

Customized Cold Aisle Explosion-Proof Type

Product parameters



Overview

ATEX-certified explosion-proof cold rooms by XNAIR. Precision temperature control (-40°C to +30°C) for electronics storage in hazardous areas. Design,...

Key Takeaways

Custom cold aisle containment systems can be engineered with explosion-proof features using robust materials, modular designs, and tailored airflow management to meet specific safety and operational requirements.

Overview of Cold Aisle Containment

Cold aisle containment (CAC) systems are designed to enclose the cold supply air within a data center aisle, preventing it from mixing with hot exhaust air. This ensures servers receive a consistent supply of cooled air, improving efficiency and reliability while reducing energy consumption (Tate, Maysteel, Kaltgang Warmgang). Custom systems can be tailored in length, width, and height to match your facility layout, with options for sliding or hinged doors, roof panels, and gasketed seals to optimize containment performance.

Customization for Explosion-Proof Environments



To adapt a cold aisle containment system for explosion-proof applications, consider the following:

- Materials:** Use steel or aluminum frames with polycarbonate or metal panels that are fire-resistant, anti-static, and capable of withstanding pressure surges.
- Sealing:** Incorporate gasketed seals and self-closing doors to prevent leakage of flammable gases and maintain controlled airflow.
- Modular Design:** Modular or T-slot aluminum extrusion systems allow for scalable and flexible layouts, enabling retrofits or expansions without compromising safety.

Airflow Management: Ensure the system directs cold air efficiently to server racks while isolating hot air, minimizing hotspots and reducing the risk of ignition in volatile environments. **Compliance:** Design the system to meet ATEX, NFPA, or local explosion-proof standards, including grounding and bonding to prevent static discharge. **Benefits of a Customized Explosion-Proof CAC:** Enhanced Safety: Reduces the risk of ignition in hazardous environments.

Energy Efficiency: Maintains precise temperature control, improving CRAC/CRAH unit efficiency. **Operational Flexibility:** Customizable panels, doors, and end-of-row kits allow integration with existing racks and raised floor systems. **Scalability:** Modular designs enable future expansion or reconfiguration without major downtime.

Implementation Considerations

Conduct a site-specific risk assessment to determine the level of explosion-proof protection required. Collaborate with manufacturers experienced in custom containment solutions to ensure compliance with safety standards and optimal airflow design. Consider integration with fire suppression systems and monitoring sensors for hazardous environments.

By combining custom engineering, robust materials, and modular design, a cold aisle containment system can be effectively adapted for explosion-proof applications, ensuring both safety and operational efficiency in high-risk data center environments.

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AISLE CONTAINMENT

Aisle containment in the data center requires that cabinets are aligned in a hot aisle/cold aisle layout. Containment panels or strips create a partition to isolate either the server supply air (cold aisle

How Explosion-Proof Equipment Works: Design Principles & Safety

Explosion-Proof Equipment uses robust design and safety mechanisms to prevent ignition and contain hazards, ensuring compliance in dangerous environments.

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