



CNC Experts Taiwan Takisawa Provide Global Services for Intelligent Manufacturing



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It could be said that a country's manufacturing capabilities are a representation of its strength, and the launch of Germany's Industry 4.0 strategy, the US's National Network for Manufacturing Innovation (NNMI), and Japan's Industrial Value Chain Initiative (IVI), are more than adequate demonstrations that intelligent manufacturing is becoming a new area of intense competition between nations. CNC machine tool specialists Taiwan Takisawa have been operating in Taiwan for 46 years, during which time they have built on their parent company's century-long history of advanced technology by bringing together Taiwanese and Japanese R&D teams and resource planning, ensuring that the company has access to both the wider Taiwanese market and channel services that can reach global markets.

Focusing Advanced Technology Supplemented by Intelligent Capabilities

Taiwan Takisawa has been actively developing intelligent manufacturing technologies that use the Internet of Things (IoT) to create Internet of Manufacturing (IoM) automated customized processing solutions. These

solutions allow processing equipment to be managed on the factory floor using IoM, thereby integrating production management, intelligent monitoring and control, and cutting tool management and collection; they bring together information from throughout the production site, allow the visualization of equipment information using big

data analysis, and facilitate intelligent production management to increase production efficiency.

Manufacturing today is less about large quantities with little variation and more about customization and frequent changes in orders, making the TiMES Smart Manufacturing Execution System and IoM architecture developed by the company essential technologies for modern manufacturers. The company's president Winston Tai says in the context of the Industry 4.0 era's focus on boosting global competitiveness, Taiwan Takisawa is focusing on increasing the use of automation, big data, sensors and artificial intelligence, and on leading the manufacturing industry in the introduction of smart technologies and refined modular cutting systems that meet the needs of different types of factory, while also bringing new value to businesses through greater flexible, optimized decision-making processes, and efficient information sharing.

Taiwan Takisawa's TiMES Smart Manufacturing Execution System enables users to track order progress, view real-time production information





on digital displays, reduce inventory of goods-in-process, track production process data to improve yields, and effectively understand the production status and control any abnormal machine actions. This in turn reduces the cost of collecting data during production, eliminates bottlenecks in production lead times, and allows subsidiaries and global OEM firms to track production progress. IoM systems allow managers to use display panels or mobile apps to view the status of machines and accumulate data on each machine at

any time, including utilization rates, the number of pieces completed, recently used programs, speeds, and feed rates.

Enhancing Quality and Developing Intelligent Products

Taiwan Takisawa's R&D team is committed to introducing high-quality Industry 4.0 manufacturing products that use optimized designs to reduce dynamic uncertainty in process cycles and make use of rolling technology for optimal process prediction and modelling. The products also utilize

software simulation with active/passive modules to put together production processes, and implement quality control for process products. Based on heterogeneous data continuously collected from production processes, the solutions provide real-time monitoring and control of process product quality, enabling them to determine critical process parameters and then use temporal changes in process parameter sets to identify the best dynamic adjustment rules for model creation; this makes the optimization of process parameter sets more reliable, delivering a level of quality consistent with boutique machines.

The products designed by Taiwan Takisawa are easy to monitor and control. Customers can install the yield rate monitoring/control app, while the machine designs feature 24-hour automatic output capabilities, including a network composed of intelligent subsystems that can jointly execute automated operations within the various connected machines and communicate with more advanced, factory-level control systems to create smart factories.

Intelligent Transition Strategies to Build Global Competitiveness

Winston Tai, President of Taiwan Takisawa, predicts that traditional production system makers will gradually transition to making intelligent products for smart factories, while the factories of the future will use automatic detection, prediction, comparison and reconfiguration capabilities to create a worry-free production environment. As we move towards the Industry 4.0 era, Mr Tai believes that continual research into many key technologies will be necessary to bring existing manufacturing infrastructure up to date with IoM and intelligent analysis platforms, while big data systems that create value by bringing services online also need sustained improvements, particularly in terms of overcoming the technical shortcomings of intelligent analysis platforms. "We



will continue to improve our equipment, products, tools, technologies and methods, identify the best data analysis methods to integrate with networked systems, and gradually work to merge industrial and information systems.

This will ultimately help Taiwan Takisawa to expand CNC machine tool sales into new markets and help customers to build new manufacturing capabilities, so we can deliver integrated solutions that will make us internationally competitive and enable us to develop new CNC machine tool markets."

