



Press release

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Focus on greater flexibility and efficiency gains: Bilfinger and Münzing launching pilot digitalization project

In the future, Münzing's plant in Heilbronn, Germany, will be collecting and evaluating comprehensive maintenance and production data.

Bilfinger goes digital: In the restructuring plans presented by the international industrial service provider in February, digitalization plays a crucial role. With its strategic reorientation, Bilfinger aims to pool maintenance, modifications & operations (MMO) and engineering & technologies (E&T) services to provide customers with maintenance and technological expertise from a single source. A preliminary digitalization pilot project was launched at Münzing Chemie GmbH in February. Münzing is benefiting from strong supraregional growth. Steadily rising production volumes together with increasing complexity necessitate continuous efficiency gains without sacrificing the high standard of quality.

A mid-size producer of chemical additives, it has a proven partnership with Bilfinger, which has been handling the full range of maintenance activities at Münzing's plant in Heilbronn since 2009. Under the project, Bilfinger is additionally implementing a system for digitally recording data generated by an existing powder system as well as two new chemical reactors under construction.

At the core of the digitalization project is the development of a 3D model known as the "digital plant twins". In this way, Münzing is complying with the necessary statutory and operating documentation obligations: Details

Bilfinger is a leading international industrial services provider. The Group enhances the efficiency and environmental compatibility of assets, ensures a high level of availability and reduces maintenance costs. The portfolio covers the entire value chain from consulting, engineering, manufacturing, assembly, maintenance, plant expansion as well as turnarounds and also includes environmental technologies and digital applications.

The company delivers its services in two business segments: Engineering & Technologies as well as Maintenance, Modifications & Operations. Bilfinger is primarily active in the regions Continental Europe, Northwest Europe, North America and the Middle East. Process industry customers come from sectors that include chemicals & petrochem, energy & utilities, oil & gas, pharma & biopharma, metallurgy and cement. With its 37,000 employees, Bilfinger upholds the highest standards of safety and quality and generates an annual output volume of about €4 billion.

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BILFINGER

Page 2 / 5

are now accessible at the click of a mouse via Bilfinger's new integrated MMO platform. In addition, all the engineering, maintenance, production, environmental and energy data arising during the life cycle of the plant are systematically consolidated and evaluated via the platform. The aim is to use the resulting data to identify potential for boosting plant efficiency and availability. The project is scheduled for completion at the end of the third quarter of 2017.

Bilfinger MMO platform the central interface

Bilfinger's MMO platform forms the central component of Münzing's new digitalization platform. Looking forward, all data flows will converge on the platform. The information collected can for the most part be assigned to one of three categories - engineering, business intelligence and the Internet of Things. The engineering component is composed of detailed digital twins from the two chemical reactors that are currently under construction. To this end, the planning data is transferred seamlessly to the operating phase. Intelligently linking information with plant objects such as a pump, for example, in a three-dimensional image not only facilitates compliance with operator documentation duties on the condition of the plant but also the planning of any ensuing conversions. Moreover, all information on the existing powder system is integrated in the platform. All technical changes are entered in the digital twins to keep them up to date at all times. In addition, virtual employee training is planned.

Hands-on knowledge the greatest asset

The business intelligence part of the MMO platform is fed with current operating and maintenance data. As far as the maintenance data is concerned, Bilfinger makes use of its greatest asset: the knowledge held by the local staff. Maintenance technicians use smartphones to continuously document their observations on the condition of the plant. By utilizing predefined data input screens, they can report such occurrences as unusual noises or heightened component soiling to the MMO platform, thus creating a pool of data which Bilfinger can draw on to continuously improve its maintenance services. A further key element of the business intelligence component is the historical production data,



BILFINGER

Page 3 / 5

e.g. what chemical was produced, what production quality was achieved and what energy input was required to do this.

A third aspect of the model entails the accumulation of real-time data via the Internet of Things infrastructure. This includes items such as vibration, pressure and temperature sensors fitted to the plant equipment to monitor the production process and the condition of the individual machine components.

Hands-on implementation of Industry 4.0

The MMO platform plays to its strengths by linking the three basic elements engineering, business intelligence and the Internet of Things (IoT): Data is linked instead of being stored in separate silos. This reveals relations in causes and effects which were previously concealed or, in the event of any machine downtime, were only subsequently identified in an analysis of the causes. Moreover, the data collected allows errors to be pinpointed at an early stage. For example, Münzing is able to determine whether the operating condition of a plant will result in particularly severe soiling and, hence, cause damage. The identification of such potential sources of risks allows new strategies to be developed to avert damage and to enhance maintenance activities. Moreover, the large number of sensors and IoT-ready components in use is paving the way for predictive maintenance. They are able to report an imminent failure of a given component, which can then be replaced in good time to avoid expensive outages.

Protecting sensitive data

Münzing is active in various industries and markets. To protect its market position, it is adopting the latest technologies and implementing customized products. For this reason, security is playing a crucial role. The large volume of sensitive operating data must be reliably protected from hacker attacks and other forms of industrial espionage. In addition, data protection requirements must be observed, while the employees have a right of informational self-determination. The measures to avert unauthorized access start with the communications technology used. The sensors and machinery communicate via the proven OPC-UA standard commonly used in process technology, which comes with a comprehensive security mechanism. The data collected is stored in a cloud solution operated by an established provider with a server center in Germany. This ensures the necessary scalability for large volumes of data and protects the IT infrastructure from any security breaches.

Moreover, Münzing can flexibly decide what parts of its own production infrastructure data it wants to share on the MMO platform. Bilfinger does not directly collect any sensitive operating data. Rather, Münzing must expressly transfer such data. Consequently, the MMO platform stores only data that has been approved and authorized. This excludes the possibility of sensitive or personal data being used illegitimately.

A strong partnership with a bright future

With the digitalization project, Bilfinger and Münzing are taking their successful partnership to a new level. The Heilbronn-based chemical company sees great potential for broadening the established partnership. Says Dr. Michael Münzing, Managing Partner and CEO of Münzing Chemie GmbH: "Since Bilfinger took over our maintenance, the efficiency of our plants has increased significantly. Bilfinger combines maintenance and engineering know-how and offers an innovative digital platform that allows us to leverage potentials for digitalization in our company." Adds Tom Blades, CEO of Bilfinger SE: "The pilot project with Münzing is groundbreaking development in our industry. With digitalization we are creating real value added for our customers. We are

increasing the efficiency of their plants, reducing maintenance costs and increasing flexibility. Bilfinger is a pioneer in this area.”

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Legends:

Picture 1

The Münzing plant in Heilbronn

Picture 2

Interior view of the production of chemical additives at Münzing’s plant in Heilbronn

Picture 3

Picture 3: The Münzing Technology and Administration Center in Abstatt (Baden-Württemberg)

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