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The unique SKF G-ECOPUR seals in the toughest environments

SKF South Africa's Sealing Division recently presented a unique sealing system, the world-renowned G-Ecopur, to a global rock boring and drilling service provider. This innovative large size machined seal solution has optimised boring and drilling equipment reliability and service life, subsequently boosting productivity and production volumes. The turnkey solution also provides the end-user with access to SKF's professional technical support services.

The company required a high-quality sealing solution in the form of a new seal design for their rock boring equipment, prompting them to approach SKF South Africa. Tunnel boring and hard rock face mining is one of the most challenging operations and the equipment used in this harsh environment takes a beating.

Andre Weyers, SKF Product Manager: Seals, explains how SKF gained tremendous experience with seal solutions for this particular application. "During the development of a new prototype tunnel boring machine, SKF became very involved in developing the unit's challenging sealing arrangement. The sealing system has to be able to withstand very high contaminants and pressures. We also had to address the challenge of large seal sizes. This gave rise to the G-Ecopur which is specially designed to overcome these exact challenges. After careful assessment of the service provider's requirement, we recommended the SKF G-Ecopur as it was hands down the most optimum sealing solution for this stringent application."

The unique sealing system is supplied as a set that consists of five different parts. Weyers says that the SKF G-Ecopur seal solution is in fact a combination of seals, each with their own unique design and characteristics to address the gruelling operating conditions.

The seal system is manufactured from G-Ecopur material that is highly abrasive resistant, enabling the sealing system to seamlessly handle high pressures and exclude heavy contamination. The material is also hydrolysis resistant, eliminating the risk of fluid absorption that can cause swelling. Subjected to extensive testing against other elastomeric materials, the sealing system material yielded five to seven times better abrasion resistance.

Boring and drilling equipment operates in very confined spaces, severely limiting access to allow for maintenance and repairs. Here too the G-Ecopur's smart innovative design and rugged material properties add value by offering excellent sealing capabilities. Reliable machine operation reduces the risk of breakdowns and subsequently the need for repairs, boosting uptime and production.

The service provider ordered four complete SKF G-Ecopur sets, one set going into stock as a spare. Over the past six months, SKF has also supported the service provider with design, material selection, drawings, lubrication selection, technical issues and expert advice.

“Although SKF is not responsible for the fitment of the sealing systems, we have guided the design and engineering teams on correct fitment techniques,” affirms Weyers. “We are not providing formal training on the seal solutions but we have addressed aspects around training during several meetings with the end-user.”

According to Weyers, SKF has been requested by the service provider to assist on a new project which calls for a much larger range of SKF technologies.

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SKF's mission is to be the undisputed leader in the bearing business. We do this by offering solutions that reduce friction and CO2 emissions, whilst at the same time increasing machine uptime and performance. Our products and services around the rotating shaft, include bearings, seals, lubrication management, artificial intelligence and wireless condition monitoring. SKF is represented in more than 130 countries and has around 17,000 distributor locations worldwide. Annual sales in 2021 were SEK 81 732 million and the number of employees was 42,602. www.skf.com

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