



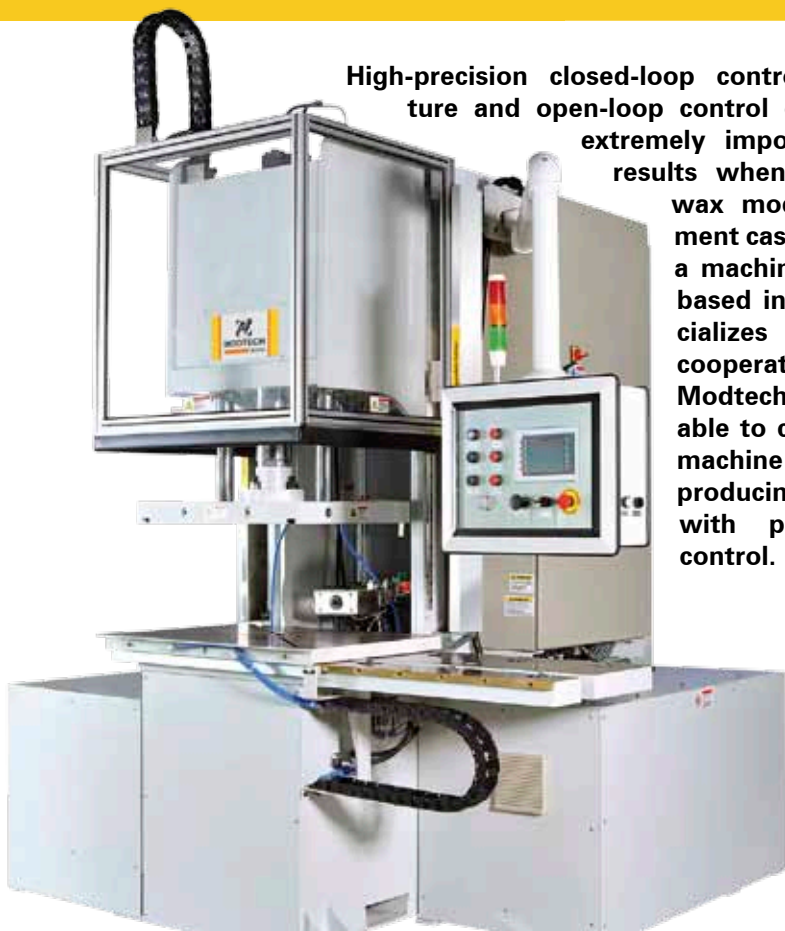
Specialists in investment casting

High-precision closed-loop control of temperature and open-loop control of pressure are extremely important for good results when manufacturing wax models for investment casting. Modtech is a machine manufacturer based in India that specializes in this area. In cooperation with B&R, Modtech was quickly able to create a modern machine solution for producing wax models with precise process control.

Since their founding in 1990, Modtech has experienced constant growth in turnover, now supplying approximately 90% of the Indian market. Many well-known customers use the technologically sophisticated systems for producing wax models.

New product line in demand

During development of a new wax injection molding machine, Modtech was searching for state-of-the-art control technology that permits quick adaptation to future customer requirements. The goal was also to avoid having the machine solution become quickly obsolete. "In order to meet the specified deadline for implementing the new machine design, we needed a strong technological platform and a dependable partner. With B&R, we have an expert at our side that provides active support for implementing the new machine >>





Power Panel PP45 unites controller, visualization and I/Os into a single, compact unit.

controlling the highly dynamic servo valves in our machines. Furthermore, it's possible to update the entire wax injection process using the fastest possible scan rate", adds Jigar Panchal.

The new wax casting machine provides the highest level of operating reliability with modern functions such as automatic error diagnostics and the possibility for remote diagnostics. This prevents unnecessary downtime. Additionally, graphics-based control of the wax injection process simplifies the work of the machine operator.

The B&R development tool, Automation Studio, allowed us to implement various machine functions quickly and reliably using existing standard libraries, which was a decisive factor for the fast and successful market introduction of the new machines.

Success in the future

"With B&R, we have a strong partner at our side to provide us with excellent support when developing optimal solutions for customers. Thanks to B&R's worldwide support systems, we were able to further increase the trust of our customers, especially in Europe", says Jigar Panchal. ■

types. After a very short time, we were able to present our customers with an optimized solution", explains Jigar Panchal, Head of Automation at Modtech.

B&R technologies to meet the requirements of the most modern processes

Jigar Panchal explains that the control system used previously provided simple operation, but was no longer suitable for many customers because of their modern process requirements. For example, optimal closed-loop control of the wax temperature within very low tolerances is one of the main requirements for high-quality production results. Wax is generally considered to be a poor conductor of heat and can only be worked on within a small temperature range. Therefore accurate closed-loop control of the temperature plays a decisive role in obtaining optimal casting results. Highly precise closed-loop control of the temperature was achieved using the closed-loop control concepts with integrated autotuning provided by B&R.

Accurate open-loop control of the injection pressure and flow is another decisive process requirement. Hydraulic control units developed by B&R were used to control a 300 cm³/sec wax injection flow while at the same time keeping the pressure limited to 30 psi within a tolerance range of +/- 3. The X20 control system makes jitter-free processing possible and offers the highest level of precision.

"The B&R control system proved to be extremely efficient with regard to



"In order to meet the deadline specified by top management for implementing the new machine design, we needed a strong technological platform and a dependable partner. With B&R, we have an expert at our side that provides active support for implementing the new machine types."

Jigar Panchal
Head of Automation
Modtech

Modtech:



Founded: 1990
Employees: 65
Turnover: 2.5 m USD (2008)
Locations: Ahmedabad (IN)
Products & Services: Development and manufacture of wax injection molding machines for the metal industry, manufacturing of special purpose machines

www.modtechworld.com