

VW Nutzfahrzeuge, Hanover



*The biggest van
factory in Europe*

The Volkswagen Group is one of the world's leading automotive manufacturers and the largest producer of cars in Europe. Volkswagen Commercial Vehicles, an independent marque since 1995, has been an inseparable part of Hanover since 1995. The Hanover factory, built in 1956, is the second-largest of the six VW plants in Germany, after the main plant in Wolfsburg, and also the largest van factory in Europe. Commercial vehicles in the T5, Transporter, Multivan and LT2 ranges are built on the 1.1 million square metre site. Up to 750 new T5s and 140 new LT20s roll off the Hanover production lines daily.

Our brief

An automatic buffer and supply warehouse and an efficient warehouse management system were to be implemented to enhance, optimise and display sequential production supply in the group control mechanism for commercial vehicles.

Implementation

The individual components for the various types of vehicle are obtained from suppliers, in-house production or internal warehouses, for example, the side and roof panels, which are made in Hanover.

Processes

The crossbar press produces bodywork side components from steel sheet. A special downstream batch accumulator was installed to supply the crossbar press with so-called cassettes and to remove the finished parts. It is used as a buffer store for rapid supply and removal of batch production, the direct supply of roof production with components, feeding cassettes to production supply and delivery to the assembly plant in Poznan, Poland.

At the same time, a side component cassette store was established, supplied from the batch accumulator. Its purpose is to store and provide all the side components for bodywork. The side component cassette store is on two levels, which accommodate order picking. The storage capacity of the two levels comprises 740 bays, plus 60 for order picking.

Installation of a batch accumulator and cassette side component store

The control system

In the dialogue between the VW vehicle information system and the warehouse management system (WMS), the WMS retrieves orders automatically from the vehicle information system and controls the downstream sub-systems.

- Optimum supply to and discharge from the crossbar press, transport and storage in the batch accumulator are controlled.
- In parallel, certain figures for entries into the side component cassette store are saved in the WMS.
- If minimum levels are not maintained, the WMS tops it up from the batch accumulator.
- Stacks are withdrawn on the last in-first out (LIFO) principle.

- In addition, the PSI software ensures the transfer of cassette stacks and the return of empty cassettes from the side component cassette store to the batch accumulator and crossbar press.
- Stored parts are then withdrawn from the side component cassette store in accordance with the vehicle components list and fed to the production lines in sequence.
- The WMS uses the 16-digit reference number issued by the vehicle information system to detect which production line requires which side component,
- WMS commands the underlying sub-systems to withdraw the appropriate cassette in a dialogue with the 20 PLCs and starts transport of the parts direct to the production line
- Subsystems acknowledge order as implemented
- WMS acknowledges and transfers process conclusion at the vehicle information system of VW
- Parallel parts at read points are controlled, identified, assigned production places and acknowledged at the vehicle information system of VW

Communication with 20 PLCs

Hardware

Two high-available IBM Windows 2000-Cluster. External non removable disk RAID system. Visualization: Win-CC.

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