

# FIRE-SAFE MONITORS CRITICAL TEMPERATURE FOR SAFETY AND QUALITY CONTROL

Monitoring Critical Temperature Insures Die Cast Integrity and Quality, Reducing Time and Cost



## PROJECT SUMMARY

At Pieper Automation, we pride ourselves in our unique ability to provide complete industrial automation/controls solutions & services for our customers, including on-site support, integration of machines/systems, new equipment design and machine upgrades. Along with our custom assembly machine manufacturing and panel building, we deliver you a seamless solution – from one supplier

In the Foundry and Metal Casting Industry, it is essential to manage the costs associated with maintaining dies and minimize die replacement. To do so, manufacturers understand it is critical to make certain the dies are kept in the proper temperature range to ensure final integrity of the casting meets functional requirements as well as to prolong the life of the dies. The costs associated with die replacement are high, the warranty costs associated with product failure for the end users are tremendous.

A large metal casting manufacturer realized their scrap rates were on the rise and becoming a very expensive problem. Pieper Automation was brought in to develop an automated non-contact temperature measurement system to make certain key die location temperatures were within operator selected ranges and if not, alarm the operator to correct the problem. All die temperature information is sent via Ethernet and stored in a database for future product traceability.

Our experience and expertise allowed us to create a recipe system to handle multiple dies on a machine. Once the initial temperature locations and ranges were configured, all the information is stored on the computer. The operator simply selects the die part number and all parameters are automatically loaded into the system.....Keeping it simple is always in our designs.

We also model all mechanical components using Solidworks 3D Software to ensure accuracy and a proper fit, thus reducing installation time.

## SOLUTION

- Thermal imaging cameras to capture non-contact data
- Cameras designed to operate in wet and dirty environments
- One (1) control panel PC with integrated HMI touch screen display
- Software and programming to automate die temperature measurement
- Recipe system handles multiple product forms on a line
- Inspection image saved for offline analysis and product traceability
- Thermal imaging cameras capture non-contact information on max/min/mean temperatures with twenty critical temperature locations inspected in less than 1 second

## RESULTS

- Maximize uptime of die cast machine
- Eliminates die cast defects that are not visible to the eye
- Return on investment in only a few months
- System has resulted in lower scrap rates and the data collection provides part traceability to verify die temperature ranges for a casting. Eliminating defects and a quick return on investment were key points in this project



**WE ALWAYS FIND A WAY**

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