

your global specialist

Detailed information

## Your powerful partner.

Lubricants for land-based and offshore drilling



# Challenges call for solutions

## Speciality lubricants for the Oil & Gas Industry



### The world's demand for energy continues to grow

With the ever-growing population and the emerging economies around the world, the demand for energy is only expected to grow. Currently over 50% of the world's energy is produced with oil and gas. The demand for energy is expected to increase by 30% over the next 20 years and the production of oil and gas is expected to keep pace with the demand. Doing this will require continued exploration and drilling.

The oil and gas wells being drilled today are much deeper than those drilled 10 years ago. Rigs are often categorised by their drilling depth capabilities. The deepest category and most active is 6,100 meters (20,000ft) or greater. They do not just drill straight down. They also turn the drill bit and drill on a horizontal path, following the geological pay zone. The technology and equipment continues to improve to enable such a drilling process.

We have Klüber Lubrication products being used on some of the key pieces of drilling equipment used on these rigs. For example the top drive, iron roughnecks and draw works to name a few. These high spec rigs drilling today are running with a much smaller safety factor. It has been noted that the equipment is being pushed to its limit causing excess wear. This situation is making it that much more important to have the best lubrication in the equipment that is considered to be the heart of the rig.

### Reliable and robust

We offer tribological solutions which meet your specific requirements in many applications found in the oilfield. The lubricants' resistance to the environment found in exploration and production is a focus of our Research and Development.

Large investments in equipment and services are common in this industry. The right lubricant choice can have a lasting effect on the life of critical equipment. We currently have a robust product offering and the willingness to develop products specific to your application.

A well-tuned combination of optimal lubricants and single-point lubricators assist you in meeting the challenges found throughout the oil and gas industry. Our lubricant dispensers are even EX-proof certified according to IP-65.

The Klübermatic, a single-point lubricator, ensures reliable, clean and accurate lubrication 24 hours a day, over many years. Machine availability is safeguarded as there is always fresh lubricant at the friction point. The Klübermatic can also contribute to improved safety and reduced maintenance costs. Longer maintenance intervals mean that the frequency of staff entering hazardous areas is reduced. By utilising Klübermatics in areas that are difficult to access, the risk level of the workplace decreases considerably. The extended maintenance intervals results in improved man/hour utilisation. A positive impact to the bottom line.

### High demands - our speciality

As the world market leader in speciality lubricants, we are passionate about tackling the tribological limits of the oil & gas industry.

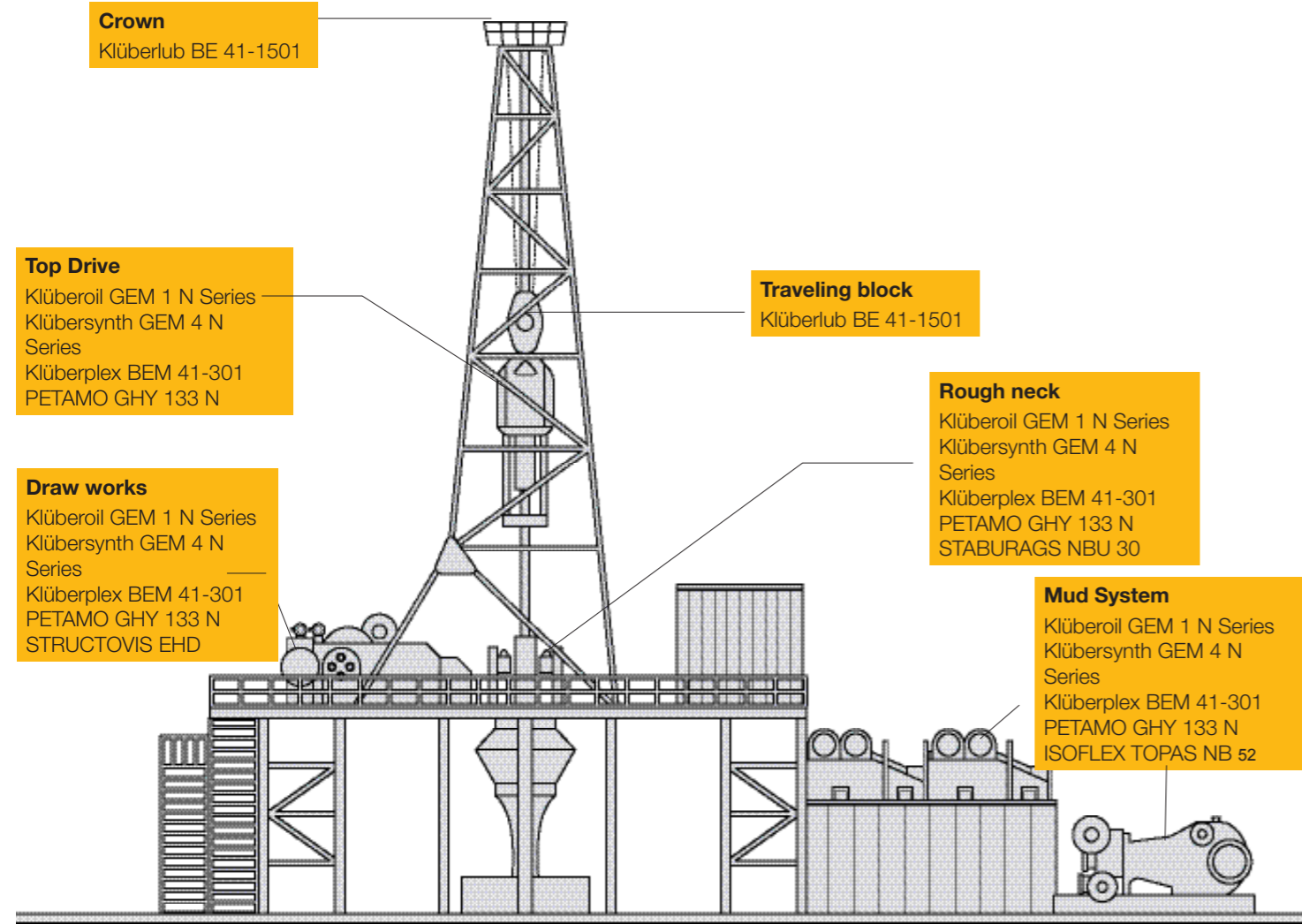
### We are where you are!

Our aim at Klüber Lubrication is to offer you high-quality speciality lubricants and services around the globe along with the high technical competence we are 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.

Your challenges - our solutions	Our experience - your benefit
Customised solutions coping with the toughest demands	Cost savings due to extended maintenance intervals
High performance capabilities	Improved efficiency resulting in energy savings
Automatic lubricant dispensers	Less downtime for more productivity
Worldwide availability in the highest quality	Optimum wear protection for longer service life of equipment

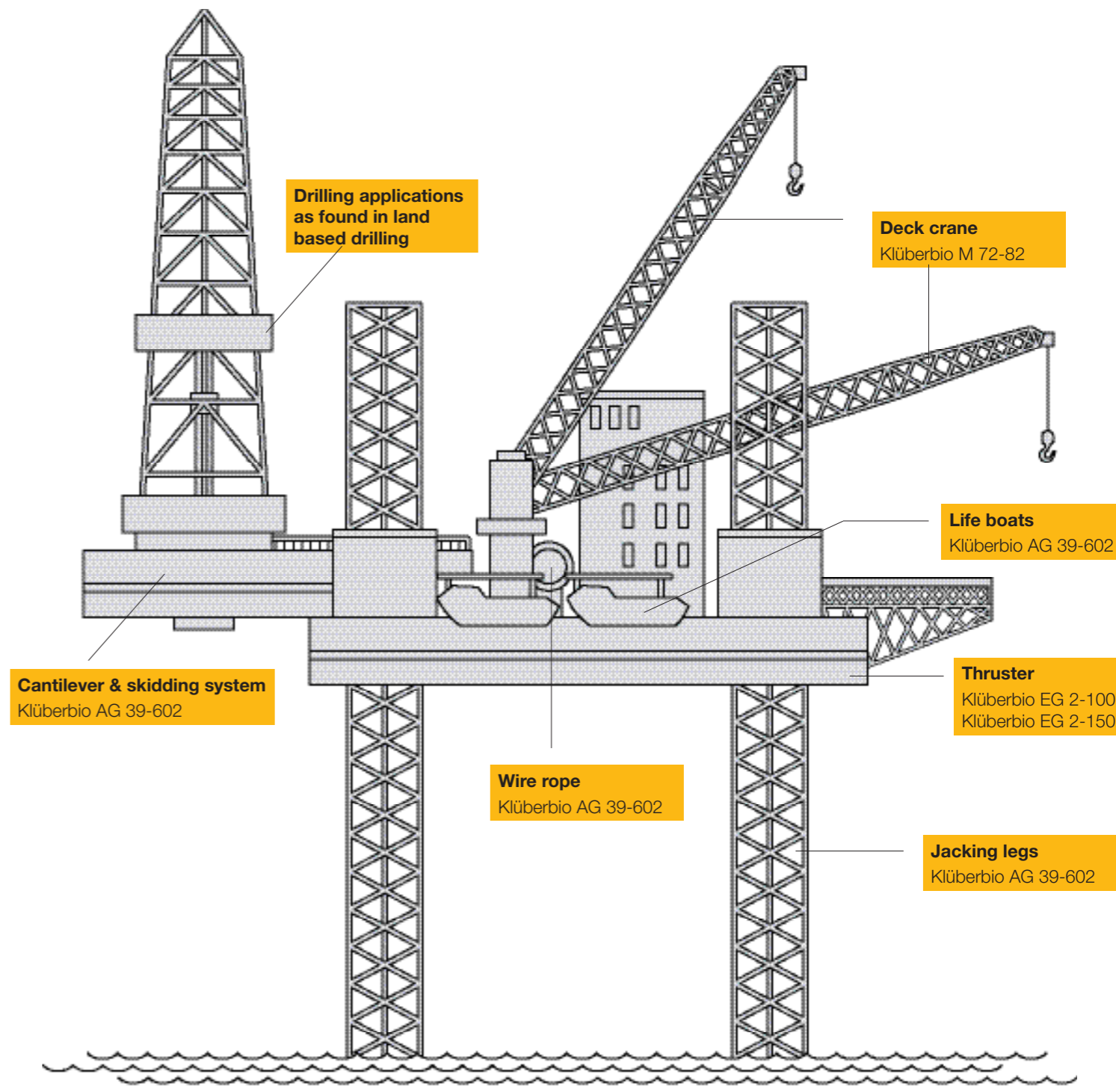
# Drilling Rig Applications

## Land Based Rig

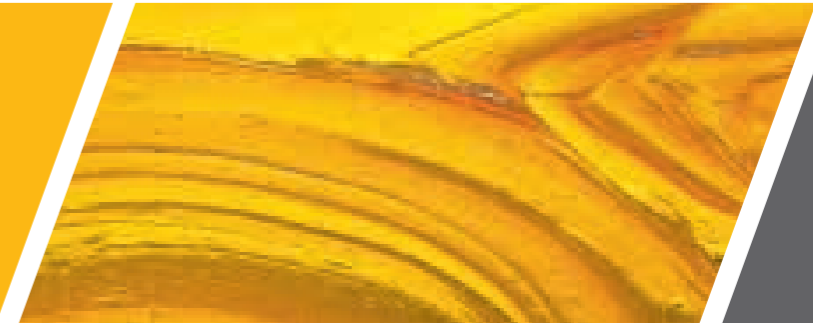


# Drilling Rig Applications

## Offshore Jack-Up Rig



## Speciality lubricants for the oil & gas industry



Product description	Klüber speciality lubricant	Product description	Module	Component
Synthetic grease	ISOFLEX TOPAS NB 52	High-performance synthetic grease for lubrication of bearings. Excellent wear protection, with a wide temperature service range.	Shale shaker motors	Rolling bearings, plain bearings
Adhesive grease	Klüberbio AG 39-602	Meets biodegradability, minimally toxic and non-bioaccumulating standards established by the US EPA for the 2013 VGP Biodegradability >60%	Jack-up gears, winches, steel cables	Open gears, steel cables
Gear oil	Klüberbio EG 2-100 Klüberbio EG 2-150	Readily biodegradable, non-toxic gear oil, ISO VG 100, 150. Meet CLP requirements according to ISO 51517-3 Biodegradability >60%	Thruster	Gear set
Hydraulic oil	Klüberbio LR 9-32 Klüberbio LR 9-46 Klüberbio LR 9-68	Environmentally acceptable synthetic hydraulic fluids, ISO VG 32, 46, 68. Meet HEES requirements according to DIN ISO 15380. Biodegradability >60% European Ecolabel Swedish Standard SS 15 54 34	Anchor handling / mooring winch Offshore crane Controllable pitch propeller	Hydraulic motor Hydraulic components Servo piston inside the hub
On-Deck, multi purpose grease	Klüberbio M 72-82	Readily biodegradable special grease, NLGI 2 Biodegradability >60%	Deck machinery	Bearings
Heavy duty grease	Klüberlub BE 41-1501	Wear protection for low-speed rolling bearings subject to high loads. Resistant to ageing and protects against corrosion. Contains solid lubricants for emergency operations.	Crown, traveling block	Low-speed bearings
Gear oil	Klüberoil GEM 1 N Series	High-performance gear oils / multi-purpose oils based on mineral oil and KlüberComp Lube Technology.	Topdrive, drawworks, mud system, iron roughneck	Gear drives
Heavy duty grease	Klüberplex BEM 41-301	High-performance semi-synthetic grease for bearings on electric motors and heavily loaded bearings. Extended grease life providing improved equipment reliability.	Topdrive, drawworks, mud system, iron roughneck	High load bearings Electric motor bearings
Gear oil	Klüberynth GEM 4 N Series	Synthetic high-performance gear and multi-purpose oils based on KlüberComp Lube Technology.	Topdrive, drawworks, mud system, iron roughneck	Gear drives
High-temperature grease	PETAMO GHY 133 N	Long-term and high-temperature grease for rolling bearings. Contains polyurea thickener, mineral oil, synthetic hydrocarbon oil and additives.	Topdrive, drawworks, mud system, iron roughneck	Electric motor bearings
Mineral oil-based grease	STABURAGS NBU 30	Excellent corrosion protection, water resistance, as well as resistance to many diluted alkaline and acid solutions	Iron roughneck, power tongs	Bearings, sliding elements
Mineral oil	STRUCTOVIS EHD	Excellent wear and corrosion protection for chains. Improved adhesive characteristics for high-speed chains.	Drawworks	Chains

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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

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

## Klüber Lubrication – your global specialist

Our passion is creating innovative tribological solutions. Through personal support and consultation, we help our customers to be successful, around the globe, in every industry. By utilising complex engineering concepts and experienced, competent employees, we have mastered the growing demand for high-performance, cost-effective special lubricants for over 80 years.

