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# Hot Aisle HAC Containment System Solution

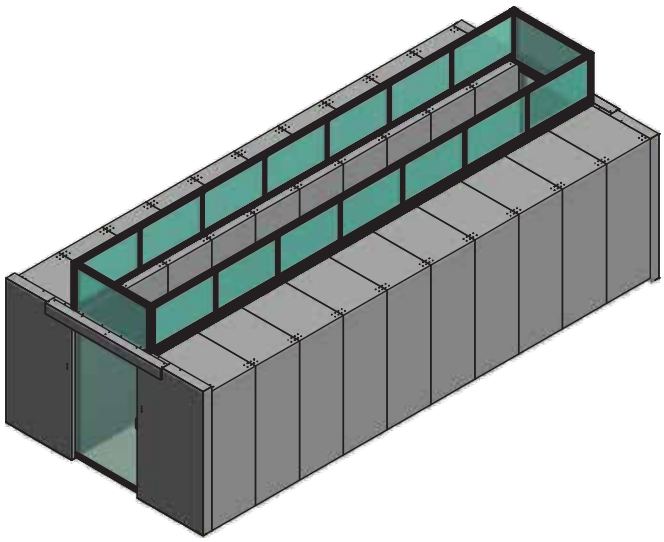


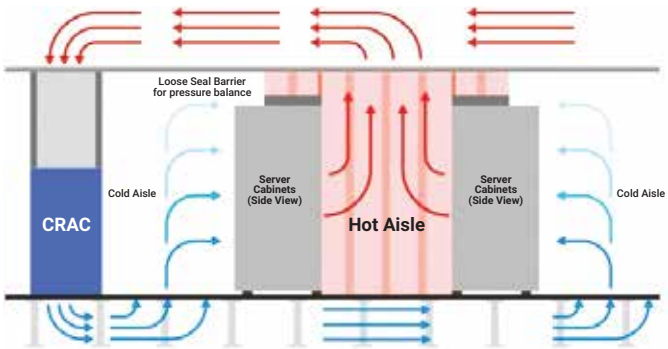
# Hot Aisle
## Containment System

Litech Hot Aisle Containment System is designed to improved energy efficiency and enhanced cooling effectiveness by isolating the hot aisle - the space between the backs of the IT equipment racks where hot air is exhausted - with containment panels. This prevents hot air from mixing with the cooler supply air and circulating back to the equipment, which can increase the temperature of the air entering the servers and reduce their efficiency.

FEATURES

- Telescopic chimney straight duct design - channel the hot exhaust from rear of the racks to prevents hot exhaust air from mixing with the cool air in the high density aisle containment data center
- Hot Aisle Roof Enclosure : Made of sturdy and durable aluminium profile frame and UL94-V0 fire-rated materials panel
- Variety of door models – single-swing, dual-swing, single-sliding and dual-sliding to minimize air leakage.
- Wide range of customized chimney height options – accommodate all data center ceiling heights
- Ease of installation—field-installable, rack-integrated and freestanding options available
- Door Access control with optional mechanical or smart lock access control with ID card reader, Biometric Fingerprint Scanner, Digital keypad or Facial Recognition Access .
- Airflow Management Accessories: complete range of accessories to optimize airflow management such as tooless blank panels, brush panels and grommets
- Monitoring and Control Sensor : Various sensor are available to provide real-time visibility and management of temperature, humidity, and other environmental factors within the contained hot aisle.
- Compatibility and Adaptability : designed to be compatible with various rack types and configurations, allowing for easy integration into existing data center setups.






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# Hot Aisle
Containment System



## Specification

### Compliance Standard

Equipment Rack - EIA 310-D & IEC 60297-2 Standard
Polycarbonate Panel - UL 94 Compliance

### Chimney Enclosure

| Parameter | Spefication |
|---|---|
| **Aluminium Extrusion Frame** | |
| Material | 6063-T5 Temper Aluminium |
| Size (mm) | 40x40 / 40x80 / 80x80 |
| Finishing | Mill Finish / Epoxy Powder Coated |
| **Panel** | |
| Material | Polycarbonate UL 94 Compliance |
| Colour | Clear / Translucent |
| Type | Solid / Multiwall |

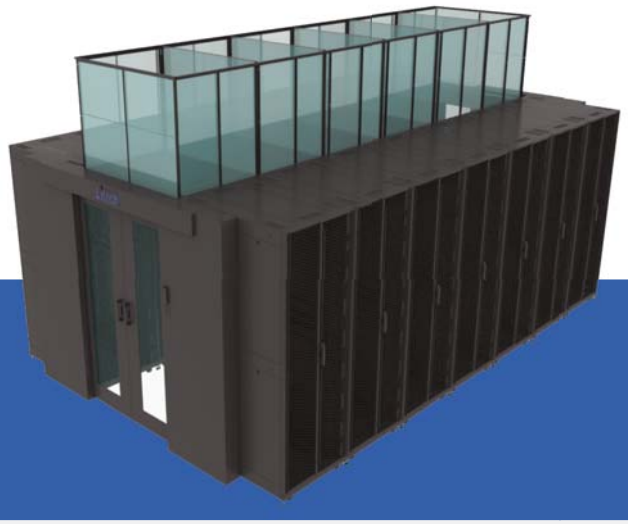
### Twinwall Polycarbonate

| Parameter | Unit | Standard Value |
|---|---|---|
| Weight | kg/m2 | 1.3 |
| Light Tranmission | % | 80% |
| Coefficient of Linear Thermal Expansion | mm/m °C | 0.065 |
| U-Value | Btu/hr sq. ft. F | 0.62 |
| Hot Deformation Temperature | °C | 135 |
| Working Temperature | °C | -50°C to ~120°C |
| Horizontal Combustion | - | Self-extinguishing |
| Flammability test | UL94 | V1 |

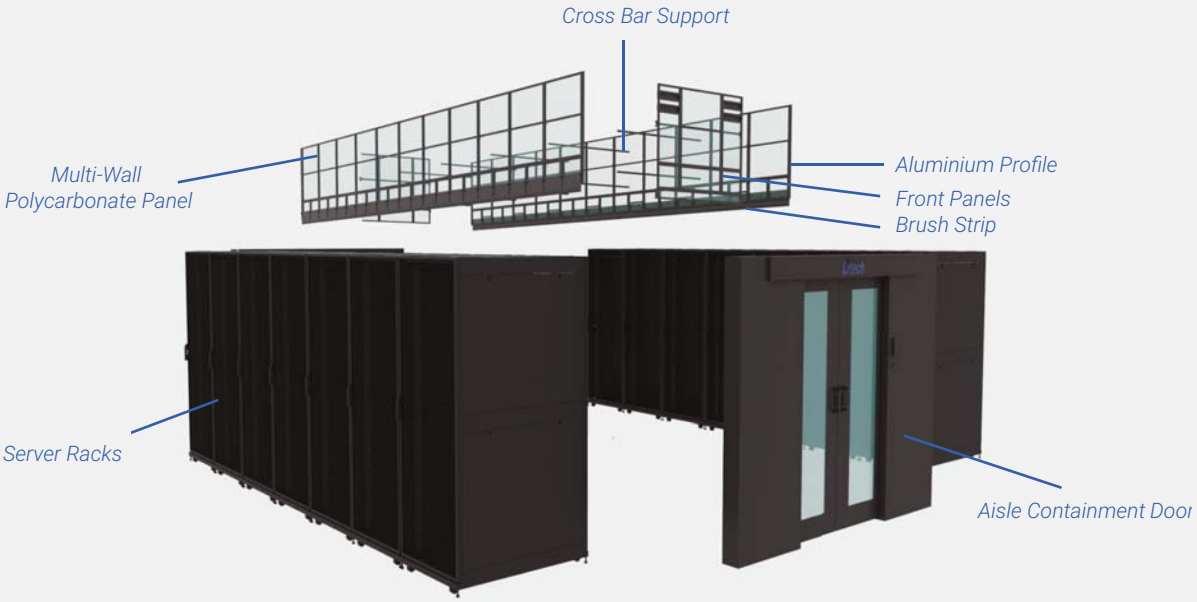
### Solid Polycarbonate

| Parameter | Unit | Standard Value |
|---|---|---|
| Density | g/cm3 | 1.2 |
| Light Tranmission | % | 90% |
| Notched Impact Strength Izod | J/m | 800 |
| Tensile Strength At Yield | Mpa | 62 |
| Tensile Strength At Break | Mpa | 65 |
| Elongation At Yield | % | 6 |
| Elongation At Yield | % | 120 |
| Coefficient of Linear Thermal Expansion | mm/m °C | 0.065 |
| Tensile Modulus of Elasticity | Mpa | 2400 |
| U-Value | Btu/hr sq. ft F | 0.91 |
| Hot Deformation Temperature | °C | 135 |
| Working Temperature | °C | -50°C to ~120°C |
| Horizontal Combustion | - | Self-extinguishing |
| Flammability test | UL94 | V0 |

# Hot Aisle Containment (HAC)
## System Solution
## Overview



Hot aisle containment used in data centers is to improve cooling efficiency by isolating and managing hot air generated by servers and IT equipment.




### Aisle Panels

These are rigid or flexible panels installed at the ends of the hot aisle to enclose the space and prevent hot air from mixing with the cold air in the data center. They help create a contained environment for efficient cooling.

### Airflow Management Accessories

Airflow management accessories like blanking panels, brush strips, and sealing grommets optimize cooling efficiency and prevent air leakage by controlling air movement within racks.

### End of Row Doors

Used to provide easy access to the hot aisle for maintenance purposes while still maintaining the containment integrity.

### Aluminium Unistrut Profile Framing

Aluminium Unistrut profiles provide a versatile and durable solution for building hot aisle containment systems in data centers. They allow for easy assembly and customization to fit specific layout and requirements, supporting barriers, panels, and doors while maintaining a clean and efficient environment.

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# Hot Aisle Containment (HAC)
## Ceiling Suspended

Litech ceiling suspended HAC system adeptly channels the hot air generated by data servers into an overhead plenum, significantly improving airflow dynamics within data centers.

This system offers customizable options for length, height, and width, allowing for effortless integration into any project for swift installation.

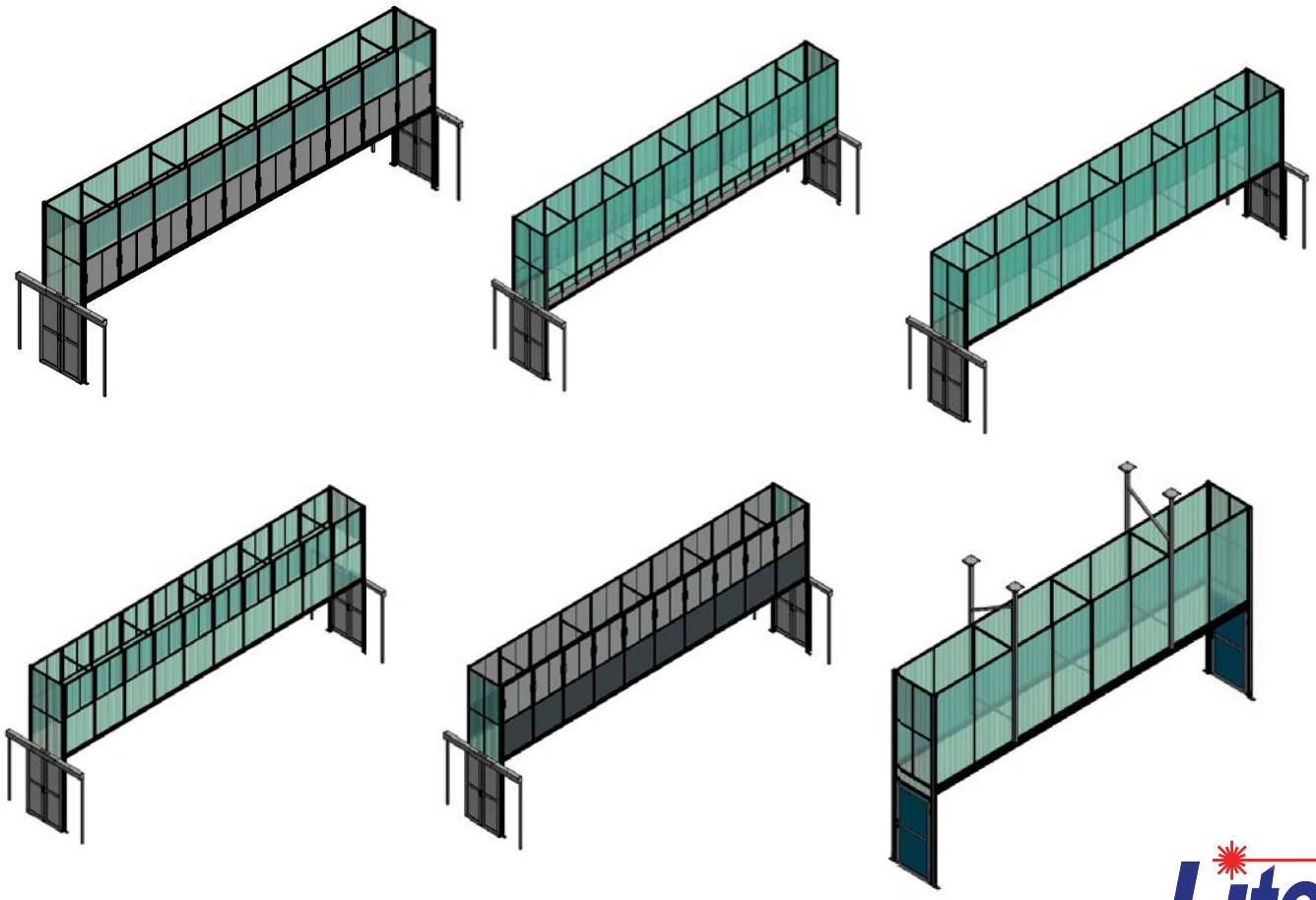
Moreover, it enhances airflow management while delivering dependable and scalable solutions tailored for modern data centers.

**FEATURES**

- Improved cooling efficiency isolates hot air in specific aisle, managing data center temperature better.
- Decreased energy costs result from lower consumption.
- Maintaining optimal temperatures prolongs equipment lifespan.
- Easily expandable hot aisle containment systems adapt to growing data center needs

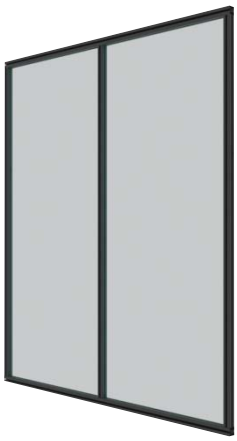
Ceiling suspended hot aisle containment (HAC) system is a pivotal advancement in the field of data center cooling strategies.We provide a range of ceiling suspended HAC and can tailor solutions to suit your specific needs.

### Product Diagram



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# Hot Aisle Containment (HAC)
## Integrated HAC Panel



*Fixed HAC Panel*



*HAC Panel With Horizontal Sliding Windows*



*Three Section HAC Panel*

Integrated Hot Aisle Containment (HAC) panel is an essential component in data center airflow management. Typically installed along the sides of the hot aisle containment system, alongside server racks, to create a sealed environment for hot air exhaust. These panels work in conjunction with other containment elements, such as doors and roofs, to ensure that hot air is effectively isolated and directed towards the cooling systems. Hot aisle containment side panels help prevent the mixing of hot and cold air streams, improving cooling efficiency and reducing energy consumption in data center operation.

**FEATURES**

- Designed with sealing mechanisms to ensure a tight fit and prevent hot air from escaping into the surrounding environment.
- Modular and adjustable, allowing for easy installation and customization to fit different rack configurations and aisle layouts.
- Transparent panel/windows allows visibility for monitoring and maintenance purposes.
- Panels made from fire-retardant materials or coatings may be used in the construction of side panels to enhance safety in the event of a fire emergency.
- UL 94 Compliance

### Brush Strip



Brush strip provide air seal between integrated HAC panel and the server racks, to accommodate different rack heights from different suppliers, to prevent air leakage from the containment. Brush strip is made of filament PA UL94-V0 material with aluminum strip holder.

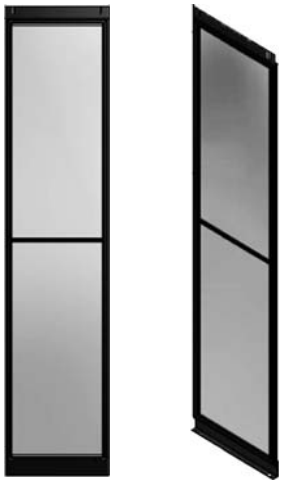
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# Hot Aisle Containment (HAC)
## Blanking Panel

Hot aisle containment blanking panels are essential accessories used in data centers to improve cooling efficiency and prevent hot air recirculation. These panels are installed in empty rack spaces or between servers in the hot aisle to block airflow and prevent the mixing of hot and cold air. By sealing off gaps and spaces within the hot aisle, blanking panels help direct cold air to equipment intake vents and ensure that hot air is efficiently expelled through the exhaust system.

Blanking panels come in various sizes and materials to fit different rack configurations and aisle layouts. Made of durable materials such as steel or aluminium with polycarbonate, making them easy to install and remove as needed.

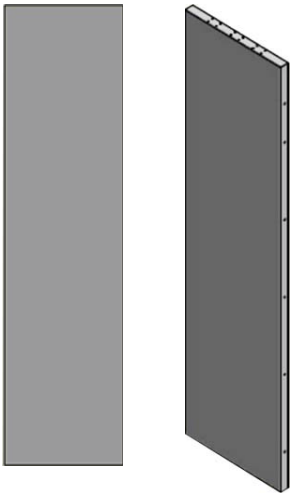
Litech has a range of unique aluminium extrusion profile with brush strip slot to improve air seal



*Aluminium frame with Twinwall Polycarbonate Type 1*



*Aluminium frame with Twinwall Polycarbonate Type 2*

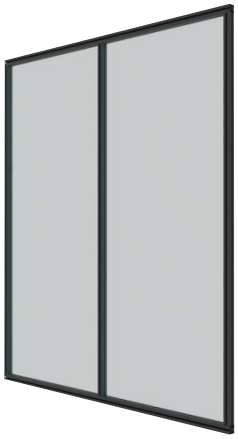


*Metal Blank Panel*

### Product Specification

| Parameter | Specification |
|---|---|
| Frame | Aluminium extruded profile 6063-TS/6063-T6 |
| Panel Material | Polycarbonate UL94 Compliance |

# Hot Aisle Containment (HAC)
## Side Panel



*Fixed Side Panel*



*Side Panel With Horizontal Sliding Windows*



*Three Section Side Panel*

Hot aisle containment(HAC) side panel is an essential component in data center airflow management. Typically installed along the sides of the hot aisle containment system, alongside server racks, to create a sealed environment for hot air exhaust. These panels work in conjunction with other containment elements, such as doors and roofs, to ensure that hot air is effectively isolated and directed towards the cooling systems. Hot aisle containment side panels help prevent the mixing of hot and cold air streams, improving cooling efficiency and reducing energy consumption in data center operation.

**FEATURES**

- Designed with sealing mechanisms to ensure a tight fit and prevent hot air from escaping into the surrounding environment.
- Modular and adjustable, allowing for easy installation and customization to fit different rack configurations and aisle layouts.
- Transparent panel/windows allows visibility for monitoring and maintenance purposes.
- Panels made from fire-retardant materials or coatings may be used in the construction of side panels to enhance safety in the event of a fire emergency.

### Ordering Information

| Part Number | Dimension (mm) | Description |
|---|---|---|
| LHAC-SP-01 | 2400 (W) * 2395 (H)*40 (D)mm | Fixed Side Panel Clear Multiwall Polycarbonate Panel |
| LHAC-SP-02 | 1200 (W) * 2495 (H)*40 (D)mm | Side Panel Clear Multiwall Polycarbonate Panel with horizontal sliding windows |
| LHAC-SP-03 | 1200 (W) * 2000 (H)*40 (D)mm | Three Section Side Panel |

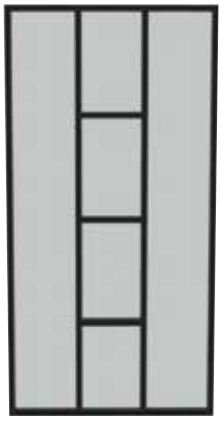
** Customizable sizes, design and options available upon request.*

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# Hot Aisle Containment (HAC)
## Front Panel



*Front Panel Type 1*



*Front Panel Type 2*

Front Panels span across the aisle between two rows of cabinets to create a Hot Aisle Containment Duct and serves as a barrier that separates the hot aisle from the cold aisle in a data center. The front panel of a hot aisle containment system is vital for optimizing cooling efficiency in data centers. With its effective design and material choices, it helps achieve significant energy savings. and enhances the longevity of critical IT equipment

FEATURES

Hot aisle containment front panels are crucial components in managing airflow within a data center. Here are some key features to optimize airflow management and efficiency:

- Panels: The front panel that enclose the hot aisle can be fixed panel or with sliding option to allow easy access for maintenance and management.
- Adjustable Height: Front panels are often adjustable in height sizes to accommodate various rack configurations and aisle heights in the data center.
- Material and Insulation: Panels often made of materials that are lightweight yet sturdy. Can be insulated to prevent heat transfer and to maintain temperature control within the contained aisle.
- Visibility and Monitoring: Some front panels may incorporate transparent sections or windows to allow visibility into the contained aisle. This visibility is important for monitoring equipment and ensuring that airflow patterns are optimized.
- Airflow Management Features: Depending on the design, the front panel may include features such as brush profile help to guide the hot exhaust air away from the servers and efficiently toward the cooling systems.

### Ordering Information

| Part Number | Dimension (mm) | Description |
|---|---|---|
| LHAC-FP-01 | 1800 (W) * 2395 (H)*40 (D)mm | Front Panel Type 1 |
| LHAC-FP-02 | 1280 (W) * 2495 (H)*40 (D)mm | Front Panel Type 2 |

** Customizable sizes and colours available upon request*

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# Hot Aisle Containment (HAC)
## Containment Door

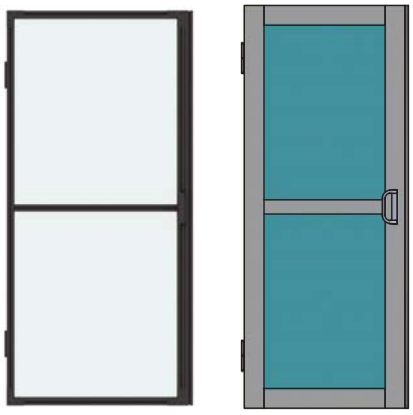
Hot aisle containment doors are essential components of data center cooling systems designed to optimize airflow and temperature control. These doors are installed at the end of hot aisles to contain and direct the hot air expelled by IT equipment. By effectively isolating and channeling the hot air, hot aisle containment doors help prevent mixing with cool air, improving cooling efficiency and reducing energy consumption.

FEATURES

- Sturdy aluminum framing, ergonomically designed with angled handles
- Easy installation with integrated door slide locks
- Self-aligning doors require no adjustment, allowing for smooth operation
- Comes with various sliding door, multiwall panel option and customizeable as per requirements

### Product Diagram

Single Swing Door



Dual Swing Door






Soft Close Dual Sliding Door



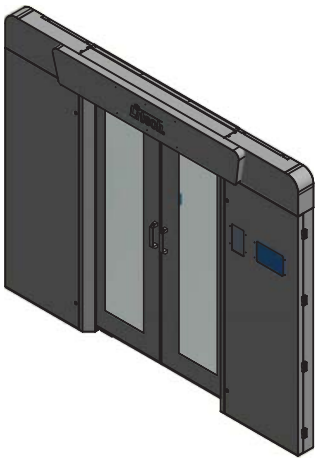


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# Hot Aisle Containment (HAC)
## Containment Door

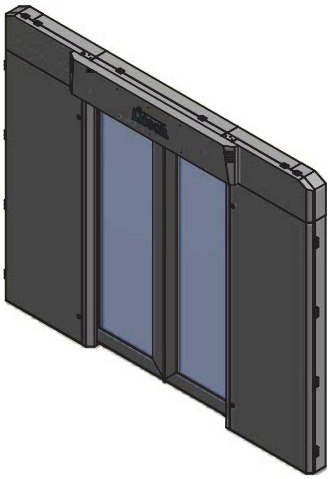
Pneumatic Dual Sliding Soft Close Door



Automatic Sliding Door



### Ordering Information

| Part Number | Description |
|---|---|
| LHAC-SD-SSW-01 | Single Swing Door |
| LHAC-SD-DSW-02 | Dual Swing Door |
| LHAC-SD-SC-03 | Soft Close Dual Sliding Door |
| LHAC-SD-AP-04 | Pneumatic Dual Sliding Soft Close Door |
| LHAC-SD-AS-05 | Automatic Sliding Door |

** Customizable doors options available upon request*

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