

your global specialist

Detailed information

## Line clear!

Speciality lubricants for more reliability and efficiency





Application overview	4
Drives and chassis	6
Bogies	8
Coaches and connectors	10
Infrastructure	12



# Speciality lubricants from Klüber Lubrication – for more reliability

## **Clearing the line with high-quality speciality lubricants**

The rail industry has its own special challenging requirements for lubrication. Trains have to work reliably in any weather conditions, they should run on time, offer a comfortable ride and carry goods safely. With Klüber Lubrication speciality lubricants, you make sure the complex interaction of trains and infrastructure is kept running. The right lubricant for the maintenance of bogie components, doors and points will reduce operating costs reliably and efficiently.

All these requirements must be met both in summer and in low-temperature winter. Further factors influencing performance are vibration, shock loads, rain, and snow. A lubricant must maintain its specific characteristics under all environmental conditions to ensure correct performance at all times.

## **On the track to success with the right lubricant**

Trouble-free functioning of trains and the infrastructure must be ensured to keep to schedule. The lubrication of points is therefore essential. Should a point fail to switch due to insufficient lubrication, the timetable will be disrupted, possibly affecting the whole rail network. Although a very small factor, insufficient switch lubrication can cause delays of several hours in the entire network, cancellations and customer complaints.

The rail industry therefore started taking an holistic view of maintenance and repair costs. How does a single factor influence the entire system? Lubricants that seem inexpensive at first may bring savings in points lubrication, but result in considerably higher costs of the entire operation if the lubricant has little reserve capacity to cope with extremes.

Selecting the right lubrication partner is crucial to meeting all requirements of the rail industry.

## **Lubricants made by Klüber Lubrication: tailor-made solutions for the rail industry for maximum benefit**

Speciality lubricants made by Klüber Lubrication make a considerable difference: For more than 80 years the special requirements of rail industry users have been a central concern of our work. We analyse the lubrication requirements of the components together with our customers and take the defined specifications as a basis for developing tailor-made lubricants.

Besides high-quality, mineral oil based lubricants we also offer a comprehensive range of synthetic high-performance speciality lubricants that contribute to better efficiency of rail vehicles and higher infrastructure uptime. Our speciality lubricants help extend maintenance intervals and reduce lubricant quantities. With our eco-friendly and readily biodegradable lubricants, we support your efforts to preserve the environment and make a major contribution to environmental protection.

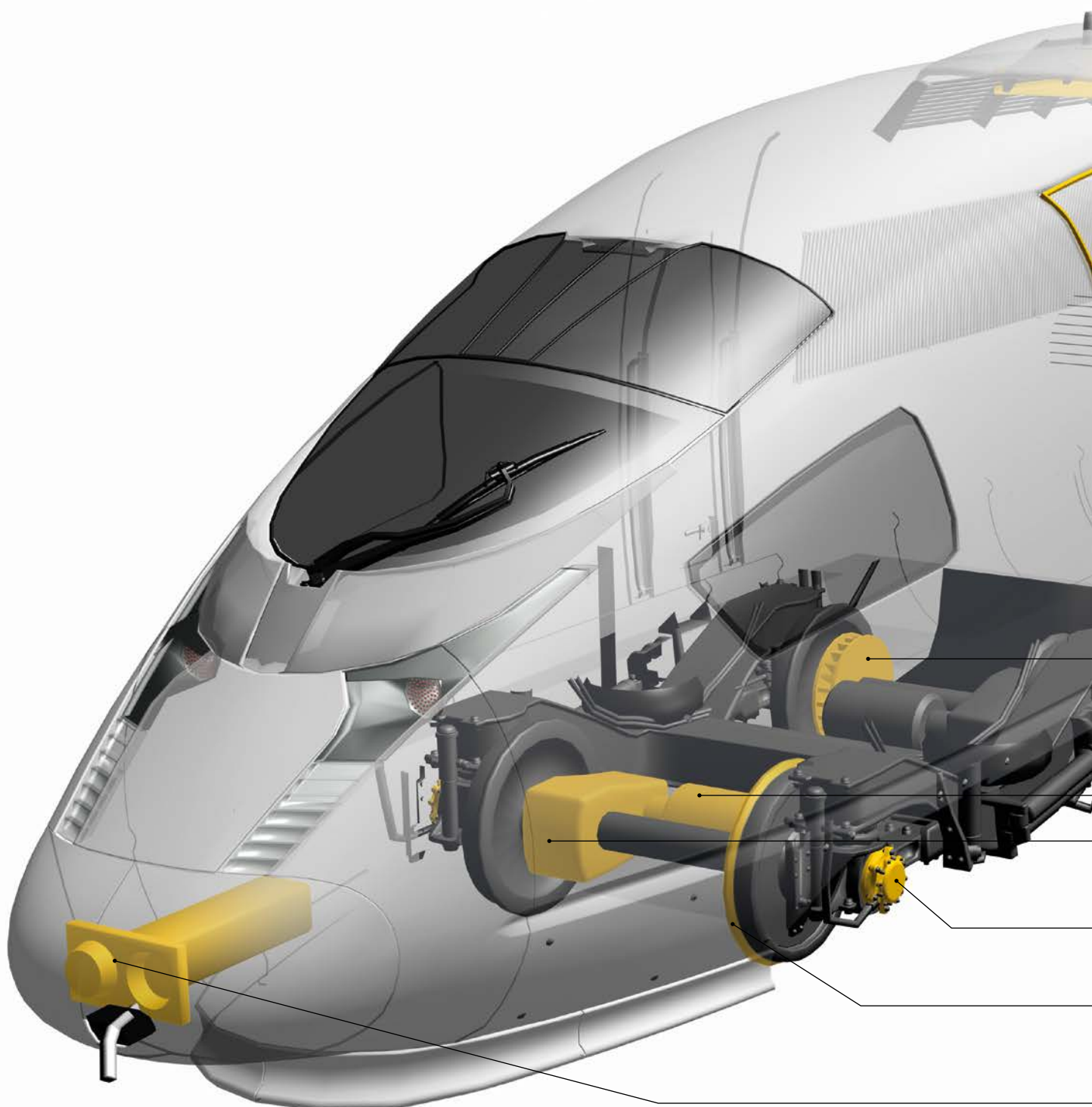
## **We are where you are**

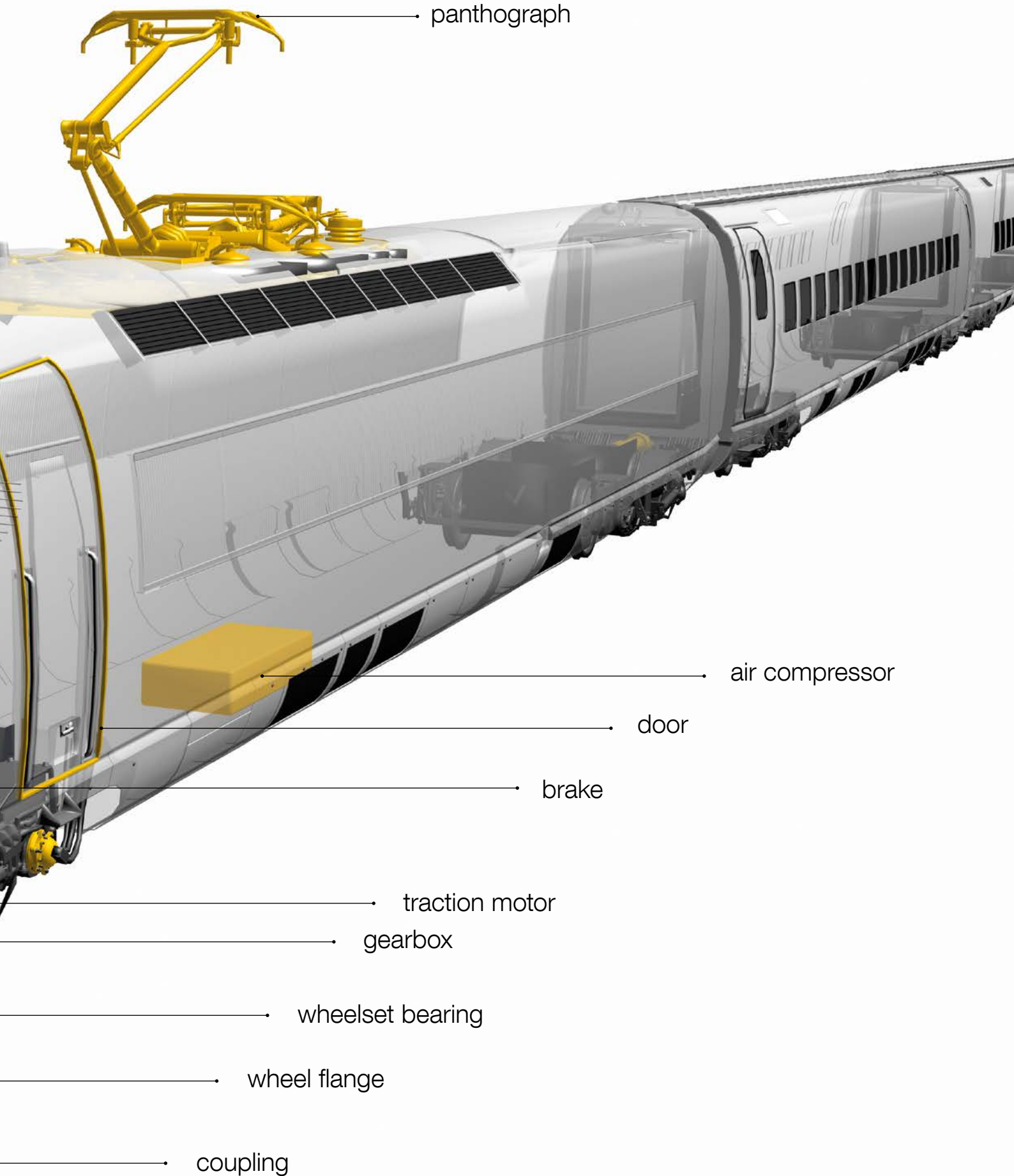
It is our aim to offer you high-quality speciality lubricants and services around the globe along with the high technical competence Klüber Lubrication is known for. We meet this aim through our worldwide network of production and sales companies, competent dealers and last, but not least, through our highly specialised experts ready to respond to your individual requirements.

We have compiled a selection of speciality lubricants and listed them according to modules and components. These lubricants have proven effective in trains and switches, some of them for decades.



## Application overview





pantograph

air compressor

door

brake

traction motor






gearbox

wheelset bearing

wheel flange

coupling

# Drives and chassis

	Module	Application	Lubricant composition
	traction motor bearings	service temperature < 100 °C	fully-synthetic hydrocarbon oil with lithium soap
		service temperature > 100 °C	ester oil mixed with PFPE, PTFE and a polyurea thickener
	wheelset gears		fully-synthetic hydrocarbon oil with high additivation
	wheelset	cylindrical and tapered rolling bearings	base oil mixture of mineral oil and PAO with lithium complex soap thickener
		bolts of wheelset bearing housing	mineral oil with barium complex soap and a high percentage of solid lubricant
	curved gear couplings	gear teeth	mineral oil with lithium complex soap and a high percentage of solid lubricant
	disc brakes	bolts, bushes, slideways	mineral oil with barium complex soap and a high percentage of solid lubricant
	block brakes	plain bearings, linkages, guides, screw connections	mineral oil with aluminium complex soap and a high percentage of light-coloured solid lubricant

© picture traction motor by Bombardier Transportation.  
 © picture curved gear couplings by RENK Aktiengesellschaft, Werk Rheine.

 Most important selection criterion



Product	Benefits for your application
ISOFLEX TOPAS L 152	<ul style="list-style-type: none"> <li>- Extended relubrication intervals</li> <li>- Good thermal resistance</li> <li>- Low start-up torque at low temperatures</li> <li>- Successfully used by international OEMs and operators</li> </ul>
Klübersynth BHP 72-102	<ul style="list-style-type: none"> <li>- Very good performance at high bearing temperatures</li> <li>- Long relubrication intervals</li> <li>- Successfully used by international OEMs and operators</li> </ul>
Klübersynth GE 4 75 W 90	<ul style="list-style-type: none"> <li>- Fully synthetic gear oil with special additives for particularly high thermal resistance</li> <li>- Considerably extended oil change intervals compared to mineral oil-based gear oils</li> <li>- Approvals from important gear manufacturers like Voith Turbo, Watteeuw, Siemens-Flender and Deutschen Bahn available</li> </ul>
Klüberplex BEM 41-132	<ul style="list-style-type: none"> <li>- Long-term rolling bearing grease with very good wear, corrosion and ageing resistance</li> <li>- Particularly suitable for rolling bearings with high percentage of sliding friction</li> </ul>
STABURAGS NBU 30 PTM	<ul style="list-style-type: none"> <li>- For easy dismantling of screw connections, also after longtime use</li> <li>- Protects against tribo-corrosion</li> <li>- Very good water and media resistance</li> <li>- Good corrosion protection</li> <li>- Also available as spray</li> </ul>
Klüberlub BE 41-1501	<ul style="list-style-type: none"> <li>- Heavy-duty grease</li> <li>- Very good wear protection due to high percentage of solid lubricant and EP/AW additives</li> </ul>
STABURAGS NBU 30 PTM	<ul style="list-style-type: none"> <li>- Very adhesive assembly grease</li> <li>- For easy dismantling of fasteners after longtime use</li> <li>- Protects against tribo-corrosion</li> <li>- Very good water and media resistance</li> <li>- Good corrosion protection</li> </ul>
Klüberplex AG 11-462	<ul style="list-style-type: none"> <li>- Light, very adhesive yet easily spreadable grease</li> <li>- For easy dismantling of fasteners</li> <li>- Good water resistance</li> <li>- Good corrosion protection</li> </ul>

# Bogies

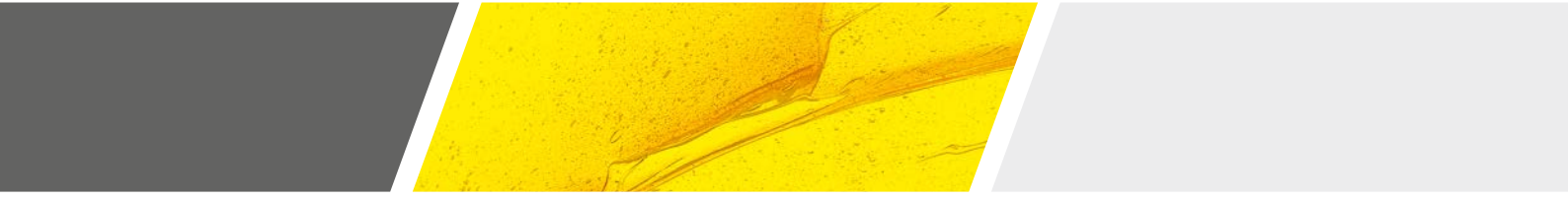


Module	Application	Lubricant composition
bogies	screw and bolt connections	mineral oil with barium complex soap and a high percentage of solid lubricant







bogies wheels	wheel flanges	ester oil with bentonite thickener and solid lubricant
---------------	---------------	--





<b>Product</b>	<b>Benefits for your application</b>
STABURAGS NBU 30 PTM	<ul style="list-style-type: none"><li>- For easy dismantling of fasteners, also after longtime use</li><li>- Protects against tribo-corrosion</li><li>- Very good water and media resistance</li><li>- Good corrosion protection</li><li>- Also available as spray</li></ul>
Klüberail LEA 62-2000	<ul style="list-style-type: none"><li>- Sprayable fluid grease</li><li>- Lubricant is not flung off the wheel flange, even at high speeds</li><li>- Good wear protection</li><li>- Readily biodegradable base oil acc. to. OECD 301 F</li></ul>

# Coaches and connectors

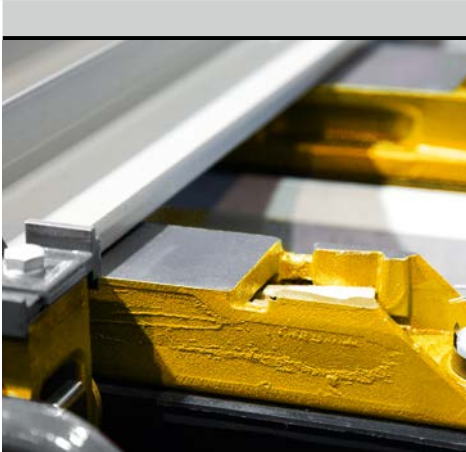

	Module	Application	Lubricant composition
	doors	functional surfaces, locks, springs, star wheels, mounting rails, torsion springs	hydrocarbon oil with barium complex soap
		linear guides / drive spindles	mineral / ester oil mixture with lithium soap
		seals, $T > -25\text{ }^{\circ}\text{C}$	PFPE oil with PTFE thickener
		seals, $T < -25\text{ }^{\circ}\text{C}$	PFPE oil with PTFE thickener
	buffer heads		mineral oil with aluminium complex soap and a high percentage of light-coloured solid lubricant
	automatic couplings	couplings, coupling heads, main bolts, coupling rods, electronic couplings, etc.	hydrocarbon oil with calcium complex soap
	air compressors		hydrocarbon oil with additives
			ester oil with additives

 Most important selection criterion



Product	Benefits for your application
ISOFLEX TOPAS NB 52	<ul style="list-style-type: none"> <li>- Fully synthetic long-term grease with good wear protection</li> <li>- Very good water and media resistance</li> <li>- Good low-temperature characteristics</li> <li>- Good oil retention for better adhesion, also at high temperatures</li> <li>- Successfully used by international OEMs and operators</li> <li>- Also available as spray</li> </ul>
ISOFLEX LDS 18 Spezial A	<ul style="list-style-type: none"> <li>- Dynamically light long-term grease</li> <li>- Good corrosion protection</li> <li>- Good water resistance</li> <li>- Low friction coefficient at high speeds</li> <li>- Low start-up torque, also at low temperatures</li> </ul>
BARRIERTA L 25 DL	<ul style="list-style-type: none"> <li>- Smooth opening and closing of doors, especially at low temperatures</li> <li>- Good UV protection for longer seal life</li> <li>- Neutral towards EPDM and silicone seals</li> </ul>
BARRIERTA KL 092	<ul style="list-style-type: none"> <li>- Silicone-free - no impairment of coating processes during chassis repair</li> </ul>
Klüberplex AG 11-462	<ul style="list-style-type: none"> <li>- Very adhesive grease</li> <li>- High percentage of special solid lubricant for very good wear protection</li> <li>- Good corrosion protection</li> <li>- No dropping, even at high temperatures</li> <li>- Also available as spray</li> </ul>
ISOLFEX TOPAS NCA 52	<ul style="list-style-type: none"> <li>- Smooth operation, even at low temperatures</li> <li>- Good corrosion protection</li> <li>- Very good wear protection</li> </ul>
Klüber Summit SH 46/68	<ul style="list-style-type: none"> <li>- Fully-synthetic oil for long relubrication intervals.</li> </ul>
Klüber Summit Ultima 46/68	<ul style="list-style-type: none"> <li>- Fully-synthetic oil for considerably longer relubrication intervals.</li> </ul>

# Infrastructure

	Module	Application	Lubricant composition
	points	spray application with spray equipment on slide plates, sprayable down to -20 °C	ester oil with calcium soap, very thin consistency
		spray/brush application on slide plates, sprayable down to -10 °C	ester oil with calcium soap, thin consistency
		brush application on slide plates	ester oil with calcium soap, slightly viscous consistency
	crossovers	fishplates/bolt connections	mineral oil with barium complex soap and a high percentage of solid lubricant
	power supply	contact wire	ester oil with calcium soap and solid lubricant

 Most important selection criterion





Product	Benefits for your application
Klüberail AL 32-2000	<ul style="list-style-type: none"> <li>- Readily biodegradable, eco-friendly lubricant</li> <li>- Low adjustment forces in switches, also at low temperatures</li> <li>- Good water resistance</li> </ul>
Klüberail AL 32-3000	<ul style="list-style-type: none"> <li>- Good corrosion protection</li> <li>- Long relubrication intervals</li> <li>- Easy application with portable spray equipment</li> </ul>
Klüberbio ALO 32-4000	<ul style="list-style-type: none"> <li>- Readily biodegradable for good environmental compatibility</li> <li>- Low adjustment forces of the point, also at low temperatures</li> <li>- Good water resistance</li> <li>- Good corrosion protection</li> <li>- Long relubrication intervals</li> <li>- To be applied preferably by brush</li> </ul>
STABURAGS NBU 30 PTM	<ul style="list-style-type: none"> <li>- Prevents seizure of fishplate and rail</li> <li>- For trouble-free dismantling of screw connections</li> <li>- Very good water and media resistance</li> <li>- Good corrosion protection</li> <li>- Also available as spray</li> </ul>
Klüberbio LO 32-2500	<ul style="list-style-type: none"> <li>- Considerably less wear on contact wires.</li> </ul>





Publisher and Copyright:  
Klüber Lubrication München SE & Co. KG

Reprints, total or in part, are permitted only prior consultation with Klüber Lubrication München SE & Co. KG and if source is indicated and voucher copy is forwarded.

The data in this document is based on our general experience and knowledge at the time of publication and is intended to give information of possible applications to a reader with technical experience. 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.

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

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

[www.klueber.com](http://www.klueber.com)

## 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.



A company of the Freudenberg Group