

Success Story: Gerdau Ameristeel

Markets Served:

Construction, automotive, mining, transportation, material handling

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Rod Pizzey, Gerdau Ameristeel maintenance planner

Eaton Hydrokraft Pumps Help Gerdau Ameristeel Roll Forward

Location:

Selkirk, Manitoba, Canada

Segment:

Process

Challenge:

Need for a robust pump that uses water-based glycol and offers reliable operation and long life

Solution:

Eaton Hydrokraft™ PVX pump

Results:

Due to the pump's top-notch performance, Gerdau Ameristeel has added another Hydrokraft pump to the furnace power unit and has plans to replace more.

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Background

When Gerdau Ameristeel, the fourth largest steel company and the second largest mini-steel producer in North America, needs rugged, high-performing piston pumps in a hurry, it turns to Eaton.

For five years, Gerdau Ameristeel relied solely on competitive pumps at its electric arc furnace-based minimill in Selkirk, Manitoba, Canada. The pumps were used on the hydraulic power unit for its natural gas-fired walking-beam furnace that reheats steel billets, enabling them to be formed into various shapes.

The furnace supports two rolling mills and is shutdown only once each month for routine maintenance. Because the furnace needs to operate continuously at peak performance, its power unit consists of a series of four 250-ccm piston pumps, three

of which are operational and one on standby as a "hot spare." In the event of failure of one of the operating pumps, the unit automatically switches to the spare pump.

With that kind of muscle, it's no wonder the power unit has an integral role in furnace functions. It enables 100 tons of steel billets per hour to travel inside the furnace and maneuver in a square pattern—24 hours a day, seven days a week.

Challenge

Piston pumps employed in the power unit must use water-based glycol as their pressurized fluid supply, due to the steel mill's inflammatory environment.

Yet, while offering a fire-safe construction, water glycol provides less lubricity than petroleum-based fluids, which can adversely affect bearing

life. Consequently, water glycol can be a tough challenge for piston pumps—the case in point for the competitive pumps originally specified by Gerdau Ameristeel.

"The bearings in the pumps are small, making it difficult for them to withstand the load and effects of the reduced film strength of the water glycol-based fluid," says Rod Pizzey, Gerdau Ameristeel maintenance planner.

"We've experienced lots of problems with premature and catastrophic bearing failures. The previous manufacturer quoted us five years of performance before maintenance would be required, which wasn't even close to reality. We've had pumps fail before a year and a half of operation.

"The final straw occurred when one of the pumps

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caused a serious environmental issue for us. The competitive pump actually blew apart to the point that we could actually remove the drive shaft without dismantling the pump. The fluid leakage caused a serious environmental disposal issue, and we received no support from the manufacturer. The situation caused us to look for an alternative pump, which we needed immediately."

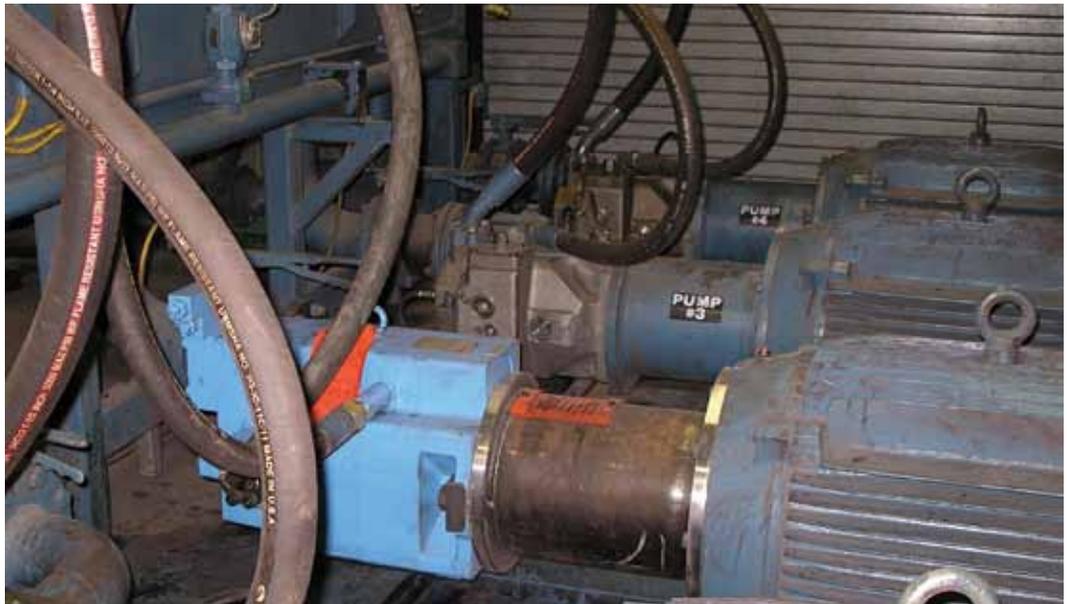
Solution

Pizzey called on the expertise of HyPOWER, its local Eaton product source in Winnipeg, for advice and product recommendations.

Upon learning about the parameters of the project and pump challenges, Brad Wachal, HyPOWER account manager, went to work investigating possible pump solutions. Eaton's product management and sales personnel recommended that Wachal take a look at the Eaton Hydrokraft PVX 250-ccm pump for the steel mill application. Wachal liked what he saw, and put together a proposal package for Gerdau Ameristeel's consideration.

They were impressed by the robust, heavy-duty pump that offers oversized shaft and shaft bearings—up to 30% larger than the competitive pump—resulting in reliable operation and long life, even in water glycol applications.

Also of interest were the pump's single-lip Teflon seal



Because Gerdau Ameristeel's walking beam furnace needs to operate continuously at peak performance, its power unit consists of a series of four 250-ccm piston pumps, three of which are operational and one on standby as a "hot spare." Oversized shaft and shaft bearings enable Eaton's Hydrokraft PVX pump to provide the water glycol-based power unit with reliable operation and long life.

shaft, which runs cooler than a triple-lip seal in low-lubricity conditions, and its cradle-type, swash-plate design that further ensures reliable operation and long life.

With pump parameters met, Pizzey had just one question for Wachal and the Eaton team: "How fast can we get one?"

An order was placed at the Eaton Weinheim, Germany, production facility the next morning, and Gerdau Ameristeel took delivery of its first custom Hydrokraft PVX 250 pump seven days later.

Results

"The steel mill received the pump in record time," Wachal says. "They were amazed

when it showed up on the loading dock in a week's time."

In order to test its endurance, the Eaton Hydrokraft pump was set up to take the lion's share of the workload in the furnace power unit—a leading role not too big for the Eaton pump.

"The Eaton pump has been working hard for over a year with no visible leakage from the shaft seal," a satisfied Pizzey says.

"It's already outlived the competitive pump 2 to 1, and I suspect the pump will last five to six years before needing normal, routine maintenance."

Since the positive test trial, Gerdau Ameristeel has added

another Eaton Hydrokraft pump to the furnace power unit and has plans to replace the two other competitive pumps within two years. Pizzey predicts Eaton will have future pump business opportunities at other Gerdau Ameristeel locations as well.

Gerdau Ameristeel in Winnipeg also relies on HyPOWER as its source for Eaton hydraulic motors.

Gerdau Ameristeel was impressed by the robust, heavy-duty pump that resulted in reliable operation and long life, even in water glycol applications.

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