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With over 40,000 employees and 65 manufacturing facilities globally JTEKT Corporation produces and distributes steering systems, driveline components, bearings, machine tools, electronic control devices, and home accessory equipment JTEKT is committed to its global vision of shaping a better future by proactively researching and developing innovative, next-generation products and technologies for the automotive component, bearing and machine tool industries.

IGear Success Story: JTEKT Corporation

INDUSTRY:

Automotive OE Supplier

USE CASE:

Process Control and Quality Assurance

SOLUTIONS:

- IGear’s ASSIST Traceability & Process Control Software
- Quality Check Sheets System
- Maintenance Call System
- SQUEAKS Software

REGION:

North America and Europe

RESULTS:

- 100% zero defects ensured via state-of-the-art real-time manufacturing software that safeguards against all production errors, defects, and non-compliance across all processes executed by human personnel and/or machines.
- System maintains advanced traceability and product component genealogy as well as machine data results from 450 machines for process control and auditability.
- Innovative mobile machine-to-human communication protocol supports exceptional real-time responsiveness.
- Rapid six-month go-live due to ease-of-integration with no custom coding.
- Roll out continues both to support new plants on a global scale and to support new and expanded use cases, including automation and digitization of Quality Check Sheet process and Maintenance Call System.

The JTEKT / IGear partnership has resulted in a state-of-the-art real-time manufacturing solution that safeguards against all production errors, defects, and non-compliance across all processes executed by human personnel and/or machines.

IGear technology has enabled this global automotive supplier to improve manufacturing quality by achieving greater adherence to specifications at every stage of the manufacturing process that are resulting in zero defects.

Advanced traceability and tighter process control has already resulted in significant savings and reduced liability.

PROBLEM

At its North America Automotive Steering Business Unit, JTEKT Corporation’s fabrication of power steering assemblies is a complex undertaking involving hundreds of machines across dozens of lines in multiple plants – with processes spanning machining and heat treating of parts, to sub and final assembly of components with comprehensive testing each step of the way.

It’s imperative for automotive OE suppliers to have robust quality control procedures in place to reduce liability from mis-assembled or defective products that may result in costly recalls or place customer safety at risk. The customer wanted a better, more comprehensive system to support process control and quality assurance by eliminating the possibility of passing bad, wrong, or incomplete parts through the process. They also wanted to better record and maintain process data from hundreds of machines with myriad parameters allowing them to verify that the correct pressures, torques, etc. are applied to each and every assembly for better process control and quality assurance.

Additionally, JTEKT also needed to comply with a new customer advanced traceability mandate to ensure sub-assemblies and final products assembled within JTEKT facilities were 100% traceable. This included maintaining traceability for key individually serialized components as well as dozens of other batched serialized components while maintaining a component genealogy of each product produced.



Moreover, JTEKT wanted an Intelligent Manufacturing System to orchestrate Human-to-Machine interactions – going beyond the functionality of traditional Manufacturing Execution Systems to address process control when human operators need to intervene to resolve issues on the plant floor.

SOLUTION

Chosen over two other solutions that were implemented in its manufacturing facilities in Asia and Europe, IGear software – first deployed at the customer’s North American manufacturing site – was proven to be the best-in-class and most comprehensive solution to meet its requirements around manufacturing process control, quality assurance, advanced traceability and human-to-machine communications. As a result, the customer is now standardizing on IGear ASSIST across all of its North American manufacturing operations as its Intelligent Manufacturing System supporting all new lines for automotive assembly production.

IGear ASSIST provides a proven method for controlling



the quality and performance of production processes. It enables manufacturers to verify standardized operator work instructions are consistently followed by recording a traceable genealogy of all work sequences, component parts, and cycle times, along with the operator actions and machine events involved within each value-added work center in the overall manufacturing process spanning some 450 machines in each plant.

JTEKT now has a “birth certificate” for every product that’s made, detailing exactly what components are in the build. Additionally – prior to the start of processing – the system ensures the correct part is being run, the correct machine program type is being used, that the part was not previously rejected as bad, and that the part is at the correct operation (no process was skipped). After confirmation of the above points, permission to run is granted and the machine will perform its intended function. Improved visibility of JTEKT industrial machine and process data is supported via powerful web-based data reporting and visualization, which provides a unified reporting framework to simultaneously view and easily discern information from multiple, disparate data sources.

JTEKT is also leveraging the IGear SQUEAKS software. Fully integrated with ASSIST, it supports human-to-machine interaction and real-time collaboration among front-line workers and production managers. The technology introduces a new paradigm for real-time connected manufacturers, leveraging the power of mobility, wearables and role-based workflow and analytics to deliver exactly the right mission-critical information to specific personnel in the execution of mission-critical operations ensuring clarity, ownership, accountability, and responsiveness.

Fast becoming the human-to-machine communications protocol for the largest manufacturers around the world, SQUEAKS supports better decision-making and closed-loop collaboration, integrating messaging across machines and personnel to surface insights and mobilize prescriptive actions to support dramatically improved production up time and quality assurance.

RESULTS

The JTEKT / IGear alliance has resulted in a state-of-the-art real-time manufacturing platform that safeguards against production errors, defects, and non-compliance across all processes executed by human personnel and/or machines, dramatically enhancing the customer’s leadership position of excellence in manufacturing operations. IGear technology has enabled the company to achieve the pinnacle of quality in manufacturing: absolute assurance to requirements at every stage as products are being manufactured, resulting in zero defects.

IGear worked closely with JTEKT’s in-house Production Engineering team on all aspects of integration and implementation. With no custom code required, the first line was up and running in six months and the second, third and fourth lines were live in half the time.

JTEKT has dramatically improved visibility of production data, so it can now understand – on a real time basis – is it meeting production targets or falling behind? When problems arise, it now has the insights and support for decision making to speed issue resolution to mitigate costly line stops. Maintenance, quality, management, and other key personnel now collaborate to troubleshoot and resolve issues faster and more efficiently than ever before. Moreover, by instituting the technology framework to tighten product and process traceability and quality control, the company has dramatically reduced its corporate risk and liability profile.

As a result of successes to date, new JTEKT use cases to enable via IGear continue to be defined. The previously manual Quality Check Sheet process, which dictated a quality check of every machine every two hours and whenever a product changeover occurred, has now been automated for greater efficiency and improved accountability and auditability. Shortly thereafter, IGear was used to automate the company’s Maintenance Call System by providing visibility of work order status to all levels of personnel via mobile devices, TVs, and wireless light trees on the plant floor.