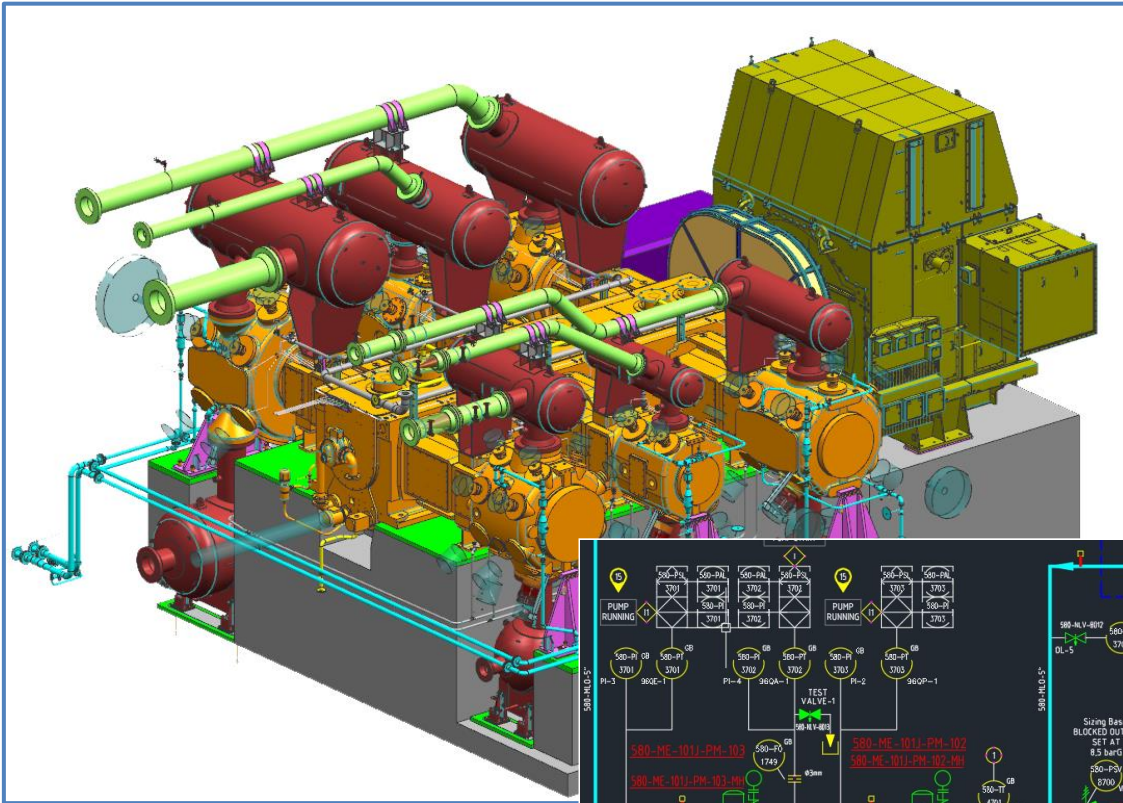
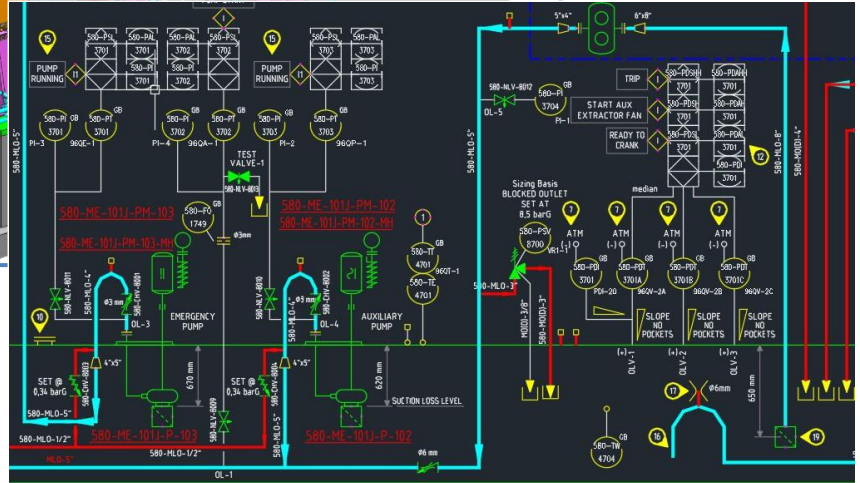


Design Power Success *Baker Hughes*



Partners in Productivity



A complete set of piping and instrumentation diagrams (P&IDs) that meet customer-required turbine and compressor options are configured in minutes.

Rapid and High-Quality P&ID Creation in the Cloud

Baker Hughes (NASDAQ GS: BKR), based in Florence, Italy, is a global leader in the supply of compressors and turbines for the oil and gas industry. Each compressor and turbine comes with a wide range of custom configurations. Traditionally, creating piping and instrumentation diagrams (P&IDs) and documentation for associated electrical, control, cooling, and hydraulic systems took over six weeks for each proposal and delivery.

Thanks to **Design Power's Design⁺⁺**® technology, Baker Hughes drastically reduced the time to produce complete, customized P&ID sets from several weeks to just minutes, offering the following advantages:

- **Faster document delivery** for proposals & system installation.
- **Increased quality and consistency**, lowering warranty risks.
- **Reduced engineering and sales costs** through automation.
- **Improved customer satisfaction** due to quick turnaround and high-quality outputs.



*Using Design Power's Design⁺⁺ technology, Engineering Manager **Simone Bassani** revolutionized productivity at Baker Hughes.*

The Challenge for Baker Hughes

Baker Hughes supplies highly customized compressors and turbines, each requiring extensive and detailed drawings and schematics to support sales, manufacturing, installation, and operations. A single compressor, including all auxiliary systems like lubrication, hydraulics, and cooling, may demand over 60 P&ID drawings, each taking up to four hours to create manually.

To improve efficiency, **Sandro Migliorini** and **Massimo Benvenuti** sought a solution to streamline the process, minimizing unnecessary revisions and better accommodating customer modifications. This led to the creation of the **P&ID Configurator**, an automated tool built on **Design Power's Design++ technology** and **DrawingWise solution framework**, which now generates all auxiliary system P&IDs for Baker Hughes.

The Power of SuperDrawings

At the heart of the P&ID Configurator is the concept of **SuperDrawings**. These contain all the necessary logic and CAD symbols to produce a complete set of P&IDs for any equipment and control options.

When a new P&ID set is required, the configurator quickly assembles and connects all CAD symbols based on base equipment and customer-specific options. What used to take up to 30 days is now completed in **just 20 minutes**.

Seamless Technology Transfer

Design Power initially trained Baker Hughes engineers on **Design++** and **DrawingWise**, enabling the creation of the first SuperDrawings during the training period. Today, Baker Hughes has expanded the use of the configurator to include 27 distinct modules, covering more than 80% of their product lines.

Sandro Migliorini, System Design Engineer and a key developer of the P&ID Configurator, shared: "We tried to develop a similar system with other tools but had limited success. Design Power's technology made it seamless. Design++ is incredibly flexible and adaptable to any scenario we could imagine."

KBE Advantages in P&ID Automation

By leveraging **Knowledge-Based Engineering (KBE)** principles, Baker Hughes achieved several key benefits:

- **Significantly reduced engineering time:** Custom P&ID sets are now generated in minutes.
- **Enhanced precision:** Automated systems minimize manual errors, ensuring consistency.
- **Scalability:** The configurator adapts easily to different product lines and configurations.
- **Increased engineering productivity:** Staff can focus on more complex tasks, improving overall workflow efficiency.
- **Cost savings:** Reduced production time and warranty exposure lead to lower operational costs.

Faster, Better, Cheaper

Today, over **500 Baker Hughes engineers** worldwide rely on the cloud-based P&ID Configurator for their daily operations. The benefits are undeniable: generating and reviewing complete P&ID sets now takes mere minutes, significantly cutting down on engineering hours and associated costs. More importantly, the automation ensures that the drawings are consistently accurate, delivering higher-quality outputs.

Endorsements

Senior System Engineer **Francesco Bartolini** praises the P&ID Configurator: "We can't imagine working without it. What once took hours is now completed in minutes, providing consistent designs and allowing us to focus on more intricate control problems."

Simone Bassani, Engineering Manager, adds: "The configurator also helps train our new engineers. It embeds Baker Hughes's rules and guidelines, offering a safe framework that shortens the learning curve for our staff. The greatest value lies in reducing the 'cost of failure' - not only in time and sales costs but by ensuring high quality and minimizing warranty risks."

Design Power, Inc.

For companies that engineer and manufacture custom products, **Design Power** offers tools and services to automate the entire engineering and design process, delivering a competitive edge through improved efficiency, quality, and profitability.

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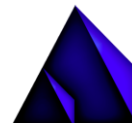
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*Using Design Power's advanced technology, Engineering Management Team **Massimo Benvenuti**, **Sandro Migliorini** and **Simone Bassani** took engineering capabilities to a new level at Baker Hughes.*



Design Power

We Automate Engineering Design