NGK Spark Plug Selects Apriso as Global Manufacturing Execution System (MES)

Solution provides visibility and control into production and WIP management

NGK Spark Plug Co., Ltd (NGKNTK) is one of the largest suppliers of plugs and sensors to the global automotive industry. Its world-class products include spark plugs and oxygen sensors for automotive exhaust gas cleaning systems, used by all of today's leading powertrain and vehicle manufacturers.

NGKNTK also delivers sensors using new advanced ceramic technologies and semiconductor packaging to their global markets. These products are not only used in automotive applications, but in a variety of other industries including transportation, medical device, environmental applications and others.

NGKNTK had plans to replace their MES as a part of an overall enterprise system upgrade strategy led by their Automotive Business Development Department. NGKNTK sought to better manage and improve visibility to business processes and WIP by adopting Apriso, a solution for manufacturing operations management. NGKNTK has completed their implementation, and began operations in January 2010.

Business Needs
Objective: Implement open system to flexibly adapt to NGKNTK's changing business and technical environment

The Sensor Department planned enhancements to their existing MES system that would integrate with their updated ERP solution being implemented by the Automotive Business Development Department. The Sensor Department's requirements were:
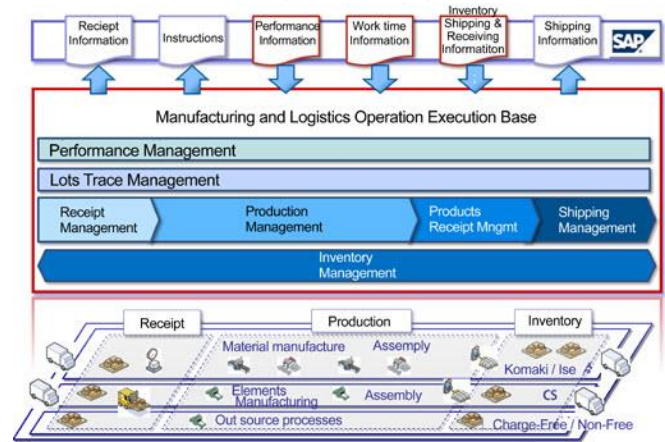
- Easy integration with the new SAP system
- Flexible solution to adapt to changing business and technical requirements
- Solution must be based on an open and cutting edge IT architecture
- Deployment support for NGKNTK's global plants as a standard manufacturing base

To cover all those requirements, they decided to select a commercial MES solution rather than enhance their existing system.

Apriso – an adaptive solution with a SOA architecture

To adapt to their changing business and technology environment, NGKNTK required the solution to have flexible business components, which could be easily organized by a unit of business processes. And, it had to be an adaptive, web-based solution with a unified data model architecture allowing for ease of integration with ERP, enabling seamless business process execution between their organizations. Apriso, an adaptive Manufacturing Execution System (MES) with SOA architecture, was selected.

NGKNTK chose Apriso because of its 500+ proven SAP integration points and its flexible architecture. Apriso offered more than 400 objects of reusable business components, which combined with the business functions of NGKNTK, has enabled the continued development of new, flexible business processes.

Benefits Achieved

- Provided visibility and process control to all manufacturing plants, enabling precise yet flexible management of serial production operations, stock control, production progressing, packing and shipping

- Standardized processes, increased production management effectiveness and improved manufacturing efficiency by adding new manufacturing operations management functions

- Established a standard platform for manufacturing processes, enabling synchronized

Apriso Implementation
Comprehensive system met NGKNTK's requirements

With the support of the Apriso team and its partner, NS Solutions, implementation has realized success in NGKNTK's automobile sensor's two pivotal manufacturing bases: their Komaki and Ise factories. In addition, Apriso is now live at several of NGKNTK's domestic and international group companies, including Ceramic Sensor Co.,Ltd.

The Apriso solution is aligned with a new core ERP, automatic warehouse and planning-related systems, all installed at the same time. NGKNTK has realized operational functionalities that met various needs on site, such as billing collaboration; importing a common master; reporting member stock; production and packing; and inventory tracking (unable to be covered by their new ERP).

Katsuhiko Nagai, System Development Team, IT System Department at NGKNTK was the team leader at the Sensor MES Project. *"At the beginning of the implementation of Apriso, it was tough because the demand function of Apriso became immense due to its flexibility. However, when we changed the approach into utilizing the best practice and function that Apriso offers in its business components, the situation improved drastically. We came to understand and enjoy Apriso's flexibility as we successfully completed the project."* said Nagai.

Benefits
Better, standardized visibility and operations execution

The system has brought transparency across NGKNTK's automobile sensor manufacturing, letting NGKNTK better manage serial production operations, stock control, production progressing, packing and shipping. In addition, Apriso has enabled better collaboration of manufacturing equipment and practices. Specifically, NGKNTK has improved manufacturing shop floor KPIs through improved visibility. Additionally, by establishing and improving the standardized management of business processes at each plant, NGKNTK has improved overall manufacturing efficiency.

"The implementation of Apriso has enabled us to realize transparency in each line. Now we can see how much our plants have improved actual production performance, making people's awareness and attitude change on site," said Koji Maekawa, GM for Systems Promotion Department, Ceramic Sensor Co., Ltd. "We want to improve the transparency even more on site by expanding our use of Apriso."

Additional improvements planned

NGKNTK has started to make detailed plans for further enhancements in the integration of machines and business processes on the shop floor. NGKNTK is now planning to roll out Apriso as a standard for MES into their other departments on a global scale.

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Koji Maekawa, General Manager, Systems Promotion Department, Ceramic Sensor Co., Ltd
(currently General Manager, Administrative Department).