



COOLSHIELD™

THE MOST VERSATILE AISLE CONTAINMENT
SYSTEM FOR NEW OR EXISTING DATA CENTERS

The **Cool Shield** aisle containment system is the most highly configurable solution in the industry. Hundreds of standard components can be combined to customize an optimal solution for any project. Since every data center is unique, Cool Shield allows every site to get the most out of its cooling infrastructure.



In addition to being highly functional and customizable, **Cool Shield** is extremely cost competitive with other aisle containment systems. We manufacture our standard components in large quantities to keep unit costs to a minimum. Our large volume on procured products such as polycarbonate gives us the best pricing available direct from the manufacturers. Our low overhead business model allows us to provide a quality solution that meets all design requirements at a favorable price point.

Our commitment to being the best results in superior performance, high durability and a professional appearance.

THE COOL SHIELD ALUMINUM CHANNEL

The aluminum channel is the heart of the system. The proprietary combination of slotted and threaded sides has proven incredibly versatile for use in ceiling panels, vertical panels, containment walls, doors and more. There are several versions of the channel to meet nearly any design criteria or specification.

QUALITY MATERIALS AND DESIGN

Cool Shield channels are constructed of high-quality 6063 aluminum alloy with a durable two-step anodization process in clear or black, or powder coated in custom colors. Standard brackets are manufactured with 11-gauge galvanized steel for superior strength.

Cool Shield offers both flexible strip and panel solutions that comply with National Fire Protection Association (NFPA) 75 standards. Our standard polycarbonate and strip materials feature ASTM International E-84 Class A ratings. We also offer FM 4910-approved solid panels in clear and opaque finishes.

Sliding and hinged doors are fabricated with post-formed steel frames for maximum sturdiness and performance. Hardware such as hinges, rollers and handles provide lasting functionality. Doors are designed to meet applicable Americans with Disabilities Act (ADA) requirements.

Our containment accessories including blanking panels, foam strips and cable covers feature UL94-V0, the highest rating available for this type material.

Visit www.cool-shield.com to learn more about our manufacturing process.



PROFESSIONAL INSTALLATION SERVICES

Our nationwide installation network is unmatched in experience and capabilities.

- Experienced installers trained on the Cool Shield product
- Full-service installation for small, medium and enterprise projects
- Installation of greenfield and retrofit sites
- Professional leadership for efficient team approach
- Optional off-hours installation services
- Installers available with forklift and scissor lift certifications

MANY OF THE WORLD'S LARGEST ORGANIZATIONS TRUST COOL SHIELD.



AISLE CONTAINMENT DOORS



SLIDING CONTAINMENT DOORS

The Cool Shield aisle containment door opens smoothly and easily with a full pocket for a clean, professional look.

The Cool Shield aisle containment sliding door solution is both highly functional and visually appealing. The single sliding door system has a self-closing feature to help prevent air leakage. Doors will hold in the fully opened position to allow equipment to be brought into the aisles. Frames are constructed of tubular steel for maximum strength and durability. Door frames can be powder coated in a color to match server cabinets. Each door frame surrounds a generous clear insert to provide light and visibility into the aisle. Standard inserts are UL94 rated but are also available in FM Global 4910 rating.

Sliding doors can be used with Cool Shield strips or panel solutions to create a fully integrated aisle containment solution that is both attractive and effective. Doors are typically secured to either the floor or an adjacent server cabinet. Doors can also be attached to overhead supports.

FEATURES

- Gravity-based self-closing mechanism
- Holds in fully opened position for equipment loading
- Door frames designed to match server cabinet side panels
- Panels available to meet multiple budget and fire rating requirements
- Optional header extends door system to larger cabinets
- ADA compliant



FEATURES

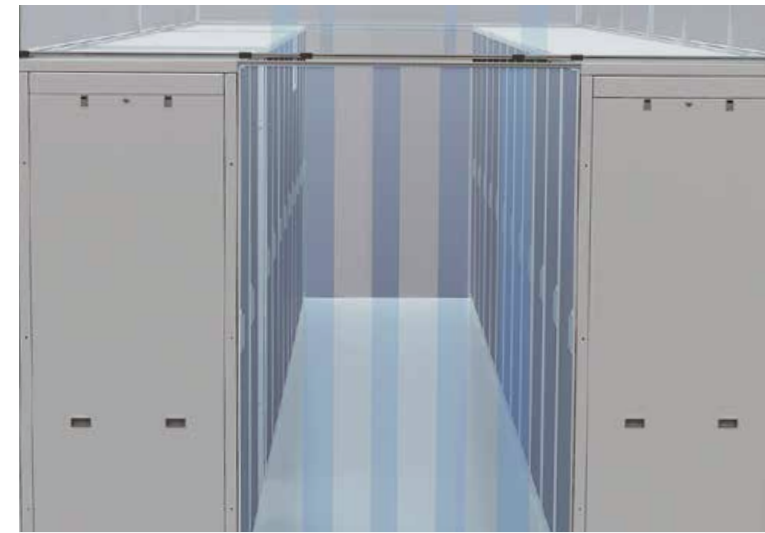
- Available in single or double hinged door systems
- Door(s) close automatically to prevent air leakage
- Door frames designed to match server cabinet side panels
- Clear inserts available to meet multiple budget and fire rating requirements
- Optional header and side extensions for taller cabinets or wider aisles

HINGED CONTAINMENT DOORS

Single or double hinged self-closing doors seal airflow and look great.

The Cool Shield aisle containment hinged door solution provides high performance and aesthetics to your aisle entryways. Both the single and double doors feature self-closing hinges that automatically close after you enter the aisle. This feature helps ensure doors are not accidentally left open to allow significant air leakage. Frames are constructed of tubular steel for maximum strength and durability. Door frames can be powder coated in a color to match server cabinets. Each door frame surrounds a generous clear insert to provide light and visibility into the aisle. Standard inserts are UL94 rated and are also available in FM Global 4910 rating.

Hinged doors can be used with Cool Shield strips or panel solutions to create a fully integrated aisle containment solution that is both attractive and effective. Doors are typically secured to either the floor or adjacent server cabinet. Doors can also be attached to overhead supports.



FEATURES

- ASTM E84 Class A rated
- NFPA 75-compliant material
- Overlapping clear strips
- Lightweight and cost-effective
- Optional weights to prevent separation

FLEXIBLE STRIP DOORS

Overlapping flexible strips provide a low-cost, effective aisle entry enclosure.

Flexible strip doors are a popular choice for capping the ends of aisles because they are easy to install and very cost-effective. Cool Shield strip doors feature 12" wide strips that overlap 3" to help prevent separation. Strips are available in 40 mil and 120 mil thicknesses. The 40 mil strips are NFPA 75 Class A rated.

Strips attach to the versatile Cool Shield channel which mounts to either the ceiling or the top of the cabinets. Customized weights can be attached to the bottom of the strips to prevent separation in highly pressurized aisles.

AISLE CONTAINMENT PANELS



FIXED VERTICAL PANELS

Our solid vertical panels seal airflow in data center aisles.

Cool Shield aisle containment panels are a very attractive and efficient method for managing the airflow in hot aisle or cold aisle containment applications. Our proprietary Cool Shield channel is designed to tightly frame the panels for a very effective seal. Panel options (and fire ratings) include twin-wall polycarbonate (E84 Class 1), solid polycarbonate (UL94), CPVC (FM Global) and metal. Most are offered in clear, translucent or opaque.

Most customers prefer that the aisle containment system does not attach their server cabinets so they can move cabinets in or out as needed. The Cool Shield channel features threaded slots that accept standard screws. This provides great versatility for mounting our system to nearly any existing support including strut, beams, joists or even concrete ceiling.

FEATURES

- Multiple panel materials to meet budget or fire rating requirements
- Panels framed by proprietary Cool Shield channel for maximum rigidity and seal
- Solutions for mounting to strut, channel, beams, ceiling grid, cabinets or floor
- Clear panels for high light transmission
- Multiple options for panel release in case of fire suppression discharge

SLIDING SOLID PANELS

Our unique double channel allows for solid panels that can slide vertically or horizontally.

The Cool Shield sliding panel solution overcomes two of the most common issues with solid panels. A clear solid panel solution provides an extremely effective seal and has a very attractive appearance. However, a fixed panel can obstruct access to cables and create problems by blocking fire suppression release. Sliding horizontal panels provide quick access through the containment wall. Sliding vertical panels can be used with a release mechanism to allow upper panels to fall to prevent interference with fire suppression.

FEATURES

- Two-overlapping panels in the same slot in the Cool Shield channel
- Upon release, top panel safely slides within channel to allow for sprinkler or gas-based suppression discharge
- Top panel supported by fusible link or electro-magnetic release
- Lower panel can be adjusted up to access cables or other equipment
- Panels available to meet multiple budget and fire rating requirements

CONTAINMENT PANEL WALLS

Clear wall panels isolate cold or hot aisles by filling gaps between or above enclosures.

The Cool Shield panel walls solution provides the most flexible yet robust design to complete the containment of any aisle. In most data centers, server cabinet rows are not perfectly aligned. The two rows creating the aisle to be contained may have different lengths, heights, gaps or other challenges to full containment. Some aisles may also have only one row of cabinets. Our panel walls complete containment to allow optimum control over air bypass to allow maximum cooling efficiency.



FEATURES

- Clear lightweight panels
- Integrates with Cool Shield channel system
- Optional twin wall polycarbonate, clear or colored panels
- Can be configured to cabinet size to serve as placeholder until deployment
- Unique detachable base allows more maximum rigidity and installation to floors
- Completes containment by filling gaps in a row of cabinets

AISLE CONTAINMENT STRIPS



OVERLAPPING STRIP CURTAINS

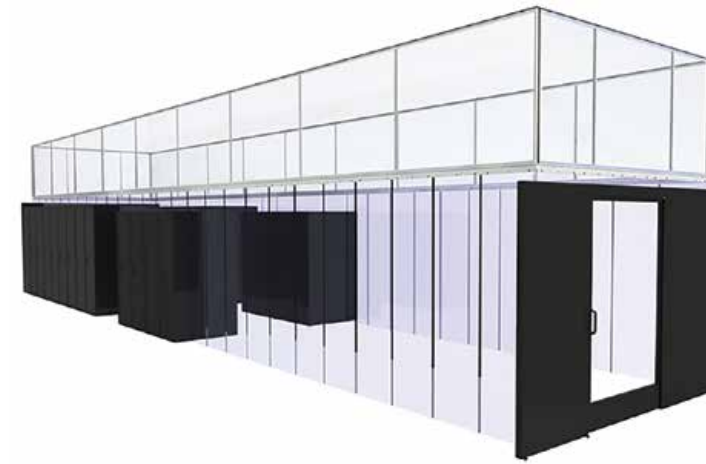
We have the most versatile strip curtain solution for data aisle containment.

Thick PVC strips like those used in warehouses and meat lockers were the first material used for aisle containment in the data center. They were inexpensive, easy to cut to adjust to obstacles and generally very effective. However, fire rating and outgassing concerns forced the development of strips more suitable to the data center environment. To achieve the proper ratings, these more advanced strips are much thinner and lightweight, which make them very susceptible to separation and reduce the effectiveness of aisle containment. Cool Shield has developed several enhancements to improve the performance of these lighter strips.

Cool Shield flexible strip solutions provide excellent containment while meeting ASTM E84 Class A and NFPA 75 specifications.

FEATURES

- Two-tier system for maximum effectiveness and versatility
- Upper tier affixed to Cool Shield channel to prevent separation
- Lower tier for aisle entry and above uneven height cabinets
- Clear flexible strip material meets NFPA 75 standards
- Optional thermal release solutions



FEATURES

- Overlapping strips cut to size to fill large or small gaps in containment
- Strips can be easily removed or cut when cabinets are deployed
- Optional removable mounting bracket attaches to Cool Shield channel
- Optional floor support to prevent separation due to air pressure
- Optional thermal release solutions

CONTAINMENT STRIP WALLS

Flexible strip wall fills gaps in aisle containment caused by missing cabinets or entire row.

Most data centers do not have aisles with perfectly uniform rows of cabinets. In an existing data center that has evolved over time or even a new buildout, it is rare that all potential cabinet positions are filled. Missing cabinets, whether just one or an entire row, can compromise the effectiveness of an aisle containment solution. It is imperative that these gaps are filled, even if temporarily. Flexible strips are an excellent choice for this application – they are easy to install, cost-effective and can be easily removed or cut when a cabinet is deployed.

Flexible strip walls can be attached to the ceiling or the lower channel of a panel or strip containment solution. Cool Shield features a removable strip mounting bracket, sized to the width of a server cabinet, that can be removed from our channel in seconds. Alternately, strips can be mounted directly to the channel or with a fusible or electromagnetic release.

FLEXIBLE STRIP SKIRT

Adjustable strips that conform to different rack heights add flexibility to a vertical panel solution.

NFPA compliant strips can tool-lessly attach to the bottom of Cool Shield channels to seal to cabinets or the floor. Most experts agree that solid panels are the most effective at sealing air in a containment solution. However, because they are fixed, panel systems must be made to the height of the tallest server cabinet. The Cool Shield flexible strip skirt solves this problem by simply and effectively filling the space between the containment system and cabinets.

Strips feature a formed header that fits into the bottom groove of the Cool Shield channel for easy installation and removal. They can be ordered based on the size of your cabinets. If cabinets change, they can be easily modified or replaced.



FEATURES

- Adjusts containment to multiple cabinet heights
- Quick installation and removal
- Standard and custom sizes
- Available for heights from 2" to 10'
- ASTM E84 Class A material

CONTAINMENT CEILING PANELS



THERMAL DROP PANELS

Our contract and release containment ceiling panels are designed to be installed under water-based fire suppression systems.

Cool Shield contract and release panels are UL listed and intended to be used when fire suppression sprinkler heads are located directly above the aisle containment area.

The panel solution can be installed horizontally and vertically to create a tight containment barrier within the aisle. Panels are heat sensitive and shrink away, falling harmlessly out of the way if the temperature hits 135 degrees Fahrenheit.

The released panels enable the sprinkler system to hit its designed disbursement area. Panels are completely clear to allow ambient light in unobstructed, keeping the aisle well-lit for data center personnel. Due to the modular design of the Cool Shield system, panels can be customized to fit almost any requirement.

FEATURES

- Clear lightweight panels
- Inexpensive modular panel system
- Panel will not prevent installed fire suppression system from dispersing as designed
- Low fire temperature sensitivity
- Easy installation



FIXED CEILING PANELS

Clear ceiling panel solution spans across the cabinet tops to isolate cold supply air.

Cool Shield aisle containment panels are a very attractive and efficient method of managing the airflow in hot aisle or cold aisle containment applications. The Cool Shield fixed ceiling panel solution provides a horizontal span across the tops of server cabinets to keep supply air from raised floor cooling in the cold aisle. Sites without raised floors can also duct supply air through cutouts in the ceiling panels. Isolating cold aisle air also prevents hot exhaust air from recirculating over cabinets to the server intake. This allows optimum control over CRAC set points to provide maximum cooling efficiency.

Clear panels feature an exceptional fire rating and allow for nearly full light transmission for excellent visibility in the cold aisle. Panels integrate with the Cool Shield channel system for unrivaled versatility in mounting, filling gaps and handling obstructions.

Fire suppression piping can be extended through cutouts in panels. Fusible links can support the panels to allow them to fall at a specified UL-rated temperature.

FEATURES

- Panels available in ASTM E84 Class A, FM Global and UL 94 ratings
- Lift-off or hinged panels supported by Cool Shield channel system
- Multiple options for managing fire suppression concerns
- Ceiling panels span across cabinet tops, avoiding cable trays and other obstructions
- Ideal for cold aisle containment



MAGNETIC RELEASE PANELS

Electronic release panels allow water or gas suppression in contained aisles.

Cool Shield offers a proprietary electromagnetic release system that integrates with the fire control panel to drop panels on a fire or smoke event. NFPA 75 standards indicate a containment system that blocks a fire suppression path must be removed upon release. Cool Shield has developed an electromagnetic release system that can connect to relays in the fire suppression system. This allows vertical or horizontal panels or strips to fall out of the way during a fire event.

Horizontal ceiling panels can be held in place via a series of magnets. In most aisles, a single input can trigger the release of all panels in the aisle.

FEATURES

- Panels fall via electromagnetic release
- Interacts with fire suppression system
- Up to six magnets can be connected to one input
- Use with horizontal or vertical panels

CONTAINMENT ACCESSORIES



BLANKING PANELS

Blanking panels fill 1U to 10U empty spaces in server cabinets to minimize bypass airflow and increase cooling efficiency.

Cool Shield individual blanking panels are fire-rated plastic panels that install quickly to fill unused rack spaces within server cabinets. Rigid panels are durable, nonporous, easy to store and very cost effective. Panels are available in several sizes ranging from 1U to 10U. Snap-in clips easily seal empty rack spaces in seconds and release with a quarter turn to remove panels.

Available in for both 19" and 23" widths in black, white and custom colors.

FILLER PANELS

Adjustable panels fill gaps between containment and server cabinet tops.

Cabinet-wide scored panels are height adjustable to fill vertical gaps in containment. Over the past few years, there has been a transition in aisle containment solutions from vertical strips to panel-based solutions. One challenge of a panel-based system is accommodating multiple heights of server cabinets. A panel system is typically sized to the height of the tallest server cabinets in the aisle. This results in gaps between the containment system and shorter racks. To realize the benefits of containment, these gaps should be filled to prevent air leakage.

FOAM GAP SEAL

Expanding foam strips fill gaps to prevent mixing supply and exhaust air.

Cool Shield air seal strips fill unwanted gaps to maximize the effectiveness of aisle containment applications. Expanding foam strips can be used for any place there is unwanted air leakage.

Foam gap seal strips minimize costly bypass airflow to maximize the capacity and efficiency from HVAC equipment. Self-expanding foam tape is safe for data centers and ensures a durable, secure seal between racks/enclosures and HVAC systems.

Time-release expansion allows easy installation without disturbing critical items in the data center.



FLOORGUARD CABLE SEAL

Rubberized floor cable seals opening to prevent air leakage through raised floor tiles.

Quickly and economically seal nearly any raised floor opening to prevent air loss. Cool Shield FloorGuard is a low-cost yet highly effective approach to sealing cable cutouts and other openings in raised floors where it is unproductive to provide cooling. Sealing these holes can save thousands of dollars in energy costs. As an example, the air loss in a 55,000-square-foot data center with 80 unsealed cable openings is equal to the capacity of a 50-ton cooling unit.

ADHESIVE TEMPERATURE STRIPS

Color coded temperature strips provide at-a-glance identification of thermal issues.

Red or blue temperature readings indicate out-of-range temperature situations. Cool Shield color-coded temperature strips are a unique and effective way to monitor temperature in your server cabinet rows. Numbers are color-activated to give a clear warning that the temperature is outside the ASHRAE recommended range. The temperature will display red if the temperature rises above 81 degrees Fahrenheit and blue below 64 degrees. The more extreme the temperature, the larger the warning displayed. For example, if the temperature is 95 degrees, all "hot zone" numbers starting at 81 will display red. This allows for easy identification of trouble spots when walking down the aisle.



COOL SHIELD MANAGER

Real-time power usage effectiveness (PUE) monitors and visualizes critical power and cooling.

Our comprehensive data center monitoring solution optimizes power and cooling efficiency. The application can gather information from your ATS, UPS, CRAC/CRAH units, chillers, power panels, rack PDUs, environmental sensors and any other accessible data center component. Data is then mapped to a 3D floor view of your data center. This visualization gives an at-a-glance status of room conditions, energy usage and cooling performance.



COOLSHIELD™

VISIT WWW.COOL-SHIELD.COM

COOL SHIELD CONTAINMENT PRODUCTS OFFERED BY



Data Center Resources, LLC | 1440 Dutch Valley Place, Suite 630 | Atlanta, GA 30324
Phone (toll free) 866-740-2121 | **Fax** (toll free) 866-550-1135 | **Email** info@datacenterresources.com
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