Rittal – The System.

Faster – better – everywhere.

Aspin Kemp & Associates

CASE STUDY

Electric Power Generation

AKA Energy Systems

Client: Aspin Kemp & Associates
Industry: Energy Systems
Company size: 51-200 employees
Founded: 1996
Head office: Montague, Prince Edward Island

Every industry faces unique challenges, and the oil and gas industry is no exception. Protection of assets in this energy segment is especially important in their “please all, please none” environment. Despite uncertain waters in the recent past, the security and protection of assets rate among the highest priorities for oil and gas companies, especially given the harsh environments in which equipment is used and the drive towards ever-increasing environmental and eco-sustainable responsibility. Specified equipment must exceed traditional use standards when placed in the maritime and offshore market.

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AKA CEO ,
Jason Aspen

THE PROJECT

The challenge

- Harsh environmental conditions
- Sustainability and cost pressures
- Power load fluctuations

The solution

- Custom TS 8 bayed enclosures
- Eco-friendly, installation-ready solutions
- Integration of ultra-capacitors in the power distribution network

About Aspin Kemp & Associates

Aspin Kemp & Associates (AKA) is the foremost provider of integrated products and services, including system engineering, new product development, engineering, manufacturing, testing, installation, commissioning, life cycle support, field services, integrated documentation, and training. Founded in 1996, AKA has grown to five offices serving clients globally with headquarters in Prince Edward Island, Canada. AKA’s mission is to deliver innovative solutions that enhance efficiency, reliability, and sustainability in the energy and drive technology sectors.

The Challenge

Companies are now being met with an increase in seemingly incompatible demands: increasing sustainability while responding to cost pressures. AKA’s solution was the creation of hybrid drill floors.

Until the creation of hybrid drill floors, diesel generators alone would experience power load fluctuations in decelerating and accelerating workloads. Even a momentary loss in the main AC power source causes difficulties in the rapid transfer of energy needed to accommodate an unplanned disconnection of the diesel engine. AKA faced extensive challenges in creating the hybrid drill floor. Their solution was to couple diesel generators with ultra-capacitors to resolve the problems in the power distribution network.

The Rittal Solution

Because the technology called for dozens of industrial enclosures, AKA turned to Rittal to help find the right customized solutions. The Hybrid Power initiative addressed the performance fluctuations and power compensation issues by using an intermediate power storage system, the ultra-capacitor, which can absorb and deliver energy at a rate faster than the process can use or return energy. It also fully controls the hazards of the E-stop, by allowing operation without the main generator connection. The diesel can be operated continuously at high output without compromising performance or requiring a “spinning reserve” of power.

This hybrid initiative required a creative approach to protect their power system. Because the application is unique in the maritime and offshore applications market, they needed to use enclosures for the power storage system that exceeded traditional use standards. AKA worked with Rittal on an enclosure system that would improve reliability, save energy, reduce emissions, lower maintenance costs, enhance safety, and support maritime regulations. Given that on-site modification was impossible, and scrap recycling of any modifications was unacceptable, the Rittal enclosures needed to arrive ready to install.

Stringent green power and disposal issues also offered an additional hurdle for the company. The variation of gasses in quantity, temperature, and chemical content, such as those produced by diesel, does not allow modern technology equipment to capture or modify this output effectively. Prince Edward Island levies steep recycling charges for the disposal of metal or other waste products, so modifications on-site would be very costly. By providing installation-ready, bayed TS 8 enclosures, which housed the ultra-capacitors and power for the generators, the hybrid drill floor provides reserve capacity to supply power for transient loads that exceed the capacity of the diesel generators currently online.

Implementation

AKA's hybrid drill floor, the first of its kind operating on five Transocean ultra-deepwater drill ships, was successfully deployed aboard the Deepwater Thalassa in the Gulf of Mexico. This system can respond to load demand changes safely and instantaneously, changing between charging and discharging states in milliseconds. It can quickly charge and discharge energy with minimal heat generation and lower emissions.

"The future for AKA in oil and gas trends towards greener technology and hybrid design, and that's what we offer. We consider ourselves to be on the leading edge of advancement in technology and drilling."

– AKA CEO Jason Aspen

The Results

The results of this collaboration were immediate and impactful. With the installation of the Rittal enclosures, AKA experienced a range of benefits, including:
Safety: With fewer diesels in operation at any time, there has been a significant reduction in injuries and spills associated with fuel and other fluid handling. With the smoother transition and elimination of dangerous E-stops, workers have been protected and avoided harm.
Flexibility: An additional benefit has become apparent since the implementation of Rittal enclosures; they found that if they created, for example, a drilling switchboard, they needed a flexible enclosure to fit into a size that their client would specify. Without control over the footprint, they were able to adapt the enclosure to the space available. With the cabinets available in an EMC rating, they complied exactly with the client's specifications. The enclosure construction was designed to reduce scaling and corrosion on wetted parts and helps retain heat transfer efficiency. Again, the solid construction aided in lowering maintenance hours.
Sustainability: Eco-benefits rate high among ongoing initiatives for AKA. With the Rittal enclosures, the reduced fuel consumption has lowered both fuel consumption and emissions. With an effective combination of diesel and intermediate power storage, they have also been able to reduce the release of harmful gases into the atmosphere. A common bus that allows some generators to remain in standby condition, rather than constant operation, reduced hours of machine wear and fouling on each generator. The increased standby time has reduced individual part wear, resulting in lower replacement costs, fewer maintenance hours, and improved emissions.

In all their marine and offshore drilling operations, AKA's systems are designed to increase reliability while reducing the risk of negative environmental impact. Like Rittal, they strive for maximum efficiency, not only from a cost standpoint, but from the impact of the corporate footprint.

Conclusion

As the Hybrid Power Initiative supports both ongoing growth and sustainability, AKA continues to rely on the TS 8 bayed enclosure system for reliability, safety, and more. AKA has cataloged a number of hybrid power system improvements as their fleet of enclosures has grown.

AKA CEO Jason Aspen said, "*We've had a good experience [and] relationship with Rittal. Since we're still using Rittal products and [have] been using them for so long, [it has] integrated into our manufacturing practices.*"

Aspen continued, "*The future for AKA in oil and gas trends towards greener technology and hybrid design, and that's what we offer. We consider ourselves to be on the leading edge of advancement in technology and drilling.*"

AKA is transferring their innovative technologies to land-based microgrid solutions. These may include any kind of microgrid, such as a smart grid for distribution, or a remote location or island power plant. Finding the benefits of these enclosures moved Rittal to the top of the specification list for AKA. By helping AKA adhere to their stringent green initiatives, they could show a reduction in their carbon footprint. With each installation, AKA found the TS 8 maintained the performance qualities that they demanded. As AKA explores new installations, their plans include Rittal.

As the oil and gas industry as a whole looks to the future, new drilling and extraction technologies will most likely combine even more IoT innovations. Both sustainability and clean energy will remain a focus for AKA and Rittal. Corporate strategies will likely lead to continued cooperation in projects both on land and sea for these companies.

Contact Rittal for Sustainable Power Distribution

If your business is facing challenges like integrating advanced technologies in harsh environments or meeting stringent sustainability goals with your power distribution systems, then simply contact Rittal today. Our innovative, reliable, and cost-effective solutions alongside our industry expertise in customized enclosures and climate control systems can help ensure the protection, efficiency, and longevity of your critical assets. Partner with Rittal to drive your industry forward with confidence and sustainability.

About Rittal LLC

Rittal LLC is a global manufacturer of industrial and IT enclosures, racks, and accessories, including cooling solutions and power management systems for industrial, data center, outdoor, and hybrid applications. As the largest manufacturer of enclosures in the world, Rittal provides innovative, high-quality solutions for practically any industrial or IT infrastructure application, from single enclosures to comprehensive, mission critical systems. Products are tested and certified to the appropriate standards that apply, including UL, CSA, ATEX, NEMA, and more. **Learn more at rittal.us**.

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