

**Location:**

Eureka Stone division  
of James D. Morrissey;  
Rushland, PA

**Industry:**

Aggregate

**Problem:**

The customer's needs included quality bearings and easy installation processes during a drive upgrade.

**Solution:**

Rex ZAF 6000 Series  
SHURLOK Adapter Mounted  
Roller Bearings

**Results:**

Difficult installation problems were eliminated and Rexnord Bearings promised to be easier to remove than competing products.

**Summary:**

The installation of Rexnord Bearings led to client satisfaction. According to the customer, "...I actually look forward to removing the Rexnord bearings, because I think they will be easy to get off the shaft ..."

## Crusher Upgrade Simplified with Easy-to-Install Bearings

*Rushland, PA (USA): November 10, 2008*

When the Eureka Stone division of James D. Morrissey needed to upgrade a crusher from diesel to electric drive, the project included new bearings for the jackshaft. Typically, split-block SAF-type bearings are used in such applications because of shaft size, but it is difficult to set the clearance accurately. Instead, the company used Rex® ZAF 6000 Series SHURLOK™ Adapter Mounted Roller Bearings, which eliminated the most difficult installation problems and promised easier removal when necessary.

The company's Rushland plant is a stone quarry as well as an asphalt recycling site. While the asphalt crusher and related conveyors are portable in nature, they tend to remain in one location for extended periods.

Asphalt materials are brought to the site, where they are crushed and recycled for paving. The crushing operation had been performed by a jaw crusher that was powered by an aging diesel engine. Upgrading it to meet current air quality and operational standards would have been costly, and results would have been uncertain. Instead, the company decided to convert the crusher drive to an electric motor with V-belt reduction. The motor is coupled to a jackshaft with a multiple V-groove pulley approximately eight inches in diameter, which drives a 30-inch pulley on the crusher.

The 4-7/16 inch jackshaft required two bearings, and normally split-block SAF-type bearings would be used. However, they are difficult to install correctly and more difficult to remove later. The installation method requires pre-measuring the clearance and then tightening the tapered adapter nut in increments, using feeler gauges to determine when a specified

reduction in clearance is reached. If this procedure is performed correctly, the shaft grip force will be correct, but if performed incorrectly, the shaft grip could be loose, which could cause the bearing to come loose on the shaft. It also could be too tight, which reduces the clearance in the bearing and could generate excessive heat.

Instead, the company selected Rex SHURLOK ZAF 6000 Series Bearings, which are solid-housed, shaft-ready units that are a drop-in replacement for traditional SAF units. They are greased and the clearance is preset, so they can be taken out of the box and mounted immediately to the shaft. They feature a Positive Locking System that maintains mounting tightness during operation. The tapered adapter sleeve provides greater shaft grip and eliminates the shaft damage caused by loose bearings. In addition, the tapered sleeve makes it easier to remove the bearings from the shaft without causing damage, saving both time and repair costs. The new bearings also incorporate a visual indicator Spyglass™ Optical Strain Sensor (OSS), which provides instant feedback to achieve optimal shaft grip. It eliminates damage to the shaft and bearing caused by improper tightening during bearing installation.

Because of the way they grip the shaft, the new bearings also will be easier to remove if that becomes necessary in the future. Plant Manager Jon Kenyon says, "If we have to change a pulley, we usually change the bearings. With split-block bearings, we sometimes have to burn the inner race off the shaft. I actually look forward to removing the Rexnord bearings, because I think they will be easy to get off the shaft and we can probably re-use them."

To connect the motor and shaft, Eureka used a Rexnord Omega Elastomeric Coupling, which has a unique split-in-half flex element and reversible hubs. Designed for ease of assembly and disassembly, it has a high capacity for misalignment and cushions shock loads and vibration. The polyurethane flex element requires no lubrication.



Large crusher used for asphalt recycling at Eureka Stone's Rushland, PA plant was converted from diesel to electric drive, using Rexnord SHURLOK Bearings and Omega Coupling on the jackshaft.



View from opposite side shows large multiple V-groove pulley that drives the crusher (inside guard).



Closeup shows two Rexnord Bearings supporting jackshaft and Omega Coupling connecting motor to shaft.



Jackshaft subassembly was put together in Eureka's shop before installation.