# Certification Rack Cold Aisle Servers

Article Overview

Cold aisle containment ensures servers receive consistent cooling, improves energy efficiency, and aligns with industry standards such as ASHRAE TC9.9 for data center thermal management.

Cold Aisle Containment Overview

Cold aisle containment involves enclosing the aisle in front of server racks where the equipment intakes cool air. This prevents mixing of cold supply air with hot exhaust air, ensuring servers operate at consistent inlet temperatures and reducing thermal stress on IT equipment . The coldest air in a data center is typically found in these contained aisles, which improves server reliability and extends equipment lifespan .

Certification and Standards

o ASHRAE TC9.9 Guidelines: The ASHRAE "Thermal Guidelines for Data Processing Environments" provide recommended temperature and airflow ranges for IT equipment, emphasizing the importance of proper aisle containment to maintain equipment reliability .
o LEED and Uptime Institute Tier III: New data center builds targeting LEED certification or Tier III compliance often require documented airflow management strategies, including cold aisle containment, to meet energy efficiency and operational standards .

Design and Implementation

o Rack Compatibility: Cold aisle containment systems are compatible with standard 42U, 45U, and 48U racks, and can accommodate both 600 mm and 750 mm wide cabinets .
o Physical Components: Systems typically include ceilings, walls, and end-of-row doors, often with clear panels for monitoring and security. Some designs integrate with fire suppression systems and allow modular adjustments for different aisle widths .
o Energy Efficiency: Containment reduces wasted cooling air, which can account for up to 60% in traditional data centers, lowering energy consumption and operating costs .
o Flexibility: Cold aisle containment can be implemented in new builds or retrofitted into existing aisles without major HVAC modifications, making it a practical solution for mid-density racks (5-12 kW/rack) and scalable for higher-density deployments .

Operational Benefits

o Consistent Inlet Temperatures: Servers receive uniform cooling, reducing hotspots and thermal stress.
o Improved Energy Efficiency: Optimized airflow reduces the workload on CRAC/CRAH units, lowering utility costs.

o Enhanced Equipment Lifespan: Stable temperatures minimize wear on components, improving reliability and reducing maintenance .

Conclusion

Implementing cold aisle containment for server racks is a best practice for modern data centers, particularly when aiming for certification or compliance with ASHRAE, LEED, or Uptime Institute standards. Properly designed containment improves cooling efficiency, reduces energy costs, and ensures consistent server performance, making it a critical component of data center infrastructure planning .

Eaton offers a wide range of partial and total containment solutions that can accommodate hot aisle

Hot and cold aisle containment facilitates the scalability of data centers. As the demand for computing resources

Training and Awareness The hot and cold aisle strategy is a proven method for improving cooling efficiency and reducing energy

Hot aisle containment is used to capture and direct hot exhaust air back to the cooling units. This popular option is ideal for data

WHAT ARE HOT AND COLD AISLES Hot and cold aisles are a specific type of server rack configuration

How to size, lay out, and cool data center server racks the right way. A practical guide to

How do you arrange server racks to maximize performance while minimizing costs? The configuration you choose directly impacts

Arrange server racks in a hot aisle/cold aisle configuration. Most equipment manufactured today is designed to draw in air through

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

Hot and cold aisle containment can help you maintain the best air flow, temperature and humidity in the data center to

Data Centre Cooling: Hot Aisle and Cold Aisle Design Data centres have become an integral part of today"s technological landscape,

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Hot aisle and cold aisle containment are foundational concepts in data center design. When

Shop aisle containment solutions at Server Racks Online. Explore hot and cold aisle containment systems, including doors, panels,

Complete blind-made rail kits. The architecture of the Dell PowerEdge R670 and R770 CSP Edition servers is meticulously

What is Hot Aisle Containment? Hot Aisle Containment (HAC) is a leading data centre cooling strategy

Data Center Hot &  Cold Aisle Containment FEatures: Delivers controlled airflow, prevents hot/cold air

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