

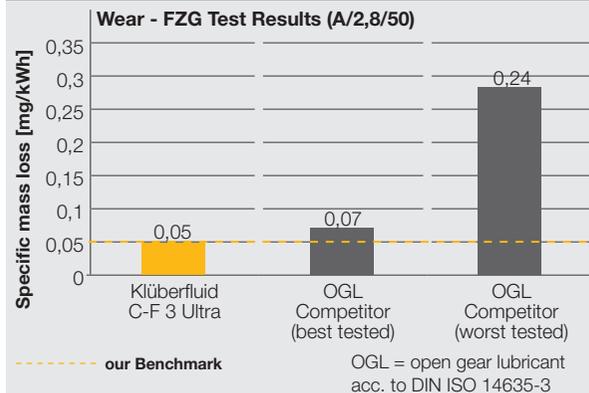
Tough lubricants for a tough business

Abrasive contamination, extreme temperatures, oscillating movements and extremely high loads are eating away at your equipment day by day. Further enhanced by the latest additive technology, our high-performance synthetic or mineral oil-based products protect your equipment reliably.

Our open gear lubricants – your benefit

The **Klüberfluid C-F Ultra** series was specially developed for open gears in processing equipment such as horizontal mills or kilns. Products of this series provide **excellent wear protection, reduced consumption** and **transparency** for easy inspection of gear tooth flanks.

FZG scuffing test load stage >12 is a standard that is met by many lubricants. It's the wear resistance that makes the difference. The wear a gear suffers determines its lifetime, the duration of service intervals and maintenance costs. Here our Klüberfluid C-F Ultra series really stands out.



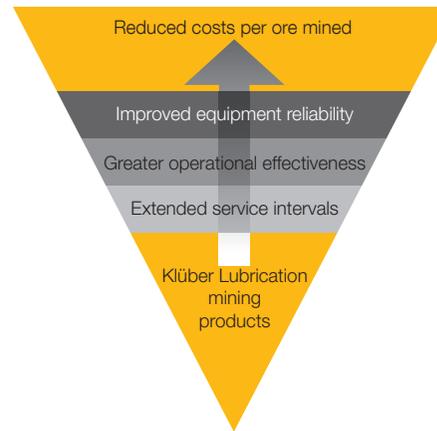
In the optional FZG wear test, Klüberfluid C-F 3 Ultra shows 30 % less wear than the best competitor product and 60 % less than the average of all tested competitor products.

Our service offers for your equipment

To make your mining business safer, more efficient and less costly, Klüber Lubrication can provide:

- Oil condition monitoring and analysis
- Inspections and documentation
- Tribology testing and component analysis
- Energy efficiency consulting
- Tailor-made product development in cooperation with leading mining equipment OEMs

How speciality lubricants make all the difference



Sustainable green mining

Klüberbio and **Klübersustain** are eco-friendly lubricants without loss of performance in comparison to conventional special lubrication technology. Your benefits are:

- Reduced disposal costs due to biodegradability
- Your mining operation is aligned with upcoming legislative regulations (e.g. acc. to OECD, CEC, USDA)
- Approved for environmentally sensitive areas

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your global specialist

Mine for efficiency.

Speciality lubricants for mining operations: processing and mobile equipment



Selected speciality lubricants for mining operations



| Type of equipment | Technical element | Greases, fluids | | | | | | | Oils | | | Automatic lubricators |
|-------------------------------|-------------------------------|--|---|---|--|---|--|--|--|---|--|--|
| | | GRAFLOSCON C-SG Ultra series | Klüberfluid C-F Ultra series | Klübersustain LG 39-700 | Klüberlub E 41-152 | Klüberlub BE 41-542 | Klüberlub BVH 71-461 | Klüberlub BE 41-1501 | Klüberoil GEM 1 N | Klübersynth GEM 4 N | Klüberbio LR 9 | Klübermatic |
| | | Operational lubricant for open gears and wire ropes, wide operating temperature range, easy application e.g. by spraying systems | Transparent open gear lubricant applicable with bath, sump or spray systems, high wear and tooth flank protection, meets ANSI/AGMA 9005-E02 annex D-2 | Biodegradable operational lubricant for open gears, 100 % renewable base oil, excellent low-temperature pumpability, ASTM 4 ball of 800 kg, meets P&H 464 | MoS ₂ high-pressure long-life mining grease, for harsh operating conditions in mobile equipment | Heavy-duty grease based on highly viscous mineral oil, special lithium soap with EP/AW, anti-oxidant and anticorrosion additives, contains MoS ₂ | Polyurea grease with good wear protection, water resistance and excellent pumpability, contains EP additives | Heavy-duty grease consisting of a highly viscous mineral hydrocarbon oil (ISO VG 1500), especially developed for large and heavily loaded low-speed rolling bearings | High-performance mineral gear oils, good wear protection of both gears and rolling bearings. Approved by Siemens (Flender), FLSmidth MAAG Gears, Moven-tas, etc. | PAO-based synthetic high-performance gear oils, much longer service life than mineral oils. Approved by Bosch Rexroth, David Brown, FLSmidth MAAG Gears, etc. | Environmentally acceptable synthetic hydraulic fluids, meet HEES specification, ideal for mobile equipment with low-temperature start-up characteristics | Accurate lubrication 24 hours a day, single-point lubricator using electro-mechanical or electro-chemical technology, can be fitted with standard, long-term or extreme-pressure greases |
| Processing equipment | | | | | | | | | | | | |
| Crusher | Roller bearings | | | | | | | | | | | |
| | Circulation system | | | | | | | | | | | |
| Mill, kiln | Open gears | | | | | | | | | | | |
| | Trunnion bearings | | | | | | | | | | | |
| | Gear cases (main drive) | | | | | | | | | | | |
| Roller press | Bearings | | | | | | | | | | | |
| | Couplings | | | | | | | | | | | |
| | Gear cases | | | | | | | | | | | |
| Vibrating screen | Bearings | | | | | | | | | | | |
| | Gear cases | | | | | | | | | | | |
| Conveyor drive, idler | Bearings | | | | | | | | | | | |
| Mobile equipment | | | | | | | | | | | | |
| Shovel and dragline | Open gears | | | | | | | | | | | |
| | Hydraulic system | | | | | | | | | | | |
| | Wire ropes | | | | | | | | | | | |
| | Dipper sticks | | | | | | | | | | | |
| | Plain bearings | | | | | | | | | | | |
| | Fairlead bearings | | | | | | | | | | | |
| | Gear cases | | | | | | | | | | | |
| Haul truck, dozer | Central lubrication system(1) | | | | | | | | | | | |
| Bucket wheel excavator | Bearings | | | | | | | | | | | |

(1) pins, bushings, heavily loaded chassis components, pivoting bearings, hinges

The recommendations given in this flyer should be used only for guidance. In order to choose the best lubrication solution, operating conditions and other parameters need to be considered. Above all, we recommend to consult our lubrication specialists for optimum product selection.