

Mining, Mineral Processing and  
Cement industries

Kerneos Cement Works

SKF self-aligning bearing system

SKF Microlog data collector/analyser



## SKF self-aligning bearing system triples operating life for cooling fans at Kerneos

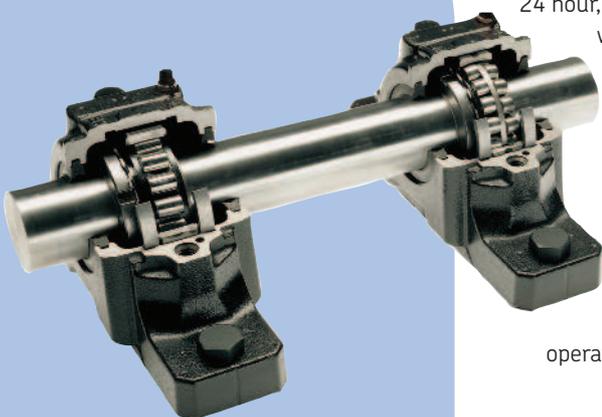
SKF, the knowledge engineering company, in conjunction with key distribution partner Brammer have provided a bearing solution for Kerneos, a worldwide manufacturer of specialist cements, which has increased operational life of cooling fans at its Essex plant by up to three times. This has enabled the company to reduce unscheduled maintenance downtime and increase production output, thereby saving on both energy and production costs.

Kerneos is part of a worldwide group manufacturing a range of calcium aluminate cement products, such as mortars, binders and additives used in the construction industry to produce a concrete with enhanced characteristics. Its UK cement works in Purfleet Essex operates on a continuous 24 hour, seven days a week process and was experiencing maintenance issues with unexpected premature bearing failure of four, large diameter cooling fans.

The failure of the fans could cause complete shutdown of the plant's processes, resulting not just in downtime to replace bearings but also in shutdown and start-up of the kiln, an operation which could take on average

between 8 to 10 hours. Indeed, not only was production affected, but as failure could not be predicted, large amounts of cement were spoilt due to incomplete processing. This resulted in time consuming removal and disposal of material before start-up could recommence.

Initially, traditional spherical roller bearings were being used in the cooling fans; however, with repeated failures and a mean time between failures of six to nine months, this was having a significant impact on downtime and cost to the business. Although a switch to a cartridge unit slightly improved bearing life, there was clearly a need for a more permanent solution.



During this period the company embarked on a programme of predictive condition monitoring maintenance using a portable SKF Microlog data collector/analyser.

Designed to give maintenance, service and inspection technicians on-the-spot, fast and easy to understand machine condition diagnosis, the unit can also predict failure times, helping in the planning of maintenance schedules. Vibration measurements conducted by Kerneos on all critical plant and machinery established a trend pattern; and revealed that bearing failure was probably due to the ingress of cement dust and expansion of the fan shafts due to the heat generated during production.

Brammer's unique partnership with SKF in understanding their products and applications enabled them to inspect the plant used at the factory and recommend a suitable bearing solution that could withstand the demanding operating conditions. As a result, Brammer specified and supplied the SKF self-aligning bearing system, as having the enhanced capabilities to offer longer bearing service life in this demanding application.

The SKF system consists of two self-aligning bearings: a CARB torodial roller bearing in the non-locating position and a spherical roller bearing in the locating position. The SNL plummer block housing is designed specifically for these bearing types, with accurately machined surfaces that allow heat to be effectively dissipated.

The system's unique construction features a non-locating bearing, which does not displace axially in the housing, and is engineered to K7 tolerances to eliminate mechanical looseness and outer ring creep. Additionally, it enables thermal expansion of the fan shaft to be accommodated within

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the CARB bearing, while ensuring there is virtually no friction, a reduced operating temperature and vibration levels, as well as lowering power consumption and allowing higher fan speeds. The bearings are also packed with an SKF high performance grease, allowing significant savings to be made in both the time and money spent on maintenance and repair.

The installation of the SKF bearings has subsequently seen the mean time between failure (MTBF) increase to between 18 and 24 months, thereby tripling bearing life while increasing production efficiencies through reduced unplanned shutdowns and minimising product wastage.

Peter Dean, Sales Manager for Brammer commented, "As an SKF Authorised Distributor, we have a strong working relationship with the company, which has provided us with the training and support to gain a complete understanding of their comprehensive bearing range and the specific applications that provide effective solutions. This has put us in the unique position of being able to offer expertise that our customers can

rely on. We now see our relationship with Kerneos as more of an engineering solutions provider rather than just simply a distributor of components, and this has given us a greater share of business through improved understanding of their requirements."

Colin Warren, Reliability Manager for Kerneos added, "The support we received from Brammer in providing a solution and their knowledge of SKF products, as well as finding the right bearing solution has really benefited our operations. With around the clock production it is essential that all key plant critical to our manufacturing processes are functioning at the optimum level possible in order to help meet our stringent productivity goals."

The success of this application revolves around the partnership initiative between SKF providing the support and training for Brammer, an SKF Authorised Distributor. This enhanced knowledge of SKF products has been a key factor in providing customer added value and improved production efficiency for Kerneos that looks set to continue into the future.

