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

How speciality lubricants make all the difference

- Reduced costs per ore mined
- Improved equipment reliability
- Greater operational effectiveness
- Extended service intervals
- Klüber Lubrication mining products

Mobile equipment lubrication

Klüberplex EM 91-151 and 152 is developed for pins, bushings, bolts, chassis components or plain bearings. Our technology combines two different solid lubricants (including 5% MoS2) to lift synergies and provide best protection under mixed friction. High load carrying capacity and wear protection under wet, as well as dry conditions. It provides
- Minimized friction
- Outstanding wear and galling protection
- Stops corrosion

Klüberplex EM 91-151 and 152 takes up water, keeps its properties and adheres to metal even under elevated temperatures.

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www.klueber.com, mining@klueber.com

<table>
<thead>
<tr>
<th>Wear - FZG Test Results (A/2.8/50)</th>
<th>OGL (best tested)</th>
<th>OGL (worst tested)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Klüberfluid C-F 3 Ultra</td>
<td>0.05</td>
<td>0.24</td>
</tr>
<tr>
<td></td>
<td>0.07</td>
<td>0.35</td>
</tr>
<tr>
<td>Specific mass loss [mg/kWh]</td>
<td></td>
<td>0.25</td>
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<tr>
<td></td>
<td></td>
<td>0.2</td>
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<td>0.05</td>
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</tbody>
</table>

OGL = open gear lubricant acc. to DIN ISO 14635-3

Klüberfluid C-F 3 Ultra

OGL = open gear lubricant

Competitor (best tested)

Competitor (worst tested)

0.24

0.05

0.07

0.35

0.3

0.25

0.2

0.2

0.15

0.1

0.1

0.05

0.05

0.05
Selected speciality lubricants for mining operations

<table>
<thead>
<tr>
<th>Type of equipment</th>
<th>Greases, fluids</th>
<th>Technical element</th>
<th>Oils</th>
<th>Automatic lubricators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crusher</td>
<td>Roller bearings</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Circulation system</td>
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<tr>
<td>Mill, kiln</td>
<td>Open gears</td>
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<tr>
<td></td>
<td>Main shaft bearings</td>
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<tr>
<td></td>
<td>Gear cases (main drive)</td>
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<tr>
<td>Roller press</td>
<td>Bearings</td>
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<tr>
<td></td>
<td>Couplings</td>
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<tr>
<td></td>
<td>Gear cases</td>
<td></td>
<td></td>
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<tr>
<td>Vibrating screen</td>
<td>Bearings</td>
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<tr>
<td></td>
<td>Gear cases</td>
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</tr>
<tr>
<td>Electric motor, pump, conveyor, fan and blowers</td>
<td>Bearings</td>
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</tr>
</tbody>
</table>

### Processing equipment
- **Crusher**
  - Roller bearings
  - Circulation system
- **Mill, kiln**
  - Open gears
  - Main shaft bearings
  - Gear cases (main drive)
- **Roller press**
  - Bearings
  - Couplings
  - Gear cases
- **Vibrating screen**
  - Bearings
  - Gear cases
- **Electric motor, pump, conveyor, fan and blowers**
  - Bearings

### Mobile equipment
- **Shovel and dragline**
  - Open gears
  - Hydraulic system
  - Wire ropes
  - Dipper sticks
  - Plain bearings
  - Gear cases
- **Haul truck, dozer**
  - Pins, bolts, bushings, 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.