KLÜBER LUBRICATION

your global specialist

Industrial sector

# Smooth pressing with the highest efficiency.

Speciality lubricants for the wood based panel industry

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# Speciality lubricants for the wood based panel industry

Cost efficiency, processes optimisation and sustainability are everyday challenges in the wood based panel industry. Minimising equipment downtime and maintenance efforts are among the top priorities for any wood based panel producing plant.

Lubricants can considerably influence your operating costs. The lubricant itself constitutes only a minor fraction of the overall costs, but its effects can be tremendous. Only one day of unplanned line downtime can sum up to 100,000 $ or more in lost revenues. Selecting the right lubricant is therefore paramount. After all, it is the lubricant that has to ensure reliable operation of each machine element.

The lubricants working in the continuous wood based panel presses face extreme operating conditions: temperatures up to 260 °C, high mechanical loads and aggressive media. In these severe conditions the lubricant has to be able to provide good wear protection for the machine elements and protection against corrosion, keeping the formation of residues on the metal surface to a minimum.

## Make the right lubrication decision in the design phase

The lubricant is a crucial element for excellent machine performance and increased efficiency. OEMs benefit from our expertise during the machine design phase. The decisions you make during the development process determine about 70–85 % of the total machine life-cycle costs. Our aim is to meet all expectations from operators and OEMs. We can offer you a product portfolio covering the complete range of operator requirements.

## Benefit from our experience

Klüber Lubrication is an active partner of the wood based panel industry since the time first continuous lines were brought to the market around 30 years ago. We have continually developed our products to meet your needs and now offer you the fifth generation of speciality lubricants for the wood based panel industry. Additionally we invite you to benefit from our more than 80 years of experience in speciality lubricants – many tribological problems which you encounter have in fact already been solved by our specialists in many other challenging industries.

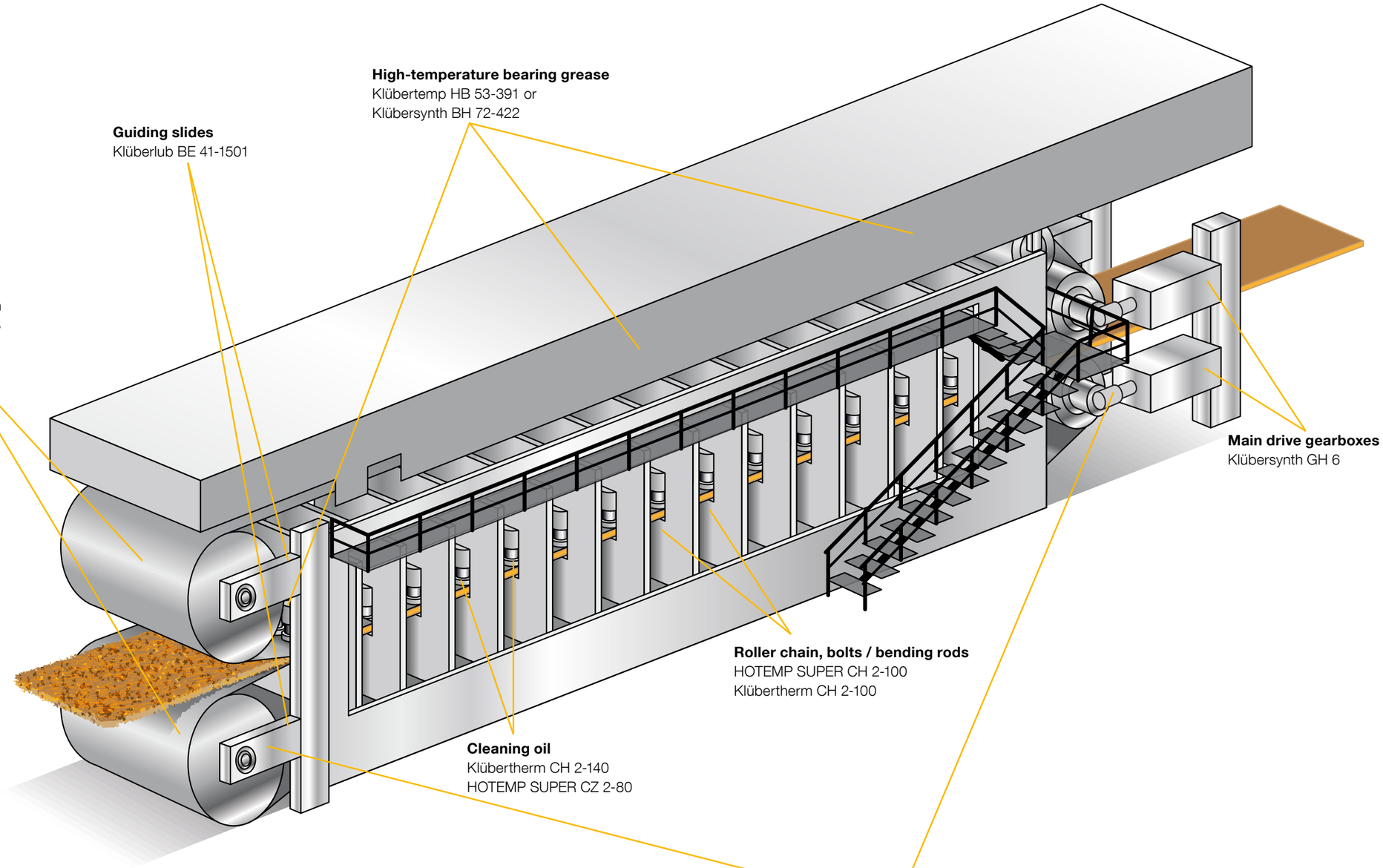
## A test house that is unrivalled worldwide

When developing and testing our speciality lubricants we use your specifications as our baseline. Our unique test house offers more than 100 different test rigs for use by our experts. Many of these were developed at Klüber Lubrication for our customers' specific testing requirements. We enhance the significance of our tests with accompanying lubricant and surface analyses of test pieces and component specimens. After all, we know how important it is for you to be sure that the lubricant demonstrates the ability to meet or even exceed your requirements at the testing stage.

## We are where you are

Our specialists will advise you wherever it is convenient for you. Consultations may focus on the selection of a suitable product, or the development of a solution tailored to your requirements. “Made by Klüber Lubrication” stands for a consistent high quality level worldwide. We offer you products that are all made to the same high quality, no matter whether produced in Asia, Europe or the Americas.

# High temperature lubricants for continuous wood based panel presses



**Steel belt/rollers chain**
HOTEMP SUPER N PLUS
Klübertherm CH 2-260

**Guiding slides**
Klüberlub BE 41-1501

**High-temperature bearing grease**
Klübertemp HB 53-391 or
Klübersynth BH 72-422

**Main drive gearboxes**
Klübersynth GH 6

**Roller chain, bolts / bending rods**
HOTEMP SUPER CH 2-100
Klübertherm CH 2-100

**Cleaning oil**
Klübertherm CH 2-140
HOTEMP SUPER CZ 2-80

**High-temperature bearing grease**
**Drum bearings**
Klüberlub PHB 71-461

**We also offer you a wide portfolio of lubricants for your other equipment, please ask us!**

# Oils

| Lubrication point | Lubricant requirements | Speciality lubricant | Product generation | OEM recomendation | Description and benefits |
|---|---|---|---|---|---|
| Roller rods / steel belt | Oils for roller rods and steel belts have to provide good wear protection under very high thermal (up to 260 °C) and mechanical loads. The evaporation rate has to be low in order to keep oil consumption at a reasonable level and to minimise the risk of fire. | HOTEMP SUPER N PLUS | 4 | Siempelkamp / Dieffenbacher / Küsters | – Special high-temperature oil providing reliable lubrication even at high temperatures and speeds<br>– Advanced additivation provides reduced energy consumption and improved efficiency even at very high temperatures<br>– No lacquer-like residues formed under continuous total loss lubrication conditions<br>– Good adhesion and spreading properties, minimised contamination risk and effective lubricant supply to all friction points |
| | | Klübertherm CH 2-260 | 5 | | – The newest generation of special high-temperature oil for continuous wood presses. Designed with new base oil components and new additive package<br>– The new formulation provides significant improvement in terms of high-temperature stability and friction and wear behaviour. Thus, this new oil has a potential for significant decrease in power consumption and oil consumption specifically on those presses running at higher speed and temperature |
| Side chains | The oil has to withstand elevated temperature and provide wear protection for chain elements. The residue formation tenedency has to be minimised in order to keep the chain clean and the friction points accessible for the fresh lubricant. | HOTEMP SUPER CH 2-100 | 4 | Siempelkamp | – Special high-temperature oil for lubrication of side chains on Siempelkamp ContiRoll presses<br>– Good thermal stability and load carrying capacity at elevated temperatures thus preventing wear and chain elongation<br>– Minimised tendency to form residues keeps chains well lubricated and clean |
| | | HOTEMP SUPER N PLUS | 4 | Dieffenbacher | – Special high-temperature oil used for lubrication of side chains as well as steel belt on Dieffenbacher CPS presses<br>– Good thermal stability and load carrying capacity at elevated temperatures thus preventing wear and chain elongation |
| Bending rods / bolts | The oil has to be able to penetrate into the friction point and provide wear protection for the whole length of the pin. Residue formation tendency has to be minimised in order to avoid pin blockage and roller rod contamination. | HOTEMP SUPER CH 2-100 | 4 | Siempelkamp / Dieffenbacher | – Special high-temperature oil for pins in ContiRoll and CPS continuous presses<br>– Minimised tendency to produce hard residues. The soft "muddy" residues formed are easily removed either by fresh oil or by cleaning oil Klübertherm CH 2-140 or HOTEMP SUPER CZ 2-80. This prolongs the lifetime of bolts, bending rods and rollers and reduces efforts spent on the mechanical cleaning of these parts |
| | | Klübertherm CH 2-100 | 5 | | – New generation of special oil for chains and bending rods in continuous wood panel presses<br>– Very low evaporation rates and good friction properties at elevated temperatures<br>– Improved dissolving properties: the fresh oil supplied to the friction point is able to wash off previously formed residues |
| Chain / pins cleaning oil | The oil has to be able to penetrate into the friction point and provide wear protection over the whole length of the pin. In addition to that the oil has to dissolve previously formed residues and wash them away from the lubrication point. | HOTEMP SUPER CZ 2-80 | 1 | | – Auxiliary product, cleaning oil for side chains and bending rod / roller rod friction pair<br>– Effectively removes the residues of cracked oil<br>– Can be used under normal operating conditions (max. working temperature 210 °C) via centralised lubrication system or manually |
| | | Kluebertherm CH 2-140 | 2 | | – Cleaning oil based on the new Klübertherm formula<br>– In addition to the cleaning properties, the oil shows significantly improved friction behaviour and high temperature stability |
| Main drives gearboxes | The oil has to have high scuffing load capacity and provide goodprotection against wear. In order to optimise service intervals, the lubricant should also be resistant to ageing and oxidation. | Klübersynth GH 6 | | Siempelkamp | – Synthetic high-performance gear oil<br>– Provides excellent scuffing load capacity, excellent wear protection and excellent high-temperature behaviour<br>– Reduces the friction coefficient and ensures long-term lubrication due to the special polyglycol base oils |

# Greases

| Lubrication point | Lubricant requirements | Speciality lubricant | OEM recomendation | Description and benefits |
|---|---|---|---|---|
| Main drum bearings | The grease has to provide long and reliable service life of the highly loaded main drum bearings. | Klüberlub PHB 71-461 | Siempelkamp / Dieffenbacher | – High-temperature grease specially designed for applications in continuous wood based panel presses<br>– Used for the lubrication of drum bearings, guide rollers, shaft bearings and plain bearings in Siempelkamp and Dieffenbacher presses<br>– It withstands temperatures up to 180 °C, has good pumpability, good wear protection and high load-carrying capacity<br>– The grease is coloured, which allows for easier maintenance control |
| Bearings in the hot zone | The grease has to provide long and reliable service of the roller bearings working under elevated temperatures. | Klübertemp HB 53-391 | Siempelkamp | – High-temperature grease especially designed for the lubrication of rolling bearings subject to high thermal stress in Siempelkamp ContiRoll presses<br>– Provides long-term lubrication at temperatures up to 260 °C, has good corrosion protection and is inert towards the steel belt oil |
| | | Klübersynth BH 72-422 | Dieffenbacher | – High-temperature grease for the lubrication of rolling bearings subject to high thermal stress in Dieffenbacher CPS presses<br>– Based on "hybrid formulation". This allows the product to combine excellent high-temperature properties (up to 220 °C) and good load carrying capacity |

# KlüberEfficiencySupport

## Services by Klüber Lubrication – your success from one tool box

Every manufacturer and operator in every industry wants his machinery to run reliably and efficiently to its design life and beyond. The right lubricants carry considerable potential to reduce energy costs, spare parts and labour while increasing productivity. Companies from many industries have been using Klüber Lubrication's professional services in addition to its high-quality lubricants to benefit from considerable added value and the optimum solution for their needs. Our consulting and other services are put together under the umbrella of KlüberEfficiencySupport.

**KlüberEfficiencySupport**

| KlüberEnergy | KlüberMaintain | KlüberMonitor |
|---|---|---|
| Consultant services for optimisation of the energy efficiency of your lubricant application; verification through energy measurements and reporting of cost saving. | Support for your lubricant management and maintenance programmes such as TPM[1] with regard to lubricants and the associated maintenance activities. | Increased productivity through used lubricant analyses. Recommendations for optimisation based on trend analyses and test rig results. |

**KlüberCollege – Increasing people efficiency**

This methodology developed by Klueber Lubrication has been tried-and-tested and consists of a multi-stage, systematic approach. We identify your requirements together with you at an early stage to discover potential for optimisation. From there, we develop solutions with you to improve the energy efficiency of your machinery or the efficiency of your maintenance and production processes, machines or components, going well beyond a simple lubricant recommendation. We also verify the effects our measures have in practice. This provides you with everything you need to multiply improvements and develop your success.

Along with providing excellent lubrication solutions for continuous wood based panel presses we offer our customers a service package. It includes periodical inspection of the steel belts, chains and roller rods and also an analysis of used belt oil in the laboratory of our R&D center in Munich.

The data obtained from inspections and oil analyses allows for real-time monitoring of press conditions and provide an opportunity for taking measures, in case any signs of abnormal wear or misalignments are revealed, during a very early stage.

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It constitutes neither an assurance of product properties nor does it release the user from the obligation of performing preliminary field tests with the product selected for a specific application. All data are guide values which depend on the lubricant's composition, the intended use and the application method. The technical values of lubricants change depending on the mechanical, dynamical, chemical and thermal loads, time and pressure. These changes may affect the function of a component. We recommend contacting us to discuss your specific application. If possible we will be pleased to provide a sample for testing on request. Products from Klüber Lubrication are continually improved. Therefore, Klüber Lubrication reserves the right to change all the technical data in this document at any time without notice.

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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 80 years.

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