



HIRSCHMANN

A **BELDEN** BRAND

Industrial Ethernet in VW-Golf Production.

Automotive

Innovative network design for the young generation



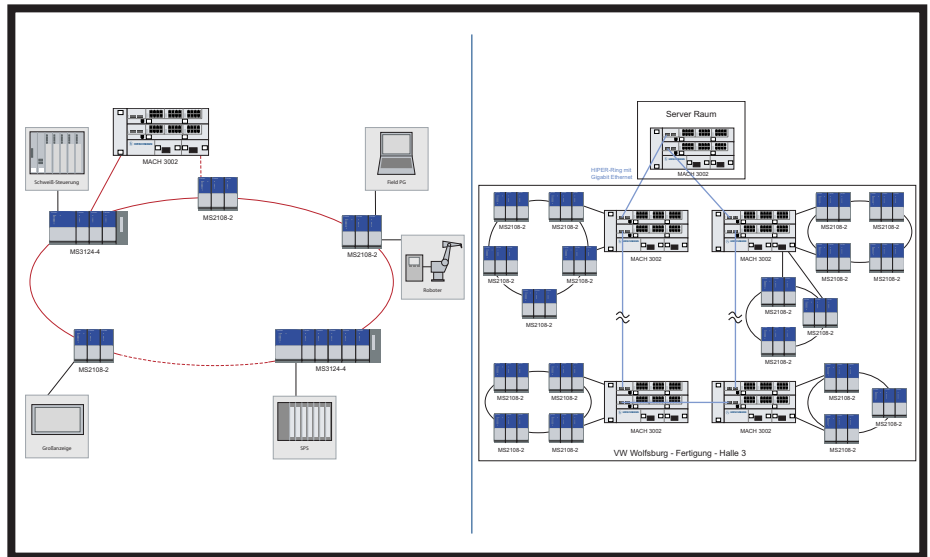
Increasing customer expectations with regard to safety, environmental protection and comfort, combined with increasing pressure to cut costs poses challenges for the automobile industry. With regard to efficiency, transparency and size, the Wolfsburg production line for the fifth Golf generation of Volkswagen sets new standards: an innovative Ethernet structure includes the complete manufacturing facilities and offers increased saving potential.

In its fifth generation, the Volkswagen Golf offers more than ever. A year after the start of production, the most-sold automobile in Europe is available in almost 100 variations. According to the motto „Whatever you like the best“, the compact wagon is available with different types of drives, transmissions, engines, and equipment. Yet all models are the same concerning active and passive safety. The clear advantage with

regard to car body stability and crash safety, which was awarded five stars in the Euro-NCAP-Test*, is combined with significant weight optimization. There are 140 special robots that provide 70 meters of laser-welded seams providing body stiffness. The predecessor had only five meters.



The distributors are built directly into the production cells.



MACH 3002



MICE MS-2108



MICE MS-3124

Project parameters

VW's Wolfsburg plant is not only the largest automobile plant in the world, but also contains the world's largest production network in the automobile industry. For decades, the car has been the heart of the city's economy. The seamless generation change ensures timely planning and completion of new product lines. In 2002, the most modern production plants in halls 1 (pressing plant), 3 and 4 (body shell work), 15b (paint shop), 54 (assembly) and 12 (discharge) were established. The production capacity of the Wolfsburg location is 4,000 vehicles per day. Dynamics and transparency at all levels of the company must be ensured through real-time, constant communication.

Requirements

- 8,000 operators
- 1,000 robots
- 10,000 IP-addresses
- 100,000 sqm.
- max 2900 cars/day
- Laid fiber optic cable > 1000 km
- Exchange and update of components during operation
- High temperatures
- High EMV
- End-to-end management
- Redundant network design
- Possibility of simple diagnostics

Solution

- 16 modular MACH 3000 backbone switch systems with redundant HIPER-ring structures that span all halls throughout the production plants. This provides a clean IP-sub network structure in all areas of production, as well as the incorporation of the MACH 3000 systems in the communication network, enabled by redundantly connected M-Router modules. The complete Ethernet backbone of manufacturing in body construction works at Gigabit speed, using optical fiber for transmission.
- More than 1500 rail-switch systems, mainly MICE MS2108 and MS3124 in over 100 HIPER-rings, link cells via redundant fiber optic networks ensuring the highest level of availability.

Why Hirschmann™?

The planning and implementation support provided by the Hirschmann™ Competence Center make it possible to meet and exceed the high demands of the Volkswagen requirement specifications. The requirement specifications are as follows: suitable for industry, high network availability (if required: full redundancy), simple network diagnostics and maintenance, SNMP-management, as well as adaptation and exchange possibilities throughout.