efficiency



Support for your lubrication management and maintenance programme/TPM³⁾ considering the necessary lubrication maintenance tasks.

Plant lube chart creation

Asset register / SOP ²⁾

Compliance / Labelling

Lubrication task management

Training
(maintenance / operator)

KlüberCollege –

1) Patent auditable for international certification companies 2) Standard Operation Procedure 3) Total Productive Maintenance

Service Online Portal

KlüberMonitor Production Efficiency



We recommend optimisations to increase your productivity on the basis of tribological analyses of your application and bench tests.

Oil condition analysis (OCA)

Grease condition analysis (GCA)

Extended analyses
(material, component, surface, process)

Bench tests

Engineering training

People Efficiency

KlüberRenew Working part Efficiency



Services to increase the lifetime of your cost-intensive components such as large gear drives and chains including appropriate training.

Consulting
(applications /lube systems)

Commissioning /Running in

Repair lubrication and sealing

Mechanical treatment

Renew training

EfficiencyManager

The software solution for planning your maintenance

Maintenance management in your plant is increasingly becoming more of a challenge: tighter schedules and optimised maintenance intervals are to be met as well as legal and documentation requirements. All this calls for more efficient processes and optimised planning.

It provides you with a transparent overview of your potential for optimisation. Potentials for increasing efficiency can be ideally multiplied, e.g. in the form of energy efficiency projects, the optimisation of spare parts life or the reduction of defects and hence maintenance activities." The EfficiencyManager enables professional, software-based maintenance management. With this online system, you always have an eye on your machinery and can plan maintenance and repair measures well in advance. This helps improve your production planning, extend machine runtimes and prevent unplanned downtime.

Smart Maintenance

Innovative, intuitive & interactive

- Easy to use
- Valuable functions for your maintenance operations
- User-friendly, no training required

High degree of data integrity

- End-to-end encryption: data are https encrypted from user interface to server
- User-specific environment
- In compliance with data protection laws

Reports and analyses of permanent value

- Filters for task overviews
- To-do and other tasks are clearly displayed
- Condition monitoring
- Optimised use of personnel



Industry 4.0 means: complexity in your machine pool and of your maintenance tasks is increasing. The EfficiencyManager helps you to ideally structure your tasks so you have full control of everything!

For a start, obtain the basic version free of charge under **www.efficiency-manager.com** you can register straight away.

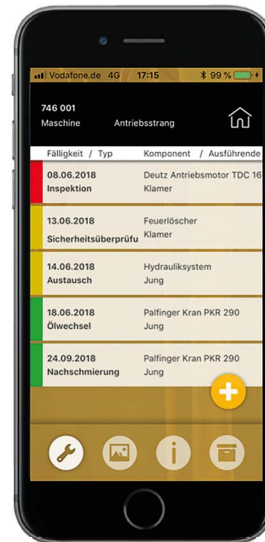




With the EfficiencyManager, all reports of analyses, inspections and the like can be filed and documented under the machine concerned.

Use the traffic light system to check the condition of your installations at a glance, or go for an in-depth analysis of all details. The EfficiencyManager enables you to reduce the complexity arising from digitalisation and create transparency.

Our mobile solution, the EfficiencyManager App, allows you to access your data anywhere, anytime, as well as include unplanned occurrences on site, for example repairs or trouble-shooting. Use our QR codes to search for and identify components, designations or inventory numbers.



Your benefits at a glance:

- **A single tool** for managing all resources and maintenance tasks relevant for production
- **Mapping of the whole production structure** including all maintenance components
- **Comprehensive documentation** of all maintenance tasks performed and information relevant to the machines
- **Compliance with maintenance periods!** This assists with audits and legal conformity.
- **Independent of platform**, no installation required
- **Use extendable to several sites**

KlüberEnergy

Reduce energy costs and protect the environment

You will benefit twice from energy savings: Your energy costs decrease and nature's resources are preserved. Save money by reducing your energy costs with KlüberEnergy. KlüberEnergy projects are implemented directly on your machinery. We will determine all saving potentials in your tribo-systems, measure power consumption before and after the optimisation, provide a professional analysis of the data and translate the measurement readings into tangible savings.

Your benefits at a glance:

- **Cost efficiency:** Lower energy and operating costs
- **Eco-friendliness:** Support for your environmental objectives
- **Transparency:** Continuous monitoring during the energy efficiency project
- **Customised:** Project implementation according to international standards
- **Sustainability:** Reduced energy consumption and oil disposal volumes

Business case – gearboxes

Internal mixer in the tyre industry

Technical aspects:

- Operating hours: 7,680 hours
- Fill volume: 1,400 litres
- Mean power consumption: 766 kW
- Energy price: 0.10 EUR/kWh



Financial analysis:

- Investment: 10,430 EUR
- Annual savings: 14,846 EUR
- Payback time: 8 months

Effects on the environment:

- Annual energy consumption: 5,883 MWh
- Annual energy savings: 165 MWh
- CO₂ savings: 100.6 tons

Business case – compressors

Compressor

Technical aspects:

- Operating hours: 7,600 hours
- Fill volume: 40 litres
- Mean power consumption: 100 kW
- Energy price: 0.13 EUR/kWh



Financial analysis:

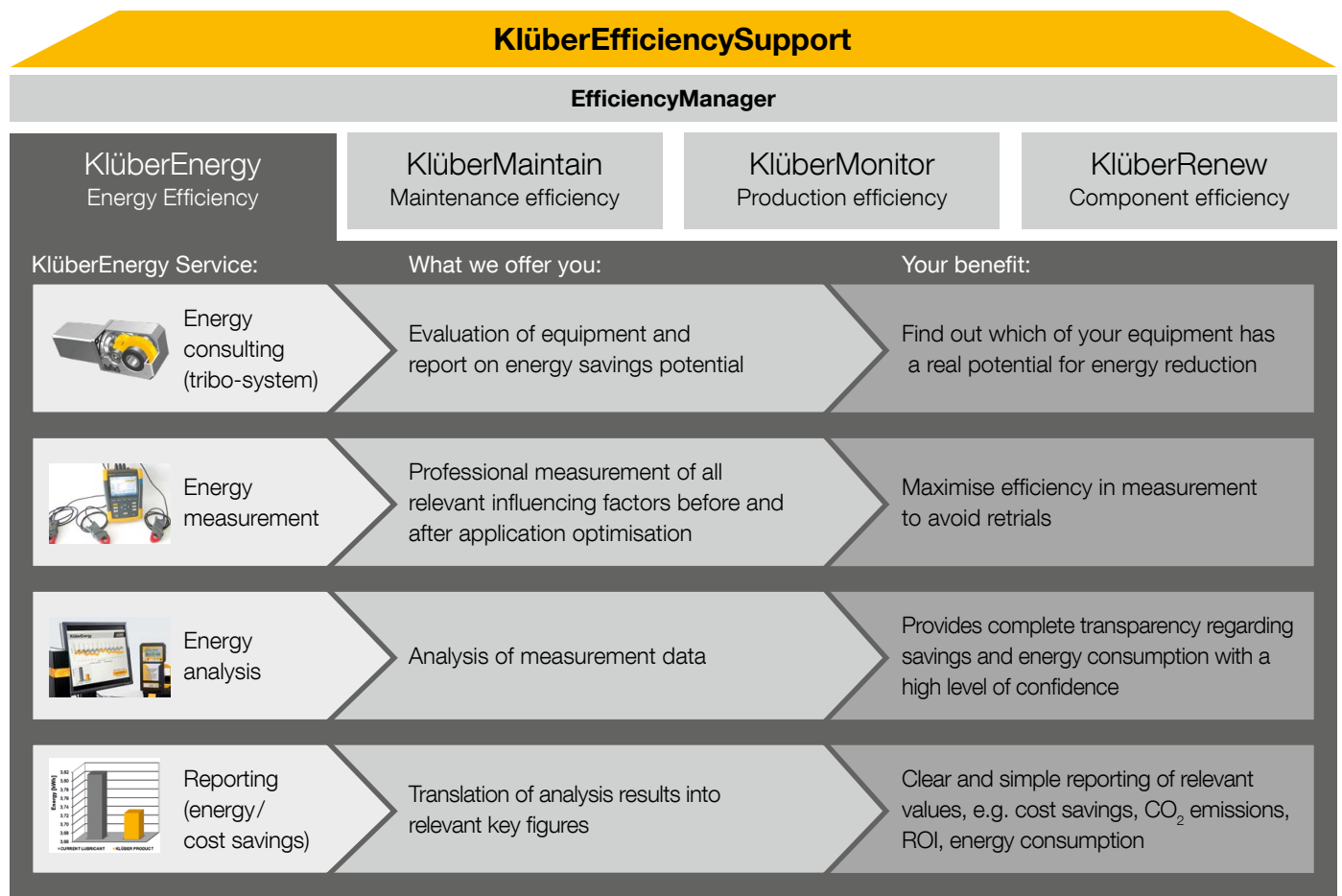
- Investment: 460 EUR
- Annual savings: 2,717 EUR
- Payback time: 2 months

Effects on the environment:

- Annual energy consumption: 836 MWhJ
- Annual energy savings: 20.9 MWh
- CO₂ savings: 12.5 tons

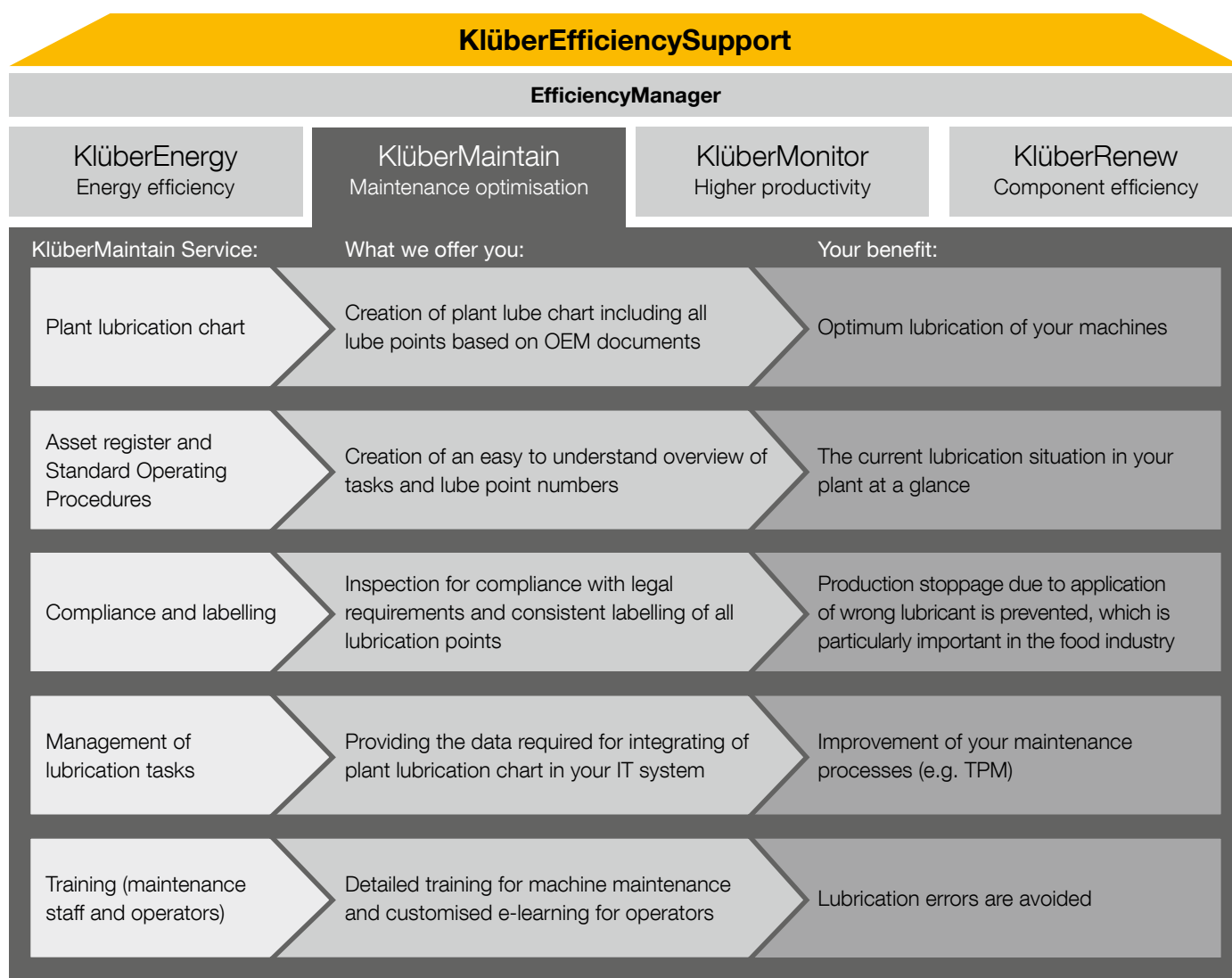


The following KlüberEnergy services, customised to meet your specific requirements and situation, are available.



KlüberMaintain

The following KlüberMaintain services, customised to meet your specific requirements and situation, are available.

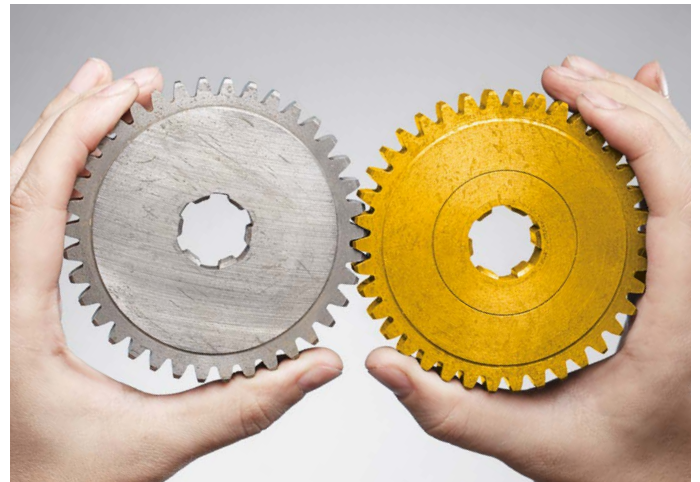




Optimise your product capacities and reduce your maintenance expenses

We analyse your machines, register all lubrication points and lubricants used in our Service-Online Portal, ensuring that your lubrication management is performed efficiently and costly machine downtime is avoided. All this adds up to substantial savings.

Our specialists will develop measures in these fields aimed at improving your maintenance processes (Total Productive Maintenance, Six Sigma, etc.); training, quality management, occupational safety as well as environmental and health protection. Using our solutions of KlüberMaintain you opt for higher efficiency and reliability in your production processes and help your company attain cost savings.



KlüberEfficiencySupport (KES) and Total Productive Maintenance (TPM): a perfect combination

Your benefits at a glance:

- **Process reliability:** Clear and structured planning and documentation
- **Customised:** Consideration of all lubricants and lubrication points in your plant
- **Sustainable:** Potential to reduce lubricant quantities, extend maintenance intervals and ensure long-term savings/optimisations

KlüberMonitor



Analyses enable productivity gains

Regular and continuous lubricant or lubrication condition monitoring is the basis for reliable machinery operation. KlüberMonitor provides support for your regular monitoring processes of tribological systems, such as bearings, chains, compressors or gears.

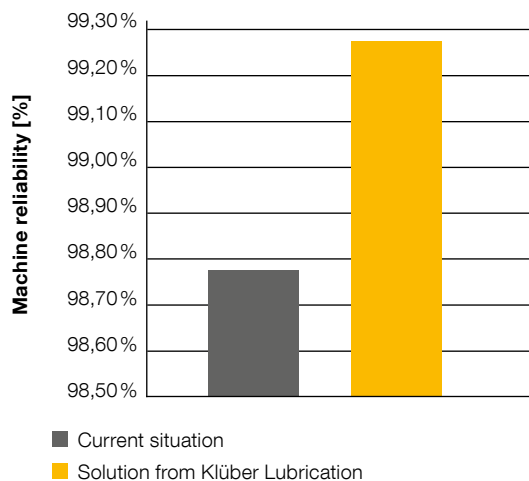
Based on their experience, our specialists analyse your components lubricated with oils or gresases to find out if the lubricant can continue to be used or if contamination has impaired lubrication. The sound recommendations from our experts are based on a series of analyses and observations of lubrication points. A trend analysis reveals the condition of the machines. Thus you avoid unplanned downtime and make optimal use of the lubricant's service life.



Your savings

We developed the new online EfficiencyManager in order to show your cost savings and multiply Best Practices across departments and locations. The program displays and combines the savings generated with a preventive maintenance management system. This transparency helps you keep an overview of the analyses performed and reduce complexity.

Savings achieved by reduced machine downtime



Savings achieved by reduced machine downtime
0.5 % higher reliability = 41.6 % less downtime.
Downtime costs of € 150,000 reduced to € 87,500
€ 62,500 reduction of downtime costs per years

Your benefits at a glance:

- **Efficient production:** Optimising your production capacities while reducing the risk of unplanned downtime
- **Cost-efficiency:** Reduced maintenance costs and maximum lubricant lifetime
- **Customised:** Individual recommendations for optimum maintenance intervals and tribosystems
- **Sustainable:** Long-term productivity due to continuous monitoring and advice



Longer lifetimes save you money

KlüberRenew comprises a range of high-quality services to increase the lifetime and efficiency of your machines and components considerably, thus reducing maintenance costs and giving you the chance attain return on investment more quickly.

Further special services available:

- Professional analysis and repair of large gear drives
- Forced running-in lubrication
- Alignment inspection of large gears
- Application-related training
- Detailed analyses of component failures

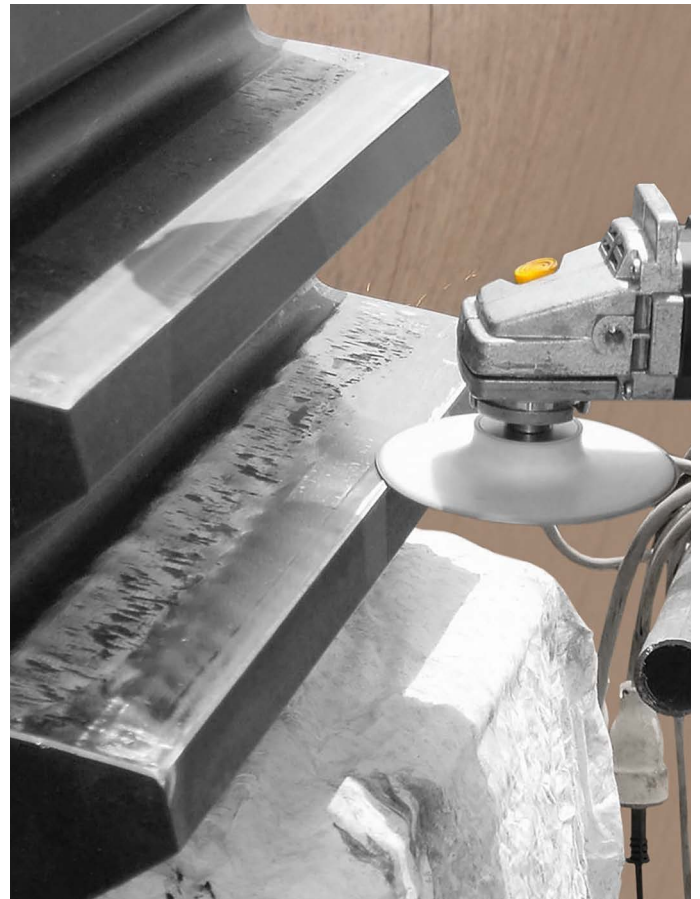
Special services provided by Klüber Lubrication contribute significantly to operational reliability and increased machine lifetime.

Your benefits at a glance:

- **Reduction of investment costs:** Longer lifetime of expensive components
- **Cost-efficiency:** Costs for unplanned production standstills and repair costs are avoided
- **Efficient production:** Production does not need to be stopped as lubrication takes place during operation
- **Sustainable:** Longer machine running times and postponed replacement investments in spare parts

Extended maintenance intervals and reduced, predictable production standstills

We offer you optimal solutions for professional lubricant changeovers or improved operation conditions. Ensure long-term functionality of your machinery, avoiding consequential damage. Based on our long-standing experience, we help you reduce costs for unplanned production standstills and achieve better planning of investments for spare parts.



Contact



Just contact your personal Klüber Lubrication consultant, or send an e-mail to:
service@klueber.com

For further information, please visit our website:
www.klueber.com/en/service/klueberefficiencysupport/



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Klüber Lubrication München SE & Co. KG
Geisenhausenerstraße 7
81379 München
Germany

Local first-instance court Munich, Germany
Certificate of registration 46624

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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.