

Article Overview

Cold aisle containment systems use flame-retardant materials like polycarbonate and acrylic, with modular designs and customizable configurations to optimize airflow and safety in data centers.

Materials and Flame Retardant Specifications

Cold aisle containment (CAC) systems are typically constructed from flame-rated plastics such as twinwall polycarbonate, solid polycarbonate, and acrylic sheets. These materials are lightweight, impact-resistant, and engineered to meet fire safety standards, ensuring protection for mission-critical equipment while maintaining airflow efficiency . Polycarbonate panels are commonly used for their high durability and flame-retardant properties, and they can be cut to size for both hot and cold aisle partitions . Aluminum frames often support these panels, providing structural stability .

Models and Configurations

Several manufacturers offer modular and customizable CAC systems:

- o Nucor Data Systems' ADVANCED AISLE(TM) Containment System: Offers modular sliding or swinging doors, optional soft self-closing mechanisms, and hold-open provisions. Aisle widths range from 36" to 96", with standard colors in black, glacier white, or gray, and custom colors available .
- o Tate Cold Aisle Containment: Features aluminum frames with polycarbonate panels, customizable length, width, and height to fit any data hall layout. Options include single or double doors, sliding or hinged doors, roof panels, and gasketed seals to optimize containment performance .
- o Rittal Aisle Containment: Provides door and roof components to separate hot and cold air, enhancing climate control efficiency. Can be used for hot or cold aisle containment .
- o Acme Plastics: Supplies cut-to-size twinwall polycarbonate and acrylic sheets for both new builds and retrofits, supporting overhead barriers and aisle partitions .

Design and Planning Tools

For planning and integration, some vendors provide 3D CAD models and computational fluid dynamics (CFD) files to simulate airflow and optimize containment layouts . This allows precise fitting of containment systems to existing or new data center designs.

Key Benefits

- o Enhanced cooling efficiency by preventing hot and cold air mixing

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- o Flame-retardant safety to meet fire codes and protect equipment
- o Customizable modular designs for various aisle widths and layouts
- o Ease of installation and retrofit for existing data centers Cold aisle containment systems combine fire safety, airflow optimization, and flexible design, making them essential for modern high-density data centers.

Data Clean Asia has been the leading manufacturer of hot aisle containment solutions for new data center construction and retrofits,

The Seal-Tech Advantage This clean anodized aluminum mounting system provides for rapid and non-disruptive installation in new

Existing Fire Systems - - - Maintain standards with applicable Reacceptance installation 5.7.7* Where aisle containment systems

Cool Shield Aisle containment solutions reduces server row temperatures in active data centers. Learn

We have extensive experience working on aisle containment solutions for both existing and newly built data centers. In existing data

Each of these give guidance on hazard, wood species, condition and cutting after treatment and selection of flame retardant, and

Aisle Master is dedicated to enhancing operations in cold storage with our specialized Cold Store Aisle Master forklift. This model

Product Vertiv(TM) Aisle Containment Freestanding, Rack-independent system with the flexibility to maximize efficiency and capacity

Shrink-away ceiling panels are heat activated at 165° F and are designed to shrink and drop away in the event of a fire, allowing the

Why LEXANTM THERMOCLEAR™ Multiwall Polycarbonate? • Fire Performance. Good fire behavior characteristics, meeting

Aisle Containment Systems by Vertiv™ Aisle Containment is the logical extension of the hot aisle/cold aisle concept of data center

The Fire Protection Research Foundation undertook a project with the goals of (a) developing an

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understanding of the operational

Alleviates hot spots and improves cooling system efficiency for maximum reliability and power usage effectiveness Cold-Aisle

Adaptable to hot and cold aisle containment, the Vertiv Aisle Containment System allows you to deploy containment before racks are

By maintaining consistent, predictable temperatures, cold aisle containment minimizes thermal stress and reduces the risk of

Aisle containment in the data center requires that cabinets are aligned in a hot aisle/cold aisle layout. Containment panels or strips

Web: <https://www.kremgroup.co.za>

