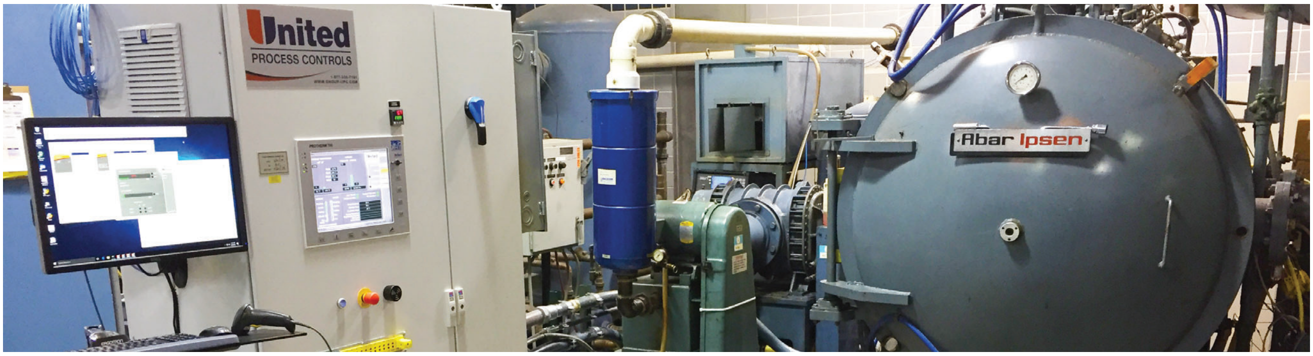
VACUUM CONTROLS UPGRADE
CASE STUDY

United
PROCESS CONTROLS

UPGRADES TO VACUUM FURNACES AND AUTOMATION PLATFORM STREAMLINE REPORTING FOR NADCAP COMPLIANCE AND PROVIDE SEAMLESS INTEGRATION WITH THE WOODWARD'S ERP SYSTEM

WOODWARD



ABOUT WOODWARD

A US provider of fuel and control systems for aircraft engines, Woodward Inc. sought to implement more automation in its heat treating operations in order to gain real-time visibility of production and to ensure NADCAP compliance and traceability.

CRITERIA FOR UPGRADE

- Ensure compliance with Nadcap standard
- Comply with AMS 2750E specification for thermocouple monitoring requirements
- Automated monitoring of thermocouples with alarm notification when time to replace
- SCADA for real-time visibility of production
- Interface SCADA with ERP system to provide a redundant check and align parts to treat with the correct process recipe to deploy

SOLUTION IN ACTION

Control upgrades were undertaken at the company's Illinois facility and completed in a 2-step approach.

First, three vacuum furnaces – two Abar Ipsen and a VFS – received a full control system replacement based on Protherm 710 controllers. The scope of work also included new digital heating zone trims for temperature uniformity, and multiple PID sets to minimize overshoot and meet tight tolerance requirements. Once the updated controls were installed, the second step was implementation of the Protherm 9800 SCADA and connectivity to the Protherm 710 controllers for real-time visibility of production data, including connectivity to the company's ERP system. In the latter case, the ERP interacts with Protherm 9800, managing the process recipes and feeding data to the Protherm 9800 to align the right recipe with the part or job lot entering the receiving furnace. This setup provides a redundant check and requires the operator to validate the part number or job lot number via the Protherm 9800 interface before a recipe can be deployed.

In addition to complying with NADCAP, the enhanced controls also meet AMS 2750E specification for thermocouple tracking. Since thermocouples have a limited life span, Woodward had to closely monitor how often each unit was used and manually record data. Now, the Protherm 710 controller tracks the thermocouple, its serial number and usage history, identifies when a thermocouple needs to be replaced based on running hours, days in service and temperatures reached, and alerts the operator when it's time to change the thermocouple.

VACUUM CONTROLS UPGRADE CASE STUDY

SOLUTION IN ACTION ...

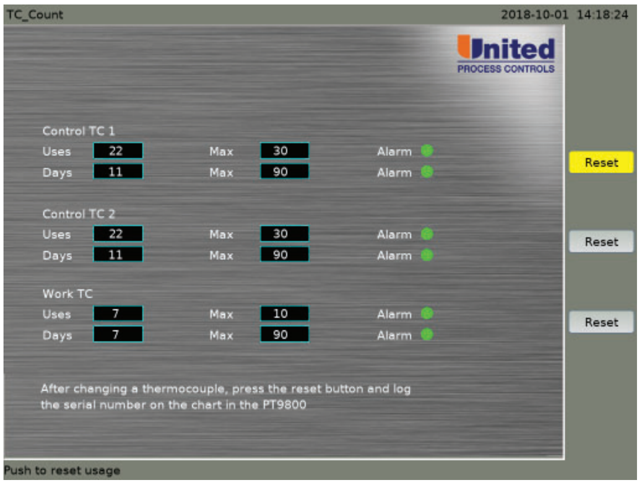
The Protherm controls also gave added benefits such as monitoring and diagnostics for easier troubleshooting. Woodward also took advantage of the Quality Management module available with the Protherm 9800 to centralize metallurgical laboratory reports.

Vacuum furnaces after completion of upgrade, encompassing new control systems with a Protherm 710 process controller to boost operational efficiency and connectivity to the Protherm 9800 Scada application for greater visibility of operations.

TO SUM UP

Woodward's commitment to ongoing improvements is an excellent example of a manufacturer understanding the potential of new technology to drive better overall equipment effectiveness, to maximize furnace availability, and to deliver well-engineered, quality products.

UPC process controls and control systems added more automation and real-time visibility of production, which ensure that furnaces will continue to operate at maximum efficiency for years to come and at the same time uphold Woodward's high quality standards of its operations and products.



Above configuration screen manages installed thermocouple assets and lets the user know at a glance the usage statistics for each thermocouple. When the actual usage reaches preset limits for usage counts or usage days, the Protherm 710 alerts the operator that it's time to replace. This ensures a proper maintenance cycle and active compliance with AMS 2750E for thermocouple traceability.

Scan or click the QR code to access the online page of our **Vacuum Control Solutions**. Technical details are described and a product brochure is available for download.

USA	CANADA	CHINA	FRANCE	GERMANY	POLAND
+1 414 462 8200 sales.na@group-upc.com	+1 514 335 7191 sales.na@group-upc.com	+86 21 3463 0376 sales@mmichina.cn	+33 3 81 48 37 37 sales.fr@group-upc.com	+49 7161 94888 0 sales.de@group-upc.com	+48 32 296 66 00 sales.pl@group-upc.com