

BILFINGER

now!

we care

Rising demand:
Our services in the
chemical and
petrochemical sectors

we can

In the simulator:
How thorough
maintenance makes
flying safer

we create

UNDER CONTROL

A general inspection is an exceptional situation:
With our concept you have everything under control



BILFINGER



TURNAROUND

PRODUCTIVE DOWNTIME

Extraordinary and extreme: After years of preparation, every step taken in a general inspection has to be just right

Anyone who has an opportunity to experience a general inspection finds themselves in an impressive setting. The scene is generally a hive of activity – even though production is at a standstill. Tall cranes and scaffolding

are the main features of a project in which – depending on the size – hundreds of specialists are at work. A well-orchestrated checking, screwing and welding. Increasingly, the tight time-frame for the shutdown is also used for the implementation of modifications and expansions. This raises complexity and the demands on technical service providers. General inspections, often called turnarounds, are therefore referred to as the ultimate maintenance discipline.

NOTABLE CUSTOMERS

As an international industrial services provider with extensive expertise and its own personnel resources, Bilfinger is well positioned to set standards in this demanding field. Customers such as Borealis, BP, Essar, Exxon Mobil, Huntsman, Ineos, Neste as well as Syngenta and Total are among those who rely on these services. The list of regions where turnarounds are regularly planned and executed ranges from European countries like Germany, Belgium and the UK as well as the Middle East and the USA. The scope of services

delivered by Bilfinger comprises planning in the preparation and follow-up, support in the shut down and start up of the plant, services in the execution phase as well as management services, including management of subcontractors. Logistics matters also demand empirical knowledge and concentration when it comes to implementation.

FLAWLESS RECORD

This includes planning of the construction site installation, the cleaning and storage of plant components, provision of the necessary personnel resources, tools, materials and equipment, safety instructions or the organization of required work permits in the plants. Occupational safety is of utmost importance, particularly for turnarounds and the associated risks. With this focus, the Germany-based company Bilfinger Maintenance has mastered its turnarounds over the course of ten years without a reportable accident.

One particular aspect, and this may seem odd in light of the enormous planning efforts, is the flexibility

Cover illustration: Jochen Stuhmann; Photos: Bilfinger

TO THE POINT NEW STANDARD BTC

Our turnaround modules for successful projects



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Hermann Holme is Managing Director at Bilfinger Maintenance GmbH.

In 2018 Bilfinger carried out ...


45

turnarounds in Europe. It thereby completed ...


1.6 million

working hours and assembled ...


44 thousand

flange connections.



Explained briefly: What is the Bilfinger Turnaround Concept?

With the Bilfinger Turnaround Concept (BTC), we optimally implement the general inspection of plants in the process industry. Our customers save time and a great deal of money. With BTC we are setting the next standard after our Bilfinger Maintenance Concept (BMC).

What is special about it?

The flexibility of the concept and the tested standard are based on collected knowledge. All of the experience gathered from turnarounds completed in recent decades flows into the BTC.

How does it work in practice?

In addition to a manual, we have developed an app to monitor the progress of the project and for interface management. In combination with a web application, deviations to the plan are visible at all times and the coordination of the various trades is guaranteed.

needed to solve unexpected difficulties. Based on experience, this relates to only a small percentage of tasks that arise only in the course of the inspection work.

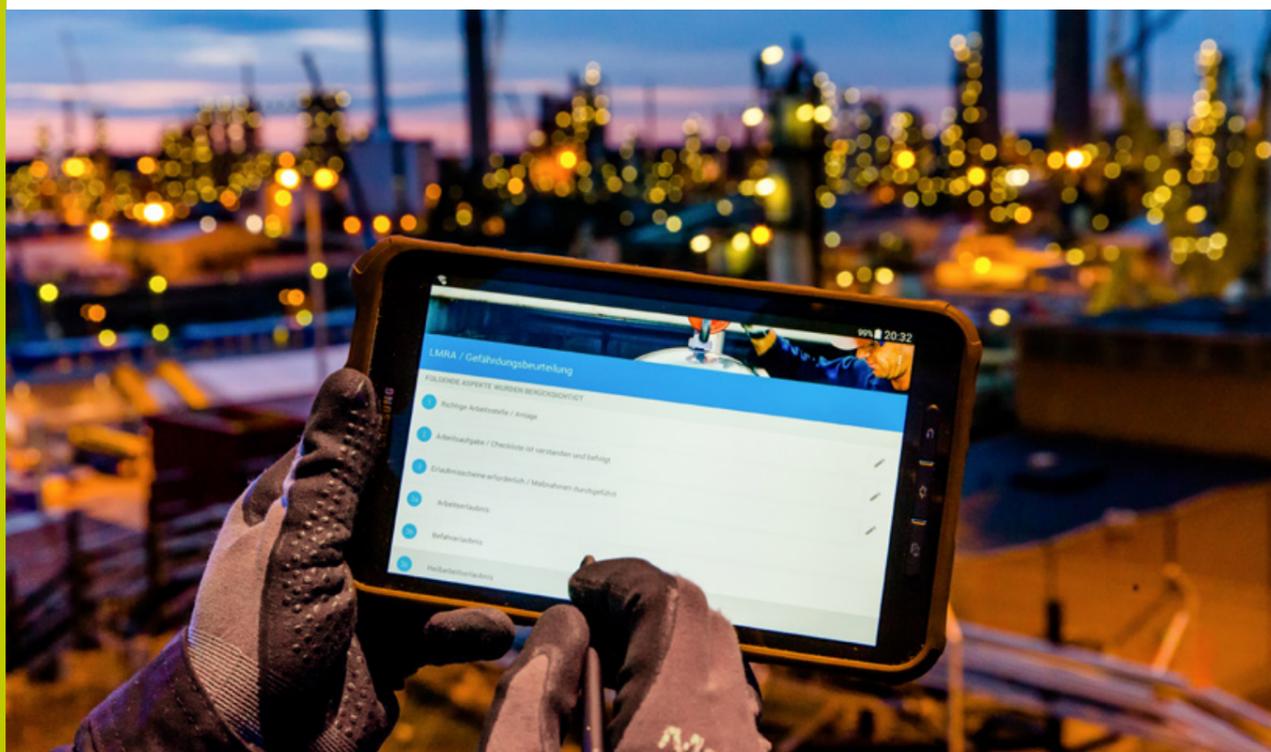
Here, the focus is on finding short-term solutions and making sound decisions. As an experienced service partner, Bilfinger helps its customers take this into account in the capacity planning. Only in this way can it be ensured that major projects such as turnarounds can be successfully implemented on time and within the planned budget for all concerned.

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GENERAL INSPECTION

SUCCEEDING WITH PRECISION

The Bilfinger Turnaround Concept (BTC) is the key to reduced downtimes and optimized costs



Keeping an eye on the progress of the turnaround project: An app and a web application ensure maximum transparency.

In the process industry, where turnarounds are carried out every two to five years, speed and efficiency are of paramount importance. After all, it is important for the plant operator to get production up and running again as quickly as possible once work has been completed. The Bilfinger Turnaround Concept, or BTC, makes plant operators fit for this challenge. The personnel factor is key: A turnaround has to be conducted within just a few weeks and the companies therefore rely on external resources.

SKILLED PERSONNEL

As a result of the increasing shortage of skilled personnel, however, it is difficult to hire several hundred specialists from various trades at short notice. The precise coordination of the individual work steps is a further challenge in the practical execution of the turnaround. Bilfinger is a leading provider, has more than 20,000 of its own employees in the maintenance sector and carries out roughly 30 turnaround projects

each year in Europe. Customers can rely on the same high standards regardless of the size of the project.

MODULAR STRUCTURE

The BTC consists of nine modules covering topics such as resource management, occupational safety and materials management. Bilfinger has developed a turnaround manual that describes all work steps and their inter-dependencies in detail. Depending on the initial situation, the necessary work flows can thus be individually adapted to specific requirements. The result is a schedule of all simultaneous and sequential work steps including their timing. This, in turn, establishes the basis for the special precision in turnaround management – and for the possibility to minimize project risks and calculate costs as precisely as possible in advance.

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CORE INDUSTRIES

CHEMICAL & PETROCHEMICAL

RECOGNIZING A NEED

Solutions for a sector on the rise: What Bilfinger does for the chemical and petrochemical industries

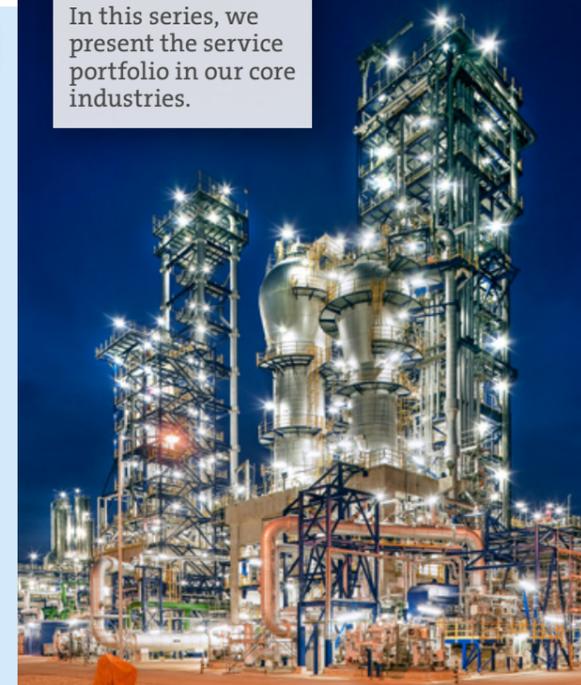
Global demand for chemical and petrochemical products is high – and will continue to grow. The industry has recognized this: As a result of rising demand, investments are not only being made in new production facilities, but also increasingly in the modernization and optimization of existing operations.

The goal is more efficiency, greater availability and an increase in performance. Bilfinger offers the chemical and petrochemical industries the right solutions for planning, engineering, implementation and maintenance. Bilfinger also possesses expertise acquired over the course of decades in many areas such as the construction of highly efficient steam and boiler systems or the design and manufacturing of complex piping systems as well as their integration into existing plants. Gas purification and emissions reduction are also among the company's core competences as is the partial or full automation of production equipment.

Digitalization is essential to increasing the efficiency of existing plants. Bilfinger has the necessary know-how for the plan-

BUNDLED EXPERTISE

In this series, we present the service portfolio in our core industries.



ning and optimization of maintenance and downtimes as well as for the digitalization of plant documentation (Bilfinger Connected Asset Performance – BCAP). This is in addition to the modular Bilfinger Maintenance Concept (BMC) with which we deliver precise solutions for customers' requirements and make the entire spectrum of our comprehensive maintenance competence available to them.

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FULL STEAM AHEAD

The expansion of a power plant during ongoing operations requires a high degree of reliability. A current example



Photos: Bilfinger, Ineos

Ineos is one of the largest petrochemical companies in the world – and has been a customer of Bilfinger for many years. At the location in Cologne-Worringen, Ineos operates an industrial power plant that supplies production plants at the site with process steam. By the end of 2020, a new steam boiler system and a topping gas turbine will be added to the power plant in order to secure the long term supply of steam to the production facilities and the disposal of waste gas.

The power plant expansion project is extremely important for Ineos. For that reason, the company counts on reliable partners for its execution. Bilfinger Engineering & Technologies won the contract for the balance of plant and is thus responsible for significant portions of the water-steam circuit. The order has a volume of €15 million and comprises, among other things, the engineering, assembly and commissioning of piping systems and steam conditioning stations.

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MAINTENANCE,
MODIFICATIONS & OPERATIONS

ALMOST LIKE FLYING

GERMANY |
CONTINENTAL EUROPE



Frankfurt airport: While the planes land and take off in quick succession, flying is practiced around the clock on the ground. Pilots from 160 airlines train in the simulators at the Lufthansa Aviation Training Center. A decisive factor for the smooth operation of the 22 flight training machines is ensuring that the sensitive hydraulics always operate problem-free. This is where specialists from Bilfinger come in. They plan the maintenance within tight time-frames and regularly replace the hydraulic hoses – a total of 1,200 of them over the course of the past three years.



FLIGHT SIMULATOR HYDRAULICS READY FOR TAKEOFF

Our maintenance team at the Lufthansa Training Center



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99.4%

reliability rate

Perfectly maintained: The flight training machines at the Lufthansa Aviation Training Center operate with nearly no defects.

ENGINEERING & TECHNOLOGIES

EnLink Midstream is a provider of integrated services for the treatment of natural gas, crude oil, distillates and liquid gas products. Bilfinger has now been commissioned to build a new refrigerant gas treatment plant in Oklahoma. The project has a volume of about

USA | NORTH AMERICA

35 million euro

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SWEDEN |
CONTINENTAL EUROPE



MAINTENANCE,
MODIFICATIONS & OPERATIONS

THE RIGHT CHEMISTRY

Bilfinger has had exclusive responsibility for maintenance and project services at Kemira in Helsingborg in Southern Sweden since June 2018. The global chemicals company has thus expanded its long-standing cooperation with Bilfinger. It was possible to win the order thanks mainly to the Bilfinger Maintenance Concept (BMC).

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UAE | MIDDLE EAST



ENGINEERING & TECHNOLOGIES

SUSTAINABILITY IN THE DESERT

The issue of sustainability is becoming increasingly important in the United Arab Emirates. There, Bilfinger works as an environmental consultant for the state Environment Agency Abu Dhabi and prepares studies on the environmental compatibility of pipeline routes.

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ENGINEERING & TECHNOLOGIES

QUARRY AUTOMATION

Aggregate Industries, a subsidiary of construction materials manufacturer LafargeHolcim, is relying on the technical competence of Bilfinger for the modernization of the Bardon Hill Quarry in the United Kingdom. Group subsidiary Bilfinger UK won the contract for development, delivery, installation and networking of the electrical infrastructure for a broad range of components in the plant. Bilfinger is thus making an important contribution to the intelligent automation of quarry operations.

UK | NORTHWEST EUROPE



12.5

kilometers of cable laid



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Photos: Bilfinger, ddp images, Getty Images

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