How to completely seal off network server racks

Overview

Network racks are specialized pieces of furniture designed for server equipment accommodation and storage.

Key Takeaways

Sealing a server rack involves closing all open spaces using blanking panels, brush strips, grommets, and sealing tapes to optimize airflow, prevent hot air recirculation, and improve cooling efficiency.

Key Steps to Seal a Server Rack

1. Install Blanking Panels

• Fill all unused U spaces in the rack with blanking panels to prevent hot air from recirculating to the front of the equipment .

• Ensure panels fit tightly; even small gaps (1/16” to 1/8”) can leave significant open areas equivalent to multiple missing panels .

• Use durable materials like steel or high-quality plastic for long-term stability and dust protection .

2. Seal Side Gaps Between Rails and Cabinet Walls

• Many racks have 1.5” to 2” gaps along the sides of rails that allow conditioned air to escape .

• Use foam strips, brush seals, or custom grommets to close these spaces .

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• Proper sealing here prevents bypass airflow and improves cooling efficiency.

3. Address Top and Bottom Gaps

• Bottom gaps caused by adjustable feet or raised floors can allow hot air to leak into the cold aisle .

• Top panels often have ventilation or cable access holes that can also contribute to hot air recirculation .

• Use brush strips, grommets, or sealing tapes to cover these openings while allowing necessary cable routing .

4. Use Specialized Sealing Products

• Expanding foam tapes like Cool Shield AirStrip can fill irregular gaps around racks and containment panels .

• Brush seals and grommets provide flexible solutions for cable pass-throughs and floor cutouts .

• Double sliding containment doors can be installed for wider aisles to further prevent hot air mixing .

5. Combine with Aisle Containment

• Sealing racks is most effective when combined with cold or hot aisle containment systems .

• Properly designed containment ensures that all conditioned air reaches IT equipment and reduces energy costs.

Benefits of Proper Rack Sealing

• Reduces hotspots and stabilizes intake air temperatures .

• Increases cooling efficiency and reduces energy consumption .

• Enhances equipment reliability and extends hardware lifespan .

By systematically sealing all open spaces—unused U spaces, side gaps, top and bottom openings—and using appropriate sealing products, you can significantly improve airflow management and energy efficiency in your server environment.

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