

**Rittal – The System.**

Faster – better – everywhere.

# Fueled with flexibility

Rittal Solutions for Oil & Gas



ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

IT INFRASTRUCTURE

SOFTWARE & SERVICES



FRIEDHELM LOH GROUP



---

## **“Rittal – The System.”**

With tailor-made products, modern IT architectures and comprehensive service, Rittal offers individual solutions for every industry – for improved efficiency, greater added value and more security.

---

# Table of contents

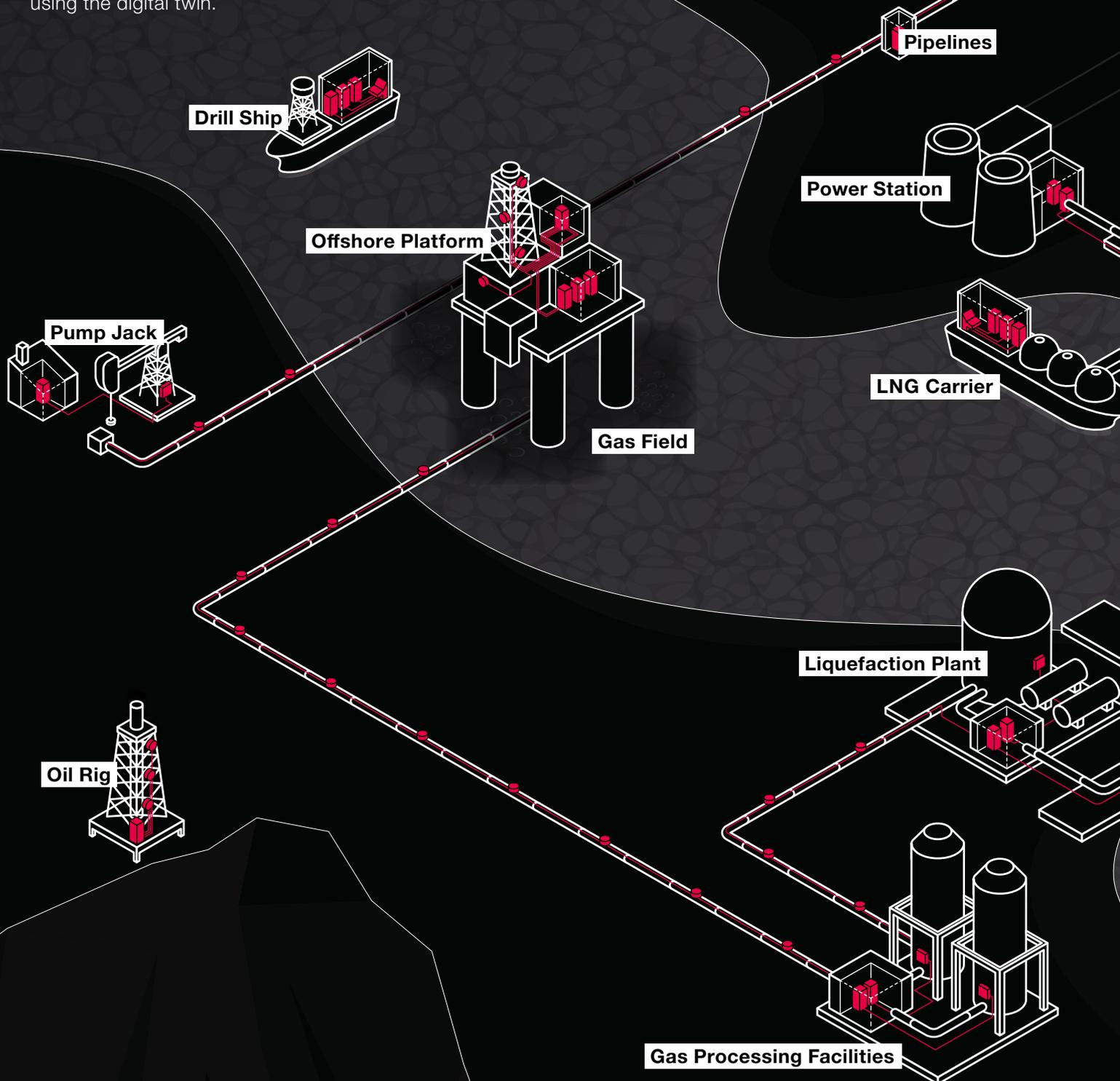
---

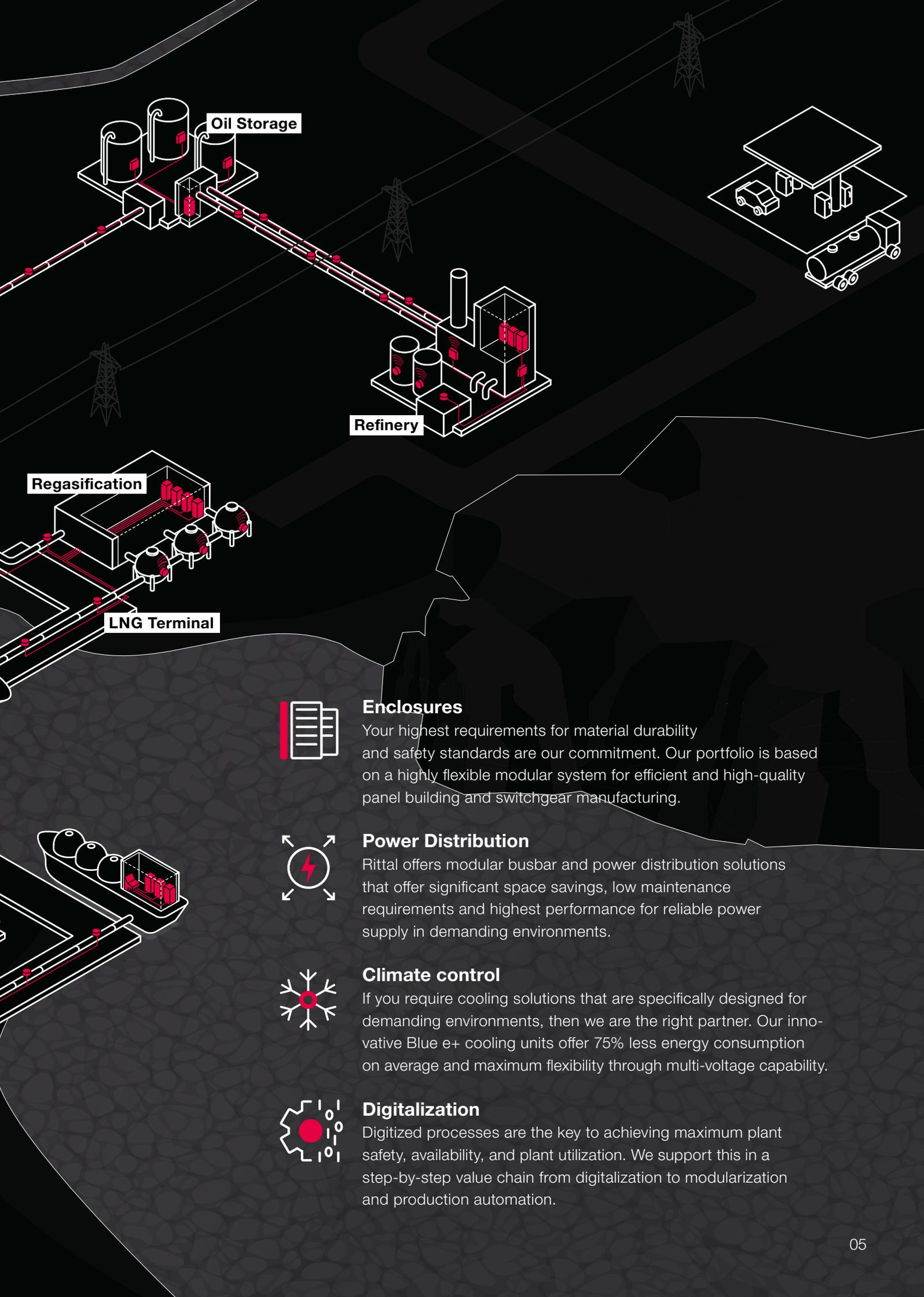
<b>Rittal – The System. Ideal for oil &amp; gas applications</b>	
Efficient control panel engineering for the Oil & Gas industry	<b>04</b>
<hr/>	
<b>Upstream</b>	
Solutions for exploration and production of Oil & Gas	<b>06</b>
<b>Reference</b>	
Aspin Kemp & Associates – Hybrid system for drilling vessels	<b>09</b>
<hr/>	
<b>Midstream</b>	
Solutions for transportation and storage of Oil & Gas	<b>10</b>
<b>Reference</b>	
Prime WSI – Customized enclosures for challenging environments	<b>12</b>
<hr/>	
<b>Downstream</b>	
Solutions for refining and processing of Oil & Gas	<b>14</b>
<b>Rittal and EPLAN</b>	
Bringing the digital and physical process together	<b>16</b>
<b>EPLAN</b>	
For the process industry	<b>18</b>
<b>Reference</b>	
Emerson – Safety is paramount	<b>20</b>
<hr/>	
<b>IT Infrastructure</b>	
Maximizing flexibility and reliability of on-site IT deployments	<b>22</b>
<b>Cooling and Service</b>	
Keeping sensitive equipment in optimal working condition in the harshest environments	<b>23</b>

# Rittal – The System.

## Ideal for oil & gas applications

Whether you are an Oil & Gas operating company, a contractor or a system integrator, Rittal, together with EPLAN, offer a comprehensive solution portfolio. We cover all segments of your industry as well as for a digitalized and automated process of efficient and future-oriented panel building and switchgear manufacturing using the digital twin.





**Oil Storage**

**Refinery**

**Regasification**

**LNG Terminal**



**Enclosures**

Your highest requirements for material durability and safety standards are our commitment. Our portfolio is based on a highly flexible modular system for efficient and high-quality panel building and switchgear manufacturing.



**Power Distribution**

Rittal offers modular busbar and power distribution solutions that offer significant space savings, low maintenance requirements and highest performance for reliable power supply in demanding environments.



**Climate control**

If you require cooling solutions that are specifically designed for demanding environments, then we are the right partner. Our innovative Blue e+ cooling units offer 75% less energy consumption on average and maximum flexibility through multi-voltage capability.



**Digitalization**

Digitized processes are the key to achieving maximum plant safety, availability, and plant utilization. We support this in a step-by-step value chain from digitalization to modularization and production automation.

## Challenging questions

### Is the equipment tough enough for a future-proof oil platform?

When it is so costly and time-consuming to fly in equipment or experts for maintenance or repair, the equipment must be extremely robust and well maintained. Will repairs, maintenance, parts and service be available worldwide at the closest location no matter where your operation is? If you are planning on expanding your site in the future, is the equipment modular and easily expandable allowing for additional equipment to be added in tight spaces?

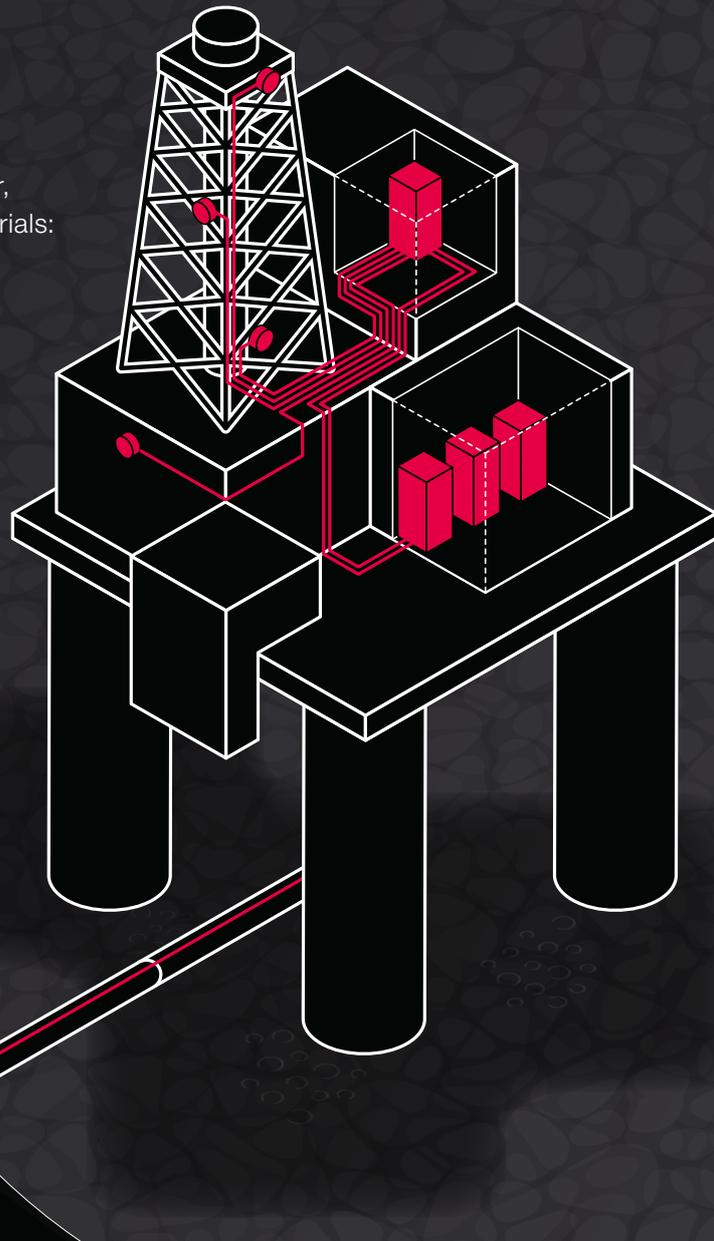
### How will data change the work on an oil rig?

Collecting and processing data on site allows predictive maintenance and a quantum leap in efficiency optimization. At the same time, it decreases the communication bandwidth with onshore offices. But how do you keep IT equipment running in such a harsh and remote environment?

### Is there room for sustainability on an offshore platform?

How can electrification and digitalization make oil and gas extraction as efficient as possible – not only to reduce climate damaging CO<sub>2</sub> emissions, but also to reduce the risk of environmentally harmful accidents?

Spatial confinement, salt water, harsh weather, explosive materials: a challenging place to work.



# Upstream: Flexibility and higher reliability in a limited space

---

Rittal solves your challenges with tough, modular and space-saving products. All parts and services are available worldwide, and with cutting-edge solutions we also support you on your path to digital transformation.



Rittal enclosures and power distribution systems for the upstream sector stand out from the rest with one key factor: they are based on a standardized yet modular system. This makes Rittal solutions the flexible backbone for a future-proof power control and IT infrastructure on oil platforms – supporting your journey of digital transformation in the Oil & Gas industry. The worldwide supply crisis proved: Our supply chain stands firmly against all odds.

## **The most flexible modular enclosure systems on the market**

The Rittal TS 8 and the new VX25 enclosure system can be easily configured to fit in tight spaces and the most challenging layouts on offshore platforms where space is at a premium. Rittal produces on four continents to help ensure maximum availability.

## **Be safe**

To help ensure reliable operations in challenging environments, Rittal offers a wide range of robust enclosures. From AISI 304 stainless steel housings to stainless steel 316L alloy for high corrosion resistance and UV-resistant finishes with up to IP66 protection class for outdoor environments.

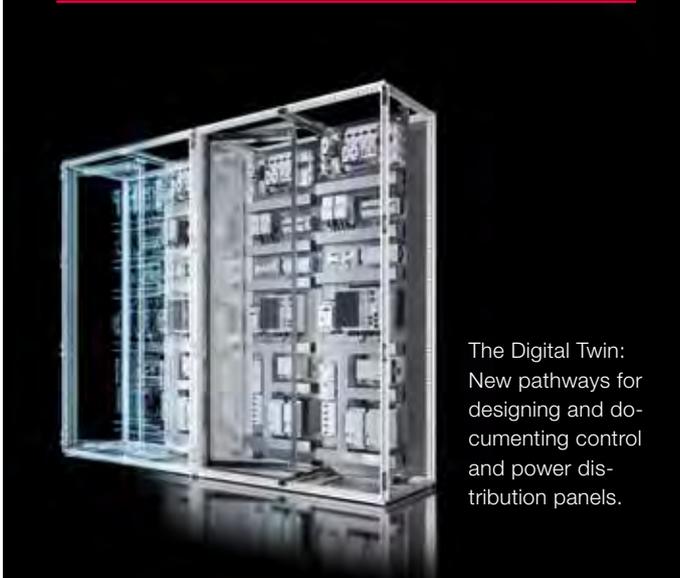




Ri4Power – highly modular solutions for flexible power distribution.



Micro Data Center Level E – Security safe that offers high level of protection against potential physical threats for IT.



The Digital Twin: New pathways for designing and documenting control and power distribution panels.

### **Power distribution for electrified operations**

Electrification of offshore facilities can significantly improve the carbon footprint. However, replacing hydraulic power systems with electrified equipment requires an even more reliable power distribution infrastructure in the smallest available space. With Rittal's Ri4Power solutions, power distribution can be deployed in an extremely space-efficient manner, while being compatible with most major circuit breaker brands, allowing flexibility and easy maintenance.

### **Protecting critical IT infrastructure within harsh climates**

IT infrastructure is an integral part of any offshore platform to process plant data on-site and communicate via the cloud to make quick decisions and enable predictive maintenance. Tough IT racks from Rittal with wall-mounted cooling units protect servers in the harshest and most demanding environments keeping your process control and monitoring software running 24/7.

### **Better planning with the Digital Twin**

The highest safety requirements and challenges in accessing an offshore platform for service technicians can only be overcome through forward-looking, data-driven decision making. Ideally, power distribution and control panels are mapped as a Digital Twin. It makes planning much more precise, and changes can be realistically

tested on the Digital Twin before they are physically executed. Weak points, potential failures, and energy and material savings are identified at an early stage. As one of the many positive results, two panels of the same kind are really the same – down to the level of an exact position of a component or the length and path of a cable. The basis for the realization of a digital twin is the EPLAN platform, which allows continuous data use – from the initial concept to detailed planning and plant operation.

# Hybrid system for drilling vessels

Hybrid drive systems are not only used in mobility applications, they also drive the drilling systems employed in the Oil & Gas industry. Together, the Canadian company Aspin Kemp & Associates (AKA) and Germany's MAN Diesel & Turbo SE have developed a system where diesel generators supply the electrical energy needed for the drilling rig drives. Supercapacitors ("supercaps") are used as buffers to ensure uninterrupted power supply. To accommodate these supercaps safely, AKA relies on enclosure systems from Rittal.

## AKA – Specialist for offshore applications

Aspin Kemp & Associates, based in the Canadian province of Prince Edward Island, is a world-renowned provider of solutions for open sea and offshore applications in the Oil & Gas industry. Through its partnership with MAN Diesel & Turbo, the companies can offer their customers turnkey, end-to-end solutions such as the hybrid solution used in drilling vessels. The hybrid system flattens the load profile of the diesel generators, fewer diesel engines are needed and efficiency is improved. The system enables a continuous process performance, even if the power supply should briefly fail.



Rittal supplied a total of 114 enclosures for the project, including standard enclosures, as well as modified and EMC-compatible ones.

## Supercaps housed safely

In the innovative hybrid drilling floor, the diesel generators are coupled with supercaps that ensure the stability of the energy supply. Accommodating these buffers securely is a real challenge, one in which AKA relied on Rittal. This energy storage system, unique on the shipping and offshore market, required enclosures that could not just meet the usual standards. Rittal supplied a total of 114 enclosures for the project, including standard enclosures, as well as modified and EMC-compatible ones. These also contribute to operational safety and meet the high requirements for shipping. As no adjustments could

be made on site, the Rittal enclosures were fully adapted, ready for installation and delivered in accordance with the shipping regulations, including those of DNV and ABS.

---

Our cooperation with Rittal was positive and essentially a partnership... we have been using Rittal products for such a long time that they have become an integral part of our production processes.

---

## Saving energy, emissions and maintenance efforts

AKA's hybrid drilling platform is the first of its kind; it has now been successfully put into operation on five deep-sea drilling vessels. The new system allows some of the generators to remain in stand-by mode and not operate continuously. This reduces wear on the diesel generators and cuts the maintenance efforts. At the same time, the energy consumption and pollutant emissions are reduced.

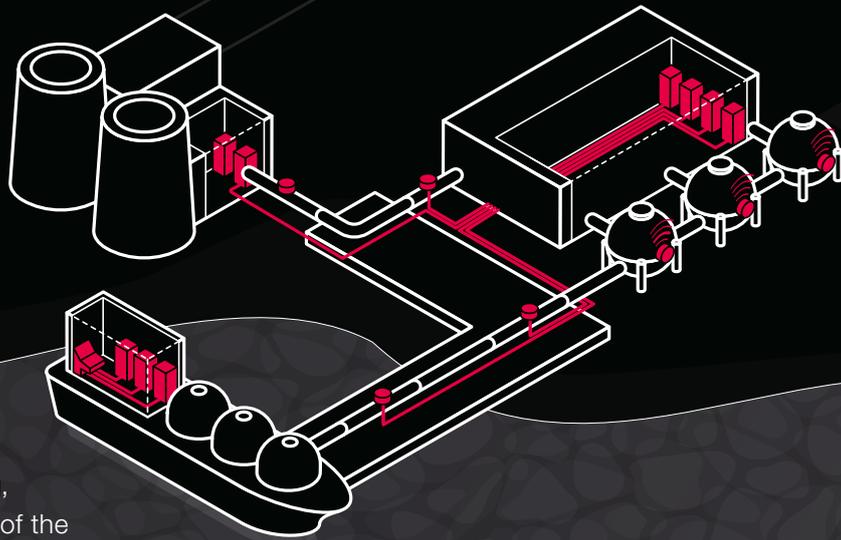
## Challenging questions

### How can the booming demand for LNG be met with higher efficiency?

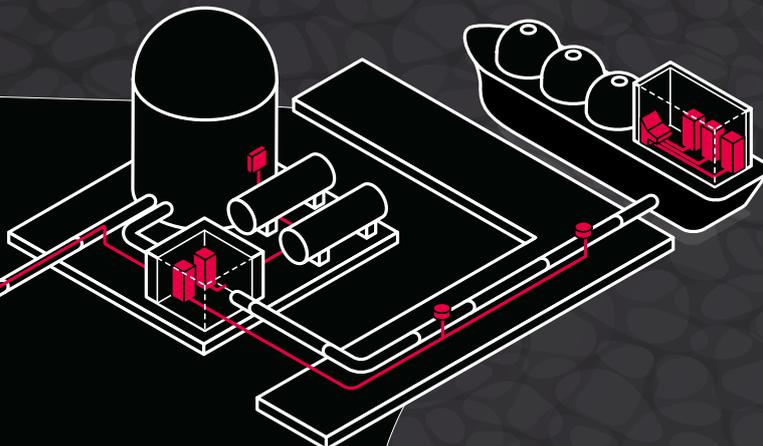
Global demand for liquefied natural gas (LNG) is expected to reach 700 million metric tons/year (mmt) by 2040, a 90% increase from 2021 consumption. Using natural gas instead of coal cuts greenhouse gas emissions by 50%. This creates the challenge of how to build safe and reliable LNG liquefaction, transport and regasification facilities as quickly and efficiently as possible while helping to ensure safe and reliable operations through precise control and monitoring at every stage of the LNG value chain and in the toughest environments.

### How to keep Distributed Control Systems (DCS) failsafe under any circumstances?

Individual distributed I/O systems monitor and control every aspect of instrumentation in process, transportation, and storage vessels 24/7. As the DCS systems of the future become even more open and flexible, one of the biggest challenges is to keep these sensitive DCS architectures fail-safe and protect them from impacts such as vibration, heat, humidity, and corrosion.



LNG is booming, but every stage of the LNG value chain requires precise control and monitoring in the toughest environments.



# Midstream: Standardized solutions for individual needs

---

Your power and control equipment in LNG facilities is safely protected in extremely challenging environments. Rittal enclosures and cooling solutions help ensure operation at optimum conditions.

Rittal stainless steel compact enclosures housing distributed control systems are made to withstand water ingress and protect your infrastructure in corrosive and other challenging environments. For increased protection in Zone 1 and Zone 2 explosive environments Rittal EX stainless steel enclosures help ensure protection of sensitive control equipment under difficult conditions where ATEX requirements must be met.

## **Blue e+ cooling units**

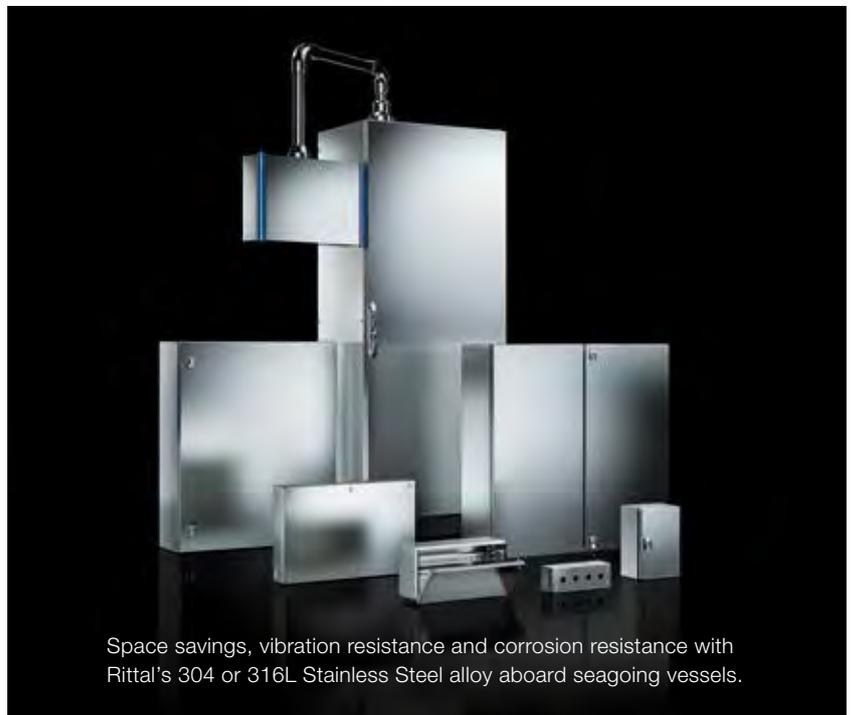
Rittal's wall-mounted cooling units for challenging environments help ensure process reliability and operational safety – especially in control rooms where room air conditioning is not possible. On average, Blue e+ saves 75% energy and reduces your carbon footprint. The carbon saving of 1 t per unit equates to the shipping and transportation of 1,675 liters of oil.

Using **natural gas** instead of coal cuts greenhouse gas emissions by

# 50%

## **Solutions that keep pace with the LNG trend**

Rittal offers a wide range of enclosures for any requirements on LNG terminals from Ex-rated remote I/O enclosures facilitating communication with sensitive instruments throughout the field and pipelines to standardized yet modular and highly configurable IT racks and control cabinets for the central control room to help ensure the highest safety and availability.



Space savings, vibration resistance and corrosion resistance with Rittal's 304 or 316L Stainless Steel alloy aboard seagoing vessels.



# Customized enclosures for challenging environments

For one of its most important products, a pump control box for frac pumps and pumpdown units. Texas company Prime Well Service Instrumentation (WSI) initially purchased enclosures from various suppliers. To provide ideal protection for the pump control box in extreme climates like in Saudi Arabia or Siberia, this led to a variety of customizations at great expense. The result was frequent delivery delays, and often the necessary cutouts and holes were not precise enough, and lack of visibility and insight into each stage of the panel production process. In addition, Prime WSI had no local point of contact or centralized physical location to source and ship component parts in a timely manner, which added to the effort.

## More flexibility and scalability partnering with Rittal and EPLAN

Prime WSI was able to overcome these hurdles through a strategic partnership with Rittal and EPLAN. At Rittal's Rapid Design and Modification Center in Houston, the control cabinets were customized and quickly available. Enclosures and junction box cutouts, tapped holes, and other customizations were completed in just five days.

## EPLAN software and Rittal enclosures make the difference

Thanks to EPLAN's leading 3D panel design software, Prime WSI technicians were able to carry out design changes in real time. All design variations – even with data-intensive processes – could be implemented and electrical circuits, assemblies, and designs could be standardized. Together with Rittal's stainless-steel enclosures and deep hinged window kits this was the perfect match for Prime WSI. These enclosures are robust, flexible, and easy to install and integrate – thereby meeting all the requirements of Prime



Pipelines and control panels must meet highest standards to function safely under extreme temperatures and corrosive environments.

---

Since we use Rittal products, we have more transparency in the design and manufacturing of the enclosures, which are ready to use when delivered to us. This reduces the manual steps and increases our overall efficiency.

---

Blair Thornhill, president of Prime

WSI and their customers. Rittal wallmount enclosures also provide the protection and physical security necessary for Prime's control system for hydrotesting units, which are deployed aboard mobile testing to help assess potential leaks in downhole service rig pipes.

---



### Prime WSI on YouTube

See how Prime WSI Discovers Enhanced Efficiency with Rittal Enclosures.

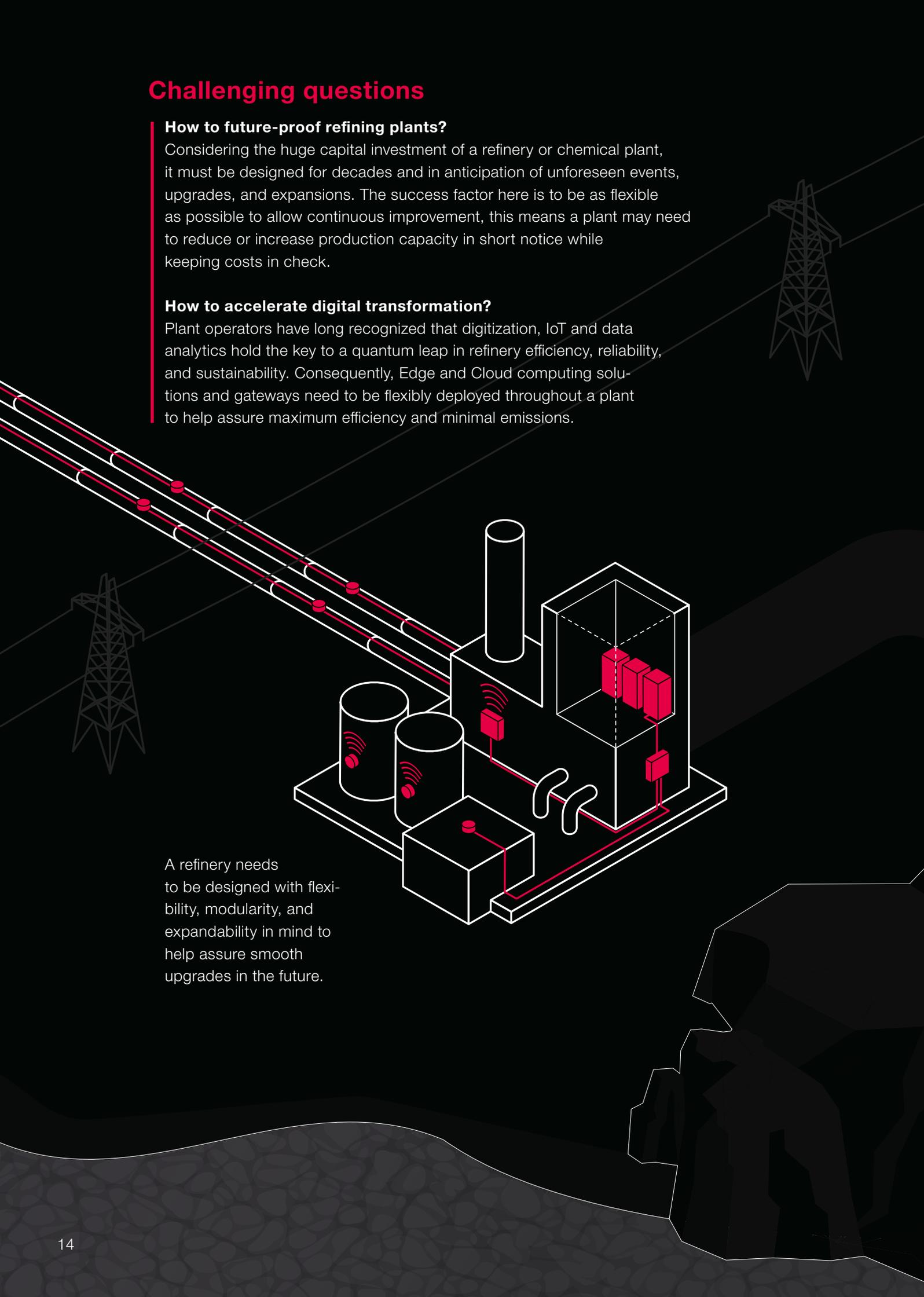
## Challenging questions

### How to future-proof refining plants?

Considering the huge capital investment of a refinery or chemical plant, it must be designed for decades and in anticipation of unforeseen events, upgrades, and expansions. The success factor here is to be as flexible as possible to allow continuous improvement, this means a plant may need to reduce or increase production capacity in short notice while keeping costs in check.

### How to accelerate digital transformation?

Plant operators have long recognized that digitization, IoT and data analytics hold the key to a quantum leap in refinery efficiency, reliability, and sustainability. Consequently, Edge and Cloud computing solutions and gateways need to be flexibly deployed throughout a plant to help assure maximum efficiency and minimal emissions.



A refinery needs to be designed with flexibility, modularity, and expandability in mind to help assure smooth upgrades in the future.

# Downstream: Synergies from one single source

---

We support you to adapt to an increasingly complex environment, optimize process flows, empower a digitized workforce, and flexibly leverage rapidly changing market conditions.

From the field to the process control room, you can rest assured that the whole process is protected in robust housings while Rittal cooling solutions can keep sensitive instruments running at optimal temperatures year-round with minimal energy use and environmental impact. The process control servers can be housed in Rittal VX IT racks with cooling and power supply solutions for 24/7 operation of mission critical command and control of the plant.

## **Take hazardous environments in stride**

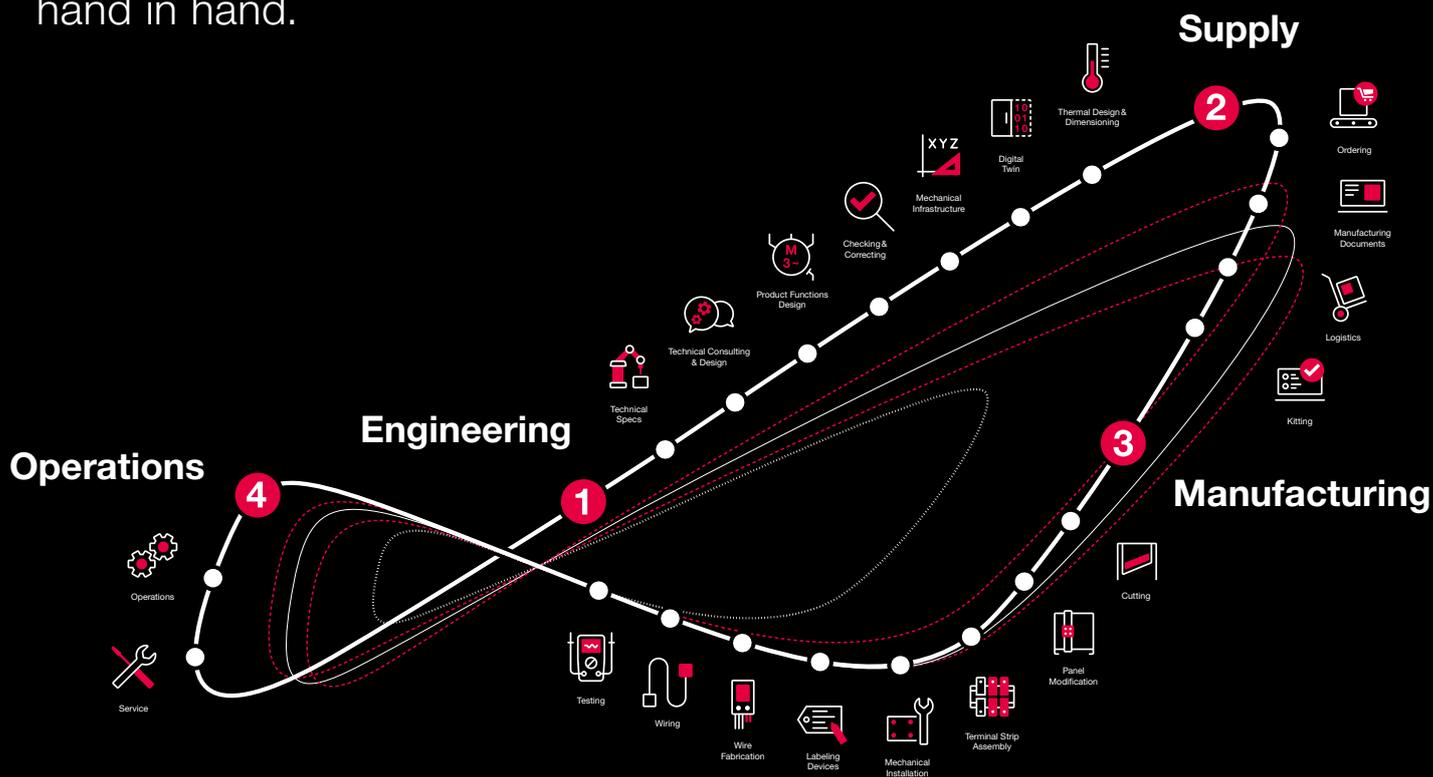
We have developed a range of stainless steel Ex-rated enclosures with corrosion resistant 304 alloy. These are particularly designed for remote I/O applications allowing plant operators to flexibly mount I/O points wherever they're needed. Our breakthrough technology using fiberglass reinforced polymer in our new AX Plastic Ex enclosures provide a space efficient and lightweight package that can be installed in Zone 1 and 2 hazardous environments with superior corrosion, rain and UV resistance for any indoor or outdoor environment.



EX Enclosures from Rittal: space efficient, available in 304 stainless steel or in lightweight fiberglass reinforced polymer.

# Rittal and EPLAN – Bringing the digital and physical process together

As part of the FLG group, EPLAN and Rittal are able to offer the whole software, hardware and value chain that go seamlessly hand in hand.



**Making complex things simple is the guiding principle of Rittal and EPLAN. Our solutions accelerate your processes and increase your productivity. We optimize and industrialize the panel building and switchgear manufacturing value chain at every stage and across the entire process, from engineering to procurement and manufacturing to operation.**



**Rittal and EPLAN:**  
Your strong partners for sustainable panel building and switchgear manufacturing.

Rittals Perforex laser cutting machines put the heart into automation & modification, working seamlessly together with EPLAN software.



### **Everything plays seamlessly together**

The synergy between EPLAN and Rittal is displayed in reliable data handover. A Rittal enclosure can be designed from inside and outside by EPLAN. Inside means, by using the EPLAN Data Portal, a unique feature with EPLAN, it is possible to download realtime components data directly into your panel building project. The final outcome: faster procurement and improved engineering quality. Outside means, there is a seamless handover of design data to system integrators and operators helping to ensure safety and production efficiency in the downstream ecosystem.

### **Make the Rittal & EPLAN story your story**



- Higher productivity through digitization and prototyping with high-quality data and 3D-aided design.
- Faster through easy configuration and sourcing as well as through interfaces between Rittal tools and EPLAN engineering software for optimal data consistency.
- Better through Industry 4.0 and automation with fully automated machines for milling, assembly, and wiring processes.
- Safer through global smart service and cloud-based solutions.

# EPLAN for the process industry

EPLAN solutions enable panel builders, system integrators and operators in the Oil & Gas industry, to increase in productivity, reduce time to market and increase profitability.

EPLAN offers engineering capabilities starting at the basic engineering stage. With a unique process engineering tool that allows you to create and maintain PFDs, P&IDs and loops for instrumentation & control with all relevant data sheets. This empowers your business through data continuity, planning reliability and optimized processes in a dynamically changing industry.

## Design | FEED



Talking about greenfield or brown-field projects the engineering value chain starts with scale-ups, ends in modifications and brings engineering requirements in place.

- **Scale-up**
- **Modification**

## Operation



Change management and MRO are daily business in operation. EPLAN delivers reliable MRO planning tools with red and greenlining on mobile devices to be discussed on one platform as a communication base across all disciplines and responsibilities.

- **Maintenance Repair Overhaul (MRO)**
- **Change management**



## Realization



In construction and commissioning of plants or package units the synergy between software (EPLAN) and hardware (Rittal), both companies are part of FLG Group, enables seamless data flows and a faster time to market.

- **Construction**
- **Comissioning**

## Basic Engineering



2

This is the start of using EPLAN. Creating digital data followed by drawings on a database supported platform enables process engineering, instrumentation and control.

- **Process engineering**
- **Data drawings**



## Detail Engineering



When specs are defined and automation goals are ready to be answered, EPLAN opportunities in electrification ensure fast and safe workflows to reach project milestones and tasks in time.

- **Specifications (SPECS)**
- **Automation**



3

## Procurement



The EPLAN offering of different but needed documents according a project realization by the push of a button at any time supports procurement on early project stages and ongoing.

- **Bill of Material (BOM)**
- **Offer and order**

4

## Shortcuts to our Solutions

Scan the QR code and discover how EPLAN enables you to increase profitability.



### EPLAN Preplanning

Preplanning is when process and diagram become program.

# Safety is paramount

Emerson is a multinational conglomerate with over 130 years of experience in power and automation solutions. The group supplies its process automation solutions to numerous different industrial sectors. For its customers – specifically in process industries – Emerson only provides solutions that meet the highest safety requirements and standards.



Rittal Ex rated enclosures – specifically designed to meet the safety requirements of the process industry.

Emerson has recently been working with a chemical company in China with the help of Rittal solutions. This chlor-alkali company, like all others in the industry, must manufacture products to the highest safety standards in terms of explosion protection. This company typically supplies the whole of China and also exports its products to Europe. Because the company meets the high safety requirements, it has received several awards in the past – including the “GRADE A EMPLOYER IN LABOR SAFETY COMPLIANCE AND INTEGRITY IN SHAANXI PROVINCE”. Emerson turned to Rittal for its technical expertise and experience since the safety and reliability

aspect was critical to the company when selecting its enclosures. Rittal’s solutions certified for the chemical industry not only fully meet the industry’s high safety requirements, but they are also globally available with all the Rittal benefits, such as standardization, fast availability and high quality.

## Safety meets modularity

The special Rittal TS 8 modular product line and specialized Ex rated enclosures with a flexible mounting system were explicitly specified by Emerson. These Rittal enclosures have been specifically designed and developed to meet the stringent safety requirements of the process industry, and have the globally recognized IECEx, ATEX and the locally required CCC and NEPSI certifications.

Thanks also to its ease of installation and being modular, the Ex enclosure saves system integrators a great deal of time and helps to ensure that customers remain future-proof in the market.

## Quality with no compromises

Emerson was convinced by the product design and quality – and especially because the tubular door frame increased the strength and therefore the stability of the door of the Rittal Ex enclosure.

---

With the Rittal solutions meeting the necessary safety requirements, we also appreciated the fast, reliable delivery and excellent service provided by the Rittal employees on site.

---

Senior Emerson Manager



Emerson also had to solve a further challenge for the customer – the adverse ambient conditions at the chemical plant meant that heating was required to provide optimum protection for the equipment housed inside. Thanks to the flexibility of Rittal's portfolio, Emerson was also able to quickly solve this problem. The tubular door frame offered sufficient space thanks to its protruding section on the inside of the door, so that heaters could be installed in a space-saving manner and without the critical risk of losing the protection classification. Emerson sets high standards for the coating of its stainless steel enclosures. In order to achieve this quality standard, Rittal China spared no effort and modified the manufacturing process in such a way that this special requirement was also met, while at the same time improving the enclosure's protection category. A superior quality product alongside fast and flexible order management and handling, the assurance of competitiveness for its customers, and top-class customer service has led overall to Emerson's decision to rely on solutions from Rittal – and for the longer term.

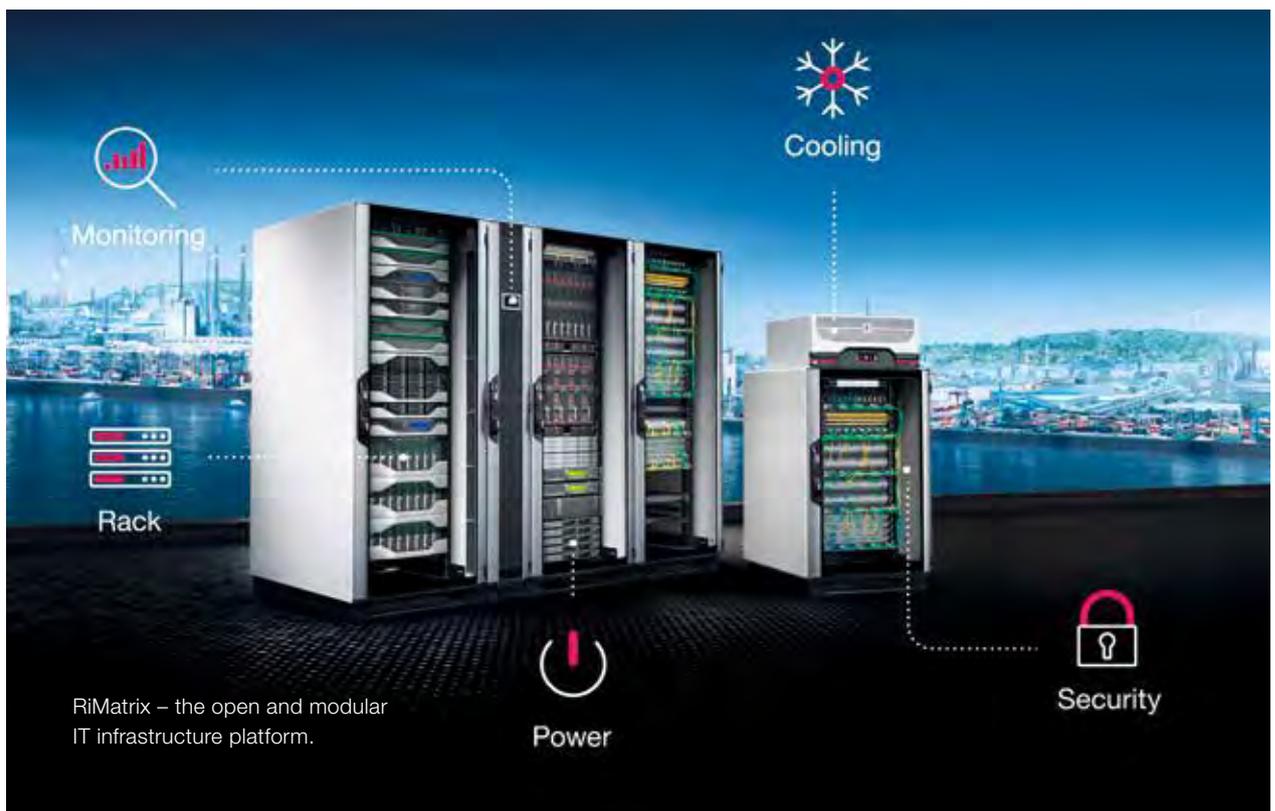
Chemical plants are extremely sensitive areas where not enough can be done to protect people and the technical equipment.

# IT Infrastructure – flexible and future-proof

---

Rittal supports the digital transformation of the Oil & Gas industry where data is playing an increasingly important role.

The Oil & Gas industry is facing dynamic shifts due to the digital transformation: increasing data volumes and networking of all components involved in the production process in the age of the IoT place high demands on your IT infrastructure. And when it comes to using data to create value, quick access is key. Time delays or failures in data transfer can bring production to a costly standstill.



## **Our answer to your IT challenges: RiMatrix**

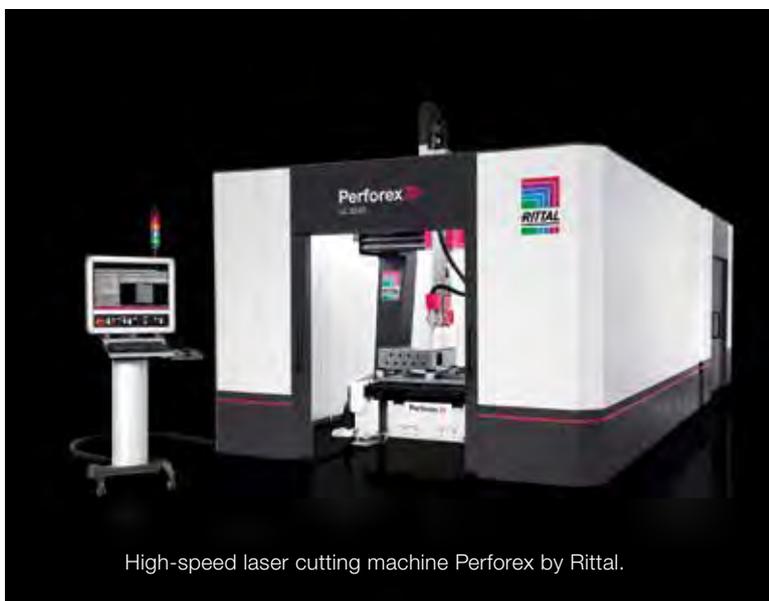
RiMatrix offers you flexible and future-proof data center solutions for a secure, scalable infrastructure adapted to your business processes. The RiMatrix principle is an open system platform with exceptional modularity and flexibility that grows with your needs. RiMatrix generates the basis for an IT infrastructure that can be configured to meet the specific requirements of the Oil & Gas industry: innovative, flexible, safe, and with highest availability due to predefined, proven solutions such as Edge and Container Data Centers.

# Service – thought ahead

---

Our 24/7 service mission: deliver proactive maintenance, support your processes, and enable any future expandability of your plant.

More than 1,000 qualified technicians are deployed at 150 locations worldwide with one mission: maximize machine availability by minimizing machine downtime. In particular, this applies to the Blue e+ cooling units and Blue e+ chillers which are interconnected with your monitoring, energy management and superordinate systems. And since prevention is always better than treatment, we provide proactive maintenance of cooling and climate control systems and rapid assistance in the event of a malfunction.



## Rittal Automation Systems

You can save time and money by simply sending your enclosure designs in EPLAN or other compatible CAD tools to one of our global Modification Centers. Or simply use the free RiPanel 3D configurator on our website. Based on your data, our experts will produce all cutouts on advanced CNC machines. Or buy a milling or laser terminal, a copper bending machine or a wire terminal from us to upgrade your own system.

# Rittal – The System.

Faster – better – everywhere.

- Enclosures
- Power Distribution
- Climate Control
- IT Infrastructure
- Software & Services

Learn more about what Rittal and EPLAN can do for you and your industry:



[www.rittal.com/Process-Industry](http://www.rittal.com/Process-Industry)

Here you can find the contact details of all Rittal companies worldwide:



[www.rittal.com/contact](http://www.rittal.com/contact)

X1WW00243EN2.202

ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

IT INFRASTRUCTURE

SOFTWARE & SERVICES



FRIEDHELM LOH GROUP