Give High-Pressure Grinding Rolls an Energy-Efficiency Boost

KLÜBER LUBRICATION
your global specialist

Advanced specialty lubricants can reduce mining operation costs and energy consumption while increasing gearbox efficiency.

At a time when mining operations face increasing electricity costs and environmental scrutiny, choosing the right specialty lubricant is crucial to the performance and efficiency of high-pressure grinding roll (HPGR) presses.

In crushing-and-grinding mining operations, HPGR technology is widely recognized as a more energy-efficient milling technology than conventional horizontal mills. And yet, it´s possible to boost HPGR efficiency even more. Operations can further reduce energy consumption, greenhouse gas emissions and operating costs by using advanced specialty lubricants.

A lesson in gearbox efficiency and a lubricant´s impact
The electric motor uses most of the energy required to run HPGR machinery. It produces input torque into a planetary gearbox that turns the rotating tire shaft. The amount of kW it consumes is largely based on material load size, speed and temperature. Within the gearbox itself, moving parts are the main sources of power loss. Lubricants can also contribute to power losses. That's why it's so important to have a lubricant that addresses both extrinsic and intrinsic variables.

Lubricant properties that affect energy efficiency include:

- Viscosity
- Viscosity-temperature behavior
- Density
- Base oil type
- Additive system

Klüber Energy - your personal consultant
Determining the right balance of a lubricant characteristics can be quite a challenge. There are a lot of factors to consider, such as PAO versus PAG base stocks and additives. We offer a free program, KlüberEnergy, that measures the energy efficiency contribution of lubricants in specific applications with the purchase of oil.

What makes KlüberEnergy different from other programs in its deep level of detail and strict adherence to international standards. To determine the energy savings potential of your application, KlüberEnergy experts use a highly detailed methodology to measure the power consumption of your systems before and after lubricant retrofit. They provide credible professional analysis of measured data as well as translate these electrical readings into concrete financial and energy savings that matter.

Mining company reduces costs, year over year
KlüberEnergy helped a South American mining company with their HPGR application. We selected an HPGR press for an oil retrofit, recorded three variables every 10 minutes for over a month and measured both the baseline lubricant and the retrofitted Klübersynth GH 6-320. The results were astounding. When KlüberEnergy compared measurements between the two oils, they found that Klübersynth GH 6-320 saved over 68.4 MWh per month in electricity. When calculated over a full year, the oil saved 820.8 MWh in electricity use, which reduced greenhouse gas emissions by 580 metric tons.

Read the full case study to learn more.

For more information, please contact Patrik Ekström, Services and Sustainability on patrik.ekstrom(a)se.klueber.com.

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