Food and beverage industry

Spooner Industries

SKF Dry Lubrication System for conveyors

SKF stainless steel deep groove ball bearings filled with food grade Solid Oil

SKF Dry Lubrication System and Solid Oil bearings enhance bakery ovens

The efficiency gains achieved by using the SKF Dry Lubrication Systems and Solid Oil bearings have led to a performance-enhancing redesign in proving ovens, enabling maintenance and downtime in bakeries to be significantly reduced, and productivity increased.

Customers have typically adopted these solutions after discovering that high pressure wash-downs and humid operating conditions are causing premature chain and bearing failure, an increased risk of product contamination and unnecessary maintenance and re-lubrication costs.

Under these conditions, moisture, water and cleaning fluid will creep into bearings, resulting in reduced lubrication. This is because the bearing grease will absorb the water and emulsify, changing the consistency of the grease and allowing it to wash out. Along with corrosion accelerated by the humid environment, this can cause the guide wheel bearings of proving oven conveyors to fail.

There are also reliability issues with conveyor chains on provers, which are subject to high levels of wear. Inadequate and irregular lubrication cycles can generate increased friction and lead to breaks in the links, but in order to efficiently lubricate the entire chain it should be lubricated whilst running. However, since this requires that a technician be inside the prover while the chain is started, placing the engineer in a hazardous position, it is easier for bakery engineers to lubricate the chain only when it is stationary during cleaning, meaning that only accessible parts of the chain received lubrication on each occasion. As a consequence, high energy consumption, frequent chain replacements and unplanned production stops are often a regular occurrence.

One SKF customer that had been experiencing similar difficulties wanted to invest in a new proving oven and, having already established a long-term relationship with SKF, asked its engineers for support in reviewing the system and minimising such maintenance issues in the future.

Working alongside Spooner Industries, an OEM which has provided pioneering technology for the food industry for over 80 years, SKF recommended an efficient solution that would manage lubrication in the redesign of the bakery's proving oven.

This involved upgrading the guide wheels to re-lubrication-free SKF stainless steel deep groove ball bearings filled with food grade Solid Oil; and in order to address issues connected to manual chain lubrication, the SKF Dry Lubrication Systems was installed.

SKF stainless steel deep groove ball bearings filled with Solid Oil eradicated the problem of emulsification, as the Solid Oil matrix cannot be washed out of the bearing during hygienic wash-downs. The stainless steel bearing material reduced corrosion, enabling reliable, long-term, re-lubrication-free operation.

Solid Oil is an encapsulated lubrication that can be applied to virtually any bearing. It uses a polymer matrix saturated with lubrication oil that completely fills the internal space between the inner and outer rings and encapsulates the cage and rolling elements. Because Solid Oil bearings are virtually maintenance-free, they contribute to increased productivity, efficiency and operator safety.

Meanwhile, the SKF Dry Lubrication Systemsair-assisted oil projection lubrication system enabled reliable and effective lubrication of the chain, eliminated related downtime and reduced maintenance costs. Through accurate oil projection, the system prevented lubricant waste and reduced environmental and operator safety issues created by excess oil. The Dry Lubrication System includes volumetric piston pumps which precisely deliver a metered volume of lubricant to the points of friction while the chain is in operation. A control unit is preset to the preferred timing for lubricant application. Because the projection nozzles have no mechanical contact with the chains, dirt accumulation and applicator wear are prevented.

And since the chain does not need to be stopped for re-lubrication, productivity is increased, while longer service life is achieved due to decreased chain wear and reduced friction lowers energy consumption. In food and beverage applications such as this, SKF Dry Lubrication Systems also helps support the HACCP process in producing safe food by preventing contamination from the lubricant.

With the new SKF Dry Lubrication Systems and the upgrade to stainless steel Solid Oil deep groove ball bearings, maintenance, downtime and related costs have been significantly reduced, while productivity has increased. SKF has since worked with Spooner Industries to incorporate lubrication solutions into future proving oven designs. Due to the success of the solution, the design became

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SKF Dry Lubrication System for conveyors

Customer benefits

- Autonomous system for up to 200 lubrication points
- Lubrication of the conveyor chain surfaces and guides
- Intermittent lubrication controlled and monitored by an integrated control unit
- PTFE-based dry film lubricant, no water or soluble lubricants

SKF stainless steel deep groove ball bearings filled with food grade Solid Oil

Customer benefits

- Resistant to corrosion and chemicals
- Supplies more oil to the bearing than grease
- Keeps contaminants out of the bearing cavity
- Eliminates the need for re-lubrication
- Can withstand high g-forces
- Environmentally friendly

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