



**WERMA**  
SIGNALTECHNIK

**success story**

## 10% increase in efficiency – but how?

Marquardt GmbH converts every signal tower into a machine data collection and monitoring system

Automotive suppliers are under extreme pressure to develop ever more efficient manufacturing methods and shorter production cycles. With less operating space, less infrastructure and shorter development times as well as highly automated processes it is crucially important to provide high-quality products on schedule. Marquardt GmbH from Rietheim-Weilheim has made the leap to "Lean Management" with a simple trick. The mechatronics specialist has converted every signal tower deployed on its machines into a machine data collection and monitoring system. The innovative call and reporting system lays the foundation for daily production monitoring as part of the shopfloor management system, thereby creating maximum transparency of the operation.

"It was so simple", explains Stefan Wetzel, team leader of prototype/pilot production at Marquardt GmbH. "Our own electricians got the data collection and monitoring system up and running within a very short time", he adds. The "monitoring system" he talks about is the most successful system currently available on the market.

It all started when the large family company converted their operating system to Windows 7. The new system could not be launched successfully because it was not compatible with the data collection system then being used. The entire injection moulding operation faced a major challenge: They needed to find a modern and simple solution quickly, because there were over 100 machines needing to be monitored. The sophisticated product range of the Marquardt group, which

has 8,000 employees around the world, could not allow any disruption in production. There are various providers and production control systems for optimisation of internal order processing available on the market. But Stefan Wetzel found what he was looking for on his own doorstep.

### INSTALLED IN THE MORNING, RESULTS IN THE AFTERNOON

Today the injection moulding machines at Marquardt GmbH are fitted with a "WIN slave" radio transmitter, which was simply retrofitted to the existing signal tower fitted on the machine. The abbreviation "WIN" stands for "Wireless Information Network" and is a wireless based machine data collection and



A signal tower fitted with the data collection transmitter on the production line in the Injection Moulding Department at Marquardt GmbH.

monitoring system designed for use in the optimisation of production machines, logistics and workstations. The manufacturer is WERMA Signaltechnik GmbH + Co. KG, located very close to Marquardt.

Image: Daily shopfloor meeting at Marquardt

Large screens in a central location of the Moulding Department display data collected in simple charts and graphs providing a perfect basis for the daily production meeting. Pictured (from left): Dieter Stais, Marc Mächel and Stefan Wetzel.

#### Marquardt GmbH company profile:

The Marquardt Group is one of the world's leading manufacturers of electro-mechanical and electronic switches and switching systems for vehicles, electrical tools, household appliances, and other industrial applications. The family company is based in Rietheim-Weilheim, South West Germany, and has production plants in Europe, Africa, Asia and America. The company has the widest product range within its peer group. With the market launch of intelligent drive authorization systems, which offer as yet unparalleled anti-theft security and are used in vehicles by Mercedes, BMW, Volkswagen, Audi and Chrysler as well as other prominent brands, Marquardt has quickly established an important reputation in the automotive industry.



"Naturally the close proximity is a clear advantage, but it wasn't the main reason for choosing this signal device manufacturer" explained the team leader who supervises all pre-production of injection moulded components. With 20 years' service with the company, Stefan Wetzel knows what is important and is a real expert in the field of machine data-collection.

"WERMA has fulfilled all of our expectations", he explained. As the data collection system is compatible with Windows 7 it could be quickly and simply retrofitted to the existing equipment. Being essentially "plug and play" installation was self-explanatory and didn't require any external support. With cooperation from in-house IT staff and electricians, the new "WIN slave" units were retrofitted to existing signal towers and were immediately ready for use. There was no disruption to production and the first monitoring reports were ready that same afternoon.

### SIGNALTOWER AS INTERFACE

Virtually any machine, irrespective of age or type can be fitted with the data collection system WIN, requiring only a signal tower from WERMA to provide the interface between machine and monitoring system. Marquardt even went further, and in May 2014 retrofitted over 100 injection moulding machines which had by then been equipped with "WIN slave" with an alternative "WIN slave performance" unit which offers the additional functionality of counting units of production. The WIN slave transmitter devices transmit data collected to the software program through a master receiver unit USB'd into a host PC.

The data collection system is ideally suited to machine shops where many machines may be out of sight of supervision. Machine stoppages can be detected immediately and the data collected from the machines is stored in a database in the software which can then provide detailed reports with just a couple of mouse clicks.

The automotive supplier saw a clear increase in efficiency of 10% compared with that obtained under the previous system. "That's an excellent result!"

### 10% INCREASE IN EFFICIENCY IN A SHORT TIME - BUT HOW?

"We didn't have to wait long to see the increase in efficiency", explains Marc Mächtel, responsible for process improvement at Marquardt. After only a short time the automotive supplier saw a clear increase in efficiency of 10% compared with that obtained under the previous system. "That's an excellent result!" remarks Mächtel.



Over 100 injection moulding machines at Marquardt are fitted with the machine data collection system "WIN". They have helped the automotive supplier increase their productivity by an impressive 10%, thereby helping to secure long-term competitiveness.

With WERMA, the international company can now identify stoppages and faults within seconds. Large screens in central locations of the Moulding Department display an overview of all injection moulding machines, and are particularly helpful to the night shift.

With over 100 machines it's not always easy have an overview of the operation: The visual displays from the system give the production team a basis for their daily shopfloor meeting. "Even if more than 50% of the pie charts on a machine show machine stoppages we can still take action immediately", adds Mächtel. He recommends the user-friendly WIN system to any company wanting to streamline internal process control, material flow, obtain improved transparency of the operation and improve productivity. The impressive visual displays make every employee in the company aware of the current situation and where action is required with data is stored and available for review at any time. Despite some initial scepticism, employees now welcome the system most enthusiastically.

### LEARNING FROM EACH OTHER, CONTINUOUSLY IMPROVE

The manager of plastic production at Marquardt, Dieter Stais comments further on his positive experience with the WIN data collection system. He values in particular the co-operation with WERMA and the two family companies from Rietheim have an active exchange of ideas from which both benefit.

There is another good reason that Stais refers to the neighbours as "development partners": User feedback has been integrated into the further development of the WERMA system on many occasions and the two companies plan to continue their close co-operation.

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### THE FUTURE IS SECURE

Thanks to the positive experiences with the machine data collection and monitoring system at the Marquardt headquarters, other locations in the group are also planning to incorporate the system into their operations. As a result of this their injection moulding machines will produce more efficiently, and the automotive supplier will be best prepared for the future. Often enough even a simple solution is enough to improve long lasting improvements in the efficiency of the production process, conserve resources, reduce costs and reduce strain on the company in the long-term and, as Stefan Wetzel said at the start: "It's so simple".



### THE MONITORING SYSTEM FEATURES AT A GLANCE

- Fit the monitoring system to the signal tower today and tomorrow you will see the first results
- WERMA turns your signal tower into a monitoring system

Stefan Wetzel is the team leader of prototype/pilot production at Marquardt. He is in charge of over 1,000 injection moulding components until they are ready for volume production. He introduced the machine data collection and monitoring system successfully to the Moulding Department and is looking forward to continuous improvement in the transparency and efficiency of the operation.

