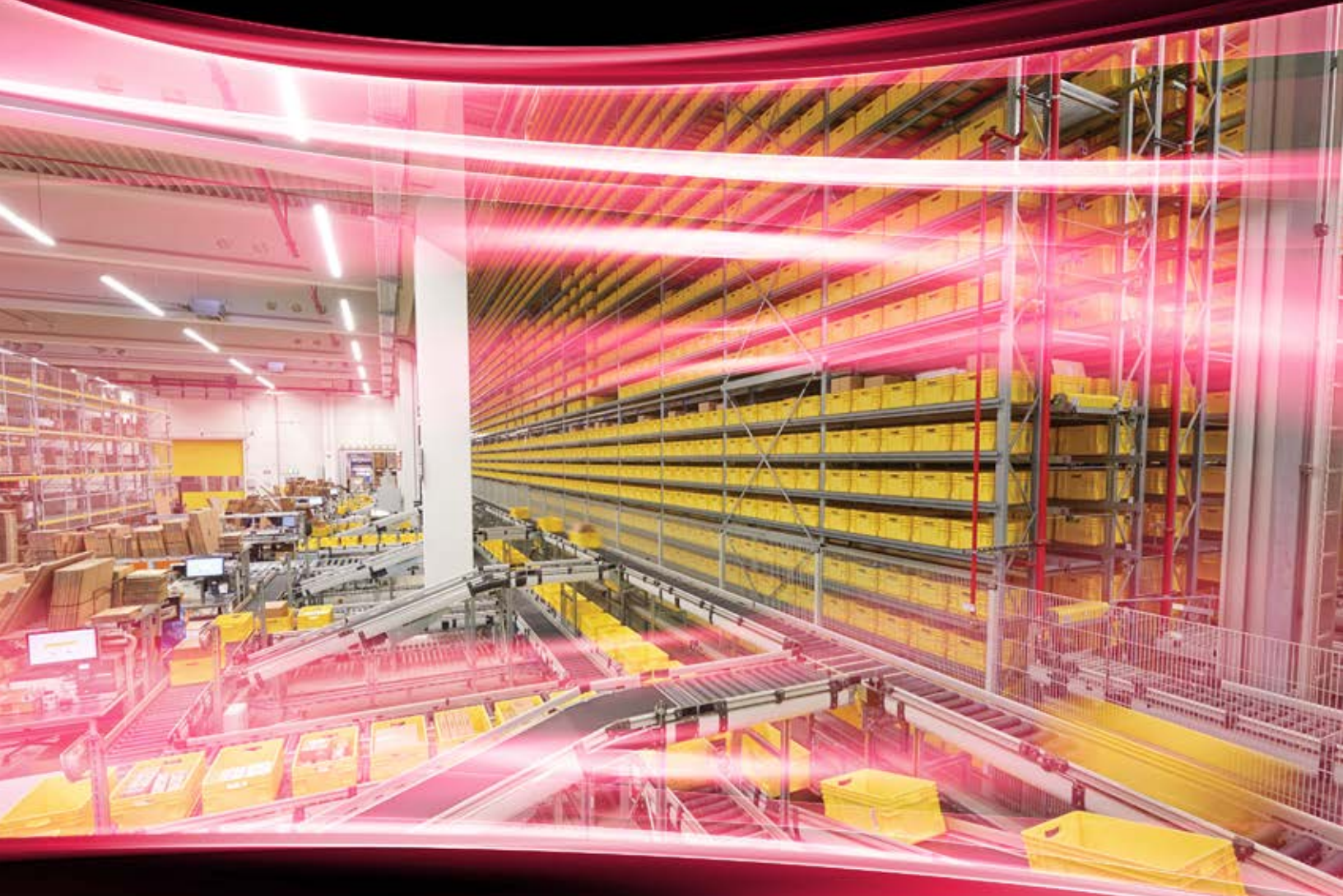


Rittal – The System.

Faster – better – everywhere.

SOLUTIONS SUITE

RETAIL & LOGISTICS



ENCLOSURES

POWER DISTRIBUTION

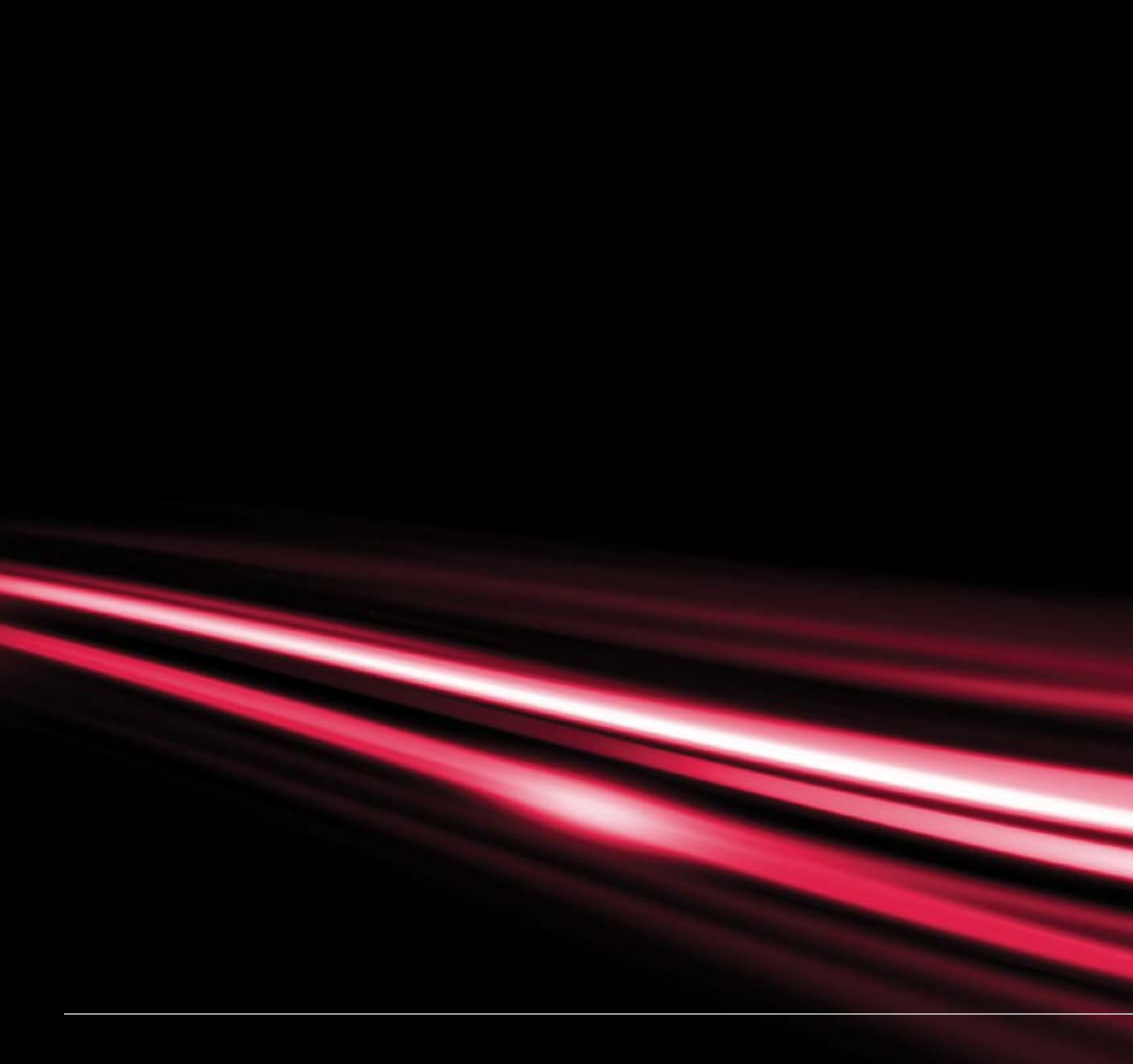
CLIMATE CONTROL

IT INFRASTRUCTURE

SOFTWARE & SERVICES

FRIEDHELM LOH GROUP







SOLUTIONS SUITE

RETAIL & LOGISTICS

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TRACKING THE ROUTE TOWARD ULTIMATE EFFICIENCY

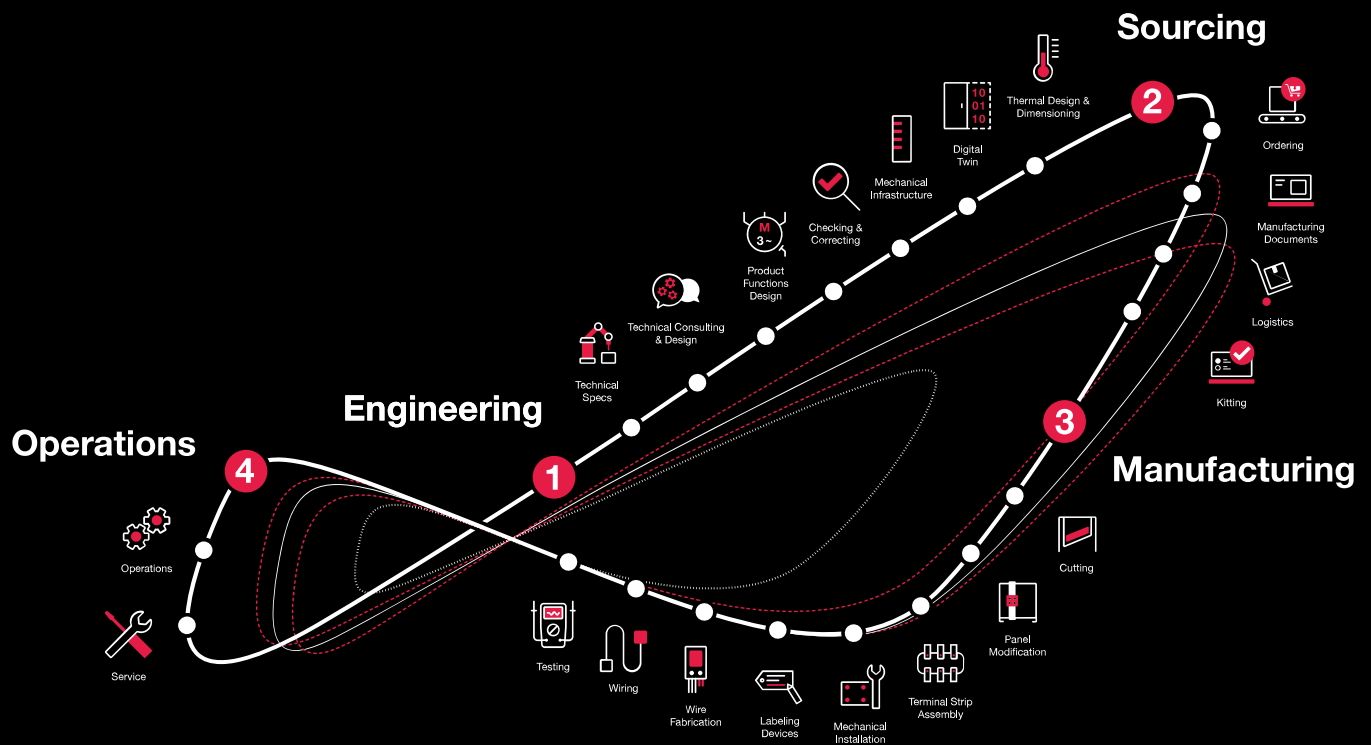
Rittal's Retail and Logistics suite of enclosures, climate control systems, IT network/server cabinets, and industrial automation solutions are designed to help retail and logistics companies embrace opportunities for simplified production practices that help to accelerate throughput and address the needs and challenges of such industry trends as:

- **Supply chain management:** With multiple facilities online at any given time across the globe, sourcing the necessary components to keep these logistics centers operating at peak efficiency without lag or downtime is critical to helping ensure the stability and viability of a company's overall value chain.
- **Industry 4.0:** IoT-enabled devices create a smart production facility where decisions and plans are made in a proactive as opposed to a reactive manner for greater degrees of flexibility and agility, readying companies for shifts in demand or production variables. The end goal is to increase efficiency and profitability.
- **Power distribution:** The global shift to busbar power distribution has changed the game in terms of regulatory compliance while also increasing the capacity for more reliable, cost-effective power distribution to mission-critical machines like conveyors, robots, sorting equipment, and more.
- **Facility/warehouse regulations:** Whether by country or region, the geographic diversification in retail and logistics presents a myriad of challenges in terms of compliance with respect to warehouse conditions, equipment specifications, energy consumption, and safety protocols.
- **NEMA/IP protection ratings:** Harsh environmental conditions, unique installations, and voltages required to operate the electronics for seamless logistics processes mean enclosures, junction boxes, terminal boxes, and network/server cabinets must safely house sensitive hardware to help ensure a long service life of components.
- **Compact installation:** Warehouse space is at a premium and this is likely to persist given the shift in consumer buying behavior. With more parcels in the pipeline, retail and logistics companies need compact installations of enclosures, IT network/server cabinets, and climate control solutions to maximize space and integrate powerful automation frameworks.
- **Automation:** The integrated planning, production, modification, and deployment of warehouse infrastructure such as electrical enclosures, climate control, and IT network/server cabinets create a transparent production cycle, helping to identify redundancies, streamline workflows, and reduce energy use and production costs.
- **Global competition:** As new markets emerge and consumer demand for speed and diverse products increases, competition in the retail and logistics space has risen to a global level with new players from around the world.

THE AUTOMATED PRODUCTION SEQUENCE

Rittal and EPLAN provide an industrial automation system that not only reduces the complexity of multi-stream production programs but also provides retail and logistics companies with enhanced insight into their existing workflows to identify redundancies and optimize processes.

Rittal's optimized industrial automation production sequence allows companies to seamlessly pass the proverbial baton between each stage of production in the relay race that is today's logistics industry. Each movement is coordinated with the next, leveraging Industry 4.0, IoT, modular thinking, and a data-driven philosophy to achieve true end-to-end efficiency.





THE PLANNING STAGE



EPLAN

The traditional panel-building and switchgear production process involves manual interventions and tasks that plant engineers and integrators simply do not have the time or bandwidth to address. EPLAN's powerful line of computer-aided engineering (CAE) software offers holistic automation for panel building and switchgear manufacturing at each stage of the process, from design and material sourcing to engineering and modification.

EPLAN Electric P8

CAE platform for electrical controls design — digitalized project data forms the foundation for the automated creation of machine and plant documentation

EPLAN Pro Panel

Design and build control cabinets, switchgear systems and power distribution systems for energy supply, all in 3D

EPLAN Data Portal

Integrated, web-based data portal with up-to-date device data from leading component manufacturers

EPLAN ePULSE

Secure cloud solution connects data, projects, disciplines, and engineers worldwide in a collaborative environment

EPLAN Engineering Configuration (EEC)

Tool for designing and applying configuration interfaces and for automatically generating documentation

EPLAN Preplanning

CAE software that enables you to capture engineering data from the start of the pre-planning phase, for example, the actuators and sensors for a plant, machine, or building

EPLAN's powerful software makes it easier than ever before to create, store, share, and modify panel and switchgear schematics. This software leverages a component article database and digital twins to ensure that designs exist in a single place.



QUICK & EASY MODIFICATION

MODIFICATION CENTERS

Rittal's network of modification centers provide fast, precise, and custom modifications on a nationwide scale. Our modification centers work seamlessly in EPLAN's design suite to offer maximum visibility into the entire process from design to deployment in order to save both time and money. We use our own Rittal Automation Systems machines and tools to streamline the entire enclosure assembly process and ensure accuracy and quality, every time.

With modification centers and warehouses in Sparks, Nevada; Houston, Texas; and Urbana, Ohio, logistics companies from coast to coast have access to Rittal Automation Systems Perforex machines for precise and cost-effective cuts, holes, drilling, and other panel modifications, as well as our large distribution network for quick delivery, regardless of your location.

When working with our modification centers, leverage our rapid modification programs for even faster turnarounds.

5X Modification Program

Available to customers within 400 miles of our Houston Modification Center, our 5X Modification Program includes stainless and carbon steel wallmount and junction box modifications such as holes, tapped holes, and cutouts of up to 5 enclosures with a shipping time of less than 5 days.

primeXPRESS Program

With a turnaround time of just 15 days, the primeXPRESS Program offers holes, cutouts, and installation of accessories for a variety of enclosures including our popular WM, AX, JB, and TS 8 models in both stainless and carbon steel.

Rittal Automation Systems

Designed to streamline the entire enclosure assembly process, Rittal Automation Systems tools and machines increase the accuracy and repeatability of such manual tasks as machining, and wire processing, to improve the quality of enclosure assembly and help ensure enclosed electronics operate at optimal levels.



PRODUCTS DESIGNED FOR **INDUSTRIAL AUTOMATION**

The Retail & Logistics industry is facing numerous challenges in today's market. Warehouses and distribution centers need fast, scalable, easy-to-use products and solutions that are durable enough for long service life but flexible enough to adapt to changes in workflows, especially as increases in e-commerce mean distribution centers are running 24/7.

Rittal's line of innovative industrial enclosures can meet these challenges, and our line of enclosure accessories make Rittal a one-stop-shop for material handlers in future-proofing their facilities, workflows, and processes. Digitalized design, efficient engineering, and world-class modification services for industrial panel building and switchgear manufacturing give material handlers the ability to work in a more proactive way to stay ahead of the competition and market forces.

Wallmount Enclosures

Stainless and carbon steel WM/JB construction provide the maximum durability and protection for the electronic components inside the enclosure. The brand new AX/KX line of industrial enclosures is designed with Industry 4.0 and IoT principles in mind to provide end-to-end efficiency for deployment in sophisticated industrial automation systems. This innovative design is available in both steel- and fiberglass-reinforced polyester, offering increased cable density and a new packaging concept, saving both time and cost. NEMA and IP ratings are ensured through a secure locking system and foamed-in-place gasket. These enclosures come with mounting panel included and are made with best-in-class optimum surface finish.



PRODUCTS DESIGNED FOR INDUSTRIAL AUTOMATION

FREE-STANDING AND MODULAR ENCLOSURE SYSTEMS

As production programs continue to diversify relative to consumer demands, companies need to protect and secure more sophisticated wiring and electronic components to help power more varied production. Rittal's line of free-standing and modular enclosures provide more flexibility compared to unibody designs. UL 508A Certified flange mount disconnect enclosures, such as the TS 8, help to ensure arc flash safety and security with one simple switch as doors cannot be opened while the system is energized..

TS 8 Modular Enclosure System

The industry standard in modular enclosures, the TS 8 is available in both stainless and carbon steel material for use in harsh environmental conditions as well as in indoor/outdoor applications. With a maximum weight capacity of 3,000 pounds, 4X NEMA, and IP 66 rating, the TS 8 is a workhorse. Plus, baying options on all sides due to a robust 16-fold tubular frame system allow for easy integration, endless configuration, and ultimate scalability.

VX SE Freestanding Enclosure

When space is limited but a compact enclosure is too small, the VX SE enclosure provides the best of both worlds. With widths up to 1,800 mm and space-saving depths starting at 300 mm, the VX SE is available in both carbon and stainless steel and comes with a protection category up to NEMA 4/4X and IP 66.



IT Network/Server Cabinets

For installations in traditional IT spaces, the TS IT Pro family of enclosures sets the industry standard in flexibility and scalability. The TS IT Pro provides maximum airflow and efficient cable management for quick and easy installation for use in the automotive space. With high density cooling and power distribution capability, the TS IT Pro is the next level in network/server enclosures.

ENCLOSURE ACCESSORIES

To supplement the modularity and flexibility of Rittal enclosure systems, accessories such as enclosure walls and panels, door locks, interior fittings, task lighting, and cable routing help you customize the enclosure that is perfect for your application.

HMI (Human Machine Interface)

NEMA-rated carbon steel and stainless steel HMI consoles allow for process automation and the implementation of Industry 4.0 principles while providing durability and contamination prevention. NEMA 4/4X and IP 66 rated, Rittal carbon steel and stainless steel pushbutton boxes are engineered to protect equipment from dirt, dust, sprayed water, oil, and coolants.

BUSBAR POWER DISTRIBUTION

When it comes to future-oriented solutions for modern low voltage power distribution used in retail and logistics applications, you are on the right track with Rittal busbar systems. RiLine is a flexible 60 mm system, assembly-friendly, time-saving, individual, and modular. Warehouse and production facilities in the retail and logistics industry will benefit from RiLine busbar technology as it is versatile for a wide range of applications, has individual modularity, and is tested for safe operation.

Rittal also offers RiLine Compact system for low amperage applications that is based on a board with integral circuit board conductors and a contact pitch pattern throughout. The board and all components are easily top-mounted; no tools required. Securing the components simultaneously helps ensure a secure electrical connection to the all-round shock-hazard-protected board. The contact pitch pattern of the RiLine Compact system allows the assemblies to be positioned wherever they are required.

CLIMATE CONTROL SYSTEMS

With an emphasis on automation, network connectivity, analytics, and actionable data, Rittal's climate control solutions offer more power and control over one of the most critical elements of a warehouse or production facility: maintaining efficient, consistent cooling for enclosures and electronics.

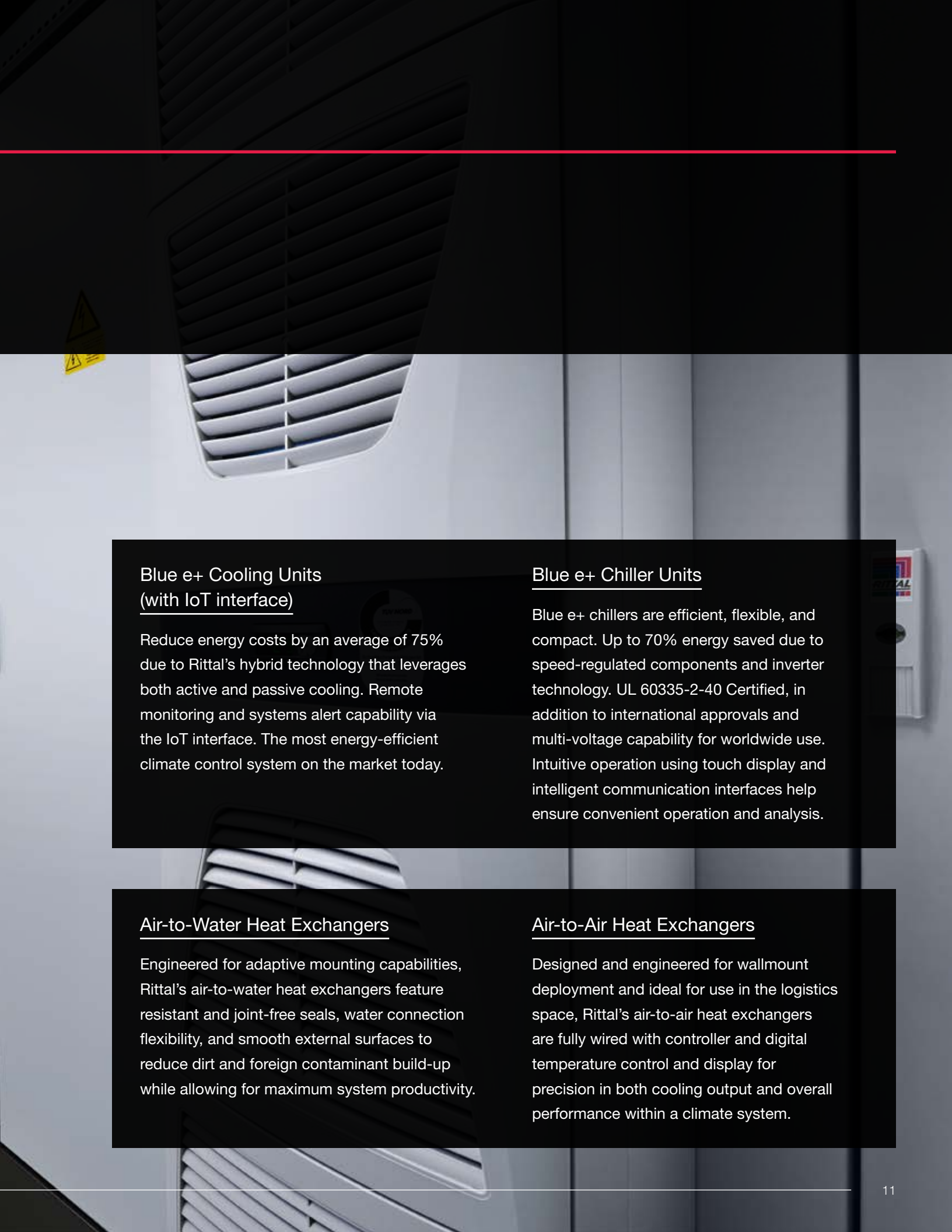


TopTherm Filter Fan Units

Engineered for tool-free mounting on surfaces, Rittal's TopTherm fan cooling units feature an air throughput from 20 - 900 m³/h. Standard IP 54 rating provides the necessary protection for deployment in warehouses and distribution centers. Air flow spreads diagonally from the fan, promoting even air distribution throughout the enclosure.

Cooling Unit Accessories

Rittal's complete line of climate control and cooling unit accessories including filter systems, air routing, water cooling, climate mounting, spare parts, and communication integrations provide the critical supplements necessary to deploy a fully-automated, energy-efficient cooling solution that curbs energy consumption and reduces cost.



Blue e+ Cooling Units (with IoT interface)

Reduce energy costs by an average of 75% due to Rittal's hybrid technology that leverages both active and passive cooling. Remote monitoring and systems alert capability via the IoT interface. The most energy-efficient climate control system on the market today.

Blue e+ Chiller Units

Blue e+ chillers are efficient, flexible, and compact. Up to 70% energy saved due to speed-regulated components and inverter technology. UL 60335-2-40 Certified, in addition to international approvals and multi-voltage capability for worldwide use. Intuitive operation using touch display and intelligent communication interfaces help ensure convenient operation and analysis.

Air-to-Water Heat Exchangers

Engineered for adaptive mounting capabilities, Rittal's air-to-water heat exchangers feature resistant and joint-free seals, water connection flexibility, and smooth external surfaces to reduce dirt and foreign contaminant build-up while allowing for maximum system productivity.

Air-to-Air Heat Exchangers

Designed and engineered for wallmount deployment and ideal for use in the logistics space, Rittal's air-to-air heat exchangers are fully wired with controller and digital temperature control and display for precision in both cooling output and overall performance within a climate system.



For retail and logistics companies, fast and reliable order fulfillment is the key to building consistency and customer loyalty. As a result, automation systems are crucial to each facility. To facilitate the movement of data necessary for real-time decision making, critical IT equipment is placed on the warehouse floor with no environmental protection – otherwise known as Edge Computing. The logistics space has embraced Edge Computing, which helps companies store and retrieve real-time data as close to the source as possible.


Edge Computing solutions benefit retail and logistics companies by reducing latency to help ensure uptime and reducing energy consumption to minimize their carbon footprint and operational costs. The Edge deployment itself is a complete system built around sensors, optimizing data analysis allowing companies to make well-informed, real-time decisions.

CMC III/ Security & Monitoring

Edge Installations are often in remote, secluded locations without the multi-layer physical security found in traditional data centers. Rittal's Computer Multi Control (CMC) provides remote web-based monitoring of intrusion, environmental conditions, and access control that seamlessly integrates with building management and industrial controls.

Blue e+ Air Conditioners

When managing large buildings with complex infrastructure, energy efficiency delivered by the Blue e+ contributes significantly to the bottom line. When used in combination with the IoT module, it allows facility managers to centralize their monitoring and controls, as well as providing predictive insight into the system performance and future requirements.



Liquid Cooling Package

Whether the need be single or multi-rack deployment, organizations are turning to liquid cooling solutions to eliminate the risk of IT failure with high density deployments at the Edge. Liquid cooling is one of the most efficient and cost-effective ways to remove heat.

Rittal's direct expansion in row liquid cooling package (LCP DX) removes heat from one or two adjacent IT network/server cabinets. The LCP DX uses sealed cabinets to help ensure cold air is not wasted where it is not needed and hot air is captured and removed.

Edge Standalone Platforms

To support Edge Computing and Industry 4.0, Rittal developed a series of pre-engineered solutions for deployment in every space that is not a data center. Using TS 8 enclosures, these systems include climate control (Blue e+ or LCP DX), UPS and PDUs, CMCIII monitoring and control, and DET AC fire suppression subsystems. All Edge standalone platforms use enclosures that are designed to be deployed in the harshest environments and provide high levels of protection against dust, dirt, water, and other contaminants.

Power Distribution Systems (PDU)

Rittal's wide range of power distribution systems (PDU) allows for manufacturers to select the appropriate product from basic to managed power distribution units with features such as tool-less installations in the zero-U-space.

EXPLORE SOLUTIONS

Whether you're upgrading your enclosures, evaluating your climate control options, or opening a new automated distribution center, leverage Rittal's industrial automation expertise to outfit your facilities with industrial automation solutions engineered for material handling in retail and logistics.

We provide industry-leading service and support for industry-leading products and solutions. With digital tools to help you select the right solution for your retail and logistics application, streamlined procurement of parts and service for faster delivery, and system analysis and consultation to help you identify areas of inefficiency and redundancy, Rittal is there to help boost your efficiency, minimize downtime, and grow your business. With more than 150 service locations and more than 1,000 technicians across the globe, our service teams can bring our

industrial automation and IT expertise to you.

Explore our solutions at [**RITTAL.COM**](https://www.rittal.com)



Rittal – The System.

Faster – better – everywhere.

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

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