

# Musical Gearboxes

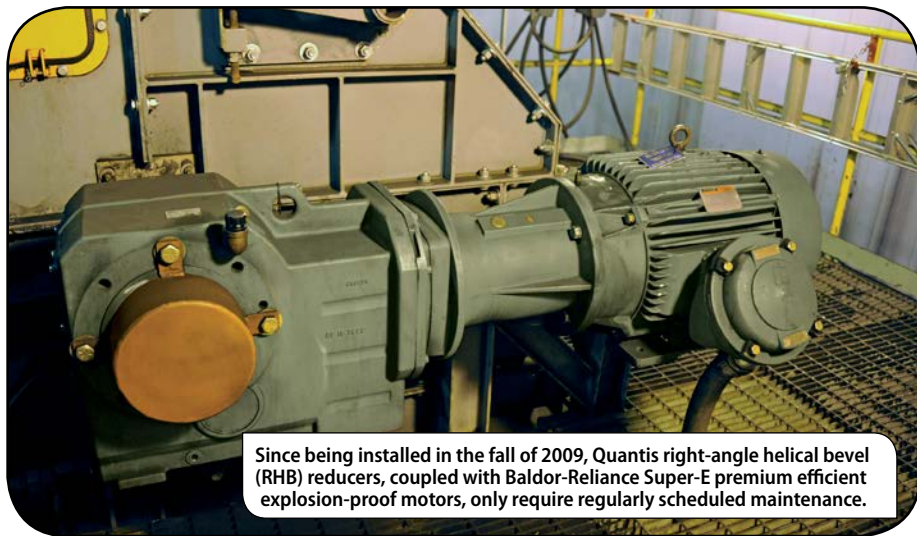
## Baldor Combats Downtime for Leland Olds Station

Baldor Electric Company

Dave Soma, the mechanical supervisor at Leland Olds Station, a coal-fired power plant near Stanton, North Dakota, says he and his maintenance team care deeply about keeping the plant running and providing people electricity, especially in the dead of winter. That's why in 2009 he and his team began looking for a better gearbox to use on the plant's coal conveyors.

The plant is owned by Basin Electric Power Cooperative, one of the largest electric generation and transmission cooperatives in the United States, generating and transmitting wholesale bulk electric power to 2.8 million customers in nine states.

Leland Olds Station went on-line in 1966; unit two began commercial operation in 1975. Originally, chain cases were used on gearboxes, but due to issues with grease and improving plant cleanliness, it switched to belt drives. According to Soma, the change from chains to belts added too much tension and overloaded the bearings in the gearboxes, and that's when the maintenance headaches began.



Since being installed in the fall of 2009, Quantis right-angle helical bevel (RHB) reducers, coupled with Baldor-Reliance Super-E premium efficient explosion-proof motors, only require regularly scheduled maintenance.

"For years, we have been playing musical gearboxes on these conveyors," says Soma. "We would take a failing gearbox off and replace it with our spare, and hope that we could fix the gearbox before we needed the spare somewhere else on the line. Most of the time, we were scrambling to make these things work and keep the conveyors running."

Extra time was also needed to realign belts after a gearbox was installed, a job Soma describes as critical, requiring skill, time and effort. The change-outs were also complicated because of where the gearboxes are located: confined, hard-to-reach spaces, with not much room to work.

"This was a big deal because failing gearboxes threatened our ability to generate power," explains Soma. "While we never did lose generation, we had to sweat it out a few times to get the job done. We knew this was not a good situation, and we decided that we needed to do something about it."

Craig Taylor, the manager of the Motion Industries branch in Bismarck, North Dakota, was a frequent visitor at the plant and had helped Soma and his team with several other projects. Taylor, familiar with the issue of the failing units, recommended Baldor's Dodge Quantis right-angle helical bevel gear reducer. Additionally, he suggested a complete Baldor package that also included a Baldor-Reliance Super-E premium efficient explosion-proof motor, a Dodge pulley and shafting, and Dodge ISAF bearings. Taylor chose to work with Baldor's System-1 group, a team that facilitates the design, quotation and order processing of multiple power transmission and electrical products into a completely packaged solution.



In the past, keeping coal conveyors running was a constant concern for the plant's maintenance team because of consistently failing gearboxes. In 2009, the decision was made to install Baldor's Dodge Quantis reducers.

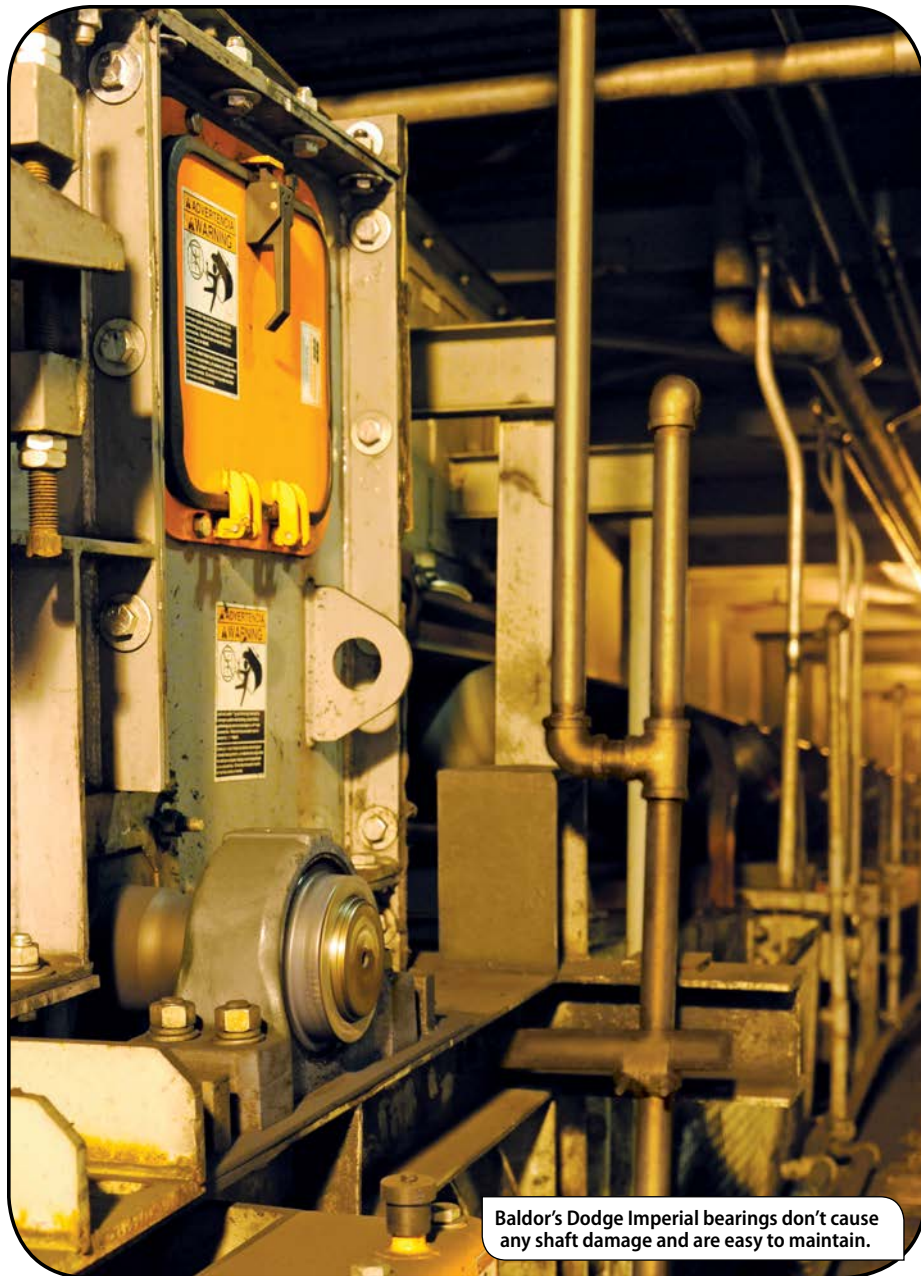
“It was so nice when the packages arrived,” says Soma. “We didn’t have to do a bunch of assembly here at the plant because the drum was mounted on the shaft, and the bearings were mounted. When we got this assembly into position, all we had to do was mount the gearbox and motor package—then our electricians hooked it up and away we went.”

### An End to Musical Gearboxes

Since being installed in the fall of 2009, Soma reports that the Quantis reducers run great and his team only looks at them while performing their regularly scheduled preventive maintenance program. He says it’s a nice change not to be worried about failing gearboxes, but he and his team also appreciate the benefits of getting the power they need from a compact unit. “Because space is a premium in the locations where gearboxes are used, having a smaller unit makes it so much easier for us to get to all of the other equipment,” explains Soma. “Another nice feature is that these gearboxes have a built-in roll-back clutch, instead of a separate piece of equipment that took up space and required additional maintenance. Fewer moving parts means there is a lot less for us to deal with.”

Soma is equally pleased to have a Baldor-Reliance motor as part of the package. “We have a lot of Baldor-Reliance motors in the plant and we’ve had good luck with them,” says Soma. “We have used other brands that haven’t performed as well. So it was really positive when we could get the brand of motor we prefer on the gearbox we needed from the same company.”

Baldor’s Dodge ISAF bearings have also been well received by the maintenance team. In the past, set screw bearings were used but caused severe damage to the shaft over time, which meant machining a new shaft as well as replacing the bearings. According to Soma, because of the way the adapter mount style of the Dodge bearing attaches to the shaft, it offers a concentric grip that reduces shaft damage. “This



Baldor’s Dodge Imperial bearings don’t cause any shaft damage and are easy to maintain.

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is the thing that we really like about these bearings, the way they offer 360 degrees of support,” explains Soma. “They support the shaft so much better, won’t cause any damage and are easy to maintain. These bearings have been the answer to a lot of problems.”

Soma reports that he and his team are enjoying maintaining the plant without the panic they experienced in the past from constantly failing gearboxes. Now when peak demand hits, he doesn’t worry about meeting critical demand. He believes the plant’s strategy of choosing a package based on total cost of ownership was the right decision and he couldn’t be happier about the outcome. “The headaches have gone away,” says Soma. “It would be nice if everything worked this way.”

#### PTE

#### For more information:

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The Leland Olds Station coal-fired power plant is owned by Basin Electric Power Cooperative, one of the largest electric generation and transmission cooperatives in the United States. The Cooperative transmits wholesale bulk electric power to 2.8 million customers in nine states.



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