MAGNETEK ENGINEERED SYSTEMS

Newport News Shipbuilding System Upgrade

Project — Newport News Shipbuilding System Upgrade
Application — Preventative Modernization Crane Control Replacement
Location — Newport News, Virginia
Products Used:

- IMPULSE®• G+/VG+ Series 4 Drives
- MLTX2 Transmitter
- Flex M Receiver
- Radio Drive Serial Interface

CHALLENGE

- Execute scheduled crane system upgrades
- Coordinate all system components for smooth and reliable operation
- Minimize risk of downtime when making repairs

SOLUTION

- Updated systems with new IMPULSE drives and radio remote controls
- Incorporated RDSI to improve information feedback between drives and transmitters
- Provided wireless controls to easily access crane operation information on the ground

As the largest shipbuilding company in the United States, Newport News Shipbuilding (NNS) needs to be at the top of their game to effectively build the most advanced ships in the world. This includes keeping their overhead and gantry crane equipment running at the most efficient levels. Intended to avoid any production slow-downs due to wearing parts, system failures, or crane downtime, NNS scheduled 10-15 year overhauls of multiple cranes and their components.

NNS was able to improve coordination among the system components, enhance facility safety, and minimize downtime by implementing a solid crane modernization program. Properly planning an effective modernization program was key in updating drives and wireless control systems in a timely manner to keep the facility running at a high level.

By modernizing crane control systems on a pre-determined schedule, NNS avoids lengthy downtime and critical operation issues. Cranes are able to quickly return to service as a result of the facility's foresight. Additionally, universal components can be purchased, eliminating the financial burden of investing in multiple spares. One transmitter and receiver pair may be used on several different cranes.

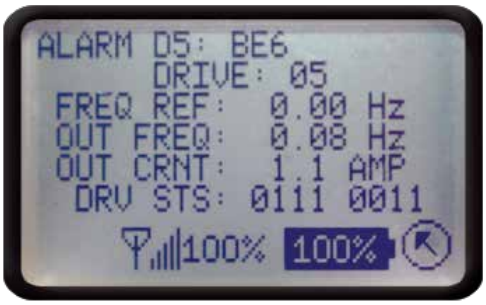
Initial steps in the scheduled upgrade plan included modernizing crane controls by adding Magnetek's industry-leading IMPULSE®•G+ and VG+ Series 4 variable frequency drives. IMPULSE•G+ drives are typically installed on bridge and trolley motions, while hoist motions utilize VG+ drives. Preventative maintenance monitors are built into the drives, providing feedback needed to proactively schedule maintenance and minimize downtime, making them ideal for NNS's systems. IMPULSE drives improved overall crane operation and simplified maintenance requirements.

ADVANTAGES OF USING MAGNETEK'S MATERIAL HANDLING GROUP

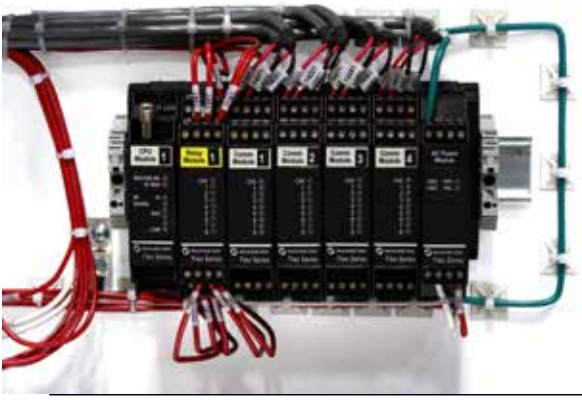
- Experts in providing innovative, cost-effective, custom-engineered adjustable frequency drives and wireless communication products
- Meet application specifications to reduce internal engineering, improve time to market, and enhance performance
- Customized application software
- Aftermarket service and support

These benefits were further enhanced by Magnetek's wireless controls and serial communication provided by Radio Drive Serial Interface (RDSI). In the second phase of modernizing NNS's crane systems, integration of Magnetek's MLTX2 transmitters and Flex M receivers with the IMPULSE drives allowed users to receive crane operation information in real-time. The MLTX2 bellybox transmitter includes an informative graphic display, two-way feedback, and configurable layout. Accessing information on a display saves time on repairs. Corrective action can be taken quickly without always having to go up on the crane, which can be an expensive disruption to production. The versatile Flex M receiver offers compact, machine mountable modules, which can be combined to form a complete system.

The most complex component of the modernized crane systems was integrating Magnetek's RDSI, which interfaces between the MLTX2 transmitter and IMPULSE drives. This allows RDSI to command the drive and the operator to monitor performance parameters, such as load percentage, amps, volts, drive status, faults, and alarms, right on the transmitter's display unit. RDSI makes monitoring drive status easy by putting the information at the operator's fingertips. Feedback parameters directly communicate from drives to the MLTX2's graphic display, providing access to diagnostic and troubleshooting information on the ground.



Modernizing the cranes at a component-level—first IMPULSE drives, followed by the wireless control systems and RDSI—required an in-depth knowledge of each component for effective installation. Typically Magnetek builds a complete control panel with RDSI integrated before installation. NNS, however, had such substantial knowledge of each Magnetek component, they were able to integrate RDSI within their facility after the drives and wireless controls were placed in service.



Magnetek and Newport News Shipbuilding will continue to outfit new systems as the time comes for each crane's scheduled modernization.