

Tecnomatix

HWASHIN

Accelerating time-to-market by digitally simulating the production line

Industry

Automotive

Business challenges

Become a leading global automotive components supplier

Adopt superior technology to distinguish company from its competitors

Establish crucial production advantages through best practices

Keys to success

Implement the Tecnomatix Robotics and Automation solution

Reduce issues inhibiting the productivity of installed production technology

Improve flexibility across changing production environment

Results

Identified potential production line issues prior to installation and inspection

Significantly reduced rollout costs

Delivering products faster to market

HWASHIN leverages Tecnomatix prior to physical installation to resolve issues, significantly improving productivity, reducing costs and increasing new business opportunities

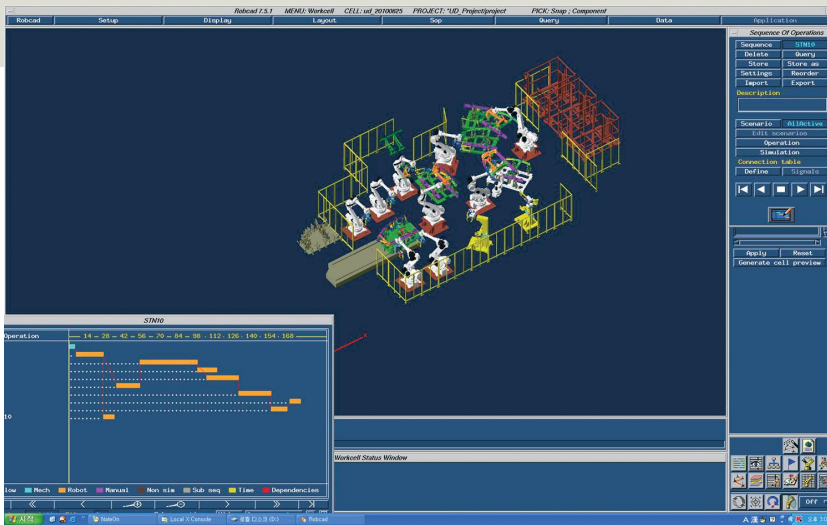
High-value automotive components, including eco-based products

Hwashin Co., Ltd. has played a significant role in the automobile parts business by leveraging advanced technology and an excellent workforce for more than 30 years. The company's Korean business, HWASHIN, has been active in developing and manufacturing high-quality functional parts for today's automotive companies.

HWASHIN is especially adept at engaging eco-friendly new materials and new technology to enhance part durability, performance and gas mileage.

With total annual sales of Korean 1,500 billion Won, HWASHIN employs approximately 2,900 workers. To continue its success, the company is committed to advancing its human and technical resources by adopting research and development (R&D) innovation technology, as well as state-of-the-art production facilities. "With a growing list of leading companies utilizing its services, including Hyundai-Kia Motors, the company expects to play an important role in providing automotive parts and components

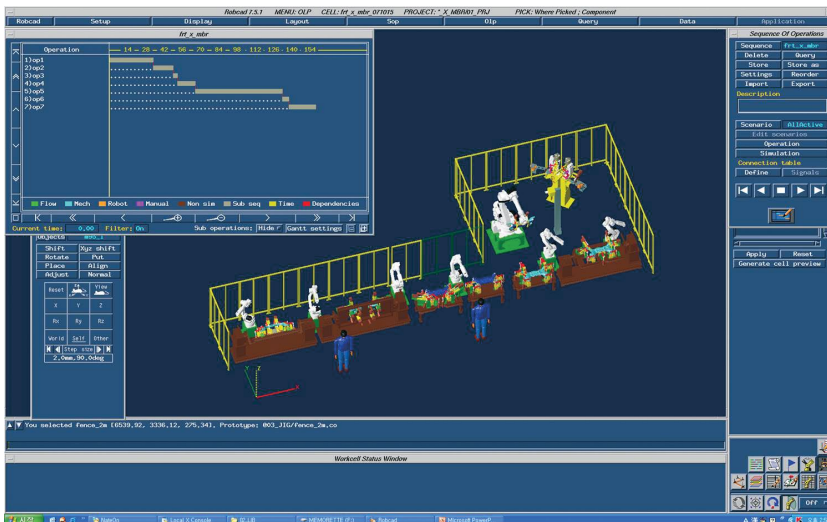




practices and capabilities. Recently, the company added product lifecycle management (PLM) technology – Tecnomatix® software – from Siemens PLM Software’s portfolio of offerings.

Key initiative – robotic workcell verification and offline programming

The automotive component industry is intensely competitive. With generally weak global economic conditions, the competition has only increased. As a result, Hwashin management is assertively applying innovative production processes to rapidly develop and manufacture products that outperform competitors, and improve the quality and reputation of the company.



“As one of our key initiatives, we have implemented the Tecnomatix Robotics and Automation solution as a way to improve productivity and standardize our production lines, reduce the testing period required for implementing new best practices and facilitate cooperation between our various facilities,” says Sang-Woo. Tecnomatix enables the design, simulation, optimization, analysis and offline programming of multi-device robotic and automated manufacturing processes in the context of product and production resource information.

throughout Korea, as well as to establish itself as a global automotive supplier,” says Lee Sang-Woo, manager, Hwashin.

Hwashin produces a variety of parts and components that are recognized for their durability, fuel efficiency and ability to improve the overall driving experience. For example, by reducing the weight of its production materials and through optimal component design delivery, Hwashin has established its reputation for helping its original equipment manufacturer (OEM) customers deliver environmentally friendly vehicles.

Critical to its success, the company first established its research center in 1987. Since then, Hwashin has continuously upgraded the center’s expertise, best

For example, while Hwashin specializes in manufacturing chassis products, the company wanted to expand the flexibility of its chassis production lines, so that their operations could be combined and used as a generalized manufacturing platform.

Systematic implementation for maximum yield

To drive its improvement initiative on a systematic basis, Hwashin deployed Tecnomatix across several production line improvement stages.

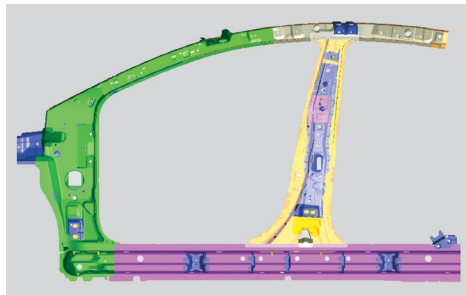
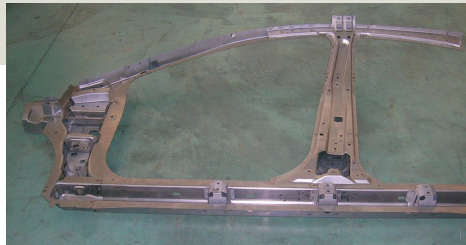
Construction: To improve its construction practices, Hwashin applied Tecnomatix to its welding process by analyzing the hardness of a given welding part and

determining whether it is possible to execute welding within a single process. Existing data was placed into a 3D modeling process for simulation. The simulation considers the jig structure for continuous welding, the location of the robot to control movement and the height of the jigs, as well as the workload of each worker. HWASHIN is using the simulated construction practice as the basis for executing welding on a new aluminum subframe that the company is in the process of developing. The construction simulation enabled HWASHIN to model the robot and readily select its location and specifications, synchronizing the use of dual machines. Once physically up and running, the company anticipates significant productivity dividends.

Facility design and manufacture:

HWASHIN used Tecnomatix to simulate and improve facility design and manufacturing at its foreign branches. Traditionally, the company encountered problems when it sent manufacturing equipment to its foreign branches. As a result, it was often necessary to process the applicable components locally and deliver them by air carrier. This expensive process used up substantial time and resources. To improve the process, the company decided to use Tecnomatix to simulate the equipment before it was built and inspect its layout for potential problems in advance.

Using Tecnomatix, HWASHIN identified and corrected interferences between jigs, panels and spot guns, as well as identified the points between different processes and redistributed the points for the problem parts. After that, the location and field of the robot were identified. By using this process to simulate and correct potential problems before the production lines were installed, HWASHIN was able to significantly reduce manufacturing problems at its foreign facilities and establish a much-improved manufacturing process for future combined lines.



Mass production: The cycle time required to prepare the production line for mass production used to be excessive. As a practical matter, it is costly and difficult to replace a robot in an assembled production line. Virtual inspection, checking and solving any potential process problem – without having to physically move the line’s assembled equipment – represents the optimal process. HWASHIN is now addressing this process through Tecnomatix. As a result, the company is installing its lines much more efficiently, changing and testing the locations of various guns digitally before going live.

For example, HWASHIN used Tecnomatix to test the combined production lines that provide vehicle parts for its North American customers. It was found that the spacing within its production lines was insufficient, with a high degree of interference affecting its ability to properly produce the vehicle panels. The company resolved this issue before it became an actual problem simply by digitally moving the location of the robot and verifying the effectiveness of the new locations.

Results

“By using the Tecnomatix Robotics and Automation solution to simulate production line processes virtually before actual installation, HWASHIN is responding to and addressing potential problems at an early stage,” says Sang-Woo. “By reducing

“By using Tecnomatix to simulate production line processes virtually before actual installation, HWASHIN is responding to and addressing potential problems at an early stage. By reducing the time required to perform the testing process, the company is getting its products to market faster. By increasing the effectiveness of its production lines and overall planning cycle, the company is realizing its high tech innovation vision.”

Lee Sang-Woo
Manager
HWASHIN

Solutions/Services

Tecnomatix
www.siemens.com/tecnomatix

Customer's primary business

Hwashin Co. Ltd. specializes in developing and manufacturing automotive chassis and body components.
www.hwashin.co.kr

Customer location

Yeongcheon-si
Gyeongsangbuk-do
Korea

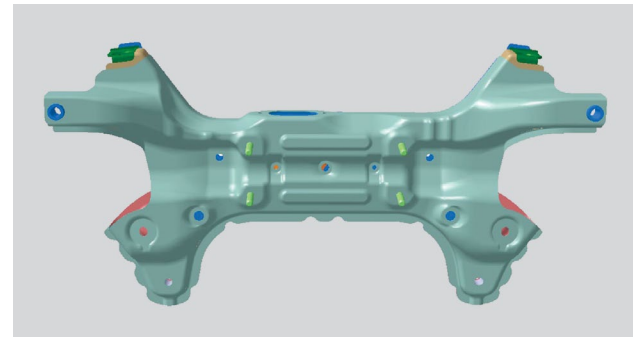
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Lee Sang-Woo
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the time required to perform the testing process, the company is getting its products to market faster. By increasing the effectiveness of its production lines and overall planning cycle, the company is realizing its high tech innovation vision. Ultimately, with Tecnomatix, HWASHIN has identified a variety of best practices that it is using to continually grow the company's business."

Spot simulation is a good example of the company's success. HWASHIN simulated various processes before conducting physical inspections, eliminating interferences between difficult processes before physical implementation. As a result, the company introduced combined production lines into its manufacturing facilities, simplified once complicated local installation schedules and reduced real-world line problems that might otherwise have occurred. Arc simulation is also an area where a significant process edge has been gained. Previously, HWASHIN's chassis lines experienced lots of problems with interferences, which in turn required the company to invest considerable resources to correct.

With Tecnomatix, the company has been able to accumulate considerable simulation data that it is leveraging to improve its chassis-related production processes. Much of this improvement is being facilitated through the offline programming (OLP) capabilities of Tecnomatix. In fact, the company's workforce is now leveraging Tecnomatix on a continuous basis to improve the daily work environment.



Future plans

HWASHIN is planning to apply the simulation processes of Tecnomatix to develop combined production lines for future vehicle enhancements. In fact, Tecnomatix has become an integral part of the company's best practices for accelerating time-to-market by dramatically improving construction, facility design and manufacture, and mass production operations.

In addition, HWASHIN intends to introduce offline programming, which will expedite its offline teaching process. It expects to extend its arc simulation approach to other vehicles and body items. The company also plans to implement upper-level process design and simulation to improve its polishing operations and achieve even faster simulation cycles.

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