



CASE STUDY

New VFD system picks up crane performance at Heritage Thermal Services

VARIMAX DRIVE

VariMax™ AC drive minimizes downtime with easy drop-in replacement.

Heritage Thermal Services needed to replace an older drive system for their crane hoist. Installing a modern Hubbell VariMax AC drive system with variable frequency control offered improved diagnostics for simplified maintenance. Improving maintenance improved performance and drastically reduced downtime.

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Executive Summary

Overhead cranes are used in many heavy industries. Through the years, the industrial crane market has shifted from the DC drives and controls that had been common to AC drives. Along with lower power consumption, this offers more options for controls, including digital drive software.

Heritage Thermal Services in East Liverpool, Ohio depends on their crane, operating 24/7 for 365 days a year. The team needed to replace an old drive on their crane quickly to keep their facility operating.

Their positive experience with Hubbell's VariMax™ product shows how AC drives bring new levels of performance, cost control, and reliability.

The crane at the center of it all

The East Liverpool site handles debris, so the environment is dirty and dusty. Much of their business is price-driven, so constant throughput is a must. The facility is considered Class F for continuous severe service.

The crane's functions includes trolley, bridge, and hoist motions. The bucket is a clamshell type because of the materials it handles. This is far less common than using hooks or magnets. The clamshell system is more complex, involving hydraulics which make it more challenging to operate. In an abusive environment, even the clamshell can get beat up.

Operating around the clock means that having any system go down costs Heritage money. They keep backups of all key equipment components on the shelf to be able to switch them out as needed. The primary hoist is critical to remain functional.

There are additional elements to consider when defining tough conditions. Because the crane runs 24/7, a variety of operators handle it. Workers with different levels of experience and technique can stress the drive.

When the hoist needs an update

Heritage had already switched their central hoist function to AC; however, it was an older analog

system dating back to the 1990s. The open-style controls from that time were left more vulnerable to the dirty environment. That situation made the hoist a source of problems.

And when it went down, it was hard to troubleshoot the cause. Trial and error repairs took time. The team constantly depended on the manual. Heritage wanted to upgrade the hoist's existing end of life controller to something featuring the latest technology.

Getting in early on Hubbell's VariMax solution

In 2019, Hubbell was early in development for today's VariMax variable frequency drive (VFD) and digital AC crane control system. The team in East Liverpool was interested because the new VFD looked easy to swap out their previous drive. They were satisfied with their relationship with Hubbell as a supplier. The new VariMax system was compartmentalized, which should offer improvements.



Heritage was willing to try out the 124A VariMax drive and controls to take advantage of the digital features. AC-based drives also offer the advantage of being more remote. Having the unit several feet away from the crane in a control room meant more protection for the drive as well as operators. Better performance at a safe distance is always desirable.

Digital control offers easier diagnostics. Hubbell's new design would identify the problem with a code on the screen. That tells the team exactly how to proceed. Streamlined troubleshooting and easier maintenance support maximum uptime.

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The physical size of the unit also made the switch easy. Competing units didn't fit as well, but integrating the Varimax drive was seamless. This functional upgrade was installed with minimal downtime and semi-automated the crane. With "where to go" pre-programmed, just hitting the buttons to pick up or release sends the bucket to the right place.

Put it to the test—successfully reducing downtime

Because uptime is so critical, Heritage keeps spare equipment to ensure that replacements can be made quickly. They simply can't ride out extended downtime. When they bought the VariMax system in 2019, the purchase included a pre-programmed backup unit.

The concept was put to the ultimate test in late spring 2023. The VFD unit in place failed after running constantly for four years. Like it or not, here was a chance to see how easily it could be traded for the standby unit.

The team replaced the drive themselves and called Hubbell support to ensure that the new unit duplicated the old drive's programming. Nate Morris, Hubbell's local sales rep who maintained a good relationship with Heritage, also responded immediately. He quickly went onsite to help get the swapped-out unit up and running again.

The crane was back in service in under one hour.

The company and the engineering team were pleased with the VariMax system, the smooth transition, and the tech support they received.

Ty Geagangel, controls engineer at Heritage, commented "The programming makes it so much

easier to switch out. With help from Hubbell, it's already programmed so they just unbolt the old one, bolt and wire the new one. Fire it up and we're back to the races. Downtime was next to nothing."

Hubbell delivered a new backup unit so there would be a spare on-hand while the original drive was sent back to the factory for analysis and refurbishing. Hubbell wants to make sure it operates within the right parameters.

"This was no charge" Nate said. "We want to take the burden off the customer by offering 24/7 customer support." He delivered the refurbished VFD to Heritage a few months later, so now there are two preprogrammed drives for the hoist on standby.

Conclusion

Hubbell's VariMax AC drive and controls are perfect for hard-to-solve applications.

They offer crane customers advanced software control with Bluetooth® communications for fast programming. Along with improved diagnostics, the system streamlines maintenance by pairing the drive with simple, in-stock parts in an isolated control cabinet for fast and easy repair.

Most importantly, the system delivers lower total cost to customers through reduced power consumption, lower costs associated with downtime, and even lower upfront costs. According to Ty, "The hoist used to be primary problem, now it's almost never the issue. It's a smoother operating piece of equipment now."

**See how easy it is to switch to VariMax and keep your operations running.
Contact your crane control experts at Hubbell today.**



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