Wausau Supply, a major wholesaler of manufactured lumber, required a more efficient means of storing bundles of lumber of various widths and lengths in their warehouse. Their old storage method relied on a fork truck to place and remove bundles from predetermined stacks. The stacks of lumber had to be spaced far enough apart to allow the trucks to maneuver between them. The wide aisles required for fork truck travel resulted in a great deal of wasted floor space. That's where Total Tool Supply and Electromotive Systems came in! Wausau Supply's Vice President, Joe Jordan, contacted Total Tool Supply, a crane manufacturer, to design and build a system to improve their storage and retrieval process. Electromotive Systems' Engineered Systems Group was asked by Total Tool Supply to design the automation for the system.

A System Solution
Total Tool Supply studied the material handling process at Wausau Supply and worked together with Electromotive Systems to design a fully automated overhead bridge crane system to move the bundles of lumber. "Our objectives were to eliminate the need for fork trucks and reduce the amount of floor space required for storage, thereby improving Wausau Supply's storage and retrieval efficiency," says Keith Diekmann, Crane and Hoist Project Manager at Total Tool Supply. The result is a 10-ton bridge crane system designed with dual trolleys, each with a hoist and two-fork grab. The forks move underneath the load to lift it. Electromotive IMPULSE™ VG+ Series 2 adjustable frequency drives control the hoists and are furnished with Electromotive's Hoist Synchronization Software. The trolleys are controlled by Electromotive IMPULSE™ G+ Series 2 adjustable frequency drives, and are synchronized by lasers fed to a PLC, which compares the relative position of each trolley.

The bridge is controlled by two Electromotive IMPULSE™ G+ Series 2 drives running two bridge motors, which are controlled by an Electromotive SCS Swing Control System. Electromotive's SCS Swing Control System significantly limits load swing when moving lumber from one position to another. In addition, lasers are also used to provide the relative position of each bridge end truck to the PLC, which compares their positions and adjusts the motor speeds to compensate for skew.

"Our storage capacity has doubled, and we are able to retrieve lumber much more efficiently through the use of our new overhead bridge crane system."

Operation is Simple
Total Tool Supply and Electromotive Systems designed Wausau Supply's overhead bridge crane system for maximum control and performance through the use of an Electromotive PulseStar® 610 Remote Radio Control, with an Electromotive SBP® Pendant Pushbutton Station for manual back-up.

The crane works in both manual and auto-dispatch modes. In manual mode, the hoists, trolleys, and forks have the ability to act individually or can be synchronized with each other. In auto-dispatch mode, the operator moves the forks under the load and lifts it off the pile. The dispatch location is then selected and the dispatch button pushed. The synchronized hoists then rise, the bridge moves with both anti-swing and anti-skew on, the synchronized trolleys position over the stack of lumber, and the hoists lower the load to a predetermined elevation.

After the crane is positioned over its specified location, the operator takes manual control and lowers the remaining distance. Wausau Supply finds the auto-dispatching function of the crane to be very useful, as their operators have the ability to dispatch between the train unload area, the stored stacks of lumber, the loading area, and a saw, which was placed under the crane to shorten the bundles as needed.
Continued

Automation Results in Increased Storage Efficiency

Increased Storage Capacity and Retrieval Efficiency
By eliminating the need for fork trucks to pass through the aisles, the bundles of lumber can be placed closer together, reducing the amount of floor space needed for storage. "Our storage capacity has doubled, and we are able to retrieve lumber much more efficiently through the use of our new overhead bridge crane system," remarks Joe Jordan of Wausau Supply. "Our productivity has improved tremendously."

According to Dan Beilfuss, Manager of Systems Engineering at Electromotive, many customers have found that automating their storage and retrieval process results in increased efficiency and better utilization of space. The complete automation of Wausau Supply's overhead bridge crane system is just one example of the innovative engineering solutions the Engineered Systems Group at Electromotive Systems can provide. This group is dedicated to helping customers achieve maximum performance from their material handling equipment. They help customers identify, select and implement the best mix of motion control technologies and leading-edge product offerings available for their specific application.

Electromotive's Engineered Systems Group has more than 90 combined years of experience in the Material Handling Industry. They've designed and implemented automated systems for both traditional Crane & Hoist applications, as well as other application areas such as conveyors, automated guided vehicles, electrified monorails, tank line processing/dipping applications, transfer cars, and mobile storage racks, as well as semi-automated storage/retrieval systems, like Wausau Supply's.

The Engineered Systems Group will serve your application needs from start to finish through:
- Project evaluation
- Applications solutions
- Engineering design
- System manufacture
- Project management
- Field start-up and test

To find out more about how automation can improve your company's productivity, call your Electromotive Systems representative or the Engineered Systems Sales Department at Electromotive today.

Introducing:
IMPULSE®\textsuperscript{P3} Series 2

Electromotive Systems introduces the new IMPULSE\textsuperscript{P3} Series 2 Crane Control. This more compact\textsuperscript{*}, cost-effective control comes standard with dual software, giving you maximum versatility! In its standard, factory default setting, programming and operation of the new IMPULSE\textsuperscript{P3} Series 2 are identical to the original IMPULSE\textsuperscript{P3}, so there's no operator learning curve. However, with the adjustment of a single parameter, the new IMPULSE\textsuperscript{P3} Series 2 with dual programming now offers you the versatility of some of the advanced control and safety features found on our IMPULSE\textsuperscript{G+} Series 2 drives!

Electromotive Systems' new IMPULSE\textsuperscript{P3} Series 2 also has an expanded horsepower range (from ¼ up to 10hp). And, rest assured, we designed the new IMPULSE\textsuperscript{P3} Series 2 with the same superior reliability as the original!

Call your Electromotive Sales Representative or our Controls Sales Department today for more information!

\textsuperscript{*}Up to 50% smaller than the original IMPULSE\textsuperscript{P}.

For more information on the IMPULSE\textsuperscript{P3} Series 2 and all our IMPULSE products, please contact our Control Sales Department at 1-800-258-3178, or request #125 on your reply card to receive more information.
Product Update

PulseStar® Jr. Transmitter now with LED Back-lit Option Buttons

Electromotive's PulseStar® Jr. 3 motion, 2-step transmitter, the JRT-7, has been redesigned to perform even better than before! The JRT-7 was designed with a slide switch for selecting options. The new transmitter, now called the PulseStar JRT-8, has two back-lit, latching option buttons. The buttons light up as you latch them in—select option A, B, or both!

The redesigned option buttons on the new JRT-8 have a protective cover and membrane to keep them free of dirt and grime, resulting in:

- Better performance even in the harshest environments
- Extended operating life.

The PulseStar JRT-8 transmitter has the same key switch, stop button, and start button as the previous JRT-7. All new PulseStar® Jr. Systems requiring the selection of two (2) options, A, B or both, will now be shipped with the new JRT-8 transmitter. These standard systems include the JRT-314-AB, JRT-314/6-2 and JRT-314/6-2-INT.

PulseStar® Jr. Transmitter with Protective Silicone Boot

We're building additional protection into our PulseStar® Jr. Transmitters. Beginning in April, all new systems will include a silicone boot cover designed to protect the transmitter from damage if it's dropped.

Our silicone boot cover is also available as an aftermarket upgrade for existing PulseStar® Jr. Transmitters.

We're confident you will be pleased with the enhancements to our PulseStar Transmitters. For more information, please contact your Electromotive Sales Representative or the PulseStar Radio Controls Sales Department at 1-800-288-8178.

Reduce Conductor Bar Installation Cost by 1/3 With ELECTROBAR® FS

ELECTROBAR® FS hanger mounting brackets are designed to be installed every 7 ½ feet on our 125 AMP and 400 AMP systems, instead of every 5 feet as in other conductor bars. Because less hangers are needed, installation time is cut by a third—reducing your labor cost! Contact factory for additional information.

Check Out Our New Web Site!

Our Web site has a new look! Under a Magnetek corporate-wide initiative, our Web site was redesigned to be consistent in look with the rest of the Magnetek family. You will still access Electromotive’s site via www.electromotive.com. All the information you are used to obtaining from our web site will still be accessible, although some of it has been reorganized a bit! For example, all technical and application information for each of our products will now be found under that product in a section called “Product Resources.”" Visit www.electromotive.com soon to check out our new look! If you have any comments on our new site, email us at electromotiveinfo@magnetek.com.
Reference Files

MAC®2000™
A reduced voltage soft start for applications needing cost-efficient motor control, the MAC®2000 offers versatility, reliability and value in a motor acceleration control.
Please write #17 on your reply card to receive a copy of this brochure.

Festo Systems and Cable Brochure
Electromotive Systems offers a complete line of Festoon Hardware and Cable, all detailed in our 20-page color brochure. Many new products have been added to our Festoon line, including Plug and Play Wiring Harness, Mill Duty Festoon Trolleys, Electromotive Systems. Festoon product offering is one of the most complete and competitively priced you will find on the market.
Please write #119 on your reply card to receive a copy of this brochure.

Electrobar® FS Conductor Bar Systems
Find out about the features and benefits of our Electrobar FS Conductor Bar System for the electrification of cranes, monorails and automated storage and retrieval systems in this 8-page color brochure.
Please write #123 on your reply card to receive a copy of this brochure.

PulseStar® MRT
Small and lightweight, the PulseStar MRT5 is ergonomically designed to fit comfortably in the palm of your hand, and is ideal for 3-motion/2-step applications. MRT systems can be powered with standard AA disposable batteries, or an optional 3.6 volt rechargeable battery. The Pulsestar MRT uses a synthesized frequency, not fragile crystals, transmitting in the 400-470 MHz band. This ensures a safe, reliable radio link.
Please write #124 on your reply card to receive a copy of this brochure.

Register On-Line for Training

Technical Training Program for IMPULSE® G+/VG+ Series 2 and our NEW IMPULSE® P+ Series 2 Drives
March 5-7
This comprehensive 3-day training program starts with a review of basic drive theory and the "how to's" of selecting and applying adjustable frequency crane controls for overhead material handling applications. Programming information for the IMPULSE® P+ Series 2 and the IMPULSE® G+/VG+ Series 2 Drives in both V/F and open loop vector mode is also covered. The second half of this session covers introduction, theory, and programming of our closed loop flux vector crane control, IMPULSE® VG+ Series 2, and is ideal for anyone involved with the start-up and maintenance of flux vector motor controls. The training session concludes with a discussion of troubleshooting for all adjustable frequency crane controls.

PulseStar® Remote Crane Controls
March 8
Our one-day program details all the features and benefits of our PulseStar product line. You will learn about the application, use and troubleshooting of all the PulseStar models, and about the various technologies included in these advanced radio remote crane controls.

Electromotive Systems reserves the right to cancel training if a minimum number of registrations is not met three weeks prior to the session date. Given this possibility, if you plan to fly, please do not book your flight too early. In the event of a cancelled session, you will be invited to attend another training session at a later date.

For more information, please visit our Web site at www.electromotive.com or call us at 1-800-288-5178. All training sessions take place at our suburban Milwaukee facility and are free of charge. However, you are responsible for your travel and lodging expenses. Space is limited and reserved on a first-come, first serve basis. Due to high demand, we do limit three people per company per training session.

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Providing the Vision, Products, & Engineered Solutions

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Did you know that all worm gears are not self-locking or non-overhauling?

A non-overhauling load is one which won't free fall due to inefficiencies in reeling and gearing. Worm gear ratios up to 15:1 will overhaul freely. Ratios from 20:1 to 40:1 can generally be considered as overhauling with difficulty, particularly from rest. Ratios above 40:1 may or may not overhaul depending on loading, lubrication and the amount of vibration present.

Self-locking ratios (generally 40:1 and higher) are susceptible to the phenomenon of stair-stepping when overhauling. Stair-stepping, an erratic rotation of the gearset, occasionally occurs when the gearset is back-driven at worm speeds less than the theoretical lock-up speed of the gearset. This condition can occur on hoists where there is a high inertial load at the output shaft.

Visit Electromotive Systems' Booth at:

America's #1 Industrial Marketplace™
National Manufacturing Week®

McCormick Place, Chicago, IL  March 18-21, 2002

Electromotive Systems is exhibiting at the Plant Engineering MRO & Management Show. Visit us in Hall B1, booth #2818, in the Material Handling Pavilion. We look forward to showing you how our products will meet your material handling control needs!