

**Rittal – The System.**

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# International Automobile Manufacturer

**CASE STUDY**  
**Automotive  
Manufacturing**



In industrial automation, data is the lifeblood that drives efficiency, accuracy, and predictive maintenance. Immediate and uninterrupted access to data is imperative for ensuring optimal performance, minimizing downtime, and enabling real-time decision-making. Without constant data flow, the automation systems cannot adapt to changes or detect issues promptly, leading to potential disruptions and decreased productivity.

An international automobile manufacturer with operations in Southern California sought to enhance its factory automation by bringing IT processing closer to the factory floor. However, constructing a new facility with integrated IT infrastructure was not feasible.

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# THE PROJECT

## The challenge

- Integrate IT servers in harsh industrial environments
- Ensure energy efficiency and cost-effectiveness

## The solution

- Rittal LCP DX for efficient cooling
- Closed-loop system for contaminant-free edge computing



## Introduction

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## The Challenge

The challenge for the auto manufacturer was to integrate IT equipment within the existing space while ensuring it was protected from the harsh manufacturing environment. The customer needed a solution that provided energy efficiency, cost-effectiveness, streamlined operations, and climate control.

The manufacturer's automation and robotics on the factory floor also required reliable sensors and networking equipment to ensure uptime, efficiency, and centralization of

control. Initially, the customer attempted to establish a data center on the factory floor using a competitor's equipment. However, this setup used an AC unit with a filtration system that drew air from the surrounding environment, resulting in inadequate protection at a NEMA-rated level. Consequently, warm air and debris entered the data center, leading to frequent filter changes and higher failure rates, which made the solution expensive and unsustainable. The customer needed a better solution that could withstand the harsh environment without becoming cost-prohibitive.

## The Rittal Solution

Rittal provided the LCP DX rack cooling system as the solution to ensure contaminants were kept out while regulating the temperature for smooth operations. The LCP DX is designed for minimal power consumption and optimal use of indirect free cooling, making it ideal for small to medium IT installations. With a cooling output of 12 kW, the capability to cool up to two server racks, and controls via an inverter, the LCP DX is ideal for IT-compatible cooling and regulating the server inlet air temperature. The external unit dissipates thermal energy directly to the exterior air, preventing the server rack installation location from heating up.

The LCP DX system directs all cold air to the IT equipment inlets, supplying evenly cooled air to the complete height of the enclosure and avoiding temperature gradients. This design is ideal for handling large thermal loads and power density challenges in uncontrolled environments. With solid roofs, rear, and side walls, the LCP DX provided a reliable closed-loop solution that delivered significant energy savings thanks to improved thermal efficiency.

## Implementation

The manufacturer has two scheduled production shutdowns per year—one during the summer and another near the year-end holidays—to implement new solutions. Rittal specified the LCP DX and had it ready for installation three months before the summer shutdown. The installation took three days during the shutdown and provided immediate benefits that addressed the manufacturer's needs for energy efficiency, reliability, and design flexibility.

## The Results

Implementation of the LCP DX resulted with key benefits:

**Space Saving:** The LCP DX replaced room-based climate control systems and operated solely within the enclosure configuration, saving valuable space

**Flexibility:** Designed to operate year-round in changing environmental conditions, the LCP DX ensured continuous reliable operation

**Energy Efficiency:** The closed-loop system contained and controlled all air, lowering energy requirements and improving thermal efficiency

**Future-Proof:** Capable of handling a broad range of thermal loads, the LCP DX is designed to meet current and future demands

**Design Flexibility:** The system can operate with any aisle and row orientation, offering flexibility in design and installation

A second unit was installed during the year-end shutdown, and a third unit was scheduled for installation during the following summer.

## Conclusion

The integration of the LCP DX into the manufacturer's operations marked a significant improvement over the previous setup. This future-proof solution provided energy and space efficiency, greater reliability, and design flexibility. By ensuring a stable environment with proper cooling, the LCP DX reduced downtime and allowed for the expansion of the manufacturer's system. The manufacturer continues to benefit from Rittal's innovative solutions, planning further expansions to optimize operations and maintain a competitive edge in the industry.

## Contact Rittal for Sustainable Power Distribution

If your business is facing challenges like integrating IT equipment into harsh industrial environments to improve automation, contact Rittal today. Our innovative and modular solutions are designed to protect your assets, minimize downtime, and support your growth. With Rittal, you can future-proof your operations and maintain a competitive edge in your industry.

## 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](http://www.rittal.us).

You can find the contact details of all Rittal companies throughout the world here.



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