

Production data available in real time by intelligent SAP connection

The Challenge

40,000

Material movements in production per day

135

Production facilities connected to SAP for data collection

1,000

Container are moving between warehouse & production each day



- no sufficient tracking
- traceability of materials not precise/ detailed enough
- review of error sources not optimized
- not enough data for automated efficiency analyses
- real-time data only available at individual machines, but not in the higher-level processes

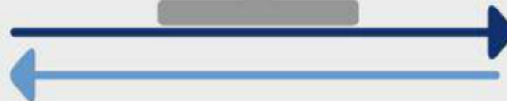


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Requirements planning & posting

- warehouse management
- inventory management
- material planning
- production supply
- master data management



Detailed planning

- system control
- detailed planning of production orders
- capture of production data
- packaging of handling units

As part of the Vorwerk & Sohn group, Vorwerk Autotec is specialized in the development and production of high quality chassis bearings for the automotive industry. The quality of materials used and their

processing in production are their main focus – however not enough data are readily available to get a real time overview of production status.



About Serkem

The Serkem GmbH, located in Eging am See, Germany, supports customers as an international service provider and certified SAP partner with operation and software-support of SAP installations. The core competencies are consulting and implementation of customer-, supplier- and internal business processes, as well as the support of complex system landscapes. The intelligent, custom-built SAP solutions of Serkem can be implemented in the areas of Logistics, Finance and Controlling, Human Resources and Base/Support. Since 1997, Serkem is a competent and reliable partner for medium-sized businesses and large corporations.

Worldwide, renowned carmakers rely on quality products from Vorwerk & Sohn. As leading innovator in suspension technology, system components and materials, the company provides customers with solutions that are ahead of their time. The requirements of the automobile manufacturers set the benchmarks for the company.

Bodywork transition and pass-through elements, tubes for ventilation or liquids, these are the products of Vorwerk Autotec. The components are manufactured in Germany, China, and Poland.

Vorwerk Autotec production processes were not completely optimized yet. As there were only a few pieces of real-time data available from production, neither the current status of production was completely accessible nor was process data. Postings of activities and material stocks have been processed with delay. This was about to change by connecting the MES platform – in cooperation with the Serkem GmbH, Germany – which collected production data from 135 machines to SAP ERP in real time. The goal of the project: to make more effective use of the capabilities of both systems. In addition to increased transparency, targeted analysis as well as a further automation of production processes should be implemented.

The Project – SAP and MES with different tasks

About 1,000 containers for production supply and production disposal are transported between stock and production every day by forklifts. There are ca. 40,000 accounting transactions for material movement in manufacturing, mostly in one-piece-flow. These material movements and production processes as well as production execution were planned to be optimized and accelerated.

The rollout of the Serkem solution happened step by step. At first, the PDC interface was realized at the location in Wuppertal/Germany. Afterwards, the optimizations were rolled out and adapted to the regional specifications at the locations in Brodniza/Poland and Suzhou/China.

Most of the tasks occur on the central SAP ERP system, where all information will be stored and evaluated. Requirements planning and postings of material movements are processed directly in SAP. Master data, components, order data, process data and packing instructions are maintained directly in SAP as well. This data is provided for the MES platform.

The plant control ensures an automated production and detailed planning. All operating data will be recorded and reported to the SAP system. By relying on packing instructions from SAP, the MES also controls the packing of products and finally creates the corresponding SAP handling units (HU).

Integrated batch management

Noteworthy at Vorwerk Autotec: the supply of production is controlled by the containers used (Kanban). At the beginning of production, not the total amount of components is supplied; instead, a 2-container-system is used. If a container is empty, the next container will be requested automatically. The MES can inform the SAP-system about when and where a new container delivery to a machine has to be made.

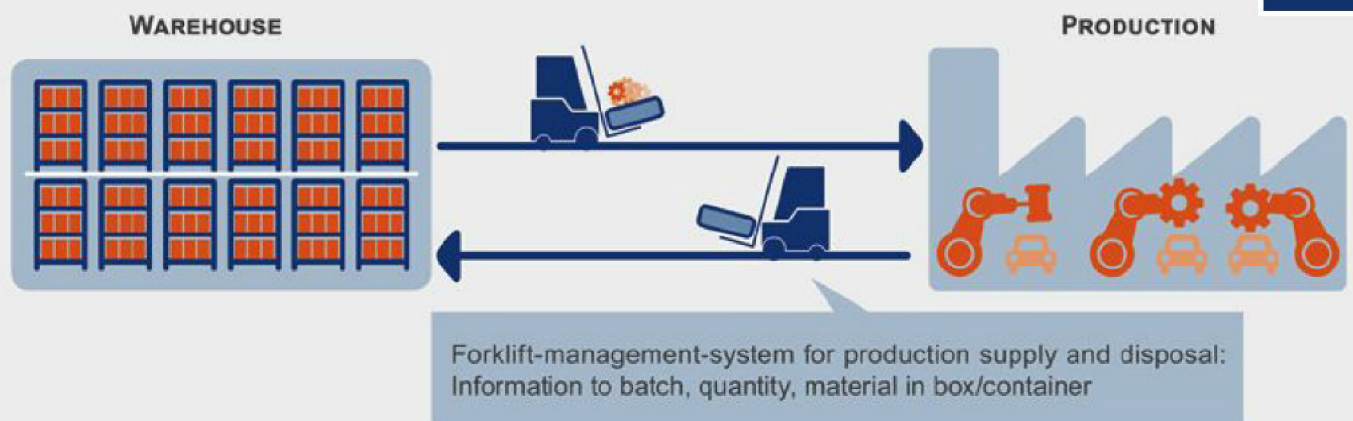
Another highlight is the batch management in combination with the MES system. The batch information is defined through the arrival process and can be read by container in SAP by the MES system. At any time, the MES can retrieve data concerning the batch, the quantity and the material type for any containers on the machine from SAP.

The most important feature of the new solution is the recording of operating data on machine level by the MES system. The amount of goods produced and the production time of the individual products were recorded, confirmed and transmitted in real time to SAP to be available for further analysis.

The activity posting in SAP is done based in real values from the respective machine, including data like setup time, machine time and personal time data. Every component usage and every finished part is posted by the MES to SAP as well. On the one hand, these real-time production data establishes transparency and an overview about the production status. On the other hand, the captured data allows actual analysis and calculations in SAP about efficiency, user behavior, service, time of non-use, etc.

A 2-container-system manages the production supply at Vorwerk

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At the end of production the produced materials were packed hierarchically by the employee, for example: pieces in a box and the box on a skid. This packaging in handling units (HU) is controlled by the MES system, packing instructions from the SAP-system are considered.

Specifications at the location in Suzhou – dispatch with RF-assistance

Normally, at the start of the dispatch process, all relevant materials for delivery will be sent to the packing station. Thanks to the Serkem solution, the dispatch employee can now define when he needs new material for packaging. There is also the option to re-pack the material, if this is necessary for delivery. He performs a partial stock pick and places an order to run back the remaining material to the original storage location. The completion of delivery is performed by the employee on the scanner as well. All processes in the supply are now done with RF transactions on the scanner, without any inputs on the PC. By using scan-dialogs for quality management, all required processes can be performed directly on the portable device. The employee in the QM is able to lock a material by using the scanner to get it immediately transported to the quarantine store. In the quarantine store, the

employees are able to unlock stored materials by performing scanner dialogues and send them back to the warehouse. Alternatively, a return shipment to the supplier can be generated by using the scanner.

With the help of the SAP WM-managed quarantine store, it is apparent at any time where exactly in the warehouse which locked material is located.

When the incoming goods are booked, the system determines which machine can process the received material. This information is used to create an automatic transport, which delivers the material by forklift to the specific machine. The PDC is now able to record the material at machine level.

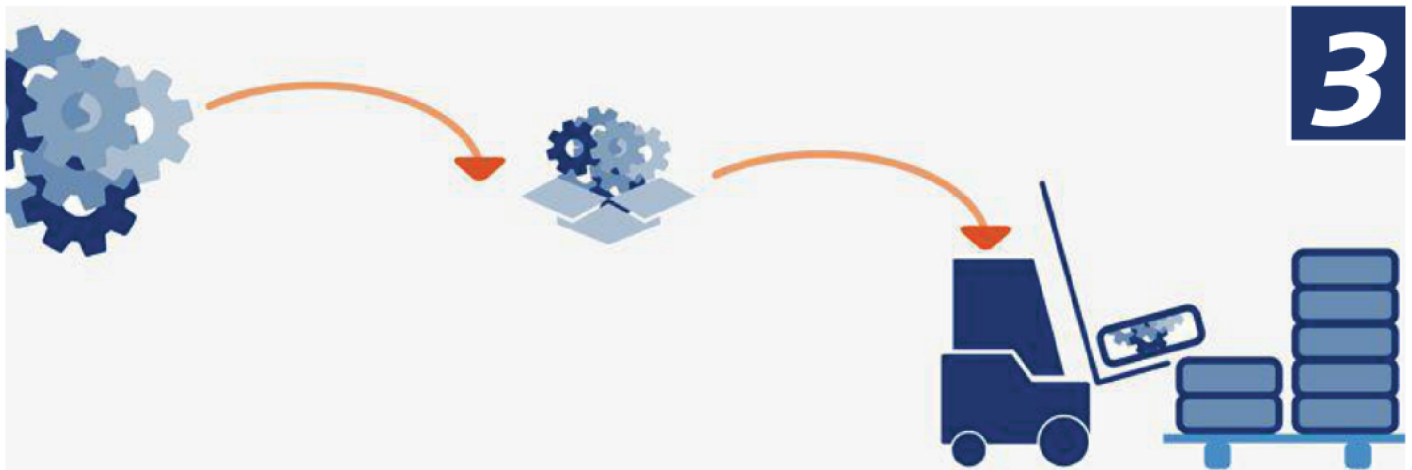
Graphics: Serkem

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MULTIMEDIA CONTENT



Other impressions about the introduced project



The Result



Transparency gain regarding status of production



Analytics and calculations in SAP based on real-time data



Monitoring of efficiency, down time and usage pattern



Full integration of machine processes with processes in SAP (material requirements, stock, packaging)



At the end of production, finished goods are readily available in the warehouse and are WM- and HU managed



Automated processes in SAP replace manual steps and save time in production