

WHAT COULD BE BETTER THAN NO TROUBLE?

CASE STUDY: LEGG MANUFACTURING



Industrial & Agricultural
Belting Production



Calendar Drives
Stacked Three High



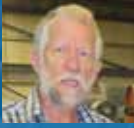
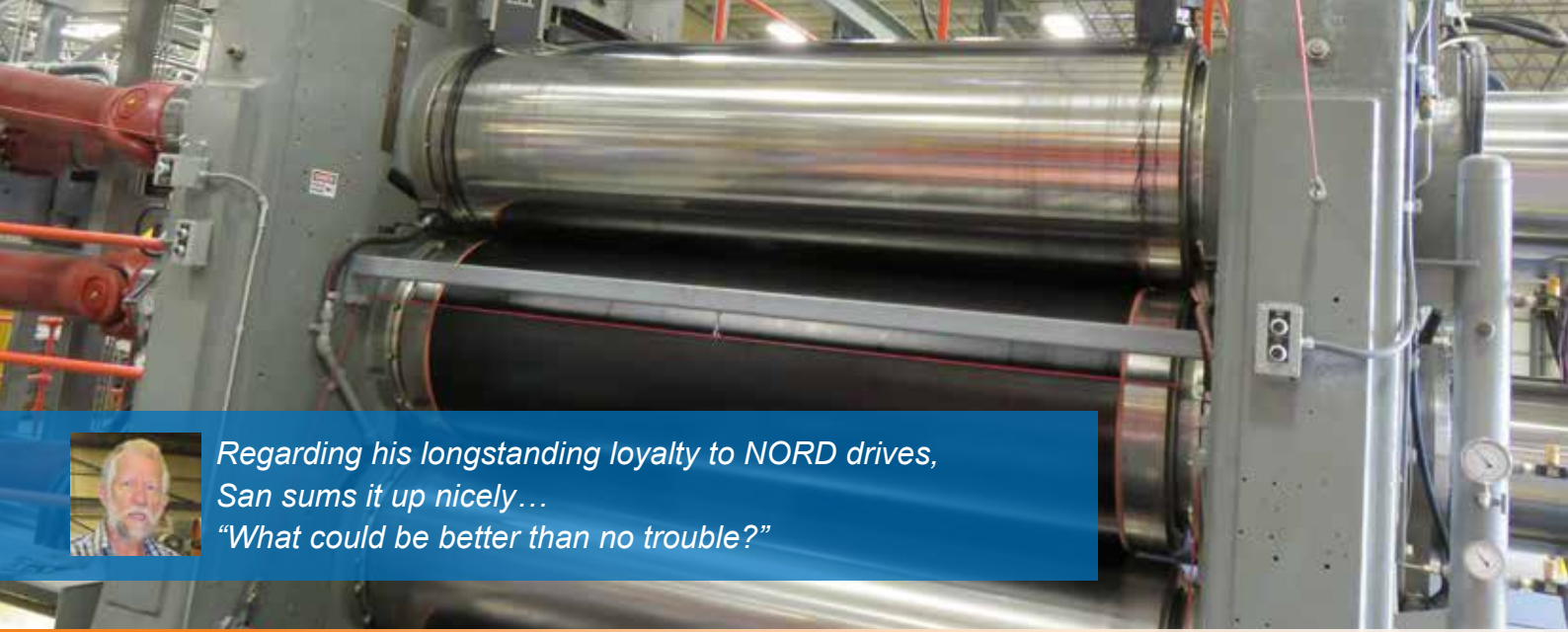
Industrial Gearing
High Torque, Precise Control



MAXXDRIVE™
Large Industrial Gearing



Optional Accessories
Modular and Adaptable



Regarding his longstanding loyalty to NORD drives, San sums it up nicely...
 “What could be better than no trouble?”



Industrial & Ag Industry
 Calendar Drives



Large Industrial Gearing
 SK 15307V



Optional Accessories
 Coupling Guards &
 External Oil Coolers

PROJECT CHALLENGE

Legg Company has come a long, long way since the 1930's, when expertise in making rubberized patches for agricultural binder canvasses led the company into the manufacture of industrial belts. From those humble beginnings in Halstead, Kansas, the company has grown to become a well-known supplier of industrial and agricultural belting. Now a part of the Continental Group, Legg serves the market with its innovative and diverse product line.

On the manufacturing floor, NORD has been a part of Legg operations for decades. It all began in 1996 when Legg faced several difficult challenges with rewinder drives. “We had a very simple mandrel, with plain shafts with plain ends,” San Nikkel, the R & D and Engineer Manager explained. “If a chuck failed, the entire shaft and roll could fall to the floor. It was a dangerous situation that had to be resolved. I examined several different chain drive options, and rejected them all. I knew that chain maintenance would be a problem. I

wanted the bearing journals to be on the mandrel, and did not want to have to dismantle the bearings to take the roll off. NORD supplied all the reduction in one gearbox, without any kind of chain drive involved, it really simplified my maintenance challenges.”

In 2011, Legg decided to expand their production capabilities with the addition of a new calender unit. And it was to be of massive size. The calender functions to layer rubber onto fabric in order to manufacture conveyor belts. Their existing calender produced 6' wide belts, but the concept behind the new unit was to produce 8' wide belts, substantially improving manufacturing efficiencies. The gigantic calender frames required were found, but the rest of the calender needed to be custom engineered and built from the ground up. Legg planned to use their own engineering and maintenance staff to do the construction, but enlisted the help of engineering consultant Larry Gooch to work with them on the design.

QUALITY ENGINEERED SOLUTIONS FOR EVERY CUSTOMER



At their Halstead, Kansas manufacturing facility, Legg Mfg. produces a comprehensive line of conveyor belts. These belts are quality engineered to meet a variety of everyday applications, or specially engineered to customer specifications. Since 1939 Legg has been serving the needs of a variety of industries by providing technology based solutions that answer specific conveyor belting needs.





APPLICATION SOLUTION

"I wanted to avoid long drive shafts, so we needed to be able to stack four drives in a unique way. The fact that this had never been done before did not deter NORD engineering in the least. In fact, the NORD application engineering group regarded it as an exciting challenge, and went to work" explained Larry Gooch, the engineering consultant for Legg. NORD engineering configured standard MAXXDRIVE™ boxes into a decidedly non-standard configuration. This unique installation required custom engineering of standard drive units. Since the drives needed to be stacked 3-high, with the fourth off to the side, the gear case mounting required sufficient support to accommodate the bending moments. Additionally, thermal loads were such that a central lubrication system that feeds from a remote reservoir was devised.

The multiple drives and the stacked configuration presented some significant challenges. Larry continues, "In a single-drive calendar

system, power automatically distributes itself to where it is needed in each roll. Here, we had to calculate maximum load requirements for each roller, and make sure the drive could deliver, with power to spare. Also, we worked closely with NORD on custom bracing for the 3-high stacked configuration. Significant overturning moments were going to occur, especially on the bottom box. The cast iron construction takes compression loads quite well, but we wanted to make sure that attachment flanges were not over-stressed."

The Legg calendar is designed so that each roller is individually driven by a NORD drive allowing for more precise process control. Additionally, the use of NORD drives is not limited to the calendar on this line. The same size drives that power the calendar are also used upstream on both the warm-up and finishing mills that then feed rubber to the calendar. Downstream, additional NORD drives power multiple rewind stands.



"They are terrific drives, absolutely dependable and maintenance free. So you just kind of forget about them."

FOCUS ON CALENDAR DRIVES

NORD Large Industrial Gear drive units:
MAXXDRIVE™ Helical-Parallel Shaft Design

Unit type: SK15307V-NEMA 449TC /

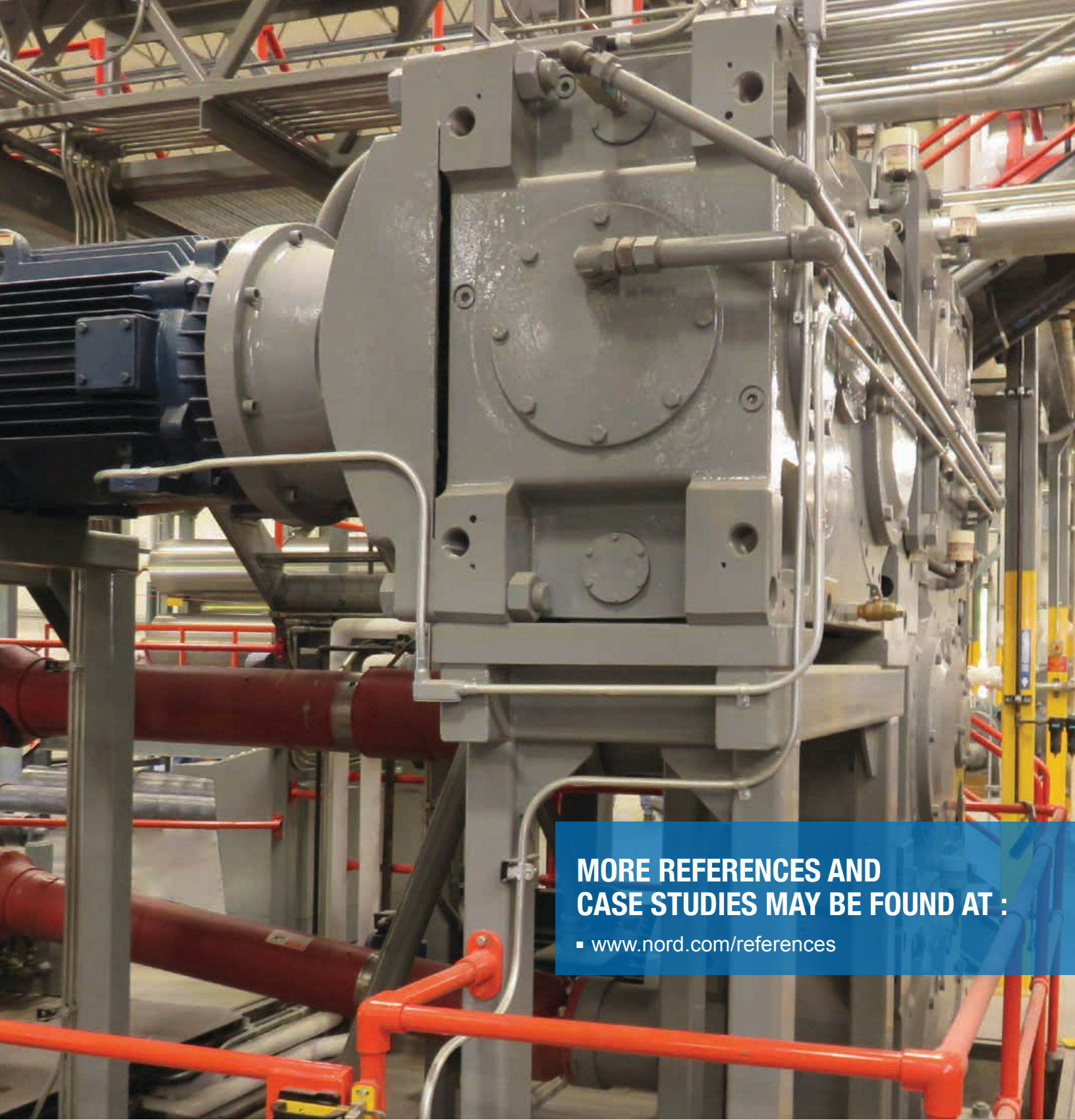
Ratio: 80.10:1

Input Speed: 1170 RPM

Output Speed: 15 RPM

Torque Rating: 1,850,000 lb-in.





**MORE REFERENCES AND
CASE STUDIES MAY BE FOUND AT :**

▪ www.nord.com/references



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Global Vision, Local Support

NORD makes its wide product range easily available through a global network that includes representation in over 60 countries. By providing all of our customers with prompt delivery, and expert support services, we are firmly committed to exceeding customer expectations and being responsive to the ideas and specifications of every customer, anywhere in the world.

