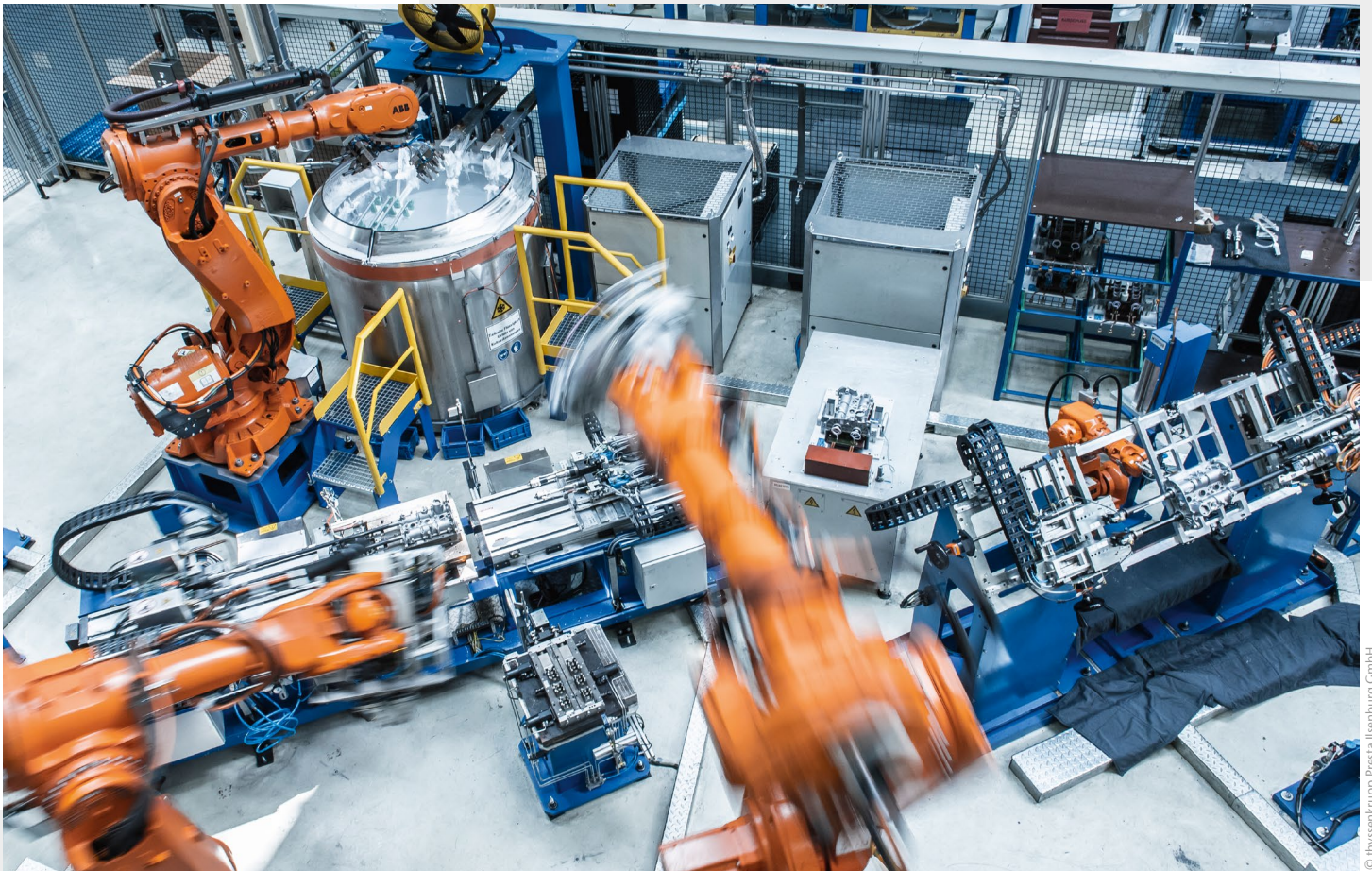




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SUCCESS STORY

Helmholz components support the global MES system of drive component specialists at **thyssenkrupp**

PROCESS OPTIMIZATION THROUGH CLEAN MACHINE DATA COLLECTION

With production facilities around the world, the thyssenkrupp Drive Unit is a globally successful automotive supplier. The group of companies belonging to the thyssenkrupp corporate group demonstrate their innovative prowess internally as well: A multi-site MES system in which the data from all machine networks can be collected – and therefore used in a systematic way – is currently being implemented. The technical requirement of this project is being met not least thanks to several hundred Industrial Ethernet bridges from Helmholz.



COMPANY
THYSSENKRUPP DYNAMIC
COMPONENTS GMBH

LOCATION
ILSENBURG, GERMANY

INDUSTRY
AUTOMOTIVE

WEBSITE:
WWW.THYSSENKRUPP-DYNAMIC-
COMPONENTS.COM

The initial concept of Industry 4.0 and the Internet of Things (IoT) was to have smart machines and products communicate with one another over an Internet-based data infrastructure and manage & optimize themselves on their own, so to speak. Since then, expectations on digitized production environments have naturally become much more specific.

This is also exemplified by the thyssenkrupp Drive Unit, a group of companies within the thyssenkrupp corporate group with more than 3,500 employees. The automotive supplier specializing in assembled drive components for combustion, hybrid and electric motors makes a significant contribution to emission reduction for sustainable mobility. Its product portfolio extends from assembled camshafts to variable valve train systems to a rotor shaft as key components of electric drives. The company's headquarters are located in Ilsenburg, Germany, and the group of companies produce state-of-the-art drive train components in 10 locations throughout Germany, Lichtenstein, Hungary, the US, Brazil, Mexico and China.

NEW POSSIBILITIES THANKS TO DIGITIZATION

It's precisely in a group of companies of this size and orientation where advancing digitization holds enormous potential, as summarized by the project manager at the Ilsenburg site: "Data from the production systems provides the basis for the optimization of processes and maintenance models – keyword: predictive maintenance. They also enable the global comparability of processes and machines at the factories and therefore create a higher degree of transparency and more meaningful performance indicators for the management. Last, but not least, cooperation between the factories becomes easier."

To fully utilize this potential in the future, the thyssenkrupp Drive Unit is currently implementing a new MES (Manufacturing Execution System) platform. A key element of the solution is custom-programmed software for machine data collection, with which the data is prepared for further processing and use in higher-level MES software later on. This model was developed and tested at the pilot factory in Ilsenburg: On the implementation strategy, the project manager stated that "we provide the facilities with the concept, which is then rolled out globally as the standard for the factories and implemented on site."



WALL IE Industrial NAT Gateway/Firewall



RELIABLE AND EASY INTEGRATION OF MACHINE NETWORKS

In addition to many other complex challenges naturally presented by such a project, a supposedly simple problem had to be solved. “To utilize the data in a systematic way, it first has to be tapped from the machines in an organized manner,” said a project team IT expert at the thyssenkrupp specialist for drive components in describing the problem. In this context, organized primarily means no IP address conflicts within the production machine, as well as automated – that is, without the operating expense and potential sources of error which would arise as a result of manual collection.

At the same time, the group of companies present the image of an automation infrastructure which has grown over time – as is the case with many production companies. Again and again, the specific requirements of increasing digitization are encountering existing systems which are already several years old. This means there was a demand for components for integrating them into digital network and Industry 4.0 environments both reliably and easily – with worldwide availability and a manageable investment. The people responsible for making this happen ultimately found what they were looking for at Helmholtz.

NETWORK COMPONENTS FROM HELMHOLZ

The first point of contact of their comprehensive market research was the WALL IE Industrial NAT Gateway from Helmholtz. In the bridge operating mode, it acts as a layer 2 switch. In contrast to normal switches, however, packet filtering is also possible in this operating mode. The packet filter enables the limitation of access between the production network and the respective machine or line. For example, it's possible to configure that only certain subscribers from the production network may exchange data with defined subscribers from the automation cell. Otherwise, the data packet will be rejected or discarded.

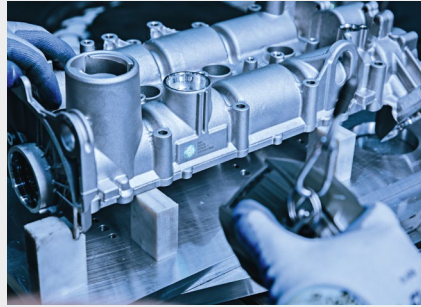
Another special feature is that WALL IE can also be used in the NAT operating mode. The machine network thereby functions as a LAN (Local Area Network), and the production or company network as a WAN (Wide Area Network). WALL IE protects both networks by precisely regulating which participant may exchange data with which device. This aspect was of secondary importance for the decision, though, as all machine data collection is integrated into a comprehensive cybersecurity concept.



PRACTICAL EXPERIENCE AND OUTLOOK

The initial installations have already been running at the pilot factory in Ilsenburg for over a year. According to the specialists overseeing the systems, things have been running very smoothly. Additional WALL IE Gateways from Helmholz are also already in use at seven of the 10 factories around the world. They've also been reported to be working trouble-free and reliably. The team also praises "the outstanding support and always quick responses from Helmholz, including during the testing phase." The project team was also relieved to find that global delivery was always on time and reliable.

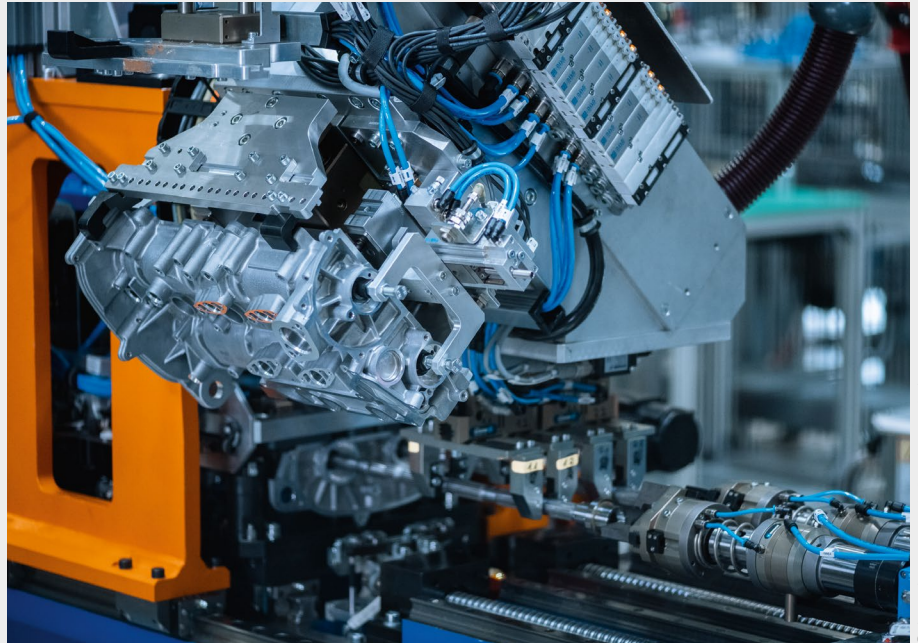
Machines at all the Drive Unit sites are now being outfitted with Helmholz components bit by bit. Based on the current plan, at least 600 WALL IEs will be needed. This number could certainly grow, as "the integration of PLCs will definitely remain a priority for several years, as will solutions from Helmholz."



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