



Induction heating

Engineered to order

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Induction heating is an extremely energy-efficient, non-contact and controllable process which uses a transformer effect to heat conductive materials without the byproducts of combustion or convection. Since the process generates heat into a specific, designated area with no open flames and no direct contact to the object being heated, it results in a safer environment for machine operators and avoids product distortion and contamination that can result from other conventional heating methods. This, coupled with its ability to deliver consistent results, has made induction an increasingly popular heating method among industrial manufacturers. Switching from a traditional control configuration consisting of components from various suppliers to a single, integrated control system from BSR helped Pillar achieve all of its ambitious goals.



As a key supplier of induction heating systems and services, Pillar Induction delivers solutions for heat treating, melting, forging, and tube and pipe applications. Heavy machinery manufacturers, heat treatment plants and foundries, defense, aerospace, automotive and medical industry manufacturers all rely on Pillar. Over the past several decades, Pillar has experienced continued growth and advancement in its equipment line. The Wisconsin-based company invented the first solid state power supply in 1966 and later developed the first transistorized induction power supply, both having significant influence on the induction heating industry and how it operates today.

Always striving for continuous improvement to meet and exceed its customers' needs, Pillar recently set out to enhance its product line, changing from analog meters and controls to an HMI with full interface capabilities.

Control switch

Requirements for the operator interface of an induction heating system included durability, reliability and performance, while also maintaining cost competitiveness. In addition, the system had to



ETHERNET **POWERLINK**

The Power Panel HMI communicates seamlessly and directly with the X20 I/O system via POWERLINK. The automatically configured solution allows Pillar to perform installations without requiring additional modules or control cabinet space. It also drastically reduces customer downtime. POWERLINK is an open technology and defined worldwide as an IEC standard.

Pillar's equipment is often installed in extremely harsh, high-temperature industrial environments such as forging facilities, foundries and heat treating facilities with constant exposure to heat, moisture and other industrial conditions. To deliver the best to its customers, Pillar implemented an integrated controls solution that not only stands up under the intense environmental conditions, but that also features the durability, reliability and performance necessary at a price-point customers appreciate.

be backward compatible to service existing installations with the new technology. Lastly, having a control system that could withstand high ambient temperatures above 40°C during operation was a critical criterion for selecting the right controls partner. Pillar's equipment is often installed in extremely harsh, high-temperature industrial environments such as forging facilities, foundries and heat treating facilities with constant exposure to heat, moisture and other industrial conditions.

Individual control modules are now more compact and integration with external control systems is seamless. As a result, Pillar was able to improve spare parts delivery and reduce customer downtime, which in turn improved delivery times to end users. "We're able to completely retrofit existing controls on operational equipment in the field to the new platform in less than a day – which minimizes our customers' downtime," explains Rich Detty, Pillar's sales and marketing manager.

Service made easy

Using B&R automation technology gave Pillar advanced product traceability and helped achieve a single-piece flow environment for the induction power supply. The Power Panel HMI device has an internal serial number tied to the machine program, so Pillar can track hardware changes in the field and prevent unauthorized duplication.

Pillar now uses a single I/O arrangement, and additional functions can be implemented by simply adding more hardware modules. Its newly implemented X20 remote I/O system replaced hardwired, embedded and custom I/O boards which limited programmers, as well as the expansion of channel outputs. Pillar can now configure the hardware outputs to the exact requirements of the customer, or bypass them completely with a slave fieldbus interface. The Power Panel seamlessly communicates directly with the X20 I/O system via the real-time, deterministic Ethernet protocol POWERLINK, which uses an automatically configured solution that allows Pillar to perform installations without the need for extra communication modules. This saves cabinet space and reduces customer downtime.

I/O serviceability was also greatly improved within the machine thanks to the new B&R control system. The X20's unique three-piece design enables Pillar to service a module without having to undo any field wiring. The ability to separate the terminal block, electronic module and bus base allows the operator to simply remove the electronics module to be serviced without having to cut power off downstream.

Swift diagnostics

Pillar's customers have been able to reduce the time spent on troubleshooting, thanks to the extensive access that Automation Studio provides to historical alarm data, which allows them to trace any failures back to the source. The software's modular design allows for configurable options such as network interfaces, custom sensor setups, resonance tuning contacts and output switching – all in a single controls package.

Remote access capabilities have further simplified troubleshooting and afforded cost savings that are passed on to machine operators, who no longer need an onsite technician to address equip-



Traceability features, like having the Power Panel HMI's internal serial number tied to the machine program, make it easy for Pillar to track hardware changes in the field and prevent unauthorized duplication.



Donald Wiseman
Vice President, Pillar Induction

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ment issues. With B&R's System Diagnostics Manager paired with VNC capabilities, engineers can send updates to technicians in the field via the Internet, significantly increasing the speed of diagnostics and further contributing to reduced customer downtime.

Pillar prides itself on providing turnkey solutions and has worked hard to create a power supply offering to exceed its customers' expectations. "Each customer is unique. They give us a problem statement and we will figure it out. We work with our customers to create and implement custom solutions ideal for their particular environment; we are ETO (engineered to order) and B&R helps us achieve that," states Detty.

Due to the successful partnership with B&R, other applications are being converted to B&R control systems as well. "B&R is now our standard for industrial controls and we use B&R on all of our retrofit projects," remarks Donald Wiseman, vice president of Pillar Induction. ←