



Flexible
Design Practices



Applied
Engineering

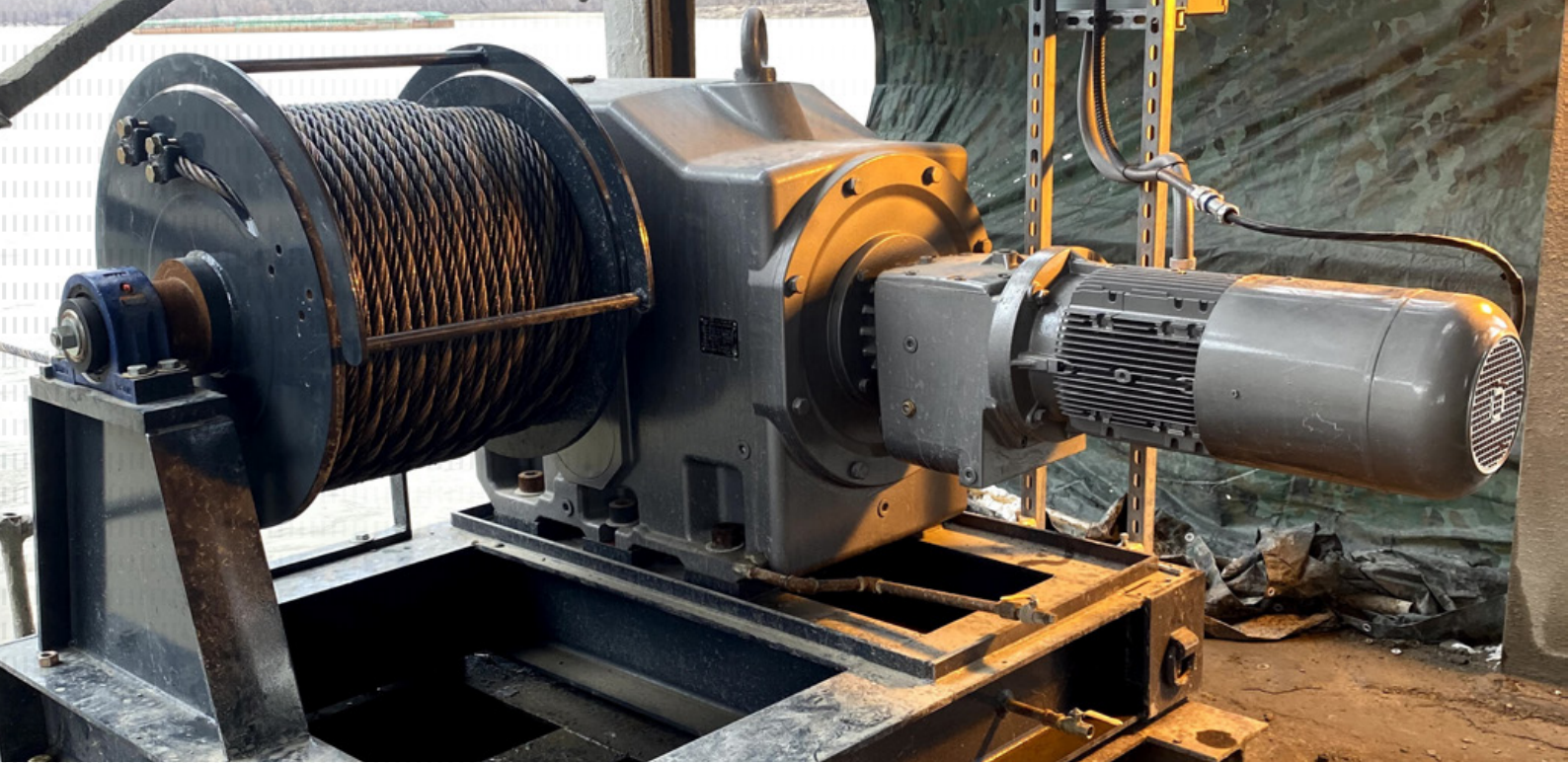


Safe, Reliable
Industrial Solutions

Drive Solutions for the Crane Industry

Case Study: Superior Lidgerwood Mundy Corp.





Barge Haul Systems

Winches, Hoists,
& Conveyors



Gear Unit

Helical Bevel



Gear Unit

CLINCHER™ Parallel Shaft



Motor

Project Requirements

SLM wanted to address the need for more efficient, standardized barge positioning systems. Legacy positioners are often unique to each loading facility, based on decades-old technology that requires a high level of experience to operate. Given the current labor shortage and the fact that many dock workers are approaching retirement age, these skills are increasingly hard to find. What's more is that much of this work is manual; personnel must hoist heavy lines and walk along the sides of barges and docks, even in inclement weather. It is a very difficult and unsafe job, so it is becoming harder to find people nowadays that are willing to do it and those who are willing are usually only familiar with whatever system they were trained on.

Similarly, operation of the tripper conveyors used at the top of these grain, coal, and fertilizer facilities needed an improvement. For the tripper conveyors, a worker must manually engage a hydraulic clutch to activate a tripper device. When the tripper stops, the only thing holding it in place is a series of brakes that are notoriously unreliable given the extreme loads and extended service of such equipment. Adding even more risk to this scenario is the fact that operators are often required to work hundreds of feet in the air, where any slip or equipment malfunction might send them toppling to a rapidly moving belt or the ground below. Additionally, the constant exposure to grain dust, which is not only hazardous to the workers' lungs, but also explosive.

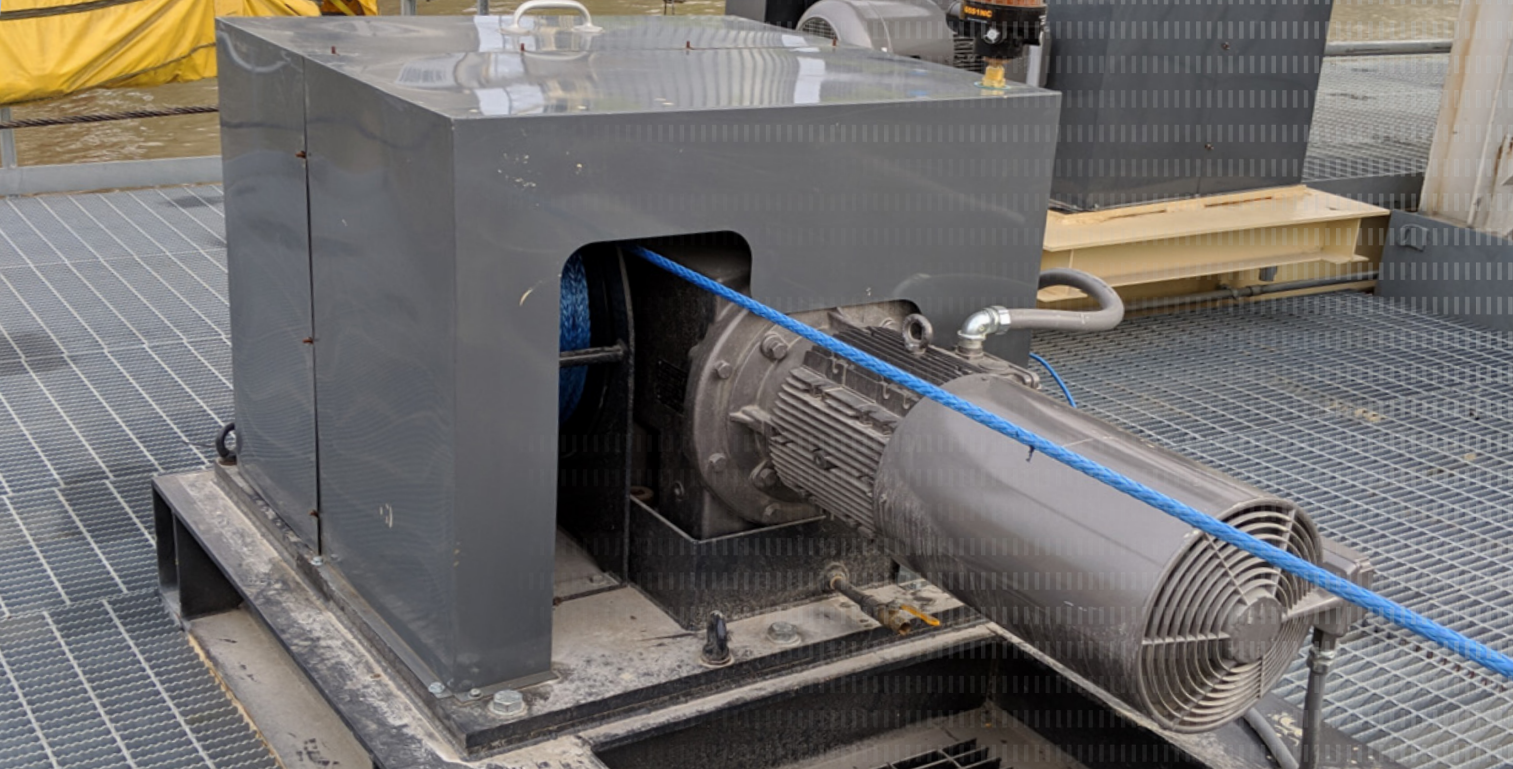
"In order to accomplish our goals, we had to find the very best drive technology available and the application support necessary to integrate it with our winches and hoists. We soon found that NORD has both, with a broad product selection and excellent availability, as well as the price points we needed to be competitive."

Kenneth Behrman
Engineering & External Affairs Manager



The Customer in Focus

SLM, located in Superior, Wisconsin, got its start 150 years ago in the lumber industry. SLM has highly experienced, second, and even third generation machinists and fabricators. The company has roots in cableway systems as well, where its hoisting innovations led to recognition in multiple World's Fairs and were incredibly important to the construction of historical landmarks such as the Panama Canal and the Hoover Dam. SLM began looking for ways to combine their unique experience in mechanical lifting devices with modern drive technology. This includes state-of-the-art control systems, hydraulically actuated leveling equipment, and automated solutions that make SLM products more cost-effective, reliable, and above all, safer.



Application Solution

SLM's goal became to develop a standardized, largely automated system that someone can operate with minimal operator training. The challenge in developing a system like this is to balance operational needs with a cost-effective solution. Facility owners were asking for better safety and efficiency, but usually balked at the price tag.

This led to the development of SLM's S-Series of standard winches, which is NORD-based and offers a great ratio of cost, efficiency, and the desired safety improvements. SLM's Engineering Manager, Kenneth Behrman, states that "In this and countless other examples, NORD's engineering team has provided sizing and application advice that keeps us on the forefront of design improvements. We are now able to apply gear motors in unique applications with the full support of the manufacturer's engineering team, allowing us to offer solutions that most cannot."

As for tripper conveyors, a pair of right angle, vertically-mounted winches equipped with NORD gear units and an advanced positioning control system was developed. It is a system that gives operators full control from a remote station to eliminate the need for personnel to work on or near the tripper, and provides much greater accuracy, avoiding the spillage that so often occurs with old fashioned equipment.

Now SLM focuses on using completely enclosed gearing in their solutions to decrease the possibility of human injury, drastically cut maintenance and inspection time, and extend equipment life. NORD allows for this to be accomplished without open gears, chains, or belts, allowing SLM to provide offerings that are safer and have higher ROI than their competitors.



Safety & Process Refinement

The SLM engineering team has created a ten-step development philosophy that they apply to all projects and which usually calls for NORD gear units. This methodology employs standardized products applied to customized drive technology solutions.



The Project at a Glance

NORD has been highly involved in SLM's goal to differentiate themselves from their competition. This includes state-of-the-art control systems, hydraulically actuated leveling equipment, and automated solutions that make SLM products more cost-effective, reliable, and safer. Some of SLM's NORD-based products include:

- ▶ CLINCHER™ gear units paired with an open gearing set
- ▶ S-Series standard winches
- ▶ Mechanical lifting devices with modern drive technology

Additional References
and Case Studies:
www.nord.com/references



www.nord.com

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