DRIVE SOLUTIONS FOR
PUMP APPLICATIONS

CASE STUDY: BLACKMER

NORD DRIVESYSTEMS

NORD's revolutionary direct-mount gearbox design

New product design eliminates unexpected downtime

Pump installation and maintenance is now much easier

Shaft alignment problems are a thing of the past

NORD's line of single-stage helical inline gear units

Sometimes it takes but one good idea to change everything. This was the case when NORD Gear Corporation approached a potential customer with a way to greatly improve one of its product lines. The innovation is so effective that Blackmer is now a business partner and has made plans to incorporate NORD's concept into all of its Blackmer GNX Series of pumps.

INDUSTRY
Pumps for oil, gas and chemical fluid transfer operations

GEARED MOTORS
Single-stage Helical Inline Gear Unit
NORD SK 771.1

PROJECT REQUIREMENTS

The idea? Eliminate the one component that causes the greatest amount of grief in a typical pump drive application – the coupling.

For several years, NORD Gear Corporation engineers had been thinking about developing a hollow socket shaft design for our inline speed reducers. When they heard that Blackmer was looking at a redesign on one of its sliding vane pump families, it was an opportunity for NORD to present the no-coupling concept of directly interfacing the pump with our speed reducer. Blackmer agreed to test it and today, NORD is their main gearbox supplier.

Blackmer described several good reasons to adopt the hollow socket design. In each case with two mating shafts, they must be kept in alignment. Otherwise, it will result in additional load and possibly vibration that will reduce the product's lifetime.

The problem with a traditional pump and gear motor alignment is that a coupling is used to join them. Even a skilled technician needs a fair amount of time to get the different pieces shimmed, tweaked and aligned properly. The alignment is required not only during the initial installation, but also whenever routine maintenance is performed.

CUSTOMER PROFILE

Blackmer® is the leading global provider of innovative and high-quality positive displacement, regenerative turbine and centrifugal pumps, and reciprocating compressor technologies for the transfer of liquids and gasses. For more than a century, the Blackmer name has stood for unparalleled product performance, superior services and support, well-timed innovation and a commitment to total customer satisfaction. Supported by a worldwide network of distributors and original equipment manufacturers, Blackmer pumps and compressors are used in a multitude of applications in the process, energy and military and marine markets. Headquartered in Grand Rapids, Michigan, Blackmer is part of PSG®, a Dover company.

APPLICATION SOLUTION

The industry has been living with this aligned coupling challenge for as long as there've been electric pumps. But as competition grows and skilled technicians become increasingly scarce, those responsible for plant operations often settle for a quick "eyeball it as best you can" approach to shaft alignment, accepting the fact that pump life will suffer as a result.

Companies need to stay profitable. In a typical oil, gas or chemical plant, for example, you could face productivity losses of hundreds of dollars per hour if a pump fails. So they'll do whatever it takes to get up and running quickly. Poor maintenance causes a snowball effect. Instead of spending a couple hours to properly align a pump, suddenly a day or two of unexpected downtime arises when the coupling fails or the pump seizes. The new GNX Series alignment-free pumps eliminate all that.

Blackmer also made installation much easier. Because the new design is basically plug and play, the amount of integration work required by the customer facility has pretty much dropped to zero. Instead of 15 percent of Blackmer pumps being sold as turnkey solution, that figure increased to 72 percent.

Blackmer is just getting started. The first phase of the GNX Series rollout focused on 2- and 2.5-inch flange pumps.Using a NORD SK 771.1 gear unit directly coupled to a Blackmer heavy-duty, self-adjusting sliding vane pump, the units offer maximum flow capacities of 86 gpm (325 L/min) and 155 gpm (587 L/min) respectively. Phases II and III will extend to the Blackmer larger frame 3- and 4-inch pumps, boasting up to 50 hp and 500 gpm (1,893 L/min) and feature NORD SK 871.1, 971.1 or 1071.1 gear reducers.

Revolutionary – The Blackmer GNX Series sliding vane pumps with NORD gear motors are ideal for the harshest industrial conditions

THE PROJECT AT A GLANCE

NORD is a global leader in manufacturing drivesystems for industries that move, process, crush, sort, blend, package, clean and pump products.

- The NORD engineering team partnered with Blackmer to develop an innovative hollow-socket shaft design and gearbox/pump integration.
- The no-coupling design reduces manufacturing, assembly and maintenance time, parts and shaft alignment.
- With the new product offering, sales of turnkey pump solutions increased dramatically.
- As the new product design is being standardized across the entire GNX Series of sliding vane pumps, NORD has become the main gear reducer supplier for Blackmer.

ADDITIONAL CASE STUDIES ARE AVAILABLE ONLINE

www.nord.com/references

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CS0030 Mat.-Nr. 6166703 / 3019