



HOWMET FASTENING CASE STUDY

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Howmet Fastening Systems Achieves Enhanced Process Control, Reduced Emissions, and Lower Maintenance Costs with SSi's SuperGen® System

Company Background

Howmet Fastening Systems (a division of Howmet Aerospace) in Waco, Texas is a major manufacturing facility specializing in structural blind fasteners and lockbolts used in critical aerospace applications. The facility is dedicated to maintaining the highest standards of quality, process control, and operational efficiency while supporting the aerospace industry's demanding performance requirements. Through a commitment to continuous improvement and manufacturing excellence, the Waco team continually seeks opportunities to enhance productivity, reduce operating costs, and improve environmental performance.

Project Overview

Howmet's Waco facility has reported significant operational improvements following the implementation of the SuperGen® atmosphere generator controls from Super Systems Inc. The project was driven by three strategic objectives: improving process gas control, reducing greenhouse gas (GHG) emissions, and modernizing controls to provide comprehensive historical process data.

Prior to the upgrade, the Howmet facility faced several challenges, including labor intensive manual adjustment of air-to-gas ratios to maintain dew point targets, limited access to historical process data for troubleshooting, and inefficiencies and expenses caused by excess atmosphere gas production and venting.

Seamless Implementation

"After we expressed interest in the SuperGen system, the SSi team promptly came onsite to discuss the project scope in depth," said a supervisor from Howmet Waco. "SSi assembled a detailed plan that addressed our operational needs and project timelines, and the installation was completed seamlessly. Their team provided detailed prints, critical spare parts lists, and comprehensive training to ensure a successful transition."

The SuperGen system was selected for its ability to automate atmosphere generation, improve process consistency, and reduce operating costs. Since implementation, the facility has achieved tighter process control, maintaining endothermic dew point within $\pm 2^{\circ}\text{F}$ while providing operators with robust trend analysis and historical reporting capabilities.

Key Results

Improved Operations & Quality Control

- Achieved highly consistent process gas quality, resulting in a significant reduction in Cost of Poor Quality (COPQ).
- Simplified daily operation through an intuitive, user-friendly interface.
- Streamlined generator tube burnout procedures using preset recipes and automated controls.
- Enhanced visibility into process performance through comprehensive historical data and trend chart analysis.

Cost Savings & Greenhouse Gas Reduction

- Eliminates waste associated with atmosphere overproduction.
- Automatically adjusts endothermic gas output based on furnace demand, reducing unnecessary gas consumption.
- Prevents excess gas from being vented, generating substantial annual cost savings.

Reduced Maintenance & Increased Reliability

- Eliminated the preventative maintenance for checking lube oil and changing the oil filter.
- Eliminated mechanical wear items by removing the old mechanical blower, motor, drive belts, and regulator.
- Reduced maintenance overhead while improving system reliability.

According to Howmet Waco, one of the significant advantages of the SuperGen system is its ability to dynamically match atmosphere production to plant demand. When furnaces are taken offline for scheduled or unscheduled maintenance, the system automatically reduces output, eliminating waste and maximizing efficiency.

Before



Discrete temperature controller for each tube

After



Modern touchscreen interface for temperature and ratio control

Before



Hand adjusted carburetor

After



VFD controlled air blower and built-in flow control

The Finished System



A Partnership Built for Long-Term Success

In addition to the technical improvements, Howmet highlighted the ongoing support provided by SSI as a key factor in the project's success.

"The ongoing technical support and training offered by SSI has been wonderful," the facility supervisor added. "The partnership has been outstanding from project planning through implementation and ongoing operation."

Conclusion

Howmet Waco's partnership with Super Systems Inc. has proven to be a strategic investment, helping the facility achieve its objectives of tighter process control, greenhouse gas reduction, and improved operational visibility. Through the implementation of the SuperGen, Howmet has realized measurable improvements in quality, efficiency, maintenance reduction, and cost savings. This success story highlights the value of combining advanced atmosphere generation technology with experienced technical support to drive continuous improvement and long-term operational excellence in today's heat treating industry.

For more information on the SuperGen, visit SSI's website at www.supersystems.com or call directly at 513-772-0060.