

# Highly-efficient Air Cooling for High-Density Deployments

## Designed for High Efficiency & Scale

**Delta Cube** (Delta<sup>3</sup>) arrays capture and remove heat at its source, resulting in a hyper-scalable and ultra-efficient environment that dynamically adapts to IT loads. The Delta<sup>3</sup> design improves infrastructure efficiency and enables customers to Expand on Demand, accommodating densities of up to 50 kW per rack. The cooling system is based on innovative technologies addressing three aspects of thermodynamics: heat absorption, heat transport and heat rejection.

### Heat Absorption

The Delta<sup>3</sup> removes heat at the source, utilizing anemometry to measure velocity between hot and cold aisle to enable a higher Delta-T. Hot air is drawn from the racks exhaust and channeled through our highly efficient microchannel coils.

- Exponentially greater heat absorption than traditional environments
- Absorbs Delta-Ts as high as 45°F
- Accommodates high, low and mixed rack power capacities
- Facilitates scale-up/scale-in-place
- Higher efficiencies: fan power is reduced to 1% of IT load versus 10% for a typical CRAH or CRAC unit

### Heat Transport

The heat is transported from the Delta<sup>3</sup> to Aligned's chiller units via chilled water loop in dramatically smaller diameter pipes than traditional systems.

- Closed loop system eliminates use of added outside water
- Combined with a state-of-the-art waterless heat rejection system to create a sustainable, waterless solution

### Heat Rejection

Our patented and award-winning data center cooling technology removes heat, rather than pushing cold air into the data hall.

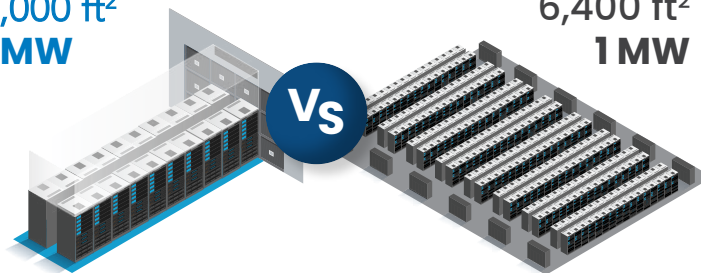
The Delta<sup>3</sup> array provides 350 kW of heat rejection in just four feet, compared to 38 feet of traditional CRAH units. It also offers industry-leading Power Usage Effectiveness (PUE).



### Aligned 1MW Data Hall

- 2,000 Ft<sup>2</sup>
- 0 CRACs
- 1MW N+2
- 10 Cabinets per row
- 50 kW per cabinet
- 2 Rows

2,000 ft<sup>2</sup>  
1 MW



6,400 ft<sup>2</sup>  
1 MW

### Legacy 1MW Data Hall

- 6,400 Ft<sup>2</sup>
- 12 CRACs
- 1MW N+2
- 16 Cabinets per row
- ~6.25 kW per cabinet
- 16 rows

## Delta<sup>3</sup> Cooling System

- Flexibility, adaptability and reliability at any load
- Efficiency in any climate with an industry-leading PUE
- High, mixed and variable rack densities of 1-50kW in the same row
- Increase density without reconfiguring infrastructure or stranding capacity
- Consume less space, electricity and 0 water for significant cost savings
- Easily integrates with DeltaFlow~ to accommodate AI /ML /HPC deployments



## Advantages of Aligned's Delta<sup>3</sup> Cooling Technology

### Reliability

We deconstructed the standard chiller plant and put the major components in the most efficient and reliable places, eliminating complexity in areas where most data centers fail.

- Delta<sup>3</sup> requires minimal scheduled maintenance and is continually monitored with real-time data to provide our service department preventative maintenance alerts

### Hyper-Scalability

Our technology is incrementally scalable which allows you to deploy what you need, where and when you need it, and reconfigure as your needs change

- Pre-fabricated components for easy, fast and efficient deployment
- Scale vertically or horizontally and support 1-50kW per rack within the same row

### Responsiveness

IT loads can vary. Our technology quickly and easily responds, and optimizes in real-time.

- Delta<sup>3</sup> Arrays are close-coupled with the racks, so the heat removal system instantly ramps up and down based on server demand
- Variable fan speeds and pumps respond in real-time to changing loads, so your system is responsive to today's and tomorrow's needs

### Sustainability

Our cooling system delivers efficiency at any load, in any climate, and regardless of location to support your stewardship goals.

- The system utilizes less energy and 0 water
- Reduces environmental impact and lowers your Total Cost of Ownership (TCO)

Aligned  Sustainability

Aligned offers a standard delivery model that leverages our advanced supply chain methodology, Delta<sup>3</sup> cooling system, and industry partners.



**Contact Aligned to learn more about the Delta<sup>3</sup> cooling technology.**

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#### ABOUT ALIGNED

Aligned Data Centers is a leading technology infrastructure company offering innovative, sustainable, and adaptive Scale Data Centers and Build-to-Scale solutions for global hyperscale and enterprise customers. Our intelligent infrastructure allows densification and vertical growth within the same footprint, enabling customers to scale up without disruption, all while maintaining industry-leading Power Usage Effectiveness (PUE). By reducing the energy, water and space needed to operate, our data center solutions, combined with our patented cooling technology, offer businesses a competitive advantage by improving sustainability, reliability, and their bottom line.

**EXPAND  
ON  
DEMAND**

