Adapter Mounted Bearings Improve Operations at Aggregate Plant

A new type of adapter mounted conveyor bearing is easier to replace and handles misalignment better than the bearings previously used at a major southern aggregate plant. The plant recently installed several of the Rex® SHURLOK™ 6000 Series Expanding Adapter roller bearings on an inclined belt conveyor, and the maintenance staff was immediately impressed with their advantages.

The plant was built in the late ’60s, and the company has been upgrading it to handle an increasing demand for the broad range of aggregate products it produces for road building and related applications. Currently, the plant produces approximately 1,000 tph of crushed aggregate. The material is transported between processing operations and to stockpiles by a series of inclined belt conveyors.

With adapter mounted roller bearings made by other manufacturers, it is difficult to know when the locknut has been properly tightened. In an effort to improve results, plant management replaced the existing bearings on the 2-15/16” shafts with the Rex® SHURLOK™ bearings and was pleased that they were easy to install. One mechanic who was involved in installing the new bearings said, “The sight glass (Spyglass™ Optical Strain Sensing Technology) built into the mounting collar of the bearing made it easy to tell when I had the correct torque because it changed color.”

Misalignment was also a serious problem at the facility, because the previous bearings could not accommodate any misalignment. The mechanic noted that he liked the way the new bearings moved on the shaft as a result of their greater misalignment capability.

Other bearings also were upgraded when the conveyor was rebuilt. The tail pulley bearings were replaced with the same Rex® SHURLOK roller bearings as on the gravity takeup bend rolls, improving misalignment capability and simplifying installation.

Bearings on the head shaft were replaced with Rexnord MAF 5307 bearings that interchange with standard TAF and SAF style bearings for demanding applications. These rugged, solid-housed bearings are factory lubricated with preset clearances and ready to install. They include a double set collar, rugged one-piece cast iron housing and a solid base for additional housing strength. Precision-milled ends ensure accurate location when replacement is required. Their case carburized, double set collar inner ring resists fracture under shock and heavy loads such as those encountered in aggregate handling. The bearings used here incorporate an “M” seal, with a spring-loaded lip to ensure constant contact, even during misalignment. This seal protects against liquids and grit in the severe environment. The self-aligning spherical roller bearings accommodate 3° of both static and dynamic misalignment, while the previous bearings accommodated no dynamic misalignment.

On another conveyor application, the existing tailshaft bearings were replaced with Rexnord BMEP 2307 spherical roller bearings to fit the 3-7/16" shaft. These are equipped with auxiliary cap seals to protect the primary seals against the severe environment, including gritty contaminants and liquids. The caps help increase the life of the bearings and reduce downtime by providing a second barrier. They are self-cleaning, since old grease is cleared away from the primary seal lip when clean grease is purged from the bearing to the cap. When fresh grease is pumped into the cap fitting, the old grease is purged from the cap. The rugged cast-iron cap also shields the bearing components and primary seal from flying debris.

As other conveyors are rebuilt, the company is planning to use these bearing solutions to simplify future installations and extend bearing life.