

# Airflow Panels & Controls

## DirectAire® Panels



### Strong, Efficient, High Capacity Directional Airflow Panels

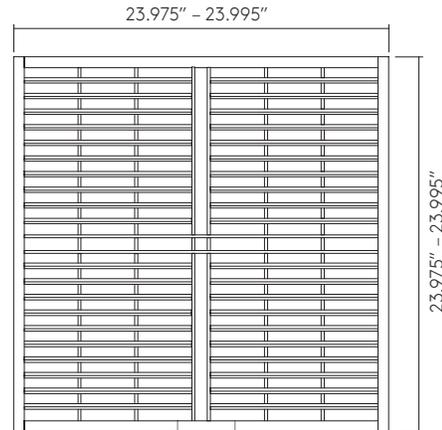
Ideal for creating a virtual containment system, the steel DirectAire® panel directs the airflow toward the server rack to significantly reduce bypass air. DirectAire is designed to evenly distribute airflow across the full height of a standard 42U rack. DirectAire X2 is designed to divide the airflow evenly in two directions to provide even distribution to racks on both sides of a cold aisle.



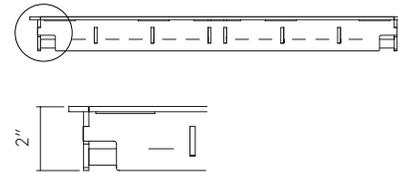
Cool over 19 kW with  
2594 CFM @ .10" H2O

### Profile

#### Top View



#### Side View



### Key Performance Characteristics

- Reduce capital expenditures on cooling infrastructure by up to 40%
- Save up to 40% in annual fan energy without the use of containment
- 68% open area provides 2,594 CFM @ .1" H2O
- Cool over 19 kW per rack @ .1" H2O
- DirectAire X2 cools up to 10 kW per rack @ .1" H2O
- 2,500 lbs design load
- 1,500 lbs 10 pass rolling load capacity
- Available in 24" and 60 cm panel sizes

### Load Performance Chart\*

Airflow Panel	Understructure	System Weight (lbs/sqft)	Static Loads (lbs)			Rolling Loads (lbs)		Impact Load (lbs)	Capture Index* (%)	Open Area (%)
			Design Load	Safety Factor	Ultimate Load	10 Passes	10,000 Passes			
DirectAire®	Bolted Stringer	13.0 (63 kg/m <sup>2</sup> )	2500 (11.1 kN)	Min. > 2	>5000 (22.2 kN)	1500 (6.67 kN)	1500 (6.67 kN)	200 (91 kg)	93	68
DirectAire® X2	Bolted Stringer	13.0 (63 kg/m <sup>2</sup> )	2500 (11.1 kN)	Min. > 2	>5000 (22.2 kN)	1500 (6.67 kN)	1500 (6.67 kN)	200 (91 kg)	93	68

All tests are performed using CISCA's Recommended Test Procedures for Access Floors with the exception of Design Load.

1. System Design Load is based on permanent set  $\leq 0.010"$  and is verified by loading panels in accordance with the CISCA concentrated load method but with panels installed on actual understructure instead of steel blocks. (Testing on blocks does not represent performance of an actual installation.) Ultimate, Rolling, and Impact Load tests are performed using CISCA Test Procedures.
2. Safety Factor is Ultimate Load divided by Design Load.

### CFM & kW Capacity

Airflow Control	0.02" H <sub>2</sub> O (5 Pa)		0.04" H <sub>2</sub> O (10 Pa)		0.06" H <sub>2</sub> O (15 Pa)		0.08" H <sub>2</sub> O (20 Pa)		0.10" H <sub>2</sub> O (25 Pa)	
	CFM (L/s)	(kW/Rack)	CFM (L/s)	(kW/Rack)	CFM (L/s)	(kW/Rack)	CFM (L/s)	(kW/Rack)	CFM (L/s)	(kW/Rack)
w/o Damper	1151 (543)	8.5	1626 (767)	12.0	2007 (947)	14.8	2318 (1093)	17.1	2594 (1224)	19.1
w/OBD	986 (465)	7.3	1427 (673)	10.5	1789 (844)	13.2	2056 (970)	15.2	2331 (1100)	17.2
w/PA Quad	2012 (950)	14.9	2061 (973)	15.2	2111 (996)	15.6	2158 (1018)	15.9	2199 (1038)	16.2

Cooling capacity per rack is based on: CFM x Capture Index % / 126 (CFM needed to cool 1 kW @ 25° ΔT).  
Tests Conducted with fans operating at 100% power and dampers 100% open.

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# DirectAire® Airflow Controls

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### Opposed Blade Damper (OBD)

Tate's Single-zone Opposed Blade Damper offers a dramatic airflow improvement over traditional manual slide dampers. It features a nearly infinite range of adjustment and very little airflow resistance. Easy access through the panel's surface allows for quick adjustment of airflow balancing to IT hardware.



Opposed Blade Damper for use with DirectAire®, DirectAire® AI, DirectPerf 32% and GrateAire® Panels

### Multi-Zone Opposed Blade Damper

Tate's multi-zone opposed blade damper enables the airflow delivery to be balanced based on the specific load in the rack. The damper allows data center operators to individually adjust airflow to three zones within the rack – top, middle and bottom.



Multi-zone Opposed Blade Damper for use with DirectAire®, DirectAire® AI or DirectPerf 32% Panels

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#### Key Performance Characteristics

- Provides more airflow at 100% open than slide dampers
- Easily adjustable from above without panel removal
- Drop-in design is for use with DirectAire® and allows for easy retrofits under airflow panels
- Dual-zone damper available for DirectAire X2

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#### Key Performance Characteristics

- Reduces cooling energy usage
- For use with full or partial loaded racks
- Provides the most granular airflow control available
- Easily adjustable from above without panel removal
- Drop-in design allows for easy retrofits under airflow panels

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## PowerAire® Quad Fan Assisted Airflow Controls

The PowerAire® Quad is equipped with 4 fans connected in parallel to provide built-in redundancy. This unit is only 4" deep making it ideal for retrofit situations with finished floor heights as low as 7.5". This unit can cool up to 16 kW of supported IT load per PowerAire® / DirectAire® combination.



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#### Key Performance Characteristics

- Zero maintenance
- Installation can be carried out by IT staff
- Multiple control options available
- User programmable set point
- EC fan technology is variable from 0-100%
- Available in 100-120 V or 200-240 V power options
- Viewable Peak Temp for walk-through check of racks
- Available Auto Transfer Switch offers A/B power feed
- 24" and 60 cm raised floor compatible