MAGNETEK ENGINEERED SYSTEMS

Red River Pedestrian Bridge

Project — Red River Pedestrian Bridge
Application — Pedestrian Bridge Lifting System
Location — Fargo, North Dakota and Moorhead, Minnesota
Products Used

- IMPULSE®•VG+ Series 4 Adjustable Frequency Drives
- IMPULSE® Drive Synchronization Software
- Enrange™ Flex EX Radio Remote Controls

CHALLENGE

- Introduce lifting functionality to a new pedestrian bridge
- Decrease likelihood of inclement weather damage
- Reduce costs for replacement equipment and seasonal bridge removal
- Coordinate two hoist operations to balance lifting motions

SOLUTION

- Two 40-ton hoists using Magnetek's IMPULSE•VG+ crane control drives and radio remote controls
- Decreased potential damage opportunities from flood waters or thawing ice
- Eliminated need for seasonal removal of the bridge by outside contractors
- Trenched fiber optic cable beneath riverbed to synchronize lifting

Springtime thaws and flooding along the Red River have been annual problems for the cities of Moorhead, Minnesota and Fargo, North Dakota. Occasionally, flood waters have risen up to 40 feet above the river bank and damaged businesses, homes, and surrounding infrastructure. To prevent recurring damage to a pedestrian bridge between the two cities and decrease removal and replacement costs, a 168-foot bridge was commissioned with a self-contained lifting system, including new Magnetek radio remote controls and adjustable frequency drives.

In the event of a potential flood situation, the original pedestrian bridge between Moorhead and Fargo required removal from the river crossing via portable crane systems that took weeks to coordinate and were expensive to implement. By that time, ice or high water may have already caused permanent damage. Magnetek's IMPULSE•VG+ Series 4 Drives, IMPULSE Drive Synchronization Software, and Enrange Flex EX Radio Remote Controls were installed on a new bridge to provide operators with the ability to raise or lower the bridge quickly and eliminate replacement part and removal costs.

Two 40-ton hoists, provided by Superior Crane Corporation, are located on towers at each end of the new bridge and are powered by Magnetek's IMPULSE•VG+ adjustable frequency drives. IMPULSE•VG+ crane controls are the most reliable, cost-effective drives available today, providing users with easy operation and industry-leading safety and performance features to provide unmatched performance for the pedestrian bridge's lifting function. Fiber optic cable trenched beneath the river allows for communication between the two isolated drives. The drive synchronization software precisely monitors speed and positioning of each end of the structure to maintain a balanced lift and can automatically re-synchronize drive motors.

ADVANTAGES OF USING MAGNETEK'S ENGINEERED SYSTEMS GROUP

- Experts in crane, hoist, and monorail control systems
- Turn-key design, programming, and field start-up
- Experience in automated carrier and bridge monorail systems
- 100 years of combined experience in the Engineered Systems Group implementing automated crane, hoist, and monorail systems

Ergonomically designed, lightweight 8-button Flex EX radio remote controls were implemented to meet the needs of the new bridge's control system. One person can use the Flex EX transmitter to operate hoists on both sides of the bridge at the same time, ensuring a balanced lift. Flexible and reliable, the Flex EX was able to smoothly and safely control the bridge's lifting function.

Magnetek's adjustable frequency drives and radio remote controls improve the cities' ability to make quick, responsive decisions based on weather conditions. As soon as reports of poor weather are received, the bridge can be raised without waiting for an outside source. Installing the self-contained lifting system not only prevents recurring damage to the bridge, it eliminates the need for seasonal removal and associated costs. Implementation of Magnetek's system allows Moorhead and Fargo to be more responsive to hazardous conditions, saves time and costs when lifting, and decreases the risk of damage to the bridge.