



BILFINGER

Press Release

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Bilfinger introduces new technology for the digitalization of plant documents

- **Artificial intelligence automatically captures P&IDs**
- **Cost reduction of at least 50 percent possible**

Virtual plant models – so-called digital twins – are now the measure of all things in plant documentation. With their help, it is possible to locate all important data in mere seconds. They thus make it easier to comply with operator obligations, accelerate plant modifications and allow for entirely new efficiency enhancement applications through a connection to the Internet of Things. But the conversion of plant documents into a digital form is costly both in terms of time and money. This is where the new digital solution PIDGraph comes into play – a solution that industrial services provider Bilfinger is currently developing for the market.

In a first step, PIDGraph automatically converts piping and instrumentation diagrams (P&IDs) into an intelligent digital version. The application is significantly cheaper than previous conversion methods. Where it was previously necessary to re-create the P&IDs manually, PIDGraph can work with the existing material as a basis, leading to a cost reduction of at least 50 percent. The objective in a second step is to enable the processing of additional plant documents using PIDGraph.

“PIDGraph is a revolution in the generation of ‘digital twins’”, says Martin Bergmann, Project Manager at the Bilfinger Digitalization & Innovation Lab. “The application is not only significantly cheaper than previously common procedures, it also generates tremendous time savings. With PIDGraph, we generate a clear efficiency and competitive advantage for our customers.”

Optimized process efficiency with artificial intelligence

The automation of this time-consuming task is made possible with the use of artificial intelligence: The software reads a P&ID, for example, as an image file and subsequently disassembles it into so-called nodes and edges. Neural networks trained to recognize patterns identify the symbols that are used and put together an overall image of the diagram. PIDGraph also remembers corrections made by the user and adapts its recognition accordingly. Errors can thus be minimized quickly.

PIDGraph is operated through a convenient web interface to which P&IDs can be uploaded as image files, PDFs and in DWG format. PIDGraph then identifies objects, tags and charts and automatically converts them into XML files in accordance with the DEXPI standard. This ensures compatibility with common CAE tools in which the digital P&IDs can be further processed and, if necessary, linked to additional information and documents.

Bilfinger is a leading international industrial services provider. The Group enhances the efficiency 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 and Technologies and 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 36,000 employees, Bilfinger upholds the highest standards of safety and quality and generated revenue of €4.044 billion in financial year 2017.

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