

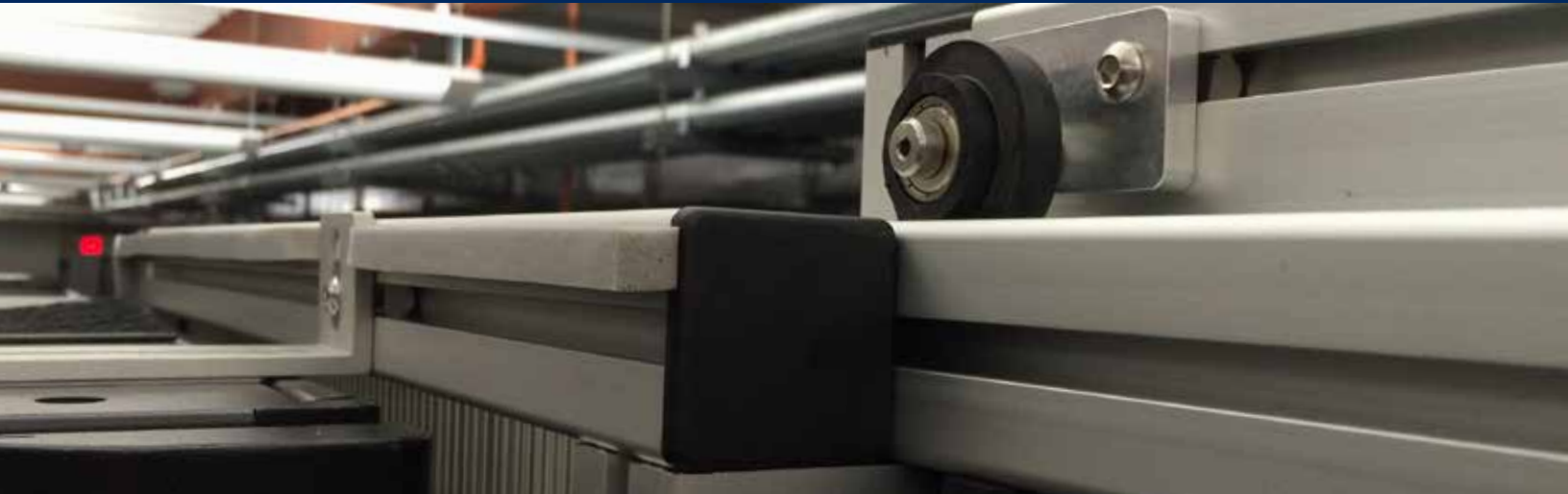
ContainAire®

Containment Solutions for Data Centers



Containment Systems from Tate

Hot and Cold Aisle Containment Solutions for Data Centers



No two applications are the same. Tate's custom engineering and manufacturing gives you the solutions you need for your application — not a one-size-fits-all approach

One Size Doesn't Fit All

Tate is the leading manufacturer of data center solutions. Our manufacturing process allows for the customization of containment needs to fit your specific applications. Tate offers application engineering, as well as design assist and specification assistance to develop the solution you need for your data center.

Our world-class manufacturing plants have the flexibility to create modular solutions quickly with up-front cost optimization and Tate's in-house engineering team has the experience and industry knowledge to design the best solutions from concept to completion. Whatever you need, Tate is your single source solution builder for your data center.



Engineered Product Support

- Application Engineering
- Design-Assist
- Budget Development
- Specification Assistance
- Solution Building
- Installation Support



Leverage our Experience



Our innovative products control costs by providing increased durability and adaptability for future expansion and change, along with simple, low-cost installation and maintenance requirements. An industry leader in innovative data center solutions, Tate containment products offer cost effective and energy efficient solutions to maximize performance and create a flexible infrastructure that is prepared for the future.

When it comes to containment solutions from Tate, you have options. Tate's application engineering support and custom manufacturing capabilities give you the ability pick and choose the tailor-made solution that is best for your application. Tate's containment solutions are compatible with other Tate containment products and can be designed to fit your exact specifications.

Benefits of Tate's Containment Solutions

- Modular manufacturing capabilities
- In-house engineering team provides expert application engineering and solution building
- Up-front cost optimization
- Pre-engineered components that speed up installation
- Reduces the need for multiple trades on site
- Limited field fabrications

ContainAire Single Hinged Door

No Threshold Design for Hot and Cold Aisles

Tate's ContainAire® Single Hinged Doors are the ideal solution for both cold and hot aisle containment designs. Combining cost-effectiveness with ease of installation, the no threshold design eliminates tripping hazards, and complements data center designs.

NFPA 75 2013 Requirements

The multiwall panel insert option meets NFPA requirements which state that the materials "shall have a flame spread index of 50 or less" per ASTM E84 or ANSI/UL 723.

Installation

The pre-assembled aluminum design allows for quick and easy installation. With a standard right or left hinge option, the doors can also be custom built to suit your particular data center requirements. Viewing panels can be designed with clear or multiwall polycarbonate.

Features & Benefits

- No threshold design prevents tripping
- Perimeter compression gaskets efficiently seal and minimize air leakage
- Sturdy aluminum framing
- Multiwall panel option adheres to NFPA codes
- Recessed Hinges allow for tighter joints
- Right or Left Hinged options available



ContainAire Single Hinged Door

View Panel Options

- Clear Polycarbonate
 - Fully transparent
 - ASTM D-635 listed
 - 6mm thick with edge-sealing gaskets
- Multiwall Polycarbonate
 - Semi-transparent
 - Flame spread index <50
 - Smoke development <450
 - ASTM E-84 and ASTM D-635 listed
 - UL 94 Listed
 - 6mm thick with edge-sealing gaskets

Accessories

Available accessories include:

- Auto-closer
- Push Plate (for use with Autocloser)
- Hold open (for use with Autocloser)

Dimensions

- 71.5"w x 86.0"h x 3.6"d (182cm x 218cm x 9cm)
- 36" (91cm) max threshold width
- Fully supported by floor with rack attachments for lateral stability
- Custom sizes available

Weight

- 165 lbs (75kgs) – Clear polycarbonate
- 135 lbs (61kgs) – Multiwall polycarbonate

Finish Options

- Clear Anodized
- Black Anodized

Shown with Auto-closer



ContainAire Dual Sliding Doors

Customizable Solution for Hot and Cold Aisles

Tate's ContainAire® Dual Sliding Doors are the ideal solution for both cold and hot aisle containment designs. Combining cost-effectiveness with ease of installation, the no threshold design eliminates tripping hazards, and complements data center designs.

NFPA 75 2013 Requirements

The multiwall panel insert option meets NFPA requirements which state that the materials "shall have a flame spread index of 50 or less" per ASTM E84 or ANSI/UL 723.

Installation

ContainAire Dual Sliding Doors come pre assembled, having been expertly engineered to facilitate a smooth installation process. Frame components are provided pre-assembled and are easily connected to a header rail which secures the assembly together. The assembled door frame is then secured to the end cabinets and raised floor.

Features & Benefits

- No threshold design prevents tripping
- Perimeter compression gaskets efficiently seal and minimize air leakage
- Sturdy aluminum framing
- Multiwall panel option adheres to NFPA codes
- Ergonomically designed with angled handles to reduce pinch points
- Easy installation with integrated door slide locks



Clear or Multiwall Polycarbonate Viewing Panels

ContainAire Dual Sliding Doors

Pre-Assembled for Easy Installation

View Panel Options

- Clear Polycarbonate
 - Fully transparent
 - ASTM D-635 listed
 - 6mm thick with edge-sealing gaskets
- Multiwall Polycarbonate
 - Semi-transparent
 - Compliant to the new NFPA 75 2013 requirements
 - ASTM E-84 and ASTM D-635 listed
 - 6mm thick with edge-sealing gaskets
 - UL 94 listed

Hardware

Standard features include:

- Door slide locks
- Door stop bumpers
- Angled door handles
- Spring loaded double ball door catch
- Auto-close available

Dimensions

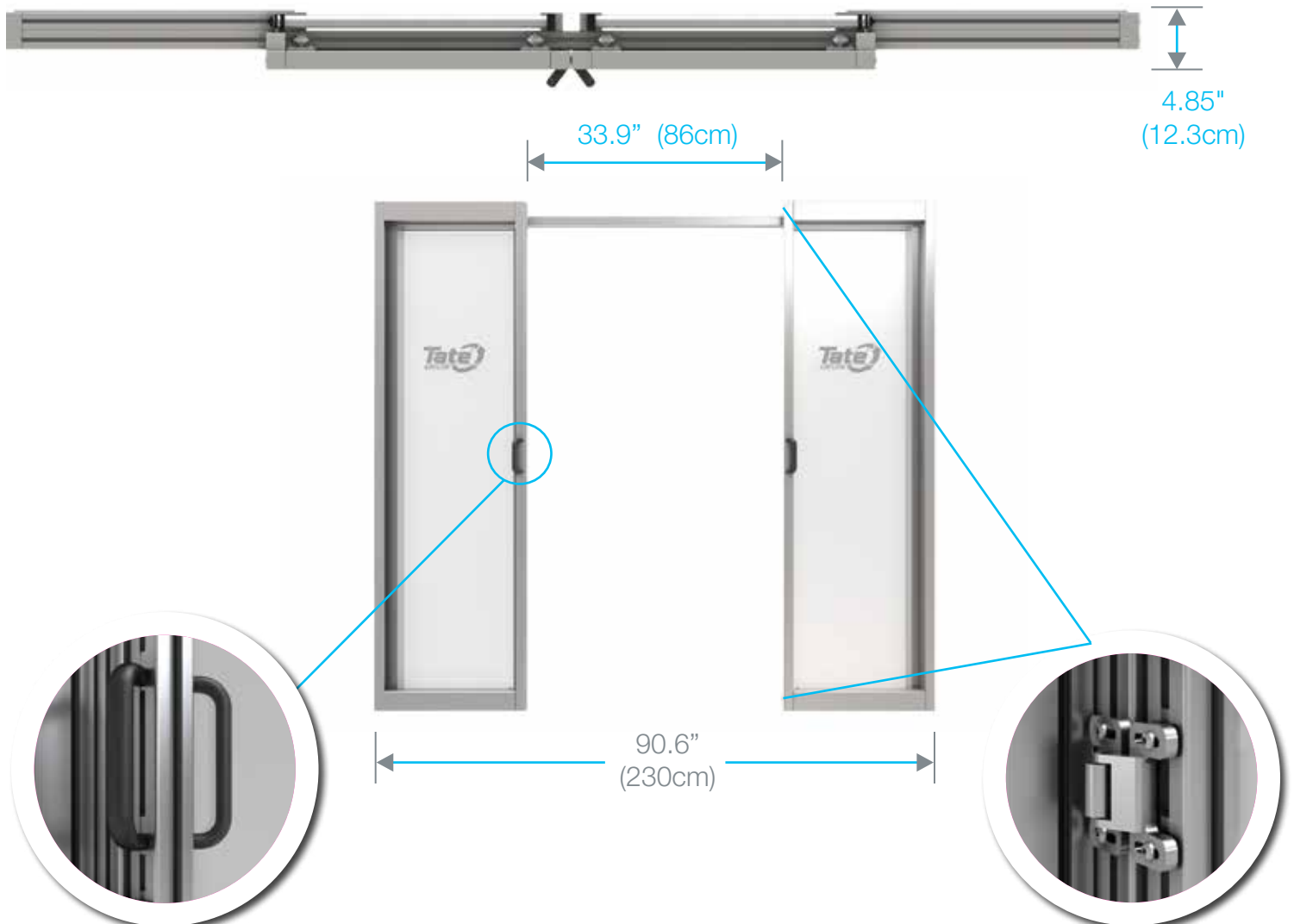
- 90.6" w x 80.0" h x 4.85" d (230cm x 203cm x 12.3cm)
- 31.5" (80cm) max threshold width
- Fully supported by floor with rack attachments for lateral stability
- Custom sizes available

Weight

- 200 lbs (91kgs) – Clear polycarbonate
- 140 lbs (64kgs) – Multiwall polycarbonate

Finish Options

- Clear Anodized
- Black Anodized



Unique angled handle reduces pinch point

Integrated door slide-locks hold doors closed

ContainAire Single Sliding Door

No Threshold Design for Hot and Cold Aisles

Features & Benefits

- No threshold design prevents tripping
- Factory installed perimeter compression gasket system
- Sturdy aluminum supports
- Custom attachments (locks, stays)
- Side panels attach easily
- Easy installation
- Ergonomically designed with angled handles to reduce pinch points
- Auto-close option available

Sliding Options

- Left (LD)
- Right (RD)

Dimensions

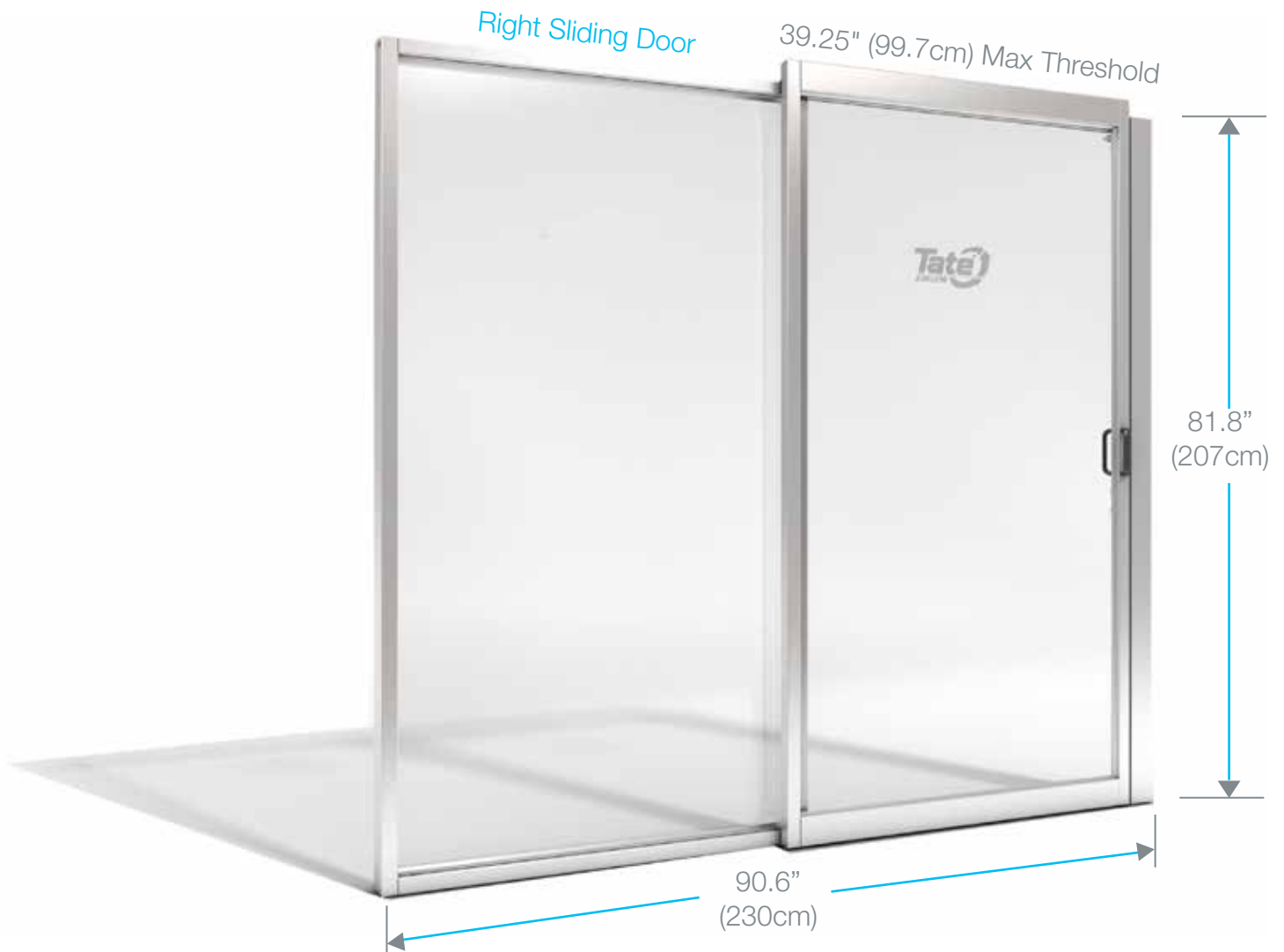
- Custom sizes available on request
- Standard: Height 80" (203cm)
Width 90.6" (230cm)
Depth 4.85" (12.3cm)
- Max Threshold: 39.25" (99.7cm)

Finish Options

- Clear Anodized
- Black Anodized

View Panel Options

- Clear Polycarbonate
 - Fully transparent
 - ASTM D-635 listed
 - 6mm thick with edge-sealing gaskets
- Multiwall Polycarbonate
 - Semi-transparent
 - Compliant to the new NFPA 75 2013 requirements
 - ASTM E-84 and ASTM D-635 listed
 - 6mm thick with edge-sealing gaskets



ContainAire Strip Door

Cost Effective Overlapping Solution for Sealing Aisle Ends

Features & Benefits

- Modular design (field adjustable)
- 4' (1.2m) standard width
- 96, 144, 192 inch drop down length (229cm, 366cm, 488cm)
- UL listed fire suppression links
- 360 degree ceiling attachment
- Overlapping vinyl (prevents leaks)
- Temperature release point
- Toolless assembly and installation

Fire Resistant Vinyl

- 12" (30cm) wide strips, with 2" (5cm) of overlap on each side
- Vinyl meets requirements of:
 - UL 94 V-0
 - NFPA 2009
 - CPAI-84
 - NFPA 701
 - 1,000 hours U. V. ASTM Weatherometer
- AMI-TUF TR curtain meets requirements for NFPA 2013 sections 75

Track

- Clear Anodized
- Black Anodized
- Single Splicer included for connection to neighboring track

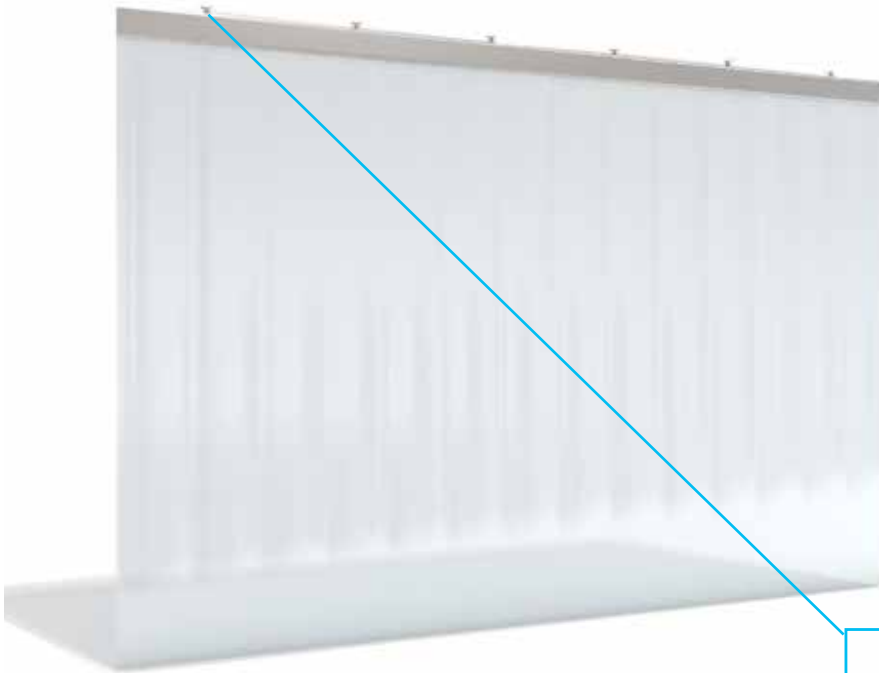
Fire Suppression Link

- Listed by Underwriters Laboratories
- Mechanical heat activated.
- Maximum load = 45lbs (20.4kgs)
- 135°F (57°C) Release point

Lengths

Modular heights to fill the following gaps:

- 0 - 96" (0 - 229cm)
- 96 - 144" (229cm - 366cm)
- 144 - 192" (366cm - 488cm)



Pivot and Grip Installation



ContainAire Soft Partitions

Ceiling Hung Plyable Containment System for All Aisle Environments

Tate ContainAire Soft Partitions, for use in hot and cold aisle applications, have aluminum tracks with overlapping fire resistant vinyl sheets. Equipped with fire suppression links, the partitions attach to a drop ceiling T grid with a spring steel twisted on lock. Tate ContainAire partitions do not require tools for assembly and are easy to modify.

The unique connection design and overlapping curtains provide a seamless partition, resulting in an improved containment system. Tate's distinctive difference is the ability to adjust the partitions at any location using our Pivot and Grip installation method, without disassembling the rest of the row, saving both time and money.

Features & Benefits

- Modular design (field adjustable)
- Overlapping design for improved air sealing
- 360 degree mounted fire suppression link equipped hanger and the partition frame
- Pivot and Grip vinyl assembly method allows for easy installation and adjustment
- Toolless assembly and installation



ContainAire Soft Partitions

Fire Requirements

- Fire resistant vinyl meets the requirements of:
 - UL 94 V-0
 - NFPA 2009
 - CPAI-84
 - NFPA 701
 - 1,000 hours U. V. ASTM Weatherometer
- AMI-TUF TR curtain meets requirements for NFPA 2013 sections 75
- UL rated fusible link
- Mechanically activated under thermal stress at 135°F (57°C) to release system

Ceiling Attachment

- Spring steel twist-on to lock securely onto the ceiling
- Mounting hardware allows for a 360 degree mounting of the fire suppression link equipped hanger and the partition frame

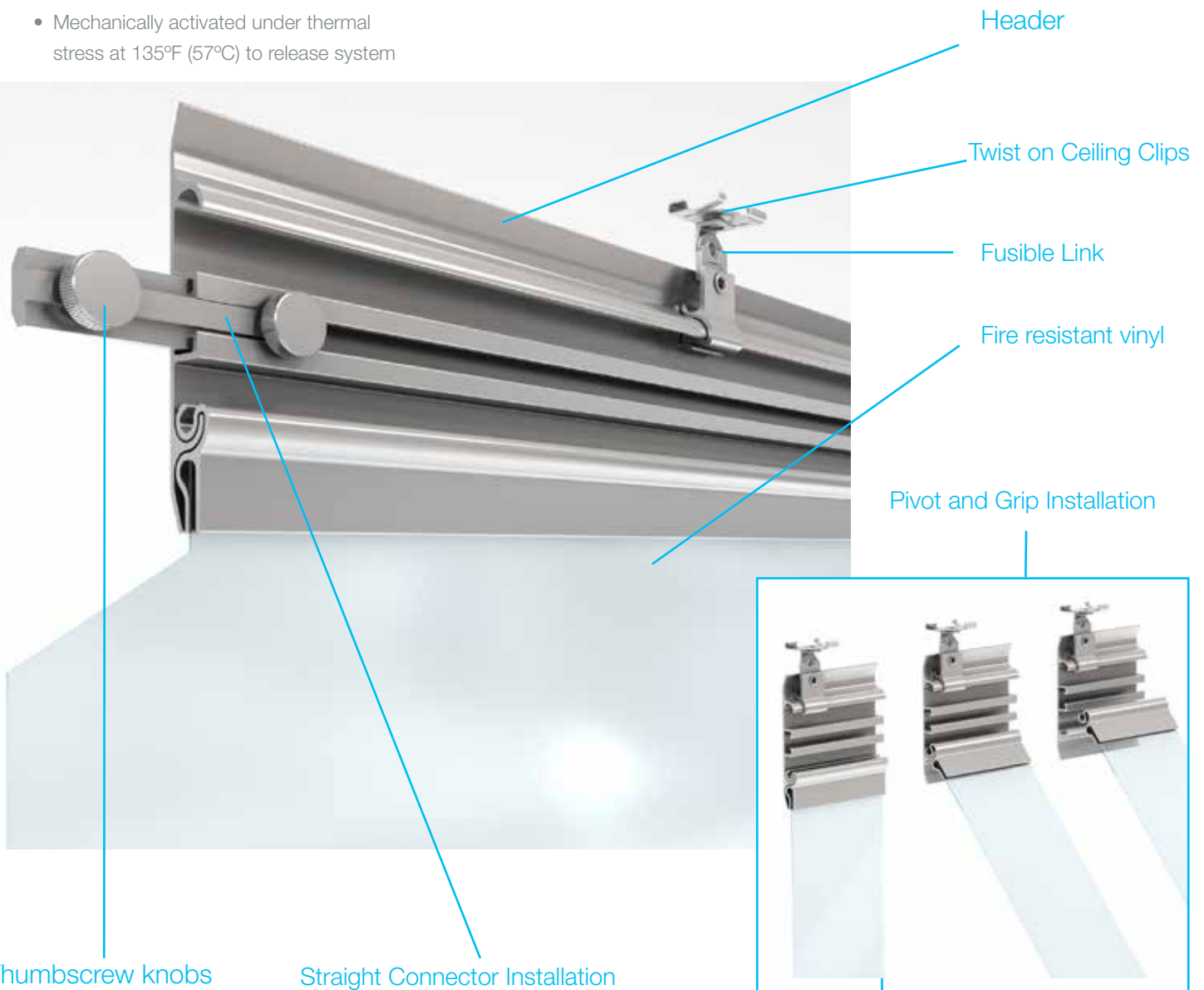
Lengths

Modular heights to fill the following gaps:

- 0-36" (0 - 91cm)
- 36-96" (91cm - 244cm)
- 96-144" (244cm - 366cm)

Standard Rail Length

- 4' (1.2m)



Hard Partitions

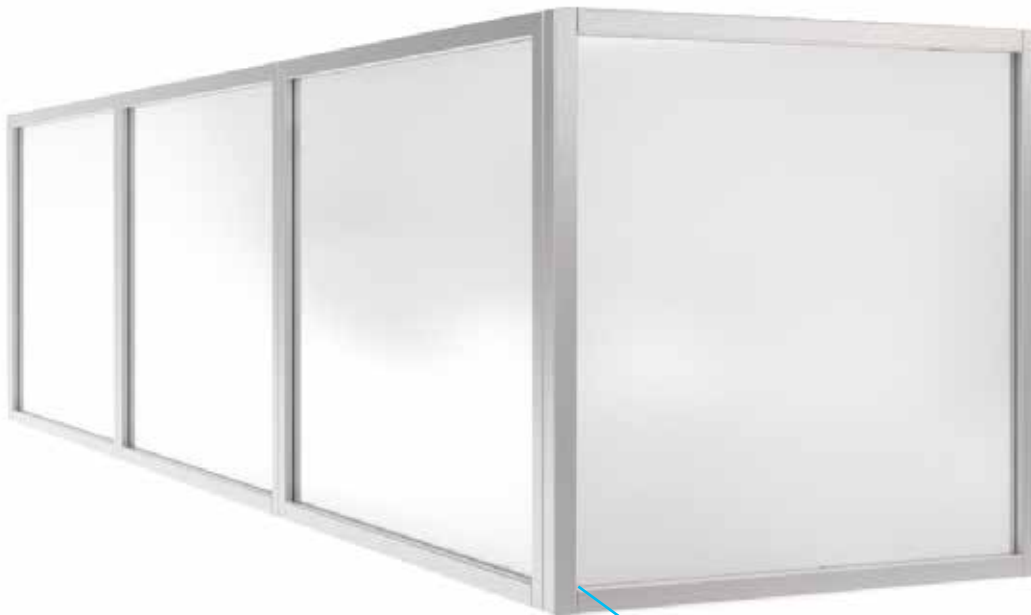
Versatile Partition with a Rigid Design

Tate ContainAire® Hard Partitions are an exciting alternative to soft partitions. Constructed of anodized aluminium, the partitions can be customized to seal numerous gap sizes and areas. Tate's Hard Partitions easily attach to other ContainAire products when available.

Arriving with preassembled panels and supplied brackets, installation is quick and simple. The ContainAire Partition kit includes all of the components and brackets required to assemble and install the hard partition system.

Features & Benefits

- Modular design (all parts screw together)
- Transparent or semi-transparent panel
- Pre-assembled for easy installation
- Partition frame available in anodized aluminum
- Compression gaskets efficiently seal and minimize air leakage



Close up of
Corner Connection



Hard Partitions

Custom Sized for Each Application

View Panel Options

- Clear Polycarbonate
 - Fully transparent
 - ASTM D-635 listed
 - 6mm thick with edge-sealing gaskets
- Multiwall Polycarbonate
 - Semi-transparent
 - Compliant to the new NFPA 75 2013 requirements
 - ASTM E-84 and ASTM D-635 listed
 - 6mm thick with edge-sealing gaskets
 - UL 94 Listed

Dimensions

- Custom sizes
- Max Height 96" (244cm)
- Max Width 48" (122cm)
- Depth 1.575" (4cm)

Finish Options

- Clear Anodized
- Black Anodized

Example of containment design with ContainAire Hard Partitions and Single Hinged Door



ContainAire Hard Roof

Energy Efficient Solution for Cold Aisle Systems

Tate's unique hard panel roof fully segregates hot and cold air, improving the cooling capacity of any data center. It attaches to the top of the rack, fully supported by the racks, and lies flat to avoid interference with other overhead obstructions and extrusions. Should a fire occur, the roof panels drop away to allow overhead suppression systems to work within the aisle.

Incorporating clear, black, or white anodized aluminum tracks, Tate's hard roof has been engineered to provide long lasting results. The ContainAire hard roof kit includes all of the components and fasteners required to assemble and install the roof containment system.

Features & Benefits

- Pre-assembled sections for quick easy installation
- Drop away tiles allow for use under water sprinkler system when permitted by code
- Custom aisle widths
- Thin profile to prevent overhead obstructions
- Modular design works with any aisle length



ContainAire Hard Roof

Roof Design

- Aluminum tracks available in black, white, or clear anodized aluminum
- 0.013" (0.3mm) thick clear or translucent rigid vinyl inserts

Drop Away Panels

- Clear
- Translucent

Fire Requirements

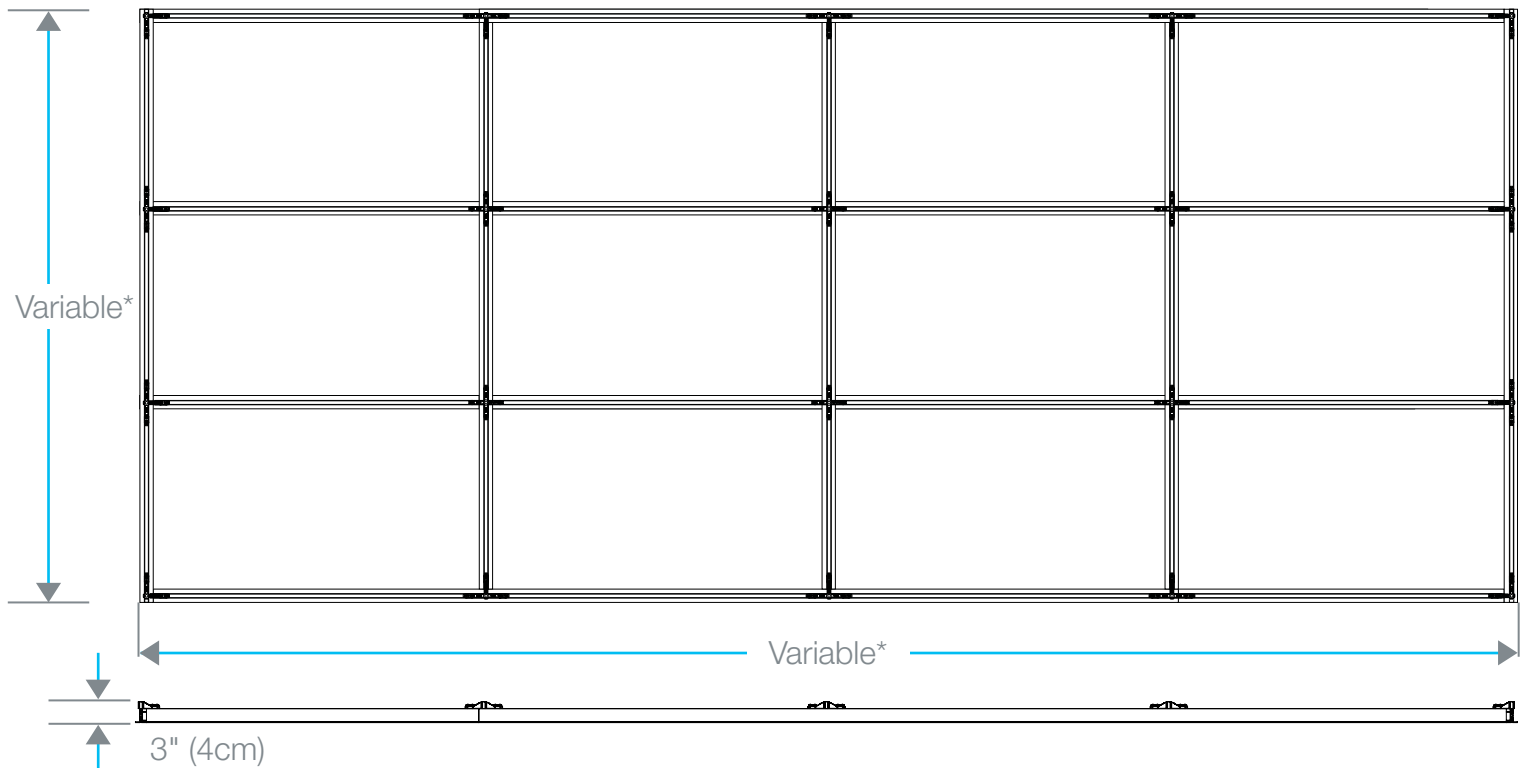
- Fire resistant vinyl meets the requirements of:
 - Class A Fire Rated
 - CA State Fire Marshal Listing No. 2200-1622:0100
 - Listed by Underwriters Laboratories and FM Global approved for installation beneath fire sprinklers

Dimensions

- Custom sizes available
- 2" Grid Height / 3" Max Height

Weight

- 0.65 lb/ft² (3.17 kg/m²)



* Tate's hard roof can be custom-sized to fit your specific application needs. 16' x 12' (488cm x 366cm) nominal size is shown

Air Sealing Grommets

By-pass air, which is any air delivered into the data center that is not consumed by the equipment and exhausted as waste heat, can have a significant impact on the cooling capacity of a data center.

Tate's air sealing grommets are designed to improve the energy efficiency and air sealing performance of your data center by preventing leakage from the raised floor plenum when penetrations are required for power and data cables above the floor.

Tate has identified a standard cut-out location that works with any rack to ensure that the cutout is always in the proper location inside the back door. Tate's unique standardization option means that the time and mess associated with field cutting is eliminated.

Wave

The Wave is a 8.75" x 11" injection molded ABS plastic grommet supplied with an optional rigid lid capable of supporting up to 250lbs (113kgs)



Mini

Designed to seal small cable openings in the raised floor of new or existing computer rooms. The 5" x 2.5" opening offers flexibility for data centers that have multiple cable opening sizes.



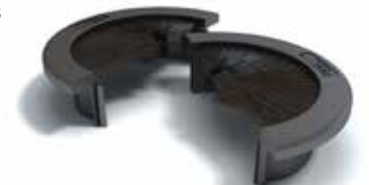
Split Integral

The large 32 square inch usable cabling area accommodates a variety of cabling requirements, including 100 amp power connectors



Round

The Split feature of the Round 4" allows product installation or removal without disturbing cables. Designed to seal openings in new and existing raised floor cutouts to block bypass airflow and maximize cooling system efficiency.



Surface Mount

Seals a variety of existing raised-floor panel cutouts creates flexibility by allowing tiles to be removed without capturing cables. Available in three different length and width dimensions.



Extended

Designed to seal a variety of existing larger openings, with the added flexibility of modification for unique openings. Can be modified to seal unique cable openings and areas such as gaps around CRAC & CRAH units.



Grommet Name	Area	US Unite of Measurement (Inches)	Metric (mm)
Wave	Usable Cable Area	7 x 5 7/8	197 x 149
Split Integral	Usable Cable Area	8 x 4	203 x 102
Surface Mount	Usable Cable Area	10 x 7	254 x 178
Mini	Usable Cable Area	5 x 2 1/2	127 x 64
Round	Usable Cable Area	4	102
Extended	Usable Cable Area	22 2 1/2	559 x 64

Rack Level Management

Snap In Blanking Panels

Blanking panels eliminate the migration of hot and cold air through unoccupied areas of an IT equipment rack. Ergonomically designed for simple tool free installation. Also available with quick view temperature strips that display a temperature range from 50°- 102° F (10° - 38.8° C)



Pass Through Blanking Panels

This innovative aluminum and Hybrid Brush Technology panel cost effectively controls airflow. Designed to provide an effective airflow sealing solution when used in conjunction with pullout switches or servers that may be occasionally extracted.



Full Rack Blanking Panels

Designed to seal up to 42U of opening in the server rack, the Full Rack Blanking Panel Kit greatly reduces bypass airflow by eliminating the gaps in the server rack and creating a contained server rack environment.



Aisle Level Management

Under Rack Panels

Designed to seal large and unique openings found under various sized racks and cabinets, the Under Rack Panel allows easy modifications for new and retrofit applications.



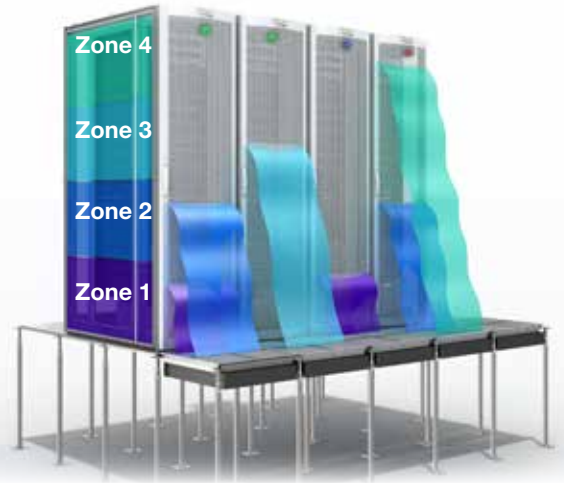
Air Sealing Tape

Tate's air sealing tape is an innovative time released, self-expanding tape that provides an excellent seal for unique spaces with varying dimensions.



SmartAire® MZ

Automatic Airflow Controls



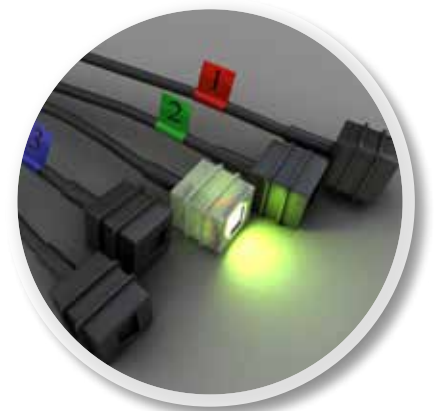
SmartAire® MZ

The new SmartAire MZ automatic variable-air-volume damper offers the most granular airflow control available for a data center. The unit monitors and adjusts cooling independently to 4 separate zones to allow for variable loads and partially deployed areas within a rack. During equipment changes, the unit automatically re-balances the airflow in the facility without manual control adjustments.

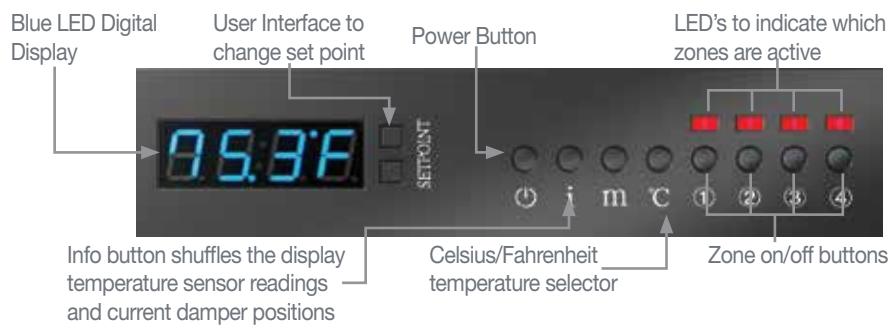
A SmartAire MZ Basic option is also available as a manual variable-air-volume damper with a single temperature probe and rack-mounted LED temperature status indicator.

Key Performance Characteristics

- Automatically re-balances airflow during equipment refresh or tenant changes
- 0-22kW supported IT load with DirectAire panel
- Fail safe operation: opens 100% during failure
- Four zone damper positions are variable from 0-100%
- Rack-Mounted LED Temperature Status Indicator
- Multiple control options available
 - Quad - control of each of the individual 4 zones
 - Dual - zones 1&2 and 3&4 are controlled together
 - Single - entire unit acts a single zone
 - P - pressure differential sensor
 - T - technician activated unit



The SmartAire MZ features a rack face-mounted LED temperature status indicator. The LED provides an at-a-glance indication of temperature by glowing blue, green, or red based upon the preset range.



Improved Containment Design

Eliminate Server Leakage in Contained Cold Aisles

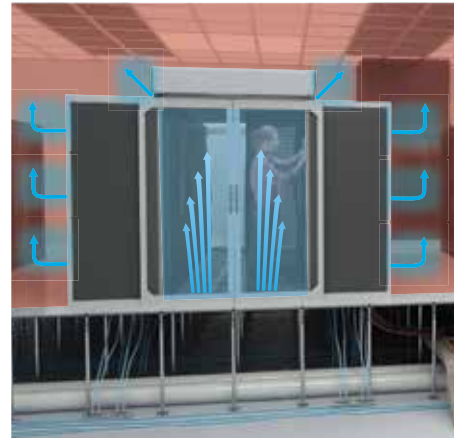
SmartAire MZ's Pressure Sensing mode is designed for situations where the contained aisle or rack experiences a variable load profile.

When servers enter idle mode they draw less air from the contained system, causing static pressure to increase. As static pressure builds in the aisle, the air will also be forced through servers even if the fans are idle or off. This wasted energy can be solved with the use of SmartAire MZ.

When installed under airflow panels, SmartAire MZ can vary the airflow into a contained system to satisfy a desired static pressure, reducing bypass air. SmartAire MZ monitors the static pressure differential from the contained cold aisle to the hot aisle in order to maintain a balance when rack loads vary. This balance reduces bypass airflow through servers, racks and other containment structures.

Static Pressure (Pa)	DirectAire CFM (L/s)	CFM @ 100% (L/s)	CFM @ 0% (L/s)
0.02 (5Pa)	1151 (543)	1018 (480)	126 (59)
0.04 (10Pa)	1626 (767)	1426 (673)	181 (85)
0.08 (20Pa)	2318 (1093)	1998 (943)	260 (123)
0.10 (25Pa)	2594 (1224)	2226 (1051)	292 (138)

Cold Aisle Containment Air Leakage



Without SmartAire® MZ Dampers in the cold aisle to maintain a neutral static pressure, conditioned air will leak through idle servers and other gaps in the containment structure.

Increase Productivity

On Demand Cooling to Allow for Longer Occupancy in Contained Hot Aisles

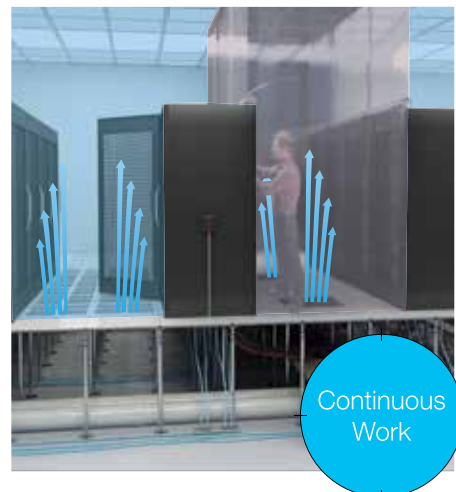
The Hot Aisle in a containment system can often exceed acceptable working conditions, meaning that the amount of time which a technician can work on the equipment is reduced, limiting productivity. OSHA exposure limits for working environments indicate a certain ratio of rest and work when working in high temperatures.

SmartAire MZ's Technician Mode gives the technician the ability to enter the hot aisle by controlling the temperature of the aisle. The technicians achieve this by activating the unit which modulates the amount of cool plenum air which enters the hot aisle.

Before the technician enters the hot aisle, the units are activated by a user supplied trigger. Once activated, the units automatically modulate to allow cool air to reach the hot aisle. Once the established temperature is reached, the tech can comfortably and easily work in the contained aisle without the need for breaks.

Static Pressure (Pa)	DirectAire CFM (L/s)	CFM @ 100% (L/s)	CFM @ 0% (L/s)
0.02 (5Pa)	1151 (543)	945 (446)	51 (24)
0.04 (10Pa)	1626 (767)	1313 (620)	73 (34)
0.08 (20Pa)	2318 (1093)	1824 (861)	106 (50)
0.10 (25Pa)	2594 (1224)	2226 (1051)	292 (138)

Work Continuously in the Hot Aisle



SmartAire® MZ provides on-demand cooling; lowering temperatures in a contained hot aisle allowing the technician to safely work on equipment in the aisle for an extended period of time.



Tate has been an industry leading global provider of innovative next generation products for data center applications for over 50 years. Our world-class manufacturing plants have the flexibility to create modular solutions quickly with up-front cost optimization and Tate's in-house engineering team has the experience and industry knowledge to design the best solutions from concept to completion.

Our wide range of custom manufactured data center products include raised access floors, structural ceilings, and containment, as well as, airflow panels and controls which work together to maximize your data center's performance. Tate is your single source solution builder for your data centre.

Corporate Headquarters:

7510 Montevideo Road,
Jessup, MD 20794
Tate Hotline: 1-800-231-7788
Tel: +1 410 799 4200 Fax: +1 410 799 4207

Production Facilities:

7510 Montevideo Road,
Jessup, MD 20794
52 Springvale Road,
Red Lion, PA 17356
Tel: +1 717 244 4071 Fax: +1 717 246 3437

Canadian Sales & Support Office:

880 Equestrian Court, Oakville,
ON L6L 6L7 Canada
Tate Hotline: 1-800-231-7788
Tel: +1 905 847 0138 Fax: +1 905 847 0141

Australian Sales & Support Office:

28 Biloela Street, Villawood NSW 2163
Tel: +61 02 9728 4111 Fax: +61 02 9728 3088

Asia Sales & Support Office:

19 Cecil Street
#05-15, 5th Floor, The Quadrant
Singapore 049704
Tel: +65 6653 5358

Central and South American Sales & Support:

Tel: +1 443 995 1808

European Sales & Support:

B16 Ballymount Corporate Park,
Ballymount Avenue,
Ballymount, Dublin 12, Ireland
Tel: +353 (0) 87 1238383

Middle East Sales & Support:

Jebel Ali-Lahbab Road (E 77 Road)
Dubai Investment Park
United Arab Emirates
Tel: +971 56 199 8368

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