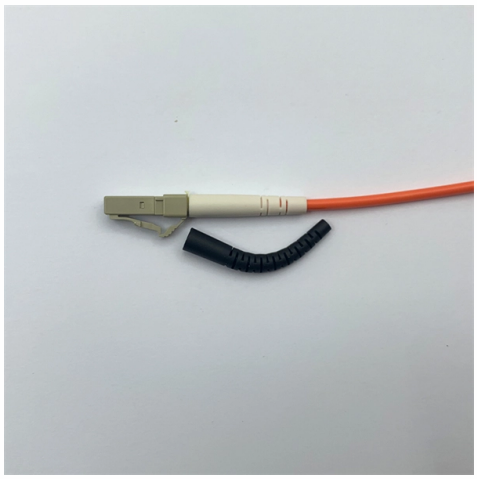
Computer room cold aisle access window



Overview

Specify complete aisle containment systems for data centers, edge facilities and high-density compute rooms.

Key Takeaways

Cold aisle access windows in data centers are typically transparent polycarbonate panels integrated into containment doors, allowing visual monitoring while maintaining efficient airflow separation.

Purpose and Function

Cold aisle containment (CAC) systems enclose the cold supply air within a designated aisle, preventing it from mixing with hot exhaust air. Access windows in these systems serve two main purposes: they allow staff to visually inspect servers without opening the containment doors, and they maintain the airtight separation necessary for optimal cooling efficiency and energy savings. By preventing hot and cold air mixing, these windows help CRAC or CRAH units operate more efficiently.

Materials and Design

Most cold aisle access windows are made from Lexan (polycarbonate) or other durable transparent materials. These panels are integrated into sliding or hinged doors and are designed to withstand the operational environment of a data center. The doors may be single or double, and the panels are often full-height to maximize visibility while maintaining containment integrity.

Gasketed seals and robust aluminum frames are commonly used to ensure airtight performance.

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Installation Considerations

Uniform Rack Heights: For modular systems with integrated windows, the racks along the aisle should have uniform heights to ensure proper alignment of the containment doors and windows. Custom Fit: CAC systems, including access windows, are often custom-engineered to match the dimensions of the data hall, including aisle width, length, and ceiling height. Maintenance Access: Panels are designed to be removable or openable to allow servicing of equipment without compromising containment.

Benefits

Energy Efficiency: By maintaining separation of hot and cold air, access windows help reduce fan speeds and allow higher chilled water temperatures, improving overall energy efficiency. Safety and Monitoring: Transparent panels allow staff to monitor equipment status without entering the aisle, reducing the risk of disrupting airflow or exposing personnel to hot aisles. Flexibility: Modular containment systems with access windows can be adapted to retrofit existing data centers or integrated into new builds.

In summary, cold aisle access windows are a critical component of containment doors, providing visibility, safety, and operational efficiency while preserving the thermal separation essential for effective data center cooling.

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In this guide, we''ll break down how hot aisle and cold aisle configurations work, what containment systems do, and why airflow management is critical in today''s high-density data centers.

Aisle Containment

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With cooling provided through a raised floor, this cold aisle containment project uses rigid wall panels in conjunction with the Polar Cap 2 roof system to provide

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Containment

Our range of aisle containment provides cost-effective and energy-efficient solutions for maximising performance. Containment solutions from Tate reduce costs by increasing adaptability for future

Data Center Aisle Containment

Traditional open aisle data centers use perimeter PAC (precision air conditioning) or CRAC (computer room air conditioning) units to channel cold air up through a

Move to a Hot Aisle/Cold Aisle Layout

A Time-tested Technique The hot aisle /cold aisle data center layout was originated by IBM in 1992 and it is one of the oldest ways to save energy in the data center. 1 Hot aisle/cold aisle layout involves

FOCUSED COOLING USING COLD AISLE CONTAINMENT

While either hot aisle or cold aisle containment systems can be installed and are both capable of increasing efficiency and cooling today''s high heat data centers, meaningful differences exist in how

AirBlock Containment Curtains and Strip Doors

With hot aisle cold aisle isolation you can depend on easy-to-deploy data center partitions with superior safety features and high quality. AirBlock Data Center Curtains were developed with a singular goal:

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Hot aisle containment is used to capture and direct hot exhaust air back to the cooling units. This popular option is ideal for data centers looking to maximize efficiency as it prevents hot and cold air

Aisle Containment Systems for Hot & Cold Aisle Solutions

Cool Shield Aisle containment solutions reduces server row temperatures in active data centers. Learn more about the benefits of hot and cold containment.

Aisle Containment Systems Physical Containment Systems Selection

Hot aisle/cold aisle configuration is a best practice solution that separates hot and cold air streams. This method raises the temperature of the air returning to a Computer Room Air Conditioner (CRAC) unit,

The pros and cons of hot and cold aisle containment

With data centres and computer server rooms becoming larger and more numerous companies are often faced with a decision: what is most suitable for their circumstances, hot or cold aisle

Hot vs Cold Aisle Containment: Which Datacenter Cooling Strategy Is ...

Additionally, cold aisle containment integrates seamlessly with overhead cooling systems and can be implemented with various ceiling heights, offering flexibility for different datacenter

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