

CimWorks VisualSPC— “Better Than Blueprint”

Hamilton Sundstrand Achieves Near-Perfect Acceptance Rates with CimWorks Quality Solution from GE Fanuc

VisualSPC Results:

- Near-perfect acceptance rate of 99.96% for Boeing systems
- 30% increase in overall customer acceptance rates
- 30% reduction in SRR
- 30% reduction in supplier lead times

Quality Inside and Out

Hamilton Sundstrand selected CimWorks VisualSPC to provide the real-time process information, data collection, analysis and reporting needed to implement Process Certification. The software's flexibility in setup and gage connection was a key consideration, as Hamilton Sundstrand connects gages to many different applications throughout its Aerospace Division Manufacturing facilities. Designed with the operator in mind, VisualSPC also offered Hamilton Sundstrand a user-friendly setup interface that significantly reduced operator-training and implementation time.

At the supplier level, products brought into the plant for further manufacturing are held to the same quality standards as those produced on-site. “If you consider that we purchase 80% of our parts, you can see the significance of quality assurance at the supplier level,” notes Teti. “When suppliers meet Hamilton Sundstrand's process-control and capability requirements, we can receive material from them without additional oversight.” According to Teti, suppliers who participate in implementing a process-control approach like Process Certification have achieved a 200 parts-per-million (ppm) defect rate as compared to an average 15,000 ppm for non-participating suppliers.

Proving the Process

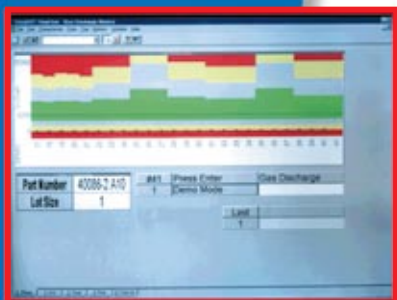
Designed to reflect plant-floor processes, the Windows™-based VisualSPC software from CimWorks combines the flexibility and control required for data collection, analysis and reporting, while easy-to-read graphics provide instant process feedback. A handy importer allows engineers to import data from their coordinate measuring machines exported in ASCII files directly into VisualSPC's standard Microsoft Access® database. VisualSPC also facilitates production-floor monitoring from a PC on the plant's Ethernet network.

Using VisualSPC, Hamilton Sundstrand enjoys networked real-time data collection and analysis with more than 1,000 key characteristics being monitored throughout factory cells. One-step data

Hamilton Sundstrand, a subsidiary of United Technologies Corporation (Windsor Locks, Conn.), is among the largest global suppliers of technologically advanced aerospace and industrial products, designing and manufacturing aerospace systems for commercial, regional, corporate and military aircraft. Customers include companies like Boeing and NASA, and those involved in international space programs.

Today, with the help of VisualSPC (Statistical Process Control) software from CimWorks, a GE Fanuc company, Hamilton Sundstrand's Aerospace Division is taking flight with an aggressive quality-assurance methodology called Achieving Competitive Excellence, or ACE. This integrated approach to quality improvement, which includes Process Certification implemented internally at Hamilton Sundstrand and externally at its suppliers, uses VisualSPC to monitor and control key characteristics for new and existing products and processes that drive critical customer requirements.

“Process Certification using VisualSPC has achieved vastly improved customer acceptance rates while providing dramatic reductions in scrap, rework, and repair (SRR), cost of quality (COQ), and cost savings and avoidance,” remarks Peter E. Teti, Process Certification Manager for Hamilton Sundstrand.





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input triggers automated chart generation on individual PCs set up at operator stations alongside machines. At the shop-floor level, VisualSPC provides a window into processes like turning, boring and grinding via a variety of chart options that follow the key characteristics input by the operators. From the graphic displays, operators are instantly alerted to process changes and problems and can quickly adjust specifications or enlist engineering assistance as needed.

“Our operators are really motivated by the freedom of control VisualSPC provides, and they know what to expect in the process,” Teti says. “CimWorks understood the needs of our electronics operation and created a powerful tool that truly streamlines the process setup.”

From a quality engineering standpoint, VisualSPC provides preventive information for new processes and reactive information for existing, mature processes. Preventive process control analyzes new processes by reviewing similar programs and operations with the goal of avoiding warranty claims and assuring reliability. For new processes, engineers can analyze “what might be” and use the software as a prediction tool for creating new blueprint tolerances that are producible from day one, thus avoiding SRR activities. Reactive process

improvement tests an existing, mature process to drive down SRR and reduce labor variation. “Our engineers simply input key characteristic data, allowing VisualSPC to track the outcome and determine the success of the process using advanced statistical analysis,” explains Teti.

Propelling Improvement

The implementation of VisualSPC within Hamilton Sundstrand’s ACE Process Certification initiative marks a tremendous achievement in customer service with a near-perfect acceptance rate of 99.96% for Boeing systems—a 60% improvement. Likewise, overall customer acceptance rates have increased 30%, while the company has reduced its SRR by 30% over the year. Supplier Process Certification initiatives add to the impressive outcomes with a 30% reduction in lead times accompanied by a 40% increase in quality. “VisualSPC is helping us achieve the goals of ACE with significant decreases in SRR and warranty claims, as well as increasing quality and improving customer relations,” Teti observes. “Process Certification with VisualSPC has completely revolutionized the way that we reduce process and product variation, and it’s this ability to make products better-than-blueprint that gives us an unmatched edge over our competition.”



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CimWorks UK

Software for Quality and Productivity Improvement

Tel: (01788) 567514

www.cimworks.co.uk