

# SIEMENS

*Ingenuity for life*

Automotive and transportation

## Georg Fischer Automotive

Automotive firm uses IBS QMS to standardize quality management processes across the organization

### Product

IBS QMS

### Business challenges

Standardize quality management processes

Improve ability to fulfill customer and compliance requirements

Implement a software solution for comprehensive quality management

### Keys to success

Use QMS to achieve cross-company standards

Increase transparency within the company

Leverage Siemens PLM Software training

Appropriate employees monitor and manage all relevant data

### Results

Standardized the quality management process across the organization

Optimized the complete product lifecycle

Simplified the data tracking process

Increased customer satisfaction by reducing reaction times

### Siemens PLM Software solutions enable Georg Fischer Automotive to optimize the complete product lifecycle

#### A global presence

Georg Fischer Automotive (GF Automotive) is part of the Georg Fischer AG Industrial Group, which operates from its headquarters in Schaffhausen, Switzerland. With more than 50 production sites and 130 companies worldwide, Georg Fischer AG employs a workforce of approximately 14,000. The company is comprised of three core divisions: GF Piping Systems, GF Machining Solutions and GF Automotive.

Schaffhausen-based GF Automotive develops and manufactures cast iron, aluminum and magnesium parts for use in the automotive industry and the automotive supplier sector. Approximately 5,000 employees manufacture more than 100

million components at the company's nine production sites in Germany, Austria and China. The automotive division's research and development (R&D) activities are carried out in Switzerland and China.

#### Standardizing quality management processes

The initial aim of introducing QMS software was to standardize production-related systems. The GF Automotive Division had grown considerably in recent years. An analysis of each of the plants' processes and systems revealed the system environment was heterogeneous, and therefore it was difficult to achieve data consistency. Ultimately, the reason for introducing a cross-process QMS system was to standardize the company's quality management (QM) processes, and improve its ability to fulfill customer and compliance requirements.



A team of six kicked off the realization phase by defining the individual subprocesses before drawing up a functional specification document. It became clear that it was necessary to implement a software solution for comprehensive quality management.

#### **The selection process**

The work carried out by the cross-project QM team showed that GF Automotive would first need to develop standardized processes and then select software that could be used to map these processes. They needed to consider the following issues:

- The system would be used long term
- It would need to be flexible and scalable
- Automation should only be used where appropriate
- The processes to be mapped should be documented in the system and comprehensible to the user
- There should be language options that enable use of the system on an international basis
- There should be no mixing of computeraided quality (CAQ) functionalities with the SAP enterprise resource planning (ERP) and production, planning and control (PPC) systems
- There should be no transfer of old data

Following a functional comparison, the team recommended QMS software from Siemens PLM Software.

In addition to its functionality, the reason the company selected QMS software was because it was deemed low risk; it was a fully-developed, widely-used solution that only required modification; and it was sustainable and provided a secure investment.

So GF Automotive decided the best combination would be QMS software in conjunction with their SAP as a PPC/ERP system, including various add-ons.

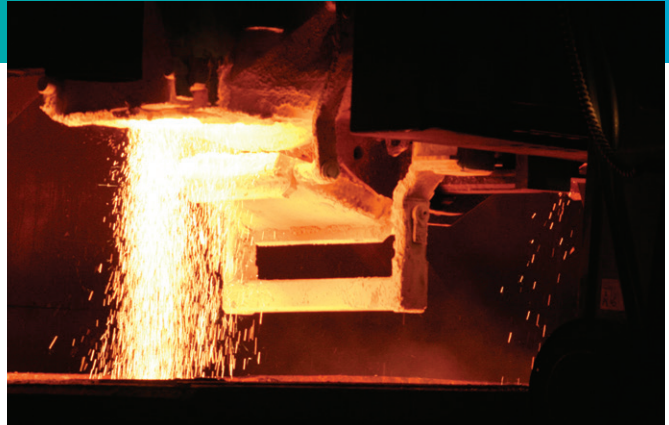
#### **Realizing an ambitious goal**

The GF Automotive and Siemens PLM Software project teams worked together to compile a comprehensive technical specification document prior to the pilot project being launched at two of the company's sites.

The fact that all of the modules were implemented in full at both pilot plants and was followed by a roll-out at seven of the company's European plants made it a unique project.

*“We set our sights on achieving increased process stability and efficiency with the use of standardized CAQ software throughout the division. Using QMS has helped us to achieve this ambitious objective.”*

Joerg Nawrocki  
Head of Quality and CoC Logistics  
Georg Fischer Automotive



A standardized specific approach/template was applied to each plant. This approach/template was then used for the roll-out in all the other plants.

“We set our sights on achieving increased process stability and efficiency with the use of standardized CAQ software throughout the division,” says Joerg Nawrocki, head of quality and certificate of conformity (CoC) logistics. “Using QMS has helped us to achieve this ambitious objective.”

### The implementation phases

#### Phase 1

In the first phase of the roll-out, GF Automotive used the QMS Concern and Complaint Management module, the QMS Gage Management System module and the QMS Audit Management module.

These modules were chosen for the first stage of the implementation because they are not interdependent and run relatively autonomously. They might also be considered simple modules in terms of operation. This gave the users peace of mind, increasing the degree of system acceptance.

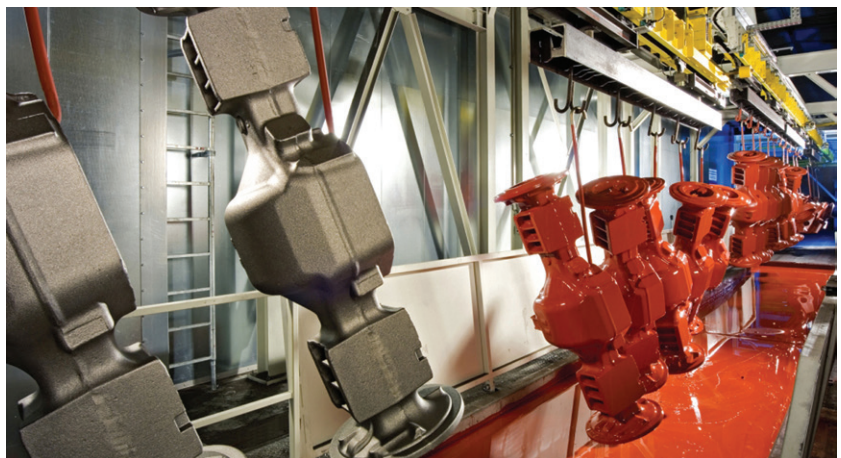
#### Concern and complaint management

GF Automotive prefers a lean solution that offers comprehensive concern and complaint management coverage to meet all of its needs. It is required for processing customer, supplier and internal complaints. The 8D Report, which is imperative for automotive suppliers, is automatically created by the system in accordance with the captured data.

GF Automotive does not require the automatic and systematic feedback of results to be sent to the advanced product quality planning (APQP) feature of QMS Professional.

In the future, the company is considering using the QMS Concern and Complaint Management module for acquiring and evaluating data, results and actions relating to occupational safety and environmental protection inspections.

The QMS Quality Action Management module is of particular importance to GF Automotive. It is used for action processing and monitoring status. It enables the visualization of all defined actions, including user-related actions, on a cross-departmental basis. Furthermore, the escalation mechanisms for the various action types are configurable. This enables GF Automotive to determine the course of action if deadlines are exceeded.







### Gage management

At GF Automotive the QMS Gage Management module is used as an electronic index card with inspection cycle monitoring. Calibration and capability checks are carried out in individual cases.

As an exception at certain sites, data exchange with the calibration laboratory is affected on a bi-directional basis, including status feedback following successful calibration. This means that the data relating to the gage to be calibrated can be automatically transferred to the external calibration laboratory or internal calibration department, and the results are returned to the system following calibration.

### Audit management

The QMS Audit Management module is used extensively in its standard form and should be kept as simple as possible. The module is used to manage and capture internal audits in accordance with German Association of the Automotive Industry

(VDA) 6.3, external and supplier audits, cargo securing, occupational safety audits and environmental protection audits.

### Phase 2

The template for the second phase of the roll-out was comprised of the QMS Advanced Product Quality Planning (APQP) module; including the production control plan, process flowchart and failure mode and effects analysis (FMEA).

### APQP project management

All new projects are set up in the QMS APQP module at GF Automotive. This enables constant monitoring of the project status, including the process and control plans.

The implementation of internal project standards requires the use of standardized checklists, which are identical for all projects in all plants. Quality gates are defined for the measurement of project milestones. Project reporting is also installed.

### Advanced product quality planning FMEA

GF Automotive works with product and process FMEAs, and with design FMEAs in R&D. This differentiation enables the execution of risk analyses at both individual part and process levels.

An FMEA is created for every product within the scope of a project. This is based on the master FMEA, which is linked to individual products. Design and process changes therefore take immediate effect on the respective FMEAs.



### Phase 3

In the third phase of the roll-out the template was used for the in-process, incoming goods and first sampling inspections.

#### **In-process inspection with inspection planning**

The QMS Inspection Plan Management module is a core element of the QMS quality management solution. GF Automotive has three options for creating inspection plans: They can be created manually; originate from the measuring program, which is predominantly the case for dimension inspections; or the graphical inspection planning option integrated in QMS can be used.

The QMS Statistical Process Control (SPC) and the QMS Incoming Goods Control modules are used for part inspection and special inspection plans.

As a series manufacturer, GF Automotive uses continuous inspection orders to capture and evaluate results. Individual inspection orders are only used for certain process steps requiring the capture of batch information, for example, in the foundry.

With the linkage of measuring devices, data acquisition in the in-process

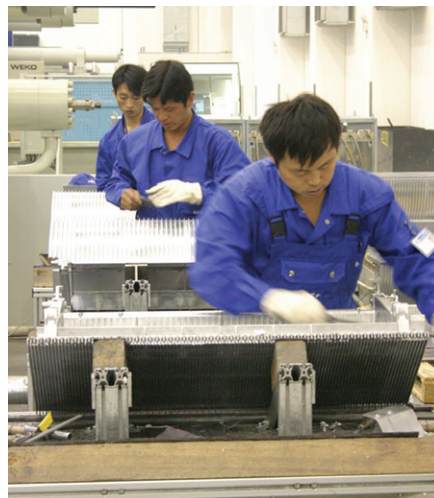
inspection is carried out on both a manual and automatic basis. This involves the execution of:

- Spectral analyses
- Tensile tests
- Hardness tests
- Density tests
- Gage tests
- X-ray tests

The QMS Statistical Process Control module enables control of optimal production processes. Disruptions can be detected at an early stage; their causes removed and production processes optimized, thus establishing the prerequisites for zero-defect production.

#### **Incoming goods inspection with supplier assessment**

The incoming goods inspection supports the quality monitoring of purchased parts and raw materials. This primarily involves examining materials and raw materials (for example, spectral analysis) and attributive okay (OK)/not okay (NOK) inspections (gage inspections, measuring lab inspections). The inspection results are derived from random samples and dynamic sampling procedures that form the basis of the supplier assessment.







GF Automotive uses a bi-directional interface with the SAP ERP/PPC system for its incoming goods and supplier assessment requirements. Information on deadline and quantity reliability is sent from SAP and quality data from the QMS system. The incoming goods inspection results are sent back to SAP.

#### **Roll-out of QMS software solutions in China**

To support and further develop its competencies in China and remain a preferred partner of Chinese original equipment manufacturers (OEMs), the executive level resolved to roll out the program in the GF Automotive plants in Suzhou, China and Kunshan, China in 2012. The Suzhou plant specializes in the manufacture of magnesium and aluminum die castings for the automotive industry, and the plant in Kunshan manufactures cast iron components.

All QMS modules were successfully implemented at both plants and went operative within just nine months in 2013.

Right from the start, users enthusiastically accepted the site because a Chinese user interface enabled them to use all the applications. Siemens PLM Software provided training sessions in Chinese, which were well received.

#### **Benefits**

Using QMS increases transparency within the company and enhances the communication of experiences on a plant-

independent basis. Using the QMS system supports the optimization of the complete product lifecycle.

In standardized processes, all relevant data is monitored and managed by the respective employees. This considerably simplifies the data tracking process and facilitates reduced reaction times.

The software also supports GF Automotive in achieving its cross-company quality standards.

Success factors in the implementation of the Siemens PLM Software's quality management solution at GF Automotive included:

- Starting with simple functions
- Experiencing rapid success
- Supporting and sustaining quality management
- Clearly defining templates for roll-out
- Consistency of personnel
- Leveraging a comprehensive team of experts
- Identifying one key user as a central contact person at each plant

"The introduction of QMS has enabled us to increase the transparency of quality management at Georg Fischer," says Michael Edbauer, head of quality management and logistics at GF Automotive. "Following implementation of the individual modules and monitoring of the corrective actions put in place, we saw an increase in customer satisfaction."

#### Solutions/Services

QMS Advanced Product Quality Planning (APQP)  
QMS Audit Management  
QMS Concern and Complaint Management (CCM)  
QMS Gage Management  
QMS Incoming/Outgoing Goods Control (IGC/OGC)  
QMS Inspection Plan Management (IPM)  
QMS Quality Action Management (QAM)  
QMS Statistical Process Control (SPC)  
QMS Supplier Assessment Management (SAM)  
[www.siemens.com/mom/ibs-qms](http://www.siemens.com/mom/ibs-qms)

#### Customer's primary business

Georg Fischer AG is an international industrial group based in Schaffhausen, Switzerland. The company employs a workforce of approximately 14,000 at its 50 production sites and 130 companies worldwide. Georg Fischer AG is comprised of three core divisions: GF Piping Systems, GF Automotive and GF Machining Solutions.  
[www.gfau.com](http://www.gfau.com)

#### Customer location

Schaffhausen  
Switzerland

*“The introduction of QMS has enabled us to increase the transparency of quality management at Georg Fischer. Following implementation of the individual modules and monitoring of the corrective actions put in place, we saw an increase in customer satisfaction.”*

Michael Edbauer  
Head of Quality Management and Logistics  
Georg Fischer Automotive

#### Siemens PLM Software

Americas +1 314 264 8499  
Europe +49 (0) 2624 9180-0  
Asia-Pacific +86 (21) 3889 2765

© 2016 Siemens Product Lifecycle Management Software Inc. Siemens and the Siemens logo are registered trademarks of Siemens AG. CompliantPro is a trademark or registered trademark of IBS America, Inc. or any of its affiliates in the United States and in other countries. All other trademarks, registered trademarks or service marks belong to their respective holders.