

# BILFINGER

now!

**we care**

High quality:  
Our services in the  
core industries  
pharma and  
biopharma

**we can**

High potential:  
Detecting  
heat loss with  
TIPCHECK



**we create**

# WELL COVERED

Scaffolding, insulation, corrosion protection:  
Reducing costs with our innovations





## SCAFFOLDING, INSULATION, CORROSION PROTECTION

# ANYTHING BUT ORDINARY

Planning and installing industrial scaffolding, professional insulation, identifying and removing corrosion: our specialists have what it takes

**S**caffolding, insulation and corrosion protection – our innovations help save money in these areas. The trades are the bread and butter business for a broad range of specialist Bilfinger entities that, with qualified staff, master complex tasks and develop innovative solutions – including digital solutions.

## COMPLEX CONSTRUCTIONS

Scaffolding is necessary for most assembly and maintenance work at industrial plants. If you think of the kind of scaffolding you see around residential homes, it's time to think again. With industrial scaffolding, we are talking about completely different dimensions. Complex constructions that meet the most stringent requirements in terms of stability and structural integrity are necessary. In addition, the scaffolding generally has to be installed and taken down again within a very short timeframe because plant turnarounds often take just a few days. Careful planning and sophisticated logistics are therefore vital.

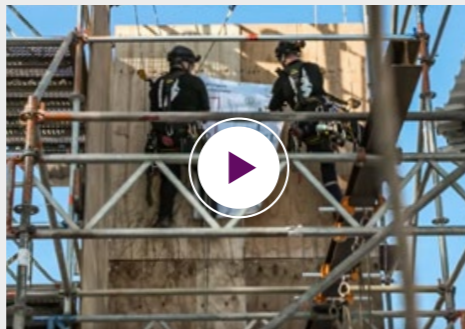
The scaffolding specialists from Bilfinger – for example those from Germany-based Bilfinger arnholdt – are not only active in industrial plants. Their expertise is also in demand when scaffolding is needed for the rehabilitation of bridges – without disturbing traffic if at all possible. Another example for complex projects is the assembly of scaffolding for the rehabilitation of smokestacks that rise several hundred meters from the ground.

## HOT AND COLD

Bilfinger's service portfolio in the area of insulation is just as diverse. Lost heat means lost money. With the right thermal insulation it is possible to lower costs and reduce the emission of pollutants. The efficient handling of energy also positively impacts production processes and eases pressure on the plant. Depending on the need, a variety of insulations can be

## INSTRUCTING AND TESTING SAFELY TO THE TOP

How modern technology is making scaffolding safe



At Occupational Safety Day, customers experience innovations from the world of safety technology.

applied. The experts from Bilfinger also deliver customized sheathing produced in our own facilities from steel and aluminum sheeting for piping and other plant components.

Cold insulation is particularly important for the production and processing of food. Professional insulation supports production procedures and process technology and makes an important contribution to product safety and quality. Bilfinger's competence in cold insulation is in demand in the pharma and biopharma industries and other sectors as well.

## SAFETY AND SECURITY

Bilfinger also offers comprehensive solutions for legally required noise and fire protection in industrial and commercial enterprises. In addition to the application of innovative, noise-absorbing materials, this also includes constructive measures such as the installation of vibration dampers. For fire protection, Bilfinger relies exclusively on tested and approved

systems. Particular attention is paid to piping systems, valves and containers with flammable media. This means that Bilfinger customers are always on the safe side.

## INVISIBLE DANGERS

Corrosion in piping systems is an issue in many industrial plants. Particular dangers arise when corrosion is hidden under insulation and is not identified. Leaks in the piping and the outflow of liquids or gases can be the result, potentially leading to operational interruptions and a lack of plant safety, up to an acute danger of fire or explosion. The focus, primarily for older plants, is therefore on identifying corrosion beneath the insulation and effectively removing it. Bilfinger specialists have the expertise necessary to conduct this work including, in particular, processes for the non-destructive testing of materials.

Bilfinger arnholdt's scaffolding material consists of **7.4 million individual pieces**, weighs **60,000 tons** and fills **2,500 semitrailers**.



## SPECIALTY SCAFFOLDING PROJECT HIGHLIGHTS

- **Largest** connected scaffolding: 85,000 cubic meters on a single piece of mining equipment
- **Tallest** scaffolding: on a smokestack that reaches 300 meters above a refinery
- **Longest** fully enclosed scaffolding: surrounded a 230-meter bridge with tarpaulins, the entire surface area of the coating was 23,000 square meters



# 3 questions ... René de Bie

## Why has Shell Moerdijk been relying on Bilfinger for scaffolding, insulation, painting and other services for so many years?

At Shell Moerdijk we were very happy and proud to celebrate our 50th anniversary last year. Our business partners have made an important contribution to the achievement of this milestone and will continue to be, as we are looking forward to the next 50 years.

Bilfinger has been a long-time partner of Shell Moerdijk. Bilfinger staff are very well connected at all levels in the organisation and they are a real pleasure to work with. In our people & process safety improvement journey, Bilfinger has been the leading contractor in the prevention of process incidents and trips during work in the field. Bilfinger staff act as the "eyes and ears" in the field and report many near misses and deviations that we can act on, a factor that is very important and much appreciated.

René de Bie is Production Manager at Shell Netherlands Chemicals in Moerdijk.

## What is the distinctive innovative character of Bilfinger in the market?

In addition to outstanding safety performance, Bilfinger is implementing digitalization opportunities for work preparation and order processing in the field. This digitalization creates significant added value in planning of work and signing off by Shell supervisors in the field. This generates time and cost savings for both parties and creates a better working environment. Another cost saving opportunity has been the use of magnetic anchors for scaffolding which was successfully applied on tanks.

## What makes Bilfinger an attractive partner?

Bilfinger and Shell have recently taken up the challenge to improve our mutual efficiency in Moerdijk on a gain sharing basis. This illustrates our belief that we can improve our margins together. Bilfinger's integrated service portfolio of scaffolding, coating, insulation and tracing allows Shell to bundle work and minimize loss of time and cost. Our joint approach on CUI (Corrosion Under Insulation) is a good example of the integrated services approach that includes scaffolding, painting and insulation and, perhaps in the near future, inspection and non-destructive testing.

## DIGITAL WORKFLOW RECORDING SCAFFOLDING ORDERS VIA APP

In Belgium and the Netherlands, Bilfinger Industrial Services takes care of scaffolding orders using a digital workflow. The material needed is recorded directly on-site with an app installed on a tablet or smartphone. If necessary, photographs and other documents such as drawings can be added. The data is reviewed and compared with centrally-stored information. This information forms the basis for processing the order from its receipt through to invoicing. Time-consuming paperwork is thus a thing of the past.

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## CORE INDUSTRIES PHARMA & BIOPHARMA

## BROAD SPECTRUM

Our portfolio covers the entire value chain in the pharma and biopharma industries industry value chain

From project management and engineering through to the assembly, maintenance and modernization of plants as well as their shut-down – thanks to its many years of expertise Bilfinger is in a position to meet all the requirements of its customers in the pharma and biopharma industries. Services include technologies for sterile, clean and ultra-clean rooms. This is on top of apparatus engineering and the laying of piping systems. The range of services also includes installation of electrical instrumentation, measurement and control technology as well as solutions for the automation and digitalization of plants.

One of Bilfinger's specializations in the area of pharma and biopharma is the construction of large and complex biotech process units also known as skids or super skids. These modules are fully assembled by Bilfinger at the production location and subjected to the required factory acceptance testing. This simplifies and accelerates



### BUNDLED EXPERTISE

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

their installation in the customer's plant. The welding and testing technologies that are applied in the production of the skids are state-of-the-art. In connection with modern manufacturing management and digitalized logistics, they ensure the highest possible level of production quality.

A significant portion of the value chain is represented by tasks associated with the maintenance and repair of plant components. With the modular Bilfinger Maintenance Concept, customers in the pharma and biopharma industries have access to a proven solution that allows them to reduce operating costs over the long term.

Bilfinger designs, manufactures and assembles skids and packaged units.

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## PERFECT CONDITIONS

As partner to the pharma and biopharma industries, Bilfinger manufactures bioreactors

A bioreactor, often also referred to as a fermenter, is a container in which micro-organisms are cultivated in conditions that are as near to perfect as possible. It serves to cultivate cells or metabolic products. In the reactor, factors such as the composition of the nutrient medium, the supply of oxygen, the temperature or the pH level can be managed or controlled.

The first bioreactors were manufactured at Bilfinger Industrietechnik Salzburg already in the 1980s. Since then, the company has gained comprehensive experience in the design and manufacture of these systems. On the basis of this expertise, an in-house, modularly-designed range of bioreactors was developed. The spectrum ranges from devices for laboratory application with container volume of 15 liters through to large devices with a volume of 4,000 liters. Bilfinger also manufactures customer-specific individual solutions for fermenting plants with a volume of up to 40,000 liters.

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## THE BILFINGER MOMENT

# SAVING ENERGY AT INDUSTRIAL LEVEL

TIPCHECK procedure detects energy loss from faulty insulation

**CHALLENGE** There is heat loss in a wood-fired heating plant. But where exactly? Bilfinger set off on a search for savings potential.

From refrigerators to light bulbs – the energy consumption of a broad range of devices is carefully regulated. While consumers have become accustomed to energy labels, such statutory standards have been missing for industrial plants. This is despite the fact that significant savings can be achieved with simple means, as demonstrated by a current project from Bilfinger Industrial Services Schweiz AG: To detect heat loss at a wood-fired heating plant in Schattdorf in the Canton Uri, specialists from Bilfinger are applying the so-called TIPCHECK procedure (Technical Insulation Performance Check) which carefully examines insulation on the plant components and lays out a path to greater sustainability.



Searching for lost heat: Specialists at a wood-fired heating plant in Canton Uri.

### FOCUS ON HOT SPOTS

TIPCHECK can do much more than merely examine existing insulation for damage and defects. The focus is primarily on so-called "hot spots" – uninsulated components like flanges, fittings and wall mounts. These are areas where heat - and energy - are lost. At

the Swiss heating plant, heat loss from the steam collectors, the feedwater tank, fittings and other plant components is first determined with thermal imaging cameras and contact thermometers. Using the results of the review as a foundation, specific measures to improve the insulation can subsequently be undertaken.

### SUBSTANTIAL CO2 REDUCTION

In the course of a follow-up measurement that was recently conducted, the positive effects of the measures was confirmed: The annual energy savings amounted to 180,000 kilowatt hours. For the company that operates the heating plant this means savings in the amount of 18,000 Swiss francs. It was also possible to reduce annual CO2 emissions at the plant by six tons. An effective contribution to climate protection has thus been made with the TIPCHECK procedure.

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## TIPCHECK PROCEDURE CHECK AND WIN

Saving money with improved insulation



## TECHNOLOGIES ENGINEERING & MAINTENANCE

### CERTIFIED COMPLIANCE

Bilfinger has been certified by the Compliance Monitor. Systems and processes are effective which means that the Deferred Prosecution Agreement, (DPA) with the US Department of Justice has been successfully concluded. The DPA was signed in December 2013 and extended in September 2016. On December 9, 2018 it concluded as planned.

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UK | NORTHWEST EUROPE



## ENGINEERING & MAINTENANCE

Bilfinger UK, together with partners, has been commissioned with development of a strategy for the modernization of control technology in the plants of Thames Water, the UK's largest water company. The investment volume, 15 percent of which is accounted for by the installation of automated systems, is

€ **480** million

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Photos: Shutterstock, Bilfinger, Thames Water



MIDDLE EAST



## ENGINEERING & MAINTENANCE

### PARTNERSHIP WITH HENKEL

In Region Middle East, Bilfinger and Henkel have successfully introduced the Loctite Composite Pipe Repair System. This means that steel piping can be repaired using premium adhesives – without welding. It is particularly well-suited for plants in the oil and gas industry. In most instances, the work can be conducted during ongoing operations so that it is not necessary to shut down the plant.

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## Our digital solutions at the Hannover Messe!

➔ APRIL 1 -5, AT THE PARTNERS STANDS FROM MICROSOFT (HALL 7, STAND C40) AND SOFTWARE AG (HALL 6, STAND E46).

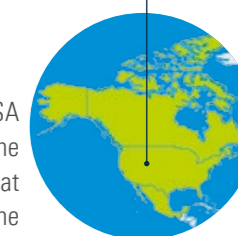
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## ENGINEERING & MAINTENANCE

### SAFE START TO THE YEAR

The start of 2019 at Bilfinger Salmis in the USA was fully focused on occupational safety. The company held its annual safety conference at the University of Lafayette in Louisiana where the roughly 150 employees were reminded of a core statement of the Bilfinger Mission statement: "We never compromise on safety and integrity."

USA | NORTH AMERICA



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